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OFFICIAL GAZETTE

UNITED STATES PATENT OFFICE

VOL. 62

JAN. - MAR.

1893

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

VOLUME LXII.

JANUARY 3 TO MARCH 28, INCLUSIVE.

1893.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1893.

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ERRATA.

489,141, page 55, second claim, line 3, after the word "heater," insert the words *said tank*, and line 6 strike out the words "said tank."

489,394, page 135, in heading, assignment, strike out the words "one-half."

489,689, page 240, in heading, name of inventor, for "William J. Rauton" read *William J. Ranton.*

489,763, page 263, strike out drawing.

490,510, page 538, in heading, residence of inventor, for "Breckenridge, Mississippi" read *Breckenridge, Missouri.*

491,259, page 809, in heading, name of assignee, for "The Wainwright Manufacturing Company" read *The Wainwright Manufacturing Company of Massachusetts.*

491,282, page 816, second claim, lines 6-8, strike out the clause "operating subsequent to, and angularly with respect to the plane of movement of, said bill-upturning former" and insert the same after the words "bill-closing former," line 8, same claim.

491,673, page 964, first claim, line 1, for "producting" read *producing.*

491,902, page 1035, in heading, name of assignee, for "Frank M. Ferrm" read *Frank M. Ferrin.*

491,915, pages 1038 and 1039, strike out heading, drawing, and claim and insert CANCELED.

491,916, page 1039, strike out heading, drawing, and claim and insert CANCELED.

492,270, page 1166, in heading, name of assignee, for "The Edward P. Allis & Company" read *The Edward P. Allis Company.*

492,347, page 1189, in heading, name of assignee, for "The Edward P. Allis & Company" read *The Edward P. Allis Company.*

492,420, page 1225, in heading, for "Specimens" read *No specimens.*

492,440, page 1232, in heading, in assignment, for "one-half" read *one-third.*

492,841, page 1378, first claim, line 4, insert the word *as* after the word "serving."

492,890, page 1396, in heading, insert, after residence of inventor, *assignor to the E. C. Atkins & Company, same place.*

493,338, page 1549, in heading, name of inventor, for "Eduard Petrini" read *Edvard Petrini.*

493,404, page 1569, in heading, name of inventor, for "Allen W. House" read *Allen W. Honse.*

493,410, page 1571, in heading, after residence of inventor, insert *assignor of one-half to Herbert M. Dickinson, same place.*

493,636, page 1661, line 3 of claim, for "fingers" read *figures.*

493,691, page 1679, fourth claim, line 3, for "belt" read *bolt.*

494,292, page 1882, in heading, name of assignee, for "The Saladin Pneumatic Malting Company" read *The Saladin Pneumatic Malting Construction Company.*

494,370, page 1906, in heading, name of assignee, for "William J. Wicks" read *William J. Wickes.*

11,307, (reissue,) page 891, in heading, assignees' name, for "William White & Co." read *Williams, White & Co.*

22,227, (design.) page 1200, in heading, after residence of inventor, insert *assignor of one-half to The William Cramp & Sons Ship and Engine Building Company, Philadelphia, Pennsylvania.*

Commissioner's Decisions, page 163, first column, lines 8, 24, and 40, for "Lannartson" read *Lennartson.*

Commissioner's Decisions, page 589, first column, lines 8 and 19, for "March" read *May.*

Commissioner's Decisions, page 741, first column, line 28, insert *Mr. Ephraim Banning, Mr. Edmund Wetmore, Mr. Charles H. Aldrich, and Mr. Thomas A. Banning for the appellant. Mr. L. L. Bond and Mr. Charles E. Pickard for the appellees.*

Commissioner's Decisions, page 1064, first column, line 37 from bottom of the page, for "50" read 58, and on page 1065, first column, line 24, for "50" read 58.

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

JANUARY–MARCH, 1893.

THE OFFICIAL GAZETTE OF THE United States Patent Office.

[BY AUTHORITY OF CONGRESS.]

VOL. 62.—No. 1. TUESDAY, JANUARY 3, 1893. PRICE—$5 per year.

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Notice.

(ORDER No. 789.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 26, 1892.

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

W. E. SIMONDS,
Commissioner.

File-Wrappers—Entries On.

(ORDER No. 767.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 25, 1892.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2-384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

W. E. SIMONDS,
Commissioner.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Price of Printed Copies of Patents.

Attention is called to the fact that under date of **May 14, 1891**, the price of uncertified printed copies of patents was fixed at the *uniform price of ten cents each*, whether purchased singly or in quantities.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of January 3, 1893.

Patents	469	No. 488,976 to No. 489,444, inclusive.
Designs	11	No. 22,092 to No. 22,102, inclusive.
Trade-Marks	27	No. 22,274 to No. 22,300, inclusive.
Labels	None.	
Reissue	1	No. 11,296.
Total issue	508	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	3		Nevada		
Arizona Territory			New Hampshire	1	
Arkansas	5		New Jersey	16	
California	9		New Mexico Ter	1	
Colorado	4		New York	64	8
Connecticut	14		North Carolina	4	
Delaware			North Dakota	1	
District of Columbia	7	1	Ohio	34	1
Florida	3		Oregon		
Georgia	4		Pennsylvania	51	3
Idaho			Rhode Island	5	
Illinois	66	1	South Carolina	2	
Indian Territory			South Dakota		1
Indiana	12		Tennessee	3	
Iowa	13		Texas	12	
Kansas	5		Utah Territory	1	
Kentucky	1		Vermont	1	
Louisiana	5		Virginia	4	
Maine	3	1	Washington	5	
Maryland	6		West Virginia	1	
Massachusetts	34	4	Wisconsin	11	
Michigan	14		Wyoming		
Minnesota	5	2	U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	7	2			
Montana	2		Total to citizens of the United States	444	25
Nebraska	5	1			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic			Netherlands		
Austria-Hungary	2		Newfoundland		
Belgium			New South Wales	2	
Brazil			New Zealand		
British Guiana			Norway		
Canada	1		Porto Rico		
Cuba, Republic of			Portugal		
Cuba	1		Russia	1	
Denmark			Scotland		
England	11		South Australia		
France	3		Spain		
Germany	11	2	Sweden	1	
Guatemala			Switzerland	1	
India			Tasmania	1	
Hawaii			Victoria	1	
Ireland					
Italy					
Mexico			Total to citizens of foreign countries	36	2

APPLICATIONS UNDER EXAMINATION.

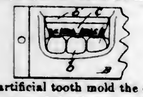
Condition at Close of Business December 27, 1892.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Nov. 29	Dec. 21	79
	Between one and two months in arrears.			
6	Furniture, Toilet, Umbrellas and Canes, etc.	Nov. 7	Dec. 17	257
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Oct. 29	Dec. 17	147
24	Sewing-Machines and Apparel	Oct. 29	Dec. 15	189
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Oct. 29	Dec. 12	253
2	Farm Stock, Products, etc	Oct. 27	Dec. 7	271
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 1	Dec. 5	207
12	Mechanical Engineering, Stone-Service, etc.	Nov. 7	Dec. 2	249
21	Textiles, etc	Nov. 1	Dec. 1	216
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Oct. 28	Nov. 28	167
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Oct. 28	Nov. 26	218
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Nov. 2	Nov. 16	201
19	Stoves and Furnaces	Oct. 28	Nov. 8	380
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Oct. 27	Oct. 31	262
9	Hydraulics, Fire-Extinguishers, etc.	Oct. 28	Oct. 29	389
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Oct. 28	Oct. 26	278
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Oct. 31	Oct. 10	338
	Between two and three months in arrears.			
18	Steam-Engineering, etc	Oct. 12	Dec. 10	144
23	Instruments of Precision, Acoustics, Optics, etc.	Oct. 1	Nov. 30	250
10	Carriages and Wagons and Railway-Cars.	Oct. 26	Nov. 26	339
22	Fire-Arms, Navigation, Signals, etc.	Oct. 1	Nov. 26	288
7	Harvesters, Games and Toys	Oct. 22	Nov. 25	475
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Oct. 22	Nov. 9	196
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Oct. 22	Nov. 5	298
17	Paper-Manufactures and Printing.	Oct. 13	Oct. 19	309
4	Civil Engineering, etc	Oct. 15	Oct. 17	379
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13	Metal-Working, Arms and Projectiles, etc.	Aug. 29	Nov. 30	237
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Sept. 24	Nov. 25	300
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Aug. 29	Oct. 13	323
	Between four and five months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 1	Dec. 2	384
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	May 14	Oct. 20	549
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	Under one month in arrears.			
	Designs	Dec. 19	Dec. 19	38
	Trade-Marks	Dec. 19	Dec. 20	56

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GRANTED JANUARY 3, 1893.

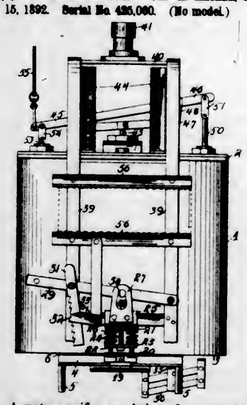
488,976. MOLD FOR ARTIFICIAL TEETH. WILLIAM T. ADAMS, Reading, Pa. Filed Apr. 4, 1892. Serial No. 427,667. (No model.)



Claim.—1. In an artificial tooth mold the combination with the part B for shaping the rear of the denture, of the removable piece or draw back C fitted thereto and provided with a stud or studs c for forming a recess in the base of the tooth, substantially as and for the purpose set forth.

2. In an artificial tooth mold the combination with the part B for shaping the rear of the denture of the removable piece or draw back C fitted thereto and provided with a depression c' and studs c whereby the base of each tooth in the denture will be formed with alternate recesses c and overhanging projections f', substantially as and for the purpose set forth.

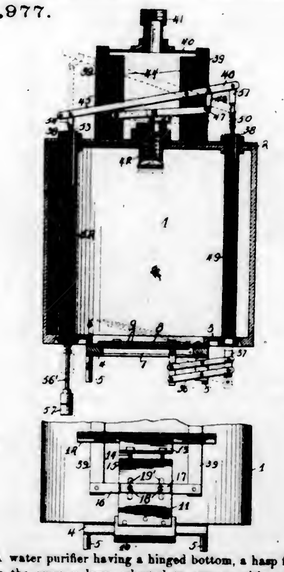
488,977. WATER-PURIFIER. JOHN H. ARCHER, St. Louis, Mo. Filed Mar. 15, 1892. Serial No. 425,060. (No model.)



Claim.—1. A water purifier consisting of a receptacle which is approximately elliptical in cross section, a hinged bottom fixed to the same, a valve or door fixed to the said bottom and adapted to close the space formed therein, a valve located in the top of the said receptacle and in communication with the interior thereof, a compound-lever movably attached to suitable supports above the said last named valve and adapted to be brought in contact with the same, when the said compound-lever is operated, and means attached to the said compound lever for opening the said valve carried by the hinged door when the valve located in the top of the receptacle is opened, substantially as described.

2. A water purifier having a hinged bottom, rods such as 22 attached to the hinge carried by the same, springs encircling said rods against which the movable plate 23 is adapted to be brought in contact, a bolt 24 passing through said plate 23 and attached to a plate 25, and a plate such as 27 provided with an elongated opening 28 which is adapted to receive a suitable projection carried upon the movable lever—substantially as described.

488,977.



3. A water purifier having a hinged bottom, a hasp flexibly attached to the same, a lever adapted to engage with said hasp, a ratchet tooth bar carried by the said lever the teeth of which are adapted to engage a suitable guide and a cam adapted to bear against said tooth-bar for holding the same against the said guide, whereby the said hasp is held in a locked position, substantially as described.

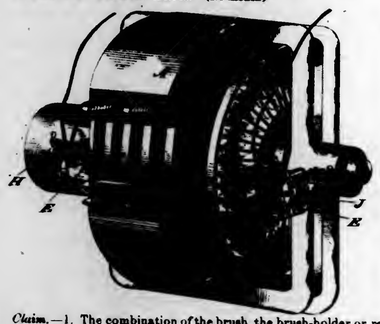
4. A water purifier consisting of a receptacle, having a hinged bottom, pipes passing through the same and in communication with the outside, a valve located in the top of the said receptacle, a compound-lever movably attached to suitable supports carried by the said receptacle, the short arm 47 of which is adapted to be brought in contact with said valve for opening the same, a pipe located in one of the said tubes carried by the said receptacle, and in suitable connection with the long arm 46 of the compound lever, the lower end of which is adapted to be brought in contact with a suitable device for opening the valve carried by the hinged bottom and an operating cord or rope adapted to be attached to the opposite end of the said arm 4 for operating the said valves simultaneously, substantially as described.

5. A water purifier having a compound lever attached to suitable supports secured to the top of the same, pipes such as 52 and 49 in movable connection with the said compound-lever, one of which is adapted to be brought in contact with a suitable device for opening the valve located in the bottom of the said purifier, a rod such as 56 attached to the opposite pipe 52, the lower end of which is adapted to be depressed, and pipes 38 encircling said pipes 52 and 49 for guiding the same and in communication only with the outside, substantially as described.

6. A water purifier consisting of a receptacle such as 1, parallel

oppositely located pipes 38 passing through the same and in communication with the outside only, a partially closed bottom 3 formed with or attached to the said receptacle, a hinged bottom such as 4, an elastic lock hinged to the said door, an opening 7 formed in the said bottom, a valve hinged to the said bottom 4 and adapted to normally close said opening, parallel levers movably attached to the said hinged bottom and having suitable guides attached thereto, one of which is adapted to come in contact with the said valve for opening the same, pipes such as 52 and 49 located within the said pipes 48, a compound lever movably attached to suitable supports carried by the said receptacle, the long arm 46 of which is in movable connection with the said pipes 52 and 49, and a short lever 47 movably attached to one of said supports and to the said long arm and adapted to be brought in contact with a suitable valve located in the top of the receptacle when the pipe 49 is depressed and brought in contact with the opposite guide carried by the parallel levers, substantially as described.

488,978. BRUSH-HOLDER FOR DYNAMOS AND ELECTRIC MOTORS. RALPH ASHLEY, Philadelphia, Pa., assignor, by mesne assignments, to the United Columbian Electric Company, of New Jersey. Filed Feb. 18, 1892. Serial No. 421,915. (No model.)



Claim.—1. The combination of the brush, the brush-holder or receiver, the follower, and the spring-actuated feed-wheel adapted to feed the follower and brush against the commutator, substantially as and for the purpose set forth.

2. The combination of the brush, the brush holder or receiver, the follower having a rearwardly extending arm, and the spring-actuated feed-wheel connected with said arm so as to push the follower through the receiver and feed the brush to the commutator, substantially as and for the purpose set forth.

3. A brush-holder for electric machines comprising a box or receiver adapted to contain the brush material, a follower working in said box and bearing against the brush material inserted therein, and a spring-actuated feed-wheel adapted to operate the follower and push it through the box so as to feed the brush material to the commutator, substantially as and for the purpose set forth.

4. In brush holders for electric machines, the combination of a box or receiver adapted to contain the brush material, a follower working in said box and having a rearwardly projecting extension, and a spring-barrel connected with said extension so as to push the follower through the receiver, substantially as and for the purpose set forth.

5. The combination, in brush-holders for electric machines, of the box or receiver adapted to contain the brush material, the follower provided with a toothed arm or extension, and the spring-actuated cog-wheel engaging said toothed arm, substantially as and for the purpose set forth.

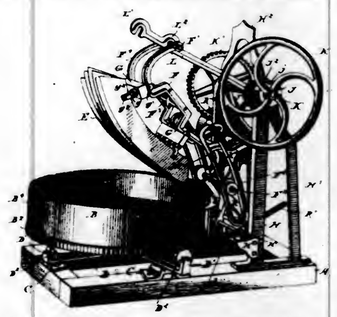
6. The combination, in brush-holders for electric-machines, of the box or receiver adapted to contain the brush material, the follower provided with a rack, and the spring-actuated cog-wheel journaled in hinged bearings, substantially as and for the purpose set forth.

7. The combination, with the box or receiver adapted to contain the brush material, of the follower provided with a rearwardly projecting rack-bar having a recess in its upper side, the spring-actuated cog-wheel, and the pawl adapted to engage the recess in the rack bar, substantially as and for the purpose set forth.

488,979. MEAT-CHOPPING MACHINE. WILLIAM H. ASHTON, Seward, Nebr. Filed Apr. 6, 1892. Serial No. 428,337. (No model.)

Claim.—1. In a meat chopping machine the combination with the main frame, of the bearing pieces secured thereto, the tripod resting in the bearing pieces and provided with friction pulleys, the base piece supporting the block mounted on said pulleys, and provided with a central bearing piece, substantially as described.

2. In a meat chopping machine, the main block comprising a base piece supporting the block, the base piece having a flange provided with external ratchet teeth, and having a central pivot formed therein, and a metallic ring fitted between the blocks and the flange, and projecting above the blocks, substantially as described.



3. In a meat chopping machine a cutter comprising a series of segmental knives, a frame composed of the curved bars and weights connected to the frame and interposed between the bars and the cutters, substantially as described.

4. In a meat chopping machine, a cutter comprising a series of segmental knives, a frame, weights attached to the frame, and bolts connected to the knives and attached to the weights, substantially as described.

5. In a meat chopping machine, a cutter comprising a series of knives, bolts having offsets connected to the side of the knives with the edges of the knives bearing on the offsets, the bolts being screw threaded and adapted to be adjusted in the support for the knives, substantially as described.

6. In a meat chopping machine, a cutter comprising a frame, weights secured to the frame, a series of knives, and bolts having offsets secured to the sides of the knives, the edges of the knives being in line with the body of the bolt, and the bolts being screw threaded and adapted to be adjusted in the weights, substantially as described.

7. In a meat chopping machine the combination with the rotating block, of the cutter having segmental knives, the frame of the cutter being provided with a curved extension projecting toward the front ends of the cutters, and a pitman connected to the said extension, substantially as described.

8. In a meat chopping machine the combination with the rotating block having a peripheral ratchet, of the plate supported on suitable standards, a pivoted rocking plate mounted thereon, the rocking plate being provided with a circumferential rib bearing on the supporting plate, substantially as described.

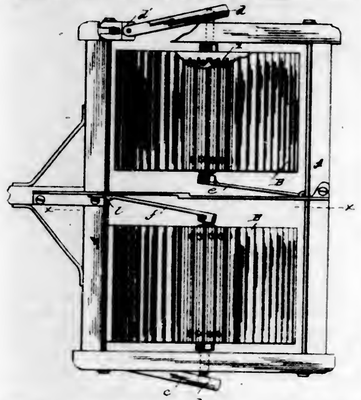
9. In a meat chopping machine the combination with the rotating block having an external ratchet, of a plate supported on suitable standards, a pivoted rocking plate mounted on said supporting plate, the pivoted plate having a peripheral flange, pawls mounted on either side of the pivot, springs for engaging said pawls, and an arm connected to the pivot plate whereby the pawls may be operated, substantially as described.

10. In a meat chopping machine the combination with the rotating block, a pivoted plate carrying pawls for rotating the block and having an extended arm, of the adjustable lever mounted in standards, and connected to the arm of the rocking plate, substantially as described.

11. In a meat chopping machine the combination with the rotating block, an oscillating cutter, the frame of which is provided with a shaft F^3, a pivoted plate carrying pawls for rotating the block, and having a projecting arm, a pivoted adjustable lever mounted in standards and connected to said extended arm, and arranged to be operated by the shaft F^3, the construction of the lever being such that it will be vibrated as the rocking cutter reaches the extremity of its movements in either direction, substantially as described.

12. In a meat chopping machine the combination with the block and means for intermittently rotating it, an oscillating cutter mounted on the block, and means for oscillating the same, the connections between the oscillating cutter and means for rotating the block, the arrangement being such that the block will be rotated when the cutter is resting with the end of the central plate of the cutter bearing on the block, substantially as described.

488,980. LAND-ROLLER. CHARLES L. PARRETT, East City, Mich. Filed Nov. 21, 1891. Serial No. 412,054. (No model.)



Claim.—1. In combination the frame work, a pair of rollers having independent shafts, the independent bars *e*, *f*, at the inner adjacent ends of said shafts each of said bars being pivotally connected to the frame to have both lateral and vertical movement, the universal connections between the said bars and their respective roller shafts, and the arms *c* connected to the outer ends of the roller shaft by a universal joint said bars being pivoted to the frame to move laterally and held against vertical movement, whereby the frame is supported by the said laterally movable levers, and the rollers permitted to adjust themselves laterally—substantially as described.

2. The described roller, consisting of the heads and a series of castings forming the periphery, each having a central projection and flanges on each side thereof, said flanges abutting against each other, and the means passing between the adjacent flanges to hold them in place, substantially as described.

488,981. SHIRT. JOSEPH A. BEDARD, Detroit, Mich. Filed Apr 19, 1892. Serial No. 429,697. (No model.)

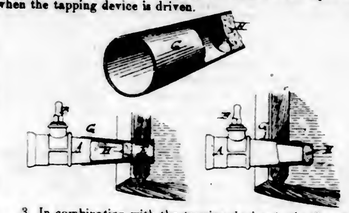


Claim.—In combination with a shirt body, a facing and neck-band made in a single piece, extending around the neck, down the two sides of the back opening, and having the end of one side facing returned upward and folded on itself, and the end of the other facing returned upward around the bight of the first mentioned facing, substantially as and for the purpose specified.

488,982. BUSHING. DAVID BURKARD, Waverly, Md. Filed Mar. 9, 1892. Serial No. 424,227. (No model.)

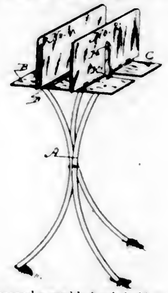
Claim.—1. A combined bushing and seal for cask-tapping devices, consisting of a conical shell or body adapted to fit snugly upon and to be driven with the tapping device, and a plug or disk independent of the cask bung, closing the smaller end of the shell, and serving, when the latter is applied to the tapping device, to seal the same during the driving operation.

2. As a new article of manufacture, a combined bushing and seal to be applied to and driven with a tapping device, the same consisting of a conical shell or body of compressible material to fit upon the tapping device,—and a seal or plug closing the smaller end of the shell and serving to seal the tapping device and to bear upon the bung when the tapping device is driven.



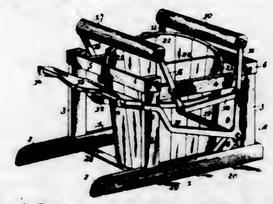
3. In combination with the tapping device A, the faucet F provided with tube C, and the removable bushing G fitting upon and projecting beyond the end of the tapping device, and of a size to fit within the bung hole of the cask, and a plug H applied to the smaller end of the bushing and adapted to be removed by the tube C after the bung has been removed, all substantially as shown and described.

488,983. BOOK-HOLDER. CHRISTIAN S. BYRKIT, Des Moines, Iowa, assignor of one-half to Lew C. Smith, same place. Filed Dec. 21, 1891. Serial No. 415,831. (No model.)



Claim.—An improved portable book holder, comprising a stand having a flat top and openings in the end portions of the top to admit latches, wings hinged in parallel position across the central portion of the flat top, a latch pivoted to the under side and central portion of each wing and provided with a shoulder at the side of its bottom or free end adapted to engage the edge of an opening in the fixed top, and a shoulder at its bottom and inner edge also adapted to engage a portion of the fixed top, in the manner set forth for the purposes stated.

488,984. MOP-WRINGER. ALONZO CATHAN, Cleveland, Ohio, assignor of one-half to Thomas S. Gerhard, same place. Filed Mar. 19, 1892. Serial No. 425,615. (No model.)



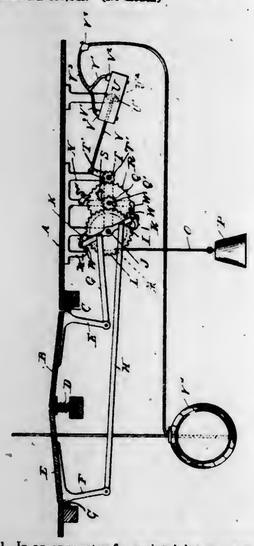
Claim.—1. In a mop-wringer, the combination of the frame adapted to have a pail seated therein, bell-crank levers located on opposite sides of the frame and having the lower arms thereof connected by a foot board and the vertical arms of the same carrying a roller, other levers pivotally secured to the opposite sides of the upper part of a frame carrying a front roller and having their lower ends free,

links connecting said lower free ends of said latter levers and the vertical arms of the bell-crank levers, and springs secured to the frame at the rear and to the pivotal points of the levers carrying the front roller with the links where by through the depression of the foot board the rollers are simultaneously drawn toward the center of the frame, substantially as described.

2. In a mop-wringer, the combination of the frame having the braces or irons connected to the upper parts of the uprights thereof, one of said braces or irons being hinged as set forth, and cross-strips secured to the bottom of said frame, substantially as described.

3. In a mop-wringer, the combination of the frame having braces or irons connected to the upper parts of the uprights thereof, one of said braces or irons being hinged as set forth, cross-strips secured to the lower part of said frame, and wire guards connected to opposite sides of the frame and opposingly situated, substantially as described.

488,985. MACHINE FOR MAINTAINING A CONSTANT PRESSURE IN BEER-BARRELS. FRANK. S. CHURCH, Detroit, Mich., assignor of one-half to Wm. Fitz Hugh Edwards, same place. Filed Jan. 25, 1892. Serial No. 419,143. (No model.)



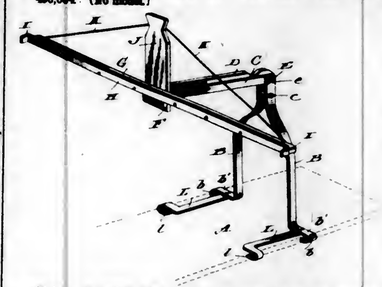
Claim.—1. In an apparatus for maintaining a constant pressure on confined liquids, the combination with a platform, a pump, and a motor for actuating the pump, of a hinged section on the platform, a spring rest for the section, mechanism connected with the section and motor for winding up the motor upon the movement of the section, and means for disengaging the winding up mechanism from the motor when the platform is in its normal position, substantially as described.

2. In an apparatus for maintaining a constant pressure on confined liquids, the combination with a platform of a tilting section hinged thereto, a motor, a pump actuated thereby and a winding up mechanism engaging the section and arranged to engage with and be disengaged from the motor upon the movement of the section, substantially as described.

3. In an apparatus for maintaining a constant pressure on confined liquids, the combination with a pump and a motor for actuating the pump, of a vertically movable platform, winding up mechanism connected with the platform and motor and a spring and stops for disengaging the winding up mechanism from operative engagement with the motor, substantially as described.

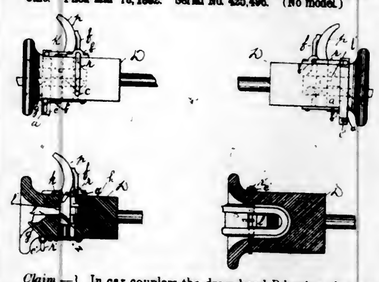
4. In an apparatus for maintaining a constant pressure on confined liquids, the combination with the floor, of a hinged section comprising two members hinged respectively at opposite sides, a supporting spring for the sections located at the free adjacent edges thereof, a motor, a pump actuated thereby and a winding up mechanism connecting the motor and sections, substantially as described.

488,986. QUILTING ATTACHMENT FOR SEWING-MACHINES. CHESTER C. CLARK, San Angelo, Tex. Filed June 9, 1892. Serial No. 436,064. (No model.)



Claim.—A quilting frame support consisting of the bars having their lower ends formed into clamping hooks, bars L connected thereto and formed with clamping hooks *l*, a lateral support at the upper ends of said bars and a horizontal guide and track at the outer end of the lateral support said bars L projecting forward whereby the clamping devices serve to balance the lateral support as set forth.

488,987. CAR-COUPLING. GEORGE H. CROWLEY, Youngstown, Ohio. Filed Mar 18, 1892. Serial No. 425,496. (No model.)



Claim.—1. In car couplers the draw head D having, the rectangular pin hole *h* of greater space lengthwise with the draw head, the rear wall being upon a downward and rearward incline to the central opening, and provided upon the floor of its interior space with the lift shoulder *l*, beginning at the lip and rising, breadth centrally, with an upward and inward incline to an abrupt shoulder, of dimensions to be received within the opening of the link, substantially as described and for the purpose expressed.

2. In car couplers the flat rectangular piece of metal, rectangular in its lower and triangular in its upper portions, sunk centrally into a vertical slot in the pin seat *s*, its longer vertical edge against the vertical rear edge of the lift shoulder *l*, constituting the pin seat incline *i*, substantially as described and for the purpose expressed.

3. In car couplers the square pin *p* curved forwardly in the part appearing above the draw head D and having immediately below the curved part and transverse to the draw-head, the diagonal and oblong opening *o*, substantially as described and for the purpose expressed.

4. In car couplers the handle rod *r* passing from side to side of the car, above the draw head D on which it has bearings, bent to handles at each end, and provided at its length-center with the rigidly attached finger *f*, and, at a point near a vertical side of the draw-head D with the rigidly attached crank *c*, substantially as described and for the purpose expressed.

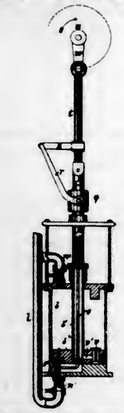
5. In car couplers the combination consisting of the guide rod *r'*, bent at one end to the crank *c'*, and carrying at its length center the rigidly attached finger *f'*, having bearings upon the under side of the draw head D; and the flat rectangular piece of metal in a space cut from the lower lip of the draw head D', constituting the link guide, and movably attached by bearings near the corners of one edge to the guide rod *r'*, the finger *f* appearing between the bearings, substantially as described and for the purpose expressed.

6. In car couplers the combination of the drawhead D having the rectangular pin hole *h*, the rear wall in the upper part inclining to the rear and dow[illegible]rd, and provided, breadth centrally, on the floor of its interior spa[illegible] with the lift shoulder *l*, beginning at the lip and inclining up and backward to a vertical shoulder; the flat piece of

metal, rectangular in its lower and triangular in its upper portions, sunk into a central lengthwise slot in the pin seat *s*, its longer vertical edge against the shoulder of the lift shoulder *l*; the rod *r* bent at the ends to handles, carrying the rigidly attached finger *f* and crank *c*, and extending between the car sides above the draw head on which it has bearings; the arm *a* connecting the cranks *c* and *c'*; the guide rod *r'* carrying at one end the crank *c'* and centrally the finger *f'* and extending transversely across and underneath the draw head on which it has bearings; the flat rectangular metal plate *g* that forms the link guide appearing in a space central, cut in the lower lip of the draw head, attached by bearings to the rod *r'*; all substantially as described and for the purpose expressed.

7. In car couplers the combination consisting of the vertical rod *r''* movably attached to the car end by staples and having in its side the notch *n* engaging a lip extending from the car roof above which it is bent to a handle; the lever *t*, at its upper end pivotally connected with the lower end of the rod *r''*, and which, having fulcrum by pivotal connection with the end of the short horizontal projection *k'*, extends to contact with the curved part of the pin *p*, and the horizontal projection from the car end *k* at its end pivotally connected with the body of the lever *t*, substantially as described and for the purpose expressed.

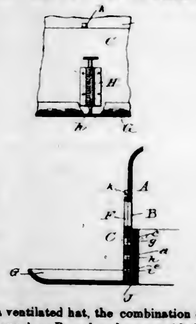
488,988. VELOCIPEDE. OSCAR DALBOM, Hamburg, Germany. Filed Nov. 10, 1891. Serial No. 411,430. (No model.)



Claim.—1. The combination of reservoir *a* with cylinder *b*, inlet valves *n*, *n'*, piston having valve *v*, hollow piston rod and with valve rod *o*, having pin *o'*, substantially as specified.

2. The combination of reservoir *a* with cylinder *b*, inlet valves *n*, *n'*, piston, hollow piston rod *o*, having pin *o'*, and with the cross piece *p*, levers *r*, *s*, and sleeve *q*, substantially as specified.

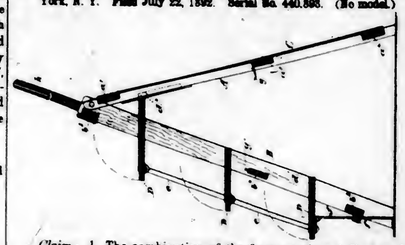
488,989. VENTILATED HAT. CHARLES H. DAVIS, Chenoa, Ill. Filed June 22, 1892. Serial No. 437,626. (No model.)



Claim.—1. In a ventilated hat, the combination of the body A, provided with the openings B, *c*, *d*, and *e*, movable band C, having the openings F, *g*, *h* and *i*, registering with the said openings in the hat; thumb latch H, secured to the band C, and having the sharp point *h*, to puncture the brim of the hat and hold the band in place, substantially as shown and described and for the purposes set forth.

2. In a ventilated hat, the combination of the body A, provided with openings B, *c*, *d*, and *e*, movable band C, having the openings F, *g*, *h*, and *i*, registering with the said openings in the hat; band J, provided with the vertical openings *l*, and V-shaped openings *m*, and sweat band I, substantially as shown and described and for the purposes set forth.

488,990. ORNAMENTAL STEP-LADDER. ANNA DORMITZER, New York, N. Y. Filed July 22, 1892. Serial No. 440,898. (No model.)



Claim.—1. The combination of the frame-sections A B, steps D and lug d^3 carried on one of said steps and working in slots *c'*, substantially as described.

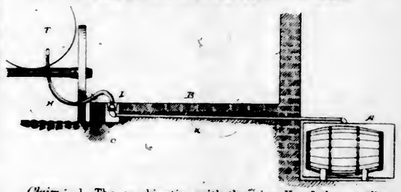
2. The combination of the frame-sections A B, steps D, united by connecting-rods *e*, and means for supporting one of said steps independent of said frame-sections and of said connecting rods *e*, substantially as described.

3. An ornamental step-ladder consisting of the frame-sections A B, steps D, the lower of said steps carrying the supporting-rod *f* adapted to slide in staple *f'*, substantially as described.

4. The combination of the frame-sections A B, the steps D, lug d^3, slotted plate *c* and means for supporting said steps independent of the frame-sections, substantially as described.

5. An ornamental step-ladder consisting of the frame-sections A B, steps D, one of which steps carries the T-shaped lug d^3, the short projections of which are adapted to engage the under side of the plate *c*, and supporting rod *f* attached to the lowermost of steps D for supporting said steps independent of the frame-sections, substantially as described.

488,991. OIL-DELIVERY APPLIANCE. FRANK T. FAY, Boston, Mass. Filed May 21, 1892. Serial No. 433,922. (No model.)



Claim.—1. The combination with the pipe K, of the coupling-box holding the threaded stub K^2 connected with said pipe, the cover M, fitting into said coupling-box and having fixed to it the threaded cap N, adapted to be screwed upon said stub, substantially as and for the purpose set forth.

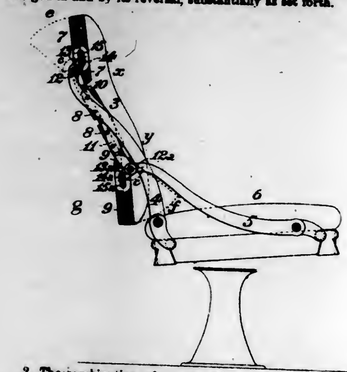
2. The coupling-box L having the perforated partition L', the stub K^2 and the pipe K rigidly connected therewith, in combination with the circular cover M fitting into the coupling-box and having wrench-boss M', and the cap N, fixed to said cover and adapted to be connected with said stub K^2, substantially as and for the purpose specified.

3. The coupling-box, L, having partition L', the pipe K, elbow K', stub K^2, thimble O, and washer O', in combination with the cover M and cap N threaded to fit upon said thimble, as set forth.

488,992. REVERSIBLE BACK FOR CAR OR OTHER SEATS. MATTHIAS H. FORREST, New York, N. Y. Filed May 16, 1892. Serial No. 433,144. (No model.)

Claim.—1. The combination of a reversible seat-back provided with a flexible or articulated frame, reversing-arms pivotally connected

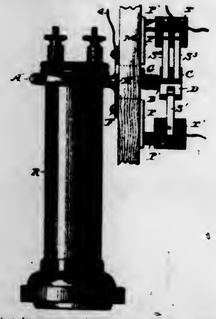
to said back, and to fixed supports and cranks attached to said arms and coupled to the seat-back, whereby the form of the seat back is changed in and by its reversal, substantially as set forth.



3. The combination of a reversible seat-back provided with a flexible or articulated frame, crossed reversing arms connected to pivots attached to the middle portion of the seat back frame and to fixed supports, and cranks attached to the reversing arms and coupled to parts of the seat back frame which have a capacity of movement independent of the portion to which the seat back pivots are attached, substantially as set forth.

3. The combination of a reversible seat-back provided with an articulated frame, crossed reversing arms connected to pivots attached to the central portion of said frame and to fixed supports, hinges connecting the upper and lower parts of said frame to its central part, said hinges being placed a shorter distance apart than the seat back pivots, and cranks attached to the reversing arms and coupled to the upper and lower sections of the seat back frame, substantially as set forth.

488,993. **TELEPHONE-SWITCH.** JOHN C. FRANCIS, New York, N. Y., assignor to the Boho Telephone Company, same place. Filed Feb. 15, 1892. Serial No. 421,660. (No model.)



Claim.—1. A telephone switch comprising a rotatable hook for supporting the telephone having a shaft rotating therewith in the plane of the hook, a commutator mounted on the shaft, and brushes bearing on the commutator, substantially as described.

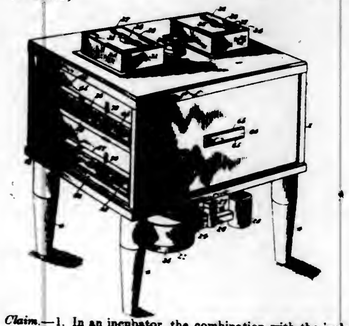
2. A telephone switch comprising a rotatable hook, having a shaft rotating therewith in the plane of the hook a spring for rotating it, a commutator mounted on the shaft of the hook, the commutator having a conducting portion connected to the shaft, and contact terminals bearing on the commutator, substantially as described.

3. A telephone switch comprising a rotatable hook, the shaft of which is mounted in bearings of conducting material, a spring for rotating the shaft, a commutator mounted on the end of the shaft, and having a conducting portion connected to the shaft, and contact terminals bearing on the commutator, substantially as described.

4. In a telephone switch, the combination of the rotatable hook, a bearing for the same mounted in the case, the rotating shaft of the hook passing through the bearing and carrying a circular commutator provided with a conducting portion on its end, insulating supports mounted in the case, and contact terminal springs mounted on the supports, and bearing on the commutator, substantially as described.

5. In a hand telephone switch, a movable support for the telephone having a shaft in the plane of the support, a commutator mounted on the shaft, brushes bearing on the commutator and devices for altering the relative position of the commutator and brush upon the removal of the telephone, substantially as described.

488,994. **INCUBATOR.** FRANK FREY, Quincy, Ill., assignor, by mesne assignments, of two-thirds to Clarence A. Myers, William B. Dean, and John W. Myers, same place. Filed Sept. 6, 1891. Serial No. 405,063. (No model.)



Claim.—1. In an incubator, the combination with the inclosing casing, of a horizontal partioning tank centrally supported within said casing, forming a separate upper and lower heating compartment and itself forming a shelf for the upper heating compartment, a boiler extending through the lower heating compartment and provided with a perforated top plate projecting slightly within said tank, and divergent circulating pipes connected with said boiler and said tank, the entire body of the boiler and the divergent circulating pipes being exposed within the lower heating compartment between the bottom of the tank and the casing to provide for the heating of said lower compartment independently of the heating tank, substantially as set forth.

2. In an incubator, the combination with the casing; of a boiler provided with a depending circular flange having a side opening and adapted to receive the burner of the lamp, a bifurcated bracket depending from said casing, a horizontal pivoted and balanced lamp support pivotally mounted in said bracket and having an enlarged lamp base and extended arm, and an adjustable weight mounted on said arm and adapted to normally overbalance the lamp and hold the burner within said flange, substantially as set forth.

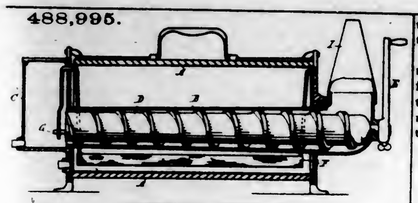
3. The combination with an inclosed casing having opposite side openings, of a heating tank horizontally partitioning the casing and set in from the sides of the same to provide an air circulating space, a boiler centrally located within the casing and connected to said tank, guides secured to the casing on each side of said side openings, air regulating slides working in said guides and located on opposite sides of said casing over said openings directly opposite the sides of said heating tank, and thermostatic devices for controlling and regulating the temperature of said casing located on opposite sides of the central conducting pipe, substantially as set forth.

4. In an incubator, the combination with the partitioning heating tank forming a shelf and the egg trays resting upon said tank; of the moistening pans resting directly upon said shelf heating tank beneath said egg trays and each comprising a series of longitudinally arranged parallel V-shaped water troughs regularly spaced apart to form spaces or passages for the heat confined beneath the same to pass directly to the egg trays above, substantially as set forth.

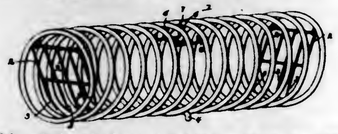
488,995. **ICE-CREAM FREEZER.** CHARLES E. FERIS, Norwood, Ohio. Filed Feb. 13, 1892. Serial No. 421,481. (No model.)

Claim.—An ice-cream freezer consisting of the herein described refrigerating vessel, the cream-tube extending longitudinally through and made integral with the said vessel, the cream-vessel separated from the refrigerating vessel and communicating with the cream-tube, the revolable screw conveyer adapted to receive and convey the cream through the tube, the removable mold adapted to give form to the frozen cream as it emerges from the tube, and the agitator adapted to oscillate within the refrigerating vessel, substantially as herein set forth.

488,995.



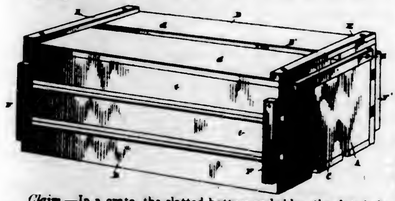
488,996. **ANIMAL-TRAP.** THOMAS E. FRY, Hueneme, Cal. Filed Aug. 26, 1892. Serial No. 444,063. (No model.)



Claim.—1. An animal trap comprising a cylindrical spiral spring adapted to be inserted in a hole and to conform to the configuration of the same, the inclined doors closing the ends of the spring and hinged at the top and provided at the bottom with points, and a bait holder arranged within the spring, substantially as described.

2. A trap comprising the flexible spiral spring adapted to be inserted in a hole and to conform to the configuration of the same, and provided with teeth to prevent it turning, inclined doors hinged at the top and closing the ends of the spring and provided at the bottom with points, and a suspended bait holder arranged within the spring and composed of a U-shaped supporting piece provided at the ends with eyes receiving a coil, and the parallel U-shaped hooks secured at their centers to the supporting piece and arranged transversely of the same, substantially as described.

488,997. **CRATE.** JOHN W. GLIDEWELL and ALFRED GLIDEWELL, Grand Island, Fla. Filed July 18, 1892. Serial No. 440,273. (No model.)



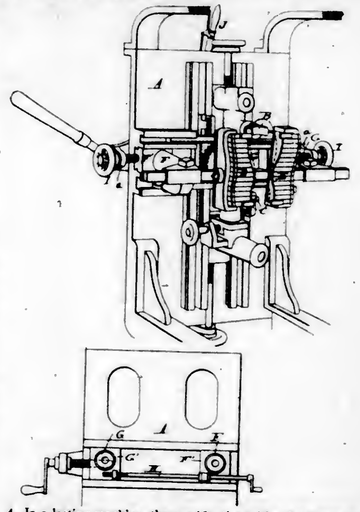
Claim.—In a crate, the slatted bottom and sides, the slats being disposed longitudinally and separated at their adjacent edges to provide intervening spaces, the solid heads to which the extremities of the slats composing the bottom and sides are attached, a sectional top having its sections separated to provide intervening spaces, the vertical side cleats secured to the sides near their ends and terminating short of the bottom and top, the transverse top cleats terminating at their ends flush with the sides of the crate, said top and side cleats being flush at their outer sides with the heads, and horizontal end cleats attached to the heads with their upper sides flush with the upper edges thereof and terminating short of the side edges of the same, whereby when a series of crates are arranged in tiers, air-spaces are formed between the sides, bottom, top and heads of each crate and the respectively adjacent sides of the surrounding crates, substantially as specified.

488,998. **LASTING-MACHINE.** HENRY M. GOODYEAR, Rochester, N. Y., assignor to William S. King, Minneapolis, Minn. Filed Aug. 20, 1888. Serial No. 283,704. (No model.)

Claim.—1. In a lasting machine, the combination with a last-support, of jaw-supports connected with each other and adapted to be moved simultaneously and equally toward and from the last-supports, and lasting jaws movable upon and relatively to their supports.

2. In a lasting machine, the combination with a last-support, of lasting-jaw-supports connected one with the other, a shifting device connected with one of the jaw-supports and serving to move the same toward and from the last-support, and lasting-jaws movable relatively to their supports.

3. In a lasting machine, the combination with a last-support, of movable lasting-jaw-supports, an adjustable connecting bar extending from one support to the other, and lasting-jaws movable relatively to their supports all substantially as shown, whereby the jaw-supports may be moved in unison or adjusted independently toward or from the last-supports as desired.

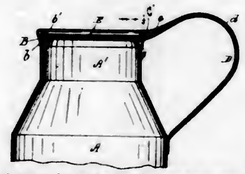


4. In a lasting machine, the combination with a last-support, of lasting-jaw-supports capable of independent adjustment toward and from the last-supports, a connecting bar extending from one jaw-support to the other, a shifting device adapted to move the connected supports, and lasting-jaws movable relatively to their supports.

5. In combination with the frame of a lasting machine, a last support, side lasting jaws D, E, supports F F' and G G' for said jaws, connecting bar H extending from one support to the other, and lever J connected with and serving to move the parts, substantially as set forth.

6. In a lasting machine the combination of a last, lasting-jaw-supports capable of adjustment toward and from the last, and lasting-jaws movable in and relatively to the supports, substantially as set forth.

488,999. **CLOSING DEVICE FOR CANS OR JARS.** WILLIAM J. GRAHAM, Waltham, Mass. Filed Nov. 4, 1892. Serial No. 451,006. (No model.)

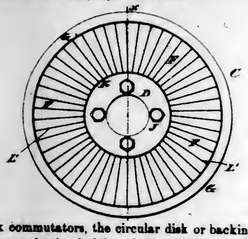


Claim.—A can or jar having at the upper portion of its neck an internal groove and a cut-away portion of the said grooved neck combined with a flexible closing disk, adapted to be retained in said groove and having a radial projection or picker piece adapted to be retained in said cut-away portion, and to serve as a means for readily removing said disk, substantially as and for the purpose set forth.

489,000. **COMMUTATOR FOR DYNAMOS AND ELECTRIC MOTORS.** HERBERT GROSVENOR and RALPH ASHLEY, Philadelphia, Pa., assignors, by mesne assignments, to the United Columbian Electric Company, of New Jersey. Filed Feb. 13, 1892. Serial No. 421,599. (No model.)

Claim.—1. A disk commutator comprising, in combination, a

circular disk or backing-plate having an undercut hub and screw-threaded rim; a screw-threaded clamping-ring having an undercut projecting annulus; a series of sectors or contact-plates having projections fitting into the recesses formed by the undercut hub and undercut annulus; and insulating packing separating the sectors and their projections from their seat in the disk and from one another, substantially as and for the purpose set forth.

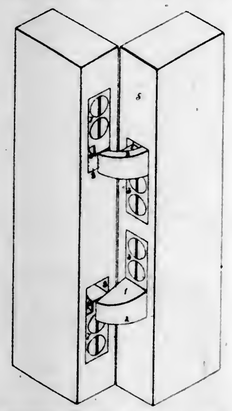


2. In disk commutators, the circular disk or backing-plate having an undercut projecting hub bored through around its central aperture to receive bolts for its attachment to the armature core, and provided with a screw-threaded flanged rim and radial reinforcing-ribs, substantially as and for the purpose set forth.

3. The combination, in disk commutators, with the backing-plate having a projecting hub undercut with a V-shaped groove or recess and a screw-threaded flanged rim, of the interiorly threaded clamping ring having a projecting undercut annulus overlapping the circular rim of the disk and adapted to clamp the contact-plates or sectors against an insulated packing interposed between said sectors, the face of the backing-disk, and the undercut annulus, substantially as and for the purpose set forth.

4. In disk commutators, the sector-shaped contact-plates having V-shaped projections at top and bottom, in combination with the circular screw-threaded and undercut backing-disk and threaded annulus or clamping-ring, substantially as and for the purpose set forth.

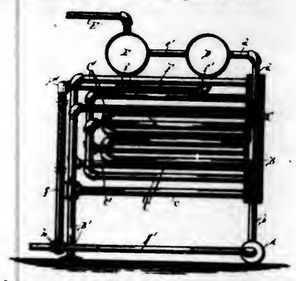
489,001. COUPLING FOR EXTENSION-TABLE LEAVES. RILEY HANAFORD, Beloit, Wis. Filed Mar. 1, 1892. Serial No. 423,387. (No model.)



Claim.— A coupling consisting of two members, one of said members secured within a recess in the woodwork and lying flush with the surrounding surface, a projection extending from the base portion of the member backward into the recess and having a curving surface, the other member of the coupling comprising a base sunk into the wood work flush with the surrounding surface, a curving hook extending outward from the base, a rim for the curving edge of the hook, said rim for engaging the carving surface of the projection on the first mentioned member.

489,002. GENERATOR. EDWARD HAYES, Rochester, N. Y. Filed Apr. 18, 1892. Serial No. 429,868. (No model.)

Claim.— 1. In a steam generator, the combination of a horizontal water containing drum, upright heads mounted above the horizontal drum and connected thereto, U-shaped pipes projecting laterally from one of the end heads and arranged one within the other, the lower arm of the outer pipe being in proximity to the base of said head and U-shaped pipes projecting laterally from the central heads and arranged one within the other, the lower arm of the outer pipes of these latter U-shaped pipes being arranged above the former lower arms, substantially as and for the purpose set forth.



2. In a steam generator, the combination of a horizontal water containing drum, upright heads mounted above the horizontal drum, U-shaped generating pipes arranged in a series one within the other projecting laterally from the heads, a steam separation drum extending transversely across the generating pipes, independent connections between the separate heads and the separation drum, and a second drum arranged transversely above the generating pipes in advance of the former drum and connected thereto, substantially as and for the purpose specified.

3. In a steam generator, the combination of a horizontal water containing drum, upright heads mounted above the horizontal drum, U-shaped generating pipes arranged in a series one within the other projecting laterally from the heads, a steam separation drum extending transversely across the generating pipes, independent connections between the separate heads and the separation drum, a second drum arranged transversely above the generating pipes in advance of the former drum and connected thereto, and water connections between the latter drum and the horizontal water containing drum, substantially as and for the purpose set forth.

4. In a steam generator, the combination of a horizontal water containing drum, arranged transversely at the rear side of the combustion chamber, upright heads mounted above the horizontal drum, U-shaped generating pipes arranged in a series one within the other projecting from the front side of the heads to the front side of the generator, a steam separation drum extending transversely across the generating pipes from side to side of the generator, and a second drum arranged transversely above the generating pipes in advance of the former drum and connected thereto, substantially as and for the purpose specified.

5. In a steam generator, the combination of a horizontal water containing drum, upright heads mounted above the horizontal drum, U-shaped generating pipes arranged in a series one within the other projecting laterally from the heads, a steam separation drum extending transversely across the generating pipes, independent connections between the separate heads and the separation drum, a second drum arranged transversely above the generating pipes in advance of the former drum, connections between the opposite ends of said drums, and a connection between the base of said drums and the water containing base, substantially as and for the purpose specified.

6. In a steam generator, the combination of a horizontal water containing drum, upright heads mounted above the horizontal drum, U-shaped generating pipes arranged in a series one within the other projecting laterally from the heads, a steam separation drum extending transversely across the generating pipes, independent connections between the separate heads and the separation drum, a second drum arranged transversely above the generating pipes in advance of the former drum, connections between the opposite ends of said drums, a pipe connected to the base of said drum and oppositely arranged branches connected to said pipe and to the opposite extremities of the water containing base, substantially as and for the purpose set forth.

7. In a steam generator, the combination of a horizontal water containing drum arranged transversely at the rear side of the combustion chamber, upright heads mounted above the horizontal drum, U-shaped generating pipes arranged in a series one within the other projecting from the front side of the heads toward the front side of the generator, a steam drum extending transversely across the generating pipes from side to side of the generator, a steam outlet pipe connected to said drum, a second outlet pipe connected to the base of the drum and provided with laterally extending arms connected to the opposite ends of the water containing drum, substantially as and for the purpose set forth.

8. In a steam generator, the combination of a horizontal water containing drum arranged transversely at the rear side of the combustion chamber, upright heads mounted above the horizontal drum, U shaped generating pipes arranged in a series one within the other projecting from the front side of the end heads to the front side of the generator, the lower arms of the outer pipes being in proximity to the base of the heads for forming the sides of the combustion chamber, U-shaped pipes projecting from the front face of the central heads toward the front of the generator for forming the top wall of the combustion chamber, the lower arms of the outer pipes of these latter U-shaped pipes being arranged above the former lower arms, a steam drum above the generating pipes extending from front to side of the generator, and a connection between the steam drum and the water containing drum, substantially as and for the purpose specified.

9. In a steam generator, the combination of a horizontal water containing drum arranged transversely at the rear side of the combustion chamber, upright heads mounted above the horizontal drum, U-shaped generating pipes arranged in a series one within the other projecting from the front side of the heads toward the front side of the generator, a steam drum extending transversely across the generating pipes from side to side of the generator, a steam outlet pipe connected to said drum, a second outlet pipe connected to the base of the drum and provided with laterally extending arms, upright pipes at the extremities of the front side of the generator connected to the adjacent ends of the water containing drum and of said arms, substantially as and for the purpose set forth.

10. In a steam generator, the combination of a horizontal water containing drum arranged transversely at the rear side of the combustion chamber, upright heads mounted above the horizontal drum, U-shaped generating pipes arranged in a series one within the other projecting from the front side of the heads toward the front side of the generator, a steam drum extending transversely across the generating pipes from side to side of the generator, a steam outlet pipe connected to said drum, a second outlet pipe connected to the base of the drum and provided with laterally extending arms, upright pipes at the extremities of the front side of the generator connected to the adjacent ends of the water containing drum and of said arms, a blow-off valve connected to one of said upright pipes, and connections for the water gage connected to the other of said pipes, substantially as and for the purpose set forth.

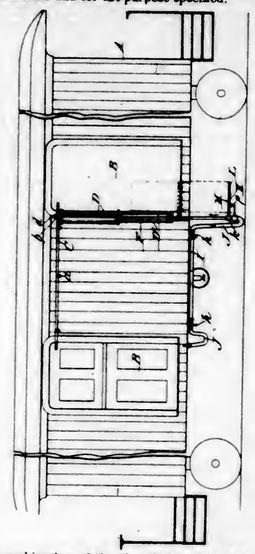
11. In a steam generator, the combination of a horizontal water containing drum arranged transversely at the rear side of the combustion chamber, upright heads mounted above the horizontal drum, U-shaped generating pipes arranged in a series one within the other projecting from the front side of the heads toward the front side of the generator, a steam drum extending transversely across the generating pipes from side to side of the generator, a steam outlet pipe connected to said drum, a second outlet pipe connected to the base of the drum and provided with laterally extending arms connected to the opposite ends of the water containing drum, substantially as and for the purpose set forth.

489,003. DEVICE FOR LOADING BAGGAGE. SAMUEL R. HEIDELBERG, Jacksonville, Tex. Filed May 25, 1892. Serial No. 434,364. (No model.)

Claim.—1. In a lifting device, the combination of the rail, the pulley-provided air cylinder suspended thereon, the piston therein provided with a piston tube, an arm supported on the lower end of said tube, a rigid platform on said arm and a pivoted platform on said arm, a supply valve arranged in connection with the air supply pipe, said valve having an arm which is pivotally connected to the pivoted platform, all arranged to operate, substantially as described.

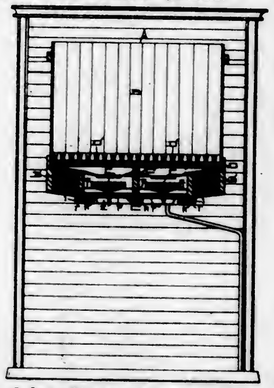
2. The herein-described baggage lifting attachment for a baggage or other car which consists essentially in a suspended lifting mechanism and a track or rail on which it is adapted to be shifted from point to point where it may be required for work, said lifting mechanism consisting essentially of a pulley-provided air cylinder which is suspended on the track, a piston therein provided with a piston tube, an arm supported on the lower end of said tube, a rigid platform on said arm and a pivoted platform on said arm, a supply valve arranged in connection with the air supply pipe, said valve having an arm which is pivotally connected to the pivoted platform, all arranged to operate, substantially as described.

3. In a baggage lifting device, the combination of the air cylinder containing a piston, provided with a piston tube, an arm supported on the lower end of said tube, a rigid platform on said arm and a pivoted platform on said arm, a supply valve arranged in connection with the air supply pipe, said valve having an arm which is pivotally connected to the pivoted platform, all arranged to operate, substantially as and for the purpose specified.



4. The combination of the air cylinder D, having exhaust port c and containing piston E, provided with piston tube F, having lateral openings *f*, the arm K having a sleeve on the lower end of tube F, platform L secured rigidly on arm K, platform M pivoted to arm K, main air pipe I coupled to the lower end of tube F, valve N for supplying air at the lower end of tube F, said valve having arm O pivotally connected to the end of platform M, substantially as described.

489,004. REFRIGERATOR. LOUIS HELLER, Omaha, Nebr. Filed Sept. 23, 1891. Serial No. 406,613. (No model.)



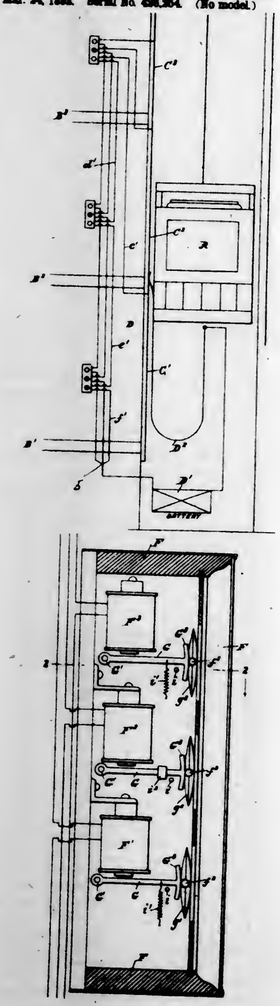
Claim.—1. In a refrigerator, the combination of a suspended ice chamber, the lower portion of said chamber being provided with dead air compartments, the upper or deck portion of said compartments being inclined toward one or more drip troughs, the lower portion of said dead air chamber being inclined, upwardly toward the walls an ice guard above said chambers, and a horizontally reciprocating shutter below said chambers, all arranged substantially as and for the purpose set forth.

2. In a refrigerator, the combination with a suspended ice cham-

ber, comprising two dead air chambers, a central support between said chambers provided with a deflecting hood, inclined troughs upon each side of said support, and partly below said hood, the decks of the said dead air chambers declining and terminating above said troughs, an ice guard resting upon said dead air chambers, and a two part sliding shutter movable below said ice chamber, the openings of which may be made to register, all substantially as and for the purpose set forth.

3. In a refrigerator, the combination of the following instrumentalities, to wit: the ice chamber B, provided upon two sides with the air chambers B', B', the troughs C, C, suspended between said air chamber, the central support C', the transverse supporting bars D resting upon said air-chambers and supporting the ice guard, the pivot arms E supporting the troughs C, and the horizontally sliding shutter F, F', adjustably supported by means of the rib H, support C' and bracket I, all arranged substantially as and for the purpose set forth.

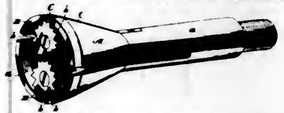
489,005. ELEVATOR-INDICATOR. HERMAN HIRS, Baltimore, Md. Filed Mar. 24, 1892. Serial No. 426,264. (No model.)



Claim.—1. In an electrical indicator system for elevators, the combination with fixed conducting strips, one for each floor, and forming the terminals of multiple arc branches of the signaling circuit; a brush carried by the car, and adapted to close the circuit of said branches in succession as the car moves from floor to floor, a series of indicator magnets in each branch, a series of rotatable disks each having on one side the numeral of the branch to which its controlling magnet belongs, and gearing for rotating each disk so as to expose its numeral when the armature of its magnet is attracted, and for rotating it to its normal position when the circuit of the magnet is broken, substantially as described.

2. In an electrical indicator for elevators, the combination with the casing, of a shaft journaled therein, an indicating disk or plate on the shaft, a pinion, a rack-bar pivoted to the casing, a rack on the rack-bar engaging the said pinion, an armature on the rack-bar, and a magnet in the casing above the armature, substantially as described.

489,006. SPINDLE-CHUCK. JASON R. HOPKINS, Washington, D. C., assignor of one-half to George S. Prindle and Philip G. Russell, same place. Filed Jan. 10, 1890. Serial No. 336,481. (No model.)



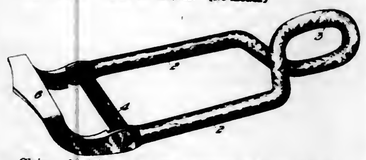
Claim.—1. In combination with a chuck having two relatively movable parts, a jaw carried by each of said parts and adapted to be moved to place different portions of its periphery into juxtaposition with the periphery of the other jaw, said jaw-carrying part having a portion overhanging and adapted to engage the outer periphery of its jaw at a point diametrically opposite the similarly engaged part of the other jaw and on a line passing through the centers of both jaws, substantially as and for the purpose shown.

2. In combination with a split chuck having two sections whose outer faces are recessed, a disk carried in the recessed face of each section, and adapted to have different portions of its periphery placed into juxtaposition with the periphery of the other disk, and the wall or flange formed by recessing said sections overhanging and engaging the outer edges of said disks at points diametrically opposite on a line passing through the centers of both disks, substantially as and for the purpose shown and described.

3. In combination with a chuck having its head divided into two longitudinal sections that are adapted to be moved toward or from each other, two disks which are provided with peripheral notches that have different relative dimensions and are pivoted upon or within the outer ends of said head sections, substantially as and for the purpose set forth.

4. In combination with a chuck which has its head divided longitudinally into two sections that are adapted to be moved toward or from each other, a disk jaw which is pivoted upon or within each section and is provided with peripheral notches and a spring detent that is adapted to engage with and lock said jaw in circumferential position, substantially as and for the purpose shown and described.

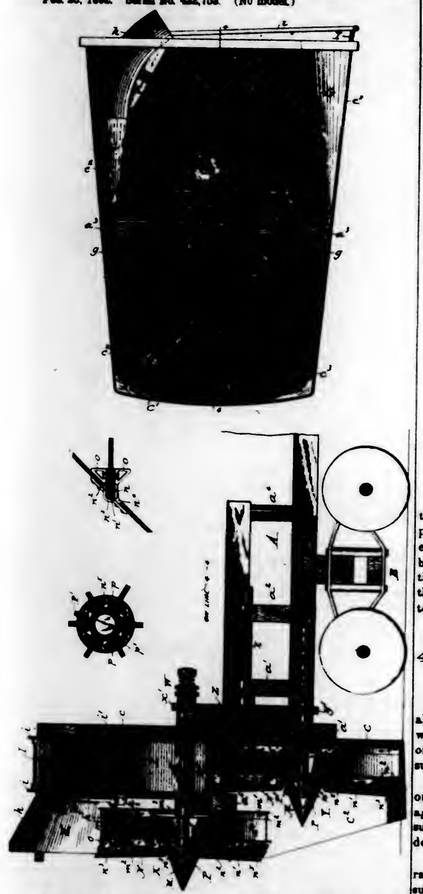
489,007. HAME-TUG. EUGENE L. HOWE, Cleveland, Ohio. Filed July 14, 1892. Serial No. 439,945. (No model.)



Claim.—1. A hame-tug clip composed of a rod, twisted to form an end-loop 3, and extending thence to form substantially parallel side-bars, a separately formed loop of general U-shape, whose ends are applied to the ends of said side-bars, and a cross-bar extending across the clip and connecting the ends of said loop with the ends of the side-bars; substantially as and for the purposes described.

2. A hame-tug clip, composed of a rod, twisted to form an end loop 3, and extending thence to form substantially parallel side-bars, a separately formed loop of general U-shape, whose ends are applied to the ends of said side-bars a cross-bar extending across the clip and connecting the ends of said loop with the ends of the side-bars, and an interposed tube through which the bar passes; substantially as and for the purposes described.

489,008. SNOW-PLOW. DANIEL JACOBS, Grigsby, Kans. Filed Feb. 25, 1892. Serial No. 422,753. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of the front casing having a partition between its sides, a lower rear fan wheel carrying knives and arranged below a chute in rear of the partition, an upper front fan wheel carrying knives and arranged in advance of the partition and between the sides of the casing, and means for revolving both knife-carrying fan wheels.

2. The combination, substantially as hereinbefore set forth, of a casing closed at rear and at both sides and bottom and open at front and top, inclined guides F and G, for the corners of the casing, a partition extending from one side piece to the other, a knife-carrying fan wheel arranged in front of the partition, and a knife-carrying fan wheel arranged in rear of and below the partition.

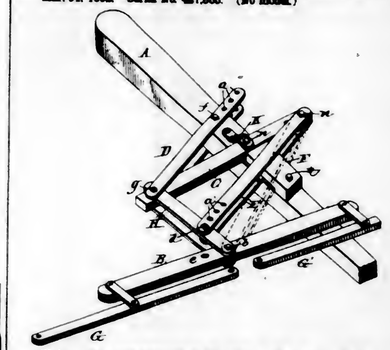
3. The combination, substantially as hereinbefore set forth, with the lower rear knife-carrying fan wheel, of the deflectors in a chute above the fan wheel, each consisting of a blade pivoted at the sides of the chute bent at its pivot, extending in opposite directions therefrom and having a rod connecting their upper ends, whereby they may be simultaneously operated.

4. The combination, substantially as hereinbefore set forth, with a fan wheel, having radial blades of the pivoted knives, the brackets on opposite sides of each blade against which the knives rest, and means for adjusting the knives.

5. A fan wheel having its blades strengthened with angle iron and tied together by rods as described, in combination with knives pivoted to the front edges of the blades, brackets against which the blades rest, and the shifter mounted on the shaft of the fan wheel.

6. The combination, substantially as hereinbefore set forth, of the fan wheel, the knives, the pivot rods for the knives, means for attaching the knives to the blades, a hub carrying arms between which the lower bent ends of the pivot rods are arranged, and means for adjusting the hub on the shaft.

489,009. DRAFT-EQUALIZER. JAMES JONES, Sharon, Iowa. Filed Mar. 31, 1892. Serial No. 427,205. (No model.)



Claim.—The combination of the pole A, the bar C, which crosses the pole and is rigidly secured thereto by means of the bolt *n*, and parallel straps D, the parallel bars H, pivotally connected at their rear ends to the outer ends of the bar C, and at their forward ends to the bar B, the parallel bars E, pivotally connected at their rear ends to the inner end of the bar C, and at their forward ends to the bars H, the bar B, carrying the double-trees, and the stop F, secured to the tongue, all substantially as described.

489,010. PROCESS OF MAKING FERTILIZER FROM TANK-WATER. OMAR T. JOSLIN, Chicago, Ill. Filed Sept. 28, 1891. Serial No. 407,078. (Specimens.)

Claim.—1. The process of treating tank waters to recover certain albuminous constituents, which consists in first evaporating the tank waters to a sirupy condition, then heating the sirup to a temperature of from 140° to 200° Fahrenheit, then adding a small percentage of sulphuric acid, and then drying the product, substantially as described.

2. The process of treating tank waters, which consists in first evaporating the water to a sirupy condition, then adding a small percentage of sulphuric acid, then adding from five to twenty per cent. of sulphate of magnesium, and then drying the product, substantially as described.

3. The process of treating tank waters, which consists in evaporating the waters to a sirupy condition, adding a small percentage of sulphuric acid, then adding from five to twenty per cent. of sulphate of magnesium, then adding an absorbent of the supernatant liquid and then drying the product, substantially as described.

4. The process of treating tank waters, which consists in evaporating the water to a sirupy condition, then adding sulphuric acid, then adding sulphate of magnesium, then adding an absorbent of the supernatant liquid, and then drying the product at a temperature of from 300° to 400° Fahrenheit, substantially as described.

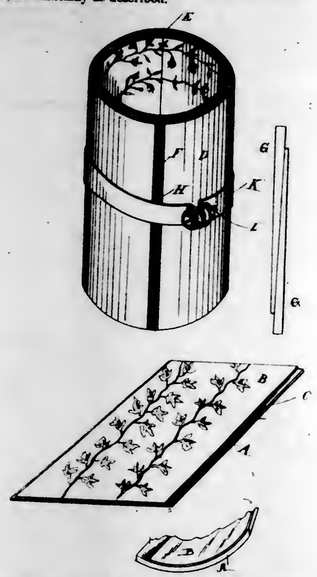
5. The process of treating tank waters, which consists in evaporating the water to a sirupy condition, then adding to the solution a small percentage of sulphuric acid, drying and grinding the product, and then subjecting it, when in motion, to the action of a heat of from 300° to 400° Fahrenheit, for from fifteen minutes to an hour, substantially as described.

6. The process of treating tank waters which consists in precipitating the albuminous constituents of the water by suitable reagents, then drying and grinding the product, and then subjecting it, while in motion, to a temperature of from 300° to 400° Fahrenheit, for from fifteen minutes to an hour, substantially as described.

489,011. MATRIX AND METHOD OF USING MATRICES. MARIUS JOTON, Washington, D. C. Filed Apr. 21, 1891. Serial No. 389,907. (No model.)

Claim.—1. A plate for engraving matrices, consisting essentially

of a flexible base, and a hard smooth, dry coating of clay or similar heat resisting material connected to said flexible plate by a binding agent, substantially as described.



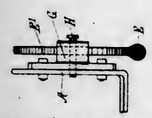
2. A matrix plate for relief printing plates, consisting essentially of a flexible base, a layer of non oxidizable material, and a coating of earthy material through which to engrave, connected to the curved plate by a binding agent, substantially as described.

3. A matrix plate consisting essentially of a paper base, and a smooth dry coating of earthy material attached to one face thereof, and forming the outer surface through which coating the graver cuts to produce the matrix.

4. The matrix plate consisting of the paper base permanently coated with a hard non-combustible water proof substance, and having a smooth coating of earthy matter secured thereto by a binding agent.

5. The method of producing a hollow cylindrical matrix which consists in spreading a flexible base piece with a coating of clay or the like and engraving thereon, then inclosing this base in a tube and filling in the joint with clay, and engraving over the joining coating to complete the cylindrical matrix, substantially as described.

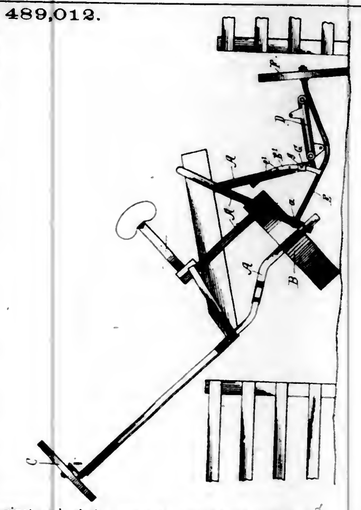
489,012. SAFETY-WHEEL ATTACHMENT FOR HARVESTERS. MAURICE KANE, Chicago, Ill. Filed June 16, 1892. Serial No. 436,980. (No model.)



Claim.—1. In combination with the harvester and binder frames, an arm secured to one of them and extending transversely to the line of travel past the upper and outer side of the binder frame to permit said upper and outer side to be lodged upon it, and having a wheel mounted upon it beyond the point at which such lodgment is afforded substantially as set forth.

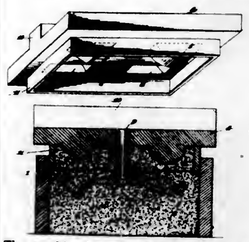
2. In combination with the harvester and binder frames, an arm pivoted to one of said frames and extending transversely to the line of travel underneath the binder frame a distance measured in a straight line greater than the distance similarly measured to the upper and outer side of the binder frame, whereby said arm is adapted to be swung about its pivot against said upper and outer side; a wheel mounted on said pivoted arm beyond the limit of said distance from

489,012.

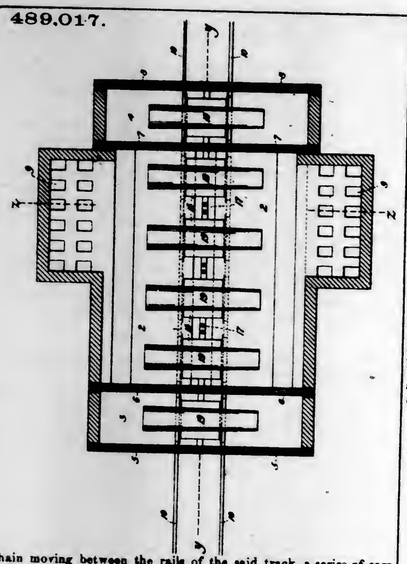


its pivot, and suitable means for securing the arm relatively to said frames in positions to which it may be adjusted on its pivot; substantially as set forth.

489,013. PRESS-BOARD FOR MOLDING-MACHINES. GEORGE J. KEENAN, Buffalo, N. Y. Filed June 5, 1891. Serial No. 395,227. (No model.)

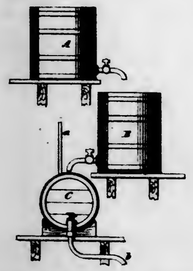

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489,017.



chain moving between the rails of the said track, a series of cars mounted on the track and connected with said endless chain and having standards projecting through the slot in the floor, and means for moving the endless chain.

489,018. PROCESS OF TREATING BEER AND ANALOGOUS LIQUIDS. ARNOLD KRESSLER, Kreischerville, assignor to himself and August Zinsser, New York, N. Y. Filed May 13, 1892. Serial No. 433,858. (No specimens.)

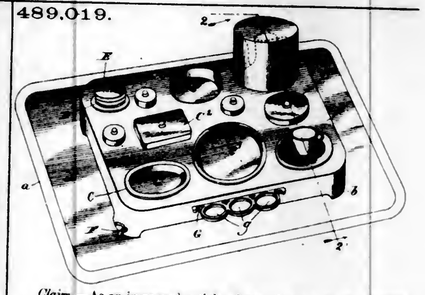


Claim.—The process herein described of making beer or analogous substances, which process consists in first subjecting the wort to an incomplete first fermentation, and in then, without addition of kraeusen or fermentable substances, subjecting it in a closed vessel to the process of gas generation and permeation and arresting the process before complete fermentation takes place, by filtering the result and filling it into kegs, substantially as described.

489,019. INVALID'S HOT TRAY. GEORGE T. LAUDERDALE, Dyersburg, Tenn. Filed June 20, 1892. Serial No. 437,398. (No model.)

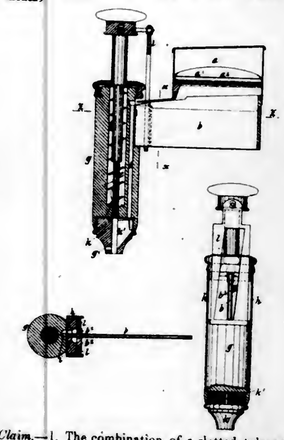


489,019.



Claim.—As an improved article of manufacture, a tray, consisting of the part A, having the upturned and extended edges *a*, and the receiver B, secured to the tray A, but with a space between their upper and lower surfaces respectively, said receiver having means for the admission and discharge of water, and depressions C in its top adapted to be tightly closed by means of covers C^2, substantially as described.

489,020. HAND NAILING IMPLEMENT. EDMUND LEHMANN, Bautzen, Germany. Filed Aug. 24, 1892. Serial No. 443,964. (No model.)



Claim.—1. The combination of a slotted tube with an inclosed magnetic plunger, a laterally movable chute having contact blocks b^2 and with an obliquely slotted link pivoted to the plunger and embracing the blocks, so as to impart the lateral motion to the chute, substantially as specified.

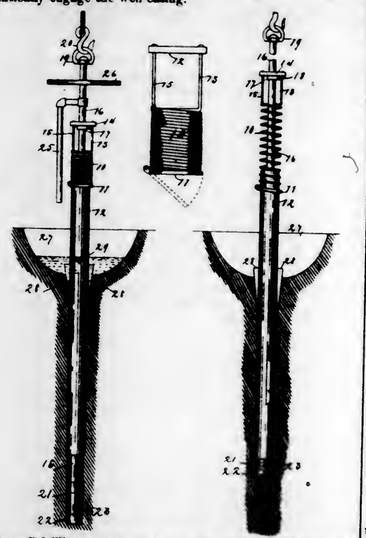
2. The combination of a slotted tube with an inclosed plunger, a grooved guide *k* secured to the tube a flanged chute having inclined blocks b^2 and engaging the guide and with an obliquely slotted link pivoted to the plunger and engaging the blocks b^2, substantially as specified.

489,021. WELL-DRILLING MACHINERY. WILLIAM LEWIS, Des Moines, Iowa. Filed Apr. 26, 1892. Serial No. 430,789. (No model.)

Claim.—1. In well drilling machinery, the combination with the drill rod and mechanism for elevating the same, of a bar adjustably secured to said drill rod, a spiral spring secured to said bar, a collar hinged to the lower end of said spiral spring, and a well casing about which said collar is mounted, said collar being adapted to clutch said casing in the upward movement of the drill rod.

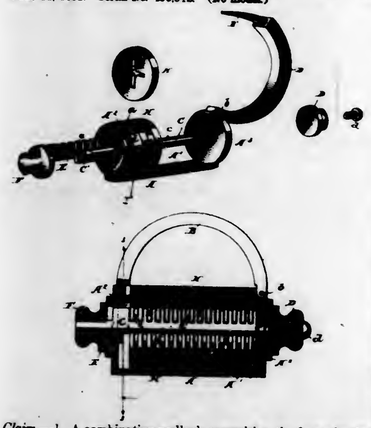
2. In well drilling machinery, the combination with a drill rod and mechanism for elevating the same, of a spiral spring mounted upon said drill rod, the upper end of which spring is connected with said drill rod, and clutch mechanism secured to the lower end of said spring and acting upon the well casing.

3. In well drilling machinery, the combination with a drill rod, a casing inclosing said drill rod, and mechanism for elevating said drill rod, of a spiral spring mounted upon said drill rod, a yoke formed on the upper end of said spring and connected with said drill rod, and a clutch collar hinged to the lower end of said spring and adapted to automatically engage the well casing.



4. In well drilling machinery, the combination with a tubular drill and mechanism for elevating the same, of a tubular casing surrounding said drill and projecting above the surface of the ground, a spiral retractile spring mounted about the drill rod, a yoke bar secured to the upper end of said spring and surrounding the drill rod, a collar adjustably secured upon said drill rod beneath said yoke bar, and a collar hinged to the lower end of said spring and encircling the casing, the diameter of said collar being materially greater than the outside diameter of said casing.

489,022. PADLOCK. DOMENICO MELFI, New York, N. Y. Filed June 11, 1892. Serial No. 436,312. (No model.)



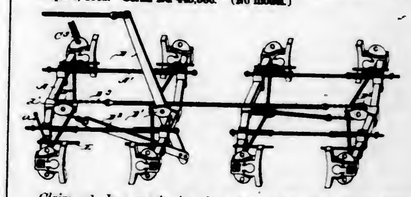
Claim.—1. A combination padlock comprising the frame having the outside cross piece and the heads connected thereto, the shackle pivoted to one of the heads, and fitting in a slot in the other head, a removable grooved shaft connecting the heads, and adapted to be locked in position by the shackle a bolt having lugs fitting the shaft, and a series of tumblers mounted on the shaft and having reduced portions to pass through the space between the lugs on the bolt, substantially as described.

2. A combination padlock comprising a frame, a grooved shaft connecting the heads of the frame, the shaft having a yoke at one end to receive the tongue of the shackle, a shackle connected to the frame, and having a tongue passing through the yoke, a bolt fitting the grooved shaft, and a series of tumblers controlling the bolt, substantially as described.

3. In a permutation lock, the combination with the head having various indicating marks, of a series of tumblers each having a plurality of radial slots and a series of indicating marks irregularly arranged on their peripheries, and a single bolt having a series of tumbles, whereby the tumblers may be set on different combinations with respect to the various marks on the head, substantially as described.

4. In a permutation lock the combination with the head having indicating marks thereon irregularly arranged, a grooved shaft connecting the heads, a bolt having lugs fitting the grooved shaft, and a series of tumblers, each having a plurality of radial slots, and a series of indicating marks irregularly arranged on their peripheries, substantially as described.

489,023. CAR-BRAKE. ARNOLD MILLER, Medford, Wis. Filed Sept. 8, 1892. Serial No. 445,336. (No model.)

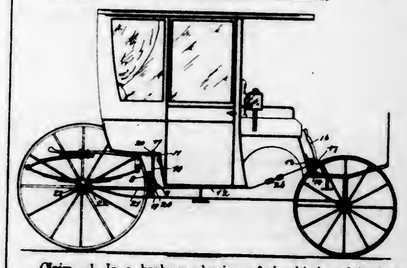


Claim.—1. In a car brake, the combination with four or more trussed beams carrying shoes on their ends, of cross pieces at the apex of the beams and trusses, pulleys in certain cross pieces, a lever in one cross piece and a flexible connection between the lever and all the beams, substantially as described.

2. In a car brake, the combination with the beam, of a yoke supported thereon having a recessed face, a pin in the recess, having a cylindrical head a shoe having severed flanges surrounding the head of the pin and formed with grooves in their edges and means for locking the shoe from lateral displacement, substantially as described.

3. In a car brake, the combination with two brake beams located on opposite sides of the wheels, of castings on the beams having conical grooves therein rods in the grooves having fixed collars thereon and springs sleeved on the rods between the collars and castings, substantially as described.

489,024. VEHICLE-BRAKE. JOHN M. MILLER, Westwood, Ohio. Filed Sept. 16, 1892. Serial No. 446,065. (No model.)



Claim.—1. In a brake-mechanism of the kind explained, the combination of the brake-beams thereof, with an elastic or spring-pivot, rigidly connected to the former and to the vehicle-body and capable of being put under torsional tension, all as substantially shown and described.

2. In a brake-mechanism of the kind described, the combination with the brake-beams and brake-shoes thereof, of an elastic, or spring-pivot rigidly connected to the former and to the vehicle-body and capable of being twisted or put under torsional tension by the vibrations of the brake-beams, and means to actuate these latter for the purpose of setting the brake, all as substantially shown and described.

3. In a brake mechanism of the kind described, the combination

with the brake-beams and brake-shoes thereof, of a pivot on which the former vibrate, links 21, connecting to these parts with one end, their other ends being pivotally connected to fixed points of the vehicle substantially in line with the centers of the wheels adjacent to the brake-shoes and serving to keep these latter at a fixed distance from the former, these links being of elastic material and having a normal tendency to a torsional movement or twist which, being resisted by the connections at their ends produces a pressure which prevents rattling, and means to actuate the brake-beams for the purpose of setting the brake, all as substantially shown and described.

4. In a brake-mechanism the combination with the brake-shoes, brake-beams and means for actuating these latter, of an elastic, or spring-pivot rigidly connected to the brake-beams and the vehicle body and capable by its torsional resistance to hold the brake-beams immovably to prevent rattling and to keep the brake-shoes normally off of the wheels, all as substantially shown and described.

5. In a brake-mechanism of the kind described, the combination with the brake-shoes, brake-beams and means for actuating these latter, of an elastic or spring-pivot rigidly connected to the brake beams and the vehicle-body and capable of being twisted or put under torsional tension by the vibrations of the brake-beams, and links 21, connecting the brake-shoes to some fixed point of the vehicle, substantially in line with the centers of the adjacent wheels, all as substantially shown and described.

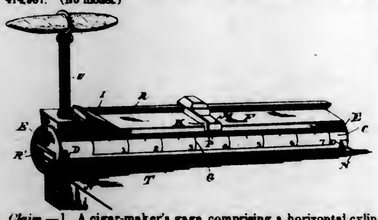
6. In a brake-mechanism of the kind described, the combination with the brake-shoes, brake-beams and means for actuating these latter, of an elastic or spring-pivot rigidly connected to the brake-beams and the vehicle-body and capable of being twisted or put under torsional tension by the vibrations of the brake-beams, links 21, connecting the brake-mechanism to some fixed point of the vehicle, being of elastic material and having a normal tendency to a torsional movement or twist which, being resisted by the connections at their ends produces a pressure which prevents rattling, all as substantially shown and described.

7. In a brake-mechanism of the kind described, the combination of the brake-shoes, brake-beams, means for actuating them, elastic or spring-pivots rigidly connected to the brake-beams, brackets attached to the vehicle-body to which the other ends of the pivots rigidly connect and links 21, connecting to the brake-beams at the points where pivots 10, connect to them and secured with their other ends to some fixed point of the vehicle, all as substantially shown and described.

8. In a brake-mechanism of the kind described, the combination with the brake-shoes, brake-beams and means for actuating them, of an elastic or spring-pivot, rigidly connected to the brake-beams and to the vehicle-body and normally held under torsional tension to prevent rattling, all as substantially shown and described.

9. In a brake-mechanism of the kind described, the combination of the brake-shoes, brake-beams, an elastic, or spring-pivot rigidly connected to the latter and the vehicle-body, means to actuate the brake-beams, a rope, or rod to connect these two latter, which connection also constantly draws these parts together by the action on the brake-beams of the pivot 10, which is normally held under torsional tension, whereby rattling of the parts is prevented, all as substantially shown and described.

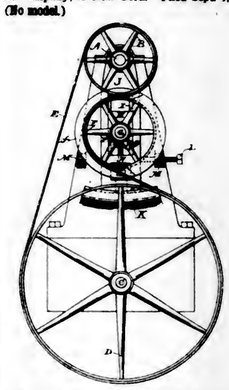
489,025. CIGAR-MAKER'S GAGE. CHARLES S. R. MOFFAT and JOHN A. MESSINA, Key West, Fla. Filed Dec. 14, 1891. Serial No. 414,987. (No model.)



Claim.—1. A cigar-maker's gage, comprising a horizontal cylinder mounted in suitable supports, a gage on the front face thereof, the upper face of said cylinder being flattened and having an incline at one end, a longitudinal ridge at the rear of said face and incline, a measuring device whose body fits over said ridge and is movable thereon and whose front end has a pointed projection moving over the gage, a set-screw through this body bearing against the ridge, a knife rising from the body at the edge thereof adjacent said incline, and a vertically supported removable gage, all as and for the purpose set forth.

2. In a cigar-maker's gage, the combination of an adjustable length-measuring device, consisting of a horizontal cylinder provided with a gage on the front thereof, a top flattened portion, and projections, brackets adapted to be mounted on a support having a pair of notches therein adapted to be engaged by the projections on said cylinder, and a measuring device longitudinally adjustable upon said top portion of the cylinder, substantially as described.

489,026. TRANSMITTING MECHANISM FOR MOTORS AND DYNAMOS. HENRY W. MORTON, Boston, Mass., assignor to the General Electric Company, of New York. Filed Sept. 1, 1890. Serial No. 363,661. (No model.)



Claim.—1. The combination of a driving and a driven pulley, one of which is smaller than the other, with an idler provided with means for adjusting it radially toward the smaller pulley so as to pinch the belt between the said idler and said smaller pulley.

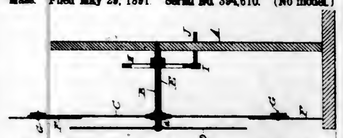
2. The combination, with a frame of the machine of two rotating pulleys and a belt encircling the same, a swinging frame movable about the axis coincident with the axis of one of the said pulleys, an idler pulley carried by the said swinging frame, and adjusting mechanism for forcing said idler pulley toward the common axis of said swinging frame and pulley.

3. The combination, with the frame of the machine, of two rotating pulleys and a belt encircling the same, a swinging frame pivoted on an axis coincident with the axis of one of said pulleys and carrying an idler pulley, and means for adjusting said swinging frame and idler pulley both to and from and in an arc around the axis of the said swinging frame.

4. The combination, with two rotating pulleys and a belt encircling the same, of a swinging frame pivoted on an axis coincident with the axis of one of said pulleys, a block sliding on said swinging frame toward and from the said axis, and means for adjusting the block, substantially as described.

5. The combination, with two rotating pulleys and a belt encircling the same, of a swinging frame pivoted on the same axis on one of said pulleys, a block sliding on the frame toward and from said axis, and means for adjusting the angular position of the frame, substantially as set forth.

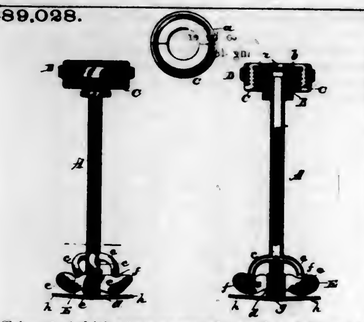
489,027. DISPLAY-STAND. WILLIAM S. MCDONALD, Boston, Mass. Filed May 29, 1891. Serial No. 394,610. (No model.)



Claim.—The combination of the frame A, the shaft B, secured thereto, the disk D rigidly secured to the outer end of the shaft, the disk C, a sleeve E, surrounding the shaft B, to which the disk C, is secured, washers on the shaft interposed between the disks C and D, a series of eccentrically pivoted disks F, carried by the disk E, and means for revolving the disk C.

489,028. DRINK-MIXER. FRANKLIN W. MCKINLEY, Manchester, N. H., assignor of one-half to George E. Philbrick, same place. Filed Jan. 10, 1891. Serial No. 377,226. (No model.)

489,028.

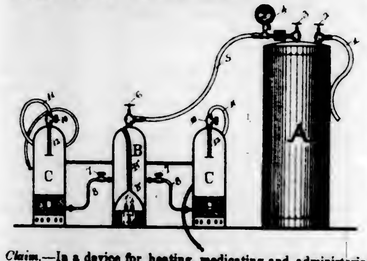


Claim.—1. A drink mixer constructed and adapted for attachment to a soda water fountain, said mixer comprising a tube having outlets, an agitator wheel adapted to receive liquid from said outlets, and a plate to retain said agitator wheel in position and form a rest for the device, substantially as set forth.

2. A drink mixer constructed and adapted for attachment to a soda water fountain, said mixer comprising a main tube, branch tubes leading laterally therefrom, and an agitator wheel loosely mounted on the tube and provided with blades in position to receive the liquid from the branch tubes approximately at right angles, substantially as set forth.

3. The combination with a draft tube or faucet, of a tube attached thereto, an agitator wheel in the form of a screw propeller mounted on said tube, outlets or tubes communicating with said tube and adapted to discharge against the blades of said wheel, and a plate secured to the first mentioned tube to retain the agitator in place on said tube and form a rest for the device, substantially as set forth.

489,029. APPARATUS FOR ADMINISTERING HEATED AND MEDICATED AIR. WILLIAM R. MCLEAN, Saginaw, Mich. Filed Aug. 31, 1892. Serial No. 444,619. (No model.)

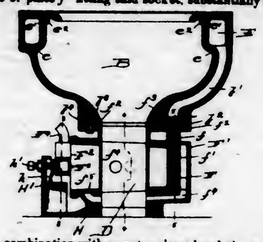


Claim.—In a device for heating, medicating and administering compressed air, the combination with an air compressor and gage, of the heater B, provided with an air chamber for receiving compressed air, and a chamber below the said air chamber for receiving the lamp, or other heater, and provided with the vent B″ passing through the air chamber, the pipe 5, with its valves, for conducting the air from the compressor to the top of the heater, the medicating chamber C containing medicating fluid D, the pipe 8 with its valves, for conveying the heated air from the side of the heater B to the bottom or side of the medicating chamber and below and into the medicating fluid D, and the perforated tube 12, valve 10 and tube 11 for conveying the heated and medicated air to the lungs and air passages, substantially as described, and as and for the purposes set forth.

489,080. WATER-CLOSET. EDWIN HORTON and LE GRAND M. HORTON, Maywood, assignors to said Edwin Horton and Oliver W. Bertoa, Chicago, Ill. Filed Dec. 30, 1891. Serial No. 416,598. (No model.)

Claim.—1. In a water closet the combination with the bowl B having formed integral therein an annular chamber E and water way or channel b', of a plug valve F furnished with two ports f^4 and f'' and its shell F′, the ports of said valve communicating respectively with the drain pipe and the water supply pipe and operating simultaneously to open and close the same, and said channel b' connecting said chamber E with said water supply port f'', substantially as specified.

2. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F′ having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, said water closet bowl having a socket b^3 and said valve shell F′ having a flange or plate f^3 fitting said socket, substantially as specified.



3. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F′ having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, a handle or lever for turning or operating said valve plug, and a stop or projection for limiting the opening throw of said valve plug to insure its being fully and properly open, substantially as specified.

4. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F′ having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, and a handle or lever for turning said valve plug, and two stops or projections for limiting the opening and closing movements of said valve plug, substantially as specified.

5. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground plug valve F and its shell F′ having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, said valve plug being made tapering and shorter than its shell, and an adjusting or pressure screw fitting against the end of the valve plug to insure its being held snugly in place against its seat or shell, substantially as specified.

6. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F′ having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, and a steel anti-friction plate pressing against the end of the valve plug to hold the same in place in its shell, substantially as specified.

7. The combination with a water closet bowl, the waste or drain pipe and a water pipe, of a single ground valve plug F and its shell F′ having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, and a steel anti-friction plate and adjusting screw abutting against the end of the valve plug to hold the same in position in its shell, substantially as specified.

8. The combination with water closet bowl B, having a socket b^3 at its base, of a valve shell F′, having a flange or plate f^3 fitting in said socket b^3, and a ground plug valve F having two ports, one for opening and closing the waste passage and one for opening and closing the water supply passage, said plate f^3 having openings extending through the same and registering with the two ports in said valve plug F, substantially as specified.

9. The combination with a water closet bowl B, having a socket b^3 and a water way or channel b', of a valve shell F′, having a flange or plate f^3 fitting in said socket b^3, and a tubular projection f^5 projecting into said water way b', and a ground plug valve F having two ports, one for the waste passage and one for the water supply passage, substantially as specified.

10. The combination with a water closet bowl B, after wash tank or chamber E communicating therewith, and an elevated air compression water reservoir C, above said bowl and a connecting pipe b leading from said tank C and communicating with said after wash tank E, a valve shell F′ and a ground plug valve F having two ports, one for the water supply and one for the waste, substantially as specified.

11. The combination with a water closet bowl B of after wash

tank E above said bowl and communicating therewith, elevated air compression tank C communicating with said after wash tank, valve shell F' and valve plug F having two ports, one for the wash and one for the water supply, substantially as specified.

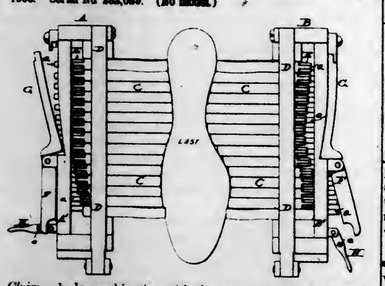
12. The combination with a water closet bowl B of the waste or drain pipe and a water pipe, a single ground valve plug F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, air compression reservoir C, pipe *b* leading from said tank C and communicating with the bowl, and water supply pipe G connected with said pipe *b* so that the water supplied to said bowl may come directly from said supply pipe G as well as from the tank C, substantially as specified.

13. The combination with a water closet bowl B of the waste or drain pipe and a water pipe, a single ground valve plug F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, of after wash tank E, elevated water reservoir C, pipe *b* leading from said tank C and communicating with said after wash tank, and a water supply pipe G connected with said pipe *b* so that the water supplied to said bowl may come directly from said supply pipe G as well as from said tank C, substantially as specified.

14. The combination with water closet bowl B of the waste or drain pipe and a water pipe, a single ground valve plug F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, of after wash tank E, elevated water reservoir C, pipe *b* leading from said tank C and communicating with said after wash tank, and a water supply pipe G connected with said pipe *b* so that the water supplied to said bowl may come directly from said supply pipe G as well as from said tank C, and a check valve g^4 in said supply pipe G, substantially as specified.

15. The combination with a water closet bowl B of the waste or drain pipe and a water pipe, a single ground valve plug F and its shell F' having two ports or openings, one communicating with the drain pipe or waste passage and the other with the water pipe or supply passage, whereby said passages are simultaneously opened and closed, air compression reservoir C, pipe *b* leading from said tank C and communicating with the bowl, and water supply pipe G connected with said pipe *b* so that the water supplied to said bowl may come directly from said supply pipe G as well as from the tank C, and a check valve g^4 in said supply pipe G, substantially as specified.

489,031. LASTING-MACHINE. THOMAS O'BOLGER, Rochester, N. Y., assignor to William S. King, Minneapolis, Minn. Filed Aug. 6, 1888. Serial No. 282,089. (No model.)

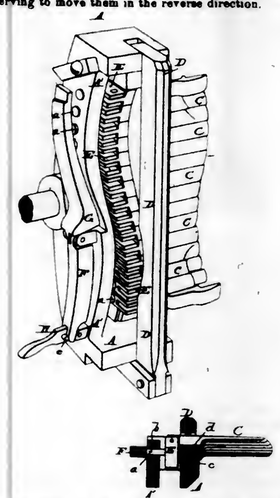


Claim.—1. In combination with the stock or body of a side jaw of a lasting machine, a series of folding blades or fingers each capable of longitudinal adjustment independently of the others, and levers (one or more) located in rear of the blades or fingers and serving to advance them and to hold them in their advanced positions.

2. The combination with the stock or body of a lasting-machine jaw, of a series of longitudinally adjustable fingers or blades carried by said jaw, and independent springs acting directly upon the fingers and serving to recede each finger when released or made free to recede.

3. In combination with the stock or body of a lasting-machine-jaw, a series of longitudinally adjustable fingers or blades having stems or shanks extending through said stock or body, and a lever pivoted to the stock or body in line with the protruding rear ends of the fingers and adapted to be moved toward or from the same and thereby to advance, or to permit the recession of the blades or fingers, whereby their forward ends are caused to form a curved line conforming to the curvature of one or the other side of a last.

4. In combination with the stock or body of a lasting machine jaw, a series of longitudinally movable fingers or blades carried thereby, springs serving to move the fingers or blades in one direction, and levers serving to move them in the reverse direction.



5. In combination with the stock or body of a lasting-machine jaw, a series of longitudinally-adjustable blades or fingers, a lever or levers for moving said blades or fingers, and locking devices for holding said levers in a determinate position.

6. In combination with the stock or body of a lasting-machine jaw, a series of yielding and longitudinally adjustable fingers or blades means for so adjusting the blades and a continuous former bearing upon said blades and serving to bring them simultaneously and instantly to proper adjustment.

7. The combination with the stock or body of a lasting-machine-jaw, of a series of blades or fingers each free to turn laterally and also capable of independent longitudinal adjustment, means for so adjusting the blades and a former bearing upon the blades or fingers and serving to bring them into conformity with the curvature of the sole of a last.

8. In a lasting-machine jaw, the combination with the stock or body, of a series of blades or fingers adapted to rock or turn independently in a lateral direction and a continuous former extending over and bearing upon the several blades or fingers and serving to bring them to proper adjustment.

9. In combination with the stock or body of a lasting-machine jaw, a series of blocks mounted and free to turn therein, a series of yielding blades or fingers carried by said blocks, springs *d* bearing against said blocks and tending to hold them back, a former bearing upon the blades or fingers, and a lever or levers bearing upon the rear ends of the fingers and serving to move a portion of them forward.

10. A pair of lasting-machine jaws, each jaw provided with a series of fingers capable of independent longitudinal adjustment, levers for advancing the blades or fingers, and locking devices for holding said levers in their adjusted position; whereby said jaws may be readily adjusted to operate upon a right or a left last at will.

489,032. WRENCH. WILLIAM A. OTTERS, De Ann, Ark., assignor of one-half to James F. Johnson, same place. Filed Oct. 19, 1892. Serial No. 449,373. (No model.)



Claim.—1. In a wrench of the class described, the combination with a reversible pawl, of a latch having a longitudinally movable slide, and a spring tongue carried by the slide to engage the pawl, substantially as specified.

2. In a wrench of the class described, the combination with a reversible pawl, of a latch having a bowed slide, capable of rocking, as described, and a spring tongue carried by the slide, substantially as specified.

3. In a wrench of the class described, the combination with a reversible pawl, of a latch having a bowed slide, provided with a longitudinal slot, and a spring tongue provided with an arrow-head, a set screw engaging said slot, and an actuating spring to normally hold the latch in its advanced position, substantially as specified.

4. In a wrench of the class described, the combination with the handle carrying a head, of a rotary jaw-bearing disk, a ratchet-wheel fixed to the rear side of the disk and provided with a bearing and a communicating recess, the pivot screw fitting in said bearing and headed in the recess, and threaded into a central opening of the head, a tap engaging the rear projecting end of the pivot bolt, the reversible pawl to engage the ratchet wheel, and a latch to engage said pawl, substantially as specified.

489,033. AIR COOLING AND PURIFYING APPARATUS. DAVID G. PROCTOR, Washington, D. C. Filed July 12, 1889. Serial No. 317,349. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, of a supply pipe or trough open at the top, a screen of absorbent open meshed reticulated material, a strip or sheet of textile fabric of fine mesh arranged over the opening in the supply pipe, and connected with the screen, and means for supplying fluid to the supply pipe.

2. The combination, substantially as hereinbefore set forth, of a window frame, a screen of absorbent open meshed reticulated material between the sides of the window frame, a supply pipe or trough open at the top, fine absorbent material arranged over the opening, and connected with the screen, a trough at the lower end of the screen having a waste opening therein, a pipe connected with the water pipes of a building for feeding water to the supply pipe, and a valve therein for regulating the feed.

3. The combination, substantially as hereinbefore set forth, of a supply pipe or trough having an opening extending part way along the top of the tube or trough, but closed at each end thereof, fine reticulated material arranged over the opening to permit fluid supplied to the pipe to be delivered therefrom, and a screen of open work reticulated material connected with the fine absorbent material.

4. The combination, substantially as hereinbefore set forth, of a screen, the body of which is composed of reticulated absorbent material, a slotted supply pipe at the top of the screen communicating with the absorbent material, a tank containing an air purifying substance, a pipe through which water is supplied to the tank, a pipe extending from the tank to the screen, a pipe extending from the pipe which supplies fluid to the tank to the screen, whereby the fluid may be delivered to the screen either through the tank or to the screen directly without passing through the tank.

5. The combination, substantially as hereinbefore set forth, of a screen, the body of which is composed of open work reticulated absorbent material, a slotted water supply pipe or trough at the top of the screen, fine reticulated material arranged over this opening, and connected with the body of the screen, a tank containing an air purifying substance, a main water supply pipe connected with the tank, a valve for opening and closing the connection between the tank and the main water supply pipe, a pipe leading from the tank to the screen, a valve for opening and closing the connection between the pipe and the screen, a pipe leading from the main water supply pipe to the screen, and a valve for opening and closing this pipe, whereby fluid may be delivered to the screen either through the tank or directly from the water supply pipe without passing through the tank.

6. The combination, substantially as hereinbefore set forth, of the side pieces of the screen, the bottom trough, the slotted pipe tube, the strips or sheets of fine absorbent material arranged over the slot in the top tube, and the sheets of reticulated absorbent material constituting the body of the screen and secured to the framing.

7. The combination, substantially as hereinbefore set forth, of the slotted side tubes, the body portion of the screen composed of absorbent material and extending through the slot in the tubes, and the slotted tube through which water is supplied to the body of the screen.

8. The combination, substantially as hereinbefore set forth, of the bottom trough, the nipples at each end thereof, the tubes or side pieces connected with the nipples, the top cross tube and a coupling at each end of the cross tube, provided with a short tube engaging with the top cross tube and with curved ends engaging with the side tubes.

9. The combination, substantially as hereinbefore set forth, of the bottom trough, the slotted side tubes, the slotted top cross tube, couplings connecting the top tube with the side tubes, an inlet opening at one end of the screen to the cross tube, the covering D^3, for the top tube, the waste pipe connected to the bottom trough, and the main body of the screen composed of absorbent material to which water is supplied from the top cross tube.

10. The combination, substantially as hereinbefore set forth, of the slotted side tubes, one pair on each side of the screen, sheets of reticulated absorbent material, to the side edges of which cords or ropes are secured, and which are arranged within the tubes, the top cross tube provided with an opening on its upper side, a strip of fine absorbent material arranged over the opening in the top cross tube and communicating with the body of the screen and cross pieces or braces arranged between the sheets of the body of the screen.

11. The combination, substantially as hereinbefore set forth, of the slotted telescopic side tubes provided with laterally projecting wings b^2, the top cross tube, the bottom trough, and sheets of reticulated absorbent material arranged between the bottom trough, the top tube and the telescopic side tubes.

12. The combination, substantially as hereinbefore set forth, of the main screen and a side screen hinged thereto, and supplied with water through its hinge-connection with the main screen.

13. The combination, substantially as hereinbefore set forth, of a window-frame, the main screen stretched between the sides of the window-frame, side-screens, one, hinged to each end of the main screen and devices for supplying water to the main and the side-screens.

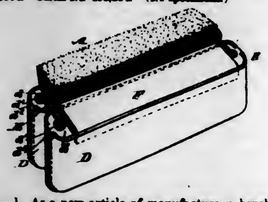
14. The combination, substantially as herein before set forth, of the main screen having a slotted water supply pipe at the top which communicates with an inlet opening at one end, a side screen also provided with a slotted water supply pipe at the top hinged to the main screen and communicating through the hinge to the water supply pipe in the main screen.

15. The combination, substantially as hereinbefore set forth, of

the main screen having a slotted water supply pipe at the top, which is formed with an end piece C^2, a side screen having a slotted water supply pipe at the top provided with a cylindrical end piece S', connected with the end piece C^2, and provided with an opening which communicates through an opening in the end piece C^2, with the slotted supply pipe in the main screen.

16. The combination, substantially as hereinbefore set forth, of a screen formed with a slotted supply pipe at the top hinged to its support and provided with a water opening which communicates with a water opening in the support.

489,084. BRUSH. JAMES R. PROVIER, Ridgewood, N. J. Filed Oct. 9, 1891. Serial No. 408,284. (No specimens.)



Claim.—1. As a new article of manufacture, a brush having an inclosing case held thereto, the brush being movable in the case to project it therefrom for use, and the case having internal stops at its open end for limiting the outward movement of the brush, by contacting with the brush back substantially as described.

2. As a new article of manufacture, a brush consisting of a case, a brush fitted in said case, and a continuous spring extending around the back of the brush and at its ends, substantially as described.

3. As a new article of manufacture, a brush comprising two cases brush members or sections therein, the cases having an elastic hinge connection, uniting adjacent sides substantially as described.

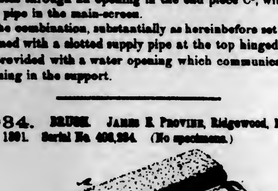
4. As a new article of manufacture, a brush comprising two sections, each having a case in which the brushes are held to slide, for projecting said brushes or inclosing them as desired, the said sections being movable into a position in line with each other, face to face, or to an open or unfolded position, and springs extending around both of said brushes and forming a yielding connection between the brushes, substantially as described.

5. The combination with a brush comprising two folding cases, and a brush held to slide in each case, the cases being held together, and provided with stops for limiting the outward movement of the brushes, substantially as described.

6. The combination with a brush formed in two sections, of a case for each section and an elastic connecting device, for said cases, the latter being formed with guides for said connecting devices, substantially as described.

7. The combination with a brush formed of two sections, of a coil spring forming an elastic connection for said sections, substantially as described.

489,085. PEDAL-PIANO. CHARLES H. RAND, Geneva, Ohio. Filed Mar. 3, 1892. Serial No. 424,202. (No model.)

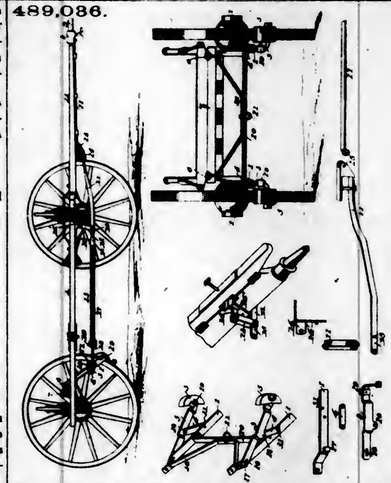


Claim.—In a pedal piano a mechanical push and damper action consisting of the pedals D the angles G and the rods R and U together with the springs O and T and the adjustments X. Y. and V. W. as described.

489,086. WAGON-BRAKE. HERBERT H. REYNOLDS and BENTON L. REYNOLDS, West Bangor, N. Y. Filed Aug. 13, 1892. Serial No. 443,086. (No model.)

Claim.—The combination, with a running gear having a tongue with a tip, of a brake-frame and automatic back-up suspended from the running gear and provided with brake shoes, the hinge-joint connection in front of whiffletrees and evener, between the sliding bar on the lower face of the tongue and the inclined bar 11 thereby bringing

489,086.



the attachment for whiffletrees and evener upon the front of said sliding bar, the connection of lever 12 to plate 14' and the fastenings of plate 14' to the center of the rear side of front axle with the engagement of king-bolt, the engagement of suspending lever 12 near its lower end with plate 14' at the center of the lower side of front axle, bringing the draft at this point, and connections between the inclined bar 11 and suspending lever 12 and extension rod 13 and brake frame substantially as and for the purpose set forth.

489,087. LISTER PLOW AND PLANTER. LEVI ROADHOUSE, Monmouth, Ill., assignor to the Weir Plow Company, same place. Filed Aug. 1, 1891. Serial No. 401,419. (No model.)



Claim.—1. The combination with a plow, of a vertically adjustable subsoiler, seed-delivery mechanism pivotally connected with said plow, a telescopic tube connected with said pivotally connected seed delivery mechanism and said vertically adjustable subsoiler for delivering seed to the ground, a lever for elevating said seed-delivery mechanism out of operation and a spring for retaining the same normally in operative position, substantially as described.

2. The combination with a plow, of a frame 17, pivoted at its forward extremity to the plow, a brace, as 6, a lifting lever 22 turning

on said brace, a bracket 21, a rod 20, connected at its upper end to said bracket and at its lower end to the rear of the pivoted frame 17, a spring 25 upon the rod 20, bearing at its lower end against the said frame 17, and seed delivery mechanism supported upon said frame 17, substantially as described.

3. The combination with a plow, of a frame 17 pivoted at its forward extremity to the plow, a brace 6, extending between the handles of the plow, a lever 22 turning on said brace, a bracket 21, a rod 20 connected at its upper end to said bracket and at its lower end to the rear of the pivoted frame 17, a spring 25 upon the rod 20, bearing at its lower end against said frame 17, a seed delivery mechanism supported upon said frame 17, a subsoiler 9, and a telescopic tube 30 31, secured to said frame 17 and said subsoiler 9, substantially as described.



4. The combination with a plow, of a seed delivery mechanism pivoted thereto, combined covering and seed delivery mechanism operating wheels, said wheels inclining inward from front to rear and top to bottom, having inclined or beveled tires and provided with projections extending from their running surface, substantially as described.

5. The combination with a plow having a brace 6 connecting its handles and an adjustable subsoiler 9 having a rearward extension 10, of a frame 17 pivoted at its forward end to the plow and formed at its rear with a lug, seed delivery mechanism and combined covering and seed delivery mechanism operating wheels carried by said frame 17, a telescopic tube 30, 31, connected with said frame 17 and the rearward extension 10 of the subsoiler, a lever 22, turning on the brace 6, a bracket 21, pivoted to said lever, a rod 20, secured at its upper end to said bracket and at its lower end to the lug on the rear of the frame 17, and a spring 25, on said rod 20 for the purpose of pressing the seed delivery mechanism and wheels to their operative position, substantially as described.

6. The combination of a plow and seed delivery mechanism carried thereby, with combined covering and operating wheels, said wheels being inclined from top to bottom and being provided with projections extending from their landing surface to prevent slipping and secure regularity of work, substantially as described.

489,088. HANGING AND ADJUSTING PRESSURE-BARS OF PLANERS. DAVID P. ROSS, South Evanston, Ill. Filed Sept. 28, 1891. Serial No. 407,089. (No model.)

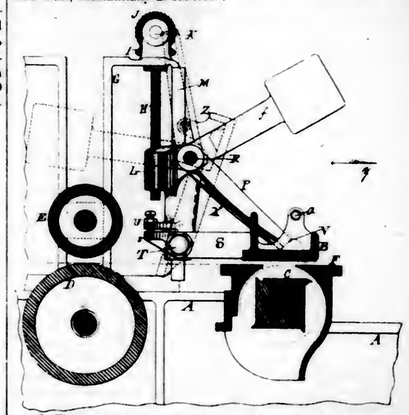
Claim.—1. The combination with the presser-bar and pivoted arms by which it is carried, of a movable strut engaging said bar for holding it down to its work, said strut being incapable of endwise movement, substantially as set forth.

2. The combination with the presser-bar and pivoted arms by which it is carried, of a pivoted arm adapted to engage said bar for raising and lowering it, and means for operating said arm, substantially as set forth.

3. The combination with the presser bar and pivoted arms by which it is carried, of an arm adapted to engage said bar for holding it down to its work, elevating it, holding it elevated, or lowering it, and means for operating said arm, substantially as set forth.

4. The combination with the presser bar and pivoted arms by which it is carried, of the arm P engaging the presser-bar, and a weight for holding said arm in engagement with the bar, substantially as set forth.

5. The combination with the presser bar and pivoted arms by which it is carried, of a rock shaft the arm P projecting therefrom and engaging the presser bar, and the weighted lever *f* secured to the rock shaft, substantially as set forth.



6. The combination with the presser-bar and pivoted arms by which it is carried, of a rock shaft, an arm projecting therefrom, a stud carried by the presser-bar and adapted to be engaged by said arm for raising and lowering the presser-bar, and means for turning said rock shaft, substantially as set forth.

7. The combination with the presser-bar and pivoted arms by which it is carried, of a rock-shaft, an arm projecting therefrom, a stud carried by the presser-bar and adapted to be engaged by said arm, said arm having a graduated-curve bearing surface for said stud, and means for turning said rock-shaft, substantially as set forth.

8. The combination with the cutter, of a presser bar, arms projecting laterally therefrom, pivots having axes parallel with the length of the presser-bar about which said arms are movable, stops for limiting the downward movement of said arms, and means for adjusting the pivots vertically, substantially as set forth.

9. The combination with the presser-bar and arms by which it is carried, of vertically adjustable carriages to which said arms are pivoted, a rock-shaft carried by said carriages, arms projecting from the rock-shaft and engaging the presser-bar, and means for operating said rock shaft, substantially as set forth.

10. The combination with the presser-bar and arms by which it is carried, of vertically adjustable carriages to which said arms are pivoted, a rock shaft carried by said carriages, arms projecting from the rock-shaft, shoulders on the presser-bar adapted to be engaged by said arms and means for turning the rock-shaft, substantially as set forth.

11. The combination with the presser-bar, and arms by which it is carried, of vertically adjustable carriages to which said arms are pivoted, a rock-shaft carried by said carriages, arms projecting from said rock-shaft, studs carried by the presser-bar and adapted to be engaged by said arms, and means for turning the rock-shaft, substantially as set forth.

12. The combination with the presser-bar having shoulders *v* and studs *a*, and arms by which said presser-bar is carried, of vertically adjustable carriages to which said arms are pivoted, a rock-shaft carried by said carriages, arms P P projecting from said shaft and engaging said shoulders and studs, and means for turning the rock-shaft, substantially as set forth.

13. The combination with a presser-bar and arms by which it is carried, of vertically movable carriages to which said arms are pivoted, mechanism for simultaneously adjusting said carriages, and means for limiting the downward movement of the presser-bar, substantially as set forth.

14. The combination with a presser-bar and pivoted arms by which it is carried, and a stop for limiting the downward movement of said bar of struts engaging the bar and preventing its upward movement, substantially as set forth.

489,089. SAW-SETTING GAGE. WILLIAM SAXE, Port Huron, Mich. Filed Aug. 20, 1892. Serial No. 444,498. (No model.)

489,039.

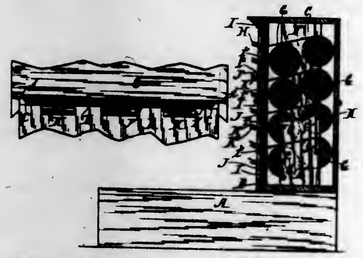




Claim.—1. A saw gage consisting of a base plate, and two measuring plates adjustably mounted thereon and adapted to bear against opposite sides of the saw.

2. A saw gage consisting of a base plate having offsets to bear against one side of the saw, and measuring plates adjustably secured to the base plate and adapted to bear against the opposite sides of the saw.

489,040. RECORDING AND RECEIPTING MACHINE. JOSEPH F. SCHMERER, Keweenaw, assignor of one-half to Gustave Schumacher, Chilton, Wis. Filed Feb. 10, 1892. Serial No. 420,954. (No model.)



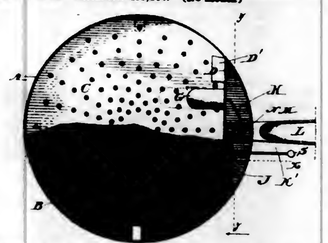
Claim.—1. In a money recording and receipting machine, the combination, of a casing, shafts therein, placed in a series of vertical lines, the shafts in the rear being arranged on a plane higher than the plane of the front shafts, slips wound upon the several shafts, the ends thereof passing through openings in the front of the casing, the slips upon the rear shafts extending out above and clear of those upon the front shaft, substantially as set forth.

2. In a money recording and receipting machine, the combination, of a casing, a series of transverse strips constituting the front of the machine provided in their contacting or contiguous edges with registering semicircular grooves, weight rollers fitting in said registering grooves, a series of shafts journaled in the casing, and slips wound upon the shafts having their outer ends passing between the contiguous or contacting edges of the transverse strips and beneath the weight rollers, substantially as set forth.

3. In a money recording and receipting machine, the combination, of a casing, a series of transverse strips constituting the front of the machine said strips provided in their contacting or contiguous edges with registering semicircular grooves and in their front with depressions or recesses, weight rollers fitting in the registering grooves, knives projecting out from the transverse strips at a slight decline, a series of shafts journaled in the casing and recording and receipting slips wound upon the shafts having their outer ends passing between the contiguous or contacting edges of the transverse strips and beneath the weight rollers, and having printed thereon a series of coupons, substantially as set forth.

4. In a money recording and receipting machine, the combination, of a casing having a removable front and back, a series of vertical strips, front and rear shafts journaled in said strips in a series of vertical lines, each of the rear shafts mounted a slight distance above the shaft in front, and recording and receipting slips wound upon the shafts, the ends of said slips being carried through slits in the front of the machine alternately from the rear and front shafts, and composed of a series of coupons in the form of a receipt for the amount of the purchase, numbered consecutively from one upward, and constructed to be detached or severed separately, substantially as set forth.

489,041. COOKING-POT. LOUIS SIEH, Philadelphia, Pa. Filed June 1, 1892. Serial No. 435,187. (No model.)

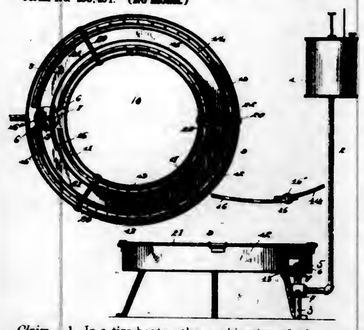


Claim.—1. A cooking pot composed of a shell A, inner partition D forming chamber H and provided with opening I; valve plate J to close the latter, spring N M; rod K K' and passage way G from partition D, opening into chamber H and through the true bottom B or to the exterior of the pot; all combined and operating substantially as described.

2. A cooking pot composed of a shell A; inner partition D, provided with opening I and forming a chamber H, terminating below before reaching the bottom B, valve plate J; rod K K'; spring N M; and passage way G, opening from said chamber H to the exterior of the pot; all combined and operating substantially as described.

3. A cooking pot composed of a shell A; inner partition D, provided with opening I and forming a chamber H, valve plate J; rod K K'; spring N M and passage way G, opening to the exterior of the pot from said chamber H, at a point so far above bottom B as to avoid draining all the liquid from the pot when opening I is uncovered; all combined and operating substantially as described.

489,042. TIRE-HEATER. THOMAS J. SKINNER, Auburn, assignor of one-half to James A. Reynolds, Carroll, Iowa. Filed June 3, 1892. Serial No. 435,431. (No model.)



Claim.—1. In a tire heater, the combination of a box or casing and adjustable concentric partitions mounted therein, said partitions being constructed to be increased or decreased in diameter within the said box or casing, and a burner extending into the box or casing from the bottom of one side thereof, substantially as described.

2. In a tire heater, the combination of a box or casing having a perforated fuel pipe in the lower portion thereof to form a heating medium, and concentric partitions adjustably mounted in said box or casing, said partitions being constructed to be increased or decreased in diameter within said box or casing, substantially as described.

3. In a tire heater, the combination of a box or casing having lids or covers of segmental form, fuel pipes mounted in the bottom thereof and having openings therein, horizontally-disposed radially-arranged rods above said pipes, and concentric adjustable partitions between which said pipes are located, said partitions being freely movable on a part of said rods and constructed to be increased or decreased in diameter, substantially as described.

4. In a tire heater, the combination of a box or casing having lids or covers perforated fuel pipes in the bottom thereof horisontally disposed radially arranged rods, and partitions adjustably mounted in said box or casing and having slots therein adapted to be located over a portion of the said rods, said partitions having overlapping ends, a portion of which are provided with slots to engage headed pins carried by the other portion of the same, substantially as described.

5. In a tire heater the combination of an oil tank, a generator connected thereto a box or casing into which said generator extends and having a closed bottom pipe mounted on said bottom and connected with said generator, a series of horizontally arranged radially disposed rods and adjustable partitions mounted in said box or casing, said pipes being formed with openings for the escape of gas therethrough and the box or casing having hinged lids or covers, said partitions having overlapping ends, a portion of which are provided with openings or slots to engage headed pins carried by the other portion of the same, substantially as set forth.

489,043. MAGAZINE LEAD-PENCIL. JAMES R. SMITH, Brooklyn, assignor to Edward Todd & Co., New York, N. Y. Filed May 16, 1892. Serial No. 433,198. (No model.)



Claim.—1. A magazine pencil, comprising a tubular barrel, two or more lead holders inclosed therein, and means, substantially as described, for selecting and propelling any one of said holders, as and for the purpose set forth.

2. A magazine pencil, comprising a tubular barrel, having longitudinal slots, two or more lead holders inclosed in said barrel, each having a pin projecting through one of said slots, and a slide for engaging any one of said pins and propelling the holder from the barrel, substantially as described.

3. A magazine pencil comprising a tubular barrel, having longitudinal slots, two or more lead-holders inclosed in said barrel and having pins projecting through said slots, a slide adapted to engage any one of said pins and propel the holder from the barrel, and means for locking the remaining holders in place in the barrel, substantially as described.

4. A magazine pencil, comprising a tubular barrel, having longitudinal slots, two or more lead-holders inclosed in said barrel, and having pins projecting through said slots, and a jacket revoluble on said barrel and containing a single longitudinal slot, and having an annular groove near one end to receive the pins, substantially as described.

5. A magazine pencil, comprising a tubular barrel, having longitudinal slots, two or more lead-holders inclosed in said barrel, and having pins projecting through said slots, a jacket revoluble on the barrel and having a single longitudinal slot, and a collar sliding on the jacket and carrying a block entering the slot in the jacket and adapted to engage with the pin on a lead holder, substantially as described.

6. In a magazine pencil, the combination with the tubular barrel having longitudinal slots, of the lead-holders each having a spring extension carrying a pin engaging with one of said slots, substantially as described.

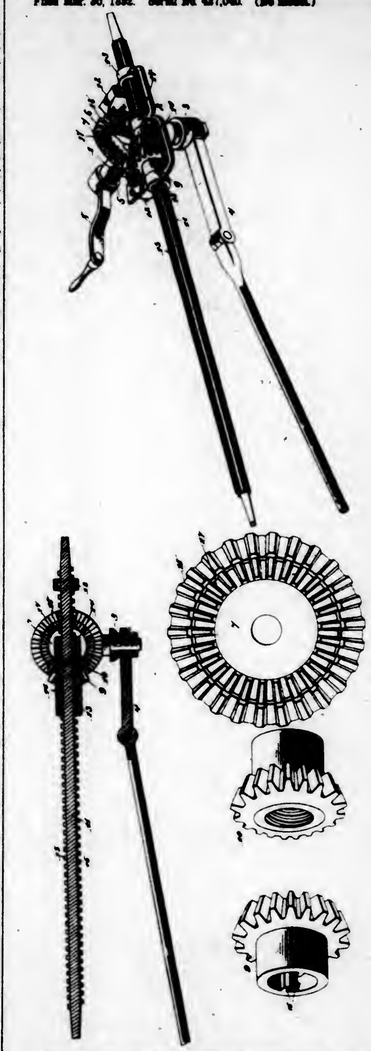
7. The combination with the barrel A having the slots a', of the lead-holders G having the flat springs g carrying the pins g' entering said slots, substantially as described.

8. The combination with the barrel A, of the funnel C at one end, lead-holders G inclosed in said barrel, and means for propelling any one of them through the funnel, substantially as described.

9. A magazine pencil containing two or more lead holders, means for propelling any one of said holders, and a guide for selecting the proper holder, substantially as described.

10. The combination with the barrel A containing the lead-holders G, and provided with the slots a', of the jacket F revoluble on the barrel and containing a single slot, and a collar E bearing devices in line with the slots a' to indicate the characters of the several leads, substantially as described.

489,044. DRILLING-MACHINE. JOHN T. SNYDER, Lancaster, Pa. Filed Mar. 30, 1892. Serial No. 427,040. (No model.)

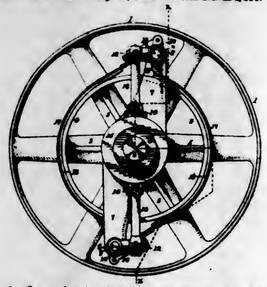


Claim.—1. In a drilling machine, the combination of a frame provided with a laterally extending bearing and having a removable reversible section adapted to be turned end for end and provided with end bearings and a central bearing, arranged in alignment and disposed longitudinally of the frame, a groove threaded feed bar arranged in the longitudinally disposed bearings, the pinions disposed on the bar between the central bearing and one of the end ones, one of the pinions engaging the grooves and the other the threads of the feed bar, a short shaft journaled in the laterally extending bearing and the cog wheel carried by the short shaft and having a double set of teeth meshing with the pinions, substantially as described.

2. In a drilling machine, the frame 1 having a removable section 2, the latter being provided with end bearings 13 and a central bearing 14, the feed bar passing through the three bearings 13, 13 and 14

and the pins 12 for securing the removable section in place, substantially as described.

489,045. OUTRIDE FRICTION-BAND CLUTCH. JAMES R. TAPLIN, Akron, Ohio. Filed May 26, 1892. Serial No. 434,411. (No model.)

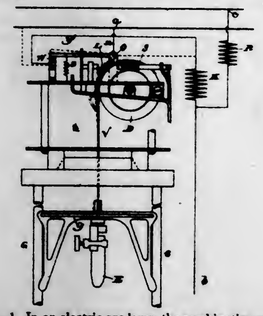


Claim.—1. In a clutch of the class designated, a main driving shaft; and a hub loosely mounted on said shaft and supporting an annular rim adapted to communicate motion to the machinery to be driven; and a driver consisting of a hub attached to said driving shaft, having oppositely-disposed radial arms; combined with segmental bands, surrounding and arranged to clamp opposite halves of said annular rim, and mechanism mounted in the opposite ends of said driver connected with, and arranged to simultaneously draw or separate, the adjacent ends of said opposite bands, substantially as shown and described.

2. In a clutch of the class designated, a main driving shaft; and an annular rim supported by a hub loosely mounted on said shaft, and arranged to communicate motion to the machinery to be driven; and a driver consisting of a hub having oppositely-disposed radial arms; and two semi-circular bands surrounding and arranged to clamp opposite sides of said rim, combined with rock-shafts journaled in the radial arms of said driver, each having oppositely-disposed crank-arms, respectively connected with the adjacent ends of said semi-circular bands, and means for rocking said shafts, and drawing together and forcing apart said adjacent ends, substantially as set forth.

3. In a clutch of the class designated, the combination of the driving shaft; the annular rim supported by a hub loosely mounted on said driving shaft; the driver fixed to, and arranged to revolve with said shaft; the rock-shafts journaled in the ends of said driver, each having oppositely-disposed crank-arms severally connected with the adjacent ends of semi-circular bands surrounding opposite sides of said rim; the semi-circular bands; the third crank-arms; the sliding collar and the links connecting said third crank-arms and sliding collar, substantially as shown and described.

489,046. ELECTRIC-ARC LAMP. ELIHU THOMSON, Swampscott, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Feb. 4, 1892. Renewed Nov. 14, 1892. Serial No. 451,907. (No model.)



Claim.—1. In an electric arc lamp, the combination with the carbon and the feeding mechanism therefor, of a cut-out device connected to one of such parts and responsive to difference in movement between them, due to stoppage of the carbon holder, and operating to cut out a part or the whole of the lamp.

2. In an electric arc lamp, the combination with the carbon and the feeding mechanism of a circuit controller operatively connected to both of such parts, and responsive to a difference in movement between them, and operating to cut out a part or the whole of the lamp.

3. In an electric arc lamp, the combination with the carbon and the feeding actuator, and a mechanism or part between such parts, of a circuit controller operatively connected to such intermediate mechanism or part, and responsive to a difference of movement between them, and operating to cut out a part or a whole of the lamp.

4. In an electric arc lamp, the combination with the carbon, a feed regulating magnet and armature, and connecting mechanism between such parts, of a circuit controller operatively connected to such connecting mechanism, and responsive to a difference in movement between the parts of said connecting mechanism, and operating to cut out the said feed regulating magnet.

5. In an electric arc lamp, the combination of the carbon-holder, a supporting and feeding mechanism therefor having a part movable in a direction to feed the carbon, and also movable in a second direction on stoppage of the carbon holder, a feeding actuator acting on said part and causing both of said movements, and a circuit controller operatively connected with such part and connected to the circuits of the lamp so as to cut out a part or the whole of the lamp, in said movement in the second direction.

6. In an electric arc lamp the combination of the carbon holder, a support therefor having a part connected directly or indirectly to, and movable in a direction to feed the carbon, and also movable in another direction, means for moving it in such second direction, in opposition to the action of the weight of the carbon holder, and a circuit controller operatively connected to such part and responsive to its movement in said second direction to cut out a part or the whole of the lamp.

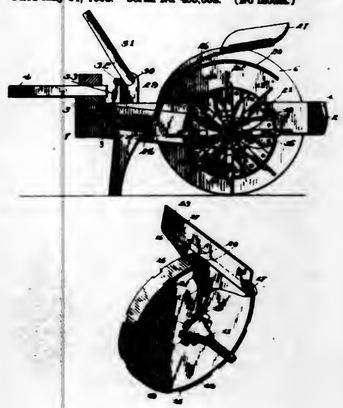
7. In an electric arc lamp, the combination with the carbon holder, a feed regulating magnet in shunt circuit to the arc, a support for the carbon holder movable under control of said magnet, a circuit controller for said shunt circuit, engaging with a part of said support, and actuating means for moving said part and the circuit controller in a direction to open the shunt circuit when the support is released from the weight of the carbon holder.

8. In an electric arc lamp, the combination with the carbon holder, a part supporting and operating the same, being held in one direction by the weight thereof, but free to move in another direction when released from such weight, actuating means for moving such part in said second direction, and a shunt circuit controller operated by said part, when moved in the second direction.

9. In a multiple arc or multiple series arc lighting system, the combination in each lamp, of a carbon holder, a feeding mechanism therefor, a magnet in shunt circuit with the arc, and a circuit controller in the shunt magnet circuit engaging with a part of the feeding mechanism, and operated by a difference in movement of its parts due to stoppage of the carbons to open said shunt circuit.

10. The combination of the carbon holder, the rotary support, the actuator for the support, the ribbon suspending said holder from the support, and the circuit controller engaging with said ribbon and cutting out a part or the whole of the lamp.

489,047. STALK-CHOPPER. JAMES L. TOWNSEND, Fulmore, N. C. Filed May 31, 1892. Serial No. 435,052. (No model.)



Claim.—1. In a stalk-chopper, a centrally rotatable chopping disk provided at its opposite faces with pairs of opposite and outwardly extending brackets removably secured to the disk, and a series of choppers extending across the periphery of the chopper and secured to the pairs of brackets, substantially as specified.

2. In a stalk-chopper, the disk provided at opposite sides with circular hub-plates having V-shaped notches, a peripheral flange whose edges extend beyond the faces of the disk and are notched in radial alignment with the notches of the plates, combined with the pairs of opposite brackets terminating at their inner ends in plates provided at their outer ends with abutments, said brackets extending at their upper inner ends beyond the plates and fitting the recesses of the peripheral flange, said plates being provided with V-shaped tenons fitting the notches of the hub-plates, bolts connecting the plates of each opposite pair of brackets, and chopping knives bolted to the abutments, substantially as specified.

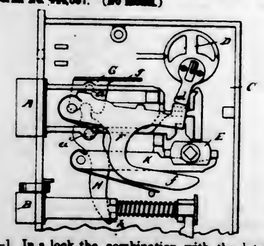
489,048. PIPE-WRENCH. FREEMAN I. TWEE and LUTHER A. BARBER, Groton, N. Y. Filed Nov. 5, 1892. Serial No. 451,089. (No model.)



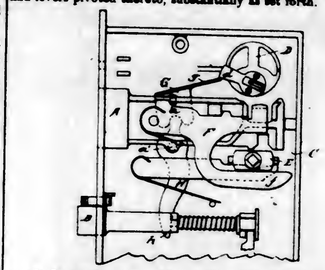
Claim.—1. A pipe wrench comprising a threaded handle, a threaded sleeve receiving it, a rearwardly tubular jaw receiving the front end of the handle, lugs on opposite sides of the sleeve, and a chain permanently connected on one end, and detachably engaging with said lugs on the opposite side, in combination.

2. A pipe wrench comprising a threaded handle, a threaded sleeve receiving it, a rearwardly tubular jaw receiving the front end of the handle non-rotatable, and fitting into the front end of said sleeve, and lugs on opposite of the sleeve, to one set of which one end of the chain is connected, and the chain so connected and adapted to detachably engage with the other lugs, in combination.

489,049. LOCK. GEORGE S. TYSON, Reading, Pa. Filed Aug. 26, 1892. Serial No. 444,067. (No model.)

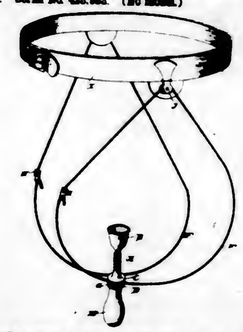


Claim.—1. In a lock the combination with the latch-bolt, the lock-bolt, and the cylinder cam arranged to directly operate said lock-bolt, of levers G and H separately pivoted to said lock-bolt and positively geared together, one of said levers being arranged to engage the latch-bolt and the other to be positively carried into and out of engagement with said cam by the joint movement of the lock-bolt and levers pivoted thereto, substantially as set forth.



2. In a lock the combination with the lock bolt, the tumbler therefor, and cylinder cam *d* and hub E arranged to independently operate said tumbler, of the supplemental spring arm pivoted to the case and bearing upon said hub to maintain it in its normal position when the tumbler is moved away from it, substantially as set forth.

489,050. PESSARY. JULIUS J. VERNIER, Toledo, Ohio. Filed Mar. 5, 1892. Serial No. 423,983. (No model.)



Claim.—In a device of the class described, a body band or belt having supporting pulleys on each side thereof at the hips, a womb supporter and menstrual receptacle having an annularly grooved head, and a single continuous elastic supporting cord or band provided with an integral supporting ring sprung into said grooved head, and opposite thigh portions diverging from said ring and passing over said pulleys on each side of the body, substantially as set forth.

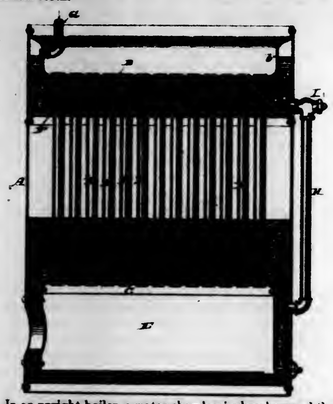
489,051. UPRIGHT TUBULAR BOILER. FREDERICK I. WATERMAN, South St. Paul, Minn. Filed Apr. 14, 1892. Serial No. 429,109. (No model.)

Claim.—1. In an upright boiler, a water chamber around the upper ends of the tubes, and a connection between said water chamber and the lower portion of the boiler, provided with a compression valve whereby water in said chamber is held in contact with the upper flue sheet, substantially as and for the purposes set forth.

2. In an upright tubular boiler, a water chamber inclosed around the upper ends of the tubes between the upper flue sheet and a diaphragm located a short distance below it, and a connection leading out of said chamber below said flue sheet into the lower portion of the boiler and provided with a compression valve by which water in said chamber is held in contact with said flue sheet, substantially as and for the purposes set forth.

3. In an upright tubular boiler, the combination with the shell, of the upper flue sheet bent upwardly and outwardly at its edge, which is joined to the shell and forms therewith an annular space above the upper ends of the tubes, a diaphragm located a short distance below said flue sheet and inclosing therewith a water chamber around the upper ends of said tubes, and a pipe leading out of said chamber into the lower portion of the boiler and constructed and arranged to hold the water in said chamber in contact with said flue

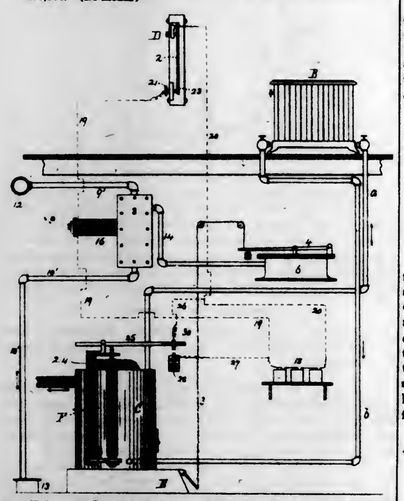
sheet around the upper ends of the tubes, substantially as and for the purposes set forth.



4. In an upright boiler, a water chamber inclosed around the upper ends of the tubes, and a connection between said chamber and the lower portion of the boiler, provided with a back pressure or retarding device, whereby water is caused to rise in said chamber and is held in contact with the upper fire sheet around the upper ends of said tubes, substantially as and for the purposes set forth.

489,052. APPARATUS FOR REGULATING TEMPERATURE.

JOSEPH R. WATER, Lawrence, Mass. Filed Apr. 23, 1892. Serial No. 430,360. (No model.)



Claim.—1. In apparatus for regulating temperature, the combination with a series of radiators, a heating agency communicating therewith, a room thermostat, and an operating weighted diaphragm connected with the damper of the heating agency, of a valve loosely mounted upon its bearings and adapted to be operated in one direction by fluid pressure, in the other by electrical energy, and an electric current and circuit therefor which includes the room thermostat, the movement of the independent valve serving to control the pulsations of the diaphragm, substantially as specified and stated.

2. In a temperature regulator, the combination with a loose valve controlled solely by fluid pressure and electrical energy, a room thermostat, a pulsating diaphragm operated by the movement of the independent valve, conducting wires from the current generator intersecting the room thermostat and electro-magnets which operate in part said valve, of a loop circuit, a second thermostat attached to the heating agency, and a lever operated by the second thermostat to short circuit the current and operate the independent valve by fluid pressure regardless of the room thermostat, substantially as described.

3. In a temperature regulator, a heating agency an electric generator—as a battery—, two conducting wires therefrom, a room thermostat, and one or more electro-magnets likewise in the same circuit, combined with an independent valve, a loop circuit, a second thermostat, and lever upon the heating agency adapted to short circuit the main conducting wires, together with mechanism to operate the damper of the heating agency by movement of the independent valve consequent upon the short circuit, substantially as explained.

4. In apparatus for regulating temperature, the combination with an independent valve, a heating agency, an electric generator, a room thermostat, and conducting wires to the independent valve and room thermostat, of a valve loosely mounted within a valve chamber and provided with an armature, said valve adapted to be alternately reciprocated by electrical energy and fluid pressure, and the interconnecting mechanism whereby the damper of the heating agency is controlled upon movement of the independent valve, substantially as specified.

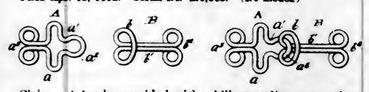
5. The apparatus for controlling temperature, composed of a room thermostat, an electric generator, a heat creating and distributing agency, a weighted diaphragm to control the damper of the heating agency, an independent valve, and a fluid pressure system communicating with the diaphragm, together with means for electrically operating the independent valve to actuate the diaphragm and close the damper, as likewise with means to operate the independent valve by fluid pressure and thereby open the damper, substantially as herein set forth and stated.

6. The combination with a heating agency, a weighted diaphragm, an electric generator, and suitable conducting wires, of a valve chamber, supply and exhaust pipes therefrom, a loosely mounted armature-equipped valve therein to open and close said pipes, electro-magnets controlled by the room thermostat together with means to unite said diaphragm with the valve chamber, substantially as set forth.

7. In apparatus for regulating temperature, heat generating and distributing agencies, a room thermostat, an electric generator, conducting wires to a valve operated by said room-thermostat, combined with a second thermostat actuated by the heat generating agency, and a loop-circuit to weaken the main current, and thereby render the room-thermostat inoperative to prevent the heating agency from exceeding the limits of safety, substantially as specified.

489,053. HOOK AND EYE.

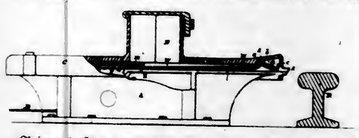
HENRY S. WEDMORE, Guilford, Conn. Filed Apr. 13, 1892. Serial No. 429,065. (No model.)



Claim.—A hook, provided with a bill extending over and spaced from its shank, and an eye, the shanks of the hook and the eye being arranged to extend substantially in the same or parallel planes, the one having an eye in its head, a laterally elongated loop in its shank and a contracted passage-way leading from the elongated loop to the eye, and the other having a contracted shank and an enlarged head, the relation of the said contracted shank of the latter and the contracted passage-way of the former being such that the contracted shank may pass through the contracted passage-way to its seat in the head without being twisted or turned laterally, substantially as set forth.

489,054. TORPEDO-PLACING MACHINE.

CHESTER A. WELLER, Sing Sing, N. Y. Filed Mar. 19, 1892. Serial No. 426,518. (No model.)



Claim.—1. In a torpedo machine substantially as described, the combination with the carrying slide having grooved edges substantially as shown, of a loop hooking into said grooves and passing over a closing pin, pivoted in a chamber above the end of the torpedo passage, the said closing pin having a face forming an arc with the pivot on which it swings, substantially as shown and described.

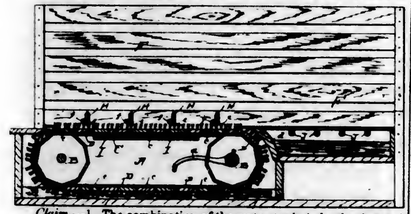
2. In a torpedo setting machine substantially as described, the combination of the grooved torpedo carrying slide *m*, loop *i*, *i*, *d*, hooking into the grooves in the slide and passing over a closing plate *c*, shoulders *u*, *u*, at the end of the slide to act upon the hooks *n*, *n*, of the said loops, and the closing pin *c* pivoted in the chamber *b*, substantially as shown and described.

3. In a torpedo setting machine in which torpedoes are carried by a moving slide, an outlet closing device pivoted in a chamber above the torpedo passage and opened by the torpedo as it issues from the outlet, closed by gravity on the removal of the torpedo, and locked by the action of the loop *i*, *i*, *d*, substantially as herein shown and described.

4. The combination in a torpedo machine of the magazine B, torpedo carrying slide *m*, slide moving gearing *v*, and outlet closing mechanism comprising the loop *i*, *i*, *d*, engaging with grooves in the side of the slide *m*, and the closing plate *c*, said closing plate being pivoted in a chamber above the passage *w*, substantially as shown and described herein.

489,055. DEVICE FOR TREATING SHEEP.

JACOB R. WEIMER, Burton City, Ohio. Filed Sept. 26, 1892. Serial No. 446,575. (No model.)



Claim.—1. The combination of the water-tank A, having located therein the drums B, and the endless-brush C, the medicine-tank E, located at one end of the water-tank, the stops H, located above the endless-brushes *c*, and the rollers J, located in the top or upper side of the medicine-tank, substantially as and for the purpose specified.

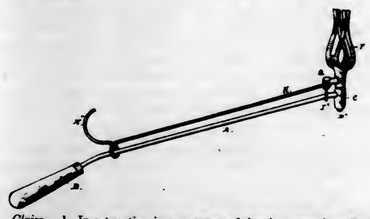
2. The combination of the water-tank having located therein the brush-drums B, the endless-brush C, the drive-chains D having fixed thereto the brush-blocks *c*, the stops H, provided with the cushions *f*, and the combs *e*, the medicine-tank E, the rollers J, located at the top or upper side of said medicine-tank, and the partition *d*, substantially as and for the purpose specified.

3. The combination of the water-tank, having located therein an endless-brush mounted upon revolving drums, an interposed strip located below the upper section of the endless-brush, the foot-stops located above the upper section of the endless-brush, a medicine-tank located at one end of the water-tank, and the cage F, substantially as and for the purpose specified.

4. The combination of a water-tank having located therein the endless-brush mounted upon revolving-drums by means of drive-chains such as D, a medicine-tank located at one end of the water-tank, an inclined-partition, located between the water-tank and medicine tank, the stops H, provided with beveled edges upon their top or upper sides, the cushions *f*, and combs *e*, substantially as and for the purpose specified.

489,056. TOASTING IRON OR TONGS.

FERDINAND A. M. WESSENDER, San Francisco, Cal. Filed Mar. 9, 1892. Serial No. 424,353. (No model.)



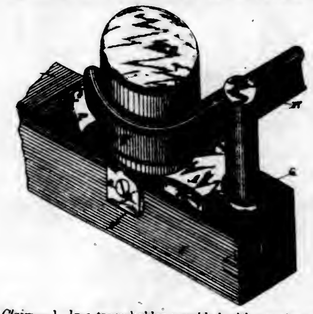
Claim.—1. In a toasting iron or tongs of the character described, a bent arm or handle, thimble secured to the end thereof, spindle working therein, clamp or holder secured to said spindle, a split arm also secured to said spindle, and a supplemental rod pivoted in said split arm and sliding on the bent arm or handle, as and for the purpose set forth.

2. In a toasting iron or tongs the thimble at the end of the bent arm, and a spindle carrying the clamp or holder operating in the thimble and a supplemental rod sliding on the bent arm and connected to the hollow spindle, as described.

3. In a toasting iron or tongs of the character above described holding spring clamp or rack connected to the top of the hollow spindle at the end of a bent arm, a split arm projecting from said spindle in which a supplemental rod sliding on the bent arm is pivoted by a pin, for operating the spindle and rack in the manner above described.

489,057. TRACE-HOLDER.

JOHN J. WERAT, Indianapolis, Ind., assignor of two-thirds to Frederick H. Kilbourne and Howard H. Hitchcock, Chicago, Ill. Filed June 1, 1891. Serial No. 394,658. (No model.)



Claim.—1. In a trace-holder provided with a spring to equalise the draft, a cock-eye having a stem broadened into a cap or covering to inclose and protect said spring, substantially as described and shown.

2. In a trace-holder the combination of a spring to equalise the draft, a cap or cover attached to the spring to conceal and protect the same, said cap or cover being formed integral with and adapted to move synchronously with a cock-eye, substantially as described and shown, and for the purpose specified.

3. In a trace-holder the combination of a draft equalising spring, a cock-eye having a stem broadened into a cap or covering adapted to inclose and protect the draft equalising spring, and a base-plate having a raised collar, substantially as described and shown.

4. In a trace-holder provided with a base-plate A, a spring K, a closed cap B, and means to fasten the spring within the cap and between the cap and base plate, the combination of the lugs D and M arranged to meet to form a back stop to keep the spring always taut, substantially as described and shown.

5. In a trace-holder having the base plate A, the cap B with cock-eye attached, the spring K, and the lugs *d* and N, arranged within the cap to meet and form a back stop, and the collar *d'*, to deaden the sound of the meeting parts, all substantially as described and shown and for the purposes specified.

6. In a trace-holder provided with a spring adapted to equalise the draft, and an integral cap and cockeye adapted to be moved synchronously by a strain on the trace, the boss V in combination with the standard H to form a back-stop, substantially as described and shown.

7. In a trace-holder provided with a spring adapted to equalise the draft and an integral cap and cockeye adapted to be moved synchronously by a strain on the trace, the boss U in combination with the standard H to form a front stop, substantially as described and shown.

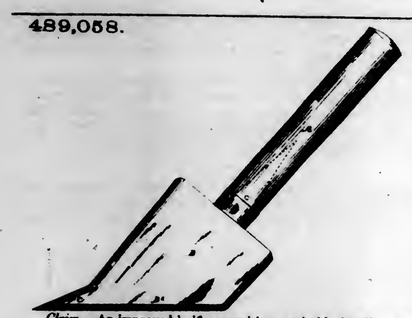
8. In a trace-holder, the base plate A, cap B, bolt O, cockeye P, and spring K, when arranged substantially as described and shown.

489,058. HAND GARDEN-WEEDER.

NICHOLAS WHITE, Cummings, Iowa. Filed Sept. 23, 1892. Serial No. 446,726. (No model.)

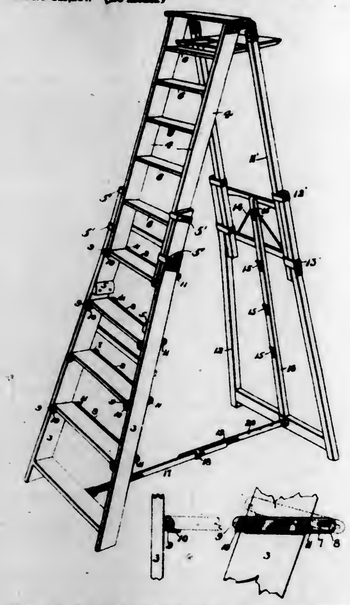


489,058.



Claim.—An improved knife comprising a suitable handle, a flat blade sharpened on its edges and attached to the said handle and having its lower edge inclined at an angle approximating forty-five degrees relative to the handle and a projection on its forward lower corner extending forwardly and downwardly therefrom for the purposes stated.

489,059. STEP-LADDER. LOUIS A. WIELAND, Pittsburg, Pa., assignor of one-third to P. G. Dean, same place. Filed Aug. 17, 1892. Serial No. 443,267. (No model.)

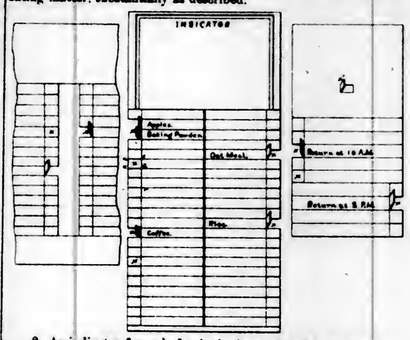


Claim.—1. In an adjustable step-ladder, legs having upper and lower extensible parts, the lower part having pivoted steps, and means for holding them detachably in horizontal position, the lower ends of the upper parts of the legs being longitudinally movable in the path of the pivoted steps, and being adapted to be upheld thereby; substantially as and for the purposes described.

2. In an adjustable step-ladder, legs having upper and lower extensible parts, the lower part having pivoted steps, loose pivot-bearings permitting horizontal motion of the steps, and detachable hooks; substantially as and for the purposes described.

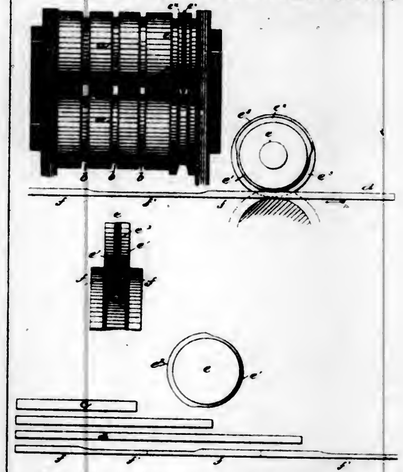
489,060. INDICATOR. JOHN H. WILHELM, Chicago, Ill. Filed Feb. 26, 1892. Serial No. 422,915. (No model.)

Claim.—1. An indicator formed of a single sheet of flexible material having indicating matter thereon, and a series of index wings integral therewith adapted to be turned separately opposite the indicating matter, substantially as described.



2. An indicator formed of a single sheet of flexible material having indicating matter thereon, and a series of wings integral therewith, the wings being at the edge of the flexible material and adapted to be turned separately opposite the indicating matter, substantially as described.

489,061. MACHINE FOR ROLLING HORSESHOE-BLANKS. HARRY B. WILLIAMS, Hartford, Conn., assignor to William D. Hubbard, same place. Filed Feb. 16, 1891. Serial No. 381,555. (No model.)

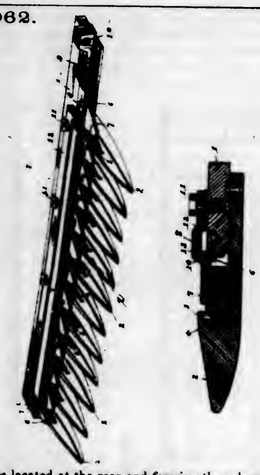


Claim.—In a machine for making right and left side weight horse shoe blanks, a pair of rolls, one of which is provided with a peripheral groove, while the other is provided with peripheral flanges, one portion of each of which is formed on a circle having one radius and the other portion formed on a circle having a different radius, and the annular splitting cutter intermediate the said flanges, and projecting beyond the peripheries thereof, substantially as described.

489,062. HARVESTER CUTTING APPARATUS. MATHEW WILSON, Garrison, Iowa. Filed June 2, 1892. Serial No. 435,260. (No model.)

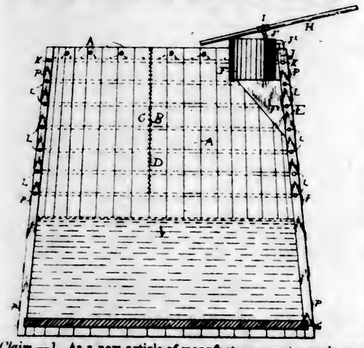
Claim.—In a cutting apparatus, the combination of the finger bar having a series of fingers with upper shouldered portions formed with recesses to provide rearwardly extending overhanging ends, a removable bar having a series of knives held under said overhanging ends, a reciprocating cutter-bar bearing on said knives, and a plate removably and adjustably secured to said finger bar and having a front raised portion with a channel extending entirely and continuously through the same, the front portion of said plate being beveled and extending down to and over the knives of the cutter bar, and the fastening bolts

489,062.



for said plates located at the rear and forming the sole means of securement, substantially as described.

489,063. NON-SHRINKING STAVE. RICHARD F. WILSON, Stockton, Cal. Filed Oct. 10, 1892. Serial No. 448,400. (No specimens.)



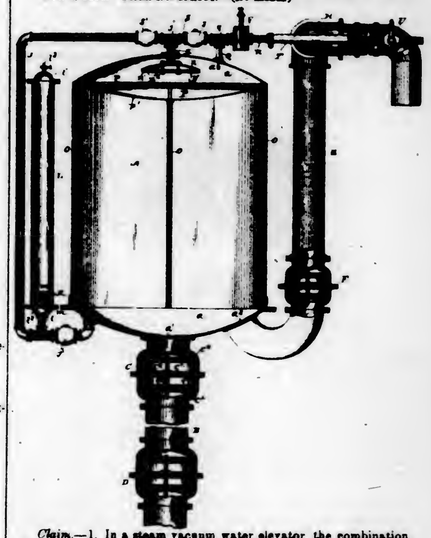
Claim.—1. As a new article of manufacture, a water tank, composed of the stave E, supplied with the inlet J, the pipe J^3, discharging water into such inlet J, the staves C and B, the vertical passage D formed by parallel grooves in the companion edges of the staves B and C, the staves A, the upper chamber K at the tops of the staves A, B, C, and E, the series of lower cross chambers L, and the overflow holes O of the chamber K, all substantially as shown and described.

2. A non-shrinking water tank composed of wooden staves, and containing water chambers, within the periphery of such staves, communicating with each other by a vertical passage supplied with water at its top by a feed pipe, and overflow holes connecting the upper chamber with the inside of the tank, so that the staves are kept constantly moistened and swollen, substantially as shown and described.

3. The combination of the trough H, the T joint I, the feed pipe J', the receiving tank F, the bracket F', the discharge pipe J^3, and the tank A B C E G P, the staves of the tank being supplied with the upper chamber K, the series of lower chambers L, the inlet J at the top of the stave E, the vertical passage D and the outlets O, all substantially as shown and described.

4. The combination with a water tank, the staves of which contain a series of horizontal chambers communicating with each other by a vertical passage formed by a groove in the edges of two of the staves, of a receiving tank attached to the inside of the water tank, a discharge pipe from such receiving tank emptying into an inlet in the top of one of the staves, such inlet communicating with the horizontal chambers and vertical passage, so that they are constantly filled with water, all substantially as shown and described.

489,064. STEAM-VACUUM WATER-ELEVATOR. HERMAN R. WIEHELMANN, Jacksonville, Fla., assignor, by direct and mesne assignments, to the Automatic Water Tank Company, Philadelphia, Pa. Filed Dec. 7, 1891. Serial No. 414,331. (No model.)



Claim.—1. In a steam vacuum water elevator, the combination with an inclosed tank cylinder having valved receiving and discharge pipes connected with the bottom thereof, a spray conductor pipe connected with the bottom of said cylinder and projecting within the top thereof, a spray condenser secured to said conductor in the top of said cylinder, steam connections at the top of the tank, and an air compression cylinder connected with said conductor pipe to force the water through said spray conductor and condenser when steam is shut off, substantially as set forth.

2. In a steam vacuum water elevator, the combination of an inclosed tank cylinder having a concaved bottom and top and valved receiving and discharge pipes connected with the bottom thereof, a valved spray conductor pipe connected with the bottom of said tank and projecting within the top of the same, a spray condenser located in the top of the tank and connected with said conductor pipes, a floating piston working within the tank and having a flat top plate and convexed bottom plate conforming to the curvature of the bottom of said tank, steam connections at the top of the tank, and means for forcing the water through said spray conductor and condenser when the steam is shut off, substantially as set forth.

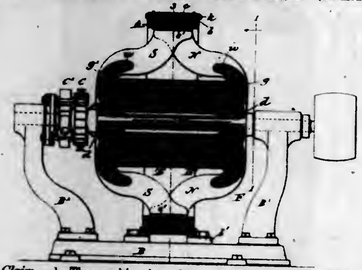
3. In a steam vacuum water elevator, the combination of an inclosed tank having valved receiving and discharge pipes connected to the bottom thereof, a spray conductor connected with the bottom and top of said tank continuously, a spray condenser secured to the inner end of said conductor within the top of the tank and comprising an upper concaved disk and a lower perforated flat disk secured to said curved plate below the same so that the edges thereof do not meet, steam connections at the top of the tank, and means for forcing the water through said spray conductor and condenser when the steam is shut off, substantially as set forth.

4. In a steam vacuum water elevator, the combination with an inclosed tank cylinder having valved receiving and discharge pipes connected with the bottom thereof, a valved spray conductor pipe connected with the bottom of said tank and projecting within the top of the same, a spray condenser and distributer located in the top of the tank and connected with said conductor pipe, an inclosed air compression cylinder connected with said spray conductor pipe, a float working within said compression cylinder, and steam connections at the top of the tank cylinder, substantially as set forth.

5. In a steam vacuum water elevator, the combination with an inclosed tank cylinder having valved receiving and discharge pipes connected with the bottom thereof, a valved spray conductor pipe

connected with the bottom and top of said tank, a spray condenser and distributer located in the top of the tank and connected with said conductor pipe, an inclosed air compression cylinder connected with said spray conductor pipe, a valved float working within said compression cylinder to compress the air within and force the water out of the same, a floating piston within said tank cylinder, and valved steam pipes connected with the top of said tank cylinder and said spray conductor pipe, substantially as set forth.

489,065. ALTERNATING-CURRENT DYNAMO. JAMES J. WOOD, Fort Wayne, Ind. Filed July 28, 1892. Serial No. 440,921. (No model.)



Claim.—1. The combination of a revolving multipolar field magnet with a stationary ring armature within which it rotates, said armature consisting of an annular core much narrower than the field magnet, and successive coils applied to said core, and said field magnet consisting of an axial core, an exciting coil around said core, and alternated polar arms radiating from the opposite ends of said core, bending back around said coil toward the middle of the core, and having their end portions turned outwardly and terminating in poles facing and closely adjacent to said armature.

2. The combination with an exterior stationary ring armature having successive coils applied to the inner side of its core, of a revolving field magnet consisting of an axial core of greater length than the width of the armature, an exciting coil around said core, and polar arms radiating from the opposite ends of said core, extended inwardly past the ends of the coil toward the middle thereof, each arm entering between two of those of opposite polarity, and the polar ends of the arms turned outwardly away from the exciting coil and terminating in polar faces within and closely adjacent to the armature, whereby the polar ends approach the armature abruptly on its inner side, and the loss by leakage of lines of force between the polar arms and armature core without cutting the armature coils is reduced to the minimum.

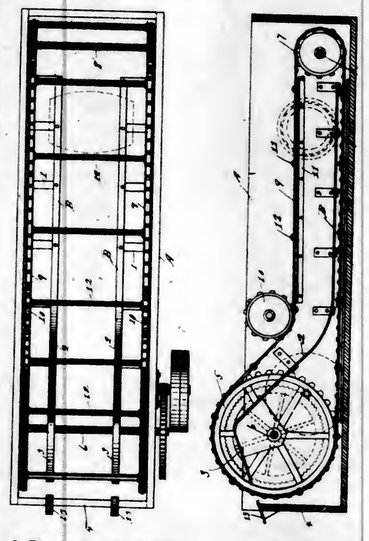
3. A field magnet consisting of an axial core, an exciting coil around said core, laterally-expanded heads or disks at the opposite ends of said core, cupped toward the middle thereof so as to partially inclose the ends of the coil, and polar arms branching from the cupped disks, extended toward the middle, each arm entering between two of the arms from the opposite end, and the polar ends of the arms turned outwardly away from the exciting coil and terminating in exterior polar faces.

4. A field-magnet consisting of an axial core *f*, an exciting coil E around said core, polar arms N N, S S, radiating from the opposite ends of said core, bending back around said coil toward the middle of the core, each arm entering between two of those of opposite polarity, and having their end portions turned outwardly to form radiating poles, and webs *w w* formed integrally with said arms between them at the ends of the coil, partly inclosing the end portions thereof, and joining the arms with curves sweeping toward the arms, so that the lines of force induced in said webs are divided and diverted into the arms.

489,066. BARREL-WASHER. FREDERICK H. ANDERSON, Chicago, Ill. Filed Sept. 14, 1891. Serial No. 405,867. (No model.)

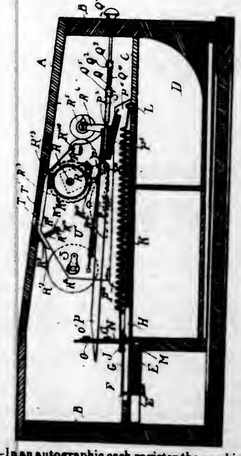
Claim.—1. The combination substantially as hereinbefore set forth with a tub or trough, of tracks located within the same and near the bottom of the tub or trough and upon which a barrel or keg is adapted to be supported, a series of traveling bars located over said tracks, and devices constructed practically as described, to move said bars along and over the tracks whereby said barrels or kegs will be moved along said tracks, substantially as described.

2. The combination substantially as hereinbefore set forth with a tub or trough, of tracks located within the same and near the bottom of the tub or trough and upon which a barrel or keg is adapted to be supported, said tracks being inclined upwardly and downwardly near one end of the tub or trough to pass over the end wall thereof, a series of traveling bars located over said tracks, and devices constructed practically as described, to move said bars along and over said tracks whereby said barrels or kegs will be moved along said tracks, substantially as described.



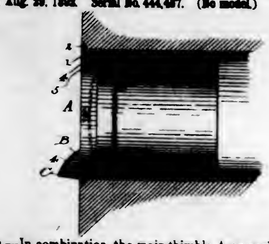
3. The combination substantially as hereinbefore set forth with a tub or trough, of tracks located within and near the bottom of the tub or trough and having upwardly and downwardly inclined portions near one end thereof to pass over the end wall of the tub or trough, gear wheels located near the ends of the tub or trough, chains trained around said gear wheels, a series of bars extending between said chains, and devices for driving said gear-wheels, substantially as described.

489,067. MANUAL RECORDER AND CASH-DRAWER. REINHART L. BROWN, Chicago, Ill. Filed July 14, 1892. Serial No. 440,008. (No model.)



Claim.—In an autographic cash register the combination of a cash drawer with a look therefor, a spring which tends to force the drawer outwardly, a paper carrying mechanism, a reciprocating bar adapted to open such look and permit the spring to force the drawer outwardly and by the same motion to move the paper, a rod in telescopic sections, a spring which keeps these two section together, a pin on one branch of the rod and an angular slot on the other, an outer knob and a connection from such rod to the bar, whereby when the knob is moved out and the associated portion of the rod turned about against its spring, the pin is brought into the transverse section of the slot and the two telescopic portions of the rod are brought together so as to operate the bar, release the drawer, and move the paper.

489,068. PIPE-THIMBLE. REUBEN E. CASSEL, Columbus, Ohio. Filed Aug. 29, 1892. Serial No. 444,467. (No model.)



Claim.—In combination, the main thimble A comprising the cylindrical portion 1, the outwardly turned flange 2 at its outer end, and the inwardly turned flange 3 at its inner end adapted to receive a stove pipe, the pins 4 on the interior of the cylindrical portion 1, and the reducing thimble B having the disk or plate-ring 5 constructed to fit within the cylindrical portion 1 and provided with notches 7 to receive pins 4 whereby the reducing thimble may be detachably secured to the main thimble, substantially as shown and described.

489,069. TICKET-HOLDING DEVICE. JOHN W. CROOK, Columbus, Ohio. Filed Oct. 31, 1892. Serial No. 450,436. (No model.)



Claim.—1. In a ticket-holding device, the combination with the case *a*, slotted opening *c* in the upper side thereof, longitudinal depression *b'* in the under side of the case top, a plate *d* fitting and adapted to slide within said depression, a pin d^2 projecting from said plate through said slot *c* and one or more teeth or projections *e* at the rear end of said slide and a slotted exit opening *c'* in the forward end of said case adjacent to the upper side thereof, of the spring supported plate f^2 within said case and a suitable door-way and door in said case, substantially as and for the purpose specified.

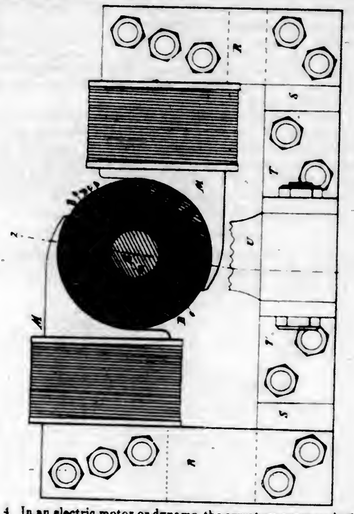
2. In a ticket-holding device, the combination with the case *a*, slotted opening *c* in the upper side thereof, longitudinal depression *b'* in the under side of the case-top, a plate *d* fitting and adapted to slide within said depression, a pin d^2 projecting through said slot *c* and one or more teeth or projections *e* at the rear end of said slide and the slotted exit opening *c'* formed in the forward end of said casing having end enlargements c^2, of the spring supported plate f^2 within said case and a suitable door-way and door in said case, substantially as and for the purpose specified.

489,070. ARMATURE FOR ELECTRIC MOTORS OR DYNAMOS. CORNELIUS F. DANIELS, Macon, Ga. Filed Dec. 2, 1891. Serial No. 413,837. (No model.)

Claim.—1. In an electric motor or dynamo, an armature composed of separate bobbins wound with wire, each bobbin having a separate core, said bobbins surrounding the armature axis and secured thereto by end pieces and by wedge-shaped clamping pieces between the outer portions of the bobbins, substantially as set forth.

2. In an electric motor or dynamo, an armature composed of separate bobbins wound with wire, surrounding the armature axis and secured thereto by end pieces, a collar upon the armature axis, and means for clamping the same together, substantially as set forth.

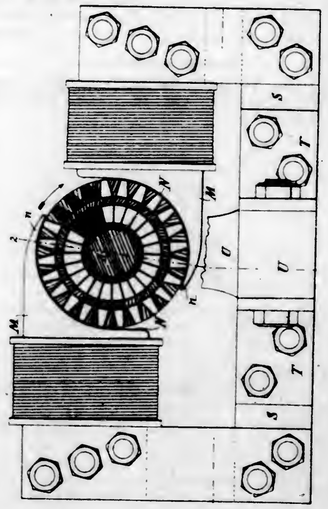
3. In an electric motor or dynamo, an armature composed of separate bobbins arranged so as to surround the armature shaft and secured thereto by end pieces, a sleeve and a fixed collar upon said shaft, means for clamping said bobbins, end pieces and sleeve against one face of said collar,—a commutator made up of separate plates or sections and a sleeve surrounding said shaft, and means for clamping such commutator against the other face of the fixed collar on the armature shaft, substantially as set forth.



4. In an electric motor or dynamo, the armature composed of the bobbins B, the end pieces D D', the sleeve *a'* and the clamping nut *d*, in combination with the armature axis A having collar A', substantially as set forth.

5. In an electric motor or dynamo, the armature composed of the bobbins B, the end pieces D D', the sleeve *a'* and the clamping nut *d*, and the commutator composed of the plates *f*, the end pieces *g*, *g'*, the sleeve a^2 and the clamping nut *h*, in combination with the armature axis A having the collar A', substantially as set forth.

489,071. FIELD-MAGNET FOR ELECTRIC MOTORS OR DYNAMOS. CORNELIUS F. DANIELS, Macon, Ga. Filed Dec. 2, 1891. Serial No. 413,839. (No model.)

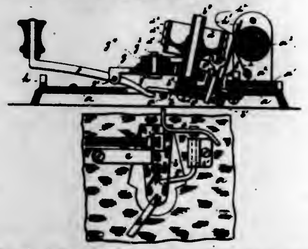


Claim.—1. An improved field magnet for electric motors or dynamos consisting of two or more pieces of iron bolted or fastened together, said pieces being hollowed out to form cores, wire wound around each of said cores and wire wound around the outside of said wire wound cores, substantially as set forth.

2. The field magnets for electric motors or dynamos, consisting of the pieces M, wound with conducting wire, the supporting pieces R, and the connecting pieces S, the supporting pieces being each secured at one end to the pieces M and at the other end to the connecting pieces S, substantially as set forth.

3. The framework and field magnets for electric motors or dynamos, consisting of the pieces M wound with conducting wire, the supporting pieces R and the connecting pieces S, the supporting pieces being each secured at one end to the pieces M and at the other end to the connecting pieces S, and the angle pieces T secured to such connecting pieces S and supporting the bearings for the armature shaft, substantially as set forth.

489,072. TYPE-WRITING MACHINE. JOSEPH I. EDLAND, Brooklyn, assignor of one-half to John M. Van Orden, New York, N. Y. Filed Mar. 30, 1892. Serial No. 427,019. (No model.)

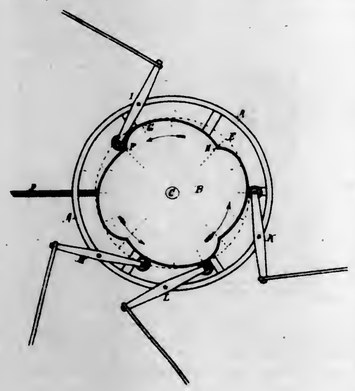


Claim.—1. A type writer comprising a tilting post, a type wheel and gear wheel mounted thereon, a printing lever adapted to tilt the post, a fixed bracket, and a toothed segment engaging the gear wheel and pivotally connected to the printing lever and to the fixed bracket, substantially as specified.

2. A type writer comprising a tilting post, a vertically adjustable type wheel mounted thereon, hand levers b^2, b^3, for raising the type wheel, a lever b, and printing lever f, for tilting the post and a gear wheel b^5, and toothed segment g^3, for revolving the post, substantially as specified.

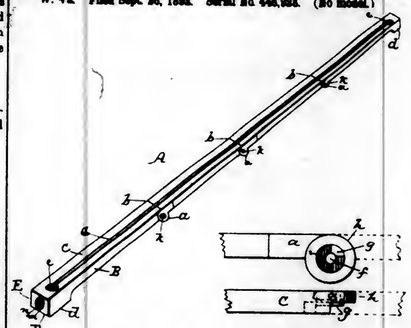
3. A type writer comprising a feed carriage a^3, having rack a^5, a spring pawl i, engaging the same and having bent arm i^3, a lever b, engaging the bent arm, a post mounted upon the lever and carrying the type wheel, a printing lever and toothed segment for tilting and revolving the post and a spring c, bearing upon lever b, substantially as specified.

489,073. MACHINERY FOR PUMPING OIL-WELLS. HERBERT S. EDWARDS, Titusville, Pa. Filed Feb. 11, 1892. Serial No. 421,084. (No model.)



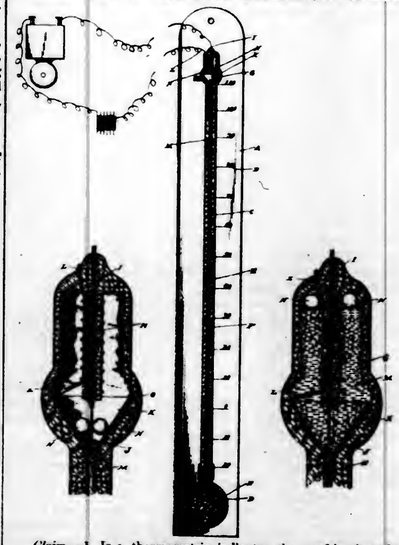
Claim.—As a device for pumping oil wells; a frame set in the field; a horizontally revolving multi-lobed cam, actuated by any power, in the center of the frame; a series of levers pivoted on the exterior frame and swinging horizontally, the inner ends of the levers bearing against the operating portions of the cam progressively; and with the outer end of each lever attached to a rod leading horizontally, or approximately parallel with the surface of the ground, and adapted to be connected with the pumping mechanism of a well; all working in combination, substantially as shown and described.

489,074. NEWSPAPER-FILE. WILLIAM S. EDWARDS, Charleston, W. Va. Filed Sept. 26, 1892. Serial No. 446,934. (No model.)



Claim.—The combination in a newspaper file of the file stick divided into sections; the peripheral hinges, fitted to the ends of the section of said stick, flush with the upper face of the file, and having each on its inner face the recess and stud to correspond with a like recess and stud on the inner face of its adjacent hinge, and the elastic binder, stretching along the top face of the file stick and suitably secured at or near the extremities thereof; all constructed as and for the purposes herein described.

489,075. THERMOMETRIC INDICATOR. CHARLES R. H. EDSON, Lakewood, N. Y. Filed Sept. 15, 1892. Serial No. 445,966. (No model.)



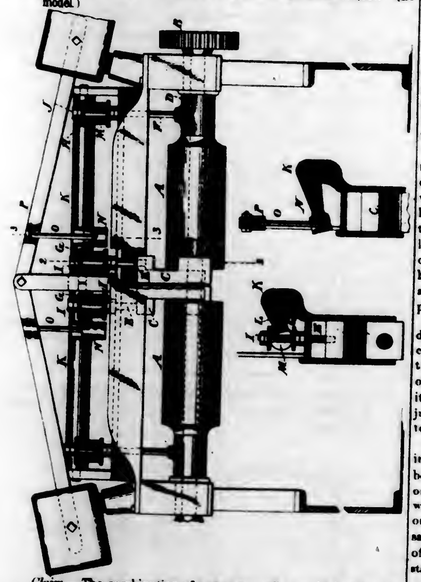
Claim.—1. In a thermometric indicator, the combination of a thermometer tube, electric alarm circuit wires terminating in electrode ends within said thermometer tube and out of contact with each other, the mercury in said tube adapted to close the circuit between the wire terminals when it rises to a given point, and supplemental circuit closing devices adapted to be lowered onto the wire terminals by the fall of the mercury and to close the circuit therebetween independently of the mercury when it has fallen to a given degree, substantially as set forth.

2. In a thermometric indicator, the combination of the thermometer tube, the mercury within said tube, a non-conducting fluid supported by the column of mercury, electric alarm circuit wires terminating within said thermometer tube in electrode ends normally out of contact with each other, and contact devices floated by said non-conducting fluid above the electrode ends of said wires, substantially as set forth.

3. In a thermometric indicator, a thermometer tube terminating at its upper end in a supplemental bulb, the mercury within said tube, a non-conducting fluid supported by the mercury, electric alarm circuit wires terminating in said bulb in electrode ends normally out of contact, and metallic contact balls floated by said fluid within the bulb and adapted to close the circuit between said electrodes when the mercury and said fluid lowers, said mercury forming in itself a closing contact between said electrodes when it rises to a certain point, substantially as set forth.

4. In a thermometric indicator, a thermometer tube terminating at its upper end in an elongated supplemental bulb, the mercury within said tube, a non-conducting fluid supported by the column of mercury, a flared or funnel shaped electrode supported at the upper end of the tube within said bulb and having an open apex, electric alarm circuit wires terminating within said bulb, one of said wires being connected to said electrode, and the other wire having a bared electrode-end projecting through and out of contact with the apex of said electrode, and metallic contact balls floated by said fluid within the bulb, substantially as set forth.

489,076. FEEDWORK FOR WOODWORKING-MACHINES. HERMON HACKNEY, South Evanston, Ill., assignor to the Benjamin Machine Company, of Illinois. Filed Dec. 30, 1891. Serial No. 416,617. (No model.)



Claim.—The combination of a pressure roll, a rock shaft having an arm projecting over each bearing of said roll, a stud projecting from each bearing and loosely connected to said arms, a third arm N also projecting from said rock shaft, and a pivoted loaded lever connected to the arm N to impart a yielding rotative pressure to the rock shaft to cause the latter to exert a yielding pressure, through its connections, to the bearings of the pressure roll, substantially as described.

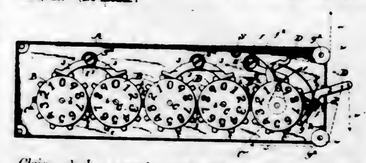
489,077. ART OF UNITING METALS. FRANK M. HARRIS, New Albany, Ind.; William W. Tuley executor of said Harris, deceased. Filed Nov. 20, 1891. Serial No. 413,496. (No model.)



Claim.—1. The improvement in the art of uniting an amalgamable metal to a base which consists in forming an addition of amalgam upon the base within a matrix and expelling the mercury by heat, the solid metal of the addition being thereby permanently fixed to the base in the form desired; substantially as set forth.

2. The improvement in the art of uniting amalgamable metals to an amalgamable metallic base which consists in forming thereon an addition of amalgam within a matrix and expelling the mercury by heat, the solid metal of the addition being thereby permanently fixed to the base in the form desired: substantially as set forth.

489,078. COUNTING APPARATUS FOR PRINTING-PRESSES, &c. RUSSELL A. HART, Battle Creek, Mich. Filed Mar 26, 1892. Serial No. 426,545. (No model.)



Claim.—1. In a counting apparatus, the combination with the casing, dial disks, toothed wheels, and means for turning said wheels a part of a revolution at the end of every complete revolution of the preceding wheel, of a bell crank lever, carrying a pivoted pawl adapted to engage the first toothed wheel and turn the same a part of a revolution at each reciprocation of said lever, a quadrant plate connecting the arms of said bell crank lever, a spring having one end fixed to the casing, its opposite end adjustably engaging said quadrant plate, and its intermediate portion coiled, and dogs flexibly held to the teeth of said wheels.

2. In a counting apparatus, the casing, transverse shafts mounted therein, and dial disks on said shafts, in combination with a series of circumferentially-toothed wheels also mounted on said shafts, said wheels being mounted out of longitudinal alignment with each other, lateral teeth t each adapted to engage the circumferential teeth of the next wheel, a bell-crank lever fulcrumed on the end shaft, a spool loosely mounted on said shaft between said lever and the disk, a quadrant plate between the arms of said bell-crank lever, a spring having one end fixed to said casing its intermediate portion coiled around said spool, and its free end adjustably engaging said quadrant plate, and dogs flexibly held to the teeth of said wheels.

3. The combination with the casing, transverse shafts therein and dial disks and toothed wheels on said shafts, of a bell-crank lever fulcrumed on the end shaft, a spool loosely mounted on said shaft between said lever and the dial disk, a quadrant plate between the arms of said bell crank lever, a spring having one end fixed to the casing, its intermediate portion coiled around said spool and its free end adjustably engaging said quadrant plate, and dogs flexibly held to the teeth of said wheels.

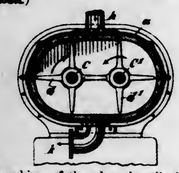
4. In a counting apparatus, a casing, provided with windows a, in the opposite sides thereof, a series of transverse shafts b having bearings in the sides of the casing,—a double series of numbered disks on said shafts, placed with their numbers so as to register with said windows as the shafts are rotated, intermediate toothed wheels fixed on said shafts, a lever D, provided with arms and cords connecting said lever with presses or other machinery, whereby the registering of the count may be observed at either side of said apparatus, substantially as shown, illustrated and described.

5. In a counting apparatus, the Janus faced casing, the series of transverse shafts therein having end bearings in the walls of said casing, a double, series of dial disks fixed near the ends of said series of shafts on the inside chamber of the casing, said disks carrying registering numbers that look out of the windows a, of both side walls of the casing, as the disks are rotated, a series of toothed wheels fixed on said shafts intermediately between said dial disks, flexibly engaging dogs or detents, for each of said toothed wheels, a lever, provided with hinged and flexibly held dog, and an adjustably fixed returning spring, having coils around the pivotal bearing of said lever, lever

arms, *l*, and *l'*, and cords *w'*, running over wheels *w*, having bearings within the casing, extending from said arms and adapted to connect the same with a press or presses whereby the pulsations of a press or presses located in various directions and at different distances, may be noted by the operator wherever situated; and without disturbing the fixed location of the counting apparatus, the presses, or other motive machinery, all constructed, arranged and operating, substantially as set forth, and for the purposes described.

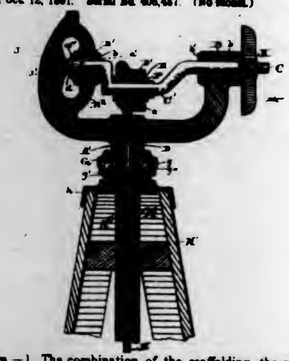
6. In a counting apparatus, the casing, provided with windows *e*, in both sides thereof, a series of transverse shafts *b*, having end bearings in the side walls of the casing, a series of dial disks B, fixed on said series of shafts near the outer end bearings thereof, carrying, on their outer faces numerals registering with said windows, a series of intermediate toothed wheels C, fixed on said shafts, flexibly held dogs, or detents engaging the teeth of wheels C, a lever D, and a spool E, on the shaft *b*, at the initial end of the series, said lever having arms *l*, and l_2, projecting from its pivotal center, a notched plate F, a returning spring *f*, having central coil around said spool E, and cords *w'*, extending from said lever, the whole arranged and operating substantially in the manner and for the purposes shown and described.

489,079. MACHINE FOR REDUCING PAPER-STOCK. CARL KELLNER, Vienna, Austria-Hungary. Filed Apr. 18, 1892. Serial No. 429,578. (No model.)



Claim.—In a machine of the class described, the combination with the shell or casing made to taper from the discharge to the feed end and provided at the latter end with a feed hopper and at the discharge end with a water supply pipe N, and a discharge pipe *k* arranged diametrically opposite each other, of the shafts Z and Z' each provided with sets of beater arms increasing in length and number toward said discharge end, the beater arms on one shaft working between those on the other shaft, and means for revolving said shafts toward each other, substantially as and for the purpose set forth.

489,080. WINDMILL. AUGUSTUS O. KOONTZ, South Bend, Ind. Filed Oct. 12, 1891. Serial No. 408,487. (No model.)



Claim.—1. The combination of the scaffolding, the metallic U shaped frame substantially as described, the vane thereon, the crank shaft journaled in roller bearings on said frame, the wind wheel thereon, the buffer, having a convex outer face and seated in a recess in the frame opposite the rear end of the shaft, and the pitman having an anti-friction connection with the crank-shaft, substantially as described.

2. The combination in a wind mill of the main frame, the wheel shaft journaled thereon, the wind wheel on said shaft, the vane, and an impact or buffer secured in a recess in the frame opposite the inner end of the shaft and having a convex outer face, substantially as and for the purpose specified.

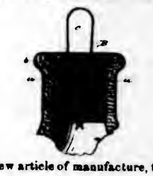
3. The combination of the U-shaped frame having a bracket attached to one leg, the wheel-carrying-shaft journaled in said frame substantially as described, the wind wheel, and the buffer seated in the arm of the frame opposite the bracket, all constructed and arranged to operate substantially as described.

4. In a wind mill the combination of the frame having a bracket attached to one leg, the crank shaft C, the wind wheel and vane, the anti-friction roller bearings for said shaft, and the anti-friction roller connections between the crank shaft and pitman; and the buffer block, all constructed and arranged to operate substantially as specified.

5. In a wind mill the combination of the frame A having bracket B^2 and bearings B, B' and the crank shaft C, and the wind wheel with the anti-friction rollers *b*, *b*, in said bearings, the confining plates *b' a'* *a''* and split ring *d*, and the anti-friction roller connections between the crank shaft and pitman, substantially as described

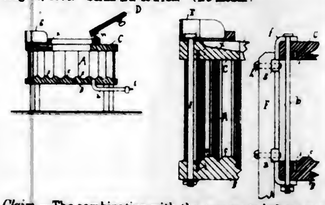
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489,081. CORK FOR BOTTLES. MARTIN LEPE, Socorro, N. Mex. Filed Mar. 18, 1892. Serial No. 425,465. (No model.)



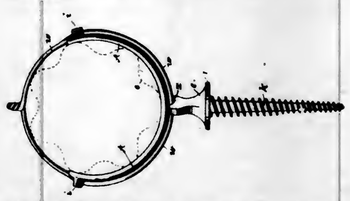
Claim.—As a new article of manufacture, the cork having the inverted U-shaped wire passed into the same near the center of its upper end and extending through the cork, in inclined lines to the longitudinal axis thereof, to the sides at points above its bottom, thereby forming the downwardly diverging portions *a*, thence passing down the sides of the cork and having its ends twisted together and united under the bottom of the cork, whereby the said wire bail is made continuous, substantially as shown and described.

489,082. WASHTUB. EDWARD G. MIESSMEYER, Peoria, Ill. Filed Aug. 31, 1891. Serial No. 404,182. (No model.)



Claim.—The combination with the corrugated sheet metal body A, having the edge thereof fitted into the grooved top C and bottom B, the said top having the lid D hinged as shown and the grooved inclined drip board, and the bottom having the raised faces *c—c* &c. of the clamp (*f*) provided with flanges *g*, the connecting bolts *b*, and legs F, secured between the flanges *g*, by the screws *h*, all substantially as described and set forth.

489,083. PIPE-HANGER FOR WATER-CONDUCTORS. EDWARD G. MIESSMEYER, Peoria, Ill. Filed July 7, 1892. Serial No. 439,201. (No model.)



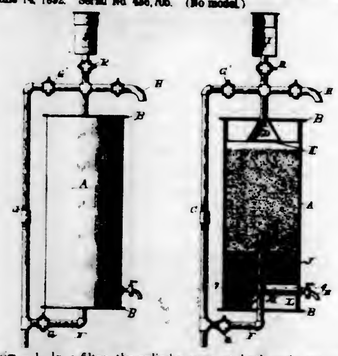
Claim.—1. In a pipe-hanger, a combination with the hanger proper formed with the base (*e*), screw (*k*) integral with the bearing face thereon, the bifurcated arms A—A; the circumferential wire (*w*), all substantially as described and set forth.

2. In a pipe-hanger, the base (*e*) having a flat bearing surface

with a screw or spike integral with and protruding therefrom and being further provided with the bifurcated arms A—A and the combination therewith of the circumferential wire (*w*) designed to bear around the semi-circle formed by the bifurcated arms and over a spout therein supported with the ends of the wire twisted together, all substantially as described and set forth.

3. In a pipe-hanger, the bifurcated arms A—A supported by the base (*e*) and provided with suitable lugs as (*i—i*) and with the base (*e*) provided with a flat bearing surface and having a screw or spike protruding therefrom and in combination with the portion of the hanger so formed, the circumferential wire (*w*) bearing through the perforation (*x*) in the neck portion of the base and between the lugs (*i—i*) with the ends thereof designed to be twisted together, all substantially as described and shown.

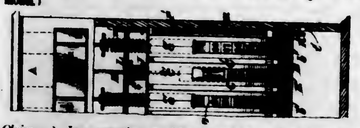
489,084. FILTER. JOHN M. MORGAN, Salisbury, N. C. Filed June 14, 1892. Serial No. 436,705. (No model.)



Claim.—1. In a filter, the cylinder open at both ends, top and bottom caps removably inclosing the ends of the cylinder, a valved supply pipe entering the top cap of the cylinder, a valved branch wash pipe connected with said supply pipe and projecting through the bottom cap of the cylinder a distance into the same, a cylindrical perforated purifying box removably mounted upon the inner end of said wash-pipe, which latter projects slightly above the plane of the box, said box inclosing therebetween and the bottom cap of the cylinder a filtered water chamber, filtering material within said box, a suitable filtering strata filling the cylinder above said box and the inner terminal of the wash-pipe, and a horizontal discharge coil arranged in the filtered water chamber at the bottom of the cylinder, substantially as set forth.

2. In a filter, the cylinder, the valved supply pipe entering the top of the cylinder and terminating in a flared strainer, the valved wash pipe projecting within the bottom of the cylinder, a cylindrical perforated purifying box having a central tube removably fitting over the projecting end of said wash pipe near the bottom of the cylinder and containing suitable purifying material, a filtering strata filling the cylinder above said box, and a horizontal perforated discharge coil arranged within the cylinder between the bottom thereof and the bottom of said purifying box, substantially as set forth.

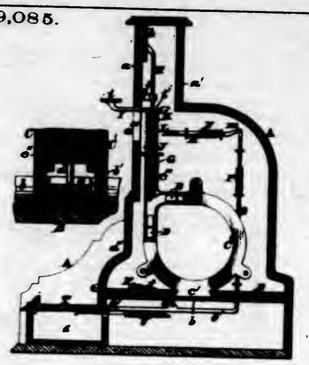
489,085. CASH INDICATOR AND REGISTER. ERWIN H. MURDOCK, Cincinnati, Ohio. Filed Oct. 14, 1892. Serial No. 448,818. (No model.)



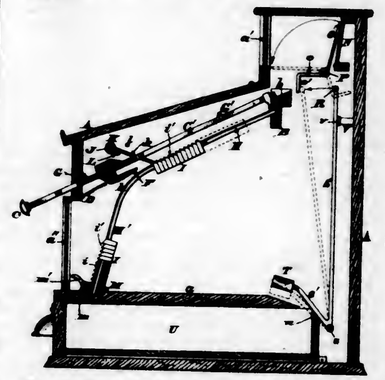
Claim.—1. In a counting-machine, a push-stem that advances a series of numbered counters along an endless route of a housing, and a numbered tablet carried by said stem, substantially as herein described.

2. In a counting-machine, a stationary money-box S, sliding lid T, retractors U, U', pivoted bell-cranks O, O', R, R', springs P, P', bar L, having extensions M, M', with inclined planes *m*, *m'*, and springs N, N', and a push-stem H, having a wedge K, that acts against said bar, in the manner described, and for the purpose stated.

489,085.



489,086. CASH REGISTER AND INDICATOR. ULRICH B. NEWMAN, Greenfield, Ohio. Filed Apr. 29, 1892. Serial No. 431,156. (No model.)



Claim.—1. The combination, in a counting or registering apparatus, of an inclined guide, a series of numbered gravitating-tags applied to said guide, a retaining device that holds said tags in their normal positions, and a liberating appliance that first releases said retaining-device and then permits the descent of a single tag, substantially as herein described.

2. A counting or registering apparatus including inclined guides, a series of numbered tags applied to each guide, pawls that arrest said tags, and reciprocating push-stems that first raise said pawls and then permit said tags to descend, substantially as described.

3. A counting or registering apparatus including inclined guides a series of numbered tags applied to each guide, pawls that arrest said tags, reciprocating push-stems that first raise said pawls and then permit said tags to descend, and a common re-setting bar upon which the dropped tags rest, substantially as described.

4. The combination in a cash indicator and register, of the push stem C, having a shoulder E, and spur F, the inclined guide H H', having a curved portion A, a series of numbered tags I i, adapted to travel freely along each guide, and pawls K that arrest said tags, in the manner described.

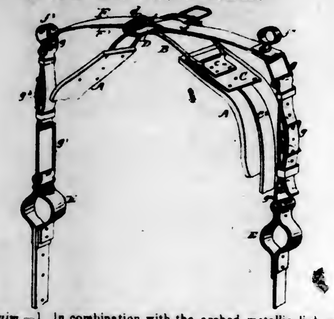
5. The combination, in a cash-indicator and register, of the fixed, numbered piece N, the shutter O', pivoted upon a rod P in front of said piece, so as to normally incline rearward, and having an extension *o* and depending flange *o'*, and the reciprocating push-stem C adapted to strike the front of said flange *o'*, for the purpose of swinging said shutter forward and down, and thereby exposing one number on said piece N, all as herein described.

6. The combination, in a cash indicator and register, of the fixed piece N, suitably numbered, the pivoted shutter O *o o'*, located in front of this numbered piece, a push stem C, adapted to strike the flange *o'*, of said shutter, and a forwardly-swinging bar R adapted to bear

against the back of the portion o of said shutter, for the purpose described.

7. The combination, in a cash indicator and register, of the fixed piece N, suitably numbered, the pivoted shutter O o o', located in front of this numbered piece, the bell-cranks S S s s', the cross bar R attached to the upper ends of said cranks, the weight T applied to the arm s', and the sliding money drawer U, adapted to raise said weighted arm when shoved back, for the purpose described.

489,087. HARNESS-SADDLE. STEPHEN A. HOLSH. McCrory, Ark. Filed Sept. 1, 1892. Serial No. 444,794. (No model.)



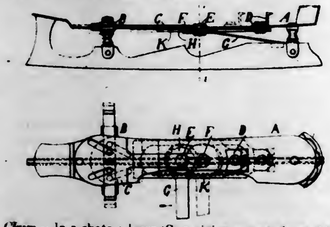
Claim.—1. In combination with the arched metallic link uniting the pads of a saddle, and a check-hook bar D uniting the front portion of the link to the back portion thereof, a spring supporting-bar balanced upon said bar D and carrying the shaft-tugs substantially as described.

2. A harness saddle comprising the pads connected by a link B, a check-hook bar connecting the two members of the link B, and a spring supporting bar for the shaft-tugs, and having the bar F^3 secured thereto and attached to the check hook bar, substantially as described.

3. A harness-saddle comprising the pads connected by an arched link B, a check-hook connecting the two members of the link B, and a spring supporting bar for the shaft-tugs and having terrets on the ends thereof substantially as described.

4. In combination with arched metallic link uniting the pads of a saddle and a bar D uniting the front portion of the link to the back portion thereof, a shaft-tug springy supporting-bar F secured upon the bar D, the plate f^3 and the bar F^3 thereunder substantially as described.

489,088. SKATE. CARL PACK, Barmen, Germany. Filed May 26, 1892. Serial No. 434,594. (No model.)

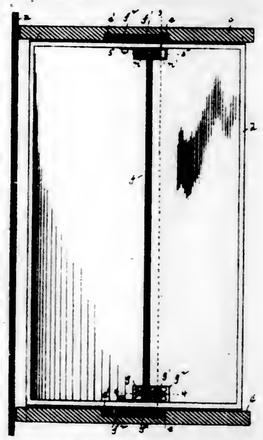


Claim.—In a skate a lever (G) a pinion or a quadrant (H) joined thereto below the sole plate of the skate, both capable of being turned on a pin (E) fixed to a slide (C) governing the sole cramps (B) and capable of being shifted to and fro, in combination with a rack (K) carrying the heel cramp (D) the teeth of the rack engaging with the teeth of the quadrant (H) in turning the lever (G) backward.

489,089. SLEEPING-CAR. HENRY PEARSON, Brightwood, and CHARLES J. ROOT, Chicopee, Mass. Filed Apr. 12, 1892. Serial No. 428,845. (No model.)

Claim.—1. In a sleeping car, the combination with a berth-storing well or compartment located beneath the level of the floor of the car, and two hinged sections of the floor adapted to close said well or compartment and to be raised to a vertical position to form partitions between the berth-sections, of a rack secured to the under side of each of said floor sections the teeth of which racks project therefrom toward one of the side walls of the car, a berth adapted to occupy said well or compartment, a shaft extending longitudinally through said berth at or near the transverse center thereof, said shaft carrying at its ends pinions which engage said racks, and means substantially as described for manually revolving said shaft, arranged and operating substantially as set forth.

2. In a sleeping car, the combination with a berth-storing well and hinged floor sections for closing said well as described, of a rack secured to the under side of said floor sections, a berth adapted to occupy said well, two pinions operatively connected to said berth at the ends of the latter and engaging said racks respectively, the axes of said pinions being perpendicular to the ends of the berth, and means substantially as described for revolving said pinions simultaneously, substantially as set forth.



3. In a sleeping car, the combination with a well located beneath the plane of the floor of the car, and two hinged sections of the floor adapted to close said well and also to form partitions between the berth-sections, said floor sections being provided with racks on their under side, of a berth adapted to occupy said well when not in use, a shaft extending longitudinally through said berth at or near the transverse center thereof, said shaft carrying at its ends pinions which engage the racks on said floor sections, and carrying between its ends a worm-gear, a housing secured to the berth, a worm revolubly supported in said housing and meshing with the worm-gear on said shaft, and means substantially as described for manually revolving said worm, substantially as and for the purpose set forth.

4. In a sleeping car, the combination with a well or compartment located beneath the level of the floor and two hinged sections of the floor adapted to close said well or compartment and also to serve as partitions between the berth-sections, each of said floor-sections having upon its under side two racks facing in opposite directions, of a berth adapted to occupy said well or compartment when not in use, a shaft passing longitudinally through said berth and carrying at its ends two pinions which engage one of the racks on each of said floor sections, two idler pinions revolubly secured to the opposite ends of the berth, which pinions engage the second rack on each of said floor sections and also mesh with said first mentioned pinions respectively, and means substantially as set forth for manually revolving said shaft, arranged and operating substantially as described.

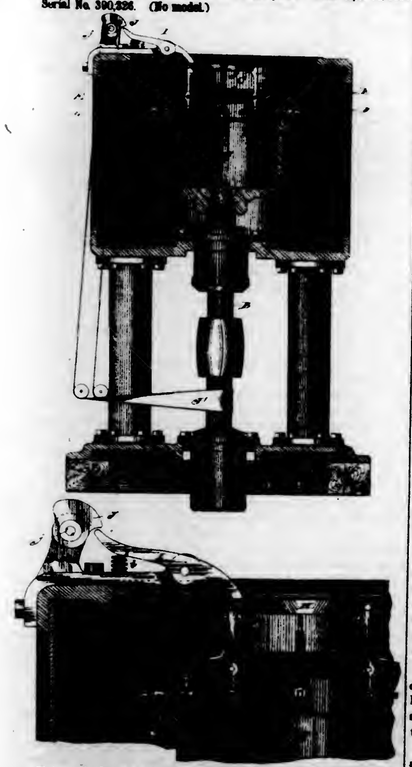
5. In a sleeping car, the combination with a berth-storing well or compartment located beneath the level of the car floor, a berth adapted to occupy said well or compartment when not in use, and means for lowering said berth into and raising it out from said well or compartment, of an auxiliary spring or springs for assisting the upward movement of the berth, substantially as set forth.

6. In a sleeping car, the combination with a berth-storing well or compartment located beneath the level of the floor, a berth adapted to occupy said well or compartment when not in use, and gearing connected with the berth and engaging corresponding devices connected with the berth-support for raising and lowering the same, of an auxiliary spring or springs so disposed as to partially counteract the weight of the berth and assist its upward movement, arranged and operating substantially as set forth.

7. In a sleeping car, the combination with a well or compartment located beneath the floor of the car, hinged floor sections adapted to close said well and also to form partitions between the berth-sections, said floor sections having racks secured to their under side, and a berth adapted to occupy said well or compartment when not in use, of a shaft extending longitudinally through said berth and carrying at its ends pinions which engage the racks on said floor-sections substantially as described for manually revolving said shaft to raise and lower said berth, and a spring operatively connected with said shaft and exerting pressure thereon in a direction to cause an upward movement to the berth, substantially as and for the purpose set forth.

8. The combination with a vertically movable sleeping-car berth, of a shaft extending longitudinally through said berth at or near the transverse center thereof and having at its ends suitable gear connection with the berth supports whereby revolution of said shaft will raise and lower the berth, a worm supported in a suitable housing on the berth and engaging a worm-gear on said shaft, and means for revolving said worm from a point at the side of the berth, said means comprising a base adapted to be detachably connected to the housing, a gear revolubly supported upon said base and having means for operatively engaging the worm, a sleeve revolubly mounted upon a hinged bar and carrying a gear at one end and a handle at its opposite end, an intermediate gear for transmitting the motion of one of said first mentioned gears to the other, an arc-shaped support adapted to rest upon the berth at the front side thereof, and a bearing for the outer end of said sleeve adjustably secured upon said support, arranged and operating substantially as set forth.

489,090. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck same place. Filed Apr. 24, 1891. Serial No. 390,226. (No model.)

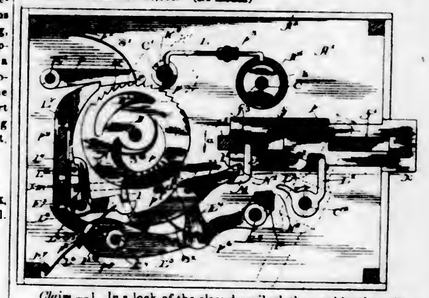


Claim.—1. In centrifugal ore separators, a revoluble vessel provided with one or more discharge orifices below the water surface, and means for mechanically and automatically regulating the discharge of water and material through the orifices, substantially as described.

2. In centrifugal ore separators, a revoluble vessel provided with one or more discharge orifices below the water surface, and a stopper for each orifice, operated mechanically and automatically, to regulate the discharge of water and material through the orifices, substantially as described.

3. In centrifugal ore separators, a revoluble vessel provided with one or more discharge orifices below the water surface, a stopper for each orifice, and a float for automatically operating the stoppers to regulate the discharge of water and material through the orifices, substantially as described.

489,091. COMBINATION-LOCK. WILSLOW W. POWELL, Freeport, Ill., assignor of one-half to Adolph Brandt, same place. Filed Mar. 23, 1892. Serial No. 426,686. (No model.)



Claim.—1. In a lock of the class described, the combination with a bolt, a locking lever adapted to prevent the retraction thereof when in one position, and a series of rotating disks notched to admit the end of the lever and formed with ratchet teeth in their margins, of a pawl adapted to engage the teeth on said disks, and means, substantially as shown and described for adjusting said pawl to bring it successively into the planes of the disks whereby the same pawl may in turn rotate all of said disks and bring the notches therein opposite the end of the lever; substantially as shown and described.

2. The combination with the bolt F, the disks D, D', D^2, formed with marginal ratchet teeth and a marginal notch N, and the lever L', adapted to lock the bolt F, and having an end *l*, adapted to enter the notches N, of the adjustable pawl P', adapted to engage the teeth of the disks, and means, substantially as shown and described, for bringing it successively into the planes of the three disks whereby its rotation in its different positions may rotate the disks and bring all the notches N, opposite the end of the lever L'; substantially as shown and described.

3. The combination with the bolt F, the lever L', and the disks D, D', D^2, formed with notches N, and ratchet teeth, of the sliding pawl P', adapted to be brought successively into the planes of the disks, the lever L, engaging said pawl or its support, and means, substantially as shown and described, for operating said lever from the exterior of the lock and bringing the lock successively into the planes of the disks; substantially as shown and described.

4. The combination with the bolt F, the lever L', the disks D, D', D^2, the pawl P', and its support, and the lever L, of the cam K^4, engaging the end of the lever L, the shaft C, the knob K, mounted on the shaft, and means, substantially as shown and described, whereby the position of the knob may indicate the position of the pawl P', with reference to the disks D, D', D^2.

5. The combination with the bolt F, the lever L', and the toothed disks D, D', D^2, formed with notches N, adapted to receive the end of the lever, and also formed with marginal screw holes *d*, of the screws, *d'*, adapted to be adjustably secured in the screw holes in the margins of the disks, and the pin *p'*, adapted to serve as a stop for the screws and as a limit to the rotation of the disks, substantially as shown and described.

6. The combination with the bolt, the locking lever, the toothed disks, and means for rotating the same, of the pawls P, P, P, engaging the teeth on the disks, respectively, and means, substantially as shown and described, for locking the pawls out of engagement with the disks; substantially as shown and described.

7. In a lock of the class described, the combination with a suitable case, of a sliding bolt, a locking lever adapted to prevent retraction of the bolt when in one position, a series of disks formed with ratchet teeth, and also with notches adapted to admit the end of the locking lever to permit retraction of the bolt, and means for impart-

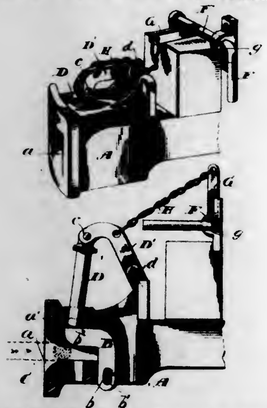
ing step by step rotation to the disks and thereby bringing the notches opposite the end of the locking lever, a series of pawls engaging the teeth of the disks and preventing reverse rotation thereof, a lever operated by means outside the lock case and adapted to retract the bolt and means, substantially as shown and described, interposed between said lever and said pawls whereby the rotation of the lever to retract the bolt when the notches in the disks are not in position to admit the end of the locking lever throws the pawls out of engagement with the disks and thereby permits reverse rotation thereof; substantially as shown and described.

8. The combination with the bolt, the disks D, D', D^3, and the locking lever L', of the pawls P, P, P, engaging the disks respectively, the sliding dog L^7, adapted to throw the pawls out of engagement with the disks; the lever L^3, L^4, operated from the exterior of the lock and means, substantially as shown and described, interposed between the arm L^3 of the lever and the dog L^7, whereby suitable rotation of said arm raises the dog and locks the pawls P, P, P, out of engagement with the disks; substantially as shown and described.

9. The combination with the disks D, D', D^3, the pawls P, P, P, the dog L^7, and the lever L^3, of the bolt F, provided with the lug f^3, and a connecting rod M, formed at its ends with extensions engaging said lug and the lever L^4 respectively, whereby the complete extension of the bolt draws the lever L^3 from engagement with the dog; substantially as described.

10. The combination with the disks, the bolt and the locking lever L', of the pawls P, P, P, the dog L^7, and lever L^4, the sliding lever L^5, and the lever L^6, interposed between said sliding lever and the lever L', and dog, L^7, and the lever L^3, L^4, adapted by its rotation to operate the bolt, and also to operate the lever L^3, and through it the lever L', the dog L^7, and the pawls P, P, P, substantially as shown and described.

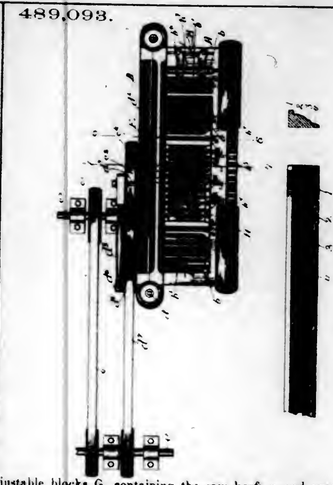
489,092. CAR-COUPLING. RICHARD S. ROBERTSON, Castle Gate, Utah. Filed Oct. 17, 1892. Serial No. 449,078. (No model.)



Claim.—1. The combination with the draw-head provided with a lug within its mouth, of a pivoted dog having an enlarged end adapted to engage said lug, and having vertical arm with elongated slot in which the pivot works as set forth.

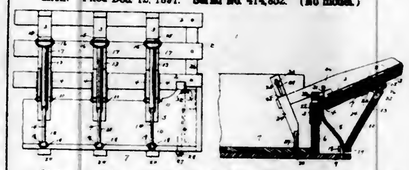
2. The combination with the draw-head having mouth with lug, of the pivoted dog having vertical portion with slot for the pivot, and having end to engage said lug, the pin and the curved arm connected directly with said pin, as set forth.

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justable blocks G, containing the saw kerfs *g*, and provided with clamping devices for holding the edges of the sandpaper therein, substantially as described.

489,094. HAY AND STOCK RACK. GEORGE E. SCHAIRER, Saline, Mich. Filed Dec. 12, 1891. Serial No. 414,852. (No model.)



Claim.—1. The combination with a wagon body and a rack hinged to the body at the upper edge thereof, of a telescopic brace hingedly connected at its lower end with the body at the bottom thereof and having its upper end adjustably secured to the rack, said brace having its sections loosely sliding on each other, whereby the rack may be readily lifted to a vertical position and when lowered will automatically assume its proper inclined position, substantially as described.

2. The combination with a wagon body and a rack hinged to the body at the upper edge thereof, of an adjustable plate provided with a longitudinal slot and having an eye and arranged on the rack, a screw adjustably securing the plate to the rack, and a telescoping brace hingedly connected at its lower end with the bottom of the body, and having its upper end hinged to the eye of said plate, said brace having its sections loosely sliding on each other whereby the rack may be raised to a vertical position and will automatically assume its proper inclined position, substantially as described.

3. The combination with a body and a rack hinged at the upper edge thereof, of a stationary inclined brace, an adjustable plate arranged on the rack and provided with a longitudinal slot and having an eye at its outer end, a screw adjustably securing the plate to the rack and arranged in said slot, a lug fixed to the inclined brace near the lower end thereof, and a telescoping brace hinged at its lower end to said lug and having its upper end hinged to the eye of the adjustable plate and having its sections loosely sliding on each other whereby the rack may be raised to a vertical position, and when lowered will automatically assume its proper inclined position, substantially as described.

4. The combination of a wagon body, an adjustable stop and keeper arranged at one end of the same and comprising a plate having an angular bend to form a stop and provided with a threaded shank passing through the bottom of the body, a nut arranged on the threaded shank, a bolt arranged in a longitudinal slot on the upper end of the plate, and a rack hinged to the body and provided with an end bar having its inner end arranged in the keeper, substantially as described.

489,098. SANDPAPERING-MACHINE. CHARLES L. RUESS, Chicago, Ill. Filed July 27, 1892. Serial No. 441,363. (No model.)

Claim.—1. The combination in a machine of the class described, of the reciprocating frame F, containing the cross-bar f^2, having the flanges f^4, and the paper carrying blocks G, laterally adjustable in said frame and having the ends of the sandpaper held upward by means of the flanges f^4, substantially as described.

2. In a machine of the class described, the combination with the reciprocating frame F, of the rods f^3, nuts f^3, blocks G, and washers H; substantially as described.

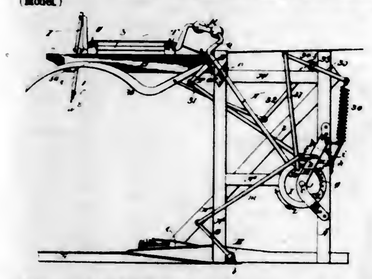
3. In a machine of the class described, the combination with the reciprocating frame F, bearing the cross-bars f^2, of the laterally ad-

489,095. HOOK AND EYE. OTTO E. SCHNEIDER, Chicago, Ill., assignor of one-half to Robert C. Christy, same place. Filed Aug. 26, 1891. Serial No. 403,645. (No model.)



Claim.—A hook constructed from sheet metal and having a broad perforated shank or base adapted to be secured upon the inner side of the material of a garment, said base being slitted longitudinally and the slits intersecting each other toward the rear of the shank and the metal between said slits being struck up to provide a free spring lip or tongue adapted to rest on the material of the garment or a fold thereof and an integral hook backwardly bent over the base and spring lip, substantially as described.

489,096. KNOTTING MECHANISM FOR GRAIN-BINDERS. GEORGE SCHUBERT, Walnut, Tex. Filed June 2, 1890. Serial No. 354,075. (Model.)



Claim.—1. In a binding attachment for harvesters, the combination with a frame, of upper and lower rock-shafts provided with operating levers of unequal length, oppositely moving gathering arms secured to said shafts, oscillatory discharging arms journaled on said upper shaft, a binding mechanism carried by the gathering arms, and a master wheel with intermediate connections for operating the gathering and discharging arms.

2. In a binding attachment for harvesters, the combination with oppositely arranged pivoted gathering arms, of a binding mechanism carried by the gathering arms, oscillatory discharging arms, a rock-shaft having a dependent arm connected with the discharging arms, a lever secured to said shaft, an operating rod attached to the lever having a hooked lower end, a master wheel having an internal track obstructed by a lug adapted to be periodically engaged by the hooked rod, and a spring for returning the gathering arms to their normal position.

3. In a binding attachment for harvesters, the combination of a knotting mechanism, a hooked take-up-arm having a depending lug, a needle having a switch normally projecting at an angle to its edge and adapted to engage the lug on said take-up for the purpose of opening it, a spring for returning the latter to its normal position, and suitable means for operating the needle.

4. In a knotting mechanism for grain binders, the combination with a frame, of oppositely moving gathering needle and knotter bars, one carrying a pivoted needle, and the other a knotter, upper and lower rock-shafts to which said needle and knotter bars respectively are secured, upper and lower operating levers of unequal length, connected to the rock-shafts, the former being the shorter, rods connected to the levers, a double crank shaft the arms of which are connected with said rods, a pinion mounted upon the latter shaft, and a master-wheel with which the pinion periodically engages whereby the gathering needle and knotter bars are operated, all arranged to place the movement of the needle-bar ahead of the movement of the knotter bar, a knotter journaled in the knotter bar, with its free end above the plane of the needle when the needle bar and knotter bar are closed and the knotter in its normal position, and a cord carrying needle pivoted on the needle bar, said cord being clamped on the knotter bar and taken out beneath the knotter substantially as described.

5. In a knotting mechanism for grain binders the combination with a frame, of oppositely moving gathering needle and knotter bars, one carrying a pivoted needle, and the other a knotter, upper and lower rock-shafts to which said needle and knotter bars respectively are secured upper and lower operating levers of unequal length, connected to the rock-shafts, the former being the shorter, rods connected to the levers a double crank-shaft arms of which are connected with said rods, a pinion mounted upon the latter shaft, and a master-wheel with which the pinion periodically engages, whereby the gathering needle and knotter bars are operated, all arranged to place the movement of the needle bar, ahead of the movement of the knotter bar, a cord receiving shearing and clamping mechanism on said knotter bar a knotter journaled in said knotter bar, with its free end above the plane of the needle when the needle bar and the knotter bar are closed and the knotter in its normal position a needle to deliver a cord to said knotter bar and carry said cord out below the knotter, and means to operate said needle as described.

6. In a knotting mechanism for grain binders, the combination with a frame, of oppositely moving gathering needle and knotter bars, a cord clamping and cutting mechanism on said knotter bar, and a knotter journaled in said knotter bar a needle journaled on the needle bar, having its pivot arranged transverse to the axes of its supporting needle bar, and adapted to carry a cord and to operate on the knotter, and operating mechanism to operate the needle, and oscillate the needle, and knotter bars substantially as shown and described.

7. In a knotting mechanism for grain binders, the combination with a frame, of oppositely moving gathering needle and knotter bars, upper and lower rock-shafts to which said needle and knotter bars respectively are secured, a guard plate carried by said knotter bar, projecting with its free end over the knotter shaft to near the knotter, a cord clamp and shears on the free end of said guard plate, a knotter journaled in said knotter bar, and a needle journaled on the needle bar, having its pivot arranged transverse to the axis of its supporting bar and adapted to carry a cord, and to operate on the knotter and cord clamp operating mechanism substantially as described.

8. In a knotting mechanism for grain binders, the combination with a frame, of oppositely moving gathering needle and knotter bars, upper and lower rock-shafts to which said needle and knotter bars respectively are secured a guard X on the knotter bar projecting with its free end over the knotter shaft to near the knotter, a cord clamp and shears on the free end of said guard, a knotter journaled in said knotter bar, a cord carrying needle journaled on the needle bar, having its pivots arranged transverse to the axes of its supporting arm, and adapted to operate in a plane parallel to one side of the sheaf, to operate on the knotter, and means to operate said needle substantially as described.

9. In a knotting mechanism for grain binders, the combination with a knotter journaled in a knotter bar, a guard plate on said knotter bar, a cord clamp on said guard plate, a needle pivoted near the center of its curvature on a supporting needle bar, having its pivot arranged transverse to the axis of its supporting arm, and adapted to operate the knotter, and means for operating said needle as described.

10. In a knotting mechanism for grain binders, the combination with, a knotter journaled in a knotter bar, a guard plate on said knotter bar, projecting with its free end to near the knotter, a downward projection 27 on said guard plate X, a rock shaft 23 journaled in said guard plate clamping jaws secured to said rock shaft, a bell-crank 24 on said rock-shaft engaging a bell-crank on the pivot of the take up, a spring 25 to close the cord clamp, a needle pivoted on the needle bar to operate the knotter and take up, and means to operate the needle, as and for the purpose described.

11. In a knotting mechanism for grain binders, the combination with a knotter journaled on a knotter bar, guard plate X on said knotter bar, projecting with its free end to near the knotter, a downward projection 27 on said guard plate X, a rock shaft 23 journaled in said guard plate clamping jaws secured to said rock shaft, a bell-crank 24 on said rock shaft engaging a bell-crank on the pivot of the take up, shears secured on said cord clamp having one blade secured to the pivoted jaw 26 with the other blade secured to the end of the guard plate X, springs to close said cord clamp and shears, a needle pivoted on the needle bar, to operate the knotter and take up, and means to operate the needle, as and for the purpose described.

12. In a knotting mechanism for grain binders, the combination with a knotter having a shaft journaled in the knotter bar, a block 8, on said shaft, having two flat sides, cogs 9, 10, on the narrower edge, a guard plate X projecting over said block 8, a locking bolt in said block, having a stud projecting therefrom, a needle pivoted on the needle bar teeth *t*, and *u* on said needle to operate said block 8 a switch to operate the locking bolt, and means to operate the needle as described.

13. In a knotting mechanism for grain binders, the combination with a knotter secured on a shaft, journaled in the knotter bar, a block 8, on said shaft, having two flat sides, cogs 9, 10, on the narrower edge, a guard plate X projecting over said block 8, a locking bolt in said block having a stud projecting therefrom, a spring 13 to move said stud into the cam groove *s* of the needle for the purpose described, a needle pivoted on the needle bar teeth *t* and *u* on said needle, cam groove *s* in the needle to operate on the stud of the locking bolt 11 and means to operate the needle, as described.

14. In a knotting mechanism for grain binders the combination with a knotter shaft journaled in the knotter bar, a block on said shaft, a knotter secured to the free and projecting end of said knotter

shaft, pivoted jaw on said knotter, normally closed by a spring, the pivot of said pivoted jaw being arranged parallel with the pivot of the knotter, a stud interposed in the path of the pivoted jaw to be engaged by said jaw, for the purpose of opening said jaw, a cord carrying needle pivoted on a needle bar having its pivot arranged transverse to the pivot of the knotter, to operate said knotter, and means to operate said needle, as described.

15. In a knotting mechanism for grain binders, the combination with a knotter journaled in the knotter bar the pivoted jaws on said knotter having its pivot parallel with that of the knotter, said pivoted jaw being normally closed by a spring, a pivoted stud 14, interposed in the path of the pivoted jaw to be engaged by said jaw, for the purpose of opening said jaw, a trigger 15 to trip said stud, a spring to return said stud to its normal position, a cord carrying needle pivoted on a needle bar, having its pivot arranged transverse to the pivot of the knotter, to operate said knotter and means to operate the needle as described.

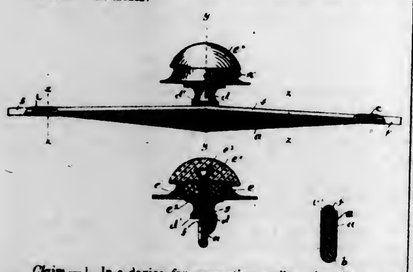
16. In a knotting mechanism for grain binders, the combination, with a knotter journaled in the knotter bar, a jaw on said knotter with its pivot arranged parallel with the knotter shaft, a stud 14 to engage with said jaw as the knotter is inverted, means to disengage said stud from said jaw, a guard plate projecting over the knotter shaft, a cord clamp pivoted in said guard plate said cord clamp projecting downward with its free end, a cord carrying needle pivoted on the needle bar, and means to operate said needle, as described.

17. In a knotting mechanism for grain binders, the combination with a knotter journaled in the knotter bar, a jaw on said knotter with its pivot arranged parallel with the knotter shaft, a stud 14 to engage with said jaw; as the knotter is inverted, means to disengage said stud, from said jaw, a guard plate projecting over the knotter shaft, a cord clamp pivoted in said guard plate, said cord clamp projecting downward when opened and partly closing the passage-way between the free end of the guard plate and knotter bar, a cord carrying needle pivoted on the needle bar, and means to operate said needle, as described.

18. In a knotting mechanism for grain binders, the combination with a block on the knotter shaft a needle pivoted near the center of its curvature to the needle bar, having its pivot arranged transverse to the axis of its needle bar, depressed teeth *t*, and *u*, and a cam groove or switch *s* on said needle to operate on the locking bolt 11, in the block and teeth 9, 10 on the block and engaging teeth *t* and *u* to operate the knotter for the purpose described.

19. In a grain binder the combination of a knotter having a rigid jaw adapted to be closed by a spring and opened by a stud interposed in the path of the pivoted jaw 2, said knotter being provided with a notch 4 on the rigid jaw 1, to hold the cord, a notch 3, on the pivoted jaw 2 in position to register with the notch 4 when the jaws are open, the lower surface of the notch 3 being flush with the upper surface of the notch 4 to carry the cord out of the notch 4 as the pivoted jaw 2 is being closed, for the purposes described.

489,097. TROLLEY-WIRE SUPPORT. GEORGE H. SCRAFTON and LORENE SPILLMAN, Columbus, Ohio. Filed May 27, 1892. Serial No. 434,577. (No model.)

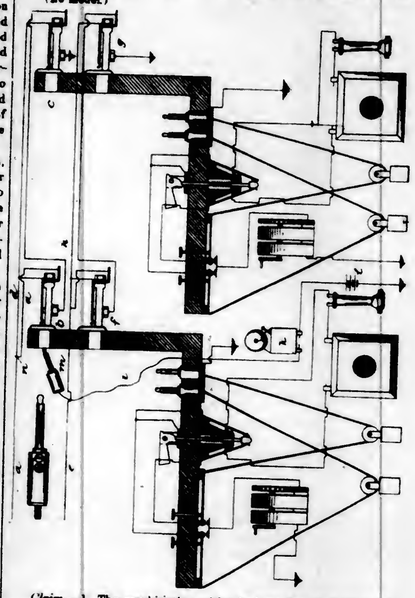


Claim.—1. In a device for supporting trolley wires from a suspension wire, the bar or plate *a* having a rounded lower side and a grooved upper side as described and a bracket arm rising from and over-hanging said bar, substantially as and for the purpose specified.

2. In a device for supporting trolley wires from a suspension wire, the combination of the metallic bar or plate having a rounded lower edge, ear terminations *c* on the upper edge thereof, a groove in the upper side of said bar *a* and a suspension wire bracket rising from one side of said bar *d*, substantially as specified.

3. In a device for supporting trolley wires, the combination of the plate *a*, end ears *c* as described thereon a groove in the upper side of said bar, a suspension wire bracket rising from said bar and a vertically adjustable screw in said bracket, substantially as and for the purpose specified.

489,098. TESTING APPARATUS FOR MULTIPLE SWITCH-BOARDS. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed June 10, 1888. Serial No. 277,556. (No model.)



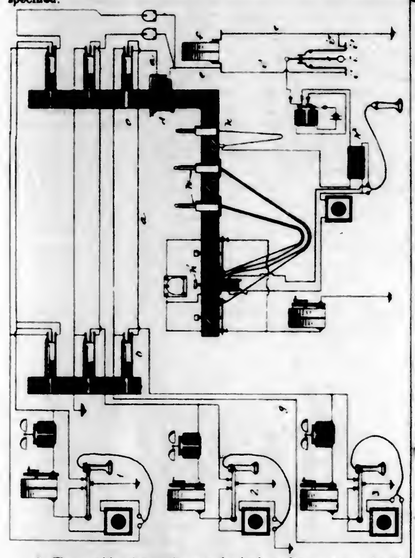
Claim.—1. The combination with telephone lines each connected through a springjack on each of two or more boards and directly to ground, of a branch or test wire connecting each line with the test piece or insulated frame of each of its switches and testing apparatus consisting of a circuit including a test plug, having a single contact a battery and an indicator proportioned with respect to electromotive force and ampere turns, as described; whereby it may be determined at one board whether or not any given line is connected or in use at any other of the boards.

2. A telephone line connected through a series of springjack switches, one on each of two or more multiple switchboards in two branches, one branch extending through the spring and contact of each of said switches and directly to ground, the other branch being connected to each of the insulated frames or test pieces of said switches, in combination with a connecting plug at each of the switchboards and a test circuit connecting the branch including the test pieces to the ground; whereby, on inserting a plug in any springjack of the line, the direct ground connection will be removed from the test pieces of all the switches, substantially as and for the purpose specified.

489,099. TESTING APPARATUS FOR MULTIPLE SWITCH-BOARDS. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed June 10, 1888. Serial No. 277,569. (No model.)

Claim.—1. The combination with a telephone line extending through a series of switches, of a current generator connected with said line for sending an undulatory direct or alternating current of low electromotive force upon said line, a test circuit including a telephone and rheotome and a circuit changing device for alternately connecting said test circuit with different sides of said generator, whereby, on closing said test circuit with any springjack switch of the series the operator listening at the telephone may make a test to determine whether the line is in use.

2. The combination with the circuit including the rheotome and telephone connected at one end with the spring of one of the springjack switches in a telephone line and with a circuit changing device at the other end, of a generator current connected with said telephone line to send undulatory direct or alternating currents thereon and branch circuits from different sides of said generator to the circuit changing device; whereby it may be determined whether the telephone line is connected or in use, substantially as and for the purpose specified.



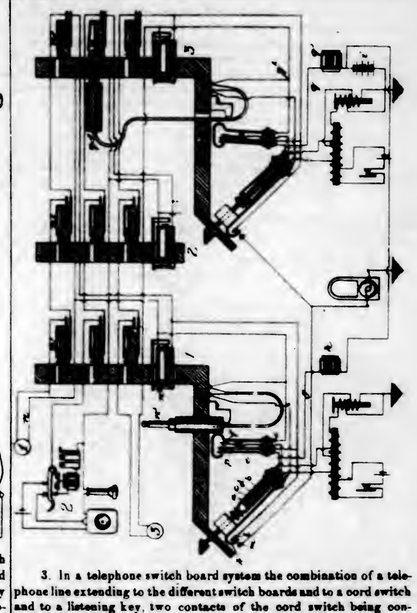
3. The combination with several telephone lines connected each through a different series of springjack switches to a common ground line including a generator, of a testing apparatus which is alternatively connected to different sides of said generator at one end and provided with a test plug at the other end for connecting with a springjack switch of any one of the lines; whereby it may be determined by listening at the telephone of the testing apparatus when the test plug is connected with a spring of any telephone line, whether said line is open at any other of its series of springjack switches, substantially as and for the purpose specified.

4. The combination with a telephone line extending through a series of switches, of a current generator connected with said line for sending slowly changing alternating or undulatory direct currents over said lines, a rheotome, a circuit changing device, and a telephone, whereby the presence of said currents will be indicated only when the rheotome is connected in circuit with said telephone.

489,100. TEST-CIRCUIT FOR MULTIPLE SWITCHBOARDS. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Mar. 1, 1890. Serial No. 342,978. (No model.)

Claim.—1. A telephone line connected in metallic circuit with two or more switch boards, one limb of the circuit being connected to the tip of the terminal plug thereof and the other limb to the sleeve of said plug, a telephone branched from the different sides thereof in one direction through the springs *b d* to a contact *f* of the cord switch and in the other direction to springs *a c* and thence to a spring *e* of the cord switch and a branch *g* connecting from ground through a battery and retardation coil to spring *e*, whereby on lifting the terminal plug from the socket of a cord switch the telephone is brought into circuit and the branch *g* connected therewith to make the line test busy while on separating springs *a b* from their normal contacts the telephone is disconnected while the branch *g* is left in the connection with the line, substantially as and for the purpose specified.

2. A telephone line extending from a substation to a central station having its two sides connected to the two contact pieces respectively of the terminal plug at the central station, in combination with a cord switch having two contact springs connected to the two sides of the line circuit respectively, and two contact points adapted to engage with said springs respectively when the plug is removed from its socket, a telephone set included in a circuit having its terminals connected to the two contact points of said cord switch, and a ground test battery connected to one of said contact points, whereby the telephone set is connected in a bridge between the two sides of line and a test battery is connected in a branch to one side of the line when the terminal plug thereof is removed from its socket, substantially as described.



3. In a telephone switch board system the combination of a telephone line extending to the different switch boards and to a cord switch and to a listening key, two contacts of the cord switch being connected respectively with the two limbs of the metallic circuit, two contacts of the listening key being connected respectively with the two other contacts of the cord switch and a branch connection including a retardation coil and test battery, the said branch connection being connected with one limb of the metallic circuit at a point intermediate of the connection between one contact of the cord switch and one contact of the listening key, substantially as and for the purpose specified.

4. A telephone line circuit extending from a substation to a central station and having two sides of its line connected to the two contact-pieces respectively of the terminal plug, in combination with a cord switch adapted to be actuated by the removal of said terminal plug from its socket, having two contact-pieces connected to the two sides of line respectively, and two contact-points adapted to engage with said contact-pieces respectively, a listening key having two contact pieces connected to the contact-points of said cord switch and two contact springs constituting the terminals of a telephone set, and a grounded test battery connected to one of the conductors joining a contact-point of the cord switch with a contact-point of the listening key, whereby the telephone may be connected to or disconnected from the line circuit at the listening key, and both telephone and test battery may be connected to the line circuit at the cord switch, substantially as described.

489,101. MEANS FOR AND PROCESS OF SEPARATING METALS FROM ORES. CHARLES R. SKINNER, Lake Geneva, Wis. Filed Nov. 20, 1891. Serial No. 412,467. (No model.)

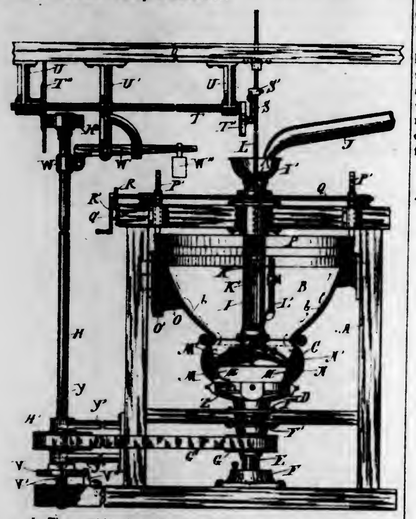
Claim.—1. The combination with a spheroidal mercury-holding receptacle having a contracted and partially closed top mounted on a revoluble shaft, of an upwardly outwardly flaring bowl mounted on and opening at its bottom into the spheroidal receptacle, substantially as described.

2. The combination with a spheroidal mercury-holding receptacle having a contracted and partially closed top mounted detachably concentrically on a revoluble shaft, of an upwardly outwardly flaring bowl mounted detachably on and opening through its bottom into the spheroidal receptacle, substantially as described.

3. The combination with a revoluble amalgram receptacle, sphe-

roidal in form and having a contracted and partially closed top, of a tube leading into the receptacle, and plates at the bottom of the tube opposite the larger medial part of the receptacle arranged to discharge pulp from the tube between them radially into the outer portion of the larger medial part of the receptacle, substantially as described.

4. The combination with a revoluble spheroidal receptacle in which mercury is by centrifugal action held against the sides of the receptacle, of means for forcing pulp into the mercury consisting of a tube leading into the receptacle and discharging by radial passages, a piston in the tube arranged to force pulp through the tube into and through the mercury in the receptacle and means for reciprocating the piston, substantially as described.



5. The combination with a revoluble mercury-holding receptacle, of a flaring copper bowl mounted thereon opening into the receptacle, and a quicksilver coat on the inner surface of the copper bowl, substantially as described.

6. The combination with a spheroidal mercury-holding receptacle mounted on a revoluble arbor so as to revolve about its shorter axis, of a pulp discharging tube leading into the receptacle and concavo-convex plates secured to the end of the tube located at a little distance apart and having correspondingly upturned edges between which plates the pulp is discharged radially substantially opposite the plane of the greater axis of the spheroidal receptacle, substantially as described.

7. The combination with a revoluble ore-separating bowl, of an annular trough suspended normally slightly above the bowl, and means substantially as described on which the bowl is suspended and whereby it is adapted to be lowered below and about the edge of the bowl so as to catch the discharge therefrom.

8. The combination with a revoluble ore-separating bowl, of a comparatively wide and deep annular trough located about the bowl at its edge, and a second annular trough normally suspended above the bowl and arranged to be lowered about the bowl into the first mentioned trough in such manner as to catch the overflow therefrom, substantially as described.

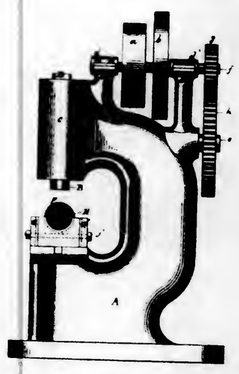
9. The combination with a revoluble spheroidal amalgam receptacle, adapted by its rapid revolution to carry under centrifugal action a supply of mercury in annular form against the inner surface at its greatest diameter, of a fixed supply pipe leading into the receptacle, disk plates secured rigidly at a little distance apart to the pipe forming a radial discharge passage from the pipe, which disks are located substantially opposite to the greatest diameter of the receptacle and project nearly to the sides thereof and into the space occupied by the mercury when the receptacle is revolved rapidly, whereby, the edges of the plates being in the mercury, the mercury is agitated as it moves about the plates by contact therewith, and means as a force pump in the pipe for forcing the pulp into the revolving and agitated mercury, substantially as described.

10. The combination with the arbor of a revolving ore receptacle, of an endwise adjustable shaft belted to and driven by the receptacle arbor, a pulp feeding pump, a shaft provided with a crank connected to the pump's piston, a disk on the latter shaft and a wheel on the adjustable shaft bearing frictionally against the disk, whereby the pump is operated from the receptacle-revolving mechanism and its motion is regulated as desired, substantially as described.

11. The combination with the arbor of a revolving ore receptacle, of an endwise adjustable shaft belted to and driven by the receptacle arbor, an adjustable step in which the adjustable shaft has its bearing, a pulp feeding pump, a shaft provided with a crank connected to the pump's piston, a disk on the latter shaft and a wheel on the adjustable shaft bearing frictionally against the disk, and a weight-actuated lever arm bearing against the adjustable shaft adapted to hold the wheel on the adjustable shaft yieldingly in contact with the disk on the other shaft, substantially as described.

12. The process of separating the heavier parts of ores from the lighter parts consisting in rotating mercury in and with a revolving receptacle whereby by centrifugal action the mercury is disposed in annular form about the sides of the receptacle, and forcing crude pulverized ores in a substantially continuous supply into the revolving mercury whereby by the specific gravity and agitation of the mercury and the ores therein the heavier parts of the ores are separated from the lighter parts, as set forth.

489,102. METAL-STRAIGHTENING PRESS. JOHN H. SHORT, Johnstown, Pa. Filed May 7, 1890. Serial No. 350,985. (No model.)



Claim.—1. In a straightening press, the combination with a reciprocating plunger of a disk perforated to receive the bar to be operated upon, with springs supporting said disk, and yielding to pressure, and two supports for said bar, one on each side of the said disk, substantially as set forth.

2. In a straightening press, the combination with a reciprocating plunger of two revoluble disks adjusted to resist pressure, placed one on each side of the line of thrust of the plunger, and having orifices to receive and support the bar to be operated upon of a like section to that of the bar, substantially as set forth.

3. In a straightening press, the combination with a reciprocating plunger of a revoluble center disk perforated to hold and support a bar and yielding to pressure, with supporting revoluble disks, arranged on each side, and adjusted to resist pressure, substantially as set forth.

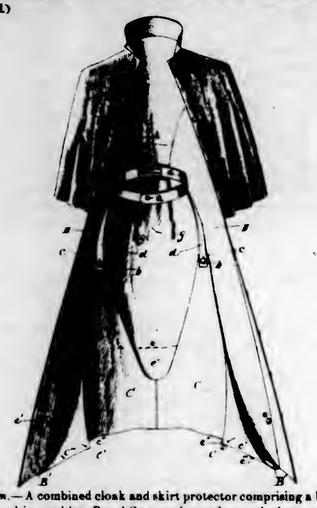
4. In a straightening press, the combination with a reciprocating plunger of a set of disks perforated to receive the bar to be operated upon, and revoluble with the bar, substantially as set forth.

5. In a straightening press, the combination of a reciprocating plunger with a set of three revoluble disks perforated to hold the piece to be operated upon, the two outer disks presenting a firm resistance to downward pressure, and the central disk being adjusted to yield to downward pressure, substantially as set forth.

6. In a straightening press, the combination of a reciprocating plunger having an adjustable plunger-head with a set of revoluble disks perforated to support the bar to be operated upon, substantially as set forth.

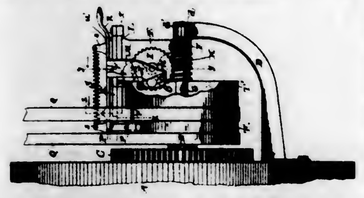
7. In a straightening press, the combination of a reciprocating plunger with a set of revoluble disks perforated to support the bar to be operated upon, substantially as set forth.

489,103. COMBINED CLOAK AND SKIRT-PROTECTOR. LEMA STITIC, Brooklyn, N. Y. Filed Oct. 12, 1892. Serial No. 448,648. (No model.)



Claim.—A combined cloak and skirt protector comprising a body A, outer and inner skirts B and C secured together at the bottom and forming a pocket B'; said body and skirts being open at front from top to bottom, the inner skirt C having upwardly directed points *c*, *c*, provided with button holes to engage with straps depending from the waist of the wearer or with buttons on the inside of the skirt B; the bottom portion of the inner skirt, at its ends, being parallel with the front edges of the outer skirt and provided with buttons and button holes, adapted to engage with each other, to form a continuous pocket, when the garment is used as a skirt protector, or to engage with complemental fastening means on the inner portion of the outer skirt when used as a cloak as set forth.

489,104. REVERSING-GEAR. HENRY G. SMITH, Columbia, Pa. Filed Apr. 30, 1892. Serial No. 431,169. (No model.)



Claim.—1. In a reversing-gear, the combination with a bearing plate, a sliding holder, a slide, a cam engaging the slide, and means to operate the cam, of a locking-lever pivotally connected to the holder and having a stud to engage a notch in the slide, and a spring S connecting the free end of said lever to the holder, and arranged to hold the lever in or out of engagement with the slide, substantially as specified.

2. In a reversing-gear, the combination with a slidable holder a bearing plate, a slide having a depending arm and a notch *v'*, pins or studs carried by said arm, a cam to engage said pins or studs, and means to operate the cam, of a spring-pressed locking-lever carrying a stud to engage the notch in the slide, substantially as specified.

3. In a reversing-gear, the combination of a bearing-plate provided with studs *w'*, a sliding holder, a slide, a cam, means to operate the cam, and a spring-pressed locking-lever pivotally connected to the holder and provided with a stud to engage a notch in the slide and a projection to engage said studs, substantially as specified.

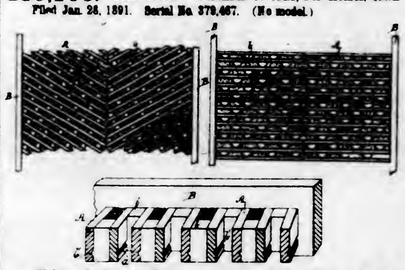
4. In a reversing-gear, the combination with fixed and loose pulleys, oppositely running belts and a movable holder connected to the belts, of a slide mounted upon a bearing plate connected to said holder, a swivel mounted upon an arm of said slide and carrying pins or studs, a gear carrying a cam to engage said pins or studs and means to operate the gear, substantially as specified.

5. In a reversing gear, the combination with fixed and loose pulleys, oppositely-running belts, and a movable holder connected to the belts, of a slide mounted upon a bearing plate, a locking lever pivotally connected to the holder and normally engaging the slide, said lever being provided with a V-shaped projection, stationary guide-pins to engage said projections, as described, pins or studs carried by the slide, a cam, and means to operate the latter, substantially as specified.

6. In a reversing-gear, the combination with a holder a bearing plate, a slide, connections between the holder and slide, a rotary cam, and means to operate the same, of a pivoted swivel carried by the slide and provided with pins in the path of the cam, substantially as specified.

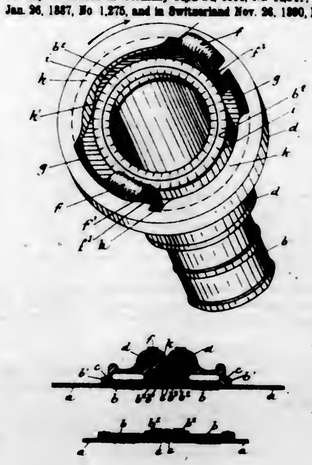
7. In a reversing-gear, the combination with a holder a bearing plate, a slide connected to the holder and provided with an arm, a rotary cam, and means to operate the cam, of a swivel pivotally mounted upon the arm of the slide and provided at each end with oppositely-extending pins, all substantially as and for the purpose specified.

489,105. PAVEMENT. BENJAMIN F. SHEY, Des Moines, Iowa. Filed Jan. 28, 1891. Serial No. 379,667. (No model.)



Claim.—An improved pavement composed of solid pieces having grooves in their side faces and separately set on edge on a road bed to extend transversely to the road and parallel to each other, and solid blocks corresponding in length with the width of the said parallel pieces and having ribs on their side faces adapted to enter the grooves in the said parallel pieces, and a composite filling material in the interstices or vacant spaces between said blocks and said parallel pieces, substantially as shown and described.

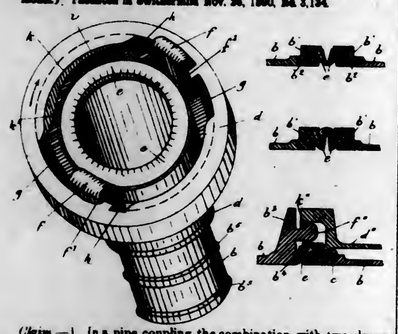
489,106. HOSE-PIPE COUPLING. CARL A. G. STORK, Frankfort-on-the-Main, Germany. Filed Dec. 29, 1890. Serial No. 376,071. (No model.) Patented in Germany Sept. 24, 1886, No. 44,341; in England Jan. 26, 1887, No. 1,275, and in Switzerland Nov. 26, 1890, No. 3,134.



Claim.—1. In a pipe coupling, the combination, with two sleeves adapted to be secured to the ends of the pipes, of a packing ring of elastic material provided with a groove in its face and secured to one of the sleeves, and a ring journaled on one of the sleeves and provided with lips *k* thickest at the points *k'* and having their inner surfaces inclined in opposite directions from the said points, and adapted to engage with hooks carried by the opposed sleeve, substantially as and for the purpose set forth.

2. In a pipe coupling, the combination, of two similar half couplings, each comprising a sleeve adapted to be secured to the end of the pipe, a packing ring secured to the sleeve and provided with a groove in its face, and a ring journaled on the sleeve and provided with hooks *f*, spaces *g* wider than the hooks, and lips *k* thickest at the points *k'* and having their inner surfaces inclined in opposite directions from the said points, substantially as and for the purpose set forth.

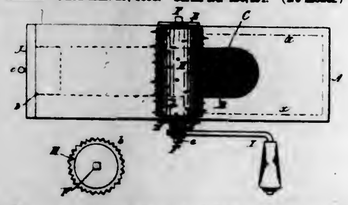
489,107. HOSE-PIPE COUPLING. CARL A. G. STORZ, Frankfort-on-the-Main, Germany. Filed Dec. 28, 1890. Serial No. 376,072. (No model.) Patented in Switzerland Nov. 26, 1890, No. 3,134.



Claim.—1. In a pipe coupling, the combination, with two sleeves adapted to be secured to the ends of the pipes, of a packing ring of elastic material provided with an inclined face and secured to one of the sleeves, and a ring journaled on one of the sleeves and provided with lips *k* thickest at the points *k'* and having their inner surfaces inclined in opposite directions from the said points and adapted to engage with hooks carried by the opposed sleeve, substantially as and for the purpose set forth.

2. In a pipe coupling, the combination, of two similar half couplings, each comprising a sleeve adapted to be secured to the end of the pipe, a packing ring secured to the sleeve and provided with an inclined face, and a ring journaled on the sleeve and provided with hooks *f'* spaces *g* wider than the hooks, and lips *k* thickest at the points *k'* and having their inner surfaces inclined in opposite directions from the said points, substantially as and for the purpose set forth.

489,108. TOBACCO-CUTTER. ALEXANDER STUART, Jr., Hamilton, Canada. Filed Mar. 26, 1892. Serial No. 426,451. (No model.)

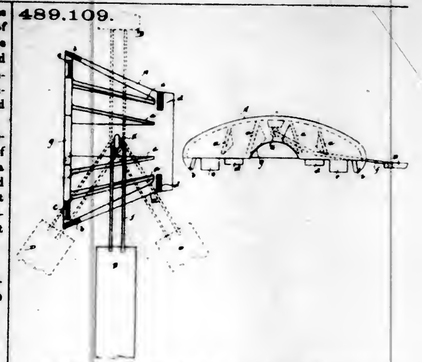


Claim.—In a tobacco cutter, the combination of the box A, with recess B, cover J, cylinder H, having saw teeth *b*, standards E, spindle F, and handle I, all constructed substantially as and for the purpose specified.

489,109. CAR-REPLACER. ROBT B. TILDEN, Chicago, Ill., assignor to B. B. Tilden Co., same place. Filed Feb. 3, 1892. Serial No. 420,796. (No model.)

Claim.—1. The replacing frog A, having braces *a. a. a. a.* and spurs *b b c c d d* and opening *g* substantially as and for the purposes described.

489,109.



2. The replacing frog A, having opening *g* substantially as described and for the purposes specified.

3. In combination with a replacing frog, the circuit connecting strip D connected with the frog by any suitable means, substantially as and for the purposes described.

4. In combination with the replacing frog A, the circuit connecting strip D having metallic connection *f*, substantially as and for the purposes described

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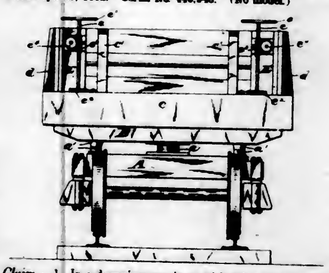
489,110. TROLLING APPARATUS. HENRY J. WELCH, Carthage, assignor of one-half to Calvin V. Graves, Natural Bridge, N. Y. Filed Oct. 25, 1892. Serial No. 449,946. (No model.)



Claim.—1. In a trolling device, a transparent receptacle adapted to receive the bait and provided with openings for the passage of water through the receptacle, and snells or lines attached to said receptacle and carrying hooks substantially as and for the purpose described.

2. In a trolling device of the character described, the combination with a transparent chamber having one of its ends provided with a perforated cap, and its opposite end closed by means of a cork or its equivalent, said cork being provided with a peripheral groove, of a snell or line having one of its ends secured within said groove, and carrying hooks, substantially as described and for the purpose specified.

489,111. DUMPING-CAR. HENRY C. WOHLSDORFF, Tyler, Tex. Filed Sept. 26, 1892. Serial No. 446,948. (No model.)

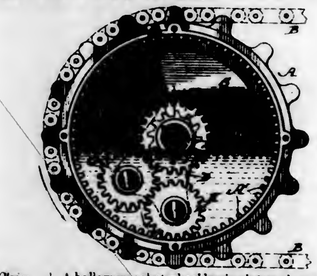


Claim.—1. In a dumping car, in combination with a railroad car, the combination of the longitudinal sills F, incline floors H and J, aprons I, hinged to sills F, shafts *j'*, working in bearings *j*, and carrying on their outer ends cog-wheels *c*⁴, and at intervals along their length grooved winding spools *j*³; chains *j*³, having their upper ends secured to said winding spools and the lower ends to said aprons; brake rod *c*, provided with brake wheel *c'*, ratchet wheel and dog *c*³, and spiral thread *c*⁴, substantially as shown and described and for the purposes set forth.

2. In a dumping car, in combination with a railroad car, the combination of the longitudinal sills F, F', cross, grooved, sills, G, and triangular longitudinal tongued beam G', incline floors H and J, aprons I, hinged to sills F, shafts *j'* working in bearings *j*, and carrying on their outer ends cog-wheels *c*⁴, and at intervals along their length grooved winding spools *j*³; chains *j*³, having their upper ends secured to said winding spools and their lower ends to said aprons; brake rods *c*, provided with brake wheels *c'*, ratchet wheels and dogs *c*³, and spiral threads *c*⁴; saddles A, mounted on apex of incline floors H, and rods A², keeping said saddles in place and preventing the sides of the body from spreading, substantially as shown and described and for the purposes set forth

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489,112. BICYCLE. WILLIAM A. WRIGHT, Centreton, N. J., assignor of one-half to Brown & Gilman, Philadelphia, Pa. Filed Feb. 27, 1892. Serial No. 423,018. (No model.)



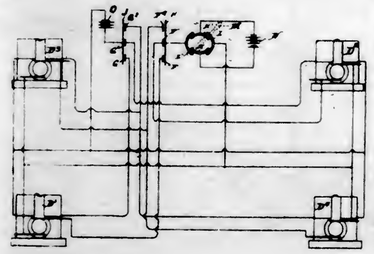
Claim.—1. A hollow sprocket wheel having internal gear, a frame mounted on the axle of said sprocket wheel and having a hub on which one portion of said wheel is mounted gearing connecting said axle and wheel, a clutch and a pinion on said axle, a pivoted lever having a pawl at one end adapted to engage said pinion, and a lever connected with the other end for operating said clutch, said parts being combined substantially as described.

2. An axle, a hollow sprocket wheel mounted thereon, and having internal gearing, a frame within said wheel on said axle, and having a hub on which one portion of said wheel is mounted, a pinion on said hub, a train of gearing connecting said axle and said sprocket wheel, a bicycle frame, a lever pivoted thereon, a pawl connected with one end of said lever and guided in ways on said frame, for engaging said pinion, a fast clutch member on said axle, and an elbow lever connected by a rod to said pivoted lever for operating said clutch member, said parts being combined substantially as described.

3. A bicycle having a hollow driving wheel, a pinion on the shaft thereof, and gearing meshing with the pinion and wheel, a toothed wheel on the bearing-frame of said gearing, and a clutch on the axle and driving wheel, in combination with a lever, and a dog and elbow lever connected with the ends thereof said dog being adapted to engage with the toothed wheel of the aforesaid bearing-frame, and said lever engaging with the movable member of said clutch, substantially as described

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489,118. OPERATING DEVICE FOR BRIDGE-GATES. EDWARD ZAREMBA, Chicago, Ill. Filed Mar. 5, 1892. Serial No. 423,835. (No model.)



Claim.—1. The combination with a turn bridge and its approaches, of a gate or gates guarding each approach, motors for operating said gates, a switch upon the bridge for controlling the electric currents whereby the motors are set in operation, an electric generator and electrical connections between the switch and motors, substantially as specified.

2. The combination with a turn bridge and its approaches, of a gate or gates for guarding each approach, motors for operating said gates, a switch and current reverser upon the bridge for controlling the electric currents whereby the motors are set in operation, an electric generator and electrical connections between the switch and motors, substantially as specified.

3. The combination with a turn bridge and its approaches, of a gate or gates guarding each approach, motors for operating said gates, a switch upon the bridge for controlling the electric currents whereby the motors are set in operation, an electric generator, and electrical connections adapted to make and break the circuits between the switch and motors, substantially as set forth.

4. The combination with a turn bridge and its approaches, of a gate or gates guarding each approach, motors for operating said gates, a switch and current reverser upon the bridge for controlling the electric currents whereby the motors are set in operation, an electric generator and electrical connections adapted to make and break the circuits between the switch and motors, substantially as set forth

5. The combination with the turn bridge and its gate motors, of the switch upon the bridge consisting of the cylinder having studs, the spring keys and the contact plates, the keys and plates being electrically connected in the circuits for setting the motors in operation, substantially as set forth.

6. The combination with a gate motor and its armature and field circuits, of a switch consisting of a rotatable cylinder having a pair of studs upon its surface, a pair of keys located one in the armature circuit and one in the field circuit, and each adapted to be engaged by one of said studs, and contact plates located one in each of said circuits and in proximity to said keys so as to act therewith in completing the respective circuits, substantially as specified.

7. The combination with a gate motor and its armature and field circuits, of a switch consisting of a rotatable cylinder having a pair of studs upon its surface, a pair of keys located one in the armature circuit and one in the field circuit and each adapted to be engaged by one of said studs, and contact plates located one in each of said circuits and in proximity to said keys so as to act therewith in completing the respective circuits, said studs and keys being relatively arranged so as to insure the simultaneous completion of both circuits substantially as specified.

8. The combination with a plurality of gate motors and their respective armature and field circuits, of a switch consisting of a rotatable cylinder having upon its surface a separate pair of studs for each motor, a separate pair of keys for each motor, and contact plates also located in said circuits and acting with the keys to complete the same, one of each pair of said keys being located in the armature circuit, and the other in the field circuit of the motor, and each pair thereof being also adapted to be simultaneously depressed by the studs upon the cylinder corresponding to the same motor, substantially as specified.

9. The combination with the turn bridge, the gates and the motors for the gates, of electrical devices under the control of the bridge tender for setting said motors in operation, the circuit connections between the bridge and the motors having make and break contacts, substantially as set forth.

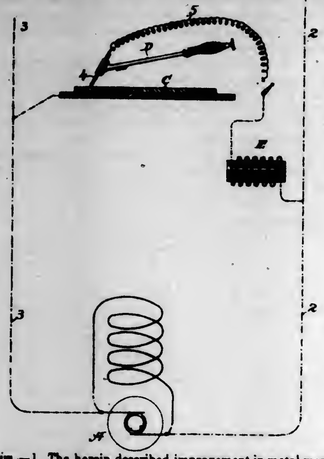
10. The combination of the movable block P carrying contact plates upon the bridge, devices for moving said block and the abutment contact plates, with the electrical connections between the bridge and the motors, substantially as set forth.

11. The combination with the bridge and the several gates guarding the approaches, of a separate motor for each gate, a switch upon the bridge for controlling the electric currents whereby the several motors are set in operation, an electric generator and electric connections between the switch and motors, substantially as specified.

12. The combination with the bridge and the several gates guarding the approaches, of a separate motor for each gate, a switch and reverser upon the bridge for controlling the electric currents whereby the several motors are set in operation, an electric generator and electric connections between the switch and motors, substantially as specified

13. The bridge the gates B R and B L guarding one approach, gates C R and C L guarding the other approach, a motor for each of said gates, circuits controlling said motors, and a switch on the bridge whereby the motors of the right hand gates may be first energized and those of the left hand gates be subsequently energized, substantially as specified.

489,114. ELECTRIC METAL-WORKING. CRAIG R. ARNOLD, Sharon Hill, Pa. Filed May 17, 1892. Serial No. 433,316. (No model.)



Claim.—1. The herein described improvement in metal working by the electric arc, consisting in setting up an extra or induced current in the circuit of the arc, as and for the purpose described.

2. The herein described improvement in electric metal working by the electric arc, consisting in opposing the current of the main source by a counter electro-motive force at the instant of completing the circuit through the work, as and for the purpose described.

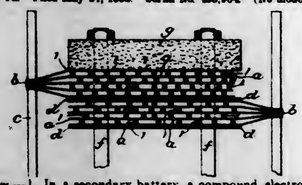
3. The herein described improvement in electric metal working by the electric arc, consisting in assisting the electro-motive force of the main source employed for providing the heating arc by an induced current generated in the circuit thereof in any desired manner, as and for the purpose described.

4. The herein described improvement in electric metal working by the electric arc, consisting in generating in the circuit between the source and the work an extra current both at the instant of the completion of circuit just before the formation of the arc and also accompanying the formation of the arc.

5. In an electric metal working apparatus, the combination with the generator which supplies the arc forming current and the work, of one or more self-inductive or reactive coils interposed between the generator and the work, as and for the purpose described.

6. In an electric metal working apparatus, the combination, substantially as described, with mains or wires having an approximately constant maintained potential, of a connection from the latter to the arc forming electrode, and a self-inductive reactive coil or coils interposed in such connection, as and for the purpose described.

489,115. SECONDARY BATTERY. CRAIG R. ARNOLD, Sharon Hill, Pa. Filed May 21, 1892. Serial No. 433,904. (No model.)



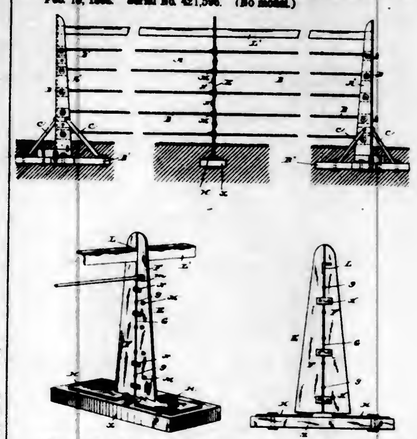
Claim.—1. In a secondary battery, a compound electrode consisting of a number of superposed metal plates separated from one another by small pieces of metal to allow a space for the active material electrolytically produced, as and for the purpose described.

2. In a secondary battery, a compound electrode consisting of a number of plates of lead separated from one another by lead shot in a single layer, and clamped or held together by any suitable means, as and for the purpose described.

3. In a secondary battery, a compound electrode consisting of a number of plates of lead superposed upon one another and separated by small pieces of lead in a single layer, the said plates being all clamped together in combination with a bar or rod having an opening or perforation in which projections from said plate are massed and soldered together.

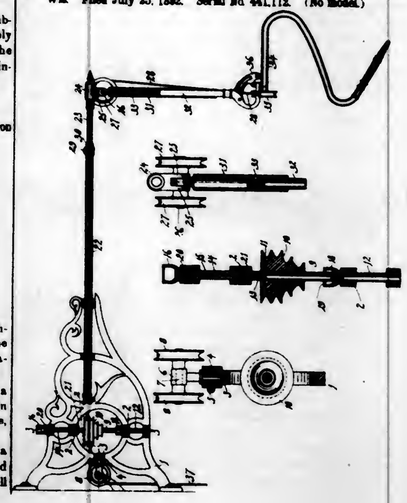
4. In a secondary battery, an electrode consisting of a number of superposed plates of lead having interposed between them lead shot and all clamped together, as and for the purpose described.

489,116. FENCE-POST. HENRY J. BAETA, Logansport, Ind. Filed Feb. 18, 1892. Serial No. 421,596. (No model.)



Claim.—In a fence post, the combination with the base or sill and the fence wires, of the opposite vertical post members having outturned feet at their lower ends detachably clamped to said base or sill, straight meeting edges provided with a series of registering notches forming openings for the wires, and a series of headed studs adjacent to said openings, stay or anchor wires passing over said studs and the wires, a series of alternately arranged brace lugs secured at one end to each section at its meeting edge and having their other ends overlapping the opposite section, and clamping plates secured to both of the sections to clamp the same, together, substantially as set forth.

489,117. DENTAL ENGINE. FREDERICK H. BERRY, Milwaukee, Wis. Filed July 25, 1892. Serial No. 441,112. (No model.)



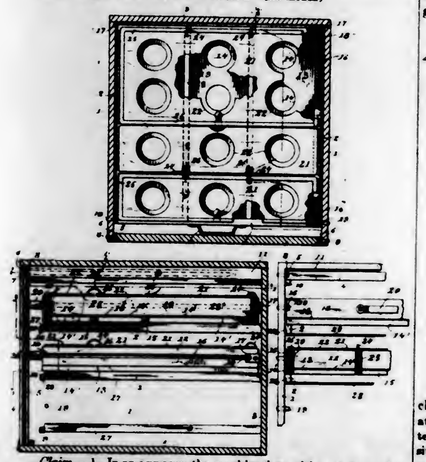
Claim.—1. In a dental engine, the combination, of a bracket consisting of a stationary and a movable section, the latter having a hinge connection with the former, a shaft carrying a pulley and having its bearings in the bracket so that the movable section will describe a circle around the shaft and pulley as a center, an operating tool, connections between the same and the movable section of the bracket, pulleys connected with the operating tool and an endless cord passing around the pulley of the shaft and around the pulleys connected with the operating tool, substantially as set forth.

2. In a dental engine, the combination, of a bracket, a shaft mounted therein and carrying a cone pulley, a short shaft mounted adjustably in an aperture in the bracket, said shaft carrying end pulleys, an operating tool, a belt running from a source of power over the pulleys of the short shaft and then passing around the cone pulley, and a second belt passing from the cone pulley to the operating tool, substantially as set forth.

3. In a dental engine, the combination, of a forwardly-extending tubular swinging arm, a rod loose within the tube and rotatable and extensible therein said rod provided at its extremity with depending arms or bifurcated portions, a shaft journaled in said bifurcated portions and carrying pulleys upon its extended ends, a swinging arm turning upon the shaft, a working arm rigidly connected to the swinging arm and carrying a pulley, and an operating cord passing over the several pulleys, substantially as set forth.

4. In a dental engine, the combination of a forwardly-extending tubular arm, a rod loose within said tube, an adjustable collar upon said rod, adapted for adjustment against the end of the tube upon the extension of the rod, to prevent the inward movement of said rod and permit of its rotation, a swinging arm secured to the rod, an operating tool, and an operating cord, substantially as set forth.

489,118. EGG-CASE. FERDINAND F. BISCHOFF, Thiensville, Wis. Filed Aug. 4, 1892. Serial No. 442,134. (No model.)



Claim.—1. In an egg case, the combination, with an outer casing, of trays arranged to slide in and out thereof, the tops of said trays consisting of a series of hinged sections, whereby access may be gained to the eggs, upon the partial drawing out of a tray, by the uplifting of a section of the cover, said sections joined in pairs by a common hinge joint, substantially as set forth.

2. In an egg case, the combination, of an outer casing, a series of trays sliding therein, said trays provided with an apertured bottom piece, longitudinal strips secured to the upper side of the bottom piece, staples secured to said longitudinal strips, and a cover consisting of a series of sections through which the legs of the staples pass to form hinge joints therefor, substantially as set forth.

3. In an egg case, the combination, of an outer casing, trays sliding therein, said trays provided with apertured bottom pieces, longitudinal strips secured to the upper side of the bottom pieces, a cover consisting of a series of sections, metallic surfaces upon said sections, and staples having their legs engaging said metallic surfaces and entering the longitudinal strips, substantially as set forth.

4. In an egg case, the combination of an outer casing, cleats secured to the inner sides thereof, and terminating short of the front of the casing, pins extending inwardly from the sides of the casing above and approximately in line with the ends of the cleats, and trays resting upon the cleats and provided with side grooves to receive the pins, said trays, when drawn out beyond the ends of the cleats, adapted to be swung downwardly upon the pins as pivots, substantially as set forth.

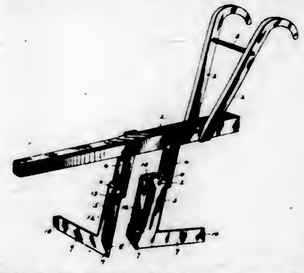
5. In an egg case, the combination, of an outer casing, cleats secured to the inner sides thereof and terminating short of the front of the casing, pins extending inwardly from the sides of said casing, above and approximately in line with the ends of the cleats, trays resting upon the cleats and provided with side grooves to receive the pins, said trays when drawn out beyond the ends of the cleats, adapted to be swung downwardly upon the pins as pivots, and angle irons secured to the rear angles of the trays, and provided with recesses registering with the ends of the side grooves, whereby said grooves are re-enforced and strengthened at the point where the trays are swung down upon the pivot pins, substantially as set forth.

6. In an egg case, the combination, of an outer casing provided upon its inner sides with cleats, a tray, a supplemental frame secured to the under edges of the sides and ends of the tray and confining the bottom of said tray, and intermediate strengthening strips secured to the underside of the bottom, the ends of said strengthening strips and the supplemental frame adapted to rest upon the supporting cleats of the casing, substantially as set forth.

7. The combination of a casing provided with an open front, cleats secured to the sides of said casing slightly below the top thereof, lateral pins extending inwardly from the sides of the casing near their front edges, and a door provided with edge grooves adapted to receive the pins, to turn thereon as pivots, and to be slid within the casing and to rest on the side cleats thereof, substantially as set forth.

8. In an egg case, the combination of a casing, a series of trays therein provided with apertured top and bottom pieces through which the contained eggs project, a flexible partition interposed between the trays, and a metallic border for said partition, provided with end angular securing flanges, substantially as set forth.

489,119. COTTON-SCRAPER. BENJAMIN F. CADENHEAD, Mountesville, Ala., assignor of one-half to Moses R. Butt, same place. Filed Jan. 30, 1892. Serial No. 419,799. (No model.)



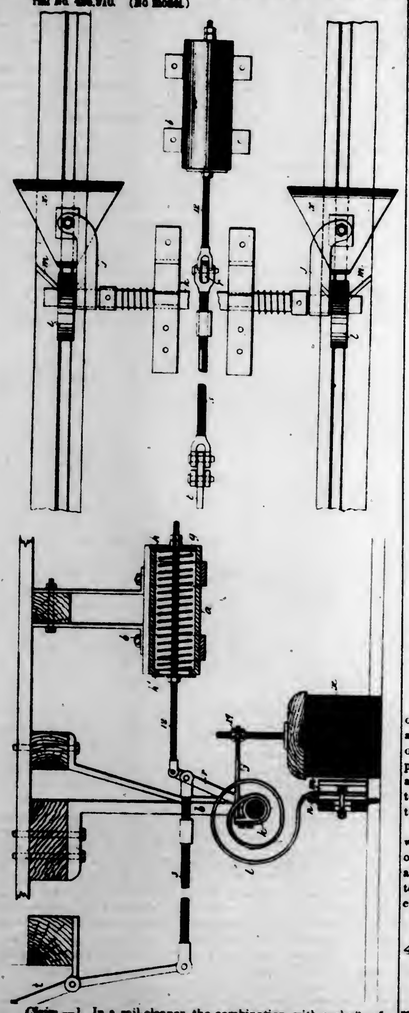
Claim.—1. The herein-described plow, consisting of the front inclined-portion 5, terminating at its lower end in a point and provided at the inner side of this point with a land-side flange 8, forming a colter extending forwardly at a right angle to the plow, and at its opposite side provided with a laterally and rearwardly disposed mold-board portion 9, terminating at its end in an upturned portion 10 forming a colter, substantially as specified.

2. The herein-described plow, the same consisting of the inclined portion 5 provided at its land-side with a forwardly-disposed colter arranged at an angle to the portion 5 and at its opposite side with a rearwardly and laterally disposed mold-board portion 9, the extremity of which is upturned to form a colter, the resilient blade connected with the land-side of the plow and adapted to swing across the face of the same, and a bolt passed through the blade and adapted to be inserted in any one of the series of bolt-openings formed in the portion 5, substantially as specified.

3. The herein-described plow, the same consisting of the inclined portion 5, terminating at its lower end in a point and provided at the land side of its point with a flange forming a colter, extending at a right angle to the portion 5, and at its opposite side with a mold-board portion laterally and rearwardly extended, a resilient blade connected to the land-side flange and a J-shaped bolt engaging over the upper edge of the flange and having its rear end adapted to be passed through any one of the series of bolt openings formed in the portion 5, substantially as specified.

4. The combination with the beam, and the front and rear standards located at opposite sides of the same, of the herein-described plows applied to the standards each consisting of the front inclined portion b having a transverse series of perforations near its upper edge and its lower end terminating in a point and provided at its inner side opposite the point with a right angularly bent colter and at its opposite or outer side with a rearwardly and laterally disposed mold board upturned at its outer end to form a colter, substantially as specified.

489,120. RAIL-CLEANER FOR RAILWAY AND TRAMWAY RAILS. HENRY CONRADI, London, England. Filed Mar. 29, 1892. Serial No. 426,910. (No model.)



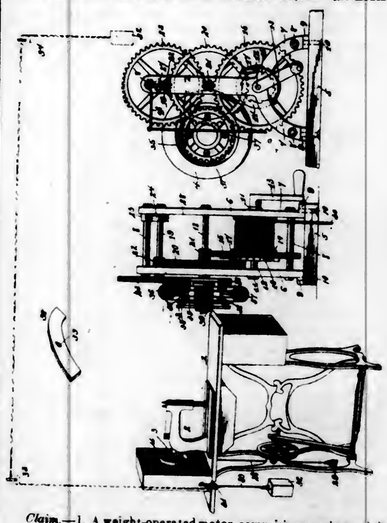
Claim.—1. In a rail-cleaner, the combination, with a shaft, of a scraper, a spring connecting the scraper to the shaft, a brush supported by the shaft and arranged behind the said scraper, and a second spring operatively connected to the said shaft and adapted to press the scraper and the brush against the rail, substantially as set forth.

2. In a rail-cleaner, the combination, with a shaft, of a scraper provided with a projection adapted to engage with the rail, a spring connecting the scraper to the shaft, a brush supported by the said shaft behind the scraper, a second spring operating to press the said scraper and brush against the rail, and a third spring normally holding the scraper and brush at a certain distance from the longitudinal center line of the car and permitting them to move laterally, substantially as and for the purpose set forth.

3. In a rail-cleaner, the combination, with an oscillatory shaft provided with a square end and a collar, of a sliding sleeve mounted on the said square end, a spring secured to the said sleeve, a scraper secured to the said spring and provided with a projection engaging with the rail, a second spring operating to press the scraper against the rail, and a third spring operating to press the said sleeve against the said collar, substantially as and for the purpose set forth.

4. In a rail-cleaner, the combination, with an oscillatory shaft, of a scraper, a spring connecting the scraper to the shaft, a brush supported by the said shaft behind the scraper, and a second spring connected to an arm projecting from the said shaft and operating to turn it and to press the said scraper and brush against the rail, substantially as set forth.

489,121. MOTOR FOR SEWING-MACHINES. JAMES C. DREW, Arcadia, La. Filed June 20, 1892. Serial No. 437,283. (No model.)



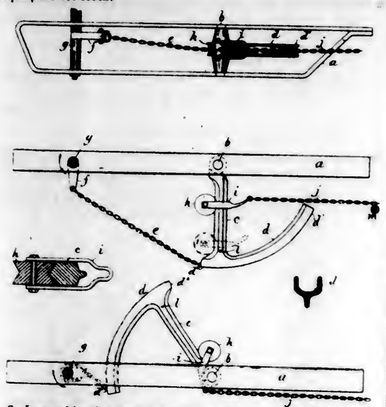
Claim.—1. A weight-operated motor, comprising a casing, weight-operated gearing mounted therein, one of the gear-shafts projecting at one side of the casing and provided with a gear engaging the weight-operated gearing and provided with a series of perforations, bolts passed through the perforations, and a series of centrally perforated and threaded clip-plates or yokes adapted to span adjacent spokes of the fly-wheel of a sewing-machine at that side thereof opposite which the motor is located, substantially as specified.

2. A motor, comprising a frame-work having, tie-bolts, a brake-wheel, and a spring brake bent to form an eye and loosely mounted on one of the bolts one terminal of the brake having a brake-shoe adapted to bear upon the brake-wheel and at the other terminal extending forward to form a lever or handle, and provided with a pull-cord, substantially as specified.

489,122. APPARATUS FOR OPERATING CAR BRAKES. MARCUS E. ELLSWORTH, Hudson, Ohio. Filed Oct. 22, 1892. Serial No. 448,579. (No model.)

Claim.—1. In an apparatus for operating railway car brakes, a radial arm *c* provided with a grooved segmental arm *d* having axle connection with a frame, in combination with the chain *e* attached to said segmental arm and brake shaft arm *f*, the roller *h* operating on said radial arm and provided with a bail connected with the brake chain substantially as and for the purpose specified.

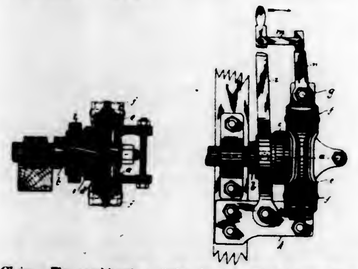
2. In an apparatus for operating railway car brakes, a roller connected with the brake chain by means of a bail and operating on a radial arm, in combination with the brake shaft, an arm extending therefrom and a chain attached to said arm, substantially as and for the purpose set forth.



3. In combination with a railway car brake a radial arm pivoted to a frame and provided with a segmental arm at the free end thereof, a roller or its equivalent operating on said arm and provided with a bail connected with the brake chain in conjoint operation with a chain connected with the segmental arm and extending from the brake shaft substantially as and for the purpose set forth.

4. In combination with the brake shaft of a car an arm *f* extending therefrom and connected by means of a chain with a segmental arm at the end of a radial arm pivoted as described having connections with the brake substantially as and for the purpose set forth.

489,123. COMBINED SAFETY-BRAKE AND SHAFT-COUPLING. ALBERT FÜRNEWERTH, Peterwitz, Germany. Filed Dec. 14, 1891. Serial No. 415,077. (No model.)



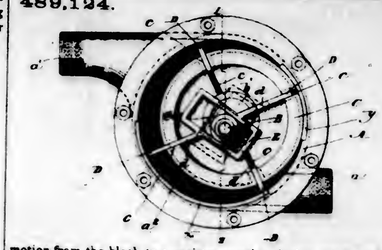
Claim.—The combination of the clutch member *a* suitably connected to the machine shaft or axle and having a recessed rear portion, the clutch member *c* fitting into said recessed portion of member *a*, the journal *b* keyed to the member *c*, loosely mounted on journal *b*, the brake straps *e*, *e* having rollers *f*, *f* mounted therein and bearing on member *a* and disk *d*, the screw spindle *g* for operating said straps, and having right and left hand threads, and operating levers *h* and *i*, substantially as described.

489,124. ROTATING FLUID METER. ALLEN J. FULLER, Philadelphia, Pa. Filed Aug. 29, 1891. Serial No. 404,058. (No model.)

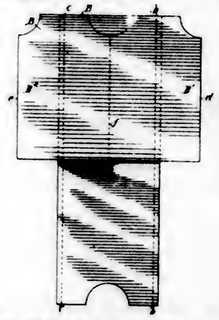
Claim.—1. The combination of the cylinder, with its inlet and outlet ports, the fixed shaft, the fixed eccentric thereon, the drum mounted on said eccentric, the sliding blades, the guide frames, and the blocks rotatably mounted on the shaft and engaged with said frames, substantially as described.

2. The combination of the cylinder, with its inlet and outlet ports, the shaft, the drum eccentrically mounted thereon, the sliding blades, the guide-frames, and the blocks with the sleeve extending outwardly from one of the same, said sleeve being adapted to transmit rotary motion from the block to a register or other device, substantially as described.

489,124.



489,125. POCKET-CASE AND METHOD OF MAKING THE SAME. RICHARD D. KNIGHT, Providence, R. I. Filed May 21, 1891. Serial No. 393,573. (No model.)



Claim.—1. The method of making pocket-cases which consists in first cutting out blanks of suitable shape for the outer portion and for the lining of the case respectively, then securing the lining to the outer portion in such manner as to leave a margin of the outer portion and projecting wings of the lining free and unsecured, next folding the projecting wings of the lining to form the interior of the case, and finally folding the outer portion and securing its edges together, whereby the joints in the outer portion and the openings in the lining will be guarded and protected by whole material, substantially as set forth.

2. The improved pocket-case herein described composed of an outer portion and a lining secured together, and arranged with relation to each other so that the joints in the outer portion will be guarded and protected by the whole material of the lining, and the openings in the lining will be covered and protected by the whole material of the outer portion, substantially as described.

489,126. ADVERTISING DEVICE. RICHARD D. KNIGHT, Providence, R. I. Filed Mar. 11, 1892. Serial No. 424,497. (No model.)



Claim.—An advertising device made to represent a powder cracker, and composed of an exterior tubular shell or casing and an interior roll of paper or other suitable material upon which advertising matter or other information or representations may be displayed, said interior roll of paper having a piece of twine attached to the inner end of said roll and projecting from the center thereof, by means of which said roll may be withdrawn from said casing to disclose the contents of said roll, substantially as described.

489,127. BUTTON-FASTENER AND KEY FOR DETACHING. GRANZ KOHL, Vienna, Austria-Hungary. Filed Apr. 20, 1892. Serial No. 429,542. (No model.)

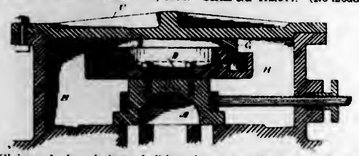
Claim.—In a separable button, the rounded disk *a'*, provided with a centrally located recess *c* and openings a^2, a^2, (of) an upper disk *a*, secured to said disk, and provided with a centrally located opening

489,127.



m, a locking plate B, provided with a squared hole d', recesses b and a projection b', a lower disk F, upwardly extending pins f, secured to said disk and provided with recesses f', said pins being adapted to pass through said openings a^3, a^3, said recesses (f')—to receive the edge of the locking disk, the latter being adapted to receive a key C, provided with a squared portion d, adapted to be inserted through opening m into the squared hole d' of the said locking disk, all said parts being arranged and adapted to operate, substantially as described and for the purposes set forth.

489,128. BALANCED SLIDE-VALVE. JOHN P. LIGHTBODY, San Francisco, Cal. Filed Nov. 16, 1891. Serial No. 412,077. (No model.)



Claim.—1. In a balanced slide valve, a top plate secured to the valve having an annular rib, and an expansible ring inclosing said rib, said rib and ring forming a section of a ball and socket joint, substantially as described.

2. In a balanced slide valve the combination with the steam chest, and valve, of a top plate secured to the valve, an annular rib on said plate, the outer face of which is shaped in the form of a segment of a sphere, and an expansible ring inclosing said rib and having a concave inner face, substantially as set forth.

3. In a balanced valve, the combination of the steam chest cover, the top plate secured to the valve and having an annular rib, the ring G, surrounding said rib, said ring being cut transversely and having slotted ends, and the curved plate K, having the tongue m, and secured to one end of the ring, all constructed and arranged so as to produce steam tight joints both vertically and horizontally, substantially as set forth.

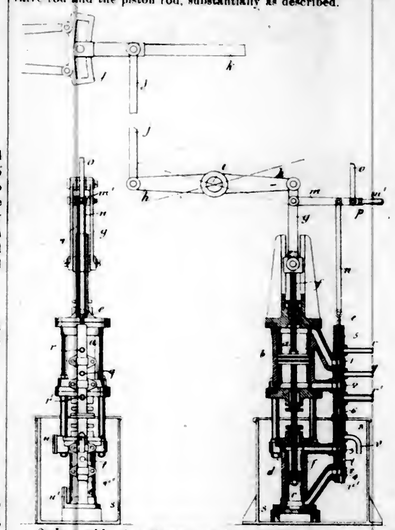
489,129. BALANCED SLIDE-VALVE. JOHN P. LIGHTBODY, San Francisco, Cal. Filed Aug. 25, 1892. Serial No. 444,058. (No model.)



Claim.—An expansible ring for a slide valve cut through at a certain point and increasing in thickness gradually in both directions from said point, and having upon its upper surface a tapering groove or recess, substantially as and for the purposes set forth.

489,130. REVERSING-GEAR FOR ENGINES. JOHN W. MELLIN, Wigan, England. Filed June 20, 1892. Serial No. 438,373. (No model.) Patented in England Mar. 10, 1891, No. 4,219.

Claim.—1. In combination, the steam cylinder a, the piston therein, the piston rod, the connection from said rod to the valve rod k, the hydraulic cylinder d, with its piston and valves u, u', the piston in said cylinder connected with the piston of the steam cylinder the tank around the said cylinder d, the outlet ports v, v', from the cylinder to the tank, and the inlet port t, the valves controlling said ports, the valves for controlling the supply of steam to the cylinder a, the valve rod connected to all of said valves, and the connection between the valve rod and the piston rod, substantially as described.

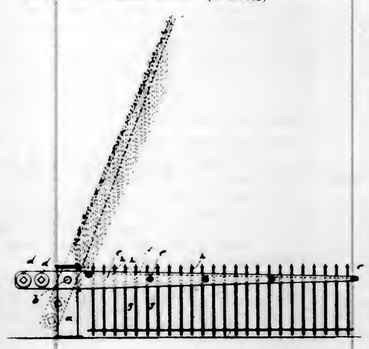


2. In combination, the steam cylinder, the piston and rod therefor, the connection from said rod to the main valve rod k, the valve device for controlling the admission of steam to the said cylinder, the connection m, between the valve rod and the piston rod, the hydraulic cylinder having its piston connected with the piston of the steam cylinder, the tank surrounding the hydraulic cylinder, the inlet and outlet ports leading from the tank to the hydraulic cylinder, and the valve mechanism connected with the valves of the steam cylinder, substantially as described.

3. In combination, the steam cylinder and hydraulic cylinder arranged tandem, the piston rod carrying the pistons for both cylinders, the tank around the hydraulic cylinder, the series of slide valves for the steam and hydraulic cylinders arranged in line with each other and valve rod for said valves connected with the piston rod, substantially as described.

4. In combination, the steam cylinder and hydraulic cylinder arranged tandem, the piston rod connected to the main valve rod k, the series of slide valves arranged tandem for controlling the ports of the steam and hydraulic cylinders and the valve rod connected to the piston rod for operating said slide valves, substantially as described.

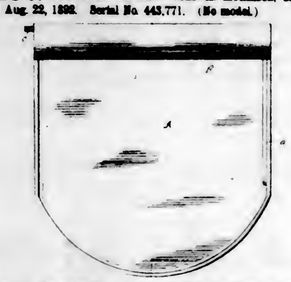
489,131. RAILROAD-GATE. JOHN MILLS, Newark, N. J. Filed May 11, 1892. Serial No. 432,610. (No model.)



Claim.—1. In a railroad gate the combination of a swinging arm carrying a longitudinal rod midway between the sides thereof, with a series of pickets pivoted to said rod and extending considerably above and below said longitudinal rod and adapted to constitute a guard above and below said swinging arm, substantially as described.

2. In a rail road gate the combination of the swinging arm c and rod f extending longitudinally midway between the sides of said arm c, with the pickets h pivoted to said rod f and extending a considerable distance above and below said rod f and swing arm c and with the rod i pivoted at or near the lower ends of said pickets h, all arranged as and for the purposes set forth.

489,132. SURGICAL APRON. JOHN H. MORRISON, Salida, Colo. Filed Aug. 22, 1892. Serial No. 443,771. (No model.)

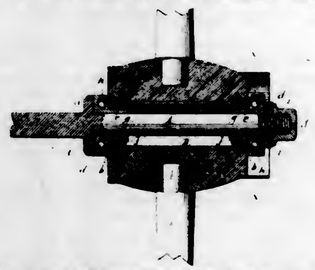


Claim.—1. A surgical apron made of impervious material and having an inflatable cushion, substantially as set forth.

2. A surgical apron made of rubber and having an inflatable cushion and dam, substantially as set forth.

3. A surgical apron made of rubber and having thickened edges, and an inflatable air cushion at one end, substantially as set forth.

489,133. BALL-BEARING FOR WHEELS. DAVID ROUGHEAD, Buffalo, N. Y. Filed Aug. 29, 1892. Serial No. 444,378. (No model.)

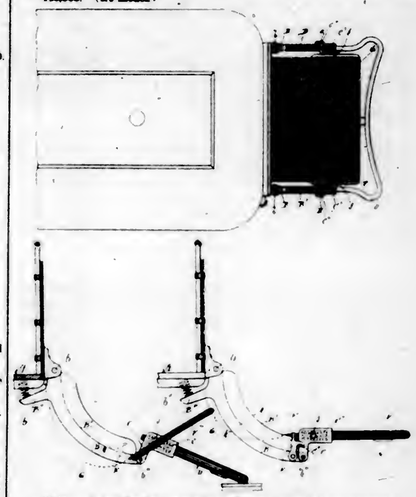


Claim.—1. In a ball bearing for vehicle wheels &c., the combination with the axle box or bushing arranged within the wheel hub, of bearing rings secured to opposite ends of the axle box and forming the inner cones of the bearing, outer cones arranged on the outer sides of the inner cones and each provided with a collar extending inwardly through the bore of the adjacent inner bearing ring or cone, stops arranged on said collars, whereby the outward movement of the outer cones with reference to the inner cones is limited, and balls interposed between the inner and outer cones, substantially as set forth.

2. In a ball bearing for vehicle wheels &c., the combination with the axle box or bushing arranged within the wheel hub, of bearings secured to opposite ends of said box, forming the inner cones of the bearing and provided with shoulders arranged within the tubular axle box, outer cones arranged on the outer sides of the inner cones and each having a collar extending inwardly through the adjacent inner bearing ring or cone and provided at its inner end with a screw thread, a stop nut applied to each of said threaded collars on the inner sides of the shoulders of the inner cones, and balls arranged between the inner and outer cones of the bearing, substantially as set forth.

3. In a ball bearing for vehicle wheels, the combination with the axle box, of bearing rings or cones secured to opposite ends of the box and forming the inner cones of the bearing, outer cones arranged adjacent to the inner cones and provided at their outer ends with caps which overlap the inner cones, collars formed on the outer cones and extending through the inner cones, stops applied to the inner ends of said collars for limiting the outward movement of the outer cones, and balls interposed between said inner and outer cones, substantially as set forth.

489,134. CAR-FENDER. GEORGE F. TOPLIFF, Boston, Mass., and FRANK B. COMER, Providence, R. I. Filed Sept. 21, 1892. Serial No. 446,386. (No model.)



Claim.—A car fender consisting of arms attached or pivoted to the car, an outer frame pivoted to said arms and adapted to yield in relation thereto and having a locking device for holding said outer frame normally in position and a pivoted inner frame provided with an apron connected to the front end of the car substantially as and for the purpose set forth.

489,135. CAR-BUFFER. MARTIN E. WALLACE, Aurora, Ill., assignor to the Gould Coupler Company, New York, N. Y. Filed Sept. 29, 1892. Serial No. 447,245. (No model.)



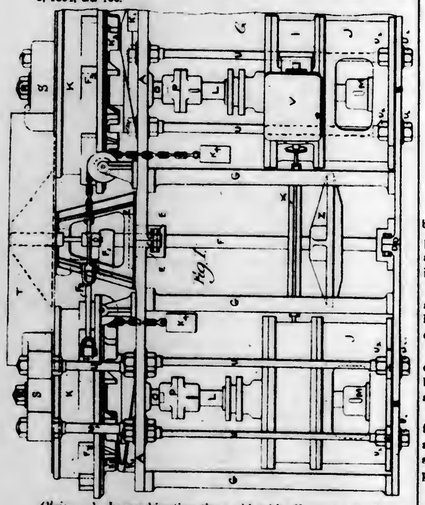
Claim.—1. The combination with the stationary platform of a railway car, the longitudinally movable draw bar and a buffer or plat-

form extension movable on the stationary platform, of a follower guided on the stationary platform, a buffer spring bearing with its inner end against said follower, a platform extension sprig also bearing with its inner end against said follower and extending normally beyond the outer end of the buffer spring, whereby the inner ends of both of said springs are moved forward with the follower and means, substantially as described, whereby the outward movement of the draw bar is imparted to said follower, substantially as set forth.

2. The combination with the stationary platform of a railway car, the longitudinally movable draw bar, and a buffer or platform-extension movable on the stationary platform, of a follower-socket guided on the stationary platform, a platform extension spring bearing with its inner end against the bottom of said follower-socket, a buffer spring bearing with its inner end against the front end of said socket, whereby the inner ends of both of said springs are moved forward with the socket and means, substantially as described, whereby the outward movement of the draw bar is transmitted to said follower socket, substantially as set forth.

3. The combination with the stationary platform of a railway car, and a buffer platform movable on the same, of a follower-socket guided on the stationary platform, a platform-extension spring bearing with its inner end against the bottom of said socket, a buffer spring abutting with its inner end against the front end of said socket, and the longitudinally movable draw bar having a lug or projection adapted to engage against the projection of the follower socket when the draw bar is pulled outward, substantially as set forth.

489,186. MACHINERY FOR THE MANUFACTURE OF ARTIFICIAL FUEL. WILLIAM R. WESTLAKE, Swansea, England. Filed Nov. 27, 1891. Serial No. 413,349. (No model.) Patented in England Jan. 3, 1891, No. 166.



Claim.—1. In combination the mold tables K arranged adjacent to each other and supported to revolve and having teeth F^6, the shaft extending between the tables and having a crank portion F', the pawl arms F^3 extending on opposite sides of the shaft and engaging the teeth of the mold table and the compressing mechanism substantially as described.

2. In combination the revolving mold table having a series of molds, the pressing plate arranged at one point in the movement of the table and over the molds, the said plate being stationary with relation to the revolving table, the stamp operating in the mold and the means for operating the said stamp while the mold is below the pressure plate, said means operating on the end of the stamp opposite to the pressure-plate, substantially as described.

3. In combination the revolving mold table carrying a series of molds, the stationary pressure plate to cover one of said molds and arranged over the table, the stamp in the molds and the buffer head O arranged at one point in the movement of the table to engage the lower end of the stamp and press the same upward toward the pressing plate the means for moving the table forward step by step and the means for continuing the upward movement of the stamps as the table moves forward and carries the mold from below the pressing plate.

4. In combination, the vertical shaft, the revolving mold table on each side of the same, the teeth on said tables the pawl connections from the shaft to each table to give the same step by step movement, the kicker arms also operated from the vertical shaft, said kicker arms extending over the mold table on each side of the shaft and the connections from the shaft to the kicker arms substantially as described.

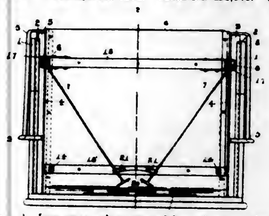
5. In combination, the vertical shaft, the rotary table, carrying the molds, the pressing plate located over the table and to cover one of the molds the piston and buffer head arranged on the underside of the table below the pressing plate, the steam valve, and the means for operating the table and the steam valve consisting of the pawl connections from the table to the shaft and the eccentric and rod connections from the said shaft to the valve, substantially as described

6. In apparatus for pressing artificial fuel or other material the combined recessed bush and guide E forming a portion of the coupling devices joining the two halves of A and B, substantially as described.

7. In apparatus for pressing artificial fuel or other material, the hollow pot N', Figs. 4 and 7 for the purpose of receiving a buffer block such as N: substantially as described.

8. In apparatus for, pressing artificial fuel or other material, the hollow capstan q, containing a solid pin R holding the pressing plate down, as near to, and as far from the revolving table as is found necessary for the purpose as hereinbefore described.

489,187. END-GATE FOR WAGONS. GEORGE W. WRIGHT, Table Rock, Nebr. Filed Apr. 28, 1892. Serial No. 430,973. (No model.)



Claim.—1. In a wagon box an end board or gate having the side bars 3 each provided with bearings at its foot, and the chute having pivots with their axes in line with the lower edge of said chute situated at the surface of the bottom of the box and entering said bearings: substantially as set forth.

2. In a wagon box gate the side bars having each a face 4 and arm 5 said face and arm being integral and the face provided with a lateral lug and with a bearing in its foot in combination with a pivoted chute; substantially as set forth.

3. In a wagon box an end board or gate having the side bars 3, each provided with an arm 5 adapted to bear on the outside of the box and on the inside of a cleat secured to the same whereby they are held in position: substantially as set forth.

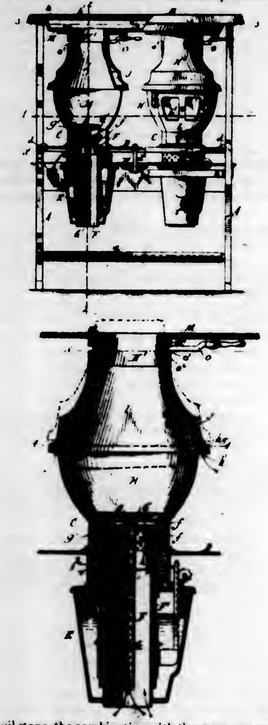
4. In a wagon-box gate the chute having side boards 13 and fastening bolts 14 and the bars 11 provided with pivots, said bolts and bars being placed on opposite sides of the boards and adapted to strengthen the same at their widest part, and bearings to recive said pivots: substantially as set forth.

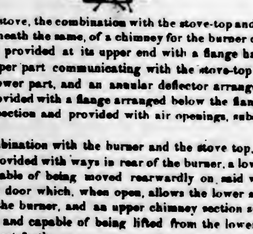
489,188. OIL-STOVE. ABRAM O. ALLIS, Prattsburg, N. Y., assignor of one-third to Henry T. Wurth and Thomas H. Flynn, same place. Filed Feb. 3, 1892. Serial No. 420,649. (No model.)

Claim.—1. The combination with the burner and the stove top, of a chimney containing a lower part having an outwardly turned top flange provided with air inlet openings and a top part resting with its lower end upon said flange outside of said air inlet openings, substantially as set forth.

2. In an oil stove, the combination with the burner and the stove top, of a chimney composed of a lower part, an upper part having its lower end arranged outside of the top of the lower part and separated therefrom by an air inlet passage, and an internal deflector arranged within the upper part and having its lower end arranged inside of the top of the lower part and separated therefrom by an air inlet passage, substantially as set forth.

3. In an oil stove, the combination with the stove-top and a burner arranged underneath the same, of a chimney for the burner composed of a lower part provided at its upper end with a flange having air openings, an upper part communicating with the stove-top and resting on the lower part, and a deflector arranged in the chimney, whereby the air entering the chimney through the openings in the flange of the lower part is directed downward, substantially as set forth.





4. In an oil stove, the combination with the stove-top and a burner arranged underneath the same, of a chimney for the burner composed of a lower part provided at its upper end with a flange having air-openings, an upper part communicating with the stove-top and supported on the lower part, and an annular deflector arranged in the chimney and provided with a flange arranged below the flange of the lower chimney-section and provided with air openings, substantially as set forth.

5. The combination with the burner and the stove top, of a supporting plate provided with ways in rear of the burner, a lower chimney section capable of being moved rearwardly on said ways and provided with a door which, when open, allows the lower section to be moved past the burner, and an upper chimney section suspended in the stove top and capable of being lifted from the lower section, substantially as set forth.

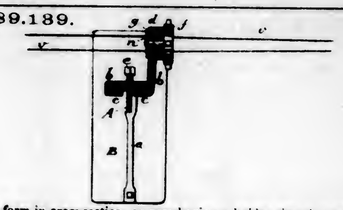
6. The combination with the oil fount and chimney, of a burner having a circular wick tube, an air supply passage inside of the wick tube and provided above the latter with an imperforate deflector and below the deflector with openings through which the air issues outwardly against the root of the flame, and an internal air supply tube extending upwardly through said imperforate deflector and provided above the same with a distributing head having a closed top and below said top openings through which the air issues outwardly against the inner side of the flame above said imperforate deflector, substantially as set forth.

7. In an oil stove, the combination with the hollow stove top provided with front and rear utensil holes, of horizontally swinging dampers arranged in the stove top and attached at their inner ends to a vertical pivot arranged between the two sets of utensil holes, substantially as set forth.

489,139. SLAT-AND-WIRE-FENCE MACHINE. GEORGE BOSLER, Garlington, Kans. Filed July 28, 1892. Serial No. 440,982. (No model.)

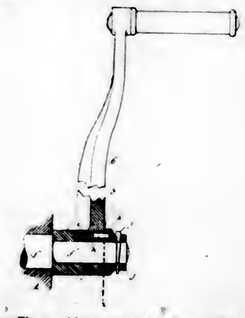
Claim.—A standard for the support of fence-wire twisters having

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a T-form in cross-section, an arm having a holder ring *d* at one end and clamping lips *c* at the other: whereby it may conveniently carry a twister head and allow said head to be adjusted vertically on the standard by means of a set-screw.

489,140. CRANK CONNECTION FOR CENTRIFUGAL SEPARATORS. JOHN LUNDSTRÖM, Stockholm, Sweden, assignor to the Aktiebolaget Separator, same place. Filed Sept. 29, 1890. Serial No. 366,495. (No model.)



Claim.—The combination with the driving shaft, of a driving device loosely mounted on the shaft, a spring bolt arranged in the driving device parallel with the shaft and projecting beyond the flat outer face of the driving device, and a washer secured to the outer end of the shaft and constructed with a flat inner face fitted against the flat outer face of the driving device and having in its flat inner face a concentric groove in which the spring bolt engages and which recedes from the flat face to an abrupt shoulder, substantially as set forth.

489,141. HOT-WATER HEATER FOR CARS, &c. GILBERT T. BREWER, Hoboken, N. J. Filed Feb. 18, 1889. Serial No. 300,370. (No model.)

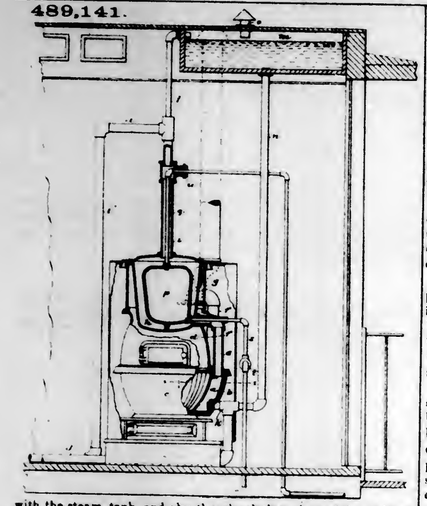


Claim.—1. In a steam and auxiliary fire heating hot water car heating stove, the combination of the stove the water container consisting of the water back in the recess of the fire box and the tank suspended in the top of the stove with intermediate circulating pipes, and the steam heater consisting of the steam tank located within the water tank, said water container and steam heater having the water and steam circulating pipe connections respectively and all combined substantially as described.

2. In a hot water car heater the combination of the water heater, the circulating pipes, the elevated reserve tank for the supply of the water to the heater, open to the atmosphere and connected with the water circulating system by a supply pipe the stand pipe of the outflow connected directly with the circulating pipes independently of and below the reserve tank, and the vent of the steam pipe said tank opening to the atmosphere above the water in the reserve tank substantially as described.

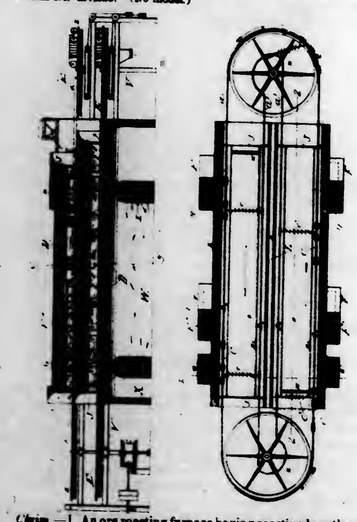
3. The combination in a car-heater of the water tank, and the water back located below the said tank, also the local circulating pipes connecting said water tank and water back, also the steam tank located in the water tank, also the steam supply pipe connected

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with the steam tank and also the circulating pipes of the radiator system connected with the water tank and water back respectively.

489,142. ORE-ROASTING FURNACE. HORACE F. BROWN, Butte, Mont., assignor to Mary C. Brown, Chicago, Ill. Filed Mar. 31, 1892. Serial No. 427,226. (No model.)



Claim.—1. An ore roasting furnace having roasting hearths placed side by side on the same horizontal plane, stirrers operating in said hearths and means for transferring the stirrers from one hearth to another.

2. An ore roasting furnace having a plurality of hearths placed side by side on the same horizontal plane, continuous track rails in said hearths with connected curved end portions, and carriages transferable on said track rails from one hearth to the other and provided with means for agitating and advancing the ore on the hearths.

3. An ore roasting furnace comprising roasting chambers arranged in pairs with the chambers of one pair placed side by side on the same horizontal plane, stirrers operating in said chambers, and means for transferring the stirrers from one chamber of each pair to the other chamber of the same pair.

4. An ore roasting furnace having roasting chambers placed side by side on the same horizontal plane, tracks in said chambers with horizontally disposed curved ends whereby a continuous track is formed from one chamber to another on the same plane, and wheeled carriages adapted to travel on said tracks and to be automatically transferred from one chamber to another, said carriages being provided with means for stirring the ore.

5. An ore roasting furnace having roasting chambers placed side by side on the same horizontal plane, tracks within said chambers having curved ends whereby continuous track surfaces are formed between adjacent chambers, carriages adapted to travel on said tracks and provided with stirring devices, an endless chain passing into one chamber in one direction and into the other chamber in an opposite direction, and horizontally disposed pulleys forming guides for the chain.

6. An ore roasting furnace having separated roasting chambers placed side by side on the same horizontal plane, a hollow wall forming an air space between said chambers tracks in said chambers having curved ends connecting the tracks of one chamber with those of the adjoining one, carriages movable on said tracks and provided with stirring devices, and means for operating the same, substantially as herein described.

7. An ore roasting furnace comprising roasting chambers side by side on the same horizontal plane, tracks along the walls of said chambers, having outer ends whereby a continuous track surface is formed between contiguous chambers, horizontally disposed pulleys at the ends of the furnace, means for operating the pulley, an endless chain passing around said pulleys, and wheeled carriages connected with said chains and traversing the chambers in opposite directions, said carriages being provided with stirring devices, substantially as herein described.

8. An ore roasting furnace having a roasting hearth, a chain passing through said hearth and stirring devices, in combination with means actuated by the movement of the chain for clamping the stirring devices to the chain.

9. An ore roasting furnace having roasting hearths, chains passing through the same, and carriages provided with stirring devices, in combination with fixed stops, and a gripping mechanism on said carriages actuated by contact with said stops for automatically attaching said carriages to the chain, and releasing them therefrom, substantially as herein described.

10. In an ore roasting furnace having chains passing through it and provided with carriages having stirring devices, fixed stops in the path of the carriages, and gripping mechanisms on said carriages comprising fixed jaws, and movable jaws automatically operated by contact with said stops for clamping the carriages to the chains.

11. The combination with an ore roasting furnace having roasting hearths with tracks surfaces therein and extended beyond the ends of the hearths, of carriages movable on said tracks and provided with fixed movable gripping jaws and stirring devices, movable chains to which the carriages are clamped, and stops in the path of the carriages for tripping the movable gripping jaws and releasing the carriages from the chains at intervals, substantially as and for the purpose herein described.

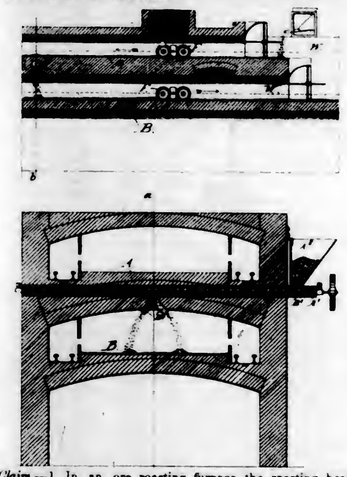
12. In an ore roasting furnace, the combination with roasting hearths, the endless chains passing through both hearths and means for actuating the chains, of a series of carriages provided with stirring devices, fixed stops in the path of the carriages, and gripping jaws on said carriages automatically operated by contact with said stops for releasing the carriages from the chains at intervals, substantially as and for the purpose herein described.

13. In an ore roasting furnace the main roasting chambers placed side by side and having supplemental chambers at the sides provided with track rails having curved outer ends, the means for advancing and stirring the ore comprising an angular bar forming the arms C C provided with swiveled wheeled frames, one of said arms movable in the supplemental chamber at one side of the furnace while the other arm extends transversely across the roasting hearth and has its outer end supported in the supplemental chamber at the opposite side, said transverse arm being provided with stirring devices, substantially as herein described.

14. An ore roasting furnace having its main roasting chambers placed side by side and provided with supplemental side compartments, the track rails in said side compartments, connecting one roasting chamber with the other endless chains passing through said compartments, and means for operating the chains, in combination with the carriages consisting of the arms C C at right angles to each other, and swiveled wheeled frames located at the outer ends of said arms and also at their inner junction, said arms C movable within one of the side compartments while the arms C' extend transversely across the roasting hearth with their outer end supported in the opposite side compartment, and provided with stirring devices, substantially as herein described.

15. An ore roasting furnace having roasting hearths, placed side by side, endless chains passing through both hearths and means for operating the chains, in combination with the wheeled carriages provided with stirring mechanism, the frames C⁶ of said carriages having a stationary gripping jaw, a gripping jaw movable in said frame, a pivotally secured plate having a cam slot engaging the movable jaw, a rod or lever on the axis of the plate, and stops in the path of the carriages for tripping said rod or lever and releasing or applying the gripping mechanism whereby the carriages are attached to or released from the operating chains, substantially as herein described.

489,143. ORE-ROASTING FURNACE. HORACE F. BROWN, Butte, Mont., assignor to Mary C. Brown, Chicago, Ill. Filed Apr. 11, 1892. Serial No. 428,749. (No model.)



Claim.—1. In an ore roasting furnace the roasting hearths thereof located one above the other, and a conveyer extending transversely through the horizontal wall or partition between said hearths and leading to the outside of the furnace, said wall or partition having an opening through which the material is fed by the conveyer to the roasting hearth to be mixed with the ore thereon.

2. In an ore roasting furnace, the roasting hearths arranged one above the other a tube extending transversely through the horizontal wall or partition between the hearths, and a chute or spout leading therefrom through the arch or roof, in combination with a screw conveyer and actuating mechanism within said tube for feeding material to the chute or spout whereby it is deposited upon the roasting hearth to be mixed with the ore thereon.

3. In an ore roasting furnace having roasting hearths, located one above the other the combination of a tube extending transversely through the horizontal wall or partition between the hearths, a feed hopper communicating with the tube, a screw conveyer in said tube, and a chute or spout extending downwardly from the tube through the arch or roof for directing material upon the hearth to be mixed with the ore thereon.

4. In an ore roasting furnace having roasting hearths one above the other, and having fire boxes with flues communicating with said hearths, the combination of means for advancing and stirring the ore, a hopper or receiver within the end walls of the furnace below the plane of the lower roasting hearth, and immediately under the inlet arch from one of the fire boxes whereby the ore is collected in charges and maintained in a heated condition, substantially as herein described.

5. In an ore roasting furnace, having a roasting hearth with supplemental chambers along its sides, the walls or partitions forming said chambers, and each comprising a lower section rising from the floor of the hearth, and an upper section depending from the arch or roof, a slotted bar in said arch or roof, and intermediate devices whereby the upper section is suspended from said bar.

6. In an ore roasting furnace having main roasting hearths, the walls or partitions along the sides thereof forming supplemental chambers, said walls comprising lower and upper sections of tiling, a metal backing for the upper section, the metal hangers E^3 secured thereto having the slotted jaws A and lug or projection E^3, a slotted bar located in the arch or roof, and bolts fitted to said bar and hangers and suspending the upper section, substantially as herein described.

7. In an ore roasting furnace, a two-part wall or partition extending along the sides of the main roasting hearths to form supplemental side compartments, means for suspending the upper section of the wall from the arch or roof of the hearth, and a projection F^3 from the arch or roof contiguous to the upper section of the wall to form a guard and prevent displacement of said section, substantially as herein described.

8. In an ore roasting furnace having main roasting compartments and supplemental compartments along the sides thereof, the pivotally hung doors D and D^4 at the ends of said main and supplemental compartments, said doors D having the inclined arms D' and wheeled carriages to engage said arms and open the doors, said carriages being provided with means for stirring the ore, substantially as herein described.

9. In an ore roasting furnace having roasting hearths, the wall or partition E therein consisting of an upper and lower section a metal backing for the upper section turned up at its bottom to form a seat therefor, the hangers E^3 provided with the slotted jaws A, and a lug or projection E^3 entering said section, and means for suspending said section from the arch or roof, substantially as herein described.

10. In an ore roasting furnace having a roasting hearth, the two-part wall or partition extending along the sides thereof to form supplemental compartments, the metal chair in said side compartments and bracing the lower section of the wall or diaphragm, track rails mounted on said chair, the clips secured against said rails and against stops or lugs G^4 on the chair for securing the rails in position, and a pulley mounted within the central portion of the chair and supporting the weight of the chains which carry the stirring devices, substantially as herein described.

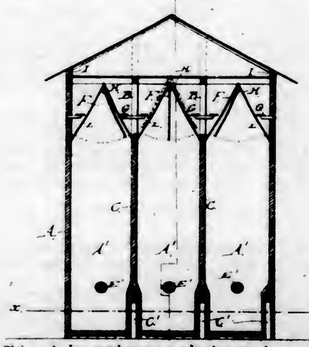
11. In an ore roasting furnace having side compartments, endless chains, and carriages having stirring devices and adapted to travel in said compartments, the metal chairs in said compartments having the standards G^4 the pulley G^3 mounted in said standards and supporting the endless chains, and track rails on said chair, substantially as herein described.

12. In an ore roasting furnace having upper and lower chambers with arched tops, the wall or partition between said chambers formed of arches extending in series in the direction of the length of the furnace and transverse of the arches of said chambers.

13. In an ore roasting furnace having upper and lower chambers, with arched tops the wall or partition between said chambers formed of arches extending in series in the direction of the length of the furnace and at right angles with the arches of the chambers, and T-rails between the adjoining ends of the series of arches.

14. In an ore roasting furnace having upper and lower chambers, with arched tops the wall or partition between the chambers formed of a series of arches arranged transversely of the main arches of the chambers, said series of arches having passages between their ends leading through the sides of the furnace, substantially as herein described

489,144. CONDENSING-CHAMBER FOR LEAD FUMES. HORACE F. BROWN, Chicago, Ill., and LEE DE CAMP, Denver, Colo. Filed June 7, 1892. Serial No. 435,830. (No model.)



Claim.—1. In a condenser, a condensing chamber or room for receiving the gases from the furnace, said chamber having a ceiling

composed of fabric, in combination with shafts located contiguous to said ceiling and provided with arms or beaters adapted to strike against said ceiling and dislodge the accumulated dust thereon, substantially as herein described.

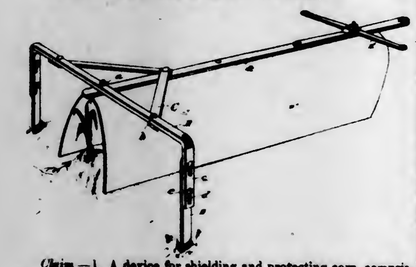
2. In a condenser for lead ores adapted to receive the gases from the ore furnace, the ceilings of the condensing chambers composed of fabric and having converging sides, in combination with shafts extending through the condenser and located under the apex of the ceiling, beaters or arms depending from the shafts, and means for oscillating the shafts to cause the arms or beaters to strike the sides of the ceiling and dislodge the accumulating dust, substantially as herein described.

3. In a condenser, the condensing chambers having division walls or partitions between them, and means for admitting the gases from the furnace to the chambers, in combination with ceilings of textile fabric in the upper portions of the chambers and made of an inverted V shape in cross-section shafts extending through said condenser just below the apex of said ceilings and having their ends extended beyond the exterior of the condenser, and arms or beaters on said shafts adapted to strike against the walls of the ceiling when the shafts are oscillated whereby the accumulated dust is dislodged and the fabric composing the ceiling cleaned, substantially as herein described.

4. In a condenser, the partitions dividing the condenser into separate rooms or chambers, and having their lower portions hollow to form flues or passages, which connect with the main flue or stack, said partitions having the damper-controlled openings *d* through which the gases caused by the burning of the carbon from the accumulated dust may escape to the main flue or stack, substantially as herein described.

5. In a condenser, the combination of the rooms or compartments with intervening partitions having air spaces or passages in their lower portions, damper-controlled openings in the sides of the partitions for connecting each room with the flue or stack, the damper-controlled inlet flues or pipes F from the furnace flue, the ceilings of fabric having converging sides, and the shafts in said ceiling provided with arms or beaters for operating against said sides, said shafts having their ends extended beyond the exterior of the condenser so that the arms or beaters are actuated from the outside, substantially as herein described.

489,145. PLOW-SHIELD. ALEXANDER CAMPBELL, Griswold, Iowa. Filed Apr. 6, 1892. Serial No. 428,044. (No model.)



Claim.—1. A device for shielding and protecting corn, comprising the central longitudinal bar, the cross bar secured to the rear end thereof, and having the slotted depending branches at opposite ends, the blades or runners adapted to be secured adjustably to said slotted branches, and the arched shield secured to the center longitudinal bar, said frame being adapted for attachment to cultivators or draft animals, substantially as specified.

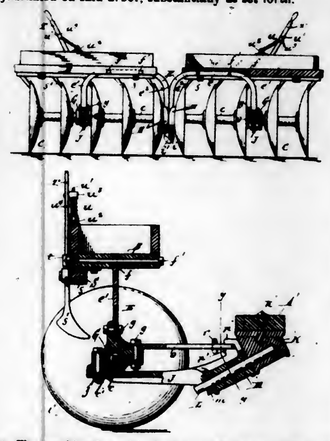
2. A plant protector comprising an arched shield formed from a continuous piece of material and adapted to straddle growing plants, and secured to a suitable frame, having depending slotted branches and legs or runners adapted to be adjustably secured to said depending branches the frame on opposite sides of the shield, substantially as specified.

489,146. DISK HARROW. GEORGE G. CROWLEY, Batavia, N. Y., assignor to the Johnston Harvester Company, same place. Filed Oct. 27, 1891. Serial No. 409,972. (No model.)

Claim.—1. The combination with the harrow frame and the disk gang, of a connecting pivot having its axial line arranged tangentially, or practically so, with reference to the lower portions of the disks, substantially as set forth.

2. The combination with the harrow frame and the disk gang, of a connecting arbor having its pivotal axis inclined rearwardly from the frame toward the lower portions of the disks, substantially as set forth.

3. The combination with the harrow frame provided with a rearwardly inclining arbor, of a disk gang, a draft arm pivoted at its rear end to said gang, and a sleeve formed at the front end of said arm and journaled on said arbor, substantially as set forth.



4. The combination with the harrow frame provided with an arbor, of a disk gang, a draft arm pivoted at its rear end to said gang, a sleeve formed at the front end of said arm and journaled on said arbor, and a fastening device whereby the draft arm may be held against movement on said arbor, substantially as set forth.

5. The combination with the harrow frame, of a bracket secured to said frame and provided with a slot, a rearwardly projecting arbor secured to said bracket, a disk gang, a draft arm pivoted at its rear end to said gang and provided at its front end with a sleeve journaled on said arbor, and a fastening bolt arranged in said arm and passing through said slot in the bracket, substantially as set forth.

6. The combination with the harrow frame provided with a rearwardly projecting arbor, of a disk gang, a draft arm pivoted at its rear end to said gang and journaled with its front end upon said arbor, and an adjusting arm secured with its rear end to the gang and guided with its front end upon said draft arm, substantially as set forth.

7. The combination with the harrow frame provided with rearwardly projecting arbors, of disk gangs, draft arms pivoted at their rear ends to said gangs and journaled with their front ends on said arbors, guide ribs formed at the front end of said arbors, adjusting arms secured with their rear ends to said gangs and engaging with their front ends between said guide ribs, a hand lever pivoted on the harrow frame, and rods connecting the front ends of the adjusting arms with said hand lever, substantially as set forth.

8. The combination with the harrow frame provided on each side with a bolt hole and a bolt, and the disk gangs, of brackets secured to the frame by said bolts and provided each with a pivot arranged on one side of said bolt, and draft arms attached to the gangs and hung on the pivots of said brackets, whereby the brackets and gangs can be transposed from one side of the frame to the other without use of extra parts, substantially as set forth.

9. The combination with the gang plank and a disk gang provided with a socket in its convex end, of a thimble consisting of a head provided with a boss on one side which is seated in said socket, a central recess on its opposite side and a channel extending from said recess to the edge of the head, a depending arm secured to said gang plank and arranged in said channel and a lug formed at the lower end of said arm and seated in said recess, substantially as set forth.

10. The combination with the gang frames, of thimbles secured to the gang frames at the convex ends of the gangs, and provided one with a hook and the other with an eye whereby the two thimbles are coupled together, and disk gangs turning on said thimbles, thereby permitting each gang to rotate independently of the other, but preventing the same from getting out of alignment, substantially as set forth.

11. The combination with the gang plank and the disk gang, of a gang supporting frame consisting of a horisontal portion, which is secured to the gang plank, and depending arms formed at the end of the horizontal portion and provided at their lower ends with bearings in which the disk gang turns, substantially as set forth.

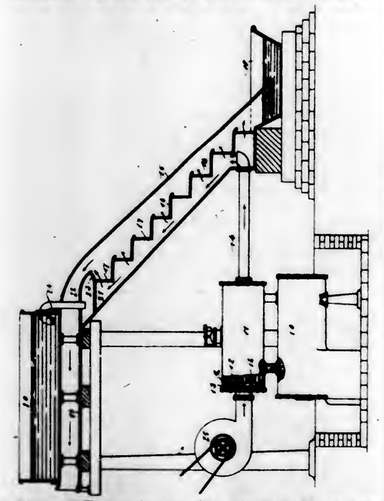
12. The combination with a gang plank provided with a longitudinal groove in its underside and a disk gang provided with journals at one end and near its middle, of a supporting frame consisting of a horisontal portion secured in said groove and depending arms formed on opposite ends of said horizontal portion and supporting said journals, substantially as set forth.

13. The combination with the harrow frame and the disk gang connected with said frame by a swiveling joint, of a disk supporting frame consisting of a horizontal portion provided at opposite ends with depending arms on which the gang is journaled, and a horisontal adjusting arm extending forwardly from the disk gang and formed integral with one of said depending arms, substantially as set forth

14. The combination with the gang plank and the harrow disk, of a scraper capable of moving toward and from the disk, a hand lever pivoted to the gang plank and operating the scraper, and a rocking tension device attached to the hand lever and connected with the gang plank at a point located between the extreme positions of the hand lever, whereby the tension device opposes the movement of the hand lever out of either position, and the scraper is held either in or out of engagement, substantially as set forth.

15. The combination with the disk gang, the scrapers capable of moving toward and from the disks, of a hand lever pivoted to the gang plank and connected with said scrapers, a guide rod connecting the gang plank with the hand lever and a spring applied to said guide rod and holding the scrapers either in or out of engagement, substantially as set forth.

489,147. EVAPORATING APPARATUS. WILLIAM GOLDING, New Orleans, La. Filed Mar. 30, 1892. Serial No. 427,103. (No model.)

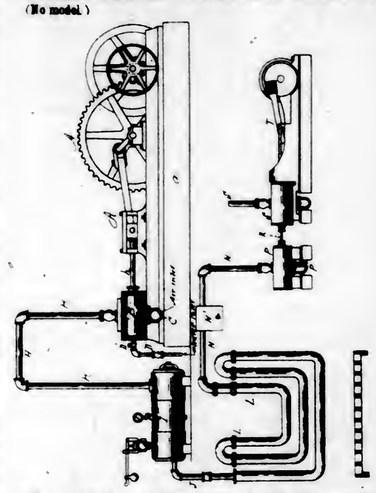


Claim.—1. The combination, with a closed, box-like structure, of a transverse series of steps dividing said structure longitudinally and forming air-passages at front and rear thereof, the treads of said steps being imperforate and the risers being perforated, and an inlet discharging on the top tread of said steps, substantially as shown and described.

2. The combination, with a closed, inclined box-like structure, of a transverse series of steps dividing said structure longitudinally into front and rear air-passages, a hot-air inlet at the lower end of the rear passage and an air outlet at the upper end of the front passage, and a liquid seal at the lower end thereof, the risers of the steps being perforated and the treads imperforate, and a supply pipe inlet discharging on the top tread of said steps, substantially as shown and described.

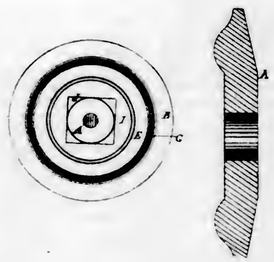
3. In an apparatus for recovering solid matters from solutions, the combination, with a supply tank, of a box-like structure having a section which passes beneath the tank, a series of imperforate treads and perforated risers arranged within said structure, a supply pipe leading from the supply tank to a point above the upper tread, a receiving tank within which the lower end of the box-like structure dips, a steam drum, a pipe leading from the drum to the lower portion of the box-like structure, pipes arranged within the drum and communicating with the pipe leading from the drum, and a blast fan arranged in connection with the drum, substantially as shown and described.

489,148. STEAM AND AIR ENGINE. JACOB HAUBER and JOHN WHITTAKER, Boston, Mass. Filed Mar. 24, 1892. Serial No. 426,262. (No model.)



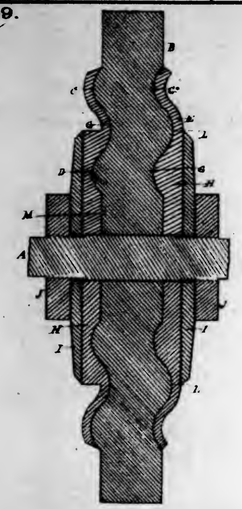
Claim.—In a device of the character described, the combination of the following elements, viz., the compressor-cylinder consisting essentially of the outer shell B provided with the water induction pipe D, air induction opening C and outlet E for discharging both water and air, and the inner shell F provided with the inlet-valves *d g* and outlet-valves *b e*, said inner shell being adapted to receive a piston, as *k'*, and being connected with the outer shell by the partition *k*; a receiver, as I, connected by a pipe with said cylinder; a heater, as L, connected by a pipe with said receiver, and the cylinder P, connected by a pipe with said heater and having a suitable connection whereby the mixed steam and expanded air are simultaneously conducted to an engine for transmitting power, substantially as set forth.

489,149. CONSTRUCTION OF EMERY-WHEELS AND SUPPORTS THEREFOR. CLARENCE L. HYDE, Chicago, Ill. Filed Feb. 29, 1892. Serial No. 423,295. (No model.)

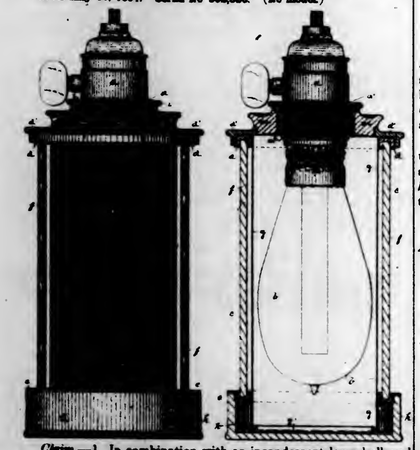


Claim.—An emery wheel having its sides formed with concave portions C and convex portions G, the convexities on one side being opposite the concavities on the other side, whereby the wheel is made of substantially uniform thickness throughout, and disks having one of their sides provided with corresponding convex and concave portions clamped to the sides of the wheel, as described and shown.

489,149.



489,150. ELECTRIC LANTERN. ADAM KEIL, McKeesport, Pa. Filed May 11, 1891. Serial No. 392,326. (No model.)

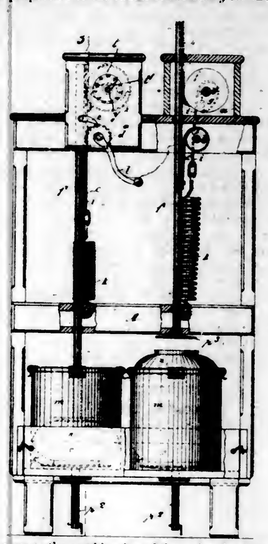


Claim.—1. In combination with an incandescent lamp bulb and its holder, a sectional ring fitting around the holder and having a threaded outer surface, a screw ring around the sectional ring, and an inclosing lantern body fitting around the bulb and engaging with the screw ring, substantially as and for the purposes set forth.

2. The combination with an incandescent lamp bulb and its holder, of the sectional ring *i* having a threaded outer surface the screw ring *m* screwing thereon and the lamp body having the top ring *d* and bottom ring *e* connected by the bars *f*, and a threaded connection between said screw ring and said top ring, substantially as and for the purposes set forth.

489,151. PRESS FOR PRESSING CHEESE, &c. HEINRICH KEMPKENS, Grefrath, near Crefeld, Germany. Filed Mar. 10, 1892. Serial No. 424,672. (No model.)

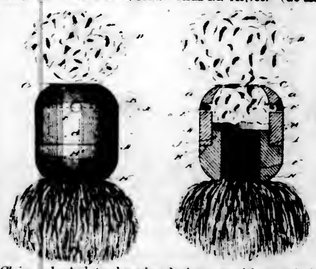
Claim.—1. In a press the combination of a pressure rod *p* a drum *f* connected to said rod, and adapted to move the same when rotated, an irregular shaped disk *g* on the shaft of said drum *f* a spring *k* and a strap *i* wound upon the periphery of the disk *g* and attached to said spring whereby the spring operates said rod *p* with a pressure increasing in proportion to the radius of the disk *g* for the purpose set forth.



2. In a press, the combination of the rod *p* the drum *f*, the strap *k* connected to said rod and wound upon drum *f* a drum *b*, a second strap *c* wound on said drum *b* and connected to said rod, a crank handle *l* and ratchet-wheel *d* on the shaft of said drum *b*, an irregular disk *g* on the shaft of drum *f* a spring *k* and a strap *i* connected thereto and wound on said disk *g* substantially as and for the purpose set forth.

3. The combination in a press of an adjustable platen *p'* a pressure rod *p*, straps *c* and *k* connected thereto, drums *b* and *f* on which said straps are respectively wound, irregular disk *g*, strap *i* and spring *k*, an indicator *t* on the shaft of disk *g* and dial *t*, the whole substantially as and for the purpose set forth.

489,152. SLATE-CLEANING DEVICE. BENJAMIN A. LEGG, Allegheny, Pa. Filed Oct. 24, 1892. Serial No. 449,789. (No model.)



Claim.—1. A slate-cleansing device comprising a suitable holder provided with a continuous longitudinal bore extending clear through the same and having a fluid absorbent material in one extremity and a wiping tuft in the opposite end, for the purposes set forth.

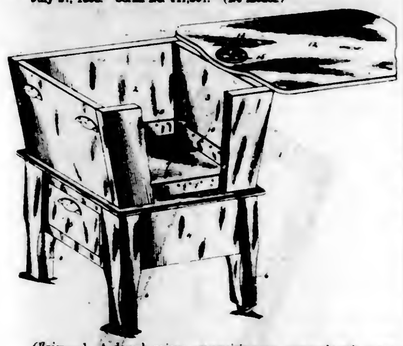
2. A slate cleansing device comprising a suitable holder having a sponge secured at one extremity and a wiping tuft composed of strands of wicking at the opposite end, and capable of absorbing the moisture yet permitting the same to rapidly evaporate for the purposes set forth.

3. A slate-cleansing device comprising a suitable holder provided with a continuous longitudinal bore running clear through the same made in sections removably fitted together, one section holding a sponge and the other a wiping-tuft, for the purposes specified.

4. A slate-cleansing device comprising a holder made in two sections, each section having an interior bore and an end-opening communicating with said bore; a sponge secured in the end-opening of one section; and a wiping-tuft in the end-opening of the other section, as set forth.

5. The combination with the section, B, having an interior bore and an end-opening communicating with said bore; the wall of said section being perforated at intervals; and a sponge inserted and held in said end-opening; of the section, B', having the bore, F, and the reduced neck, J; and the tuft of wicking fastened therein, as described.

489,153. DOUGH-RAISER. JOSEPH S. BROWN, Academia, Pa. Filed July 27, 1892. Serial No. 441,391. (No model.)



Claim.—1. A dough raiser, comprising an upper dough receptacle having a bottom provided with perforations, a sheet metal lining covering the bottom, a lower portion provided with legs and having a removable drawer, and a pivoted cover adapted to be swung horizontally, substantially as described.

2. A dough raiser, comprising an upper receptacle having a bottom provided with perforations, said bottom having a rearward extension provided with an opening, a cleat secured to the back of the receptacle and arranged above the extension and having an opening, a vertically disposed pivot having reduced ends and arranged in the openings of the extension and the cleat, a cover having an opening to receive the pivot, a disk arranged on the cover and having a pivot opening, a key arranged on the upper face of the disk and passing through the pivot and a drawer arranged beneath the bottom of the receptacle, substantially as described.

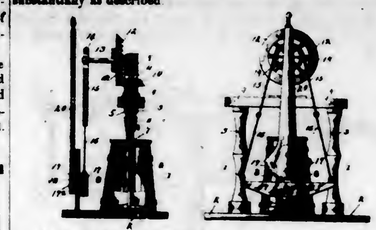
489,154. FENCE-BUILDING DEVICE. WILLIAM S. COULTER, Stockwell, Ind. Filed Feb. 20, 1891. Serial No. 382,271. (No model.)



Claim.—The herein described device for building a fence, consisting of a pair of longitudinally-disposed parallel bars 14, each provided with a pair of legs 16 adjacent to the ends of one side thereof and also having a gage-block 17 projecting from the center of the opposite side of each of said bars, pins 18 in connection with one of said bars on each side of the gage-block 17 thereof, and cross-strips 15 connecting the ends of said bars 14 and located on the sides thereof and adjacent to said legs 16, substantially as described.

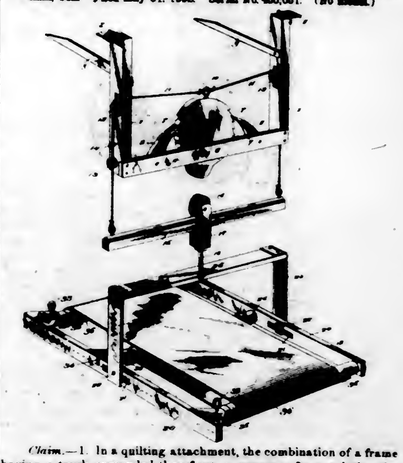
489,155. CHURN-OPERATING MECHANISM. DAVID F. CASSY, Harrisonville, Ohio, assignor of one-half to A. S. Cox, same place. Filed Aug. 11, 1892. Serial No. 442,745. (No model.)

Claim.—1. In a churn, the combination of a frame, a vertically disposed dasher shaft mounted in the same, a horizontal shaft, gearing connecting the shafts, a sprocket wheel mounted on the horizontal shaft, a rocking bar fulcrumed intermediate of its ends, a sprocket chain arranged on the sprocket wheel and having its ends connected with the ends of the rocking bar, and an oscillating operating lever fulcrumed near its lower end and connected with the rocking bar, substantially as described.



2. In a churn, the combination of a frame, a vertically disposed dasher shaft mounted in the same, a horizontal shaft, gearing connecting the shafts, a sprocket wheel mounted on the horizontal shaft, a rocking bar fulcrumed intermediate of its ends, a sprocket chain arranged on the sprocket wheel and having its ends connected with the ends of the rocking bar, a pinion fixedly connected therewith, and an oscillating operating lever fulcrumed near its lower end and provided thereat with a toothed segmental head meshing with the pinion, substantially as described.

489,156. QUILTING ATTACHMENT FOR SEWING-MACHINES. JOHN R. DUNCAN, Glen Cove, assignor of one-half to W. P. REECE, Coleman, Tex. Filed May 31, 1892. Serial No. 435,031. (No model.)



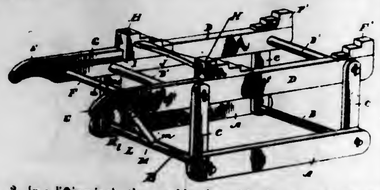
Claim.—1. In a quilting attachment, the combination of a frame having a track suspended therefrom, a governor for regulating the inclination of the track consisting of a plate pivoted to the said frame and having teeth on opposite sides thereof, pawls for engaging said teeth, and a quilting frame movably suspended from said track by a roller engaging the same, substantially as described.

2. In a quilting attachment, the combination of an upper frame, a governor mounted thereon consisting of a plate having teeth on opposite sides thereof adapted to be engaged by pawls, and a finger piece for operating the same, an eye secured to the upper central portion of the said plate, cords connected to said eye and extending laterally therefrom in opposite directions and over pulleys in and on the sides of the said frame, a track secured to the lower ends of said cords, and a quilting frame suspended from said track, substantially as described.

489,157. WAGON-JACK. NELSON EVANS and WILLIAM A. HENRY, Ukiah, Cal. Filed Mar. 16, 1892. Serial No. 425,122. (No model.)

Claim.—1. In a lifting jack, the combination, with the ground sills, of swinging lever arms loosely connected in pairs with said sills at each end thereof, horizontal supporting bars carried upon the upper ends of said swinging lever arms and terminating at one end in operating handles, opposite connected stepped rests simultaneously slidable upon said supporting bars near one end thereof, stationary

stopped rests secured to the opposite ends of said bars, and a lock hinge comprising opposite members centrally hinged at their meeting ends and pivotally connected at their other ends with said sills and the handle portions of said bars, respectively, substantially as set forth.



2. In a lifting jack, the combination with the ground sills and connecting rods at each end, of swinging lever arms working over said rods in pairs at each end of said sills, horizontal supporting bars carried by said lever arms and terminating at one end in operating handles and provided with grooves upon the inner faces adjacent to said handles, stationary rests located upon one end of said bars, adjustable rests having flanged tongues working in said grooves, and a lock hinge loosely connected with the rear sill connecting rod and the handle portions of said bars, substantially as set forth.

489,158. INCANDESCENT-LAMP SOCKET. GEORGE C. H. FÖRSTER, Bridgeport, Conn., assignor to the Crown Electric Manufacturing Company, same place. Filed Feb. 8, 1892. Renewed Dec. 5, 1892. Serial No. 454,162. (No model.)

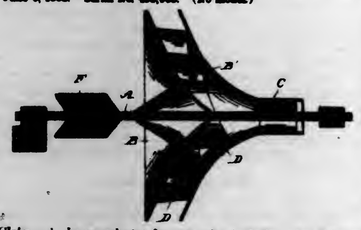


Claim.—1. In a socket for incandescent lights, the controller block stamped out of sheet metal and bent up into form consisting of a central body having four equidistant wings extending radially therefrom in combination with a resilient knuckle adapted to co-operate with said wings to lock the block in position, substantially as set forth.

2. In a socket for incandescent lights, a controller block stamped out of sheet metal and consisting of a central circular portion, having four equidistant wings extending radially and circumferentially therefrom in combination with a resilient knuckle adapted to co-operate with said wings to lock the block in position, substantially as set forth.

3. In an incandescent lamp socket a cam for switching the current and a controller block integral therewith all of one piece of sheet metal stamped out and bent up into form, said controller block consisting of a central circular portion having four equidistant wings extending radially and circumferentially therefrom, substantially as set forth.

489,159. EXHAUST-FAN. THOMAS B. HYDE, Taylor, Tex. Filed June 6, 1892. Serial No. 436,005. (No model.)



Claim.—1. In an exhaust fan, opposite inclosing cone sides one of which has an axial inlet at its apex, and spirally arranged exhaust blades between said cones and spirally disposed from the axial inlet to the bases of the cone forming the rim of the fan, substantially as set forth.

2. In an exhaust fan, opposite inclosing cone sides one of which has an axial inlet at its apex, and spirally arranged exhaust blades set at an outward angle with respect to said inlet and between the cones, from said inlet to the bases of the cones, substantially as set forth.

3. In an exhaust fan, opposite inclosing cone sides, one of which sides is of a greater pitch or flare than the other and tapers at its apex into a rounded open inlet neck, and spirally arranged exhaust blades secured between the cones and set at an angle inclining regularly from the inlet of the larger cone toward the base of the other cone, said blades winding spirally from the inlet neck to the rim of the fan and forming peripheral discharges, substantially as set forth.

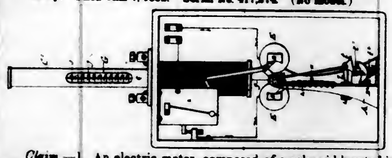
4. In an exhaust fan, the opposite inclosing cone sides one of which has an axial inlet at its apex, spirally arranged exhaust blades between said cone sides and forming peripheral discharges at the rim of the fan, and a series of tangentially arranged stationary shields supported adjacent to said rim, substantially as set forth.

489,160. PICTURE-HANGER. JOSEPH HYMAN, Del Rio, Tex. Filed July 1, 1892. Serial No. 438,674. (No model.)



Claim.—A hanger for picture frames or like articles consisting of a horizontal hanger bar having dependent flexible legs formed integral therewith, said legs being bent laterally apart at a point about midway of their length, and having hooks or rests formed in their lower ends. A sliding yoke for adjusting and holding in position the lower or bent portions of said legs in combination with an adjustable top support adapted to hold and project the frame at an angle from the wall.

489,161. ELECTRIC METER. HERMANN ILLIG, Bockenheim, Germany. Filed Jan. 7, 1892. Serial No. 417,774. (No model.)



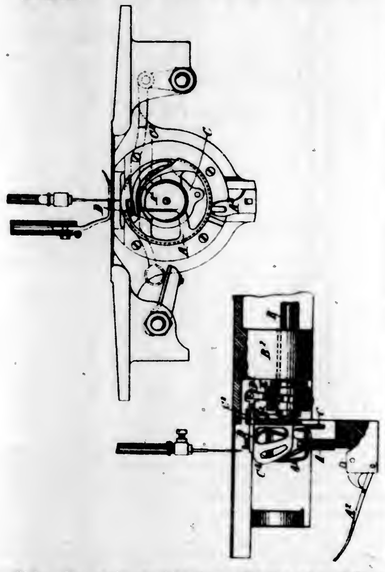
Claim.—1. An electric meter, composed of a solenoid located in the main circuit, a current-indicator connected with the core of the solenoid, a weight suspended from the core, an oscillating lever, an electro magnet for operating said lever, a clock train controlling the current of said magnet, a curved guide-strip for the weight, a registering-device and transmitting-mechanism between the oscillating lever and the registering-device, substantially as set forth.

2. An electric meter, composed of a solenoid located in the main-circuit, a current-indicator actuated by the core of the solenoid, a weight suspended from the core, a clock-train forming intermittent contact, an electro-magnet located in a shunt-circuit, an armature operated by said electro-magnet, a lever oscillated by said armature, a curved strip for guiding the weight suspended from the core, a registering-device and transmitting-mechanism between the oscillating-lever and the registering-device, substantially as set forth.

3. In an electric meter, a flexible guide-strip supported by a series of flanged keepers swiveled to adjusting screw-studs, so that the shape of the guide-strip can be adjusted to correspond to the graduations of the current-indicator, substantially as set forth.

4. In an electric meter, a supporting-standard provided with a series of adjustable screw-studs, flanged keepers swiveled to the ends of said studs, and a flexible guide-strip supported by said keepers, substantially as set forth.

489,162. ROTARY SHUTTLE-ACTUATING MECHANISM FOR SEWING-MACHINES. EDWARD KOEHLER, London, England, assignor to Maurice Grant, same place. Filed July 30, 1892. Serial No. 441,651. (No model.)



Claim.—In a sewing machine the combination substantially as herein set forth with a rotary shuttle having a shoulder near its nose, of a rotary driving shaft, a disk on said driving shaft provided with a forwardly extending bracket for driving the shuttle at its heel and with a guide external to the shaft, a stationary cam arranged concentrically to the said shaft, a driver consisting of a wedge-piece fitted to said external guide, and a connection substantially as herein described entirely outside of said shaft between said cam and said driver for the purpose of producing the forward and backward movement of said driver to engage it with and disengage it from said shoulder during its rotation with the disk and shuttle.

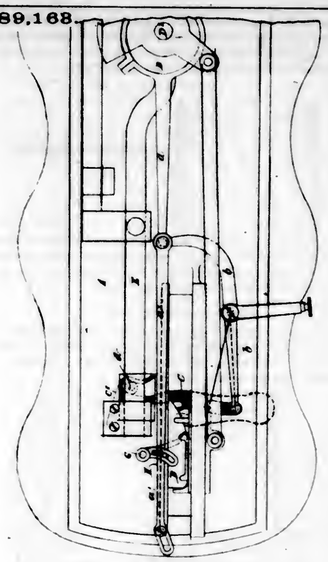
489,163. SEWING-MACHINE. EDWARD KOEHLER, London, England, assignor to Maurice Grant, same place. Filed Aug. 4, 1892. Serial No. 442,105. (No model.)

Claim.—1. In a shuttle sewing machine adapted to produce either a lockstitch or a chain-stitch, or a combined lock and chain stitch, the combination with a vertical needle and a reciprocating shuttle, of a reciprocating and oscillating forked loop holder, a device for holding the shuttle thread during the formation of the combined stitch, and means for driving the several parts, all substantially as described.

2. In a shuttle sewing machine adapted to produce three kinds of stitches, the combination with a longitudinally reciprocating forked loop-holder having a hooked prolongation, of a feed mechanism comprising a reciprocating bar and a bowl on said bar to take into the said hooked prolongation for producing a lateral movement of said loop-holder, as and for the purpose set forth.

3. In a shuttle sewing mechanism adapted to produce three kinds of stitches, the combination with a longitudinally reciprocating forked loop-holder and a longitudinally reciprocating feed bar driver, of means for oscillating the said holder laterally during its forward reciprocation consisting of a hooked prolongation c' on one side of the fork of said holder, an inclined finger or horn c^2 on the other side of said fork, a bowl d on said feed bar driver, and a bowl d' occupying a fixed position, all substantially as herein described.

489,164. MILK-AERATOR. HORACE B. LOSS, Worcester, Mass., assignor of one-half to George S. Boutelle, same place. Filed June 4, 1891. Serial No. 395,083. (No model.)



Claim.—1. In a milk aerator, the combination with the alternately operated supply bellows E, E, and means for actuating the same, said means consisting of the shaft K provided with the handle J, the gear wheel M, the pinions N, N, meshing with the said gear wheel, and the connecting rods O, O, attached to the said bellows and eccentrically connected with said pinions, of the reservoir bellows F arranged above the said supply bellows, the pipes I, I, connecting the said bellows E, E, with the said reservoir bellows F, the perforated nozzle H, and a conducting pipe forming a connection between the said reservoir bellows and the said nozzle, substantially as set forth.

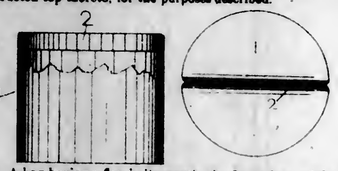
2. In a milk aerator, the combination of the alternately operated supply bellows E, E, and means for actuating the same, said means consisting of the shaft K provided with the handle J, the gear wheel M, the pinions N, N, meshing with the said gear wheel, and the connecting rods O, O, attached to the said bellows and eccentrically connected with said pinions, of the reservoir bellows F arranged above the said supply bellows, the pipes I, I, connecting the said bellows E, E, with the said reservoir bellows F, the perforated nozzle H, and a conducting pipe forming a connection between the said reservoir bellows and the said nozzle, said conducting pipe being provided with an air filter, substantially as set forth

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489,165. BAG. DANIEL S. MCKINLAY, Albany, N. Y. Filed Jan. 27, 1892. Serial No. 419,423. (No model.)

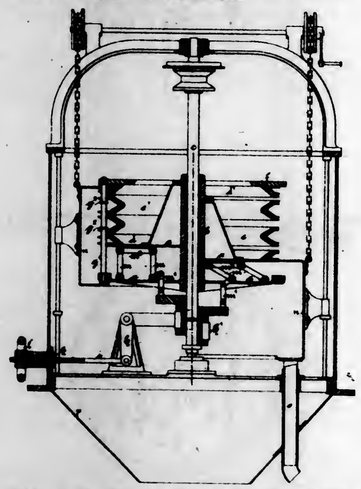
Claim.—1. A bag having its mouth or top turned inward form-

ing a flap inside the mouth of the bag, the free edges of the flap hanging downward inside said mouth and arranged to be fastened together while so hanging forming a permanent closure of the bag and a smooth, unobstructed top thereto, for the purposes described.



2. A bag having a flap in its mouth, the free edges of the flap hanging downward inside the bag and arranged to be fastened while so hanging forming a permanent closure of the bag and a smooth unobstructed top thereto for the purposes described.

489,166. CENTRIFUGAL MACHINE. GUSTAVE PROBBER, Brunswick, assignor, by mesne assignments, to GUSTAV OTBERG, Grevenbrüch, Germany. Filed Dec. 31, 1891. Serial No. 416,660. (No model.) Patented in Germany Mar. 31, 1889, No. 51,514.

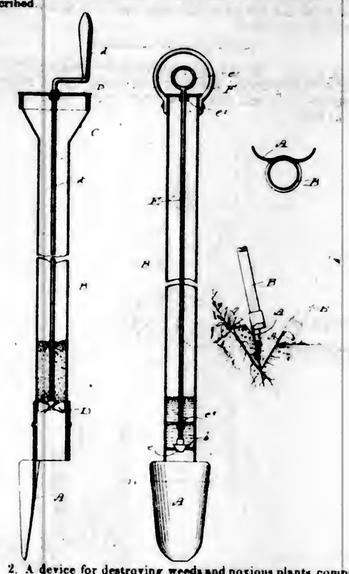


Claim.—1. In a centrifugal machine, a rotary central shaft, horizontal rings concentrically surrounding the shaft and movable toward and away from each other to form the sides of a closed or open drum, a plate *a* forming the bottom of said drum and having a sliding movement on the shaft, a bed plate *g* rigidly affixed to the shaft, levers carried by said bed plate and engaging the said plate *a*, a movable boss sliding on said shaft and connected to the levers for raising and lowering the plate *a* and thereby the horizontal rings, and means for shifting the movable boss up and down on the shaft, substantially as and for the purpose hereinbefore set forth.

2. The combination in a centrifugal machine of a rotary central shaft, a hub thereon, horizontal rings *c*, *c'* surrounding the said shaft and hub, a bed plate *g* rigidly affixed to the lower end of the said hub, an annular disk *f*, rods *g'* affixed to the said plate *g* and disk *f* to guide the rings *c*, *c'*, and having collars g^2, g^3 for the support of said rings *c*, *c'*, a bottom plate *a* capable of sliding on the said hub and levers *m'*, m, m^2 between said plates *g* and *a* for the purpose of controlling the said plate *a* and rings *c*, *c'* to open and close annular spaces formed between them and the said disk *f*, substantially as and for the purpose hereinbefore set forth.

489,167. DEVICE FOR DESTROYING NOXIOUS PLANTS. JAMES SHAW and MARTIN CLARET, Jr., Racine, Wis. Filed July 12, 1892. Serial No. 439,709. (No model.)

Claim.—1. A device for destroying weeds and noxious plants, comprising a suitable cutting blade adapted to be operated to sever the roots of said plants, and suitable means for feeding a destroying agent thereto, immediately in the rear of said blade substantially as described.



2. A device for destroying weeds and noxious plants, comprising a cutting blade adapted to be operated to sever the roots of the plants, a reservoir for holding a supply of root destroying agent, and suitable means for feeding said destroying agent to the cut ends of the roots, immediately in the rear of said blade substantially as described.

3. A device for destroying weeds and noxious plants, comprising a suitable cutting blade for severing the roots of the plants, a receptacle for holding a supply of a destroying agent, a device located at the bottom of said receptacle for regulating the discharge of the destroying agent therefrom, and suitable means located upon the outside of the device for actuating said regulating device to discharge a portion of the destroying agent upon the severed ends of the roots, immediately in the rear of said blade substantially as described.

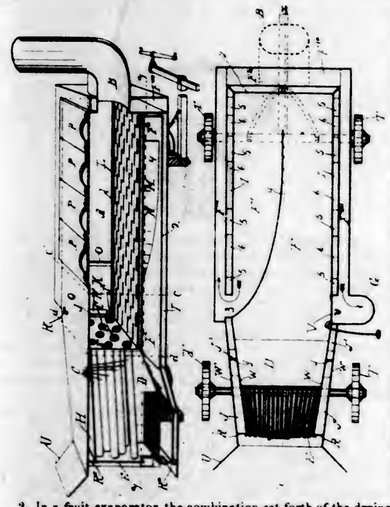
4. A device for destroying weeds and noxious plant, comprising a cutting blade for severing the roots of the plants, a tubular handle connected therewith, a reservoir for holding a supply of a destroying agent and communicating with the said reservoir, and suitable means for feeding said destroying agent from the lower end of said tubular handle upon the cut ends of the roots, immediately in the rear of said blade substantially as described.

5. A device for destroying weeds and noxious plants, comprising a tubular handle, a cutting blade connected thereto, in front of the said tubular handle and projecting laterally on each side thereof, to afford a foot-rest, a reservoir for holding a supply of a destroying agent communicating with said handle, and suitable means for feeding said destroying agent from the lower end of said tubular handle upon the cut ends of the roots, immediately in the rear of said blade, substantially as described.

6. A device for destroying weeds and noxious plants, comprising a tubular handle, a cutting-blade connected thereto in front of the said tubular handle, a reservoir for holding a supply of a destroying agent communicating with said handle, a closed cap for the top of said reservoir, a revoluble shaft centrally journaled in said cap, and extending downward into the tubular handle, a crank or handle at the upper outer end of said shaft, and a screw-conveyer at the lower inner end of said shaft for feeding the said destroying agent upon the cut ends of the roots substantially as set forth.

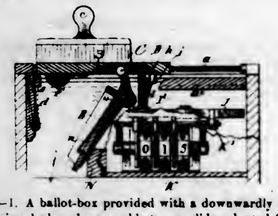
489,168. PORTABLE FRUIT-EVAPORATOR. ASTORIN SPERL, Los Angeles, and JOSEPH GROSSE, Cucamonga, Cal.; said Grossen assignor to said Sperl. Filed Apr. 30, 1892. Serial No. 429,845. (No model.)

Claim.—1. In a fruit evaporator, the combination set forth of the drying chamber; the escape or draft flue leading from one end of such drying chamber at the front of the evaporator; the fire-box arranged at the rear of the evaporator; the intermediate air distributing chamber arranged between the drying chamber and the fire-box; a series of tubes arranged with intervals between them in the fire-box and communicating between the intermediate chamber and the open air; flues incasing the fire-box at the top bottom and sides, respectively communicating between the distributing chamber and the open air and suitable dampers arranged respectively to close and open the said flues



2. In a fruit evaporator, the combination set forth of the drying and distributing chambers; the fire-box; the air induct-tubes arranged in the fire-box with intervals between them and communicating between the open air and such chambers, the draft flue opening from such chambers; the smoke stack and the serpentine flue communicating between the fire-box and the smoke-stack and having its anterior portion arranged beneath the drying chambers comprising the combination of the flat horizontal box 2, open at one end and closed at the other end and communicating at its open end with the fire-box and communicating with the rest of the flue by a passage arranged near the rear end of the chambers; such passage, and a vertical partition leading from the rear wall of such passage toward the closed end of such box, leaving a passage between the end of the partition and the end of the box, and the braces arranged at intervals apart and connecting the box with the bottom of the evaporator, and holding it thereabove.

489,169. REGISTERING AND CANCELING BALLOT-BOX. ENOCH H. TOWER, Worcester, Mass. Filed Apr. 23, 1892. Serial No. 430,967. (No model.)



Claim.—1. A ballot-box provided with a downwardly swinging ballot receiving bed, and a movable top or slide adapted for alternately concealing and revealing said bed, in combination with means substantially as described, whereby said bed is caused to drop when said top is moved over it to its forward position, and said bed again brought into horizontal position by retraction of said cover, for the purpose set forth.

2. The combination, in a ballot-box, of the swinging ballot-receiving bed pivotally supported at one edge, latch devices that retain its opposite edge when elevated, the movable top adapted to slide over and from said bed, a canceling wheel or marker carried by said movable top, throw-off detents that release said latches and bed as the movable top approaches its forward limit of action, and an arm or means for returning said bed to horizontal position with the retractive action of said movable top, substantially as set forth.

3. In a ballot-box, the combination, of the swinging ballot-receiving bed, the movable top or cover for alternately concealing and revealing the same, the counting register, the register-actuating slide having an incline slot or cam, and the lug or arm fixed to said cover and engaging said incline, substantially as described, for effecting movement thereof simultaneously with the movement of said cover, for the purpose set forth.

4. In a ballot-box, the combination, of the swinging ballot-receiving bed, the movable top, means substantially as described for releasing and re-adjusting said ballot-bed, the counting register and the register-actuating connections controlled by said movable top, substantially as set forth, whereby said bed and counting register are operated by the forward and backward movement of said top.

5. The combination, substantially as described, of the ballot-bed, the movable top arranged to slide over and from said bed, and the canceling wheel with its inking roll mounted on a swinging-frame that is pivoted within said movable top, said wheel adapted to roll upon said bed when the top is moved forward, for the purpose set forth.

6. In a ballot-box, the combination of the receiving bed hinged or pivotally attached to swing downward within the case, latching devices for retaining said bed, the movable top sliding over and from said bed, its supporting guides, the canceling markers, the counting register, the actuating mechanism of said register controlled from said sliding top, and the latch-releasing detents all organized substantially as described whereby forward movement of said top operates the registering counter, the bed-releasing latches and canceling marker, for the purposes set forth.

7. In a registering ballot-box, the combination, of the top or cover mounted on guides to move forward and backward for alternately concealing and revealing the ballot-receiving space, the reciprocating slide having the cam or slot, an arm attached to said movable top and engaging said slot, the count-register having its pawl-bar connected for operation to said slide by rod K', the bell L and the bell-striking detent carried on said slide, substantially as set forth.

489,170. MEANS FOR ATTACHING HANDLES. GEORGE H. URBAN, Buffalo, N. Y. Filed June 29, 1892. Serial No. 438,377. (No model.)



Claim.—1. A cover provided with a raised portion integral with said cover and a handle having a tongue inserted between said raised portion and the cover and bent over and upon and held to the raised portion, as set forth.

2. The combination with a cover having integral raised portion with end connecting portions, of a detachable cover having tongues adapted to be inserted through the loops formed by said raised portions and bent upon themselves and over the raised portions, as shown and described.

3. The combination with a cover having raised portions integral therewith and separated therefrom at the sides upon parallel lines, of a handle having integral tongues and with beads or rolls at the edges terminating at the junction of the tongues with the handle and forming shoulders as and for the purpose specified.

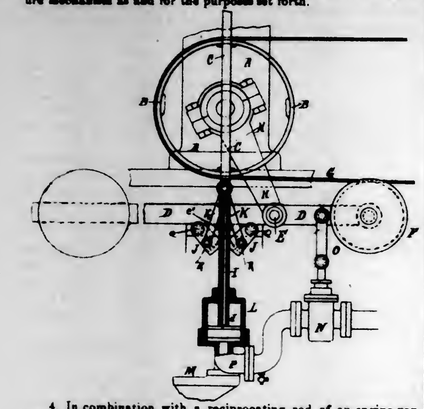
489,171. ENGINE-GOVERNOR. GEORGE H. WARD, Brooklyn, N. Y. Filed Sept. 27, 1892. Serial No. 447,089. (No model.)

Claim.—1. In combination with a reciprocating portion of an engine governor, one or more movable stops acting upon said reciprocating portion, pressure mechanism connected to and operating said stops, and a gravity-operated lever connecting with and actuating said pressure mechanism at the breaking of the governor belt as and for the purposes set forth.

2. In combination with a reciprocating portion of an engine governor, one or more movable stops acting upon said reciprocating portion, a pressure cylinder with its inclosed piston and rod connected with and actuating said stop or stops, a pressure admission valve and a gravity operated lever connecting with and actuating said pressure valve at the breaking of the governor belt as and for the purposes set forth.

3. In combination with a reciprocating rod of an engine governor, an adjustable collar attached to said rod, one or more movable stops acting upon said collar, pressure mechanism operating said

stop or stops, and a gravity-operated lever connecting with said pressure mechanism as and for the purposes set forth.



4. In combination with a reciprocating rod of an engine governor, an adjustable collar attached to said rod, one or more movable stops acting upon the said collars, a pressure cylinder with its inclosed piston and rod connected with and actuating said stop or stops, a pressure admission valve, connected to said pressure cylinder, and a gravity-operated lever connecting with said valve, as and for the purposes set forth.

489,172. LAMP-SUPPORT. CURTIS H. WILCOX, Brooklyn, N. Y. Filed Jan. 28, 1892. Serial No. 419,584. (No model.)



Claim.—1. The improved lamp support consisting of the exterior tube, the circumferentially grooved or fluted rod or tube of hard or unyielding material fitted within said exterior tube, one having a fixed position and the other adjustable along the fixed part and having the lamp attached, and the spring stop on the exterior tube and adapted to bear in the flutes or grooves and lock the adjustable part substantially as described.

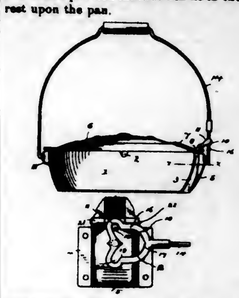
2. The improved lamp support consisting of the exterior tube, the circumferentially grooved or fluted rod or tube fitted within said exterior tube, one having a fixed position and the other adjustable along the fixed part and having the lamp attached, one of said parts having a laterally sliding support, and the spring stop on the exterior tube and adapted to bear in the flutes or grooves and lock the adjustable part substantially as described.

3. In an adjustable lamp support consisting of the exterior tube, the spring stop and the circumferentially grooved or fluted rod or tube of hard or unyielding material fitted adjustably in the interior of said tube, the flutes or grooves in the inner rod or tube made with the side that takes effect against the stud pin to hold the shifting part from falling more abrupt than the other side substantially as described.

489,173. FRYING-PAN. SAMUEL R. WILCOX, Bridgeport, Conn., assignor to the Wilmot & Hobbs Manufacturing Company, same place. Filed Sept. 30, 1892. Serial No. 447,605. (No model.)

Claim.—1. The combination with the pan and a lid hinged thereto and provided on the hinged side with an arm, of a bail pivoted to swing in a plane at right angles to the plane of movement of the lid and having at one end a plate provided with a cam surface adapted to be engaged by the arm so that when the bail is swung upward the lid moves down to its lowered position, the pan and lid being at all times perfectly balanced on the bail.

2. The combination with a pan and a lid hinged thereto and provided on the hinged side with an arm, of a bail having at one end a plate provided with cam surfaces for the purpose set forth which intersect at the top of the plate said surfaces curving downward and inward toward the center of oscillation of the bail so that when the bail is swung downward in either direction the lid is raised, and when the bail is at its raised position the arm will lie in the intersection and the lid will rest upon the pan.



3. The combination with a pan and a lid hinged thereto, and provided on the hinged side with an arm having a head 10, of a bail having at one end a plate provided with cam surfaces which intersect at the top, curve downward and inward and terminate in projections 19, and depressions 20 below the projections so that in its raised position head 10 will lie at the intersection of the cam surfaces and when the bail is swung downward in either direction the lid will be raised until the head is engaged by projections 19, and further downward movement of the bail will cause the head to engage one of the depressions, in which position both bail and lid are locked and the pan may be tilted by the bail.

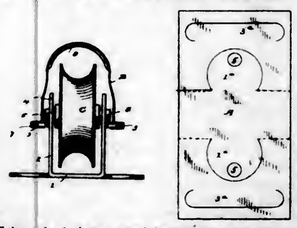
4. The combination with a pan and a lid hinged thereto and provided on the hinged side with an arm having a head 10 with a flattened surface 11, of a bail having at one end a plate provided with cam surfaces which intersect at the top, curve downward and inward and terminate in projections 19 adapted to engage surface 11, and depressions 20 below the projections adapted to receive the head substantially as described.

5. The combination with a pan having a depression 3, and a plate 4 having a depression 5, said plate being riveted to the pan and the depression forming an odor tube, of a lid hinged to plate 4 and having an arm extending therefrom, and a bail having at one end a plate provided with cam surfaces substantially as described and shown which are engaged by the arm whereby the lid may be raised and locked in the raised position.

6. The combination with a pan having a plate 4 riveted thereto and provided with a depression 5 and eyes 21, of a lid having an arm extending therefrom and provided with an eye 9, a pin extending through the eyes by which the lid is connected to plate 4, and a bail having at one end a plate provided with cam surfaces adapted to be engaged by the arm as and for the purpose set forth.

7. The combination with a pan having a plate 4 riveted thereto, said plate having a depression 5 provided with an elongated opening 15, of a lid having an arm extending therefrom, and a bail having at one end a plate provided with cam surfaces adapted to be engaged by the arm for the purpose set forth, and on its inner side a lug 23 having a tenon 24 adapted to engage opening 15 in one position only whereby the bail is attached to the plate.

489,174. SHEAVE-STAND FOR SWITCH-OPERATING MECHANISMS. SAMUEL R. WILMOT and FRANK A. WILMOT, Bridgeport, Conn., assignors to the Wilmot & Hobbs Manufacturing Company, same place. Filed Sept. 30, 1892. Serial No. 447,620. (No model.)



Claim.—1. A sheave stand formed from a single piece of sheet metal, the same consisting of a base formed from the full width of the blank, side pieces formed by bending the ends of the blank at right angles to the base, pieces 1^a being struck out from the side pieces to increase the size of the base transversely, side flanges formed by bending portions of the side pieces outward at right angles thereto, and stops at the ends of the side flanges.

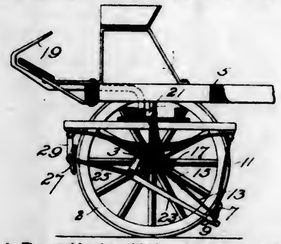
2. A sheave stand formed from a single piece of sheet metal, the same consisting of a base formed from the full width of the blank, side pieces formed by bending the ends of the blank at right angles to the base, pieces 1^a being struck out from the side pieces to increase the size of the base transversely, side flanges formed by striking out metal from the side pieces at right angles thereto, and stops at the ends of the side flanges, the extreme ends of the blank forming holding strips extending between the stops which retain the sheave in place.

3. The combination with a sheave having trunnions on opposite sides thereof, of a stand consisting of a base formed from a sheet metal blank, the transverse dimension thereof being the full width of the blank, side pieces formed by bending the ends of the blank at right angles to the base, pieces 1^a being struck out from the side pieces to form the transverse dimension of the base, and side flanges formed by bending portions of the side pieces at right angles thereto leaving stops at the ends of the side pieces adapted to be engaged by the trunnions to prevent the sheave from running off.

4. The combination with a sheave stand formed from a blank of sheet metal and consisting of a base, side pieces formed by bending the ends of the blank at right angles to the base, and side flanges formed by bending metal from the side pieces outward at right angles thereto, of a cover likewise formed from a blank of sheet metal the opposite ends of the blank being curved outward and then re-curved inward to form grooves which engage the side flanges.

5. The combination with a sheave stand formed from a blank of sheet metal and consisting of a base, side pieces and side flanges substantially as described, of a cover likewise formed from a blank of sheet metal and having grooves formed by curving the transverse edges of the blank outward and then re-curving them inward, which engage the side flanges to hold the cover in place.

489,175. WAGON-BRAKE. JOHN W. ALLAN, Minneapolis, Minn., assignor of three-fourths to Robert Ehrenberg and Augustus H. Runge, same place. Filed June 13, 1892. Serial No. 437,167. (No model.)



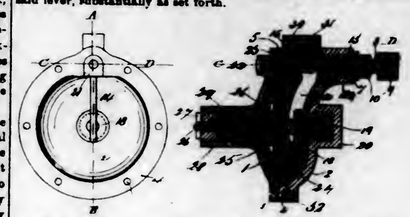
Claim.—1. The combination with the axle and the wheel, of the brake shoe 7, the sleeve 9 upon which said shoe is secured, means for bringing the said shoe against the surface of the wheel, the bell crank lever 23 pivoted at one end upon the axle and upon which said sleeve 9 is mounted and is free to slide, the shoe 27, and the rod 25 connecting the lever 23 with said shoe 27, substantially as described.

2. The combination with the wheel, of the brake shoe 7, the sleeve 9 upon which said shoe is secured, the chain 11 supporting said sleeve and shoe, the rod 13 connected to said shoe, the operating lever 19 provided with a crank arm 21, the chain 15 connecting said crank arm with the rod 13, the lever 23 upon which the sleeve 9 is mounted and is free to slide, the shoe 27, the link 29 supporting said shoe and the rod 25 connecting said shoe 27 with said lever 23, all substantially as described.

3. The combination in a wagon brake, of the wheel, with the axle, the wagon spring, a brake shoe suspended by a link from the forward end of said spring, a bell crank lever 23 pivoted on the axle, the rod 25 connecting said crank with said shoe, a shoe 7 slidably mounted on the lower end of said part 23, a chain 11 for supporting the said shoe 7 when disengaged from the wheel, a chain for drawing said shoe 7 into engagement with the wheel and means for operating the chain, substantially as described.

489,176. FLUID-PRESSURE REGULATOR. THEOPHUS R. BELL, Indianapolis, Ind. Filed Sept. 26, 1892. Serial No. 446,934. (No model.)

Claim.—1. In a fluid pressure regulator the combination with a suitable front and rear casing and an interposed diaphragm, of a valve in said casing, a regulating lever having unequal arms, and with its shorter pointed arm fulcrumed opposite said valve, and an intercepting distance piece having its centered ends or points engaging the end of said valve and the shorter arm of said regulating lever, and suitable counteracting and pressure springs engaging the longer arm of said lever, substantially as set forth.



2. In a fluid pressure regulator the combination with suitable front and rear casings and an interposed flexible diaphragm, of a valve and its seat, said valve adapted to move longitudinally and in line with said seat, a regulating lever having unequal arms and fulcrumed on the pointed end of the shorter arm, a toggle or distance pin having pointed ends and engaging suitable recesses formed in the end of said valve and shorter arm of said regulating lever, and suitable counter and pressure springs engaging the end of said lever and the center of said diaphragm, substantially as set forth.

3. In a fluid pressure regulator, the combination with suitable rear and front casings and an interposed flexible diaphragm, of a reducing valve and its seat, said valve adapted to move longitudinally and in line with said valve seat, an adjustable fulcrum, a regulating screw engaging said fulcrum on the opposite side of said diaphragm, and a suitable regulating lever between said valve and movable fulcrum, and an intercepting pin for connecting said valve to said lever and suitable pressure and counter springs engaging said lever and center of diaphragm, substantially as set forth.

4. In a fluid pressure regulator, the combination with the front and the rear casing thereof and an interposing flexible diaphragm, of a valve and its seat, said valve adapted to move longitudinally and in line with said seat, a movable fulcrum directly opposite said valve, a regulating lever having unequal arms, one of the pointed arms of which is fulcrumed or centered on the recessed end of said movable fulcrum, a distance bar or toggle having its opposite ends reduced to a point and adapted to engage recesses formed in the end of said short arm of the regulating lever and said valve, a suitable fulcrum regulating screw opposite to and on the exterior side of said diaphragm, an intercepting piece or button of an unyielding material passing through said diaphragm, between said movable fulcrum and its adjusting screw and having its opposite flanges clamping said diaphragm, substantially as set forth.

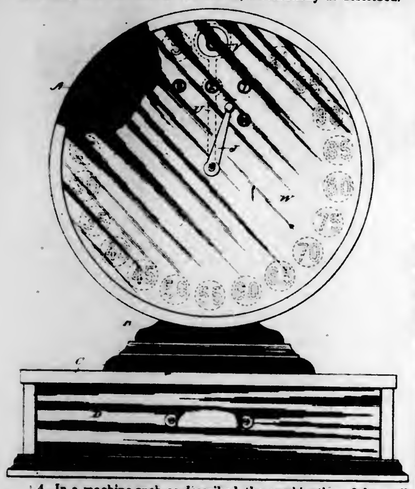
489,177. CASH REGISTER AND INDICATOR. ALLEN I. BLANCHARD, Chicago, Ill., assignor to the National Cash Register Company, Dayton, Ohio. Filed Sept. 1, 1892. Serial No. 444,783. (No model.)

Claim.—1. In a machine such as described, the combination of a numbered dial, an oscillatory shaft, an operating handle secured thereto, an indicator and a ratchet movable together on the shaft, a pawl engaging the ratchet for holding the indicator at any point to which it is moved, a connection between the ratchet and shaft by which the latter turns the ratchet and indicator in a forward direction and moves independently of them in the reverse direction, means for disengaging the pawl from the ratchet at the beginning of the forward movement of the operating handle and shaft, a detent for holding the pawl out of engagement with the ratchet until the latter has been returned to initial position, and means for re-engaging the pawl with the ratchet when the latter reaches such position, substantially as described.

2. In a machine such as described, the combination of the numbered dial, the oscillatory shaft, the operating handle secured thereto, the ratchet and indicator movable together on the shaft, the notched arm J', the detent K' co-operating therewith, the pawl arm G' loosely connected to the arm J' and co-operating with the ratchet, and a connection between the arm J' and the ratchet and shaft for moving said arm in one direction at the forward movement of the shaft and in the opposite direction at the return of the ratchet to initial position, substantially as described.

3. In a machine such as described, the combination of the oscillatory shaft E having the operating handle J fast thereon, the indicator, ratchet and arm C loose upon said shaft and moving together, the notched disk K fast on the shaft, a connection between said disk

and the arm C' for causing the disk to turn the arm and ratchet and indicator forward with it and permit it to return independently of them, the notched arm J', the detent K' co-operating therewith, the pawl arm G' loosely connected to the arm J' and co-operating with the ratchet, and the hooked arm N' connected to the arm J' and co-operating with the disk K and arm C', substantially as described.



4. In a machine such as described, the combination of the oscillatory shaft E, operating handle J and notched disk K fast thereon, indicator loose thereon, ratchet F' and arm C' moving with the indicator, notched arm J', detent K' co-operating therewith, arm N^4 rigid with the arm J' and co-operating with the disk K, pawl arm G' loosely connected to the arm J' and co-operating with the ratchet F', hooked arm N' co-operating with the disk K and arm C', and a connection between the disk K and arm C' for causing the disk to carry the arm with it during its forward movement and permit it to move backward independently of the arm, substantially as described.

5. In a machine such as described, the combination of the rack arm N geared to the operating shaft, the rack arm A' geared to the indicator, the resetting springs for said arms, and the hooked locking arm R' co-operating with projections on the arms N and A', respectively, for the purpose of locking the arm N from movement except when held out of locking position by the projection on the arm A', substantially as described.

6. In a machine such as described, the combination of the rack arm N geared to the operating shaft and provided with the lug S', the rack arm A' geared to the indicator and provided with the pin T', and the hooked arm R' normally tending to move over the lug S' on the arm N and held from such movement by the pin T' on the arm A' when the latter in its initial position, whereby the arm N and operating shaft are locked from movement except when the arm A' and indicator are in initial position.

7. In a machine such as described, the combination of the rack arm A' geared to the indicator, the resetting spring B' connected to said arm, and the lever U' pivoted at one end to the casing and connected at its other to the arm A' intermediately and to the piston-rod V' of the piston within the cylinder W', substantially as and for the purpose described.

8. In a machine such as described, the combination of the central operating shaft E, the arm Q^2 fast thereon, the pivoted arm N^2, the plate O^2 carried by the arm N^2 and having the shoulder P^2 co-operating with the arm Q^2 on the shaft E, the sliding money drawer, the locking bolt therefor, the link M^2 connected at its upper end to the arm N^2, and a connection between the lower end of said link and the drawer bolt, whereby the lifting of said link will disengage the bolt from the drawer, substantially as described.

9. In a machine such as described, the combination of the central operating shaft E, the arm Q^2 fast thereon, the pivoted arm N^2, the plate O^2 carried by the arm N^2 and having the shoulder P^2 co-operating with the arm Q^2, the sliding money drawer, the rock-shaft J^2, the arms I^2 L^2 fast on said shaft, the locking bolt carried by the arm I^2, and the link M^2 connecting the arm L^2 with the arm N^2, substantially as and for the purpose described.

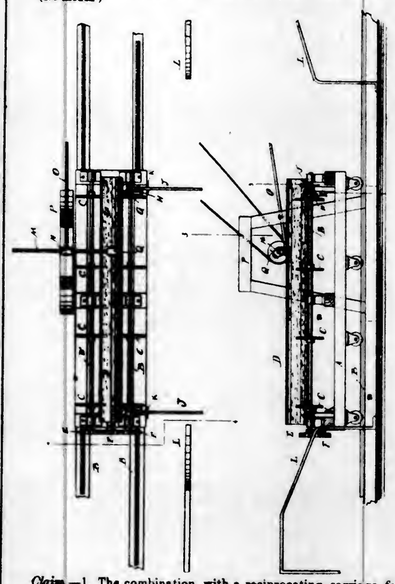
10. In a machine such as described, the combination of the central operating shaft E, the arm U^2 fast thereon, the pivoted arm N^2 the hooked locking arm R^2 carried by the arm N^2 and co-operating with the arm U^2 fast on the shaft E, the sliding money drawer, the locking bolt therefor, and a connection between said bolt and the arm N^2, whereby the hooked locking arm R^2 will be held out of the path of the arm U^2 on the shaft E when the drawer is closed and locked and will be lowered into the path of said arm when the drawer is unlocked and opened, substantially as described.

11. In a machine such as described, the combination of the central operating shaft E, the arm U^2 fast thereon, the pivoted arm N^2, the hooked locking arm R^2 carried by the arm N^2 and co-operating with the arm U^2 fast on the shaft E, the sliding money drawer, the locking bolt therefor, a connection between said bolt and the arm N^2 by which the hooked locking arm R^2 is held out of the path of the arm U^2 when the drawer is closed and locked and moved into its path when the drawer is unlocked and opened, and an adjustable stop by which the locking arm R^2 may be held out of the path of the arm U^2 when the drawer is unlocked and opened, substantially as described.

12. In a machine such as described, the combination of the central operating shaft E, the arms Q^2 and U^2 fast thereon, the pivoted arm N^2, the shouldered plate O^2 carried thereby and co-operating with the arm Q^2, and the hooked locking arm R^2 also carried by it and co-operating with the arm U^2, the sliding money drawer, the rock-shaft J^2, the arms I^2 L^2 fast thereon, the locking bolt F^2 carried by the arm I^2, the link M^2 connecting the arm L^2 with the arm N^2, and the spring for throwing the drawer open when released, substantially as described.

489,178. MACHINE FOR REMOVING THE BARK FROM LOGS.

RICHARD P. BLOSS, Palmer, N. Y. Filed May 17, 1892. Serial No. 433,264. (No model.)

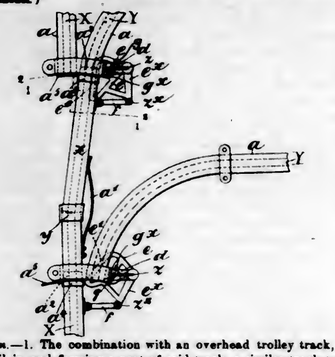


Claim.—1. The combination, with a reciprocating carriage for supporting a log or trunk, of toothed wheels on which said trunk rests for rotating the trunk, shafts supporting said toothed wheels, means for automatically rotating the toothed wheels at the ends of the strokes of the carriage, and a vertically-adjustable shaft extending over the carriage and provided on its end with a cutter-head, substantially as set forth.

2. The combination, with a reciprocating carriage, of shafts for supporting and rotating a tree trunk on the same, toothed wheels on said shafts, ratchet-wheels on the end of one shaft, swinging-levers provided with pawls engaging ratchet-wheels, inclined tripping-devices for operating the swinging pawl-levers, and a vertically-adjustable shaft extending over the carriage, and a cutter-head on the end of said shaft, substantially as set forth.

489,179. AUTOMATIC SWITCH FOR TROLLEY-TRACKS.

WILLIAM H. BROOKS, Brooklyn, N. Y. Filed Aug. 11, 1892. Serial No. 442,805. (No model.)



Claim.—1. The combination with an overhead trolley track, a switch-rail in and forming a part of said track, a similar track terminating adjacent to the free end of the switch-rail, whereby the switch-rail may be closed to either of the tracks, and means for holding the switch-rail closed to either of said tracks, of a trolley mounted on the track and having a carrying pendant and an automatic shifting mechanism arranged at the switch, said mechanism comprising a cam *e*, pivoted under the track on a vertical axis and situated with its face *e'*, standing, normally, obliquely to the path traveled by the trolley pendant, and a link, *f*, coupling the cam to the switch-rail, whereby the pendant on the passing trolley turns the cam about its pivot until its face *e'* is parallel with the track, thus shifting the switch-rail, and holding the cam in this position until the pendant passes the elongated face of the cam, as set forth.

2. In a switch for trolley tracks, the combination with a main track, a pivoted switch rail in the latter, and a branch track, all composed of tubes longitudinally slitted along the under side and provided with ways to receive the trolley wheels, and the trolley, mounted in the said tube and provided with a carrying pendant which plays along said slit in the tube, of means substantially as described for holding the switch rail closed to one track, and a switch device at the switching point comprising a pivoted cam which stands across the slit of the open track, and a link coupling said cam to the switch rail, whereby, when the trolley approaches the switch its carrying pendant encounters and moves the cam about its pivot thus shifting the switch rail, as set forth.

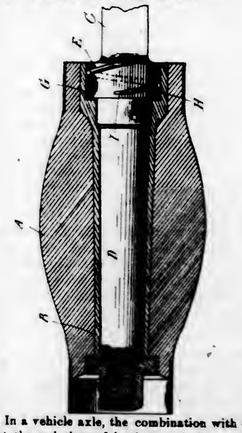
3. The combination with an overhead trolley track, a pivoted switch-rail therein and forming normally, a part of said track, another track, as Y, open normally at the switch and adapted to be connected with the first named track by the shifting of the switch-rail, a trolley on the track having a carrying pendant which extends downward below the track, and an automatic shifting mechanism situated adjacent to the free end of the switch-rail and adapted to be operated by the trolley approaching the switch on the track Y, said mechanism comprising a cam *e*, pivoted to turn about a vertical axis, and arranged under the track with its face across, and oblique to the path followed by the trolley pendant, and a link *f*, connected at one end to said cam and at the other end to the free end of the switch rail, substantially as set forth.

4. The combination with two overhead trolley tracks, a pivoted section of one of said tracks adapted to form a shifting track, *x*, means for keeping said pivoted section normally closed to one of said tracks, a limiting stop to limit the movement of said pivoted section of the track, a trolley on one of said tracks, and a switching mechanism actuated by the moving trolley, said mechanism comprising a pivoted cam which stands normally across the path of a part of the moving trolley, and a link connecting said cam with the free end of the pivoted section of the track, as set forth.

5. The combination with two trolley tracks and a pivoted section *x* in one of them, of a switching device comprising a fixed bracket, *d*, a switching cam *e*, arranged to stand normally across one of said tracks and having an arm or part e^x, and a link *f*, coupled at one end to said arm e^x and at the other end to the free end of the pivoted section *x*, substantially as set forth.

489,180. VEHICLE-AXLE.

FRANK S. CHURCH, Detroit, Mich., assignor of one-half to Wm. Fitz-Hugh Edwards, same place. Filed Mar. 31, 1892. Serial No. 427,183. (No model.)



Claim.—In a vehicle axle the combination with the spindle, of a dust collar formed at one end thereof, having a spiral groove therein extending from a point near the inner edge to the outer edge thereof, a rim between the groove and spindle and a nut at the opposite end of the spindle having a flange thereon, a spiral groove therein extending from the inner to the outer edge thereof, the grooves in the collar and nut being pitched in an opposite direction, substantially as described.

489,181. VEHICLE-AXLE.

FRANK S. CHURCH, Detroit, Mich., assignor of one-half to Wm. Fitz-Hugh Edwards, same place. Filed Aug. 10, 1892. Serial No. 442,650. (No model.)

Claim.—1. In a vehicle axle, the combination with the spindle and the collar at the end thereof, having a spiral groove formed in its face and extending from a point near the inner edge only thereof, one or more times around said collar and directly to the outer edge, substantially as described.

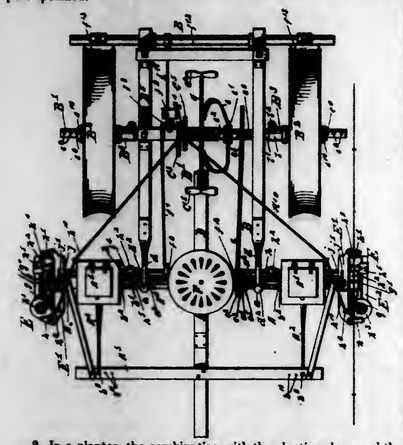
2. In a vehicle axle, the combination with the spindle and a fixed collar at the end thereof having a spiral groove formed in its face and extending from a point near the inner edge only thereof, one or more times around said collar and directly to the outer edge, increasing in width and depth from its inner to its outer end, substantially as described.

489,182. CORN-PLANTER.

LOUIS C. EVANS, Springfield, Ohio. Filed July 2, 1892. Serial No. 439,411. (No model.)

Claim.—1. In a seed planter, the combination with the runner frame and the shoes thereon, a rock shaft supported in suitable bearings on the runner frame, vibrating fork levers connected to said rock

shaft, and projecting fingers on said rock shaft, valves connected to said fingers, said valves being provided with a curved extremity adapted to pass through bearings formed in the walls of the shoe, whereby the said valve is caused to move upwardly and outwardly by a vibration of said rock shaft, substantially as and for the purpose specified.



2. In a planter, the combination with the planting shoes and the reciprocating valves therein, of a rock-shaft extending across the planting frame and connected to said valves, vibrating cam-plates on said rock-shaft, a pivoted arm adapted to engage said cam-plates, said arm being provided with a hook-shaped projection which engages on a stationary bearing plate, substantially as specified.

3. In a planter, the combination with the planting shoe and the reciprocating valves therein, a square rock-shaft having projecting fingers connected to said valves, cone-shaped thimbles adapted to fit on said rock-shaft, stationary bearings on the planting frame to receive said cone-shaped thimbles and form bearings for said shaft, substantially as specified.

4. In a planter, the combination with the planting shoes and the reciprocating valves therein, a square rock-shaft having projecting fingers connected to said valves, vibrating cam-plates having projections adapted to fit over said shaft, said vibrating plates being provided with wings extending outwardly and upwardly from the center at an angle to said shaft, a stationary bearing or bearings between the projections of said vibrating plate, and cone-shaped sleeves in said stationary bearings having square openings to receive said shaft, substantially as specified.

5. In a planter, the combination with the dropping mechanism, of a square rock-shaft connected to said dropping mechanism, stationary bearings having cone shaped sleeves adapted to receive said rock-shaft, a vibrating plate having projections to fit on said rock-shaft, located on either side of said stationary bearings, said vibrating plate being provided with wings at an angle to the axis of said shaft, a hand-lever journaled in suitable bearings in a supporting stand and provided with a forked extremity adapted to embrace said vibrating plate, substantially as specified.

6. The combination with the square rock-shaft and the valves connected thereto, a bifurcated vibrating plate, the forked extremities of which are perforated to receive said square shaft, a stationary bearing or bearings located between the forked extremities of said plate and provided with cone-shaped bearing sleeves adapted to fit over said shaft, a forked hand-lever supported in a suitable stand and adapted to engage said vibrating plate, said plate, stationary bearings and sleeves being held together by inserting said shaft through the respective parts, substantially as specified.

7. In a planter, the combination with the rock-shaft and the dropping mechanism attached thereto, a hand-lever pivoted in suitable bearings in a supporting stand, a vibrating cam-plate on said shaft, adapted to be engaged by said hand-lever, and a bearing plate on said supporting stand, a hook-shaped projection on said hand-lever adapted to engage said bearing plate, substantially as specified.

8. In a planter, a runner frame and a wheel frame, a revolving axle on said wheel frame and a revolving shaft on said runner frame, a driving connection between said axle and shaft, supporting stands for said shaft on said runner frame having sleeve-shaped bearings in which said shaft revolves, projecting brackets on said wheel frame having slotted openings adapted to fit over the sleeve-shaped bearings on said runner frame and thus form a hinged connection about said shaft which shall permit a limited independent vertical movement of the relative parts, substantially as specified.

9. The combination with the planting frame having the revolving planting shaft supported in U-shaped bearing supports having spool-shaped sleeves about said shaft, a wheel frame connected to said planting frame by projecting brackets having elongated open bearings adapted to fit over said sleeves, and a driving connection from the main axle on said wheel frame to the rotating shaft on said planting frame, substantially as specified.

10. In a planter, the combination with the planting shoes and the valves therein, a rock-shaft for operating said valves, a pivoted vibrating lever connected to said rock-shaft, a supporting frame or head for said lever, guiding sheaves on said head at the front and rear of said lever, a hinged frame for supporting one or more of said guiding sheaves, a pivoted latch for engaging said hinged frame, and said frame being formed U-shaped with projecting ends adapted to limit the movement of said frame when disengaged by said pivoted latch, substantially as specified.

11. In a planter, a check rower head consisting of a stationary frame and a U-shaped swinging frame, guiding sheaves on said stationary frame and supporting sheaves on said U-shaped swinging frame, a swinging latch adapted to contact with the lower extremity of said swinging frame and retain the same in its normal position, said pivoted latch being provided with a projecting finger extending through a slotted opening in the stationary frame, and a connection from said finger to operate said latch, substantially as specified.

12. In a planter, a check rower head consisting of a stationary frame and a U-shaped swinging frame, the vibrating forked lever on said stationary frame formed in two parts and pivoted so as to swing at right angles to said frame, a pivoted latch on said main frame adapted to normally rest between said main frame and the projecting end of said U-shaped frame, and means, substantially as described, for operating said latch to disengage said swinging frame, substantially as specified.

13. In a planter, a planting frame and a wheel frame hinged thereto, a lifting lever on said wheel frame adapted to raise and lower said planter frame, a main axle on said wheel frame and a driving wheel on said axle, a driving connection from said axle to a revolving shaft on said planter frame, a movable clutch on said axle adapted to engage and disengage said driving wheel, and a curved cam-shaped loop or yoke connected to said lifting lever and operating on said movable clutch, substantially as and for the purpose specified.

14. The combination with the main axle, the driving wheel thereon and the movable clutch adapted to engage and disengage said driving wheel, a pivoted vibrating frame having a loop shaped cam secured thereto, adapted to engage in a peripheral groove in said clutch, whereby an oscillating movement of said pivoted frame produces a lateral movement of said clutch, substantially as specified.

15. In a planter, a frame and supporting stands on said frame having the seed boxes hinged thereto, planting shoes under said seed boxes, said shoes and stand being connected to the frame by fastening bolts which extend through slotted openings in said frame, a transverse lug or projection on said supporting stand, a series of transverse grooves or notches in said frame adapted to receive said lug or projection when said seed boxes and shoes are moved to different positions with reference to said frame, substantially as specified.

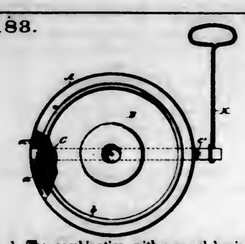
16. In a planter, the combination with the main axle and the supporting wheels thereon, means for shifting said wheels laterally on said axle, and extensible sleeves on said axle for holding said wheel in different positions of adjustment, one of said sleeves being adapted to telescope into the other, the other of said sleeves being formed with a split bearing and clamping bolt to clamp the inner sleeve, substantially as specified.

17. In a planter, the combination with the lifting lever provided on opposite sides with thumb-latches, adapted to respectively engage and disengage with ratchet stands, said lever being provided with an open handle having a pivoted loop adapted to swing through said opening to engage either of said thumb-latches, substantially as specified.

18. The combination with the lifting lever, of the thumb-latches on opposite sides thereof and the ratchet stands adapted to be engaged by suitable mechanism controlled by said thumb-latches to engage and disengage said lever with said stands, said lifting lever being provided with an open handle having a pivoted loop *n'*, in said opening adapted, when turned to different positions, to engage and hold either of said thumb-latches, substantially as specified.

489,183. SEAL FOR VESSELS AND MEANS FOR OPENING SAME. AUGUSTUS F. FITZ GERALD, Brooklyn, assignor to the Automatic Can Opening Attachment Company, New York, N. Y. Filed Mar 25, 1892. Serial No. 426,236. (No model.)

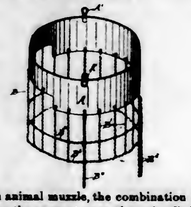
489,183.



Claim.—1. The combination with a vessel having an approximately horizontal annular seat formed at its rim,—of an independent flat strip placed transversely of the can in such a manner that one end of said strip rests upon said seat at one side and the other end is supported by said seat at the opposite side but projecting so as to provide a free end outside of the seat and can,—and a cover placed within the seat on top of said independent strip,— the whole arranged and adapted to be sealed with solder or the like,—and the seal to be broken and the cover removed by force exerted upon the free end of said strip,—substantially as set forth.

2. The combination with a vessel having a beaded or corrugated seat near its rim, and a cover sealed thereon,—of the independent strip C interposed between said seat and cover and shaped to correspond with such seat and cover so as to lie closely thereto, and having a free end projecting beyond the side of the vessel,—substantially as set forth.

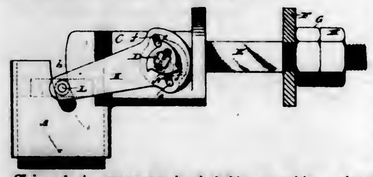
489,184. ANIMAL-MUZZLE. NELSON GILLESPIE, Hoosick Falls, N. Y., assignor of one-half to Chester Gillespie, same place. Filed Nov. 30, 1891. Serial No. 413,499. (No model.)



Claim.—1. In an animal muzzle, the combination with a support and means for securing the support upon the animal's head; of a collapsible link-guard pendent from the support extending around and below the animal's mouth; and detachable link mechanism for closing the lower end of the guard, substantially as described.

2. The animal muzzle having the separate transverse flexible link diaphragm detachably supported by the muzzle guard, said transverse link diaphragm having an open mesh to permit an animal to eat slowly through the same; substantially as set forth.

489,185. COMMUTATOR-BRUSH HOLDER. CHARLES F. GOODRIDGE, Chicago, Ill., assignor to John G. Thompson, Milwaukee, Wis. Filed Dec. 30, 1891. Serial No. 416,496. (No model.)

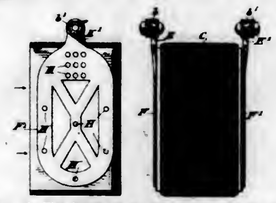


Claim.—1. A commutator-brush-holder comprising a slotted guide for the brush, a pin arranged to engage the slots in the brush-guide, a block on the pin in opposition to said brush, a housing extended from said brush-guide, an arbor having its bearings in the housing, links connecting the arbor and block-supporting pin, a spiral tension spring wound on the arbor and made fast thereto, and a ratchet-mechanism controlling the wind of the spring, substantially as described.

2. A commutator-brush-holder comprising a guide for the brush, a housing extending from the brush-guide, an arbor having its bearings in the housing, a spiral tension-spring wound on the arbor and made fast thereto, slotted plates arranged on the arbor outside of the housing and provided with lateral studs, links loose on said arbor and provided with slots for engagement with the plate-studs, ratchets fast on the aforesaid arbor for engagement with certain of said plate-studs, and a pressure-block supported by the links in opposition to said brush, substantially as described.

3. A commutator-brush-holder comprising a guide for the brush cast in one piece with a housing and attaching shank, a spring-controlled pressure-mechanism in opposition to the brush, and suitable means for regulating the tension of said pressure-mechanism, substantially as described.

489,186. STORAGE-BATTERY ELECTRODE. GEORGE W. HARRIS, New York, N. Y. Filed Apr. 14, 1892. Serial No. 429,162. (No model.)



Claim.—1. The described method of constructing a storage battery electrode consisting in building it up from alternate strips or sheets of conducting and absorbent non-conducting material; each alternate sheet of conducting material extending laterally over the opposite edges of the intermediate absorbent material and finally uniting the extending edges together in each instance in one integral face or mass.

2. The described method of constructing a storage battery electrode consisting in piling together alternate sheets or strips of lead and an absorbent as blotting paper, the opposite edges of alternate sheets of lead extending beyond the edges of the corresponding edges of the intervening sheets of blotting paper and finally uniting all of the edges into two independent integral faces.

3. The described method of constructing a storage battery electrode consisting in interleaving overlapping alternate sheets of conducting material adapted to become active under a charging current, and absorbent non-conducting material and then uniting the overlapping edges of the conducting material on opposite sides into integral faces which constitute the poles of the electrode.

4. The described method of constructing a storage battery electrode consisting in interleaving overlapping sheets of material adapted to become active under a charging current and non-conducting absorbent material, then binding all of said sheets together by a binding medium and finally uniting all of the lateral projecting or overlapping edges on opposite sides into integral faces or masses which constitute the two poles of the electrode.

5. The described method of constructing a storage battery electrode consisting in interleaving overlapping sheets of conducting and non-conducting material; then binding all together by a binding medium; then uniting all of the overlapping edges on opposite sides into integral faces or masses and finally integrally attaching conducting ears or lugs to said faces.

6. The described method of constructing a storage battery electrode consisting in interleaving overlapping conducting and absorbent non-conducting sheets, then bending the lateral edges of the conducting sheets around pins inserted between said edges, and finally uniting the edges into integral or solid faces.

7. A storage battery electrode consisting of alternate sheets of conducting and absorbing non-conducting material; the alternate conducting sheets extending laterally over the opposite edges of the intervening absorbent and united together throughout their length so as to form two conducting faces or poles of large conducting capacity, substantially as described.

8. A storage battery electrode consisting of alternate layers of lead and absorbent material as blotting paper; the alternate sheets of lead extending laterally over the opposite edges of the absorbent and united in each instance throughout their length in combination with a binding medium which unites them all together, substantially as described.

9. A storage battery electrode consisting of alternate layers of sheet lead and blotting paper, the alternate layers of lead extending over the lateral or opposite edges of the blotting paper and united in each instance into one mass or face, in combination with a binding medium which unites them all together and a pair of ears or lugs integrally attached to each face, substantially as described.

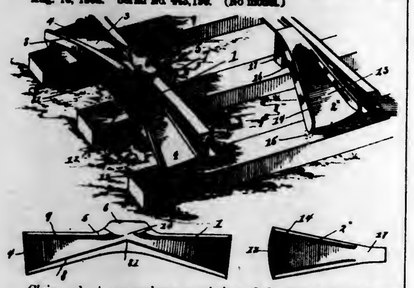
10. A storage battery electrode consisting of two series of thin

conducting sheets each series united to an independent integral face, in combination with intermediate sheets of absorbent material, substantially as described.

11. A storage battery consisting of two independent series of thin conducting sheets, each series united to an integral or solid face, in combination with intermediate sheets of absorbent material and a binding medium, substantially as described.

12. A storage battery electrode consisting of two independent series of sheets of lead each series being united at their lateral edges to an integral face, in combination with intermediate absorbent material, a binding medium extending around both series of plates and an ear or lug integrally attached to each face, substantially as described.

489,187. CAR-REPLACER. FRANCIS A. MOORE, Tyler, Tex. Filed Aug. 16, 1892. Serial No. 443,190. (No model.)

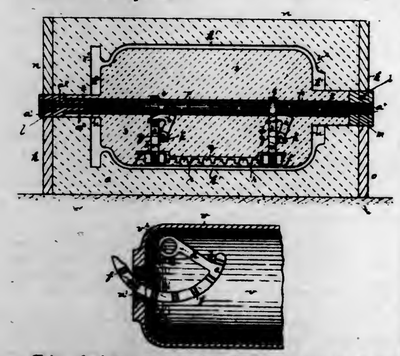


Claim.—1. A car replacer consisting of the two parts, one having the single broad tapering way, the central vertical rib and the spurs at the ends on the underface, the other having the double tapering ways, the offset with hook and rounding face, the vertical rib and the spurs at the ends and center on the underface, substantially as described.

2. In a car replacer, the part or member having the double tapering ways, the ridges meeting in a point, the ridges separated to form an opening at the said point, the hooked offset having the upper face adjacent to said opening between the ridges, the central longitudinal vertical rib, and the spurs, all arranged and adapted to serve in the manner described.

3. A car replacer, consisting of the two parts, one having the single broad tapering way, the other having the double taperingway, the ridges meeting in a point, the other ridges separated to form an opening opposite the point, and the hooked offset having the upper face adjacent to said opening, for the purpose described.

489,188. CORE-BARREL. JOHN V. SMITH, Reserve, assignor of one-half to John C. Porter, Jr., Allegheny, Pa. Filed Jan. 7, 1892. Serial No. 417,364. (No model.)

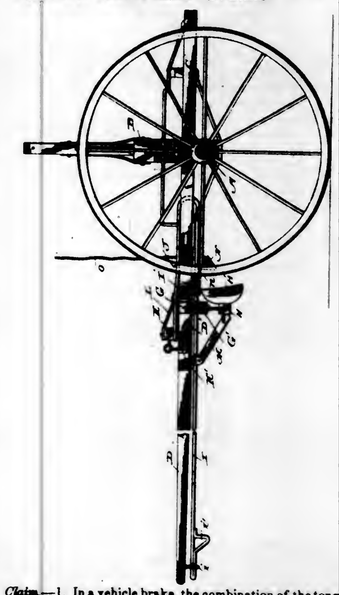


Claim.—1. A core support or brace having a bearing for the core bar, an arm extending out therefrom and a semi-circular or curved bar formed only on one side of said arm, substantially as and for the purposes set forth.

2. A core support or brace having a bearing for the core bar, an arm extending out therefrom, and connected to a curved bar, said arm having a wedge thereon adapted to engage with the core bar and hold the support or brace in position, substantially as and for the purposes set forth.

3. The combination of a hollow perforated core bar, a support or brace having a bearing on said hollow bar, and an arm extending out therefrom and connected to a semi-circular or curved bar, substantially as and for the purposes set forth.

489,189. VEHICLE-BRAKE. HENRY J. BARNES, Oxville, Ill. Filed Aug. 19, 1892. Serial No. 443,505. (No model.)



Claim.—1. In a vehicle brake, the combination of the tongue, the cross bar rigidly secured thereto, the brake beam carrying the shoes and loosely connected with said cross-bar, the double tree the rod connected with the double tree at one end and at the other end supported in a guide on the tongue, the link connecting the rod and brake-beam, and the gravity catch, all arranged and adapted to operate as described.

2. In a vehicle brake, the combination with the double tree, the brake-beam and rod, connected therewith, of the catch pivoted at the underside of the rod and having the sides for embracing the tongue and the shoulder for engaging in front of the pivot of the tongue to prevent backward movement of the rod and double tree, for the purpose stated.

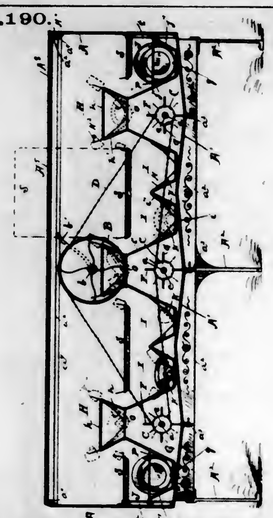
489,190. DISH-WASHING MACHINE. MONTGOMERY GROENENDYKE, Cleveland, Ohio. Filed Nov. 11, 1891. Serial No. 411,573. (No model.)



Claim.—1. In a dish washing machine, a tank, and means for supporting dishes in combination with a paddle wheel having paddles provided with transverse corrugations which increase in depth from the shaft to the outer edge of the paddles.

2. In a dish washing machine, the combination with a tank, of a plurality of racks provided with dish receptacles arranged substantially as shown, a paddle wheel within each rack, a main drive wheel and an endless belt engaging the several paddle wheels and the drive wheel.

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3. In a dish washing machine a tank, a dish supporting rack, and an agitator crossing the tank transversely, in combination with a lid or cover for the tank provided with longitudinal corrugations to redistribute water dashed against its lower surface by the agitator.

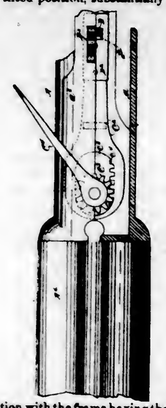
489,191. BREAKDOWN GUN. ISAIAH S. HEATLY, Jersey City, N. J., assignor to Isaiah S. Heatly and Henry L. Prast, Jr., same place. Filed May 27, 1892. Serial No. 434,564. (No model.)



Claim.—1. The combination, with a hammer, and the operating spring, of the cocking dog, a sliding plate having rack teeth, a link connection between said plate and cocking dog, a cocking lever and a gear operated by said lever and engaging the rack teeth of the plate, substantially as specified.

2. The combination, with the hammers, the operating mechanism therefor, and the cocking mechanism, of safety mechanism consisting of the curved plate having a slot, the lug, the screw passing through the slot and securing the plate to the lug, and means whereby the safety mechanism may be set by the operation of cocking the hammers, substantially as specified.

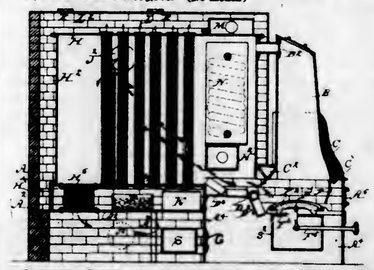
3. The combination with the frame having the forward extension, and the barrels pivoted thereto, the locking bolt and the stop carried by the barrel and constructed to engage with the locking bolt when the barrels are in a tilted position, substantially as specified.



4. The combination with the frame having the forward projection, of the barrels pivoted thereto, the locking bolt, the extractor operated by the movement of the barrels, and a stop fulcrumed to a lug on the barrels and having a hook to engage the locking bolt and adapted to engage at its upper end with the extractor, substantially as specified.

5. The combination with the frame having the forward projection, of the barrels pivoted thereto, the movable stock piece, the extractor and the rock lever having a cam shaped end to engage, a block on the forward projection and engaging at its upper end with the extractor, the locking bolt and the stop pivoted to a lug on the barrels and movable by the extractor to engage with the locking bolt when the barrels are tilted, substantially as specified.

489,192. HOT-AIR FURNACE. THOMAS R. MARTIN, Des Moines, Iowa, assignor of one-half to Isaac T. Martin, same place. Filed July 26, 1890. Serial No. 359,978. (No model.)



Claim.—1. In a furnace, the combination of a fuel magazine that has an open flaring bottom, with parallel side walls that extend forward from the combustion chamber, an air distributing tube extending from the side walls at the bottom of the rear plate of the magazine, a grate at the open bottom of the magazine, and a bridge wall, or its equivalent, at the rear edge of the grate, and an air-distributing tube extended parallel with the top of the bridge wall and a chamber in rear of the said air-distributing tubes into which the products of combustion pass rearward, between the two parallel air-distributing tubes, in the manner set forth for the purposes stated.

2. The furnace wall A, the ash pit composed of the plates A^4, the magazine B, having a door and register at its top, rising outside and in front of the combustion chamber, the tube B^2 having a damper, the open-ended tube C^2, the tube D, the plate D^2 supporting a series of brick, the plate D', and a grate, arranged and combined to operate in the manner set forth for the purposes stated.

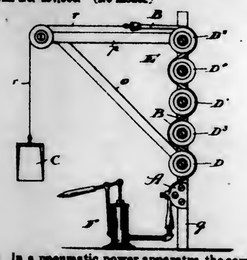
3. The plate D^2 having hooks on its ends and a flange projecting upward from its edge, in combination with a tube or its equivalent,

to produce a bridge wall in a furnace, in the manner set forth, for the purposes stated.

4. An improved hot air furnace composed of an outside wall, an ash pit made of plates fixed to the front and bottom of the outside wall, metal plates having fixed open-ended tubes connected with the top and bottom portions of the wall, two combustion chambers, a cold air chamber between the combustion chambers, a fuel magazine fixed on top of the ash pit to project upward in front of the combustion chamber at some distance therefrom, a grate at the open bottom of the fuel magazine, a bridge wall at the rear edge of the grate, an air conveying tube located above the rear edge of the grate to discharge air upward, a roof over the top of the outside wall, a register to admit cold air under the grate in front, and a smoke flue and dampers at the rear, to operate in the manner set forth for the purposes stated.

5. An open ended tube that is rectangular at its end portions and has a V-shaped bottom and a slot in the bottom, in combination with the parallel side walls of a furnace, for the purposes stated.

489,198. PNEUMATIC-POWER APPARATUS. STEPHEN G. MILLS, Chicago, Ill., assignor to Mortimer B. Mills, same place. Filed June 26, 1892. Serial No. 437,902. (No model.)



Claim.—1. In a pneumatic power apparatus, the combination of an inflatable tube fastened toward one end and closed at the opposite end at which to connect it with the resistance to be overcome, and a rotary bearing between the ends of the tube against which it bears and is deflected, substantially as and for the purpose set forth.

2. In a pneumatic power apparatus, the combination of an inflatable tube fastened toward one end and closed at the opposite end at which to connect it with the resistance to be overcome, and a series of rotary bearings between the ends of the tube against successive ones of which it bears and is deflected in different directions, substantially as and for the purpose set forth.

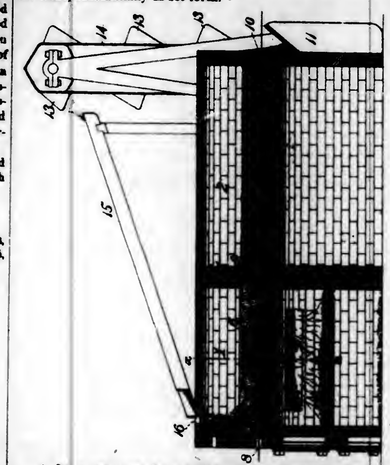
3. A pneumatic power apparatus comprising, in combination, an air-pump F, hose B communicating with the pump and closed at one end and there connected with the object to be moved, and fastened at its opposite end to a rigid bearing A, and a series of pulley bearings pivotally supported with the centers in alignment with each other and having the hose passed about and bearing against them successively in opposite directions, substantially as and for the purpose set forth.

489,194. ART OF ANNEALING WIRE. JAMES G. MUSSER, Knoxville, Pa. Filed Feb. 13, 1892. Serial No. 421,947. (No model.)

Claim.—1. As an improvement in the art of annealing wire, sheet metal, &c., the method herein described, which consists in passing the wire or sheet metal through a body of sand having a portion at one end thereof heated, to an annealing temperature, about a cherry red and the temperature of the remaining portion gradually decreasing toward the opposite end whereby the wire or sheet metal passing through such body of sand is highly heated and cooled while protected from atmospheric action, substantially as set forth.

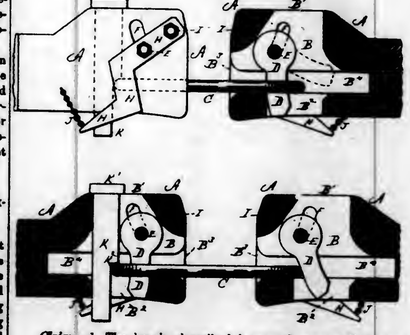
2. As an improvement in the art of annealing wire, sheet metal, &c., the method herein described, which consists in passing wire, sheet metal, &c., through a body of sand, heated to an annealing temperature, about a cherry red and then through another body of sand having a portion thereof approximating the temperature of the highly heated body of sand and gradually decreasing in temperature to that of the atmosphere, substantially as set forth.

3. In an apparatus for annealing wire, sheet metal, &c., the combination of a furnace provided with a heating chamber, a body of sand arranged in the hearth of the heating chamber so as to be subjected to immediate contact of the heat and products of combustion from the fire chamber of the furnace, which is connected to the heating chamber, and a cooling chamber adjacent to the heating chamber and provided with air inlets and outlets, and a body of sand located in the cooling chamber and arranged so as to be directly subjected to the cooling action of a current of air passing through the cooling chamber, the walls of the heating and cooling chambers having suitable openings for the passage of the wire, &c., into and through the same, substantially as set forth.



4. In an apparatus for annealing wire, sheet metal, &c., the combination of a heating chamber having a body of sand therein, a cooling chamber having a body of sand therein, openings through the walls of said chambers for the passage of wire or sheet metal therethrough, and means for conveying sand from the rear end of the cooling chamber to the front end of the heating chamber, substantially as set forth.

489,195. CAR-COUPLING. WILLIAM L. MCGUARRIE, Boston, Mass. Filed Nov. 2, 1892. Serial No. 450,723. (No model.)



Claim.—1. The herein described improved car-coupling, comprising the buffer or body A of the coupling provided with the chamber B, said chamber having the upper outlet passage B^1, the lower extension B^2, rear extension B^4 and front opening B^3, the pin D hanging in the chamber B and depending from the shaft E, and the levers H pivotally secured to the outer sides of the buffer and sustaining and lifting the shaft E, the walls of the buffer being provided with slots F through which the ends of the shaft E extend, substantially as set forth.

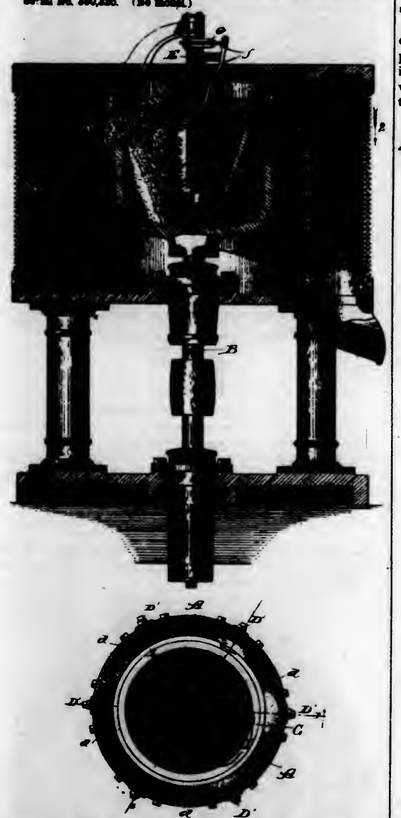
2. The herein described improved car-coupling, comprising the buffer or body A of the coupling provided with the chamber B, having the upper outlet B^1, lower extension B^2, rear extension B^4 and front opening B^3, the walls of the buffer being provided with the slots F, the hanging pin D, shaft E and supporting levers H pivotally secured to the buffer, and the drop-pin or bolt K having the shoulder K^1, substantially as described.

489,196. METHOD OF MAKING BOOTS OR SHOES. JOHN J. PAGE, Haverhill, Mass. Filed Mar. 17, 1892. Serial No. 425,211. (No model.)



Claim.—The improved method of making boots and shoes, the same consisting in attaching the lining to the upper of a boot or shoe at a distance from the outer edges, leaving said edges free and disconnected from each other, applying the upper to a last on which an inner sole is placed, turning the free edge of the lining inwardly and securing it firmly to the outer face of the inner sole, turning the free edge of the upper outwardly to form a flange or welt, which is held in place by the attachment of the upper to the lining and by the attachment of the edge of the lining to the inner sole, and finally attaching the outer sole to the outwardly-turned portion of the upper, as set forth.

489,197. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Apr. 24, 1891. Serial No. 390,236. (No model.)



Claim.—1. In centrifugal ore separators, a revoluble vessel adapted to hold a body of water, and provided with means for deflecting or guiding the water and the material being introduced and treated to a point beneath the surface of the revolving body of water in the vessel, substantially as described.

2. In centrifugal ore separators, a revoluble vessel adapted to hold a body of water, and provided with an inner partition or lining for deflecting or guiding the water and the material being treated to a point beneath the surface of the revolving body of water in the vessel, substantially as described.

3. In centrifugal ore separators, a revoluble vessel provided with an inner partition or lining for deflecting or guiding the water and the material being treated to a point beneath the surface of the revolving body of water in the vessel, and with a distributer to receive and distribute the water and material, and wings to assist in carrying them around as the vessel revolves, substantially as described.

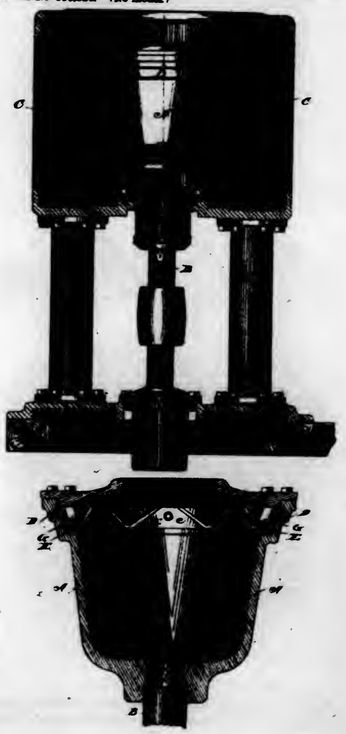
4. In centrifugal ore separators, the combination of a revoluble vessel having discharge openings beneath the surface of the water, and means comprising valve mechanism actuated by the lateral pressure of the water in the vessel for regulating the inflow of the water to the vessel by the outflow through the discharge openings, substantially as described.

5. In centrifugal ore separators, the combination of a revoluble vessel having discharge openings beneath the surface of the water, a float and valve mechanism operated by the float for regulating the inflow of the water to the vessel by the outflow through the discharge openings, substantially as described.

6. In centrifugal ore separators, a revoluble vessel provided with discharge openings beneath the surface of the water, and with a ring and plates or guides to direct the material to the discharge openings, substantially as described.

7. In a machine for the centrifugal treatment of powdered or finely divided substances for the separation of metallic or mineral-bearing particles, a revoluble vessel provided with pockets or recesses around its diameter extending in a direction from the axis of revolution outward, the pockets having discharge openings beneath the surface of the water, substantially as described.

489,198. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Apr. 24, 1891. Serial No. 390,236. (No model.)



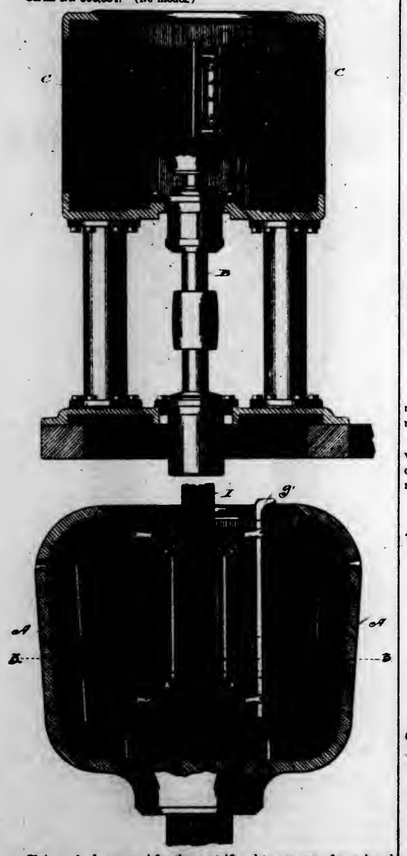
Claim.—1. A vessel for the centrifugal treatment of powdered or finely divided substances for the separation of metallic or mineral-bearing particles, provided with discharge orifices, and channels for guiding the material to the discharge orifices, substantially as described.

2. In a vessel for centrifugally treating powdered or finely divided substances for the separation of metallic or mineral-bearing particles, provided with discharge orifices, plates forming channels for guiding the material to the discharge orifices, substantially as described.

3. In a vessel for the centrifugal treatment of finely divided substances for the separation of metallic or mineral-bearing particles, provided with discharge orifices, a removable ring fitting inside the vessel and having holes or openings corresponding to the discharge orifices, and a channel for guiding the material to the holes or openings, substantially as described.

4. In a vessel for the centrifugal treatment of powdered or finely divided substances for the separation of metallic or mineral-bearing particles, provided with discharge orifices, a removable ring fitting inside the vessel and having holes or openings corresponding to the discharge orifices, and plates forming channels for guiding the material to the holes or openings, substantially as described.

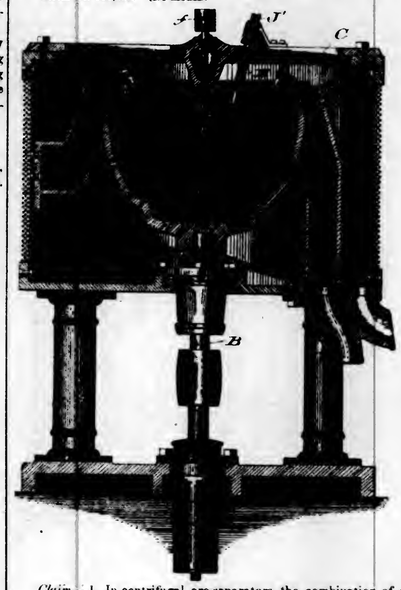
489,199. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Apr. 24, 1891. Serial No. 390,331. (No model.)



Claim.—1. In a vessel for the centrifugal treatment of powdered or finely divided substances for the separation of metallic or mineral-bearing particles, an inner contractible lining, rings and links for effecting the expansion and contraction of the lining and means for supporting the same, substantially as described.

2. In a vessel for the centrifugal treatment of powdered or finely divided substances for the separation of metallic or mineral-bearing particles, an inner lining, and wings or partitions extending therefrom to the outer wall separating the space between the lining and wall into compartments for carrying the material around as the vessel revolves, substantially as described.

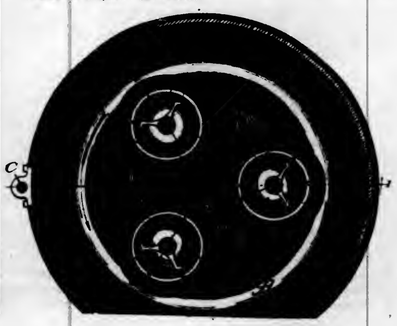
489,200. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Apr. 24, 1891. Serial No. 390,332. (No model.)



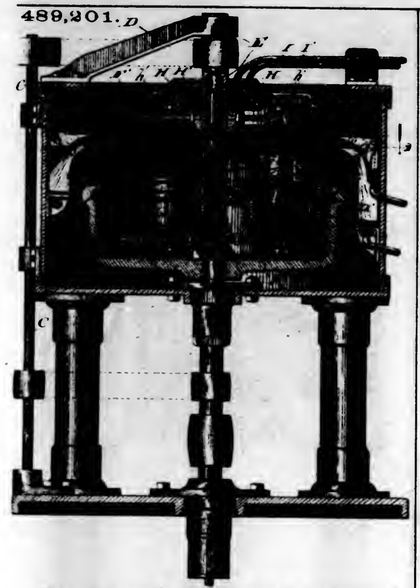
Claim.—1. In centrifugal ore-separators, the combination of a revoluble vessel, and one or more traveling belts inside the vessel and revolving therewith, substantially as described.

2. In centrifugal ore-separators, the combination of a revoluble vessel, one or more belts inside the vessel simultaneously traveling in one plane and revolving in another, and means for imparting said motions to the vessel and belts, substantially as described.

489,201. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Jan. 11, 1892. Serial No. 417,686. (No model.)



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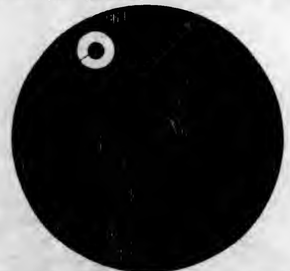


Claim.—1. In centrifugal ore separators, the combination of a treatment vessel rotatable around an axis external to itself, and at the same time around its own axis, means for introducing material and water into the treatment vessel and means for effecting such rotations, substantially as described.

2. In centrifugal ore separators, the combination of a treatment vessel rotatable around an axis external to itself and at the same time around its own axis, a stationary trough arranged in such vessel toward its side farthest from the external axis of rotation, and means for rotating such vessel on its own axis and at the same time around the external axis, substantially as described.

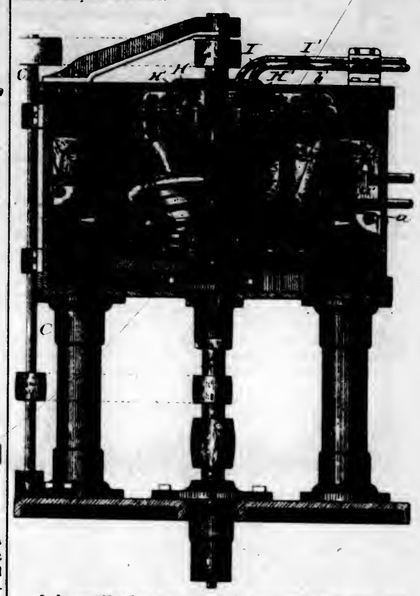
3. In centrifugal ore separators, the combination of two or more treatment vessels rotatable around a common center, and each at the same time rotatable around its individual center, and means for rotating such vessels, substantially as described.

489,202. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Jan. 11, 1892. Serial No. 417,687. (No model.)



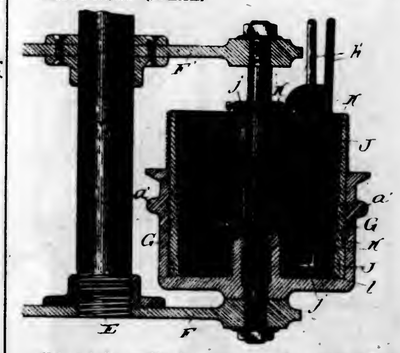
Claim.—1. In centrifugal ore separators, the combination of a treatment vessel arranged at an inclination outward from the vertical, rotatable around an axis external to itself and at the same time around its own axis, and means for effecting such rotations, substantially as described.

2. In centrifugal ore separators, the combination of a treatment vessel arranged at an inclination outward from the vertical, rotatable around an axis external to itself and at the same time around its own axis, a stationary trough arranged in such vessel toward its side farthest from the external axis of rotation, and means for rotating such vessel on its own axis and at the same time around the external axis, substantially as described.



3. In centrifugal ore separators, the combination of a treatment vessel arranged at an inclination outward from the vertical, rotatable around an axis external to itself, to and from which it is adjustable, and at the same time rotatable around its own axis, and means for effecting such adjustments and rotations, substantially as described.

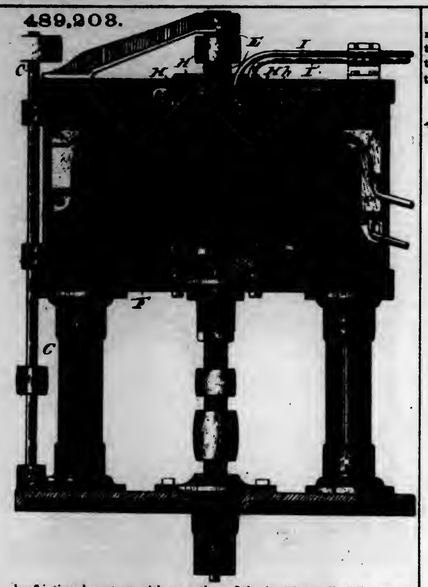
489,203. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed Jan. 11, 1892. Serial No. 417,689. (No model.)



Claim.—1. In centrifugal ore separators, the combination of a revoluble treatment vessel, a traveling belt or canvas supported within such vessel substantially parallel to its axis of rotation, and caused to travel by frictional contact with a portion of the interior wall of the vessel, and means for introducing the material to be treated within the belt, and means for rotating the treatment vessels substantially as described.

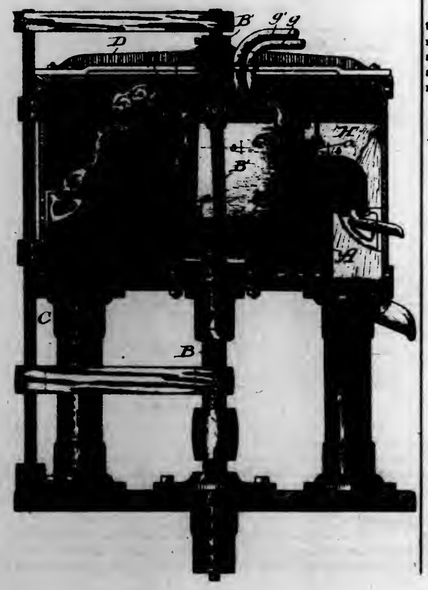
2. In centrifugal ore separators, the combination of a revoluble treatment vessel, a traveling belt or canvas supported within such vessel substantially parallel to its axis of rotation, and caused to travel

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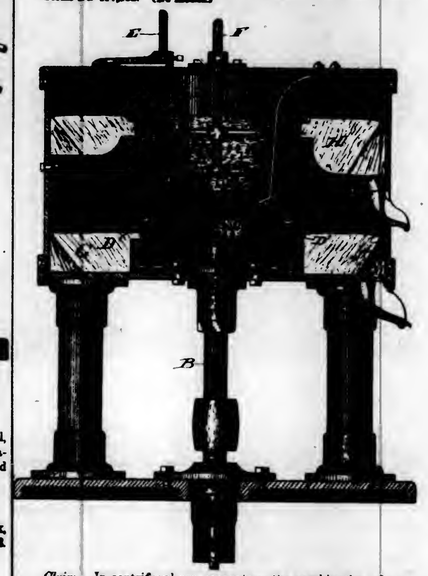
by frictional contact with a portion of the interior wall of the vessel, a trough arranged within the belt, and means for introducing the material to be treated between the back of the trough and the belt, and means for rotating the treatment vessels substantially as described.

489,204. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PEEK, Chicago, Ill., assignor to Melinda Peek, same place. Filed Jan. 11, 1892. Serial No. 417,691. (No model.)



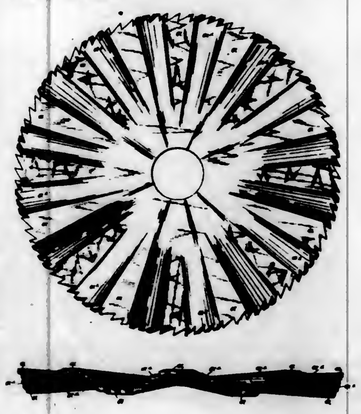
Claim.—In centrifugal ore separators the combination of a treatment vessel rotatable on an axis eccentric to the main axis of rotation, one or more rollers arranged within the vessel rotatable in frictional or rolling contact with its inner wall, and means for rotating the vessel substantially as described.

489,205. CENTRIFUGAL ORE-SEPARATOR. ORRIN B. PEEK, Chicago, Ill., assignor to Melinda Peek, same place. Filed Jan. 11, 1892. Serial No. 417,692. (No model.)



Claim.—In centrifugal ore separators, the combination of a rotatable treatment vessel, provided with a ledge on which the material to be treated falls or is delivered, a non-rotatable bowl or vessel arranged therein for catching the lighter particles when detached, and depositing them in the treatment vessel below the ledge, and means for rotating the treatment vessel, substantially as described.

489,206. GROOVING-SAW. HENRY F. POORE, Indianapolis, Ind., assignor to Elias C. Atkins, same place. Filed Apr. 28, 1890. Serial No. 349,706. (No model.)

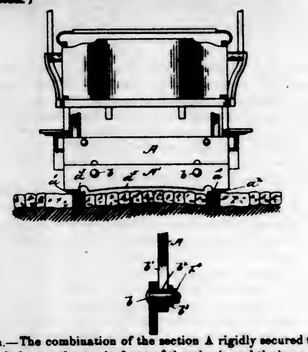


Claim.—1. A grooving saw, having a continuous toothed or cutting edge composed of straight sectors lying in different planes and connected by sectors in planes at an angle thereto, substantially as set forth.

2. A grooving saw the edge of which is continuously toothed and composed of straight and inclined sectors, substantially as set forth.

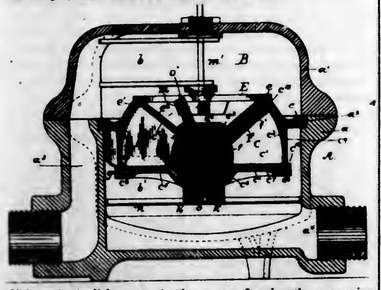
3. A grooving saw consisting of a circular plate with corrugations running to the edge thereof, the top of which corrugations are flattened or made straight, and the edge thereof being continuously toothed, substantially as set forth.

489,207. FENDER FOR ELECTRIC OR OTHER CARS. MARTIN S. STARKWEATHER, Boston, Mass. Filed July 18, 1892. Serial No. 440,396. (No model.)



Claim.—The combination of the section A rigidly secured to the sills or truck-frame of a car in front of the wheels, and the lower edge of which extends very nearly to the rails, with the section A′ shaped to ride on or immediately above the rails, and intermediate flexible connections between the section A and the section A′ such as slots in one section and studs in the other passing into said slots, substantially as described.

489,208. DISK WATER-METER. JAMES A. TILDEN, Hyde Park, Mass., assignor to the Hersey Manufacturing Company, Portland, Me. Filed July 5, 1892. Serial No. 438,892. (No model.)



Claim.—1. A disk meter having a case forming the measuring chamber and a measuring disk contained therein, the said case having the flange *c*, the enlargement c^{10} below the flange upon one side of the partition *g*, which opens through the flange and connects with and forms a part of the port opening d^3, and the enlargement c^{11} above the flange *c*, which opens downward through the flange and connects with and forms a part of the port *d* and is arranged upon the other side of the abutment or partition *g* as and for the purposes described.

2. The combination in a disk meter of the outer case A comprising the base *a* and the cap *a′*; its passages a^3 a^4, and the inner disk case having a flange *c* which included with the case separates the cavity of the outer case into two distinct parts or sections, one of which parts or sections is an inlet chamber, and the other an outlet chamber; an inlet port in the inner case connecting the inlet chamber of the outer case with the measuring cavity of the inner or disk case, and the outlet port in said inner or disk case connecting its measuring cavity with the outlet chamber of said outer case, as and for the purposes described.

3. The combination in a disk meter of the outer case A, comprising the base *a* the cap *a′* forming a large open chamber B, and the passages a^3 a^4 and the removable inner disk case having the flange *c*, the edge of which is confined between the cap *a′* and the base *a*, and which, with the inner case, divides said chamber B into two sections, whereby the inner case is made easily removable from the outer case, as and for the purposes described.

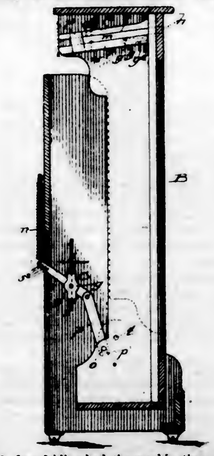
4. The combination in a disk meter of the disk case formed of the detachable lower flat plate c^4 having the ball bearing c^6, the separate spherical curved wall c^5, having an opening at each end, the lower opening of which is closed by the plate c^4 and the detachable upper plate c^7 closing the upper opening said plates being formed with a downward conically shaped section having a hole c^8 and the ball bearing c^6, as and for the purposes described.

5. The combination of the disk case made of three detachable plates or pieces c^4, c^5 and c^7 all shaped substantially as indicated and united together to form a disk chamber of the shape specified, and having ports of the character described with the conical disk contained in said chamber, having a ball *f* and the conical disk plate *f′* extending from the ball *f* slotted upon one side, and the abutment or partition *g* which extends through said slot, and divides one side of the disk chamber from the ball to the wall, substantially as described.

6. The combination of the disk chamber having the opening c^8 at its top and the space *o* at its bottom, the ball bearing, and the disk having a ball to fit the bearing, and a hole through the ball connecting the water chamber above it with the space *o* below it, as and for the purposes described.

7. In a disk meter the inner case, the lower plate c^4 of which has the depressed support c^9 for receiving the foot of the side wall, the said wall having a flange, inlet and outlet ports, and squared at the upper corner as specified, and the upper plate having an outwardly extending ledge to rest upon the squared upper surface of the side wall, and a downwardly extending conical section, which intersects at its upper outer edge the curved surface of the inner wall, the lower and upper plates being secured to the intermediate flanged wall by screws, as and for the purposes described.

489,209. WARDROBE-BEDSTEAD. HARVEY WADDELL, Chicago, Ill. Filed Sept. 25, 1891. Serial No. 406,794. (No model.)

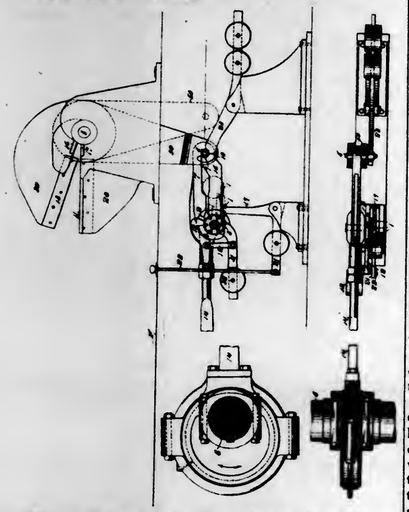


Claim.—1. In a folding-bed, the combination with the stationary frame and vertically swinging couch, pivoted to the stationary frame, of counterbalance-mechanism for the couch, comprising a lever fulcrumed between its ends on the stationary frame, a link pivotally connected at one end with one end of the lever and at its opposite end with the couch near its head-portion, a spring, *n*, connected with the lever and with the stationary frame above the lever, to draw in the downward direction upon the stationary frame and operating through the medium of the lever and link to resist lowering and assist raising of the couch, substantially as described.

2. In a folding-bed, the combination with the stationary frame and vertically swinging couch, pivoted to the stationary frame, of counterbalance-mechanism for the couch, comprising a spring, *n*, connected with the main frame, a lever, *s*, fulcrumed near one end-por-

tion to the stationary frame below the spring, and adjustably connected near one end with the spring, a link, *p*, pivoted at one end to the short arm of the lever *s*, and provided at its opposite end with a socket *p'* at which it is pivotally and removably attached to the couch near the head-portion, thereof the spring operating to draw in the downward direction upon the stationary frame and through the medium of the lever and link to resist lowering and assist raising of the couch, substantially as described.

489,210. DRIVE-ROD CLUTCH FOR SHEARS. WILLIAM H. ATKINSON and DANIEL M. SOHERR, Brooklyn, N. Y. Filed May 2, 1892. Serial No. 431,596. (No model.)



Claim.—1. The combination with a reciprocating driving rod and an arm to be oscillated thereby, an engaging hook and a weighted clutching jaw, of a cam controlled actuating lever for coupling and uncoupling the rod and arm and means for rotating said cam with a step by step movement, substantially as described.

2. The combination with a reciprocating driving rod and an arm to be periodically oscillated thereby, of an engaging hook elongated to provide it when unclutched with a sliding bearing, a weighted clutching jaw, a cam controlled lever for actuating the clutching jaw, and means for rotating said cam with a step by step movement, substantially as described.

3. The combination with the rock arm 50 connected with the moving jaw of the shears, the reciprocating driving rod 14, and its engaging hook 4, of the pivoted weighted clutching jaw 15, co-operating with said hook, an actuating lever 12 linked to said jaw and a cam operating to control the movements of said jaw, substantially as described.

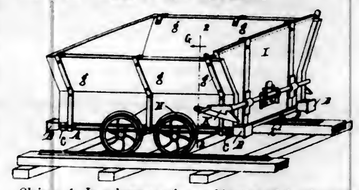
4. The combination with the rock arm 50, connected with the moving jaw of the shears, a reciprocating driving rod 14, its engaging hook 4 and clutching jaw 15 co-operating with said hook, of an actuating lever 12 connected with said jaw, a cam operating to control the movements of said jaw, and pins 1, and tappet 19, for actuating said cam, substantially as described.

5. The combination with the rock arm 50 connected with the moving jaw of the shears, a driving rod 14, its engaging hook 4, and a lever 12 attached to the clutching jaw 15 and limited in its movements by a controlling cam, of said clutching jaw 15 pivoted to the driving rod and having a weighted tail piece 31 whereby said jaw is normally held closed, substantially as described.

6. The combination with the rock arm 50 connected with the moving jaw of the shears, a driving rod 14, its engaging hook 4, and co-operating clutching jaw 15, the lever 12 attached to the clutching jaw and limited in its movements by a controlling cam, of pins 1 carried by the cam and engaged by the tappet 19 and means for tilting the latter out of active position, substantially as described.

7. The combination with the rock arm 50 connected with the moving jaw of the shears, its driving rod 14 and means for periodically coupling and uncoupling said arm and rod, of the weighted hooked arm 23 for sustaining said rock arm when it is uncoupled, substantially as described.

489,211. DUMP-CAR. IRVING BARKER, Springfield, Ill. Filed Feb. 9, 1892. Serial No. 420,849. (No model.)



Claim.—1. In a dump car the combination of the channeled sills, the cross bars connecting said sills and having their upturned ends resting in channeled blocks, the straps securing the axle in place on said sills, one of said straps on each side being adapted to secure one end of both axles, the straps having their lower ends in channeled blocks secured to said sills, said straps supporting the sides of the car, the axle secured to said sills and the supporting wheels on said axles, as set forth and for the purpose stated.

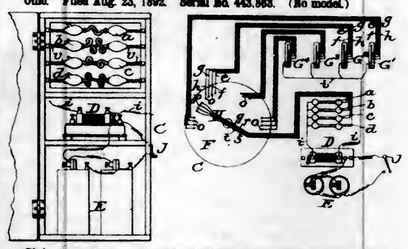
2. In a dump car the channeled blocks fitting in channels in the sills and adapted to receive the upturned ends of cross bars under the car also adapted to receive the lower ends of the straps supporting the sides of the car, in combination with channeled sills under the car, the parallel axles secured to said sills, the sides of the car supported by straps resting in the channeled blocks, and the wheels supporting the car, as set forth and for the purpose stated.

3. In a dump car a bumper having at one end an enlarged integral head and having a longitudinal recess adapted to fit on the projecting end of a channeled sill, in combination with sills under the car, axles transverse to said sills and wheels supporting the car, as set forth and for the purpose stated.

4. In a dump car the combination of channeled sills under the car, axles transverse to said sills, said axles being provided with collars, the straps securing the axles on the sills, one of said straps on each side connecting the adjacent ends of both axles, the supporting wheels, the cross bars connecting the sills, the draft hooks secured to the cross bar, the channeled blocks resting in channels in and secured to the sills, the straps adapted to support the sides of the car, and secured in the channels of the channeled blocks and the bumpers provided with recesses adapted to fit on the ends of the sills, as set forth and for the purpose stated.

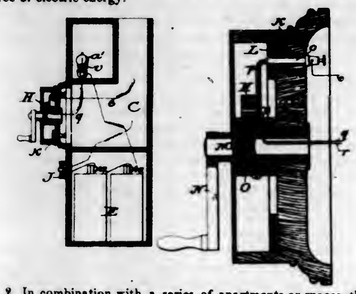
5. In a dump car the cross bars having upturned ends adapted to fit in the channeled blocks, in combination with the channeled sills the channeled blocks resting in channels in said sills the axles transverse and secured to said sills and the supporting wheels, as set forth and for the purpose stated.

489,212. TEMPERATURE-INDICATOR. JAMES BARTLETT, Toledo, Ohio. Filed Aug. 23, 1892. Serial No. 443,863. (No model.)



Claim.—1. An apparatus for indicating the temperature of an apartment or apartments, comprising the following elements in combination: a thermostat in the apartment, provided with contact points corresponding with the points of temperature to be indicated; an indicator located at the point where the information is to be received and comprising separate signals, one for each of the contact points of the thermostat each signal adapted to go automatically out of operation when the temperature falls below the point which it indicates; electric conductors connecting the contact points and the signals independently; a return wire connecting the several thermostats and the several signals; a source of electrical energy included in the return wire, and a circuit closer adapted to complete the circuit from

each contact point of the thermostat to each signal and through the source of electric energy.



2. In combination with a series of apartments or spaces, thermostats, one in each of said apartments or spaces and each provided with a series of contact points corresponding to different degrees of temperature; an indicator provided with a series of signals corresponding to the respective contact points of said thermostats; conductors connecting the respective contact points of the thermostats with corresponding contacts of the indicator; a source of electrical energy, and a circuit closing device substantially such as described, serving to complete the electrical circuit between the indicator signals and the contacts of any of thermostats at will.

3. The combination of a thermostat G provided with a series of contact points corresponding to different degrees of temperature, and with a series of wires or conductors insulated one from another and connecting with the respective contact points; an indicator provided with signals corresponding in number with the contact points of the thermostat each signal adapted to go automatically out of operation when the temperature falls below the point which it indicates; conductors connecting the contact points of the thermostat independently with the respective signals of the indicator; a return line or conductor connecting the several thermostats with the several signals; a source of electric energy included in the return conductor, and a switch or contact maker adapted and arranged to make or break connection between the respective contact points of the thermostat and the respective signals, as desired.

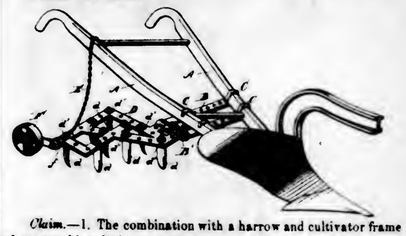
4. In combination with a series of thermostats G', G^2, G^3, G^4 provided each with a series of contacts corresponding to different degrees of temperature; an indicator provided with a series of independent signals corresponding to the contact points of the thermostats; a dial provided with groups of contact points corresponding to the contact groups of the several thermostats; conductors extending from the contacts of the thermostats to those of the dial; a movable arm or lever provided with contact springs adapted to make contact simultaneously with the contact points of one dial group; conductors connecting said contact fingers independently with the several signals of the indicator; a return line connecting the several thermostats with the several signals, and a source of electricity included in the circuit, substantially as set forth, whereby the arm or lever may be moved to complete the circuits of all those contact points of a group which are included within the temperature reached in the space or apartment in which the thermostat of that group is located.

5. In an apparatus for indicating at a central point the temperature at a distant point, the combination with a series of signals or indicators at the central point each adapted to go automatically out of operation when the temperature falls below the point which it indicates, of a thermostat at the distant point having a series of contacts corresponding to the degrees of temperature to be indicated; electrical connections between the thermostat and the respective signals, and a source of electrical energy included in a conductor common to the several circuits; whereby closing of the contacts by the thermostat shall bring into action a corresponding signal at the central point.

6. In a temperature indicating device such as described a circuit closer comprising shell or body K, insulated contacts *o* arranged in groups, a rotary spindle M carrying a series of insulated fingers *p*, which correspond to one of the contacts of the group, and a lever or handle for moving the spindle and carrying the contact fingers into and out of touch with the contact points.

7. In an apparatus for indicating at a central point the temperature of an apartment at a distant point, the combination with a series of signals at the central point, adapted to be rendered luminous by an electric current, of a thermostat at the distant point having a series of contacts corresponding to the degrees of temperature to be indicated; electrical connections between the thermostat and the respective signals, and a source of electrical energy included in a conductor common to the several circuits; whereby closing of any of the thermostat contacts shall bring into action a corresponding signal, and the opening of such contact shall cause the display of the signal to cease.

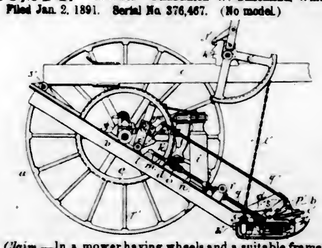
489,213. HARROW ATTACHMENT, &c. FREDERICK BERLIN, Detroit, Mich. Filed Jan. 20, 1890. Renewed Nov. 4, 1892. Serial No. 450,947. (No model.)



Claim.—1. The combination with a harrow and cultivator frame of an attaching device, an intervening multiple joint, said frame constructed with a triangular section and having a laterally extended portion at the rear end of said section, and a carrying wheel having an adjustable connection with the laterally extended portion, substantially as set forth.

2. The combination with a plow of a harrow and cultivator, an attaching device, an intervening multiple joint located between the harrow and cultivator and the attaching device, a carrying wheel on the outer side of the harrow and cultivator, and means connecting said side with the plow for raising and lowering the same, substantially as set forth.

489,214. MOWER. FREDERICK W. BLACKMER, Windham, Me. Filed Jan. 2, 1891. Serial No. 376,467. (No model.)



Claim.—In a mower having wheels and a suitable frame mounted thereon, the combination with a cam-wheel mounted on the axle, of a pendulum lever operated by said cam having its free end connected by a link to a toggle, one arm of which is pivoted to said frame and the other to a plunger passing through a universal joint and a second toggle, one arm of which is pivotally attached to the frame and the other carrying on its free end the knife-bar, said last named toggle being connected at the joint to said plunger and being operated thereby, substantially as and for the purposes set forth.

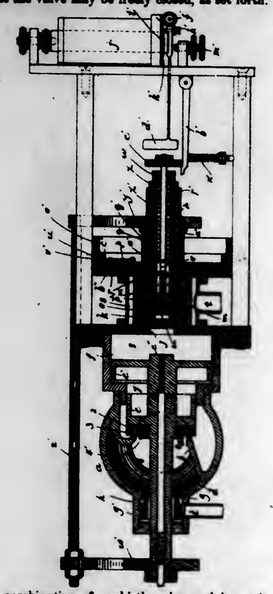
489,215. VALVE FOR FIRE-ALARM WHISTLES. GILMAN W. BROWN, West Newbury, Mass. Filed May 23, 1890. Renewed Oct. 7, 1892. Serial No. 448,094. (No model.)

Claim.—1. The combination substantially as hereinbefore set forth, of a whistle valve, a piston connected therewith, an auxiliary valve controlling a passage communicating with the cylinder which contains said piston, an electro magnet controlling said auxiliary valve, and a retarding or regulating device which determines the duration of the open position of the auxiliary valve and derives its power from the main valve.

2. The combination substantially as hereinbefore set forth, of a whistle valve, its casing, a piston connected with the valve at the steam inlet side of the casing, a cylinder containing said piston, and provided with a vent, said cylinder being in communication with the steam inlet of the casing, whereby when said vent is closed the piston is balanced, an auxiliary valve which is normally held in position to close the vent, a latch or detent whereby the auxiliary valve is held in position to close the vent, and an electro magnet controlling said latch.

3. The combination of a whistle valve and its casing, a piston

connected thereto at the steam receiving side of the casing, a cylinder inclosing said piston and formed to permit leakage of steam around the piston, a vent arranged to permit the escape of steam from the cylinder at one side of the piston, and an auxiliary valve adapted to reduce the steam pressure at one side of the piston by opening the vent, and thereby permit the steam pressure at the opposite side to open the whistle valve, and to balance the said piston by closing the vent so that the valve may be freely closed, as set forth.



4. The combination of a whistle valve and its casing, a piston connected thereto at the steam receiving side of the casing, a cylinder inclosing said piston and formed to permit leakage of steam around the piston, a vent arranged to permit the escape of steam from the cylinder at one side of the piston, and an auxiliary valve adapted to reduce the steam pressure at one side of the piston by opening the vent, and thereby permit the steam pressure at the opposite side to open the whistle valve, and to balance the said piston by closing the vent, and means for closing the whistle valve when said piston is balanced, as set forth.

5. The improved whistle controlling valve composed of a casing having a steam passage surrounded by a valve seat, a cylinder communicating with said casing at the steam receiving side of the valve seat, said cylinder having a vent or steam outlet communicating with one end, a valve adapted to the seat in said casing, and a piston connected with said valve, said piston loosely fitting the cylinder and permitting the leakage of steam from the receiving side of the valve seat, whereby the piston is balanced when the said vent is closed and is cause to receive the valve opening pressure of the steam when the vent is opened, as set forth.

6. The improved whistle controlling valve composed of a casing having a steam passage surrounded by a valve seat, a cylinder communicating with said casing at the steam receiving side of the valve seat, said cylinder having a vent or steam outlet communicating with one of its ends, a valve adapted to the seat in said casing, a piston connected with said valve, and loosely fitting the cylinder, and another piston connected with the valve at the steam outlet side of the valve seat, whereby when the said vent is closed with the valve open and the piston at the steam receiving side is balanced as described, the valve will be closed by the steam pressure on the other piston, as set forth.

7. The improved whistle controlling valve composed of a casing having a steam passage surrounded by a valve seat, a cylinder communicating with said casing at the steam receiving side of the valve seat, said cylinder having sections of different diameters and a vent or steam outlet communicating with its larger end, a valve adapted to the seat in said casing, and two pistons of different diameters connected with said valve, said pistons loosely fitting the sections of the cylinder and permitting the leakage of steam from the receiving side of the valve seat into the space between the two pistons and into the space between the larger piston and the larger end of the cylinder, whereby the larger piston is balanced when the said vent is closed and is caused to receive the valve opening pressure of the steam between the two pistons when the vent is opened, as set forth.

8. The improved whistle controlling valve composed of a casing having a steam passage surrounded by a valve seat, a cylinder communicating with said casing at the steam receiving side of the valve seat, said cylinder having sections of different diameters and a vent or steam outlet communicating with its larger end, a valve adapted to the seat in said casing, two pistons of different diameters connected with said valve, said pistons loosely fitting the sections of the cylinder, and a third piston connected with the valve at the steam outlet side of the valve seat, whereby when the said vent is closed with the valve open and the two pistons at the steam receiving side are balanced as described, the valve will be closed by the steam pressure on the said third piston, as set forth.

9. The valve casing having a steam passage surrounded by a valve seat and a cylindrical recess provided with a waste or drip opening at the outlet side of said valve seat, combined with the valve having on its stem a piston formed to enter said recess, said piston being smaller at its inner than at its outer end, whereby, when the valve is closed, communication is formed around the piston with the waste or drip opening and when the valve is closed said communication is cut off, to prevent waste of steam, as set forth.

10. The combination of a valve casing having an internal valve seat, a valve therein, a cylinder communicating with the valve casing and having a vent at one end thereof, a piston connected with said valve at the steam receiving side of the casing, and loosely fitting the said cylinder, whereby steam is admitted to said cylinder to balance the piston when the valve is closed, a valve closing piston connected with the valve at the outlet side thereof, an auxiliary valve controlling the steam vent or the cylinder, and means for opening and closing said vent valve, as set forth.

11. The combination of a valve casing having an internal valve seat, a valve therein, a cylinder communicating with the valve casing and having a vent at one end thereof, a piston connected with said valve at the steam receiving side of the casing, and loosely fitting the said cylinder, whereby steam is admitted to said cylinder to balance the piston when the valve is closed, a valve closing piston connected with the valve at the outlet side thereof, an auxiliary valve controlling the steam vent of the cylinder, a spring arranged to normally open the vent valve, a stronger spring arranged to close the vent valve and compress the spring thereof, a latch which automatically holds the vent valve in its closed position, and a connection between the said stronger spring and the whistle valve, whereby said spring is compressed or set for action by the closing of the whistle valve and released and permitted to act on the vent valve by the opening of the whistle valve, as set forth.

12. The combination with the whistle valve, its casing, the cylinder connected therewith and provided with a vent, and a piston connected with the valve, of the vent valve, a spring arranged to normally open the vent valve, a stronger spring adapted to close said vent valve and compress the spring thereof, a latch which locks the vent valve in its closed position, a connection between said stronger spring and the whistle valve, whereby the spring is compressed or set for action by the closing of the whistle valve, and released by the opening of the whistle, and a retarding device whereby the movement of the stronger spring is retarded prior to its vent valve closing action, as set forth.

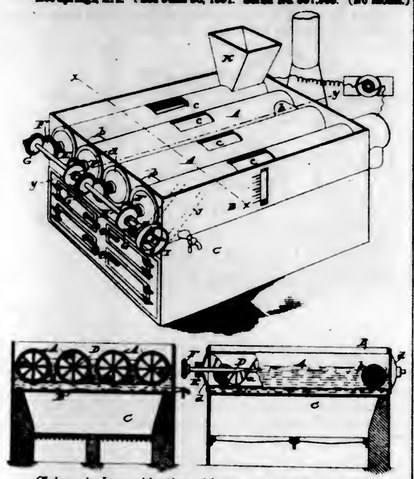
13. The combination with the whistle valve, its casing, the cylinder connected therewith and provided with a vent, and the piston connected with the valve, of the vent valve, a stem attached to said valve and provided with a head at its outer end, a spring x adapted to normally open the vent valve, a tubular rod arranged to slide on a fixed support surrounding the stem of the vent valve, a spring x' of greater strength than the spring x arranged to move the tubular rod outwardly and thereby cause its outer end to strike the head of the vent valve stem and close the vent valve, a latch which holds the vent valve in its closed position, and a retarding device which retards a portion of the movement of the tubular rod by the spring x', said retarding device comprising a fixed cylinder open at one end and provided with air inlets between its closed and its open ends, a piston affixed to the tubular rod and fitting said piston, as set forth.

14. The combination with the whistle valve, its casing, the cylinder connected therewith and provided with a vent, and the piston connected with the valve, of the vent valve, a spring arranged to normally open the vent valve, a stronger spring adapted to close said vent valve and compress the spring thereof, a latch which locks the vent valve in its closed position, a connection between said stronger spring and the whistle valve, whereby the spring is compressed or set for action by the closing of the whistle valve, and released by the opening of the whistle, a retarding device whereby the movement of the stronger spring is retarded prior to its vent valve closing action, and an electrically controlled hammer arranged to displace the vent valve holding latch, as set forth.

15. The combination with the vent valve rod or stem having the head c', of the spring latch adapted to automatically engage said head, a hammer arranged to displace said latch, an armature attached to the shank of said hammer, and an electro magnet arranged to hold said armature with the hammer in a raised or retracted position, as set forth.

489,216. AMALGAMATOR.

HUGH CALHOUN, Hot Springs, and AARON M. BEAN, Bear, assignors of one-third to Prosper H. Hilsworth, Hot Springs, Ark. Filed June 20, 1891. Serial No. 397,006. (No model.)



Claim.—1. In combination with an amalgamating vessel, an electric generator connected therewith and adapted to deliver an interrupted current of constant direction.

2. The herein-described amalgamating apparatus, consisting of connected cylinders A provided with spirally-bladed axial shafts; tank B, furnace C, electric generator L, all combined and operating substantially as set forth.

3. The method of amalgamation herein set forth, which consists in mingling with the pulp a proper quantity of mercury and stirring the mass in a suitable receptacle subject to the heat of a water bath, and to the action of an interrupted current of electricity of constant direction.

489,217. CRIMPING-IRON.

MARK CAMPBELL, Chicago, Ill. Filed Mar. 28, 1892. Serial No. 426,734. (No model.)



Claim.—1. In a crimper or similar device, the jaws mounted on handles crossing each other and having a free movement one upon the other, whereby the jaws may be separated to their full extent, and an adjusting device mounted on one member between the point of crossing of the handles and the end of the jaws, and bearing against the other member, serving to limit the movement of the jaws toward each other while preserving their substantially parallel relation, substantially as described.

2. In combination with the crimper having the crimping jaws t, mounted on crossing handles a set screw C passing through one member at a point between the place of crossing of the handles and the end of the jaws and bearing against the other, as and for the purpose set forth.

489,218. FLORAL FIGURE.

ANDREW T. CARPET, Boston, Mass. Filed July 16, 1891. Serial No. 399,787. (No model.)

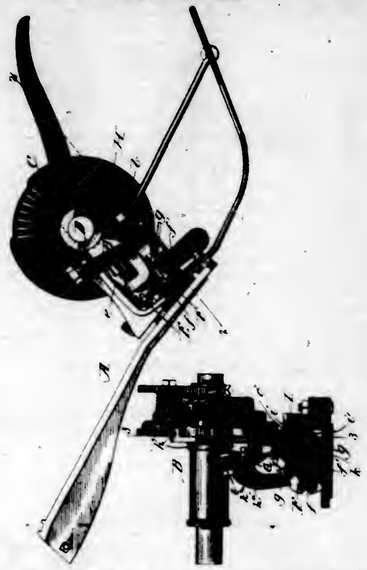
Claim.—A florist's letter or figure stamped from a sheet of pasteboard or other suitable material, having an adhesive coating applied thereto, and an outer covering of granules of sawdust appropriately colored to represent the petals of the *Helichrysum arenarium*, substantially as described.

489,218.

A

489,219. GRAIN-BINDER.

PETER P. COLSE, Piano, assignor of one-half to the Piano Manufacturing Company, Chicago, Ill. Filed Oct. 10, 1891. Serial No. 408,339. (No model.)



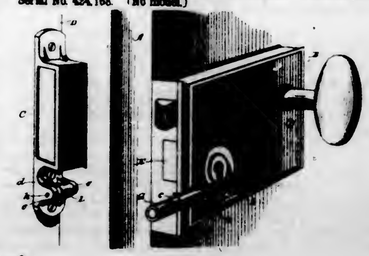
Claim.—1. In a grain binder, the cord holding disk provided with ratchet f, in combination with the single pawl H and the cam d on the shaft D arranged to act directly upon said pawl to reciprocate it positively in both directions, substantially as described.

2. In a grain binder, the cam and gear-wheel shaft D, provided with a pawl cam d thereon, in combination with the toothed pawl H, provided with a loop at its upper end embracing said shaft and having lips at one side thereof embracing said cam, the cord holding disk provided with a suitable ratchet and a spring arranged at the back of the pawl to cause the latter to engage with said ratchet, substantially as described.

3. In a grain binder, the cord holding disk provided with suitable ratchet, in combination with the pawl H arranged to reciprocate in straight lines at one edge of the ratchet, the separate toothed plate K provided with slot k', the fastening bolt J and the set screw k^3, substantially as described.

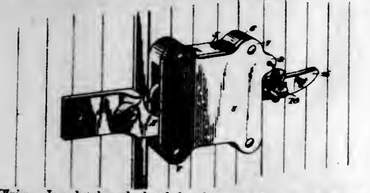
489,220. LATCH TO PREVENT SAGGING.

JOHN H. CURRIER, Jr., WILLIAM S. HEAP, and SAMUEL CRUM, Garnett, Kans. Filed Mar. 8, 1892. Serial No. 424,168. (No model.)



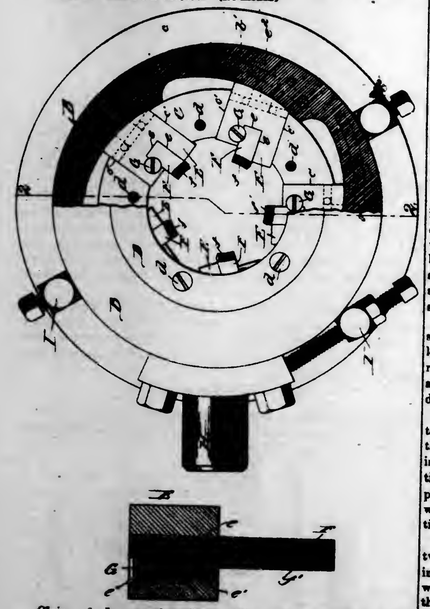
Claim.—The combination, in a device for preventing doors sagging, of a bracket having perforated lugs secured to the side of the door casing, a friction roller journaled in said lugs, a lock secured to the door and provided with a projecting bar, and a roller journaled or mounted on said bar and adapted to ride onto and past the axis of said first named roller and come to rest against said bracket when the door is closed, substantially as described.

489,221. SLIDING-DOOR LOCK. ISAAC DAVIS, Catasauqua, Pa. Filed May 26, 1892. Serial No. 434,503. (No model.)



Claim.—In a latch or lock of the character described, the combination of a keeper having a portion thereof formed with a nose and adapted to be secured to a framing, a casing adapted to be secured to a door and having a boss formed with a portion of the same at the upper part thereof and a spring-actuated latch bar or lever extending through said casing from end to end and having a boss or ear formed with the extended handle portion of the same adapted to be connected with the boss of the casing, the said latch bar or lever being constructed with disks to provide turning centers and washers and having pintles or studs projecting therefrom for pivotally connecting said latch bar or lever, substantially as described.

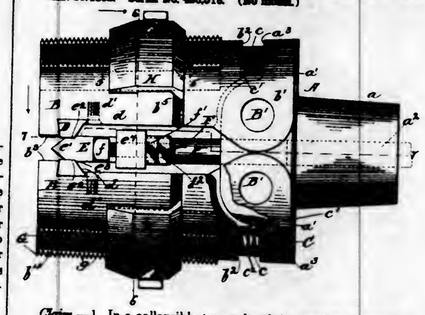
489,222. SCREW-CUTTING MACHINE. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to the Crane Company, same place. Filed Feb. 15, 1892. Serial No. 421,607. (No model.)



Claim.—1. In screw threading and like machines the cutter holder provided with longitudinal seats for the cutters and threaded grooves running along one side of said seats and opening thereinto, in combination with long cutters mounted in said seats and provided with threaded sections on the side adjacent to the said threaded grooves, whereby the said two parts form a threaded aperture, and fastening screws adapted to be turned into said threaded apertures lengthwise of the cutters to secure the latter, substantially as described.

2. The cutter holder E provided with grooves *e* running lengthwise of the surface thereof and slightly tapering threaded grooves *e'* running through the holder and opening into the seat grooves at one side thereof, in combination with long cutters F provided with threaded grooves *f''* running along one side thereof and making a tapering threaded aperture with the threaded side grooves *e'* and tapering fastening screws G adapted to fit the said threaded apertures, substantially as described.

489,228. AUTOMATIC COLLAPSIBLE TAP. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to the Crane Company, same place. Filed Mar. 26, 1892. Serial No. 426,513. (No model.)



Claim.—1. In a collapsible tap, a head, in combination with a two-part body, the twin sections of which are hinged to the head by a joint which permits them to swing inward toward each other, and an adjustable device for setting and holding the hinged sections in their outward or working adjustment, substantially as described.

2. In a collapsible tap, a head, in combination with twin body sections hinged thereto and with a free space between their inner faces, a stop to limit the outward vibration of said sections, an adjustable device for setting the same in said outward or working adjustment, and an automatic device for withdrawing the latter at a certain point, whereby the tap is automatically collapsible, substantially as described.

3. In a collapsible tap, the head A, in combination with the twin sections B hinged to said head, and the spring *e* arranged behind each hinged section outside of its pivot and immediately between the head and the inner end of the section, whereby the said sections are swung inward toward each other when released, substantially as described.

4. In a collapsible tap, the head A, provided with a cross-head *a'*, in combination with the twin body sections B, provided with a recess *b* at their rear ends, adapted to receive the ends of the cross-head to which they are pivoted, stop pins C and springs *c* set in each recess between the ends of the cross-head and the rear ends of the hinged sections, and an adjustable device for setting and retaining the hinged sections in their extreme outward adjustment, substantially as described.

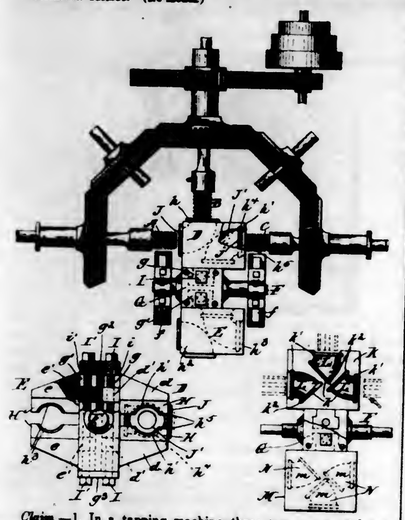
5. In a collapsible tap, the twin sections B hinged to a rotary support and each a segment of a cylinder, whereby a free space is left between them, in combination with a sliding wedge plate E arranged in the space between said sections and adapted to slide back and forth therein to adjust and set the said sections, substantially as described.

6. In a collapsible tap, the head A, in combination with the twin tap sections B hinged thereto, a stop to limit their outward vibration, the cross-bars D set in the inner faces of the sections, the sliding wedge-plate E adapted to enter between said bars to set the sections in working position, and projections extending out from said plate on each side of the tap in the path of the work, whereby the wedge will be withdrawn automatically at a certain point, substantially as described.

7. The hinged tap sections B arranged with a free space between their inner faces, in combination with the cross-bars D, the sliding wedge plate E, provided with stem *e* mounted in the head and with projections e^4 extending out beyond the tap on opposite sides thereof, and the adjustable screw-pins F set in said projections and standing in the path of the work, substantially as described.

8. In a tap, the sections B provided with longitudinal grooves b^4 and circumferential groove b^5, in combination with the cutting dies G mounted in said grooves b^4 and ring segments H provided with threaded section *h* and rib *h'* secured upon the outside of the said sections, substantially as described.

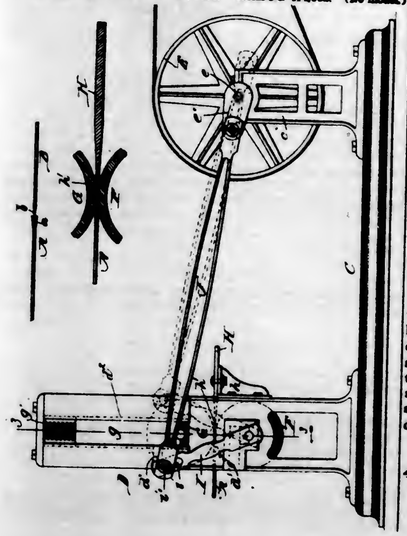
489,224. TAPPING-MACHINE. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to the Crane Company, same place. Filed July 16, 1892. Serial No. 440,209. (No model.)



Claim.—1. In a tapping machine, three taps arranged, as described, in combination with chucks provided with chuck plates having separate seats for several independent pipe elbows arranged to provide for work by each one of the taps, upon some one of said elbows, whereby the operation of tapping is performed on several elbows simultaneously, substantially as described.

2. In a tapping machine the three taps, A, B, and C, arranged as described, in combination with the chucks, D and E, provided with chuck plates, H, H', having seats, h, h', and h^3, h^4, adapted to take two elbows J, J', substantially as described.

489,225. MACHINE FOR SPLITTING THE ENDS OF CANE. HENRY G. DUNLAP, Chicago, Ill., assignor to Ford, Johnson & Co., Michigan City, Ind. Filed Dec. 12, 1891. Serial No. 414,802. (No model.)



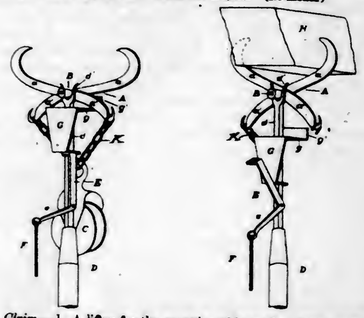
Claim.—1. In a machine for splitting the ends of cane strands, a stationary knife, in combination with a feeding device, adapted to clasp the ends of the cane strands and carry them forward against the knife, and mechanism whereby a reciprocating movement is given to the feeding device to carry the ends of the strands up to the action of the knife and then in the reverse direction, substantially as described.

2. In a machine for splitting the ends of cane strands, a pair of feed rollers, in combination with a stationary knife arranged with its edge near the common diameter of the rollers, and mechanism whereby an oscillatory movement is positively imparted to said rollers, first to feed the ends of the strands to the knife and then to retract them therefrom, substantially as described.

3. In a machine for splitting the ends of cane strands, a stationary knife H, in combination with the feed-rollers F and G, the crank arm I fastened to the journal of one of said rollers, a revolving crank *c'* much shorter than the arm I, and a pitman J connecting the said arms, substantially as described.

4. In a machine for splitting the ends of cane strands, the band or driving wheel E provided with a crank *c'*, in combination with the lower feed roller F, a long crank arm I fastened to the journal of said roller, the upper feed roller G mounted in bearings yielding vertically, the stationary knife H, and the pitman J connecting the crank arms I and *c'*, substantially as described.

489,226. CARRIER FOR GRAPPLES. FRED FARRAR, Bangor, Me. Filed May 5, 1892. Serial No. 431,873. (No model.)



Claim.—1. A lifter for the grapples of horse hay forks, consisting of a shank or handle having a fork at its upper end, a trip on said shank and means of operating said trip, and a rest so sliding on said shank between said fork and said trip as to be supported in position and released therefrom by the operation of said trip, and having a seat shaped and adapted to be inserted between the handles of a grapple when said rest is in position and secured by said trip, and force the jaws of such grapple open with a thrust of the lifter.

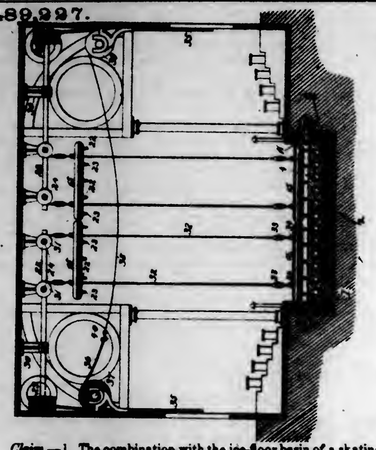
2. The combination of a grapple having a pivot with an outwardly projecting knob; and a lifter consisting of a shank or handle having a fork at its upper end, a trip on said shank and means of operating said trip, and a rest so sliding on said shank between said fork and said trip as to be supported in position and released therefrom by the operation of said trip, and having a seat shaped and adapted to be inserted between the handles of a grapple when said rest is in position and secured by said trip, and force the jaws of such grapple open with a thrust of the lifter.

3. In the herein described lifter for the grapples of horse hay forks, the combination of the shank *d* having fork *d'*, trip E pivoted to said shank; cord F; and sliding rest G with seat *g* and back *g'*.

4. The combination of a grapple having a pivot with an outwardly flaring projecting knob; and a lifter consisting of a shank or handle having a fork at its upper end, a trip on said shank, and means of operating said trip, and a rest so sliding on said shank between said fork and said trip as to be supported in position and released therefrom by the operation of said trip, and having a seat shaped and adapted to be inserted between the handles of a grapple when said rest is in position and secured by said trip, and force the jaws of such grapple open with a thrust of the lifter.

489,227. APPARATUS FOR FORMING, MAINTAINING, AND RENEWING THE ICE-FLOORS OF SKATING-RINKS. J. BARNES FARLEE, New York, N. Y. Filed Feb. 4, 1892. Serial No. 420,512. (No model.)

489,227.



Claim.—1. The combination with the ice-floor basin of a skating-rink, of a removable insulating cover therefor, a series of ropes or chains attached to such cover by which the same may be hoisted from or lowered into position, a series of drums upon which the ropes or cables may be wound, and means for synchronously rotating said drums, so as to hoist or lower the cover and maintain the same in a horizontal position at all times, substantially as shown and described.

2. The combination with the ice-floor basin of a skating-rink, of a removable cover therefor, and means for introducing heated gases or vapors into the confined space between the surface of the ice-floor and the cover, substantially as shown and described.

3. The combination with the ice-floor basin of a skating-rink of a removable cover therefor, and perforated heating pipes arranged around the walls of the basin, and adapted to discharge their contents into the basin beneath the cover, but above the ice-floor, substantially as shown and described.

4. The combination with the ice-floor basin of a skating-rink, of a removable cover therefor, and heating pipes adapted to discharge their contents into the space between the ice floor and the cover, in an upward direction, arranged around the walls of such basin, substantially as shown and described.

5. The combination with the ice-floor basin of a skating-rink, of a cover therefor, mechanism whereby said cover may be hoisted and suspended above the basin, and a curtain or false ceiling adapted to be drawn under and held suspended beneath the raised cover, substantially as shown and described.

6. In a skating-rink, the combination with the ice-floor basin thereof, of a removable insulating cover therefor, provided with short legs secured thereto and adapted to support the same, and the heating pipe or pipes arranged along the walls of the basin, and adapted to discharge the contents thereof beneath the insulating cover and above the ice-floor when the cover is in position upon such ice-floor, substantially as shown and described.

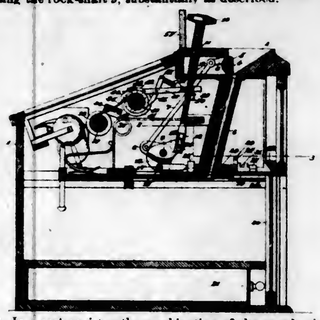
7. A removable insulating cover for the ice-floors of skating-rinks, having a rigid body portion, and compressible elastic edges, as 21', whereby a tight joint may be formed between the same and abutting surfaces, substantially as shown and described.

489,228. CASH-REGISTER. WILLIAM P. HUFFMAN, Hickory, N. C. Filed Nov. 12, 1891. Serial No. 411,732. (No model.)

Claim.—1. In a cash register, the combination of a casing provided with a series of slots or openings, a series of coin-tubes arranged below the openings or slots, a shaft, oscillating doors carried by the shaft and arranged to close the slots and openings, and the mouths of the coin-tubes to prevent coins being deposited into the latter, and means for actuating the shaft, substantially as described.

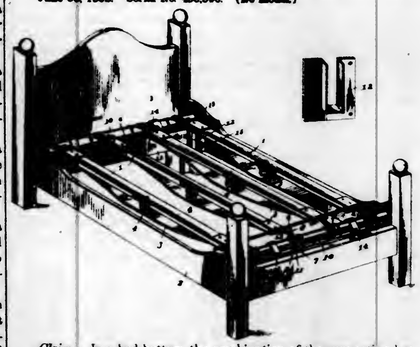
2. In a cash register, the combination with a case provided with a series of slots or openings, a series of coin-tubes arranged below the slots or openings, doors arranged to close the openings or slots and the upper ends of the coin-tubes, and keys connected with and operating the doors, substantially as described.

3. In a cash register, the combination of casing provided with slots or openings, a series of coin-tubes arranged beneath the latter, a rock-shaft provided with an arm, oscillating doors carried by the rock-shaft 5 and arranged to close the slots or openings, and the tops of the coin-tubes, a rock-shaft 9 provided with an arm, a rod connecting the arms of the rock-shafts, and a key connected with and operating the rock-shaft 9, substantially as described.



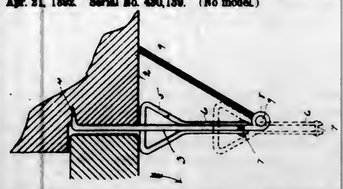
4. In a cash register, the combination of the case having a vertically movable sash, springs arranged to engage and elevate the sash, a spring-actuated latch arranged to engage the sash, and a spring actuated catch provided with an arm 29 arranged to engage the latch to hold the same out of engagement with the sash when the latter is raised and provided with an arm 30 arranged to be engaged by the same when the sash is lowered to release the latch, substantially as described.

489,229. BED-BOTTOM. CHARLES R. MCCLINTOCK, Ozark, assignor of one-half to Hymenus G Sadler and Ralph A. Sadler, Paris, Ark. Filed June 30, 1892. Serial No. 438,598. (No model.)



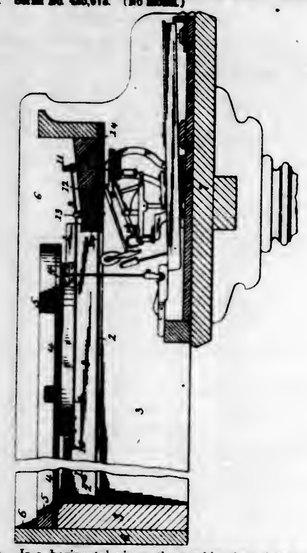
Claim.—In a bed-bottom, the combination of the supporting bar 11 provided with clip straps 14, the cylindrical bars arranged in the clip straps 14 and extending across the bed-bottom, the springs spirally coiled about the cylindrical bars and secured at their ends to the supporting bars and provided intermediate the coils with inwardly projecting tongues, the longitudinally disposed slats, and the transversely disposed resilient rods passed through the ends of the slats and detachably engaged at opposite sides of the slats by removable U-shaped links which latter detachably engage the projecting tongues of the springs, substantially as described.

489,230. DOOR-SECURER. JOHN HOLAND, Pittsburg, Pa. Filed Apr. 21, 1892. Serial No. 430,139. (No model.)
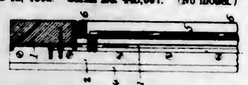


Claim.—The herein described door lock, consisting of the slotted bar 3, the triangular link 5 capable of moving in the direction of the length of the bar, or be locked at a certain position thereon, and a bar or brace 9 pivoted to the one end of the device adapted to engage with the jamb of the door to form a brace, all arranged and combined for service, substantially as herein shown and described.

489,231. PIANO. JOHN W. REED, Chicago, Ill. Filed Mar. 21, 1892. Serial No. 425,673. (No model.)



Claim.—In a horizontal piano, the combination of the metallic string plate 1, having a downturned marginal flange 2, and stiffening braces 8, and hitch pins 10, arranged on its under side, the inclosing wooden rim or frame 3, attached to the string plate and extending up past the same, the superimposed sounding board secured to the top of said frame, with its sounding bridge or bridges projecting downwardly, the outer inclosing casing and the depressed pin block 12, substantially as set forth.

489,232. UPRIGHT-PIANO BACK. JOHN W. REED, Chicago, Ill. Filed Sept. 12, 1892. Serial No. 445,697. (No model.)



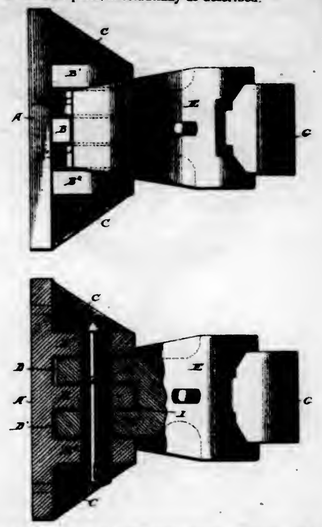
Claim.—1. In a frame or back for pianos the combination of a piano string plate, an outer marginal wooden frame secured thereto so as to inclose the same and project rearwardly, and a sounding board secured to the back of the outer marginal frame, with its top edge left free and unsupported except by the marginal sounding board frame, substantially as set forth.

2. In a frame or back for pianos the combination of a piano string plate, an outer marginal wooden frame secured thereto so as to inclose the same and project rearwardly, and a sounding board secured to the back of the outer marginal frame, with its top and bottom edges left free and unsupported except by the marginal sounding board frame, substantially as set forth.

489,233. CAR-COUPLING. ALFRED H. REDSHAW, Troy, N. Y., assignor to the Trojan Car Coupler Company, same place. Filed Sept. 24, 1892. Serial No. 446,542. (No model.)

Claim.—1. A coupling device for locomotive tenders, comprising a base plate adapted to be secured to the tender and having a series of projections, and a coupling head also having a series of projections, arranged to interlock with the projections on the base plate, substantially as described.

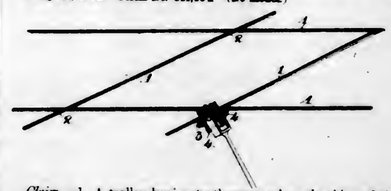
2. A coupling device for locomotive tenders, comprising a base plate adapted to be secured to the tender and provided with a series of projections forming recesses between them, and a coupling head having a recessed or apertured end and provided with a series of projections extending into the recessed end and arranged to fit the recesses in the base plate, substantially as described.



3. A coupler device for locomotive tenders comprising a face plate provided with a series of projections having parallel faces forming recesses between the projections and strengthening ribs for the projections, and a coupler head having an enlarged recess, and provided with projections arranged to fit the recesses in the face plate and interlock therewith, substantially as described.

4. A coupler device for locomotive, comprising a face plate adapted to be secured to the tender and having a series of projections and a coupling head having one or more projections arranged to interlock with the projections on the face plate the projections being provided with elongated slots at right angles to the draft of the train, for the reception of the pin uniting the plate and head, substantially as described.

489,234. ELECTRIC-RAILWAY TROLLEY. JEAN REUTLINGER, St. Louis, Mo., assignor of one-half to Jacob Jacobs, same place. Filed July 30, 1892. Serial No. 441,694. (No model.)



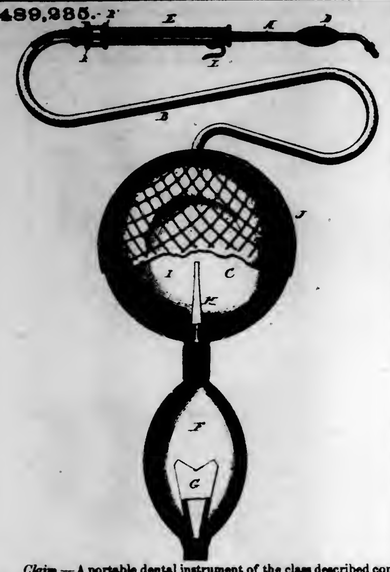
Claim.—1. A trolley having teeth arranged on the sides of the same and insulated from the body portion thereof, substantially as and for the purpose described.

2. A trolley having a contacting body portion and plates fixed to the same but insulated therefrom provided with teeth substantially as set forth.

3. A trolley consisting of a body portion 10 having a concave contacting surface 11, plates 7 fixed to the opposite sides of the same but insulated therefrom, teeth 4 formed in the said plates the edges of which are convex and having outwardly flaring inner surfaces, and bolts 12 passed through the said plates and said body portion for uniting the several parts, substantially as set forth.

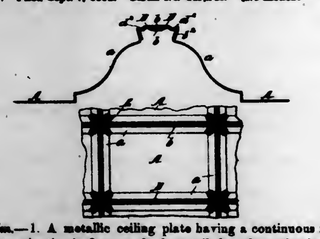
489,235. DENTAL APPARATUS. ALVAN S. ROBINSON, New York, N. Y., assignor to John S. Bayley, same place. Filed June 13, 1891. Serial No. 396,022. (No model.)

489,235.



Claim.—A portable dental instrument of the class described comprising a bent tube, a heat retaining bulb mounted on the tube, a chamber to one end of which the tube is secured, an attaching device connected to the chamber, a tube connected to the other end of the chamber, a valve formed in the chamber, a force bulb and a receiving chamber connected to the force bulb and to the tube, substantially as described.

489,236. METALLIC CEILING-PLATE. LOUDLEY L. SAGENDORPH, Philadelphia, Pa., assignor of one-half to Charles H. Harder, Phimont, N. Y. Filed Sept. 7, 1892. Serial No. 445,240. (No model.)



Claim.—1. A metallic ceiling plate having a continuous raised molding terminating in flanges of a dove-tailed configuration in cross-section, substantially as set forth.

2. A metallic ceiling plate having side interlocking flanges, the latter having raised beads D of a serpentine outline intersecting and crossing each other as shown, said beads on one plate being adapted to overlap corresponding beads on an adjacent plate, substantially as set forth.

3. A metallic ceiling plate having a continuous raised molding terminating in interlocking flanges, b b^3, the top face of portion b being provided with raised beads, substantially as specified.

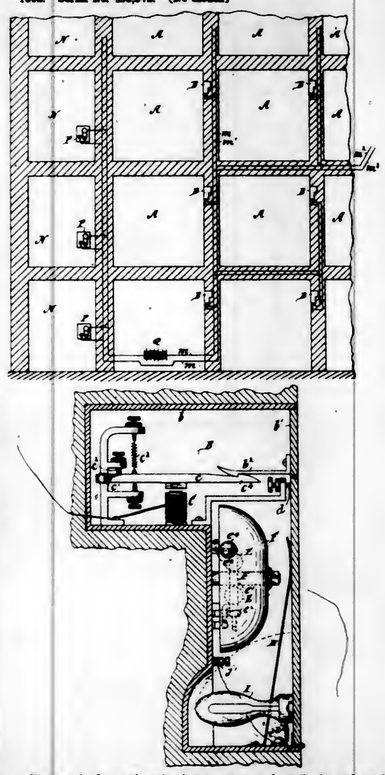
4. A metallic ceiling consisting of plates having a continuous raised molding terminating in interlocking flanges, the flange at one side of a plate interlocking with the flange on the side of the adjacent plate, the corners of said plates being covered with rosettes having arms c and interlocking flanges c^3, substantially as set forth.

5. A metallic ceiling plate having interlocking flanges b with beads D formed thereon, in combination with a metallic rosette having arms c adapted to engage with said flanges, said arms having beads D' on their top faces corresponding in outline with beads D, substantially as set forth.

6. A metallic ceiling plate having a continuous raised molding a terminating in flanges b, the latter having on their top faces the beads D, and a continuous flat portion or shoulder d^3 at each side of said beads, the flange thus formed being adapted to overlap a correspondingly formed flange on an adjacent plate, substantially as set forth.

7. A metallic ceiling made up of plates A, each plate having a continuous raised molding terminating in a flange interlocking with a like flange on the adjacent plate, with a single block H beneath the corners thereof, and a rosette over the corners of the plates, the latter being connected to said block, substantially as set forth.

489,237. FIRE-ALARM. WILLIAM J. SCHWEBKE, New York, N. Y., assignor of one-half to Herman Apfelbaum, same place. Filed July 11, 1892. Serial No. 439,572. (No model.)



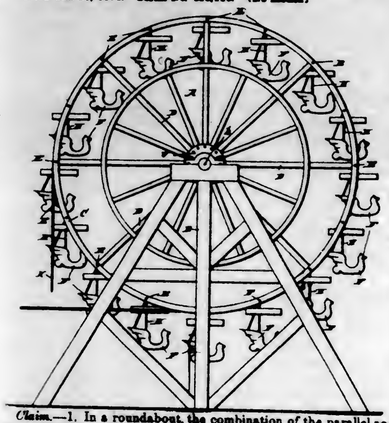
Claim.—1. In an electric alarm system as described an alarm bell for the several apartments inclosed in a casing concealed in a wall and having a door adapted to open on an electrical alarm and display printed instructions for escaping, the said casing having an electric light lamp arranged therein and capable of being lighted simultaneously with the opening of the door substantially as described.

2. In combination the bell F detachably secured to a post extending from the casing b, the magnets E supported by the casing b and having an armature c' provided with a hammer arranged to act on the exterior of the bell, and circuit-breaking mechanism as described, the latter and the magnets E being wholly inclosed within the dome of the bell substantially as described.

3. In an electrical fire alarm system the instrument B comprising a casing let into a wall, a door therefor provided with printed instructions in case of fire, and arranged flush with the wall to form a part thereof in appearance, a magnet arranged to act on a catch as c to release the door, a make and break magnet as E for sounding an alarm bell, an electric light lamp secured to the door, and circuit wires connecting the lamp and magnets to the main circuit wires to operate simultaneously, substantially as described.

4. In an electric fire alarm system as described, an alarm bell for the several apartments, inclosed in a casing concealed in a wall and having a door adapted to drop on an alarm of fire and display printed instructions for escaping substantially as described.

489,238. ROUNDABOUT. WILLIAM SOMERS, Atlantic City, N. J. Filed Oct. 26, 1891. Serial No. 410,110. (No model.)



Claim.—1. In a roundabout, the combination of the parallel annular rims, their braces, and a peripheral series of cross ties forming suspension rods, the carriages suspended from said rods, the continuous grooves in the peripheries of said rims, and the double parallel driving cables working in said grooves, substantially as specified.

2. In a roundabout, the combination of the parallel annular rims, the continuous grooves in the peripheral faces of said rims, the double parallel driving cables working in said grooves, and the series of carriages suspended between said rims and cables, substantially as specified.

3. The combination with the rotary, circular vertical frame, arranged to turn on a horizontal axis, and having grooves in its peripheral rims, of the driving gear for said frame, said gear comprising the double driving cables working in the grooves in said peripheral rims, and actuated by grooved wheels on the driving shaft, substantially as specified.

4. The combination with the rotary, circular, vertical frame, having the peripheral rims grooved on their outer edges, of the driving gear for said frame, said gear comprising double endless cables working in said grooves, the grooved wheels L, L', carrying said cables, one pair for each cable, and carried by a common driving shaft, the idlers and tighteners for said cables, and the brake device, substantially as specified.

5. In a roundabout comprising a circular rotary frame having the outer parallel rims supported from the hub portion, said rims consisting each of the following parts; the annular rings S, S, secured together and composed each of a series of lap jointed segments, the veneers S^2, and the peripheral pieces s', s' forming the grooves for the driving cables, substantially as specified.

489,239. CRANBERRY-GATHERER. JOSEPH R. STURDY, Yarmouth, Mass. Filed Dec. 24, 1891. Serial No. 416,073. (No model.)



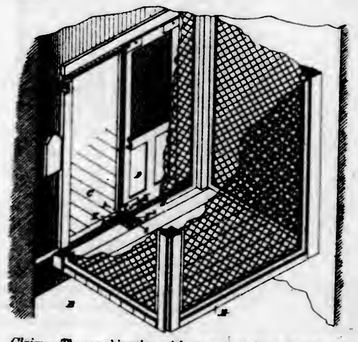
Claim.—1. An implement for gathering cranberries, consisting of a receptacle A which is open on its upper side, and has an outwardly rounded bottom extending from its front to its rear end, so that said receptacle can be rocked on said bottom, in combination with a fixed flange b projecting from the forward edge of the receptacle a series of separated teeth f held on and upwardly and forwardly projected from said flange, and a rearward projected handle g all as described, for the purposes specified.

2. In an apparatus for gathering cranberries, the combination with an upwardly open receptacle having rearwardly projected a handle, and forwardly from its edge a series of separated teeth, of a rake device, consisting of a bar having a handle, a series of teeth and the guard, substantially as and for the purposes set forth.

3. A rake for the purpose substantially as set forth, consisting of a bar having a rearwardly extended handle, and a series of teeth which are downwardly extended from the forward edge of the bar, being arranged in a centrally prominent curve, substantially as described.

4. A rake, for the purpose substantially as set forth, consisting of a bar or head having a handle, and its forward edge convex, a series of teeth downwardly extended from said convex edge, with their extremities forwardly turned and the guard plate downwardly extended from the rear of the bar, substantially as described and shown.

489,240. ATTACHMENT FOR ELEVATORS. ROBERT SUTHERLAND, Boston, Mass. Filed Sept. 15, 1891. Serial No. 405,774. (No model.)



Claim.—The combination with an up and down moving elevator platform, and a vertical, but horizontally sliding door at the floor-landing for the elevator, of a horizontally extended projection E which is secured to and is projected from said door beyond the floor-landing and toward, but not into the vertical pathway of said platform and presents exposed vertical abutment faces E^3, E^3 transversely to and off from the inner side of said sliding door, and beyond the floor-landing, and a horizontal sliding spring-bolt F which is mounted on and normally projects from said platform into the vertical plane of said door-projection E and has a beveled head F^4 to act in co-operation with said abutment faces of said door projection, all as described, for the purposes specified.

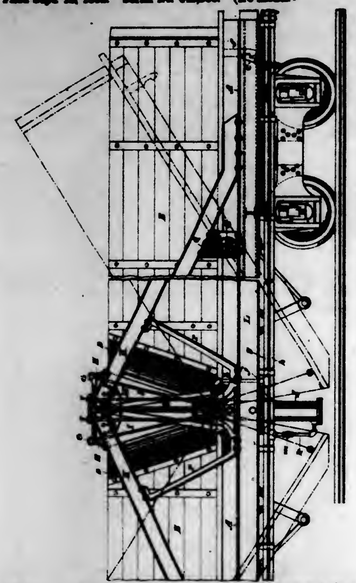
489,241. BATHTUB. WILLIAM H. TEMPLETON, Indianapolis, Ind. Filed Mar. 30, 1892. Serial No. 427,143. (No model.)



Claim.—1. A bath tub having a flanged top, brackets secured thereto on either side extending downward and conforming in shape to the sides of such tub, feet formed on their lower ends, and arms extending under the tub with recesses therein, and a stiffening piece with its ends secured in such recesses, whereby the brackets are connected together and the tub is braced and supported at its top, sides and bottom, substantially as shown and described.

2. A bath tub comprising in combination an outer body and metallic lining, a non-conducting material interposed between the two, a stiffening piece connected longitudinally to the lower part of such casing, suitable brackets extending up on either side of the tub conforming in shape thereto and secured to the tub and its stiffening rail at the top, feet formed on the lower ends of such brackets, and arms beneath the tub connecting each pair of such brackets and supporting such stiffening pieces, substantially as shown and described.

489,242. DUMPING-CAR. WILLIAM A. TEAGUER, New York, N. Y. Filed Sept. 12, 1892. Serial No. 445,998. (No model.)



Claim.—1. In a car, the tilting sections B B mounted on transverse rods, and having the inwardly and upwardly and outwardly inclined facing ends D D combined with the guides F, the independent doors E and the links suspending said doors; substantially as and for the purposes set forth.

2. In a car, the combination of the tilting sections mounted on transverse rods, the longitudinal beams L, the truss beams K K secured to said beams L and the brace beams P intermediate of the beams K, L, substantially as set forth.

3. In a car, the combination of the tilting sections mounted on transverse rods, the longitudinal beams L, the truss beams K K secured to said beams L, the brace beams P intermediate of the beams K L, the plates M secured to the angle of the truss beams, and the rods N intermediate of said plates and the beams L, substantially as set forth.

4. In a car, the tilting sections B, B, combined with the suspended doors E, and compressed air mechanism connected with said sections for tilting the same, substantially as set forth.

5. In a car, the tilting sections B, the doors E, and the links suspending said doors, combined with the dumping cylinders having pistons and rods, and link connections intermediate said rods and said sections for imparting movements from the former to the latter; substantially as set forth.

6. In a car, the tilting sections B, B, combined with the dumping cylinder having the piston and rod, and the links connecting said rod with both of said sections; substantially as set forth.

7. In a car, the tilting sections B, B, having doors at their facing ends, combined with the cylinders R, S, at opposite sides of the car, the piston rods, and the links *a*, *a*, connecting said rods with both said sections at opposite sides of the car; substantially as set forth.

8. In a car, the tilting sections B, B, having doors at their facing ends, combined with the cylinders R, S, at opposite sides of the car, the piston rods X therefor, the cross heads Y carried by said rods, the vertical guide rods for said cross heads, and the links intermediate said piston rods and said sections; substantially as set forth.

9. In a car, the tilting sections and the independent suspended doors therefor, combined with latches for locking said sections in their horizontal position, compressed air mechanism for freeing said latches, and compressed air mechanism for tilting said sections; substantially as set forth.

10. In combination with the tilting body of a dumping car, the dumping cylinder having a piston and rod for tilting said body, inlets at the opposite ends of said cylinder, and a release valve for releasing the air from one side of the piston when air is admitted to the other side thereof, substantially as set forth.

11. In combination with the tilting body of a car, the dumping cylinder having a piston and rod for tilting said body, inlets at the opposite ends of said cylinder, and a double acting release valve intermediate said inlets and ports and admitting the air to one side of the piston and releasing it from the other side thereof; substantially as set forth.

12. In combination with the tilting body of a car, the dumping cylinder having a piston and rod for tilting said body, inlets at the opposite ends of said cylinder, the main pipe lines connected with said inlets, the latch cylinder connected in the main pipe line supplying air to tilt the car body, and the latch connected with the piston rod of said latch cylinder; substantially as set forth,

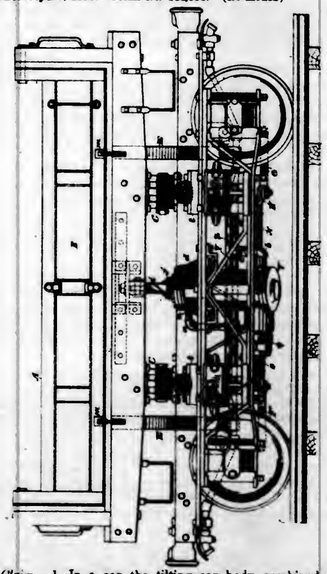
13. In combination with the tilting body of a car, the dumping cylinder having a piston and rod for tilting said body, inlets at the opposite ends of said cylinder, the main pipe lines feeding said inlets, the release cylinder intermediate said inlets and having an exhaust port, and the release valve therein exposed to the force of the air and admitting air to one inlet while exhausting it from the other inlet; substantially as set forth.

14. In combination with the tilting body of a car, the dumping cylinder having a piston and rod for tilting said body, inlets at opposite ends of said cylinder, and the latch and release valve cylinders intermediate said inlets; substantially as and for the purposes set forth.

15. The main cylinder having a piston and rod, and inlets at each end of said cylinder, combined with an automatic release valve intermediate said inlets and admitting air to one inlet while releasing it from the other inlet; substantially as set forth.

16. In combination with the tilting body of a car, the dumping cylinder having a piston and rod for tilting said body, the release valve cylinder, the main pipe lines leading to opposite ends of said cylinder, the latch cylinder, the pipe leading from the release valve cylinder to the latch cylinder, and the pipes leading from the latch and release valve cylinders to the opposite ends of the dumping cylinder; substantially as set forth.

489,243. DUMPING-CAR. WILLIAM A. TEAGUER, New York, N. Y. Filed Sept. 2, 1892. Serial No. 444,859. (No model.)



Claim.—1. In a car, the tilting car body, combined with the dumping cylinder, the piston therein having the hollow extension passing through the head of said cylinder, the hinged connecting rod operated by said piston, and pipe connections leading to said cylinder; substantially as set forth.

2. In a car, the tilting car body, combined with the dumping cylinder, the piston therein having the hollow extension passing through the head of said cylinder, the hinged connecting rod within said hollow extension, and the main supply pipes leading to the opposite ends of said cylinder; substantially as set forth.

3. In a car, the pivotally mounted car body and means for tilting said body to dump its load, combined with the pivoted latches engaging said body to lock it in a horizontal position, the auxiliary cylinder having a piston and rod, and mechanism intermediate said rod and said latches for imparting motion from the former to the latter; substantially as set forth.

4. In a car, the pivotally mounted car body and means for tilting the same to dump its load, combined with the pivoted latches engaging said body to lock it in a horizontal position, the auxiliary cylinder and intermediate connections for freeing said latches from the car body, and the spring for reengaging said latches; substantially as set forth.

5. In a car, the pivotally mounted car body and means for tilting the same to dump its load, combined with the downwardly extending curved bar secured to the bottom of the car body, the pivoted latch engaging the same, the auxiliary air cylinder connected with said latch to operate the same, and the pipe connection leading to said cylinder; substantially as and for the purposes set forth.

6. In a car, the pivotally mounted car body and means for tilting the same, combined with the downwardly extending curved bar secured to the bottom of the body, the pivoted latch engaging the same, the auxiliary air cylinder connected with said latch to operate the same, the pipe connection leading to said cylinder, and the spring acting on said latch; substantially as set forth.

7. In a car, the pivotally mounted car body having the downwardly extending curved bars, combined with the pivoted latches engaging said bars, leverage mechanism connecting said latches, and the auxiliary air cylinder connected with said mechanism for simultaneously operating said latches; substantially as set forth.

8. In a car, the pivotally mounted body having the downwardly extending curved bars, combined with the pivoted latches engaging said bars, the levers J, K, connected together by the rod N and by links with said latches, the spring T connected with said levers, and the air cylinder having its piston rod also connected with said levers; substantially as set forth.

9. In a car, the body pivotally mounted on the truck to tilt to either side, combined with the dumping cylinder, the piston therein, the hinged rod connecting said piston and body, and pipe connections leading to both ends of said cylinder, the dimensions and relative relation of the parts being such that the position of the piston will be at the middle of the cylinder when the car body is in a horizontal position and that the body may be tilted to either side under the action of the air in the said cylinder; substantially as and for the purposes set forth.

10. In a car, the pivotally mounted car body, and means for securing the same in horizontal position, combined with compressed air mechanism for releasing said body, the dumping cylinder with compressed air connections leading thereto, and the piston within said dumping cylinder and connected with the car body; substantially as set forth.

11. In a car, the pivotally mounted car body, combined with the dumping cylinder for tilting the said body to dump its load, the latch engaging said body to lock it in a horizontal position, the auxiliary air cylinder having a piston and rod the latter being connected with said latch, and pipe connections for compressed air leading to said cylinders, substantially as and for the purposes set forth.

489,244. SELF-GENERATING GAS OR VAPOR BURNER. ROBERTSHAW WALLWORK and ARTHUR C. WELLS, Manchester, England. Filed Sept. 26, 1892. Serial No. 446,947. (No model.) Patented in England June 27, 1891, No. 11,091.

Claim.—1. An illuminating apparatus comprising an oil and compressed air reservoir, a self-generating vapor burner, a valved oil supply pipe connected with the burner and with the oil space of the reservoir, and a valved air duct connected with the air space of the reservoir and with the oil supply pipe whereby carbureted air or oil or both may be supplied to the burner from the reservoir through the oil supply pipe, for the purpose set forth.

2. An illuminating apparatus comprising an oil and compressed air reservoir, a self-generating vapor burner, a valved supply pipe connected with the burner and with the oil space of the reservoir, a valved outlet interposed in the supply pipe between the burner and reservoir, and a valved air duct connected with the said supply pipe and the air space of the reservoir, for the purpose set forth.

3. In an illuminating apparatus, the combination with an oil reservoir, a self-generating vapor burner, an oil supply pipe connected with the burner and reservoir, and a regulating valve for controlling the supply of oil to the supply pipe, of a valved outlet connected with the supply pipe at a point intermediate of its terminals, and means for supplying air under pressure to the supply pipe below the valved outlet, for the purpose set forth.

4. In an illuminating apparatus, the combination with a self-generating vapor burner, an oil and compressed air reservoir, and a supply pipe connected with the burner and reservoir, of a valve casing interposed in the supply pipe and provided with valved air and oil supply passages whereby either oil or air or both may be admitted to the supply pipe from the reservoir, for the purpose set forth.



5. In an illuminating apparatus, the combination with a self-generating vapor burner, a compressed air and oil reservoir, and a supply pipe connected with the burner and oil space of the reservoir, of a valve casing in said supply pipe provided with a valve for controlling the supply of oil to the pipe, and with a valved air duct connecting said pipe with the air space of the reservoir, for the purpose set forth.

6. In an illuminating apparatus, the combination with a self-generating vapor burner, an oil and compressed air reservoir, and a supply pipe connected with the burner and provided with a valved outlet branch intermediate of its terminals, of a valve casing provided with a valved oil duct connected with the supply pipe and extending nearly to the bottom of the reservoir, and with a valved air duct also connected with said supply pipe and opening into the upper part of said reservoir, substantially as and for the purpose set forth.

7. In an illuminating apparatus provided with a self-generating vapor burner, the combination with said burner of a flame confining or baffle plate adapted to be applied to the flame exit passage of the burner, a casing encompassing the jet or burner nozzle and its connections with the generator, and a chimney encompassing the said generator, substantially as and for the purpose set forth.

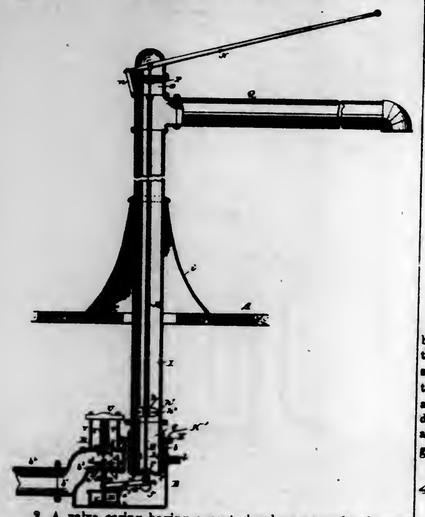
8. In an illuminating apparatus, the combination with an oil and compressed air reservoir, a self-generating vapor burner, means for baffling or confining the flame of the burner about the generator, and a valved oil supply pipe connected with the burner and reservoir, of a valved air supply passage connected with said reservoir and supply pipe, for the purpose set forth.

9. In an illuminating apparatus, the combination with an oil and compressed air reservoir, a self-generating vapor burner, means for baffling or confining the flame of the burner about the generator, and a valved oil supply pipe connected with the burner and reservoir and provided with a valved outlet duct at a point between the burner and the oil controlling valve in said pipe, of a valved air supply passage connected with said reservoir and supply pipe, for the purpose set forth.

489,245. LOCOMOTIVE STAND-PIPE. ROBERT H. WHITE, Kingston, N. Y. Filed May 20, 1892. Serial No. 433,726. (No model.)

Claim.—1. The combination with the valve casing having a valve seat and connected with water supply and discharge pipes; of the main valve working over said seat and provided with a central integral perforated guide, a water passage surrounding the perforated guide, an integral raised valve seat surrounding the water passage, depending

guide flanges moving in the main valve opening, and a flexible valve cushion having a rounded bearing annulus adapted to contact with the casing seat, a water-cushioned piston valve-stem or rod moving through the central perforated guide of the main valve and having its shoulder moving to and from said guide, an auxiliary closed valve fixedly mounted on the upper end of said stem to cover and uncover the opening through the main valve, said auxiliary valve having a rounded bearing annulus adapted to contact with the integral raised valve seat of the main valve, and means for reciprocating the piston stem or rod so that the shoulder thereof engages the guide after the auxiliary valve has been lifted above the main valve, substantially as set forth.



2. A valve casing having a central valve seat, a closed water cushion chamber mounted within said casing below said seat and provided with top and bottom water openings, an open valve working over said valve seat, a valve stem projecting into said water chamber and working through and against the main valve, an auxiliary valve mounted upon the upper end of said valve stem, and a cushion piston head mounted upon the lower end of said stem within the water chamber, substantially as set forth.

3. The combination of a valve casing connected with water supply and discharge pipes and having an inner valve seat, a valve working over said valve seat, a supplemental valve seat secured to the top of the casing in a line directly above the inner valve, opposite rods extended above said supplemental valve seat and having upper threaded ends, a vertically movable cross-head loosely working on said rods, adjusting nuts engaging the upper ends of said rods and bearing on the ends of said cross-head to adjust the same, a relief valve working over said supplemental valve seat and having depending guide flanges working through the valve opening in said supplemental seat, and a rounded cushion annulus bearing upon the seat, and a spring interposed between the top of said relief valve and said cross-head, and adapted to be regulated in tension by the latter, substantially as set forth.

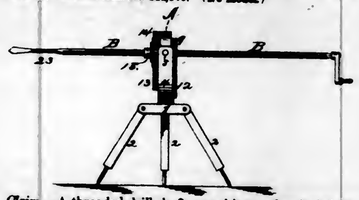
4. In a stand pipe, the valve casing having a discharge neck, the cushioned valves working in said casing, the upright discharge pipe supported at its lower end to rotate within the discharge neck of said valve casing, a lever actuated air cushioned rod working through said upright pipe and connected at its lower end within the casing to a swivel head, and an operating lever pivotally mounted within the casing and connected at one end to said swivel head and at the other end with said cushioned valves, substantially as set forth.

5. In a stand pipe, the combination with the valve casing, the main and auxiliary valves working within said casing, the water cushioned valve stem connected with said valves, the upright discharge pipe supported at its lower end to rotate within said casing and provided at its upper end with an air chamber, an operating rod passing through said upright pipe, and carrying an air cushioned piston working within said air chamber and an oscillating lever connected with said valve stem and operating rod, substantially as set forth.

6. In a stand pipe, the combination with the valve casing having a discharge neck, opposite inwardly beveled supporting rollers secured to opposite inner sides of the casing within said neck, a rotating and vertically movable upright discharge pipe having side inlet and drain openings, a lower closed base working within the neck of said casing and provided with a lower surrounding beveled edge or track resting upon said beveled supporting rollers, and a drain valve, substantially as set forth.

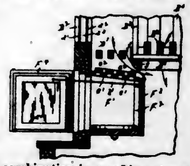
7. In a stand pipe, the combination of a valve casing having a discharge neck, opposite inwardly beveled supporting rollers secured to opposite inner sides of the casing within said neck, a rotating and vertically movable upright discharge pipe having a lower closed base working within said neck and provided with side openings, a centrally raised bottom or base and a lower surrounding beveled edge or track following the contour of the centrally raised base and resting upon and traveling over said supporting rollers, and a side drain valve, substantially as set forth.

489,246. MINING-DRILL. JAMES F. BUTLER, Scranton, Pa. Filed Sept. 2, 1892. Serial No. 444,879. (No model.)



Claim.—A threaded drill shaft, a rocking and swiveled journal body carrying the same, a drive gear upon said shaft and rotated thereby, a double-faced and reversible geared and threaded nut upon said shaft, means to rotate said nut differentially by the rotation of the drive gear, and an angular bar pivotally mounted in said body, and provided with arms, one of which detachably engages with said drive-gear to hold it in or out of engagement and the other detachably engages with said nut to retain it in proper relation to the drive gear and drill shaft.

489,247. REFRIGERATOR. JOHN M. CLARKIN, St. Paul, Minn. Filed Aug. 15, 1892. Serial No. 443,126. (No model.)



Claim.—The combination in a refrigerator of compartments F having solid side and bottom walls, and with outer doors F^4 and inner doors F^5 connected by rods h' so that the opening of the outer door will close the inner door, the upper or top wall of said compartments formed of parallel slats c' and a frame composed of corresponding slats c^2, and adapted to be actuated by the opening and closing of said doors, to cover and uncover the spaces between the slats forming the top wall of said compartments, substantially as and for the purpose set forth.

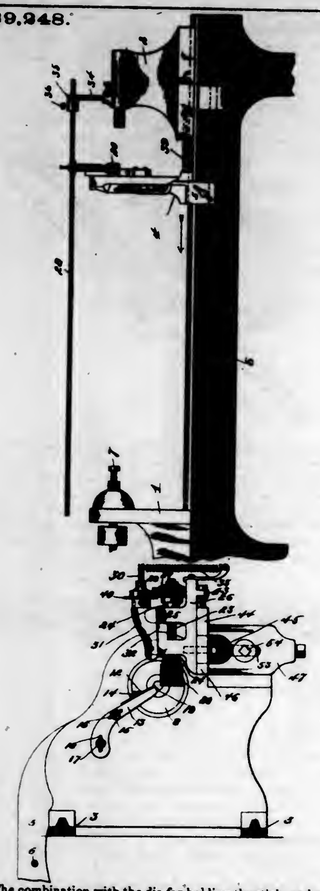
489,248. TURNING-LATHE. MILTON W. DOTY, Chicago, Ill. Filed Dec. 15, 1891. Serial No. 415,111. (No model.)

Claim.—1. The combination with the die for holding the stick and means for revolving the stick, of a roughing knife arranged on one side of the die in juxtaposition thereto, a rotary pattern knife arranged opposite said roughing knife and a rigid supporting shoulder located in close proximity to the opening in said die, and opposite and adjacent to said pattern knife, substantially as set forth.

2. The combination with the die for holding the stick, and means for revolving the stick; of a roughing knife, a shoulder arranged in close proximity to the opening in said die for supporting the stick as it leaves the die, and a rotary cutter arranged opposite said shoulder, substantially as set forth.

3. The combination with the die for holding the stick, and means for revolving the stick; of primary and secondary roughing knives, a supporting shoulder having a rounded bearing surface for the stick, coincident with the opening in the die, and being arranged in close proximity thereto and a rotary cutter arranged opposite said shoulder, substantially as set forth.

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4. The combination with the die for holding the stick, and means for revolving the stick; of the roughing knives, a stock to which one of said roughing knives is secured, having a supporting shoulder for the stick as it leaves the die, and a rotary cutter adjacent to said shoulder, substantially as set forth.

5. The combination with a carriage and a rotary cutter journaled therein, of an adjusting screw connected with said cutter for moving it in axial direction, and a second adjusting screw connected with said cutter for moving it in a diametric direction; substantially as set forth.

6. The combination with a roughing mechanism, and means for revolving the stick; of a rotary cutter, a casting upon which said cutter is mounted, a second casting upon which the first casting is supported, said castings being respectively adjustable axially and diametrically of the cutter, transversely of the stick, set screws for locking said castings in their adjusted positions and adjusting screws fixed with capability of rotating, having their ends connected with said castings respectively, substantially as set forth.

7. The combination with a tail-stock, means for revolving the stick, and a rotary cutter head provided with a pinion or gear wheel, of a horizontally movable rack engaging said pinion and being connected with said tail-stock, and adapted to move in unison therewith, substantially as set forth.

8. The combination with a roughing mechanism the tail-stock and means for revolving the stick; of a rotary cutter head provided with a pinion 27, a casting upon which said cutter head is mounted, a rack carried by said tail-stock for engaging said pinion 27, and a spring for holding said rack and pinion in engagement, substantially as set forth.

9. The combination with a roughing mechanism, the tail-stock and means for revolving the stick; of a rotary cutter head having a pinion 27, a casting upon which said cutter head is mounted, a rack carried by said tail-stock for engaging said pinion, a wheel pivotally mounted on said casting, and a spring for holding said wheel against the said rack, substantially as set forth.

10. The combination with a roughing mechanism and means for revolving the stick, of a carriage, a rotary cutter mounted on said carriage, a rack for rotating said cutter and a flanged wheel on said carriage, for supporting said rack, substantially as set forth.

11. The combination with a roughing mechanism and means for revolving the stick, of a carriage, a rotary cutter mounted on said carriage, a rack for rotating said cutter, means for moving said rack and cutter in unison and a flanged wheel on said carriage for supporting said rack, substantially as set forth.

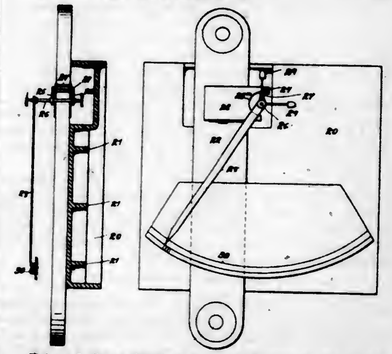
12. The combination with a roughing mechanism, and means for revolving the stick, of a carriage, a rotary cutter mounted upon said carriage, a pinion for rotating said cutter a longitudinally movable rack yieldingly held in engagement with said pinion, and means for moving said cutter and rack in unison longitudinally substantially as set forth.

13. The combination with a roughing mechanism, and means for revolving the stick, of a carriage, a rotary cutter journaled rigidly upon said carriage, a pinion for rotating said cutter a longitudinally and transversely movable rack yieldingly held in engagement with said pinion, and means for moving said rack and cutter in unison longitudinally substantially as set forth.

14. The combination with a roughing mechanism, and means for revolving the stick; of a carriage, a rotary cutter mounted on said carriage, the tail stock having a stop adapted to strike said carriage, and a rack carried by the tail stock, and means for rotating said cutter by engagement with said rack, substantially as set forth.

15. The combination with a roughing mechanism, a die and means for revolving the stick, of a carriage in which said die is mounted, a rotary cutter journaled on said carriage and having a pinion, an arm pivoted to said carriage, a flanged wheel journaled on said arm, a rack resting on said wheel and engaging said pinion, and a spring for forcing said wheel and rack toward said pinion, substantially as set forth.

489,249. ELECTRICAL MEASURING-INSTRUMENT. JOHANNES H. F. OTTENS, Berlin, Germany, assignor to Siemens & Halske, same place. Filed Oct. 27, 1892. Serial No. 450,137. (No model.) Patented in Germany Aug. 29, 1888, No. 47,864.



Claim.—1. In an electrical measuring instrument, the combination of a conductor, a portion of magnetic material attached thereto, having a semi-circular cavity in one end thereof, an armature mounted upon a shaft and adapted to move concentrically with the inner surface of the cavity, when influenced by a current transmitted through the conductor, a scale, and an index pointer to which motion is transmitted from the armature.

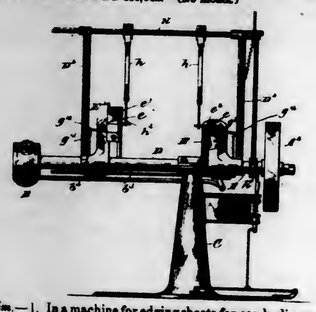
2. In an electrical measuring instrument, the combination of a conductor, a portion of magnetic material, having a semi-circular cavity in one end thereof, and so connected and related to the conductor that lines of force will be produced therein at right angles to the direction of the current flowing in the conductor, an armature mounted upon a shaft and adapted to move concentrically and to cut the lines of force through the cavity when influenced by a current transmitted through the conductor, a scale, and an index pointer to which motion is transmitted from the armature.

3. In an electrical measuring instrument, the combination of a

conductor, a portion of magnetic material attached thereto, an armature so placed as to be attracted by the line of force set up in said portion of magnetic material by the current transmitted through the conductor, and means for visibly indicating the degree of attraction exerted by the magnetic portion upon the armature.

4. In an electrical measuring instrument, the combination of a conductor, a portion of magnetic material attached thereto and provided with means for equalizing the distribution of magnetism thereon, an armature so placed as to be attracted by the lines of force set up in said portion of magnetic material by the current transmitted through the conductor, and means for visibly indicating the degree of magnetic attraction exerted by the magnetic portion upon the armature.

489,250. MACHINE FOR MAKING CANS. ROBERT GIBBS, Chicago, Ill., assignor to the Fairbank Canning Company, same place. Filed Dec. 30, 1891. Serial No. 416,612. (No model.)



Claim.—1. In a machine for edging sheets for can bodies, a frame, two boxes secured thereon, rotatable formers arranged within the boxes, clamping-jaws located contiguous to the formers, and an ejecting device adjacent to the said jaws.

2. In a machine for edging sheets for can bodies, a frame, two boxes secured thereon, rotatable formers arranged within the boxes, clamping-jaws located contiguous to the formers, an ejecting device adjacent to the said jaws, and guides connecting with the boxes.

3. In a machine for edging sheets for can bodies, a frame, two boxes secured thereon, rotatable formers arranged within the boxes, said formers being arranged one above and one below a horizontal line drawn through both boxes, clamping jaws located contiguous to the formers, and an ejecting device adjacent to the said jaws.

4. In a machine for edging sheets for can bodies, a frame, two blank-receiving boxes secured thereon, formers arranged within the boxes, a cam and gear mechanism carried by each former, a shaft carrying clamping-jaws projecting within the boxes, and arms carried by the shaft and engaging the cams, whereby the clamping-jaws are closed and the formers are rotated at one operation.

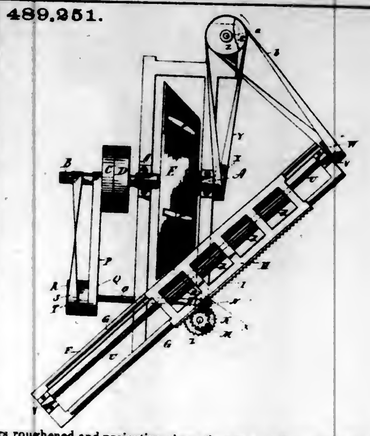
5. In a machine for edging sheets for can bodies, a frame, two boxes secured thereon, rotatable formers arranged within the boxes, a cam and gear mechanism carried by each former, a shaft carrying clamping-jaws projecting within the boxes, arms carried by the shaft and engaging the cams, and a rock-shaft carrying spring-fingers for ejecting the finished blank from the machine.

489,251. ROSSING-MACHINE. WILLIAM HADLEY and AUGUSTINE P. MCDONALD, Shelton, Conn., assignors of one-third to William Wilkinson, same place. Filed July 11, 1892. Serial No. 439,594. (No model.)

Claim.—1. In a rossing-machine, the combination of a revolving cutter-head, a carriage arranged upon a track in substantially the plane of the driving-shaft, but diagonally thereto, mechanism substantially such as described for imparting a backward and forward movement to said carriage, rollers arranged to travel with the said carriage, the axis of the rollers being parallel with the path of movement of the carriage, mechanism substantially such as described for imparting revolution to said rollers while so moving with the carriage, and substantially as specified, whereby the stick to be rossed may be placed upon said carriage and receive a rotative movement as the said carriage advances the stick with surface contact with said revolving cutter-head.

2. The combination of a driving-shaft, a cutter arranged thereon and so as to revolve therewith, a track arranged in a plane substantially parallel with the plane of said shaft, a carriage on said track, a longitudinal shaft parallel with said carriage, rollers on said shaft, arranged to partake of the revolution of said shaft, but also adapted to move longitudinally with the carriage, the surface of the said rollers roughened and projecting above the upper surface of the carriage, with mechanism substantially such as described to impart longitudinal backward and forward movement to said carriage and rotative movement to said roller-shaft and rollers, the said carriage and rollers being arranged in such relation to the revolving cutter-head that the stick placed upon the carriage will rest upon said rollers and receive a longitudinal movement from the carriage and rotative movement from said rollers, substantially as described.

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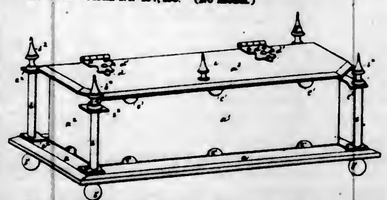
489,252. MANUFACTURE OF CHAIN-LINKS. WILLIAM H. HART, New Britain, Conn., assignor to the Stanley Works, same place. Filed July 20, 1892. Serial No. 440,660. (No model.)



Claim.—1. That improvement in the manufacture of drive chain links which consist of first forming a series of connected blanks side by side, each having the knuckle blank formed thereon, simultaneously forming the tongues for two or more links into knuckles and also simultaneously forming the pintle portions of two or more connected blanks, and then severing the blanks into individual chain links on lines that form the outer edge of the side bars, substantially as described and for the purpose specified.

2. The method of manufacturing chain links which consists in simultaneously rolling the hook or pintle portion of two or more connected blanks and simultaneously forming the pintle portion of two or more connected blanks, and then dividing the same into individual links by severing on a line that forms the outer edge of the side bars and end of the pintle portion, substantially as described and for the purpose specified.

489,253. BOX. JOSEPH HOLLELY, Brooklyn, N. Y. Filed June 21, 1892. Serial No. 437,453. (No model.)

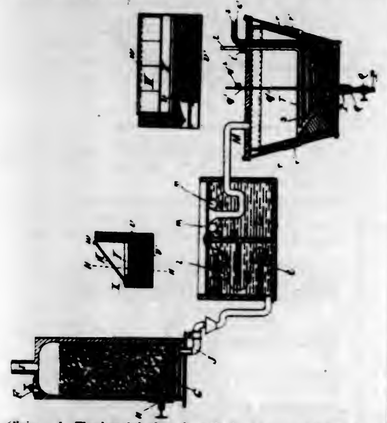


Claim.—1. The combination of a base plate with sides and ends, frames that grasp the edges of the sides and ends and have outwardly projecting lugs and with posts engaging such lugs and the base plate, substantially as specified.

2. The combination of a base plate with sides and ends set back from the edge of the base plate, frames that grasp the edges of the

sides and ends and have outwardly projecting lugs and with posts placed outside of the sides and ends and engage perforations in the lugs and the base plate, substantially as specified.

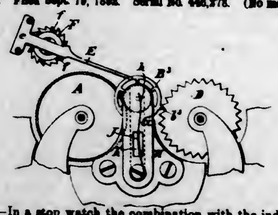
489,254. PROCESS OF AND APPARATUS FOR THE MANUFACTURE OF WHITE LEAD. ANDREW HOSKIAS and VICTOR VILLIER, Williamstown, Victoria. Filed May 26, 1891. Serial No. 394,492. (No model.) Patented in Victoria Sept. 24, 1890, No. 7,127, and in Tasmania Oct. 6, 1890, No. 367.



Claim.—1. The hereinbefore described process consisting of reducing and roasting the galena, subjecting it to hot neutral lead acetate, conveying the resultant basic lead acetate to a settling tank, discharging the clear solution of basic lead acetate to a closed vat and maintaining it at an even temperature, and subjecting it to the action of carbonic acid to precipitate the white lead, substantially as described.

2. The described apparatus consisting of a holder or receiver, a settling tank with connections from the receiver, a closed vat and a pipe connection from the surface of the solution in the settling tank to the vat, means for heating the contents of the vat, and means for supplying the carbonic acid thereto provided with a discharge, substantially as described.

489,255. STOP-WATCH. HENRI JACOT-BURMANN, Bienne, Switzerland. Filed Sept. 19, 1892. Serial No. 446,278. (No model.)

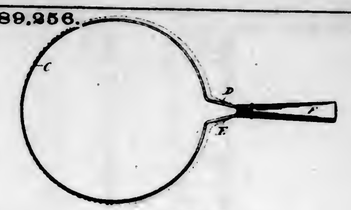


Claim.—In a stop watch the combination with the independent seconds hand and its arbor, of the pinion B and driving-wheel A both provided with teeth and beveled or conical on their adjacent edges, the bridge having a slot for the pivot of the arbor, the spring J acting against such pivot, the spring G for giving an end movement in one direction to the arbor, and the cam and spring E for moving the parts in the other direction, substantially as set forth.

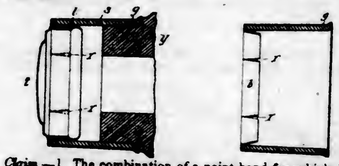
489,256. HANDLE FOR CULINARY VESSELS. EDWARD B. MANNING, Meriden, Conn., assignor to Manning, Bowman & Co., same place. Filed Oct. 15, 1892. Serial No. 448,961. (No model.)

Claim.—The herein described handle for culinary vessels, consisting of an elastic wire ring divided, the wire turned outward at the division to form elastic arms D E, extending from the ring, and permanently united by their outer ends to the handle F, but so as to leave the said arms D E, free for the expansion of the ring, substantially as described.

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489,257. DUST AND MUD CAP FOR VEHICLE-HUBS. JARED MARIS, Cincinnati, Ohio. Filed Apr. 12, 1892. Serial No. 428,861. (No model.)



Claim.—1. The combination of a point band for vehicle hubs of a dust and mud cap when the thimble in the front end of the band is formed of sheet metal and slotted to make springs to grip the tubular formed part of the cap to hold it in position substantially as set forth.

2. The combination of a point band of a dust and mud cap when the band has a groove or offset on its inside near its outer end of a dust and mud cap when the tubular shaped extension of the cap is provided with a bead or offset adapted to engage the shoulder in the band substantially as set forth.

3. The combination of a point band of a dust and mud cap when the sheet metal thimble of the band is slotted and the thimble of the cap is similarly slotted so as to re-enforce each other substantially as set forth.

489,258. ARTIFICIAL LIMB. GEORGE R. MARKS, New York, N. Y. Filed Aug. 6, 1892. Serial No. 442,317. (No model.)



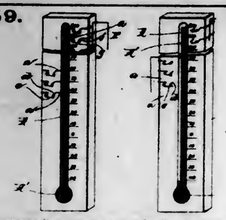
Claim.—1. The artificial limb having the lower and upper members A, B, said members being separated by an open space to receive the natural joint, combined with the links F pivotally secured at each end and connecting said separated members, and the abutting shoulders to prevent the links from turning unduly forward; substantially as and for the purposes set forth.

2. The artificial limb having articulated members, combined with the hinged joint connecting said members, said joint being composed of one arm having the apertured ears *d*, *d*, a second arm having its apertured end between said ears, the removable bushing *m*, having the exterior rib *n* and fitting the conforming aperture in said second arm, and the removable bushing *t* having the interior rib *w* and fitting the conforming surfaces of the screw or bolt of the said hinged joint, substantially as and for the purposes set forth.

489,259. THERMOMETER. HOMER F. MAXIM and JESSE M. PRICE, Norfolk, Va.; said Price assignor to Josiah Heubt, same place. Filed Mar. 12, 1891. Serial No. 384,709. (No model.)

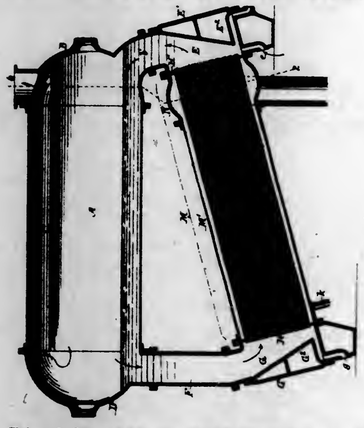
Claim.—1. A thermometer having a mercury bulb, a threaded rod carried by the said bulb and entering into the body of the mercury and engaging directly therewith to force it from the bulb, and the tube above the bulb having a series of metallic electric contacts, substantially as set forth.

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2. In a thermometer, a mercury tube having a series of electric contacts *a*, *a*, in the path of the mercury with terminals *d d*, in combination with terminals *c*, *c*, the terminals *d* and *c* being in pairs and those of each pair forming a spring and hook connection, substantially as set forth.

489,260. EVAPORATING APPARATUS. HENRY G. MORRIS, Philadelphia, Pa. Filed Jan. 16, 1892. Serial No. 418,223. (No model.)



Claim.—1. In a concentrator, the combination of a separating drum, chambered heads communicating therewith, inclined tubes connected to the said heads, whereby complete circulation is maintained, an inclined heating drum situated between the heads and incasing the tubes with a steam inlet, whereby steam is admitted to the drum to heat the liquid in the tubes, substantially as specified.

2. The combination of the separating drum A, the inclined tubes I, a heating drum M incasing said tubes, chambered heads E and G, communicating with the tubes, and deflectors E^3 and G^3, in said heads where the flow of liquid is directed with the least obstruction, substantially as specified.

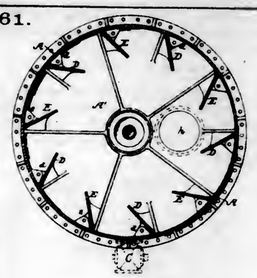
3. The combination of the separating drum A, a head B secured thereto, an outlet passage in said head, a chambered head E secured to the head B, and having an inlet for the liquid, a head D secured to the opposite end of the separating drum, a chambered head G connected to said head D, tube sheets H, H', circulating tubes secured to said tube sheets, and an inclosing casing for said tubes, substantially as described

4. The combination of the separating drum, chambered heads communicating with said separating drum, inclined tubes communicating with said chambered heads, and a drum M and coupling head N inclosing the tubes, said coupling head having an inlet passage for the heating fluid, substantially as described.

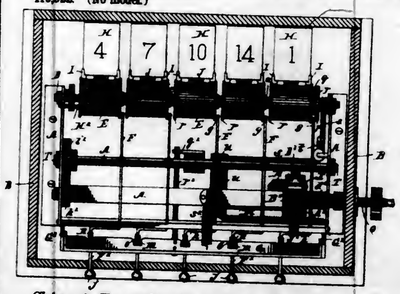
489,261. CHLORIDE-OF-LIME DISSOLVER. GEORGE M. NEWHALL and CHARLES L. HARRISON, Philadelphia, Pa. Filed Jan. 21, 1890. Serial No. 337,640. (No model.)

Claim.—The combination in a chloride dissolver of the cylindrical casing, heads thereon, supporting trunnions carried by said heads, mechanism for revolving the same, a water inlet in one of said heads, alternate plain and perforated blades secured to the inner periphery of the cylinder, and an inlet and an outlet for the chloride to be treated, substantially as specified.

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489,262. CARD-EXHIBITING MACHINE. WALTER H. PITT and GUSTAV SITTMANN, Brooklyn, N. Y. Filed Dec. 30, 1891. Serial No. 416,522. (No model.)



Claim.—1. The combination of the shaft D a cam and a sliding bar M actuated thereby, and connections between said bar and said shaft for turning it intermittently with the card drum loose thereon and having longitudinal motion thereon, a clutch for turning the drum with the shaft, and means for sliding the drum on the shaft to disconnect the clutch, substantially as described.

2. The combination of the shaft D, card drums loose thereon, and clutches for turning the latter by the former, card drums having teeth or serrations *l*, with rotating shafts F, having fingers *g* to engage the teeth or serrations *l* and to push the drums along the shaft, and with cranks or knobs on said rods for turning them, substantially as described.

3. The combination of the shaft D card drums loose thereon but rotatable therewith, rotary rods F, for sliding said drums on said shaft, means on said rods for turning them, spring pressed collars carried by said rods, and with the bar G, for holding said rods F, and means for moving said bar to release the rods F, substantially as described.

4. The combination of the shaft D, card drums E thereon, rods F, having cranks *h*, F^2, collars *m* pivoted rod G, to hold and release the rods F, arm r^4, projection g^2, and a coin controlled shaft for actuating the projection g^2, substantially as described.

5. The combination of the shaft O, cam N thereon, sliding rod M, actuated by said cam, spring *t*, cord or belt *s*, shaft D, drums E thereon and a sleeve and connections for turning the shaft by the action of the spring *t* and cord *s*, substantially as described.

6. The combination of the shaft O, cam N, ring *y* having slot a^3 independent shaft Q, having projection e^3, sliding bar M, shaft D, drums E thereon, and connections between said shaft and said bar M for turning the former by the latter, substantially as described.

7. The combination of the shaft O, carrying ring *y*, having slot a^3, with the independent shaft Q, having projection e^3, whereby the former will be turned by the latter when a coin is inserted, and with card exhibiting drums, a shaft carrying them, and connections between said shaft and the shaft O, for turning the former by the latter, substantially as described.

8. The combination of the shaft O, cam N thereon, ring *y* having slot a^3, sliding bar M, having toe g^3, and depression f^{13}, projection p^3 carried by bar M, shaft T geared to the shaft O, and cam U on the shaft T to engage the projection p^3, and with card exhibiting drums, a shaft carrying them, and connections between the shaft and bar M, for turning the former by the latter, substantially as described.

9. The combination of the shaft O, cam N, ring *y*, having slot a^3, shaft Q, having projection e^3, sliding bar M, projection p^3 carried thereby, shaft T, cam U thereon, and gears J^3 J^5, and with card exhibiting drums, a shaft carrying them, and connections between the shaft and bar M, for turning the former by the latter, substantially as described.

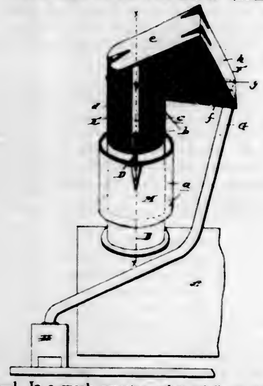
10. The combination of the shaft O, cam N, sliding rod M projection p^3, shaft T geared to the shaft O, cam U, shaft D, card drums E thereon and intermediate connections between the shaft D and bar M, whereby the shaft D can be given two independent turns for one coin, substantially as described.

11. The combination of the chute or channel A^2, having one side or portion independently movable, a shaft and a projection thereon for actuating said pivoted portion of the chute, substantially as described.

12. The combination of chute or channel A^2, having one side or portion independently movable, with a spring to hold the portion D^2, in position, a shaft and a projection thereon to actuate the portion D^2, substantially as described.

13. The combination of the chute A^2, having one side or portion D^2 pivoted, the lower part of the chute and the pivoted portion extending at an angle to the upper part of the A^2, the part D^2 having an opening at its back in line with the upper part of A^2 and with a shaft and a projection thereon to actuate the part D^2, substantially as described.

489,263. SPARK-ARRESTER. WILLIAM S. PITTMAN, Pierceville, Kans. Filed Apr. 15, 1892. Serial No. 429,375. (No model.)



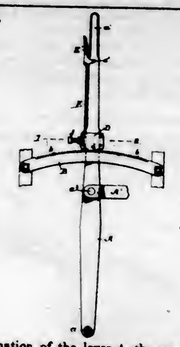
Claim.—1. In a spark arrester, substantially as described, the combination with a smoke stack, the gauze cylinder mounted upon the upper end thereof, and having the holes *b*, and also having its rear side cut away at its upper end, and the receiver fixedly connected to the upper end of the cylinder and comprising the bottom wall *f*, the rear wall *h* the side walls *g*, and the cover *e*, flexibly connected to the upper end of the wall *h*, and adapted to be detachably connected at its forward end to the cylinder; of the adjustable jacket of a greater diameter than the smoke stack mounted on said stack and having the inwardly directed annular flange at its lower end, and the hooks connected to the jacket and adapted to engage the holes of the cylinder, substantially as specified.

2. In a spark arrester and conductor, the combination of a smoke stack, the gauze cylinder mounted upon the upper end thereof and having the holes *b*, and also having its rear side cut away at its upper end, the receiver fixedly connected to the upper end of the cylinder and comprising the bottom wall *f*, the rear wall *h*, the side walls *g*, and the cover *e*, the jacket of a greater diameter than the smoke stack mounted on said stack and having the inwardly directed annular flange at its lower end, the hooks connected to the jacket and adapted to engage the holes of the cylinder, the receptacle H, and a pipe or conduit leading from the receiver to said receptacle, substantially as specified.

489,264. REVERSING-LEVER. JOHN PLAYER, Dunkirk, N. Y. Filed Aug. 17, 1892. Serial No. 443,208. (No model.)

Claim.—1. The combination of the lever A having slide ways at each edge, a block D embracing the lever and adapted to slide upon said slideways, a segment B having teeth in its upper edge, said block having teeth adapted to engage with the teeth of the segment, a connecting rod E, a lever F pivoted to the lever A, and a spring for depressing the block and throwing it into engagement with the segment B, substantially as described.

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2. The combination of the lever A, the segments B, B, one on each side of the lever, said segments having teeth, a slidable block mounted upon the lever and having teeth on each side to engage with the segments, with mechanism for throwing the teeth of the block into and out of engagement with the teeth of the segments, substantially as described.

3. The combination of a pivoted lever A, toothed segments B mounted on each side of the lever, a slidable block upon the lever, having teeth at each side engaging with the teeth of the segments, a rod E extending into the space between one end of the block and the lever and forming a gib, means for adjusting said gib, and means for raising and lowering the block, substantially as described.

4. The combination of a pivoted lever A, segments B mounted on each side of the lever, a block D made up of two toothed plates d' and filling pieces d^2, a connecting rod and a lever E, pivoted to the main lever A, substantially as described.

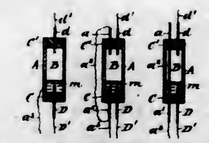
5. The combination of a pivoted lever A, the toothed segments B mounted on each side of the lever, a block D made up of plates d' and pieces d^2 secured together, each of said plates having teeth, a connecting rod E, the lower end of which forms a gib and is adapted to the space between one end of the block and the lever, a set screw for adjusting said gib, a lever F attached to the connecting rod and pivoted to the main lever A, with a spring mounted between the block and the lug on the lever A, substantially as described.

489,265. TOOL FOR CUTTING TAPERING OPENINGS. ROGER GUINN, Philadelphia, Pa. Filed Apr. 4, 1892. Serial No. 427,609. (No model.)



Claim.—The herein described tool for cutting tapering openings consisting of a head adapted to be mounted and rotated on a lathe, and having a longitudinally-extended recess therein with inclined bottom and side walls, as described, a rotatable screw journaled in the end walls of said recess, said screw being inclined to said walls and substantially parallel with the bottom of said recess, a traveler on said screw, and a cutter secured on said traveler, said traveler having inclined side walls and fitting closely in said recess, said parts being combined substantially as described.

489,266. TELEPHONE SWITCH APPLIANCE. PARNELL RADMORE, Sydney, New South Wales. Filed Jan. 2, 1892. Serial No. 416,836. (No model.)

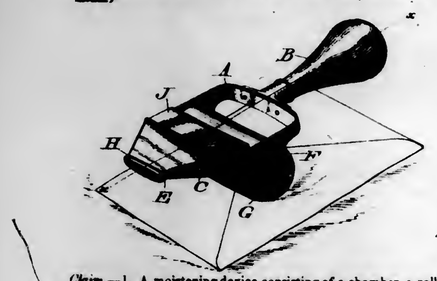


Claim.—1. In combination with a reversible vessel, insulated end plugs, a set of contacts D *d* extending through the plugs into the ves-

sel, mercury within the vessel, contacts a' a^3 and an electrical connection between them, substantially as described.

2. In combination with a reversible vessel, insulated end plugs, a pair of contacts in each end of the vessel, mercury within the vessel contacts a a' and a connection a^3 within the vessel between the contacts a a', substantially as described.

489,267. MOISTENING DEVICE FOR ENVELOPES, &c. ADOLPH RIEK, Philadelphia, Pa. Filed Sept. 10, 1892. Serial No. 445,542. (No model.)



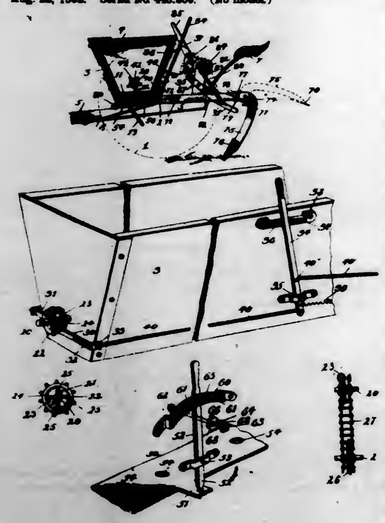
Claim.—1. A moistening device consisting of a chamber, a roller on which said chamber is mounted, a handle connected with the frame of the device, and an absorbent adapted to protrude through a throat in said chamber, said parts being combined substantially as described.

2. An arm provided with a handle, and having ears on its sides, in combination with a roller mounted on said ears, and a chamber which is connected with the front ends of said arm, and containing a piece of absorbent material, one end of which is adapted to protrude through a throat in the front of said chamber, substantially as described.

3. In a moistening device, a chamber provided with absorbent material and a throat through which a portion of said material may protrude, one of the walls of said chamber forming a deflector in front of said throat, substantially as described.

4. An arm provided with a handle, a roller mounted on said arm, and a chamber secured to the forward ends of said arms, said chamber being provided with a piece of absorbent material and having an opening for the protrusion of said absorbent piece, one of the walls of said chamber being extended downwardly in front of said throat, and forming a deflector, substantially as described.

489,268. SEED-PLANTER. JOHN W. ROSE, De Witt, Iowa. Filed Aug. 23, 1892. Serial No. 443,809. (No model.)



Claim.—1. In a seed planter; a hopper having feed-openings, shafts journaled through said hopper and carrying agitators, sprocket wheels loosely mounted on said shafts, clutches between the shafts and sprocket wheels, a lever pivoted to the hopper, rods connecting said lever with the clutch-operating devices, a spring throwing the lever in position to normally engage the clutch-members, and a catch for the lever having an inclined lip with a flat face, the latter holding the lever against the tension of the spring; in combination with a main axle carrying supporting wheels, sprocket wheels on said axle, and wide sprocket chains connecting the sprocket wheels on the axle with those on the shafts, as and for the purpose set forth.

2. In a seed planter, a hopper having feed-openings in its bottom, shafts journaled through said hopper and carrying agitators, sprocket wheels mounted loosely on the ends of said shafts, clutches between the shafts and sprocket wheels, means for holding the clutch-members normally in engagement, and a lever for disengaging them at will; in combination with a main axle carrying supporting wheels and by which the hopper is sustained, sprocket wheels on said axle, and wide sprocket chains connecting the sprocket wheels on the axle with those on the shafts, as and for the purpose set forth.

3. In a seed planter, the combination with a hopper having feed openings, an agitator shaft in said hopper and projecting through its end, a pin through this shaft, a sprocket wheel having a grooved hub provided with end notches to receive said pin, an axle carrying another sprocket wheel, and a chain belt connecting said sprocket wheels; of an inwardly-pressing spring yoke engaging said groove, its front end being secured to the hopper and its rear end having an eye, a lever connected with said eye, a spring throwing said lever in opposite direction, and a catch for the lever holding it against the tension of its spring, as and for the purpose set forth.

4. In a seed planter, the combination with a hopper, an agitator-shaft therein, a sprocket wheel on said shaft driven from the axle, and a clutch between said sprocket wheel and shaft; of a lever pivoted to the hopper, a rod connecting said lever with the clutch-operating devices, a spring throwing the lever in position to normally engage the clutch members, and a catch for the lever having an inclined lip with a flat face, the latter holding the lever against the tension of the spring, as and for the purpose set forth.

5. In a seed planter, the combination with a hopper having feed-openings, a gage plate also having openings, and a lever pivoted to the hopper and connected with said plate; of a curved strap secured at its ends to the hopper and behind which the lever moves, the strap having notches in its rear face and a longitudinal slot, a stop-bolt through said slot and against which the lever strikes, and a washer under the nut of the bolt and having teeth adapted to engage said notches, as and for the purpose set forth

6. In a seed planter, the combination with a hopper supported on an axle, a tongue extending under the hopper, a bar clamped under the hopper and having upturned arms at its rear ends, and a standard on the rear end of the tongue; of a shaft journaled in said arms and standard, cultivator teeth pivotally connected with said axle, chains extending from the teeth to said shaft, and a pawl and-ratchet mechanism on the latter for turning it, as and for the purpose set forth.

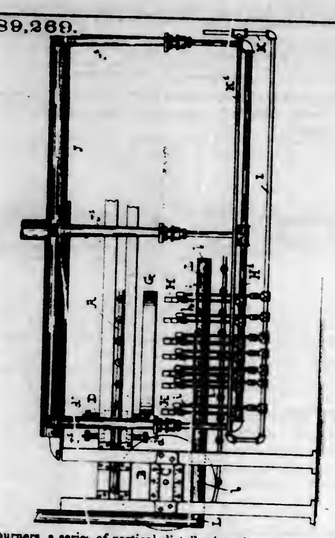
7. In a seed planter, the combination with the hopper mounted on an axle, a number of cultivator teeth pivotally connected with said axle, a rock-shaft, and a chain from each tooth attached to and passing around said shaft, of a ratchet wheel on said shaft, a lever pivoted on the shaft adjacent said wheel and having a pawl engaging the teeth thereof, and a retaining pawl pivoted to a standard below the wheel, its operative tip engaging the teeth thereof and releasing said other pawl therefrom when it is itself disengaged, as and for the purpose set forth.

489,269. CAN-SOLDERING MACHINE. SYLVESTER ROTH, Baltimore, Md. Filed Mar. 29, 1892. Serial No. 426,872. (No model.)

Claim.—1. In a can-soldering-machine, a trough for solder into which the cans are to be dipped, in combination with a series of burners arranged below and extending the entire length of said trough, an air-supply pipe located above the burners, a main air-pipe below the burners with which connect the branch-pipes leading to the burners, a series of vertical distributing-pipes connecting the supply-pipe and the main pipe and supplying air to the latter at its ends and center, a main gas-pipe with which connect the branch pipes leading to the burner, a supplemental gas pipe located above the main gas-pipe, and a supply-pipe for supplying gas to the main and the supplemental pipes, substantially as described.

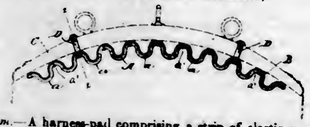
2. In a can-soldering machine, an endless belt and revoluble can-carriers pivotally connected to the belt, in combination with a trough containing molten solder into which the edges of the cans are dipped, a series of burners arranged below and extending the entire length of said trough, an air supply-pipe located above the burners, a main air-pipe below the burners with which connect the branch-pipes leading

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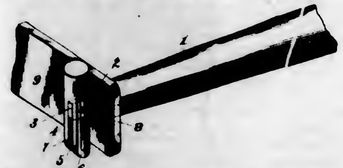
to the burners, a series of vertical distributing-pipes connecting the supply-pipe and the main pipe and supplying air to the latter at its ends and center, a main gas-pipe with which connect the branch gas-pipes leading to the burner, a supplemental gas-pipe located above the main gas-pipe, a supply-pipe for supplying gas to the main and the supplemental pipes, and a perforated air pipe arranged to discharge air against the soldered edges of the cans, substantially as described.

489,270. HARNESS-PAD. CONRAD SCHROEDER, Milwaukee, Wis. Filed Jan. 30, 1892. Serial No. 419,795. (No model.)



Claim.—A harness-pad comprising a strip of elastic or yielding material corrugated so as to form a series of bearing points and a series of intermediate air passages or spaces, the said corrugations being everywhere and always free from contact with each other, in combination with a similarly corrugated rigid or inflexible strengthening strip, secured to the upper surface of the described flexible strip, substantially as described.

489,271. WHIFFLETREE-HOOK. JAMES B. SIMS, Washington, D. C. Filed Dec. 24, 1891. Serial No. 416,080. (No model.)



Claim.—The combination with a single-tree, provided with a lug or shoulder to receive the trace, and a projecting tongue 3, of a bar 4 formed with a central slot 5, and with side slots at right angles to the slot 5, and a cross-pin passing through the tongue 3, and having its ends projecting into the side slots of the bar, substantially as set forth.

489,272. PIN-LOCK. JOHN V. SMITH, Hayes, Ill. Filed Aug. 27, 1892. Serial No. 444,316. (No model.)

489,272.



Claim.—1. The herein described pin lock consisting of a rock shaft having a handle at one end and a lip at the other end, said lip being deflected laterally from and radially to the longitudinal line of the shaft, as and for the purpose set forth.

2. The herein described pin lock consisting of a box, a rock shaft journaled therein, a handle on said shaft and radial thereto, and a lip at one end of the shaft deflected from the longitudinal line thereof on a radial line different from that occupied by the handle, as and for the purpose set forth.

3. In a pin lock, the combination with a plate and a headed coupling pin passing down through the same; of a box secured on the plate, a rock shaft journaled through the box, a handle at one end of the shaft standing radial thereto, and a laterally deflected lip at the other end of the shaft adapted to be turned over the head of said pin by the weight of the handle, the edge of the lip striking the plate before the handle reaches a vertical position, as and for the purpose set forth.

4. In a pin lock, the combination with a plate, and a coupling pin passing through the same; of a box secured to the plate, a rock shaft journaled in said box, means for holding said shaft normally in one position, and a laterally deflected lip on the shaft standing over the end of the pin when the shaft is in normal position, as and for the purpose set forth.

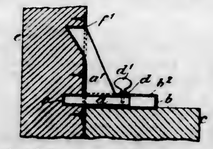
489,273. WRENCH. JAMES W. STEELE, Chicago, Ill., assignor to George D. Cook, same place. Filed May 18, 1890. Serial No. 351,632. (No model.)



Claim.—1. In a wrench, the combination with the body provided with a central longitudinal slot, and racks thereon at each side of the slot, and the fixed jaw thereof, of a sliding jaw, and a spring-actuated lock-lever pivoted to said jaw working through the slot in the body, and terminating at one end in a T-head engaging the rack on the body, and at its opposite end in an angular thumb-piece, substantially as described.

2. In a wrench, the combination of the sliding jaw having a central slot provided with inclined and perpendicular end walls, the body portion having a central slot of greater length than the aforesaid slot and having inclined substantially parallel end walls, said body being provided with a fixed jaw and a rack, an inclined lever pivoted in said sliding jaw and projecting through the slot therein and through the slot in said body portion, said lever having a "T" head at one end engaging said rack and an angular thumb piece at its other end, and a spring secured to the perpendicular wall of said slot in said sliding jaw and bearing against said lever, substantially as set forth.

489,274. FASTENER FOR THE MEETING-RAILS OF SASHES. WALTER J. STEEL, London, England, assignor of one-half to Harry Chard Braham, same place. Filed Oct. 4, 1892. Serial No. 447,774. (No model.)



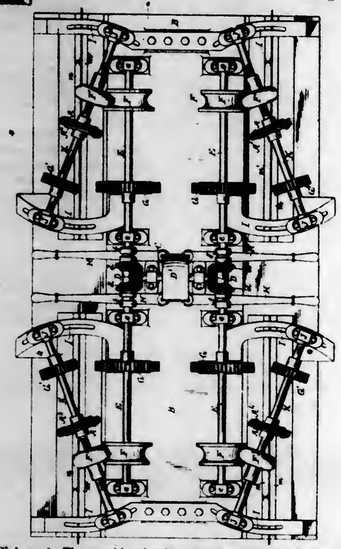
Claim.—1. A sash fastener consisting of a sliding block or piece, forming a bolt, and carrying a rigid inclined finger, said bolt and finger being adapted to simultaneously enter recesses in the sash stile, or in the box frame, substantially as described.

2. In a sash fastener, the combination of a bolt carrying a rigid inclined finger, a guide or casing having notches formed therein, and

a locking plate engaging with said notches and bolt, as described.

3. In a sash fastener, the combination with a bolt carrying an inclined finger, of a pivoted guide or casing, and of a stop to limit the extent to which such casing can be turned, substantially as described.

489,275. **SAW-SHARPENING MACHINE.** EMANUEL S. TWYFORD, Philadelphia, Pa. Filed Apr. 15, 1892. Serial No. 429,266. (No model.)



Claim.—1. The combination in a saw sharpening machine of the driving shaft, a friction driving wheel thereon, a filing disk, a shaft K carrying the same, a longitudinally adjustable friction disk carried by said shaft K and clamps for carrying the saw to be filed, substantially as specified.

2. The combination of the rotated shaft, a friction wheel thereon, a positive driving wheel G mounted on said shaft, a file disk, an adjustable shaft carrying the same, a friction disk mounted thereon and engaging with the friction disk of the driving shaft and a pinion carried by said shaft and adapted to engage with the gear wheel G, substantially as specified.

3. A machine for filing saws comprising a series of file disks, a series of adjustable shafts carrying said disks, supplementary driving shafts, a friction wheel or disk on each of said adjustable shafts and supplementary driving shafts, a bevel gear on each of said supplementary driving shafts, and a main driving shaft having beveled gears engaging with those of the supplementary driving shafts, substantially as specified.

4. A file holding disk for saw sharpening machines comprising a disk body, a series of segments pivoted to said disks and files carried by said segments, substantially as specified.

5. A disk for saw filing machines comprising a main disk body, a series of segments pivoted to said disk body and adjustable thereon, a series of files adapted to the periphery of said segments, and clamp plates for holding each of said files in position, substantially as specified.

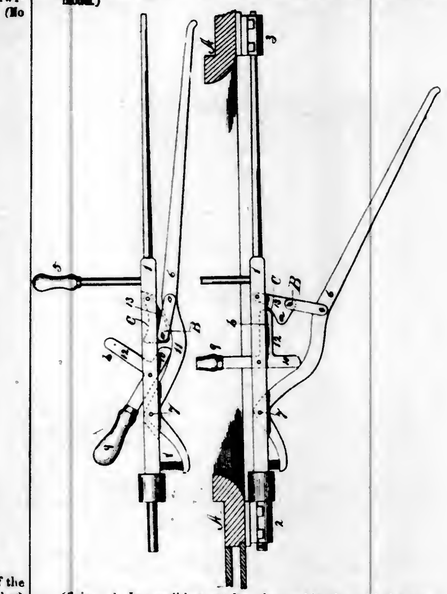
6. A file holding disk for saw sharpening machines comprising a main disk body, a series of segments pivoted thereto, files carried by said segments and a series of feeding strips also carried by said segments and adjustable from and toward the files, substantially as specified.

7. A file holding disk for saw sharpening machines comprising a main disk body, a series of segments pivoted to said disk body, files carried by said segments, feeders parallel to said files and blocks x on said feeders, with adjusting screws adapted to engage with said blocks x, substantially as specified.

8. A clamping device comprising the guide-ways M M', the clamping bars m m' and the reversible guiding strips n n' each having one curved and one straight face, substantially as specified.

9. The combination with a filing disk, of a guiding strip or strips curved to correspond to the curvature of the teeth of the saw being sharpened and holding clamps for said saw, adapted to travel on said guiding strips, substantially as specified.

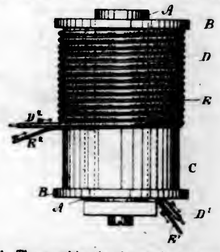
489,276. **DEVICE FOR CATCHING MAIL-BAGS.** EUGENE M. VAN HOESEN, Preble, N. Y. Filed June 27, 1892. Serial No. 438,227. (No model.)



Claim.—1. In a mail-bag catcher, the combination with the cross bar, of the gripping arm journaled thereto, a knuckle joint connecting said bar and arm, of a cam lever adapted to engage with the gripping arm and the knuckle joint, as set forth.

2. The combination with the cross-bar provided with a longitudinal slot-way, and the gripping-arm pivoted therein, of the knuckle joint, one member of which is pivotally connected to said arm, and the other member of which is pivoted in said slot-way and is provided with a concaved face, and the lever (9) having an arm engaging with said concaved face.

489,277. **ELECTRO-MAGNET.** RICHARD VARLEY, Jr., Englewood, N. J. Filed June 13, 1892. Serial No. 436,472. (No model.)



Claim.—1. The combination in an electro-magnet of the helix composed of two parallel wound wires, one being covered, and the other uncovered, and one layer of wire insulated from the next layer of wire, substantially as set forth.

2. An electro-magnet having a helix of two parallel wires, one with a fibrous covering and the other without a fibrous covering, and wound in layers insulated one from the other, substantially as set forth.

3. An electro-magnet having a helix of two similarly sized parallel wires, one with a fibrous covering and the other without a fibrous covering and wound in layers, insulated one from the other, substantially as set forth.

4. An electro-magnet having a helix of two parallel wires, one with a fibrous covering and the other without a fibrous covering and wound in layers, insulated one from the other, and the ends of the respective helices connected directly together, substantially as set forth.

489,278. **BOILER-TUBE EXPANDER.** JOSEPH WEST, Cincinnati, Ohio. Filed Apr. 4, 1892. Serial No. 427,632. (No model.)



Claim.—1. The combination in a tube expander of a feed chamber having one or more slots therein, one or more rolls taking into the slots, a tapering mandrel, adapted to engage with the rolls, having a feed screw adapted to engage a correspondingly threaded portion of the feed chamber, means for rotating the mandrel, and a movable dog adapted to make or break operative connection between the rotating mechanism and the feed mechanism.

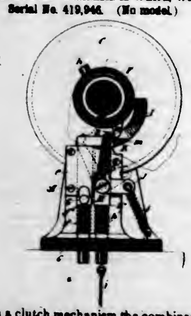
2. The combination in a tube expander of a feed chamber, having one or more slots, one or more rolls taking into the slots, a tapering mandrel adapted to engage with the rolls and having a feed screw taking through a correspondingly threaded disk rotatably mounted in the feed chamber and means for locking the disk against rotation in the feed chamber.

3. The combination in a tube expander of a feed chamber, having one or more slots, one or more rolls taking into the slots, a tapering mandrel adapted to engage with the rolls and having a feed screw, a disk in the feed chamber threaded to receive the feed screw, recesses in the disk and a rod taking through the wall of the feed chamber having a lug adapted to take into the recesses and lock the disk against rotation in the feed chamber.

4. The combination in a tube expander of the mandrel A, the feed chamber B, the rolls C, the disk b^4 having recesses b^5 and provided with ratchet teeth b^9, the rod b^6 carrying dog b^7 and the spring pawl b^{10}

5. The combination in a tube expander of a feed chamber B, a mandrel A taking into the feed chamber, rolls C taking through slots in the feed chamber and against the mandrel and a cap b^{11} attached to the inner end of the feed chamber, substantially as and for the purpose specified.

489,279. **CLUTCH.** FRANKLIN R. WHITE, Waterbury, Conn. Filed Feb. 1, 1892. Serial No. 419,946. (No model.)



Claim.—1. In a clutch mechanism the combination with a clutch, of a vertically moving cam adapted to engage and disengage the two sections of the said clutch, a lever adapted to engage the cam and lower the same, and a lug attached indirectly to and revolving with the shaft to disengage the said lever from the cam at each revolution of said shaft, substantially as and for the purposes described.

2. In a clutch mechanism the combination with a shaft having a clutch secured thereon, of a vertically moving cam, a lever for engaging and lowering the cam, a lug attached indirectly to and revolving with the shaft for disengaging the said lever from the cam at each revolution of the shaft, and a spring for raising said cam, when so released, substantially as described.

3. In a clutch mechanism, the combination with a shaft and a clutch secured thereon, of a movable cam, a vertically movable bell crank adapted to engage and lower said cam, a lug secured indirectly to and revolving with the shaft adapted to strike and disengage said bell crank from the cam at each revolution of the shaft, and springs for raising said cam and bell crank when disengaged, substantially as described.

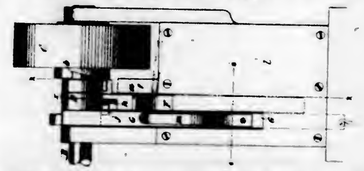
4. A clutch constructed with a cam, a bell crank to lower the same, means for disengaging the bell crank from the cam at each revolution of the shaft, and a spring for raising the cam when released from said bell crank, substantially as described.

5. In a clutch the combination with the cam I, constructed with the spring actuated rod G, of the spring actuated rod H, spring actuated bell crank J, sleeve E, and lug n, the several parts being arranged to operate in the manner and for the purpose substantially as set forth.

6. In a clutch, the combination with a cam I, constructed with the shoulders g, m of the lever H, bell crank J, formed with the catch k, to engage said shoulder m, and springs l, k', all arranged to operate in the manner and for the purpose substantially as set forth.

7. In a clutch, the combination with the shaft, of the pulley C, formed with the teeth a, the spring actuated collar D, formed with the lug A, sleeve E, formed with the lug n, cam I, spring actuated rods G, H and lever J, the several parts being constructed and arranged to operate in the manner and for the purpose substantially as set forth.

489,280. **CLUTCH.** ALBERT M. WHITE, Waterbury, Conn. Filed Feb. 1, 1892. Serial No. 419,948. (No model.)



Claim.—1. A clutch constructed with a pulley C, a collar D, rod E, operating lever G and cam A, arranged to operate in the manner and for the purpose substantially described.

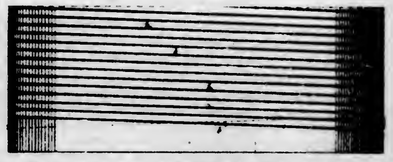
2. A clutch constructed with a pulley and shaft, a collar D provided with the lug v, a spring actuated, sectional, operating lever, rod F, formed with a cam A, and a sliding rod E, all of the above parts being constructed and arranged to operate in the manner and for the purpose substantially as described.

3. In a clutch, a combination with a shaft and pulley mounted thereon, of a collar D secured to the shaft and provided with the lug v, a rod E sliding in said collar, and adapted to engage with said pulley, a sectional spring actuated lever G, and a spring actuated rod F, formed on its upper end with the cam A all arranged and constructed to operate in the manner substantially as described.

4. In a clutch the combination, with a clutch proper, of the sliding rod F, provided with a cam A and shoulder t sliding rod F to engage said clutch and cam, and a spring actuated sectional operating lever G, provided with a pin u, and adapted to lower said cam and release the same at each revolution of the clutch, substantially as described.

5. In a clutch, the combination with a shaft and pulley C, of a grooved collar D, a spring actuated rod E, sliding in said groove and adapted to engage with said pulley, a spring actuated rod F formed with the cam A, and shoulder t, and a spring actuated sectional lever G, provided with the pin u, all the above parts being constructed and arranged to operate in the manner and for the purpose substantially as described.

489,281. **RUBBING BELT OR APRON FOR CARDING-ENGINES.** JAMES BARKER, Philadelphia, Pa. Filed Oct. 7, 1890. Serial No. 367,330. (No model.)



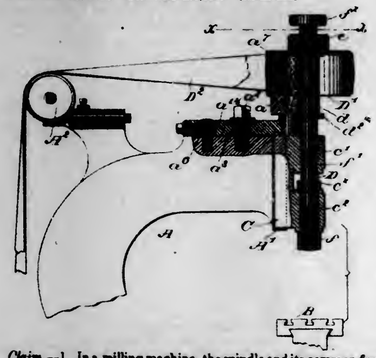
Claim.—1. As a new article of manufacture a rubbing apron or roll for carding machines formed of a single piece of leather or analogous material, having cut in its face a series of circumferential grooves

running in spiral lines around the apron or roll, substantially as specified.

2. The combination of the two rubbing aprons or rolls situated one above the other, with circumferential grooves cut in each roll or apron in a spiral line, so that the grooves of one apron or roll will cross those of the other, substantially as described.

3. The combination of the circumferential grooved apron or roll, with a wipe roller engaging therewith whereby the grooved apron or roll will remove the stray fiber between the sliver ends, substantially as set forth.

489,282. MILLING-MACHINE. JOHN BECKER, Fitchburg, Mass. Filed Mar. 26, 1892. Serial No. 426,333. (No model.)



Claim.—1. In a milling machine, the spindle and its common fixed bearings for supporting it beyond the driving pulley, combined with such driving pulley and an auxiliary bearing arranged in the line of pull on said pulley, substantially as described.

2. In a milling machine, the spindle and its common fixed bearings for supporting it beyond the driving pulley, combined with such driving pulley, an auxiliary bearing arranged in the line of pull on said pulley, and means to adjust such auxiliary bearing relatively to the spindle, substantially as described.

3. In a milling machine, the spindle and its common fixed bearings for supporting it beyond the driving pulley, combined with such driving pulley, a hub on the pulley, and an auxiliary bearing arranged in the line of pull on said pulley and acting against said hub, substantially as described.

489,288. HAIR STRUCTURE. JAMES Y. BORDEN, Philadelphia, Pa. Filed Mar. 30, 1892. Serial No. 427,064. (No model.)



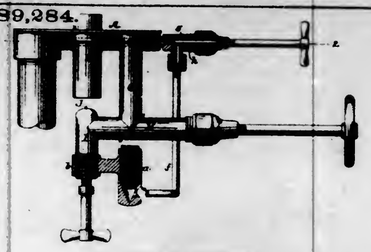
Claim.—A bang, wig, or like hair structure consisting of a series of loops each having hair attached to and projecting therefrom, the series comprising a main or base loop, and one or more side or extension loops mounted upon and projecting from said base loop, the hair of some of the loops passing through and concealing one or more of the other loops of the series, substantially as specified.

489,284. STARTING ATTACHMENT FOR GASOLINE-BURNERS. HARRY R. F. BORRELL and EDWARD R. BARNSLEY, Philadelphia, Pa. Filed June 9, 1891. Serial No. 395,736. (No model.)

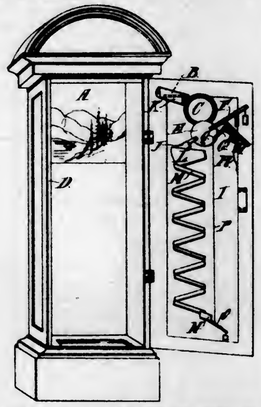
Claim.—1. The combination of the main burner plate having the oil conveying passages on the under side, a valve chest screwed into the end of one of said passages, a supplementary burner communicating with said valve chest, and a valve for controlling the flow of oil to said supplementary burner, substantially as specified.

2. The combination of the main burner, the supplementary burner consisting of a tube with conical lower end, and a wick capable of being forced downward in said tube so as to compress its lower end, and a valved pipe for supplying oil to said supplementary burner, substantially as specified.

489,284.



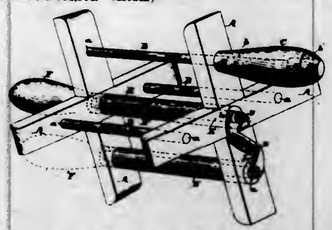
489,285. COIN-OPERATED EXHIBITING APPARATUS. ALFRED BONNAIRE, Launceston, Tasmania. Filed May 19, 1892. Serial No. 433,591. (No model.)



Claim.—1. In an automatic exhibiting apparatus, the combination of the casing having an opening for viewing the picture, and a coin opening, the movable screen E, arranged to close the said view opening, the catch for holding the screen in moved position, the zigzag conduit for the coin, a trip lever O at the end of the said conduit arranged to be operated by the coin, the connections between the said trip lever and the screen catch for releasing the screen and permitting it to return to normal position substantially as described.

2. In combination the casing having a view opening, a screen or shutter for closing the same normally, the lever carrying the said shutter, the catch for holding the lever with the shutter in moved position to keep the view unobstructed, the coin condnit, the said screen lever being arranged at the upper end of the conduit to be operated by the coin as it is introduced, the coin receptacle and the means located at another part of the conduit and also adapted to be operated by the coin before it is discharged into its receptacle, the said means being arranged to release the shutter, substantially as described.

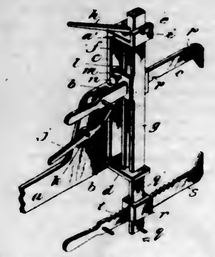
489,286. REEL. ASHUR J. CARR, Chicago, Ill. Filed Apr. 27, 1891. Serial No. 391,581. (Model.)



Claim.—In a hand reel the combination of a frame having the holes e, with the rod B and tubes B' secured in said holes, the handles C and F, secured on the rods B and E respectively, the rod E having

the head *g*, and neck *h*, the lock D having the recess *d*, and beveled circular ends, spring *c*, and pin I, substantially as and for the purpose set forth.

489,287. SAWMILL-DOG. THOMAS H. COMSTOCK and JOHN S. JUNK, Nashville, Tenn. Filed May 18, 1892. Serial No. 433,427. (No model.)

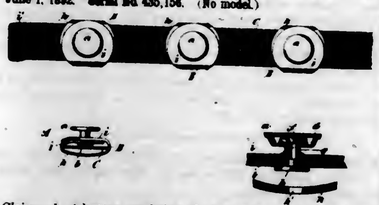


Claim.—1. In a saw mill dog, the combination with a vertically sliding frame, and means for operating the same, a fixed upright guide, to which the upper dog is adjustably attached, secured in said frame, and a sliding bar projecting above and below said frame, and working in guides therein, said bar being capable of a slight independent motion, and carrying at its lower projecting end an adjustably secured lower dog, substantially as described.

2. In a saw mill dog, slotted lugs or guides secured to the head block knees, a strip or rod working in said guides and provided with upper and lower wings, affording supports for a fixed guide to which the upper dog is adjustably secured, and also affording bearings or guides for an independent vertically "sliding bar" to which the lower dog is adjustably secured, a cam-lever for imparting said independent vertical movement to the said "sliding bar," and a compound lever for vertically moving the entire structure, substantially as described.

3. A vertical "sliding bar" working through guides in a vertically movable supporting frame, said "sliding bar" being provided with a number of upwardly inclined teeth or notches, at its lower end, in combination with a loose sleeve surrounding said link engaging said teeth or notches and affording a support for a saw mill dog and a cam-lever operating upon a suitable flange at the upper end of said "sliding bar" to impart an independent vertical movement to said "sliding bar," sleeve and dog relatively to the said supporting frame, substantially as described.

489,288. BUTTON. CLARK S. COMSTOCK, Brooklyn, N. Y. Filed June 1, 1892. Serial No. 435,156. (No model.)



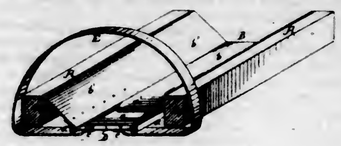
Claim.—1. A button consisting of a button proper, a fastener and a loop made of flexible material, said fastener passing through said loop and into said button whereby said loop is immovably bound between said button and fastener, substantially as described.

2. A button constructed of a button proper, a button fastener, and a loop of flexible material having the ends overlapped and held and bound between said button and fastener, and having an opening *k'* formed therein, substantially as and for the purpose described.

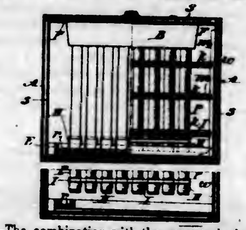
3. The combination with a button constructed with a loop made of flexible material and immovably secured by means of a fastener to said button, of a band of flexible material passing through said flexible loop, substantially as set forth.

489,289. GATE FOR CONVEYER-TROUGHS. JAMES M. DODGE, Philadelphia, Pa., assignor to the Link-Belt Engineering Company, same place. Filed Aug. 31, 1892. Serial No. 444,641. (No model.)

Claim.—The combination of the stringers, the trough attached thereto, and having a quadrangular opening therein, a lip *a'*, on one edge of said opening a gate adapted to slide upon rails carried by the trough, and to close the opening and ride upon the lipped portion with mechanism for operating said gate, substantially as specified.

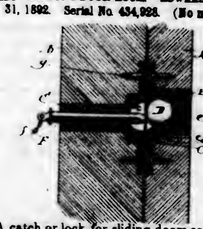


489,290. REFRIGERATOR. EDWARD N. DOLBEY, Philadelphia, Pa. Filed May 7, 1892. Serial No. 432,118. (No model.)



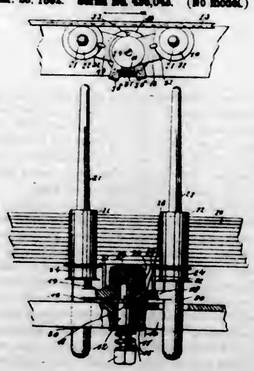
Claim.—The combination with the receptacle, its series of depending pipes, and the trough E, of the sliding sleeves on the lower end of said pipes, rigidly connected by the common bar I, substantially as and for the purpose specified.

489,291. SLIDING-DOOR LOCK. EDWARD F. DORAN, Pullman, Ill. Filed May 31, 1892. Serial No. 434,923. (No model.)



Claim.—A catch or lock for sliding doors comprising a spherical body and two socket plates or castings C and E, one of which is provided with a shallow seat or socket, and the other of which is provided with a seat or socket of sufficient depth to receive the body when forced from the shallow seat or socket the plate or casting C being perforated to admit a releasing pin, substantially as described.

489,292. DUPLEX SPINDLE. JOSEPH DUFFY, Paterson, N. J. Filed Mar. 23, 1892. Serial No. 426,043. (No model.)



Claim.—1. A duplex spindle comprising a trunnion or support, and spindle carrying arms mounted loosely on the said trunnion or support as a common center and projecting from opposite sides of the same, substantially as described.

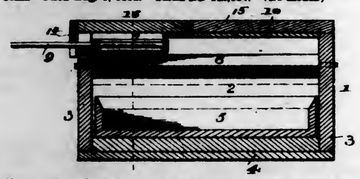
2. In a duplex spindle, the bolster comprising a central trunnion or support, and oppositely-extending spring-pressed arms journaled on the trunnion as a common center, the arms having their outer ends adapted to support spindles, substantially as described.

3. In a duplex spindle, the bolster comprising a central trunnion, oppositely extending arms journaled upon the trunnion as a common center, and adapted to oscillate thereon, the arms having their outer ends adapted to carry spindles, laterally-extending lugs extending from near the inner ends of the arms, and a spring held between the lugs, substantially as described.

4. In a duplex spindle, the bolster comprising a central trunnion or support, oppositely-extending arms having their inner ends terminating in sleeves journaled on the trunnion and their outer ends provided with spindle carrying sockets, lugs extending laterally from the arms, a spring arranged between the lugs, and means for limiting the oscillation of the bolster, substantially as described.

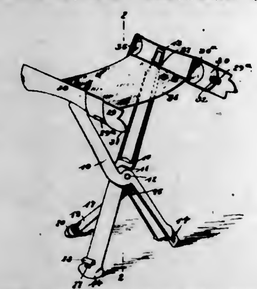
5. In a duplex spindle, the bolster comprising spindle carrying arms, journaled on a common center, and a spring pressing the arms against the tension of their driving belt, substantially as described.

489,293. ASH-SIFTER. BELL W. J. H. DWINNELL, Greenwich, Conn. Filed Aug. 3, 1892. Serial No. 442,087. (No model.)



Claim.—An ash sifter comprising the rectangular box, the removable ash receptacle, the inclined converging shelves, one of which is provided with a strip of india rubber, the reciprocating screen, located above the said shelves and the supplemental top and hinged cover, all constructed and combined substantially as described.

489,294. COMBINED CANE AND SEAT. CARL EPHRAIMSON, Hiawatha, Minn. Filed July 13, 1892. Serial No. 439,867. (No model.)



Claim.—1. The combination with the hollow folding seat supporting legs pivoted together between their ends and provided below their pivotal point with internal lugs 15 and with shoulders 16 at points opposite to said lugs, of the third leg 17 formed of members 18, 19, pivotally connected at their lower ends and having hooks 26, 26, at their upper ends engaging said lugs and a spring forcing the members 18, 19 apart, substantially as set forth.

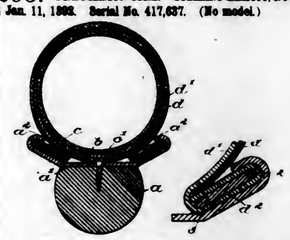
2. A device of the character described, comprising a pair of hollow elongated sections pivoted together near the center and provided with reduced ends, a pair of seat sections connected by a web and adapted to fit snugly together, the seat sections having side slots to receive the reduced ends of the pivoted sections, a fastening device to secure the closed seat sections to the tops of the pivoted sections, and a third leg adapted to brace the pivoted sections and having means of attachment thereto, substantially as shown and described.

3. The combination with the pivoted body sections adapted to open and close, the sections being reduced at one end and enlarged at the other, of the seat sections adapted to fit snugly together and connected by a web or seat, the said sections having side slots to receive the reduced ends of the pivoted sections, substantially as shown and described.

4. The combination with the pivoted sections adapted to close together and having keepers and recesses at their upper ends, of the seat sections adapted to fit together to form an extensible top to the pivoted sections, hinged plates secured to the seat sections and having bent ends to enter the keepers and recesses of the pivoted sections, and fastening springs to hold the hinged plates in engagement with the recesses and keepers, substantially as shown and described.

5. The combination with the pivoted body sections adapted to close one upon another, and to open so as to form seat supporting legs, said sections having lugs on their inner sides and shoulders adjacent to the lugs, of a third leg having a foot to rest upon the ground and spring pressed diverging members adapted to engage the lugs and shoulders of the pivoted sections, substantially as shown and described.

489,295. PNEUMATIC TIRE. STERLING ELLIOTT, Newton, Mass. Filed Jan. 11, 1892. Serial No. 417,637. (No model.)



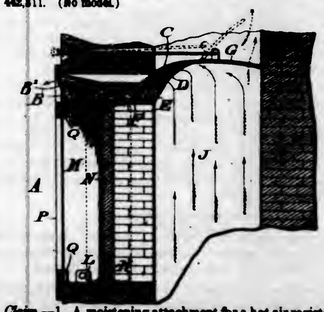
Claim.—1. In a pneumatic tire for wheels, the combination with a metallic rim, a band thereon at its central portion, an expansible core, a foundation strip as c' secured thereto and connecting said core and band, and thereby holding it on said rim of a detachable tread face adapted to be connected with said rim, to incloss the core, and to be held in position by the expanded core, substantially as described.

2. In a pneumatic tire for wheels, the combination with a metallic rim, and an expansible core on and attached to it, of a tread face interlocking with said rim, and composed of a rubber surface secured to a fibrous backing, the said tread face being fulled at its edges to thereby shorten them and secured to retaining strips along said fulled portion, substantially as described.

3. In a pneumatic tire for wheels, a metallic rim having outwardly extended and inturned edges to present recesses a^2 and hooks a^3; a band b between said recesses; and an expansible core c mounted on a foundation c'; combined with a detachable tread face composed of a piece of rubber as d, a backing d' to which it is attached, and strips d^3 connected to and embraced by the backing, said strips embraced by the backing entering the said recesses outside the band b, the expansion of the core aiding in holding the tread face in position, substantially as described.

4. In a pneumatic tire for wheels the combination with a rim and an expansible core, of a tread face fulled at its edges adjacent to said rim, substantially as described.

489,296. MOISTENING ATTACHMENT FOR HOT-AIR REGISTERS. JOHN EWIS, Philadelphia, Pa. Filed Aug. 11, 1892. Serial No. 442,811. (No model.)



Claim.—1. A moistening attachment for a hot air register having a tray, a deflector partly dipping into said tray and having its ends raised above the front and rear walls thereof, the side walls of the deflector being cut away, said parts being combined substantially as described.

2. A moistening attachment to a hot air register having a deflector which partly dips into a fluid pan and has its ends raised therefrom, said deflector being sustained on the walls of the pan and on pins secured to said walls, substantially as described.

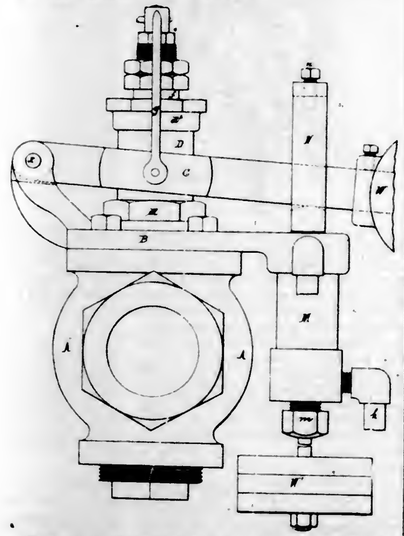
3. A moistening device for a hot air register consisting of a fluid receiving pan, a deflector dipping in said pan and having a rear elevated portion, and a valve at the rear end of said deflector for directing vapor from said fluid, said parts being combined substantially as described.

4. A pan, a flue, and a deflector partly dipping into said pan with its end elevated above the same, the inner end of said deflector extending rearward of the pan so as to overhang the hot air flue, substantially as described.

5. A moistening attachment for a hot air register consisting of a pan, and a deflector in combination with a valve for the hot air flue connected with said deflector as a continuation thereof, substantially as described.

6. A hot air register having a frame formed of the bottom plate K, the top pan B and side pieces M, the bars of the register being mounted in said bottom plate and the base plate of said pan, substantially as described.

489,297. PUMP-REGULATOR. JOHN M. FOSTER, Cranford, assignor to the Foster Engineering Company, Newark, N. J. Filed Oct. 14, 1892. Serial No. 448,854. (No model.)



Claim.—1. A governor for steam pumping engines and similar appliances, comprising a valve casing and valve controlling the supply of motive fluid, a cylinder with a piston connected to the valve and acted on by the motive fluid pressure, a cylinder with a piston acted on by the discharge pressure from the pump and a lost motion connection between the two pistons, substantially as set forth.

2. A governor for steam pumping engines and similar appliances, comprising a valve casing and valve controlling the supply of motive fluid, a cylinder with a piston connected to the valve and acted on by the motive fluid pressure, a cylinder with a piston acted on by the discharge pressure from the pump and a lever connection between the two pistons, with an intermediate lost motion, substantially as set forth.

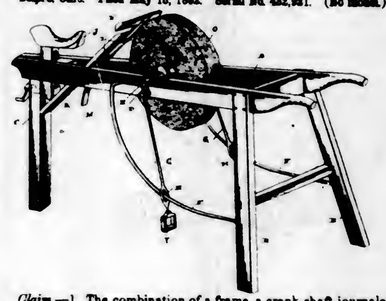
3. A governor or regulator for steam pumping engines and similar appliances, comprising a valve casing and valve controlling the supply of motive fluid, a cylinder with a piston connected to the valve and acted on by the motive fluid pressure and a counterweight therefor, in combination with a cylinder having a piston acted on by the discharge pressure from the pump, and a counterweight therefor with a pivoted lever connecting the two pistons, with an intermediate lost motion.

4. A governor or regulator for steam pumping engines and similar appliances, comprising a valve-casing, a valve controlling the motive fluid, a piston carried by the said valve and acted on by the motive fluid pressure and a lever connected to the said piston in combination with a cylinder and a piston connected to the said lever with a lost motion, and acted on by the discharge pressure from the pump.

5. A governor for steam pumping engines and similar appliances comprising a valve casing and valve controlling the supply of motive fluid, a cylinder with a piston connected to the valve and acted on by the motive fluid pressure and a counterweighted lever therefor in combination with a cylinder having a counterweighted piston acted on by the discharge pressure from the pump and carrying a yoke or fork with an adjustable set screw, the said lever passing through said yoke or fork all substantially as described.

6. A governor for steam pumping engines and similar appliances, comprising a valve casing and valve controlling the supply of motive fluid, a cylinder with a piston connected to the valve and acted on by the motive fluid pressure and a counterweighted lever therefor in combination with a cylinder having a piston acted on by the discharge pressure from the pump, and connected to the said lever with a lost motion, the cap or bonnet of the valve casing carrying the two cylinders and lever, all substantially as and for the purpose set forth.

489,298. GRINDSTONE. GEORGE W. GARDER and JOHN PETERS, Belpre, Ohio. Filed May 13, 1892. Serial No. 432,921. (No model.)



Claim.—1. The combination of a frame, a crank shaft journaled thereto, a grind stone on said shaft, foot bars depending from the cranks of said shaft, and curved guides on which the said bars move, substantially as shown and described.

2. The combination of a horizontal frame, legs depending therefrom, a crank shaft journaled across the frame carrying a grind stone, rods depending from the cranks of the shaft having loops formed between their ends and stirrups on their lower ends, and curved guides which extend through the loops of the said rods and which are secured at their upper ends to the sides of the frame and at their lower ends to the said legs, substantially as shown and described.

489,299. BURNER FOR ROLLS OF BURNISHING-MACHINES. JAMES S. GIBBONS, Jr., Philadelphia, Pa. Filed July 2, 1892. Serial No. 439,319. (No model.)

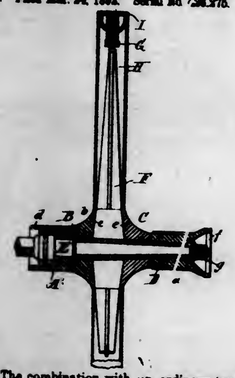


Claim.—1. The combination in a burner for heating hollow burnishing rolls, of the burner tube having a row of perforations therein, and the valve rod located within the burner tube and having a longitudinal groove or equivalent construction whereby gas or vapor introduced into one end of the burner tube may be directed to the perforations of said tube, said groove and row of perforations being inclined in respect to each other so that the perforations near the inlet end of the burner can be closed without closing those near the center of the burner or the end remote from the inlet, substantially as specified.

2. The combination in a burner for heating hollow burnishing rolls, of the burner tube having therein a row of perforations parallel with the axis of the tube, and the internal valve rod having a groove one edge of which is inclined in respect to said row of perforations, substantially as specified.

3. The combination in a burner for heating hollow burnishing rolls, of the perforated burner tube, the grooved valve rod therein, and a nozzle for directing a jet of gas or vapor into the groove in said rod, substantially as specified.

489,800. VEHICLE-WHEEL. ALEXIS F. GILLET, Kearney, Nebr., assignor to himself, George W. Whiteaker, and James D. Whiteaker, same place. Filed Mar. 24, 1892. Serial No. 426,275. (No model.)



Claim.—1. The combination with an ordinary tapering box or skein A having its outer end externally threaded, of the sleeve d fitting and inclosing the inner end of the box or skein and provided with an integral annular spoke clamping flange on its inner end, the disk C on the tapering non-threaded portion of the box or skein in rear of its threaded portion; the adjacent faces of the flange and disk being shaped to receive the inner ends of the spokes, and the internally threaded sleeve D secured on the threaded end of the box or skein and forcing the disk C inward, substantially as set forth.

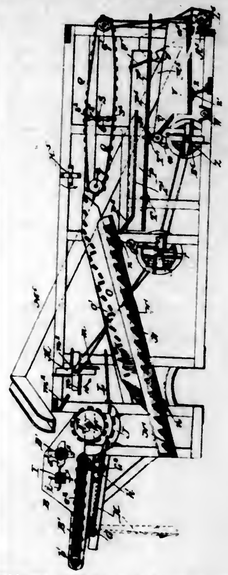
2. The combination with the rim of the wheel having an internally and externally threaded sleeve; one of said threads being right and the other left hand, of a spoke having its outer end threaded and entering the sleeve, whereby by turning the sleeve the spoke and rim will be drawn together or forced apart, substantially as set forth.

3. A wheel, comprising a hub, a series of spokes threaded at their outer ends, a felly and tire, a series of tubular externally and internally threaded sleeves screwed into the felly and tire and screwed upon the outer ends of the spokes; the threads of the sleeve being right and left hand respectively, substantially as set forth.

489,801. COMBINED AUTOMATIC THRASHER, FEEDER, AND SEPARATOR. MILOS G. GOSSARD, Monrovia, Cal. Filed Mar. 11, 1892. Serial No. 424,602. (No model.)

Claim.—1. The combination with the main frame, of a feeder frame detachably held on the front end thereof, the endless apron B' journaled in such feeder frame, the band cutter D' journaled transversely over the delivery end of the apron, the picker cylinder I, arranged transversely over the carrier in advance of the band cutter, and drive mechanism connecting the band cutter, picker cylinder and endless carrier, and arranged to drive such carrier band cutter and picker cylinder to feed the material in the same direction, substantially as shown and described.

2. The combination with the main frame, the cylinder and concave, said frame having forwardly extending guide arms or rails a a of the feeder frame adapted to be slid onto such arms and means for holding it to its operative position, the endless carrier mounted in said frame, the cutter shaft, carrying the cutters d, the picker cylinder journaled in front of and parallel to the cutter shaft, having fingers arranged to intermesh the cutters and means for operating the carrier forward and the cutter and picker cylinders in the same direction substantially as and for the purpose described.



3. The combination with the main frame the concave, the frame section B, and the endless carrier mounted therein, of the chute H the crank shaft g connected to the frame B and forming a pivotal support for the outer end of the chute H the crank shaft G' pivotally mounted on the inner end of said chute H, and the hinged bearings h', on the frame B, adapted to receive the crank ends g^3 of such shaft G' substantially as and for the purpose described.

4. The combination with the feeder frame B the endless carrier having its shaft b^3 extended as at d^x, a cog wheel b^5 fixedly held thereon at one end and a loose friction gear b^6 at its opposite end, of the band cutter D, having its shaft extended at its ends, and carrying at one end a gear d engaging the loose gear b^6, and at its opposite end a shifting gear d^3 adapted to be moved into engagement with the gear b^5, the shifting clutch E on the shaft b^3 and means for imparting motion to the band cutter shaft substantially as and for the purpose described.

5. In a thrashing and separating machine essentially as described, the combination with the main frame, the elevating shoe N and the vibratory shoe V, of the intermediate shoe P, having a solid rear portion a supplemental slotted portion disposed above such solid portion having a solid upwardly inclined board p^3 at its rear end, and a pivoted finger portion at its front end and means for adjusting the outer end of such finger portions to different elevations substantially as and for the purpose described.

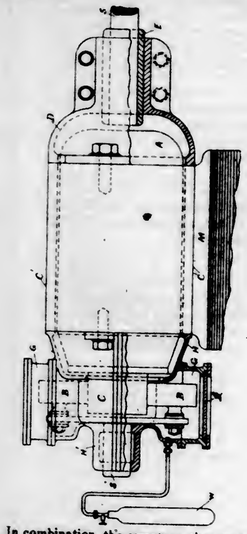
6. In a machine of the kind described the combination of the vibratory shoe V, and the shoe P having a solid rear bottom portion and open front portion extended over the shoe V, of the screen frame consisting of the transverse bar, p' hinged at the end of the solid bed of the shoe P, provided with forwardly projecting fingers P', the rock shaft U journaled in the shoe and supporting the free end of the fingers P' and means for holding the shaft U to its adjusted positions, substantially as shown and for the purpose described.

7. The combination with the main frame and the separating and thrashing devices of the rock shaft A^5 having a crank arm a^2, the rocker arm z, the shoe V having a ball joint connection with rocker arm z, said shaft A^5 having a crank arm a^6 and a crank member a^6 the rocker plate B^{10} pivoted in the frame, the rod b^8 connecting one end of plate B^{10} with the side of the shoe V, the link connection a^7, between the plate B^{10} and the arm a^6 and means for rocking the shaft A^5, all arranged substantially as shown and for the purpose described.

8. The combination with the fan supporting frame, the fan Z, the gate sections C^9 C^9 independently pivoted but joined together, the shaft D^4, having crank members B^9 forming the pivotal bearing for the sections C^9, said shaft D^4 having ratchets 50 the rock shaft F^9 provided with pawls 40 adapted to engage the ratchet 50 all arranged substantially as and for the purpose described.

9. The combination with the conveyer L^3 and the cylinder F of the side bearings c^4, the crank shafts E^{10} E^{10} journaled therein said shafts having beveled gears e^7, the shaft F^{10} having beveled gear connections with the gears e^7 and the elevator chute M^3 having a series of transverse pockets m^3, said chute mounted on the crank shafts E^{10} all arranged as shown and for the purpose described.

489,802. DYNAMO-ELECTRIC MACHINE AND MOTOR. WALTER T. GOOLDEN and LLEWELYN B. ATKINSON, London, England. Filed Aug. 18, 1891. Serial No. 402,072. (No model.) Patented in England Sept. 19, 1887, No. 12,676.



Claim.—1. In combination, the armature, the commutator, and brushes therefor, the air tight non-magnetic casing surrounding the armature, and a jointed supplemental portion of the casing surrounding the commutator and the brushes, and carrying the bearings, whereby access to said commutators may be had without removing the main casing, substantially as described.

2. In combination, the armature, the commutator, and brushes therefor, fixed on an adjustable brush carrier, the supplemental extension of said casing surrounding the commutator and brushes, and a box like receptacle G G removably jointed to said supplemental casing, whereby access may be had to the brushes substantially as described.

3. In combination, the armature, the commutator and brushes therefor, the main air-tight casing surrounding the armature, the supplemental extension surrounding the commutator and the transparent windows in said extension substantially as described.

489,803. PROCESS OF MANUFACTURING MANGANESE AND ALLOYS OF MANGANESE FREE FROM CARBON. WILLIAM H. GREENE and WILLIAM H. WAHL, Philadelphia, Pa. Filed July 2, 1892. Serial No. 438,760. (No specimens.)

Claim.—1. In the art of producing metallic manganese, or manganese alloys free from carbon, the herein described process which consists in reducing the ore to the condition of a lower oxide, and then reducing such lower oxide to the metallic state by heating it, in a reducing chamber free from carbon, in contact with substantially the chemically equivalent quantity of a metal capable of removing its oxygen, substantially as described.

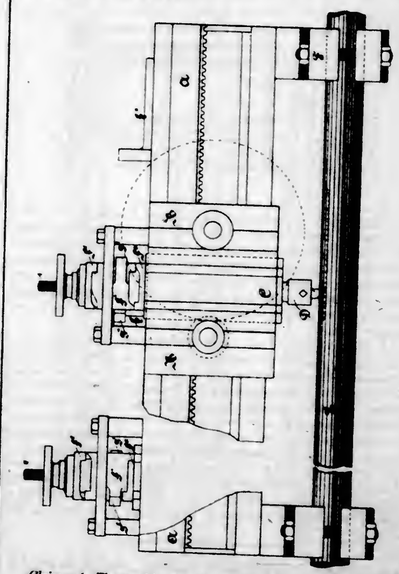
2. In the art of producing metallic manganese, or manganese alloys free from carbon, the herein described process which consists in reducing the ore to the condition of a lower oxide, and then reducing such lower oxide to the metallic state by heating it, in a reducing chamber free from carbon and silica, in contact with substantially the chemical equivalent quantity of a metal capable of reducing its oxygen, substantially as described.

3. In the art of producing metallic manganese, or manganese alloys free from carbon, the herein described process which consists in digesting the manganese ore with diluted sulphuric acid, then reducing the purified ore to the condition of a lower oxide, and then reducing such lower oxide to the metallic state by heating, in a reducing chamber free from carbon, in contact with substantially the chemically equivalent quantity of a metal capable of removing its oxygen, substantially as described.

4. In the art of producing metallic manganese, or manganese alloys free from carbon, the herein described process which consists in digesting the manganese ore with diluted sulphuric acid, then reducing the purified ore to the condition of a lower oxide and then reducing such lower oxide to the metallic state by heating it, in a reducing chamber free from carbon and silica, in contact with substantially the chemically equivalent quantity of a metal capable of removing its oxygen, substantially as described.

5. In the art of producing metallic manganese or manganese alloys free from carbon, the herein described process which consists in reducing the ore to manganese monoxide, then reducing said monoxide to the metallic state by heating it in contact with substantially the chemically equivalent quantity of a metal capable of removing its oxygen, substantially as set forth.

489,804. MACHINE FOR CUTTING KEYWAYS. GOTTLOB F. GROTZ, Reutlingen, Würtemburg, Germany. Filed May 31, 1892. Serial No. 434,973. (No model.)



Claim.—1. The combination in a slotting machine, of a longitudinally sliding carriage, a support for the work, a vertical tool holding slide adapted for vertical movement in or on the carriage, and trips in the path of the carriage adapted to strike and actuate devices on the carriage that lower and raise the said slide to and from the work, substantially as described.

2. The combination in a slotting machine, of a traveling carriage, means for supporting the work, a tool holding slide carried by the carriage and adapted for vertical movement therein or thereon, cams for raising and lowering the slide, and means, substantially as described, for changing the relative position of the cams.

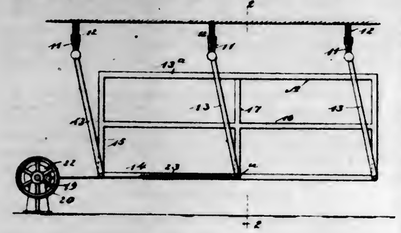
3. In a slotting machine, the combination of a carriage, a tool holding slide adapted for vertical movement in or on the carriage, opposite cam faces on the slide, an interposed cam, and trips for shifting said cam, substantially as described.

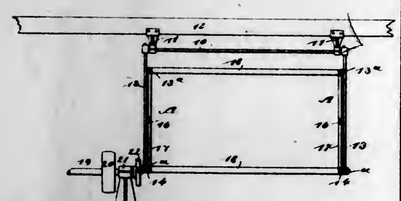
4. In a slotting machine, the combination of a carriage, a tool holding slide adapted for vertical movement thereon or therein, oppo-

site cam faces on the slide, an interposed cam, and adjustable trips for the cam, substantially as described.

5. In a slotting machine, the following elements in combination, to wit;—a carriage, a work support below the carriage, a tool-holding slide adapted for vertical movement in or on the carriage, cams for raising or lowering the slide, and means for shifting the cams, the said cams acting to gradually project the tool carried by the plane of the tool supports, for causing the tool to stand and leave the slot at an angle, substantially as described.

489,305. CLOTHES-DRIER. JOHN F. HANSON, Macon, Ga. Filed July 26, 1892. Serial No. 441,220. (No model.)

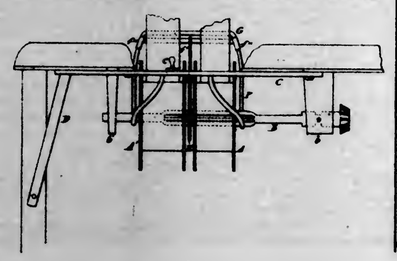




Claim.—1. In a machine of the character described, the combination, with a series of parallel shafts and hangers in which the shafts turn, of arms located near the ends of the shafts, frames pivotally attached to the arms, bars connecting the frames, and a driving mechanism applied to the arms, whereby the latter and the frames are given a laterally-reciprocating movement, the frames not departing in their movements from parallelism with a true horizontal line below or above them.

2. In a machine of the character described, the combination, with a series of shafts and bearings in which the shafts have rotary movement, the shafts being parallel and placed at predetermined distances apart, of arms fixed to the extremities of the shafts and extending downward therefrom in parallel lines, and skeleton frames pivotally connected at their lower ends with the lower extremities of the arms, connecting bars uniting the frames and maintaining them in an upright position parallel with each other, the frames being located between the sets of side arms, a driving mechanism, and a connection between the machine and the driving mechanism, the driving mechanism and the connecting medium imparting to the machine a laterally-reciprocating movement, substantially as shown and described.

489,306. TYPE-WRITING MACHINE. MARY B. HARRIS, New Albany, Ind. Filed Apr. 21, 1892. Serial No. 430,105. (No model.)



Claim.—1. The combination of the ribbon reel A provided with the tooth *a* in the outer disk, with the spindle B furnished with grooves in its middle portion and smooth ends, substantially as, and for the purpose set forth.

2. The combination of the ribbon reel A provided with the tooth *a* in its outer disk, with the spindle B furnished with grooves in its middle portion and smooth ends, and the spring-plate E, substantially as, and for the purpose set forth.

3. The combination of the ribbon reel A provided with the tooth *a* in its outer disk, with the spindle B furnished with grooves in its middle portion and smooth ends, the spring-plate E and the reel support F, substantially as, and for the purpose set forth.

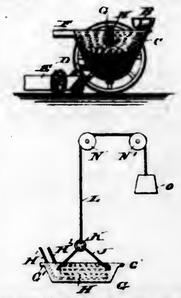
4. The combination of the ribbon reel A provided with the tooth *a* in its outer disk, with the spindle B furnished with grooves in its middle portion and smooth ends, the spring plate E, the reel support F, and the detachable ribbon support G, substantially as, and for the purpose set forth.

5. The combination of the ribbon reel A provided with the tooth *a* in its outer disk, with the spindle B furnished with grooves in its middle portion and smooth ends, the spring-plate E, the reel support F, the detachable ribbon support G, the slotted shifting bar C, and the lever D, substantially as, and for the purpose set forth.

6. The combination of the reel support F having the sockets *f* thereon, and the detachable ribbon support G having downwardly projecting ends adapted to fit within said sockets, substantially as and for the purpose set forth.

7. The combination of the spring-plate E, the reel support F, and the detachable ribbon support G, substantially as, and for the purpose set forth.

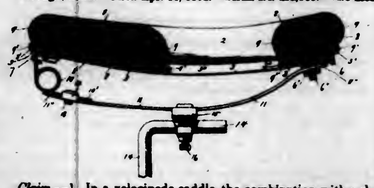
489,307. APPARATUS FOR SEPARATING MATTE FROM SLAG. WILLIAM H. HOWARD, Pueblo, Colo. Filed July 14, 1892. Serial No. 440,045. (No model.)



Claim.—1. The combination, with the settler, of the vertically movable partition, the water pipe arranged within it, the flexible inlet and outlet pipes connected with the partition pipe, and the cable, pulley, and counterbalance, all arranged as shown and described.

2. An apparatus for separating matte from slag, comprising a settler a water-cooled partition formed with flanges adapted to be seated on the edge of the settler, and means, substantially as described, for supporting, counterbalancing, and raising and lowering the said jacket, substantially as shown and described.

489,308. VELOCIPEDE-SADDLE. JONATHAN A. HUNT, Westborough, Mass. Filed Apr. 11, 1892. Serial No. 428,609. (No model.)



Claim.—1. In a velocipede saddle, the combination with a sheet metal bottom, provided with a central ventilating opening therein, and longitudinal corrugations or ridges upon its under side, and a hook at one end, and a cantle at the other end, for attaching the supporting spring, and a rubber bag or air cushion supported upon the metal bottom, and having a central ventilating opening therein, of a leather covering extending only over the top and edges of the rubber bag, and the edges of the leather covering secured to the edges of the metal bottom by bending or folding over both edges to form a lap joint, for the purpose stated, substantially as set forth.

2. In a velocipede saddle seat, the combination with a sheet metal bottom, provided with a central ventilating opening therein, and a hook at one end, and a cantle at the other end for attaching the supporting spring, and a rubber bag or air cushion supported upon the metal bottom, and having a central ventilating opening therein, of a leather covering extending only over the top and edges of the rubber bag, with the edges of the leather covering secured to the edges of the metal bottom by bending or folding over both edges to form a lap joint, for the purpose stated, substantially as set forth.

3. In a velocipede saddle seat, the combination with a sheet metal bottom, having a central ventilating opening therein, and provided with a hook and cantle on its underside, for attaching the supporting spring thereto, and a leather covering forming the top and edges of the saddle seat, and having a ventilating opening therein, and secured to the metal bottom by a lap joint extending around the saddle seat, and around the ventilating opening therein, of a rubber bag or air cushion provided with a ventilating opening, and inclosed between the metal bottom and the leather covering, substantially as shown and described.

4. In a velocipede saddle, the combination with the saddle seat, consisting of a sheet metal bottom provided with a hook at one end, and a cantle at the other end, for attaching the supporting spring, and a leather covering with its edges secured to the metal bottom by a lap joint, and a rubber bag or air cushion inclosed between the leather covering and the metal bottom, and a ventilating opening extending through the saddle seat, of a supporting spring, consisting of a flat metal spring and a coil spring, the flat metal spring adapted to be clamped to the saddle support, with one end secured to the saddle seat, and the other end adjustably clamped to one end of the coil spring, the other end of said coil spring secured to the saddle seat, substantially as shown and described.

5. In a velocipede saddle, the combination with the saddle seat, consisting of a sheet metal bottom, provided with a hook at one end and a cantle at the other end, for attaching the supporting spring, and a leather covering forming the top and edges of the seat, and secured to the metal bottom by a lap joint, and a rubber bag or air cushion inclosed between the leather covering and the metal bottom, and a ventilating opening extending through the saddle seat, of a supporting spring consisting of a flat metal spring, and a coil spring, one end of the flat metal spring attached to the saddle seat, and the other end adjustably clamped to one end of the coil spring, by means of a bolt extending through a hole in the flat spring, with its outer end bearing on the flat spring, and its inner end screwed into a cap piece provided with grooves or depressions into which the ends of the coil spring extend, which are clamped upon the flat spring, and the other end of the coil spring attached to the saddle seat, substantially as shown and described.

6. The combination with a saddle seat, of a spring support, consisting of a flat metal spring, and a coil spring, one end of the flat metal spring attached to the saddle seat, and one end of the coil spring attached to the saddle seat, the other ends of the flat metal spring and coil spring adjustably clamped together by a bolt extending through a hole in the flat metal spring, with its outer end bearing on the lower surface of the flat metal spring, and its inner end screwed into a cap piece provided with grooves or depressions into which the ends of the coil spring extend, and are inclosed within the downwardly extending sides of the cap piece, and clamped between the flat spring and the cap piece, substantially as shown and described.

7. The combination with the saddle seat, having a hook attachment at one end, and a cantle or spring holder at the other end provided with an oblong slot or opening therein, into which one end of the supporting spring extends, and is secured by one or more set screws, of a spring support, consisting of a flat metal spring, and a coil spring, one end of the flat metal spring and one end of the coil spring attached to the saddle seat, and the other ends of the flat metal spring and the coil spring adjustably clamped together by means of a bolt extending through a hole in the flat metal spring, and a cap piece provided with grooves into which the ends of the coil spring extend, said cap piece secured to the flat metal spring, to clamp the coil spring and flat metal spring together, by said bolt, substantially as shown and described.

8. In a saddle spring, the combination with a coil spring, and a flat spring, of a clamp for adjustably securing together the flat spring and the coil spring, the flat spring forming the lower part of the clamp, and a cap piece provided with grooves or depressions into which the ends of the coil spring extend, forming the upper part of the clamp, and a screw extending loosely through a hole in the flat spring, and screwed into the cap piece to clamp the flat spring and the ends of coil spring together, substantially as shown and described.

489,309. MANURE-RECEPTACLE FOR CARS, &c. WILLIAM JEFFERIS, East Orange, N. J. Filed Dec. 15, 1891. Serial No. 415,291. (No model.)



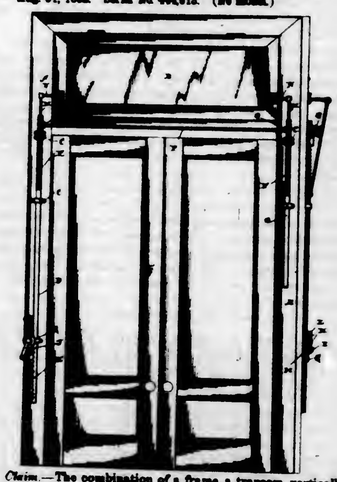
Claim.—1. The combination of a receptacle, a conduit having its lower end connected yieldingly to the receptacle to adapt the same to play therein, and yielding harness-attaching devices at the upper end of said conduit, substantially as and for the purpose described.

2. The combination of a receptacle, a conduit connected at its lower end to said receptacle, an elastic band secured to the upper end of said conduit, and a harness attaching spring connected to said band, substantially as described.

3. The combination with a receptacle, a conduit, harness attaching devices at the upper end of said conduit, and a yielding hanger connected to the conduit at an intermediate point of its length, substantially as described.

4. The combination with a receptacle, and a conduit, of the devices for connecting said conduit to the receptacle and the harness of an animal, a hanger arm connected to said conduit, and a spring controlled rock-shaft to which the hanger arm is secured, substantially as described.

489,310. TRANSOM-LIFTER. FRANKLIN J. KECK, Allentown, Pa., assignor to the Keck Transom Opener Company, same place. Filed Aug. 31, 1892. Serial No. 444,613. (No model.)



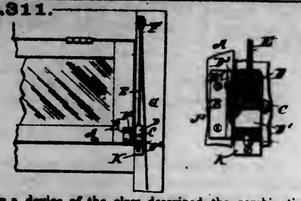
Claim.—The combination of a frame, a transom, vertically movable rods on each side of the frame having racks thereon, means for adjusting vertically one of the said rods, a horizontal revolubie shaft pinions on the respective ends thereof which engage the racks E of the said rods, and connections between each of the said rods and the respective sides of the transom, substantially as shown and described.

489,311. TRANSOM-LIFTER. JOHN P. KETTERINGHAM, Hutchinson, Minn., assignor to Frank O'Brien and Samuel J. Perrault, same place. Filed Aug. 26, 1892. Serial No. 444,187. (No model.)

Claim.—1. A transom lifter and lock, comprising an attaching plate or bracket, a bolt, a slot and pivot connection between the bolt and bracket to permit the bolt to slide as well as turn at its axis, and a keeper or strike for the lower end or nose of the bolt, substantially as set forth.

2. In a device of the class described, the combination with a drum, of a rope adapted to be wound on the said drum, a block secured on the said rope, a bracket adapted to be fastened to the device to be lifted and pivotally connected with the said block, and a keeper adapted to be secured on the casing and adapted to be engaged by a bolt on the said block, substantially as shown and described.

489,311.



3. In a device of the class described, the combination with a drum, of a rope adapted to be wound on the said drum, a block secured on the said rope, a bracket adapted to be fastened to the device to be lifted and pivotally connected with the said block, a keeper adapted to be secured on the casing and adapted to be engaged by a bolt on the said block, and a pin held on the said block and adapted to engage a guiding slot formed in the said bracket, substantially as shown and described.

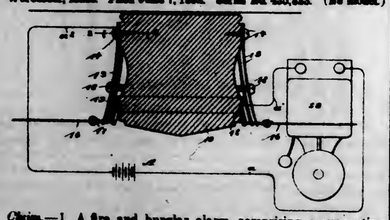
4. A transom lifter and lock, comprising a bracket having a lateral pivot and a vertical slot thereabove, a bolt sliding and swinging on said pivot and provided with a lateral pin to enter said slot; the upper end of the bolt having means for attaching the operating cord, and a keeper or strike for the lower end or nose of the bolt, substantially as set forth.

5. In a device of the class described, the combination with a bracket adapted to be secured to the device to be lifted and provided with a pivot pin, of a block adapted to be raised and lowered and provided with a vertically-arranged slot for engagement with the said pivot pin, a bolt projecting from the said block, and a keeper adapted to be secured on the casing and adapted to be engaged by the said bolt, substantially as shown and described.

6. In a device of the class described, the combination with a bracket adapted to be secured to the device to be lifted and provided with a pivot pin, of a block adapted to be raised and lowered and provided with a vertically-arranged slot for engagement with the said pivot pin, a bolt projecting from the said block, a keeper adapted to be secured on the casing and adapted to be engaged by the said bolt, and a pin projecting from the said block and adapted to engage a guiding slot in the said bracket, substantially as shown and described.

7. In a device of the class described, the combination with a rope adapted to pass over pulleys arranged on the casing, of a block held on one end of the said rope and pivotally-connected with the device to be lifted, a drum connected with the other end of the said rope and arranged on the casing, and a locking device for the said drum and comprising a double ratchet wheel, and a pawl having two arms adapted to engage the said double ratchet wheel, substantially as shown and described.

489,312. FIRE OR BURGLAR ALARM. ELMAR LA FRANCE, Worcester, Mass. Filed June 7, 1892. Serial No. 435,823. (No model.)

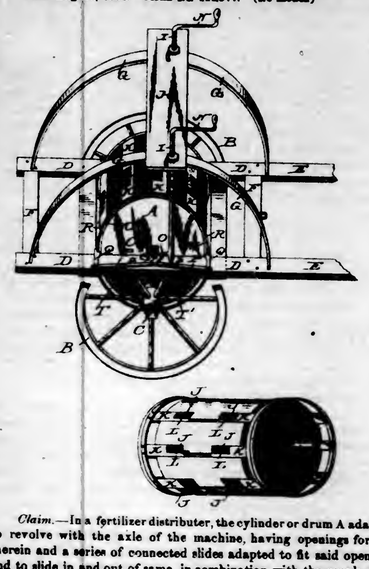


Claim.—1. A fire and burglar alarm, comprising a supporting block having a band thereon which forms one terminal of an electric circuit which includes an electric alarm, a plurality of springs secured to the block and forming the other circuit terminal, said springs being arranged to contact with the band, and outwardly extending strings secured to the free ends of the springs and adapted to be attached to a support, substantially as described.

2. A fire and burglar alarm, comprising a band secured to a support and forming one terminal of an electric circuit which includes an electric alarm, a plurality of springs forming the other circuit terminal and held to swing against the band, and outwardly extending diverging strings secured to the free ends of the springs and adapted to connect with supports, substantially as described.

3. In a fire and burglar alarm, comprising a block adapted to be secured to a support, a band extending around the block and forming one terminal of an electric circuit which includes an electric alarm, a series of circuit closing springs placed circumferentially upon the block and adapted to strike the band, the springs forming the opposite terminal of the electric circuit, a plurality of diverging strings secured to the free ends of the springs and adapted to be attached to supports, and stops to limit the outward movements of the springs, substantially as described.

489,313. FERTILIZER-DISTRIBUTER. THOMAS H. LAKE and ROCKWELL W. DICKSON, Mobile, Ala.; said Dickson assignor to said Lake. Filed Aug. 30, 1892. Serial No. 444,577. (No model.)



Claim.—In a fertilizer distributer, the cylinder or drum A adapted to revolve with the axle of the machine, having openings formed therein and a series of connected slides adapted to fit said openings and to slide in and out of same, in combination with the crank shaft I, arm or lever O, link S, toggle lever P, arms or reaches Q, connecting the end of the toggle lever with the connected slides by means of the loose ring R, substantially as described and for the purpose set forth.

489,314. METALLIC ALLOY. FREDERICK W. MARTINO, Sheffield, and FRANCIS R. MARTINO, Birmingham, England. Filed Sept. 12, 1892. Serial No. 445,800. (No specimens.) Patented in England Sept. 18, 1890, No. 14,768; in France June 26, 1891, No. 214,415; in Belgium June 26, 1891, No. 96,425; in Germany July 3, 1891, No. 62,852, and in Austria-Hungary Nov. 27, 1891, No. 32,235.

Claim.—A composition for the manufacture of tools and other purposes, consisting of pig iron, ferro-manganese chromium, metallic tungsten, metallic aluminium, nickel, copper and bar-iron, substantially as described.

489,315. SECONDARY-BATTERY ELECTRODE. AUGUSTE M. MICHEL, Paris, France. Filed Aug. 24, 1892. Serial No. 444,012. (No model.)



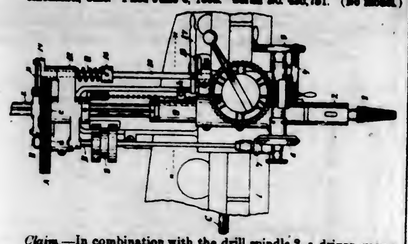
Claim.—1. In a lead-zinc accumulator, a negative element consisting of the combination with a frame, core or other suitable support, of an amalgam rich in mercury, (that is to say in which the quantity of mercury equals or exceeds that of the other metal) securely held therein, substantially as set forth.

2. The manufacture of electrodes for lead-zinc accumulators by spreading over or stuffing into the interstices or spaces between the frames, divisions, wire gauzes, rods or supports of any suitable form, amalgams rich in mercury, that is to say, composed of about equal proportion of the metals, as herein set forth.

489,316. MANUFACTURE OF ACCUMULATOR-PLATES. AUGUSTE M. MICHEL, Paris, France. Filed Aug. 24, 1892. Serial No. 444,013. (No specimens.)

Claim.—The described process of making active material for electric accumulators, by forming an alloy of lead and other metal, such as zinc, disintegrating or reducing the alloy, eliminating the metal alloyed with the lead and leaving the latter in a porous, distended condition, and finally compressing the lead into the desired form, substantially as described.

489,317. TAPPING ATTACHMENT FOR DRILLS. ASTON MILL, Cincinnati, Ohio. Filed June 6, 1892. Serial No. 436,751. (No model.)



Claim.—In combination with the drill spindle 2, a driven gear *c*, the interchangeable gears *d*, *c*, mounted upon the tumbler plate *b*, the torsion shaft 10, crank and link 14, 15 setting lever 17, and trip A, all combined with the head stock; substantially as specified.

489,318. ELECTRO-MAGNETICALLY-HEATED RECEPTACLE. WILLIS MITCHELL, Malden, assignor, by mesne assignments, to the American Electric Heating Company, Boston, Mass. Filed Mar. 15, 1892. Serial No. 425,005. (No model.)



Claim.—1. A receptacle consisting of a hollow body of magnetic material having studs of similar material formed thereon, in combination with wire helices which are in electric circuit and magnetize the said studs and body for the purpose set forth.

2. In a receptacle or article, a hollow body of magnetic material having studs of the same material, in combination with electric heaters fitted on the said studs, each heater consisting of a series of continuous wire helices and alternating cylindrical partitions substantially as set forth.

3. A hollow receptacle having its bottom formed of a plate or body of magnetic metal provided with studs of the same, in combination with a wire wound about the said studs and forming part of an electric circuit, the said wire serving to magnetize the said studs and body or plate and thereby heat the same beyond the heat due to resistance, substantially as set forth.

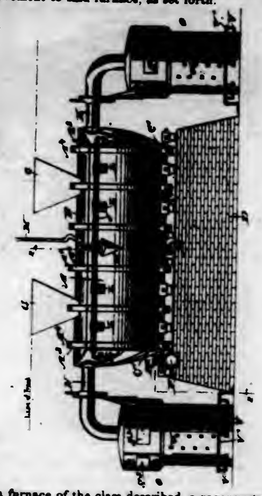
4. A hollow receptacle having its bottom composed of magnetic metal, concave and provided with studs of the same material, in combination with electrical heaters which include wire helices and are fitted on the said studs for the purpose set forth.

5. A receptacle consisting of a hollow shell of magnetic material provided with cores in combination with an electric conductor applied thereto so as to magnetize the said cores and an exterior shell or casing substantially as set forth.

6. A receptacle consisting of a hollow body provided with magnetic cores or studs in combination with an electric conductor applied to the said cores or studs to magnetize the same for the purpose set forth.

489,319. FURNACE. IVES J. MOZIER and ROBERT MOZIER, Baltimore, Md. Filed May 17, 1892. Serial No. 433,202. (No model.)

Claim.—1. The combination with a semi-circular furnace having an arched top and provided in its sides with an outlet spout, of blast pipes arranged on the sides of the said furnace, tuyeres arranged at the upper edges of the furnace, and extending into the interior of the same, whereby the blast may be directed upon the surface of the molten metal while and means, substantially as described, for imparting a tilting movement to said furnace, as set forth.



2. In a furnace of the class described, a regenerator comprising a top compartment connected with the outlet flue of the furnace, a second compartment arranged below the first named compartment and connected with the same by pipes having openings in their tops leading into the first named compartment, and a main chamber arranged below the second compartment and connected therewith, the said main chamber being provided with checker bars, substantially as shown and described.

3. In a furnace of the class described, a regenerator comprising a top compartment connected with the outlet flue of the furnace, a second compartment arranged below the first named compartment and connected with the same by pipes having openings in their tops leading into the first named compartment, a main chamber arranged below the second compartment and connected therewith, the said main chamber being provided with checker bars, and gas burners arranged in the lower end of the said main compartment, substantially as shown and described.

4. In a furnace of the class described, a regenerator comprising a top compartment connected with the outlet flue of the furnace, a second compartment arranged below the first named compartment and connected with the same by pipes having openings in their tops leading into the first named compartment, a main chamber arranged below the second compartment and connected therewith, the said main chamber being provided with checker bars, gas burners arranged in the lower end of the said main compartment, and a base having an outlet and provided with a circular channel connected by pipes with the lower end of the said main compartment, substantially as shown and described.

5. The combination with a furnace connected at its ends with regenerators, of means, substantially as described, for imparting a tilting movement to the said furnace, a spout arranged on one side of the said furnace, and a trough mounted to swing and having its upper end in close proximity to the said spout, as set forth.

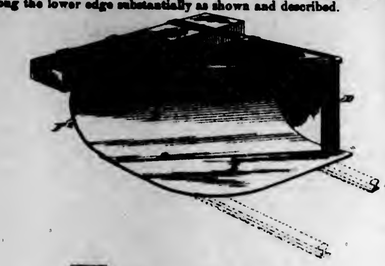
6. The combination with a furnace connected at its ends with regenerators, of means, substantially as described, for imparting a tilting movement to the said furnace, a spout arranged on one side of the said furnace, a trough mounted to swing and having its upper end in close proximity to the said spout, and means, substantially as described, for connecting the upper free end of the said trough with the said furnace so that the movement of the latter imparts a swinging motion to the said trough, as set forth.

489,320. LOCOMOTIVE-ENGINE PILOT. FURMAN F. MORTIMER and JOHN F. COWPE, Florence, S. C. Filed Aug. 30, 1892. Serial No. 444,597. (No model.)

Claim.—1. A locomotive engine pilot consisting of beam A with triangular frame C strongly braced to the same and carrying a diago-

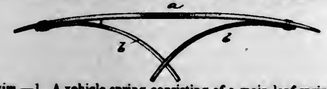
nally arranged chute B with vertical roller D at its front end substantially as shown and described.

2. A locomotive engine pilot consisting of beam A with triangular frame C, chute B attached to the forward edge of the same in diagonal position with vertical roller D on its front end and lip E along the lower edge substantially as shown and described.



3. The combination with the beam A and the diagonally arranged chute B; of the draft bar secured to beam A and extending through the chute, and the link F' arranged to be folded under the overhanging edge of the chute substantially as shown and described.

489,321. VEHICLE-SPRING. WILLIAM G. MOWRY, Greenwich, N. Y. Filed Sept. 31, 1892. Serial No. 446,449. (No model.)



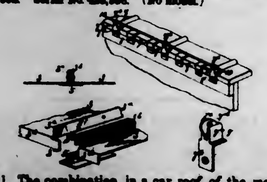
Claim.—1. A vehicle-spring consisting of a main leaf-spring and two supplemental springs secured on one of its sides, one end of each supplemental spring being secured rigidly to the main spring and its other end loosely thereto, the tension of the springs serving to arch them and make all of them conform approximately to the same curvature, substantially as described.

2. A vehicle spring consisting of a main leaf-spring and auxiliary or supplemental curved springs secured to one side of said main spring in such a manner as to arch the main spring against its tension, substantially as described.

3. A vehicle spring consisting of a main leaf-spring, auxiliary curved springs secured at their outer ends to said spring at its outer ends, the inner ends of each auxiliary spring extending beyond the middle of the main spring and keepers for loosely holding the inner ends of said springs secure to said main spring, said auxiliary springs arching the main spring against its tension, substantially as described.

4. A vehicle spring consisting of a main leaf spring a supplemental spring secured at one of its ends to the main spring, its other end being held loosely against the main spring, said supplemental spring arching the main spring against its tension, substantially as described.

489,322. CAR-ROOF. PETER H. MURPHY, East St. Louis, Ill. Filed Apr. 20, 1892. Serial No. 430,092. (No model.)

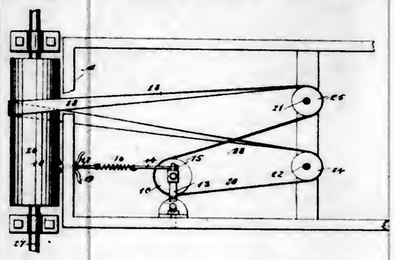


Claim.—1. The combination, in a car roof, of the metal sheets connected by raised ribs running upward from the eaves and clips engaging the ends of the ribs and having a depending part secured to the side of the car, substantially as, and for the purpose set forth.

2. The combination, in a car roof, of the metal sheets connected by raised ribs secured by horizontal rivets passing through the ribs the clip engaging the ribs at the eaves and secured to the side of the car and angle clips engaging the sheets between the ribs and secured to the side of the car, substantially as, and for the purpose set forth.

3. The combination with a car roof, of the clips 7 at the eaves of the roof said clips having surmounting perforate integral lugs 7', and the safety arrester rod 10 passing through the said perforate lugs and longitudinally surmounting the roof near the eaves as a safety arrester, substantially as set forth.

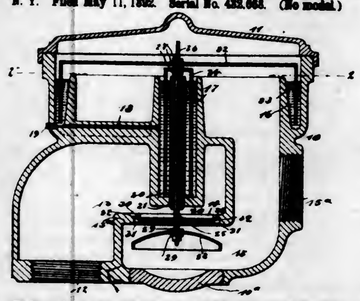
489,323. BELT-TIGHTENER. JOHN R. NOBLE, Tatum, and JOSEPH R. HEMBLEY, Baird, Tex. Filed May 20, 1892. Serial No. 433,671. (No model.)



Claim.—1. The combination with the frame, the vertical shafts 21, 22 having pulleys 25, 24, and the horizontal driving shaft 27, at the opposite end of the frame and the pulley 26, of a belt tightener, comprising a bracket 13 mounted between the drive and driven shafts, a movable yoke 12 carried by the bracket and a tightening pulley parallel with pulleys 24, 25, a screw rod extending through a bearing at the rear of the frame and provided with inner and outer jam nuts, a rod 14 connected to the yoke 12 and a spring 16 connecting the rods 14, 17, and the belt 28 passed around the pulleys 25, 26 and crossed, the loop formed by the crossing of the belt inclosing the pulleys 10 and 24, substantially as set forth.

2. The combination with the bracket 13, of the vertical yoke 12 pivoted at its inner end to the bracket and provided at its outer end with boxes 11, 11, an adjusting screw 29 projecting up into the lower bearing, and the tightening pulley the axis of which at its lower end is stepped on the said screw the threaded rod 17, having jam nuts 18, 19, spring 16 and the rod 14, connecting the spring and the said yoke, substantially as set forth.

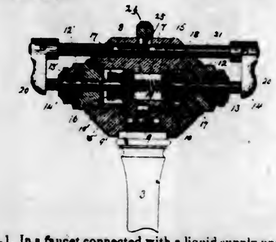
489,324. GAS-GOVERNOR. BENJAMIN R. PATTERSON, New York, N. Y. Filed May 11, 1892. Serial No. 432,668. (No model.)



Claim.—1. A gas governor, comprising a case 10, having an inlet chamber 13, a main chamber 15, and a horizontal partition 13^a separating the chambers, a passage extending through the horizontal partition and having a plurality of valve seats, a relatively large outer well 16, arranged in the upper portion of the governor, a deeper inner well 17 connected with the outer well and having a vertical bore, the two wells containing a body of mercury, a float suspended in the outer well and held to close the main chamber of the governor, a relatively long float mounted in the deeper well, a valve stem secured to the two floats and held to move in the bore of the inner well, a valve secured to the lower end of the valve stem and having a convex upper surface, the valve being held to close the passage in the horizontal partition, and an outlet from the main chamber, all substantially as described.

2. The combination, with the main case having an inlet chamber and a main chamber provided with an outlet, and a horizontal partition having a passage therein connecting the two chambers, of an annular well arranged in the upper portion of the governor and extending around near its outer wall, a deeper inner well arranged vertically above the passage in the horizontal partition, a float mounted in the larger well, an inner float mounted in the inner well, a body of mercury held in the two wells, a vertical pipe extending centrally through the inner well, a flat-sided valve stem extending through the pipe and having its upper end secured to the floats, and a convex valve secured to the lower end of the stem and adapted to close the passage between the chambers, substantially as described.

489,325. FAUCET FOR SODA-WATER DRAFT APPARATUS. ALVIN D. PUFFER, Jr., Medford, Mass., assignor to the American Soda Fountain Company, Jersey City, N. J. Filed Sept. 15, 1892. Serial No. 445,989. (No model.)



Claim.—1. In a faucet connected with a liquid supply under pressure the combination of two independently mounted valve stems and valves contained in the said faucet with two independent discharge-passages, a common supply chamber, a reciprocating rod, which alternately unseats said valves, and means for operating said rod to cause quick movements of the valves, substantially as specified.

2. In soda-water draft apparatus the combination with a fountain, a valve-case connected therewith, and its dispensing nozzle, of two independently mounted valve-stems with valves thereupon, the adjustable valve-seats, and a movable rod adapted to engage the ends of said valve-stems, and mechanism for operating said rod adapted to produce quick opening of the said valves, substantially as stated and described.

3. The combination of a valve-case adapted to discharge a small or large stream, and composed of two removable plugs which close the ends of a longitudinal bore with, a central chamber formed by said bore and connected with a liquid supply under pressure, adjustable valve-seats, which create valve-chambers and separate the latter from the supply-chamber, a reciprocating rod and independent valves and valve-stems arranged to be actuated by said reciprocating rod, substantially as explained.

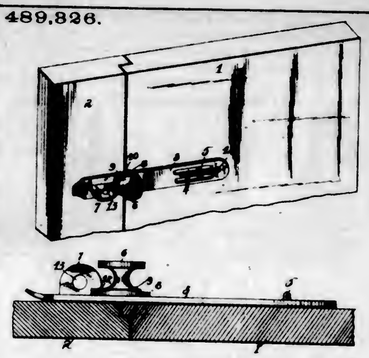
4. The combination in a draft fountain having a faucet for a two stream discharge of a discharge nozzle, a reciprocating rod, a valve chamber, a supply chamber two oppositely disposed spring-actuated valve-stems controlled by said rod together with adjustable valve-seats centrally bored to loosely receive the valve-stems and permit fluid to pass from the supply-chamber to the valve-chamber in order to dispense liquid when the valves are unseated, substantially as set forth.

5. In soda-water draft apparatus the combination with a fountain, a valve-case connected therewith, its dispensing nozzle, and a fixed sleeve equipped with adjustable end caps, of two independently mounted valve-stems with valves thereupon, the adjustable valve-seats, a movable rod adapted to reciprocate in said sleeve, and pendent arms carried by said rod to engage the cups and limit the movement of the valves, substantially as stated.

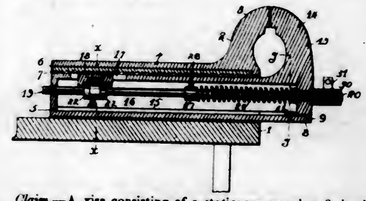
489,326. HASP-LOCK. COSTEN V. PUGH, Bowling Green, Mo., assignor of two-thirds to John Farrell and James A. Dixon, same place. Filed Apr. 12, 1892. Serial No. 428,823. (No model.)

Claim.—The combination, with a hasp, and a catch, of a rotatable button mounted upon the outer face of the hasp and provided with a flange, having a recess at one side, and its outer or upper face reversely inclined from a point diametrically opposite the recess to the latter, whereby said flange is wedged between the hasp and catch when the button is operated; substantially as and for the purpose set forth.

489,326.



489,327. VISE. WILLIAM RATHBONE, St. Louis, Mo., assignor of one-half to William James Price, same place. Filed Apr. 6, 1892. Serial No. 428,030. (No model.)



Claim.—A vise consisting of a stationary member 2, having a rectangular extension 4, ears 32 formed integrally with the said extension for securing the said member to a stand or bench, an opening 5 formed in the said extension, a depression 6 formed in the top of said opening, a ratchet-tooth-plate located within the said depression, an extension 9 formed with the bottom of the said extension 5, having projecting edges 10, a roller 11 journaled in said extension, two peripheral grooves 12 formed in the said roller, a movable member 13, having an extension 15, adapted to be received by the said opening 5, a hollowed out portion 16 formed therein, the lower edges of the sides thereof adapted to be received by the said grooves 12, an operating shaft 19 having screw-threads formed on one of its ends, a cam fixed to the said shaft and provided with rounded extensions 22, a movable ratchet tooth-block 18 adapted to be moved by said cam, and a screw-threaded collar adapted to be screwed upon the projecting end of said shaft for partially rotating said shaft, and moving said jaw 13 substantially as described.

489,328. OPERA-CHAIR. HERMAN A. J. RIECKERT and LOUIS F. KWIATKOWSKI, New York, N. Y. Filed Nov. 2, 1891. Serial No. 410,698. (No model.)

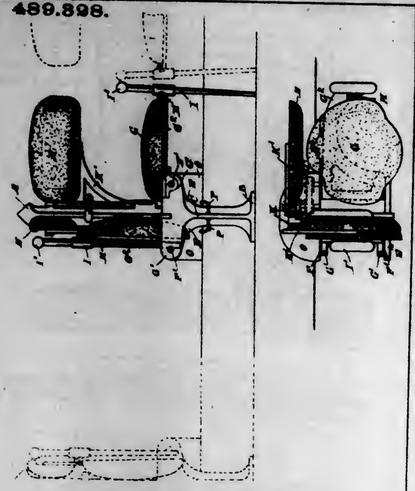
Claim.—1. An opera chair comprising a longitudinally extending frame, a seat frame arranged transversely on the side of the said frame, and a seat proper hinged on top of the seat frame, the hinges extending transversely, substantially as shown and described.

2. In an opera chair, the combination with a longitudinally extending frame provided with a transverse seat frame having a curved front portion, of a seat hinged to the rear edge of the seat frame, the said seat resting upon the frame and projecting beyond the front portion thereof substantially as and for the purpose set forth.

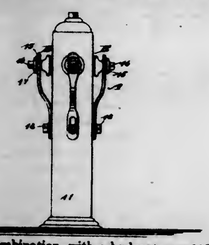
3. In an opera chair, the combination with a longitudinally extending frame, of a seat frame pivoted thereto to swing vertically, and a seat hinged to the upper rear edge of the seat frame to swing vertically and in a direction at right angles to the direction in which the seat frame swings, substantially as described.

4. An opera chair, comprising a longitudinally extending frame, a transversely extending seat frame pivoted to swing vertically, a support hinged to the outer side of the seat frame, a seat hinged to the seat frame, in a direction at right angles to the direction in which the seat frame swings a back mounted on the frame to swing horizontally, and mechanism connecting the back and seat frame for operating them simultaneously to fold them one above the other against the frame, substantially as herein shown and described.

489,828.



489,829. RETAINING DEVICE FOR HYDRANT-CAPS. SALISBURY F. ROSS, Sedalia, Mo. Filed Apr. 28, 1892. Serial No. 430,372. (No model.)



Claim.—1. The combination, with a hydrant post 11, and a cap adapted for application to its nozzle, of a bar attached to the post and having a swivel connection with the cap, as shown and described, whereby the latter is adapted for rotation as required to secure it to or detach it from the nozzle, as specified.

2. The combination, with a hydrant cap, of a retaining link or bar pivotally connected at one end with the cap, the other end of the bar being carried out of the vertical plane of the end connected with the cap, and a means, substantially as shown and described, for connecting the unattached end with the hydrant post, as and for the purpose set forth.

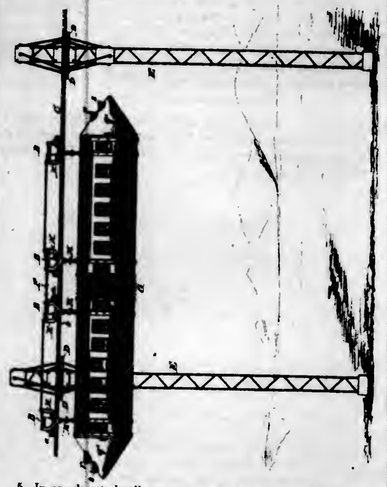
489,830. ELECTRIC ELEVATED RAILWAY. ANDREW L. RIPLEY, Washington, D. C. Filed Feb. 20, 1892. Serial No. 422,280. (No model.)

Claim.—1. In an elevated railway system, the combination with the motor magnet frame A, arranged horizontally with one arm over the other, of the forked yoke whose two upper arms extend across and are secured in parallel position on the end portions of the upper arms of said magnet frame, the single lower arm of such yoke extending beneath the magnet frame midway between its ends, the armature shaft and motor axle provided with transporting wheels and arranged as shown and the yoke *f* in which the said shaft and axle has its bearings, and the pair of transporting wheels *a a* and their axle having bearings attached to the head of the motor frame, all as shown and described.

2. In an elevated railway system, the combination with double-wheeled motors or carriers B, B, adapted for running on an elevated track, and a car arranged beneath said carriers and track, of the universal-joint coupling which suspends the car from the carriers and allows it a limited independent movement both longitudinally and laterally, as specified.

3. In an elevated railway system, the combination with the wheeled motor carriers, adapted to run on an elevated track, and a car arranged beneath them, of the ball-and-socket coupling K and the pivotal or hinged connection between such coupling and the carrier and car, as shown and described.

4. In an elevated railway system, the combination with the two-railed track, and the motor mounted thereon, of the U yoke whose upper portion extends over and is secured to the frame of said motor, its lower horizontal arm extending beneath the track and beyond its median longitudinal line and the car coupled to the inner end of such lower arm, as and for the purpose specified.



5. In an elevated railway system, the combination with the cars, a jointed suspending device or support therefor, the wheeled motors B running on the elevated track, and the elastic connection between said motors, the same being adapted to resist both tension and thrust, elastically, as shown and described.

6. In an elevated railway system, the combination with motors supporting adjoining cars, of the elastic coupling device having a jointed attachment to said motors and adapted to yield to both tension and thrust, as shown and described.

7. In an elevated railway system, the combination with motors and an elastic device which couples them, of cars suspended from said motors and an elastic "vestibule" connected between them, as shown and described.

8. In an elevated railway system, the combination with a wheeled carrier mounted on an elevated track, a car suspended therefrom by a jointed coupling which permits a lateral swing, and seats suspended from the roof of the car and adapted to swing independently, as shown and described.

9. In an elevated railway system, the combination with the suspended car adapted to swing laterally, of seats which are suspended within the same side by side, and face in opposite directions, as shown and described.

489,831. DRUGGIST'S WEIGHING-SCALES. WILLIS H. SARGENT, St. Johnsbury, Vt., assignor to the E. & T. Fairbanks & Company, same place. Filed Sept. 3, 1892. Serial No. 444,984. (No model.)

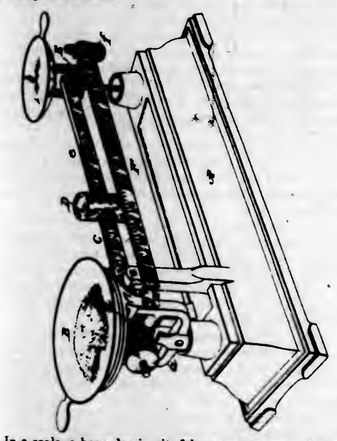
Claim.—1. In a scale, a beam having its fulcrum nearer one end than the other, a receptacle for heavy articles carried by the shorter arm, a receptacle for lighter articles on the long arm, said beam having two sets of graduations, and a separate poise for each set of graduations; substantially as described.

2. In a scale, a beam comprising a main part carrying upon either end a receptacle for the articles to be weighed and having its fulcrum nearer one end than the other, a poise sliding thereon, a second part attached to said main part, and a poise sliding thereon, the parts of said beam being provided with different sets of graduations; substantially as described.

3. In a scale, a beam, receptacles carried on opposite sides of the fulcrum thereof, and a separate poise for each receptacle sliding on said beam; substantially as described.

4. In a scale, a beam having its fulcrum nearer one end than the other, a receptacle for heavy articles carried by the shorter arm, a receptacle for lighter articles on the long arm, and a poise for each receptacle sliding on the long arm; substantially as described.

5. In a scale, a beam having its fulcrum nearer one end than the other, a receptacle carried upon each arm of the beam, said beam having two sets of graduations, the zero in one of said sets being located near the fulcrum while the zero in the other set is located near the end of the beam, and a poise for each of said sets of graduations, substantially as described.



6. In a scale, a beam having its fulcrum nearer one end than the other, a receptacle carried upon each arm of the beam, said beam being provided with a plurality of sets of graduations, the sets being located between the fulcrum and one end of the beam, and a poise for each set, substantially as described.

7. In a scale a beam having its fulcrum nearer one end than the other, a receptacle carried upon each arm of the beam, said beam being provided with a plurality of sets of graduations, the sets being located between the fulcrum and one end of the beam, the zero upon one set being at the end of the graduations nearer the fulcrum, while the zero upon a second set is at the end of the graduations nearer the end of the beam, and a poise for each set, substantially as described.

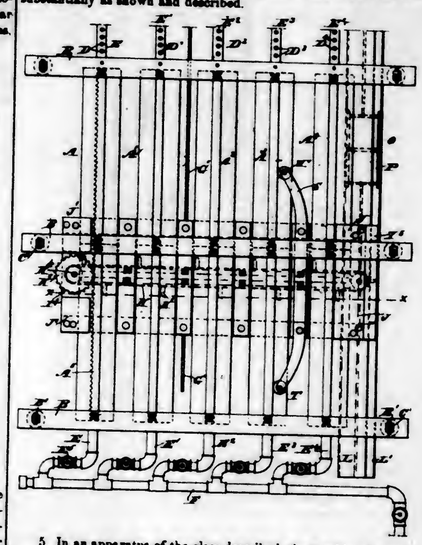
489,832. APPARATUS FOR THE MANUFACTURE OF GAS-BLACK. DAVID M. SOBERHEIMER, PETER V. SOBERHEIMER, and SIMON P. SOBERHEIMER, Warren, Pa.; said David M. Sobermerhorn and Peter V. Sobermerhorn assignors to Simon P. Sobermerhorn. Filed Mar. 21, 1892. Serial No. 425,796. (No model.)

Claim.—1. In an apparatus of the class described, the combination with burners arranged in parallel rows, of depositing plates arranged over the said burners and located parallel to each other with intervening spaces to permit the exit of the volatile gases, and a box mounted to travel between the said depositing plates and the said burners, the said box being provided with scrapers adapted to remove the carbon from the said plates, and a traveling belt or chain arranged in the said box and serving to carry the scraped-off carbon to a discharge spout on one side of the box, substantially as shown and described.

2. In an apparatus of the class described, the combination with a series of depositing plates arranged parallel and located suitable distances apart, of a box mounted to travel underneath the said depositing plates and formed with transverse scrapers adapted to remove the carbon from the said plates, and a traveling belt or chain arranged in the said box and formed with wings for moving the scraped off carbon to a discharge spout on one side of the box, substantially as shown and described.

3. In an apparatus of the class described, the combination with a series of depositing plates arranged parallel and located suitable distances apart, of a box mounted to travel underneath the said depositing plates and formed with transverse scrapers adapted to remove the carbon from the said plates, a traveling belt or chain arranged in the said box and formed with wings for moving the scraped off carbon to a discharge spout on one side of the box, and bars or slots held on the said box and extending between two adjacent depositing plates so as to close the space between the said depositing plates to prevent the scraped-off carbon from passing upward, substantially as shown and described.

4. In an apparatus of the class described, the combination with a box mounted to travel and provided with scraper plates, of a traveling chain or belt arranged in the said box and passing around the said scraping plates, the said chain or belt being formed with wings for moving the carbon to a discharge spout on one side of the box, substantially as shown and described.



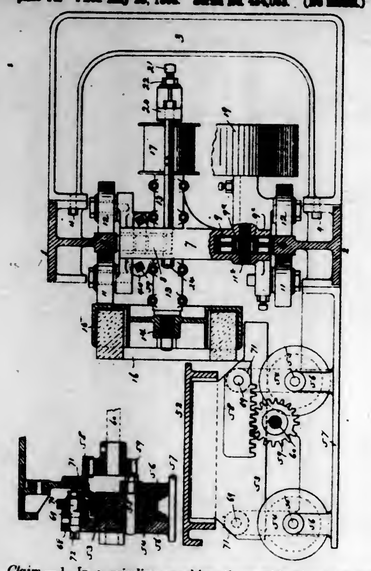
5. In an apparatus of the class described, the combination with a series of depositing plates arranged parallel and located suitable distances apart, of a box mounted to travel underneath the said depositing plates and formed with transverse scrapers adapted to remove the carbon from the said plates, a traveling belt or chain formed with wings for moving the scraped-off carbon to a discharge spout on one side of the box, and a carbon receiving receptacle connected with the discharge end of the said box to receive the carbon moved by the wings of the said endless chain or belt, substantially as shown and described.

6. In an apparatus of the class described, the combination with a series of depositing plates arranged parallel and located suitable distances apart, of a box mounted to travel underneath the said depositing plates and formed with transverse scrapers adapted to remove the carbon from the said plates, a traveling belt or chain for moving the scraped-off carbon to a discharge spout on one side of the box, a chute extending from the discharge end of the said box, and a receiving receptacle or box into which discharges the said chute, substantially as shown and described.

7. In an apparatus of the class described, the combination with a series of longitudinally extending depositing plates arranged parallel and located suitable distances apart and of which one is formed with rack teeth, of a box having a discharging spout and mounted to travel on the under sides of the said plates and comprising a frame supported from and traveling on the outermost depositing plates, scraping plates held in the said frame and arranged transversely to the said depositing plates, a chain provided with wings and adapted to travel around the said scraping plates, sprocket wheels over which passes the said chain, and a gear wheel secured on one of the shafts of the said sprocket wheels, and in mesh with the rack teeth of one of the depositing plates, substantially as shown and described.

8. In an apparatus of the class described, the combination with a series of longitudinally extending depositing plates arranged parallel and located suitable distances apart and of which one is formed with rack teeth, of a box mounted to travel on the under sides of the said plates and comprising a frame supported from and traveling on the outermost depositing plates, scraping plates held in the said frame and arranged transversely to the said depositing plates, a chain provided with wings and adapted to travel around the said scraping plates, sprocket wheels over which passes the said chain, a gear wheel secured on one of the shafts of the said sprocket wheels and in mesh with the rack teeth of one of the depositing plates, and a chute extending from one side of the said box and into which discharge the wings of the said chain, substantially as shown and described.

489,833. GRINDING-MACHINE. FRANCIS SCHUMANN, Philadelphia, Pa. Filed May 23, 1892. Serial No. 434,063. (No model.)



Claim.—1. In a grinding machine, the combination of a main frame having longitudinal tracks or guides, a crosshead or frame mounted on said guides and adapted to reciprocate longitudinally of the machine, a grinding wheel and shaft for actuating the same mounted in said crosshead, a worktable extending in a direction parallel with the movement of the crosshead, a chain connected with the cross head, sprocket wheels on each side of the cross head for actuating the same, and means for moving said table toward and from the grinding wheel, substantially as set forth.

2. In a grinding machine, the combination of a main frame having longitudinal tracks or guides, a crosshead or frame mounted on said guides and adapted to reciprocate longitudinally of the machine, and roller supports for said cross head engaging the inner and lateral faces of said guides a grinding wheel and shaft for actuating the same mounted in said cross head, a work table extending in a direction parallel with the movement of the crosshead, and means for moving said table toward and from the grinding wheel, substantially as set forth.

3. In a grinding machine, the combination of a main frame having longitudinal tracks or guides, a crosshead or frame mounted on said guides and adapted to reciprocate longitudinally of the machine, and roller supports for said cross-head adjustable toward said tracks a grinding wheel and shaft for actuating the same mounted in said crosshead, a worktable extending in a direction parallel with the movement of the crosshead, and means for moving said table toward and from the grinding wheel, substantially as set forth.

4. The combination with the main frame having the longitudinal guide rails or tracks, of a crosshead or carriage provided with vertical rollers engaging the inner faces of said tracks, horizontal rollers engaging the sides of the tracks, and adapted to sustain the crosshead in position against the pressure of the work operated upon, a power shaft mounted in said crosshead, a grinding wheel carried by said shaft, a worktable, and means for actuating said table and crosshead, substantially as set forth.

5. The combination with the main frame having longitudinal tracks or guides, a cross head engaging and movable along said guides, a chain attached to said cross head and extending in both directions therefrom parallel with the frame, a sprocket wheel at each end of the frame supporting said chain, a shaft and grinding wheel mounted on said cross head, a belt pulley on said shaft, stationary belt pulleys at each end of the frame, idler pulleys carried by said cross head, a driving belt passing around said stationary pulleys, idlers, and the pulley of the grinding wheel shaft, and a work table in proximity to the grinding wheel, substantially as set forth.

6. The combination with the main frame having longitudinal tracks or guides, a cross head engaging and movable along said guides, a chain attached to said cross head and extending in both directions therefrom parallel with the frame, a wheel at each end of the frame supporting said chain, gearing for actuating one of the latter wheels to reciprocate said chain and cross head, a friction clutch connected with said gearing and through which the gearing is actuated, a shaft and grinding wheel mounted on the cross head, and a work table, substantially as set forth.

7. The combination with the main frame, and a grinding wheel longitudinally movable thereon, of a work table, racks and pinions for actuating the same, a shaft 60 carrying said pinions, a chain wheel 61 on said shaft, a chain pinion 63, a shaft 64 carrying the latter, and a hand wheel 67 upon the latter shaft, substantially as set forth.

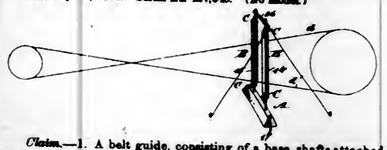
8. The combination with the work table having rails 53 of rollers 54 supporting said rails, rollers 71 engaging the tops of said rails, and journals for the latter rollers adjustable toward or from the rails to confine the latter, substantially as set forth.

9. The combination with the crosshead of frame 7, having bearings 14, of the shaft 14 carrying a grinding wheel, a cross bar or yoke 20 having a bearing for said shaft and a set screw 21 and bolts 23 connecting said yoke with the crosshead on each side of the shaft, substantially as set forth.

10. In a grinding machine, the combination of the main frame consisting of the upper and lower portions 1 and 2 having respectively the tracks 5 and 6, the U-shaped brackets 3 connecting said portions, a crosshead 7 mounted upon said tracks and having a grinding shaft 13 and driving pulley 17, and stationary pulleys 28 and 34 and idler pulleys 19, said pulleys being mounted in line with the space formed by said brackets, substantially as set forth.

11. In a grinding machine having a reciprocating cross head or carriage and a grinding wheel thereon, and as a means of reciprocating said cross head or carriage, a flexible connection such as a chain attached to said cross head and extending in both directions therefrom parallel with its direction of reciprocation, a wheel at each end of the frame supporting said flexible connection, gear wheels 49, 49ª connected with one of said supporting wheels, a counter shaft 35, pinions 50, 50ª mounted loosely on said shaft, an idler pinion 50ᵇ interposed between said gear wheels 49ª and 50ª, and a double friction clutch adapted to be operated to connect either of said pinions 50 or 50ª with said counter shaft, substantially as set forth.

489,834. BELT-GUIDE. WILLIAM L. SCHWALLER, Halbur, Iowa. Filed Apr. 5, 1892. Serial No. 427,845. (No model.)



Claim.—1. A belt guide, consisting of a base, shafts attached to the base, friction rollers adjustable longitudinally upon the shafts, and a latch mechanism connecting the shafts at their upper ends, as and for the purpose specified.

2. A belt guide, consisting of a base, shafts attached to the base, friction rollers capable of longitudinal movement upon the shafts, boxes located upon the shafts, one above and one below each roller, the said boxes being adjustable to and from the rollers, and a latch device located near the upper ends of the shaft and adapted to connect them, as and for the purpose set forth.

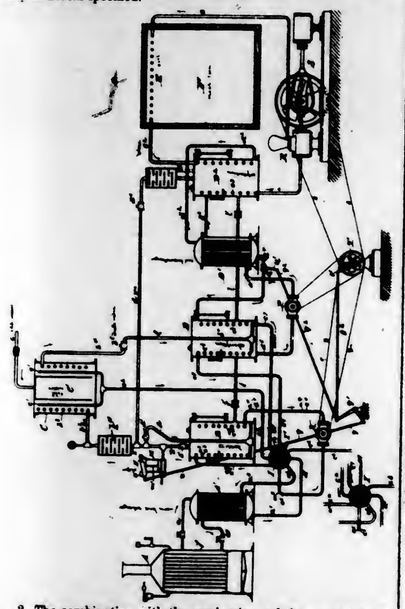
3. A guide device for belts, consisting of a base, shafts secured at one end to the base, friction rollers mounted upon the shafts, capable of longitudinal movement and provided with trunnions at their extremities, and boxes located above and below the friction rollers also adjustable upon the shafts, said boxes being provided with a locking mechanism and being adapted to receive the trunnions of the rollers, as and for the purpose set forth.

4. A belt guide consisting of a base, tubular shafts secured at one end to the base, a latch device connecting the upper ends of the shafts, friction rollers loosely mounted upon the shafts, having longitudinal movement thereon and provided with trunnions at their extremities, and boxes longitudinally adjustable upon the shafts and located above and below the rollers, the boxes being provided with sockets for the reception of the trunnions of the rollers, as and for the purpose set forth.

489,835. REFRIGERATING APPARATUS. ALFRED SIEBERT, New York, N. Y. Filed June 23, 1892. Renewed Nov. 30, 1892. Serial No. 453,575. (No model.)

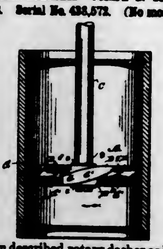
Claim.—1. In a refrigerating apparatus having a heating vessel B and absorption vessel D, the cooler C interposed between the heater

and the absorption vessel and mounted at a higher level, in combination therewith and with a cock I having a multiplicity of passages adapted to change the relations of the connected pipes a' a^2 a^3 a^4 a^5 a^6 a^7 a^8 and with the piston m actuated by the pressure of the gas within the apparatus, and connections therefrom to operate such cock automatically at proper intervals, arranged for joint operation substantially as herein specified.



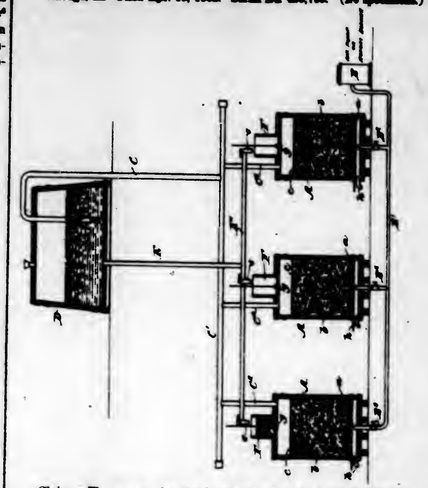
2. The combination with the condensing and the expansion vessel, and the two vessels adapted to act alternately as heating and absorption vessels, of the sources of supply for the heating and for the cooling water, the eight-way cock and means for automatically turning it at intervals, and pipe connections between the cock and various vessels, arranged as described.

489,836. CHURN-DASHER. JOSEPH B. SEWERS, Decatur, Ill. Filed June 30, 1892. Serial No. 438,572. (No model.)



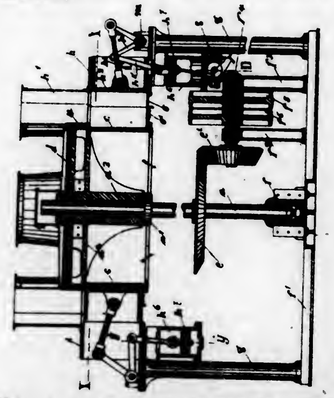
Claim.—The herein described rotary dasher or beater, comprising the handle having a journal at one end, a central circular body portion B, having a central bearing aperture to receive said journal, and the series of peripheral, similar, radial, spiral, or oblique blades, extending each from the peripheral edge of the lower face of the body obliquely to the peripheral edge of the upper face of said body, and having each curved convex upper and lower faces, joining each other at each extremity of the blade to form the oblique horizontal cutting edges f', the upper face of any one blade and the lower face of the next succeeding one forming between them a spiral groove or channel F, both faces of said dasher having the same form, and presenting the appearance of a disk when viewed from above or beneath, substantially as specified.

489,837. PROCESS OF AGING LIQUORS. ROBERT A. GUNN, Chicago, Ill. Filed Apr. 19, 1892. Serial No. 429,795. (No specimens.)



Claim.—The process herein described of aging alcoholic liquors which consists in allowing the liquor to slowly percolate through a mass of wood shavings or equivalent material as described, forcing a current of air through the saturated shavings, condensing the vapors under a liquid seal of the condensed liquor, and returning the latter to the shavings again substantially as shown and described.

489,838. MACHINE FOR CUTTING BEET-ROOTS. FRANK STEPHAN, Worchnistschka, Russia. Filed Nov. 30, 1891. Serial No. 413,622. (No model.)



Claim.—1. A root cutting apparatus comprising a rotating cutting-drum, root hoppers k', root holders k surrounding said cutting drum and pressers k^3 adapted to press and feed the roots against the knives of the cutting-drum as set forth.

2. A root cutting apparatus comprising a rotating cutting-drum, root hoppers, root holders, and root pressers or feeders as set forth, and an operating cylinder to work the root presser, the piston of which operates said root presser by means of a rocking bell crank lever in such a manner that after the feeding stroke the root presser is drawn away from the cutting-drum to permit of a fresh supply of roots, the forward or feeding stroke of the root presser being produced by weighted levers or their equivalent.

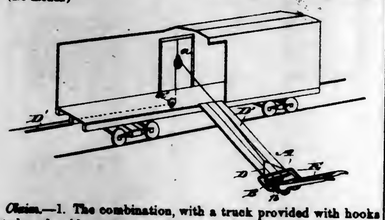
3. In a beet-cutting machine the combination with the cylinder k^4, its piston k^5 provided with the projection i^3, and the fluid supply and exhaust pipes, of the cock i and its lever i', the lever i^2, the rod

i^3 connecting said levers, whereby, when the piston reaches the end of its stroke the fluid supply is cut off and the exhaust opened.

4. In a beet-cutting machine the combination with the cylinder A^2, its piston A^1 provided with the projection i^3, and the fluid supply and exhaust pipes, of the cock i and its lever i^1, the lever i^2, the rod i^4 connecting said levers, and the spring catch k^3, whereby when the piston reaches the end of its stroke the fluid supply is cut off, the exhaust opened, and the cock locked in position.

5. In a beet-cutting machine, the combination of the cutting-drum, the beet-holding chambers at the sides thereof, the reciprocating plungers in said chambers, for feeding the beets forward, and a fluid-pressure apparatus for operating said plungers.

489,839. DEVICE FOR RAISING LOADED TRUCKS. BENJAMIN H. STRATTON, Woodland, Cal. Filed July 18, 1892. Serial No. 440,353. (No model.)



Claim.—1. The combination, with a truck provided with hooks pivoted at the side portions of its outer end, of a frame adapted for attachment to a hoist rope, the said frame being of skeleton shape, a plate located within the frame, a space being left between the lower edge of the plate and the lower portion of the frame, and arms connected with the frame and supporting the plate, as and for the purpose specified.

2. The combination, with a truck and hooks pivoted to the forward or outer ends of the truck at its sides, of a frame, a hoist rope connected with the frame, and a plate suspended within the frame, the hooks being adapted for automatic engagement with the frame, as and for the purpose set forth.

3. The combination, with an inclined plane, a hoist rope leading over the same, and a truck having hooks pivoted at the side portions of its frame and capable of swinging outward and inward, of a frame, an attachment between the frame and the hoist rope, the frame being adapted to travel upon the inclined plane, the said frame having a portion thereof fitted to receive and be grasped by the hooks of the truck, substantially as shown and described

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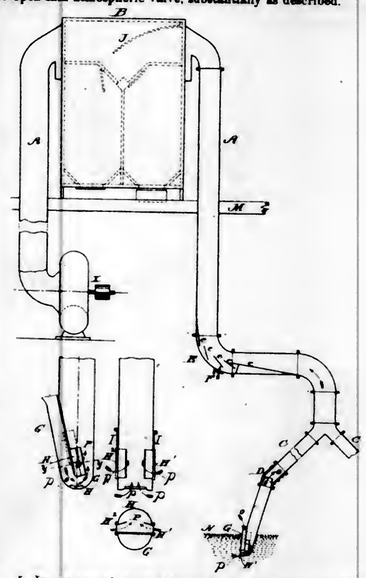
489,840. PNEUMATIC GRAIN-ELEVATOR. JOHN R. STONER, New York, N. Y., assignor to Charles R. Hillhouse, same place. Filed Aug. 26, 1891. Serial No. 403,760. (No model.)

Claim.—1. In a grain elevator, a pneumatic tube connected with a suitable exhaust and having at its point of delivery a deflector and an enlarged area of exhaust for facilitating the delivery of the grain and at its supply end a device for preventing the clogging of the pneumatic tube, which consists of the tube G running from said point of supply in the grain to the atmosphere above the grain, and openings H' and H^3 in the pneumatic tube adapted to allow the grain to drop into a rising current of air free from grain, which is introduced into the pneumatic tube, at its supply end below said openings, from tube G, substantially as described.

2. In a pneumatic grain elevator, the tube G, for admitting air free from grain into the pneumatic tube at its supply end, and which runs from said point of supply in the grain to the atmosphere above the grain, and openings H' and H^3 in the pneumatic tube, above the point at which the air is admitted, adapted to allow the grain to drop into the rising current of air within the pneumatic tube, substantially as described.

3. In a pneumatic grain elevator, an automatic hopper for receiving the grain from the pneumatic tube and delivering the same, which consists of two compartments, each provided with a valve communicating with the exhaust and also a valve communicating with the atmosphere, a door at the top for receiving the grain, and a door at the bottom for delivering the same, and with means of opening said atmospheric valve by the pressure of the grain as it fills the compartment, and independently of the movement of the doors said parts in the compartment being arranged to operate alternately substantially as described.

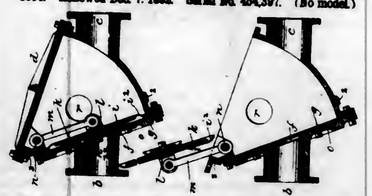
4. In a pneumatic grain elevator, having a hopper comprising two compartments for alternately receiving and delivering the grain, each compartment being provided with a valve communicating with the exhaust and a valve communicating with the atmosphere, and also with a door at the top for receiving the grain and a door at the bottom for delivering the same, the device for opening said atmospheric valve in each of said compartments which consists of the combination of (1) push-board Q, (2) rod, r, and (3) spring S, substantially as described.



5. In a pneumatic grain elevator, having a hopper comprising two compartments for alternately receiving and delivering the grain, each compartment being provided with a valve communicating with the exhaust and a valve communicating with the atmosphere, and also with a door at the top for receiving the grain and a door at the bottom for delivering the same, the device for opening said atmospheric valve in each of said compartments which consists of the combination of (1) push-board Q, (2) rod, r, and (3) spring S, substantially as described.

6. In a pneumatic grain elevator having a hopper comprising two compartments for alternately receiving and delivering the grain, each compartment being provided with a valve communicating with the exhaust and a valve communicating with the atmosphere, and also with a door at the top for receiving the grain and a door at the bottom for delivering the same, the device for opening said atmospheric valve, in each of said compartments, which consists of the combination of (1) push-board, Q, (2) rod, r, (3) spring, S, and (4) frame, R, having laps, b, substantially as described.

489,841. VALVE FOR AUTOMATIC DRY-PIPE FIRE-EXTINGUISHERS. WILLIAM H. STRATTON, Providence, R. I. Filed Aug. 21, 1891. Renewed Dec. 7, 1892. Serial No. 454,397. (No model.)



Claim.—1. An automatic inlet valve specially designed for use in connection with dry-pipe systems of automatic sprinklers, composed of a shell, valve seats, and valves composed of two members differential in area and united by a common medium and movable flexibly with relation to one another and thus seating independently and also conjointly, substantially as described.

2. An inlet-valve specially designed for use in automatic fire extinguishers, composed of a shell constructed with valve seats, and a valve constructed of disks of stiff but flexible material of differential area and having dished rims to fit the said seats more or less tightly in accordance with the degree of pressure exerted thereupon, substantially as described.

3. The combination with the shell having seats, of a valve composed of disks of flexible material and of unequal diameters, and with dished rims to fit said seats, and reinforcing washers, substantially as described.

4. The combination with a shell having seats, of a valve composed of flexible disks of different diameter and having dished rims, stiffening washers therefor, and a bolt for connecting the disks and washers, substantially as described.

489,842. AUTOMATIC FIRE-EXTINGUISHER. WILLIAM H. STRATTON, Providence, R. I. Filed Aug. 21, 1891. Renewed Dec. 7, 1892. Serial No. 454,396. (No model.)



Claim.—1. An automatic fire extinguisher having a nipple, a rabbeted valve seat of non-corrodible material, and a flexible saucer-shaped valve held to its seat by suitable supports, substantially as described.

2. An automatic fire extinguisher having a nipple, a rabbeted valve seat of non-corrodible material inserted in said nipple, a flexible saucer-shaped valve, a rigid pillow block for said valve, and means to hold the pillow block and valve in place, substantially as described.

3. In a sprinkler, the combination of a nipple recessed at its educt, a valve seat arranged in said recess, a yoke, and posts screwed into the nipple and suspending the yoke from the nipple and having laterally projecting flanges upon which the valve seat rests, substantially as described.

4. The combination of the recessed nipple, a recessed valve seat arranged therein, a flexible saucer-shaped valve having its rim fitted into the recess of the valve seat, a cone-shaped post and a pillow block of reverse curvature from the valve for supporting the valve, a distributer, and a yoke for supporting it, substantially as described.

5. A sprinkler and a valve to close it, combined with a valve support, a protector, and a cap held in place beneath the valve support and protector by a fusible medium to hold them in position normally and to free them upon an undue elevation of temperature, and having an adjustable medium to force the protector to place, substantially as described.

6. In a sprinkler, a valve, a support for the valve, a yoke having a tubular extension, a cap detachably secured to said tubular extension and provided with a screw-threaded flange, a protector, and a nut engaging the said screw-threaded flange of the cap and bearing upon the protector to hold it in place, substantially as described.

489,843. PICTURE. JAMES F. TALLANT, Charleston, S. C. Filed Nov. 2, 1891. Serial No. 410,650. (No model.)



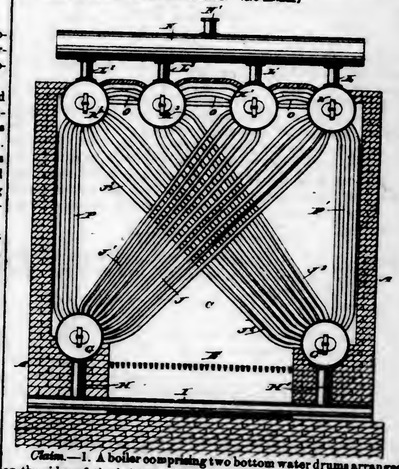
Claim.—1. As an improved article of manufacture, an uncolored picture produced upon a sheet of translucent material, and provided with an essentially transparent flexible protective sheet disposed upon its face, said translucent sheet having colors supplied at its rear side and visible only when held to the light; substantially as and for the purpose set forth.

2. As an improved article of manufacture, an uncolored picture produced upon translucent material and provided with a transparent flexible protective sheet upon its face, a backing sheet, and an intermediate sheet of translucent material disposed between the backing sheet and picture and carrying colors or tints upon its front side, said tints or colors being visible only when the picture is held to the light; substantially as and for the purpose set forth.

3. The herein-described method of mounting and treating uncolored pictures consisting in securing to the face thereof by a transparent adhesive a transparent flexible protective sheet, and securing to the back of said picture a sheet provided upon its opposing face with the desired tints or coloring; substantially as and for the purpose set forth.

4. As an improved article of manufacture, an uncolored translucent picture carried by a transparent flexible protective sheet and supplied at its back with coloring visible only when held to the light; substantially as and for the purpose set forth.

489,844. BOILER. FERDINAND J. TERUN, Romeo, Wis. Filed June 13, 1892. Serial No. 436,632. (No model.)



Claim.—1. A boiler comprising two bottom water drums arranged on the sides of the brick work, sets of diagonal tubes leading from the said bottom water drums, top water drums connected with the sets of diagonal tubes, vertically arranged return tubes connecting the bottom water drums with the side top drums, and sets of pipes connecting the top water drums with each other, substantially as shown and described.

2. A boiler comprising two bottom water drums arranged on the sides of the brick work, sets of diagonal tubes leading from the said bottom water drums, top water drums connected with the sets of diagonal tubes, vertically arranged return tubes connecting the bottom water drums with the side top drums, sets of pipes connecting the top water drums with each other, and mud drums extending transversely below the bottom water drums and connected with the same by short tubes, substantially as shown and described.

3. A boiler comprising two bottom water drums arranged on the sides of the brick work, sets of diagonal tubes leading from the said bottom water drums, top water drums connected with the sets of diagonal tubes, vertically arranged return tubes connecting the bottom water drums with the side top drums, sets of pipes connecting the top water drums with each other, and a dome arranged transversely above the said top water drums and connected with the same by short tubes substantially as shown and described.

4. A boiler comprising brick work having a bridge wall dividing the interior of the brick work into a front and rear compartment connected with each other over the top edge of the bridge wall, a grate arranged in the said front compartment, bottom water drums arranged in the interior of the said brick work at the sides thereof, top water-

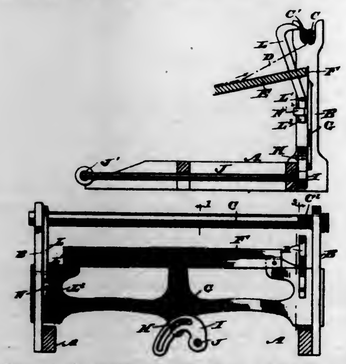
drums arranged in the upper part of the said brick work, sets of diagonally-extending tubes connecting the bottom water drums with the top water drums, and vertically-arranged return water tubes connecting the side top drums with the bottom water drums, substantially as shown and described.

5. A boiler comprising brick work having a bridge wall dividing the interior of the brick work into a front and rear compartment connected with each other over the top edge of the bridge wall, a grate arranged in the said front compartment, bottom water drums arranged in the interior of the said brick work at the sides thereof, top water drums arranged in the upper part of the said brick work, sets of diagonally-extending tubes connecting the bottom water drums with the top water drums, vertically-arranged return water tubes connecting the side top drums with the bottom water drums, and pipes connecting the said top water drums with each other, substantially as shown and described.

6. A boiler comprising brick work having a bridge wall dividing the interior of the brick work into a front and rear compartment connected with each other over the top edge of the bridge wall, a grate arranged in the said front compartment, bottom water drums arranged in the interior of the said brick work at the sides thereof, top water drums arranged in the upper part of the said brick work, sets of diagonally-extending tubes connecting the bottom water drums with the top water drums, vertically-arranged return water tubes connecting the side top drums with the bottom water drums, pipes connecting the said top water drums with each other, and transversely-extending mud drums located below the bottom water drums and connected with the same by short tubes, substantially as shown and described.

7. A boiler comprising brick work having a bridge wall dividing the interior of the brick work into a front and rear compartment connected with each other over the top edge of the bridge wall, a grate arranged in the said front compartment, bottom water drums arranged in the interior of the said brick work at the sides thereof, top water drums arranged in the upper part of the said brick work, sets of diagonally-extending tubes connecting the bottom water drums with the top water drums, vertically-arranged return water drums, pipes connecting the said top water drums with each other, transversely-extending mud drums located below the bottom water drums and connected with the same by short tubes, and a chimney connected with the bottom of the said rear compartment, substantially as shown and described.

489,845. ATTACHMENT FOR WALL-PAPER-TRIMMING MACHINES. HENRY B. TIFFANY, Clyde, Ohio. Filed July 22, 1892. Serial No. 440,866. (No model.)



Claim.—1. The combination with a frame and the paper winding roll turning freely in bearings therein, and having a narrow longitudinal slot to hold the end of the paper while it is being wound around the roller, of a reciprocating plunger blade separate and independent of the roller and adapted to push the end of the paper into the roller slot, substantially as described.

2. An attachment for wall paper trimming machines, comprising a slotted paper-receiving roller, a reciprocating plunger for pushing the end of the paper into the slot, and means for locking the roller in place during the time the paper is inserted in the slot, substantially as shown and described.

3. An attachment for wall paper trimming machines, comprising a slotted paper-receiving roller, a reciprocating plunger for pushing the end of the paper into the slot, and an aligning arm carried by the plunger to hold the said roller in the proper position so that its slot stands in alignment with the reciprocating plunger, said roller being constructed at one end to co-operate with said aligning arm, as set forth.

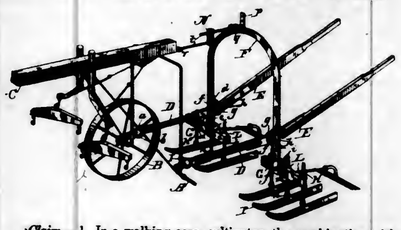
4. An attachment for wall paper trimming machines, comprising a slotted paper-receiving roller, a reciprocating plunger for pushing the end of the paper into the slot, means, substantially as described, for moving the said roller into the proper position so that its slot stands in alignment with the reciprocating plunger, and means for locking the roller in place after it is moved into the proper position, as set forth.

5. In an attachment for wall paper trimming machines, the combination with a slotted roller, of a plunger adapted to push the paper into the said slot, and a shaft having a cam engaging a pin or projection on the plunger for imparting a reciprocating motion to the said plunger, as set forth.

6. In an attachment for wall paper trimming machines, the combination with the slotted paper receiving roller, a hook for locking the paper-receiving roller in place and provided with an extension standing at an angle to the shank of the hook, of a plunger to push the paper into the roller slot and a keeper mounted on the plunger or connected therewith to move vertically and engaging the said extension and shank of the hook to impart a swinging motion to the latter to lock and unlock the said roller, substantially as shown and described.

7. An attachment for paper trimming machines, comprising the frame having standards provided with open slots at their upper ends at an angle oge to the other, the longitudinally slotted winding roller mounted in the said standards and provided at one end with a squared portion, a plunger movable toward and from the roller to push the paper into its slot, a piveted hook movable across one end of the roller when the plunger moves toward it and actuated from the said plunger, a fork projecting up from the plunger to engage the squared portion of the roller, and an operating shaft for the plunger, substantially as described.

489,846. CULTIVATOR. JUSTUS D TOWER and AUGUSTUS C. TOWER, Mendota, Ill. Filed July 26, 1892. Serial No. 441,947. (No model.)



Claim.—1. In a walking corn cultivator, the combination with the axle and wheels, of the arch F, carrying a gang of cultivator knives at its lower ends, and connected near its lower ends with said axle by a universal joint, and connected at its upper end to the upper portion of said axle by an adjustable connection, substantially as described.

2. In a walking corn cultivator, the combination of the axle A, carrying supporting wheels and arched at its center; the split collars *a*, on said axle, and carrying sockets *b*; a ball *c*, in each socket; an arm D, connected with said ball, and carrying handles at their outer ends; an arch F, carrying a gang of cultivator knives at its lower ends; a universal joint between said arms D, and the said arch F, and an adjustable connection between the upper part of said arch and the upper part of said axle, substantially as described.

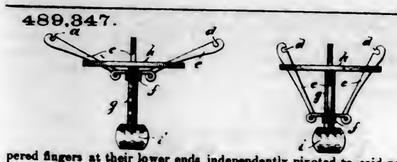
3. In a walking corn cultivator, the combination of the arch F; connected to said axle by a universal joint the shanks H; adjustably connected thereto, and the cultivator knives I, secured at their central portion to said shanks.

4. In a cultivator; a cultivator knife secured to the shank at its central portion for the purpose mentioned, and adjustable both in the line of draft and at an angle thereto substantially as described.

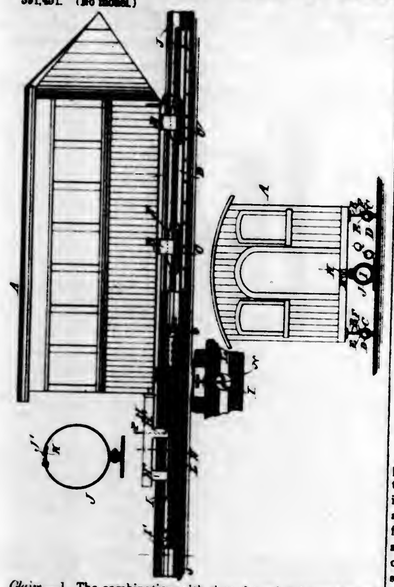
489,847. BED-BRACE. DAVID L. TREXLER, Lexington, N. C., assignor of three-fourths to R. L. Payne, Sr., R. L. Payne, Jr., and J. R. Smith, same place. Filed Aug. 23, 1892. Serial No. 443,787. (No model.)

Claim.—The bed brace fastener composed of the plate having the series of radial slots arranged around its center, the short screw shaft having a thumb piece at its outer end and loosely journaled at its inner end in the center of said plate, the nut on said shaft, and the tapered fingers at their lower ends independently pivoted to said nut and extending up loosely through said slots of the plate and provided with the inwardly facing hooks at their upper ends above the plate, as shown and described.

489,847.



489,848. PNEUMATIC CONVEYER. WILLIAM R. VERNON, Sipe Springs, assignor to himself, and George Vernon, John H. Farmer, and Joseph R. Murphy, Comanche, Tex. Filed May 4, 1891. Serial No. 391,451. (No model.)



Claim.—1. The combination with slotted track tubes, and a car provided with hangers having cylindrical runners fitting in the tubes, of a longitudinally slotted pneumatic tube, a valve of flexible material for closing the slot of the tube a plunger in the tube and a horizontal pusher provided with arms projecting through the slot of the tube and secured to the plunger, substantially as described.

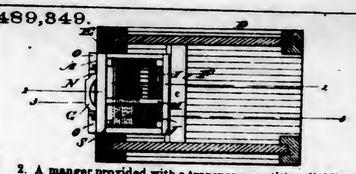
2. The combination, with a pneumatic tube formed with a slot and valves for closing the same, of a plunger fitted to slide in the said tube, a lubricating device laid on the said plunger and engaging the interior surface of the said tube, and a pipe for supplying the lubricant to the said lubricating device, substantially as shown and described.

3. The combination, with a pneumatic tube formed with a slot and valves for closing the same, of a plunger held to slide in the said tube, a pusher secured on the said plunger and adapted to engage the car, and a return pipe connected with a source of compressed air supplying the compressed air to the said pneumatic tube, the said supply pipe being adapted to connect with the farther end of the said pneumatic tube, substantially as shown and described.

489,849. MANGER. WILLIAM VERNON, Kinde, Mich. Filed July 23, 1892. Serial No. 441,462. (No model.)

Claim.—1. The combination with the manger hinged at its lower forward edge to swing outwardly and provided in its lower front wall at the hinged edge with a slot, of a closure for the slot, and a removable grate resting on the bottom of the manger; whereby when the closure is moved from over the slot and the manger swung outwardly, the refuse in the bottom of the manger will be discharged, substantially as set forth.

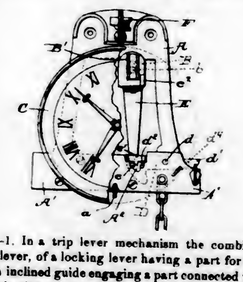
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2. A manger provided with a transverse partition dividing it into two compartments I J, a slot L being formed in the forward wall of the compartment I, a slide N therefor, a removable grating in the bottom of the compartment I, and the grain receptacle within the compartment J and having a slot Q to discharge its contents into said compartment, and a lid for said receptacle, substantially as set forth.

3. The combination with a stall having an opening through its front wall and a tethering cross-bar F near its front wall in line with the opening, of the manger A hinged at its outer lower edge to the bottom wall of the opening to swing outwardly and inwardly therethrough and rest against the cross bar, a partition dividing the manger into two compartments, a removable grating on the bottom of one compartment, a slot in the front wall of said compartment and provided with a slide, the second compartment being provided with a covered receptacle having a slot to discharge its contents therein, substantially as set forth.

489,850. TIME TRIP-LEVER MECHANISM. EUGENE C. WALDUFF, Buffalo, N. Y. Filed June 1, 1892. Serial No. 435,225. (No model.)



Claim.—1. In a trip lever mechanism the combination with a pivoted trip lever, of a locking lever having a part for engaging said trip lever, an inclined guide engaging a part connected with said locking lever, having its ends at different distances from said trip lever and a cam adapted to be operated by a part connected with a clock for positively moving said locking lever longitudinally with respect to said inclined guide whereby said locking lever will be drawn laterally out of engagement with the trip lever, by said inclined guide, substantially as described.

2. In a trip lever mechanism the combination with the trip lever, of a locking lever provided with a locking shoulder for engaging said trip lever and having a lug engaging an inclined guiding slot, of an eccentric adapted to be operated by a part connected with a clock, engaging said locking lever, for moving the same longitudinally whereby the inclined slot will cause said locking lever to move laterally and disengage the trip lever, substantially as described.

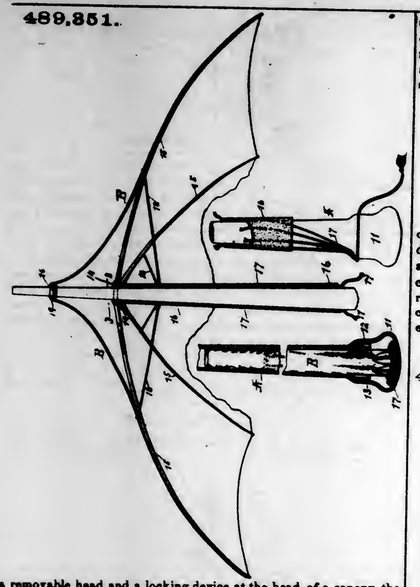
489,851. UMBRELLA-CANE. RUFUS WAPLER, Jr., New York, N. Y. Filed June 27, 1892. Serial No. 438,129. (No model.)

Claim.—1. An umbrella cane, the same consisting of a metal staff or stick provided at its ferrule end with a collar 10 and a canopy adapted to be supported by or removed from the stick, the canopy consisting of a cover having a ring 19 to engage collar 10, a runner which receives the stick and slides freely thereon, ribs pivotally attached to the runner and connected with the cover, flexible braces connected with the ribs and with the runner below the pivotal points of said ribs, and draw strings or cords attached to the runner to draw it downwardly, as and for the purpose set forth.

2. The combination, with a stick or cane, of a canopy adapted to be supported by the stick or cane or removed therefrom, the said canopy comprising a cover, a runner, ribs pivoted to the runner and attached to the cover between their centers and their inner ends, a sleeve projected from the runner, flexible braces connecting the sleeve with the ribs, and draw strings attached to the canopy at the runner, as and for the purpose set forth.

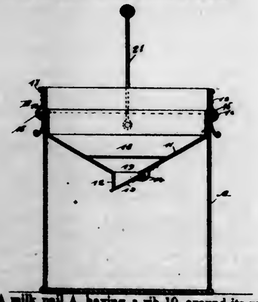
3. The combination, with a hollow stick or cane provided with

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a removable head and a locking device at the head, of a canopy, the same consisting of a cover having an opening for the passage of the stick, a runner capable of free movement upon the stick, ribs pivoted to the runner and secured except at their inner extremities to the cover, the inner portions of the ribs being unattached to the cover, a flexible sleeve projected outward from the runner, flexible braces connecting the sleeve with the ribs, and draw strings connected with the runner and adapted for engagement with the locking device of the stick or cane as and for the purpose specified.

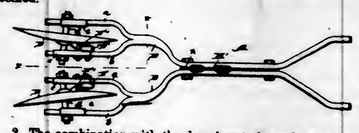
489,852. MILK-PAIL. WILLIAM R. WATT, Somerville, Tenn. Filed Apr. 4, 1892. Serial No. 427,696. (No model.)



Claim.—A milk pail A, having a rib 10, around its upper edge, a strainer B formed in two diameters, a shoulder 15, at the juncture of the two diameters and resting on the upper edge of the pail, a funnel shaped bottom 11, provided with an outlet 12, a spring pressed valve closing upwardly over said outlet, a strainer 18 in the bottom above said outlet, springs 16 on the outer strainer and curved to engage the rib 10, and a cover 20 adapted to fit the pail or the upper end of the strainer B, substantially as set forth.

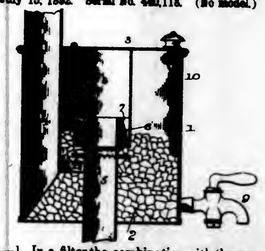
489,853. ATTACHMENT FOR GRAIN-DRILLS. WARREN WESTON, Cimarron, Kans. Filed June 9, 1892. Serial No. 436,125. (No model.)

Claim.—1. The herein described seed drill attachment for grain drills, said attachment comprising the drag bar formed in two parts, spread at their front and rear portions, said rear portions being each curved laterally and downwardly, and bifurcated, the short axles journaled in said bifurcations, the disks or colters carried by said axles, and the grain spouts adjacent to said disks or colters, substantially as specified.



2. The combination with the drag bar A, formed in two parts secured together at their intermediate portions, and curved laterally and downwardly at their rear portions to form the arms B, B, each of said arms being bifurcated, the short axles journaled in adjustable brackets carried by said bifurcations, the concavo-convex disks or colters carried by said axles, the grain spouts adjustably clipped to said bifurcated portions, said spouts being turned rearwardly at their lower ends, and cutters secured to said spouts, substantially as specified.

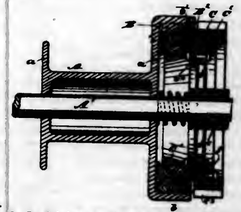
489,854. WATER-FILTER. JOHN E. WELLING, Cynthiana, Ky. Filed July 15, 1892. Serial No. 440,118. (No model.)



Claim.—1. In a filter the combination with the vessel adapted to contain a filtering material and provided with a supply pipe, of the upwardly extending outlet pipe, the removable and vertically adjustable collar mounted thereon, the radial arms and the pipe connected with said collar by the radial arms, and the annular flange, substantially as described.

2. In a filter the combination with the vessel 1 having a hinged cover and a series of overflow openings near its top and a supply pipe leading to near the bottom thereof, of the upwardly extending outlet pipe and the vertically adjustable and removable pipe connected therewith, and the annular flange, substantially as described.

489,855. DRIVING-GEAR FOR HOISTING-DRUMS. PATRICK WHITE, Perth Amboy, N. J. Filed Apr. 13, 1892. Serial No. 429,046. (No model.)

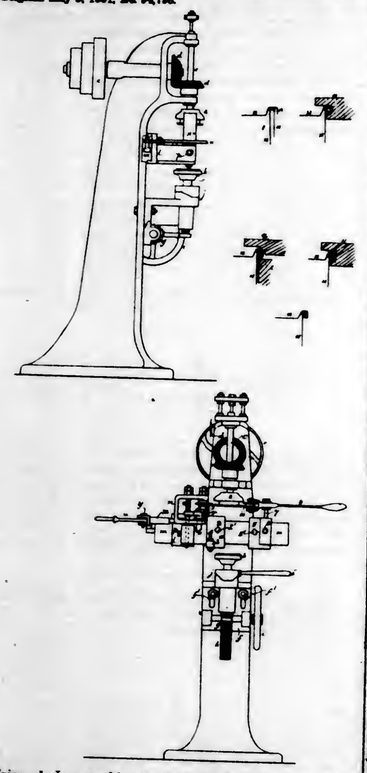


Claim.—1. In driving mechanism for hoisting drums, the combination, with a drive wheel constructed with a removable rim having gear teeth and having a removable drive section of a friction clutch, of a hoisting drum carrying the driven section of the friction clutch, the latter consisting of an integral rim on one end of the hoisting drum, friction blocks held to the said rim by cruciform lugs thereon, and a retainer ring on the said rim, overlying the faces of said blocks and serving to prevent outward movement thereof, substantially as described.

2. In a driving mechanism for hoisting drums, a friction clutch consisting of a drive section, and a driven section having separate friction blocks, supported on lugs on the metallic part of the wheel, and a retainer ring held to the said metallic part, and overlying the friction blocks, substantially as described.

3. In a driving mechanism for hoisting drums, the combination of the hoisting drum, drive wheel, and friction clutch, the driven section of the clutch being carried by the drum, and the drive section being removably held to the drive wheel, and the latter consisting of a rim supported integral with the hub and a second rim having gear teeth and held removably to the first named rim, substantially as described.

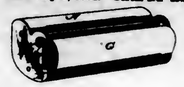
489,856. MACHINE FOR HERMETICALLY CLOSING CANS. PAUL WILLARD, Clichy, France. Filed Aug. 5, 1892. Serial No. 442,341. (No model.) Patented in France Feb. 20, 1891, No. 211,571, and in Belgium May 5, 1891, No. 94,793.



Claim.—1. In a machine for hermetically closing cans and in combination with can holding and rotating devices, and movable pressure disks for performing parts of the closing operation, a movable bracket, a slide for carrying the same, means for adjusting the bracket in the slide means for moving the same, horizontal and vertical pressure disks carried by the bracket, a movable arm on which the vertical disk is mounted a spring for controlling the same and an adjustable fixed stop for operating said arm to raise said disk and bring it beneath the fold of the can end substantially as described.

2. In a machine for hermetically closing cans, and in combination with rotating disks for holding the can; pressure disks for performing parts of the closing operation; a bracket f' vertically movable upon the frame of the machine; means for elevating and depressing the said bracket; means for securing the bracket at any desired height; a bearing block in which is journaled the shaft of the lower disk for holding the can rotatably mounted upon the top of the bracket, and having an inclined lower surface resting upon a corresponding inclined surface upon the bracket, and means for rotating the said bearing block to raise or lower it upon the inclined surfaces, substantially as and for the purposes described.

489,857. POCKET CIGARETTE-MACHINE. GEORGE H. ENOS, Geneva, Nebr. Filed May 9, 1892. Serial No. 433,344. (No model.)





Claim.—1. A cigarette roller, consisting of an inclosing shell or case provided in its end walls with parallel slots, stationary rollers arranged within said shell or case, a movable roller provided at its ends with trunnions which fit in the slots in the end walls of the shell, and an endless belt or apron passing around the stationary and movable rollers, substantially as described.

2. A cigarette roller, consisting of an inclosing shell or case having the slots, provided with the lateral offsets, in the end walls, stationary rollers arranged within the casing, a movable roller provided with gudgeons which fit in the slots in the end walls of the casing, and an endless apron or belt passing around the movable and stationary rollers, substantially as described.

3. A cigarette roller, consisting of a case or shell having in its end walls the parallel slots each provided with an arc shaped offset extending to one side of the length of the slot, stationary rollers journaled in the ends of the case or shell at one side of the slots therein, a movable roller having its trunnions fitted and free to move in the slots in the ends of the case or shell, and an apron fitted around all of the rollers and having a bight provided between the movable rollers and one of the fixed rollers, substantially as described.

489,858. FRAME FOR EYE-GLASSES. JOHN J. BAUSCH, Rochester, N. Y., assignor to the Bausch & Lomb Optical Company, same place. Filed July 29, 1892. Serial No. 441,548. (No model.)



Claim.—1. As an improvement in eye-glasses the frame having a transverse opening through it, and a contracted slot running therefrom through the edge, in combination with the metallic member, having an enlarged end seated in its opening.

2. As an improvement in eye-glasses a frame having a transverse opening, a, a slit a' therein, in combination with a frame member, having its end coiled or beat into enlarged form, and seated in the frame, substantially as described.

3. As an improvement in eye-glasses a frame provided with a transverse opening in its edge, in combination with a frame member having its end seated in said opening and provided with a lip or projection to interlock with the frame and prevent accidental separation of the parts.

4. A frame member for an eye-glass having its end coiled or turned back to form a cylindrical rib, and having on one of its faces, near the ribbed end, a projecting lip.

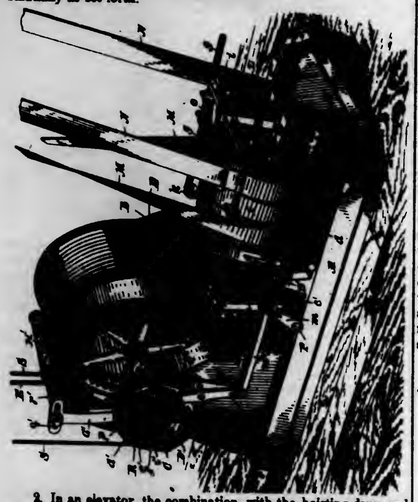
5. In combination with the frame having a transverse opening a, slit a' and notch a^2, the frame member C having the coiled end c and lip c'.

6. In an eye-glass the combination with the clip having on its upper side a channel and on its under side a rib, of the frame having a grooved seat for the clip, and the bow seated in the channel of the clip.

489,859. ELEVATOR. JAMES H. BELDEN, Marlborough, Mass., assignor to Wood & Willard, same place. Filed May 16, 1892. Serial No. 433,493. (No model.)

Claim.—1. In an elevator, the combination, with the hoisting drum and its shaft, the starting and stopping mechanism, and a cam-wheel connected with the latter and adapted to actuate the same, said cam-wheel mounted on the drum-shaft and operated by the hand-rope of differential gears mounted side by side upon the said drum-shaft and provided with suitable stops to limit their movement independently of each other, and a pinion mounted upon a suitable support and mesh-

ing with said differential gears, whereby when the elevator-car reaches the limit of its travel in either direction, said differential gears and pinion will become locked together by the contact of the said stops in such manner as to prevent the rotation of the pinion, and the movement of the drum-shaft thereby transmitted to the cam-wheel to actuate the mechanism connected therewith and stop the machine, substantially as set forth.



2. In an elevator, the combination, with the hoisting drum and its shaft, the starting and stopping mechanism, and a cam-wheel connected with the latter and adapted to actuate the same, said cam-wheel being connected with the hand-rope, of differential gears mounted side by side upon the drum shaft and provided with suitable stops adapted to limit their movement independently of each other, said stops being provided with adjusting screws for regulating the amount of said movement, a pinion mounted upon a suitable support and meshing with said differential gears, whereby when the elevator-car has reached the limit of its travel in either direction, the rotation of the said pinion will be arrested and the movement of the drum-shaft transmitted to the cam-wheel to actuate the mechanism connected therewith and stop the machine, substantially as set forth.

3. In an elevator, the combination, with the hoisting drum and its shaft, the starting and stopping mechanism and a cam wheel connected with the latter and adapted to actuate the same, said cam wheel mounted on the drum-shaft and operated by the hand-rope, of the differential gears d', d', f', mounted loosely on the drum-shaft, one of said gears, as d', being fast to the cam-wheel, and said gears being provided with lugs and slots forming stops, substantially as described, a crank arm secured to the end of the drum-shaft and provided with a pinion meshing with the said differential gears, whereby as it is carried around the same, the gears d', f', will be moved independently of the gear d' as far as permitted by the said lugs and slots, and the crank arm D' on the end of the drum-shaft then caused to be locked with and turn the cam-wheel to operate the mechanism for stopping the machine when the elevator-car has reached the limit of its travel in either direction, substantially as set forth.

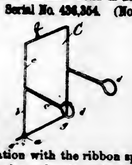
4. In an elevator, the combination, with the hoisting drum and its shaft, the starting and stopping mechanism and the hand-rope cam-wheel connected therewith and adapted to actuate the same, of the differential gears d', d', f', mounted upon the drum-shaft, the gear d' being fast to the cam-wheel and being provided with a lug k', and the gears d' f', being provided with slots i' i', through which said lug k' projects, and said gear d' having a lug k' projecting through the slot of the outer gear f' and provided with an adjusting screw l', and the gear f', having a lug n' provided with an adjusting-screw p', said adjusting-screws adapted to contact with opposite sides of the lug k' of the gear d' according to the direction of rotation of the drum-shaft, the crank arm D' secured to the drum-shaft and carrying the pinion g' meshing with said differential gears, all constructed to operate substantially as described.

5. In an elevator, the combination, with the drum shaft having a fixed gear wheel and the hoisting rope, of a hand rope cam wheel having a gear secured thereto a lever adapted to engage said rope and be normally supported thereby, said lever swinging on its fulcrum by gravitation when released, and having a roll or other suitable bearing at its upper end in contact with said rope, a pair of gears secured to opposite ends of a shaft having its bearings in the lower arm of said lever one adapted to engage the drum-shaft gear and the other the cam-wheel gear when said lever is released and its upper arm swings downward, whereby when the hoisting rope slackens, the mechanism for stopping the machine will be operated, substantially as set forth.

6. In an elevator, the combination, with the hoisting rope, of a weighted lever G' engaging the same near the drum and normally supported by said rope the hand-rope cam-wheel, a pair of gears w', b^3, attached to opposite ends of a shaft having its bearings in the lower arm of said lever and adapted to engage respectively a gear a^3 secured to the drum-shaft and a gear c^3 secured to the hand-rope cam-wheel connected with the starting and stopping mechanism, the gears w', b^3, being normally out of contact with the gears a^3, c^3, and being arranged to engage therewith when the upper arm of the lever G' moves downward, whereby as the hoisting rope becomes slack, the cam-wheel will be connected with the drum-shaft and the mechanism for stopping the machine operated, substantially as set forth.

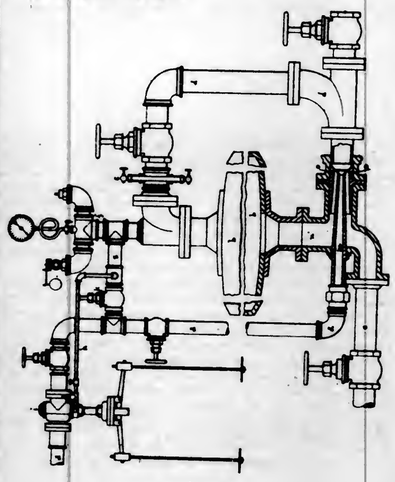
7. In an elevator, the combination, with the drum-shaft and cam-wheel and the gears a^3, c^3, secured respectively thereto, of the swinging lever G', carrying at its lower end a shaft having secured thereto the gears w', b^3, adapted to engage the gears a^3, c^3, but being normally out of contact therewith, said lever G' being provided at its upper end with a roll or bearing H' forming a weight to insure the downward movement of the upper arm of the lever G' as the rope slackens, and of sufficient length to engage the rope while the latter is moving from one end of the drum to the other in winding and unwinding, substantially as set forth.

489,860. RIBBON-HOLDER. JOHN L. BLACK, Chambersburg, Pa. Filed June 11, 1892. Serial No. 436,364. (No model.)



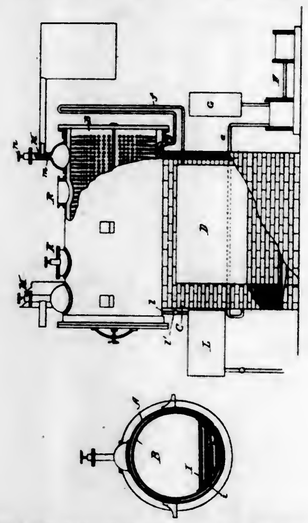
Claim.—In combination with the ribbon spool A, the spring wire holder, made of a single piece of spring wire bent into a substantially rectangular shape and comprising the sides b, c, f and the axial portion g, the projecting arms c c bent at a right angle to the main rectangular portion, said arms forming at their ends the loops d d, the extension f' formed on one end of the wire and the eyelet or loop a formed on the other end of the wire, substantially as and for the purpose described.

489,861. AUTOMATIC CIRCULATOR FOR BLEACHING-KEIRS. THOMAS BOARDMAN, Warehouse Point, Conn. Filed July 9, 1892. Serial No. 439,447. (No model.)



Claim.—The combination, in a bleaching keir, of the tapering nozzle m, ending in a flanged mouth, corresponding in angle and direction with the eaves of an inclosing tube contracted to nearly the size of the nozzle, which it approaches but does not touch, substantially as shown in the accompanying drawings, the nozzle being open at the other end to a steam supply, and the inclosing tube being connected with, and forming part of, a chamber at the bottom of the keir in which the solution collects, the chamber and tube being extended to the upper portion of the keir, while the keir itself is air tight, and has a connection at its upper part with a steam regulator by which, as the pressure falls in the upper portion of the keir, steam is admitted into the nozzle aforesaid, and shut off as the pressure rises.

489,862. EXTRACTING OR SEPARATING LIQUIDS FROM VEGETABLE SUBSTANCES. ADOLPH BOESSELDT, Brooklyn, N. Y., assignor to the National Vacuum Drying and Air Distilling Company, same place. Filed Feb. 26, 1892. Serial No. 422,918. (No specimens.)



Claim.—1. The process of extracting or separating the fluid constituents from vegetable or other organic substances by subjecting such substances to the direct action of air under high pressure, and maintaining such pressure until the desired separation is effected, substantially as described.

2. The process of extracting or separating fluids from vegetable or other organic substances such as herein specified, by placing such substances in a tight vessel, and forcing into the latter air under high pressure sufficient to expel the fluids from the cells of such substances, substantially as described.

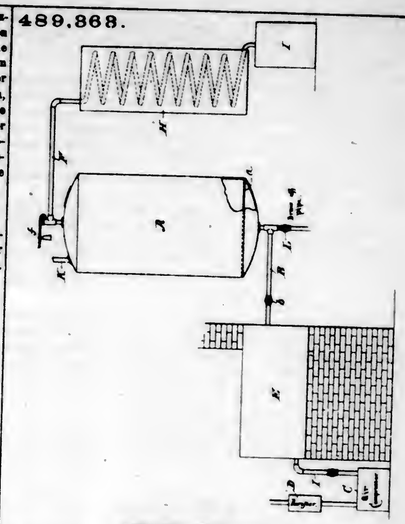
489,863. SEPARATING THE CONSTITUENTS OF LIQUID BODIES. ADOLPH BOESSELDT, Brooklyn, N. Y., assignor to the National Vacuum Drying and Air Distilling Company, same place. Filed Mar. 2, 1892. Serial No. 423,482. (No model.)

Claim.—1. The described process of treating liquid bodies to separate the volatile constituents thereof by subjecting the same in a closed vessel to the action of air under high pressure, and afterward releasing the same in a condensing chamber of low pressure, substantially as set forth.

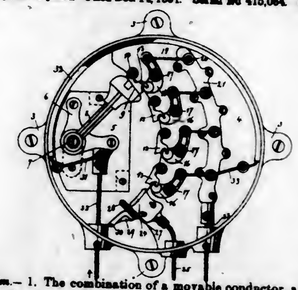
2. The described process of treating liquid bodies to separate the volatile constituents thereof by forcing through the same, while in a closed vessel, currents of air under high pressure, until the pressure in said vessel reaches a predetermined limit, then drawing off the commingled air and vapors into a chamber of low pressure and then condensing the vapors, as set forth.

3. The described process of treating liquid bodies to separate the constituents thereof, by forcing through the same currents of warmed or heated air under high pressure and drawing off the air and vapors into a condensing chamber of low pressure, substantially as described.

489,868.



489,864. COMBINATION FUSE-BOX. WILLIAM F. BOSSERT, Utica, N. Y., assignor to the Utica Electrical Manufacturing and Supply Company, same place. Filed Dec. 14, 1891. Serial No. 415,064. (No model.)



Claim.—1. The combination of a movable conductor, a movable supporter therefor, a fuse wire for securing the supporter, a surface adapted to be engaged by the conductor as it moves, and connected with the earth, and a support for detaining the movable conductor after it has passed the surface, substantially as set forth.

2. The combination of a movable conductor, a movable supporter therefor, a catch for securing the supporter, and a fuse wire holding the catch, substantially as set forth.

3. The combination of a movable conductor, two or more movable supporters therefor, catches for securing the supporters and fuse wires securing the catches and adapted to be brought successively into the circuit by the movement of the movable conductor, substantially as set forth.

4. The combination in a fuse box of a swinging conductor, a supporter for engaging and detaining the swinging conductor and catch for securing the supporter and a fuse wire connecting with and securing the catch, substantially as set forth.

5. The combination in a fuse box of a swinging conductor, two or more movable supporters adapted to engage and detain the movable conductor, catches for securing the several supporters and fuse wires connecting with each of the catches, substantially as set forth.

6. The combination in a fuse box of a conductor wire 23, a movable swing conductor 9, two or more movable supporters 13 adapted to successively detain the movable conductor, a catch for securing the supporter and fuse wires 19 connecting with and securing the catches and current wire 23 connecting with the fuse wires, substantially as set forth.

7. The combination of a current wire, a movable current conductor, a supporter for detaining the movable conductor, a fuse wire

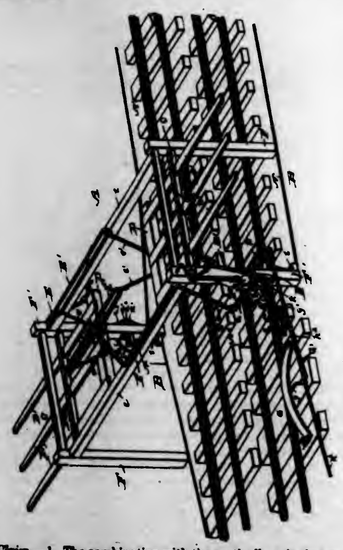
in the circuit for securing the supporter, a contact surface located below the supporter and adapted to be engaged by the movable conductor and an automatic adjustable shelf at the lower end of the contact surface, substantially as set forth.

8. The combination of a current wire, a movable conductor connecting with the current wire, a movable supporter adapted to engage and detain the movable conductor, a fuse wire in the circuit for connecting with and securing the supporter, a ground plate adapted to be engaged by the movable conductor, an automatically movable insulator adapted to interpose itself between the ground plate and the movable conductor after it has passed the ground plate, substantially as set forth.

9. The combination in a fuse box of a conductor wire and pivoted swinging conductor 8 connected therewith, two or more movable supporters 13, adapted to successively engage and support the movable conductor, catches for securing the supporters, fuse wires connecting with and securing the catches and being successively in circuit as the conductor moves, and a resistance coil located in a shunt around the fuse wires, substantially as set forth.

10. The combination in a fuse box of a conductor wire, a movable swinging current conductor 8, movable supporters 13 adapted to successively be engaged by and support the movable conductor, catches for securing the supporters, fuse wires securing the catches and being successively in the circuit as the conductor moves, a resistance coil located in a shunt around the fuse wires, substantially as set forth.

489,365. RAILROAD-CROSSING GATE AND SIGNAL. ISAAC BRIGGS, Middleborough, Mass. Filed Apr. 16, 1892. Serial No. 429,351. (No model.)



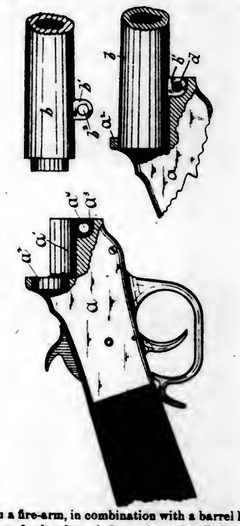
Claim.—1. The combination with the vertically swinging or oscillating gates, one at each side of the tracks, of the wheel-beam located in advance of said gate, the lever acted upon by the action of the wheel-beam, the rock shaft having bearings in the gate frame, its arm, having a flexible connection with the gates, and a second arm connected flexibly with said lever, substantially as specified.

2. The combination with the vertically oscillating or swinging gates, normally held open by gravity, of the distant wheelbeam or trip, the lever having its shorter arm acted upon by said wheel beam, the rock shaft, having one arm flexibly connected with the gates, and a second arm flexibly connected with the distant lever, the dog on said second arm, the rock plates, and means for automatically releasing said dog after the passage of the train, substantially as specified.

3. The combination with the vertically swinging gates normally held open by gravity, the rock shaft having a flexible connection therewith, the spring supported rock plate, designed to engage an arm of said shaft when the gates are closed, the signal lever and signal, also arranged to be locked in display position by said rock plate, of the wheel beams in advance of the gates flexibly connected with the said rock shaft and signal lever, and the wheel beam beyond the gates having a flexible connection with the support for the rack plate, substantially as specified.

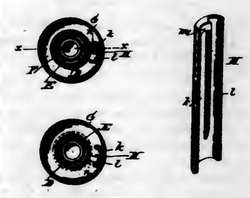
4. The combination with the automatically swinging or oscillating gates, the rock shafts having bearings on the gate frames, and flexibly connected with said gates, the signal lever pivoted to one of the gate posts, means for locking said signal lever, and rock shaft when the gates are down, and the signal displayed, the wheel beams or trips in advance of the gates, their levers, the flexible connections between said levers and the signal lever and rock shaft, the wheel beam located beyond the gates, a connection between said beam and the locking devices for the rock shaft and signal lever, and means for returning said signal and gates to their original position when the lever and rock shaft are released, substantially as specified.

489,366. FIREARM. HORACE A. BRIGGS and CHARLES W. HOPKINS, Norwich, Conn. Filed May 27, 1892. Serial No. 434,651. (No model.)



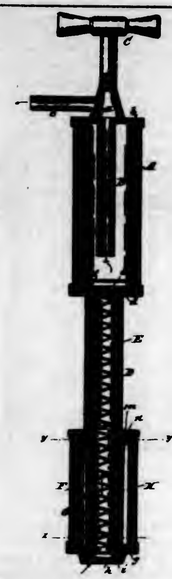
Claim.—In a fire-arm, in combination with a barrel having a perforated lug as set forth, a breech-frame formed with a barrel seat consisting of a semi-circular chamber, with a ring a^3 at its rear portion adapted to encircle the extreme rear end of the barrel, and a locking key extending transversely through the frame and through the said barrel lug, substantially as and for the purpose specified.

489,367. PORTABLE FORCE-PUMP. MOTT B. BROOKS, Oak Point, N. Y. Filed Aug. 24, 1892. Serial No. 443,996. (No model.) Patented in Canada Feb. 1, 1893, No. 38,184.

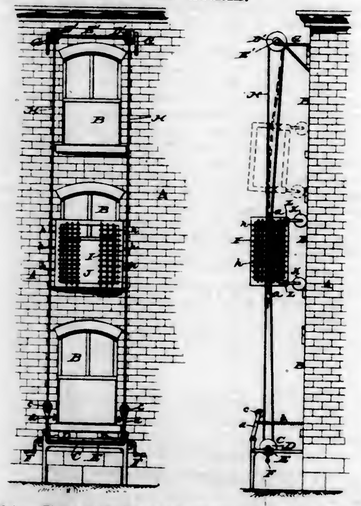


Claim.—In a portable force-pump, the water-cylinder G having upon its interior the plate H formed with guide-ways *k l*, the former being closed at its upper end to present a stop *m*, and the central tube F within the cylinder, in combination with the tube D having lug *n* to engage with the guide-ways, the cylinder A provided with depending tube B, the spring E, and the valves in the bottom of the cylinders, substantially as and for the purpose specified.

489,367.



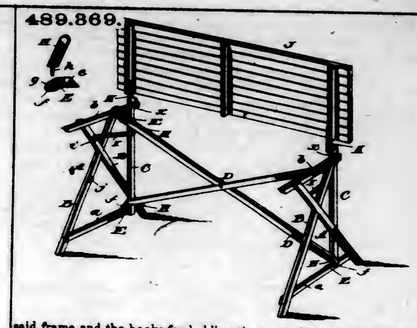
489,368. FIRE-ESCAPE. ROBERT H. BRYON, Sperryville, Va. Filed July 2, 1892. Serial No. 438,811. (No model.)



Claim.—The combination of the windlass C, upper shaft E having grooved end-sheaves D', cage I having clearer-wheels K, and hoisting ropes H attached to the sides of the cage so as to draw it, by their tension, close up against the wall; substantially as and for the purpose shown and set forth.

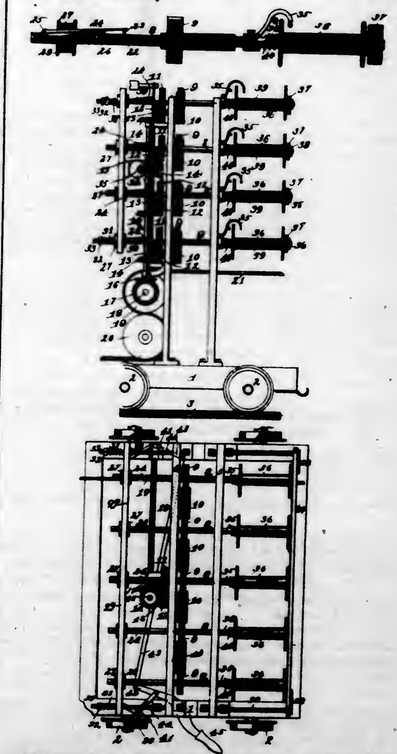
489,369. FOLDING TABLE. SCHUYLER S. CASE, Elmira, N. Y. Filed June 22, 1892. Serial No. 437,060. (No model.)

Claim.—The combination with the crossed end pieces with their cross braces, of the connecting crossed piece pivotally connected with the end pieces to fold theresgainst, the vertical bars connected to said frame and the hooks for holding the parts either in their closed or extended position, and the table top pivotally connected to the upper ends of the said vertical bars and arranged to fold over and against the longitudinal piece, as set forth.



489,370. MACHINE FOR TWISTING AND WINDING CHENILLE. JOHN H. CLASEN, Philadelphia, Pa. Filed Nov. 3, 1891. Serial No. 410,810. (No model.)

Brief.—Upon a car or truck are mounted a series of rotating hollow spindles, and in order to alternately twist and wind the chenille yarns upon bobbins carried by the spindles, but mounted loosely thereon, the yarns are at intervals clamped in their passage through the spindles automatically.



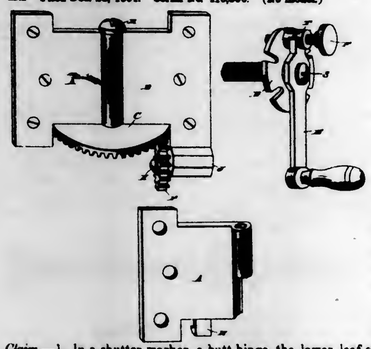
Claim.—1. In a machine for twisting and winding chenille, a hollow spindle having a side aperture and flier, and a winding spool ar-

ranged to receive the twisted chenille, in combination, with a clamping device for alternately clamping and releasing the yarn from the twisting action of the spindle substantially as set forth.

2. In a clamping device for alternately holding and releasing yarns from a spindle, a hollow spindle having an aperture through the side thereof, a lever and pin adapted to press upon the said yarn, in combination with a sliding sleeve, and actuating mechanism to operate said sleeve substantially as and for the purpose set forth.

3. In a machine for twisting and winding chenille yarns, a series of revolving hollow spindles 8, arranged in parallel position in a frame 4, the wheel 19, shaft 18, beveled wheels 17 and 16, 14 and 13, spur wheels 11 and 12 and 9 and 10, for transmitting motion to the spindles 8, in combination with the clamping pin 23, lever 24, spring 22, and sleeve 27, a series of winding spools, flier 35, and the plate 37 and springs 40 arranged to operate substantially as set forth.

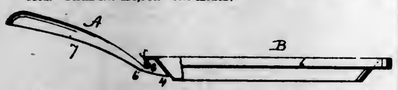
489,371. SHUTTER-REGULATOR. PETER DEVLIN, Baltimore, Md. Filed Dec. 23, 1891. Serial No. 416,396. (No model.)



Claim.—1. In a shutter worker, a butt hinge, the lower leaf of which is provided on its lowest end with an extension molded thereto to hold a spindle to be engaged by a gear wheel, the upper leaf of which is provided on its lower edge with a catch, a segmental gear provided with a recess, to engage said catch and with an aperture to be engaged by the pintle of the hinge, whereby the segmental gear will move with said leaf of the hinge, in combination with a rotating rod which passes through the window frame and is provided with a gear wheel on its outer end to engage with and operate said segmental gear as described.

2. A crank handle which is provided with a stop thumb screw, in combination with a circular plate having an aperture in the center to admit of the rotating bar passing through it and being provided with grooves around its outer edge to receive or engage the stop screw connected to the crank handle whereby the shutter is held in any desired position, substantially as set forth.

489,372. PATTY-PAN AND HOLDER. JOSEPH DIETER, Dayton, Ohio, assignor of one-half to Oscar Soehner, same place. Filed Apr. 27, 1892. Serial No. 430,910. (No model.)



Claim.—1. The holder comprising the handle portion 7, the notch 3, to engage the rim of a patty pan, and the inclined point 4 to bear against the side of the same, substantially as shown and described.

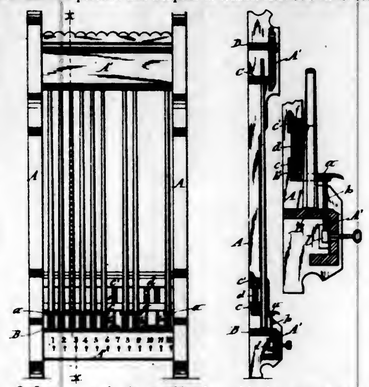
2. The patty pan provided with a vertical rim beaded on the edge, and adapted to be engaged by a suitable holder, substantially as shown and described.

3. The combination of the patty pan B with beaded rim, and the holder A notched to engage said rim, and an inclining point to bear against the side of said patty pan, substantially as shown and described.

489,373. CUE-RACK. JAMES DOCKERADER, Syracuse, N. Y. Filed Aug. 17, 1892. Serial No. 443,294. (No model.)

Claim.—1. A cue-rack comprising two abutments facing opposite ends of the cue and a distance apart to permit a limited longitudinal play of the cue, and a cue-holder movable lengthwise of the cue from one end thereof to a distance greater than the length of the aforesaid play and thereby confine the cue in the rack, as set forth.

2. A cue-rack provided with a seat upon which the cue rests, a guide through which the tip end of the cue passes, a stop above said guide to limit the vertical movement of the cue, a vertically movable holder embracing the base of the cue, and a lock confining the holder in its elevated position and adapted to release the same as set forth.

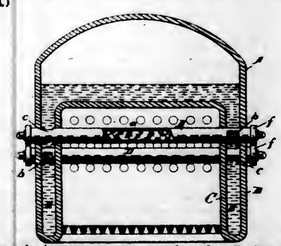


3. In a cue-rack, the combination, with the cue-rest and cue-guide supporting respectively opposite ends of the cue, a stop above the guide for limiting the longitudinal movement of the cue, a collar loosely embracing the base of the cue, a vertical stem fixed to the collar, and a lock on the rack adapted to engage and release said stem as set forth.

4. In a cue-rack, the combination, with the cue-rest and cue-guide supporting respectively opposite ends of the cue, a stop above the guide for limiting the longitudinal movement of the cue, a collar loosely embracing the base of the cue, vertical stems fixed to and extending respectively up and down from the collar, guides on the rack receiving the said stem through them, and a lock adapted to engage and release the lower stem, substantially as set forth.

5. The combination with the stiles —A—A— and perforated guide-plate —C—, the stop —D— above said guide-plate, the cue-rest or shelf —B— provided with one or more vertical perforations, a corresponding number of cue-holding collars —*a*— above said cue-rest, a vertical stem —*b*— on each of said collars passing through one of the perforations of the cue-rest, a lock secured to the rack under said stem and adapted to engage and release the same, the stem —*b'*— extending upward from the collar, the cross-bar —*c*— in the path of the collar, the cross-bar —*c'*— above the first cross-bar, and the tube —*d*— secured to said cross-bars and guiding the stem —*b'*— within it, substantially as described and shown.

489,374. WATER-TUBE STEAM-BOILER. MATTHEW J. DODDS, New Brunswick, N. J. Filed Jan. 5, 1892. Serial No. 417,120. (No model.)

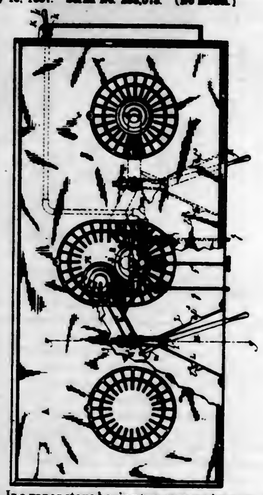


Claim.—1. A steam generator such as described having water legs, water tubes extending across the fire box, and secured and passing through the sheets forming said water legs or fire box, said tubes being provided with apertures arranged at right angles to each other, the apertures in one tube being opposite the solid portions of adjacent tubes for the purposes substantially as described.

2. In a steam generator, water tubes extending through the boiler with their ends projecting from the exterior thereof, said tubes

having opposite apertures near their ends, the caps for the ends of said tubes having the annular grooves in their inner faces provided with packing and fitting the ends of said tubes, and the T-bolts having their heads engaging the end walls of said apertures and their shanks passed through said caps and provided with nuts, substantially as described.

489,375. VAPOR-STOVE. JOHN B. DONOVAN, Cincinnati, Ohio. Filed May 13, 1887. Serial No. 238,072. (No model.)



Claim.—1. In a vapor stove having two or more burners, a jointed supply pipe as G, G' for one of said burners whereby said burners may be brought together or separated substantially as shown and described.

2. In a vapor stove the combination as specified of two or more burners each having an independent vapor commingling tube and a common vaporizing chamber, independent valves for each to control the supply of vapor, and the branch tubes from each of said commingling tubes having nipples which are in proximity to the common vaporizing chamber, for the purpose set forth.

3. The combination substantially as hereinbefore set forth of the top having the enlarged grated opening for two or more burners, the stationary burner fixed underneath said opening, the movable burners arranged to be swung underneath said opening and against the stationary burner the jointed supply tubes for the movable burners, the shafts G^2 serving as pivots for the jointed tubes and movable burners, the pinions G^3 secured upon said shafts, the cogged levers M engaging said pinions, whereby the burners are moved in either position, and the tube, *f*, for supplying vapor to the burner tubes.

4. The combination substantially as specified of the burner B, the vaporizing chamber B', the fluid tube and the vapor tube within it, the initial vaporizing chamber F, and initial burners, g^4, the side burners, and their supply tubes, the tube, *f*, and valves, *f'*, *g*, *g*, to control the supply of vapor to the burners.

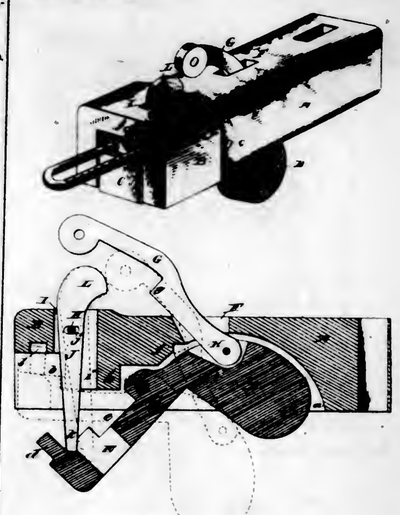
5. The combination of the initial vaporizing chamber F the tubes C and G, having branches, *c'*, g^5, g^6, the burners, the tube, *f*, and needle valves controlling the supply of vapor to the burner supply tubes, the said branches, *c'*, g^5, g^6 having nipples in proximity to the initial vaporizing chamber so that each nipple will discharge against said chamber as its burner is lighted.

6. The combination in a vapor stove of the movable and stationary burners and their supply tubes, the top A, the bracket L, secured to the top and furnishing bearings for the movable parts and supports for the burners, substantially as set forth.

7. The combination substantially as specified of the burner B, a vaporizing chamber B^2 above it, and a hollow plug B^3 closing the central opening in said chamber, and slotted, as at *k'*, substantially as specified.

489,376. CAR-COUPLING. ALBERT J. EDWARDS, Athens, Ga. Filed Apr. 5, 1892. Serial No. 427,579. (No model.)

Claim.—1. In a car-coupler the combination with a shell draw-bar and head, of an over-balanced coupling lever journaled therein carrying a coupling-pin, a gravity latch for holding said lever in position for coupling, and a similar latch for locking it when closed, substantially as described.



2. In a car-coupler, the combination with a draw-bar and head open on the under side, of an over-balanced coupling-lever journaled therein carrying a coupling-pin, a swinging gravity-latch having an elongated bearing on a pivot-pin for holding the lever in a coupling position, and a latch for automatically locking it in a closed position, substantially as described.

3. In a car-coupler, the combination with a draw-bar and head open on the under side, of an overbalanced coupling-lever journaled therein carrying a coupling pin, a gravity-latch having a swinging and rearward movement, and a boss for sustaining the impact of a coupling-link, having a vertical channel therein for receiving said latch when not in use, substantially as described.

489,377. COMPOSITION OF MATTER FOR ARTIFICIAL STONE. HERMANN REDENBACH, Brooklyn, assignor to the American Carbonate Company, New York, N. Y. Filed Mar. 31, 1892. Serial No. 427,260. (No specimens.)

Claim.—1. A composition matter for artificial stone, consisting of magnesia, magnesia hydrate, and basic oxalate of magnesia, substantially as described.

2. A composition of matter for artificial stone, consisting of magnesia, magnesia hydrate, basic oxalate of magnesia, and sand, substantially as described.

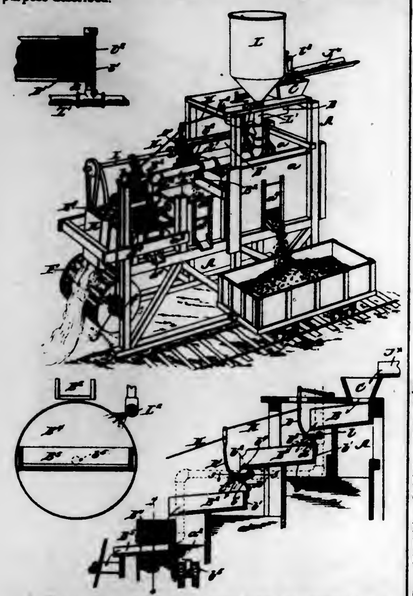
3. The process of preparing artificial stones which consists in mixing together magnesia, oxalic acid and water in about the proportion above specified, allowing the mass to harden and then exposing the same to the action of an oxalate, substantially as described.

489,378. GRAVEL WASHER AND SEPARATOR. FRANKLIN T. GILBERT, Walla Walla, assignor to Susie M. B. Gilbert, Seattle, Wash. Filed Jan. 20, 1892. Serial No. 418,712. (No model.)

Claim.—1. In a gravel screening and separating machine, in combination, two or more troughs arranged to successively receive the mixed water and gravel, screens interposed between such troughs against which the mixed water and gravel is discharged, and a fresh water conductor, arranged to discharge a separate and unbroken water sheet against the said screens at a point below the feed of the mixed water and gravel whereby to intercept the separated or deflected gravel, and to assist in forcing the smaller particles through such screens substantially as and for the purpose described.

2. In a gravel screening and grading machine, in combination, a source of mixed water and gravel supply, a rotary screen arranged to receive the water and gravel on its outer face, and a fresh water

conductor arranged and constructed to discharge an unbroken water sheet against such screen, and to intercept the separated material as it is deflected by the said screen substantially as shown and for the purpose described.



3. The combination, with the main frame, the troughs B, B', B³, each formed with a closed rear end and an open front end, said troughs having their front ends shortened as at b^4, the rear end of one trough being disposed under the discharge end of the preceding trough, of the screens D D', hinged at their lower ends to the closed ends of the troughs and formed with curved portions d extended under the shortened ends b^4, and with upwardly extending portions projected over the discharge ends of the troughs and means for vibrating such screens substantially as and for the purpose described.

4. The combination, with the main frame, the hopper C, the troughs B, B', B³, the vibratory screens D' D³, the rotary screen B⁴, the chute B⁵, water wheel F and the intermediate devices for operating the screens D' D³, and B⁴, connected with such screens and the water wheel F, of the water supply L, having a feed cock l^3, arranged to discharge into the hopper C and provided with a feed-pipe L', having slitted laterals l' F, all arranged substantially as shown and for the purposes described.

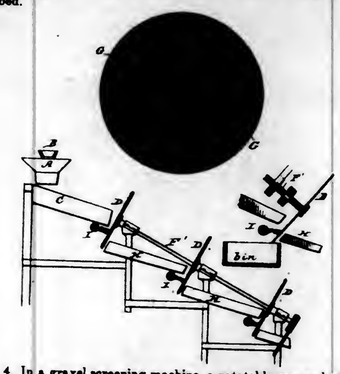
5. A gravel screening and grading machine comprising a source of mixed water and gravel supply, vibratory screens arranged to intercept and successively separate the gravel from the water, a rotary screen arranged to receive the partially separated mixed water and gravel supply from the vibratory screens, a fresh water conductor or pipe, having slotted laterals projected and arranged to discharge an unbroken water sheet against the several screens and at a point to intercept the separated material as it is deflected from such screens, and means for imparting the proper motions to the vibratory and rotary screens all as and for the purposes set forth.

489,379. GRAVEL WASHING AND SEPARATING MACHINE. FRANKLIN T. GILBERT, Walla Walla, assignor to Susie M. R. Gilbert, Seattle, Wash. Filed Mar. 11, 1892. Serial No. 424,562. (No model.)

Claim.—1. A gravel screening machine comprising a source of mixed water and gravel supply and disk screens held to rotate transversely to the direction of the force of the material against them, substantially as and for the purpose described.

2. In combination with a rotary disk screen, means for delivering water and gravel thereto upon its downgoing side, and a receiving chute on its opposite side, as and for the purpose described.

3. In a gravel screening machine, the combination with the means for feeding the mixed water and gravel to the screen, of a screen upon the downgoing side of which the material is discharged, said screen constructed with projections on its surface to temporarily hold a portion of the solid material, so that the revolution of the screen may thus be aided or effected as and for the purpose described.



4. In a gravel screening machine, a rotatable screen body projecting portions on its receiving face, for effecting or aiding its rotation, said projections adapted to receive the impact force of the gravel and water current, and serve as temporary rests for the solids deposited upon them by the current, as and for the purpose described.

5. In a gravel screening machine, in combination with the hopper, a deflector held therein, and a source of water supply piped into the hopper to discharge against the deflector, at or near the discharge end of the hopper substantially as and for the purpose described.

6. In a gravel screening machine in combination with a hopper, having a discharge a source of water supply piped into the hopper, having side discharge openings, at or near the discharge end of the hopper substantially as and for the purpose described.

7. In a gravel screening machine in combination with the hopper, a water supply pipe projected into the discharge end of the hopper formed with jet openings in its sides and top and a deflector over such supply pipe as and for the purpose described.

8. In combination, a series of feed chutes, and receiving chutes, rotary disk screens disposed between such chutes and mechanism for rotating such screens transversely to the direction of the discharge of the material thereon, substantially as and for the purpose described.

9. In combination with two or more chutes arranged to successively receive the material, a diagonally inclined shaft or shafts, screening disks held thereon and projected between the chutes and rotatable transversely as and for the purpose described.

10. In combination with the feed and receiving chutes, a transversely rotatable screen disk, disposed between such chutes and a fresh water jet or jets to intercept the deflected gravel and discharged against the screen in the direction of its rotation as described.

11. The combination with the supply and receiving chutes, of a screen disk rotatable transversely to the impact force of the material formed with radially disposed projecting blades or arms on its impact face, substantially as described.

12. In a gravel screening machine essentially as described, a screen disk formed of a hub portion, radial bars projected therefrom, a screen body and radially and outwardly projected arms all secured and arranged substantially as shown and described.

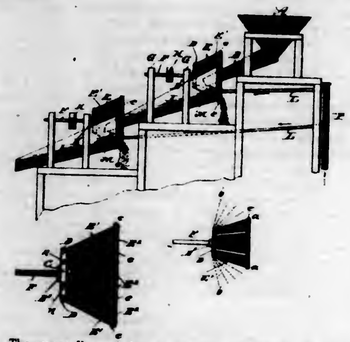
13. In a gravel screening machine essentially as described, in combination with a rotatable screen body, of a roller device, arranged to bear against the under or rear face of the screen, said device formed of one or more shafts arranged radially to the rear face of the screen, and a series of rollers loosely journaled thereon, all arranged substantially as and for the purpose described.

489,380. GRAVEL-SCREENING MACHINE. FRANKLIN T. GILBERT, Walla Walla, assignor to Susie M. R. Gilbert, Seattle, Wash. Filed Mar. 19, 1892. Serial No. 425,637. (No model.)

Claim.—1. The combination of a revolving shaft, a conical open ended screen arranged upon one end of the shaft, and supported thereupon by its smaller end or head, and having its larger end open and projecting outwardly, a delivery chute discharging into the larger open end of the screen, and a receiving chute arranged upon the outside and below or partly around it, substantially as shown and described.

2. The open ended conical screen composed of a shaft with a head C rigidly fastened to the shaft, and having a beveled and notched

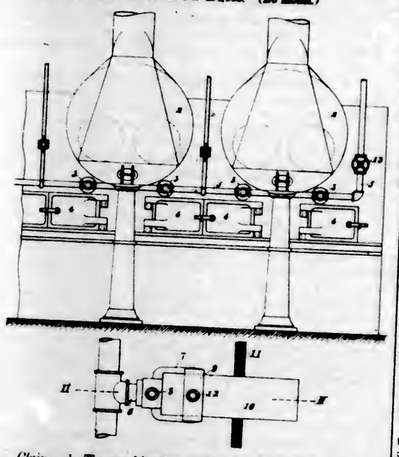
edge, the wire netting and the clamp rods or ribs F' F⁵ bolted together upon opposite sides of the wire netting and bolted down into the notches at one end and diverging therefrom, substantially as shown and described.



3. The screen K, consisting of a conical wire netting with head C at its smaller end combined with and supported at said end upon the shaft F which terminates at said head leaving said screen entirely unobstructed and open at its outer and larger end, substantially as shown and described.

4. The combination with the chutes I I and the screen E: of the water pipe L having a curved cross pipe at its end with spray openings arranged inside the screen and between the chutes, substantially as shown and described.

489,381. SMOKE-CONSUMER. THOMAS GUERIN, Pittsburg, Pa. Filed Mar 12, 1892. Serial No. 424,665. (No model.)

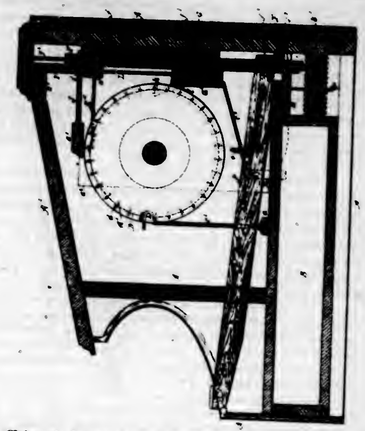


Claim.—1. The combination with a boiler-casing, having horizontally adjustable air-supply pipes passing therethrough, of a steam pipe passing in front of the boilers and having injectors leading therefrom, said injectors carrying yokes which are supported thereon and encircle the air-pipes; substantially as and for the purposes described.

2. The combination with a boiler-casing, having a horizontally adjustable air-supply pipe passing therethrough, of a steam-pipe having an injector projecting therefrom, a yoke supported upon the injector, said yoke carrying a collar having a set-screw engaging the air-pipe and holding it therein; substantially as and for the purposes described.

3. The combination with a boiler-casing, having a horizontally adjustable air-supply pipe passing therethrough, of a steam-pipe having a T-connection, an injector screwed into such connection and supporting at its outer end a yoke, and a ring upon the yoke which encircles the air-pipes; substantially as and for the purposes described.

489,382. CASH REGISTER AND INDICATOR. MELVIN H. LOVELL, Erie, Pa., assignor to the Lovell Manufacturing Company, Limited, same place. Filed Oct. 8, 1890. Renewed Oct. 7, 1891. Serial No. 407,986. (No model.)



Claim.—1. In a machine of the class herein named, the combination of a series of keys representing a series of amounts, a series of tablet rods carrying tablets, which represent the amount represented by the key with which they connect; a series of pairs of register wheels which are journaled loosely on a common shaft, each pair acting independently of all the others, and a dog or pawl on each of the tablet rods which acts upon the ratchet teeth of the primary register wheel of its consorted pair of register wheels at each upward movement of said tablet rod and upon the ratchet teeth of the secondary register wheel of said pair of wheels only when the primary wheel has made one complete revolution.

2. In a machine of the class herein named, the combination of the two register wheels D and D', journaled on a common shaft E, and having independent action thereon; a series of ratchet pins on the side of the wheel D, outside of the rabbet d^3; a like series of ratchet pins d' on the side of the wheel D' facing the wheel D, and inside of the plane of the rabbet d^3; a notch h in the side of the wheel D, which breaks the face of the rabbet d^3, a dog which operates upon the ratchet pins on the wheel D, and upon the ratchet pins on the wheel D', when its nose falls into the said notch h, a reciprocating bar carrying said dog, and a key for operating said reciprocating bar.

3. In a machine of the class herein named, the combination of the two register wheels D and D', journaled to a common shaft E, and having independent action thereon; a series of ratchet pins on the side of the wheel D, outside of the rabbet d^3; a like series of ratchet pins d' on the side of the wheel D' facing the wheel D, and inside of the plane of the rabbet d^3; a notch h in the side of the wheel D, which breaks the face of the rabbet d^3, a dog which operates upon the ratchet pins on the wheel D, and upon the ratchet pins on the wheel D' when its nose falls into the said notch h, a reciprocating bar carrying said dog; a key for operating said reciprocating bar and a pin c on said key which serves as a lock to prevent undue movement of the wheels D and D' when the key is depressed.

4. In a machine of the class herein named, the combination of the two register wheels D and D', journaled on a common shaft E, and having independent action thereon; a series of ratchet pins on the side of the wheel D, outside of the rabbet d^3, a like series of ratchet pins d' on the side of the wheel D' facing the wheel D, and inside of the plane of the rabbet d^3; a notch h in the side of the wheel D, which breaks the face of the rabbet d^3; a dog which operates upon the ratchet pins on the wheel D, and upon the ratchet pins on the wheel D' when its nose falls into the said notch h; a reciprocating bar carrying said dog; a key for operating said reciprocating bar; a pin c on said key which serves as a lock to prevent undue movement of the wheels D and D' when the key is depressed and a catch bar c' at the fulcrum point of said key which engages the ratchet pins of said wheels when the key is in its normal position and prevents undue movement of said wheels.

5. In a machine of the class herein named, the combination with the series of tablet rods F, of the grooved block G, which provides ways for said tablet rods to move in the frame piece a' which runs in front of said block and holds the tablet rods in place and the releasing

bar I, seated on the top of said frame piece a' and held in place by the frame piece a^4.

6. In a machine of the class herein named, the combination of the tablet rods F, notched at f, the releasing bar I, with notches i opposite each tablet rod, the spring catches J, which are embraced by said notches i and are deflected as said bar I, is moved one way and left free to engage with the notches f when the bar I, is in its normal position.

7. In a machine of the class herein named, the combination of the tablet-rods F, notched at f, the releasing bar I, with notches i, opposite each tablet rod, the spring-catches J, which are embraced by said notches i, and are deflected as said bar I, is moved one way and left free to engage with the notches f, when the bar I, is in its normal position, and means, substantially as shown, for moving said bar I when the drawer is unlocked or opened.

8. In a machine of the class herein named, the combination of the grooved block G, and the grooved piece G', forming tabular spaces, the tablet rods F, sliding in the grooves in said block G, and having long notches f' opposite said grooved piece G', and the dogs H, seated in said notches f' and said tubular spaces, said dogs being of considerably less length than the notches f whereby when said tablet rods are moved the full length of their traverse the dogs will be moved only a part of that distance.

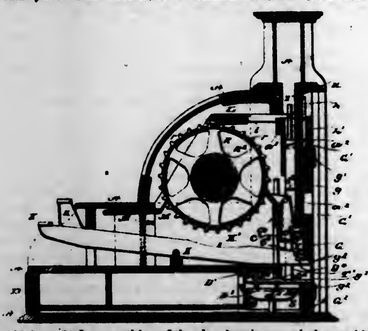
9. In a machine of the class herein named, the combination of a reciprocating tablet device for indicating a certain amount; a register device for registering the sum of the amounts indicated by said tablet device and a dog for communicating motion from said tablet device to said registering device which is supported independently of said tablet device and moved by it only in the latter part of its movement, whereby the movement of the registering device will be less in degree than the movement of the indicating device.

10. In a machine of the class herein named, the combination of the sliding tablet rods having at their lower ends the notches f^3, the sliding catch bar M, the spring m for moving said bar M, out of engagement with said notches f^3 and the drawer B, for moving the said bar into engagement with said notches.

11. In a machine of the class herein named, the combination of the drawer releasing key O, the lifting bar O', the releasing bar I, moved by said lifting bar, the catches J for holding up the tablet rods moved by said bar I, and the tablet rods F, notched to receive said catches J.

12. In a machine of the class herein named, the combination of the frame pieces a^2, a^3, the shaft E, supported by said frame pieces, the series of pairs of wheels journaled on said shaft, the frame piece a^5 over the tops of said wheels forming a reading bar, the grooved frame piece G, forming a guide for the tablet rods; the frame piece a' holding the tablet rods in place and forming a bearing for the releasing bar; the frame piece a^6 forming a guide for said releasing bar; the grooved piece G', forming pockets for the dogs; the frame piece a, forming a fulcrum for the keys, the keys C, for operating the tablet rods and the dogs H, for operating the register wheels from the movement of said tablet rods.

489,383. CASH REGISTER AND INDICATOR. MELVIN H. LOVELL, Erie, Pa., assignor to the Lovell Manufacturing Company, Limited, same place. Filed June 15, 1892. Serial No. 436,836. (No model.)



Claim.—1. In a machine of the class herein named, the combination of a series of key-levers, a series of dogs coinciding in number with the series of key-levers, each dog being moved to action by one of said keys, a series of register wheels coinciding in number with said series of key-levers and dogs, each register wheel being moved by one of said dogs, a series of stop-devices for stopping each of said register-wheels and a single spring actuated pawl-plate M, extending in front of and acting upon all of said register wheels to hold them in aligament.

2. In a machine of the class herein named, the combination of a series of key-levers, a series of dogs coinciding in number with said series of key-levers, each dog being moved to action by one of said keys, a series of register-wheels having their teeth in a vertical flange formed on the side of said wheel, each of said wheels being moved by one of said dogs acting upon said teeth, a series of stop devices for stopping said wheels, a reading bar extending along the top of said wheels and having grooves which embrace the vertical flanges of said wheels, and a single pawl-plate which acts upon all of said wheels and holds them in alignment so that the matter to be read will be in line along the edge of said reading-bar.

3. In a machine of the class herein named, the combination of a series of key levers, a series of dogs coinciding in number with said series of key-levers, each dog being moved by one of said keys, a series of registers coinciding in number with said series of keys and dogs, each register being moved by one of said dogs, and a single swinging dog-bar I which swings from a vertical to a horizontal position when brought into action and is moved to action by the operation of any one of said keys and when in action retains the acting dog in active position and holds the other dogs against action by any of the other keys.

4. In a machine of the class herein named, the combination of a series of key-levers, a series of dogs coinciding in number with said key-levers, each dog being moved by one of said key-levers, a series of registers coinciding in number with said series of keys and dogs, each register being moved by one of said dogs, a single gate movable by each of said key-levers and a single dog-bar moved to action by said gate and when in action retains the acting dog in active position and holds the other dogs against action by any of the other keys.

5. In a machine of the class herein named, the combination of a series of keys, a series of registers, a series of dogs each of which is moved by one of said keys and in turn moves one of said registers, a drawer which is moved outwardly by a spring and held in by a catch, a gate that is moved by the action of any of said keys and when elevated releases said drawer catch and allows the drawer to open, a catch for holding said gate in elevation, a dog-bar which locks the non-acting dogs against action and the acting dog against reaction when the gate is held in elevation, and a releasing device on the drawer which releases the gate-holding catch when the drawer is closed.

6. In a machine of the class herein named, the combination of a series of key-levers, a series of indicators marked to coincide with the marks on the key-levers, and movable into action by said key-levers, and out of action by gravity, a series of registering devices, one for each key-lever, a series of dogs, one for each of said registering devices, for moving the same one notch or space for each movement of its key-lever, said dogs being moved into action by contact with a key-lever and out of action by gravity, and a single dog-bar which is moved into action through the action of any of said keys and when in active position holds the acting dog in active position and the inactive dogs against operation.

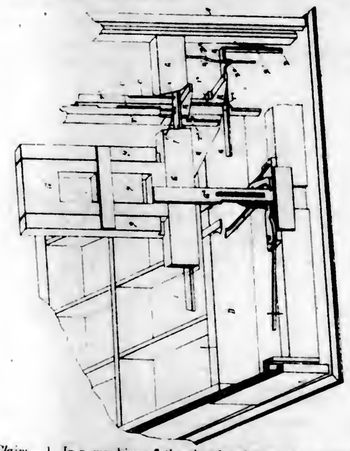
7. In a machine of the class herein named, the combination of a series of key-levers, an indicating device and a register-actuating dog contacting with and moved to action by each of said keys, a vertically sliding gate moved by any of said keys by contacting therewith, a dog-bar for holding the inactive dogs against operation and the acting dog in acting position that is moved into action by said gate, a catch device for holding the drawer shut that is moved into disengagement by the upward movement of said gate, a bell-hammer that is actuated to sound the bell by the upward movement of said gate, a catch device for holding said gate in elevation, and thereby holding said dog-bar in action, and a releasing device on the drawer that disengages said gate-supporting catch when the drawer is closed.

8. In a machine of the class herein named, the combination of a series of key-levers, a series of registers, a series of indicators and a series of dogs that are moved by said keys, in conjunction with said indicators and actuate their said registers, said dogs having notches c and lugs c' below said notches, and a single dog-bar extending across the machine, in proximity to the notched and lugged portion of said dogs and in operative connection with each of said key-levers in a manner substantially as described whereby when the said bar is actuated by the movement of any key it will take position below the lug on the dog carried by said key and within the notches of all the other dogs and thereby hold the acting dog in action and the inactive dogs against operation.

9. In a machine of the class herein named, the combination of a series of key-levers, a series of registers, a series of indicators and a series of dogs for moving said registers that are moved by said keys and in conjunction with said indicators, said dogs having notches c, and lugs c' below said notches, a single dog-bar that extends across the machine in proximity to the notched and lugged part of said dogs and when in active position lies below the lug of the dog which is in action and within the notches of the dogs that are not in action, and a single vertically acting gate G, that is moved by the action of any of said key-levers and when in action holds the said dog-bar in action.

10. In a machine of the class herein named, the combination of a series of key-levers, a series of registers, a series of indicators and a series of dogs for moving said registers that are moved by said keys and in conjunction with said indicators, said dogs having notches c and lugs c' below said notches, a single dog-bar that extends across the machine in proximity to the notched and lugged part of said dogs and when in active position lies below the lug of the dog which is in action and within the notches of the dogs that are not in action, a single vertically acting gate G, that is moved by the action of any of said key-levers and when in action holds the said dog-bar in action, a catch device for holding the sprang-actuated drawer shut that is released by said gate when moved into action, a catch for holding said gate in action and a releasing device on the drawer that releases the gate-holding catch when the drawer is shut.

489,384. TABLET AND KEY LOCKING DEVICE FOR CASH-REGISTERS. MELVIN H. LOVELL, Erie, Pa., assignor to the Lovell Manufacturing Company, Limited, same place. Filed June 18, 1892. Serial No. 437,227. (No model.)



Claim.—1. In a machine of the class herein named, the combination of a series of key-levers, a series of tablet-rods carried by said key levers and having a notched portion extending below said keys and a single rocking frame below said keys in line with the notches in said tablet rods, which, when a key is operated will be moved under the tablet rod of the operated key and into the notches of the tablet rods of the unoperated keys.

2. In a machine of the class herein named, the combination of a series of key-levers, a series of tablet-rods carried by said key-levers and having a notched projection extending below said keys, a gate moved by any of said keys, and a locking frame below said keys for engaging the said notches in the said tablet-rods that is moved by the action of said gate.

3. In a machine of the class herein named, the combination of a series of key-levers, a series of tablet-rods carried by said keys and having a notched projection extending below said keys, a gate moved by the action of any of said keys, cam-rods carried by said gate, and a locking frame below said keys for engaging the said notches in the unoperated tablet-rods that is moved by the said cam-rods acting in eyes in lugs on said frame.

489,385. CANE. RUSSOLD W. MERLY and GEORGE W. DONAHAM, Lima, Ohio. Filed Aug. 8, 1892. Serial No. 442,473. (No model.)

Claim.—1. The combination with a hollow stick or handle provided with an exposing aperture and carrying a continuous recording strip, and mechanism for shifting it located within the stick, or handle, a platen partly covering the aperture and a rotating shutter adapted to expose or conceal the recording strip, substantially as specified.

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2. The combination with a stick or handle, of a recording tablet therein and a movable finger-rest in juxtaposition to the recording tablet, substantially as set forth.

3. The combination with a hollow stick or handle provided with an aperture in its side, a platen covering the aperture, a spool beneath the platen adapted to carry a recording strip, and a pivoted recessed guide or finger-rest, substantially as and for the purpose specified.

4. The combination with a hollow stick or handle and heads in its opposite ends, of a spool revolubly carried therein, and an extension through the upper head of the spool by which the spool may be operated, and a cap for covering the same, substantially as and for the purpose specified.

489,386. END-GATE LOCK. JOHN T. L. MORRIS, Kirksville, Mo. Filed June 15, 1892. Serial No. 436,855. (No model.)

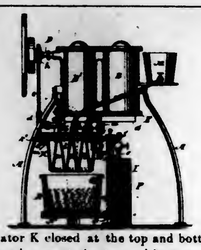


Claim.—The combination with a wagon-body having an end-gate, of a vertical plate secured to one of the sides of the body and provided with a horizontal eye, a bearing disk arranged on the end gate and provided with a central tubular extension forming a pivot, a bolt passing through the tubular extension and securing the bearing disk to the end-gate, and the locking lever having a curved hook to engage the horizontal eye and provided with a weighted handle and having an arm or extension provided with an eye receiving the tubular extension of the bearing plate and arranged eccentrically with reference to the curve of the hook, substantially as described.

489,387. ICE-MACHINE. JOHN A. MILLER, New York, N. Y. Filed Dec. 26, 1891. Serial No. 416,300. (No model.)

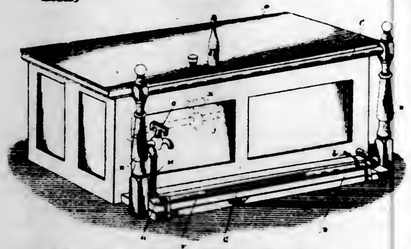
Claim.—1. The evaporator K closed at the top and bottom and provided with conical projections forming conical chambers k open above and below and surrounded by the gas spaces l substantially as described.

489,387.



2. The evaporator K closed at the top and bottom and having the conical chambers *k* open at the top and bottom, in combination with the heating coil *m* surrounding the closed top of the evaporator, substantially as described.

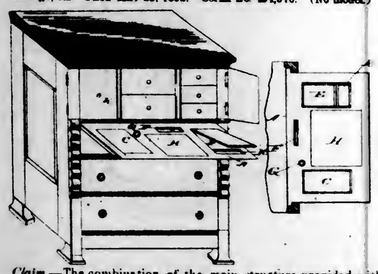
489,388. **ATTACHMENT FOR BAR-ROOM COUNTERS.** JOHN MCNAMEE, Elmira, N. Y. Filed May 18, 1892. Serial No. 433,417. (No model.)



Claim.—1. A bar room attachment comprising a trough, a foot rail above and over it having a slot at its inner side, the said foot rail having a rotating movement for the purpose described, and a source of water supply connected therewith, substantially as specified.

2. A bar room attachment comprising a trough, a rotatable slotted foot rail above and over the trough, a handle connected to the pipe for rotating it for the purpose described, a source of supply connected therewith, and a cock for regulating the flow, substantially as described.

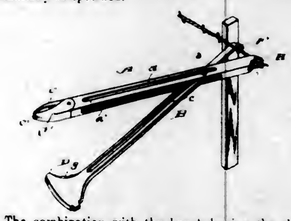
489,389. **WRITING-SLIDE FOR FURNITURE.** NILS M. OLSON, Chicago, Ill. Filed May 25, 1892. Serial No. 434,370. (No model.)



Claim.—The combination of the main structure provided with drawers and receptacles and partition boards, of a slide inserted above one of said partition boards, between two of the receptacles of the main structure, said partition board cut away at its outer edge to form a recess for the front of the drawer below it and the drawer below the slide having a front board which extends up beyond the line of the top of the sides of the drawer and against the lower outer edge of the slide, all constructed as described, whereby the front of the drawer covers and conceals the front edge of the division board.

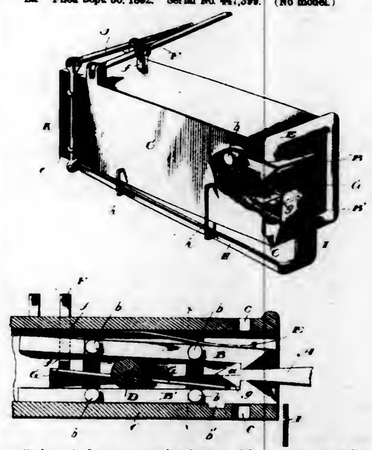
489,390. **COMBINATION-TOOL.** JAMES D. PATTERSON, Lebanon, Mo. Filed Mar. 10, 1892. Serial No. 424,446. (No model.)

Claim.—1. The herein described combination tool, comprising the bars A and B, each of which has a sliding connection with the other, the bar A having the clamping jaws C, C' at one end the claw H at the opposite end, and the bar B having a claw at one extremity and a head at the other adapted to act upon the jaws C, C' of the bar A, substantially as specified.



2. The combination with the bar A having the slots *a'* and *d* therein, and being at one extremity provided with a claw and at the other extremity with a pair of jaws, one stationary and the other movable, of the bar B working loosely in the slot *a'*, and held therein by a loose bolt capable of a sliding movement in the slot *d* and in an elongated slot *c* in the bar B, said bar B having a claw at one end and a head at the other adapted to serve as a hammer and also acting upon the jaws of the bar A, said bars having also co-acting cutting edges, substantially as specified.

489,391. **CAR-COUPLING.** JOSEPH C. POWELL, Bayou La Chute, La. Filed Sept. 30, 1892. Serial No. 447,399. (No model.)



Claim.—1. In a car coupler for use with an arrow head link, in combination a draw head, a rocking bar with a hooked end, a projection opposite the same at the bottom of the draw-head, means for raising said hooked end, and means to lift the link above said projection.

2. In combination, a draw-head having a projection at its bottom a rocking lever having a hooked end, normally tending downward, the lever for raising said end, and the lever G to lift the link A above said projection.

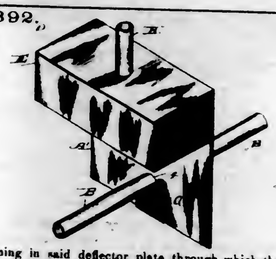
3. In a car coupler of the class described the rocking lever having a hooked end and lateral projections engaging recesses, in the sides of the draw head.

4. In combination, a draw-head having a projection on its bottom a rocking lever having a hooked front end, a spring for moving said end downward, the lever F engaging the rear end thereof for raising said hooked end and the lever G having the extension *g* in rear of said projection, and adapted to be actuated from the lever F, all substantially as shown and described.

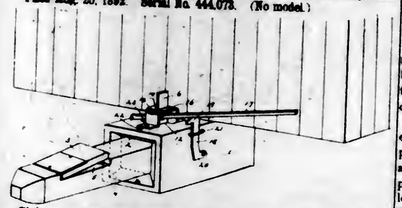
489,392. **GAS-PROTECTOR.** FRANKLIN M. REED, Anderson, Ind., assignor of one-half to De Witt C. Chipman, same place. Filed Apr. 14, 1892. Serial No. 429,235. (No model.)

Claim.—The herein described device for deflecting escaped gas from a service pipe, said device comprising a box or chamber open at one side, a deflector plate extending below the open side of said box, an opening in said deflector plate through which the service pipe is designed to pass, and an escape pipe leading outwardly from said box or chamber, substantially as specified.

489,392.



489,393. **CAR-COUPLING.** SAMUEL SHATTUCK, Keith's, assignor of one-half to Aaron Groves and John Shattuck, Morgan County, Ohio. Filed Aug. 25, 1892. Serial No. 444,073. (No model.)



Claim.—1. In a car coupling, the combination of a draw-head having a longitudinal link opening and provided with a shoulder, a link having a hinge plate at each end adapted to engage the shoulder and a vertically disposed push bar mounted on the draw-head and arranged above the link for moving the plate inward to disengage the same from the shoulder, substantially as described.

2. In a car coupling, the combination of a draw-head having a longitudinal opening and provided at the top with a shoulder, a link provided at each end with a spring actuated plate hinged on the upper face of the link and adapted to engage the shoulder, a vertical pushbar mounted in the draw-head and arranged to engage the plate, a lever fulcrumed on the draw-head and connected with the push-bar and adapted to depress the same, and a spring for holding the push-bar normally elevated, substantially as described.
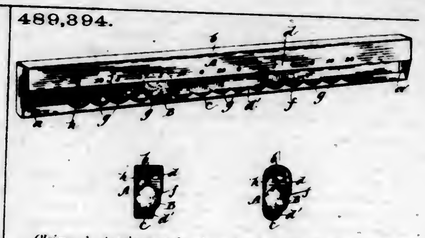
3. In a car coupling, the combination of a draw-head having a longitudinal opening and provided at the top with a shoulder, a link provided at each end with a spring actuated plate arranged to engage the shoulder, a pushbar mounted in the draw-head and adapted to engage and depress the plate, a lever fulcrumed on the draw-head and connected with the pushbar, a spring for holding the pushbar normally elevated, and a gravity latch mounted on the draw-head and adapted to engage the lever and consisting of a hook provided at the top with a head and having at its lower end an inwardly extending arm pivoted to the draw-head whereby the weight of the hook will throw the same forward and a keeper for limiting the movement of the hook, substantially as described.

4. In a car coupling, the combination of a draw-head provided with a longitudinal opening and having a shoulder at the top, a link provided at each end with a spring actuated plate adapted to engage the shoulder, a keeper mounted on top of the draw-head and provided with a slot, a push-bar vertically mounted in the draw-head and arranged in the slot of the keeper and provided with an opening, a lever fulcrumed at one side of the draw-head and passing through the opening of the push-bar, a spring for holding the push-bar normally elevated, and a gravity latch adapted to engage the lever, substantially as described.

5. In a car coupling, the combination of a link provided at each end with a recess, a plate arranged in each of the recesses, screws loosely securing the outer end of each plate to the link and permitting a limited swing parallel guides projecting from the link and arranged in openings of each plate, and a spring interposed between each plate and the link and disposed between the guides, substantially as described.

489,394. **GAME PUZZLE.** CHARLES F. STURGIS, Rochester, N. Y., assignor of one-half to James C. M. Bentyt, same place. Filed Apr. 16, 1892. Serial No. 429,473. (No model.)

489,394.

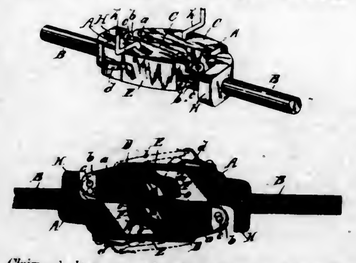


Claim.—1. A game puzzle adapted to be held in the hand and to be operated by giving it a slight inclination or obliquity from a horizontal plane, comprising in its construction, end portions, a bottom portion, a back portion, a top portion of greater width than the said bottom portion, a shallow lower front flange having scallops or notches in its lower edge, an upper front flange of greater depth than the lower front flange and on a plane forward of the lower flange, and a ball or marble, arranged between the upper flange and the back portion, this construction providing a channel way of little greater diameter than the ball or marble above the notched or scalloped flange, and an inspection passage between the two flanges, and compelling the exposed ball or marble to travel on top of the notched flange, and allowing it to become seated in the notches according to the skill with which the user manipulates the puzzle, substantially as described.

2. A game puzzle adapted to be held in the hand and to be operated by giving it a slight inclination or obliquity from a horizontal plane, comprising in its construction, end portions, a bottom portion, a back portion, a top portion of greater width than the said bottom portion, a shallow lower front flange having scallops or notches in its lower edge, an upper front flange of greater depth than the lower front flange and on a plane forward of the lower flange, a ball or marble, arranged between the upper flange and the back portion, and game indices: this construction providing a channel way of little greater diameter than the ball or marble above the notched or scalloped flange, an inspection passage between the two flanges, with the game indices opposite the scallops or notches, substantially as described.

3. An oblong hollow game puzzle, formed with an overhanging top having a front pendent vertical flange, and a relatively narrower bottom portion having relatively shallower front flange which is notched or scalloped on its upper edge, the two flanges having an oblong inspection space between them: and a marble or ball arranged within the oblong channel way of the puzzle and resting upon the notched flange, whereby the ball can, only with great skill, be seated in the notches successively, by tilting the puzzle from a horizontal to a slightly inclined or oblique position, substantially as described.

489,395. **CAR-COUPLING.** JAMES M. STARK, Detroit, Mich., assignor of one-half to James McLaren and Henry L. Humphrey, same place. Filed Sept. 15, 1892. Serial No. 445,941. (No model.)



Claim.—1. In a car coupler, the combination of the draw-head, the grappling jaw pivoted therein and having the integral plate projecting rearwardly therefrom at an angle to the engaging face of the jaw, the tumbler eccentrically pivoted in the draw-head in the angle between said plate and jaw, the long end of which is adapted to engage said plate to actuate said jaw, substantially as set forth.

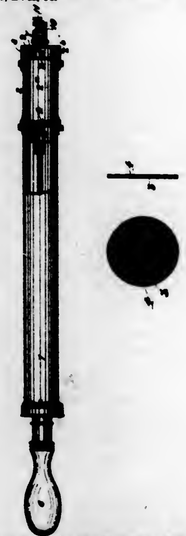
2. In a car-coupler, the combination of the draw-head, the grappling jaw eccentrically pivoted therein forward of its grappling point, said jaw having the integral plate extending rearward at an angle to the engaging face of the jaw, the tumbler pivoted in the draw-

head and adapted to actuate said plate to depress said jaw, and the spring for restoring said jaw, substantially as specified.

3. In a car-coupler, the combination of the draw-head consisting of two parallel adjacent plates, the jaw eccentrically pivoted therein forward of its grappling point, said jaw having the rearwardly projecting plate that extends onto the edges of the plates of the draw-head, the tumbler eccentrically pivoted in the draw-head, the long end of said tumbler adapted to engage the projecting plate of the jaw, and its shorter end or nose, the jaw of a companion part.

4. In a car-coupler, the combination of the draw-heads composed of adjacent plates, the engaging jaws eccentrically pivoted between said plates forward of their engaging point, said jaws having the rearwardly extending plates that project onto the edges of the plates of the draw-heads to resist the draft upon said jaws when in engagement, the tumblers pivoted in the draw-heads, said tumblers being adapted to withdraw the jaw of the head in which they are pivoted, and engage and depress the jaw in the opposed head.

489,396. MEANS FOR IMPREGNATING THE WATER OR LIQUID DISCHARGED FROM SYRINGES. SAMUEL H. SCOTT, Preston, County of Lancaster, England. Filed Mar. 8, 1892. Serial No. 424,152. (No model.) Patented in England May 2, 1890, No. 6,769; in Victoria Dec. 10, 1890, No. 8,330; in New South Wales Dec. 12, 1890, No. 2,765; in New Zealand Jan. 6, 1891, No. 4,789; in France Jan. 29, 1891, No. 211,060; in Belgium Jan. 30, 1891, No. 93,601; in Germany Feb. 1, 1891, and in Italy Mar. 31, 1891, LVII, 66.



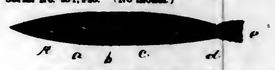
Claim.—1. In a syringe, the combination of the barrel having the piston and the screw threaded end, the casing on the end of said barrel having threaded ends, the perforated plate and the gauze on said plate clamped between the ends of the barrel and casing, the cap screwed on the outer end of said casing, the perforated plate and gauze clamped between the end of said casing and said cap, said cap provided with a nozzle and a valved inlet, substantially as described.

2. In a syringe, the combination of a barrel having a piston and an extended end to contain insect destroying or like substance, a cap on said end provided with a discharge nozzle and an inlet opening, a ball valve to close said opening against outflow and a chamber for said valve.

3. In a syringe, the combination of the barrel 1, the piston 5, the chamber or casing 2 on the end of the barrel provided with, the perforated ends 3, 4, the cap or cover 3ª on the outer end of said casing provided with an outlet and with an inlet opening controlled by the valve 9 substantially as described.

4. In a syringe the combination of the barrel 1, piston 5, chamber or casing 2, on the end of the barrel provided with the perforated ends 3, 4, and having cap 3ª provided with a discharge nozzle 10, and an inlet 7, a cage 8 in said cap and a ball valve in said cage to close said inlet against outflow.

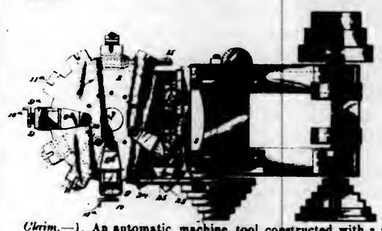
489,397. CIGAR. ABRAM R. SWOPE, Lebanon, Pa. Filed Nov. 9, 1892. Serial No. 451,440. (No model.)



Claim.—1. An improved article of manufacture, a cigar having a body of tobacco extending beyond the tuck end of the cigar and secured by the wrapper.

2. An improved article of manufacture, a cigar having the filler extending beyond the wrapper at the tuck end of the cigar and secured by the wrapper.

489,398. ROTATING AUTOMATIC MACHINE-TOOL. HENRY R. TOWNE, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Jan. 18, 1892. Serial No. 418,600. (No model.)



Clrim.—1. An automatic machine tool constructed with a revolving table carrying one or more vises constituting holders for the work to be operated on, a projecting arm on the vise screw a bearing surface in the path of said arm to effect the automatic closure of the vise, and a suitable tool or tools in the path of the work held by said vise caused to operate thereon by the rotation of the table, carrying the work held by the vises successively to the tools.

2. The combination of the revolving table 2, one or more vises carried thereby, a lever arm 13 on the vise screw 12 and the piston 26 and spring 27 applying yielding pressure to the said lever arm by the rotation of the table, as explained.

3. The combination with the vise screw 12 and lever arm 13, of the piston 26, spring 27 and screw follower 29 for graduating the pressure applied to the lever arm and vise screw as explained.

4 The combination of the revolving table 2, one or more holders 9, milling or other tool 7, releasing tappet 23, and discharging tappet 24, substantially as and for the purposes set forth.

5. The combination of the rotating table 2, carrying work holders, the reciprocating carriage 41 carrying the tool or tools, tappets 46 carried by the table and imparting intermittent movement to the carriage 41 and the radially sliding dog 43 engaged by the tappets 46 to move the carriage forward and retracted by the progressive movement of the carriage to permit the return of the latter, substantially as explained.

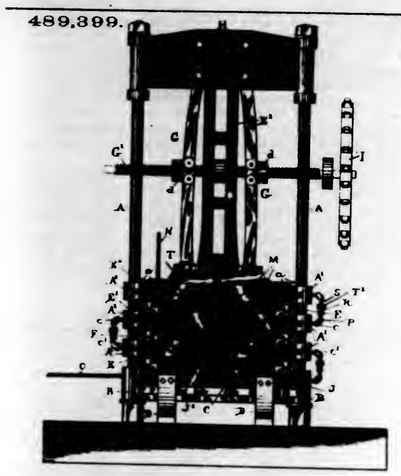
6. In an automatic machine tool the combination of a revolving table, one or more holders carried thereby, and a suitable tool partaking of the movement of the table during a portion of its rotation while operating on one piece of work and returned automatically to its original position in readiness for operating on the next, as explained.

489,399. MACHINE FOR PRESSING WOOD DISHES. CHARLES H. TREAT and ANDREW B. BARCHART, Baltimore, Md.; said Barchart assignor to said Treat. Filed Feb. 4, 1892. Serial No. 420,336. (No model.)

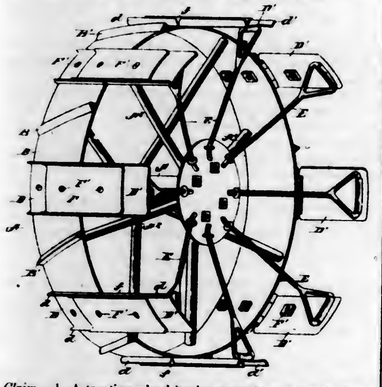
Claim.—1. In a press for making veneer dishes, the combination of a stationary platen; a number of followers above the same carrying dies and arranged one above another with suitable connections between them: upright guides for said followers: trays which slide in and out between the followers on projecting guide-strips and have openings through them and mold-rings about said openings whereby the molds are bottomless when the trays are drawn out on the projecting guide-strips, for the purpose described.

2. In a press for making veneer dishes, the combination of a stationary platen; three or more followers carrying dies and arranged one above another; plates extending vertically across the ends of said followers and secured rigidly to the uppermost follower and having slots at the follower next below engaged by projections therefrom, and having longer slots at the follower next below the last-named follower engaged by projections from said third follower; upright guides for the followers; molds resting on the platen and the upper sides of the followers; and actuating mechanism connected with the uppermost follower.

489,399.



489,400. TRACTION-WHEEL. HENRY W. WAIT, Lake Charles, La. Filed Mar. 25, 1892. Serial No. 426,376. (No model.)



Claim.—1. A traction wheel having a stationary tread with an adjustable extension in connection therewith by means of which said tread may be broadened, substantially as described.

2. A traction wheel having extensions hinged to the side thereof in order to extend the tread, substantially as described.

3. A traction wheel having extensions hinged to the side of the rim thereof, combined guides and braces secured to the said extensions, and a central disk to which said combined guides and braces are movably connected, substantially as described.

4. A traction wheel having folding extensions connected to one side of the rim thereof, and means for locking said extensions in position, substantially as described.

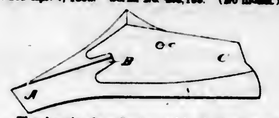
5. A traction wheel having a rim with a series of plates thereon, extensions hinged to said plates, combined guides and braces connected to said extensions, a centrally-located disk to which said combined guides and braces are movably connected, and plates for locking said extensions in position, substantially as described.

6. A traction wheel having a rim with a series of flanged plates thereon, and folding extensions provided with edge-flanges and hinged to said plates, substantially as described.

7. A traction wheel having hinged tread-sections or plates connected therewith, substantially as described.

8. A traction wheel having a rim provided with a hinge-section to form the tread of greater width, substantially as described.

489,401. PLOW-POINT. EDMUND C. WHITEHURST, South Bend, Ind. Filed Apr. 7, 1892. Serial No. 428,189. (No model.)



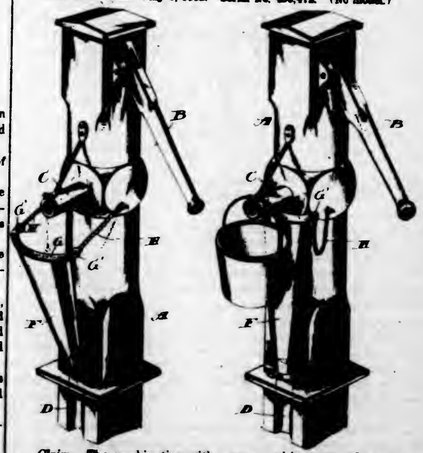
Claim.—The herein described combined plow point and wing having a point, as A; a wing, as C; and a rearwardly extending finger, as B, adapted to underlie the toe of a plow standard, all substantially as and for the purpose described.

489,402. SHINGLING-BRACKET. EUGENE J. WILKIN, North Branch, Minn. Filed Apr. 11, 1892. Serial No. 428,699. (No model.)



Claim.—The herein described shingling bracket, the same consisting of a thin base having two lugs rising from the edges of its lower end and provided with aligned eyes standing above the plane of the flat upper face of said base, an upright of the same width as the base and having a reduced lower end between said lugs, a flat face, and a longitudinal strengthening web on its back, said web extending from the outer end of the upright to a point about at its center, a pivot pin through said lower end and journaled in said eyes, a brace having a slightly curved body of the same width as the upright and provided with a notched lower end and a bifurcated upper end receiving said web, said bifurcation being sufficiently long to pass over the inner end of the web when the device is folded and the brace at this time resting on said lugs, and a pivot pin through the arms of the bifurcation and the web, both said pivot pins standing in horizontal lines, all as and for the purpose hereinbefore set forth.

489,408. PUMP ATTACHMENT. GEORGE M. YARNELL, Somerville, Ohio. Filed July 9, 1892. Serial No. 439,472. (No model.)



Claim.—The combination with a pump and its spout, of a waste trough hinged at one end to the pump, the throw of the upper end being limited by chain fastenings to the pump and adapted to be automatically thrown into and out of operative position by the playing

or removing of a pail or other vessel beneath the pump-spout, and serving to convey the drippings from the spout back into the well, substantially as shown and described.

489,404. **TIRE-TIGHTENER.** WILLIAM J. YOUNG, Town Creek, Ala., assignor of one-half to Joseph M. Hounton, same place. Filed June 23, 1892. Serial No. 437,753. (No model.)



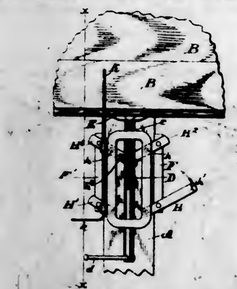
Claim.—1. A tire tightener consisting of two substantially U-shaped washers or plates, both of which are constructed substantially alike, each plate being provided with a lug or raised portion at its inner end which is of sufficient length to lie between the outer ends of its companion plate when the said plates are located in reverse position upon each other, substantially as described.

2. The herein described tire tightener consisting of the two plates which are adapted to lie upon each other in reverse position, each plate being of a substantially U-shaped form and being provided at its inner end with a lug which is adapted to lie between the outer ends of the opposite plate, and with a series of corrugations upon the same side of the plate as that upon which the lug is located so that when the plates are in proper position the corrugations will engage each other and interlock the plates, substantially as described.

3. The herein-described tire tightener, consisting of the two U-shaped plates or washers D D which are substantially alike, having the raised portions or lugs *a a* at their inner ends, substantially as described.

4. The herein-described tire tightener, consisting of the two substantially U-shaped plates or washers D D, having the lugs *a a* at their inner ends and the series of corrugations *b b* located upon the same side of the plate as the lugs *a*, substantially as described.

489,405. **FLOOR OR CEILING SET.** JOHN M. ANTHONY, Hadnot, La. Filed Feb. 26, 1892. Serial No. 422,836. (No model.)



Claim.—1. In a device for driving floors, and ceilings, the combination with a yoke or frame of a plurality of bars pivoted thereto, parallel side bars having roughened inner edges connecting said pivoted bars, means for simultaneously moving said side bars toward each other or vice-versa, and so clamping said yoke, and a device mounted on said yoke for pressing the planks or boards together, substantially as described.

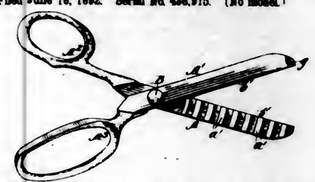
2. In a device for driving floors, and ceilings, the combination with a yoke, or frame, of a plurality of bars pivoted thereto, parallel side bars having roughened inner edges connecting said pivoted bars, means for simultaneously moving said side bars toward each other or vice versa, and so clamping said yoke, a device mounted on said yoke for pressing the planks or boards together, and a guide bar, mounted in suitable guides and adapted to hold the plank or board against vertical motion, substantially as and for the purposes described.

3. In a device for driving floors and ceilings, the combination with a yoke or frame, of a plurality of bars pivoted thereto, parallel side bars having roughened inner edges connecting said side bars means for moving said side bars toward each other or vice versa, and so clamping said yoke, and a guide bar K mounted in guides K' and adjusted by blocks *k'*, substantially as and for the purposes described.

4. In a device for driving floors and ceilings, the combination with a yoke or frame, of four bars, H, H', H^2, and H^3, pivoted thereto, the bars H^2 and H^3 being connected together by the pin A^2 moving in the slot A^2, and one of the said bars having a hand lever attached thereto; the parallel side rods F and F' having teeth on their interior sides, and connecting said pivoted levers together; and a device mounted on said yoke or frame for pressing the planks or boards together, substantially as described.

5. In a device for driving floors and ceilings, the combination with a yoke or frame, of four bars, H, H', H^2, and H^3, pivoted thereto, the bars H^1 and H^3 being connected together by the pin A^2 moving in the slot A^2, and one of the said bars having a hand lever attached thereto; the parallel side rods F and F' having teeth on their interior sides, and connecting said pivoted levers together; and a guide bar K moving in guides K', mounted on said yoke or frame, substantially as and for the purposes described.

489,406. **PINKING-SHEARS.** LOUISE AUSTIN, Whatcom, Wash. Filed June 16, 1892. Serial No. 436,915. (No model.)

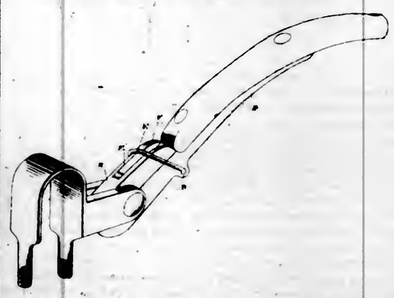


Claim.—1. The within described improved article of manufacture to wit: Scissors or shears having blades with male and female matching, projections and depressions, of any desired configuration, arranged on the inner faces of the blades transversely to the length of the blades and concentric with and forward of the pivot by which the blades are connected and on which they turn, substantially as described.

2. Scissors or shears having blades with male and female matching projections and depressions arranged on the inner faces of the blades transversely to the length of the blades and concentric with and forward of the pivot on which the blades turn, said blades having surfaces at top and bottom which are parallel and flat from near the pivot to the ends of the blade, and which can be ground off to sharpen the cutting projections, substantially as described.

3. Scissors or shears having blades with male and female matching projections and depressions concentric with and forward of the pivot, and with points beveled off, substantially as described.

489,407. **THILL-COUPLING.** JOSEPH R. BENSON, Sonora, Tex. Filed May 18, 1892. Serial No. 433,407. (No model.)



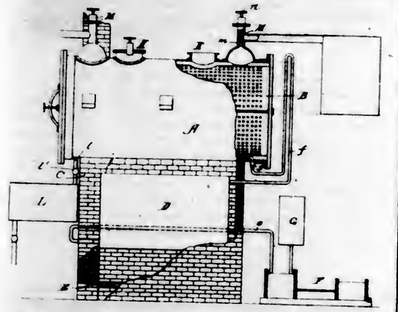
Claim.—In a thill coupling the combination of a thill arm A, perforated lug D on the under side thereof, link E confined in said perforated lug and surrounding the said arm, jaw B pivotally secured to the rear end of the arm and adapted to turn down thereon and spring F having head F confined in a depression in the upper side of the jaw for the purpose of securing the link E over the free end of the jaw, substantially as shown and described.

489,408. **SPRINKLER.** LOUIS M. BERRY, Boston, Mass. Filed July 21, 1892. Serial No. 440,716. (No model.)



Claim.—The herein-described improved sprinkler, comprising the box or body having a foraminous bottom and a vent or opening in its top, and an absorbent in said box or body composed of animal wool in its springy state unwoven and unspun, substantially as set forth.

489,409. **PNEUMATIC PRESS.** ADOLPH BORNHOLDT, Brooklyn, N. Y., assignor to the National Vacuum Drying and Air Distilling Company, same place. Filed Feb. 26, 1892. Renewed Dec. 16, 1892. Serial No. 455,269. (No model.)



Claim.—1. A pneumatic press for extracting and separating the fluids from the solid portions of a mass, said press comprising in combination, an outer cylinder or vessel adapted to withstand a high pressure, an inner perforated cylinder or vessel, and an air-compressor connected by a pipe with the interior of the outer vessel, so that the air acts by direct contact on the mass to be treated substantially as described.

2. A pneumatic press comprising in combination an outer cylinder or vessel capable of withstanding high pressure, and provided with a pressure-retaining valve, an inner perforated cylinder or vessel, an air supply pipe leading into the space between the two vessels, and an air-compressor, substantially as described.

3. The combination in a pneumatic press, of the outer cylinder or vessel, the inner perforated cylinder or vessel, having a series of perforated shelves each with a drip pan beneath, the air pipe entering the space between the two cylinders, and the air compressor, substantially as described.

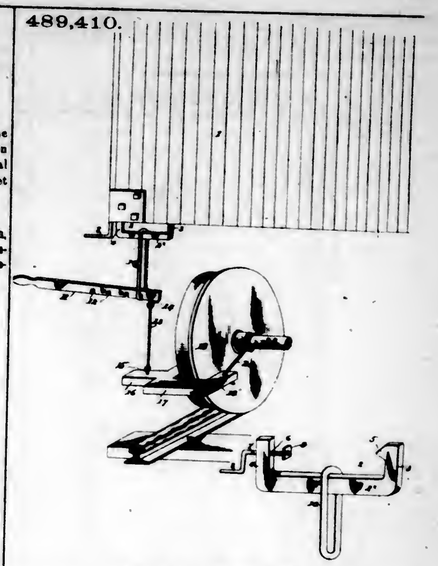
4. The combination of the outer cylinder or vessel, provided with a pressure retaining valve, the inner perforated cylinder, the air compressor, the storage chamber provided with means for heating the air therein, and pipes leading from the compressor to the storage chamber, and from the latter to the outer cylinder or vessel, substantially as described.

489,410. **CAR-MOVER.** WILLIAM L. CARR, Manchard, assignor of one-half to T. M. Hemmings, Ocia, Iowa. Filed Aug. 30, 1892. Serial No. 444,530. (No model.)

Claim.—1. In a car-starter or mover, the combination of a clevis consisting of a flat plate having its innermost arm suspended from the car-axle and located beyond the inner side of the car-wheel, a loosely-suspended adjustable operating lever above said clevis extending outwardly from the car and having its inner end loosely connected to one side of said clevis and a loosely-mounted freely-movable link by which said lever is suspended, substantially as described.

2. In a car starter or mover, the combination of a clamp depending from the lower side of a car and consisting of a horizontal bar with upturned ends, a link loosely suspended from said horizontal bar of the clamp, a lever having notches in the under edge thereof and adjustably and loosely mounted in said link, a clevis embracing the wheel and to which said link is also secured and consisting of a main body, an outer arm projecting from the main body at a right angle and an inner arm, and a rod attached to the inner arm of said clevis and having its free end loosely engaging the axle of the car-wheel, substantially as described.

489,410.



489,411. **PERMUTATION-LOCK.** THOMAS P. COOK, New York, N. Y. Filed Aug. 13, 1892. Serial No. 442,945. (No model.)



Claim.—1. In combination in a lock, substantially as and for the purposes set forth, one or more tumbler-wheels, a casing surrounding the tumbler and provided with a series of indentations relative to which the tumbler has movement, and mechanism arranged between the tumbler and the casing and adapted to act to resist the rotation of the tumbler by recurring impulses.

2. In combination in a lock substantially as and for the purposes set forth, a tumbler wheel, a casing to the wheel, a series of depressions arranged in the casing, and a spring-actuated piece on the tumbler acting to engage said depressions and frictionally resist the rotation of the tumbler-wheel by successive impulses.

3. In combination in a lock, substantially as and for the purposes set forth, a tumbler-wheel, a casing to the wheel surrounding the same and provided with a series of depressions, and a spring actuated friction wheel carried on the tumbler and adapted to frictionally engage said depressions and thereby resist the rotation of the wheel by successive impulses.

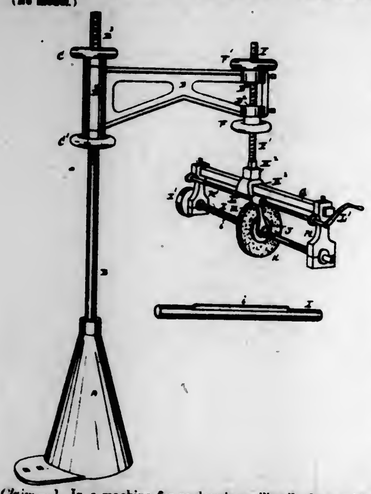
4. In combination in a lock, substantially as and for the purposes set forth, two or more tumbler wheels adapted to rotate by intermittent or successive impulse steps and each fixed to a knob or like means for operating the same, a latch adapted to engage said wheels when the same are set to unlocking position, and a bolt-operating mechanism controlled by said latch.

5. In combination in a lock, substantially as and for the purposes set forth, two or more tumbler wheels each fixed to a knob or like means for operating the same, intermittently acting resistance mechanism operating upon the wheels, and an adjustable zero stop to each of the wheels adapted to insure the rotation of each wheel from a predetermined position.

6. In combination in a lock, substantially as and for the purposes set forth, two or more tumbler wheels, a casing surrounding the wheels adjacent to their peripheries, mechanism arranged between the casing and each of said wheels and acting to resist the wheel in-

terminately, and adjustable zero stops positioned in the casing opposite the wheels and adapted to insure the beginning of the rotation of the wheels from predetermined positions.

489,412. MACHINE FOR RE-DRESSING MILL-ROLLS. DAVID J. DAVISSON, Brockway, Mich. Filed May 23, 1892. Serial No. 434,058. (No model.)



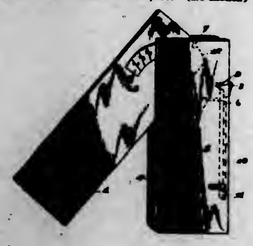
Claim.—1. In a machine for re-dressing mill rolls the combination of a support, a crane having an adjustable engagement with the support, a supporting arm having an adjustable engagement with the opposite end of said crane, and a rotatable shaft provided with a dressing roll engaged with said arm, and means to reciprocate said roll upon said shaft substantially as described.

2. In a machine for re-dressing mill rolls, the combination of a support, a crane having an adjustable engagement with the support, a supporting arm having an adjustable engagement with the opposite end of said crane, a rotatable shaft provided with a dressing roll engaged with said arm, said shaft provided with a pulley, and said dressing roll laterally movable on said shaft, substantially as described.

3. In a machine for re-dressing mill rolls, the combination of a support, a crane having an adjustable engagement with the support, a supporting arm having an adjustable engagement with the opposite end of said crane, a rotatable shaft provided with a dressing roll engaged with said arm, said shaft having an adjustable connection with said arm, and means of moving said dressing roll laterally upon said shaft, substantially as described.

4. In a machine for re-dressing mill rolls, the combination of a supporting standard, a crane adjustably engaged therewith, means to adjust the crane vertically and to prevent its lateral movement upon said standard, a supporting arm adjustably engaged with the opposite end of the crane, means to adjust said supporting arm, a rotatable dressing wheel suspended from said arm, and means to move the dressing wheel laterally, substantially as described.

489,413. FOLDING TRY-SQUARE. JAMES E. DUNCAN, Centralia, Wn., assignor of one-half to Joseph Henry Welch, Minneapolis, Minn. Filed May 16, 1891. Serial No. 392,226. (No model.)



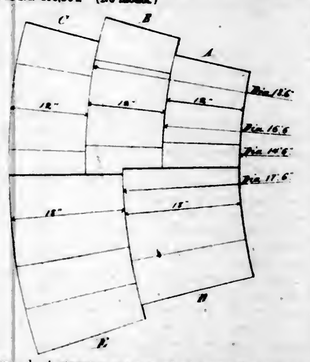
Claim.—In a device of the character set forth, the combination of a stock or handle having a recess therein with a straight shoulder, a blade adjustably pivoted in advance of said shoulder and the rear end thereof to provide a rear extension to bear on said shoulder a bolt or clamping nut for adjustably pivoting said blade, said blade having a scale thereon concentric with the pivotal bolt thereof and also provided with a notch in the rear end of the same from which the lower inner corner of the blade is rounded, and a dog having a nose and carried by an elongated spring arm secured at one end to the stock or handle, said dog nose engaging the notch in the blade when the latter is brought to bear on the aforesaid shoulder and moving over and guided by said lower inner rounded corner of the blade to said notch, substantially as described.

489,414. FORK-GUARD. FREDERICK C. FRICKER, Northampton, Mass. Filed Apr. 25, 1892. Serial No. 430,455. (No model.)



Claim.—The combination with the fork-shank, having at one side thereof, grooves which are arranged angularly to each other, and at its opposite side a transverse socket which extends but partially through the shank, of a yoke-formed guard having one side-member provided with an inwardly extended stud or teat, *e*, which has an engagement in said socket in the shank, and its other side member provided with the inwardly extended rib or lug, *f*, which is adapted, under the different positions of the guard, to have engagements in one or the other of the said grooves, and said rib-provided guard-member having a spring stress for yielding bearing toward the side of the shank, whereby the rib-and-groove engagement may be maintained, substantially as described.

489,415. WALL FOR CIRCULAR STRUCTURES. CHARLES H. POOTS, Chicago, Ill., assignor to Reuben Jenkins, same place; John B. Jenkins executor of said Reuben Jenkins, deceased. Filed Dec. 28, 1891. Serial No. 416,304. (No model.)

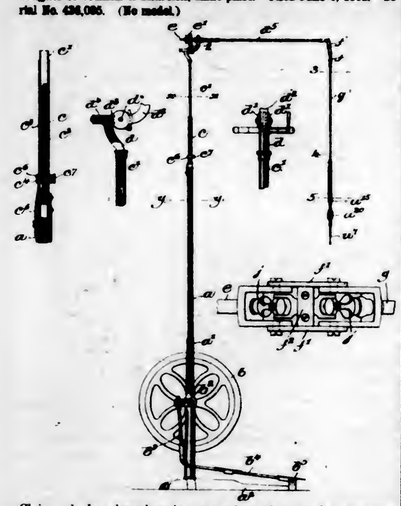


Claim.—1. A structure composed of a plurality of layers of segmental bricks or blocks forming circular courses of varying diameters, said bricks or blocks being in sets in the form of true segments of a number of standard courses less than the total number of courses, said sets being adapted to form standard courses, each of a single type of brick, at about equal intervals throughout the structure, the intermediate courses being composed in varying proportions of bricks of the types of the two standard courses between which they are located.

2. A furnace-wall or the like of conical form, composed of a plurality of superposed layers of segmental bricks or blocks forming circular courses of varying diameters, said bricks or blocks being in sets in the form of true segments of a number of standard courses less than the total number of courses, said sets being adapted to form standard courses, each of a single type of brick, at about equal intervals throughout the structure, the intermediate courses being composed in varying proportions of bricks of the types of the two standard courses between which they are located.

3. A structure composed of a plurality of layers of segmental and rectangular bricks or blocks forming circular courses of varying diameters, said segmental bricks or blocks being in sets in the form of true segments of a number of standard courses less than the total number of courses, said sets being adapted to form standard courses, each of a single type of brick, at about equal intervals throughout the structure, the intermediate courses being composed in varying proportions of bricks of the types of the two standard courses between which they are located, and those courses of greater diameter than the greatest standard course being composed in varying proportions of bricks of that standard course and rectangular bricks.

489,416. DENTAL ENGINE. FRANK E. HIBBS, Boston, Mass., assignor to Codman & Shurtleff, same place. Filed June 9, 1892. Serial No. 436,095. (No model.)



Claim.—1. In a dental engine, two telescoping tubular members, one having a longitudinal slot, and a ratchet toothed bar within said member, combined with a standard supporting the other member, a spring secured to said standard, a ratchet toothed block supported by the spring and normally extending through said slot and engaging the toothed bar, a band c^6 secured to the protruding end of the block and encircling the slotted member, and a knob on said band opposite the spring, substantially as described.

2. In a dental engine, the vertically adjustable stand, comprising a stationary tubular rod, a tubular rod movable telescopically within it, and slotted at one side, and a ratchet toothed bar located in said movable tubular rod and accessible through the slot, combined with the movable block c^4 connected to said stationary rod, and entering the slot to engage the ratchet toothed bar, preventing rotation yet permitting vertical movement of said movable rod, and means to move said block to disengage it from the bar, substantially as described.

3. In a dental engine, a vertical column, a driving pulley journaled therein at or near its lower end, and a supporting arm *d* at its upper end, combined with a shaft *e* provided at one end with a pulley *e'*, a shaft carrying-arm d^2 pivoted to said supporting arm with its pivotal point in line with the axis of the driving pulley and the center of the pulley *e'*, a series of circumferential notches in the hub of said shaft carrying-arm, and a longitudinally movable spring-actuated pin on the said supporting-arm adapted to spring into and engage one or another of the said notches to lock the hub when the said hub and its shaft supporting arm have been turned into one or another position to vary the inclination of the shaft *e*, substantially as described.

4. In a dental engine, two rotatable shafts *e*, *g*, and bearings therefor, a frame pivotally connected at each end to the bearings of the shafts *e*, *g*, combined with an intermediate spindle as f^3, a bearing for the same mounted in said pivotally connected frame, and flexible connections joining the opposite ends of the said intermediate spindle f^3 to the said shafts *e* and *g*, respectively, substantially as described.

5. In a dental engine, two rotatable parts, an independent spindle between and connected with said parts respectively by yielding connections, combined with a bearing for the said independent spindle, and pivots for the bearing located at substantially the center of the length of each yielding connection, substantially as described.

6. In a dental engine, the hand piece having the spring *u*, disk u', and shank u^6, combined with the co-operating member o^{15}, having the entrance slot w^2 for the shank u^6 terminating in the circular opening w^3 to receive the disk u', substantially as described.

7. In a dental engine, the hand-piece comprising the spindle u^4 having longitudinal grooves arranged on its exterior with holes communicating with the tool holding socket, jaws u^5 consisting of slender spring-acting shanks and adapted to enter said grooves and having hardened blocks on their ends which are adapted to project through the holes and frictionally engage the shank of the tool, and the spring-pressed sleeve u^9 which controls the action of said jaws, combined with the rotatable shell u^{20} having cam surfaces by which said sleeve is moved against the tension of its spring to release the tool, substantially as described.

8. In a dental engine, the hand-piece comprising the tool carrying spindle u^4 provided with the tapered or conical end portion *w* at one end and having a shoulder, and the cone bearing block u^{13} at the opposite end, a clutch to retain a tool in the said spindle, the shell u^{20} having the tapered end portion 70 and the bearing block u^{14} made adjustable, the clutch controlling sleeve surrounding said spindle and bearing against the shoulder on the end *w*, and spring for pressing said sleeve forward to actuate the clutch and retain the same in its position holding a tool and to maintain the conical end *w* in continuous engagement with the bearing 70, substantially as described.

9. In a dental engine, the hand-piece comprising the shell or case, the tool carrying spindle u^4 and bearings therefor, longitudinal grooves formed on the exterior of said spindle having holes which communicate with the tool holding socket jaws u^5 consisting of slender spring-acting shanks having on their ends hardened blocks adapted to frictionally engage the shank of the tool, combined with the sleeve u^9, spring u^{19}, means for moving said sleeve to release the spring-acting jaws, and a locking device, whereby the sleeve may be held in fixed position, substantially as described.

10. In a dental engine, a hand-piece comprising a shell or case, the tool carrying spindle u^4 and bearings therefor, independent jaws u^5 to hold the tool in place by frictional engagement therewith, the movable sleeve u^9 to control said jaws, and spring u^{19}, combined with the collar u^{16} on the sleeve and abutting against the flange u^{17} thereon, pins each bearing two friction rolls projecting from said collar u^{16}, guide slots for the inner pair of rolls formed in the shell or case, a rotatable shell u^{20} having cam surfaces u^{21}, u^{22}, formed on it interiorly against which the outer pair of friction rolls bear, rotation of the shell acting through the cam surfaces and the said rolls to move said sleeve, substantially as described.

11. In a dental engine, a hand-piece comprising a shell or case, the tool carrying spindle u^4 and bearings therefor, independent jaws u^5 to hold the tool in place by frictional engagement therewith, the movable sleeve u^9 to control said jaws, and spring u^{19}, combined with the collar u^{16} on the sleeve, and abutting against the flange u^{17} thereon, pins each bearing two friction rolls projecting from said collar u^{16}, guide slots for the inner pair of rolls formed in the shell or case, a rotatable shell u^{20} having cam surfaces u^{21}, u^{22}, formed on it interiorly against which the outer pair of friction rolls bear, movement of the shell acting through the rolls to move said sleeve, and projections u^{23} also formed on the interior of said shell u^{20}, and the pin 60 movable into and out of engagement with said pin, substantially as described.

12. In a dental engine, a hand-piece comprising a shell or case, a tool carrying spindle u^4 and bearings therefor, independent jaws u^5 to hold the tool in place by frictional engagement therewith, the movable sleeve u^9 to control said jaws, and spring u^{19}, combined with the collar u^{16} on the sleeve and abutting against the flange u^{17} thereon, pins each bearing two friction rolls projecting from said collar u^{16}, guide slots for the inner pair of rolls formed in the case or shell, a rotatable shell u^{20} having cam surfaces u^{21}, u^{22}, formed on it interiorly against which the outer pair of friction rolls bear, movement of the shell acting through said rolls to move said sleeve, and projections u^{23} also formed on the interior of said shell u^{20}, and the pin 60 movable into and out of engagement with said projections, and roller receiving recesses just back of said projections u^{24} which receive the rolls and thereby lock the collar u^{16} in fixed position when the shell u^{20} is locked in fixed position, substantially as described.

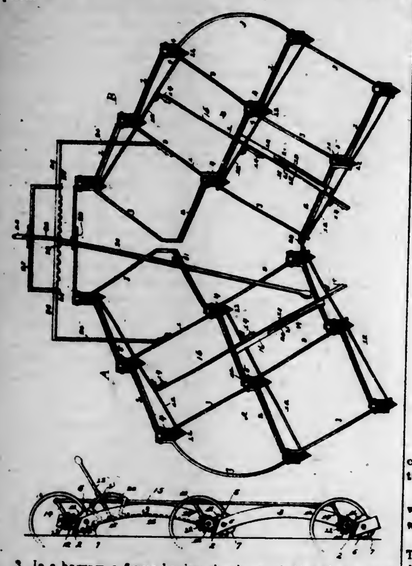
13. In a dental engine, two shafts *e* and *g* and bearings therefor, an independent spindle f^3 connected with the said shafts respectively by flexible connections, combined with the links f^7 pivoted to the bearings for the said shafts, and supporting a bearing for the said intermediate spindle f^3, and limiting stops on the said links, to operate, substantially as described.

489,417. SPRING-TOOTH HARROW. JOHN S. KNOX, Richfield, Pa., assignor to Charles La Dow, Albany, N. Y. Filed July 15, 1892. Serial No. 440,226. (No model.)

Claim.—1. In a harrow, a frame having circular teeth hinged on pivots or axes at right angles with the line of draft, or substantially

ce, and rotary rods oblique to the line of draft, operatively connected with the teeth to simultaneously adjust them.

2. A harrow having a frame with circular teeth secured thereto in zigzag lines and moving about separate centers or hinges, and rotary rods operatively connected with the teeth for adjusting their pitch.



3. In a harrow, a frame having circular teeth hinged to it, each on a separate pivot or hinge connection, and rods having gears operatively connected with the teeth to adjust two or more of them simultaneously.

4. In a harrow, a frame, circular teeth having trailing ends adapted to dig the ground in rear of their fastened portions, and rocking on pivots at right angles to the line of draft, or substantially so, tooth supports adapted to maintain the front and rear portions of each tooth in the line of draft, and obliquely inclined rods adapted to change the pitch of teeth in different transverse planes.

5. In a harrow, the combination of the following elements: circular teeth adapted to be rocked, supports which guide the teeth squarely in line with the draft while being rocked, obliquely inclined rotary rods connecting the teeth, and means for rotating said rods and for holding them as adjusted, whereby teeth in different transverse planes may be simultaneously rocked with the front bow portion and the rear soil-working portion of each tooth maintained in the same plane and parallel with the line of draft.

6. In a harrow, the combination of teeth guarded by a front portion of the frame arranged in advance of the front teeth, and rotary transverse rods obliquely inclined, also guarded by the frame.

7. In a harrow, the combination of two or more series of circular teeth, a frame having arched bars spanning the series of teeth, and means for operating two or more series of teeth simultaneously, whereby rubbish detached from the teeth may escape under the arched bars.

8. A harrow frame having sections with transverse bars obliquely inclined in each section, and having their front under surfaces inclined rearwardly, whereby said transverse bars are adapted to deflect rubbish laterally and also rearwardly, in combination with arched draft bars adapted to permit any rubbish which may be laterally deflected to escape under the arches at the outer sides of the harrow, circular teeth carried by the frame, and devices operatively connected with the teeth for simultaneously adjusting them.

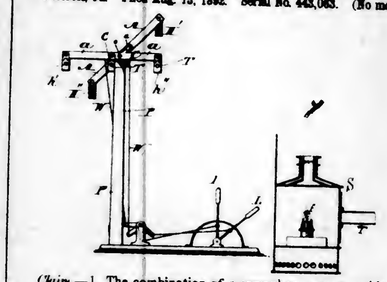
9. A harrow frame made up of zig-zag bars, sleeves for holding different bars at proper distances apart, bolts passing through the sleeves for securing them to the bars, curved teeth adjustable about the sleeves, and means connected with the teeth between the bars for adjusting the teeth simultaneously.

10. In a harrow, a frame in combination with circular teeth, adjustable as to pitch secured to the frame, adjusting devices within and protected or guarded by the curved portions of the teeth, and means for operating said devices to adjust two or more teeth simultaneously.

11. A harrow having its frame made up of straps of metal set vertically edgewise and bent to form openings, substantially diamond-shaped between the bars, circular teeth having trailing soil-working ends operating in said openings, in combination with rotary rods adapted to simultaneously adjust the working ends of two or more teeth upwardly and downwardly within said openings.

12. In a harrow, zig-zag bars, teeth hinged loosely between adjacent parts of different bars in such manner as to be adapted to be rocked simultaneously, in combination with devices operatively connected with the teeth, whereby teeth distributed substantially as described on the frame, may be adjusted at one time and braced during their rocking movements by said adjacent portions of the frame.

489,418. SIGNAL FOR RAILROAD-TRAINS. ISAAC N. PEIRCE, Folcroft, Pa. Filed Aug. 13, 1892. Serial No. 443,063. (No model.)

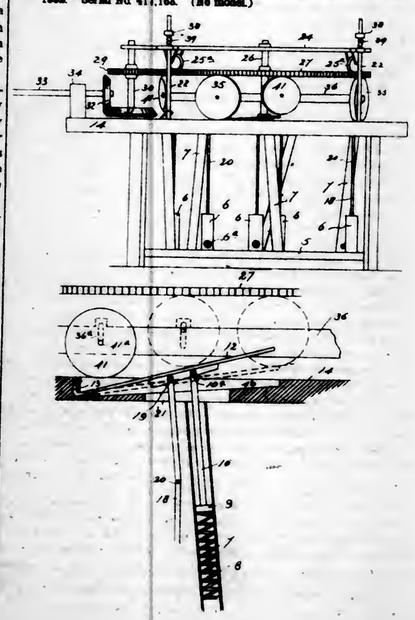


Claim.—1. The combination of a semaphore arm movable on a center pin or pivot with lanterns at each extremity of the arm and in the center substantially as set forth.

2. The combination of a semaphore arm movable on a center pin, with lanterns at each extremity and in the center, having only pure white lights, substantially as described.

3. The combination, with a semaphore arm, of a lantern and tube T attached firmly and horizontally, to the front of the lantern immediately opposite to the flame *f* in the lantern substantially as described and set forth.

489,419. PUMP. DANIEL D. SHAW, Denver, Colo. Filed Jan. 6, 1892. Serial No. 417,168. (No model.)

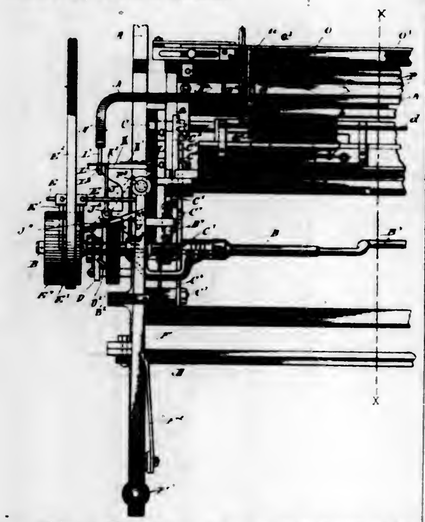


Claim.—1. The combination with a pump mechanism, of a stationary platform supported above the pistos chambers and provided with arms having one extremity located in a suitable socket and spring mechanism normally supporting the opposite extremity above the stationary platform giving the arm an inclined position, the piston rods or stems being connected with these arms, and a rotating frame carrying rollers adapted to engage the stationary platform, the inclined arms lying in the path of these rollers whereby the movement of the rollers forces the arms downward, substantially as described.

2. The combination with the pump mechanism the stationary frame, the inclined arms connected with the pump pistons, a horizontal frame carrying rollers adapted to engage said arms, a horizontally rotating wheel above said frame and actuating the same by the bearing of its rim upon the rollers and a vertically movable spring actuated frame provided with bearings adapted to engage the rotating wheel and maintain the same in position, substantially as described.

489,420. STOP-MOTION ATTACHMENT FOR KNITTING-MACHINES. CHARLES J. SUMBALD, Osborn, N. Y., assignor to Charles Cooper, Bennington, Vt. Filed Jan. 21, 1891. Serial No. 378,506. (No model.)

Brief.—The invention comprises an improved stop-motion device which is fully set forth in the claims.



Claim.—1. The combination with a knitting mechanism, of a belt shipping lever, a spring bearing against said lever, and suitable devices to hold the lever against the force of the spring, a rotatable detector rod adapted to travel to and fro in close proximity to the needles, for the purpose specified, and a vibratory bar adapted to be operated by the detector rod when rotated, to trip the holding devices of the said belt shipping lever, substantially as and for the purpose described.

2. The combination with knitting mechanism, of a belt shipping lever provided with a spring, a reciprocating carrier bar, an arm secured to said carrier bar, a detector rod loosely coupled to said arm and provided with laterally projecting arms, a vibratory bar in position to be actuated by said detector rod, a pivotal elbow lever, a latch and a pivoted lever which is adapted to engage with an arm of the said shipping lever, substantially as and for the purpose described.

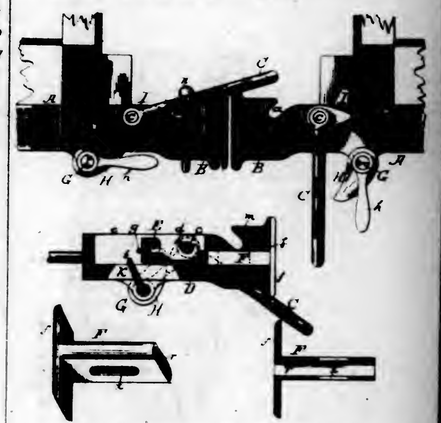
3. The combination with a frame carrying the needles and suitable mechanism for operating said frame, of a carrier bar O, an arm secured thereto, a detector rod loosely coupled to said arm and provided with laterally projecting arms and a point which is held in position adjacent to a row of needles, a vibratory bar in position to be actuated by said detector rod, a shipping lever, and devices, substantially as shown, intermediate said vibratory bar and said shipping lever, whereby the shipping lever is released upon the movement of the bar, substantially as and for the purpose described.

4. In a knitting machine, a needle carrying frame, a pivoted lever connected thereto and a spring bearing against the lever to move it in one direction, combined with a cam intermittently engaging said lever to move it in the opposite direction, a wheel having uniform rotation with said cam and provided with ratchet teeth on a portion only of its periphery, and a pawl adapted to engage said teeth, the parts being so arranged that the pawl will engage the teeth when the cam is moving the lever against the force of the spring, substantially as and for the purpose specified.

5. In a knitting machine, a set of vertically reciprocating needles, a set of horizontally reciprocating needles, the running mechanism, a spring actuated belt, shipping lever, and devices to hold the lever against the force of the spring, combined with a rotating detector rod and adapted to travel to and fro in front of the vertically reciprocating needles, suitable devices intermediate of the detector rod and the lever holding devices adapted to trip the latter when the former is rotated to thereby release the belt shipping lever to stop the machine, and a device to prevent the forward movement of the horizontal needles when the machine is stopped, substantially as and for the purpose described.

6. The combination with a knitting mechanism, of a belt shipping device, a detector-rod adapted to travel to and fro in close proximity to the needles for the purpose specified, and suitable mechanism between the detector-rod and the belt shipping device whereby the latter may be operated by the former, substantially as and for the purpose described.

489,421. CAR-COUPLING. EDWIN J. SITLER, Chicago, Ill., assignor of two-fifths to Henry Charles Mechtersheimer, same place. Filed Apr. 9, 1892. Serial No. 428,496. (No model.)



Claim.—1. The combination with a car-coupler having its body portion channeled out, and having a transverse groove in the upper surface of its head, of a link having its rear ends secured to a transverse spindle, said transverse spindle journaled in the sides of the channeled out part of said coupler and having a pin projecting therefrom between its bearings, a tumbler, and a push-block, as set forth.

2. The combination with a car-coupler having its body portion channeled out, and having a transverse groove in the upper surface of its head, of a link having its rear ends secured to a transverse spindle, said spindle journaled in the sides of the channeled out part of the said coupler and having a pin projecting therefrom between its bearings, and a tumbler engaging said pin, as set forth.

3. The combination with a car-coupler having its body portion channeled out, and having a transverse groove in the upper surface of its head, of a transverse spindle journaled in the sides of the channeled part of said coupler and having a pin projecting therefrom between its bearings, a link having its rear ends secured to the ends of said spindle, a longitudinal reciprocal tumbler engaging said pin, and a transverse shaft, having an arm projecting therefrom, and moving up through a suitable opening in the floor of the channeled out part of the coupler and engaging said tumbler, as set forth.

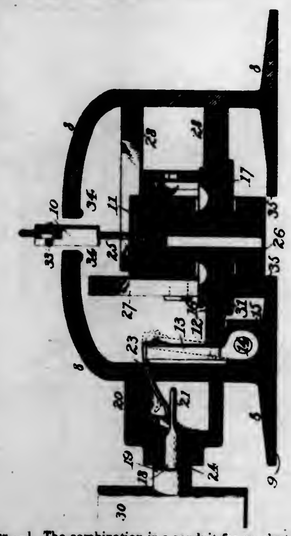
4. The combination with a car-coupler having its body portion channeled out, having a transverse groove in the upper surface of its head, and having a longitudinal passage extending from its engaging face to said channeled out part, of a transverse spindle having a pin projecting therefrom between its bearings into said channeled out part, a push-block placed and movable longitudinally in said passage, a tumbler engaging said pin and engaged by said push-block, a transverse shaft having an arm passing up through a suitable opening in the

door of said channeled out part and engaging said tumbler, and a link having its rear ends secured to said spindle.

5. The combination with a coupler the upper surface of the head of which is provided with a transverse groove, the body portion of which is channeled out and which is provided with a longitudinal passage extending from its face to said channeled out part, of a spindle c having the finger d and provided with the cams I, link C secured to the ends of said spindle, shaft G, cams H thereon, and arm k projecting therefrom, as set forth.

6. The combination with a coupler the upper surface of the head of which is provided with a transverse groove, the body portion of which is channeled out and which is provided with a longitudinal passage a of a spindle c having the finger d, the hollow push-block having the longitudinal openings x therein, the tumbler D having the recess E in its upturned rear end, the link C having its rear ends secured to said spindle, and the coupling-pin insertible vertically through a suitable opening in the head made with reference thereto, and passing down through the opening x in the push-block, as set forth.

489,422. UNDERGROUND CONDUIT FOR ELECTRIC RAILWAYS. CHARLES P. TATNE, Spokane, Wash., assignor, by direct and mesne assignments, of fifty-one one-hundredths to himself, Samuel F. Coons, and Charles M. Patterson, same place. Filed Mar. 28, 1892. Serial No. 426,633. (No model.)



Claim.—1. The combination in a conduit for an electric railway of two similarly shaped side portions of the conduit body, one being turned end-for-end and the two located side-by-side at a distance apart to leave a slot at the top and one at the bottom; the base of the sides being flanged like an inverted T, and a trolley carriage provided with wheels to run upon one flange at its inner edge and upon the vertical wall of the side opposite, substantially as described.

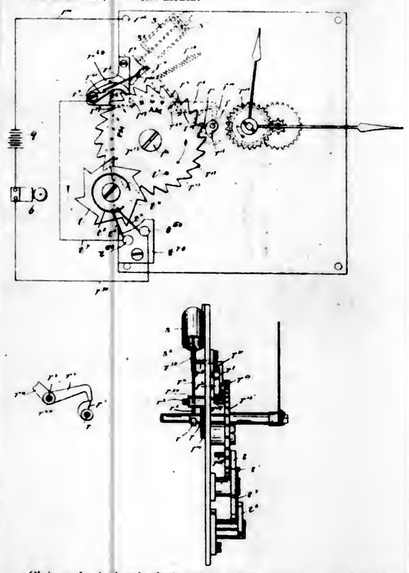
2. The combination in a conduit for an electric railway, of a body forming an open slotted tunnel; a series of rails pivotally mounted within the tunnel and provided with vertical arms; a line wire located beside the tunnel and provided with branches, and switches in arched form attached to the said rail arms and fitted to slide through the side of the tunnel or conduit body to form electric connection between the said rails and line wire branches, substantially as described.

3. The combination in a conduit for an electric railway, of a conduit body consisting of two similar side portions having base flanges one of which may serve as a rail, and the two side portions separated to form an open slot between them; a rail located in the conduit and adapted for electric connection with a line wire, and a trolley fitted to travel in the conduit and having two wheels to engage the said rail and one wheel in the same plane and opposite to them midway to engage the back of the conduit, and having two other wheels journaled to travel vertically on the bottom of the conduit on the side thereof to which the said rail is attached, and further having another wheel midway of the trolley and above the first named midway wheel, to travel on the back of the conduit, and a free connection between the trolley and a car, substantially as described.

4. The combination in a conduit for an electric railway, of a trolley carriage body; two wheels thereon in a horizontal plane and adapted to engage a rail; two other wheels thereon in a vertical plane and on the same side of the body as the first two wheels; and two horizontal wheels located one above the other midway and on the opposite side of the body to the four wheels mentioned and means for freely connecting the trolley carriage both electrically and mechanically, with a car, substantially as described.

5. The combination in a conduit for an electric railway, of a trolley body mounted upon two vertical wheels in line of each other at one side of the body: means for electric communication between the trolley and a live rail: a horizontal wheel on the trolley body near its top and opposite to and midway between the said vertical wheels, substantially as described.

489,423. ELECTRIC TIME-ALARM. JACOB P. TIRRELL, Boston, assignor to Herbert O. Edgerton, Greenfield, Mass. Filed Mar. 19, 1892. Serial No. 425,554. (No model.)



Claim.—1. A circuit closing and breaking apparatus, comprising a wheel provided with one or more contact pieces or pins, all arranged in a single row or series which is concentric with the axis of the wheel, all of said pins moving in a single path; means for rotating said wheel at a predetermined rate; a contact arm pivotally connected to a fixed support at a point removed from the axis of the wheel and having its contact surface normally out of the path of movement of said pins, said arm being adapted to be moved so as to carry said surface into said path; means for moving the contact arm at predetermined intervals; and electrical connections, constituting with said arm and wheel an electric circuit which is closed by contact of the arm with a contact piece on the wheel as set forth.

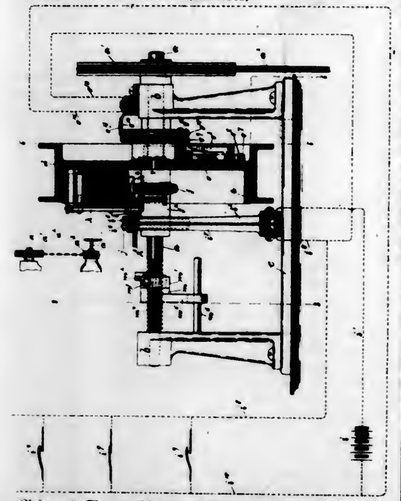
2. In a circuit closing and breaking apparatus, the combination of a wheel, adapted to hold a series of contact pieces or pins; mechanism for rotating said wheel at a predetermined rate; a contact arm, adapted to be moved into the path of movement of said contact pins, and held normally out of said path, said arm having an extension provided with an incline or off-set; a lever, and mechanism for oscillating it at predetermined periods, said lever having a projection which, during one of the movements of the lever, engages said incline and thereby forces the contact arm into the path of the pins; as set forth.

3. In a circuit-closing and breaking apparatus, the combination of a wheel, adapted to hold a series of contact pieces or pins, and provided with ratchet teeth; a contact arm, adapted to be moved into the path of movement of said pins, and held normally out of said path, said lever having an extension, provided with an incline or off-set; a lever adapted to be oscillated and provided with a projection adapted to engage said incline; and a time train, one arbor of which is provided with a tooth, adapted to rotate said wheel step by step, and with another tooth adapted to move said lever; as set forth.

4. In a circuit-closing and breaking apparatus, the combination of a wheel, provided with one or more contact pieces or pins; means for rotating said wheel at a predetermined rate; a contact arm, pivoted to a fixed support at a point removed from the axis of the wheel and having its contact surface normally out of the path of movement of said pins and adapted to be moved into said path; means for moving the contact surfaces into and out of said path at predetermined intervals; and a device to retard the inward movement of the contact arm; as set forth.

5. A circuit-closing and breaking apparatus, comprising a wheel, provided with one or more contact pieces or pins; means for rotating said wheel at a predetermined rate; a contact arm, which is normally out of the path of movement of said pins, and is adapted to be moved into said path; means for moving the contact arm into and out of said path at predetermined intervals; electrical connections, constituting with said arm and wheel an electric circuit, which is closed by contact of the arm with a contact piece on the wheel; and a device for making said circuit inoperative at predetermined times, said device comprising a segmental contact piece, such as d^4, adapted to be partly rotated by each complete rotation of said wheel, and having its continuity interrupted by a recess or opening, and contact springs co-operating with said contact piece, whereby the contact arm is thrown out of circuit when said recess reaches a given point; as set forth.

489,424. VALVE-CONTROLLING CLUTCH. JACOB P. TIRRELL, Boston, assignor to Herbert O. Edgerton, Greenfield, Mass. Filed Mar. 7, 1892. Serial No. 423,979. (No model.)



Claim.—1. The combination with a shaft and a loose pulley thereon, of a clutch rotatively engaged with the shaft and normally disengaged from the pulley, a lever engaged with the clutch and adapted to move it into engagement with the pulley, an electro-magnet arranged to attract said lever as an armature and thereby give the lever its clutch-operating movement, and a support common to said clutch, lever and electro-magnet, attached to the shaft.

2. The combination of a shaft, a loose pulley thereon adapted to be rotated by power, a clutch engaged with the shaft so as to rotate therewith, said clutch being adapted to be moved or displaced into contact with the pulley and thereby couple or connect the pulley with the shaft, an electro-magnet mounted on a support affixed to said shaft, a lever adapted to be attracted as an armature by said magnet, said lever being arranged to displace the clutch when the armature is attracted, and means for energizing said magnet, as set forth.

3. The combination of a shaft, a loose pulley thereon, a movable clutch arranged to co-operate with said pulley, an electro-magnet supported by the shaft, a pivoted armature arranged to move or displace said clutch when the armature is attracted by the magnet, a detent adapted to automatically engage said armature and hold it in its clutch-displacing position, and a device moved by the rotation of the shaft into position to displace said detent and release the armature, as set forth.

4. The combination of a shaft, a loose pulley thereon, a movable clutch engaged with the shaft, an electro-magnet and an armature therefor adapted to co-operate in engaging the clutch with the pulley, a detent lever adapted to retain said armature in its clutch-operating position, said lever having a stud or projection and a nut engaged with a threaded portion of the shaft and arranged to be moved by the rotation of the shaft into engagement with said stud and thereby displace the detent lever and release the armature, as set forth.

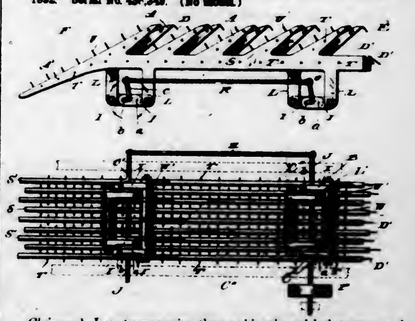
5. The combination of a shaft, a loose pulley thereon, a movable clutch engaged with the shaft, an electro-magnet and an armature therefor adapted to co-operate in engaging the clutch, a disk of insulating material affixed to said shaft, and an electric circuit including said magnet, conducting rings on said disk, a source of electricity, one or more circuit-closing devices and suitable electrical connections, said circuit being adapted to be closed to energize said magnet and thus cause the operation of the clutch, as set forth.

6. The improved power-transmitting apparatus, comprising a shaft, a loose pulley thereon, a movable clutch engaged with the shaft, an electro-magnet and an armature therefor adapted to operate said clutch and to revolve with the clutch and shaft, a weighted governor arm connected with the pulley, circuit-closing springs or terminals mounted on the pulley and adapted to be connected by the centrifugal action of said arm, and an electric circuit including a source of electricity, the magnet, the terminals and suitable connections, said circuit being adapted to be closed by the action of the governor arm when the speed of the pulley exceeds a normal rate, as set forth.

7. In an apparatus for stopping engines, the combination of a shaft, a loose pulley thereon, a governor movably connected to the pulley and adapted to be thrown outwardly by centrifugal force, an electric circuit including circuit-closing devices or electrodes mounted on the pulley and adapted to be operated by the governor to close the circuit when the governor is thrown outwardly, and an electrically-controlled clutch engaged with the shaft and adapted to connect the pulley with the shaft when said circuit is closed, as set forth.

8. In an apparatus for stopping engines, the combination of a shaft, a loose pulley thereon, a governor movably connected to the pulley and adapted to be thrown outwardly by centrifugal force, an electric circuit including circuit-closing devices or electrodes mounted on the pulley and adapted to be operated by the governor to close the circuit when the governor is thrown outwardly, an insulating disk affixed to the pulley, conducting rings on the periphery of said disk connected with said electrodes, springs bearing on the said rings and connected with the fixed conducting wires of the circuit, and an electrically-controlled clutch engaged with the shaft and adapted to connect the pulley with the shaft when said circuit is closed, as set forth.

489,425. STRAW-CARRIER. WILLIAM R. WHITE, Bottineau, N. D., assignor of one-half to James White, same place. Filed June 6, 1892. Serial No. 436,349. (No model.)



Claim.—1. In a straw carrier, the combination with slats arranged in banks and alternating with each other, and means substantially as described for moving the ends of the banks simultaneously and oppositely through parallel paths: of arms rising obliquely from the slats toward their delivery ends, pins rising from said arms at approximate right angles thereto, depending pins at the upper ends of the arms also at right angles thereto, and depending pins at the delivery ends of the slats standing approximately parallel with the depending pins in the arms, all as and for the purpose set forth.

2. In a straw carrier, the combination with slats arranged in two banks and alternating with each other, and means substantially as described for moving the ends of the banks simultaneously and oppo-

otely through parallel circular paths; of rigid arms rising obliquely from the slats toward their delivery ends, the arms remote from such ends projecting also below the slats, transverse pins through said slats and arms, and depending pins at the upper ends of the arms, and at the rear ends of the slats, all the depending pins standing oblique to the length of the slats, all as and for the purpose set forth.

3. In a straw carrier, the combination with slats arranged in banks and alternating with each other, and means substantially as described for moving the banks simultaneously and oppositely through parallel paths; of arms rising obliquely from the slats toward their delivery ends, transverse pins through said slats and arms, pins rising from said arms at approximate right angles thereto, depending pins at the upper ends of the arms also at right angles thereto, and depending pins at the delivery ends of the slats standing approximately parallel with the depending pins in the arms, all as and for the purpose set forth.

4. In a straw carrier, the combination with slats arranged in two banks and alternating with each other, and means substantially as described for moving the banks simultaneously and oppositely through parallel circular paths; of rigid arms rising obliquely from the slats toward their delivery ends, the arms remote from such ends projecting also below the slats, transverse pins through said slats and arms, pins rising from said arms at approximate right angles thereto, and depending pins at the upper ends of the arms also at right angles thereto, all as and for the purpose set forth.

5. In a straw carrier, the combination with slats arranged in banks and alternating with each other, and arms rising from the slats; of lugs depending from the slats, those on adjacent slats being arranged to have a longitudinal opening between, cranked shafts standing in these openings, transverse bolts through the lugs of each bank, bars rigidly secured on the bolts between the two outer lugs of each bank, washers thereon between the other lugs, the bars extending toward each other and being journaled on the cranks of the shafts, and means for driving one shaft, as and for the purpose set forth.

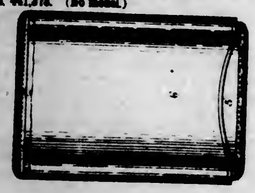
6. In a straw carrier, the combination with the slats arranged in banks and alternating with each other, and arms rising from the slats; of lugs on the slats, those on adjacent slats being arranged to have a longitudinal opening between, cranked shafts standing in these openings, bars rigidly and detachably secured to certain of said lugs, extending toward each other, and being journaled on the cranks of the shafts, a casing having bearings for the latter, parallel cranks on the shafts, a pitman rod connecting these cranks, and means for driving one shaft, as and for the purpose set forth.

7. In a straw carrier, the combination with slats arranged in banks and alternating with each other; of lugs depending from the slats, those on adjacent slats being arranged to have a longitudinal opening between, cranked shafts standing in these openings and revolving in unison, transverse bolts through the lugs of each bank, bars splined on said bolts, extending toward and past each other, and journaled on the cranks of the shafts, and bearings for the latter, as and for the purpose set forth.

8. In a straw carrier, the combination with slats arranged in banks and alternating with each other, and arms rising from said slats; of lugs depending from the slats near the ends of the latter, those on adjacent slats being arranged to have a longitudinal opening between, cranked shafts standing in these openings, transverse bolts through the lugs of each bank, bars splined on the bolts between the two outer lugs of each bank, washers thereon between the other lugs, the bars extending toward each other and being journaled on the cranks of the shafts, a casing having bearings for the latter, parallel cranks on the outer ends of the shafts, a pitman rod connecting these cranks, and means for driving one shaft, as and for the purpose set forth.

9. In a straw carrier, the combination with slats arranged in banks and alternating with each other, and means substantially as described for moving the ends of the banks simultaneously and oppositely through parallel paths; of arms rising obliquely from the slats toward their delivery ends, and transverse pins through said slats and arms, all as and for the purpose hereinbefore set forth.

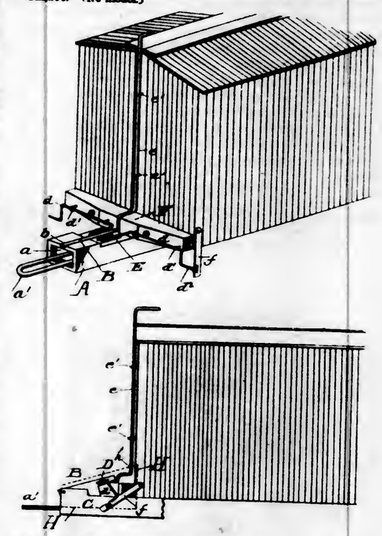
489,426. CASE. CHARLES C. WIENTGE, Providence, R. I., assignor to the Howard Sterling Company, same place. Filed July 27, 1892. Serial No. 441,378. (No model.)



Claim.—1. The combination with a case formed of flexible material and having its sides extending in concavities and convexities from the ends thereof, and the ends 7 and 8 for closing the opening between the sides of a rigid conforming-plate secured within the ends 7 and 8 of the case and having its edges curved to correspond with the concavities and convexities of the sides, as described.

2. The combination with the case formed of the parts 5 and 6 having the ends 7 and 8, and linings 10 secured within the parts thereof, of the conforming-plate 9 secured between the linings and the ends 7 and 8 and adapted to hold the sides of the case in the curves as constructed, substantially as herein shown and described.

489,427. CAR-COUPLING. COLUMBUS M. WINN, Lunenburg, Va., assignor of one-half to H. H. Neblett. Filed Aug. 5, 1892. Serial No. 442,296. (No model.)



Claim.—1. The combination of the drawhead A, having the top groove *b*, slots b^2 and b^4; bar B, having the hook C, point *c*, and slot D, said bar pivoted in the front end of said groove; U-shaped lever *d*, pivoted to the front edge of the cross beam F with its U working in the slot D, and rod *e*, pivoted to the front end of the coach and having the foot E, and square heel e^3, said foot working under the rear end of the beam B, and heel against the front edge of beam F, substantially as shown and described and for the purposes set forth.

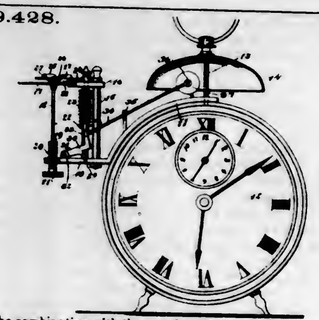
2. The combination of the drawhead A, having the top groove *b*, slots b^2 and b^4; bar B, having the hook C, point *c*, and slot D, said bar pivoted in the front end of said groove; U-shaped lever *d*, pivoted to the front edge of the cross beam F, with its U working in the slot D, and rod *e*, pivoted to the front end of the coach and having the foot E and square heel e^3, said foot working under the rear end of the beam B, and heel against the front edge of beam F, and braces *f*, having the notch f^2, pivoted to the sides of the coach, substantially as shown and described and for the purposes set forth.

3. In a car coupler, substantially as shown and described, the coping H, fitting over the said coupler having perforations for the rod *e*, and a lever *d*, to work through, substantially as shown and described and for the purposes set forth.

489,428. AUTOMATIC TIME LIGHTING DEVICE. ANTONIO B Y DIAZ, Havana, Cuba. Filed July 7, 1892. Serial No. 439,222. (No model.)

Claim.—1. The combination with the base or plate provided with a vertical shaft having a horizontally extending striker or scratch arm, a spring for turning said shaft, a latch for holding the striker or scratch arm retracted, and means for releasing the latch from a clock mechanism, of a vertically extending match holder beneath the striker arm, and consisting in a screw extending up through a threaded aperture in the base and provided with a socket in its upper end to receive the match, substantially as set forth.

489,428.

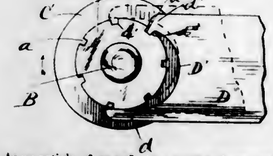


2. The combination with the match holder, of the spring pressed swinging striker or scratch arm provided with a transversely extending curved plate having its ends bent upon themselves to form parallel ways, and provided on its upper side with a transverse sleeve through which said striker or scratch arm passes and an abrading surface mounted in said ways, a latch for the said striker and means for releasing the latch from a clock mechanism, substantially as set forth.

3. In a lighting device, the combination with externally threaded match holder, extending through a threaded aperture in the frame or base and having a socket at its upper end, of a striker arm to swing thereacross, and means for retaining and releasing the striker arm, substantially as set forth.

4. The combination with the clock having a bell hammer 37, of the lighting attachment, comprising the attaching plate, the vertical post 15 having a stationary match steadying arm 17 at its upper end, the vertical shaft 22 having a spring 23, horizontal striker arm 24 carrying the striker 25, the arm 29 on the lower end of shaft 22, the vertically swinging latch 30 to engage said arm and hold the striker retracted and provided with a projection 33, a match holder beneath the striker arm, and the rod 35 connected with the bell hammer and bearing against the projection 33 substantially as set forth.

489,429. WRENCH. GOTTFRIED BRIGGER, Akron, Ohio, assignor of one-half to Casper L. Kempel, same place. Filed Jan. 18, 1892. Serial No. 418,461. (No model.)



Claim.—As an article of manufacture, a wrench comprising a bar of metal terminating at the forward end in integral jaws *d* and d', jaw d' being short as compared with jaw *d* and terminating in an inwardly presenting projection d^3 of suitable size to enter the peripheral grooves of a nut, the bar being cut away between the jaws at D' to enlarge the adaptability of the wrench for manipulating different sized nuts, the longer jaw *d* being approximately straight on its inner edge and adapted to engage and bear against the periphery of the nut, substantially as set forth.

489,430. HAND-PUNCH. EDWARD J. BROOKS, East Orange, N. J., assignor to the R. J. Brooks & Company, New York, N. Y. Filed Oct 8, 1892. Serial No. 448,174. (No model.)

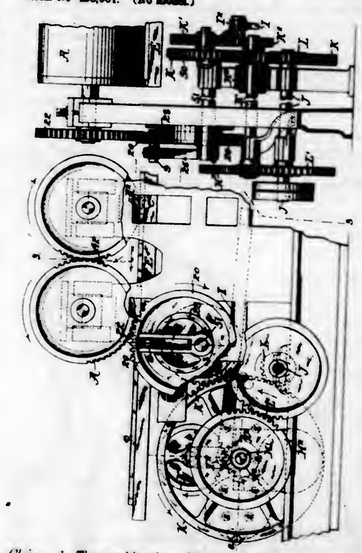


Claim.—1. A one-handled hand-punch having a one-part frame which comprises a rigid handle-loop adapted to be grasped between the fingers and the base of the thumb, a supplemental finger-admitting loop, a die-support, and a recessed head, all of which are rigidly united with each other, a die fast in said die-support, a sliding punch guided by said head and coacting with said die, and a trigger-shaped lever pivoted to said head and coacting with said sliding punch, substantially as hereinbefore specified.

2. A reversible one-handled hand-punch having a one-part frame which comprises a rigid handle-loop adapted to be grasped between the fingers and the base of the thumb, a supplemental finger-admitting loop formed by an arch at one end of said handle-loop, a recessed head at the outer end of said arch, and a die-support beneath said head, all of which are rigidly united with each other, a die fast in said die-support, a sliding punch guided by said head and coacting with said die, and a trigger-shaped lever pivoted to said head, coacting with said sliding punch, located above said arch, and adapted to be actuated by the thumb and by the forefinger in the respective positions of the hand-punch in the hand, substantially as hereinbefore specified.

3. A one-handled hand-punch composed of a one-part frame having a die support and a recessed head, the bore of said die-support and the main bore of said head being drill-holes slightly out of line with each other, an eccentric die fast in said bore of said die-support and having a bore which is continued through the lower end of said head, a sliding punch having a cylindrical shaft of reduced diameter fitted to said bore of the die and such continuation thereof, a spiral retracting spring surrounding said shaft and having its abutment within said head, and a trigger-shaped lever pivoted to said head and coacting with said sliding punch, substantially as hereinbefore specified.

489,431. CYLINDER PRINTING-MACHINE. JOHN BROOKS, Plainfield, N. J., assignor to Charles Potter, Jr., Horace W. Fish, Joseph M. Titsworth, and David E. Titsworth, same place. Filed Apr. 11, 1892. Serial No. 428,601. (No model.)



Claim.—1. The combination with the impression cylinder and reciprocating form bed, of a toothed wheel having a crank-wrist, connections between said wrist and the bed for driving the latter, a second toothed wheel in mesh with said first mentioned wheel, a radially slotted arm connected with said second wheel, an eccentrically mounted toothed wheel having a stud engaging the slot of said arm and in mesh with the impression cylinder gear, substantially as described.

2. The combination with the first and second impression cylinders and the reciprocating form bed, of a crank, connections between said crank and the bed for driving the latter, a driver of constant speed, an eccentrically mounted toothed wheel connected with one of the impression cylinders and slotted connections between the driver and said toothed wheel, whereby both the cylinders are driven with the same surface speed as the bed during the taking of the impression, substantially as described.

3. The combination with the feeding-in cylinder, the first and sec-

oad impression cylinders in gear with each other and the reciprocating form-bed, of a crank, connections between said crank and the bed for driving the latter, a driver of constant speed, an eccentrically mounted toothed wheel connected with one of the impression cylinders, and slotted connections between the driver and said toothed wheel whereby said three cylinders are driven with the same surface speed as the bed during the taking of the impressions, substantially as described.

4. The combination with the reciprocating bed, epicyclic gearing and connections with the bed for driving it, of the impression cylinder and gearing for driving the cylinder at the same surface speed as the bed during the taking of the impressions, substantially as described.

5. The combination with the reciprocating bed, epicyclic gearing connected with the bed for driving it and a toothed wheel carrying part of the epicyclic train, of the impression cylinder, a slotted driving arm connected with said toothed wheel, and an eccentrically mounted toothed wheel having a stud engaging said arm and connected with the impression cylinder for driving the latter at the same surface speed as the bed during impression, substantially as described.

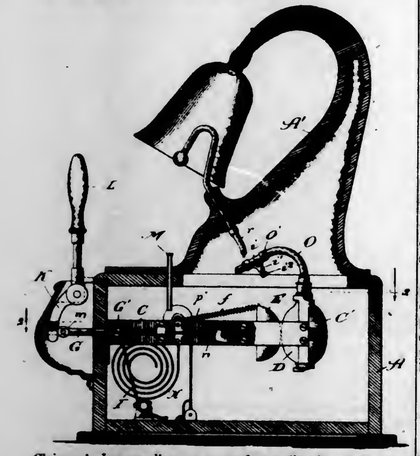
6. The combination with the reciprocating form bed carrying two forms, epicyclic gearing and connections with the bed for driving it, of the first and second impression cylinders and gearing for driving both cylinders at the same surface speed as the bed during the taking of the impressions substantially as described.

7. The combination with the reciprocating form bed and the impression cylinder, of a rotating toothed wheel, a planet toothed wheel carried thereby, a rotating sun-pinion engaged by the planet wheel, connections between the planet wheel and the bed for reciprocating it and connections between said rotating toothed wheel and the cylinder for moving it at the same surface speed as the bed during impression, substantially as described.

8. The combination with the reciprocating form bed and the impression cylinder, of a driving shaft, a rotating sun-pinion connected with said shaft, a rotating toothed wheel sleeved on the shaft of the sun-pinion and also connected with said driving shaft, a planet toothed wheel in gear with the sun-pinion, connections between the planet wheel and the bed and connections between said rotating toothed wheel and the cylinder for moving the latter at the same surface speed as the bed during impression, substantially as described.

489,432. VENDING APPARATUS. JACOB J. BUSENBERK, Chicago, Ill., assignor to the American Perfuming Machine Company, same place.

Filed May 26, 1891. Serial No. 394,360. (No model.)



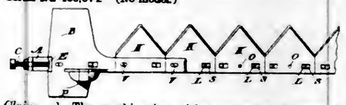
Claim.—1. In a vending apparatus for vending liquid, the combination with the liquid delivery and the bulb and pneumatic tube leading therefrom, to the liquid delivery of an adjustable vent in the pneumatic tube, comprising a perforated section of the tube and a screw-threaded needle valve, whereby the air pressure received through the pneumatic tube may be relieved to a greater or less degree as desired and thereby reduce the quantity of liquid delivered, substantially as described.

2. A vending apparatus for vending liquid, comprising, in combination, a pneumatic delivery pipe and its bulb, a plunger for compressing the bulb, a plunger operating rod made in two parts, one normally capable of sliding freely within the other, a coin-chute properly adjusted to permit the delivery of a coin between the two parts of the plunger operating rod, whereby the coin may prevent the entry of one part of the rod within the other, a sounder having an extending operating finger and a trip to actuate the sounder mounted upon a moving part of the plunger rod to engage and move the finger in its forward movement and pass the finger on the return, substantially as described.

3. A vending apparatus for vending liquid, comprising, in combination, a pneumatic delivery pipe and its bulb, a plunger for compressing the bulb, a plunger rod made in two parts normally capable of sliding one within another, an operating handle connected with one part of the plunger rod, a rack on the other part, a spring controlled crank arm, carrying a tooth engaging said rack and normally retaining it in its advanced position, a retracting spring connected with the plunger, a retracting spring connected with the detached part of the plunger rod, and a trip on the said part of the plunger rod adapted to engage the crank arm and release the rack on the return movement, thereby releasing the plunger and permitting it to return to its normal position, substantially as described.

489,433. CUTTER-BAR FOR MOWING AND REAPING MACHINES. JOHN J. ELLSWORTH, Alma, Mich., assignor, by direct and mesne assignments, to Edwin Ash, Baltimore, Md.

Filed July 27, 1891. Serial No. 400,874. (No model.)



Claim.—1. The combination with a cutter bar A having a flange or lug T at one end portion and provided with a series of dove tailed projections L, of the knives K having openings provided with flaring or beveled edges engaging the dove tailed projections, a cutter head P having a base plate B provided with a stop E, and a set screw C engaging the flange or lug and bearing against the stop on the base plate of the cutter head for moving the latter longitudinally, substantially as described.

2. The combination of a cutter head P having a base plate B provided with orifices and an end stop E, the cutter bar A having a series of dove tailed projections L, the knives K having orifices provided with flaring or beveled edges engaging the dove tailed projections, and devices for moving the cutter head and its base plate longitudinally, substantially as described.

3. The combination with a cutter bar provided with dove tailed projections, of knives having openings provided with flaring or beveled edges engaging the dove tailed projections, a cutter head having a base plate provided with a stop, a binding plate arranged between the stop and the nearest knife, and mechanism for moving the cutter head and its base plate along the cutter bar, substantially as described.

4. The combination with a cutter bar having a flange or lug at one end portion and provided with a series of dove tailed projections, of knives having openings provided with flaring or beveled edges engaging the dove tailed projections, a cutter head having a base plate provided with a stop, a binding plate arranged between the said stop and the nearest knife, and a set screw engaging the flange or lug on the cutter bar and bearing against the stop on the base plate of the cutter head for moving the latter longitudinally, substantially as described.

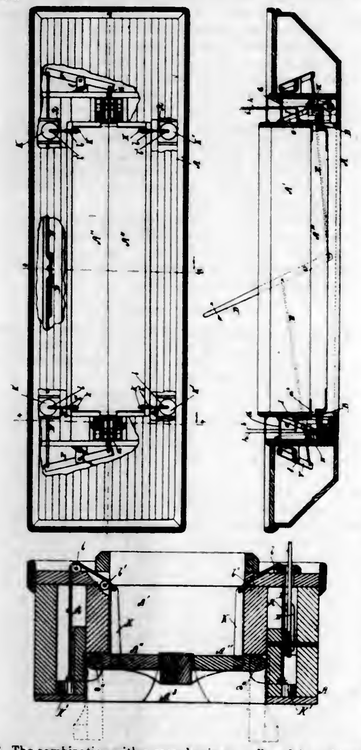
5. The combination of a cutter bar provided with dove tailed projections, a series of knives provided with openings having flaring or beveled edges engaging the dove tailed projections, a cutter head provided with a stop E, a binding plate W arranged between the said stop and the nearest knife, and a screw bolt C engaging a threaded part of the cutter bar and adapted to hold the head in position to bind the knives on the cutter bar, substantially as described.

489,434. DUMPING-SCOW. THOMAS T. H. HARWOOD, Rockport, Mass.

Filed July 25, 1892. Serial No. 441,130. (No model.)

Claim.—1. The combination with a scow having a well, and doors hinged to opposite sides of the lower part of the well, of movable dogs mounted on the scow near the ends of the doors for supporting the latter in their closed position, a device arranged on the scow in juxtaposition to each dog for holding the latter in position to support a door, and lever mechanism carried by the scow and connected with the said dog-holding devices, for simultaneously operating them and releasing the dogs, substantially as described.

2. The combination with a scow having a well, and doors hinged to opposite sides of the lower part of the well, of pivoted swinging dogs mounted on the scow for supporting the doors in their closed position, swinging levers pivoted to the scow and acting on the dogs to rigidly hold them in position to support the doors when closed, and an operating lever connected with the dog holding levers for simultaneously moving the latter to release the dogs, substantially as described.



3. The combination with a scow having a well, and doors hinged to opposite sides of the lower part of the well, of pivoted swinging dogs mounted on the scow for supporting the doors in their closed position, a lever mechanism carried by the scow and connected with the dogs for simultaneously releasing them from engagement with the doors, and levers arranged in juxtaposition to the dogs for restoring them into position for supporting the doors when closed, substantially as described.

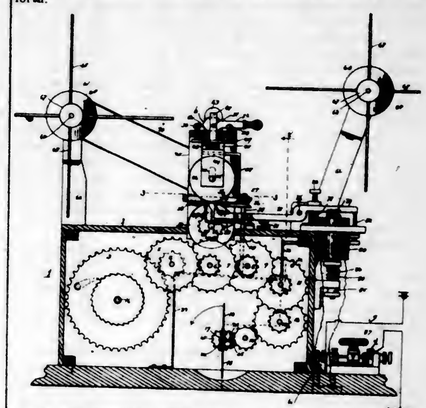
4. The combination with a scow having a well, and doors hinged to opposite sides of the lower part of the well, of pivoted, swinging dogs mounted on the scow for supporting the doors in their closed position, pivoted pawls for holding the dogs in their unlocked position, means for operating the pawls, levers pivoted to the scow for restoring the dogs into position for supporting the doors when closed, and a lever mechanism mounted on the scow for holding and simultaneously releasing the door supporting dogs, substantially as described.

5. The combination with a scow having a well, and doors hinged to opposite sides of the lower part of the well, of levers secured to the doors, balance weights having flexible connections with the levers, devices for holding the doors in their closed position, and lever mechanism mounted on the scow for simultaneously operating the door holding devices to release the doors, substantially as described.

489,435. TELEGRAPHY. ELROY P. HOTCHKISS, Oak Park, assignor to the Automatic Telegraph Improvement Company, Chicago, Ill.

Filed Apr. 18, 1891. Renewed Nov. 5, 1892. Serial No. 451,315. (No model.)

Claim.—1. The combination with an electrical circuit, and a receiver, of a piece of material having a series of impressions, the stylus 102, the lever 101 by which said stylus is carried, the spring 130 forming one side of a make and break included in said circuit and having one of its ends secured to said lever, the adjustable set screw 131 for confining the free end of said spring, and the set screw 133 for engaging it, whereby its tension may be regulated, substantially as set forth.



2. The combination with a circuit including a make and break and a receiver, of a strip of material having a series of impressions, a stylus adapted to follow said impressions, means connecting said stylus with one side of said make and break, means for feeding said strip of material through the machine, including a part having electrical connection with one side of the circuit, an insulated stop having electrical connection with the other side of said circuit, means for opening the circuit at the make and break and means for bringing said stop in contact with said part, whereby the machine is stopped and the circuit closed, substantially as set forth.

3. The combination with a circuit including a make and break, and a receiver, of a strip of material having a series of impressions, a stylus adapted to follow said impressions, means connecting the stylus with one side of the make and break, means for feeding said strip of material including the wheel 11, having electrical connection with one side of the circuit, an insulated stop adapted to engage said wheel and having electrical connection with the other side of the circuit, and means for controlling the position of said stop, substantially as set forth.

4. The combination with a circuit including a make and break, and a receiver, of a strip of material having a series of impressions, a stylus adapted to follow said impressions, means connecting said stylus with one side of the make and break, and a shunt conditioned to operate automatically when the stylus is allowed to remain in one position for a given length of time, substantially as set forth.

5. The combination with the ribbon, and the feeding mechanism of a stylus, a lever by which it is carried, a pendant carried by said lever, a cam, adapted to engage said pendant, and move it into contact with one of the parts of the feeding mechanism when the stylus is allowed to remain in one position a given length of time, substantially as set forth.

6. The combination with the ribbon and the feeding mechanism including a part having electrical connection with one side of the circuit, of a stylus adapted to have contact with said ribbon, a lever by which said stylus is carried, a pendant carried by said lever and having electrical connection with the other side of the circuit, and a cam engaging said pendant and adapted to move it into contact with one of the parts of the feeding mechanism when the stylus is allowed to remain in one position a given length of time, substantially as set forth.

7. The combination with an electrical circuit having a make and break, of a stylus, a lever by which it is carried, said lever being included in said circuit and carrying one side of the make and break, a pendant carried by said lever, a ribbon, a feeding mechanism having wheel 11 having electrical connection with the stylus lever, and an insulated cam adapted to engage said pendant and move it into contact with a part having electrical connection with the other side of the circuit, substantially as set forth.

8. The combination with an electrical circuit having a make and break, of a stylus, a lever by which it is carried, included in said circuit and carrying one side of said make and break, a pendant carried by said lever, a ribbon, a feeding mechanism having wheel 11 in electrical connection with the stylus lever, an insulated cam adapted

to engage said lever, an insulated stop adapted to engage said wheel and having electrical connection with the other side of the circuit, means for operating said stop, and a part carried by said stop and movable independently of it, and adapted to be engaged by the pendant and moved into contact with said wheel, substantially as set forth.

9. The combination with an electrical circuit, a piece of material having a series of impressions, and means for feeding said material forward, of a stylus adapted to enter said impressions, means for moving said stylus across the plane of said material and also in the direction in which said material is moving, and means controlled by said stylus for controlling said circuit, substantially as set forth.

10. The combination with an electrical circuit, a piece of material having a series of impressions, and means for feeding said material forward, of a stylus adapted to enter said impressions, a lever carrying said stylus and having means for controlling said circuit and means for moving said stylus toward said material, the fulcrum of the lever being so situated that the stylus moves across the plane of the material and also in the direction in which said material is moving, substantially as set forth.

11. The combination with a circuit, having a make and break, and a receiver, of a ribbon having impressions, a feeding mechanism, a stylus, a lever by which it is carried and by which one side of the make and break is carried, a second stylus situated in front of the first stylus, and a spring for actuating this second stylus, substantially as set forth.

12. In a telegraphic instrument, the combination with the ribbon, of the feed mechanism and a guide for the ribbon having an open side and a spring actuated shutter adapted to close said open side, substantially as set forth.

13. In a telegraphic instrument, the combination with the ribbon, of the feed-wheels, the plates 135 and 138, separated by space 140 and having notches 144, the hinged shutter 142 having tongues occupying said notches, and the spring 146, substantially as set forth.

14. In a telegraphic instrument, the combination with the stylus, and a lever by which it is carried, of the separable feed-wheels 38 and 46, the housing 44 supporting the feed-wheels 46, means for moving said housing, and arm 54 and 141 carried by the housing and adapted to engage the stylus-lever, substantially as set forth.

15. In a telegraph instrument, the combination with a stylus, separable feed-wheels, means for driving them, and a stop, of the housing 44, means connecting the housing with one of the feed-wheels, means connecting the housing with the stylus, and means connecting the housing with the stop, whereby when the housing is moved in the proper direction the feed wheels are separated, the stylus withdrawn and the machine stopped substantially as set forth.

16. In a telegraphic instrument the combination with the stylus, the separable feed-wheels, the movable housing carrying one of said wheels, and means for moving said housing, of mechanism for driving the feed-wheels, a stop for controlling said mechanism, and a connection between the housing and stop, whereby the position of said stop is controlled by the position of the housing, substantially as set forth.

17. In a telegraphic instrument, the combination with the ribbon, the stylus, the feed-wheels, and a take-up reel, of a pulley 69 fixed to the shaft of said reel, a pulley 71 loose upon the shaft 45 of feed-wheel 46, the shoulder 72 on said shaft, the spring 73 surrounding the shaft and engaging pulley 71, the nuts 74, and the belt 70 embracing pulleys 69 and 71, substantially as set forth.

18. In a telegraph instrument, the combination of a stylus, a delivery reel, a take-up reel and means for feeding the paper from one to the other, said reels having removable and interchangeable spools, whereby the ribbon may be wound from one spool onto the other, utilizing one of its edges, and the spools then removed, turned end for end, and transposed, whereupon the ribbon will be rewound onto the first spool, utilizing its other edge, substantially as set forth.

19. In a telegraphic instrument, the combination with the driving mechanism, of a shaft geared therewith, a blade pivoted perpendicularly to said shaft, a crank-arm projecting from the pivot of the blade; a sliding part carried by the shaft, and a connection between said sliding part and crank-arm, substantially as set forth.

20. In a telegraphic instrument, the combination with the driving mechanism, of a shaft geared therewith, a blade pivoted perpendicularly to said shaft, a crank-arm projecting from the pivot of said blade, a sleeve upon said shaft connections between said crank arm and sleeve, and means for moving said sleeve and for securing it in any desired position, substantially as set forth.

21. In a telegraphic instrument, the combination with the driving mechanism of a shaft 17 geared therewith and having a central bore and longitudinal slot 24, a blade 18 pivoted perpendicularly to said shaft, a crank arm 20, the rod 22 occupying the bore of the shaft 17 and having bend 23 occupying slot 24, and means connecting said rod and crank, substantially as set forth.

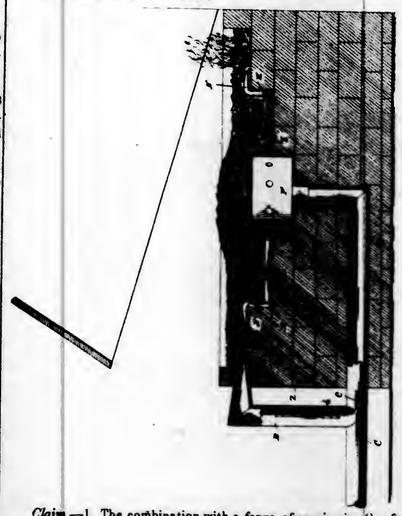
22. In a telegraphic instrument, the combination with the driving mechanism, of a shaft geared therewith, a blade pivoted perpendicularly to said shaft, a sliding part carried by the shaft and having groove 27, means connecting said sliding part and blade, and the screw nut 29 having flange 28 fitting in said groove, substantially as set forth.

23. In a telegraphic instrument, the combination with the driving mechanism, of a shaft 17 geared therewith, a second continuous shaft 19 carried by the first and situated transversely to it projecting from its opposite sides, a pair of blades 18 secured to the shaft 19, one on each side of the shaft 17, and means for turning the shaft 19 to adjust the positions of the blades, substantially as set forth.

24. The combination with the feed-wheels, a ribbon-guide having one side inclined with respect to said wheels, a perforating stylus, and means for operating said stylus, of a transmitter having feed-wheels, a guide having one side inclined with respect to said feed-wheels, a following stylus, and an electrical circuit controlled by said stylus, the stylus and guide of the transmitter being situated in the same relations to each other as are the stylus and guide of the perforator, substantially as set forth.

25. The combination with the ribbon, the feeding mechanism, a perforating stylus, and an electro magnet for operating said stylus, of a second stylus following in the line of the first, and a spring for forcing said second stylus into the perforations made by the first for widening them, substantially as set forth.

489,436. TIRE-HEATER. LEONIDUS B. KARNES and KENNIS F. RICE, Eureka Springs, Ark., assignors to B. F. Putnam and Leslie P. Badger, same place. Filed Oct. 14, 1890. Renewed July 29, 1892. Serial No. 441,612. (No model.)

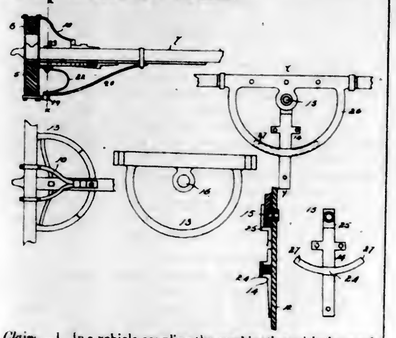


Claim.—1. The combination with a forge, of an air pipe C, a fan arranged at the outer terminus of the pipe, a chamber F at the upper end thereof, radiating hollow spokes S communicating with and extending horizontally from the sides of said chamber and having upturned ends E, and adjustable tips whose lower ends are swiveled in said upturned ends and whose free ends are bent at an angle thereto and provided with nozzles N, as and for the purpose set forth.

2. In a tire heater, the combination of the fan A, the horizontal pipe C leading therefrom and turned upwardly at its opposite end, the chamber F at the upper end of said pipe, the hollow radiating spokes S communicating with and extending from the sides of said chamber, and the nozzles N at their outer ends; the forge for containing cinders surrounding said nozzles, and the branch pipe B, rising from said horizontal pipe C and extending into the forge, as and for the purpose set forth.

3. In a tire heater, the combination with the fan A, the horizontal pipe C leading therefrom and turned upwardly at its opposite end, and the ring of nozzles N surrounding and connecting with said turned up end; of the branch pipe B rising from said horizontal pipe and extending forwardly to a point within said ring, the valves *b* and *c* in said pipes, and the forge Z for containing cinders surrounding said ring, as and for the purpose hereinbefore set forth.

489,437. VEHICLE-COUPLING. EDWARD MATTHEWS, Denver, Colo., assignor of one-half to Charles H. Brooks, same place. Filed Mar. 16, 1892. Serial No. 425,304. (No model.)



Claim.—1. In a vehicle coupling the combination with the reach, head block, and axle, of the fifth wheel provided with a socket in the rear of the axle, the head plate having a socket correspondingly located, the coupling brace secured to the reach and having a forward upwardly projecting hollow lug engaging the socket in the fifth wheel and head plate, its rear part being depressed out of a plane to receive the fifth wheel and fashioned to form a suitable bearing therefor and a bolt passing through the reach and the hollow lug of the coupling bar and maintaining the parts connected in suitable operative relation, substantially as described.

2. In a vehicle coupling the combination with the axle, head block and reach, of the fifth-wheel provided with the apertured lug located in the rear of the axle, the head plate secured to the reach and head block and provided with an aperture located in the rear of the head block, the coupling brace secured to the reach and provided with a lug engaging the rearward apertures in the fifth-wheel and head plate, said coupling brace maintaining said parts in suitable operative relation, a socket iron secured to the lower surface of the axle, a brace 20 secured to the reach at one extremity and provided with a depending lug, a central aperture in the socket iron at the opposite extremity and an anti-rattling spring bolted to the coupling brace at one extremity and bearing against the brace 20 at the opposite extremity, substantially as described.

489,438. HITCHING-STRAP HOLDER. SETH T. SMITH, Viroqua, Wis., assignor of one-half to H. P. Proctor, same place. Filed Sept. 27, 1890. Serial No. 366,313. (No model.)



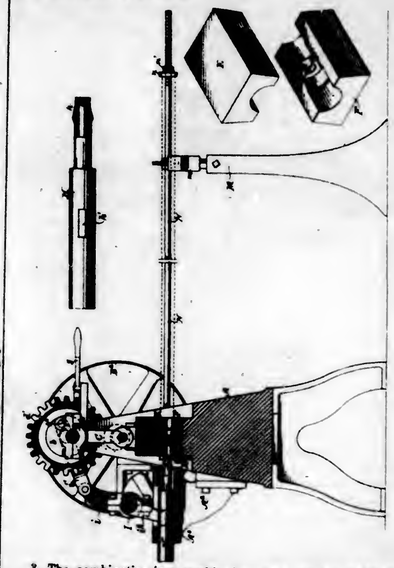
Claim.—1. A hitching strap holder comprising a flat base and a wire loop secured thereto, said loop being doubled upon itself and bent into a flat double coil, and secured at its ends to the plate, substantially as set forth.

2. A hitching strap holder, comprising a flat sheet metal base having a hole at each end for securing it in place, and a wire loop secured thereto, said loop being doubled upon itself and bent into a flat double coil, and secured at its ends to the plate and base, substantially as set forth.

489,439. MACHINE FOR SWAGING OR EXPANDING TUBES. WILLIAM VOLLMER and WILLIAM H. THOMAS, Philadelphia, Pa., assignors to Burnham Williams & Co., same place. Filed Aug. 31, 1892. Serial No. 444,681. (No model.)

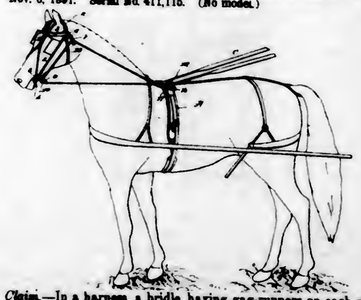
Claim.—1. The combination in a combined tube swaging and expanding machine, of the dies, a crank shaft connected to one of said dies, an expanding mandrel adapted to move into said dies, a rock shaft for reciprocating said mandrel, with a clutch for throwing said rock shaft into and out of gear with the crank shaft, substantially as specified.

2. The combination of the frame A having uprights A', the crank shaft B mounted on said uprights, a head D, connected to the crank of said crank shaft, the lower die carried by the frame and the upper die carried by the head, with the reciprocated plunger at the back of the frame and in line with the dies, and rock shaft giving reciprocating motion to said plunger and connected to the driving mechanism, substantially as described.



3. The combination in a combined swaging and expanding machine of the frame A, the crank shaft supported thereby, a head mounted upon ways in said frame and connected to the crank of the crank shaft, die carried by the head and die carried by the frame and reciprocated plunger in line with the dies and back of the frame, and having a mandrel adapted to pass between the dies, a rock shaft for reciprocating said plunger, an arm on said rock shaft a sleeve carried by the crank shaft, a crank pin on said sleeve connected to the rock shaft arm, a driving shaft, gearing connecting the driving shaft to the crank shaft, a clutch intervening between the crank shaft and the sleeve, substantially as described.

489,440. HARNESS. JONAS F. WELCOME, Richmond, Va. Filed Nov. 6, 1891. Serial No. 411,115. (No model.)

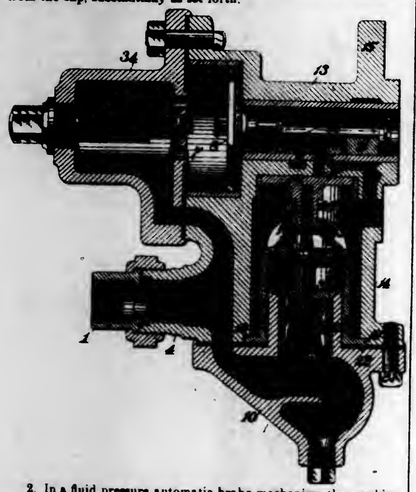


Claim.—In a harness, a bridle having gag-runners on each side thereof and carried respectively by the crown-strap and the bit-rings, and a harness-saddle having terret-rings, in combination with the reins, one end of each of which is suitably secured to one of the terret-rings, the free portion of the reins being passed through the said runners and the terret-rings.

489,441. QUICK-ACTING TRIPLE VALVE. HENRY H. WESTINGHOUSE, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, same place. Filed Oct. 6, 1892. Serial No. 448,048. (No model.)

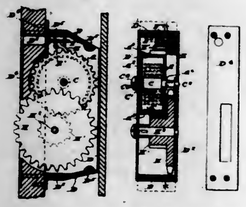
Claim.—1. In a fluid pressure automatic brake mechanism, the combination of a triple valve casing, an extension formed integral

therewith, a piston chamber formed in said extension, a tubular casing extending from the face of the extension into the chamber and provided with a passage controlled by a quick acting valve, a cap connected to the face of the extension and having a tubular projection extending into the tubular casing, and a check valve seating in the tubular casing and controlling a passage through the projection from the cap, substantially as set forth.



2. In a fluid pressure automatic brake mechanism, the combination of a triple valve casing, an extension formed integral therewith, and having a nozzle or connection for attachment to the train pipe, a piston chamber formed in the extension, a tubular or cap shaped casing extending from the face of the extension into the piston chamber and provided with a passage controlled by a quick acting valve, a cap connected to the face of the extension and having a projection extending into the tubular casing and a check valve within the tubular casing seating on the inner end of the projection and controlling a passage through the same, substantially as set forth.

489,442. SASH-BALANCE. THOMAS WHETTER, Petersham, near Sydney, New South Wales. Filed Aug. 15, 1891. Serial No. 402,789. (No model.)



Claim.—1. In apparatus of the class set forth, the combination with wheel A and spring B, of a pawl with stud E', rearward extension E^2 and rear spring E^3, a carrier, and a fixed screw, all arranged in a suitable frame and casing.

2. In apparatus of the class set forth the combination and arrangement with sliding sashes adapted to overlap and with the frames thereof of a rack on the sash frame a spring balance wheel on one sash and a rack upon the other sash such spring balance wheel having pinion engaging toothed wheel both geared to revolve at the required relative speeds and one of which is adapted to move on the rack while the other causes the other rack and its attached sash to move in the same direction substantially as herein described and explained.

3. In apparatus of the class set forth, the combination with wheel A, a spring, pawl and screw, of a carrier connecting said pawl and screw of a toothed pinion a toothed wheel, and a fixed and movable rack gearing with the said pinion and wheel, substantially as set forth.

489,443. SHACKLE FOR SUSPENDERS. JOSEPH P. WEBSTER, New Bedford, Mass. Filed July 6, 1892. Serial No. 439,022. (No model.)

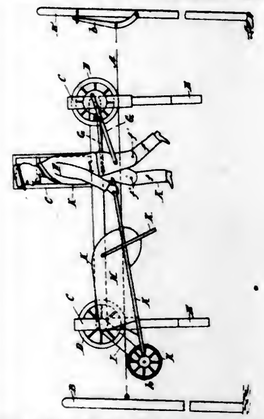


Claim.—1. A suspenders shackle, consisting of two clasps adapted to be closed upon and released from the suspenders, and links provided with loops to which the clasps are connected and which are pivotally connected to each other and to the clasps, as set forth.

2. A suspenders shackle, consisting of two clasps flexibly connected together and each composed of two hinged parts, one having an elastic hook at its swinging end formed to spring over the corresponding end of the other part, as set forth.

3. A suspenders shackle consisting of two clasps flexibly connected together and each composed of two hinged parts, one having one or more suspender-engaging dogs and an elastic hook formed to engage the corresponding end of the other part, as set forth.

489,444. DEVICE FOR DISPLAYING FIREWORKS. EDWARD HERRSTRETT, Reading, Ohio, assignor to the A. L. Due Fireworks Company. Filed June 20, 1892. Serial No. 437,388. (No model.)



Claim.—1. A device for displaying fireworks consisting of a track, a frame adapted to be propelled along the track and designs in colored fire carried by the frame, substantially as for the purpose described.

2. A device for displaying fireworks consisting of a track, a frame adapted to be propelled along the track, figures of living beings or machinery represented in colored fire carried by the frame and connecting devices, whereby desired movements are given to the figures or machinery by the moving frame, substantially as and for the purpose described.

3. A device for displaying fireworks consisting of an elevated track, a frame provided with wheels adapted to be propelled along the track, figures of living beings or machinery represented in colored fire carried by the frame and connecting devices, whereby desired movements are given to the figures or machinery by the moving frame, substantially as and for the purpose described.

4. A device for displaying fireworks consisting of a track, a frame adapted to be propelled along the track, figures of living beings or machinery represented in colored fire carried by the frame, connecting devices whereby desired movements are given to the figures or machinery by the moving frame and balancing weights, substantially as and for the purpose described.

5. A device for displaying fireworks consisting of a track, a frame adapted to be automatically moved along the track, figures of living beings or machinery represented in colored fire carried by the frame and connecting devices, whereby desired movements are automatically given to the figures by the moving frame, substantially as and for the purpose described.

6. A device for displaying fireworks consisting of an inclined track, a frame mounted on wheels and adapted to be moved along the track by gravity and designs in colored fire carried by the frame, substantially as and for the purpose described.

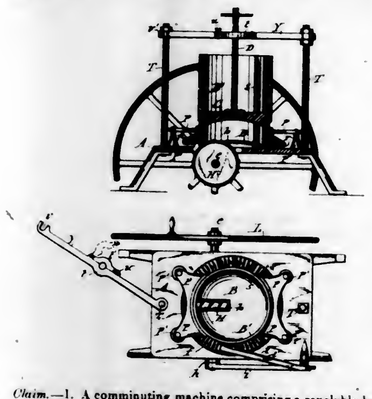
7. A device for displaying fireworks consisting of an inclined track secured to a post at one end, and to a lever at the other end, whereby the inclination of the track is varied, a frame adapted to be propelled along the track by gravity and designs in colored fire, substantially as and for the purpose described.

8. A device for displaying fireworks consisting of an inclined track A, a frame C provided with grooved wheels D, weights E E, figure F, and pitmen G G', substantially as and for the purpose described.

9. A device for displaying fireworks consisting of an inclined track A lever *b*, a frame C provided with grooved wheels D, weights E E, figures F and H, pitmen G G', and belt I, substantially as and for the purpose described.

REISSUES.

11,298. COMMINUTING-MACHINE. HENRY A. HANSON, Canajoharie, N. Y., assignor of one-half to Pillsbury A. Webster, same place. Filed June 2, 1892. Serial No. 435,437. Original No. 470,396, dated Mar. 8, 1892.



Claim.—1. A comminuting machine comprising a revoluble hopper having a stationary bottom, a revoluble annular cutter-head disposed with its axis at right angles to that of the hopper and with the top of its periphery protruding through the bottom of the hopper, and cutters standing transversely in the periphery of the cutter-head as set forth.

2. A comminuting machine consisting of a revoluble hopper, having a stationary bottom, a revoluble annular cutter-head disposed with its axis at right angles to that of the hopper and with the top of its periphery protruding through the bottom of the hopper, cutters standing transversely in the periphery of the cutter-head, and a follower in the hopper arranged to press upon the top of the substance to be comminuted as set forth.

3. In a comminuting machine, the combination, with the stationary frame, of a convex hopper bottom fixed to said frame and provided with a radial slot extending from one side part way across said bottom, a revoluble shaft beneath said bottom at right angles thereto and at one side of the axis of the hopper, an annular cutter-head fixed to said shaft and protruding through the aforesaid slot, cutters standing transversely in the periphery of the cutter-head, and a hopper rising from said convex bottom as set forth.

4. In combination with the hopper and its bottom, the revoluble annular cutter-head disposed with its axis horizontally and protruding with its periphery through said bottom, and cutters standing diagonally across the periphery of the cutter-head as set forth.

5. In combination with the hopper and its bottom, the revoluble annular cutter-head disposed with its axis horizontally and having its peripheral face beveled to one side and protruding through the aforesaid bottom, and cutters standing diagonally across said peripheral face of the cutter-head, substantially as described and shown.

6. The combination of a stationary hopper-bottom formed convex on top and provided with a slot extending from one side part way across, the hopper mounted revolubly on said bottom, an annular revoluble cutter-head disposed with its axis horizontally and at one side of the axis of the hopper and having its peripheral face beveled to one side and protruding through the slot of the hopper-bottom, and cutters standing diagonally across the said face of the cutter-head, substantially as described and shown.

7. The annular cutter-head —H— having its peripheral face beveled to one side and provided with the slots —*a*—*a*— widened toward the high side of the face, and the cutters —*c*—*c*— standing along one side of the slots, substantially as described and shown.

8. The annular cutter head —H— having its peripheral face beveled to one side and provided with slots —*a*—*a*— diagonally across said face and widened toward the high side thereof, clearing notches —*a'*—*a'*— in said side of the face, and cutters —*c*—*c*— standing along one side of the slots, substantially as described and shown.

9. The annular cutter-head —H— having its peripheral face beveled to one side and provided with slots —*a*—*a*— diagonally across said face and widened toward the high side thereof, clearing notches —*a'*—*a'*— in said side of the face, and cutters —*c*—*c*— standing along one side of the slots, in combination with the stationary hopper-bottom —B— formed convex on top and provided with the slot —*b*— extending from one side partway across the said bottom, and the hopper —B'— mounted revolubly on the bottom —B—, substantially as described and shown.

10. A bone-cutting machine comprising a cylindrical hopper, rotary cutters protruding through the base of the hopper from the underside thereof, a follower in said hopper for pressing the bones against the cutters, a yoke over the follower, a feed-screw for applying pressure to the follower, and a diametrically divided nut sustained on the said yoke and having one section hinged to swing to and from the other section and thereby grasp and release the feed-screw, as set forth.

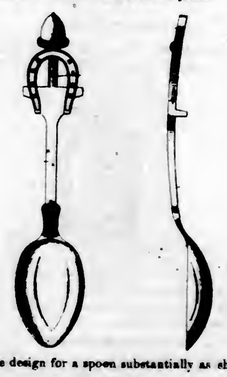
11. In combination with the supporting frame and hopper-bottom —B— fixed thereto, the cutter-head —H— protruding through said bottom, the hopper —B'— mounted revolubly on said bottom, the follower —C— connected to the hopper by vertical tongue and groove, standards —T—T—, the yoke —Y— provided with the nut —*t*, *t*—, and the feed-screw —D— working in said nut and rigidly secured to the follower, substantially as described and shown.

12. In combination with the supporting frame, hopper and follower, the standards —T—T—, the yoke —Y— pivotally connected at one end to one of the standards and having its opposite end formed with a notch adapted to receive the upper end of the other standard, nuts on the standard over the yoke, a fixed half nut in the center of the yoke, a half nut hinged to said portion of the yoke and detachably locked thereon, and the feed-screw —D— fixed to the follower and working in the said nut, substantially as described and shown.

13. The combination of the supporting frame —A— having affixed to it the convex hopper bottom —B—, the shaft —*e*— extending across the underside of the said bottom, the cutter-head —H— fixed to said shaft and protruding through the bottom, the hopper —B'— mounted revolubly on the bottom —B—, the annular rack —*f*— fixed to the exterior of the hopper, the lever —*g*— pivoted to the frame, the crank —*h*— secured to the shaft —*e*—, the pitman —*i*— connecting said crank to the lower end of the lever —*g*—, and the pawls —*l*— and —*l'*— connected to the said lever at opposite sides of the fulcrum and engaging the aforesaid rack, all combined to operate substantially as set forth.

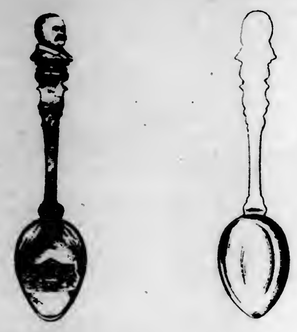
DESIGNS.

22,092. SPOON. JOHN WOOD, Washington, D. C. Filed Dec. 9, 1892. Serial No. 454,665. Term of patent 7 years.



Claim.—The design for a spoon substantially as shown and described.

22,093. SPOON. BOGERS C. BRENEMAN, Washington, D. C., assignor to Carl Peterson, same place. Filed Dec. 2, 1892. Serial No. 453,889. Term of patent 3½ years.



Claim.—The design for a spoon as hereinbefore shown and described.

22,094. SPOON. WILLIAM A. EGLER, Chicago, Ill. Filed Aug. 27, 1892. Serial No. 444,331. Term of patent 7 years.



Claim.—The design for spoons, substantially as herein shown and described.

22,095. MATCH-BOX. WILLIAM W. HAYDEN, Newark, N. J. Filed Dec. 8, 1892. Serial No. 454,587. Term of patent 3½ years.



Claim.—1. A design for a match box having its surface ornamented by masks as shown and described.

2. A design for a match box having its surface ornamented substantially as shown and described.

22,096. CANE. FREDERICK KOHNLE, Dayton, Ohio, assignor of two-thirds to Frank Kohnle, St. Mary's, Ohio, and Lawrence B. Kohnle, Chicago, Ill. Filed Sept. 16, 1892. Serial No. 446,162. Term of patent 3½ years.

22,096.



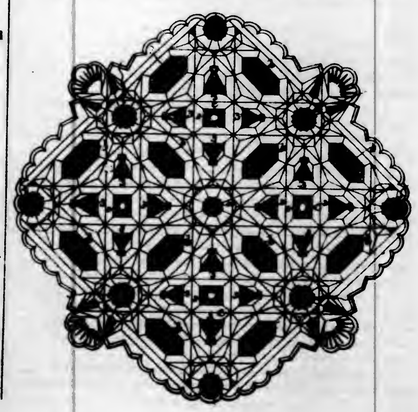
Claim.—The design for a cane, substantially as herein shown and described.

22,097. SHEET-GLASS. ALFRED L. ROWE, Chicago, Ill. Filed Nov. 14, 1892. Serial No. 452,008. Term of patent 7 years.



Claim.—The design for sheet glass as herein shown and described.

22,098. ORNAMENTATION OF GLASSWARE. WILLIAM C. ANDERSON, Toledo, Ohio, assignor to the Libby Glass Company, same place. Filed Nov. 19, 1892. Serial No. 452,583. Term of patent 3½ years.



22,098.



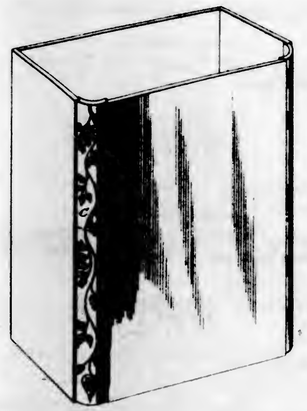
Claim.—The design for the ornamentation of glass-ware herein described, the same consisting of the cruciform figure and the substantially rectangular marginal figure, each composed of rows of smaller figures, as set forth.

22,099. SURFACE ORNAMENTATION OF GLASS. WILLIAM L. PILKINGTON, St. Helens, England, assignor to himself, William Pilkington, Thomas Pilkington, William W. Pilkington, Richard Pilkington, and George H. Pilkington, same place. Filed Nov. 19, 1892. Serial No. 453,562. Term of patent 14 years. Patented in England Aug. 12, 1892, No. 196,748.



Claim.—The design for the surface ornamentation of glass, herein shown and described.

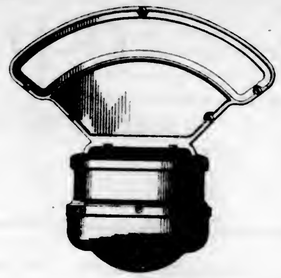
22,100. FURNITURE-CASE. PAUL KURTZ, Marshalltown, Iowa. Filed Nov. 9, 1892. Serial No. 451,464. Term of patent 3½ years.

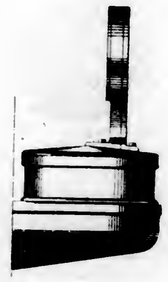


Claim.—The design for a furniture case as herein shown and described.

22,101. CASE FOR ELECTRICAL MEASURING-INSTRUMENTS. EDWARD WESTON, Newark, N. J. Filed Dec. 7, 1892. Serial No. 454,606. Term of patent 14 years.

22,101.





Claim.—The design for the case for an electrical measuring instrument substantially as herein shown and described.

22,102. CASE FOR VENDING-MACHINES. ASA LYON, Chicago, Ill., assignor to the Envelope and Stamp Machine Company, same place. Filed Nov. 5, 1892. Serial No. 451,122. Term of patent 14 years.



Claim.—The design for a case for vending machines, substantially as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 3, 1893.

22,274. PHOTOGRAPHIC PREPARATIONS. JULIUS HAUFF, Feuerbach, Germany. Filed Nov. 26, 1892.



Essential feature.—The representation of a shield bearing the figure of a lion rampant and surmounted by a heraldic helmet from which scrolls extend downward to both sides of the shield and above it the figure of a crown with a rampant lion rising from said crown. Used since January 1, 1887.

22,275. JEWELRY AND SILVERWARE. DAVIS & GALT, Philadelphia, Pa. Filed May 9, 1892.



Essential feature.—The representation of a fleur-de-lis. Used since July 21, 1888.

22,276. WATCHES AND THEIR PARTS. AMERICAN WALTHAM WATCH COMPANY, Boston and Waltham, Mass., and New York, N. Y. Filed Dec. 7, 1892.

WALTHAM

Essential feature.—The word "WALTHAM." Used since December 1, 1859.

22,277. CORSETS. CHARLES H. LAWSON, Elizabeth, N. J., and GEORGE C. BATCHELLER, New York, N. Y. Filed Dec. 8, 1892.

LANGDON & BATCHELLER'S
GENUINE
THOMSON'S GLOVE-FITTING

Essential feature.—The words "LANGDON & BATCHELLER'S GENUINE THOMSON'S GLOVE FITTING." Used since July 14, 1890.

22,278. CARPETS. ARDEN & ROSEN, New York, N. Y. Filed Nov. 19, 1892.

COLOMBO

Essential feature.—The word "COLOMBO." Used since October 18, 1892.

22,279. SPICES, HERBS, FLAVORING EXTRACTS, ESSENCES, CHERRY SALT, TAPIOCA, SAGO, RICE, PEPPER-SAUCE, AND KETCHUP. WM. J. STITT & Co., New York, N. Y. Filed Oct. 22, 1891.

KNICKERBOCKER

Essential feature.—The word "KNICKERBOCKER." Used since 1842.

22,280. HONEY. CHARLES M. BLANCHARD, Philadelphia, Pa. Filed Oct. 14, 1892.

WINTERBURN

Essential feature.—The word "WINTERBURN." Used since July 20, 1892.

22,281. FRUIT AND VEGETABLE PRESERVING COMPOUNDS. SAMUEL PIERCE, Hoskins, Nebr. Filed Dec. 7, 1892.

EUREKA

Essential feature.—The word "EUREKA." Used since September 30, 1892.

22,282. WHEAT-FLOUR. EMPIRE MILL CO., New Ulm, Minn. Filed Nov. 29, 1892.

BABY RUTH

Essential feature.—The words "BABY RUTH." Used since July 1, 1892.

22,283. WHEAT-FLOUR. WILLIAM H. STOKER, Watertown, S. D. Filed Aug. 26, 1892.

KAMPESKA

Essential feature.—The word "KAMPESKA." Used since December 1, 1882.

22,284. WHEAT AND RYE FLOUR. SHIPTON GREEN, New York, N. Y. Filed Dec. 2, 1892.

JULIETA

Essential feature.—The word "JULIETA." Used since June 15, 1892.

22,285. REFINED FATS USED FOR CULINARY PURPOSES. MOSES SEIDENBAUM, New York, N. Y. Filed Oct. 26, 1892.

HYGIA

Essential feature.—The word "HYGIA." Used since March 16, 1892.

22,286. PASTE AND CEMENT FOR PAPER, LEATHER, AND SIMILAR MATERIALS. GUSTAV TRESSLER, Boston, Mass. Filed Nov. 23, 1892.

GUMENT

Essential feature.—The word "GUMENT." Used since July 1, 1892.

22,287. LAGER-BEER. ANTON BAUER, Constance, Germany. Filed Dec. 2, 1892.



Essential feature.—The representation of a bottle bearing the letters "S. H. R." Used since May 20, 1892.

22,288. LAGER-BEER. F. RAMM & BRO., Springfield, Ill. Filed Oct. 3, 1892.



Essential feature.—The representation of a beer bottle with a shower spouting from its mouth, and the letter "R" superposed upon it, with the representation of a peacock perched upon the lower horizontal stroke of the "R," associated with the words "BIMINI" and "FOUNTAIN OF YOUTH." Used since April 30, 1892.

22,289. WHISKIES. JAMES OLWELL & Co., New York, N. Y. Filed Nov. 3, 1892.



Essential feature.—A representation of the Bartholdi Statue of Liberty. Used since January 31, 1887.

22,290. MEDICINAL TONIC. LOTT MARSFIELD, Boston, Mass. Filed Sept. 22, 1892.

Beefmalt

Essential feature.—The word "BEEF-MALT" in script letters with a paraph extending to the initial letter. Used since September 9, 1892.

22,291. REMEDY FOR CATARRH. ADOLF H. VOLK and PHILIP VOLK, Minneapolis, Minn. Filed Nov. 23, 1891.



Essential feature.—The representation of a rose bearing the word "EUREKA." Used since May, 1890.

22,292. REMEDY FOR RHEUMATISM. C. B. THOMPSON & Co., Toledo, Ohio. Filed Dec. 6, 1892.



Essential feature.—The representation of a shield surrounded or encircled by a wreath and the letters "C. B. T." arranged in a monogram upon the face of the shield. Used since October 1, 1892.

22,293. MEDICINAL AGENTS DERIVED FROM HYDROCARBON COMPOUNDS. LEHN & FINK, New York, N. Y. Filed Nov. 26, 1892.

22,293.

Tolysal

Essential feature.—The word "TOLYSAL." Used since November 1, 1892.

22,294. COUGH-DROPS. SMITH BROTHERS, Poughkeepsie, N. Y. Filed Jan. 26, 1892.

S. B.

Essential feature.—The letters "S. B." Used since January 1, 1874.

22,295. COUGH PILLS, CATARRH CURE, LINIMENT, AND TONIC. JOH. SCHERMANSON, Washington, D. C. Filed Nov. 30, 1892.



Essential feature.—The word "SCHERMANSON'S" arranged between two parallel lines which form the middle portion of the letter "S." Used since November 1, 1888.

22,296. TOOTH AND GUM WASHES. JAMES J. OTTINGER, Philadelphia, Pa. Filed Nov. 25, 1892.

ZHONGIVA

Essential feature.—The word "ZHONGIVA." Used since October 1, 1889.

22,297. PLUG-TOBACCO. WRIGHT BROS. TOBACCO COMPANY, St. Charles, Mo. Filed Apr. 11, 1891.

22,297.

Essential feature.—A white metallic button. Used since 1883.

22,298. PLUG-TOBACCO. WRIGHT BROS. TOBACCO COMPANY, St. Charles, Mo. Filed Nov. 16, 1892.

NANCY HANKS

Essential feature.—The words "NANCY HANKS." Used since September 1, 1892.

22,299. NUTMEG-GRATERS. STEEL RIDGE STAMPING AND RETINNING COMPANY, Boston, Mass. Filed Dec. 10, 1892.

UNIQUE

Essential feature.—The word "UNIQUE." Used since May 1, 1890.

22,300. PORTABLE STILL AND WATER-CONDENSER FOR THE DISTILLATION OF PURE WATER. THE AMERICAN WATER PURIFYING COMPANY, Portland, Me., Worcester, Mass., and New York, N. Y. Filed Dec. 5, 1892.

THE "400"

Essential feature.—The word and figures "THE '400.'" Used since July 15, 1892.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

WEBB *v.* BLICKENSDERFER.

Decided December 29, 1892.

PRACTICE—REHEARING—DECISION AGAINST EVIDENCE.

On a motion for rehearing of a case originally heard and determined by the Acting Commissioner, upon the ground of decision contrary to evidence, the Commissioner will not disturb the prior decision upon a showing that the testimony was closely balanced and admitted the possibility of a contrary conclusion; but it must appear that the decision was clearly against the weight of testimony.

MOTION for rehearing.

TYPE-WRITING MACHINE.

Application of George B. Webb filed December 2, 1891, No. 413,756. Application of George C. Blickensderfer filed October 29, 1891, No. 410,231.

Mr. Henry B. Donnelly for Webb.

Messrs. Hallock & Halleck for Blickensderfer.

SIMONDS, *Commissioner:*

This is a motion for a rehearing in the above-entitled cause, wherein a decision was rendered by the Acting Commissioner November 10, 1892.

The first of the alleged errors in the decision of the Acting Commissioner is this:

1. The decision of the Acting Commissioner errs in holding that the prospectus published about June 15, 1889, and introduced as an exhibit in behalf of Blickensderfer cannot fairly be held to show that Blickensderfer had conceived the idea of how to apply the adjustable stops in substantially the manner covered by the issue.

(a). In ruling thus improperly the Acting Commissioner unjustly ignores the fact that the subsequent acts of Blickensderfer when considered in connection with the prospectus gives weight and effect to such prospectus and establishes by it the fact that at the date of the publication of the prospectus he had conceived of the invention in issue.

The prospectus matter referred to in this allegation is as follows:

By an adjustable stop the paper-carriage is instantly brought to the same position each time, so that the commencement of each line is directly under the preceding one. A secondary adjustable stop is also of great service, and is especially efficient in the printing of accounts, bills, &c.

No error is found in the decision of the Acting Commissioner upon this point.

The second of the alleged errors in the decision of the Acting Commissioner is this:

2. The decision of the Acting Commissioner errs in holding: "It further appears from the testimony that the parts of Exhibit B were fitted to a machine at the time the testimony was taken; but it does not appear that either Exhibit B or D was reduced to a form adapted to practical use within the meaning of the issue at any time prior thereto. Assuming that this Exhibit B shows that Blickensderfer had a conception of the invention in controversy, it is not clear just when this exhibit was made. He filed his application October 29, 1891," and thus limiting Blickensderfer's reduction to practice to October 29, 1891, when he filed an "allowable" application.

(a) In ruling thus improperly the Acting Commissioner unjustly ignores the fact that Mr. John K. Hallock testified (Blickensderfer Record, p. 44) that he "saw the columnating device now in contest" in Washington; that he met Mr. Blickensderfer there, and that it "was about the 1st of May, 1891; * * * that I am not positive as to the exact day; but I am quite certain that I reached Washington on the 5th of May. I know it was the first week in May. I recognize the exhibit (Blickensderfer Exhibit B) as the same device which I there saw at that time for the first time."

(b) In ruling thus improperly the Acting Commissioner ignores the testimony of George C. Blickensderfer, who testified that Exhibit B was made directly after the drawing Exhibit C was made, "within a day or two," and that the drawing was made "March 20, 1891," (Blickensderfer Record, pp. 7 and 8,) which testimony clearly proves that Exhibit B was made not later than March 22, 1891.

(c) In ruling thus improperly the Acting Commissioner ignores the testimony of Blickensderfer's witness, Hervey Smith, who testifies that he recognized the drawing Exhibit C and saw it "the last of March, 1891," and who was asked:

"Q. 9. Please again look at Exhibit B, and *particularly with reference to the separate parts, of which the slotted bar with adjustable stops is one*, and state whether you recognize the device there shown as one which you saw, or substantially like what you saw, Mr. Blickensderfer making, as you have stated in your last answer. A. This is the one. I think this is the identical piece originally made, from the fact that I have seen no other one made like this.

"Q. 10. Did you understand at the time you saw Mr. Blickensderfer making that device shown in Exhibit B and the drawing shown in Exhibit C what the object and purpose of the device were? A. I understood it fully."

All of which shows clearly that the invention in issue was known fully to Hervey Smith as early as March, 1891; that the exhibits were seen by him, and that the device "*was in perfect operation*" before the 1st of April, 1891, as appears from answer to X.-Q. 14, Blickensderfer Record, p. 43.

(d) In ruling thus improperly, especially with reference to the date of filing an "*all weable* application" by Blickensderfer, the Acting Commissioner ignores the fact that the interfering application filed October 29, 1891, is a divisional application from an application, No. 398,672, filed July 7, 1891, and on which Letters Patent No. 472,602, dated April 12, 1892, was granted, which application fully described and showed the invention in controversy.

A pertinent remark just here is this: Whatever a judicial tribunal may be willing to do in ordering or denying a rehearing on a decision made by itself, it is certainly incumbent upon that tribunal to follow the ordinary rules governing rehearings and new trials on a motion for a rehearing of a decision made by another tribunal, and this principle is thought to be fully applicable to a case where the Commissioner is asked to rehear a decision made by an Acting Commissioner.

The foregoing allegation of error relates mainly, if not wholly, to findings of fact made by the Acting Commissioner. In *Roberts* v. *Schuyler* (12 Blatchf., 444) the Court said:

The verdict of a jury is not to be set aside merely because the court might have arrived at a different conclusion. Unless the court can see that the jury was palpably mistaken and that the weight of evidence is decidedly against their verdict, it should not be set aside.

The Acting Commissioner made this precise and definite finding of fact as to the date of conception of the matter in controversy by each of the parties:

Upon the above state of facts it is held that Webb's date of conception of the invention in controversy must be limited to March 21, 1891, and that he reduced it to practice June 20, 1891; that Blickensderfer's date of invention must also be limited to March 31, 1891, and that he reduced it to practice by the filing of an allowable application on October 29, 1891.

That is a reasonable finding upon the facts. It is

conceded that some tribunal might, upon the evidence, have given Blickensderfer a little earlier date of conception. It is a matter of the nice balancing of evidence. The weight of testimony is not clearly against the Acting Commissioner's decision, and therefore, under the rule governing rehearings and new trials, it should not be disturbed. Given the premise that both parties had the conception on the 31st day of March, 1891, the conclusion properly follows that Webb was the first to reduce to practice. There is not in the testimony of any witness brought forward by Blickensderfer a full and clear statement of anything which amounts to a reduction to practice prior to the filing of Blickensderfer's application for patent involved in interference. The Acting Commissioner could not consider Blickensderfer's application filed July 7, 1891, for the good reason that it was not in evidence.

The third of the alleged errors in the decision of the Acting Commissioner is this:

3. The decision of the Acting Commissioner errs in holding that "Webb shows that he conceived the invention in controversy as early as March, 1891, at which time he disclosed the invention to the witness, Shepard."

(a) In ruling thus improperly the Acting Commissioner unjustly ignores the fact that Webb's witness, Shepard, testifies that in March, 1891, he saw no devices for column-work and never saw any till June 20, 1891, the only knowledge he had being derived from a conversation, and that the devices which he did see in June, 1891, were different from those alleged to have been described to him by Webb in March previous, and thus giving greater weight to doubtful testimony in behalf of Webb than to the more satisfactory testimony in behalf of Blickensderfer.

It is not found that the decision of the Acting Commissioner is clearly against the weight of evidence, and therefore his finding upon this point is not open to disturbance.

The fourth of the alleged errors in the decision of the Acting Commissioner is this:

4. The decision of the Acting Commissioner errs in holding that Webb was the first to reduce the invention to practice and on June 20, 1891.

(a) In ruling thus the Acting Commissioner unjustly ignores the fact as proven by Blickensderfer's witness, J. K. Hallock, that he saw the device "now in contest" as early as May, 1891, at Washington city.

Mr. Hallock's testimony thus referred to is this:

About the 1st of May, 1891, I visited Washington, and there met Mr. Blickensderfer, and then for the first time I saw the columnating device now in contest.

The issue involves the presence of "the frame of the machine," meaning thereby a type-writing machine, and it cannot be absolutely certain from what Mr. Hallock testifies that he saw the entire combination, including the type-writing machine, at this time. The more reasonable inference is that he only saw what may be specifically called "the columnating device." Here again the decision of the Acting Commissioner is not clearly against the weight of evidence, and therefore cannot be disturbed.

The fifth of the alleged errors in the decision of the Acting Commissioner is this:

5. In view of the foregoing errors of fact, the decision of the Acting Commissioner errs as to the matter of law in awarding priority of invention to Webb.

The alleged errors of fact have already been considered. Given the facts as found by the Acting Commissioner, the conclusions of law follow. It is a case where there is warrant for strongly suspecting that Blickensderfer might have readily proved himself the prior inventor to the satisfaction of the Acting Commissioner, but has not done it.

The motion for rehearing is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Sixth Circuit.

FOX *v.* PERKINS *et al.*

Decided October 5, 1892.

1. PATENTS FOR INVENTIONS—NOVELTY—PRIOR ART.
Reissued Letters Patent No. 11,062, issued February 25, 1890, to William R. Fox, for an improvement in miter-cutting machines, are void for want of patentable novelty, in view of the prior state of the art, as shown more particularly in the Howard patent of August 21, 1866, No. 57,325; the Aiken patent of February 21, 1871, No. 111,896; the Jones patent of July 21, 1874, No. 153,343; the Nichols patent of July 18, 1876, No. 179,944, and the Lannartson patent of April 16, 1878, No 202,445.
2. SAME—EXTENT OF CLAIM—PRIOR ART.
If the Fox machine could be held to show patentable invention, it constitutes one of a series of improvements, all having the same general object and purpose, and the patent must therefore be limited to the precise form and arrangement of parts described in the specifications and to the purpose indicated therein. (*Bragg* v. *Fitch*, 39 O. G., 899; 7 Sup. Ct. Rep., 980; 121 U. S., 488, and *Phœnix Caster Co.* v. *Spiegel*, 50 O. G., 1591; 10 Sup. Ct. Rep., 409; 133 U. S., 360, followed.)
3. SAME—ABANDONMENT.
This construction of the patent is also rendered necessary by the fact that various broader claims were rejected and abandoned under both the original and the reissue applications.
4. SAME—NOVELTY—EFFECT OF LARGE SALES.
Large sales of a patented machine, while evidence more or less cogent of value and usefulness, are not conclusive evidence of patentable novelty and are of little weight when it appears that such sales are the result of active and energetic efforts by means of circulars and traveling agents. (*McClain* v. *Ortmayer*; 57 O. G., 1129; 12 Sup. Ct. Rep., 76; 141 U. S., 427-429, followed.)

APPEAL from the Circuit Court of the United States for the Western District of Michigan.

Bill by William R. Fox against Harford J. Perkins, William J. Perkins, and Joseph W. Oliver for infringement of a patent. Decree for defendants. Complainant appeals. Affirmed.

Mr. George H. Lothrop for the appellant.

Mr. Edward Taggart and *Mr. Arthur C. Denison* for the appellees.

Before BROWN, JACKSON, and TAFT, Judges.

JACKSON, *J.*:

This is a suit in equity brought by appellant against appellees for the alleged infringement of reissued Letters Patent No. 11,062, granted to William R. Fox February 25, 1890, for certain new and useful "improvements in miter-cutting machines." The defenses chiefly relied on are that the supposed invention was described in previous patents; that, in view of the state of the art, the device claimed as new was not a patentable invention, and that upon a proper construction of the patent the defendants do not infringe it. The circuit court entertained doubts whether, in view of the previous patented devices set up in the answer and shown by the exhibits, there was anything patentable in the alleged invention covered by said reissued Letters Patent, but, without deciding that point, held that defendants' machine was not an infringement of complainant's patent, even assuming the latter to be valid, and thereupon dismissed the bill. From this decree the complainant has appealed, assigning as ground for its reversal that the lower court erred in deciding that the defendants had not infringed, and in dismissing his bill.

The original patent, No. 393,970, was granted December, 1888. The reissue was applied for August 30, 1889, and was issued February 25, 1890. The specifications, which were substantially the same in both the original and reissue applications and patents, after referring to and describing the drawings of the machine, which accompany the same, state that—

the gages, arranged at either end of the machine, are adjustable in a curved slot formed in the bed-plate, the gages being guided in their movement by a pin projecting from the gages into the slot, with a bearing-plate connected upon the other side, as shown in Fig. 2 at 2. The gages are formed with plane faces, and the edges nearest the center are arranged in proximity to the plane of movement of the cutting-knives, so that these edges, which I have marked *e*, act in conjunction with the knives to form a shear cut. The edges of the gages nearest the ends of the frame bear against the end posts, which serve as a lateral support both at the upper and lower parts of the front edge to sustain the gage against the cutting action of the knife. The gages have a cut-away portion at their upper ends, as shown in Figs. 1 and 2, terminating in a curved arm having a semicircular bearing-face which is in bearing contact with a projection F on the cross-bar of the frame. Thus each gage has two bearings at its inner edge.

The operation of the machine is described as follows:

The stock to be operated upon is placed upon the bed and against the gage D, the end of it passing through between the upright line e of the gage and the knife *c*. The knife *c* is then carried forward by means of the lever L, cutting the stock at the angle indicated upon the bed, which may be indicated by lines, as shown in Fig. 3. These lines may be marked either upon the edge of the bed, as shown, or upon the slotted areas M M. For convenience I construct my device double, so that it may be operated in either direction, and the two gages may be set so that one is the complement of the other, if desired. By means of this device wood or other similar material may be readily and quickly cut upon any desired angle. By adjusting the gages by means of the thumb-screws the angle upon the wood will correspond to the angle to which the gages are adjusted. The cutters are attached to the carriage, so as to be readily removed or set, as occasion may require. It will be understood that one of the cutters may be dispensed with; but I consider two as desirable.

I do not wish to be understood as broadly claiming a bed with guides thereon to locate the work and a sliding cutter to cut the work upon the angle indicated by said gages, as I am aware that miter-cutters of various kinds have heretofore been used embodying such device.

The claim of infringement is limited to the first, third, and fifth claims of the reissue, which are as follows, viz:

1. In combination, the bed, the knife moving on suitable ways, an adjustable gage having a shearing-edge, and two independent bearings for its inner end, said bearings being in different directions, whereby the shearing edge is always held in the same relation to the knife, substantially as described.
3. In a miter-cutting machine, the combination, with a carriage arranged on a bed in longitudinal ways carrying a cutting-knife, of an adjustable gage provided with an edge *e*, acting in connection with the knife to form a shear cut, and having a semicircular bearing struck from the edge *e* of the gage as a center, whereby the said gage is always in the same relative position to the cut of the knife, substantially as described.
5. In a machine for cutting miters, the combination, with the cutting-knife, of a gage having an edge *e* and a circular bearing and plate or bearing-face therefor on the machine-frame, the circle of the bearing being struck from the edge *e* as a center, whereby said edge is always maintained in the same relative position to the knife, substantially as described.

Said third and fifth claims of the reissue are the same as the first and third claims of the original patent, and their validity is therefore not affected by the reissue, (*Gage* v. *Herring*, 23 O. G., 2119; 107 U. S., 640; 2 Sup. Ct. Rep., 819,) nor is it seriously questioned that the first claim of the reissue was not covered by the original patent or that it was not for the same device or invention therein described. Hence there are no questions on the validity of the reissue as such.

In order to determine the proper construction to be placed upon said three claims of the reissue, a brief reference to the prior state of the art and to the proceedings had in the Patent Office on both the original and reissue applications is necessary. In his original application, dated December 4, 1886, as appears from the file-wrappers and contents, Fox presented the following among other claims:

In a miter-cutting machine, the combination of an adjustable gage, a carriage arranged on a bed in longitudinal guides, carrying one or more knives, said gage adapted to be adjusted at any required angle to the knife and having a perpendicular edge in a perpendicular plane, and always in the same relative position to the cut of the knife, said perpendicular edge and knife forming a shear cut, substantially as described.

In a miter-cutting machine, the combination of the adjustable gage, the upright frame, and the cutting-knife, said gage having two perpendicular parallel edges, one edge of which is adapted to rest against the upright frame and the other to remain parallel with the track of the knife and in such close proximity thereto as to form with such knife a shear-cutting device, substantially as described.

In a machine for cutting miters and leads, a gage a portion of which is circular in form and bearing against a suitable portion of the machine, thereby retaining the edge *e* in the same relative position to the cut of the knife, substantially as described.

These claims were rejected and abandoned. There was also presented the following claim:

In a machine for cutting miters, the combination, with the cutting knife, of a gage having a circular bearing adapted to a plate or bearing-point on the machine, the circle of the bearing being struck from the edge *e* as a center, whereby said edge is always maintained in the same relative position to the knife, substantially as described.

This claim was amended to read as follows:

In a machine for cutting miters, the combination, with the cutting-knife, of a gage bearing on edge *e*, a circular bearing, a plate or bearing-point therefor on the machine, the circle of the bearing-point being struck from the edge *e* as a center, whereby the edge *e* is always maintained in the same relative position to the knife, substantially as described.

These two claims were both rejected. Fox was required by the Patent Office to erase the word "bearing-point." The patent was subsequently granted, embracing, among others not necessary to be noticed, claims 1 and 3, corresponding or identical with the aforesaid claims 3 and 5 of the reissue. In the application for reissue, made August 20, 1889, as shown by file-wrapper and contents, the following claims were made:

1. In combination, the bed having a curved slot, the knife moving in suitable ways, a gage having a shearing-edge and its outer edge held adjustable in the curved slot, and a post against which the end of the gage bears, opposed to the pressure of the knife, all substantially as described.
2. In combination, the bed having a curved slot, the knife moving in suitable ways, a gage having a shearing-edge and its outer end held adjustable in the curved slot and its inner end provided with two bearings, whereby the shearing-edge is always held in the same relation to the knife, all substantially as described.
3. In combination, the bed having the curved slot, the knife arranged to move in suitable ways, a gage having a shearing-edge and its outer end held adjustable in the slot, and a lateral bearing upon the machine-frame for the inner end of the gage at the upper and lower parts, all substantially as described.

These claims were rejected. The following additional claim was presented:

In combination, the bed, the knife moving on suitable ways, an adjustable gage having a shearing-edge, and two bearings for its inner end, whereby the shearing-edge is always held in the same relation to the knife, substantially as described.

This claim was required to be and was amended by inserting "independent" before "bearings" and by inserting after the word "end" the words "said bearings being in different directions." As thus amended the claim was allowed and forms the first claim of the reissued patent. It will be observed that the rejected claims of both the original and reissue applications were quite broad and indefinite—so general, in fact, as to cover and embrace more than the particular structure or device described in the specifications, especially in respect to the bearings of the adjustable gage and the supports therefor, which constitute the chief matter of controversy on the question of infringement. Said rejections clearly operate to limit the scope of complainant's patent, it being well settled that no construction can be given to the claims of the reissue involved in this suit which will include what was covered by the rejected claims under either

the original or reissue applications. (*Shepard* v. *Carrigan*, 34 O. G., 1157; 116 U. S., 597, 598; 6 Sup. Ct. Rep., 493; *Sutter* v. *Robinson*, 38 O. G., 230; 119 U. S., 530; 7 Sup. Ct. Rep., 376; *Dobson* v. *Lees*, 58 O. G., 1740; 11 Sup. Ct. Rep., 71; *Roemer* v. *Peddie*, 49 O. G., 2151, 132 U. S., 313 317; 10 Sup. Ct. Rep., 98.) In connection with said rejection the prior state of the art, as shown in the prior patents for mitering-machines and improvements thereon, filed as exhibits in the case, will serve still further to establish the proper construction to be placed upon said claims of the reissued patent if the margin of improvement or advance made therein by complainant can be regarded as patentable. Such of said exhibits as best illustrate the subject will be noticed briefly in the order of their issuance.

The Howard patent, No. 57,325, granted August 21, 1866, for an improved mitering-machine, while not confined to that particular purpose, was especially adapted for cutting moldings, such as picture-frames. It had a bed and inclined knife moving in suitable ways, a slotted adjustable gage with a shear-edge, which always remained at the same distance from the line or plane of travel of the knife. The adjustment of the gage was made by the use of two set-screws, instead of one, as in complainant's machine. The strip of wood to be acted on by the cutter-knife was placed on the bed and abutted against the rest or gage, which could be adjusted to any desired angle with the cutter-head—from ninety degrees down to five degrees or less—by releasing the two set screws and moving the outer end of the gage in a curved slot. For the purpose of mitering articles edgewise the rest and knife were adjusted in one position, and for mitering articles flatwise the gage and knife were adjusted in a different position. This machine went into general use, and seems capable of doing the different kinds of work performed by complainant's machine, although not so rapidly or easily. It differs from complainant's device in the method of supporting the inner edge of the gage and in the use of two set-screws to effect the adjustment of the gage.

The Tucker patent, No. 89,183, granted April 20, 1869, for an improvement in machines for mitering printers' rules, shows a bed, a knife moving in ways, and a gage and edge always held in the same relative position to the cut of the knife, whose thrust is taken or received chiefly by the bed of the machine. It is conceded by complainant that there is no difficulty in so locating the gage of this machine as to hold the front end thereof in position close up to the travel of the knife without reference to the angle at which the gage is placed, and it is shown by defendants' expert that if the knife traveled in a different direction the gage would receive the thrust of the knife rather than the bed in performing the shear cut. Complainant says that the object sought in this machine and others of like character is not to have a gage which will make a shear cut with the knife, but to locate the angle at which the material is presented to the knife; but the question is: Does it not suggest more than that?

The Howell patent, No 101,458, granted June 21, 1870, for an improvement in hand mitering-machines, shows a bed, knives moving in ways, gages, and posts against which such gages rest, said posts being adapted to support the gages in the different directions or positions into which the latter may be moved. The lower part of this gage, which rests against the bed and at right angles to the board, furnishes a support to the stock operated upon against the thrust of the knife, which in this machine is set to a plane-stock, like an ordinary plane, and passes over the wood with a scraping or shearing motion. But it appears that if a knife like complainant's or defendants' was substituted for this planing-cutter nothing more would be required to make this Howell machine perform the work of complainant's machine except the independent adjustment of each end of the gage. By means of such substitution and adjustment its gage would make a shear cut with the knife. The upper end of this Howell gage is not otherwise supported than by the strength of the material or metal of which it is composed; but it would hardly require anything more than mechanical skill to give it such support or strengthen it in that particular.

The Aiken patent, No. 111,896, granted February 21, 1871, for an improved machine for cutting and mitering printers' rules, shows a bed, a cutting or filing tool to dress the material operated on, and a gage or guide-bar pivoted at its inner end, with its edge always held in the same position with reference to the dressing or cutting device and adapted to be set at any angle to make a required bevel. If a knife were substituted for the Aiken cutting device and set at an angle with the line of motion necessary in cutting the end grain of wood, the gage could be readily arranged to make a shear cut with the knife. In making such substitution and to produce such shear cut the bed of the Aiken machine might have to be changed so as to permit a full and unbroken line to support the wood as the knife goes over it. This would involve merely mechanical arrangement and construction.

The Malin patent, No. 125,745, granted April 16, 1872, for an improvement in mitering-machines, presents another device for mitering. It has a knife set in a plane-stock somewhat like that in the Howell patent and moving in ways, a bed which is adjustable at different angles to the line of movement of the knife, so as to cut the stock at any desired angle, said bed or rest being provided with a shear-edge, and a gage that may be set in any required position, adapted to maintain the same relation to the knife. Defendants' expert states that this machine more nearly resembles the construction of defendants' machine than that of the complainant, but that it presents substantially all the elements found in each of them. It is conceded by complainant on cross-examination that if the gage of this machine were arranged to lie close to the knife and its edge were provided with some metallic support coming in close proximity to the knife the wood could be cut clean at any required angle from forty-five to ninety degrees.

The Jones patent, No. 153,343, granted July 21, 1874, for an improvement in mitering-machines, shows a combination of a bed, a knife traveling in ways, and an adjustable gage pivoted a little distance from the path of the knife. The specification states that—

> when the gage is adjusted at other than a right angle with the front edge of the frame and bed-plate there is necessarily an open space between its end and the face of the plane, so that no rest is provided for the end of very thin or very narrow material. To obviate this difficulty, I have provided an auxiliary plate *m*, attached to the rest *l* by means of tongue-and-groove joints and bolt *m*, which forms the pivot for said rest, on the upper end of which bolt is a thumb-nut *n*, etc. The gage thus supplemented by the additional plate *m* has its edge always flush with the edge of the bed, and thus remains in the same relation to the knife.

The Lannartson and Bergstorm patent, No. 179,662, granted July 11, 1876, for an improvement in miter-planing machines, presents a bed hinged to its vertical structure with the axis of its hinges in line with the cutting-knife. The bed is made adjustable up and down with coworking lateral gages. The table and gage, by means of suitable screw arrangements, can be adjusted to any desired angle, while its edge opposite to the cutting-knife from the point at which it is hinged remains in the same relation to the knife. The gage in this machine does not swing in an arc whose center is its inner edge; but the table-gage B, which is the principal gage of this device, does swing in such an arc, and its inner edge is the center of such arc, thus presenting the principle of an unchanging center as found in the machines under consideration.

The Lannartson patent, No. 202,445, granted April 16, 1878, was for an improvement in the said Lannartson and Bergstorm mitering-machine and shows a vertical structure or device for miter-work in which the table is adjustable to any position required and which operates as a rest or gage. This table rest or gage, in whatever position adjusted, always remains in the same relation to the knife, which moves perpendicularly instead of horizontally. It is stated by complainant's expert that—

> if the machines are arranged with the parts of the knife in vertical plane and the gage was made with its circular bearing and shearing edge in the same relative positions I do not see that there would be any substantial change made.

This is manifestly so and would require only the exercise of mechanical skill in changing the relative positions of the several parts. In this Lannartson machine the knife, with the table, forms a shear cut upon the wood or stock; but there is no claim of this nature either in the specification or claims of the patent. It is also conceded that it will cut wood in as many different forms as the complainant's machine. It is shown by stipulation of the parties that many of these Lannartson machines were manufactured and in practical use at Erie, Pa., as early as 1877.

The Nichols patent, No. 179,944, granted July 18, 1876, for improvements in mitering-machines, shows the following elements in combination: a table or bed, adjustable gage, and a saw cutting device instead of a knife. The adjustment of the gage is effected by means of two screws. The gage on this machine, as stated in the specification—

> may be adjusted and fastened at any angle desired with the beveled inner end of the gage always at the same point, and the miter will always be true and be supported close to the saw.

It is admitted by complainant that this gage can by independent adjustment at each end be adjusted so that the point *x* will always lie close to the edge of the saw. If a knife were substituted for the saw employed in this machine, (and which would not require the exercise of invention,) we would have substantially the same arrangement as found in the machines under consideration. The defendants' expert states that the point *x* constitutes an unchanging center with the edge of the gage always in the same relative position to the plane of the cutting device.

The Schreppel patent, No. 238,819, granted January 27, 1880, for a new and useful mitering-machine, like the preceding machine, shows in combination a bed, a knife moving in ways, and adjustable gages which do not rest against end posts, as in complainant's machine. The gage in this Schreppel patent, as shown in the drawing, will make, as complainant admits on cross-examination, both a shear cut and a draw cut. He claims as a defect in the machine that it has no support for the top of the gage other than the strength of the material of which the gage is made and if the gage is swung into a position at right angles to the knife it would leave an opening between the gage and knife and in that position would not form a support for the wood as last acted upon by the knife, which would result in leaving a ragged edge to the wood. This Schreppel machine closely resembles complainant's in outline and operation, and the specifications and claims of the patent are hardly distinguishable without drawing the most refined distinctions.

The Kinch patent, No. 243,597, granted June 28, 1881, for improvement in miter boxes or machines, presents a device with the bed so adjustable that the front upper edge next to the knife is always held in the same relative position to the knife at whatever angle the bed is adjusted.

The Leffingwell patent, No. 334,247, granted January 12, 1886, for improvements in mitering-machines, presents the same general features found in most of such machines, consisting of a table or bed, a moving knife, and adjustable gages adapted to be set at any angle and in proper relation to the knife. The defect which complainant finds in this machine is that the gage is pivoted back of the corner or edge which makes the shear cut, so that it will only form a shear cut in one position. The gages of this patent are pivoted to the table at or near their inner end instead of being loosely supported. The specification states that the machine—

> will cut miters on wood in any shape from an angle to directly across the grain of the wood.

It further appears that in June, 1879, the complainant obtained a patent for an improved mitering-machine called a "trimmer," which had the same general features as those already referred to, but was defective in not having a gage that would make a shear cut with the knife at different angles. While these prior patents differed in mechanical construction, details, and operations—some having the bed instead of the gage adjustable; some having the gage adjustable and by different devices; some having the gage so pivoted that its inner edge would make a shear cut with the knife at any angle; some with the gage so pivoted or arranged that it would make a shear cut with the knife in only one position; some making the adjustment of the gage with one set-screw, others with two set screws; some with the gage supported at both the upper and lower ends, and others with the gage supported at only the lower end; some with saw and plane cutting-tools, others with knives set in different ways and in different relations to other parts of the machine, and some especially adapted to one purpose, others for different purposes—there is found

in all of them the same general idea of principle and substantially the same elements in combination as shown in the patent sued on. It may be true, as claimed, that complainant's machine is superior to prior devices in the smoothness of its cut and in leaving less of ragged and broken edges of the wood operated on; but the question is whether, in view of what is disclosed in the previous machines, it can be properly said that his machine or combination constitutes such a substantial advance or improvement over prior devices as involves invention and will entitle him to a patent therefor.

It is well settled that not every improvement in an article is patentable. The test is that the improvement must be the production of an original conception. A mere carrying forward or more extended application of an original idea—a mere improvement in degree—is not an invention.

(*Burt* v. *Evory*, 50 O. G., 1294; 133 U. S., 358; 10 Sup. Ct. Rep., 394; *Smith* v. *Nichols*, 21 Wall., 112–119; *Howe Mach. Co.* v. *National Needle Co.*, 59 O. G., 475; 134 U. S., 397; 10 Sup. Ct. Rep., 570; *Ansonia Brass and Copper Co.* v. *Electrical Supply Co.*, 57 O. G., 1692; 144 U. S., 11–19; 12 Sup. Ct. Rep., 601; *Consolidated Roller-Mill Co.* v. *Walker*, 138 U. S., 124; 11 Sup. Ct. Rep., 292.)

"A shear cut," as complainant understands it, is "a cut that is made by at least one cutting-edge against some kind of a support," while "a draw cut" is made with a knife inclined to the plane of motion. It was customary, as he explains, in pattern-making with plane in different positions, to use a piece of hard wood as such support for the end of the wood last acted upon to prevent its edge from breaking or being left ragged. The gage was employed in mitering-machines, or many of them, not only to determine the angle of cut, but to furnish the edge support, which with cutting device would produce the shear cut. Now, what the complainant did was to so locate his gages that the edges thereof (marked *e*) should be in proximity to the plane of movement of the cutting-knives and form an unchanged center in the adjustment of the gages, whose edges were provided with lateral support in the shape of posts at the ends of the frame to sustain the gage against the cutting action of the knife. At their upper ends the gages have a cut-away portion terminating in a curved arm over the upper part of the frame, said curved arm having a semicircular bearing-face, which is in bearing contact with a projection on the cross-bar of the frame, thereby preventing the upper end or edge of the gage from moving into the line or plane of the knife's movement, while permitting some degree of motion in the other direction. These mechanical changes suggested, if not actually shown, in prior machines (whether covered by the specifications and claims thereof is not material) do not rise to the dignity of invention.

The large sales of complainant's machine (about two thousand four hundred of them having been sold from the beginning of 1886 to the middle of 1890) is relied on as strong evidence of the validity of the patent. It is true that such extensive public use, superseding other similar devices, is evidence more or less cogent of value and usefulness.

It is not conclusive of that, much less of its patentable novelty. (*McClain* v. *Ortmayer*, 57 O. G., 1129; 141 U. S., 428, 429; 12 Sup. Ct. Rep., 76.)

Complainant was active and energetic in pressing the sale of his machine by means of circulars and traveling agents, the latter drumming for it in thirteen States. Under such circumstances extensive sales constitute little or no evidence or test of patentability, as is clearly explained by Mr. Justice Brown in delivering the opinion of the Court in *McClain* v. *Ortmayer*, (57 O. G., 1129; 141 U. S., 427–429; 12 Sup. Ct. Rep., 78, 79.) In our opinion the Howard, Aiken, Jones, Nichols, and Lannartson devices above referred to present substantially the same elements in combination as those contained in complainant's machine, and our conclusion is that the latter is wanting in patentable novelty.

But if the complainant's device constituted a patentable invention it is clearly—

one in a series of improvements, all having the same general object and purpose; and that in construing the claims of his patent they must be restricted to the precise form and arrangement of parts described in his specifications and to the purpose indicated therein. (*Bragg* v. *Fitch*, 121 U. S., 483; 7 Sup. Ct. Rep., 978; *Phœnix Caster Co.* v. *Spiegel*, 50 O. G., 1591; 133 U. S., 360, 369; 10 Sup. Ct. Rep., 409.)

The rejected and abandoned claims under both the original and reissue application would require this restricted construction and limitation. Complainant's expert was asked in cross-examination (question 36) how a rejected claim of the original application differed from the first claim of the reissue patent, and his reply was:

In not specifying two independent bearings for the inner end of the gage and in not having the clause "the bearings being in different directions."

These clauses or specific descriptions of the bearings were required to be inserted before the first claim of the reissue would be allowed by the Patent Office. By force of the words "substantially as described," found in each of the three claims of the reissue involved in this suit, there must be read into each of said claims (*Shepard* v. *Carrigan*, 116 U. S., 598; 6 Sup. Ct. Rep., 493) that portion of the specification showing that "the two independent bearings" referred to were the bearings against the posts at the ends of the frame and the projection *f* on the upper part of the frame, against which the curved arm of the gage rested, said bearings being at right angles to each other or "in different directions." The three claims are thus substantially the same. The defendants' machine does not adopt the form and arrangements of parts described in complainant's specification and covered by his claims. Their gage is supported or secured by pivots concentric with the inner edge of the gage and having circular bearings. It has no end posts furnishing or serving as a lateral support at the upper and lower parts of the front edge to sustain the gage against the cutting action of the knife; neither has it the projection upon the upper part of the frame which forms the rest or support of complainant's upper bearing. There are other particulars in which they differ, as explained by defendants' expert, whose testimony is direct and convincing that there is no infringement. He has shown to our satisfaction, in view of the prior state of the art and of what occurred upon the original and reissue applications, that if complainant's claims should receive such construction as would cover defendants' machine then it was clearly anticipated in the prior devices already referred to; that if valid under a narrow and restricted construction which would limit the patent to the specific device described in the specification then it is not infringed by defendants. Our conclusions, however, are that the complainant's patent is wanting in patentable novelty, and, furthermore, that if valid to any extent it is not infringed by the defendants' machine.

It follows that the judgment of the lower court should be, and the same is, affirmed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 62.—No. 2. TUESDAY, JANUARY 10, 1893. PRICE—$5 per year.

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File-Wrappers—Entries On.

(ORDER No. 767.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., June 25, 1892.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2–384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

W. E. SIMONDS,
Commissioner.

Notice.

(ORDER No. 789.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 26, 1892.

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

W. E. SIMONDS,
Commissioner.

Women Inventors.

The Patent Office has published and has for sale a volume containing a list of women inventors to whom patents have been granted by the United States from 1790 to July 1, 1888. 44 pages. Paper covers, 50 cents.

An Appendix to the above, covering the period from July 1, 1888, to October 1, 1888, has been published, and is now for sale. 18 pages. Paper covers, 25 cents.

World's Columbian Exposition—Protection of Foreign Exhibitors.

DEPARTMENT OF STATE,
Washington, D. C., July 30, 1892.

To the Diplomatic and Consular Officers of the United States:

GENTLEMEN: I subjoin a transcript of the act of Congress approved April 6, 1892, Public No. 20, entitled "An act to protect foreign exhibitors from prosecution for exhibiting wares protected by American patents and trade-marks," which reads as follows:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That no citizen of any other country shall be held liable for the infringement of any patent granted by the United States, or of any trade-mark or label registered in the United States, where the act complained of is or shall be performed in connection with the exhibition of any article or thing at the World's Columbian Exposition at Chicago.

You will transmit copies of this circular to the government of the country to which you are accredited, and ask that it be given the widest possible circulation for the information of those directly concerned.

I am, gentlemen, your obedient servant,

JOHN W. FOSTER,
Secretary of State.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., August 4, 1892.

Official copy to the Commissioner of Patents for his information and guidance.

E. M. DAWSON,
Chief Clerk.

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages. In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 66 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 96 pages. In paper covers, $1.50.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of January 10, 1893.

Patents	462—No. 489,445 to No. 489,906, inclusive.
Designs	29—No. 22,103 to No. 22,131, inclusive.
Trade-Marks	37—No. 22,301 to No. 22,337, inclusive.
Labels	None.
Reissue	1—No. 11,299.
Total issue	529

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	....	Nevada	....	....
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Arkansas	....	....	New Jersey	18	....
California	14	....	New Mexico Territ'y	....	....
Colorado	1	....	New York	75	14
Connecticut	13	....	North Carolina	1	....
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Kentucky	9	....	Vermont	1	....
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Maine	5	....	Washington	7	....
Maryland	6	4	West Virginia	....	....
Massachusetts	28	5	Wisconsin	10	....
Michigan	16	....	Wyoming	....	....
Minnesota	15	1	U. S. Army	....	....
Mississippi	2	....	U. S. Navy	....	....
Missouri	25	2			
Montana	2	....	Total to citizens of the United States	454	37
Nebraska	5	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
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Austria-Hungary	2	....	Netherlands	....	....
Belgium	....	....	Newfoundland	....	....
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Canada	4	....	Norway	....	....
Chile, Republic of	....	....	Roumania	....	....
Cuba	....	....	Russia	1	....
Denmark	....	....	Scotland	1	....
Ecuador	....	....	South Australia	....	....
England	6	....	Spain	....	....
France	6	....	Sweden	2	....
Germany	11	....	Switzerland	2	....
Guatemala	....	....	Victoria	....	....
India	1	....			
Ireland	....	....	Total to citizens of foreign countries	37	....
Italy	....	....			

APPLICATIONS UNDER EXAMINATION.

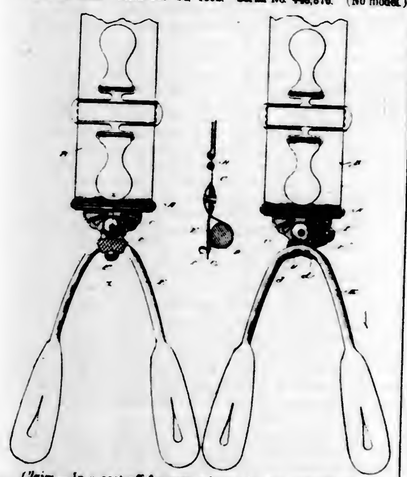
Condition at Close of Business January 3, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Dec. 3	Dec. 24	80
	Between one and two months in arrears.			
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Nov. 3	Dec. 19	171
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 3	Dec. 19	194
8	Furniture, Toilet, Umbrellas and Canes, etc.	Nov. 7	Dec. 17	251
24	Sewing-Machines and Apparel	Nov. 9	Dec. 16	168
21	Textiles, etc.	Nov. 7	Dec. 12	228
2	Farm Stock, Products, etc	Nov. 3	Dec. 8	263
12	Mechanical Engineering, Stove-Service, etc.	Nov. 7	Dec. 7	275
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Nov. 4	Dec. 5	172
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Nov. 4	Dec. 3	226
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Nov. 5	Nov. 19	197
19	Stoves and Furnaces	Nov. 4	Nov. 8	425
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Nov. 4	Nov. 5	322
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Nov. 7	Nov. 2	271
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Nov. 3	Oct. 26	268
4	Civil Engineering, etc.	Nov. 3	Oct. 22	370
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Nov. 3	Oct. 17	328
	Between two and three months in arrears.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Nov. 1	Dec. 12	233
18	Steam-Engineering, etc.	Oct. 12	Dec. 10	171
23	Instruments of Precision, Acoustics, Optics, etc.	Oct. 4	Nov. 30	265
10	Carriages and Wagons and Railway-Cars.	Oct. 31	Nov. 28	362
22	Fire-Arms, Navigation, Signals, etc.	Oct. 6	Nov. 26	310
7	Harvesters, Games and Toys	Oct. 24	Nov. 25	200
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Nov. 1	Nov. 21	216
9	Hydraulics, Fire-Extinguishers, etc.	Oct. 29	Nov. 14	382
1	Tillage and Fences	Oct. 14	Oct. 25	312
17	Paper-Manufactures and Printing.	Oct. 18	Oct. 19	302
	Between three and four months in arrears.			
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Sept. 27	Nov. 25	314
	Between four and five months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Sept. 1	Nov. 30	247
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Aug. 29	Oct. 13	369
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 1	Dec. 2	380
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	May 14	Oct. 20	555
	Total number of applications awaiting action			9,127
	Under one month in arrears.			
	Designs	Dec. 22	Dec. 22	58
	Trade-Marks	Dec. 21	Dec. 20	74

PATENTS

GRANTED JANUARY 10, 1893.

489,445. SUSPENDER-END CAST-OFF. GEORGE E. ADAMS, Providence, R. I., assignor to the Trout & Hine Manufacturing Company, New Britain, Conn. Filed Oct. 14, 1892. Serial No. 448,876. (No model.)



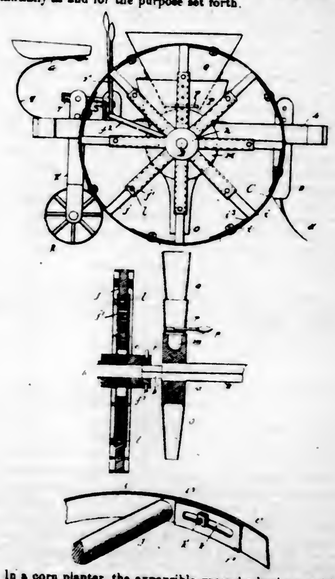
Claim.—In a cast-off for suspender ends, the combination with the flat body provided with the wide hook having the transverse arc shaped channel through the same with downwardly flanged edges, affording an extended bearing as described for preventing the chafing of the suspender end, said hook having the extreme end notched and bent into substantially the same plane as the flat body, of the laterally swinging substantially flat and transversely curved keeper pivoted to the body and having the projection on the under side co-operating with the notched end of the hook to lock the keeper in closed position and the projection on the upper side for a handle to release the keeper: substantially as described.

489,446. CORN-PLANTER. JAMES ANDERSON, Harrodsburg, Ky. Filed Mar. 18, 1892. Serial No. 425,806. (No model.)

Claim.—1. In a corn planter the expansible ground wheel comprising a hub, the extensible spokes, and the sectional felly *i*, *i'*, each section having one end thereof depressed below or within the plane of its tread, forming an abrupt shoulder, and the adjacent section having its end fitted in said depressed portion, and means for clamping the felly sections, rigidly together, substantially as described.

2. In a corn planter the expansible ground wheel comprising the hub, the sectional felly in which each section has the slotted end i^2, depressed within the plane of the tread thereof, and forming an abrupt shoulder i^3, and the adjacent section fitted in said depression i^3, the bolts passing through slots in the lapped ends of the felly sections, and the extensible spokes, each having one end secured to the felly section and its other end secured to the hub, the meeting ends of the spoke sections being clamped together, substantially as described.

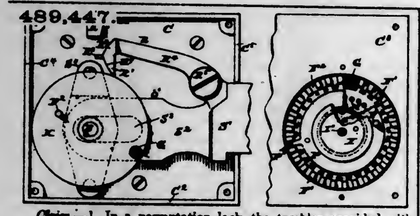
3. In a corn planter the combination with a main frame, an axle, of polygonal form in cross section, the rigid support on the main frame having the convex lower side, the feeding wheel carried by the axle and operating in said convex side of the support, and the hopper mounted on the support and extending through the same: of the expansible ground wheel loosely mounted on the axle and comprising the hub having its inner end serrated or toothed, the extensible spokes and the sectional felly to which the spokes are secured, a slidable toothed collar fitted on the polygonal axle, and a slidable rod guided on the main frame and connected to the slidable collar, substantially as and for the purpose set forth.



4. In a corn planter, the expansible ground wheel comprising a hub having its inner end toothed, the extensible spokes and the sectional felly *i i'*, each section having one end thereof depressed below or within the plane of its tread, forming an abrupt shoulder, and the adjacent section having its end fitted in said depressed portion, and means for clamping the felly sections rigidly together, in combination with a polygonal axle extending loosely through the hub of the wheel, a slidable toothed collar fitted on the polygonal axle and adapted to engage the toothed end of the hub, and a slidable rod guided on the main frame and connected to the slidable collar, substantially as and for the purpose set forth.

489,447. PERMUTATION-LOCK. THEODORE AVERESCH, Cincinnati, Ohio. Filed Feb. 1, 1890. Serial No. 338,886. (Model.)

489,447.



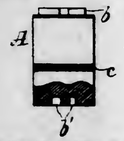
Claim.—1. In a permutation lock, the tumbler provided with perforations and bearing numbers, distinguishing such perforations, and carrying collar P, carrying pin P^3 for entering the perforations and pin P', substantially as and for the purposes specified.

2. In a permutation lock, the tumbler having the annular flange F', provided with notches, and also having numbers indicatory of said notches, and an annular row of perforations, and collar P having pins P^3 and P', located in opposite radii of the collar, the pin P^3 being received by any one of the perforations, the collar likewise being provided with extension P^2 of a size to enter any one of the said notches, substantially as and for the purposes specified.

3. In a permutation lock, the combination of a driver K, and two or more tumblers, each having an annular row of holes M, and numbers indicatory thereof, and each having a collar having pins P^3 and P', an opposite radii of the tumber, the pin P' extending forward, and the pin P^3 extending backward through any one of the holes, and extending beyond the rear surface of the tumbler, and a rear tumbler like those described with the exception that pin P^2 does not extend behind the rear surface thereof, the tumblers and drivers being provided with the customary notch or gate G, substantially as and for the purposes specified.

4. In a permutation lock, a reciprocating bolt, a dog R pivoted to said bolt and reciprocating therewith, and having a tooth R', driver and tumblers having the customary notch or gate into which said tooth R enters when the lock is in position for the bolt to be retracted, the dog at other times resting on the periphery of the driver or tumblers, the dog having at its free end the extension R^3, and provided above said extension with a beveled end R^2, the lock having a fixed lug or detent R^5, above and in advance of the free end of the dog, and in a position substantially as described for engagement with the dog, when the lock being locked and the dog resting on the drivers or tumbler, the bolt is moved forward, and the dog is forced upward and forward, the extension R^3 limiting the upward movement of the dog, as the beval R^2 of the latter causes it to rise, substantially as and for the purposes specified.

489,448. METHOD OF MAKING RUBBER STAMPS OR CASTS. WILLIAM F. BARNES, Orlando, Fla. Filed Feb. 20, 1892. Serial No. 422,260. (No model.)



Claim.—The method of making rubber stamps herein described, consisting essentially of setting up the desired form of type provided on one end with raised letters or characters and on the opposite end with letters or characters in intaglio, then obtaining a proof from the end containing the raised letters or characters and finally placing the rubber on the matrix or sunken letters and vulcanizing to produce the necessary rubber cast.

489,449. NUMBERING-MACHINE. EDWIN G. BATES, New York, N. Y., assignor to the Bates Manufacturing Company, of New York. Filed Oct. 9, 1891. Serial No. 407,515. (No model.)



Claim.—1. The combination, in a printing machine, of a shaft or hub movable forward and backward in the act of printing, several type-wheels placed side by side thereon, said wheels having notches between their types, a separate pawl for each wheel and bearing on the surface thereof, and means for reciprocating each pawl at will to move the desired wheel or wheels, substantially as described.

2. The combination in a hand-stamp of reciprocatory character-bearing wheels provided with notches upon their peripheries intermediate the characters and of substantially the form shown, pawls engaging with said notches, there being a pawl for each wheel and means for operating said pawls to rotate the wheels, substantially as set forth.

3. The combination, in a printing machine, of character-bearing wheels mortised on adjacent faces and provided with notches on their peripheries intermediate the characters, shifting pawls working in said notches, means for operating said pawls, and disks in the spaces formed by the mortises, substantially as set forth.

4. The combination in a printing machine of character-bearing wheels having their sides mortised, and stationary disks between said type-wheels and fitting into said mortises, substantially as set forth.

5. The combination, in a printing machine, of a hub or shaft, character-bearing wheels side by side thereon and near together, adjacent faces of the wheels being mortised, and a disk, thicker than the space between the peripheries of two adjacent wheels, placed between such wheels so that the disk occupies the enlarged space without increasing the distance between the wheels, substantially as set forth.

6. The combination, in a hand stamp, of a hub or shaft, and means for reciprocating it character-bearing wheels side by side thereon and near together, adjacent faces of the wheels being mortised, and a disk, secured to the hub or shaft, thicker than the space between the peripheries of two adjacent wheels, placed between such wheels so that the disk occupies the enlarged space without increasing the distance between the wheels, substantially as set forth.

7. In a numbering machine, the combination of type-wheels having notches on their inner peripheries, a shaft or hub upon which said wheels rotate, spring metal pawls 41 secured to said shaft or hub, the free ends of said pawls being shaped to correspond to the notches on the inner peripheries of said wheels and engaging therewith, and means for actuating said wheels, substantially as set forth.

8. In a numbering machine, the combination of type-wheels having notches on their inner peripheries, a shaft or hub upon which said wheels rotate, spring metal pawls 41 secured in a recess formed in said shaft or hub by the clamping plate 42, the free ends of said pawls being shaped to correspond to the notches on the inner peripheries of said wheels, and engaging therewith, and means for actuating said wheels, substantially as set forth.

9. In a printing or numbering machine, the combination of type-wheels, an inking pad box 57 pivoted in a frame 55, said frame 55 having a projection 58 acting as a wedge to lock said pad box 57 in the frame, means for actuating said type-wheels, and means for removing said inking pad from its inking position when printing, substantially as set forth.

10. In a numbering machine, the combination of finger-levers, a lever 31 having legs 31^a, projections 32 on said finger-levers engaging with said lever 31, said finger-levers and lever 31 being pivoted to or upon arms extending from the casing 4, and said legs 31^a engaging with the main frame 1, substantially as and for the purpose set forth.

11. In a numbering machine, the combination of finger-levers pivoted between arms extending from the casing 4, a lever 31 pivoted upon a bar 33^a supported between said arms, said lever 31 having legs which engage with the main frame 1, projections 32 on said finger-levers engaging with said lever 31, and a spring 33 coiled around said pivot bar 33^a having its ends bearing against the lever 31, and a loop formed at the middle bearing against the casing 4, for returning the levers to their normal position, substantially as and for the purpose set forth.

12. In a numbering machine, the combination of type wheels carried on a shaft or hub supported in a reciprocating casing 4, pawls 27, 28 and 29 engaging with said type-wheels, finger-levers connected to said pawls by bars 20, 21 and 23 for actuating said pawls to rotate the type-wheels, substantially as set forth.

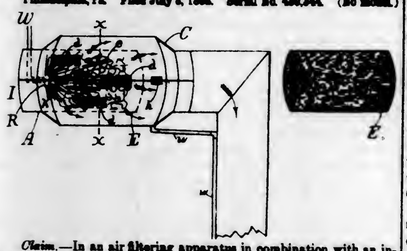
13. In a numbering machine, the combination of type wheels carried on a shaft or hub supported in a casing 4, pawls 27, 28 and 29 engaging with said type-wheels, sliding bars 20, 21 and 23 working in channels formed in the top piece of said casing 4, lugs 24, 25 and 26 connected respectively to one end of said bars, said channels having slots through which said lugs extend, and to which lugs said pawls 27, 28 and 29 are pivoted, and finger-levers entering slots formed at the other ends of said sliding bars, whereby motion is communicated to said sliding bars and pawls to operate the type-wheels, substantially as set forth.

14. In a numbering machine, the combination of a type-wheel, a hub upon which said type-wheel rotates, a loose section in said type-wheel carried by a stem working radially in said type-wheel, said stem having a shoulder or head formed at its free end, a cavity formed in the hub having an overhanging-ledge which engages with the shoulder or head formed on the stem when said head is forced into the cavity, whereby said loose section is held out of its normal position, and a spring for moving said section to printing position substantially as set forth.

15. In a numbering machine the combination of a type-wheel, a hub upon which said type-wheel rotates, a loose section in said type-wheel carried by a stem working radially in said type-wheel, said stem having a shoulder or head formed at its free end, a cavity formed in the hub having an overhanging-ledge which engages with the shoulder or head formed in the stem when said head is forced into the cavity, whereby said loose-section is held out of its normal position, and a spring coiled around the stem as shown for returning the loose section to its normal or printing position, substantially as set forth.

16. In a numbering machine the combination with a plunger carrying the casing containing the printing mechanism, of a jam-nut screwed onto said plunger, said nut having a flange or collar formed thereon which surrounds the lower end of the handle when the said handle is screwed on the plunger and against the jam-nut substantially as and for the purpose set forth.

489,450. AIR-FILTERING APPARATUS. JEFFREY O. BRIPLEY, Philadelphia, Pa. Filed July 8, 1892. Serial No. 439,344. (No model.)



Claim.—In an air filtering apparatus in combination with an induction and eduction air flue an enlarged casing connected with the induction and eduction flue, a wire gauze cylinder closed at one end provided in said casing connected with the induction flue having an interior area in cross-section about equal to the interior area in cross section of the induction flue, filtering material provided in said gauze cylinder and a water jet or spray provided at the entrance of the gauze cylinder and waste water pipe provided at the lower end of the enlarged casing substantially as described.

489,451. BUGGY-TOP. JOHN T. BIRD, Tacoma, Wash. Filed Apr. 18, 1892. Serial No. 429,696. (No model.)

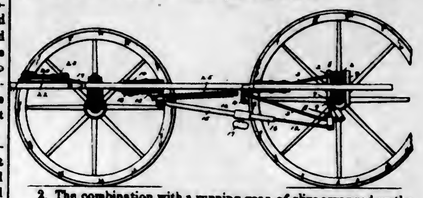


Claim.—1. In a device for operating buggy tops, the combination with the rotating rod A supported in suitable bearings, of the jointed braces L L loosely connected at their lower ends to the rod A and at their upper ends to the buggy bows, a collar F secured on the rod A and having a slot in its periphery, braces M M connected at their upper ends to the braces L L and at their lower ends to the rod A to be moved therewith, and the lever B having an eyelet at one end which passes through the slot in the collar F and fits loosely on the rod A, substantially as and for the purpose specified.

2. In a device for operating buggy tops, the combination with the rotating rod A and the jointed braces L L connected to the buggy bows and the rods A to be operated by the latter, of the collar F secured on the rod A and having a slot and also a socket f in its periphery, the lever B having an eyelet on one end which passes through the slot in the collar and fits over the rod A, the rod C pivotally connected to the lever B by the bar E to engage the socket f when the lever B and rod C are pressed together and a locking device e^3 to engage the lever B, substantially as and for the purpose specified.

489,452. AUTOMATIC BRAKE. ALVAN G. BILLINGS, Lake Park, Wash., assignor of two-thirds to George W. Fritz and Charles A. Grow, same place. Filed Mar. 31, 1892. Serial No. 427,249. (No model.)

Claim.—1. The combination with a running gear, of a brake shaft journaled thereon and arranged adjacent to the rear bolster and provided with forwardly extending arms carrying brake shoes, a rock shaft journaled on the running gear and located below the brake shaft and provided at its ends with arms and having an intermediate arm, the lifting rods connecting the outer arms of the rock shaft with the arms of the brake shaft, and means for connecting the intermediate arm with draft animals, substantially as described.



2. The combination with a running gear, of clips arranged on the rear axle and bolster and provided with bearings and composed of vertical bars having their inner faces roughened and bolts connecting the bars and causing the same to clamp the axle and bolster, a brake shaft journaled on the clips and provided with arms carrying brake shoes, a rock shaft journaled on the clips and provided at its ends with arms connected with those of the brake shaft and having an intermediate arm, and means for connecting the latter with draft animals, substantially as described.

3. The combination with the running gear, of a brake shaft journaled thereon and arranged adjacent to the rear bolster and having arms carrying brake shoes, a rock shaft journaled on the running gear and arranged below the brake shaft, and having end arms connected with those of the brake shaft and having an intermediate arm, a sleeve mounted on the reach and connected with the intermediate arm of the rock shaft, a spring arranged to draw the sleeve rearwardly to hold the brake shoes in engagement with the wheels, and a slide carrying the doubletree and connected with the sleeve, substantially as described.

4. The combination with a running gear, of a brake shaft journaled thereon and having arms carrying brake shoes, a sleeve mounted on the reach and connected with the arms of the brake shaft, a spring adapted to carry the sleeve rearwardly, a transverse bar pivoted to the sleeve, a slide mounted on the tongue and carrying the doubletree and converging rods connecting the transverse bar with the slide, substantially as described.

5. The combination with a running gear, of a brake shaft journaled thereon and carrying brake shoes, a sleeve mounted on the reach and connected with the brake shaft, a transverse bar pivoted to the sleeve, a spring connected with the sleeve and adapted to carry the same rearward, a plate mounted on the tongue and provided with ways, a slide arranged in said ways, a strap secured to the slide and provided at its rear end with an eye, converging rods connected to the ends of the transverse bar and the eye of the strpp, and a doubletree pivoted between the strap and the slide, substantially as described.

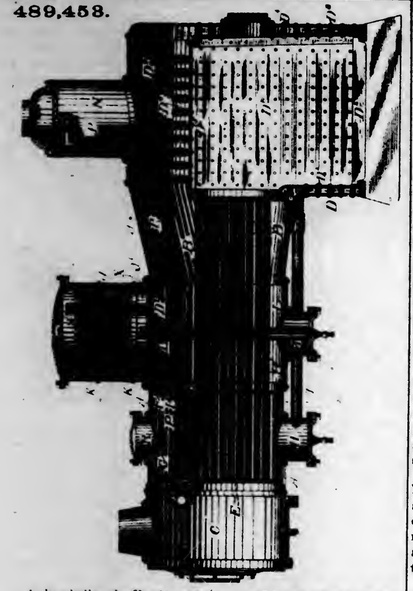
489,453. BOILER. JOHN R. BROWNELL, Dayton, Ohio. Filed Feb. 10, 1892. Serial No. 421,043. (No model.)

Claim.—1. In a steam boiler, the combination of the compartment G receiving heat from the adjacent portions of the boiler, and the filtering compartment J, conduit I for conveying liquid from compartment G to compartment J, and conduit for conveying the filtered water from compartment J on its way to the boiler, substantially as and for the purposes specified.

2. The compartment G occupying a portion of the barrel or main portion of the boiler, and the compartment J having filtering material, and located at the top portion of the boiler and connected with compartment G by conduit I, whereby the water from the latter compartment is delivered to the compartment J, the latter compartment being connected with the boiler by an opening or conduit for enabling the water in the compartment J to be delivered into the boiler, substantially as and for the purposes specified.

3. The compartment G occupying a portion of the barrel or main portion of the boiler, and the compartment J having filtering material, and located at the top portion of the boiler and connected with compartment G by conduit I, whereby the water from the latter compartment is delivered to the compartment J, the latter compartment being connected with the boiler by an opening or conduit for enabling the water in the compartment J to be delivered into the boiler, and steam conduit S, whereby steam is conveyed from the boiler to compartment J for the purpose of raising the temperature of the water in the filtering compartment, previous to entering the boiler, substantially as and for the purposes specified.

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4. In a boiler, the filtering compartment J, having shelf or shelves as K, holding filtering material, and having the inlet water pipe I, extending up through the filtering material and ending in the compartment J, at or above said filtering material, and a chamber X, located in the lower portion of said compartment and located upon and in contact with the boiler and conduit pipe L, whose inlet orifice is above the bottom of the chamber, and which pipe extends down directly through the bottom of said chamber X, and into the boiler, substantially as and for the purposes specified.

5. In a boiler, the filtering compartment J, having shelf or shelves K, holding filtering material, and having the inlet water pipe I, extending up through the filtering material and ending in the compartment J, at or above said filtering material, and a chamber X, located in the lower portion of said compartment and located upon and in contact with the boiler and conduit pipe L, whose inlet orifice is above the bottom of the chamber, and which pipe extends down directly through the bottom of said chamber X, and into the boiler, and the inlet pipe for supplying water to the said filtering compartment, passing through the boiler and up through the chamber X and through the filtering material to the upper portion of compartment J, substantially as and for the purposes specified.

6. In a boiler, the filtering compartment J having shelf or shelves as K, holding filtering material, and having the inlet water pipe I, extending up through the filtering material and ending in the compartment J, at or above said filtering material, and a chamber X in said compartment J, and conduit L, connected to the chamber X and to the boiler, and chamber G located in the boiler, the pipe I receiving its water from said chamber G, substantially as and for the purposes specified.

7. In a boiler, the filtering compartment J, having shelf or shelves K, holding filtering material, and having the inlet water pipe I extending up through the filtering material and ending in the compartment J, at or above said filtering material, and a chamber X, located in the lower portion of said compartment and located upon and in contact with the boiler and conduit pipe L, whose inlet orifice is above the bottom of the chamber, and which pipe extends down directly through the bottom of said chamber X, and into the boiler, and extending down through the boiler to the lower portion thereof, substantially as and for the purposes specified.

8. In a boiler, the filtering compartment J having shelf or shelves as K, holding filtering material, and having the inlet water pipe I, extending up through the filtering material and ending in the compartment J, at or above said filtering material, and a chamber X in said compartment J, and conduit L, connected to the chamber X and to the boiler, and extending down to the lower portion or bottom of the boiler, and chamber G located in the boiler, the pipe I receiving its water from the said chamber, substantially as and for the purposes specified.

9. The compartment G, located in the boiler, and the filtering compartment J, having filtering means substantially as described, and connected to the upper portion of the compartment G by means of the conduit I, having its outlet in the upper portion of compartment J, and outlet pipe L, connecting the lower portion of the said compartment J with the lower portion of the boiler, substantially as and for the purposes specified.

10. The compartment G extending from the bottom to the top of the boiler and receiving water at or near the bottom of the said boiler, and delivering it near the top thereof, and conduit I and filtering chamber J, to which the conduit I delivers the water from compartment G, and conduit L taking the water from the compartment J, and delivering it in the boiler near the bottom of the latter, substantially as and for the purposes specified.

11. The compartment G extending from the bottom to the top of the boiler, and receiving water at or near the bottom of the said boiler, and delivering it near the top thereof, and conduit I, located within the boiler, and filtering chamber J, to which the conduit I delivers the water from compartment G, and conduit L taking the water from the compartment J and delivering it in the boiler near the bottom of the latter, substantially as and for the purposes specified.

12. The compartment G occupying a transverse section of the boiler, and receiving water at or near the bottom of the said boiler, and delivering it near the top thereof, and conduit I and filtering chamber J, to which the conduit I delivers the water from compartment G, and conduit L taking the water from the compartment J and delivering it in the boiler, substantially as and for the purposes specified.

13. The compartment G, occupying a transverse section of the boiler, and receiving water at or near the bottom of the said boiler, and delivering it near the top thereof, and conduit I and filtering chamber J, to which the conduit I delivers the water from compartment G, and conduit L taking the water from the compartment J, and delivering it in the boiler near the bottom of the latter, substantially as and for the purposes specified.

14. The compartment G occupying a transverse section of the boiler, and having the mud drum H, provided with pipe T through which water enters said compartment, and filtering chamber J located at the upper portion of the boiler, and the conduit I connecting the compartment G to the compartment J, and the pipe L delivering the filtered water from the filtering chamber to the boiler, substantially as and for the purposes specified.

15. The compartment G occupying a transverse section of the boiler, and having the mud drum H, provided with pipe T through which water enters said compartment, and filtering chamber J located at the upper portion of the boiler, and the conduit I, located within the boiler, connecting the compartment G to the compartment J, and the pipe L delivering the filtered water from the filtering chamber to the boiler, substantially as and for the purposes specified.

16. The compartment G occupying a transverse section of the boiler, and having the mud drum H, provided with pipe T through which water enters said compartment, and filtering chamber J located at the upper portion of the boiler, and the conduit I connecting the compartment G to the compartment J, and the pipe L, extending to or near the bottom of the boiler and delivering the filtered water from the filtering chamber to the boiler, substantially as and for the purposes specified.

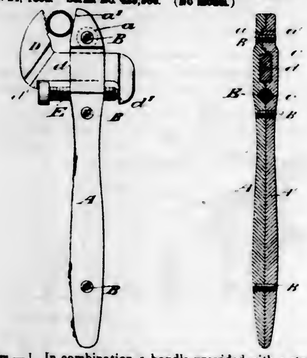
17. The compartment G occupying a transverse section of the boiler, and having the mud drum H, provided with pipe T through which water enters said compartment, and filtering chamber J, located at the upper portion of the boiler, and the conduit I connecting the compartment G to the compartment J, and the pipe L, and mud drum M, the pipe L extending to said mud drum and there delivering the water from the filtering chamber, substantially as and for the purposes specified.

18. The combination of the compartment G occupying a transverse section of the boiler next to the smoke box, and having inlet T, located in the vicinity of the bottom of the said boiler, and filtering chamber located to the rear of said compartment and at the top portion of the boiler, and provided with filtering material, conduit L located in the upper portion of the beiler and connecting the upper part of said compartment with the upper part of the said filtering chamber and the steam pipe S connecting the steam space of the boiler with the upper portion of the filtering chamber, and chamber X below the filtering material and above the floor of compartment J, and delivery conduit L located in the boiler, and extending from said chamber X to the lower portion of the boiler, the fire flues passing through the latter and through compartment G, substantially as and for the purposes specified.

19. The combination of the compartment G occupying a transverse section of the boiler next to the smoke box, and having inlet T, located in the mud drum in the bottom of the said boiler, and filtering chamber located to the rear of said compartment and at the top portion of the boiler, and provided with filtering material, conduit L located in the upper portion of the boiler and connecting the upper part of said compartment with the upper part of the said filtering chamber, and the steam pipe S connecting the steam space of the boiler with the upper portion of the filtering chamber X below the filtering material and above the floor of compartment J, and delivery conduit L, located in the boiler and extending from said chamber X into the mud drum M, at the bottom of the boiler, the fire flues passing through the latter and through compartment G, substantially as and for the purposes specified.

20. The combination of the compartment G occupying a transverse section of the boiler next to the smoke box, and having inlet T, located in the mud drum in the bottom of the said boiler, and filtering chamber located to the rear of said compartment and at the top portion of the boiler, and provided with filtering material, conduit L located in the upper portion of the boiler and connecting the upper part of said compartment with the upper part of the said filtering chamber, and the steam pipe S connecting the steam space of the boiler with the upper portion of the filtering chamber X below the filtering material and above the floor of compartment J, and delivery conduit L, located in the boiler and extending from said chamber X into the mud drum M, at the bottom of the boiler, the fire flues passing through the latter and through compartment G, and man hole R, for reaching compartment G, substantially as and for the purposes specified.

489,454. WRENCH. GEORGE W. BUFFORD, Ithaca, N. Y. Filed Apr. 21, 1892. Serial No. 430,006. (No model.)



Claim.—1. In combination, a handle provided with a stationary jaw, a movable jaw seated in the handle and provided on its shank with abutments spaced apart and facing one another and an adjusting screw having an engagement at its opposite ends with the abutments on the shank of the movable jaw to thrust it in opposite directions, substantially as set forth.

2. In combination, a handle having a stationary jaw, a reversible movable jaw seated in the handle and provided with abutments on its shank and a screw having an engagement with the handle and with the abutments for adjusting the movable jaw, substantially as set forth.

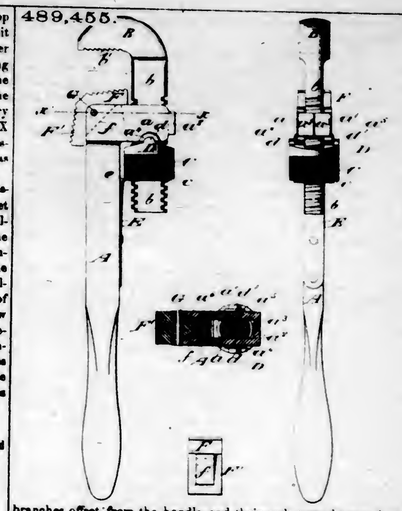
489,455. PIPE-WRENCH. GEORGE W. BUFFORD and JOHN R. KITSON, Ithaca, N. Y. Filed Apr. 21, 1892. Serial No. 429,994. (No model.)

Claim.—1. In combination, a handle provided with a stationary jaw, an adjustable jaw secured to the handle, a rocking bearing exterior to the handle and surrounding the shank of the adjustable jaw, the said rocking bearing having a rocking movement about the axis passing transversely through the shank of the adjustable jaw, an adjusting nut engaged at its end with said surrounding rocking bearing, and a stop for holding the adjustable jaw in position, substantially as set forth.

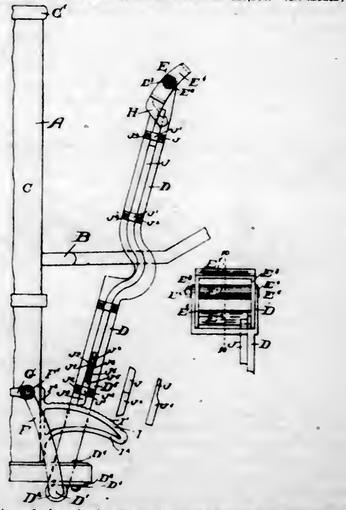
2. In combination, a handle provided with a stationary jaw, an adjustable jaw secured to the handle, a rocking bearing, an adjusting nut engaged with the adjustable jaw and with the rocking bearing, the said adjusting nut being provided with an annular recess and a spring secured to the handle and having its free end engaged with the adjacent walls of said recess, said spring forming a stop to hold the parts in position and to return the adjustable jaw from its tilting movement in either direction back to its normal position, substantially as set forth.

3. In combination, a handle having its end bifurcated and its branches offset from the handle and their ends turned toward each other to form a socket for the reception of the shank of the adjustable jaw and provided with a recess for the reception of the web of the stationary jaw, an adjustable jaw within said offset branches, a reversible, stationary jaw seated within said recess and means for adjusting the adjustable jaw and for holding it in its adjustment, substantially as set forth.

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489,456. BRAKE-LEVER FOR VEHICLES. GEORGE BUTLER, Cincinnati, Ohio. Filed Oct. 5, 1892. Serial No. 448,267. (No model.)



Claim.—1. In a brake device for a vehicle, the combination of the brake lever D, reciprocating latch bar J, latch J^3 connected therewith, and ratchet I and treadle E, having arm H, the latch bar J having the channel K, in which is located the said arm, substantially as and for the purposes specified.

2. In a brake device for a vehicle, the combination of the brake lever D, reciprocating latch bar J, latch J^3 connected therewith, and ratchet I and treadle E, having arm H, the latch bar J having the channel K, in which is located the said arm H, the arm H provided

with a terminal enlargement H' at its free end, substantially as and for the purposes specified.

3. In a brake device for a vehicle, the combination of the brake lever D, reciprocating latch bar J, latch J^3 connected therewith, and ratchet I, and treadle E, having arm H, the latch bar having the channel K, in which is located the said arm H, the upper face K' and the lower face K^2 of the channel K curved substantially as described for the reception of the arm H, substantially as and for the purposes specified.

4. In a brake device for a vehicle, the combination of the brake lever D, reciprocating latch bar J, latch J^3 connected therewith, and ratchet I and treadle E, having arm H tapered slightly toward its free end, the latch bar J having the channel K, in which is located the said arm H, the upper face K' and lower face K^2 of the channel K curved substantially as described for the reception of the arm H, substantially as and for the purposes specified.

5. In a brake device for a vehicle, the combination of the brake lever D, the reciprocating latch bar J, latch J^3 connected therewith, and ratchet I and treadle E, having arm H, the latch bar J having the channel K, in which is located the said arm H, the lower end of the treadle being provided with the portion E^3 directly above the latch bar J serving as a stop for the latter in its reciprocation, substantially as and for the purposes specified.

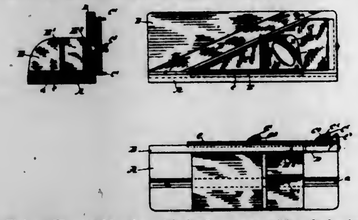
6. The treadle formed as shown, having the foot rest E' and the foot rest E^2, pivotally supported at E^3 on the brake lever D, and having the arm H and reciprocating latch bar J provided with the channel K in which is located the arm H, the latch bar provided with a suitable latch J^3 engaging the ratchet I, substantially as and for the purposes specified.

7. The treadle formed as shown, having the foot rest E' and the foot rest E^2, and pivotally supported on the bar E^4 connected to the brake lever, and having the arm H and reciprocating latch bar J provided with the channel K in which is located the arm H, the latch-bar provided with a suitable latch J^3 engaging the ratchet I, the treadle pivotally supported on the bar E^4, connected to the brake lever D, substantially as and for the purposes specified.

8. The treadle, and the latch bar reciprocating on the brake lever, the latch provided with the shoulder J^4 and extension J^5 having projection J^6, the extension reciprocating through the opening in the latch bar, the latch bar having a flange or projection J^7 against which the projection J^6 of the extension shall impinge, and spring J^4 located between the shoulder J^5 and the projection J^7 of the latch bar, and ratchet I for engaging with the latch J^3, substantially as and for the purposes specified.

9. The treadle, pivotally supported by and connected to the brake lever, and the reciprocating latch bar and latch, and ratchet, and mechanism substantially as described for enabling the oscillation or rocking of the treadle to transmit to the latch bar a reciprocating motion, substantially as and for the purposes specified.

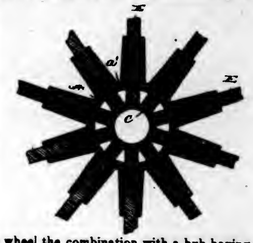
489,457. MEAT OR BREAD CUTTER. MURDOCK CAMERON, Minneapolis, Minn., assignor of one-half to Angus MacDonald, same place. Filed May 31, 1892. Serial No. 434,962. (No model.)



Claim.—The combination with the frame comprising the horizontal bed A, and the vertical transverse cutter-holder B, cut away at *b*, to form a passage for the slice and a seat for the slice gage-plate C, of the knife or cutter D fixed to the holder in an inclined position, said slice-gage-plate working on the said seat of said holder, the slotted bearing-brackets C' fixed to the frame, the bearing-studs C^2 fixed to the gage-plate, and working in the slots of said brackets, the locking-arm C^3 fixed to the frame and the keeper C^4 and jam-screw C^5 carried by the gage-plate and working on said arm, for securing the gage plate wherever set, all of the said parts being arranged and operating substantially as and for the purposes set forth.

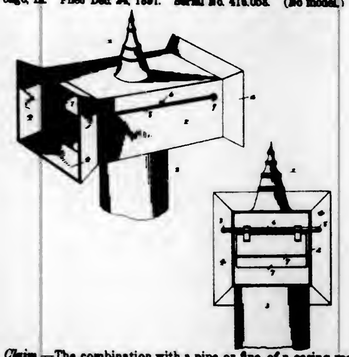
489,458. WHEEL. WILLIAM L. GARAWAY, South Bend, Ind. Filed Mar. 28, 1892. Serial No. 426,126. (No model.)

Claim.—1. The method herein described of making metallic wheels consisting in inserting the inner ends of the spokes within sockets formed in the hub, slipping the rim over the outer ends of the spokes forcing the spokes outward by a tapering mandrel inserted within the hub, withdrawing the mandrel and cutting off the inner ends of the spokes by means of a tool centered within the hub, and finally inserting a tapering box within the hub and adjusting the same therein to force the spokes outwardly, substantially as described.



2. In a wheel the combination with a hub having radial spoke-sleeves and an interior groove, a tapering box fitted within said hub and provided with a lug engaging the groove in the hub, a collar upon one end of the box and a cap-nut upon the other end, said collar and nut bearing against the ends of the hub, spokes fitted within said spoke sleeves and bearing against the tapered box, the spokes near their outer ends being provided with shoulders, as shown, and a rim fitted over the outer ends of the spokes, the ends of the spokes being riveted in said rim, substantially as described.

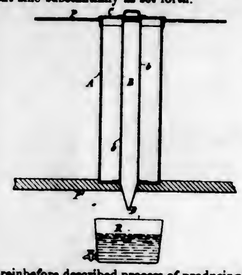
489,459. CHIMNEY OR FLUE COWL. JOSEPH L. CHARVAT, Chicago, Ill. Filed Dec. 24, 1891. Serial No. 416,058. (No model.)



Claim.—The combination with a pipe or flue, of a casing rectangular in cross-section mounted on the pipe or flue and having an opening in its bottom communicating with the pipe or flue, said casing being provided with flaring ends, a transverse shaft journaled in the sides of the casing and having its ends extended beyond the same, a V-shaped damper secured at its apex to the shaft and depending therefrom and arranged within the casing above the opening in the bottom thereof, said damper being of a length exceeding the diameter of the pipe or flue, and the counterbalancing rods arranged at each side of the casing on the outside thereof and extending longitudinally of the same and being centrally secured to the extended end of the shaft, the ends of the counterbalancing rods being weighted, substantially as described.

489,460. METHOD OF PRODUCING METALLIC ZINC. PARKER C. CROATE, New York, N. Y. Filed Dec. 9, 1891. Serial No. 414,467. (No specimens.)

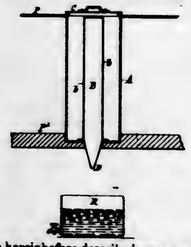
Claim.—1. The herein before described process of producing metallic zinc which consists in heating an ore of zinc carrying lead in the presence of a reducing agent in a furnace to which air is admitted so as to volatilize the zinc and lead and those constituents of the ore more volatile than zinc, thereby obtaining a zinc lead fume free from the less volatile constituents of the ore; reheating the fume to drive off the constituents more volatile than zinc; subjecting the fume mixed with carbon to heat in a retort; thereby obtaining molten lead and zinc vapors; condensing the zinc vapors in the presence of the molten lead; drawing off the resulting molten alloy, permitting the lead to settle under the action of gravity and drawing off the superincumbent zinc substantially as set forth.



2. The herein before described process of producing metallic zinc which consists in mixing zinc fume, lead fume and carbon, subjecting the mixture to the action of heat in a retort thereby obtaining molten lead and zinc vapors, condensing the zinc vapors in the presence of the molten lead thereby obtaining a molten alloy of lead and zinc; drawing off the alloy and permitting the lead to subside under the action of gravity, and finally removing the superincumbent zinc substantially as set forth.

3. The herein before described process of producing metallic zinc which consists in heating zinc fume mixed with carbon in a retort to distill the zinc; condensing the resulting zinc vapors in the presence of molten lead thereby obtaining a molten alloy of zinc and lead, and finally allowing the lead to subside under the action of gravity and removing the superincumbent zinc substantially as set forth.

489,461. ART OF PRODUCING METALLIC ZINC. PARKER C. CROATE, New York, N. Y. Filed July 1, 1892. Serial No. 438,646. (No specimens.)



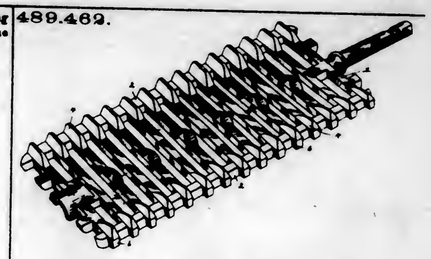
Claim.—1. The herein before described process of producing metallic zinc which consists in heating an ore of zinc carrying lead, in the presence of a reducing agent, in a furnace to which air is admitted, so as to volatilize the zinc and lead and those consituents of the ore more volatile than zinc, thereby obtaining a mixed zinc and lead fume free from the less volatile constituents of the ore; heating the mixed fume to drive off the constituents more volatile than zinc, and granulate and condense the mass; heating the product mixed with carbon in a retort to distill the zinc and finally condensing the zinc vapor and drawing off the molten lead and metallic zinc substantially as set forth.

2. The herein before described process of producing metallic zinc which consists in heating zinc fume mixed with lead fume or pulverized metallic lead, to granulate and condense the fume, heating the product mixed with carbon in a retort to distill the zinc, and finally condensing the zinc vapors and separating the metallic zinc and molten lead, substantially as set forth.

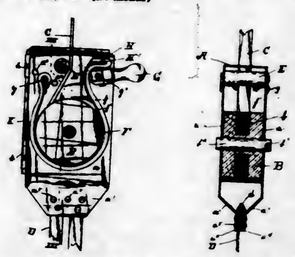
489,462. GRATE. JOHN W. COBB, Taunton, Mass., assignor to the Cobb Stove and Machine Company. Filed Apr. 5, 1892. Serial No. 427,866. (No model.)

Claim.—The herein-described improved grate, the same consisting of the opposite longitudinal bars and intermediate connecting cross-bars, the latter being provided upon their upper sides with lugs, the front series of which extend beyond the front cross-bar, at the juncture of the cross and longitudinal bars, whereby the space between the cross bars is continued beyond the front longitudinal bar, forming a series of draft openings, substantially as specified.

489,462.



489,463. FIRE-ESCAPE. JAMES R. COKER, Knoxville, assignor of one-half to Samuel A. Rogers, Graveston, Tenn. Filed Apr. 20, 1892. Serial No. 429,891. (No model.)



Claim.—1. A portable fire escape comprising a suitable frame, means for suspending a person therefrom, a circumferentially recessed brake wheel or drum journaled in said frame, a cable having one end secured to said brake-wheel and adapted to be wound thereon within said recess, and a flexible band partially encircling the brake-wheel and extending across the recess therein so as to make frictional contact with the periphery of the wheel at opposite sides of said recess; said band having one end fixed and the other end secured to an operating lever for tightening the band, substantially as described.

2. In a fire escape, the combination with the frame having the looped strap secured thereto, the circumferentially recessed brake-wheel, the cord or cable having one end secured to said brake-wheel and adapted to be wound thereon within said recess, and the flexible brake-band partially encircling the wheel and extending across the recess therein so as to engage the periphery of the wheel on opposite sides of the cable; said brake-band being fixed at one end and having the other end thereof secured to an operating lever, substantially as described.

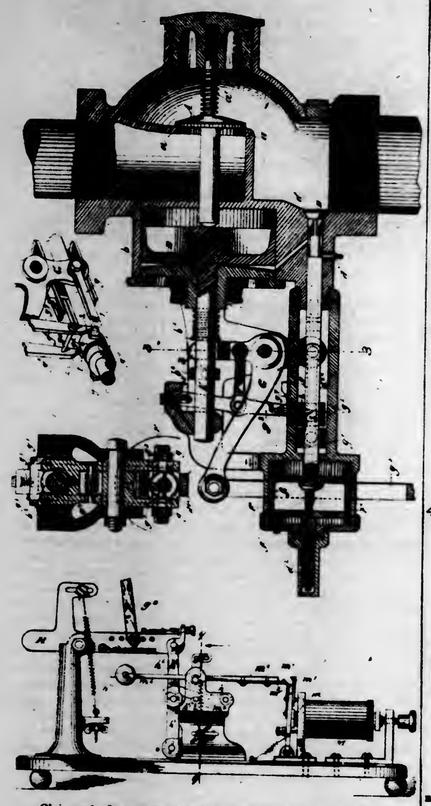
3. In combination with the frame or casing, the brake wheel, the cable, and the brake band having its ends adjustably secured to the casing, for the purpose of increasing or diminishing the extent of frictional contact between the wheel and band, substantially as described.

4. In combination with the frame, the brake wheel, and brake band consisting of a flexible strap and a flat metallic strap or sheet of metal secured together and partially encircling the periphery of the wheel with the metallic face of the band in frictional engagement therewith; the ends of the straps being fixed to the frame and an operating lever, respectively, substantially as described.

5. In combination with the frame having the circumferentially recessed brake wheel or drum journaled therein and provided with a looped strap at the lower end thereof, the brake band spanning said recess having one end fixed to the frame above said wheel and extending thence around the wheel to the opposite side and above the same and secured to an operating lever pivoted to the frame; the friction roll also journaled in said frame above the wheel, and the cable having one end secured to said wheel within said recess and extending therefrom over said roll through the top of the frame and provided with a fastening device at its free end, substantially as described.

6. In a fire escape the frame having the perforations therein to receive the fastening bolts of the brake mechanism, in combination with the brake wheel and the brake band partially encircling the circumference of said wheel and having its ends adjustably secured to the frame by bolts passing through such perforations, substantially as described.

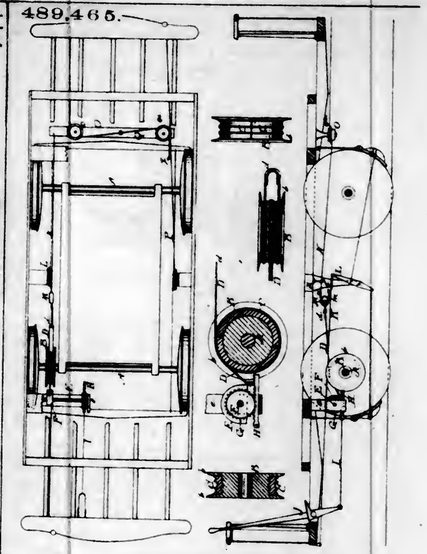
489,464. ELECTRO-STEAM-VALVE ATTACHMENT. JAMES H. CROSBY, Somerville, Mass., assignor to the Gamewell Fire Alarm Telegraph Company, New York, N. Y. Filed Sept. 1, 1890. Serial No. 363,632. (No model.)



Claims.—1. In combination the main valve its piston, cylinder and stem, with the auxiliary valve, and its stem, and mechanism, consisting of the levers g^3, collar g^5, and cam g^7, connecting the two stems for a portion of the forward stroke of the piston; all substantially as and for the purpose specified.

2. In combination the main valve its piston, cylinder, and stem; the auxiliary valve and its stem; and a spring controlled detent apparatus; with a lever which is pulled in one direction by the detent apparatus to open the auxiliary valve, and pulled in the other direction to reset the detent apparatus by the motion of the piston of the main valve.

489,465. BRAKE FOR STREET-CARS. HARRY A. CROSSLEY, Cleveland, Ohio. Filed Apr. 26, 1891. Renewed Apr. 9, 1892. Serial No. 429,627. (No model.)

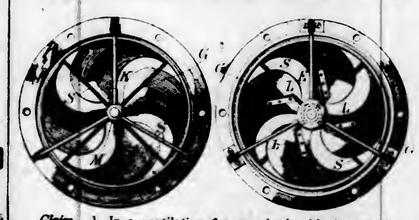


Claim.—1. The combination of car axle A, fixed grooved drum B, rope D, rockshaft E, half wheel F, pinion G, rack bar H and means for operating the same, substantially as and for the purpose set forth.

2. The combination with car axle A, of drum B having segmental grooved lugs, C, C, rope D, composed of two strands, twisted or braided into a united strand and wound around said drum, and connected with a tightening mechanism substantially as and for the purpose set forth.

3. The combination of axle A, drum B, rope D, rockshaft E, half wheel F, pinion G, rack bar H, connected with and operated by hand lever J, the sheave M, cord *m*, rod K attached to brake lever L and having hook *l*, rod N, equalizing lever O, provided with sheaves *o*, o^2, chain or cord Q, connected to hook *q* on rod, P, constructed and arranged to operate substantially as and for the purpose set forth.

489,466. VENTILATOR. WILLIAM H. A. DAVIDSON, Boston, Mass., assignor, by direct and mesne assignments, to the Davidson Ventilating Fan Company, same place. Filed June 9, 1891. Serial No. 396,630. (Model.)



Claim.—1. In a ventilating fan or wheel, a blank bent diagonally into two planes, and bounded on two edges with converging curved lines, the other two edges bounded by converging substantially straight lines, substantially as set forth.

2. In a ventilating fan or wheel, the combination with a hub and peripheral ring, of blades bent diagonally into two planes and having two converging curved edges and two coverging substantially straight edges, the straight edges secured to the hub and ring, the attachment at the ring being in rear of that at the hub.

3. A ventilating fan or wheel composed of a series of blades each bent diagonally into two planes, two edges converging on curved lines and two in substantially straight lines, substantially as set forth.

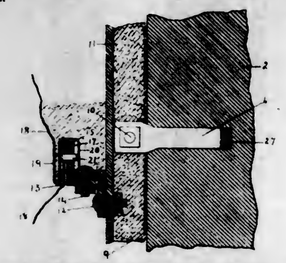
4. In a ventilating fan or wheel the combination with a hub and ring, of blades composed of blanks of sheet metal bent diagonally into two leaves, one edge of each blade secured to the ring and one edge extending from the ring more or less directly to the hub, said edges being in the same plane with the ring, substantially as set forth.

489,467. MEANS FOR SECURING SHEET-METAL FRONTS TO THE WALLS OF BUILDINGS. PHILIP A. DEBLASIEUX, St. Paul, Minn. Filed May 5, 1892. Serial No. 431,575. (No model.)

Claim.—1. The combination with the wall, of the series of anchors secured therein, the series of angle bars having their faces in a plane parallel with the face of the wall and connected to said anchors, separate angle plates connected to said first angle bars, and the sheet metal front secured to said last named angle plates, substantially as described.

2. The combination with the wall, of the anchors secured thereto, the series of angle bars connected to said anchors having slotted openings therethrough, and the sheet metal sections severally connected to said bars by means of lips interned from said sheets and hooked through said slots, substantially as described.

3. The combination with the wall, of the anchors secured therein, the series of vertical angle bars secured to said anchors, the series of horizontal angle bars secured to the said vertical angle bars, and provided with longitudinal slots in their vertical webs, and the sheet metal sections provided with lips hooked into said slots, substantially as described.



4. The combination with the wall, of the horizontal bars supported upon the face thereof, and provided with openings therethrough, and the sheet metal sections provided with lips hooked into said openings, substantially as described.

5. The combination with the wall, of the series of angle bars supported thereon, having openings through their vertical webs, the sheet metal sections having lips engaging said openings, and interlocking devices upon the edges of adjacent sheets, substantially as described.

6. The combination with the wall, of the series of angle bars secured upon its face, and the sheet metal sections severally secured to said angle bars, and interlocking with each other, substantially as described.

7. The combination with the wall, of the frame secured upon the face thereof, and the sheet metal sections severally secured to said frame and interlocking with each other, substantially as described.

8. The combination with the wall, of the open work frame formed of the two series of vertical and horizontal angle bars and intermediate angle bar clips or brackets, and secured to the face of the wall, the sheet metal front secured upon said frame, and a suitable filling between said front and said wall, substantially as described.

9. The method of constructing a building with a sheet metal front, consisting of first placing the front supporting frame in position, then building the wall behind and securing the frame anchors in said wall, and at the same time building up the front by securing the sections to said frame.

10. The method of constructing a building with a sheet metal front, consisting of first placing the front supporting frame in position, then building the wall behind and securing the frame anchors in said wall, and at the same time building up the front by securing the sections to said frame, and filling the open space between with suitable material.

489,468. TEA STRAINER. EDWARD DILLINGHAM, Chelsea, Mass. Filed Oct. 17, 1892. Serial No. 449,084. (No model.)

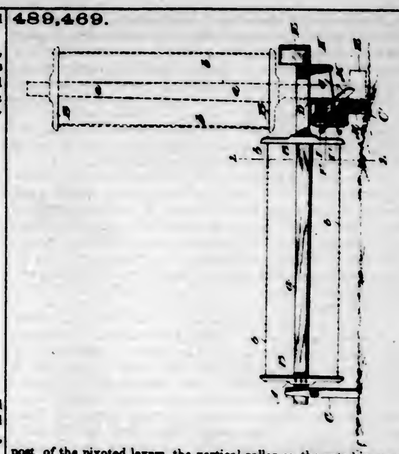


Claim.—1. As a new article of manufacture, a bag or pad formed of strainer cloth or any suitable material, into which is inserted longitudinally a wire with a loop and projecting ends *a a*, said bag or pad being adapted to hold one or more portions of coffee or tea, substantially as described and for the purpose set forth.

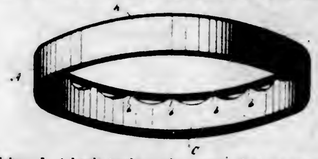
2. The herein described strainer, consisting essentially of a bag or pad A closed on all sides after the insertion of the material to be strained, said pad A being provided with a looped wire B adapted to hold the pad in its proper form, and the projecting ends *a a* of the wire adapted to serve as a handle, substantially as described and for the purpose set forth.

489,469. FARM-GATE. REUBEN G. ELLSWORTH, Northcott, Kans. Filed Sept. 15, 1892. Serial No. 445,982. (No model.)

Claim.—The combination with the hinged gate and its hinge-post, of the pivoted levers, the vertical roller on the gate hinge-post, the arm on the weighted end of the gate, the pivoted arm on the hinge-post, the cords crossed as described and connecting the levers upon opposite sides of their pivots, and the short cords connecting the said cords with the said arms and passed over the said roller, substantially as and for the purpose specified.



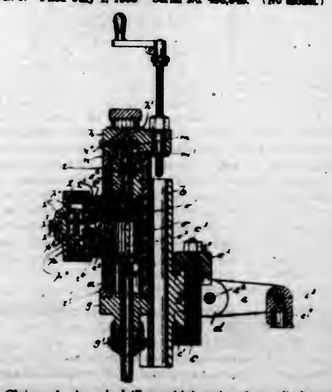
489,470. BANJO. ALBERT G. FAIRBANKS, Somerville, Mass. Filed Apr. 21, 1891. Renewed June 6, 1892. Serial No. 436,640. (No model.)



Claim.—1. A banjo having a rim composed of a hoop provided on one edge with bosses integral therewith, and a band wire resting on said bosses.

2. A banjo having a rim composed of a hoop provided with integral bosses, a band wire resting on said bosses, and a metallic facing covering said hoop and a band wire, substantially as described.

489,471. STEAM ROCK-DRILL. THOMAS F. FARRELL, Paterson, N. J. Filed July 1, 1892. Serial No. 438,849. (No model.)



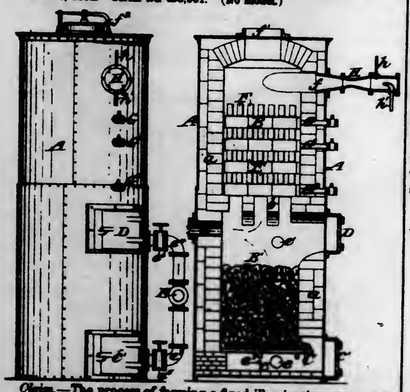
Claim.—1. A rock drill, combining therein a cylinder, a cylinder head secured to each end of said cylinder, the upper one of said heads

being provided with a hole or recess, a drill carrying piston, adapted to move up and down in said cylinder, a drill rotating bar, a toothed wheel secured to the top of said rotating bar, a segmental shaped toothed block arranged in the hole or recess of the upper cylinder head, and adapted to engage said toothed wheel, two or more pins secured to said toothed block, and adapted to operate in sockets in the upper piston head, spiral springs, surrounding said pin and adapted to control said toothed block, and set screws, controlling said spiral springs, all said parts being arranged and adapted to operate substantially as described and for the purposes set forth.

2. In a rock drill rotating device, the combination with the cylinder, piston and cylinder head, of a rotating bar, a toothed wheel secured to the top of said bar and adapted to operate in a recess of the upper piston head, a segmental shaped toothed block arranged in said recess and adapted to engage said toothed wheel, two or more pins secured to said block and adapted to operate in sockets in the cylinder head, spiral springs surrounding said pins and set screws controlling said spiral springs, all said parts substantially as described and for the purposes set forth.

3. In a rock drill, the combination with the cylinder and the piston, said piston being provided with an annular groove, connected by channels c^2, c^3 with the upper and lower steam chambers respectively, of a valve chamber secured to said cylinder, a double headed cylindrical piston valve arranged in said valve chamber, each piston head consisting of two disks forming a steam chamber, channels connecting said steam chambers with the upper and lower steam chambers of the cylinder, a cylinder head arranged at each end of the valve chamber, a metallic plate secured to said cylinder head, a rubber cushion arranged between said metallic plate and cylinder head, a series of channels r^2, r^3 and r^4, r^5 connecting the chambers between the metallic plates and the outer disks of the cylindrical piston valves with the live steam chamber o and the exhaust respectively, all said parts, substantially as described and for the purposes set forth.

489,472. PROCESS OF MANUFACTURING GAS. CHARLES L. PEASE, Brooklyn, assignor to William P. Watson, New York, N. Y. Filed June 3, 1892. Serial No. 435,981. (No model.)

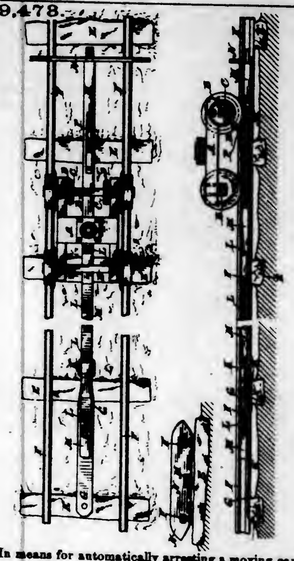


Claim.—The process of forming a fixed illuminating gas consisting in heating a converting chamber by passing the products of combustion through it from a bed of incandescent fuel, introducing a fine spray of hydrocarbon and steam into and passing it through said converting chamber in a direction opposite to that in which the products of combustion pass through it thereby forming a fixed hydrocarbon gas, and simultaneously with the passage of the hydrocarbon spray through the converting chamber, passing steam through the bed of incandescent fuel employed in heating the converting chamber, thereby forming a water gas which mingles at the surface of the incandescent fuel with the hot hydrocarbon gas as it escapes from the converting chamber to form an illuminating gas without further fixing, substantially as set forth.

489,473. CAR-TRUCK AND MEANS FOR AUTOMATICALLY ARRESTING THE SAME. CHARLES H. GRIFFIN, Lake City, Colo. Filed May 20, 1892. Serial No. 434,032. (No model.)

Claim.—1. The combination of a car truck provided with a swinging catch suspended from the axle of said truck, with a catch secured to an adjustable bar situated between the rails of the track and adapted to engage said swinging catch and hold the car truck, substantially as and for the purpose set forth.

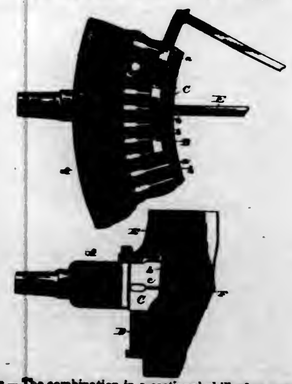
489,478.



2. In means for automatically arresting a moving car-truck, the combination of a catch adapted to hold said car-truck, an extension or strip to which said catch is secured, a guide-plate secured to one end of said strip transversely thereto, and adapted to engage with and slide along the rails of the track, and means for longitudinally adjustably securing said strip between the rails of the track, substantially as described.

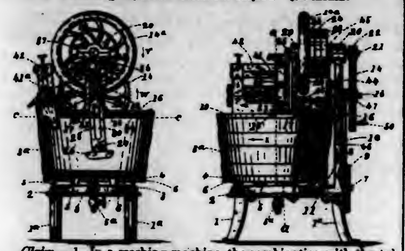
3. In means for automatically arresting a moving car-truck, the combination of a catch adapted to hold said car-truck, a ratcheted extension or strip to which said catch is secured, a guide-plate secured to one end of said strip transversely thereto, and adapted to engage with and slide along the rails of the track, a stay-piece secured to the sleepers and provided with a link adapted to engage a tooth of the ratcheted strip and hold the same in position, substantially as described.

489,474. SECTIONAL CHILL. THOMAS A. GRIFFIN, Chicago, Ill. Filed July 18, 1892. Serial No. 440,417. (No model.)



Claim.—The combination in a sectional chill of an outer continuous ring and an inner ring separated into sections by both vertical and horizontal divisions, and webs extending inwardly from the outer ring and rigidly supported thereby independent of each other and supporting the sections of the inner ring independently of each other.

489,475. WASHING-MACHINE. ARENT HALSTENBACH, Buffalo, N. Y. Filed Aug. 20, 1892. Serial No. 444,351. (No model.)



Claim.—1. In a washing machine, the combination with the tub for holding the articles to be washed of a means substantially as above described for giving the tub a horizontal rotary motion, a pounder and slotted connecting-rod connected by a pin to a crank mounted on the shaft carrying the driving pulleys and fly wheel, a stationary pin passing through the slot in the connecting-rod, and a means substantially as above described for giving the crank its required rotary movements and the pounder, its up and down and back and forth lateral movements as above set forth.

2. In a washing machine, a tub having downward projecting portions which slide in a circular groove at or near the base of the supporting frame a circular series of gear teeth projecting down from the bottom of the tub, a pinion on a horizontal shaft mounted in boxes adapted to gear in with said teeth, and a means substantially as above described for giving said tub a horizontal rotary motion, in combination with a pounder connected with a slotted connecting-rod consisting of an upper and lower portion having the slotted portion or lower portion connected by a stationary pin so as to slide easily back and forth on said pin, a projecting portion on said slotted connecting rod adapted to slide into a slideway in the upper portion of the connecting rod and a spring for giving it a yielding movement, the upper portion of the connecting rod being pivoted to a crank mounted in boxes at the top of the frame and mechanism substantially as above described for giving the crank its required rotary movements for the purposes described.

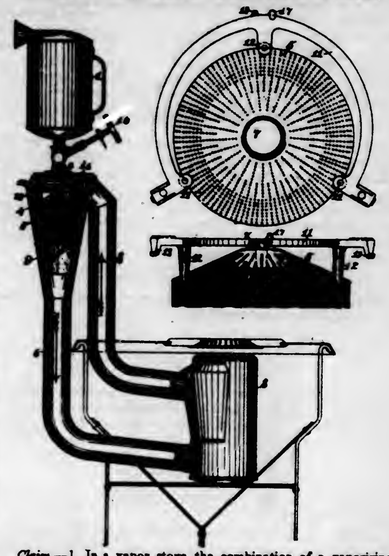
3. In a washing machine, having a rotary movable tub and a means for moving it, a combined rubbing and pounding clothes pounder, consisting of a T shaped pounder, a connecting rod formed in two pieces one piece adapted to slide partly into the other, one portion being provided with a slot secured so as to slide on a stationary pin and having its lower end secured to the pounder, the other or upper portion being provided with a spring so as to allow the pounder to yield during its downward and rubbing movement on the clothes and having its upper end pivoted to a crank mounted on a shaft set in bearings in the frame of the machine and mechanism substantially as above described for giving the pounder its necessary movement as above set forth.

489,476. SASH-HOLDER. LOUIS A. HATHAWAY and BOOMER W. ELKINS, Kenyon, Minn. Filed Aug. 11, 1892. Serial No. 442,839. (No model.)



Claim.—A sash-holder comprising a triangular casing provided at its ends with securing flanges and having an open front and closed sides, top and back, the back of the casing declining and provided with an intermediate bear having a threaded opening, an adjustable bearing plate arranged on the inclined back of the casing and provided with a longitudinal slot and having at its upper end outwardly, upwardly and inwardly extending angular hooked flanges forming rectangular bearing recesses at their inner sides, a roller disposed between the angular flanges and adapted for movement upon the declining bottom of the casing and provided with journals located at its ends and arranged in the bearing recesses and having a limited movement and confined therein, and a set screw arranged in the slot of the bearing plate and engaging the threaded opening in the bear, substantially as described.

489,477. VAPOR-STOVE. CHARLES M. HOLLINGSWORTH, Cleveland, Ohio. Filed Sept. 20, 1891. Serial No. 407,202. (No model.)



Claim.—1. In a vapor stove, the combination of a vaporizing chamber having an air inlet in its upper end, evaporating surfaces inclosed within said chamber means for admitting a volatile hydrocarbon liquid to said chamber and causing the same to spread itself on said evaporating surfaces, a downwardly extended conducting pipe connected with the lower end of said chamber, and a burner shell having a perforated cap connected with the lower end of said pipe,—said chamber, conducting pipe and burner shell forming a closed conduit through which the vapor flows from the point where it is formed to the burner cap, with an absorbent material placed in said conduit in contact with the evaporating surface therein, and above the level of the final outlet at the burner cap, as and for the purpose specified.

2. In a vapor stove, the combination of a vaporizing chamber having an air inlet in its upper end, a nozzle through which a regulated feed of liquid hydrocarbon is delivered thereto, a downwardly extended conducting pipe and a burner connected therewith, with an absorbent material in said vaporizing chamber in contact with the wall thereof, and an evaporator having its base in contact with said absorbent material and its receiving end beneath said nozzle, substantially as and for the purpose specified.

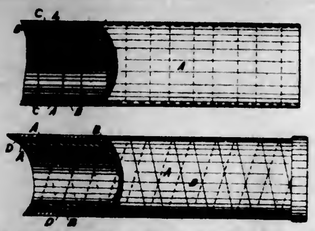
3. In a vapor stove of the described character, the combination of a vaporizing chamber having holes 15 in the upper part of its walls, and an evaporator supported in said chamber, with a frame which engages with said evaporator, and has the lugs 13 which enter the holes 15, thereby connecting said frame with the wall of the vaporizing chamber, substantially as and for the purpose specified.

4. In a vapor stove of the described character, the combination of a vaporizing chamber, an evaporator supported therein and a frame secured to the walls of said vaporizing chamber and engaging with said evaporator, with a removable cover to said chamber and means for securing said cover to said frame, substantially as and for the purpose specified.

489,478. HOSE. JOHN B. HAYHURST, London, England. Filed Aug. 11, 1892. Serial No. 442,824. (No model.) Patented in England Feb. 17, 1892, No. 3,142.

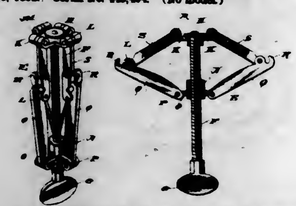
Claim.—1. The herein described flexible hose having a uniform internal bore and smooth or plain interior and exterior surfaces and

provided with a soft rubber tube and with reinforce rings, bands or spirals of hard rubber embedded in the tube and vulcanized therewith and flush with the surface thereof, substantially as and for the purposes set forth.



2. The herein described flexible hose having a uniform internal bore, a smooth cylindrical exterior surface and provided with a soft rubber tube, a continuous ply of asbestus cloth and reinforce bands, rings or spirals of hard rubber embedded in the rubber tube and made uniform with the interior surface, the construction and arrangement being such that not only interior and exterior smoothness are imparted to the hose but oxidation is obviated in the exposure thereof to moisture or atmospheric influences.

489,479. BED-BRACE. VICTOR HUMPHREY, Lexington, N. C. Filed Sept. 10, 1892. Serial No. 445,494. (No model.)

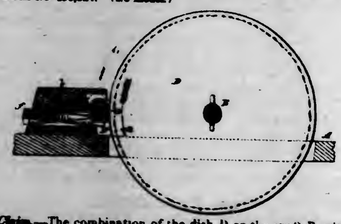


Claim.—1. In a bed-brace the combination with tightening wires of a clamp comprising radially-disposed toggle-levers, having said wires connected to their joints, and united at their free ends for simultaneous adjustment, and means to adjust the toggle-levers, substantially as specified.

2. In a bed-brace, the combination with the tightening wires, the clamp comprising a central screw, a cross-head swiveled upon one end of the screw, a spider threaded upon the screw, and the toggle arms connecting the cross-head and spider, the tightening-wires being connected to the joints of said toggle-arms, substantially as specified.

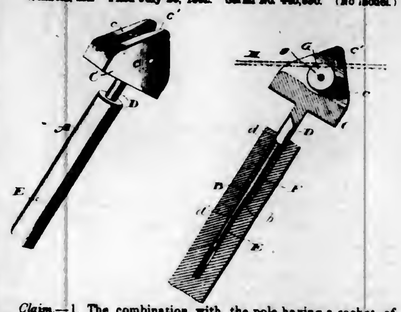
3. In a bed-brace, the combination with the tightening wires, of the clamp comprising a central screw, a swiveled cross-head, having bifurcated arms, a spider threaded upon the screw and having bifurcated arms, the swinging-arms pivoted to the arms of the spider and having hook-shaped outer ends, the connecting arms between said arms and the cross-head, substantially as specified.

489,480. DETENT MECHANISM. ARISTIDES H. JAGOT, Hoboken, N. J., assignor to Jaost & Son, New York, N. Y. Filed June 11, 1892. Serial No. 436,337. (No model.)



Claim.—The combination of the disk D on the shaft B, with the non-elastic detent-roller *a* which is placed in contact with the edge of said disk, inclined wall *d* in contact with said roller, and pivoted lever F having handle *f*, upon which lever F the roller *a* always bears, all arranged so that by means of said movable support F the roller *a* can be moved out of its binding position with reference to the edge of said disk D, substantially as, and for the purpose herein shown and described.

489,481. ELECTRIC-RAILWAY TROLLEY. ERNEST H. JENKINS, Winfield, Md. Filed July 20, 1892. Serial No. 440,690. (No model.)

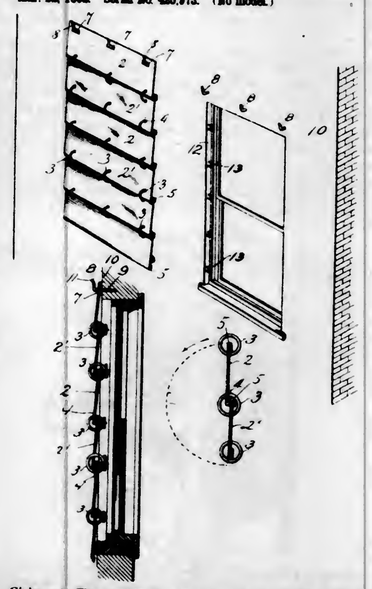


Claim.—1. The combination with the pole having a socket, of the bracket having a shank to fit the same, and slotted longitudinally, the transverse pin, the spring arranged in the socket, and the trolley wheel journaled in the bracket, substantially as described.

2. The combination with the pole having a socket provided with an annular shoulder, of a bracket having a shank provided with an annular shoulder, and slotted longitudinally near its lower end, the transverse pin, the coiled spring arranged between the annular shoulders, and the trolley wheel substantially as shown and described.

3. The combination with the bracket having tapering wings beveled on their inner faces, and carried by a longitudinally movable shank of the trolley wheel journaled between the said wings, substantially as shown.

489,482. FIRE-SCREEN. GILBERT H. JESUP, Tracy, Minn. Filed Mar. 22, 1892. Serial No. 426,073. (No model.)



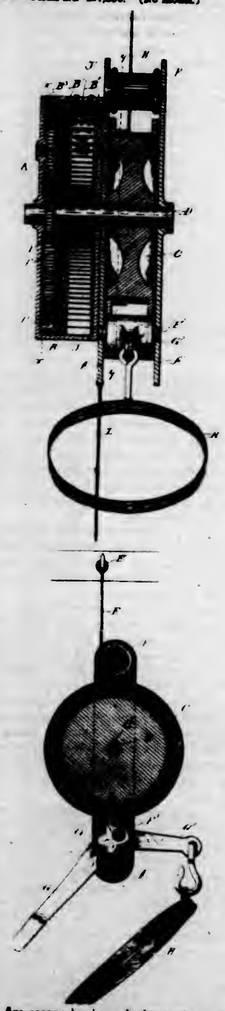
Claim.—1. The combination in a fire-screen, of a series of overlapping horizontal sections having perforated edges, with hinge rings arranged in said holes to join the sections, the lower edges of all the sections lapping outwardly, and a hook or hooks whereon to hang the whole, substantially as described.

2. The combination in a fire-screen, of a series of overlapping

metal sections, with rings for securing the overlapping edges of adjoining sections and the openings for the rings in a given section being close to the edges thereof, and the holes in the adjoining section at greater distances from the edges of said adjoining sections, substantially as and for the purpose specified.

3. The combination with a series of sheet metal sections, having ribbed edges, of rings S for securing the sections together, said sections being overlapped as described, hooks arranged upon the building, the upper section provided with openings therefor, and wire loops arranged in said rings for binding the vertical edges of the screen, substantially as described.

489,483. FIRE-ESCAPE. SAMUEL KAYE, Yazoo City, Miss. Filed Mar. 31, 1892. Serial No. 427,269. (No model.)



Claim.—1. A fire escape having a body portion, a shaft extending through the same, a sleeve fitting loosely on the shaft and having a gear wheel fixed thereto, a spring connected to the sleeve a train of gears for connecting the spring and the shaft, a drum mounted on the shaft and a rope running over the drum, substantially as described.

2. The combination of a body portion having two compartments a shaft extending through the same, a sleeve located in one compartment fitting loosely on the shaft, an internal gear wheel located in the other compartment and formed integral with the sleeve, a spring for reversely rotating the sleeve and its gear an intermediate gear meshing with the internal gear, a pinion and a drum on the shaft, and a rope working over the drum, substantially as described.

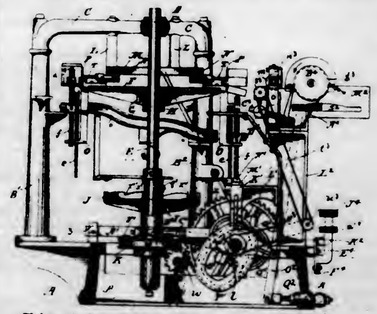
3. In a fire escape, the combination of a circular body, a shaft extending through and beyond the same, a drum mounted on the shaft outside of the body, a sleeve located in the body and fitting loosely on the shaft, a train of gearing connecting the shaft and sleeve, a helical spring located within the body and attached to the sleeve and an eccentric operating with the drum, substantially as and for the purpose specified.

4. In a fire escape, the combination of a circular body, a shaft extending through and beyond the same, a drum mounted on the shaft outside of the body, a rope working over the drum, a sleeve located within the body and mounted loosely on the shaft, an internal gear wheel formed integral with the sleeve and meshing with a train of gearing which connects the said sleeve and shaft, and a helical spring having one end attached to the sleeve, all arranged and operating substantially as described.

5. In a fire escape, the combination of a circular body portion, a shaft extending through and beyond the same, a drum mounted thereon outside of the body, a partition formed in the body, a sleeve located on one side of said partition and mounted loosely on the shaft, an internal gear wheel formed integral with the sleeve and extending on the opposite side of the partition, a train of gearing meshing with the said internal gear and connecting the sleeve with the shaft, a helical spring located in the body on the same side of the partition as the sleeve and having one end attached thereto, a cam or eccentric journal contiguous with the drum and having a pair of arms formed integral therewith, and a loop or strap connected to one arm, substantially as described.

6. In a fire escape, the combination of a drum, a supporting rope working over the same, an eccentric journaled adjacent to the drum, a pair of arms formed on the said eccentric, a loop or strap attached to one arm whereby from the weight of the passenger the eccentric is made to engage the drum, the other arm being used to disengage it, substantially as described.

489,484. CAN-SEAMING MACHINE. CHARLES B. KENDALL, Newton, Mass., and HENRY SCHAAKE, Baltimore, Md.; said Schaake assignor to said Kendall, San Francisco, Cal. Filed Apr. 29, 1892. Serial No. 431,116. (No model.)



Claim.—1. In a seaming machine, the combination with the mandrel, of the clamping jaws, of the rotary traveling blank carrier, and of mechanism for extracting blank from rotary carrier and delivering same to mandrel.

2. In a seaming machine, the combination with the feed supply mechanism, of the rotary traveling blank-carrier, of the spring clips for holding the blanks in position, of the gage plate, and of the pressure rod for maintaining ends of the blanks against the gage plate.

3. The combination with a feed supply for seaming machines, of the rotating blank carrier, sliding frame located within the feed supply, mechanism for imparting forward and backward movement to the sliding frame, and of the nipper arms adapted to raise and lower with the travel of said frame in order to nip the blank and carry the same from the carrier to the mandrel.

4. In a feed supply for seaming machines, the combination with the rotating blank carrier of the longitudinally traveling nipper arms, and of mechanism for operating said arms in order to nip the body blank and carry the same forward.

5. In a feed supply for seaming machines, the combination with the rotating blank carrier, of the spring actuated longitudinally traveling nipper arms, and of mechanism for operating said arms.

6. In a feed supply for seaming machines, the combination with the rotating blank carrier, of the gage plate located to one side thereof, pressure rod for maintaining the end of blanks against the gage plate, nipper arms for receiving and carrying the blank body beneath the mandrel, and of mechanism for operating said nipper arms.

7. In a seaming machine, the combination with the mandrel and clamping jaws, of a feed supply, of the delivery wheel for blank bodies, said wheel provided with a series of radial arms, spring clips for holding blanks between radial arms, and of mechanism for automatically extracting blanks from the delivery wheel and carrying the same beneath the mandrel of the seamer.

8. In a feed supply for seaming machines, the combination with the mandrel and clamping jaws of the rotating body blank delivery wheel, mechanism for rotating the same, of the frictional brake for causing a stoppage of said wheel, and of mechanism for automatically extracting blanks from delivery wheel and carrying same beneath mandrel.

9. The combination with a feed supply for seaming machines, of the outer stationary casing provided with elongated slots of varying width sliding frame working within the casing mechanism for operating said frame, rotating blank carrier, nipper arms pivoted to the sliding frame, rollers secured to the lower end thereof working within elongated slots of a stationary casing, said rollers with movement of the sliding frame adapted to raise and lower the upper end of nipper arms.

10. The combination with the feed supply for seaming machines, of the adjustable crimping rolls, said rolls located one above the other and adapted as blanks travel thereunder to rotate and crimp the ends thereof, the periphery of said rolls being oppositely beveled, of the longitudinally traveling nipper arms, and of mechanism for operating said arms in order to nip the body blank and carry same forward to the crimping rolls.

11. The combination with the feed supply for seaming machines, of the rotary blank carrier, of the adjustable crimping rolls, of the fluxing tank located back of the crimping rolls, of the fluxing wheel rotating within the fluxing tank and adapted to supply the flux to the crimped end of body blanks during travel thereof, and of mechanism for carrying the body blank from the rotary blank carrier beneath the crimping rolls, and over the fluxing wheels.

12. In a feed supply for seaming machines, the combination with the rotating body blank delivery wheel, mechanism for rotating the same, of the nipper arms for extracting blanks from rotary delivery wheel, mechanism for operating the same and of the frictional brake for causing a stoppage to the wheel, said brake being supplied with an adjustable weight for increasing or decreasing the friction of the same.

13. The combination in a seaming machine, of soldering irons, swinging weight rods adapted to bear thereon in order to cause said irons to bear firmly upon the body carried by the mandrel, and of mechanism for imparting longitudinal motion to soldering irons.

14. In a seaming machine, the combination with the soldering irons, of the weight rod bearing thereon, and of the adjustable weight secured upon said rod.

15. In a seaming machine, the combination with the soldering irons, of the weight rod, depending rollers secured thereto, and bearing upon said irons, and of the weight connected to said rod.

16. The combination with soldering irons, of a seaming machine, rocking lever for imparting longitudinal motion thereto, crank lever pivotally secured to the frame of machine, of the connecting rod for transmitting motion of crank lever to rock lever and of the operating rod for transmitting motion to crank lever in order to operate rock lever.

17. In a seaming machine, the combination with the operating shaft, of the soldering irons, rotating shaft L^4, clutch sleeves oppositely working thereon, clutch adapted to move into locked engagement with clutch sleeves, mechanism for throwing clutch into engagement with either of said sleeves, spirally grooved cams connected to the clutch sleeves for the purpose of disengaging same from clutch when the shaft has rotated a given distance, and of mechanism for transmitting the motion of said shaft to the soldering irons in order to raise or lower the same with the stopping or starting of the seaming machinery independent of mechanism for raising and lowering the irons during the working of the machine.

18. In a seaming machine, the combination with the soldering irons, of mechanism for lowering and raising the same with the stopping or starting of the seaming machinery independent of device for alternately raising and lowering of the irons during travel of body forming mandrel.

19. In a seaming machine, the combination with the operating shaft, of shaft L^5, clutch sleeves loosely working thereon in the opposite direction, mechanism for imparting motion of the operating shaft to the clutch sleeves, clutch adapted to move into locked engagement with the clutch sleeves, and of mechanism for imparting movement of shaft L^4, to the soldering iron lift rod in order to raise and lower the irons with the stopping or starting of the machine.

20. In a seaming machine, the combination with the traveling mandrel, of the delivery device for the formed bodies, said device consisting of a sliding or reciprocating rod, spring actuated catch bars or pins secured and working within and through sliding or reciprocating rod, said catch bars being such a distance apart as to permit of the formed body upon the mandrel to be grasped and held there-between, of mechanism for reciprocating the sliding rod in order to allow of catch bars engaging the can body and withdrawing the same from the mandrel, and of releasing rod for the trip catch bars when the body has been withdrawn.

21. In a seaming machine, the combination with the frame thereof, of the stationary frame for the releasing device secured thereto and projecting therefrom, of the sliding or reciprocating rod secured and working through stationary frame, of the spring actuated catch pins pivotally secured within reciprocating rod, at the inner and outer end thereof, of the releasing pin or rod secured to the stationary frame, and of mechanism for reciprocating sliding rod in order to cause catch pins to grasp and withdraw body from mandrel.

22. In a releasing device for seaming machines, the combination with the sliding or reciprocating rod, of the pivotal catch rods, secured within and working through the reciprocating rod, said catch rods being such a distance apart as will permit a body to be grasped therebetwees, and of mechanism for reciprocating the sliding rod.

23. In a releasing device for seaming machines, the combination with the frame thereof, of the stationary frame for the releasing device secured thereto, of the reciprocating rod, of the vertical rocking connecting rod fulcrumed within the bracket secured to the frame of the machine, said rod connected to the sliding rod at its upper end, of the spirally grooved cam secured to the operating shaft of the seamer, and within which the lower end works, said cam with rotation thereof adapted to oscillate the vertical rod in order to reciprocate the sliding rod, and of the catch bars pivotally secured within sliding rod, said catch bars adapted to grasp and remove the body from the mandrel.

24. In a seaming machine, the combination with the clamp jaws of a soldering machine, of the spring clamped tiles secured to the face of side jaws said tiles projecting below inner surface of the jaws.

25. In a seaming machine, the combination with the jaws, of the spring self adjusting tiles, secured to face of side jaws, said tiles being for the purpose of preventing undue wear to the jaws.

26. In a seaming machine, the combination with the body forming jaws, of removable tiles secured to each of the side jaws and projecting below the inner surface thereof and of spring clamp plates for securing the tiles to the jaws.

27. In a seaming machine, the combination with the clamp jaws, of spring clamped tiles secured thereto, said tiles projecting below the inner surface of the jaws, of the sectional mandrel, said mandrel having a raised lip secured to one section thereof upon which the spring tiles press the lap of body blank.

28. In a seaming machine, the combination with the mandrel, said mandrel composed of sections, of an elastic cushion or packing located thereto, sliding expansion rod for compressing or releasing the pressure upon the elastic packing for the purpose of expanding or collapsing the sectional mandrel, and of the mechanism for operating the sliding expansion rod in or out.

29. In a seaming machine, the combination with the central rotatable shaft, lock plate secured thereon and rotating therewith, lock bar for engaging said plate, mechanism for raising and lowering said bar, ratchet wheel secured upon the shaft below the lock plate, mechanism for imparting a step rotation to the shaft and of the frictional brake applied to the ratchet wheel for gradually stopping the rotation of the central shaft.

30. In a seaming machine, the combination with the rotary central shaft, ratchet wheel rigidly secured thereon, segmental gear connected to a loose sleeve upon the central shaft, pawl carried thereby and engaging the ratchet wheel, mechanism for operating the segmental gear in order to impart rotation thereto through the medium of the ratchet wheel, and of the frictional brake applied to the ratchet wheel for gradually stopping the rotation of the main shaft.

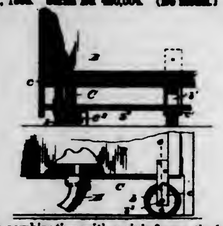
31. In a seaming machine, the combination with the rotary central shaft, ratchet wheel secured thereon, of the segment gear secured to central shaft, of the pawl carried thereby and engaging ratchet wheel, of the rack bar for engaging teeth of segmental gear, said bar operated by eccentric secured upon operating shaft of seamer, and of the frictional brake applied to the ratchet wheel in order to gradually stop rotation of central shaft.

32. In a seaming machine, the combination with the ratchet wheel secured upon the central shaft, of the frictional brake for gradually stopping rotation of the ratchet wheel and shaft, said brake consisting of strap a', one end of which is secured to the frame of the machine, the free portion of which passes over the periphery of the wheel, of the weighted pivoted rod to which the free end of the strap is secured, and of mechanism for raising and lowering the weighted rod in order to increase or decrease the friction of the brake strap upon the ratchet wheel.

33. The combination with a seaming machine, of the body clamp jaws composed of sections, vertical rods for closing the sections of clamp jaws, mechanism for raising the vertical lift rods, and of the look link for connecting and holding said rods in their lifted position.

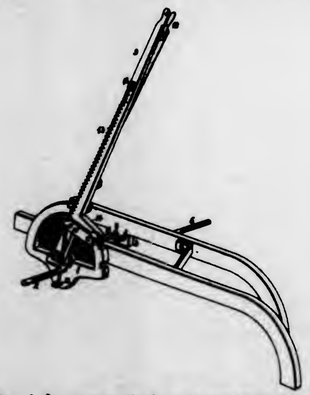
34. In a seaming machine, the combination with the sliding rod for releasing the vessel body from mandrel, of the hook bars for engaging the vessel body, one of said bars having its projecting end reduced in order to provide the shoulder for the purpose of preventing the tilting of the body while being withdrawn.

489,485. SINK AND BATH-TUB. Moses A. Luppen, Pullman, Ill. Filed Feb. 1, 1892. Serial No. 420,004. (No model.)



Claim.—In combination with a sink-frame, the bath-tub to fit in said frame, the longitudinally-disposed shaft b^3 mounted in hangers depending from the tub, the rollers b secured to said shaft at opposite ends of the tub, the rollers b' carried by hangers at the rear side of the tub, the blocks C to hold rollers b in place, and guides c^3 secured to the floor, substantially as specified.

489,486. COMPENSATING LEVER FOR PLOWS. Hjalmar Lindgren, Moline, Ill. Filed Mar. 19, 1892. Serial No. 425,653. (No model.)



Claim.—1. In a compensating lever, the combination of a pivoted lever a notched sector, a detent on the lever, a spring attached to the lever and to a point stationary with reference to the lever and a projection from the lever for holding the spring in line therewith.

2. In a compensating lever the combination of a pivoted lever, a notched sector, therefor, a detent on the lever, a pivoted arm on the lever, a spring attached to the lever, and to the arm and a link connection between the arm and a point stationary in relation to the lever.

3. In a compensating lever the combination of a pivoted lever, a notched sector therefor, a detent on the lever, an extension from the lever, an arm pivoted to the extension, a spring attached to the lever and to the arm and a link connection between the arm and a point stationary in relation to the lever.

4. In a wheel plow the combination of a carriage-body, two crank shafts thereon, which receive supporting wheels, a connection between the shafts, a notched sector on the carriage, a compensating lever on one of the shafts said lever comprising the lever proper, a detent thereon, a spring connected to the lever and to a point stationary in reference thereto and a projection from the lever for holding the spring in line therewith.

489,487. VEHICLE-AXLE. John Lorenz, Elizabeth, N. J. Filed Aug. 27, 1892. Serial No. 444,393. (No model.)

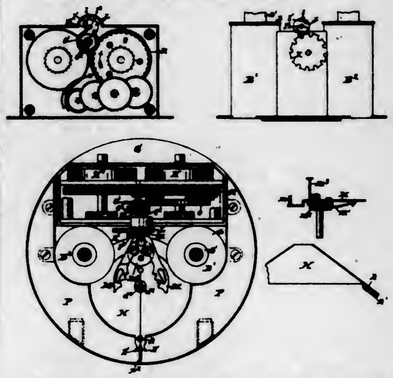


Claim.—1. A hollow axle provided with longitudinal ribs or flanges and spindles removably secured in the ends of said axle by means of locking ribs on said spindles and bolts or rivets inserted through said flanges and locking ribs.

2. A hollow axle having a longitudinal opening and a filling plate secured therein substantially as described.

3. A hollow axle having a longitudinal opening and a filling plate secured therein said filling plate having a T head or flange substantially as described.

489,488. LAMP. Bernard J. M. Meiser, Cincinnati, Ohio. Filed Dec. 19, 1890. Serial No. 334,268. (No model.)



Claim.—1. The combination of the wick vase, the oil reservoir A having central draft flue and located directly over said vase, the supply pipe connecting the reservoir and vase, the mantle or shell surrounding the vase, the perforated base to admit air between the vase and mantle and to pass it in proximity to the burner and thence through the draft flue in the reservoir, substantially as shown and described.

2. The combination of the wick vase, the reservoir, the oil supply tube leading from the reservoir to the vase, the perforated base for the wick vase, the casing surrounding the vase, the perforated hoop or foot I, and the outer glass case resting upon said hoop whereby air is supplied to the burner from below and also above the base, substantially as shown and described.

3. The combination substantially as hereinbefore set forth of the wick vase B, having side compartment, B', the reservoir directly above the base, the oil supply tube connecting the reservoir and side compartment and the opening between the wick vase and compartment, B', near the bottom for the purpose of feeding oil to the bottom of the wick chamber.

4. The combination of the wick chamber B inclined at the top, the base G perforated to receive the base of the wick chamber and leave a space around it, the wick tube fixed centrally in the top of said chamber, the outer casing for the wick chamber, the lower edge of which rests upon the base around the opening, and the cone-shaped hood H covering the top of the wick chamber and extending to near the top of the wick tube to deflect the air to the burner, substantially as shown and described.

5. The combination of the wick vase inclined at the top, the reservoir having central openings located directly above it the perforated disk D covering the top of said vase the wick tube, d, secured centrally in said disk, the vertically adjustable tube, d', in the tube, d, and the cone shaped cap, d^3, centrally perforated to allow the tube to pass through it, substantially as hereinbefore set forth.

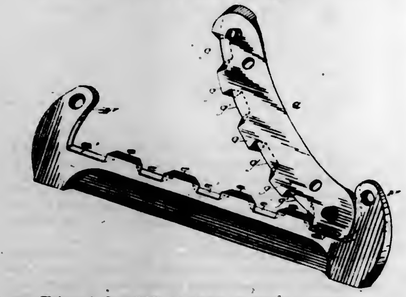
The combination of the wick tube, the shaft E and spur wheel secured upon said shaft to raise the wick, the tubular bearing E', the notched wheel K having concave depressions between its notches secured upon the shaft E outside of the case, the toothed driving wheel L, the periphery of which fits the concave depressions in wheel K its shaft, and the spring movement to drive said shaft for the purpose of intermittently raising the wick and preventing the wick raising shaft from revolving more than the distance of one of the notches in wheel K, substantially as shown and described.

7. The combination of the wick tube, the shaft E and its bearing, the star wheel journaled upon said shaft and having a ratchet wheel upon one side and a gear wheel upon the other, the disk secured upon the shaft E the pawl carried by said disk to engage the ratchet upon the spur wheel to revolve it with the shaft in one direction, the time movement to revolve the shaft E, the shaft, c^2, extending in from the front of the wick vase, the pinion, upon said shaft to engage the pinion upon the spur wheel, whereby the said spur wheel may be revolved in the opposite direction to introduce a wick without interfering with the time movement or removing the wick tube.

8. The combination of the independently pivoted snuffer blades having oppositely projecting pins at the rear, the wheel mounted upon shaft, l^3, and having pins, l', to engage the pins upon the snuffer blades, the time movement, the ratchet wheel, o, the escapement having six detents to alternately engage the ratchet teeth, the cog, o^2, upon the escapement shaft and the pinion, l^3, upon the shaft, l^3, and meshing with the cog, o^2, said cog and pinion being geared three to one, so as to rapidly snap the snuffer blades together, and the spring, m', to rapidly separate them when released from the pins on wheel L, substantially as shown and described.

9. The combination of the wick raising devices, the notched wheel K upon the wick raising shaft and having concave depressions between its notches, the snuffers having pins projecting in opposite directions, the wheel L, having teeth to engage the notches in wheel K, and pins to engage the snuffer pins, the said teeth being arranged in advance of the snuffer actuating pins, the time movement and escapement whereby the wick is first intermittently raised and then instantly snuffed, substantially as shown and described.

489,489. FOLDING BED. ELISHA G MILLER, Chicago, Ill. Filed Nov. 4, 1890. Serial No. 370,349. (No model.)



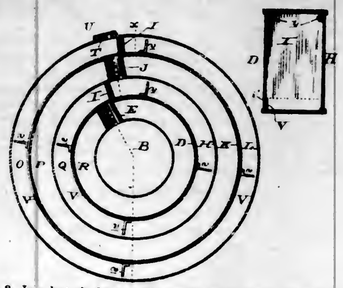
Claim.—1. In a folding bed the intermeshing racks attached respectively to the casing and the bed frame, the teeth of the racks on the casing being narrower on the inside next the casing than on the outside, and the teeth of the racks on the bed frame being constructed to fit the spaces between the teeth of the casing racks, substantially as described.

2. In a folding bed the intermeshing racks attached respectively to the casing and the bed frame the former racks having teeth tapered laterally toward the casing and the latter having teeth tapered laterally toward the bed frame, substantially as described.

489,490. FURNACE. GEORGE T. MOSS, Philadelphia, Pa. Filed Feb. 8, 1892. Serial No. 420,868. (No model.)

Claim.—1. The combination in a hot air furnace, of a dome, two annular smoke passages, connections between the dome and smoke passages, and deflecting plates set in said passages arranged to cause the products of combustion to make a complete circuit in the same direction through both passages, substantially as described.

2. The combination in a hot air furnace, of a dome B, the rings D, H, K and L, top and bottom plates above and below said rings, a pipe connecting the dome B to ring D, another pipe connecting the rings H and K, and a deflecting plate between the rings D and H, and another deflecting plate between the rings K and L, all substantially as described and shown.

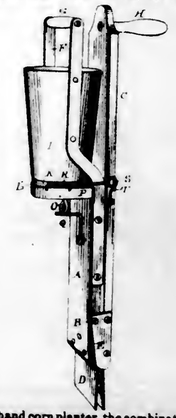


3. In a hot-air furnace, the combination of two rings having an annular passage for the products of combustion between them, top and bottom plates, a ring and scrapers resting on said bottom plate, and capable of being turned continuously in one direction, passages into and out of said annular passage between the rings, and a deflecting plate set in said annular passage constructed to direct the products of combustion out of the same and yet allow of the passage of the scrapers beneath the said plate, substantially as described.

4. In a hot-air furnace, the combination of the rings D H K L, having the annular passages O P between them, with a collar J, connecting rings H and K, and a clean-out U on ring L substantially in line with the collar J, whereby both passages may be cleaned out through the same clean-out, substantially as described.

5. In a hot-air furnace, the combination of a circular flue a circular scraper adapted to be moved around said circular flue, and a swinging plate constructed and arranged to deflect the products of combustion and yet allow the motion of the scraper, substantially as described.

489,491. HAND CORN-PLANTER. EDWARD MOWRY, Maplewood, Ohio. Filed Sept. 9, 1892. Serial No. 445,412. (No model.)

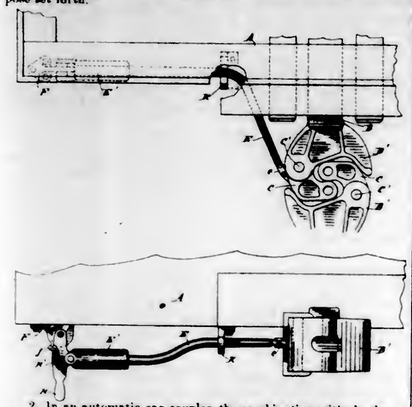


Claim.—1. In a hand corn planter, the combination of the two bars or handles, one of which is provided with a hopper, seed disk, and seed tube, and the other with a pawl engaging the seed disk, and a regulating screw to adjust the tension of the pawl, having a latch for locking said screw in its adjusted position.

2. The combination, in a corn planter, of a hopper, a seed disk rotating at the bottom thereof, a pivotal shaft for the seed disk having a screw-thread thereon, and provided with an adjusting catch, and a latch on the handle or bar engaging the catch on the shaft.

489,492. CAR-COUPLING. ALVIN C. MCCORD, Chicago, Ill. Filed Feb. 18, 1892. Serial No. 422,006. (No model.)

Claim.—1. In an automatic car-coupler, the combination with the coupler head provided with a locking-lug of the coupling hook having a recessed heel-piece and a pair of pivot studs projecting from the walls of the recess, of the locking dog, for engaging said lug, seated in the recess of the said heel-piece and provided with notches or stud seats at its forward end engaging with said pivot studs and constituting the fulcrum for the dog, substantially as and for the purpose set forth.



2. In an automatic car coupler, the combination with the draw-bar and a locking device for the coupling parts, of a releasing device for unlocking the coupling parts and a safety trip arranged to operate the releasing device upon the displacement of the draw-bar, thereby uncoupling the cars, and preventing the draw-bar from falling onto the track.

3. In an automatic car-coupler, the combination with the draw bar and the coupling parts of a locking device, for securing the said parts in their coupled position, a releasing rod connected to said locking device and extending outward to a point near the side of the car, and a safety holder and trip for the releasing rod, adapted to intercept the forward and downward motion of the same, whereby, if the draw-bar should become displaced, the cars will be uncoupled and the draw-bar be prevented from falling onto the track, substantially as described.

4. The combination with the draw-bar and coupler-head B B', of the coupling-hook C, the locking dog D, the releasing rod connected with the dog through a perforation in the coupling-hook located in advance of its pivot, and the stirrup K secured to the car-body and serving as a safety holder and trip for the releasing rod, substantially as and for the purpose set forth.

5. In a twin-jaw automatic car coupler, the combination with the coupling parts and an automatic locking device, of a releasing device constructed in two or more parts having a yielding connection with each other and a retaining device for the releasing device adapted to hold the locking device in its unlocked position and to be tripped by the opening movement of the coupling parts.

6. In an automatic car-coupler, the combination with the locking device for the coupling parts, of the sectional releasing rod E E', the spring E'' uniting the sections E E', the lock-plate F, provided with the latch shoulder f, and the slot f', the hand-lever H suspended from the slot f' and pivotally connected to the section E and the latch H' carried by the lever H, the said parts being arranged and operating, substantially as and for the purposes set forth.

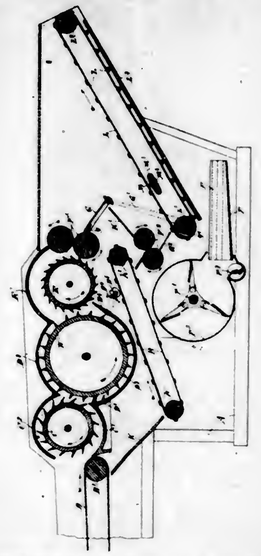
489,493. COMBINED FLAX THRASHER AND CARD. JOHN MCGRATH, Minneapolis, Minn., assignor of three-fifths to George H. Lyman, Sr., same place. Filed July 25, 1892. Serial No. 441,067. (No model.)

Claim.—1. A combined flax thrasher and card, comprising a high-speeded spiked thrashing cylinder and co-operating spiked concave, a slow speeded toothed feed cylinder having its teeth arranged to work intercurrent with the spikes of the thrashing cylinder on its receiving side, and a slow speeded toothed doffing cylinder, having its teeth arranged to intermesh or intersect with the spikes of the thrashing cylinder on its delivery side, substantially as and for the purpose set forth.

2. The combination with the thrashing cylinder, concave and shell, of the doffing cylinder receiving from the thrashing cylinder, and the boll crushing rollers receiving from said doffing cylinder, substantially as described.

3. The combination with the thrashing cylinder and concave, of the doffing cylinder receiving from the thrashing cylinder, the boll crushing rollers receiving from the doffing cylinder, and the separating table receiving from said boll crushing rollers, substantially as described.

4. The combination with the boll crushing rollers through which the straw is passed, after leaving the thrashing cylinder, of the separating table receiving from said rollers, and means for imparting to the same an oscillating motion in the vertical plane, substantially as described.



5. The combination with the thrashing cylinder and the doffing cylinder receiving therefrom, of the concave and shell co-operating with the thrashing cylinder, and provided with an adjustable tail-board for varying the throat or passage from the thrashing to the doffing cylinder, substantially as described.

6. The combination with the co-operating cylinders C, D, and E, as described, of the grain belt or apron underlying said cylinders, and receiving the separated seed therefrom, and a pair of boll crushing rollers receiving from said grain belt or apron, substantially as described.

7. The combination with the feed-cylinder C, of the thrashing cylinder and concave D D', the shell D^4, the tail-board D^4, the doffing cylinder E, the boll crushing rollers F', the separating table G, the grain belt or apron H, and the lower or second set or boll crushing rollers F^4, all arranged and operating substantially as and for the purpose set forth.

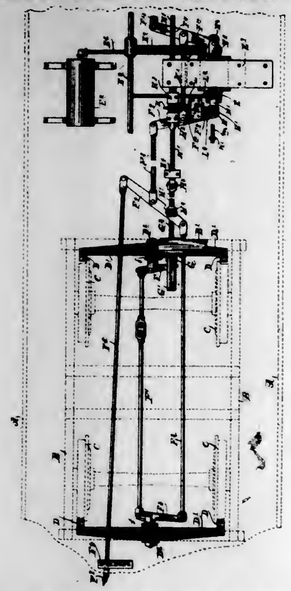
8. The combination with a straw carrier, of a shaking device for the same, consisting of a constantly running shaft located under the bearing surface of the carrier, and a winged or flat striker, loosely sleeved on the said shaft, and provided with a peripheral slot in its hub of less length than the complete circle, in which works a driving pin or key fixed to the shaft, substantially as described, whereby the striker as propelled by the shaft will lift the carrier and then under the action of the carrier, the striker will turn or drop on the shaft, thereby imparting to the carrier a violent agitation, substantially as described.

9. The combination with the thrashing cylinder, of the doffing cylinder receiving therefrom, and the set of boll crushing rollers receiving therefrom speeded to run at a relatively high speed as compared with the said doffing cylinder, substantially as and for the purpose set forth.

10. The combination with the thrashing and the doffing cylinders, of the pair of independently driven boll crushing rollers F', one of which is driven at a higher speed than the other, substantially as and for the purpose set forth.

11. The combination with the thrashing and doffing cylinders, of the set of boll crushing, drawing and rubbing rollers F', running at a relatively high speed, as compared with the doffing cylinder and one of which is speeded to run faster than the other, substantially as and for the purposes set forth.

489,494. AUTOMATIC BRAKE-ADJUSTER. MARTIN R. MCKEE, St. Paul, Minn. Filed June 4, 1892. Serial No. 435,486. (No model.)



Claim.—1. In a fluid pressure brake system, the combination with a take-up device and a brake motor, of an intermediate or take-up motor controlled from the brake motor for operating the take-up device.

2. In a fluid pressure brake system, the combination with a take-up device and a brake motor, of a take-up motor controlled from the brake motor and arranged to be thrown into action whenever the slack produced by the wear on the shoes becomes sufficiently great to require, for setting the brakes, a movement of the brake motor piston beyond its fixed limit of variation, substantially as described.

3. In a fluid pressure brake system, the combination with the take-up device and the brake-motor, of a ratchet mechanism for operating the take-up device and a take-up motor for operating the ratchet, provided with valve mechanism controlled from the brake motor, substantially as and for the purpose set forth.

4. In a fluid pressure brake system, the combination with the take-up device and the brake motor, of a take-up motor for operating said take up device, a ratchet mechanism for transmitting the motion from said take-up motor to said take-up device, and a valve mechanism adapted to be thrown into action to operate the take-up motor, whenever the prime mover of the brake motor or its connected parts are given a movement beyond a fixed limit, substantially as described.

5. The combination with the brake motor and the take up motor, of a slide valve for the take-up motor operated by the piston of the brake motor.

6. The combination with the brake motor and the take-up motor, of the valve mechanism for the take-up motor, comprising the valve seat M, having the chamber M^3 with air supply pipe L^3 and the chamber M^2 with air pipe L^2 to the take-up motor, and the valve stem *m* telescoping within the said seat having the closed compartment *m'* with admission ports m^3 and m^4 and the open compartment m^5 with the exhaust port m^6, the said parts being arranged and operating substantially as and for the purpose set forth.

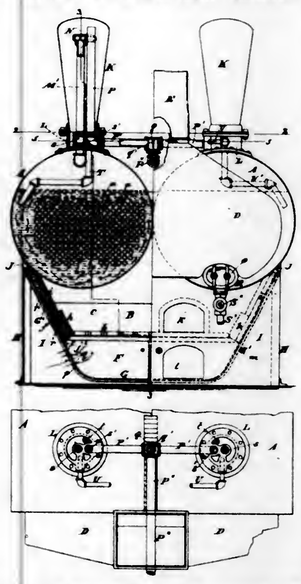
7. The combination with the brake motor and the take-up motor, of the slide valve, for the take-up motor, having an extended valve stem parallel with the brake motor piston and provided on its extended part with a pair of trip surfaces or projections spaced apart from each other, and a trip carried by the piston rod of the brake motor adapted to engage with the said trip surfaces on the said valve stem to operate the said slide valve, substantially as described.

8. The combination with the brake motor of the take-up motor, the valve mechanism M, *m* as described, having its stem extended outward substantially parallel with the piston of the brake motor and provided with the trip surfaces *n'* spaced apart from each other, and the trip rod N *n* carried by the brake motor piston having its eye working on the valve stem *m* between the said trip surfaces *n'*, substantially as and for the purposes set forth.

9. In an automatic brake adjuster, the combination with the take-up device, of a ratchet mechanism for operating the take-up device, a take-up motor for operating the said ratchet mechanism, and an adjusting device for varying the stroke of the piston of the take-up motor.

10. The combination with the take-up device and the ratchet mechanism for operating the same, of the take-up motor L' for operating the ratchet, provided with the set screws l^5 in the outer head of its cylinder for limiting the stroke of the piston, substantially as described.

489,495. STEAM-GENERATOR. RALPH G. PACKARD, Morristown, N. J. Filed Oct. 5, 1889. Serial No. 326,098. (No model.)



Claim.—1. The combination with a multi-tubular boiler having its tubes arranged apart from its shell on one side, thereby leaving an unobstructed space for the passage of a downward current of water between the tubes and shell, of a furnace constructed with its fire chamber in communication with the bottom and with more or less of the opposite side of the boiler, and with the side of the boiler which is constructed with said space for downward circulation cut off to greater extent from direct communication with the fire chamber.

2. The combination to form a steam generator of two horizontal boilers arranged side by side and a furnace constructed beneath them with its fire chamber in communication with more or less of the inner or adjacent sides of the boilers but to greater extent cut off from communication with their outer sides, with the fire bed of the furnace of less width than the two boilers, and sloping walls for the sides of the fire chamber extending upwardly and outwardly from the sides of the fire bed and joining the shells of the boilers.

3. The combination to form a steam generator of two horizontal boilers arranged side by side and a furnace beneath them having a fire bed of a width approximately equal to the distance from center to center of the boilers, and with its fire chamber constructed with its side walls sloping upwardly and outwardly from the sides of the fire bed and joining the boilers at the lower outer sides therof, whereby the direct heat of the fire chamber is in communication with the bottoms and inner sides of the boilers but is cut off from the outer sides thereof.

4. A boiler furnace constructed with sloping side walls and with supporting ledges attached thereto at different levels, and tiles of refractory material resting on said ledges, whereby the lower tiles may be replaced without disturbing the upper ones.

5. A boiler furnace constructed with sloping side walls and with supporting ledges attached thereto and lined with tiles of refractory material resting on said ledges, the lower tiles which come into direct contact with the bed of coals being made of greater thickness than the upper tiles in order to withstand the wear due to the fire tools and clinkers.

6. A boiler furnace constructed with a trough-shaped metal shell supported at its upper edges, whereby its expansion and contraction do not affect its supporting member.

7. The combination with a boiler or boilers and the support thereof, of a boiler furnace constructed with a trough-shaped metal shell hung at its upper edges from said supports, whereby its expansion and contraction do not affect the boiler or its supports.

8. The combination with a steam boiler of a steam dome or separating chamber having invertedly conical sides, a steam pipe for conducting steam from the boiler into the upper part of said separating chamber, a nozzle at the outlet of said pipe, constructed with steam passages discharging tangentially, adapted to impart a centrifugal motion to the steam in said chamber and thereby to throw the particles of water off against the sides of the chamber, whereby they adhere to the latter and flow down to the bottom of the chamber, and a steam outlet pipe taking steam from the upper part of said chamber above said nozzle.

9. The combination with a steam boiler of a steam dome or separating chamber, a steam pipe for conducting steam from a boiler into the separating chamber, a nozzle N fitted to the outlet of said pipe and constructed with steam passages discharging tangentially and downwardly, and a steam outlet pipe P leading from the upper part of said chamber above said nozzle.

10. The combination with a steam boiler having an opening in its top and a steam dome mounted above said opening of a saddle piece fastened over said opening and forming the base to which the dome is secured, constructed with passages through it for establishing communication between the exterior and the interior of the boiler and dome, and pipes joined to said passages.

11. The combination with a steam boiler having an opening in its top, of a saddle piece fastened over said opening and constructed with steam passages through it, and the steam pipe leading from the boiler connected to the steam passage in said saddle-piece.

12. The combination with a steam boiler having an opening in its top of a saddle-piece fastened over said opening and constructed with steam and water passages through it, and the feed water pipe connected to the water-passage in said saddle-piece.

13. The combination with a steam boiler having an opening in its top, and a steam dome arranged above said opening, of a saddle-piece fastened over said opening and forming the base to which the dome is secured, constructed with steam passages *s* and *s'*, the former opening into the boiler and having a steam pipe connected to it and projecting upward in the dome, and the latter opening into the dome and laterally t the exterior of the saddle piece, and having a steam pipe leading from the top of the dome and connected to its upper side and an external steam pipe connected to its lateral branch.

14. The combination with a steam boiler having an opening in its top, and a steam dome arranged above said opening, of a saddle piece fastened over said opening and forming the base to which the dome is secured, constructed with a water passage u opening downwardly into the boiler and laterally to the exterior of the saddle piece, with a feed pipe U connected to the exterior opening of said passage and a pipe U' within the boiler connected at its upper end to the downward branch of said passage and having its lower end immersed in the water in the boiler.

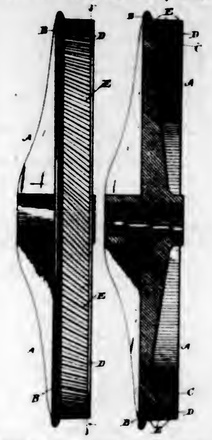
15. The combination with a boiler and its furnace constructed to impart more heat to one portion of the boiler shell than to another and thereby to create a downward current of water at the side receiving the least heat, of a feed pipe entering the boiler and terminating beneath the water level at the portion of the boiler in which said downward current exists, whereby it is adapted to discharge the feed water into the downward current.

16. A boiler-shell constructed with an opening at or near its bottom, a man-hole box constructed with front and rear openings coinciding with said opening and fastened to the boiler shell over said opening, a man hole cover fastened into the front opening in said box, and a blow-off pipe leading from the interior of the shell and passing out through said opening and through the side of said box.

489,496. CAR-WHEEL. WOLCOTT JOHN PARMELEE, Scranton, Pa.; Addella A. Parmelee administratrix of said Wolcott John Parmelee, deceased. Filed Apr. 14, 1892. Serial No. 429,137. (No model.)

Claim.—1. In the manufacture of car wheels, the method of forming the tread which consists in casting a circumferential series of cold hard metallic plates into the body of the wheel any desired distance so as to chill the wheel to a predetermined depth, and causing the remaining portion, that is not embedded in the wheel, to project beyond the same and form a corrugated surface, substantially as set forth.

2. A car wheel having a series of plates cast in the body thereof to form the tread of the wheel, substantially as set forth.



3. A car wheel having a circumferential series of parallel plates cast therein to form the tread, substantially as set forth.

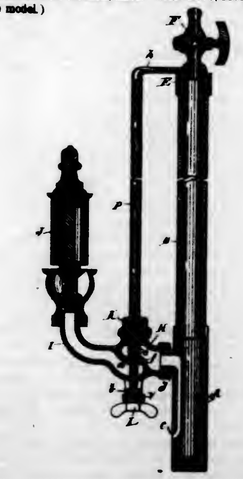
4. A car wheel having a series of parallel cold metallic plates cast into the body thereof and projecting beyond the same to form a tread, substantially as set forth.

5. A car wheel having a circumferential series of parallel diagonally arranged metallic plates cast therein to form the tread, substantially as set forth.

6. A car-wheel having a series of parallel diagonally arranged cold steel plates cast into the body thereof and having spaces between the same to form a notched or corrugated tread for the wheel, substantially as set forth.

7. A car wheel having a circumferential series of diagonally arranged and regularly spaced steel plates cast into the body thereof and projecting beyond the same in parallel planes with the portions of the cast metal therebetween, to form the tread of the wheel, substantially as set forth.

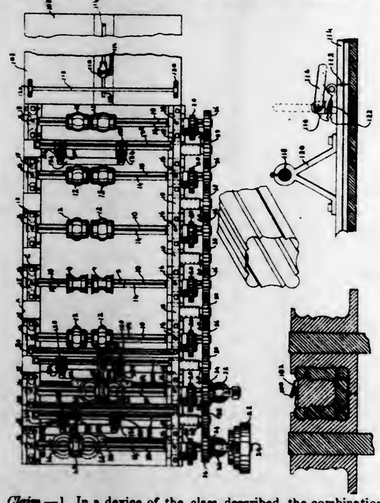
489,497. LOW-WATER ALARM. AUSTIN PHILLIPS and WILLIAM D. MCLAUGHLIN, Corunna, Mich. Filed Oct. 8, 1891. Serial No. 408,087. (No model.)



Claim.—1. In a low-water alarm, the combination of the expansible tube having a steam duct therein and provided with a threaded boss around the upper end of said duct, the valve-case screwed onto said boss, the valve and depending valve-stem, the whistle, the rod attached at its upper end to the expansible tube, its lower end having the integral right-angle portion that extends under the valve-case and engages the lower end of the valve-stem, and means on the valve-case for retaining said rod in engagement with said valve stem.

2. In a low water alarm, the combination of the expansible tube the whistle, the valve-case having a projecting pin, the valve and valve stem located in the case, the lower end of the stem depending through the wall of the case, the rod attached at its upper end to the expansible tube, its lower end being provided with a vertical slot that receives the pin on the valve case, and also having the right-angle portion extending under the valve case upon which the depending end of the valve stem bears.

489,498. SHEET-METAL-MOLDING MACHINE. CLARENCE D. PRUDEN, St. Paul, Minn., assignor of one-half to Philip A. Desiaurtiers, same place. Filed Jan. 5, 1892. Serial No. 417,078. (No model.)



Claim.—1. In a device of the class described, the combination with the series of horizontal shaping rolls, of horizontal guide rolls intermediate of said shaping rolls, vertically and laterally adjustable, and circumferentially grooved vertically arranged and adjustable guide rolls at the ends of said horizontal guide rolls, substantially as described.

2. In a device of the class described, having series of horizontal shaping rolls, of horizontal guide rolls intermediate of said shaping rolls, vertical adjustable bearing supports for said guide rolls and vertical circumferentially grooved guide rolls journaled in said supports at each end of said horizontal guide rolls, substantially as described.

3. The combination with the series of shaping rolls, of the roll conforming to the contour of the sheet, and the duplicate undercut rolls, the shafts of all said rolls standing in substantially the same vertical plane, substantially as described.

4. In a device of the class described, the combination with the series of shaping rolls, of a roll conforming to the shape of the sheet as formed by said shaping rolls, and the duplicate under-cut rolls arranged on vertical shafts in substantially the same vertical plane with the shaft of said other roll, substantially as described.

5. In a device of the class described, the combination with the series of shaping rolls, of a guide clamp for the free end of the metal sheet, substantially as described.

6. In a device of the class described, the combination with the series of shaping rolls, of a guide clamp for the free end of the metal sheet, and means for automatically releasing said clamp when the sheet shall have traveled a predetermined distance, substantially as described.

7. In a device of the class described, having a series of shaping rolls, the combination with the bed of the machine, of a rear extension thereof, a clamp sliding in a guide in said extension adapted to be secured to the free end of the metal sheet, and means for automatically disengaging said clamp from the sheet when it shall have been carried a predetermined distance, substantially as described.

8. The combination with the machine bed and its series of shaping rolls, of a rear end extension to said bed, a longitudinal guide thereon, a clamp slidable in said guide and adapted to engage the free end of a metal sheet and hold it from lateral displacement, and a cross bar above said extension for tripping the handle of said clamp to release the sheet when it shall have traveled a predetermined distance, substantially as described.

9. In a device of the class described, the combination with the machine bed, and the series of shaping rolls supported thereon, of an extension to said bed, a longitudinal guide in said extension, a clamp sliding in said guide adapted to engage the free end of the metal sheet and means for tripping said clamp when it shall have traveled a predetermined distance, substantially as described.

10. In a device of the class described, having a series of shaping rolls, means for giving an "undercut" form to the sheet as delivered from said shaping rolls, comprising in combination a roll conforming to the shape of said sheet, and the duplicate shaping rolls arranged on shafts at right angles with the shafts of said first roll and in substantially the same plane, and means for holding the sheet in bearing contact with said rolls, substantially as described.

11. In a device of the class described, the combination of the roll conforming to the shape of the molded sheet, the duplicate shaping rolls arranged on shafts at right angles to that of the other roll and in substantially the same plane, and a shaping point or guide supported in the space between the three rolls, in shape conforming to the adjacent surfaces of said rolls, substantially as described.

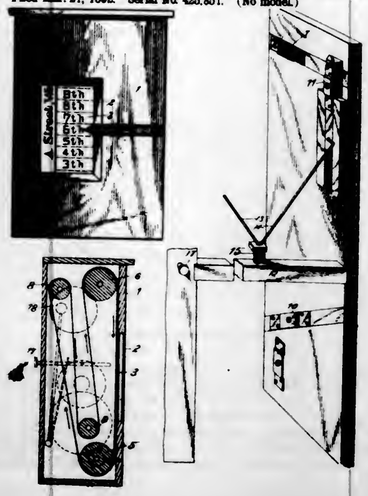
12. The combination with the shaping rolls, of the roll in shape conforming to that of the sheet as delivered from the shaping rolls, the duplicate undercut rolls with their axes in substantially the same vertical plane as that of the first roll, and means for securing the rolls upon their respective shafts in adjusted positions, substantially as described.

13. The combination with the shaping rolls, of the roll in shape conforming to that of the molded sheet delivered therefrom, the duplicate undercut rolls adjacent to said first roll and co-operating therewith, the axes of all said rolls being in substantially the same plane, and means for laterally adjusting the position of the shafts of said duplicate rolls, substantially as described.

14. In a device of the class described, the combination with the under cut or tube forming shaping rolls, of a shaping point arranged in the space between said rolls in cross section conforming to the contour of the adjacent roll surfaces, substantially as described.

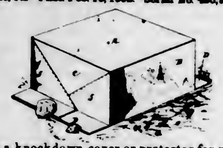
15. The combination with the tube forming rolls, of the shaping point arranged between the same, provided with exterior anti-friction rolls, one of said rolls being provided with a circumferential groove to receive the lock of the metal sheet, substantially as described.

489,499. STATION-INDICATOR. JAMES B. RAGAN, Sidney, Nebr. Filed Mar. 21, 1892. Serial No. 425,851. (No model.)



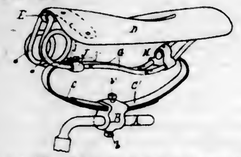
Claim.—The combination in an indicator of the class described, of an endless ribbon mounted upon rollers, said rollers being mounted in movable bearings consisting of dove-tailed tongues sliding in registering grooves, one of said bearings being movable vertically and a tension device consisting of spring arms bearing upon the vertically movable bearing whereby the ribbon is kept taut, substantially as described.

489,500. COVER OR PROTECTOR FOR PLANTS. SARAH MEICHART, Mainville, Pa. Filed Feb. 10, 1892. Serial No. 420,975. (No model.)



Claim.—In a knockdown cover or protector for plants, the combination of closed top, sides, and ends and open bottom, having bellows folds formed at the corners thereof and of angular contour, the inner portions of said corner folds and the ends of the protector being extended and longer than the sides of the same, and the said corner folds being bent inward to overlap each other and reinforce the ends, and the extended portions of said ends being unitedly bent over to provide tongues that extend at right angles from the opposite ends of the bottom portion, said parts being secured together and adapted to be made water-proof, the entire device being formed from a single uncut blank, substantially as described.

489,501. SADDLE FOR VELOCIPEDES. WILLARD G. RICH and JAMES H. SAGER, Rochester, N. Y. Filed Feb. 17, 1892. Serial No. 421,892. (No model.)



Claim.—1. A saddle of the class described comprising a saddle leather provided with a front hook and with a rear stretcher, having suitable sockets, a frame composed of wire bent in the middle and adapted thereat to engage with said hook, the two parts of said wire being parallel and having the coils *c c*, the parallel straight parts *c' c'* and the curved parts *c'' c''* and by means of sockets and set screws attached to the rear stretcher, whereby said wires may be rigidly fastened thereto.

2. In a saddle of the class described, a supporting frame composed of a rod bent in the middle the two parts being parallel and extending rearwardly the length of the saddle, a hook adapted to engage one end of said supporting frame at the bend thereof, a stretcher having sockets and set screws adapted to be fixed to the two rearwardly extending ends of said rod, a saddle leather fastened at one end to said hook and at the other end to said stretcher, one or more supporting springs, clamps adjustably fixed upon said rod and connected to said supporting springs and a clamp adapted to fasten said supporting springs to a bicycle, substantially as and for the purpose described.

3. In combination with a bicycle saddle, a saddle spring composed of elastic parts, each of which is adjustable as to its elasticity independently of the other or others, and means of stretching the saddle leather independently of said elastic parts, substantially as described.

4. In combination with a bicycle saddle, a saddle spring composed of two elastic parts, each of which is adjustable as to its elasticity independently of the other, and means of stretching the saddle leather independently of said elastic parts, substantially as described.

5. In combination with a bicycle saddle, a saddle spring composed of relatively movable leaves, each of which is adjustable as to its elasticity independently of the other or others, substantially as described.

6. In combination with a bicycle saddle, a saddle spring composed of two relatively movable flat springs, each of which is adjustable as to its elasticity independently of the other, substantially as described.

7. In combination with a bicycle saddle, a saddle spring composed of two relatively movable and overlapping flat springs, each of which is adjustable as to its elasticity independently of the other or others, substantially as described.

8. In combination with a bicycle saddle, a saddle spring composed of two relatively movable overlapping flat C shaped springs adjustable independently of each other whereby each of said flat springs is separately adjustable as to its elasticity, substantially as described.

9. A saddle spring composed of overlapping flat springs connected with a saddle under each end thereof and adjustable independently of each other in combination with a saddle having a supporting frame and clamps whereby said springs are attached to said supporting frame and to the bicycle, substantially as described.

10. A saddle spring composed of two overlapping flat springs connected with the saddle under each end thereof and adjustable independently of each other in combination with a saddle having a supporting frame and clamps whereby said springs are attached to said supporting frame and to the bicycle, substantially as described.

11. A saddle spring composed of two flat overlapping C-springs adjustable independently of each other in combination with a saddle having a relatively rigid supporting frame and clamps whereby said springs are attached to said supporting frame and to the saddle support of a bicycle.

12. In a saddle of the class described the combination of a relatively rigid supporting frame and springs attached thereto and adjustable with reference to each other and a clamp whereby the same may be attached to a bicycle.

13. In a saddle of the class described the combination of a relatively rigid supporting frame, springs attached thereto and adjustable with reference to each other, and means of attaching the same to the saddle support of a bicycle, whereby said springs are varied in elasticity, together with means of attaching the same to the saddle support of a bicycle.

14. In a saddle of the class described, the combination of a relatively rigid supporting frame, flat springs attached thereto substantially as described and overlapping and adjustable with reference to each other, whereby the said springs may be made stiffer or more yielding and a clamp for fastening the same to the saddle support of a bicycle.

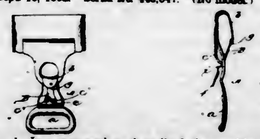
15. In a saddle of the class described, the combination of a relatively rigid supporting frame and flat springs attached thereto substantially as described and adjustable with reference to each other, the spring attached to the rear of the saddle frame lying upon and overlapping the other, whereby the said springs are relatively stiff for rearward pressure and yielding for forward pressure upon said saddle, together with a clamp for attaching the same to the saddle support of a bicycle.

16. In a saddle of the class described, the combination of a relatively rigid supporting frame, a pair of flat C-springs attached to said frame by adjustable clamps, the ends of said springs overlapping substantially as described, and a clamp for fastening the same to the saddle support of a bicycle.

17. A saddle of the class described, composed of a supporting frame, a saddle leather, clamps movable and adjustable on said frame, springs fastened to said clamps and fastened by a single clamp to the saddle support of a bicycle.

18. A saddle of the class described composed of a supporting frame, a saddle leather, clamps movable and independently adjustable on said frame, independent springs fastened to said clamps and movable therewith and fastened by a single clamp to the saddle support of a bicycle.

489,502. SNAP-HOOK. HUBERT P. RICHARDS, New Britain, Conn., assignor to the Traut & Hine Manufacturing Company, same place. Filed Sept. 16, 1892. Serial No. 446,047. (No model.)



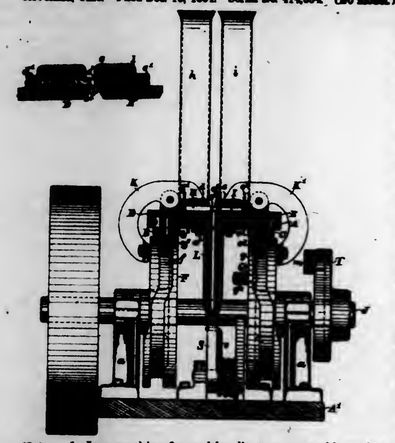
Claim.—1. In a snap such as described, the combination with the body struck up from sheet metal with the hook and loop at opposite ends the internal spring tongue and a central opening, of the locking tongue passing through the central opening co-operating with the spring tongue and with its forward end engaging the end of the hook and the rear end forming a finger piece, and the lug or projection extending into the central opening and pivotally uniting the tongue and body of the hook; substantially as described.

2. In a snap hook, such as described, the combination with the body provided with the hook, the spring tongue and the oppositely arranged short projection struck up from the body of the hook form-

ing the central opening, of the locking tongue passing through said central opening and provided with an aperture for the reception of the short projection; substantially as described.

3. In a snap hook, such as described, the combination with the body provided with the hook, the spring tongue having the inturned bifurcated end and the short projection struck up from the body of the hook forming the central opening, of the locking tongue passing through the central opening and provided with the aperture for receiving the short projection and co-operating with the bifurcated ends of the spring tongue, substantially as described.

489,508. MACHINE FOR MAKING LINOTYPES. CHARLES SEARS, Cleveland, Ohio. Filed Dec. 10, 1891. Serial No. 414,634. (No model.)



Claim.—1. In a machine for making linotypes, a mold, mechanism for automatically pushing a line slug into said mold, and mechanism for closing the face of said mold with a line matrix, combined with a melting pot, a pump, suitable connections between said pump and the mold, and mechanism operating the slug-feeding mechanism, the mold-closing mechanism, and the pump, substantially as and for the purpose specified.

2. In a machine for making linotypes, a mold having a plurality of small openings through one side thereof, mechanism for automatically pushing a line slug into said mold, and mechanism for closing the face of the mold with a line matrix, combined with a melting pot, a conduit through which molten metal may be forced from the melting pot to and through said small openings in the mold, a pump for forcing the molten metal through said conduit, and mechanism operating said slug-feeding mechanism, mold closing mechanism and pump, substantially as and for the purpose specified.

3. In a machine for making linotypes, a movable matrix carrier, a movable slug carrier, two receivers for holding the matrices and slug respectively, feeding mechanism whereby said matrices and slugs are fed one by one to their respective carriers, the knife-edged plates of the slug carrier, and the end plates a^6 a^6, combined with a melting pot, a conduit adapted to conduct melted metal from the melting pot to and to discharge it into the space between the matrix and slug, a pump, a driving shaft and suitable connections between the shaft and the movable parts herein named whereby the same are operated, substantially as and for the purpose specified.

4. In a machine for making linotypes, a movable mold adapted to contain a metal line slug less than type high, mechanism for automatically feeding said slugs one by one to said mold, and mechanism for moving said mold against a line matrix, combined with mechanism for injecting molten metal into said mold, mechanism for automatically ejecting from the mold the linotype thereby formed, and a driving shaft by which said movable parts are operated, substantially as and for the purpose specified.

5. In a machine for making linotypes, a transversely movable matrix holder, a transversely movable slug carrier having top and bottom knife-edged plates, of which the bottom plate is provided with a plurality of jet openings, said mechanism suitably connected with a driving shaft for moving said matrix holder and slug carrier, combined with knife-edged end plates, an automatic feeding device, a melting pot, a pump, a conduit through which the molten metal may be forced by the pump from the melting pot to and through said jet openings, and a driving shaft operating the movable parts, substantially as and for the purpose specified.

6. In a machine for making linotypes, a transversely movable matrix carrier, a transversely movable slug carrier, each of said carriers having a bottom plate, and a top clamping plate, bent levers pivoted to said bottom plate and engaging with said clamping plates, a driving shaft, cams secured thereto which engage with and operate said levers, intermediate connections between the said shaft and said two carriers whereby they are moved toward and from each other, means for inclosing the space between the slug and matrix when they are nearest, a melting pot, a pump, intermediate connections between said pump and shaft, and a conduit through which molten metal from said melting pot may be forced into the space between said matrix and slug, substantially as specified.

7. In a machine for making linotypes, a slug carrier consisting of a transversely movable bottom plate, a vertically movable clamping plate, and the knife-edged plate a^4 a^4, combined with the bent lever pivoted to said bottom plate and connected at one end to said clamping plate, a driving shaft and a cam engaging with the other end of said lever, substantially as and for the purpose specified.

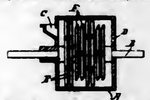
8. In a matrix making machine, a matrix carrier, a slug carrier, and mechanism for moving them toward and from each other, combined with two receivers adapted to contain prepared matrices and slugs respectively, and automatic mechanism adapted to push one matrix and one slug from these receivers to their carriers respectively, means for inclosing the space between said slug and matrix when they are nearest, and mechanism adapted to inject molten metal into said space, substantially as and for the purpose specified.

9. In a machine for making linotypes, in combination a slug carrier having a bottom plate D provided with a shoulder d', and a clamping plate d, combined with an obliquely-set spring-pressed roller mounted on and extending through said clamping plate, and mechanism for feeding slugs between said plates, substantially as set forth.

10. In a machine for making linotypes, the combination of a movable matrix carrier, a movable slug carrier, two pivoted arms, and suitable connections between said arms and carriers, with a driving shaft, two cams secured thereto, and connections between said cams and pivoted arms, substantially as and for the purpose specified.

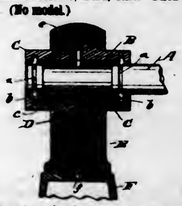
11. In a machine for making linotypes, the combination of a matrix carrier, a slug carrier and mechanism for actuating them with two receivers adapted to hold previously prepared matrices and slugs, a sliding pusher plate, a driving shaft, a bell crank lever operated by said shaft, and operating said pusher plate, substantially as and for the purpose specified.

489,504. MACHINE FOR CLEANING GRAIN. THOMAS A. SHIP, Dayton, assignor to Peter B. Holly and Christian A. Salsman, Hamilton, Ohio. Filed Nov. 30, 1891. Serial No. 413,471. (No model.)



Claim.—In a machine for cleaning grain &c., the combination, substantially as set forth, of a beater-case, a shaft journaled therein, and a group of spiders having radial and oblique arms, said group of spiders being arranged in dissimilarly set contiguous sub-groups of similarly set spiders.

489,505. JOURNAL-BEARING FOR DYNAMO-ELECTRIC MACHINES. WILLIAM L. SILVEY, Lima, Ohio. Filed May 13, 1889. Serial No. 310,578. (No model.)

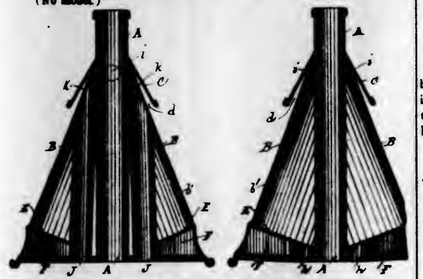


Claim.—1. In bearings for dynamo electric machines, the combination, with a pedestal block, of a standard thereon, a cap for the standard, a sleeve having a globular elevation pivotally placed between the standard and the cap, a soft metal lining for the standard supporting the sleeve, a soft metal lining in the sleeve supporting the shaft, there being circumferential oil grooves in each end of the sleeve, and an oil groove connecting the circumferential grooves together and to a central waste pipe, as set forth.

2. In a journal box for dynamo electric machines, the combination, with the shaft of a standard and cap having a recess in their interior, a split sleeve having a globular elevation around its center supported in a position in the recess in the standard and a cap by a soft metal lining, the sleeve having an interior soft metal lining, the shaft being supported and journaled therein as specified.

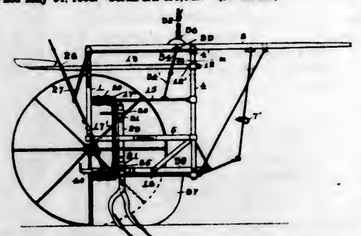
3. In bearings for dynamo electric machines, the combination, with the base and pedestals, of standards E and caps e supported thereby and having recesses, with a split sleeve contained therein, the space between the sleeve, the cap, and standard being filled with soft metal, and a soft metal lining in the sleeve for supporting a shaft, as specified.

489,506. CLOTHES-POUNDER. RUSSELL O. SOPER, Aurora, and WILLIAM M. BROWN, Dixon, Ill. Filed July 13, 1892. Serial No. 439,880. (No model.)



Claim.—The improved pounder described, having in combination with the tubular support A. and its gently tapering and chambered cone B, the smaller supplemental cone C. surmounting and overlapping cone B., and leaving a conical annular space between them, the tubes J. J. opening at their upper ends into the conical space between the cones, the cone B. also having openings i. into the same space, and the short tubes A. opening into cone B. all as set forth.

489,507. CULTIVATOR. GOTTLIEB L. SPRING, Pawnee City, Nebr. Filed May 21, 1892. Serial No. 433,845. (No model.)



Claim.—1. In a cultivator the shovel-supporting frame, in combination with the pivoted frame-supports consisting of the shaft 33, crank arms 34 fixed on said shaft and loosely connected link 34′ and devices for suitably turning said shaft; substantially as set forth.

2. In a cultivator the shovel-supporting frame provided with the upper and lower shovel-holding brackets in combination with shovels, said upper brackets being adjustable in a horizontal plane to vary the pitch of the shovel shank; substantially as set forth.

3. In a cultivator the shovel-supporting frame provided with shovel-holding brackets and with pulley brackets provided with pulleys, said frame support having a part passing between the pulleys whereby both the pulley and shovel-holding brackets can be moved laterally in one straight plane, and devices for moving the shovel-supporting frame about its pivots; substantially as set forth.

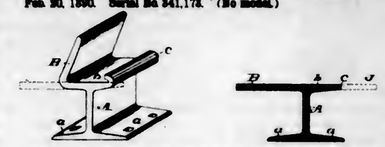
4. In a cultivator the combination of the bent axle, the frame bar 3 provided with pendants 4, adjustable bars rigidly connecting the axle and the outside posts, bars 2 loosely connecting said parts and shovel-holding devices supported by said frame bar 3; substantially as set forth.

5. In a cultivator the combination of the bent axle, the frame bar 3 provided with posts 4, the vertically adjustable bar 12, the seat-supporting arms, bar 14, and the devices for adjusting the arms vertically on the bar; substantially as set forth.

6. In a cultivator the combination of post 4 with brackets 39 with the detachable treadle lever having at its end a lateral arm or projection extending to one side thereof; substantially as set forth.

7. In a cultivator the combination of post 4 with brackets 39 and with the detachable treadle lever having at its end a lateral arm or projection extending to one side thereof, and a spring-held shield adapted to be supported on said lateral arm; substantially as set forth.

489,508. BRACE-CHAIR FOR GIRDER-RAILS. MAX M. SUPPES, Johnstown, Pa., assignor to the Johnson Company, same place. Filed Feb. 20, 1890. Serial No. 341,173. (No model.)



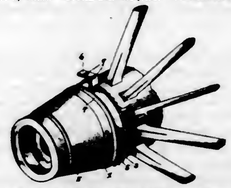
Claim.—A rail-chair constructed out of a girder shape of metal by bending one of its longitudinal side-flanges so as to form a retaining clip for the lower portion of the rail, and bending the other longitudinal side-flange so as to form an outside brace, said clip and brace being parallel to the web of the chair.

489,509. TIRE FOR CYCLE-WHEELS. FRANK SWENTLAND, Argos, N. Y. Filed Apr. 19, 1892. Serial No. 429,804. (No model.)



Claim.—The herein described cushion tire, the same consisting of the outer or external tube, and a series of inclosed smaller tubes, said external tube being provided upon its inner side with ribs taking between the inner tubes, said ribs being hollow, substantially as specified.

489,510. HITCHING DEVICE. JACOB R. TERRY, Hecla, Mont. Filed Sept. 9, 1892. Serial No. 445,455. (No model.)



Claim.—A hitching device comprising a cylindrical band adapted to be fixed to the hub of a wheel and provided at its inner and outer edges with parallel annular peripheral flanges forming at the exterior of the band a circumferential depression or trough, one of said flanges having a series of ratchet teeth, an adjustable band arranged on the exterior of the cylindrical band in the trough or depression between the flanges and provided with a pawl engaging said ratchet teeth, and an extension carried by the movable band and provided with rein receiving recesses, substantially as described.

489,511. AX-HANDLE SHIELD AND PROTECTOR. CHARLES S. TREPSHIRE, Dayton, Wash. Filed Dec. 16, 1891. Serial No. 415,264. (No model.)

Claim.—1. A shield or protector for ax helves constructed to embrace the helve in the rear of the ax on all sides, and provided with clamping means to clamp the said shield on the helve, and having an extension to enter the eye of the ax, substantially as and for the purpose described.

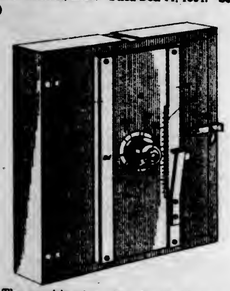
2. The combination with an ax and its helve, of a shield constructed to be fitted on the helve in the rear of the ax and embrace

the same on all sides, and having an extension at its lower side to enter the eye of the ax, and having the sides of the said shield gradually increasing in thickness from the top to the bottom portion, and a binding means to clamp the said shield on the said helve, substantially as described.



3. As an improved article of manufacture, a helve shield or protector constructed to embrace the helve on all sides and gradually increasing in thickness from the top to the bottom edge, and having an extension projected from the said lower edge to enter the eye of the tool, and a clamping mechanism to clamp the shield on the helve, substantially as and for the purpose described.

489,512. PLATE-HOLDER ATTACHMENT FOR CAMERAS. BYRON L. TURNER, Pittsford, Mich. Filed Dec. 11, 1891. Serial No. 414,717. (No model.)



Claim.—1. The combination of a plate-holder adapted to be attached to the back of a camera and provided on its back wall with ways and having an elongated opening between the ways, a slide mounted in the ways and arranged on the outside of the plate-holder, a plate-support arranged within the plate-holder on the inner side of the rear wall and a stem secured to the plate-support and passed through the opening and journaled in the slide whereby the plate-support is adapted to be rotated and to slide vertically, substantially as described.

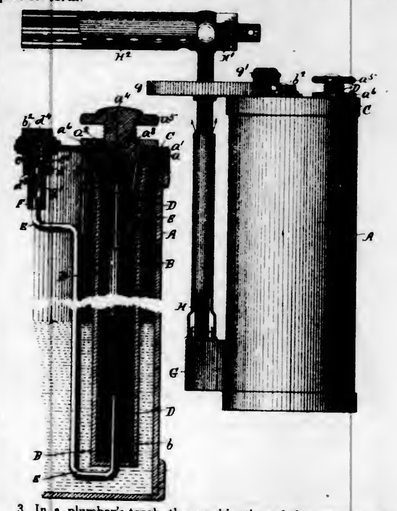
2. The combination of a plate-holder provided on the outer face of its back wall with vertical ways and having an elongated opening arranged between the ways, a slide mounted in the ways, a plate-support connected with the slide and located within the plate-holder on the inner face of the back wall, a notched bar mounted on the slide, and a spring catch secured to the plate-holder and arranged to engage said bar whereby the slide is secured in its adjustment, substantially as described.

3. The combination of a plate-holder, provided with a slide having a stationary circular series of openings, a plate-support, a stem journaled in the slide and having its inner end secured to the support, and a revoluble knob arranged on the outer end of the stem and provided with a spring actuated pin arranged to engage said openings, and rotate with the knob substantially as described.

489,518. PLUMBER'S TORCH. JOHN C. WALSH, Chicago, Ill., assignor to the Gasoline Torch Manufacturing Company, same place. Filed May 9, 1891. Renewed Oct. 28, 1892. Serial No. 450,292. (No model.)

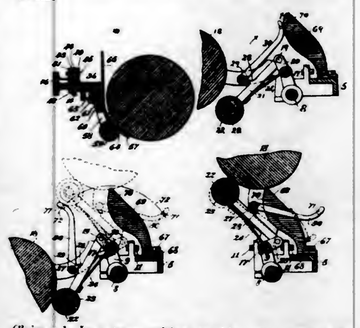
Claim.—1. In a plumber's torch, the combination with a reservoir or tank, of a pump-barrel, extending down on the inside of said reservoir and of a gradually increasing diameter near the upper end, the tubular plunger, open at the lower end and closed at the upper, and an air-pipe, having one part extending up into and opening inside of said plunger and the other part communicating with the air-space of the reservoir, whereby a body of air may be compressed therein on top of the liquid contents, substantially as and for the purpose set forth.

2. In a plumber's torch, the combination with a reservoir or tank, of the pump-barrel, rigidly secured in the head end and extending down inside thereof, the flanged reducing-bushing, screwed into the inside upper end of said barrel, the tubular plunger, having a closed, threaded head-end which is adapted to screw into said bushing, and the air-conducting pipe opening up inside of said plunger, whereby the open end of said air-pipe is closed when the plunger is screwed into its stationary position, substantially as and for the purpose set forth.



3. In a plumber's torch, the combination of the reservoir, the pump-barrel, the tubular plunger, having a closed upper end, and the air-pipe, opening up inside of said plunger, whereby air may be forced through said pipe and the same then tightly closed by screwing down the plunger in the head end of the reservoir, substantially as described.

489,514. TYPE-WRITING MACHINE. GEORGE B WEBB, New York, N. Y., assignor, by mesne assignments, to the Wyckoff, Seamans & Benedict, of New York. Filed Apr. 6, 1892. Serial No. 428,034. (No model.)



Claim.—1. In a type writing machine, the combination of a platen, a series of independently rotatable feeding rollers on a common shaft or axis, and a pair of depending arms supporting said shaft or axis at their lower ends and pivoted or hinged at their upper ends to the platen-carrier.

2. In a type writing machine, the combination of a platen, a pair of spring-pressed pivoted or hinged depending arms, a pressure-roller supported by said arms, and a transverse rock-shaft provided with devices which act on said arms when the shaft is turned and vibrate them and move the pressure-roller away from the platen or the paper thereon.

3. In a type writing machine, the combination of a platen, a pair of depending pivoted arms, carrying at their lower ends a feed or pressure-roller, a rock-shaft provided with projections adapted to engage both said arms, and a key or finger-piece for turning said rock shaft.

4. In a type writing machine, the combination of a platen, a pair of depending pivoted arms carrying a feed or pressure roller made up of independently rotatable sections having a common shaft or axis, and an independently-mounted fixed deflector provided with slots or openings opposite said roller sections.

5. In a type writing machine, the combination of a platen, a pair of depending pivoted arms carrying at their lower ends a pressure or feed-roller composed of independently rotatable sections, mounted on a common shaft or axis, an independent rock-shaft provided with means for vibrating said arms and moving the roller sections away from the platen, and an independent deflector mounted upon said rock-shaft and provided with slots or openings opposite said roller sections.

6. In a type writing machine, the combination of a platen, a feed-roller, means for locking said feed-roller out of contact with said platen, and means for automatically unlocking said feed-roller.

7. In a type writing machine, the combination of a platen, a feed-roller, locking devices for holding the same out of contact with the said platen, and means for unlocking said devices during the turning up of the platen to an abnormal or non-working position.

8. In a type writing machine, the combination of a platen, a feed-roller, locking devices for holding the same out of contact with said platen, and means for unlocking said devices during the turning down movement of said platen to its normal or working position.

9. In a type writing machine, the combination of a swinging platen-carrier, a platen, a feed-roller, locking devices for holding the same out of contact with the platen, means for unlocking said devices during the turning up movement of the platen, and means for also unlocking said devices during the turning down movement of said platen.

10. In a type writing machine, the combination of a swinging platen-carrier, a platen, a feed-roller, pivoted arms or supports for said roller, a transverse rock-shaft provided with devices to engage with and lock said arms or supports, a key or lever for turning said lock-shaft, a pin or projection on said key or lever, and a relatively-fixed cam surface to co-operate with said pin or projection to effect the unlocking of the parts upon a swinging movement of the platen-carrier.

11. In a type writing machine, the combination of a swinging platen-carrier, a pair of depending spring-pressed arms, a feed-roller supported by said arms, a transverse rock-shaft provided with projections to engage with and lock said arms, a key or finger-piece for turning said rock-shaft and provided with a pin or projection, a carriage and a plate or standard provided with two cam edges or surfaces.

12. In a type writing machine, the combination of a platen-carrier, a platen, a detachable bracket or clamp, adjustable longitudinally of the platen-carrier, and a small roller mounted in a frame or support which is hinged to said bracket or clamp.

13. In a type writing machine, the combination of a platen-carrier, a platen, a bracket or clamp, and a roller mounted in a spring-pressed frame or support hinged to and depending from said bracket or clamp and adapted to be set in either of two positions, so that the roller may run in contact with the platen or the substance thereon to be written, or may be kept out of contact therewith, as desired.

14. In a type writing machine the combination of a platen-carrier, a platen, a detachable and adjustable bracket or clamp provided with a paper-guide, and a small pressure-roller; the pressure-roller being mounted in a spring-pressed hinged frame, and the paper-guide being independently attached and formed with a slot opposite said roller.

15. In a type writing machine, the combination of a platen-carrier, a platen, a bracket or clamp adjustable lengthwise of the front bar of the platen-carrier, a spring-pressed pin or plunger in said bracket or clamp, and a small pressure roller mounted in a frame or support pivoted to said bracket or clamp and formed with two faces, so that the spring-pressed pin or plunger may act either to hold the pressure roller against the platen or the paper thereon or away therefrom as may be desired.

16. In a type writing machine, the combination of a platen-carrier, a platen, and a guide for the central portion of the sheet to be written upon, consisting of a bracket or clamp, a spring-pressed fork pivoted thereto and provided with a small pressure-roller and with a short curved, slotted plate attached to the said pivoted fork, the construction being such that the roller and the lower end of the plate may be moved away from the platen when inserting a sheet and without lifting the platen-carrier.

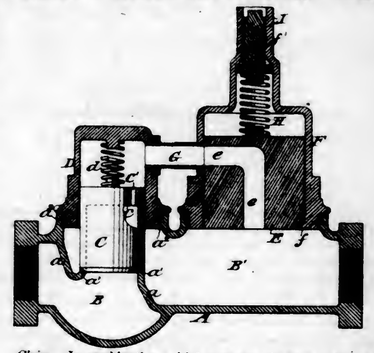
17. In a type writing machine, the combination of a platen-carrier, a platen, a clamp or bracket, a fork or support pivoted thereto and carrying a small pressure roller, and a slotted paper-guide attached to said fork or support and extended to provide a finger-piece.

18. The combination with a clamp or bracket, consisting essentially of the members 37, 38 and 41, and the clamping screw 46, of a fork or support pivoted to said clamp or bracket and provided with a pressure-roller.

19. The combination with the clamp or bracket, consisting of the members 37, 38 and 41, the shoulders 39 and 42, the guide pin 45, and the clamping screw 46, of a fork or support pivoted to said clamp or bracket and provided with a pressure-roller.

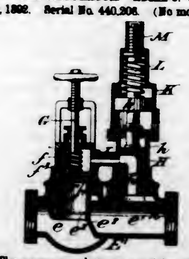
20. In a type writing machine, the combination of a platen-carrier, a platen, a pair of spring-pressed arms pivoted to the platen-carrier, a pressure-roller mounted at the ends of said arms, and a rock-shaft arranged between said arms and the platen and adapted when turned in one direction to move said arms and the pressure-roller away from said platen.

489,515. REDUCING-PRESSURE VALVE. EDGAR J. WOOD, Brooklyn, N. Y. Filed June 14, 1892. Serial No. 436,654. (No model.)



Claim.—In combination, a high pressure chamber, a low pressure chamber, a main valve under the control of the fluid in the high pressure chamber to open communication for the passage of the fluid, a piston valve independent of the aforesaid main valve and permanently exposed directly to the pressure of the fluid in the low pressure chamber, pressure regulating means in connection with the piston valve for determining the pressure under which it shall operate, a chamber at the back of said main valve in permanent communication with the high pressure chamber and a passage way from the said chamber at the back of the main valve through the wall of the piston valve casing and through the piston valve itself to the low pressure chamber, substantially as set forth.

489,516. PUMP-REGULATOR. EDGAR J. WOOD, Brooklyn, N. Y. Filed July 16, 1892. Serial No. 440,208. (No model.)

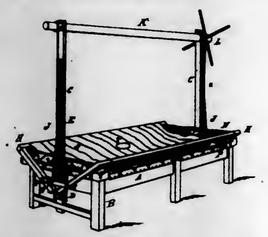


Claim.—1. The pump regulator comprising three valves, one under the control of the high pressure motive fluid to operate it, a second under the control of the low pressure motive fluid to operate it and a third under the control of the pressure at the outletting side of the pump to operate it, the second and third named valves being connected to operate as one and located in chambers independent of each other, and a conduit leading from the outer side of the first named valve into communication with the low pressure motive fluid said conduit being under control of both the second and third named valves to close and open it, substantially as set forth.

2. The reducing pressure valve comprising a barrel or coupling section separated into high pressure and low pressure chambers, a valve for controlling the passage of fluid from one chamber to the other, a closed casing for said valve, the interior of said casing being

in communication with the high pressure chamber through an opening in the valve and a piston valve in communication with the low pressure chamber and provided with a port through it in communication with the interior of the casing of the first named valve, in combination with a piston within an inclosed casing and connected to move with said piston valve, and means for connecting the casing containing said piston with the delivery side of a pump and for connecting the barrel or coupling section with a pipe for the transmission of a motive fluid, substantially as set forth.

489,517. HYDROSTATIC BED. JOSEPH T. WOODS, Toledo, Ohio. Filed Mar. 26, 1892. Serial No. 426,733. (No model.)



Claim.—1. In a hydrostatic bed, the combination with the liquid holder, a flexible base sheet over the same, and means for tightening said sheet at any desired transverse point; of the vertically adjustable bed having a flexible bottom sheet, and means for tightening said bottom sheet independently of and raising it from the base sheet, as and for the purpose set forth.

2. A vertical run-way, a slide moving therein, two crossbars secured to the slide, and a cross tie connecting the centers of the upper edges of said bars, combined with frames pivoted between the bars and having notches at their inner ends, a connection substantially as described between their outer ends, and means for raising the notched inner ends against said cross tie, all as and for the purpose set forth.

3. In combination with a liquid holder and a flexible base sheet N, of a bed S adapted to be horisontally tightened and slackened by means of frames H, pivoted cross bars F, connecting the frames, vertical guides for said cross bars, cords J, and windlass K, substantially as shown.

4. The combination with a bed support, a base sheet thereon, posts rising from the support, runways on said posts, slides moving in said ways, frames pivotally connected to the slides, and a bed carried by the frames, of a windlass journaled in said posts, and ropes leading thence down to the slides, as and for the purpose set forth.

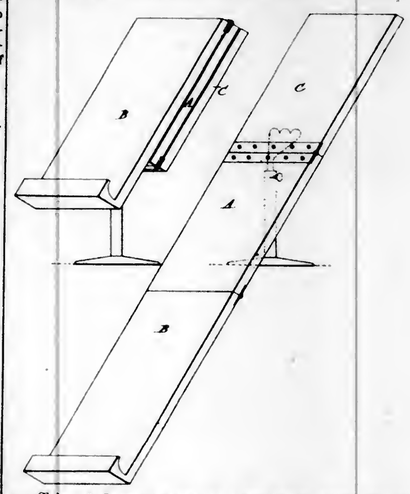
5. A vertical run-way, a slide moving therein, two cross bars secured to the slide, and a cross tie connecting the centers of the upper edges of said bars, combined with frames pivoted near their inner ends between the ends of the bars, a connection substantially as described between their outer ends and means for raising said inner ends against said cross tie, all as and for the purpose set forth.

6. A hydrostatic bed consisting of a liquid holder and a thin flexible base sheet superimposed thereon, and means for tightening said sheet in the direction of its substantially horizontal plane and at any point desired, in combination with a bed mounted on vertical guides carried by the holder and having a single flexible bottom sheet, and means for elevating and lowering the same in said guides and for slackening it automatically when it is lowered, substantially as shown.

7. A hydrostatic bed consisting of a liquid holder and a flexible base sheet superimposed thereon, and lacings for tightening said base sheet at any desired point in the direction of its substantially horizontal plane; in combination with a bed arranged in a pivoted frame and having a flexible bottom sheet, ways supported by the holder, guides moving in said ways and carrying the frame, and means for elevating and lowering the guides so as to tighten the bottom sheet when the frame is raised and automatically loosen it when it is lowered, substantially as shown.

8. A vertical runway, a slide moving therein, two cross bars secured to the slide, and a cross tie connecting the centers of the upper edges of said bars; combined with frames pivoted near their inner ends between the outer ends of the bars, a connection substantially as described between their outer ends, a windlass and branched cords leading from said windlass passing between said bars and astride said tie, and connected to said inner ends for raising them against the tie, all as and for the purpose set forth.

489,518. EXTENSION COPY-HOLDER AND REST. JOSEPH H. ARMBRUSTER, St. Louis, Mo. Filed Dec. 12, 1890. Serial No. 374,521. (No model.)

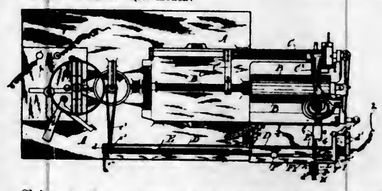


Claim.—1. In combination with a copy holder, folding and unfolding arms, leaves or extensions, which may be folded together as one piece to form a copy holder, and unfolded to three connected sections to form a rest, for the use and purposes set forth, substantially as shown and described.

2. In combination with a copy holder, a folding support or rest for the hand and book, for the use and purposes set forth substantially as shown and described.

3. In a copy holder, the means of lengthening the same by unfolding the parts so as to form a rest for the hand while taking dictation, and a means of shortening the same by folding the parts together, substantially as shown and described.

489,519. AUTOMATIC FEED AND RETURN MECHANISM FOR PHONOGRAPHS. MARCUS O. ANTHONY, Cincinnati, Ohio, assignor of three-fifths to James L. Andem, same place. Filed Nov. 20, 1890. Serial No. 372,019. (No model.)



Claim.—1. The combination, with a phonograph having a sliding and rocking carriage with an arm carrying a reproducer and an arm adapted to be engaged with the lead screw when the carriage is depressed, and disconnected from it when the carriage is elevated, of a standard or frame, a carriage retracting screw mounted in said standard, a vibrating frame also mounted in said standard, an arm secured to and extending from the reproducer carriage or receptacle frame over said vibrating frame to be actuated by the vibrating frame, a jay secured to said arm to engage the retracting screw when the arm is elevated, and to be released from it by the depression of the arm, stops secured upon said vibrating frame in the path of the extended arm by which the vibrating frame is moved longitudinally, a support to hold the vibrating frame in its elevated position, a cam actuated by the retracting screw to elevate the vibrating frame upon said support, electrical contacts upon the vibrating frame and the standard, a pivoted lever adapted to receive a coin, and be actuated by said coin to close the circuit and set the phonograph in motion, and the electric wire, one connected to the standard and the other to the vibrating frame and passing thence to the motor whereby the

motor is set in motion to retract the carriage, the carriage depressed and carried forward by the lead screw, elevated, the circuit broken, the machine stopped, and again brought in position to be set in motion by an inserted coin, substantially as shown and described.

2. In a phonograph attachment the combination of the standard, the retracting screw and vibrating frame mounted thereon, the arm G, resting upon the vibrating frame and secured to the rocking frame of the phonograph, supports for the vibrating frame in its upper and lower position, means such as shown to elevate the vibrating frame upon its upper support and to throw it therefrom, an open circuit through said support and standard to the phonograph motor when the vibrating frame is elevated, a coin actuated lever to close the circuit and set the machine in motion and return it to its normal position when the coin is discharged substantially as shown and described.

3. In an automatic coin actuated attachment for phonographs the combination substantially as hereinbefore set forth of the frame or standard D, d, d', d^3, d^3, d^4, the retracting screw E, and vibrating sliding frame F, mounted in said standard, the extension arm G, resting upon said frame, the stops in F', in said frame in the path of said arm, the coupling jay J, secured to said arm the downwardly extending leg f^5, the contact spring L, carried by said leg, the electric wire 1 connecting said spring and the motor battery, the pivoted lever M, for closing the circuit through said spring, the electric wire 2, connecting the battery and standard D, the spring contact O, connected to the standard and means such as shown for elevating and depressing the frame F, coupling and uncoupling the lead screw, and retracting screw, automatically by the introduction of a coin.

4. The combination of the standard D, and its connections the electric wire 2, connected to said standard, the vibrating and sliding frame F, carrying the insulated contact spring L, the wire 1, connected to said spring, and the coin actuated lever M, for closing the circuit through the frame and setting the machine in motion, substantially as shown and described.

5. The combination in a phonograph attachment of the vibrating frame for connecting and disconnecting the reproducer from the phonogram, of the lead screw for carrying the frame and reproducer over the phonogram, the retracting screw, arm G, and jay, J, for returning the frame and reproducer when disconnected from the phonogram and lead screw the cam I, and disk e^4, actuated by the retracting screw to disconnect the frame from the phonogram and lead screw and couple it to the retracting screw, the supports for the said frame in its upper and lower positions, the electric contact pieces L, O, and coin actuated contact lever M, for closing the circuit and setting the machine in motion.

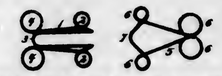
6. In a phonograph of the character described the combination of the vibrating frame and retracting screw located in front thereof, the arm G, secured to the spectacle frame of the phonograph and extending over the vibrating frame, the coupling jay secured to said arm and having its hooked end extending under the retracting screw to engage said screw when the vibrating frame is elevated and be disengaged from it when the frame is depressed, the stops F', F', to be engaged by the arm G, and move the frame in either direction the contact spring L, connected to the frame the lever M, having the weight or bar m, to hold it normally out of contact with said spring, and slotted arm m', to deliver an inserted coin in the slot in the arm, the contact spring O, connected to the frame D, of the attachment under the spring L, and the electric wires connecting the vibrating frame and frame D, and the phonograph motor whereby the machine is automatically set in motion by the insertion of a coin and automatically stopped and reset for the reception of another coin after the piece on the phonogram has been reproduced substantially as hereinbefore set forth.

7. In an automatic coin actuated attachment for phonographs the means hereinbefore described for making and breaking the electric circuit, which consists of the vibrating frame F, carrying the terminal L, the standard D, carrying the terminal O, the lever, M, m, m', for closing the circuit through the attachment when the frame is in its elevated position, the chute for delivering the coin on said lever, the said terminals L, and O, arranged one above the other and adapted to be brought in contact by the depression of the frame, combined and arranged substantially as shown and described.

8. The combination in a phonograph attachment of the standard, lead screw, and vibrating frame mounted therein, the spectacle frame, the extension arm G, secured thereon and extending over the vibrating frame; jay J, pivoted upon said arm G, and adapted to be held rigid for the connection with the screw E, or to be swung around on its pivot to escape said screw and permit the spectacle frame and arm G, to be thrown up substantially as shown and described.

9. The combination substantially as hereinbefore set forth of the standard having uprights d', d^3, and pins d^3, projecting from said standards, the vibrating frame F, swung upon said pins, the weighted lever, f', f^3, pivoted on standard d^3, having its unweighted end bearing against the under side of the frame F, to counterpoise it substantially as shown and described.

489,520. HOOK AND EYE. ESEKIAH B. BATES and MARY H. COLLIER, Grand Rapids, Mich. Filed Apr. 18, 1892. Serial No. 429,507. (No model.)



Claim.—The hereindescribed hook and eye, consisting of an integral piece of wire bent to form a hook having loops at the base of the hook and beneath the point thereof, whereby a double fastening is supplied, in combination with an eye consisting of a triangular piece of wire having loops formed in its corners, one side of the eye being arc-shaped and adapted to be engaged by said hook, substantially as described.

489,521. STOVEPIPE-JOINT. LEWIS S. BOSBAKER, Decatur, Ill. Filed May 11, 1892. Serial No. 433,677. (No model.)

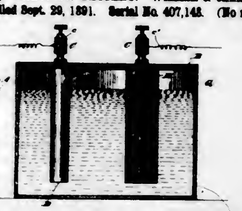


Claim.—1. The combination of the section A, provided with the oppositely turned folds a and c, the notch or recess b and the tang d, substantially as and for the purpose set forth.

2. The combination of the section A, provided with the oppositely turned folds a and c, the tongues e, formed from the fold a, the recess b, located above the fold a, the tang d and a beveled or inclined portion formed upon one side of the recess b, substantially as and for the purpose set forth.

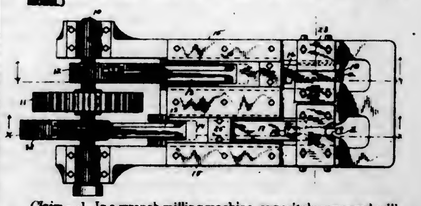
3. The combination of the section A, provided with the oppositely turned folds a and c, the tongues e, and the recess b, and the tang d, substantially as and for the purpose set forth.

489,522. GALVANIC BATTERY. WILLIAM C. CAHALL, Philadelphia, Pa. Filed Sept. 29, 1891. Serial No. 407,148. (No model.)



Claim.—As a negative element in galvanic batteries, the plate composed of the oxide of antimony intimately combined with carbon, substantially as set forth.

489,523. WRENCH-MILLING MACHINE. VARNUM F. CARPENTER, Cleveland, Ohio. Filed Apr. 4, 1892. Serial No. 427,668. (No model.)



Claim.—1. In a wrench milling machine, oppositely arranged milling blocks or cutters arranged to mill the body of the wrench beneath the head, and the under side of the head, in combination with means to press the head down on the said under side cutters, and a suitable plunger to carry the wrench forward, substantially as described.

2. In a wrench milling machine, milling cutters for the under side of the head, in combination with rigidly affixed milling cutters for the top or opposite side of the head, and a plunger, substantially as described.

3. In a wrench milling machine, a set of cutters to mill the body of the machine below the head, in combination with a cutter for the

top or outer portion of the head, and a plunger, substantially as described.

4. In a wrench milling machine, the combination of the cutter, 19, having milling surfaces at right angles to each other to mill the under side of the head of the wrench and the body thereof respectively, in combination with a detachable top milling plate, and a plunger arranged to pass beneath said top plate, substantially as described.

5. The sliding head having a recess in one end, the plunger having lateral flanges at the top, and wedges for securing the plunger in said head, substantially as described.

489,524. CAR-HEATING APPARATUS. GEORGE COLLINS, Detroit, Mich., assignor of one-half to Roscoe B. Wheeler, same place. Filed Apr. 11, 1889. Serial No. 306,810. (No model.)



Claim.—1. In a hot-water circulating and heating system, the combination of the closed steam heated cylinder having an outside water circulating agent leading from it, and returning thereto, a chamber at each end and a steam inlet and a condensation outlet, of the multiple of coiled pipes located in said cylinder, said coiled pipes having communication with the water circulating agent outside of said cylinder, substantially as set forth.

2. In a hot-water circulating and heating system, the combination of the closed steam-heating cylinder having outside water circulating pipes communicating therewith, a steam inlet pipe and a condensation discharge pipe, the chambers, the perforated diaphragms located in said cylinder, and a multiple of coiled pipes located in said cylinder which pipes pass through the perforated diaphragms communicating with the water circulating pipes, as and for the purposes set forth.

3. In a hot-water circulating and heating system, the combination of the closed cylinder having an outside water circulating agent leading from it, and returning thereto, and a steam inlet and a condensation outlet, of a multiple of water circulating pipes located in said cylinder, and a chamber located between the ends of the multiple of pipes, and the water circulating agent outside of said cylinder, substantially as set forth.

4. In a hot-water circulating system, the combination of the closed cylinder having a steam inlet and a condensation outlet, the water circulating agent outside of said cylinder leading from it and returning thereto, the multiple of coiled pipes located in said cylinder, the aggregating circulating capacity of said pipes being not less than that of the circulating agent outside of the cylinder, and the perforated diaphragms, and chambers, located between the ends of the multiple of pipes, and the ends of the outside circulating agent, substantially as specified.

5. In a hot-water circulating system, the combination of the steam heated cylinder, having a steam inlet and a condensation outlet, of a water circulating agent outside of the cylinder leading from it and returning thereto, a multiple of pipes located in said cylinder, the aggregate circulating capacity of which is greater than that of the water circulating agent outside of the cylinder, the chamber located between the ends of the multiple of pipes, and the water circulating agent outside of the cylinder, substantially as set forth.

6. The combination of the closed steam heated cylinder, having a steam inlet and a condensation outlet, the water circulating agent outside of said cylinder leading from it and returning thereto, the multiple of coiled pipes located in the cylinder, the aggregate circulating capacity of said multiple of pipes being greater than that of the outside circulating agent, the perforated diaphragms, the tubes located between said diaphragms and the ends of the outside water circulating agent, substantially as and for the purposes specified.

489,525. CAPO TASTO. HENRY DAHLMAN, Cambridge, Minn. Filed May 19, 1892. Serial No. 433,619. (No model.)

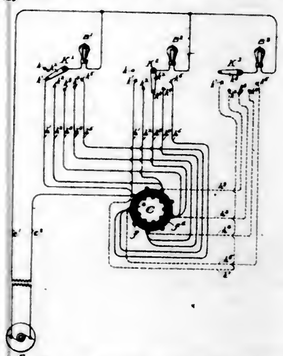
Claim.—1. A capo tasto comprising a cushioned plate adapted to extend across the strings on the neck of the instrument and formed with a spring-end curved upward over the top of the plate, a thumb-lever pivoted to said spring-end, and a yoke having a cushioned lower end adapted to engage the under side of the instrument neck and pivoted at its upper end to the thumb-lever; substantially as set forth.

2. A capō tasto comprising the cushioned plate formed with the spring-end curved and extending over its top to a point above its center, the thumb-lever pivoted to the end of said spring-arm, and the yoke having the cushioned lower end and pivoted at its upper end to said thumb-lever; substantially as set forth.



3. A capo tasto comprising the cushioned plate formed with the downwardly-curved free end and with the spring-arm extending upward over the top of the plate, the thumb-lever pivoted to the end of said spring-arm, and the yoke having the cushioned lower end adapted to engage the under side of the instrument neck and pivoted at its upper end to the thumb-lever; substantially as set forth.

489,526. ELECTRIC-LIGHTING SYSTEM. HARRY M. DOUBLEDAY, Pittsburg, Pa. Filed Apr. 21, 1892. Serial No. 430,086. (No model.)



Claim.—1. The combination with an electric lamp chandelier or fixture, of a reactive coil carried thereby and two or more incandescent electric lamps, multiple-point switch devices for the respective lamps, and circuit connections from the respective contact-points of the switches with different points in the length of the reactive coil.

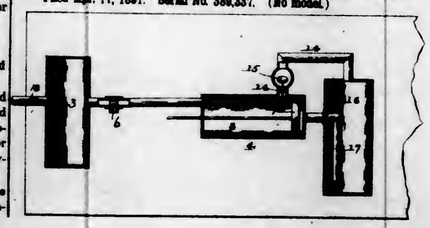
2. The combination of two or more incandescent electric lamps, an adjustable reactive coil, conductors leading therefrom to the respective lamps and an adjusting switch device interposed in each of said conductors between the respective lamps and the reactive device.

3. The combination of a reactive coil, multiple conductors led from various points in the length thereof, incandescent electric lamps and independent switches for connecting each of such lamps with the various conductors.

4. The combination of an electric light chandelier, two or more electric lamps carried thereby, a reactive coil located in the base thereof, and an adjustable switch for each such lamp located in the arms of the chandelier and having contact points connected with the reactive coil.

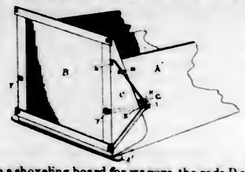
5. The combination with a source of alternating currents, of a reactive coil, two or more incandescent electric lamps or other translating devices and an adjustable switch for each lamp for connecting the same in circuit through more or less of the reactive coil.

489,527. AIR-BRAKE FOR RAILWAY-CARS. DENNIS DUNN, Mahanoy City, Pa., assignor of one-half to Thomas Gorman, same place. Filed Apr. 17, 1891. Serial No. 389,337. (No model.)



Claim.—In an air brake the combination with the air tank and a pipe provided with a three way cock, the brake cylinder connected with said pipe and having piston and piston rod connected with the brake beam, the liquid receptacle, the air pipe provided with a check valve connected with the liquid receptacle at the upper part thereof and with the brake cylinder intermediate its ends and the liquid pipe located in the lower part of the liquid receptacle and connected and communicating with the brake-cylinder, substantially as described.

489,528. SHOVELING-BOARD FOR WAGONS. JOHN E. GARRIDS, Peoria, Ill. Filed May 31, 1892. Serial No. 434,980. (No model.)



Claim.—In a shoveling board for wagons, the rods D and E bolted to the outer and inner sides of the board respectively at an angle with each other, the outer ends meeting and pivotally supporting a hooked rod L, for engagement with a hanger G provided with the L shaped lugs H and I to form the curved slot J for the purposes herein set forth and described.

489,529. EXTENSION-TABLE. JAMES A. GLANTON, Columbus, Ind. Filed Aug. 12, 1892. Serial No. 442,961. (No model.)



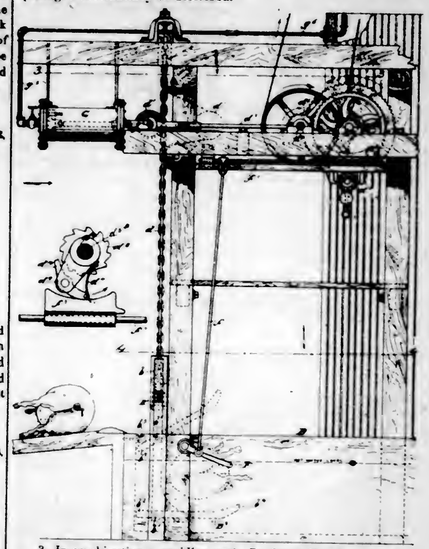
Claim.—1. In an extension-table, the combination with the fixed-frame and a pair of sliding frames arranged to be projected in opposite directions from opposite ends of said frame and adapted to support the top-boards, of a pair of sprocket-wheels mounted on the fixed frame, a chain-belt mounted on said sprocket-wheels, and having its opposite sides secured, respectively, to said sliding frames, and a driving shaft connected with one of said sprocket-wheels, all arranged to co-operate substantially as and for the purpose set forth.

2. In an extension-table having a driving-shaft whereby the table is extended, the combination with said driving-shaft, provided with pin 5 of the above-described crank consisting of the cylindrical sleeve mounted upon the shaft so as to turn therewith and slide longitudinally thereon, and provided with slot 4 extension 3, and lugs 6, and the lever 7, provided with handle 8, and oppositely arranged arm 9, and pivoted to said lugs, all arranged to co-operate in the manner and for the purpose set forth.

489,530. THROW-OUT. JAMES F. GUTHRIE, Jr., Somerville, Mass., assignor of one-half to Charles A. Cushman, same place. Filed Mar. 28, 1892. Serial No. 426,657. (No model.)

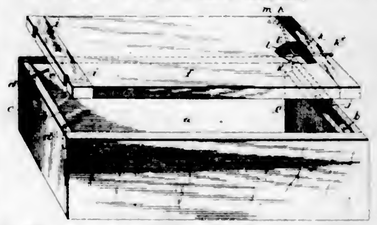
Claim.—1. In combination a lifter; a flexible support a reciprocating take up for the support; a carrier for the take up; and means for gradually arresting the back stroke of the take up carrier substantially as described.

2. In combination a lifter, a flexible support for the lifter; a reciprocating take-up for the support; a cylinder; a piston; connections between the piston and take-up; inlet and outlet openings in the cylinder, and a whistle or other alarm device connected with the outlet openings; substantially as described.



3. In combination a scalding tank, B; frame B' mounted to reciprocate thereon, lifter B^3, and mechanism substantially such as described for reciprocating frame B' and for tilting lifter B^3, all combined and operating substantially as described.

489,531. BOX-LID FASTENER. NELSON T. HARD, Kincaid, Kans. Filed Aug. 31, 1892. Serial No. 444,670. (No model.)



Claim.—1. In a lid for boxes, the combination with the box body, of one or more swinging pins secured thereto, recesses formed in the lid corresponding in number to the swinging pins and into which recesses the pins are adapted to fit, an eye on the box body and a catch on the lid, said catch being adapted to operate with the eye to hold the lid in place, substantially as described.

2. In a lid for boxes, the combination with the box body, of one or more straight pins pivotally connected thereto, and openings in the lid into which the pins are adapted to removably fit, substantially as described.

3. In a lid for boxes, the combination with the box body, of one or more pins pivotally connected thereto, openings formed in one end of the lid into which the pins are adapted to removably fit, and means for securing the remaining end, substantially as described

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489,532. WATCHMAN'S TIME-DETECTOR. OTTO R. HAMBURG, Brooklyn, N. Y. Filed Mar. 10, 1891. Renewed Apr. 12, 1892. Serial No. 428,782. (Model.)

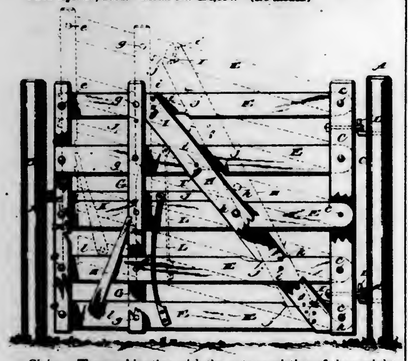
Claim.—1. In a watchman's time detector the combination of a cover, as *h*, for partly or wholly covering the locking mechanism of the detector, a pin as *i*, a spring in contact with said pin as *i*, a dial carried by the time movement of said watchman's time detector, said pin, as *i*, and said cover, as *h*, being in such positions with refer-

ence to each other that said cover cannot be moved to expose the locking mechanism without pressing said pin, as i, and thus causing the marking or perforating of said dial, substantially as specified.



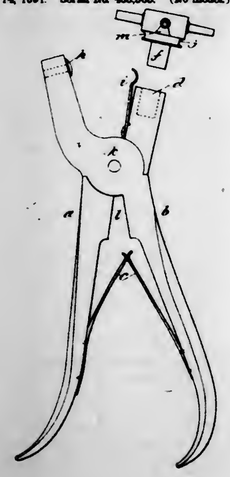
2. In a watchman's time detector the combination of a drum or carrier revolved by clock mechanism, a strip or piece of paper or other suitable material surrounding or facing the same, mechanism for locking the case of the detector, a cover for partly or wholly covering the locking mechanism of the detector, and a pin so arranged with reference to said cover that said cover cannot be moved to expose the locking mechanism without pressing said pin and thereby causing the marking of said strip of paper or other material, substantially as specified.

489,533. FARM-GATE. JEREMIAH L. HOOVER, Fishertown, Pa. Filed Apr. 27, 1892. Serial No. 430,857. (No model.)



Claim.—The combination with the gate consisting of the uprights and the bars pivoted thereto and formed with grooves with shoulders, of the inclined brace bar pivoted to one of the bars, and detachable pins for holding the parts in their adjusted positions and working in said grooves and engaging said shoulders, as set forth.

489,534. PUNCH. GEORGE H. KAVANAUGH, Middletown, Conn. Filed Sept. 14, 1891. Serial No. 405,585. (No model.)

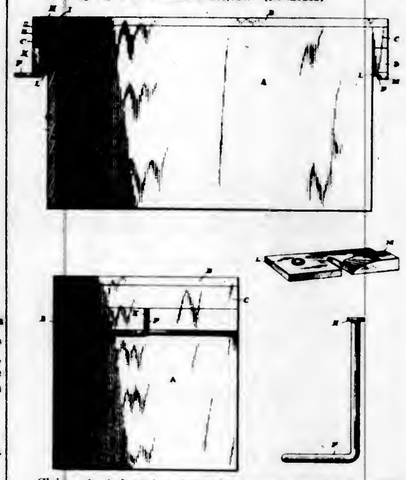


Claim.—1. In combination in a belt punch, a punch bearing lever having in its end a lengthwise polygonal socket, a removable turret bearing a plural number of punches projecting laterally therefrom and provided with a polygonal pintle fitting the socket in the lever, the annular groove located in the turret, and the spring fastened to the lever and having an end engaging said groove, all substantially as described.

2. In combination in a belt punch, a punch bearing lever having in its end a lengthwise polygonal socket, a removable turret bearing a plural number of punches projecting laterally therefrom and provided with a polygonal pintle fitting said socket in the lever, the turret retaining spring, and the conical clearer located in an opening in the end of the turret, all substantially as described.

3. In combination in a belt punch, a punch bearing lever having in its end a lengthwise polygonal socket, a removable turret bearing a number of punches projecting laterally therefrom and provided with a polygonal pintle fitting said socket in the lever, the annular groove, located in the turret, the spring fastened to the lever and having an end engaging said groove, and the conical clearer located in an opening in the turret, all substantially as described.

489,535. BOX-FASTENER. HENRY C. KITCHEN, Licking, Mo. Filed July 20, 1892. Serial No. 440,627. (No model.)



Claim.—1. A fastening device for boxes, crates, &c. comprising a revoluble spring-supported L-shaped fastener adapted to be carried by the lid of the closure, and a catch-plate L, provided with a slot and a beveled shoulder, M, to engage the free arm of the fastener, substantially as specified.

2. In combination with a box or crate having a slotted cleat, D and a cover provided with a depending cleat C having a vertical perforation, the L-shaped fastener mounted in said perforation, and having a head at its upper end, a spring coiled around the stem of the fastener and supporting the head thereof, and a catch plate L, secured to the under-surface of the cleat D, provided with a slot to register with the slot in said cleat, and having a beveled shoulder M to engage the horizontal arm of the fastener, substantially as specified.

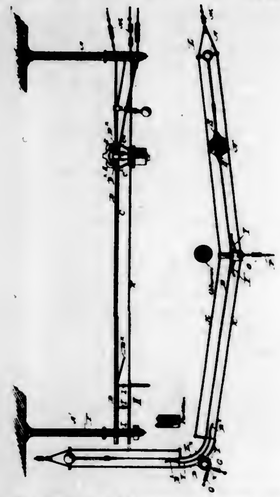
489,536. RAILROAD-SWITCH. AUGUSTUS F. LETSON, Buffalo, N. Y., assignor to Catherine E. Letson, same place. Filed Sept. 5, 1892. Serial No. 445,039. (No model.)

Claim.—In a rail road switch, the mechanism located below the car consisting of a bar having a curved spring foot at each end and pivoted on the forward cross bar of the truck, the pivotal pin, 6, having a forked forward end into which is pivoted a bar provided with one or more substantially flat sides and having its opposite end project through an opening through a crank shaft supported in a bearing under the car, the bar, 7, being incapable of turning in the crank shaft but free to move longitudinally therein, and mechanism substantially as above described for operating the crank shaft so as to throw one spring foot or the other down upon the track for the purposes described.

489,536.



489,537. STORE-SERVICE APPARATUS. DAVID LIPPT, Mansfield, Ohio. Filed Dec. 12, 1891. Serial No. 414,837. (No model.)



Claim.—1. In combination with hangers or supports a stationary track wire secured to said hangers, a curved plate placed intermediate the stations composed of the plate D, tubular curved tracks E E' secured to the said plate a curved guide H secured to the underside of the curved plate by studs I., U-shaped brackets J secured to each end of the curve-plate, guide wires K and K' secured to the upwardly projecting arms of the U-shaped brackets, and extending parallel with the track wires to each station a car adapted to travel upon the said track wire and between the guide wires, substantially as shown and described.

2. In a store service apparatus, the combination of hangers or supports, stationary track wire and propelling wire, a curved plate having openings for the passage of said wires, and a car having the upper track rollers and the lower roller engaging the propelling wire, all adapted to operate as described.

3. The combination with hangers or supports, of a stationary track wire secured to said hangers, a curved plate having tubular curved track, a curved guide on the under side of the said plate, U-shaped brackets secured to each end of the curved plate, guide wires secured to the upwardly-extending ends of said brackets and extending parallel with the track wires in opposite directions, substantially as shown and described.

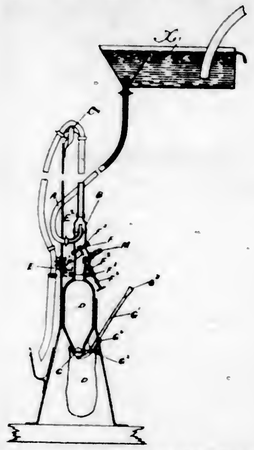
4. In a store service apparatus, the combination of hangers or supports, stationary track wire and propelling wire, a curved plate having openings for the passage of said wires, a car having the upper track rollers and the lower roller engaging the propelling wire, the slide having a finger and carried by the car and the guides for operating on the finger or pin for raising the slide, all adapted to serve in the manner and for the purpose described.

489,538. HYDRAULIC MINERAL-SEPARATING APPARATUS. WILLIAM S. LOCKHART and EDWIN W. STREETER, London, England; said Streeter assignor to said Lockhart. Filed Apr. 18, 1892. Serial No. 429,642. (No model.)

Claim.—1. In combination the stand pipe, the collecting receptacle, and the inlet pipe for the liquid and material extending to the stand pipe and connecting therewith to form an upward jet, substantially as described.

2. In combination the stand pipe, the collecting receptacle at the lower part thereof, the inlet pipe A for the liquid with the material, said pipe connecting with the stand pipe to form an upward jet, and the siphon connecting with the upper end of the stand pipe and adjustably supported, substantially as described.

3. In combination the stand pipe, the collecting receptacle, the inlet pipe A forming a jet extending up through the stand pipe and means for regulating the resistance to the said jet, substantially as described.



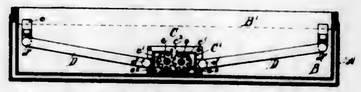
4. In combination the stand pipe, the inlet pipe A having its end within the stand pipe and projecting upwardly, and the receptacle at the lower part of the stand pipe, substantially as described.

5. In combination the stand pipe, the inlet pipe connecting therewith to form an upward jet, the receptacle at the lower end of the stand pipe, below the end of the pipe A, the valve F between the pipe A and the receptacle, and the valve at the lower end of the receptacle, substantially as described.

6. In an apparatus for the hydraulic separation of crushed minerals, an adjustable discharge siphon pipe adapted for regulation by a clamp and stand-post, to any desired height to control the velocity of the ascending current.

7. In an apparatus for the hydraulic separation of crushed minerals, the combination with a vertical stand pipe, of a receptacle at the base of the stand pipe, and a shut off valve at the neck of the receptacle, and a locked and controllable orifice or door, by which the collected minerals may be removed without stopping the continuous action of the apparatus.

489,539. GELATINE-CIRCULATING DEVICE. THEODORE C. MEEK, Detroit, Mich. Filed Apr. 20, 1892. Serial No. 429,879. (No model.)



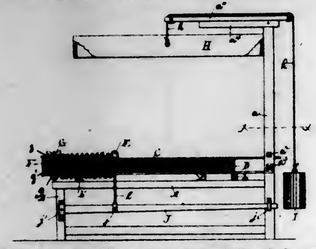
Claim.—1. In a device for stirring liquids, a pan, a pump in the bottom of said pan, troughs adjustably supported in said pan, and conduits leading from said troughs to said pump, substantially as described.

2. In a device for stirring liquids, a pan, a pump in the bottom of said pan, troughs adjustably supported in said pan, and conduits leading from said troughs to said pump, and having flexible connections therewith, substantially as described.

489,540. APPARATUS FOR FILLING MATTRESSES. WILLIAM H. MOORE, Gardiner, Me., assignor to the W. H. Moore Mattress Company, same place. Filed June 27, 1891. Serial No. 397,727. (No model.)

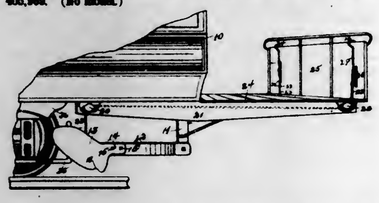
Claim.—1. An apparatus for filling mattresses consisting of a bottom plate on which the filling material is placed, said bottom plate being supported at its rear end, a top plate adapted to lie on the top of said filling material and to compress the same, said top plate having a bearing or support for its rear end to keep it down, a binder for forcing the forward end of said top plate downward, said binder being located at a distance from the end of said plate sufficient so

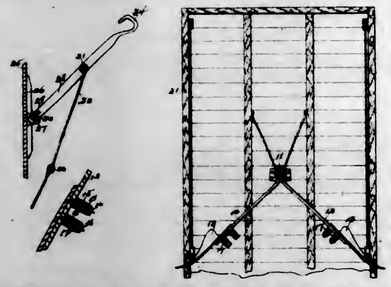
that the tick may be gathered between said binder and said end a clamp independent of said binder applied at or near the end and over the tick after the same is drawn on, for securing the front ends of said bottom and top plates together and a framework for supporting said parts, substantially as described.



2. An apparatus for filling mattresses consisting of a bottom plate on which the filling material is placed said bottom plate being supported at its rear end, a temporary support for the forward end of said bottom plate, a top plate adapted to lie on said filling material and to compress the same, said top plate having a bearing or support for its rear end to keep it down, a binder for forcing the forward end of said top plate downward, said binder being located at a distance from the end of said plate sufficient so that the tick may be gathered between said binder and said end a clamp applied at or near the end and over the tick after the same is drawn on for securing the front ends of said top and bottom plates together and a framework for supporting said parts, substantially as described.

489,541. APPARATUS FOR REMOVING OBSTRUCTIONS. WILLIAM R. MCLAIN, Des Moines, Iowa. Filed Sept. 17, 1891. Serial No. 405,969. (No model.)





Claim.—1. In an apparatus for removing obstructions, the combination with a propelled vehicle, of a scraper or scrapers pivotally connected to said vehicle, and yielding pressure acting upon said scraper or scrapers and so disposed relative thereto as to permit a torsional movement of said scraper or scrapers relatively to the normal position of the same.

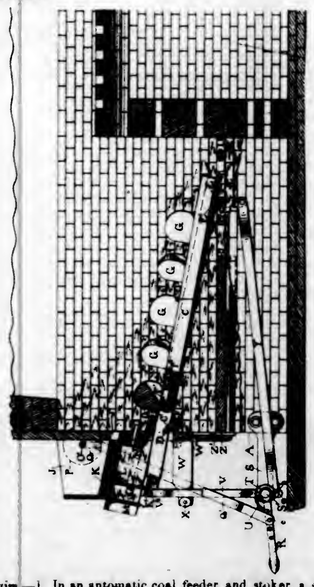
2. In an apparatus for removing obstructions, the combination with a propelled vehicle, of a plurality of scrapers pivotally connected to said vehicle and positioned forward of the supporting or traction wheels in the path of advancement of the same, together with yielding pressure disposed in the rear of said scrapers and normally acting thereon to cause them to present an approximately vertical or broad face to the meeting obstruction, which said scrapers yield torsionally upon impacting with the obstruction and remove the same by a tremulous movement.

3. In an apparatus for removing obstructions, the combination with a propelled vehicle, of a plurality of plow beams attached to and depending from said vehicle, plows or scrapers fixed to said beams, yielding pressure disposed in proximity to the point of connection between said plows and beams and so acting upon said plows or scrapers as to cause them to normally present an approximately vertical or broad face to the meeting obstruction, said yielding pressure permitting a torsional movement of said plows or scrapers relative to the supporting beams and returning them to their normal position after they have effected a removal of the obstruction.

4. In an apparatus for removing obstructions, the combination with a propelled vehicle, of a plurality of plow beams pivotally connected to said vehicle, plows or scrapers fixed to said beams, a lever or levers fulcrumed on said vehicle in proximity to the operator thereof, each of said levers having a slot in one end through which the fulcrum passes, and a hook on the opposite end adapted for engagement with a fixed portion of the vehicle, and flexible connections between said lever or levers and the said scrapers.

5. In an apparatus for removing obstructions, the combination with a propelled vehicle, of a plurality of plow beams vertically connected to said vehicle and diverging rearwardly therefrom, plows or scapers fixed to said beams, yielding pressure acting upon said plows or scrapers to cause them to normally present an approximately vertical or broad face to the meeting obstruction, said yielding pressure permitting of a movement of the plows or scrapers independently of the beams, together with means for adjusting said plows or scrapers in or out of operation as desired.

489,542. AUTOMATIC COAL FEEDER AND STOKER. WILLIAM OHLSTROM, Cleveland, Ohio. Filed Sept. 9, 1892. Serial No. 445,470. (No model.)



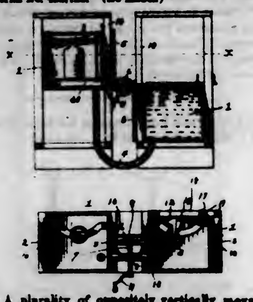
Claim.—1. In an automatic coal feeder and stoker, a series of detachable, perforated grate-bars, having hoods secured thereto, over the larger openings, in combination with a bin or receptacle having a movable floor or hopper and the means for reciprocating the same, said hopper being provided with a series of air tubes piercing the rear support of the hopper, in the manner substantially as and for the purpose set forth.

2. In an automatic coal feeder and stoker, a series of detachable, perforated and hooded grate-bars, resting at one end on a suitable rod or bar received into a notch or opening in the sides of said grate-bars, in combination with a cam-shaft having cams for agitating the grate-bars and the means for rocking said cam-shaft, in the manner substantially as and for the purpose set forth.

3. In an automatic coal feeder and stoker, a series of detachable, perforated and hooded grate-bars supported by a rod or bar forward and a cam-shaft for agitating said grate-bars, in the rear, in combination with the ash-grate I, in the manner substantially as and for the purpose set forth.

4. An automatic coal feeder and stoker consisting of a series of detachable, perforated and hooded grate-bars, resting on a bar forward and a cam-shaft in the rear, an ash grate, the bin and hopper, said hopper having a series of tubes piercing the rear support thereof, the floor Z and doors Z', with the mechanism for operating the hopper and cam-shaft, substantially as described.

489,543. APPARATUS FOR MECHANICALLY OPERATING PASTE-GLASS MOLDS. MICHAEL J. OWENS, Toledo, Ohio. Filed May 13, 1892. Serial No. 433,223. (No model.)



Claim.—1. A plurality of oppositely vertically movable tanks adapted to contain water, a mold arranged in each tank and a flexible conduit connecting the oppositely moving tanks whereby as one is elevated the water will flow into the lowered one.

2. In an apparatus for operating paste glass molds a plurality of vertical movable tanks each carrying a mold, and a flexible conduit between the tanks, in combination with means for raising and lowering the tanks alternately.

3. In an apparatus for mechanically operating paste glass molds, a plurality of vertically movable tanks each carrying a mold, and a flexible conduit between the tanks, rack bars attached to the tanks and a pinion engaging the rack bars for raising one tank and lowering the other.

4. In an apparatus for operating paste glass molds, the combination with a tank adapted to receive water, a mold arranged in the tank and an adjustable track or support for securing the mold in the tank.

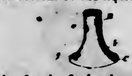
5. In an apparatus for operating paste glass molds, the combination with a tank adapted to receive water at stated times, of a sectional mold arranged therein, and a track or support adjustable with relation to the tank for holding the molds in place.

6. In combination with a sectional paste glass mold a mold, a tank, and means for wetting the mold in the tank, a support for the mold and an insertible bottom for the mold carried by the support.

7. In combination with a sectional paste mold, a tank in which the mold is secured, a support for the mold and an insertible bottom for the mold carried by the support.

489,544. SYRINGE-TUBE HOLDER. JAMES C. PARKER, Westerton, assignor of one-half to William Rosegrant, Alton, Kans. Filed June 20, 1892. Serial No. 437,203. (No model.)

Brief.—A rubber sucker retains the inlet end of a syringe tube in firm contact with the bottom of the liquid vessel.

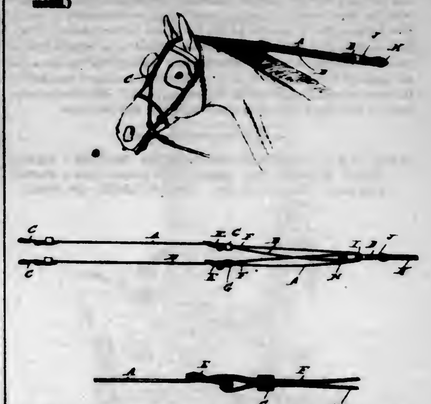


Claim.—1. A holder for the feed tubes of syringes, pumps, &c., comprising an elastic ball-shaped sucker attached to the inlet ends of such tubes, as specified.

2. In combination with the suction-tube of a syringe, or similar article, a holder comprising a hollow shank, communicating with the suction tube and having induction or inlet apertures, and a subjacent, hollow, ball-shaped sucker adapted to be held in contact with the bottom or side of a vessel by atmospheric pressure, substantially as specified.

3. In combination with a tube for syringes, &c., a rubber vacuum holder such as B having a ring or clip *f* formed integral thereon for the purpose set forth.

489,545. BRIDLE-CHECK. JOHN M. GUILLAUME and WILLIAM F. BAUER, Sanborn, Iowa. Filed July 25, 1892. Serial No. 441,042. (No model.)



Claim.—1. In a check rein, the combination of a plate provided with a pair of guides and adapted to be connected to a check-hook, and the two straps A and B, strap A having its rear end passing through one of the guides in said plate and extending forward and connected directly to strap B at a point between the guide and its forward end and strap B having its rear end passing through the other guide and extending forward and connected to strap A intermediate its ends, the front ends of straps A and B being provided with means for attaching them to the bit-straps, substantially as described.

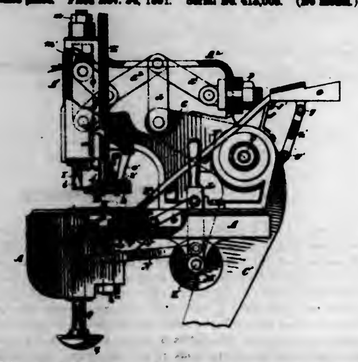
2. In a check-rein the combination of a plate provided with a pair of guides and adapted to be attached to a check-hook, a pair of straps A and B provided with buckles C C at their forward ends and each having its rear end passed through one of the guides in the plate and carried forward and passed through a buckle E adjustably secured on the main part of the other strap, the extreme ends of both straps being folded back between the main part of one strap and the forwardly extending part of the other, and sliding loops G on the straps to hold them in their adjusted positions, substantially as and for the purposes described.

489,546. BEER-COOLER. EDWARD J. RIES, Rochester, N. Y., assignor to Theresa Ries, same place. Filed July 5, 1892. Serial No. 439,260. (No model.)



Claim.—The combination with the inner receptacle and the outer jacket, of the bottom plate B forming a bottom to the outer chamber and having a tubular portion extending above and below the plate with the upper portion extended into the inner receptacle, a removable bottom plate F secured to the lower end of the tubular portion, the cap plate D closing the upper end of the inner receptacle, the pipes E in the inner receptacle and passed through the top plate and through the bottom plate F, the overflow pipe arranged centrally in the inner receptacle and held in the bottom plate F, and suitable couplings on said pipes, all substantially as shown and described.

489,547. PUNCHING AND RIVETING MACHINE. RALPH J. SIMPLEY, Waterbury, Conn., assignor to the Holmes, Booth & Haydens same place. Filed Nov. 24, 1891. Serial No. 412,009. (No model.)



Claim.—1. In a riveting machine, the combination of the rotary rivet carrier, a lever for rotating said carrier, a punch or needle movable vertically through a hole in said carrier a rod consisting of two portions pivoted together carrying said punch or needle and a connection between the said lever and the upper portion of said rod whereby the punch or needle may be tipped by a movement of the lever, substantially as specified.

2. In a riveting machine the combination with the bed of a rotary rivet carrier seated in a recess in said bed, and having peripheral notches, a lever pivoted to the machine, a dog operated by said lever to rotate the carrier, a vertically movable and tilting punch or needle and means connecting with said lever for tilting the punch or needle, substantially as specified.

3. In a riveting machine the combination with the bed of the rotary rivet carrier on said bed and having peripheral notches, an annular row of anvils in said carrier, a lever pivoted to the machine, a dog operated by the lever to engage in a notch of the carrier and rotate it, a vertically movable and tilting punch or needle and means connecting with said lever for tilting the punch or needle, substantially as specified.

4. In a riveting machine, the combination with the bed of the rotary rivet carrier seated in a recess in said bed and having lateral openings, means comprising a hand power for rotating said carrier, vertically movable anvils at the inner ends of the lateral openings, and an inclined chute, down which rivets are automatically fed into the lateral openings of the carrier, substantially as specified.

5. In a riveting machine the combination with the bed, of the rotary rivet carrier thereon, an annular series of anvils seated in the carrier each alternate anvil having a vertical hole and a punch or needle movable through said holes for punching a hole through material preparatory to placing a rivet therein, the other anvils of the series being vertically movable at the inner ends of lateral openings in the carrier, substantially as specified.

6. In a riveting machine the combination with the rotary rivet carrier of the vertically operating hammer, means, a rock lever and toggle links, for moving the hammer, and resilient fingers carried by the hammer for holding a washer, substantially as specified

7. In a riveting machine the combination with a hammer, having resilient fingers to hold a washer of a vertically movable plunger carrying said hammer, a washer feeder adjacent to the hammer, a feeder bar for feeding a washer to the hammer, a connection between the feeder bar and plunger for operating the feeder, in one direction and a spring for operating it in the opposite direction, substantially as specified.

8. In a riveting machine the combination with the rotary rivet carrier, of the vertically operating hammer, carrying the resilient fingers the rock lever, the links *d*, *d'*, *d*^{3}, *e*, *e'*, between said lever and hammer and a washer feeder, substantially as specified.

9. In a riveting machine the combination with a rotary rivet carrier having openings for rivet anvils, rivet anvils movable vertically in said openings, the said openings a cam for moving the anvils vertically having lateral openings, and a chute, substantially as specified.

10. In a riveting machine, the combination with a chute for rivets, of a rotary carrier having vertical openings provided with lateral openings at their upper portions adapted to be moved in line with the mouth of the chute, an anvil movable in each of said vertical openings and a cam surface for moving the anvils vertically, substantially as specified.

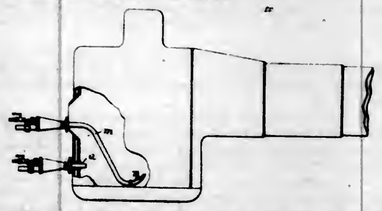
11. In a riveting machine, the combination with a vertically movable hammer and means for adjusting its movement, of a vertically adjustable washer feeder adjacent to the hammer, a set screw for securing it as adjusted a feeder bar for feeding a washer to the hammer, a connection between the hammer and feeder bar for moving the feeder bar in one direction and a spring for moving it in the opposite direction, substantially as specified.

489,548. SHOE-NAIL. CHARLES B. BLOCHER, Everett, Mass. Filed July 11, 1892. Serial No. 439,631. (No model.)



Claim.—The nail herein described consisting of the shank *a*, pointed at one end and having the flanged head at the opposite end, one half or portion of which as *b*, has a flat top, and the other half or portion of which is formed as a short tapering spur *d*, projecting obliquely with relation to the part *b*, and the prop or support *d'*, beneath the base of said spur, substantially as described.

489,549. OIL-BURNER. CHARLES T. SMITH, Cleveland, Ohio, assignor of two-fifths to Charles R. Bosworth, same place. Filed Feb. 4, 1892. Serial No. 420,316. (No model.)



Claim.—In combination with an oil burner for kindling the fire for a boiler, a nozzle of substantially the form described, attached to the terminal of an extending pipe, reaching from said burner into the base of the fire or fuel substantially as and for the purpose set forth.

489,550. BED-SPRING-COILING MACHINE. GEORGE I. STARK, McKinney, Tex., assignor of two-thirds to Charley H. Stark and Thomas J. Stark. Filed Aug. 4, 1892. Serial No. 442,182. (No model.)



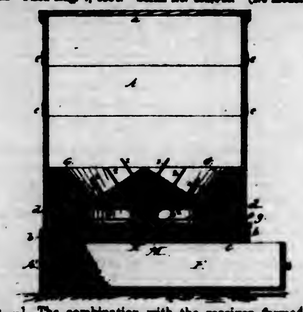
Claim.—1. In a machine of the class described, the combination with a standard, a rotatable shaft carrying coiling cones, and means to operate the same, of a vertical bracket N disposed upon the standard above said shaft and provided with forward projecting studs around which to form the intermediate portions of the springs, substantially as specified.

2. In a machine for the purpose named, the combination with a standard, and a rotatable shaft mounted in bearings thereon and provided with oppositely disposed coiling cones, one of which is removable, of the bending mechanism, comprising a permanent vertically-slotted pin, and a lever fulcrumed upon said pin and carrying a stud provided at its opposite sides with notches to engage the wire, all substantially as specified.

489,551. ELECTRICAL DIAPHRAGM. CHARLES H. WAITE, Newton, Mass. Filed Mar. 16, 1892. Serial No. 425,169. (No specimens.)

Claim.—An electrical diaphragm consisting of a sheet or layer of acid resisting fibrous material and bi-chromo-tized gelatine, substantially as set forth.

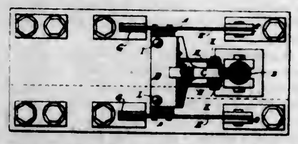
489,552. BIN FOR FLOUR, MEAL, &c. BERTRAIN ALPAUGH, Galt, Canada. Filed Aug. 7, 1891. Serial No. 402,042. (No model.)



Claim.—1. The combination with the receiver, formed as described, of the oscillatory pulverizer, pivoted in the bar at the base of the bin, having a body or conical form and provided with spikes on its inclined and upright surfaces as and for the purpose specified.

2. The combination with the bin, the pulverizer, as described, and the sieve arranged to oscillate with the pulverizer, of the bar *g* adapted to agitate the said pulverizer and sieve, as and for the purpose set forth.

489,553. ELECTRICAL SWITCH. GEORGE BARNES, Brooklyn, N. Y., assignor to Samuel O'Connor, same place. Filed Mar. 26, 1892. Serial No. 426,504. (No model.)



Claim.—1. In an electric switch, the combination, of a pair of circuit controlling blades, a cross bar of insulating material mechanically connecting them together, a manually operated swinging lever provided with two jaws loosely embracing said cross bar, and a spring bearing at one end against the lever and at the other end against the cross bar, substantially as and for the purpose described.

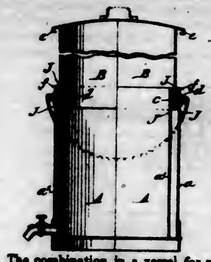
2. In an electric switch, the combination, of a pair of pivoted blades mechanically connected together by a cross bar and a swinging lever provided with a pair of jaws loosely embracing said cross-bar, one of said jaws being widened or extended into a web to form a large bearing surface against the bar as set forth.

3. In an electric switch, the combination, of a pair of pivoted blades, a cross bar of non-conducting material mechanically connecting them together, a reinforcing plate for said cross-bar, and a lever acting against said cross bar to operate the switch, substantially as described.

4. In an electric switch, the combination, of a pair of pivoted blades, a cross bar of insulating material mechanically connecting them together, a swinging lever arranged to impinge against said cross bar to operate the switch and a spring connected at one end to said lever and at the other end extending into a cavity formed in the cross bar for the purpose described.

5. The combination, of the pivoted blades B, the cross bar A, the reinforcing plate D, the swinging lever B C, provided with an enlarged jaw *d* and a jaw *e*, and the two springs H H fixed to the opposite sides of the lever B C, and extending at their free ends through the said plate D and into cavities formed in the cross bar A, substantially as and for the purpose described.

489,554. MILK-CAN, &c. EDWARD L. CANTWELL, Calcutta, India. Filed Mar. 25, 1892. Serial No. 426,403. (No model.)



Claim.—1. The combination in a vessel for storing fluid under air pressure, of a chamber for containing the liquid having at its upper end an out turned slotted flange, of a cap or cover for said vessel having a prolonged cylindrical portion to fit within the liquid chamber adjacent to the walls thereof to constitute an air compressing chamber, and provided at its upper end with an outwardly and downwardly extending flange, having an inwardly turned lip to enter the slotted portion of the flange to the liquid chamber and to pass under said flange whereby it may be held in place against the air pressure within the vessel, substantially as and for the purposes described.

2. The combination in a vessel for storing fluid under air pressure, of a liquid holding chamber having an inner and an outer wall to form a space between the two, of a cap or cover for said chamber having a prolonged cylindrical portion working in the space between the two walls of the lower chamber and constituting an air-compressing piston, and a catch for holding the cylindrical cap or cover to the lower chamber against the air pressure therein, substantially as and for the purposes described.

489,555. ADVERTISING DEVICE FOR GLASS VESSELS. ADDO T. CROSSLEY, Duluth, Minn. Filed Dec. 24, 1891. Serial No. 416,047. (No model.)



Claim.—1. In a device of the class described, the combination with a glass vessel, of a core arranged therein provided with grooves or indentations upon its outer surface adapted to receive and hold the articles to be displayed in contact with the side of the vessel, and means for lifting the same together with the contents from said vessel, substantially as described.

2. In a device of the class described, the combination with the vessel having vertical sides or walls, of the indented core fitted therein, the false bottom fitted to said vessel beneath said core, and means for lifting said base with said core and its contents from the vessel, substantially as described.

3. The combination with the glass vessel 2 of the core 3 arranged therein, having the grooves or depressions 4, the false bottom 6 fitted to said vessel and supporting said core, and means for lifting said bottom from said vessel with said core, substantially as described.

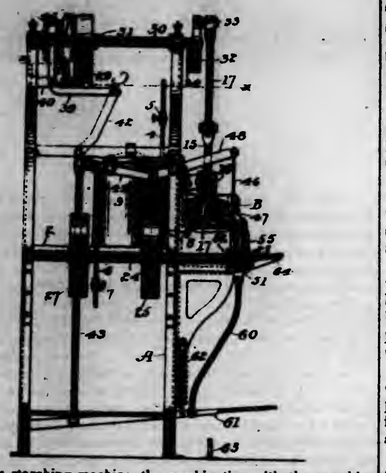
489,556. STARCHING-MACHINE. CHARLES J. DEAN, St. Paul, Minn., assignor of one-half to Chester L. Caldwell, Clifford B Deacon, and Ernest L. Mabon, same place. Filed Sept. 14, 1891. Serial No. 405,892. (No model.)

2. In a starching machine, the combination with the starching box having a side opening by means of which a portion of a garment can be laid in the box, and the rest of the garment held outside thereof, the indented plates working in said box, and means for closing said opening upon said garment, substantially as described.

3. In a starching machine, the combination of the rectangular

starching box, the gate in one of its sides adapted to be opened to receive a portion of a garment and to be closed down upon the garment to protect the outer portion from the starch, the piston working in said box, a continuously running source of power, and means for throwing said piston into gear with said source of power, and simultaneously closing said gate, substantially as described.

4. In a starching machine, the combination with the rectangular starching box, of the piston fitted to and working therein, a lateral opening to admit a portion of the garment into said box, and means for closing said opening upon the interposed garment, substantially as described.



5. In a starching machine, the combination with the starching box having an opening to receive the garment, of the roll journaled in fixed bearings on one side of the said opening, the continuously running source of power, the clutch upon the shaft of said roll adapted to be thrown into gear with said source of power, the roll arranged on the opposite side of said opening journaled in bearings movable to and from said other roll, and means engaging said clutch for shifting said movable roll, whereby said rolls are thrown into gear with said source of power when closed together, and thrown out of gear therewith when separated, substantially as described.

6. In a starching machine, the combination with the starching box having an opening to receive the garment, the gate for closing said opening, the piston working in said box, its crank shaft, the continuously running source of power, the mechanism for simultaneously throwing the crank shaft into gear with said source of power and closing said gate, and for simultaneously raising said gate when said crank shaft is thrown out of gear with said source of power, substantially as described.

7. In a starching machine, the combination with the starching box, of the piston working therein, the opening in said box to receive a portion of the garment, the sliding gate adapted to close said opening and to bear upon the interposed garment, the roll journaled in fixed bearings at the bottom of said opening, the roll journaled in vertically sliding bearings above said first roll, the continuously running source of power, and means for simultaneously closing said rolls together upon said garment, and throwing the same into gear with said source of power, whereby the garment is automatically withdrawn from the starching box and the surplus starch stripped therefrom into said box, substantially as described.

8. The combination of the starching box having a lateral opening to receive a portion of the garment, the indented piston working in said box, a gate for closing said opening upon said garment, the roll journaled in fixed bearings at the bottom of said opening, the roll arranged normally at the top of said opening in bearings slidable to and from said other roll, the continuously running source of power, and means for simultaneously closing said rolls together upon the garment, and throwing them into gear with said source of power, and for throwing them out of gear with said source of power when separated, substantially as described.

9. In a starching machine, the combination with the starching box, and the piston fitted to and working therein, of means for inserting a portion of a garment in said box, and for protecting the rest of the garment from the starch, and means for withdrawing said garment from said box and simultaneously stripping the starch therefrom into the box, substantially as described.

10. In a starching machine, the combination of the starching box, the piston working therein, an opening in said box through which a portion of the garment may be inserted, a gate for closing said opening adapted to bear upon said garment when in position and to protect the outer portion from the starch, the stripping rolls arranged adjacent to said opening, one on each side of said garment when in position, the continuously running source of power, means for closing said rolls together upon said garment, and simultaneously throwing the same into gear with said source of power, and means for simultaneously separating said rolls and throwing them out of gear with said source of power, whereby the garment after being starched is withdrawn from said box and the surplus starch stripped from it into said box, and the opening then left free for the insertion of another garment, substantially as described.

11. In a starching machine, the combination with the starching box and the indented piston working therein, of the roll journaled in fixed bearings on one side of the opening to said box, the roll journaled in bearings movable to and from said other roll, on the opposite side of said opening, the gate for closing said opening, the continuously running source of power, means for simultaneously connecting said piston with said source of power and closing said gate, and for opening said gate when said piston is disconnected from said source of power.

12. The combination of the starching box having vertical sides, the piston fitted to and working therein and provided with indentations in its face, the piston rod, the over-balanced crank for operating said rod, and the springs between said rod and piston, substantially as described.

13. The combination of the starching box having vertical sides, the piston having depressions in its face fitted thereto, the plunger head, the elastic connection between said head and piston, the over-balanced crank connected with said plunger head, the continuous power, and means for throwing said crank shaft into and out of gear therewith, substantially as described.

14. In a starching machine, the combination of the rectangular, open-front starching box, the sliding gate for closing said front, the piston fitted to and working vertically in said box and provided with indentations in its face, and an elastic connection between said piston and its rod, substantially as described.

15. In a starching machine, the combination of the rectangular, open-front box adapted to receive the garment, the piston working in the box, means for conveying starch into said box and upon said garment, a vertically sliding gate for closing the front of said box, the roll journaled in fixed bearings at the bottom of said opening, the roll journaled in vertically movable bearings above said opening, and means for connecting said piston and rolls to a source of power to operate the same, substantially as described.

16. The combination of the open front box, the sliding gate for closing the same, the plunger working in said box, the overbalanced crank for operating said plunger, means for simultaneously closing said gate and throwing said crank into gear with a continuously running source of power, and means for automatically and simultaneously opening said gate and throwing said crank out of gear, substantially as described.

17. In a starching machine, the combination of the rectangular, open-front starching box, the indented piston working therein, the vertically sliding gate for closing the front of said box, the roll journaled in fixed bearings at the bottom of the opening, the roll journaled in vertically movable bearings at the top of said opening, the continuously running source of power, and means for throwing said rolls into gear with said source of power when closed together, and out of gear therewith when separated from each other, substantially as described.

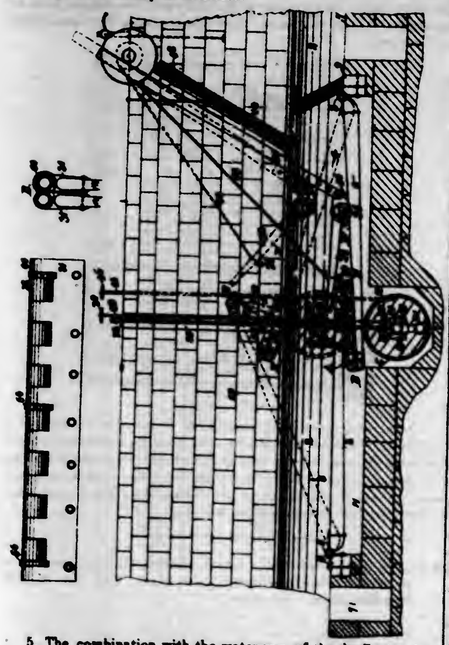
489,557. REVERSIBLE GATE FOR WATER-WAYS. Gideon W. Dubarry, St. Paul, Minn. Filed Nov. 14, 1891. Serial No. 411,963. (No model.)

Claims.—1. In a device of the class described, the combination with the hinged wing, of the hollow cylinder or barrel arranged transversely of the way underneath the wing, but independent thereof, and means for admitting air and water to, and exhausting them from said cylinder, substantially as described.

2. The combination with the hinged wing, of the hollow cylinder arranged transversely underneath, but independent of said wing, guides directing the vertical movement of said cylinder, and air and water inlets and outlets for said cylinder, substantially as described.

3. In a device of the class described, the combination with the waterway and the transversely hinged, flexibly connected wings, of the transverse channel beneath the same, the hollow cylinder arranged in said channel, the anti friction rolls upon the ends of said cylinder adapted to bear against the walls of the way, vertical grooves in said walls, anti friction rolls carried by said cylinder and bearing against the side walls of said grooves, an open end stand pipe arranged in one of said grooves communicating with the cylinder at or near its top and a stand pipe arranged in the other groove communicating with said cylinder near its bottom and connected to a pump, substantially as described.

4. The combination with the waterway, of the duplicate wings hinged at the bottom of the way, an intermediate hinged member or flap, and double acting hinges connecting said flap with the tops of the wings, substantially as described.



5. The combination with the waterway, of the duplicate wings hinged at the bottom of the way, an intermediate folding flap connected to the tops of the wings by double acting hinges, and means for automatically raising said wings in dead water, substantially as described.

6. The combination with the waterway, of a submerged gate therefor, having duplicate hinged wings, an intermediate folding flap connected to the top of the wings by double acting hinges, and a guard wing hinged to one of said wings and projecting upward to protect said flap and hinges, substantially as described.

7. The combination with a submerged water gate, of a hollow cylinder or barrel arranged underneath and transversely thereof, means for admitting air or water to said barrel, and vertical guides therefor, substantially as described.

8. The combination with the submerged water gate having duplicate wings flexibly connected together by an intermediate folding flap, of a guard wing hinged upon one of said wings, and adapted to be turned upward on its hinges to serve as a fender for the connections at the top of said wings, substantially as described.

9. The combination with the submerged water gate, of means for hoisting the same in dead water, comprising in combination a barrel or hollow cylinder arranged transversely of the way underneath, but independent of, said gate, and means for filling the same at will with water or air, substantially as described.

10. The combination with the submerged water gate, of the hollow cylinder arranged transversely beneath the same, and having journal support at each end, vertical guides for said cylinder, a water pipe communicating with the bottom of the cylinder, and an air pipe connecting its top, substantially as described.

11. The combination with the submerged water gate, of the hollow cylinder arranged transversely beneath the same, vertically sliding journal supports for the ends of the barrel, and means for filling the cylinder with air or water, and for exhausting the same from it, substantially as described.

12. The combination with the submerged water gate, of a hollow cylinder arranged transversely beneath the same, pipe axles for the ends of the cylinder, anti friction rolls carried by said axles making bearing contact with the walls of the water way against lateral and longitudinal movement of the cylinder, an air pipe connecting with one of the pipe axles and communicating with the cylinder near its top, a water pipe connected with the other axle and communicating with the cylinder near its bottom a pump connected to said water pipe for exhausting the water from said cylinder, and means for admitting water to said cylinder, substantially as described.

13. The combination with the submerged water gate, of the water tunnel connecting with the water way on each side of the gate, an outlet for said tunnel communicating with the way between the wings of the gate, and a three way gate or valve connecting said tunnel with its outlet, substantially as described.

14. In a submerged water gate, the combination with the wings hinged transversely at the bottom of the way and flexibly connected together at the top, of a guard wing hinged upon one of said wings and overlapping said flexible connection, cables connected to said guard wing at or near its top, winding drums for said cables and means for rotating said drums, substantially as described.

15. In a device of the class described, means for raising the gate and supporting it against back water, consisting of a hollow cylinder or barrel arranged underneath, but independent of the gate, means for holding it in bearing contact with the gate and means for supplying it at will with air or water, substantially as described.

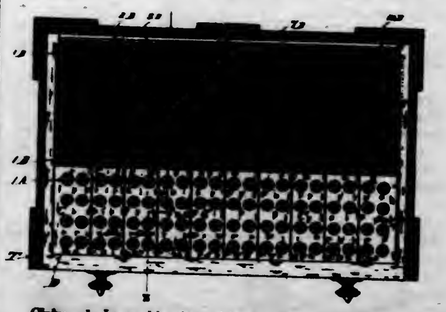
16. In a submerged watergate, the combination with the duplicate wings hinged at the bottom of the way and having their tops flexibly connected together, of a guard wing hinged upon one of said wings and projecting over said flexible connection, cranks upon the hinge of said guard wing and upright bars connected to said cranks, and also so connected with the abutment walls above that the downward thrust of said bars caused by the rising of the gate tends to turn the guard wing upward, substantially as described.

17. In a submerged water gate, the combination with the wings hinged at the bottom of the way and flexibly connected together at their top, of a guard wing hinged upon one of the gate wings and extending toward its top, cranks upon the hinge of said guard wing, upright rack bars connected to said cranks, pinions engaged by said racks, drums connected to and rotated by said pinions, and cables upon said drums connected to said guard wing at or near its top, substantially as described.

18. In a water gate having a pair of hinged wings, and an intermediate flap, the double acting hinges connecting said flap to the respective tops of said wings, comprising in combination the two members or webs, and the intermediate solid web hinged thereto, substantially as described.

19. In a water gate the combination with a pair of wings hinged at the bottom of the way and the intermediate flap, of, the double acting hinges connecting said flap with the tops of said wings, each comprising in combination the pair of similar members, their pintles, and the intermediate solid web turning upon said pintles, substantially as described.

489,558. DRAWER FOR SEWING-MACHINE NEEDLES. Hubbe B. Bemberton, St. Louis, Mo. Filed Jan. 26, 1892. Serial No. 419,266. (No model.)



Claim.—1. In combination with a needle drawer divided into several sections, of partitions in one section dividing the same into compartments, needle wells in the other section, and a felt bottom for said wells, substantially as and for the purposes described.

2. In combination with a needle drawer divided into several sections, of partitions in one section dividing the same into compartments, needle wells in the other section, a felt bottom for said wells, and felt wads in some of said wells, substantially as and for the purposes specified.

3. In combination with a needle well-block, of needle wells therein, and felt bottoms in said wells, of, different thicknesses, whereby variable well depths are obtained, substantially as, and for the purposes described.

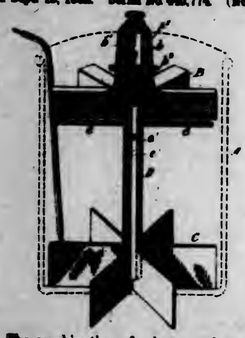
4. In combination with a needle well-block, of removable glass tubes forming the sides thereof, and a felt strip secured to the bottom

of a block and forming the bottom of said wells, substantially as and for the purposes described.

5. In combination with a needle well-block, of removable glass tubes forming the sides thereof, and extending above the surface of the block, and a felt bottom for said wells, substantially as, and for the purposes described.

6. In a drawer for the reception of sewing-machine needles, the herein-described drawer stop, consisting in the combination of a shoulder or lug formed on the upper edge of the rear end of the side parts of the drawer, an abutting shoulder formed in the casing adapted to engage with the lug on the drawer to prevent the withdrawal of the drawer when retained in a horizontal position, and the lower rounded-off corners of the rear ends of the side parts of the drawer, adapting the forward end of the drawer to be raised vertically, when partly withdrawn horizontally, enabling the drawer to be entirely withdrawn from the casing, substantially as described and for the purposes specified.

489,559. GALVANIC BATTERY. GEORGE L. FOOTE, Brooklyn, N. Y. Filed Sept. 13, 1892. Serial No. 445,774. (No model.)



Claim.—1. The combination of a battery electrode in the form of plates connected together and resting on edge, a second electrode provided with a socket or cavity and a post provided with slots or kerfs at one end, adapted to fit over said plates and its other end adapted to enter the said socket or cavity, substantially as described.

2. In a galvanic battery, the combination of an electrode and a post supporting the same from below, the electrode provided with a chamber into which the post projects and means for adjusting the distance which the post shall project into said chamber for the purpose set forth.

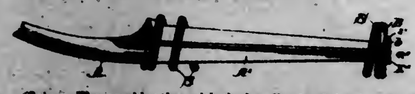
3. In a gravity battery, the combination of a rotatable zinc electrode and a stationary scraping device arranged below the same for the purpose set forth.

4. The combination with the stationary post carrying the scraping arm, of a zinc electrode pivoted on the post above the scraping device.

5. In a galvanic battery, the combination of two electrodes and a non-conducting post, the electrodes being arranged one above the other, the upper electrode being supported by the post and the lower electrode being held in position by the post, substantially as described.

6. In a galvanic battery, the combination of two electrodes and a non-conducting post, the extremities of the post being mechanically connected to the respective electrodes, for the purpose set forth.

489,560. HANDLE. FREDERICK W. HOEFER, Freeport, Ill. Filed Jan. 8, 1891. Serial No. 376,978. (No model.)

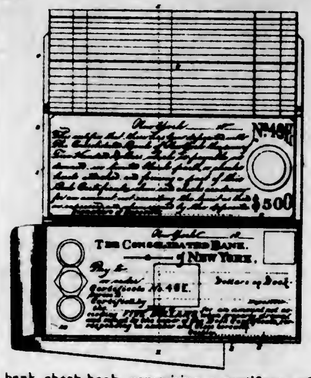


Claim.—The combination with the handle shank having the longitudinal ribs and having at its inner end the circumferential shoulder with an offset in its face and at its outer end a button with a corresponding offset, of a spring coil longitudinally compressed between said shoulder and button with the ends of the coil wire resting respectively against said offsets.

489,561. BANK OR CHECK BOOK. SELDEN B. HOUGHS, New York, N. Y. Filed Jan. 29, 1892. Serial No. 419,451. (No model.)

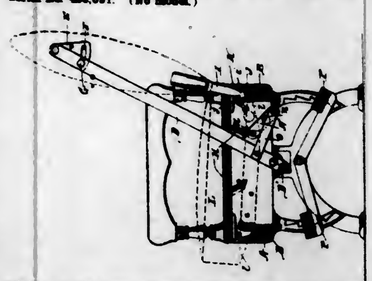
Claim.—1. A bank check-book, comprising a certificate of deposit, and a number of blank certified checks, each good for a specified amount indicated thereon, the sum total of said checks when drawn for their full limit values being equal to the amount of the deposit, substantially as described.

2. A bank check-book, comprising a certificate of deposit, a number of blank certified checks, each good for a specified amount indicated thereon, the sum total of said checks when drawn for their full limit values being equal to the amount of the deposit, and an agreement between the issuing party and the depositor, substantially as described.



3. A bank check-book, comprising a certificate of deposit, a number of blank certified checks, each good for a specified amount indicated thereon, the sum total of said checks when drawn for their full limit values being equal to the amount of the deposit, an agreement between the issuing party and the depositor, and a description of the depositor, substantially as described.

489,562. CAR-SEAT. JOHN S. JOHNSTON, Chicago, Ill., assignor to the Adams & Westlake Company, same place. Filed Mar. 28, 1892. Serial No. 426,691. (No model.)



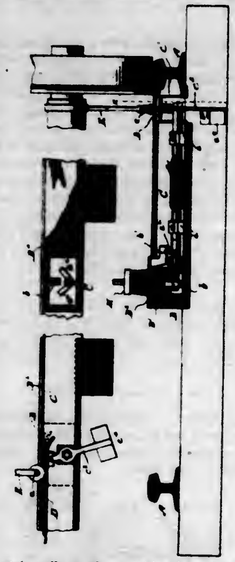
Claim.—1. In a car seat, the seat frame, the seat back and bars pivoted at their upper ends to the upper portion of the seat back and at their lower ends to the seat frame, combined with stops on the seat frame to limit the movement of said bars, stops to limit the movement of the seat back on said bars, and projections secured to the lower corners of the seat back adapted to enter recesses formed in the seat frame to prevent accidental movement of the seat back, substantially as specified.

2. In a car seat, the seat frame, the seat back, and bars pivoted at their lower ends to the seat frame and at their upper ends to the upper portion of the seat back, combined with a beveled seat-bottom supported on the seat frame, arms N pivoted on the seat frame and connected at one end to the seat bottom, links O connecting the other ends of the arms N to the bars, and stops on the seat frame to limit the movement of the said bars, substantially as specified.

489,563. ELECTRIC RAILWAY. DANIEL B. KIMBALL, Topeka, Kans. Filed Jan. 11, 1892. Serial No. 417,897. (No model.)

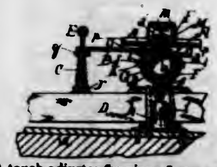
Claim.—1. In an electric railway, the combination of a continuous insulated conductor, a bare sectional conductor, a series of rock shafts arranged at right angles to the continuous conductor, said rock shafts being directly connected at one end with the continuous conductor and the other end projecting into a conduit, a crank arm on the end in the conduit, a circuit closing arm carried by the rock shaft and adapted to make direct connection with the sectional conductor and a device carried by the vehicles for turning the crank on the rock shaft for the purpose set forth.

2. In an electric railway, the combination of the main and sectional conductors, a series of rock shafts and switches between the main and sectional conductors operated by the rock shafts, cranks on the ends of the rock shafts, the cranks on the successive pairs of rock shafts being joined by a bar pivoted thereto and a device carried by the vehicles co-operating with the bar to close said switches.



3. In an electric railway the combination of a plurality of rock shafts controlling circuit makers and breakers, a weighted cross-head on each rock shaft, bars, as D, pivotally connected respectively with the successive pairs of cross-heads, a device carried by the vehicles arranged to move said bar thereby rocking the shafts and operating the circuit makers and breakers.

489,564. KEY-TOUCH ADJUSTER FOR PIANOFORTES. FRANK R. LOMB, Los Angeles, Cal. Filed May 26, 1892. Serial No. 434,483. (No model.)



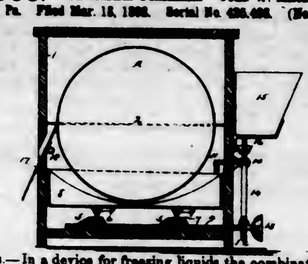
Claim.—1. A touch adjuster for piano fortes comprising the combination set forth of a journaled key-spring-carrying rod; a series of key-spring-carrying arms secured thereto by suitable means and arranged to project therefrom over their respective keys; a series of springs arranged respectively to communicate between the arms and their respective keys; and the spring-carrying screws arranged to screw through the arms respectively and connected with the springs immediately or by suitable intermediate means to move the springs toward or from the keys to increase or decrease the pressure of the springs upon their respective keys, and means for partially rotating the rod.

2. In a touch adjuster for piano fortes the combination set forth of the journaled rod consisting of the tube provided on one side with the slot arranged longitudinal of the tube; the spring-carrying arms seated on the walls of the slot; the nuts arranged inside the tube, and the screws respectively passed through the arms and slot and screwed into the nuts.

3. The combination set forth of the piano frame; the keys; the socketed bracket bases secured to the frame; the journal portions and the stems *f* of the brackets arranged with the stems in the sockets of the bases; the set screws arranged to clamp the stems respectively in their bases, the rod journaled in the brackets; the spring-carrying arms secured to the rod and arranged to project therefrom over their respective keys and the springs communicating between the arms and their keys.

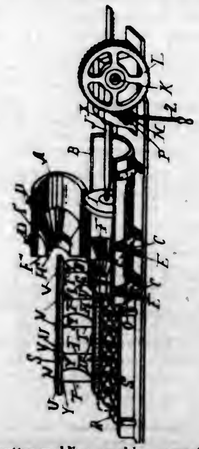
4. In a touch adjuster for piano fortes the combination set forth of the journaled spring-arm-carrying rod provided with the toothed arm; the end bracket P comprising the upper journal box member J and the lower journal box member K secured thereto and provided with the worm retaining bracket *j*; the worm journaled therein and arranged to mesh in the toothed arm.

489,565. ICE-CREAM FREEZER. JOHN W. MACDONALD, Pittsburg, Pa. Filed Mar. 15, 1892. Serial No. 425,091. (No model.)



Claim.—In a device for freezing liquids the combination of a revolving freezing cylinder and a feed pan therefor, a frame placed beneath said pan for supporting the same adapted to move horizontally on a line parallel with the length of said feed pan, carrying inclines so arranged thereon with reference to their line of inclination that the pan will be raised and lowered according as said frame is moved backward and forward, a feed valve for regulating supply to said pan and a rod connecting said valve and movable frame whereby said valve is opened and closed by the same movements of the frame that raises and lowers the feed pan as set forth and described.

489,566. BUTTER-MOLD. WILLIAM MANN and GEORGE C. JOHNSON, Los Angeles, Cal. Filed Oct. 20, 1891. Serial No. 409,294. (No model.)

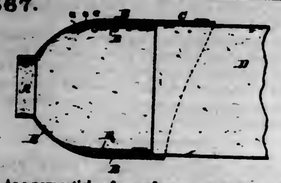


Claim.—1. A butter molding machine comprising the combination set forth of the longitudinally divided cylinder; means for securing the top and base members of the cylinder together; a removable funnel shaped tubular discharge thimble open throughout from end to end fitted into the chamber of the cylinder between the top and base members of the cylinder at the discharge end of the cylinder, and means adapted to prevent the displacement of such thimble when the thimble is in place in the cylinder and the top and base members of the cylinder are secured together in their closed position.

2. In a butter molding machine comprising the combination of the longitudinally divided cylinder provided in its discharge end and with the channels *f*, *f'* the thimble fitted in the discharge end of such cylinder and provided with the annular bead *g* and means for fastening the members of the cylinder together.

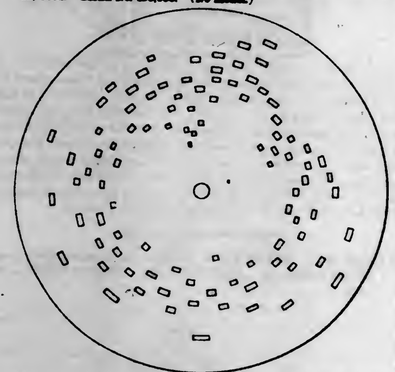
489,567. COAT-SLEEVE PROTECTOR. ROBERT A. P. MEARS, Sayre, Pa. Filed June 3, 1892. Serial No. 435,651. (No model.)

489,567.



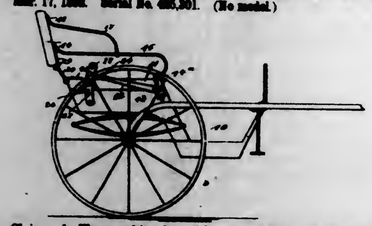
Claim.—As a new article of manufacture a cost sleeve protector consisting of an inner and an outer flap one of said flaps terminating in an elastic band to clasp the wrist the two flaps being attached to each other in the rear of the elastic band and the outer flap having openings located above the point of attachment of the inner and outer flaps, substantially as and for the purposes described.

489,568. PERFORATED SHEET OR PLATE FOR MUSICAL INSTRUMENTS. ALEXANDER PFITZNER, Berlin, Germany. Filed June 13, 1892. Serial No. 436,695. (No model.)



Claim.—As an article of manufacture a perforated strip or plate for musical instruments, said strip or plate being made of celluloid.

489,569. VEHICLE-SEAT. JACOB ROSE, Mount Eaton, Ohio. Filed Mar. 17, 1892. Serial No. 425,301. (No model.)

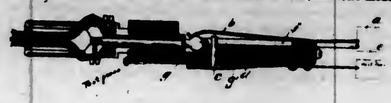


Claim.—1. The combination with a stationary seat, of the adjustable back, 16, the posts, 20, which are pivoted to both said seat and back, and means for adjusting the back, as shown and described, whereby the latter may be adjusted forward or back without materially changing its angle to the seat, as specified.

2. The combination, with the seat and the seat back hinged thereto, of a crank rod mounted on the under side of the seat, arms pivoted to the cranks of the rod and secured to the seat back, a lever secured to the crank rod, and a fastening device to fix the position of the lever, substantially as described.

3. A seat for two-wheeled vehicles, comprising a stationary bottom, a back hinged to the bottom, a crank rod mounted on the bottom and having a crank at each end, arms secured to the seat back and pivoted to the cranks, a lever fixed to one end of the crank rod, said lever having a point at its free end, and a perforated fastening plate secured to the seat and adapted to engage the free end of the lever, substantially as described.

489,570. SPRING-JACK SWITCH. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Dec. 27, 1889. Renewed Feb. 24, 1892. Serial No. 342,692. (No model.)

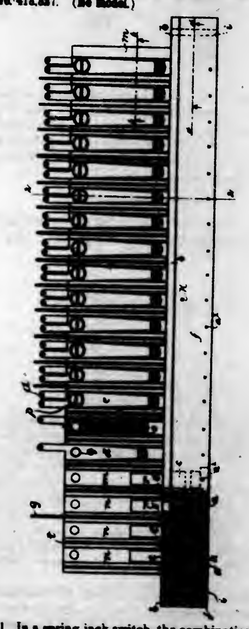


Claim.—1. The combination with a spring jack switch of a loop plug inserted therein, the main lever of said switch being lifted by said plug from its normal contact point, a spring carrying said contact point which closes upon a test piece of the switch when the main spring is lifted and the insulated ring or terminal which is closed to the other point of the loop plug, whereby the two line terminals of the switch are connected with different points of the plug and the test piece of the switch connected with the normal contact point of the main spring or lever, substantially as shown and described.

2. The combination in a spring jack switch of the main spring *b* and the contact *c* carried upon an auxiliary spring *d* having less force than the main spring and the test piece *g* accessible at the front of the spring jack with which test piece the spring *d* is adapted to close when the main spring is lifted, substantially as and for the purpose specified.

3. In a spring jack switch, the combination with the main spring or lever, of a yielding contact or connection against which said spring is adjusted to normally press, and a stop for limiting the movement of said yielding contact toward said spring, substantially as and for the purpose specified.

489,571. SPRING-JACK SWITCH FOR TELEPHONE-EXCHANGES. CHARLES R. SCRIBNER and WILLIAM R. PATTERSON, Chicago, Ill., assignors to the Western Electric Company, same place. Filed Jan. 21, 1892. Serial No. 418,857. (No model.)



Claim.—1. In a spring jack switch, the combination with the test thimble provided with the oblique extension of the tubular piece adapted to be connected to ground, which tubular piece is insulated from the test thimble, and the pair of springs insulated from one another with their free ends presented to the plug-hole one of said springs being longer than the other, and a plug provided with three contacts, one contact being adapted to connect together the thimble and tubular piece, another contact being adapted to connect with the longer of the springs, while the third contact or tip of the plug is adapted to form an electrical connection with the shorter of said springs when the plug is inserted, substantially as and for the purpose specified.

2. In a spring jack switch, a pair of springs or contact pieces insulated from one another by a strip of rubber or other insulating material, said material extending throughout such lengths of the springs as are straight or flaxe and adapted to flex when the springs are flexed, whereby said contact springs are insulated from one another and adapted to move together when flexed, substantially as described.

3. In a strip of spring jack switches, the combination, with the rubber front provided with test thimbles having extensions, of the combs carrying the pairs of contact springs of the switches, and provided with slots for the extensions from the test thimbles and an intermediate bar provided with tubular extensions, one tubular extension corresponding to each test thimble, substantially as specified.

4. In a spring jack switch, a test thimble provided with an oblique terminal extension, and a tubular portion, said thimble and tubular portion being insulated from one another, in combination with contact springs having their free ends presented to the plug hole formed by said thimble and tubular piece, and a plug adapted to be inserted therein to connect the thimble and tubular piece together and make separate connection with the insulated contact pieces, substantially as specified.

5. A spring jack switch, having the thimble or test piece thereof provided with a rearwardly projecting extension, in combination with a tubular portion corresponding in position to the said thimble, said tubular portion being connected with ground and provided with a perforation larger than the terminal extension from the thimble through which said extension piece passes, whereby the insulation of the thimble or test piece is secured, substantially as specified.

6. In a strip of spring jacks, the combination with a strip of insulating material, of test thimbles inserted in perforations therein and provided with shoulders adapted to rest against the bottoms of counter-sunk portions of said perforations, and a metallic bar having cylindrical extensions projecting into the same perforations from the opposite side of the strip, substantially as described.

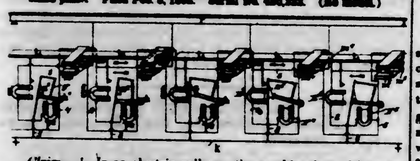
489,572. PRINTER'S GALLEY. EDWIN L. SHATTUCK, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed May 12, 1892. Serial No. 432,718. (No model.)



Claim.—1. A printer's galley composed of a metal base plate and tubular metal rails united by screws the heads of which bear upon the inner surface of the lower plate of the said rails, substantially as described.

2. A printer's galley composed of a metal base plate and tubular metal rails united by screws the heads of which bear upon the inner surface of the lower plate of said rails and fill the openings in the upper plate of said rails through which they are entered, substantially as described.

489,573. CONDUCTOR SYSTEM FOR ELECTRIC RAILWAYS. GEORG W. VON SIEMENS, Berlin, Germany, assignor to Siemens & Halske, same place. Filed Feb. 3, 1892. Serial No. 420,322. (No model.)



Claim.—1. In an electric railway, the combination with a contact conductor composed of a series of relatively insulated sections, a supply conductor, normally interrupted connections between the supply and contact conductors, an electro-magnetic device for each contact section, and armatures adapted to be successively operated by a magnetic device on the vehicle, to close the circuit through said magnetic devices, to complete the interrupted supply connection of the section into which the vehicle is moving, and interrupt the corresponding connection of the preceding section.

2. In an electric railway, the combination with a contact conductor composed of a series of relatively insulated sections, a supply conductor, normally interrupted connections between the supply and contact conductors, an electro-magnetic device for each section, comprising electro-magnetic circuit completing and locking means, and a series of armatures adapted to be operated by an electro-magnetic device on the car to operate the circuit closing device of one section, and release the lock of the preceding section.

3. In an electric railway, the combination with a contact conductor composed of a series of relatively insulated sections, a main supply conductor, normally interrupted connections between the supply and contact conductors, a device for each section comprising magnets having spring retracted circuit closing and locking armatures, and a series of armatures *n'*, &c., adapted to be actuated by an electro-magnetic device on the car to operate the circuit closing magnet of one section, and the retracting magnet of the locking armature of the adjoining section, substantially as described.

4. In a system of electrical distribution for railways, the combination of a continuous main insulated conductor, a contact making conductor composed of a series of sections insulated from one another, a series of electro-magnetically controlled contacts for electrically connecting and disconnecting the said main conductor with the respective sections of the sectional conductor, normally open shunt circuits including the magnets of said contacts, magnetically controlled contacts for making and breaking said shunt circuits, and a magnet traveling with the car adapted to operate said contacts of the shunt circuits in the manner and for the purpose described.

5. In a system of electrical distribution for railways, the combination of a continuous main insulated conductor, a contact making conductor composed of a series of sections insulated from one another, a series of electro-magnetically controlled contacts for electrically connecting and disconnecting the said main conductor with the respective sections of the sectional conductor, normally open shunt circuits including the magnets of said contacts, magnetically controlled contacts for making and breaking said shunt circuits, lock armatures for retaining the contacts of said shunt circuits, electromagnets for releasing said lock armatures, and second normally open shunt circuits including said releasing magnets controlled by the contacts of the first shunt circuits in the order described, whereby the closure of circuit through one of the sections of the sectional conductor is released simultaneously with the closure of circuit through a succeeding section.

489,574. PROCESS OF OBTAINING AND SEPARATING SULPHIDE OF NICKEL. ROBERT M. THOMPSON, New York, N. Y. Filed June 20, 1892. Serial No. 437,264. (No specimens.)

Claim.—1. The hereinbefore described method of producing crude nickel for use in the production of nickel sulphide consisting in smelting ores, mattes or other bodies containing nickel with the "tops" rich in caustic alkalies, produced from smelting crude nickel with alkaline sulphides or other re-agents producing sulphides of alkaline metals or ammonium in previous operations.

2. The hereinbefore described method of producing and separating crude nickel for use in the production of sulphide of nickel consisting in smelting the ores, or mattes containing nickel with a concentrated alkali, produced by allowing the "tops" resultant from the smelting of crude nickel with sulphides of alkaline metals or ammonium in previous operations to decompose by exposure to air, and then separating the insoluble portions, and allowing the nickel sulphide so formed to settle and separating the same after settling.

489,575. PROCESS OF OBTAINING AND SEPARATING SULPHIDE OF NICKEL. ROBERT M. THOMPSON, New York, N. Y. Filed June 20, 1892. Serial No. 437,265. (No specimens.)

Claim.—1. The hereinbefore described method of producing and separating sulphide of nickel, consisting in smelting the ore, mattes or other bodies containing nickel with a suitable reagent or flux, substantially as set forth, whereby the nickel is converted into crude metallic nickel, in allowing the crude nickel to settle and separate by gravity, in separating the same after settling, and remelting with niter or salt cake substantially as set forth, with an excess of carbon, whereby the niter or salt cake is decomposed and sulphide of soda formed, which unites with the crude nickel to form nickel sulphide, and in allowing the nickel sulphide to settle and separate by specific gravity and in separating the same after settling.

2. The hereinbefore described method of producing sulphide of soda for use in producing nickel sulphide from crude nickel, consisting in smelting the crude nickel with commercial salt cake or niter cake with an excess of carbon, whereby the cake is decomposed, and sulphide of soda formed, which unites with nickel to form nickel sulphide.

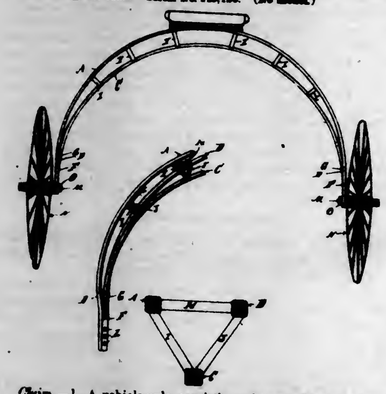
3. The hereinbefore described method of producing and separating sulphide of nickel from crude nickel by smelting the same with commercial niter cake or salt cake or other similar soda salt in a furnace with an excess of carbon whereby the soda salt is decomposed and sulphide of soda formed, which unites with the nickel to form nickel sulphide, in allowing the latter to settle and separate by specific gravity, and in separating the same after settling.

489,576. PROCESS OF OBTAINING AND SEPARATING SULPHIDE OF NICKEL. ROBERT M. THOMPSON, New York, N. Y. Filed June 20, 1892. Serial No. 437,203. (No specimens.)

Claim.—1. The hereinbefore described method of producing a sulphide of any alkaline metal or ammonium for use in processes for producing and separating sulphide of nickel from crude nickel consisting in smelting the crude nickel in a suitable furnace with "tops" rich in a sulphide of an alkaline metal or ammonium resultant from the final separations of the sulphide of nickel in other similar operations.

2. The hereinbefore described method of producing and separating sulphide of nickel consisting in smelting the ores, or matter containing nickel with suitable re-agents substantially as described, and in allowing the crude nickel so formed to settle, in separating the same after settling in any convenient manner and in smelting the same in a suitable furnace with tops rich in a sulphide of an alkaline metal or ammonium resultant from the final separations of the sulphide of nickel in previous similar operations, and in allowing the sulphide of nickel so formed to settle and in separating the same after cooling.

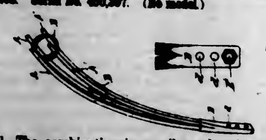
489,577. VEHICLE-AXLE. JAMES W. VADEEN, Greenville, Pa. Filed Aug. 16, 1892. Serial No. 443,120. (No model.)



Claim.—1. A vehicle axle, consisting substantially of three semi-circular or arched sections, two of which are on the same horizontal plane, and the third centrally below these, the ends of which are secured together in metal sections, adapted to receive and support removable wheel spindles, and the central portion thereof by means of braces, substantially as and for the purpose set forth.

2. The combination in a vehicle axle, of a central arched portion consisting of sections A, B, and C, secured together centrally by braces H, I, and J, with sections F, secured to the ends of said central arched portion, and removable spindles, adapted to be adjusted up and down in the end sections F, substantially as and for the purpose set forth.

489,578. SULKY-AXLE. JAMES W. VADEEN, Greenville, Pa. Filed Oct. 20, 1892. Serial No. 449,397. (No model.)



Claim.—1. The combination in a sulky axle, of four or more arched sections, with braces securing said arched sections together so as to form substantially a tubular arch, substantially as and for the purpose set forth.

2. The combination in a sulky axle, of four or more arched sections, with braces gradually decreasing from the center toward the ends of the axle securing said arched sections together, so as to form substantially a tubular arch, and end sections securing the ends of the arched sections of the axle together, substantially as and for the purpose set forth.

3. The combination in a sulky axle, of four or more arched sections, and braces securing said arched sections so as to form substantially a tubular arch, with end sections securing the ends of the arched sections together, and removable wheel spindles, secured in said end sections, substantially as and for the purpose set forth.

489,579. POLE OR THILL COUPLING. PHILLIP WEIGNER, Saylor Springs, Ill. Filed Aug. 16, 1892. Serial No. 443,211. (No model.)



Claim.—1. The combination with the upper plate with hook at one end, and a hole in its under side of the plate having a lug at one end to engage the hole in the hooked plate, and a bolt rising from between its ends through a hole in the upper plate, and a thumb nut on the upper end of the said bolt, as and for the purpose specified.

2. The combination with the hooked plate having a hole in its under face, of a plate swiveled on the said plate and provided with a lug at one end to enter said hole and a bolt projecting upward from the under plate between its ends and passing through a hole in the upper plate, and a thumb nut on the upper end of the bolt above the upper plate, the hook of the upper plate extending below the lower face of the lower plate, substantially as and for the purpose specified.

489,580. BULLET-MOLD. JOHN H. BARLOW, New Haven, Conn. Filed May 12, 1892. Serial No. 432,892. (No model.)

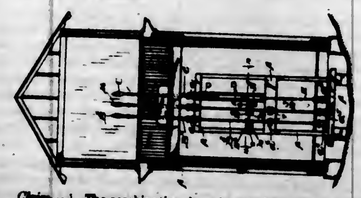


Claim.—1. The mold body having the opening therethrough, the sleeve screw-threaded axially of the lower end of said opening, and the shoulder plunger having its upper end conformed to the shape of the point of the ball, and filling the opening and having its lower end passing loosely through the sleeve, the whole arranged substantially as specified.

2. In a bullet mold of the character described, the combination with the body having a vertical opening extending through the same, said opening adapted to fix the diameter of the ball, of a vertically movable plunger having its upper extremity conformed to the shape of the tip of the ball to be cast and provided with a shoulder, and a sleeve connected to the body and adjustable therein, the plunger adapted to have a sliding movement within said sleeve, substantially as described.

3. In a bullet mold of the character described, the combination with the body having the opening extending through the same, of the plunger having a shoulder thereon and seated in the opening, a sleeve engaging the plunger beneath the shoulder and adapted to limit its downward movement and a screw-threaded connection between the sleeve and body whereby the former is rendered adjustable within the latter and thereby the capacity of the mold varied, substantially as and for the purpose set forth.

489,581. INTERLOCKING SWITCH AND SIGNAL. CHRISTIAN A. CHRISTOPHERSEN, Indianapolis, Ind. Filed June 23, 1892. Serial No. 437,760. (No model.)



Claim.—1. The combination, in an interlocking signal apparatus, with the signal lever and the wires ropes or chains running to the signals, of a latch-bar, a catch connected to each of said chains and adapted to engage with said latch bar, a cam shaft passing transversely of the catches and bearing a cam or cams adapted to shift the positions of said catches, and an engagement between the cam shaft and the switch lever.

2. The combination, in an interlocking signal apparatus, of a single signal lever carrying the catch-bar, two or more catches connected to the signal chains ropes or wires, and adapted to alternately engage with said catch bar, and mechanism by which the engagement and disengagement of said parts is effected, said mechanism consisting of fixed supports whereby said catches are thrown toward said latch by gravity, and a locking cam positioned between them whereby the force of gravity is overcome and first one and then the other of said catches thrown out of said engagement.

3. The combination, in an interlocking signal apparatus, of the signal lever, the chains ropes or wires running to the signal apparatus, a connection between said lever and said chains, ropes or wires, consisting of a vertically movable latch-bar and vertically arranged catches adapted to engage over a head or into notches on said latch-bar, and supports for said catches when disengaged.

4. The combination, in an interlocking signal apparatus, with catches arranged vertically in a housing and provided with side extensions or wings, of rests or supports in said housing below said wings adapted to support said catches and cause them to incline inwardly by the force of their own gravity.

5. The combination, in an interlocking signal apparatus, of the housing D, a catch-bar moving vertically in said housing, a stop to limit its downward movement, two or more catches adapted to alternately engage therewith, and a cam located between said catches, whereby one or the other, but not both, are thrown and held out of engagement with said latch bar.

6. The combination, in an interlocking signal apparatus, of the switch lever, connections to the signals which are attachable and detachable to and from said lever, a rock-shaft having a cam by which the detachment is effected, arms on said rock-shaft, and fingers mounted on the rods connected to the switch levers and extending behind the arms on the rock shaft, and adapted as said rods are pulled to come in contact with said arms and thereby operate said rock shaft.

7. The combination, in an interlocking signal apparatus, of switch levers, rods running therefrom to the switches, projecting fingers thereon, a signal lever, two or more connections running thereto from signals at a distant point which are adapted to be alternatively engaged therewith, means of engagement consisting of catches which are automatically forced into engagement, and a cam on a rock-shaft adapted to be operated by the fingers on the switch rods to effect such disengagement.

8. The combination, of the switch levers B and B', rods running therefrom to the switches, and provided with fingers, the signal lever C, the vertically moving latch bar C', a housing D within which said latch bar is situated, catches F' and G' also within said housing arranged to engage with said latch bar, a cam mounted on a rock-shaft and situated between said catches, a weighted arm on said rock shaft whereby it is normally held in position, and other arms thereon with which the fingers on the switch rods will engage, whereby its position will be changed as the switches are opened, and a different one of the catches brought into engagement with the latch bar, thus making ready for the display of a different signal.

9. The combination with the catches of an interlocking signal apparatus, of a cam mounted on a rock shaft and situated between said catches, a weighted arm on said shaft for holding said cam in one position, whereby one of said catches will engage with the latch bar, and other arms which engage with fingers or projections on the switch rods, whereby the position may be reversed.

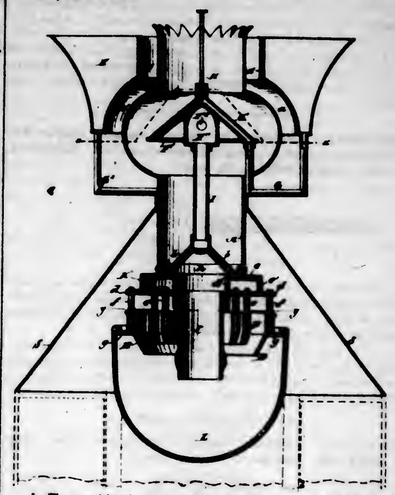
489,582. REGENERATIVE LAMP. ANDREW J. ENSLEN, Cincinnati, Ohio. Filed Apr. 19, 1892. Renewed June 9, 1892. Serial No. 436,606. (No model.)

Claim.—1. In a regenerative lamp of the character described, the combination with the inverted burner, and an uptake chimney, of a vaporizing retort located within the chimney above the burner, and having an air inlet opening, and a hydrocarbon reservoir communicating with said retort, substantially as described.

2. In a regenerative lamp, the combination of an annular inverted burner, a refractory deflector located within the burner, an uptake chimney, a vaporizing retort located in said chimney above the burner, a hydrocarbon reservoir, and pipe connections between the retort and burner, substantially as described.

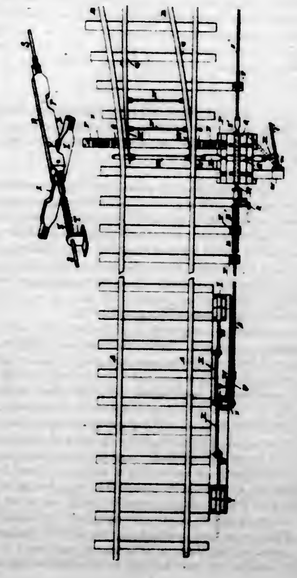
3. In a vaporizing lamp, the combination of an annular depending burner, an uptake chimney, a vaporizing retort located in said chimney above the burner and having an air-inlet opening and an equalizing supply chamber from which the burner is suspended, said chamber being connected with the retort, substantially as described.

4. The combination and arrangement in a regenerative lamp of the character described, of the annular reservoir, E, chimney, A, retort, G', supply pipe, G, and their immediate attachments with the supply pipe, I, and connected parts constituting the lamp proper, substantially as set forth.



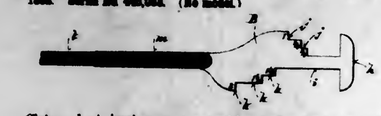
5. The combination with the annular burner, a cylindrical deflector C projecting downward within the burner, an annular gas chamber K from which the burner is suspended and an uptake chimney communicating with the cylindrical deflector, of the reservoir E surrounding the upper part of the chimney, the shield F located in the chimney and provided with retort G' gas chamber F' and valve H, the pipe G connecting the reservoir and retort, and the pipe I connecting the gas chambers F' and K, substantially as set forth.

489,583. AUTOMATIC SAFETY RAILWAY-SWITCH. HENRY C. O. GRUELLE, Morris, Ill. Filed July 6, 1892. Serial No. 439,096. (No model.)



Claim.—In an automatic switch, the combination, with mechanism for opening the switch, of a notched slide-bar, a locking-bar for engaging the notch in the slide-bar to hold the switch open, a rod connected to the locking-bar, springs for pulling the locking-bar into engagement with the notch in the slide-bar, a crank-lever, a link connecting the crank-lever to the rod, contact-bars pivoted at their inner ends to the crank-lever, guides, guide-bars sliding in the guides and pivotally connected to the outer ends of the contact-bars, and springs for closing the switch, substantially as described and for the purpose set forth.

489,584. LUMBER-GAGE. FRANK O. HAVENER, Rockport, Me., assignor of one-half to William H. Douglass, Reese, Ohio. Filed Sept. 5, 1892. Serial No. 445,082. (No model.)



Claim.—1. A lumber-gage comprising a plate having a T-head and two series of graduated shoulders running diagonally in opposite directions therefrom and a socket at the opposite end of said plate adapted to receive a pencil or handle.

2. The plate, B, having the T-head, *h*, shank, *i*, and diagonally arranged shoulders, *j*, *k*, in combination with the socket, *m*, secured to said plate and having the interiorly-threaded mouth, and the pencil or handle, *l*, all being arranged to operate substantially as described.

489,585. FUNNEL. THOMAS W. JOHNSON, Boston, Mass. Filed May 4, 1892. Serial No. 431,796. (No model.)



Claim.—The combination of a funnel, divided into compartments, having a strainer at the bottom, with tubes running from the bottom, with rods having stoppers attached thereto, said rods extending upward through the compartments, jointed at their upper ends and springs for operating the same; substantially as described.

489,586. MACHINE FOR CUTTING, POINTING, AND SHAPING RODS. JOHN W. R. JOHNSON, Richmond, Va., assignor to the Tredegar Company, same place. Filed July 13, 1892. Serial No. 439,813. (No model.)

Claim.—1. The combination, substantially as hereinbefore set forth, of a bed plate, a pointing bit mounted thereon, a reciprocating cross head and bar carried by and reciprocating with the cross head, a pointing bit mounted thereon, a housing, pressure rollers mounted therein and bearing on the reciprocating bar, a shear block mounted on the bed plate, and a shear block mounted on the cross head.

2. The combination, substantially as hereinbefore set forth, of a stationary and a reciprocating pointing bit, and arms or levers for raising the blank into position between the bits.

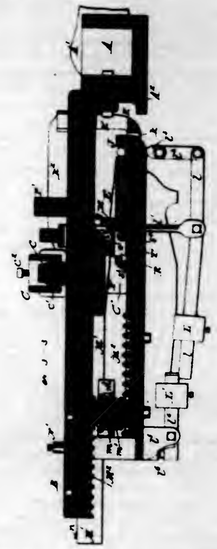
3. The combination, substantially as hereinbefore set forth, of a reciprocating bar, a pointing bit carried thereby, a bed plate, a pointing bit mounted thereon, lifting arms secured to the bed plate, and means carried by the reciprocating bar for operating the lifting arms.

4. The combination, substantially as hereinbefore set forth, of a reciprocating bar, a pointing bit carried thereby, a bed plate, a pointing bit mounted thereon, brackets for supporting a rod to be operated upon, lifting arms pivotally connected with the bed plate, and means carried by the reciprocating bar for operating the lifting arms.

5. The combination, substantially as hereinbefore set forth, of a reciprocating bar, a pointing bit carried thereby, a bed plate, a pointing bit mounted thereon, lifting arms pivotally connected with the bed plate, means carried by the reciprocating bar for raising and lowering the lifting arms, and counterbalancing devices connected with the lifting arms to raise them to their normal position.

6. The combination, substantially as hereinbefore set forth, of a reciprocating bar, a pointing bit carried thereby, a bed plate, a pointing bit mounted thereon, pivoted lifting arms mounted on the bed plate, and lugs carried by the lifting arms and engaging lugs carried by the reciprocating bar.

7. The combination, substantially as hereinabefore set forth, of the bed plate, a pointing bit mounted thereon, a reciprocating bar, a pointing bit carried thereby, a carrier means for operating it, and devices for feeding the bar operated upon to the carrier.



8. The combination, substantially as hereinabefore set forth, of a bed plate, a pointing bit mounted thereon, a reciprocating bar, a pointing bit carried thereby, a carrier, and connections between the carrier and the reciprocating bar for reciprocating the carrier.

9. The combination, substantially as hereinbefore set forth, of the bed plate, a pointing bit mounted thereon, a reciprocating bar, a pointing bit carried thereby, a reciprocating carrier, racks carried by the bed plate and the reciprocating bar, and pinions gearing with said racks, and connected with the carrier.

10. The combination, substantially as hereinbefore set forth, with the stationary and the reciprocating pointing bits, of a reciprocating carrier, devices for discharging the pins from the carrier, and means for operating the discharging devices.

11. The combination, substantially as hereinbefore set forth, with the stationary and the reciprocating pointing and severing bits, of a transversely moving sweep for discharging the pins from the machine.

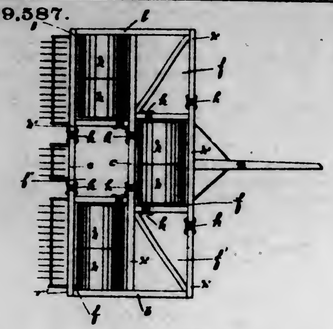
12. The combination, substantially as hereinbefore set forth, of the bed plate, a pointing bit mounted thereon, a reciprocating bar, a pointing bit carried thereby, a carrier, means for reciprocating it, a sweep moving in a transverse channel of the bed plate, and means for operating the sweep.

13. The combination, substantially as hereinbefore set forth, with the stationary and reciprocating pointing and severing bits, a reciprocating carrier, discharging knuckles, the weighted levers acting thereon, the transversely moving sweep.

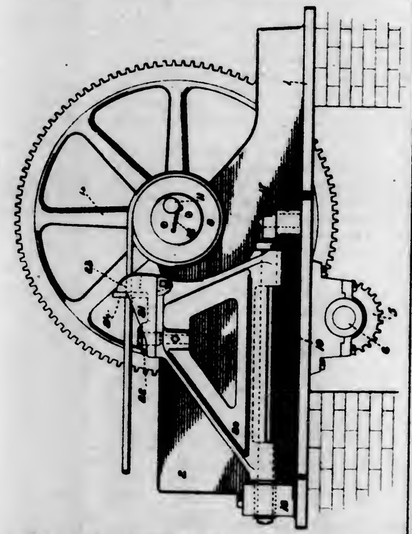
489,587. LAND-ROLLER. ENOCH KIRK, Milton, Ohio. Filed Sept. 17, 1892. Serial No. 446,192. (No model.)

Claim.—In land rollers, the land roller formed by the combination of the three similar rectangular frames *f f f*, each provided within its quadrangle with two similar rollers *r r* having the common fixed axis *a*, the middle frame *f* advanced forward of the two rear frames *f f* and jointed together by the hinge joints *h* formed of two horizontal parts overlapping and firmly pivoted to the vertical rounded contiguous ends of the rails *r*, and the cross bars *b* of the frames, in double joints between the rear frames *f f*, and in single joints for the forward frame *f*, to which is attached the neap *n*, and the empty frame *f' f'*, all substantially as described and for the purpose expressed.

489,587.



489,588. WIRE-DRAWING MACHINE. GEORGE B. LAMB, Waterbury, Conn. Filed June 22, 1892. Serial No. 437,566. (No model.)



Claim.—1. In a machine for drawing wire, a wire block both revolubly supported and having a peripheral recess formed in a line spiral to the axis of said block, and a drawing-in chain having a suitable vise said vise secured to the block and adapted to be contained within said recess, in combination with a drawing die and a rocking support for the same, substantially as specified.

2. In a wire-drawing machine, the combination with a revolubly supported wire block, of a die-carrying rocker, mounted upon the base with its axis at right angles to and below the plane of the wire block, and in line with the die opening said rocker extending upward in front of the wire block, and a die-holder mounted upon the top of said rocker, substantially as and for the purpose set forth.

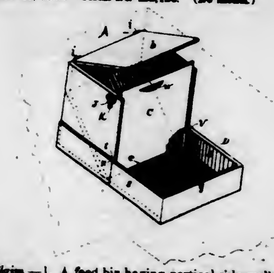
3. In a wire drawing machine, a revolvable wire block provided with a gripping device for drawing-in and holding the wire, in combination with a shaft mounted on the bed below the wire block and extending parallel to the lead of the wire, a laterally swinging rocker mounted on said shaft, and a die holder secured upon and carried by said rocker in proper juxtaposition to the wire block, substantially as specified.

4. In a wire drawing machine, the combination with the main shaft, of the wire block provided with means for engaging it with said shaft, and provided also with a spirally arranged peripheral recess, the drawing-in chain and vise adapted to lie in said recess, the rocker arranged upon a shaft at right angles to the main shaft and below the plane of the latter, and a die-holder supported upon the top of the rocker, the whole arranged and adapted to operate substantially as specified.

5. In a wire-drawing machine, the combination with a revolubly wire block having means for holding and drawing in the wire, of a rocker having its axis below the plane of the wire block and at right angles to the axis of the latter and in line with the lead of the wire and having its upper end extending upward to a point above the axis of the block said rocker provided at its top with means for supporting a die, the whole arranged substantially as described, whereby the die as carried by the rocker may have a traversing motion parallel with the winding surface of the block, as and for the purpose specified.

6. In a wire-drawing machine, and in combination with a suitable rotative wire block, the pivotally mounted rocker substantially as described, the die holder pivotally secured upon the top of said rocker, and adjustable stops interposed between the rocker and holder, whereby the movement of the latter on its axis may be controlled and varied, substantially as specified.

489,589. FEED-TROUGH. THOMAS LEVIS, Townsend, N. Y. Filed Feb 19, 1892. Serial No. 422,120. (No model.)



Claim.—1. A feed bin having vertical side walls, one of which is vertically adjustable a bolt J arranged to pass through the wall of the bin a nut *k* on the bolt to impinge the wall and hold the vertical wall in an adjustable position, a feed box hinged to the vertical side walls at the bottom of the bin, and a hinged cover for the feed bin as set forth.

2. The herein described feed-bin consisting of the vertical sides and back and an inclined bottom, a feed box secured to the bottom by hinges, a retaining spring secured to the wall underneath the feed bin, a button to hold the feed box in a horizontal position, an adjustable front to the feed bin and means for holding it in adjustment and a hinged cover for the feed bin substantially as set forth.

489,590. MACHINE FOR DOUBLING WEBS OF FABRIC LONGITUDINALLY AND STITCHING THE EDGES. ERWIN T. MARBLE, Erwin H. Marble, and Fred. H. Gerber, Worcester, Mass. Filed Aug. 20, 1892. Serial No. 443,636. (No model.)

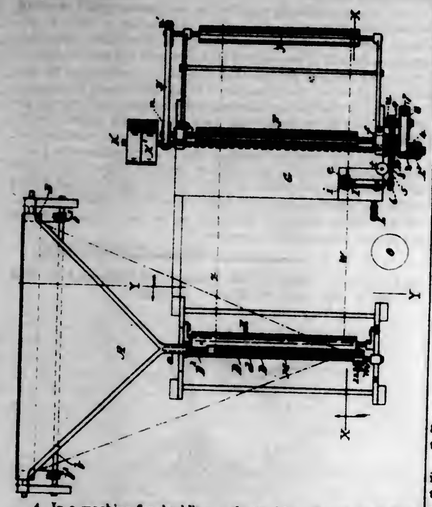
Brief.—The cloth is folded longitudinally by being passed upwardly over a triangular frame or table A and then downwardly through a doubler-guide formed of two inclined bars D, the said guide being laterally adjustable to accommodate various widths of cloth. The folded cloth is passed under guide-roll E and between draft-rolls F F, and just before passing between rolls F F the edges are stitched together by sewing mechanism I. The drive-shaft K rotates continuously, and the operating parts of the machine are connected therewith by means of a clutch 4.

Claim.—1. In combination, substantially as described, the upwardly inclined triangular frame or table, the parallel guide-bars with intervening space *d*, extending obliquely downward from the apex of said frame, and laterally adjustable in relation to the direction of draft, the guiding roll E beneath said guide-bars, the support-table G, the pair of draft-rolls across the rear of said support-table, the sewing mechanism arranged on said support-table in front of said draft-rolls, the driving-shaft K, and operating belts and gearing whereby motion is imparted from said shaft simultaneously to said draft-rolls and sewing mechanism, for the purposes set forth.

2. In combination, substantially as described, the table G, the pair of draft-rolls F, the stitching mechanism I mounted on said table, the drive-shaft K carrying the loose pulleys 2 and 3, the clutch 4 therefor, the intermediate pulley 8 with pinion 9, its belt 7, the gear 10 fixed on the draft-roll arbor and meshing with said pinion, the stitcher-operating belt 5 on pulley 3, and treadle devices L controlling said clutch, all substantially as and for the purpose set forth.

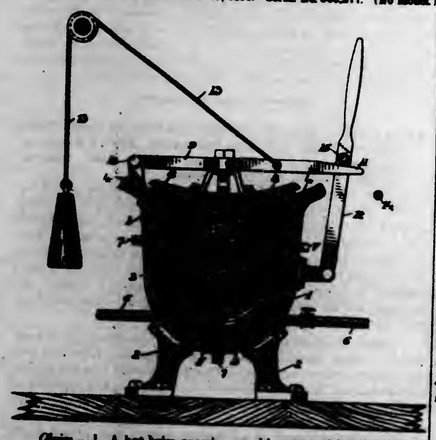
3. A doubler-guide that is laterally adjustable in relation to the direction of draft, in combination with the triangular frame or table,

the draft-rolls and the sewing mechanism, substantially as and for the purpose set forth.



4. In a machine for doubling and attaching selvages of fabrics, the combination, substantially as described, of the guide-holder socket *a*, the inclined guide-bars D having at one end the stud 12 telescoping with said socket, the bearing-slide fixed to the other ends of said guide-bars, the support-rod whereon said bearing-slide is mounted and a screw or clamp-device for securing the same at positions of adjustment on said rod, as and for the purpose set forth.

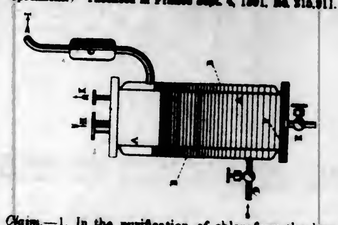
489,591. HAT-BRIM-PRESSING MACHINE. JAMES MARSHALL, Fall River, Mass. Filed Oct. 28, 1890. Serial No. 369,377. (No model.)



Claim.—1. A hat-brim pressing machine, comprising the following elements, the vessel or casing 1 flanged at its upper end as shown, the pot 2 of lesser external area than the interior of the vessel 1 and having the flange 4 which rests upon the flange of vessel 1, said pot depending within the vessel 1 in a manner to leave the steam chamber or space 5 between its walls and the walls of the vessel, the steam pipes 6 in communication with said chamber 5, a pressure plate 8 pivotally connected with operating mechanism, as described, which plate operates upon the brim of a hat resting upon the flange 4 of the pot, all constructed and arranged substantially as shown and described.

2. In a hat brim pressing machine, the cup-shaped vessels 1, 3, flanged at their upper edges and resting one within the other in such manner as to form the steam space 5 between the adjacent walls as shown, the steam-pipes 6 in communication with said chamber, in combination with the pressure plate 8 pivotally connected to the lever 9 fulcrumed at one end between ears upon the vessel or pot 2, a cord and weight to keep said plate normally elevated, and an operating lever 12 to apply pressure to the lever 9 which controls the movement of the plate 8, all constructed and arranged substantially as and for the purpose set forth.

489,592. PROCESS OF PURIFYING CHLOROFORM. RAOUL P. PICTET, Berlin, Germany. Filed May 18, 1892. Serial No. 433,982. (No specimens.) Patented in France Sept. 4, 1891, No. 215,911.

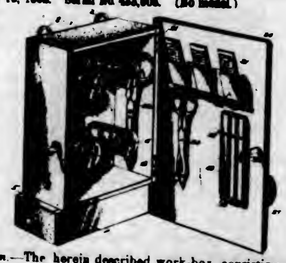


Claim.—1. In the purification of chloroform the improvement which consists in cooling ordinary commercial chloroform to about—80° to—82° centigrade, and removing by filtration the solid bodies thereby formed, substantially as described.

2. The process of purifying chloroform, which consists in cooling the chloroform to about—80° to—82° centigrade, filtering, crystallizing the chloroform, and eliminating the non-crystallizable part, substantially as described.

3. The process of purifying ordinary commercial chloroform which consists in solidifying the foreign bodies crystallizable before the temperature reaches—80° and in filtering the cold liquid mass, crystallizing the chloroform itself and eliminating from it the final non-crystallizable part which contains the impurities, and finally distilling the chloroform thus obtained at a very low temperature and collecting the middle products, substantially as described.

489,593. WORK-BOX. ELWOOD T. EAMES, Geneseo, Ill. Filed May 19, 1892. Serial No. 433,608. (No model.)



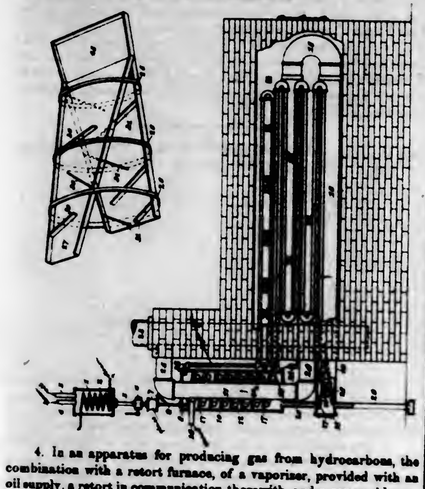
Claim.—The herein described work-box, consisting of a body, with supports therein, having a T-shaped cleat extending across the bottom thereof from end to end, a drawer having inturned edges engaging the edges of said cleat and adapted to open from one end of the body, a projection on one side of the body, and a cover hinged to the other side of said body and provided with interior and exterior supports, and a spring catch adapted to engage the projection on said body, said cover being longer than the body and closing over and hiding said drawer on the front side, substantially as described.

489,594. APPARATUS FOR PRODUCING GAS. JAMES S. ROGERS and JAMES H. BAKER, Saratoga Springs, N. Y. Filed Mar. 17, 1892. Serial No. 425,282. (No model.)

Claim.—1. In an apparatus for producing gas from hydrocarbons, a vaporizer having a chamber therein, and hydrocarbon supply and vapor exit pipes communicating therewith, a steam coil located in said chamber, and a coiled pan into or onto which the hydrocarbon is discharged, the pan being arranged in proximity to the steam-coil, the arrangement of the pan and steam coil being such that the steam coil does not come in contact with the hydrocarbon as it flows through the pan, substantially as shown and described.

2. In an apparatus for producing gas from hydrocarbons, a vaporizer having an annular chamber therein and hydrocarbon supply and vapor exit pipes communicating therewith, a steam coil arranged therein, and a pan or plates also coiled in said chamber and following the convolutions of the steam coil, the arrangement of the pan and steam coil being such that the steam coil does not come in contact with the hydrocarbon as it flows through the pan, substantially as shown and described.

3. In an apparatus for producing gas from hydrocarbons, a vaporizer provided with an outer and an inner tube or casing, having an annular chamber between said tubes or casings, and hydrocarbon and vapor supply and exit pipes communicating therewith, a steam-coil within said chamber, a coiled pan or flanged plates, arranged in proximity to said coil and means for directing the hot products of combustion from the retort furnace through the inner tube or casing, the arrangement of the pan and steam coil being such that the steam coil does not come in contact with the hydrocarbon as it flows through the pan, substantially as shown and described.



4. In an apparatus for producing gas from hydrocarbons, the combination with a retort furnace, of a vaporizer, provided with an oil supply, a retort in communication therewith, and a removable secondary, or auxiliary vaporizer within one end of the retort, or an extension thereof, substantially as shown and described.

5. In an apparatus for producing gas from hydrocarbons, the combination with a retort furnace of a vaporizer, provided with an oil supply, a retort one end of which is in communication with the bottom of the vaporizer, and a secondary or auxiliary vaporizer within the end of the retort, into, or upon which, the hydrocarbon from the vaporizer which is not vaporized is dropped, substantially as shown and described.

6. In an apparatus for producing gas from hydrocarbons, the combination with a furnace, of a retort provided with an extension as 19, a vaporizer having an oil supply, the bottom of the vaporizer being in communication with the top of said extension, a waste pipe communicating with the bottom of said extension, and a secondary or auxiliary vaporizer within said extension and forming a connection or communication between the opening which leads to the vaporizer and that of the waste pipe, substantially as shown and described.

7. In an apparatus for producing gas from hydrocarbons, the combination, with a furnace, of a vaporizer having an oil supply, a retort in communication therewith provided with an auxiliary vaporizer consisting of inclined pans or plates, as 27, and 28, one of which is adapted to receive the unvaporized hydrocarbon from the vaporizer and the outer to convey the same to a waste pipe communicating with the retort, substantially as shown and described.

8. In an apparatus for producing gas from hydrocarbons, the combination with a furnace, of a retort, a vaporizer in communication therewith and provided with an oil supply, a waste pipe opening, or pipe, also in communication with the retort, and an auxiliary, or secondary vaporizer within the retort and adapted to receive from the vaporizer, the hydrocarbon which has not been converted into vapor and discharge the particles thereof which cannot be converted into vapor into the waste opening or pipe, substantially as shown and described.

9. In an apparatus for producing gas from hydrocarbons, the combination with a furnace, of a vaporizer, provided with an oil supply, a retort having ingress and egress openings, one of which is in communication with the vaporizer and the other in communication with a waste pipe, and a secondary or auxiliary vaporizer which forms a communication or connection between said openings, substantially as shown and described.

10. The combination with a furnace, of the retort 18, and a vaporizer in communication therewith and provided with an oil supply, of the secondary vaporizer located within the retort, or an extension thereof, consisting of the flanged plates 27 and 28, provided with the inclined ribs or vanes 30 and 31, substantially as shown and described.

11. In an apparatus for producing gas from hydrocarbons, the combination of a vaporizer, of a retort furnace, a retort located therein in communication with the vaporizer and means for mingling hydrogen or its equivalents with the vapor of the hydrocarbon within the vaporizer, consisting of a pipe or pipes which extend into or through the furnace and communicate with the vaporizer, substantially as shown and described.

489,595. NUT-LOCK. WILLIAM SUTTON, Williamsburg, Ky., assignor of one-fourth to Robert Mellvoy, same place. Filed Apr. 30, 1892. Serial No. 431,269. (No model.)



Claim.—The combination with the fish bar having the indentation at its bolt receiving-opening, and the bolt passing through the opening having a groove along its threaded portion in line with the indentation, of the washer having a bolt receiving-opening, the edge of which is provided with a downwardly and inwardly disposed tongue engaging the indentation of the fish plate and the groove of the bolt, said washer being further provided at opposite sides with parallel upwardly bent wings for embracing the nut and near the beginning of each wing, with tongues upwardly bent at a right angle to the washer and the nut, and a nut one of the corners of which has a notch to engage the tongue, substantially as specified.

489,596. CAST-OFF FOR SUSPENDER-ENDS. GEORGE E. ADAMS, New Britain, Conn., assignor to the Trent & Hine Manufacturing Company, same place. Filed Nov. 19, 1892. Serial No. 452,573. (No model.)



Claim.—1. In a suspender end cast-off, the combination with the body provided with a loop or equivalent means for attachment to a suspender end, and having the centrally arranged guide way therein, of the hook having the shank working in said guide way and a catch for holding the hook elevated, the end of the hook being bent to lie in proximity to or in contact with the body portion when elevated whereby the opening to the hook is closed; substantially as described.

2. In a suspender end cast off the combination with the body portion having the guide way therein and the downward extension or lip, of the hook having the shank working in said guide way and a catch for holding the hook elevated with the downward extension of the body bridging the opening of the hook; substantially as described.

3. In a cast off for suspender ends, the combination with the body portion having the guide way therein, and downwardly projecting extension or lip provided with a recess, of the hook having the shank working in the guide way and the catch projection on the hook co-operating with the recess in the lip or extension on the body: substantially as described.

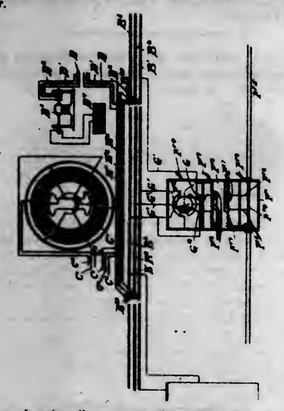
4. In a suspender end cast off, the combination with the body having the guide way therein and lip provided with a recess, of the hook having the shank journaled in the guide way, the spring tongue carried by the shank and the catch projection on the end of the hook co-operating with the recess in the lip for holding the hook in elevated position: substantially as described.

489,597. MULTIPHASE RAILWAY SYSTEM. FRANCIS B. RADY, Chicago, Ill. Filed Feb. 18, 1892. Serial No. 422,160. (No model.)

Claim.—1. In an electric railway system the combination of exposed conductor rails arranged in groups of sections and adapted to be brought into circuit with a moving motor with insulated main conductors, a multiphase generator connected with such mains, a series of converters each having primary coils permanently in the main circuit and secondary coils having part circuits terminating at each end in one exposed rail, said part circuits normally open, a de-

vice to close the same on the approach of the car, said device including a conductor permanently connecting successive groups of rail sections so as to make a permanent connection between them, and a multiphase motor on the car.

2. In an electric railway system the combination of exposed conductor rails arranged in groups of sections and adapted to be brought into circuit with a moving motor with insulated main conductors, a multiphase generator connected with such mains, a series of converters each having primary coils permanently in the main circuit and secondary coils having part circuits terminating at each end in one exposed rail, said part circuits normally open, a device to close the same on the approach of the car, and fore and aft trolleys adapted when on different groups of sections to operate said device and furnish thereby current to the motor of the car, and a multiphase motor on the car.



3. In an electric railway system the combination of exposed conductor rails arranged in groups of sections adapted to be brought into circuit with a moving motor with insulated main conductors and a series of converters each having a primary coil permanently in the main circuit and a secondary coil having a part circuit terminating at each end in one exposed rail, said circuit normally open, a device to close the same on the approach of the car and fore and aft trolleys adapted when on different groups of sections to furnish between them current which operates such device associated with one set of trolleys.

4. In an electric railway system the combination of exposed conductor rails arranged in groups of sections and adapted to be brought into circuit with a moving motor with insulated main conductors, a multiphase generator connected with such mains, and a series of converters each having a series of primary coils permanently in the main circuit and a series of secondary coils having part circuits terminating at each end in one exposed rail, said part circuits normally open, a device to close the same on the approach of the car and fore and aft trolleys adapted when on different groups of sections to furnish the current which operates the device associated with one of the sets of trolleys and said devices including each a conductor permanently connecting two successive groups of rail sections, and a multiphase generator to supply current, and a multiphase motor on the car.

5. In an electric railway system the combination of insulated mains with converters whose primary coils are permanently in circuit therewith, exposed sectional conductors arranged in groups with which the motor on the car is adapted to be connected, a local part circuit whose terminals are the rail sections of a given group and a local part circuit whose terminals are the rail sections in successive groups, the first of said local circuits normally broken and containing the converter secondary coil, the latter of said local circuits permanently connecting said successive groups, and means connected with the latter to close the former responsive to a current delivered from the car, and a multiphase generator to supply current, and a multiphase motor on the car.

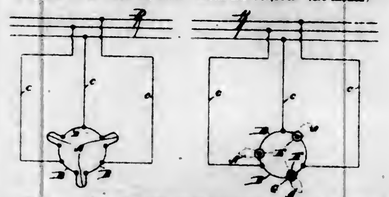
6. In an electric railway system the combination of insulated mains with converters whose primary coils are permanently in circuit therewith, exposed sectional conductors arranged in groups with which the motor on the car is adapted to be successively connected, local part circuits whose terminals are the rail sections of a given group, which circuits are normally broken and contain the secondary coils of a given converter and a supplemental local circuit whose terminals are sections in successive groups, and means connected with the supplemental circuit to close the other local circuits responsive to the current delivered from the car, and a multiphase generator to supply current, and a multiphase motor on the car.

7. The combination of a movable car with means for leading from an insulated conductor a multiphase current thereto, a multiphase motor transformer on such car, a storage device to receive from such motor transformer and a switch to control connections from the insulated cable to the car, said switch responsive to a current delivered from such storage device.

8. In an electric railway system the combination of exposed conductor rails in groups of sections and adapted to be brought into circuit with a moving motor, with insulated main conductors, connections from such main conductors to the rails of each group of sections, a multiphase generator to supply current to such system and a multiphase motor on the car to be actuated by such current.

9. In an electric railway system the combination of exposed conductor rails in groups of sections and adapted to be brought into circuit with a moving motor, with insulated main conductors connections from such main conductors to the rails of each group of sections, a multiphase generator to supply current to such system and a multiphase motor on the car to be actuated by such current, said connections from the rails to the main conductors normally open with a switch interposed and provided with a series of contacts, said switch controlled from the car.

489,598. ELECTRIC-LIGHTING SYSTEM. FRANCIS B. BADT, Chicago, Ill. Filed Oct. 22, 1892. Serial No. 449,206. (No model.)



Claim.—1. The combination of the conductors of a multiphase system with a group of incandescent lamps, the filaments of which are connected in series and conductors leading each from one main line conductor to a point in the series circuit between a pair of lamps.

2. The combination of the conductors of a multiphase system with local conductors leading one from each main conductor, and a series of lamp sockets, conductors connecting one terminal of each socket with the opposite terminal of the other, such conductor connected with the local conductor and a series of incandescent lamps to be inserted in such sockets.

3. The combination of a group of lamps with a supporting rosette, the filaments of said lamps connected in series and having a local conductor leading from a point between each pair of lamps, a fixed base, a series of main line conductors, a local conductor from each main line conductor to a terminal on the fixed base and connecting devices whereby when the rosette and base are brought together each main line conductor is connected with the series conductor at a point between adjacent lamps.

489,599. COMBINATION INDEX DEVICE. SIDNEY P. BAKER, Santa Barbara, Cal. Filed Feb. 18, 1892. Serial No. 421,962. (No model.)

Claim.—1. The within described combination reference index, consisting of a set of double faced, flexible jointed leaves, inserted in a pocket (A^5) of and in combination with an index case (A), standing upon a base (D) in a socket (d') in combination therewith essentially as shown and described.

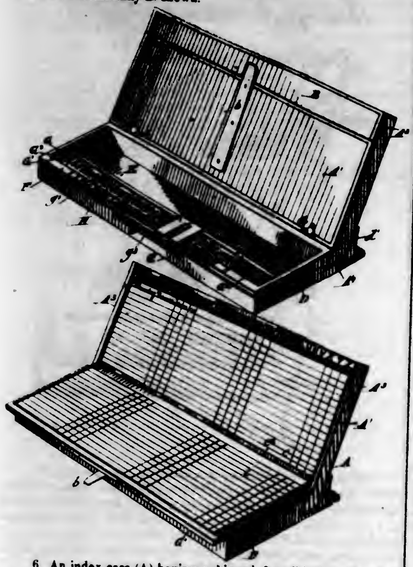
2. In combination with a base having a longitudinal recess and a case adapted to be supported therein, said case carrying a series of leaves or pages which are provided on one edge with a flexible strip to which is secured a strip of similar material to the page or leaf, the opposite side or edge of the sheet having a tab secured thereto, substantially as shown, whereby said leaf may be retained and turned in the case, for the purpose set forth.

3. In combination with a base having a longitudinal recess, a case adapted to be supported thereby in an inclined position, said case having a hinged lid which is adapted to rest upon the base when lowered and provide a support for the index leaves which are carried by and attached to the case, substantially as shown.

4. In an index case the combination of the base having a longitudinal inclined groove or recess, of a case adapted to receive index leaves and be supported in an inclined position with respect to the base, substantially as shown.

5. In combination with a base constructed substantially as shown,

a case adapted to be maintained in an inclined position thereon, said case having a lid which is adapted when opened to lie over the flat portion of the base and provide a flat surface upon which the leaves of the index may rest, said leaves being adapted to be retained within the case and provided with flexible extensions on the lower edge thereof, substantially as shown.



6. An index case (A) having a hinged face lid (A') with finger strap (b), back (A^2), ends (A^3,) bottom (A^4) and pocket (A^5,) all as especially described.

7. An index case having a removable depending portion at its front upper end to which a ruler is secured and a hinged cover for the case, the parts being organized substantially as shown, and for the purpose set forth.

8. A rectangular index case (A), having pocket (A^5) in combination with the index leaves of two parts flexibly joined. The margin or lower part being secured in the pocket (A^5) substantially as described.

9. A rectangular base (D) having socket (d) and back piece (d'), tray (E) and calendar (F), all substantially as described.

10. In an index case, the combination of a base having an upwardly projecting back piece and a raised portion in front of the same, the upwardly projecting parts being of different heights, of a case adapted to be supported between the raised portions of the base, substantially as shown.

11. A rectangular base (D), having socket (d), tray (E), and calendar (F), composed of block (H), sliding in dovetail ways in the base, said block (H) having the days of the week printed thereon and on the base a scale of numbers corresponding to the number of days in the month, substantially as described.

12. The base (D) having the calendar (F) composed of the block (H) sliding in ways in said base, said block having printed thereon the days of the week, the side (G') provided with a scale of numbers corresponding to the number of days of the month, and a slide having a sight aperture adapted to be moved over the block (H) and side (G') for keeping dates, all substantially as described.

489,600. EAVES-TROUGH HANGER. LEWIS S. BOSBAKER, Waynesburg, Ohio. Filed May 16, 1892. Serial No. 433,494. (No model.)

Claim.—1. The combination with an eaves trough having a bead at its front side, of a cross-bar provided at its front end with a hook engaging the bead and having at its rear end a vertical loop to receive the rear side of the trough and provided with tongues arranged at opposite sides of the loop and extending through the trough and bent against the rear portion of the loop, substantially as described.

2. The combination of an eaves trough provided at its front side with a bead, a cross-bar having its front end provided with a hook

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to engage the bead and with a depending lug to prevent the bead moving inward and provided at its rear end with a loop to receive the rear side of the eaves trough, and having tongues arranged at the base of the loop and passing through the back of the trough and preventing the disengagement of the loop, and a vertical plate rising from the cross-bar and provided with means for adjustment, and adapted to be secured to a roof strap or the like, substantially as described.

489,601. CATTLE-GUARD. JOHN J. CALLAGHAN and ALBRO R. HOSS, Stevens' Point, Wis. Filed Oct. 18, 1892. Serial No. 449,344. (No model.)



Claim.—1. A cattle guard section extending longitudinally of a track and consisting of a single sheet of metal and composed of a series of vertical portions and a series of inclined portions, the vertical portions being secured to similar faces of the ties, and the inclined portions each extending upward from the base of one tie to the top and across the adjacent tie, substantially as described.

2. A cattle guard section extending longitudinally of a track and consisting of a single sheet of metal and composed of a series of vertical portions and a series of inclined portions, and a series of curved portions connecting the upper ends of the vertical and inclined portions and presenting a broad smooth surface to avoid injuring animals, substantially as described.

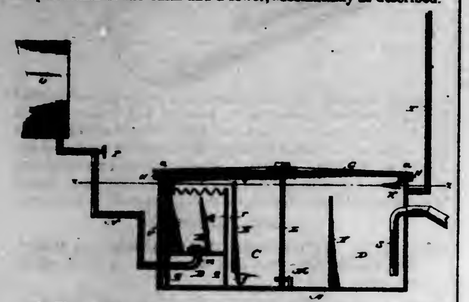
3. A cattle guard section constructed of a single sheet of metal and consisting of a series of inclined portions provided with longitudinal corrugations, a series of vertical portions arranged to be secured to similar faces of cross-ties, and a series of curved portions connecting the upper ends of the inclined and vertical portions, substantially as described.

489,602. BLOW-OFF BASIN FOR STEAM-BOILERS. JOHN F. COTTER, St. Louis, Mo. Filed Mar. 17, 1892. Serial No. 425,224. (No model.)

Claim.—1. The combination of a blow off basin having its interior divided into a series of communicating compartments, one of which is adapted to be connected to a boiler and another to a sewer, a steam separator arranged in one of the compartments, and a vapor

pipe communicating with another of the compartments, substantially as and for the purpose set forth.

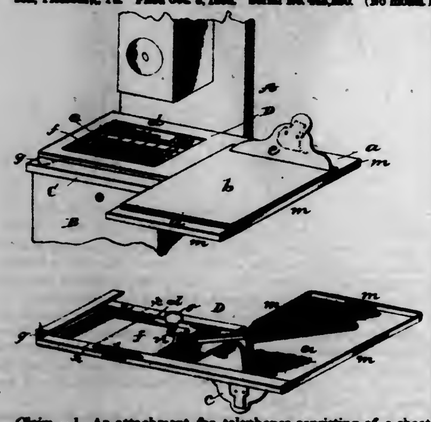
2. The combination of a blow off basin divided by integral transverse partitions into a series of communicating compartments, a steam separator arranged in one of the compartments, a boiler, a pipe having one end connected to the boiler and its other end terminating within the steam separator, a vapor pipe communicating with one of the compartments of the basin and connections between one of said compartments of the basin and a sewer, substantially as described.



3. The combination of a blow off basin, the interior of which is divided into a series of communicating apartments or chambers, a steam separator arranged in one of the compartments or chambers and having its upper edges notched or corrugated, a boiler, a pipe leading from the boiler to the steam separator, a vapor pipe communicating with one of the compartments near the upper end thereof, and a siphon connection between one of the compartments and a sewer, substantially as described.

4. A blow off basin consisting of the interiorly divided shell adapted to be connected with a boiler and a sewer, a top cap or cover provided with the depending parallel flanges between which the upper edges of the side walls of the basin fit, packing arranged between such side walls and the flanges on the cover, and a single central screw bolt connecting said cover with the floor or bottom of the basin, substantially as described.

489,603. ATTACHMENT FOR TELEPHONES. JAMES L. DAVIDSON, Pittsburg, Pa. Filed Oct. 8, 1892. Serial No. 448,220. (No model.)

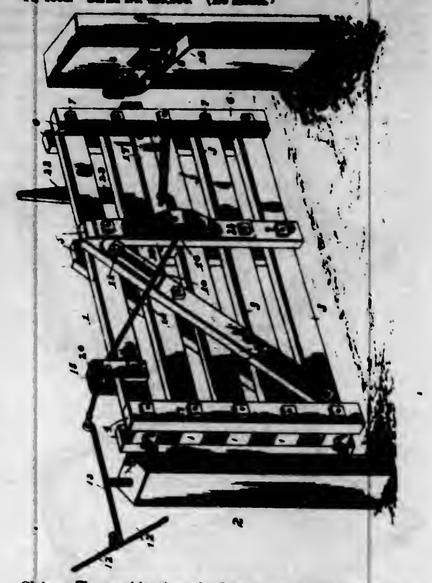


Claim.—1. An attachment for telephones consisting of a sheet metal structure having a tablet-support at one end, a support for a calendar, or like device below the surface of the structure at the opposite end, an opening for displaying the calendar, and means for securing the attachment to a telephone box.

2. An attachment for telephones, consisting of a sheet metal structure having a tablet-support thereon and provided with an extension at one end to engage the top of a battery-box, in combination with an adjustable spider-bracket secured to the underside of the structure.

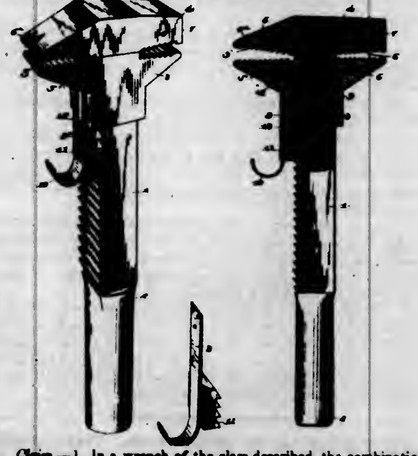
3. An attachment for telephones consisting of a sheet metal structure having a tablet-support thereon and provided with an extension at one end, and grooves on its underside, in combination with a spider-bracket having arms engaging said grooves and arms supporting the tablet-support.

489,604. GATE. THOMAS R. FORDRAY, Oakdale, Mo. Filed Mar. 17, 1892. Serial No. 425,202. (No model.)



Claim.—The combination of a hinge post, a gate hinged to the same and provided on its top with a pulley and having a pulley mounted on one of its sides, a spring actuated latch bar mounted on the gate, a lever fulcrumed on the top of the hinge post, a latch rope passing around said pulleys and having one end attached to the latch bar and its other end connected to the lever, and operating ropes connected with the lever, substantially as described.

489,605. WRENCH. SANFORD GARNER, Trout Creek, Mich. Filed Apr. 23, 1892. Serial No. 430,266. (No model.)



Claim.—1. In a wrench of the class described, the combination with the rectangular stock, terminating at its lower end in a handle, and at its upper end in a head forming a jaw, of a sliding head mounted on the stock, and provided with a jaw adapted to co-act with that of the head of the stock, a spring metal strip secured to the sliding head at the front side thereof and extending below the same, a block secured to the under side of the strip and having a ratchet-face, the teeth of which are downwardly disposed in a direction contrary to a series of teeth formed on the face of the stock and a flat metal spring secured to the sliding head and resting flatly against the metal strip, substantially as specified.

2. In a wrench, the combination with the rectangular stock provided with a series of teeth on its outer face, at its lower end provided with a handle and at its upper end with a transverse head forming front and rear jaws, slightly diverged from the stock, the front jaw being provided with outwardly-disposed transverse cleats, the rear jaw with inwardly-disposed transverse cleats, the sliding head having a bore fitting the stock and provided at opposite sides of the same with jaws, the front one having inwardly disposed teeth and the rear one having outwardly-disposed teeth, the spring-metal strip secured to the front face of the sliding head, extending below the head and bent to form a finger-hold, the block 11 secured to the inner side of the same and having a ratchet face, and the flat spring secured to the front face of the head and having its lower free end resting on the outer face of the metal strip, substantially as specified.

489,606. SUB-CLEANER. WILLIAM GESSNER, New Orleans, La. Filed Mar. 19, 1892. Serial No. 425,502. (No model.)



Claim.—1. In a gun cleaner, the combination with a stock or head; of two forked springs secured to said head, and friction plates pivoted at or about mid-way of their length to the forked ends of the springs, substantially as specified.

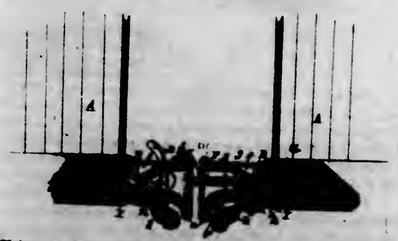
2. In a gun cleaner the combination with a stock or head; of two forked flat springs secured at one end to said head and curved outwardly in opposite directions and terminating in lug journals or gudgeons, and two friction plates having lug eyes in their longitudinal edges about midway of their length and journaled on the forked ends of said spring substantially as specified.

3. In a gun cleaner, the combination with a stock or head; of two springs secured to said head, and friction plates pivoted at or about midway of their length to the free ends of the springs, substantially as and for the purpose set forth.

4. In a gun cleaner, the combination with a stock or head; of two springs secured to said head, and friction plates pivoted at or about midway of their length to the free ends of the springs and having their outer faces covered with wire gauze, substantially as and for the purpose set forth.

5. The improved gun cleaner described comprising the head or stock, having the flat stem at one end, and the threaded stem at the opposite end, the two forked and curved flat springs, provided with lug journals at one end, and secured at their opposite end to the stock, the friction plates of a curvilinear form in cross section and having the lug eyes midway of their length and journaled on the lugs of the springs, the gauze covering the outer faces of the plates and the absorbent interposed between the gauze and plates to serve the additional function of cushions, the swab having the eye to receive a patch or wiper and its opposite ends adapted to receive the stock, and rod respectively, substantially as specified.

489,607. CAR-COUPLING. JOE. C. HUDDLEY, Dallas, Tex. Filed June 20, 1892. Serial No. 436,909. (No model.)



Claim.—1. The combination with a coupling pin having an enlarged conical head, of a draw head interiorly recessed and provided with means for engaging and releasing said head, pivoted jaws mutually recessed to correspond to the shape of the coupling pin head and designed to receive and hold the same in a fixed position, a weighted detent lever controlling the action of one of said pivoted jaws, and a cam acting lever for actuating the said pivoted jaw against the influence of the aforesaid weighted lever, substantially as specified.

2. The combination with a draw head having an open flaring mouth converging into an interior recess, of an upper pivoted jaw suitably placed in said recess, a co-operating lower pivoted jaw also arranged in said recess in operative relation to the other jaw, provided with a depending curved finger extending through the bottom of the draw-head a weighted detent lever independent of the said pivoted jaw and having an opening to receive the curved finger and controlling the movement of the lower jaw, substantially as set forth.

3. The combination with a draw head provided interiorly with an upper pivoted jaw and a pivoted lower jaw arranged in operative relation to the said upper jaw and provided with a depending engaging finger, of a weighted detent lever engaged by said finger and controlling the action of said lower jaw through the medium of the engaging finger, and means for operating the jaw, substantially as specified.

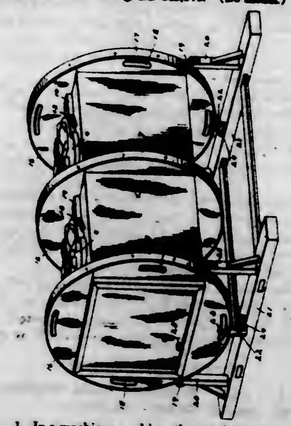
4. The combination with an upper pivoted jaw of a draw head, and a pivoted lower jaw co-operating therewith, of a retracting lever mechanically connected to said lower jaw, a cam acting handing lever connected to said lower jaw and controlling the movement thereof against the influence of the retracting lever, and a limiting agency for said cam lever restricting the drop of the retracting lever, substantially as specified.

489,608. RIVETING-TOOL. BENJ. F. KLEIN, New Orleans, La., assignor of one-half to SMITH & BOULIGNY, same place. Filed Aug. 16, 1892. Serial No. 443,376. (No model.)



Claim.—As an improved article of manufacture, a riveting tool or device for use in connection with box loops, consisting of a pair of bars connected to each other, at one end leaving a lateral opening or space between the same, and said bars being normally in proximity at the open ends thereof and diverging therefrom to provide a close contact when in engagement with the box loops, and one of said bars being adapted to be inserted in the box loops and having an anvil tip on the uppermost portion of one end thereof, the opposite bar being provided with an anvil post located on the under side of the free end thereof, substantially as described.

489,609. WASHING-MACHINE. SAMUEL S. LEDDEN, Colfax, Wash. Filed Sept. 14, 1892. Serial No. 445,572. (No model.)



Claim.—1. In a washing machine, the combination of a base provided at its ends with opposite horizontally disposed smooth faced supporting rollers, a washing machine body having circular tracks arranged upon the rollers and the vertically disposed rolls arranged at the ends of the base to retain the body on the rollers, substantially as described.

2. In a washing machine, the combination of a base provided at the corners with posts, smooth faced supporting rollers arranged at the tops of the posts, vertically disposed rolls arranged at the ends of the base, and the body provided on its exterior with segmental

finger forming a circular track and mounted upon the rollers and provided with hand holes, substantially as described.

3. In a washing machine, the combination of a base provided with horizontal supporting rollers, vertical rolls arranged at the ends of the base, a polygonal body provided on its exterior with circular tracks mounted on the diagonally disposed partitions arranged longitudinally of the corners of the body and forming buckets and provided with centrally disposed elongated discharge openings, and the wash-boards secured to the sides and bottom of the body and extending over the space between the partitions and supporting the same, substantially as described.

489,610. LIFTING DEVICE. JOHN W. LICKEY, Rushville, Ill. Filed Sept. 17, 1892. Serial No. 446,217. (No model.)



Claim.—1. In a lifting device, the combination with uprights provided with opposite series of teeth, of the operating levers provided with elongated openings to receive said uprights, spring-actuated pawls arranged at opposite sides of said openings to engage opposite series of teeth upon the uprights, and means to withdraw said pawls from engagement with the teeth, substantially as specified.

2. In a lifting device, the combination with oppositely toothed uprights, of the operating levers provided with openings to receive said uprights, spring-actuated pawls to engage opposite series of teeth upon the uprights, and bell-crank levers connected respectively to the pawls and arranged in pairs, substantially as specified.

3. In a lifting device, the combination of the toothed uprights provided with longitudinal slots, the operating levers provided with openings to receive the uprights and having transverse guide pins arranged in said openings to slide in the slots, the spring actuated pawls carried by the operating levers, and means to retract said pawls simultaneously, substantially as specified.

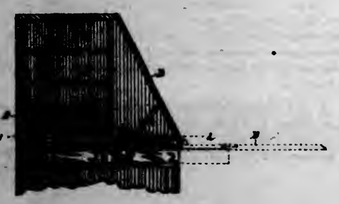
4. The combination of toothed uprights, operating levers slidably mounted upon said uprights, and carrying spring-pressed pawls to engage the teeth thereof, and horizontal supporting bars G slidably mounted upon the uprights and connected to the levers by hangers, substantially as specified.

5. The combination with toothed uprights, operating levers slidably mounted thereupon and carrying spring-pressed pawls to engage the teeth, and supporting-bars suspended by hangers from the operating-levers, of arms P, pivoted to said supporting-bars and adapted to be extended to engage an article to be elevated, substantially as specified.

6. The combination with toothed uprights, and operating-levers slidably mounted thereupon, and carrying spring-pressed pawls of supporting bars G slidably mounted upon said uprights, and pivotally connected to the levers, and hooks Q carried by said bars to engage articles to be elevated, substantially as specified.

7. The combination of twin uprights provided with horizontal base portion, a transverse slide fitted into openings in said base portions whereby the uprights may be laterally adjusted, and lifting mechanism mounted upon the uprights, substantially as specified.

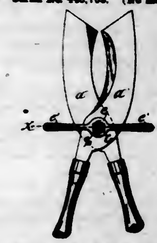
489,611. DESK. WILLIAM MAC HENRY, Philadelphia, Pa. Filed Oct. 1, 1892. Serial No. 447,461. (No model.)



Claim.—1. The combination with the body and hinged lid of a desk of a guide secured to the side of the desk, a grooved fixture secured to and set in flush with the lid, and a lever one end of which is pivoted to the said grooved fixture at or near its outer end and which is adapted to be received by said grooved fixture when the lid is open, and the other end of which is bent over as shown and adapted to travel upon or in and to be held by said guide secured to the side of the desk, substantially as and for the purpose set forth.

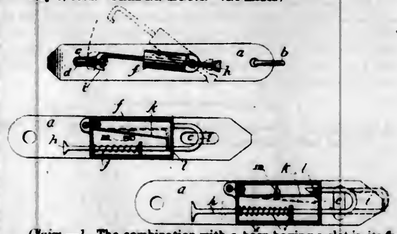
2. The combination with the body, hinged lid and slides of a desk of slotted guides secured to the side of the desk, grooved fixtures secured to and set in flush with the lid, levers the outer ends of which are pivoted to said grooved fixtures at or near their outer ends and which are adapted to be received by said grooved fixtures when the lid is open and the other ends of which are bent over as shown and which have a sliding connection with the said slotted guides upon the sides of the desk, arms the forward ends of which are secured to and actuated by the inner ends of said levers and the rear ends of which are secured to the rear ends of said desk slides and slots in rear of said desk top through which the rear ends of said arms may play during their movements.

489,612. SHEARS. CHARLES G. HAMLEY, Memphis, N. Y. Filed Sept. 24, 1892. Serial No. 446,769. (No model.)



Claim.—The combination, with the blades —a—a—, bolt —b— and nut —c—, of a nut-lock consisting of two washers interposed respectively between the head of the bolt and adjacent blade, and between the nut and blade adjacent thereto, and a loop extending laterally from the washers and formed in one piece therewith and narrower than the washers to prevent clogging as set forth.

489,613. HASP-LOCK. DENNIS O'CONNOR, Biddeford, Me. Filed July 5, 1892. Serial No. 438,878. (No model.)



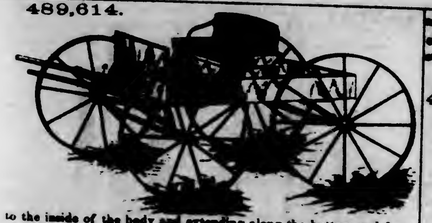
Claim.—1. The combination with a hasp having a slot in its free end, of a housing pivotally attached to said hasp and a separate spring controlled rod passing longitudinally through the ends of said housing and having on one end a hook adapted to engage a staple projecting through the slot in said hasp and on the other end a button or knob for operating the same, as and for the purpose set forth.

2. The combination with a hasp having a slot in its free end, a housing pivotally attached to said hasp, a spring controlled rod passing through said housing and having its end adapted to engage a staple projecting through said slot, of a recess made in said rod inside of said housing and a spring attached to the housing at one end and having its free end adapted to engage said recess, substantially as and for the purposes set forth.

489,614. POLE OR SHAFT SUPPORT FOR VEHICLES. JAMES J. RANDOLPH, Ouita, Ky. Filed Apr. 28, 1892. Serial No. 431,154. (No model.)

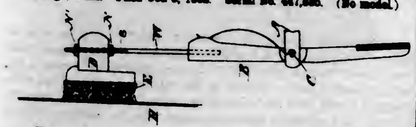
Claim.—The combination with an axle, a body supported on the same, shafts coupled to the axle and having a whiffletree bolt provided at its upper end with an eye 9, of an L-shaped brace secured

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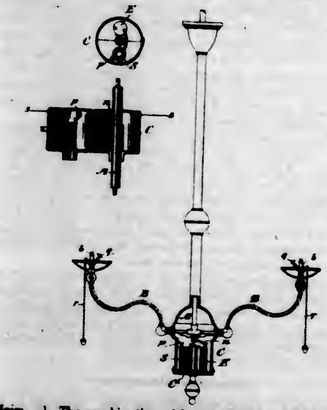
to the inside of the body and extending along the bottom and front thereof, a plate arranged on the outer face of the front of the body, a bolt passing through the front of the body and the brace and the plate and provided at its outer end with an eye, and a removable shank provided at each end with a hook removably engaging the eyes of the body and the shafts whereby the latter is held elevated, substantially as described.

489,615. PIANOFORTE-ACTION. GEORGE W. GRAVENER, Cambridge, Mass. Filed Oct. 3, 1892. Serial No. 447,695. (No model.)



Claim.—In a piano forte action, the combination of the screw-threaded wire W, having two screw nuts N, N' adapted to adjustably hold the damper block D; with the damper block D, substantially as and for the purpose set forth.

489,616. ELECTRIC GAS-LIGHTING APPARATUS. AARON M. SLOSS, Kansas City, Mo. Filed Mar. 24, 1892. Serial No. 426,236. (No model.)



Claim.—1. The combination with a gas-fixture or lamp of a battery, a spark-coil, and a detachable case containing said battery and spark coil, formed in two parts and surrounding the main supply pipe of said fixture or lamp, substantially as set forth.

2. The combination with a gas-fixture or lamp, of a battery, a spark-coil, and a case containing said battery and spark-coil, which incloses the junction of the main supply-pipe with the branches supplying the several burners, substantially as set forth.

3. The combination with a gas-fixture or lamp, of a battery a spark coil, a case containing said battery and spark-coil and supported by said fixture or lamp, which case is formed in two parts, one separable from the other, and insulated contact-springs forming the terminals of wires leading to the burners or groups of burners, which are automatically brought into connection with the terminals of the battery and spark-coil by the closing of the case, substantially as set forth.

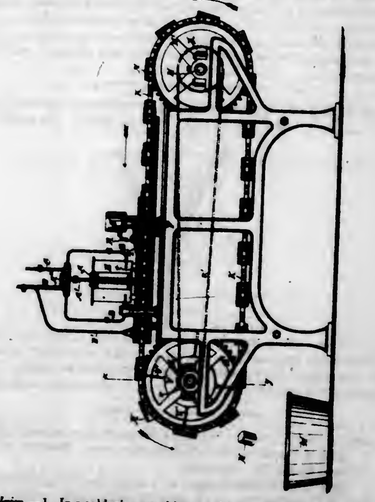
4. The combination with a gas-fixture or lamp, of a battery and spark-coil for electrically lighting the same, and an outer casing adjusted to and surrounding the supply-pipe of said fixture, so as to inclose said battery and spark-coil between said pipe and casing substantially as set forth.

489,617. BRICK-KILN. ROBERT SWINBURN, Roland, Iowa. Filed Apr. 8, 1892. Serial No. 427,933. (No model.)



Claim.—The combination in a down-draft kiln having a flue base and the kiln body arranged over the base; of a series of off-standing fire-pockets or chambers arranged at the sides of the kiln body over said base, said fire-pockets or chambers being provided with solid imperforate bottoms, imperforate inclosing sides, and contracted combined fuel and draft openings at their upper ends and in the kiln body, the bottom of the live coal line being maintained constantly flush with the upper outer edges of said combined fuel and draft openings, and the new coal being adapted to cover the live coal and fill the space therebetween and the top edges of said openings in order to allow a circulation from the outside directly through said live coal, and a series of short vertical fire-flues secured to the inner wall of the kiln body and forming the inner inclosing walls of said fire-pockets or chambers, substantially as set forth.

489,618. SOLDERING-MACHINE. JACQUES WEBERLIN, Vevey, Switzerland. Filed Dec. 26, 1891. Serial No. 416,260. (No model.)



Claim.—1. In a soldering machine, a solder receiving iron or cylinder having a solder delivery opening *a* and a longitudinal flow channel a^2 in the edge of the iron communicating with and extending outwardly from said opening and being in the path of the soldered joint for delivering the melted solder thereon, and a rod A' working as a valve to close the opening *a*, substantially as set forth.

2. In a soldering machine, the combination with the soldering iron or cylinder A having an opening *a*, of the rod A', the rods D, the cream piece D' and mechanism for periodically acting upon the said parts to allow the melted solder contained in the hollow cylinder A to flow out of the opening *a*, substantially as shown and described.

3. In a soldering machine, the combination of the endless chains I and K, the square bolts M, half cylindrical clutches O' O² connected

therewith and the plates F' F² connected therewith for the purpose of carrying the tubular pieces N, which are to be soldered, and the half cylinders Q' and Q² between which and on the clutches O' O² the tubular pieces N are carried, substantially as shown and described.

4. In a soldering machine, the combination with the soldering iron or cylinder A, having an opening *a*, of the rod A', the cross piece U' and rods U connected therewith, the supporting arms T T having projections *t t*, the endless chains I and K and the cylinders *c' c²* for periodically lifting the rod A', substantially as and for the purposes set forth.

5. In a soldering machine, the combination with the endless chains I and K, their chain wheels G' and H' and their shafts G and H, of a loose disk V upon the axis G bearing a chain wheel *v*, the chain wheel X upon the axis H, an endless chain *v'* passing around and moving with the wheels *v* and X, and the forked arms V' upon the disk V, as and for the purpose specified.

489,619. GARMENT-SUPPORTER. ELIAS WEALDE, Cumberland, Md. Filed Oct. 7, 1892. Serial No. 448,128. (No model.)



Claim.—1. In a device of the character set forth, the combination of two flat hinged plates connected at the side, one of which is concavo-convex at the central portion of the same and the other provided with a pair of depending hooks extending forwardly and adapted to be covered by the concavo-convex central portion of the other plate, and a clasp for securing said plates adjacent to each other, substantially as described.

2. In a device of the character set forth, the combination of a back-plate having an opening in the center thereof with depending forwardly-bent tongues to form hooks arranged parallel in a vertical plane and extending from the upper wall of said opening, a covering-plate hinged to said back-plate and having a concavo-convex central portion to fit over said hooks, and a clasp loosely attached to said covering-plate and having a hook adapted to engage said back-plate to hold both of the said plates adjacent to each other, substantially as described.

489,620. MEASURING-FUNNEL. LAWRENCE J. WITHERS, Brooklyn, N. Y. Filed Sept. 17, 1892. Serial No. 446,153. (No model.)



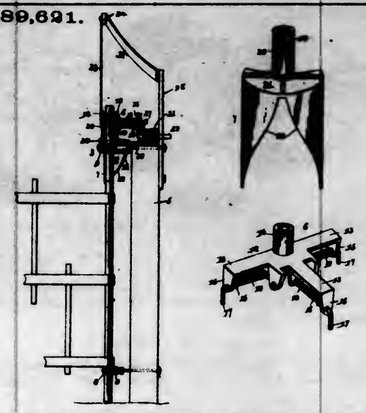
Claim.—The combination of a funnel with a valve and with a linked valve rod consisting of a wire *a* which extends first sidewise to form step *a²* then upward to form an intertwisted handle *a²* and then sidewise and downward to form hook *a³*, substantially as specified.

489,621. GATE. WILLIAM A. WILLIAMS, New Harmony, Ind., assignor of one-half to John T. Williams, same place. Filed Sept. 17, 1892. Serial No. 446,171. (No model.)

Claim.—1. The combination of a post, a gate hinged thereto, a roller arranged near the upper end of the post, a cam casting loosely mounted on the upper end of the gate and arranged to engage the roller, a latch fixed to the gate and adapted to engage the cam casting to secure the same rigidly with the gate, operating levers, and a rope oppositely wound around the cam casting and connected to the operating levers, substantially as described.

2. The combination of a post, eyes arranged on the post and provided with rollers, the upper eye having a roller 11 on its stem, a gate provided with a pintle rod arranged in said eyes, a latch fixed to the upper end of the pintle rod, a cam casting loosely mounted on the pintle rod and connected to ride on the roller 11 and to be engaged by the latch, operating levers, and a rope oppositely wound on the cam casting and connected with the operating levers, substantially as described.

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3. The combination of a post provided with eyes, a roller arranged on the upper eye, a gate having a pintle rod arranged in said eyes, a latch fixed on the pintle rod, a cam casting comprising a segment, a sleeve loosely mounted on the pintle rod and adapted to be engaged by the latch and depending cams arranged to engage the roller 11, and operating levers connected with the castings, substantially as described.

4. The combination of a post provided with eyes, a roller arranged at the upper eye, a gate having a pintle rod arranged in said eyes, a latch fixed on the pintle rod and having spring actuated bolts, a cam casting provided with a sleeve loosely mounted on the pintle rod and provided with a recess adapted to be engaged by the spring actuated bolts, said casting having oppositely disposed cams arranged to engage said roller, and operating rollers connected with the casting, substantially as described.

5. The combination of a post provided with eyes, a roller arranged at the upper eye, a swinging gate, a latch fixed to the pintle of the gate and comprising a T-shaped casting, and the spring actuated bolts mounted on the arms of the casting and arranged at right angles to one another, the cam casting arranged to engage said roller and provided with a sleeve loosely mounted on the pintle and having a recess to be engaged by the bolts, and operating levers connected with the castings, substantially as described.

6. The combination of a post, a swinging gate hinged thereto and having a pintle rod, a roller arranged on the post near the upper end of the gate, a latch fixed to the pintle rod and provided with the spring actuated bolt arranged at right angles to one another, the cam casting having the sleeve loosely mounted on the pintle rod and provided with a recess adapted to be engaged by the bolt, and a releasing device having a spring actuated rod arranged to engage the catches or bolts of the latch to withdraw the same from engagement with the sleeve, substantially as described.

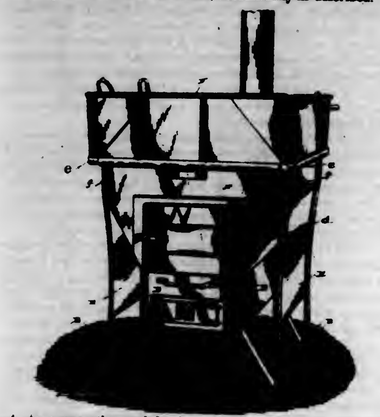
7. In a gate, the combination of the cam casting provided with a sleeve, a latch having spring actuated bolts adapted to engage the sleeve and having downwardly bent ends, and the releasing device comprising the divergent guide arms, the spring actuated bar having an upturned end, and a curved plate secured to the upturned end, substantially as and for the purpose described.

489,622. SUGAR-EVAPORATING PAN. CHARNEY C. ALPERS, Fairhaz, Vt. Filed Mar. 14, 1892. Serial No. 424,962. (No model.)

Claim.—1. An evaporating arch having a fire box at its lower end, upwardly and outwardly inclined walls from the fire box upward, supports extending from the upper end of the arch down below the fire box and then upward and inward thereto, and depending plates secured to the supports and intersecting or joining the upper end of the said inclined walls, substantially as and for the purpose specified.

2. An evaporating arch having a fire box at its lower end, upwardly and outwardly inclined walls projecting from the fire box, the upper end of the inclined walls being made straight or vertical, supports extending downward from these vertical portions below the said fire box and upward and inward thereto, and depending plates or spreads extending from these vertical portions of the walls downward and secured to the supports, substantially as set forth.

3. An evaporating pan having a fire box at its lower end, inclined walls extending upwardly therefrom having vertical upper ends, a band or ring projecting beyond the said vertical walls, supports having their upper ends extending along the said vertical walls and secured to the projecting ring, the supports extending below the fire box and upward and inward thereto, substantially as described.



4. An evaporating arch having a fire box at its lower end, outwardly and upwardly inclined walls projecting from the fire box, the upper end of the inclined walls bent vertically, supports extending downward from these vertical portions below the said fire box and upward and inward thereto, and depending plates secured to the inner sides of the said supports, their upper ends abutting against the lower edge of the vertical portions of the said walls, whereby a tight joint is formed and the lower ends extending to or below the fire box, substantially as specified.

489,628. YELLOW-RED DYE. FRITZ BENDER and MICHAEL KAMMERER, Mühlheim-on-the-Main, Germany, assignors to A. Leonhardt & Co., same place. Filed Feb. 17, 1892. Serial No. 421,867. (Specimens.) Patented in England Jan. 21, 1892, No. 1,231, and in France Jan. 20, 1892, No. 216,082.

Claim.—1. The process of transforming the bluish red dyestuffs derived from dialkylmetaamidophenols, such as mentioned in the specification or their corresponding leuco-compounds, into other coloring matter of a more yellowish red tint, which consists in treating said compound by an oxidizing agent, such as potassium permanganate, and separating the color, substantially as described.

2. The yellowish red coloring matter derived from dialkylmetaamido phenols, which dissolves in water or spirit yielding scarlet solutions showing a brilliant greenish fluorescence, dissolving in sulphuric acid giving a yellowish solution which by diluting with water turns from orange into scarlet.

489,624. PROCESS OF PRECIPITATING OXIDE OF TIN FROM SOLUTIONS. CAMILLE L. C. BERTOS, Paris, France. Filed Apr. 14, 1892. Serial No. 429,190. (No specimens.)

Claim.—The within described improvement in the process of precipitating tin in the form of an oxide from solutions containing it, consisting in first adding carbonate of lime to the solution while the latter is exposed to the air at a temperature nearly but below ebullition and gradually continuing such addition until the precipitation of the tin is completed, then allowing the liquor to cool and collecting the precipitate therefrom, next washing the precipitate with cold water and afterward suspending the washed precipitate in a solution of a carbonate of an alkali metal the strength of which is gradually increased until it presents a slightly alkaline reaction.

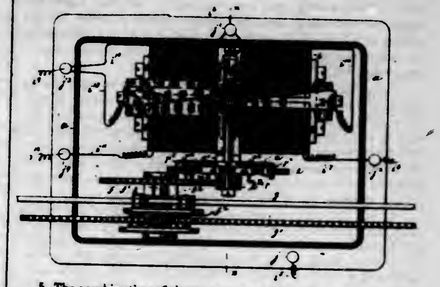
489,625. ELECTRICALLY-CONTROLLED VENTILATOR. SEBASTIAN G. BRENNAN, New York, N. Y. Filed Mar. 3, 1892. Serial No. 423,660. (No model.)

Claim.—1. The combination of a pair of electro magnets with an intermediate pivoted armature, a pawl connected to the armature, a ratchet wheel engaged by the pawl, a pivoted valve and mechanism for transmitting the motion of the ratchet wheel to the valve, substantially as specified.

2. The combination of a pivoted valve with an electro-motor, pinion f^3, revolved thereby and a rack engaging the pinion and secured to the valve, substantially as specified.

3. The combination of electro magnets *b*, *b'*, with armature *c*, pawls *d*, ratchet wheel *e*, engaged by the pawls, pinion f^3, revolved by the ratchet wheels, a rack engaging the pinion, and a valve secured to the rack, substantially as specified.

4. The combination of an electro-motor with a thermostat within its circuit, a pinion revolved by the electro motor posts f^7 f^8, for contact with the thermostat switch, a valve *h*, and racks engaging the pinion for connecting the electro-motor with such valve, substantially as specified.



5. The combination of electro magnets *b*, *b'*, with armature *c*, pawls *d*, pivoted thereto, gear wheel *e*, pinion e^3, gear wheel *f*, pinion f^3, a rack engaging such pinion and a valve engaged by the rack, substantially as specified.

6. The combination of electro magnets *b*, *b'*, with armature *c*, actuating pawls *d*, *d*, detents *p*, *p*, gear wheel *e*, engaged thereby, pinion f^3, revolved by the gear wheel and with rack *g*, and valve *h*, substantially as specified.

7. The combination of electro magnets *b*, *b'*, with armature *c*, pawls *d*, *d*, pivoted thereto, pins *m*, spring *d'* and shoulder *n*, for disengaging the pawls and with the pinion f^3, rack *g*, and valve *h*, substantially as specified.

8. The combination of electro magnets *b*, *b'*, with armature *c*, pawls *d*, *d*, detents *p*, *p*, arms p^2, bent rod p^3, spring p^4, and with ratchet wheel *e*, pinion f^3, rack *g*, and valve *h*, substantially as specified.

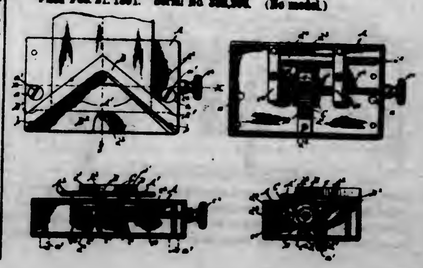
9. The combination of electro-magnets *b*, *b'*, with armature *c*, pawls *d*, gear wheel *e*, pinion f^3, pivoted bearing plate *q*, rack *g'*, engaged thereby and with valve *h*, engaged by the rack, substantially as specified.

489,626. CUFF-HOLDER. REUBEN CARPENTER, Helena, Mont. Filed Apr. 28, 1892. Serial No. 431,104. (No model.)



Claim.—In combination, a button, a spring clasp thereon, a fixed jaw secured to the button so as to swing, a movable jaw pivoted to the fixed jaw, a nose projecting from the movable jaw, a spring secured to the fixed jaw, and having a head thereon adapted to engage the nose on the movable jaw for yieldingly holding the movable jaw in its open or closed positions, substantially as herein set forth.

489,627. TICKET-HOLDER. PHILO W. CARLEE, Little Falls, N. Y. Filed Feb. 21, 1891. Serial No. 382,206. (No model.)



Claim.—1. In a ticket holder, the combination of a frame having a bearing face upon which the ticket is supported, and an opening directly above said face for permitting inspection of said ticket, a movable canceler or wheel journaled in the frame and formed with teeth projecting normally beyond said face and movable beneath the same as the ticket is moved along said face, and a spring stop for preventing reverse movement of the canceler or wheel, substantially as and for the purpose specified.

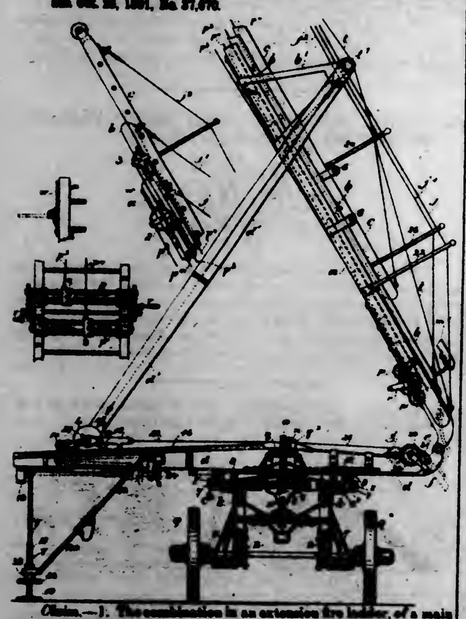
2. In a ticket holder, the combination of a frame having a bearing face upon which the ticket is supported, and an opening directly above said face for permitting inspection of the ticket, a movable canceler or wheel having teeth projecting beyond said face, a stop connected, substantially as described, to the canceler or wheel for preventing its movement in one direction, and a second stop for engaging the former stop and preventing its operation, substantially as and for the purpose set forth.

3. In a ticket holder, the combination of a frame having a bearing face upon which the ticket is supported, and an opening directly above said face for permitting inspection of the ticket, a movable canceler or wheel having teeth projecting above said face formed with their forward faces inclining rearwardly, a stop for preventing movement of the canceler or wheel in one direction, a second stop or cam engaging the former stop, and a spindle for rotating the latter stop or cam, substantially as and for the purpose set forth.

4. In a ticket holder, the combination of a frame having a bearing face upon which the ticket is supported, and an opening directly above said face for permitting inspection of the ticket, a pair of movable cancelers or wheels having teeth projecting above said face and provided with a common spindle, a ratchet wheel on the spindle, and a spring stop dog engaging the teeth of the ratchet wheel, substantially as and for the purpose specified.

5. In a ticket holder, the combination of a frame having a bearing face upon which the ticket is supported, and an opening directly above said face for permitting inspection of the ticket, a pair of separated movable cancelers or wheels having teeth projecting above said face and provided with a common spindle, a ratchet wheel on the spindle, a movable stop dog for engaging the ratchet wheel, a stop or cam for throwing said stop or dog out of operative position, and a spindle for operating the second stop or cam, substantially as and for the purpose set forth.

489,628. FIRE-LADDER. ROSAIRE COLLERET, Montreal, Canada. Filed June 6, 1892. Serial No. 435,503. (No model.) Patented in Canada Oct. 28, 1891, No. 37,670.



Claim.—1. The combination in an extension fire ladder, of a main frame, trucks for supporting the same, extension ladders, hinges for connecting the lower extension ladder with the frame, prop-bars connected at their upper ends to the extension ladders, rolls upon the frame and rolling upon the lower ends of the prop-bars running upon the rails, a barrel and cables or ropes extending from the barrel to the base of the prop-bars for moving the same along and elevating the extension ladders, rack teeth upon the frame and pawls for holding the ladders in their elevated positions, substantially as set forth.

2. The combination with the extension ladders, one sliding upon the other, of ropes or cables, pulleys at the upper ends of the ladders over which such ropes or cables pass and winch barrels, mechanism for revolving the same and sliding cylindrical couplings engaging projections on the winch barrels and to which the cables or hoisting ropes are connected, and means for holding such ladders when elevated, substantially as set forth.

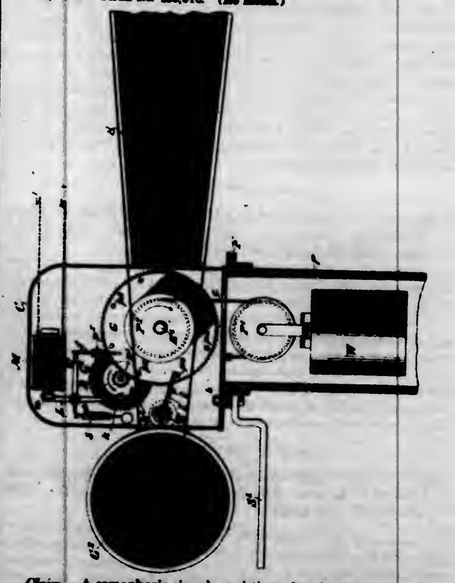
3. The combination with the extension ladders, of a frame and trucks for supporting the same, a secondary frame to which the ladders are hinged, prop-bars and mechanism for operating the same to raise the ladders, a turn table for connecting the primary and secondary frames and adjusting screws and cog nuts and one cross shaft for actuating the nuts simultaneously and in opposite directions for leveling the secondary frame and ladders, substantially as set forth.

4. The combination with the main frame and a truck for the same, of a secondary frame, ladders connected to the secondary frame, a turn table connecting the primary and secondary frames, a longitudinal adjusting screw for moving the turn table and secondary frame lengthwise of the main frame, and screws for bringing the secondary frame and ladders into a level position, substantially as set forth.

5. The combination with the main frame and a truck for the same, of a secondary frame, ladders connected to the secondary frame, a turn table connecting the primary and secondary frames, a longitudinal adjusting screw for moving the turn table and secondary frame lengthwise of the main frame, screws for bringing the secondary frame and ladders into a level position, and a swinging strut or leg connected with the secondary frame near the end thereof, and a screw for supporting such secondary frame when swung into an angular position across the main frame, substantially as set forth.

6. The combination with the extension ladders and the primary frame and trucks for supporting the same, of the secondary frame and a turn table composed of three rings, the lower one of which rests upon the main frame, an intermediate ring connected to the lower ring by clips, and an upper ring permanently connected to the secondary frame and hinged to the intermediate frame, screws for adjusting the upper ring and secondary frame in relation to the lower rings, and means for adjusting the turn table longitudinally of the main frame, substantially as set forth.

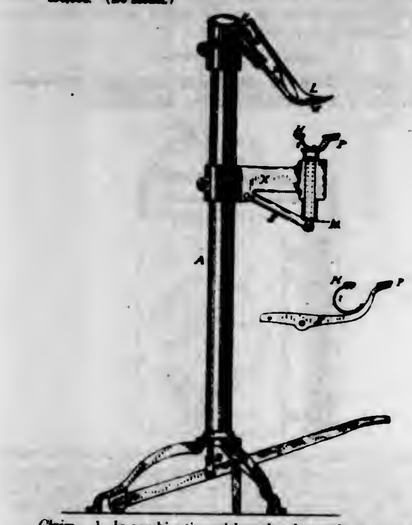
489,629. RAILWAY-SIGNAL. WILLIAM F. S. DURANT, New York, N. Y., assignor to the Durant Electric Company, same place. Filed Apr. 20, 1892. Serial No. 430,610. (No model.)



Claim.—A semaphoric signal consisting of a pivoted semaphore arm having an operating lever the free end of which bears normally on any one of a series of pins carried by a power impelled gear wheel;

a retarding device as a fly fan rotated by the same train, a notched controlling dipk and an electro-magnet provided with an armature lever having two arms one of which checks the fly fan while the other regulates the movements of the semaphore arm, substantially as described.

489,630. BOOT OR SHOE CREASER. ROBT. F. GORMAN and GREENFIELD T. DAVIS, Auburn, Me. Filed Nov. 3, 1892. Serial No. 450,859. (No model.)



Claim.—1. In combination with each other and with a vertically movable creasing last, a standard, a piece rigidly attached thereto which is adapted to enter a shoe and press against the sole, a movable support which is pressed against the outside of the sole, a treadle or lever and means of connection which transmit pressure from the treadle or lever to the sole through the movable support.

2. The combination of a standard, a vertically movable creasing last, a movable support for the sole of the shoe, a treadle or lever, means for simultaneously transmitting motion from the treadle or lever to the movable last and movable support, and a piece rigidly attached to the standard which is adapted to enter a shoe and press against the sole.

3. The combination of a lever or treadle, a movable support for the sole of the shoe, an elastic connection between the treadle or lever and the support, a vertically movable creasing last, an elastic connection between the lever or treadle and the last, and a rigid piece which enters the shoe and reacts against the motion of the movable support and of the movable last.

4. The combination of a rigidly fixed piece which is adapted to enter a shoe and press against the sole, a movable creasing last which reacts against this piece, a movable support which presses against the under side of the sole. A lever or treadle elastically connected with the movable support and with the movable creasing last, and a catch capable of holding the lever or treadle in place when pressed downward.

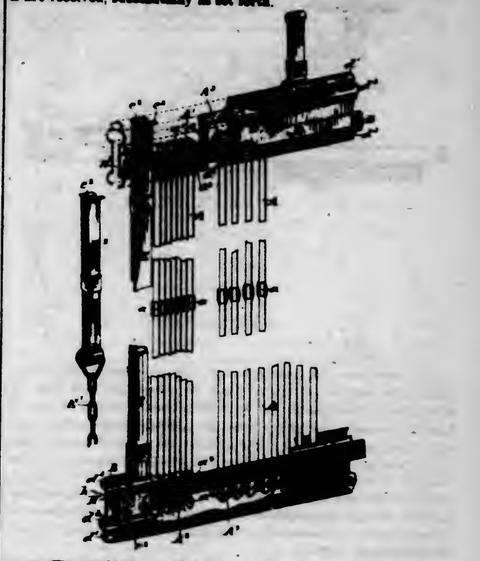
5. In a boot or shoe creaser the combination with a vertically movable creasing last, of a rigidly supported piece which is adapted in shape to enter a shoe and press upon the sole, a movable support which can be pressed against the under side of the sole, means of transmitting pressure to this support, a second movable support which can be pressed against the heel and an elastic connection which transmits pressure from the first to the second of these supports; all as set forth.

489,631. HEDDLE AND HEDDLE-FRAME FOR LOOMS. JULIUS GERE, Bergen, Connecticut, assignor to Gere & Co., same place. Filed May 23, 1892. Serial No. 434,703. (No model.)

Claim.—1. The heddles A, of flat metallic blades formed with mortises and springs near the ends, the springs at the ends of one heddle bearing against the ends of the adjacent heddles, substantially as set forth.

2. The combination with the heddles having central eyes, end mortises and springs near the ends, the springs of one heddle bearing against the ends of the adjacent heddle to keep them apart, of bars passing through the mortises of the heddles, the inclosing metallic tubular bars having longitudinal ribs, and angular supports C, mortised for the bars and passing within the longitudinal ribs of the tubular bars, substantially as set forth.

3. The combination with the heddles having end mortises, and contiguous springs to separate the heddles of bars B passing through the mortises, the end bars E adapted to receive the bars B and the bands *c* upon the end bars E for clamping the bars B, the inclosing tubular bar D having longitudinal ribs into which the ends of the bars E are received, substantially as set forth.



4. The combination with the heddles having mortises near their ends and contiguous springs, of the bars B passing through the mortises, the supporting pieces C through which the bars B pass, the tubular bars D having longitudinal ribs and receiving within them the ends of the heddles, the bars B and the supports C, the end bars E and their sliding bands *c*, adapted to pass at opposite sides of the bars B and having outwardly turned ends c^3 for passing within the longitudinal ribs of the bars D, substantially as set forth.

5. The combination with the heddles having central eyes and end mortises and adjacent springs, of the bars B passing through the mortises of the heddles, the inclosing tubular bars D having longitudinal ribs, and the harness clutches G adapted to grasp the ribs of the bars D, substantially as set forth.

489,632. PROCESS OF REGENERATING SOLUTIONS. FRANK GRUNSHAW, Chicago, Ill., assignor of one-fourth to Francis B. Badt, same place. Filed Aug. 15, 1892. Serial No. 443,102. (No specimens.)

Claim.—1. The method of regenerating or cleaning electrolytic solutions which consists in mixing with them suitable quantities of metastannic acid and applying heat to the mixture.

2. The method of regenerating electrolytes containing arsenic used for refining purposes, which consists in extracting the arsenic, and the like, therefrom, by mixing suitable quantities of metastannic acid with such electrolyte and then applying heat until a salt is formed by the combination of the metastannic acid with arsenic, and the like and precipitated.

489,633. PROCESS OF RECOVERING METASTANNIC ACID. FRANK GRUNSHAW, Chicago, Ill., assignor of one-fourth to Francis B. Badt, same place. Filed Aug. 15, 1892. Serial No. 443,103. (No specimens.)

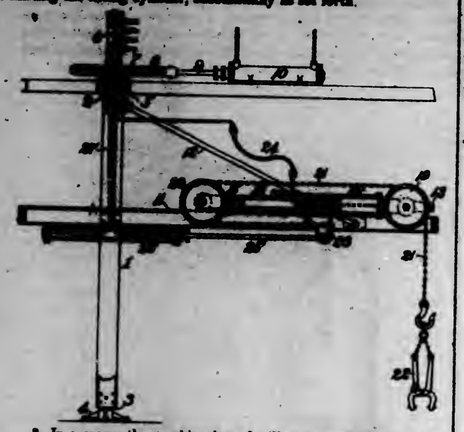
Claim.—The process of recovering metastannic acid or freeing it from arsenic, which consists in dissolving the compound in concentrated hot sulphuric acid, then adding an oxidizing agent and then diluting the mixture until free metastannic acid is precipitated.

489,634. CRANE. JAMES RIDDELL and JOSEPH FAWELL, Pittsburg, Pa. Filed July 14, 1892. Serial No. 440,091. (No model.)

Claim.—1. In a crane, the combination of a jib, a movable fluid

pressure cylinder mounted horizontally on said jib and a gripping mechanism having a flexible connection to said cylinder, substantially as set forth.

2. In a crane, the combination of a jib, a lifting cylinder mounted horizontally on said jib, and a stationary fluid pressure cylinder for shifting the lifting cylinder, substantially as set forth.



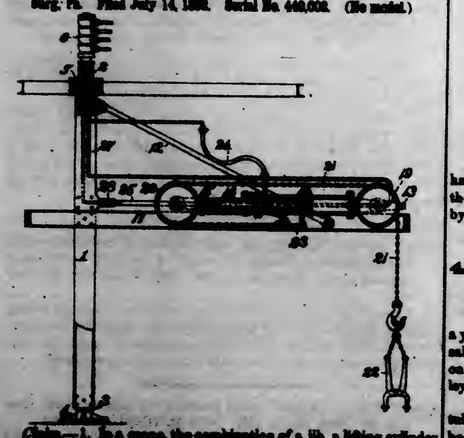
3. In a crane, the combination of a jib, a movable fluid pressure cylinder mounted horizontally on said jib, wheels movable with the piston rod of said cylinder and with the cylinder respectively, and a flexible connection extending from the gripping mechanism around said wheels and connected to the cylinder, substantially as set forth.

4. In a crane, the combination of a jib, a fluid pressure cylinder mounted on said jib, wheels movable with the piston rod of said cylinder and with the cylinder respectively, a flexible connection extending from the gripping mechanism around said wheels and connected to the cylinder, and means for shifting said cylinder along the jib, substantially as set forth.

5. In a crane, the combination of a jib, a fluid pressure cylinder mounted on said jib, wheels movable with the piston of said cylinder and with the cylinder respectively, a flexible connection extending from the gripping mechanism around said wheels and connected to the cylinder, and a stationary fluid pressure cylinder secured to the jib for shifting the lifting cylinder, substantially as set forth.

6. In a crane, the combination of a jib, a lifting cylinder mounted on said jib, a shifting cylinder having a piston rod connected to the lifting cylinder, wheels mounted on the ends of the piston rods of the lifting and shifting cylinders, respectively, and a flexible connection extending from a gripping mechanism around said wheels and connected to the lifting cylinder, substantially as set forth.

489,685. CRANE. JAMES HEMPHILL and JOSEPH FAWELL, Pittsburg, Pa. Filed July 14, 1892. Serial No. 440,002. (No model.)

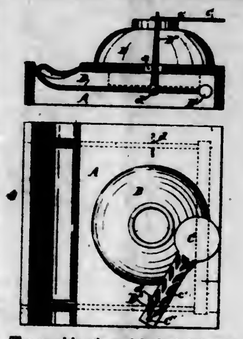


Claim.—1. In a crane, the combination of a jib, a lifting cylinder arranged on said jib, and a fluid pressure cylinder for shifting the lifting cylinder and movable therewith, substantially as set forth.

2. In a crane the combination of a jib, a lifting cylinder arranged on said jib, and a fluid pressure cylinder for shifting the lifting cylinder along the jib, and connected to said lifting cylinder and movable therewith, the piston rod of the shifting cylinder being attached to a stationary part of the crane, substantially as set forth.

3. In a crane, the combination of a jib, a lifting cylinder arranged on said jib, a fluid pressure cylinder attached to the lifting cylinder, and a hollow stationary piston rod extending through the shifting cylinder, and having its ends connected to fluid supply pipes and provided with openings within the cylinder and on opposite sides of the piston, substantially as set forth.

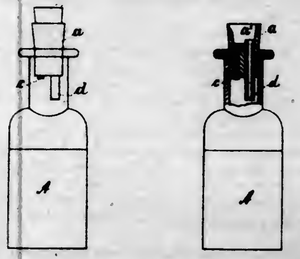
489,686. INKSTAND. ANDREAS HILLEBRE, Geneva, Switzerland. Filed Apr. 21, 1892. Serial No. 429,695. (No model.)



Claim.—1. The combination with the ink bottle, of a hollow stand or base, levers and a counter weight within the base, such levers projecting up through slots in the hollow base to receive the pen and a cover and an arm connected with one of the levers to swing the cover horizontally substantially as specified.

2. The combination with the ink bottle, of a hollow stand or base, levers and a counter weight within the base, such levers projecting up through slots in the hollow base to receive the pen and a cover pivoted upon the hollow base and an arm connected with one of the levers to swing the cover horizontally substantially as specified.

489,687. BOTTLE-STOPPER. FRANZ L. VON HIRSCH, Darmstadt, Germany. Filed May 27, 1892. Serial No. 434,060. (No model.)



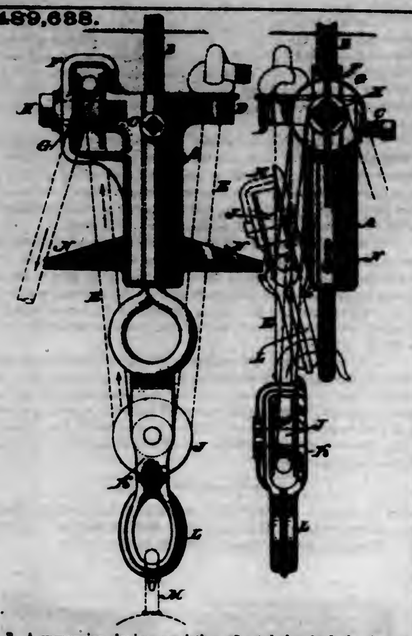
Claim.—The combination of a bottle with a perforated stopper having mortise *c*, a pair of tubes of unequal length projecting through the stopper into the bottle and with a plug *k*, adapted to be received by the mortise, substantially as specified.

489,688. SUSPENSION DEVICE. WILLIAM C. JOHNSON, Camden, N. J., assignor to the Jennings Machine Company, of New Jersey. Filed Apr. 28, 1892. Serial No. 430,620. (No model.)

Claim.—1. A suspension device consisting of a body, an eye and a yoke thereon, a pulley mounted in said yoke, a screw passed through said body for attachment to a ceiling, beam, &c. and having an eye on its lower end, and a hooking apparatus with a frame having a pulley journaled therein and a depending eye, substantially as described.

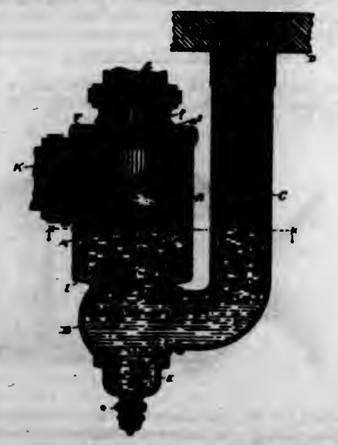
2. In a suspension device substantially as described, a body of tubular form, a securing screw and another screw passed through said body and adapted to tighten against said securing screw, and a hooking apparatus with a frame having a pulley journaled therein, and a depending eye, as stated.

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3. A suspension device consisting of a tubular body having an eye and a yoke on opposite sides at one end, cleats projecting from the other end, a pulley journaled in said yoke, a securing screw adjustably secured in said tubular body, said body having a beveled lower end, said parts being combined substantially as described.

489,689. SINK OR BASIN TRAP. WILLIAM KIRK, Cleveland, Ohio. Filed Oct. 19, 1892. Serial No. 448,909. (No model.)



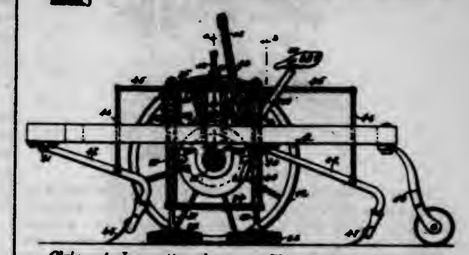
Claim.—1. A sink or basin trap having a cylindrical body with an inlet opening in its bottom and an outlet opening in its side, a diaphragm between said openings having a passage through it, and a ball valve in position to rest in said passage and the inlet opening, substantially as described.

2. The cylindrical body of the trap having an extension on its bottom to connect with the inlet pipe, an outlet in its side near its top and an opening for back vent above said outlet, in combination with a diaphragm before the said outlet and a ball valve before said diaphragm and in position to close the inlet and the back vent openings, substantially as described.

3. The cylindrical body of the trap herein described, the same having an inlet opening in its bottom, an outlet opening in its side, a back vent opening in its top, and a diaphragm or wall at one side of the center of said body before the outlet opening having a passage for the fluid, and a ball valve in said body; substantially as described.

4. The body A having opening *a* and inlet globe B at its bottom and the outlet *a'* in its side, the cap P closing the top of said body, the diaphragm L extending part way the length of the inside of the said body and having a fluid passage through it, and the ball valve H in position to rest on said passage and the inlet opening *a* and the vent opening a^2, substantially as described.

489,640. COTTON CHOPPER AND CULTIVATOR. ROBERT H. HILLS, Jacksonville, Fla. Filed Dec. 2, 1891. Serial No. 413,982. (No model.)



Claim.—1. In a cotton chopper or like implement, the combination, with the axle, supporting wheels mounted thereon, a driving connection between the wheels and axle, and a drum secured to the axle provided with a continuous, peripheral cam groove, of a hoe blade located at each side below the drum, handles attached to the blades, the upper ends of which are connected together and pivotally held, and pins connected with the hoe handles and traveling in the groove of the drum, one at each side of the latter, substantially as and for the purpose set forth.

2. In a cotton chopper or like implement, the combination with a rotating drum provided with a circumferential cam continuous groove, of tubes pivotally held at their upper ends, one located at each side of the drum, hoe handles held to slide in the tubes, pins projected from the tubes into the cam groove of the drum, a lift-lever, and a connection between the lift-lever and the hoe handles, substantially as and for the purpose set forth.

3. In a cotton chopper or like implement, the combination, with the axle, supporting wheels mounted thereon, a driving connection between the wheels and axle, and a drum secured to the axle and provided with a continuous, peripheral cam groove, of tubes located one at each side of the drum and pivotally held at their upper ends, pins projected from the tubes into the grooves of the drum, hoe handles loosely held in the tubes, an adjustable lift lever, and a connection between the lift lever and the hoe handles, the connection being effected above the tubes in which the handles are located, as and for the purpose set forth.

4. In a cotton chopper or like implement, the combination, with the axle, supporting wheels mounted thereon, a driving connection between the wheels and the axle, a drum secured to the axle and provided with a continuous, peripheral cam groove, and tubes located one at each side of the drum, pivotally held at their upper ends and free to move at their lower ends, the said tubes being provided with pins entering the groove of the drum, of hoe handles loosely held in the tubes, lift blocks having sliding movement in the frame of the implement, a shaft operating to raise the lift blocks, cultivator shanks carried by the frame of the implement, a frame attached to the lift blocks and connected with the shanks, a lift lever adjustably connected with the lift blocks, a link connection between the lift lever and hoe handles, and a shifting lever connected with said shaft, as specified.

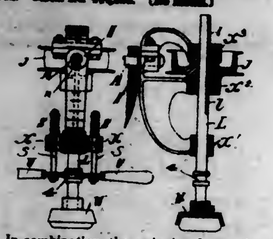
5. In a cotton chopper, the combination with a supporting frame, and a drum mounted therein and provided with a cam groove, of tubes pivoted in the frame and provided with pins working in the groove of the drum, hoe handles sliding in the tubes and connected together, a pivoted and adjustable lever and a link connecting the hoe handles with the said lever, substantially as described.

6. In a cotton chopper, the combination with a supporting frame, and pivoted cultivator shanks, of blocks sliding in ways on the supporting frame, a frame secured to the blocks and provided with forwardly and rearwardly projecting arms, links secured to the said arms and cultivator shanks, a shaft provided with fingers engaging the sliding blocks and a lever for operating the shaft, substantially as described.

7. In a cotton chopper, the combination with a supporting frame, hoe handles connected together and having a pivotal connection with

the frame and means for operating the hoe handles, of blocks sliding in ways in the frame and provided with vertical brackets, a lever pivoted in one of the said brackets and having its other end adjustably held in the other bracket, a link connecting the hoe handles with the lever, a shaft provided with fingers engaging the sliding blocks, and a lever for operating the shaft, substantially as herein shown and described.

489,641. MACHINE FOR WORKING LEATHER. ADAM PROBST, Worms, Germany, assignor to Bourr & Reinhart, same place. Filed Aug. 20, 1892. Serial No. 443,262. (No model.)

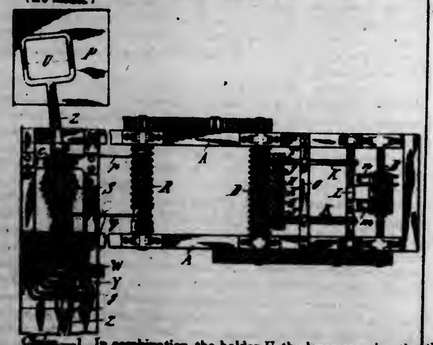


Claim.—1. In combination, the swinging frame, the bolt M extending horizontally through the end of said frame, the bracket K swiveled on the said bolt, the bearings on the said bracket arranged one above the other, the tool shaft L passing loosely through the said bearings, and the pulley J on the said vertical shaft between two of the bracket bearings, substantially as described.

2. In combination, the swinging frame, the bolt M arranged horizontally in the end of the frame and having a projection a, the bracket K having a recessed eye N arranged to swivel on the bolt and have limited lateral movement, the bearings on the bracket arranged one above the other, the vertical tool shaft passing through the bracket bearings and the pulley on the vertical shaft between the bearings, substantially as described.

3. In combination, the swinging frame, the bracket swiveled at the end thereof to have lateral swinging movement, the vertical tool shaft passing loosely through the said bracket to have vertical adjustment, the handles swiveled on the lower part of the said shaft, the spring rod extending on each side of the shaft from the handles through projections on the bracket and the springs S on said rods tending normally to raise the handles, substantially as described.

489,642. APPARATUS FOR AUTOMATICALLY GUIDING SKIN MOLDS IN MACHINES FOR MAKING LEAF METAL. CHRISTIAN REISS, Nuremberg, Germany. Filed June 1, 1892. Serial No. 435,183. (No model.)



Claim.—1. In combination, the holder U, the lever carrying the same and having a pin, the table having a convolute groove into which the pin projects, the shaft at the central part of the groove the arm attached thereto and projecting laterally therefrom over the convolute groove, said arm having sliding connection with the pin of the lever and means for operating the shaft, substantially as described.

2. In combination, the holder, the lever carrying the same, the pin on said lever, the table having a convolute groove receiving the said pin, the shaft at the central part of the convolute groove the arm connected to the shaft and projecting laterally therefrom over the convolute groove, said arm constituting a guide rail, the rolling truck carrying the pin and moving on the lateral arm and means for operating the shaft, substantially as described.

3. In combination, the holder, the pivoted lever carrying the same, the pin on the lever, the table having a convolute groove to receive the said pin, the shaft at the central part of the said convolute groove, the laterally extending arm connected to said shaft and having a sliding connection with the pin the gearing for operating the shaft and the reversing mechanism therefor, substantially as described.

4. In combination, the holder, the pivoted lever carrying the same, the pin on the lever, the table having a convolute groove to receive the said pin, the shaft at the central part of the groove, the arm extending laterally therefrom, and having sliding connection with the pin and the speed changing driving mechanism and reversing devices for operating the shaft, substantially as described.

5. In combination, the holder, the pivoted lever carrying the same, the pin on the lever, the table having a convolute groove to receive the said pin, the shaft at the central part of the groove, the arm extending laterally from said shaft and having a sliding connection with the lever pin, and the driving mechanism for the said shaft including the cone drum and the winding cords, substantially as described.

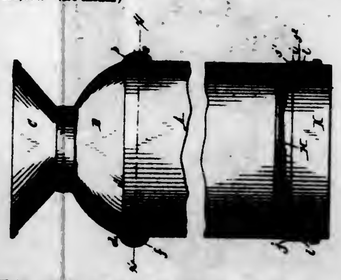
6. In combination, the holder U, the lever carrying the same, the plate having a convolute groove to receive a pin on the lever, the shaft having an arm thereon in sliding connection with the pin, and the driving mechanism for the said shaft including reversing devices, said devices comprising the spiral drum R, the slide E, the adjustable stops, the belt shifters and the connections thereto from the stops, substantially as described.

489,643. APPARATUS FOR AUTOMATICALLY GUIDING SKIN MOLDS IN MACHINES FOR MAKING LEAF METAL. CHRISTIAN REISS, Nuremberg, Germany. Filed June 1, 1892. Serial No. 435,184. (No model.)



Claim.—In combination with a rotary drum A provided with a series of perforations in its periphery, sleeves *a'* fitting said perforations and held therein against the centrifugal action, said sleeves having cone shaped openings and the conical molds B having a shoulder overlapping the end of the sleeve, substantially as described.

489,644. MILK-CAN. ADOLPHUS F. TRIPP, Buffalo, N. Y., assignor to Sidney Shepard & Co., same place. Filed July 7, 1892. Serial No. 439,307. (No model.)

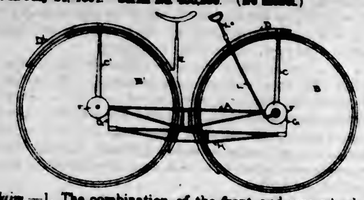


Claim.—1. The combination with the cylindrical can body, of the breast having at its lower end a straight cylindrical rim which overlaps and rests against the outer side of the upper portion of the can body and which is provided at its lower edge with an outwardly and upwardly turned annular flange, and a reinforcing ring confined between said rim and flange and bearing with its outer face against the inner side of said upwardly turned flange and with its inner face against the outer side of the cylindrical rim of the breast, whereby the ring is separated from the adjacent portion of the can body by the intervening rim of the breast, substantially as set forth.

2. The combination with the bottom of the can having a depending marginal rim provided on its outer side below the bottom with an annular shoulder, of the cylindrical can body overlapping the depending rim of the bottom and bearing with the inner side of its lower portion against the outer side of the rim and resting with its lower edge upon the shoulder thereof, substantially as set forth.

3. The combination with the bottom of the can having a depending marginal rim provided below the bottom with an outwardly projecting annular offset forming an external upper shoulder and an internal lower shoulder, of the cylindrical can body overlapping the depending rim of the bottom and resting with its lower edge upon said external upper shoulder, and a bearing ring arranged within said rim and bearing with its upper edge against said internal lower shoulder, substantially as set forth.

489,645. VELOCIPEDE. JOSEPH F. WHITAKER, Hartford, Conn. Filed July 21, 1891. Serial No. 400,269. (No model.)



Claim.—1. The combination of the front and rear wheels with their spring recoil drums and straps, the frame for supporting said wheels hinged at a point between them, and the pedal bars connected with the straps from both wheels, substantially as described and for the purpose specified.

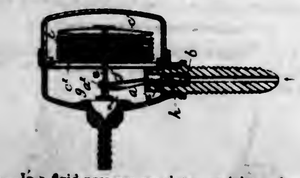
2. The combination of a hinged frame with wheels mounted thereon, with a steering frame having sliding handles, substantially as described and for the purpose specified.

3. In a vehicle, the combination of the spring recoil drums, two sets of straps, and two sets of operating devices, the outer end of one strap from a single drum being connected with one of said operating devices, while the outer end of the other strap from the same drum is connected with the other of said operating devices, substantially as described and for the purpose specified.

4. The combination of the wheels mounted on a suitable frame and provided with spring recoil driving drums and straps, pedal bars connected therewith for being depressed with the feet, and pulls also connected with said drums for being pulled by the hands in the reverse direction from that given the pedal bars, substantially as described and for the purpose specified.

5. The combination of a hinged frame with wheels mounted thereon, and provided with recoil drums, a steering frame having sliding handles and devices for connecting said sliding handles with said drums, substantially as described and for the purpose specified.

489,646. FLUID-PRESSURE REGULATOR. HENRY BAIRD, Crosshill, Scotland. Filed Aug. 17, 1892. Serial No. 443,236. (No model.) Patented in England Sept. 18, 1890, No. 14,735, and in France Nov. 5, 1891, No. 209,319.

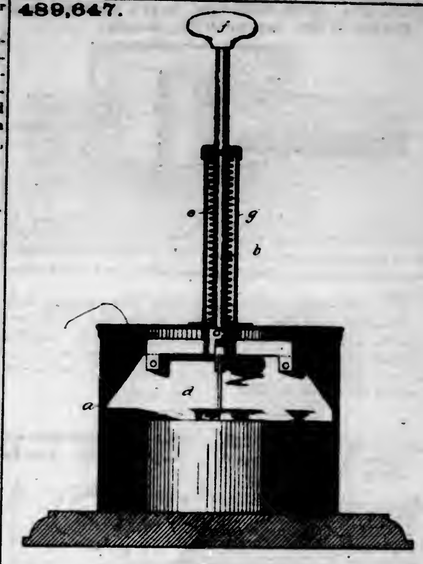


Claim.—In a fluid pressure regulator, an inlet and exit opening a valve in the exit opening and controlling means therefor, acted on by the pressure, consisting of a central rod connected to an expansion device, as a bellows, a link *e* having one end bifurcated and pivoted to the casing and connecting with the rod at the other end, said end being hooked, and a link *f* fitting the hooked end of the link *e*, and engaging a notch in the valve in the exit opening, substantially as described.

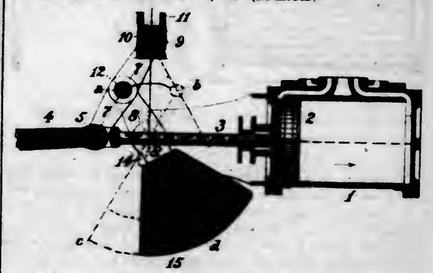
489,647. CULINARY CHOPPER. JOHN B. COE, Boston, Mass. Filed Oct. 20, 1892. Serial No. 449,203. (No model.) Patented in Canada Nov. 16, 1892, No. 41,892.

Claim.—A culinary chopper comprising in its construction a closed casing, a removable cover on the said casing, a reciprocatory and rotary rod, a retractile spring for holding the said rod normally raised or withdrawn, a tube connected with the cover for guiding the rod and protecting the spring, and cutters on the lower end of the rod within the closed casing, as set forth.

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489,648. COUNTERBALANCE AND GUIDE FOR RECIPROCATING MECHANISMS. MATTHIAS N. FORNEY, New York, N. Y. Filed Mar. 31, 1892. Serial No. 427,227. (No model.)



Claim.—1. The combination, with a reciprocating element of mechanism, of an articulated system of oscillating levers or links, connected to the reciprocating element and forming a guide to insure rectilineal motion thereof, a guiding member for said system of levers, and a counterbalance connected to said system of levers and moving in opposite direction to the reciprocating element, substantially as set forth.

2. The combination, with a reciprocating element of mechanism, of a primary oscillating lever coupled at one end to the reciprocating element and having a movable fulcrum at its opposite end, a double armed secondary lever, oscillating in fixed bearings and having one of its arms pivotally connected to the primary lever at the middle thereof, and a counterbalance connected to the opposite arm of the secondary lever, substantially as set forth.

3. The combination, with a reciprocating element of mechanism, of a primary oscillating lever coupled at one end to the reciprocating element and having a movable fulcrum at its opposite end, a double armed secondary lever, oscillating in fixed bearings and having one of its arms pivotally connected to the primary lever at the middle thereof, and a dead weight connected to the opposite arm of the secondary lever, substantially as set forth.

4. The combination, with a reciprocating piston and piston rod, of a primary lever coupled at one end to the piston rod and at the other to a sliding block, a fixed guide on which said block is fitted to move rectilinearly, a double armed secondary lever journaled in fixed bearings and having one of its arms pivotally connected to the primary lever at the middle thereof, and a counterbalance connected to the opposite arm of the secondary lever, substantially as set forth.

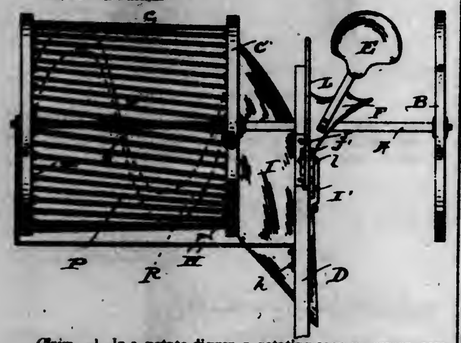
489,649. SPRING PROTECTOR. HENRY A. GARDNER, Chicago, Ill. Filed Sept. 12, 1892. Serial No. 445,761. (No model.)



Claim.—1. In combination with a spring, a well, and a shell in the well around the spring, forming a direct-supply or primary reservoir for the spring water and forming with the surrounding elevation a secondary reservoir in the well, substantially as and for the purpose set forth.

2. In combination with a spring A, a well having masonary walls C, a galvanized sheet-metal tube D sunk into the base of the well around the spring thereby forming a primary reservoir for the spring water and forming with the said walls a secondary reservoir B in the well, and a supply-pipe H leading from the reservoir D, substantially as and for the purpose set forth.

489,650. POTATO-DIGGER. JAMES A. HOOD, Independence, and HARVEY G. GARNER, Cleveland, Ohio. Filed May 16, 1892. Serial No. 433,193. (No model.)



Claim.—1. In a potato-digger, a rotating-cage or screen composed of wheels and rods or rounds connecting said wheels, said rods or rounds being arranged oblique to a plane radial with the axis of the cage or screen, substantially as indicated, whereby said rods or rounds will decline toward the delivering-end of the cage or screen on the ascending side of the latter, substantially as and for the purpose set forth.

2. In a potato-digger, a rotating-cage or screen composed of wheels connected by rods or rounds near their periphery, said rods or rounds being arranged in two series concentric with each other, with the rods or rounds of the one series intervening between the rods or rounds of the other series, substantially as and for the purpose set forth.

3. In a potato-digger, a rotating-cage or screen composed of wheels connected by rods or rounds near their periphery, said rods or rounds being secured nearer to the periphery of the wheel at the delivering-end of the cage than to the periphery of the wheel at the opposite end of the cage, substantially as and for the purpose set forth.

4. In a potato-digger, a rotating-cage or screen composed of wheels C' C^2, the rims whereof in cross-section, are of the shape of an inverted L, and rounds or rods connecting said wheels and secured to the radial portions of the inverted-L-shaped rims of the wheels, the radial member of the rim of the wheel at the delivering or discharging-end of the cage being cut away, as at C^3, substantially as and for the purpose set forth.

5. In a potato-digger, a rotating-cage or screen composed of wheels, C' C^2, the rims whereof in cross-section are of the shape of an inverted L, and two concentric series of rods or rounds, arranged substantially as indicated and connecting said wheels, said rounds or rods being secured to the radial portion of the inverted-L-shaped rims of said wheels, the radial member of the rim at the discharging-end of the cage being slotted or cut away, as at C^3, and the rounds or rods of the inner series of rods or rounds that are located between the ends of said slot being secured nearer to the periphery of the wheel at the discharging-end of the cage than to the periphery of the wheel at the opposite end of the cage, substantially as and for the purpose set forth.

6. In a potato-digger, a rotating-cage or screen composed of wheels C' C^2 and rods or rounds connecting said wheels, said rods arranged in concentric series the parts being rigidly secured together substantially as shown and for the purpose specified.

7. In a potato-digger, in combination with the draft-pole, and the axle, A, of a plate, as at F, bolted to the draft-pole and supporting the seat, said plate being recessed, as at f' to partially embrace the axle, and a clip or strap, G, substantially as and for the purpose set forth.

8. In a potato-digger, the combination with the draft-pole and the plow, of a clip or strap pivoted to the draft-pole, the plow having an arm or member extending upwardly through said clip or strap and a lever, as at L, attached to said arm, the arrangement of parts being such that the plow may be tilted vertically in the one direction or the other according to the direction in which the clip or strap is turned, and suitable means for securing said clip or strap in the desired adjustment of the parts, substantially as set forth.

9. In a potato-digger, the combination with the draft-pole and the plow, of a clip or strap pivotally connected to the one side of the draft-pole and provided with a slot, as at k', concentric with the pivot, the draft-pole being provided with a stud-bolt extending through said slot, a nut mounted on said bolt outside the clip or strap, the plow having an arm or member extending upwardly through said clip or strap, and a lever attached to said arm, all substantially as and for the purpose set forth.

489,651. OVEN. KARL K. KARLSTRÖM, Stockholm, Sweden. Filed June 9, 1891. Serial No. 395,671. (No model.)



Claim.—1. A baker's oven having in combination with a baking chamber open at both ends, an endless wire-gauze bread-carrier, and guide-rollers for such carrier outside of such chamber and serving to move this carrier near the bottom of this chamber and through it, and then back outside of and under the oven and fire-place, all substantially as set forth.

2. A baker's oven having in combination with a baking chamber open at both ends, and with an endless wire-gauze bread-carrier moving through this chamber near its bottom and then back under the oven and fire-place, adjustable stretching rolls outside of such chamber supporting such wire-gauze and serving to stretch it and for bringing it into movement.

3. In an oven having its baking chamber open at both ends, the combination of an endless wire-gauze carrier extending through such open ends and over the fire-place, stretching rolls for such carrier, supports therefor, provided with spiral springs, and regulating screws, whereby the rolls can be removed to or from the oven ends, and the wire-gauze carrier stretched as need be, all substantially as set forth.

489,652. PRESCRIPTION-CASE. JAMES LAIRD, Aurora, Ind., assignor to Lamartine K. Lamb, Toledo, Ill. Filed Mar. 26, 1892. Serial No. 426,608. (No model.)



Claim.—The combination of a series of revolvable shelves, divided into compartments, of a series of rods encircling the same, a series of drawers arranged beneath the compartments and a straddle and stool for supporting the structure, substantially as described.

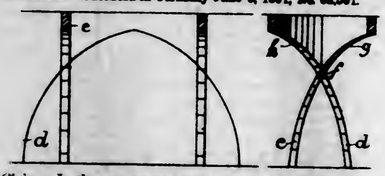
489,653. ELECTRIC GAS-LIGHTER. THOMAS W. LAMB, Boston, Mass., assignor to the Electric Gas Lighting Company, Portland, Me. Filed Jan. 28, 1892. Serial No. 419,104. (No model.)



Claim.—1. In a hand lighting electric gas burner, the combination of the burner A, fixed electrode Y, two-armed lever E, having a vertical arm e, and a horizontal e', and projections 1 and 2, a tilting gas-cock P, rigidly attached to said two-armed lever at about the angle thereof, a wire K, attached to the horizontal arm e', a contact point upon the vertical arm e, adapted to make contact with the fixed insulated arm Y, a leaf spring F mounted upon the block G, and a stop 3, all constructed and combined as and for the purposes set forth.

2. In an electric hand lighting gas burner having a fixed electrode and a two-armed angle or bell-crank lever rigidly attached to the gas-cock and carrying the movable electrode, the combination of a lever-handle for moving said two-armed lever with a leaf spring attached to the burner body, and its free end adapted and normally tending to hold the gas-cock in either an open or in a closed position and to be strained only during the opening or closing of the gas-cock, all substantially as described.

489,654. ARCH FOR CEILINGS OR VAULTS. GOTTHELF L. MÖHRL, Deborra, Germany. Filed May 31, 1892. Serial No. 434,901. (No model.) Patented in Germany June 9, 1891, No. 62,591.



Claim.—In the construction of ceilings and vaults: The arches $d\,e\,|$, springing from the foundation at different points, intersecting at a certain height, and being both continued upward beyond the point of intersection, for the purpose as described.

489,655. TAPPET FOR DUPLEX STEAM PUMPING-ENGINES. MOSES M. MOSER, Beloit, Wis., assignor to the Beloit Wind Engine Company, same place. Filed July 26, 1892. Serial No. 441,502. (No model.)



Claim.—The combination of the valve-rod with the sleeve l, fastened upon it, and externally screw-threaded at both ends; the nuts l^2, screwed upon the sleeve, and provided with means for locking them in any adjusted positions; and the tappet-head l^3, fitting and sliding upon the sleeve between said nuts, and actuated from the piston; substantially as described.

489,656. BUCKLE. GEORGE W. MOSMAN, New Orleans, La. Filed Sept. 13, 1892. Serial No. 445,720. (No model.)

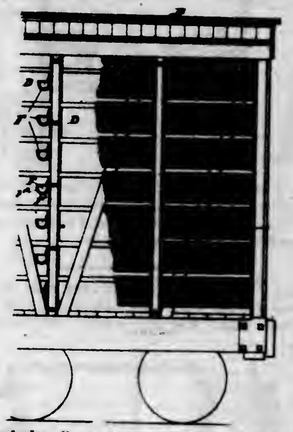
Claim.—As an improved article of manufacture, a buckle having a frame of substantial S-shaped form to provide opposite loops 1 and 2 and with throats therein arranged in opposite sides of the said loops, and a central depressed connecting-bar having a stud or post rising centrally therefrom in a vertical direction, the opposite ends of

489,656.



said bar being extended and connecting with the under side of the frame at the points where the said throats are formed, and the free ends of the frame being bent downwardly parallel with the upwardly-extended ends of the depressed bar and terminating in a horizontal plane parallel with the under side of the said depressed bar, said downwardly-bent ends of the frame and the upwardly-extended ends of the bar forming side guards and the downwardly-bent ends of the frame forming with said guards the opposite walls of the throats, substantially as described.

489,657. POULTRY-CAR. FRANK X. MUSS, Chicago, Ill. Filed June 21, 1892. Serial No. 437,672. (No model.)



Claim.—1. In a live-poultry car divided internally into tiers of coops separated by a longitudinal aisle, and provided with doors E having openings r, a trough for each coop, and a stationary shield F' supported to coincide with the said opening and supporting the trough with its inner end at the said opening and affording a closure therefor, substantially as described.

2. In a live-poultry car divided internally into tiers of coops separated by a longitudinal aisle, and provided with doors E, having openings r, supports for troughs in the coops at the said openings, and troughs on said supports and each formed in longitudinal sections hinged together, substantially as described.

3. In a live-poultry car divided internally into tiers of coops separated by a longitudinal aisle, and provided with doors E having openings r, trough-supports F^2 in the coops at the said openings, stationary shields F' on the said supports, and troughs F, resting in the shields with their inner ends affording closures for the openings, and each formed in longitudinal sections hinged together, substantially as described.

4. In a live-poultry car divided internally into tiers of coops separated by a longitudinal aisle, the combination with the coops of doors E having openings r for the troughs and provided in their depending frame-pieces p with elongated openings o through which the supporting-journals n pass, door-catches l on the sills m, and troughs F supported in the coops to close at their aisle-ends the openings r, substantially as and for the purpose set forth.

489,658. STRAIN-INSULATOR. LOUIS MCCARTHY, Boston, Mass. Filed June 20, 1892. Serial No. 437,411. (No model.)



Claim.—1. An insulator comprising a case adapted to hold a series of sheets of mica, a metallic connecting piece placed therein, and a series of sheets of mica surrounding said piece and adapted to insulate the same from said case, a sleeve A secured within said case at one end and provided with a screw threaded bolt or connecting piece whereby as the sleeve is turned the connecting piece may be screwed into or out of the sleeve to tighten or loosen the supporting wire, substantially as set forth.

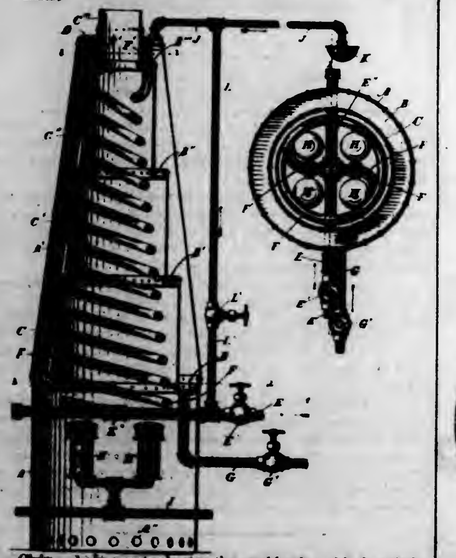
2. In an insulator the combination of the case A, a metallic connecting piece placed therein, and insulated therefrom by a series of sheets of mica, the disk *g*, sleeve A and bolt *m*, substantially as set forth.

489,659. CAR-COUPLING. LEMUEL PARMLEY, Memenee, Ill., assignor of one-third to William B. Brown, Crown Point, Ind. Filed Feb. 1, 1892. Serial No. 419,918. (No model.)



Claim.—A car coupler comprising a draw-head and a horizontally swinging locking arm having corresponding flat meeting faces, a coupling hook located upon the outer face of said locking arm, and a latch for engagement with said locking arm.

489,660. COMBINED WATER-HEATER AND SHOWER-BATH. JOHN PILLOW, Grand Rapids, Mich., assignor of one-half to George B. Wilson, same place. Filed July 14, 1892. Serial No. 440,068. (No model.)



Claim.—1. In a water heater, the combination with the tubular sections of different diameters, cups at the ends of said sections, and the casing surrounding said sections and cups, of the spiral coils extending upwardly through the lower of said sections and having their upper ends located adjacent to the exterior of the upper of said sections and formed with lateral openings, substantially as shown and described.

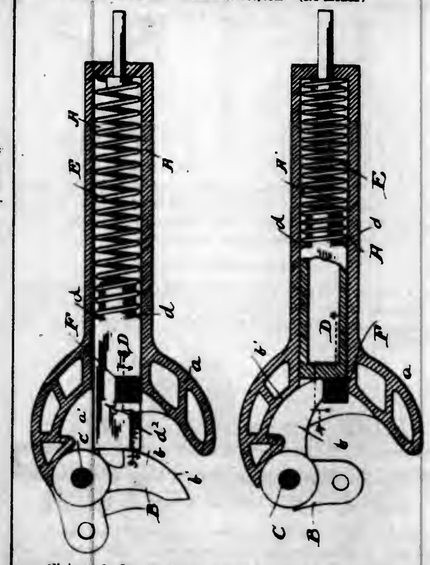
2. In a water heater, a series of diminishing tubular sections connected by annular cups, and a truncated conical casing connected to one of said cups at its base, and to one of said tubular sections at its opposite end, and a conical spiral coil within said sections and cups connected to a water supply at one end, and passing through the upper cup at the opposite end, and having a series of openings in the side adjacent to one of said tubular sections, substantially as described.

3. In a water heater, a cylindrical casing, having burners or other heating devices within the same, a tubular conical extension attached to said base, a series of upwardly diminishing tubular sections connected by upwardly open annular cups within said conical extension, a head connecting said extension to the upper tubular section, a transverse pipe in said casing above said heaters, conical spiral coils connected to said pipe and extending upward within said tubular section and cups, said coils passing through the upper cup and having lateral openings in the side adjacent to the upper tubular section, and a discharge pipe attached to the lower annular cup, substantially as described.

4. The combination, in a combined water heater and shower bath, of a casing, tubular sections of different diameters located in said casing, cups at the ends of said sections, the burners, spiral coils extending upward within said tubular sections and having their upper ends located adjacent to the exterior surface of the uppermost section and formed with lateral openings, a permanently-open pipe, J, extending from the upper end of said casing and provided at its outer end with a sprinkler, a valved pipe G extending from the lower cup, a valved pipe E connected with the lower ends of said coils, and a valved pipe L connecting said pipes J and E.

5. A combined water heater and shower bath, consisting of a series of upwardly diminishing tubular sections, annular cups connecting the adjacent ends of the same, a truncated conical outer shell connected to the outer rim of the lower cup at its base and to the upper tubular section at its smaller end, burners in said casing conical spiral coils within said sections and cups, said spiral coils extending through the uppermost cup and having series of openings in their sides adjacent to the uppermost tubular section, a permanently-open pipe, J, extending from the upper end of said casing and provided at its outer end with a sprinkler, a valved pipe G extending from the lower cup, a valved pipe E connected with the lower ends of said coils, and a valved pipe L connecting said pipes J and E.

489,661. CAR-COUPLING. THOMAS W. RAMSON, Hornellsville, N. Y. Filed July 16, 1892. Serial No. 440,302. (No model.)



Claim.—1. In a hook car-coupler, the combination with the draw-bar and draw-bar-head, chambered substantially as described, and a knuckle pivotally connected with the draw-bar-head, of a sliding-block or plunger adapted to move endwise of the chamber of the draw-bar and engage and hold the knuckle in open position preparatory to coupling, said block or plunger being reduced in size forming shoulders, as at *d*, and a coil-spring confined between said shoulders and the rear wall of the chamber of the draw-bar and acting in the direction forward against said sliding-block or plunger, substantially as and for the purpose set forth.

2. In a hook-car-coupler, the combination with the chambered draw-bar and draw-bar-head, and a knuckle pivotally connected with the draw-bar-head, of a spring-actuated block or plunger, adapted to operate endwise of the chamber of the draw-bar, the inwardly-presenting side of the knuckle being rounded or convex, as at *b'*, and the arrangement of parts being such that, in uncoupling, the knuckle will be automatically opened by said spring-actuated block or plunger, substantially as and for the purpose set forth.

3. In a hook car-coupler, the combination with the chambered draw-bar and draw-bar-head, the draw-bar-head being provided with a vertical perforation, a^4, for the passage of the coupling-pin, and a knuckle pivotally connected with the draw-bar-head, of a spring-actuated sliding-block or plunger adapted to operate endwise of the chamber of the draw-bar and engage and hold the knuckle open preparatory to coupling, the arrangement of parts being such that the coupling-pin is adapted to rest upon the sliding-block or plunger in the open position of the knuckle and the closing of the knuckle forces said sliding block or plunger rearward and permits the coupling-pin to drop in advance of said block or plunger and lock the knuckle in its closed position, substantially as set forth.

4. In a hook car-coupler, the combination with the chambered draw-bar and draw-bar-head, the draw-bar-head being provided with a vertical perforation for the passage of the coupling-pin, a knuckle pivotally connected with the draw-bar-head and a block or plunger adapted to slide endwise of the chamber of the draw-bar and hold the knuckle in its open position, of suitable means for holding the coupling pin elevated in the closed position of the knuckle, substantially as set forth.

5. In a hook-car-coupler, the combination with the draw-bar and draw-bar-head, chambered substantially as described, a knuckle pivotally connected with the draw-bar-head and a sliding-block or plunger adapted to operate endwise of the chamber of the draw-bar, the draw-bar-head having a perforation, as at a^4, for the passage of the coupling-pin and a pocket or chamber, a^3, in open relation with the chamber of the draw-bar and in open relation with perforation a^4, of a movable block located within said pocket or chamber and adapted to hold the coupling-pin elevated in the closed position of the knuckle and suitable means for automatically releasing the coupling-pin with the forward movement of the aforesaid sliding-block or plunger, substantially as set forth.

6. In a hook car-coupler, the combination with the draw-bar and draw-bar-head chambered substantially as described, a knuckle pivotally connected with the draw-bar-head and a sliding-block or plunger adapted to operate endwise of the chamber of the draw-bar, the draw-bar-head having a vertical perforation, as at a^4, for the passage of the coupling-pin, and a pocket or chamber a^3, in open relation with the chamber of the draw-bar, and in open relation with perforation a^4, of a movable block located within said pocket or chamber, and adapted to hold the coupling-pin elevated in the closed position of the knuckle, and means substantially as indicated for automatically releasing the coupling-pin with the forward movement of the aforesaid sliding-block or plunger, substantially as set forth.

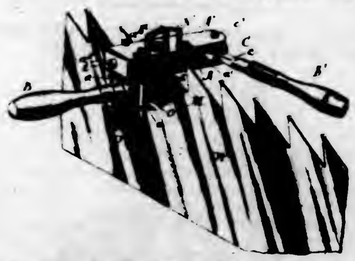
489,662. HOISTING AND CONVEYING APPARATUS. CECIL L. SAWDON, Cleveland, Ohio. Filed Apr. 4, 1892. Serial No. 427,699. (No model.)



Claim.—1. In hoisting and conveying apparatus, a track, a load-carriage, a single and continuous cable for hoisting the load and propelling the load carriage in either direction, said cable being provided, at suitable intervals, with protuberances or projecting-devices, one or more cable-supporting-devices in the route at each end of the load-carriage through which the cable passes in one direction and returns, said cable supporting devices adapted to travel on the track aforesaid and be engaged and actuated by a protuberance or projecting-device secured to the propelling cable aforesaid, the arrangement and construction of the cable-supporting-devices and protuberances or projecting-devices in the line of the propelling-cable, relative to each other, being such that a sufficient number of cable-supporting-devices will always be in position to adequately support the cable, substantially as and for the purpose set forth.

2. In hoisting and conveying apparatus, a track, a load-carriage, a single and continuous cable for hoisting the load and propelling the load carriage in either direction, said cable being provided, at suitable intervals, with protuberances or projecting-devices, one or more cable-supporting-devices in the route at each end of the load-carriage and adapted to travel on the track aforesaid and be engaged and actuated by a protuberance or projecting-device in the line of the propelling cable aforesaid, the arrangement and construction of parts being such that said protuberances or projecting-devices in the line of the cable are adapted to propel the carriers in the one direction and the load-carriages is adapted to propel them in the other or opposite direction, substantially as and for the purpose set forth.

489,663. DEVICE FOR SIDE-SWAGING AND SETTING SAWS. JOHN SOMMER, Salem, Mich., assignor of one-half to George J. Farnsworth, same place. Filed Mar. 21, 1892. Serial No. 426,554. (No model.)



Claim.—1. An instrument of the kind described comprising the combination of a body, two dies carried by the said body, one of said dies being movable, a handle fixed to the body adjacent the outer end of one of said dies, and a handle pivoted to the body adjacent the outer end of the other of said dies and provided with a cam whereby the movable die is operated, said handles being thus arranged to extend at opposite sides of the saw blade to be swaged, substantially as described.

2. An instrument of the kind described comprising the combination of a body formed of separate parts or sections A and A', a fixed die D and a movable die D' held between said sections a cam C pivoted between said sections adjacent the end of the movable die, a handle B' for operating said cam, and a handle B at the opposite end of the body for holding the same, substantially as described.

3. An instrument of the kind described comprising the combination of a body provided with "side swaging dies," the body being cut away to permit the saw teeth to pass between said dies, a cam for op-

centing one of said dies, and two separate handles whereby said body may be manipulated, one of said handles being pivoted adjacent the outer end of one of said dies and the other of said handles being located at the opposite end of the instrument, substantially as described.

4. An instrument of the kind described comprising a body provided with two swaging dies having their front upper corners beveled to give thereto both an upward and an outward flare or incline, and suitable means for operating one of said dies, substantially as described.

5. An instrument of the kind described comprising the combination of a body having a cut away space to permit the saw tooth to pass between the dies carried by said body, two dies one of which is movable, suitable means for operating the movable die, and a longitudinally adjustable bar G extending above the cut away space of the body and provided with an incline *g*, the face of which bears against a part of the body and means for holding said bar G in different positions, substantially as described.

6. An instrument of the kind described comprising the combination with a body provided with suitable means whereby it may be rocked across the plane of the saw blade, and provided with means for engaging with the opposite sides of the saw teeth, of a movable indicator pointer connected to said body, and a contact bar connected to said indicator pointer, substantially as described.

7. An instrument of the kind described comprising the combination of a body having handles at its opposite ends and provided with means for engaging the opposite sides of the saw teeth, an indicator pointer connected to said body, and a contact bar connected to said body and to said indicator pointer and arranged to move at right angles to the plane of the saw blade, substantially as described.

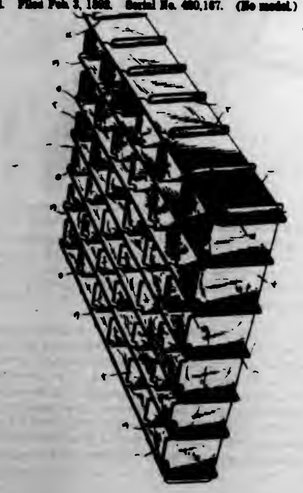
8. An instrument of the kind described comprising the combination with a body having means whereby it may be manipulated and having means for engaging the opposite sides of the saw teeth, of an indicator pointer and a contact bar movably connected to said body, said contact bar having a set screw for determining its position with respect to the saw blade, substantially as described.

9. An instrument of the kind described comprising the combination of a body provided with swaging dies and means for operating one of said dies, a movable indicator pointer connected to said body and a contact bar connected to said indicator pointer and extending downward from the body, substantially as described.

10. An instrument of the kind described comprising the combination of the body, two side swaging dies D D', a handle B, and a movable handle B', for operating one of said dies, a pivoted indicator pointer M, a contact bar O connected to said indicator pointer and a segment bar N adjacent the indicator pointer, substantially as described.

11. An instrument of the kind described, comprising a body having handles at its opposite ends, an indicator pointer pivotally connected to said body, a contact bar joined to said indicator pointer but extending at one side of the vertical plane thereof, said contact bar being provided with a hook or extension, substantially as described.

489,664. EGG-CARRIER FILLER. EDWIN S. SHEPARD, Vincennes, Ind. Filed Feb 3, 1892. Serial No. 420,167. (No model.)



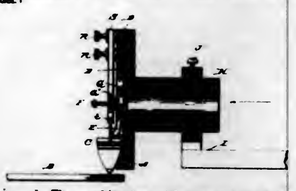
Claim.—An egg carrier filler, consisting of a series of strips having hooks formed of curved cuts in their upper edges, slots extending therefrom to the center of the strips, the base of the hooks being at right angles to such slots, in combination with a series of strips having vertical slots extending from the lower edge to their center, and notches in their upper edge, the base of such notches being at right angles to the vertical slots, such strips adapted to be interlocked with the first, substantially as shown and described.

489,665. PRINTER'S CABINET. GEORGE M. WILLIAMS, Santa Rosa, Cal. Filed Aug. 8, 1891. Serial No. 402,074. (No model.)



Claim.—The combination with a base or pedestal and a standard secured to and rising from the base; of the revoluble cabinet mounted upon the standard and comprising a plurality of side walls inclined upwardly and inwardly toward a common center, and the partition walls arranged upon the side walls and extending outwardly therefrom, substantially as and for the purpose set forth.

489,666. SOUND-RECORDING INSTRUMENT. EDWARD L. WILSON, Washington, D. C. Filed Aug. 11, 1892. Serial No. 442,896. (No model.)

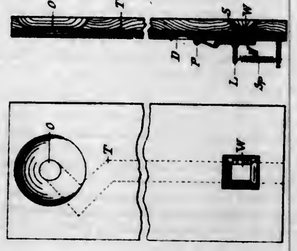


Claim.—1. The combination with a sound receiving tube of a diaphragm and a damper, said damper arranged outside of said tube and adjusted to bear directly on or near the center of said diaphragm, substantially as and for the purpose described.

2. In a sound recording instrument the combination with the stylus, of a record plate, a damper and a diaphragm, said damper arranged to operate on or near the center of the diaphragm, and on the outside thereof, and the stylus and damper arranged to work independently of the other, substantially as described.

3. In a sound recording instrument the combination with a sound receiving tube, of a transmitting vibratory diaphragm and stylus, a rubber pad secured to the center of said diaphragm and provided with a finger to connect with said stylus, and a damper located outside of said tube and diaphragm and adapted to be forced against said pad, substantially as and for the purpose described.

489,667. FRAUD-PREVENTIVE DEVICE FOR COIN-CONTROLLED APPARATUS. OTTOMAR ANSCHÜTZ, Lissa, Germany. Filed July 5, 1892. Serial No. 439,433. (No model.)



Claim.—1. In a fraud preventive device for coin controlled apparatus having a glass window in the front plate for making the inserted coins: visible the combination of two double-armed levers arranged behind such window, one above the other, the lower one being provided with a hook H pressed against the front plate of the passage for the coins by means of a spring, the upper arm of said lever engaging with the lower arm of the upper lever in such a manner as to cause its free upper arm to extend into the coin passage, substantially as and for the purpose described.

2. In a fraud preventive device for coin controlled apparatus having a glass window in the front plate of the coin passage for making the inserted coins: visible the combination of two double-armed levers arranged behind such window one above the other, the lower one being provided with a hook H pressed against the front plate of the coin passage by means of a spring Sp and an extension L, the upper arm of said lever engaging with the lower arm of the upper lever D having a curved upper arm extending into the passage for the coins.

3. In a fraud preventive device for coin controlled apparatus having a glass window in the front plate for making the inserted coins: visible two double-armed levers arranged behind such window one above the other, the lower one being provided with a hook H pressed against the front plate of the passage for the coins by means of a spring, the upper arm of said lever engaging with the lower arm of the upper lever in combination with the flat channel P for the passage of the coins and a circular opening O corresponding in diameter to that of the coins to be inserted, substantially as and for the purpose set forth.

4. In a fraud preventive device for coin controlled apparatus in combination with a glass window W of suitable shape and size, a hook H pivoted loosely onto a support S and kept in position by a spring Sp and an extension L, an S-shaped piece D likewise loosely pivoted onto a pivot P and likewise kept in position by the spring Sp and the upper end of the hook H and a channel or flat tube T so shaped that it keeps the coins lying flat against the front wall of the casing in which the whole apparatus is contained, a circular opening or hole O bored exactly to fit the coins for which the apparatus is intended, substantially as and for the purpose set forth.

489,668. ELECTRIC BATTERY. CLARENCE H. BRYAN, Chicago, Ill. Filed May 3, 1892. Serial No. 431,715. (No model.)



Claim.—1. An excitant compound for dry electric batteries comprising a mixture of a salt of calcium, a ferrous salt and a salt of hydrargyrum, substantially in the proportion specified.

2. A dry electric battery comprising, in combination, a positive element and a negative element and an excitant compound composed of a mixture, substantially in the proportions specified, of a salt of calcium, a ferrous salt, and a salt of hydrargyrum, substantially as described.

3. A dry electric battery comprising, in combination, a positive element and a negative element and an excitant compound composed of a mixture, substantially in the proportions specified, of sulphate of calcium, ferrous sulphate and hydrargyrum sulphate, substantially as described.

4. A dry electric battery comprising, in combination, a case A forming one element, an element B inside the case and insulated therefrom, and an excitant compound enveloping the element B in the case and composed of a mixture, substantially in the proportions specified, of a salt of calcium, a ferrous salt and a salt of hydrargyrum, substantially as described.

5. A dry electric battery comprising, in combination, a case A formed with a semi-cylindrical top and flat base, and forming one element, a carbon plate forming an element B inside and insulated from the case, and an excitant compound C enveloping the carbon inside the case and composed of a mixture, substantially in the proportions specified, of sulphate of calcium, ferrous sulphate and hydrargyrum sulphate, substantially as described.

489,669. HORSE OR CARRIAGE BLOCK. NEWTON F. CARPENTER, Menomonee, Wis. Filed Dec. 14, 1891. Serial No. 415,086. (No model.)

Claim.—1. A block or platform having a hitching arm or post pivotally supported in a vertical position, to adapt it to serve as a hitching post or as an extended step, as set forth.

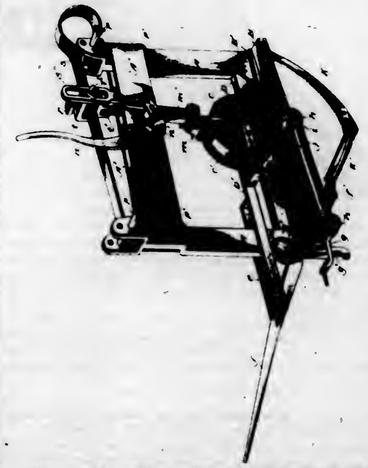
2. A block or platform having an arm or post pivotally connected thereto and normally occupying a vertical position and capable of serving as an extended step, when in its horizontal position as set forth.



3. A block or platform having a slot or opening therein, and a pivoted arm or post projected through said slot or opening and having an inner weighted end, substantially as set forth.

4. The herein-described block or platform having a slot or opening and parallel guide bars, and the arm or post located between said guide bars and having a weighted end and a hole or opening in its other end, and a pivotal rod extended through said arm or post and supported by said stand, substantially as set forth.

489,670. MACHINE FOR WELDING PLOW-IRONS. ANDREW M. EMERSON, Cork, Minn. Filed June 16, 1892. Serial No. 436,869. (No model.)



Claim.—1. In a welding machine the base D provided with uprights and transom bars and having formed upon one side ledges B, B', the face of the latter being inclined to that of the ledge B and adapted to impart a vertical movement to the roller C, in combination with said roller spring S and connecting and operating mechanism, the said parts being combined in the manner and for the purpose set forth.

2. In a welding machine a roller C having a traverse and a vertical movement, in combination with the spring S, anvil B, inclined track B', lever *f* and connecting and operative mechanisms.

3. In a welding machine, the combination of the roller C having a flange C', a spring S to form a yielding support, and a track B' to raise and lower the roller, with the levers *f* and *n* and the bar *m* and connecting and operative mechanisms.

4. The combination of the anvil B, shaft *j* and claw *i*, with the roller C, spring S, lever *f* and connecting and operative mechanisms.

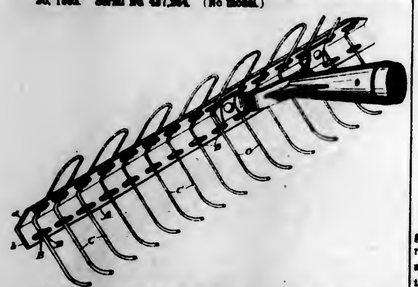
5. In a machine for welding by rotary pressure, an anvil to support the work, a roller to compress the parts to be united, a spring to conform the roller to the varying surfaces as the metal is compressed, and means such as a flange C' and an inclined track B' to limit the extent of compression, and a lever and connecting bar to cause the roller to traverse the work in the manner described and for the purpose set forth.

489,671. BOUTONNIÈRE. HENRY W. PIERS, New York, N. Y. Filed Nov. 4, 1892. Serial No. 450,961. (No model.)



Claim.—A boutonnière, comprising a buttonhole stud having at its outer end a perforated socket, an artificial flower held within the socket, and a split pin extending through the leaves or petals of a flower and through the perforations in the socket, substantially as described.

489,672. LAWN-RAKE. LEWIS GIBBS, Canton, Ohio. Filed June 30, 1892. Serial No. 437,264. (No model.)



Claim.—1. The combination in a lawn rake of the angle flanged head having cut therefrom, in pairs and attached thereto at one end, a series of tongues, the free ends of which are adapted to be turned over a series of teeth, and thereby secure the teeth to the head, substantially as described.

2. The combination in a lawn rake of an angle flanged head, having cut therefrom in pairs, a series of tongues, the free ends of which are bent to embrace a series of U-shaped teeth, extending on opposite sides of the head inclined transversely, substantially as described.

489,673. SIDE-SPRING VEHICLE. JOSHUA J. GILBERT, Syracuse, N. Y. Filed Nov. 27, 1891. Serial No. 413,171. (No model.)

Claim.—1. In a vehicle, the combination with the front and rear axles and the wheels thereon; of a body, a head-block above the front axle, a fifth wheel between the front axle and the head-block, a front spring supporting bar arranged flatwise, and having its central portion rigidly secured to the head-block and its extremities slightly tapered, and inclined upwardly, and provided with integral ears, and side springs having their rear ends supported on the rear axle and their front ends hinged to the ears of the spring supporting bar, substantially as and for the purpose described.

2. In a vehicle, the combination with the body and the running gear having a front axle and having a rear axle risers or bearings mounted on the rear axle and extended upwardly above the same, a spring supporting bar rigidly secured to said risers, and side springs having their front ends supported by the front axle and their rear ends connected to and supported upon said bar, substantially as and for the purpose described.

3. In a vehicle, the combination with the body and the running gear having a rear axle; of risers or bearings mounted on the rear axle and extending upwardly above the same, a spring supporting bar disposed in a plane above the top face of the rear axle and having its opposite ends supported by said risers, links having one extremity hinged to said bar, and side springs having their ends hinged to the opposite ends of said links, and adapted to enter between the rear axle and said supporting bar, substantially as and for the purpose set forth.

4. In a vehicle, the combination with the body and the running gear having a rear axle formed with a downwardly deflected central portion, side springs having their ends normally disposed above the deflected central portion of the axle, risers or bearings mounted on the rear axle and extending upwardly above the ends of the side springs, a rear spring supporting bar having its opposite end supported in said risers, and links having one end journaled on said bar and the other connected to the ends of the side springs, substantially as and for the purpose specified.



5. In a vehicle, the combination with the body and the running gear having a rear axle provided with a central depressed portion, risers or bearings mounted on the rear axle and extending upwardly above the same, a spring supporting bar having its opposite extremities mounted in said risers, an adjustable shoulder on the rod bearing against one of said risers, and side springs connected to and supported upon said rod, substantially as and for the purpose described.

6. In a vehicle, the combination with the running gear and body; of a front spring supporting bar having its central portion supported upon the front axle and its extremities inclined slightly upward, projecting bearings on the rear axle extending upwardly above the top face thereof, a rear spring supporting bar supported in said bearings, and side springs having their opposite extremities disposed normally in planes above the front and rear axles and supported on said front and rear supporting bars, substantially as and for the purpose specified.

7. In a vehicle, the combination with the front axle and the wheels thereon; of a body, a head-block above the front axle, a fifth wheel between the front axle and head-block, a front spring supporting bar having its central portion rigidly secured to the head-block and its extremities slightly tapered and provided with attaching ears, a rear axle having its central portion deflected downwardly and the wheels thereon, side springs connected to the vehicle body with their forward ends hinged to the attaching ears at the ends of the front bar and their rear ends disposed normally in a plane above the deflected portion of the rear axle, risers or bearings on the rear axle extending upwardly above the ends of the side springs, a rear spring supporting bar having its extremities supported in said risers and links having one end journaled on said bar and the other connected to the rear ends of the side springs, substantially as and for the purpose specified.

8. In a vehicle, the combination with the body and the running gear having a rear axle; of risers or bearings mounted on the rear axle and extending upwardly above the same, a spring supporting bar disposed in a plane above the top face of the rear axle and having its opposite ends journaled in said risers and provided with projecting ears, side springs having their ends hinged to the ears and adapted to enter between the rear axle and said spring supporting bar, and tie bars rigidly secured to said side springs at points on the opposite sides of the center thereof, whereby the central portion of the side spring is free to move, substantially as and for the purpose set forth.

9. In a vehicle, the combination with the running gear and body; of upwardly extending risers or bearings on the rear axle, a rear spring supporting bar supported by said risers, side springs having their front

extremities supported on the front axle, and their rear extremities on said bar tie bars for supporting the body rigidly secured to said side springs at points on opposite sides of the center thereof whereby the central portion of the side springs is free to yield, and a bar —*m*— having its end rigidly secured to said tie bars, for preventing spreading thereof, substantially as and for the purpose described.

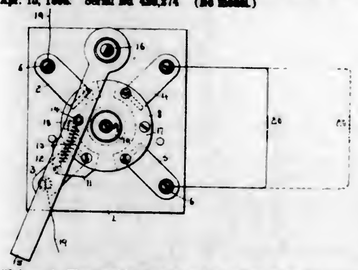
10. In a vehicle, the combination with the running gear and body; of a front spring supporting bar having its central portion supported upon the front axle, projecting bearings on the rear axle, a rear spring supporting bar supported by said bearings, side springs having their opposite extremities supported on said front and rear supporting bars, tie bars —L— rigidly secured at their opposite extremities to the separate side springs at opposite sides of the center of said side springs whereby the central portion of the side springs is free to yield, a bar —*m*— having its ends rigidly secured to said tie bars, an arm projecting outwardly from the central portion of said bar —*m*— to the springs, and a clamp for securing said projecting arm to the side spring, substantially as and for the purpose specified.

11. In a vehicle, the combination with the rear axle, a spring supporting bar mounted above the axle, and a side spring supported on said bar; of the herein described riser formed with an integral box and lateral clip arms extending lengthwise of the axle and rigidly secured thereto, substantially as and for the purpose set forth.

12. In a vehicle, the combination with an axle having its central portion deflected downwardly, risers at the opposite extremities of said central portion, each being formed with a box extending lengthwise of the axle and with projecting feet extending laterally beyond the box and conforming to the curvature of the adjacent portion of the axle and rigidly secured to the axle, an additional riser interposed between the former risers, a rear spring supporting bar mounted in said box, and a spring supported on said bar, substantially as specified.

13. In a vehicle, the combination with front and rear axles having their central portions deflected downwardly, a reach having its opposite extremities rigidly secured to the axles, a head-block, a fifth wheel between the head-block and the front axle, a front spring supporting bar having its central portion rigidly secured to the head-block and its extremities slightly tapered, side springs having their forward ends hinged to the opposite extremities of the spring supporting bar and their rearward ends disposed normally in a plane above the deflected portion of the rear axle, risers or bearings upon the rear axle extending upwardly above the rear ends of the side springs, and a rear spring supporting bar having its extremities supported in the risers or bearings, and links having one end hinged to the rear spring supporting bars and the other hinged to the rear ends of the side springs, substantially as described.

489,674. LOOP-SWITCH. FREDERICK D'A. GOULD, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Apr. 15, 1892. Serial No. 429,274. (No model.)

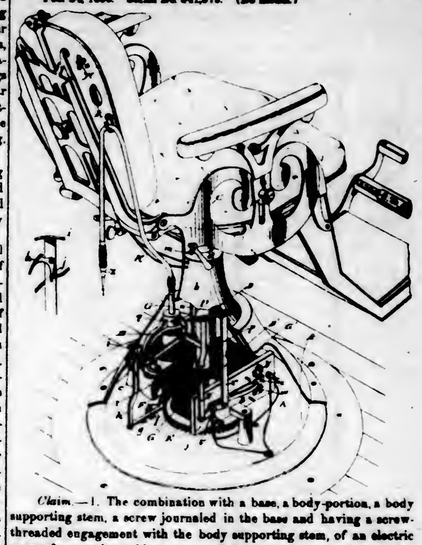


Claim.—1. The combination, in a snap switch, of stationary contacts, a pivoted or rotatable switch member, against the under side of which said contacts bear, a switch arm pivoted at one side of said body but extending over the same, and a spring, the ends of which are connected respectively to the arm and the rotatable switch member on the same of the pivot of said arm substantially as described.

2. The combination, in a switch, of a base, a hub or extension 7, a plate pivoted thereon and adapted to move forward and backward on its pivot a limited distance, contact plates thereon on the side toward the base, springs on the base pressing against said side of the movable plate, a handle pivoted at one side of the movable plate and extending over it, and a spring connecting said handle and movable plate, the points of attachment of the spring both being on the same side of the handle pivot substantially as described.

3. The combination, in a switch, of a base, a plate carrying contact devices thereon, springs on the base and adapted to press against the contacts, a handle being pivoted at one side of but extending over the plate, and a spring connected to the handle between its free end and its pivot, and connected to said plate at a point further from the pivot than the connection to the handle, but on the same side of said pivot substantially as described.

489,675. DENTAL CHAIR. AARON P. GOULD, Canton, Ohio. Filed Feb. 24, 1892. Serial No. 422,879. (No model.)



Claim.—1. The combination with a base, a body-portion, a body supporting stem, a screw journaled in the base and having a screw-threaded engagement with the body supporting stem, of an electric motor for rotating said screw, a switch, means for manually operating said switch to reverse the motion of the armature of said motor and means for automatically stopping the motor when the body portion has reached a certain level, substantially as set forth.

2. The combination with a base, a body portion, a body supporting stem, a screw journaled in the base and having a screw threaded engagement with the body supporting stem, of an electric motor for actuating said screw, a switch, and a connection between the switch and the body supporting stem, and means carried by the body supporting stem for actuating said connection.

3. In combination with a base, a body portion, a body supporting stem, a screw for actuating the body supporting stem provided with a gear wheel, of an electric motor the armature shaft of which is provided with a clutch gear in engagement with the first named gear, a gear shipper, and means for automatically stopping the armature shaft of the motor to prevent the body portion raising or lowering too far, substantially as set forth.

4. The combination with a chair body, of a base, A, having a vertical aperture, *d*, and a vertical groove, *m*, a chair supporting stem, D, a tongue, *n*, adapted to slide in said groove, said tongue having shoulders, *l l*, that engage and move a switch bar, *p*, connected to the switch, S, by which the current of electricity to the motor is interrupted to stop the motor.

5. The combination, in a dental chair, of a base and body portion, said body portion adapted for vertical adjustment in said base, a dental tool connected to said chair, and a prime mover for simultaneously rotating said tool and moving vertically said body portion, and means for throwing the body raising mechanism out of engagement with the prime mover.

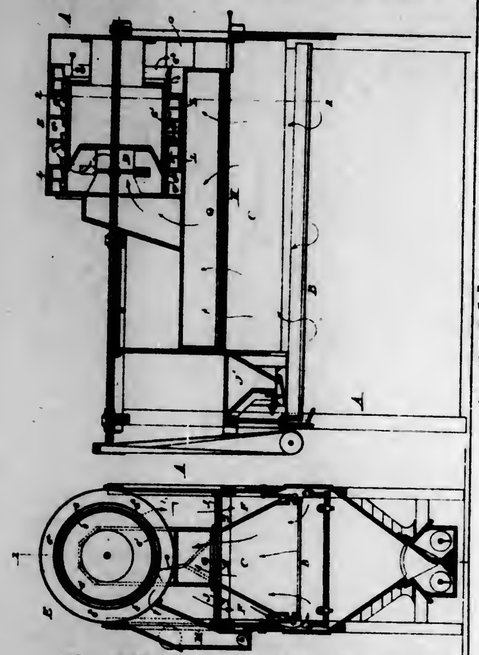
489,676. MIDDLINGS-PURIFIER. WILLIAM D. GRAY, Milwaukee, Wis. Filed Jan. 26, 1892. Serial No. 418,207. (No model.)

Claim.—1. The combination in a middlings purifier of a sieve, a fan acting to induce a current upward through the sieve, a dust catcher communicating with the fan chamber, longitudinal air passages at opposite sides of the machine communicating with the dust catcher, and opening into the chamber below the sieve past the sides of the latter.

2. In a middlings purifier, the combination of an inclosing chamber, a sieve therein, a dust-catcher, a fan inducing an air current up-

ward through the sieve and thence through the dust-catcher, and means for dividing the air current above the sieve and compelling it to return downward past the two edges of the sieve and the space thereunder.

3. In a middlings purifier, the combination of a sieve, a suction fan drawing air upward therethrough, a dust-catcher to which the fan delivers the dust-laden air, and two longitudinal chambers at opposite sides of the machine through which the purified air is distributed lengthwise of the machine and from which it descends to the chamber beneath the sieve.



4. In a middlings purifier, a screen, the overlying exhaust chamber, the fan, the two longitudinal chambers at opposite sides of the machine through which the purified air is distributed lengthwise of the machine and returned beneath the sieve, and means, as deflectors, to insure the uniform distribution of the air throughout the length of the machine.

5. In combination with the sieve, the suction chamber, the fan and the side chambers for returning the air from the fan, a laterally-adjustable valve or deflector O, to equalize the current at the two sides of the machine.

6. In a middlings purifier, the combination of the body or casing, the screen thereunder, the suction chamber thereover, the fan, the dust-catcher consisting of the cylindrical screen and the annular chambers surrounding the same, and chambers or flues arranged to conduct the purified air from the dust-catcher beneath the two sides of the sieve.

489,677. APPARATUS FOR THE PRODUCTION OF CHLORINE AND CAUSTIC SODA. JAMES GREENWOOD, London, England, assignor to the Caustic Soda and Chlorine Syndicate, Limited, same place. Filed Apr. 7, 1891. Serial No. 388,012. (No model.)



Claim.—1. In apparatus for the manufacture or production of chlorine or caustic soda by electrolysis, the combination in a cell, of a porous partition formed of a number of V-shaped troughs filled with asbestos fiber, or other suitable material, maintained in vertical series, substantially as hereinbefore described.

2. In apparatus for the manufacture of chlorine or caustic soda by electrolysis, the combination in rectangular cells, of porous diaphragms formed of a series of V-shaped troughs filled with asbestos fiber, and maintained in vertical series, by suitable supporting frames.

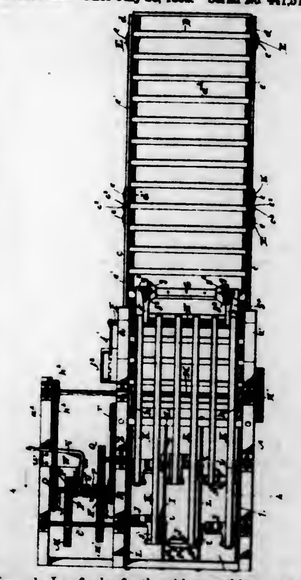
3. The combination of the electrolytic vessel divided into a series of anode and cathode sections *d*, and *e*, made as described, insulating plate *f*, arranged in the bottom of the cell, a series of porous partitions formed of V-shaped troughs and asbestos fiber or suitable material between the anode and cathode sections, pipes *l*, and *m*, extending into the anode and cathode apartments respectively, and terminals *c* and *e*, connected to the cathodes and anodes respectively, all substantially as set forth.

489,678. TOOL-HOLDER. ALBERT A. GRIFFIN, Ransomville, Mich. Filed Mar. 21, 1892. Serial No. 426,745. (No model.)



Claim.—In a tool holder, the combination of the bracket consisting of the plate A and legs B of the stationary inclined abutment upon one side, the inclined grooved bearing E formed upon the opposite side, the lugs F upon said bearing, the grooved cap G having lugs, and rivets H, the parts arranged to operate, substantially as and for the purpose described.

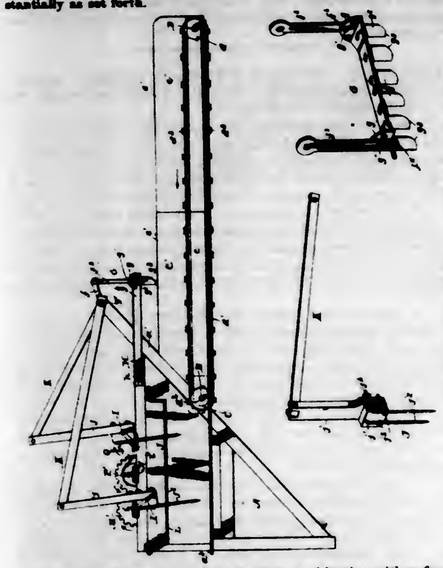
489,679. BAND-CUTTER AND FEEDER. CHARLES F. HAWKINS, St. John, Kans. Filed July 28, 1892. Serial No. 441,511. (No model.)



Claim.—1. In a feeder for thrashing machines, a folding sectional apron frame, comprising aligning sections, overlapping perforated hinge and securing plates secured to the meeting ends of said sections, securing and pivot bolts clamping the overlapping plates together, either one of said bolts being adapted to be removed to place the hinge or pivot of the frame upon the other bolt, and an endless carrier moving over said frame, substantially as set forth.

2. In a band cutter and feeder, the combination with a fixed feeder frame, of the endless carrier frame pivotally connected to said fixed frame and delivering into the same, a radially adjustable swinging knife carrying frame mounted upon said fixed frame and adapted to be swung over said carrier, and means for swinging said radially adjustable knife frame, longitudinally of the carrier substantially as set forth.

3. The combination with an endless carrier; of an adjustable rod or shaft mounted above said carrier and carrying arms, swinging links suspended from said arms and having lower perforated ends, a radially adjustable knife carrying bar having journaled ends loosely mounted in the lower perforations of said links, perforated adjusting segments connected to said knife bar near each end, adjusting bolts engaging any one of the series of perforations in said segments and the perforations in said links, and means for swinging said links, substantially as set forth.



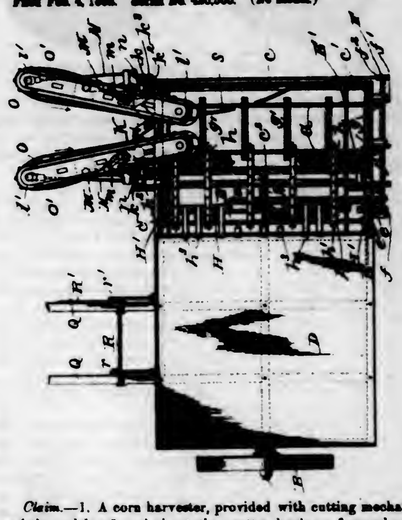
4. In a band cutter and feeder, the combination with a fixed feeder frame and endless carrier connected therewith, of the stationary adjustable rod or shaft mounted in said fixed frame above the carrier and carrying arms, swinging links loosely suspended from said arms, a radially adjustable knife carrying bar adjustably mounted in the lower ends of said links, a series of cutting knives secured to said knife bar, a double crank shaft mounted upon said fixed frame in rear of and below said rock shaft, and connecting bars or rods loosely connected with the cranks of said shafts and said swinging links, substantially as set forth.

5. In a band cutter and feeder, the combination with the fixed frame having a flat floor, and the endless carrier leading to one end of said floor; of the swinging band cutting knives suspended from the fixed frame above said carriers and adapted to move longitudinally thereof, parallel crank shafts journaled upon the top of said fixed frame near the cylinder end of the thrasher and provided with a series of cranks out of line with each other and alternately arranged with respect to the cranks of the opposite shaft, vibrating forks pivotally clamped at or near their centers on each of the cranks of the said shafts and adapted to vibrate directly over and in close proximity to the flat floor in the fixed frame, a fixed or stationary rod or shaft mounted at one end of the fixed frame, swinging or connecting bars pivotally mounted at one end on said stationary rod or shaft and having their other ends pivotally connected to the upper ends of the forks above the crank shafts, speed gearing connected with said crank shafts and adapted to turn both of the same in one direction and means for changing the rate of speed of said crank shafts, substantially as set forth.

6. The combination with the feeder frame having a floor, of the parallel crank shafts mounted upon said feeder frame over the floor and provided with a multiplicity of cranks, feeding forks pivotally and removably clamped upon said cranks and having upper bifurcated fork arms, lower removable tine heads, and the tines having upper right angularly disposed threaded ends passing through said heads and the fork arms, nuts engaging the projecting threaded ends of the tines, and removably clamping the heads to the fork arms, a fixed rod or shaft mounted at one end of said frame, and swinging fork bars pivotally mounted at one end upon said fixed rod or shaft and at their other ends in the upper bifurcated ends of said fork arms, substantially as set forth.

7. The combination with the feeder frame and endless carrier; of the apron or carrier shaft having a sprocket wheel at one end, a swinging knife frame, a double crank shaft connected to said knife frame and having an extension at one end carrying a sprocket wheel, a counter drive shaft mounted upon said frame extension and carrying a sprocket wheel at one end, a chain connecting the crank shaft sprocket with the latter sprocket wheel, the parallel fork carrying crank shafts mounted upon said frame and one of which is provided with an extension carrying cog wheels of different diameters, a cog wheel mounted upon one end of the other crank shaft, cog wheels of different diameters loosely mounted upon said counter shaft and provided with inner clutch faces and adapted to mesh with the cog wheels of the crank shafts adjacent thereto, one of said loose cog wheels being connected to a sprocket wheel, an endless chain passing over said latter sprocket wheel and the apron shaft sprocket, and a sliding clutch sleeve mounted to slide upon said counter shaft between said loose cog wheels and to engage either one of the clutch faces thereof, substantially as set forth.

489,680. CORN-HARVESTER. PERRY F. HOUSEN, Cockland Court House, Va., assignor to George A. Provost, trustee, Washington, D. C. Filed Feb. 4, 1892. Serial No. 420,305. (No model.)



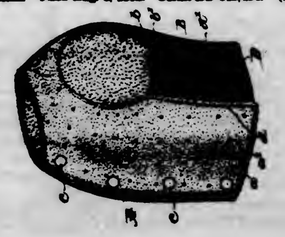
Claim.—1. A corn harvester, provided with cutting mechanism consisting solely of a spiral rotating cutter having a forward movement on its under side, substantially as described.

2. A corn harvester provided with cutting mechanism having a forward movement on its under side and consisting solely of a single strip of metal curved spirally in a cylindrical form about its axis of rotation, one edge of said strip being sharpened to form a cutting edge, substantially as described.

3. A corn harvester provided with cutting mechanism consisting solely of a spiral cutter having a forward movement on its under side and means for operating both ends of said cutter positively whereby torsional strain of said cutter is prevented, substantially as described.

4. In a corn harvester the combination with the cylindrical rotary spiral cutter, having a rearward movement on the upper part of its periphery, of a lateral conveyer having its upper portion above the plane of the cutter and having its forward edge near the cutter, and a reel consisting of two aprons extending rearwardly over said conveyer whereby an auxiliary device for moving the butts of the corn backward from the cutters is dispensed with, substantially as described.

489,681. CHEST-PROTECTING JACKET. CHARLES P. JAYNES, Boston, Mass. Filed Aug. 8, 1892. Serial No. 442,411. (No model.)



Claim.—As an improved article of manufacture, a jacket having the front and back, and connecting side pieces, which side pieces are composed of an inherently elastic knitted fabric having selvages at top and bottom, and integral pockets adjacent to said selvages at top and bottom, and elastic material in said pockets, substantially as described.

489,682. LAMP-SOCKET. ARAMBIS MIGNON, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Apr. 28, 1892. Serial No. 430,673. (No model.)



Claim.—1. The combination, in a socket, of an insulating base or body, an extension thereon, rising from the center of the body at a considerable distance from the periphery of the body a sleeve terminal secured to the outer end of said extension, a second terminal also secured on the end of said extension, and a shell resting on the base near its periphery and at a distance from said extension but surrounding the same substantially as described.

2. The combination, in a socket, of an insulating base or body, an extension thereon, a sleeve terminal secured to the outer end of said extension by means of a metal clamping piece over a portion of the sleeve but secured to the insulating base, and a second terminal also secured on the end of said extension, substantially as described.

3. The combination, in a socket, of an insulating base or body, an extension thereon having a depression forming a ledge at its outer end, a sleeve terminal resting on and secured to said ledge, and a second terminal on the end of the extension, substantially as described.

4. The combination, in a socket, of an insulating base or body, an extension thereon having a depression forming a ledge at its outer end and a central depression, a sleeve terminal resting on and secured to said ledge, and a second terminal resting in the central depression of the extension, substantially as described.

5. The combination, in a socket, of an insulating base or body, a sleeve terminal having an inwardly bent flange or projection resting on a part of said insulating body, a clamping piece adapted to fit over said flange, and a screw or similar device passing through the insulating body and clamping piece, and means for securing the circuit terminal to said clamping piece and through it to the sleeve terminal, substantially as described.

6. The combination of the insulating standard having a ledge around a central U-shaped portion, a sleeve terminal having a flange resting on said ledge, and a U-shaped clamping piece on said flange, substantially as described.

7. The combination, in a socket, of an insulating body, a sleeve terminal provided with an inwardly extending flange, a central terminal, and a curved clamping piece on said flange around the central terminal, substantially as described.

489,683. ENVELOPE-DISPENSING MACHINE. ADRIAN C. MONFORT, Pawtucket, R. I., assignor to the Monfort Stamp and Envelope Company, of Maine. Filed Sept. 3, 1892. Serial No. 445,266. (No model.)



Claim.—1. In a machine for dispensing envelopes, a wheel provided with a pick-off extended from its periphery in a tangential direction; a receiver into which the pick-off delivers each envelope, and an envelope holder having its edge near the wheel shaped to engage the body of the envelope but to leave the flaps thereof exposed to the action of the pick-off, the latter entering between the flap and the body of the envelope and taking one envelope after another from the holder and delivering it, substantially as described.

2. In a machine for dispensing envelopes, a wheel provided with a pick-off extended from its periphery in a tangential direction; a receiver into which the pick-off delivers each envelope, and an envelope holder having its edge near the wheel shaped to engage the body of the envelope but to leave the flaps thereof exposed to the action of the pick-off, the latter entering between the flap and the body of the envelope and taking one envelope after another from the holder and delivering it; a stop; a co-operating releasing device, and a coin conducting chute whereby a coin of the proper character may move the releasing device and release the wheel to be moved, for the purpose set forth.

489,684. EXPLOSIVE POWDER AND PROCESS OF MAKING SAME. CHARLES B. MUNROE, Newport, R. I. Filed Aug. 14, 1891. Serial No. 402,645. (No specimens.)

Claim.—1. The method of making explosive material which consists in mixing and incorporating with gun cotton a liquid colloidizing agent which is capable of converting at ordinary temperatures the higher cellulose nitrates into viscous form and then acting upon it with heated liquid or vapor to indurate it, substantially as set forth.

2. The method of making explosive material which consists in extracting from gun cotton the lower products of nitration, then mixing and incorporating with it a liquid colloidizing agent which is capable of converting at ordinary temperatures the higher cellulose nitrates into viscous form, and then acting upon it with heated liquid or vapor to indurate it, substantially as set forth.

3. The method of making explosive material which consists in extracting from gun cotton the lower products of nitration, then mixing and incorporating with it a liquid colloidizing agent which is capable of converting at ordinary temperatures the higher cellulose nitrates into viscous form, and then indurating it, substantially as set forth.

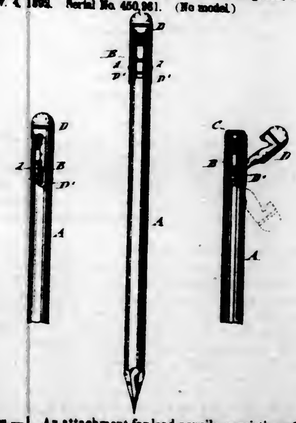
4. The method of making explosive material which consists in extracting from gun cotton the lower products of nitration, then mixing and incorporating with it nitro-benzene, and then indurating it, substantially as set forth.

5. The method of making explosive material which consists in first extracting from gun cotton the lower products of nitration, then mixing and incorporating with it nitro-benzene, and then acting upon it with heated liquid or vapor to indurate it, substantially as set forth.

6. The method of making explosive material which consists in first extracting from gun-cotton the lower products of nitration, then mixing and incorporating with it a liquid colloidizing agent which is capable of converting at ordinary temperature the higher cellulose nitrates into viscous form, then forming the material into pieces of the desired form, such as grains or strips, and finally indurating the material, substantially as set forth.

7. The explosive material consisting wholly of cellulose nitrates of the higher orders in a colloidized and indurated condition, substantially as set forth.

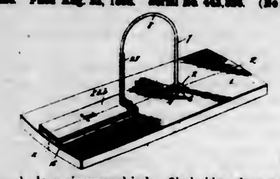
489,685. ATTACHMENT FOR LEAD-PENCILS. OSCAR MUNSHAW, New York, assignor to Eberhard Faber, West Brighton, N. Y. Filed Nov. 4, 1892. Serial No. 450,961. (No model.)



Claim.—1. An attachment for lead pencils, consisting of a holder provided with a tip attached to the end of the pencil, and a tip-protector provided with slotted shanks, said shanks being pivoted to the tip-holder, so as to permit the sliding and swinging on the tip-holder, substantially as set forth.

2. An attachment for lead pencils, consisting of a holder provided with a tip attached to the end of the pencil, and a tip-protector provided with a rounded-off end or cap and with slotted shanks pivoted to the holder, the rear-part of the protector being made longer than the front part, substantially as set forth.

489,686. INDEX FILE-HOLDER. JOSEPH L. NEEHAM, Kansas City, Mo. Filed Aug. 22, 1892. Serial No. 443,898. (No model.)

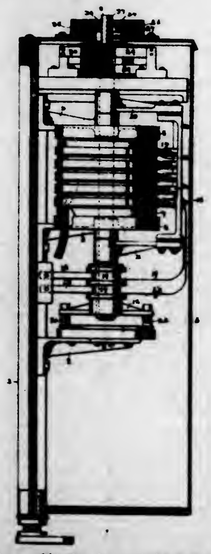


Claim.—1. In an improved index file holder, the combination of a board, a plate secured thereto, a spring guide wire in said plate, with an index card or slip holder, consisting of a board, a plate secured thereto, and a vertically extending tube or sleeve in said plate, substantially as set forth.

2. An improved index file holder, comprising a board, a plate secured thereto, a spring guide wire extending through said plate, the upper end thereof being bent over and downward, and pointed or sharpened, and its lower arm bent horizontally and secured to the under surface or side of the board and an index card or slip holder, comprising a board, a plate secured thereto, a boss or projection from said plate, and a vertically extending tube or sleeve in said plate, substantially as set forth.

3. In an improved index card or slip holder, the combination of a board, a plate secured to said board, and a vertically extending tube or sleeve, with a crimped spring wire, having an enlargement or loop at its upper end, substantially as and for the purpose set forth.

489,687. MEANS FOR CONTROLLING ELECTRIC MOTORS. JOHN F. OTT and ARTHUR E. KENNELLY, Orange, N. J., assignors to the Edison General Electric Company, New York, N. Y. Filed May 7, 1891. Serial No. 391,861. (No model.)



Claim.—1. The combination in a switching apparatus of a stationary cylinder on the surface of which are a series of contact strips or plates, a spindle passing through said cylinder, means for turning said spindle, and an arm having contact devices co-operating with said contact strips and moved by the spindle, means for preventing more than one successive rotation of the spindle in the same direction whereby the switch-arm is moved over the cylinder contacts, first in one direction and then in the other substantially as described.

2. The combination in a switching apparatus, of a stationary cylinder or drum, a spindle passing loosely through it, means for turning the spindle, a switch-arm carried by the spindle and having several connected contact devices co-operating with corresponding rows of contacts on the drum, and an insulated contact brush carried by said arm and co-operating with a corresponding row of contacts on the drum, substantially as described.

3. The combination, in a switching apparatus, of a stationary cylinder or drum on the surface of which are a series of contact strips connected through resistance lamps or devices, a spindle passing loosely through said drum, means for turning the spindle, and an arm having contact devices co-operating with said contact strips and moved by said spindle, means for preventing more than one successive rotation of the spindle in the same direction whereby the switch-arm is moved over the spindle contacts, and the resistance in circuit is varied, substantially as described.

4. The combination, in a switch, of a cylinder or drum having contacts and a switch-arm co-operating therewith, of a circuit maker and breaker loosely mounted on a spindle passing through the drum, substantially as described.

5. The combination, in a switch, of a cylinder or drum having contacts and a switch-arm co-operating therewith, of a circuit maker and breaker loosely mounted on a spindle passing through the drum, said circuit maker and breaker consisting of a block having alternating, conducting and non-conducting cam faces, and co-operating contact springs, substantially as described.

6. The combination, in a switch, of a cylinder or drum having contacts and a switch-arm co-operating therewith, of a circuit maker and breaker loosely mounted on a spindle passing through the drum, said circuit maker and breaker consisting of a block having alternating, conducting and non-conducting cam faces and co-operating springs, means for moving the spindle, and independent means for moving the circuit maker and breaker, substantially as described.

7. The combination of a switch, a removable handle for moving it, a trap or lock for holding the handle in place when the circuit is closed, and means independent of the handle for operating said trap or lock to release the handle, substantially as described.

8. The combination of a switch mechanism having a spindle by means of which the switch may be operated, a handle adapted to fit said spindle in a certain definite position, a plate adjacent to the spindle having an opening adapted to receive the handle, a block adjacent to the first plate and having an opening also adapted to receive the handle, whereby when said openings are in line the handle may be put in place or removed, substantially as described.

9. The combination of a cylinder or drum on the surface of which are contacts, a switch-arm having contact devices co-operating therewith, a spindle passing through the drum and serving to move the movable member of the switch, a second switch-arm with contact devices also moved by said spindle, and contacts connected by resistances with which said devices co operate said second switch-arm and its contacts being arranged to effect their operation before the first-mentioned switch-arm and contacts, substantially as described.

10. The combination of a motor, a series of resistances a switch for throwing said resistances into circuit in groups and means for closing the armature circuit in one direction, only a separate switch and a separate set of resistances, and means for closing the armature in the opposite direction, only substantially as described.

11. The combination of an electric motor and means at two different points for controlling it, each of said means consisting of a series of resistance lamps or devices, a switch for throwing said resistances into the field magnet circuit in large multiple arc groups, the number of the groups gradually increasing, then in multiple arc groups with decreasing numbers in each group, and finally in small groups gradually increasing in number, substantially as described.

12. The combination of an electric motor and means for controlling it consisting of a series of resistance devices and a switch having contacts for throwing said devices into the motor circuit by a simple movement of the switch-arm in large multiple arc groups, increasing the number of groups and then decreasing the number of devices in each group, substantially as described.

13. The combination of an electric motor and means for controlling it consisting of a series of resistance devices, and a switch having contacts for throwing said devices into the motor circuit by a simple movement of the switch-arm in large multiple arc groups, increasing the number of groups and then decreasing the number of devices in each group, and finally for throwing in small multiple arc groups, substantially as described.

489,688. RUNNING-GEAR FOR VEHICLES. WILLIAM R. PHILLIPS, Crocker, Mo. Filed Aug. 26, 1892. Serial No. 444,130. (No model.)

489,688.

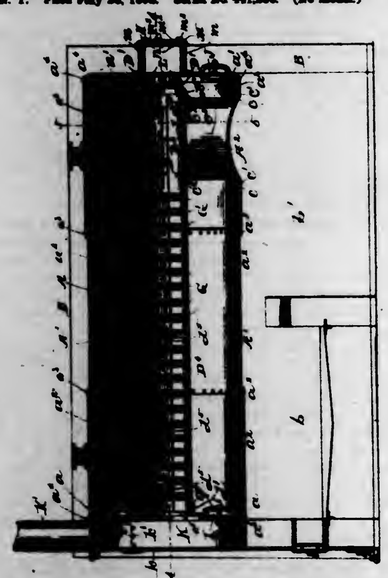


Claim.—1. In combination with front wagon bounds and reach, an attachable bracket B provided with a spindle F a roller mounted upon said spindle to bear upon the under side of the bounds, and a swinging loop O engaging the free end of said spindle, substantially as specified.

2. In combination with front wagon bounds and reach an attachable bracket E fastened to the under-side of the reach and provided with a spindle F, an upper spindle K, parallel with spindle F and provided at its front end with an eye N, a loop journaled in said eye and engaging the free end of spindle F, and rollers mounted upon said spindles, substantially as specified.

3. In combination with front wagon bounds and reach, an attachable bracket E, provided with a securing plate D and spindle F, an upper spindle K provided with an ear M and a perforation *n*, an eye-bolt Q fitting in said perforation and having an eye N, a loop journaled in said eye and engaging the free end of spindle F, and rollers mounted upon the spindles, substantially as specified.

489,689. STEAM-GENERATOR. WILLIAM J. RAUTON, Syracuse, N. Y. Filed July 26, 1892. Serial No. 441,268. (No model.)



Claim.—1. In a steam generator, the combination of an outer water containing shell having a fire passage extending inwardly from one extremity of its base, a lengthwise fire flue supported within the outer shell with one end arranged above the inner extremity of the fire passage and formed with an opening registered therewith and the other discharging from the opposite extremity of the outer shell, and an air inlet pipe —L— discharging into the former end of said fire flue, substantially as and for the purpose specified.

2. In a steam generator, the combination with an outer casing formed with a combustion chamber at one end of its base, and with a fire passage leading from said combustion chamber to the opposite end of its base; of an outer water containing shell formed separable from and supported by said outer casing, and having its lower portion arranged within said outer casing above said combustion chamber and fire passage of the outer casing, and provided with a fire-passage extending inwardly from the extremity of its lower wall above the inner end of the former fire-passage, a lengthwise fire-flue supported within the water containing shell with one end formed with an opening in its lower wall connected to the fire-passage of said outer water containing shell and the other end discharging from the opposite extremity of the outer water containing shell, substantially as and for the purpose set forth.

3. In a steam generator, the combination with an outer casing formed with a combustion chamber at one end of its base, and with a fire-passage leading from said combustion chamber to the opposite end of the base of the outer casing; of an outer water containing tubular shell of rounding cross section formed separable from and supported by said outer casing, and having its lower portion arranged within said outer casing above said combustion chamber and fire-passage, of the outer casing and provided with a fire-passage extending inwardly from the extremity of its lower wall above the inner end of the former fire-passage, a lengthwise fire-flue supported within the outer water containing shell with one end formed with an opening in its lower wall connected to the fire-passage of the outer water containing shell and the other end discharging from the opposite extremity of the outer shell, substantially as described.

4. In a steam generator, the combination with an outer casing formed with a combustion chamber at one end of its base, and with a fire-passage leading from said combustion chamber to the opposite end of its base; of an outer water containing shell arranged above said combustion chamber and fire-passage, and provided with a fire-passage extending inwardly from the extremity of its lower wall above the inner end of the former fire-passage, a lengthwise fire-flue supported within the water containing shell with one end formed with an opening in its lower wall connected to the fire-passage of said outer water containing shell and the other end discharging from the opposite extremity of the outer water containing shell, and an air inlet pipe —L— discharging into the former end of said fire-flue, substantially as set forth.

5. In a steam generator, the combination of an outer water containing shell provided with end heads and having an opening in one extremity of its lower wall, a lengthwise fire-flue arranged within the shell and formed of less length than the inner faces of said heads, said fire-flue having its front end rigidly secured to one head of the shell and having an opening in the lower wall of its opposite end registered with the opening in the lower wall of said shell, a supporting tube between said openings having outwardly turned flanges at its extremities secured respectively to the inner and outer faces of said shell and fire-flue, and an air inlet pipe —L— between the end of said fire-flue provided with said opening and the adjacent head of the outer casing, substantially as and for the purpose set forth.

6. In a steam generator, the combination of an outer casing formed with a combustion chamber at one end of its base and with a fire passage leading from the combustion chamber to the opposite end of its base, an outer water containing shell having one extremity supported above the combustion chamber and the other extremity supported above the fire passage and provided with a fire passage extending inwardly from its lower wall, a smoke box at the extremity of the outer shell supported above the combustion chamber, a fire flue supported within the water containing shell with one and formed with an opening in its lower wall connected to the inner end of the fire passage of said water containing shell and the other end discharging into the smoke box, and an air inlet pipe —L— discharging into the former end of said fire flue, substantially as and for the purpose specified.

7. In a steam generator, the combination of a combustion chamber and a fire-passage leading from the combustion chamber, an outer water containing shell arranged above said chamber and passage, and formed with an opening in one extremity of its lower wall, a head at said extremity of the shell, a second head formed with a central opening and arranged within said shell in a plane considerably within its outer edge, whereby the shell extends beyond said head and partially incases a smoke-box in front of the second head, and a fire-flue having one end mounted in said opening in the second head and having its other end provided with an opening in its lower wall connected to said opening in the lower wall of the water-containing shell, said fire-flue being composed of a pair of plates having their central portions disposed in substantially parallel planes and their adjacent longitudinal sides rounded toward each other with their longitudinal edges lapped one upon the other, and rivets for securing said edges together, substantially as specified.

8. In a steam generator, the combination of an outer water containing shell formed with an opening in the rear extremity of its lower wall and provided at its opposite extremities with heads, the front head being formed with a central opening and being arranged within said shell in a plane considerably within its outer edge, whereby the shell extends beyond said head and partially incases a smoke-box in front of said head, a fire-flue having one end mounted in the opening in the front head, and having its other end provided with an opening in its lower wall connected to the opening in said outer shell, said fire-flue being composed of a pair of plates having their central portions disposed in substantially parallel planes and their adjacent longitudinal sides rounded toward each other with their longitudinal edges lapped one upon the other, rivets for securing said edges together, and tubes extending through the fire-flue and formed of less length than the vertical distance between the ends of said tubes and the adjacent portions of the water containing shell, whereby the tubes may be withdrawn after removal of the fire-flue, substantially as set forth.

9. In a steam generator, the combination of a combustion chamber and a fire-flue leading from the combustion chamber, an outer water containing shell arranged above said chamber and passage, and formed with an opening in one end of its lower wall a head at said extremity of the shell, a second head formed with a central opening and arranged within the opposite end of said shell in a plane considerably within its outer edge, whereby the shell extends beyond said head and partially incases a smoke-box in front of the second head, and a fire-flue having one end mounted in said opening in the second head and having its other end provided with an opening in its lower wall connected to said opening in the lower wall of the water-containing shell, said fire-flue being composed of a pair of plates having their central portions substantially parallel and their adjacent longitudinal edges lapped one upon the other, rivets for securing said plates together, and tubes extending through the fire-flue with their ends secured to the central portions of the plates composing the fire-flue, substantially as described.

10. In a steam generator, the combination of an outer water containing shell formed with an opening in one extremity of its lower wall, a head at said extremity of the shell, a second head formed with an oval opening and with man-holes above and below said opening and arranged within said shell at a point considerably within its outer edge, whereby the shell extends beyond said head and partially incases a smoke-box in front of the second head, plates for closing said man-holes, means for holding the plates temporarily in place, an oval fire-flue having one end mounted in said opening in the second head and having its other end provided with an opening in its lower wall connected to the opening in said outer shell, and tubes extending through the fire-flue and formed of less length than the vertical distance between their ends and the adjacent portions of the outer shell, whereby said tubes may be removed from the fire-flue and through the man-holes, substantially as described.

11. In a steam generator, the combination of an outer water containing shell having a fire passage extending inwardly from one extremity of its base, a lengthwise fire flue supported within the outer shell with one end arranged above the inner extremity of the fire passage, and formed with an opening registered therewith and the other end discharging from the opposite extremity of the outer shell, an air inlet pipe —L— discharging into the former end of said fire flue, and a movable damper for varying the passage through said pipe, substantially as and for the purpose specified.

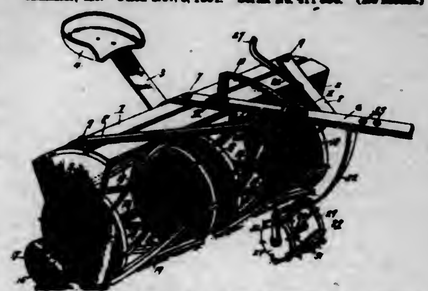
12. In a steam generator, the combination of an outer casing formed with a combustion chamber at one end of its base and with a fire passage leading from the combustion chamber to the opposite end of its base; of an outer water containing shell having one extremity supported above the combustion chamber and the other extremity supported above the fire passage and provided with a fire passage extending inwardly from one extremity of its lower wall, a head secured to the rear end of the water containing shell, a head secured to the front end of said shell and formed with an inwardly extending flange, a fire flue having its rear end mounted on the inwardly extending fire passage of the fire flue and the other engaged with the inwardly extending flange of the front head of the water containing shell, substantially as and for the purpose set forth.

13. In a steam generator, the combination of an outer casing formed with a combustion chamber at one end of its base and with a fire-passage leading from the combustion chamber to the opposite end of its base; with an outer water containing shell supported above the combustion chamber and fire passage and having a fire passage extending inwardly from one extremity of its lower wall, a lengthwise fire flue supported within the outer shell with one end arranged above the inner end of the fire passage of the water containing shell and formed with an opening registered with said fire passage and the other discharging from the opposite extremity of the outer shell, a pipe extending upwardly from the portion of the wall of said fire flue directly above said opening therein, and a fusible stop for said pipe, whereby, when said stop is exposed, it becomes fused and the water passes through said pipe and opening, into the fire passages substantially as and for the purpose specified.

14. In a steam generator, the combination of an outer water containing shell having a fire passage extending inwardly from one extremity of its base, a lengthwise fire flue supported within the outer shell with one end arranged above the inner extremity of the fire passage and formed with an opening registered therewith and the other end discharging from the opposite extremity of the outer shell, an air inlet pipe —L— discharging into the former end of said fire flue, an air chamber aligned with said pipe and provided with an inlet opening and a damper for regulating the flow through said opening, substantially as set forth.

15. In a steam generator, the combination of an outer water containing shell having an opening in one extremity of its lower wall and heads at its opposite extremities, a lengthwise fire flue having one end secured to one head and the other provided with a head and with an opening registered with the opening in the water containing shell, a pipe connecting said openings, a brace between the portion of said fire flue directly above the said opening and the adjacent portion of the water containing shell, and an air inlet pipe having one extremity opening into the head of the fire flue and the other opening from the adjacent head of the water containing shell, substantially as and for the purpose set forth.

489,690. PULVERIZER AND STALK-CUTTER. CHARLES B. RIPP, Chandler, Ind. Filed Nov. 9, 1891. Serial No. 411,208. (No model.)



Claim.—A pulverizer, and stalk-cutter, comprising a platform, having vertical pendent standards at its ends, removable bearings secured to the lower ends of said standards, a seat standard secured to the platform, a tongue also secured to the platform and having braces connecting it laterally with the platform, a rocking axle having crank-arms at its outer ends and journaled in said bearings, carrying wheels mounted upon the outer ends of said crank-arms, a rigid lever carried by said axle, and engaging a rack upon the tongue, and disks mounted upon the axle so as to turn thereon and provided with spiral connecting cutter blades, substantially as set forth.

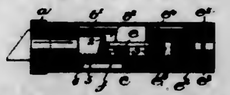
489,691. DISPLAY GLOVE-CASE. EMANUEL M. ROSENTHAL, Fort Wayne, Ind., assignor of one-half to Alexander Morgenthaler, same place. Filed Sept. 6, 1892. Serial No. 445,186. (No model.)



Claim.—1. A display glove case consisting of an outer cover of stiff material bent in form of a book cover and adapted to rest on the back, leaves of stiff material adapted to inclose separately between them a given number of gloves. Means to fasten the case, consisting of hooks having arms pivotally attached to one side of the case and engaging the other side and a label holder attached to the case in position to display the label when the case is in a drawer or other receptacle.

2. A display glove case consisting of an outer cover of stiff material bent in form of a book cover and adapted to rest on the back, leaves of stiff material adapted to inclose separately between them a given number of gloves and means to fasten the case consisting of hooks having arms pivotally attached to one side of the case and engaging the other side when closed.

489,692. LOCK. MARVIN O. ROTCH, Somerville, Mass. Filed Apr. 30, 1892. Serial No. 431,115. (No model.)



Claim.—1. In a lock, a face plate, and attached tube, a catch having a projection as b^2 at its inner end, and a fixed plug fitted into the outer end of the tube, combined with a hub for the knob spindle supported by said plug, a crank having a roller or other stud to cooperate with the projection b^2, and a link connecting the hub and crank, and a spring, the combination being and operating substantially as described, whereby the hub may be turned in either direction to carry the pivots of the link off from their center lines and turn the

crank to draw the catch back and compress the spring, substantially as described.

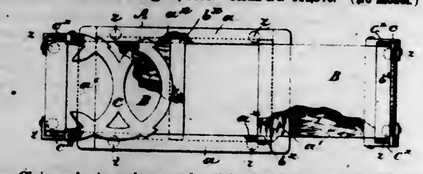
2. The tube, the catch therein having a shank provided with a shoulder b^3; and a spring supported independently of and to normally keep the catch out; combined with a freely pivoted crank provided with a stud to move over the face of and actuate said shoulder b^3; a link, and a hub for the knob spindle, the link being pivoted to said crank and connected with the said hub at the side of its periphery nearest the said crank, the hub being adapted to be partially rotated in either direction to retract the catch, substantially as described.

3. A face plate, a connected tube having a keyhole, and a bolt within said tube, combined with a key, and mechanism intermediate said key and bolt, including a slotted locking plate, to be engaged and actuated by said key to slide the said bolt within the said tube, substantially as described.

4. The tube *c*, its contained bolt and connected spring, a locking plate carried by the spring and provided with a projection, combined with a cage having a notch to co-operate with said projection, the said locking plate being adapted to be lifted to disengage said projection and notch, and thereafter be moved longitudinally by means of a key, substantially as described.

5. The tube *c*, its contained bolt, spring, and locking plate adapted to be engaged by the bit of a key to be both lifted and moved longitudinally, combined with a cage having wards to correspond with the key to be used, and having notches to co-operate with projections of the locking plate, substantially as described.

489,693. ADJUSTABLE BOOK-RACK. GEORGE F. SARGENT, New York, N. Y. Filed Aug. 20, 1892. Serial No. 444,379. (No model.)



Claim.—1. As an improved article of manufacture, an adjustable rack for books and the like comprising a frame, a support at one end of said frame, a slide at its other end having in it a cross slot through which the end bar of the frame plays, said end bar, and a support on said slide, the end bar of the frame serving as a guide and stop to the movement of the said slide, substantially as set forth.

2. As an improved article of manufacture, an adjustable rack for books and the like comprising a frame, a support at one end of said frame, a slide at its other end, provided with a cross slot through which the end bar of the frame plays and having its inner end mounted in the guides in the side bars of the frame, said end bar, and a support on said slide, said end bar serving as a guide and stop to limit the movement of the slide, substantially as set forth.

3. In an adjustable rack for books and the like, the combination with a frame A comprising side bars *a*, and end bars *a'*, said side bars having grooves, a^x therein of slides B, provided with slots, *b'*, and having tongues b^x to engage the said grooves in the side bars, and supports C, hinged on said slides, substantially as and for the purposes set forth.

4. In an adjustable rack for books and the like, the combination with a frame A having side bars and end bars, and slides, mounted at their respective inner ends in guides in said side bars and provided with cross slots in which said end bars play, of supports C and their hinge plates C^x mounted on said slides, substantially as set forth.

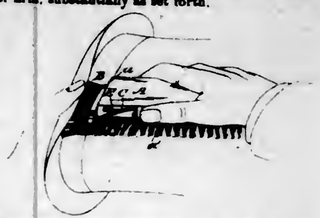
5. In an adjustable rack for books and the like, the combination with a frame A having side bars and end bars, slides B, mounted at their respective inner ends in guides in said side bars and provided with cross slots in which said end bars play, supports C and hinge plates C^x, of cushioned feet *z*, secured in the under sides of said frame and slides, substantially as and for the purposes set forth.

6. In an adjustable rack for books and the like the combination with a frame provided with a support at one end and a slotted slide at its other end, the end bar of said frame, over which said slide plays, and a support on said slide, of cushioned feet *z* secured to the under sides of said frame and slide, substantially as and for the purposes set forth.

489,694. HAT OR CLOTHES BRUSH. HENRY J. SIMS, Ottawa, Canada. Filed Oct. 13, 1892. Serial No. 448,926. (No model.)

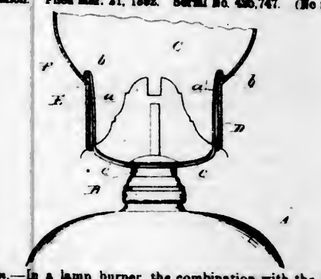
Claim.—1. A combined hat and clothes brush consisting of an ordinary brush having a square end cut close to the bristle setting and the bristles at said end shooting outward and a narrow brush equal in length to the width of the main brush and adjustably connected to the main brush with its back against said square end by means of lever arms pivoted to the edges of the main brush and controlled by a pair of shoulder jointed links, substantially as set forth.

2. The combination of a brush A having a square end *a*, the narrow brush B having its lower edge concaved, a lever arm C at each side having one end rigidly secured to the brush B and the shank pivoted to the edge of the brush A and the other end pivoted to a link, a pair of links D D' shoulder-jointed to fold up and form a straight line and provided with a pin or button *d'* at the joint and having one end pivoted to the lever C and the other to the edge of the brush A and a spring E secured to the edge of the brush A and pressing upon the lever arm, substantially as set forth.



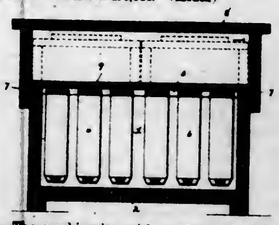
3. The combination of the brushes A and B adjustably connected so that the latter abuts with its back against the end of the former, a pair of lever arms C having one end rigidly connected to the brush B and their shanks pivoted to the edges of the brush A and a pair of links D D' pivoted at one end to the end of each lever arm and at the other to the edge of the brush A, substantially as set forth.

489,695. LAMP-CHIMNEY HOLDER. WILLIAM H. SOPER, Jackson, Mich. Filed Mar. 21, 1892. Serial No. 426,747. (No model.)



Claim.—In a lamp burner, the combination with the base of a chimney holder consisting of upwardly extending arms, formed with retaining heads on their outer ends, and having their lower ends extending through the base and united below the burner, substantially as described.

489,696. BEEHIVE. WILLIAM G. STEWART, Ireland, Ind. Filed Apr. 28, 1892. Serial No. 430,966. (Model.)



Claim.—The combination with a hive comprising a body provided on its outer face at the top with the cleats 7 projecting above the upper edges of the body and forming a continuous recess adapted for the reception of a horizontal removable weather board and to permit the latter when used to be flush with the upper edges of the cleats, and a removable cover adapted to rest on the upper edges of the cleats, of the two independently removable supers arranged within the recess of the body and entirely filling the same and each being adapted to be removed to be replaced by the bee confining screen, substantially as described.

489,697. SUBSTITUTE FOR SPONGES, BRUSHES, &c. WALTER H. TAYLOR, London, England. Filed Oct. 26, 1892. Serial No. 450,027. (No model.)

489,697.



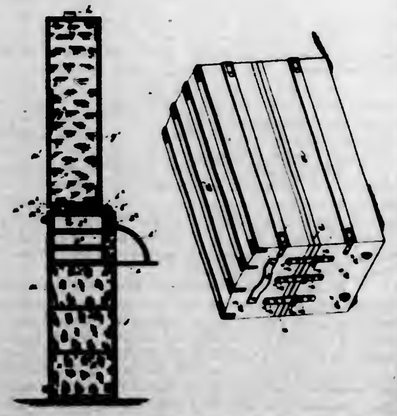
Claim.—The general arrangement and construction of the hereinbefore described device consisting of an elastic collapsible chamber, one face of which is provided with a number of ridges or points between which are arranged a number of perforations substantially as and for the purpose set forth and described and illustrated in the accompanying drawings.

489,698. ABDOMINAL CORSET. WILHELM J. THOMA, Stuttgart, Germany. Filed Apr. 12, 1892. Serial No. 429,009. (No model.)



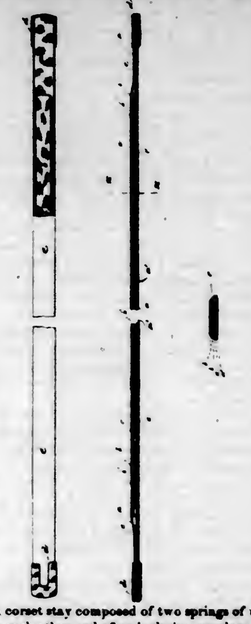
Claim.—An abdominal-corset, composed of two sections, which are provided at their lower front-parts with abdominal extensions, retaining-hooks on said extensions, and hip-straps attached to the sides of said extensions, one strap being divided into two bands, while the other strap is made tapering so as to pass through the bands of the first strap, said hip-straps intercrossing and extending in upward direction over the hips and back to the lower front parts of the abdominal extensions where they are connected with each other and retained by the front-hooks, substantially as set forth.

489,699. WARDROBE-TRUNK. HENRY C. UREY and REUBEN HAMMER, New York, N. Y. Filed June 25, 1892. Serial No. 438,042. (No model.)



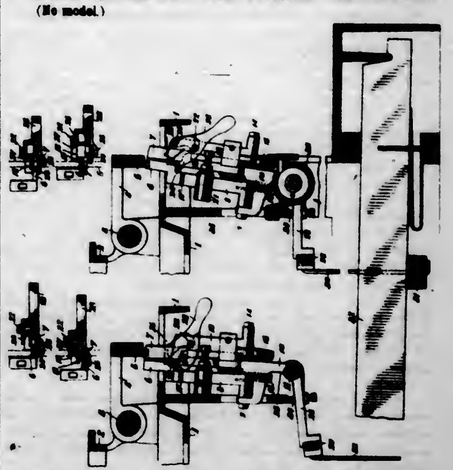
Claim.—The combination of a trunk body with a cover, hinges that connect the ends a^2, a^2, of body and cover, a handle placed upon the end a^2 of the cover and buffers placed upon the end a^2 of the body, substantially as specified.

489,700. CORSET-STAY. JOHN H. VAN GUNDY, New York, N. Y. Filed Oct. 19, 1892. Serial No. 449,281. (No model.)



Claim.—A corset stay composed of two springs of unequal length separated from each other and of an inclosing envelope to which each of the springs is connected, substantially as specified.

489,701. TYPE-WRITING MACHINE. GEORGE B. WEBB, New York, N. Y., assignor, by mesne assignments, to the Wyckoff, Seamans & Benedict, of New York. Filed Mar. 30, 1892. Serial No. 427,209. (No model.)



Claim.—1. In a type writing machine, the combination with a paper-carriage, of a single feed mechanism whose parts are constructed and arranged for adjustment to afford either the natural or the reverse feed.

2. In a type writing machine, the combination with a power driven paper-carriage, of a single feed mechanism whose parts are adjustable to release the carriage either before or after the impression, at the will of the operator.

3. In a type writing machine, the combination with a power driven paper-carriage, of a feed mechanism having two reciprocatory

members, either one of which may be locked or held rigidly relatively to the other, to co-operate with a third member of the feed mechanism substantially in the manner and for the purposes set forth.

4. In a type writing machine, the combination with a power driven paper-carriage, of a feed mechanism consisting essentially of three members, two of which are associated together and independently movable to alternately co-operate with the third, and means substantially as described for locking or holding either one of the said two associated members.

5. In a type writing machine, the combination with a power driven paper-carriage, of a feed mechanism consisting essentially of three members, two of which are of a reciprocatory character independently movable and adapted to co-operate with the third member, and an adjustable device for locking or restraining one of said two reciprocatory associated members for the purpose of obtaining either the natural or the reverse feed.

6. In a type writing machine, the combination of a power driven paper-carriage, of a feed mechanism consisting essentially of three members, two of which are associated and independently reciprocatory, and means substantially such as set forth for locking or holding either one of said associated reciprocatory members.

7. In a type writing machine, the combination with a power driven paper-carriage, of a feed mechanism consisting essentially of three members, two of which are associated and independently reciprocatory, and a switch-lever constructed to lock or hold one of said associated independently reciprocatory members against movement relatively to the other.

8. In a type writing machine, the combination with a power driven paper-carriage, of a feed mechanism substantially such as described, comprising two associated and independently reciprocatory members, and means for adjusting said members so that either one may be made the spacing member and the other the detaining member, according to the kind of feed desired.

9. In a type writing machine, the combination with a power driven paper-carriage, of a feed-rack, a dog-holder, a pair of pivotally-mounted spring-actuated dogs, and a device for locking one of said dogs against movement about its pivot.

10. In a type writing machine, the combination with a power driven paper-carriage, of a feed-rack, a dog-holder, a pair of pivotally-mounted spring-actuated dogs, and a lever mounted upon one of said dogs and constructed to engage with the dog-holder to lock said dog against movement about its pivot.

11. In a type writing machine, the combination with a power driven paper-carriage, of a feed-rack, a dog-holder, a pair of pivotally-mounted spring actuated dogs, and a lever mounted upon one of said dogs and constructed to engage with the dog-holder to lock said dog against movement about its pivot and provided with a stop to limit the vibratory movement of the remaining dog about its pivot.

12. In a type writing machine, the combination with a power driven paper-carriage, of a feed-rack, a dog-holder, a pair of pivotally mounted spring-actuated dogs, and a lever mounted upon one of said dogs and adapted to lock the same against movement about its pivot and provided with two stops on the right of the remaining dog.

13. In a type writing machine, the combination with a paper-carriage, of a feed mechanism comprising essentially three members, two of which are associated together and independently reciprocatory to act upon the third, and means whereby the lead or precedence of either of said associated members may be transferred to the other.

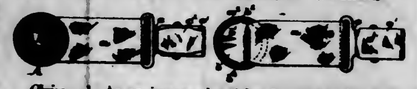
14. In a type writing machine, the combination with a power driven paper-carriage, of a feed mechanism constructed and arranged to afford either the natural or the reverse feed and comprising a rack and a pair of dogs, arranged side by side and means for adjusting the lead or precedence of either of said dogs, according to the character of the feed to which the mechanism is adjusted.

15. In a type writing machine, the combination with a power driven paper-carriage, of a feed-rack, a pair of pivotally-mounted spring-actuated dogs arranged side by side and a stop or base for each of said dogs, said stops or bases being made integral with each other and simultaneously movable.

16. In a type writing machine, the combination with a power driven paper-carriage, of a feed-rack, a pair of pivotally-mounted spring-actuated dogs, and a pivotally-mounted plate adapted to form a stop or base for each of said dogs and to adjust the lead of either of the same.

17. In a type writing machine, the combination with a power driven paper-carriage, a feed-rack, a dog-holder, a pair of pivotally-mounted spring-actuated dogs, a movable plate adapted to afford a stop for each of said dogs, and means for locking either of said dogs against movement about its pivot and simultaneously through said plate give the lead or precedence to the other, free dog.

489,702. GARMENT-SUPPORTER. GEORGE B. ADAMS, Irvington, N. J. Filed Mar. 10, 1892. Serial No. 424,262. (No model.)



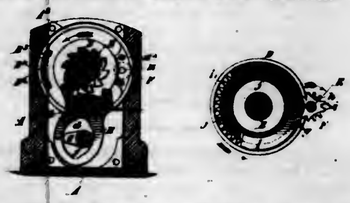
Claim.—1. As an improved article of manufacture, the herein described holding clasp, consisting essentially of a curved shell or face-plate, provided with a marginal and inwardly curved rim, a back-plate provided with journal pins adapted to project beneath said rim, whereby said back-plate is pivotally secured to said face-plate, and means on said back-plate for grasping the end of a band between said face-plate and the back-plate, substantially as and for the purposes set forth.

2. As an improved article of manufacture, the herein described holding clasp, consisting essentially of a curved shell or face-plate, provided with a marginal and inwardly curved rim, a back-plate provided with journal pins adapted to project beneath said rim, whereby said back-plate is pivotally secured to said face-plate, a grasping jaw or lip on said back-plate for grasping the end of a band between said face-plate and the back-plate, and upwardly projecting or curved teeth on said back-plate for attaching it to a piece of material, substantially as and for the purposes set forth.

3. As an improved article of manufacture, the herein described holding clasp, consisting of a face-plate, and a back-plate pivotally secured thereto, a grasping lip or jaw on said back-plate for grasping the end of a band, loops b^4 formed in said back-plate and a wire strand secured in said loops having pin points, substantially as and for the purposes set forth.

4. As an improved article of manufacture, the herein described holding clasp, consisting of a face-plate and a back-plate pivotally secured thereto, a grasping lip or jaw on said back-plate for grasping the end of a band, loops b^4 formed in said back-plate, a wire strand secured in said loops having pin points, and a spring-plate between the face of the back-plate and said pin points, all arranged substantially as and for the purposes set forth.

489,703. REGISTER OR COUNTING DEVICE. STEPHEN H. BALLOU, New York, N. Y., assignor to the Davids Machine Works, of New York. Filed Apr. 21, 1892. Serial No. 430,013. (No model.)



Claim.—1. The combination of a casing having a cylindrical part A^2 adapted to be turned, and an opening B^2 in said part A^2, with a series of disks to indicate motions, said part A^2 inclosing said disks, and being adapted to be turned to permit inspection of the disks in different positions of the device, substantially as described.

2. The combination of a casing having a cylindrical part A^2 and an opening B^2 therein, said part A^2, being adapted to be turned a shaft E, carried by said part A^2, pinions F on said shaft and number disks D within said casing to be turned by and with said pinions as the part A^2, is turned around, substantially as described.

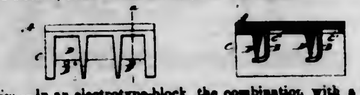
3. The combination of a casing having a cylindrical part A^2, adapted to be turned, said part A^2 having an opening B^2, a shaft E carried by the part A^2, pinions F on said shaft, said pinions having cut away parts A, disks D, within the part A^2, said disks having rims I, with depression g, and gears L, whereby as the cylindrical part A^2 is turned it will carry the pinions around and thus turn the disks relatively, substantially as described.

4. The combination of the casing A, having a cylindrical part A^2, adapted to be turned the latter having an opening B^2, a plate B^3, having openings B^4, disks D, having numbers on their peripheries, and pinions F for turning said disks, and a shaft E for said pinions and carried by the part A^2 consecutively substantially as described.

5. The combination of a shaft and disks D mounted thereon, and means for turning one of said disks, a rim I on the side of one disk, a depression in said rim, a pinion having cut away parts A to engage said rim, the depression on rim I receiving a tooth on said pinion to permit the latter to turn and gears on the side of the next disk engaging said pinion, substantially as described.

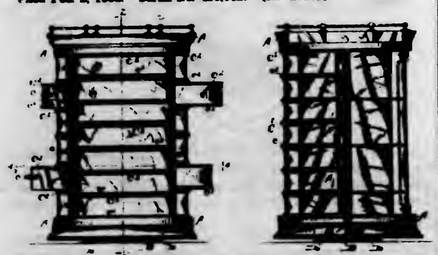
6. The combination of a shaft, disks hung thereon, removable ring-like rim I, on the sides of said disks, the rim I having a depression g, on its periphery, gears L, on the opposite side of said disk, rim J, having teeth, the space between said teeth being arranged by the side of the depression g pinions F, having cut away parts A to ride on said rim, and enter the depression g, to permit the pinion to turn said pinion engaging the gears L, and means for turning one of said disks, substantially as described.

489,704. ELECTROTYPE. WILLIAM T. BARNUM, New Haven, Conn. Filed Nov. 23, 1891. Serial No. 412,794. (No model.)



Claim.—In an electrotype-block, the combination with a face-plate, of heavy, long shanked hooks secured thereto and depending from the lower side thereof, and having their tongues parallel with its length; and a deep skeleton body-portion having a closed upper and an open lower face, the former being slotted for the passage of the said hooks through it, the said body-portion also having transverse webs with the lower edges of which said hooks engage, substantially as described and whereby by employing a deep body-portion strength and durability, and freedom of operation are secured.

489,705. SHOW-CASE. JOHN W. BLACKLEDGE, Indianapolis, Ind. Filed Feb. 2, 1892. Serial No. 420,062. (No model.)



Claim.—1. In a show case, the combination with a frame divided by vertical partitions, and the spaces between which partitions are divided by horizontal partitions or shelves, of receptacles hinged at one front corner and filling the spaces between the partitions and shelves, as shown, when closed, and adapted to be swung out and display the goods therein, said case as a whole being mounted on a central pivot and adapted to be turned to bring any set of receptacles to the front, all substantially as shown and described and for the purpose as specified.

2. In a show case, swinging receptacles in the form of a sector of a circle, the fronts whereof are of glass, seated at the bottom and ends in rabbets in the bottom and sides of the receptacle, and provided at the top with a metal edge piece bent over and inclosing the upper edge of the glass and extending around and secured to the sides, thus protecting both the edge of the glass and securing the sides of the receptacle in place, substantially as shown and described.

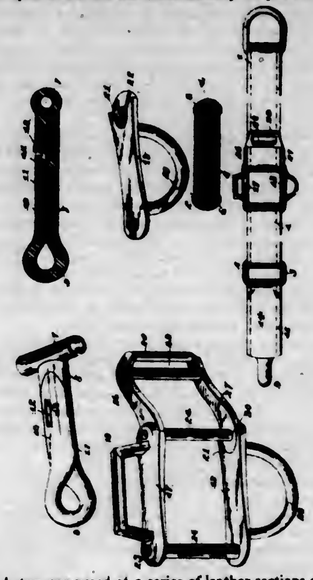
3. An upright revolving cylindrical show case consisting of a top and bottom united by vertical partitions which are gained together at the center, and shelves or horizontal partitions dividing the spaces between the vertical partitions, and receptacles or inclosures for the goods secured in the spaces thus formed, the whole being mounted upon a base having a vertical pivot, substantially as and for the purpose set forth.

4. A show case consisting of the frame divided into equal vertical compartments by partitions which meet at a common central point, said vertical compartments being divided by horizontal shelves or partitions, the spaces between which are filled by a receptacle hinged at one of its front corners and provided with a glass front, substantially as set forth.

5. The combination, in a show case, of a circular frame divided into equal parts by vertical partitions, which parts are again divided by horizontal partitions, and fan-shaped receptacles pivoted therein by one corner, the fronts of which are in the form of arcs of circles, whereby, when said receptacles are closed, a complete circular structure is produced, substantially as shown and described.

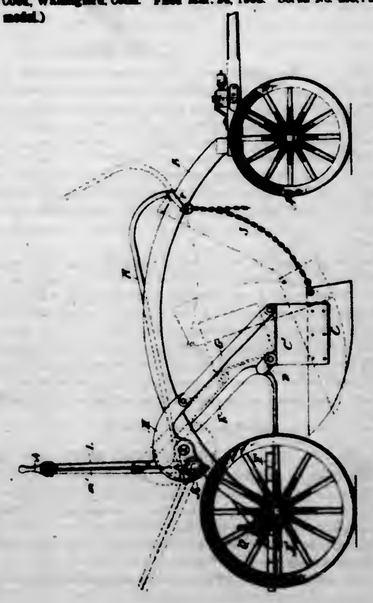
489,706. HAME-TUG. WILLIAM A. BOWER, East Hickory, Pa. Filed Mar. 14, 1892. Serial No. 424,670. (No model.)

Claim.—1. A tug composed of a series of leather sections or links, combined with a combination buckle, consisting of opposite side-bars provided with back-strap and belly-band receiving loops, bolts connecting the side-bars and a breeching-strap receiving bail pivotally mounted upon one of the bolts, substantially as specified.



2. A tug composed of a series of leather sections or links combined with the herein-described combination buckle for connecting the same, the same consisting of the opposite side-bars, perforated near their ends and provided near one of their ends with recesses, and upon their outer sides with back-strap and belly-band receiving-loops, bolts connecting the side-bars, and threaded in the openings of one of the same, loose sleeves mounted upon the bolts and a bail of U-shape having curved side-bars perforated and connected with one of the bolts and adapted for movement in the recesses, and having a slotted connecting-bar integrally formed, substantially as specified.

489,707. WHEELED EXCAVATOR AND CARRIER. MARSHALL B. COOK, Wallingford, Conn. Filed Mar. 28, 1892. Serial No. 426,748. (No model.)



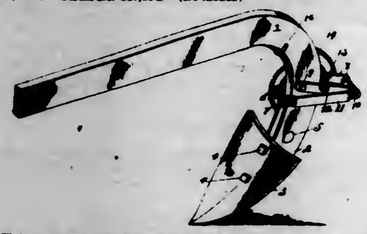
Claim.—1. In a wheeled excavator and carrier, the combination with the trucks thereof, of an arched frame, scoop-supports combined with the said frame, a scoop suspended from the said supports, a driven shaft journaled in the said frame at the rear end thereof, two cams respectively mounted on the ends of the said shaft, and having segmental racks; links connecting the said cams with the scoop at points thereon in front of its suspension points, a driving-shaft having gear-wheels meshing into the segmental racks of the cams, and an operating-lever mounted on the said driving-shaft for actuating the same, substantially as described.

2. In a wheeled-excavator and carrier, the combination with the trucks thereof, of an arched frame, scoop supports combined with the said frame, a scoop suspended from the said supports, a driven shaft journaled in the said frame at the rear end thereof, two cams respectively mounted on the ends of the said shaft, and having segmental racks; links connecting the said cams with the scoop at points thereon in front of its suspension points, a driving-shaft having gear-wheels meshing into the said segmental racks of the cams, an operating-lever mounted on the said driving-shaft for actuating the same, a ratchet-wheel mounted on the said driving-shaft, and clutch mechanism co-operating with the said wheel, and adapted to be operated by the operator with his foot, substantially as described.

3. In a wheeled-excavator and carrier, the combination with the trucks thereof, of an arched frame, scoop-supports combined therewith, a scoop hung from the said supports, an operating-lever mounted in the said frame at the rear end thereof, connections between the said lever and the scoop, and auxiliary lifting-mechanism comprising a lifting-lever mounted in the frame at the forward end thereof, and connections between the said lever and the forward end of the scoop, substantially as described.

4. In a wheeled-excavator and carrier, the combination with the frame and trucks thereof, of a scoop provided with a heavy, wide bail, rigidly secured to it between its edges, means attached to the rear and forward edges of the said bail for suspending the scoop transversely between the said trucks, and means for operating the said scoop, substantially as described.

489,708. CULTIVATOR. ELIJA A. ORR, Rutledge, Ala. Filed Sept. 27, 1892. Serial No. 447,094. (No model.)



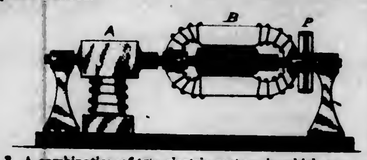
Claim.—1. The combination with the beam, having the goose-neck standard, and the U-shaped shovel-carrying foot pivoted intermediate its ends to the lower end of the standard, of the pair of levers pivoted to the standard above the foot, a link pivoted to the upper front corners of the foot in advance of the standard and at its rear end pivotally connected to the rear ends of the levers, a stop for limiting the upward movement of the link and preventing the points of pivot of the link and levers from aligning, and a convoluted spring secured at its inner end to one of the levers eccentrically with relation to the pivot of the same and at its outer end to the beam, substantially as specified.

2. The combination with the beam and the shovel-carrying foot pivoted intermediate its ends to the lower end of the standard, of the pair of levers pivoted to the standard above the foot, a link pivoted to the upper front corners of the foot in advance of the standard and at its rear end pivotally connected to the rear ends of the levers, an adjustable stop for limiting the upward movement of the link and preventing the points of pivot of the link and levers from aligning, and a convoluted spring secured to one of the levers eccentrically with relation to the pivot of the same and to the beam, substantially as specified.

489,709. VARIABLE-SPEED ELECTRIC MOTOR. CARL HERING, Philadelphia, Pa. Filed Apr. 20, 1892. Serial No. 431,208. (No model.)

Claim.—1. A duplex electric motor consisting of two electric motors both having the usual parts, namely, an armature and a field, one of which parts is fixed, two of which revolve and are mechanically coupled, and the fourth of which is capable of revolving and is connected to the work.

2. A combination of two electric motors mechanically coupled, both driven independently at different speeds by current from any suitable source, one motor being fixed, and the other capable of revolving as a whole at a speed equal to the difference (or sum) of the speeds of the two armatures in their respective fields, as and for the purpose described.



3. A combination of two electric motors, in which one motor is stationary, the other revolves as a whole and the motors are mechanically coupled, as and for the purpose specified.

4. A stationary electric motor mechanically coupled with a revolving electric motor in which both field and armature revolve, and in which the part not coupled is the driving part of the combination.

5. Two electric motors having one part in common, the other part of one motor being stationary, and that of the other motor being capable of revolving and of delivering power at variable speeds.

489,710. CLOSURE OR COVER FOR POCKET-BOOKS. OTTO A. LEHMAN, Hoboken, N. J. Filed Oct. 1, 1892. Serial No. 447,477. (No model.)



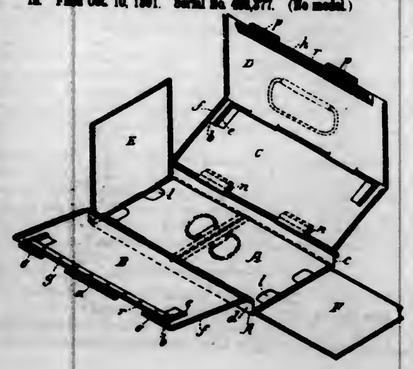
Claim.—1. The cover or closure for a purse, bag or satchel having a plurality of laterally movable tubular bars mounted therein and springs tending to hold the bars together to form a closure and at the same time permitting the separation of the bars to form an opening, substantially as set forth.

2. A cover or closure for a purse, bag or satchel consisting of a rigid frame section provided along its opposite sides with housings for the reception of movable bar sections, movable bar sections mounted in the rigid frame section in position to be crowded into the housings upon the opposite sides of the rigid section and springs tending to hold the movable sections in engagement with one another to form the closure and at the same time permitting them to separate to form an opening, substantially as set forth.

3. The purse, bag or satchel cover consisting of a rigid frame section, movable sections mounted in the rigid frame section and provided with oblique faces on their upper sides and flattened faces on their lower sides and springs tending to hold the movable sections in engagement with one another to form the closure and at the same time permitting them to separate to form an opening, substantially as set forth.

4. The purse, bag or satchel cover consisting of a rigid frame section, oblique faced movable sections mounted therein, guides for said movable sections and springs for actuating the sections, substantially as set forth.

489,711. LUNCH BOX OR CASE. JOHN J. C. MARSHALL, Chicago, Ill. Filed Oct. 10, 1891. Serial No. 408,377. (No model.)



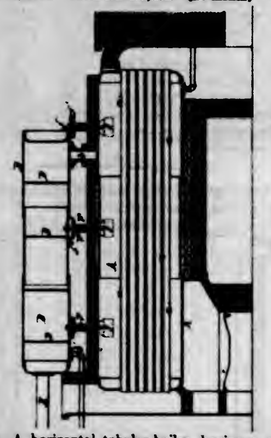
Claim.—1. A lunch box having its sides formed with ventilating tubes A which are provided with side outlet passages *r r*, said ventilating tubes serving as a brace for the box and a means by which a current of air can pass entirely from side to side and from end to end through the box, and thereby thoroughly ventilate the same, substantially as described.

2. A lunch box having its sides provided with approximately triangular ventilating tubes A running from side to side thereof, and provided with side outlet passages *r r*, openings *l* in the bottom of said lunch box, and grooves or sockets *b* on the sides of the box which are adapted to receive and hold the interlocking lips of the end sections, substantially as and for the purpose described.

3. In a folding lunch box, the combination of the base section A, having turned up side portions *c c*, end sections E and F, side sections B and C, the said section C having the top section D connected therewith, all of said sections being united by loop or eye connections *n n*, and *o*, *o*, *o*, grooves *b* in side sections B and C to receive and hold the interlocking lips of the end sections E and F, and ventilating and reinforcing tubes A, substantially as described.

4. In a folding lunch box, the combination of a bottom section A formed with open ended tube or eye-hinge connections *n*, *n*, and with upturned flanges, side, end and top sections formed with similar eye connections, the said sections being united together by slipping the eye connections one within the other; and reinforcing and ventilating tubes A, substantially as described.

489,712. STEAM-BOILER. THOMAS B. MCBELL, New York, N. Y. Filed Dec. 31, 1891. Serial No. 416,699. (No model.)



Claim.—1. A horizontal tubular boiler, having a steam drum separate from the steam generating part, but longitudinal therewith, outside the combustion chamber, and in communication at one end with said steam generating part and having its steam outlet at the other, with intermediate baffle plates, substantially as described.

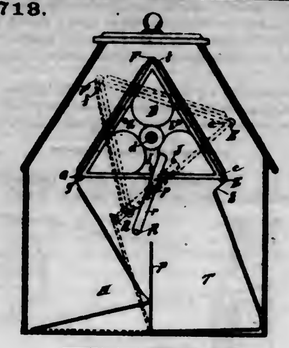
2. A horizontal tubular boiler having a longitudinal steam drum separate from the steam generating part but in communication therewith at one end and having a steam outlet at its other end and intermediate baffle plates in combination with transverse beams from which the generating part is suspended and upon which the steam drum rests, substantially as described.

489,718. PHOTOGRAPH-EXHIBITOR. ROBERT H. HELSH and THOMAS B. TEMPLE, Ridgeway, Mich. Filed Mar. 24, 1892. Serial No. 426,202. (No model.)

Claim.—1. In a photograph exhibitor, the combination of a rag wheel, provided with contact pins in its ends, a swinging bar provided with an arm extending in the path of said pins, and adapted to swing in a motion the reverse to that of said rag wheel and photograph receptacles below, said rag wheel, substantially as and for the purpose described.

2. In a photographic exhibitor, the combination of a rag wheel with rounded corners and depressed faces, and provided with pins in its ends, a swinging bar provided with an arm extending into the path of said pins whereby said bar is adapted to swing in a motion the reverse of that of said rag wheel, substantially as and for the purpose specified.

489,718.



489,714. BICYCLE AND OTHER TUBING. JOHN F. PALMER, Riverside, Ill. Filed Aug. 9, 1892. Serial No. 442,846. (No model.)



Claim.—1. As a new article of manufacture, a rubber tube for pneumatic and similar purposes, having spirally wound thereon and embedded and held therein by vulcanization fibrous threads of a substantially non-stretching character, substantially parallel with but out of contact with each other, substantially as described.

2. As a new article of manufacture, an envelope for rubber tubing, and the like, comprising a spirally wound strip of rubber, or the like, having embedded therein substantially parallel fibrous threads, substantially as described.

3. As a new article of manufacture, an envelope for rubber tubing, and the like, comprising a spirally wound strip of rubber having embedded therein substantially parallel fibrous threads extending longitudinally of the strip, the lateral edges of the strip being joined at adjacent spirals, substantially as described.

4. As a new article of manufacture, an envelope for rubber tubing, and the like, comprising two or more strips of rubber, or the like, each having embedded therein flexible threads substantially parallel with each other and each wound spirally about the tubing, one strip being wound in the direction opposite to the other, substantially as described.

5. As a new article of manufacture, an envelope for rubber tubing, and the like, comprising two or more strips of rubber, or the like, having embedded therein, substantially parallel fibrous threads extending longitudinally of the strip, said strips being wound spirally about the tube with their edges joined to form a continuous tubing, and one strip being wound in an opposite direction to the other, substantially as described.

6. As a new article of manufacture, a pneumatic tube for bicycles, and the like, comprising an endless annular tube of rubber having an envelope formed of two or more spirally wound strips of rubber, or the like, having embedded therein substantially parallel fibrous threads, one of said strips being wound in the direction opposite to that of the other, substantially as described.

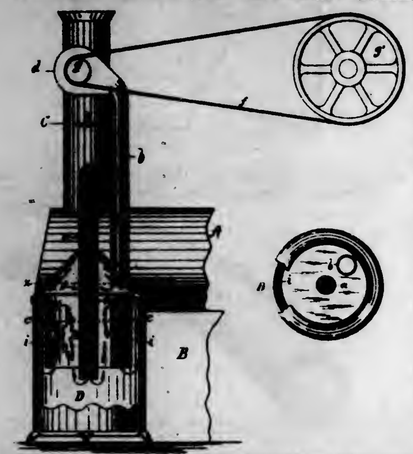
7. The method of forming vulcanized endless tubing, which consists in forming the soft rubber before vulcanizing into a collapsed tube having introduced therein a cohesion preventing substance, such as soap-stone, applying the same thus collapsed to a mandrel having a surface adapted to receive it, winding the mandrel carrying the rubber with a flexible envelope, and thereupon vulcanizing, substantially as described.

8. The method of producing vulcanized endless rubber tubing, which consists in forming the soft rubber supplied with a vulcanizing agent into an endless collapsed tube having its adjacent interior faces prevented from adhering to each other, applying the collapsed tube to the periphery of a mandrel, said periphery being of the proper con-

figuration to receive it, winding spirally about the mandrel carrying the rubber, a strip of vulcanized rubber having fibrous threads embedded therein longitudinally and substantially parallel, vulcanizing the product and thereupon removing the envelope, substantially as described.

9. A mandrel for use in producing vulcanized endless rubber tubing, comprising an annular body having its periphery reduced to afford a seat for the collapsed unvulcanized tubing, substantially as described.

489,715. SMOKE-ARRESTER. JOSEPH PARKIN and HENRY ROSE, Cleveland, Ohio. Filed Jan. 20, 1892. Serial No. 419,262. (No model.)



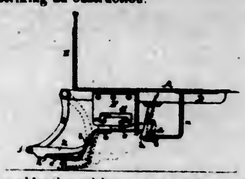
Claim.—1. In combination with the chimney of a furnace a water reservoir D having a shell E therein, said shell open at the bottom and having a water chamber *i* extending entirely around it, a pipe *a* connected with the chimney and passing down through said shell, a pipe *b* extending from the roof of the reservoir up to, and in open connection with the chamber *d*, the pipe *c*, in open connection with the chimney and said chamber, operating conjointly with a fan situated within the chamber *d*, and with a damper *h* in the chimney intermediate of the pipes *a* and *c*, substantially in the manner as and for the purpose set forth.

2. A water reservoir D containing a shell E, open at the bottom and closed at the top, one terminal of a pipe *a* opening into said shell, the other terminal opening into the chimney of a furnace, and a pipe *b*, one terminal of which opens into the reservoir above the water line, and the opposite terminal into a chamber containing a fan and in open communication with the chimney through the pipe *c*, above the damper *h*, whereby the smoke from the furnace is carried into the water which retains the carbon and the gases pass off substantially as and for the purpose described.

489,716. AUTOMATIC LIFE-GUARD FOR STREET CARS. GEORGE A. PARKHURST, Cambridge, Mass. Filed July 9, 1892. Serial No. 439,494. (No model.)



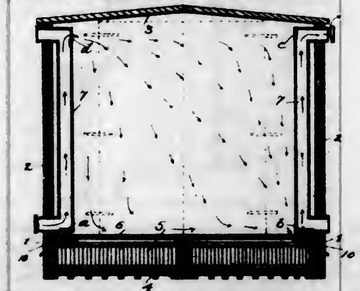
Claim.—1. The combination with a street car of a scoop plate pivoted to the under side of the car platform and counterbalanced so as to be held normally in a position with its front edge raised above the track rails,—a rod or bar suspended by suitable pivoted arms in a position normally in front of said scoop,—a latch lever pivoted on said rod and constructed and arranged to engage the front edge of said scoop plate to hold said rod normally in advance of said scoop, and to ride upon said scoop and depress it when said rod is moved to the rear by striking an obstruction.



2. The combination with a street car of a pivoted scoop carried by bars having counter-weights at their rear ends to normally hold the front of said scoop raised above the track rails,—a rod carried by the movable ends of a pair of radius arms pivoted to the front of the platform,—a latch lever carried by said rod and engaging the front edge of said scoop to normally hold said rod in a position in front of said scoop and to ride upon and depress said scoop when said rod is moved to the rear by striking an obstruction,—and a second latch lever constructed and arranged to engage the rear or weighted end of the scoop frame to hold it in position when the front edge of said scoop is depressed.

3. The combination with a street car of a pivoted scoop mounted in bearings beneath the car platform constructed and arranged to be held normally in a position with its outer edge raised above the track rails and adapted to be moved to the rear when not required for use,—a rod carried by the free ends of a pair of radius arms pivoted to the front of the platform,—a latch lever carried by said rod and constructed and arranged to engage the front edge of said scoop to hold said rod normally in a position in advance of said scoop and to ride upon and depress said scoop when said rod is moved to the rear by striking an obstruction.

489,717. DRYING-KILN. LEBBEUS PIER, South Bend, Ind. Filed Feb. 1, 1892. Serial No. 419,971. (No model.)



Claim.—1. The combination in a kiln of a series of pipes each of which has an upper and lower valved opening leading to the outside air, the said openings with their valves being independent of each other and the said pipes having also the upper and lower independent openings leading to the interior of the kiln, and having independent valves, substantially as described.

2. The combination in a kiln of a series of pipes along one side, having upper and lower openings leading to the outside air and upper and lower valved openings leading to the interior of the kiln and a second series of pipes along the opposite side of the kiln having upper and lower openings leading both outside and inside the kiln, substantially as described.

3. In a kiln a pipe or pipes located within the kiln, and provided with openings to the outside at the upper and lower ends, and also provided with openings at the upper and lower ends to the inside, with suitable covers for said openings substantially as described.

4. In a kiln a series of pipes having openings at their upper and lower ends both to the outside and inside, with suitable covers for said openings, whereby circulation may be maintained, substantially as described.

489,718. STEAM-COOKER. THOMSON H. SCOTT, New York, N. Y. Filed July 14, 1892. Serial No. 440,067. (No model.)

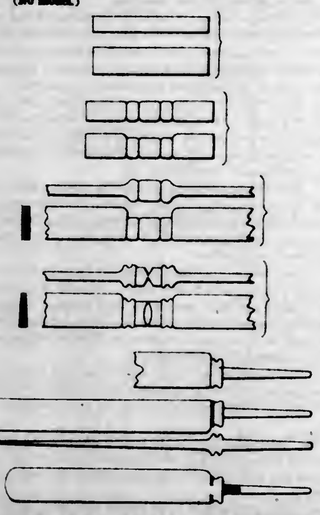
Claim.—1. In a steam cooker, a water holder having an outwardly projecting bead near its upper edge, and a cover having an inwardly projecting bead near its lower edge, in combination with a steam holder of less diameter than the water holder, said steam holder being open at the bottom and having steam outlets in its top, substantially as shown and described.



2. A steam cooker in which is comprised a water holder having an outwardly projecting bead near its upper edge, and a cover having an inwardly projecting bead near its lower edge, in combination with an open bottom steam holder located within the water holder, said steam holder being free to move within the water holder, and having steam exits in its top; and a food holding rack mounted upon the steam holder, the whole combined and arranged to operate, substantially as shown and described.

3. In a steam cooker of the character herein specified, the combination with the water holder, having an outwardly projecting bead near its upper edge, of a cover having an inwardly projecting bead near its lower edge, said water holder and cover being arranged to engage with each other, substantially as shown and described.

489,719. PROCESS OF MAKING KNIFE-BLADES. THOMAS SHAW, Newark, N. J. Original application filed July 22, 1891, Serial No. 400,363. Divided and this application filed May 6, 1892. Serial No. 432,108. (No model.)



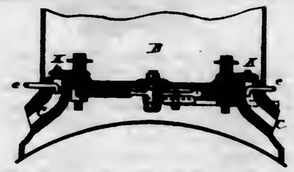
Claim.—1. The herein described process of making knife blades, consisting in forming the bolster in the knife blade blank beveling the blade portion and heating the same, introducing the hot blank between die rolls provided with recessed portions for the bolster and for the blade and rolling out the blade lengthwise giving it the proper form, taper and bevel by one operation, substantially as described.

2. The herein described process of making knife blades, consisting of subjecting the blank to the operation of dies to form the bolster and a portion of metal at either side for the tang and blade respectively drawing out the tang, beveling the blade portion, then heating the blank and introducing it between die rolls when said rolls are stationary or in a state of rest, then starting the rolls and rolling out the blade lengthwise and giving it the proper form, taper and bevel by passing once between the rolls, substantially as described.

3. The herein described process of making knife blades, consisting in subjecting a blank to the operation of successive dies to form the bolster of two blades, with portions of metal at either side of each bolster for the tang and blade respectively beveling the blade portion and indicating the point of separation, then separating the two blanks, then treating each blank by drawing out the tang, heating the beveled blade portion and subjecting it to the action of die rolls, rolling out the blade lengthwise and giving it the proper form, taper and bevel by one operation, substantially as described.

4. The herein described process of making knife blades consisting of forming the bolster in the knife blade blank and beveling the blade portion, heating the blade portion and subjecting it to the action of die rolls, rolling out the blade lengthwise and giving it the proper form, taper and bevel by one operation, then subjecting the blade to planishing dies, then grinding and tempering the same, substantially as described.

489,720. TRACK-SANDING APPARATUS. CHARLES W. SHEBURNE, Boston, Mass. Filed Nov. 25, 1892. Serial No. 452,989. (No model.)



Claim.—1. The combination of the steam supply pipe *c* leading to the sand box with the steam pipe S, controlling valve T, and the ejector O and controlling lever L', substantially as and for the purpose described.

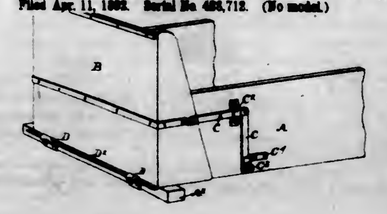
2. The combination of the steam pipe S with the controlling valve T, pipe c^1, by-pass controlled by the valve c^2, and the pipe *c* and sanding apparatus proper, substantially as and for the purpose described.

3. The combination of the sand box B of ordinary construction and attachments, but having the slotted valve K with the track sanding pipes C, blast pipes *c* therein, and an ejector vacuum apparatus and source of steam supply actuated simultaneously with the track sanding apparatus by the same lever, and a by-pass controlled by a hand valve from the same source of steam supply to the same ejector nozzles, all substantially as and for the purpose described.

4. In a track sanding apparatus the combination of the sand box B, the track sanding pipes C opening into the lower part of said sand box, covers to said track sanding pipes, the edges of which covers extend laterally to a considerable distance beyond the upper inner edge of the track sanding pipes, a passage beneath said covers from the interior of the sand box to the interior of the track sanding pipe, a bead around the upper edge of the track sanding pipe and a blast pipe *c* delivering air or steam or air and steam beneath said cover and into said track sanding pipe. The said pipe *c* when delivering steam or steam and air having its nozzle located within the track sanding pipe or when delivering air having its nozzle located either within the track sanding pipe or higher and nearer to said cover than the cavity of the track sanding pipe, all in combination with each other substantially as described.

5. In combination with a sand box and the sand pipes C, a sand valve E, which forms a cover to said sand pipe and which is constructed open at its sides to the interior of said sand pipes as described, and pipes *c*, leading from the air or vacuum brake apparatus to the interior of said pipes C below said valve E, all actuated by the exhaust of an air or vacuum brake, substantially as and for the purposes described.

489,721. WAGON END-GATE. GEORGE S. SUMER, Marengo, Iowa. Filed Apr. 11, 1892. Serial No. 428,712. (No model.)



Claim.—1. The combination, in a wagon end gate, of a metal strip, curved rearwardly from the lower edge of the end gate one or more hinge sections secured to the rear end of the wagon box, curved rearwardly and upwardly therefrom and terminating in proximity to the upper edge of the bottom of the wagon box, and means for securing the end gate in a closed position for the purposes set forth.

2. An improved wagon end gate formed wholly or in part of sheet metal having its lower edge curved rearwardly and upwardly a plurality of hinge sections secured to the bottom of the wagon-box, curved rearwardly and upwardly therefrom and terminating in proximity to the rear upper surface of the bottom of the wagon box and means for securing the end gate in a closed position and for supporting it in approximately horizontal position as required for use as a shoveling board, substantially as set forth, for the purposes stated.

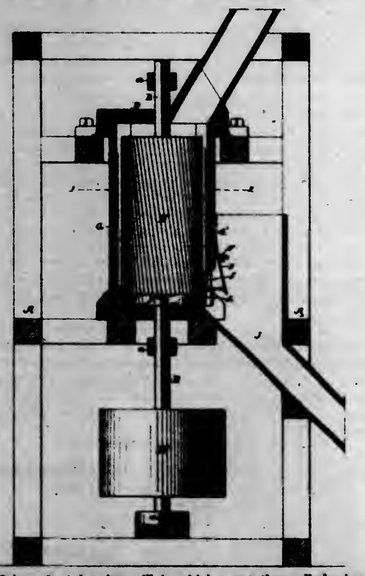
489,722. DRILL-CHUCK. SAMUEL C. THOMPSON, Poughkeepsie, N. Y., assignor of one-half to John H. Adriance, same place. Filed May 20, 1892. Serial No. 434,767. (No model.)



Claim.—1. A drill chuck consisting of a head containing an annular drill recess having a slot in its wall, a swinging dog provided with a pin located in said slot, and a collar surrounding said head and having in the center an interior diameter corresponding to that of the spindle head and containing on either side recesses of greater diameter, as and for the purpose specified.

2. In a drill chuck, a head containing an annular drill recess having a slot in its wall, a swinging dog provided with a pin located in said recess, and a sliding collar surrounding said head, constructed with recesses as described for inclosing and operating the dog; in combination with a bit shank, having a depression adapted to receive the pin of the swinging dog for the purpose of holding and driving said bit, as set forth.

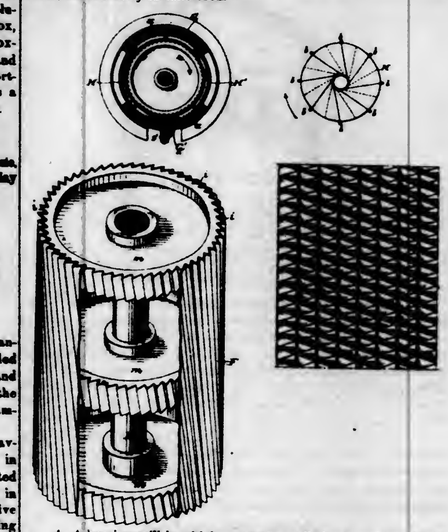
489,723. HOMINY-MILL. OSCAR H. TITUS, Wilmington, Del. Filed Aug. 13, 1892. Serial No. 442,986. (No model.)



Claim.—1. A hominy mill in which a rotating cylinder is combined with a shell having concaves with facets each representing a section of a pyramid, and having one beveled face and one abrupt face substantially as specified.

2. A hominy mill in which a ribbed and rotating cylinder is combined with a shell having concaves with facets each representing a section of a pyramid and having one beveled face and one abrupt face the apex of the beveled faces of the facets being toward the advancing ribs of the cylinder, substantially as specified.

3. A hominy mill in which a rotating cylinder is combined with a shell or casing having concaves provided with vertical and horizontal rows of pyramidal facets staggered or offset in respect to each other, substantially as described.



4. A hominy mill in which a rotating cylinder is combined with a shell or casing having concaves with facets each representing a section of a pyramid, the central ridge or fin of the beveled front face of each facet being in a plane at right angles to the longitudinal line of the cylinder, substantially as specified.

5. A hominy mill in which an outer casing having concaves provided with pyramidal facets is combined with a rotating cylinder having ribs or teeth abrupt on the forward faces and inclined on the rear faces, the abrupt faces of the teeth moving toward the apices or points of the facets of the concaves, substantially as specified.

6. The within described cylinder for a hominy mill, the same consisting of a body portion having secured thereupon bars presenting successive faces at reverse angles, said bars abutting against each other so as to form a continuous ribbed working surface for the cylinder, substantially as specified.

7. The within described cylinder for hominy mills, the same consisting of a body portion having secured thereupon angle bars each having an abrupt portion and an inclined portion, the abrupt portion of each bar overlapping the inclined portion of the succeeding bar, substantially as specified.

8. The within described cylinder for hominy mills, the same consisting of a skeleton or hollow body composed of a series of notched rings or disks and bars secured to said notched rings or disks, and presenting successive faces at reverse angles, said bars abutting against each other so as to form a continuous ribbed working surface for the cylinder, substantially as specified.

9. The combination of the shell of the mill having a yielding delivery flap at the lower portion with the cylinder having at the bottom a disk with projecting peripheral ribs or vanes, substantially as specified.

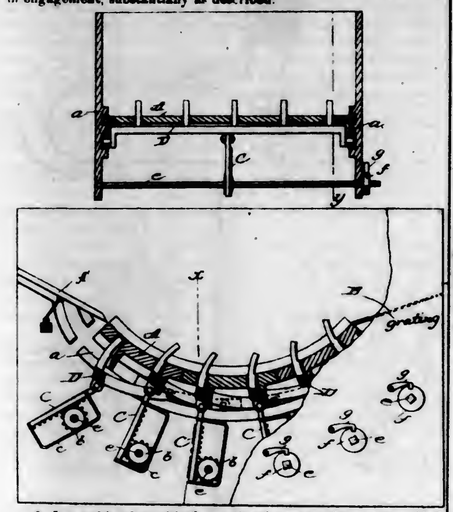
10. The combination of the shell of the mill with the cylinder having at the bottom a disk furrowed on the under surface so as to throw outward any grains which may gain access thereto, substantially as specified.

11. The combination of the shell of the mill with the cylinder having at the bottom a disk furrowed upon both its upper and lower surfaces, the furrows of one surface being in a reverse direction of those of the other surface, substantially as specified.

489,724. CONCAVE FOR THRASHING-MACHINES. ROBERT H. WATTS, Uintah, Utah. Filed Dec. 13, 1891. Serial No. 415,234. (No model.)

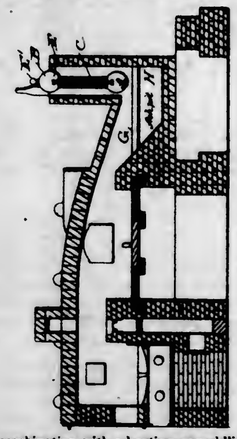
Claim.—1. In combination with the sectional bottom of a concave provided with a series of openings, a series of bars D, carrying

teeth fitting said openings, a rack bar pivoted to each bar D, a cog wheel engaging the rack, a strap secured to the rack bar with its central portion parallel thereto for keeping the rack bar and cog wheel in engagement, substantially as described.



2. In combination with the sectional concave bottom provided with rows of openings, a series of bars D, carrying teeth fitting said openings, a rack bar pivoted to each bar D, a cog wheel engaging said rack bar, an offset formed upon the side of the cog wheel, and a strap or bow having its ends secured to the rack bar and its central portion parallel therewith and bearing on the offset for keeping the cog wheel and rack in engagement, substantially as described.

489,725. BOILER AND BOILER-FURNACE. EARL A. WHEELER, Sharon, Pa. Filed Nov. 10, 1891. Serial No. 411,537. (No model.)

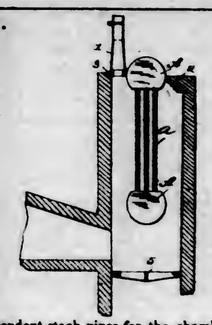


Claim.—In combination with a heating or puddling furnace, the generator A, located entirely within the stack of the furnace, the generator B, at the mouth of said stack, vertical tubes connecting said generators, the said stack having its upper end closed about the upper generator, and a supplemental chimney or stack arranged alongside of the upper generator, substantially as described.

489,726. BOILER AND BOILER-FURNACE. EARL A. WHEELER, Sharon, Pa. Filed Jan. 28, 1892. Serial No. 419,094. (No model.)

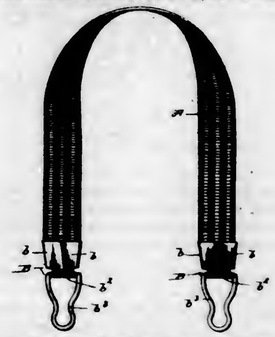
Claim.—In combination with a pair of furnaces having independent heat exit openings, an independent chamber in connection with each exit opening, a horizontal boiler extending through both

489,726.



chambers, independent stack pipes for the chambers and grates beneath the boiler, substantially as described.

489,727. SUSPENDER-END. GEORGE W. BALDWIN, Brooklyn, N. Y. Filed Nov. 14, 1892. Serial No. 451,943. (No model.)



Claim.—A suspender end consisting of a single piece of webbing, with metallic pronged clips having wings closed down on the free ends of the webbing said clips having tubular bearings in which are permanently pivoted the button loops substantially as described.

489,728. PARAPHENETOL-CARBAMIDE AND PROCESS OF MAKING SAME. JOSEPH BERLINERBLAU, Sosnowice, Russia, assignor to Dr. F. von Heyden Nachfolger, Radebeul, Germany. Filed Mar. 26, 1892. Serial No. 426,530. (Specimens.) Patented in Germany July 2, 1891, No. 68,485; in France Aug. 13, 1891, No. 215,502, and in Belgium Mar. 17, 1892, No. 96,940.

Claim.—A process for making the carbamides of paraphenetol or para-anisol, which consists in treating para-phenetidine or para-anisidine with phosgene, adding ammonia to the product of the reaction and crystallizing the product thus obtained, substantially as described.

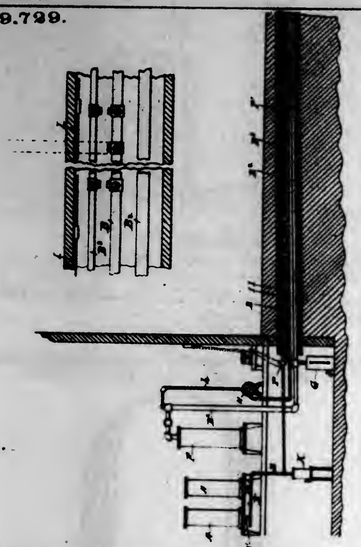
2. The new compound which is a carbamide of para-phenetol or para-anisol, having the formula hereinbefore stated, crystallizing in white needles, soluble in alcohol, ether and hot water, and having a sweet taste, substantially as described.

489,729. UNDERGROUND DISTRIBUTION AND RECOVERY OF ANHYDROUS AMMONIA. DAVID BRANSON, ROBERT D. TROEMNER, and JOHN R. STARR, St. Louis, Mo. Filed Jan. 31, 1890. Renewed June 16, 1892. Serial No. 436,866. (No model.)

Claim.—1. In a system of underground distribution and recovery of anhydrous ammonia, the combination of an ammonia receiver, a liquid supply pipe provided with branches, refrigerator boxes provided with cooling coils, a return pipe for the expanded gas provided with fluid traps, and an absorber, substantially as described.

2. In a system of underground distribution and recovery of anhydrous ammonia, the combination of an ammonia receiver, a liquid supply pipe provided with branches and having scale traps with each branch, cooling coils within chambers, a return main provided with branches corresponding in number to the branches from the liquid supply pipe, fluid traps connected to the return main, and an absorber, substantially as described.

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3. In a system of underground distribution and recovery of anhydrous ammonia, the combination of an ammonia receiver, a liquid supply pipe provided with branches, cooling coils in chambers, a return main with branches, a vacuum pipe with branches connected to each cooling coil, and a vacuum pump connected to the vacuum pipe and discharging into the return main at or near the absorber, substantially as described.

4. In a system of underground distribution and recovery of anhydrous ammonia, the combination, with the supply pipe, the cooling coils, and the return pipe, of a vacuum pipe and a vacuum pump for exhausting the ammonia from said pipes and coils, substantially as described.

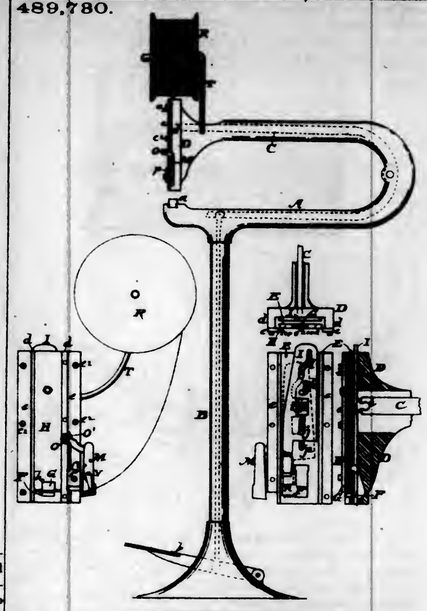
5. In a system of underground distribution and recovery of anhydrous ammonia, the combination, with an ammonia receiver, a liquid supply pipe provided with branches, refrigerating boxes provided with cooling coils, a return pipe for the expanded gas, and an absorber, of a pressure reducer situated in the supply pipe and an alarm bell electrically connected to said pressure reducer, substantially as described.

489,780. STAPLING-MACHINE. EMANUEL G. COHEN, Cleveland, Ohio, assignor of one-half to Charles M. Miller, same place. Filed June 6, 1892. Serial No. 436,562. (No model.)

Claim.—1. In a stapling machine, the head D mounted on one end of U shaped frame A, having anvil *a* on its other end, said frame A supported on a suitable standard and provided with lever C fulcrumed in the bow, with one end connected by a rod with foot treadle *b*; a flanged plate E fixed to play in guides *d d*, on head D; the plunger H and hammer G fixed to play in guides in the front face of plate E, the staple former block F movably set in a mortise in plate E beneath the plunger and hammer; the slotted sliding plate I set in the back of plate E with the pins on the backs of plunger and hammer projecting into the slots *j*, *k*, plate I also having arm *m* for pushing the former block F, and having the projection *i* engaging with lever C; constructed combined and operating as and for the purpose specified.

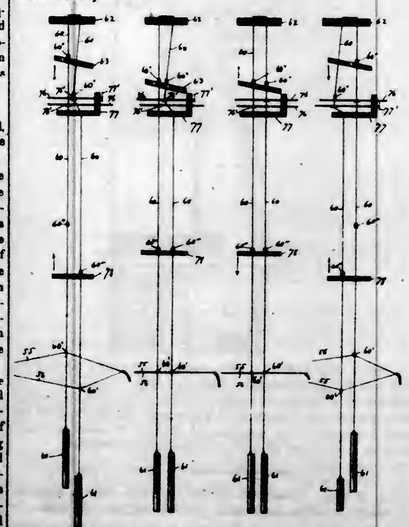
2. In a stapling machine the combination of a U-shaped frame A, carrying wire reel R, and mounted on supporting standard B, and provided with lever C fulcrumed in the bow of said frame, a rod connecting one end of said lever with foot treadle *b*, the other end of frame A supporting head D containing the staple forming and setting mechanism consisting of flanged plate E, plunger H, hammer G and forming block F, a slotted sliding plate I, connected with and operating the plunger, hammer and former by its reciprocal movements derived by the movement of lever C by means substantially as described; a feed lever M pivotally mounted on plate E and actuated by contact with stop *p* in the movements of said plate E, and the clinching anvil *a*, all constructed to feed, cut, form and set staples substantially as and for the purpose set forth.

489,780.



489,731. LOOM FOR WEAVING DOUBLE-FACED PILE FABRICS. JOSEPH COLEY, Worcester, Mass., assignor to William J. Hoyt, same place. Filed July 25, 1892. Serial No. 441,116. (No model.)

Brief.—Weaves the fabric shown by Patent No. 483,977, dated October 4, 1892. A double pile wire is used, and the pile warps are arranged in pairs. The upper ends of the harness-cords are connected so that as one pile warp is elevated the other of the pair is simultaneously lowered.



Claim.—1. In a loom of the class described, the combination with the cotton warp harnesses, the lay, filling, and wire mechanisms, of

the Jacquard mechanism, in which the cords for the worsted warps are suspended in pairs from the stationary board, with their upper ends connected, for the purpose stated, substantially as set forth.

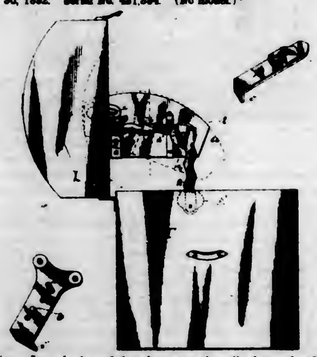
2. In a loom of the class described, the combination with the lifter board of the Jacquard mechanism, and the stationary board, from which the cords for the worsted warps are suspended in pairs with their upper ends connected, for the purpose stated, of a movable comber board, and means for operating the same, to cause the comber board to be raised when the lifter board is lowered, and the comber board to be lowered when the lifter board is raised, for the purpose stated, substantially as set forth.

3. In a loom of the class described, the combination with the cotton warp harnesses, the lay, and filling mechanisms, and the Jacquard mechanism in which the cords for the worsted warps are arranged in pairs with their upper ends connected, for the purpose stated, of the wire mechanism, provided with a double pile wire, or two pile wires united at their inner ends, for the purpose stated, substantially as set forth.

4. In a loom of the class described, the combination with two pile wires, connected at their inner ends, of mechanism for spreading and guiding the wires, consisting of two jaws provided with open slotted ends, one of the jaws supported on the other, and movable thereon, and means for operating said jaws, substantially as set forth.

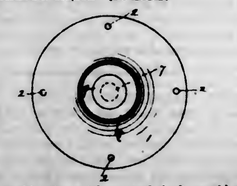
5. In a loom of the class described, the combination with two pile wires, connected at their inner ends, of means for spreading the free ends of said wires, consisting of a swinging arm provided with an open slotted end, and means for operating said arm, and an arm pivoted on the lower end of said swinging arm, and provided with an open slotted end, and a spring for separating the ends of said arms, and a bracket secured to the breast beam, and extending in the path of the arm pivoted on the swinging arm, for the purpose of bringing the ends of said arms together, substantially as set forth.

489,782. TRUNK. WILLIAM DENHARD, Jr., Louisville, Ky. Filed Apr. 30, 1892. Serial No. 431,284. (No model.)



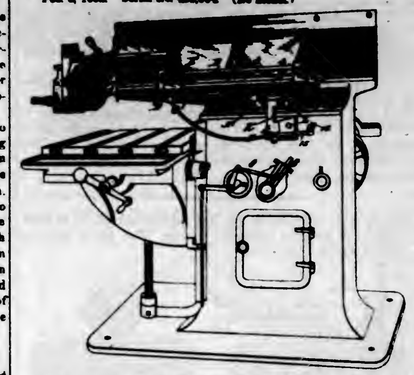
Claim.—In a device of the character described, a pair of braces pivotally connected together and to the lid and body of a trunk, a stop formed at the pivotal point of said braces, fastening devices connected to the tray and consisting of a pair of studs projecting therefrom lying respectively above and below one of said braces, and a supplemental hook-shaped piece secured to the tray and engaging with said brace to support the tray, substantially as specified.

489,788. GUDGEON. WILLIAM FORSER, Washington, Pa. Filed Oct. 6, 1891. Serial No. 408,361. (No model.)



Claim.—The combination, with a wood shaft provided with the longitudinal bolt-passages, of the flat face-plate fitted directly against the flat end of said shaft and provided, on its inner side, with the single central band 7 which is securely driven into a hole bored in the shaft, and also provided, on its outer side, with the gudgeon or journal 9 arranged in alignment with said single stud 7, and the longitudinal bolts passing through the face plate, outside of the journal and stud thereof, and through the bolt passages in the shaft, the inner ends of said bolts having securing nuts, combined and arranged for service as and for the purposes herein set forth.

489,784. METAL-PLANING MACHINE. WILLIAM R. FOX, Grand Rapids, Mich., assignor to the Fox Machine Company, same place. Filed Feb. 8, 1892. Serial No. 420,894. (No model.)



Claim.—1 In combination the ram, the shifting mechanism, the dog slides, the automatic locking means carried thereby, the said ram having a series of notches arranged side by side and extending longitudinally of the ram to receive the locking means, said locking means being arranged to drop into the notches automatically when released, substantially as described.

2. In combination the moving part, the dog slides carried thereby and adjustable thereon, the rotary locking means between the slides and moving part, and engaging the latter to move longitudinally thereof when rotated and thereby adjust the slids, the clutch device for preventing rotary movement of the said locking device and means for operating the said clutch device to engage and disengage and thereby control the movement of the rotary locking means, substantially as described.

3. In combination the moving part, the dog slides adjustable thereon, the rotary locking device carried by the slides and engaging the moving part, to move along the same when rotated, the handle for turning the rotary locking device and thereby adjusting the slide along the moving part, and the means for holding the handle in any adjusted rotary position, substantially as described.

4. In combination with the movable part, the bar provided with teeth, the dog slide movable over said bar, a pinion engaging said bar a shaft for said pinion journaled in the slide, and means for locking the pinion substantially as described.

5. An adjustable slide carrying a dog in combination with the movable part of a metal planer, said slide being provided with a locking device for locking it to the said part, a spring for throwing said locking device into engagement and a handle carried on the slide for moving the locking device out of engagement substantially as described.

6. An adjustable slide held and guided on the moving part, having a pinion mounted on a rotatable shaft in said slide and adapted to engage with the movable part also having limited longitudinal movement, devices for locking said shaft against turning, and a spring for holding the pinion in engagement with the movable part.

7. In combination with the ram the bar extending longitudinally thereof and having teeth, the dog slides movable over said bar, the pinion engaging the bar, the pinion shaft journaled in the slide and movable longitudinally therein, the spring for forcing the pinion normally inward into engagement with the bar, and the means for locking the pinion against rotary movement consisting of a handle having teeth and the teeth on the slide substantially as described.

8. In combination with a slide movable thereon, a bar having teeth, a pinion engaging therewith, a shaft on which the pinion is mounted capable of rotary and limited reciprocating longitudinal movement, a handle to draw the pinion out of engagement with the bar having inclined teeth on its inner end, teeth reversely inclined on the opposing face of the slide and a spring to return the pinion into engagement with the bar all substantially as described,

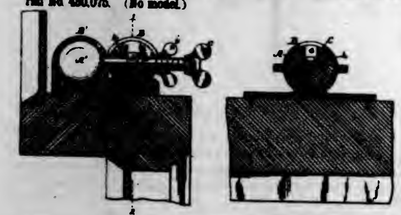
9. In combination the ram having the rib projecting from its side and extending longitudinally thereof, said rib having a channeled face, the toothed bar counter sunk in the said channel and filling only a portion of the same, the slides embracing said rib and extending over the channel and the bar therein, and the locking means carried by the slides and extending into the free part of the channel to engage the bar, substantially as described.

10. In combination a ram having the channeled guide on its side, the toothed bar fixed in said channel the adjustable slides and the locking means including the pinion engaging the bar and extending into said channel substantially as described.

11. In combination the ram the adjustable dogs thereon, the shaft K having the squared upper end, and the fingers L, M, having slots and adjustably secured to said squared end of the shaft substantially as described.

12. In combination, in a shaping machine the moving part, the dogs carried thereby, the fingers to be engaged by the dogs, the supporting shaft for the said fingers and the connections therefrom to the shifting mechanism, the said fingers projecting across the line of movement of the dogs and having angular extensions at their free ends, projecting substantially in the direction of the dogs' movement, substantially as described.

489,735. FASTENER FOR THE MEETING-RAILS OF SASHES. JAMES P. H. GASTRELL, Wiesbaden, Germany. Filed Apr. 21, 1892. Serial No. 430,075. (No model.)



Claim.—1. A fastening device comprising in combination a pivoted bolt, a block having a radially extending slot to which said bolt is adapted, a bearing for said block, said bearing having an opening to permit engagement of the bolt with the block, and a projecting portion carried by said bolt and adapted to engage with the walls of the slot and turn the block, substantially as specified.

2. The combination of the pivoted bolt, a slotted spherical block with which said bolt is adapted to engage, said block having an undercut portion, a feather or wing on said bolt adapted to engage with said undercut portion, a bearing for said spherical block, said bearing having an opening to permit the engagement of the bolt with the slotted block, substantially as specified.

3. A fastening device comprising in combination a pivoted bolt, a spherical bearing block having a radially extending slot a projecting portion of the bolt adapted to enter the slot and engage with the walls thereof, a bearing for said spherical block having an opening to permit the engagement of the bolt with the block, a screw thread on said bolt, and a thumb nut whereby the parts may be locked together, substantially as specified.

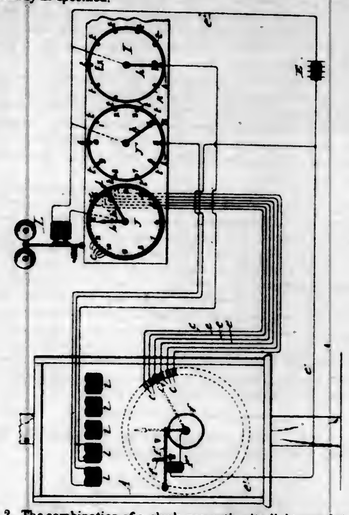
4. The combination of the bearing B', a spherical block A' mounted in said bearing, a bolt carried by said spherical block, a bearing B, a spherical block A carried thereby and having a radially extending slot, said bolt having a wing or feather adapted to engage with the walls of the slot and turn the block A, substantially as specified.

5. The combination of the pivoted bolt, the wing or feather carried thereby, an inclined or conical projection on said bolt, a receiving sphere having a slotted portion and a recessed portion corresponding to the inclined projection on the bolt and a bearing for said receiving sphere having an opening to permit the engagement of the bolt with the receiving sphere, substantially as specified.

6. The combination of the bolt, a radially slotted receiving sphere, a bearing for said sphere, a pivot block secured to the sash and forming a pivot point and bearing for said sphere bearing, substantially as specified.

489,736. RAILWAY-SIGNAL. JOHN B. GEART, Syracuse, N. Y. Filed Dec. 20, 1891. Serial No. 415,462. (No model.)

Claim.—1. In a railway train indicator, the combination with a controlling instrument having a dial provided with a series of radial contact points, and an hour and minute hand geared to move relatively in the same ratio as an ordinary clock, of a clock indicator having a series of similarly arranged radial contact points electrically connected with the respective contact points of the controlling instrument, an hour and minute hand, the latter electrically connected with the minute hand of said controlling instrument, a battery and electro-magnet in circuit with said hands, a spur wheel on the minute hand shaft and an armature detent, adapted to be operated when the circuit is closed, to hold the clock hands in position corresponding to the position of the hands of the controlling instrument when set, substantially as specified.



2. The combination of a clock presenting its dial toward the railway, an annular series of electric contact points arranged concentric to the shaft of the clock-hands, an electric terminal carried by one of said hands and traversing said contact points, a similar dial with correspondingly arranged contact points in the apartment of the operator, separate electric connections between each of the latter contact points with those of the clock, a hand pivoted to the dial, an electric terminal on said hand traversing the contact-points of said dial and electric connections between the terminals of the two hands as set forth.

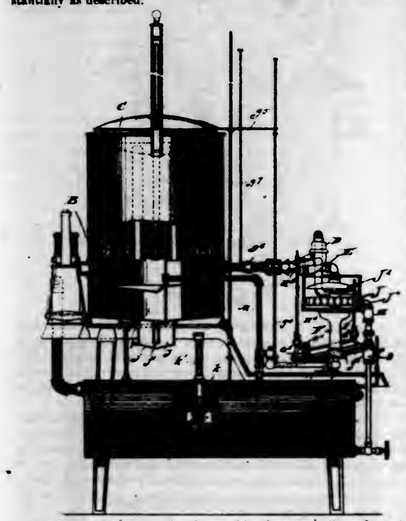
3. In a railway train indicator, the combination of a case having a dial and a horizontal row of ports facing the railway, clock-work in the case having hour and minute hands in front of the dial, sixty electric contact points respectively in radial lines passing from the center of the dial through the minute points of the dial and concentric thereto, an electric terminal on the hand traversing said contact points, a detent adapted to engage and release the clock-work, a magnet actuating the detent, indicating wheels pivoted to the interior of the case and presenting their indicating faces through the ports, ratchet-wheels attached to the sides of the indicating wheels, pawls engaging the ratchet-wheels, magnets actuating the pawls, and controlling instruments one for each of the aforesaid indicating wheels and clock and located in the apartment of the operator and electrically connected with the magnets, contact-points and terminals of the aforesaid clock and indicating wheels, substantially as shown and described.

4. In an electric railway indicator the combination with the controlling instrument, its radial contact points and hands, with the clock indicator its radial points and hands electrically connected as described, of an electro magnet in circuit with the instruments and an armature and alarm adapted to be sounded thereby at the initial break and final closure of the circuit through the clock indicator and controlling instrument, substantially as specified.

489,737. GAS-GENERATING APPARATUS. JACOB M. GOLDSMITH, Chicago, Ill. Filed Jan. 25, 1892. Serial No. 419,242. (No model.)

Claim.—1. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, an air injector opening into the pipe between the retort and the holder, provided with an air inlet and with a valve mounted on a rock shaft to move it from or toward its valve seat to open or close it, an automatic valve trip, and a rod connecting the valve shaft with the valve trip, the pipe from the retort to the holder being provided with a discharge nozzle entering the main injector pipe between the valve and the holder, substantially as described.

2. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, an air injector provided with an air inlet and with a valve mounted on a rock shaft to move it from or toward its valve seat to open or close it, an automatic valve trip, and a rod connecting the valve shaft with the valve trip, and with an auxiliary pipe or pipes opening at the ends into the main injector pipe, the pipe from the retort to the holder being provided with a discharge nozzle opening into the main injector pipe between the points where the ends of the auxiliary pipe or pipes enter the main injector pipe, substantially as described.



3. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, an automatic valve trip comprising a pivoted member and a leverage bar connected to the pivoted member at the end farthest from the gas holder, and with a rod or link at the end nearest the gas holder movable up and down by the holder as it reaches the limits of its movements, substantially as described.

4. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, an automatic valve trip comprising a pivoted member and a leverage bar connected to the pivoted member at the end farthest from the gas holder and with a rod or link at the end nearest the gas holder, movable up and down by the holder as it reaches the limits of its movements, and means shiftable by the tipping of the pivoted member and bar from one end of the trip to the other, substantially as described.

5. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, a valve comprising chambers separated by a valve seat provided with a port, a valve disk fitted against the valve seat provided with a port and with a central projection, a valve stem provided with a hollow head engaging the projection on the valve disk, and a spring arranged in the hollow head of the valve stem and holding the valve disk constantly to its seat, substantially as described.

6. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, a valve comprising chambers separated by a valve seat provided with a port, a valve disk fitted against the valve seat provided with a port and with a central projection, a valve stem provided with a hollow head engaging the projection on the valve disk, a spring arranged in the hollow head of the valve stem and holding the valve disk constantly to its seat, and means for limiting the extent of the movement of the valve disk, substantially as described.

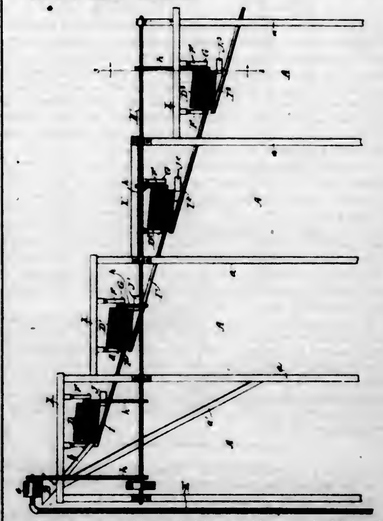
7. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, the oil tank being provided with a hot air surrounding jacket, and a hood inclosing the retort and communicating with the interior of the oil tank jacket, substantially as described.

8. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, the oil tank being provided with a space above the surface of the oil for the reception of air under pressure, a pipe opening into the oil tank above the oil and leading to the gas holder, and a valve or cock in such pipe to permit or prevent the passage of carbureted air from the oil tank to the gas holder, substantially as described.

9. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, a gas pressure receptacle intermediate the retort and the gas holder, a pipe leading from the receptacle and entering the oil pipe intermediate the oil tank and the retort, and a valve in such pipe connected by a rod *g* with the automatic valve trip, whereby the valve is automatically operated to permit or prevent the passage of gas from the receptacle to the oil pipe to facilitate the flow of oil, substantially as described.

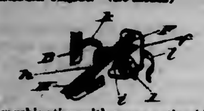
10. In portable gas works, the combination of an oil supply tank, a gas generating retort, a gas holder, pipes for conveying oil from the tank to the retort and gas from the retort to the holder and gas from the holder to the place of use, a gas pipe leading from the retort to a gas holder, an emergency valve in such pipe intermediate the retort and the holder, and means actuated by the holder when it rises above its normal limit for automatically operating the valve to close the gas pipe, substantially as described.

489,738. WASHING AND SIZING MACHINE. EUGENE G. HARMOND and EDWARD D. HARMOND, Hanover, Ill. Filed Mar. 23, 1892. Serial No. 426,236. (No model.)



Claim.—In a washing and sizing machine, a main driving shaft having sprocket wheels thereon, a series of rotatable foraminated cylinders all driven from said main shaft by chains passing over the sprocket wheels thereon, a pump driven by a chain passing over a sprocket wheel on said main shaft, and a hopper, into which said pump discharges, for feeding material to said cylinders, substantially as described.

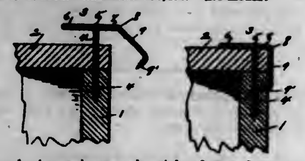
489,739. SWITCH-SWITCH FOR INCANDESCENT ELECTRIC LAMPS. LOUIS SIEMS and LOUIS H. BALTHIS, Newark, N. J. Filed Oct. 10, 1892. Serial No. 448,909. (No model.)



Claim.—1. The combination with a supporting block, of a switch lever pivoted thereto and having a projecting arm, a spring contact arranged in the path of said arm, and adapted, to engage and hold the same in position, said switch lever having a V shaped face, a stem, guided in said supporting block above said switch lever and having an enlarged outer end, a spring arranged in said stem between said enlarged outer portion and its bearing in the supporting block, and a shifting blade, secured to said stem, and arranged to engage said V shaped face of the switch lever, substantially as set forth.

2. The combination with a supporting block of a switch lever, pivoted thereto and having projecting arms arranged on opposite sides of said pivot and having a central V shaped face between said arms, spring contacts, arranged on opposite sides of said lever in the path of the respective arms thereof said contacts being adapted to engage the respective arms of the switch lever at different points in the movement thereof, a stem, the outer end of which is squared and enlarged and is mounted in suitable bearings, and the inner end of which is contracted and has a bearing in said supporting block above said switch lever, a spring arranged in said stem between said enlarged outer portion and its bearing in the supporting block, and a shifting blade, secured to said stem and arranged to engage the V shaped face of said switch lever, substantially as set forth.

489,740. BOX-FASTENER. FRANK R. HEYWOOD, Worcester, Mass. Filed May 2, 1892. Serial No. 431,490. (No model.)



Claim.—1. As an improved article of manufacture, a wire fastening device for wooden boxes, cases, &c., made in one piece, and having the nail portion at one end, adapted to be driven into the top or bottom of the box, and the locking arm at the other end, adapted to extend over the edge of the box, and provided with a point or prong to be driven into the body of the box, and having the intermediate portion, between the nail end and the locking arm end, bent to form a coil or loop, extending in a horizontal plane, and furnishing a flat head or driving surface for the nail end, substantially as set forth.

2. As an improved article of manufacture, a fastening device for wooden boxes, &c., made out of one piece of wire, and having the nail portion at one end, the coiled portion forming the flat head or driving surface of the nail, and a loop forming a bearing surface and extending in a plane at right angles to the nail portion, the straight portion, extending out from the coiled portion, in an opposite direction from the loop, and the locking arm extending at an obtuse angle to the straight portion, and having an inwardly projecting point or prong extending substantially at right angles thereto, for the purpose stated, substantially as shown and described.

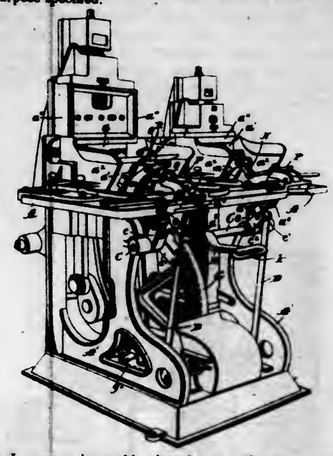
3. As an improved article of manufacture, a fastening device for wooden boxes, cases, &c., made out of one piece of wire, and having the nail portion at one end, a coiled or looped portion extending in a horizontal plane at right angles to the nail portion, and forming the flat head or driving surface of the nail, and the locking arm portion at the other end, adapted to extend over the edge of the box, and provided with a point or prong, to be driven into the body of the box, substantially as set forth.

489,741. TOBACCO-PRESS. THOMAS HILL, Quincy, Ill., assignor to the Adams Tobacco Press Company, same place. Filed Jan. 26, 1892. Serial No. 419,272. (No model.)

Claim.—1. In a tobacco press, in combination with the movable wall or section of the press mold, the reciprocating plate connected therewith, the rock shaft connected to the plate the intermittently driven gear wheel and the crank and pitman connections between the latter and said rock-shaft, substantially as and for the purpose specified.

2. In a tobacco press, in combination with the movable wall or section of the press mold, the reciprocating plate connected therewith, the rock shaft, the crank thereon connected with said plate, the intermittent gearing comprising in part the wheel F, a second crank on the rock shaft, and a pitman connected with the latter and having an eccentric connection with said wheel, substantially as and for the purpose shown.

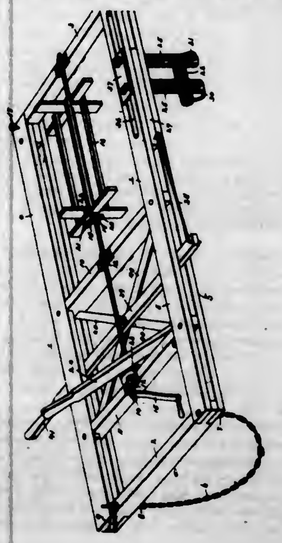
3. In a tobacco press, in combination the movable wall or section, the reciprocating plate, the toggle connected to the latter, to said section and to a relatively fixed point, and the intermittently driven toothed wheel for actuating said plate, substantially as and for the purpose specified.



4. In a press, in combination, the movable mold section or wall, the reciprocable part to move the same, the pivoted lever carried by said part, the link connecting one end of said lever with said wall, and the second link connecting said lever to a relatively immovable part, the connection with the latter being adjustable, substantially as and for the purpose described.

5. In a press, in combination, the movable mold section or wall, the reciprocable part to move the same the intermittent gearing to move said part, the lever pivoted to and carried by the latter, the link connecting one end of said lever with said wall, the pivoted or journaled block or piece upon a part immovable relative to the latter, and the link between the lever and said block or piece, substantially as and for the purpose set forth.

489,742. REEL-CARRIER. FRANK H. HOFFHARDT and JAMES F. SPENCER, Firth, Nebr. Filed June 6, 1892. Serial No. 435,893. (No model.)

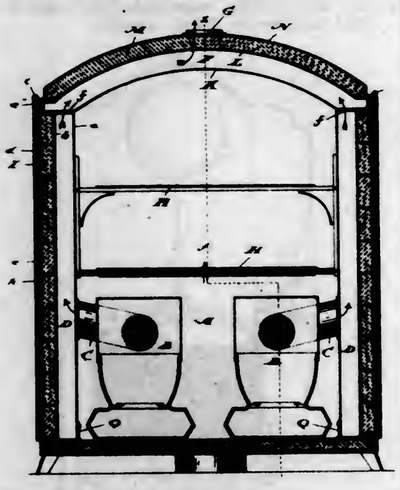


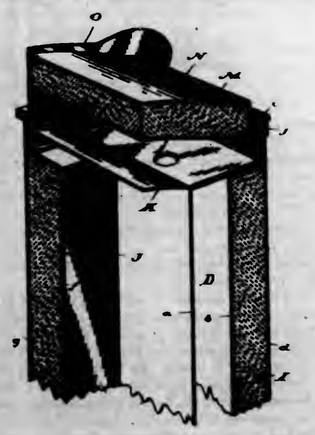
Claim.—1. In a reel, the combination of a frame adapted to be carried by a vehicle and provided at one side with longitudinal slots, a shaft journaled on the frame, a spool mounted on the shaft, a reciprocating slide arranged in the frame and a guide depending from the slide and comprising rollers, and a frame carrying the rollers and having the upper ends of the sides arranged in the slots and secured to the slide, and means for reciprocating the slide, substantially as described.

2. In a reel, the combination of a frame having parallel side bars 4 and 5, the side bars 5 being provided with longitudinal slots, a shaft, a reel mounted on the shaft, a slide arranged between the side bars 5, a lever fulcrumed on the frame, a rod connecting the lever with the slide and a wire guide consisting of a frame having the upper ends of its sides arranged in said slots and secured to the slide and vertical and horizontal rolls, substantially as described.

3. In a reel, the combination of a frame having parallel side bars 4 and 5, the latter being provided with longitudinal slots, a shaft, a spool mounted on the shaft a slide arranged between the side bars 5, a guide carried by the slide and comprising a frame having vertical side rods arranged in said slots and provided at their lower ends with inwardly extending arms, one of the arms being provided with an eye and the other having a horizontal extension arranged in the eye and threaded, a handle having a threaded opening arranged on the threaded end of the extension, vertical rolls arranged on the side rods, and a horizontal roll arranged on the extension, and means for reciprocating the slide, substantially as described.

489,743. BAKING-OVEN. CHARLES F. HUBBARD, Toronto, Canada. Filed Jan. 21, 1892. Serial No. 418,815. (No model.)





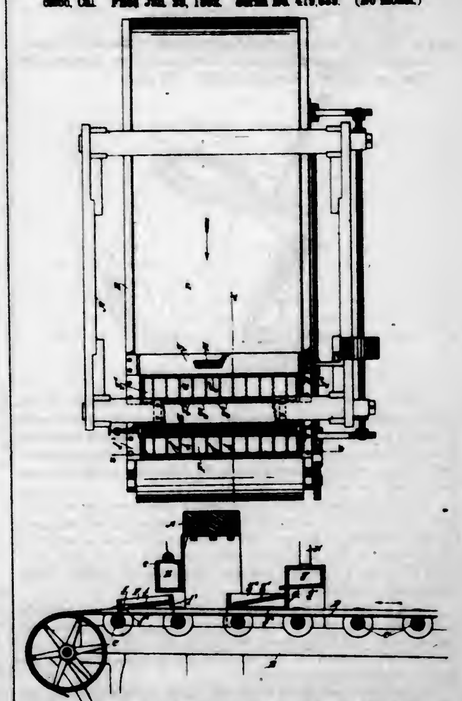
Claim.—1. A chamber having its two outer sides, back and arched top lined with asbestus, mineral wool, or other suitable non-conductor, and within said lined sides an air and smoke space having an aperture through its top to communicate directly with an arched air space extending over the crown of the said chamber, a smoke pipe or flue extending from the arched air and smoke space, a stove or furnace contained within said chamber and having a smoke pipe to communicate with the side air and smoke space or spaces, substantially as and for the purpose specified.

2. A chamber having its two outer sides, back and arched top lined with asbestus, mineral wool, or other suitable non-conductor, and within said lined sides an air and smoke space having an aperture through its top to communicate directly with an arched air space extending over the crown of the said chamber, a smoke pipe or flue extending from the arched air and smoke space, a stove or furnace contained within said chamber and having a smoke pipe to communicate with the side air and smoke space or spaces, an aperture with suitable damper directly connecting the side air and smoke space and chamber near the bottom of the latter, and an aperture with suitable damper between the chamber and exterior thereof, substantially as and for the purpose specified.

3. A chamber or oven constructed substantially as described and having corresponding plates O, at its front and back with curved ribs formed thereon to support the ends of the plates K, and L, and N, substantially as and for the purpose specified.

4. In a baking oven of the character described, the plate O having cleaning-out holes and arched ribs, said ribs adapted to support the arched-shaped plates K, L and N to form the top of the oven, substantially as described.

489,744. ORE-CONCENTRATOR. GEORGE JOHNSTON, San Francisco, Cal. Filed Jan. 20, 1892. Serial No. 419,682. (No model.)



Claim.—1. In an ore concentrator having a traveling belt, a water distributer board or platform above the belt having in its surface a series of directing grooves, and a series of narrow slots with which said grooves communicate, said grooves and slots lying in line with the direction of travel of the belt, whereby the water is delivered gently and in narrow channels on the surface of the belt, substantially as herein described.

2. In an ore concentrator and in combination with its traveling belt, a water distributer board or platform, and a separate pulp distributer box, each lying over the belt and each having in its bottom

a series of narrow elongated discharge slots, in line with the direction of travel of the belt and one series being in line with the other whereby the pulp and water are delivered upon the belt in the same narrow channels, substantially as herein described.

3. In an ore concentrator having a traveling belt, a pulp distributer box lying over said belt and having in its bottom a series of narrow elongated discharge slots in line with the direction of travel of the belt, and a water distributer board or platform lying over said belt at a point between the pulp distributer box and the head of the belt, and having in its bottom a series of directing grooves and elongated narrow discharge slots communicating with said grooves, said slots being in the line of the belt travel and in line with the discharge slots of the pulp distributer, whereby the water and pulp are delivered to the belt in the same narrow channels, substantially as herein described.

4. In an ore concentrator having a shaking frame and a traveling belt carried thereby, a pulp distributer box secured to the frame and lying over the belt, and having in its bottom a series of narrow elongated discharge slots in line with the belt travel, and a water distributer board or platform lying over the belt and secured to the shaking frame at a point between the pulp distributer box and the head of the belt, and having in its bottom a series of directing grooves and elongated narrow discharge slots with which said grooves communicate, said slots being in line with the belt travel and with the slots of the pulp distributer whereby the water and pulp are delivered to the belt in the same narrow channels, substantially as herein described.

5. In an ore concentrator, the pulp distributer box consisting of an upper portion with a plain bottom, and a lower portion with a bottom provided with a series of narrow elongated discharge slots, and the directing board in the lower portion and over its slotted bottom, substantially as herein described.

489,745. BARREL TRUCK AND STAND. CHARLES D. JUVINALL, DANIEL L. ISBARD, and MILFORD H. BEIKENBOSTY, Upper Sandusky, Ohio. Filed Apr. 26, 1892. Serial No. 431,092. (No model.)



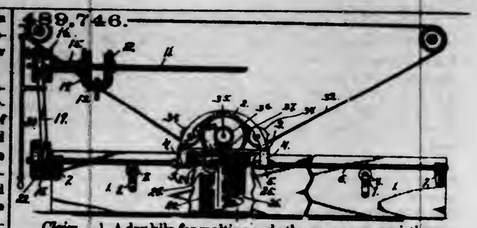
Claim.—1. A barrel truck and stand, having a slidable handle, in combination with a tube arranged in the frame of the truck and stand and adapted to receive the slidable handle; the said tube being of approximately the same length as the handle, whereby said handle when not in use may be pushed into the tube, and out of the way, substantially as specified.

2. A barrel truck and stand having a tube arranged longitudinally within its frame in combination with a threaded cap having an eye and arranged on one end of the tube, a slidable rod arranged in said tube and having an external collar or collars, to bear in the bore of the tube, and a claw-arm arranged loosely on the slidable handle, substantially as specified.

3. In a barrel truck and stand having its top adapted to conform to the shape of a barrel in combination with two pivoted props arranged in one end of the frame, and changed to swing in a transverse plane so as to support one end of a barrel in positions of various elevations, substantially as specified.

4. The improved barrel truck and stand composed of the side walls having their forward ends terminating in rocker faces, the forward and rear cross walls, the tube secured longitudinally of the frame within said cross walls, and having a screw cap at one end, the slidable handle, arranged within the tube and having the collar or collars thereon, the claw arm arranged loosely on the slidable handle, the pivoted props arranged on the forward cross wall, and the truck wheels and caster wheels supporting the whole, substantially as and for the purposes specified.

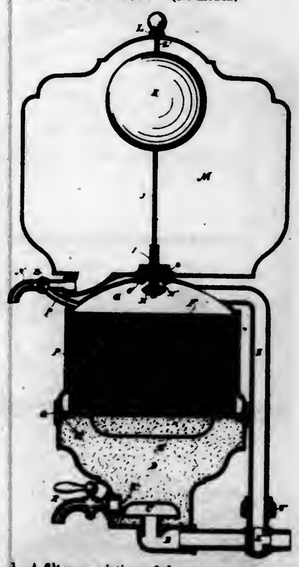
489,746. DRY-KILN FOR MALTING. JOSEPH KAH, Buffalo, N. Y. Filed Aug. 10, 1892. Serial No. 442,494. (No model.)



Claim.—1. A dry kiln for malting and other purposes consisting essentially of a rectangular kiln for the reception of the stock, a series of vertical cylinders secured to a moving frame, and extending across said kiln, said cylinders having openings at their lower forward ends and upper rear ends, a series of endless conveyers, an endless belt operating a pulley and shaft secured to a moving carriage, a series of bevel gears secured to said shaft and each engaging with bevel gears upon the series of conveyers all combined and operating substantially as shown and described.

2. In a dry kiln for malting and other purposes a series of cylinders resting within a frame or carrier, said frame or carrier being made to travel back and forth within a rectangular kiln said cylinders being cut away at each end forming openings on opposite sides and adapted to be turned within the frame or carrier so as to have their lower openings face in the direction in which the cylinders are traveling substantially as shown and described.

489,747. FILTER. JOSEPH KRAKER, San Francisco, Cal. Filed May 2, 1892. Serial No. 431,546. (No model.)

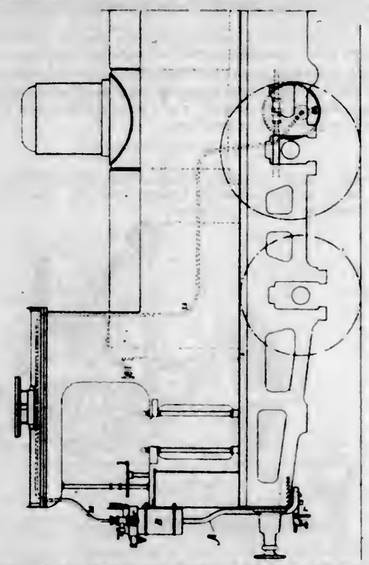


Claim.—1. A filter consisting of the superposed, separable chambers D, P and M, the lowermost containing sand and gravel, the second containing pulverized carbon, the third serving as a reservoir for filtered water, an inlet passage at the bottom of the lowermost chamber having a convex perforated cap through which the water is delivered into said chamber, an open space above the uppermost filter chamber, a central opening therefrom and into the reservoir above, with the valve seat and upwardly closing valve, and a float in the reservoir chamber, whereby the valve is opened or closed, substantially as herein described.

2. In a filter, a chamber D containing sand and gravel, an inlet passage B, a convex perforated delivery cap through which water passes from the inlet passage, a casing P removably attached to the chamber D, an independent movable cylindrical chamber F fitting within the chamber P having the bottom and top formed of wire screens, inclosing asbestus cloth between them, said chamber having flanges secured between the flanges of the chambers D and P, a space above the upper end of the carbon chamber F, a reservoir M removably attached to the top of the chamber P, an upwardly closing valve fitting the seat in the upper space of the chamber F, and closing the opening between it and the reservoir chamber, a stem extending upwardly from the valve, connecting with a float by which the valve is opened and closed, and a supplemental pipe or passage S connecting with the two-way inlet cock A whereby the flow of water through the filter may be reversed when the valve between the reservoir and the filter chamber is closed, and a discharge cock R connecting with the lower part of the filter chamber, substantially as herein described.

3. A filter consisting of the superposed filter chambers D and P, and a filtered water reservoir situated above them, an open space or receiver G above the uppermost filter, a central opening therefrom into the reservoir chamber above with a valve seat and upwardly closing valve, a float in the reservoir chamber with which the valve stem connects, so that the two move in unison, a discharge cock N and a passage *p* connecting the chamber G with the cock whereby pressure in the chamber is reduced and the valve allowed to open, substantially as herein described.

489,748. SYSTEM OF HEATING BY STEAM. MARIE F. LARGERON, Paris, France. Filed Mar. 26, 1891. Serial No. 386,440. (No model.) Patented in France Sept. 3, 1890, No. 206,016.



Claim.—1. In a heating system, the combination of a main distribution pipe and means for supplying compressed air and steam thereto with valved branch pipes leading from the main to the points to be heated and having controlled discharge outlets at their outer ends, outside the compartments to be heated.

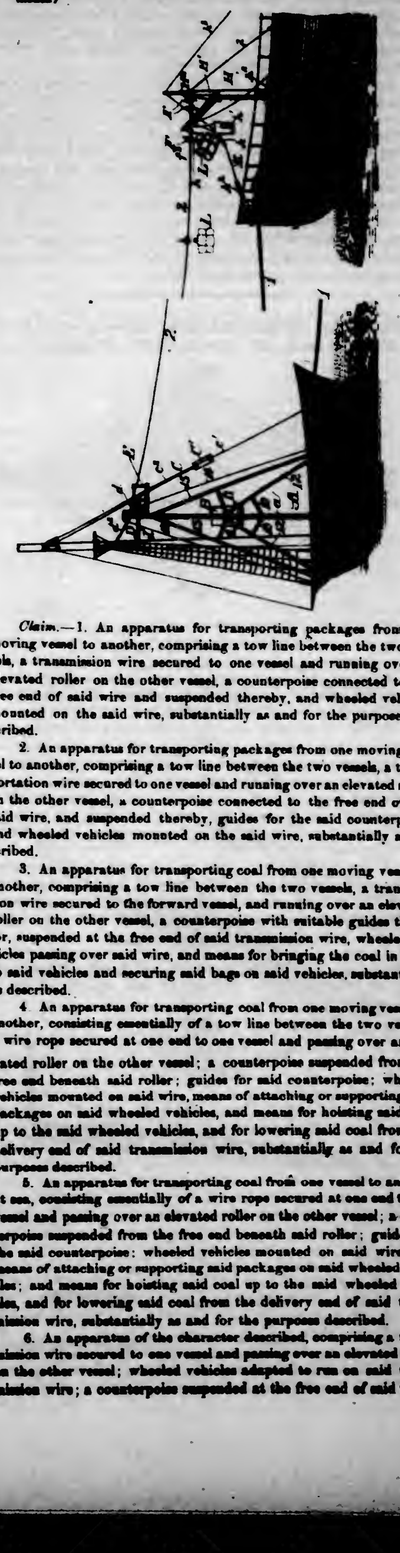
2. In a train heating system, the combination of a steam supply and a compressed air supply with a main distribution pipe running to the cars, and valved branch pipes leading into the cars from the main pipe and having controlled discharge outlets at their outer ends, outside the compartments to be heated.

3. In a train heating system, the combination of a steam supply and the main air brake reservoir with a main distribution pipe with which said steam supply and air brake reservoir are connected, and valved branch pipes leading into the cars from the main distribution pipe for the steam and compressed air, substantially as described.

4. In a train heating system, the combination of the locomotive carrying the main air brake reservoir, and a main distribution pipe leading from the locomotive to the cars, valved pipes connecting the locomotive boiler and the said air brake reservoir with said main distribution pipe and valved branches from the latter to the cars, substantially as described.

5. In a train heating system, the combination of a steam supply and a compressed air reservoir with a mixing reservoir, with which the steam supply and air brake reservoir communicate, a main distribution pipe leading from said mixing reservoir and valved branch pipes leading into the cars from the main distribution pipe for the steam and compressed air, substantially as described.

489,749. APPARATUS FOR COALING SHIPS AT SEA. PHILIP B. LOW, New York, N. Y. Filed June 11, 1892. Serial No. 436,393. (No model.)



Claim.—1. An apparatus for transporting packages from one moving vessel to another, comprising a tow line between the two vessels, a transmission wire secured to one vessel and running over an elevated roller on the other vessel, a counterpoise connected to the free end of said wire and suspended thereby, and wheeled vehicles mounted on the said wire, substantially as and for the purposes described.

2. An apparatus for transporting packages from one moving vessel to another, comprising a tow line between the two vessels, a transportation wire secured to one vessel and running over an elevated roller on the other vessel, a counterpoise connected to the free end of the said wire, and suspended thereby, guides for the said counterpoise, and wheeled vehicles mounted on the said wire, substantially as described.

3. An apparatus for transporting coal from one moving vessel to another, comprising a tow line between the two vessels, a transmission wire secured to the forward vessel, and running over an elevated roller on the other vessel, a counterpoise with suitable guides therefor, suspended at the free end of said transmission wire, wheeled vehicles passing over said wire, and means for bringing the coal in bags to said vehicles and securing said bags on said vehicles, substantially as described.

4. An apparatus for transporting coal from one moving vessel to another, consisting essentially of a tow line between the two vessels, a wire rope secured at one end to one vessel and passing over an elevated roller on the other vessel; a counterpoise suspended from the free end beneath said roller; guides for said counterpoise; wheeled vehicles mounted on said wire, means of attaching or supporting said packages on said wheeled vehicles, and means for hoisting said coal up to the said wheeled vehicles, and for lowering said coal from the delivery end of said transmission wire, substantially as and for the purposes described.

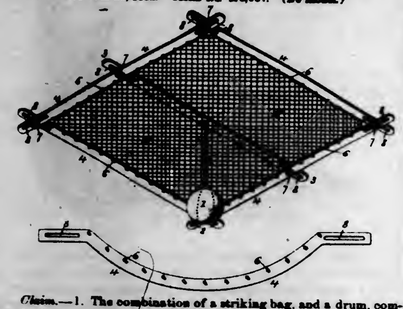
5. An apparatus for transporting coal from one vessel to another at sea, consisting essentially of a wire rope secured at one end to one vessel and passing over an elevated roller on the other vessel; a counterpoise suspended from the free end beneath said roller; guides for the said counterpoise; wheeled vehicles mounted on said wire, and means of attaching or supporting said packages on said wheeled vehicles; and means for hoisting said coal up to the said wheeled vehicles, and for lowering said coal from the delivery end of said transmission wire, substantially as and for the purposes described.

6. An apparatus of the character described, comprising a transmission wire secured to one vessel and passing over an elevated roller on the other vessel; wheeled vehicles adapted to run on said transmission wire; a counterpoise suspended at the free end of said trans-

mission wire guide pieces on said counterpoise, vertical guide posts engaging said guide pieces; friction posts at either side of said counterpoise; trip pieces near said friction posts; eccentrics attached to the sides of said counterpoise; and levers rigidly attached to the shafts of said eccentrics and adapted to strike said trip pieces, whereby the said eccentrics are thrown out against said friction posts, substantially as and for the purposes described.

7. An apparatus of the character described, comprising a transmission wire secured to one vessel and passing over an elevated roller on the other vessel; wheeled vehicles adapted to run on said transmission wire; a counterpoise suspended at the free end of said transmission wire; guides for the counterpoise, and hinged doors in the bottom of the said counterpoise opening downward with catches on the said doors and devils' claws or hooks pivoted to the side of the counterpoise engaging said catches and terminating in a lever arm, and trip pieces placed in the wake of said levers whereby the said levers may be tripped and the contents of the counterpoise automatically discharged when it has descended to a certain position, substantially as and for the purposes described.

489,750. STRIKING-BAG DRUM. FREDERICK MEDART, St. Louis, Mo. Filed Jan. 20, 1892. Serial No. 418,657. (No model.)



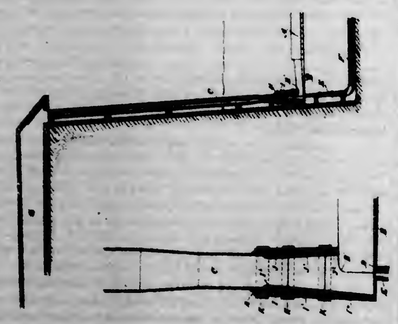
Claim.—1. The combination of a striking bag, and a drum, composed of a marginal supporting frame, and a flexible perforate covering therefor, substantially as set forth.

2. The combination of a striking bag, and a drum, composed of a marginal frame, formed in sections and made adjustable, and a flexible perforate covering attached thereto, substantially as set forth.

3. The combination of a striking bag, and a drum, composed of a marginal frame, formed in sections the ends of which overlap and are provided with elongated slots, bolts for securing the overlapped ends together, and a flexible imperforate covering attached to the frame, substantially as set forth.

4. The combination of a striking bag, and a drum, composed of a marginal supporting frame, provided with the series of studs, and a flexible perforate covering of netting attached to the frame by being hooked on said studs, substantially as set forth.

489,751. HYDRAULIC MINING APPARATUS. NEWTON C. MILLER, French Corral, Cal. Filed Sept. 23, 1892. Serial No. 446,610. (No model.)

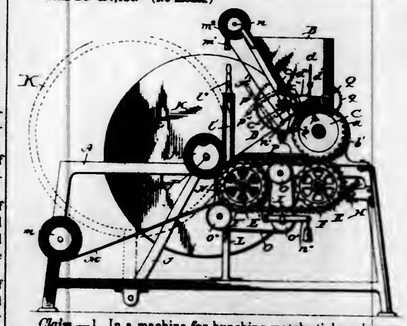


Claim.—1. In a hydraulic apparatus, the sluice adapted to convey earth or material having an end plate B, as shown, a discharge pipe extending upwardly and having the lower end approximately fitted to the plate at the end of the sluice, an opening in the bottom of said plate essentially concentric with the discharge pipe, a nozzle through which water is delivered under pressure through said opening, said nozzle being of smaller diameter than the opening whereby a current of air is introduced through the opening in connection with the stream of water, substantially as herein described.

2. In a hydraulic apparatus, a sluice adapted to convey earth or pulp, and upwardly extending discharge pipe, the lower end of which approaches the end of the sluice, a hollow frustum of a cone at the bottom of said discharge pipe having one side cut away, an extension B of the sluice, the sides of which fit the cut away portion of the discharge pipe, and the bottom of which extends across the bottom of the discharge pipe, with its end rounded to fit the extension of the rear side of the pipe whereby it is closed at this point, an opening made through the bottom plate of the sluice approximately concentric with the discharge pipe, a water discharge nozzle of smaller diameter than said opening fixed concentric therewith and delivering a jet of water under pressure through the opening whereby air is drawn through said opening simultaneously with the discharge of the jet of water and delivered through the discharge pipe, substantially as herein described.

3. A hydraulic apparatus, a sluice, a pipe and nozzle delivering water under pressure upwardly through the discharge end of the sluice, a discharge pipe standing in line with said nozzle and fitting the discharge end of the sluice, the lower end of said discharge pipe being composed of sections I and J fitted together and secured by hoops, substantially as described.

489,752. MACHINE FOR BUNCHING MATCH-STICKS. MARTIN MOUL, Hanover, and EDWIN G. QUICKEL, York, Pa. Filed June 18, 1892. Serial No. 437,126. (No model.)



Claim.—1. In a machine for bunching match-sticks, a hopper, a serrated feed-roller mounted below the same, and a conveyer-chain contiguous to the feed-roller in combination with a positively actuated frictionally controlled spool, and rollers bearing respectively a web and a tape designed to be wound upon the spool.

2. In a machine for bunching match-sticks, a hopper, a serrated feed-roller mounted below and forming the bottom of the hopper, and a conveyer-chain contiguous to the feed-roller in combination with a positively actuated frictionally controlled spool, rollers bearing respectively a web and a tape designed to be wound upon the spool, and a pressure-device coacting with the web.

3. In a machine for bunching match-sticks, a hopper having an agitator therein, a feed-roller mounted below the hopper, and a conveyer-chain coacting with the said roller, in combination with a positively actuated frictionally controlled spool, and rollers bearing respectively a web and a tape designed to be wound upon the spool.

4. In a machine for bunching match-sticks, a hopper having a continuously vibrated agitator therein, a feed-roller below the hopper having transverse grooves in its periphery, and a conveyer-chain, in combination with a feed stop coacting with the feed-roller for checking the passage of the sticks to the said chain, and a lever for actuating the said check at any point during the operation of bunching.

5. In a machine for bunching match-sticks, the combination, with a hopper, a feed-roller, and a conveyer-chain, of a swinging-frame carrying a shaft bearing a spool and a disk, a mechanism for imparting motion to the disk.

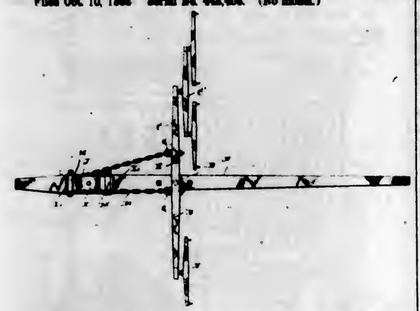
6. In a machine for bunching match-sticks, the combination with a hopper, a feed-roller and a conveyer-chain, of a swinging-frame carrying a shaft bearing a spool and a disk, a friction roller bearing against each side of the disk, and mechanism for imparting motion to the said rollers independent of the disk.

7. In a machine for bunching match-sticks, the combination with a hopper, a feed-roller, and a conveyer-chain, of a swinging-frame carrying a shaft bearing a spool and a disk, a positively actuated friction-roller bearing against each side of the disk to impart motion thereto, and a lever for throwing one of the friction rollers out of contact with the disk, whereby to admit of the said frame being swung to or from the rollers.

8. In a machine for bunching match-sticks, the combination with a hopper and a feed-roller mounted below the same, of a series of shafts bearing each a series of sprocket-wheels, sprocket-chains uniting the said wheels and coacting with the feed-roller, a friction-roller mounted on one of the shafts, a swinging-shaft carrying a spool at one end and at the other end a revolable disk, and rollers bearing respectively a web and a tape, said web being designed to contact with the friction-roller, whereby to press the sticks tightly against the tape in being wound upon the spool.

9. In a machine for bunching match-sticks, a hopper, a feed-roller, and a bunching-spool, in combination with a plurality of sprocket-wheels located below the feed-roller and having peripheral indentations, and sprocket chains having on one side projections engaging the said indentations, and on the opposite side like projections for feeding the sticks from the feed-roller to the bunching-spool.

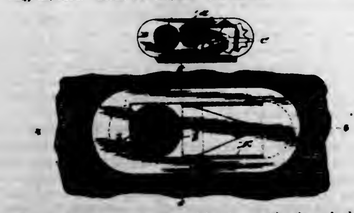
489,753. DRAFT-EVENER. LUCIUS A. MCGILVRA, Baraboo, Wis. Filed Oct. 10, 1892. Serial No. 448,403. (No model.)



Claim.—1. The combination of a pole, draft bars pivotally supported thereon, an adjustable frame to the rear of the bars consisting of a lower and an upper plate having extended ends, clamps which encircle the said plate ends and also the pole, a pulley within the frame, and a chain passing around the pulley and secured at its ends to the respective bars, substantially as shown and described.

2. In a draft evener, the combination of a pole, bars pivotally mounted thereon, a frame to the rear of the bars on the pole consisting of a flat under plate having extended ends, an arched upper plate having extended ends which are turned slightly upward at their extremities, clamps encircling the extended ends of the plates and the pole, a pulley within the arch between the plates, and a chain which passes around the pulley and which is secured at its ends to the respective bars, substantially as shown and described.

489,754. BEE-ESCAPE. RUFUS PORTER, Lewistown, Ill. Filed Aug. 22, 1891. Serial No. 403,399. (No model.)



Claim.—1. A bee escape comprising in combination a body having an opening in its top to register with an opening in the escape board whereby it is adapted to communicate with the super and open it at its end to adapt it to communicate with the brood chamber, said body providing a passage way between the super and brood chamber, and a guard of spring metal arranged in said passage way with the movable portion thereof normally out of contact with the top and bottom of the passage way, and adapted to yield laterally to the pressure exerted thereon by the escaping bees and by its resiliency to close the passage against their return, substantially as described.

2. A bee escape comprising in combination a body having a passage whose ends open outside the body and a spring guard piece arranged in said passage and having one end thereof secured to a flexible, inelastic part of the structure and its opposite end free, whereby by bending said flexible part the free end will be adjusted to vary the size of the passage, substantially as described.

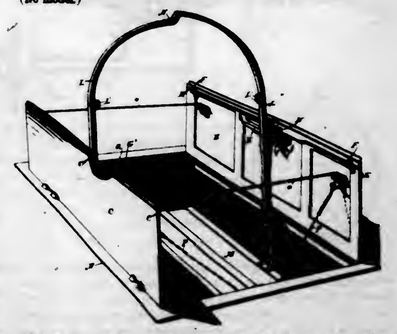
3. A bee escape comprising in combination a body having an opening in its top to register with an opening in the escape board whereby it is adapted to communicate with the super, and open at its end to adapt it to communicate with the brood chamber, said body providing a passage way between the super and brood chamber, and said passage having placed therein a laterally yielding resilient guard piece, the movable portion whereof is normally out of contact with all fixed parts of the structure whereby clogging of the guard piece with deposits made by the bees is avoided, substantially as described.

4. A bee escape having a passage way adapted to communicate at one end with the super and at the other with the brood chamber, a spring guard piece arranged in said passage way and a chamber underneath the entrance to said passage way and at a lower level than the floor of the passage whereby clogging of the passage way with dead bees is avoided, substantially as described.

5. A bee escape comprising in combination a passage way adapted to communicate at one end with the super and at the other end with the brood chamber, and a guard of spring metal arranged in said passage way and having one end thereof secured to a flexible, inelastic part of the structure and its opposite end free, whereby by bending said flexible part the free end may be adjusted to vary the size of the passage, substantially as described.

6. A bee escape comprising in combination a supporting plate having an aperture therein, a shallow open ended metallic body secured to the under side of said supporting plate and forming a passage way, spring guard pieces arranged therein, and an outer box-like body having one open end and secured to the supporting plate around the body containing the guard pieces and closing one end of said passage way, substantially as described.

489,755. ELEVATOR-HATCHWAY ATTACHMENT. CHARLES M. PREVEAR, San Francisco, Cal. Filed Oct. 13, 1892. Serial No. 448,789. (No model.)

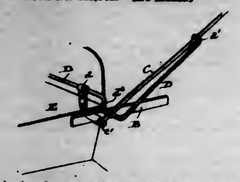


Claim.—1. An elevator hatchway having the two part doors hinged to opposite sides so as to close with the meeting edge of one overlapping the other, an angle iron bar secured along the edge of the lowermost door, and movable therewith, longitudinally sliding bolts mounted along the edge of the other door, sockets in the hatchway frame, into which the ends of the bolts enter to lock the doors, a yoke to which the inner ends of the bolts are connected and a weighted lever so as to automatically actuate the bolts, and lock the doors after they are closed substantially as described.

2. In an elevator hatchway having the two-part doors hinged to opposite sides and adapted to close with the meeting edge of one overlapping the other, the combination of the slidable bolts mounted on one of said doors and adapted to engage sockets in the hatchway frame, an oscillatory yoke with which the inner ends of the bolts are connected, and a weighted lever connected with the yoke, a bail fixed to the elevator platform, having an offset at the top, whereby the lever is first moved as the bail rises to release the bolts and allow the doors to be opened, substantially as herein described.

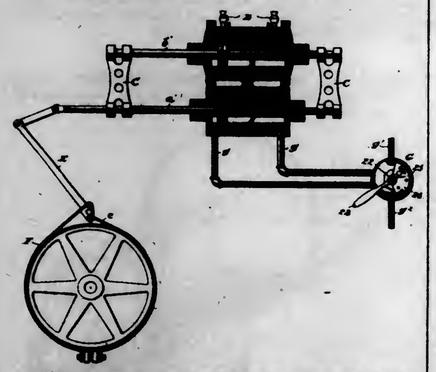
3. In an elevator hatchway, the combination with hinged doors overlapping each other at their meeting edges, and the locking bolt mechanism, of the bail or arch extending upward above the elevator platform to engage and operate the locking bolt mechanism, said bail being made in separable sections jointed together, with the upper arched portion movable to have a clear opening, and means for uniting and locking the parts together, substantially as herein described.

489,756. DEVICE FOR OPERATING VEHICLE-TOPS. BERT C. RADER, GEORGE RADER, and WALTER J. KELLY, Milwaukee, Wis. Filed July 18, 1892. Serial No. 440,902. (No model.)



Claim.—A device for operating vehicle tops, comprising a rock shaft adapted to be journaled transversely upon the vehicle body, rock arms or levers extending from opposite ends of the said shaft and adapted for operative engagement with the top braces at opposite sides of the vehicle top, the ends of the rock shaft being further provided with laterally bent portions adapted to move downward below the level of the pivotal connections of the braces with the vehicle body when the top is lowered, and an operating lever or handle secured to the rock shaft for actuating the latter, substantially as described.

489,757. GOVERNOR FOR STEAM-BRAKES. BERNARD T. KELLY, Ashley, Pa., assignor of one-half to Morris R. Johnson, same place. Filed Sept. 30, 1892. Serial No. 446,956. (No model.)

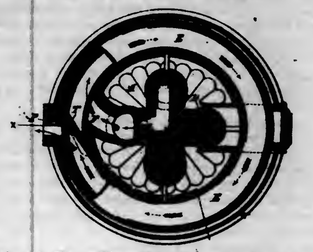


Claim.—1. The combination with a steam cylinder and its piston and piston rod, of an air cylinder, a piston in the air cylinder connected with the piston rod of the steam cylinder, inlet valves for the air cylinder communicating with the atmosphere, spring pressed outlet valves for said cylinder also communicating with the atmosphere and means for varying the tension upon one or both of the outlet valve springs, substantially as described.

2. The valve device for air cylinders consisting of the casing attached to the cylinder and communicating with the cylinder and with the atmosphere, the spring pressed inlet valve, the branch tube provided with a seat for the outlet valve, an outlet opening and a screw threaded cap, the valve having a stem extending through the cap, and the spiral spring surrounding the stem between the valve and cap, substantially as described.

3. The combination with a brake of a steam cylinder having a piston connected with the brake, a hand valve for regulating the supply and exhaust of said cylinder, an air cylinder having its piston also connected with the brake, inlet and outlet ports for the air cylinder communicating with the atmosphere, spring-pressed valves for said ports— and means for varying the pressure upon the outlet valves, substantially as described.

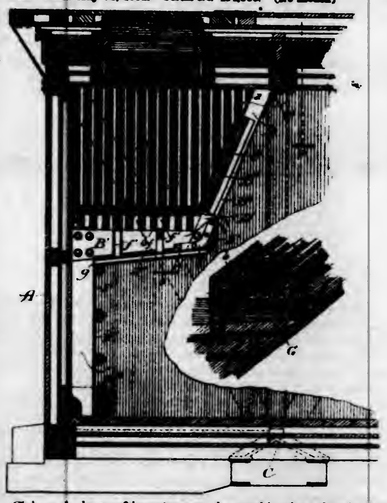
489,758. FURNACE. JEREMIAH J. RIBBARDSON, New York, N. Y. Filed Apr. 5, 1892. Serial No. 427,921. (No model.)



Claim.—1. The radiator E having rounded exterior surfaces above, below and at the sides in combination with the centrally located pipes or legs D and the crown flue F connecting the said pipes D with the radiator E as and for the purposes set forth.

2. The combination of radiator E having plate or partition T, the crown flue F, the legs or pipes D and the dome A having the discharge tubes C, as and for the purposes set forth.

489,759. REFRIGERATOR-CAR. GEORGE B. ROBBINS, Hinsdale, Ill. Filed May 31, 1892. Serial No. 434,963. (No model.)



Claim.—1. In a refrigerator car, the combination of an ice box provided with air openings at points at or near the top and bottom of its inner side, a pan beneath such box, and a flue connecting with such box and opening at a point near the floor of the car, whereby a thorough circulation of air through the car is insured under all circumstances, substantially as described.

2. In a refrigerator car, an elevated ice box located at one end of the car and provided with an air entrance opening directly into the car at a point near its top, and with two air discharge openings, one of such openings being located at a point near the bottom of the car, and the other at a point near the bottom of the box, the latter opening admitting air to the car both above and beneath such bottom, substantially as described.

3. In a refrigerator car, the combination of an ice box located at the end of the car at a point near the roof, leaving storage space beneath such box, and having a solid front provided with an entrance opening near its top and a discharge opening near its bottom, a pan placed beneath the box, and a flue leading from such pan and opening at a point near the bottom of the car, substantially as described.

4. In a refrigerator car, an elevated ice box supported in great part by the roof timbers at a point directly above the car transom, whereby the greater part of the weight of such box and its contents is supported by the transom and racking of the car prevented, substantially as described.

5. In a refrigerator car, an elevated ice box provided with a slatted bottom, an opening in the roof of the car above such box, an inclined pan beneath the box, a flue leading downward from such pan and opening at a point near the bottom of the car, and openings in the solid front of such box at points respectively near the top and bottom thereof, substantially as described.

6. In a refrigerator car, the combination of an ice box provided with a slatted bottom, an inclined pan supported beneath such box, a flue leading downward from such pan and opening near the bottom of the car, an entrance opening into the ice box at a point near the car roof, and a second opening into the box also communicating with the pan, whereby a thorough circulation of air is insured, substantially as described.

489,760. WASHING-MACHINE. MILLER ROBBINS, Poplar Bluff, Mo. Filed Feb. 20, 1892. Serial No. 422,917. (No model.)



Claim.—In a washing machine, the combination with the suds box, the sliding spring actuated scrubber 18, and the carved rubber provided with the sides 13, and the rollers 14, journaled therein, of the drum journaled in the suds box, having a solid periphery with peripheral grooves, radial arms, and open ends, and the cord located in said grooves, substantially as described.

489,761. DETONATING COMPOUND. SAMUEL RODGERS, San Francisco, Cal., assignor to the American Cap Company, same place. Filed Jan. 15, 1892. Serial No. 418,181. (No specimens.)



Claim.—A detonating compound consisting of picrate of potash, chlorate of potash, extract of logwood, and a gallotannic ink, substantially in the proportions herein described.

489,762. GAS COOKING APPARATUS. JOHN RITTNER, Topeka, Kans. Filed Aug. 4, 1892. Serial No. 442,155. (No model.)



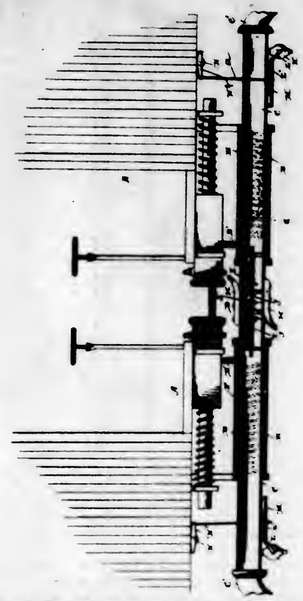
Claim.—1. In a gas cooking and heating apparatus, the combination with the case having the gas chamber therein, and means for producing gas in said chamber, of the swinging cooking and heating attachment hinged to said case, and forming when closed a part thereof, said attachment receiving its supply of fuel from said gas chamber, substantially as specified.

2. In a gas cooking and heating apparatus, the combination with the case having a gas reservoir in its interior, of the swinging cooking attachment hinged to said case, and forming a part thereof when closed, said attachment having the swinging burner plate, drip plate and support, and the burner pipe and burners, substantially as specified.

3. In a gas cooking and heating apparatus, the combination with the case, of the swinging cooking attachment hinged to and forming a part of said case when closed thereagainst, said attachment having the burner pipe and burners, the burner plate, the drip plate, and the shelf or support, substantially as specified.

4. In a gas cooking and heating apparatus, the combination with the case forming a gas reservoir, of the swinging cooking attachment hinged to said case and forming a part thereof when closed thereagainst, the burners and folding supports carried by said attachment, and means for measuring the gas entering said reservoir, substantially as specified.

489,763. AIR-BRAKE COUPLING. LEONIDAS SEBASTY and THOMAS F. ARNETT, Russell, Ky., assignors of one-half to Clarence C. Talley and Chapman Cobbs, same place. Filed May 13, 1892. Serial No. 432,782. (No model.)



Claim.—1. The combination with the adjacent cars, pipe sections depending therefrom, and air pipes adapted to move longitudinally in said pipe sections, of relief valves on said air pipes, and a means for automatically opening the said valves when the air pipes are moved longitudinally, substantially as shown and described

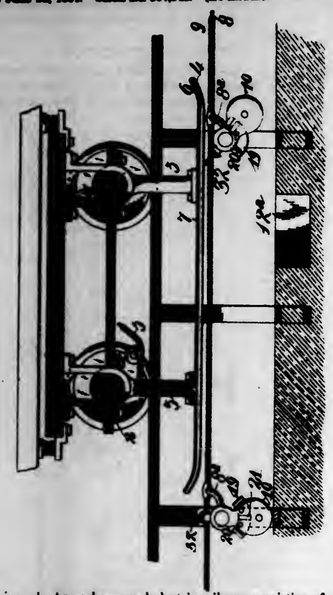
2. The combination with the adjacent cars, pipe sections depending therefrom, and air pipes adapted to move longitudinally in said pipe sections, of relief valves on the rear ends of said air pipes, and a suitable connection between the said valves and the rear end of the depending pipe sections, whereby when the air pipes are moved forward the valves will be opened, substantially as shown and described.

3. The combination with the adjacent cars, pipe sections depending therefrom and forwardly moving air pipes in said pipe sections, of relief valves on the rear ends of said air pipes, cranks projecting from the stems of the said valves, forwardly extending rods secured to the said cranks and which when raised are adapted to engage the said pipe sections, and a means for raising the said rods, substantially as shown and described.

4. The combination with the adjacent cars and forwardly moving spring actuated air pipes in said pipe sections, of relief valves on the rear ends of said air pipes, cranks projecting from the stems of said valves, rods pivotally secured to the said cranks and which project forward to engage the said depending pipe sections when raised, and a rock shaft for raising the said rods, substantially as shown and described.

5. The combination of the adjacent cars, pipe sections depending therefrom, spring actuated air pipes adapted to move in said pipe sections, a means for partially turning the said pipes in their forward movement, a suitable coupling for said pipes, valves in the ends of the air pipes, valves depending from the rear ends of the air pipes, and a means for automatically opening the said valves when the air pipes are moved forward in the depending pipe sections, substantially as shown and described.

489,764. UNDERGROUND ELECTRIC RAILWAY. JAMES B. SHELBOY, DANIEL J. HERRARD, and GEORGE L. VAN BUSH, St. Louis, Mo. Filed June 30, 1891. Serial No. 397,543. (No model.)



Claim.—1. An underground electric railway, consisting of a motor-car, supports secured to the truck-frame of said car, a contact-plate secured to said supports and adapted to travel in the subway, a series of swinging or pendulum-like switches located in the subway, and in electrical connection with an insulated main supply-conductor, said switches adapted to be engaged only at their free ends and operated by said contact-plate, whereby electrical connection is made between said main supply-conductor and the motor.

2. In an underground electric railway, a main supply-conductor, and a pivoted switch provided with an exposed flexible contact, and consisting of a hermetically sealed box, with contacts located therein, so devised that when said switch is actuated said exposed contact is thrown into electrical connection with the main supply-conductor.

3. In an underground electric railway, a main supply-conductor, a pivoted switch provided with an exposed contact, and consisting of a hermetically sealed box with contacts therein so located that when said switch is in its normal position said exposed contact is out of circuit with the main supply conductor, but said exposed contact is brought into electrical connection with the main supply-conductor, when said switch is actuated.

4. In an underground electric railway, a main supply-conductor, a contact-plate carried by a motor-car, a pivoted switch provided with an exposed flexible contact, and consisting of a hermetically sealed box, with contacts therein so located that when said switch is in its normal position, the exposed flexible contact is out of circuit with the main conductor, but said flexible contact is brought into electrical connection, when said switch is actuated by said contact plate.

489,765. CAR-COUPLING. EDWARD A. SHIPMAN, Chicago, Ill. Filed Apr. 5, 1892. Serial No. 427,857. (No model.)

Claim.—1. The combination with a draw-head, of a coupling-plate, fulcrumed to the draw-head, and consisting of a metal plate having a rounded tapering outer end, and an elongated coupling pin-hole, substantially as described.

2. The combination in a car-coupling of the draw-head having a pin-hole surrounded with an annular collar, formed with a slot extending partially across it at the base, of a stop-plate mounted on an arbor in the draw-head, a spring to hold the stop-plate in the said slot, and an arm on said arbor in the draw-head, whereby the stop-plate may be moved from the slot, substantially as described.

3. In combination, the draw-bar and head, formed with a flaring mouth-piece at one side, and extending portions reaching front of the mouth, a coupling-plate fulcrumed in the said extensions, and a spring at the rear of the coupling-plate to hold it from turning too far inward, substantially as described.



4. In a car-coupling, the combination of the draw-head and bar formed with the laterally-projecting mouth-piece, and lengthened coupling portions, and the coupling-plate 1, pivotally mounted between the lengthened portions, substantially as described.

5. The coupling-plate herein-described consisting of a metal plate having a tapering outer end provided with a centrally located elongated coupling pin-hole, and a bolt-hole at its rear-portion having its center located outside of the center of the coupling pin-hole as specified.

6. In a car-coupling, the combination with the draw-head having extensions reaching in advance of the mouth, of a coupling-plate fulcrumed on the extension, the said fulcrum being exterior of the center of the line of draft of the draw-head, and a holding means to keep the coupling-plate from turning inward, substantially as described.

7. In combination with the draw-head and coupling-pin, of the vertically movable bar formed with a cross-head, levers fulcrumed on the car to engage with one of the respective ends of the cross-head, and rods to operate the levers, whereby the bar is raised and the pin lifted as specified.

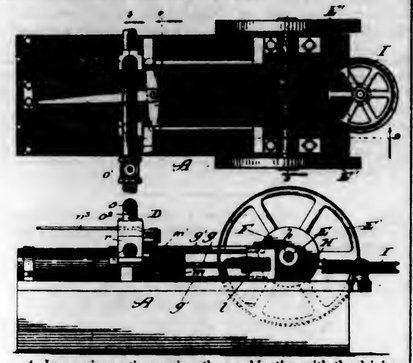
8. In a car-coupling a draw-head formed with top and bottom plates extending beyond the mouth of the draw-head, and a coupling-plate pivotally supported between said plates whereby the coupling-plate is held in horizontal direction from dropping downward.

489,766. RECIPROCATING ENGINE. DAVID J. SMITH, Chicago, Ill., assignor of one-half to George D. Turner, same place. Filed June 13, 1892. Serial No. 436,622. (No model.)

Claim.—1. In a reciprocating engine, the combination with the driving-shaft of a clutch on the shaft at each side of its longitudinal center, a cable passing toward opposite ends with one or more corresponding turns about each clutch, piston-mechanism having the cable-ends connected therewith to be pulled alternately at opposite ends by successive piston strokes, and being provided with suitable valve-mechanism for controlling the supply to and exhaust from the piston-mechanism, and a guide for the cable, substantially as described.

2. In a reciprocating engine, the combination with the driving-shaft of a clutch on the shaft at each side of its longitudinal center and correspondingly operative to engage the shaft, a cable passing toward opposite ends with one or more corresponding turns about each clutch, a pair of cylinders provided with suitable valve-mechanism for controlling the supply and exhaust and each having its piston connected with one end of the cable, and a guide at the opposite side of the shaft from the piston-mechanism and about which the cable passes to the shaft, substantially as described.

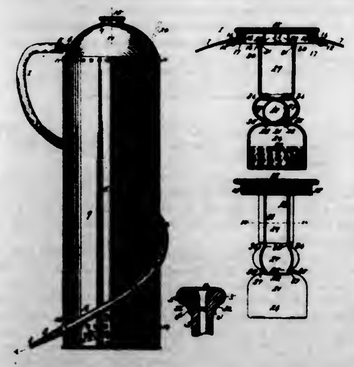
3. In a reciprocating engine, the combination with the driving-shaft of a clutch on the shaft at each side of its longitudinal center and correspondingly operative to engage the shaft, a cable passing toward opposite ends with one or more corresponding turns about each clutch-sleeve, a pair of cylinders provided with suitable valve-mechanism for controlling the supply and exhaust and each having a cross-head on the outer end of its piston-rod connected with one end of the cable, guides for the cross-heads, and a guide at the opposite side of the shaft from the piston-mechanism and about which the cable passes to the shaft, substantially as described.



4. In a reciprocating engine, the combination with the driving-shaft of a clutch on the shaft at each side of its longitudinal center and correspondingly operative to engage the shaft, a cable passing toward opposite ends with one or more corresponding turns about each clutch, a pair of cylinders each having a cross-head on the outer end of its piston-rod connected with one end of the cable, and guides for the cross-heads, a guide at the opposite side of the shaft from the piston-mechanism and about which the cable passes to the shaft, said cylinder being provided with valve-mechanism for controlling the supply to and exhaust from the cylinders and extended into the path of the cross-heads to be operated thereby, substantially as described.

5. In a reciprocating engine, the combination with the driving-shaft of a clutch on the shaft at each side of its longitudinal center and comprising a cog-wheel *k* fast on the shaft, a sleeve *h* loose on the shaft and having a disk *h'* provided with a rim *i* and carrying a dog *k'* to engage the cog-wheel, a cable H passing toward opposite ends with one or more corresponding turns about each clutch-sleeve, a pair of cylinders B and C each having on the outer end of its rod *g* a cross-head *l* movable in guides *g'* and connected with one end of the cable, and a guide-pulley I at the opposite side of the shaft from the piston-mechanism and about which the cable passes to the shaft, said cylinder being provided with valve-mechanism D extended into the path of the cross-heads to be operated thereby, substantially as described.

489,767. FIRE-EXTINGUISHER. OMAR A. STRAPP, St. Louis, Mo., assignor of two-thirds to Joseph F. Wangler and Missouri Lamp and Manufacturing Co., same place. Filed Aug. 20, 1892. Serial No. 443,571. (No model.)



Claim.—1. In a fire extinguisher, the combination of the chemical bottle 21, having the acid or chemical tank 24 the break ball 28 deposited within said bottle and the stopper 32; substantially as described.

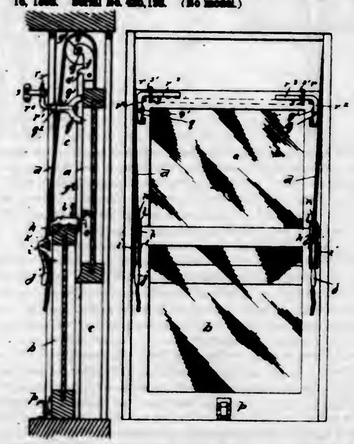
2. In a fire extinguisher, the combination of the body of the apparatus 1, having the cap 15, the chemical bottle 21 suspended from said cap, and having the acid or chemical depository tank 24, the stopper 32 and the break ball 28; substantially as described.

3. In a fire extinguisher, the combination of the body of the apparatus, having the cap 15, the chemical bottle 21, having the chemical depository tank 24 and the globular gullet 27, the break ball normally reposing in said gullet, the pendent clutch yokes 22, secured to said cap and that hold said chemical bottle, and the stopper 32; substantially as described.

4. In a fire extinguisher, the combination of the body of the apparatus having the cap 15, the pendent yokes 22, secured to said cap, the said yokes having the curvilinear holds 36 and 37, the pendent chemical bottle 21, the said bottle having the depository tank 24, the contracted throat 26, the globular gullet 27 and the surmounting neck 29, the break ball 28 and the break stopper 32; substantially as described.

5. In a fire extinguisher, the combination of the body of the apparatus, having the screw cap 15, the hose 2, the nozzle 3, the cap 4 that covers the mouth of said nozzle, the pendent yokes 22, the chemical bottle 21 embraced and supported by said yokes, the chemical in said bottle, the liquid in said body of the apparatus, the break ball 28, and the break stopper 32; substantially as described.

489,768. SASH-FASTENER. ROBERT R. SWEENY, Jackson Centre, Ohio, assignor of one-half to John W. Bacon, same place. Filed Mar. 16, 1892. Serial No. 425,192. (No model.)

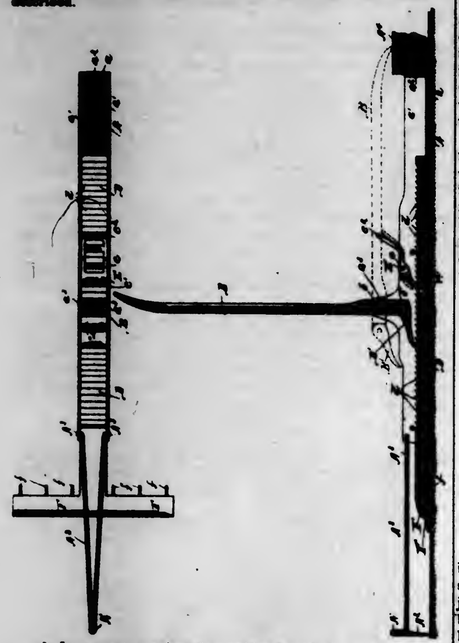


Claim.—The combination of the frame, the sashes, pulleys, L-shaped castings secured to the upper end of one sash and having the ears on their lower portions, clamping levers mounted between said ears, the upper portion of each casting formed tubular and containing a locking bolt, and the cords secured to one sash and passing over said pulleys and clamped between said locking levers and casting of the other sash, as described.

489,769. CARPET STRETCHER. SEPHEN TABER and JEREMIAH MURRAY, Chicago, Ill. Filed May 13, 1892. Serial No. 432,571. (No model.)

Claim.—1. In a carpet stretcher, the combination of a base, a rack sliding on the base, a lateral bar at the forward end of such rack, the under side of such lateral bar being inclined forward, so that the forward edge thereof is substantially in the plane of the bottom of the files, curved teeth extending downward and backward from the rear of such bar and adapted to grasp a carpet as such bar is moved forward, a lever pivoted above the rack to the base and a dog in such lever, the forward end of such dog engaging with the teeth in the rack when the lever is raised from a horizontal position, a second dog pivoted in the base back of the pivotal point of the lever, such second dog being adapted to engage at one end with the teeth in the rack, and at the other end with the pivoted lever when such lever is

brought into a substantially horizontal position, and both dogs thereby freed from engagement with the teeth of the rack; substantially as described.



2. In a carpet stretcher, the combination of a base, an anchor extending outward and forward from the base, a rack sliding on the base, a lateral bar at the forward end of such rack, the under side of such lateral bar being inclined forward, so that the forward edge thereof is substantially in the plane of the bottom of the base, curved teeth extending downward and forward from the rear of such bar and adapted to grasp a carpet as such bar is moved forward, a lever pivoted above the rack to the base and a dog in such lever, the forward end of such dog engaging with the teeth in the rack when the lever is raised from a horizontal position, a second dog pivoted in the base back of the pivotal point of the lever, such second dog being adapted to engage at one end with the teeth in the rack, and at the other end with the pivoted lever when such lever is brought into a substantially horizontal position, and both dogs thereby freed from engagement with the teeth of the rack; substantially as described.

3. In a carpet stretcher a comb consisting of a lateral bar rigidly secured at the forward end of a rack bar, with curved teeth extending downward and forward from the rear of the lateral bar to about the plane of the front edge thereof, such front edge being forward of the points of the curved teeth, with the under side of such lateral bar inclined forward so as to leave sufficient space between the points of the teeth, at such points, and the lateral bar, to engage with a carpet, substantially as described.

489,770. CAR-COUPLING. WILLIAM J. WALKER and LOUIS HARNEMANN, St. Louis, Mo. Filed July 30, 1892. Serial No. 441,066. (No model.)

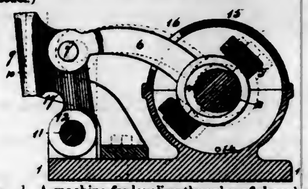


Claim.—1. A car coupler of the class described, having a vertically operating locking device pivoted within the drawhead intermediate of its length, the forward end of which is adapted to be interposed between the flat surface of the tail end of the hook, and the solid inner wall of the drawhead, a chain or other like device attached to the rear inner end of the said locking device and passing through a hole in the bottom of the drawhead, and means for operating said chain, substantially as described.

2. A car coupler of the class described, comprising a drawhead, a hook pivoted to the same, a cavity formed in the top of the said drawhead and in communication with the interior of the same, a locking device pivoted intermediate of its length the forward end of which is adapted to be interposed between the flat surface of the tail end of the hook and the solid inner wall of the drawhead, and means attached to the rear inner end of the said locking device and passing through a hole in the bottom of the coupler, substantially as described.

3. A car coupler consisting of a draw head and knuckle, a cavity formed in the top of the said drawhead, a locking device pivoted intermediate of its length the forward end of which is adapted to be interposed between the tail end of the knuckle and the drawhead, a rearward extension 14, formed on the said locking device, a shaft 15, having a bent end 16, a chain 18, connecting the locking device with the end of the said shaft, an arm 21, fixed to the said shaft, and a chain 22, connecting the said arm with the said knuckle, for opening the same substantially as described.

489,771. SOLE-LEVELING MACHINE. STILLMAN A. WHIT and FRED L. CLARK, St. Louis, Mo. Filed Dec. 16, 1891. Serial No. 415,286. (No model.)



Claim.—1. A machine for leveling the soles of shoes by hammering comprising a base-plate, a shaft, an eccentric mounted upon the shaft, a yoke mounted upon the eccentric having a forwardly projecting arm, an upwardly projecting oscillating arm pivoted to the base plate and connected with the forwardly projecting arm, and a hammer upon one of the arms; substantially as described.

2. A machine for leveling the soles of shoes by hammering comprising a base plate, a shaft, an eccentric mounted upon the shaft, a yoke mounted upon the eccentric having a forwardly projecting arm, an upwardly projecting oscillating arm pivoted to the base plate and connected with the forwardly projecting arm, a hammer upon one of the arms, and a rest adjacent to the hammer; substantially as described.

3. A machine for leveling the soles of shoes by hammering comprising a base plate, a shaft, an eccentric mounted upon the shaft, a yoke mounted upon the eccentric, having a forwardly projecting arm, an upwardly projecting oscillating arm pivoted to the base plate and connected with the forwardly projecting arm, a hammer upon one of the arms, having an upright face, and a rest, adjacent to the hammer, having an upright edge, substantially as described.

4. A machine for leveling the soles of shoes by hammering comprising a base plate, a shaft, a forwardly projecting arm, an upwardly projecting oscillating arm pivoted to the base plate and connected with the forwardly projecting arm, a hammer upon one of the arms, and means connected with the forwardly projecting arm and with the shaft by which the shaft is coupled with the forwardly projecting arm to oscillate the latter; substantially as described.

5. The combination of the base-plate, the inclosing case having an arm-opening, the shaft, an eccentric upon the shaft, a yoke, upon the eccentric, having an arm, an oscillating arm connected with the yoke, a hammer, and a rest; substantially as described.

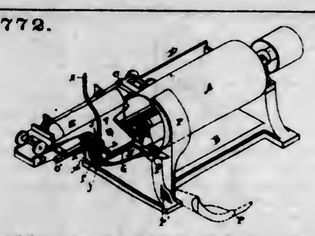
489,772. STAVE-SAWING MACHINE. BAXTER D. WHITNEY, Winchendon, Mass. Filed Mar. 22, 1892. Serial No. 426,011. (No model.)

Claim.—1. A set gage consisting of an adjustably secured base plate G with a retreating fence F adapted to slide thereon, a latch J holding the same in position for use and a lever H adapted to disengage said latch and move the fence F, substantially as and for the purpose set forth.

2. A stave receiver or clearance trough extending downwardly or in the general course of the interior of the saw barrel a sufficient distance to permit staves of the greatest width the saw can cut, to drop laterally and downwardly in an edgewise position entirely clear of the set gage before they are withdrawn from the saw, the same being constructed and applied substantially as shown and described.

3. The combination with a tubular saw, of a stave receiver or clearance trough extending downwardly or in the general course of the interior of the saw barrel a sufficient distance to permit staves of the greatest width to drop laterally and downwardly in an edgewise position entirely clear of the set gage and the guard or feeder P for avoiding accidental contact with the teeth of the saw, together with a bolt P' and a pin P'', by means of which said guard or feeder is pivotally attached to the frame, substantially as described.

489,772.



489,773. PACKING VESSEL OR JAR. ROBERT S. WIEMERSLAGE, Baltimore, Md. Filed Apr. 13, 1892. Serial No. 428,894. (No model.)



Claim.—1. A packing vessel having a groove in the end face of its head, in combination with a cap or cover provided with a packing disk and a flexible flange or flanges on its lower surface to engage said groove.

2. A packing vessel having an annular groove in the end face of its head provided with an angular outer wall, in combination with a metallic cap or cover provided with a packing-disk and a flexible flange constructed to enter said groove and impinge against said outer wall.

3. A packing vessel having an annular groove in the end face of its head provided with inwardly inclined walls and a curved bottom, in combination with a cap or cover having a packing-disk, and a flexible flange engaging the walls of said groove.

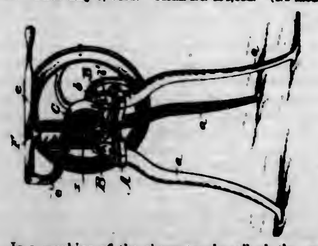
4. A cover for packing vessels, consisting of a packing disk partly incased in metal, and provided with a flexible vertical flange on its under side.

5. A cover for packing vessels consisting of a packing-disk partly incased in sheet metal, said casing being provided with a vertical flexible flange and an annular bearing surface outside of the flange.

6. A packing vessel having a groove in the end face of its head and an annular projecting seat on the inner side of said groove, in combination with a metallic cap or cover having a flexible flange on its under side, and a packing disk within said flange.

7. A packing vessel having a groove in the end face of its head and annular seats on both sides of said groove, the inner one of which projects beyond the plane of the outer seat, in combination with a cap or cover inclosing a packing disk to engage the inner seat, and provided with a vertical flexible flange, and an annular bearing surface outside the flange to engage the outer seat.

489,774. MACHINE FOR CUTTING BONES. JAMES R. WILSON, Easton, Pa. Filed May 3, 1892. Serial No. 431,632. (No model.)

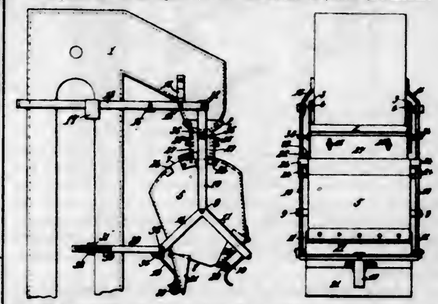


Claim.—In a machine of the character described, the combination of a fixed shell or casing open at one end, a rotatable cutting cylinder arranged within the shell, a hopper carried by and communicating with the interior of the fixed shell, an arm attached to the hopper and extending laterally and upwardly therefrom, a lever fulcrumed on said arm and extending across the upper open end of the hopper, a rod pivotally connected to said lever and having its lower portion threaded, a head screwed on said rod and fitting snugly within the hopper and an adjusting nut arranged on the rod above the head, substantially as described.

489,775. COMPOUND FOR INCREASING THE YIELD OF BUTTER FROM MILK. SAMUEL C. WILSON, Alpha, Ill. Filed June 7, 1892. Serial No. 436,015. (No specimens.)

Claim.—A compound for the purpose described, consisting of pepsin, gum-arabic and alum, substantially as specified.

489,776. GRAIN-METER. JACOB O. WYMAN and OLE L. BOOM, Fargo, N. D. Filed Apr. 30, 1892. Serial No. 430,711. (No model.)



Claim.—1. The combination with a grain elevator, and a hopper adjustably suspended from the discharge portion of said elevator and in communication therewith, of an adjustable oscillatory and vertically movable measuring bucket suspended beneath and communicating with said hopper, a locking plate or projection secured to and moving with the bucket, and a stationary locking lug projecting from one of the suspending bars of the hopper and adapted to be engaged on its opposite sides by the locking plate on the bucket to hold said bucket in position until filled, substantially as described.

2. The combination with a grain elevator, of a hopper provided with vertical bars or hangers by which it is adjustably suspended beneath the discharge portion of the elevator, an oscillatory and vertically movable measuring bucket suspended beneath and communicating with said hopper, vertical bars or hangers provided with centers or pivots for the measuring bucket and having vertical slots to engage pins on the hopper, horizontally arranged weighted levers fulcrumed on the elevator and to which the said suspending bars of the measuring bucket are attached, and slotted adjusting bars or rods connecting the suspending bars or hangers of the measuring bucket to the elevator frame and provided with thumb-screws for securing the hopper and measuring bucket in their adjusted positions, substantially as described.

3. The combination with a hopper provided on opposite sides with vertically adjustable slides, of an oscillatory measuring bucket suspended beneath said hopper and having a central partition provided at its upper end with a vertically adjustable regulating slide to co-operate with the slides on the hopper for varying the capacity of the measuring bucket, substantially as described.

4. The combination with a grain elevator having a rounded or convexed discharge portion, of an adjustable hopper suspended beneath the discharge portion of said elevator and provided with a rounded or concaved inlet, and an oscillatory and vertically movable measuring bucket adjustably suspended beneath said hopper, substantially as described.

5. The combination with a grain elevator, and a hopper adjustably suspended from the discharge portion of the elevator and provided with horizontally projecting pins and a stationary locking lug, of an oscillatory and vertically movable measuring bucket provided with suspending bars or hangers having vertical slots that engage the pins on the hopper, stop-lugs carried by said bucket to impinge on the suspending bars of the bucket and limit its oscillations, and a locking plate or projection attached to and moving with the bucket and adapted to alternately engage the opposite sides of the stationary locking lug on the hopper to hold the bucket in position while being filled, substantially as described.

6. The combination with the elevator and the weighted horizontally arranged levers fulcrumed thereon, of a hopper adjustably suspended from the discharge portion of the elevator, an oscillatory and

vertically movable measuring bucket provided with suspending bars or hangers depending from said weighted levers and provided with vertical slots to engage pins on the hopper, said measuring bucket having two compartments provided with inlet and outlet ports and automatically operated gates controlling the discharge from said outlet ports, automatic locking devices on the bucket and hopper to hold said bucket in an inclined position until the required quantity or weight of grain is received therein to overbalance the weighted levers from which the bucket is suspended, and adjusting bars or rods connected with the suspending bars of the bucket and with the elevator frame to secure the hopper and measuring bucket in vertical alignment irrespective of any deviation of the elevator from a perpendicular position, substantially as described.

489,777. CLIP FOR VEHICLES. HOWARD H. YOUNG, Alexandria, Va. Filed July 19, 1892. Serial No. 440,804. (No model.)



Claim.—1. A clip fastening composed of a bow having its members of unequal length, the longer member having an opening in a plane with the lower end of the shorter member, a yoke plate lying against the lower end of the shorter member and having on one end a projection to extend through the opening in the longer member and receive a fastening, and having at its opposite end an interlocking projection to engage with the shorter member of the bow, substantially as specified.

2. A clip fastening comprising a bow having its members of unequal length, and having a recess in the short member, and having an opening in the long member in a plane with the short member, and a yoke plate lying against the short member and having a vertical projection at one end to enter and interlock with the said recess, and having a projection at its opposite end to pass through the opening in the said long member and receive a fastening, substantially as set forth.

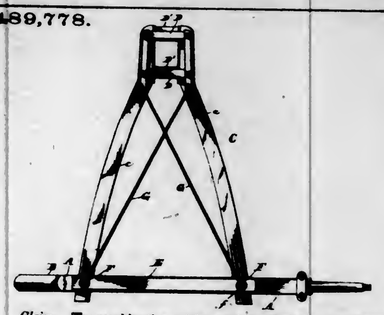
3. A clip fastening composed of a bow having a beveled extension on one of its members, a yoke plate having a projection at one end to interlock with one member of the bow, and having a projection at its opposite end to extend through an opening in the other member of said bow, said plate being constructed to ride upon said beveled extension to draw the parts together, and a fastening applied to the outer end of said projection which extends through a member of the bow to secure and draw the parts together, substantially as set forth.

4. In a clip fastening the combination with a bow having its members of unequal length, and having a dovetail recess in the shorter member, and having an oblong opening a in the other member, and having an inclined extension a^2 of said member, of a yoke plate having a dovetail projection at one end to enter said dovetail recess, and having its other end beveled to ride upon the beveled extension a^2, and having a projection b at said end to extend through the opening a and receive a fastening, substantially as described for the purpose set forth.

5. The combination with a bow having its members of unequal length, and having an extension on the shorter member constructed to form ears, and having recesses d in the opposing sides of said ears, and having a dovetail recess in the forward end of said extension D, and a thill iron having lateral extensions to enter said recesses d, of a yoke plate to close the lower open side of said extension D, and having a dove-tail projection at one end to enter said dovetail recess and having a projection at its rear or inner end to extend through an opening in the longer member and receive a fastening, substantially as set forth.

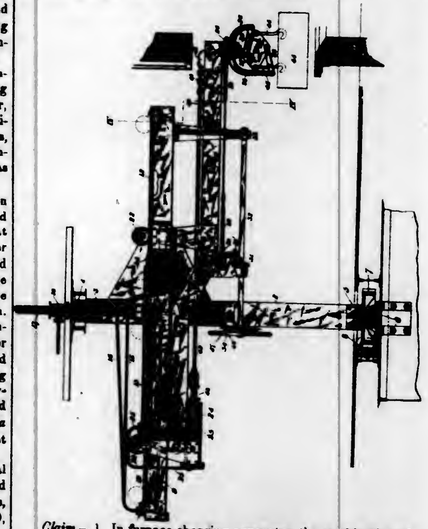
6. The combination with a bow having its rear member made longer than the front member, and provided with a beveled extension a^2, and having an oblong opening a, and having an extension D on its front member constructed to form ears and provided with recesses d in the opposing sides of said ears, and having dovetail recess d' of a yoke plate having dovetail projection b' at one end to enter said recess d', and having its rear end constructed to ride upon said beveled extension and provided with a projection b to extend through the opening a to receive a suitable fastening, substantially as set forth for the purpose described.

489,778. BRACE FOR VEHICLE-HOUNDS. JOSEPH ZOLLER, East Jordan, Mich. Filed June 30, 1891. Renewed Dec. 16, 1892. Serial No. 456,265. (No model.)



Claim.—The combination, with an axle and bolster, of the hounds having their side pieces connected near their outer ends to form a socket for the reach and the braces attached at one end to the under side of the axle and extending diagonally across the open space between the hounds and having their forward ends connected to the side pieces of the hounds, substantially as described.

489,779. CHARGING-CRANE. HENRY AIKEN, Pittsburg, Pa. Filed May 26, 1891. Serial No. 393,956. (No model.)



Claim.—1. In furnace-charging apparatus, the combination of a carrier, and a support carried pivotally by the carrier and adapted to uphold the charge, said support being rotatory within the furnace independently of the carrier on a vertical axis to distribute the charge in the furnace, and said carrier being constructed and adapted to enter the furnace door to bring the pivotal axis of the support within the furnace-door; substantially as and for the purposes described.

2. In a furnace-charging apparatus, the combination of a carrier, and a support carried pivotally by the carrier and adapted to uphold the charge, said support being rotatory within the furnace independently of the carrier on a vertical axis to distribute the charge in the furnace, and mechanism for rotating said support, said carrier being constructed and adapted to enter the furnace-door to bring the pivotal axis of the support within the furnace-door; substantially as and for the purposes described.

3. In furnace-charging apparatus, the combination of a carrier, a longitudinally-tipping support carried pivotally by the carrier and adapted to uphold the charge, said support being rotatory within the furnace independently of the carrier on a vertical axis to distribute the charge in the furnace, mechanism for rotating said mechanism for tipping said support, said carrier being constructed and adapted to enter the furnace-door to bring the pivotal axis of the support within the furnace-door; substantially as and for the purposes described.

4. In furnace-charging apparatus, the combination of a carrier adapted to enter the furnace, a box carried thereby and rotatory on a vertical axis independently of the carrier, and two suspending devices connected with the box, one of said suspending devices being movable vertically relatively to the other, whereby the box may be tipped; substantially as and for the purposes described.

5. In furnace-charging apparatus, the combination of a carrier adapted to enter the furnace, a box carried thereby and rotatory on a vertical axis independently of the carrier, two suspending devices connected with the box, one of said suspending devices being movable vertically relatively to the other, whereby the box may be tipped, and a hydraulic cylinder connected with the suspending devices and adapted to operate the same; substantially as and for the purposes described.

6. In furnace-charging apparatus, the combination with a carrier adapted to enter the furnace, of a support adapted to uphold and distribute the charge, mechanism for shifting the position of the same in the furnace, and an index adapted to denote the position of the box; substantially as and for the purposes described.

7. In furnace-charging apparatus, the combination with a carrier adapted to enter the furnace, of a yoke upheld thereby, a lever 35 connected with the yoke by arms and adapted to uphold a charging box, and means for moving said lever vertically; substantially as and for the purposes described.

8. In furnace-charging apparatus, the combination with a carrier adapted to enter the furnace, of a yoke rotatory on a vertical axis on the carrier, a lever connected with the yoke by arms and adapted to uphold a charging box, and a chain passing through the journal of the yoke and movable to actuate the lever; substantially as and for the purposes described.

9. In furnace-charging apparatus, the combination with a carrier adapted to enter the furnace, of a yoke upheld thereby, a lever 35 connected with the yoke by arms and adapted to uphold the charging box, means for moving said lever vertically and a chain connected with the yoke and adapted to rotate it; substantially as and for the purposes described.

10. A charge-supporting box having a door, a latch for holding the same, and suspending hooks, said latch being arranged in juxtaposition to one of the hooks and adapted to engage the same and to be tripped when the box is tilted; substantially as and for the purposes described.

11. In furnace-charging apparatus, the combination with a carrier adapted to enter the furnace, of a rotatory support adapted to uphold and distribute the charge, a wheel for rotating the same, a dial, and an index adapted to be engaged and moved by the wheel to indicate the position of the box; substantially as and for the purposes described.

12. In furnace-charging apparatus, the combination with a carrier adapted to enter the furnace, of a rotatory support adapted to distribute the charge, a dial having divisions in two reversely arranged series, and an index having oppositely projecting portions adapted to be engaged and moved on rotation of said support; substantially as and for the purposes described.

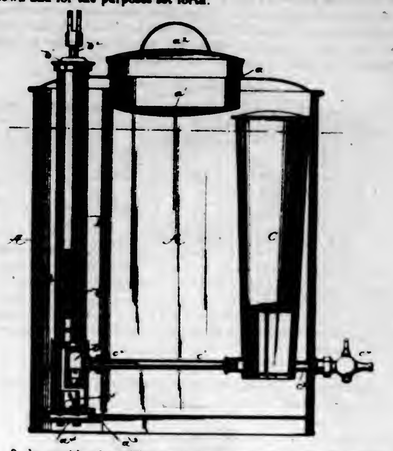
13. A charge-supporting box formed with two separated compartments, having intermediate studs situate below the top of the compartments, and adapted to be engaged by a suspending device; substantially as and for the purposes described.

14. In furnace-charging apparatus, the combination of a carrier adapted to enter a furnace-door, a support carried by the carrier and mounted pivotally on a vertical axis, mechanism adapted to rotate the support on its vertical axis, and mechanism adapted to tip the same; substantially as and for the purpose described.

489,780. PORTABLE SPRAYER. JAMES R. ALLISON, Washington, D. C. Filed Mar. 24, 1891. Serial No. 386,181. (No model.)

Claim.—1. In combination with a tank or reservoir, adapted to being supported and carried on the back and having a sealed opening in the bottom thereof, a pump, placed in alignment with said opening and provided at its lower end with a removable cylindrical valve cage provided with removable ball valve seats all the parts being located substantially as shown and described.

2. In combination with a tank or reservoir, adapted to being supported and carried on the back, having an enlarged opening provided with a strainer cap in its top and a sealed opening in its bottom, a pump, located in said reservoir above the sealed opening and provided at its lower end with a removable cylindrical valve cage said cage having removable valve seats and containing ball valves, and an air chamber located within said tank and provided with coupled supporting pipes communicating between the pump and said chamber and the chamber and escape cock, all substantially located as shown and for the purposes set forth.



3. In combination with a tank or reservoir adapted to being carried on and supported from the back and provided with a screened opening in its top and a sealed opening in its bottom, a pump located within said tank and an air-chamber located within said reservoir and placed relatively to said pump whereby the weight of the pump is counterbalanced and the tank prevented from tipping while the sprayer is in operation; said chamber being connected with said pump and the escape cock by means of suitable receiving and distributing ports or pipes, all substantially as shown and described.

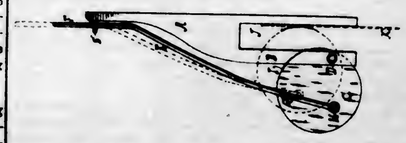
4. A pump having a cylindrical piston chamber and removable cylindrical valve chambers provided with removable valve seats and situated at one end of said piston chamber substantially as shown and described.

489,781. CLASP. WILLIAM W. ANDERSON, New York, N. Y. Filed May 14, 1892. Serial No. 433,016. (No model.)



Claim.—In a clasp the combination of a plate 1 having its front end turned up to form a jaw 20, its sides turned up to form ears 21 and ears 2 having bearings 3 at their upper outer corners, the spring actuated jaw 12 mounted in said ears 21, and operated by downward pressure on its rear end and the lever web-holder 4 mounted in said bearings 3 and having the end by which it is operated extending forward in proximity to the rear end of said jaw 12 and operated by upward pressure, substantially as set forth.

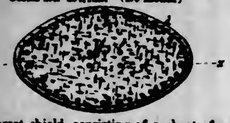
489,782. CLAMP. JOHN RAHRIG, Mount Vernon, N. Y. Filed Sept. 8, 1892. Serial No. 445,333. (No model.)



Claim.—1. The combination in a clamp, of a suitable block A having a breast J, a cam C pivoted to a part of the block opposite said breast for clamping an object between the latter and the cam, and a lengthwise movable rod E eccentrically connected with the cam for turning the latter, substantially as described.

2. The combination in a clamp, of a suitable block A having a breast J, legs B, and a guide S, a cam C pivoted between the legs at a point opposite the breast for clamping an object between the latter and the cam, and a lengthwise movable rod E eccentrically connected with the cam for turning the latter and extending through the said guide on the block, substantially as described.

489,783. CORSET-SHIELD. DAVID BARON, New York, N. Y. Filed May 24, 1892. Serial No. 434,122. (No model.)



Claim.—A corset shield, consisting of a sheet of cork surfaced on its opposite sides with elastic waterproof adhesive tissue, and a covering of elastic textile fabric connected with the opposite sides of the cork through the medium of the adhesive tissue, said shield being provided with ventilating orifices *f* and eyelet holes *s* which extend through the cork and textile fabric, substantially as and for the purposes described.

489,784. PIPE-UNION. JOHN T. BIRD, Tacoma, Wash. Filed Apr. 16, 1892. Serial No. 429,494. (No model.)



Claim.—1. The split pipe union having its ends overlapping, and the rod having its ends bent to form cranks and permanently journaled on one end of the union, the other end of the union being loosely and permanently secured to said rod between the cranks thereof, whereby the union is expanded or contracted as described by swinging said rod.

2. The expansible union having its ends overlapping and permanently secured together by an eccentric locking device composed of a crank shaft, the ends of which are journaled in the boxes on one end of the union, the other end of the union being bent loosely around the center of the shaft, the pipe ends and union having beads arranged to intermesh, as set forth.

489,785. HOISTING AND CONVEYING MACHINERY. FRANK G. BUSH, San Francisco, Cal., assignor of one-half to Louis Rosenfeld New York, N. Y. Filed Oct. 18, 1892. Serial No. 449,269. (No model.)

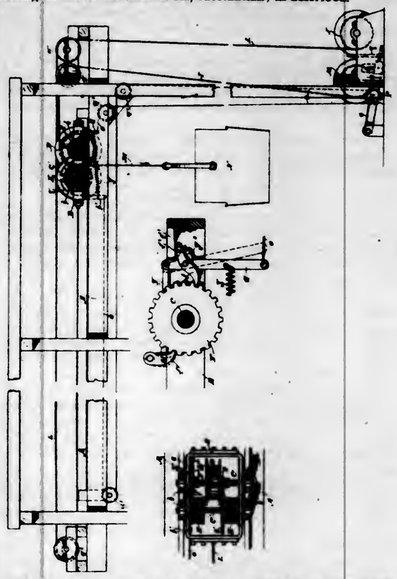
Claim.—1. In a hoisting and conveying apparatus, the combination of a traveling trolley having connected drums, from one of which the bucket or tub is suspended, a cable connected with the other drum for raising and lowering the bucket or tub and retracting the trolley, a cable connected with the trolley for advancing it, and power drums for operating said cables, substantially as described.

2. In a hoisting and conveying apparatus, the combination of a traveling trolley having connected drums, from one of which the bucket or tub is suspended, a cable connected with the other drum for raising and lowering the bucket or tub and retracting the trolley, a cable connected with the trolley for advancing it, power drums for operating said cables and means for locking and releasing the main drum of the trolley, substantially as described.

3. In a hoisting and conveying apparatus, the combination of a traveling trolley, the main drum D and the drum E mounted thereon, from the latter of which the bucket or tub is suspended, said drums being geared together, the cables I and L for operating the main drum and retracting and advancing the trolley, means for locking and releasing the main drum consisting of the ratchet wheel F, a pawl engaging said wheel and a cable for operating the pawl, and means for operating the cable, substantially as described.

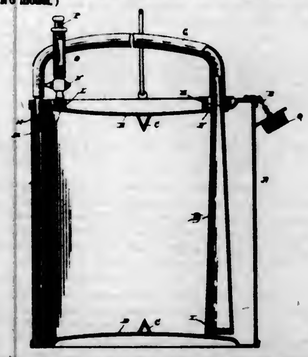
4. In a hoisting and conveying apparatus, the combination of a traveling trolley having the connected drums D and E from the latter of which the bucket or tub is suspended, the cables I and L for operating the drums and causing the travel of the trolley, and the means for locking and releasing the main drum, consisting of the ratchet wheel, the pawls *f* and *f'*, the lever G and connections for actuating the pawls, the cable O connected with the lever, and means for tightening and relieving the cable, substantially as described.

5. A hoisting and conveying apparatus consisting of a traveling trolley, the main drum D mounted on said trolley, means on the trolley for locking and relieving said drum, a hoisting and lowering drum E on the trolley and a cable suspending the bucket or tub therefrom, gearing between the drums on the trolley, independent stationary power drums, a cable connecting one of said drums with the main drum on the trolley, a cable connecting the other of said power drums with the trolley, and connections for operating the locking and releasing device of the main drum, substantially as described.



6. A hoisting and conveying apparatus consisting of the traveling trolley, the main drum D and drums E thereon, geared together, the cables suspending the bucket or tub from drums E, the ratchet wheel, spring-controlled pawls and lever G for locking and releasing the main drum, the cables I and L for operating the drums and causing the travel of the trolley, the power drums for operating said cables, the cable O for operating lever G, and the swinging pulley P and lever Q for tightening and relieving cable O, substantially as described.

489,786. OIL OR GASOLINE CAN. LEWIS S. BOSHBAKER, Dwight, Ill. Filed Apr. 2, 1891. Renewed Dec. 6, 1892. Serial No. 454,237. (No model.)



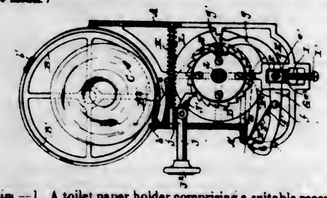
Claim.—1. The combination of the can, the cap screwed into the top thereof, the upwardly tapered discharge tube passing through and rigid with the cap and extending from near the bottom of the can to a point above the same, the waste pipe, the flexible pipe secured to the upper end of said discharge pipe, and the blow tube extending into the top of the can and provided with the stop cock, substantially as shown and described.

2. In an oil can having a screw threaded opening, an outlet tube which extends to near the lower end of the can and its upper end projecting through the upper end of the said can, a screw-threaded cap rigidly secured to the tube below its upper end, a flexible tube upon the extended outer end of the said tube, the can having an inlet opening, the parts combined substantially as specified.

3. In a can having an end which has its center convex on its inner face, and a V-shaped rib having a concave between its ends to fit the said convex face of the end, and which rib is rigidly secured thereto, substantially as described.

4. A can having an end with its central portion concaved inward, and a straight outer edge, and a V-shaped rib which has a concave between its ends to fit the inner convex surface of the said end, and the inner edges of the V rib made straight outside of its said concave to fit the straight outer edge of the end, the rib and the end being rigidly secured together, as shown, substantially as specified.

489,787. TOILET-PAPER HOLDER. PHILIP A. BOWEN, Milwaukee, Wis., assignor to Louis Ahrens, Cyrus B. Morehouse, and Leonard M. Morehouse, same place. Filed Mar. 26, 1892. Serial No. 426,673. (No model.)



Claim.—1. A toilet paper holder comprising a suitable receptacle for a roll of paper, feeding rollers between which the strip of paper is fed as it is unwound from said roll, a stationary jaw and a movable jaw between which the strip of paper is fed, means carried by one of said rollers for actuating the movable jaw to grasp the paper after a predetermined length of the same has been unwound, and means within the reach of the operator for actuating said movable jaw to release the paper, substantially as described.

2. A toilet paper holder comprising a suitable receptacle for a roll of paper, feeding rollers adapted to engage with a strip of paper as it is unwound from said roll, a stationary jaw and a movable jaw between which said strip is fed, a pivoted arm connected with said movable jaw, a pin carried by one of said rollers and adapted to engage with said arm to move said jaw toward the stationary jaw so as to grasp the paper, and a push rod extending to the outside of the device and adapted to move the said roller into a position to free the said arm from engagement with said pin, substantially as described.

3. A toilet paper holder, comprising a suitable receptacle for a roll of paper, two feeding rollers adapted to engage with the strip of paper as it is unwound from the roll, a stationary jaw and a movable jaw between which said strip is fed, arms pivoted to the casing or frame and serving as supports for said movable jaw, one of said arms being provided with an extension, a pin carried by one of the feeding rollers and adapted to engage with said extension of said arm to cause the arms to close the movable jaw upon the strip of paper, and a spring carried by said arms and adapted to engage with said strip immediately within the casing, substantially as described.

4. A toilet paper holder, comprising a suitable receptacle for a roll of paper, two feeding rollers adapted to engage with the strip of paper as it is unwound from said roll, a fixed jaw and a movable jaw between which said strip is fed, a lever for actuating said jaw to close it against the said strip, a pin carried by one of the feeding rollers and adapted to engage with said lever, ratchet teeth upon said roller and a push rod extending to the outside of the device and carrying a pawl adapted to engage with said teeth and adapted to be operated to free said pin from engagement with said lever, and a spring for normally extending said push rod, substantially as described.

489,788. SMOKELESS FURNACE. JAMES V. BUREN, Chicago, Ill. Filed Nov. 12, 1892. Serial No. 451,797. (No model.)

Claim.—1. The combination in an arched top furnace of the arched top 1, and side walls composed of an inner brick lining 11, horizontal plate 15, and vertical plates 12 and 13 having air ducts 19 between them, substantially as set forth.

2. The combination in an arched top furnace of the arched top 1, and the side walls composed of an inner brick lining 11, horizontal plate 15, and vertical plates 12, 13 and 14, having air ducts 19, 21, between them, substantially as set forth.

3. The combination in an arched top furnace of the arched top 1, and side walls composed of an inner brick lining 11, vertical plates 12, 13 and 14, horizontal plates 15, 16 and 17, bolted together to form inclosing casings for the walls, substantially as set forth.

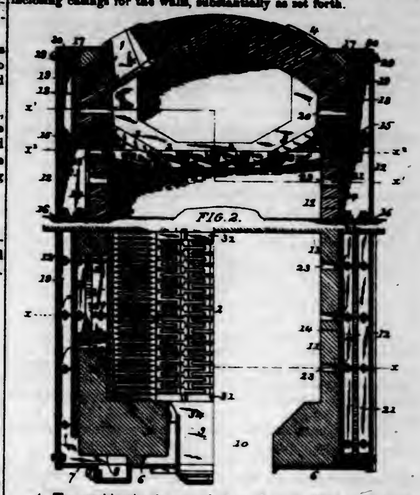


FIG. 2.

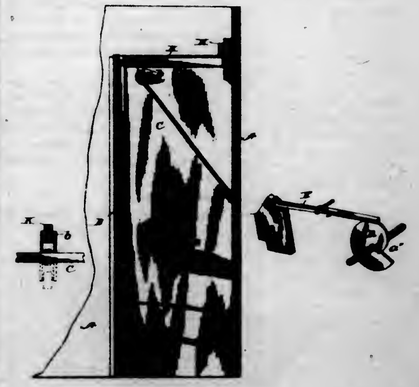
4. The combination in an arched top furnace of the arched top 1, and side walls, having horizontal plates 15, with the upper bearing bars of the inclined grates attached thereto by bolts 26 and elongated slots 27, substantially as set forth.

5. The combination in an arched top furnace of the side walls provided with vertical plates or partitions 14, and the rear bearing bar 32, attached to said plates, and connecting them together against lateral displacement, substantially as set forth.

6. The combination in an arched top furnace of the side walls provided with vertical plates or partitions 14, and the bearing bars 31 and 32 of the fire grates, secured to said plates by bolt and flange connection 33, substantially as set forth.

7. The combination in an arched top furnace of the side walls provided with vertical plates or partitions 14, and the dead plate 34, and bearing bars 31 and 32 of the fire grates secured to said plates by bolt and flange connection 33, substantially as set forth.

489,789. TIME STOCK-FEEDER. JAMES H. CARPENTER, West Point, Ga., assignor of one-half to Thos. T. Eaton and Fred D. Hale, Louisville, Ky. Filed July 27, 1891. Serial No. 400,792. (No model.)



Claim.—In an automatic stock-feeding device, the combination of a hopper and feed-trough, a gravity door or shield normally closing the same, and sustained in an elevated position, a pivoted lever engaging with said shield at one end, a yoke —A— sustaining said lever at its fulcrum, a pivoted eccentric normally engaging the opposite end of said lever, a second pivoted lever bearing normally on said pivoted eccentric at one end, the disk —E— supporting the opposite end of said lever, an excision —*e*— in said disk and suitable clock-mechanism for rotating said disk, and adapted to carry the excision therein to a perpendicular at predetermined times, all adapted, in combination, to release the gravity shield and expose the contents of the hopper substantially as and for the purpose specified.

489,790. NON-MAGNETIC WATCH-BALANCE. CHARLES F. CARPENTER, Louisville, Ky. Filed Feb. 20, 1892. Serial No. 422,945. (No model.)

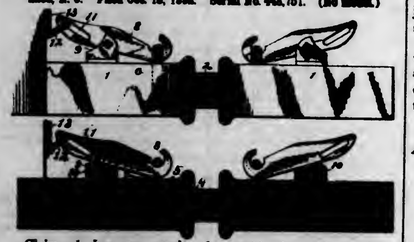


Claim.—1. In an instrument for keeping time, a non-magnetic compensating balance having its inner rim and arm of silicon bronze, and its outer rim of cadmium alloyed with silver, substantially as specified.

2. A watch or like instrument, having a non-magnetic balance, and a non-magnetic balance spring, substantially as specified.

3. In an instrument for keeping time, the combination with a bi-metallic compensating balance, having one of its rims constructed from silicon bronze, and the other rim from cadmium alloyed with silver, of a balance spring of non-magnetic material, substantially as specified.

489,791. CAR-COUPLING. THOMAS P. CARROLL, Franklin Furnace, N. J. Filed Oct. 13, 1892. Serial No. 448,751. (No model.)



Claim.—1. In a car coupler, the combination with the draw-head, having a link therein, with a notch, a tongue passing through an opening in the draw-head and adapted to engage the notch of a spring support on said draw-head with a hook end for engaging the tongue, and means at the inner end of the support for raising the tongue, substantially as specified.

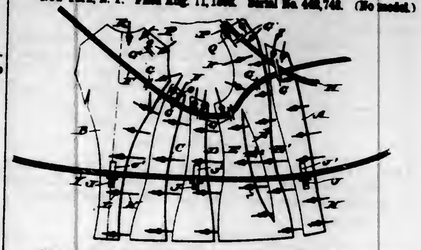
2. In a car-coupler, the combination with the draw-head a link therein having beveled edges, at opposite ends, a notch in said link, a tongue passing through an opening in the draw-head and adapted to engage the notch, of a pivoted spring support on said draw-head with a hook end for engaging the tongue, and an eccentric slot in the inner end of the support, and means in said slot for raising said support, substantially as specified.

489,792. BORDER FOR WALKS, &c. JAMES R. CHAPMAN, San Jose, Cal. Filed Apr. 26, 1892. Serial No. 430,682. (No model.)



Claim.—As a new article of manufacture, border tiles consisting of vertical curb sections with exterior and interior vertical corrugations and a base, the bottom of which extends outwardly at right angles with the vertical portion, the upper surface meeting the outer vertical face at an angle greater than a right angle, and having corrugations formed therein in continuation with the corrugations in the exterior face of the vertical portion, substantially as herein described.

489,798. GARMENT-FITTING PATTERN. SIMON CHERNIAMSEN, New York, N. Y. Filed Aug. 11, 1892. Serial No. 442,742. (No model.)



Claim.—1. A dress makers pattern, comprising a series of plates, shoulder straps with which the plates have a sliding connection, and a waist band having a vertically adjustable connection with some of the said plates, substantially as described.

2. A dress makers pattern, comprising a series of plates, tapes held adjustably on the edges of the said plates, and shoulder straps with which the plates have a sliding connection, substantially as described.

3. A dress makers' pattern, comprising a series of plates, shoulder straps for supporting the said plates on the wearer's body and permitting their adjustment thereon, tapes held adjustably on the edges of the said plates, clasps held vertically adjustable on some of the said plates, and a waist band adapted to be carried by the said clasps, substantially as shown and described.

4. A dress makers pattern, comprising a series of plates provided with loops, shoulder straps passing through said loops, vertically adjustable clasps on some of the plates, and a waist band engaged by said clasps, substantially as described.

5. A dress makers pattern, consisting of a series of plates provided with loops, shoulder straps passing through said loops, tapes adjustably held on the edges of the plates, vertically adjustable clasps on some of the plates and a waist band engaged by said clasp, substantially as herein shown and described.

489,794. TEMPORARY BINDER. WILLIAM R. DYER, Washington, D. C., assignor of one-half to Edward S. York, same place. Filed Nov. 16, 1892. Serial No. 452,172. (No model.)



Claim.—1. In a temporary binder, the combination with a base board, of a series of superposed spirally arranged clamping jaws, substantially as described.

2. In a temporary binder, the combination with a hinged base board, of a series of superposed spirally arranged spring clamping jaws, substantially as described.

3. In a temporary binder, the combination with top and bottom covers, of a series of superposed spirally arranged clamping jaws, substantially as described.

4. In a temporary binder, the combination with detachable top and bottom covers, of a series of interposed spirally arranged spring jaws, substantially as described.

5. In a temporary binder, the combination with the covers of an interposed connected series of spirally arranged clamping jaws, substantially as described.

6. In a temporary binder, the combination with top and bottom

covers of an interposed integral series of spirally arranged spring clamping jaws, substantially as described.

7. In a temporary binder, the combination with front and back covers having edge protecting clips secured thereto, of one or more interposed series of clamping jaws, substantially as described.

8. In a temporary binder, the combination with front and back covers, of series of interposed clamping jaws, and wedge shaped edge protecting clips secured to the covers at their points of engagement with said jaws, substantially as described.

9. In a temporary binder, the combination of a main and supplemental series of superposed clamping jaws, adapted to connect one with the other whereby the capacity of the binder is increased, substantially as described.

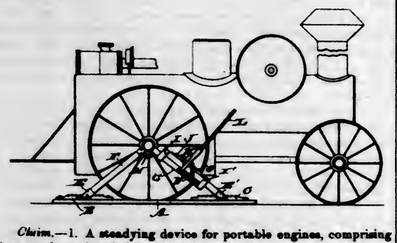
10. In a temporary binder, the combination of a main and supplemental series of convolute clamping jaws of different diameters, adapted to screw one within the other whereby the capacity of the binder is increased, substantially as described.

11. In a temporary binder, the combination of a main and supplemental series of convolute clamping jaws, of different diameters, the latter terminating in a tangential end, and adapted to screw one within the other whereby the capacity of the binder is increased, substantially as described.

12. In a temporary binder, the combination with a main series of superposed clamping jaws, of extensible screw sections, formed by convolutes of relatively stiff spring metal, substantially as described.

13. In a temporary binder, the combination with series of superposed clamping jaws, front and back covers, of wedge shaped edge protecting clips overlying and secured to the covers by hollow rivets, substantially as described.

489,795. STEADYING DEVICE FOR PORTABLE ENGINES. EDWARD C. REED, Tacoma, Wash. Filed Sept. 22, 1892. Serial No. 446,505. (No model.)



Claim.—1. A steadying device for portable engines, comprising a base, and two legs held adjustably on the base and adapted to engage the axle or hub of the wheel of the engine, one of the said legs being made in sections fitted to slide one on the other, substantially as shown and described.

2. A steadying device for portable engines, comprising a base and two legs held adjustably on the base and adapted to engage the axle or hub of the wheel of the engine, one of the said legs being made in sections fitted to slide one on the other, and a shifting mechanism, substantially as described, for sliding the sections of the sectional legs, as set forth.

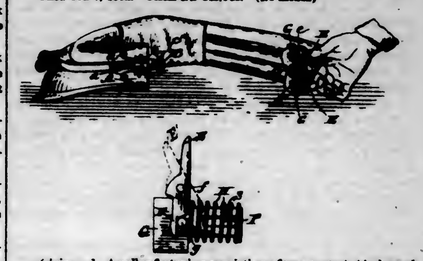
3. A steadying device for engines, provided with a leg made in two sections fitted to slide one on the other, a toothed bar held on one of the sections, a link engaging the said toothed bar, a handle pivoted with the said link, and arms connected with the said handle and pivoted on the other leg section, substantially as shown and described.

4. A steadying device for engines, provided with a leg made in two sections fitted to slide one on the other, a toothed bar held on one of the sections, a link engaging the said toothed bar, a handle pivoted with the said link, arms connected with the said handle and pivoted on the other leg section, and a second link pivoted on the said arms and adapted to engage the said toothed bar, substantially as shown and described.

5. A steadying device for portable engines, comprising a base, toothed bars secured on the said base, and legs provided with shoes engaging the said toothed bars, one of the said legs being made in sections fitted to slide one on the other, substantially as shown and described.

6. A steadying device for portable engines, comprising a base, toothed bars secured on the said base, legs provided with shoes engaging the said toothed bars, one of the said legs being made in sections fitted to slide one on the other, and a shifting device, substantially as described, for shifting the sections of the sectional leg, as set forth.

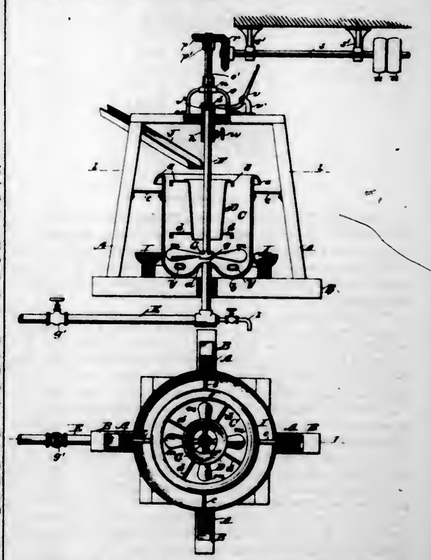
489,796. COLLAR-FASTENER. CHARLES EVERETT, Oshkosh, Wis. Filed Oct. 7, 1892. Serial No. 448,140. (No model.)



Claim.—1. A collar fastening consisting of two parts A A' adapted to be brought together and automatically locked, the part A being provided with a head having a shoulder and the part A' provided with a socket and a spring latch, the latter comprising a bolt G, a pivoted thumb piece E which bears at its lower end against a stud on the bolt, and a spring which bears upon the bolt and holds it in a normally outward condition, substantially as described.

2. A collar fastening consisting of two parts A A' adapted to be brought together and automatically locked, the part A being provided with a beveled head B having a shoulder *c'*, and the part A' provided with a socket and spring latches, the latter adapted to engage the head on both sides, the latch comprising a shouldered bolt G provided with a longitudinal slot S and guided by a pin P, a pivoted thumb piece E which bears, near its lower end, against a stud *g* on the bolt, and a spring H which bears upon the bolt and holds it in a normally outward condition, substantially as described.

489,797. ORE-WASHER. CHARLES FABER, Riverside, N. J. Filed Aug. 31, 1891. Serial No. 404,346. (No model.)



Claim.—1. The combination, with an upright receiver, of an upright rotatable shaft therein, a radial winged wheel thereon below, and a water supply pipe tapping the receiver bottom, in alignment with the axis of the wheel and discharging upward against said wheel substantially as described.

2. The combination, with an upright receiver having a centrally convex and marginally concave bottom wall, and a water supply pipe entering the convex center of said bottom, of a vertical shaft, in alignment with said pipe a wheel thereon having radial screw blades, crem-

ing said concavity and mechanism adapted to rotate the shaft, substantially as described.

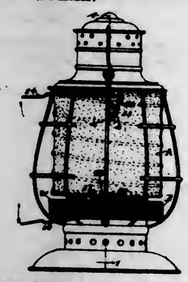
3. The combination, with a frame, an upright receiver thereon and a feeding hopper therein, of an upright, rotatable shaft, extending down through the hopper a screw-bladed wheel on the lower end thereof, mechanism adapted to rotate the shaft, and a water conduit pipe tapping the bottom of the receiver, and discharging upward against the wheel substantially as described.

4. An ore separator, comprising the frame, the stationary receiver C having a convexity in its bottom forming an annular concavity *b*, an open ended concentric feeder D, the water pipe discharging upward through the center of the convexity, the vertically sliding shaft extending down into the receiver in vertical alignment with the water pipe and having a horizontal winged wheel on its lower end crossing the concavity *b* below the feeder, bearings for the upper end of the shaft, means for raising the shaft and securing it and the operating gearing, substantially as shown and described.

5. In an ore washer, the combination, with an upright cylindrical receiver, a feeding hopper concentric therein, a rotary upright shaft, and a screw-bladed horizontal wheel below on the shaft, of a water supply pipe, and an annular supplementary receiver adapted to catch the overflow of the main receiver, substantially as described.

6. The combination, with a frame, an upright cylindrical receiver thereon, a concentrically-supported feed hopper within, and a water supply pipe tapping the bottom of the receiver, of a vertically-adjustable shaft supported to revolve centrally in the hopper, a screw-bladed wheel on the shaft within the main receiver below the hopper, and an annular exterior receiver adapted to catch the overflow of the main receiver, substantially as described.

489,798. SIGNAL-LANTERN. WILLET J. FELLHEIMER, New York, N. Y., assignor to August Fellheimer, same place. Filed Dec. 5, 1891. Serial No. 414,112. (No model.)



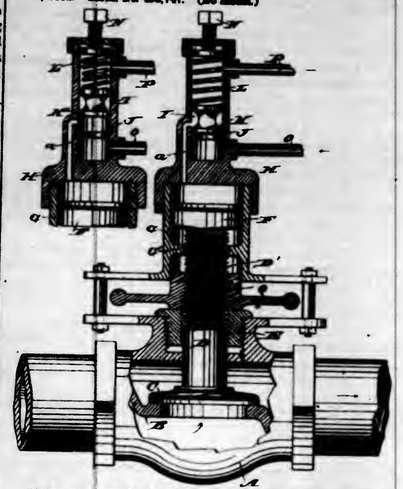
Claim.—1. The combination with a lantern, of a contractible and spring actuated screen provided with opposite lateral projections, of keepers secured to the lantern and adapted to engage the projections of the screen, a semicircular lever pivoted to the lantern and links connecting the lever with the keepers, substantially as herein shown and described.

2. The combination with a lantern, of two contractible spring actuated screens, one secured at its upper end to the upper portion of the lantern and the other secured at its lower end to the lower portion of the lantern, spring keepers secured to the lantern and adapted to engage the screens to hold them contracted, and means for disengaging the keepers from the screens, substantially as described.

3. The combination, with a lantern, of screens located one at the upper and the other at the lower portion of the globe and surrounding the same, the upper screen being secured at its upper end and the lower screen at its lower end, springs controlling the upward movement of one screen and the downward movement of the other, the said screens being constructed of an expansible and contractible translucent or transparent material, levers fulcrumed upon the frame of the lantern, spring keepers controlled by the levers, and offsets produced upon the free ends of the screens and adapted to be engaged by the keepers, as and for the purpose specified.

4. The combination with the lantern, of two contractible and spring actuated screens, one secured at its upper end to the upper portion of the lantern and the other at its lower end to the lower portion of the lantern, each screen being provided with a ring having lateral projections, keepers carried by the lantern and adapted to engage the projections of the screens to hold them contracted, pivoted semi-circular levers, and links connecting the levers to the keepers, substantially as herein shown and described.

489,799. VALVE. THOMAS P. FORD, Brooklyn, N. Y. Filed July 2, 1892. Serial No. 438,747. (No model.)

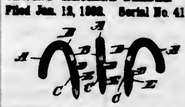


Claim.—1. In a device of the class described, the combination with a valve carrying a piston on its stem, of a cylinder containing the said piston, an auxiliary cylinder provided with an inlet and an outlet and connected by a port with the upper closed end of the said first named cylinder, and a spring pressed piston valve held to slide in the said auxiliary cylinder and arranged to connect the said port with the said outlet or with the said inlet, substantially as shown and described.

2. In a device of the class described, the combination with a valve body containing a seat and a cylinder supported from the said valve body, of a piston valve of which the valve is to be seated on the said seat and its piston is fitted to slide in the said cylinder, an auxiliary cylinder supported on the said first-named cylinder and provided with a port leading into the upper end of the said cylinder, an inlet pipe for the lower end of the said cylinder, an exhaust or outlet pipe for the upper end of the said auxiliary cylinder, and a spring-pressed valve adapted to be seated in the said auxiliary cylinder and arranged so as to establish communication between the said cylinder and the outlet pipe and, when forced upward, to disconnect the same and establish communication between the upper end of the cylinder and a fluid pressure supply, substantially as shown and described.

3. In a device of the class described, the combination with a valve body containing a seat, of a cylinder supported from the said valve body, a valve adapted to be seated on the said seat and having a piston fitted to slide in the said cylinder, the stem of the said piston valve connecting the piston with the valve and being partly screw-threaded, a nut engaging the said screw-threaded stem and having a limited motion between the valve body and cylinder, and an auxiliary cylinder in communication with the upper end of the said first named cylinder and containing a valve adapted to be lifted by a fluid under pressure, to permit the said fluid under pressure to pass into the upper end of the said auxiliary cylinder, substantially as shown and described.

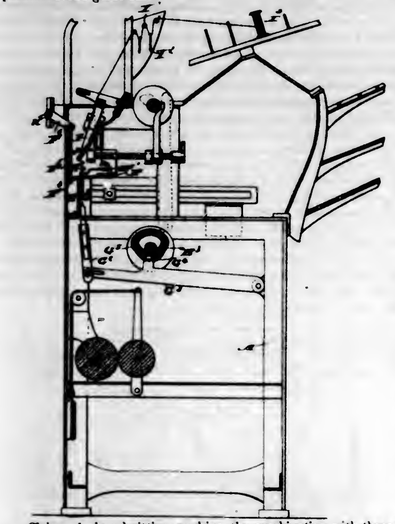
489,800. SEWING-MACHINE NEEDLE. FRANCIS J. FERRIS, Lowell, Mass. Filed Jan. 12, 1892. Serial No. 417,875. (Model.)



Claim.—A curved machine-needle having its outer or bottom face flattened, and formed with a barb in one edge of such flattened face and with a thread groove extending obliquely across said face from the eye and barb toward the point, substantially as set forth.

489,801. KNITTING-MACHINE. JOSEPH FELLHEIMER, New York, N. Y. Filed Aug. 6, 1892. Serial No. 442,302. (No model.)

Brief.—The machine is designed for the manufacture of trimmings, and to this end it is equipped with a binding-thread guide-bar and longitudinally-reciprocating pattern-thread guide-bars, one of said pattern-thread guide-bars being also mounted to swing, so as to move its pattern-threads above or below the threads carried by the other pattern-thread guide-bar.



Claim.—1. In a knitting machine, the combination with thread guide bars mounted to slide, one of the said bars being mounted to turn, and the other having sliding movement only, of means for imparting a sliding motion to the said guide bars, and means for imparting a swinging motion to the guide bar mounted to turn, to move its guides into planes above and below that of the guides on the other bar substantially as shown and described.

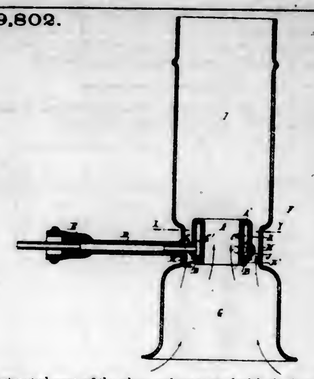
2. In a knitting machine, the combination with reciprocating needles and binding thread guide bar to guide the binding threads to the said knitting needles, of pattern thread guide bars mounted to slide longitudinally to carry the pattern threads across the binding threads, one of the said pattern thread guide bars being also mounted to swing or turn, so as to move its pattern threads above or below the threads carried by the other pattern thread guide bar, substantially as shown and described.

3. In a knitting machine, the combination with a sliding pattern thread guide bar mounted to swing, of a mechanism for imparting a swinging motion to the said thread guide bar and comprising a chain cam wheel, a cam chain thereon, an arm mounted to swing vertically and provided with a friction roller traveling on the peripheral surface of the said chain cam wheel, a rocking shaft parallel with said thread guide bar and connected with the said pivoted arm, a crank arm and link for connecting the said rocking shaft with the said pattern thread guide-bar, and a binding thread guide bar, substantially as shown and described.

4. The combination with the vertically reciprocating needles, of the horizontally reciprocating pattern thread guide bars, one of which is adapted to swing to raise and lower its guides above and below the plane of the guides on the other bar, the sliding binding thread guide bar, a pair of parallel wheels provided with cam chains, a lever mechanism operated by one cam chain and connected with the swinging pattern thread guide bar to swing the same, a slide between the binding thread guide bar and the other pattern chain, and a spring throwing the said thread guide bar and pressing its operating slide in contact with its cam chain, substantially as set forth.

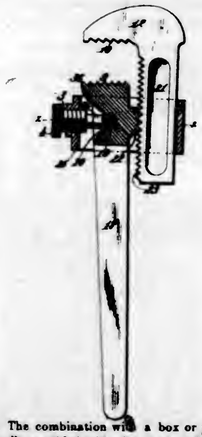
489,802. GAS-BURNER. FRANCOIS GARY, Toulouse, France. Filed Aug. 10, 1892. Serial No. 442,706. (No model.) Patented in France Apr. 2, 1892, No. 220,806.

Claim.—The combination with a glass F, having a contracted portion H and a widened portion G, of a holder B located centrally in the contracted part of the glass, a burner A secured within the holder and having the chamber C and holes A', the branch pipe D, and the tube C extending from the holder through a lateral orifice in



the contracted part of the glass and connected with the branch pipe, substantially as described.

489,803. PIPE-WRENCH. RICHARD S. GILLESPIE and HARRY JAMES, New York, N. Y. Filed Mar. 3, 1892. Serial No. 423,662. (No model.)



Claim.—1. The combination with a box or yoke frame having opposite side walls provided with slots, and a sliding shank having a rigid jaw, of a transverse pin having its ends movable in the slotted parts of the box or yoke frame toward and from the sliding shank, a swinging handle or lever suspended by the transverse pin, a set bolt which is adjustable to press the transverse pin and the handle or lever toward the sliding shank, and toothed portions which are thrown into or out of interlocking engagement when the set bolt is tightened up or loosened, substantially as described.

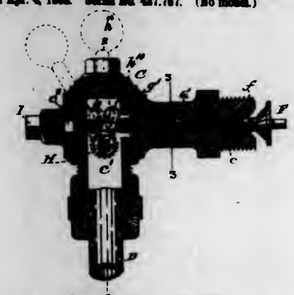
2. The combination with a box or yoke frame having opposite side walls provided with slots, and a sliding shank having a rigid jaw, of a transverse pin having its ends movable in the slotted parts of the box or yoke frame toward and from the sliding shank, a handle or lever suspended by and swinging on the transverse pin, and a set bolt which is adjustable to press the transverse pin and the handle or lever toward the sliding shank without interfering with the free swinging motion of the handle or lever on the pin, substantially as described.

3. The combination with a box or yoke frame, and a sliding shank having a rigid jaw, of a transverse pin movable toward and from the sliding shank, a handle or lever hung on the transverse pin and movable therewith, and a set bolt acting directly on the pin to move the latter toward the sliding shank without interfering with the free swinging motion of the handle or lever on the pin, substantially as described.

4. The combination with a box or yoke frame having longitudinal slots in its side walls, and a sliding toothed or serrated shank having a rigid jaw, of a transverse pivot pin adapted to work back and forth in the slots, a handle or lever hung on the transverse pin and in toothed

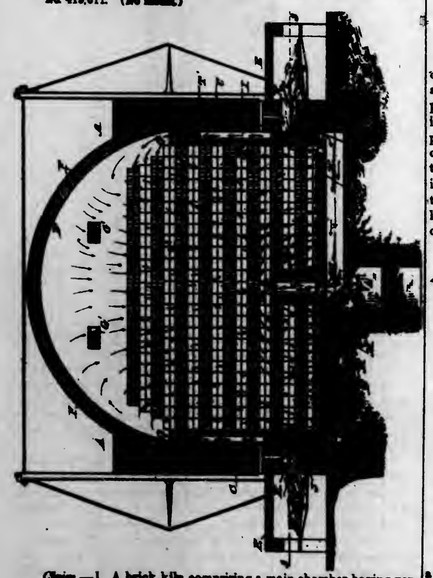
engagement with the sliding shank, and a set bolt bearing at its inner extremity directly against the transverse pin to adjust the latter toward the sliding shank without interfering with the free swinging motion of the handle or lever, substantially as described.

489,804. WATER-GAGE. HERMAN R. GRABER, St. Louis, Mo. Filed Apr. 4, 1892. Serial No. 427,767. (No model.)



Claim.—In a water-gage, the combination of the valve and valve-stem, and rock-shaft, said rock-shaft and stem being closely jointed together, and said rock-shaft being furnished with the arm for operating, and also accurately indicating any position of said valve and said stem being rotatable independently of said rock-shaft, substantially as described.

489,805. BRICK-KILN. JOHN R. GRISWOLD, Zanesville, Ohio, assignor of one-half to Clarence V. Graham. Filed Jan. 28, 1892. Serial No. 419,611. (No model.)



Claim.—1. A brick kiln comprising a main chamber having vertical flues at its sides, extended up to the top of the kiln chamber to discharge onto the top of the ware, transverse heat flues, under the floor, having openings, communicating with the kiln, said floor having a channel way arranged to receive the heat products from said transverse flue openings whereby to disseminate the intense up draft heat into lower portion of the ware, and exit slots in the said floor arranged intermediate the sides of the kiln and the central channel way, communicating with the stack flue, all arranged substantially as shown whereby the disseminated up draft heat, will be drawn off through such exits with the down draft, as and for the purpose described.

2. In a brick kiln constructed to have a down draft, the distributing flues arranged transversely under the floor and opening through such floor to discharge into the kiln, of a wall arranged at each side of such flue openings whereby to form a continuous heat channel such wall being stepped to gradually close the said channel way substantially as and for the purposes described.

3. In a brick kiln having a slotted floor and constructed to have a down draft, of the transverse heat flues arranged at the end walls of the kiln extended under the floor, such floor having a transverse series of flue openings communicating with the said heat flues and shallow channel ways formed on the kiln floor at the ends thereof arranged to receive the combustion products as they pass up through such flue openings and deflect them toward the center of the kiln substantially as and for the purposes described.

4. The combination with the main chamber having a series of slotted floor sections and a series of openings A arranged longitudinally of and intermediate the slotted sections and a series of openings $A^{\times}$ at the ends of the kiln the flue sections I I' arranged as shown, the furnaces connected with such sections the transverse distributing flues $H^{\times}$, communicating with the openings $A^{\times}$, and shallow channel ways $U\,U^{\times}$ projected up into the kiln and arranged to receive the heat from the openings A and $A^{\times}$ respectively, as and for the purpose described.

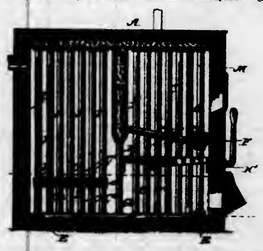
5. A brick kiln having a fire brick lining on its inner side faces, the ends of which stop short of the end walls, whereby an open way is provided between the ends of such lining and the end walls substantially as and for purpose described.

489,806. WASHING-MACHINE. GEORGE K. HELLDORFER, Baltimore, Md. Filed Apr. 5, 1892. Serial No. 427,877. (No model.)



Claim.—The combination of a washing machine body provided on its bottom with a horizontal rubbing surface, a rectangular rubber arranged on said surface, the bearing plates 10 and 11 secured to opposite sides of the body and extending upward therefrom, the bearing plate 11 being provided with a bearing opening and the bearing plate 10 having a bearing recess and eyes arranged on opposite sides of the recess, a flat rocking bar provided at its ends with journal portions arranged in the bearings of the plates and having a central opening, a removable pin arranged in said eyes and detachably securing the rocking bar in the bearing recess of the plate 10, and a lever loosely arranged in the central opening and having its lower end pivoted to the rubber, substantially as described.

489,807. HOT-WATER BOILER. MICHAEL H. HERBERT, St. Joseph, Mo. Filed May 26, 1892. Serial No. 434,831. (No model.)



Claim.—1. A hot water boiler, comprising a hollow top forming a water chamber, a water leg depending from such top, longitudinal circulating pipes at the bottom water tubes connecting such pipes and the top, tubular grate bars communicating with the water leg, the vertical circulating pipes, and an inclosing casing formed with inlet and outlet openings substantially as and for the purpose described.

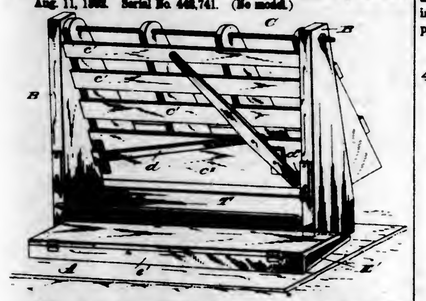
2. In a hot water boiler in combination, a hollow top section having a depending water leg, longitudinal circulating bottom pipes, vertical tubes connecting the top and the said bottom pipes, a tubular grate section communicating with the water leg and a grate mounted under such tubular grate section, and the casing all as and for the purpose described.

3. In a hot water boiler in combination, a hollow top having a depending water leg, vertical tubes depending therefrom at the longitudinal edges circulating pipes connecting the lower ends of such vertical tubes, transverse circulating pipes connecting the ends of the said longitudinal pipes, tubes connecting the water leg with the said longitudinal pipes, tubular grate bars connected with the water leg and one of the transverse circulating pipes, and the casing all substantially as and for the purpose described.

4. In a hot water heater the combination with the hollow top A having a depending water leg, the tubular grate bars, connected to such water leg at a point above the lower edge thereof, the circulating pipes D, the vertical tubes C, and the transverse circulating pipes, of the vertical pipes C, the transverse headers I communicating therewith, and the casing all arranged substantially as shown and described.

5. An improved hot water boiler, comprising a hollow top, longitudinal and transverse circulating base pipes, vertical tubes connecting such top and circulating pipes, a water leg depending from the hollow top, tubes connecting the bottom of such leg with the base pipes, tubular grate flues communicating with the water leg and circulating pipes, a grate mounted under such tubular grate, a series of drop tubes depending from the rear portion of the top, transverse header tubes connected with the bottom of such tubes, said header communicating with the circulating pipes, and the casing, formed with the usual feed opening and smoke outlet all arranged substantially as and for the purpose described.

489,808. FEED-TROUGH. ROSANDER S. HIGGINS, Neoga, Ill. Filed Aug. 11, 1892. Serial No. 442,741. (No model.)

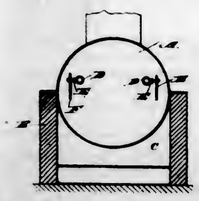


Claim.—1. In an animal trough or stock feeder, the combination of uprights supporting a swinging frame and a trough, said trough being made up of end pieces and longitudinal inclined boards one of which is extended upward to contact with the swinging frame, and a receptacle located to one side of the trough, substantially as shown, and for the purpose set forth.

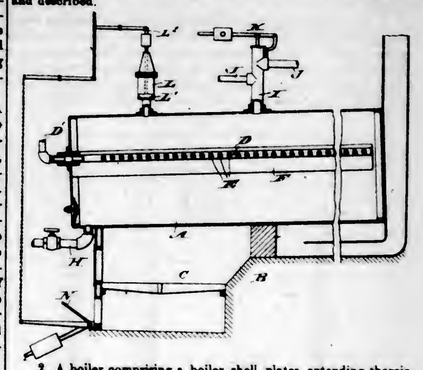
2. In combination with a pivoted trough, a receptacle adjacent thereto, said receptacle consisting of an inclined bottom board and a vertical side board to which a cover is hinged, said cover being adapted to fold over the receptacle, for the purpose set forth.

3. In an animal trough or stock feeder, the combination of a pivoted trough one of the sides of which is of greater width than the other, an inclined receptacle E' secured adjacent to the wider side of the trough, and a cover for said receptacle, substantially as shown.

489,809. BOILER. MAX HESS and GEORGE HESS, Grahamton, Ky. Filed Sept. 8, 1892. Serial No. 445,200. (No model.)

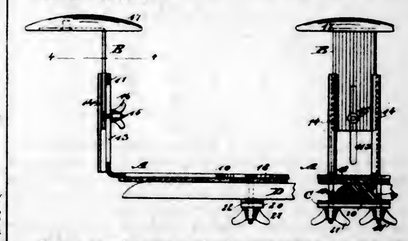


Claim.—1. The combination with the boiler shell, of the attachment consisting of the water pipe D, having a series of valved nozzles arranged horizontally and a plate F, arranged parallel to said pipe and secured thereto by means of fixed horizontal arms, as shown and described.



2. A boiler comprising a boiler shell, plates extending therein, water supply pipes extending in the said shell and provided with nozzles for discharging water in jets onto the said plates, and a valve arranged in each nozzle and closing inwardly to prevent the steam in the shell passing into the water pipes but permitting the water to pass into the nozzles, substantially as shown and described.

489,810. PEDAL ATTACHMENT FOR ORGANS OR PIANOS. WILLIAM A. HORDAY, Hurley, Wis. Filed Apr. 30, 1892. Serial No. 431,336. (No model.)



Claim.—As an improvement in adjustable pedal foot-rests hereinbefore described, the combination, with the horizontal member 10, 12, of the two pendent bolts 19, 19, the detachable cross plate, 20, having bolt openings as specified, and thumb-nuts, 21, applied to the threaded ends of said bolts, all as shown and described, to operate as set forth.

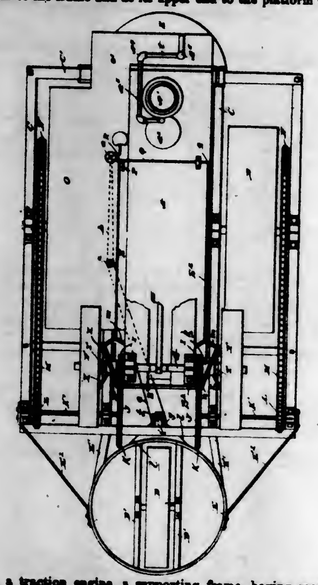
489,811. TRACTION-ENGINE. BENJAMIN HOLT, Stockton, Cal. Filed Aug. 9, 1892. Serial No. 442,634. (No model.)

Claim.—1. In combination with the main frame of a traction engine suitably mounted on supporting traction wheels, a guiding wheel and its frame and attached to the front beam of the main frame, a suitable steering mechanism for such guiding wheel, consisting of a two part link belt l attached at radial points to the periphery of the turning ring of the frame of the guiding wheel, and engaging with the upper portion of a two part horizontal sprocket wheel f, seated on a supporting bench i, attached to the beam A, the rearwardly extending link belt, e, actuating the lower portion of the double sprocket wheel f, and comprehending a sprocket wheel on the lower end of a standard c, the standard c having a sprocket wheel at its head engaging with a rearwardly extending link belt b, the said belt b, and the standard or shaft having a sprocket wheel in engagement with the belt b, and also having the hand wheel a, all substantially as set forth.

2. The combination in a traction engine of the main bearing frame having mounted thereon the traction wheels, the front guiding wheel and frame attached to the front of the main frame, the boiler mounted on the main frame, the platform O located at one side of the boiler, a suitable mechanism for controlling the front guiding wheel from the platform O, the rear platform O' at right angles to the platform O, the brace rod Z' attached at its upper end to the platform O', and its lower end to a platform Z, the platform Z, attached at its front to drop standards Z^2, and the drop standards Z^2 attached to the

rear ends of the inner beams C, all substantially as shown and described.

3. The combination substantially as described of the main frame having the boiler and traction wheels mounted thereon, the front guiding wheel and frame, attached to the front of the main frame, a suitable mechanism for controlling the front guiding wheel, the platforms O and O', and the ladder Y attached at its lower end to the rear beam of the frame and at its upper end to the platform O.



4. In a traction engine, a supporting frame, having mounted thereon the boiler and suitable traction wheels, and a guiding wheel and frame attached at its front, a suitable mechanism for controlling the guiding wheel, and a traction gearing consisting of sleeves on the crank shaft, suitable means for operating such sleeves from the crank shaft, the sprocket wheels I, attached to the ends of such sleeves, the link belts J, the sprocket wheels K on the shaft K', the shaft K' having its bearings mounted on the beams C, the sprocket wheels L on the outer ends of the shafts K', the link belts M, the sprocket wheels N attached to the spokes of the traction wheels, all operating substantially as shown and specified.

5. The combination, with the crank shaft of a traction engine, of the fly wheels F provided with grooves or channels F' on their inner surfaces, the brake blocks U adapted to engage with the fly wheels F at the grooves F', the braces V, the inner sleeves T upon the crank shaft and provided with feathers p on their surfaces, the hangers X provided with center tighteners or turnbuckles X', the outside sleeves h upon the inner sleeves T and provided with grooves adapted to engage with the feathers p, the sprocket wheels I upon the ends of the sleeves T, suitable connecting belts and gearing from the sprocket wheels I to the traction wheels, and a suitable mechanism controlling the sleeves h, all substantially as shown and described.

6. The combination with the crank shaft and fly wheels of a traction engine, of the brake blocks U, the braces V, the sleeves T and h, the hangers X, the sprocket wheels I upon the ends of the sleeves T, suitable gearing and link belts connecting such sprocket wheels with the traction wheels of the engine, the swinging bars n flexibly attached to the sleeves h and to a cross bar S', the cross bar S' mounted upon standards S^2, the flexible arms m attached to the bars n and to the boiler, the brake rods S and S^2, the rock shaft Q suitably mounted on the platform and boiler and provided with the arm o, engaging with the rod S^2, the lever P rigidly attached to the rock shaft Q, and the lever R flexibly attached to the shaft Q and engaging with the rod S, all operating substantially as described.

7. In a traction engine, the combination with the boiler, the steam dome A^2, located at the rear end of the boiler, and the angular pipe section A^3, attached to and communicating with the steam dome A^2, of the angular pipe section i, flexibly connected to the pipe section A^3, and comprising two flexibly connected sections; the said pipe sections A^3, and i, being adapted to lead steam from the boiler to a supplemental engine on a thrasher connected to the traction engine, substantially as and for the purpose set forth.

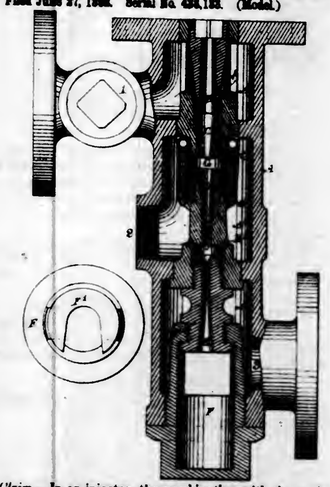
8. In a traction engine the combination of the main frame, the traction wheels and boiler mounted thereon, a guiding wheel and frame suitably attached to the front of the main frame, means for controlling such guiding wheel, a system of sprocket wheels and link belts for the progression of the traction wheels and connecting the same and the crank shaft together, suitable levers and rods for controlling the same, the smoke stack and steam dome located at the rear end of the boiler, and a steam supply pipe, provided with flexible joints, attached to the steam dome and adapted to supply steam to an auxiliary engine located on an accompanying traveling thrasher all arranged and operating substantially as described.

9. In a traction engine, means for communicating power from the crank shaft, consisting of brake blocks impinging upon the inner surfaces of the fly wheels, flexible braces attached to such blocks, and to sleeves, on the crank shaft, the said sleeves provided with sprocket wheels, a suitable system of link belts and sprocket wheels connecting such sprocket wheels with the traction wheels, and a system of levers and rods controlling such sleeves, all substantially as described.

10. The main frame, composed of the beams C, C', C^3, and A, the traction wheels B, a suitable guiding wheel and frame attached to the front of the main frame, the platform O, O' attached to the side and rear of the boiler, the boiler A mounted upon the main frame, and the smoke stack A' and steam dome A^2 located at the rear of the boiler A.

11. In a traction engine, substantially as described, the combination with the main frame, and the traveling or bearing wheels B; of the shaft G, the wheels F, fixed on said shaft and having the grooves or channels F', the sleeves T, mounted and adapted to slide upon the shaft G, the braces V, connected to the sleeve T, and carrying the brake blocks or shoes U, at their outer ends, the hangers X, a suitable means for adjusting the sleeves T, with respect to the wheels F, and mechanism intermediate the sleeves T, and the bearing or traveling wheels B, substantially as described.

489,812. INJECTOR. HENRY HOPKINSON, Nottingham, England. Filed June 27, 1892. Serial No. 438,183. (Model.)

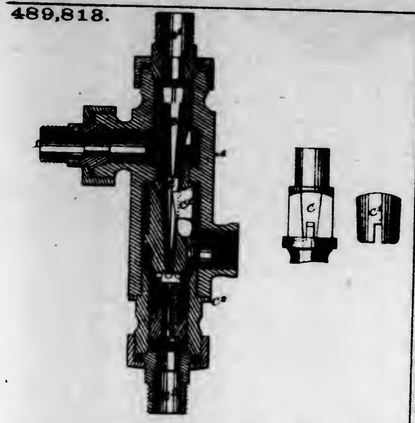


Claim.—In an injector, the combination with the casing A, the cones B, C, D and E and the chambers G and H connecting the said cones C, D, E, of the two-armed nut F having the slotted bridle F' engaged with the delivery cone E, whereby said cones can be adjusted or withdrawn without disturbing the outer casing, substantially as described.

489,813. INJECTOR. HENRY HOPKINSON, Nottingham, England. Filed June 27, 1892. Serial No. 438,184. (Model.)

Claim.—In an injector, the combination with the outer casing A having chambers A' A^3, and the cones B and E, of the intermediate cone C having overflow outlets provided with loose valve plates C and the chamber D surrounding the delivery cone E and provided with perforations D' between said cones C and E, substantially as described.

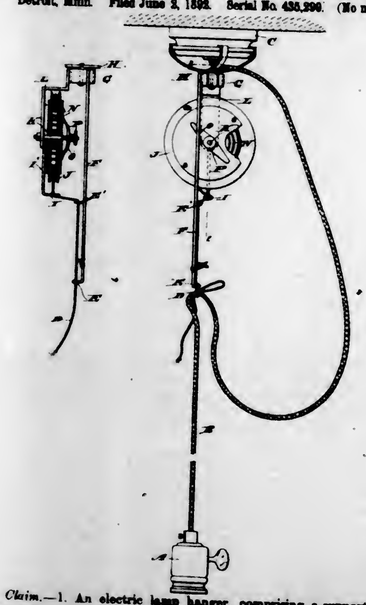
489,818.



489,814. MANUFACTURE OF BUTTER. DAVID W. HUDSON, FRANK LA STRONG, and GEORGE D. BUNCE, Los Angeles, Cal. Filed Mar. 14, 1892. Serial No. 424,891. (No specimens.)

Claim.—As a new article of manufacture, the within described butter made up of pure butter, sweet milk and the oil of cocoanut, substantially as specified.

489,815. HANGER FOR ELECTRIC LAMPS. CHARLES S. HUME, Detroit, Minn. Filed June 2, 1892. Serial No. 435,290. (No model.)



Claim.—1. An electric lamp hanger, comprising a supporting frame, a bracket mounted to revolve on the frame, a spring actuated pulley carried by the bracket, a rod mounted to revolve with the bracket and provided with eyes, and a cord or string wound on the pulley and adapted to be secured to the electric light wire, substantially as described.

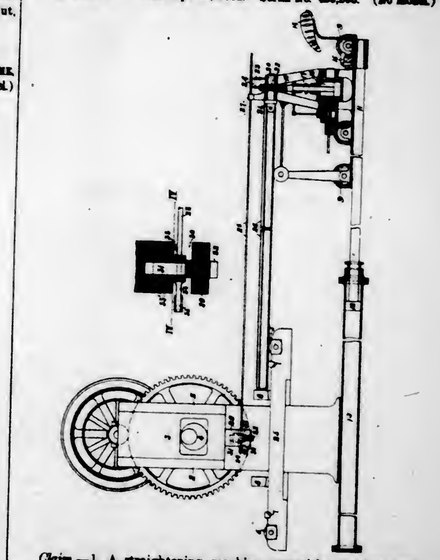
2. An electric lamp hanger, comprising a supporting frame, a bracket mounted to revolve on the frame and provided with an arm having an eye, a spring actuated pulley carried by the bracket, a rod mounted to revolve with the bracket and provided with eyes, and a cord or string wound on the pulley and adapted to be secured to the electric light wire, substantially as described.

3. An electric lamp hanger, comprising a socket mounted to revolve, and carrying a bracket and a rod having eyes, a stud projecting from the said bracket, a pulley mounted to turn on the said stud, a spring fastened with one end to the said stud and with its other end to the said pulley, and a cord winding on the said pulley and passing through the eyes, the said cord being adapted to be fastened to the electric light wire, substantially as shown and described.

4. An electric lamp hanger, comprising a socket mounted to revolve, and carrying a bracket and a rod having eyes, a stud projecting from the said bracket, a pulley mounted to turn on the said stud, a spring fastened with one end to the said stud and with its other end to the said pulley, a cord winding on the said pulley and passing through the eyes, the said cord being adapted to be fastened to the electric light wire, and a spring held on the said stud and engaging one face of the pulley to form a brake mechanism for the latter, substantially as shown and described.

5. An electric lamp hanger, comprising a socket mounted to revolve, and carrying a bracket and a rod having eyes, a stud projecting from the said bracket, a pulley mounted to turn on the said stud, a spring fastened with one end to the said stud and with its other end to the said pulley, a cord winding on the said pulley and passing through the eyes, the said cord being adapted to be fastened to the electric light wire, a spring held on the said stud and engaging one face of the pulley to form a brake mechanism for the latter, and means for adjusting the tension of the said spring, as set forth.

489,816. STRAIGHTENING-MACHINE. HENRY R. A. KNERR, Braddock, Pa. Filed Apr. 15, 1892. Serial No. 429,295. (No model.)



Claim.—1. A straightening machine comprising a stationary press, having a reciprocating plunger a traveling carriage to which the rail may be attached, means for moving the same to and from the press and means located upon the carriage for turning the rail or bar to be straightened; substantially as described.

2. A straightening machine comprising a press having a reciprocating plunger, a traveling carriage to which the rail may be attached, a motive cylinder arranged to move the same to and from the press, means upon the carriage for controlling the motive cylinder valves, and means also upon the carriage for turning the rail; substantially as and for the purposes described.

3. A straightening machine, consisting of a press, a carriage to which the rail or bar may be attached, and means located upon the carriage for turning the rail and for regulating the stroke of the press; substantially as described.

4. A straightening machine comprising a press, having an adjustable plunger, a traveling carriage, a connection between the plunger and carriage for regulating the plunger stroke, a motive cylinder lo-

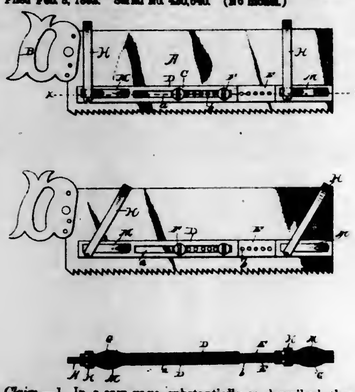
cated upon the carriage, and connections for turning the bar or rail by said motive cylinder; substantially as described.

6. In a straightening-machine, a press having a plunger, a rotary screw-threaded shaft carrying a gag, a traveling carriage, and a connection between the rotary shaft and the carriage; substantially as described.

6. In a straightening machine, a press, a traveling carriage, a shaft carried thereon having one end arranged for attachment of the rail or bar, and a pinion carried at the other end, a motive cylinder whose piston-rod carries a double rack engaging the pinion, and means for reciprocating the carriage; substantially as and for the purposes described.

7. In a straightening-machine, a press, a traveling carriage having a seat for the operator, a motive cylinder arranged to reciprocate the carriage, treadles upon the carriage for manipulating the cylinder-valves, and means located on the carriage for turning the rail attached thereto; substantially as and for the purposes described.

489,817. SAW-GAGE. CLARENCE R. KING, Washington, D. C. Filed Feb. 5, 1892. Serial No. 420,640. (No model.)



Claim.—1. In a saw gage, substantially as described, the combination with two gage bars adapted to rest on opposite sides of a saw blade, a shoe carried by each gage bar, and a block of resilient substance resting inside each shoe; of a clamping loop having its ends connected to the gage bars and adapted to straddle a saw blade; substantially as and for the purpose set forth.

2. In a saw gage, substantially as described, the combination with two extensible gage bars adapted to rest on opposite sides of a saw blade and respectively comprising the section having a longitudinal slot, the section having a series of transverse threaded apertures and the set-screws taking through the longitudinal slot of one section and into the apertures of the other, shoes carried by each of the gage bar sections, and a block of resilient substance resting inside each shoe; of the clamping loops having their ends connected to the gage bar sections and adapted to straddle a saw blade; substantially as and for the purpose set forth.

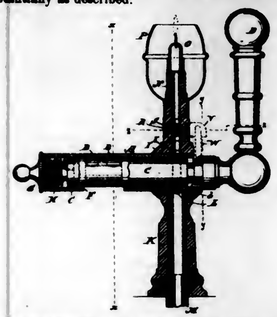
3. In a saw gage, substantially as described, the combination with two gage bars adapted to rest upon opposite sides of a saw blade, the shoes struck up from said gage bars, and the blocks of resilient substance resting inside each shoe; of the clamping loops adapted to straddle a saw blade and having their ends pivotally connected to the gage bars; substantially as and for the purpose set forth.

489,818. DEVICE FOR CUTTING AND LIGHTING CIGARS. PETER KLEMANN, New York, N. Y. Filed June 30, 1892. Serial No. 438,540. (No model.)

Claim.—1. The combination with a tubular post or support having a lateral casing, and a cylinder provided with a handle and adapted to turn in the casing, of a gas regulating valve movable lengthwise transversely of the tubular post or support at one side of the cylinder, and devices operated by turning the cylinder for moving the gas regulating valve lengthwise transversely of the tubular post or support, substantially as described.

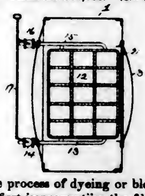
2. The combination with a casing, and a post or support, of a cylinder rotatable in the casing and having an actuating handle, a burner, and a valve slidable transversely in the post or support and having a set screw and a shoulder, said cylinder being provided with a lug for engaging the shoulder of the valve to slide the latter lengthwise when the cylinder is turned, substantially as described.

3. The combination of a tubular post or support having a casing, a cylinder having a handle and adapted to turn in the casing, a burner tip, a gas regulating valve movable lengthwise transversely of the tubular post or support and provided with a projecting shoulder, and a lug carried by the cylinder and arranged to strike the shoulder of the gas regulating valve for moving the latter lengthwise transversely of the tubular post or support when the cylinder is moved in the casing, substantially as described.



4. The combination with a tubular post or support having a lateral casing, of a rotatable cylinder arranged in the casing and having a gas channel and a projecting lug, and a valve slidable lengthwise transversely of the post or support above the cylinder and provided with a shoulder which is acted upon by the lug of the cylinder to slide the valve lengthwise transversely of the post or support, substantially as described.

489,819. METHOD OF AND APPARATUS FOR BLEACHING OR DYEING TEXTILE MATERIALS. LEOPOLD LE BLOIS, Elbeuf, France. Filed Apr. 4, 1891. Serial No. 387,610. (No model.)



Claim.—1. In the process of dyeing or bleaching vegetable material, the method of first impregnating the fiber in its natural state with a suitable fluid, such as water or water tinctured with dyeing or bleaching liquid, at a temperature below the normal boiling point, and then subjecting the treated material to the dyeing or bleaching operation, substantially as described.

2. In the process of bleaching or dyeing vegetable fiber, the method of impregnating the material in its natural state, with a suitable fluid, by immersing the material in the fluid, at a temperature below the normal boiling point of water, and then alternately creating a partial vacuum over the fluid and passing air through the same, substantially as described.

3. In a bleaching or dyeing apparatus, a vacuum vat provided with inlet and outlet ducts for a suitable bath, an air exhaust duct at the upper end of the vat, and an air inlet duct at the lower end of the vat, substantially as described.

4. In a bleaching or dyeing apparatus, perforated or openwork chests for the material to be treated, in combination with a vat provided with supports for the chests, and having an air exhaust duct above the supports and an air inlet duct below the same, substantially as described.

5. In a bleaching or dyeing apparatus, perforated or openwork chests for the material to be treated, in combination with a vat provided with supports for the chests, inlet and outlet ducts for a suitable bath, an air exhaust duct above the supports, a system of perforated pipes below the supports, and an air inlet duct connected to the said system of pipes, substantially as described.

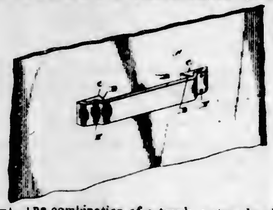
6. In a bleaching or dyeing apparatus, the combination with portable perforated or openwork chests or boxes for the material to be treated, with a vacuum vat provided with supports for the chests or boxes and a bleaching or dyeing vat provided with a dipping

wheel also having supports for the chests or boxes, substantially as described.

7. The process of bleaching or dyeing vegetable fiber, consisting in first impregnating the fiber with a weak bleaching or drying fluid and then subjecting it to the action of a bleaching or dyeing bath of the requisite strength, substantially as described.

8. The process of bleaching or dyeing vegetable fiber consisting in first impregnating the fiber in its natural state with a weak bleaching or dyeing fluid at a temperature below the normal boiling point of water, and then subjecting the impregnated fiber to the action of a bleaching or dyeing bath of the requisite strength, substantially as described.

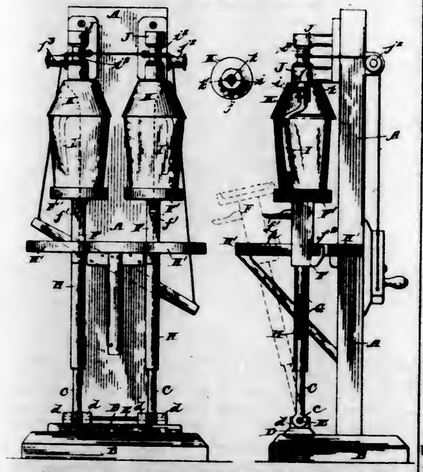
489,820. TRUNK-HANDLE. FREDERICK W. LIEBERKNECHT, Petersburg, Va. Filed Sept. 7, 1892. Serial No. 445,327. (No model.)



Claim.—1. The combination of a trunk, a strap handle secured at its ends thereto, blocks inserted between the said strap ends and the trunk, and flanges on the outer faces of the blocks against which the strap bears, substantially as shown and described.

2. The combination of a trunk, a strap handle secured at its ends thereto, blocks or castings located between the strap ends and the trunk and which are formed with openings through which the securing nails extend, and flanges on said castings or blocks for the purpose of holding the handle ends extended from the trunk, substantially as shown and described.

489,821. DRINK-MIXER. EDWARD J. LEYBURN, Lexington, Va. Filed Sept. 17, 1892. Serial No. 446,218. (No model.)



Claim.—1. In a drink mixer, the combination of a suitable supporting frame, a support for the tumbler which has a vertical and lateral movement, a suitable stirrer and means for operating the same, and a stationary stirrer support which is disconnected from said tumbler support, substantially as described.

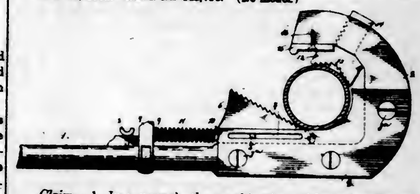
2. In a drink mixer, the combination of a suitable supporting frame, a support for a tumbler having a lateral movement and a rod pivoted at its lower end, a spring for automatically raising the tumbler support and holding it in position, a suitable stirrer and means for operating the same, and a stationary stirrer support which is disconnected from said tumbler support, substantially as described.

3. A drink mixer comprising in its construction a suitable supporting frame, a vertically and laterally moving tumbler support provided with means for locking the same against lateral movement, a spring for holding the tumbler in a normally raised position, a stirrer and means for operating the same, substantially as described.

4. In a drink mixer, the combination of a suitable supporting frame provided with a horizontal slotted platform, a support for the tumbler composed of an upper and lower member, the upper member provided with a lock and adapted to have a vertical and lateral movement in the slotted platform, and the lower member journaled at its lower end whereby it is adapted to have a lateral movement, a suitable stirrer and means for operating the same, substantially as described.

5. In a drink mixer, adapted to stir the contents of two or more tumblers, at a single operation, tumbler supports, and means for operating the two stirrers at a single operation, which latter comprises in its construction a horizontally arranged pivoted operating lever, vertically arranged pulleys having stirrers secured thereto, an operating cord passed around the pulleys and secured by its end to the lever, whereby by operating the lever a rotary movement is imparted to the stirrer, substantially as described.

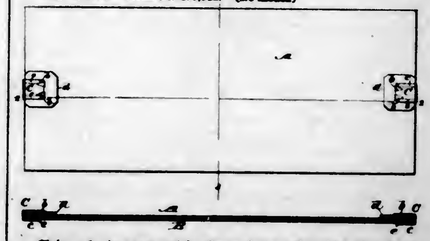
489,822. WRENCH. GEORGE W. MARTIN, Titusville, Fla. Filed Oct. 13, 1892. Serial No. 448,756. (No model.)



Claim.—1. In a wrench, the combination with its handle and hook, an adjustable friction block having a notched shank with a bearing face, the shank mounted in bearings in the hook, of a pivoted catch adapted to engage with the notches of the shank, and the spring adjustable sliding block, substantially as and for the purposes specified.

2. In a wrench, the combination with the handle and its hook, the side plates secured thereto, the adjustable friction block having a notched shank with a bearing face, said shank mounted in bearings in the hook, a catch pivoted to the hook and adapted to engage with the notches of the shank, of the slotted side plates, a block sliding therein, a sliding collar, on the handle, a spring connected thereto and to the sliding block, and means for adjusting said collar, substantially as specified.

489,823. BLOTTER. WILLIAM MEYER, New York, N. Y. Filed July 8, 1892. Serial No. 439,312. (No model.)

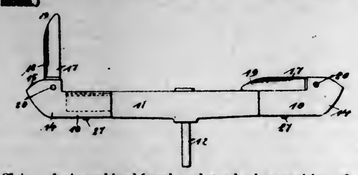


Claim.—1. As a new article of manufacture, the within-described blotter fastener, consisting of the spring-metal device having at one end the inwardly-bent spurs, *b*, for fixed engagement with the upper side of the blotter, and at the other end the long, spring tongues, *c*, which are bent reversely to said spurs and project underneath the body of the device, but separated from the spurs by a space sufficient to accommodate the detachable portion of the blotter, as shown and described.

2. The combination, with the blotter B, and independent smooth back or strip A, arranged upon the outside face of the blotter, of the spring metal clamps C, C, at the opposite ends of said back and blotter, said clamps being constructed at their one end with spurs *b*, flexedly engaging with said back or outer strip, and at their other end with a bifurcated spring tongue or tongues *c*, bent to project under-

neath the body of each of the clamps, and adapted to hold the blotter with a spring pressure up against the back and to provide for the easy removal of the blotter, substantially as described.

489,824. WAGON-BOLSTER STANDARD. ANTHONY MILLER, Cape Girardeau, Mo. Filed Sept. 26, 1892. Serial No. 447,177. (No model.)



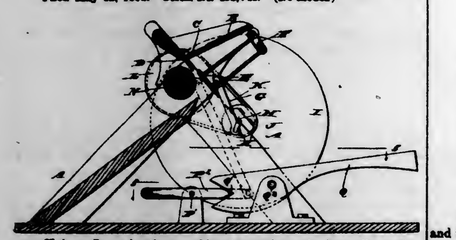
Claim.—1. A combined ferrule and standard, comprising a ferrule adapted to fit upon a bolster, parallel wings produced upon the outer end of the ferrule, the wings being connected at the top and outer edge by a rib, and a standard pivoted between the wings, the standard having a depending shank to strike the end of the bolster and its back arranged to strike the rib connecting the wings, substantially as described.

2. A combined ferrule and standard, comprising the ferrule body adapted to fit a bolster, and having a longitudinal groove in its upper side, parallel wings produced at the outer end of the bolster, the wings being connected at the top and outer edge by a rib, and a swinging standard pivoted between the wings and adapted to lie in the groove of the ferrule, the said standard having its back arranged to strike the rib and a depending shank held to abut with the end of a bolster, substantially as described.

3. A combined ferrule and standard, comprising a ferrule adapted to fit a bolster, parallel curved wings produced at the outer end of the bolster, the wings being connected at the top by a cross rib, a swinging standard pivoted between the wings and adapted to fold upon the ferrule, the standard having a depending rounded lower end or shank to strike the end of a bolster, and a curved rubber iron fastened to the ferrule and arranged to close the slot between the wings, the rubber iron being also adapted to frictionally engage the lower end of the standard, substantially as described.

4. The combination, of the ferrule shaped to fit a bolster and having wings at its outer end which project above the bolster body, and a swinging standard pivoted between the wings and adapted to lie upon the bolster, the standard having its free end rounded on one edge and straight on the other, substantially as described.

489,825. ROLLER COTTON-GIN. WILEY R. MCCALL, Jasper, Fla. Filed May 13, 1892. Serial No. 432,740. (No model.)



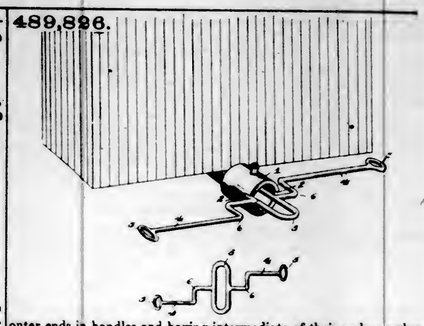
Claim.—In a gin, the combination with a ginning roller and a stripper blade, of a treadle having a V-shaped notch, a lever formed with an arm engaged at its free end by the said V-shaped notch, a link pivotally connected with the said lever, and a crank pulley connected with the said link and adapted to impart a simultaneous motion to the ginning roller and the stripper blade, substantially as described.

489,826. CAR-COUPLING. JAMES MCDADE, Montgomery, Tex. Filed Nov. 7, 1892. Serial No. 451,926. (No model.)

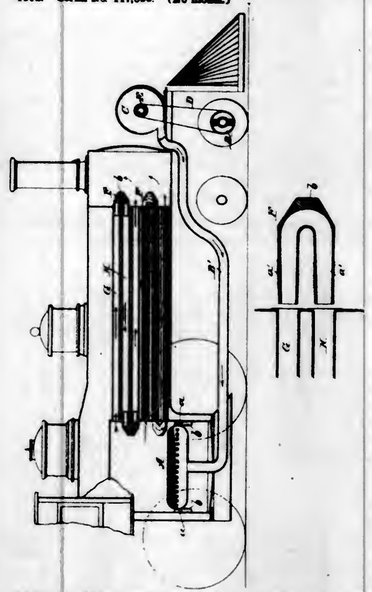
Claim.—1. In a car coupling, a link provided at its sides with laterally extending horizontally disposed arms terminating at their outer ends in handles and having intermediate of their ends angular bends, one of the bends extending inward, and the other outward, substantially as described.

2. The combination of a draw-head provided at opposite sides with notches and a link provided with laterally extending horizontally disposed arms fitting in said notches and terminating at their outer ends in handles and having intermediate of their ends angular bends, one of the bends extending inward, and the other outward, substantially as described.

489,826.



489,827. LOCOMOTIVE-BOILER. JOSEPH S. NEWLIN, Fairfax, S. C., assignor of one-fourth to Virgil Walker, Savannah, Ga. Filed Oct. 5 1892. Serial No. 447,899. (No model.)



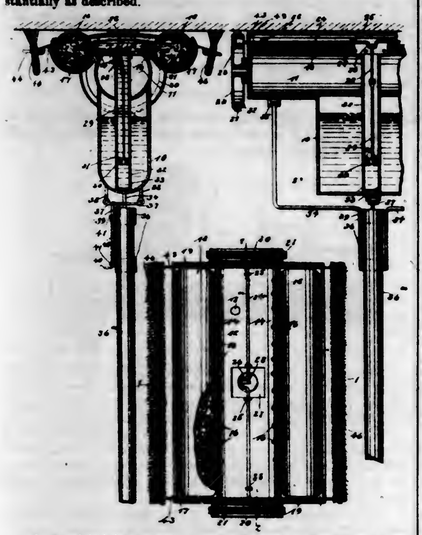
Claim.—1. The "return ends" F having a thickened anvil head and tapered branches having deep threads cut thereon substantially as shown and described.

2. The combination with the flues G H in a boiler; of the "return ends" F having a thickened anvil head and tapered branches having deep threads cut thereon substantially as shown and described.

489,828. CALCIMINING-MACHINE. WILLIAM PETERSON, Sheboygan, Wis. Filed June 7, 1892. Serial No. 436,532. (No model.)

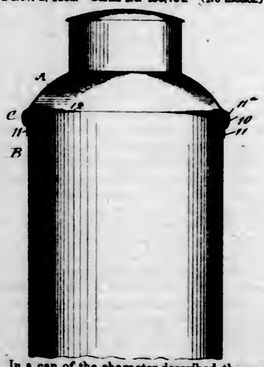
Claim.—1. A calcimining machine, comprising a tank having a handle attached thereto, wheels journaled at the ends of the tank and adapted to run upon the ceiling, yielding distributing rollers held on opposite sides of the tank and a little higher than the wheels, brushes held adjacent to the rollers, and an operative connection between the pump mechanism and the rollers whereby the rotation of the latter will drive the pump, substantially as described.

2. A calcimining machine, comprising a tank having bearing wheels at its opposite ends, a receptacle arranged above the tank, a pump arranged to deliver liquid from the tank to the receptacle, an operative driving connection between the wheels and the pump, guards arranged on opposite sides of the receptacle and connected therewith, distributing rollers held to turn in the guards, brushes secured to the machine parallel with the rollers, and a handle for the machine, substantially as described.



3. A calcimining machine, comprising a tank having a handle adjustably secured to its lower end, a receptacle held above the tank, a pump connecting the tank with the receptacle, a crank shaft journaled in the upper portion of the machine and adapted to operate the pump, bearing wheels journaled on opposite ends of the machine and operatively connected with the crank shaft, guards arranged on opposite sides of the receptacle and connected therewith, distributing rollers held to turn in the upper portions of the guards, and brushes held at the outer sides of the rollers, substantially as described.

489,829. MILK OR OTHER CAN. EMILE PLAISON, Brooklyn, N. Y. Filed Nov. 2, 1892. Serial No. 450,764. (No model.)

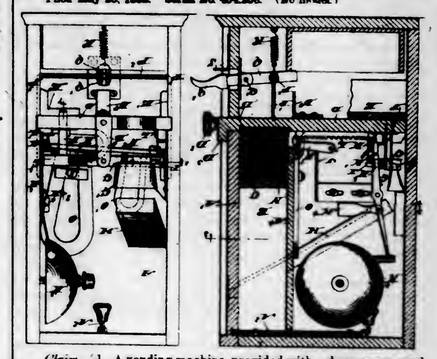


Claim.—1. In a can of the character described, the combination with the body B of the breast A having a portion bent or folded inward upon itself around its entire circumference at a point above its lower edge, thus forming a pendent, double annular flange C which forms an exterior cushion for the can, and the parallel interior flange, or ring 11, which is integral with such flange C, and soldered to the outer side of the said body, as shown and described.

2. A can of the character described, provided with an annular flange at the junction of the breast and body, said flange being produced by beading the metal of which the breast is constructed over upon itself, producing an outer cylindrical fold and an inner fold, a space intervening the two folds, and the inner fold being connected with the body of the can, as and for the purpose set forth.

3. A can of the character described, provided with an exterior unbroken fold at the junction of its breast and body, the fold being constructed by carrying the metal of the breast downward upon itself, forming an outer fold, the lower end of which is contiguous to the body of the can, and an inner fold of practically similar shape to the outer one, which inner fold is carried downward forming a breast ring, a space being provided between the folds, and the folds and the ring, whereby a cushion-like action is given to the flange, as and for the purpose specified.

489,830. VENDING-MACHINE. JOSEPH A. POPP, Lawrence, Kans. Filed May 26, 1892. Serial No. 434,258. (No model.)



Claim.—1. A vending machine, provided with a drawer mounted to slide and adapted to carry an article to the outside of the casing, and a coin receiving lever arranged transversely or at right angles to the direction of movement of and adapted for unlocking the said drawer, the said lever being movable back and forth with the drawer substantially as shown and described.

2. A vending machine, comprising a casing having a compartment containing the articles to be sold, a drawer mounted to slide in the said casing and adapted to engage the lowermost of the articles, to carry the same to the outside of the casing, and a coin receiving lever supported by and movable with the drawer and adapted to lock the said drawer normally in position, the said lever being arranged transversely of or at right angles to the direction of movement of the drawer whereby a longitudinal vibration or jarring of the drawer will not tend to jar the lever out of locked position, substantially as shown and described.

3. A vending machine, comprising a casing having a compartment containing the articles to be sold, a drawer mounted to slide in the said casing and adapted to engage the lowermost of the articles, to carry the same to the outside of the casing, a coin receiving lever movable with the drawer and adapted to lock the said drawer normally in position, a receptacle held on the said coin receiving lever and adapted to receive the coin, to unlock the drawer, and devices whereby to retain the coin in and permit its escape from said receptacle, substantially as shown and described.

4. A vending machine, comprising a casing having a compartment containing the articles to be sold, a drawer mounted to slide in the said casing and adapted to engage the lowermost of the articles, to carry the same to the outside of the casing, a coin receiving lever movable back and forth with the drawer adapted to lock the said drawer normally in position, the said receiving lever being provided with a depending pivotally supported arm for locking the drawer in place, such arm being extended through the drawer and arranged to engage the framing and a coin receiving receptacle held on the said lever and adapted to receive the coin to impart a swinging motion to the lever, to move the said arm upward to unlock the drawer, substantially as shown and described.

5. A vending machine, comprising a casing having a compartment containing the articles to be sold, a drawer mounted to slide in the said casing and adapted to engage the lowermost of the articles, to carry the same to the outside of the casing, a coin receiving lever movable with the drawer and adapted to lock the said drawer normally in position, the said receiving lever being provided with an arm for locking the drawer in place, a coin receiving receptacle held on the said lever and adapted to receive the coin, to impart swinging motion to the lever to move the said arm upward to unlock the

drawer, a coin chute held in the said casing and adapted to discharge the coin into the said coin receptacle, a spring pressed bolt whereby to retain the coin in the receptacle, and an abutment for engagement by said bolt, substantially as shown and described.

6. A vending machine, comprising a casing having a compartment containing the article to be sold, a drawer mounted to slide in the said casing and adapted to engage the lowermost of the articles, to carry the same to the outside of the casing, a coin receiving lever adapted to lock the said drawer normally in position, the said receiving lever being provided with an arm for locking the drawer in place, a coin receiving receptacle held on the said lever and adapted to receive the coin, to impart a swinging motion to the lever to move the said arm upward to unlock the drawer, a coin chute held in the said casing and adapted to discharge the coin into the said coin receptacle, a spring-pressed bolt held on the said coin receiving lever and adapted to support the coin in the said receptacle, the said lever coin receptacle and bolt being movable back and forth with the drawer and an abutment for engagement by the bolt when the drawer is properly advanced, substantially as shown and described.

7. A vending machine, comprising a casing having a compartment containing the articles to be sold, a drawer mounted to slide in the said casing and adapted to engage the lowermost of the articles, to carry the same to the outside of the casing, a coin receiving lever supported to move back and forth in the casing and adapted to lock the said drawer normally in position, the said receiving lever being provided with an arm for locking the drawer in place, a coin receiving receptacle held on the said lever and adapted to receive the coin, to impart a swinging motion to the lever to move the said arm upward to unlock the drawer, a coin chute held in the said casing and adapted to discharge the coin into the said coin receptacle, a spring-pressed bolt held on the said coin receiving lever and adapted to support the coin in the said receptacle, and a fixed arm arranged in the said casing and adapted to be engaged by the said bolt, when the lever is advanced with said bolt to move the latter from under the coin in the receptacle, to permit the coin to pass out of the latter, substantially as shown and described.

8. A vending machine, comprising a casing having a compartment for holding the articles to be sold, a drawer having a recess engaging the lowermost of the articles, racks held on the said drawer, pawls engaging the said racks, and a lever connecting the said pawls for actuating the same to unlock the drawer, substantially as shown and described.

9. In a vending machine substantially as described, the combination of a sliding delivery drawer, a lever supported by, movable back and forth with, and adapted to lock the drawer and release the same and provided with a coin receptacle, a bolt by which to retain the coin in the receptacle, and an abutment for engagement by said bolt when the drawer is properly advanced, whereby to operate the bolt to release the coin, all substantially as and for the purposes set forth.

10. In a vending machine, the combination with a coin receiving lever supported to be moved or advanced after it has been adjusted to unlocked position and provided at one end with a receptacle adapted to receive the coin, of a spring-pressed bolt fitted to slide on the said lever, and having a lug extending under the outlet of the said receptacle to hold the coin in place, and an abutment arranged to be engaged by the said bolt when the lever is advanced, substantially as shown and described.

11. In a vending machine, the combination with a drawer and a permanent magnet thereon, of an alarm bell having a striker adapted to be actuated by the said permanent magnet, substantially as shown and described.

12. In a vending machine, the combination with a drawer and a device for locking the same, of a permanent fixed magnet adapted to hold the said device out of engagement with the drawer to permit the latter to be moved, substantially as shown and described.

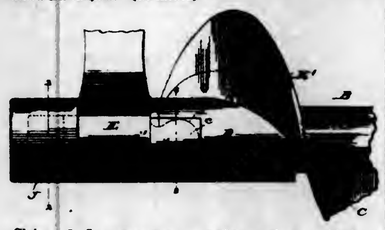
13. In a vending machine, the combination with a drawer mounted to slide, of two racks secured on the said drawer and having their teeth standing in opposite directions, pawls engaging the said racks, a lever carrying the rail pawls on its ends, and a permanent magnet adapted to engage one end of the said lever to hold one of the pawls out of engagement with its rack teeth and the other in engagement with its respective rack teeth, substantially as shown and described.

14. In a vending machine, the combination with a coin receiving lever provided at one end with a receptacle adapted to receive the coin, of a spring-pressed bolt fitted to slide on the said lever, and having a lug extending under the outlet of the said receptacle to hold the coin in place, and means, substantially as described, for imparting a sliding motion to the said bolt to disengage the latter from the coin, as set forth.

15. In a vending machine, the combination with a drawer mounted to slide and adapted to carry the article to be sold to the outside of the casing, a coin receiving lever adapted to receive the coin at one end, and an arm held on the other end of the said lever and passing through the said drawer to engage a recess in one of the guideways for the said drawer, to lock the latter in place, substantially as shown and described.

16. In a vending machine, the combination with a drawer mounted to slide and formed with a recess adapted to receive the article to be sold, of racks secured on the said drawer, pawls engaging the said racks, a lever connecting the pawls with each other, and a permanent magnet adapted to engage the said lever, to hold one of the said pawls out of engagement with the racks, substantially as shown and described.

489,831. CONVEYER. CHARLES W. RENEAU, Meridian, Miss., assignor of one-half to John A. Lewis, same place. Filed May 26, 1892. Serial No. 434,810. (No model.)



Claim.—1. In a conveyer a coupling section provided at one end with a central core and an outer rim and provided between said core and rim with an annular waved or corrugated space forming a seat for the end of the conveyer tube substantially as set forth.

2. In a conveyer the combination of the coupling section having at one end a central core and an outer rim and provided between said core and rim with an annular waved or corrugated space or groove and the conveyer tube pressed at one end longitudinally into said space or groove, substantially as set forth.

3. In a conveyer a coupling section formed at one end with a shell G and a central core H separated to form a continuous annular groove or space F the shell G being provided on its inner wall with longitudinal ribs *g* all substantially as and for the purposes set forth.

4. In a conveyer the combination of the coupling and journal sections provided at their adjacent ends one with a lateral transverse socket in its side and the other with a head formed to fit therein such head being movable laterally into and out of the socket and means by which to retain the head in the socket substantially as set forth.

5. In a conveyer the combination of the coupling section having a transverse socket and provided with an undercut seat *j*, the journal section having a head fitted in said socket and the cap fitted in the undercut seat *j* substantially as set forth.

6. In a conveyer a journal section provided at its opposite ends with transverse heads arranged out of line with each other or on different radii in combination with the adjoining sections having lateral sockets arranged to receive said heads all substantially as set forth.

7. In a conveyer the combination of the coupling section provided in one end with a transverse socket opening out of the side and end of the section the end opening being contracted and an undercut seat being provided at the lateral opening of the socket the journal section having its head fitted to said socket and the cap sliding into the undercut seat all substantially as and for the purposes set forth.

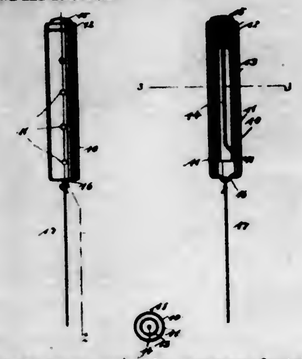
8. In a conveyer a coupling section provided in its outer end with an angular non-circular groove or space and in its inner end with a socket opening out of said end and also laterally and provided at the lateral opening of said socket with an undercut seat all substantially as set forth.

9. The improvement in conveyers substantially as herein described consisting of the journal section provided at its end with the transversely extended head or tenon, the coupling section having at one end a laterally opening socket formed to receive the head or tenon and provided at its opposite end with a central core, a rim and an annular non-circular groove or space between said core and rim and the conveyer tube pressed at one end into such space all substantially as set forth.

10. In a conveyer the combination of the section provided in one end with an annular non-circular groove or space and having the outer open end of such space flared to guide the conveyer tube thereinto and the conveyer tube pressed at its end into such space all substantially as and for the purposes set forth.

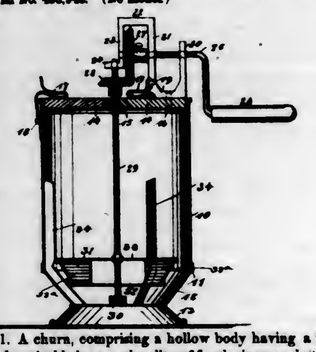
489,832. GALVANIC BATTERY. WILLIAM R. REED, New York, N. Y. Filed June 20, 1892. Serial No. 436,991. (No model.)

Claim.—1. A galvanic battery of cylindrical shape, having concentric poles, and a bail secured to one end of the battery, substantially as shown and described.



2. A galvanic battery, comprising an outer perforated cylindrical shell forming one pole, an inner cylinder forming the opposite pole, an insulating base or plug secured to the two poles, a button secured to the outer end of the base or plug and connected by a conductor with the inner pole, and a bail secured to one end of the battery, substantially as shown and described.

489,833. CHURN. SILAS J. SAXON, Colfax, Wash. Filed July 5, 1892. Serial No. 438,948. (No model.)



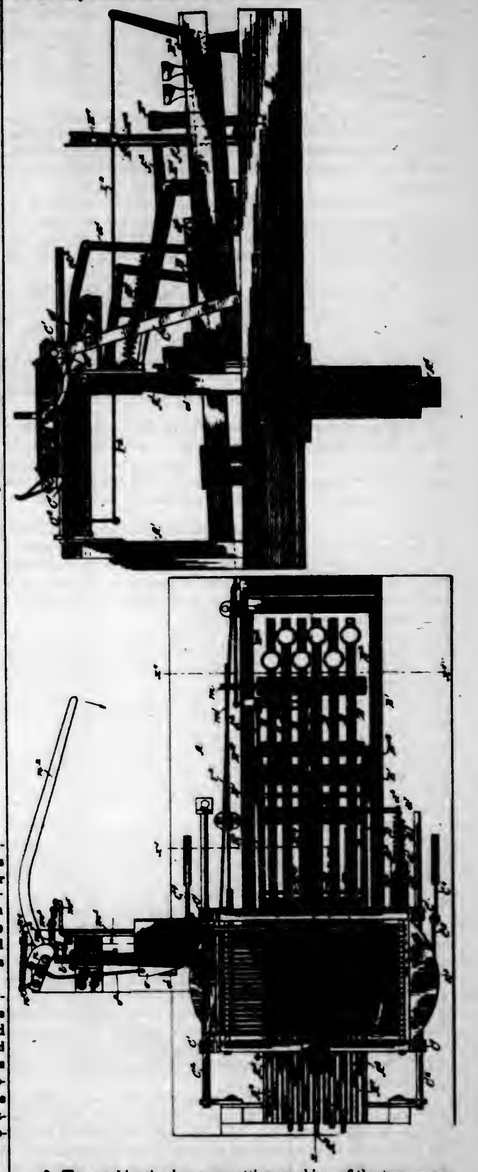
Claim.—1. A churn, comprising a hollow body having a tapering bottom and a suitable base, a plurality of fixed wings or abutments produced vertically upon the body and within the churn, the lower portions of the abutments extending inward upon the tapering portion of the body, a revoluble and removable driving shaft held to turn vertically in the churn body, and a cup-shaped dasher secured to the driving shaft and held to turn above the lower portions of the fixed abutments, the dasher being open at top and bottom, substantially as described.

2. A churn, comprising a cylindrical body portion having a tapering bottom with a suitable base, and a removable two-part cover, one part carrying a bracket with a crank shaft therein, a plurality of fixed wings or abutments secured to the inner side of the churn body and extending downward to the bottom, a removable shaft held to turn in the churn body and geared to the crank shaft on the cover, a cup-shaped dasher secured to the driving shaft and held to turn above the tapering portion of the body, said dasher being open at top and bottom and having wings extending radially inward from its sides, substantially as described.

489,834. TYPE-SETTING MACHINE. HAYDEN C. SMOOT and SAMUEL D. SMOOT, Greenville, Ky. Filed June 6, 1891. Serial No. 395,327. (No model.)

Claim.—1. In a type setting machine, the combination, with the type magazine, and the ejecting devices; of an intermediate carrier frame having longitudinal partitions arranged at right angles to the type magazines, and clasp springs arranged between the said partitions for holding the type, substantially as shown and described.

2. In a type setting machine, the combination, with the type magazine, and the ejecting devices; of an intermediate carrier frame having longitudinal partitions and springs arranged at right angles to the magazines, and an alignment frame moving longitudinally over these partitions, and adapted to transfer the type as set in the spaces between the partitions to an aligned position at the end of the frame, substantially as shown and described.



3. The combination in a type setting machine, of the type magazines, the ejecting devices, an intermediate carrier frame having partitions *c* arranged at right angles to the magazines with notches in their lower edges, clasp springs *c'* arranged beside the partitions, a detent operating through said notches on the springs to open them, and a feed mechanism for the carrier frame, substantially as shown and described.

4. The combination in a type setting machine, of a series of type magazines, a carrier frame with partitions and clasp springs arranged at right angles to the type magazines, and a series of spacing slides arranged at the end of the carrier and adapted to be projected into the spaces of the carrier frame and be expelled from the same by the pressure of the type when aligned, the slides which are not so

expelled serving as temporary spaces for separating the words substantially as shown and described.

5. In a type setting machine, the combination, with the type magazines, and the corresponding ejectors b^3; of a horizontally arranged and longitudinally adjustable shifting bar b^5 having guide holes through it and arranged beneath the ejectors, a series of lift rods b' arranged to operate on two or more of the ejectors, and the key levers B loosely connected to the lift rods, substantially as shown and described.

6. In a type setting machine, the combination with the type magazines, and their ejectors; of a series of lift rods each arranged to operate upon two or more of the ejectors, shifting devices for the lift rods, and key levers connected to the lift rods, substantially as shown and described.

7. The combination, with the ejectors b^3, and the lift rods b'; of the longitudinally adjustable shifting bar b^5 carrying the upper ends of the lift rods, push plates arranged at the ends of the shifting bar, and actuating frames for the push plates, substantially as shown and described.

8. The combination, with the type magazines; of the carrier frame C, arranged upon the horizontal guides to move over the magazine and having a series of ratchet teeth on its under side, a pair of spring actuated rocking arms and links for drawing the carrier forward, and an escapement connected to and operated by the keys for releasing the teeth of the ratchet one at a time and giving a step by step progressive feed to said carrier, substantially as shown and described.

9. The combination, with the spring actuated carrier frame C, having ratchet teeth on its lower side; of a pair of pawls d' d^3, the pawl d' having a stationary fulcrum and forced upwardly by a spring, and the pawl d^3 being fulcrumed by a slot to d', the rod d^5 and the feed frame D operated by the key levers, substantially as shown and described.

10. The combination, with the type ejectors having stems or lifting projections b^4 made of a variable height adapted to the thickness of type which they represent; of a gage acted upon through these lifting projections to give a cumulative movement to the gage which shall be commensurate with the aggregate width of the type in this line substantially as shown and described.

11. The combination, with the type ejectors having stems or lifting projections b^4 of a variable height adapted to the thickness of the type which they represent; of a gage frame E, and the gage consisting of the two tapered bars E^2 E^2, one stationary and the other sliding, and the index frame E^4 sliding over the edge of bars E^2 E^2, with a frictional contact, substantially as shown and described.

12. The mechanism for measuring the progression of a line of type of variable thickness consisting of the two tapered bars E^2 E^2, one movable and the other stationary and an index or pointer frame E^4 having a frictional contact with the edges of the said tapered bars, substantially as shown and described.

13. In a type setting machine, the combination with the galley for receiving the type; of a spacing and justifying device arranged to cut and feed spacing blocks from a single continuous strip of material, which blocks are adapted automatically in number and size to suit the spaces of the line, substantially as shown and described.

14. A type setting machine having a continuous spacing block strip arranged to be cut into spacing blocks of definite size and number, in combination with means for cutting said strips into blocks and adjusting said blocks to place, substantially as shown and described.

15. In a type setting machine, having a continuous spacing block strip, the combination with a spacing mechanism and a series of knives for cutting the spacing blocks; of a press bar connected to the spacing mechanism and arranged to pass behind as many of the said knives as there are spaces in the line, and means for forcing the press bar and the specified number of knives into cutting action, substantially as shown and described.

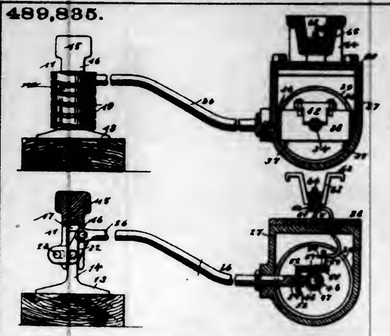
16. In a type setting machine having a continuous spacing block strip, the combination with a gage mechanism for indicating the aggregate amount of spaces in a line; of a series of knives for cutting the spacing blocks, and a stop bar connected to and operated by the gage mechanism for determining the amount of material to be cut from the spacing block strip, substantially as shown and described.

17. The combination of the spacing block knives l, the alternating expanding springs l^2, the stop bar I, the wedge block e, the press bar m^2, and the cam n, substantially as shown and described.

18. The combination, with the carrier having temporary adjustable spacing slides k; of the spacing block plunger R having arm s adapted to engage with the slides and means for operating said plunger, substantially as shown and described.

489,885. CLOSED-CONDUIT ELECTRIC RAILWAY. CHARLES A. GRANT, Duluth, Minn. Filed Mar. 28, 1892. Serial No. 426,069. (No model.)

489,885.



Claim.—1. An electric railway, comprising a surface conductor, a line wire held in a conduit adjacent to the surface conductor and adapted to connect therewith, a compressible rail, and means for closing the circuit through the surface conductor by the movement of the rail, substantially as described.

2. An electric railway, comprising a surface conductor, a circuit closer arranged adjacent thereto and adapted to connect an electric current therewith, a compressible track rail, and means for operating the circuit closer by the movements of the rail, substantially as described.

3. An electric railway, comprising a surface conductor, a line wire arranged essentially parallel with the surface conductor, a series of circuit closers to connect the line wire and surface conductor, compressible track rails, and a lever mechanism for operating the circuit closers by the movements of the rails, substantially as described.

4. An electric railway, comprising a surface conductor, a line wire held in a conduit beneath the surface conductor, insulating contact tubes connected with the wire and having projecting contact lugs, circuit closers connected with the surface conductor and adapted to connect with the contact lugs, compressible track rails, and a lever mechanism for operating the circuit closers by the movements of the rails, substantially as described.

5. An electric railway, comprising a surface conductor, an insulated line wire held beneath the same, contact tubes secured to the line wire and having projecting contact lugs, sliding contact plates adapted to engage the lugs, said plates being in connection with the surface conductor, and having insulating blocks to contact with the lugs, compressible track rails, and a lever mechanism adapted to move the sliding contact plates by the movements of the rails, substantially as described.

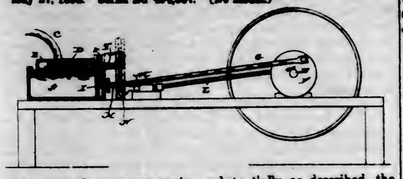
6. In an electric railway, the combination of the compressible rail, an insulated line wire extending between the track rails and having contact lugs at intervals, the surface conductor, the circuit closer connected with the surface conductor and adapted to connect with the contact lugs of the line wire, the elbow lever pivoted on the stationary part of the rail and pivotally connected with the movable part thereof, and an operative rod connection between the elbow lever and the circuit closer, substantially as described.

7. In an electric railway, the combination of the compressible rail, the insulated line wire extending between the track rails and having contact lugs at intervals, the surface conductor, the sliding contact plate connected with the surface conductor and having an insulating block to connect with a lug of the line wire, the elbow lever pivoted on the fixed portion of the rail and pivotally connected with the movable part thereof, and a rod pivoted to the elbow lever and secured to the sliding contact plate, substantially as described.

8. In an electric railway, the combination, with the main conduit having cases at intervals, with removable tops for the cases, of a line wire carried in the conduit, a surface conductor carrier supported on the top of the contact cases, a surface conductor held in the carrier, a compressible track rail and a circuit closer operated by the movement of the rail and adapted to close the circuit between the line wire and the surface conductor, substantially as described.

9. In an electric railway, the combination with the conduit having vertical slideways in its sides and a line wire extending through the conduit, of a two part hanger, the base portion of which is recessed adjacent to the wire and has end tongues to fit the slideways of the conduit and the top portion of which is thickened in the middle so as to enter the recess of the base portion and provided with end flanges to rest upon the base portion, substantially as described.

489,836. VALVE-GEAR. GILBERT DEVEREAUX, Astoria, Ill. Filed May 27, 1892. Serial No. 434,807. (No model.)



Claim.—1. In a steam engine, substantially as described, the combination with a steam cylinder, a valve chest communicating therewith, a slide valve mounted in said chest, a piston mounted in the cylinder, a drive shaft having a crank, mechanism connecting the piston and said crank and an eccentric disk fixedly mounted on the drive shaft; of an arm connected to a strap mounted on the eccentric disk, a link connected with said arm and having a vertical, transverse slot, the rock-shaft having the crank carrying the gudgeon engaging the slot in the link, the T-head or branch fixedly connected to the rock-shaft and the block carried by the valve rod and engaging the T-head; all substantially as and for the purpose set forth.

2. In a steam engine, substantially as described, the combination with a steam cylinder, a valve chest, a valve mounted in said chest, a piston mounted in the cylinder, a drive shaft having a crank, mechanism connecting the piston and said crank and an eccentric disk fixedly mounted on the drive shaft; of an arm connected to a strap mounted on the eccentric disk, a link connected with said arm and having a vertical, transverse slot, the vertically-movable slide-block, the rock-shaft journaled in a bearing carried by the slide block and having the crank carrying the gudgeon engaging the slot in the link, the T-head or branch fixedly connected to the rock-shaft, the block carried by the valve rod and engaging the T-head, and a suitable means for raising and lowering the slide block: substantially as and for the purpose set forth.

3. In a steam engine, substantially as described, the combination with the link having the vertical, transversely-disposed slot, the valve rod having the block S', and a suitable means for reciprocating the link; of the slide-block, the rock-shaft journaled in a bearing carried by the slide block, and having a crank arm at one end provided with a gudgeon engaging the slot of the link, the T-head fixed on the opposite end of the rock-shaft and engaging the block S', of the valve rod, and a suitable means for raising and lowering the slide block; substantially as and for the purpose set forth.

489,887. HITCHING-STRAP. FRANK SWEETLAND, Angola, N. Y. Filed Sept. 2, 1892. Serial No. 444,856. (No model.)



Claim.—The herein described improved hitching-strap, the same consisting of the nose-strap 1, provided at one end with a ring, and at the other end with adjusting holes, and the extension strap provided with a buckle for adjustably connecting with the free end of the nose-strap, a snap hook mounted loosely upon the nose-strap between the ring and buckle, which form stops therefor, said snap hook being adapted to engage with the ring, substantially as specified.

489,888. SAND-BAND FOR VEHICLES. FRANK SWEETLAND, Angola, and JOHN FAULER, Buffalo, N. Y. Filed Oct. 4, 1892. Serial No. 447,537. (No model.)

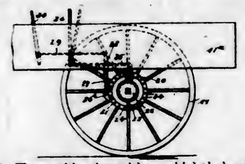
Claim.—1. The combination with an axle and its hub, of a metallic hub-collar secured to the inner end of the hub and provided at its rear face or side with an annular recess the bottom of which has a reduced opening loosely fitting upon the collar of the axle, of a scraping-collar consisting of a circular flange and rearwardly-disposed securing-plates mounted on the axle, said flange fitting within the annular recess of the hub-collar, and a shoulder formed on the rear side of the flange of the scraping-collar and extending to the rear edge of the recess in the hub-collar, and means for securing the scraping-collar in position on the axle, substantially as specified.

2. The combination with an axle and its hub, of a hub-collar provided with spikes or teeth at its inner edge, and driven into the rear end of the hub, said hub-collar being provided at its outer end with an annular bore, of a scraping collar mounted on the axle and fitting in the annular bore, said scraping collar being provided upon its outer side and its lower end with a beveled shoulder extending to the outer edge of the bore, substantially as specified.



3. The combination with an axle and its hub, the latter terminating at its inner end in an annular bore, of a scraping-collar, the under side of which is recessed to embrace the axle, said collar fitting the bore, and provided at the upper edge of its recess with an upwardly-extending securing plate, the opposite edges of said recess below the axle being beveled, an L-shaped plate whose outer edge forms a continuation of the collar having its opposite edges grooved to receive said beveled edges, and provided upon its rear side with a scraping-shoulder, and a clip for binding the parts upon the axle, substantially as specified.

489,889. BRAKE MECHANISM FOR VEHICLES. JAMES B. UPTON, Coalfield, Tenn. Filed Apr. 6, 1892. Serial No. 428,008. (No model.)



Claim.—1. The combination with a vehicle hub, of a drum journaled thereon and having a ratchet connection therewith, a sleeve journaled independently of the drum, a spring secured to the sleeve and drum, and a ratchet mechanism for holding and releasing the spring, substantially as described.

2. The combination with the vehicle hub, of the brake drum journaled thereon and having a ratchet connection therewith, a sleeve journaled on the hub adjacent to the drum, a main spring having one end secured to the sleeve and the opposite end to the drum, and a ratchet mechanism for locking and releasing the sleeve, substantially as described.

3. The combination with the hub, of the brake drum journaled thereon and having a ratchet connection therewith, a sleeve journaled on the hub adjacent to the drum, a main spring coiled upon the sleeve and secured to the sleeve and drum, the pin wheel having a ratchet connection with the sleeve and hub, and a releasing hook to engage the pin wheel, substantially as described.

489,840. VELOCIPEDE. AUGUST F. VOEHLER, Chicago, Ill. Filed June 9, 1892. Serial No. 436,166. (No model.)



Claim.—The combination, with a velocipede having its frame or body constructed in the form of an animal, of a pedal shaft journaled in bearings under the belly of the figure, a shaft journaled in removable bearings in the rump thereof, said shaft being provided with sprocket wheels, the driving wheels journaled in the rear hoofs of the figure and provided with sprocket wheels, and the connecting sprocket chains concealed in the rear legs and partly in the body of the figure, substantially as specified.

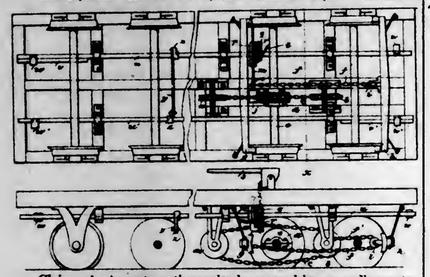
489,841. BROOM-HEAD. ASHER A. WILLETS, McKeesport, Pa. Filed July 2, 1892. Serial No. 438,802. (No model.)



Claim.—1. In a broom head the combination with a handle and base strip having perforations therein of a brush having a concaved brushing edge, with fibers of increased length at the outer ends, substantially as described.

2. In a broom the combination with a base strip having a single row of apertures therein, and a central rectangular opening, a handle fitted in the central opening, tufts in the apertures and lateral reinforcing strips A' fitted into the strip on each side of the central opening, substantially as described.

489,842. CAR-BRAKE. ARMAN YOUNG, Binghamton, N. Y. Filed Mar. 28, 1892. Renewed Dec. 16, 1892. Serial No. 455,300. (No model.)
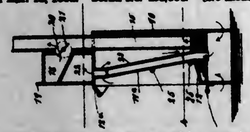


Claim.—1. An automatic car-brake comprising an endless actuator chain, supporting pulleys therefor, a friction wheel on the car-axle, a depressor for causing the said actuator chain to engage said friction wheel, and a chain connecting the brake-beams with the axle of one of said pulleys, so that when the actuator chain is engaged by the friction wheel the said pulley shaft will be rotated thereby winding up the brake-beams' chain and applying the brakes, substantially as described.

2. An automatic car-brake comprising an endless actuator chain, pulleys upon which it is supported, connections from one of said pulleys with the brake-beams, a friction wheel on one of the car-axles, a movable bracket engaging said actuator chain, and means to move said bracket to carry the chain into and out of engagement with the friction wheel, substantially as described.

3. An automatic car-brake comprising an endless actuator chain, pulleys upon which it is supported, connections from one of said pulleys with the brake-beams, a friction wheel on one of the car-axles, a movable bracket engaging said actuator chain, a lever connected to said bracket, and a cam, and means to move it against said lever to depress it and thereby move the bracket and put the actuator chain in engagement with the friction wheel, substantially as described.

4. An automatic car-brake comprising an endless actuator chain, pulleys upon which it is supported, connections from one of said pulleys with the brake-beams, a friction wheel on one of the car-axles, a movable bracket engaging said actuator chain, a lever connected to said bracket, a cam, a rod on which it is fixed, couplings for connecting the various rods throughout the train, and means arranged in the caboose or other part of the train for operating all of the cams and braking mechanisms throughout the train, substantially as described.

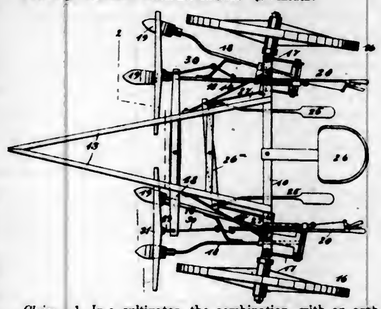
489,843. BASE-HEATING STOVE. RICHARD L. BALL, Terre Haute, Ind. Filed Apr. 12, 1892. Serial No. 428,801. (No model.)



Claim.—1. A base heating-stove, comprising a main case having a combustion chamber in front, a smoke pipe leading upward from the back portion of the case, smoke passages leading into the back portion of the case from the upper part of the combustion chamber, a hollow radiator arranged above the case and connected with the combustion chamber, the radiator having a central receptacle which is open in front, a damper-controlled passage between the radiator and the smoke pipe, and air pipes extending upward through the case, said pipes being open at both ends and arranged to deliver through the case top and also into the receptacle of the radiator, substantially as described.

2. A base heating stove comprising a main case, having a combustion chamber with an open front and an inclined double wall at the back, a smoke pipe leading upward from the back compartment of the case, smoke passages leading from the top of the combustion chamber to the back compartment, a hollow radiator arranged upon the case top and connected with the combustion chamber, the radiator having a receptacle with an open front therein, a damper-controlled passage leading from the radiator to the smoke pipe, air pipes leading upward from the base of the stove through the double wall of the combustion chamber and delivering into the receptacle of the radiator and also through the case top, and air pipes leading vertically upward through the case, substantially as described.

489,844. CULTIVATOR. ALEXANDER J. BOLSTER, York, Nebr. Filed Sept. 13, 1892. Serial No. 445,523. (No model.)



Claim.—1. In a cultivator, the combination, with an arch, an evener connected with the arch, and foot levers acting upon the evener, of spud axles pivotally connected with the arch, gangs carried by the spud axles, and a connection between the axles and the evener, substantially as shown and described.

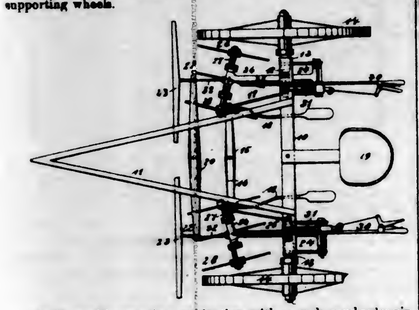
2. In a cultivator, the combination, with an arch and a shifting device carried by the arch, of spud axles pivotally connected with the members of the arch at their lower ends, gangs located forward of the arch and connected with the axles, and a connecting medium between the axles and the shifting device connected with the arch, as and for the purpose set forth.

3. In a cultivator, the combination, with an arch, a pole projected from the arch, an evener pivoted beneath the pole, and foot levers fulcrumed upon the pole and adapted for engagement with the ends of the evener, of spud axles pivotally connected with the lower ends of the arch, yokes projected downwardly and rearwardly from the axles, cultivator shanks pivotally connected with the yokes, extending forwardly therefrom and adapted to receive blades at their lower ends, link connections between the axles and the evener, and a lifting mechanism connected with the cultivator shanks, as and for the purpose set forth.

4. In a cultivator, the combination, with an arch having horizontal arms projected from its ends, a pole connected with the arch, an evener pivoted upon the pole, and foot levers fulcrumed upon the pole, engaging with the evener and extending rearwardly therefrom, of spud axles pivoted upon the arms of the arch, yokes projected downwardly and rearwardly from the axles, cultivator shanks pivotally connected with the yokes, the shanks being adjacent to supporting wheels carried by the axles, cultivator blades carried by the lower ends of the shanks, a lifting mechanism connected with the cultivator shanks, and a link connection between the ends of the evener and the inner ends of the axles, substantially as shown and described.

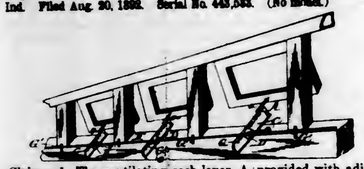
489,845. DISK CULTIVATOR. ALEXANDER J. BOLSTER, York, Nebr. Filed Sept. 17, 1892. Serial No. 446,196. (No model.)

Claim.—1. In a cultivator, the combination, with an arch, axles pivotally connected with the arch, and shifting mechanism supported by the arch, of shanks pivotally connected with the axles, gangs of disks carried by the shanks and located in advance of the axles adjacent to the supporting wheels, and a lifting device connected with each gang of disks, substantially as shown and described, whereby the disks may be raised and lowered and the axles may be carried either in the direction of the right or of the left, and the gangs of disks will move with the axles, maintaining their same relative positions to the supporting wheels.



2. In a cultivator, the combination, with an arch, spud axles pivotally connected with the ends of the arch, supporting wheels mounted upon the axles, an evener supported by the arch, foot levers acting independently upon the ends of the evener, and a link connection between the ends of the evener and the inner ends of the spud axles, of yokes projected downwardly and rearwardly from the axles, shanks pivotally connected with the yokes and extending forwardly beyond the arch, sockets carried by the shanks, shafts journaled in the sockets, disks mounted upon the shafts, a lifting mechanism connected with the shanks, a draft evener located in advance of the rear evener, and a connection between the draft bars and the shanks of the disk gangs, as and for the purpose set forth.

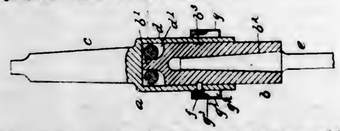
489,846. TRANSOM-LIFTER. JAMES D. CARMODY, Evansville, Ind. Filed Aug. 20, 1892. Serial No. 443,563. (No model.)



Claim.—1. The ventilating sash lever, A, provided with adjustable arm, B, rack, C, and guiding rail, E, in combination with the pinion, D, meshing in said rack and provided with flanges, c' c', and set-screw, c^3, as and for the purpose set forth.

2. The lever, A, provided with toothed rack, C, and integral arms, c and c', to which is secured the guiding rail, E, in combination with the pinion, D, having integral side flanges, c' c', and hub, c, provided with set-screw, c^3, as and for the purpose set forth.

489,847. DRILL-HOLDER. WILLIAM G. CHURCH, Hartford, Conn., assignor to the Woodruff Manufacturing Company, same place. Filed July 27, 1892. Serial No. 441,354. (No model.)

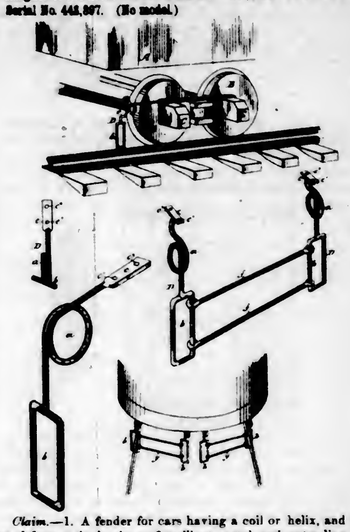


Claim.—1. In combination with the socket piece a comprising a shank c and shell d, the sliding cam ring mounted on the shell and having the interior groove with a cam g^4, the bolt f, extending through a hole in the wall of the shell and covered by the ring, and the removable filling piece having an annular groove adapted to receive the inner end of the bolt, all substantially as described.

2. In combination in a drill holder, a socket piece comprising a shank and shell, a bolt extending through the wall of the shell, a sliding cam ring arranged upon the outside of the shell and having the bolt operating cam, and the filling piece having an annular groove and a drill holding socket, all substantially as described.

3. In combination in a drill holder, a socket piece a comprising a shank and shell, the sliding cam ring g mounted on the shell and having the interior groove g^4 with an annular cam g^4 and an opening g' extending through the ring, the bolt f extending through a hole in the wall of the shell and with a broadened end located within the groove in the cam ring, the removable filling piece b having a drill socket b^2 and an annular groove b^3, and adapted to be removably secured against rotation in the chamber in the socket piece, all substantially as described.

489,848. CAR-FENDER. ALFRED I. CLARKE, Springfield, Ohio, assignor of one-half to Frank H. Clarke, same place. Filed Oct. 14, 1892. Serial No. 448,967. (No model.)



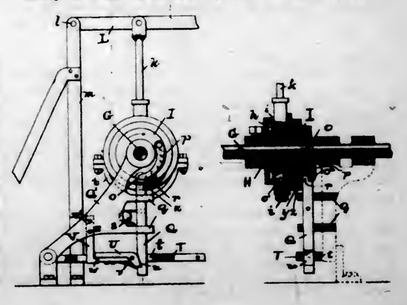
Claim.—1. A fender for cars having a coil or helix, and a loop formed from a single piece of resilient metal, and extending downwardly to form the fender proper, substantially as and for the purpose set forth.

2. The combination with a car of a spring fender formed of a single piece of metal and provided with the helix or coil, and a loop set at an angle or oblique to the said coil, substantially as specified.

3. The combination with a car, of a series of fenders each provided with a coil, and a loop formed of a single piece of resilient metal, and connecting bars between said loops, substantially as set forth.

4. The combination with a car axle-box, of a spring fender formed with an extended arm adapted to be attached to said box, a helix or coil joined to said arm, and a loop at an angle to said coil, said loop being offset from the coil to bring it opposite the center of the car wheel, substantially as set forth.

489,849. STOP-MOTION FOR ROTARY MACHINE PARTS. WILLIAM O. CRAIN, Baltimore, Md., assignor of two-thirds to Wise Bros., same place. Filed July 27, 1892. Serial No. 441,390. (No model.)



Claim.—1. In a machine of the character described, the combination of a continuously rotating part; a loose rotary part; a spring bolt carried by one of said rotary parts and adapted to make connection with the other; a sliding spring-held retractor-bar holding said bolt withdrawn and having a shoulder extending cross-wise of said bar, an operating lever; a latch carried by said operating lever and engaging the shoulder of the said retractor-bar; and a stop to throw said latch out of such engagement with the said shoulder, for the purpose described.

2. In a machine of the character described, the combination of a continuously rotating part; a loose rotary part; a spring bolt carried by one of said rotary parts and adapted to make connection with the other; a sliding spring-held retractor-bar holding said bolt withdrawn; an operating lever; a latch carried by said operating lever and engaging the said retractor-bar; and a stop to throw said latch out of such engagement and movable out of the path of the latch for the purpose described.

489,850. METALLIC LATHING. MASON H. CRITTENDEN and FRANK. V. EMERY, Minneapolis, Minn. Filed May 24, 1892. Serial No. 434,222. (No model.)
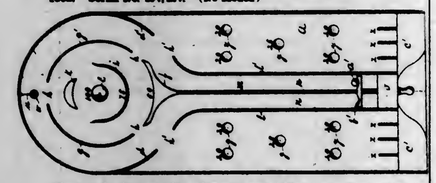


Claim.—1. A metallic lathing sheet having narrow flat strips on a plane with the body of the sheet between parallel slits, and at both sides of such strips raised lips of curved form next the slits and tapering thence to the flat surface of the sheet, substantially as set forth.

2. A metallic lathing consisting of a sheet of metal having at intervals pairs of parallel slits, and having the bodies of metal at the outer sides of the slits bent to form raised lips of curved shape tapering from the edges of the slits to the flat surface of the sheet, substantially as set forth.

3. A metallic lathing sheet having grooves on one side forming corresponding ridges on the opposite side, and intermediate the ridges pairs of narrow flat strips on a plane with the body of the sheet and between parallel slits, and at both sides of such strips raised lips of curved form next the slits and tapering thence to the flat surface of the sheet, substantially as set forth.

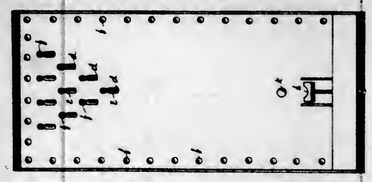
489,851. GAME-BOARD. [illegible] DAVIS, North Dartmouth, Mass., assignor to R. M. Chisholm Davis, same place. Filed June 18, 1892. Serial No. 437,437. (No model.)



Claim.—1. A game board constructed for operation as herein shown and described, consisting of an inclined board, having an outer raised edge, forming a half circle at one end; and provided with interior raised edges, forming concentric circles, having openings, around a cup shaped depression in the head of the board; and forming a central double alley way leading to the spaces between said concentric circles; in combination with means for impelling a ball or balls, along said alley ways.

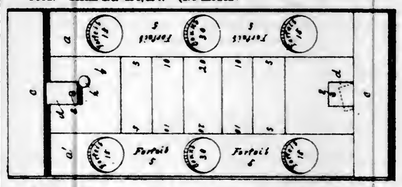
2. A game board adapted to rest in an inclined position; having the outer raised edges *c*, and *d'*, and the interior raised edges *i*,; *g*, and *g'*,; *d*, and *d'*; *l*, and *l'*,; *m*,; and *n*; and provided with the deflector *f*, and *h*; and provided with the arm *u*, and cups *e*, and *g*,; in combination with means for impelling a ball or balls, along the central alley ways *n*, *n*, all as shown and described.

489,852. GAME-BOARD. JOHN R. DAVIS, North Dartmouth, Mass., assignor to R. M. Chisholm Davis, same place. Filed June 29, 1892. Serial No. 438,436. (No model.)



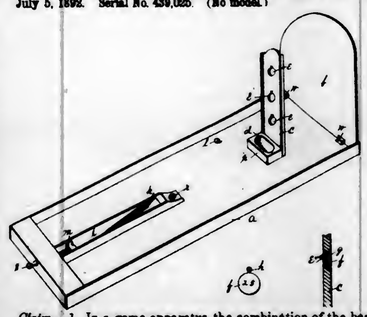
Claim.—A game apparatus, consisting of a shallow oblong tray, having the edge of its upper surface provided with a series of cavities; a series of posts loosely arranged in the form of a triangle, near one end of said tray; a marble, loosely supported on the top of each post, and adapted to be dislodged therefrom and roll into the cavities around the edge of the tray; a spring, ball-propelling device secured to the end of the tray opposite from the posts; and a king ball, adapted to overthrow said posts, when fired by the ball propelling device, all as shown and described.

489,853. GAME-BOARD. JOHN R. DAVIS, North Dartmouth, Mass., assignor to R. M. Chisholm Davis, same place. Filed June 29, 1892. Serial No. 438,437. (No model.)



Claim.—The above described game apparatus, consisting of a shallow oblong tray, having its upper surface marked into three longitudinal divisions; the central division, divided by transverse lines into a series of numbered spaces, and the side divisions provided with three circular recesses each, which are likewise numbered; checkers, adapted to be contained in said recesses; and means to slide or propel said checkers over the surface of the tray, all as shown and described.

489,854. GAME APPARATUS. JOHN R. DAVIS, North Dartmouth, Mass., assignor to R. M. Chisholm Davis, same place. Filed July 5, 1892. Serial No. 439,025. (No model.)

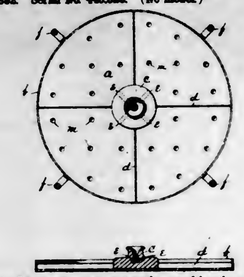


Claim.—1. In a game apparatus, the combination of the base *a*, having the end board b_1; the upright *c*, having holes *e*, provided with wires g_1; the disks *f*, removably supported on said wires; the trough *i*, having inclined bottom k_1; the spring plunger m_1; and the ball *l*, all as shown and described.

2. In a game apparatus, the combination of the base *a*, having the end board b_1; the upright *c*, having holes *e*, provided with wires g_1; the disks *f*, removably supported on said wires; the block p_1 having pocket d_1; the trough *i*, having inclined bottom k_1; the ball l_1; and means to propel said ball up the incline, and through the holes *e*, all as shown and described.

3. In a game apparatus, the combination of the base *a*, having the said board b_1; the upright *c*, having holes *e*, provided with wires g_1; the disks *f*, removably supported on said wires; the block *p*, having pocket d_1; the trough *i*, having inclined bottom *k*, and pocket r_1; the ball l_1; and means to propel said ball up the incline and through the holes *e*, all as shown and described.

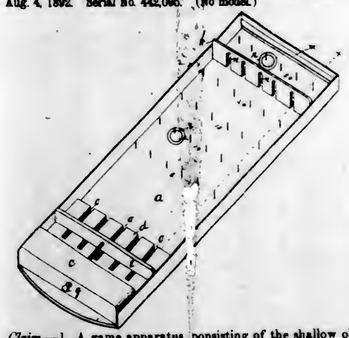
489,855. GAME APPARATUS. JOHN R. DAVIS, North Dartmouth, Mass., assignor to R. M. Chisholm Davis, same place. Filed July 13, 1892. Serial No. 440,236. (No model.)



Claim.—1. In a game apparatus the combination of the base *a*, having the raised edge *b*, and provided with a series of recesses in its upper surface; the part *c*, centrally arranged on said base, and having radial, inclined and covered passage ways *e*; and means for tossing a ball into said part *c*, as and for the purpose set forth.

2. In a game apparatus, the combination of the base *a*, having the raised edge *b*, and provided with a series of recesses in its upper surface, the part *c*, centrally arranged on said base, and having radial, inclined and covered passage ways *e*; the raised edges *d*, extending from the part *c*, to the raised edge *b*; and spring ball-tossing devices *f*, as and for the purpose set forth.

489,856. GAME APPARATUS. JOHN R. DAVIS, North Dartmouth, Mass., assignor to R. M. Chisholm Davis, same place. Filed Aug. 4, 1892. Serial No. 442,092. (No model.)

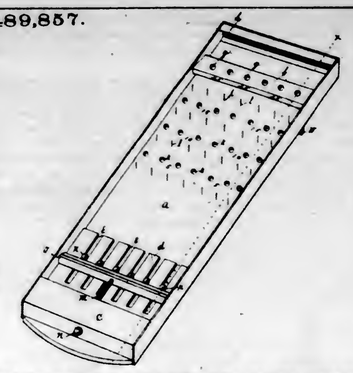


Claim.—1. A game apparatus, consisting of the shallow oblong tray, *a*, having a series of pins arranged in parallel rows on its upper surface, and provided with the inclines *h*; the propelling device *e*; the block *d*, having the open ended slots or guides *o*; the bridge *f*, having a series of arches provided with the doors *n*; and the rings *r*; all as shown, and for the purpose described.

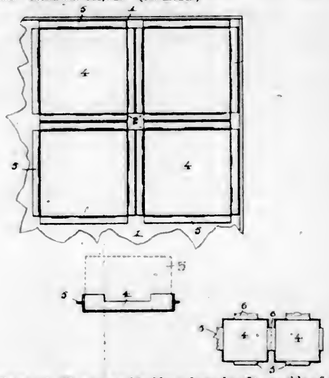
2. A game apparatus, consisting of the shallow, oblong tray *a*, having a series of pins arranged in parallel rows on its upper surface, and provided with the inclines *h*; the propelling device *e*; the block *d*, having the open ended slots or guides *o*; the bridge *f*, having a series of arches; and the rings *r*, all as shown, and for the purpose described.

489,857. GAME APPARATUS. JOHN R. DAVIS, North Dartmouth, Mass., assignor to R. M. Chisholm Davis, same place. Filed Aug. 4, 1892. Serial No. 442,096. (No model.)

Claim.—A game apparatus, consisting of the shallow, oblong tray *a*, adapted to rest in an inclined position, having a series of recesses in parallel rows, sunk in its surface, and a series of pins arranged in parallel and alternate rows with said recesses; the deflector *h*; the board *b*, having the recesses *g*; the board *d*, having the open ended slots or grooves *e*; the propelling device *c*; and the balls *r*; all as shown, and for the purpose described.



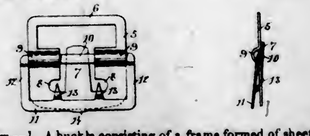
489,858. CARAMEL-HOLDER. RICHARD A. DONALDSON, Brooklyn, N. Y., assignor to W. F. Parker & Co., Oxford, Pa. Filed Aug. 2, 1892. Serial No. 441,942. (No model.)



Claim.—1. The caramel holder adapted to fit one side of a caramel and having narrow unsoldered sides formed of the upturned metal, said sides having the flanges 5 each of the length of the side or less and disposed at an angle thereto; all substantially as set forth, whereby the caramels are held entirely separate from each other and from a common receptacle and whereby a space is provided at the adjacent ends of four flanges for the insertion of the finger to remove a holder from such receptacle.

2. The caramel holder having horizontal separating flanges cut and bent outwardly from their approximately vertical sides and situated in a plane below the upper edges of said side; substantially as set forth.

489,859. BUCKLE. LOCKE DYER, Millbridge, Me., assignor to Schott Brothers, Providence, R. I. Filed May 20, 1892. Serial No. 433,559. (No model.)



Claim.—1. A buckle consisting of a frame formed of sheet-metal having a securing-bar at one end, concaved bearings near the middle, and a spring-tongue extending from near the opposite end between

the concaved bearings, and a securing-frame having a hinge-bar adapted to be inserted in the concaved bearings and held by the spring-tongue, the frame being provided with prongs apapted to secure the strap, as described.

2. The combination with the frame 5 having the bar 6, bearings 9—9, the spring-tongue 7, and provided with openings 8—8 at either side of the tongue, of a securing device formed of the bars 10 and 11 connected by the sides 12—12, and the bent prongs 13—13 extending inward from said bar 11, as and for the purpose described.

3. In a buckle, the combination with a buckle-frame having bearings bent up therefrom, of a securing-frame formed of the bars 10 and 11 and sides 12—12, the prongs 13—13 extending inward from the bar 11, and means for retaining the bar 10 in said bearings of the buckle-frame, for the purpose described.

489,860. REGISTERING TOY MONEY-BANK. CHARLES A. BAILEY, Cromwell, Conn., assignor to the J. and E. Stevens Company, same place. Filed Aug. 16, 1892. Serial No. 443,187. (No model.)



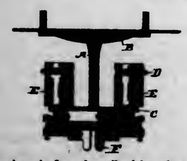
Claim.—1. In a toy bank, the combination with the box or receptacle, its slotted cap or cover, and the coin chute or guide, of the shaft or spindle, the screw or thread thereon, the toy figure engaging said screw or thread through the slot of the cap plate, the graduated scale, the spurred wheel on one end of said plunger and arranged to project its spurs partially into said coin chute or guide, and the spring actuated plunger, substantially as specified.

2. In a toy bank, the combination with the box or receptacle, having the slotted cap or cover, the graduated scale and the double end plates between which is formed a coin chute or guide, of the screw shaft or spindle within said box, the sliding toy figure engaging said shaft through the slot in said cover, the spurred wheel on said shaft and inclosed between said end plates, and the spring actuated plunger working between said plates, and having a projecting thumb plate, substantially as specified.

3. In a toy bank, the combination with the box or receptacle, its coin chute, the slotted cap plate, the plunger, the screw shaft or spindle, the mechanism operated by the coin and plunger for operating said shaft or spindle, of the toy figure engaging said shaft or spindle through the said slotted cap plate, the scale, the hinged or pivoted end plate, the lock therefor, and the second toy figure arranged to release said lock at the proper time, substantially as specified.

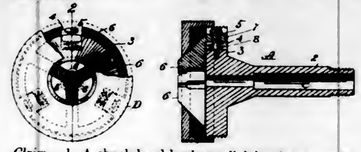
4. In a toy bank, the combination of the box or receptacle, the registering scale thereon, the coin chute or guide, the screw shaft or spindle, the toy figure mounted on the box and having an engagement with said shaft, the pointer carried by said figure and arranged to traverse said scale, the spurred wheel on said shaft and inclosed in the end plates of the box, said wheel having its spurs adapted to project into the coin chute or guide and be engaged by the coin, the spring-actuated plunger arranged to operate upon the coin, the hinged or pivoted end plate or door, its lock, the second toy figure in connection with the first, said second figure having means whereby it is capable of releasing said lock at the proper time, and means for resetting said figures for a new deposit, substantially as specified.

489,861. BRACKET FOR ELECTRIC-LIGHT WIRES. GEORGE H. BARRETT, Cincinnati, Ohio. Filed Nov. 16, 1891. Serial No. 412,096. (No model.)



Claim.—The herein before described bracket, stand or hanger for electric light wires, with its hollow stem A. Base B with its bolt holes *b*. Top C with its bolt holes C' counter sunk on top to hold the bottom insulator E slots C' to adjust the rosette F, socket G and top insulator E substantially as shown and described.

489,862. CHUCK. FRANK BLESSING, Lancaster, assignor to Francis X. Blessing, Reading, Pa. Filed June 14, 1892. Serial No. 436,642. (No model.)

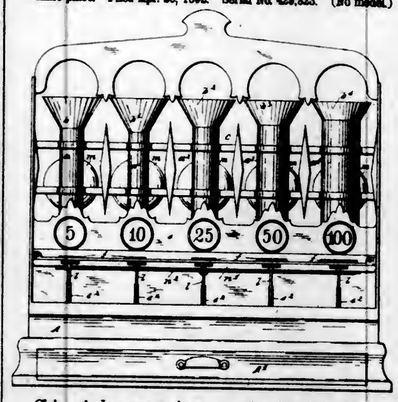


Claim.—1. A chuck-head having radial slots in its periphery and having a threaded socket at the base of each of said slots, in combination with a series of chuck-jaws each having a perforated arm adapted to enter one of said slots in the chuck-head, a screw passing through each of said arms and engaging the socket at the base of the slot, a spring arranged under each arm and a perforated cap adapted to be screwed over said chuck-head, each of said chuck-jaws having a beveled outer face adapted to be engaged by said cap, substantially as set forth.

2. A chuck-head consisting of a shank having a cylindrical head, said head having radial slots formed in its periphery, in combination with a series of removable chuck-jaws each having the form of a section of a truncated cone, each of said jaws having a flat base arranged to move across the face of the said chuck-head, and being provided with an arm which enters one of the slots in said head, springs arranged in said slots under said arms of the respective chuck-jaws, and a centrally perforated cap plate adapted to be screwed over said head, substantially as set forth.

3. A chuck-head having radial slots in its periphery and having a shank, in combination with a series of chuck-jaws each consisting of a conic section having an arm of less width than the chord of the arc of the base of said section, said arm being arranged in one of the radial slots in the chuck head, springs arranged in said slots under said arms of the respective chuck-jaws, and a centrally perforated cap plate adapted to be screwed over the said chuck-head, substantially as set forth.

489,863. COIN-DELIVERING DEVICE. HENRY BROOME, Springfield, Ohio, assignor of two-thirds to Elmer E. Albin and John W. Hughes, same place. Filed Apr. 20, 1892. Serial No. 429,823. (No model.)



Claim.—1. In a money changer a series of vertical tubes having cone shaped receiving ends, supporting stands at the base of said tubes each having slotted openings at right angles to the axis of said tubes corresponding in size to the coins contained in said tubes, an ejecting slide passing through each of said openings, and means for operating said slides, a change receiver located in front of and extending transversely across the entire series of tubes, having at its rear a table the top of which stands flush with the bottoms of the respective slotted openings, and formed at the front with a coin receiving trough, substantially as specified

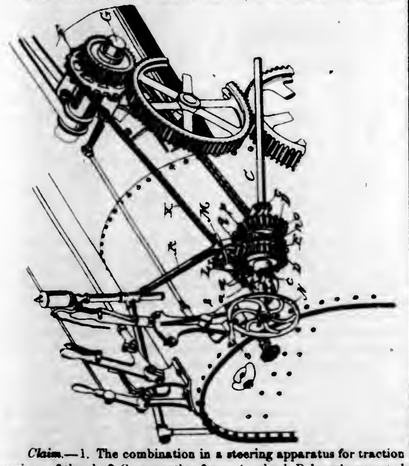
2. The combination with a coin receiving tube having the cone shaped receiving end, a stand for said tube having a slotted opening and an extended bottom, a reciprocating slide passing through said opening and connected to a pivoted arm through a longitudinal slot in the bottom of said tube, a pivoted key-lever connected to said pivoted arm and having a retracting spring, a gong supported adjacent to said tube, a spring actuated hammer for striking said gong, and a projection on said reciprocating slide adapted to retract said hammer, substantially as specified.

489,864. SHANK-BUTTON. FRED H. HARDMAN, Beverly, assignor to Walter R. Bennett, Boston, Mass. Filed Mar. 14, 1892. Serial No. 424,901. (No model.)



Claim.—A shoe-button having its eye-shank formed of a piece of wire with its extremities brought into juxtaposition and the metal of said extremities displaced outwardly to form flattened portions of greater width than the diameter of the wire of the shank, forming anchoring shoulders intermediate the said flattened portions and the extreme ends of the wire, which latter are substantially uniform with the diameter of the wire, substantially as described.

489,865. STEERING APPARATUS FOR TRACTION-ENGINES. CHARLES O. HEDGES, Massillon, Ohio, assignor to the Russell & Company, same place. Filed June 13, 1892. Serial No. 436,602. (No model.)

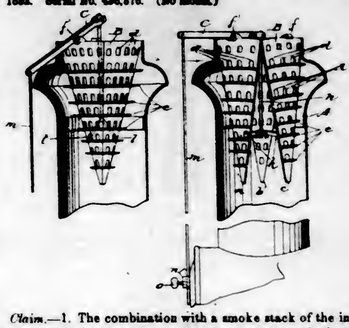


Claim.—1. The combination in a steering apparatus for traction engines of the shaft C, supporting frame A, wheels D, loosely mounted on said shaft, a clutch J to slide on and rotate with said shaft to engage said wheels, a lever to move the clutch into such engagement, a driving wheel E having teeth to engage similar teeth on the wheels D, and a series of sprockets *d*, about its periphery to engage a driving chain X, that has a similar engagement with the wheel F, on the engine shaft G, substantially as described and for the purpose set forth.

2. In combination, the suitably journaled steering shaft provided with two loosely journaled gear wheels, a clutch mounted on said shaft to rotate thereon and slide into engagement with either of the aforesaid wheels, a driving wheel located between said gear wheels and continuously rotating them in opposite directions and means for shifting the clutch into engagement with either of the said gear wheels substantially as set forth.

3. In combination, the suitably journaled steering shaft C, two bevel gear wheels loosely journaled thereon, a sliding clutch to engage either of said wheels, a driving gear meshing with said bevel gears, an overhanging arm having a web *n*, a lever fulcrumed on said arm and a loop spring M, secured to said lever and having its branches engaging the opposite sides of said web whereby the clutch is normally held out of engagement with either of the bevel gear wheels, substantially as set forth.

489,866. SPARK-ARRESTER. CHARLES O. HEDGES, Massillon, Ohio, assignor to the Russell & Company, same place. Filed June 15, 1892. Serial No. 436,876. (No model.)

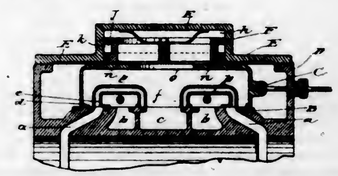


Claim.—1. The combination with a smoke stack of the inverted cone B, supported at the upper end of the stack A, by the hooks *f f'* adapted to swing thereon, said cone divided longitudinally and provided with apertures and annular ledges, the lever C, rod A, links *k* and means for operating said lever to open or close the cone B, substantially as and for the purpose set forth.

2. The combination with a smoke stack of the inverted pendent cone B, having annular ledges *e* and apertures *d* in vertical order and divided longitudinally substantially as described and for the purpose set forth.

3. The combination with a smoke stack of the inverted pendent cone having apertures and ledges as described hinged at the top of said stack, and divided longitudinally and means for swinging said divisions apart and together, substantially as described and for the purpose set forth.

489,867. BALANCED SLIDE-VALVE. CHARLES O. HEDGES, Massillon, Ohio, assignor to the Russell & Company, same place. Filed Aug. 3, 1892. Serial No. 441,999. (No model.)



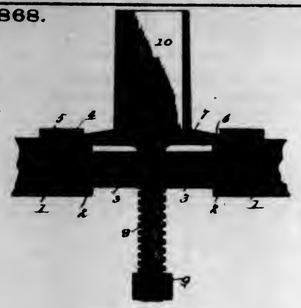
Claim.—1. The combination with a steam cylinder having ports *a, b, c, b,* of the slide valve C, having ports *d, e* and *f*, valve chamber D, cap E having a cylindrical recess *h* and a ring F adapted to move vertically therein, and to rest on the back of the valve, and aperture O in said back, circumscribed by said ring, substantially as described and for the purpose set forth.

2. The combination with a steam cylinder having ports *a, b, c* of the valve chamber D, slide valve C, having ports *d, e, f*, cap E, having therein recess *h*, the area of which is less than the area of the ports *d, e f*, whereby the pressure on the valve may be previously determined, and ring F, adapted for vertical adjustment in said recess, substantially as described and for the purpose set forth.

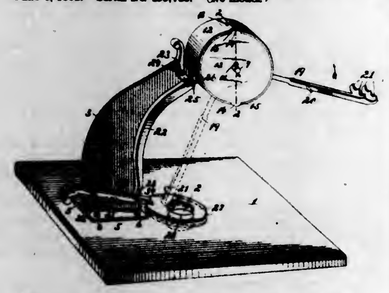
489,868. VALVE FOR FERMENTING-TUBS. SAMUEL S. JOHNSON, Owensborough, Ky., assignor of one-half to John S. Wright, same place. Filed June 17, 1892. Serial No. 437,096. (No model.)

Claim.—In a fermenting tub or other vessel the combination with the bushing located in an opening in the bottom thereof, provided with a cross-piece having a screw threaded aperture, an annular flange and shoulder and an annular groove in its inner edge forming a valve seat, of the rotatable valve consisting of the annular disk, having a downwardly depending screw-threaded stem with a nut or tap, and an upwardly extending angular socket to receive a bar by which it is rotated, substantially as and for the purpose set forth.

489,868.



489,869. ANIMAL-TRAP. JOHN T. KISLINGER, Sr., Belton, assignor to John T. T. Kislinger, Jr., and Loren G. Rowell, Kansas City, Mo. Filed June 6, 1892. Serial No. 435,725. (No model.)



Claim.—1. An animal-trap, comprising a suitable standard, a revoluble casing mounted axially at the upper end of said standard and carrying a radial striking-arm, a depressible and spring elevated platform pivotally connected to the lower end of the standard, a pendent trip-lever engaging the arm of the platform, a stud carried radially by the revoluble casing and arranged to engage the upper end of the trip-lever, for tripping the same, and a spiral spring coiled within the casing and operating to revolve the same when the trap is sprung, substantially as set forth.

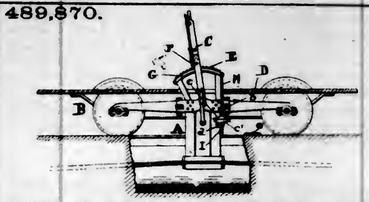
2. An animal-trap, comprising a suitable standard, a revoluble casing mounted axially at the upper end of the standard and carrying a radial striking arm, a spiral spring coiled within the casing and serving to revolve the same when the trap is sprung, a pendent trip-lever pivoted upon the standard, a stud carried radially by the casing and engaging the upper part of the trip-lever, and a shoulder at the upper end of the lever also engaged by the stud an arm pivoted at the lower part of the standard and provided with a shoulder engaged by the lower end of the trip-lever, a platform carried at the outer end of the arm, and a spring operating by contact with the platform-arm to retain said arm and platform normally in raised position, substantially as set forth.

3. An animal-trap, comprising a suitable standard, a fixed spindle projecting laterally from the upper end of the standard, a revoluble casing carrying a radial striking-arm and mounted axially upon the spindle, and a revolving-spring for the casing secured at its inner end to the spindle and at its outer end to the periphery of the casing, substantially as set forth.

4. An animal-trap, comprising a suitable supporting standard, a revoluble spring-actuated casing mounted at the upper end of said standard and carrying a radial striking-arm and a tripping-arm pivoted upon the standard and engaging the said revoluble casing, a spring-elevated bait-platform having a bait-opening in its body-portion, a lever carrying said platform and pivoted upon the standard and also engaged by the tripping-arm, and a suitable base having a cavity to receive the bait and lying directly beneath the bait-opening of the platform, substantially as set forth.

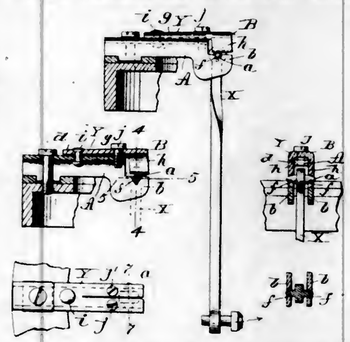
489,870. CABLE-RAILWAY GRIP. JAMES B. MAHAFFEY, Baltimore, Md., assignor of one-half to Iben B. Hunting, same place. Filed Oct. 12, 1892. Serial No. 448,733. (No model.)

489,870.



Claim.—In a cable-grip, the combination of a rack; a controlling lever; a pawl carried by said lever and engaging the rack; a vertically-movable trip-bar extending along the rack and arranged to loosely engage the pawl; a slide-rod connected with said trip-bar and having a transverse shoe at its lower end with an under contact surface; a rocking trip-lever having a transverse shoe at its upper end with a top-surface for contact with the under surface of the slide-rod shoe, and a depending lower end; and a track-projection or rise in the path of said depending lower end.

489,871. TYPE-WRITING MACHINE. HENRY W. MERRITT, Springfield, Mass., assignor to the Merritt Manufacturing Company, same place. Filed Sept. 26, 1892. Serial No. 446,864. (No model.)



Claim.—1. The combination with a type-bar provided with laterally extended studs, of a hanger comprising two members each of which has opposing cheeks or ear-pieces, those of the one being in planes coincident with those of the other and one of said members being adjustable so that the edges of its ear-pieces may be brought to the desired proximity to the edges of the ear-pieces of the other, and one pair of said ear-pieces having notches therein within which said pivot-studs may, as to a portion of their diametrical extents, be disposed, substantially as and for the purposes set forth.

2. The combination with a type-bar having laterally extended pivot-studs or trunnions, of a hanger comprising a member with a pair of opposing cheek-pieces with transversely aligned notches in their upper edges, in which said pivot-studs are set and a second member secured to the first, and bearing on said studs, and an adjusting screw having engagements with said hanger members, substantially as described.

3. The combination with a type-bar having laterally extended pivot-studs or trunnions, of a hanger comprising a member with a pair of opposing cheek-pieces with transversely aligned notches in their upper edges, in which said pivot-studs as to a portion only of their diametrical extent are disposed, and a second member secured to the first and having portions thereof bearing on said studs, and an adjusting screw having engagements with said hanging members for the purpose set forth.

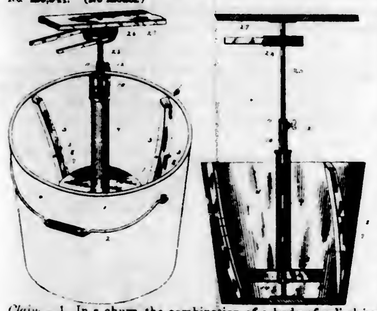
4. The combination with a type-bar having laterally extended pivot-studs, of a hanger therefor consisting of one member of inverted trough-form provided at its forward end with the cheek-pieces, *b*, *b*, the upper edges of which are below the back of said member, and which are provided with transversely aligned notches, and the secondary member consisting of a bar pivoted near its rear end to the back of the first member, and forwardly provided with the depending ear-pieces, *h*, *h*, which have positions over the aforesaid cheek-pieces and the headed screw, *j*, passed loosely through the said bar and with a screw engagement into the back of said first hanger-member substantially as and for the purpose set forth.

5. The combination with a type-bar having laterally extended tapered pivot-studs, of a hanger therefor consisting of one member provided at its forward end with the cheek-pieces, *h*, *h*, the upper edges of which have transverse aligned notches in which the said tapered pivot-studs have bearings and a secondary member consisting of a portion which is connected and vertically adjustable upon and relative to the first member, and having depending ear-pieces, *h*, *h*, substantially as described.

6. The combination with a type-bar having the laterally extended studs of conoidal form, of a hanger therefor consisting of a member provided at its forward end with the opposing cheek-pieces the upper edges of which have transverse notches which are of V-form and the surfaces of which are inclined downwardly and inwardly in a greater degree than the inclination of said pivot-stud, and a secondary member consisting of a portion which is connected and vertically adjustable upon and relative to the first member and having the pending ear-pieces, *h*, *h*, the edges of which are beveled inwardly and upwardly in a greater degree than the inclination of the proximate portion of said pivot-studs, substantially as described.

7. The combination with the type-bar having the lateral pivot-studs, of a hanger consisting of a rigid member having opposing ear-pieces and ear-pieces and parts on which they are angularly supported which are connected to the top of said rigid member and separate adjusting screws having engagements with said parts and the rigid part of the hanger, substantially as and for the purposes set forth.

489,872. CHURN. NEWTON MONDAY, Lathrop, Mo., assignor of one-half to James M. O'Carr, same place. Filed Apr. 15, 1892. Serial No. 429,341. (No model.)



Claim.—1. In a churn, the combination of a body of cylindrical form, and breakers removably secured to the inner side thereof in diagonal lines approximating a vertical plane and having slots in the rear portions of the same intermediate of the length thereof, the lower ends of each the said breakers being tapered to form a close fitting at the bottom of the body and avoid too much projection, a series of eyes secured to the inner sides of the said body, and catch-pins depending from the upper portions of said slots in the breakers and adapted to removably engage the aforesaid eyes, said pins being so arranged as to closely hold the breakers against the inner side of the said body, substantially as described.

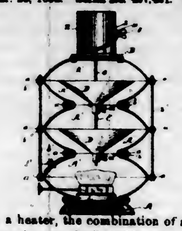
2. In a churn, the combination of a body and a centrifugal air feeding device mounted therein and consisting of a tube with an upper open end, and having an air chamber at the lower end thereof constructed of separable sections with peripheral openings therein, situated diametrically opposite to each other and having a part thereof arranged in each section in such manner as to align and open in reverse directions, substantially as described.

3. In a churn, the combination of a centrifugal air feeding device having a tube open at its upper end and formed with an air chamber at its lower end having peripheral air openings, and interlocking pins and slots in the opposite parts thereof, and a shaft extending centrally through said air feeding device and secured thereto for the purpose of rotating the same, substantially as described.

489,873. METHOD OF PRODUCING ZINC OXIDE FROM SULPHITE OR SULPHATE OF ZINC. ROBERT P. HEMMINGS, Newark, N. J., assignor to Edward J. Ill, same place. Filed Sept. 21, 1892. Serial No. 446,736. (No specimens.)

Claim.—The method of recovering oxide of zinc from a solution of sulphate or sulphite of zinc, which consists in precipitating with lime, collecting the precipitate and boiling it with a concentrated solution of zinc sulphate, filtering, evaporating the filtrate to dryness and finally leaching with water, substantially as specified.

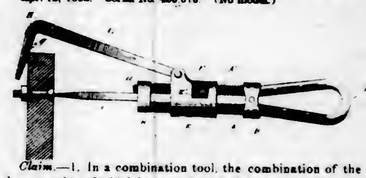
489,874. RADIATOR, STOVE, &c. ALLEN T. ORTON, Battle Creek, Mich. Filed Mar. 29, 1892. Serial No. 427,421. (No model.)



Claim.—1. In a heater, the combination of a series of consecutive chambers, a flue pipe, a rod adjustably connected with said pipe, and a series of dampers adjustably secured on said rod, substantially as and for the purposes specified.

2. In a heater, the combination with a series of consecutive sectional dish-shaped plates, of a series of consecutive chambers, a flue pipe, a rod adjustably connected with said pipe, and a series of dampers adjustably secured on said rod, substantially as and for the purposes specified.

489,875. COMBINATION-TOOL. CHRISTOPHER C. REYNOLDS, Eldorado, Utah, assignor of one-half to Elizabeth Brown, same place. Filed Apr. 12, 1892. Serial No. 428,575. (No model.)

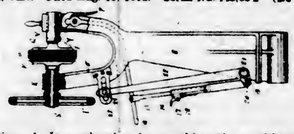


Claim.—1. In a combination tool, the combination of the bent rod, one section of which is screw-threaded, the movable block on said parallel sections, an adjusting nut, the removably-connected screw-driver and the hooked bar pivoted to the movable block, substantially as described.

2. In a combination tool, the combination of the looped rod, providing two parallel sections, one of which is a screw, a screw driver whose head is connected to the end of said screw, a movable block mounted on the parallel sections, an adjusting nut engaging the block and the screw and operative upon the block and a hooked bar pivoted upon the block, substantially as described.

3. The combination, in a combination tool, of the parallel sections A and A^1, the latter being a screw, the block E, adjusting nut F on the screw A^1 and located within a slot in the block E the hooked bar pivoted to the block E and the chisel pointed part C connected to the device, substantially as described

489,876. SOLE-TRIMMING MACHINE. SIMON ROSS, Jr., Cincinnati, Ohio. Filed Aug. 13, 1892. Serial No. 443,034. (No model.)



Claim.—1. In a sole-trimming machine, the combination with a shaft, of cutter-heads provided with grooves in their inner faces and peripheral stops formed at the ends of said grooves, cutters resting in said grooves their cutting edges resting against the said peripheral stops, whereby the cutting edges of both cutters are adjusted in the same peripheral plane, and means for clamping said cutter heads upon the shaft to secure the cutters in the adjusted position, substantially as described.

2. In a sole-trimming machine, the combination with a shaft, of cutter-heads B and C provided with grooves in their inner faces and peripheral stops formed at the ends of said grooves, cutters resting in said grooves, their cutting edges resting against said peripheral stops, means for clamping said cutter-heads upon the shaft to secure the cutters in position, a sleeve D, journaled on said shaft, and means for moving the same laterally to and from the disk B, to regulate the exposure of the cutters, substantially as described.

3. In combination with the cutter head composed of the clamping heads A, B, knives C, the sleeve D provided with the bars L abut-

ting the back of the knives and the outer edge of the sleeve for holding the stock to the cutter, whereby a feather edge is avoided, substantially as specified.

4. In combination with the head F, mounted upon revoluble shaft, the head G mounted upon a driving slide V, the lever Q fulcrumed upon the jack frame and engaging with said slide, and pawl and ratchet mechanism for locking said lever in position, substantially as specified.

5. In combination with the head G, supported upon the clamping slide V, the lever Q and pawl Y, engaging with the teeth *f* of said clamping slide, substantially as specified.

6. The clamping mechanism consisting substantially of the stationary head F, the movable head G mounted upon the clamping slide, supported in the limb P of the jack frame, the lever Q, and pawl Y detachably connected to said slide, whereby it is adjusted independently of the lever Q, and driven positively by said lever, substantially as specified.

7. In combination with the lever Q, and the pawl and ratchet mechanism for driving the head G, the crank arm 22, and the locking mechanism connecting crank 19 with the lever Q, whereby the said lever Q may be locked to the lever 22, and the latter moved on its axis to further depress said lever, substantially as specified.

8. In combination with the lever Q, the lever 22, provided with the crank 19, and locking mechanism connecting said lever and said crank and locking mechanism, for holding lever 22 adjusted to any desired position, substantially as specified.

9. In combination with the jack frame S, of a sole trimming machine, the clamping and driving mechanism consisting of the shaft S, the clamping head F mounted upon one limb of the frame, the head G, the slide V mounted on the opposite limb P of said fence, and the lever and pawl mechanism for driving said slide V, substantially as specified.

10. In a sole-trimming machine, the combination with a jack-arm and a clamping head F, of a slide V moving in said jack-arm, a stud carried by said slide, a clamping head G, loosely journaled upon said stud, substantially as described.

11. In combination with the clamping head, the detachable plate U secured by the headed pins A, countersunk in the face of said plates, and fastened through said plates and head, and spring i engaging with said pins A, to hold them in position, substantially as specified.

12. In combination with the clamping head G, provided with the central recesses *p*, the detachable plates U' secured thereto by one or more pins A, and springs i, substantially as specified.

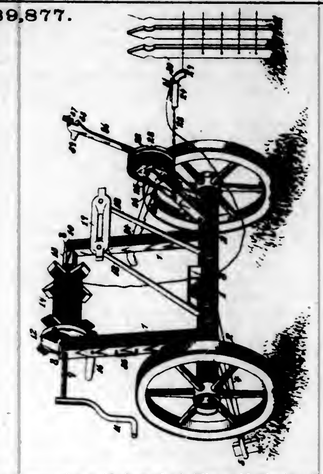
13. In a sole trimming machine, the combination of the slotted fence frame with the adjustable shelf 31, the gages 34, 39, vertically adjustable on said fence, substantially as specified.

14. In a sole trimming machine, the fence frame swiveled upon the main frame, the vertically adjusting shelf 31, the vertically adjusting gages 34, 39, carrying side gages against which the stock rests, and carrying side gages against which the pattern rests, substantially as specified.

15. In combination with the pattern w, the clamping heads G, H, the fence frame carrying adjusting gage plates 34, 39, against which the stock rests, and the adjusting fingers 38 against which the pattern rests for centering the stock to the pattern, substantially as specified.

489,877. MACHINE FOR REELING AND STRETCHING WIRE.

JAMES H. ROWLETT and SIDNEY ROBINSON, Ludlow, Mo., assignors of one-third to Daniel F. Rowlett, same place. Filed Feb. 29, 1892. Serial No. 423,333. (No model.)



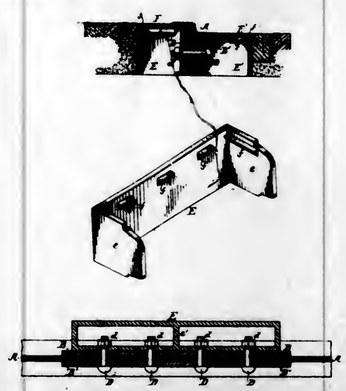
Claim.—1. In a reeling machine, the combination with the axle and its wheels, of the inclined stanchions on the rear portion of the axle having a slotted guide piece mounted on their upper extremities, the anchor loop, on the front portion of the axle, and bolts passing through the loop and axle and through the lower end of the stanchion, substantially as and for the purposes specified.

2. In a reeling machine, the combination with the axle having uprights mounted thereon, of fastening devices on each end of the axle and on opposite sides of the uprights, an adjustable frame having its lower ends provided with means for engaging the fastening devices, a peripherally grooved pulley journaled in the upper ends of said frame, having on one side a ratchet wheel and on its opposite side radial grooves, and means for engaging the grooves to rotate the pulley, substantially as and for the purposes specified.

3. In a reeling machine, the combination with an axle having uprights mounted thereon, of a journal on said uprights; a reel with wire on said journal; an adjustable frame on the axle with peripherally grooved pulley, a ratchet wheel on one side of the pulley, and on its opposite side radial grooves; a chain or rope connected to the groove of the pulley; a clamp connected to the chain, having an end slot and an oblique side opening for engaging the wire from the reel; and means connected to said clamp for holding said wire in said opening, substantially as and for the purposes specified.

489,878. FISH-PLATE JOINT FOR STREET-RAILWAY RAILS.

EDWARD SAMUEL, Philadelphia, Pa., assignor to the William Wharton, Jr., & Company, Incorporated, same place. Filed Aug. 8, 1890. Serial No. 361,472. (No model.)



Claim.—1. The combination of a rail having an overhanging head and a depending web, with an inclosing box for the fish plate bolts, said box having end plates which extend under the overhanging head of the rail and to or almost to the depending web of the rail, substantially as specified.

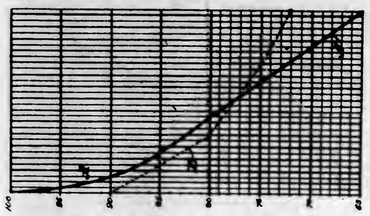
2. The combination of a rail having an overhanging head and base flange, and web uniting the head and base flange, with an inclosing box for the fish plate bolts, said box having ends which extend into the space between the overhanging head and base flange, and which extend to or almost to the web of the rail, substantially as specified.

3. The combination of the rails, the fish plates, the inclosing box and devices for securing the fish plates and rails together and to the box, substantially as set forth.

4. The combination of the abutting rails, the fish plates, devices for securing the rails and fish plates together, with an inclosing box for the securing devices, said box extending only from the tread of the rail to its base, substantially as set forth.

489,879. PROCESS OF OBTAINING SUGAR.

CARL SCHEIBLER, Vienna, Austria-Hungary, assignor, by mesne assignments, to William W. Frazier, Philadelphia, Pa. Filed Nov. 20, 1890. Serial No. 372,116. (No specimens.) Patented in Germany Feb. 27, 1890, No. 56,191; in France Mar. 4, 1890, No. 204,121; in England Mar. 6, 1890, No. 3,849; in Belgium Mar. 6, 1890, No. 89,737, and in Spain Mar. 10, 1890, No. 10,566.

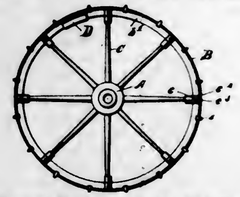


Claim.—1. The process of extracting sugar from the juices of plants and solutions of sugar in general, by the successive introduction of sugar solutions of constantly decreasing purity into the vacuum apparatus for evaporation and crystallization, such solutions being prepared by employing a saturated solution of more or less pure sugar to expel the sirup from a "massecuite" in the manner herein described, and collecting the liquid flowing therefrom into a number of portions of ascending purity.

2. The herein described process of extracting sugar from sugar solutions by systematic boiling, which consists in adding to a solution of sugar undergoing evaporation and crystallization, and consequently still in contact with the crystals it has deposited, solutions of sugar successively decreasing in purity, but of approximately the same quality as the liquor in process of crystallization at the time such addition is made.

489,880. WHEEL.

JOHN H. THOMAS and DANIEL B. HEBER, Springfield, Ohio, assignors to the Thomas Manufacturing Company, same place. Filed July 8, 1892. Serial No. 439,313. (No model.)



Claim.—1. In a wheel having a rim made of T iron, so as to form a central vertical flange on the inner periphery thereof, spokes for supporting said rim, each of said spokes being provided with an encircling ferrule adapted to rest on said vertical flange, said ferrule being provided with a projecting lug and an auxiliary piece adapted to embrace said vertical flange, and means for securing said parts together through said flange, substantially as specified.

2. In a wheel having a rim made of T iron so as to form a central vertical flange on the inner periphery thereof, as described, spokes for supporting said rim, two part connecting devices on the ends of said spokes, each consisting of a ferrule to embrace the end of said spoke, and a projecting lug and auxiliary piece of a length equal to the depth of said flange and adapted to be connected to said flange, so as to form a bearing for the end of said spoke, substantially as specified.

3. In a wheel having a rim made of T iron with a central vertical flange, a plate for connecting the ends of said rim, said plate being provided with a channel adapted to embrace said central flange, transverse ribs in said channel adapted to engage similar notches in the rim flange, and studs or rivets formed integral with said plate to enter corresponding openings in the wheel rim, substantially as specified.

4. In a wheel, a rim having side notches in the edges thereof, a cleat provided with projecting spurs adapted to enter said notches, said spurs being adapted to be clinched on the inner side of said rim, substantially as specified.

5. In a wheel having a rim made of T iron, spokes connected to said rim by means of two part ferrules, as described, a channel plate for connecting the ends of said rim said plate being provided with integrally formed projections to engage in openings in said rim, said rim being provided with side notches, and cleats having projecting spurs to engage in said notches so as to be secured to said rim by riveting, substantially as specified.

6. The combination with a wheel rim having a central vertical flange, of a two part ferrule adapted to embrace said central flange, and means for connecting the parts of said ferrule through said flange, said two part ferrule being provided with a solid portion of a length equal to the depth of said flange, whereby a solid bearing seat is formed at the bottom of said ferrule to receive the spoke inclosed by said ferrule, substantially as specified.

489,881. PROCESS OF OBTAINING AND SEPARATING SULPHIDE OF NICKEL.

ROBERT M. THOMPSON, New York, N. Y., assignor to The Orford Copper Company, of New Jersey. Filed Mar. 14, 1892. Serial No. 424,992. (No specimens.)

Claim.—1. The hereinbefore described method of producing and separating nickel sulphide, consisting in smelting the ores or mattes containing nickel with caustic alkalies carbonates of the alkaline metal or ammonium, or other similar reagents rich in oxygen, substantially as set forth, whereby the nickel is converted into crude metallic nickel, in allowing the crude nickel to settle and separate by gravity in separating the crude nickel after settling, and in re-smelting the same with a sulphide of any alkaline metal substantially as set forth, whereby nickel sulphide and caustic alkali are produced, and in allowing the nickel sulphide to settle and separate by gravity and separating the same after settling.

2. The hereinbefore described method of producing and separating nickel sulphide, consisting in smelting the ores or mattes containing nickel with caustic alkalies carbonates of the alkaline metal or ammonium, or other similar reagents rich in oxygen, substantially as described, whereby the nickel is converted into crude metallic nickel, in allowing the crude nickel to settle and separate by gravity, in separating the crude nickel after settling and in resmelting the same, with a sulphide of any alkaline metal, whereby nickel sulphide and caustic alkali are produced, in allowing the nickel sulphide to settle and separate by gravity, in separating the same after settling and subjecting it to repeated smelting with a sulphide of any of the alkaline metals and separation by gravity until the impurities are eliminated and a residue of commercially pure sulphide of nickel is produced.

3. The method of producing sulphide of nickel from "bottoms" resulting from the initial treatment of nickel ores or mattes, with alkaline reagents, substantially in the manner described; consisting in smelting the same with a sulphide of any alkaline metal, substantially as described, whereby nickel sulphide and caustic alkali are formed, and in allowing the former to settle and separate by gravity and removing the same after settling.

489,882. METHOD OF PRODUCING AND SEPARATING SULPHIDE OF NICKEL.

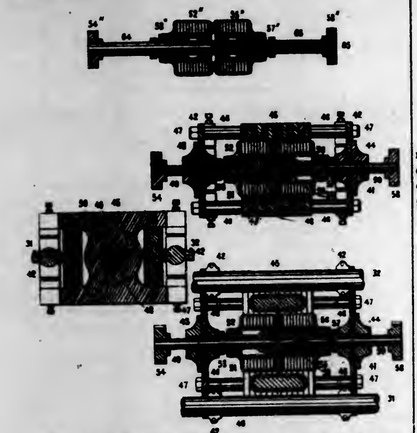
JOHN I. THOMSON, Bayonne, N. J., assignor to The Orford Copper Company, of New Jersey. Filed Mar. 23, 1892. Serial No. 426,978. (No specimens.)

Claim.—1. The hereinbefore described method of producing and separating sulphide of nickel, consisting in smelting ores or mattes containing nickel with a sulphide of any of the alkaline metals or ammonium, substantially as described, whereby sulphide of nickel is formed, which is of greater specific gravity than the remainder of the mass, and is precipitated to the bottom of the mass, while the copper, iron, and salts of soda, rise to the top and may be separated in any convenient manner.

2. The hereinbefore described method of producing sulphide of nickel consisting in smelting the ores, mattes or other substances containing nickel with a sulphide of any of the alkaline metals or ammonium, substantially as described, in separating out the sulphide of nickel resultant from the operation, from the smelted mass, and in re-smelting the bottoms rich in sulphide of nickel with the alkaline sulphide and separating the resultant sulphide of nickel from the sulphides of the other metals present and in repeating the operation until a commercially pure residue of sulphide of nickel is obtained.

3. The hereinbefore described method of producing and separating sulphide of nickel consisting in smelting the ores, mattes or other bodies containing nickel, with a sulphide of any of the alkaline metals or ammonium, substantially as described, in separating out the bottoms rich in sulphide of nickel resultant from the smelting, by means of specific gravity, and in subjecting the separate sulphide of nickel to repeated smelting with the sulphides of any of the alkaline metals, and subsequent separation by specific gravity until a commercially pure residue of sulphide of nickel is obtained.

489,888. ELECTRIC-CAR TRUCK. THOMAS THEPE, Avon, Mass., assignor, by mesne assignments, to William G. Means, Boston, Mass., and Arthur Hood, Manchester, N. H. Filed June 30, 1892. Serial No. 438,502. (No model.) Patented in Belgium Aug. 24, 1892, No. 101,119.



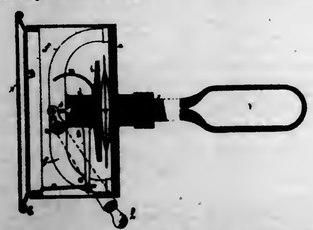
Claim.—1. In an electric vehicle truck, the combination of two axles, loose wheels adapted to rotate on said axles, gears connected with said wheels, two independently rotatable shafts provided with armatures, field magnets, and pinions on said shafts, each pinion meshing with the two gears connected with the wheels of one side of the truck, substantially as set forth.

2. In an electric vehicle, the combination of an axle, loose wheels adapted to rotate on said axle, two independently rotatable shafts disposed in alignment, the inner end of one shaft being disposed in a socket at the inner end of the other shaft, bearings for the outer ends of said shafts, a fixed bearing for the socket end of one of said shafts, armatures on said shafts, field magnets, and connecting mechanism between said loose wheels and said shafts, substantially as set forth.

3. In an electric vehicle, the combination of a frame, field magnets supported in said frame, a transverse partition dividing said field magnets, a shaft bearing disposed in said partition, an armature shaft provided with a socket at its inner end and supported in said bearing, a shaft journaled at its inner end in said socket, bearings for the outer ends of said shafts, armatures on said shafts, severally disposed on opposite sides of said partition, and mechanism connecting said armature shafts with the running gear, substantially as set forth.

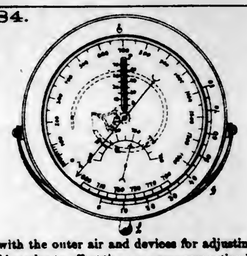
4. In an electric vehicle, the combination of an axle, loose wheels adapted to rotate on said axle, an electric motor having two independently rotatable armature shafts disposed in endwise relation to each other, and connecting mechanism between said loose wheels and said shafts, substantially as set forth.

489,884. PYROMETER. JOHAN G. WIDMAN, Stockholm, Sweden. Filed Oct. 23, 1892. Serial No. 449,556. (No model.) Patented in Sweden May 4, 1891. No. 3,600.



Claim.—In apparatus for determining temperatures the combination of the thermometer bulb V and capillary tube r with a vessel V' of resilient material communicating with the outer air and with a manometer spring connected with an index pointing out the temperature on the scale, devices for compressing said vessel V' and closing its communication with the outer air and devices for adjusting the capacity of said vessel in order to effect the necessary correction in consequence of variations in the barometric pressure and in the temperature of the surrounding air, substantially as set forth.

489,884.



489,885. WIND-WHEEL. MALCOLM R. WILLIAMS, Kalamazoo, Mich., assignor to the Williams Manufacturing Company, same place. Filed July 3, 1892. Serial No. 439,323. (No model.)

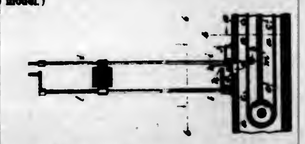


Claim.—1. In a wind wheel the combination of metal rims provided with slots having portions of metal turned outward therefrom, the sails passed through said slots, said outwardly turned metal portions pressed against the surface of said sails; substantially as set forth.

2. In a wind wheel, the combination of a metal rim having slots which are wider than the thickness of the sails, and the bearing points outwardly turned, leaving a space for the sails, and the sails inserted in said slots: substantially as set forth.

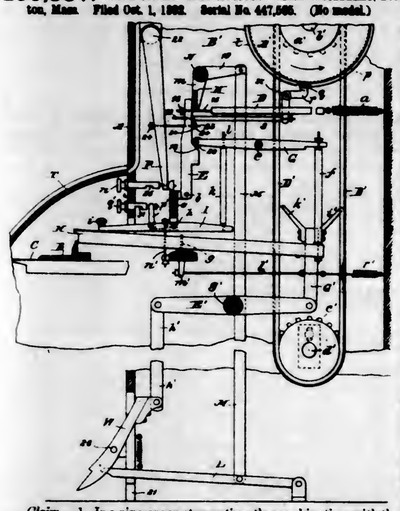
3. In a wind wheel, sections having metal rims with lapping ends where the sections are attached together, said lapping ends being provided with the slots and outwardly turned tongues, the tongue of one end turning outwardly through the slot of the other end, in combination with arms bolted between said tongues; substantially as set forth.

489,886. APPARATUS FOR ELEVATING AND CONVEYING COAL. STEWART WINSLOW, Rutherford, N. J., assignor of one-half to Hans S. Beattie, New York, N. Y. Filed May 4, 1892. Serial No. 431,858. (No model.)



Claim.—In an apparatus for elevating and conveying coal and the like in combination with a bucket elevator and a conveyer box suitably gated, an agitator located in the path of the descending coal as it enters the inlet, and a conveyer consisting of an endless belt free from cleats or teeth, substantially as set forth.

489,887. PIPE-ORGAN STOP-ACTION. JAMES WOODBERRY, Boston, Mass. Filed Oct. 1, 1892. Serial No. 447,565. (No model.)



Claim.—1. In a pipe-organ stop-action, the combination, with the register or stop-rods and their retracting springs, of the key-levers H, the levers E connected with the register rods and provided with inclines 18, the rocker levers G adapted to act on said inclines to produce a forward movement of the register-rods to throw on the stops, said rocker levers being suitably connected with the key-levers H, and the tripper levers I connected with the rocker-levers G and adapted to actuate the same to release the levers E and take off the stops connected therewith, substantially as described.

2. In a pipe-organ stop-action, the combination, with the register or stop-rods and their retracting springs, of the levers E connected with said register-rods and having the inclines 18, the rocker levers G, each provided at one end with a roll 20 adapted to act on the incline of its lever E to produce a forward movement of the register-rod connected therewith against the influence of its retracting spring, the key-levers H, the tripper levers I arranged thereover and sticker-rods *f*, *k*, extending from the levers H, I, to the rocker-levers G, said rods *f*, *k*, being arranged on opposite sides of the fulcrums of the rocker-levers, whereby as each key-lever is depressed, its tripper lever will be raised, and conversely, substantially as set forth.

3. In a pipe-organ stop-action, the combination of the register-rods and their retracting springs, the levers E connected with the stop-rods by wires 15 and nuts 16, the rocker-levers G, key-levers H, tripper levers I, and suitable connections between said levers H, I, and the rocker levers, G the "full organ" pedal L, rod M, arm 19, roller N, arms *m*, and bar K, the latter adapted to contact with the upper ends of the entire series of levers E, all constructed to operate substantially as and for the purpose set forth.

4. In a pipe-organ stop-action, the combination of the register-rods and their retracting springs, the levers E connected with said register rods, the key-levers and the tripper levers, the rocker levers G and suitable connections between said rocker arms and the key-levers and tripping levers, and a series of combination-levers provided with draw knobs or operating handles, each combination-lever having independent loose or sliding connections with a portion of said levers E, forming a desired combination of stops, whereby the combination of stops connected with any one of said combination-levers may be simultaneously thrown into or out of action by a movement of said combination lever, substantially as set forth.

5. In a pipe-organ stop-action, the combination, with the register-rods and a cam-cylinder provided with a series of progressive cams adapted, through suitable connections, to actuate said register-rods to throw the stops connected therewith successively into or out of action, of a driving belt passing over supporting wheels or pulleys and adapted to rotate the cam-cylinder, said belt being provided on its inner surface with recesses *f'*, a vertically reciprocating tilting bar G' provided with outwardly inclined pusher-arms *i'*, *k'*, adapted to engage the recesses *f'* on the opposite sides of the belt, the crescendo pedal, and suitable connections between the same and the bar G', and mechanism connected with a handle or pull-knob for tilting the bar G' to bring either of its arms *i'* or *k'* into engagement with the belt, whereby the cam-cylinder can be rotated in either direction by the same movement of the crescendo pedal, substantially as and for the purpose set forth.

6. In a pipe-organ stop-action, the combination of the register-rods and their retracting springs, the levers E connected with said register rods, the cam cylinder A' with its cams *t*, the bell-cranks *r* with their rolls *q*, the sticker-rods *s* pivoted to the bell-cranks and adapted to actuate the levers E to throw on the stops, the belt D' adapted to rotate the cam-cylinder and provided on its inner surface with recesses *f'*, the tilting vertically reciprocating bar G' provided with outwardly inclined arms *i'*, *k'*, adapted to engage the recesses *f'* on opposite sides of the belt, the rocker lever E' carrying said tilting bar G', the crescendo pedal W connected with said rocker-lever, the spring *r'*, the pull-knob or handle *g'*, and suitable connections between said handle and the tilting bar G' whereby the latter can be moved to cause either arm *i'* or *k'* to engage the belt as the bar G' is reciprocated by the crescendo pedal, all constructed to operate substantially in the manner and for the purpose set forth.

489,888. AXLE-BOX LID. ARNOLD W. RINNERMAN, Washington Heights, Ill. Filed Jan. 18, 1892. Serial No. 418,407. (No model.)



Claim.—1. A car axle box lid comprising in combination with the body having angular side flanges perforated for the passage of retaining lugs or keys, and two keys having their outer ends adapted to pass through the perforations in the flanges and their inner ends secured, substantially as described.

2. A car axle box lid comprising in combination a body portion having angular flanges provided with apertures and adapted to slide in suitable ways in the box lid, keys having portions adapted to pass through said apertures and a clamp for securing the ends of the keys, substantially as described.

3. In a car axle box lid the combination with a body having side flanges apertured to provide for the passage of retaining lugs, and lugs having their outer ends adapted to pass through the apertures of the flanges and to ride in the ways of the box and their inner ends abutting, and a sheet metal clamp secured with the body and having its ends adapted to be turned down upon the abutting ends of the keys whereby to secure them, substantially as described.

4. In a car axle box the combination with the body composed of sheet or plate metal, said body having a domed or raised central portion and side flanges provided with apertures, lugs of curved form adapted to fit over said domed portion and having ends to pass through said apertures, and a clamp for securing the inner ends of the key, substantially as described.

5. A car axle box lid comprising in combination a body having side flanges provided with apertures, a domed central portion, keys having ends projected through the apertures of the flanges and shoulders forming stops for said lugs and a clamp for securing the inner ends of said keys, substantially as described.

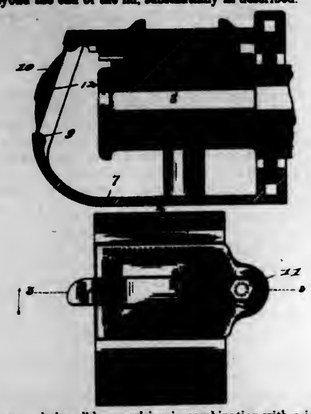
489,889. AXLE-BOX LID. ARNOLD W. ZIMMERMAN, Chicago, Ill. Mar. 15, 1892. Serial No. 425,050. (No model.)

Claim.—1. In a car axle box lid, the combination with the lid of a flat spring having one end fixed at or near one end of the lid, its body adapted to rest upon the inner side of the body of the lid and having its free end passing through a slit or aperture in the lid and projected beyond the end of the latter, substantially as described.

2. In a car axle box lid, the combination with the lid of a spring composed of a flat strip of resilient metal apertured at one end for the passage of the lid bolt and having its body conforming to and resting upon the under side of the lid, the latter being slitted and the spring projected through said and extended beyond the end of the lid, substantially as described.

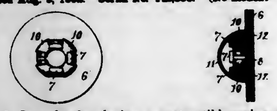
3. In a car axle box lid, the combination with a lid adapted to be pivoted at one edge thereof, of a spring composed of a flat strip of resilient material adapted to be secured to move with the lid by the pivot bolt of the latter, said lid being slitted near its end opposite

its pivot and the free end of the spring bar projected through such slit and beyond the end of the lid, substantially as described.



4. A car axle box lid, comprising in combination with a journal box a lid pivoted at one edge, said lid having a portion of its body eccentrically disposed and an aperture at the end of said offset portion, a spring composed of a flat strip or bar of resilient material having its end apertured for the passage of a pivot bolt of the lid and adapted to rest upon the offset portion of the lid and its free end projected through the aperture and beyond the end of the lid, substantially as described.

489,890. GLOVE-FASTENER. GEORGE R. ADAMS, Providence, R. I. Filed Aug. 9, 1892. Serial No. 442,553. (No model.)



Claim.—1. In a clasping-device, a contractible spring-ring having radial segmental arms extending out from the body of the ring, and a setting adapted to secure said ring in place, passing through the spaces between the arms as described.

2. In a clasp, the combination with the split contractible spring ring having the radial arms extending out from the body of the ring with the ends convex and a setting for holding the ring in place passing through the spaces between the arms, of an engaging device adapted to bear against the convex surfaces of the ends of the arms to spring the ring and allow the engaging device to pass, substantially as described.

3. In a clasp, the combination with the ring 8 having the segmental arms 10 the surfaces of which are convex, and a setting formed by the arms 7—7 for containing the ring of the cap 11 having the lip 12 adapted to be engaged by the arms 10, as and for the purpose described.

489,891. CLASP. GEORGE R. ADAMS, Providence, R. I. Filed Aug. 9, 1892. Serial No. 442,554. (No model.)



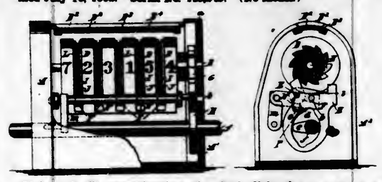
Claim.—1. In a clasp cap or case for co-operating with a spring stud, the combination with the engaging ring 7 having the edge 8 forming the opening to the cap or case and having the flange 9, of the outer shell having the annular flange underlying the fabric or material and embracing the flange of the engaging ring and the affixing rim having a flange confined by the flange of the outer shell, and with its upper edge turned outward over the fabric or material at approximately the level of the edge 8 of the engaging ring, whereby a cap of approximately the thickness of the fabric or material is provided substantially as described.

2. In a clasp, in combination, the shell 5 having the rim 6 the engaging-ring 7 having the flange 9 located within the shell, and the affixing-rim 11 having the flange 10 resting on the flange 9, the rim 6 being turned inward over the flange 10, as and for the purpose described.

3. In a clasp, the combination of a stud formed of a contractible split ring, a setting for holding said ring, and a cap or case adapted to inclose said ring and bear against its exterior surface; substantially as described.

4. In a clasp, the combination of a stud formed of a contractible split ring, a setting passing through the ring for holding the same, and an engaging device having an orifice of smaller diameter than the diameter of the split ring when expanded, substantially as described.

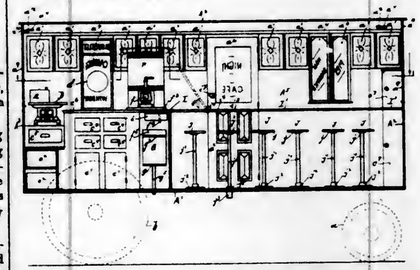
489,892. REGISTER TO COUNT THE OPERATIONS OF MECHANISM. STEPHEN M. BALKER, New York, N. Y. Original application filed Apr. 21, 1892, Serial No. 430,013. Divided and this application filed July 16, 1892. Serial No. 440,345. (No model.)



Claim.—1. The combination of a shaft, disks thereon, gears connected with said disks, pinions to engage said gears to turn the disks, a swinging frame carrying said pinions, a bar to lock said pinions when they are swung from the disks, and stops to engage the gears or teeth carried by the disks when the pinions are disengaged therefrom, substantially as described.

2. The combination of a casing, number disks therein, gears and pinions to turn said disks, a swinging frame carrying said pinions and a bar P to hold said pinions when they are removed from the gears, substantially as described.

489,893. LUNCH-WAGON. THOMAS H. BUCKLEY, Worcester, assignor of one-half to Ephraim Hamel, Lynn, Mass. Filed Feb. 15, 1892. Serial No. 421,563. (No model.)



Claim.—1. In a lunch wagon whose body is reduced laterally at one end for the wheels, a kitchen compartment in said end separated from the balance of the wagon by a transverse counter *l*, a table c^4 extending along one side of said kitchen nearly to the corner, a case of drawers c^5 across the end remote from the counter and with its top at a lower level than said table, a drawer c^6 in the corner beyond said table and opening from its case at right angles to and above said other drawers c^5, and a stove D resting upon said corner case with its top approximately on a level with the table, as and for the purpose set forth.

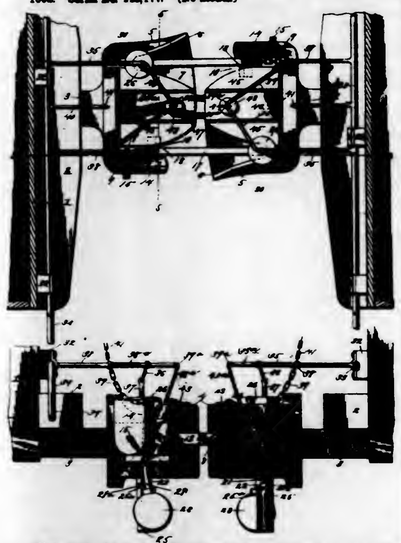
2. In a lunch wagon, the combination with the body mounted on wheels and having closed sides and top; of a counter extending across within the body and dividing it into kitchen and dining room compartments, a portion of said counter being hinged adjacent one side of the body for the purpose set forth, a table shelf extending across the end of the dining room which is remote from the kitchen and along that side thereof which is remote from said hinged portion of the counter, and stools secured to the floor of the body adjacent said shelf, substantially as described.

3. In a lunch wagon, the combination with a body mounted on wheels and having closed sides, its interior being divided into dining room and kitchen compartments, and an inwardly opening door in one side wall thereof; of a table shelf secured along within the side wall of said dining room, a section i^3 hinged within said shelf opposite said door and adapted to be raised to permit the opening of the door, and stools located adjacent said shelf, as and for the purpose set forth.

4. In a lunch wagon, the combination with a body mounted on wheels and having closed sides forming a dining room compartment, and an inwardly opening door in one side wall thereof having a latch operated by a knob; of a table shelf secured within and along said side wall and across the door-opening, a section i^3 hinged within said shelf opposite said opening and adapted to be raised for the purpose set forth, a gate section i^3 hinged within a notch in the outer edge of said section i^3 and adapted to be lowered to permit the passage of the knob, and stools secured adjacent to said shelf, substantially as described.

5. In a lunch wagon, the combination with a body mounted on wheels and having closed sides forming a dining room, and an inwardly opening door in one side wall thereof; of a table shelf secured within said room and along said side, a section i^3 of said shelf being hinged opposite the free edge of the door and adapted to be raised to permit said door to be opened, and stools secured to the floor of said room adjacent the shelf, the stool which is opposite said hinged section i^3 being removably inserted in a socket in and flush with the surface of the floor, all as and for the purpose set forth.

489,894. CAR-COUPLING. SAMUEL M. COFFMAN, Draymer, assignor of one-half to Martin Coffman, Georgeville, Mo. Filed Oct. 5, 1892. Serial No. 448,177. (No model.)



Claim.—1. An automatic car coupling, comprising a coupling head having at one side an obliquely forward and outward projecting extension, and provided also with two triangular projections located upon the adjacent sides of the head and of the extension; said projections being separated from each other, substantially as described.

2. An automatic car coupling, comprising a cavity or recess located at one side of the coupling head, and a triangular projection located within the cavity or recess; the upper and lower sides of the projection extending respectively obliquely rearward and upward, and rearward and downward, substantially as described.

3. An automatic car coupling, comprising a recess or cavity located at one side of the coupling head, and a vertically moving bar located in said recess and provided with a lifting arm, substantially as set forth.

4. In an automatic car coupling, a bar designed to operate vertically in a coupling head, and provided with a reduced portion, and also provided at its upper end with a head, and at its lower end with an enlarged rectangular portion having an inclined shoulder or cam face at its point of juncture with the reduced portion; said bar being also provided with a pivotal lifting arm to engage the side of the coupling head, substantially as set forth.

5. An automatic car coupling, comprising a coupling head provided at one side with a recess, or cavity, a recess formed in the inner wall of said cavity and extending obliquely downward and forward, a slot in the outer wall of the cavity and also extending obliquely downward and forward, and a pivoted retaining plate mounted upon the outer side of the outer wall of the cavity and arranged to close the outer side of the slot, substantially as set forth.

6. An automatic car coupling, comprising a coupling head having a cavity, or recess, at one of its sides, a recess formed in the inner wall of said cavity and extending obliquely downward and forward, a slot formed in the outer wall of the cavity, and also extending obliquely downward and forward, a pivot pin mounted removably in said oblique recess and slot, a gravity coupling bar pivoted upon said pin, and a pivot retaining plate mounted upon the outer side of the outer wall of the cavity, and resting when in closed position upon a ledge formed upon said wall, and closing the outer side of the slot, substantially as described.

7. An automatic car coupling, comprising a coupling head provided at its outer end with a link cavity, and a vertical opening for a pin extending transversely through the cavity, and also provided upon its top with a longitudinal cavity for the link, substantially as described.

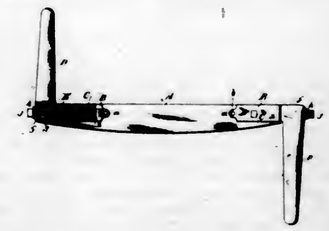
8. An automatic car coupling, comprising a coupling head having at each side a cavity or recess, a vertically movable bar located in one of said cavities, and having a lifting arm upon its outer side, a gravity coupling bar pivoted in the opposite recess and having a pendent cross bar, a rock shaft journaled upon the end of the car body and having a crank handle at each end, and provided also with a rock frame, flexible connections from said rock frame to the vertical bar and to the pivoted coupling bar and to the coupling pin, and also from one of said rock arms to the top of the car body, substantially as described.

9. An automatic car coupling, comprising a coupling head having at each side a cavity, or recess, and at its forward end an orifice, a vertically movable bar located in one of said cavities, a gravity coupling bar located in the opposite recess, the vertically aligned channels, or pin holes, communicating with the orifice, and a pin adapted to rest in said channels or pin holes, a rock shaft journaled upon the car body and having a crank handle at each end, and a forwardly projecting rock frame, and a rock arm connected to the top of the car, and flexible connections between the rock frame and the vertical bar, the coupling bar, and to the coupling pin, substantially as described.

10. An automatic car coupling, comprising a coupling head having an orifice in the front, vertically aligned and extending channels, or pin holes, a pin adapted to engage said channels, or pin holes, having a pendent pawl, or dog, pivoted in the rear lower end thereof, and a recess in the upper side of the lower jaw and in rear of the pin hole, and a shoulder in the inner side of the upper jaw, and also in rear of the pin hole, substantially as described.

11. An improved coupling pin, having a shoulder in the rear and a slight distance from the end thereof, and a pawl, or dog, having a down and out curved end pivoted at its upper end in a recess formed in said shoulder, substantially as described.

489,895. BOLSTER-STANDARD FOR WAGONS. JOHN A. CRITTENDEN, Waynesborough, Va. Filed May 27, 1892. Serial No. 434,636. (No model.)



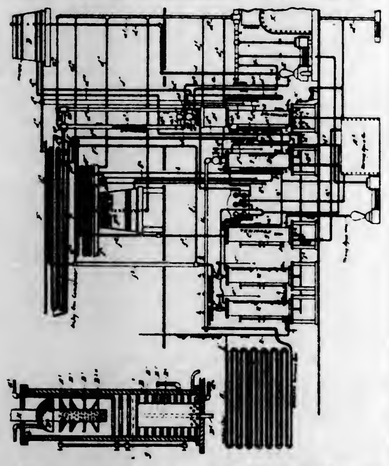
Claim.—The combination with a wagon bolster, a plate B, with extension arms *a*, *a*, on the end of the bolster, the plate also provided with a depression *c*, on its face portion, and having a central opening communicating with a longitudinal bore in the bolster, and a nut seated in said bore, of a standard having a hub *f*, with a transverse bore *g*, and provided with a projection *h*, adapted to fill the depression of the bolster plate, and the bolt E, having a head at one end, its opposite end being screw threaded to engage the nut in the bore of the bolster, substantially as specified.

489,896. HOOF-PAD. JAMES W. FARMER, Chicago, Ill., assignor of one-half to Gordon H. Quinn and William H. Quinn, same place. Filed Jan. 26, 1892. Serial No. 419,120. (No model.)



Claim.—As an improved article of manufacture, a hoof pad made of a piece of elastic material having a flat top surface continuous over the entire bottom of the foot and provided with a depression a in the central portion toward the front and gradually lessening so as to vanish near the margin, a bottom surface reduced at the margin around and a little behind the toe-quarters so as to fit between a short metallic shoe and the outer shell of the hoof, a thickened central portion a^3 whose bottom surface is convex-shaped like a section of the surface of an ovoid and adapted to fill the concave inner edge of the shoe and project slightly beyond the plane of the bottom of the shoe, and a thickened heel piece a^4 extending across behind the ovoid section and short shoe and having its bottom surface flat on a level with the bottom of the shoe, as specified.

489,897. COMBINED AMMONIA-DISTILLING AND REFRIGERATING APPARATUS. J. ERSKIN FULLER, New York, N. Y., assignor to the Consolidated Refrigerating Company, same place. Filed Apr. 2, 1883. Renewed June 16, 1892. Serial No. 436,965. (No model.)



Claim.—1. In a combined ammonia distilling and refrigerating apparatus, the combination with a supply tank, equaliser, still standpipe, condensing coil, receiver, cooling coil, absorber, and pipe connections, of an elevated reservoir as D for supplying water to the still, condensing coils, and absorber, substantially as described.

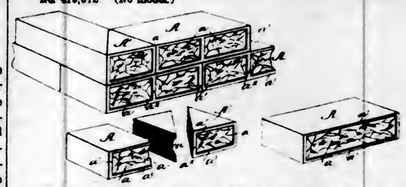
2. In a combined ammonia distilling and refrigerating apparatus, the combination with a supply tank, equaliser, still stand-pipe, condensing coil, receiver, cooling coil, absorber, and pipe connections, of elevated reservoirs as F^2 and D, substantially as described.

3. In a combined ammonia distilling and refrigerating apparatus, the combination of an anhydrous receiver, cooling coil, absorber, elevated weak aqua-ammonia reservoir, as F^2, supply and receiving tank, as A^3, and pipe connections, whereby the process of refrigeration may be carried on while the process of distillation is temporarily discontinued, substantially as described.

4. In a combined ammonia distilling and refrigerating apparatus, a still as A, consisting of a cylinder provided with a heating coil as A', a rose as A^5, a separating chamber as A^4 surrounded by a water chamber as A^6, and having inlets and outlets, substantially as described.

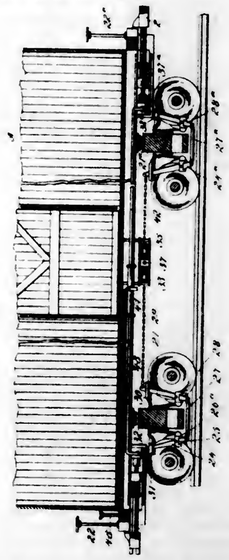
5. In a combined ammonia distilling and refrigerating apparatus, an absorber consisting of a cylinder provided with a spiral cooling coil, a mixing cylinder closed at the top within said coil having a discharge pipe as B^6, a perforated gas discharge pipe entering said absorber, an atomizer perforated on its under side surrounding said gas discharge pipe, circular finely perforated distributers, as B^3, and a deflector, as B^{14}, substantially as described.

489,898. BUILDING-BRICK. JOHN B. GRISWOLD, Zanesville, Ohio, assignor of one-half to Clarence V. Graham. Filed Jan. 28, 1892. Serial No. 419,612. (No model.)



Claim.—A building brick having its exposed face formed with smooth outer edges a', a central smooth edge a^2 connecting the upper and lower edges a', and rock face portions a intermediate the smooth ridges, all substantially as shown and for the purpose described.

489,899. AUTOMATIC TRAIN-BRAKE. WILLIAM B. GUERNSEY, Norwich, N. Y., assignor to Jane M. Guernsey, same place. Filed Nov. 22, 1892. Serial No. 452,795. (No model.)



Claim.—1. A hydraulic brake machine connected to the brake rigging and the drawgears and adapted to transmit drawgear pressures to the brakes, substantially as shown and described.

2. A fluid containing brake machine, provided with a valve, connected to the brake rigging and the drawgears and adapted, through the closing of the valve, to transmit drawgear pressures to the brakes, as set forth and shown.

3. In a brake operated through the medium of fluid pressures, the combination of the drawgears, the brake rigging, a fluid containing brake machine connected to the drawgears and the rigging, and a disabling valve for rendering brakes inoperative, substantially as shown and described.

4. In a brake operated through the medium of fluid pressures, the combination of the drawgears, the brake rigging, a fluid containing brake machine connected to the drawgears and the rigging, and a valve forming part of said brake machine and adapted to apply by closing, and by remaining open to not apply, brakes, substantially as shown and described.

5. In a brake operated through the medium of fluid pressures, the combination of the drawgears, the brake rigging, a fluid containing brake machine connected to the drawgears and the rigging, and an automatically determining valve lying within said machine, substantially as set forth and shown.

6. In a brake operated through the medium of fluid pressures, the combination of the drawgears, the brake rigging, a fluid containing brake machine connected to the drawgears and the rigging, and a valve lying within and forming part of said brake machine, said valve being adapted to disable brakes upon the dissimultaneous impacts of drawgears.

7. In a brake mechanism for cars operated through the medium of independently acting drawgears, the combination of the said drawgears having a centrally balanced unbroken fluid connection, with a brake applying machine lying within said connection adapted to apply or maintain brake shoe pressure only when the initial and pending inthrusts of the two drawgears on the same car are practically simultaneous.

8. In a hydraulic brake for cars substantially as hereinbefore described, the combination of a centrally located disabling or tripping valve which operates through the medium of a suitable fluid to prevent the application, or the continuance, of brake shoe pressure under compulsion of certain related initial movements of the two independently moving drawgears with said drawgears, as set forth.

9. In a hydraulic brake applying machine for cars operated through the medium of longitudinally moving drawgears, the combination of a brake machine, with a centrally located tripping or disabling valve, which operates to prevent the application or continuance of brake shoe pressure whenever the inthrust of the two drawgears of a car, and the consequent opposed fluid pressures, are not sufficiently simultaneous.

10. In a system of momentum brakes, the combination of the foundation brakes, the two oppositely ended longitudinally moving drawgears or buffing apparatus, a brake machine, fluid connections between the said drawgears and machine and between said machine and the foundation brakes, a valve lying within and forming part of said machine, all the parts being so constructed and arranged as that the said brake machine will automatically apply the brakes, or fail to apply the brakes, in response to the simultaneousness or lack of simultaneousness, of the drawgear and the consequent fluid compressions.

11. In a car brake, the combination of the oppositely ended longitudinally moving drawgears, the foundation brakes, fluid connections between the drawgears and foundation brakes, a brake applying device lying within said connections, and a balanced valve arranged substantially as shown and described for disabling the brake applying device when the inthrust movements of the drawgears are not sufficiently simultaneous.

12. In a car brake, substantially as hereinbefore shown and described, the combination of the two drawgears capable of independent motion, fluid connections therefrom through a brake machine to the foundation brake rigging, and a balanced valve lying within said connections for automatically disabling the brake mechanism and releasing the brakes if such movements of the drawgears are not sufficiently simultaneous, as set forth.

13. In a car brake, the combination of the foundation brakes, two oppositely ended longitudinally moving drawgears, fluid connections from said drawgears to the brake rigging, brake applying mechaniam lying within and forming part of said connections, and a centrally located balanced valve arranged substantially as shown and described for temporarily disabling or disconnecting said brake applying mechanism when the inthrust movements of the drawgears are not sufficiently simultaneous.

14. In a car brake, substantially as hereinbefore shown and described, the combination of the oppositely arranged and independently acting drawgears located at the respective ends of the car, fluid connections therefrom to the foundation brake levers or rigging through a brake applying mechaniam operable by the movement of the said drawgears and a tripping or disabling valve to release, or prevent the operation of, the brakes when the drawgear movements are dissimultaneous, all the parts being so arranged as that the brakes will remain off during the continuation of the same compression.

15. In a brake operated through the medium of fluid pressures by the simultaneous impact of drawgears upon said fluids, the combination of a fluid containing brake machine having a valve, with a brake applying motor, substantially as shown and described.

16. The combination of the drawgears and brake rigging of a car, a fluid connection between the drawgears with a valve controlled motor connected to the brake rigging and adapted to apply brakes, substantially in the manner described.

17. The fluid motor 38 connected to the brake rigging and to both drawgears and adapted to apply brakes only during simultaneous impacts or inthrusts of drawgears.

18. The combination of the centrally located fluid motor 38, connections therefrom to the brake rigging upon both trucks, and fluid connections to the drawgears with said drawgears and brake apparatus, substantially as shown and described.

19. In a car brake substantially as hereinbefore described, the combination of a brake machine, a motor or ram, with self equalising connections between the motor and brakes upon both trucks; substantially as shown and described.

20. In a hydraulic brake, the combination of the drawgears, a fluid containing pipe between the drawgears the brake rigging connected to the said pipe through a ram or motor, with said motor, as and for the purposes set forth.

21. In a hydraulic brake, the combination of the brake rigging, the drawgears, a fluid containing pipe, provided with a valve extending between the drawgears, a motor attached to the brake rigging and connected to and adapted to be controlled by the aforesaid valve, whereby the closure of the valve will effect brake applications through the medium of the motor.

22. An independent hydraulic brake machine connected to the brake rigging and to the drawgears and provided with a brake motor and an overflow reservoir and having an automatically determining valve adapted to operate, substantially as and for the purpose set forth.

23. A fluid containing brake machine connected to the brake rigging and the drawgears, adapted to transmit draw gear pressures to the brakes, in combination with a supply or overflow reservoir or chamber, as and for the purpose set forth.

24. In combination with the fluid containing brake machine substantially as hereinbefore described, a supply reservoir arranged somewhat above and connected to the said machine, as and for the purposes set forth.

25. The independent hydraulic brake machine connected to the brake rigging and the drawgears of a car and adapted to operate the former by the compressions of the latter as described, in combination with an independent liquid supplying reservoir mounted upon the car above the machine, substantially as and for the purpose set forth.

26. In a brake operated through the medium of fluid pressures, the combination of the drawgears, the brake rigging, a fluid containing brake machine, provided with a valve, connected to the drawgears and the rigging, and a reservoir arranged to receive fluid pressures from the machine while the valve remains open, as and for the purposes set forth.

27. In a brake operated through the medium of longitudinally moving drawgears and fluid pressures, the combination of a brake machine having a centrally located valve chamber, a pipe opening out from said valve chamber midway of its length, and a reservoir connected to said pipe and adapted to receive fluid pressures while the valve is open, substantially as shown and described.

28. In a fluid containing brake machine, the combination of the automatically determining valve 41 the relief pipe 44 and the reservoir 45 arranged above the valve and provided with the perforated cap 46, as and for the purposes set forth.

29. In a hydraulic brake, substantially as hereinbefore described, the combination of the centrally located automatically determining valve, the drawgears, pipe connections between the valve chamber and the drawgears, the pipe 40 opening centrally from the valve chamber, the motor 38 having an inwardly traveling piston, and the brake rigging attached thereto, all adapted to operate substantially as and for the purposes set forth.

30. In a hydraulic brake, substantially as hereinbefore described, the combination of the centrally located automatically determining valve, the drawgears, pipe connections between the valve chamber and the drawgears, connections between the valve chamber and the brakes, a brake applying motor lying within said connections, and a reservoir having a pipe connection with the valve chamber, and the parts being so arranged that the said reservoir will receive fluid pressures when the valve is open and the motor cylinder when it is closed.

31. In an automatic train brake, the combination of the longitudinally moving draw-gears having draw-springs as shown, with the braking mechanism having fluid connections therewith and with the brake rigging, all the parts being so constructed and arranged that violent breakaways will compel the draw-springs to apply the brakes, as set forth.

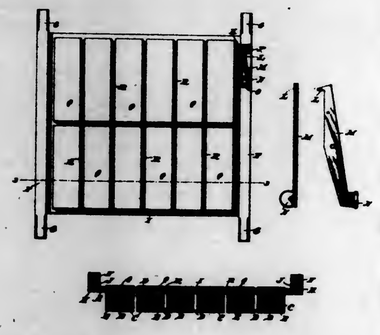
32. In a brake operated through the medium of fluid pressures, the combination of the drawgears having draw-springs, the brake rigging, a fluid containing brake machine connected to the brake rigging and through the medium of the springs to the drawbars whereby the resilience of the springs will apply brakes, as shown and described.

33. In a brake operated through the medium of fluid pressure by the simultaneous impacts of drawgears, a permanent way or conduit extending between the drawgears, substantially as and for the purpose set forth.

34. The combination in a railway train, of a series of hydraulic brake machines, one upon each car of the train, connected to its drawgears, and dependent upon their simultaneous inthrusts, with said drawgears, as set forth.

35. The combination in a railway train, of a series of independent brake machines, one upon each car of the train, fluid connections between each machine and the drawgears upon the same car, with the drawgears, all the parts being so arranged that the brake machine will apply brakes only when impacts from neighboring cars or the expansion of the opposed drawsprings are sufficiently simultaneous.

489,900. PLUG-TOBACCO FORM. EDWIN A. HANSON, ELIJAH R. LOWELADE, and THOMAS F. LAWLESS, Lynchburg, Va. Filed Sept. 21, 1892. Serial No. 446,494. (No model.)



Claim.—1. In a plug-tobacco form, the combination with the bed plate and the series of plunger blocks or dies secured to the under side of the said plate; of a face plate removably seated on the said bed plate and having a corresponding series of raised portions or cell bottoms, substantially as set forth.

2. The combination of the bed plate having a bottom series of plunger blocks or dies; of a face plate removably seated on said bed plate and having a corresponding series of raised portions or cell bottoms, means for locking said face plate in position, and the partition cell or die frame, substantially as set forth.

3. In a plug form for tobacco mills, the combination with the bed plate, and the transverse rows of plunger blocks or dies secured to the under side of said bed plate; of the opposite side rails secured to top opposite edges of said bed plate and having inner side grooves, a removable face plate adapted to rest flat upon said bed plate and slide within said grooves, said face plate being provided with a series of raised portions or cell bottoms corresponding to said plunger blocks, and a locking notch at one edge, a spring actuated catch adapted to engage said locking notch, and the cell frames registering with said blocks and raised portions or bottoms respectively, substantially as set forth.

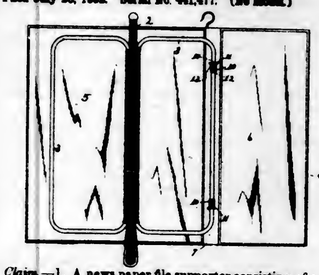
4. In a plug form for tobacco mills, the combination with the bed-plate having a bottom series of plunger blocks or dies; of a separate face plate adapted to rest flat upon said bed-plate and having a corresponding series of raised portions or cell bottoms, substantially as set forth.

5. In a plug form for tobacco mills, the combination with the bed plate and the transverse rows of plunger blocks or dies secured to the under side of said bed plate; of the opposite side rails secured to opposite top edges of the bed plate and having inner side grooves, wear plates arranged at the inner bottom edges of said rails at the top of the grooves, a removable face plate adapted to slide within said grooves and upon the bed plate and provided with a series of raised portions or cell-bottoms corresponding with said plunger blocks, and a locking notch in one edge thereof, a spring actuated catch having a locking tongue adapted to engage said locking notch and a finger flange, and the partitioned cell frames registering with the said plunger blocks and the raised portions or cell bottoms, respectively, substantially as set forth.

6. In a tobacco form, the combination with the bed plate, of a face plate sliding in ways or guides provided on said bed plate, and a catch or lock for detachably securing the face plate in position, as set forth.

7. In a tobacco form the combination with the bed plate, of the face plate sliding in ways or guides provided on said bed plate, and having a series of cell bottoms or raised portions formed in its upper face, substantially as described.

489,901. NEWSPAPER-FILE. ALEXANDER HECHT and WILLIAM R. FECHNER, New York, N. Y.; said Fechner assignor to said Hecht. Filed July 26, 1892. Serial No. 441,477. (No model.)



Claim.—1. A news paper file supporter consisting of a central rib adapted to be used as a handle, and wings secured thereto and projecting on opposite sides therefrom, and collars secured around one side of one wing, substantially as specified.

2. In a news paper file, the combination with the frame, of a cover hinged to one side thereof and provided with fasteners on the inside of the cover for holding the papers in position, substantially as specified.

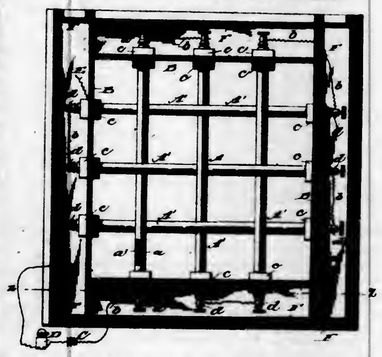
3. In a news paper file, the combination with the frame of a cover hinged thereto, the same consisting of a main portion and a smaller portion hinged to the main portion, and fasteners for holding the papers in position, substantially as specified.

4. In a news paper file, the combination with a frame and cover hinged thereto, of fasteners hinged within the cover and consisting of a frame, and a spring-actuated clip, substantially as described.

5. In a news paper file, the combination with the frame provided with a collar upon one of the wings, a cover provided with a back rib, hinged connections between the back rib and the sleeve, and fasteners within the cover, substantially as and for the purpose specified.

6. In a news paper file, the combination with the frame, and cover hinged thereto, of the back rib fastened to the cover, and a fastener consisting of a frame and spring-actuated clip hinged thereto, said fastener being hinged to the back rib, substantially as and for the purpose specified.

489,902. ELECTRIC PRISON CELL AND GUARD. WILLIAM S. HULL, Sheffield, Ala., assignor of one-half to Charles H. Sparks, St. Louis, Mo. Filed Sept. 22, 1891. Serial No. 406,463. (No model.)



Claim.—1. A lattice for jail cells and the like comprising pipes, insulated conductors forming a circuit passing through said pipes and a battery and alarm included in the circuit of said conductors, as set forth.

2. A lattice for jail cells and the like, comprising pipes, insulated conductors forming a closed circuit, passing through said pipes, and a battery and alarm in the closed circuit of said conductors as set forth.

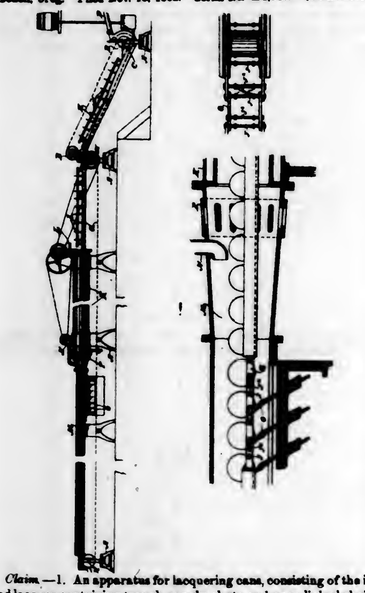
3. A lattice for jail cells and the like, comprising pipes insulated conductors passing through said pipes and forming a closed circuit and an open circuit and alarms and batteries arranged in each circuit, substantially as described.

4. A lattice for jail cells and the like, comprising metal pipes, insulated conductors, passing through said pipes and forming a closed circuit and an open circuit and alarms and batteries arranged in each circuit, said pipes being interlaced, substantially as described.

5. In jail cell, bank vault lattice and analogous structures a conductor consisting of a channeled bar, a bar held therein and a confined metal plate insulated as described, substantially as specified.

6. In jail cell, bank vault lattice and analogous structures, a conductor consisting of a channeled bar, a flat bar held therein and a confined metal plate insulated as described and combined with double angle bars for inclosing the connections between said adjacent metal plates, substantially as specified.

489,908. CAN-LACQUERING MACHINE. ROBERT D. HUME, Gold Beach, Oreg. Filed Nov. 10, 1892. Serial No. 451,549. (No model.)



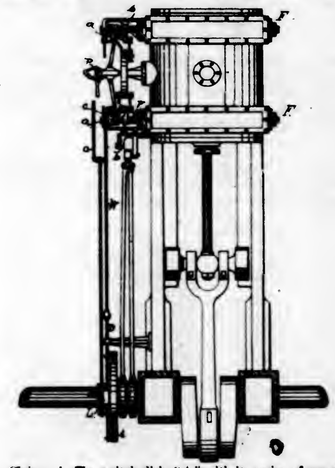
Claim.—1. An apparatus for lacquering cans, consisting of the inclined lacquer containing trough, supply chute and open-linked chain, with driving pulleys by which the cans are immersed in a lacquer, and delivered from the upper end of the trough, in combination with a series of brushes beneath which the cans pass whereby the surplus lacquer is removed therefrom, substantially as herein described.

2. An apparatus for lacquering cans consisting of the inclined lacquer containing trough, a supply chute, an endless traveling open-linked chain passing around supporting and driving pulleys adapted to receive the cans and move them through the lacquer trough to the discharge end, a receiving belt consisting of endless chains having transverse pins with sharp edge flanges, upon which flanges the cans are received and supported, the drying chamber consisting of the inner and outer annular cylinders, the inner one having open ends through which the chain and cans pass and the outer one being closed and having steam supply and discharge pipes whereby it forms a steam jacket for the inner tube, substantially as herein described.

3. An apparatus for lacquering cans consisting of the inclined lacquer containing trough, endless open-linked carrying chains dipping into said trough, chutes by which the cans are delivered to the lower end of the trough between the links of the chain by which they are carried to the upper and discharge end, a second belt consisting of open-linked chains having transversely adjustable pins with raised flanges upon which the cans are received, an inclosed annular drying chamber through which the carrying chain passes, a second cylindrical chamber forming a continuation of the drying chamber, an air-blast apparatus and pipes leading from said air-blast into the second cylindrical chamber whereby the cans are cooled while passing through said chamber, and a series of brushes situated at intervals with relation to the carrying chains whereby the surplus lacquer is removed from the cans as they pass, substantially as herein described.

4. An apparatus for lacquering cans consisting of an inclined lacquer containing trough, endless open-link chains by which the cans are passed through the lacquer and then transmitted through successive drying and cooling chambers, brushes situated at intervals with reference to the transmitting chains, whereby the surplus lacquer is removed from the cans, an air blast apparatus and a pipe delivering air therefrom into the cooling chamber, and gate controlled openings between the drying and cooling chambers, whereby a regulated amount of air is admitted to the cooling chamber independent of that supplied from the blast apparatus, substantially as herein described.

489,904. EXPANSION OR CUT-OFF GEAR. OWEN F. JONES, Baltimore, Md. Filed Jan. 11, 1892. Serial No. 417,775. (No model.)



Claim.—1. The switch disk "A" with its series of grooves, adjustable switches or shut off "B," the rollers "C" revolving around a stud fixed to the arm "D," which is given an intermittent vibrating movement by the revolving disk, thus moving the roller confined in the grooves E, the said arm having connection with and operating at its opposite extremity a connecting rod, which in turn gives motion to the valve F, all as described and for the purpose set forth.

2. In the expansion or cut off gear for operating and regulating the steam valves of engines whereby an intermittent action of the valve is produced, the mechanism hereinbefore described, consisting of a revolving disk "A," provided with cam grooves having a rotary motion, which is translated into a vibratory motion, on an arm or lever "D" by the revolving movement of the disk, carrying the roller and stud affixed to the arm, and thus rocking it on a fixed fulcrum, and carrying at the other end of the lever a connecting rod, which operates and gives a vibratory motion to a vibratory steam valve, intermittent in its action.

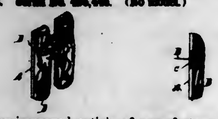
3. In the expansion valve gear of a steam engine, the revolving disk "A" constructed with a series of curved grooves, and switches so arranged that they form a path to carry a roller attached to the arm of a lever, and thus produce vibratory intermittent motion, which is conveyed by means of a connecting rod at the other end of the arm D, to the arm of the steam valve stem, or spindle, giving it the requisite motion for, first opening the valve at the commencement of the stroke of the piston, and secondly, closing at the point desired to cut off the steam as shown and described.

4. The combination of the "cam disk," with grooves cut into the face thereof, the switch for affording communication with other grooves as may be desired, the roller revolving on a stud affixed to an arm and confined and directed in the aforesaid grooves, and by traveling in the path guided by the said grooves producing a vibratory intermittent motion which is transmitted by connecting rods and levers to the spindle of a steam valve, substantially as shown and described.

5. The combination of the eccentric link motion X, operating the wrist plate H, and loose arms *b.* on valve spindles F, with the cam disk A, rocker arm D, the connecting rod W; the arm *a*, embracing the cam spindle F, and the double sleeve clutch sliding on a feather on the valve spindle, whereby either valve arm can be connected to the valves to operate the same, substantially as shown and described.

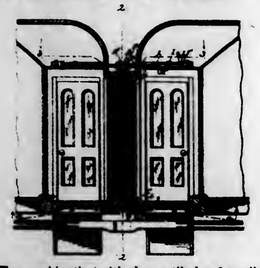
6. The combination of the eccentric link motion "x" operating the wrist plate H and loose arm b on valve spindles F, with the clutch sliding on a feather on the valve spindle F, whereby, by shifting the clutch to engage the corresponding clutch face on loose arm b, the valve is operated, or by disengaging the clutch, the valve is released and the engine stopped substantially as shown and described.

489,905. SIGN-LETTER. FRANKLIN K. KENNEDY, New Brighton, Pa., assignor to the Brighton Sign Company, Limited, same place. Filed Mar. 26, 1892. Serial No. 426,446. (No model.)



Claim.—As an improved article of manufacture, the herein described advertising letter, numeral or character, consisting of a backing A, a face D of plastic material, and spurs or pins B extending through said backing A and having their heads embedded in said face of plastic material, all substantially as shown and described.

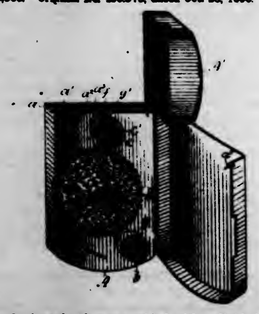
489,906. VESTIBULED RAILWAY-CAR. GEORGE HANCOCK, Providence, R. I., assignor to himself and Sheffield Smith, same place. Filed Oct. 15, 1892. Serial No. 449,022. (No model.)



Claim.—The combination with the vestibule of a railway car, of the centrally pivoted contact frame, the loosely guided lower pivot bar adapted for endwise movement, a spring for actuating the said bar to its forward position, the upper pivot bar adapted for both endwise and lateral movement, the springs for actuating the said bar to its forward position, the opposing side springs adapted for lateral movement, and the flexible fabric which serves to connect the pivoted frame to the vestibule, substantially as described.

REISSUES.

11,299. POCKET-LAMP. JOHN H. FARRR, Camden, N. J., assignor to Henry W. Maybaum, Philadelphia, Pa. Filed Mar. 26, 1891. Serial No. 386,863. Original No. 432,573, dated Oct. 28, 1890.



Claim.—1. A pocket lamp provided with a divided housing and cover, an oil-retainer therein having a wick-holder and an igniter or scratcher, a retainer adapted to hold a fulminate carrier, tape, strip or ribbon, a stud-pin supported adjacent to said igniter or scratcher for said carrier, tape, strip or ribbon to travel over, and a toothed disk extending through the casing at one side and adapted to permit of said tape, strip or ribbon being caused to frictionally contact with said scratcher and the said disk provided with a pin adapted to permit of said tape, strip or ribbon being wound thereon, substantially as set forth.

2. A pocket lamp provided with a two part housing and a hinged cover, an oil-retainer adapted to support in position a wick and an igniter or scratcher, a pin or lug adapted to hold a narrow tape, strip or ribbon provided with caps or pellets, a stud-pin provided with a milled sleeve, a toothed disk journaled in said housing and provided with means adapted to permit of said tape, strip or ribbon being wound thereon, and a spring normally engaging with a tooth of said disk, substantially as and for the purposes set forth.

3. A pocket lamp provided with a divided housing, an oil absorbent reservoir therein provided with a tube adapted to expose a wick, an igniter or scratcher, a retaining pin, a tape, strip or ribbon provided with fulminating pellets or caps mounted thereon, a pin provided with a sleeve, a toothed disk partially exposed beyond said housing and provided with means to permit of said tape, strip or ribbon being wound thereon, and a spring to prevent a reverse movement of said disk, substantially as and for the purposes set forth.

4. A pocket lamp provided with an oil and absorbent material chamber or reservoir having a wick tube and igniter or scratcher, a retainer located in the lower part of the lamp casing, a toothed disk extending through one side of said casing and provided with a pin or lug adapted to receive an ignitible strip, tape or ribbon, a stud-pin in the upper part of said casing having a loose sleeve mounted thereon, and said disk by the actuation thereof causing said strip, tape or ribbon to contact with said scratcher, substantially as set forth.

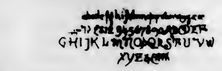
DESIGNS.

22,103. WALL-PAPER. JOSEPH TWYMAN, Chicago, Ill., assignor to the Twyman Decorating Company, same place. Filed Dec. 2, 1892. Serial No. 453,890. Term of patent 7 years.



Claim.—The design for wall paper, substantially as herein shown and described.

22,104. FONT OF TYPE. GUSTAVE F. SCHROEDER, Mill Valley, assignor to V. J. A. Rey, San Francisco, Cal. Filed Apr. 11, 1892. Serial No. 428,739. Term of patent 7 years.



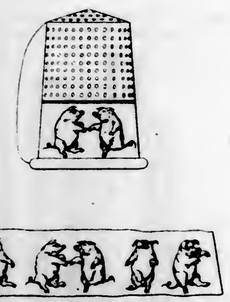
Claim.—The design for a font of type substantially as herein described and shown.

22,105. HANDLE FOR SPOONS. ASHTH F. JACKSON, Taunton, Mass., assignor to the Reed & Barton Corporation, same place. Filed Oct. 14, 1892. Serial No. 448,907. Term of patent 14 years.



Claim.—The design for the handles of spoons and other similar articles as herein shown and described.

22,106. THIMBLE. MARIA C. SCHERER, Bayonne, N. J. Filed Dec. 15, 1892. Serial No. 456,311. Term of patent 3½ years.



Claim.—The design for a thimble substantially as herein shown and described.

22,107. CHATELAINE. MARIA C. SCHERER, Bayonne, N. J. Filed Dec. 15, 1892. Serial No. 456,310. Term of patent 3½ years.



Claim.—The design for a chatelaine substantially as herein shown and described.

22,108. BADGE. ISAAC BENDHEIMER, Philadelphia, Pa. Filed Dec. 10, 1892. Serial No. 454,785. Term of patent 7 years.



Claim.—The design for a badge, as herein described and illustrated.

22,109. BADGE. JAMES ALLAN, Charleston, S. C. Filed Nov. 11, 1892. Serial No. 451,693. Term of patent 3½ years.



Claim.—The design for a badge, substantially as herein shown and described.

22,110. BADGE. JAMES R. LEE, Baltimore, Md., assignor to the firm of Terrell & Lee, same place. Filed Nov. 26, 1892. Serial No. 453,260. Term of patent 7 years.

22,110.



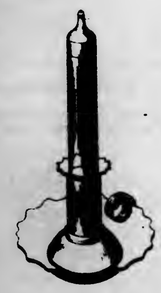
Claim.—The design for a mourning badge herein shown and described.

22,111. BUCKLE. DORA HARRISON, Lansing, Mich. Filed Dec. 2, 1892. Serial No. 453,883. Term of patent 14 years.



Claim.—The design for a buckle as herein shown and described.

22,112. PERFUMERY-HOLDER. HENRY J. GERR, Providence, R. I., assignor to George W. Hopkinson, New York, N. Y. Filed Dec. 6, 1892. Serial No. 454,266. Term of patent 7 years.



Claim.—The design for a perfumery holder, substantially as shown and described.

22,113. BOX. ALFRED H. SELASSIE, Newark, N. J. Filed Nov. 26, 1892. Serial No. 453,136. Term of patent 3½ years.

22,118.



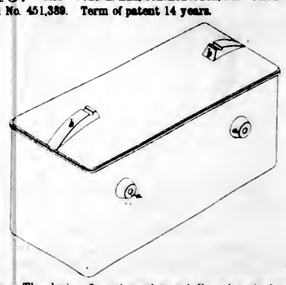
Claim.—The design for a box provided with a lid having the ornamentation thereon, substantially as herein described and shown.

22,114. VESSEL. JOHN B. MILLER, Pittsburg, Pa. Filed Dec. 3, 1892. Serial No. 454,008. Term of patent 3½ years.



Claim.—The design for vessels substantially as herein shown and described.

22,115. JAR. JOHN E. LEE, Conshohocken, Pa. Filed Nov. 5, 1892. Serial No. 451,389. Term of patent 14 years.



Claim.—The design for a jar substantially as herein described and illustrated in the accompanying drawing.

22,116. BOTTLE OR FLASK. PETER FARRELL, Chicago, Ill. Filed Dec. 12, 1892. Serial No. 454,974. Term of patent 14 years.



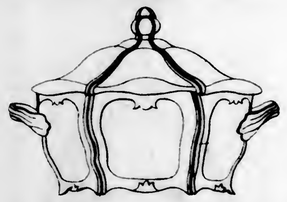
Claim.—The design for bottles or flasks substantially as herein shown and described.

22,117. DISH. THEODORE HAVILAND, Ambleuse, France. Filed Oct. 11, 1892. Serial No. 448,894. Term of patent 14 years.



Claim.—The design for a dish substantially as herein shown and described.

22,118. DISH. THEODORE HAVILAND, Ambleuse, France. Filed Nov. 22, 1892. Serial No. 452,843. Term of patent 14 years.



Claim.—The design for a dish substantially as shown and described.

22,119. TAPE. GEORGE H. STEERE, Hamilton, R. I. Filed Oct. 10, 1892. Serial No. 448,458. Term of patent 7 years.



Claim.—The design for tape, substantially as shown and described.

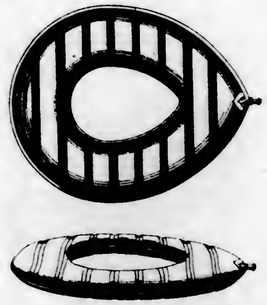
22,120. CURTAIN. JOSEPH C. HARKNESS, Yonkers, N. Y. Filed Dec. 10, 1892. Serial No. 454,766. Term of patent 7 years.

22,120.



Claim.—The design for curtains consisting of the body, A, and border, B, substantially as shown and described.

22,121. INFLATED CUSHION. ROBERT T. VARNUM, New York, N. Y. Filed Sept. 14, 1892. Serial No. 445,907. Term of patent 7 years.



Claim.—The design for an inflated cushion, substantially as herein shown and described.

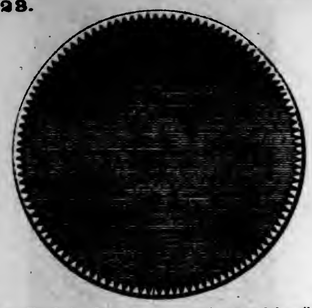
22,122. ORNAMENTATION OF STATIONARY WASH-BOWLS. CHARLES H. MOORE, Yonkers, N. Y. Filed Oct. 21, 1891. Serial No. 409,441. Term of patent 7 years.



Claim.—The design for the ornamentation of a stationary wash bowl or basin, which consists of the escalloped bottom C, and ornamental band B, herein shown and described.

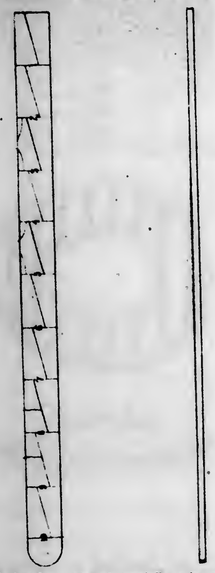
22,123. STOVE-MAT. JAMES F. LOCKWOOD, Philadelphia, Pa., assignor to Zachary T. Hall, same place. Filed Nov. 19, 1892. Serial No. 452,594. Term of patent 14 years.

22,123.



Claim.—The design for a stove mat as shown and described.

22,124. MEASURING-RULE. WILLIAM H. GOLDBERRY, Chicago, Ill. Filed Sept. 6, 1892. Serial No. 445,372. Term of patent 14 years.



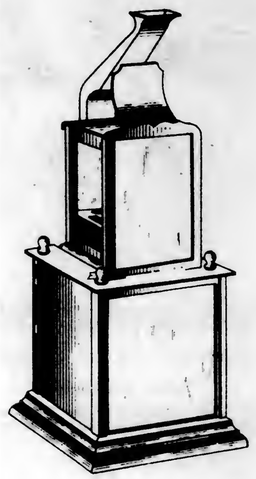
Claim.—The design for a rule, substantially as herein shown and described.

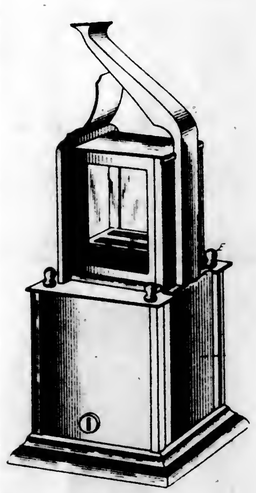
22,125. CLOCK-CASE. ARTHUR O. JENNINGS, Southport, assignor to the New Haven Clock Company, New Haven, Conn. Filed Nov. 14, 1892. Serial No. 452,004. Term of patent 7 years.



Claim.—The design for a clock-case as herein shown and described.

22,126. CASE FOR VENDING-MACHINES. ROBERT MILLS, Newton, assignor to Denman Blanchard, Melrose, Mass. Filed Nov. 21, 1892. Serial No. 452,782. Term of patent 14 years.

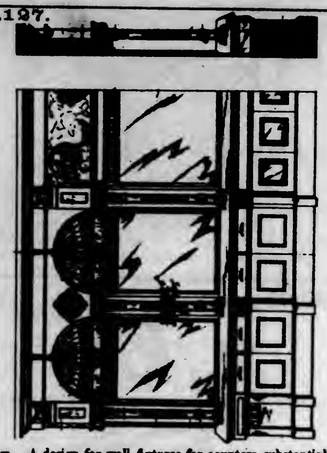




Claim.—The design for a case for vending machines as herein shown and described.

22,127. WALL-FIXTURE FOR COUNTERS. WILLIAM C. HUBE, Cincinnati, Ohio, assignor to the Hube Brothers Company, same place. Filed Dec. 15, 1892. Serial No. 454,907. Term of patent 3½ years.

22,127.



Claim.—A design for wall fixtures for counters substantially as herein shown and described.

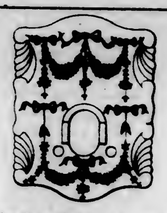
22,128. FLAG-HOLDER. HELEN V. HOLMES, Chicago, Ill. Filed Oct. 20, 1892. Serial No. 449,581. Term of patent 3½ years.



Claim.—The design for a flag holder, &c., substantially as shown and described.

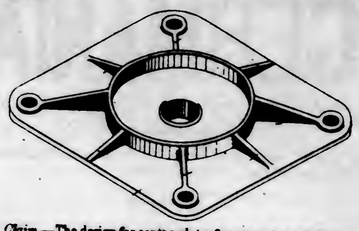
22,129. SOCKET-PLATE FOR COFFIN-HANDLES. OLIVER MCCARTHY, Meriden, Conn., assignor to the Meriden Britannia Company, same place. Filed Sept. 29, 1892. Serial No. 447,247. Term of patent 7 years.

22,129.



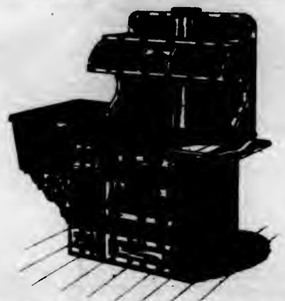
Claim.—The design for socket-plate for coffin handles as herein shown and described.

22,130. CENTER PLATE FOR CARS. DAVID L. BARBER, Chicago, Ill., assignor to the National Malleable Castings Company, Cleveland, Ohio. Filed Nov. 2, 1892. Serial No. 450,995. Term of patent 14 years.



Claim.—The design for center-plates for cars substantially as herein shown and described.

22,131. COOKING-RANGE. WILLIAM W. OLIVER, St. Louis, Mo., assignor to the Wrought Iron Range Company, same place. Filed Dec. 10, 1892. Serial No. 454,709. Term of patent 14 years.



Claim.—The design for a cooking range, substantially as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 10, 1893.

22,801. BOOTS AND SHOES. EISS & LYNN, New York, N. Y. Filed Dec. 2, 1892.

GERMANIA

Essential feature.—The word "GERMANIA." Used since January, 1891.

22,802. BOOTS AND SHOES. J. S. NELSON & SON SHOE COMPANY, North Grafton, Mass. Filed Dec. 7, 1892.

CUSTOM FIT

Essential feature.—The words "CUSTOM FIT." Used since June 15, 1889.

22,803. BOOTS AND SHOES. ISAAC PROUTY & Co., Spencer and Boston, Mass. Filed Dec. 19, 2.



Essential feature.—The representation of a South African quagga and the word "COBDWAIN." Used since October 18, 1892.

22,804. COTTON, WOOL, AND SILK FABRICS. GLADSTONE MANUFACTURING Co., New York, N. Y. Filed Dec. 9, 1892.



Essential feature.—The representation of a medallion bearing a portrait of Gladstone and the representation of a lion on either side thereof. Used since October 1, 1892.

22,805. CHEWING-GUM. Bond & Hoover Co., Elkhart, Ind. Filed Dec. 13, 1892.

AMMON

Essential feature.—The word "AMMON." Used since September 1, 1892.

22,806. MEDICINE FOR THE CURE OF RHEUMATISM. BRAHMA MEDICINE COMPANY, Limited, Pittsburg, Pa. Filed Aug. 27, 1892.

BRAHMA

Essential feature.—The word "BRAHMA." Used since August, 1877.

22,807. LINIMENT FOR THE CURE OF RHEUMATISM. MOSES BLACKSTONE, Annapolis, Md. Filed Nov. 11, 1892.

22,807.



Essential feature.—The representation of a man sitting on an ordinary chair, with his naked left foot resting on a stool, the left leg of his trousers rolled up above the knee, exposing the naked calf of his left leg, his right hand apparently rubbing the said leg just below the knee joint, his left hand raised above his head holding a bottle bearing the word "BLACKISTONE." Used since October 15, 1892.

22,808. POWDER TO BE USED AS A REMEDY FOR FEMALE DISEASES. HOME MEDICAL COMPANY, Chicago, Ill. Filed Dec. 9, 1892.

Moon Flower

Essential feature.—The words "MOON FLOWER" and the representation of a crescent showing a human face in profile. Used since July 1, 1892.

22,809. HAIR-ERADICATORS. THE CHARLES A. VOGELER Co., Baltimore, Md. Filed Dec. 7, 1892.

DEMELVO

Essential feature.—The word "DEMELVO." Used since October 20, 1892.

22,810. COSMETICS. NIELSEN & WYLER, Galveston, Tex. Filed Nov. 29, 1892.

COLUMBIAN

Essential feature.—The word "COLUMBIAN." Used since October 1, 1892.

22,811. TOILET WATER. D'ORSIDOR & Co., New York, N. Y. Filed Dec. 10, 1892.

PEANTINE

Essential feature.—The word "PEANTINE." Used since December 1, 1892.

22,812. DISTILLED PRODUCTS OF PINE WOOD. IMPERIAL PINE PRODUCT COMPANY, New York, N. Y. Filed Sept. 22, 1892.



Essential feature.—The representation of a shield having on it a pine tree and a distilling plant or apparatus. Used since June 1, 1892.

22,813. FURNITURE-POLISH. FRANK. F. FLEMING, Philadelphia, Pa. Filed Dec. 19, 1892.

F.F.F.

Essential feature.—The letters "F. F. F." Used since February 1, 1892.

22,814. CHEMICAL FUEL. PAUL H. TARBEL, Boston, Mass. Filed Nov. 30, 1892.

Kool-spar

Essential feature.—The word "KOAL-SPAR." Used since August 1, 1892.

22,815. HARNESS GREASE AND BLACKING. AUGUST GERSTNER, Brooklyn, N. Y. Filed Dec. 10, 1892.



Essential feature.—The word "HUNGARIAN" and the representation of a horse's head. Used since December 1, 1892.

22,816. INSECT-POWDER. MARY AUGUSTA HAWLEY, Dixon, Ill. Filed Dec. 5, 1892.

INSECTIKILL

Essential feature.—The word "INSECTIKILL." Used since September 28, 1892.

22,817. FOOD FOR ANIMALS. SIMEON D. GOODRICH, Des Moines, Iowa. Filed Nov. 7, 1892.

UNITED STATES STOCK FOOD



Essential feature.—The words "UNITED STATES STOCK FOOD" and the representation of the heads of animals: viz. of a horse, a cow, a pig, and a sheep with crowing rooster perched above them, and inclosed in a circular border. Used since October 1, 1892.

22,818. RAW AND PROCESSED OYSTERS. WILLIAM A. WHEATLEY, Baltimore, Md. Filed Dec. 8, 1892.



Essential feature.—The representation of a half oyster shell, a scene of the sea depicted on the shell, and the words "LYNNHAVEN BRAND." Used since May 1, 1890.

22,819. WHEAT-FLOUR. NORTH DAKOTA MILLING COMPANY, Grand Forks and Forest River, N. D. Filed Aug. 15, 1892.

DIAMOND

Essential feature.—The word "DIAMOND" upon the figure of a diamond, behind which appears the representation of stalks of wheat. Used since September 15, 1891.

22,820. WHEAT, GRAHAM, RYE AND BUCKWHEAT FLOUR, HOMINY, AND CORNMEAL. MINNEAPOLIS GRAIN AND FEED Co., Minneapolis, Minn. Filed Dec. 5, 1892.

CUT

Essential feature.—The word "CUT" associated with a diamond figure. Used since August, 1891.

22,821. PLUG-TOBACCO. DAVID H. SPENCER & SON, Spencer, Va. Filed Aug. 31, 1892.

HONEY CUT

Essential feature.—The words "HONEY CUT" associated with the representation of a cut plug of tobacco. Used since May, 1886.

22,822. BEER AND ALE. BRADLEIGH & WOERZ, New York, N. Y. Filed Dec. 8, 1892.



Essential feature.—The representation of a shield bearing a monogram of the letters "B W," supported on either side by the figure of a woman and surmounted by a globe supporting an eagle. Used since October 1, 1892.

22,823. RYE WHISKY. MAYER SONS & CO., Philadelphia, Pa. Filed Aug. 19, 1892.

ELK CLUB

Essential feature.—The words "ELK CLUB." Used since June 1, 1892.

22,824. SHEET-GLASS KNOWN AS PICTURE, WINDOW, COFFIN, CAR, COACH, STORE, AND SHOW-CASE GLASS. CHANNING GLASS COMPANY, New Kensington, Pa. Filed Dec. 6, 1892.

Essential feature.—The representation of a spread eagle. Used since November 28, 1892.

22,825. TIN PLATES, TERNE PLATES, TIN TAGGERS, BLACK TAGGERS, AND SHEET METAL AND SOLDER. R. L. PARKER & CO., Baltimore, Md. Filed Nov. 8, 1892.

LURAY

Essential feature.—The word "LURAY." Used since November, 1887.

22,826. TOILET-PAPER RECEPTACLES. STEEL RODS STAMPING AND RETINNING COMPANY, Boston, Mass. Filed Dec. 10, 1892.

UNIQUE

Essential feature.—The word "UNIQUE." Used since December, 1890.

22,827. SEWING-MACHINES AND THEIR ATTACHMENTS. DOMESTIC SEWING MACHINE COMPANY, New York, N. Y. Filed Dec. 5, 1892.

RAPID

Essential feature.—The word "RAPID." Used since November 26, 1892.

22,828. SEWING-MACHINES AND THEIR ATTACHMENTS. DOMESTIC SEWING MACHINE COMPANY, New York, N. Y. Filed Dec. 5, 1892.

QUICK

Essential feature.—The word "QUICK." Used since November 26, 1892.

22,829. SEWING-MACHINES AND THEIR ATTACHMENTS. THE NEW YORK SEWING MACHINE AND MANUFACTURING COMPANY, Plattsburg, N. Y. Filed Nov. 26, 1892.

UNIVERSAL

Essential feature.—The word "UNIVERSAL." Used since January 18, 1892.

22,830. SEWING-MACHINES AND THEIR ATTACHMENTS. THE NEW YORK SEWING MACHINE AND MANUFACTURING COMPANY, Plattsburg, N. Y. Filed Nov. 26, 1892.

ECONOMY

Essential feature.—The word, "ECONOMY." Used since May 30, 1892.

22,831. SEWING-MACHINES AND THEIR ATTACHMENTS. THE NEW YORK SEWING MACHINE AND MANUFACTURING COMPANY, Plattsburg, N. Y. Filed Nov. 26, 1892.

PRINCESS

Essential feature.—The word, "PRINCESS." Used since June 16, 1892.

22,832. SEWING-MACHINES AND THEIR ATTACHMENTS. THE NEW YORK SEWING MACHINE AND MANUFACTURING COMPANY, Plattsburg, N. Y. Filed Nov. 26, 1892.

ATKINSON

Essential feature.—The word, "ATKINSON." Used since January 25, 1890.

22,833. SEWING-MACHINES AND THEIR ATTACHMENTS. THE NEW YORK SEWING MACHINE AND MANUFACTURING COMPANY, Plattsburg, N. Y. Filed Nov. 26, 1892.

CAPITOL

Essential feature.—The word, "CAPITOL." Used since September 21, 1892.

22,834. SEWING-MACHINES AND THEIR ATTACHMENTS. THE NEW YORK SEWING MACHINE AND MANUFACTURING COMPANY, Plattsburg, N. Y. Filed Nov. 26, 1892.

GLASS BLOCK

Essential feature.—The words "GLASS BLOCK." Used since May 10, 1892.

22,835. VALVES AND STEAM-PACKING. JENKINS BROS., Boston, Mass., New York, N. Y., and Chicago, Ill. Filed Dec. 14, 1892.

JENKINS

Essential feature.—The word "JENKINS" inclosed by a diamond-shaped border. Used since 1887.

22,836. CORN-SHELLERS. KINKLAND & DOUGLAS MANUFACTURING COMPANY, St. Louis, Mo. Filed Dec. 16, 1892.

SHUCK

Essential feature.—The word "SHUCK." Used since October, 1875.

22,837. MEN'S OVERALLS, PANTALOONS, SHIRTS, AND DRAWERS. ELSON, STIX & CO., St. Louis, Mo. Filed Nov. 30, 1892.

Premium

Essential feature.—The word "PREMIUM" in script letters with the final m extended under the word to form a paraph. Used since May, 1890.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

PETERS *v.* HISEY.

Decided December 17, 1892.

PRACTICE—EVIDENCE OF DISCLOSURE AND REDUCTION TO PRACTICE ABROAD.

What an applicant has done abroad by way of disclosure or reduction to practice is not pertinent to the question as to whether he exercised reasonable diligence arising in an interference in the Office.

APPEAL on motion to take testimony abroad.

CARTRIDGE-MACHINE.

Application of G. M. Peters filed July 31, 1891, No. 401,292. Application of C. S. Hisey filed June 24, 1889, No. 315,308.

Mr. Frank T. Brown for Peters.

Mr. E. M. Marble for Hisey.

SIMONDS, *Commissioner:*

This is an appeal from a decision of the Examiner of Interferences denying Hisey's motion to take testimony abroad. The testimony sought to be taken abroad consists of alleged disclosures of the invention in controversy made in Europe. Hisey's contention is not that he desires to prove the disclosure in Europe by itself, but that he desires to show it as corroborative of Hisey's claim that he had made the invention in America before he went to Europe. The soundness or unsoundness of that contention can be made apparent by supposing all the occurrences to have taken place in America—to wit, that Hisey had one day disclosed to A and some days later disclosed to B. It is clear that to prove the later disclosure to B is not corroborative of the allegation of the earlier disclosure to A, and the situation is not altered by the fact that A is in America and B is in Europe.

Hisey cites the case of *R. R. Co.* v. *Stimpson*, (14 Peters, 448,) where the court says:

> The conversations and declarations of a patentee merely affirming that at some former period he invented that particular machine might well be objected to; but his conversations and declarations stating that he had made an invention and describing its details and explaining its operations are properly to be deemed an assertion of his rights at that time as an inventor to the extent of the facts and details which he then makes known, although not of their existence at an antecedent time. In short, such conversations and declarations, coupled with a description of the nature and objects of the invention, are to be deemed a part of the *res gestæ*, and legitimate evidence that the invention was then known to and claimed by him, and thus its origin may be fixed at least as early as that period.

Obviously this language was used with reference to matters occurring in this country and cannot be said to have any real bearing upon the question whether or not disclosures made in a foreign country may be received as evidence upon the question of priority of invention. There is no prohibition in the statutes against considering occurrences abroad in connection with the question of priority of invention; but the statute makes it certain that use abroad (a larger thing than mere disclosure) affects nothing here, and it has been the accepted doctrine of this Office that, by parity of reasoning, invention abroad affects nothing here.

Hisey further contends that it is his right to show what he did during his absence in Europe in order that he may establish the reasonable diligence which is incumbent upon him in this case.

The Constitution of the United States, when it authorizes the granting of patents, "in order to promote the progress of science and the useful arts," evidently means the promotion of the progress of science and the useful arts in the United States of America. The statute which makes public use abroad of no account here proceeds upon that theory. What Hisey did abroad, either by way of disclosure or reduction to practice, was not for the purpose of promoting the progress of science and the useful arts in America, and it therefore is not pertinent to the question whether he exercised reasonable diligence, for the end to which his diligence was directed was not the end which the Constitution or the statute has in view.

For these reasons the testimony sought to be taken abroad would not be competent if taken, and the decision of the Examiner of Interferences is affirmed.

EX PARTE ADAM ROTH GROCERY COMPANY.

Decided December 17, 1892.

PRACTICE—TRADE-MARK—WORD AND PICTURE.

A word and a picture which are true alternatives and invariably express the same idea may be covered by one Trade-Mark registration; but the rule will not cover the case of a word and a picture capable of such a variety of modifications that two of them might appear as substantially different things to an ordinary purchaser.

ON petition.

TRADE-MARK REGISTRATION.

Application of the Adam Roth Grocery Company filed July 23, 1892, No. 42,324.

Messrs. Fowler & Fowler for the applicant.

SIMONDS, *Commissioner:*

This is a petition taken from the action of the Examiner of Trade-Marks upon an application for registration, the point of the petition being expressed as follows:

> The following is the point of the decision on which the petition is taken:

"The essential features of said Trade-Mark are the word 'Squirrel' and the representation of a squirrel, used either conjointly or separately."

Said registration was refused on the ground that the alternative form therein set forth was not admissible and that two distinct registrations were necessary.

The Examiner's decision from which this appeal is taken was made October 24, 1892, and is as follows:

The Examiner fails to be convinced by the argument filed that applicant is entitled to the *alternative* form of *claim* in this case. The picture shown represents a squirrel; but a flying squirrel can be represented pictorially; so can the ground squirrel, and both such representations differ materially from the one shown in the drawing. There are representations of other animals which so closely resemble some of the squirrel family as to be easily mistaken by the general purchasing public—for instance, the "aye-aye" and others, shown in Webster's Unabridged Dictionary. The Examiner is of the opinion that this case comes under the Commissioner's decision as rendered in *The Iowa Farming Tool Company*. The word squirrel may be represented by such widely-different pictures as to be unrecognized as a squirrel by the general purchasing public, and this is more latitude than is allowed under the *alternative* form of Trade-Mark.

It is held, on the one hand, that a word and a picture which are true alternatives and which inevitably express the same idea may be covered by one registration. It is also held, on the other hand, that there cannot be covered by one registration a word and also a picture capable of such a variety of modifications that two of the modifications might appear to be substantially different things to an ordinary purchaser.

It follows that the Examiner's decision must be affirmed as the case is now presented; but the right remains to applicant to cover the word "Squirrel" and the picture of a squirrel, as shown, leaving the courts to determine what variations or modifications of that picture may be made without substantial departure.

EX PARTE HIEN.

Decided December 19, 1892.

PRACTICE—SECTION 4894, REVISED STATUTES—ABANDONMENT.

Where an applicant allowed two years to lapse without response to an Office action, and his application thereby became abandoned, and he subsequently moved a revival of it on the ground of error on the part of the Examiner in not originally holding his claims patentable, *Held* that a possible error by the Examiner does not cure the applicant's own laches, and, it not appearing that the delay was unavoidable, the motion must be denied.

ON petition.

BRAKE-BEAM.

Application of Phillip Hien filed November 28, 1888, No. 292,046.

Mr. W. H. Singleton for the applicant.

SIMONDS, *Commissioner:*

This is a petition setting forth that petitioner filed an application for patent November 28, 1888, which was acted on by the Office for the last time December 2, 1889, that action being a rejection of certain claims, including claims 1 and 2; that no action thereafter was taken by the petitioner upon that application for more than two years, so that on the 2d day of December, 1891, the application became abandoned for lack of prosecution for two years; that on the 18th day of February, 1891, another party filed an application for a patent, which was allowed July 14, 1891, and eventuated in the issue of a patent January 12, 1892; that the second application which thus eventuated in a patent had claims substantially the same as those rejected in this petitioner's application; that by the allowance of those claims in the application which eventuated in a patent the Office practically adjudged claims 1 and 2 of petitioner's said application to be allowable; that thereupon the Office should have of its own motion taken up the petitioner's said application and allowed the said claims 1 and 2; wherefore petitioner prays for the revival of said abandoned application, and, as a consequence of such revival, that it be placed in interference with the said patent granted to said other party.

The section of statute to be considered is this:

SEC. 4894. All applications for patents shall be completed and prepared for examination within two years after the filing of the application, and in default thereof, or upon failure of the applicant to prosecute the same within two years after any action therein, of which notice shall have been given to the applicant, they shall be regarded as abandoned by the parties thereto, unless it be shown to the satisfaction of the Commissioner of Patents that such delay was unavoidable.

There is no showing that the delay made by applicant was unavoidable. On the contrary, the facts seem to point to an acquiescence in the rejection on the part of the petitioner. To this petitioner makes the contention that obviously the action of the Office in rejecting his said claims 1 and 2 was an error, which error it should have voluntarily and of its own motion cured when it found out that error by acting upon the later application of the other party. In reply to this it is to be said that the patent law expressly recognizes the liability to error on the part of the Primary Examiners when it gives to an applicant the right to appeal from them to the Board of Examiners-in-Chief. It expressly recognizes the liability to error on the part of the Examiners-in-Chief when it gives to an applicant the right to appeal from them to the Commissioner in person, and it expressly recognizes the liability to error on the part of the Commissioner when it gives to an applicant the right to appeal from him to the Supreme Court of the District of Columbia.

If the identity between applicant's claims 1 and 2 and claims allowed in the application of the other party be as applicant contends, and if thereupon the Primary Examiner had voluntarily taken up petitioner's application for consideration, that would have been well enough; but the statute quoted does not relieve applicant from the obligation of acting upon his rights within two years by reason of any error committed by the Office.

The petition is denied.

EX PARTE CLIFFORD.

Decided December 27, 1892.

PRACTICE—RULE 66—REJECTION FOR "LACK OF INVENTION" AND "WANT OF NOVELTY."

A rejection for "lack of invention" *Held* in effect a rejection for "want of novelty," and that the Examiner must cite references under Rule 66.

ON petition.

HARNESS-TUG.

Application of Martin Clifford filed June 27, 1892, No. 438,180.

Messrs C. A. Snow & Co. for the applicant.

SIMONDS, *Commissioner:*

This is a petition taken from the action of the Primary Examiner rejecting an application for patent "for lack of invention" without citing references.

The first letter of rejection was this, under date of September 7, 1892;

In view of the common use of wear-plates on the various parts of harness, and the fact that such wear-plates are made of such contours as to fit the parts to which they are to be applied, applicant's device lacks invention, and the claims are rejected.

Thereupon applicant filed a paper as follows:

In this application it will be noted that a wear-plate is not broadly claimed; but a wear-plate having a particular construction is claimed and seems to call for the citation of a reference at least approximating the device as specifically claimed in claim 2. The argument set forth by the Examiner is not tenable for the reason that it could be equally well applied to all other classes in his division or in any division of the Office. It is well shown by the terms of his letter that the Examiner was unable to find a reference to the device as claimed, and in view of the fact that applicant is unable to determine where to look for the wear-plate he has invented it is asked that he may be directed to the illustration or other matter where the same may be found.

Thereupon the Examiner, under date of October 1, 1892, made the following action:

In view of the fact that this application is rejected for lack of invention, references are not required. (See *ex parte Wilkinson*, C. D., 1870, page 22.)

What has followed since has been practically a repetition of these two actions.

The decision of the Office referred to is in these words:

This application was rejected by the Examiner because, in his opinion, the device was "essentially deficient in patentable invention." Thereupon the applicant demanded a reference or a patent. The Examiner gave no reference and refused a patent. Applicant reiterates his demand for a reference under Rule 37, and appeals to the Commissioner in person under Rule 45.

He has mistaken both his rights and his remedy.

Rule 37 provides that "upon the rejection of an application for want of novelty the applicant will be furnished with a specific reference," &c. The present application is not rejected "for want of novelty," but for want of "patentable invention." This objection may concede that the thing is new, but deny that invention was involved in its production. No reference is required either by rule or by law to establish this ground of rejection.

But if it were so the remedy is by appeal to the Board of Examiners-in-Chief and not to the Commissioner in person. This is not a decision upon an intermediate question, nor is it a refusal to act. The Examiner's decision goes to the merits of the application and is adverse to the applicant. If the Examiner gives a general reference, and the applicant is entitled to a specific reference and demands it, the remedy is by appeal to the Board, which would then hold the general reference to be no reference, or an insufficient one, and reverse the decision of the Examiner in rejecting the application. The case does not differ in principle from one in which a specific reference is given which the applicant claims to be insufficient to form the basis of a judgment of rejection.

The appeal is dismissed.

Whatever may have been the circumstances of the case in which that decision was made it does not furnish a warrant for the Examiner's action in this case, or in any other case easily imaginable. The rejection evidently should have been for lack of patentable novelty, and the proceedings should have been under Rule 66, the first sentence of which is as follows:

Upon the rejection of an application for want of novelty the Examiner must cite the best references at his command.

The petition is granted. The case will stand as if only once rejected, and the Examiner will give the references asked for.

JERSEY CITY PACKING COMPANY *v.* JACOB DOLD PACKING COMPANY.

Decided December 29, 1892.

PRACTICE—TRADE-MARK—CONCESSION OF PRIORITY BY CORPORATION—USE OF SEAL.

Where the Examiner of Interferences refused to recognize a concession of priority of Trade-Mark adoption executed by an officer of a corporation without the corporate seal, *Held* that a concession of priority is not such an instrument as requires the use of a seal by corporation or individual, and that, it satisfactorily appearing on the record that the officer was empowered to execute the paper, the Office will accept it.

APPEAL on motion.

TRADE-MARK FOR CURED MEATS.

Application of the Jersey City Packing Company filed February 13, 1892. Application of the Jacob Dold Packing Company filed October 31, 1891.

Messrs. A. C. Fraser & Co. for the Jersey City Packing Company.

Mr. William J. Hutchins for the Jacob Dold Packing Company.

SIMONDS, *Commissioner:*

This is a Trade-Mark interference in which the senior party, a corporation, conceded priority by a paper writing signed by the treasurer of the concern, but without the official seal. The Examiner of Interferences refused to recognize this paper and forthwith decided the interference in favor of the party making the concession, whereupon the party in whose favor the concession was made appeals to the Commissioner.

It is well recognized in law now that a corporation may execute papers under the same requirements that would be exacted from individuals in a like position—that is, the corporate seal need not be used unless the law would require the use of a seal if an individual were executing the paper. (4 Am. and Eng. Enc. Law, p. 242, and cases cited.)

A concession of priority is not *in itself* such a paper as requires a seal to give it effect. Since the use of the seal is not a legal requirement in this case, the sole remaining question is one of fact. Was Dold, the treasurer, authorized to execute this concession on behalf of the company? The record answers this question in the affirmative. The original application on behalf of the company was made by George P. Dold, and the oath was signed by him. The fact that the Office has all along recognized his right to act for the company and that the company has given at least a constructive acquiescence to his acts is sufficient evidence for the purposes of this case to warrant the assumption that his original authority from the company was broad enough to comprehend the action under consideration.

The decision of the Examiner of Interferences is reversed.

EX PARTE MILLS.

Decided December 3, 1892.

PRACTICE—FINAL FEE—SECTION 4885, REVISED STATUTES.

No discretion is vested in the Commissioner by virtue of the terms of Section 4885 of the Revised Statutes to accept and apply a final fee received more than six months after notice of allowance sent to the applicant, even though the last day of the six months falls upon a national holiday.

ON petition.

PAPER-FILE.

Application of George W. Mills filed January 12, 1892, No. 417,892.

Mr. J. L. Levy for the applicant.

FROTHINGHAM, *Assistant Commissioner:*

This is a petition requesting that the above-entitled application be—

reinstated and reallowed and the final fee applied thereto as having been paid within the time allowed by law.

It appears that the said application was passed to issue May 21, 1892; that the notice of allowance was sent May 24, 1892, and that consequently the six months within which the final fee should have been paid, according to the provisions of the statute, expired November 24, 1892. The last-mentioned date fell upon a national holiday—to wit, Thanksgiving

day—on which day the Patent Office was properly closed. The final fee was not received by the Office until November 25, 1892, more than six months after notice of allowance had been sent to the applicant.

It is contended on behalf of the applicant that under this state of facts the six months did not expire until November 25, 1892, so far as the payment of the fee was concerned.

I am unable to take this view of the case, even assuming that the said fee was lying in the post-office at Washington on November 24, 1892, as set forth in the petition.

Section 4885 of the Revised Statutes provides that—

every patent shall bear date as of a day not later than six months from the time at which it was passed and allowed and notice thereof was sent to the applicant or his agent; and if the final fee is not paid within that period the patent shall be withheld.

It is held that no discretion is vested in the Commissioner by virtue of the terms of the above statute or otherwise to permit the final fee to be paid more than six months after notice of allowance sent. The word "shall" used in the statute is mandatory. (See *ex parte Anderson*, 61 O. G., 886; *ex parte Riley*, 56 O G., 1203.)

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

ROYER *v.* COUPE *et al.*

Decided December 19, 1892.

1. PATENT—INFRINGEMENT—PROCESS OF PREPARING RAWHIDE FOR BELTING.

Letters Patent No. 149,954, to Herman Royer, April 21, 1874, for an improvement in the mode of preparing rawhide for belting, *Held* limited strictly to the process as described in the specification and not infringed by defendants.

2. SAME—CONSTRUCTION OF PROCESS CLAIM.

Where the claim is for "the treatment of the prepared rawhide in the manner and for the purposes set forth" and the process as described comprehends "the removal of the hair from the hide by means of sweating" and further avers that the patentee avoids "the use of lime, acid, or alkali," a treatment which omits the "sweating" but uses the "liming" process is not an infringement.

3. PATENTEE IS HELD TO THE LIMITATIONS UNDER WHICH HE TAKES HIS PATENT.

Where a patentee, on the rejection of his application, inserts in his specification limitations and restrictions for the purpose of obtaining his patent, he cannot, after he has obtained it, claim that it shall be construed as it would have been if such limitations and constructions were not contained in it.

APPEAL from the Circuit Court of the United States for the District of Massachusetts.

Mr. M. A. Wheaton for the appellant.
Mr. W. H. Thurston for the appellees.

Mr. Justice BLATCHFORD delivered the opinion of the Court.

This is a suit in equity, brought in the Circuit Court of the United States for the District of Massachusetts, by Herman Royer against William Coupe and Edwin A. Burgess, copartners under the name of William Coupe & Co., founded on the infringement of Letters-Patent No. 149,954, granted April 21, 1874, to the plaintiff, as inventor, for an "improvement in the modes of preparing rawhide for belting," on an application filed December 31, 1872.

The specification of the patent is as follows:

After the removal of the hair from the hide by means of sweating—a process familiar to every tanner—the hide is dried perfectly hard. Then it is inserted in water for ten to fifteen minutes, long enough to lose its extreme stiffness. In this condition the process of fulling is commenced. This may be done in a machine constructed for this purpose and patented by me May 12, 1868, under No. 77,920. Before the hide is passed into the machine the second time it is stuffed with a mixture of twenty parts tallow, two parts wood-tar, and one part rosin. About two pounds of this mixture is put on a steer hide in a warm liquid state with a brush. After the hide leaves the machine the second time, it is ready for the next operation. It is then moistened with water four or five times during the day. The next day it is stretched and cut into pieces suitable for belting. For purposes of lacing the thinnest hides are selected, and after they have gone through the same mode of treatment as hides for belting, they are shaved, oiled, and hung up to get perfectly dry, when the hide is cut into strings. In order to more fully understand my mode of preparing hides I avoid the use of lime, acid, or alkali, for just to the amount a hide is impregnated with such substances it suffers in its tensile strength and toughness; a slow but constant dissolution is going on with hides so impregnated. If the effects of the aforesaid substances are in some way neutralized, which must be a chemical one, the hide suffers again in this process. The power to resist abrasion, and the extreme tensile strength for which pure rawhide is noted, are irreparably lost. [I am aware that hides and skins have been prepared by a fulling or bending operation to render them pliable, but this mode alone does not answer for the preparation of machine belts and lacing. It is necessary to make use of a preparation substantially such as before described to render the rawhide fit for use and durable.] The tallow has the effect of imparting a high degree of elasticity and keeps the moisture. The wood-tar prevents dogs, cats, mice, vermin, etc., from attacking the hide, at the same time causing the tallow to enter the hide quickly and thoroughly. The rosin gives the belting a certain solidity and glossy appearance, and assists also in preventing animals and vermin from attacking the belting. Belts and lacing made of such prepared hide are in all respects stronger, more lasting, and cheaper than those made from common leather.

The claim is as follows:

The treatment of the prepared rawhide in the manner and for the purposes set forth.

The bill of complaint is in the usual form. The answer sets up want of novelty and non-infringement. It also avers that the process set forth in the patent is composed of a series of steps, consisting of (1) the removal of the hair from the hide by means of sweating; (2) drying the hide perfectly hard; (3) then softening the hide slightly by soaking in water; (4) fulling the hide; (5) stuffing the hide with twenty parts of tallow, two parts of wood-tar, and one part of rosin; (6) fulling the hide a second time; (7) repeated moistenings with water, and (8) stretching and cutting into belting. It avers that the supposed importance of the plaintiff's alleged invention is the avoidance of the use of lime, acid, or alkali in the treatment of the hides, and the consequent avoidance of the use of any chemical agents to neutralize the action of such lime, acid, or alkali; that the process employed by the defendants is substantially different from that of the patent; that the process of removing hair by sweating the hide was known and practiced long before the supposed invention of the plaintiff; that the process of fulling hides is indispensable, and has been practiced ever since the art of tanning and curing hides was known; that the process of stuffing hides with tallow and greasy substances, and with various admixtures of resinous substances, tallow, and other materials, had been known from the earliest days of the art of manufacturing leather, and that a patent was granted to the defendant William Coupe, No. 182,106, September 12, 1876, for an improvement in processes for the manufacture of rawhide, under which the defendants carry on their manufacture, and make a different product from that produced by the process of the plaintiff's patent. Issue was joined,

proofs were taken, and the circuit court entered a decree in March, 1889, dismissing the bill, with costs. The plaintiff has appealed to this Court.

The opinion of the circuit court is reported in 38 *Federal Reporter*, 118. It held that the process of the patent consisted of the series of eight steps above set forth in the answer. It considered the questions whether the claim was intended to cover all, or only a part, of the eight successive steps; and whether it meant the method of preparing rawhide in the manner set forth, or whether the words in the claim, "prepared rawhide," signified a hide which had been subjected to one or more of the eight steps, and the claim was limited to the subsequent steps of the process. The court went on to say that that inquiry was important because, if the claim covered all of the eight steps, the defendants did not infringe it, for the reason that they did not use the first step of the process, namely, the removal of the hair from the hide by means of sweating, they making use, for that purpose, of the liming process, which the plaintiff stated in his specification must be avoided. The court held that the claim covered, and was intended to cover, the whole treatment described by the plaintiff, and not a part of that treatment; that the claim meant the same as if it read "the method of preparing rawhide in the manner set forth;" and that the words "prepared rawhide" meant the finished product, and not the hides subjected to one or more of the steps of the process described. The court then referred to the contents of the file-wrapper of the case in the Patent Office, as throwing light upon the real scope of the patent.

The specification, as originally filed, contained, in its descriptive part, substantially the same description as the patent when issued; but the claim originally made was in these words:

The use of a mixture of wood-tar, rosin, and tallow, applied to hides made into leather by a mechanical process, substantially as and for the purpose herein set forth.

The application was rejected January 4, 1873, on the ground that the combination of ingredients set forth, that is, wood-tar, rosin, and tallow, had been applied to leather for similar purposes, as shown in a patent and a rejected application referred to. On June 10, 1873, the specification was amended by inserting the two sentences which are contained in brackets in the specification as hereinbefore set forth, the claim was erased, and the following two claims were inserted in its place:

1. The mode herein specified of preparing rawhides for machine belts, lacing, or ropes by the fulling or bending operation and the preserving mixture, substantially as set forth.
2. A belt or rope of rawhide prepared in the manner and with the materials specified, as a new article of manufacture.

The application was again rejected, June 16, 1873, in a communication from the Patent Office, which stated that the only feature of novelty presented which was not embraced in a patent granted May 12, 1868, to Herman Royer and Louis Royer, No. 77,920, for an improved machine for treating hides, was the addition to the compound, of tar and rosin, as ingredients for preserving leather: and reference was made to another prior patent, granted to another person, as embracing such ingredients; and it was stated that the use of the compound claimed by the plaintiff in the manufacturing process would not leave a distinguishable feature in the article when placed upon the market.

The patent of May 12, 1868, thus referred to, is the same patent of that date mentioned in the specification of the patent now in suit. The specification of No. 77,920 says:

The nature of our invention is to provide an improved machine for converting rawhides into leather, of that class which is used for belting, lacings, and other purposes where it is necessary to preserve the native strength and toughness without destroying or impairing the natural fibers or grain of the leather. In order to accomplish our object, we employ a machine mounted on a suitable frame, having a vertical slotted shaft, to which is attached, at its base, a beveled wheel between two beveled pinions upon a horizontal shaft. Around the vertical shaft is placed a row of vertical pins or rollers, held in place by upper and lower rings, one of which is firmly bolted to the frame. An iron weight or press is employed for crowding the coil of hide down after it has received the forward and back action around the shaft.

The specification describes the operation of the machine as being, that the end of the rawhide, after it has been deprived of the hair, is introduced into a slot in the vertical shaft, and set-screws are turned against it, when motion is imparted to the machine, and the hide is wound tightly around the shaft; that, when this is accomplished, and sufficient time has elapsed, the shaft is slowly reversed by throwing a second beveled pinion into gear, when the hide commences to uncoil or double back from the shaft, which, with the folding back and pressing against vertical pins or rollers, produces the desired result of stretching in one way, and compressing, corrugating, or roughing in the opposite direction. The specification further says:

The hide so operated upon is then treated with oil and tallow in the usual way.

The process of the machine of Patent No. 77,920 is called in the specification of No. 149,954, "the process of fulling."

In a communication from Royer's attorney to the Patent Office, of October 9, 1873, it is stated that the material prepared according to the plan of Royer, set forth in his application for No. 149,954, is a superior article; that the use of tallow and tar upon leather was old, but rawhide fulled was not leather; and that the materials named acted with the rawhide very differently from what they did with leather. The same communication erased the second claim introduced June 10, 1873, namely:

2. A belt or rope of rawhide prepared in the manner and with the materials specified, as a new article of manufacture.

In response to that letter, the Patent Office, on October 17, 1873, informed Royer, that, independently of the process set forth in Patent No. 77,920, "for which protection has already been granted," a claim for the treatment of rawhide in the manner described in the specification then pending might receive favorable consideration, and that the body of the specification should be amended with the view of presenting a claim of the character referred to. On the 29th of October, 1873, Royer amended his specification in certain particulars, erased the remaining claim, and inserted the claim contained in the patent as issued. On the 12th of November, 1873, in compliance with the suggestion of the Patent Office, Royer further amended his specification, and the patent was issued, the final fee not having been paid until April 16, 1874.

The opinion of the circuit court states, that on June 10, 1873, as appeared by the file-wrapper and contents, the plaintiff sought to limit his claim to a method of preparing rawhide for belting by the fulling and bend-

ing operation and the preserving mixture; that that claim was rejected, and he acquiesced in the decision; that the Patent Office intimated that a claim for the treatment of rawhide in the mode described in his patent might be allowed; that the plaintiff accordingly amended his specification and claim in conformity with that suggestion, and the patent was consequently granted; that in view of the prior state of the art, the plaintiff was not entitled to a broad claim for a process which should embrace only the fulling and bending operation and the preserving mixture composed of tallow, tar, and rosin, for both of these things, as applied to converting hides into leather, were old; that it followed that the only subject-matter of invention which the plaintiff could properly claim was the whole process described in his patent, comprising the different steps therein set forth; that the most that could be said of the plaintiff's patent was that it was for an improved process; that, in that view, it must be shown that the defendants used all the different steps of that process, or there could be no infringement; that the defendants did not use the sweating process, which was the first step in the plaintiff's treatment, and therefore did not infringe; that the patent had been construed by Judge Drummond, in the Circuit Court of the United States for the Northern District of Illinois, in *Royer* v. *Chicago Manufacturing Co.*, (20 Fed. Rep., 853,) in which it was said:

> If this is a valid patent for a process, it must be limited to the precise, or, certainly, substantial, description which has been given in the specifications; and, in order to constitute an infringement of that process a person must be shown to have followed substantially the same process, the same mode of reaching the result as is described in the specifications;

that the court agreed with that conclusion; that, if the contention of the counsel for the plaintiff were correct, that the plaintiff had invented an entirely new process, which had revolutionized the art of preparing rawhide for belting and other purposes, it might be that the court ought to give that broad construction to the patent which was justified in the case of a foundation patent; but that when, as in this case, all the substantial steps in the process were old, the utmost that the plaintiff was entitled to was protection against those who used, in substance, his precise process.

We are of opinion that the views set forth by the circuit court are sound, and that the decree must be affirmed. The words in the claim, "prepared rawhide," refer to the completed article as prepared for final use by the treatment set forth in the specification; and the claim is one for the treatment or process by which rawhide is put into the condition resulting from the treatment it receives by the entire process applied to it. After the hair is removed from the hide by the process of sweating, and it has afterward lost its stiffness by being inserted in water, it is subjected to "the process of fulling," with a mixture of tallow, wood-tar, and rosin applied to it. The specification states, in substance, that Royer's mode of "preparing hides" comprehends, as a part of such mode, the sweating of the hides, because the specification states that in such mode of "preparing hides" he avoids "the use of lime, acid, or alkali." Therefore, the sweating must necessarily be included as a part of the preparation "of the prepared rawhide" mentioned in the claim, and therefore is a part of "the treatment" claimed.

The plaintiff contends that the treatment covered by the claim consists only in subjecting rawhide to a fulling process, and at the same time, by the same mechanical action, working into it the stuffing composed of tar, rosin, and tallow, and that he was the first to manufacture rawhides into a new article of commerce, called "fulled rawhide."

If the plaintiff did make such an invention, and was entitled to claim a patent for it, he has failed to secure such a patent. On June 10, 1873, he put in a claim to the mode of preparing rawhides by the fulling operation and the preserving mixture. That claim was rejected by the Patent Office, and he withdrew it on October 29, 1873. Nor can he, under the present patent, claim as a new article of manufacture the rawhide thus prepared; for he made that claim on June 10, 1873, it was rejected, and he struck it out on October 9, 1873.

It is well settled, by numerous cases in this Court, that under such circumstances a patentee cannot successfully contend that his patent shall be construed as if it still contained the claims which were so rejected and withdrawn. (*Roemer* v. *Peddie*, 132 U. S., 313, 317, and cases there cited.) The principle thus laid down is, that where a patentee, on the rejection of his application, inserts in his specification, in consequence, limitations and restrictions for the purpose of obtaining his patent, he cannot, after he has obtained it, claim that it shall be construed as it would have been construed if such limitations and restrictions were not contained in it. See, also, *Phœnix Caster Co.* v. *Spiegel*, (130 U. S., 360, 368;) *Yale Lock Co.* v. *Berkshire Bank*, (135 U. S., 342, 379;) *Dobson* v. *Lees*, (137 U. S., 258, 265.)

The present patent was under consideration in *Royer* v. *Schultz Belting Co.*, (40 Fed. Rep., 158,) in October, 1889, in the Circuit Court of the United States for the Eastern District of Missouri, where Judge Thayer took the same view of it that was taken by Judge Colt in the present case, and held that the claim of the patent did not cover broadly the method of making belting-leather by stuffing the rawhide by means of a fulling-machine, with a mixture composed of tallow, wood-tar, and rosin, and that, as the defendants in that case did not use the sweating process, but used the liming process, they did not infringe. Judge Thayer gave much force to the proceedings in the Patent Office, as showing that Royer modified his claim, which was so worded as to cover the stuffing process with the preserving mixture, and put his claim into its present form, solely in view of a communication from the Patent Office to the effect that the whole method described by him of making belting-leather out of green hides might be patentable, thus indicating the extent of the monopoly intended to be granted.

As the defendants in the present case do not use the sweating process, but use the liming process, it follows, under the proper construction of the claim of the patent, that they do not infringe.

Decree affirmed.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 62.—No. 3. TUESDAY, JANUARY 17, 1893. PRICE—$5 per year.

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Notice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 12, 1893.

The attention of attorneys and inventors filing applications for patents is called to the following paragraphs from Rule 51, (4,) Rules of Practice:

Drawings should be made with the fewest lines possible consistent with clearness. * * * Shading (except on sectional views) should be used *only* on concave and convex surfaces, where it should be used sparingly, and may even there be dispensed with if the drawing is otherwise well executed.

It will be seen from the above that *surface shading* is *prohibited*, and that such shading as is necessary to show convex and concave surfaces is required to be in clear sharp lines.

Hereafter these requirements will be rigidly enforced, and all drawings not made in conformity thereto will be rejected.

W. E. SIMONDS,
Commissioner.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

File-Wrappers—Entries On.

It is directed that entries shall not be made on the back of a file-wrapper, containing the application-papers for a patent, of papers or actions which do not become a permanent part of the contents of the file.

A card (Form 2-384 Office Series of blanks, sample hereto attached) will be placed in the file showing all appellate actions.

World's Columbian Exposition.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Price of Printed Copies of Patents.

Attention is called to the fact that under date of May 14, 1891, the price of uncertified printed copies of patents was fixed at the *uniform price of ten cents each*, whether purchased singly or in quantities.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of January 17, 1893.

Patents	353	No. 489,907 to No. 490,258, inclusive.
Designs	13	No. 22,132 to No. 22,144, inclusive.
Trade-Marks	16	No. 22,338 to No. 22,353, inclusive.
Labels	None.	
Reissue	2	No. 11,300 to No. 11,301, inclusive.
Total issue	383	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nevada	1	
Arizona Territory			New Hampshire	2	
Arkansas	1		New Jersey	11	
California	13		New Mexico Ter		
Colorado	5		New York	52	5
Connecticut	8	1	North Carolina		
Delaware			North Dakota		
District of Columbia	4		Ohio	24	
Florida			Oregon	2	
Georgia	2		Pennsylvania	46	5
Idaho	1		Rhode Island	8	
Illinois	40	3	South Carolina		
Indian Territory			South Dakota	1	
Indiana	7	1	Tennessee	3	
Iowa	6		Texas	5	
Kansas	7		Utah Territory	1	
Kentucky	3		Vermont	1	
Louisiana	2		Virginia	5	
Maine	1		Washington	1	
Maryland	3		West Virginia		
Massachusetts	29		Wisconsin	13	
Michigan	14		Wyoming		
Minnesota	4		U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	9				
Montana	1		Total to citizens of the United States	342	15
Nebraska	5				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	1		Netherlands		
Austria-Hungary			Newfoundland		
Belgium			New South Wales		
Brazil			New Zealand	1	
British Guiana			Norway		
Canada	4		Porto Rico		
Chile, Republic of			Portugal		
Cuba			Russia		
Denmark			Scotland	2	
England	5		South Australia		
France	2	1	Spain		
Germany	4		Sweden		
Guatemala			Switzerland	1	
India			Tasmania		
Hawaii	1		Victoria	1	
Italy	1				
Mexico			Total to citizens of foreign countries	23	1

APPLICATIONS UNDER EXAMINATION.

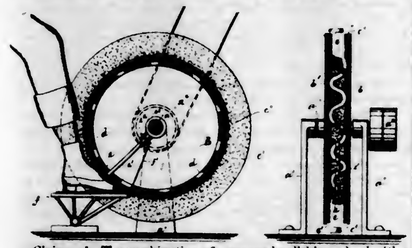
Condition at Close of Business January 10, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Dec. 12	Dec. 24	85
	Between one and two months in arrears.			
8	Furniture, Toilet, Umbrellas and Canes, etc.	Nov 15	Jan. 3	252
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 11	Dec. 28	189
24	Sewing-Machines and Apparel	Nov. 11	Dec 21	118
21	Textiles, etc	Nov. 11	Dec. 19	198
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Nov. 10	Dec. 19	145
12	Mechanical Engineering, Stores-Service, etc.	Nov. 12	Dec. 17	262
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Nov. 11	Dec. 16	228
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Nov. 11	Dec. 10	235
19	Stoves and Furnaces	Nov. 10	Dec. 1	395
10	Carriages and Wagons and Railway-Cars.	Nov. 10	Nov. 28	331
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Nov. 12	Nov. 26	227
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Nov. 11	Nov. 22	253
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Nov. 12	Nov. 19	196
9	Hydraulics, Fire-Extinguishers, etc.	Nov. 11	Nov. 14	366
4	Civil Engineering, etc	Nov. 10	Nov. 11	341
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Nov. 10	Nov. 5	298
	Between two and three months in arrears.			
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Nov. 4	Dec. 17	173
2	Farm Stock, Products, etc	Nov. 4	Dec. 17	237
18	Steam-Engineering, etc	Nov. 7	Dec. 12	152
7	Harvesters, Games and Toys	Nov. 5	Nov. 30	536
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Nov. 9	Nov. 14	263
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Nov. 8	Nov. 3	340
17	Paper-Manufactures and Printing.	Oct. 13	Nov. 3	300
1	Tillage and Fences	Oct. 27	Oct. 26	298
	Between three and four months in arrears.			
23	Instruments of Precision, Acoustics, Optics, etc.	Oct. 4	Dec. 16	293
13	Metal-Working, Arms and Projectiles, etc.	Sept. 13	Dec. 10	284
22	Fire-Arms, Navigation, Signals, etc.	Oct. 6	Dec. 9	294
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Sept. 12	Dec. 1	367
33	Advertising, Baggage, Packing and Storing Vessels, etc.	Sept. 27	Nov. 25	336
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 1	Dec. 20	383
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	May 14	Oct. 24	540
	Total number of applications awaiting action			8,860
	Under one month in arrears.			
Designs		Jan. 3	Jan. 3	66
Trade-Marks		Jan. 4	Jan. 4	31

PATENTS

GRANTED JANUARY 17, 1893.

489,907. SHOE-POLISHING MACHINE. SIDNEY ABERNETHY, New York, N. Y. Filed Mar. 17, 1892. Serial No. 425,216. (No model.)

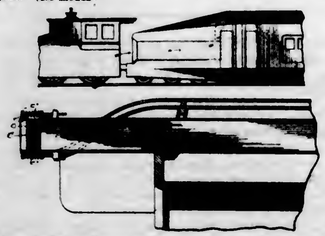


Claim.—1. The combination of a grooved polishing wheel with a reciprocating brush *e*, projecting into the groove, substantially as specified.

2. The combination of a grooved polishing wheel having a serpentine channel *d*, with a brush projecting into the groove and engaging the channel, substantially as specified.

3. The combination of a grooved polishing wheel having a serpentine channel with a pivoted brush projecting into the groove and engaging the channel and with a chain *f'*, for locking the brush horizontally, substantially as specified.

489,908. VENTILATING APPARATUS FOR RAILWAY-CARS IN TRAINS. FREDERICK U. ADAMS, Chicago, Ill., assignor of one-half to Robert S. McCormick, same place. Filed Nov. 24, 1891. Serial No. 412,994. (No model.)



Claim.—1. In a railway car, the combination of a longitudinally arranged main air-supply duct, longitudinal ducts at the sides of the car connected with the main duct and vertical ducts leading from the said side ducts and discharging into the car interior.

2. In a railway car, the combination with a main air-supply duct having a branch leading therefrom for the delivery of air to the car interior, of two oppositely directed deflecting plates within the main air duct hinged at a point opposite the opening into the branch, and at a distance therefrom, and an additional pivoted plate projecting from the junction of the two oppositely directed plates toward the branch opening.

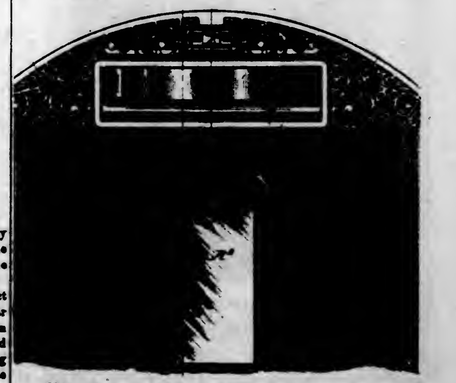
3. In a railway car the combination, with a main air supply duct having opposite branches leading therefrom for the delivery of air to the car interior at opposite sides of the car, two deflecting plates arranged within the main air duct on opposite sides thereof and hinged or pivoted on vertical axes in position to deflect air from the main duct into said branches and adapted to have their free ends brought together, or practically so, for the purpose of closing the main duct to the escape of air at its rear end.

4. The combination with an air duct B, applied to a railway train, of a movable vane E, arranged to present its face to the air pressure encountered by the train, a movable valve F, applied to the duct, a link connection between the vane and the valve arranged to produce a closing movement of the valve by a rearward movement of the vane and a spring or springs arranged to produce an opening movement of the valve.

5. In apparatus for supplying air to the interior of railway cars, the combination, with a rigid portion of a main air supply duct connected with a car body, of a flexible and extensible prolongation of said duct exterior to the end of the car, a rigid, hollow frame applied to the outer end of the flexible portion, a laterally and vertically yielding support for said frame, and a spring or springs arranged to press the end frame outwardly, the whole being adapted to join with a similar prolongation upon the end of an adjacent car to form a flexible joint in a duct continuous from car to car.

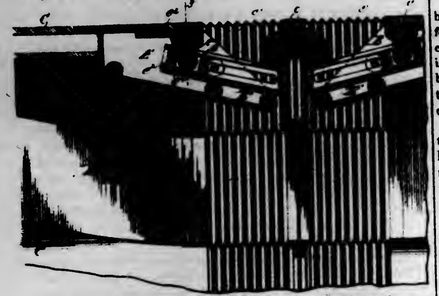
6. In apparatus for supplying air to the interior of railway cars, the combination, with a flexible and extensible prolongation, exterior to the end of the car, of an air duct connected with the body of the car and delivering into its interior, of a rigid, hollow frame at the outer end of said extensible prolongation of the duct, a supporting bar or rod universally jointed to said terminal frame of the duct and having a sliding and vibrating connection with the car, and a spring arranged to press the frame outwardly from the car.

489,909. AIR-SUPPLY DEVICE FOR RAILWAY PASSENGER-CARS. FREDERICK U. ADAMS, Chicago, Ill., assignor of one-half to Robert S. McCormick, same place. Filed Dec. 14, 1891. Serial No. 414,991. (No model.)



Claim.—1. In combination with a car, a hood having a rigid portion extending substantially the width of the platform and provided with an extensible extremity having a practically rigid end plate, an air duct extending lengthwise of the car and having a rigid portion which extends to or beyond the end of the car, and an extend-

ble portion at its extremity which is supported laterally and vertically from the end plate of the hood



2. In combination with a car, a hood having a rigid portion projecting substantially the width of the platform and provided with an extensible extremity having a practically rigid end plate, an air duct extending lengthwise of the car in the upper portion of the latter and projecting therefrom above the end doorway, said air duct having a flexible portion beneath the hood provided with an end plate flush with that of the flexible portion of the car hood, and a skeleton ornamental metal support depending from the end plate of the car hood and connected with the end plate of the air duct whereby the said end plate of the air duct is sustained vertically and laterally and maintained in the plane of the end plate of the car hood

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489,910. AIR-SUPPLY DEVICE FOR RAILWAY-CARS. FREDERICK U. ADAMS, Chicago, Ill., assignor of one-half to Robert S. McCormick, same place. Filed Feb. 8, 1892. Serial No. 420,747. (No model.)



Claim.—1. In an air supply system for railway passenger trains, the combination, in a passenger car, of two main longitudinal pipes, one for cold and the other for heated air, adapted to communicate each with a corresponding pipe of an adjacent car, openings into the interior of the car and passages giving communication from both said main pipes to said openings, whereby warm and cold air, both derived from a source external to the car, may be mixed at or on their way to said openings.

2. In an air supply system for railway passenger trains, the combination, with a passenger car, of two main longitudinal pipes, one for cold and the other for warmed air, adapted to communicate with corresponding pipes on an adjacent car, distributing pipes adapted to deliver into the car interior and pipes leading from both main pipes to said distributing pipes.

3. In an air supply system for railway passenger trains, the combination, with a passenger car, of two main longitudinal pipes, one for cold and the other for warm air, adapted to communicate with corresponding pipes on an adjacent car, distributing pipes for delivering air at various points to the car interior, branch pipes leading from both main pipes to said distributing pipes, and means for controlling the relative quantities of air delivered from said main pipes to the distributing pipes.

4. In combination with a passenger car having two main longitudinal pipes, one for cold and the other for warmed air, passages leading from both said pipes to common openings into the car interior, and means for regulating the relative quantities of cold and warmed air on its way from the main pipes to said openings, a car or other member of the train provided with fixed sections of both cold and warm air pipes opening to the outer air at or near the head of the train, and means for heating the contents of the warm air pipe on its way to the passenger car.

5. In an air supply system for railway passenger trains, the combination, with a cold air main pipe extending lengthwise through a car or cars and taking its supply at or near the head of the train, and a second pipe for heated air also leading through the car or cars of the train, and inseeting passages within the car leading from both said pipes to common delivery openings into the car interior, of a duct applied to the locomotive and heated from the heated surfaces of said locomotive, said pipe for heated air opening to the outer air and being adapted to connect with the car pipe for warmed air.

6. In an air supply system for supplying mingled hot and cold air to passenger cars of railway trains, the combination, with longitudinal hot and cold air pipes leading through a passenger car or cars of a train, of a fixed section of each of said pipes applied to the locomotive tender, the cold air pipe section opening at the tender into the outer air and the hot air section of pipe being extended into contiguity with heating surfaces of the locomotive and being open to receive air in front of such heating surfaces.

7. In an air-supply system for railway trains, a fixed section of a main air supply pipe applied to the locomotive tender exterior to a side wall of the water tank and deflected inwardly at the rear of said tender into line with a central continuation of said pipe applied to an adjacent car.

8. In an air supply system for railway passenger trains, the combination, with a passenger car, of two main longitudinal pipes, one for cold and the other for heated air, for the delivery of air to the interior of said car, said pipes having a common wall separating them whereby heat may be transmitted from the hot air pipe to the contents of the cold air pipe.

9. In an air supply system for railway passenger trains, the combination, with a passenger car, of two main longitudinal pipes, one for cold and the other for heated air, for the delivery of air into the car interior, said two pipes being separated by a common wall and a portion of the wall inclosing the heated air pipe being exposed to the car interior

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489,911. RAILWAY CAR AND TRAIN. FREDERICK U. ADAMS, Chicago, Ill., assignor of one-half to Robert S. McCormick, same place. Filed Oct. 27, 1891. Renewed Nov. 9, 1892. Serial No. 451,430. (No model.)

Claim.—1. A railway car provided with a housing for the running gear comprising sides and a bottom which bottom is independent of the car body as to the oscillatory movement of the latter

2. In combination with a railway car, a housing for the running gear comprising a bottom connected with the said gear, whereby its horizontal position is practically maintained, and extensible side walls connecting the bottom with the car body.

3. In combination with a railway car, a housing for the running gear comprising sides and a bottom, which bottom is suspended from points in the axes of the trucks of said gear.

4. In combination with a railway car, a housing for the running gear comprising sides and a bottom which bottom is adapted to be lowered to the tracks whereby a disabled truck may be removed over said bottom.

5. In combination with a railway car, a housing for the running gear comprising a bottom adapted to be lowered to the tracks and provided with track rails on its upper surface over which a disabled truck may be run from beneath the car body

6. In combination with a railway car, a housing for the running gear comprising a bottom which is sustained wholly or in part from the said gear and with respect to which the trucks of the gear may vibrate on their axes, and side walls which are extensible and which are connected with both the car body and said bottom.

7. In combination with a railway car, a housing for the running gear comprising a bottom connected with the running gear for the maintenance of its position laterally and horizontally and an extensible, flexible curtain connecting the edge of the bottom with the car body.



8. In combination with a railway car, a housing for the running gear comprising a bottom connected with the running gear, extensible side walls connecting said bottom with the car body and an extensible end wall also connecting the bottom with the car body.

9. In combination with a railway car, a housing for the running gear comprising a bottom connected with the running gear, an end wall or walls composed of two vertically overlapping and relatively sliding portions, and vertically extensible side walls.

10. In combination with a railway car, a housing for the running gear comprising a bottom connected with the running gear, and a side curtain mounted on a spring-winding roller connected with either the bottom or the car body and extended to and detachably connected to the other of said parts.

11. In a railway car, the combination with the car body having its sides extended downwardly below the sills, of an inclosure for the running gear comprising a bottom connected with the running gear and lateral walls for said inclosure composed of the said downward extensions of the car sides and extensible portions reaching from said downward extensions to the bottom.

12. In combination with a railway car, an inclosure for the running gear comprising a bottom connected with said running gear, and lateral walls containing an extensible two-part flap, the upper part of which is hinged to the car body and the lower part of which rests upon the edge of said bottom, the said bottom being provided with a notched or grooved step to receive the lower edge of the flap.

13. In combination with a car provided with an inclosure for the running gear, having sides, end and a bottom a roof covering the platform, door jambs rising from the outer cross-beam of the platform to said roof and doors, substantially flush with the sides of the car and gear housings and extending to the bottom step leading to the platform.

14. A railway train comprising a plurality of cars each having trucks pivoted thereto, each car having an inclosure for its running gear of which the bottom is sustained in a substantially fixed lateral relation to the car body but is practically maintained in a horizontal position by connection with the running gear, and means for inclosing the spaces between cars substantially flush with the tops, sides and bottoms of the cars and of their running gear inclosure.

15. A railway train comprising a plurality of cars each having trucks pivoted thereto and each having an inclosure for its running gear of which the bottom is sustained in a substantially fixed lateral relation to the car body but is practically maintained in a horizontal position by connection with the gear, and expansible means for inclosing the space or spaces between cars substantially flush with the tops, sides and bottoms of the cars and their running gear inclosure, the rear car of the train being tapered or contracted at its rear end, substantially as shown and described.

16. In a railway train comprising a plurality of cars each having trucks pivoted thereto and each having an inclosure for its running gear, of which the bottom is sustained in a substantially fixed lateral position relative to the car body but is practically maintained in a horizontal position by connection with the running gear, a tender having an inclosure for its running gear and its rear end of the same or nearly the same dimensions as that of the adjacent car, and expansible means for inclosing the spaces between these vehicles substantially flush with the surfaces of the vehicles connected.

17. In combination with a railway car provided with pivoted trucks, an inclosure for the running gear comprising sides and bottom, the bottom being suspended from the running gear in the axis of its rotation beneath the car, and projections from the said bottom at opposite sides of its points of suspension, connection with the gear for the maintenance of the said bottom in a substantially horizontal position.

18. In combination with a railway car provided with pivoted trucks, an inclosure for the running gear comprising sides and bottom, the bottom being sustained from the middle of the middle axle of each truck and provided with side connections with an axle of each truck for the preservation of the horizontal position of said bottom.

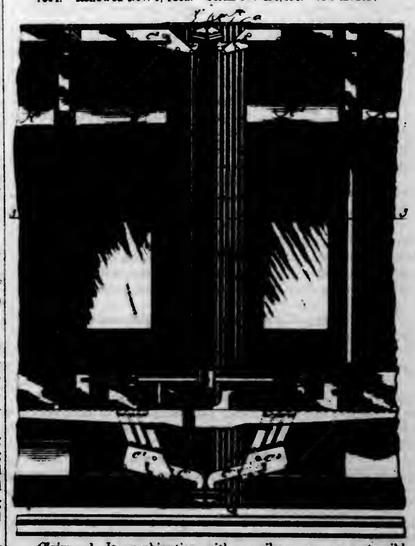
19. In combination with a railway car having pivoted trucks, an inclosure for the running gear comprising sides and a bottom the bottom of which is sustained near its ends from points on the axes of the trucks and is centrally sustained from the middle of the car body.

20. In combination with a six-wheeled truck centrally pivoted to a car body, an inclosure for the running gear provided with a bottom, a bearing box hanging at the middle of the middle truck axle, and an extension of said bearing box pivoted to the latter by a vertical pivot and secured to the bottom of the running gear inclosure.

21. In combination with the pivoted truck of a railway car, a lateral and bottom inclosure for the running gear of which the bottom is suspended from the axes of the trucks, and standards rising from the said bottom on opposite sides of its median line, beneath and into proximity with the axles of the trucks

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489,912. RAILWAY-CAR. FREDERICK U. ADAMS, Chicago, Ill., assignor of one-half to Robert S. McCormick, same place. Filed Dec. 5, 1891. Renewed Nov. 9, 1892. Serial No. 451,431. (No model.)



Claim.—1. In combination with a railway car, an extensible hood, an inclined guide or way attached centrally to the upper end portion of the car, a bar fitted to said guide or way and pivoted by a vertical pivot to a movable point in the upper part of the hood,

whereby the hood is raised in its retraction and has a tendency to project itself by gravity and whereby the free margin of the hood may adjust itself upon the vertical axis when the car is upon a curve of the track and is connected with another hooded car.

2. In combination with a car and an extensible hood applied to its end, mechanism connecting the car with the hood and supporting the free margin of the hood from the car, said mechanism being adapted to lift the hood in the retraction of the latter and also adapted to allow both a lateral vibration of the hood with respect to the car and an oscillation thereof on a vertical axis.

3. In combination with a car, a continuous, extensible hood which extends both above and beneath the platform or floor frame; a marginal, continuous frame at the outer edge of the hood and suitable movable supports for the marginal hood frame connecting the latter with the car both above and below the platform.

4. In combination with a car body, a housing for the running gear continuous with the car sides, a continuous, flexible, foliated hood attached to the margin of the end of the car and its gear-housing, a substantially rigid open plate or frame attached to the outer margin of the hood and means by which the hood is automatically projected, whereby the car, thus equipped, is adapted to form a junction with another car similarly equipped, in the longitudinal lines of their external surfaces.

5. In combination with a car, an extensible hood consisting of an interior jointed and folding portion, a flat, elastic exterior portion covering the folding part, and a marginal, open frame at its free edge, said hood being applied flush with the exterior of the car.

6. In combination with two coupled cars, extensible and flexible hoods attached to the adjacent ends of said cars, said hoods having meeting end frames provided with interlocking devices adapted to hold them practically immovable laterally relatively to each other, and means through which the gravity of the hoods tends to project them.

7. In combination with a car, an extensible hood applied to the end of the car constructed to rise at its outer end when being retracted and to descend when being projected, whereby its own gravity tends to project it, and a hand lever and suitable connections thereof with the outer part of the hood for retracting the latter.

8. In combination with a car having an end platform and side steps leading thereto, a rigid housing substantially flush with the car sides inclosing the platform space laterally and overhead, a housing beneath the platform and steps, continuous at its side margin with that inclosing the platform space, doors opposite the steps and platform, a continuous extensible and flexible hood applied to the continuous margin of the housings and provided with a continuous end plate or frame adapted to meet a similar hood plate on a similarly fitted car, and a diaphragm or partition arranged to prevent dust from rising through the hood and past the end of the platform, and to thereby prevent dust from entering the united and inclosed platform space of two such coupled cars.

9. In combination with a car, a housing for the running gear extending to the ends of the car, and divided by partitions outside the trucks, prolongations of the car sides to the ends of the gear housing, a roof terminating in line with the car sides and gear housing, and extensible hoods applied to the ends of the roof, sides and gear housing, adapted to meet similar hoods on contiguous cars.

10. In combination with a car, a housing for the running gear, divided vertically by partitions placed between the trucks to afford a central closed space, between the trucks.

11. In combination with a car, a housing for the running gear, having openings in its bottom for the wheels, end hoods substantially flush with the external surfaces of the car and its said housing, and partitions placed in said housing at opposite ends of the trucks forming inclosures of those portions of the housing through which the wheels project.

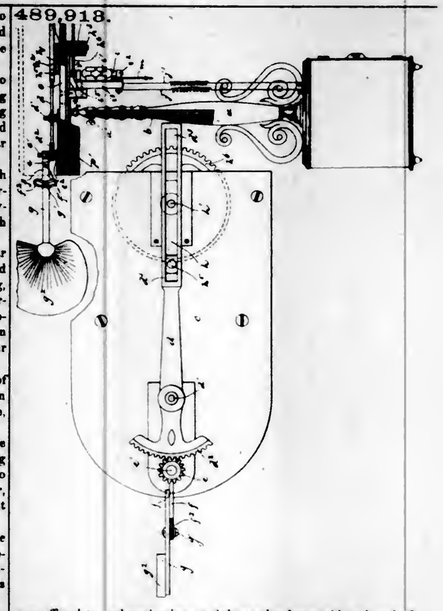
12. In combination with flexible hoods upon cars, adapted to be coupled together, inclined projections arranged to bring the end plates of the hoods into register in joining the cars, and clamps attached to said end plates for retaining them in contact.

13. In combination with a car and an extensible and flexible hood applied to the end thereof, a central support for the end plate of the hood having a universally jointed connection with the end plate and having sliding and vertically and horizontally vibratory connection with the car.

489,918. FAN. FRANK J. ADAMS, Chicampore, India. Filed Aug. 22, 1891. Serial No. 403,673. (No model.) Patented in India Nov. 15, 1890, No. 42.

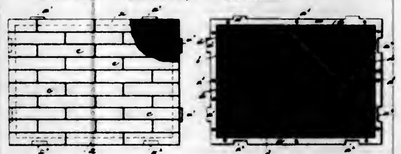
Claim.—The improved portable fan, comprising a standard, a rod or support journaled in said standard and adjustable therein, the table affixed to said rod or support, a lever pivoted on a fixed support on said table and having at one end a segmental gear and at the other end an elongated slot, a pinion mounted on a stud or shaft journaled in said table, and meshing with said segmental gear, fan-carrying

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arm affixed to and projecting at right angles from said stud or shaft, a shaft *h'* mounted in bearings at the other end of the table from the said stud or shaft, a crank on said shaft *h'* having a pin entering the elongated slot in the said lever, a gear on said shaft *h'*, a shaft *i* journaled in suitable bearings below the table and provided with a pinion meshing with the gear on the shaft *h'*, an electric motor on said shaft *i*, and a source of electricity, as a battery, suitably connected with said motor, as set forth.

489,914. WALL-FACING. MAX ARB, New York, N. Y. Filed Oct. 17, 1892. Serial No. 449,057. (No model.)



Claim.—1. The combination of a frame with a backing secured thereto and with tiles secured to one face of the backing, substantially as specified.

2. The combination of a frame with an open mesh backing secured thereto and with tiles cemented to one face of the backing, substantially as specified.

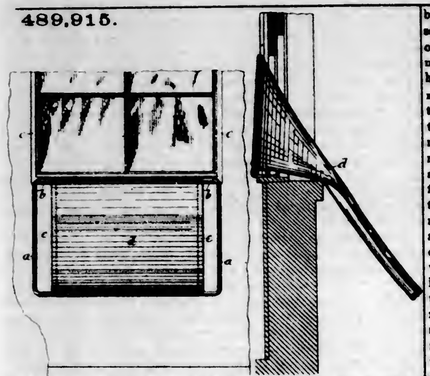
3. The combination of a frame having lugs *a'*, and recesses *a²*, with a backing secured thereto and with tiles secured to the backing, substantially as specified.

4. The combination of a frame having lugs *a'*, and recesses *a²*, with an open mesh backing secured thereto and with tiles secured to the backing by cement blocks or rows *d*, set back from the edge of the tiles, substantially as specified.

489,915. FIRE-ESCAPE. LEWIS ANIDJAR, London, England, assignor to the Anidjah Fire Escape Company, Limited, same place. Filed May 5, 1892. Serial No. 431,933. (No model.) Patented in England Nov. 13, 1890, No. 18,283.

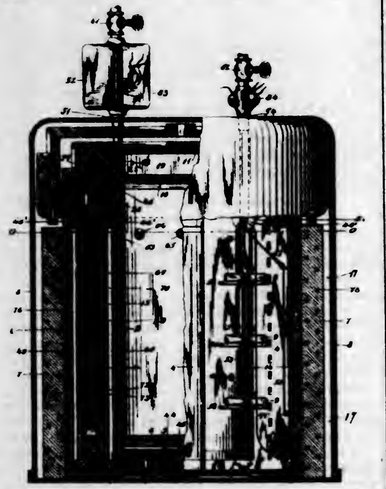
Claim.—The described fire-escape, consisting of a metal frame *a*, having a breadth sufficient to prevent its passing out of the window, combined with metal plates secured to the window sill or a fixed part of the window-frame and provided with hinging eyes through which the lower part of the frame is passed, such eyes being located between

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the ends of the frame and cross-bars *c*, such cross bars extending across the frame and a flexible tube secured to such frame and bars, all substantially as set forth.

489,916. APPARATUS FOR PRESERVING FOODS. ALBERT BAKER, Fort Wayne, Ind. Filed Jan. 26, 1892. Serial No. 419,226. (No model.)



Claim.—1. In an apparatus for handling and preserving foods and other substances, the combination of a main case, with a projection attached to its neck or opening provided with an interior recess and with a shoulder upon its upper part of sufficient depth to receive the rim of a secondary case, and a plate; a secondary case provided with a rim adapted to rest upon the shoulder of the interior recess of said projection, and extending to or near to the bottom of the main case and provided with a removable bottom having a central orifice closed by a plug or valve; a plate adapted to form a cap or cover to said secondary case and to rest upon and cover its rim; packing between the rim and cap of said secondary case adapted to seal the same when the cover inclosing the projection is secured in place; sub-interior cases placed within the secondary case, or within an envelope placed therein, provided with covers and means to hermetically seal them and with removable bottoms which are provided with valves or plugs; a piston fitting in said secondary case and adapted to be operated therein; a bottom to the main case provided with an orifice extended to the interior thereof closed hermetically by a plug or valve and adapted to coincide with the orifice in the bottom of said secondary case, partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; supports under the secondary case constituting walls connected with and forming part of the partition walls, and provided with valves closing orifices and means to operate the valves externally; enveloping flexible covers hermetically attached, inclosing the handles of the wires or other mechanism connected to and operating the interior valves and adapted to permit their free operation; pipes entering the case or cases for the admission and exit of a current, provided with stop cocks, or other means for regulating the entrance and exit of a current; a cage or receptacle containing sterilizing material connected to the admission and exhaust pipes in such manner that all the current entering or flowing out through the inner ends of said pipes shall pass through the sterilizing material; a thermo-electric pile consisting of alternate metallic plates or conductors of dis-similar metal, connected at their alternate ends, so as to form a continuous path for an electric current; cross walls extending from one partition wall to another provided with said thermo-electric piles, and further sub dividing the space into two or more compartments, the connecting ends of the piles extended beyond the cross walls lineally so as to form points of attachment in the partition walls; cells or recesses placed within the apparatus at any required places and adapted to hold capsules and materials, the cells containing materials being provided with covers, and the covers and capsules being constructed of materials adapted to be dissolved or broken by the application of heat, moisture or other means at the will of the operator; electric mats consisting of a mat of fibrous or porous material placed on suitable supports containing electric conductors interlaced and arranged to form a path for an electric current, and also arranged to produce electrolytic action at given places; electric conductors connecting the thermo-electric pile and the electric mats, with suitable sources of electric generation outside the apparatus; an electric sterilizer inclosed within a case placed between sections of the said pipe, the case forming a section thereof; a jacket of porous or absorbent material enveloping the main case externally and provided with electric conductors of different conductive power connected with each other to form a continuous path for an electric current interlaced therewith; and a cover or covers to the openings of the case or cases and means to secure them in place hermetically.

2. In an apparatus for handling and preserving foods and food substances, the combination of a main case with, a projection attached to the neck or opening of said case, provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon said shoulder within said recess of said projection and extended to or near to the bottom of said case, and also provided with a removable bottom having an orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; supports under the secondary case constituting walls connected with the partition walls, and provided with apertures provided with valves and means to operate the valves externally; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments and provided with apertures and valves and means to operate the valves externally; pipes entering the case or cases for the admission and exit of a current provided with stopcocks, or other means for regulating the entrance and exit of a current; suitable packing material between the parts requiring sealing; and a cover over said projection and means to secure the same in place hermetically.

3. In an apparatus for handling foods and other substances, the combination of a main case provided with a removable plug or valve with, a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to fit in said recess and rest on said shoulder and extending to or near to the bottom of the main case and also provided with a removable bottom having an orifice closed by a plug or a valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; a piston fitting in said secondary case and adapted to be operated therein; suitable packing between the parts requiring sealing; and a cover to said projection and means to secure the same in place hermetically.

4. In an apparatus for handling foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided with stopcocks or other means for regulating the entrance and exit of a current a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to fit in said recess and rest upon said shoulder and extended to or near to the bottom of the main case and provided with a removable bottom having an orifice and a plug or valve closing the same; a plate adapted to fit in said recess and form a cap or cover to said secondary case; a piston fitting in said secondary case and adapted to be operated therein; a pipe opening into the space or chamber formed between the plate covering the rim of said secondary case and a cover placed above it, and opening also into the entrance pipe; suitable packing material between the parts requiring

sealing; and a cover to said projection and means to secure the same in place hermetically.

5. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided with stop-cocks or other means for regulating the entrance and exit of a current a projection attached to the neck or opening of said case provided with a recess with a shoulder; a secondary case provided with a rim adapted to fit in said recess and rest upon said shoulder and extended to or near to the bottom of the main case and provided with a removable bottom having an orifice closed by a plug or valve; a plate adapted to form a cap or cover to said secondary case and to rest upon and cover the rim thereof; packing between the rim and cap or cover to said secondary case adapted to seal the same, and a cover to said projection and means to secure the same in place.

6. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to fit in said recess and rest upon said shoulder and extend to or near to the bottom of the case, and provided with a removable bottom having a central orifice closed by a plug or valve; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments and provided with apertures and valves closing the same, and means to operate the valves externally; a thermo-electric pile consisting of alternate metallic plates or conductors of dis-similar metals connected at their alternate ends so as to form a continuous path for an electric current; and a cover over said projection and means to secure the same in place hermetically.

7. In an apparatus for handling and preserving foods and other substances, the combination of a case with, a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon said shoulder in said interior recess and extended to or near to the bottom of the main case and provided with a removable bottom having an orifice closed by a plug or valve; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; cross walls extending from one partition wall to the other provided with thermo-electric piles, and further subdividing the space into two, or more compartments, the connecting end of said piles extending beyond the cross walls lineally so as to form points of connection and attachment in said partition walls; and a cover over said projection and means to secure in place hermetically.

8. In an apparatus for handling and preserving foods and other substances, the combination of a case with, a projection attached to the neck or opening of the case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon said shoulder in said interior recess and extending to or near to the bottom of the main case and also provided with a removable bottom having a central orifice closed by a plug or valve; electric mats consisting of material of fibrous or porous construction placed upon suitable supports within said case containing electric conductors arranged to form a path for an electric current, and also arranged to produce electrolytic action at given places and a cover over said projection and means to secure the same in place hermetically.

9. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided with stop-cocks or other means for regulating the entrance and exit of a current subinterior cases inclosed by an envelope extended from the neck to the bottom of the main case, provided with removable bottoms which are provided with valves or plugs; partition walls between said envelope inclosing said sub-interior cases and the main case, subdividing the space between them into two or more compartments, and a cover for said case provided with means to secure the same in place hermetically.

10. In an apparatus for handling and preserving foods and other substances, the combination of a case with, pipes entering said case for the admission and exit of a current, provided with stop cocks, or other means for regulating the entrance and exit of a current; a cage or receptacle containing sterilizing material connected to the admission and exit pipes in such manner that all the current entering or flowing out through the inner ends of said pipes shall pass through the sterilizing material; and a cover to said case and means to secure the same in place hermetically.

11. In an apparatus for handling and preserving foods and other substances, the combination of a case with, pipes entering said case for the admission and exit of a current and provided with stopcocks or other means for regulating the entrance and exit of a current a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon said shoulder in said interior recess and extending to or near to the bottom of the main case and provided with a removable bottom having a central orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; sub-interior cases placed within the secondary case, or within an envelope placed therein and also provided with covers and means to hermetically seal them and having removable bottoms which are provided with valves or plugs; and a cover or covers to the openings of the case or cases and means to secure them in place hermetically.

12. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided with stop-cocks or other means for regulating the entrance and exit of a current a projection to the neck or opening of said case, provided with an interior recess with a shoulder of sufficient depth to receive the rims of inclosed cases and a plate and leave a space or chamber between the plate and a cover placed on top of the projection; a secondary case provided with a rim adapted to rest upon the shoulder of said interior recess and extended to or near to the bottom of the main case, and provided with a removable bottom having an orifice closed by a plug or valve; a plate adapted to form a cap, or cover to said secondary case and to rest upon and cover the rims thereof; partition walls between said secondary case and the main case sub-dividing the space between them into two or more compartments; sub-interior cases placed within the secondary case or within an envelope placed therein provided with covers and means to hermetically seal the same and with removable bottoms which are provided with valves or plugs; and a cover or covers to the openings of the case or cases and means to secure them in place hermetically.

13. In an apparatus for handling and preserving foods and other substances, the combination of a case with, a projection attached to the neck or opening of the case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said interior recess and extended to or near to the bottom of the main case and provided with a removable bottom having a central orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; a piston fitting in said secondary case and adapted to be operated therein; a bottom to the said main case provided with an orifice to the interior thereof closed by a removable plug and adapted to coincide with the orifice in the bottom of said secondary case; and a cover or covers to the opening of the case and means to secure them in place hermetically.

14. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of a case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said interior recess, and extending to or near to the bottom of the main case and also provided with a removable bottom having a central orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; a thermo-electric pile placed within the partition walls consisting of alternate metallic plates or conductors of dissimilar metals, connected at their alternate ends so as to form a continuous path for an electric current; cross walls provided with thermo-electric piles and with the connecting ends of said piles extended beyond the said cross walls lineally, so as to form points of attachment in the said partition walls; electric mats consisting of a mat of material of fibrous or porous construction placed on suitable supports containing electric conductors arranged to form a path for an electric current, and also arranged to produce electrolytic action at given places; and a cover or covers to the openings of the case or cases and means to secure them in place hermetically.

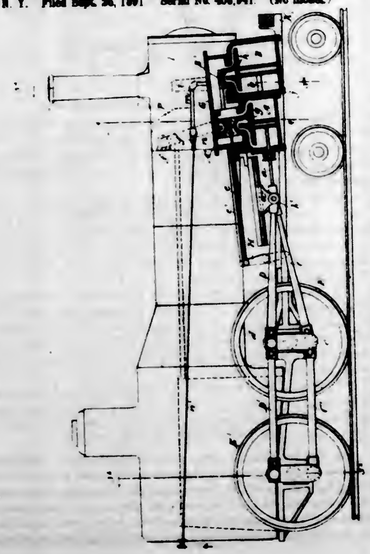
15. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of said case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said interior recess and extending to or near to the bottom of the main case and provided with a removable bottom having an orifice closed by a plug or valve; a plate adapted to fit in said recess and form a cap or cover to said secondary case; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; cells or recesses placed within the apparatus at any required places and adapted to hold capsules and materials, the cells containing materials being provided with covers and the covers and capsules constructed of materials adapted to be dissolved or broken away by the application of heat, moisture, or other means at the will of the operator; means to dissolve or break said covers and capsules and a cover over said projection and means to secure the same in place hermetically.

16. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of said main case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said recess and extending to or near to the bottom of the main case; a plate adapted to fit in said recess and form a cap or cover to said secondary case; partition walls between the secondary case and the main case sub-dividing the space between them into two or more compartments; a thermo-electric pile consisting of alternate metallic plates or conductors of dis-similar metals connected at their alternate ends and adapted to form a continuous path for an electric current; cross walls extending from one partition wall to the other provided with thermo-electric piles, and further sub-dividing the space into two or more compartments, the connecting ends of the piles extended beyond the cross walls lineally so as to form points of attachment in the partition walls; sub-interior cases placed within the secondary case or within an envelope placed therein and also provided with covers and means to hermetically seal them and with removable bottoms which are provided with valves or plugs; and a cover over said projection and means to secure it in place hermetically.

17. In an apparatus for preserving and handling foods and other substances, the combination of a main case with, pipes entering said case for the admission and exit of a current and provided with stop-cocks or other means for regulating the entrance and exit of a current a projection attached to the neck or opening of the main case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder of the interior recess of said projection and extending to or near to the bottom of the main case, and provided with a removable bottom having an orifice closed by a plug or valve; partition walls between the secondary case and said main case sub-dividing the space between them into two or more compartments; and a cover to said projection and means to secure the same in place.

18. In an apparatus for handling and preserving foods and other substances, the combination of a main case with, a projection attached to the neck or opening of said main case provided with an interior recess with a shoulder; a secondary case provided with a rim adapted to rest upon the shoulder in said interior recess and extending to or near to the bottom of the main case and provided with a removable bottom having a central orifice closed by a plug or valve; pipes entering the case or cases for the admission and exit of a current, and provided with stop cocks, or other means for regulating the entrance and exit of a current; electric mats consisting of fibrous or porous material placed on suitable supports containing conductors arranged to produce electrolytic action at given places; and a cover over said projection and means to secure the same in place hermetically.

489,917. BALANCED STEAM-ENGINE. CHARLES A. BALL, Brooklyn, assignor to the Ball Compound Locomotive Company, New York, N. Y. Filed Sept. 26, 1891. Serial No. 406,941. (No model.)



Claim.—1. In a balanced compound locomotive, the combination of two cylinders arranged end to end, the high-pressure cylinder being arranged to one side of the piston-rod of the low-pressure cylinder and the pistons connected to cranks at one hundred and eighty degrees apart, a valve-chest and valves for the two cylinders, a high-pressure steam inlet admitting steam through the high-pressure valve to the high-pressure cylinder, and said valve constructed to admit the exhaust from said cylinder to the valve-chest, the low pressure valve driven in the same direction as the high-pressure valve and constructed to admit steam from said chest to the forward end of the low-pressure cylinder when the steam is exhausting from the forward end of the high-pressure cylinder, and vice versa, and an exhaust outlet to which the exhaust from the low-pressure cylinder is admitted through said valve, whereby while the two valves move in the same direction the pistons move in opposite directions.

2. In a balanced locomotive, the combination of two cylinders arranged end to end but out of line, with the outer cylinder arranged close alongside of the piston rod of the inner one, a single valve-chest above both cylinders, separate valves in said chest, separate valve-rods e e' passing out through said chest, and a valve motion having a rock-lever H to which said rods are jointed on opposite sides, whereby the lever operates both rods simultaneously and each balances the resistance of the other.

3. In a balanced compound locomotive, the combination of high and low pressure cylinders arranged end to end, the high pressure cylinder arranged outside of and close alongside the low pressure piston-rod, a single valve-chest over both cylinders, two separate valves therein having valve-rods e e' passing out therefrom, and the rock-lever H of a valve-gear to which said rods are jointed, the high pressure valve rod being jointed thereto at a point nearer its fulcrum than the low pressure rod, whereby the low pressure valve is driven at a faster and longer stroke than the high pressure valve.

489,918. GATE-LATCH. EMMET BENNETT, New York, N. Y. Filed Nov. 20, 1891. Serial No. 412,582. (No model.)



Claim.—1. In a fastening for gates, &c., the combination with a keeper having a flaring, curved mouth, slotted at its outer end, with lips which extend upwardly to the slotted end, of a rotary lock-bolt with a weighted arm at right angles thereto, adapted to automatically ride over and between said lips as the gate is closed and fall back and interlock behind the same, substantially as specified.

2. In a fastening for gates, &c., the combination with a keeper having a flaring mouth and curved open lips, of a rotary lock-bolt having a weighted arm at right angles thereto and adapted to be automatically lifted by and pass between and drop behind the lips, and a stop to limit the movement of the weighted arm, substantially as set forth.

3. In a fastening for gates, &c., the combination with a keeper having lips extending upwards at an incline towards the outer end of the keeper and terminating in a slot narrowed at its top, of a rotary lock bolt having a weighted arm at right angles thereto and adapted to automatically ride up over the lips of the keeper, pass through the narrow top of the slot and drop behind the lips, as the bolt and keeper are brought together to the locking position, substantially as set forth.

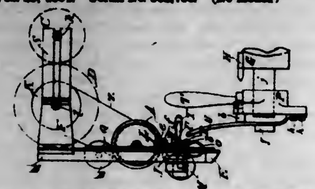
4. A fastening for gates &c. consisting of a keeper having flaring mouth and curved open lips, and a locking bolt turning freely in its bearing having at one end a weighted arm and at the other a handle turning with said bolt for the purpose specified.

489,919. PROCESS OF TREATING RAW SILK. BRUNO BEYER, Crossenhain, Germany. Filed Mar. 30, 1892. Serial No. 426,993. (No specimens.) Patented in Germany June 14, 1890, No. 57,090, and in England July 28, 1891, No. 12,817.

Claim.—1. The process of treating silk waste, consisting in subjecting the same to the action of oil-soap, cold water and salt-steam baths, drying the material as described and then subjecting the same to the action of running cold water, for the purpose specified.

2. The process of treating silk waste and articles manufactured therefrom, consisting in subjecting the waste to the action of oil-soap, cold water and salt-steam baths, drying the said waste, as described and then subjecting the article made from the waste so treated, to the action of permanganate of potash as described, for the purpose specified.

489,920. ATTACHMENT FOR TYPE-WRITING MACHINES. Freemont C. Rice, Alexandria, Va., and Emil Thiess, Washington, D. C. Filed Feb. 29, 1891. Serial No. 383,753. (No model.)



Claim.—1. In an attachment to type-writing machines, a paper cutting device, capable of rotation in journals, and an anvil, in combination with guide springs secured to the cutter, a lever, handle, and the springs O and U as specified.

2. In a type-writing machine, the combination of a roll of unperforated paper secured to the carriage, a paper cutting or perforating device capable of rotation in journals on said carriage, a graduated endless band, or measuring device to show the length of the type-written part of the paper, passing over a pulley fixed on the impression roller and a loose pulley on the supply roll, and a secondary roll in direct contact with the supply roll for winding up the type-written paper, substantially as described.

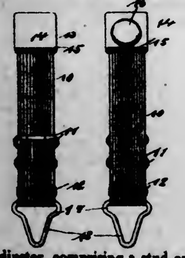
3. In a type-writing machine, the combination of a roll of unperforated paper secured to the carriage, a paper cutting or perforating device capable of rotation in journals on said carriage, arranged so that the blank paper, after the type-written paper has been separated, will be left in position for immediate type-writing without further adjustment owing to the guide springs *x*, substantially as described.

4. In a type-writing machine, a paper cutting or perforating device capable of rotation in journals on the carriage, the anvil or rest and the spring detaching or holding apparatus on the cutter, all arranged so that the type-written paper can be cut or torn off or separated easily and efficiently at any point and leave the blank paper, owing to the guide springs *x*, in position to be immediately type-written upon without further adjustment, substantially as described.

5. In a type-writing machine, the combination of the pulley L secured to the impression roller A, with the loose pulley K, shaft *l* of supply roll D, graduated endless band Z, marker *e*, and set-screw *f*, all arranged and operating substantially as described.

6. In a type-writing machine, a supply roll of paper in combination with a self-adjusting shaft and roll of paper thereon, the latter driven at the correct speed by direct contact with the supply roll.

489,921. SHIRT-ADJUSTER. John H. Bullmer, New York, N. Y. Filed Mar. 29, 1892. Serial No. 426,906. (No model.)



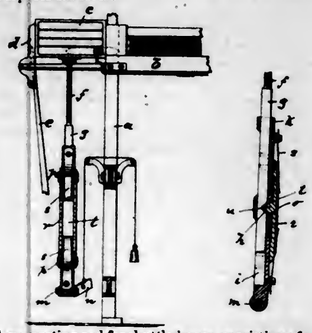
Claim.—A shirt adjuster, comprising a stud or button having a broad flat base with a slot therein, an elastic band held in the slot and provided with an adjusting buckle, and a metallic fastening loop held upon the band and adapted to engage a drawers button, substantially as described.

489,922. SELF-ADJUSTABLE SUPPORTING-ROD FOR SHUTTLE-BOXES. Thomas Bendall, Paterson, N. J., assignor to Benjamin Eastwood, same place. Filed Sept. 24, 1892. Serial No. 446,772. (No model.)

Brief.—The invention comprises an improved supporting-rod for shuttle-boxes, and is fully set forth in the claims.

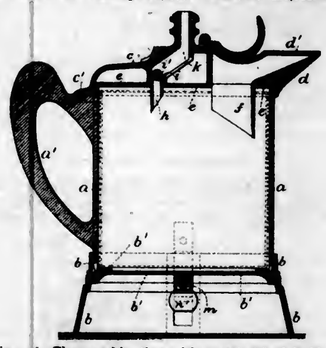
Claim.—1. A supporting rod for shuttle boxes consisting of two sections adapted to slide on each other, a clamping device adapted to adjustably clamp said sections together and springs adapted to hold said clamping device in position, substantially as described.

2. A supporting rod for shuttle-boxes, consisting of a vertical rod having a squared lower portion, a lever provided with a groove or channel and adapted to hold and guide said squared portion of the rod and means for adjustably securing said squared portion in said channel, all said parts being combined substantially as described and for the purposes set forth.



3. A supporting rod for shuttle-boxes, consisting of a vertical rod, having a squared lower portion and provided with a knife edged groove, a lever provided with a groove or channel and adapted to hold and guide said squared portion of the rod, a clamping block arranged on said lever, a knife-edged projection on said clamping block and adapted, when in normal position to rest in said knife-edged groove of the vertical rod, and springs adapted to secure said clamping block in position, all said parts being combined substantially as described and for the purposes set forth.

489,923. RECEPTACLE FOR CANS OF CONDENSED MILK. William A. Boulter, Brooklyn, assignor to himself and August R. Kolb, New York, N. Y. Filed Apr. 21, 1892. Serial No. 429,995. (No model.)



Claim.—1. The combination with a cylindrical holder adapted to contain a can of condensed milk or similar material, of a hinged cover having a pouring lip, and an inclined V shaped cutting blade connected to the cover contiguous to the pouring lip, substantially as and for the purposes set forth.

2. The combination with a cylindrical holder adapted to contain a can of condensed milk, of a hinged cover having a pouring lip and cover thereto, an inclined V shaped cutting blade connected to the cover contiguous to the pouring lip, and an air tube through the cover having a cutting edge below the cover and a valve, substantially as and for the purposes set forth.

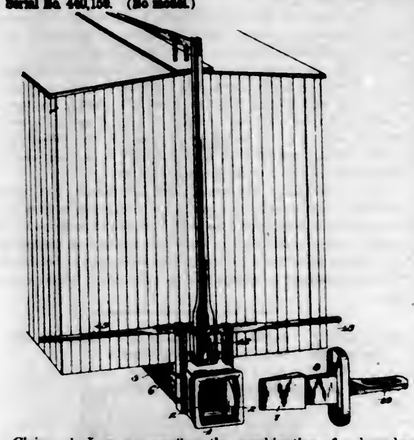
3. The combination with the cylindrical holder *a*, a handle thereto and a base, of a hinged top or cover *c*, a pouring lip *d* and cover *d'*, the plate *e* and the inclined V shaped cutting blade *f* secured at the edges of an opening in said plate *e* and being contiguous to the pouring lip for puncturing the top of the can and delivering the contents, substantially as set forth.

4. The combination with the cylindrical holder *a*, a handle thereto and a base, of a hinged top or cover *c*, a pouring lip *d* and cover *d'*, the plate *e*, inclined V shaped cutting blade *f*, the cutter tube *h* and valve *i'* and the air tube *k*, substantially as set forth.

5. The combination with the cylindrical holder *a*, the hinged top or cover *c* having a pouring lip and the inclined V shaped cutting blade *f*, of the removable base composed of a flange *b* and plate *b'* and sockets b^2, the notched rods *l*, the slide ways *m* and spring actuated catches *n*, substantially as and for the purposes set forth.

6. The combination with a cylindrical holder adapted to contain a can of condensed milk or similar material, of a cover hinged to the holder and having a pouring lip, an inclined cutting blade in line with the pouring lip to make an incision in the can for the delivery of its contents by the pouring lip, substantially as specified.

489,924. CAR-COUPLING. James M. Busch, Willow Springs, Mo., assignor of one-half to George W. Asey, same place. Filed July 15, 1892. Serial No. 440,156. (No model.)

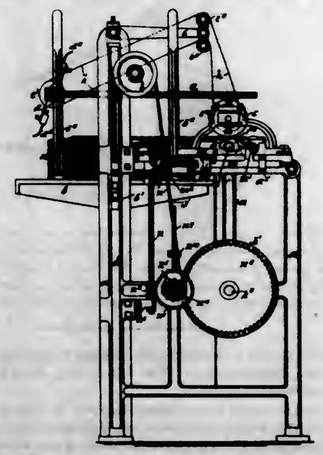


Claim.—1. In a car coupling, the combination of a draw-head, spring jaws arranged within the same, and a vertically movable wedge adapted to spread the jaws and provided in its lower end with a bifurcation, whereby the wedge is adapted to straddle the link in opening the jaws, substantially as described.

2. In a car coupling, the combination of a draw-head, spring jaws arranged within the same, a vertically movable wedge adapted to enter between the jaws to spread the same and being bifurcated to straddle the link, and levers fulcrumed intermediate of their ends, and having their inner ends connected with the wedge and adapted to actuate the same, substantially as described.

3. In a car coupling, the combination of a draw-head provided in its sides with longitudinal slots, spring jaws arranged with the draw-head, springs secured to the sides of the draw head and engaging the spring jaws through said slots, and a vertically movable wedge adapted to spread the jaws, substantially as described.

489,925. PAPER-FEEDING MACHINE. Robert Burnet, East Orange, N. J. Filed Jan. 5, 1892. Serial No. 417,049. (No model.)



Claim.—1. In an automatic paper-feeder, the combination with a support or table for the pile of sheets and a device for engaging and carrying the sheets therefrom located adjacent to the forward edge of said pile, of a feeding device located adjacent to the rear edge of said pile and in position to engage the several upper sheets, to separate and move the same forward different degrees of nearness to the forwardly located feeding or carrying device, substantially as described and for the purpose set forth.

2. In an automatic paper-feeder, the combination with a support or table for the pile of sheets and a friction feeding roll for engaging and carrying the sheets therefrom located adjacent to the forward edge of the said pile; of a rotating feeding device located adjacent to the rear edge of said pile, with its engaging surface or ends engaging the rear edge of the latter in the arc of a circle to separate and move the several upper sheets forward different degrees of nearness to the forwardly located feeding or carrying device, substantially as described and for the purpose set forth.

3. In an automatic paper feeder, the combination of a vertically moving support or table for carrying a pile of sheets, a feed or carrying roll or device located adjacent to the forward edge of the said pile, and a rotating feeding device, consisting of one or more arms supported on a rotating shaft and provided with curved ends extending in a direction from their line of movement, located in a position to engage the rear edge of said pile and separate and move the several upper sheets forward different degrees of nearness to the said carrying device, substantially as described and for the purpose set forth.

4. In an automatic paper-feeder, the combination with a vertically moving table, and mechanism for operating the same comprising a reciprocating rod or shaft, means for operating the latter positively in one direction and yieldingly in the opposite direction, and means connecting said rod or shaft and the said table; of a pivoted lever having one end extend into the path of the vertically moving table to be engaged thereby and operated to throw its opposite end into engagement with a notch or projection in said reciprocating rod or shaft, substantially as described and for the purpose set forth.

5. In an automatic paper feeder, the combination with a support or table for a pile of sheets, a feed roll or device located adjacent to the forward edge of said pile of sheets, and a rotating feeding device consisting of one or more arms supported in a horizontally adjustable position on a rotating shaft and adapted to engage the said sheets at the rear edge thereof, substantially as described and for the purpose set forth.

6. In an automatic paper feeder, the combination with a friction feeding roll, and a vertically movable table for supporting and carrying a pile of sheets upwardly, of a rotating feeding device adapted for engaging one edge of said pile to move the sheets into position to be engaged by the friction roll, supported by a horizontally adjustable frame, a driving belt for operating said rotating feeding device, and a belt-adjuster or tightener to allow for the adjustment of the rotating feeding device, substantially as and for the purpose set forth.

7. In an automatic paper feeder, the combination with a friction feeding roll, and a vertically movable table for supporting and carrying a pile of sheets upwardly, of a feeding device consisting of a rotating shaft supported by a horizontally adjustable frame and provided with one or more arms thereon for engaging one edge of said pile to move the sheets into position to be engaged by the friction roll, substantially as and for the purpose set forth.

8. In an automatic paper feeder, the combination with a support or table for a pile of sheets, a feed roll or device located adjacent to the forward edge of the pile of sheets, and a horizontally adjustable frame supported by the main supporting frame or part thereof and provided with a rotating feeding device supported thereby adapted for engaging the rear edge of said pile of sheets, substantially as described and for the purpose set forth.

9. In an automatic paper-feeder, the combination with a friction feeding roll and a separator roll located beneath the same with their adjacent faces rotating in opposite directions, and a vertically movable table adapted to support and move a pile of sheets upwardly; of a feeding device, consisting of a rotating shaft carrying one or more arms, located adjacent to the rear edge of said pile for engaging the several upper sheets to separate and move the same forward different degrees of nearness to the said feeding and separating rolls, the friction feeding roll being rotated in a direction to draw the upper sheet forward from the pile, and the separator roll being rotated to push the under sheets backward, substantially as and for the purpose set forth.

10. In an automatic paper feeder, the combination of a feeding roll or device, a vertically movable table for supporting and carrying a pile of sheets upwardly to be engaged by the said feeding roll or device, and having connection with a revolving drum or wheel to be operated thereby through the medium of a chain or other flexible connection, and mechanism for operating said drum, consisting of an operating shaft provided with a cam or eccentric thereon, a reciprocating rod operated by the latter and adapted to operate a pawl carried thereby to cause the same to engage with a ratchet wheel located on a vertical shaft to rotate the latter and communicate motion to the said rotating drum through the medium of connecting gearing, substantially as and for the purpose set forth.

11. In an automatic paper feeder, the combination with a feed

roll, of a vertically movable table adapted for supporting and carrying a pile of sheets upward to be engaged by the said feed roll, and operated by a revolving drum or wheel through the medium of a chain or other flexible connection, mechanism for operating said drum or wheel, consisting of a vertically arranged shaft rotated by the main operating shaft through the medium of connecting mechanism, and having connection with the said drum or wheel through the medium of connecting gearing, and a clutch for adjustably connecting or disconnecting the said drum and its operating mechanism, substantially as and for the purpose set forth.

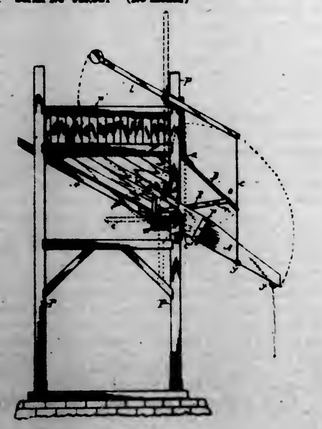
12. In an automatic paper feeder, the combination with a feeding device and a vertically movable table for supporting and carrying a pile of sheets upwardly to be engaged by said feeding device, of an edge guide for said sheets, consisting of a supporting arm or hanger supported in a laterally adjustable position above the said table on a shaft forming part of the supporting frame, and provided with one or more downwardly hanging arms pivotally connected therewith, adapted to move outwardly from a vertical line when engaged by the upwardly moving table, substantially as described and for the purpose set forth.

13. In an automatic paper feeder, the combination with a vertically moving table having connection with a revolving drum or wheel to be operated thereby through the medium of a chain or other flexible connection, of mechanism for operating said drum or wheel, consisting of an operating shaft provided with a cam or eccentric thereon, a reciprocating rod operated by the latter and adapted to operate a pawl carried thereby to cause the same to engage with a ratchet wheel located on a shaft to rotate the latter and communicate motion to the rotating drum through the medium of connecting gearing, and a pivoted lever operated by contact with the vertically moving table to engage said reciprocating rod to stop the same and the connecting table operating mechanism, substantially as described and for the purpose set forth.

14. In an automatic paper feeder, the combination with a feeding device and a vertically movable table for supporting and carrying a pile of sheets upwardly to be engaged by said feeding device, of an edge-guide for said sheets, consisting of a supporting arm or hanger provided with one or more arms pivoted thereto, and supported in a laterally adjustable position above the said table on a shaft forming part of the supporting frame, by means of two hinged clamping jaws adapted to be adjustably clamped together by a lever having a double cam surface operating on a corresponding surface on one of said jaws and having connection with the other jaw by a connecting pin or bolt, substantially as described and for the purpose set forth.

15. In an automatic paper feeder, the combination of a feed roll or device, a vertically movable table operated by a revolving drum or wheel having connection therewith through the medium of a chain or other flexible connection, and mechanism for operating said drum or wheel, consisting of an adjusting and rotating shaft operated by the driving shaft through the medium of a reciprocating rod and connecting mechanism and having connection with the said drum or wheel to communicate motion thereto through the medium of suitable gearing, substantially as described and for the purpose set forth.

489,926. COAL-CHUTE. ISAAC BURNETT, Joliet, Ill. Filed Aug. 6, 1892. Serial No. 442,521. (No model.)



Claim.—1. In a coal chute, the combination of the apron A having the rearwardly extending projections A' provided with the friction roller V, shaft W, having arm J and stop Z, notched latch E, door D, stops S, i, and X, counter balance, weighted arm L and cord c all arranged to operate substantially as and for the purpose set forth.

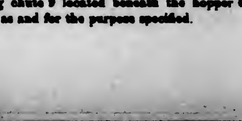
2. In a coal chute, the combination of balanced apron A having friction roller V, arm J, stop Z, notched latch E, door D, and stops S, i and X all arranged to operate substantially as and for the purpose set forth.

3. In a coal chute, the combination of the door D, latch E, having the notches *s*, *r*, stop X, and the means for operating said latch and door, substantially as and for the purpose set forth.

4. In a coal chute, the combination of the balanced hinged apron A, A' having the friction roller V, oscillating arm J, adapted to be engaged by said friction roller, rock shaft W, having the stop Z, door D, latch E, having one end pivoted to door D and its opposite end free and adapted to be engaged by said stop for releasing door D and for holding said door open and closed, all arranged to operate substantially as and for the purpose set forth.

5. In a coal chute, a balanced apron, a depending door for closing the discharge opening of the coal bin or receptacle, a latch pivotally attached at one end to said door at its side near its bottom and adapted to have its free extending end rest upon a stop, and having notches for engaging said stop for holding said door open or closed, all combined and arranged to operate substantially as and for the purpose set forth.

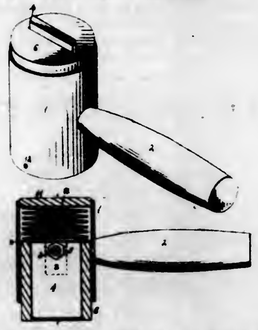
489,927. PAPER TUBE. PHILIP CAREY, Cincinnati, Ohio. Filed Jan. 30, 1891. Serial No. 379,664. (No model.)



Claim.—1. A tube composed of a layer of waterproof paper covered with a layer of asbestus treated with soluble glass, substantially as described.

2. A tube composed of a layer of waterproof paper and interior and exterior layers of asbestus treated with soluble glass, substantially as described.

489,928. MEAT-POUNDER. JOHN A. CARLSON, Rockford, Ill. Filed Aug. 29, 1892. Serial No. 444,377. (No model.)

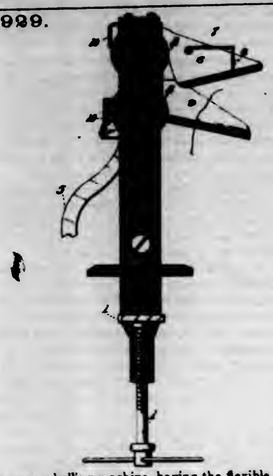


Claim.—A meat tenderer, consisting of an outside shell, having a closed end, a transverse shaft having a connection with the shell, a blade having a connection with the shaft, a plunger located within the open end of the shell and a spring having a connection with the plunger and resting against the closed end of the shell.

489,929. PEA-SHELLER. HORACE T. CLARK and CHARLES B. RUSSELL, Bridgeport, Conn. Filed Aug. 1, 1892. Serial No. 441,312. (No model.)

Claim.—1. In a pea-shelling machine, the frame, the standards 2 upon said frame, the flexible pea-shelling rolls 3 secured between said standards, and mechanism to rotate them, in combination with the feeding hopper 6 having the gate pivoted therein, consisting of the two flaps pivoted together as and for the purpose described, and the delivering chute 9 located beneath the hopper 6, all combined substantially as and for the purpose specified.

489,929.



2. In a pea-shelling machine, having the flexible rolls 3, hopper 6, with the two-part hinged gate 7, 8, and the chute 9, the combination with the rolls, of scrapers 10 bearing against said rolls to dislodge any adhering substances, substantially as and for the purpose set forth.

489,930. PORTABLE WAGON-SCALE. LINUS G. CLAWSON and EDWARD G. WHEELER, Pleasant Hill, Mo., assignors of one-tenth to George T. Ware, same place. Filed Apr. 5, 1892. Serial No. 427,980. (No model.)



Claim.—1. In a platform scale the combination of the frame comprising opposite parallel pairs of side and end pieces overlapping at their ends, open work clamped between said side and end pieces and trussing the same, and corner pieces receiving the overlapping ends of the frame pieces, and weighing devices mounted within said frame substantially as set forth.

2. In a platform scale the combination of the frame comprising opposite parallel pairs of side and end pieces overlapping at their ends, open work clamped between said side and end pieces and trussing the same, corner pieces or castings receiving the overlapping ends of the frame pieces, and corner braces connected to the lower side and end pieces at each corner of the frame, and weighing devices mounted within said frame substantially as set forth.

3. In a platform scale the combination of the frame comprising opposite parallel pairs of side and end pieces overlapping at their ends and spaced from each other, corner pieces having upper and lower flanged seats receiving the overlapped ends of said end and side pieces, clamping bolts clamping said overlapped ends in said seats, and corner braces connected to the lower side and end pieces at each end of the frame, and weighing devices mounted within said frame substantially as set forth.

4. In a portable wagon scale, the combination with the scale frame composed of the opposite side and end pieces arranged in pairs, of the wheel supporting plates having parallel securing arms fitting over the upper and lower side pieces and stub axles or spindles, and securing pins or bolts passing through said arms and side frame pieces, substantially as set forth.

5. In a portable wagon scale, the combination with the scale frame, of the opposite wheel carrying plates removably connected to opposite sides of the frame near one end thereof, a caster wheel plate having parallel securing arms removably engaging the front end of said frame, a vertical shaft swiveled in said plate and terminating at its lower end in a caster wheel yoke, and the hound frame, connected to and embracing said yoke, substantially as set forth.

6. In a platform scale, the combination with the frame composed of the opposite end and side frame pieces arranged in pairs, of the bearing hangers mounted between the end frame pieces and provided with the outwardly extending inclined lugs, weighing devices supported in said hangers, and the aprons hinged to the opposite ends of the frame and having their inner edges adapted to rest upon said inclined lugs, substantially as set forth.

7. In a platform scale, the combination with the frame of the hangers mounted within the opposite end frame pieces near each corner and provided with the inwardly extending parallel hooks and the outwardly extending inclined lugs, horizontal scale levers resting at their outer ends in said hooks, and the aprons hinged to the opposite ends of the frame and having their inner edges adapted to rest upon said inclined lugs, substantially as set forth.

8. The combination of the independent converging scale levers, lever arms connecting the opposite pairs of levers and having pointed bearing studs, a central supporting lever comprising opposite members connected centrally by the oppositely bowed or curved connecting plates forming a slot or opening therebetween, the upper of said bowed plates having a pointed bearing lug or stud, a supporting plate resting upon said stud and having depending bolts passing from each end thereof through the upper connecting plate into the opening thereunder, parallel and spaced plates secured to said bolts within the opening or slot and each provided with bearing recesses to receive the pointed bearing studs on said lever arms, substantially as set forth.

9. The combination with the scale levers, of the opposite parallel platform carrying side beams, depending hangers secured to the opposite ends of said side beams and supported over said scale levers near each end thereof, depending studs secured to and extending below said side beams, sectional truss rods connected to the opposite hangers and passing under said struts, and turn buckles adjustably connecting the ends of said rods below said beams, substantially as set forth.

10. In a scale, the combination with the independent scale levers, of the central slotted cross lever supporting the inner ends of said scale levers and provided at one end with a depending pointed bearing lug or stud, the scale beam, and a connecting loop connected to said scale beams and receiving said pointed stud to form a bearing therefor, substantially as set forth.

11. In a scale, the combination with the scale levers, of the cross lever pivoted at one end and provided at its opposite free end with a depending pointed bearing stud, the scale beam, a connecting loop connected to said scale beam, parallel plates near the lower end of said loop, the lower of said plates being provided with a bearing recess receiving the bearing stud of said lever, and a set screw passing through the upper plate and working over the free end of said lever, substantially as set forth.

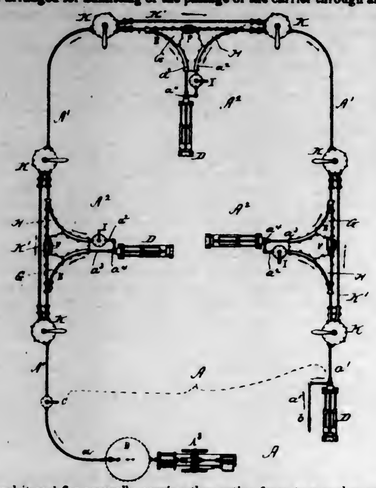
12. The combination with the frame composed of the opposite end and side pieces and weighing devices within said frame, of the off-standing bracket arms having lower bifurcated ends secured to the rear side frame pieces, and the scale beam casing mounted upon said arms off from said frame, substantially as set forth.

13. The combination with the scale beam casing, open at one side, of the lugs secured to the bottom of said casing, the door inclosing said side opening, and the straps secured to said door and pivoted to the outer ends of said lugs, said straps being provided with extended rest portions extending beyond the point of pivot to engage under the casing when the door is in a horizontal position, substantially as set forth.

489,931. PNEUMATIC DISPATCH OR TRANSIT SYSTEM. HENRY CLAY, Philadelphia, Pa., assignor to the Electric Pneumatic Transit Company, same place. Filed Oct. 20, 1892. Serial No. 449,269. (No model.)

Claim.—1. In a pneumatic dispatch system, the combination of

a line of main-tubing, substation inlet and outlet tubes joined to one or the same side of said main-tubing, and a valve in the main tube between said sub-station inlet and outlet tube junctions constructed and arranged for admitting of the passage of the carrier through and



beyond it and for normally causing the motive force to travel or act through said main tubing and into and through each sub-station and back again to the main-tubing successively throughout the line of said main-tubing, substantially as set forth.

2. In a pneumatic dispatch system, the combination of a circuit of main tubing leading from and back to a central or main station, a series of substation inlet and outlet pipes in connection with the main-tubing, separate carrier transmitting and receiving appliances at said main-station and at each sub-station, and a single valve in the main tube between said substation inlet and outlet junctions constructed and arranged for admitting of the passage of the carrier through and beyond it and for normally causing the motive force to travel or act through said main tubing and into and through each sub-station and back again to the main tubing successively from end to end of the same, substantially as set forth.

3. In a pneumatic dispatch system the combination of a single-tube circuit having at one end an air current creating device and a transmitter for inserting carriers into said tube, the other end of said tube being open to the atmosphere and having a receiving device for delivering carriers from said tube, sub-station inlet and outlet tubes joined to one or the same side of said main tube, and carrier transmitting and delivery devices for said sub-stations, substantially as set forth.

4. A pneumatic dispatch tube system comprising a main station, a number of sub-stations, means for causing a continuous flow of air to continuously pass through all the sub-stations successively from end to end of the line without escaping at said sub-stations, and an open end for one end of the system from which said current escapes, substantially as set forth.

5. In a pneumatic dispatch tube system, the combination of line-tubes, inlet and outlet substation tubes joined to said line-tubes and to each other, valves in the line-tubes constructed to allow the passage of carriers through them and to deflect the air current from the line tubes through the sub-station tubes back to the line-tubes, substantially as set forth.

6. In a pneumatic dispatch tube system the combination of an outgoing pipe and a valve F in said pipe constructed and arranged to allow the passage through it of a carrier and to deflect the air current or power from and back to said pipe, substantially as set forth.

7. In a pneumatic dispatch tube system the combination of a line tubing having a branch-tube, a valve in the line-tubing which allows the passage through it of a carrier and which deflects the air from the line tubing into and through said branch-tube, and a carrier diverting switch at the junction of the branch and line tubing, substantially as set forth.

8. In a pneumatic dispatch tube system the combination of a line tubing having sub-station inlet and outlet tubes, a valve in the line-tubing between said sub-station inlet and outlet tubes, which allows the passage of a carrier through it and deflects the air from said line tubing to and through the sub-station tubes back to the line tubing and a carrier diverting switch at the junction of said line and sub-station inlet tube, substantially as set forth.

9. In a pneumatic dispatch tube system, the combination of a line tubing having sub-station inlet and outlet tubes, a valve in the line-tubing between said sub-station tubes, which allows the passage through it of a carrier and which deflects the air from the line tubing into and through said sub-station tubes back again to the line tubing, a carrier diverting switch at the junction of the line and sub-station inlet tubes, and carrier anti-jamming levers at the junction of the line and sub-station outlet tube, substantially as set forth.

10. In a pneumatic dispatch tube system, the combination of a line tube, a branch tube, a valve in the line tube which allows the passage of a carrier through it and deflects the air into the branch tube an electric-circuit, and an indicator operated by said valve when a carrier passes through it, substantially as set forth.

11. In a pneumatic dispatch system the combination of a tube and a branch tube, a normally closed valve which is opened by the passage of a carrier through it, and which deflects the air from one to the other of said tubes, and an electric-circuit and indicator actuated by said valve when opened, substantially as set forth.

12. In a pneumatic dispatch tube system the combination of a main line tube open at one end, a carrier receiving device connected to said tube near its open end, a valve in said receiving device normally closed to the air pressure in said tube, an air current generating device an air-reservoir, and a carrier transmitting device at the opposite end of said tube; substation or branch-inlet and outlet tubes joined to said main-link, and carrier transmitting and receiving devices in said sub-station or branch tubes, substantially as set forth.

13. In a pneumatic dispatch tube system the combination of main and branch or sub-station tubes, valves in said tubes which allow the passage through them of the carriers and which deflect the air from one to the other of said tubes, carrier diverting switches at the junction of said tubes, and carrier transmitting and receiving devices, substantially as set forth.

14. In a pneumatic dispatch tube system the combination of a line tube, shunt-plugs joined to said tube, and a bridge-tube connecting said shunt plugs whereby the air and carriers can be shunted from the line tube to the bridge tube and from the latter to the former, substantially as set forth.

15. In combination with a pneumatic dispatch tube, a carrier transmitter comprising a closed casing having a carrier opening, a rotating plug within said casing and having a carrier opening air passages in said plug separate from the carrier opening, whereby the carrier can be inserted into the transmitter and placed into the line of the dispatch tube without escape of air from the transmitter and without affecting the flow of air in the tube substantially as set forth.

16. In combination with a pneumatic dispatch tube, a carrier receiving device having a longitudinally sliding and tilting tube actuated by the carrier for effecting its delivery from said tube substantially as set forth.

17. In combination with a pneumatic dispatch tube, a carrier receiving device having an air inlet-end, a shunt or outlet pipe communicating with said inlet-end, a movable valve for the latter, a longitudinally moving and tilting tube actuated by the carrier for effecting its delivery from said tube, substantially as set forth.

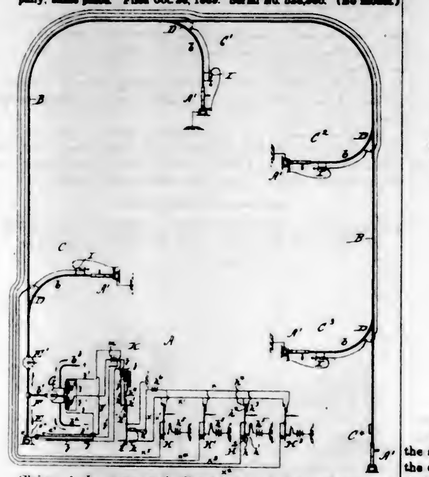
18. In combination with a pneumatic dispatch tube, a coupling box having communicating inlet and outlet passages, and chamber d^8 with opening d^9, a movable valve in said chamber, a longitudinally sliding and tilting barrel or receiver tube, locking mechanism for retaining said receiver-tube in position with one of its ends in said chamber, and devices actuated by a carrier passing into said receiver tube to effect a release of said locking mechanism and a sliding and tilting movement of said receiver tube to deliver the carrier therefrom, substantially as set forth.

19. In combination with a main and branch tube junction of a pneumatic dispatch tube system, two independently pivoted levers bearing one upon the other and movable together in one direction by the contact of a carrier with one of said levers and movable together in the opposite direction by the contact of a carrier with the other of said levers, substantially as specified.

20. In a pneumatic dispatch system, the combination of two lines of tubes both provided with carrier transmitting and receiving devices, and each tube having an open terminal end, the other ends of said tubes being connected respectively with the suction and pressure side of a pump or current generating device so as to have in each tube a separate air-flow, current or pressure in opposite directions, and air chambers or reservoirs in each of said tubes between the pump and their carrier transmitting or receiving devices, substantially as shown and described.

21. In a pneumatic dispatch system, the combination of two separate tubes having carrier transmitting and receiving devices and means connected to said tubes for creating air currents or pressure in different directions in each said tube, and air chambers or reservoirs in each said tubes between the pump and their carrier transmitting or receiving devices, substantially as shown and described.

489,932. PNEUMATIC DISPATCH OR TRANSIT SYSTEM. HENRY CLAY, Philadelphia, Pa., assignor to the Electric Pneumatic Transit Company, same place. Filed Oct. 26, 1889. Serial No. 328,260. (No model.)



Claim.—1. In a pneumatic dispatch system, the combination of a main line having a main station, a carrier receiving devices for the main station, a carrier transmitting device thereat, a cut-off valve for said receiver end of the main station, an air current or motive power reversing valve connected to opposite sides of the pump or like device, substation carrier diverting switches, a combined carrier receiving and transmitting device with valves, and electrical devices at the substations and main station, substantially as specified.

2. In a pneumatic dispatch tube system the air current or motive power reversing valve G combined with a cut-off valve substantially as specified.

3. In a pneumatic dispatch tube system a combined receiver and transmitter having a normally closed movable sleeve or door which is opened to insert the carrier into the system, a normally closed plate or valve which opens to admit of the exit of a carrier from the system, movable valves and actuating mechanism interposed between said movable valves and sleeve, substantially as specified.

4. In a pneumatic dispatch tube system a sub-station, combined receiver and transmitter for carriers, an escape valve for said receiver and transmitter, and a carrier diverting switch at said stations, substantially as specified.

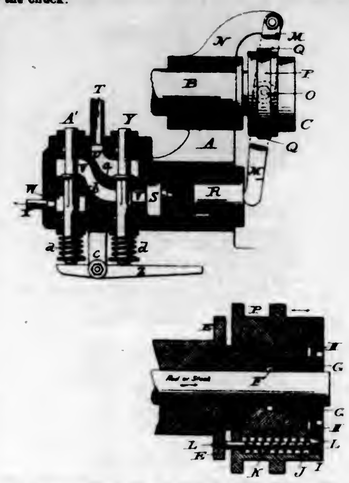
5. In a pneumatic dispatch tube system the combination of a line of tubing having a central office and a series of sub-stations, carrier transmitting and receiver devices at said stations, carrier diverting switches at the subscribers' stations, air current or motive power reversing valve, an electric current changing switch and operating keys at the central office, electrical appliances for said reversing valve and for the carrier diverting switches, and electrical connections between said electrical devices, substantially as specified.

6. In a pneumatic dispatch system, a sub or other line having a terminal sub-station, combined receiving and transmitting devices at said terminal, and a separate air escape valve at or on said device, substantially as specified.

489,933. CHUCK FOR SCREW-MACHINES. CONRAD M. CONRADSON, Madison, Wis. Filed Mar. 24, 1892. Serial No. 426,251. (No model.)

Claim.—1. In a chuck, the combination with a hollow stem having a conical socket at its outer end, of a conical collar stated in said socket, a sliding shell mounted upon the tubular stem, springs serving to urge the shell backward and to force the conical block against the article to be held, and means for moving the shell forward.

2. In combination with a tubular body D having a conical socket F at its outer end, the conical slotted collar G mounted in the socket, a ring H applied to the face of said collar, a sliding shell mounted upon the body of the chuck and connected with the ring H, a series of bolts L mounted in suitable sockets in the shell I and secured to the body of the chuck, and coiled springs K encircling said bolts and serving to move the shell I inwardly or backward upon the main body of the chuck.



3. In combination with the tubular body D, the conical collar G, the sliding shell I, the springs serving to actuate the shell and force the collar against the article, and the yoke or lever M for moving said shell I outward against the force of the spring, all substantially as shown and described.

4. In combination with the chuck provided with a series of jaws, springs serving to actuate said jaws and cause them to bind upon the article to be grasped, and fluid pressure mechanism to overcome the tension of said springs and release the jaws.

5. In combination with a sliding portion or member of a chuck, an independent fluid pressure mechanism, substantially as shown and described, for actuating said sliding member.

6. In combination with a chuck and the actuating lever or yoke M, a cylinder provided with a piston R to act upon the end of the yoke or lever, a valve Y for admitting fluid under pressure to said cylinder, and an outlet valve A', all combined and arranged for operation, substantially as described.

7. In combination with a chuck and its operating lever M, a cylinder S provided with a piston R, an inlet chamber U, an outlet chamber W, an intermediate chamber V connected with the cylinder and communicating with the chambers U and W respectively, by passages *a* and *b*, a valve Y mounted in the passage *a*, and a valve A' mounted in the passage *b*, all substantially as shown and described.

8. In combination with a chuck and its actuating lever M, a cylinder S provided with piston R, an inlet valve Y and an outlet valve A', springs encircling the valve stems and serving to hold them to their seats, and a lever Z upon which the valves rest, all substantially as shown and described.

489,934. CHUCK. CONRAD M. CONRADSON, Madison, Wis. Filed Apr. 23, 1892. Serial No. 430,985. (No model.)

Claim.—1. In a chuck, the combination with the hollow body, of the radial jaws, the encircling ring for actuating the jaws, the levers pivoted in the ring, and the sliding shell for actuating the levers.

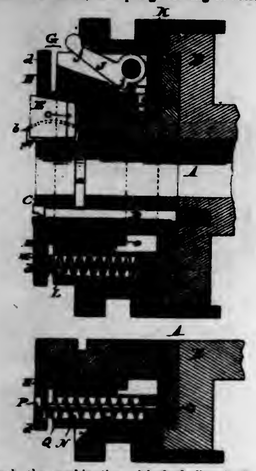
2. In a chuck, the combination with the hollow body, of the radial jaws, the encircling ring for actuating the jaws the levers pivoted to the ring, the sliding shell for actuating the levers, and the springs, for returning the ring as a whole to its normal position.

3. In a chuck, the combination with the hollow body, of the radial jaws, the encircling two-part ring for actuating the jaws, the levers pivoted to the ring, the sliding shell for actuating the levers, and springs interposed between the two parts of the ring.

4. In a chuck, the combination with the hollow body, of the radial jaws, the encircling two-part ring and its interposed springs the levers pivoted to the ring, the sliding shell for actuating the levers, and the springs for returning the ring as a whole to its normal position.

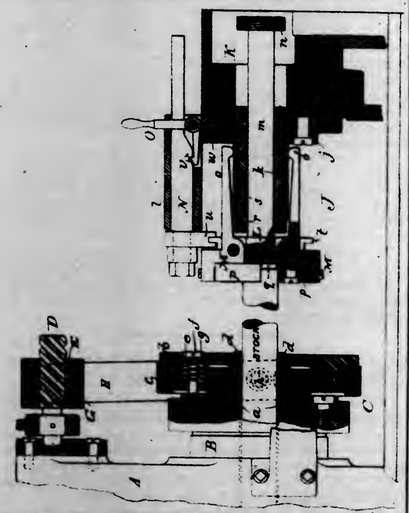
5. In a chuck the combination with the hollow body, having the fixed blocks or abutments, of an encircling ring, jaws which are acte-

ated by the ring, levers pivoted in the ring and provided each with a lug to engage the fixed blocks, and with a forwardly extending arm to project out through the ring, a sliding shell to bear upon the arms of the levers and rock them, and springs serving to retract the ring.



6. In a chuck, the combination with the hollow body, of the sliding ring-sections H I, the interposed springs M the radial jaws E actuated by the ring, the screws O secured to the chuck body and the springs Q applied to the screws O, all substantially as shown and described.

489,985. ROD-FEEDING DEVICE. CONRAD M. CONRADSON, Madison, Wis. Filed June 20, 1892. Serial No. 436,434. (No model.)



Claim.—1. In combination with the chuck body, its jaws and sliding plate, the band or ring, the pivoted arms connected with the plate, and the screw for rocking the arms.

2. In combination with the chuck body, its jaws and sliding plate, the band or ring, the pivoted arms connected with the plate, the cross-bar having a nut, and a screw engaging the nut.

3. In combination with the chuck body, its jaws and sliding plate, the actuating band, a quick pitch screw and intermediate connections for moving the band in one direction, and springs for moving the band in the other direction.

4. In combination with the head-stock having the arms or brackets, the levers journaled therein, and carrying a nut, a screw engaging the nut and head-stock, a chuck body provided with jaws and a sliding plate, and an actuating ring pivoted to the levers.

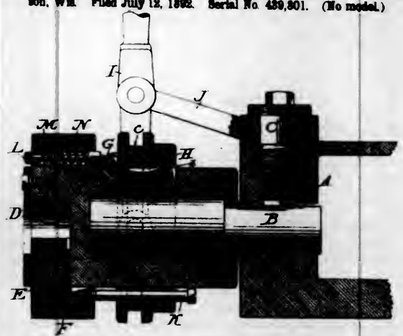
5. In combination with a turret, a plate, *j*, provided with a tubular hub or stem, *k*, gripping devices mounted in the tubular stem so as to slide longitudinally or turn therein; the sliding bar, N, and the pivoted locking lever, O.

6. In combination with a turret, gripping devices comprising two parts, one adapted to move lengthwise and to turn relatively to the other, and the sliding forked locking bar mounted in one of said parts and engaging the other.

7. In combination with the plate, *j*, having the hollow stem, *k*, the block, L, provided with a stem, *m*, and nut, *n*, and gripping levers carried by the block.

8. In combination with plate, *j*, having housing, *l*, the notched bar, N, mounted in the housing, and forked at its forward end, the pivoted lever, O, and the block, L, provided with gripping jaws, and with an annular ledge, *l*, which is embraced by the forked rod.

489,986. ROD-GRIPPING DEVICE. CONRAD M. CONRADSON, Madison, Wis. Filed July 12, 1892. Serial No. 439,801. (No model.)



Claim.—1. In a rod gripping device or chuck, the combination with the stock or body, of radially-moving jaws, a sliding collar for actuating the latter, levers having a yielding contact or connection with the collar, and a sliding ring for actuating the levers.

2. In combination with support A shaft B and shell or body D, the radial jaws E, the sliding collar F beveled to conform to the beveled ends of the jaws, levers G mounted in the shell or body to force the collar F outward, a ring for actuating the levers, and a bolt K secured to the collar and provided with a head to be struck by the ring.

3. In combination with support A, shaft B and shell D, the radial jaws, the sliding collar F provided with sockets M, bolts L and springs N, the levers G pivoted to the shell or body and adapted to bear upon the bolts, and the sliding ring for actuating the levers.

489,987. GUIDE-STRIP FOR INSIDE BLINDS. EDWARD DANBACH, Evans City, Pa. Filed July 29, 1892. Serial No. 441,557. (No model.)

Claim.—1. A guide strip for the purpose specified consisting of a strip having a longitudinal groove and a false bottom in said groove, said groove and false bottom being so formed that when the latter is inserted in the former it interlocks therewith and cannot be removed laterally or transversely therefrom, and springs interposed between the strip and bottom of groove, substantially as described.

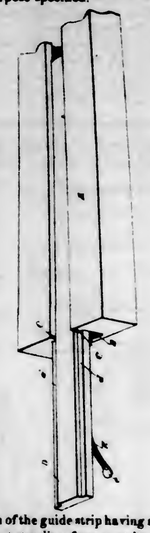
2. The combination of a strip having a longitudinal groove, a false bottom in the groove constructed to interlock with the side of groove so that it cannot be lifted therefrom but can be longitudinally withdrawn from the groove, and springs interposed between the false bottom and bottom of groove, substantially as described.

3. The combination with a guide strip having a longitudinal groove, a false bottom therein interlocking therewith substantially as described, and semi-elliptic springs interposed between the false bottom and bottom of groove, substantially as set forth.

4. The combination of the guide strip having a groove narrowed at its outer side, a false bottom inserted longitudinally in said groove wider than the contracted outer side of the groove, and springs for forcing said false bottom outward, substantially as described.

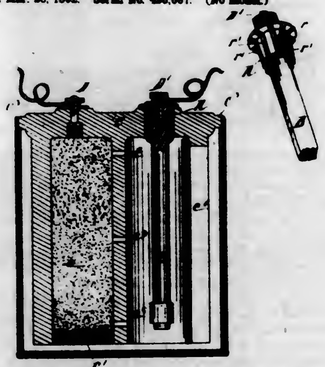
5. The herein described guide strip having a longitudinal groove in combination with a false bottom lying longitudinally in said groove,

and a series of semi-elliptic springs permanently fixed to said false bottom at intervals, and forcing it outward to the groove, substantially as and for the purpose specified.



6. The combination of the guide strip having a longitudinal groove provided with inwardly extending flanges at its outer edges; with a longitudinal false bottom in said groove kept therein by said flanges, and springs arranged to force said false bottom outward toward the flanges, substantially as and for the purpose described.

489,988. ELECTRIC BATTERY. JOHN H. DAVIS, Detroit, Mich. Filed Mar. 28, 1892. Serial No. 426,667. (No model.)



Claim.—1. In a primary battery, the combination of a carbon element, a zinc element, and an insulator interposed between the two, constructed of soft rubber and having grooves *r' r'* in the periphery thereof, substantially as described.

2. An insulator for a sealed primary battery, consisting of a rubber thimble adapted to engage one of the elements thereof and having upon its periphery grooves *r' r'*, substantially as described.

3. A sealed battery, consisting of a carbon element containing an excitant chamber sealed at its lower end and having communications between said chamber and the surrounding space, by means of holes at the top and bottom thereof, whereby circulation of a solvent is secured, and having a flange tightly fitting the cell wall at all points, a zinc element passing through and supported by said flange and insulated therefrom by a soft rubber insulator consisting of a thimble containing longitudinal grooves, substantially as described and for the purposes set forth.

489,989. CORN-POPPING APPARATUS. WILLIAM R. DONATHEN, Kansas City, Mo. Filed Aug. 3, 1892. Serial No. 442,073. (No model.)



Claim.—1. A corn popping apparatus consisting of an exterior revoluble case, having a suitable discharge opening, an axial shaft and an independently mounted interior revoluble elevator for the popped corn actuated by said shaft, for the purpose described.

2. An apparatus for popping corn consisting of an exterior revoluble case having a suitable discharge opening, and an independently mounted axial shaft, having radial arms within the said case, means for rotating said shaft and case at varying degrees of speed and automatic elevating devices upon said braces for the popped corn, substantially as and for the purpose described.

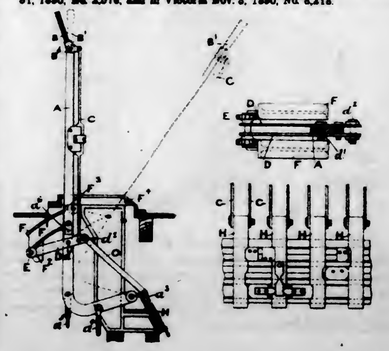
3. An apparatus for popping corn consisting of an exterior revoluble hollow cylinder having a discharge opening in the head thereof and an independently mounted axial shaft and laterally extended fixed braces on said shaft within the compass of the exterior cylinder, means for rotating said shaft and cylinder at varying degrees of speed, and an elevator bucket on said braces having inwardly curved sides, substantially as and for the purpose described.

4. An apparatus for popping corn consisting of an exterior revoluble hollow cylinder having a discharge opening in the head thereof and an independently mounted axial shaft and laterally extended fixed braces on said shaft within the compass of the exterior cylinder, means for rotating said shaft and cylinder at a variable speed, and an elevated bucket for the popped corn on said braces having inwardly curved sides, and an automatically discharging chute inclined in the direction of the opening in the head of said cylinder as and for the purpose described.

5. In an apparatus for popping corn comprising an exterior revoluble case having a suitable support and an independently mounted axial shaft and an interior revoluble elevator for the popped corn actuated by the said shaft within the compass of the exterior case of speed regulating mechanism on said support connected with said driving shaft substantially as and for the purpose described.

6. In a corn popping machine the combination with a suitable support therefor, of a driving shaft and a revoluble exterior case loosely mounted on said shaft, an independently mounted interior revoluble elevator for the popped corn actuated by the said shaft within the compass of the exterior case, variable speed gear on said driving shaft connected rigidly with the outer side of said exterior case and also loosely mounted on said shaft and variable gear connected with each other on said support meshing with the gear on the driving shaft for the purpose described.

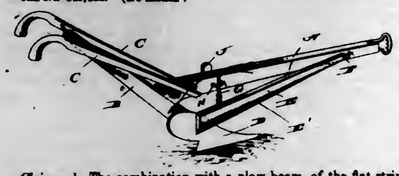
489,940. INTERLOCKING APPARATUS FOR RAILWAY SIGNALING. SAMUEL T. DUTTON, Worcester, England. Filed Sept. 28, 1891. Renewed Oct. 6, 1892. Serial No. 448,063. (No model.) Patented in England July 23, 1889, No. 11,741; in New South Wales Oct. 31, 1890, No. 2,676, and in Victoria Nov. 3, 1890, No. 8,218.



Claim.—1. The combination, with the stationary grooved guide plate, of the pivoted operating lever, a bar pivoted to the lever and provided with a roller adapted to engage with the groove in the said guide plate, and a rod pivoted to the said bar and adapted to move the roller into the said groove to permit the lever to be worked, substantially as and for the purpose set forth.

2. The combination, with the stationary grooved guide plate, of the pivoted operating lever, a bar pivoted to the lever and provided with a roller adapted to engage with the groove in the said guide plate, a locking device connected to the said bar, a handle pivoted to the top of the said lever, and a rod connecting the said handle and bar whereby the roller may be moved into the said groove, substantially as and for the purpose set forth.

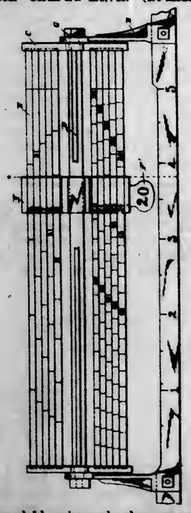
489,941. PLOW-FENDER. ALVEY M. ELLINGTON, Almira, assignor of one-half to T. N. Westbrook, Atlanta, Tex. Filed Sept. 10, 1892. Serial No. 445,422. (No model.)



Claim.—1. The combination with a plow beam, of the flat strip having the narrow front end pivoted to the beam and gradually tapered outward to the inner end and having the lower rounding edge, the cord or flexible connection between the inner end of strip and beam, the staple for securing the cord, and the cam operating the staple.

2. The combination with a plow, of the fender herein described, consisting of the strip pivoted at its front or outer end to the plow beam having its inner end adjacent to the plow point, the cord or flexible connection between the inner end of strip and beam, and the staple having the cam lever for causing the staple to impinge against the connection and sustain the fender at any adjustment, substantially as described.

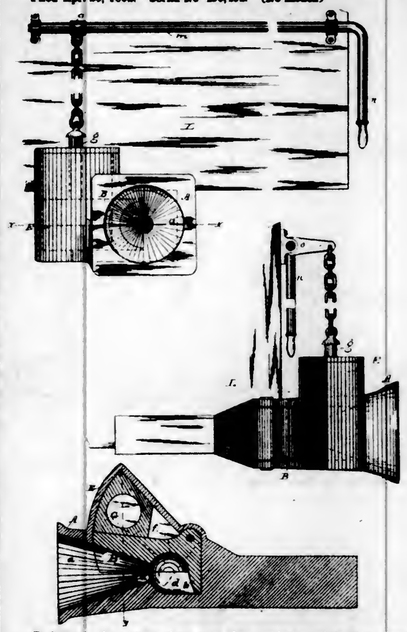
489,942. PRICE-INDICATING ATTACHMENT FOR WEIGHING-SCALES. WILLIAM H. GAMBLE and DAVID H. ALLEN, Miamisburg, Ohio. Filed Apr. 11, 1892. Serial No. 428,746. (No model.)



Claim.—1. A revolable price and value computer for weighing scales, attached to the scale beam in any suitable manner and consisting of a series of tables or leaves which are graduated on both sides and radiate from and revolve around a common axis, said axis extending approximately parallel to or in a line with the scale beam, substantially as described.

2. The combination with a revolable price and value computer for weighing scales, attached to the scale beam in any suitable manner and consisting of a series of tables or leaves which are graduated on both sides and radiate from and revolve around a common axis, said axis extending approximately parallel to or in a line with the scale beam, and a weighted sliding and graduated index or price list which extends at right angles to said axis across each indicating face of said tables and is adapted to revolve with said tables and to travel back and forth, in a line parallel with said axis, substantially as described.

489,948. CAR-COUPLING. EDWARD C. GARLICK, Cleveland, Ohio. Filed Apr. 26, 1892. Serial No. 430,492. (No model.)



Claim.—1. An automatic car coupler consisting of the drawhead with flaring conical mouth, narrow throat, and recess for the head of the link, the laterally oscillating jaw, and the vertically sliding lock-piece, in combination with the headed link, substantially as described.

2. In a car coupler the combination of the drawhead with flaring conical mouth, the laterally oscillating jaw forming a portion of such conical mouth, the narrow throat formed partly in said jaw and partly in the body of the drawhead, the vertically sliding lockpiece, and the headed link, substantially as described.

3. In a car coupler the combination of a drawhead with flaring mouth, a laterally oscillating jaw within said mouth having a hook or recess to engage the head of a headed link or bar, and a lug or toepiece projecting in the path of such link or bar, a coupling link or bar headed to correspond with such jaw, and a vertically sliding lockpiece, all combined and operating substantially as described.

4. The combination in a car coupler adapted to couple with a headed link, of the drawhead with flaring conical mouth terminating in a throat to engage the neck of the link, the laterally oscillating coupling jaw pivoted in a recess in said drawhead and forming one side of such mouth and throat, the headed link and the lockpiece sliding vertically in a casing and having a stem projecting above such casing, substantially as described.

489,944. ELECTRIC-RAILWAY SWITCH. AUGUST C. GOETZ, Milwaukee, Wis. Filed Sept. 27, 1892. Serial No. 447,000. (No model.)

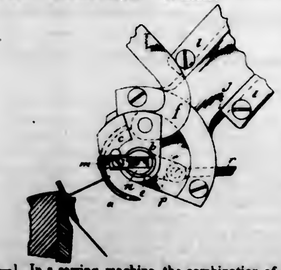
Claim.—1. The combination with a railway track having a branch track and a movable switch point therein, of two sets of electrically insulated sections of the rails on the same side of the switch point but at a greater and a less distance therefrom respectively, helices severally connected electrically to a set of the insulated sections of the track, and a device connected to the switch point adapted to be reciprocated by the energizing of one or the other of the helices electrically and by its reciprocation to shift the switch, substantially as described.



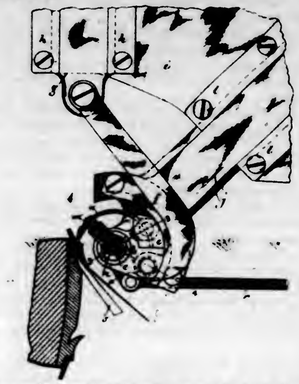
2. The combination with a railway track for electric cars, the track being composed of metal rails having branch tracks a movable switch point and corresponding frog and electrically insulated sections of the rails, on the same side of the switch point at unequal distances therefrom, of helices located opposite to but at a little distance from each other, metal conductors connecting the helices electrically severally to the insulated sections of the rails respectively at a greater and less distance from the switch points and other conductors connecting the helices to the ground or to return circuits, a reciprocable metal core of such length and so arranged as to extend only partially through one helix when it passes entirely through the other helix, such core being connected to the switch point in such manner that the reciprocation of the core correspondingly shifts the switch point, substantially as described.

3. The combination in a railway track adapted for the use of electric cars of metallic rails adapted to serve as a return circuit for the electric current, a movable switch in one of the rails, sections of the rails opposite each other insulated electrically from the adjoining portions of the rails and from the ground, metallic wires or conductors connecting the adjacent ends of the track electrically around the insulated sections and devices connected with the insulated sections of the rails and with the movable switch for shifting the switch by the energy of an electric current delivered to the devices through the insulated sections of the rails, substantially as described.

489,945. SEWING-MACHINE. CHARLES S. GOODING, Brookline, assignor to the Seaver Sewing Machine Company, Boston, Mass. Filed Dec. 19, 1891. Serial No. 415,631. (No model.)



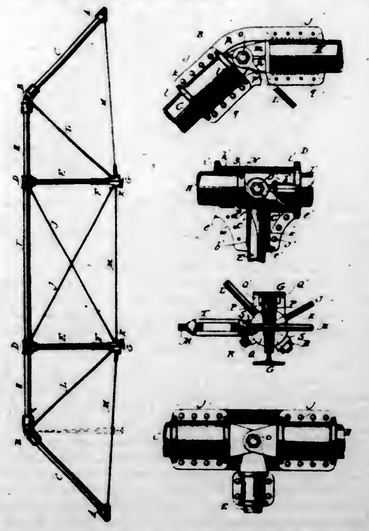
Claim.—1. In a sewing machine, the combination of a hooked oscillating needle and mechanism timed to give the needle when retracted a bodily lateral movement out of the path in which it oscillates in forming the loop, and a curvilinear movement whereby the loop is transferred from the barb to the shank of the needle, the said lateral movement causing the shank of the needle to exert a pulling strain on a loop of thread engaged therewith and to thereby set the stitch, as set forth.



2. In a sewing machine, the combination of a hooked oscillating needle, means for transferring the loop of thread drawn through the stock thereby from the barb to the shank of the needle, and mechanism timed to give the needle when retracted a bodily movement out of the path in which it oscillates in forming the loops, as set forth.

3. In a sewing machine, the combination with an oscillating, laterally movable needle, of a presser foot having a slot, the sides of which are in close proximity to the sides of the needle when the latter is in the slot, the presser foot slot being arranged to receive the needle during the lateral movement thereof, so that the sides of the slot transfer the loop from the barb to the shank of the needle, as set forth.

489,946. BRIDGE. RICHARD GRAY, Bloomington, Ill. Filed July 12, 1892. Serial No. 439,794. (No model.)



Claim.—1. The two-part shoe A having a socket for the batter post, and the rear flange *g*, to receive the chord bars, and the plate *i* extending across the rear face of flange *g*.

2. The herein described two-part shoe A comprising the socket

b, flanges *c d*, bolts *e* passing through the flanges, the footing *f*, the rear flange *g* and webs A, and the plate *i*.

3. The hip-joint B comprising two sockets connected by the bars *p*.

4. The hip-joint B comprising two flanged sockets, and the bars *p* embraced between and secured to the flanges.

5. The hip-joint B comprising two sockets having arms *m*, and a bolt *o* connecting the arms.

6. The hip-joint B comprising two flanged sockets having arms *m*, bolts *o* connecting the arms, and plates *p* bolted to the flanges.

7. The panel joint D comprising the parts *w*, *x*, and *y*, having curved seats to form the horizontal and vertical sockets, and bolts uniting the parts.

8. In combination with parts *w* and *x* each having curved seats *a' b'*, the cap plate *y* having curved seat *h'*; bolts *j'* connecting the parts *w* and *x*; and bolts *k'* uniting the cap to the parts *w* and *x*.

9. In combination with the chord sections H and I united by a coupling N, the panel joint D provided with a shouldered seat therefor, and with a seat for the upright post.

10. In combination with the perforated beam G, perforated plates applied thereto and provided with curved lugs Q substantially as and for the purpose described.

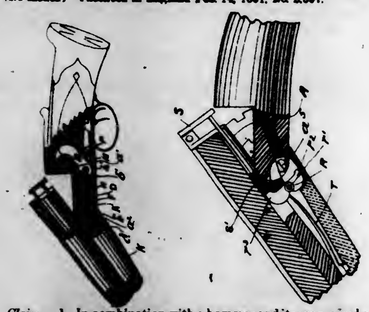
11. In combination with perforated beam G, plates P applied thereto and provided with curved lugs Q, the braces passing through the beam and plates, and provided with nuts and curved washers.

12. In a bridge, the combination with the beam G, of the lower chord passing therethrough, the braces passing through the beam in the same horizontal axis or plane as the chord, and means for securing the parts.

13. In a bridge, the combination with the perforated beam, of the plates applied thereto, and lugs Q curved on the arc of a circle struck from a point within the beam.

14. In a bridge truss, the combination with the upper and lower chords, and transverse beam G, of the posts E and C, the post connection F secured to the upper side of the beam, and the panel joint K.

489,947. BREECH-LOADING BREAKDOWN GUN. HARRY GREENER, Birmingham, England. Filed Feb. 29, 1892. Serial No. 423,318. (No model.) Patented in England Feb. 14, 1891. No. 2,697.



Claim.—1. In combination with a hammer and its sear, a rod connected to the said hammer, a protruding head on said rod a spring bearing against the said rod to operate the said hammer, the casing in which the said rod is guided and the fore end arranged to act on the protruding head of the said rod substantially as set forth.

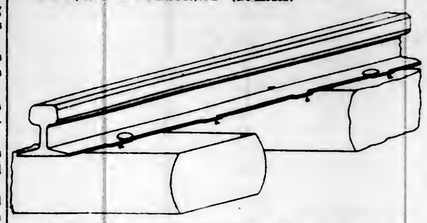
2. In combination with a hammer and its sear, a rod connected to the said hammer, a spring bearing against the said rod to operate the said hammer, a casing in which the said rod is guided, and a fore end arranged to press against the beveled protruding head of the said rod to force the latter in for cocking the said hammer substantially as set forth.

3. In combination with a pair of hammers and their main springs and sears, a breech-action casing or body having a nose-piece A^3 formed therewith, and a sear spring which is held in place by this nose piece and bears at its ends on the said sears substantially as set forth.

4. In a breech-loading fire-arm, the combination of a hammer, a spring-actuated rod attached thereto for cocking it and having a stud a^5 on its protruding end, an ejector hammer arranged in the fore-end to be tilted by the extractor when the gun is closed a spring bearing against the said ejector hammer and put under tension by this tilting and a cartridge-extractor actuated by the said ejector hammer and spring when the fire arm is broken down thereafter substantially as set forth.

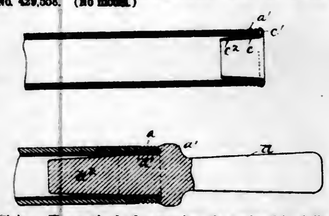
5. In combination with the hammer of a fire-arm and an extractor, attached respectively to the main part of the breech and to the fore end a spring actuated pivoted piece bearing against the said extractor and a spring-actuated rod attached to the said hammer and constructed to engage the said pivoted piece by means of a stud on its protruding head when the breech is in its normal position and the hammer is uncocked, the said head and stud being forced out of position for such engagement when the hammer is cocked substantially as set forth.

489,948. RAILWAY-RAIL. HOWARD GREER, Chicago, Ill. Filed Feb. 17, 1892. Serial No. 340,754. (No model.)



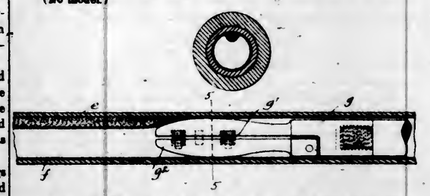
Claim.—Rail-way rails provided with small lugs or projections extending horizontally beyond the usual edges of the rail flanges said projections being on one or both flanges and at convenient distances apart to engage the rail spikes or clamps for the purpose of preventing the creeping of the track substantially as set forth.

489,949. METHOD OF PREPARING THE ENDS OF LINED PIPES FOR JOINTING. GEORGE W. HARRINGTON, Wakefield, Mass., assignor of one-half to D. H. Darling, same place. Filed Apr. 18, 1892. Serial No. 429,558. (No model.)



Claim.—The method of preparing the ends of lead lined pipe, which consists in inserting a tapered thimble of lead having a flange thereon into said lining and driving into said thimble a tapering swage or plug of suitable hard substance, so that the tapering portion of the thimble will be driven into the lead lining and the flanges on said thimble curled or packed against the end of the main shell, as described.

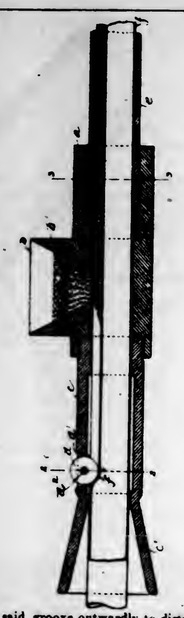
489,950. METHOD OF AND APPARATUS FOR FORMING LINED PIPE. GEORGE W. HARRINGTON, Wakefield, Mass., assignor of one-half to D. H. Darling, same place. Filed Apr. 18, 1892. Serial No. 429,559. (No model.)



Claim.—1. The improved method of making lined pipe, consisting in drawing the lining through the main body or shell, forming a longitudinal depression in the periphery of said lining as it is drawn into the shell, filling the space between the depressions and shell with cement as the lining progresses, and finally pressing the depressed portion of the lining outwardly against the iron shell, thus distributing the cement between the shell and lining, substantially as described.

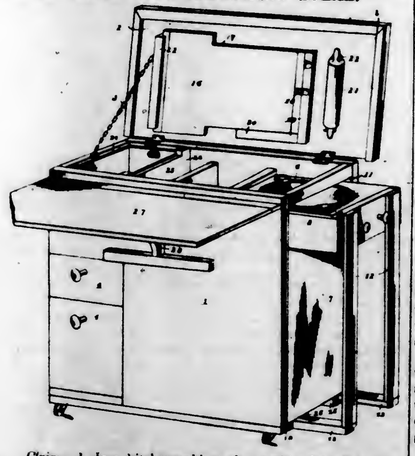
2. An apparatus for making lined pipe comprising a holder adapted to receive at one end the main body or shell of the pipe, and at the the other end the lining, means such as a revolving disk whereby said lining is grooved or longitudinally recessed in its passage through the holder, an opening in said holder through which a suitable cement is introduced into the groove or recess, and a plug or

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mandrel for forcing said groove outwardly to distribute the cement about the lining, substantially as set forth.

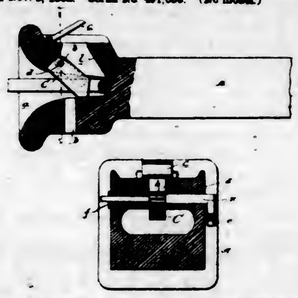
489,951. KITCHEN-CABINET. PHARAH S. HARTSOCK, Van Wert, Ohio. Filed Jan. 23, 1893. Serial No. 419,056. (No model.)



Claim.—1. In a kitchen cabinet, the combination of a casing provided at one end near the top with a horizontal opening, the horizontal supporting cleats secured to the inner faces of the front and back of the casing and extending inward from said opening, the guides 14 and 15 arranged longitudinally of the bottom of the casing at the front and back thereof, the guides 15 being provided with flanges, and a pan supporting frame having a horizontal upper portion arranged on said supporting cleats and sliding through the opening of the casing and provided at its inner end at the upper edge thereof with a transversely disposed stop cleat arranged to engage the casing above the opening to prevent the upper portion of the pan supporting frame being entirely withdrawn, said upper portion being provided with a pan opening, the slides 13 arranged between said guides and provided with flanges engaging those of the guides 15, and the parallel uprights 12 having their upper ends secured to the outer end of the upper portion of the frame and having their lower ends supported upon the outer ends of the slides and connecting the upper portion and the slides, substantially as described.

2. In a kitchen cabinet, the combination of a casing having a partition 26 provided in its upper edge with a kneading-board-receiving recess, a cover for the cabinet, a kneading board provided at opposite sides with recesses and adapted to be supported by said partition 26 to provide open spaces at each side of the board to permit superfluous flour thereon to be returned to the cabinet, and cleats secured to the inner face of the cover and conforming to the configuration of the kneading board and adapted to hold the same, substantially as and for the purpose described.

489,952. CAR-COUPLING. THOMAS HEARD, St. Thomas, Canada. Filed Nov. 5, 1892. Serial No. 451,059. (No model.)



Claim.—The combination of the draw head having the pin aperture and also having a transverse aperture, the cover pivoted to close the pin aperture, the rock shaft arranged in the transverse aperture and the gravitating latch secured to said shaft, substantially as specified.

489,953. DEVICE FOR FACILITATING COPYING. JOHN J. HILL, Chicago, Ill. Filed June 21, 1892. Serial No. 437,516. (No model.)



Claim.—1. In a device for facilitating the reading of copy, the combination with a suitable frame having an open base and adapted to rest at its base on the copy, of a pair of reflectors occupying relative positions the one to reflect the copy upon the other and the latter to again reflect the reflection into the angle of vision of the user, substantially as described.

2. In a device for facilitating the reading of copy, the combination with a suitable frame having an open base and adapted to rest at its base on the copy, of a pair of reflectors adjustable into positions to cause the one to reflect the copy, through the open base, upon the other and the latter to again reflect the reflection into the desired angle of vision of the user, substantially as described.

3. A device for facilitating the reading of copy, comprising, in combination, a frame A formed with a base *r* and end-pieces *q*, and reflectors B and B' pivotally supported on the end-pieces, substantially as described.

4. A device for facilitating the reading of copy, comprising, in combination, a frame A formed of a base *r* and end-pieces *q*, strips *p* and *p'* having ears *o* at their opposite ends, set-screws *n* supporting the strips at their said ears on the end-pieces, and reflectors B and B' fastened on the strips, substantially as described.

489,954. DEVICE FOR FACILITATING COPYING. JOHN J. HILL, Chicago, Ill. Filed Nov. 3, 1892. Serial No. 450,980. (No model.)

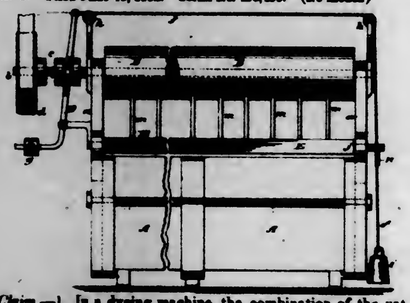
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Claim.—1. In a device for facilitating the reading of copy, the combination of a frame having an open base through which to expose the copy, a pair of reflectors in the frame, occupying relative positions the one to reflect the copy upon the other and the latter to again reflect the reflection into the angle of vision of the user, and a feed for the copy, substantially as described.

2. In a device for facilitating the reading of copy, the combination of a frame having an open base through which to expose the copy, a pair of reflectors in the frame, occupying relative positions the one to reflect the copy upon the other and the latter to again reflect the reflection into the angle of vision of the user, a base on which the said frame is supported, a feed-roller on said base having a suitable handle for turning it, and a bearing-roller in the frame to cooperate with the feed-roller, substantially as described.

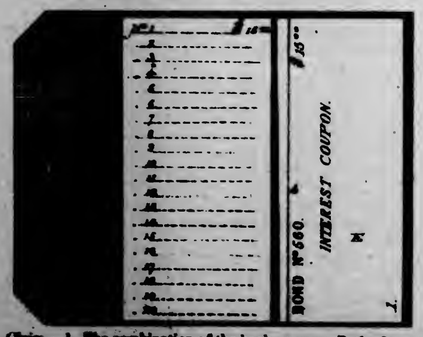
489,955. APPARATUS FOR DYEING. ADOLPH HIRER, New York, N. Y. Filed June 18, 1892. Serial No. 436,655. (No model.)



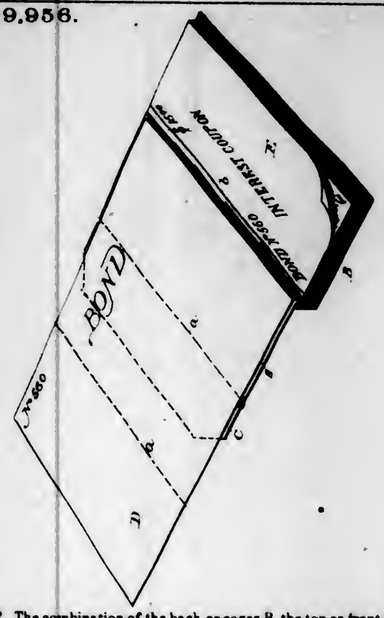
Claim.—1. In a dyeing machine, the combination of the vat A and the drum B with mechanism substantially as described for rotating said drum, and with the pivoted comb E, having teeth *n*, and mechanism substantially as described for connecting said pivoted comb with an automatic stop mechanism, all as specified.

2. The combination of the vat A, drum B, and mechanism substantially as described for revolving said drum, with the pivoted comb E, carrying the pin *n*, and with the weight *i* adapted to be suspended from said pin *n*, cord *f* and stopping-lever D, said cord connecting said stopping-lever with said weight *i*, all substantially as and for the purpose specified.

489,956. COUPON-BOND. SELDEN B. HOPKINS, New York, N. Y. Filed Apr. 14, 1892. Serial No. 429,094. (No model.)



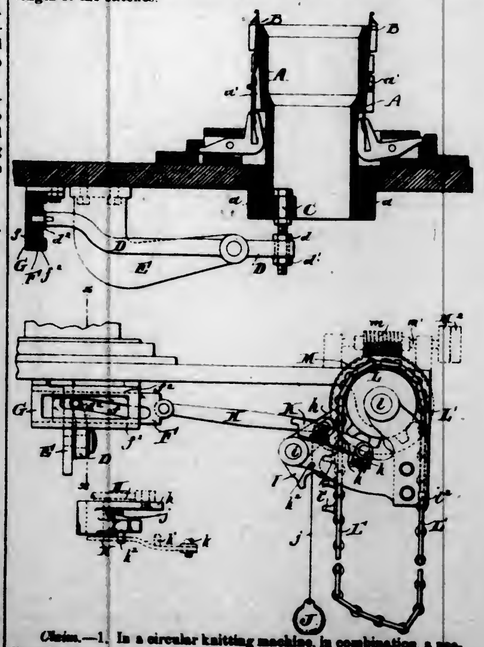
Claim.—1. The combination of the back or cover B, the front or top cover A, the bond D, and the coupons E, the bond being attached at one edge to the part A and the coupons being separate from the bond, substantially as described.



2. The combination of the back or cover B, the top or front cover A, the inclosing flap, the bond D, the latter attached at one edge only to the inside of the front cover, and the coupons E separate from the bond and attached to the back B, all as and for the purposes described.

489,957. CIRCULAR-KNITTING MACHINE. HARRY A. HOUSMAN, Philadelphia, Pa. Filed June 25, 1892. Serial No. 437,963. (No model.)

Brief.—The invention consists in the means set forth in the claims for automatically raising and lowering the needle-cylinder to vary the length of the stitches.



Claim.—1. In a circular knitting machine, in combination, a needle cylinder secured so as to be adapted to have a vertical movement, a rod secured to said cylinder, a pivoted lever connected to said rod, a sprocket wheel, a pattern chain, lugs upon said pattern chain at prearranged positions and intermediate connection between said lugs and said lever.

2. In a circular knitting machine, in combination, a needle cylinder secured so as to be adapted to have a vertical movement, a rod secured to said cylinder, a pivoted lever adjustably connected to said rod, a sprocket wheel, a pattern chain, lugs upon said pattern chain at prearranged positions, and intermediate connection between said lugs and said lever.

3. In a circular knitting machine, in combination, a needle cylinder secured so as to be adapted to have a vertical movement, a rod secured to said cylinder, a pivoted lever connected to said rod, a roller mounted on the end of said lever, a frame provided with a cam slot in which said roller rests, said frame being adapted to slide, a sprocket wheel, a pattern chain on said wheel, lugs upon said pattern chain at prearranged positions, and intermediate connection between said lugs and the frame.

4. In a circular knitting machine, in combination, a needle cylinder secured so as to be adapted to have a vertical movement, a rod secured to said cylinder, a sprocket wheel, a pattern chain upon said wheel, lugs at prearranged positions upon said pattern chain, a toothed sector, the teeth of which are in line of movement of said lugs, and intermediate connection between said sector and said rod.

5. In a circular knitting machine, in combination, a needle cylinder secured so as to be adapted to have a vertical movement, a rod secured to said cylinder, a pivoted lever connected to said rod, a sprocket wheel, a pattern chain upon said wheel, lugs at prearranged positions upon said pattern chain, a toothed sector, the teeth of which are in line of movement of said lugs and intermediate connection between said sector and said lever.

6. In a circular knitting machine, in combination, a needle cylinder secured so as to be adapted to have a vertical movement, a rod secured to said cylinder, a pivoted lever connected to said rod, a roller mounted on the end of said lever, a frame provided with a cam slot in which said roller rests, said frame being adapted to slide, a sprocket-wheel, a pattern chain upon said wheel, lugs at prearranged positions upon said pattern chain, a toothed sector the teeth of which are in line of movement of said lugs, and intermediate connection between said sector and said frame.

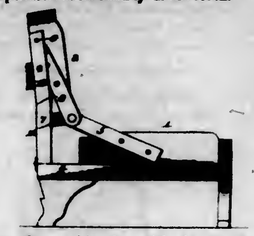
7. In a circular knitting machine, in combination, a needle cylinder secured so as to be adapted to have a vertical movement, a rod secured to said cylinder, a sprocket wheel, a pattern chain upon said wheel, lugs at prearranged positions upon said pattern chain, a toothed sector, means for exerting a downward pressure upon said sector, a pivoted pawl, a pin upon said pawl adapted to be engaged by a lug upon said chain, the teeth of said sector being in line of movement with lugs on the pattern chain, a pin upon the sector, the pawl being in line of movement of said pin, and intermediate connection between said sector and rod.

8. In a circular knitting machine, in combination, a needle cylinder secured so as to be adapted to have a vertical movement, a rod secured to said cylinder, a pivoted lever connected to said rod, a sprocket wheel, a pattern chain upon said wheel, lugs at pre-arranged positions upon said pattern chain, a toothed sector, means for exerting a dowsward pressure upon said sector, a pivoted pawl, a pin upon said pawl adapted to be engaged by a lug upon said chain, the teeth of said sector being in line of movement with the lugs on the pattern chain, a pin upon the sector, the pawl being in line of movement of said pin, and intermediate connection between said sector and said lever.

9. In a circular knitting machine, in combination, a needle cylinder secured so as to be adapted to have a vertical movement, a rod secured to said cylinder, a pivoted lever connected to said rod, a roller mounted on the end of said lever, a frame provided with a cam slot in which said roller rests, said frame being adapted to slide, a sprocket wheel, a pattern chain upon said wheel, lugs at prearranged positions upon said pattern chain, a toothed sector, means for exerting a downward pressure upon said sector, a pivoted pawl, a pin upon said pawl adapted to be engaged by a lug upon said chain, the teeth of said sector being in line of movement with the lugs on the pattern chain, a pin upon the sector, the pawl being in line of movement of said pin, and intermediate connection between said sector and said frame.

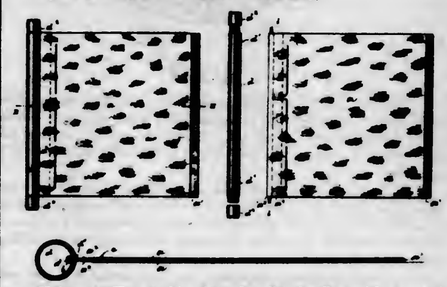
489,958. LOUNGE. ALEXANDER JAMES, San Francisco, Cal. Filed May 17, 1892. Serial No. 433,204. (No model.)

Claim.—1. In a lounge, the combination with the seat provided with a rear extension, of a folding back, and a drop leg at each end, the lower end of each of which legs rests upon the top of the extension and is secured thereto by means of a hinge, one leaf of which is secured to the end of the extension and the other leaf is secured to the rear surface of the leg, and the upper end of the leg is secured to the back, each leg being also provided with an inclined joint, whereby a lock is formed when the back is in a vertical position, and the hinged ends of the two parts will rest squarely upon the floor when the back is in a horizontal position substantially as set forth.



2. In a lounge, the combination with the seat provided with a rear extension, of a folding back, each end of which is provided with an extra end piece and the lower rail is recessed whereby a recess is formed in the ends of the back, a jointed drop leg pivotally secured within the recess and to the extension of the seat, the rear surface of each leg being even with the back surface of the back when in said recesses, and a bar, secured at its ends to the legs and resting against the back, substantially as set forth.

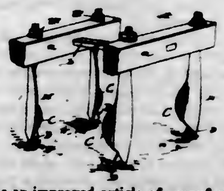
489,959. COPYING-BOOK. JOHN P. JULIA, New York, N. Y. Filed Sept. 2, 1892. Serial No. 444,926. (No model.)



Claim.—1. The combination of a slitted roller, with a copying book having a contracted neck back of the leaves and a rod at the end of the contracted neck, substantially as specified.

2. The combination of a slitted roller, with a copying book having a contracted neck, a strip within such neck and a projection at the end of the neck, substantially as specified.

489,960. HARROW OR CULTIVATOR TOOTH. FRANK X. KRABACH, Defiance, Ohio. Filed Sept. 26, 1892. Serial No. 446,940. (No model.)

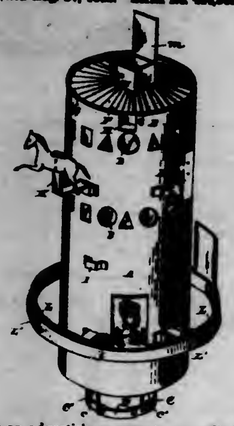


Claim.—1. As an improved article of manufacture, a cultivator or harrow tooth, comprising a blade increasing in thickness rearwardly and having the forwardly vertically disposed cutting edge, the rearwardly and laterally pitched flange or wing extending from the rear edge of the blade at an intermediate point in the length thereof, and the laterally and downwardly extending auxiliary cutter at the lower end of the blade, substantially as and for the purpose set forth.

2. In a harrow or cultivator, the combination with a frame comprising a series of beams suitably connected together and a series of tooth carried by one beam and comprising the blades resting in parallel, transversely-oblique, vertical planes, the flanges or wings extending rearwardly and laterally in one direction from the rear edges of the blades, and the auxiliary cutter extending downwardly and laterally in one direction from the lower ends of the blades; of a series of teeth carried by the next or alternate beam and comprising the blades resting in parallel, transversely oblique, vertical planes at ap-

precisely right angles to the planes of the teeth of the first named beams, the flanges or wings extending rearwardly and laterally from the rear edges of the blades in opposite directions with respect to the flanges or wings of the teeth of the first named beam, and the auxiliary cutters extending downwardly and laterally from the lower ends of the blades in opposite directions with respect to the cutters of the teeth of the first named beam, substantially as specified.

489,961. ADVERTISING APPARATUS. SOLOMON KIH, Sioux Falls, S. D. Filed Aug. 27, 1892. Serial No. 444,262. (No model.)



Claim.—1. In an advertising apparatus, a cylindrical rotatable body-portion provided with apertures in its walls, clips arranged adjacent to said apertures, and semitransparent shields covering said apertures and engaged at their edges by the clips, substantially as specified.

2. In an advertising apparatus, a cylindrical rotatable body-portion, having apertured side walls covered by semitransparent shields, a fan fitted in the upper end of the body-portion, and a bracket M attached centrally to said fan to support advertising cards, substantially as specified.

3. In an advertising apparatus, the combination with the rotatable shell, of twin rings arranged concentrically therewith and supported by brackets attached to said shell, substantially as specified.

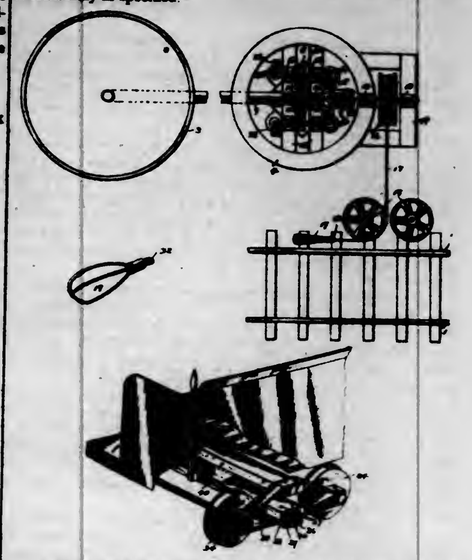
4. In an advertising apparatus, the combination with a rotatable shell, of brackets engaged at their inner ends in keepers upon the exterior of the shell, and the twin rings, one of which is attached to the outer ends of said brackets and the outer ring being adapted to engage the outside of the inner ring to hold advertising cards, substantially as specified.

489,962. AUTOMATIC RAILWAY PUMPING MECHANISM. HIRAM D. LAYMAN, Little Rock, Ark. Filed Mar. 14, 1892. Serial No. 424,857. (No model.)

Claim.—1. The combination with the track, the well at one side of the same, and the tank located at one side of the well, of the series of pump-cylinders, the intermediate water-box with which they communicate, the discharge-pipe leading from the water-box to the tank, the transverse shaft supported within and partly without the well, the gear-wheel mounted loosely thereon and provided with a pawl, a ratchet-wheel fixed upon the shaft at one side of the gear, the rewinding drum mounted on the shaft, the cable thereon, and provided at its lower end with a re-winding weight, the power drum fixed upon the shaft, the cable wound thereon and extending therefrom, guide-devices for the cable, and an engaging device at the free end of the same lying at the side of the track, the pair of opposite short transverse shafts arranged at the sides of the main shaft, and terminating at their ends in cranks, piston-rods connected to the cranks, and descending into the pump-cylinders, and gears mounted on the shafts and engaging the gear of the main shaft, substantially as specified.

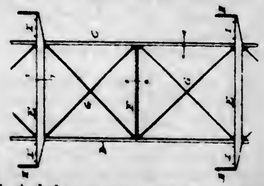
2. The combination with the track, the tank, the pump-mechanism, the drum, the cable extending from the drum and terminating at one side of the track, of an engaging device located at the end of the cable and adapted to engage a bar extending from the moving train, and the lowered throw-off rod or automatic detacher 40 located in the path of the engaging device and at one side of the track, substantially as specified.

3. The combination with the pump-operating mechanism, consisting of a cable, combined with the herein-described bar-engaging device, consisting of an eye to which the cable is attached, and the series of three pronge bent to form loops and diverging from the eye, substantially as specified.



4. The combination with the track, the pump-operating mechanism, the cable for operating the same and the connecting three pronged catch 19 secured to the cable at one side of the track, of a tender, its sand-bolster, the pair of bolts extending through the same, the offset, strap or keeper perforated to receive the bolts, the engaging-bar mounted for reciprocation in said keeper, and the hand-lever pivotally connected to the inner end of the bar and extending within reach of the engineer, substantially as specified.

489,963. TOWER. KARL L. LEBMANN, Chicago, Ill. Filed Sept. 24, 1892. Serial No. 446,762. (No model.)



Claim.—1. A skeleton tower, comprising a concentric series of parallel vertical posts or columns, spirally arranged girders tying together the vertical columns and extending laterally therefrom both inside and out, parallel road-ways constructed inside and outside the vertical columns on the laterally projecting girders, parallel vertical railings or truss work at the edges of the inner and outer roadways, and diagonal crossed braces G' tying together the vertical posts or columns within the road-ways.

2. A tower comprising an inner series of circularly arranged vertical posts or columns, an outer series of vertically-arranged posts or columns concentric with the inner series, spirally-arranged horizontal girders connecting the columns and extending laterally therefrom, supplemental horizontal girders arranged between the first mentioned girders, crossed rods connecting both sets of girders, and a railing constructed at the ends of the laterally projecting girders to form a truss work therefor, substantially as described.

3. A skeleton tower comprising concentric series of vertical posts or columns, spirally-arranged horizontal girders tying together the vertical columns and extending laterally therefrom both inside and out, horizontal crossed rods or braces between the columns, and vertically arranged crossed rods or braces between the girders.

489,964. TOWER. KARL L. LEBMANN, Chicago, Ill. Filed Oct. 31, 1892. Serial No. 450,427. (No model.)

Claim.—1. A tower having a spiral structure continuous from bottom to top, having its lower end supported on a suitable foundation, and being unsupported above the foundation by supplemental supports.

2. A tower having a spiral structure having its lower end supported on a suitable foundation, and its sides and top disconnected or unsupported by supplemental supports having a terrace extending from bottom to top, a pavilion and gallery at the top, observatories or galleries at suitable intervals apart, and a spiral roadway around the outside of the terrace.



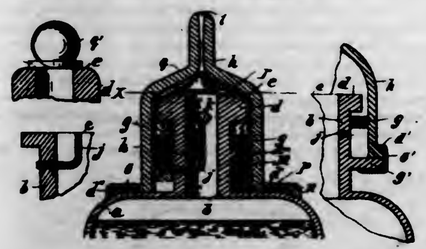
3. A spiral tower having a suitable foundation, a terrace, a roadway projecting laterally therefrom at its lower edge, and hanging gardens at the outer edge of the roadway.

4. A tower having a foundation of masonry, a spiral top body portion and roof, a terrace, the cross section of which is a trapezoid, a spiral roadway projecting from the bottom of the terrace, and a railway track within the terrace.

5. A spiral tower, the frame-work of which is made in sections, each of which has braces at its ends and sides, and is provided with one or more diagonal braces L', extending from the angle at the upper end of one end piece to the diagonally opposite lower angle of the opposite end piece.

6. A spiral tower having a foundation framing L-shaped and inclined, and made up of frame sections braced at their ends and sides, and each having one or more diagonal braces L' and a spiral framing connected to the foundation framing made up of like sections.

489,965. BOTTLE. HARVEY I. LEITH, Providence, R. I. Filed Mar. 16, 1892. Serial No. 425,096. (No model.)



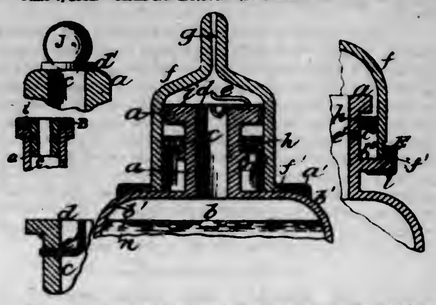
Claim.—1. The combination of a bottle, a valve upon and closing the mouth thereof, an apertured cap over the mouth and valve and fastened to the exterior of the bottle, and an air duct connecting the interior of the bottle with the outside atmosphere.

2. The combination of a bottle, a valve upon and closing the mouth thereof, an apertured cap over the mouth and valve, sealing material, as for example wax, connecting the cap to the bottle, and an air-duct connecting the interior of the bottle with the outside atmosphere.

3. The combination of a bottle, a valve upon and closing the mouth thereof, an apertured cap over the mouth and valve and sealed to the bottle, and a capillary tube connecting the interior of the bottle with the outside atmosphere.

4. The combination with the neck of a bottle, of a cap fitting over the mouth thereof and provided with an outlet; a valve for the mouth and opening into the cap; and a capillary tube connecting the interior of the bottle with the interior of the cap.

489,966. BOTTLE. HARVEY I. LEITH, Providence, R. I. Filed June 7, 1892. Serial No. 435,870. (No model.)



Claim.—1. The combination of a bottle having a neck which contains the usual mouth, a perforated cap *f* placed over the mouth and resting upon the shoulder of the bottle; a ring *a'*, surrounding the foot of the cap, and secured to the bottle a sealing material applied to the bottle between the said ring and the said cap, ring *h* dividing the interior of the cap into two compartments, a flange *a''* around the neck of the bottle and under the ring *h*, and resting against the same; a perforated membrane stretched over the neck *a*, the perforations being directly over the neck or lip in such a manner as to be closed thereby; a tube *e* extending from the interior of the cap to the interior of the bottle and terminating against said membrane; or nearly so, a deflector consisting for example, of a cone *j* secured upon the upper side of the said membrane and located below the perforation in the cap *f*, and provided with legs resting upon the neck *a*.

2. The combination of a bottle, a valve upon and closing mouth thereof, a cap located over the neck and mouth of the bottle and sealed to the bottle and provided with an outlet *g*, and an air conduit extending from the exterior of the cap to the interior of the bottle and terminating with its end against the said valve or nearly so within the bottle.

3. The combination of a bottle, a perforated cap covering the mouth thereof and sealed thereto, a membranous valve covering the mouth of the bottle and a deflector over the membrane and resting upon the neck of the bottle.

489,967. BOTTLE. HARVEY I. LEITH, Providence, R. I. Filed Sept. 21, 1892. Serial No. 446,409. (No model.)



Claim.—1. The combination, with the neck of a bottle and with a ring fitting therein, of a detachable tube *d*, an immovable cap inclosing the valve and located over the said tube, a seal connecting the cap to the bottle, and a conduit or air passage connecting the interior of the bottle with the outside atmosphere.

2. The combination with the neck of a bottle of a yielding ring fitting tightly therein, a detachable tube fitting in said ring and normally closed by a valve, a perforated cap over the valve and sealed to said bottle, and an air-bulb *u*, having air communications with the interior of the bottle.

3. The combination with the neck of a bottle and with a ring fitting therein, of a detachable tube *d*, a valve upon and closing the outer end thereof, a cap over the valve, a seal connecting the cap to the bottle, a tube *r* having slots, within the interior of the bottle and extending through and beyond said tube, a porous block *s* fitted on the end of said tube *r* and against the neck of the bottle, and all but touching the said cap, and means for closing hermetically that portion of the interior of the cap containing the valve from that portion containing the blocks.

4. The combination of a bottle, a valve closing the mouth thereof and consisting of a perforated flexible sheet, a disk fastened upon the

sheet and overlapping the edge of said mouth, a perforated cap over the valve and containing a protector which normally rests upon said disk.

5. The combination with a bottle, of a yielding ring *c* fastened in the neck thereof, a detachable tube *d* fitting in said ring, a tapering cap having a mouth *m* at the upper or smaller portion and a flange *n* at the larger end, having grooves *q* and resting against the flange *o* on the neck *b* of the bottle, a flange *f* on the upper end of the tube *d*, and carrying a yielding shoulder *v* in the cap and pressing upon said ring *g*, a valve *h* covering the mouth of tube *d*, a seal *p* connecting the cap to the flange *o* non-hermetically, a tube *r* having slots *t* closed at one edit within the bottle, and extending through the tube *d*, into that portion of the interior of the cap below the flange *f*, a porous substance surrounding the extension of the tube *r* and all but in contact with the inner surface of the cap, and an air bulb *u* connecting with the interior of the bottle through the grooves *q* and tube *r*.

489,968. HAT-TRAY. HENRY LELLY, Rochester, N. Y. Filed July 5, 1892. Serial No. 439,094. (No model.)



Claim.—1. The combination with a receptacle, of the supporting ring or strip engaging the brim of a hat, and the elastic supports connected to said ring and to the sides of the receptacle, substantially as described.

2. The combination with a receptacle, of the flexible strip engaging the brim of a hat, and the elastic supports for the strip connected to the sides of said receptacle, substantially as described.

3. The combination with a receptacle, of the flexible cord engaging the brim of a hat, the supporting springs connected to the corners of the receptacle at one end and at the other to said cord, substantially as described.

4. In a hat tray, the main frame having hat supporting devices therein, the supporting legs arranged at the corners and the supports below the tops arranged at the corners adapted to support the lower ends of the legs of a superposed tray, in combination with a superposed tray having supporting legs at the corners substantially as described.

5. In a hat tray, the main frame having hat supporting devices therein, the legs arranged at the corners and extending below the bottom of the tray and the upper ends located below the top and adapted to serve as supports for the legs of a superposed tray, in combination with a superposed tray having legs at the corners substantially as described.

6. In a hat tray, the combination with the main frame having the elastic hat supports therein near the top, of the broad strips on the bottom arranged to co-operate with the brims of the hats in a tray below and hold them on the supports of a lower tray, substantially as described.

7. In a hat tray, the combination with the main frame provided with a series of receptacles for hats, of hat supports arranged in said receptacles, springs on which the supports are mounted, those in adjacent receptacles being constructed of a single piece, substantially as described.

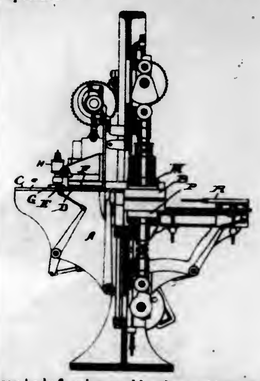
8. In a hat tray, the combination with the main frame having legs at the corners, of a hat support in the tray and springs supporting it, the two springs at the corner connected at one end to the frame and at their other ends to the hat support leaving a recess between for the leg of a superposed tray, substantially as described.

9. In a hat tray, the combination with the main frame having the leg at the corner, of a hat support in the tray and springs supporting it, the two springs at the corner connected at one end to the frame and at their other end to the hat support leaving a recess between and the plate 15 forming a leg socket and protecting the springs from damage, substantially as described.

10. In a hat tray, the combination with the main frame having the supporting legs, of a series of cord hat supports, the springs connecting them with the sides of the receptacles, and the broad strips on the tray adapted to co-operate with the brims of hats in a lower tray, and the leg supports in the upper side of the tray, substantially as described.

489,969. CAN-BODY-FORMING MACHINE. ANDREW W. LEVERSEDGE, San Francisco, Cal., assignor to Edwin Burton, Haywood, and Oliver W. Burton, Chicago, Ill. Filed Aug. 4, 1892. Serial No. 442,125. (No model.)

Claim.—2. In a can body forming machine the combination with its horn, edge folding or hook forming devices, mechanism for folding the blank around the horn, seam compressing device and the guides for the sheets or blanks, of a feed device for advancing the sheets along the guides, and a fluxing device for applying flux to the edges of the sheets before they are folded together to form a seam, substantially as specified.



2 In a can body forming machine the combination with its horn, edge folding or hook forming devices, mechanism for folding the blank around the horn, seam compressing device and the guides for the sheets or blanks of a feed device for advancing the sheets along the guides, a fluxing device for applying flux to the edges of the sheets before they are folded together to form a seam, and an oil feed device for feeding or delivering the liquid flux to said fluxing device, substantially as specified.

3. The combination in a can body forming device of a feed device and guides for the blanks with a fluxing device comprising or furnished with a flanged perforated shoe and a felt or absorbent pad, substantially as specified.

4. The combination in a can body forming device of a feed device and guides for the blanks with a fluxing device comprising or furnished with a flanged perforated shoe and a felt or absorbent pad, and springs for pressing the fluxing device against the edges of the blanks as they pass under the same, substantially as specified.

5. The combination in a can body forming machine of its body forming horn, edge folding devices, mechanism for forming the can bodies around the horn and device for compressing the seam against the horn, guides for the blanks, mechanism for advancing the blanks along said guides, a flux applying device or shoe and an oil feed device, substantially as specified.

6. In a can body forming machine the combination with its body forming horn, edge folding devices, mechanism for folding the blank around the horn, and device for compressing the seam against the horn, of guides for the blanks and means for advancing the blanks along said guides, a fluxing device or shoe for applying flux to the edges of the blanks as they pass in contact with said device and springs for pressing the fluxing device against the edges of the blank, substantially as specified.

489,970. BOOK-COVER. THOMAS R. R. MASON, Wichita, Kans. Filed Aug. 26, 1892. Serial No. 444,160. (No model.)



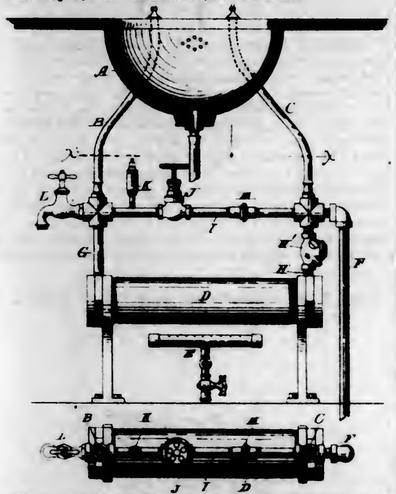
Claim.—1. A temporary book cover or protector, substantially as described, comprising a main body portion adapted to rest upon the outside of a book, and the inner flaps of a general rectangular form adapted to rest upon the inside of the book covers; the said inner flaps being connected to the main or body portion at one end and along their outer longitudinal edges only and having a space between their inner longitudinal edges to receive the leaves of a book, substantially as and for the purpose set forth.

2. A temporary book cover or protector formed from a single blank of material bifurcated or slitted along its longitudinal center from one of its ends to about its center and comprising the main body portion B, adapted to rest upon the outside of a book, and the inner flaps M, adapted to rest upon the inner side of the covers of a book, the said flaps M, being bent upon the main body portion B, and connected thereto along their outer longitudinal edges and having a space between their inner longitudinal edges, substantially as and for the purpose set forth.

3. A blank for forming a temporary book cover or protector, consisting of a piece of rectangular material, slotted or bifurcated along its longitudinal center from one end to about its center to form the branches M, adapted to be bent upon and secured to the main or uncut portion, substantially as specified.

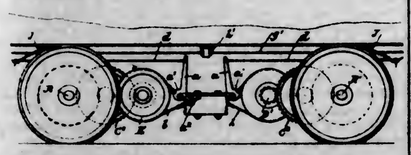
4. A temporary book cover or protector, substantially as specified, consisting essentially of a main body portion adapted to rest upon the outside of a book, the side flaps N connected to the main body portion along their outer longitudinal edges only, and the end flaps connected to and adapted to rest upon the side flaps, substantially as and for the purpose set forth.

489,971. WATER-HEATER. JAMES H. MINIER, Worcester, Mass. Filed July 16, 1892. Serial No. 440,247. (No model.)



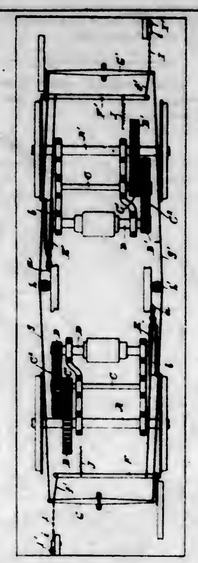
Claim.—The combination with the hot and cold water pipes B C respectively, of a basin, sink, or other plumbing fixture: of a water-heater consisting of the horizontal boiler D, the burner E preferably arranged under the same; the hot and cold water pipes G, H, extending up from the ends of the boiler with a check-valve in the cold water pipe, and each connecting with the horizontal piping I, as well as with the pipes B C at their respective ends of the heater, and the supply pipe F with the cold water piping; said piping I and F; the shut-off valve J in piping I between the aforesaid hot and cold water pipes, and the automatic steam valve for governor K combined with the hot water piping, substantially as and for the purpose set forth.

489,972. ELECTRIC-CAR BRAKE. ANDREW C. MILLER, Auburn, N. Y. Filed Nov. 30, 1891. Renewed Aug. 17, 1892. Serial No. 443,280. (No model.)

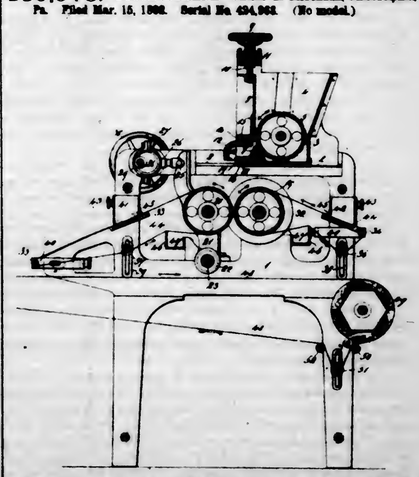


Claim.—The combination in a car-brake mechanism of the drums or band wheels on the armature shafts of the electric motors, the strap-spring brakes surrounding said drums, the levers for operating said straps, both ends of said straps being connected to their respective levers, and the transverse levers and their connections with the brake staffs or handles, whereby the brake straps may be simultaneously operated from either end of the car, all substantially as described.

489,972.



489,973. DOUGH-MACHINE. JAMES H. MITCHELL, Philadelphia, Pa. Filed Mar. 15, 1892. Serial No. 424,962. (No model.)



Claim.—1. In a machine of the character herein specified, the combination with a dough press, of sheeting rolls directly thereberneath, and a carrier belt beneath the said rolls, substantially as shown and described.

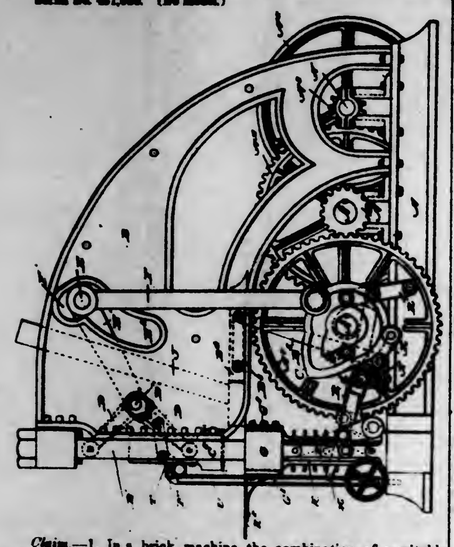
2. In a machine of the character herein specified, the combination with a dough press mounted to move longitudinally in a supporting frame, of a pair of sheeting rolls mounted beneath the dough press, one of said rolls being mounted in fixed bearings, and the other in movable bearings, and a main carrier belt, substantially as shown and described.

3. In a machine of the character herein specified, the combination with a dough press, of a pair of sheeting rolls mounted thereberneath; carrier belts passing over said rolls, and flouring devices having communication with said belts, and a main carrier belt, substantially as shown and described.

4. In a machine of the character herein specified, the combination with a belt or band passing around a sheeting roll, of a scraper

over which said hand passes, and a receptacle at the side of the scraper, substantially as shown and described.

489,974. BRICK-MACHINE. JOSEPH B. MOWRY, Mansfield, Ohio, assignor of one-fourth to John F. Stine, same place. Filed Apr. 26, 1892. Serial No. 431,069. (No model.)



Claim.—1. In a brick machine, the combination of a suitable frame provided with parallel segmental slots in its sides, a transverse shaft journaled in said segmental slots, connections between the transverse shaft and a train of gears, a frame mounted on guides or ways attached to the frame of the machine and carrying the upper dies, a series of toggle levers connected to said frame and to the frame of the machine, connections between said toggle levers and the transverse shaft, a vertically movable mold box, and vertically movable lower dies, substantially as described.

2. In a brick machine, the combination of a base or bed plate, the parallel sides, on said bed plate provided near their tops with segmental slots, vertical pillars or columns connecting the front ends of the sides with the base plate, the upper dies attached to a frame mounted on vertical guides on the pillars, toggle levers connected to said die-carrying frame and to the frame of the machine, a transverse shaft passing through the segmental slots in the sides of the machine and connected to said toggle levers and to a train of gears, a mold box arranged below the upper dies, a horizontal reciprocating clay box arranged above the mold box, a series of lower dies, and connections between the toggle levers, operating the upper dies, and the lower dies for holding the lower dies at all times within the mold box, substantially as described.

3. The combination with a train of gears, of a series of vertically movable upper dies, a mold box, toggle levers connected to said mold box and to the bed of the machine, arms attached to said toggle levers and extending rearwardly, cams carried by one of the shafts of the train of gears and adapted to operate said rearwardly extending arms to reciprocate the mold box, and a series of levers fulcrumed on a spring supported shaft and supporting a series of lower dies, the rear ends of said levers being in contact with the cams on one of the shafts of the driving gear, substantially as described.

4. In a brick machine, the combination of a train of gears, a driving shaft, A^9, gear wheels carried by said shaft and meshing with the train of gears, a pair of duplex cams carried by said driving shaft, a shaft supported in segmental grooves in the sides of the machine and connected, at its ends, with the wheels on the driving shaft, and with toggle levers adapted to operate a series of upper dies, a mold box, toggle levers, P, connected to said mold box and to the bed plate of the machine, toggle levers, Q, connected to the levers P and to the bed of the machine, arms R connecting the levers Q with arms, R', pivotally attached to the bed of the machine and provided with rollers which contact with the duplex cams on the driving shaft, a series of lower dies supported by levers fulcrumed on a spring supported shaft and adapted to be operated by the duplex cams on the driving shaft, a horizontal reciprocating clay box, and means for holding the lower dies within the mold box, substantially as described.

5. In a brick machine, the combination of the vertically movable upper dies, the vertically movable mold box, a horizontal reciprocating clay box, the slotted hangers connected to the supporting means of the upper dies, the bar, V, extending through the slotted hangers and provided near its ends with the inclined surfaces, the bar, W, extending through the slotted hangers and having one end threaded, an operating wheel fitted on said threaded end and provided with an annular groove which receives a lug or stud on the bar V, and the lower dies supported within the mold box by the bar W, substantially as described.

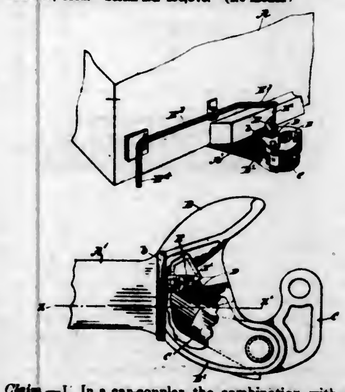
489,975. TIRE FOR BICYCLE-WHEELS. JOHN J. MCCORMIK, Providence, R. I. Filed Sept. 29, 1892. Serial No. 447,236. (No model.)



Claim.—1. In combination with a wheel, having an elastic convex tire, a rim having flanges on each side, and auxiliary tires secured to said flanges, but less distant diametrically from the hub of the wheel than the central tire, substantially as and for the purposes specified.

2. The combination of a wheel, having the rim B, provided with circumferential flanges *b* and grooves *cd*, and also with the air-tube D with cap or plug, the elastic tire A, wider than the rim B, and provided with the rounded edges or beads *a*, which beads are adapted to fit within said grooves *c* of the flanges *b*, the wire-bands E, having oppositely threaded screw-ends and the nut F, having oppositely threaded screw-bores, adapted to unite and draw said wire bands so as to fasten the tire A in the grooves *d* of the rim B in an air-tight contact, all arranged and combined to furnish the wheel with a central, pneumatic tire and auxiliary side tires, substantially as specified.

489,976. CAR-COUPLING. ALVIN C. MCCORD, Chicago, Ill. Filed June 16, 1892. Serial No. 436,970. (No model.)



Claim.—1. In a car-coupler, the combination with a vertically movable coupling-pin or lock, of a safety trip or releasing device, comprising a connection from the car-body to the pin or lock, having as one of its elements a transferring device for converting the horizontal strain from the car on the outward movement of the draw-bar into vertical strain on the pin, whereby the pin will be lifted and the cars uncoupled upon the breakage or tearing loose of the draw-bar.

2. In a car-coupler, the combination with a vertically movable coupling pin or lock, of a releasing or uncoupling device adapted for normal hand-action and emergency automatic action, comprising a lifting device secured to the car and a connection from the same to the coupling pin or lock having as one of its elements a device for transferring horizontal into vertical strain on the pin, substantially as and for the purpose set forth.

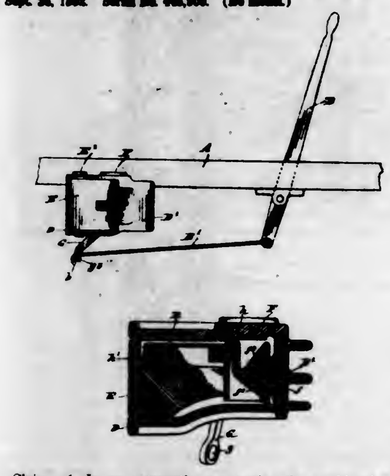
3. In a car-coupler, the combination with a vertically movable coupling pin or lock, of a safety trip comprising a bell-crank link or lever arranged in the vertical plane having its upper arm connected to the car-body, its lower arm pivotally connected to the pin or lock, and its elbow or angle loosely bearing against a resistance surface, on the coupler-head, whereby on the outward movement of the draw-bar, the bell-crank link will be rocked and the pin be lifted, substantially as and for the purpose set forth.

4. The combination with the coupling pin mounted for vertical movement, of the raised surface formed integral with or carried by the coupler-head and the bell-crank link or lever arranged in the vertical plane, having its upper arm connected to the car-body, its lower arm pivotally connected to the coupling-pin, and its elbow or angle loosely bearing against the said raised surface on the coupler-head, the said parts operating substantially as and for the purpose set forth.

5. In a car-coupler, the combination with the vertically movable coupling-pin or lock, of a lifting device secured to the car-body, and a connection from said lifting device to the coupling-pin having as one of its elements a bell-crank link arranged in the vertical plane, adapted, under normal conditions simply to act as one link of the connection from the lifting device, and adapted, upon the outward movement of the draw-bar, to transfer the horizontal strain thereby produced, into a vertical strain on the pin, for effecting the release, substantially as described.

6. In a car-coupler, the combination with the vertically movable coupling-pin or lock, of the uncoupling rod having an arm standing over the head of the pin, the bell-crank link arranged in the vertical plane with its upper arm connected to the arm of the uncoupling rod, and its lower arm pivotally connected to the head of the pin, and a raised surface or projection on the top of the coupler-head against which the elbow of the said link bears, the said parts operating substantially as and for the purposes set forth.

489,977. CAR-COUPLING. ALVIN C. MCCORD, Chicago, Ill. Filed Sept. 24, 1892. Serial No. 446,909. (No model.)



Claim.—1. In an automatic car-coupler, the combination with the coupler-head and the pivoted coupling-hook, of a lock, for securing and releasing the coupling-hook, and an intermediate lock-moving device, controllable from the coupling hook, and operating on said lock, under the closing movement of said coupling-hook, to move said lock out of the path of the lock-engaging portion of said coupling-hook, and to drop said lock when the coupling-hook has reached the extreme of its closing movement, thereby preventing frictional contact between the lock and the hook substantially as described and for the purpose set forth.

2. In an automatic car-coupler, the combination with the coupler-head and the pivoted coupling-hook, of a lock, for securing and releasing the coupling-hook, a cam surface carried by said lock, and a cam link or connection, connected to said pivoted coupling-hook, and engageable with said cam surface, to cam or move the said lock out of the path of the lock-engaging portion of the said coupling hook, under the closing movement of the same, and to drop said lock when the coupling hook reaches the extreme of its closing movement, substantially as and for the purpose set forth.

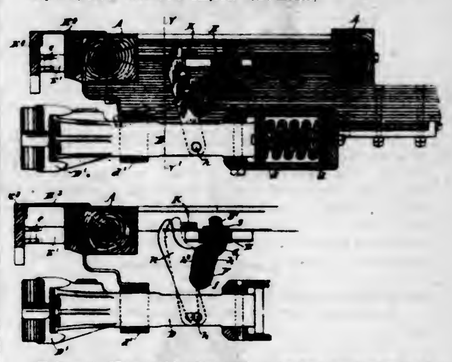
3. In an automatic car-coupler, the combination with the coupler-head and the pivoted coupling-hook, of a lock, for securing and releasing the said coupling-hook, a pair of cam surfaces carried by said lock, and a cam link or connection, connected to said pivoted coupling-hook, and engageable, in succession, with each of said pair of cam surfaces, one of said cam engagements being effected by a continuation of the unlocking or releasing movement of said lock and serving to open said coupling hook; and the other cam engagement being effected by the closing motion of the said coupling hook and serving to cam or move the said lock out of the path of the lock-engaging portion of said coupling hook, during the closing movement thereof, substantially as and for the purposes set forth.

4. In an automatic car coupler, of the class described, the combination with the lock seated for straight line movement in the coupler head, of the bell crank lever attached to the lock, by a slot and pin connection, having its upper end pivoted to the coupler and its lower end connected to a hand lever, substantially as described, whereby a pivotal movement of the bell crank lever will produce a straight line movement on the lock.

5. In a car coupler of the class described, the combination with the lock, the coupling hook, and the intermediate device operating to lift the lock on the closing movement of the hook, of a lock lifting lever, and a hand device for operating the same, having a connection with said lever for permitting the said lever to move independent of the hand device, substantially as and for the purpose set forth.

6. In a car coupler of the class described, the combination with the coupling hook E, of the lock H having the cam surface f^3, the rod or link H, connected to the hook at one end and operating on said cam surface f^3 at the other, for the purpose set forth, the bell crank G pivoted to the coupler and connected at its angle to the said lock, the hand lever B, and the link B' working through an eye on the lever G, so as to draw in one direction and slide in the other, substantially as and for the purpose set forth.

489,978. CAR-PLATFORM. ALVIN C. MCCORD, Chicago, Ill. Filed Sept. 24, 1892. Serial No. 446,910. (No model.)



Claim.—1. The combination with a buffing mechanism, and a coupling mechanism, of a pair of levers connecting the said parts, arranged to operate together over a common fulcrum, in the closing movement of the cars, to throw the draw-bars and the buffers, on each car, in opposite directions, until the strain is equalized, and to operate together over independent fulcrums, in the pulling strain on the couplers, to throw the buffers outward coincidently with the outward movement of the draw-bars, substantially as and for the purposes set forth.

2. The combination with a buffing mechanism and a coupling mechanism, of a lever mechanism connecting the said parts, consisting of the pair of fulcrum pieces F and K, fixed to the frame-work, the lever G, loosely pivoted at its lower end to the fulcrum-piece F, and connected at its upper end to the buffing mechanism, and the lever H, pivoted at its lower end to the draw-bar, pivotally connected to the lever G, at a point above the fulcrum-piece F, and fulcruming over the piece F, in the closing movement of the cars, and arranged to fulcrum against the piece K, at its upper end, under the pulling strain on the draw-bar—substantially as and for the purposes set forth.

3. The combination with the draw-bar D, of the buffer-mechanism, consisting of the equalizer E, the spring-seated buffer-rods E', and the continuous buffer-plate E², connected to the said rods by the knuckle joints *c*, and the intermediate lever-mechanism, connecting the said draw-bar and equalizer, consisting of the fixed fulcrum-pieces F and K, and the pivotally connected levers G and H, arranged and operating, substantially as described.

489,979. RAILWAY-FROG. JOHN MCKINNON, Chicago, Ill., assignor to William J. Morden, same place. Filed Mar. 22, 1892. Serial No. 426,004. (No model.)

Claim.—1. In a railway frog, the combination with the frog rails of an adjustable clamping device therefor comprising clamps having returned ends adapted to bear against the outer sides of the wing rails, through-bolts passing through the webs of the rails and provided

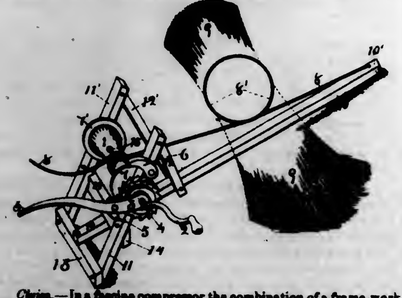
with eccentric tightening means adapted to be rocked around the bolts in order to bear upon the sides of the clamp ends nearest the point of the frog, substantially as described.



2. In a railway frog, the combination with the frog rails, of an adjustable clamping device therefor comprising a clamp having ends adapted to bear against the outer sides of the wing rails, through-bolts passing through the webs of the rails and provided with tightening nuts and eccentric washers mounted on the bolts and adapted to be rocked so as to bear upon the sides of the clamp ends nearest the point of the frog, substantially as described

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489,980. COMPRESSOR. DAVID HEALS, Fort Calhoun, Nebr. Filed Mar. 18, 1892. Serial No. 425,492. (No model.)



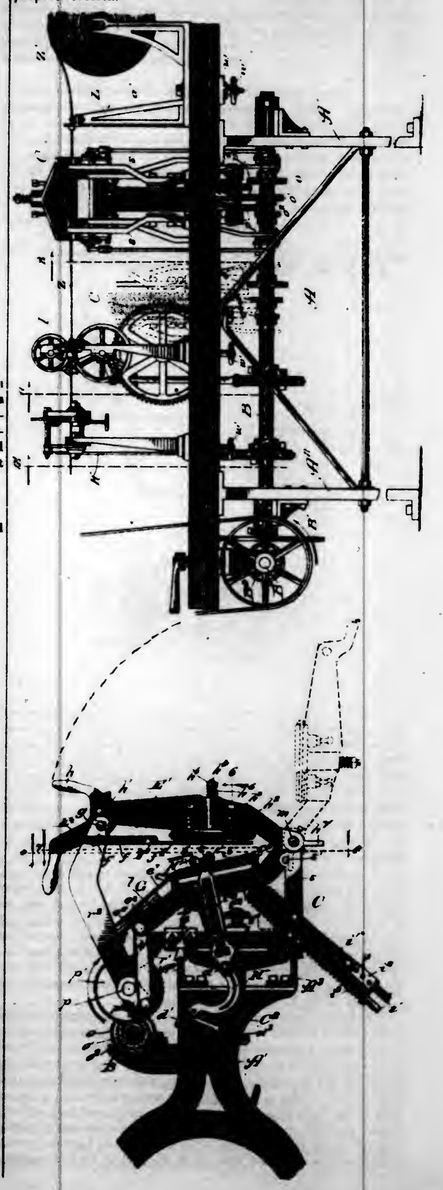
Claim.—In a fascine compressor the combination of a frame-work supporting a winding-drum and having a long spar projecting from near its base, the spar adapted to be thrust under the fascine between it and the ground, a rope one end attached to the extreme end of the spar, then carried around the fascine forming a single encompassing loop, the opposite end wound on the drum substantially as shown and described.

489,981. PRINTING-MACHINE. ALFRED C. BOSTS, Benton Harbor, Mich., assignor to Jerome Eddy, Flint, Mich., and Arthur J. Eddy, Chicago, Ill. Filed June 20, 1891. Serial No. 397,128 (No model.)

Claim.—1. In a printing machine for printing upon a continuous web, the combination with the supporting frame, of a printing press and intermittent web-feeder thereon, and means for regulating the relative speed of operation of the press and web-feeder, whereby the feeder may be caused to advance the web once or oftener, as desired, with each operation of the press, substantially as described.

2. In a printing-machine for printing upon a continuous web, the combination with the supporting frame, of a printing-press, web-feeder and web-cutter thereon, means for adjusting the relative speed of operation between the press and the web-feeder and web-cutter, and means for adjusting the amount of feed, whereby the relative speed of operation of the press and web-cutter, and the distance of travel of the web, with each operation, may be regulated as desired, substantially as described.

3. In a printing machine, for printing upon a continuous web, the combination with the main-frame and driving shaft, of a printing press, web-feeder and web-cutter mounted on the main frame and independently geared to the said shaft, and adjustable speed altering gear between the said shaft and printing press, substantially as and for the purpose set forth.



4. In an oscillating printing press, the combination of the frame C, supports s, r, on the frame, oscillating type-bed, vertically swinging lever E pivoted at one end to the support s, resting at its opposite end on the support r, and provided with laterally extending lugs k', platen carried by the lever E and a bifurcated lever F pivoted on the support r and provided at its bifurcated end with hooks to embrace the lever E and engage the lugs k', substantially as and for the purpose set forth.

5. In an oscillating printing press, the combination with the swinging type bed, of an ink-roller carrier to swing with the bed frame and means for varying, at will, the extent of sweep of the roller, substantially as and for the purpose set forth.

6. In an oscillating printing press, the combination with the supporting frame, of the vertically swinging type-bed frame having the downward projecting arms D^4, the roller carrying levers H, pivotally supported between their ends on the arms D^4, and adjustable vertically swinging links upon the supporting frame to which the levers H are pivotally connected at their lower ends, substantially as and for the purpose set forth.

7. In an oscillating printing press, the combination with the supporting frame having the downward extending arms C^3, of the vertically swinging type-bed frame having the downward extending arms D^4, roller carrying levers H provided in their ends with longitudinal slots d' and pivoted between their ends to the arms D^4, and longitudinally slotted rods d^8, adjustably and pivotally connected through their slots to the arms C^3, and adjustably and pivotally connected at their opposite ends to the levers H at the slots d', substantially as and for the purpose set forth.

8. The combination with the type-bed of a printing press, of an inking table, comprising a vibrating platform and rotating disk and means for transferring ink from said table to the type-bed, substantially as described.

9. In combination with the vertically swinging type-bed of an oscillating printing press, an inking table, oscillating with the type-bed, comprising a horizontally vibrating platform and rotating disk, and means for transferring ink from said table to the type-bed, substantially as described.

10. In an oscillating printing press, the combination with the supporting frame, of a vertically swinging type-bed, lever G' pivotally mounted on the type-bed frame and carrying an inking table comprising a platform c' and rotating disk c^2, cam-mechanism on the supporting frame in the path of the lever G' for imparting a horizontal vibrating motion to the said lever, and means for transferring ink from the table to the type-bed, substantially as and for the purpose set forth.

11. In a printing machine for printing upon a continuous web, the combination with the supporting frame, of a web-feeder and web-cutter, on the frame, a printing-press on the frame having a single type-bed, two or more ink-suppliers adjacent to the type-bed for the ink-roller to contact with simultaneously, means for adjusting the relative speed of operation between the press and the web-feeder and web-cutter, and means for adjusting the amount of feed, whereby the relative speed of operation of the press and web-cutter, and the distance of travel of the web with each operation may be regulated as desired, substantially as described.

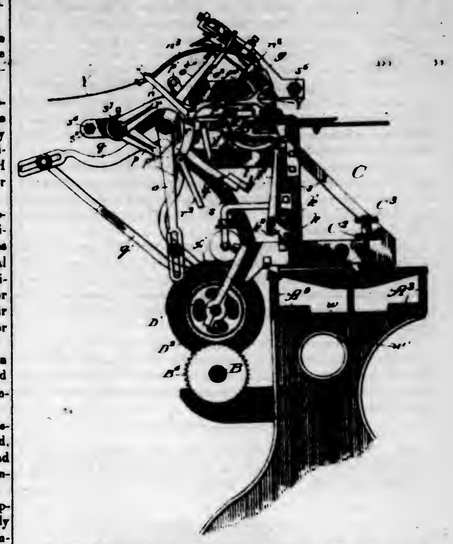
12. In a printing machine for printing upon a continuous web, the combination with the main-frame and shaft B, of an oscillating printing press adjustably mounted upon the main-frame, adjustable speed altering gear between the shaft B and printing press, and adjusting means, as the slotted sliding plates q on the press, for raising and lowering the press on the main-frame, substantially as and for the purpose set forth.

13. In a printing-machine for printing upon a continuous web, the combination with the main frame drive-shaft and printing press, of an adjustable intermittent feed for the web, comprising feed roller carrying shafts x^2 x^3, and a shaft x journaled in a frame on the main-frame, a large gear wheel x' on the shaft x, and a small gear-wheel on the shaft x^3, engaging each other, and a ratchet wheel x^9 and lever x^8 carrying a spring pawl x^{10} to engage the ratchet wheel, interchangeable upon either the shaft x or shaft x^2 and connected eccentrically with the drive-shaft, substantially as described.

489,982. STRINGING-MACHINE. ALFRED C. BOSTS, Benton Harbor, Mich., assignor to Jerome Eddy, Flint, Mich., and Arthur J. Eddy, Chicago, Ill. Filed June 20, 1891. Serial No. 397,134. (No model.)

Claim.—1. In a stringing machine the combination of a string feeder and threader, fastener applying mechanism and string engaging means for holding the string in position while the fastener is being applied, all arranged to operate substantially as described, said mechanism being connected with and operated from the driving power of the machine, substantially as set forth.

2. In a stringing machine, the combination of a feed for the string, operating to pass it through the article to be supplied with the string, catch-mechanism for the string, operating to draw it through the said article, and fastener applying mechanism for applying fasteners to the string to secure it in place on the article, and string engaging means for holding the string in position while the fastener is being applied, all actuated from the driving power of the machine to co-operate, substantially as described.



3. In a stringing machine, the combination of a feed for the string, operating to pass it through the article to be supplied with the string, catch-mechanism for the string, operating to draw it through the article, staple forming and driving mechanism for clasping the strings, and string engaging means for holding the strings in position while the staples are being applied thereto, all actuated from the driving power of the machine to co-operate, substantially as described.

4. In a machine for manufacturing strung sheets from a continuous web, the combination with the frame of the machine, and the driving power, of an intermittent feed for the web, sheet forming mechanism, and mechanism for applying strings to the sheets, and for positioning the strings and applying fasteners thereto, all mounted on the frame and actuated from the driving power of the machine to co-operate, substantially as described.

5. In a machine for manufacturing printed and strung sheets from a continuous web, the combination with the frame of the machine and the driving power, of an intermittent feed for the web, a printing press operative to print on the web, sheet forming mechanism, and mechanism for applying strings to the sheet, and for positioning the strings and applying fasteners thereto, all mounted on the frame and actuated from the driving power of the machine to co-operate, substantially as described.

6. In a machine for manufacturing strung tags from a continuous web, the combination with the main frame, the driving shaft, and intermittingly operating web-feeding mechanism, of a washer applying an eye forming mechanism, mechanism for applying strings to the tags, for positioning the strings and applying fasteners thereto, and corner cutting and tag severing mechanisms, all actuated from the said driving shaft to co-operate, substantially as described.

7. In a machine for manufacturing strung tags from a continuous web, the combination with the main frame, the driving shaft, and intermittingly operating web-feeding mechanism, of a washer applying and eye forming mechanism, a corner cutting and tag severing mechanism, and a mechanism for applying strings to the tags, positioning the strings, and applying fasteners thereto, each mounted on a separate movable support whereby it may be independently adjusted along the main-frame, and all actuated from the said driving shaft, to co-operate, substantially as described.

8. In a stringing machine, the combination with the frame and drive-shaft, of a feed for the string operating to pass the string through the article to be strung, grippers for the string, operating to draw the string through the said article, a cutter operating to sever the required length of string from the string-supply, string positioning mechanism and staple forming, driving and clinching mechanisms,

for fastening the string in place on the said article, all actuated from the said drive-shaft to co-operate, substantially as described.

9. In a stringing-machine the combination with the reciprocating needle, of a guide-tube and a clamp a^2 for the string movable with the needle, and reciprocating grippers for drawing the string through the guide tube, substantially as and for the purpose set forth.

10. In a stringing machine the combination of the needle and guide for the string, the cutter for severing the string from the string supply, the intermittingly operating string gripping and releasing clamp, and the tensioning clamps for engaging the opposite lengths of the string, each mounted on a separate oscillating lever, as set forth.

11. In a stringing-machine, the combination with the string feeder and threader, mechanism for positioning the strings, of an intermittingly operated staple wire feed, and staple forming, driving and clinching mechanisms, all actuated from the driving power of the machine to co-operate, substantially as described.

12. In a stringing machine, the combination with the stationary frame string feeder and threader, and fastener-applying mechanism, of an oscillating lever k^4, carrying spring-clamps i i' provided with guide projections i^3, and the clamp-spreader i^4 on the frame in the path of the projections i^3, as set forth.

13. In a machine for manufacturing strung sheets from a continuous web, the combination with the frame of the machine the driving power, intermittent feed for the web, and web cutting mechanism, of string applying and securing mechanism mounted on the main frame and adjustable thereon in a direction cross-wise of the frame, substantially as described.

14. In a stringing machine, the combination of the string threading mechanism and fastener applying mechanism, adjustable with relation to each other, and string engaging means for positioning the strings while the fasteners are being applied, substantially as and for the purpose set forth.

489,988. ELECTRIC CUT-OUT. WILLIAM B. POTTER, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed July 5, 1892. Serial No. 438,909. (No model.)



Claim.—1. A switch and fuse box, having a chamber provided with an opening through the wall of the box, a magnet located adjacent to said chamber, and a safety fuse in said chamber between the magnet and the opening, substantially as set forth.

2. A switch and fuse box, having a chamber provided with an opening through the wall of the box, a magnet adjacent to said chamber, and a safety fuse arranged at one side of the magnet near the opening, substantially as set forth.

3. The combination with the box having two chambers separated by a septum, of a cover provided with an extension or lug adapted to overlap the septum, one of said chambers having a lateral opening, substantially as set forth.

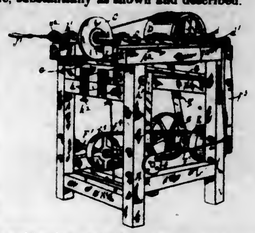
4. A switch and fuse box, having a chamber containing a switch, a second chamber having a lateral opening, a magnet embedded in said box below said second chamber, and a cover carrying a fuse arranged to occupy said second chamber at one side of the magnet and near the opening, substantially as described.

5. The combination with a box containing a switch, of a cover carrying a safety fuse, adapted to be received in a separate chamber in said box, the box having a septum and the cover having an overlapping lug, both lying between the fuse and the switch chamber, substantially as described.

6. In a switch and fuse box, the combination with a switch having a terminal O, of a magnet connected with a terminal O', and a cover carrying a safety fuse provided with contact plates adapted to bear upon the terminals O, O', the fuse lying at one side of the magnet in a chamber having a lateral opening, substantially as described.

489,984. GRINDING-MACHINE FOR SCARFING OR BEVELING SAWS. JOHN H. GREEN, Cincinnati, Ohio. Filed Sept. 2, 1892. Serial No. 444,897. (No model.)

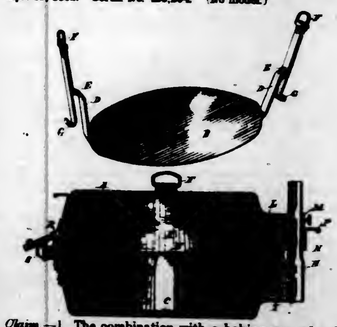
Claim.—1. In a machine for grinding beveled surfaces, the combination of the supporting frame in which the driving mechanism is mounted, a sliding frame mounted therein, the grinding wheel shaft mounted to slide in bearings secured upon the sliding frame, the grinding wheel secured upon said shaft between the bearings, the inclined bed-plate for holding the work to be beveled, arranged underneath the sliding frame a hand lever to reciprocate the grinding shaft in its bearings, and means, such as shown, to automatically reciprocate the sliding frame, substantially as shown and described.



2. The combination of the frame having upper guide rails A^1, the sliding frame carrying the grinding wheel fitted to slide in said rails, the shaft bearings secured upon said frame, the grinding wheel shaft fitted to slide in said bearings, the grinding wheel secured upon said shaft between said bearings, the inclined bed-plate G arranged under the grinding wheel and parallel with the sides of the sliding frame, the lever F, and means to rock it connected to the driving mechanism to automatically reciprocate the frame, and the hand lever J, fulcrumed on the frame and connected to the grinding wheel shaft, for the purpose of sliding the shaft in its bearings and carrying the grinding wheel back and forth across the edge to be dressed, substantially as hereinbefore set forth.

3. In a lap grinding and scarfing machine of the character described the combination, substantially as hereinbefore set forth, of the main frame, the sliding frame carrying the grinding wheel shaft mounted to slide in bearings secured thereon, the lever J to reciprocate said shaft in its bearings, the lever F fulcrumed upon the main frame and connected to the sliding frame, the lever, f^3, the crank wheel, f, and the connecting rods, f', f^3, to automatically reciprocate the sliding frame, and the inclined bed-plate G, vertically and angularly adjustable, for the purpose set forth.

489,985. BAKING-PAN. AUGUSTA RAMBEL, Alexandria, Va. Filed Apr. 15, 1892. Serial No. 429,294. (No model.)



Claim.—1. The combination with a baking pan, of a false bottom, having metallic strips pivoted at their ends to the center of its under side, and extended to its edge, and from thence upward, forming lifting handles and parting devices, substantially as specified.

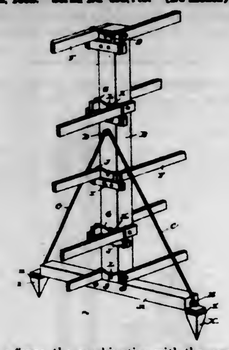
2. The combination with a false bottom adapted to fit within a pan, of the metallic strips secured to the lower side of said bottom, extended upwardly and bent as described to form clamps to secure the device to the pan, substantially as and for the purpose described.

3. The combination with the false bottom, and the strips secured to the lower side, and bent as described, of the ring handles secured within the upper bends of the strips, substantially as specified.

4. The combination with the pan and its vertical standard, of the cover provided with a socket at one side adapted to adjustably fit the standard to hold the cover in an adjusted position over the pan, substantially as specified.

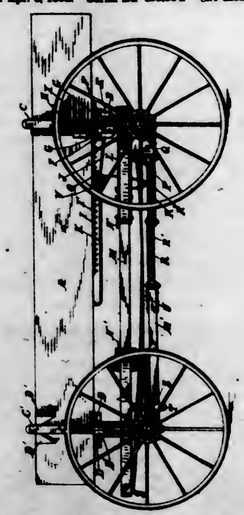
5. The combination with the pan, supporting standard, and cover, having a socket at one side fitted on the standard whereby the cover is adjustably secured above the pan, of the hasp and staple whereby the parts are adjusted to be fastened together, all constructed and arranged to operate substantially as described.

489,986. FENCE-POST. WILLIAM H. RISSLE, Van Buren, Ohio. Filed May 13, 1892. Serial No. 433,775. (No model.)



Claim.—In a fence, the combination with the vertical posts, of a series of right angularly disposed cross-bars rigidly secured to the posts and having their ends projecting beyond opposite sides thereof, the horizontal rails having their ends resting against opposite sides of the post opposite to each other and on the opposite projecting ends of said cross-bars, single locking wires secured at their ends to the projecting ends of said cross-bars beyond the rail ends and passed over the top of the opposite rail ends resting upon said bars, and staples engaging said locking wires between the rail ends and holding the same depressed to firmly bind the rail ends to said cross-bars, substantially as set forth.

489,987. DUMPING-WAGON. JUSTUS M. ROHAM, White Cloud, Mich. Filed Apr. 5, 1892. Serial No. 428,204. (No model.)



Claim.—1. In a wagon in combination with the box, the front and rear axles and the bolsters thereon; rolls on the rear bolster supporting the box; cleats on said box engaging the forward bolster, and a reach connecting the said axles and provided with an intermediate portion, consisting of four sections hinged in pairs, to swing in a horizontal plane and permit the ends of said reach to approach each other, substantially as described.

2. In a wagon in combination with the box, the front and rear axles and the bolsters thereon; and rolls on the rear axles supporting the box and traversing the under side thereof, and cleats attached to said box and engaging said forward bolster, a box or casing attached to the rear axle, and a reach connected to the forward axle and provided with one or more joints near its rear end and longitudinally movable in said box or casing, substantially as described.

3. In a wagon in combination with the box, the front and rear axles and the bolsters thereon, rolls on the rear axle supporting the box and traversing the under side thereof, said box detachably secured to the forward bolster, a box or casing attached to the rear axle, a reach connected to the forward axle, and longitudinally movable in said box or casing, and a supplementary reach, connected at its respective ends to the front and rear axles, and having jointed section pivoted to swing in a horizontal plane, substantially as described.

4. In a wagon in combination with the box and bolsters, bearing blocks on said bolster shafts journaled in said blocks, rolls on said shafts, tracks on said box engaging said rolls, rolls journaled in stakes at each side of said box, and mechanism to longitudinally move said box over said bolster, substantially as described.

5. In a wagon the combination of the front and rear axles of a box or casing attached to the rear axle, a reach attached to the forward axle, said reach having a jointed rear end longitudinally movable in said box or casing, and a supplementary reach attached to the rear axle at its rear and having a slot at its forward end, said slot traversed by the king bolt, substantially as described.

6. In a wagon in combination with the box and rear bolster, a shaft journaled on said bolster, rolls on said shaft traversing said box, links or straps attached to said box and arms pivotally connected at their respective ends to said shaft and links or straps, and traversing the latter, and mechanism for moving said box longitudinally upon said rear bolster, substantially as described.

7. In a wagon in combination with the box, bolsters and axles thereof, rolls on the rear bolster supporting said box, links attached to said box, arms pivoted to said bolster and links at their respective ends and traversing said links, cleats on said box engaging the forward bolster, a casing attached to the rear axle, a reach longitudinally movable therein and attached to the forward axle, and a stop chain connecting said box and one casing, and a fastening to temporarily secure said reach from moving in said casing, substantially as described.

8. In a wagon in combination with the box, bolsters, stakes and axles thereof, a shaft journaled on the rear bolster, rolls on said shaft supporting said box, rolls on the rear stakes engaging the sides of said box, cleats engaging the forward bolster, and oppositely inclined blocks engaging the forward stakes, links attached to said box, a rod traversing said links, arms attached at their respective ends to said rod and to said shaft, a casing attached to the rear axle, and a reach longitudinally movable in said casing, and attached to the forward axle, a pulley attached to the rear axle, a rope attached to the forward axle, extending from thence around said pulley and thence forward to the front of the wagon, and adapted to attach to the team at its forward end, substantially as described.

9. In a wagon, the combination of a box or casing attached to the rear axle, a reach pivoted to the forward axle at one end and longitudinally movable in said casing, and a supplementary reach attached to the rear axle at one end and having a slot near the other end engaging and traversing the king bolt, substantially as described.

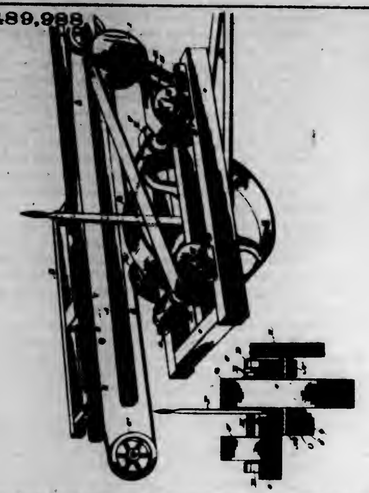
10. In a wagon the combination of a box or casing attached to the rear axle, a reach pivoted upon the king bolt near one end and having a jointed portion near the other end, longitudinally movable in said casing, and a reach attached to the rear axle at one end, and passing below the forward axle at the other end and hangers attached to said upper reach and a roll journaled between said hangers and supporting said lower reach, substantially as described.

489,988. SAWMILL-CARRIAGE FEED. FRANK O. SCHROEDER, Oak Harbor, Ohio. Filed Feb. 5, 1892. Serial No. 420,438. (No model.)

Claim.—1. In a feeding mechanism, the combination with a fixed frame; of opposite parallel drive shafts journaled upon said fixed frame, drive pulleys mounted upon one end of said drive shafts, an off-standing idler pulley supported at one end of the frame adjacent to and above one of the drive pulleys, a belt passing around one side of both of said drive pulleys and the adjacent idler near one of the pulleys, friction wheels mounted on said drive shafts at their other ends and within the frame, a movable drum shaft loosely journaled beneath said frame, a drive pulley mounted upon the drum shaft and working between said friction wheels, a cable drum upon one end of the drum shaft, and means for swinging said drum shaft to move the drive wheel thereon alternately against said friction wheels, substantially as set forth.

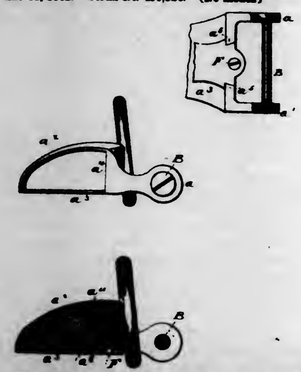
2. In a feeding mechanism, the combination with a fixed frame of opposite parallel drive shafts, drive pulleys at one end of said shafts, opposite reversely rotating friction wheels mounted on said drive shafts within the frame, an off-standing idler supported adjacent to and above one of said drive pulleys, a drive belt passing around one side of both of said drive pulleys and around said idler, an oscillating eccentric bearing block mounted under said fixed frame and provided with an eccentric perforation and an upwardly extending operating lever, a

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drum shaft loosely journaled near its outer end beneath said frame and having its other inner end mounted in said eccentric perforation, a drive wheel mounted upon said drum shaft and adapted to work between and against said friction wheels, and a cable drum mounted upon the outer end of the drum shaft, substantially as set forth.

489,989. TUG-CLIP FOR HAMES. JAMES SCOTT, Bethany, Cal. Filed June 11, 1892. Serial No. 436,330. (No model.)



Claim.—1. The hame tug clip A having ears a a' apertured to receive a screw-bolt B and one threaded to form a nut therefor, a cavity to fit snugly around the hame, a side a^4 with interior thread to receive a screw F and a movable elastic side a^5 with a countersunk bolt-hole; whereby the clip may be opened at the side so as to be adjusted on the hame or taken therefrom or inserted thereon.

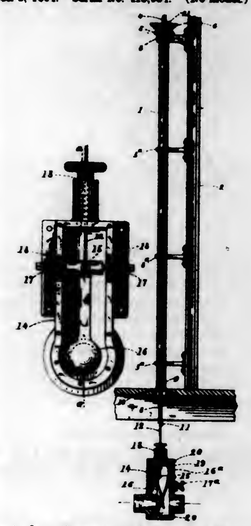
489,990. TELEPHONE. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed June 1, 1892. Serial No. 435,702. (No model.)



Claim.—1. A carbon telephone transmitter disk electrode provided with inclined concentric rings forming deflecting surfaces, substantially as described.

2. In a telephone transmitter, the combination, with a diaphragm, of granulated carbon resting in contact therewith, an electrode suspended within said granulated carbon, said electrode having inclined deflecting impact surfaces, whereby the particles of carbon are caused to circulate upon the vibration of said diaphragm, substantially as described.

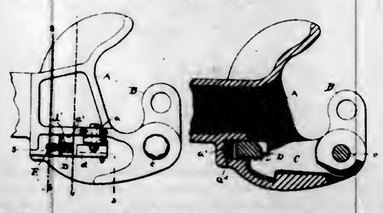
489,991. THERMOSTAT. IRVING M. SEAMAN, Buffalo, N. Y. Filed Dec. 3, 1891. Serial No. 413,951. (No model.)



Claim.—1. In a thermostat, the combination with a bracket or support, of a rod of suitable material, as hard rubber, suspended from said bracket, the lower end of which rod is connected with a regulator, a screw bolt in the end of the rod the end of which projects above the bracket, a thumb nut upon the bolt above the bracket, an index head above the nut and a set screw through the head, the lower end of which engages with the nut and locks the parts in the desired position, substantially as set forth.

2. In a thermostat, the combination, with the valve case provided with a removable cover, and a perforation in the top, a valve pivotally secured within the case, an adjustable spring within the case with its free end bearing against the valve, a set screw for adjusting said spring, and a rod through the opening in the top of the case, the lower end of which is rigidly secured to the valve, and a suitable regulator rod secured to the upper end thereof, substantially as set forth.

489,992. CAR COUPLING. JOHN SIMPSON, Cleveland, Ohio. Filed Sept. 5, 1892. Serial No. 445,056. (No model.)



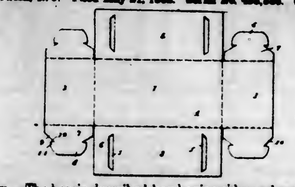
Claim.—1. A car coupler head having an opening at one side thereof from top to bottom to accommodate the locking latch, and an ear above said opening on the top of the head to which the latch is pivoted, said opening having a flat wall a' on one side against which the latch bears when the coupler is closed, in combination with a flat sided latch pivoted on said ear a and extending through to the bottom of said head, and connections with the said latch above the said head to operate the latch, substantially as described.

2. A coupler head having a vertical opening at one side for the locking latch, said opening having parallel side walls extending through the head and a recess in its rear into which the latch is

adapted to swing when open, in combination with a gravity locking latch D having substantially straight sides corresponding to the sides of the opening in the head, and its upper end pivoted on the ear a above the outside of the said opening, and the knuckle arm C constructed to automatically engage said locking latch, substantially as described.

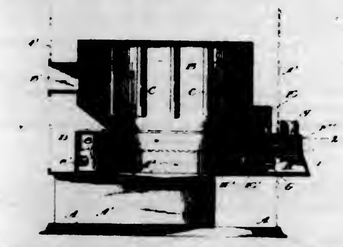
3. The coupler head having an opening at one side extending entirely through said head and an ear above said opening on the outside of the head, in combination with a locking latch pivoted on said ear, said latch having a straight upper portion with a shoulder, d, below its pivot point corresponding to the top of the opening through the head, and an opening, d', through said latch constructed to affix the operating chain therein, substantially as described.

489,993. FOLDING PAPER BOX. CHRISTIAN A. SPITTELL, New Brunswick, N. J. Filed May 21, 1892. Serial No. 433,598. (No model.)



Claim.—The herein described box having sides and ends adapted to be folded as set forth, the sides being formed with slots which have upper and lower converging end-walls to reduce the front parts of said slots to a less length than the rear portions of the same, and the ends having flaps provided with tongues that have overhanging shoulders that are adapted to engage said slots and the shoulders brought to bear against the front reduced portions of said slots to lock the ends closed, the said flaps fitting over and strengthening the corners of the box, the said shoulders being of greater length from one to the other across the tongues than the outermost walls of the said slots, substantially as described.

489,994. HOT-AIR FURNACE. EMIL R. STARCK, Corning, N. Y., assignor to the Corning Manufacturing Company, same place. Filed July 26, 1892. Serial No. 441,257. (No model.)



Claim.—1. A hot-air furnace provided with a vertical diaphragm in its combustion-chamber, a radiating chamber around its fire-pot with a horisontal diaphragm, and an interposed chamber communicating with the combustion and radiating chambers, with an air chamber between the radiating chamber and the combustion chamber, as set forth.

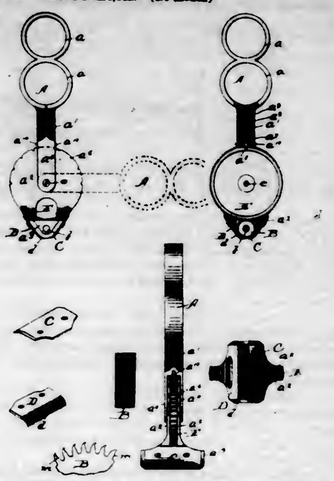
2. The combination with the combustion chamber and the radiating chamber having horizontal diaphragm an automatic gas outlet, of a chamber into which said outlet communicates and which in turn communicates with the chimney, as set forth.

3. The combination with the combustion chamber having tapered portion in proximity to the fire-pot, of a radiating chamber around the fire-pot having communication with the combustion chamber, and vertical flues within the combustion chamber with their lower ends extending through the tapered portion of the combustion chamber, as set forth.

4. The combination with the fire-pot, and the combustion chamber having tapered lower portion and vertical flues, of a horizontally-divided radiating chamber around the fire-pot and communicating with the combustion chamber, as set forth.

5. The combination with the fire-pot and horizontally-divided radiating chamber, of a combustion chamber having tapered lower portion and extending over the area covered by the radiating chamber and communicating therewith, as set forth.

489,995. RAZOR. JOHN A. STRAUBEL, La Vergne, Ill. Filed Mar. 30, 1892. Serial No. 426,922. (No model.)



Claim.—1. The improved razor consisting of a handle, a rotary toothed cutting cylinder an inclosing support for said cylinder, an opposing stationary blade, a guard D, and means for actuating said cylinder, substantially as set forth.

2. The improved razor consisting of a handle, a rotary toothed cutting cylinder an inclosing support for said cylinder, an opposing stationary blade, and a gear adapted to be rotated by a thumb or finger pressing upon its periphery and acting to give motion to the cylinder, substantially as set forth.

3. The improved razor consisting of a handle, a rotary toothed cutting cylinder, an opposing stationary blade, and a gear adapted to be rotated by a thumb or finger pressing upon its periphery and meshing with the cylinder, substantially as set forth.

4. The combination in a razor, of a rotating toothed cutting cylinder, and a gear for actuating the same meshing directly with the cutting teeth of the cylinder, substantially as set forth.

5. The razor having a rotary cutting cylinder, means adapted to be actuated by the thumb for rotating said cylinder, and a handle having eyes for the fingers, whereby the thumb is left at full liberty to actuate the cylinder, substantially as specified.

6. The combination in a razor of cutting devices of the kind described, a suitable housing for the same, and a handle adjustably secured to the housing, substantially as set forth.

7. The combination in a razor, of a handle having eyes to receive the fingers, a gear supported in the handle and adapted to be rotated by the thumb, and a rotary cutting cylinder receiving motion from said gear, substantially as specified.

8. The combination in a razor of the adjustable handle, the cheeks a^3 having notches a^4 in their periphery, and the locking catch a^5, substantially as specified.

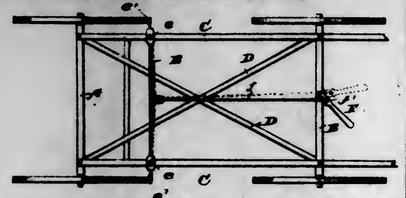
9. The razor the cutting devices whereof consist of the inclosed rotary cutting cylinder and an opposing stationary blade or edge, substantially as specified.

489,996. EYEGLASSES. RICHARD STRAUSS, Jr., New York, N. Y. Filed May 2, 1892. Serial No. 431,652. (No model.)



Claim.—The bow b and lens frames a secured to the bow by studs c, the ends of the bow being extended and formed with guide slots f, and the guards or grippers d held at their upper ends in said guide slots in combination with the springs d^3 placed upon the ends of the bow to press against the upper ends of the guards substantially as described.

489,997. VEHICLE-BRAKE. JOSEPH R. SWIFT, Buffalo, N. Y. Filed Sept. 2, 1892. Serial No. 444,572. (No model.)



Claim.—1. The combination with the brake beam composed of spring material, of rigid supports engaging the same adjacent to its ends, and operating devices connected to said beam between its supports for moving it in a direction away from the wheels, whereby the portions of said beam outside of said supports will be moved toward the wheels, substantially as described.

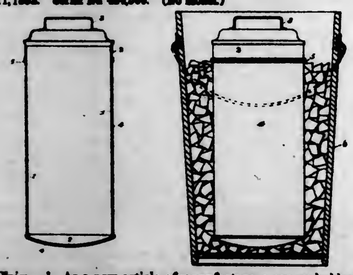
2. The combination with the brake beam composed of spring material supports engaging the same, adjacent to its ends, slotted connections between said beam and said supports and devices for operating said beam, connected to the same intermediate said supports, substantially as described.

3. The combination with the brake beam composed of spring material supports engaging the same adjacent to its ends, shoes on said beam on the portions of the same outside of said supports, and devices for operating the beam connected thereto intermediate said supports, substantially as described.

4. The combination with the brake beam composed of spring material, supported adjacent to its ends, of the pivoted operating lever, a link connecting said lever with the brake beam intermediate said supports, said lever being provided with locking shoulders, substantially as described.

5. The combination with the brake beam composed of spring material disposed vertically, and having portions adjacent to its ends bent into a horizontal plane for engaging its supports, the wheel engaging portions of said beam being located outside of said supports and operating devices for said brake beam connected to the same intermediate its supports, substantially as described.

489,998. ICE-CREAM CAN. GEORGE A. TRUMBOUR, Brooklyn, assignor to the Crandall & Godley Company, New York, N. Y. Filed Mar. 11, 1892. Serial No. 424,999. (No model.)



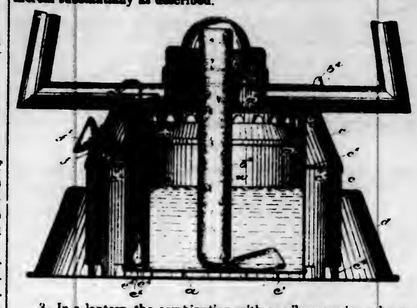
Claim.—1. As a new article of manufacture, a can or holder for ice cream or other substances, composed of sheet metal material, having its main body portion provided with a sheet metal covering presenting a surface of non-oxidizable material, substantially as shown and described.

2. As a new article of manufacture, a can or holder for ice cream or other substances, composed of sheet metal material, having its main body portion provided with a sheet metal covering of galvanized iron, substantially as described.

489,999. LANTERN. ALBERT S. VRAIN and JOSEPH H. BEVAN, Galena, Ills. Filed Mar. 26, 1892. Serial No. 426,699. (No model.)

Claim.—1. In a lantern, the combination with a main oil reservoir into which the wick enters; of an auxiliary over-flow reservoir, divided into chambers by perforated partitions, and fixed to and communicating with the upper portion of the said main oil reservoir, substantially as described.

2. In a lantern, an oil reservoir; having a closed top, a burner attached to the same and having a wick tube extended through said top and entering the said oil reservoir; substantially to the bottom thereof, combined with an auxiliary reservoir concentric with and surrounding said oil reservoir, and rigidly attached thereto and communicating with the upper portion of the latter, by a series of openings therein substantially as described.



3. In a lantern, the combination with an oil reservoir, and a surrounding auxiliary reservoir communicating with the latter through openings in its upper portion, combined with an annular lip arranged within said oil reservoir and immediately below said openings, substantially as described.

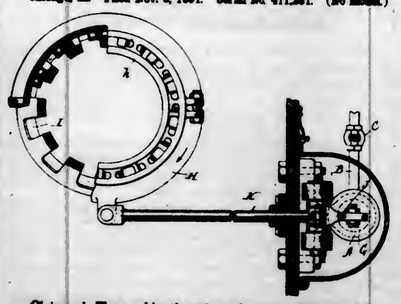
4. In a lantern, an oil reservoir into which the wick enters, and an auxiliary reservoir communicating with the said oil reservoir through openings in its upper portion, and an annular lip arranged within said oil reservoir immediately below said openings, combined with a pump to draw the oil from the auxiliary reservoir and discharge the same into said oil reservoir, substantially as described.

5. In a lantern, the combination with a main oil reservoir, having openings at the tops of its walls and a concentric surrounding wall rigidly attached thereto forming an auxiliary reservoir, said reservoirs being in direct communication at their upper ends, through said openings of a filling tube opening into the main oil reservoir but extended through the walls forming said auxiliary reservoir, substantially as described.

6. In a lantern, the combination of the oil reservoir *a*, the auxiliary reservoir *c* divided into chambers by the perforated partitions *c'*, and the surrounding annular reservoir *d* in communication with said auxiliary reservoir, all constructed and arranged substantially as shown and described.

7. In a lantern an oil reservoir, a surrounding auxiliary reservoir *c*, communicating with the oil reservoir through openings in its upper portion, combined with a pump cylinder *e* extending through said oil reservoir and communicating with said auxiliary reservoir, at the bottom thereof, a plunger e^3, and valve e^2 therein, and an outer annular reservoir at the base of and communicating with said auxiliary reservoir, to operate, substantially as described.

490,000. VARIABLE-EXHAUST NOZZLE. HUGH R. WALKER, Chicago, Ill. Filed Nov. 9, 1891. Serial No. 411,291. (No model.)



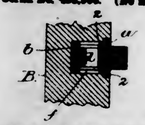
Claim.—1. The combination of an exhaust nozzle of variable area, a boiler-furnace whose fire is urged thereby; a steam cylinder connected to the movable portion of said exhaust nozzle and having a spring loaded piston; a steam pipe connecting said cylinder and said boiler: and a loaded valve in said pipe cutting off the admission of steam to said cylinder when the pressure is below a predetermined limit, and adapted to be opened and held open by the steam pressure when it exceeds such limit, substantially as described.

2. The combination of an exhaust nozzle of variable area; a boiler-furnace whose fire is urged thereby; a steam cylinder connected to the movable portion of said exhaust nozzle and having a spring loaded piston; a steam pipe connecting said cylinder and said boiler; and a loaded valve in said pipe having the valve proper and its stem of the same diameter whereby it cuts off the admission of steam to said cylinder when the pressure is below a predetermined limit and is held open by the steam pressure when it exceeds such limit, substantially as described.

3. The combination with an engine and boiler, of a variable exhaust-nozzle by which the furnace fire is urged, comprising a tip having a series of openings near its end and a ring surrounding said tip and having a series of grooves on its inner surface corresponding to the openings in said tip; forming tubular passages for the steam extending to the upper end of the nozzle and means for revolving said ring on said tip, substantially as described.

4. The combination of the nozzle-tip I having a series of openings near its upper end; the ring H having a series of grooves on its inner surface corresponding to the openings in the tip I forming tubular passages for the steam extending to the upper end of the nozzle; the cylinder A connected by the pipe B to the boiler; the piston E in said cylinder connected to said ring H and having a spring F by which it is depressed and the valve C controlling the admission of steam to said cylinder A, substantially as described.

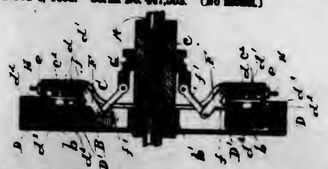
490,001. SASH-HOLDER. WILLIAM R. WALKER, Concord, N. H. Filed July 5, 1892. Serial No. 439,066. (No model.)



Claim.—1. A sash stop or lock consisting of a frame, a movable block extended through said frame and beveled at its upper end, and having limiting flanges or projections at its inner side, and springs to normally support the block, substantially as described.

2. A sash stop or lock consisting of a frame comprising front and back plates, and guide studs on the back plate, a movable block extended through the front plate and having limiting flanges or projections at its inner side to normally bear against the front plate, recesses in the block to receive the guide studs when the block is pressed inward, and springs upon said studs normally supporting the block, substantially as described.

490,002. FRICTION-CLUTCH. JESSE WALRATH, Racine, Wis. Filed Oct. 1, 1892. Serial No. 447,802. (No model.)



Claim.—1. In a clutch the combination with the movable clutch plates, of a rocking lever connected at one end with one of said plates and at the other with a clutch operating device, said lever having a fulcrum projection engaging the other plate, substantially as described.

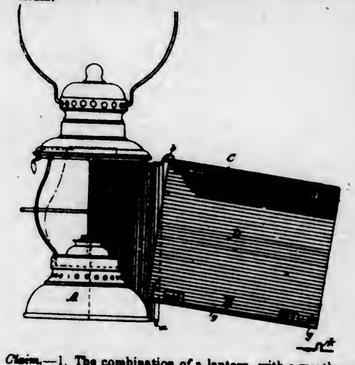
2. In a clutch the combination with the movable clutch plates for engaging opposite sides of a clutching flange, of a rocking lever having one end connected to one of said plates, a link which when the clutch is out of operation is in a position inclined to the axis of rotation of the clutch, connected to the other end of said rocking lever, and to a shipping collar, said lever having a fulcrum projection bearing against the other clutch plate, whereby said plates will be forced into engagement with said flange when moved into a radial position, substantially as described.

3. In a clutch the combination with the main body provided with a radial way, of the sliding clutch plates having base portions engaging said way, the rocking lever having one end adjustably connected with the outer clutch plate, a shipping collar, a link which when the clutch is out of operation is in a position inclined to the axis of rotation of the clutch, connected to the other end of said rocking lever, and to said shipping collar, said lever having a fulcrum projection engaging the inner clutch plate and the retraction springs for said plates, substantially as described.

4. In a clutch the combination with the clutch frame provided with a radial way, of the sliding clutch plates having slotted base portions engaging said way, the base of one plate overlapping the base of the other, a lug projecting from said clutch frame engaging the slots of said bases, for limiting the movement of the same, a rocking lever having one end connected with one of said clutch plates, a shipping collar connected with the other end of said rocking lever, said lever being provided with a fulcrum projection engaging the other clutch plate, substantially as described.

5. The combination with a revolvable shaft and a pulley provided with a projecting hub mounted thereon, of a clutch frame provided with clutch plates adapted to clamp a clutching flange between them, and having a sleeve engaging said shaft, a shipping collar movably mounted on said sleeve and having parts for engaging the periphery of said hub, operating devices for said clutch plates and links, which when the clutch is out of operation, are in a position inclined to the axis of rotation of the clutch, connecting said operating devices with the hub engaging parts of said collar, whereby the said collar may be moved to bring said parts into engagement with the hub, and said links into radial positions with respect to said shaft, substantially as described.

490,003. WEATHER-GUARD ATTACHMENT FOR LANTERNS. JOHN P. WARNER, Washington, D. C., assignor of five-eighths to Anthony F. Havarth, same place. Filed Apr. 13, 1892. Serial No. 428,826. (No model.)



Claim.—1. The combination of a lantern, with a weather guard attachment, consisting of a hood, to which four sides, forming a rectangular receptacle are hinged,, the lower one of which produces the rest for the hand, and the upper one having a transparent material in it, to observe writing to be done, all arranged substantially as shown and specified.

2. The combination of a lantern A, having a hood B secured to it, with the weather guard attachment, consisting of the top C, provided with the isinglass *e*, and hinged to said hood, the side D hinged to said top, and the bottom E, hinged to said side, and supported on the flange *f*, having a pin *h* and hinged to said top C, all arranged as and for the purpose set forth.

3. The combination of a lantern A, having a hood B, to which the four folding sides C, D, E and F are hinged, and the said side E provided with pins *i* and spring catch *k*, for securing the sides in a folded position on the side of the hood, all as herein shown and described.

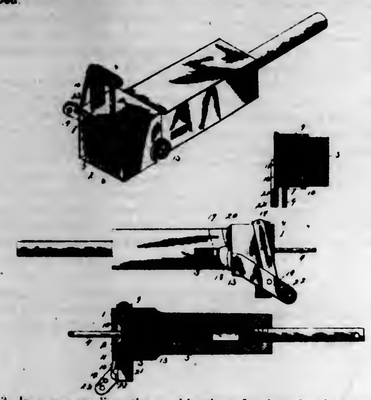
4. In combination with a railroad lantern, of a weather guard attachment, consisting of a bottom or hand rest, to which the sides are attached, and a hinged top, provided with transparent material, and a holding device for the paper, as specified.

490,004. CAR-COUPLING. SAMUEL G. WILSON, Lake Mill, N. Y. Filed Oct. 24, 1892. Serial No. 449,697. (No model.)

Claim.—1. In a car coupling the combination of a draw-head, a spring actuated follower block arranged within the same, a vertically disposed coupling pin, a vertically disposed guide mounted on the draw-head and connected with the coupling pin, a rock shaft journaled on the draw-head and having a forwardly extending arm connected with the guide and adapted to be engaged by the follower block to hold the pin in an elevated position preparatory to coupling, substantially as described.

2. In a car coupling the combination of a draw-head, a spring actuated follower block arranged therein, a coupling pin, a guide bar arranged parallel with the coupling pin and connected therewith, a

spring actuated rock shaft having a forwardly extending arm connecting with the guide bar and adapted to be engaged by the follower block to hold the pin in position for coupling, substantially as described.



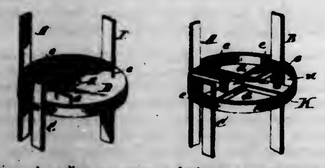
3. In a car coupling, the combination of a draw-head, a spring actuated follower block arranged therein and having an outwardly extending arm, a coupling pin, a guide bar arranged parallel with the coupling pin and connected with the same, a spring actuated rock shaft journaled in the draw-head and having forwardly extending arm connected with the guide bar and provided with a heel arranged to be engaged by the arm of the follower block, substantially as described.

4. In a car coupling, the combination of a draw-head, having a longitudinal slot, a spring actuated follower block arranged within the draw-head and having an outwardly extending arm extending through the slot and terminating at its outer end in a head, a coupling pin, a guide bar arranged parallel with the coupling-pin and provided at one end with an arm connected with the coupling pin, and spring actuated rock shaft mounted in the draw-head and having a forwardly-extending arm provided at its inner end with an oppositely beveled heel to be engaged by the arm of the follower block and having its front end connected with the guide-bar, substantially as described.

5. In a car-coupling, the combination of a draw-head, a spring actuated follower block having an outwardly extending arm, a coupling pin, a guide bar arranged parallel with the coupling pin and mounted on the draw-head and provided at one end with an arm connected with the coupling pin, a rock shaft journaled on the draw-head and having a forwardly extending arm provided at its inner end with a heel to be engaged by the arm of follower block and a link bar having one end connected with the guide bar and provided at its other end with a slot and connected thereat with the arm of the rock shaft, substantially as and for the purpose described.
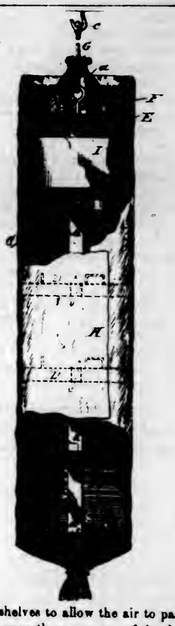
6. In a car coupling, the combination of a draw-head, a spring actuated follower block arranged therein and provided at its front end with recesses arranged at right angles, a rock shaft having a forwardly extending arm and adapted to be engaged by the follower block, a coupling pin arranged in the draw-head and adapted to fit in one of said recesses, a guide bar arranged parallel with the coupling pin, and connected therewith, and also connected with the forwardly extending arm of the rock shaft, and a link adapted to fit in the other recess, substantially as described.

490,005. DEVICE FOR COOLING MILK OR BUTTER. JOSEPH L. WILDER, Mexia, Tex. Filed Aug. 27, 1892. Serial No. 444,273. (No model.)

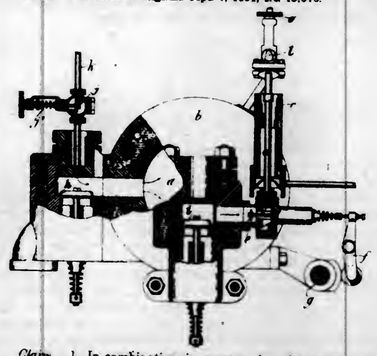


Claim.—A cooling apparatus or device consisting of an upright frame, horizontal shelves rigidly connected thereto and having outlets for the circulation of air and supports for retaining the food receptacles above the shelves to allow the air to pass between them, a water-vat supported upon the upper one of the shelves and having a central tubular opening, a jacket of absorbent material inclosing the frame of the device and the top thereof resting in the water in the vat, and means for suspending the apparatus or device from a ceiling, bracket, or other stationary object, substantially as and for the purpose set forth.

490,005.



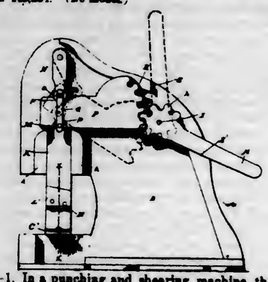
490,006. GAS OR SIMILAR MOTOR ENGINE. HUGH WILLIAMS, Stockport, England. Filed June 29, 1892. Serial No. 438,367. (No model.) Patented in England Sept. 7, 1891, No. 15,078.



Claim.—1. In combination, in a gas engine, the igniting tube, a tubular extension connected therewith and opening to the outside air, a valve arranged to control the egress of the mixture from the igniting tube to the outside and the back pressure valve controlling the port leading from the extension to the outside and arranged to prevent the inlet of cold air to the said extension and igniting tube, substantially as described.

2. In combination, in a gas engine, the igniting tube, the extension connected therewith and having a port to the outside air a valve at said port to prevent the inlet of air, the said extension comprising a pump cylinder and the means therein acting as a valve to open and close communication between the inlet port from the igniting tube and the valved outlet port from the cylindrical extension said means consisting of the piston having the passage *r*, therein, substantially as described.

490,007. PUNCHING AND SHEARING MACHINE. SAMUEL G. WILLIAMS and JAMES C. DUNCAN, Cincinnati, Ohio. Filed Sept. 7, 1892. Serial No. 445,231. (No model.)

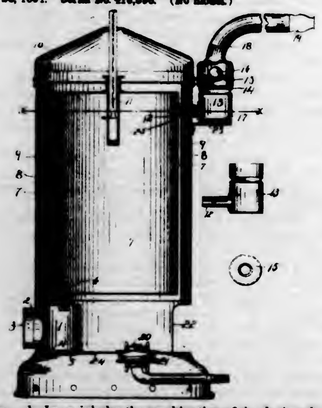


Claim.—1. In a punching and shearing machine, the combination of a swinging link, a longitudinally movable shear-shaft aligned with said link, a power-arm fulcrumed near one end to the adjacent ends of the link and shear-shaft, and provided at the other end with a toothed-segment concentric with the fulcrum upon the shear-shaft, and a toothed operating lever meshing with said segment, substantially as specified.

2. In a punching and shearing machine, the combination of a longitudinally movable shear-shaft, an oppositely disposed swinging link, a power-arm provided in opposite sides with sockets to receive heads upon the opposing ends of said shear-shaft and link, a toothed-segment upon the opposite end of the power-arm, concentric with the head upon the shear-shaft, as described, and an operating lever having a toothed head to mesh with said segment, substantially as specified.

3. In a punching and shearing machine, the combination with the parallel side plates and parallel guides arranged there-between, of the vertically-movable shear-shaft, provided at its upper end with a head, a swinging link provided at its lower end with a head, a power arm provided with sockets to receive said heads and having a toothed-segment concentric with the head upon the shear-shaft, the lifting strap, and the operating-lever, substantially as specified.

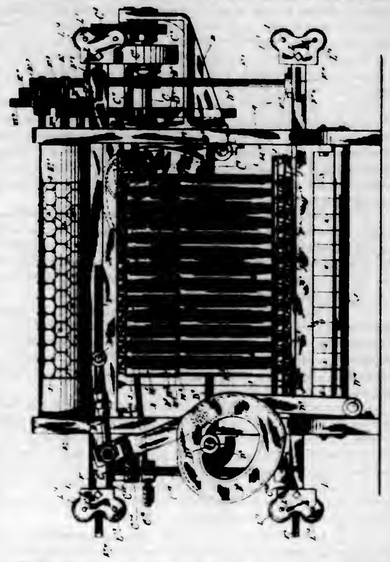
490,008. INHALER. ROLAND R. WOODWARD, Chicago, Ill. Filed Dec. 26, 1891. Serial No. 416,396. (No model.)



Claim.—1 In an inhaler the combination of the drying chamber 7 and the circular casings 8 and 9, with the circular jar, the connection pipe 6 connecting said jar with the drying chamber 7, the plate 2 attached to the side of the jar and forming a circular opening in it, the perforated plate covering said opening, the plate 5 at the bottom of said jar so cut as to form a circular aperture for the admission of air, and the perforated plate 4 covering said aperture all substantially, as and for the use set forth.

2. In an inhaler, the combination of the drying chamber 7 and the circular casings 8 and 9 with the removable cup 13 for holding medicaments, the pipe connecting said cup with the drying chamber, the asbestus wafer in the bottom of said cup, the perforated plate 14, the ball seat 15 and the ball 16, said seat being so formed as to prevent escape of vapors when the ball is in place and the inhaling tube 18 provided with a mouth piece and attached to the cup all substantially as shown, and for the use set forth.

490,009. WIRE-NETTING MACHINE. GEORGE F. WRIGHT, Palmer, Mass. Filed July 5, 1888. Serial No. 279,106. (No model.)



Claim.—1. In a wire netting machine, the combination with the wire twisting spindles, substantially as described, for twisting the wires forming the mesh, of a stationary step concentric with said twisting spindles and a cop holding tube for holding a cop of wire, said tube being attached to said stationary step, substantially as described.

2. In a wire netting machine, the combination, with the upper and lower wire twisting spindles composed of segmental spindles having semi-gears by which the spindles are rotated, of a step concentric with said spindles and resting in a bearing in the lower twisting spindle and held from turning by locking mechanism, substantially as described, a cop holding tube attached to said stationary step, and a sliding telescopic cover, substantially as described.

3. In a wire netting machine, the combination with the twisting spindles for twisting the wires, of a cop-holding tube for holding the cop of wire, said tube being open at the top end, and a sliding cover sliding upon the body of said cop-holding tube, substantially as described.

4. In a wire netting machine, the combination of twisting spindles for twisting the wires, a stationary step, a cop holding tube attached to said step and open at its upper end to receive the cop, and a sliding telescopic tube, sliding over the open end of the cop holding tube, and concentric with said twisting spindles, substantially as described.

5. In a wire netting machine, the combination with twisting spindles for twisting the wires, of a cop holding tube for holding the cop of wire and provided with a projecting pin, and a sliding telescopic cover provided with a slot inclosing said pin as the cover is moved upon the cop holding tube and a notch in which the pin enters to sustain the cover when the cop holding tube is closed, substantially as described.

6. In a wire netting machine, the combination with twisting spindles for twisting the wires, of a stationary step concentric with said twisting spindles, a cop holding tube attached to said step, a semi-cylindrical projection on said step and entering a step bearing in one of said spindles, and a semi-cylindrical block fitting said semi-cylindrical projection and filling the step bearing, substantially as described.

7. In a wire netting machine, the combination with twisting spindles for twisting the wires, of a stationary step provided with notches, a cop-holding tube attached to said step, and vibrating latches which

engage the notches in said step and hold the same from rotating, substantially as described.

8. In a wire netting machine, the combination with a cop-holding tube for holding a cop of wire, of a supporting step attached to said cop-holding tube and provided with notches upon opposite sides, and vibrating latches on opposite sides of said step, having connected operating mechanism by which said latches are alternately engaged and disengaged from said notches, substantially as described.

9. In a wire netting machine, the combination with a cop-holding tube attached to a supporting step, a supporting step provided with notches, vibrating latches engaging said notches alternately, twisting spindles for twisting the wires, composed of half spindles having semi-gears, reciprocating carriages provided with semi-circular bearings in which said half spindles are journaled, and sliding racks sliding in longitudinal ways in said carriages and engaging said semi-gears, substantially as described.

10. In a wire netting machine, the combination of a cop holding tube, a stationary supporting step supporting said tube, twisting spindles concentric with said cop holding tube, a sliding telescopic cover sliding over the end of said cop tube, reciprocating carriages having journal bearings for said twisting spindles, and racks having a reciprocating motion and engaging gears upon said twisting spindles, substantially as described.

11. In a wire netting machine, the combination with twisting spindles for twisting the wires provided with passages for the wire, and a cop holding tube placed concentrically with said twisting spindles, of oblique tubes attached to said spindles and communicating with the wire passages therein, whereby the wire is held from contact with the cop holding tube, substantially as described.

12. In a wire netting machine, the combination with the lower spindle composed of the half spindles G^3, G^3 and the upper spindles composed of the half spindles G, G′, and a cop tube placed concentrically with said spindles, of the oblique tubes G^9, G^{15}, by which one of the wires is held from contact with the outside of the cop holding tube, substantially as described.

13. In a wire netting machine, the combination with a cop holding tube for holding the cop of wire, and a supporting step supporting said cop holding tube and provided with notches to receive the retaining latches, of the parallel shafts J′, hooked latches attached to said shafts, and connected operating mechanism by which said shafts are alternately rocked, substantially as described, whereby all the latches upon one side are engaged or disengaged with the notches in said steps, substantially as described.

14. In a wire netting machine, the combination with the cop tube, supporting steps having notches to receive the retaining latches, and vibrating retaining latches, substantially as described, of the shield plates J^{13}, having openings J^{14}, as and for the purpose set forth.

15. In a wire netting machine, the combination with the twisting spindles for twisting the wires and reciprocating carriages carrying said spindles, of the cop-holding tubes held concentrically with said spindles, supporting steps supporting said cop-holding tubes and provided with notches, posts J attached to the reciprocating carriages, shafts J′ journaled in said posts, latches J^3 attached to said shafts whereby said latches are moved by the reciprocating motion of said carriages to correspond with said supporting steps, substantially as described.

16. In a wire netting machine, the combination with the twisting spindles for twisting the wires and cop-holding tubes held concentrically with said spindles, of supporting steps supporting said cop-holding tubes and provided with notches, rocking shafts J′ having radial arms J^3, pins J^4, J^{40} entering slots J^5, sliding plate J^7 having the upright section J^6 provided with slots J^8, reciprocating carriages carrying the twisting spindles, actuating eccentrics carried in said reciprocating carriages by which a transverse sliding motion is imparted to the plate J^7, giving a rocking motion to the shafts J′ and vibrating the latches J^3, substantially as described.

17. In a wire netting machine, the combination with the cop-holding tubes and their supporting steps, of the carriage F^2 carriage F^3, shaft J′ supported in posts J attached to said carriage, said shafts having radial arms J^3 and pins J^4, J^{40}, of the yoke plate J^7 having an upright section J^6 provided with slots J^8 inclosing the pins J^4, J^{40}, the half eccentrics K^4, K^5, K^6, carried in said carriages and straps J^6 and J^{11}, by which the yoke plate J^7 is held upon said carriages and permitted a transverse motion upon the carriage F^2 and a longitudinal movement upon the carriage F^3, substantially as described.

18. In a wire netting machine the cop tube supporting steps H, having notches H^2, shafts J′, attached latches J^3, radial arms J^3, pins J^4, J^{40}, carriages F^2, F^3, sliding rack F^5, yoke J^7 having upright section J^6 provided with slots J^8, eccentrics composed of the half eccentrics K^4, K^5, K^6, provided with semi-gears arranged to be en aged at the proper time by the rack F^5, causing the rotation of the eccentric, transverse sliding motion of the yoke J^7 and rocking of the shafts J′ combined, substantially as described.

19. In a wire netting machine, the carriages F, F′ sliding in ways and having bearings for a series of twisting spindles, of the twisting spindles composed of the half spindles G, provided with a wire passage G^{15} and a concentric head G^{14}, and G′, provided with wire passage G^{15} and oblique tube G^{16}, cop holding tube H^4, and sliding telescopic cover H^3 sliding over the end of the cop-holding tube and fitting the head G^{14}, substantially as described.

20. In a wire netting machine, the combination with the stationary steps H supporting the cop-holding tubes and provided with notches H^2, of the rocking shafts J′ journaled in posts J attached to the carriages F^2, F^3, carriages F^2, F^3 provided with bearings for the lower spindles, lower spindles composed of the half spindles G^3, G^3 supporting the steps H, radial arms J^3 and pins J^4, J^{40} attached to the shafts J′, and a slotted plate sliding transversely across the carriages and engaging the pins J^4, J^{40} so as to rock the shafts J′ and latches J^3 attached to said rocking shafts, substantially as described.

21. In a wire netting machine, the combination of a cop-holding tube held from rotation and placed concentrically with the twisting spindles, a sliding telescopic cover sliding on said tube, an upper twisting spindle provided with a head rotating within said sliding cover, and a lower twisting spindle rotating concentrically to said cop-holding tube, substantially as described.

22. In a wire netting machine, the combination with a series of wire twisting spindles provided with pinions, of an actuating rack provided with a laterally projecting arm, vibrating lever pivoted upon the rigid portion of the machine, connecting rod connecting the vibrating lever with said laterally projecting arm, and an actuating cam by which the actuating rack is reciprocated to rotate the twisting spindles, while the wires are being twisted and by which the rack is held from rotating the spindles while the wires are being shifted, substantially as described.

23. In a wire netting machine, the carriages F, F′, F^2, F^3 arranged in pairs, carrying wire twisting spindles and having a reciprocating movement along ways combined with an actuating shaft journaled in bearings attached to the rigid portion of the machine, said shaft having an oscillating motion at regular intervals, gears carried upon said shaft engaging racks on said carriages, and racks attached to said reciprocating carriages, whereby a similar and simultaneous movement is imparted to both pairs of reciprocating carriages, substantially as described.

24. In a wire netting machine, the combination with two pairs of reciprocating carriages carrying the wire twisting spindles, of racks attached to said carriages, a shaft journaled in fixed bearings, gears upon said shaft engaging the racks upon said carriages, a radial arm attached to said shaft, and an actuating cam by which through connecting mechanism an intermittent oscillating motion is imparted to said shaft, substantially as described.

25. In a wire netting machine, the combination with two pairs of reciprocating carriages, carrying the wire twisting spindles and having racks attached thereto, of the shaft C^{12}, gears C^{13} and C^{20}, radial arm C^{12}, connecting rod C^{11}, vibrating lever C^9, and actuating cam C^8, as and for the purpose set forth.

26. In a wire netting machine, the combination with the ways for supporting the reciprocating carriages, and reciprocating carriages sliding along said ways and carrying the twisting spindles, of the rolls F^{13} and stop pins F^{14} by which the motion of said rolls is limited, substantially as described.

27. In a wire netting machine, the reciprocating carriage F, having a notch F^{16}, combined with a carriage F′ and bar F^{16} entering said notch, whereby the motion of both carriages is limited, substantially as described.

28. The carriages F, F′ carrying wire twisting spindles and a rack F^5 with actuating cam, vibrating lever and connecting rod to move said rack, take up roll E′ and train of gearing to rotate the same, comprising the gears from C^3 to E^3, inclusive and driving shaft C, all combined and operating substantially as and for the purpose set forth.

29. The driving shaft C, shaft D^4, intermediate gearing comprising the gears C^3 to D^3, inclusive, bevel gears D^3, D^4, shaft D^7, cam D^8, lever D^9, connecting rod D^{11}, and rack F^5, combined with a series of wire twisting spindles, substantially as described.

30. In a wire-netting machine, the combination with a series of wire twisting spindles, and a rack having an intermittent reciprocating motion whereby the twisting spindles are actuated and said rack being provided with teeth upon its upper and lower sides, of gears engaged by the upper and lower teeth of said rack and held in a fixed position during the reciprocating motion of said rack, but rotating loosely upon studs, and springs with one end held rigidly and the other end rotated by the rotation of said gears, whereby the torsional resistance of said springs is made to resist the momentum of said racks, substantially as described.

31. In a wire-netting machine, the combination of a series of wire twisting spindles, an actuating rack having a reciprocating motion, a gear engaging said rack and a spiral spring with its torsional resistance applied to resist the rotation of said gear as effected by the reciprocating motion of said rack, whereby the momentum of said rack is checked at the end of its motion, substantially as described.

32. In a wire netting machine, the combination with a series of wire twisting spindles, a reciprocating rack by which they are actuated, a stud supporting frame attached to said rack, a stud held in said frame, a gear turning loosely around said stud and engaging said rack, and a spiral spring having one end rigidly held and the other end so applied to said gear that the torsional resistance of the spring will act to check the momentum of the actuating rack, substantially as described.

33. In a wire netting machine, the combination with a carriage F and rack F^5, of plate L, stud L′, washer L^7 held from turning upon said stud, spring L^9 having one end held in said washer, and a gear engaging said rack, and intermediate connecting mechanism between said gear and said spring, substantially as described, whereby the spring is wound so its torsional resistance shall check the momentum of the rack, substantially as described.

34. In a wire netting machine, the combination with carriage F and rack F^5 of plate L attached to said rack, stud L′ held by said plate, spring L^9 with one end rigidly held and the opposite end held in a plate L^{11}, plate L^{11} turning loosely about said stud, disk L^{16} provided with a spur L^{15} and pin L^{16}, and gear L^{12} engaging said rack and provided with holes L^{17} and pins L^{18}, substantially as described.

490,010. LOOM-SHUTTLE. JAMES M. DUNN, Harlan, Iowa. Filed July 16, 1892. Serial No. 440,204. (No model.)



Claim.—1. The combination with a hollow shuttle body open at one end, of a cap adapted to close said open end, a tension bar, and a spring serving to secure said cap to the shuttle body, and create a tension on the said tension bar substantially as set forth.

2. The combination with a hollow shuttle body opened at one end, and having depression *g*, of a cap adapted to close the open end of said shuttle body, and a tension bar carried by said cap and adapted to work in said depression *g* substantially as and for the purpose set forth.

3. The combination with a hollow shuttle body, and a cap for closing the opened end of said shuttle body, of a tension bar carried by one of the said parts and provided with approximately parallel prongs *b* to give proper direction to the weft thread and retain the same in proper position, substantially as described.

4. The combination with a hollow shuttle body having one end open and provided with depression *g*, of a cap having a reduced portion to enter the open end of said shuttle body and provided with notch *b′* and transverse channel b^3, a tension bar pivotally connected to the cap and adapted to work in the notch *b′* and depression *g* and a spring pivotally supported between its ends in the channel b^3 and adapted to press upon the tension bar and enter the said notch *b′*, substantially as described for the purpose specified.

490,011. ELECTRIC METER. FERNANDO J. DIEHLE, Peabody, Mass. Filed Nov. 21, 1891. Serial No. 412,669. (No model.)

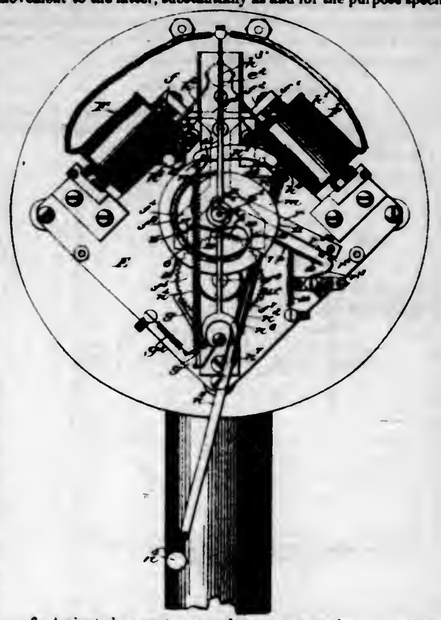
Claim.—1. A contact arm, and a prime actuator therefor, combined with a movable contact to co-operate with said contact arm, and actuating mechanism to impart to said contact an intermitting movement with a greater movement between some of the intermissions than between others, substantially as described.

2. A contact arm, and an actuator to impart a rotary movement thereto, combined with a rotary movable contact to co-operate with said contact arm, and mechanism controlled by the closure of a circuit by said contact arm and contact to impart to said contact an intermitting rotary movement with a greater movement between some of the intermissions than between others, substantially as described.

3. A pivoted contact arm, and an actuator therefor, combined with a pivoted contact carrying arm the pivotal axis of which is parallel to the pivotal axis of the contact arm, a contact carried by the said carrying arm, and to engage with said contact arm and mechanism controlled by the electrical engagement between said contact arm and contact to impart to the latter an intermitting movement with a greater movement between some of the intermissions than between others, substantially as described.

4. A pivoted contact arm, and an actuator to impart an irregular movement thereto, combined with a pivoted contact-carrying arm, a contact thereon to co-operate with said contact arm, a rotating shaft and a cam thereon to move said contact-carrying arm, substantially as described.

5. A pivoted contact arm, and an actuator to impart an irregular movement thereto, combined with two movable contacts between which said contact arm normally moves, a rotatable staff, and mechanism actuated by electrical engagement of the contact arm with one or the other of said contacts to rotate said staff uniformly in one or the other direction, and devices intermediate said staff and contacts, whereby uniform movement of the former will impart a variable movement to the latter, substantially as and for the purpose specified.



6. A pivoted contact arm, and an actuator to impart an irregular movement thereto, combined with a pivoted contact-carrying arm d^3, contacts *d*, *d′* thereon to co-operate with said contact arm, a rotating staff *d′*, a cam *e* thereon, and the arm d^3, plate d^5, and a screw to separate said arm and plate, substantially as described.

7. In a telemetric device, a contact arm and an actuator therefor, two contacts to co-operate with said contact arm, a staff, and mechanism controlled by the electrical engagement of said contact arm with one or another of said contacts to effect the rotation of said staff in one or the other direction, a pivoted recording arm, and devices intermediate the said arm and staff to move the former by the latter and arranged to permit a predetermined movement of the staff prior to the movement of the recording arm thereby, substantially as and for the purpose specified.

8. In a telemetric device, a contact arm and an actuator therefor, two contacts to co-operate with said contact arm, a staff, and mechanism controlled by the electrical engagement of said contact arm with one or another of said contacts to effect the rotation of said staff in one or the other direction, a cam on said staff, and a recording arm moved by said cam as the latter is rotated by said staff, substantially as described.

9. In a telemetric device, a contact arm and an actuator therefor, two contacts to co-operate with said contact arm, a staff, and mechanism controlled by the electrical engagement of said contact arm with one or another of said contacts to effect the rotation of said staff in one or the other direction, a cam on said staff having a cam surface and a concentric surface, and a recording arm moved by said cam as the latter is rotated by said staff, substantially as described.

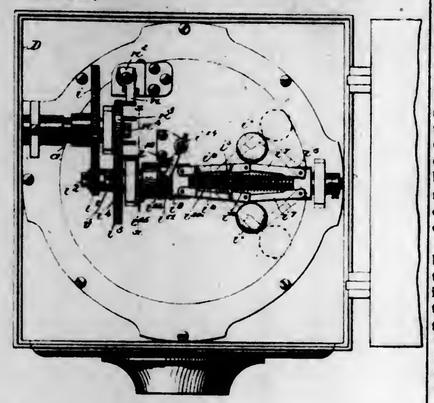
10. In a telemetric device, the combination of the following instrumentalities, viz:—an automatically-movable contact arm, two movable contacts to co-operate with said contact arm and between which said contact arm normally moves, two electro-magnets in circuit respectively with said movable contacts, armatures for said magnets, and a staff rotated by movement of the same, a recording device actuated by said staff, and devices intermediate said staff and movable contacts, whereby the latter are moved by the former, substantially as described.

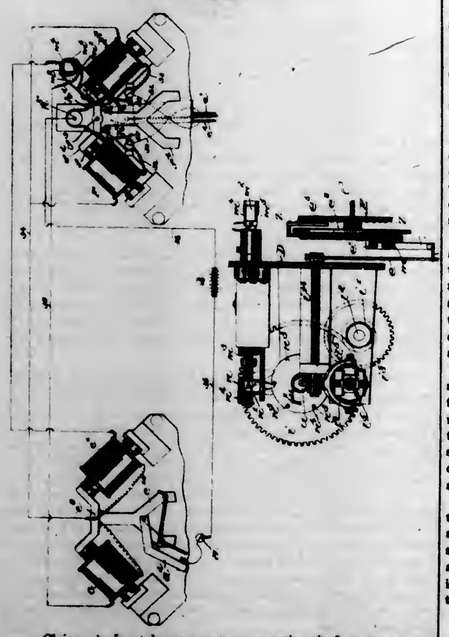
11. In a telemeter system, a clock mechanism, and a spur wheel forming a part thereof, combined with a roll provided with a pinion having spur teeth which rest in mesh with the teeth of the spur wheel

of the clock mechanism in a manner to permit the said pinion to be readily removed from mesh with the said wheel, and fixed journal bearings for said roll which permit the roll to be removed from its bearings and to remove its pinion from mesh with its supporting wheel at will, a marking device, and a recording sheet therefor moved by said roll, substantially as described.

12. The combination with a marking device, a roll, fixed journal bearings in which said roll is removably mounted, and an endless recording sheet passed about said roll, of a roll suspended in said recording sheet, and vertical guideways for said suspended roll, an entrance opening for said vertical guideways through which the suspended roll may be removed from the guide-ways for the application of a new recording sheet substantially as described.

490,012. ELECTRIC TELEMETER-TRANSMITTER. FERNANDO J. DIBBLE, Peabody, Mass. Filed Nov. 21, 1891. Serial No. 412,670. (No model.)





Claim.—1. In a telemeter system, a rotating shaft, a contact arm moved by variations in the speed of rotation of said shaft, a movable contact, an electro-magnet in circuit with said contact, its armature, and an indicating device actuated by movement of said armature, substantially as described.

2. In a telemeter system, a rotating shaft, a contact arm moved by variations in the speed of rotation of said shaft, a movable contact, an electro-magnet in circuit with said contact, its armature, an indicating device actuated by movement of said armature, and a device controlled by, and to indicate the changes in, the direction of rotation of said shaft, substantially as described.

3. In a telemeter system, a rotating shaft, a contact arm moved by variations in the speed of rotation of said shaft, two movable contacts between which said contact arm moves, two transmitting magnets in circuit respectively with said contacts, two receiving magnets, armatures therefor, and an indicating device controlled by movement of said armatures, and a switch operated by changes in the direction of rotation of said shaft, to determine which of the receiving magnets shall be controlled by the respective transmitting magnets, substantially as described.

4. In a telemeter system, a rotating shaft, a contact arm moved by variations in the speed of rotation of said shaft, two movable contacts between which said contact arm moves, two transmitting magnets in circuit respectively with said contacts, armatures for said magnets, a longitudinally-movable spindle, two contacts arranged upon each of two opposite sides thereof, the diagonally-opposite contacts being in circuit with each other, two contact springs spanning said spindle and adapted when vibrated by said armatures to act upon two of the opposite contacts not in circuit with each other when said contacts are in one position, and to act upon the other two opposite contacts not in circuit with each other when said latter contacts have been moved into position between the said springs, two receiving magnets in circuit respectively with the two pairs of contacts in circuit with each other, and an indicating device controlled by said receiving magnets, substantially as described.

5. In a telemeter system, a rotating shaft, a contact arm moved by variations in the speed of rotation of said shaft, two movable contacts between which said contact arm moves, two transmitting magnets in circuit respectively with said contacts, armatures for said magnets, the springs m, m', the sliding spindle m^3 moved by changes in direction of rotation of said shaft, the diagonally-arranged insulated contact plates m^4, m^5, formed to present contacts 8, 9, 10, and 11, two receiving magnets in circuit respectively with said contact plates, and an indicating device controlled by said receiving magnets, substantially as described.

6. In a telemeter system, a rotating shaft, a disk thereon carrying a pin, a longitudinally-movable spindle, a dog flexibly connected thereto and lying in the path of movement of said pin, and adapted to move said spindle in one or the other direction according as the pin strikes the dog upon one or its other side, and a switch device operated by movement of said spindle, substantially as and for the purpose specified.

7. In a telemeter system, a rotating shaft, a disk thereon carrying a series of pins, a longitudinally-movable spindle, a spring-controlled dog pivoted thereto and having a limited vibratory movement, said dog being acted upon by the pins on said disk to cause movement of the spindle upon change of direction of rotation of the disk, and an electric switch device operated by movement of the said spindle, substantially as and for the purpose specified.

8. In a telemeter system, a rotating shaft, the governor balls $i^\times$, and a contact arm moved by movement of said balls toward and from their axis of rotation, two movable contacts between which said contact arm moves, two transmitting magnets in circuit respectively with said contacts, armatures for said magnets adapted by their movements to move said contacts in one or the other direction, and an indicating device also controlled by movement of said armatures, substantially as described.

9. In a telemeter system, a rotating shaft, the governor balls $i^\times$, and a contact arm moved by movement of said balls toward and from their axis of rotation, two movable contacts between which said arm moves, two transmitting magnets in circuit respectively with said contacts, armatures for said magnets, a staff rotated by movement of said armatures, and a cam thereon to move said contacts by rotation of said staff, and an indicating device controlled by movement of said armatures, substantially as described.

10. In a telemeter system, a revolving member, a shaft, an electrically-controlled clutch mechanism between said member and shaft, a contact arm moved by variations in the speed of rotation of said shaft when caused to rotate by said member, a movable contact, and an electro-magnet in circuit therewith, its armature, and an indicating device also at a distant point actuated by movement of said armature, substantially as described.

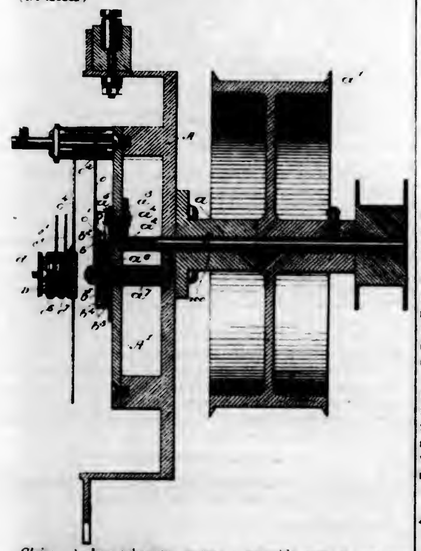
11. In a telemeter system, a revolving member, a shaft, a clutch mechanism between said member and shaft, an electro-magnet controlled from a distant point to operate said clutch mechanism, a transmitter operated by said shaft, and an indicating instrument located at said distant point and controlled by said transmitter, substantially as described.

12. In a telemeter system, a rotating member, a shaft, and a clutch mechanism between the two controlled from a distant point, a controlling magnet to operate the said clutch mechanism, a contact arm moved by variations in the speed of rotation of said shaft when caused to rotate by said member, a movable contact and electro-magnet in circuit therewith, its armature, and an indicating device located at said distant point and connected electrically with and actuated by said armature, substantially as described.

13. In a telemeter system, a rotating member, a shaft, and a clutch member between the same, a controlling magnet to operate the said clutch mechanism, a contact arm moved by variations in the speed of rotation of said shaft when caused to rotate by said member, a movable contact and electro-magnet in circuit therewith, its armature, an indicating device located at said distant point and connected electrically with and actuated by said armature, and a circuit-controller located at said distant point and in circuit with said controlling magnet, to operate substantially as described.

14. In a telemeter system, a rotating shaft, a hub i^6 fast thereon, sliding sleeve i^9, toggle links connecting the same, and the governor balls connected with said links, having weak springs i^{10}, $i^{10\times}$ interposed between said hub and sleeve, a contact arm moved by said sleeve, a movable contact to co-operate with said contact arm, an electro-magnet in circuit with said contact, its armature, and an indicating device actuated by movement of said armature, substantially as described.

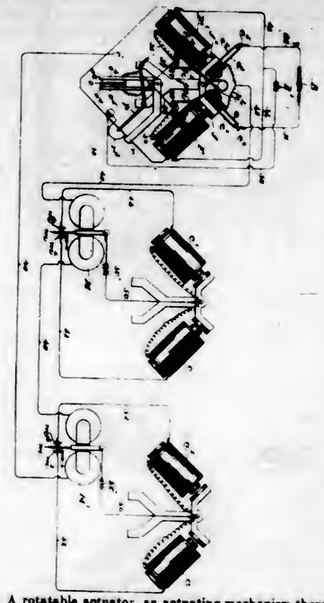
490,013. ELECTRIC TELEMETER-TRANSMITTER. FERNANDO J. DIBBLE, Peabody, Mass. Filed Nov. 21, 1891. Serial No. 412,671. (No model.)



Claim.—1. In a telemeter system, a movable contact arm, two co-operating contacts between which said contact arm moves, two transmitting magnets arranged in local circuit respectively with said contacts, a battery for said local circuit, and armatures for said magnets, combined with a main line circuit, a battery therefor, polarized relays therein, and receiving devices controlled thereby, and a circuit-closer and pole-changer also in said main line and operated by movement of the armatures of said transmitting magnets, substantially as described.

2. In a telemeter system, a movable contact arm, two co-operating movable contacts between which said contact arm moves, two transmitting magnets arranged in local circuit respectively with said contacts and having their armatures connected to move said contacts, combined with a pole-changer operated by said armatures, a main line circuit controlled thereby, polarized relays in said main line, and receiving devices controlled thereby, substantially as described.

3. In a telemeter system, a movable contact arm, two co-operating contacts between which said contact arm moves, two transmitting magnets arranged in circuit respectively with said contacts, a battery for said circuit, armatures for said magnets, two pairs of contact springs moved by said armatures, one pair being connected with one end of the main line circuit and the other pair being connected with the other end of the said circuit, and co-operating contacts for said two pairs of contact springs connected respectively with the opposite poles of a main line battery, to operate substantially as described.

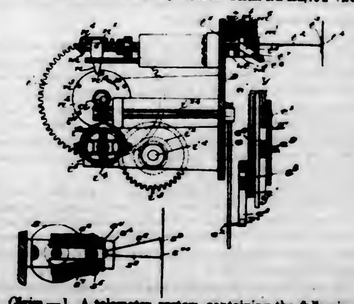


4. A rotatable actuator, an actuating mechanism therefor, combined with a contact arm pivoted to rotate about the axis of said actuator, and a spring connected with said actuator and acting against said contact arm at each side, substantially as described.

5. A rotatable actuator and actuating mechanism therefor, combined with a contact arm pivoted to rotate about the axis of the said actuator, a spring connected with said actuator and acting against said contact arm at each side, and a device actuated by said shaft to relieve the said contact arm from the action of the spring at either side to permit the spring at the opposite side to move the arm, substantially as described.

6. A rotatable shaft, an actuator, and a wheel on said shaft carrying a laterally-extended pin, combined with two disks loosely journaled on said shaft and connected by a spring, two pins on the peripheries of said disks arranged respectively upon opposite sides of said laterally-extended pin, and a pivoted contact arm also provided with a pin extended between the pins on the peripheries of said disks, substantially as described.

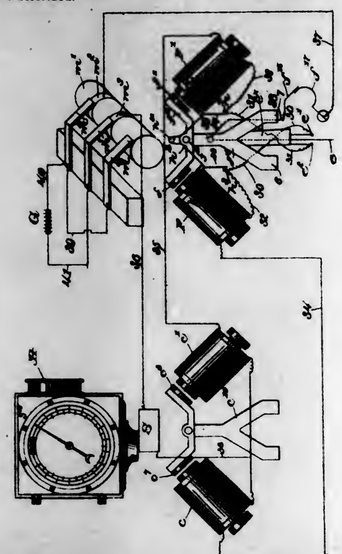
490,014. ELECTRIC TELEMETER SYSTEM. FERNANDO J. DIBBLE, Peabody, Mass. Filed May 12, 1892. Serial No. 432,704. (No model.)



Claim.—1. A telemeter system containing the following instrumentalities, viz:—a rotating shaft; two transmitting magnets respon-

dive respectively to increase and decrease in speed of rotation of said shaft; an indicating device controlled by said magnets, and an annunciator actuated by changes in the direction of rotation of the said shaft; substantially as described.

2. In a telemeter system, the combination of a rotating shaft, a contact arm moved by variations in the speed of rotation thereof, a movable contact, an electro-magnet, its armature, a speed indicating device actuated by movement of said armature, and an annunciator actuated by changes in the direction of rotation of said shaft, substantially as described.



3. In a telemeter system, the combination of a rotating shaft, a pin rotated thereby, a contact arm moved by variation in the speed of rotation of said shaft, two movable contacts, two electro-magnets, their armatures, and a speed indicating device actuated thereby, a movable spindle, a dog flexibly connected thereto, and adapted to be struck by said pin upon one or the other side according as the rotation of said shaft is in one or the other direction to move said spindle, and an annunciator actuated by said spindle, substantially as described.

4. The combination of a rotating shaft, a pin rotated thereby, a movable spindle having a dog adapted to be engaged by said pin to move the spindle whenever the direction of the rotation of the shaft is changed, and an annunciator actuated by said spindle, substantially as described.

5. The combination of a rotating shaft, a disk thereon carrying a pin, a longitudinally movable spindle *m*, a dog *n*, flexibly connected thereto, a rock-shaft *t*, actuated by said spindle, and an annunciator moved by said rock-shaft, substantially as described.

6. A rotating shaft, a pole changing device actuated by changes in the direction of rotation of said shaft, an electro magnet in circuit with the said pole changing device, and an annunciator actuated by said magnet, substantially as described.

7. A telemeter system containing the following instrumentalities, viz:—a rotating shaft; two transmitting magnets responsive respectively to increase and decrease in speed of rotation of said shaft; armatures for said transmitting magnets; two receiving magnets, the circuits through which are controlled by the said transmitting magnets; a speed indicating device actuated thereby; a device actuated by changes in the direction of the current through the said receiving magnets; and an annunciator controlled by changes in the direction of the currents; substantially as described.

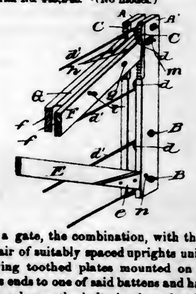
8. A telemeter system containing the following instrumentalities, viz:—a rotating shaft; two transmitting magnets responsive respectively to increase and decrease in speed of rotation of said shaft; a pole changer actuated by changes in the direction of rotation of the said shaft; a polarized magnet; and an annunciator controlled thereby, substantially as described.

9. In a telemeter system, a rotating shaft, a contact arm moved by variations in the speed thereof, two movable contacts, two transmitting magnets, two receiving magnets in circuit therewith, and an indicating device actuated thereby, a polarized magnet in circuit with said receiving magnets, an annunciator actuated thereby, and a pole changing device for said magnet actuated by changes in the direction of rotation of said shaft, substantially as described.

10. In a telemeter system, a rotating shaft, an annunciator actuated by changes in the direction of rotation thereof, a contact arm moved by variations in the speed of said shaft, two movable contacts, two transmitting magnets, two receiving magnets in circuit therewith, and an indicating device actuated thereby, a polarized magnet in circuit with said receiving magnets, an annunciator actuated thereby, and a pole changing device for said magnet actuated by changes in the direction of rotation of said shaft, substantially as described.

11. A telemeter system containing a rotating shaft, a block *m'*, moved by changes in the direction of rotation thereof, and having two contacts, three co-operating spring pens therefor, a generator having one of its poles connected with the two outside pens, and its other pole connected with the middle pen, a contact arm moved by variations in the speed of said shaft and connected in circuit with one of the contacts on said block *m'*, two transmitting magnets, two receiving magnets in circuit therewith, and also with the other of the contacts on the block *m'*, a polarized magnet in circuit with the said receiving magnets, and an annunciator operated thereby, substantially as described.

490,015. GATE. JOHN H. DICKERSON, Bayard, Kans. Filed Aug. 16, 1892. Serial No. 443,342. (No model.)



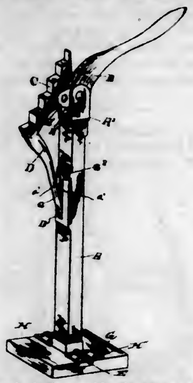
Claim.—In a gate, the combination, with the end battens each consisting of a pair of suitably spaced uprights united by bolts, one of said battens having toothed plates mounted on its inner face, of a wire secured at its ends to one of said battens and having its intermediate portion arranged over the bolts in the other batten, braces each pivoted at one end to one end of the said battens one of said braces having its other end perforated and the other brace being formed in two sections adapted to receive the first named brace between them, said sections of the double brace being provided with metallic plates which project beyond the ends of the sections and are adapted to engage the said ratchet plates on one of the battens, a lever pivoted between said sections of the double brace and having a perforated end projecting beyond the said sections, said battens being each provided with a series of holes at its end opposite the pivot of the brace, and pins adapted to be inserted through either of the said holes in the respective battens and through the perforated ends of the respective braces, substantially as set forth.

490,016. FURNITURE-CASTER. JONATHAN ELWOOD, Sanger, Cal. Filed Oct. 3, 1892. Serial No. 448,222. (No model.)



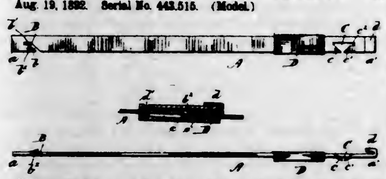
Claim.—An insect guard or trap comprising a caster provided at the base of its stem with an integral receptacle of cup and having on its stem a short distance above the receptacle an annular supporting shoulder and provided at the top of its stem with a head forming a stop, and a cover arranged on the stem and having its flange or sides depending below the top of the cup or receptacle, said cover being provided in its top with screw openings and having a centrally arranged upwardly extending bushing receiving the stem and designed to be inserted in the bore of a leg, substantially as described.

490,017. WAGON JACK. AUGUSTIN J. GALINDO, Concord, Cal. Filed Mar. 15, 1892. Serial No. 424,990. (No model.)



Claim.—In a lifting-jack, the combination of a post or standard, having an upper slotted end, an operating lever mounted in said slotted end of said post or standard, and having an angular slotted extension or head, a serrated or stepped arm pivotally mounted in the said slotted extension or head in advance of the fulcrum or pivotal point of the latter, said serrated or stepped arm being provided with a lower extension movably connected at its free end to the said post or standard to thereby allow the said arm to have a vertical adjustment and lateral movement, swivel pins or rods connected to the lower end of the said post or standard, a base-plate having recesses therein to receive the lower end of said post or standard and said pins or rods, and bearing-clips horizontally mounted over the said pins or rods, substantially as described.

490,018. CAR-SEAL. JOSEPH T. GOFFETT, Dubuque, Iowa. Filed Aug. 19, 1892. Serial No. 443,515. (Model.)

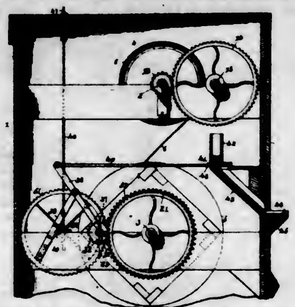


Claim.—1. In a car seal, the combination with a metallic strip provided near one end with an upwardly bent tongue, an upwardly bent portion at its opposite end, and two downwardly bent tongues adjacent thereto, of a sleeve mounted upon said strip and soldered to the said upwardly bent portion of the same, said tongues being adapted to interlock, in the manner and for the purpose specified.

2. In a car seal, the combination with a metallic strip provided near one end with the slot B, the upwardly bent end *d*, the slot C adjacent to said bent end, the upwardly bent tongue b^3, and the downwardly bent tongues *c c'*, of the sleeve D mounted upon the strip over the tongues *c c'*, and soldered to the end *d*, and an indentation in said sleeve and strip, for the purpose specified.

3. In a car seal, the combination with the metallic strip A provided near one end with the slot B consisting of the portions *b b'*, the upwardly bent end *d*, of said strip, and the slot C adjacent to said bent end, and having the portion a^3, the upwardly bent tongue b^3, and the downwardly bent tongues *c c'*, of the sleeve D mounted on the strip over the tongues *c c'*, and an indentation in said sleeve and strip, as and for the purpose specified.

490,019. VENDING APPARATUS. HALE S. HAWK and ANDREW J. HARLETT, Bucyrus, assignors to the Automatic Machine Company, Alliance, Ohio. Filed May 23, 1892. Serial No. 434,072. (No model.)



Claim.—1. In a vending apparatus, the combination of a casing, an actuating reel, a polygonal reel, a band having its ends secured to the reels, and adapted to be unwound from one reel and wound upon the other and securing the articles on the faces of the polygonal reel, and means for regulating the rotation of the reels, substantially as described.

2. In a vending apparatus, the combination of a casing, an actuating reel, a polygonal reel arranged below the actuating reel and adapted to hold papers, a band wound around the reels and extending from the front of the actuating reel to the back of the polygonal reel, and coin operative mechanism for regulating the rotation of the reels, substantially as described.

3. In a vending apparatus, the combination of a casing, an upper actuating reel, a lower polygonal paper carrying reel, bands wound around the reels and unwinding from one to the other and adapted to hold papers on the polygonal reel, a weight motor connected with the actuating reel, a shaft, gearing connecting the shaft with the polygonal reel, and escapement mechanism connected to the shaft and adapted to be operated by a coin, substantially as described.

4. In a vending apparatus, the combination of a casing, an actuating reel, a polygonal reel, a band wound around the reel, a shaft, gearing connecting the shaft with the polygonal reel, an escapement wheel mounted on the shaft and provided with a tooth, a lever provided with a tooth engaging the tooth of the escapement wheel and arresting the motion of the latter, and a trip bar connected with the lever and adapted to be operated by a coin to lift the tooth of the lever out of engagement with that of the escapement wheel, substantially as described.

5. In a vending apparatus, the combination of a casing, an actuating reel, a polygonal reel, a band wound around the reel, a shaft, gearing connecting the shaft with the polygonal reel, an escapement wheel mounted on the shaft and provided with a tooth, a horizontally disposed lever having one end weighted and provided with a tooth engaging that of the escapement wheel, a trip bar connected to the lever, and a coin chute having a terminus arranged at the trip bar, substantially as described.

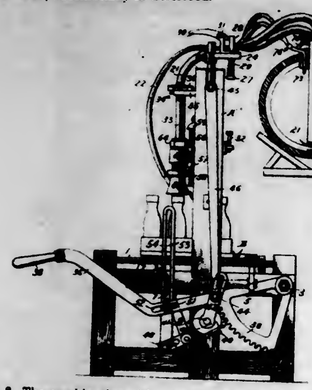
6. In a vending apparatus, the combination of a casing, an actuating reel, a polygonal paper carrying reel, a band having its ends wound around the reels and unwinding from one to the other, a shaft having a crank, gearing connecting the shaft with the polygonal reel, an escapement wheel mounted on the shaft and provided with a tooth, a horizontally disposed lever engaging the escapement wheel, a trip bar depending from the lever and adapted to lift the same out of engagement with the escapement wheel, an oscillating lever fulcrumed intermediate its ends and provided with a slot at its lower end receiving said crank, and a horizontally disposed change ejecting bar connected with the upper end of the oscillating lever and being reciprocated by the same, substantially as described.

7. In a vending apparatus, the combination of a casing, an actuating reel, a polygonal paper carrying reel, a band connecting the reels, an inclined paper discharger chute arranged to receive the papers and a basket bracket arranged below the paper chute to catch the papers and comprising the two bars having their lower ends secured to the casing and bent outward and extended vertically, substantially as described.

490,020. LIQUID-BOTTLING MACHINE. MILLER P. HERDT, Hilburn, N. Y. Filed May 21, 1892. Serial No. 433,917. (No model.)

Claim.—1. The combination with a receptacle containing liquid to be bottled, a table or support for one or more bottles, of a verti-

cally sliding frame, a filling tube leading from the receptacle and supported by said frame, a single valve for closing the filling tube and mechanism for opening the said valve automatically when the frame is lowered, substantially as described.



2. The combination with a support for one or more bottles, of a stopper arranged to fit the neck of a bottle, a movable support for the stopper constructed to carry it to and from the bottle, a filling tube sliding within the stopper a vertically moving support for the filling tube, a valve for the filling tube, arms upon the filling tube support for raising the stopper support, and a stud upon the main frame for opening the valve automatically by the downward movement of the filling tube support, substantially as described.

3. The combination with a series of filling tubes and normally closed valves therefor, and mechanism for raising and lowering the tubes and automatically opening the valves when the tubes are lowered, of a power lever a sliding table and mechanism for shifting the table when the filling tubes are raised to present new bottles to be filled the said mechanisms being connected and all operated from the power lever, substantially as described.

4. The combination with a sliding table, of a ratchet bar connected thereto, a reciprocating pawl carrier having a pawl for engaging with the teeth of the ratchet bar, a catch for holding the pawl out of engagement with the ratchet-bar a releasing lever connected to the catch, and a cam upon the table for operating the releasing lever, substantially as described.

5. The combination with the table and the cam connected to the table, of the ratchet bar having an inclined surface 18, near its rear end, the pawl carrying arm, the pawl having a shank with a notch and a beveled end, a pivoted catch for engaging the notch, and a releasing lever arranged to engage the cam upon the table and withdraw the catch substantially as described.

6. The combination with the main frame, the rails, the table adapted to slide upon the rails, and the ratchet bar connected to the table, of a rock shaft beneath the table, an arm upon the rock shaft carrying a spring pawl, means for raising the pawl and locking it out of engagement with the ratchet bar when the table reaches its forward limit, and means for automatically releasing the pawl when the table is in its rearward position, whereby the pawl is prevented from interfering with the rearward movement of the table but automatically comes into action to draw the table forward, substantially as described.

7. The combination of the table, the ratchet bar, the rock shaft, the pawl carrying arm, the spring pawl upon the arm, the arm 49, the slotted link 54, pivoted to the arm 49, the slotted lever 36, and the adjustable stud 51, substantially as described.

8. The combination with the vertically sliding frame C, carrying the filling tubes and means for moving the same, of a secondary sliding frame D, carrying the stoppers, said frame D, being normally at rest in its lowest position, and arms 61 upon the frame C, arranged to engage and raise the frame D, as the frame C, rises, substantially as described.

9. The combination with the tubular stopper fitting within the bottle neck, the flaring mutilated cap surrounding the stopper, the vent tube communicating with the interior of the stopper, the filling tube arranged to slide vertically within the stopper, the bracket in which the stopper slides vertically and the movable frame supporting the bracket, substantially as described.

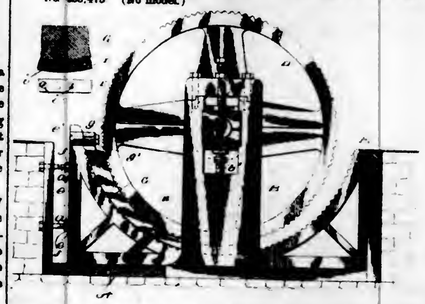
10. The combination with a stud 33, upon the main frame, of a vertically movable frame C, a flexible filling tube carried by said movable frame, a valve also carried by said frame and normally spring pressed upon said tube, said valve having a foot piece adapted to engage the stud when the frame C, is lowered, whereby the valve is held open when the filling tube is in its lowest position, substantially as described.

11. The combination with the base piece 24, and cross bars 23, connected to a movable frame, of a flexible band 25, surrounding the bars 23, a filling tube 21, supported upon the band, a valve 28, rods 26, connected to the valve and springs 29, arranged to hold the valve normally closed, substantially as described.

12. The combination with the sliding frame, the filling tubes carried by the frame, the spring operated valves normally closing the filling tubes, fixed studs upon the main frame which engage and open the valves when the frame is lowered and thumb levers 30 upon the frame and connected to the valves, substantially as described.

13. The combination with a barrel or receptacle containing liquid to be bottled, of a tube 69, extending into the barrel, filling tubes 21, passing into said tube 69, and surrounded by an air tight cap 71, an inflated stopper surrounding the tube 69, and closing the bung hole, and a vent tube passing through said stopper, substantially as described.

490,021. MACHINE FOR REDUCING PILES PREPARATORY TO ROLLING. JOSEPH HOENIG, Lockport, N. Y. Filed Mar. 2, 1892. Serial No. 423,475. (No model.)



Claims.—1. In a machine for reducing piles, the combination with a roll and concave, of pivoted, spring actuated jaws having curved inner edges disposed between said roll and concave and on each side of the latter, and plates curved to correspond to the curved inner edges of said jaws and detachably secured thereto, substantially as shown and described.

2. In a machine for reducing piles, the combination with a bed and a roll mounted in bearings thereon, of a concave longitudinally adjustable on said bed, said concave being formed on the arc of a circle of greater diameter than the diameter of the roll, and spring actuated jaws pivoted to said concave and disposed between said roll and concave and on each side of the latter, substantially as described.

3. In a machine for reducing piles, the combination with the bed and a roll mounted in bearings vertically adjustable thereon, of a concave longitudinally adjustable on said bed, said concave being formed on the arc of a circle of greater diameter than the diameter of the roll, and curved spring actuated jaws tapering from top to bottom pivoted to said concave and disposed between the roll and concave and on each side of the latter, substantially as described.

4. In combination with the bed A and roll D mounted in bearings vertically adjustable thereon, of the concave E longitudinally adjustable on said bed, the threaded bolts *a* rigidly fixed in one end of said bed and provided with adjusting nuts *f*, the curved, tapering jaws G pivoted at their upper ends to each side of the concave and disposed between said concave and roll, and the springs H secured to the concave and bearing against the jaws substantially as shown and described.

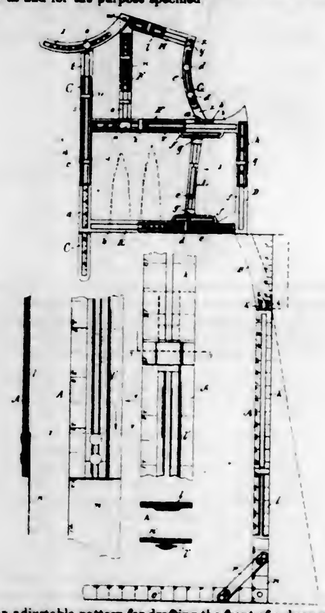
490,022. ADJUSTABLE PATTERN FOR DRAFTING GARMENTS. HENRIETTA HORN, Newark, N. Y., assignor of one-half to George A. Horn, same place. Filed July 5, 1892. Serial No. 439,094. (No model.)

Claims.—1. An adjustable pattern for drafting the front and the under-arm piece of a dress, comprising a square frame formed with four right angle pieces one at each corner, the angles of said pieces being rigid, and the arms or branches overlapping each other and formed to slide longitudinally upon each other, two opposite parts of the frame being formed with opposite inwardly projecting loop bars, in combination with a bar held by said loop bars, substantially as shown and described.

2. A pattern for drafting the front and the under arm piece of a dress, consisting of four right angle pieces overlapping at their ends

to form a rectangular frame and adapted to slide longitudinally upon each other, the opposite arms of two of said contiguous right angle pieces being formed with inwardly projecting loop bars, in combination with an adjustable under-arm-bar held by said loop bars, said under-arm bar being in two pieces adapted to slide longitudinally upon each other and held together by friction clasps or buttons, substantially as shown and described.

3. A pattern for drafting the front and the under-arm piece of a dress, consisting of four right angle pieces overlapping at their ends to form a parallelogrammatic frame and adapted to slide longitudinally upon each other, the opposite arms of two of said contiguous right angle pieces being formed with inwardly projecting loop bars, in combination with an adjustable under-arm bar held by said loop bars and provided at its ends with swivel holders to pass over said loop bars so that the under-arm bar may be turned upon its axis, substantially as and for the purpose specified



4. An adjustable pattern for drafting the front of a dress or similar garment, consisting in part of a pentagon formed of the bust bar, the neck bar, the shoulder bar and the arm-eye, in combination with an arm-eye bar crossing the pentagon parallel with the front bar, with its foot resting in a slot in the bust bar and adapted to slide therein toward or from the front bar, the upper end of said arm-eye bar being bent to an acute angle to form a part of the shoulder bar, substantially as shown and described.

5. An adjustable pattern for drafting the front of a dress or similar garment, consisting in part of a pentagon formed of the bust bar, the front bar, the neck bar, the shoulder bar and the arm-eye, in combination with an arm-eye bar within the pentagon parallel with the front bar, the arm-eye being circular and made up of a part *y* pivoted to the shoulder bar, a part *z* held to move in a slot in the bust bar and a slotted part *c'* lapping across the free ends of said parts *y* and *z*, and friction studs rigid in said parts *y* and *z* and passing through the slot in said part *c'*, with heads to hold said part *c'*, substantially as shown.

6. In combination with the adjustable pattern for drafting the front and the under-arm piece of a dress, a hip-curve piece, and a skirt rule joined to said hip-curve piece for drafting the skirt of a dress, said skirt rule being longitudinally contractible and expansible and formed with an arm at right angles to the main part, substantially as shown.

490,023. WHIFFLETREE-HOOK. CHARLES E. JONES, Wheatland, Mo. Filed Sept. 23, 1892. Serial No. 446,266. (No model.)

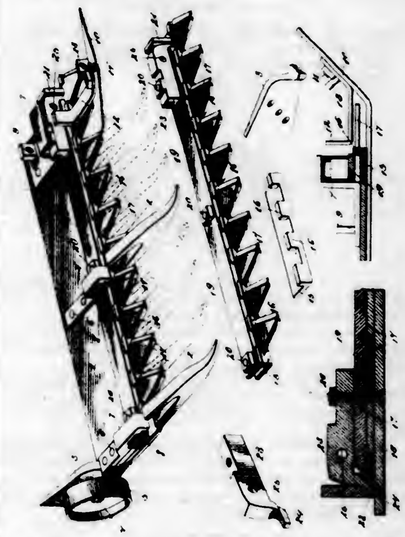
Claim.—In combination with a whiffletree of a sleeve mounted thereon and having a recess in its outer end, and a hook flared outwardly at its free end, a flat spring having a free end bearing against

490,023.



the rear portion of said hook and normally closing the hook and outwardly flared at 6 to form, with the outwardly-flared portion of the hook, an entrance mouth, the front end of said spring being mounted in the recess in the said sleeve and held in position by a single fastening to thereby prevent the spring from turning or becoming displaced, substantially as described.

490,024. CUTTING MECHANISM FOR MOWERS OR REAPERS. LORENZO KING, South Sioux City, Nebr. Filed Jan. 16, 1892. Serial No. 418,153. (No model.)



Claim.—1. The combination with the cutter-bar, and a post arising therefrom and provided with a mortise, of a pitman-eye removably mounted on the bar and provided at its front end with a tenon engaging the mortise of the post, and a bolt passed through the bar and eye and provided with a nut, substantially as specified.

2. The combination with the cutter-bar, having the series of lugs arranged at intervals, the post having a mortise and rising from the end of the bar, the series of cutters notched and fitted between the lugs and the superimposed clamping-bar having one end terminating short of the post, of the pitman-eye consisting of a metal-block, having a perforation for the reception of the pitman-bolt, said eye being provided at its front lower corner with a bayonet-shaped tenon, taking between the clamping-bar and post and fitting in the mortise of the latter, and a clamping-bolt passed through the pitman-eye, clamping-bar and cutter-bar, substantially as specified.

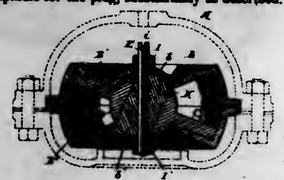
3. The combination with the finger-bar, the series of fingers or guards and the keepers, of the reciprocating cutter bar, the curved arm extending from the finger-bar opposite the end-keeper thereof, and the curved keeper pivoted to the bar at its front end and adapted to be swung rearwardly over the cutter-bar, substantially as specified.

490,025. MECHANISM FOR CONTROLLING THE ACTION OF OSCILLATING DISKS. FRANK LAMBERT, Brooklyn, N. Y., assignor, by direct and mesne assignments, to the Thomson Meter Company, of New Jersey. Filed Apr. 7, 1892. Serial No. 428,106. (No model.)

Claim.—1. The combination with a disk chamber and disk there-

in, of a plug loosely fitting an opening in the disk, and a spindle for the plug, substantially as described.

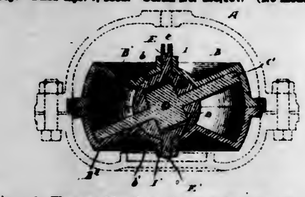
2. The combination with a disk chamber and disk therein, a ball for the disk, an opening in the ball, a plug loosely fitting the opening, and a spindle for the plug, substantially as described.



3. The combination with the disk chamber and disk therein, a plug fitting the disk and free to move therein, and having a non axial opening, and a spindle fitting said opening, substantially as described.

4. The combination with the disk chamber and disk therein, of a plug loosely mounted in an opening in said disk chamber, and a spindle connected to the plug and rotating therewith substantially as described.

490,026. MECHANISM FOR CONTROLLING THE ACTION OF OSCILLATING DISKS. FRANK LARNEST, Brooklyn, N. Y., assignor, by direct and mesne assignments, to the Thomson Meter Company, of New Jersey. Filed Apr. 7, 1892. Serial No. 428,167. (No model.)



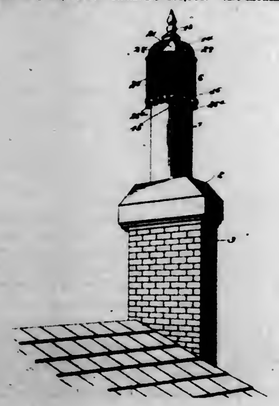
Claim.—1. The combination with the disk chamber and disk therein, of the independent ball sections arranged between the disk and disk chamber, substantially as described.

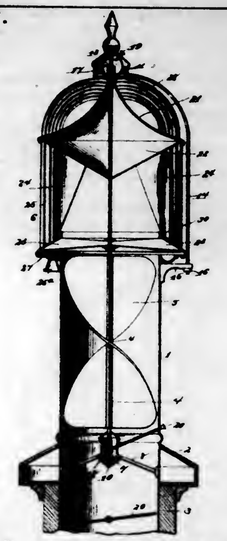
2. The combination with the disk chamber and disk therein, the disk being provided with integral projections, of the independent ball sections arranged on the disk, substantially as described.

3. The combination with the disk chamber and disk having projections, the independent ball sections loosely mounted in the disk, one of the sections having an extended spindle, substantially as described.

4. The combination with the disk chamber, of the disk having lateral projections, the ball sections having recesses and fitting over the projections and loosely mounted thereon, one or both of the ball sections being provided with a spindle having bearings in the disk chamber, substantially as described.

490,027. VENTILATOR. CHARLES W. LOCKMAN, Crescent City, Cal. Filed July 26, 1892. Serial No. 441,302. (No model.)





Claim.—1. In a ventilator, the combination of a cylinder designed to be secured to a chimney or the like, a vertical shaft journaled in the cylinder and extending above the upper end thereof, a vertically disposed screw 5 carried by the shaft and arranged within the cylinder, and a drum rotatively mounted on the upper end of the cylinder and secured to the shaft and provided with a series of radially disposed vertical blades and provided with propelling blades, arranged within the drum at the bottom thereof, substantially as described.

2. In a ventilator, the combination of a cylinder designed to be secured to a chimney, a vertical shaft journaled therein and extending above the same, a vertically disposed screw arranged within the cylinder and secured to the shaft, and a drum provided with vertically disposed blades and having horisontally disposed propelling blades arranged within the drum at the bottom thereof adapted to cause a rotation of the drum, substantially as described.

3. In a ventilator, the combination of a cylinder designed to be secured to the top of the chimney, a drum rotatively mounted on the top of the cylinder and comprising a top having a conical shape, an inverted cone arranged beneath the top, horisontally disposed propelling blades arranged within the drum and at the bottom thereof, and the vertical blades extending radially from the center of the drum and secured to the inverted cone and the horisontal blades, substantially as described.

4. In a ventilator, the combination of a cylinder adapted to be secured to the top of a chimney, and a drum rotatively mounted on the cylinder and provided with interiorly arranged horizontally disposed propelling blades and provided with radially disposed vertical blades having their outer portions arranged at an angle and adapted to expel impure air, gases, vapors and the like by centrifugal force, substantially as described.

5. In a ventilator, the combination of a cylinder designed to be secured to the top of a chimney, a drum rotatively mounted thereon and having horizontally disposed propelling blades and provided with vertically disposed blades, and the exteriorly disposed concavo-convex propelling blades arranged on the top of the drum, substaetially as described.

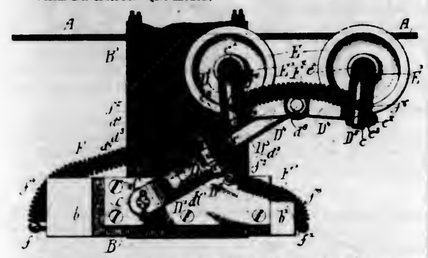
6. In a ventilator, the combination of a cylinder adapted to be secured to a chimney and provided at its upper end with openings, a drum rotatively mounted on the cylinder and having vertically disposed blades extending radially from the center, said drum being provided with propelling blades, and a screw arranged within the cylinder and carried by the drum, substantially as described.

7. In a ventilator, the combination of a cylinder, a drum rotatively mounted on the top of the same and having a conical top, the exteriorly disposed propelling blades secured to the top of the drum and provided with longitudinally disposed curved corrugations and the vertical blades arranged within the drum and forming series of exit openings, substantially as described.

8. In a ventilator, the combination of a cylinder, a drum rotatively mounted thereon and provided with propelling blades, and the vertically disposed blades extending radially from the center of the drum and provided in their outer portions with vertically disposed curved corrugations, substantially as described.

9. In a ventilator, the combination of a cylinder, a drum rotatively mounted on the cylinder and provided with propelling blades and having vertically disposed blades extending rigidly from the center of the drum and forming exit openings, and a cornice secured to the cylinder and arranged at the base of the drum and provided with elongated openings and having flaring supply tubes depending from the openings, substantially as described.

490,028. TROLLEY. JOHN C. LOVE, Chicago, Ill., assignor to the Love Electric Traction Company, same place. Filed May 17, 1892. Serial No. 433,267. (No model.)

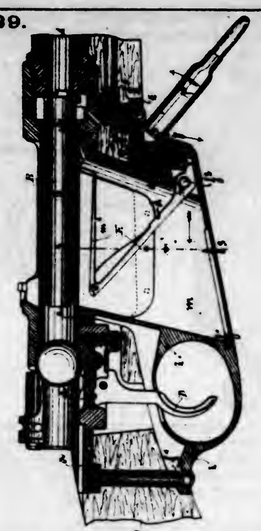


Claim.—1. A traveling contact device for electric railways, comprising a supporting bar, a main arm pivoted thereto and adapted to swing in a vertical plane, a spring applied to throw said arm upward, two trolleys or contact pieces and two independently yielding spring-supported arms on which said contact pieces are mounted, said arms being pivoted to the free end of the said main arm, substantially as described.

2. A traveling contact device for electric railways, comprising a supporting bar, a main arm pivoted thereto and adapted to swing in a vertical plane, a spring applied to throw said arm upward, two trolleys or contact pieces, two arms supporting said contact pieces, said arms being pivoted to the main arm and being adapted to yield downwardly independently of each other, said main arm being provided between its ends with two pivotal or swivel joints, one affording rotary motion of the outer end of the arm on a longitudinal axis, and the other a lateral oscillatory movement of the outer end of the arm about a transverse axis, substantially as described.

3. A traveling contact device for electric railways, comprising a supporting bar, a main arm pivoted thereto and adapted to swing in a vertical plane, a spring applied to throw said arm upward, two trolleys or contact pieces and two independently yielding spring-supported arms on which said contact pieces are mounted, said arms being pivoted to the free end of the said main arm, and the contact pieces being pivotally mounted on said arms, substantially as described.

490,029. FIXED MAGAZINE FOR BREECH-LOADING BOLT-GUNS. PAUL MAUSER, Oberndorf, Germany, assignor to the Waffenfabrik Mauser, same place. Filed July 20, 1892. Serial No. 440,569. (No model.)



Claim.—1. In a cartridge magazine *m*, the cartridge raiser E, the bottom plate *f*, a latch for locking said plate in position, and a spring *e*, acting against said cartridge-lifter to operate it and against said latch to operate it.

2. In a cartridge magazine for breech loading bolt guns the magazine *m* having forwardly sliding bottom consisting of a lid *f* carrying a projection *f'* for locking it to the magazine at its rear end, in combination with a spring catch *g* carried at the forward end of said lid and constructed to lock it to said magazine, said catch constructed with a recess g^2 adapted to receive the end of a cartridge, and constructed when a cartridge is pressed in said recess to free itself and permit the forward movement of said lid.

3. In a cartridge magazine for breech loading bolt guns, the magazine *m* constructed with a recess at back, and with a locking recess f^3 at front, and a cartridge recess g^3 in advance thereof, in combination with a movable bottom lid *f* having a projection at back engaging said recess at back of said magazine, and a catch *g* carried by said lid at front constructed to engage said recess f^3 and thereby to lock said lid in position, and having a cartridge recess g^4 adjacent to said recess g^3 in said magazine, and constructed when a cartridge is interposed between said cartridge recess g^3 and said recess g^4 of the magazine to be thereby unlocked.

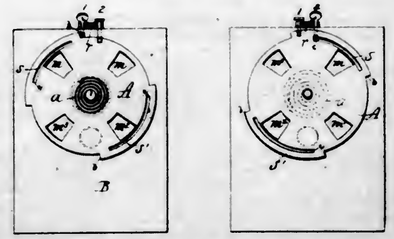
4. In a cartridge magazine, the magazine *m*, in combination with a movable lid *f* having forward end *n*, the cartridge lifter E carried by said lid, the catch *g* carried by said lid and engaging the magazine for locking the lid in position, and the spring *e* carried by the forward end of said lid and acting against said catch.

5. In a cartridge magazine, the magazine *m* constructed with grooves f^2 on its opposite inner walls, in combination with the movable bottom consisting of a lid *f* having projection *f'* at rear for locking it to the magazine, constructed with pins f^3 at front for engagement with said grooves f^2 of the magazine, and a catch *g* for locking said lid to said magazine.

490,030. COMPOSITION OF MATTER FOR LEATHER FOR RAZOR-STROPS. FRANK MIEHM, Ann Arbor, Mich. Filed Sept. 24, 1891. Serial No. 406,749. (Specimens.)

Claim.—The herein described composition for razor strops consisting of tallow, beeswax, molasses, and chimney ashes from burnt coal, in about the proportions named.

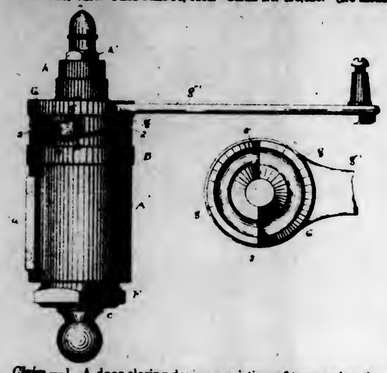
490,031. CAMERA-SHUTTER. EDWARDS J. MOLERA, San Francisco, Cal. Filed Feb. 6, 1892. Serial No. 420,502. (No model.)



Claim.—1. The combination with a spring actuated shutter axially supported on a suitable pivot, said shutter having a slotted and notched outer portion, said notches and slots concentric with the axis, of keys adapted to engage in said notches and slots, substantially as set forth.

2. A camera shutter comprising an axially supported spring actuated disk, said disk having recesses formed on its periphery and provided with slots extending between the ends of the recesses, said recesses and slots located at different distances from the disk support and terminating in shoulders, and spring keys, arranged and adapted to alternately enter the slots and peripheral recesses, substantially as set forth.

490,082. DOOR-CLOSING DEVICE. HARRY C. MONTGOMERY, Cleveland, Ohio. Filed June 30, 1892. Serial No. 438,629. (No model.)

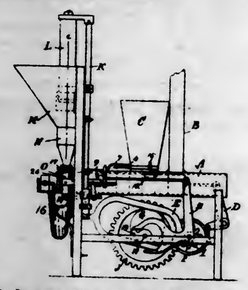


Claim.—1. A door closing device consisting of two sections having opposed inclined parallel bearings, in combination with an anti-friction ball between each set of inclined bearings, said sections constructed to be connected with the door and the door casing respectively, and a spring pressed spindle uniting said sections, substantially as described.

2. The base section having a cap with inclined concentric bearings on its top and an adjustable plug in the bottom of said section, in combination with a top section having inclined bearings matching those on the lower section, anti-friction balls between said sections, a spindle connecting said sections and resting on the said plug, and a spring to draw said sections together, substantially as described.

3. In a door closing device, the two opposed sections having inclined bearings and anti-friction balls, in combination with the spindle connecting said parts, the spring bearing said spindle down, and the adjustable support for the lower end of the said spindle, whereby the tension of the said spring may be varied, substantially as described.

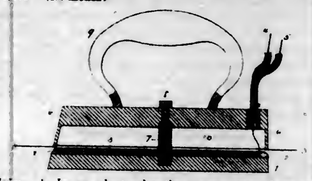
490,088. CAN-FILLING MACHINE. JAMES S. MOORE, Sullivan, assignor of one-half to William S. Bristol, Flat Rock, Ind. Filed Aug. 3, 1892. Serial No. 442,062. (No model.)



Claim.—1. In a can-filling machine, the combination with the salt-chamber having bottoms S, and T provided, respectively, with opening 1 and spout V, of the sliding-valve 2 having port 3 adapted to register with said opening or said spout, and arranged to slide between said bottoms, the slotted valve-rod 4 attached to said valve, rod 7 attached to agitator 6 and provided with pin 10 arranged to engage said valve-rod, the revolvable cam 13, and the intermediate connecting mechanism connecting said cam and said rod 7 so as to impart a reciprocating movement to the rod, all arranged to co-operate substantially as set forth, whereby at each revolution of the cam the agitator is first caused to traverse the opening in the bottom of the salt-chamber and the valve is then moved in the same direction.

2. In a can-filling machine, the combination of the salt chamber having bottom S, having opening 1, sliding valve 2, false bottom T, provided with spout V, and the steam coil 15 arranged beneath said false bottom and surrounding said spout as and for the purpose set forth.

490,084. ELECTRIC HEATER. THOMAS B. MORPHIS, Minneapolis, Minn., assignor of one-half, by direct and mesne assignments, to the Electrical Insulator Company, of Illinois. Filed Dec. 19, 1890. Serial No. 375,175. (No model.)

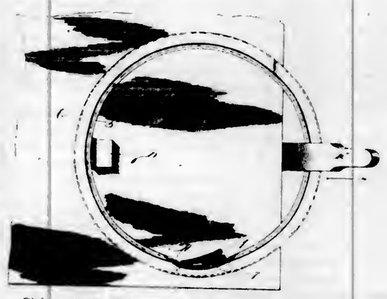


Claim.—1. In an electro-heating apparatus, the combination, with the heated-surface plate and the resistance, of a coating of enamel or its equivalent securing the resistance to, but insulating it from said plate, substantially as set forth.

2. In an electro-heating apparatus, the combination, with the plate to be heated and the resistance, of a coating of adhesive enamel or its equivalent for securing the resistance to, but insulating it from said plate, substantially as set forth.

3. In an electrical apparatus, the combination with a supporting body and an electric conductor, of a coating of enamel or its equivalent securing the conductor to while insulating it from the body, substantially as set forth.

490,085. MANUFACTURE OF PNEUMATIC TIRES. FRED W. MORGAN and RUFUS WRIGHT, Chicago, Ill. Filed Oct. 24, 1892. Serial No. 449,882. (No model.)



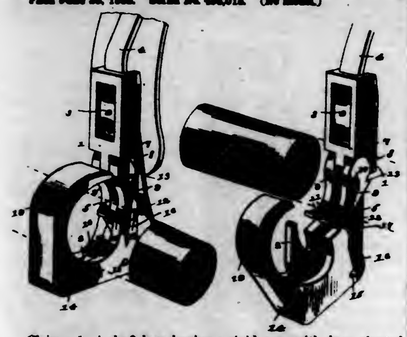
Claim.—1. Molding an endless and seamless tubular tire sheath or casing upon an annular mandrel, and then removing the sheath from the mandrel without materially affecting or changing its said characteristics, and to such end, opening the sheath to a limited extent through its seating portion, separating the mandrel at a point adjacent to the opening thus formed, and causing the sheath and mandrel to part from one another by way of said opening in the sheath.

2. Molding and vulcanizing an endless and seamless tubular tire sheath or casing upon an annular mandrel, and then removing the sheath from the mandrel without materially affecting or impairing its integrity as an endless and seamless tube, and to such end, opening the sheath to a limited extent along its seating portion, separating the mandrel at a point adjacent to the opening thus formed, and causing the sheath and mandrel to part from one another by way of said opening in the sheath.

3. Molding and vulcanizing an endless and seamless tubular tire sheet or casing upon an annular mandrel, and then completing the tire without materially affecting or impairing the integrity of the sheath as an endless and seamless tube, and to such end, opening the sheath to a limited extent along its seating portion, separating the mandrel adjacent to such point, causing the sheath and mandrel to part from one another by way of the opening thus formed, introducing an air tube within the sheath through said opening, and then closing the latter.

4. Molding and vulcanizing an endless and seamless tire sheath or casing upon an annular mandrel having a detachable section, splitting the sheath thus formed at a point over the detachable mandrel section and to a limited extent only, removing the detachable mandrel section through the opening formed by a split, and then stripping the sheath from the remaining portion of the mandrel, substantially as and for the purpose described.

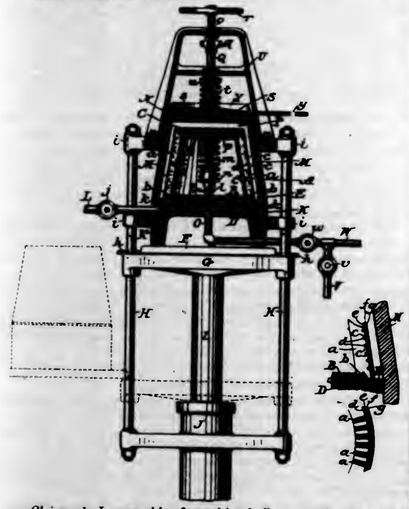
490,086. SHAFT-TUG. JAMES M. MCDONALD, Lake Charles, La. Filed June 25, 1892. Serial No. 438,012. (No model.)



Claim.—1. A shaft loop having a rigid arm with dogs pivoted thereto, and a gravitating head movably connected to said arm, and having an upwardly extending curved arm, and also provided with rear shoulders engaging the lower ends of said dogs, substantially as described.

2. In a shaft loop, a slide buckle having a depending curved arm and tongues on the upper portion of said arm, dogs pivotally connected to each side of the said arm having recesses and toes at the lower portion thereof and shoulders at the upper part of the same, and a gravitating head movably connected to the aforesaid arm and having shoulders and lugs to engage the toes and recesses at the lower ends of said dogs and an upwardly projecting curved arm, all of said parts being combined for automatic action, substantially as described.

490,087. MACHINE FOR FORMING HOLLOW ARTICLES FROM PULP. WILLIAM W. MCEWAN, Belvidere, N. J. Filed Dec. 19, 1891. Serial No. 415,604. (No model.)



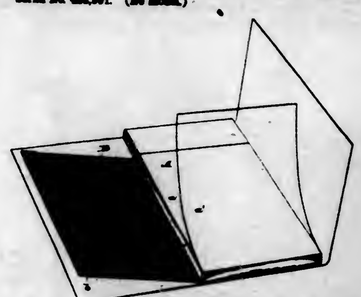
Claim.—1. In a machine for making hollow ware from pulp, the combination with a female mold of a hollow male mold to co-operate therewith and having a perforated end plate and an imperforate plate yieldingly supported below and in contact with said end plate, substantially as shown and described.

2. In a machine for making hollow ware from pulp, the combination with a male mold of a female mold to co-operate therewith and having a perforated end-plate and an imperforate plate yieldingly supported above and in contact with said end plate, substantially as shown and described.

3. In a machine for making hollow ware from pulp, the combination with a male mold, of a female mold to co-operate therewith and having a movable end plate, a supporting frame work, and a shaft supporting said end-plate, said shaft being screw-threaded to engage said frame-work and having a swivel joint, substantially as shown and described.

4. In a machine for making hollow ware from pulp, a mold comprising end plates having grooves formed in their lateral and proximate surfaces, bars connecting said end plates and interlocking at their ends with said grooves, beading or wrapping wire wound about said mold on the outer edges of said bars and an envelope of wire gauze about said mold, substantially as shown and described.

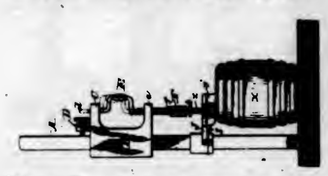
490,088. DUPLICATING CHECK-BOOK. JOSEPH CLAVERIE, Toronto, Canada, assignor, by direct and mesne assignments, to Ram Jane Oldfield and Frederick Rosser James, same place. Filed Apr. 13, 1892. Serial No. 428,991. (No model.)



Claim.—1. In a duplicating check book, a leaf having a carbon face and an impervious back of textile fabric, substantially as described.

2. In a duplicating check book, a leaf having a carbon face and an impervious back, one edge of the back being folded over upon the front face, substantially as described.

490,089. KEG-TAPPING APPARATUS. REMY OFF, Alexandria, Va. Filed Apr. 9, 1892. Serial No. 428,583. (No model.)



Claim.—1. The combination of a screw shaft, with a presser on the lower end thereof having a limited amount of vertical movement, on said shaft and a spring for keeping said presser down, substantially as described.

2. The combination of a vertically movable shaft, with a presser connected to the lower end thereof so as to have both a rotary and a limited vertical movement in relation to the shaft, and a spring for keeping said presser down, substantially as and for the purpose specified.

3. The combination with a vertical bar, a slide adjustably mounted thereon, a screw shaft carried by said slide, and a presser on the lower end of said shaft, substantially as described.

4. The combination in a keg tapping apparatus with the vertically adjustable presser shaft, of the adjustable faucet guide below the same, substantially as and for the purpose set forth.

5. The combination in a keg tapping apparatus of the vertical bar the adjustable slide thereon carrying a screw shaft for the purpose specified, in combination with a second slide on said bar below the first, carrying a guide rod and adjustable feeders, substantially as described.

6. The combination in a keg tapping apparatus of the vertical bar the adjustable slide thereon having forwardly extending arms, the cranked shaft journaled in said arms and having a screw thread connection therewith so that it rises or falls, when turned, substantially as specified.

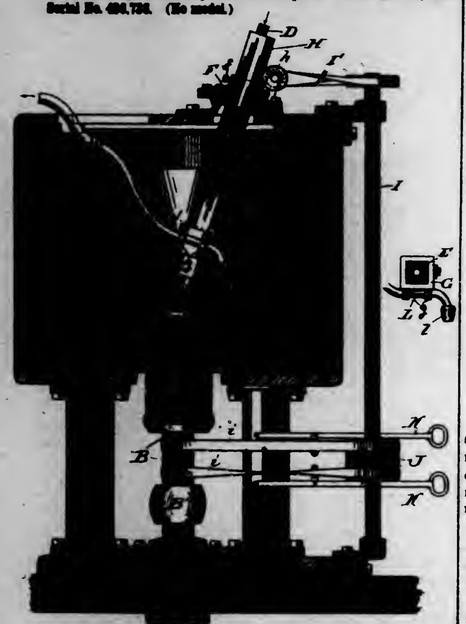
7. The combination of the vertical bar the adjustable slide thereon having forwardly extending arms, the cranked shaft journaled in said arms and having screw thread connection therewith so that it rises or

falls when turned, and a spring controlled presser block attached to the lower end of said shaft, substantially as described.

8. The combination in a hog tapping apparatus of the vertical bar the adjustable slide thereon having forwardly extending arms, the cranked shaft journaled in said arms and having a screw thread connection therewith so that it rises or falls when turned, and an adjustable faucet guide below said slide, substantially as set forth.

9. The combination of the vertical bar the adjustable slide thereon having forwardly extending arms, the cranked shaft journaled in said arms and having screw thread connection therewith so that it rises or falls when turned, said a spring controlled presser block attached to the lower end of said shaft, and an adjustable bifurcated faucet guide below the slide, all constructed and arranged to operate substantially as described.

490,040. CENTRIFUGAL ORE-SEPARATOR. GEREN B. PERIN, Chicago, Ill., assignor to Melinda Peck, same place. Filed June 14, 1892. Serial No. 436,726. (No model.)



Claim.—1. In centrifugal ore separators, the combination of a rotatable separating surface, means for rotating such surface, a cutter or scoop for removing the material accumulating thereon, and means for moving such cutter or scoop along the separating surface transverse to the path of its rotation substantially as described.

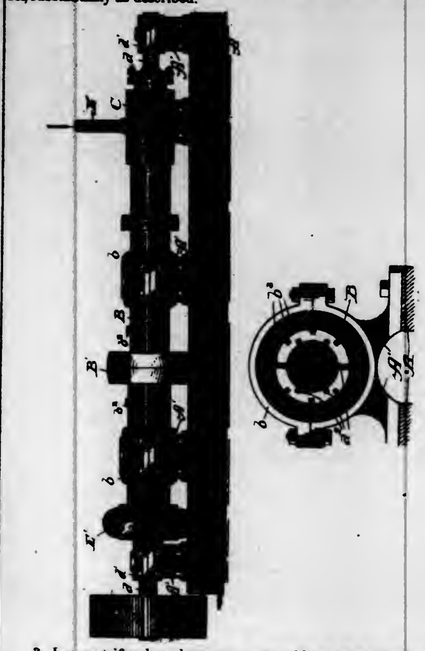
2. In centrifugal ore separators, the combination of a rotatable separating surface, means for rotating such surface, a cutter or scoop for removing the material accumulating thereon, and means for moving such cutter or scoop across the separating surface and into desired proximity thereto, substantially as described.

3. In centrifugal ore separators, the combination of a rotatable separating surface, means for rotating such surface, a cutter or scoop for removing the material accumulating thereon, and means for moving such cutter or scoop in planes practically parallel to the transverse plane of the separating surface and oblique to the axis of its rotation, substantially as described.

490,041. CENTRIFUGAL AMALGAMATOR. GEREN B. PERIN, Chicago, Ill., assignor to Melinda Peck, same place. Filed Sept. 26, 1892. Serial No. 446,912. (No model.)

Claim.—1. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, means for forcing material through the channel or channels, and means for stirring and distributing the material under treatment, substantially as described.

2. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, means for stirring and distributing the material under treatment, and means for deflecting or guiding the material into proximity to the mercury, substantially as described.



3. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, means for stirring and distributing the material under treatment, and means for deflecting or guiding the material into proximity to the mercury, substantially as described.

4. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, means for stirring and distributing the material under treatment rotatable independently of the rotatable vessel, and means for deflecting or guiding the material into proximity to the mercury, substantially as described.

5. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, and means for mechanically forcing material through the channel or channels, substantially as described.

6. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, and means for mechanically forcing material through the channel or channels rotatable independently of the rotatable vessel, substantially as described.

7. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, means for mechanically forcing material through the channel or channels, and means for deflecting or guiding the material through the channel or channels, substantially as described.

8. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, means for mechanically forcing material through the channel or channels rotatable independently of the rotatable vessel, means for deflecting or guiding the material into proximity to the mercury, and means for stirring and distributing the material under treatment rotatable independently of the rotatable vessel, substantially as described.

9. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, and rotatable obliquely arranged screws or blades for mechanically forcing material through the channel or channels, substantially as described.

10. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, means for mechanically forcing material through the channel or channels, and means for stirring and distributing the material under treatment, substantially as described.

11. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, means for mechanically forcing material through the channel or channels, means for deflecting or guiding the material into proximity to the mercury, and means for stirring and distributing the material under treatment, substantially as described.

12. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, means for mechanically forcing material through the channel or channels, means for deflecting or guiding the material into proximity to the mercury, and means for stirring and distributing the material under treatment rotatable independently of the rotatable vessel, substantially as described.

13. In a centrifugal amalgamator, the combination of rotatable cylinders, one within the other, provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, means for conveying material through the channel or channels, and means for stirring and distributing the material under treatment, substantially as described.

14. In a centrifugal amalgamator, the combination of rotatable cylinders, one within the other, provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, means for conveying material through the channel or channels, means for stirring and distributing the material under treatment, and means for mechanically forcing the material through the channel or channels, substantially as described.

15. In a centrifugal amalgamator, the combination of rotatable cylinders, one within the other, provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, each of said cylinders being rotatable independently of the other, substantially as described.

16. In a centrifugal amalgamator, the combination of rotatable cylinders, one within the other, provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, and rotatable obliquely arranged screws or blades for mechanically forcing material through the channel or channels, substantially as described.

17. In a centrifugal amalgamator, the combination of rotatable cylinders, one within the other, provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, at least one of the cylinders being provided with ribs, corrugations or projections on its surface for stirring and distributing the material under treatment, substantially as described.

18. In a centrifugal amalgamator, the combination of rotatable cylinders, one within the other, provided with a channel or channels containing chambers or depressions adapted to receive and contain mercury during the rotation of the vessel, and means for causing water to circulate repeatedly through the channels or passages, substantially as described.

19. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, and a non-rotatable pipe or conduit communicating with the vessel for supplying water and material under pressure thereto, substantially as described.

20. In a centrifugal amalgamator, a rotatable vessel provided with a channel or channels containing chambers or depressions adapted to receive and retain mercury the more securely the greater the amount of centrifugal force developed, means for deflecting and guiding the material along the surface of the mercury in the vessel, and a non-rotatable pipe or conduit communicating with the vessel in a substantially water-tight manner, for supplying water and material under pressure thereto, substantially as described.

21. In a centrifugal amalgamator, the combination of two rotatable cylinders, one within the other, with a channel or passage between them adapted to receive and contain mercury during the rotation of the outer cylinder, and a supply pipe or conduit non-rotatably connected with one of the cylinders in a substantially water-tight manner, for supplying water and material under pressure to the channel or passage, substantially as described.

490,042. STEP-LADDER. ROBERT F. PERRY, Spiceland, Ind. Filed May 6, 1892. Serial No. 432,047. (No model.)

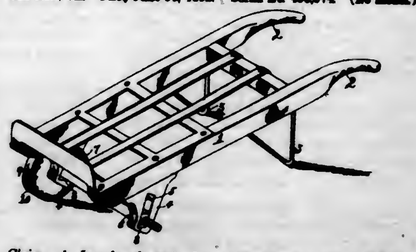


Claim.—1. A step ladder comprising the ladder A, and the brace section B provided with treads, castings secured to the side pieces of the brace section and having transverse slots and notches *e* and *f*, and staples C provided on the side pieces of the ladder A and adapted to engage with the said castings, substantially as set forth.

2. In a step ladder the combination with the ladder and the brace section, of castings secured to the sides of the brace section and having T-heads which are slotted and provided with notches *e* and *f*, and the staples C secured to the side pieces of the ladder and adapted to engage with the said T-heads, substantially as described.

3. In a step ladder the combination with the ladder and the brace section, of castings secured to the sides of the brace section and having T-heads which are slotted, and having notches *e* and *f* at the ends of the said slots which extend in opposite directions therefrom and staples C secured to side pieces of the said ladder and adapted to embrace a portion of the said T-heads, substantially as shown and for the purpose specified.

490,048. HAND-TRUCK. EDDY S. RAYBURN and CHARLEY A. BELL, San José, Cal. Filed June 30, 1892. Serial No. 438,574. (No model.)



Claim.—1. In a hand truck, the combination of a frame, depending bearing castings secured to the frame and provided with elongated openings, an axle arranged in the opening, and a spring centrally secured to the axle and having its ends bearing against the tops of the openings, substantially as described.

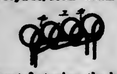
2. In a hand truck, the combination of a frame, castings depending therefrom and provided with inclined elongated openings, an axle arranged in the openings, and a cushioning spring interposed between the axle and the tops of the openings, substantially as described.

3. In a hand truck, the combination of a frame, depending bearing castings having elongated openings, an axle arranged in the open-

lugs and a spring centrally clipped to the axle and composed of separate leaves having their ends separated and arranged within the elongated openings and interposed between the axle and the tops of the openings, substantially as described.

4. In a hand truck, the combination of a frame, bearing castings depending from the same and provided with inclined elongated openings, elastic blocks arranged in the openings at the bottom thereof, an axle arranged in the openings and bearing upon the elastic blocks, and a spring centrally clipped to the axle and having its ends arranged in the openings, and interposed between the tops of the same and the axle, substantially as described.

490,044. GLOVE OR DRESS FASTENER. DAVID R. REYNOLDS, Philadelphia, Pa. Filed Sept. 10, 1892. Serial No. 445,807. (No model.)



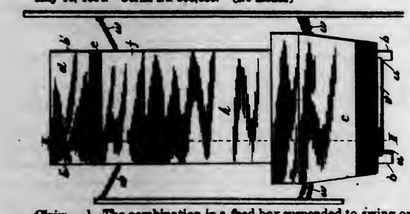
Claim.—1. In a garment fastening, the keeper consisting of a series of rows of vertically-disposed coils arranged in juxtaposition, in combination with a catch adapted to transversely engage between said rows of coils exteriorly of the same, substantially as described.

2. In a garment fastening, the combination of a keeper consisting of oppositely-situated pairs of loops or coils, those of each pair being disposed at an angle to each other, and a catch to engage between said pairs of loops or coils, substantially as described.

3. In a garment fastening, the combination of a keeper comprising a pair of converging wires having loops or coils integral therewith and bent into shape therefrom and positioned in vertical planes and oppositely-situated in pairs, and a catch adapted to engage between said loops or coils, substantially as described.

4. In a garment fastening, the combination of a keeper consisting of oppositely situated loops or coils, and a catch to engage said loops or coils, consisting of a plate with a cavity therein bridged by a cross-wire, substantially as described.

490,045. FEED-BOX. GEORGE J. SCHLOSSER, Leadville, Colo. Filed May 16, 1891. Serial No. 393,069. (No model.)



Claim.—1. The combination in a feed box suspended to swing or vibrate, a series of inclined sieves located within the box, said sieves being provided with covers, a feed trough at the bottom of the box, and an inclined chute emptying into the trough, substantially as described.

2. The combination of a swinging feed box having a removable screen located near its top, a series of inclined screens located below said removable screen, and provided with covers to form dirt sheds, and an inclined chute near the bottom of the box emptying into the feed trough, substantially as described.

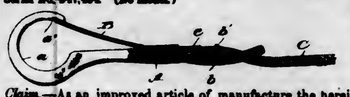
3. The combination with a flight of vibrating or swinging inclined screens, of a feed trough located at the lower terminus of said flight and into which the feed discharges, said trough being arranged to swing or vibrate with the screens, whereby the feed is screened by the movements of the animal's head, as and for the purpose set forth.

490,046. NECK-YOKE COUPLING. RANSOM K. SMITH, Greeley, Colo. Filed Oct. 20, 1891. Serial No. 410,267. (No model.)



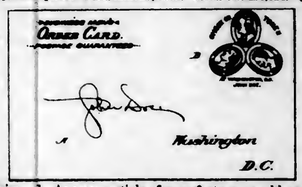
Claim.—The herein described neck-yoke, comprising the sleeve or thimble fitted upon the end of the tongue or pole and having, at its inner or rear end, a beveled flange or shoulder, the neck-yoke proper, having its clip pivoted to said sleeve, and the spring-hook fastened to said pole or tongue and having its free end automatically engaging said flange, substantially as set forth.

490,047. BUCKLE AND SNAP-HOOK COMBINED. THOMAS B. STONE and CLARENCE C. SMITH, Camptown, Pa. Filed June 21, 1892. Serial No. 437,494. (No model.)



Claim.—As an improved article of manufacture the herein described combined snap hook and buckle the same consisting of the main portion terminating at one end in a hook and at the other end in an elongated downwardly-curved transverse double loop with integral central depressed cross bar with pin and with an integral lug *c* projecting horizontally above the curved plane of the loop and from the central part of the said main portion toward and nearly to said cross bar said lug being recessed upon its under face to receive the end of the strap, and a spring tongue secured to the main portion between said lug and hook and adapted to co-operate with the latter, substantially as specified.

490,048. COMBINED CHECK OR TOKEN AND MISSIVE. JOHN P. STOUT, Washington, D. C., assignor of one-fourth to Richard J. Kennedy, same place. Filed Mar. 28, 1892. Serial No. 426,926. (No model.)



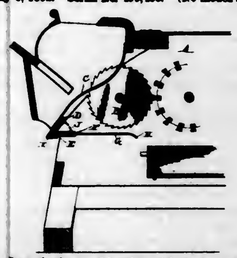
Claim.—1. As a new article of manufacture, an addressed missive having connected therewith a vignette, design or legend, constituting a check or order upon an account for an amount equal to one or more rates of postage, substantially as described.

2. As a new article of manufacture, a card provided with an address, with private token formed with a plurality of branching leaves having different amounts indicated thereon and a check legend over the signature of the addressee, substantially as described.

3. As a new article of manufacture, a missive having a fac-simile of the addressee's signature imprinted thereon, and an imprinted vignette constituting a token or check upon an account, substantially as described.

4. As a new article of manufacture, a check having a legend, design or character of identification constituting an order upon an account at a given post-office for an amount indicated on said check equal to one or more rates of postage, substantially as described.

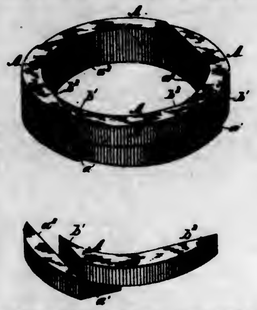
490,049. GIN-SAW FENDER. HILLIARD S. TAYLOR, Homer, La. Filed July 8, 1892. Serial No. 439,402. (No model.)



Claim.—In a gin the combination with the lower breast bar thereon, of a saw fender or guard comprising a series of parallel fingers having outer downturned ends, said fender or guard being hinged at one end to the inner side of the breast bar so as to project beneath the lower edges of the saws, leaving the other end free to move, and means for normally supporting the guard beneath the saws, substantially as set forth.

490,050. METALLIC PACKING. THOMAS TRIPP, Avon, Mass. Filed June 4, 1892. Serial No. 436,553. (Model.)

Claim.—1. A metallic packing composed of an even number of packing pieces, four or more in number, each packing piece being composed of two united segmental parts overlapping each other at their inner ends, the interlocking surfaces of said packing pieces being parallel on opposite sides of the packing, substantially as described.

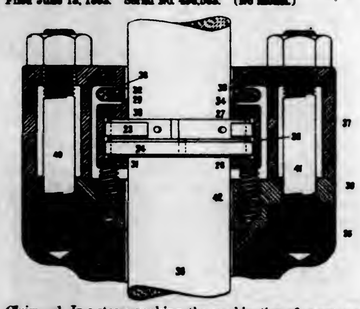


2. A metallic packing composed of an even number of packing pieces, four or more in number, each packing piece being composed of two united segmental parts overlapping each other at their inner ends, each segmental part having an outer tangential face at one end and an inner tangential face at its other end, the tangential faces of the several packing pieces forming interlocking surfaces which are parallel on opposite sides of the packing, substantially as set forth.

3. A metallic packing composed of an even number of packing pieces, four or more in number, each packing piece being composed of two united segmental parts overlapping each other at their inner ends, the interlocking surfaces of said packing pieces being parallel on opposite sides of the packing, means for holding said packing pieces, and a spring or springs for forcing them in contact with the wearing surfaces, substantially as set forth.

4. A metallic packing composed of an even number of packing pieces, four or more in number, each packing piece being composed of two united segmental parts overlapping each other at their inner ends, each segmental part having an outer tangential face at one end and an inner tangential face at its other end, the tangential faces of the several packing pieces forming interlocking surfaces which are parallel on opposite sides of the packing, and means for holding said packing pieces in contact with the wearing surface.

490,051. METALLIC PACKING. THOMAS TRIPP, Avon, Mass. Filed June 13, 1892. Serial No. 436,562. (No model.)



Claim.—1. In a steam packing, the combination of an outer case, a steam tight inner case disposed in said outer case and movable laterally therein, and provided with an annular cone joint on one face, a cone joint ring disposed in said outer case between a joint surface thereon and said cone joint, and a packing disposed in said inner case, substantially as set forth.

2. In a steam packing, the combination of an outer case, an annular steam tight inner case disposed in said outer case and movable laterally therein, springs disposed in said outer case and bearing against said inner case, a packing disposed in said inner case, and springs within said inner case for forcing the packing into contact with the wearing surface.

3. In a steam packing, the combination of an outer case, having a downwardly projecting lip provided with a joint surface, a steam tight inner case disposed in said outer case and movable laterally therein, and provided with an annular cone joint on one face, a cone joint ring, disposed in said outer case between said lip and said cone joint, and a packing disposed in said inner case.

4. In a steam packing, the combination of an outer case, an annular steam tight inner case disposed in said outer case and movable therein, and a packing within said steam tight inner case said packing being composed of an even number of packing pieces, each packing piece being composed of two united segmental parts overlapping each other at their inner ends, the interlocking faces of said packing pieces being parallel on opposite sides of the packing, substantially as set forth.

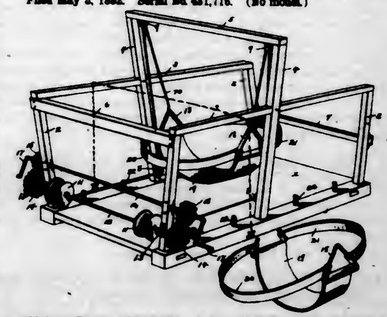
5. In a steam packing, the combination of an outer case, a steam tight inner case disposed in said outer case and movable laterally therein, and a metallic packing disposed in said inner case and movable therein, substantially as set forth.

490,052. WELL-BUCKET. GEORGE S. ULLOM, Pomona, Kans. Filed Mar. 15, 1892. Serial No. 424,942. (No model.)



Claim.—In a well bucket, the combination with the cylindrical body; of the disk bottom having a central valve opening, an upwardly extending flange removably secured in the lower end of said body, and having upon its under side radially extending superficial wings crossing the said disk bottom, and provided with a central valve guide terminating at its upper end in a recessed seat, which end projects into said valve opening above the plane of the underside of the disk bottom, a valve stem working through said guide perforation and provided with a limiting nut at its lower end, a valve disk removably engaging the upper end of the valve stem and working over said valve opening, and clamping nuts engaging the upper end of the valve stem above and below said valve disk, the lower of which nuts is adapted to rest within said recessed seat in said valve guide, substantially as set forth.

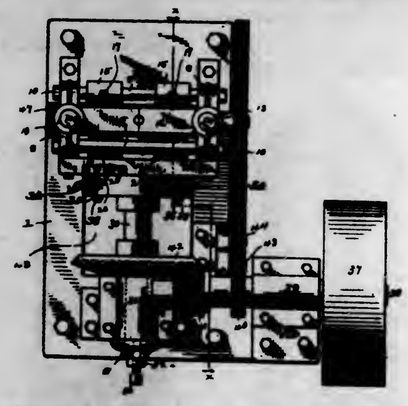
490,053. ANIMAL-STOCK. JESSE UNDERKOFLER, Belmond, Iowa. Filed May 3, 1892. Serial No. 431,716. (No model.)



Claim.—In an animal stock, the combination of a frame simulating a stall and having centrally-disposed uprights extending above the upper portion of the stall and connected by a cross-piece, pulleys secured to said uprights and to said cross-piece, a sling composed of triangular-shaped yokes to whose apices are secured ropes or cords running through the pulleys connected to said cross-piece and then

downward through the pulleys connected to the uprights, a girth connected to the horizontal portion of each of said triangular yokes, and a breast-strap and breeching attached to the front and rear angular sides of said yokes above the said girth, a windlass in the front of the stall on which the said ropes or cords are adapted to be wound, a removable arm-bar at the rear of the stall, and upwardly-projecting pegs supported by the side-bars of the base of the stall and located in front and rear of the said uprights, substantially as described.

490,054. MACHINE FOR CUTTING SCRAP METAL. EDWARD H. WHEELER, Waterbury, Conn., assignor to the Waterbury Brass Company, same place. Filed Aug. 17, 1892. Serial No. 443,305. (No model.)



Claim.—1. In combination, the rotary cutter head having laterally arranged knives, the shaft carrying said head, the stationary perforated plate in which the shaft is journaled having a recess and a knife countersunk therein and adjustable toward and from the perforation in the plate, the said cutter head knives being adjustable laterally of the cutter head and toward and from the rear face of the perforated plate with its countersunk knife, substantially as described.

2. In combination, the bed plate, the side plates with means for holding the same in place, the stationary knife plate secured at the rear of the side plates and having a perforation and a knife on its rear side, the cutter head shaft journaled in said plate and extending from the rear side thereof, the cutter on said shaft having knives working on the rear side of the plate and the guiding means between the side plates and at the front of the stationary knife plate, substantially as described.

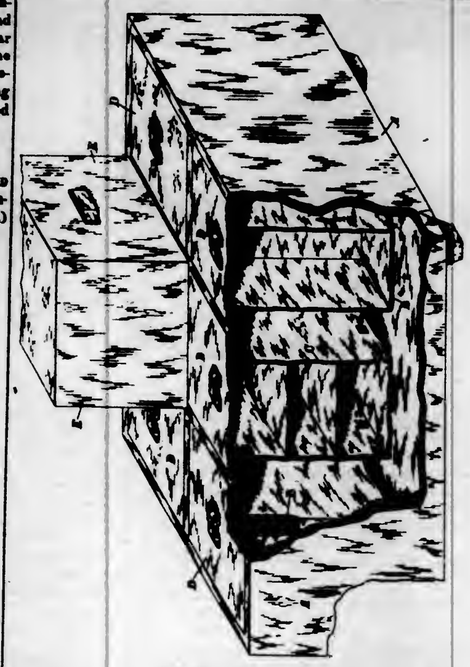
3. In combination, the side plates, the bed supporting the same, the stationary knife plate having a perforation and arranged at the rear of the side plates, the cutter head and shaft at the rear of the stationary knife plate and the guiding means consisting of the plate and the cross bars for holding the same and connecting the side plates together, substantially as described.

4. In combination, the stationary knife plate, having a shaft bearing in its center having openings extending through it on opposite sides of its central bearing, through which to project the substance to be cut the knives countersunk in the rear face of the plate and extending in opposite directions their cutting edges projecting to said openings with means for adjusting them, and the rotary cutter head having its shaft bearing in the central opening and its cutting knife working on the knives in the rear face of the stationary plate, substantially as described.

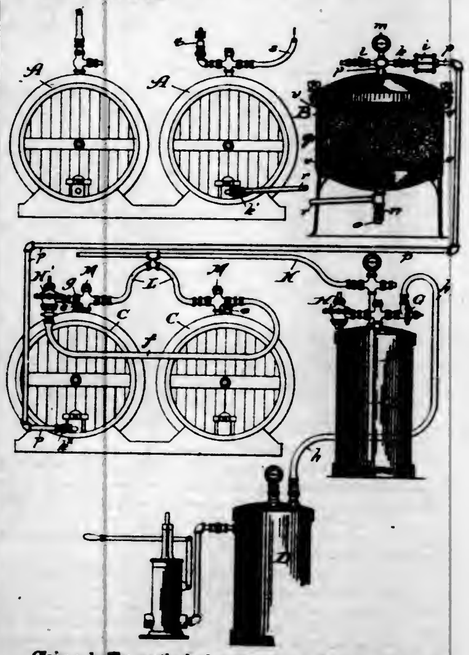
5. The combination with the feed rolls and cutters 23, of a cutter head rotating in the plane of said cutters and having arms 23^b, and cutters 23 carried by said arms, the backs of said arms being inclined backward and inward on the side toward cutters 23 so as to prevent the scrap from clogging as it is fed forward after a piece has been severed.

490,055. REFRIGERATOR. WILLIAM M. WOOD, Boston, Mass. Filed Apr. 8, 1892. Serial No. 428,266. (No model.)

Claim.—The herein-described refrigerator consisting of the case A of non-conducting material, provided with a top having openings into which separately removable boxes B, B, C are fitted, and the removable chamber B for containing a refrigerant arranged above and communicating with the interior of the refrigerator, substantially as described.



490,056. PROCESS OF MAKING BEER. OTTO SWIETUSCH and OSCAR R. SWIETUSCH, Milwaukee, Wis. Filed Apr. 13, 1891. Serial No. 388,751. (No model.)

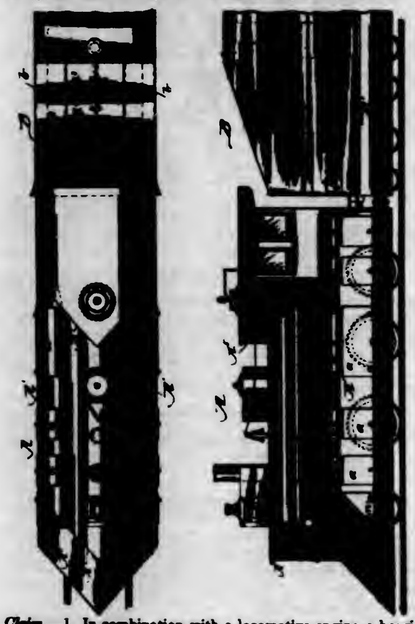


Claim.—1. The method of making beer, which consists in fermenting wort, then confining it and generating in it an adequate pressure of carbonic acid gas, as set forth, then removing yeast from it while retaining the gas, and finally holding it under pressure to fit it for the market, substantially as described.

2. The method of making beer, which consists in subjecting it to the main fermentation, then confining it and generating in it a suitable pressure of carbonic acid gas, as set forth, then filtering it to remove yeast and thereby substantially arrest fermentation, meanwhile preventing material loss from the beer of carbonic-acid gas, and finally maintaining the beer in confinement under substantially uniform pressure of carbonic-acid gas until it is transferred to receptacles for the market, substantially as described.

3. The method of making beer, which consists in subjecting it to the main fermentation, removing it from the fermenting vats while it still contains sufficient yeast to generate by continued fermentation, if confined, a certain pressure, such as set forth, confining it and allowing the fermentation to continue until the required pressure has been attained, then substantially checking the fermentation, without material loss of gas, by passing the beer through a filter against a counter-pressure not less than the inherent gaseous pressure in the beer, and finally maintaining it under a substantially uniform pressure of carbonic acid gas adequate to give to it the degree of life and effervescence required for the market, substantially as described.

490,057. LOCOMOTIVE AND TENDER HOUSING. FREDERICK U. ADAMS, Chicago, Ill., assignor of one-half to Robert S. McCormick, same place. Filed Feb. 3, 1892. Serial No. 420,762. (No model.)



Claim.—1. In combination with a locomotive engine, a housing for the running gear supported from the engine frame and having its upper portion directed inwardly over the wheels to the boiler casing.

2. In combination with a locomotive engine, lateral housings for the running gear having their upper portions directed inwardly over the wheels to the boiler casing, and a wedge-shaped, rearwardly and upwardly inclined, close surfaced guard in front of said lateral housings and of the engine.

3. In combination with a locomotive engine, lateral housings for the running gear having their upper portions directed inwardly to the boiler casing, a wedge-shaped guard inclined upwardly and rearwardly and having a close or continuous surface, and a wedge-shaped front for the boiler above said guard.

4. In combination with a locomotive engine having lateral housings for the running gear, and a close, wedge-shaped and upwardly and rearwardly inclined guard, a cab having its front wedge-shaped and its angle directed forwardly in the central line of the boiler.

5. In combination with a locomotive engine, lateral housings for the running gear having their upper portions directed inwardly to the boiler casing, both the vertical and inwardly directed portions of said housings being provided with doors by which access may be had to the running gear through the side and the top of said housing.

6. A locomotive tender having an upwardly and rearwardly inclined top housing provided with a door or doors through which the fuel may be introduced.

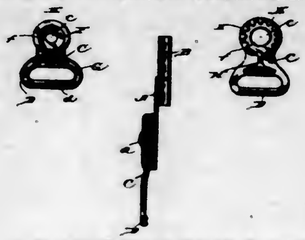
7. A locomotive tender having outer walls substantially in the vertical planes of the cars with which it is to be connected, lateral housings for the running gear, and an upwardly and rearwardly inclined top housing provided with a door or doors for the admission of fuel.

8. A locomotive tender having a back rising substantially to the height of the cars to be connected therewith, lateral walls substantially in the plane of the side surfaces of said cars, lateral housings for the running gear, and a section of flexible housing applied to the rear end of the tender and adapted to meet and abut a similar section upon an adjacent car, for the inclosure of the space between the back of the tender and said adjacent car.

9. A locomotive tender having a back of substantially the vertical and lateral dimensions of a car with which it is to be connected, a rear platform on said tender, a fixed housing inclosing said platform laterally and overhead, and a flexible section of housing attached to said fixed housing and adapted to meet a similar housing on an adjacent car for the inclosure of the space between the back of the tender and the said adjacent car.

10. A locomotive tender having lateral housings exterior to the outer walls of its water tank and in substantially the plane of the side surfaces of a car with which it is to be connected, a back on said tender of substantially the lateral and vertical dimensions of the said car, and a section of flush housing adapted to meet and abut a similar section on the said car whereby the space between the back of the tender and said adjacent car will be inclosed by a housing substantially flush with the side and top surfaces of said car.

490,058. CAST-OFF FOR SUSPENDER-ENDS. GEORGE H. ADAMS, Providence, R. I., assignor to the Trent & Hine Manufacturing Company, New Britain, Conn. Filed Nov. 3, 1892. Serial No. 450,942. (No model.)



Claim.—1. In a cast off for suspender ends, the combination with the member having the headed projection, of the co-operating member formed by the superposed plates lying in contact with each other one having a limited bodily lateral movement relative to the other and both having apertures therein of approximately the size of the head of the projection said apertures being arranged slightly eccentric to each other; substantially as described.

2. In a cast-off for suspender ends, the combination with the member having the headed projection, of the plate C having an aperture therein for the admission of the headed projection, a spring pressed plate F mounted on said plate C and having an aperture therein eccentric to the aperture in plate C, with a guard for holding said plates together; substantially as described.

3. In a cast off for suspender ends, the combination with the member having the headed projection of the plate C having the aperture therein, the plate F having a corresponding aperture therein arranged eccentrically to the aperture in the plate C and a spring shank carrying said plate F connected rigidly to the plate C, substantially as described.

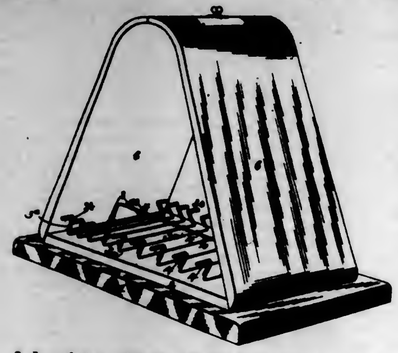
4. In a cast off for suspender ends the combinations with members having the headed projection, of the plate C having the aperture therein and guard flange on the rear side, and the apertured plate F confined beneath said guard flange and connected to the plate C by a spring shank the apertures in said plates being arranged eccentrically to each other; substantially as described.

490,059. PHOTOGRAPH-HOLDER. GEORGE F. RAMSDEN, Toronto, Canada. Filed Mar. 14, 1892. Serial No. 425,023. (No model.)

Claim.—1. In a photograph holder the combination of a base a series of holders mounted upon said base a hinge fastened to each of said holders and to the said base, a retaining piece extending across said holders, the photographs, an opening in the photographs, said retaining piece adapted to pass through said openings to prevent the removal of the photographs, a guard extending along the ends of said holders to prevent the displacement of the photographs, substantially as and for the purpose described.

2. In a photograph holder the combination of a base a series of

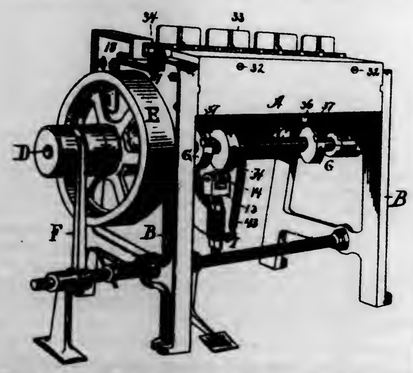
holder, mounted upon said base to receive and hold in position the photographic, a hinge connected to each of said holders and to the top of said base, a retaining piece extending across the top of said base to lock the photographs to the photograph holder, substantially as described.



3. In a photograph holder the combination of a base a series of holders mounted on the top of said base a hinge fastened to each of said holders and to said base each of said holders consisting of a continuous piece of wire the ends of which are bent to form a slide to receive the photograph card, substantially as and for the purpose described.

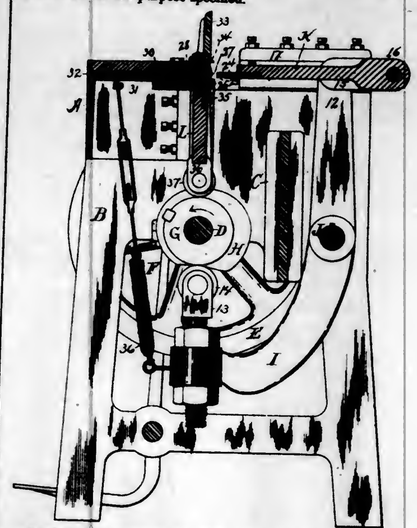
4. In a photograph holder the combination of a base a series of holders mounted on the top of said base a hinge fastened to each of said holders and to said base, said hinge arranged to permit the holders to move laterally each of said holders consisting of a continuous piece of wire the middle or body portion of which is fastened to said hinge while the ends are open to form a slide to receive the photograph card, a retaining piece extending across said holders, the photograph cards, an opening in each of said photograph cards through which passes the retaining piece, guards extending along the ends of said holders to prevent the displacement of the photograph cards, a casing, hinges fastening said casing to the base, substantially as and for the purpose described.

490,060. MACHINE FOR CUTTING AND BENDING SHEET METAL. WILLIAM J. BATHER, Southington, Conn., assignor to the Peck, Stow & Wilcox Company, same place. Filed Aug. 3, 1892. Serial No. 441,994. (No model.)



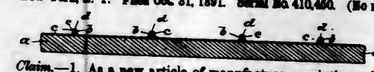
Claim.—1. The combination of a gaging and bending bed, the fixed shear-blade, the combined moving shear blade and folding plate arranged to move over said gaging bed, the sliding clamp arranged to abut against and move with the advance side of said combined moving shear blade and folding plate, the bending plate 35, and operating mechanism, substantially as described and for the purpose specified.

2. The combination of a gaging and stationary bending bed, the bending plate 35 moving with the riser and arranged on that side of said bed which is opposite the gaging ledge and bending face thereof, the folding plate having its broad advance face parallel to the movement of said bending plate, the movable clamp arranged to abut against the advance face of said folding plate, said folding plate and clamp being mounted to move from a point over the gaging ledge on one side of said bed to a point over said bending plate on the opposite side of said bed and operating mechanism substantially as described and for the purpose specified.



3. The combination of the riser L carrying the bender plate 35, the gaging and bending bed adjacent to said bending plate, the spring pressed clamp 37 arranged to move over said gaging bed and bender plate, the shaft D carrying cams for lifting said riser L, a cam H also mounted on said shaft, the rocking arm I, the rock shaft J, arms 12 and horizontal slide K carrying a bending blade 25, substantially as described and for the purpose specified.

490,061. PRINTING BLOCK OR ROLLER. FREDERICK BOOS, New York, N. Y. Filed Oct. 31, 1891. Serial No. 410,450. (No model.)



Claim.—1. As a new article of manufacture, a printing roller or block having the printing surface projected above the surface of the base, in relief thereon, and the sides of the printing surface strengthened and supported by a coating of varnish or equivalent substance, substantially as described.

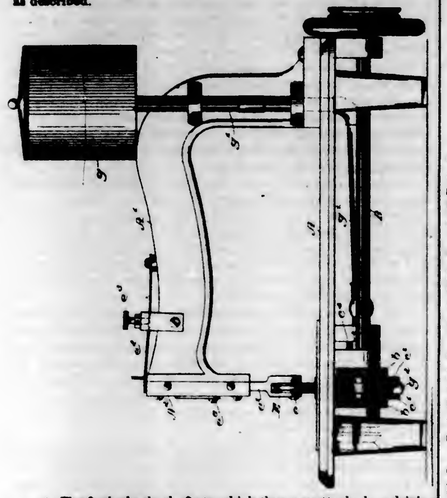
2. As a new article of manufacture a printing roller or block with the printing surface made of a composition consisting of oxidized linseed oil, bitumen stearine, mixed with wood fiber, flock, ground cork, or other similar material in relief upon the block or roller and strengthened and supported by a coating of varnish, or equivalent substance, substantially as described.

490,062. BUTTONHOLE-FINISHING MACHINE. FRANCIS D. BRIDGET, Haverhill, Mass., assignor, by mesne assignments, to the Reece Button Hole Machine Company, Portland, Me. Filed Apr. 14, 1892. Serial No. 429,063. (No model.)

Claim.—1. In a machine for finishing button holes, a feeding device for the material, and devices to rotate the brush independently to brush the said thumb ends out straight on the material, a brush or equivalent to apply adhesive material to the thumb ends, substantially as described.

2. In a machine for finishing button holes, a feeding device for the material, a brush or equivalent having its periphery adjacent to the bearing surface of the feeding device, to apply adhesive material to the thumb ends, and a presser bearing against the material opposite said brush and feeding device, substantially as described.

3. The feed wheels, shafts to which they are attached; the brush shaft, its brush located between the feed wheels; a mouth to supply adhesive material; means to rotate the brush in a manner to lay the thumb ends substantially parallel to the stay cord and threads between adjacent button holes; and a presser, to operate, substantially as described.



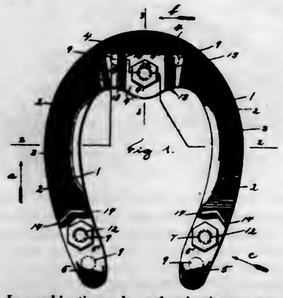
4. The feed wheels, shafts to which they are attached; a driving shaft to which said shafts are geared; a brush shaft, its brush located between the feed wheels; and shafts carrying the same, and means to drive said brush shaft, substantially as described.

5. In a machine for finishing button holes, a two-part feeding device for the material; a brush device located between the parts of said feeding device to apply adhesive material to the thumb ends, substantially as described.

6. In a machine for finishing button holes, feed wheels; a brush, and devices to rotate it at a surface speed different from that of the said feed wheels, combined with means to supply an adhesive material to the said brush, substantially as described.

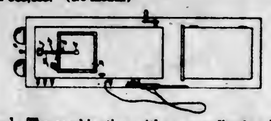
490,063. HORSESHOE. ELI BOUCHARD, Worcester, Mass., assignor to the Excelsior Horse Shoe Company, same place. Filed June 23, 1892. Serial No. 437,708. (No model.)

Brief.—Improvement on United States Patent No. 336,154, to Phillips, Bouchard, and Charbonneau.



Claim.—In combination, a horseshoe having a recess in the toe and at each end, the bottom of each of said recesses being provided with holes, one of which is screw-threaded and has its walls extended up from the bottom of the recess to form a boss, and a calk in each recess, each calk having a perforation to fit over the boss and having a projection and angular ridges projecting from its outer face, the walls of said projections being at substantially right angles to the face of the calk, and a bolt in each screw threaded boss having its head within the cavity formed by the projections and the ridges and having its sides substantially parallel with the adjacent walls of the ridges, said cavity being open on at least one side, whereby the dirt that is retained by the parallel walls of the ridges and of the bolt, may be removed by means of an instrument inserted at the open side of the cavity, substantially as set forth.

490,064. TELEGRAPHY AND TELEPHONY. FRED H. BROWN, Chicago, Ill., assignor, by mesne assignments, of one-fifth to the Brown Telephone and Telegraph Company, same place. Filed Feb. 27, 1891. Serial No. 382,128. (No model.)



Claim.—1. The combination with a normally closed electric circuit, of a diaphragm arranged therein, a lever in said circuit having a contact point normally in electrical and mechanical contact, with said diaphragm and means, substantially as described, for raising said lever out of contact with said diaphragm whereby a telegraphic message may be transmitted over said circuit, substantially as set forth.

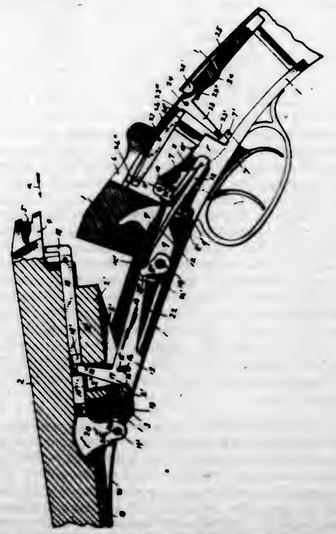
2. The combination with a normally closed electric circuit, of a diaphragm arranged therein, a lever in said circuit having a contact point, a spring for holding said lever normally in electrical and mechanical contact with said diaphragm and means, for raising said lever out of contact with said diaphragm, whereby a telegraphic message may be transmitted over said circuit, substantially as set forth.

3. The combination with a normally closed electrical circuit, of a diaphragm arranged therein, a lever in said circuit having a contact point, a spring for holding said lever normally in electrical contact with said diaphragm and a switch bar having a spring arranged to bear under said lever, whereby the lever may be lifted out of contact with the diaphragm for the transmission of a telegraphic message, substantially as set forth.

4. The combination with a normally closed electrical circuit, of a diaphragm arranged therein, a lever in said circuit having a contact point, a spring for holding said lever normally in electrical contact with said diaphragm, and a switchbar pivoted and moving in a path under said lever and provided with a guide plate to take over and a spring to take under said lever, substantially as set forth.

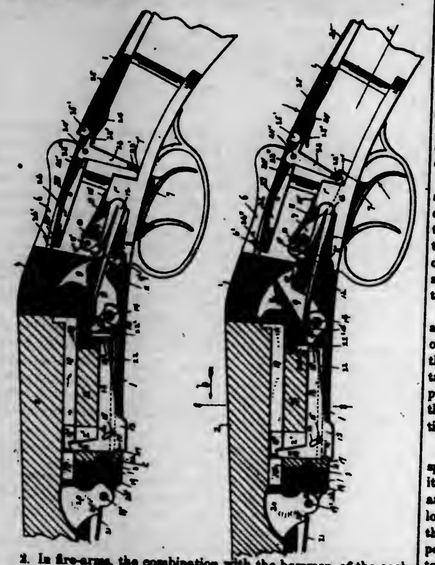
5. The combination with a normally closed electrical circuit, of a diaphragm arranged therein, a lever in said circuit having a contact point, a spring for holding said lever normally in electrical contact with said diaphragm, a switchbar pivoted and moving in a path under said lever, a guide plate on said switchbar arranged to take over said lever, a spring on said switchbar adapted to take under said lever and an adjusting screw for varying the tension of said spring, substantially as set forth.

490,065. BREECH-LOADING FIREARM. MARTIN DYE and EDWARD G. PARRY, Worcester, Mass. Filed Aug. 20, 1892. Serial No. 443,668. (No model.)



Claim.—1. In fire-arms, the combination with the hammer, of a locking lever pivotedly connected with the barrel lug, and engaging

and cocking the hammer with one end, and moving the shell extractor with its other end, upon the breaking down of the gun, substantially as set forth.



2. In fire-arms, the combination with the hammer, of the cocking lever, engaging and cocking the hammer on the breaking down of the gun, and connected with the barrel lug by a pin extending through a slot in said lever, and the hinge joint of said lever with the barrel lug formed by a knob on the barrel lug extending into a seat in the cocking lever, substantially as shown and described.

3. In fire-arms, the combination with the barrel lug, of a cocking lever attached thereto, in the manner substantially as shown, and one end of said lever engaging and cocking the hammer, and the other end of said lever engaging the shell extractor upon the breaking down of the gun, substantially as set forth.

4. The combination with the barrel lug, of the cocking lever having its hinge joint with the barrel lug formed by a knob on the lower side of the barrel lug extending into a seat in the cocking lever, and said lever retained in place by a pin in the barrel lug extending through a slot in the lever, substantially as shown and described.

5. In fire-arms of the class described, the combination with the shell extractor, provided with a cut out portion into which one end of the cocking lever extends, which lever engages and cocks the firing hammer, and is pivotally connected with the barrel lug, of means for operating said shell extractor to automatically eject the shells on the breaking down of the gun, consisting of a hammer hung on the underside of the barrel portion at the forward end of the frame, said hammer engaging the end of the shell extractor, and a spring for actuating said hammer, and a longitudinal moving slide interposed between the cocking hammer and the shell ejector hammer, for moving said shell ejector hammer against the action of the spring, preparatory to its engaging the shell extractor, substantially as set forth.

6. In fire-arms of the class described, the combination with the hammer, and the hammer cocking lever pivotedly connected with the barrel lug, with one end engaging the hammer, and the other end engaging the shell extractor, of a spring actuated ejector hammer hung on the barrel portion, and adapted to strike against the end of the shell extractor, and a slide extending between said ejector hammer, and the firing hammer, for moving said ejector hammer preparatory to its engaging the shell extractor, for the purpose stated, substantially as set forth.

7. In fire arms of the class described, the combination with the shell extractor provided with cut out portions into which one end of the cocking lever extends, of means for operating said shell extractor to automatically eject the shells on the breaking down of the gun, consisting of two hammers hung on the underside of the barrel portion of the gun at the forward end of the frame, said hammers engaging the ends of the shell extractors, and springs for actuating said hammers, and longitudinally moving slides interposed between the firing hammers and the ejector hammers, for moving said ejector hammers against the action of the springs preparatory to their engaging the shell extractor, substantially as set forth

8. In fire arms of the class described, the combination with the shell extractor made in two halves, with cut out portions into which one end of the cocking lever extends, of means for operating said shell extractor to automatically eject the shells on the breaking down of the gun, consisting of a hammer hung on the underside of the barrel portion of the gun, at the forward end of the frame, said hammer engaging the end of the shell extractor, and a spring for actuating said hammer, and a longitudinally moving slide between the cocking hammer and the shell extractor, for moving said ejector hammer against the action of the spring preparatory to its engaging the shell extractor, substantially as set forth.

9. In fire-arms of the class described, the safety locking mechanism, consisting of a spring actuated lever pivoted in the upper part of the frame, with its lower end adapted to operate to lock or unlock the trigger, of means for operating the locking lever to unlock the trigger upon the breaking down of the gun, consisting of a lever pivoted in the upper part of the frame, with one end engaging the spring actuated lever, and the other end extending into a cam groove in the top lever, substantially as set forth.

10. In fire-arms of the class described, the safety locking mechanism, consisting of a spring actuated lever, pivoted in the upper part of the frame, with its lower end adapted to operate to lock or unlock the trigger or sear, of means for operating said lever to unlock the trigger or sear upon the breaking down of the gun, consisting of a pivoted lever, with one end engaging the spring actuated lever, and the other end extending into a cam groove in the top lever, substantially as shown and described.

11. In a fire-arm, the safety locking mechanism, consisting of a spring actuated lever, pivoted in the upper portion of the frame, with its lower end adapted to operate to lock or unlock the trigger or sear, and a spring for actuating said lever to cause the same to operate to lock the trigger or sear, of means for operating said lever to unlock the trigger or sear, consisting of a spring arm extending upon the upper side of the frame, with its free end adapted to engage said lever, to cause the same to unlock the trigger or sear, and an intermediary pivoted lever, with one end engaging said spring actuated lever, and the other end extending into a cam groove in the top lever, the moving of the top lever to break down the gun causing said intermediary lever to operate the spring actuated lever to unlock the trigger or sear, substantially as shown and described.

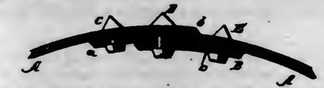
490,066. BEDSTEAD. THOMAS R. CHAMBERS, Glenloch, Penn., assignor of one-third to Henry M. McCroskey, same place. Filed May 19, 1892. Serial No. 433,866. (No model.)



Claim.—In a bedstead, the combination of a bedstead frame comprising head and foot boards provided in their side posts with dove-tail recesses and side rails having their ends dove-tailed and fitting in the dove-tail recesses of said posts, legs supporting the head and foot boards and detachably secured to the same, slat supporting bars connecting the legs, the end bars connecting the slat supporting bars and detachably secured to the same, and buttons pivotally mounted on the head and foot boards and engaging the side rails and the upper ends of the legs, substantially as described.

490,067. LAP-JOINT FOR STEAM-BOILERS. JAMES T. CONNELLY, Hilton, Pa. Filed July 7, 1892. Serial No. 438,957. (No model.)

Claim.—1. In a lap joint for boiler seams, the combination, with the lapped ends, of an inside welt, as at B, arranged parallel with and near the edge, *a*, of the inside lap and extending laterally beyond the calk line, as at *c*, the central line of said welt coming immediately beneath the calk line of the outside lap, rivets passed through the outside and inside lap near the edge of the welt, as at E, rivets passed through the welt the outside and inside lap, as at D, and rivets passed through the welt and inside lap, as at C, substantially as and for the purpose described.



2. The herein described improved lap joint for boiler seams, comprising the overlapping ends *a* and *b*; the inside welt B extending longitudinally under the seam and having one edge arranged near the edge *a* of the inside lap and the other edge projecting beyond the calk line, as at *c*, whereby the welt is located immediately under the calk line *b* of the outside lap; and three series of rivets, one outer series passing through the extended portion *c* of the welt and through the lap *a* beyond the calk line, as at E, the other outer series passing through the lapped ends *a* and *b* near the edge of the end *a*, as at C, and a central series passing through the lapped ends *a* and *b* and through the welt B near its edge opposite the portion *c*, as at D; substantially as and for the purpose set forth.

3. In an improved lap joint for boiler seams embodying the overlapping ends *a* and *b* and the inside welt B extending longitudinally under the calk line *b*, three series of rivets comprising the inner and outer and central line, the outer series C passing through the lap *a* and welt B, the other outer series passing through the lapped ends *a* and *b*, and the central series D passing through the lapped ends *a* and *b* and the welt B, the central series or line of rivets being placed closer together than the two outer series; substantially as set forth.

490,068. PROCESS OF TREATING MIXTURES CONTAINING SULPHIDES. FREDERIC P. DEWEY, Washington, D. C. Filed Sept. 6, 1892. Serial No. 445,206. (No specimens.)

Claim.—1. The process of treating mixtures containing sulphides of silver and copper, for the purpose of converting such metals into sulphates without oxidation of the sulphur, which process consists in subjecting the mixture to the action of a sulphate, at a temperature below that at which the sulphur is oxidized, substantially as specified.

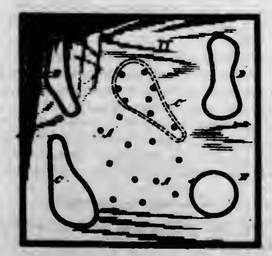
2. The process of treating mixtures containing sulphides of silver and copper, for the purpose of converting such metals into sulphates without oxidation, which process consists in subjecting the mixture to the action of sulphuric acid at a temperature below that at which the sulphur is oxidized, substantially as specified.

3. The process of treating mixtures containing sulphides of silver and copper, which consists in heating the sulphides with strong sulphuric acid, to convert the sulphides of silver and copper into sulphates and get the sulphate of silver into solution, adding water, to get the sulphate of copper also into solution, and then separating any insoluble residue from the resultant solution containing both of the sulphates, substantially as described.

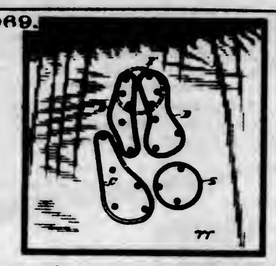
4. The process of treating mixtures containing sulphides of silver and copper, which consists in heating the sulphides with strong sulphuric acid, to convert the sulphides into sulphates and dissolve the silver sulphate, adding water to the acid, to bring the sulphate of copper also into solution separating the resultant solution from any insoluble precipitate, and then precipitating the silver from the solution, substantially as described.

5. The process of treating mixtures containing sulphides of silver and copper, which consists in heating the sulphides with strong sulphuric acid to convert the sulphides into sulphates and dissolve the sulphate of silver, adding water, to bring the sulphate of copper also into solution drawing off the resultant solution, precipitating the silver therefrom by metallic copper, and recovering the sulphate of copper from the remaining solution, substantially as described.

490,069. PUZZLE. THOMAS DONBAR, Carlton, and ALFRED BRIDGES, South Yarra, Victoria. Filed June 28, 1892. Serial No. 438,312. (No model.)

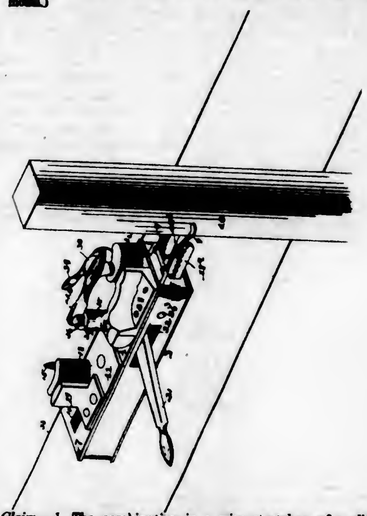


490,069.



Claim.—A puzzle apparatus consisting of movable rings of irregular unlike shapes, and of fixed pins irregularly located in a base, wherein the puzzle consists in so placing the rings as to inclose all the pins, and wherein in order to retard the solution of the puzzle the pins are so grouped as to constitute a trap or traps substantially as set forth.

490,070. WIRE STRETCHER AND SPLICER. LAWSON H. DOWELL, Walton, assignee of one-half to Daniel R. Murchison, Athens, Tex. Filed Oct. 1, 1890. Renewed Dec. 14, 1892. Serial No. 455,174. (No model.)



Claim.—1. The combination in a wire stretcher, of a slide, a straining clamp carried thereby, a pair of ratchet bars connected with the slide, a throw lever carrying links pivoted thereto on each side of its fulcrum, pawls pivoted to the links for engaging the ratchet-bars, and springs pressing the pawls into engagement with said bars, substantially as set forth.

2. The combination in a wire-stretcher, of a casing having a longitudinal slot in its top, a slide on the top having a lug projecting into the slot, a straining clamp carried by the slide, a pair of ratchet-bars pivoted to said lug, and means for engaging the ratchet-bars, substantially as set forth.

3. The combination in a wire-stretcher, of a casing having a longitudinal slot in its top, a slide on the top having a lug projecting into the slot, a straining clamp carried by the slide, a pair of ratchet-bars pivoted to said lug, a throw-lever, and pawls carried thereby for engaging the ratchet-bars alternately, substantially as set forth.

4. The combination in a wire-stretcher, of a casing, a slide moving thereon, a straining clamp carried thereby, a ratchet-bar connected with the slide, a throw-lever having a pawl engaging the rack-bar, and an eccentric shaft having an operating lever, said shaft being adapted to disengage the pawl from the ratchet-bar, substantially as set forth.

5. The combination in a wire-stretcher, of a frame or casing, a stationary retaining clamp at one end thereof, a movable straining clamp near the other end thereof for stretching the wires, and a twister between the ends of the frame or casing, substantially as set forth.

6. The herein described twister, consisting of a housing, a revoluble stem in the housing, having a hook at one end, and a pin at the other end, and a lever pivoted eccentrically on said pin, substantially as set forth.

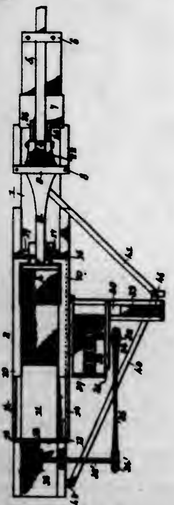
490,071. WHIFFLETREE-COUPLING. EDWARD S. GENTRY, Panama, assignor of two-thirds to Waddington L. Cook and John R. Cook, Piasha, Nev. Filed Sept. 17, 1892. Serial No. 446,182. (No model.)



Claim.—1. A whiffletree clip, comprising a loop for the doubletree and forwardly-extending arms in a different plane for the singletree, a plate attached to the singletree and adapted to take the wear between the singletree and arms, and connecting-bolts for the parts, substantially as described.

2. In a whiffletree coupling, the combination of a double-tree having a loop removably attached thereto and provided with a lug and a pair of forwardly projecting arms with openings in the outer ends thereof and forming a yoke, a single-tree having a U-shaped plate connected thereto formed with arms extending beyond the width of said single-tree and provided with openings aligning with the openings in the said yoke, and a pivotal bolt connecting said yoke and arms of the single-tree, said single tree being embraced by said yoke and the arms thereof lying within the said yoke, substantially as described.

490,072. HAY-PRESS ATTACHMENT. FRANK R. GRAHAM and JAMES H. KNAPP, Westphalia, Kans. Filed Jan. 7, 1892. Serial No. 417,310. (No model.)



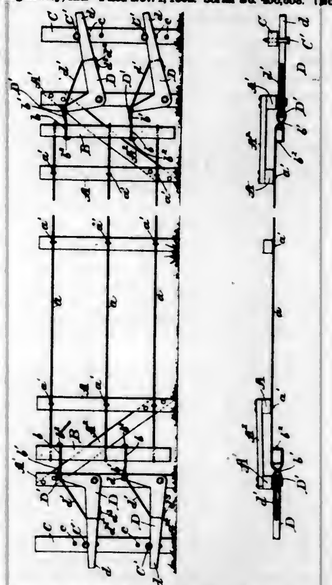
Claim.—1. In a baling press, the combination with the box, and a reciprocating plunger therein; of a passageway communicating with said box and standing at right angles thereto, an inclined chute leading into said passageway near its inner end, a shaft in the chute, a gear-wheel on the shaft, a bale-head having a rack-bar adapted to engage said gear, and means for turning said shaft to drop the bale head into the passageway, and for then moving said bale-head into the box, as and for the purpose set forth.

2. In a baling press, the combination with the box, a reciprocating plunger therein, a passageway communicating with the box, and a chute leading into the passageway; of a block in the passageway having a hole through its body, a rod pivoted to the frame and passing through slots in the walls of the passageway and intermediately through said hole, and a second rod pivoted at one end to the first and at the other end to the plunger-shaft, as and for the purpose set forth.

3. In a baling press, the combination with the box, a reciprocating plunger therein, and an inclined chute communicating with the box; of a shaft across the chute, a gear-wheel on the shaft, a bale-head having a rack-bar adapted to engage said gear when the bale-head stands in the chute under the shaft, a second shaft journaled in the top of the box, a toothed wheel on this shaft projecting through and into the box, and connections between the two shafts, as and for the purpose set forth.

4. In a baling press, the combination with the box, a reciprocating plunger therein, a lateral passageway communicating with the box and having horizontal slots, an inclined chute leading into said passageway near its inner end, and a toothed wheel journaled in the box and projecting slightly into the same; of a bale-head having a toothed rack on one face, a shaft journaled in the chute and having a gear adapted to engage said rack, connections between this shaft and said toothed wheel, a block sliding in the passageway, and a toggle-lever pivoted at its ends to the frame and to the plunger-shaft with its body passing through the slots in the walls of the said passageway and connected with the block therein, as and for the purpose hereinbefore set forth.

490,078. TENSION DEVICE FOR WIRE FENCES. PETER HACK, Michigan City, Ind. Filed Nov. 1, 1892. Serial No. 450,658. (No model.)

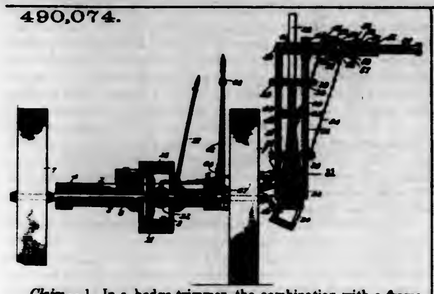


Claim.—1. In a device for compensating for the expansion and contraction of the wires in wire fences, the combination with the post A′ and brace A^2, of the bent levers D pivoted on said post, the said levers having the spikes D′ at one end thereof, and the handle *d* at the other, the cross piece B and loops *b* secured thereto; the wires *a* also secured to said cross piece; the post C having a plurality of holes *c*, and the pins C′ for holding said levers down, substantially as and for the purposes described.

2. In a device for compensating for the expansion and contraction of the wires in wire fences, the combination with the post A′ and brace A^2, of the bent levers D pivoted on said post, the said levers having spikes D′ at one end thereof, and the handle *d* at the other, the braces *d*′, connected to the arms of said bent levers, the cross piece B and loops *b* secured thereto, the wires *a* also secured to said cross piece, the post C having a plurality of holes *c*, and the pins C′ for holding said levers down, substantially as and for the purposes described.

490,074. HEDGE-TRIMMER. JOSEPH L. JACKSON, Columbus, Kans. Filed Apr. 15, 1892. Serial No. 429,389. (No model.)

490,074.



Claim.—1. In a hedge trimmer, the combination with a frame, an axle, its wheels, a horizontal elevated cutter bar, a support for the same, and means for transmitting motion from the axle to the bar, of a flat wing extending rearward from the bar, substantially as specified.

2. In a hedge trimmer, the combination with the supporting framework, axle and ground wheels, of a standard, head 45, carried by said standard, and provided with parallel arms 48, a shaft 49 mounted in bearings in said arms, the finger-bar fulcrumed upon the shaft, an L-shaped bearing arm 51 fulcrumed upon the shaft and bifurcated at its outer end to embrace the finger bar, the cutter bars, eccentrics upon shaft 49, pitmen connecting the eccentrics to the cutter bars, and means for conveying motion from the axle to the shaft 49, substantially as specified.

3. In a hedge trimmer, the combination with the frame-work, the axle and ground wheels of the standard having a bifurcated upper end, a head perforated to receive the arms of such bifurcation, the finger bar revolubly mounted upon said head, the cutter bars, the parallel rack bars attached at their upper ends to the head, the connected pinions carried by the standard and engaging said rack bars, and means to convey motion from the axle to the cutter bars, substantially as specified.

4. In a machine of the class described, the combination with the frame and the axle carrying traction wheels of the sector-shaped stirrups having perforations, pins passing through the perforations, bell-crank levers fulcrumed on the frame, means for locking the same, simple levers fulcrumed on the under side of the frame and having their free ends extending to the sides of the sector-shaped stirrups, and links connecting the outer ends of the bell-cranks with said simple levers, of a longitudinally-disposed bar located above the simple levers in the stirrups, a standard rising from the bar, cutting mechanism at the upper end of the standard, and means for conveying motion from the axle to the cutting mechanism, substantially as specified.

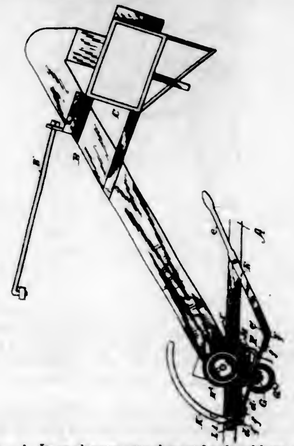
5. In a machine of the class described, the combination with the supporting-frame, the standard rising therefrom, a head mounted on the standard and adapted for vertical reciprocation and for removal therefrom, and keepers located at opposite sides of the standard, of a cutting mechanism carried by the head, rack-bars mounted in the keepers and pivotally connected to the head, means for raising the rack-bars and projecting the head above the standard whereby it and the cutting mechanism may be inverted, and means for operating the cutting mechanism, substantially as specified.

6. In a machine of the class described, the combination with the framework, the standard rising therefrom and having its upper end bifurcated and provided at opposite sides with guides and at its front and rear edges with bearings, of shafts mounted in the bearings at the inner and outer sides of the standards, said shafts being provided with intermeshing gears and small pinions, a head having openings mounted for reciprocation on the bifurcations, said head being provided at its front side with a circular projection and beyond the same with forwardly-disposed bearing-arms having perforations, rack-bars mounted in the guides of the standard and engaged by the pinions of the short-shafts, a crank mounted on one of the short shafts, a yoke at the upper end of the outer rack-bar for engaging the circular projection, a pin for pivotally connecting the upper end of the remaining rack-bar with the head, cutting mechanism pivoted to the forwardly projecting arms of the head, and means for operating the same, substantially as specified.

7. In a hedge trimming machine, the combination with the framework, axle and ground-wheels, of a standard having a bifurcated upper end, a head perforated to slide upon the standard, parallel arms extending therefrom and bearing a shaft, the finger bar mounted upon said shaft, the cutter bars, the guide cleat 33 mounted in the bifurcation of the standard and having guide eyes 34, guide-brackets 35 having guide-eyes vertically aligned with those in the cleats, vertical rack-bars connected at their upper ends to the head, and arranged in said guide eyes, shafts 41 mounted upon the standard and geared together, pinions carried by said shafts to mesh with the rack bars, and means to convey motion from the axle to the cutter bars, substantially as specified.

8. In a hedge trimmer, the combination with the framework, the axle and ground wheels, of the arms 19, provided at their terminals with sector shaped stirrups, the rest pins 22 fitting in opposite perforations in the stirrups, the bar 23 arranged in the stirrups and resting upon said pins, levers 68 fulcrumed beneath the framework and extending under the bar 23, bell-crank levers 63 connected to said levers, handles connected to the bell-crank levers, a standard carried by the bar 23, a head attached to said standard, means to elevate and lower the head, a finger-bar fulcrumed upon the head, cutter bars, and means for conveying motion from the axle to the cutter bars, substantially as specified.

490,075. ATTACHMENT FOR THRASHING-MACHINES. JOHN A. JAMES and DAVID JAMES, Ostleyville, Kans. Filed May 11, 1892. Serial No. 432,609. (No model.)



Claim.—1. In an elevator attachment for thrashing machines the combination with the frame of a machine, of a supporting plate, hinged connections between the ends thereof and frame, a bearing plate loosely mounted on the said supporting plate, a conveyer on the bearing plate, a lever arm on one of the hinged connections and means for retaining the supporting plate in an adjusted position, substantially as described.

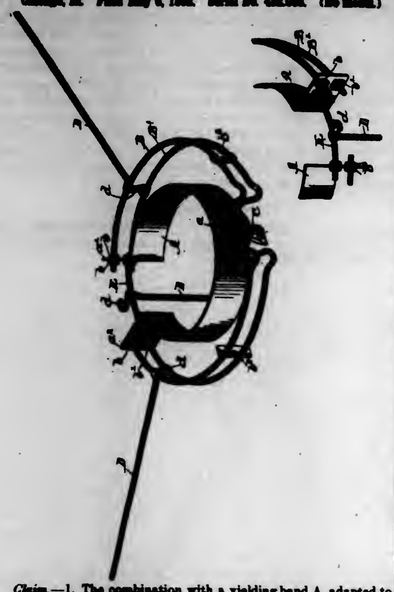
2. In a thrashing machine attachment the combination with the machine, an elevator, and a weighing device supported thereon, of a support for the elevator consisting of hangers hinged to the machine, a plate pivoted to the lower end of the hangers uniting the same, a connection between the plate and elevator, a curved arm on one of the hangers, a guide on the frame through which the curved arm passes and means for securing the arm in an adjusted position, substantially as described.

3. In an elevating attachment for thrashing machines the combination with the frame of the machine, of an elevator, a support for the same consisting of a swinging plate, means for holding the plate in an adjusted position, a transverse shaft carrying a beveled gear, a train of gear interposed between the plate and elevator, and a curved supporting plate on the elevator, extending above and below the gear, and resting on the swinging plate, substantially as described.

4. In an elevator attachment for thrashing machines, the combination with the elevator and frame, of a swinging support, mounted on the frame, a curved plate on the support, a bushing on the lower portion of the plate, a connection between the upper portion of the plate and the elevator, gear wheels between the lower and upper portions of the plate, a shaft on the wheels passing through the bushing, a seat formed on the support in which the bushing rests, a counter shaft journaled in the support, a gear wheel thereon, meshing with said other gear, means for rotating the counter shaft, and a gear wheel on the elevator, substantially as described.

5. In an elevator attachment for thrashing machines the combination with the frame, and elevator, of a support for an elevator consisting of depending pivoted arms secured to the frame, a plate on the arms, a connection between the plate and elevator, mechanism for driving the elevator, a lever for moving the plate and a curved arm on the support engaging the frame, and means for retaining the arms in an adjusted position, substantially as described.

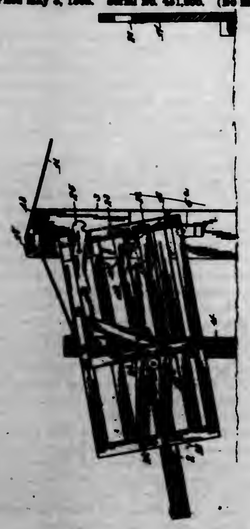
490,076. SHOVELER-RACK. JOHN S. JAMES and EDWARD HAYES, Chicago, Ill. Filed May 6, 1892. Serial No. 432,092. (No model.)



Claim.—1. The combination with a yielding band A, adapted to clasp a pipe, of a pair of spring rods B, B', encircling said band and put under tension to retain it upon the pipe, and a series of arms D, having bent ends *d*, adapted to engage with the two rods; substantially as described.

2. The combination with the band A, of the encircling spring rods B, B', the supporting cross-piece E, and the arms D, having the bent end *d*; substantially as described.

490,077. PORTABLE GATE. JAMES LOSEY, Freeport, Mich., assignor of two-thirds to Erwin W. Battles and Omar B. Jennings, same place. Filed May 3, 1892. Serial No. 431,656. (No model.)



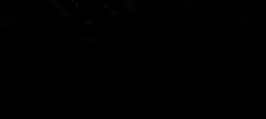
Claim.—1. The combination of a supporting frame provided with rollers and composed of uprights arranged in pairs the forward pair provided with oppositely disposed inclined shoulders, a sliding frame mounted on the rollers and provided at its front end with oppositely disposed projections arranged to engage said shoulders, whereby the front end of the sliding frame is elevated in opening, and a sliding gate mounted on the sliding frame, substantially as described.

2. The combination of a supporting frame, a sliding frame mounted thereon and provided with rollers, a sliding gate arranged on the rollers and having the inner portions of its middle bars inclined and provided with vertical slots in its end bars, and set screws arranged in the slots and securing the middle bars and rendering the same adjustable, substantially as described.

3. The combination of a supporting frame composed of parallel front and rear uprights, the latter being provided with vertical slots, rollers arranged on the inner faces of the front uprights, and brackets provided with rollers and having stems adjustably secured in the slots, of the rear uprights a sliding frame mounted on the rollers and a sliding gate carried by the sliding frame and moving independently of the same, substantially as described.

4. The combination of a supporting frame comprising front uprights having inclined shoulders and rear uprights provided with slots, rollers arranged on the inner faces of the front uprights, brackets provided with rollers and having stems adjustably secured in the slots of the rear uprights, a sliding frame mounted on the rollers and composed of parallel bars and provided with rollers arranged between the bars, a sliding gate mounted on the rollers of the sliding frame and having inclined middle bars and provided with a latch and an operating rope connected with the latch and extending upward from the gate, substantially as and for the purpose described.

490,078. TWINE-CUTTER. JULIUS S. MARVIN, Providence, R. I. Filed July 5, 1892. Serial No. 438,967. (No model.)



Claim.—1. In a twine-cutter, the combination with a tubular-shank provided with a guide extending at right angles therewith, of a spring-lifted plate movable in said guide and having a diagonal cutting-blade, as described.

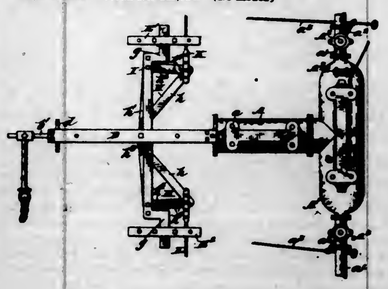
2. In a twine-cutter, the combination with a tubular shank provided with a guide extending at right angles with said shank, and a stationary cutter secured near one end of the shank, of a spring-operated cutter movable in said guide and having a diagonal cutting-edge, as described.

3. In a twine-cutter, in combination, the tubular-shank 5 having the guide 6, a plate 7 having the cutting-edge 8, and the spring-arms 9—9 movable in said guide, the spring 11 for operating said plate, and the supplemental cutter 12 secured to the shank, as described.

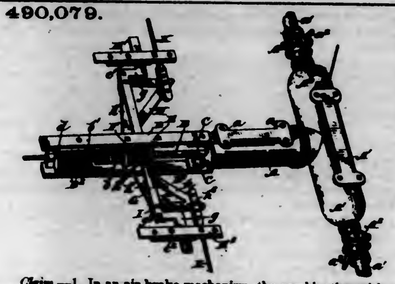
4. The combination, in a twine-cutter, with the tubular-shank 5, a guide 6 secured thereto, and a spring-lifted blade 7 having the cutter 8 and spring-arms 9—9 movable in the guide, of an extensible support adapted to return the twine-cutter to place, when released, as described.

5. The combination with a twine-cutter having a tubular-shank and a cutting-device carried thereby, of an extensible support adapted to return to place when released, as and for the purpose described.

490,079. CAR-BRAKE. ARNOLD MILLER, Medford, Wis. Filed Sept. 5, 1892. Serial No. 445,127. (No model.)



490,079.

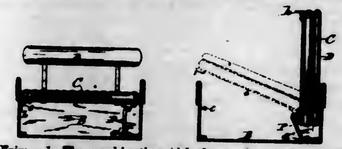


Claim.—1. In an air brake mechanism, the combination with a cylinder of parallel plates secured thereto, a piston rod between the plates, a spring on the rod, an equalizing lever loosely supported by the plates, bell-cranks pivotally connected with the equalizing lever and connected with the piston rod and brake rods connected with the bell cranks, substantially as described.

2. In an air brake mechanism, the combination with the brake rods, of levers for actuating the same, a piston rod a source of air supply for driving the piston, sliding pivotal connection between the levers and piston and a sliding equalizing lever carrying the actuating levers, substantially and described.

3. In an air brakes system, the combination with a cylinder of a piston rod entering the same means for supplying an expansive agent to the cylinder, bell crank levers slidingly and pivotally engaging the piston rod, a returning spring on the rod an equalizing lever extending across the piston rod, a pivotal connection between the bell cranks and equalizing lever, brackets for supporting the equalizing lever, and brakes rods connected to the bell cranks substantially as described.

490,080. FOLDING SEAT FOR CARRIAGES. HARVEY A. MOTHS, Syracuse, N. Y. Filed Oct. 12, 1892. Serial No. 448,926. (No model.)



Claim.—1. The combination with the carriage-body, of a laterally swinging prop pivoted to the body in proximity to one side thereof, and the seat hinged at one end to said prop to swing with its opposite end in a vertical plane to and from its support thereat as set forth.

2. The combination, with the vehicle-body, of the prop —P— hinged to the body to swing laterally thereon and formed with the inward offset —a—, and foot —a'—, and the seat —C— hinged to the upper end of the prop and adapted to swing with its opposite end in a vertical plane to and from its support on the body as set forth.

490,081. COMMUTATOR-BRUSH AND HOLDER. JAMES F. McLAUGHLIN, Philadelphia, Pa. Filed Mar. 31, 1890. Serial No. 346,094. (No model.)



Claim.—1. In commutators for dynamos and electric motors, the combination of a shank or support for the brush, elastically mounted so as to be movable radially with respect to the commutator cylinder, and a collector brush hinged to the free end of the shank, substantially as described.

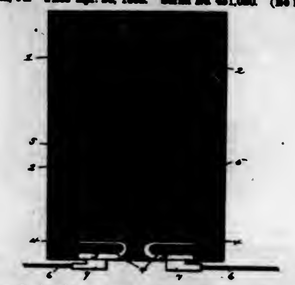
2. A collector for commutators of dynamos and electric motors, consisting of a block composed of two sections of solid conducting material, hinged together, substantially as described.

3. A collector for commutators of dynamos or electric motors, consisting of a block composed of two hinged sections of solid conducting material, a spring tending to force the said sections together and another spring for forcing the block against the commutator cylinder, substantially as described.

4. A collector for commutators of dynamos or electric motors, consisting of a block composed of two hinged sections of solid conducting material, a spring tending to force the sections together, and another and stronger spring for forcing the block against the commutator cylinder, substantially as described.

5. In a collector for dynamos or electric motors, the combination with a collector brush, and shank to which the brush is hinged, of a socket piece, into one end of which the shank extends, an adjusting screw entering a nut at the other end of the socket piece, and a spring confined in the said socket piece, between the screw and shank, substantially as described.

490,082. ELECTRIC HEATER. JAMES F. McLAUGHLIN, Philadelphia, Pa. Filed Apr. 26, 1892. Serial No. 431,080. (No model.)



Claim.—1. An electric heater composed of a conductor of high electrical resistance, embedded in a mass of fire proof material coated with glazing or enamel, substantially as described.

2. An electric heater, consisting of a conductor of high electrical resistance, embedded in burnt clay, coated with glazing or enamel, substantially as described.

3. In an electric heater, the combination with a conductor of high electrical resistance and an embedding body of burnt fire clay covered with glazing or enamel, of contact terminals for the conductor, disposed flush with the glazing of the embedding body, substantially as described.

490,083. BOLSTER-SPRING. GEORGE S. HEAL and HENRY C. HEAL, Eddyville, N. Y. Filed Aug. 10, 1892. Serial No. 442,663. (No model.)



Claim.—1. The combination of a bolster, a spring board, springs arranged on opposite sides of the bolster and secured to the spring board and provided with spring arms depending from the spring board and arranged at the sides of the bolster, and a yoke straddling the bolster and adjustably secured to the spring arms, whereby the tension of the springs is adjusted substantially as described.

2. The combination of a bolster, a spring board, springs secured to the latter and arranged on opposite sides of the bolster and having depending spring arms, and a yoke straddling the bolster and provided with sockets receiving the spring arms and having set screws to engage the arms and secure the yoke at any desired adjustment, whereby the tension of the springs is regulated substantially as described.

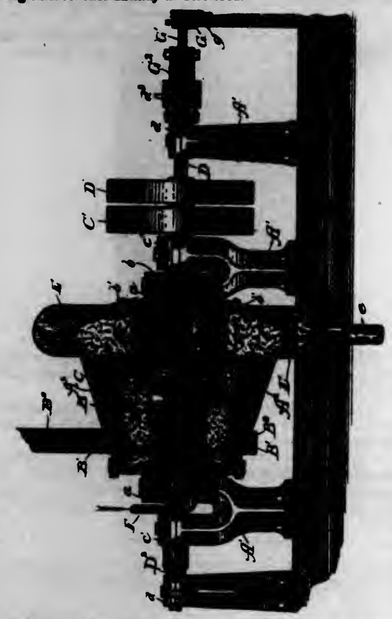
490,084. CENTRIFUGAL ORE-SEPARATOR. ORRIN R. PERU, Chicago, Ill., assignor to Malbain Peck, same place. Filed Sept. 26, 1892. Serial No. 446,911. (No model.)

Claim.—1. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, and rotatable means for forcing or circulating material over the separating surface, substantially as described.

2. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, and means for forcing or circulating material

over the separating surface rotatable independently of such surface, substantially as described.

3. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, and a rotatable wheel or disk provided with spiral or oblique blades for forcing or circulating material over the separating surface, substantially as described.



4. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, means for stirring and distributing the material on the separating surface, and means for forcing or circulating material over such surface, substantially as described.

5. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, means for stirring and distributing the material on the separating surface rotatable independently of such surface, and means for forcing or circulating material over such surface, substantially as described.

6. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, means for deflecting or guiding the material along near or in proximity to the separating surface, means for stirring and distributing the material on the separating surface, and means for forcing or circulating material over such surface, substantially as described.

7. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, means for deflecting or guiding the material along near or in proximity to the separating surface, means for stirring and distributing the material on the separating surface rotatable independently of the separating surface, and means for forcing or circulating material over such surface, substantially as described.

8. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, means for deflecting or guiding the material along near or in proximity to the separating surface, and means for forcing or circulating the material over such surface, substantially as described.

9. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, means for deflecting or guiding the material along near or in proximity to the separating surface rotatable independently of such surface, means for stirring and distributing the material on the separating surface, and means for forcing or circulating material over such surface rotatable independently thereof, substantially as described.

10. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface forming one side of a covered channel or passage, and means for alternately increasing and decreasing the size or depth of such channel or passage by moving the other side, substantially as described.

11. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface forming one side of a covered channel or passage in which the separation is effected, and means for changing the size or depth of such channel or passage from the beginning to the end of the operation by moving the other side, substantially as described.

12. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface forming one side of a covered channel or passage in which the separation is effected, and means for gradually changing the size or depth of such channel or passage by moving the other side, substantially as described.

13. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface forming one side of a covered channel or passage in which the separation is effected, means for gradually changing the size or depth of such channel or passage by moving the other side, and means for forcing or circulating material through the channel or passage, substantially as described.

14. In a centrifugal ore separator, the combination of a rotatable vessel adapted to contain a body of water while in operation, and provided with a separating surface forming one side of a covered channel or passage in which the separation is effected, means for gradually changing the size or depth of such channel or passage by moving the other side, means for stirring and distributing the material in such channel or passage, and means for forcing or circulating material through such channel or passage, substantially as described.

15. In a centrifugal ore separator, the combination of two rotatable cylinders, one within the other, with a channel or passage between them, the outer cylinder adapted to contain a body of water while in operation, and with a separating surface forming one wall of such channel or passage, at least one of said cylinders being movable endwise with respect to the other, substantially as described.

16. In a centrifugal ore separator, the combination of a rotatable vessel provided with a separating surface and with hollow shafts or trunnions, a deflector within the vessel provided with shafts or trunnions extending over such hollow shafts or trunnions, and rotatable independently of the vessel, and means for effecting the independent rotation of the vessel and deflector, substantially as described.

17. In a centrifugal ore separator, the combination of a rotatable vessel provided with a separating surface and with hollow shafts or trunnions, a deflector within the vessel movable endwise with respect to the vessel and provided with shafts or trunnions extending through the hollow shafts or trunnions of the vessel, and means for effecting the endwise movement of the deflector, substantially as described.

18. In a centrifugal ore separator, the combination of a rotatable vessel provided with a separating surface and with hollow shafts or trunnions, a deflector within the vessel provided with hollow shafts or trunnions extending through the hollow shafts or trunnions of the vessel, and means for circulating material over the separating surface of the vessel, mounted on a shaft extending through the hollow shafts or trunnions of the deflector, substantially as described.

19. In a centrifugal ore separator, the combination of rotatable cylinders, one within the other, with a channel or passage between them, a separating surface and a stirrer or distributer within the channel or passage, and means for forcing or circulating material through such channel or passage, substantially as described.

20. In a centrifugal ore separator, the combination of two rotatable cylinders, one within the other, each rotatable independently of the other, with a channel or passage between them, and a separating surface within such channel or passage, substantially as described.

21. In a centrifugal ore separator, the combination of two rotatable cylinders, one within the other, with a channel or passage between them, a separating surface and a stirrer and distributer within the channel or passage, and mechanism within the inner cylinder for forcing or circulating material through such channel or passage, substantially as described.

22. In a centrifugal ore separator, the combination of two rotatable cylinders, one within the other, with a channel or passage between them, a separating surface in the channel or passage, and means for changing the size or depth of such channel or passage, substantially as described.

23. In centrifugal ore separators, the combination of two rotatable cylinders, one within the other, of a greater diameter through one portion than another, at least one of the cylinders being movable endwise with respect to the other, and a separating surface between the cylinders, substantially as described.

24. In a centrifugal ore separator, the combination of two rotatable cylinders, one within the other, of a greater diameter through one portion than another, at least one of the cylinders being movable endwise with respect to the other, a separating surface between the cylinders, and means for forcing or circulating material over the separating surface, substantially as described.

25. In a centrifugal ore separator, the combination of two rotatable cylinders, one within the other, of a greater diameter through one portion than another, at least one of the cylinders being movable endwise with respect to the other, and a separating surface and a stirrer and distributer between the cylinders, substantially as described.

26. In a centrifugal ore separator, the combination of two rotatable cylinders, one within the other, at least one of the cylinders being provided with ribs, corrugations or projections on its surface for stirring and distributing the material under treatment, and a separating surface between the cylinders, substantially as described.

27. In a centrifugal ore separator, the combination of two rotatable cone-shaped cylinders, one within the other, at least one of the cylinders being movable endwise with respect to the other, and a separating surface between the cylinders, substantially as described.

28. In a centrifugal ore separator, the combination of two rotatable cone-shaped cylinders, one within the other, at least one of the cylinders being movable gradually endwise with respect to the other, and a separating surface between the cylinders, substantially as described.

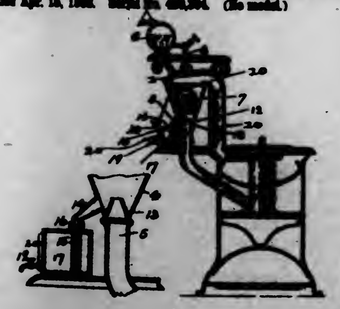
29. In a centrifugal ore separator, the combination of a rotatable separating surface, means for introducing material and water to such surface, and means for causing water to circulate repeatedly over the separating surface before its discharge from the separator, substantially as described.

30. In a centrifugal ore separator, the combination of two rotatable cylinders of a greater diameter through one portion than another, at least one of said cylinders being movable endwise with respect to the other, and mechanism for alternately effecting such endwise movement forward and backward during the operation of the machine, substantially as described.

31. In a centrifugal ore separator, the combination of two rotatable cone-shaped cylinders, one within the other, the inner cylinder being movable endwise with respect to the outer, and the outer cylinder being mounted on hollow shafts or trunnions through which the shafts or trunnions of the inner cylinder extend, and means for effecting the endwise movement of the inner cylinder through the instrumentality of its extended shaft or trunnion, substantially as described.

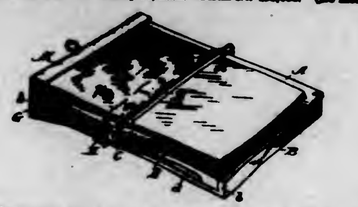
32. In a centrifugal ore separator, a rotatable separating surface adapted to receive and retain material thereon the more securely the greater the amount of centrifugal force developed, and means for forcing or circulating a current of water over the separating surface in a thin and substantially uniform sheet or layer, irrespective of the rotation of the separating surface, substantially as described.

490,085. VAPOR-STOVE. CHARLES W. BENSON, Marion, Ohio. Filed Apr. 15, 1892. Serial No. 429,304. (No model.)



Claim.—In a vapor stove, the combination with a feed tank, a flaring tube connected therewith, a drip cone located in said tube, a feed pipe connected therewith and with a burner, having its upper end contracted or tapering and projecting up into said flaring tube and forming a receptacle therebetween for unvaporized oil, and an air pipe leading from the burner to the upper end of the flaring tube; of an oil collecting receptacle having a faucet, and a draw off pipe located within and secured to the bottom of said receptacle and provided with a series of holes near its lower end, and its upper end connected with the lower end of the flaring tube and communicating with the receptacle or space for unvaporized oil, substantially as described.

490,086. WRITER'S ALIGNING-GUIDE. DAVID F. SAMS, Washington, D. C. Filed May 14, 1892. Serial No. 432,932. (No model.)



Claim.—1. A writer's guide comprising a suitable top or writing surface, a slide, a raised hand guide arranged across said top and connected to said slide by intermediate supports, and pawl and ratchet feeding devices connected to the slide for moving the latter and the hand guide, substantially as and for the purpose described.

2. A writer's guide consisting of a base, an elevated top, a slide guided on the base and carrying a raised hand guide which extends from side to side across the top, and feeding devices arranged below the top and connected to the slide to move the latter with a step by step movement, as and for the purpose described.

3. A writer's aligning guide comprising a suitable base, a top, a slide guided on the base and carrying an elevated hand guide, feeding devices arranged below the top and connected to the slide, and a release key at one side of the top and connected to the feeding device, to throw the same out of action and enable the slide and guide to be readily returned to any desired position, as and for the purpose set forth.

4. A writer's aligning guide comprising a suitable base and top, a slide guided thereon and carrying an elevated hand guide above said top, means for moving said slide with a step by step movement, and a release key adapted to throw the feed mechanism out of action to return the slide and guide to their initial positions, substantially as and for the purpose described.

5. A writer's guide comprising a suitable base and top, a slide guided in said base and carrying an elevated hand guide, a rock-shaft on said slide provided with a pawl, a reciprocating rack-bar engaged with the pawl, and a lever for moving said rack-bar, substantially as and for the purpose described.

6. The combination of a suitable top and base, a slide guided in said base, a hand guide above said top and base and carried by the slide, a reciprocating rack-bar guided on said base, a lever connected to the rack-bar, and a spring-controlled rock shaft carried by the slide and having the pawl and the release key, substantially as described.

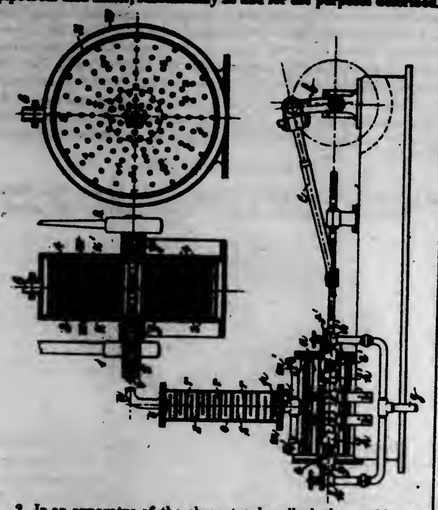
7. The combination of a suitable base and the top, the slide guided on the base and fitting in the slots at the sides of the base, the hand-guide above said top and fixed to the slide, a rack-bar and means for moving the same, a rock shaft carrying a pawl, and a friction spring for holding the slide in place, substantially as described.

8. A writer's guide, comprising a base having a central way and the guide slots, a top, a slide fitted in the way and slots, the rock shaft journaled on the slide and carrying the pawl, the hand guide above the top and rigidly secured to the slide, a rack bar guided on the base above the slide, and a lever connected to said rock bar to reciprocate the same, substantially as and for the purpose described.

490,087. APPARATUS FOR MIXING GAS AND AIR. WILLIAM SUGDEN and JAMES WARD, London, England. Filed Mar. 28, 1892. Serial No. 426,994. (No model.)

Claim.—1. In an apparatus of the character described, the combination with a pump having valves regulating the quantity and relative amounts of gas or vapor and air admitted to said pump, of a mixing chamber receiving said gases from said pump, a mixer connected to said mixing chamber, the said mixer consisting essentially of a hollow cylinder inclosing a perforated cylinder, two disks revolv-

ing in opposite directions in said inner cylinder, and inter-penetrating arms oppositely disposed connected to the said disks; and an eduction pipe from said mixer, substantially as and for the purposes described.



2. In an apparatus of the character described, the combination with a pump having valves regulating the quantity and relative amounts of gas or vapor and air admitted to said pump, of a mixing chamber *c* having perforated partitions *r* and baffle plates *s* between said perforated partitions, the said baffle plates having apertures at alternate ends, the said mixing chamber receiving said gases from said pump, a mixer connected to said mixing chamber, the said mixer consisting essentially of a hollow cylinder inclosing a perforated cylinder with two disks revolving in opposite directions in said inner cylinder, and inter-penetrating arms oppositely disposed connected to the said disks; and an eduction pipe from said mixer, substantially as and for the purposes described.

490,088. FURNACE. WILLIAM SWINDELL and JOHN C. SWINDELL, Allegheny, Pa. Filed Jan. 6, 1892. Serial No. 417,182. (No model.)

Claim.—1. As an improvement in the art of operating furnaces, the method herein described of cleansing the same, which consists in causing air to traverse the heated regenerating chambers and pass thence to and through the gas flues, whereby a combustion of the deposits in the gas flues is effected, substantially as set forth.

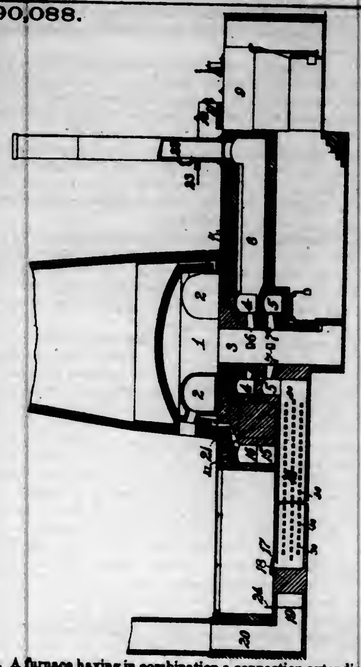
2. A furnace having in combination a valved connection extending from the gas flue at or near its junction with the producer or other supply to a stack, a valve for stopping the normal draft through the furnace and a valve for stopping the normal flow of gas from the producer or other supply, substantially as set forth.

3. A furnace having in combination therewith a main stack, an auxiliary stack provided with a valve and connected with the gas flue at or near its point of junction with the producer or other gas supply, a valve for stopping the draft through the main track, and a valve for stopping the normal flow of gas from the producer or other supply, substantially as set forth.

4. In a furnace, the combination of a heating chamber, regenerating chambers provided with an air inlet, flues extending from the regenerating chambers to the heating chamber, gas conducting flues having an open connection with the flues from the regenerating chamber and with the heating chamber, and an auxiliary stack having a valved connection with the gas flues for causing the air to traverse the regenerating chambers, the flues extending therefrom and the gas flues, whereby a combustion of the deposits in the gas flues is effected, substantially as set forth.

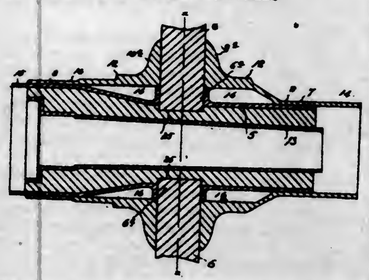
5. In a furnace, the combination of a heating chamber, gas producers, regenerating chambers provided with an air inlet, inlet and outlet flues for the heating chamber, two annular flues surrounding the inlet flues and connected thereto by a series of radial flues, a flue connecting one of the annular flues with the producers, a flue connecting the other annular flue with the regenerating chambers, an auxiliary stack connected to the gas flue at or near its junction with the producers, a valve controlling the draft through the auxiliary stack a valve for stopping the normal draft through the furnace and a valve for stopping the normal flow of gas from the producer, substantially as set forth.

490,088.



6. A furnace having in combination a connection extending from the gas flue at or near its junction with the producer or other supply to a stack, a valve for stopping the normal draf through the furnace and a valve for stopping the normal flow of gas from the producer or other supply, substantially as set forth.

490,089. VEHICLE-HUB. ALFRED P. TAYLOR, Denver, Colo. Filed Apr. 11, 1892. Serial No. 428,506. (No model.)

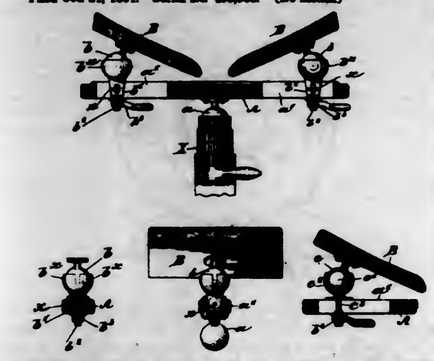


Claim.—1. In a vehicle hub the combination of a cylindrical metallic shell centrally apertured and exteriorly threaded at its extremities, the hub sections interiorly threaded to engage the threaded portions of the shell and provided with inner flanges adapted to engage the spokes, a suitable metal box and a wooden filling between the box and the cylinder, said filling being provided with an external circumferential recess, and suitable spokes, the tenons of which pass through the apertures in the cylinder and enter the recess in the filling, substantially as described.

2. In a vehicle hub the combination of the centrally apertured cylindrical shell exteriorly threaded at its extremities, the interiorly threaded hub sections having inner flanges provided with vertical faces to engage the spokes, a suitable metal box for the axle spindle, a wooden filling between the box and cylinder, said filling being provided with a shallow circumferential recess adapted to receive the extremities of the spoke-tenons, and two apertures extending through the filling, said spokes the tenons of which enter the apertures in the shell and extend into the recesses of the filling, two of the tenons which are formed of sufficient length passing through the apertures in the filling, substantially as described.

3. In a vehicle hub the combination of the metallic shell centrally enlarged and apertured and externally threaded at its extremities, the flanged hub sections interiorly threaded to engage the cylinder, vertically faced to engage the spokes and projecting externally beyond the box, a metal box for the axle spindle, a wooden filling located between the box and cylinder, circumferentially recessed to receive the spoke tenons, and provided with two diametrically located apertures extending through the filling and spokes the tenons of which pass through the apertures in the shell and enter the recess in the filling, two of the spokes being lengthened and entering the apertures in the filling, substantially as described.

490,090. HEAD-REST. SAMUEL C. G. WATKINS, Montclair, N. J. Filed Oct. 21, 1891. Serial No. 409,305. (No model.)



Claim.—1. An adjustable head-rest having a sectional cushion with the surfaces to support the head facing upward so as to take under and support the head, each section of said cushion being pivotally mounted, independently of each other on a support at its underside and provided with a clamp at the pivot, whereby the upper surfaces of said cushion sections may be set and held at different inclinations, as set forth.

2. A head-rest having the cushion on which the head lies composed of two sections mounted adjustably in the bar of the rest, whereby the distance between them may be varied, and each of said sections mounted pivotally on its support, and provided with a clamp whereby the upper surfaces of the same may be set at different inclinations.

3. In adjustable head-rests the combination with a bar A, having slots *a'*, of the two sections B, forming the cushion or support for the head, each of said sections having a ball-and-socket mounting and being mounted adjustably in one of the slots of the bar, substantially as and for the purposes set forth.

4. In a head-rest, the combination with the bar A, having slots *a'*, of the hinged sectional sockets mounted in the respective slots, the screw-stems on said sockets, the nuts on said screw-stems, the sections B, of the cushions, and the balls *b*, secured to the respective sections B and clamped by the respective sockets on the bar.

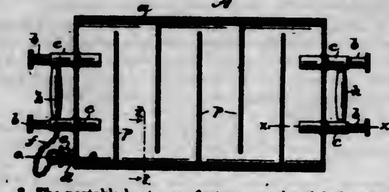
5. The combination with an arm and clamp to support a head-rest, of the said rest, comprising a supporting bar, having a universal pivoted connection with said arm, and a sectional cushion on said bar, each section of said cushion being pivotally and independently attached to its support and provided with clamps at the pivots, substantially as set forth.

6. The combination with an arm and clamp to support a head-rest, of the head-rest, comprising a bar having a ball which is clamped in a socket in the arm so as to form a ball and-socket joint, and two cushion-sections on said bar, each of said sections being pivotally mounted on its support and provided with a clamp at the pivot, substantially as set forth.

7. The combination with an adjustable arm to support a head-rest of the said rest, comprising a supporting bar having a universal pivotal connection with said arm, and two cushion sections mounted on said bar and independently and pivotally adjustable thereon, said adjustable connections having clamps for fixing the cushion sections in position when set, substantially as described.

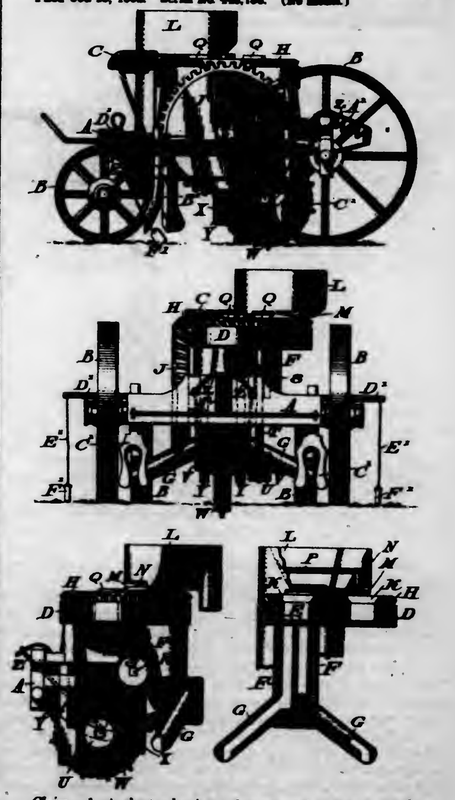
490,091. PORTABLE FOOT-WARMER, &c. ALBERT A. WHITTLE, Providence, R. I. Filed Feb. 20, 1892. Serial No. 422,206. (No model.)

Claim.—1. A portable foot-warmer for carriages, the same consisting of a flattened and stayed sheet-metal vessel having a charging inlet communicating with the interior, and provided with yielding ends arranged to hold the heater in position when in use, substantially as described.



2. The portable heater or foot-warmer hereinbefore described, the same comprising a flattened interiorly-stayed sheet-metal vessel provided with handles and having a stoppered charging inlet, and one or more spring-resisted retaining pins mounted in each end of the vessel, all combined and adapted for operation substantially as and for the purpose set forth.

490,092. CORN OR POTATO PLANTER. WILLIAM WILLIAMS, Philadelphia, Pa., assignor of one-half to Hall & Garrison, same place. Filed Oct. 13, 1892. Serial No. 448,726. (No model.)



Claim.—1. A planter having a hopper with a rising and falling flap therein, and a shoe at the bottom, a stem on said shoe for engagement with said flap, and means for raising and lowering said shoe, substantially as described.

2. A planter having a pocketed wheel, a table with a chute below the same, projections on said wheel, and means for rotating said wheel, a hopper above said wheel, a flap in said hopper, a shoe at the base of the hopper adapted to be engaged at intervals by said projections, and a stem which is connected with said shoe and adapted to engage said flap, the parts named being combined substantially as described.

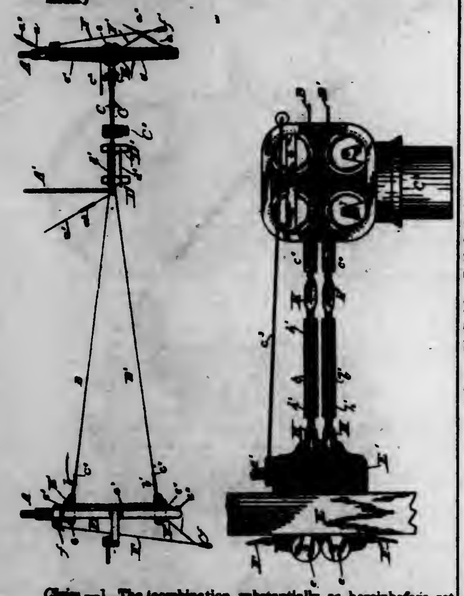
3. A planter having a pocketed wheel, and a chute adapted to be placed in communication with the pockets thereof, a gear wheel for operating said pocketed wheel, a driving wheel and an intermedi-

ate belt and pulley for operating said gear wheel, said driving wheel being mounted on yielding bearings on the frame of the planter, substantially as described.

4. A planter having a frame, a table with openings therein, chutes exiting from said openings, a rotary wheel with openings adapted to register with said table openings, a hopper with a flap thereon, and mechanism connected with said hopper and wheel for operating said flap, said parts being combined substantially as described.

5. A planter having a frame, a seed discharging mechanism mounted thereon, including a wheel and shaft, a pulley on said shaft, vertical hangers connected with said frame and having segmental slots therein, a driving wheel mounted on a shaft journaled in said slots and connected by a pulley and belt with said first-mentioned pulley and spring-pressed arm connected with the shaft of said wheel and working in the cross bar of the frame, said parts being combined substantially as described.

490,093. CASH AND PARCEL CARRIER APPARATUS. WILLIAM H. ALBAUGH, Mansfield, Ohio, assignor to the Barr Cash and Package Carrier Company. Filed Aug. 29, 1892. Serial No. 444,355. (No model.)



Claim.—1. The combination substantially as hereinbefore set forth, with the turn-plate, of the skeleton guide formed as described, of brackets secured to the bottom of the plate, thence bent obliquely and perpendicularly downward, horizontally outward, vertically upward over and downward, and having the guide-ribs or guards attached thereto at about the points stated, above and below said plate.

2. The combination substantially as hereinbefore set forth, with the turn-plate, of wires leading from each station to the track therein passed through the extreme ends of said track and returned to their respective stations, and spreading devices at each station for the wires.

3. The combination substantially as hereinbefore set forth, with the track wires, of the guide-brackets, the slides moving thereon, the springs arranged to hold said slides against each other at the center of the bracket and means for spreading said slides momentarily apart.

4. The combination substantially as hereinbefore set forth, with the track-wires, the guide-brackets, and the spreading slides moving thereon, of the coiled springs independently connecting each of said track-wires directly to its respective spreading slides.

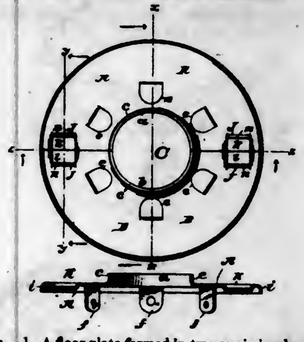
5. The combination substantially as hereinbefore set forth, with the track-wires, the guide-brackets and the slides moving thereon of the spring-turn-buckle connecting said track-wires and the slides.

6. The combination substantially as hereinbefore set forth, with the track-wires, the guide-brackets, the slides moving thereon and their anti-friction rolls, of the springs extending from the upper slide to the lower end of the guide-bracket and from the lower slide to the upper end of the guide-bracket.

7. The combination substantially as hereinbefore set forth, with the track-wires, the guide-brackets and the slides moving thereon of the cord leading from the upper slide over a pulley and thence down and the cord leading from the lower slide to the first named cord and united to it by a handle whereby the slides can be simultaneously spread.

8. The combination substantially as hereinbefore set forth, with the track-wires, the guide-brackets and the slides having anti-friction rolls moving along side guide-brackets, of the curved spring arranged along the back of said guide-brackets and traversed by said anti-friction rolls.

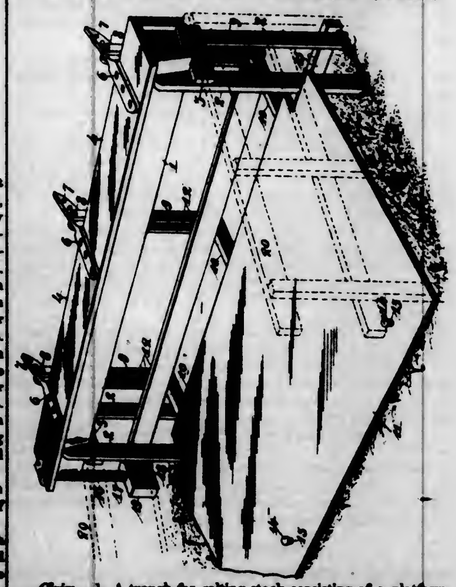
490,094. FLOOR-PLATE. WILLIAM J. BALDWIN, Brooklyn, N. Y. Filed May 20, 1891. Serial No. 394,020. (No model.)



Claim.—1. A floor plate formed in two semi-circular annuli each of which has a rim substantially three times as deep as the thickness of the annulus and a depression parallel to the diameter in depth equal to the thickness of the annulus, slots in said depressions, and fasteners passed through the slots and riveted down into the depressions, as and for the purpose described.

2. A floor-plate formed of two semi-circular annuli, each of which has a depression parallel to its diameter, slots in the said depressions, and fasteners passed through the slots and riveted down into the depressions, as described.

490,095. TROUGH FOR SALTING STOCK. ELISHA F. BASKETT, McFall, Ala. Filed Sept. 28, 1892. Serial No. 447,194. (No model.)

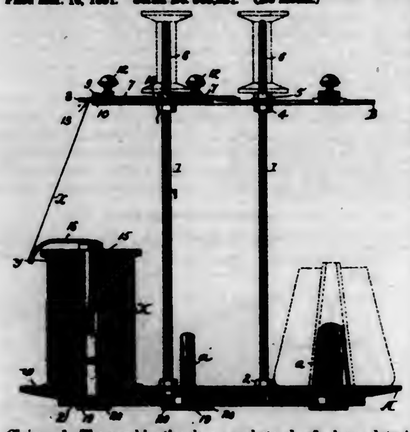


Claim.—1. A trough for salting stock consisting of a platform movably secured to the ground, posts fixed into the ground and supporting a trough, bearers attached to a hinged cover the ends of which project, connecting arms attached to the said platform and bearers, an arm attached to one end of the cover and provided with openings, and a weight adjustable upon said arm for closing the cover, substantially as described.

2. A trough for salting stock, consisting of a platform movably secured to the ground, transverse pieces 10, secured to the same and projecting a suitable distance, a hinged cover 4, for the said trough, bearers 6, fastened to the said cover and projecting beyond the same, connecting arms 9, attached to the said bearers and pieces 10, respectively, an arm 16, attached to one end of the said cover, and a weight 19, adjustable upon said arm, for closing the cover upon the trough, substantially as described.

3. A trough for salting stock, consisting of a platform 11, pins 14, passed through the same and into the ground, transverse pieces 10, fastened to the said platform and projecting a suitable distance, posts 2, supporting a trough, a longitudinal piece 15, secured to the said posts upon which rest the end of pieces 10, a cover 4, hinged to the said trough, bearers 6, fastened to the said cover and projecting beyond the same, and having holes therein connecting arms 9, movably attached to said bearers and ends of pieces 10, an arm 16, attached to one end of the said cover and provided with openings 17, a weight 19, adjustable upon said arm, and a pin 18, for holding said weight upon said arm, substantially as described.

490,096. COMBINED SPOOL-HOLDER AND TENSION. HENRY A. RAUH, New York, N. Y., assignor to J. B. Lozier & Co., Boston, Mass. Filed Mar. 16, 1891. Serial No. 385,321. (No model.)



Claim.—1. The combination in a spool stand, of a base plate A, having a series of supports for spools, cones or bobbins and a plate supported in a position above the plate A, and tension devices upon such plate and guide eyes for the threads in line or nearly so with the axis of the respective supports and flier arms, and eyes for the threads whereby the threads will draw off with uniformity from the respective spools, substantially as specified.

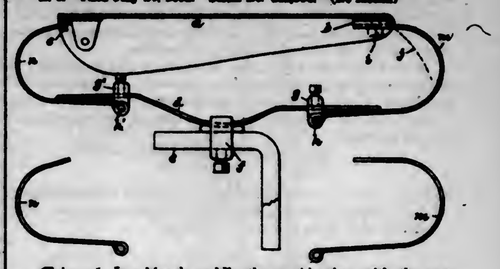
2. The combination with the support for a spool or bobbin, of another plate or support carrying a perforated tension plate 8, the spring tension plate 7 having the downward projecting lugs 9 at one end which hold the plate at one end above the plate 8, the said lugs being separated from each other, and the plate 8 being provided with the holes 13, and 14, the hole 13 being in front of the opening between the lugs 9 whereby the thread may pass through the said hole and through the space between the lugs and between the tension plates, to the hole 14, and the adjusting screw, substantially as set forth.

3. The combination of the base-plate A provided with the spool or bobbin studs, the upper plate B provided with the tension devices, the standards uniting the two plates, and the detachable spool pin supported above the plate B, substantially as described.

4. The combination of the base plate provided with the spool or bobbin studs, the upper plate provided with tension devices, the standards uniting the two plates, the nuts 4 and 5 upon the said standards between which the upper plate is clamped, and the detachable pins 6 screwed into the nuts 5, substantially as set forth.

5. In a spool stand the combination of the base plate having an opening surrounded by a notched flange, and the detachable spool or bobbin stud provided with the shoulders and lugs which embrace the said flange and hold the stud in place, substantially as set forth.

490,097. RETURN-CHAT SPRING. HENRY BRIGGS, Everett, N. J. Filed July 27, 1892. Serial No. 441,202. (No model.)



Claim.—1. In a bicycle saddle, the combination, with the seat leather *a* having the cantle *b*, of a spring bar *d* connected to the front of the seat leather, a clamp *f* for securing the same upon a post, and a U-spring secured at its upper end to the cantle and attached at its lower end to the spring bar *d* by a pivotal connection in the rear of the clamp *f*, substantially as set forth.

2. In a bicycle saddle, the combination, with the seat leather *a* having a cantle *b*, of a spring bar *d* attached to the front of the seat leather, a clamp for securing the same upon a seat post, a pivot A affixed to the spring bar *d* within its rear end and adjustable to and from the clamp, and the U-spring *n* secured at its upper end to the cantle and hinged at its lower end beneath the spring bar *d* to the pivot A, substantially as herein set forth.

3. In a bicycle saddle, the combination, with the seat *a* having cantle *b* and hook *c*, of the spring bar *d* curved downward at its middle, the clamps *g*, *g'*, provided with the pivots A, *k'*, and secured upon the spring bar inside its ends, and the U-springs *n* and *n* connecting the pivots respectively with the cantle and the hook, as set forth.

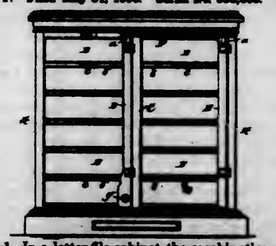
490,098. COMPOUND LOCKING DEVICE. HENRY A. BRINTON, Harrisburg, Pa. Filed June 16, 1892. Serial No. 436,961. (No model.)



Claim.—1. In a compound locking device, the combination with a locked member, of a wedge or key therefor, and a plate having oppositely directed barbs on opposite sides thereof, one set of barbs engaging with the wedge, and the other set with the locked member, to oppose the withdrawal of the wedge and plate.

2. In a compound locking device, the combination with a locked member, of a wedge or key adapted to be inserted therein, and a double plate inclosing said wedge or key and having oppositely directed barbs or projections adapted to engage with the said member on the outside and with the inclosed wedge or key on the inside of the plate.

490,099. LETTER-FILE CABINET. BLOOMFIELD BROWER, New York, N. Y. Filed May 31, 1892. Serial No. 435,203. (No model.)



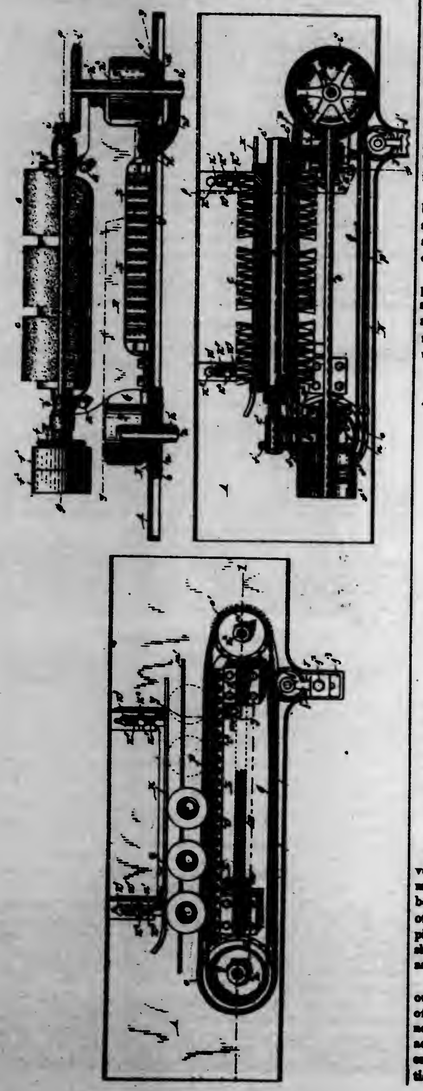
Claim.—1. In a letter file cabinet, the combination of a plurality of letter files, a plurality of independently mounted locking strips therefor and connections between said locking strips whereby upon the movement or locking and unlocking of one of said strips all of said strips are simultaneously moved or locked and unlocked, substantially as described.

2. In a letter file cabinet, the combination of a plurality of tiers of letter files, a locking strip for each tier, and connections between said locking strips whereby upon the movement or locking and unlocking of one of said locking strips all of said strips are simultaneously moved or locked and unlocked, substantially as described.

3. In a letter file cabinet, the combination of a plurality of tiers of letter files, a locking strip for each tier, and a rod connected to said locking strips, whereby upon the movement or locking or unlocking of one of said strips all of said strips are simultaneously moved or locked and unlocked, substantially as described

4. In a letter file cabinet, the combination with a plurality of locking strips hinged to the cabinet, of the rod F, and connections between each of said locking strips and the rod F consisting of a pin or stud *e* upon the former entering an opening in said rod, substantially as described.

490,100. CAR-WIPING MACHINE. CHARLES A. BURT, Rochester, N. Y., assignor to the Burt Manufacturing Company, same place. Filed May 3, 1891. Serial No. 391,414. (No model.)



Claim.—1. In a machine for cleaning the tops of cans, the combination with the table supporting the cans, top uppermost, of a fixed belt bearing against the sides of the cans and a traveling feeding device bearing against the bottoms of the cans, substantially as set forth.

2. The combination with the table supporting the cans, top uppermost, of a fixed belt arranged vertically on the table and bearing with its upper edge against the bottoms of the cans, substantially as set forth.

3. The combination with the table and the main feed belt bearing against the cylindrical sides of the cans, of an auxiliary fixed belt bearing against the bottoms of the cans, substantially as set forth.

4. The combination with the can supporting table, of a main feed belt bearing against the cylindrical sides of the cans, an auxiliary feed belt bearing against the bottoms of the cans, and driving mechanism whereby the auxiliary belt is actuated at less speed than the main belt, substantially as set forth.

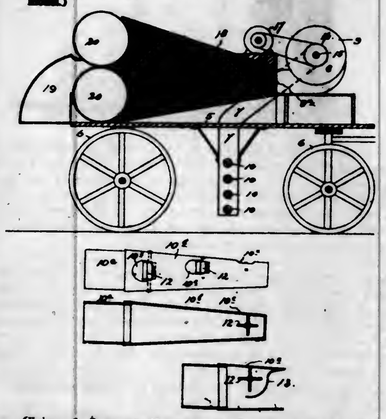
5. The combination with the can supporting table, of a main feed belt, a driving pulley whereby the main belt is actuated, an auxiliary feed belt, and a driving wheel for the auxiliary belt secured to the shaft of the driving pulley of the main belt and made of less diameter than said pulley, substantially as set forth.

6. The combination with the can supporting table, of a main feed belt, a driving pulley whereby the main feed belt is actuated, an auxiliary feed belt, a driving wheel whereby the auxiliary belt is actuated and which is smaller in diameter than the driving pulley of the main belt, and a guide whereby the carrying portion of the auxiliary belt is held outside of the main belt, substantially as set forth.

7. The combination with the can supporting table, of a main feed belt, an auxiliary feed belt, a driving pulley and wheel for said belts secured to a vertical shaft, a driving shaft arranged above said belts and gear wheels connecting said driving shaft with the vertical shaft of the belt pulley and wheel, substantially as set forth.

8. The combination with the table provided with an upwardly projecting rib and the main feed belt, of vertical rollers supporting said belt and arranged with the front sides of their lower journals against said rib, a notched plate in which the rear sides of said journals are arranged, and a notched plate and cap piece in which the upper journals of said rollers are confined, substantially as set forth.

490,101. COTTON-PICKER. HARRY H. GALL and AUGUSTUS A. CLOUSE, Denver, Colo. Filed Dec. 18, 1891. Serial No. 415,540. (No model.)

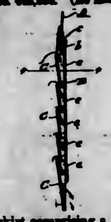


Claim.—1. In a cotton harvester the combination with a suitable vehicle, a screen-receiving chamber having rollers in the rear, exhaust mechanism having discharge openings communicating with said chamber and connected with suction tubes leading downward therefrom, of nozzles flexibly attached to said tubes and provided with rotating picker-blades pivoted therein in proximity to openings formed in the shell of the nozzle for the entrance of the plant-staples, substantially as described.

2. In a cotton picker the combination of a nozzle closed at its outer extremity and having openings in its side walls for the entrance of the plant staples, rotating picker blades located wholly within the nozzles and in proximity to the side openings and interior shields adapted to protect the rotating fans or blades from the air currents entering the nozzles at points farther from the suction pipes, substantially as described.

3. In a cotton picker the combination of a nozzle having rotating picker blades or fans pivoted therein in proximity to openings for the entrance of the plant staples and interior shields adapted to protect the rotating fans or blades from the air currents entering the nozzles at points farther from the suction pipes, substantially as described.

490,102. UNDERSKIRT. MAX OSER, Milwaukee, Wis. Filed Sept. 12, 1892. Serial No. 445,898. (No model.)

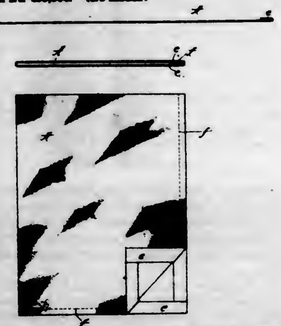


Claim.—1. An underskirt comprising a main or body portion of non-waterproof material, and a lower waterproof portion consisting of a base-piece having a series of overlapping flounces united thereto upon the inner side by vertically disposed lines of stitches, the flounces being separate from the base-piece between the lines of stitches, whereby channels are formed, substantially as set forth.

2. An underskirt comprising a main or body portion of non-waterproof material, and a lower waterproof portion consisting of a base having a series of overlapping flounces united thereto upon the inner side by vertically disposed lines of stitches, the lower flounce being extended below the base-piece and all of the flounces separate from the base-piece between the lines of stitches, whereby channels are formed, substantially as set forth.

3. An underskirt comprising a main or body portion of non-waterproof material, and a detachable lower waterproof portion consisting of a base-piece having a series of overlapping flounces united thereto upon the inner side by vertically disposed lines of stitches, the flounces between each two lines of stitches being separate from the base-piece between the lines of stitches, whereby channels are formed, substantially as set forth.

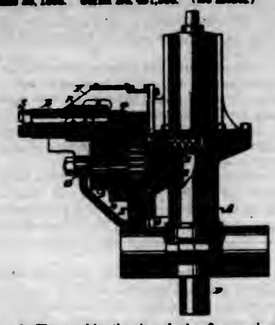
490,103. BAG. JAMES R. COLLINS, Brooklyn, N. Y. Filed June 4, 1892. Serial No. 435,592. (No model.)



Claim.—1. As a new article of manufacture, the herein described bag, the same having the edges of the body at the several portions turned in without being stitched and secured together by a single line of stitching passing from the exterior through the four thicknesses formed by the sides of the bag and the inturned edges, with the thread extending from one perforation of the needle to the next along the sides of the bag, whereby the turning of such bag, during the process of manufacture, is obviated, and a secure joining of the edges thereof insured, as set forth.

2. The combination with the body of the bag provided with the unstitched inturned edges *e e*, of a single line of stitching for uniting such edges formed from thread *f* passing from the exterior of the bag through the four thicknesses formed by the sides and the inturned edges thereof, with such thread extending from one perforation of the needle to the next along the sides of the bag, whereby the turning of such bag during the process of manufacture is obviated, and a secure and close joining of the edges thereof insured, as and for the purposes described.

490,104. SPEED-VARYING DEVICE. EDGAR CRAMBALL, Philadelphia, Pa., assignor to the Electro-Dynamic Company, same place. Filed June 20, 1892. Serial No. 437,309. (No model.)
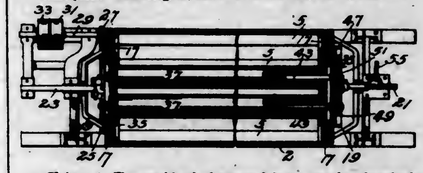


Claim.—1. The combination in a device for varying the speed of rotating shafts of two shafts, two or more wheels of respectively different sizes attached to one shaft, a separate wheel attached to the second shaft, and a frame having an angular slot conforming to the diameters of the first named wheels and forming a bearing for said second shaft, whereby said separate wheel may be caused to engage with either of the first named wheels by changing the position of the second shaft, substantially as described.

2. In a device for varying the relative speeds of two rotated shafts the combination of two shafts, two or more gear wheels of respectively different diameters attached to one shaft, a separate gear-wheel attached to the other shaft, and a frame having an angular slot forming a bearing for said second shaft, substantially as described.

3. In a speed changing device the combination of the shaft 13 having wheels 3 and 4 attached thereto, and the shaft 8, the wheel *a* attached thereto, the bearing B for said shaft, the pin *p*, and the frame having an angular slot *c*, all arranged and operating substantially as described.

490,105. COMBINED CHURN AND BUTTER-WORKER. REUBEN B. DENNOW, Minneapolis, Minn., assignor of one-half to Darius W. Payne, same place. Filed Aug. 15, 1892. Serial No. 443,070. (No model.)



Claim.—1. The combined churn and butter worker herein described comprising the cylinder, means for rotating said cylinder, said cylinder being provided with heads having open centers, independent heads arranged in said cylinder and supported independently thereof rolls arranged in said cylinder and mounted in said heads, and means for rotating said rolls.

2. The combination with the cylinder, provided with the heads having the open, central portions, heads 35 mounted in said cylinder and arranged to cover the open portions of the cylinder heads, independent means for supporting said heads 35, rolls 37 arranged in said cylinder and mounted in said heads 35, means for rotating said cylinder and means for connecting said rolls with said cylinder so as to be rotated therewith, and means for disconnecting them from said cylinder, substantially as described.

3. The combination, with the cylinder 2, provided with heads having open central portions, of the independent disks or heads 35 arranged to cover said open portions of the cylinder-heads, the rolls 37 mounted in said heads 35, and means for clamping said heads 35 to said cylinder heads so as to cause said heads 35 to be rotated with said cylinder, substantially as described.

4. The combination with the cylinder, having the heads with the open central portions, the rolls arranged in said cylinder and provided with journals extending through the open portions of the cylinder heads, means for supporting and rotating said cylinder, independent means for supporting and rotating said rolls, and the heads or disks 35 arranged to close the open central portions of the cylinder-heads.

5. The combination with the cylinder, provided with heads having open central portions, rolls mounted in said cylinder and provided

with journals extending through the open portions of the cylinder heads, disks or heads 35 for closing the open portions of said cylinder heads, means for driving said cylinder, and means arranged to connect said rolls with said cylinder, or disconnect them therefrom, and means for clamping said heads 35 to the heads of the cylinder, substantially as described.

6. The combination with the cylinder, provided with heads having open central portions, the rolls 37 mounted in said cylinder and provided with journals extending through the open portions of said cylinder heads, the disk 35, means for clamping said disks to the cylinder heads, means for driving said cylinder, gearing connecting said rolls with said cylinder, and means for throwing said gearing into or out of operation, substantially as described.

7. The combination, with the cylinder and the heads 35, of the rolls mounted in said cylinder and provided with journals extending through said heads, the sleeves 63 surrounding said journals, and the disks 67 outside of said heads, the ring 65 surrounding said disks, and the cap-plates 69 arranged over said disk, substantially as described and for the purpose set forth.

8. The combination with the cylinder, the heads 35, and the rolls 37, of the shaft 23 provided with the plate 57 in which the roll journals are mounted, the wooden sleeve 63, surrounding said journal, the wooden disk 67 and cork ring 65 surrounding said journal outside of said head 35, the plate 73 secured to the disk 35, and the cam ring 75 provided with the handle 77, all substantially as described.

9. The combination with the cylinder, provided with the flights upon its inner surface and with the heads having open central portions of the independent heads 35, the rolls 37, located in said cylinder, with their journals extending through the heads 35 and through the open central portions of the cylinder heads, means for supporting said rolls, means for driving said cylinder, means for connecting said rolls with said cylinder or disconnecting them therefrom, and means for clamping said heads 35 to the cylinder heads, for the purpose specified.

10. The combination with the cylinder, provided with the spiders 19, the longitudinally movable shafts 21 and 23 upon which said spiders are mounted, plates upon said shaft, rolls 37 provided with journals mounted in the spiders upon said shafts, the heads 35, means for driving said cylinder and means for driving said rolls from said cylinder, substantially as described.

11. The combination with the cylinder, and the rolls arranged therein, of the sliding journals 43, the plate in which said journals are mounted, the shaft 21 to which said plate is secured, and the lever for moving said shaft, substantially as described.

12. The combination with the cylinder, and the head 35, the rolls and the hollow shaft 23, provided with a plate supporting the journals of said rolls, of the vent tube 85 extending through said hollow shaft and through the head 35 and provided with the upturned end 87, substantially as described.

490,106. SHEDDING MECHANISM FOR LOOMS. CORNELIUS FALVEY, Spencer, Conn. Filed May 2, 1891. Serial No. 391,294. (No model.)

Brief.—A "close-shed" loom having the vibrator motion and a cam-operated locking bar for the harness-levers.

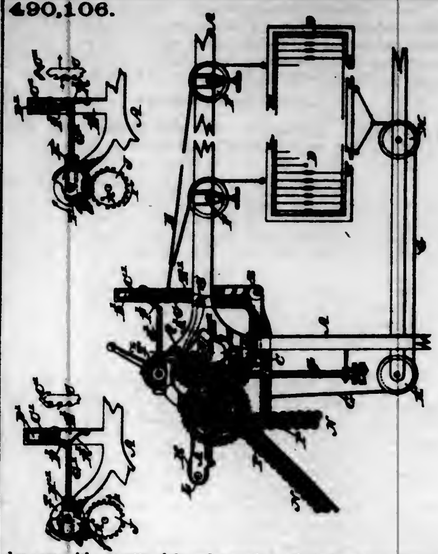
Claim.—1. In a close shed loom, a frame a harness jack with heddle, a vibrator lever with gear wheel thereon, mechanism substantially as described for operating said lever, two rotary cylinder gears on opposite sides of the gear wheel, each having partially plain and partially toothed surfaces, an arm pivotally connected to a wrist pin on the upper side of the gear wheel, and to a stud on the upper limb of the jack, said wrist pin and teeth of the cylinders being so arranged that a semi-rotation of the said gear wheel will move the wrist-pin from directly above the journal of the gear wheel to directly below it, whereby a heddle will be completely raised and lowered, or lowered and raised during a semi-rotation of a gear cylinder said parts being combined substantially as described.

2. A frame with side pieces having slots therein in their upper ends, oscillating jacks, a locking bar having a recessed under face and with its ends in said slots and adapted to hold said jacks in place, cam levers secured to the said side pieces, jointed rods having slotted heads and secured to said levers, and cylinder gears with cams mounted on the journals thereof, said parts being combined substantially as described.

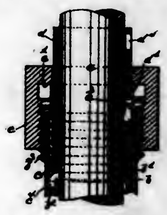
3. In a loom of the character described, harness jacks, a locking movable bar, pivoted levers bearing against the said bar to release the same, disks with recesses connected to said levers and spring pressed pawls adapted to engage in the recesses of said disk, said parts being combined substantially as described.

4. A frame with slotted side pieces, a locking bar recessed on its underside and with ends movable in said slots, harness jacks engaged by said bar, a pivoted lever bearing against said bar, a rotary cylinder gear with a partly plain and a partly toothed circumferential surface, a vibrator wheel adapted to engage said cylinder gear and having a pivoted arm connected with the said jacks, a cam on the journal of said cylinder gear, a rod pivoted to the said lever and having a slotted head mounted on the journal of the cylinder gear, and a roller on said head in contact with said cam, said parts being combined substantially as described.

490,106.



490,107. PACKING. ROBERT G. FERGUSON, Lakewood, N. J., assignor of two-thirds to William A. Williams, Scarborough, N. Y. Filed Feb. 19, 1892. Serial No. 422,070. (No model.)



Claim.—1. As a packing for a stationary and movable part, in combination, a coil of set material carried by one of said parts, means whereby the coil may be twisted to regulate the radial pressure thereof and means connected with the part carrying the coil whereby the several turns of the coil may be pressed together, substantially as described.

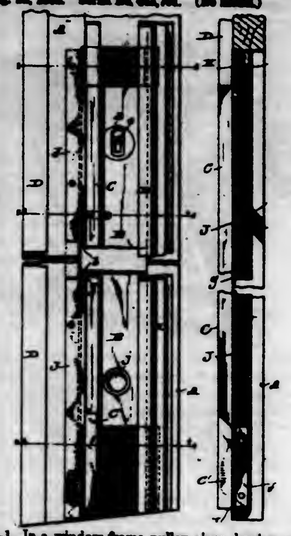
2. In combination, a rod or stem, a bearing for the same provided with a packing chamber and with means for securing one end of the packing coil in a fixed position, a coil within said chamber, a shoulder connected with said coil adapted to receive the pressure of twisting mechanism and a cap screw-threaded to the bearing whereby the coil may be compressed axially while it is being held by said twisting mechanism, substantially as described.

3. In combination with a rod or stem and its bearing, a coil interposed between the two, means whereby said coil may be twisted to regulate the radial pressure thereof and a member secured to the bearing whereby an axial thrust is exerted and maintained upon the coil when in operation, substantially as described.

4. In combination, the stem or rod, the bearing therefor, the cap for said bearing, a coil packing, a sleeve connected with one end thereof and projecting through said cap whereby said coil may be twisted without removing the cap, substantially as described.

5. As an article of manufacture, a packing composed of a coil provided with an interrupted groove on its inner face, substantially as described.

490,108. WINDOW-FRAME. BENJAMIN GOTSCH, Milwaukee, Wis. Filed Aug. 26, 1892. Serial No. 443,701. (No model.)



Claim.—1. In a window-frame pulley-piece having an opening and closure therefor provided with engaging castings, a bar uniting those of the castings that are fitted to the pulley-piece, substantially as set forth.

2. In a window-frame pulley-piece having an opening and a retractible removable closure for the same provided with engaging castings, a bar uniting those of the castings that are fitted to the pulley-piece, substantially as set forth.

3. In a window-frame pulley-piece having an opening and closure therefor provided with engaging castings, an angle-bar joining those of the castings that are fitted to the pulley-piece, the inwardly extended portion of the bar provided with an inclined notch, and a lug on said closure that engages the notch, substantially as set forth.

4. A window-frame pulley-piece provided with an opening, a retractible removable rabbeted closure for the opening having a portion of a parting-rail thereon adjacent to the rabbet, and an angle-bar fitted to said pulley-piece, this angle-bar constituting a rabbet for the reception of the one pertaining to said closure, substantially as set forth.

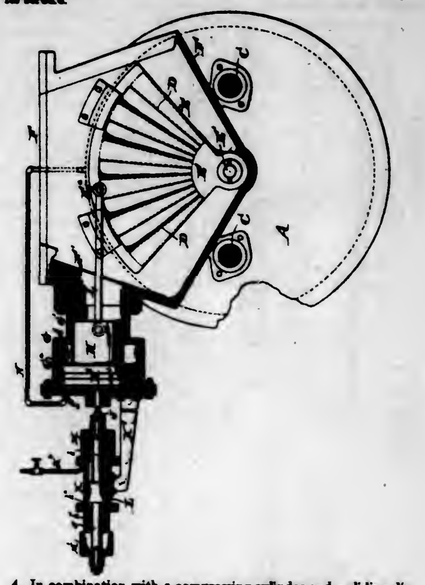
5. In a window-frame pulley-piece having an opening and closure therefor provided with engaging castings, a portion of a parting-rail on the closure, and a continuation of the parting-rail forming part of one of the castings fitted to the pulley-piece, substantially as set forth.

490,109. MOWING-MACHINE. WILLIAM R. GEER, Philadelphia, Pa., assignor to the Southwark Foundry and Machine Company, same place. Filed Aug. 11, 1891. Serial No. 402,346. (No model.)

Claim.—1. In a blowing engine the combination of an air compressing cylinder, a sliding discharge valve, an independent source of constant pressure, a cylinder K connected therewith, a piston L working in said cylinder and arranged to close and hold the slide valve shut with constant though yielding force; a cylinder G connected with the blowing cylinder near one end and with the air receiver of the engine at the other end, and a piston working in said cylinder and connected with the discharge valve as described and so that the valve will be opened when the pressure on said piston exceeds the force tending to keep it shut.

2. In a blowing engine the combination of an air compressing cylinder, a sliding discharge valve, an independent source of constant pressure, a cylinder K connected therewith, a piston L working in said cylinder and arranged to close and hold the slide valve shut with constant though yielding force; a cylinder G consisting of parts G' G² of different diameters—part G' connecting with the air receiver of the engine and part G² with the head of the blowing cylinder; and a differential piston H H' working in said cylinder and connected with the slide valve as described so that it will move to open the valve when the pressure on piston H' exceeds the forces tending to hold the valve shut.

3. In combination with a compressing cylinder and a sliding discharge valve thereof, a pneumatic cylinder and piston actuated by the pressure of air in the blowing cylinder and arranged to open the valve as described; a rod J connected with the slide valve; means as cylinder K and piston L acting on rod J so as to hold the valve shut with constant though yielding pressure; and means as described for gradually checking the motion of rod J in each direction at the end of its stroke.



4. In combination with a compressing cylinder and a sliding discharge valve thereof, a pneumatic cylinder and piston actuated by the pressure of air in the blowing cylinder and arranged to open the valve as described; a rod J connected with the slide valve; means as cylinder K and piston L acting on rod J so as to hold the valve shut with constant though yielding pressure; flanged heads M M' secured on rod J so as to have a slight longitudinal movement thereon and having air chambers along their hubs; washers O arranged to close the air passages when the flanged hubs rest against them; and cylinders k k' arranged to fit in the flanged heads, all substantially as and for the purpose specified.

490,110. TILE-MACHINE. FRANK GOSSELLOW, Vienna Cross Roads, Ohio. Filed Apr. 18, 1892. Serial No. 429,063. (No model.)

Claim.—1. In a tile machine, the combination with the die plate and a rotary shaft, of a core supported by said shaft and adapted to remain stationary during the rotation of the shaft.

2. In a tile machine, the combination with a die plate, the mud box and the conveyer shaft mounted therein, of a core for said die plate supported by said shaft, and intermediate connections between said core and shaft, whereby the core is adapted to remain stationary under the action of the outflowing material during the rotation of said shaft.

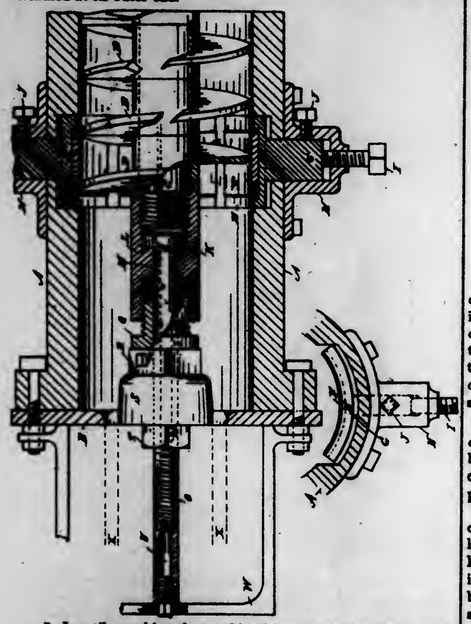
3. In a tile machine, the combination with the mud box, the die plate and a rotary shaft in said box, of a core for said plate, a core pin engaged with said core and shaft along their common axis, and adapted to allow the rotation of said shaft without rotating said core.

4. In a tile machine, the combination with the die plate, the mud box and a rotary shaft mounted therein, of a core pin extending outside of said box, and having a longitudinal oil cavity with inlet and outlet openings therefor, and a shoulder to prevent longitudinal movement, a sleeve secured to said shaft, and provided with a bearing surface for said pin and shoulder, and revolubly connected to said core pin, an irregular shaped collar and a core secured to said pin, whereby the bearings between said core pin and sleeve may be oiled from outside the mud box, and the core will remain stationary under the action of the outflowing material.

5. In a tile machine, the combination with the mud box, the screw conveyer and an inner bearing for the same at the hopper end, of an adjustable outer bearing for said conveyer, and adapted to present no obstruction to the outflowing material, and means to adjust said bearing.

6. In a tile machine the combination with the mud box, the screw

conveyer mounted therein, and the inner bearing for the same at the hopper end, of an outer bearing for said conveyer composed of segments bearing on the conveyer blades, each segment having an outward extension and adjusting means engaging therewith, whereby the segments are adjusted to keep the conveyer centrally located, and steadied at its outer end.



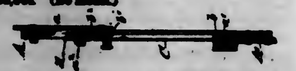
7. In a tile machine, the combination with the mud box, a screw conveyer mounted therein, and the inner bearing for the same at the hopper end, of an outer bearing composed of segments each having a bearing strip detachable therefrom, and also having an outward extension, a guide box for said extension mounted on the outside of said mud box, and adjusting means whereby each segment is adjusted to regulate said outer bearing.

8. In a tile machine, the combination with the die plate, the mud box, the screw conveyer shaft mounted therein, and an adjustable bearing for the outer end of said shaft, consisting of encircling segments bearing on the conveyer blades, of a core for said die plate, intermediate connections between said core and conveyer shaft, whereby said core is revolubly connected to said shaft, and adapted to remain stationary without being affected by the rotation of the latter, and the core is adjusted centrally in said die plate.

9. The combination with a mud box and its conveyer shaft mounted therein, of an adjustable bearing for said shaft having an extension through the wall of said mud box, a guide box having a closed socket for said extension, and mounted on said mud box, and adjusting means for said extension, whereby the conveyer shaft is adjusted, and the mud prevented from oozing about said extension.

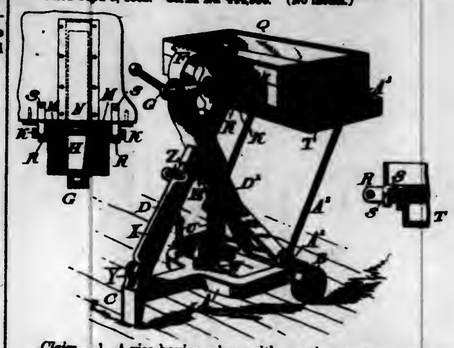
10. The combination with a die plate, a mud box, and a rotary shaft mounted therein, of a core pin revolubly connected to said shaft, a core and an irregular-shaped collar carried by said pin, whereby the core is kept stationary by the action of the outflowing mud upon the said collar, and unaffected by the rotation of said shaft.

490,111. FABRIC-HOLDING FRAME FOR EMBROIDERING-MACHINES. JAMES GRAY, New York, N. Y. Filed June 7, 1892. Serial No. 435,844. (No model.)



Claim.—In an embroidery-machine of the Swiss type, the combination, with the upper and lower bars of the fabric-supporting main-frame, said bars being provided respectively with recessed brackets and U-shaped supports, of supplemental frames having U-shaped lower rails and L-shaped legs attached to its upper rails and means for attaching the upper L-shaped legs to the recessed brackets of the main-frame, substantially as set forth.

490,112. PORTABLE VISE. JACOB GUMPERZ, Philadelphia, Pa. Filed Sept. 3, 1892. Serial No. 444,936. (No model.)

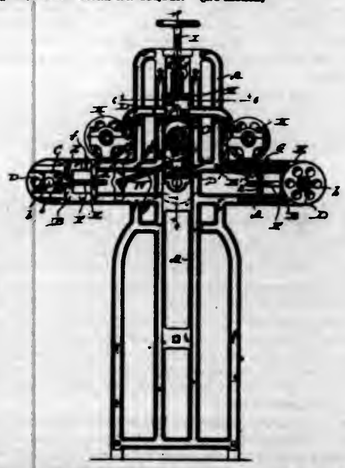


Claim.—1. A vise having a base with ears thereon, two arms pivoted to said ears, one of said arms freely passing through an opening in the other, jaws on the upper ends of said arms, a plate with an opening therein connected with one of said arms, an interiorly threaded boss mounted in said plate, and a screw rotatable in one of the arms and working in said boss, and passing freely through the opening in said plate, said parts being combined substantially as described.

2. A vise having a base, arms pivoted thereto and crossing each other, a tray having ears, stays connecting said ears, and ears on the base, jaws on said arms, and mechanism substantially as described connected with said tray and arms for operating the said jaws, said parts being combined substantially as described.

3. A vise having a base with ears, arms pivoted to said ears, and crossing each other, jaws on said arms, a cross head with a stem, the latter moving in an opening in the base, links connecting said cross head to said arms, a screw rotatable in one of said arms, and working in a pivoted boss in the other arm, and a tray having journal bearings for said boss, said parts being combined substantially as described.

490,118. IRONING-MACHINE. AXEL R. GUSTAFSON, Chicago, Ill., assignor of one-half to William F. Anderson, Negaunee, Mich. Filed Aug. 20, 1892. Serial No. 444,349. (No model.)



Claim.—1. A laundry machine comprising a suitable main frame, parallel transverse rollers journaled therein, an endless apron arranged on the rollers, an auxiliary frame under yielding pressure, a roller journaled in the latter frame in line with one of the apron-rollers, yokes connected to the auxiliary frame, rollers journaled in these yokes, tables arranged on the main frame under the upper portion of the apron in line with the yoke-rollers, suitable means for heating the rollers journaled in the auxiliary frame and yokes, and other suitable means for driving the auxiliary frame roller and the apron-roller in line therewith, substantially as set forth.

2. A laundry machine comprising a main frame, an endless apron arranged on rollers journaled in the frame, an auxiliary frame under yielding pressure in the main one, an ironing roller journaled in the auxiliary frame in line with one of the apron-rollers, cams fast on the journals of said ironing roller, blocks normally retained on the main frame, a lever mechanism connected to the blocks to bring them in and out of the path of the cams, and a drive-mechanism in gear with the ironing roller and adjacent apron-roller, substantially as set forth.

3. A laundry machine comprising a main-frame, an endless apron arranged on rollers journaled in the frame, an auxiliary frame under yielding pressure in the main one, an ironing roller journaled in the auxiliary frame in line with one of the apron-rollers, a table supported on the apron and provided with blocks that normally support said auxiliary frame, a board on the table of a height equal to the blocks and in rear of the latter for the greater part of its length, and a suitable drive-mechanism in gear with the ironing roller and adjacent apron-roller, substantially as set forth.

490,114. CHILD'S CARRIAGE. ALBERT A. HARMON, Baltimore, Md. Filed Sept. 6, 1892. Serial No. 445,171. (No model.)



Claim.—In a child's carriage, the bars B, and plate E secured to the said bars, having the separated lugs F and plates H which extend from the said separated lugs and provided with notches *e*, combined with the handles G pivoted between the said lugs and fitted with pins *f* adapted to enter the said notches when the handles are placed in either extreme position, substantially as specified.

490,115. REED TUBE FOR MUSICAL INSTRUMENTS. HENRY JAHN, Waterbury, Vt. Filed Apr. 19, 1892. Serial No. 429,516. (No model.)

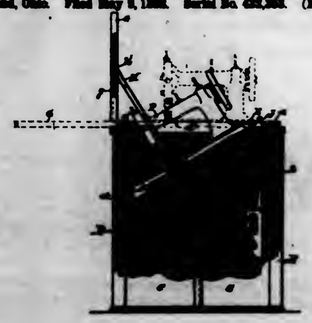


Claim.—1. A reed tube or pipe with one end obliquely truncated, over the opening of which obliquely truncated end is placed a vibrator.

2. A vibrator approximately triangular in shape.

3. A reed tube or pipe of triangular cross-section, one end of which is cut obliquely so as to make a triangular eschalot, in combination with a vibrator similar in outline to the eschalot, as shown and described.

490,116. CABINET SEWING-MACHINE TABLE. THEODOR KNUDSEN, Cleveland, Ohio. Filed May 9, 1892. Serial No. 432,268. (No model.)

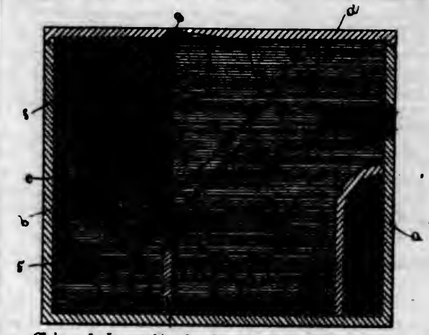


Claim.—1. The combination with a table having a central opening formed with grooves in its side at one end, of a platform hinged in the opening, the trunnions at the end of the table working in the grooves, the hinged leaf and links connecting the leaf and platform, said links having longitudinal movement on both the leaf and platform, substantially as set forth and described.

2. The combination with a table having a central opening formed with a ledge at one end, and an undercut edge at the other, and horizontal grooves in the sides adjacent to the ledge, of a platform, the lateral trunnions arranged at the end of the same and sliding in the grooves, the hinged leaf, and links connecting the leaf and platform, said platform having a beveled free end, substantially as set forth and described.

3. The combination with a table, having a central opening, provided with horizontal grooves in its sides, of a platform having trunnions at one end which slide in the grooves, the hinged leaf, and the links connecting the leaf and platform, the links being slotted at their lower ends, and working in grooves in the sides of the leaf, substantially as described.

490,117. CAMERA. WILLIAM S. LARRISON and A. P. HUTCHISON, Berwick, Conn. Filed Oct. 7, 1891. Serial No. 407,963. (No model.)



Claim.—1. In combination in a photographic camera having a receiving chamber and a magazine chamber adapted to receive or carry a number of film carriers, mechanism as set forth for successively releasing said carriers, and mechanism for transferring said carriers (after exposure) to the receiving chamber, consisting of a rock shaft with radial spring arms, and mechanism for releasing the free ends of said arms to permit them to inclose and clasp the edges of said carriers: all being substantially as and for the purposes specified.

2. In combination in a photographic camera having a receiving chamber and a magazine chamber adapted to receive or carry a number of film carriers, mechanism for successively releasing said carriers after exposure, mechanism as set forth for transferring said carriers to the receiving chamber, mechanism consisting of a curved spring located in a chamber adjacent to the receiving chamber, and mechanism for swinging the free end of said spring into engagement with the top carrier in said receiving chamber: all being substantially as and for the object specified.

490,118. STEAM-BOILER. HENRY A. LAUDERLIE, Pittsburg, Pa. Filed May 6, 1892. Serial No. 432,082. (No model.)

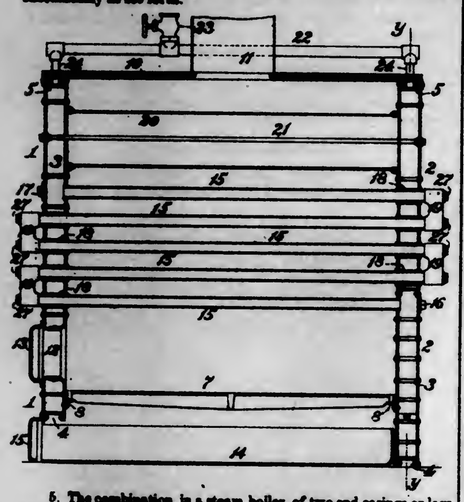
Claim.—1. The combination, in a steam boiler, of two end casings or legs, an upper steam receptacle connected to said casings, a fire chamber interposed between said casings, and a series of water tubes connected to the inner sheets of said casings at different receiving and delivery levels and passing intermediately freely through said casings and across the fire chamber, substantially as set forth.

2. The combination, in a steam boiler, of two end casings or legs, an upper steam receptacle connected to said casings, a fire chamber interposed between said casings, a series of coils or return bends of water tubes connected to the inner sheets of said casings at different receiving and delivery levels and passing intermediately freely through said casings and across the fire chamber, and headers or couplings connecting the tubes of each coil at alternately opposite ends externally to the end casings, substantially as set forth.

3. The combination, in a steam boiler, of two end casings or legs, an upper steam receptacle connected to said casings, a fire chamber interposed between said casings, tubular sockets connecting the inner and outer walls of each casing, and a series of water tubes connected at a receiving level to the inner sheet of one of the casings and at a higher delivery level to the inner sheet of the opposite casing.

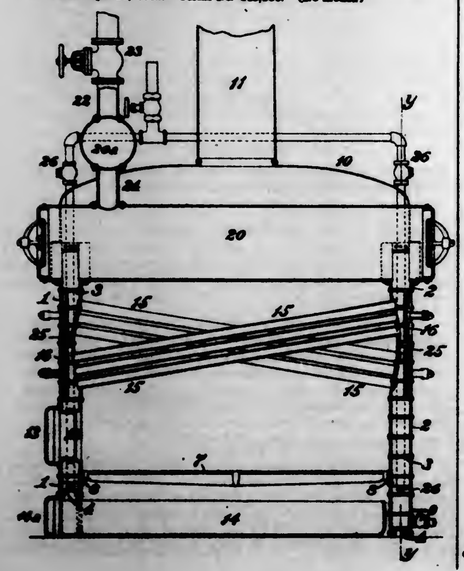
and passing intermediately freely through the tubular sockets of both sections and across the fire chamber, substantially as set forth.

4. The combination, in a steam boiler of two end casings or legs, an upper water connection between said casings, a fire chamber interposed between said casings, a series of water tubes connecting said casings at different receiving and delivery levels and passing across the fire-chamber, a diaphragm or circulating plate extending across one of said casings above the receiving ends of the water tubes, a water passage connecting the space above and below the diaphragm, and a feed water pipe leading into the space below the diaphragm, substantially as set forth.



5. The combination, in a steam boiler, of two end casings or legs, one or more drums connected to and communicating with each of said casings at a point below the normal water level therein, a fire chamber interposed between said casings, and a series of water tubes connecting said casings at different receiving and delivery levels and passing intermediately freely through said casings and across the fire chamber, substantially as set forth.

490,119. STEAM-BOILER. HENRY A. LAUGHLIN, Pittsburg, Pa. Filed Sept. 14, 1892. Serial No. 445,980. (No model.)



Claim.—1. The combination, in a steam boiler, of two end casings or legs, an upper steam receptacle connected to said casings, inclined water tubes connecting said casings, and a diaphragm or circulating plate located in one of said casings above the lower ends of the water tubes, substantially as set forth.

2. The combination, in a steam boiler, of two end casings or legs, an upper steam receptacle connected to said casings, oppositely inclined water tubes connecting said casings, and a diaphragm or circulating plate located in each of said casings between the lower ends of the tubes which are inclined in one direction and the upper ends of the tubes which are inclined in the other direction, substantially as set forth.

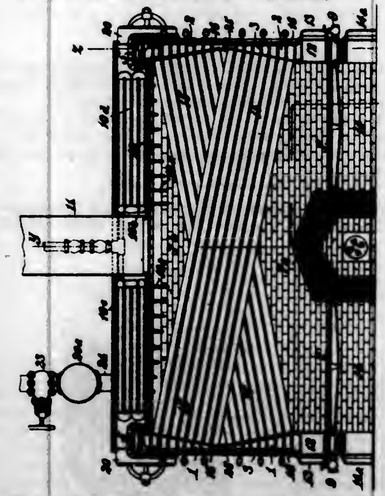
3. The combination, in a steam boiler, of two end casings or legs having portions of their inner sheets inclined relatively to their outer sheets, an upper steam receptacle connected to said casings, inclined water tubes connected at opposite ends to the inclined portions of the inner sheets of the casings, and diaphragms or circulating plates located in each of said casings above the upper and below the lower ends, respectively, of the water tubes, so as to provide receiving spaces diminishing upwardly in capacity, and delivery spaces increasing upwardly in capacity, substantially as set forth.

4. The combination, in a steam boiler, of two end casings or legs, an upper steam receptacle connected to said casings, inclined water tubes connecting said casings, a diaphragm or circulating plate located in one of said casings above the lower ends of the water tubes, a water passage connecting the spaces above and below the circulating plate, and a feed water pipe leading into the space below the circulating plate, substantially as set forth.

5. The combination, in a steam boiler, of two end casings or legs, an upper steam receptacle connected to said casings, inclined water tubes connecting said casings, a diaphragm or circulating plate located in one of said casings above the lower ends of the water tubes, a downwardly projecting extension connected to either or both ends of the circulating plate and forming the inner wall of a water passage connecting the spaces above and below the horizontal diaphragm, and a feed water pipe leading into the space below the diaphragm, substantially as set forth.

6. The combination, in a steam boiler, of two end casings or legs, an upper steam receptacle connected to said casings, an interposed combustion chamber of less width than said casings, inclined water tubes connecting said casings, a horizontal diaphragm or circulating plate located in one of said casings above the lower ends of the water tubes, a downwardly projecting extension connected to either or both ends of the circulating plate and forming the inner wall of a water passage in the portion of the casing projecting beyond the combustion chamber, which passage connects the spaces above and below the horizontal circulating plate, and a feed water pipe leading into the space below the diaphragm, substantially as set forth.

490,120. STEAM-BOILER. HENRY A. LAUGHLIN, Pittsburg, Pa. Filed Nov. 15, 1892. Serial No. 452,094. (No model.)



Claim.—1. The combination, in a steam boiler, of two end casings or legs, inclined water tubes connecting said casings, a transverse diaphragm or circulating plate located in one of said casings above the lower ends of the water tubes, and a vertical diaphragm or circulating plate extending between the transverse diaphragm and the upper portion of the casing, substantially as set forth.

2. The combination, in a steam boiler, of two end casings or legs, oppositely inclined water tubes connecting said casings, a transverse diaphragm or circulating plate located in each of said casings between the lower ends of the water tubes which are inclined in one direction and the upper ends of the tubes which are inclined in the other direction, and vertical diaphragms or circulating plates extending between the transverse diaphragms and the upper portions of the casings, substantially as set forth.

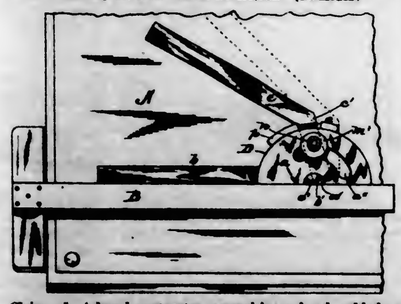
3. The combination, in a steam boiler, of two end casings or legs, an upper steam and water receptacle connected to said casings, a transverse diaphragm or circulating plate located in one of said casings above the lower ends of the water tubes, and a vertical diaphragm or circulating plate extending from said transverse diaphragm to or near an opening in the steam and water receptacle, substantially as set forth.

4. The combination, in a steam boiler, of two end casings or legs, inclined water tubes connecting said casings, a transverse diaphragm or circulating plate located in one of said casings above the lower ends of the water tubes, and vertical diaphragms or circulating plates extending between the transverse diaphragm and the upper and lower portions, respectively, of the casing, substantially as set forth.

5. The combination, in a steam boiler, of two end casings or legs, inclined water tubes connecting said casings, a fire and combustion chamber inclosed by said casings and by side walls and a cap plate extending between them, an upper steam and water receptacle connected to and communicating with the outer ends of said casings, so as to be substantially exterior to the fire and combustion chamber, inclined water tubes connecting said casings, a transverse diaphragm or circulating plate located in one of said casings, above the lower ends of the water tubes, and a vertical diaphragm or circulating plate extending from said transverse diaphragm to or near an opening in the steam and water receptacle, substantially as set forth.

6. The combination, in a steam boiler, of two end casings or legs, inclined water tubes connecting said casings, a fire and combustion chamber inclosed by said casings and by side walls and a cap plate extending between them, an upper steam and water receptacle connected to and communicating with the outer ends of said casings, so as to be substantially exterior to the fire and combustion chamber, inclined water tubes connecting said casings, a transverse diaphragm or circulating plate located in one of said casings, above the lower ends of the water tubes, and vertical diaphragms or circulating plates extending between an opening in the steam and water receptacle and the lower portion of the casing, so as to form a water passage, between the outer row of tubes and the adjacent end of the casing, from the steam and water receptacle to a level below the lower rows of tubes, substantially as set forth.

490,121. PROTRACTOR-BEVEL. HERBERT J. LEMERTON, Syracuse, N. Y. Filed May 23, 1892. Serial No. 433,941. (No model.)



Claim.—1. A bevel protractor, comprising a head, a blade secured thereto, a sector adjustably connected to said head, and a blade detachably secured to said sector, in combination as set forth.

2. A bevel protractor consisting of a semi-circular head, a blade secured thereto, a sector adjustably connected to said head and adapted to be swung thereon concentric therewith, and a blade detachably secured to said sector, in combination as set forth.

3. A bevel protractor consisting of a semi-circular head, a blade secured thereto upon a radial line, a sector concentric with and adjustably secured to said head, and a blade, offset at one end as shown, and detachably secured to said sector, both blades being in the same plane, as set forth.

4. The combination with the head and the blade secured thereto, of a sector concentric with said head and adjustable thereon, and a blade, offset as shown, and detachably secured upon said sector, and having one edge in a line radial to the circle of the head and sector.

5. In a protractor, the combination with a semi-circular head and a sector concentric therewith and adjustably connected thereto, of blades secured to said head and sector, respectively, each having an edge upon a line radial to the circle of said head.

6. In a protractor, the combination with a semi-circular head, and a sector concentric therewith and adjustably connected thereto, of a blade secured to the head, and beveled upon its inner end, and another blade, having an angular shank, and detachably secured to the sector, and having one of its angles in contact with the inner end of the other blade.

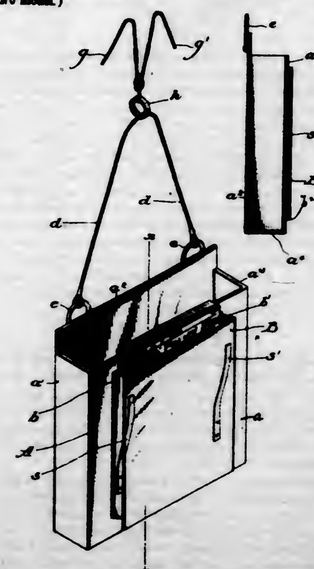
7. In a protractor, the combination with a semi-circular head, and a sector pivotally connected thereto, and concentric therewith and adjustably secured thereon, of blades secured to said head and sector and lying in the same plane.

8. The combination with a semi-circular head, having a concentric recess at the center of the circle, and a sector concentric with said head and having a lug at its apex concentric thereto and fitting in said recess, and blades secured to said head and sector and lying in the same plane.

9. The combination with a semi-circular head having a concentric recess at the center of the circle, and a concentric slotway in it, and a blade secured to it and having its inner end concentric to said recess, of a sector concentric with said head, and a blade detachably secured to said sector and having one edge upon a line radial to the circle of said head.

10. The combination with a semi-circular head having a concentric recess at the center of the circle and a blade secured to it having one edge on a line radial to said circle, of a sector detachably secured to said head and concentric therewith, and an angular blade detachably secured to said sector and having one edge upon a line radial to the circle of said head, both blades lying in the same plane.

490,122. PORTABLE BOOK AND PACKAGE CASE. GEORGE C. MAGARGAL, Philadelphia, Pa. Filed June 9, 1892. Serial No. 436,099. (No model.)



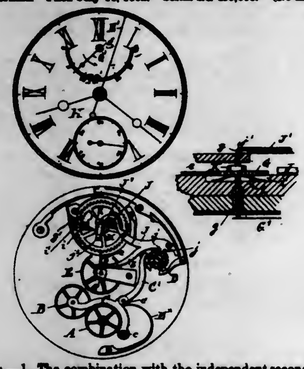
Claim.—1. A portable book and package case consisting of the rectangularly disposed walls, *a*, *a'*, *a²*, *a³*, *a⁴*, flexible or hinged strips, *b*, *b'*, *b²*, provided at their inner edges rigidly upon the outer faces of the wall, *a*, and secured by their outer edges to the adjustable wall, B; plate springs, *c*, *c'*, provided rigidly at one end to the wall, *a*, and secured at their other end to the adjustable wall, B, said springs having their tension normally toward the face of the wall, *a*, and means for suspending and carrying the case substantially as described.

2. A portable book and package case consisting of the rectangularly disposed walls, *a*, *a'*, *a²*, *a³*, *a⁴*, flexible or hinged strips, *b*, *b'*, *b²*,

provided at their inner edges rigidly upon the outer face of the wall, *c*, and secured at their outer edges to the adjustable wall, B; plate springs, *e*, *e'*, provided rigidly at one end to the wall, *c*, and secured at their other end to the adjustable wall, B, said springs having their tension normally toward the face of the wall, *c*; strap, *d*, secured to the case and suspending hook provided upon said strap, substantially as described.

3. A portable book and passage case consisting of the rectangularly disposed walls, *a*, *a'*, a^2, a^3, a^4, flexible or hinged strips, *b*, *b'*, b^2, provided at their inner edges rigidly upon the outer face of the wall, *c*, and secured by their outer edges to the adjustable wall, B; plate springs, *e*, *e'*, provided rigidly at one end to the wall, *c*, and secured at their other end to the adjustable wall, B, said springs having their tension normally toward the face of the wall, *c*, strap, *d*, secured to the case and hooks, *g*, *g'*, provided to said strap, *d*, through the medium of the swivel ring, *h*, substantially as described.

490,123. STOP-WATCH. GEORGES RIEGLET, Chaux-de-Fonds, Switzerland. Filed July 11, 1892. Serial No. 439,005. (No model.)



Claim.—1. The combination with the independent seconds hand and its arbor, of a projection rotating with such hand, a minutes recording hand and a wheel therewith connected and receiving a movement from said projection of one tooth each rotation of the independent seconds hand, a heart cam and lever for returning the minutes recording hand to zero, and push mechanism and an incline and spring for giving an end movement to the arbor of the minutes recording hand to clear the wheel thereof from the projection and to bring the heart cam into the path of its lever, substantially as specified.

2. The combination with the independent seconds hand and its arbor, and a projection revolving therewith, of a minutes recording hand, a segmental scale therefor and a toothed wheel connected with said hand and acted on by such projection, there being a notch in the wheel whereby its movement is stopped when the hand reaches the end of the segmental scale, and mechanism substantially as specified for returning the hand to zero, as set forth.

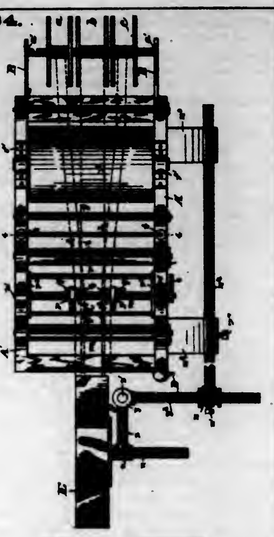
490,124. PAPER-BOX-COVERING MACHINE. ISAAC G. RAFFEL, Baltimore, Md. Filed Jan. 22, 1892. Serial No. 418,867. (No model.)

Claim.—1. The triple paper-guide comprising a shaft, *n*, two guide-loops, *q*, adjustably connected with the shaft,—each loop serving as a guide for a separate strip, and each guide-loop having a projecting end,—said two projecting ends together serving as a guide for another strip.

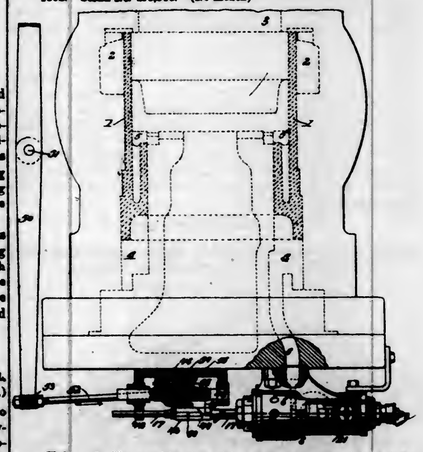
2. The combination of a shaft mounted in bearings so as to tilt; two guide-loops adjustably connected with the shaft; two cross-heads, r^6, fixed on the shaft; two guide-bars attached to said cross-bars and extending parallel with the shaft; and a clamp device to hold the shaft in any tilted position where it may be set, as set forth.

3. In a box-covering machine, the combination of a rod projecting from the end of the machine and having a clamp-collar at its outer end; an arm fitting removably through said collar at right angles to the rod and arranged to slide in the collar and be set at different adjustments therein,—said arm carrying at one end a clamp-collar; a right-angle arm one member of which fits removably through said last-named clamp-collar at right-angles to the arm carrying the latter, and may slide in said collar and be set at different adjustments therein, and the other member of which carries a bearing at its end; and a holder for the box having a stem fitting through said bearing and revolvable therein.

490,124.

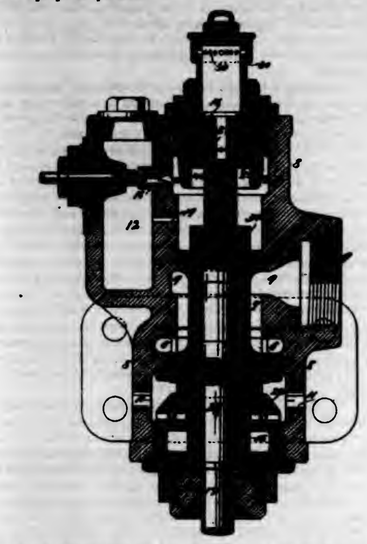


490,125. AUXILIARY VALVE FOR PNEUMATIC GUNS. JOHN RAPIEFF, New York, N. Y. Filed Nov. 29, 1889. Renewed June 11, 1892. Serial No. 436,310. (No model.)



Claim.—1. The combination with a pressure actuated fluid delivery valve, of an auxiliary double piston valve having the space between its pistons permanently connected with the pressure source, a port of the delivery-valve-retaining pressure-chamber connected with the said space between the pistons when the auxiliary valve is normal, a receiving chamber, a port thereof opening into the piston cylinder connected with the said space between the pistons when the valve is advanced to the extremity of its stroke, a port of regulated capacity connecting from the receiving chamber to the piston cylinder at a portion thereof beyond the range of advance movement of the pistons, and an exhaust outlet at the opposite end of the piston cylinder exterior to the pistons, to which outlet the said delivery valve port is connected when the pistons are advanced.

2. The combination in an auxiliary valve adapted for the purposes described, of double connected pistons, a supply port permanently connected to the space between them, a delivery-valve-retaining pressure port connected with the space between the pistons when the same are in a normal position, exhaust openings with which the said delivery valve port is connected when the pistons are advanced, a plunger 16 on the opening end of the piston valve, and a chamber thereof connected with the said delivery valve port, by passages 26, 26, through the pistons, subsequent to an initial opening movement and antecedent to connection of said delivery valve port with said exhaust, for the purposes specified.

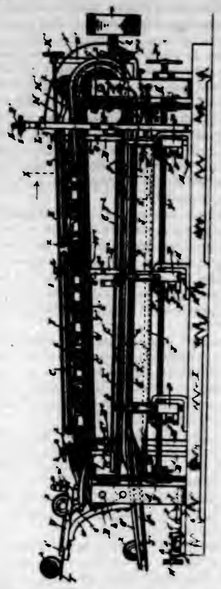


3. The combination in an auxiliary valve adapted for the purposes described, of double connected pistons, a supply port permanently connected to the space between them, an exhaust port at one end of the piston cylinder, a delivery-valve-retaining pressure port therein, intermediate to the said supply and exhaust ports, being alternately connective to the same respectively, according as the pistons are in a normal or an advanced position, a receiving chamber a port thereof opening into the piston cylinder connected with the said space between the pistons when the valve is advanced to the extremity of its stroke, a port of regulated capacity connecting from the receiving chamber to the piston cylinder at the end thereof opposite the exhaust end, and a supplemental plunger extending through the head of the valve casing at the end of the cylinder therein, to which the said receiving chamber connects, and exhaust passages, 19, in said plunger connected thereby with the receiving chamber when the valve is normal, for the purposes set forth.

4. The combination, in an auxiliary valve adapted for the purposes described, of a cylinder, both ends of which are normally exhausted, double connected pistons therein which are balanced, having equal area, and between which a pressure supply port is constantly connected, a plunger extension and pressure chamber thereof, whereby an opening movement is imparted to the pistons, a delivery-valve-retaining pressure port located in the cylinder to connect between the pistons when the same are normal, but to connect with an exhausted end of the cylinder when the pistons receive said opening movement, a receiving chamber normally exhausted, a port thereof located in the cylinder to connect with the inter space of the pistons at or near the terminating point of said opening movement, a port of the receiving chamber of regulated capacity located in the end of the cylinder toward which the said opening movement occurs, and a supplemental plunger operative on exhaust passages for closing the receiving chamber and adjacent end of the cylinder during such opening movement.

5. The combination with an auxiliary valve partly operative by pressure, of a hand operated starting mechanism for imparting the initial movement to the valve, consisting of a notched valve rod, a lever actuated pawl 46 engaging with the notch on the valve rod in the direction of such initial movement, a second pawl 56 moving with the first pawl engaging with a notch or spur thereon to hold it when it is thrown out of the valve rod notch by the continued movement of the valve beyond that imparted by hand, in the manner described and a stationary tripper 58 whereby the second pawl is tripped from the first pawl during the retracting stroke of the latter.

490,126. GAS-SOLDERING MACHINE. JOHN W. ROBBINS, Cleveland, Ohio, assignor to the Sherwin-Williams Company and Benjamin Patterson, same place. Filed Jan. 17, 1891. Serial No. 378,008. (No model.)



Claim.—1. The combination, in a machine of the character described, of an endless driver consisting of a link chain, a part of the links having swivel connection and a part of the links having upright projections, cross-bars at intervals upon said endless driver, and a track consisting of two pairs of rails, one pair of the rails being above and the other pair of rails being below the projecting ends of the cross-bars, whereby the endless driver is kept in line and at fixed angles of inclination, the track along the upper lap of the endless driver being adapted to have cans rolled thereon substantially as shown and described.

2. The combination, in a machine of the character described, of sprocket wheels, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a main frame to support the sprocket wheels, said main-frame having adjustment longitudinally of the machine to slacken and tighten the endless driver, and a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars upon the endless driver, the track along the upper lap of the endless driver being adapted to have cans rolled thereon substantially as shown and described.

3. The combination, in a machine of the character described, of sprocket wheels, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a main-frame having adjustment longitudinally of the machine to tighten and slacken the endless driver, a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars on the endless driver, the track along the upper lap of the endless driver being adapted to have cans rolled thereon, a perforated pipe along one edge of the upper lap of track, and a perforated pipe along the lower edge of the lower track, substantially as shown and described.

4. The combination, in a machine of the character described, of sprocket-wheels, an endless driver which travels over the sprocket wheels, said endless driver consisting of a link chain having swivel connections and upright projections and cross-bars at intervals along the driver, and guides for both the upper and lower laps of the driver, said guides consisting of four rails, two of which are above and two below the cross-bars, the upper guide being adapted to have cans rolled thereon, said guides being also adapted to hold the endless driver at opposite angles of inclination on its upper and lower laps, substantially as shown and described.

5. The combination, in a machine for soldering cans, of two sprocket wheels one of which is larger than the other, an endless driver having cross-bars thereon to travel over the sprocket wheels, a

track extending the length of both the upper and the lower laps of said endless driver and around the outside of one of the sprocket wheels, the track consisting of four rails, two of which rails are to the outside and two to the inside of the cross-bars upon the endless driver, the track and endless driver having opposite lateral inclination on their upper and lower laps, substantially as shown and described.

6. The combination, in a machine for soldering cans, of two sprocket wheels one of which is larger than the other, an endless driver to travel over the sprocket wheels, a track extending the length of both the upper and the lower laps of the endless driver, the track and the endless driver having a fixed lateral inclination on their upper lap and an opposite lateral inclination on their lower lap, with a vertically adjustable platform below the lower lap of the endless driver, the platform having the same lateral inclination as the lower lap of the endless driver and track, and means for sustaining cans against the carrier in their travel over one of said sprocket wheels, substantially as shown and described.

7. The combination, in a machine of the character described, of an endless driver, a clamp to sustain cans at one end of the machine, with a frame to support the upper end of the clamp, a screw projecting from the clamp up through the frame, a nut upon the screw, guide rods projecting from the clamp vertically through bearings in the frame to prevent the clamp from twisting, and a spring fixed to the lower end of the clamp to allow a yielding of the clamp, substantially as shown and described.

8. The combination, in a machine of the character described, of an endless driver, a platform, guide-rails upon the platform, one of said rails having horizontal adjustment, yokes to support the platform, guides for the yokes, vertical screws fixed to the yokes, and pinions upon the screws to give the platform vertical adjustment, substantially as shown and described.

9. The combination, in a machine of the character described, of an endless driver, a clamp to sustain cans at one end of the machine, a frame to support the upper end of the clamp, a screw projecting from the clamp vertically through said frame, a nut upon the screw, a platform having vertical adjustment, and a spring having one end attached to said clamp and the opposite end attached to said platform, substantially as shown and described.

10. The combination, in a machine of the character described, of an endless driver, a clamp to sustain cans at one end of the machine, a frame to support the upper end of the clamp, a screw projecting from the clamp through said frame and a nut upon the screw to give the clamp adjustment, a platform having vertical adjustment, guide rails upon the platform, one of which rails has horizontal adjustment and a spring having one end attached to the clamp and the opposite end attached to the platform, substantially as shown and described.

11. The combination, in a machine of the character described, of sprocket wheels, an endless driver having cross-bars traveling over the sprocket wheels, a track consisting of four rails two of which are to the inside and two to the outside of the cross-bars of the endless driver, and an adjustable yielding clamp to sustain cans against the track as they travel around the sprocket wheel at one end of the machine, substantially as shown and described.

12. The combination, in a machine of the character described, of sprocket wheels, an endless driver to travel over the sprocket wheels, cross-bars at intervals on the endless driver, a track consisting of four rails, two of said rails being to the outside and two to the inside of the cross-bars upon the endless driver, and a clamp, a frame to support the upper end of the clamp, a screw projecting from the clamp through said frame and a nut upon the screw to give the clamp adjustment, and a spring attached to the lower end of the clamp to allow the clamp to yield to adapt the clamp to cans passing under it, substantially as shown and described.

13. The combination, in a machine of the character described, of sprocket wheels, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars, a platform below the lower lap of the track, the platform being supported by yokes, guides for the yokes, vertical screws fixed to the yokes, threaded pinions upon the vertical screws to give the platform vertical adjustment, and a yielding adjustable clamp, having its upper end connected with a frame and its lower end connected with the adjustable platform, substantially as shown and described.

14. The combination, in a machine of the character described, of sprocket wheels, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars, a platform below the lower lap of track, said platform having vertical adjustment, a clamp, a frame to support the upper end of the clamp, a screw projecting from the upper end of the clamp through said frame to give it adjustment, and a spring having one end attached to the clamp and the other end attached to the platform, to allow a yielding of the clamp, substantially as shown and described.

15. The combination, in a machine of the character described, of sprocket wheels, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars, a platform, yokes to support the platform, guides for the yokes, vertical screws fixed to the yokes, threaded pinions upon the vertical screws to give the platform vertical adjustment, a clamp, a frame to support one end of the clamp, a screw projecting from the clamp through said frame to give the clamp adjustment, and a spring having one end attached to the clamp and the opposite end attached to the platform to allow a yielding of the clamp, substantially as shown and described.

16. The combination, in a machine of the character described, of a main-frame having longitudinal adjustment, sprocket wheels supported by the main-frame, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars of the endless driver, and an adjustable yielding clamp to sustain cans as they travel under the clamp, having its upper end attached to a frame above the machine and its lower end attached to a platform below the machine, substantially as shown and described.

17. The combination, in a machine of the character described, of a main-frame having longitudinal adjustment, sprocket wheels supported by the main frame, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars on the endless driver, and a clamp, a frame to support the upper end of the clamp, a screw projecting from the clamp through said frame and a nut upon the screw to give the clamp adjustment, and a spring attached to the lower end of the clamp to yield to adapt the clamp to cans as they pass under it, substantially as shown and described.

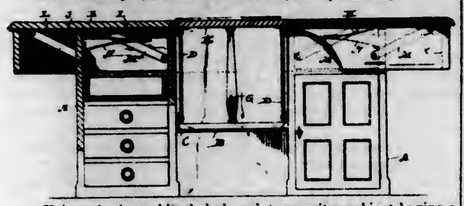
18. The combination, in a machine of the character described, of a main-frame having longitudinal adjustment, sprocket wheels supported by the main-frame, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars upon the endless driver, a platform below the lower lap of the track, the platform being supported by yokes, guides for the yokes, vertical screws fixed to the yokes, threaded pinions upon the vertical screws to give the platform vertical adjustment, and an adjustable yielding clamp, having its lower end connected with the platform and its upper end connected with a frame above the machine, substantially as shown and described.

19. The combination, in a machine of the character described, of a main-frame having longitudinal adjustment, sprocket wheels supported by the main-frame, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars upon the endless driver, a platform below the lower lap of track, said platform having vertical adjustment, a clamp, a frame to support the upper end of the clamp, a screw projecting from the upper end of the clamp through said frame and a nut upon the screw to give the clamp adjustment, and a spring having one end attached to the clamp and the other end attached to the platform to allow a yielding of the clamp, substantially as shown and described.

20. The combination, in a machine of the character described, of a main-frame having longitudinal adjustment, sprocket wheels supported by the main-frame, an endless driver to travel over the sprocket wheels, cross-bars upon the endless driver, a track consisting of four rails, two of the rails being to the outside and two to the inside of the cross-bars of the endless driver, a platform, yokes to support the platform, guides for the yokes, vertical screws fixed to the yokes, threaded pinions upon the vertical screws to turn to give the platform vertical adjustment, a clamp, a frame to support the upper end of the clamp, a screw projecting from the clamp through said frame and a nut upon the screw to give the clamp adjustment, and a spring having one end fixed to the clamp and the opposite end fixed to the platform to allow a yielding of the clamp, substantially as shown and described.

21. The combination, in a machine of the character described, of a main-frame having longitudinal adjustment, sprocket wheels supported by the main-frame, an endless driver consisting of a link chain having swivel connections and upright projections to travel over the sprocket wheels, cross-bars upon the endless driver, a track adapted to sustain the endless driver at one angle of inclination on its upper lap and at an opposite angle on its lower lap, a vertical adjustable platform below the lower lap of the endless driver and having substantially the same inclination, guide rails along the upper lap of track and guide rails along the platform, an adjustable yielding clamp, a perforated pipe along the lower edge of the upper lap of track, a perforated pipe along the lower edge of the platform, and a footway, substantially as shown and described.

490,127. TYPE-WRITER CABINET. ROBERT B. SHARPE, Boston, Mass. Filed Apr. 14, 1892. Serial No. 429,109. (No model.)



Claim.—1. A combined desk and type-writer cabinet having a top that normally covers the cabinet, but which is capable of being swung away from the same and simultaneously lowered, a type-writer support within the cabinet, and suitable means adjustably connecting the desk and type-writer support, whereby this support has its greatest elevation on a level with said top when the latter is brought to its lowest position, substantially as set forth.

2. A combined desk and type-writer cabinet having a top that normally covers the cabinet, but which is capable of being swung away from the same and simultaneously lowered, a type-writer support having a combined vertical and horizontal adjustment in the cabinet, but limited as to rise beyond the level of said top when the latter is brought to its lowest position, substantially as set forth.

3. A cabinet, a type-writer support having a combined vertical and horizontal adjustment in the cabinet but limited as to rise beyond the upper level of said cabinet, a spring connecting the type-writer support and bottom of the cabinet, a drop-leaf hinged to the inner edge of said support, and a projection arranged on the drop-leaf to come against the inner side of the rear wall of the cabinet when said leaf is lowered to cover the space incident to the horizontal adjustment of the aforesaid support, whereby the latter is held in its adjusted position against the retractive power of said spring, substantially as set forth.

4. A desk having a top that is capable of being swung in a lateral direction and simultaneously lowered, in combination with a type-writer support concealed by the desk-top when the latter is at its highest position, and suitable means adjustably connecting the desk and type-writer support whereby this support may be elevated to the lowest level of said desk-top without deflection from a horizontal plane, substantially as set forth.

5. A desk having a counter balanced top capable of being swung in a lateral direction and simultaneously lowered, in combination with a type-writer support concealed by a desk top when the latter is at its highest position, and suitable means adjustably connecting the desk and type-writer support, whereby this support may be elevated to the lowest level of said desk-top without deflection from a horizontal plane, substantially as set forth.

6. A desk having the top thereof in two sections capable of being swung away from each other and simultaneously lowered, a cabinet comprising certain stationary portions of the desk, hinged doors for a portion of the cabinet, rods connected to the doors and having loose play on keepers depending from the top sections, cleats depending from said top-sections to come in the path of said doors when closed, a type-writer support, within said cabinet, and suitable means adjustably connecting the desk and type-writer support whereby this support may be elevated to the lowest level of the aforesaid top-sections, substantially as set forth.

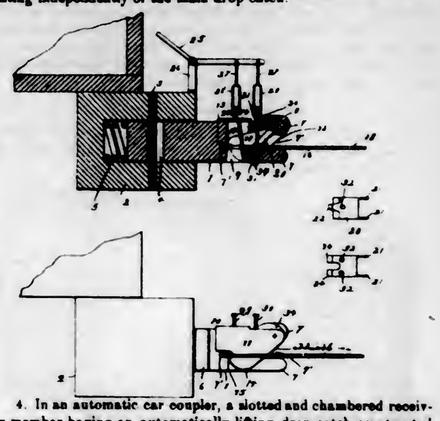
7. A desk having its top in two sections capable of being swung away from each other and simultaneously lowered, a type-writer support within the desk frame, and suitable means adjustably connecting the desk and type-writer support, whereby this support has its greatest elevation on a level with said desk top-sections when the latter are brought to their lowest position, substantially as set forth.

490,128. CAR-COUPLING. JACOB STRAUS, New York, N. Y. Filed Mar. 14, 1892. Serial No. 424,870. (No model.)

Claim.—1. In an automatic coupler, a slotted and chambered receiving member having an automatically lifting drop catch constructed and arranged to be lifted up by and engage a link, a supplemental automatically lifting drop catch to also engage the link and operating independently of the main drop catch, a link member to enter the receiving member and to separately engage the drop catches, and a common detaching mechanism independently connected to the drop catches.

2. In an automatic car coupler, a slotted and chambered receiving member having an automatically lifting drop catch constructed and arranged to be lifted up by and engage a link, a supplemental automatically lifting drop catch to also engage the link and operating independently of the main drop catch, and a link member to enter the receiving member and to separately engage the drop catches.

3. In an automatic car coupler, a slotted and chambered receiving member having an automatically lifting drop catch constructed and arranged to be lifted up by and engage a link, and a supplemental automatically lifting drop catch to also engage the link and operating independently of the main drop catch.



4. In an automatic car coupler, a slotted and chambered receiving member having an automatically lifting drop catch constructed and arranged to be lifted up by and engage a link, a supplemental automatically lifting drop catch to also engage the link and operating independently of the main drop catch; and a common detaching mechanism independently connected to the drop catches.

5. The automatically lifting drop catch consisting of an integral top or cover and depending sides, provided with rearwardly inclined forward portions and depending portions to receive, be lifted by and engage a link.

6. In an automatic car coupler a drawhead having an automatically lifting drop catch with rearwardly inclined forward portion and depending portions to receive, be lifted by and engage a link.

7. In an automatic car coupler a drawhead having an automatically lifting drop catch with rearwardly inclined forward portion, and depending portions to receive, be lifted by and engage a link in combination with a supplemental automatically lifting drop catch to engage the link and operating independently of the main drop catch.

8. In an automatic car coupler, a draw head having an automatically lifting main drop catch with a rearwardly inclined forward portion, and depending portions to receive, be lifted by and engage a link, and a supplemental automatically lifting drop catch to engage the link and operating independently of the main drop catch and a coupling pin to also engage the link.

9. In an automatic car coupler, a draw-head having an automatically lifting main drop catch with a rearwardly inclined forward portion and depending portions to receive, be lifted by and engage a link, and a supplemental automatically lifting drop catch to engage the link and operating independently of the main drop catch, in combination with a coupling pin and detaching mechanism for disengaging the drop catches and coupling pin from the link.

10. In an automatic car coupler a drawhead having an automatically lifting drop catch constructed and arranged to be lifted up by and engage a link, the said catch being also provided with a coupling pin to separately engage the link and a link to enter the drawhead and to separately to engage the said drop catch and coupling pin.

11. In an automatic car coupler a draw-head having an automatically lifting drop catch constructed and arranged to be lifted up by and engage a link, and a supplemental automatically lifting drop catch to also engage the link, in combination with a mechanism to detach the catches from the link having a loosely jointed connection with the catches permitting of a limited independent vertical movement of the catches.

12. In an automatic car coupler a draw-head formed with a stop in combination with an automatically lifting drop catch constructed and arranged to be lifted up by and engage a link a supplemental automatically lifting drop catch to engage the link and operating independently of the main drop catch, the vertical movement of the catches being limited by the stop.

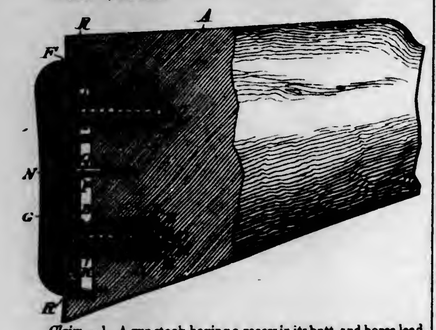
13. In an automatic car coupler the draw-head 1, having the curved shoulder 34 on its sides at its forward upper end in combination with the drop catch 10 having rearwardly inclined front portions, curved depending side ends and rearwardly hooks, and its pivoted end adjacent to and acted upon by the stops on the draw-head

14. In an automatic car coupler, the draw-head 1, in combination with a coupling pin and with the automatically lifting drop catch 20 having a tongue 22 to engage a slot 23 in a coupling link 16, and with said coupling link 16 provided with slots 18 and 23.

15. The coupling link formed at its ends with lateral oblong slots, the central slot and pin hole.

16. In an automatic car coupler the draw-head 1, having the automatically lifting drop catches 10 and 20, in combination with the lifting lever 25, headed rod 29, projecting from catch 10, headed rod 30 projecting through draw-head 1, and catch 20, and having a hooked end 34 and rod 27 pivoted to lever 25 and having links 28 with holes loosely engaging the headed rods 29 and 30.

490,129. RECOIL-CHECK FOR FIREARMS. JOHN W. TRENWAY and JOHN WIRTZ, Philadelphia, Pa. Filed May 26, 1892. Serial No. 434,418. (No model.)



Claim.—1. A gun stock having a recess in its butt, and bores leading from said recess, a cushion movable in said recess having bolts movable in said bores, and springs encircling said bolts in said bores, said parts being combined substantially as described.

2. A gun stock having a recess in its butt with longitudinally extending bores, a cushion movable in said recess and having bolts movable in said bores, and a screw connected with said butt and having its head fitting in an opening in said cushion, said parts being combined substantially as described.

3. A gun stock having a recess in its butt with the longitudinally extending bores C and D, a cushion movable in said recess, bolts connected with said cushion having encircling springs in said bores C, and nuts thereon in said bores D, said bores D being of less diameter than said bores C, said parts being combined substantially as described.

4. A gun stock with a recess in its butt, a cushion having a rubber outer facing and a metallic inner facing closely fitting and movable in said recess, bolts secured to said cushion and movable in bores in said butt, a screw in said butt having a head movable in an opening in said cushion, said parts being combined substantially as described.

490,130. HARROW. BENJAMIN R. WHIPPLE, St. John's, Mich. Filed Jan. 16, 1892. Serial No. 418,146. (No model.)



Claim.—1. The harrow section provided with the rigid extension at the front end thereof extending forwardly of the teeth and of substantially the same width as the harrow section, the gaging shoes carried by the front end of the section and gaging means at the rear end of the section substantially as described.

2. In combination two (or more) harrow sections, each section provided with a rigid forward extension of substantially the same width as the section, each extension having the corner gaging shoes at its front end and means detachably coupling the sections together, substantially as described.

3. The harrow having the rigid forward extension from the tooth beams thereof, the extension having the front transverse beam, the gaging shoes secured to the opposite ends of said beam, substantially as described.

4. The combination of two harrow sections, each having a rigid forward extension of substantially the same width as the section, and provided with the front gaging shoes, the rigid coupling bar at its opposite ends respectively pivoted to the extensions of said harrow sections respectively, substantially as described.

5. A harrow section having its tooth beams extending in the line of draft, a forward extension of said section of substantially the same width as the sections and in advance of the teeth, the gaging shoes carried by the front end of said extension, and the gaging and leveling knives carried by the rear ends of said beams, substantially as described.

6. The combination of two parallel harrow sections each having a rigid forward extension provided with gaging means, vertical removable pivot bolts mounted near the edges of said extension, and the rigid coupling having vertical end eyes arranged to receive said bolts and act as set forth.

7. A harrow section having its tooth beams extending in the line of draft, in combination with the gaging and leveling knives at their forward ends pivoted directly to the rear ends of the beams, a cross bar securing said knives to swing in unison and a lever to raise said knives, substantially as described.

8. In a harrow, the combination of gaging means at the front end of the harrow, the series of downwardly and rearwardly traveling and gaging knives at the rear end of the harrow, each knife being pivoted at its front end to permit its free end to swing vertically, the knives being secured together and means, substantially as described to hold the series of knives in the desired vertical adjustment, substantially as described.

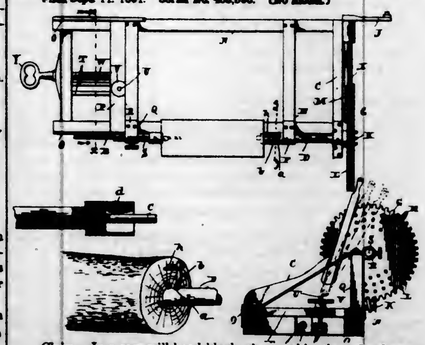
9. A harrow provided with a series of vertically swinging knives pivoted at their front ends, a cross bar secured on the knives and connecting them to swing in unison, a handle secured to the knives to raise and lower them, and a lock or latch to hold the lever and knives in the desired vertical adjustment, substantially as described.

10. In a harrow, the combination of the harrow beams, each beam having a pair of vertically adjustable knives pivoted to its rear end so that the rear ends of the knives can swing vertically, the knives being secured together to swing in unison, and the lever or handle connecting said knives to swing them, and provided with means for holding them in the desired position.

11. In combination, the harrow beams carrying the harrow teeth and having their rear ends provided with apertures, the downwardly and rearwardly extending knives pivoted to the rear end of each by means of its aperture, all the knives of the sections being connected together to swing in unison, and a lever or handle provided with plates extending down on both sides of the beam, and knives, and rigidly secured to the knives to swing therewith, and provided with means for holding them in position.

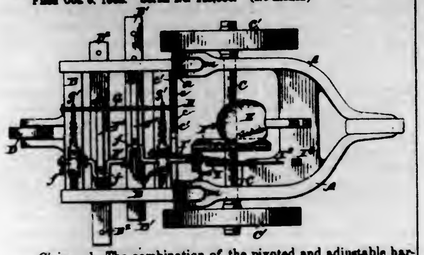
12. In a harrow, a tooth beam having its rear end bent down and twisted as described, and provided with vertical series of apertures, in combination with the knives pivoted to said beams in vertical adjustment by said apertures and pivots, substantially as described.

490,131. SAWMILL HEAD BLOCK. SAMUEL F. ANES, Berea, Ky. Filed Sept. 11, 1891. Serial No. 405,395. (No model.)



Claim.—In a saw mill head block, the combination of a frame, shafts journaled thereon outside of the inner side of the said frame, the inner end of each shaft having a band to enter the log and hold the sawed parts together, one of the shafts provided with a rotating gage wheel upon its outer end, and an arm having its inner end bent to one side and placed in an opening in the said shaft, whereby it is reversible and a dog for securing the outer end of the said arm to the log, substantially as set forth.

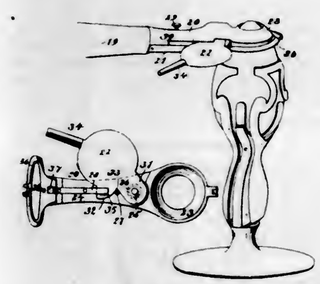
490,132. WHEELED HARROW. FRANK ANDERSON, Shoals, Ind. Filed Oct. 6, 1892. Serial No. 448,080. (No model.)



Claim.—1. The combination of the pivoted and adjustable harrow frame, a plurality of laterally reciprocating harrow bars, a shaft having a plurality of reversely set crank arms, a wheeled carriage, and a single set of gears, on the axle and on the crank shaft, substantially as described.

2. In combination, the wheeled frame, the harrow frame pivoted to said frame, a plurality of laterally reciprocating harrow bars, a shaft having a plurality of reversely set crank arms, pitmen, sliding bearing blocks for the crank shaft, connecting rods, a rocking bar, a hand lever having latching pawls, ratchet plates, and a single set of gears, on the axle and crank shaft, substantially as described.

490,133. EGG-CUTTER. ERNEST BERRIDI, Tacoma, Wash. Filed July 16, 1892. Serial No. 440,311. (No model.)



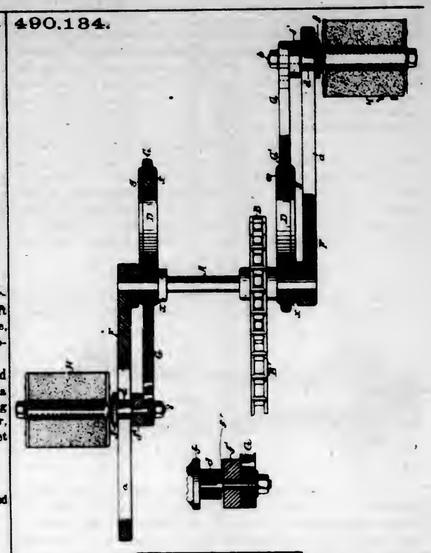
Claim.—The combination with the handle, the body section formed of the upper chambered member 20 having an egg socket 23, and the lower member 21 hinged at its inner end to the upper member to swing downwardly therefrom and having a socket 36 registering with socket 23, a latch connecting the socketed ends of the two members, and the post 25 in the chamber 24 of the upper member, of the knife 22 pivoted on said post, the torsional spring 26 on the post and throwing the knife, the latch 28 engaging the knife when retracted, and means for releasing the latch, substantially as set forth.

490,134. CRANK-POWER. PUTNAM BRADLEY, Philadelphia, Pa. Filed Dec. 10, 1891. Serial No. 414,589. (No model.)

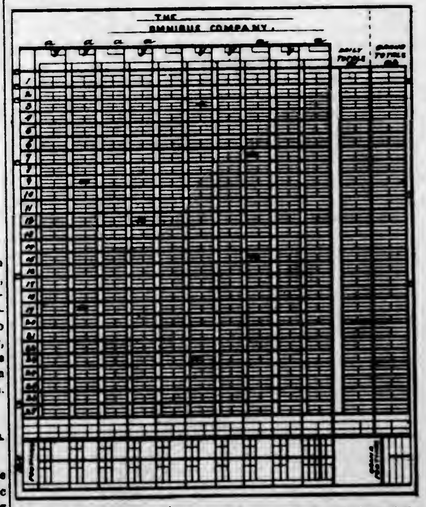
Claim.—1. The combination in a crank-power, of the shaft or axle to be driven, a slotted crank fixed thereto, a driving crank eccentric in respect to the driven crank and having a wrist pin for engaging with the slot in said driven crank, and a bearing for said driving crank extending around the driven shaft or axle, said bearing having inner and outer projecting flanges or collars for the lateral retention of the driving crank, and said outer flange or collar being detachable, substantially as specified.

2. The combination of the shaft or axle to be driven, the slotted crank thereon, the driving crank mounted eccentrically in respect to the driven crank and having a wrist pin projecting through the slot in said driven crank, an antifriction roller on said pin, collars between which the roller is contained, and a stop or shoulder upon the wrist pin for limiting the approach of the collars and thereby preventing the same from binding upon the sides of the slotted crank, substantially as specified.

490,134.



490,135. BLANK FORM FOR KEEPING ACCOUNTS. THEODORE M. BROWN, Troy, Minn. Filed May 4, 1891. Serial No. 391,667. (No specimens.)



Claim.—1. The improved form for accounts consisting of the parallel, vertical columns divided by transverse lines, *c*, to form spaces, *x*, corresponding to days of the month and which are subdivided for original debit and credit entries and for debit and credit balances, and two other vertical columns, *a'*, *a²*, arranged alongside the former and similarly sub-divided, respectively, for totals of daily debits and credits and for grand totals of all preceding debits and credits, and being provided at the top of columns *a'* *a²* with the headings "Daily totals" and "Grand totals," as shown and described.

2. The improved form for accounts comprising a sheet having the following characteristics, to wit; a series of parallel, vertical columns, *a*, divided by transverse lines, to form spaces corresponding to days of the month, which spaces are sub-divided into smaller spaces

for debits and credits and other special entries, as specified, the said columns having spaces or headings indicating the kinds of business, and the addresses of parties, also spaces beneath said headings for entry of names of the parties carrying on the several kinds of business indicated by the headings, the two side columns a' and a^3 for, respectively, indicating the totals of each day's debits and credits and the grand totals of debits and credits for the whole proceeding time in which business has been transacted; and provided above said columns a' a^3 with the headings "Daily totals" and "Grand totals" spaces for monthly footings; and a horizontal foot column a^4, sub-divided for entry of monthly footings or totals of individual accounts and their aggregates, and spaces for entering the grand aggregates of all the debits and credits of an entire month, and provided above the said divisions with the headings footings and "Grand footings" as shown and described.

490,136. HUB-ATTACHING DEVICE. CHARLES F. CARLSON, Honolulu, Hawaii. Filed Apr. 23, 1892. Serial No. 430,961. (No model.)

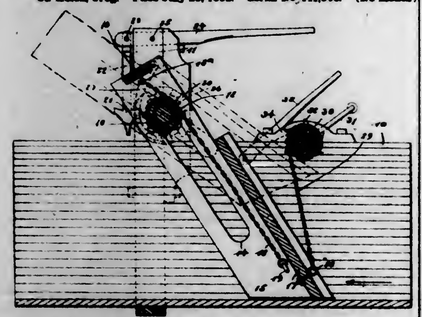


Claim.—1. The combination of a spindle having a reduced screw threaded end, a nut having a circular inner portion of greater diameter than the spindle and which is screw threaded, a washer adapted to fit closely and move longitudinally on the spindle, circular shoulder E projecting outward from the periphery of the washer and which is screw threaded on its inner side whereby it is adapted to receive the circular screw threaded portion of the nut, substantially as shown and described.

2. In a hub attaching device, the combination with a spindle, a nut therefor and a washer which moves longitudinally on the spindle and nut, of screws or bolts which extend through the nut and which are reduced at their inner ends where they bear against the washer, substantially as shown and described.

3. In a hub attaching device, the combination with a spindle, and a nut therefor having a screw threaded periphery, of a washer adapted to move longitudinally on the spindle, a screw threaded shoulder on the said washer which engages the periphery of the nut, the said shoulder being provided with concavities upon its outer surface, for the purpose substantially as shown and described.

490,137. SELF-HOISTING FLOOD-GATE. HERBERT A. CORLISS, St. Helen, Oreg. Filed July 29, 1892. Serial No. 441,563. (No model.)



Claim.—1. The combination, with a flume or sluiceway, of a roller journaled upon the sluiceway, a sliding gate held to move upward upon the roller and adapted to be forced upward by the pressure of water against it, and a ratchet mechanism for locking the gate in place, substantially as described.

2. The combination with a flume or sluiceway, of a gate held in inclined position therein and provided with longitudinal side slots, a transverse support secured to the flume and extending through the slots, and locking mechanism to fix the position of the gate, substantially as described.

3. The combination with a flume or sluiceway, of a roller journaled upon the same, a sliding gate having side slots to fit the roller, chains secured to the upper and lower portions of the gate and extending around the roller, a ratchet mechanism to lock the roller and gate, a second crank-actuated roller journaled upon the flume in advance of the gate roller, and chains extending from the second roller to the lower portions of the gate, substantially as described.

4. The combination, with the flume and the transverse roller thereon having a notched wheel at one end, of a sliding gate held within the flume and adapted to move upon the roller, chains extending from the upper to the lower portions of the gate and around the roller, a swinging lever pivoted adjacent to the gate, and a pawl secured to the lever and adapted to engage the notched wheel, substantially as described.

5. The combination with the flume, the transverse roller journaled thereon and the sliding gate having side slots to fit the roller, of a lever and ratchet mechanism for turning the roller, a locking mechanism for locking the roller and gate, chains secured to the upper and lower portions of the gate and extending around the roller, a second crank roller journaled on the flume in advance of the gate roller, chains extending from the crank roller to the lower portion of the gate, and a pawl and ratchet to lock the crank roller, substantially as described.

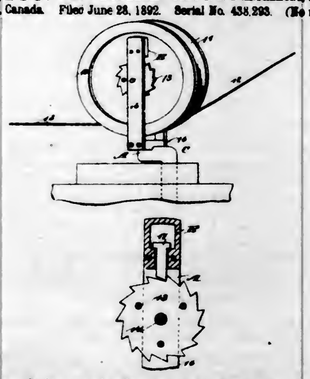
6. The combination with the flume, of an inclined gate held therein and adapted to slide upward upon a support, a revoluble roller journaled on the flume in advance of the gate, and a chain connection between the roller and the lower end of the gate, substantially as described.

490,138. NECKTIE-FASTENER. JOHN A. CUPLER, Kendall Creek, Pa. Filed July 27, 1892. Serial No. 441,336. (No model.)



Claim.—As an improved article of manufacture, the necktie fastener herein shown and described, bent from a single piece of wire, and comprising the continuous straight bar *a* having one end provided with the looped keeper *b*, said end of the wire from the keeper *b* lying parallel with the bar *a* and wrapped around the same about its middle, at *f*, the pointed attaching hook *c* made by an extension of the wire from the wrapped part *f*, the coil *d*, and the pin *e*, whereby the pin may be fastened in the wearer's shirt and the pointed hook *c* fitted in the neck-band of a scarf, as set forth.

490,139. TRAWL-ROLLER. JOHN B. J. D'ENTREMONT, Rest. Pubnico, Canada. Filed June 28, 1892. Serial No. 438,293. (No model.)

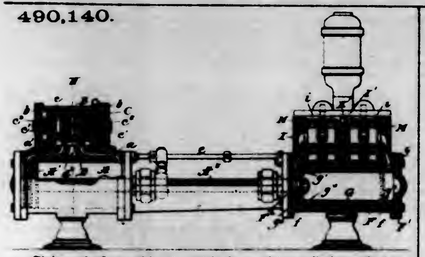


Claim.—1. In a trawl roller, the combination with a yoke, of a grooved roller mounted in the yoke and having its sides recessed, ratchet wheels in the recessed sides of the roller, boxes on the inner sides of the upper ends of the members of the yoke, and gravity pawls in said boxes, substantially as described.

2. The herein described trawl roller, consisting of the yoke A provided with the handle C, the roller 10 mounted in the upper ends of the members 16 of the yoke and having recessed sides, ratchet wheels in the recessed sides of the roller, the boxes B on the inside of the upper ends of the members of the yoke, and the sliding pawls 17 in said boxes and engaging the ratchet wheels, as specified.

490,140. VALVE FOR STEAM-PUMPS. THOMAS C. RICHES, Scottdale, Pa. Filed Feb. 23, 1892. Serial No. 422,490. (No model.)

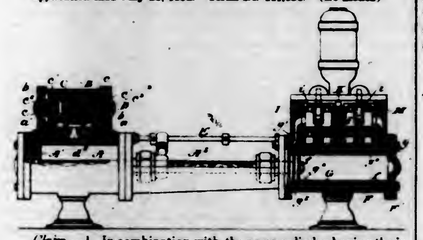
490,140.



Claim.—1. In combination with the working cylinder and piston the steam actuated valve comprising a piston valve having a recess or socket at each end, the piston plugs fitting said sockets and provided with ducts intermediate their ends communicating with the interior of said sockets, and suitable valves and passages controlling the admission of fluid to the piston valve and working cylinder whereby steam is gradually admitted behind the piston valve at the moment of the reversal of the inlet valve and confined in the recess at the opposite end of the piston valve near the completion of its stroke, for the purpose of cushioning the valve and gradually admitting steam to the working cylinder, substantially as described.

2. In combination with the main cylinder and piston, and suitable valve mechanism for alternately admitting and exhausting the steam therefrom, the slide valve, the piston valve attached thereto having the socket or recess at each end, the piston plugs fitting within said sockets, and provided with ducts intermediate their ends leading from said sockets to the interior of the valve chest and the automatically actuated oscillating valve, all constructed and adapted to operate substantially as described.

490,141. STEAM-PUMP. THOMAS C. RICHES, Scottdale, Pa. Original application filed Feb. 23, 1892, Serial No. 422,490. Divided and this application filed July 23, 1892. Serial No. 441,086. (No model.)



Claim.—1. In combination with the pump cylinder having the interior circumferential shoulders near the ends thereof, the removable bronze bushing provided with correspondingly arranged exterior circumferential shoulders adapted to abut against the shoulders of the cylinder, and the interposed packing rings and means for detachably securing the bushing within the cylinder, substantially as described.

2. In combination with the pump cylinder provided with ports near its ends communicating with water passages leading therefrom and interior circumferential shoulders adjacent to said ports and between the same, the removable bronze bushing extending the length of the cylinder and provided with ports near its ends adapted to register with the cylinder ports, and with exterior circumferential shoulders arranged to abut against the shoulders of the cylinder, together with elastic packing rings fitted between said shoulders and means for detachably securing the bushing within the cylinder, substantially as described.

490,142. DEEP-WELL PUMP. LAMBERT M. FORD, Mill Village, Pa. Filed Mar. 22, 1892. Serial No. 425,993. (No model.)

Claim.—1. A deep well pump comprising a guiding sleeve, a cylinder inclosing each end of the said sleeve and projecting beyond it, the opposite ends of the cylinders inclosing the adjacent ends of the tubing, whereby chambers are formed between the ends of the guiding sleeve and tubing, packings placed in the said chambers, and the interior diameter of the guiding sleeve being less than that of the tubing, a plunger rod passing through the guiding sleeve and guided thereby, substantially as specified.

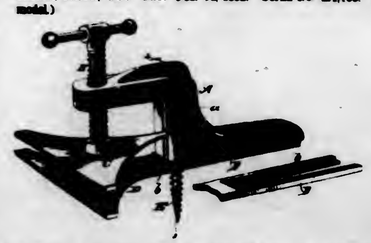
2. A deep well pump comprising a guiding sleeve having externally screw threaded ends, upper and lower tubings having externally

490,142.



adjacent screw threaded ends, externally and internally screw threaded bushings applied to the said ends of the guiding sleeve and tubing, externally screw threaded cylinders having their ends inclose the ends of the said bushings, packing placed within the said cylinders between the bushings and the adjacent ends of the tubing and guiding sleeve, and a plunger which passes through the packing and guiding sleeve, substantially as described.

490,148. SCREW-CLAMP. JOSEPH FRANK and FRANK H. FRANKENBERG, Pueblo, Colo. Filed Feb. 11, 1892. Serial No. 421,189. (No model.)



Claim.—1. In a screw clamp, the combination with the screw B, and the angular frame A, having a groove in its vertical portion, of the follower C having a swivel connection with said screw and provided with a tenon which projects into said groove and is adapted to turn therein, so that the follower may assume different inclinations as specified.

2. In a screw clamp, the combination, with the body, A, and the fastening screw attached to and projecting from its under side, of the base plate having a longitudinal slot and a guideway in its rear portion, as shown and described.

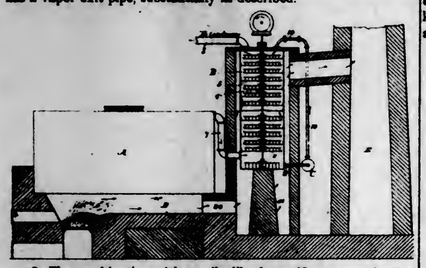
3. In a screw clamp, the combination, with the body, A, and its fastening screw, of the slotted base plate having its front end extended as shown, the adjusting screw and the follower, adapted to co-act with the base plate, as shown and described.

490,144. APPARATUS FOR REFINING PETROLEUM. HERMAN FRASCH, Cleveland, Ohio, assignor to the Solar Refining Company, of Ohio. Filed Nov. 1, 1892. Serial No. 450,703. (No model.)

Claim.—1. The combination with an oil still, of a purifier communicating with the vapor space of the still and provided with a vapor exit pipe, both purifier and still being arranged to be heated, and a

feeder adapted to discharge and distribute the purifying material in a divided condition among the vapors in said purifier, substantially as described.

2. The combination with an oil still having a furnace and a flue leading therefrom, of a purifier in the flue, and a feeder adapted to discharge the purifying material among the vapors in said purifier, which purifier communicates with the vapor space of said still and has a vapor exit pipe, substantially as described.



3. The combination with an oil still, of a purifier communicating with the vapor space of the still and provided with a vapor exit pipe and with baffle plates, both purifier and still being arranged to be heated, and a feeder adapted to feed the purifying material to the baffle plates in said purifier, substantially as described.

4. The combination with an oil still, of a purifier communicating with the vapor space of the still and provided with a vapor exit pipe, a feeder, and a supplementary distilling chamber, said purifier, still and chamber being all arranged to be heated, substantially as described.

5. The combination with an oil still, of a purifier communicating with the vapor space of the still and provided with a vapor exit pipe and with baffle plates and also with moving parts which assist in carrying the purifying material through the purifier, both purifier and still being arranged to be heated, and a feeder adapted to feed the purifying material to the baffle-plates in said purifier, substantially as described.

490,145. CLOTHES-HANGER. THEODORE M. GARRISON, Hazleton, Pa. Filed Apr. 11, 1892. Serial No. 428,723. (No model.)



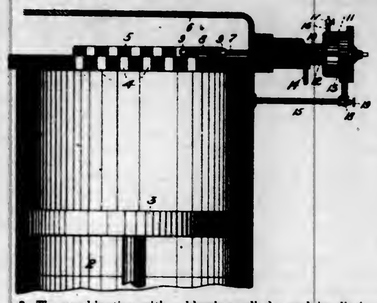
Claim.—1. A clothes hanger comprising the end bars A the rods B, their outer ends connected to such bars, their inner ends, having a slidable connection with each other, the bars F and G, having supporting hooks held to slide on such bars B means for limiting their outer adjustment on such bars and means for supporting such hanger all arranged substantially as shown and for the purpose described.

2. An improved clothes hanger comprising a support or hanger having divergingly arranged supporting sheaves, the frame or support proper formed of sections having slidable connections, a central bar F, slidable on the cross bars of the main frames, having a series of hooks *f*, the supporting cord C, secured at its ends to the end bars of the main frame, its central or loop portion passed over and between the diverging pulley supports, and adapted for detachable connection with any one of the hooks *f* on the bar F all substantially as and for the purposes described.

490,146. DISCHARGE-VALVE FOR BLOWING-ENGINES. THOMAS JAMES, Braddock, assignor to the Braddock Foundry and Machine Company, Philadelphia, Pa. Filed Aug. 22, 1891. Serial No. 403,367. (No model.)

Claim.—1. A cylinder provided with a discharge valve, two oppositely seating pistons connected with said valve, a branch connection from the cylinder arranged to actuate one piston, and a branch connection communicating with an independent source of constant pressure arranged to actuate the other piston: substantially as and for the purposes described.

2. A blowing-cylinder having a discharge-valve, the stem of which valve extends through two cylinders, a piston secured to the valve-stem in each cylinder, a branch connection leading from an independent source of constant pressure to one cylinder, and a branch pipe leading from the blowing cylinder to the other cylinder; substantially as and for the purposes described.



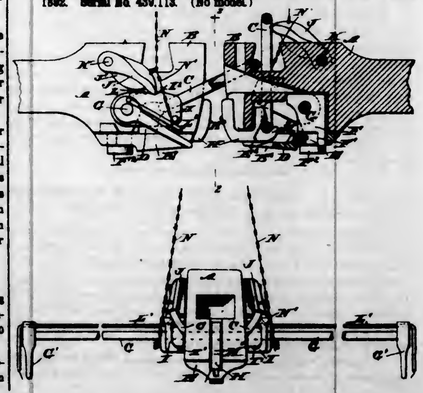
3. The combination with a blowing-cylinder and its discharge-valve, of two pistons secured to the valve-rod, two cylinders within which said pistons operate, a branch connection leading from an independent source of constant pressure to one cylinder, a branch pipe leading from the blowing-cylinder to one end of the second cylinder, and an open-ended valve controlled pipe connected to the other end of said second cylinder; substantially as and for the purposes described.

4. The combination with a blowing-cylinder and its discharge-valve, of two pistons secured to the valve rod, two cylinders within which said pistons operate, a branch connection leading from an independent source of constant pressure to one cylinder, and a branch pipe leading from the side of the blowing-cylinder at a distance from its end slightly greater than the thickness of the piston and connected to the other cylinder; substantially as and for the purposes described.

5. The combination with a blowing-cylinder and its discharge-valve, of two pistons of different diameters secured to the valve-rod, two cylinders within which the pistons operate, a branch connection leading from an independent source of constant pressure to one cylinder, and a branch pipe leading from the blowing-cylinder to the other cylinder; substantially as and for the purposes described.

6. A blowing-cylinder, having a discharge-valve, two pistons secured to the valve-stem, cylinders within which such pistons operate, a supply-pipe leading from a source of constant pressure to one of said cylinders, a branch pipe connecting the blowing cylinder with the other of said cylinders, and an automatic check-valve in said branch pipe, substantially as and for the purposes described.

490,147. CAR-COUPLING. PATRICK LEE and JOHN A. O'FARRELL, Boise City, Idaho; said Lee assignor to said O'Farrell. Filed July 6, 1892. Serial No. 439,113. (No model.)



(Twin.—1. In a car coupler, the combination with a drawhead formed with a hook at the top, near the front end, of a link mounted to swing loosely in the said drawhead, a shaft extending transversely in the said drawhead, and two arms or link lifters secured on the said shaft and each formed with two lugs engaging the sides of the link, substantially as described.

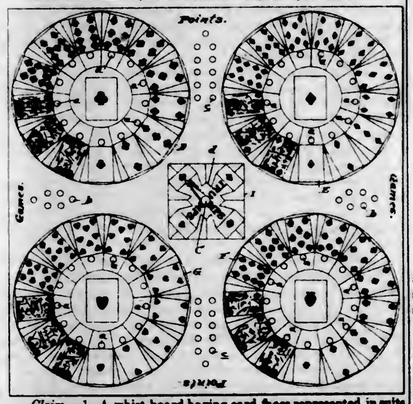
2. In a car coupler, the combination with a drawhead formed with a hook at the top, near the front end, of a link mounted to swing loosely in the said drawhead, a shaft extending transversely in the said drawhead, two arms or link lifters secured on the said shaft and each formed with two lugs engaging the sides of the link, and dogs pivoted on the said drawhead and engaging the said lifters to lock the latter in place, substantially as described.

3. In a car coupler, the combination with a drawhead formed with a hook at the top, near the front end, of a link mounted to swing loosely in the said drawhead, a shaft extending transversely in the said drawhead, two arms or link lifters secured on the said shaft and each formed with two lugs engaging the sides of the link, dogs pivoted on the said drawhead and engaging the said lifters to lock the latter in place, and means, substantially as described, for successively lifting the said dogs and lifters, to first unlock the latter and then raise the lifters to impart a swinging motion to the link, as set forth.

4. In a car coupler, a drawhead provided in its under side with a recess, a bottom plate for closing the said recess and formed with an elongated opening, and a plate held in the draw head and formed with a shank and head, of which the latter corresponds in shape to the opening in the said bottom plate, substantially as described.

5. A car coupler provided with a drawhead formed in its under side with a recess, a bottom plate for closing the said recess, and a plate having extensions or flanges and fitted to slide in the said drawhead and partly in the said bottom plate, substantially as described.

490,148. WHIST GAME-BOARD. WILLIAM A. LOGUE, Sunset, Mont. Filed Mar. 16, 1892. Serial No. 425,149. (No model.)



Claim.—1. A whist board having card faces represented in suits and each card of the suits adapted to receive a marker, substantially as specified.

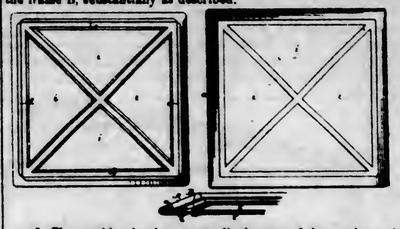
2. A whist board having upon its face the representation of a deck of cards; said cards being arranged in suits in a circular manner and each card adapted to receive a marker, substantially as and for the purpose specified.

3. A whist board having its face representing a deck of cards arranged in suits and having a hole at one end of each card, in combination with a pin or a peg arranged in said holes and adapted to be moved up and down therein, substantially as specified.

4. The whist board described, having represented upon its face a deck of cards divided into the four suits and also having a hole at one end of each card to receive a pin or marking peg; said case also having a pointer pivoted so as to indicate trumps which are represented on the face of the case and also having means for representing points and the games, substantially as specified.

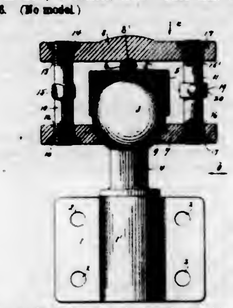
490,149. GAS-METER FRAME. HUGH LOGUE, Philadelphia, Pa., assignor to the American Meter Company, New York, N. Y. Filed June 15, 1892. Serial No. 436,519. (No model.)

Claim.—1. The combination in a meter diaphragm, of the quadrangular open frame A made from a single sheet of metal, having an external clamping flange, and an internal flange, a quadrangular frame B also made from a single piece of metal, and having an internal flange, with leather or equivalent material mounted between the two frames, the clamping flange of the frame A being turned down over the frame B, substantially as described.



2. The combination in a meter diaphragm, of the quadrangular internally flanged frames A and B each made from a single sheet of metal, one frame having an external clamping flange adapted to pass over the other, two sets of triangular flanged shields made from the metal cut from the frames A and B, with leather clamped between the two sets of quadrangular shields, the internal flanges of the frames A and B, and the flanges of the triangular shields being bent outward so as to form smooth edges for the leather, thus preventing the cutting of the said leather, substantially as described.

490,150. BALL-AND-SOCKET-JOINT CLAMPING DEVICE. EVERETT M. LOW, Worcester, Mass. Filed Mar. 16, 1892. Serial No. 425,166. (No model.)



Claim.—1. In a clamping device, the combination with the ball, and the socket piece supported on the ball, of means for clamping the socket piece upon the ball, and the rod upon the socket piece, substantially as set forth.

2. The combination with the ball, and the socket piece, supported and adapted to be clamped thereon, of means for clamping the socket piece on the ball, and the rod on the socket piece, consisting of two plates extending upon opposite sides of the ball, and means for drawing said plates together, substantially as set forth.

3. The combination with the ball, and a socket piece supported and adapted to be clamped on the ball, and a clamping device consisting of two plates extending upon opposite sides of the ball, one of said plates having a circular opening therein to hold the ball, and the other plate connected with said plate at one end, and means for drawing the plates together at their other ends, for the purpose stated, substantially as set forth.

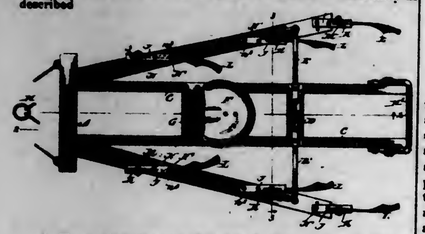
4. The combination with the ball, and a socket piece supported and adapted to be clamped thereon, and means for clamping the socket piece upon the ball and for clamping the rod on the socket piece: consisting of two plates extending upon opposite sides of the ball, and means for connecting said plates, and moving them toward each other, for the purpose stated, substantially as set forth.

490,151. CULTIVATOR. THOMPSON LOLL, Ainsworth, Nebr. Filed Aug. 19, 1892. Serial No. 443,542. (No model.)

Claim.—1. An improved cultivator comprising the front cross beam, the rearwardly diverging side beams, the shovel holding bars, held on such beams for lateral and longitudinal adjustment, the shovels pivotally supported in such bars for diagonal and vertical adjustments, the central trough like portion connected at the front end to the cross beam, and the rails connecting the beams and the rear

ends of the trough portion, all arranged substantially as shown and described.

2. In a cultivator substantially as described, the combination with the beam B the bars J J' pivotally connected thereto, said bars having elongated slots, the upper bar J having a vertical flange *j* formed with a horizontal series of apertures *j'*, of the shovels having apertured shank members, projected up through the slots in said bars and the securing bolt M, adapted to be fitted in either of the apertures in the flange *j'* and the apertured shanks whereby such shanks can be held to incline at different diagonal inclinations substantially as described



3. The combination with the beam B, the bars J J' projected diagonally to one side thereof said bars having elongated slots, the bar J' longitudinally adjustable on said beam, and the bar J having a vertical apertured flange *j*, of the shovel K having its shank projected up through the slots in the bars J J', and pivotally connected to the flange of the bar J all substantially as and for the purposes described.

4. In a cultivator substantially as described, the combination with the shovel beam having a cut out portion B^x and the bars J J' laterally adjustable over such cut out portion, said bars having elongated slots, and the bar J a vertical apertured flange, of the shovel having its shank loosely fitted in the slot of the bars J J' and pivotally connected to the apertured flange of the upper bar J all substantially as described.

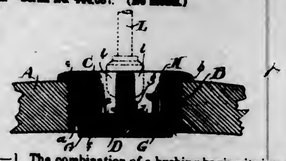
490,152. CLUTCH FOR ROCK-DRILLING MACHINES. SOLOMON H. MACOMBER, Chicago, Ill., assignor of one-half to Edward A. Rix, San Francisco, Cal. Filed June 2, 1892. Serial No. 435,267. (No model.)



Claim.—1. In a rock drill, the herein-described ratchet or clutch device consisting of the helical or spiral stem having an enlarged head provided with the parallel cylindrical seats for two or more pawls, the pawls located within said seats and constructed with cylindrical bases so that they may be easily rotatable and being symmetrical as to their two sides so as to be reversible and the embracing ring or collar surrounding the head and having its inner periphery formed with a series of notches or serrations which are engaged by the aforesaid pawls, together with springs which hold the pawls in engagement with the serrated ring, substantially as described.

2. The herein described ratchet or clutch for rock drilling machines, consisting in the combination of the helical rifle bar or stem A having an enlarged head B, the duplicate pawls C C having cylindrical bases and fitting into corresponding seats in the head B, said pawls having symmetrical sides so that they may be reversed and also may have an easy rotation in their seats, coiled springs F F held within seats in the head B and pressing against the pawls C C with force enough to keep them engaged, but permitting an easy rotation of the head B and stem A in a reverse direction and the rigid ring or collar which in itself held in a fixed position and surrounds the head B, said collar being provided on its interior with notches or serrations that are engaged by the pawls C C, substantially as described.

490,153. RING. THOMAS MARPLE, Philadelphia, Pa. Filed Aug. 25, 1892. Serial No. 444,087. (No model.)



Claim.—1. The combination of a bushing having its internal surface unobstructed throughout its entire depth by any projecting parts and provided with an internal annular seat of enlarged diameter and small vertical depth adjacent to the lower edge of the bushing, a cup shaped piece loosely fitting within the bushing and supported thereby at the top, a plate located below the base of the cup shaped piece provided with an upright extension projecting through the base of the cup shaped piece, a vertically swinging cam carried by said upright extension within the cup shaped piece and adapted to bear against the inner surface of the base of said piece, and an annular elastic ring located between the adjacent edges of the base of the cup shaped piece and the plate below it and adjacent to the annular enlarged seat in the bushing.

2. The combination of a bushing having its inner surface provided with an annular seat of enlarged diameter, a cup shaped piece loosely fitting the bushing and supported thereby at the top, a plate located below the base of the cup shaped piece and provided with an upwardly extending projection extending through the base of the cup shaped piece, a vertically swinging cam carried by said projection and bearing against the inner surface of the base of the cup shaped piece, an annular elastic ring located between the adjacent edges of the base of the cup shaped piece and the plate below it, and a stop located upon the interior of the cup shaped piece in the path of the upward movement of the cam.

3. The combination of a bushing having its inner surface provided with an annular seat of enlarged diameter, a cup shaped piece loosely fitting the bushing and supported thereby at the top, a plate located below the base of the cup shaped piece, and provided with an upwardly extending projection extending through the base of the cup shaped piece, a vertically swinging cam carried by said projection and bearing against the inner surface of the base of the cup shaped piece, and an annular elastic ring located between the adjacent edges of the base of the cup shaped piece and the plate below it, the extreme upper edge of the upwardly extending projection and the cam carried by it being at all times below the upper rim of the cup shaped piece.

4. The combination of a bushing having its inner surface provided with an annular seat of enlarged diameter, a cup shaped piece loosely fitting the bushing and supported thereby at the top and provided at its lower edge with an annular angular seat, a plate located below the base of the cup shaped piece and provided with an upwardly extending projection extending through the base of the cup shaped piece, a vertically swinging cam carried by said projection and bearing against the inner surface of the base of the cup shaped piece, and an annular elastic ring located between the adjacent edges of the base of the cup shaped piece and the plate below it, and having an angular edge fitting within the annular angular seat on the lower edge of the cup shaped piece.

490,154. FRAME FOR POCKET-BOOKS. LOUIS MEISEL, New York, N. Y. Filed Oct. 27, 1892. Serial No. 450,151. (No model.)



Claim.—1. The combination with the frames or jaws A and B, of the tubes C provided with tongues D extending through slots in one of the frames or jaws and bent laterally to secure said tubes in position, a torsion spring E extending through said attached tubes, a locking lug on one of the frames or jaws, and a catch H secured to the torsion spring between the adjacent ends of the attached tubes, substantially as described.

2. The combination with the frames or jaws A and B, of tubes carried by one of the jaws, a torsion spring E extending through the tubes and having a depending bent portion to form the shoulder G, a locking lug K on one of the frames or jaws, and a catch H having an eye or aperture in its under side through which the pendent shoulder projects, substantially as described.

3. The combination with the frames or jaws A and B, of the tubes C having tongues D extending through slots in one of the frames or jaws and bent laterally to secure said tubes in position, a torsion spring E extending through the tubes and having a pendent bent portion to form a shoulder G, a locking lug K on one of the frames or jaws, and a catch H formed from a piece of sheet metal bent into the form of a housing which is provided with an eye in its under side through which the pendent shoulder of the torsion spring projects, substantially as described.

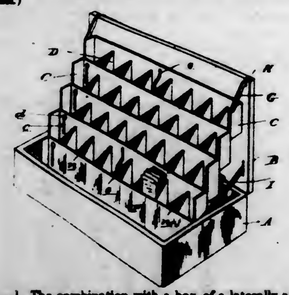
490,155. PAPER-FILE. GEORGE W. MILLS, Elizabeth, N. J. Filed May 17, 1892. Serial No. 433,267. (No model.)



Claim.—1. The combination with the bed 1, of the rod 2, having an aperture 3 in the upper portion thereof with the removable rod 4 having the spindle 6 adapted to enter the aperture 3, and a shoulder 7, substantially as described.

2. The combination of the bed 1 having the rod 2, with an aperture 3 in the upper portion thereof, a removable rod 4 provided with a spindle 6 adapted to enter the aperture 3, a shoulder 7, and a pointed arm 5, both rods being of the same diameter, substantially as described.

490,156. SHIPPING AND DISPLAY BOX FOR SEEDS. SHERMAN R. MILLER, Detroit, Mich. Filed June 27, 1892. Serial No. 438,184. (No model.)



Claim.—1. The combination with a box, of a laterally arranged series of connected trays therein adapted to be moved into an inclined series, and a detachable support to hold them in such inclined position, substantially as described.

2. The combination with a box, of a laterally arranged series of trays therein, a limited sliding connection between the front and rear of the adjusting trays, whereby they may be moved to form an inclined series, and a detachable support to hold them in their adjusted position, substantially as described.

3. The combination with a box, of a laterally arranged series of open topped compartments, trays formed with low fronts, of a pin in the front of each tray engaging in a slot in the back of the adjoining tray, a cover for the box, a support therefor in its open vertical position, and a connection between the upper tray and the cover, substantially as described.

4. The combination with a box, of trays therein, each formed of sheet metal, bent to form the sides, and ends, and of inclined partitions formed by sections struck out of the back, substantially as described.

5. The combination with a box, of trays therein, each formed of a single piece of sheet metal, bent as described, to form the sides and ends, the sections *l* struck out of the back to form partitions, and the lug *m* projecting above the bottom at the back, substantially as and for the purpose described.

6. In a display box, the combination with a box of a series of trays therein loosely united, and detached means for connecting the trays with a portion of the box for retaining the trays in an elevated position, substantially as described.

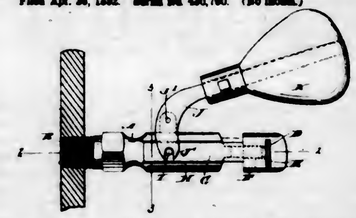
7. In a display box, the combination with a box and its cover of a series of vertically movable trays in the box loosely united and detached means for connecting the trays with the forward edge of the cover, substantially as described.

8. In a display box, the combination with a box, of a series of vertically movable trays therein loosely united with each other and with a fixed part of the box, and means for retaining the tray at different elevations with their respective upper ends above the plane of the box, substantially as described.

9. In a display box, the combination with a box, of a series of movable trays in the box, a hinged cover for the box, and a hook connection between the trays and cover, substantially as described

10. In a display box, the combination with a box and its cover of a series of vertically movable trays, loosely united with each other, and a fixed portion of the box, a connection between the cover and rear most tray and a support for holding the cover in a vertical position, substantially as described.

490,157. GAGE-COCK. JAMES D. MITCHELL, Marine City, Mich. Filed Apr. 26, 1892. Serial No. 430,760. (No model.)



Claim.—1. In a gage cock, the combination with a valve body carrying a nozzle, of a metallic plate adapted to close the end of the said nozzle, and a head carrying the said plate and fitted to slide on the said valve body, substantially as shown and described.

2. In a gage cock, the combination with a valve body carrying a nozzle, of a metallic plate adapted to close the end of the said nozzle, a head carrying the said plate and fitted to slide on the said valve body, and a weighted lever for holding the said head in an innermost position to press the said plate against the end of the nozzle, substantially as shown and described.

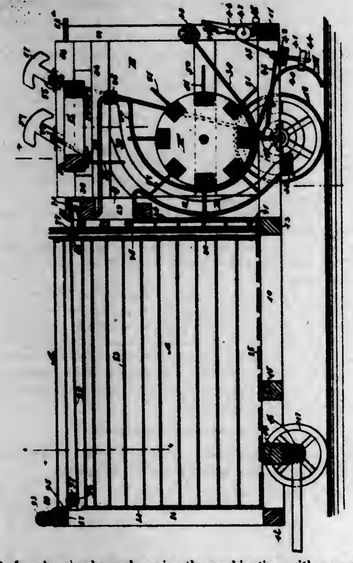
3. In a gage cock, the combination with a valve body formed with guide-ways and carrying a nozzle, of a metallic plate adapted to engage the end of the said nozzle, a head formed with a transverse aperture through which extends the said plate, guide arms extending from the said head and fitting into the guideways on the said valve body, and a weighted lever pivoted on the said valve body and connected with the said guide arms, substantially as shown and described

490,158. COMBINED HAY LOADER AND CARRIER. DENIS MCCARTHY, Columbus, Ohio. Filed Apr. 20, 1892. Serial No. 431,106. (No model.)

Claim.—1. A hay loader and carrier, comprising the frame work, its supporting wheels, a rotary toothed drum in the rear end of the frame above the rear wheels, parallel crank shafts mounted above the drum, the rake carried by the said shafts, vertically extending shafting geared to the rear frame wheels, the drum and said crank shafts, a rake beneath the drum, a throat D, curved from the rake forwardly upwardly and rearwardly around the drum and beneath the upper rake, an opening or passage C leading forwardly from the

upper portion of the throat into the front portion or storage compartment of the said frame, substantially as set forth.

2. The combination with the frame having a mechanism at its rear end for raking elevating and discharging the hay into the forward portion of the frame, of a series of strands or cords forming the sides of the said forward portion or compartment, and a bar at one end of each series of cords provided with hooks, and vertical rods on the frame with which the hooks are adapted to engage, substantially as set forth.

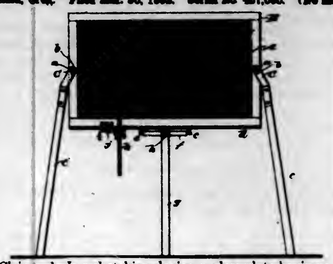


3. In a hay loader and carrier, the combination, with a supporting frame provided with a storage compartment, a throat leading from the upper part of the storage compartment down below the frame, and a mechanism for feeding the hay from the throat into the said storage compartment, of a crank shaft journaled opposite the mouth of the throat, a head block secured to the crank shaft and provided with downwardly extending staples or eyes, rake teeth pivoted to the throat bars, and extending at their rear downwardly curved ends adjacent to said head block, lips 41 projecting rearwardly from the rake teeth and entering the staples or eyes of the head block, and an adjusting lever connected with the head block, substantially as and for the purpose set forth.

4. In a hay loader and carrier, the combination, with a supporting frame provided with uprights connected by cross bars, of a roller journaled above one set of uprights, rollers journaled at the sides of the said uprights and geared with the upper roller, bars provided with hooks adapted for engagement with the sides of the opposite set of uprights, a horizontal bar also provided with hooks and adapted for engagement with the cross bars of the latter uprights, a roller journaled below the said upper roller, cords connecting the vertical rollers and the vertical bars, cords connecting the horizontal bar and the lower roller, a winding connection between the upper and lower roller, and a lever for imparting movement to one of the two rollers, substantially as and for the purpose set forth.

5. In a hay loader and carrier, the combination, with a frame provided with a storage compartment having contractible and expansible sides and top, the said sides and top being removable at one of their ends from the frame, a toothed drum journaled near one end of said storage compartment, and a throat receiving the teeth of the drum and extending from beneath the latter upward into the storage compartment, of a series of rake teeth pivotally attached to the throat bars, a crank shaft journaled in the frame back of the rake teeth, staples or eyes extending downward from the crank shaft, lips projected from the rake teeth and extending into the staples or eyes, an adjusting lever connected with the crank shaft, a feed rake located above the throat, the teeth of which extend down into it, and a means for imparting a rotary reciprocating movement to the feed rake, substantially as shown and described.

490,159. SKETCHING DEVICE. THOMAS A. MCFARLAND, Portland, Oreg. Filed Mar. 30, 1892. Serial No. 427,095. (No model.)



Claim.—1. In a sketching device, a glass plate having a ground or abraded drawing surface provided at intervals with unground transparent sight spaces, substantially as set forth.

2. In a sketching device, a ground glass plate having on its ground or abraded face unground transparent sight spaces in longitudinal and transverse lines, substantially as set forth.

3. A sketching device, comprising a frame, a ground glass plate therein and having on its ground or abraded face unground transparent sight spaces, rearward inclined outward swinging legs *c c* adjustably pivoted at *a* to the ends of the frame, and a swinging leg *g* pivoted to the lower edge of the frame and inclined oppositely to legs *c c*, substantially as set forth.

4. The sketching apparatus, comprising an open frame having a graduated glass plate therein through which the artist views the landscape or object to be sketched, legs adjustably secured at their upper ends to the ends of the frame, a slotted plate on the lower edge of the frame, an arm having a set screw at its inner end extending through the slot, a head rest adjustable secured to said arm to swing toward and from the frame and the swinging leg pivotally connected at its upper end with the lower edge of the frame between the ends thereof, substantially as set forth.

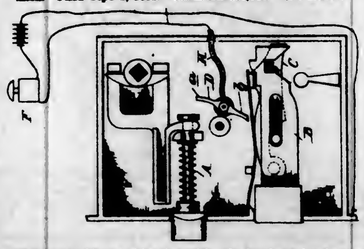
490,160. BRICK-MOLD. EDWIN C. MCGRAW, GEORGE W. MCGRAW, and HENRY L. MCGRAW, Pittsburg, Pa. Filed Apr. 11, 1892. Serial No. 428,575. (No model.)

Claim.—1. A two part mold for plastic materials, one part having a filling aperture of smaller size than the mold, and downwardly beat or beveled flanges surrounding said aperture; substantially as described.

2. The combination with a mold having a top-plate provided with a filling aperture of smaller size than the mold-cavity, of a striker having a projecting portion arranged to fit within the aperture; substantially as described.

3. The method of molding bricks, consisting in forcing the clay into the mold through an aperture of smaller size than the mold-cavity, scraping off the clay within the aperture, thereafter separating the parts of the mold and removing the brick from the mold; substantially as described.

490,161. ELECTRIC ALARM-LOCK. JOSEPH A. HADRAU, Detroit, Mich. Filed Sept. 2, 1892. Serial No. 444,913. (No model.)

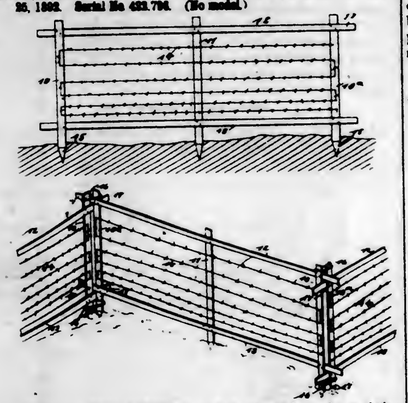


Claim.—1. The combination with a lock adapted to be mounted upon a door and comprising a metallic case, a latch and a bolt controlled by a tumbler, of a battery, and electric signal circuit wires including said battery and signal, a contact piece upon the interior

of said casing insulated therefrom and having two horns, one of which is adapted to contact with the latch and the other adapted to contact with the tumbler of the lock when the door is opened and circuit wires having one terminal secured to said contact and the other to the case of the lock, substantially as described.

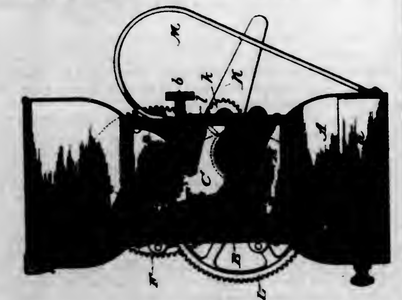
2. In a burglar alarm, the combination with a door lock provided with a latch and a bolt controlled by a tumbler and a battery, an electric signal, a contact piece within the casing of the lock and provided with two horns with which the latch and tumbler of the bolt are adapted to contact respectively upon the operation of said latch and bolt, circuit wires closing the battery and electric signal, and respectively connected to the contact piece in the lock and to the casing of the lock, said circuit wires being concealed within the door and electrically connected through the hinges of the door, substantially as described.

490,162. FENCE. JAMES F. OGLETREE, Stinson, Ga. Filed Feb. 25, 1892. Serial No. 423,706. (No model.)



Claim.—A fence, comprising a series of panels, each consisting of top and bottom rails, posts secured to opposite sides of the rails a short distance from the ends thereof and projecting above and below the same, the lower ends of the posts being pointed, and a filling between the top and bottom rails, said filling not extending beyond the end posts, the projecting ends of the rails of the panels being made to cross one another and bearing in opposite directions against the opposing posts of the panels, and links connecting the posts of the panels, above and below the top and bottom rails, substantially as shown and described.

490,163. COFFEE-MILL. JAMES R. GRESHAM, Midlothian, Pa. Filed May 14, 1892. Serial No. 433,080. (No model.)

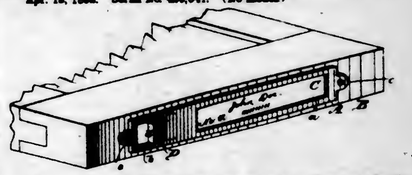


Claim.—1. As an improved article of manufacture, a portable coffee mill made up of a hollow cast metal central section inclosing crushing and grinding mechanism, said section having apertures to provide bearings for the concave, screw for adjusting said concave and for the grinding rolls, the upper and lower portions of the casing having flanges against which bear a hopper and a base; a handle attached to the central section and to the base, gear-wheels F and L which mesh with a pinion on the shaft which carries the crank handle, and pinions carried by the shafts of the crushing rolls, the handle and crank handle projecting at right angles with each other, the parts being organized substantially as shown, and for the purpose set forth.

2. In a portable coffee mill, a central section having bearings for crushing and grinding rolls and gearing therefor as shown, a block having a stub shaft attached to one corner of said section, a crank handle carrying a pinion mounted on said stub-shaft, and gearwheels F and L mounted on the projecting ends of the crushing and grinding rolls, said gearwheels meshing with the pinion attached to the crank handle, and a hopper and base attached to the central section, substantially as shown, and for the purpose set forth.

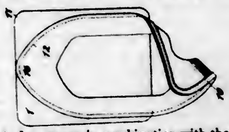
3. In a portable coffee mill, the combination of the cast metal central casing, corrugated crushing and feed rolls centrally located within said casing, a concave pivoted to said casing, grinding rolls located beneath the same and geared to each other so as to rotate at different rates of speed, and gearing consisting of a cogwheel mounted on the shaft of the crushing roll, a cogwheel on the shaft of one of the grinding rolls, one of said wheels overlapping the other, a broad-faced driving pinion meshing with the aforesaid cogwheels, and pinions mounted on the shafts of the crushing rolls, substantially as shown, and for the purpose set forth.

490,164. LABEL-HOLDER. JOHN READY, Boonville, N. Y. Filed Apr. 13, 1892. Serial No. 429,041. (No model.)



Claim.—An indicating tablet for photo-printing frames, comprising the frame A having its back recessed and provided with the openings *a b*, a writing tablet in the recess of the frame, and the slide D provided with the thumb piece *d* and mounted in the opening *b*, substantially as and for the purpose set forth.

490,165. PURSE AND METHOD OF MAKING SAME. ABRAHAM RITTER, New York, N. Y., assignor to Rudolph Wolff & Co., same place. Filed Sept. 2, 1892. Serial No. 444,896. (No model.)



Claim.—1. In a purse, in combination with the cover and frame, a gusset formed of a single flat continuous piece of material, having the end portions 16 connected by the narrow sides 14 whereby the single piece gusset is adapted to entirely surround the purse frame substantially as and for the purpose set forth.

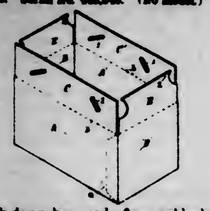
2. The method of making purses, which consists in forming the cover and gusset, the latter of a single continuous piece of material, sewing the welting on to the edge of the gusset, and then sewing the welted gusset to the cover, substantially as set forth.

490,166. BELT-SUPPORT. LOUIS SANDERS, Brooklyn, N. Y. Filed Aug. 20, 1892. Serial No. 444,202. (No model.)



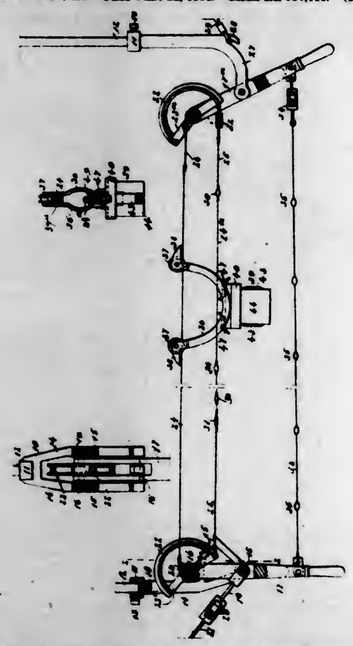
Claim.—The herein described belt support, consisting of a loop A of flexible material, the stiffening plate 10 secured to the rear face of the loop, and the clamp 12, secured to the stiffening plate, said clamp consisting of a base plate and a fork secured to and spaced from the base plate, as specified.

490,167. PAPER BOX. THOMAS F. W. SUMNER, Dayton, Ohio, assignor of one-half to the Dayton Paper Novelty Company, same place. Filed Sept. 8, 1892. Serial No. 445,249. (No model.)



Claim.—A knock-down box made from a blank consisting of the longitudinal center sections A, B, A' B' formed respectively at their opposite edges with the folding sections C, D, E, C', D' and E', said sections C, D and C', D' having slots 1, and the sections E, E' having corner projections 2, substantially as and for the purpose described.

490,168. STORE-SERVICE APPARATUS. ABRAM J. SLOUKHIM, Parnesville, Mo. Filed June 22, 1891. Serial No. 397,119. (Model.)



Claim.—1. A store service apparatus, comprising segmental rims pivoted at opposite ends of the line, parallel wires connecting the hubs and peripheries of the rims, the lower of said wires being provided with balls, a car adapted to run upon the upper wire and provided with catches to engage the balls of the lower wire, and a lever mechanism for operating the rims, substantially as described.

2. A store service apparatus, comprising segmental rims pivoted at each end of the line, said rims having slotted faces and slotted spokes, a connecting wire secured to the end spoke of one rim and extending over the hub to the upper spoke of the opposite rim, a connecting wire extending from the upper part of one rim to the lower part of the opposite rim and adapted to be wound upon the rims, said wire having a series of balls thereon, a car adapted to run upon the upper wire and having catches to engage the balls of the lower wire, and a lever mechanism for turning the rims, substantially as described.

3. A store service, comprising a fork suspended from a support and provided with segmental gears, a handle pivoted in the lower portion of the fork and provided with a shaft at its upper end which is geared to the segmental gears, a segmental rim secured to the shaft in the handle, a similar rim and handle arranged at the opposite end of the line, a connecting wire connecting the central portions of the two rims, a lower wire connecting the peripheries of the rims and provided with a series of balls, and a car adapted to run upon the upper wire and provided with catches which engage the balls of the lower wire, substantially as described.

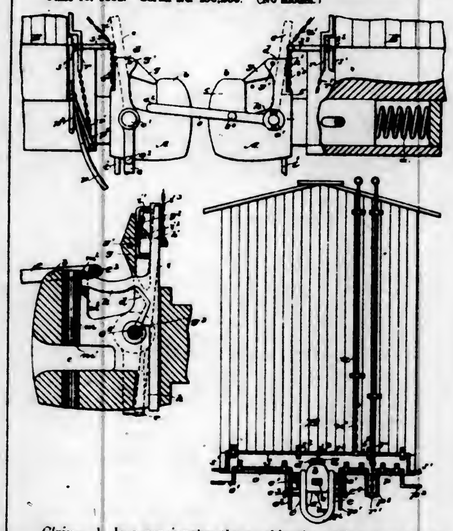
4. In a store service apparatus, the combination, with the oppositely arranged rims and handles connected as described, of a wire extending between the lower ends of the handles, said wire having a series of balls thereon, substantially as described.

5. In a store service apparatus, the combination, of two parallel wires, the lower one of which is provided with a series of balls, a lever mechanism for moving the wires and changing their inclinations, and a car adapted to run upon the upper wire, said car having catches to engage the balls of the lower wire, substantially as described.

6. The combination, with two parallel wires, the lower of which is provided with a series of balls, of a lever mechanism for moving the wires, and a car for running upon the wires, said car comprising a U-shaped frame embracing the wires and having pulleys to run upon the upper wire, catches pivoted in the lower part of the frame and adapted to engage the balls of the lower wires, and a detachable money box suspended from the frame, substantially as described.

7. In a store service apparatus, the combination, with the movable segmental rims and the wires connecting them, the lower wire having balls thereon, of a car adapted to run upon the wires, said car having projecting upper ends to contact with the segmental rims, substantially as described.

490,169. CAR-COUPLING. JOHN L. SMITH, Ogden, Utah. Filed June 10, 1892. Serial No. 436,209. (No model.)



Claim.—1. In a car coupler, the combination with a draw head provided with an upwardly projecting limb, and a pivoted coupling link, of a pivoted guard plate, a sliding lifting bar, and a connection between the guard plate and lifting bar for operating the former from the latter, substantially as described.

2. In a car coupling, the combination with a slotted and apertured draw head provided with a draft limb, and a pivoted bail coupling link, of a pivoted guard plate, a sliding lifting bar provided with a forwardly projecting arm, and a connection between the guard plate and lifting bar for operating the former from the latter, substantially as described.

3. The combination with a drawhead having a vertical limb thereon at its forward end and having an axial perforation, vertically slotted flanges rearward of the limb, and a longitudinal aperture intersecting the perforation and slot, of a lifter bar adapted to slide vertically in a slot in the drawhead and between the flanges thereon, an arm on said lifter bar projected toward the drawhead limb, and a guard plate adapted to vibrate when the lifter bar is reciprocated, substantially as described.

4. The combination with a drawhead having a vertical limb thereon at its front axially perforated to receive a coupling pin, and vertical slotted flanges intersecting a vertical slot in the drawhead and joining a longitudinal aperture in said drawhead, of a lifter bar having a forward projection, an arm on the lifter bar above said projection, extending toward the vertical limb, a vibratable guard plate, an offset bail loop link, and a cross pivot bolt for the loop and centrally reduced to receive the projection of the lifter bar, substantially as described.

5. The combination with a draw-head having a forward vertical draft limb, a longitudinal channel at the top, two vertical spaced flanges rearward, and a vertical slot at the bottom and between the flanges, of a lifter bar in the slot, a staple loop thereon, a vertical slotted guard plate pivoted at one end between the flanges, a cross pin in the guard plate and projecting through the loop, and means to slide the lifter bar from the sides and roof of a car, substantially as described.

6. The combination with a draw-head, apertured longitudinally, a vertical draft limb on the front end of the drawhead, two spaced vertical flanges in rear of said limb, and a vertical slot between said flanges at the base of the drawhead, of a lifter bar in the slot and between the flanges, an elongated staple loop on the front and upper end of the lifter bar, a vertically slotted guard plate pivoted by one end between the vertical flanges on the drawhead, the staple loop sliding in the slot of the guard plate, a cross pin passing through the guard plate and through the staple loop, a rock arm provided with a double crank intermediate of crank handles on its ends, a bail loop link pivoted by its ends on the draw-head, two rock shafts journaled on the drawhead, and arms on said shafts adapted to engage studs on the bail loop link and lift it when the shafts are rocked, substantially as described

490,170. ARTIFICIAL FLOWER AND MODE OF MAKING SAME. MATHIEU R. A. SOUCHET, Paris, France, assignor of one-half to Marie Otier, same place. Filed Mar. 1, 1892. Serial No. 423,421. (No specimens.) Patented in France July 20, 1882, No. 150,203, and Oct. 2, 1883, No. 157,811.



Claim.—1. As a new article of manufacture, artificial flowers or foliage having the several parts made of sheets of celluloid cut out and beat up to the shape of the said parts, colored to imitate natural colors, and the several parts mounted together like natural flowers of foliage, all substantially as described.

2. The herein described process of making artificial flowers or foliage, consisting in cutting out sheets of celluloid to the shapes of the various parts of the flowers or foliage, then softening them, bending them up to their natural shapes, and mounting the parts together like the natural flower or foliage, substantially as set forth.

3. The herein described process of manufacturing water-proof artificial flowers or foliage, consisting in shaping them from celluloid and then applying spirit colors on the material while moist to represent the natural colors, as and for the purpose set forth.

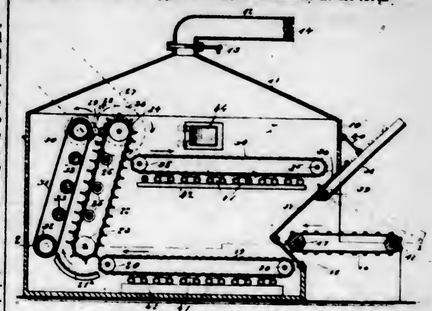
4. The herein described process of manufacturing artificial flowers or foliage, consisting in cutting out thin sheets of celluloid to the shapes of the various parts of the flowers or foliage, painting and coloring the same and bending or shaping them and finally mounting them in the desired forms to represent flowers or foliage, all substantially as set forth.

5. The herein described process of manufacturing artificial flowers or foliage, consisting in cutting out sheets from celluloid, immersing the cut-out pieces in a bath of alcohol or methylated spirit to render the same flexible, painting or coloring and bending or shaping the articles to the desired form, substantially as set forth.

6. The herein described process of manufacturing artificial flowers or foliage, consisting in cutting, painting or coloring and bending or shaping celluloid to the desired forms of the parts to form the flowers or foliage, and then attaching the same to a suitable stem by a waterproof cement, substantially as set forth.

490,171. DRIER AND CARBONIZER. HERMAN J. SPENCER, Lawrence, Mass. Filed Jan. 25, 1892. Serial No. 419,102. (No model.)

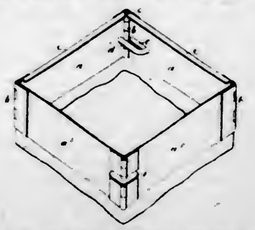
Claim.—1. A drier, comprising a casing having one end wall inclined inwardly and downwardly, an outlet door in the upper portion of the inclined wall and forming a continuation thereof to permit the descent of the material along said wall when closed and allow it to pass out of the casing when open, a lower inlet door beneath and in front of the lower end of the inclined wall to permit the entrance of the material to be dried, an endless carrier within the casing and having its receiving end extending under the lower end of the inclined wall to the inlet door, an upper endless carrier, the delivery end of which extends over the said outlet door to deliver the material thereon to return it to the lower carrier or to discharge it through the door opening, and an elevator within the casing to elevate the material from the lower to the upper carrier, substantially as set forth.



2. A drier, comprising a casing having an inwardly and downwardly inclined front wall, an outlet door for the material forming a continuation of the upper part of said inclined wall, an inlet door for the material beneath and in front of the lower edge of said inclined wall, an endless feeder outside of the casing with its delivery end extending over said inlet door, a lower endless carrier within the casing with its receiving end under the inlet door to receive the material from the endless feeder, an endless elevator extending upward from the delivery end of the said lower carrier, an upper endless carrier receiving the material from the elevator and extending at its delivery end over the said outlet door to deliver the material thereon when it is to be returned to the lower carrier or to discharge it through the door opening, and a trough or chute pivoted adjacent to the said outlet door to swing under the delivery end of the upper carrier when said door is opened and conduct the material beyond the endless feeder, substantially as set forth.

3. A drier, comprising the casing 10 having a top 11, an exhaust pipe 12 connected with the apex of the top and having a valve 13, the inclined end wall 37, a door 36 forming the upper portion of said wall, an oppositely inclined door 15 below and in front of the lower edge of said wall 37, the external endless feeder 16 and lower endless inclosed carrier 19 separated at their adjacent ends by said door 15, the vertically extending elevating mechanism in the casing, the upper endless carrier receiving the material from the elevator and delivering it upon the door 36 for return to carrier 19 or to discharge the material through said door, and a hinged chute or trough pivoted adjacent to said door 36 to swing under the carrier 34 when the door is opened and conduct the material beyond the endless feeder 16, substantially as set forth.

490,172. MAIL BAG OR POUCH. JOHN W. C. SPRINGSTON, Winfield, Kans. Filed July 13, 1892. Serial No. 439,923. (No model.)

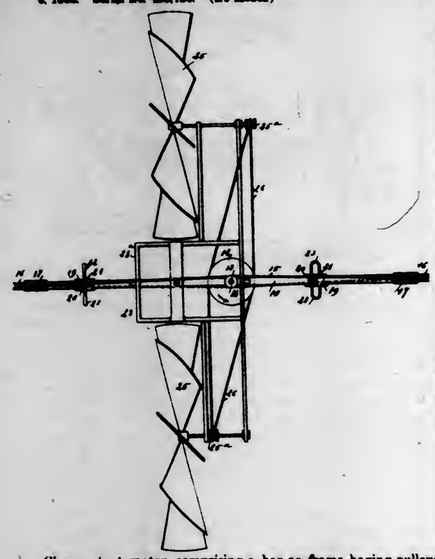


Claim.—1. In a mail bag or pouch of the class described, the combination with a series of hinged plates secured to the mouth of the bag and having a slot formed at the intersection of the front plates, a staple having one of its ends secured to one of the rear plates and having its other free end formed with a bend, a slot in the adjacent rear plate for receiving said free end, and a padlock operating

with the staple to lock the bag in its closed condition, substantially as described.

2. In a mail bag or pouch of the class described, the combination with a series of hinged plates secured to the mouth of the bag, flanges *e* on the rear plates, slot *f* formed at the intersection of the front plates, slot *e* in one of the rear plates, the staple secured at one end to the adjacent rear plate and having its free end upturned and working in the slot *e*, and a padlock operating with the staple to lock the bag in its closed condition substantially as described.

490,178. MOTOR. THEODORE A. STARK, Ottawa, Ill. Filed June 6, 1892. Serial No. 435,730. (No model.)



Claim.—1. A motor, comprising a bar or frame having pulleys at the ends, a driving belt held to run upon the pulleys and reciprocating slides mounted on the bar, each slide having on opposite sides abutments through which the belt passes, and hinged leaves or grippers adapted to frictionally engage the belt and close against the abutments, substantially as described.

2. A motor, comprising a bar or frame having pulleys at its ends and a driving pulley in the center, an endless belt held to run over the end pulleys and to drive the center pulley, and movable slides mounted on the bar on opposite sides of the driving pulley, the slides having friction devices to engage the belt, substantially as described.

3. A motor, comprising a bar or frame having a driving pulley arranged centrally therein and flanged pulleys secured to opposite ends of the driving pulley shaft, anti-friction pulleys journaled at the ends of the machine, an endless belt held to run over the anti-friction pulleys and arranged to drive the flanged pulleys, and slides mounted on the opposite end portions of the bar or frame, the slides having friction devices adapted to engage the belt, substantially as described.

4. A motor, comprising a bar or frame having anti-friction pulleys at its ends, a central driving pulley, an endless belt held to run over the antifriction pulleys and to drive the driving pulley, and slides held to move on opposite end portions of the bar or frame, the slides having friction devices to engage the belt, these being arranged so that the two slides shall simultaneously engage opposite strands of the belt, substantially as described.

5. In a motor, the combination of the bar having pulleys at its ends, and a driving pulley at the center, a belt held to move over the end pulleys and to drive the center pulley, slides held to move on opposite end portions of the bar, grooved abutments extending from the slides and adapted to receive the belt, and swinging leaves secured to the slides and having perforations to receive the belt, the leaves being held to swing against the abutments, substantially as described.

6. The combination of the main bar having pulleys at its ends, a driving pulley journaled near the center of the bar, an endless belt held to run over the end pulleys and to drive the driving pulley, movable slides mounted on the bar on opposite sides of the driving pulley, the slides having friction devices to engage the belt, handles secured to one of the slides, and pedals secured to the opposite slide, substantially as described.

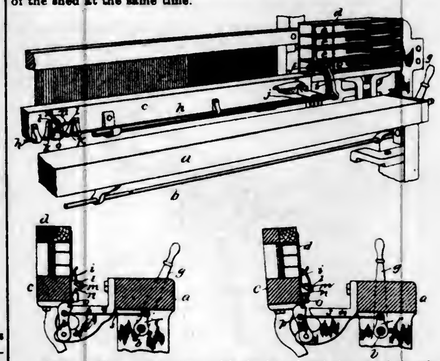
490,174. ALLOY OF METALS AND PROCESS OF MAKING SAME. FRANK G. STARK, St. Louis, Mo., assignor, by mesne assignments, to the Carbo-Aluminum Metal Company, same place. Filed July 20, 1892. Serial No. 441,000. (Specimens.)

Claim.—1. As a new article of manufacture, an alloy composed of fifty-six [56] parts, copper, forty [40] parts zinc, two [2] parts iron, and one [1] aluminum, or substantially the proportions as above set forth.

2. The process herein-described, of forming an alloy of copper, zinc, iron, and aluminum, which consists in fusing the copper, adding and thoroughly mixing the zinc in small proportions at a time, adding the iron in a finely divided state and thoroughly stirring it into the molten mass, and, finally, introducing the aluminum, in about the proportions hereinbefore stated and commingled as described.

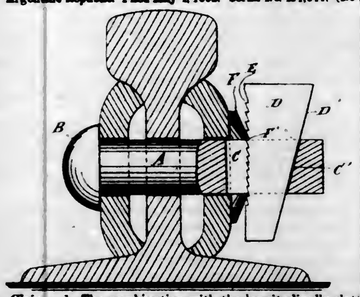
490,175. STOPPING MECHANISM FOR LOOMS. ALDEN TAPLIN, Lawrence, Mass. Filed July 25, 1892. Serial No. 441,099. (No model.)

Brief.—The stop-motion is operated in a pick-and-pick loom, when a shuttle is brought into position to be picked from both sides of the shed at the same time.



Claim.—The combination, with the lay, shuttle box, and shuttle binder, of the rods "A" each provided with an arm "i" arranged to rest against the shuttle binder, a spring "j" for holding the arm against the shuttle binder, a crank "k" provided with a pin "l," the vertically sliding block "n," provided with a slot "m" in which the pins "l" operate, a lever "p" pivoted below the block "n," the protector rod, and an arm or lever thereon, and a rod or wire connecting the lever "p" to the lever or arm on the protector rod, as set forth.

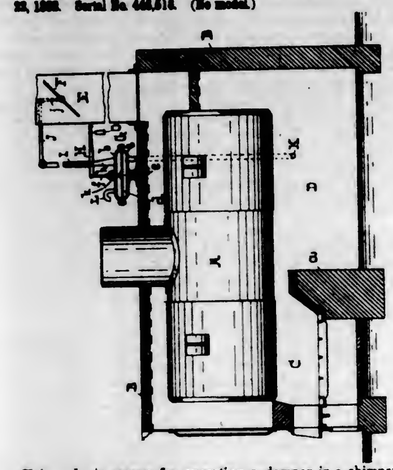
490,176. NUT AND BOLT LOCK. CHARLES M. STETSON, Rosario, Argentine Republic. Filed May 4, 1892. Serial No. 431,811. (No model.)



Claim.—1. The combination with the longitudinally-slotted bolt and the concavo-convex washer, of the key having one side edge provided with ratchet teeth adapted to engage the edge of the washer, as shown and described.

2. A lock, comprising a bolt formed with a slot having an inclined end, a concavo-convex washer held on the said bolt, and a toothed key adapted to pass into the said slot to engage, with its teeth, the raised edge of the said washer, substantially as shown and described.

490,177. APPARATUS FOR CONTROLLING THE DRAFT IN BOILER-CHIMNEYS. GEORGE I. THEIS, Baltimore, Md. Filed Sept. 22, 1892. Serial No. 446,516. (No model.)

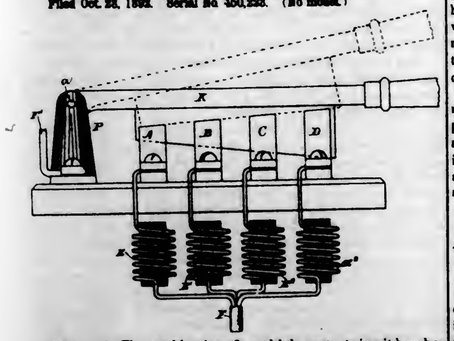


Claim.—1. As means for operating a damper in a chimney, a movable body subjected at one side to the pressure of the gases in the furnace or combustion chamber, and at the other side to the atmosphere, substantially as specified.

2. In combination with the combustion chamber of a furnace, and a chimney in communication therewith, a movable tight body having one side thereof subjected to the products of combustion from, or in communication with the said furnace, and the other side open to the exterior air, a damper situated in the chimney, and means to connect the said movable body to the said damper, substantially as, and for the purpose specified.

3. In combination with a furnace and a chimney, a damper in the chimney, a box containing a diaphragm one side of which is in communication with the outer air, and the other with the interior of the furnace, and means substantially as described, whereby the movement of the diaphragm is communicated to the said damper, substantially as specified.

490,178. ELECTRIC-CIRCUIT BREAKER. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Oct. 24, 1892. Serial No. 450,233. (No model.)



Claim.—1. The combination of a multiple contact circuit breaker with self-inductive coils as described, arranged to preserve a proper distribution of the current between the different paths provided for it.

2. The combination of a multiple contact circuit breaker with means for impeding or retarding the sudden rush of increased volume of current through the contact or contacts which may be opened last.

3. The combination of a multiple circuit breaker with generators of electro motive force acting upon a sudden increase of current through any one path to retard such increased flow and maintain the normal distribution of current, as described.

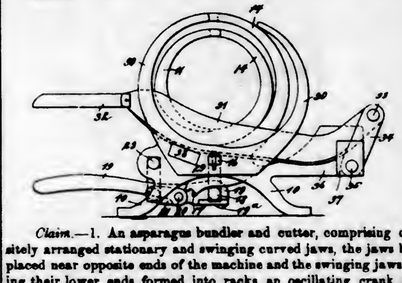
4. The combination of a circuit breaker having multiple contacts, with conducting paths of considerable self-induction leading to such contacts respectively and acting to preserve the proper distribution of current flowing therethrough when the circuit is opened.

5. The combination of a circuit breaker affording multiple paths for the current, with counter magnetizing or reversely wound self-induction coils in the respective paths so that the self-inductive effect is developed only when the normal distribution of current between the different paths is disturbed, as set forth.

6. The combination of a circuit breaker affording multiple paths for the current, which paths are divided into pairs, counter magnetizing or reversely wound reactive coils normally balancing the self-inductive effect in each such path, and similar reactive coils through which different pairs are connected together, having a like normal counter magnetizing effect, as set forth.

7. An electric switch having multiple contacts connected together through self-inductive coils or devices impeding the instantaneous shifting of the current from one to another of such contacts.

490,179. ASPARAGUS BUNDLER AND CUTTER. JOHN S. VAN MATER, Hazlet, N. J. Filed Sept. 27, 1892. Serial No. 447,094. (No model.)



Claim.—1. An asparagus bundler and cutter, comprising oppositely arranged stationary and swinging curved jaws, the jaws being placed near opposite ends of the machine and the swinging jaws having their lower ends formed into racks, an oscillating crank shaft geared to the racks on the swinging jaws, and a lever for moving the crank shaft, substantially as described.

2. An asparagus bundler and cutter, having a suitable frame with curved fixed jaws produced thereon, swinging jaws fulcrumed on the frame and held to move opposite the fixed jaws, the swinging jaws having racks formed on their lower ends, a crank shaft extending longitudinally through the machine, a second crank shaft arranged parallel with the first shaft and carrying gears to mesh with the racks of the swinging jaws, and a lever journaled on the crank of the first shaft and connected by arms with the crank of the second shaft, substantially as described.

3. In an asparagus bundler and cutter, the combination with the frame and the bunching jaws, of a guide plate outside of the jaws and having upwardly extending and curved guide arms arranged parallel with the jaws at one end of the machine, a swinging knife held to move between the jaws and the guide arms, an abutment block for the edge of the knife, and a link connection between the pivoted end of the knife and the frame of the machine, substantially as described.

4. An asparagus bundler and cutter, comprising oppositely arranged stationary and swinging curved jaws, the jaws being near opposite ends of the machine, means for operating the swinging jaws, an adjustable abutment plate at one end of the machine, and a swinging knife at the other end of the machine, said knife working between a guide plate and the jaws, substantially as herein shown and described.

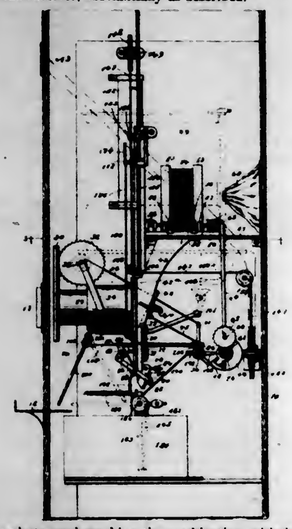
490,180. COIN-OPERATED PHOTOGRAPH-MACHINE. PIERRE V. W. WYMAN, New York, N. Y., assignor of one-half to William F. Freeman, same place. Filed Apr. 18, 1892. Serial No. 429,594. (No model.)

Claim.—1. In a photograph machine, the combination, of the driving shaft having a slotted disk thereon, a coin-operated lever having a bent arm to enter the disk slot, and a flexible spring held to the disk so as to loosely cover the slot, substantially as described.

2. A coin-operated photograph machine, comprising a lens tube having a vertically-movable shutter at one end, and a swinging plate-holding fly at the other, a photograph holder held above the lens tube and connected with the rear end of the same by a chute, a developing bath tank arranged beneath the plate fly, a fixing bath held beneath the developing bath tank, a swinging receiver arranged in the fixing bath and adapted to receive a plate from the developing bath tank, a

coin-controlled driving shaft, and an operative connection between the shaft and the movable parts described, substantially as set forth.

3. The combination, with the lens tube, the plate holding fly held behind the tube, the developing bath tank held beneath the plate-holding fly, and suitable means for supplying a liquid to the bath, of a swinging valve held to close the bath tank, a fixing bath held below the developing bath tank, a swinging receiver arranged in the fixing bath and adapted to receive a plate from the developing bath, and a coin-controlled driving shaft adapted to operate the swinging valve and the receiver, substantially as described.



4. In a photograph machine, the combination, with the lens tube, the plate chute adapted to deliver a plate at the rear end of the tube, and the swinging fly adapted to hold the plate in position, of the bath tank arranged beneath the fly, a swinging plate adapted to close the top of the tank, a swinging valve held to close the bottom of the tank and adapted to swing from beneath the same, and a coin-controlled driving shaft operatively connected with the valve, the swinging plate and the swinging fly, substantially as described.

5. The combination, with the lens tube, of a vertically-movable shutter held at the front end of the tube, a gear wheel arranged behind the shutter and operatively connected therewith, a coin-controlled revolving shaft, and a cam mechanism operated by the shaft and adapted to revolve the gear wheel, substantially as described.

6. In a photograph machine, the combination with the open-bottomed plate holder having plates therein with notches in their sides and ends, of slides adapted to register with the notches and held to move out and in beneath the plate holder, substantially as described.

7. In a photograph machine, the combination, with the open-bottomed plate holder having plates therein with side and end notches, of racks arranged on the four sides of the holder and having projections to extend beneath the holder and in line with the plates, and a gear mechanism for alternately moving the racks on opposite sides, substantially as described.

8. The combination, with the open-bottomed plate holder adapted to deliver into a chute, and the plates carried by the holder, alternating plates having notches on their sides and ends, of reciprocating racks held on the four sides of the holder and provided with projections to register with the notches in the plates, shafts journaled on the sides of the holder and having gear wheels to engage the racks, a coin-controlled driving shaft, and an operative connection between the driving shaft and the plate-holder shafts, substantially as described.

9. A photograph machine, having a lens tube and coin-controlled means for holding a plate behind the same, a tank holding developing liquid held above the tube, a tank holding fixing liquid held beneath the tube, the developing bath tank being held beneath the inner end of the tube and above the fixing tank, a coin-controlled valve mechanism for conducting the developing liquid from the main tank to the bath tank, coin-controlled mechanism for discharging the plates from the bath tank to the fixing tank, and coin-controlled mechanism for raising the plate from the fixing tank, substantially as described.

10. In a photograph machine, the combination, with the bath tank adapted to receive a photograph plate and discharge the same, of a tank holding developing liquid and held above the bath tank, said main tank having openings in top and bottom, connected valves held to close the openings, a tube extending from beneath the lower opening to below the bath tank, and coin-controlled mechanism for operating the valve, substantially as described.

11. The combination, with the developing bath tank and the main tank having openings at the top and bottom, of valves held to close the openings, a bulb connected with the lower opening and adapted to hold a charge for the bath tank, a valve to close the bulb, a tube leading from the bulb to the bath tank, and a coin-controlled cam mechanism for operating the valves, substantially as described.

12. In a photograph machine, the developing bath supplying mechanism, comprising a tank having openings at top and bottom, a bulb connected with the lower opening and with the air, the bulb being adapted to hold a charge of liquid, a spring-pressed valve held to close the bulb, valves held to close the openings in the main tank, and a coin-controlled cam mechanism for successively operating the main tank valve and the bulb valve, substantially as described.

13. In a photograph machine, the combination, with the main tank and the charging bulb connected therewith and having an outlet tube, of spring-pressed parallel rods connected at one end by a crosshead, a valve carried by the crosshead and adapted to close the bulb tube, a coin-controlled driving shaft, and a cam mechanism operated by the shaft and adapted to move the rods against the tension of their spring, substantially as described.

14. In a photograph machine, the combination, with the lens tube, the plate-holding fly, and the developing bath tank held beneath the inner end of the tube, of a plunger held to move downward between the plate and fly and through the developing bath tank, so as to push a plate through the latter substantially as described.

15. The combination, with the plate-holding mechanism behind the lens tube, and the developing bath tank arranged beneath the inner end of the lens tube, of the counterbalanced plunger held to move downward behind the lens tube and through the bath tank, and coin-operated mechanism for tripping the plunger to permit it to drop by successive intermittent movements behind the lens tube and through the bath tank, substantially as described.

16. The combination, with a vertically-movable plunger adapted to move behind the lens tube and through the bath tank, of a counterbalanced cable having a sliding connection with the plunger and adapted to hold the same in an elevated position, a coin operated driving shaft connected with the cable so as to move the same downward, a tripping lever held to engage projections on the plunger, and an operative connection between the tripping lever and the driving shaft, substantially as described.

17. The combination, with a vertically-movable plunger which moves behind the lens tube and through the developing bath tank, of a counterbalanced cable having a sliding connection with the plunger whereby the latter may be raised, a coin-controlled driving shaft, a drum mounted on the shaft and connected with the cable, means for releasing the drum at each revolution of the shaft, a tripping lever held adjacent to the plunger and adapted to engage projections thereon, and a cam mechanism for tripping the lever by the movement of the driving shaft, substantially as described.

18. In a photograph machine, the combination with the picture developing mechanism employing a plate ejecting plunger and the plunger working cable, of a drum for carrying the cable, the drum being held loosely on a revoluble shaft and having a stud on one side, a collar fixed to the shaft adjacent to the drum, a spring-pressed lever carried by the collar and held to engage the stud, and a releasing arm adapted to disengage the stud and lever at each revolution of the drum, substantially as described.

19. In a photograph machine the combination, with the picture developing mechanism having a plate ejecting plunger and the counterbalanced plunger carrying cable and its carrying drum held to oscillate on a supporting shaft, of a lever pivoted on the drum and held to move between the retaining studs, the lever extending into the path of a stationary support, substantially as described.

20. In a photograph machine, the combination, with the developing bath tank, having suitable means of supplying liquid thereto and arranged to receive a photograph plate, of a swinging valve held to close the lower end of the tank, an oscillating crank shaft connected by rods with the sides of the valve, a coin-controlled driving shaft, and a cam mechanism for operating the crank shaft by the movement of the driving shaft, substantially as described.

21. The combination with the developing bath tank having a suitable means of supply at the top and a swinging valve at the bottom, the latter being arranged to move slightly away from the tank and deflect the liquid to one side, of an open gutter held to receive the liquid from the valve and adapted to deliver it into a suitable receptacle, substantially as described.

22. The combination, with the bath tank, the swinging valve for closing the tank, and the crank shaft connected with the valve, of a revoluble driving shaft, a crank held loosely to the crank shaft and connected by a cam mechanism with the driving shaft, and a yielding connection between the crank and the crank shaft, substantially as described.

23. The combination, with the developing tank having a supply apparatus at the top and having its lower end cut off diagonally, of a counterbalanced valve held to close the lower end of the bath tank, an oscillating crank shaft connected by rods with the valve so as to swing it against the lower end of the tank, a coin-controlled driving shaft, and an operative cam mechanism for oscillating the crank shaft from the driving shaft, substantially as described.

24. In a photograph machine, the combination, with the developing bath tank having a swinging valve at its lower end, of a fixing bath held beneath the developing bath tank, a swinging receiver open at its lower end, held to enter the fixing bath and in alignment with the developing bath tank, a swinging holder held behind the receiver and having a plate adapted to project beneath the receiver behind, a coin-controlled driving shaft, and a cam mechanism carried by the shaft and adapted to swing the receiver into a horizontal position, substantially as described.

25. The combination, with the swinging receiver having an open lower end and adapted to hold a photograph plate, of an independent counterbalanced holder held behind the receiver and having a bottom plate projecting beneath the receiver, and a cam mechanism for swinging the receiver into a horizontal position, substantially as described.

26. The combination, with the swinging open-bottomed receiver, of a cam operated pusher arm held to swing between the sides of the receiver when the latter is in a horizontal position, substantially as described.

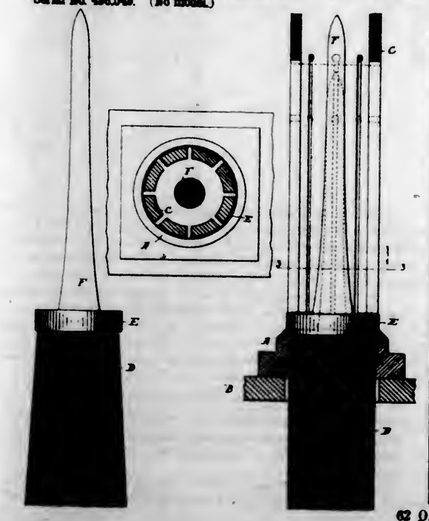
27. The combination, with the swinging receiver, having an open free end, of a spring-pressed pusher arm adapted to swing between the sides of the receiver, a coin-controlled driving shaft, and a cam mechanism for moving the pusher arm against the tension of its spring, substantially as described.

28. The combination, with the delivery tray, and the swinging receiver having an open free end and adapted to swing opposite the tray, of a spring-pressed pusher arm adapted to swing through the receiver and deliver a plate upon the tray, substantially as described.

29. In a photograph machine the combination with the main tank, of a charging bulb connected with the tank having a valve controlled inlet and outlet and an air pipe opening from it, a coin controlled driving shaft, and operative connections between the valves and the shaft, substantially as described.

30. The combination with the bath tank, and the waste gutter below and adjacent to it, of the swinging valve held to close the tank bottom, and means, for opening the valve by successive movements, its first movement adapting it to deflect the liquid from the tank to the gutter its second movement throwing it wide open and its third movement closing it, substantially as described.

490,181. BRUSH-MACHINE. ARTHUR H. WOLCOTT, Winthrop, assignor to John L. Whiting & Son, Boston, Mass. Filed June 13, 1892. Serial No. 436,549. (No model.)



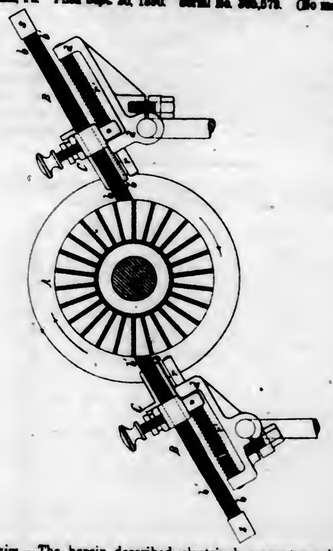
Claim.—The herein described apparatus for securing brush bristles to a brush handle, consisting of a tapering hollow die adapted to receive a ductile brush ferrule, and a tubular driver provided with a series of longitudinal slots whereby said driver is adapted to conform to the inner tapering surface of the die when driven therethrough to compress the ferrule upon the butt ends of the bristles, substantially as described.

490,182. KNEADING-MACHINE. WILLIAM WOOLSEY, Winchester, Ky. Filed Sept. 20, 1892. Serial No. 447,008. (No model.)



Claim.—The combination with a frame, a shaft journaled in the frame and provided with a pinion, and a reciprocating table having a rack engaging the said pinion, of a stirrup pivoted to the end of the rack and adapted to engage with the teeth of the said pinion, and a kneading roller journaled in the frame above the table and geared to the pinion-carrying-shaft, substantially as described.

490,188. COMMUTATOR-BRUSH. CARL G. C. BELLMER, Philadelphia, Pa. Filed Sept. 20, 1892. Serial No. 446,572. (No model.)



Claim.—The herein described electrical commutator brush or contact consisting of copper or equivalent metal, on the entering edge with a backing of carbon or similar material on the leaving edge, substantially as and for the purpose described.

490,184. APPARATUS FOR CASTING SASH-WEIGHTS. AVERY C. BROOK and JOHN W. WARNOCK, South Pittsburg, Tenn. Filed Sept. 12, 1892. Serial No. 364,784. (No model.)



Claim.—1. The combination in an apparatus for casting sash-weight of bottom plate *c*, having projections *l*, with annular grooves *r*, slotted patterns *h* and chills *d*, used in conjunction with flask *a*, substantially as shown for the purposes specified.

2. Template *i*, having circular openings *a*, used for guiding and steadying the patterns during the first process of ramming, and having tramping openings *i*, in combination with bottom plate *c*, having projections *l*, with annular grooves *r*, slotted patterns *h*, and chills *d*, substantially as shown for the purposes specified.

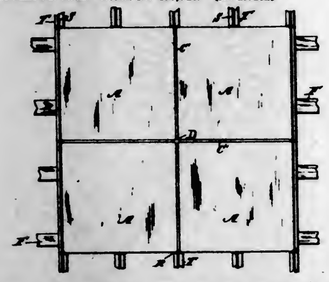
3. Temporary plate *g*, having projections *m*, through which are openings *e*, of the same circumference as patterns *h*, top chills *f*, having circular openings for the sprue through the center; in combination with bottom plate *c*, having projections *l*, with annular grooves *r*, slotted patterns *h*, and chills *d*, substantially as shown for the purposes specified.

490,185. SUN-DIAL. CHARLES H. CHAMBERLAIN, Paris, France. Filed Aug. 20, 1892. Serial No. 443,919. (No model.)



Claim.—A sun dial, consisting of a circular dial *a*, an hour axis *b*, fixed perpendicularly to the plane of the dial, provided with a straight scale and having one edge passing through the center of said dial, and a graduated arc-shaped link *c* mounted on the hour axis and having its rear end adapted to rest on a horizontal plane, substantially as described.

490,186. METALLIC CEILING. LEON J. CHERNEY, Chicago, Ill. Filed June 16, 1892. Serial No. 436,941. (No model.)



Claim.—1. The combination with a metallic ceiling panel having flanges at right angles to the face thereof, of a support provided with grooves which are at substantially right angles to the face of said support and which receive the flanges of the panel, substantially as described.

2. The combination with metallic ceiling panels having flanges at right angles to the face thereof, of supports provided with grooves which are at substantially right angles to the face of said supports and which receive the flanges of the panels, and fastening pins to secure the panels to the supports, substantially as described.

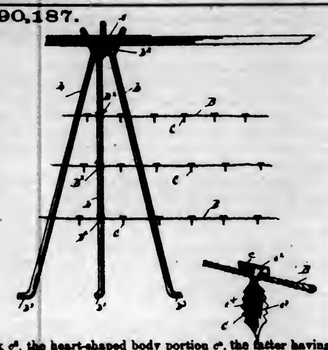
490,187. BARBED-WIRE FENCING. ARNOLD DELPH, Bedford, Texas, assignor of one-half to Thomas G. Parks, same place. Filed July 6, 1892. Serial No. 439,068. (No model.)

Claim.—1. In a fence, the combination with the fence wires, of the barbs fixed thereon, said barbs comprising the head and body portions and necks connecting the same, said body portion being formed with serrated edges and standing at right angles to said fence wires, substantially as and for the purpose described.

2. In a fence, the combination with the fence wires of the posts, and the barbs comprising a rectangular head portion a heart-shaped body portion having serrated edges and standing at right angles to said head portion and a neck portion around which the wires are twisted to secure said barb in position, substantially as and for the purpose described.

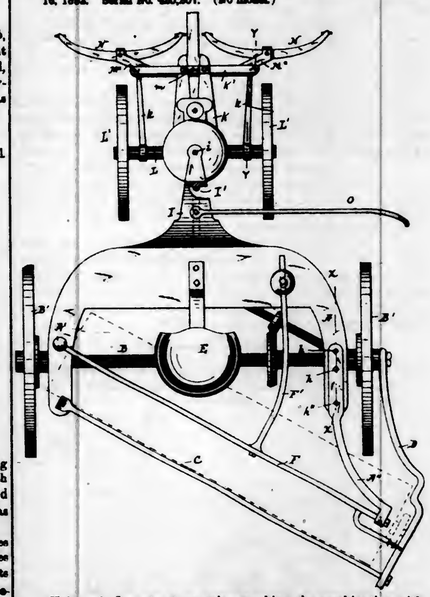
3. In an improved form of fencing, the barb having a head *c*,

490,187.



neck c^2, the heart-shaped body portion c^3, the latter having serrated edges c^4, and the downwardly projecting points c^5, substantially as described.

490,188. STREET-SWEEPER. JACOB ESSON, Boston, Mass., assignor to the Esson Manufacturing Company, same place. Filed Mar. 16, 1892. Serial No. 425,207. (No model.)



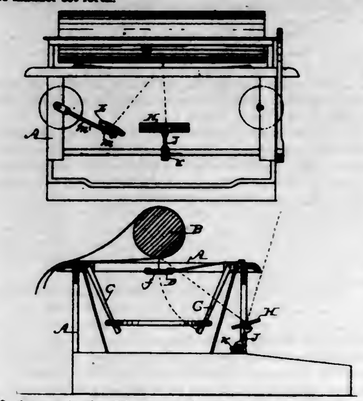
Claim.—1. In a street sweeping machine, the combination with the frame A and rearwardly projecting brush-supporting arm A″ secured thereto, of a driving shaft bearing provided with tubular extensions, and a truss secured to the frame A and to the said tubular extensions of the driving-shaft bearing, substantially as described.

2. In a street sweeping machine, the combination with the frame A, and rearwardly projecting brush-supporting arm A″ secured thereto, of a driving-shaft bearing composed of a part G, and a cap G′, said cap provided with tubular extensions, a truss secured to the frame A, and bolts passing through the frame A, the axle bearing, the tubular extensions and the truss, substantially as described.

490,189. SCRIPTOSCOPE FOR TYPE-WRITING MACHINES. BERA K. FAILOR, Des Moines, Iowa, assignor of one-half to George B. Sanderson, same place. Filed Sept. 24, 1892. Serial No. 446,907. (No model.)

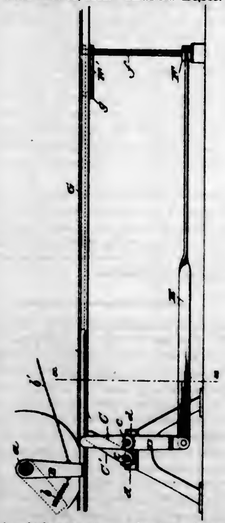
Claim.—1. An automatic ribbon-governing device for type writers comprising a ring having hooks projecting inward to overlap

the edges of a ribbon and spring wires to fix the ring and adapted to be fixed to the frame of a type writer to extend horizontally and to retain the ring and ribbon normally in a plane below the under surface of the platen and a mirror attached to the frame to operate in the manner set forth.



2. An automatic ribbon-governing device consisting of a ring having hooks projecting inward and elastic bearers fixed to the ring and to the frame of a type-writer to extend horizontally, a reflector-holder consisting of a sleeve having a reflector hinged thereto and a stem fitted in the sleeve and adapted to be fastened at its free end to the frame of a type writer, and a mirror hinged to a rod adapted to be detachably fixed to a part of the frame of the type writer arranged and combined to operate in the manner set forth for the purposes stated.

490,190. RAILROAD-SWITCH. CHARLES M. FITCH, South Norwalk, Conn. Filed June 30, 1892. Serial No. 438,563. (No model.)



Claim.—1. A switch operating mechanism adapted to be located between the tracks, consisting of a frame positioned beneath the roadbed, said frame supporting parallel shafts which carry levers C and C′, said levers extending through apertures in the roadbed so as to engage with switch operating mechanism carried by the car, the parallel shafts being geared to each other and connected to a rod E, a vertical shaft carrying the switch-point, and an arm projecting from said shaft and connected with the rod E, substantially as shown, and for the purpose set forth.

2. In a mechanism for operating switch points, the combination of levers C and C′ mounted on shafts which are geared to each other, an arm D secured to one of the shafts the lower end of the same being connected to a rod, said rod being connected at its other end to an arm carried by a vertical shaft *f* to which the switch point is pivoted, and an arm or lever connected to the arm *f* and to the switch-point, substantially as shown, and for the purpose set forth.

3. In mechanism for operating switch-points, the combination of the switch-point G pivotally secured at one end to a vertical shaft and connected with said shaft by an arm F having an upwardly projecting pin which engages with the switch point, an arm F at right angles therewith, said arm being connected to a rod E, a depending arm D connected to the opposite end of the rod E, shafts geared to each other and provided with independent levers, said levers being adapted to be projected through openings in a cover-plate, said levers being located out of line with each other laterally so as to be operated by independent bars carried by the car, substantially as shown, and for the purpose set forth.

490,191. HAND-STRAP FOR STREET-CARS. STEPHEN A. FLANAGAN, Watervliet, N. Y. Filed Oct. 17, 1892. Serial No. 449,126. (No model.)



Claim.—1. The combination with the laterally adjustable shell containing the extensible strap and means for retracting it, of the ear extending from said shell, a support with which said ear is connected to sustain the shell, and means for securing the shell to its adjustment, substantially as and for the purposes described.

2. The combination with the shell formed with an elongated opening for the passage of a strap, of a rotatable shaft contained within said shell and having the strap connected thereto, a spring acting on said shaft to retract the strap, and guide rollers located on opposite sides of the elongated opening for the passage of the strap and lying on opposite sides of the strap, and free to be rotated by the movement of the strap, substantially as and for the purposes described.

3. The combination with the shell and the strap passing through the opening therein, of the rotatable shaft contained within said shell and formed with a slot in which the inner end of said strap is fitted, a plate within said slot and bearing against the strap, and a set screw for pressing said plate against the strap to clamp it to said strap, substantially as and for the purposes described.

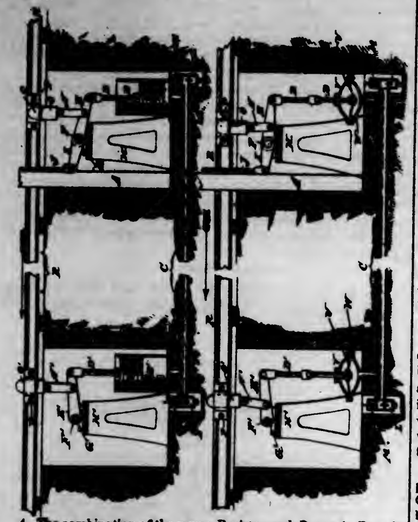
490,192. BLOCK SIGNALING SYSTEM AND APPARATUS FOR RAILWAYS. HERBERT FLOYD and WILLIAM H. DOUTT, Shamokin, Pa., assignors of one-third to James M. Gaskins, same place. Filed June 20, 1892. Serial No. 438,447. (No model.)

Claim.—1. The combination, with a line of railway and with one another, of the following elements: a shoe or block working vertically in a slot or recess in the rail and projecting with its upper end above the tread of the same; an air pump suitably located: a connecting rod connecting the lower end of said shoe with the upper end of the piston-rod; an air-pump; feed-valves and equalising-valves connecting said pump with the outer air; and a pipe connecting the two pumps of a pair; substantially as and for the purpose set forth.

2. The combination, in pneumatic signaling apparatus, of a series of air-pumps arranged and connected in pairs, and located along the line of track of the railway, the two pumps of a pair being connected by an air-pipe, and each pump of the pair being provided with a feed-valve and an equalising-valve for equalising the air pressure within the connected pumps; substantially as and for the purpose shown and set forth.

3. The combination of the air-pump; the piston and piston rod of the same; the crank, E, rock-shaft, F, crank, I, connecting rod, J,

and exhauster, K; substantially as and for the purpose shown and set forth.

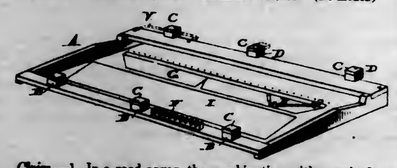


4. The combination of the pump, B, piston-rod, D, crank, E, rock-shaft, F, crank, I, connecting rod, J, signal post, A, friction box, S, and adjusting screw, T; all constructed and combined substantially as and for the purpose herein shown and set forth.

490,198. PROCESS OF OBTAINING GOLD, SILVER, AND COPPER FROM ORES. ANDREW FERGUS, Larbert, Scotland. Filed Oct. 27, 1891. Serial No. 410,088. (No specimens.)

Claim.—In processes for obtaining gold, silver and copper from ores the treatment of the ores by pulverizing, mixing therewith small percentages of niter-cake or bisulphate of soda and common salt, furnacing at a red heat, and then leaching substantially as herein set forth.

490,194. TRANSPOSING-KEYBOARD. BROOKS FRENCH, Sioux City, Iowa. Filed Jan. 2, 1892. Serial No. 416,909. (No model.)



Claim.—1. In a reed organ, the combination with a main frame provided with bearing blocks at front or rear, of a key frame provided with keys, and elongated bearing rods as V projecting from the key frame and seated in the bearing blocks, whereby the said key frame may be moved laterally, and may also be tipped from the front or back.

2. In a reed organ, the combination with a main frame, of a key frame provided with keys, a bar extending across the keys a little above the same, and a series of adjusting screws,—one for each key,—carried by the bar and bearing upon the keys.

3. In a reed organ, the combination of a main frame, a key frame provided with keys and movable laterally with reference to the main frame, bridges or supports O upon the key frame, a cross bar carried by the bridges, and a series of adjusting screws,—one for each key,—carried by the bar and bearing upon the keys.

4. In a reed organ, the combination of a main frame, a key frame provided with keys and movable laterally with reference to the main frame, bridges O secured to the key frame and slotted as shown, a bar carried by the bridges and extending across the keys at a distance above the latter, and the adjusting screws carried by the bar.

5. In a reed organ the combination with the key frame, the keys, and the usual valve springs, of a series of supplemental springs,—one for each key—and adapted to support the latter, all substantially as shown and described.

6. In a reed organ, the combination with the sliding key-frame, the pitmen, and the usual valve spring, of a series of additional springs of light tension,—one for each key,—so adjusted as to hold the keys just clear of the pitmen; the combined tension of the valve spring and the supplemental springs being equal to the usual tension of the common valve spring.

7. In a reed organ, the combination with a main frame, of a key frame provided with keys, a light spring,—in addition to the usual valve spring,—for supporting the keys and holding them above the pitmen, said key frame being adapted to slide laterally with reference to the main frame without raising or lifting the key frame and without affecting the "level" of said keys.

8. In a reed organ, the combination with the main frame of a key frame, and keys, a sliding connection between rods placed at suitable intervals along the sides of said key frame, said rods having their ends bent at right angles and secured in the edges of said frame, and an extra supporting frame provided with grooved block bearings secured at suitable distances apart along the sides of said frame, said rods of the key frame being adapted to rest freely in the grooves of the block bearings of the supporting frame and to be held in place by movable caps provided on said bearings, all substantially as and for the purpose set forth.

9. In a reed organ, the combination with the keys and key frame, of bridges suitably secured to the ends of said key frame, each of said bridges having a deep cut in it near its central part as shown, and an adjusting bar extending horisontally across and a little above the keys, its ends being suitably secured to said bridges, said bar being provided with a series of adjusting screws the bottom rounded ends of which are adapted to lie against cloth washers provided on the upper face of the keys, all as set forth.

10. In a reed organ, the combination of a supporting frame A provided with grooved block bearings B and D having movable caps C, with the key frame L provided with rods as V as shown, said rods being adapted to rest freely in the grooves of the block bearings so as to allow the key frame to be readily moved on the rods either to the right or to the left as desired, all substantially as set forth.

490,195. PROCESS OF PRODUCING NITRO-CELLULOSE OR CELLULOID SURFACES. BYRON R. GOLDSMITH, New York, N. Y. Filed Feb. 28, 1890. Serial No. 342,133. (No specimens.)

Claim.—1. The process of finishing articles of wood or of other absorbent material which consists in first producing upon the same a coat or coats of varnish containing pyroxyline or pyroxyline compound and then producing upon this coat or coats a layer or layers of varnish containing resin, substantially as described.

2. The process of finishing articles of wood or other absorbent material which consists in first producing upon the same a coat or coats of varnish containing pyroxyline or pyroxyline compound; then producing upon this coat or coats a layer or layers of varnish containing resin, and finally superimposing over the resin varnish a layer of varnish containing pyroxyline or pyroxyline compound, substantially as described.

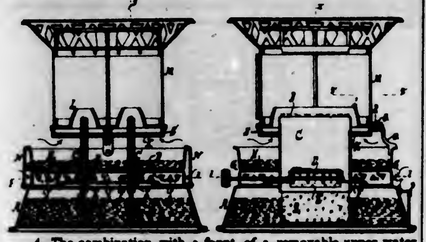
3. The process of finishing articles of wood, or other absorbent material which consists in producing upon the same a series of coats of varnish containing gradually diminished quantities of pyroxyline and gradually increased quantities of resin, and finally superimposing upon these coats one or more coats of a varnish containing pyroxyline in excess, substantially as described.

490,196. OIL OR KEROSENE STOVE. JACOB D. GOLDSTEIN, New York, N. Y. Filed Apr. 23, 1892. Serial No. 431,090. (No model.)

Claim.—1. The combination with a fount A, having an open top, of a removable cover F closing the open top of the fount and provided with an attached wick tube C, and an upper water containing section G having a horizontal plate attached to the wick tube and provided with a surrounding perforated rim or flange I extending downward therefrom and resting on the fount so that when the water containing section is removed it carries with it the wick tube and the cover to the fount, substantially as described.

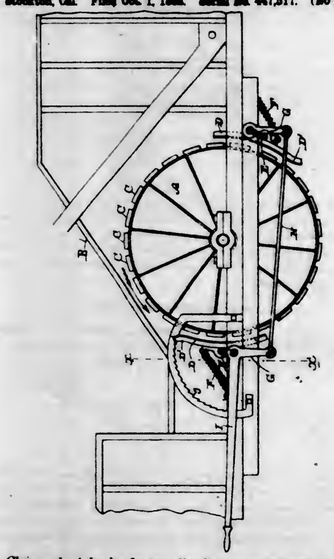
2. The combination with a fount having an open top and a cover F therefor of wick tubes connected to said cover and made to extend down therethrough and having cut outs or openings E near their lower ends below said cover an upper part G made to rest on the fount and a plate H secured to said upper part and to the wick tubes said part G having holes I for allowing air to enter between the plates F H and the wick tubes substantially as described.

3. The combination with a fount A having an open top, of a removable cover F closing the open top of the fount and provided with attached wick tubes C, an upper water containing section G having a horizontal plate H secured to the wick tubes and a surrounding perforated rim or flange I extending downward therefrom and resting on the fount, a lug Q rising upwardly from the water containing section and having a ring S carrying a screen K, and a stove proper M having an eye R detachably engaging the lug, substantially as and for the purposes described.



4. The combination with a fount, of a removable upper water containing section G provided with an upwardly extending lug Q having a ring S carrying a screen K, and a stove proper M provided with an eye R detachably engaging the lug so that the stove proper can be removed leaving the ring and screen in position, substantially as described.

490,197. BRAKE FOR HARVESTERS. CHRISTOPHER GRATTAN, Stockton, Cal. Filed Oct. 1, 1892. Serial No. 447,517. (No model.)

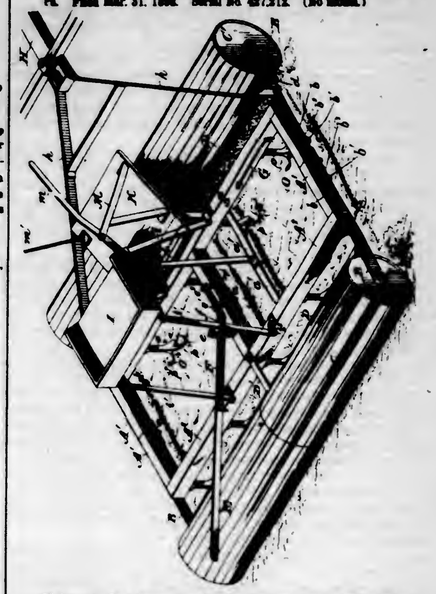


Claim.—1. A brake for traveling harvesters consisting of brake-blocks suspended upon crank shafts or eccentrics upon opposite sides of the wheel, lever arms fixed to the crank shafts and connected together to move in unison, and a hand lever by which the crank shafts are turned so as to force the brakes simultaneously into contact with the wheel rim, substantially as herein described.

2. A brake for harvesters consisting of the curved brake-blocks having shoes fixed to their interior faces, crank shafts journaled upon the frame of the machine upon opposite sides of the wheel, levers connected with the crank shafts and a connecting rod by which these levers are united so that the shafts are turned in unison, and a hand lever whereby the shafts are turned to force the brake blocks into contact with the wheel face, and the returning springs whereby the brakes are drawn away and held at an even distance from the wheel when not in use, substantially as herein described.

3. In a harvester, the driving wheel having the rib projecting radially from its outer periphery, brake-blocks suspended from cranks journaled upon the frame of the machine at opposite sides of the wheels, said brake-blocks having the ends toward which the wheel approaches in its rotation, curved outwardly, wearing shoes fixed to the interior faces of the brake-blocks, a lever arm connected with one of the crank shafts whereby the crank is moved and the brake forced into contact with the wheel rim, short lever arms projecting from each of the crank shafts and the connecting rod uniting them so that both brakes are applied to opposite sides of the wheel simultaneously, and springs whereby the brakes are correspondingly removed from the face of the wheel when the hand lever is moved in the opposite direction, substantially as herein described.

490,198. HARROW AND ROLLER. FRANKLIN R. HARVEY, Atglen, Pa. Filed Mar. 31, 1892. Serial No. 427,212. (No model.)



Claim.—1. In a harrow and roller, the combination of a harrow frame divided transversely into front and rear sections, hinges *a* for connecting the sections to each other so that the center portions thereof may have an upward movement, and means substantially as shown for holding the sections in rigid engagement with each other, each section carrying front and rear rollers, substantially as shown and for the purpose set forth.

2. In a harrow and roller, the harrow frame divided transversely into front and rear sections, said sections being pivotally hinged to each other and provided with a sliding bolt or bar the lower end of which engages with loops carried by the central bar of each section of the harrow frame for holding them in rigid engagement with each other, bars B B pivoted to the sections, rollers journaled to said bars, and a draft tongue pivoted to the forward bars, substantially as shown, and for the purpose set forth.

3. In combination with a harrow frame made up of sections hinged to each other as shown, a sliding bolt for holding said sections rigidly on a line with each other, bars B B pivoted to the harrow sections, rollers journaled to said bars, and scrapers carried by the bars in front of one roller and in the rear of the other, and a draft tongue H connected to the front bars B between the forward scraper and front harrow section substantially as shown, and for the purpose set forth.

4. In combination with a harrow frame made up of two sections which are centrally hinged to each other, bars B B pivoted to the side bars of the sections adjacent to the hinged connections thereof, said bars carrying rollers and having segmental slots *b'* to receive headed pins or bolts which pass into the side beams of the harrow frame, and bars carrying scrapers, said bars being carried by the bars B B, substantially as shown, and for the purpose set forth.

5. In combination with a jointed harrow frame having means for holding the sections of said frame in rigid engagement with each other, bars B B carrying rollers, a draft tongue H having connections A rigidly attached to said tongue and pivotally connected to the bars B which carry the forward roller, the rear ends of said connections being downwardly curved for pivotal engagement with the forward side bars B B substantially as shown, and for the purpose set forth.

6. In combination with a harrow and roller constructed substan-

tially as shown, of a jointed harrow frame the rear section of which carries a bifurcated standard *c* and a loop *c'*, the adjacent section having a loop *c²* with which the forward end of a lever E is adapted to engage, said lever passing through the bifurcated standard, substantially as shown, and for the purpose set forth.

7. In a harrow and roller constructed substantially as shown, the combination of the harrow sections hinged to each other, one of said sections carrying a bifurcated standard and loop or guide *c'*, the adjacent section having a loop *c²*, the lever E adapted to be moved in engagement with the loop *c²*, said lever carrying a rod F which is operated to engage the standard and hold the parts against movement, substantially as shown, and for the purpose set forth.

8. In a harrow and roller, the combination of a transversely divided harrow frame carrying front and rear rollers, of a seat connected to the harrow frame by standards the lower ends having pivotal connections between seat and harrow frame, the rear standards being pivotally attached at their upper ends to the seat substantially as shown and for the purpose set forth.

9. In a harrow and roller, the combination of a transversely divided harrow frame, the sections being pivotally connected to each other, of a seat having forward standards *i* which are pivoted at their lower ends to the longitudinal beam of the harrow frame, and standards *i'* which are pivoted at their upper ends to the seat and at their lower ends to the beam of the harrow frame section, substantially as shown, and for the purpose set forth.

10. In a harrow and roller having a transversely divided harrow frame, of a foot-rest or platform K pivotally attached to the seat support, said platform carrying a bracket M upon which a lever is fulcrumed, and means for connecting said lever to a jointed cross-bar on the harrow frame, substantially as shown, and for the purpose set forth.

11. In a roller and harrow constructed substantially as shown, a platform adapted to rest upon a support L carried by the harrow frame, said platform having means for engaging the pivoted standards *i*, and a lever support carried by said platform, the lever carried thereby engaging with a bar *l* which is connected with a jointed cross-bar *a'* carried by the harrow frame adjacent to the hinged parts thereof, substantially as shown, and for the purpose set forth.

12. In a harrow and roller, a harrow frame having a seat mounted on pivoted standards, a platform adapted to bear upon a support carried by the harrow section, the rear end of said platform having means for pivotally engaging the forward seat supporting standards, substantially as shown, and for the purpose set forth.

13. A tooth for harrows having a standard, means for connecting said standard to the harrow frame, said standard having above its lower end rearwardly diverging portions or wings with rearwardly extended ends curved so as to throw the earth inward toward and rear of the center of the standard, substantially as shown.

14. In combination with a spring tooth for harrows, a plate having its upper portion curved while its lower portion is bifurcated and bent rearward so as to diverge, the terminal portions being curved as shown, of a reinforcing plate secured to the tooth, substantially as shown, and for the purpose set forth.

490,199. TREATING OR PURIFYING PARAFFINE-WAX AND APPARATUS THEREFOR. Norman M. Henderson, Roxburn, Scotland. Filed June 1, 1892. Serial No. 435,153. (No model.) Patented in England Jan. 27, 1887, No. 1,201.

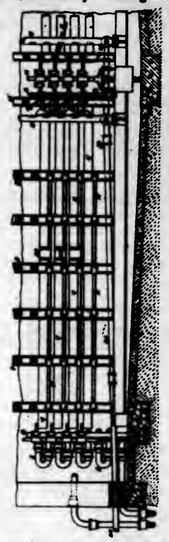
Claim.—1. In an apparatus for treating or purifying paraffine-wax, the combination of a chamber having longitudinal and transverse heating pipes, metal trays carried by the transverse pipes, strainers consisting of frames carrying longitudinal and transverse wires and fine wire gauze on the wires supported at a small height above the bottom of the trays, the said trays provided with outlets below the said strainers, and overflow ducts from one tray to the next lower one, with swiveling nozzles communicating with the said outlets, gearing for simultaneously turning each set of nozzles and hoppers into which the nozzles discharge, all substantially as and for the purposes set forth.

2. In an apparatus for treating or purifying paraffine-wax, the combination of a tray, with a strainer consisting of a frame formed of tubes carrying longitudinal and transverse wires and wire gauze over the wires, and supports for the strainer at a small height above the tray bottom, all substantially as and for the purposes set forth.

3. In an apparatus for treating or purifying paraffine-wax, the combination of a series of sweating trays, with swiveling nozzles communicating by pipes with the bottoms of the trays, and worm gearing for simultaneously turning the set of nozzles, substantially as set forth.

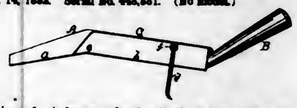
4. The process of treating or purifying crude paraffine-wax from which liquid has not been expressed by hydraulic pressure, consisting in solidifying the wax, gradually raising its temperature until about 80° Fahrenheit has been reached, maintaining this temperature for some time for the purpose described, and finally raising the temperature to the maximum heat usual for the first sweating stage.

5. The process of treating paraffine-wax, consisting in melting the wax, running it in layers over water, allowing it to solidify thus, then drawing off the water, and finally sweating this wax.



6. In an apparatus for treating and purifying paraffine-wax, the combination of a tray having a strainer supported at a small distance from the bottom thereof, and a water inlet to the space below the said strainer and an outlet at the bottom of the tray, with a swiveling nozzle communicating with the said outlet, all substantially as and for the purposes set forth.

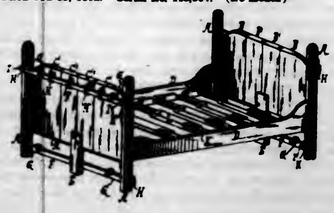
490,200. DUST-PAN. Peter Hill, Newark, N. Y., assignor of two-thirds to William B. Roche and Morgan Roche, same place. Filed Oct. 14, 1892. Serial No. 448,881. (No model.)



Claim.—1. A dust-pan having its floor formed into two contrary inclined planes or slopes and a hinged cover over the rear slope, in combination with lifters for the cover extending downward through the space within the dust-pan and through the floor of the latter to touch the carpet beneath the dust-pan, substantially as shown and described.

2. A dust-pan having its floor formed into two contrary slopes, and a hinged cover over the rear slope, in combination with lifters for the cover secured to the latter and extending down through the floor of the pan, the lower ends of said lifters being retroverted, substantially as shown and described.

490,201. BEDSTEAD. Martha Hofacker, New York, N. Y. Filed Oct. 15, 1892. Serial No. 448,997. (No model.)



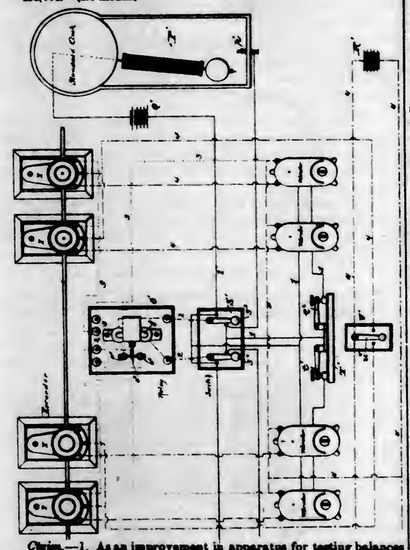
Claim.—1. In a bedstead, the combination with the side rails connected by lengthwise adjustable slats, of the divided head and foot boards, the sections B' B' detachably inserted between the sections of the headboard, the sections C' C' detachably inserted between the sections of the foot board, and the braces F removably engaged with the said detachable sections, whereby the bedstead may be narrowed or widened, substantially as described.

2. In a bedstead, the combination with the side rails D connected by lengthwise adjustable slats, of the sectional head and foot boards, the removable and replaceable sections B' tongued and grooved together and to the edges of the sections of the head board, the sections C' tongued and grooved together and to the edges of the sections of the foot board, and the braces F detachably engaged with the said removable and replaceable sections, substantially as and for the purpose described.

3. In a bedstead, the combination with the side rails D connected by lengthwise adjustable slats, of the sectional head and foot boards, the sections B' tongued and grooved together and to the edges of the sections of the head board, the sections C' tongued and grooved together and to the edges of the sections of the foot board, and the braces F provided at their ends with jointed sections G which are detachably secured to the bed posts, substantially as described.

4. In a bedstead, the combination with the side rails D connected by lengthwise adjustable slats, of the sectional head and foot boards, the removable and replaceable sections B' and C' provided respectively with attached legs E and inserted between the sections of the head and foot boards, the hooks H mounted on the removable and replaceable sections, and the braces F provided at their ends with the jointed sections G which are detachably engaged with the bed posts, substantially as described.

490,202. MECHANISM FOR TESTING WATCH-BALANCES AND HAIR SPRINGS. Gaines R. Hunter, Elgin, assignor to the Elgin National Watch Company, Chicago, Ill. Filed July 2, 1892. Serial No. 438,778. (No model.)



Claim.—1. As an improvement in apparatus for testing balances and hair springs in combination, a balance or hair spring vibrating mechanism, a standard time piece and an indicating mechanism connected with both the time piece and with the vibrating mechanism to show the relation between them at the end of a predetermined interval of time, substantially as and for the purpose set forth.

2. As an improvement in apparatus for testing balances and hair springs, in combination, a balance or hair spring vibrator, a standard time piece, an indicating mechanism, and electrical connections between each of the former and said indicating mechanism, whereby the latter may have its movements, controlled by either of the others, substantially as and for the purpose shown.

3. As an improvement in apparatus for testing balances and hair springs, in combination, a balance or hair spring vibrator, a standard time piece, a circuit connecting these two, whereby the time piece can start the vibrator, and a register in electrical connection with and having its movements controlled by said vibrator and said time piece, substantially as and for the purpose specified.

4. As an improvement in apparatus for testing balances and hair springs, in combination, a balance or hair spring vibrator, a standard time piece, an electric circuit connecting these two, whereby the time piece can start the vibrator, an indicating mechanism, an electric circuit having a make and break device controlled by the time piece to start said indicating mechanism and a third circuit having a make and break device controlled by the vibrator by which said mechanism may also be started, substantially as and for the purpose shown and described.

5. As an improvement in apparatus for testing balances and hair springs, in combination, a balance or hair spring vibrator, a standard time piece, an electric circuit connecting these two, whereby the time piece can start the vibrator, an indicating mechanism, an electric circuit having a make and break device controlled by the time piece to start said indicating mechanism, a third circuit between the vibrator and the indicating mechanism and the vibrator stopping device adapted to make and break said third circuit, substantially as and for the purpose described.

6. As an improvement in apparatus for testing balances and hair springs, in combination, a vibrating mechanism, a standard clock, an electric circuit connecting these two whereby the time piece can start the vibrator, an indicating mechanism, an electric circuit having a make and break device controlled by the time piece to start said indicating mechanism, a third circuit between the vibrator and the indicating mechanism and the circuit closer carried by the balance arbor of the vibrator, substantially as and for the purpose set forth.

7. As an improvement in apparatus for testing balances and hair springs, in combination, a balance or spring vibrating mechanism, a standard time piece, an indicating mechanism connected with both of the former and adapted to be actuated by either and means to indicate by which of the same it is actuated.

8. As an improvement in apparatus for testing balances and hair springs, in combination, a balance or spring vibrating mechanism, a standard time piece, an indicating mechanism, an electric circuit connecting each of the former with said indicating mechanism to enable either to actuate it, and means to indicate which does actuate it, substantially as and for the purpose shown.

9. As an improvement in apparatus for testing balances and hair springs in combination with the doubly coiled electro-magnet, an electro magnet in circuit with each of said coils, an armature subject to the influence of both of the latter magnets, and an independent circuit closing device for each circuit through the double coils, substantially as and for the purpose specified.

10. As an improvement in apparatus for testing balances and hair springs in combination with a magnet adapted to be traversed by opposing electric currents and the mechanism to be influenced by the same, when but one current is traversing it, an indicator to denote which current is the traversing current and an independent circuit closing device to establish each current, substantially as and for the purpose set forth.

11. As an improvement in apparatus for testing balances and hair springs in combination with the doubly coiled electro magnet, an electro magnet in circuit with each coil of the same, the indicator whose movements are controlled by the last named magnets and an independent circuit closing device to close the circuit through each of the double coils, substantially as and for the purpose described.

12. As an improvement in apparatus for testing balances and hair springs in combination a balance or spring vibrating mechanism, a standard time piece, an indicating mechanism, the magnet for controlling the operation of the latter, in a circuit controlled by the time piece and one controlled by the vibrator, another magnet in each of said circuits and an indicator adapted to be actuated by either of said last named magnets, substantially as and for the purpose shown and described.

13. A system for testing balances and hair springs, comprising a standard time piece, two sets of vibrators and indicators, a polarized relay, a circuit including the indicators and the relay and a circuit between the time piece and the relay, substantially as and for the purpose specified.

14. A system for testing balances and hair springs comprising a standard time piece, two sets of vibrators and indicators, a polarized relay, a circuit including the said time piece, and the vibrators, a circuit including the said time piece and the relay, a circuit including the relay and the indicators and a circuit including the indicators and the vibrators of a set, substantially as and for the purpose described.

15. In combination with a train for vibrating a balance wheel or hair spring, a stopping device adapted to operate on the balance arbor and on an arbor intermediate it and the going arbor, substantially as and for the purpose shown and described.

16. In combination with a train for vibrating a balance wheel or

a hair spring, a pivoted lever for stopping the same adapted to operate simultaneously upon the balance arbor and upon an arbor intermediate it and the going arbor, substantially and for the purpose shown—

17. In apparatus for testing balances and hair springs in combination with a train for vibrating a balance or a hair spring, a pivoted lever for stopping the same and controlling an electric circuit and an indicating mechanism in said circuit substantially as and for the purpose described—

18. In apparatus for testing balances and hair springs in combination with a train for vibrating a balance or a hair spring, a pivoted arm adapted to simultaneously stop the same and close an electric circuit, and an indicating mechanism in said circuit substantially as and for the purpose shown and described—

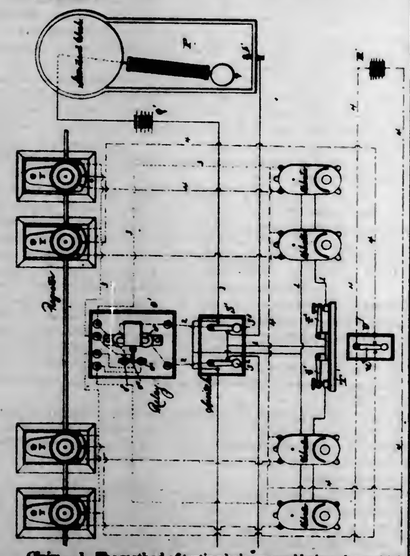
19. In combination with a train for vibrating a balance or a hair spring, one of whose arbors carries a plate, an arm movable into and out of engagement with said plate to stop the train and a locking device to hold such arm out of engagement with the same—

20. In combination with a train for vibrating a balance or a hair spring, a pivoted arm movable into and out of the path of a pin carried by the balance arbor to stop and allow the same to start and to close and open an electric circuit, substantially as and for the purpose set forth.

21. In combination with one of the wheels of a registering mechanism, a detent to lock said wheel, the wheel movable into and out of engagement with the latter for communicating motion from a motor to it, and the mechanism for moving said movable wheel into and out of its engagement and moving said detent into and out of locking engagement, substantially as and for the purpose shown—

22. In combination with one of the wheels of a registering mechanism and the means for setting the hands thereof to zero, a detent to lock said wheel, the wheel movable into and out of engagement with the latter for communicating motion from a motor to it, and the mechanism for moving said movable wheel into and out of its engagement, such mechanism and the hands setting means both operating to move said detent into and out of locking engagement, substantially as and for the purpose specified—

490,203. METHOD OF TESTING WATCH-BALANCES AND HAIR-SPRINGS. Gesmer R. Hunter, Elgin, assignor to the Elgin National Watch Company, Chicago, Ill. Filed July 2, 1892. Serial No. 438,779. (No model.)



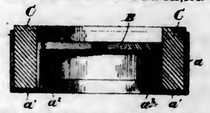
Claim.—1. The method of testing balances and hair springs which consists in vibrating the same the number of times that a standard balance or spring would vibrate in a definite interval of time, in unison with a standard time piece and employing in connection therewith an indicating mechanism that is actuated only when the balance or spring varies from the standard, substantially as and for the purpose specified.

2. The method of testing balances and hair springs which consists in vibrating the same the number of times that a standard balance or spring would vibrate in a definite interval of time, in unison with a standard time piece and employing in connection therewith an indicating mechanism that is put in operation when the balance or spring is fast upon the completion of the number of vibrations, and is stopped at the expiration of the interval of time, substantially as and for the purpose set forth.

3. The method of testing balances and hair springs which consists in vibrating the same the number of times that a standard balance or spring would vibrate in a definite interval of time, in unison with a standard time piece, and employing in connection therewith an indicating mechanism that is put in operation when the balance or spring is slow upon the completion of the interval of time, and stopped when the number of vibrations has been made, substantially as and for the purpose shown.

4. The method of testing balances and hair springs which consists in vibrating the same the number of times that a standard balance or spring would vibrate in a definite interval of time, in unison with a standard time piece, and employing in connection therewith an indicating mechanism which is actuated only when the balance is fast or slow, and whose action is commenced in the former instance upon the completion of the number of vibrations and stopped at the expiration of the interval of time, and in the latter instance, is commenced at the conclusion of the interval of time and stopped when the number of vibrations has been made, substantially as and for the purpose shown and described.

490,204. MANUFACTURE OF TIMEPIECE-BALANCES. George R. Hunter, Elgin, assignor to the Elgin National Watch Company, Chicago, Ill. Filed Sept. 6, 1892. Serial No. 445,198. (No model.)

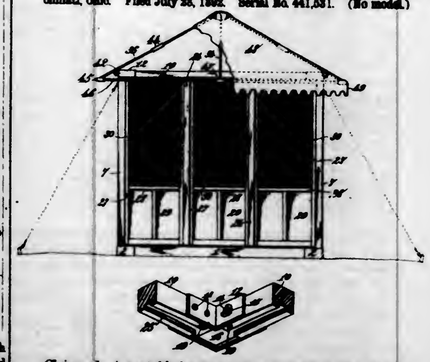


Claim.—1. The method employed in making bi-metallic balances which consists in placing a steel, cup-shaped blank and a brass ring encircling the same in a capsule, and with the rim of said blank supported internally, brazing said parts together, substantially as and for the purpose specified.

2. The method employed in making bi-metallic balances which consists in placing a steel, cup-shaped blank and a brass ring encircling the same in a capsule having a part to engage the blank rim on its inside, and then brazing said parts together, substantially as and for the purpose shown.

3. A capsule for use in the brazing together of the parts of a bi-metallic balance comprising an annular rim and a bottom having a part on its inner edge to enter within and support the rim of a steel cup-shaped blank, substantially as and for the purpose set forth.

490,205. PORTABLE HOUSE OR TENT. Adam C. Lauber, Cincinnati, Ohio. Filed July 28, 1892. Serial No. 441,531. (No model.)



Claim.—1. A portable house or tent, comprising sills connected at their ends by angular corner-irons inclosing the lower and the two vertical faces of said ends, each of said angular corner-irons being permanently attached to one of said sills, substantially as described.

2. A portable house or tent, comprising a frame resting upon sills which are connected at their ends by angular corner-irons, formed, each, in a single piece, to receive and inclose the lower and the two vertical faces of the ends of the said sills, and corner-posts stepped, or inserted in seats, or sockets, formed in the upper faces of the sills at the angles of the corner-irons, substantially as described.

3. A portable house, or tent, comprising sills connected at their ends by angular corner-irons each consisting of a single piece so formed as to inclose the lower and the two vertical faces of said sills, the latter having seats, or sockets, formed in the upper, exposed faces of both sills, to receive the ends of corner-posts, and positive fastenings connecting the corner-posts and sills, substantially as described.

4. In a portable house, or tent, the combination with sills connected by corner-irons of corner-posts resting in seats, or sockets, at the angle formed by said sills, positive fastenings connecting said corner-posts to the sills, and tie-beams connected at their ends by corner-irons and having sockets, or seats, to receive the upper ends of the corner-posts upon which the tie-beams rest and to which they are positively connected, substantially as described.

5. In a portable house, or tent, the combination with the sills and the tie-beams of uprights the ends of which have a tongue and groove connection with the said sills and tie-beams, and frames the lower edges of which lie between longitudinal bevels, or inclines, on the outer margins of the sills and parallel lips, or flanges, upon the inner margins thereof, substantially as described.

6. In a portable house, or tent, the combination with the vertical frame of a roof-frame, consisting of rafters and ridge-rafters radiating from a detachable crown-terminal and connections between the ridge-rafters and the vertical frame at the angles of the latter, only, substantially as described.

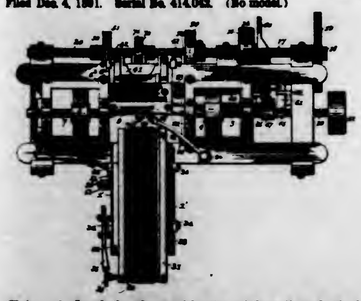
7. In a portable house, or tent, the combination with a frame comprising tie-beams united at their ends by corner-irons each having a projecting lug at the angular edge, of a roof-frame composed of rafters and ridge-rafters connected at one end to a crown-terminal, the ridge-rafters being provided with drop-fingers entering slots, or openings in the projecting lugs of the corner-irons and fastened thereto, substantially as described.

8. In a portable house, or tent, the combination with a vertical frame of a roof-frame composed of rafters and ridge-rafters pivotally connected at one end to a crown-terminal and radiating therefrom to different parts of the frame, their other ends projecting beyond the same and provided with couplings and supports for eaves-rods, substantially as described.

9. In a portable house, or tent, the combination with a vertical frame of a roof-frame composed of rafters and ridge-rafters variable in length, their ends connected to a crown-terminal and eaves-rods, respectively, and a canopy, or covering, connected positively to the eaves-rods and stretched by the extension of the rafters and ridge-rafters, substantially as described.

10. In a portable house, or tent, the combination with a vertical frame of a roof-frame composed of rafters and ridge-rafters each formed in two connected parts, one pivotally connected to a wire lying in a circumferential groove in a two-part, separable crown-terminal and the other connected to the eaves-rod, a canopy or covering having hooks, or other fastenings connecting it to the eaves-rods, and means for varying the length of the rafters and ridge-rafters, substantially as described.

490,206. CLOTHES-PIN LATHE. Marcus D. Lear, Kane, Pa. Filed Dec. 4, 1891. Serial No. 414,062. (No model.)



Claim.—1. In a lathe, the combination of the tail stock, the head stock, means for turning the latter and for reciprocating it at predetermined intervals, a reciprocating carriage arranged at right angles to the line of and between the stocks and carrying an intermittently movable belt, a stationary guide arranged opposite the inner end of the carriage, a vertically movable bracket sliding in said stationary guide, a cutter frame pivoted on top of said bracket and moving therewith, said cutter frame having a groove, cutters adjustably clamped in the grooves of said cutter frame, an L-shaped vertically arranged finger 83, longitudinally and transversely adjustable on the vertically movable bracket and therefore moving therewith, an opposite movable finger connected with the head stock, and a vertically adjustable stop mounted on the front of the pivoted cutter frame and arranged between the two fingers, substantially as set forth.

2. In a lathe, the combination with the frame work and the rotating spindles one of which is longitudinally movable at predetermined intervals, of a vertical stationary guide secured at one side of the frame work between the spindles, a vertically reciprocating L-shaped bracket moving in said stationary guide, a cam shaft having an eccentric, an arm pivoted to the band surrounding the eccentric and pivotally supported by a bracket, an adjusting screw passing through this arm, a screw in the lower end of the bracket loosely resting on the screw in said arm, adjusting screws 40ˣ, adapted to extend through one side of the stationary guide to regulate the position of the sliding bracket therein, an adjustable cutter frame pivoted on top of said bracket and moving therewith, clearing fingers adjacent to said spindles, one of which is movable by the reciprocations of one spindle and the other of which is longitudinally and transversely adjustable on said bracket, and a feeding carriage, substantially as set forth.

3. In a lathe, the combination of the tail-stock, the head-stock, means for rotating the latter and for reciprocating it at predetermined intervals, a stationary guide, a vertically adjustable cutter frame mounted in said guide and freely pivoted and carrying cutters, a finger mounted on a horizontal pivot fixed to one side of said guide and having its tip moving adjacent to and longitudinally of the dead spindle, a rod pivotally connecting this finger with the head-stock, and a longitudinally and transversely adjustable finger standing adjacent the live spindle against which finger the block strikes as this spindle is withdrawn, as and for the purpose set forth.

4. In a lathe, the combination of the tail stock, the head-stock, means for rotating the latter and for reciprocating it at predetermined intervals, a cutter frame carrying cutters, a bracket, a slotted block, screws passing through the slots into the bracket, a finger having a slotted body, the slot standing at right angles to the slots in the block, and a screw passing through this slot into said block, the tip of the finger standing adjacent the live spindle when the latter engages the block, as and for the purpose set forth.

5. In a lathe, the combination with the framework, the rotating spindles, a vertical guide, and an arm swinging in a vertical plane; of a bracket moving in said guide and raised by the movement of said arm, the body of the bracket being L-shaped with its upper horizontal end projecting away from the spindles, ears rising from the outer corners of said end, a cutter frame pivoted between said ears, a screw in the bracket adjustably supporting the cutter, an adjustable stop on the central upper portion of said body of the bracket, and an adjusting screw in the lower part of said bracket resting loosely on said arm, substantially as described.

490,207. SURGEON'S LIGATURE-RECEPTACLE. John R. Lee, Conshohocken, Pa. Filed Sept. 28, 1892. Serial No. 447,159. (No model.)



Claim.—1. A package of surgeon's silk or catgut consisting of a bottle containing one or more spools of the thread adapted to about fit the interior of the bottle, the latter being about double the length of the spool or spools and having an outlet at the side closed by a fluid-tight stopper, through which the thread is to be passed with a close fit.

2. A package of surgeon's silk or catgut consisting of a bottle containing a spool or spools, the bottle being flattened at one end and rounded at the other and having the bottle neck at the side closed by a fluid-tight stopper, through which the thread is to be passed with a close fit, substantially as described.

3. A package of surgeon's silk or catgut, consisting of a bottle containing a spool or spools and having a neck closed by a stopper and provided with a cap of elastic material fitting the said neck, substantially as set forth.

490,208. WASH-BOILER. August Miller, Burlington, Iowa. Filed June 2, 1892. Serial No. 435,391. (Model.)

Claim.—1. In a washboiler, the steamer or false bottom, having at its sides inclined ways sloping downward toward its ends for passing the water thereunder from its containing receptacle, and with pipes for passing the water from under said steamer, substantially as set forth.

2. In a washboiler, the steamer or false-bottom having the over-

flow, and boiling water pipes, the boiling water pipes communicating with the chamber in the cover of the containing receptacle, and the overflow water pipes communicating with a gutter or trough in said cover, substantially as described.



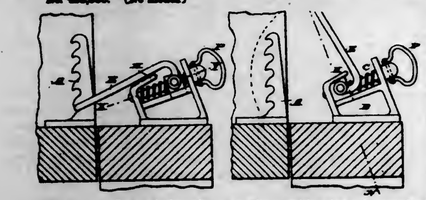
3. In a washboiler, the combination, with the steamer or false-bottom having the boiling water pipes, of the boiler cover having a chamber communicating with said pipes and the bottom of which is adapted to serve as a sprayer, substantially as set forth.

4. In a washboiler, the steamer having the two series of pipes, of the containing receptacle and its cover having a gutter or trough in its upper side and upon its under side a chamber provided with a foraminous bottom, one series of said pipes communicating with said gutter and the other series of pipes communicating with said chamber, substantially as set forth.

5. In a washboiler, the steamer having its top provided at its sides with inclined ways to conduct the water to the under side of said steamer, and the hinged grates or supports resting across said inclined way, substantially as set forth.

6. In a washboiler, the steamer or false-bottom having its top provided with inclined water ways and intermediately thereof with pipes, and the grates or supports adapted to rest over said water ways and hinged to plates themselves hinged to said pipes, substantially as specified.

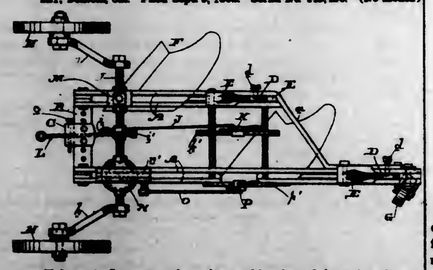
490,209. FASTENER FOR THE MEETING-RAILS OF SASHES. SAMUEL MORRELL, Wellington, New Zealand. Filed Mar. 2, 1892. Serial No. 423,555. (No model.)



Claim.—1. In a window fastener, the combination of a notched bracket, a loop or catch adapted to engage said notches, a screw operated nut for moving said looped member forward out of engagement with the notches, and a shoulder for raising said member after disengagement, substantially as set forth.

2. In a window fastener the combination of the bracket B and the bracket A notched on its outer side, the looped link E the screw C the movable nut D the lower part of which rests in and is guided by a slot in the bracket B the projections H and the thumb piece P relatively placed as shown by the accompanying drawings.

490,210. GANG-PLOW. ALFRED F. McMILLAN and THOMAS GORMLEY, Benicia, Cal. Filed Sept. 9, 1892. Serial No. 445,450. (No model.)



Claim.—1. In a gang plow, the combination of the pairs of separated straight bars, the inclined plow standards passing through the space between the members of the pairs of bars, the fixed inclined faced abutment or clamp blocks seated in said space and bearing against the forward and back edges of said standards, the set screws in said bars and the series of sockets in the standards with which the screws engage whereby said standards may be vertically adjusted, substantially as herein described.

2. In a gang plow, the combination of the frame having the spaced pairs of bars, the inclined standards passing between said bars and secured therein, the abutment or clamp blocks seated between said bars and bearing on the edges of the standards, the plow bottoms having a dove-tailed connection with the lower ends of the standards and a single bolt completing said connection, substantially as herein described.

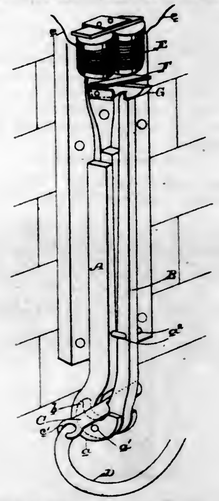
3. In a gang plow, the combination of a frame, a rocking crank axle mounted on said frame, wheels carried by said axle, the means for rocking said axle to raise and lower the plows, consisting of a crank arm on said axle and a draft connection from said arm to the team, and means for holding said axle against the strain of the draft and relieving it to permit the draft to turn it when necessary, substantially as herein described.

4. In a gang plow, the combination of a frame, a rocking crank axle mounted on said frame, wheels carried by said axle, the means for rocking said axle to raise and lower the plows, consisting of a crank arm on said axle and a draft connection from said arm to the team, and the means for holding said axle against the strain of the draft and relieving it to permit the draft to turn it when necessary, consisting of a crank arm on the axle, a lever with pawl and rack connection and a connecting rod between said lever and crank arm, substantially as herein described.

5. In a gang plow, the combination of a plow-carrying frame, a crank axle having wheels, a vertical pivotal connection between one end of said crank axle and the frame, a sliding ball and socket bearing between the other end of said crank axle and the frame, and a lever and connections for moving said ball and socket bearing back and forth to turn the axle to an angle with the frame, substantially as herein described.

6. In a gang plow, the combination of a frame, the crank axle having wheels, the swivel bearing connecting one end of the crank axle with the frame, the sliding plate on the other side of the frame having a ball and socket connection with the other end of the axle, a lever with pawl and rack connection, and a rod connecting said lever with the sliding plate, substantially as herein described.

490,211. AUTOMATIC RELEASING DEVICE. HANS P. NIELSEN, Alameda, Cal. Filed Sept. 14, 1892. Serial No. 445,894. (No model.)



Claim.—1. A releasing device consisting of a bracket, having a curved foot, a swinging bar pivoted to the curved foot, a trip catch for holding and releasing the bar, and a hitching or fastening bolt resting in the curved foot and locked between the bar and bracket when the bar is set, and released by the swinging of the bar when tripped, substantially as herein described.

2. A releasing device consisting of a bracket having a curved foot, a swinging bar pivoted to said foot, a trip catch for holding and releasing the upper end of the bar, an electro magnet and armature for operating the catch and a hitching or fastening bolt resting in the curved foot and locked between the bar and bracket when the bar is set and released by the swinging of the bar when tripped, substantially as herein described.

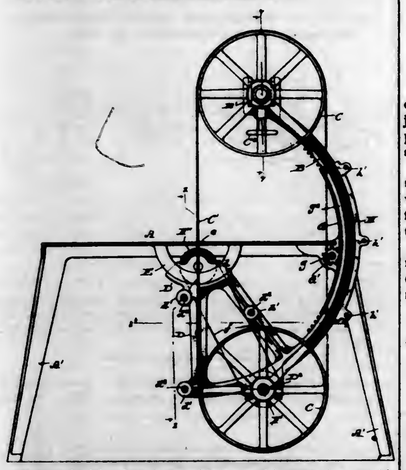
3. A releasing device consisting of the bracket having the curved or hooked foot, the swinging bar pivoted by its lower end in said foot, a trip catch engaging the top of the bar, and a hitching or fastening bolt seated in the curved or hooked foot of the bracket, said bolt being locked therein when the swinging bar is set and released when said bar is tripped, substantially as herein described.

4. A releasing device consisting of the bracket having the curved or hooked foot, the swinging bar pivoted by its lower end in said foot and having the upturned toe piece, a trip catch engaging the top of the bar, and a hitching or fastening bolt seated in the curved or hooked foot of the bracket, said bolt lying and being locked between the swinging bar and its toe piece when the bar is set and released and forced out when the bar is tripped, substantially as herein described.

5. A releasing device consisting of the bracket having the curved or hooked foot, the swinging gravity bar pivoted by its lower end in said foot and out of its center of gravity whereby said bar when released drops down, the trip catch engaging the top of the bar, and the hitching or fastening bolt seated in the curved or hooked foot of the bracket, said bolt being locked therein when the bar is set and released when said bar is tripped, substantially as herein described.

6. A releasing device consisting of the bracket with its curved foot, the bar B with its upturned toe piece, the pivot pin connecting the bar with the bracket and lying back of the center of gravity of said bar whereby it can drop by gravity, the notched hitching or fastening bolt lying in the bracket foot and engaged by the bar and its toe piece, and the electrically controlled trip catch engaging the top of the bar B, substantially as herein described.

490,212. BAND SAWING-MACHINE. PHILIP O'CONNOR, Milwaukee, Wis., assignor of one-half to Frederick R. Skidmore, same place. Filed May 5, 1892. Serial No. 431,883. (No model.)



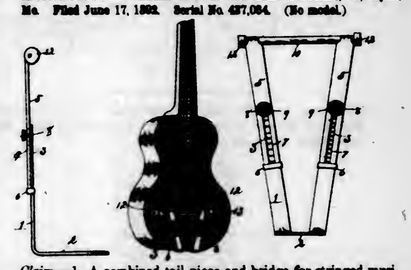
Claim.—1. A band sawing machine comprising a stationary table slotted for the passage of the saw, one or more arc-shaped hangers concentric with said slot and secured to the lower side of said table, a frame provided with arc shaped grooves and arranged to embrace said hangers, a curved arm extending upward from said frame to a point above the table, pulleys journaled, respectively, upon the frame below the table, and upon said curved arm above the table, and a saw trained over said pulleys, substantially as set forth.

2. A band sawing machine comprising a stationary table slotted for the passage of the saw, arc-shaped hangers, concentric with said slot and secured to the under side of the table upon opposite sides of said slot, a two-part frame provided with arc-shaped grooves adapted for engagement with opposite sides of said hangers, an arc-shaped arm also concentric with said slot, and extending upward from said frame, pulleys journaled, respectively, upon the said frame below the table, and upon the arc-shaped arm above the table, and a band saw trained over said pulleys, substantially as set forth.

3. A band sawing machine comprising a stationary table slotted for the passage of the saw, arc-shaped hangers, concentric with said slot and secured to the under side of the table upon opposite sides of said slot, a two-part frame provided with arc-shaped grooves adapted for engagement with opposite sides of said hangers, an arc-shaped arm also concentric with said slot, and extending upward from said frame, pulleys journaled, respectively, upon the said frame below the table, and upon the arc-shaped arm above the table, a band saw trained over said pulleys, an actuating pulley on the axis of the lower saw carrying pulley, and a driving pulley journaled upon said frame, substantially as set forth.

4. A band sawing machine comprising a stationary table slotted for the passage of the saw, one or more arc shaped hangers concentric with said slot and located upon the under side of the table, an arc shaped frame also concentric with said slot and movably engaged below the table with said hangers and extending upwardly through suitable guides upon the table, pulleys journaled upon said frame above and below said table and carrying a band saw, an actuating pulley upon the axis of the lower saw carrying pulley and a driving pulley journaled upon said frame adjacent to its point of engagement with the hangers, substantially as set forth.

490,213. COMBINED BRIDGE AND TAIL-PIECE FOR MUSICAL INSTRUMENTS. WILLIAM P. OWEN and CARL L. BOGERT, Jr., Joplin, Mo. Filed June 17, 1892. Serial No. 437,084. (No model.)



Claim.—1. A combined tail piece and bridge for stringed musical instruments adjustably connected so that the bridge can be adjusted horizontally to lengthen or shorten the strings, and said bridge provided with means for adjusting it vertically with respect to the sound board, substantially as described.

2. The combination with a tail piece adapted to be applied to a stringed musical instrument, of the adjustable bridge connected therewith and the eccentrics on the end of the transverse bar of the bridge, for regulating the distance of the latter from the instrument, substantially as described.

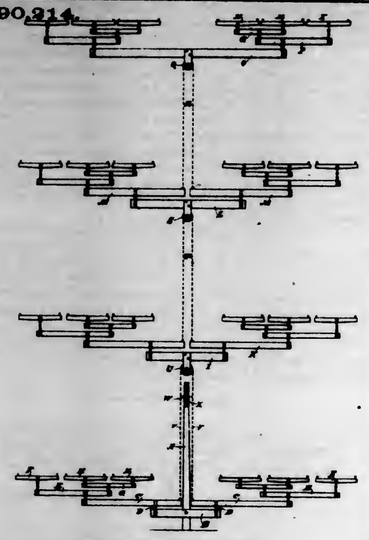
3. The combination with the tail-piece having the teeth or serrations and adapted to be secured to a stringed musical instrument, of the slotted arms having teeth or serrations, the screws and binding nuts, the transverse bar and the eccentrics, substantially as described.

490,214. DRAFT-EQUALIZER. PETER V. SCHANDONEY, Sacramento, Cal. Filed Sept. 22, 1892. Serial No. 446,607. (No model.)

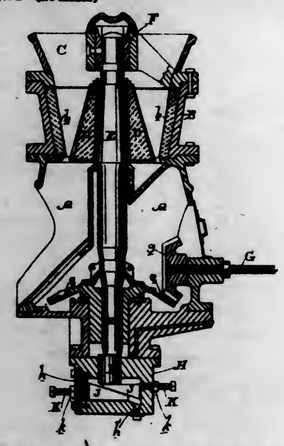


Claim.—A draft equaliser consisting of draft bars, the rearmost one of which is fulcrumed to the tongue of the vehicle, equalising bars connected with the ends of the draft bar, double and single trees for the attachment of teams of horses in parallel series, one or more draft bars situated in front of the first one with corresponding equalising bars, double-trees and singletrees for the attachment of one or more series of horses, and one or more chains extending from the draft bars in front and connecting with the inner ends of the equalising levers next adjacent and in the rear of said draft bars, substantially as herein described.

490,214.



490,215. ADJUSTABLE ROCK-CRUSHER. JOHN P. SIMMONS and WILLIAM J. HOLMES, San Francisco, Cal. Filed Sept. 22, 1892. Serial No. 446,094. (No model.)

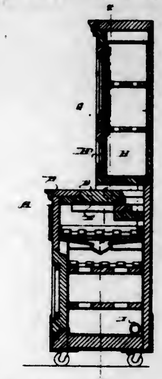


Claim.—1. In a rock crusher having a shell and a crusher-head working therein, the combination of a shaft carrying and operating said crusher-head, a vertically movable step upon which the lower end of said shaft is mounted, and movable opposing wedges under said step for vertically adjusting it to regulate the position of the crusher-head in the shell, substantially as herein described.

2. In a rock crusher having a shell and a crusher-head working therein, the combination of a shaft carrying and operating said crusher-head, a vertically movable step upon which the lower end of said shaft is mounted, opposing wedges under said step for vertically adjusting it to regulate the position of the crusher-head in the shell, and adjusting screws for operating said wedges, substantially as herein described.

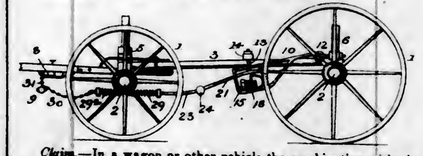
3. In a rock crusher having a shell and a crusher-head operating therein, the combination of a shaft carrying and operating the crusher-head, a box at the lower portion of the crusher-frame, a vertically movable step mounted in said box and upon which the lower end of the shaft bears, oppositely movable opposing wedges confined within said box, one of said wedges bearing under the step, and set screws mounted in the sides of the box and bearing against the wedges to force them together whereby the step is raised and the position of the crusher-head in the shell regulated, substantially as herein described.

490,216. REFRIGERATOR. NICHOLAUS SOLDWEDEL, Union, N. J. Filed Sept. 22, 1892. Serial No. 446,590. (No model.)



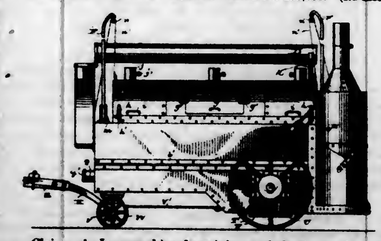
Claim.—In a refrigerator, the combination with the refrigerator box, having the ice chamber therein, the horizontally removable top thereof, the openings in said top and the covers closing said openings, and sliding horizontally therein, of the dresser or side board forming a part of said refrigerator, and a separate ice chamber or compartment within said dresser or side board, substantially as specified.

490,217. WAGON-BRAKE. NOBLE R. THOMPSON, Richmond, Va. Filed Sept. 21, 1892. Serial No. 446,463. (No model.)



Claim.—In a wagon or other vehicle the combination with the stirrups adjustably pivoted to the rear bolster, the adjustable eye-bolt with which the stirrups are connected, the transverse rock-bar, having its end formed into cranks, the brake-beam to which said cranks are journaled and the curved arm secured to said rock bar, of the forwardly extending arm secured to said curved arm and adjustably connected to a rod passing through an eye-bolt secured to the front bolster, the nuts and washers and coiled springs and chains connected with said last-mentioned rod, and with the whiffletrees, substantially as described.

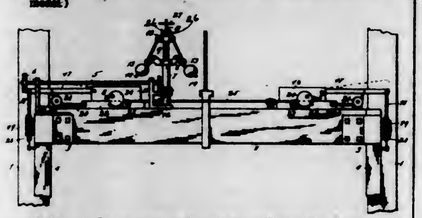
490,218. ASPHALT-MIXING MACHINE. GEORGE WIEDING, Milwaukee, Wis. Filed Oct. 29, 1887. Serial No. 253,686. (No model.)



Claim.—1. In a machine for mixing asphalt, the combination of a double walled fire box having its outer walls provided with the double right angle flanges *d*, a sectional mixing cylinder having its lower section provided with the lateral flanges *e* inserted between said flanges *d* and the upper edges of the adjacent inner walls, and the upper section of the cylinder provided with the offsets *f*, substantially as set forth.

2. A portable asphalt mixing machine that comprises a fire-box mounted on wheels and provided with a platform, a steam-boiler and engine mounted on the platform, a pump supported on the fire-box and connected to the engine, feed pipes leading from the pump through the fire-box into the boiler, a mixing cylinder depending into said fire-box, a stirrer in the cylinder, and a gear-connection between the engine and stirrer, substantially as set forth.

490,219. SAFETY APPLIANCE FOR ELEVATORS. WILLIAM WIEHLER, Newport, Ky. Filed Apr. 18, 1892. Serial No. 429,061. (No model.)



Claim.—1. In an automatic safety appliance for elevators, the combination, with spring-actuated eccentric clamps carried by the car and adapted to engage the guide-timbers thereof, of the pivoted arms supported upon the top cross-beam of the car and carrying fingers or pawls adapted to engage said clamps, a governor actuated by the movement of the car and frictional contact with the guide-timbers, and means to provide for the disengagement of said fingers or pawls from said clamps through the action of said governor, substantially as specified.

2. In an automatic safety appliance for elevators, the combination, with spring-actuated eccentric clamps carried by the car and adapted to engage the guide-timbers thereof, of the pivoted arms supported upon the top cross-beam of the car and carrying fingers or pawls adapted to engage said clamps, a governor actuated by the movement of the car and frictional contact with the guide-timbers, slides connected to said arms, and means adapted to release said slides through the action of said governor, substantially as set forth.

3. In an automatic safety appliance for elevators, the combination, with spring actuated eccentric clamps, carried by the car and adapted to engage the guide-timbers thereof, of the pivoted arms supported upon the top cross beam of the car and carrying fingers or pawls adapted to engage said clamps, a governor actuated by the movement of the car and frictional contact with the guide-timbers, slides connected to said arms, eccentrics supported upon said top cross beam of the car, and a chain connected to said eccentrics and passed between them and rolls or stops upon said slides, and said chain adapted to be drawn upon by said governor, substantially as set forth.

490,220. RAILWAY-SIGNAL. GEORGE F. ADAMS, Nashua, N. H., and JOHN S. LYMAN, Winchester, Mass., assignors of one-third to Charles S. Collins and Ira F. Harris, Nashua, N. H. Filed Aug. 17, 1892. Serial No. 443,334. (No model.)

Claim.—1. In a railroad signal, the combination, with a slide, of a signal arm operatively connected therewith, a locking arm independent of the slide and adapted to normally hold the same, a rocking lever adapted to lift said locking arm and release the slide, and a lever and bar directly connected with the locking arm, whereby the slide can be returned and locked at any time.

2. The combination of a railway signal, a sliding piece operatively connected therewith, two locking arms locking said sliding piece, both of them adapted to be lifted simultaneously by a passing train to unlock the slide, and one arranged to be operated from a distant station to return and hold the slide, substantially as described.

3. The combination of a railway signal, a sliding piece operatively connected therewith, and two locking arms, one arranged to be lifted by a passing train, and the other arranged to be operated by the first locking arm to unlock the slide, and permit the signal to be set, said second locking arm being operatively connected with a distant station to lock the slide, substantially as described.

4. The combination of a railway signal, a sliding piece operatively connected therewith and carrying a bracket having a rising edge thereon, a locking arm arranged to be operated by a passing train to unlock said sliding piece and permit the signal to be set, the end of said locking arm having a lateral projection resting upon said rising edge, and provided also with a pendent terminal holder to engage said slide and lock the same, substantially as described.

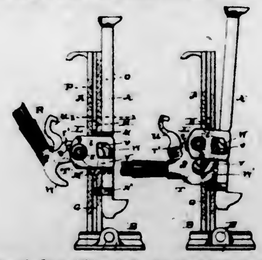
5. The combination of a railway signal, a sliding piece operatively connected therewith, a locking bar, a support therefor, said bar having a rise or bend therein normally to the rear of its support, whereby when said rise has passed across said support, the bar is thrown into locking engagement with the slide, substantially as described.



6. The combination of a railway signal, a sliding piece operatively connected therewith, a rock shaft, a lever arm at the end thereof arranged to be depressed by a passing train, a locking arm at the other end of said shaft, a support or bracket carried thereby, and a locking bar supported by said bracket and operatively connected with a distant station, substantially as described.

7. The combination of a railway signal, a sliding piece operatively connected therewith, a locking bar adapted to engage said piece, a rod connecting said bar with a distant station, a switch arm and a lever connecting said arm with said rod, substantially as described.

490,221. LIFTING-JACK. ALBION P. AIKEN, Port Perry, Pa. Filed Mar. 31, 1892. Serial No. 426,815. (No model.)



Claim.—1. In a lifting jack, the combination of the base, the standard fulcrumed thereto and capable of free angular movement, said standard having a shoulder *c* near its lower end, and a catch F pivoted to said base and adapted to engage said shoulder to lock the standard in its vertical position, substantially as described.

2. In a lifting jack, the combination with the base having perforated ears D, of a standard having at its bottom forwardly projecting lugs C, C, which rest on the floor of the base, said lugs being curved, and formed with perforations registering with those in the ears D, and a shoulder *c*, pivot pins passing through the perforations

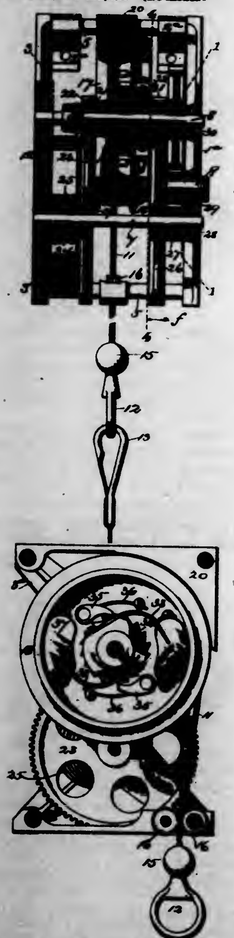
in said lugs and cars, and a pivoted catch adapted to engage said shoulder, all substantially as shown and described.

3. In a lifting-jack, the combination with the standard provided with racks, of the lifting-bar having studs to engage one of said racks, the hand-lever, the pawl pivoted to the hand-lever, and the tongues carried by the lifting-bar and adapted to be engaged by fingers on the hand-lever, substantially as specified.

4. In a lifting-jack, the combination with a standard provided with racks, of the lifting-bar provided with a yoke to slide on the standard, and studs to engage one of said racks, the hand lever having an angular head fulcrumed between the rear ends of the arms of said yoke and carrying a pawl to engage the other rack, and the adjustable tongues, mounted on the yoke, and adapted, when extended, to engage fingers on the head of the hand-lever, substantially as specified.

5. In a lifting-jack, the combination, with the standard, having racks, of the lifting-bar having a guiding yoke, the hand-lever mounted on said yoke and carrying the pawl, the tongues, V, mounted on the yoke and adapted, when extended, to be engaged by fingers on the hand-lever, and the pivoted latches to engage the tongues when not in use, substantially as specified.

490,222. FIRE-ESCAPE. DON J. ARNOLD, Omaha, Nebr. Filed June 25, 1892. Serial No. 438,008. (No model.)



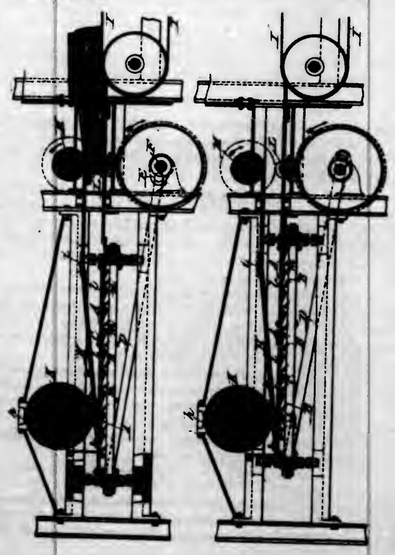
Claim.—1. A fire-escape consisting of a framing, a series of shafts extending transversely therethrough, a rope-carrying drum loosely mounted on one of said shafts and having a grooved periphery within which the rope is coiled and at one side an outwardly-extending circumferential flange constituting a circumferential recess, a rope-guiding and guarding housing adjacent to the grooved periphery of the drum, a coiled spring, gearing connecting the arbor of said spring and the hub of said drum, pawl and ratchet mechanism located within the flanged recess at one side of said drum, brake mechanism also located within said flanged side recess of said drum and consisting of a drum loosely mounted on one of said shafts and brake-blocks connected therewith and adapted to grip the flange thereof, and intermeshing toothed gearing journaled on said shafts and adapted to actuate the brake mechanism, substantially as and for the purpose set forth.

2. A fire-escape, consisting of a frame, a rope-carrying drum having a grooved rope-receiving periphery and loosely mounted on a shaft in said frame, pawl and ratchet mechanism connected, respectively, to said drum and to said shaft, brake mechanism consisting of a hub loosely mounted upon said shaft and a plurality of brake-blocks flexibly connected with said hub and adapted to grip said drum, connected gearing mounted upon suitable shafting in the frame and connected with said brake-block-carrying hub and adapted to rotate said brake mechanism in one direction, a drum-rotating and rope-re-coiling device, as a spring or weight, and gearing mounted upon said shafting and connecting the rope-re-coiling mechanism and the drum and adapted to rotate said drum in a reverse direction to the direction of the rotation of the brake mechanism, substantially as and for the purpose set forth.

3. In a fire-escape of the character described, the combination with a frame and shafting therein, of a rope-carrying drum loosely mounted on one of said shafts, a rope-re-coiling device and gearing connecting the same and said drum, pawl and ratchet mechanism connected with said drum, a hub loosely mounted on one of said shafts, brake-blocks having spring arm connection with said hub, and mechanism connected with said hub whereby said hub may be rotated to throw the brake-blocks into gripping contact with the drum to regulate the rotation thereof, substantially as and for the purpose set forth.

4. A fire-escape, consisting of a suitable framing, stationary shafting located therein, a loosely journaled drum having a grooved rope-receiving periphery and flanged sides a housing extending around the upper portion of the periphery of said drum, rope-guiding sheaves located at or near the lower portion of the framing, ratchet mechanism adjacent to said drum, brake mechanism mounted on the drum-carrying shaft, gearing connected with and adapted to actuate the brake device a rope-recoiling device, as a spring or weight, and gearing connecting the same and the drum, substantially as and for the purpose set forth.

490,223. SLICING-MACHINE FOR BEET-ROOTS, &c. RUDOLPH BERGREEN, Rottasch, Germany. Filed Dec. 13, 1889. Serial No. 333,576. (No model.) Patented in England Dec. 21, 1889, No. 20,573, and in Germany Jan. 11, 1890, No. 50,067, June 1, 1891, No. 56,557, and Mar. 10, 1892, No. 61,361.



Claim.—1. In a slicing-machine a cutter-head provided with an oblique serrated cutting-blade having bevels extending rearwardly from the serrated cutting-edge, substantially as and for the purpose set forth.

2. In a slicing-machine a cutter-head provided with an oblique serrated cutting-blade in combination with a horizontal guard-plate, as G, in advance of the serrated cutting blade, and having sharp edges, as *k*, arranged in a horizontal plane, all substantially as described.

3. In a slicing-machine a reciprocating cutter-frame, provided with a gang of cutters, substantially as and for the purposes set forth.

4. In a slicing-machine for sugar-cane, the combination of feeding devices, substantially as described, with a reciprocating cutter-frame and a hinged and weighted presser plate, and a yielding pressure-roller bearing upon the same, substantially as and for the purposes set forth.

5. In a slicing-machine the combination of a reciprocating cutter-frame, a hinged presser-plate and a presser roller journaled in sliding bearings above the presser plate, all substantially as and for the purposes set forth.

6. In a slicing-machine a cutter-frame provided with a gang of cutters the distance between whose cutting edges is slightly less than the throw of the cutter-frame and a series of slots between the cutters, substantially as and for the purposes described.

7. In a slicing-machine a reciprocating cutter-frame provided with a gang of cutters the distance between whose cutting-edges is slightly less than the throw of the cutter-frame, substantially as described.

490,224. TOBACCO-HANGER. JAMES M. CAMPBELL, Jordan's Store, assignor to himself and Luther B. Vaughan, Richmond, Va. Filed Apr. 27, 1892. Serial No. 430,814. (No model.)



Claim.—As an improved article of manufacture, a leaf tobacco hanger consisting of an approximately diamond-shaped clamp open essentially at one of its angles, and hanger arms formed integral with the opposing ends of the clamp located at said open angle; substantially as and for the purpose set forth.

490,225. DESK-RECEPTACLE. EUGENE P. CAROLAN, Eagle Pass, and EDWARD H. TERRELL and JAMES R. TERRELL, Seguin, Tex. Filed Oct. 27, 1892. Serial No. 450,113. (No model.)



Claim.—1. The combination with a bottle, having a conical base and a bottom flange, of a pin-cushion surrounding the conical base conforming thereto, and supported at its lowest part by the flange, substantially as and for the purpose specified.

2. The combination with a bottle, having a conical base and bottom flange, of a strip wound around said base and supported by said flange, and a band for securing the strip in place, substantially as set forth.

3. In a combined receptacle, pin-cushion and pen-wiper, the combination with a bottle and flanged base, and a pin-cushion supported thereon, of a ledge 5, neck 6, surmounting the same, and a pen-wiper supported by the neck upon the ledge, substantially as set forth.

4. As an article of manufacture, a bottle, or like receptacle adapted to be used as specified, consisting of the combination with a vertical part, a ledge and neck above the same, of a conical base and bottom flange beneath the same, substantially as set forth.

490,226. SPRING-TOOTH HARROW. HENRY W. REINHARDT, York, Pa., assignor to Arthur B. Farquhar, same place. Filed Jan. 26, 1892. Serial No. 419,202. (No model.)

490,226.



Claim.—1. The spool provided with a removable head in combination with the frame straps, the bolt for holding the spool and straps together, the tooth, and the tooth holder having a clip ring which fits and is secured on the body of the spool, substantially as hereinbefore set forth.

2. The spring tooth holder consists of the split clamping ring and means for drawing its ends together, the clamping plate fast at one end to the ring and having between it and the ring a socket to receive the end of the tooth, and means, independent of and separate from the ring clamping or closing devices, for drawing the free end of the clamp plate toward the tooth and the ring, substantially as and for the purposes set forth.

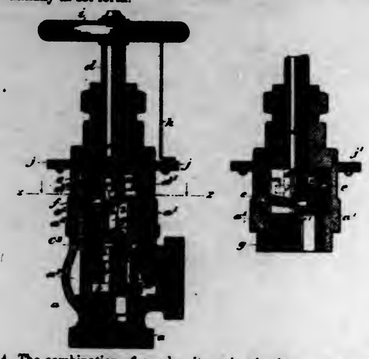
490,227. VALVE. FRANK J. FERRELL, New York, N. Y., assignor to the Ferrell Manufacturing Company, of New Jersey. Filed Dec. 7, 1891. Serial No. 414,908. (No model.)

Claim.—1. The combination of a valve, its casing and stem and an operating stem, suitable means for imparting a reciprocating motion to the valve and valve stem from the operating stem, and a device for locking the valve in closed position consisting of inclined faces on the valve stem and operating stem arranged to engage at or near the closed end of the stroke of the valve, substantially as set forth.

2. The combination of a valve, its casing and stem and an operating stem, an extension of one stem inclosing or partly inclosing the other stem, a connecting device between the two stems consisting of a worm and counterpart, and a device for locking the valve in closed position consisting of inclined faces on the valve stem and operating

stem arranged to engage at or near the closed end of the stroke of the valve, substantially as set forth.

3. The combination of a valve, its casing and stem and an operating stem, an extension of one stem inclosing or partly inclosing the other stem, a connecting device between the two stems consisting of a worm and counterpart and the locking device consisting of the wings *l* on the valve stem having inclined upper faces and the studs *m* on the operating stem, such parts of the locking device being arranged to engage at or near the closed end of the stroke of the valve, substantially as set forth.



4. The combination of a valve, its casing having two separable parts *a* and *a'*, the groove a^3 in the part *a'*, the valve stem having the projecting tooth *f*, and the operating stem having the cup-shaped part d^2 surrounding the valve stem and the worm groove *e* and the short groove *e'* in such part d^2, substantially as set forth.

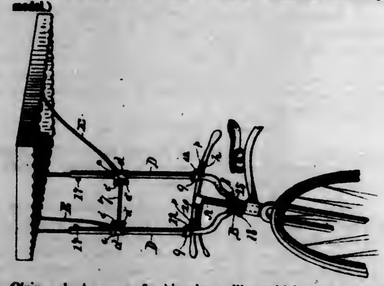
490,228. **BOX-FASTENER.** CHARLES H. FISHER, Houston, TEX. Filed July 18, 1892. Serial No. 440,374. (No model.)



Claim.—1. The box fastener comprising a plate having a spring tongue and a free-ended stud, said tongue being upwardly flexed by, and impinging or pressing laterally against said stud, substantially as set forth.

2. A box fastener combining a plate having a spring-tongue formed by slitting said plate from the side-edge transversely and longitudinally from the transverse slit, and a bevel-ended stud adapted to engage the free end of said tongue at its side, substantially as set forth.

490,229. **BICYCLE-CANOPY.** HENRY HORNSTEIN and BENJAMIN J. APPLE, Savannah, Ga. Filed Sept. 13, 1892. Serial No. 445,747. (No model.)

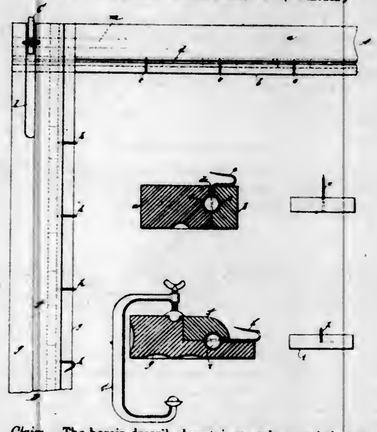


Claim.—1. A canopy for bicycles or like vehicles, the frame of which has downwardly extending legs, inserted within opposite tubular supports, D, telescopically movable therein, and held in position by thumb screws, *d*, in combination with braces, E, extending from movable rings, *c*, surrounding said supports, their opposite ends adjustable upon sides, 4, of canopy frame, substantially as described.

2. In a canopy for bicycles and like vehicles, supporting tubes, D, the lower ends of which are convergingly bent to a common central point and pivotally supported thereat, said tubes each having a surrounding adjustable ring clamp, 9, provided with integral extending plate, *p*, carrying orificed hanger, *h*, through which the handle bar is inserted, said hangers supplied with interior elastic packing, all in combination substantially as described.

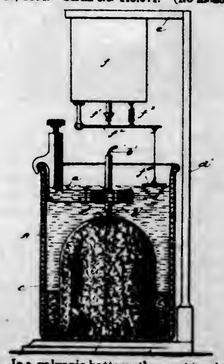
3. In a canopy for bicycles and like vehicles, the adjustable clamp, B, said clamp having outwardly extending hollow threaded branch, 6, screw rod, 15, carrying apertured base, 14, adjustable thereon at any point of its length by nuts, 16, said base, having inserted within bore of its upper end, converging bent rods, from the upper ends of which extend vertical tubular supports, D, each connected to the handle rod forwardly thereof, by plates, *p*, extending from clamps, 9, substantially as described.

490,230. **CURTAIN-STRETCHER.** ELIJAH R. OSGOOD, Columbus, Ohio. Filed June 9, 1890. Serial No. 354,773. (No model.)



Claim.—The herein described curtain stretcher consisting of four sections clamped together, each section formed of two rails having grooves forming cylindrical channels, cylindrical blocks or guides fitting adjustably in said channels and hooks having one end connected to said blocks and the hooked end disposed horizontally with reference to the sections, substantially as shown and described.

490,231. **GALVANIC BATTERY.** NOAH M. POWELL, Galesburg, Ill., assignor to the United States Burglar Alarm Company, same place. Filed Dec. 19, 1891. Serial No. 415,671. (No model.)



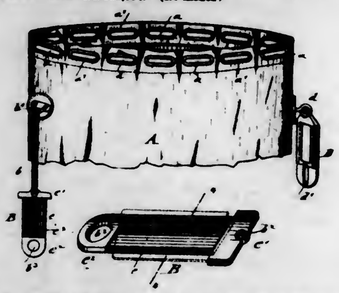
Claim.—1. In a galvanic battery, the combination of an outer jar containing an electrode and a liquid solution, and an inner inverted jar containing an electrode, the inner jar being entirely submerged and the electrode in the outer jar located directly above the inverted jar.

2. In a galvanic battery, the combination of an outer jar containing an electrode and a liquid solution, and an inner inverted jar containing an electrode, the inner jar being entirely submerged and the electrode in the outer jar located directly above the inverted jar, and the electrode in the inner jar being connected with a wire leading through a perforation in the top of the inverted jar, substantially as described.

3. The combination with a battery cell of a bracket supporting the same, said bracket also supporting a supplying tank for the cell and the valve and float arranged to admit the material contained in the tank into the cell for the purpose set forth.

4. The combination with a battery cell of a supplying tank and a valve and float arranged to control the flow of the water contained in the tank from the tank to the cell for the purpose set forth.

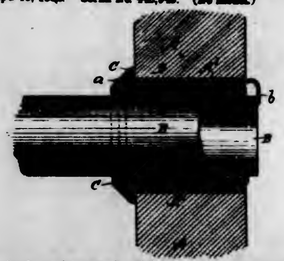
490,232. **MAIL-BAG.** HENRY STEPHENS, Brooklyn, N. Y., assignor, by mesne assignments, to Charles D. Elliott, same place. Filed May 16, 1891. Serial No. 392,806. (No model.)



Claim.—1. The combination, with a mail-bag the mouth of which is provided with slotted openings, a locking tongue passed through said openings and connected at one end by a chain to a staple on the bag, and a tag-frame applied to a staple at the opposite side of the bag, said tag-frame being provided with a slot for being placed over the tongue and locked thereto, substantially as set forth.

2. The combination, with a mail-bag having a mouth provided with slotted openings, of a locking tongue passed through said openings and formed of a main-piece and T-shaped heads connected by a longitudinal pin and pivoted to said middle portion, said heads being provided with openings, a chain connecting one of said heads with a fixed staple at one end of the bag, and a tag-frame applied to a staple at the opposite end of the bag provided with a slot fitting over the opposite head of the locking tongue, substantially as set forth.

490,233. **COMBINED STOVEPIPE AND COLLAR HOLDER.** IRA C. H. SWEET, Sandwich, Ill., assignor to Clarence C. Gregory, same place. Filed Sept. 15, 1892. Serial No. 445,949. (No model.)



Claim.—1. As an improved article of manufacture, a stove-pipe collar, provided with a number of spring-arms secured at their respective outer ends thereto and extending inwardly therefrom, said arms being bent near their longitudinal center to bear against the exterior surface of the pipe, the terminal free ends of one or more of said arms being bent to engage with the interior surface of the wall, and one or more of the free ends bent in the opposite direction to engage with the end of the pipe and form an entering stop therefor, substantially as set forth.

2. The combination with a stove-pipe, of a collar, provided with a number of spring-holding arms, the outer ends of which are secured to said collar, the opposite or free end of some of these arms being bent outwardly to engage with the inner surface of the wall so as to hold the collar in place, and the ends of the other arm or arms bent in the opposite direction to form a stop for the entering end of the pipe, said arms bearing against the surface of the pipe at a point between their respective ends to prevent the same from backing out, substantially as and for the purpose set forth.

490,234. **FAN ATTACHMENT FOR CHAIRS.** PERRY A. TOMLINSON, Gladstone, Minn., assignor of one-half to Thomas W. Bramblitt, same place. Filed July 20, 1892. Serial No. 441,572. (No model.)



Claim.—1. The combination with a rocking chair or other movable or oscillating seat, of a horizontal rock shaft supported thereon and provided with a rearwardly extending arm, a spring-provided rod pivoted to said arm and having its lower end resting upon the surface which supports the chair and suitable fans carried by the rock shaft so that when the chair is oscillated the fans may be turned in the opposite direction, substantially as described.

2. The combination with a rocking chair, of a horizontal shaft provided at each end with sockets, suitable fans supported in said sockets, a roller provided rod pivoted to an arm carried by said rock shaft and a spring engaging the chair and the aforesaid rod for steadying the latter and keeping it in position, substantially as described.

3. The combination of an oscillating chair, a horizontal rock shaft supported thereon, a fan or fans carried by said shaft, an arm provided sleeve on the shaft, a rod pivoted to said arm and having its lower end resting upon the surface which supports the chair and a spring device connected to the lower end of said rod and likewise to the chair, substantially as described.

4. The combination, with a rocking chair, of a horizontal shaft B supported in bearings on said chair and carrying the sockets B' at each end, the fans D supported on the uprights C carried by said sockets, the rod F having the antifriction roller *f*, said brace being pivoted at its upper end to an arm *e* of a sleeve E which is secured on the shaft B and the spring G attached to the rod F and to the chair, substantially as described.

490,235. **TYPE-WRITING MACHINE.** HENRY H. UHL, Philadelphia, Pa., assignor to the National Type Writer Company, of Pennsylvania. Filed Jan. 23, 1889. Serial No. 297,257. (No model.)

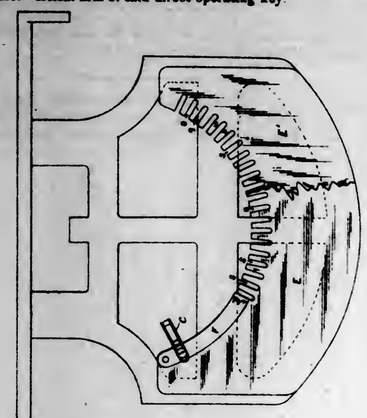


Claim.—1. In a typewriting machine, in combination, a direct operating key having two vertical arms and a rod or bar connecting said arms, a type bar, said type bar being connected to the upper end of the inner vertical arm and said connecting rod or bar being loosely connected to the lower portion of said inner arm.

2. In a typewriting machine, in combination, a direct operating key having two vertical arms, a rod, or bar connecting said arms, a type bar connected to the inner vertical arm, a plate, serrations in the inner end of said plate adapted to receive and guide the inner vertical arm of said direct operating key.

3. In a typewriting machine, in combination, a direct operating key having two vertical arms and a rod or bar connecting said arms,

a type bar connected to the inner vertical arm, plates E and F, serrations in said plates at their inner ends adapted to receive and guide the inner vertical arm of said direct operating key.



4. As an improved article of manufacture, a type bar provided with a trussed portion integral with the main portion of the type bar.

5. As an improved article of manufacture, a type bar provided with a trussed portion integral with the main portion of the bar, said trussed portion vanishing inward toward the lower end of said bar.

490,286. PROCESS OF MANUFACTURING SHEET-IRON. WATERS D. WEEN, Pittsburg, assignor to the W. Dewees Wood Company, McKeesport, Pa. Filed June 10, 1891. Serial No. 396,765. (No specimens.)

Claim.—1. In the art of manufacturing sheet iron or steel, the method herein described of preserving or protecting the original oxide surfaces of the sheets and preventing the sheets from sticking or welding together during the heating and reduction of the broken down sheets, consisting in coating the original oxide surfaces of the broken down sheet with a suitable liquid or plastic adhesive material adapted to prevent welding or sticking, but without material change in the oxide surface, arranging the sheets in packs, raising the packs to a rolling heat and then rolling them promptly on attaining the rolling heat, whereby without material deoxidation or carburisation to avoid destruction of or material injury to the oxide surfaces of the sheets, substantially as set forth.

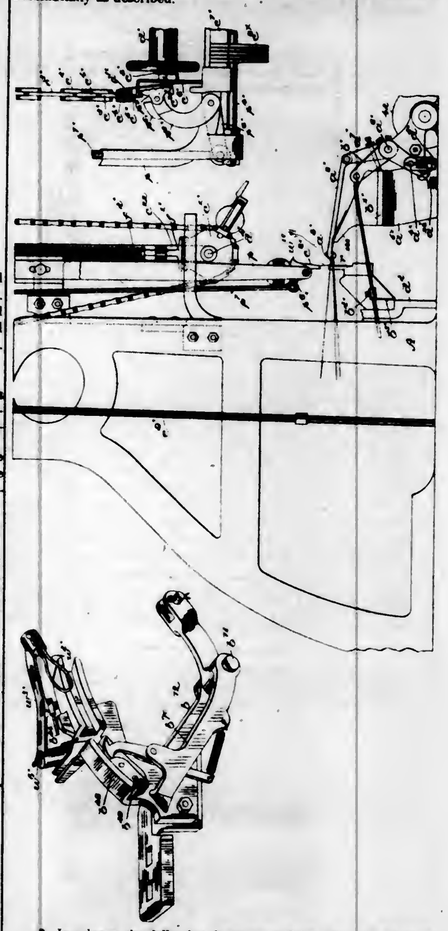
2. In the art of manufacturing sheet iron or steel, the method herein described of preserving or protecting the original oxide surfaces of the sheets and preventing the sheets from sticking or welding together during the heating and reduction of the broken-down sheets, consisting in coating the original oxide surfaces of the broken-down sheets with a mixture of finely divided carbonaceous material and a liquid, arranging the coated sheets in packs, heating the packs to a rolling heat, and then rolling them before any material deoxidation or carburization can be effected whereby to avoid the destruction of or material injury to the oxide surfaces of the sheets, and without substantial change in such oxide surfaces, substantially as set forth.

3. In the art of manufacturing sheet iron or steel the method herein described of preserving or protecting the original oxide surfaces of the sheets and preventing the sheets from sticking or welding together during the heating and reduction of the broken-down sheets, consisting in coating the original oxide surfaces of the broken-down sheets by dipping them in a bath consisting of carbonaceous matter and a liquid, arranging the coated sheets in a pack, heating the packs to a rolling heat and then rolling them before any material deoxidation or carburization can be effected whereby to avoid the destruction of or material injury to the oxide surfaces of the sheets, and without substantial change in such oxide surfaces, substantially as set forth.

490,287. LOOM FOR WEAVING TUFTED FABRICS. HORACE WYMAN and JOHN A. CLARK, Worcester, Mass., assignors to the Crompton Loom Works, same place. Filed June 13, 1892. Serial No. 436,418. (No model.)

Claim.—1. In a loom for weaving tufted fabrics, the following instrumentalities, viz:—a tuft-yarn beam; a carriage provided with a series of quills or tuft-yarn carriers; means to prevent the rotation of said beam, and while restrained from rotation to lift said beam and draw the tuft-yarns tightly around the pick of weft, substantially as described.

2. The tuft-yarn carriage; its attached quills or tuft yarn carriers; and tuft-yarn beam; combined with devices to lift the tuft-yarn carriage and beam; a clamp; and devices to cause it to release the said tuft-yarn beam as the said beam is lifted after the bent free ends of the tuft-yarns have been drawn back into the warp about the filling, such upward movement of the tuft warp beam and carriage while the beam is unclamped and the tuft-yarns are caught in the shed resulting in rotating the tuft-yarn beam and pulling off sufficient tuft-yarn for the next row of tufts to be made from the yarns of that beam, substantially as described.



3. In a loom the following instrumentalities, viz:—a tuft-yarn carriage; a series of quills or tuft-yarn carriers; a tuft-yarn beam; a beam clamp or locking device; and devices to actuate the same, whereby the clamp or locking device for the said beam is at times made to act against and restrain the rotation of the beam, and at other times to permit the rotation of the beam, for the purposes set forth.

4. The tuft-yarn beam, the carriage on which it is mounted, and transferring arms adapted to engage the said carriage, and operating means for said arms combined with a clamp to co-operate with the head of the said beam, and actuating devices for the said clamp, substantially as described.

5. A transferring frame having transferring arms shaped to engage the ends of a tuft-yarn carriage; and a tuft yarn beam clamp, and actuating devices therefor, combined with a tuft-yarn carriage having a series of quills or carriers; a tuft-yarn beam, and devices to raise and lower said transferring frame and to move it to and fro between the reed and the fell, substantially as described.

6. A transferring frame having transferring arms shaped to engage the two ends of a tuft-yarn carriage, and tuft-yarn beam clamps and their actuating devices, combined with a tuft-yarn carriage, its attached series of quills or carriers, a tuft-yarn beam, devices to raise and lower said transferring frame and also to move it to and fro between the reed and the fell, and a tuft yarn pusher adapted to occupy a position across the warps of the open shed to arrest and keep above the warps the free ends of the tuft-yarns during the descent of the quills into the shed, substantially as described.

7. In a loom for weaving tufted fabrics, the following instrumentalities, viz:—two chains; means to actuate them intermittingly; a series of tuft-yarn beams; a series of tuft-yarn carriages having each a series of quills or carriers, means to connect said carriages to said chains and support said beams; a clamp to engage the beam being used, devices to actuate said clamp to clamp and to release said beam at intervals, and means to take the said beams from the said chains at intervals and cause the ends of the tuft-yarn carriers to be moved up and down and to and fro with relation to the warps and the fell, whereby the tuft-yarns are trailed in the shed but with their free ends above the warps to present the tuft-yarns in position to be crossed by the weft and the tuft yarns are then drawn up and folded between their free ends and the carriers snugly about the weft before the said tuft-yarns are cut off, substantially as described.

8. A tuft-yarn carriage having a series of quills or carriers, and bearings for a tuft yarn beam; combined with a tuft yarn beam, and a pad and spring, the pad acting directly against the yarn on said beam, substantially as described.

9. The transferring arms shaped to engage the tuft-yarn carriages; a transferring frame on which the said arms are mounted, a clamp, and a rod connecting said arms, combined with chains, and tuft yarn carriages provided with quills or carriers and tuft yarn beams, to operate, substantially as described.

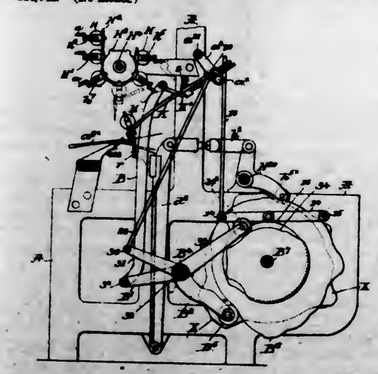
10. The combination with a tuft-yarn beam having a series of quills or carriers for tuft-yarns, and devices to support said tuft-yarn beam and move the ends of the carriers to and fro, and up and down, of a clamp to positively engage said beam and prevent its rotation while the tuft yarns are being drawn up in loop form about the weft, substantially as described.

11. The combination with the weft shuttle-race and weft-shuttle, of the weft thread controller mounted on a vertical pivot located at the side of the shuttle-race most remote from the selvage, substantially as described.

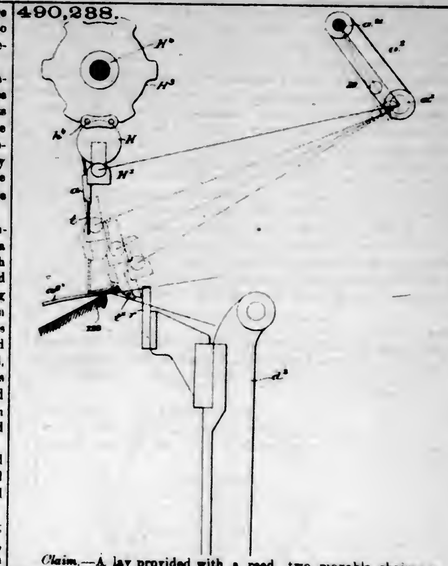
12. In a loom for weaving tufted fabrics, a tuft yarn carriage having attached quills or tuft-yarn carriers, and a tuft-yarn beam having its journals mounted on bearings of the said carriages, combined with two sets of clamps adapted to act against the ends of the said beam from opposite directions and clamp the said beam between them, substantially as described.

13. In a machine for weaving tufted fabrics, a transferring frame and tuft-yarn carriage having tuft-yarn carriers and tuft-yarn beam, and devices to raise and lower said frame with the beam and carriers, and to move the ends of the carriers to and fro between the reed and fell of the fabric, combined with a tuft-yarn pusher, substantially as described.

490,288. LOOM. HORACE WYMAN, Worcester, Mass., assignor to the Crompton Loom Works, same place. Filed Sept. 1, 1892. Serial No. 444,742. (No model.)

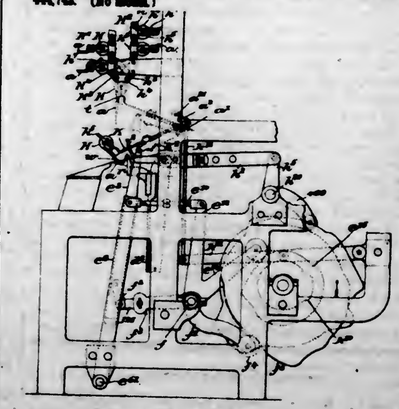


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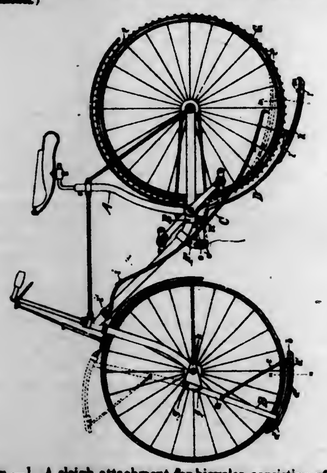
Claim.—A lay provided with a reed, two movable chains, a series of frames mounted therein and provided each with a series of tuft-yarn carriers and a beam or spool to supply the said carriers with tuft-yarns; transferring arms; two cams; and two sets of connections between the said cams and the transferring arms, each set actuated by one of said cams, one cam controlling the up and down motions of the transferring arms to place the ends of the carriers in or between the warps, and the other cam the back and forth movements to move the ends of the carriers in and above the warps, the shape of the said cams being such as to enable the transferring arms to engage a frame, take it from the chains and place the ends of the tuft-yarn carriers in the open shed between the warp threads leaving the free ends of the tuft-yarns above the warp threads in the upper plane of the shed and with a space between the ends of the tuft-yarn carriers and the upturned free ends of the tuft-yarns and the under sides of the warps in the upper plane of the shed for the introduction of a thread of weft, and then to raise the frame and move the ends of the tuft-yarn carriers forward above the fell, means to move the reed and cause it to act against the tuft-yarns then bent about the weft and move said tuft-yarns and weft up to the fell to be locked there by an additional weft thread preparatory to cutting off the tuft-yarns to form a row of tuft loops, the transferring arms being then moved to put the frame back into the chains.

490,289. LOOM. HORACE WYMAN, Worcester, Mass., assignor to the Crompton Loom Works, same place. Filed Sept. 1, 1892. Serial No. 444,743. (No model.)



Claim.—In a loom for weaving tufted fabrics the following instrumentalities, viz: two movable chains; a series of tuft-yarn frames mounted therein and having a series of tuft-yarn carriers; transferring arms adapted to engage the said tuft-yarn frames; a lay having a reed; and two cams and two sets of connections between said cams and the transferring arms, each set actuated by one of said cams, one cam controlling the up and down motion of the transferring arms and the other the back and forth movements of the ends of the tuft yarn carriers with relation to the warp and reed, the shape of said cams being such as to enable the ends of the tuft-yarn carriers to be placed in next the reed, the carriers being then moved downward and their ends forward to form loops between their free ends then above the warps, the under side of the upper warps of the shed and the carriers to be crossed by a shot of weft, and means to move the reed during the upward and forward movement of the ends of the carriers, to act against the free ends of the tuft-yarns, the reed co-operating with the carriers to keep the tuft-yarns doubled about the weft while the tuft-yarns beat about the weft are being carried forward to the fell, substantially as described.

490,240. SLEIGH ATTACHMENT FOR BICYCLES. WILLIAM H. REMPORE and SCOTT TILBURY, Fort Wayne, Ind., assignors of one-third to John H. Hartman, same place. Filed Oct. 17, 1892. Serial No. 449,052. (No model.)



Claim.—1. A sleigh attachment for bicycles, consisting of a runner B, formed by the base *b*, provided with a shoe *d* having suitable clamping lugs *d'*, and the vertical standards *a*, secured to the said base *b* by the brace *c*, adapted to be pivotally mounted on the forward end of the horizontal braces *h* and having lugs *f* adapted for engaging the forward end of said braces, said runner being adapted to support the fore wheel of a safety bicycle, a forked runner D, provided with proper shoes *k* secured thereto by the lugs *l* and the screws *m*, or other proper manner, pivoted on the pivot or bolt *n* between the ears of the lug E, and having a bolt *o* in the forward end thereof adapted for adjustment in the slot *o'* of the curved lug F, the lug E having a bolt or pin *n* adapted as a fulcrum for the runner D, the curved lug F having a slot *o'*, and the tire G having the teeth *p* upon the perimeter thereof, and adapted for adjustment upon the rear wheel of a safety bicycle, all substantially as set forth and described.

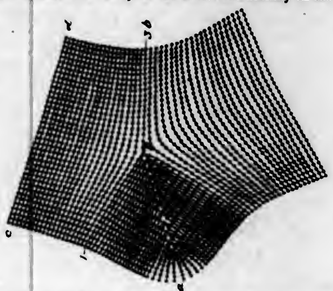
2. In a sleigh attachment for bicycles, the combination of the runner B, and a brake C with the forked runner D adapted for supporting the rear wheel of a bicycle, the slotted lug F, the clamp or lug E having a pin or bolt *n*, adapted as a fulcrum for the runner D, and the tire G having upon its perimeter toothed projections *p*, and adapted for adjustment upon the tire of a bicycle wheel, all substantially as set forth and described.

3. The combination in a sleigh attachment for bicycles of the sleigh runner B, the clamp or lug E, the slotted lug F and the forked runner D adapted for supporting the weight of the operator as well as the rear wheel of a bicycle, all substantially as set forth and described.

490,241. HOSIERY. JOSEPH BLACK, Jr., Philadelphia, Pa., assignor to Joseph Black & Sons, same place. Filed Jan. 15, 1892. Serial No. 418,177. (No specimens.)

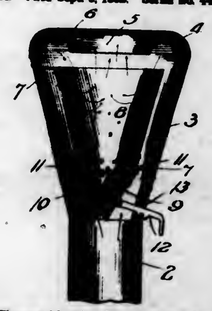
Brief.—The invention consists of a stocking with a gore or gusset above the heel constructed in the manner and for the purpose fully set forth in the claims.

Claim.—1. As an article of manufacture, a stocking which embodies a gore or gusset composed of a series of short rows of stitches, adjacent rows of which stitches are of unequal length, the ends of each row of stitches of the said gore or gusset extending toward the instep beyond the front edge of the heel portion of the stocking, in order to increase the distance from the bulge or rear part of the heel to the front of the instep, said gore or gusset being, at its upper edge, bounded by and enmeshed with the last complete row of stitches of the stocking leg, and being at its lower edge bounded by and enmeshed with, first, the first row of heel stitches, and, second, for the remainder of its length, the necessary number of stitches of the first row of stitches of the body of the foot, substantially as set forth.



2. As an article of manufacture, a stocking which embodies a gore or gusset composed of a series of short rows of stitches, adjacent rows of which stitches are of unequal and from the upper edge of the gusset to the edge adjoining the heel of successively increasing lengths, each row of stitches of the said gore or gusset extending toward the instep beyond the front edge of the heel portion of the stocking, in order to increase the distance from the bulge or rear part of the heel to the front of the instep, each row being at its respective extremities enmeshed with the last row of stitches of the stocking leg, said gore or gusset being, at its upper edge, bounded by said last row of stitches of the stocking leg, and being at its lower edge bounded by and enmeshed with, first, the first row of heel stitches, and, second, the first row of stitches of the body of the foot, substantially as set forth.

490,242. SPARK-CATCHER. ANDREW T. BREWER, Minneapolis, Minn., assignor of two-thirds to Edwin C. Holmes and James M. Boyd, Jr., same place. Filed Sept. 6, 1892. Serial No. 445,163. (No model.)

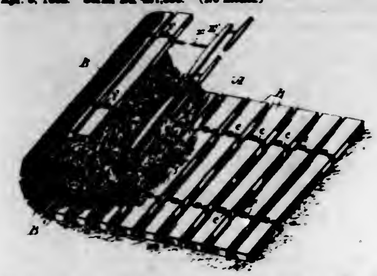


Claim.—1. The combination, in a spark catcher, of the stack provided with the annular deflector, with an open receptacle arranged beneath said deflector, and a valved-bottom for said receptacle, consisting of semi-conical hinged parts arranged to be opened or closed as described, and for the purpose specified.

2. The combination with a smoke-stack provided with a deflector, of a spark receptacle arranged therein beneath said deflector, and a valved-bottom for said receptacle, consisting of the semi-conical hinged parts pivoted thereto, and having overlapping edges, making the whole tight when closed, and means for opening and closing said parts, substantially as described and for the purpose specified.

3. The combination with a stack provided with a deflector, of a spark receptacle arranged therein beneath said deflector the valved-bottom for said receptacle, composed of the semi-conical parts 9 and 10 having overlapping edges hinged to the lower end of said receptacle, the part 10 provided with slots 15, lugs 14 on the part 9 extending into said slot, the part 9 adapted to close within the part 10 and an operating bar extending to the outside of the stack, all substantially as described.

490,243. EARTH-MOVER. CHRISTOPHER A. BRIDGWATER, Rantoul, Ill., assignor of one-half to Albert B. Lawler, same place. Filed Apr. 5, 1892. Serial No. 427,869. (No model.)



Claim.—1. A dirt mover comprising a series of parallel slats loosely connected with each other to form a rolling bed, substantially as set forth.

2. A dirt mover comprising a series of parallel and adjacent slats hinged to each other to form a rolling bed, one end of which is adapted to move over the bed toward the opposite stationary end thereof, substantially as set forth.

3. In a dirt mover, the combination of a series of parallel and adjacent slats arranged alongside each other, chains or ropes passing over and under the slats from end to end and intercrossing between each slat to form a rolling carrier bed, and means for moving one end of the bed toward and over the opposite stationary end thereof, substantially as set forth.

490,244. WINDOW. HUGH H. CRAIGIE, Stamford, Conn., assignor to J. Agnes Craigie, same place. Filed Jan. 9, 1892. Serial No. 417,448. (No model.)



Claim.—1. A window sash having hinges on opposite edges, either one of said hinges being arranged to be pushed outward while the other is held to form a pivot for the side of the sash, said hinges forming the means by which the sash is pivotally carried, combined with an arm pivoted to each of said hinges and located in the jamb or frame of the window and acting to support the outer edge of the sash when it is pushed out, and a joint in said arm to permit its inner end to drop down, substantially as described.

2. A window sash having hinges on the opposite vertical edges, said hinges being adapted to be pushed outward, combined with an arm pivoted to each of said hinges and a joint as *e*, in each of said arms to permit its inner end to hang down with the frame of the window, and with means to hold either hinge while the other is pushed out, substantially as described.

3. A window sash having pivotal connections on opposite sides and adapted to be moved sidewise, and means to hold either of said pivotal connections to permit one side of the sash to swing sidewise combined with stationary rigid projections on the sash and sockets having one side open to receive said projections to be supported by the window sill and in vertical alignment with the pivotal connections for the sash, substantially as described.

4. A window sash having pivotal connections on opposite sides to permit either side of the sash to be swung sidewise, and means to hold either of said pivotal connections, combined with projections on the lower side of the sash, and sockets having one side open and carried on the window sill to receive said projections, substantially as described.

5. The combination of a window sash adapted to be swung sidewise, with hinges on the vertical side edges of said sash, arms as F, pivoted to said hinges, and arranged to slide longitudinally through the window frame to push said hinges outward and to support the outer edge of said sash when pushed out, and means for locking said hinges and arms in either position, substantially as described.

6. A window sash adapted to be moved sidewise, combined with hinges on opposite sides, said hinges being movable with the sash, and with projections on the top and bottom of the sash in line with the pintles of the hinges, and with sockets on the window frame, said sockets having openings on one side to receive the projections, substantially as described.

7. The combination of a window sash adapted to be moved sidewise, hinges on opposite sides thereof, sliding arms F, connected with said hinges, joints as *e*, in said arms to permit their inner parts to drop down, casings on the window frame to receive said hinges and arms, and means to hold said arms in either position, substantially as described.

8. The combination of a window sash, hinges on opposite sides, arms connected to said hinges, joints as *e*, in said arms, bolts to hold said arms, levers for actuating said bolts, and springs for holding said bolts in the normal positions, substantially as described.

9. The combination of a window sash, hinges on opposite sides thereof, arms connected with said hinges, bolts for holding said arms, levers to actuate said bolts and hooks J, to hold said levers, substantially as described.

10. The combination of a window sash, hinges on opposite sides thereof, arms connected with said hinges, a casing G through which said arms pass, apertures *l* in said casings, bolts carried by said casings, levers for actuating said bolts, springs to move said bolts, means to hold said levers, and plates or covers G^3, on casing to cover said parts, substantially as described.

11. In a window sash, a flat door hinge of sufficient width to maintain the window sash firmly in its vertical position when pushed out, and to hold the side of the sash against the jamb when the window is closed, the hinge being in about the center of the vertical side of the sash, combined with a handle connected with said hinge and arranged to slide outward in a straight line across the jamb to push the sash outward and assist in supporting the outer edge of the same when it is pushed out, and to retain the sash in either position, substantially as described.

490,245. SPINDLE. FLORENCE M. DAY, Hopedale, Mass., assignor to the Sawyer Spindle Company, same place. Filed Oct. 3, 1892. Serial No. 447,630. (No model.)

Brief.—As set forth in the claims, the step is connected to the bolster by a screw thread, there being a spring connecting said bolster and step to enable the former at predetermined times to rotate with the spindle.

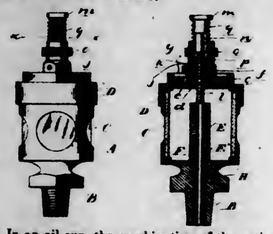


Claim.—1. In a spindle support, a supporting case, a bolster, a step connected to the bolster by a screw thread, and a pintle to fit the said bolster, combined with a yielding or spring connection to under normal conditions engage the bolster and prevent its rotation with the spindle, but permit the bolster to be rotated by the spindle

on the occurrence of undue friction between the pintle of the spindle and the interior of the bolster to thus lessen said friction, substantially as described.

2. A spindle having a taper fit in its bearing, a bolster tapered internally to fit the spindle and provided with a screw thread, a support having a thread engaged by the thread of the bolster, and a spring attached to said bolster to enable it at predetermined times to rotate with the spindle, substantially as described.

490,246. LUBRICATOR. WILLIAM A. DOWNER, Detroit, Mich., assignor to the Penberthy Injector Company, same place. Filed Aug. 23, 1892. Serial No. 443,858. (No model.)



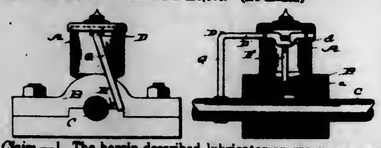
Claim.—1. In an oil cup, the combination of the casing, the reciprocating plunger therein, a cap for the casing having a filling aperture, a valve to close said aperture having a central hub passing through the cap, an adjustable stem for regulating the throw of the valve supported in said hub, and means for connecting and disconnecting said hub and stem, whereby the stem may be adjusted independent of the valve or may be used to turn the valve, substantially as described.

2. In an oil cup, the combination of the cap, having perforations therein, a hollow hub passing through the cap having an interior thread, an adjustable stem having a threaded exterior passing through the hub, a disk on the lower end of the hub within the cap, a scutcheon on the upper end of the hub outside the cap, said disk and scutcheon controlling the upper and lower ends of the perforations in the cap, a binding nut on the hub above the scutcheon, an independent connection between the hub and stem, and a reciprocating plunger below the stem, substantially as described.

3. In an oil cup, the combination of the casing, the cap having a filling aperture and valve to control said filling aperture, a reciprocating feed plunger and an adjusting stem to control said plunger, of a clutch on said stem to connect and disconnect it from the valve controlling the feed aperture in the cap, substantially as described.

4. In an oil cup, the combination with the casing, the apertured cap, the valve for said aperture having a squared hub extending from the cap, the reciprocating plunger, the adjusting stem *l* for said plunger passing through the hub and squared portion *n* at the upper end of said stem a sliding clutch member *o* engaging on said squared portion and the corresponding squared portion *p* on the member end of the hub and a spring *q* for holding said clutch member normally in engagement with the squared portion on the hub, substantially as described.

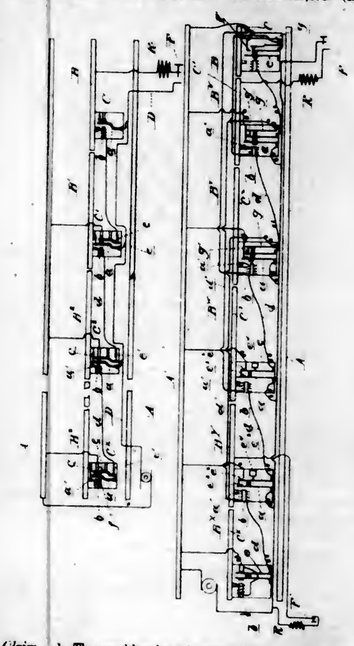
490,247. LUBRICATOR. TAYLOR SLOVER and THOMAS J. JEAN, Maryville, Mo.; said Jean assignor to Lark P. Bonebrake, same place. Filed Mar. 23, 1892. Serial No. 426,176. (No model.)



Claim.—1. The herein described lubricator or grease cup, comprising the cup or receptacle having a small passage or aperture through its bottom, an oscillating crank rod or shaft D having bearings formed in the side walls of said cup or receptacle near the upper end thereof, a plunger connected to the crank *d* of said rod or shaft within said cup, said plunger at its lower end working in said passage or aperture, and a connection between a projecting arm of said rod or shaft, and a moving part of the device to which the lubricator is applied whereby said plunger is intermittently operated, substantially as specified.

2. The combination with an oil cup or receptacle, having an oil passage or aperture through its bottom, of a plunger working in said aperture, the crank shaft to which said plunger is connected, said shaft extending transversely across within said cup or receptacle, and having bearings in the side walls thereof, the crank arm G on the projecting end of said shaft, and an eccentric portion on a moving part of the machinery arranged to intermittently oscillate said arm and shaft, substantially as specified.

490,248. ELECTRIC-RAILWAY SYSTEM. THOMAS HARRIS, Detroit, Mich., assignor to the Harris Electrical Propulsion Company, Limited, same place. Filed Dec. 28, 1891. Serial No. 416,298. (No model.)

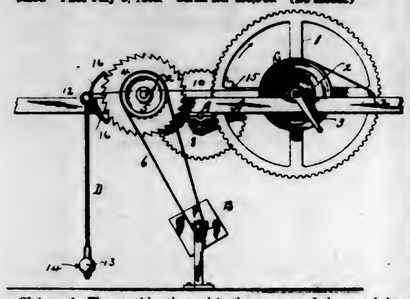


Claim.—1. The combination of a power line, a working conductor in sections normally disconnected from the power line and normally connected to a return conductor, an electro-magnet for each section the armature of which connects the section to the power line and cuts out the preceding section, and means for actuating said magnets by a derived current from the power line, the same consisting in a manual switch for connecting the initial sections of the working conductor to the power line, a traveling contact on the car for connecting the ends of two adjoining sections, and a circuit connecting each section of the working conductor with the return conductor and in which the electro-magnets and cut outs are located, substantially as described.

2. The combination of a power line, a working conductor in sections normally disconnected from the power line and normally connected to a return conductor, an electro magnet for each section the armature of which connects the section to the power line and cuts out the preceding section, and means for actuating said magnets by a derived current from the power line, the same consisting of a push for connecting the initial section of the working conductor with the power line, a traveling contact for connecting the ends of adjoining sections of the working conductor and circuits connecting the sections of the working conductor with the return conductor, said circuits containing the electro-magnets with the cut-outs, substantially as described.

3. The combination of a power line, a working conductor in sections normally disconnected from the power line and normally connected to a return conductor, an electro-magnet for each section, the armature of which connects the section to the power line, and controls one or two cut-outs of adjacent sections according the requirements, and means for actuating said magnets by a derived current from the power line the same consisting in a manual switch or switches for connecting the initial section or sections of the working conductor to the prime conductor, and a traveling contact on the car adapted to span the ends of the two adjoining sections of the working conductor, and one or two circuits connecting each section with a return conductor according to the requirements for running the cars in one or both directions, said circuits containing the electro-magnets and cut-outs, substantially as described.

490,249. GOVERNOR FOR MECHANICAL MOTORS. JOSEPH E. HART, Fowler, Ind., assignor of one-half to James Hollingsworth, same place. Filed July 9, 1892. Serial No. 439,540. (No model.)



Claim.—1. The combination with the motor, of the pendulum having escapement arms adapted to engage with the escapement wheel, a weight slidingly mounted upon said pendulum, and a belt connected at one end to the weight and having its opposite end adapted to be wound by the operation of the motor.

2. The combination with the motor having escapement arms adapted to engage with the escapement wheel, the sliding weight upon said pendulum, means for securing the weight to the pendulum, a belt connected at one end to the weight and adapted to be wound at its opposite end by the operation of the motor, as set forth.

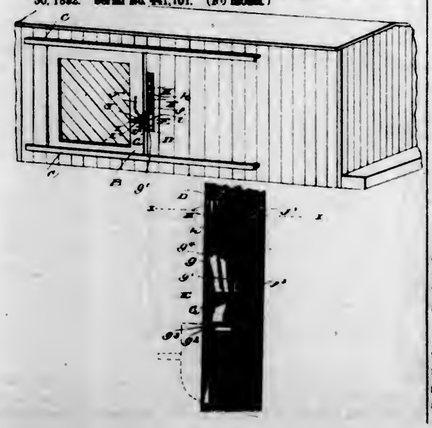
490,250. HAMMOCK ATTACHMENT. FRANK J. HERRICK, New Britain, Conn., assignor to the North & Judd Manufacturing Company, same place. Original application filed June 27, 1892, Serial No. 438,074. Divided and this application filed Aug. 20, 1892. Serial No. 443,634. (No model.)



Claim.—1. The herein described hammock end attachment consisting of the body having flanges 77, with an open hook 9 at each end thereof and the rope eye 10 at the end of one of said hooks, substantially as described and for the purpose specified.

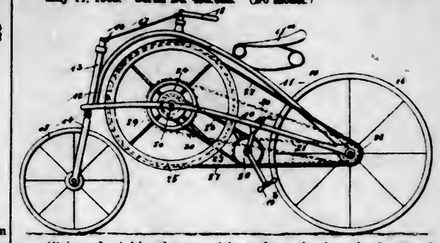
2. The herein described hammock end attachment consisting of the body having flanges 77, the hooks 9 at each end of said body with the ends of said hooks left open and curved away from said flanges and the rope eye 10 at the end of one of said hooks, substantially as described and for the purpose specified.

490,251. SLIDING-DOOR LOCK. EDWIN HUSSELL, Plattsmouth, Nebr., assignor of one-half to Henry R. Gering, same place. Filed July 30, 1892. Serial No. 441,701. (No model.)



Claim.—The combination of a wall or casing, a door arranged to slide thereupon, a door fastener movably secured to the wall or casing, arranged to abut against the rear edge of the sliding door when the latter is closed, and to be thrown back flush with the wall or casing to open the door, and a gravity catch to hold the latch when so withdrawn, said catch being raised by said latch as it is so thrown back, substantially as described.

490,252. BICYCLE. ANTHONY D JENKINS, Philadelphia, Pa. Filed May 11, 1892. Serial No. 432,622. (No model.)



Claim.—1. A bicycle, comprising a frame having wheels at each end, a driving axle journaled in the frame and having a sprocket wheel and chain connection with the rear wheel, and a differential sprocket wheel journaled in the frame in advance of the driving axle, the said differential sprocket wheel being operatively connected with the driving axle and with the rear bicycle wheel, substantially as described.

2. The combination with the bicycle having a U-shaped frame extending nearly horizontally and provided with an upwardly curved backbone which carries the seat, of the driving axle journaled in the main frame and having a sprocket wheel and chain connection with the rear bicycle wheel, a differential sprocket wheel journaled in the main frame in advance of the driving axle, a chain connection between the differential sprocket wheel and the driving gear and chain connections between the differential sprocket wheel and a sprocket wheel on the hub of the rear bicycle wheel, substantially as described.

3. The combination with the bicycle, of the driving axle journaled in the bicycle frame and having a sprocket wheel and chain connection with the rear bicycle wheel, a sprocket fly wheel journaled in the main frame in advance of the driving axle, said fly wheel consisting of connected sprocket wheels of different sizes, and a chain connection between the sprocket fly wheel and the driving axle and between the fly wheel and the rear bicycle wheel, substantially as described.

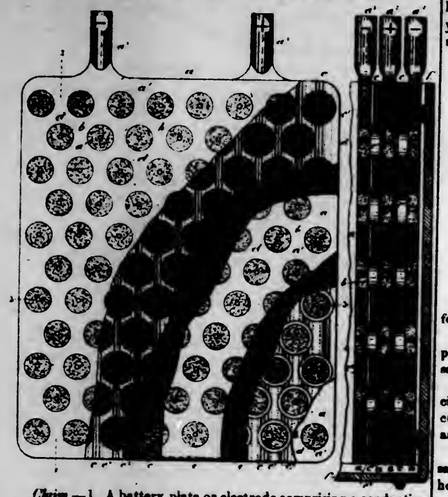
490,253. MAP-STAND. CHARLES R. LINABURY, Dansville, Mich., assignor of one-half to Andrew Beers, same place. Filed July 22, 1892. Serial No. 440,902. (No model.)



Claim.—1. An adjustable stand for maps, charts, or similar articles comprising two sections, each formed from a single piece of wire, said sections having loops formed thereon, a set screw passing through the loops serving to unite and regulate the adjustment of the stand substantially as set forth.

2. An adjustable stand for maps, charts, or similar articles comprising two sections, each formed from a single piece of wire, said sections having loops and hooks formed thereon a set screw passing through the loops serving to unite and regulate the adjustment of the stand, and legs formed in the manner herein specified, substantially as set forth.

490,254. SECONDARY BATTERY. HENRY H. LLOYD, Philadelphia, Pa., assignor to the Electric Storage Battery Company, Gloucester City, N. J. Filed Aug. 20, 1892. Serial No. 444,065. (No model.)



Claim.—1. A battery plate or electrode comprising a conducting support and its complemental active material or material adapted to become active, distance-pieces or separators disposed adjacent to the support and provided with transversely ranging apertures opposite the active material or material adapted to become active and with longitudinally ranging and staggered channels, and a textile or woven fabric disposed intermediate of the distance-pieces or separators and the faces of the positive plate or electrode, substantially as and for the purposes set forth.

2. A battery plate or electrode comprising a conducting support and its complemental active material or material adapted to become active, distance-pieces or separators covering the support and provided with longitudinally ranging and staggered channels and with transversely ranging apertures disposed opposite the active material or material adapted to become active and a textile or woven fabric folded around the positive plate or electrode and overlying the active material or material adapted to become active thereof, substantially as and for the purposes set forth.

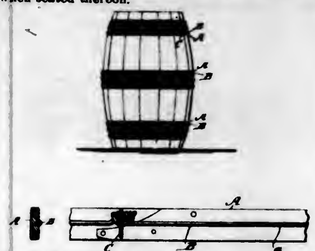
3. A battery plate or electrode comprising a conducting support and complemental active material or material adapted to become active, and distance-pieces or separators covering the support and provided with transversely ranging apertures disposed opposite the active material or material adapted to become active and with longitudinally ranging and staggering channels, substantially as and for the purposes set forth.

4. In a secondary or storage battery, positive and negative plates or electrodes comprising respectively a support and complemental active material or material adapted to become active, separators or distance-pieces interposed between said plates or electrodes and provided respectively with transversely ranging apertures in alignment with the active material of said plates and with longitudinally ranging and staggered channels, and a textile or woven fabric interposed between the respective faces of the positive plates or electrodes and the distance-pieces or separators, substantially as and for the purposes set forth.

5. A secondary or storage battery comprising a vase or cell, an electrolyte, two series of plates composed respectively of supports and complemental active material or material adapted to become active, separators or distance-pieces interposed between said plates and provided with longitudinally ranging staggered channels and with transversely ranging apertures disposed opposite the active material or material adapted to become active and a textile or woven fabric covering medium intermediate of the positive plates and separators or distance-pieces and overlying the active material or material adapted to become active, substantially as and for the purposes set forth.

490,255. BARREL-HOOP. RUDO MATTULLATH, Detroit, Mich., assignor to William A. Rush and Gustav Anstadt, trustees, and Hoba Mattullath. Filed Mar. 12, 1892. Serial No. 424,721. (No model.)

Claim.—1. In combination with an ordinary wooden drive hoop, a ring of metal located centrally and circumferentially upon the exterior thereof, partially embedded therein and affixed thereto and carried thereby, said metal band serving to gradually relieve the wooden hoop by tightening itself thereon, in a measure, as the wooden hoop yields to outward pressure during the driving of the hoop upon a barrel, or when seated thereon.



2. A wooden barrel hoop having an exterior longitudinal groove for receiving an encircling metallic band, substantially as described.

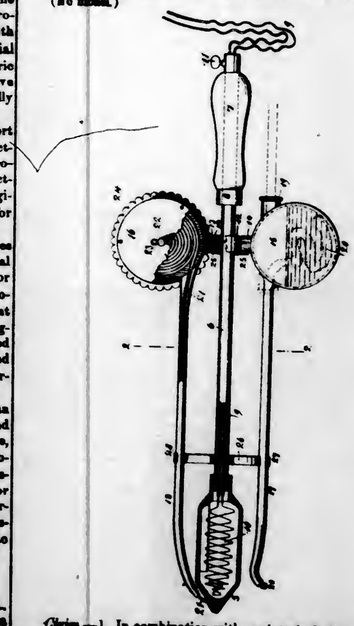
3. A barrel hoop consisting of a wooden hoop grooved about its periphery and provided with an encircling band of metal located in said groove, substantially as described.

4. The combination with a wooden hoop constructed with an encircling groove, of a metallic band, the ends of said band being secured together and fastened upon the hoop by a staple, substantially as described.

5. A hoop provided with an encircling metallic band the ends of said band being brought together opposite the joined ends of the hoop and united thereto at that point by a staple, substantially as described.

6. A barrel hoop consisting of a wooden hoop grooved about its periphery and provided with an encircling band of wire located in said groove, said wire brought to a tension on said hoop by twisting its ends together, substantially as described.

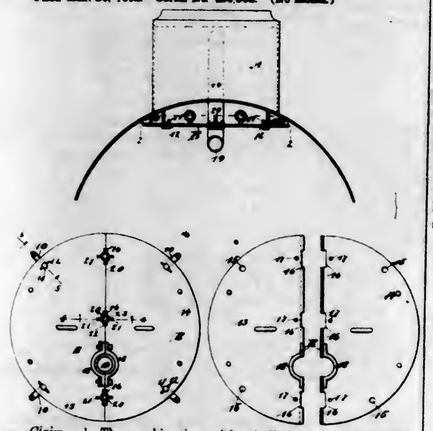
490,256. ELECTRICALLY-HEATED SOLDERING-IRON. GEORGE R. METELER, Cincinnati, Ohio, assignor of one-half to William H. Osborne, Prince's Bay, N. Y. Filed Mar. 31, 1892. Serial No. 427,300. (No model.)



Claim.—1. In combination with an interiorly heated soldering-tool, an attachment to carry soldering-fluid, adjustably connected with the tool, a snout for carrying a wick connected to this attachment and means to hold the attachment in its adjusted positions, all as substantially shown and described.

2. In combination with an interiorly heated soldering tool, an attachment to supply solder to the point consisting of a case which receives the solder which is in the shape of a strip or wire, a pin 22, mounted within the case and upon which the solder-strip is wound, a disk 24, connecting to this pin and serving as a means to feed the solder forward, a snout to carry it to the heated point and means to connect the attachment adjustably to the shank of the tool, all as substantially shown and described.

490,257. BOILER. WILLIAM MOONEY, Atlantic Highlands, N. J. Filed Mar. 26, 1892. Serial No. 426,562. (No model.)



Claim.—1. The combination with a boiler, and its steam dome, of depending brackets in the boiler, and a sectional baffle plate supported by the brackets beneath the dome, said baffle plate having a detachable connection with the brackets, substantially as described.

2. The combination, with a boiler and its steam dome, and brackets secured to the boiler, of a baffle plate constructed in sections detachably connected together and having a detachable connection with the brackets, by which it is supported within the boiler beneath the dome, a space intervening the periphery of the plate and the shell of the boiler, as and for the purpose set forth.

3. The combination, with a steam boiler and the dome thereof, and brackets located within the boiler near the dome, of a baffle plate constructed in sections and supported by the said brackets beneath the opening connecting the dome with the boiler, a space intervening the periphery of the plate and the shell of the boiler, the said plate being provided with an opening for the passage of the stand pipe, and locking devices connecting the sections of the plate, as and for the purpose specified.

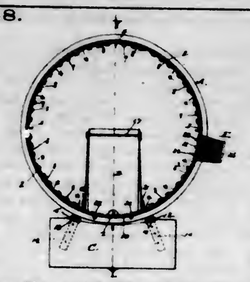
4. The combination, with a steam boiler, its dome, and essentially L-shaped brackets provided with upward extensions on their horizontal members and secured within the boiler adjacent to the dome, of a baffle plate constructed in sections and provided with openings to receive the extensions of the brackets, keys passed through said bracket extensions above the plate sections, essentially T-shaped locking devices connecting the sections of the baffle plate, keys introduced in the stem sections of the irons, the head sections of said irons being provided with upwardly-extending spurs, all combined for operation as and for the purpose specified.

490,258. CONSTRUCTION OF BINS OR POCKETS FOR CONTAINING COAL, GRAIN, &c. THOMAS R. MURRAY, Albany, N. Y., assignor of one-half to William McEwan, same place. Filed Oct. 26, 1892. Serial No. 449,974. (No model.)

Claim.—1. A storage bin or receptacle made in a cylindrical form by means of a metallic frame composed of uprights, hoops, and rafters of T-bars secured together as herein described; said frame being provided with a roof and a lining; said lining having removable sections and arranged to leave an open-space between it and said roof, as and for the purpose herein specified.

2. A storage bin provided with guides on its exterior, and removable sections of lining between said guides, in combination with an adjustable platform fitted to move on said guides, as and for the purpose herein specified.

490,258.

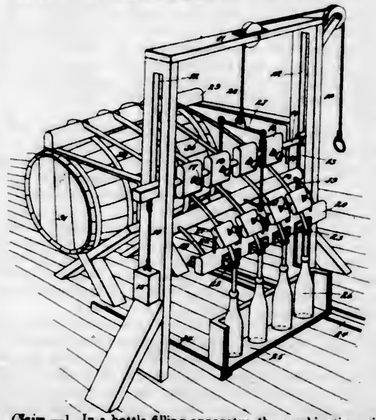


3. A storage bin provided with vertical guides on its exterior, removable sections of linings between said guides, and an adjustable platform fitted to move on said guides, in combination with an adjustable chute, D, arranged to extend from an opening in the side of said bin toward an interior portion of the latter, as and for the purpose herein specified.

4. A storage bin having delivery-openings 11 formed in its sides and removable sections or doors fitted to close said openings, in combination with a detachable delivery-chute E fitted to fasten at the lower side of said delivery opening, as and for the purpose herein specified.

REISSUES.

11,800. BOTTLE-FILLING APPARATUS. AMALIA M. DONALLY, New York, N. Y., assignor, by mesne assignments, to the Donally Manufacturing Company. Filed Aug. 10, 1891. Serial No. 402,330. Original No. 445,882, dated Feb. 3, 1891.



Claim.—1. In a bottle filling apparatus, the combination with a flexible filling tube of a compressing device for compressing the tube to cut off the flow of the liquid, and mechanism for raising and lowering the compressing device, to lower and raise the tube in and out of the bottle, substantially as described.

2. In a bottle filling apparatus, the combination with flexible filling tubes, of a compression device arranged to simultaneously compress all the tubes, and means for releasing any one of the said tubes from compression independently of the others, substantially as described.

3. In a bottle filling apparatus, the combination with flexible filling tubes, of a compression device arranged to compress the tubes jointly or independently, and means for releasing all the tubes or any one of them from compression independently of the others, substantially as described.

4. The combination, with a shaft and compressing blocks carried by the shaft, of an anvil bar located beneath the blocks, and flexible tubes passed between the blocks and anvil bars, substantially as shown and described.

5. The combination, with a shaft and compressing blocks carried by the shaft, of an anvil bar located beneath the blocks, a guide bar supported from the anvil bar, and flexible tubes passed between the

blocks and anvil bar and over the guide bar, substantially as shown and described.

6. In an apparatus of the character described, the combination, with a shaft, compressing blocks adjustable upon said shaft, and locking devices adapted to fasten the blocks to the shaft, of a movable anvil bar located beneath the block shaft, a guide bar supported by the anvil bar, adjustable guide devices attached to the guide bar, and flexible tubes engaging with the blocks, the anvil bar, the guide bar and guide devices, substantially as and for the purpose specified.

7. In a device of the character described, the combination, with a weighted shaft, compressing blocks adjustably secured to the said shaft, an anvil bar located beneath the compressing blocks, and a lifting device connected with the anvil bar, of a guide bar located in front of and below the anvil bar and connected therewith, guide devices attached to the guide bar at one side, compressing devices adjustably secured to the upper surface of the guide bar, and tubes passed between the compressing blocks and anvil bar between the guide bar and compressing devices and through the guide devices, substantially as described.

8. In a device of the character described, the combination with a shaft, compressing blocks adjustable upon the said shaft, an anvil bar located beneath the compressing blocks capable of movement to and from the same, and a lifting device connected with the anvil bar, of compressing devices adjustably supported above the guide bar, and tubes passed between the blocks and anvil bar and between the compressing devices and guide bar, as and for the purpose set forth.

11,801. PARCEL-CARRIER FOR BICYCLES. MAURICE E. BLOOD, Kalamazoo, Mich., assignor to Mary L. Blood, same place. Filed Oct. 22, 1891. Serial No. 409,557. Original No. 446,748, dated Feb. 17, 1891.



Claim.—1. A parcel-carrier for bicycles, consisting of a rectangular frame projecting from the handle-bar or handle-bar post of a bicycle, and a bag hanging down from the said frame, and attached at its upper edges to the said frame in such a manner as to make a rectangular opening to the bag, substantially as and for the purposes specified.

2. A parcel-carrier for bicycles, the receptacle being made of netting and of a form to have a bottom and sides rising up all around the bottom to form a rectangular opening at the top, the upper edges of the net being supported by a frame which projects from the handle-bar or handle-bar post of the bicycle, substantially as and for the purposes specified.

3. In a parcel-carrier for bicycles, the receptacle being a bag having a windlass to support its rear upper edge and a rod running parallel with the windlass to support its front upper edge, the windlass adapted to roll the bag around itself and draw the front rod up close to and along the side of itself when the bag is rolled up, substantially as and for the purposes specified.

4. A parcel-carrier for bicycles, made to be secured to the handle-bar or handle-bar post of a bicycle, the receptacle being made in the form of a bag and adapted to be set either in front or at the rear of the bicycle handle-bar, substantially as and for the purposes specified.

5. In combination with a parcel-carrier for bicycles, to be secured to the handle-bar of a bicycle, a stop or projection *a*, resting against the handle-bar post to prevent the carrier from turning on the handle-bar and dropping down, substantially as and for the purposes specified.

6. A parcel-carrier for bicycles, the receptacle being made in the form of a bag, in combination with side supports D D, bail B, casting A; thumb-screw *g*, and stop *a*, substantially as specified.

7. A parcel-carrier for bicycles, the receptacle being made in the form of a bag, in combination with the side supports D D, adapted to be set to project out forward from the handle-bar to the rear of the handle-bar or to lie parallel with the handle-bar, substantially as and for the purposes specified.

8. In a parcel-carrier for bicycles, secured to the handle-bar or handle-bar post of a bicycle, the receptacle being in the form of a bag, the combination of the grooved side blocks C C, side supports D D, and eye bolts *i i*, substantially as and for the purposes specified.

9. In a parcel-carrier secured to the handle-bar or handle-bar post of a bicycle, the receptacle, being made in the form of a bag—a casting A, bail B, side blocks C C, side supports D D, and bag G, all arranged and adapted for use substantially as and for the purposes specified.

10. In a parcel-carrier for bicycles secured to the handle-bar or handle-bar post of a bicycle, the casting A, bail B, side blocks C C, side supports D D, windlass E, and bag G, all arranged and adapted to be used, substantially as and for the purposes specified.

11. In a parcel-carrier secured to the handle-bar of a bicycle, the casting A—bail B, side blocks C C, side supports D D, windlass E, front rod F, and bag G, all arranged and adapted for use, substantially as and for the purposes specified.

12. In a parcel-carrier for bicycles, the receptacle being made in the form of a bag, a windlass or roller E, in combination with a bail B, having its outer ends projecting forward of the windlass, to receive the ends of the rod F, substantially as and for the purposes specified.

13. A parcel-carrier for bicycles, made to be secured to the handle-bar or handle-bar post of a bicycle, adapted to be rolled up and folded together to lie close to and parallel with the handle-bar, substantially as and for the purposes specified.

DESIGNS.

22,132. BUCKLE. GEORGE H. ADAMS, Providence, R. I., assignor to the Traut & Hine Manufacturing Company, New Britain, Conn. Filed Oct. 27, 1892. Serial No. 450,184. Term of patent 3½ years.



Claim.—The design for a buckle herein shown and described.

22,133. HANDLE FOR SPOONS. AUSTIN F. JACKSON, Taunton, Mass., assignor to the Reed & Barton Corporation, same place. Filed Nov. 22, 1892. Serial No. 452,856. Term of patent 7 years.



Claim.—The design for the handles of spoons and other similar articles as herein shown and described.

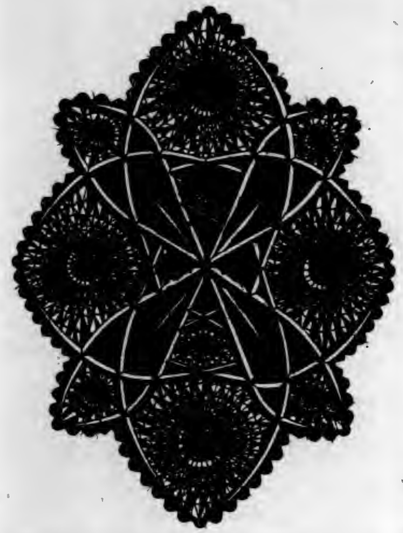
22,134. HANDLE FOR SURGICAL INSTRUMENTS. WILHELM SCHERER, Tuttlingen, Germany. Filed Sept. 15, 1892. Serial No. 446,110. Term of patent 7 years.



Claim.—The design for a handle for surgical instruments, knives, and the like, herein described.

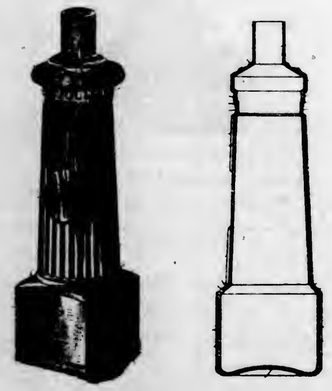
22,135. WITHDRAWN.

22,136. ORNAMENTATION OF GLASS OR OTHER VESSELS. WALTER ROSSITER, Corning, N. Y. Filed Dec. 21, 1892. Serial No. 454,945. Term of patent 14 years.



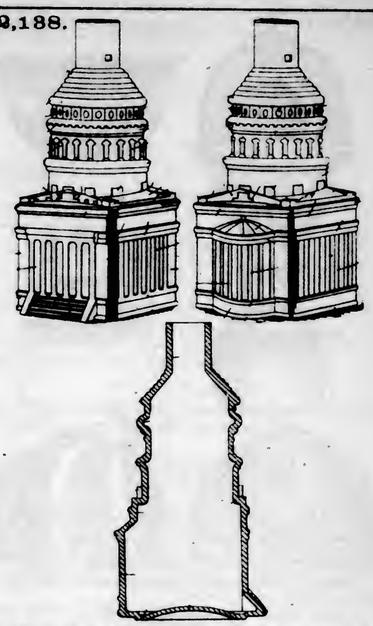
Claim.—The design for the ornamentation of glass or other vessels, substantially as herein shown and described.

22,137. BOTTLE. JULIUS LIEBOWICZ, New York, N. Y. Filed Nov. 3, 1892. Serial No. 450,901. Term of patent 7 years.



Claim.—The design for a bottle, substantially as described and shown.

22,138. BOTTLE. JULIUS LIEBOWICZ, New York, N. Y. Filed Nov. 3, 1892. Serial No. 450,902. Term of patent 7 years.



Claim.—The design for a bottle, substantially as shown and described.

22,139. LAMP-CHIMNEY. LOUIS KIRK, Rochester, N. Y. Filed July 14, 1892. Serial No. 440,075. Term of patent 7 years.



Claim.—The design for a lamp chimney herein shown and described.

22,140. LAMP-BODY. FRANCIS KOENIG, Philadelphia, Pa., assignor to Reinhold G. Ledig, same place. Filed Dec. 19, 1892. Serial No. 455,699. Term of patent 3½ years.



Claim.—The design for a lamp body, as shown and described.

22,141. DRINKING-FOUNTAIN. WILLIAM TWEEDDALE, Brooklyn, assignor to the North American Iron Works, New York, N. Y. Filed Oct. 3, 1892. Serial No. 447,719. Term of patent 14 years.

22,141.

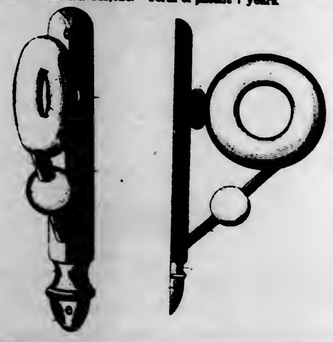


Claim.—1. The design of the shape of the drinking fountain, substantially as shown and described.

2. In the design of the shape of the drinking fountain substantially as shown and described, the design of the surface ornamentation substantially as set forth.

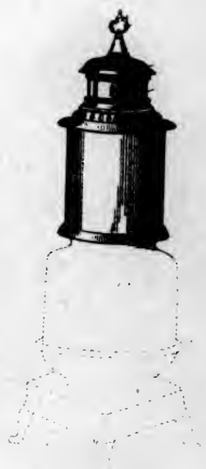
3. In the design of the drinking fountain, the design of the shape of the cover and the surface ornamentation of the same, substantially as described.

22,142. POLE-BRACKET. EDWARD ROOS, Chicago, Ill. Filed Sept. 28, 1892. Serial No. 446,686. Term of patent 7 years.



Claim.—The design for pole brackets substantially as herein shown and described.

22,148. STOVE. WILLIAM H. WILDER, Northampton, Mass. Filed Sept. 9, 1892. Serial No. 445,456. Term of patent 14 years.



Claim.—The design for a stove herein described and shown.

22,144. LAMP-BASE. FRANCIS KOEHLE, Philadelphia, Pa., assignor to Reinhold G. Ledig, same place. Filed Dec. 19, 1892. Serial No. 456,698. Term of patent 3½ years.



Claim.—The design for a lamp base as shown and described.

TRADE-MARKS

REGISTERED JANUARY 17, 1893.

22,838. PRINTED PUBLICATIONS AND PERIODICALS. THE CHRISTIAN UNION COMPANY, New York, N. Y. Filed Dec. 9, 1892.

CHRISTIAN UNION

Essential feature.—The words "CHRISTIAN UNION." Used since December 25, 1869.

22,839. STRING INSTRUMENTS. CHARLES F. ZIMMERMANN, Philadelphia, Pa. Filed Dec. 22, 1892.

AUTOHARP

Essential feature.—The word "AUTOHARP." Used since May 9, 1882.

22,840. DRESS AND CORSET STAYS. THOMAS P. TAYLOR, Bridgeport, Conn. Filed Nov. 19, 1892.

LIGHTNING

Essential feature.—The word "LIGHTNING." Used since January, 1890.

22,841. HOSIERY. I. G. HUMMEL & Co., Reading, Pa. Filed Dec. 21, 1892.

COMFORT.

Essential feature.—The word "COMFORT." Used since October 28, 1891.

22,842. HOSIERY. I. G. HUMMEL & Co., Reading, Pa. Filed Dec. 21, 1892.

CORKER.

Essential feature.—The word "CORKER." Used since October 28, 1891.

22,843. SHELLED POP-CORN. THE ALBERT DICKINSON COMPANY, Chicago, Ill. Filed Nov. 5, 1892.



Essential feature.—The word "YANKEE" together with the conventional picture of Uncle Sam upon a label bearing red, white and blue stripes. Used since August 5, 1892.

22,844. DERRICKS OR FILLING FOR ROPE. C. W. HUNT COMPANY, New York, N. Y. Filed Dec. 21, 1892.

STEVEDORE

Essential feature.—The word "STEVEDORE." Used since 1879.

22,845. CHEMICAL COMPOUND USED AS A PRESERVATIVE. WILLIAM A. LOEWENTHAL, Evansville, Ind. Filed Dec. 3, 1892.

Parker's ★ ★ Preserver.

Essential feature.—The words "PARKER'S PRESERVER" and the representation of a star. Used since March 1, 1892.

22,846. REMEDY FOR BRONCHIAL DISEASES. WALTER L. OAKLEY, Fort Sheridan, Ill. Filed Dec. 1, 1892.

HYLO

Essential feature.—The word "HYLO." Used since October 1, 1892.

22,847. REMEDY FOR CHILLS AND FEVERS. LYDIA M. COLLINS, Philadelphia, Pa. Filed Dec. 1, 1892.

Governor's

Essential feature.—The word "GOVERNOR'S." Used since April 1, 1884.

22,848. CATARRH CURE. CENTURY MANUFACTURING COMPANY, Warren, Pa. Filed Dec. 7, 1892.

Century Catarrh Cure.

Essential feature.—The words "CENTURY CATARRH CURE." Used since May 1, 1892.

22,849. WINES. ROSEMAULT & Co., Bordeaux, France. Filed Nov. 16, 1892.

SAINT-CYR FRÈRES



Essential feature.—The words "SAINT-CYR FRÈRES" in connection with the representation of a bee having extended wings and surrounded by a garland of flowers. Used since January, 1885.

22,850. CIGARS. BENOIT WASSERMAN, New York, N. Y. Filed Dec. 19, 1892.

SHRIVE

Essential feature.—The word "SHRIVE." Used since November 1, 1890.

22,851. CIGARS. BENOIT WASSERMAN, New York, N. Y. Filed Dec. 19, 1892.

ORO ESPANOL

Essential feature.—The words "ORO ESPANOL." Used since September 1, 1884.

22,852. CIGARS. BENOIT WASSERMAN, New York, N. Y. Filed Dec. 19, 1892.

LA FAYETTE

Essential feature.—The word "LAFAYETTE." Used since September 1, 1887.

22,853. SEWING-MACHINES. CASH BUYERS' UNION, Chicago, Ill. Filed Nov. 21, 1892.

ARLINGTON

Essential feature.—The word "ARLINGTON." Used since October 15, 1892.

PHOTO LITH THE NORRIS PETERS CO. WASH. D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE ANDERSON.

Decided December 17, 1892.

1. PRACTICE—REVOCATION OF POWER OF ATTORNEY—APPLICANT AND ASSIGNEE.

The assignee of an entire interest may control the appointment and dismissal of an attorney to the exclusion of the applicant; but when an applicant joins with an assignee of less than the whole interest, or with the grantee or a licensee, in making a power it will require the co operation of both to revoke it.

2. SAME.

When an applicant alone makes a power of attorney, he may revoke and appoint anew to the exclusion of every one except the assignee of the whole interest.

IN the matter of the protest of the attorney of record, Mr. E. W. Anderson, against the revocation of the power of attorney given to him by the applicant, William W. McEwan, assignor to Meehan and McEwan.

SIMONDS, *Commissioner:*

The question now brought up pertains to the right of an applicant to revoke a power of attorney and appoint anew against the protest of the party who has an undivided half-interest in the inventions sought to be patented in applications Nos. 419,053, 419,604, and 419,936.

The Office rule is this:

20 Powers of attorney may be revoked at any stage in the proceedings of a case upon application to and approval by the Commissioner; and when so revoked the Office will communicate directly with the applicant, or such other attorney as he may appoint. An attorney will be promptly notified by the Examiner in charge of the case of the revocation of his power of attorney. An assignment of an undivided interest will not operate as a revocation of the power previously given; but the assignee of the entire interest may be represented by an attorney of his own selection.

The course to be followed in this and like cases is this: The assignee of the entire interest, whatever the date of the making of the assignment, may control the appointment and dismissal of an attorney to the exclusion of the applicant. This does not prevent an applicant from revoking a power made by him; but it is very clear that the assignee of the whole interest may, if he choose, appoint as attorney the same person whose power was revoked by the applicant. When an applicant joins with the assignee of less than the whole interest, or with the grantee, or with a licensee, in making that power, it will require the co-operation of both to revoke it; but if permitted to be revoked the applicant may appoint a new attorney acting alone. When an applicant alone makes a power of attorney, he will be permitted to revoke it and appoint anew to the exclusion of any one except the assignee of the whole interest.

The assignments, grants, and licenses referred to must be such as are within the definitions and decisions of the courts.

The revocation in these cases is approved.

PRATT AND JOHNS *v.* THOMSON.

Decided December 29, 1892.

PRACTICE—AMENDED PRELIMINARY STATEMENT.

Upon motion of a junior party to amend his own and strike out the senior party's amended preliminary statement, certain facts *Held* to warrant an equitable treatment of the matter, and both amendments received.

APPEAL on motion.

COMPOSITION FOR INSULATING MATERIAL.

Application of Rufus N. Pratt and Henry W. Johns filed June 2, 1887, No. 240,085. Patent granted to Elihu Thomson October 6, 1891, No. 460,765.

Mr. H. R. Williams for Pratt and Johns.

Mr. H. C. Townsend and *Mr. J. R. Edson* for Thomson.

SIMONDS, *Commissioner:*

Two questions come to the Commissioner together. One is: Shall the amendment of the preliminary statement of Pratt and Johns be permitted? The other is: Shall Thomson's amended preliminary statement be allowed to stand? Thomson has the better position on these questions technically; but an initial and important fact leading him thereto was his error in making his first preliminary statement. This fact warrants an equitable treatment of the whole matter. Acting equitably, both amendments should be rejected or both received. Both will be received. The appeal from the action of the Examiner of Interferences refusing to strike out Thomson's amended preliminary statement is denied, and the appeal from his action refusing Pratt and Johns permission to amend is granted.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Third Circuit.

NATIONAL CASH REGISTER COMPANY *et al. v.* AMERICAN CASH REGISTER COMPANY.

Decided December 28, 1892.

1. PATENT—INFRINGEMENT—CASH-REGISTERING APPARATUS.

The third claim of Letters Patent No. 253,506, granted to Michael Campbell February 14, 1882, for improvement in cash-registering apparatus, *Held* valid as a broad claim for a primary invention and infringed by appellee's cash-register.

2. FORMER DECISION.

The decision of the Circuit Court for the District of Massachusetts in *National Cash Register Co.* v. *Boston Cash Indicator and Recorder Co.* (45 Fed. Rep., 481–485) examined and not concurred in on the ground that it was based upon an incorrect application of the law of equivalents in mechanical combinations.

3. CONSTRUCTION OF CLAIM.

The claim of a patent for a primary invention should be as liberally interpreted as its fair import will allow, to the end that the inventor's conception shall be justly protected to its true extent and in its broad and actual scope.

4. SAME.

In such a claim, while it may be true that particular mechanism is mentioned, it does not necessarily result that the patentee intended to limit the claim to any special devices or that the law will so restrict it.

5. SAME—BROAD AND NARROW CLAIMS.

Broad and narrow claims on the same invention are not to be so construed as to render their expressed distinctions meaningless. The distinction between them must be maintained, that both may be given effect.

6. COMITY BETWEEN CIRCUIT COURTS.

The rule of comity as between the circuit courts approved; but it does not apply as between the circuit courts and the circuit courts of appeals. The latter courts, while regarding the decisions of the circuit courts with sincere respect, are not bound to follow them, but must base their decisions upon their own independent judgment.

7. COMBINATION OF ELEMENTS.

Pickering v. *McCullough* (104 U. S., 310) examined and explained. It is not necessary in a new combination of old elements that each element should modify or change the characteristic mode of action or method of operation of the others, but only that the combination should produce a new and useful result as the product of the combination and not a mere aggregate of several results each the complete result of one of the combined elements. Where a new result is produced as a product of the combination, it is enough that each element contributes to its production.

8. EQUIVALENTS.

In comparing the patented combination with the defendant's machine, "though some of the corresponding parts of the machinery are not the same, and, separately considered, could not be regarded as identical or conflicting, yet, having the same purpose in the combination and effecting that purpose in substantially the same manner, they are the equivalents of each other in that regard."

APPEAL from the Circuit Court of the United States for the Eastern District of Pennsylvania.

Mr. Edward Rector and *Mr. Lysander Hill* for the appellants.

Mr. Ernest Howard Hunter and *Mr. John R. Bennett* for the appellee.

Before DALLAS, WALES, and BUFFINGTON, Judges.

DALLAS, *J.*:

This is an appeal from a decree dismissing a bill for alleged infringement of Patent No. 253,506, for an improvement in cash-registering apparatus, granted to Michael Campbell and dated February 14, 1882. The only claim involved is:

3. In a cash-registering apparatus, a series of keys to designate certain amounts, combined with the drawer, the drawer-holder D, mediately connected with said keys, and the spring to throw the drawer open when released by the drawer-holder, substantially as described.

The defenses are that this claim is invalid and that even if valid it is not infringed. It is insisted that it discloses no patentable invention whatever, but that if it should be sustained, and as for a combination, the appellee's machine would not be an infringement, because it not only does not contain any of the specific devices of the appellants' apparatus, but also does not employ the combination alleged. The appellants, on the other hand, admit that all the specific devices were old, singly and in other combinations, but assert that what Campbell invented and claimed is a combination and nothing else. Accordingly, their counsel contends that the claim in question is valid, as disclosing a patentable invention of a new and useful combination, and that the appellee's machine is an infringement, not because of any real or supposed identity or equivalence of elements, but because it accomplished the same result as is accomplished by the Campbell machine by substantially the same mode of operation. We have, then, no issue as to novelty or infringement of details, and therefore the only questions to be considered are:

First. Is the claim for a combination supported by invention?

Second. Has the appellee infringed?

First. The claim is, in terms, for a mechanism "combined with" other mechanism. It is true that certain particular mechanism is mentioned; but it does not necessarily result that the patentee intended to limit the claim to any special device or that the law will so restrict it. The question is one of construction, and as we are of opinion, upon grounds to be hereinafter stated, that Campbell's invention was a primary one it follows that the language of this claim should be as liberally interpreted as its fair import will allow, to the end that his conception shall be justly protected to its true extent and in its broad and actual scope.

The invention, says the specification—

relates to a cash-registering apparatus to be employed in connection with a cash-drawer,

and the claim is for (in such apparatus) a series of keys to designate different amounts, combined with a drawer for receiving cash, a drawer-holder for holding the drawer closed against the tension of the spring, (presently mentioned,) a mediate connection (of some kind not designated) between the series of keys and the drawer-holder by which the latter will be disengaged from the drawer upon the operation of any one of the keys, and a spring to throw the drawer open when so disengaged. By this contrivance the cash-drawer, which when closed is always locked, is by the operation of any one of the keys of the series thrown open by the spring, and none of the devices by which this object is accomplished, so far as they are designated in the third claim, were new. The series of keys, the cash-drawer, and the spring were unquestionably old, and the drawer-holder is but a pivot-lever differing from other levers of the same class in nothing but in form and in the use to which the patentee applied it. Of any particular mechanism of mediate connection nothing need be said at this point. None is specifically mentioned in the claim with which alone we are concerned, and for the present purpose it may be taken for granted that none which was new was contemplated. It is clear, then, that so to construe this claim as to confine it to specific details would be to invalidate it for lack of novelty—a consequence which certainly ought not to be accepted when, according to the natural and ordinary meaning of its language, it plainly appears to be a claim for a new combination of old devices—a well-known series of keys combined

with the other familiar mechanism mentioned and mediately connected in some way not mentioned with the drawer-holder included in that mechanism. It cannot be restricted to all or any of the devices used in the mediate connection between the series of keys and the drawer-holder, not only because they are not even specified in the third claim, but also because they are expressly claimed in the second claim, which is:

2. In a cash-registering apparatus, a series of keys to designate certain amounts, a pawl carrying bar, *c*, and a series of toggle-levers *x*, intermediate between each key and the said pawl-carrying bar, the toggle-lever *b*, actuated by the bar *c*, combined with the drawer-holder D and drawer C, substantially as described.

There is nothing upon this record which would warrant us in attributing to the patentee the folly of having presented, and to the Patent Office the improvidence of having allowed, two claims for the same thing. The distinction between them must be maintained, so that both may be given effect.

The court whose decree is the subject of this appeal expressed no independent opinion, but merely followed the decision of the Circuit Court for the District of Massachusetts in a suit in which the same claim had been in controversy. (*National Cash Register Co.* v. *Boston Cash Indicator and Recorder Co.*, 45 Fed. Rep., 481–485.) The course pursued in this regard was in conformity with the rule well established in this circuit to follow, unless under extraordinary circumstances, a prior judgment of any other of the circuit courts of the United States wherever the patent, the question, and the evidence are the same in both suits. We do not question the propriety of this practice as it has heretofore prevailed; but it cannot be extended to this court. The decisions of the several circuit courts whenever pertinent will be attentively considered by this tribunal; but because they are subject to appeal and for other manifest reasons it is not admissible for a court of review to accord them controlling effect. Accordingly we have in this instance carefully examined the opinion of the learned circuit judge of the first circuit; but, though regarding it with sincere respect, we find ourselves unable to concur in it. This claim as we read it is distinctly, exclusively, and broadly for a new combination, and we know of no authority or principle of law which, so reading it, would warrant us in converting it by construction into a claim for detail merely.

Thus far we have assumed that the actual invention was for a new and useful combination, and also (perhaps without necessity) that it was a primary one. We will now state the reasons by which these assumptions are supported. Whether or not the "connecting mechanism" between the drawer-holder and the keys was new with Campbell is, in our opinion, apart from the question. That mechanism, or any part of it, was not, as we have shown, covered by the claim in controversy. The complainants' bill was not founded on it, and this court is not called upon to deal with it, but solely with an alleged combination which, it is asserted, but denied, was invented by Campbell. Directing our investigation, therefore, to this distinct issue, we have, upon full examination of the proofs, become entirely satisfied that Campbell was, in fact, the original and first inventor of the combination claimed in his third claim. It is unnecessary to refer in detail to the several exhibits which were introduced to show the prior state of the art or to enter upon a discussion of the testimony. It is enough to say that, upon all the evidence, we do not doubt that Campbell was the first person who combined a series of keys with any other mechanism whatever so as to obtain the object which he proposed and accomplished. It nowhere appears that a combination of a series of keys with a drawer-holder and other mechanism had ever before been conceived by means whereof each key of the series, when and as operated, would or could unlock a drawer in a cash-registering apparatus and permit a spring to open it. This Campbell effected, not by new mechanism, but by a new combination, and in doing this he made a patentable invention.

We have not overlooked the suggestion of appellee's counsel that Campbell's conception and arrangement were merely of an aggregation of known elements, not amounting to a true combination, and that therefore he was not entitled to a patent for anything. This suggestion is based upon the allegation that each of the elements associated by Campbell does not qualify every other of them; but this is true only in the sense that each does not modify or change the characteristic mode of action or method of operation of the others. In doing its appointed share toward effecting the single result achieved by the co-operation of all each element acts, of course, according to the law of its own being; but, though of necessity so acting, it is still none the less combined with the others and does "qualify" each and all of them (not their distinctive methods of operation) in the sense that each is by the co-operation of the others capacitated to contribute, by acting in its own peculiar way, to the common end, which, without the co-operation of each and every other of the co-ordinated elements, it would be powerless to accomplish or advance. Some of the language used by Mr. Justice Matthews in delivering the opinion of the Supreme Court in the case of *Pickering* v. *McCullough* (104 U. S., 310) has been pressed upon our attention as indicating, it is claimed, that in a patentable combination of old elements all the constituents must so enter into it that each changes the mode of action of every other and that each element must not merely perform its own part in the combination, but must also in some way be directly and immediately concerned in the performance of their respective parts by every other of the elements. No such doctrine as is thus claimed to be deducible from the opinion in *Pickering* v. *McCullough* appears to have been essential to the judgment in that case; nor do we think it necessary to attribute to the particular language referred to (104 U. S., 310) the meaning ascribed to it by counsel. If, instead of an extract, the whole opinion be read in connection with the authorities which are cited in it, it may be readily perceived that the substance of the doctrine intended to be affirmed is that a combination to be patentable must produce a new and useful result as the product of the combination and not a mere aggregate of several results each the complete result of one of the combined elements. There must be a new result produced by their union. That Campbell's invention was of a com-

bination as thus defined we entertain no doubt, and that Mr. Justice Matthews should be understood as holding that no combination is patentable which does not fulfill the requirements which appellee's counsel insists is requisite we cannot suppose. If it were essential to a valid patent for any combination whatever that the mode of action of every element included in the combination should be changed by each of the others, it would have been impossible to sustain several combination patents which have, in fact, been upheld, as indeed it would be difficult to conceive of any mechanical combination which would be both possible and patentable. A screw or a lever can act only in one way; yet a screw and a lever may so act in combination as to produce, in consequence of their combination, a single new and useful result. Moreover, there is no intimation in the opinion in *Pickering* v. *McCullough* of a purpose to overrule the earlier decisions with which (upon the view taken of it by counsel) it would appear to conflict; nor has it in later cases (which, of course, are to be followed) prevented the Supreme Court from declaring the law of this subject in accordance with our understanding of it. (*Blake* v. *Robertson*, 94 U. S., 728; *Parks* v. *Booth*, 102 U. S., 96; *Loom Co.* v. *Higgins*, 105 U. S., 580; *Clough* v. *Barker*, 106 U. S., 166; *Railway* v. *Brake-Shoe Co.*, 110 U. S., 229; *Yale Lock Co.* v. *Sargeant*, 117 U. S., 536.)

Campbell's invention was a primary one. The proofs abundantly establish that he was the first person who succeeded in effecting, in any manner or form whatever, the opening of an automatically-locked cash-drawer in a cash-registering apparatus upon the operation of any one or other of the keys of its series. In doing this he did not merely improve upon something which had been done before. What he produced was absolutely and entirely new. The result which he achieved was a distinct and single one, which had not by any means been previously attained. He entered upon barren territory in the domain of invention and was the first to occupy and appropriate it. He was a pioneer. (*Morely Machine Co.* v. *Lancaster*, 129 U. S., 263, 273.)

That Campbell's invention was useful we are also fully persuaded. The evidence of this is so complete as not to require detailed discussion. Indeed, the ocular proof of its practical utility, manifested by the operation of the apparatus in our presence, would of itself be sufficient to require us to conclude that it does not lack this essential of patentability.

Second. But little need be added with especial reference to the matter of infringement. In *National Cash Register Co.* v. *Boston Cash Indicator Co.*, *supra*, it was held that the mechanism specifically designated in the third claim was old, but that the mechanism of mediate connection, which was not designated, was new, and that there was no infringement of the patent, because the defendants used a connecting mechanism which differed from that used by the plaintiffs. As we, however, have been constrained to view this claim as for a combination, the question of infringement must necessarily be considered by us as relating to a subject quite distinct from that to which the same question was directed in the decision of the case to which we have referred. The correct inquiry, from our point of view, is not whether the appellee uses in its mechanism of mediate connection the same devices which are used by the appellants, or equivalents thereof, but whether the mediate connection employed by the appellee is not itself an equivalent of the mediate connection of the Campbell combination. It may be conceded that there are marked differences in the details by which this connection is made and its purpose accomplished in the one apparatus and in the other; but the manifestly well-founded expert testimony is that "a mediate connection"—not the details thereof—is included among the elements of the Campbell machine. This element, as well as all others of the patented invention, is found in the appellee's apparatus. We attach no importance to the fact that in the appellants' machine the drawer is released upon downward pressure of the key, while in that of appellee, it is released as the finger leaves the key to which pressure is applied. In both the drawer is opened by what is substantially one and the same act—the operation of a key of the series. Though some of the corresponding parts of the machinery are not the same and, separately considered, could not be regarded as identical or conflicting, yet, having the same purpose in the combination and effecting that purpose in substantially the same manner, they are the equivalents of each other in that regard. (*Cochrane* v. *Deener*, 94, U. S., 780.) We are of opinion that the combination here claimed is infringed by the apparatus used by the appellee.

The decree of the circuit court is reversed, with costs, and it is ordered that this cause be and the same is hereby remanded to the said circuit court for further proceedings to be there taken in pursuance of this determination and judgment of this court and in conformity with this opinion.

U. S. Circuit Court—Southern District of New York.

LALANCE & GROSJEAN MANUFACTURING COMPANY *v.* HABERMANN MANUFACTURING COMPANY.

Decided December 22, 1892.

1. PATENT—INFRINGEMENT—ORNAMENTATION OF ENAMELED IRONWARE.
   Letters Patent No. 279,094, to Emile Kegreisz, June 5, 1883, for an improvement in the ornamentation of enameled ironware, sustained and *Held* infringed.
2. CONSTRUCTION OF PATENT.
   Where a patentee has made a meritorious invention the court should not be overzealous in trying to defeat him by an illiberal construction of the patent On the contrary, the court should seek a construction which gives life to the patent and protection to the inventor.
3. PRIOR USE—DEGREE OF PROOF REQUIRED TO ESTABLISH.
   He who alleges prior use must establish it by the same high class of testimony which a prosecuting attorney is required to produce in a criminal case. He holds the affirmative of that issue and must prove it beyond a reasonable doubt. If the evidence is susceptible of two interpretations, the one sustaining and the other destroying the patent, the court must accept the former.

FINAL hearing.

Mr. Arthur v. Briesen for the complainant.

Mr. Robert N. Kenyon for the defendant.

COXE, *J.*:

The complainant sues for the infringement of Letters Patent No. 279,094, granted to Emile Kegreisz June 5, 1883, for an improvement in the ornamentation of enameled ironware.

The invention consists in an improved method of giving a variegated appearance to the ware by recoating it with colored liquid after it has been enameled by the usual method. By this process imperfections are concealed and an irregularly-mottled wavy appearance is imparted to the article recoated, which enhances its beauty and value.

The specification describes the process as follows:

> After the ordinary process of enameling has been completed, I prepare a thin glaze composed of any coloring-matter that can be made to remain mechanically suspended a short time in water, and apply it to the article, preferably either by immersing the latter in a tank containing said glaze or by pouring the glaze upon the article. The glaze should be made sufficiently thin to avoid being pasty, so that it will freely spread or run over the surface. After the article has been submitted to the second bath of thin glaze, the latter will be found to separate and coagulate in irregular spots upon the smooth surface formed by the first coating of glaze. * * * After the application of the glaze, the article is placed in a drying-oven heated to a temperature of about 130° Fahrenheit, and is kept there until the glaze is approximately dry, when it is removed to the oven or muffle employed in the well-known enameling processes, where it is a second time fired, as in the usual process of enameling.

The claims are:

> 1. The hereinbefore described process of enameling and ornamenting metal ware, which consists in first covering the body of the article with a glaze of any suitable plain color, firing the same, then applying to the surface an additional coating or partial coating of glaze of a different color from the first, the glaze constituting the second coating or partial coating being of such a consistency as to coagulate in irregular spots upon the surface, and again firing, as set forth.
> 2. As a new article of manufacture, an enameled vessel presenting a mottled or variegated surface of two or more colors, produced by the coagulation in irregular spots of one or more of the coatings of glaze, substantially as set forth.

The principal defenses are insufficiency of the specification, anticipation, want of invention, and non-infringement.

The proof shows that in order to produce the mottled appearance referred to the enamel must be ground coarse, and the defendant argues that the specification is defective because it omits all reference to coarse grinding.

The argument in this regard is admirably summarized in the defendant's brief, as follows:

> The patent says that all that is necessary is a thin glaze. There is no suggestion that it is to be ground in any different way from ordinary glaze. Ordinary glaze is ground fine. Any person reading the patent and finding that nothing was said in the patent to the effect that the glaze should be ground differently from ordinary glaze would naturally grind the glaze fine. If he did so it is admitted that he could not carry out the process of the patent in suit. He would be left to find out by experiment what else was necessary. He might discover that coarse grinding was necessary and he might not.

The paragraph of the specification which is pointed out as particularly imparting the desired information is this:

> I prepare a thin glaze composed of any coloring-matter that can be made to remain mechanically suspended a short time in water.

That this statement is not as perspicuous as it might be may as well be admitted. Undoubtedly Irving or Hawthorne could have done better. But the description is not addressed to rhetoricians or lawyers, but to enamelers. I am inclined to think that a competent enameler reading the language quoted, in the light of the avowed purpose of the patentee to produce irregular spots upon the smooth surface formed by a coating of enamel applied in the ordinary way, would have little difficulty in finding the patented process. He would know, first, that the second glaze must differ from the first glaze; second, that it must be capable of separating and coagulating in irregular spots; third, that it must be thin, and, fourth, that the coloring-matter must remain mechanically suspended a short time in water. When to the information of the patent he added the information of his vocation—that fine ground enamel remains suspended a long time in water and that coarse ground enamel remains a short time only—it would naturally occur to him that a glaze that would coagulate, that was thin, that contained coloring-matter which would remain suspended a short time, must be made with coarse ground enamel. If the specification had declared that the enamel was to remain suspended "only a short time," the description would have been sufficient. This is hardly denied. One familiar with the art would, it is thought, have no difficulty in supplying the missing word. The sentence so constructed obviously expresses the meaning of the patentee.

It is argued by the defendant that the true construction should be:

> I prepare a thin glaze composed of any coloring-matter that can be made to remain mechanically suspended at least a short time in water.

That is to say, he informed the skilled operator that he must use enamel that may remain suspended for hours, but must remain, at least, for a short time. If it sinks immediately to the bottom it will not do.

This contention would be more plausible if enamelers had been in the habit of using powders which sank immediately when placed in water; but they had not. They were not familiar with such coloring-matter. The powder ordinarily used by them was very fine, almost inpalpable, and remained suspended a long time.

> The main object in enameling always was to grind enamel as fine as possible.

If the patentee had thought that his process could be practiced by using the old and well-known coloring-matter he would have said nothing on the subject. It was not necessary to guard enamelers against the use of powders that sank too soon, but against those that did not sink soon enough. It was the use of powders that remained too long suspended (the only ones then employed) that the patentee wished to prohibit. The skilled workman reading the patent would then have reached the conclusion that he must use coloring-matter which will remain suspended but a short time. He knew that the only way to produce this result is to grind the enamel coarsely.

The patentee is criticised because he did not say this frankly. He should, it is argued, have made the plain statement—

> The enamel must be ground coarse;

but this would have subjected him to other attacks equally well founded.

> What is meant by coarse? How coarse should the enamel be? By what standard is the workman to be guided in grinding?

Is it not probable that all this occurred to the patentee or his solicitor, and that he thought he had taken the wisest and safest course when he said that any coloring-matter that remains mechanically suspended a short time will answer the requirements of the patent? May he not have thought that he was thus furnishing an infallible and uniform rule for guidance of the grinder?

Where a patentee has made a meritorious invention, the court should not be overzealous in trying to defeat him by an illiberal construction of the patent. On the contrary, the court should seek a construction which gives life to the patent and protection to the inventor.

I am, therefore, of the opinion that the specification, though it might have been more specific, is still sufficient.

Is the patent anticipated by the Vollrath process?

In considering this question it is well to keep in mind the rule upon this subject. He who alleges prior use must establish it by the same high class of testimony which a prosecuting attorney is required to produce in a criminal cause. He holds the affirmative of that issue and must prove it beyond a reasonable doubt. If the evidence is susceptible of two interpretations, the one sustaining and the other destroying the patent, the court must accept the former. (See authorities cited in *Mack* v. *Spencer*, recently decided.)

Without discussing the testimony in detail, the reasons which lead the court to reject it as failing to establish anticipation may be briefly summarized as follows:

First. The witnesses were attempting to describe a complicated process practiced by them from ten to fifteen years ago.

The infirmities of the human memory are such that perfect accuracy in such circumstances can hardly be expected.

Second. The witnesses do not agree as to the important steps of the process, the composition of the enamel, or the object they had in view. Vollrath himself, who should be informed upon the subject, describes a process very different from that of the patentee.

Third. The specimens of the Vollrath process introduced in evidence are crude and ungainly. They are no more to be compared to the beautiful and artistic exhibits said to be made by the Kegreisz process than the scenery of a theater is to be compared to the Sistine frescoes.

Fourth. The statement made in Vollrath's patent of 1881, that—

> In all known processes the marbled, mottled, or spotted appearance of the enameled surface is caused by the oxidation of the metal surface during the operation of drying the enameling composition thereon.

Is it possible that he could have made such a statement if the Kegreisz process had been known and practiced by him four years before?

And, lastly, the fact that Vollrath is a licensee under the Kegreisz patent, which would seem wholly incompatible with the theory that Vollrath and not Kegreisz was the first inventor.

None of the prior patents or publications describes the patented process or advances perceptibly the defendant's case from the point where it was left by the Vollrath testimony. They all describe methods of producing pleasing effects in enameling, but they proceed upon different lines from the Kegreisz process.

Does this process involve invention?

One way to test invention is this: Imagine the art with the contribution made by the patent entirely eliminated from it. Blot out all that the patentee has done, and then ask the question: Has the world lost anything? Is the art poorer than it was before? Can mechanical skill make good the loss?

If it appears that the public has been deprived of something which it used, admired, and demanded, and that there is nothing else in existence which can be substituted for that which has been taken, it is quite safe to assume that the patentee has made an invention.

Apply the test here. Take out of the art what Kegreisz has done and it is plain that a void would be created that could not be filled by anything that Vollrath or the others have contributed. Kegreisz was the first to perfect the process and make it a commercial success. The goods made under it are pleasing and ornamental in appearance and have become popular with the public.

Against all that is said in hostility to the patent may be set the fact that those operating under the Kegreisz process were the first to make an assured success in this art. Nothing made before is worthy to be compared in beauty of ornamentation to the article made by the complainant.

It would be running counter to the recent decisions of the Supreme Court to deny patentability to the Kegreisz patent.

Infringement is sufficiently established. It is admitted that the articles introduced to establish infringement were made by the defendant. The process used by the defendant is the same as that described in the patent with one step added, which is not described.

After the vessel to be enameled has been dipped in the glaze the operator shakes it, and by this means produces the desired result quicker than when the shaking is omitted. That the process can be practiced without this additional step is sufficiently demonstrated. It was a well-known fact among enamelers that this manipulation would save time and it is thought that one who applies it to the process in question does not thereby escape infringement. He does not use the process any the less because he uses something in addition to the process.

Even if it be assumed that defendant has introduced an improvement, it is an improvement upon the Kegreisz process, and so long as it uses that process it must be treated as an infringer.

The complainant is entitled to the usual decree.

LALANCE & GROSJEAN MANUFACTURING COMPANY *v.* MOSHEIM.

COXE, *J.*:

The same decision in the preceding cause d sposes of this cause also. It is conceded that the defendant sold the articles in proof made by the Habermann Company.

The second claim is intended to cover the product of the process described in the first claim, and, thus limited, I think it is valid and that the defendant has infringed.

The complainant is entitled to the usual decree upon the second claim.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Amended Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 13, 1893.

The following rules of the Rules of Practice of the United States Patent Office (edition of April 1, 1892) are amended to read:

Rule 135. Upon the filing of the appeal the same shall be submitted to the Primary Examiner, who, if he find it to be regular in form, shall, *within fifteen days from the filing thereof*, furnish the Examiners-in-Chief with a written statement of the grounds of his decision on all the points involved in the appeal, with copies of the rejected claims and with the references applicable thereto. *The Examiner shall at the time of making such statement furnish a copy of the same to the appellant.* If the Primary Examiner shall decide that the appeal is not regular in form, a petition from such decision may be taken directly to the Commissioner, as provided in Rule 145.

Rule 145. Upon receiving a petition stating concisely and clearly any proper question which has been twice acted upon by the Examiner, and which does not involve the merits of the invention claimed, or the rejection of a claim, and also stating the facts involved and the point or points to be reviewed, an order will be made fixing a time for hearing such petition by the Commissioner, and directing the Examiner to furnish a written statement of the grounds of his decision upon the matters averred in such petition *within fifteen days* before the day of hearing. *The Examiner shall at the time of making of such statement furnish a copy thereof to the petitioner.* No fee is required for such a petition.

W. E. SIMONDS,
Commissioner.

Approved January 16, 1893.
JOHN W. NOBLE,
Secretary of the Interior.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Notice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 12, 1893.

The attention of attorneys and inventors filing applications for patents is called to the following paragraphs from Rule 51, (4,) Rules of Practice:

Drawings should be made with the fewest lines possible consistent with clearness. * * * Shading (except on sectional views) should be used *only* on concave and convex surfaces, where it should be used sparingly, and may even there be dispensed with if the drawing is otherwise well executed.

It will be seen from the above that *surface shading* is *prohibited*, and that such shading as is necessary to show convex and concave surfaces is required to be in clear sharp lines.

Hereafter these requirements will be rigidly enforced, and all drawings not made in conformity thereto will be rejected.

W. E. SIMONDS,
Commissioner.

World's Columbian Exposition.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of January 24, 1893.

Patents	376—No. 490,259 to No. 490,634, inclusive.
Designs	20—No. 22,145 to No. 22,164, inclusive.
Trade-Marks	28—No. 22,354 to No. 22,381, inclusive.
Labels	None.
Reissue	None.
Total issue	424

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama			Nevada		
Arizona Territory	1		New Hampshire		
Arkansas	2		New Jersey	17	3
California	12		New York	57	4
Colorado	2		North Carolina	1	
Connecticut	16	1	North Dakota		
Delaware			Ohio	33	
District of Columbia	2		Oklahoma Territ'y	1	
Florida	2		Oregon	1	
Georgia	2		Pennsylvania	25	1
Idaho			Rhode Island	3	
Illinois	44	3	South Carolina	1	
Indian Territory			South Dakota	1	
Indiana	6		Tennessee	3	
Iowa	6		Texas	5	
Kansas	6		Utah Territory	1	
Kentucky	4		Vermont		
Louisiana	1		Virginia	2	
Maine	1	2	Washington		
Maryland	6	2	West Virginia	2	
Massachusetts	36	5	Wisconsin	8	
Michigan	13	1	Wyoming		
Minnesota	7	1	U. S. Army		
Mississippi	1		U. S. Navy		
Missouri	16	1			
Montana	1		Total to citizens of the United States	351	24
Nebraska	3				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	1		Mexico		
Austria-Hungary			Netherlands		
Belgium			Newfoundland		
Bermuda			New South Wales	1	
Brazil			New Zealand		
Canada	4		Norway		
Chile, Republic of			Roumania		
Cuba			Russia		
Denmark	1		Scotland		
Ecuador			South Australia		
England	18	1	Spain		
France	5	2	Sweden		
Germany	9	1	Switzerland	2	
India			Victoria	2	
Ireland	1				
Italy			Total to citizens of foreign countries	45	4
Japan	1				

APPLICATIONS UNDER EXAMINATION.

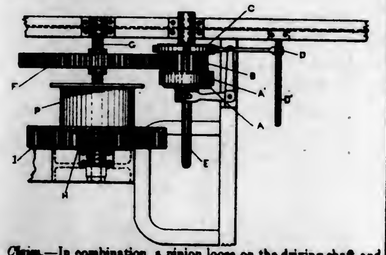
Condition at Close of Business January 17, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Dec. 20	Dec. 28	81
	Between one and two months in arrears.			
8	Furniture, Toilet, Umbrellas and Canes, etc.	Nov. 25	Jan. 9	240
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Nov. 18	Jan. 7	122
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Nov. 18	Jan. 3	222
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Nov. 25	Dec. 29	145
21	Textiles, etc.	Nov. 22	Dec. 28	176
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 17	Dec. 28	168
24	Sewing-Machines and Apparel	Nov. 22	Dec. 22	115
2	Farm Stock, Products, etc	Nov. 19	Dec. 19	237
12	Mechanical Engineering, Stores-Service, etc.	Nov. 18	Dec. 19	256
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Nov. 18	Dec. 17	230
18	Steam-Engineering, etc.	Nov. 21	Dec. 13	175
19	Stoves and Furnaces	Nov. 17	Dec. 5	417
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Nov. 26	Dec. 1	208
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Nov. 17	Dec. 1	254
9	Hydraulics, Fire-Extinguishers, etc.	Nov. 18	Nov. 29	367
10	Carriages and Wagons and Railway-Cars.	Nov. 18	Nov. 28	329
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Nov. 17	Nov. 21	268
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Nov. 19	Nov. 19	226
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Nov. 17	Nov. 14	280
	Between two and three months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Oct. 19	Dec. 15	214
7	Harvesters, Games and Toys	Nov. 10	Dec. 1	551
26	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Nov. 10	Nov. 21	335
1	Tillage and Fences	Nov. 1	Nov. 18	271
4	Civil Engineering, etc.	Nov. 10	Nov. 15	377
17	Paper-Manufactures and Printing.	Oct. 17	Nov. 12	310
	Between three and four months in arrears.			
23	Instruments of Precision, Acoustics, Optics, etc.	Oct. 4	Dec. 16	302
22	Fire-Arms, Navigation, Signals, etc.	Oct. 15	Dec. 9	305
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Sept. 19	Dec. 3	366
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Sept. 27	Nov. 25	375
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 4	Dec. 20	373
	Between eight and nine months in arrears.			
26	Electricity, Generation, Distribution, etc.	May 14	Nov. 14	515
	Total number of applications awaiting action			8,810
	Under one month in arrears.			
	Designs	Jan. 9	Jan. 9	26
	Trade-Marks	Jan. 13	Jan. 16	30

PATENTS

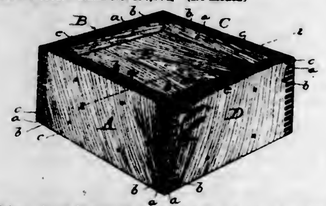
GRANTED JANUARY 24, 1893.

490,259. WINDING ATTACHMENT FOR DERRICKS. EDMUND F. ATHERTON, Cleveland, Ohio. Filed Sept. 5, 1892. Serial No. 445,026. (No model.)



Claim.—In combination, a pinion loose on the driving-shaft and a friction device and brake, the gear F and pinion H fast on the shaft G, the pinion H' on the independent shaft K, the internal-gear I and the winding-drum attached thereto, arranged in the manner substantially as and for the purpose set forth.

490,260. WOODEN BOX. JOSEPH M. BAKER, Louisville, Ky. Filed June 20, 1892. Serial No. 437,374. (No model.)

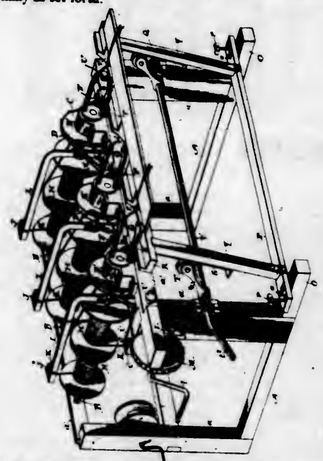


Claim.—As an improved article of manufacture, a wooden packing box having its sides made up of three layers fastened together with the grain crossing,—the intermediate layer being made of two or more pieces, and the three layers of each side being fastened at the corners of the box to the three layers of adjacent sides.

490,261. FENCING-MACHINE. JESSE A. BARNETT, Brunswick, Ga. Filed July 26, 1892. Serial No. 441,153. (No model.)

Claim.—1. In a fence machine, the combination with the frame, of parallel twisting shafts journaled on said frame, a pair of wire spools mounted side by side and longitudinally on each shaft and loosely thereon, tension guides fixedly secured to each shaft and having guide arms one of which arms extends over one side of one spool and the other of which arms extends over the opposite side of the other spool, on the same shaft to which they are secured, twisting heads or sleeves carried upon one end of said shafts, opposite wire tubes passing through each twisting head or sleeve and threaded from said spools, and a vertically adjustable swinging batten arranged in front of said twisting heads under said tubes and having a fixed picket seat, substantially as set forth.

2. In a fence machine, the combination with the frame, of the opposite parallel twisting shafts journaled upon said frame, a pair of wire spools mounted upon each shaft, a single tension guide fixedly secured to each shaft and having opposite right angularly disposed long and short arms carrying guide rollers at their ends which receive the wire from the spool at one side of which they lie, the long arm of each guide lying parallel with and extending to or over one side on one spool and the short arm of the same guide lying parallel with and extending over the opposite side of the other spool on the same shaft, and twisting devices mounted upon one end of said shafts and having separate wire openings receiving the wire from said guide rollers, substantially as set forth.

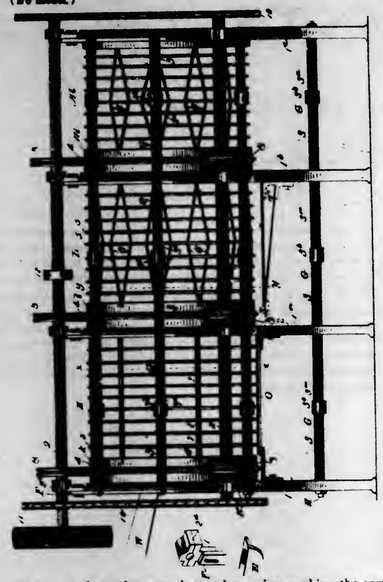


3. In a fence machine, the parallel twisting shafts carrying separate wire spools, twisting heads or sleeves mounted upon one end of said shafts and provided with opposite side grooves and an inner sprocket wheel, wire twisting and guide tubes mounted in the side grooves of said sleeves and having outer curved ends turned toward each other and projecting beyond the outer ends of said sleeves, an endless drive chain passing continuously over said sprocket wheels, and a swinging adjustable picket rest or batten moving under and beyond said wire tubes, substantially as set forth

4. In a fence machine, the combination with the frame and the twisting devices mounted upon said frame; of a movable sill arranged at the front lower end of the said frame, means for vertically adjusting said sill, a swinging picket rest frame or batten hinged at its lower end to said adjustable sill and adapted to move under and beyond said twisting devices, and means for swinging said batten out from the frame and automatically returning the same, substantially as set forth.

5. In a fence machine, the frame having the front sill-arms provided with upwardly extending studs, twisting devices mounted upon said frame, a vertically adjustable sill mounted upon said sill arms and moving over said studs, swinging arms hinged at their lower ends to said vertically adjustable sills, a picket rest connecting the upper ends of said arms and provided with a flanged picket seat, and means for moving said swinging arms outward and automatically returning the same, substantially as set forth.

490,262. TOBACCO CASING AND SPRAYING MACHINE. ROBERT T. BAIN, Danville, Va. Filed Feb. 19, 1892. Serial No. 422,101. (No model.)



Claim.—1. In a tobacco casing and spraying machine, the combination with a cage or cylinder composed of spaced rings, and means for rotating the same axially, of a blast pipe having fan-shaped educts arranged with their long axes parallel with the axis of the cage, and adjacent to said cage: substantially as and for the purposes specified.

2. A cage or cylinder for tobacco casing and spraying machines, composed of a series of spaced rings connected by diverging rods which brace the cage or cylinder; substantially as and for the purposes specified.

3. A cage or cylinder for tobacco casing and spraying machines, composed of two or more sections of spaced rings, and intermediate track rings; substantially as and for the purposes specified.

4. The combination in a tobacco casing and spraying machine, of a cage or cylinder composed of two or more sections of spaced rings and intermediate track rings, in combination with a suitable frame, and a series of shafts provided with grooved rollers for the reception of the track rings; substantially as and for the purposes specified.

5. In a tobacco casing and spraying machine, the combination with a cylinder or cage composed of spaced rings, and means for rotating the same axially, of a blast pipe having fan-shaped educts arranged with their long axes parallel with the axis of the cage, and adjacent to said cage; a reservoir; and pipes leading from the reservoir and delivering into the blast pipes: substantially as and for the purposes specified.

6. The combination in a tobacco casing and spraying machine, of a cage or cylinder composed of a series of spaced rings, a slatted deflector partially disclosing the same, and a suitable air blast device; substantially as and for the purposes specified.

7. The combination in a tobacco casing and spraying machine, of a cage or cylinder composed of spaced rings, an apron partially inclosing the same, and suitable means for delivering a spray into and through the spaced ring section of the cage or cylinder; substantially as and for the purposes specified.

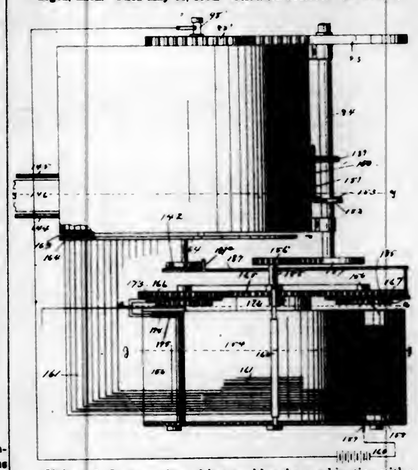
8. The combination in a tobacco casing and spraying machine, of a suitable cage or cylinder, a frame therefor composed of sections, adjustable distance braces between the sections, and tie rods; substantially as and for the purposes specified.

9. The combination in a tobacco casing and spraying machine, of a suitable cage or cylinder, a frame therefor composed of sections, a series of tie rods, and a series of adjustable tubular distance braces which serve as sheaths for the tie-rods; substantially as and for the purposes specified.

10. The combination in a tobacco casing and spraying machine, of a cage or cylinder composed of two or more sections of spaced rings and intermediate track rings, a suitable frame having adjustable distance braces, a series of shafts having rollers adapted to the track rings, and adjustable bearings for said shafts; substantially as and for the purposes specified.

11. A cage or cylinder for tobacco casing and spraying machine, composed of a series of spaced rings provided on the interior with prods or points: substantially as and for the purposes specified.

490,263. MATRIX-MAKING MACHINE. EARLE V. BEALS, Muskegon, Mich. Filed May 18, 1891. Serial No. 393,109. (No model.)



Claim.—1. In a matrix making machine the combination with a reeling device, carrying a strip of perforated paper and a series of electric needles of type rings carrying justifiable type and electrically controlled and connected with the needles of the reeling device.

2. In a matrix making machine, a type having laterally projecting levers, and springs for operating the levers whereby the types are expanded to their normal position after pressure is relieved.

3. In a matrix making machine, the combination with the type carrying rings of the aligning rods, 100, the base rod 104 and compressor rod 103, the base rod moving parallel with the compressor rod and farther than the same.

4. In a matrix making machine, a cylinder, type carrying rings surrounding the same, in combination with a shaft mounted in the cylinder carrying cogged disks meshing with the type carrying rings, said cogged disks being controlled electrically through the medium of a strip of perforated paper.

5. In a matrix making machine, type carrying rings having justifiable type, a reeling device electrically controlling the said rings, a shaft mounted below said rings and having mounted thereon cams controlling impression devices to make an impression for stereotyping.

6. In a matrix making machine, electrically controlled rings carrying detachable justifiable characters, and means for taking an impression therefrom.

7. In a matrix making machine, a cylinder, a plurality of rings mounted thereon carrying justifiable type symbols, posts between the type symbols forming channels, in combination with a compression device adapted to hold the type assembled while the impression is being taken.

8. In a matrix making machine, a main shaft actuating a cylinder carrying on its circumference a plurality of rings, carrying detachable justifiable types in combination with a roll actuated by the shaft, carrying perforated paper, needles adapted to coincide with the perforations in the paper, and electrical connections between the needles and type carrying rings.

9. In a matrix making machine, a series of rings carrying detachable justifiable types, a main shaft, a counter shaft and connections therewith, cams on the counter shaft operating the impression devices of paper or plastic substance ready to stereotype.

10. In a matrix making machine, a plurality of rings carrying justifiable type symbols, bars for lining the type, a base rod, and mechanism for compressing the type prior to making an impression ready to stereotype.

11. In a matrix making machine, a plurality of rings carrying posts forming channels, type symbols placed in the channels and adapted to be compressed together, springs on the type symbols which allow them to automatically distribute in the channels in their respective rings.

12. In a matrix making machine, a reel having electric needles adapted to control by means of a perforated strip of paper, type rings with which they are connected; and supplemental needles adapted to be operated also by the paper to regulate the feed of said reel to the first mentioned needles.

13. In a matrix making machine, a strip of perforated paper and intermediate electrical connections with type carrying rings, a shaft operating impression devices, a paper or pulp automatically fed between the line of type and impression devices, and means for drying the same automatically.

14. In a matrix making machine, a strip of paper and intermediate electrical connections with rings carrying justifiable type to line the same, a frame one side thereof running in a threaded nut revolved by intermediate connections with the main power shaft, and paper or pulp on said frame, in combination with a plunger located beneath the paper to make an impression and heat the paper ready to stereotype

15. In a matrix making machine, a cylinder having on its outer circumference a plurality of type carrying rings, in combination with a plurality of cogged disks meshing with the type carrying rings, electro-magnets, the armatures of which operate stop rods contacting with the cogged disks, and intermediate electrical connections with the needles of the perforated paper reeling devices.

16. In a matrix making machine, a strip of perforated paper, needles to coincide with the perforations, wires connecting a circular disk, in combination with a cylinder carrying a plurality of type carrying rings, cogged disks engaging with the rings, stop rods engaging with the cogged disks, and electro-magnets the armatures of which engage the stop rods and wires connecting the electro-magnets and wires in circular disk.

17. In a matrix-making machine, a plurality of revolable rings, justifiable type symbols carried by the rings, electrical connections for causing the rings to revolve and bring the desired type symbols into alignment, and means for compressing the type symbols into the desired space.

18. In a matrix making machine, a plurality of revolable rings formed with recesses on their peripheries, type symbols carried by the rings, each type symbol being removably held in the rings and formed with springs upon the side to properly space, and afterward return the same.

19. In a matrix making machine, a cylinder, a series of type carrying rings encircling the same, and having cogs on their inner sides a gear intermeshing with cogs formed upon the inner side of the rings, and electrical connections for locking the gear from revolution.

20. In a matrix making machine, a series of rings, carrying justifiable type, means for controlling the same to cause the desired type to align, a reversible plunger, and mechanism for moving, a plastic substance between the type and plunger.

21. In a matrix making machine, a series of rings, carrying justifiable type, means for controlling the same to cause the desired type to align, a plastic substance beneath the type, and a plunger provided with means for heating and raising the same to form and dry matrices from the type.

22. In a matrix making machine, a reeling device comprising a cylinder revolubly mounted upon a shaft, a toothed ring upon the cylinder, projections upon the ring and cylinder to cause the same to move in unison, a toothed disk intermeshing with the ring and provided with a pawl, a ratchet disk in engagement with the pawl, a toothed spring controlled disk formed with a projection, a projection upon the ratchet disk in engagement therewith, an electrically controlled catch adapted to be projected into the teeth of the last named disk.

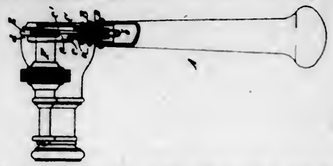
23. In a matrix making machine, a vertically movable, reversible plunger, carrying a heating device, one end of said plunger being compressible, while the opposite end is of rigid metal.

24. In a matrix-making machine, an automatic assembling device, consisting of a series of revolable carriers provided with detachable justifiable types, said carriers being electrically controlled by a perforated sheet the construction being such that all the types of the same character are simultaneously selected and the types of different characters successively collected all of said type being brought into final alignment by a single revolution of the carriers.

490,264. OPERA-GLASS HOLDER. ROBERT BRAM, Brooklyn, assignor to Louis W. Levy and Edward Dreyfus, New York, N. Y. Filed June 10, 1892. Serial No. 436,182. (No model.)

Claim.—1. In an opera glass holder, a handle constructed with a tapering screwthread, in combination with a gripper carried thereby, movable relatively thereto, having jaws for engaging the opera glass and constructed with a tapering screwthread engaging that of the handle, whereby by moving said gripper relatively to said handle its jaws are opened or closed laterally.

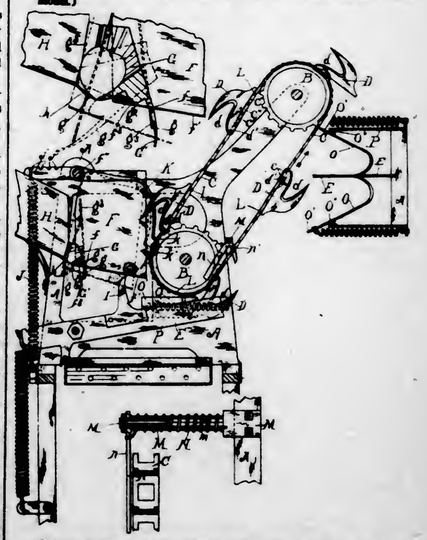
2. In an opera glass holder, the handle A constructed with the tapering screwthread B, in combination with the gripper C having jaws *c c* for engaging the opera glass, and constructed with tapering screwthread D engaging that of the handle, said jaws having an elastic tendency to separate, whereby as the gripper and handle are screwed together the jaws will be closed laterally, and as they are unscrewed the jaws will be opened.



3. In an opera glass holder, the handle having a tapering screwthread B, in combination with a gripper C carried thereby movable relatively thereto, constructed with tapering screwthread D engaging that of the handle, said gripper consisting of two separate jaws for laterally engaging the opera glass, in combination with a spring connected to said jaws and tending to separate them.

4. In an opera glass holder, the handle having a tapering screwthread B, in combination with a gripper C carried thereby movable relatively thereto, constructed with a tapering screwthread D engaging that of the handle, said gripper consisting of two separate jaws for laterally engaging the opera glass, in combination with a spring *b* secured to the lower ends of said jaws for connecting them together and tending to separate them against said screwthread B.

490,265. FRUIT-STONING MACHINE. JOHN S. BRIGGS, San Buenaventura, Cal. Filed Apr. 12, 1892. Serial No. 428,772. (No model.)



Claim.—1. The combination in a fruit stoning machine of an endless chain or belt having a series of blades attached thereto; such blades respectively provided at one end with V shaped knife edges; suitable means arranged to feed the fruit into the path of such V shaped knife edges; means arranged to carry and drive the chain or belt; and a suitable yielding knife arranged to be normally close and move in a plane parallel with the path of the traveling knives.

2. The feeding device set forth comprising the combination of a suitable mounted oscillating funnel shaped cup having a receiving opening in its front; suitable means arranged to feed fruit into such

cup through such opening; suitable means arranged at the rear of such cup to receive the fruit therefrom when the cup is oscillated, and means for oscillating the cup.

3. In a fruit stoning machine the combination of the tilting trough provided in its bottom near the front end with the arm receiving opening *f*; the support and guide for the front portion of the cup arranged in line with the tilting trough, and the oscillating cup G provided with the arm *g* inserted through the opening *f* and having the front portion of its bottom arranged to engage the support; the pivotal point g^6 arranged between the arm *g* and the rounded bottom of the cup to rest upon the bottom of the trough, and means for holding the cup in engagement with the support.

4. The combination of the tilting trough; the oscillating feed cup G pivoted thereto; the support arranged to engage the front portion of the bottom of the oscillating cup; means for tilting the trough downward and toward the support, and means for holding the oscillating cup in engagement with the support.

5. The combination in a fruit stoning machine of a series of suitably mounted traveling blades each provided with V shaped knife edges; suitable devices arranged to remove the meat from the pit; a pit removing device comprising a spindle attached to the frame of the machine, a sleeve journaled upon such spindle and provided at one end with a sweep arm and a sweep actuating arm rigidly attached to each other and to such sleeve and arranged at an angle with each other, the sweep actuating arm being arranged to normally project into the path of suitable traveling sweep actuating devices arranged to engage therewith to actuate the sweep to dislodge the pits from the V shaped knife edges; suitable means for returning such arms to their normal position; and such sweep actuating devices.

6. A fruit stoning machine comprising the combination of a series of traveling blades provided with the V shaped knife edges; suitable devices arranged to remove the meat from the pit; a tilting trough having its rear end provided with a slot to allow the passage of the blades therethrough; suitable means pivoting the trough to the frame of the machine and arranged at the front end of such trough; the stationary feed trough having the flaring lip at its lower end; the oscillating funnel shaped feed cup having the downwardly projecting arm arranged upon its rear side and passing through an opening in the bottom and near the upper end of the tilting trough, and having an opening in its front to allow the entrance of fruit into the cup, the bottom of the cup being rounded and arranged to slide upon the flaring lip of the stationary trough when the tilting trough is thrown toward the lower end of the stationary trough by tilting such tilting trough; a suitable pivotal point arranged near the bottom of the cup to allow oscillation of such cup, and means for tilting the trough, substantially as and for the purpose set forth.

7. In a fruit stoning machine, the combination of the sprocket chain; the sprocket wheels arranged to carry such chain; the blade attached to one link of such chain and having a portion of its body arranged to bear upon other links of the chain than the one to which the blade is attached.

8. In a fruit stoning machine the combination of the traveling blades provided with the V shaped knife edges; the spreader arranged to spread and strip the meat of the fruit from the pit, and having an arm extending from the body of the spreader to a point beyond the pivotal point upon which such spreader swings; and a tension spring attached to the arm of the spreader and arranged at an angle with such arm not greater than a right angle.

9. In a fruit stoning machine the combination of the feed chute; the tilting trough arranged at the lower end of such feed chute and provided in its rear end with the slot; intermediate means arranged to feed one fruit at a time from such feed chute into such tilting trough when such trough is tilted; the fruit stop arranged to project into the tilting trough through the slot when such trough is tilted, suitable traveling knives arranged to remove the fruit from the trough when it is returned to its normal position, and suitable means for operating the knives and tilting the trough.

10. In a fruit stoning machine substantially such as described, the combination of the belt provided with the projecting pins L; means for carrying and driving such belt; the arm K fixed to the tilting trough of the machine and provided with the shoulder *k* and the arm *k'* arranged in the path of the pins L to engage such pins substantially as and for the purpose set forth.

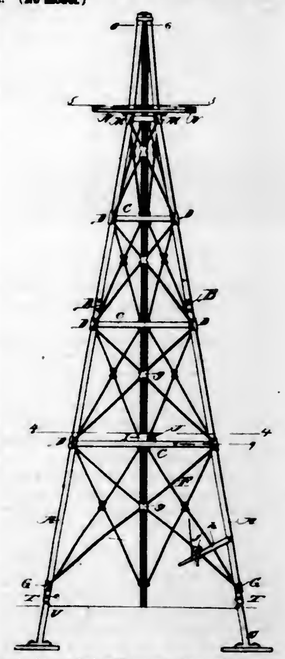
11. In a fruit stoning machine such as described, the combination of the tilting trough provided in its bottom near the front end with the arm receiving opening *f*; the support and guide for the front portion of the cup arranged in line with the tilting trough; the oscillating cup G provided with the arm *g* inserted through the opening *f* and provided with the catch G'; the spring g^5 arranged to engage such arm and catch to hold the cup in engagement with the support and to prevent upward displacement of the cup; and the pivotal point g^6 arranged between the arm *g* and the rounded bottom of the cup to rest upon the trough.

490,266. ATTACHMENT FOR CORN-PLANTERS. OLIVER P. BUNGER, Ashville, Ohio. Filed July 12, 1892. Serial No. 439,704. (No model.)



Claim.—The combination with a shoe, of fenders E arranged upon opposite sides of the shoe, pivoted thereto at their front ends by means of a common fixed pivot, and provided near their pivoted ends with curved guide-slots *e'*, fixed adjusting bolts projecting outwardly from the shoe and passing through said slots, angularly adjustable covering wings G pivotally bolted to the inner surfaces of the fenders near their rear ends and curved inward and inclined downward toward their rear ends and having beveled terminals, substantially as specified.

490,267. WINDMILL-TOWER. WILLIAM H. BURNHAM and JOHN H. MILLER, Batavia, Ill., assignors to the United States Wind Engine and Pump Company, same place. Filed Sept. 23, 1891. Serial No. 406,561. (No model.)



Claim.—1. In a wind mill tower, the angle-iron corner-posts A; the angle-iron brace-girts C, having beveled ends which fit together within the angles of the angle-iron posts; the brace-rod irons D, fitting on the outside of the angle-iron posts and provided with lugs E; the bolts *a*, bolting the brace-girts C, and angle-iron posts, and the brace-rod irons together; and the brace-rods F adjustably secured to the lugs E whereby the angle-iron corner-posts, angle-iron brace-girts, and brace-rods all co-operate through the instrumentality of the brace-rod irons, as specified.

2. In a wind mill tower constructed substantially as specified, the angle iron brace-girts C; the angle-iron H extending between the brace-girts and attached thereto; the pump-rod guide-block I, having two openings, one angular in form to fit upon the cross-angle iron H, and the other of the shape of a pump-rod, the guide-block being adjustable on the cross angle-iron H with means for securing it at any desired position; and the pump-rod; all substantially as specified.

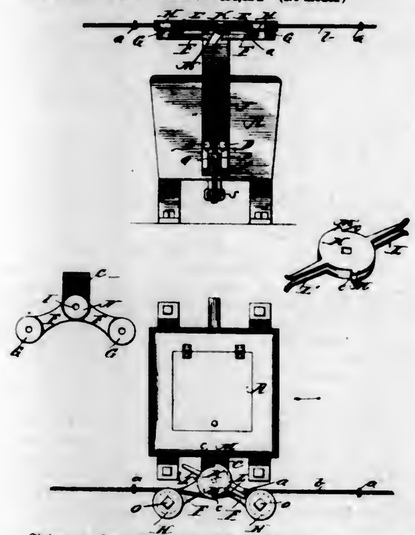
3. In a wind mill tower, the corner angle-iron posts A, the turn-table O, supported on their upper ends and locked to the posts, and the band-iron Q, for holding the upper ends of the corner angle-iron posts firmly in place against the turn-table, as specified.

4. In a wind mill tower, the combination of the brace-rods F, the lever-stop *i*, adapted to be secured to one of the brace-rods F, and the lever A, substantially as specified.

5. In a wind mill tower, constructed substantially as specified, the combination of the brace-rods F, and the center tie *g*, for tying the brace-rods together and holding them in place, substantially as specified.

6. In a wind mill tower, constructed substantially as specified, the combination of the corner angle-iron posts A, and the foot-post U, the foot-post U having a shoulder near its upper end formed by lessening the angle at the upper end of the foot-post, the corner posts being adapted to pass over the upper end of the foot-post and rest on said shoulder, as specified.

490,268. CHECK-ROWER. ROBERT CHADWICK, Sumner, Nebr. Filed Apr. 27, 1892. Serial No. 430,894. (No model.)



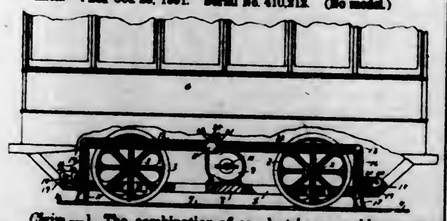
Claim.—1. In a check-rower for corn-planters, a bracket, provided with means for attaching it to the seed-box, and a vertical crank-shaft, operated by the check-rower wire, and having its bearings in the bracket, and suitable means connected with the crank-shaft to operate the seed-dropper of the corn-planter, as specified.

2. In a check-rower for corn-planters, the bracket C; crank-shaft J, and grooved pulley K, having arms L—L'; and grooved cams M—M', the grooved pulley K being rigidly connected to the end of the crank-shaft J, as specified.

3. In a check-rower for corn-planters, the bracket C, provided with a horizontal arm E, the crank-shaft J, having bearings in the horizontal arm E; the arms F—F at the top of the bracket C; the grooved pulley K, and the pulleys G, supported by the arms F—F, whereby the crank-shaft and the parts which operate it are all supported by the bracket C, as specified.

4. In a check-rower for corn-planters, the grooved pulley K, carrying two sets of arms, L—L', and provided with grooved cams M—M', whereby the crank-shaft is operated, substantially as specified.

490,269. TRACK-CLEANER. ARCHIBALD CRESSOLE, Bay City, Mich. Filed Oct. 29, 1891. Serial No. 410,212. (No model.)

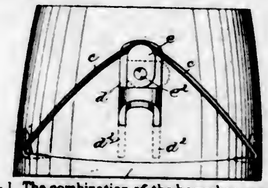


Claim.—1. The combination of an electric car, a blower upon the car and means for imparting motion to the blower, a main air pipe leading from the blower and provided with branch pipes leading to the tracks, with the nozzles 17, upon the ends of the branch pipes and provided with the forwardly inclined channel 28, and with the vertical channel 27, in rear of said channel 28, substantially as and for the purpose set forth.

2. In a track cleaner the combination of the car, the blower mounted on the car and provided with main air pipes and with branch pipes leading from the main pipe toward the rails, and provided with pliable sections and with vertical sections having nozzles with open ends in proximity to the rails, with the supports secured to the car and each provided with a laterally extending horizontal shelf, the radial bars pivoted by one end to the supports and resting on said shelves, the hangers pivoted to the outer ends of said radial bars and resting on the shelves, and with their outer portions secured to the vertical pipe sections, substantially as set forth.

3. The combination of an electric car, a blower upon the car and means for imparting motion to the blower, a main air pipe leading from the blower, and having branch pipes leading toward the track and provided with pliable sections, and the nozzles connected to the ends of said branch pipes and provided with a forwardly inclined channel 28, and with a vertical channel 27, directed upon the rail, the supports 18, carrying the bars 20, pivoted thereto, and the hangers 21, pivoted by one end to said bars 20, and with their opposite ends secured to the said branch pipes, substantially as set forth.

490,270. FASTENING FOR HORSESHOES. EDWARD T. COVELL, New Bedford, Mass. Filed June 20, 1892. Serial No. 437,322. (No model.)



Claim.—1. The combination of the horseshoe provided with lugs or projections adapted to engage with the edge of the hoof, and the fastening band connected at its ends with the sides of the shoe and adapted to extend up over the fore part of the hoof; with the base piece *d* adapted to rest upon the fore part of the hoof and provided at its lower end with prongs inclined to said base piece and adapted to penetrate the shell of the hoof from its upper surface toward the base, and the straining device connected with the upper portion of said base piece, substantially as and for the purpose described.

2. The combination of the horseshoe provided with lugs or projections adapted to engage with the edge of the hoof, and the fastening band connected at its ends with the sides of the shoe and adapted to extend up over the fore part of the hoof; with the base piece *d* adapted to rest upon the fore part of the hoof and provided at its lower ends with prongs inclined to said base piece and adapted to penetrate the shell of the hoof from its upper surface toward the base, and the straining lever pivotally connected with the upper portion of said base piece and having its pivotal movement in the plane of the base piece, substantially as described.

490,271. FLUE FOR COTTON-CONDENSERS. WILLIAM CROOKS, Galveston, Tex., assignor to the Rembert Roller Compress Company, same place. Filed Feb. 19, 1892. Serial No. 422,116. (No model.)

Brief.—In the lint-flue and in the housings at the ends of the condensing-cylinders are placed adjustable valves, in order that the air-currents may be controlled as desired.

Claim.—1. In combination with a cotton gin, a condenser having a pervious surface, and a flue through which the lint cotton is delivered from the gin to the condenser, one or more laterally-adjustable deflectors located in the flue and serving to control the currents passing to the condenser.

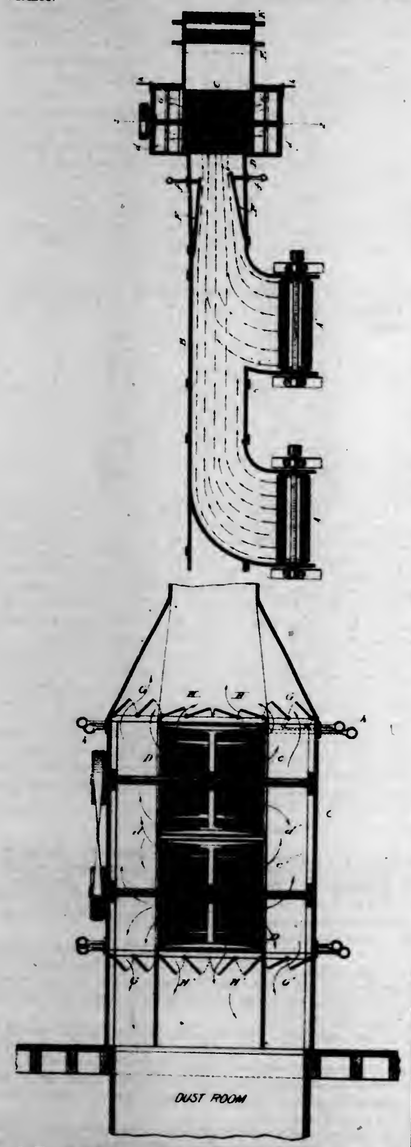
2. In combination with a gin, the cylinder condenser having a pervious surface, and a flue through which the lint cotton is delivered from the gin to the condenser, two independently adjustable deflectors located at opposite sides, of the flue, whereby the course of the current to the condenser may be modified to effect a uniform distribution of the fiber thereon.

3. In combination with the cylinder condenser and means for delivering a lint-laden blast to said condenser, the casing or housing having flues through which the air is delivered from the ends of the condenser, and valves to control the escape of the air from the respective ends of the cylinder.

4. In combination with a condenser cylinder arranged to receive a lint laden blast on its outer surface and to discharge the air through

its ends, a casing or housing to compel the escape of the air at the ends of the cylinders and a valve or valves whereby the air may be permitted to escape in part through the surface of the cylinders.

5. In combination with the two condenser cylinders, the housing or casing inclosing the same to compel the escape of the air at the ends of the cylinders, and independent valves, substantially as described, acting respectively to control the delivery of the air from the ends of the cylinder and to control the delivery of air through its surface.



6. The combination with a condenser cylinder arranged to deliver the air at its two ends, of adjustable valves arranged to control the delivery through its respective ends whereby the course of the air and the distribution of the fiber may be controlled.

7. The combination with a condenser cylinder arranged to deliver the air at its ends, of independent valves to control the escape of the air through the surface of the cylinder at its respective ends.

8. In combination with the two condenser cylinders and a housing or casing inclosing the same with flues at the ends of the cylinders, valves arranged to control the delivery of air through the surfaces of the upper and lower cylinders respectively.

490,272. PENCIL-SHARPENER. GEORGE DIER, Santa Clara, Cal. Filed Nov. 5, 1892. Serial No. 451,075. (No model.)



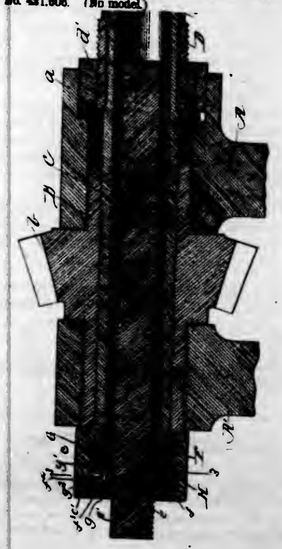
Claim.—1. In a pencil-sharpener, the combination with a receptacle provided near one end with a transverse slot and in rear of the same with ways, of a removable cover for the receptacle, a blade mounted for sliding on the ways and having its front end beveled to a cutting-edge, and means for adjusting the blade upon the ways and its edge through the slot, substantially as specified.

2. In a pencil-sharpener, the combination with a receptacle provided near its front end with a slot, inclined ways mounted in the receptacle in rear of the slot, a blade mounted loosely on the ways, means for adjusting the blade, and a cover removably mounted on the receptacle and provided with an internal depending flange having the lower inclined edge agreeing with the ways and located over the blade, substantially as specified.

3. In a pencil sharpener, the combination with the oblong receptacle provided at one end upon its bottom with a transverse slot, inclined ways in rear of the slot, a blade mounted on the ways adapted to be projected through the slot and provided at one side of the ways with a notch, bearing-openings in the front and rear ends of the receptacle, a rod journaled in the bearing-openings and provided in rear of the same with a head, threads formed on the rod between its ends, a block perforated and threaded to loosely receive the rod and engaged with the notch of the blade, of a cover removably mounted on the receptacle, substantially as specified.

4. In a pencil sharpener, the combination with the oblong receptacle provided at its front end in its bottom with a transverse slot, in rear of the same with inclined ways, and a cover for the receptacle, of a blade mounted on the inclined ways, an adjusting-rod located at one side of the blade, and a loose block threaded on the adjusting-rod and connected with the blade, substantially as specified.

490,273. TAPPING-MACHINE. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to the Crane Company, same place. Filed Feb. 16, 1892. Serial No. 421,606. (No model.)



Claim.—1. In a tapping machine, a long tubular chuck or holder C, provided with an enlarged hollow head c at its front end, in combination with a sleeve F, mounted within said hollow head and independently fastened therein, a long tap E, mounted in the holder with its front end passing through said sleeve, a separate fastening device whereby the tap is secured against turning in the sleeve and separate means for securing the tap against lengthwise movement, substantially as described.

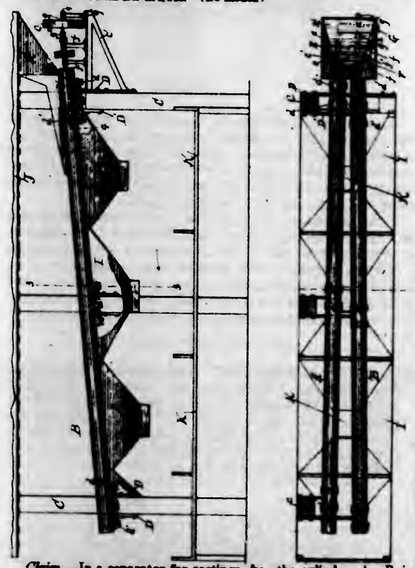
2. In a tapping machine, the tubular chuck or holder C, provided with an enlarged front head c, in combination with the sleeve F, fixed within said head and provided with a threaded section *f* partially around its interior, the tap E, arranged in the tubular holder and mounted in said sleeve, and the spring key G, substantially as described.

3. The tubular chuck C, provided with enlarged head *c*, in combination with the sleeve F, fixed in said head and provided with partial threaded section *f* and recess *f'*, the tap E, arranged within the tube and mounted in the sleeve, and the key G, seated in the recess *f'* and flat space *c'* of the tap, and provided with the spring *g'*, substantially as described.

4. The tubular chuck or holder C, provided with enlarged head *c*, and lateral apertures *h*, in combination with the sleeve F, provided with partial threads *f*, recess *f'* and cross groove *h'*, the tap E, mounted in said sleeve, the key G, provided with spring *g'*, and the cross-pin H, substantially as described.

5. In a tapping machine, the mandrel B, in combination with a long tubular chuck C, mounted and fixed therein, and provided with enlarged head *c*, the bearing sleeve D, at the rear end of said tube, the fastening collar *d* fitted to the rear end of the tube, the sleeve F, fixed within the head *c*, the tap E, arranged within the tube and mounted in the sleeve F, and devices for securing the tap against rotary and longitudinal movement, but permitting its adjustment lengthwise, substantially as described.

490,274. SEPARATOR FOR CASTINGS. WILLIAM W. DOOLITTLE, Chicago, Ill., assignor to the Crane Company, same place. Filed Mar. 10, 1892. Serial No. 424,443. (No model.)



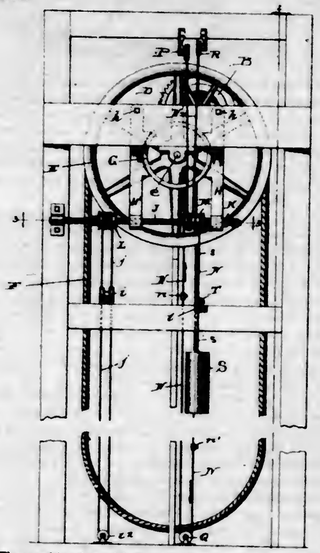
Claim.—In a separator for castings, &c., the cylinders A—B, in combination with the supporting brackets D—*D'* of different lengths arranged by pairs in different vertical planes, supports for said brackets all arranged at one side of the said cylinders the bearing rollers *d—d'* mounted on said brackets and arranged with the spaces between the successive pairs gradually increased, and mechanism for rotating the cylinders outward on said roller bearings, substantially as described.

490,275. ELEVATOR BRAKE MECHANISM. THOMAS W. HAVEN, Chicago, Ill., assignor to the Haven & Prince Company, same place. Filed June 27, 1892. Serial No. 438,066. (No model.)

Claim.—1. The hand-operated elevator, wherein the brakes are combined with threaded setting devices, a hand rope for actuating the setting device at will, and a separate rope with stops for actuating the setting devices automatically at the limits of the car's travel, substantially as specified.

2. The elevator wherein the brake levers are combined with a shaft J having a threaded engagement with one brake lever, a spool and rope for actuating the shaft at will, a sleeve threaded upon the shaft and having a threaded engagement with the other lever, and a spool and rope for rotating the sleeve, substantially as specified.

3. The combination in a hand operated elevator, of brake levers H H', screw shaft J, having right and left hand threaded portions, spool L and its rope, sleeve K, and spool M and its rope, substantially as specified.



4. The combination with the brake levers, of the shaft J having a threaded engagement with one lever, a spool and rope for actuating the shaft at will, a sleeve threaded upon the shaft and having a threaded engagement with the other lever, a spool and rope for rotating the sleeve, and means for automatically actuating the last mentioned spool and rope at the limits of the car's travel, substantially as specified.

5. The combination in an elevator, of the brake levers, a shaft having a threaded engagement with said levers, sleeve K, a spool and rope for rotating said shaft at will, a second spool and rope for automatically rotating said sleeve, stops upon the last mentioned rope, guides upon the car engaging said stops, and a weight and flexible connection for returning said sleeve to its normal position, substantially as specified.

6. The combination in a hand operated elevator, of brake levers H H', screw shaft J, having right and left hand threaded portions, spool L and its rope, sleeve K, spool M and its rope and weight P for returning spool M, substantially as specified.

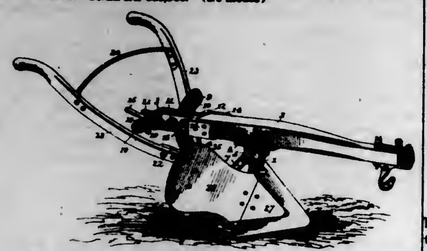
7. In an elevator, the combination, with the brake levers and the screw shaft by which they are operated, of a spool and hand rope for rotating said shaft at will, a sleeve threaded upon said shaft and acting upon one of the levers, and devices for rotating said sleeve independently of the shaft, substantially as specified.

8. In an elevator, the combination with the brake levers and their operating screw, of the sleeve K and means for rotating said sleeve independently one of the levers being engaged by the screw and the other by the sleeve, substantially as specified.

9. In an elevator, the combination, with the brake levers and their operating screw, of the sleeve K, and means for rotating said sleeve, automatically at the limit of the car's travel, substantially as specified.

10. In an elevator, the brake levers and the operating screw, one of said levers being engaged directly by the screw, of a sleeve K interposed between the screw and the other lever and having a threaded engagement both with said lever and with the screw, in combination with means for rotating the screw in both directions, means for rotating the sleeve, and means for returning the sleeve to its normal position, substantially as specified.

490,276. PLOW. DAVID B. ROLLINS, Guernsville, Cal. Filed July 27, 1892. Serial No. 441,262. (No model.)



Claim.—1. In a plow, the combination of a standard, a plow beam fulcrumed thereon, a curved bar extending upward from the rear of the standard and provided with a series of perforations, rearwardly extending plates secured to the beam at the rear end thereof and having a space between them to receive the curved bar and provided with a perforation, and a pin arranged in the perforation of the plates and adapted to engage any one of the perforations of the curved bar, substantially as described.

2. In a plow, the combination of a standard, a plow beam fulcrumed thereon, plates extending rearwardly from the plow beam and disposed longitudinally of the beam and having a space between them and provided with a perforation, a laterally extending plate having a longitudinal slot, a pin arranged in the perforation of the longitudinally disposed plate and engaging one of the perforations of the curved bar, a lever fulcrumed at its inner end to one of the longitudinally disposed plates and arranged in the slot of the laterally extending plate and having the pin connected to it, and a pivoted catch mounted on the laterally extending plate and adapted to secure the lever against outward movement, substantially as described.

3. In a plow, the combination of a standard, a beam fulcrumed on the same, the longitudinally disposed plates projecting rearward from the beam and provided with outward bends to receive the latter, a laterally extending plate having an arm arranged between the rear ends of the longitudinally disposed plates and spacing the same, perforated ears arranged on one of the longitudinal plates, a curved bar rising from the standard and provided with a series of perforations and arranged in a space between the longitudinal bars, a pin passing through the longitudinal plates and engaging the curved bars, a lever having its inner end pivoted between said ears and its outer end arranged in the slots of the laterally extending plate and an L-shaped catch pivoted to the latter and arranged to engage the lever, substantially as described.

4. In a plow, the combination of a standard, a plow beam secured to the same a plowshare and mold-board connected together and hinged to the foot of the standard and adapted to swing to either side of the same, a curved transversely disposed bar connected with the mold-board and provided at its ends with similar flanges, each of which is provided with a series of perforations to permit an adjustment of the mold-board a shaft journaled on the standard and a double hook carried by the shaft and adapted to engage the perforations of the flanges, substantially as described.

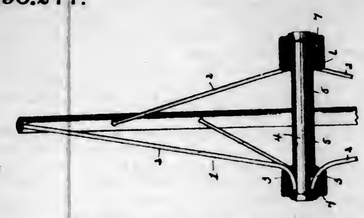
5. In a hillside plow, the combination of a standard having a landside and provided with an opening extending longitudinally of the latter, and having a transverse slot, a pintle rod arranged in the longitudinal opening and projecting from the front end of the landside, a plow share, a mold-board, a securing plate having an offset and connecting the plowshare and the mold-board, a socket plate secured to the plowshare and receiving the projecting end of the pintle rod, an approximately Y-shaped brace secured to the mold-board and hinged on the slot of the land-side by the pintle rod, braces connecting the securing plate with the Y-shaped brace, a transversely disposed curved bar connecting the sides of the Y-shaped brace and provided with perforated flanges, and a swinging double hook mounted on the standard and adapted to engage the perforated flanges, substantially as described.

490,277. WHEELBARROW-WHEEL. FRANK H. ROGERS, Toledo, Ohio. Filed Sept. 20, 1892. Serial No. 447,270. (No model.)

Claim.—1. In a wheel, the combination with a thimble, of the casing having the heads or enlargements tapering outwardly and grooved, the caps having recesses on their inner faces to receive the heads, the faces of the recesses being grooved also, the spokes adapted to be secured in said grooves and the rim, the ends of the thimble being expanded to secure the parts in their proper position.

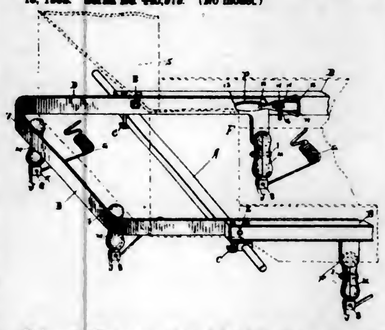
2. In a wheel, the combination with a thimble, of a casing made in two sections, each section having a head at its outer end which

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heads taper and are grooved longitudinally, and the caps perforated to receive the thimble and recesses to receive the heads, the outer edge of the perforations being beveled to permit the expansion of the thimbles, the faces of the recesses having grooves to mate with those on the heads, and the spokes and rim constituting the wheel.

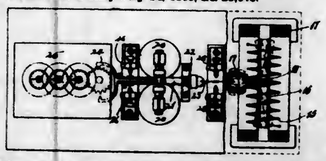
490,278. ROAD-CART. GALLO FARRENY, Polo, Ill. Filed Sept. 15, 1892. Serial No. 445,979. (No model.)



Claim.—1. The combination of the thill plate B suitably seated on the carrying axle A, a frame D pivotally attached to said plate over said axle, ratchet R seated on said plate, lever P pivotally seated on frame D, and also pivotally connected to thill plate B and adapted to engage ratchet R and adjustably lock frame D to thill plate B; substantially as shown, and for the purpose described.

2. The combination of a rigidly supported thill plate B provided with a ratchet plate R, the body-supporting frame D centrally pivoted over or near the axle of the vehicle, lever P pivotally seated on the front end of frame D, and provided with corrugations 17 and handle 13, and a bolt 16 adapted to adjustably lock plate B and lever P forward of the pivotal seat of the latter and near the forward ends of said lever; substantially as shown, and for the purpose described.

490,279. ELECTRIC METER. OSCAR FRÖLICH, Berlin, Germany, assignor to Siemens & Halske, same place. Filed Nov. 16, 1892. Serial No. 452,156. (No model.) Patented in Germany Apr. 16, 1889, No. 50,063; in England July 11, 1889, No. 11,179; in Austria-Hungary July 11, 1889, No. 30,454 and No. 58,864; in Switzerland July 13, 1889, No. 1,366; in France July 15, 1889, No. 190,583; in Belgium July 15, 1889, No. 84,935, and in Italy July 24, 1889, No. 26,875.



Claim.—1. An electric meter comprising a soft iron bar, capable of oscillating on a central axis, two coils through which the current to be measured, or a fraction thereof, is made to flow, one of such coils wound transversely and the other parallel to said bar, and means for alternately reversing the direction of the current flowing through the coil wound parallel with said bar.

2. An electric meter comprising a soft iron bar, capable of oscillating on a central axis, two coils, one of which is wound transversely to said bar and through which the current to be measured is consecutively transmitted, and the other coil is wound parallel to said bar and through it the current to be measured is alternately transmitted in opposite directions, and means for varying the direction of the transmitted current through the second coil.

3. An electric meter comprising a soft iron bar, capable of oscillating on a central axis, two coils through which the current to be measured, or a fraction thereof, is made to flow, one of such coils wound transversely and the other parallel to said bar, means for alternately reversing the direction of the current flowing through the coil wound parallel with said bar, and means for indicating the number of the oscillations of the soft iron bar.

4. An electric meter comprising a soft iron bar, capable of oscillating on a central axis, means for producing a field of force the lines of which are parallel to the axis of the bar, means for producing a field of force the lines of which are at right angles to the axis of the bar, means for alternately reversing the polarity or direction of flow of said last named lines of force, and means for visibly indicating the periodicity of the oscillations of the bar.

5. An electric meter comprising a soft iron bar, capable of oscillating on a central axis, two coils through which the current to be measured, or a fraction thereof is made to flow, one of such coils wound transversely and the other parallel to said bar, and means consisting of a polarized relay, an intermediate mechanism and circuit connections for alternately reversing the direction of the current flowing through the coil wound parallel with said bar, and means for indicating the number of oscillations of the bar.

490,280. ELECTRIC MOTOR. JULIUS W. HARDEN, St. Paul, Minn., assignor of one-half to William H. Rinears, same place. Filed Sept. 26, 1891. Serial No. 406,776. (No model.)



Claim.—1. In an electric motor, stationary frame plates, opposite pairs of field magnets upon each of said plates and having different polarities with relation to each other, a revolving armature interposed between said field magnets and comprising a circular plate, and concentric rows of magnets arranged upon both sides of said plate and separated in separate and different circuits, said magnets also being arranged in pairs comprising an outer and an inner magnet of the same polarity and in the same circuit, a double commutator secured upon one side of said circular plate and at the center thereof and connected with the several circuits, and adjustable commutator brushes mounted in one of said frame plates and contacting with different faces of the commutator, substantially as described.

2. In an electric motor, the combination with the opposite stationary field magnets, of the revolving armature interposed between the same and comprising a circular plate, concentric rows of magnets arranged upon both sides of said plate and in different circuits, a double commutator secured upon one side of said plate within the inner rows of magnets, commutator pins or wires projecting from the opposite side of said plate and connected with the circuit wires of said magnets so as to separate the same into pairs of outer and inner magnets alternately connected with each other upon opposite sides of said plate, and adjustable commutator brushes, substantially as set forth.

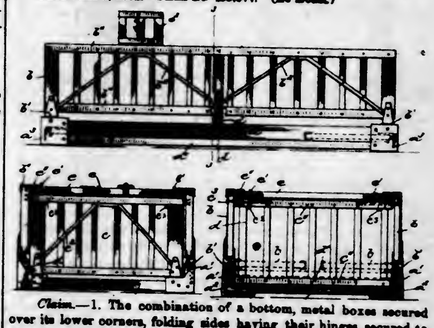
3. In an electric motor, the combination with the opposite stationary field magnets of the revolving armature comprising a circular plate, concentric rows of magnets of different sizes secured upon opposite sides of said plate circular commutators having segmental contact faces secured upon one side of said plate concentric with each other, concentric rows of commutator pins projecting from the opposite side of said plate and alternately connected with the independent circuit wires of said magnets so as to separate the same into pairs of outer and inner magnets of the same polarity alternately connected with each other on opposite sides of said plate, and adjustable commutator brushes, substantially as set forth.

4. In an electric motor, stationary parallel frame plates adjustably connected together, opposite pairs of field magnets secured to the inner faces of said plates, a revolving armature interposed between said magnets, a double concentric commutator centrally secured to the said armature and in circuit with the magnets thereof, and the commutator brushes adjustably secured within one of said frame plates and provided with spring-actuated contact feet adapted to normally bear upon said commutator contact faces, substantially as set forth.

5. In an electric motor, the combination with the laterally adjustable stationary field magnets, and the central revolving armature and commutator, of the commutator brush having an outer contact foot pivotally secured to one end a leaf spring secured to the body of the brush and normally pressing said foot against the commutator, and means for adjustably securing the same within one of said frame plates, substantially as set forth.

6. In an electric motor, the stationary frame plates having opposite segmental slots, a revolving armature, concentrically arranged commutator having segmental contact faces centrally secured to said armature, commutator brushes having spring-actuated contact feet and screw threaded ends projecting through said segmental slots, adjusting nuts mounted upon the outer ends of said brushes, and adjusting plates carrying said outer ends of the brushes and provided with longitudinal adjustment slots working over said screw for adjusting said brushes in said segmental slots, substantially as set forth.

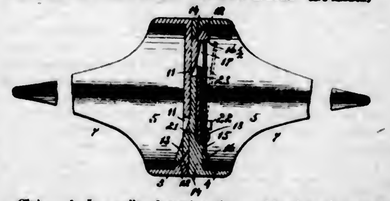
490,281. FOLDING CRATE, BOX, &c. DANIEL HARRAH, Gibs, Ill. Filed June 3, 1892. Serial No. 436,377. (No model.)



Claim.—1. The combination of a bottom, metal boxes secured over its lower corners, folding sides having their hinges secured to these boxes, folding ends having their hinges secured to adjacent sides of these boxes, the hinges of the sides and ends being provided with shoulders abutting against the adjacent sides of the boxes, and a movable top, substantially as described.

2. In a folding crate the combination of a bottom, sides and ends hinged thereto and adapted to fold inwardly, said sides and ends being constructed of vertical slats and horizontal metal bars formed U-shaped in cross section and embracing the ends of the vertical bars and secured thereto, a removable top and means for locking the parts together, substantially as described.

490,282. HORSE-COLLAR FASTENER. HARRY HART, Kansas City, Mo. Filed Mar. 7, 1892. Serial No. 424,068. (No model.)



Claim.—1. In a collar fastening, the combination of a cap piece formed in sections, having bevel shaped lugs thereon, said lugs engaging in openings in said sections; a bevel shaped projection on one of said lugs; a spring secured to one of said sections for engaging said bevel shaped projection; a lever 18, having a reduced portion 21, in which the spring 15, rests; a wedge shaped projection 23, on the lever 18, and a hooked extension 19, for moving said wedge shaped projection laterally; substantially as and for the purpose set forth.

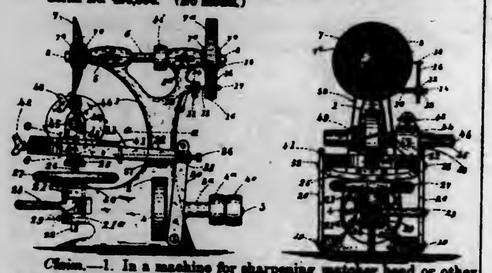
2. In a collar fastening, the combination of a cap-piece formed in sections 3, 4, having beveled lugs engaging in openings in the opposite section; a beveled shaped projection on one of said lugs; a spring 15, riveted to one of said lugs, and engaging at its opposite end said bevel shaped projection; a lever 18, having a hooked extension 19; a wedge shaped projection 23, on said lever 18, said lever 18, being held in place by its reduced portion 21, in which the spring

15, 16, and by the projections 22, and rivet 16, for preventing sidewise movement of the same; substantially as described.

3. The combination of a section having an opening provided with a beveled face, and a beveled lug formed with a reduced portion and a beveled face, providing a projection and a section having an opening provided with a beveled face, a beveled lug, a spring for engaging the beveled face of the projection of the other section, and means for releasing the spring; substantially as described.

4. The combination of a section having an opening provided with a beveled face, and a beveled lug formed with a reduced portion and a beveled face, providing a projection and a section having an opening provided with a beveled face, a beveled lug, a spring for engaging the beveled face of the projection of the other section, and means for releasing the spring consisting of a lever having a wedge shaped projection; substantially as described.

490,283. MACHINE FOR SHARPENING MATCHER-HEAD CUTTERS, &c. THOMAS R. HASARD and WILLET H. HASARD, Buffalo, assignors to Henry F. McGean, Salamanca, N. Y. Filed July 8, 1892. Serial No. 439,236. (No model.)



Claim.—1. In a machine for sharpening matcher head or other similar cutters, the combination with the frame, its grinding wheel mounted on a spindle set in suitable boxes thereon, and carrying the pulleys and means for driving it, of a substantially horizontal cutter-head frame having its rear ends pivoted to pivoted rock arms, a cross bar for supporting its front end provided with a vertical screw shaft which passes down through lugs projecting out from the front of the machine, a hand wheel adapted to operate on said screw shaft for adjusting the cross bar and cutter head frame up or down and a cam arm having its cam end interposed between the two lugs so that the screw shaft passes down through it, and pins passing down through the upper lug so that the hand wheel rests upon the top of the pins and their lower ends rest upon the cam, whereby the hand wheel may be used for one adjustment and the cam for the second or quicker adjustment, substantially as described.

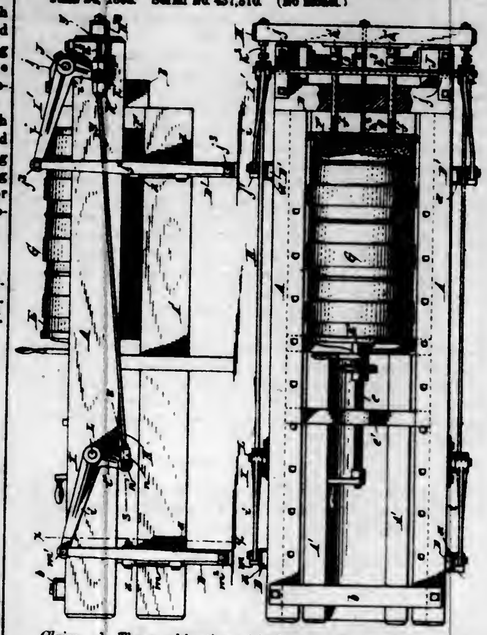
2. In a machine for sharpening matcher head or other similar cutters, the combination with the horizontally movable cutter head frame and the frame of the machine carrying the grinding and operating mechanism substantially as above described, of a cutter-head holding frame mounted in a circular opening in the cutter head frame so as to be capable of being turned therein, a means for fastening it at any point to which it may be turned, a clamping holder for receiving the arbor upon which the matcher head is secured for sharpening so that it may have a lateral adjustment therein and a means for clamping it rigidly in position when adjusted substantially as described.

3. In a machine for sharpening matcher head or other similar cutters, the combination with the frame, of rock arms having their lower ends pivoted thereto, a horizontal cutter head frame having its rear end pivoted to said rock arms, a means substantially as above described for supporting and adjusting its front end, and a cutter head holding frame mounted in a circular opening at the front of the horizontal cutter head frame, so that it can turn therein, a means for holding it rigidly when turned to the point desired, and a clamping support for the cutter head arbor provided with a tightening device substantially as above described.

4. In a machine for sharpening matcher head or other similar cutters, the combination with a substantially horizontally movable cutter head frame and its pivoted and supporting connections, of an adjusting screw, 36, for adjusting and limiting its backward movement, substantially as described.

5. In a machine for sharpening matcher head or other similar cutters, the combination with a horizontally movable cutter head frame and its pivoted and supporting connections as above described, of laterally projecting bars, 37, and hook shaped projections at the rear of the horizontally movable cutter head frame for limiting its forward movement substantially as described.

490,284. CHEESE-PRESS. JAMES L. HELSER, Rome, N. Y. Filed June 24, 1892. Serial No. 437,810. (No model.)



Claim.—1. The combination with the press frame, of stationary supports at both ends of the press frame on which the latter moves vertically, a head block and means whereby it is pressed against the cheeses, a movable foot block against which the cheeses rest, lifting mechanism connecting a stationary support at the foot end of the press frame with the press frame and with the foot block, lifting mechanism connecting a stationary support at the head end of the press frame with the press frame, and a connection whereby the lifting mechanism at the foot end of the press frame is connected with the lifting mechanism at the head end thereof, thereby lifting both ends of the press frame simultaneously by the application of pressure to the head block, substantially as set forth.

2. The combination with the press frame, of stationary supports on which the latter moves vertically, a head block and means whereby it is pressed against the cheeses, a movable foot block against which the cheeses rest, elbow levers pivoted to both sides of the press frame, supporting bars extending from the forwardly projecting arms of the elbow levers downwardly to said supports and a cross head arranged in rear of the press frame and connected with the foot block and with the downwardly projecting arms of the elbow levers substantially as set forth.

3. The combination with the press frame, of stationary supports on which the press frame moves vertically, a head block and means whereby it is pressed against the cheeses, a movable foot block against which the cheeses rest, an elbow lever pivoted to the foot end of the press frame and having its downwardly projecting arm connected with the foot block, and a supporting bar pivoted at its upper end to the forwardly projecting arm of the elbow lever and with its lower end to a stationary support, substantially as set forth.

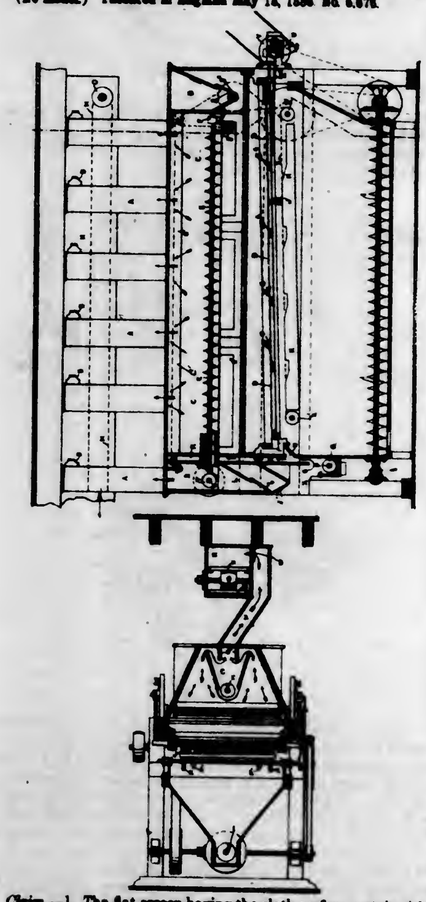
4. The combination with the press frame, the movable head block and means whereby it is pressed against the cheeses and the movable foot block, of guide feet on which the press frame moves vertically, supporting bars connected with their lower ends to the guide feet, elbow levers journaled on the press frame and connected with their front arms to the upper ends of the supporting bars, a cross head connected with the opposite arms of the elbow levers, and bars connecting the foot block with said cross head, substantially as set forth.

5. The combination with the vertically movable press frame, the elbow levers pivoted thereto and the movable foot block, of a cross head connected with the elbow levers and provided with sockets, guide bars attached to the foot block and resting in said sockets, and a tie rod connecting the foot block with the cross head, substantially as set forth.

6. The combination with the press frame, the head block and means whereby it is pressed against the cheeses, of stationary guide feet on which the front and rear portions of the press frame move vertically, elbow levers pivoted upon the front and rear portions of the press frame and connected by supporting bars with the front and rear guide feet, rods connecting the elbow levers, a cross head connected with the rear elbow levers, and a movable foot block connected with the cross head, substantially as set forth.

7. The combination with the press frame, the head block, the pressure screw, and the movable foot block, of a cross head arranged in rear of the foot block, rods connecting the foot block with the cross head, stationary guide feet on which the press frame moves vertically, elbow levers pivoted to the press frame near both ends thereof, supporting bars connecting the elbow levers with the guide feet, rods connecting the front and rear elbow levers, and rods connecting the cross head with the rear elbow levers, substantially as set forth.

490,285. MIDDLINGS-PURIFIER. JAMES HOCKENHOTTON and ORMEN STUART, Liverpool, England. Filed Apr. 15, 1887. Serial No. 234,982. (No model.) Patented in England May 18, 1886. No. 6,676.



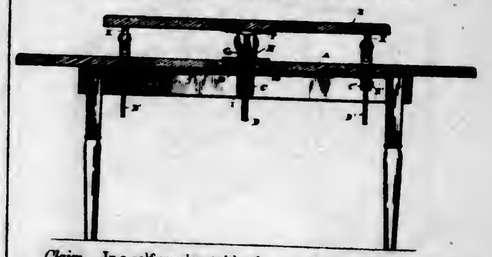
Claim.—1. The flat screen having the cloth surface sustained by underlying cross-bars at intermediate points in its length, in combination with the brush movable from end to end thereunder, and the longitudinal brush-sustaining rails provided beneath the cross-bars with depressions inclined at the side as shown: whereby the advancing brush is permitted to fall in passing under the cross-bars and automatically raised by the rail into contact with the cloth.

2. The flat screen having the cloth surface sustained by the underlying cross-bars, in combination with the traveling brush, the endless brush-carrying chain, and the stationary brush-sustaining rails lying at right angles to the cloth-sustaining bars, and provided with the depressions below said bars: whereby the brush is sustained in contact with the cloth, and automatically lowered and raised in passing the cross-bars.

3. In a middlings purifier, the combination of an elongated chamber C, located above the screen, open at the top, and having downwardly-converging side walls and narrow bottom, a conveyer E in the bottom of said chamber, and an exhaust flue A, leading upward from said chamber and having its mouth depending into the same, with narrow passages between said exhaust flue and the side walls of the chamber; whereby air is admitted in two currents which impinge against each other and expand causing dust particles held in suspension to be precipitated into the bottom of the chamber.

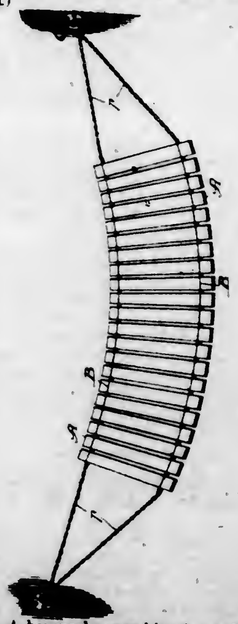
4. In a middlings purifier, the trunk or chamber, the flat screen at its base, and the centrally located exhaust pipes at its top, in combination with the longitudinal dust receptacle C, lying in the top of the chamber directly beneath the mouths of the exhaust pipes, and having at both sides a top communication with the chamber, and the deflectors *c'*, extending downward within the two sides of the receptacle: whereby the inflowing counter currents of dust-laden air are directed downward in their course through the receptacle to the point of exit.

490,286. SELF-SERVING TABLE. ROBERT T. HOLLOWELL, Danville, Ind. Filed July 5, 1892. Serial No. 438,994. (No model.)



Claim.—In a self-serving table, the combination with a stationary leaf provided with a central tubular bearing, of a superposed rotatable leaf provided with a depending central spindle mounted in said bearing, an adjustable collar G attached to the spindle and recessed at its under side to receive anti-friction balls to bear upon the upper end of the bearing, an adjustable nut threaded upon the spindle to engage the lower end of the bearing, and vertically adjustable anti-friction rollers arranged near the periphery of the rotatable leaf, substantially as specified.

490,287. HAMMOCK. FRANK J. HOUSE, Chicago, and FRANCIS X. MARTIN, Downer's Grove, Ill. Filed Aug. 29, 1892. Serial No. 444,355. (No model.)

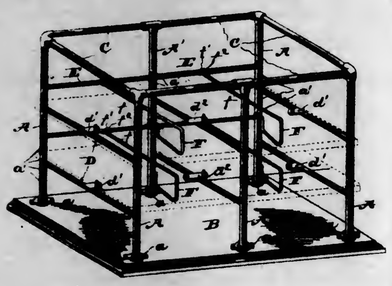


Claim.—1. A hammock, comprising, in combination, slats provided at their opposite ends with transverse bands, each band terminating beyond one edge of the slat in an eye and beyond the opposite edge thereof in a hook, and the slats being connected together by engaging the said hooks on one with the said eyes on an adjacent

slat, whereby the slats are separately connected pivotally at points between their adjacent edges, substantially as described.

2. A hammock, comprising, in combination, curved slats A provided at their opposite ends with bands B bent transversely about the slats, and extending beyond the same at their opposite edges, the bend in each band at one of said edges forming an eye *r* and the ends of each band at the opposite edge forming a laterally extending hook *o*, the slats being connected at the said hooks and eyes, and chains *p*, or the like, on the ends of the hammock for suspending it, substantially as described.

490,288. SHELVING. WILLIAM H. HUBBARD and ADRAH GOODRICH, Auburn, N. Y. Filed June 11, 1891. Serial No. 395,943. (No model.)



Claim.—1. The combination with the hollow supporting standards, having their adjacent walls provided with apertures or slots, of the supporting rods having notched portions adapted to engage said slots or apertures, said rods being of greater length than the distance between the apertured walls of two adjacent standards but of less length than the distance between the outer walls of said standards, whereby said rods can have one end passed into one standard beyond their normal seat to permit the other end to be inserted in an aperture in the other standard, substantially as described.

2. The combination with the supporting standards and shelf supporting rods, of a horizontal guide rod engaging said standards and a movable partition having an arm extending along the said guide rod and engaging said guide rod on the side adjacent thereto and on the opposite side at a different point longitudinally of said rod, substantially as described.

3. The combination with the supporting standards, and shelf supporting rods, of a horizontal guide rod engaging said standards, a movable partition, an arm connected therewith engaging the side of the said guide rod adjacent to the partition and a hook or collar connected with the opposite end of said arm for engaging the opposite side of the guide rod, substantially as described.

4. The combination with the hollow supporting standards, provided with slots or apertures of the supporting rods, of greater length than the distance between said standards having notched portions to engage said slots or apertures, and the sliding collars engaging said rods and provided with wedged portions, substantially as described.

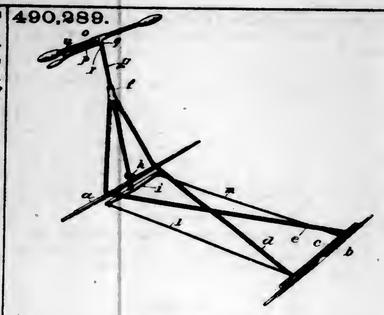
5. The combination with the supporting standards and the guide rod, of the movable partition, an arm extending at right angles to the general direction of the partition and adapted to engage the said guide rod and a spring hook at the opposite end of said arm, whereby the movable partition may be quickly attached and detached from the guide rod, substantially as described.

490,289. GEAR FOR CHILDREN'S CARRIAGES. CHARLES W. JEFFERIS, South Bend, Ind. Filed May 31, 1892. Serial No. 434,966. (No model.)

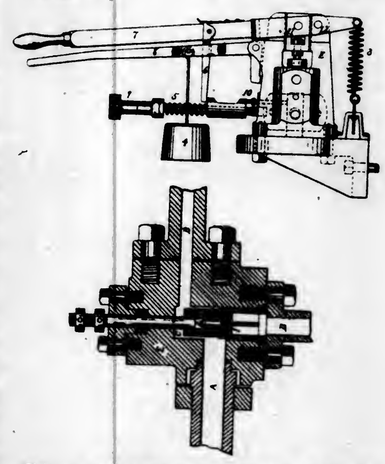
Claim.—1. In a vehicle the combination with a pivoted axle, of a guide rod for moving the same, a look for rigidly holding said guide rod and a lever for unlocking the rod, substantially as described.

2. The combination in a vehicle having a revoluble front axle, a hollow guide-rod provided with a cross-bar on its lower end, rods connecting the ends of said bar with the front axle, a clutch-socket supported at the rear of the vehicle, and in which the guide rod is supported, a movable clutch nut adapted to enter said socket by means of a rod in said hollow guide-rod, and a lever for actuating said rod, substantially as described.

490,289.



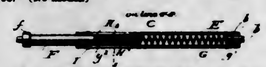
490,290. HYDRAULIC-PRESSURE VALVE. GEORGE B. LAMB, Waterbury, Conn., assignor to the Waterbury Farrel Foundry and Machine Company, same place. Filed Jan. 26, 1892. Serial No. 419,319. (No model.)



Claim.—1. In a hydraulic pressure release valve, the combination of a safety valve 2, and a check valve 1, combined to operate in the manner described, with a controlling lever 7, attached to the safety valve stem at its outer end in the manner shown; a spring 3, connected with the lever 7, tending to hold both said valves open; a weight 4, hung from a lever 8; a spring trigger 6, attached to lever 7, and arranged to engage the lever 8, substantially as shown, whereby the weight 4, is brought to bear upon both valves, holding them seated until a sufficient hydraulic pressure upon the safety-valve is reached to overcome the weight 4, and the hydraulic pressure is released to a point where the weight again seats the safety-valve.

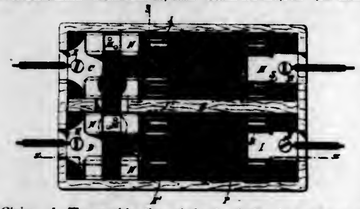
2. In a hydraulic pressure release valve, the combination of a safety valve 2, and a check valve 1, combined to operate in the manner described, with a controlling lever 7, attached to the safety valve stem at its outer end in the manner shown; a spring 3, connected with the lever 7, tending to hold both said valves open; a weight 4, hung from a lever 8; a spring trigger 6, attached to the lever 7, and arranged to engage the lever 8, substantially as shown, whereby the weight 4, is brought to bear upon both said valves holding them seated; a tripping device, for the purpose of disengaging said spring-trigger 6, from said weight lever 8, consisting of a small piston acted upon at one end by the same hydraulic pressure that is acting upon the said valves, the other end abutting against an adjustable opposing spring, the parts being constructed, combined and arranged to operate automatically at any desired pressure, substantially in the manner and for the purpose specified.

490,291. EYEGLASSES. ADOLPHUS J. LAMBERT, Boston, Mass., assignor to Andrew J. Lloyd, same place. Filed July 12, 1892. Serial No. 439,799. (No model.)



Claim.—In an eye-glass the combination with the frames B, B', of the hollow cylinder E, rigidly connected at one end to one of said frames and having near its opposite end the longitudinal slots H, H', diametrically opposite each other, the rod F rigidly connected to the other frame and projecting into the cylinder E, the coiled spring surrounding the rod F, within the cylinder and having its two ends connected respectively to the rod and to the cylinder, and the transverse pin I, passing through the rod and projecting into the slots of the cylinder, whereby rotation of the rod is prevented, and its longitudinal movement limited.

490,292. CUT-OUT FOR ELECTRIC CIRCUITS. MICHAEL LEAVY, Pittsfield, Mass. Filed June 16, 1892. Serial No. 436,971. (No model.)



Claim.—1. The combination of the insulating box or case, the line terminals C, D and H, I, the conducting blocks J, J' and K, K', the safety strips electrically connecting the terminals H, I with said blocks, the slide L, the metallic cross-bars thereon, and spring clips on the terminals C, D, and the blocks J, J', K, K', respectively, with which said cross-bars are adapted to engage, as set forth.

2. The combination with an insulating safety strip holder having metallic ends formed or provided with lugs or wings, and means for binding or clamping the ends of a safety strip to said metallic ends, of terminals provided or formed with spring jaws or clips for receiving the lugs or wings and thereby retaining the safety strip in circuit, as set forth.

3. The combination with an insulating tube having metallic ferrules or ends formed or provided with lugs or wings, and binding screws for clamping to the ferrules the ends of a safety strip contained within the tube, of metallic terminals provided with spring jaws or clips by which the lugs or wings on the metallic ferrule or ends of the safety tube are held, as herein set forth.

4. The combination with the insulating tube, the end ferrules having threaded openings for the insertion of clamping screws and notches or openings for the passage of a safety strip, and formed or provided with lugs or wings W, of spring clips or jaws forming circuit terminals and adapted to receive and hold the safety strip tube by engaging with the lugs on the ferrules of the same, as set forth.

5. In a safety strip holder, the combination of an insulating tube having air passages or openings at or near the ends, metallic ferrules or ends formed with lugs or wings adapted for connection with terminal clips of the circuit, and having threaded openings for the passage of a safety-strip, and clamping screws for binding the ends of said safety-strip to the ferrules, as set forth.

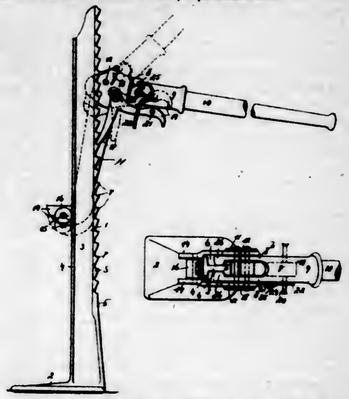
490,293. LIFTING-JACK. WINFIELD S. LIVINGSTON, Kansas City, Mo., assignor to Ira H. Dibble, same place. Filed Sept. 30, 1891. Serial No. 407,307. (No model.)

Claim.—1. A lifting jack comprising a standard having a single row of teeth, a lever having a head provided with two bearing points engaging the teeth alternately, and links pivoted to the head having extensions for supporting an object on the inner side of the standard; substantially as described.

2. A lifting jack comprising a standard having a single row of teeth, a lever having a head, provided with cheek plates, a cross-bolt secured to the cheek plates and forming one point of bearing for the head, a dog pivoted to the cheek-plates and forming another point of bearing for the head, and links pivoted to the head having extensions for supporting an object on the inner side of the standard; substantially as described.

3. A lifting jack comprising a standard having a single row of teeth, a lever, having a head provided with cheek plates formed with lugs and adapted to embrace the standard, two bearing-points for the head adapted to engage the teeth alternately, and links pivoted to the head having extensions adapted to support an object on the inner side of the standard; substantially as described.

4. In a lifting jack, the combination of a toothed standard; head 8; links 11 pivoted thereto, having extensions 14; a bolt, 12,; a bolt 18; a dog 17, pivoted to said bolt 18, and a rearwardly extending extension on said dog for throwing it out of engagement with said standard; substantially as and for the purpose set forth.



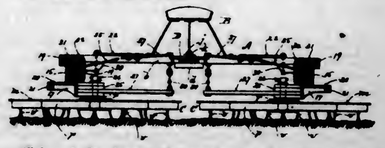
5. In a lifting jack, the combination of a toothed standard; head 8; links 11 pivoted thereto; bearing point 12; a dog 17; extension 19, on said dog; a movable bolt 20, connected with said dog, and a spring 22, connected with said head 8, for engaging said bolt and raising said dog; substantially as set forth and for the purpose described.

6. In a lifting jack, the combination of a toothed standard; being made T shaped in cross section; a head 8, having lugs 26 engaging said standard; means for rocking said head; links 11 having extensions 14, and anti-friction roller 16, journaled to said extension; substantially as described and for the purpose set forth.

7. In a lifting jack, the combination of a toothed standard; being made T shaped in cross section; head 8 engaging said standard; lever for rocking said head; bearing point 12, on said head; dog 17 pivoted to said head; rib 5, on said standard with which lugs 26, on the head 8, engage, and a flange 4, on said standard against which the anti-friction roller 16, secured to the links 11, travels in raising or lowering an object; substantially as described and for the purpose set forth.

8. A lifting jack comprising a standard having a web, a flange, and a rib formed with a single row of teeth, a lever having a head formed with cheek plates provided with circular bosses, cross-bolt, pivoted dog, and links, hinged to the bosses, having extensions: substantially as described.

490,294. HARROW. DAVID MANUEL, Hyde Park, Mass., assignor of one-half to Benjamin B. Phillips, same place. Filed Oct. 27, 1891. Serial No. 409,949. (No model.)



Claim.—1. In a harrow, the combination of a vehicle body, horizontal draw bars detachably hinged thereon provided with axle bearings as 25 and with whiffle trees at their front ends, axles journaled in said bearings and mechanism for locking the draw bars and body together.

2. In a harrow, the combination of a body, provided with an eye, a supporting bar thereon, a vertically arranged segment on said bar provided with pin openings, a pole resting on said bar provided with an opening for said segment, a pin adapted to be inserted in the segment openings and a horizontal pin projecting from the end of said pole and working in the eye on said body, substantially as described.

3. In a rotary harrow, a wheel journaled on the harrow body

and having longitudinal slots opening through the outer ends of its spokes, curved harrow teeth rectangular in cross-section disposed in said slots and a binding-plate clamping the outer ends of said spokes, substantially as specified.

4. In a harrow, the wheel, C, provided with the felly, *m*, and hub-plates, *q*, the spokes, *p*, slotted at, *t*, and secured in said plate, the bolt, *s*, passing through the outer end of said slot into said felly; the harrow teeth, *v*, disposed in said slot, the binding-plate, *y*, and bolts, *x*, for clamping the slot ends of said spokes together.

5. In a harrow, the body in combination with the draw-bars, 15, provided with the angle plates, 31, near its front and rear ends and hinged plates, 17, in combination with the rods, 35, provided with hooks, 36, connecting said body and angle-plates and a harrow-wheel journaled in bearings on said hinged plate, substantially as specified.

6. In a harrow, the body and pole in combination with the hinged draw-bars provided with plates, 17, having the flanges, 19; the guide-plates, 30, on said body, harrow wheels journaled in lugs on said plates, 17; arms on said plate and chains for securing the free end of said arms to said body, all being arranged substantially as specified.

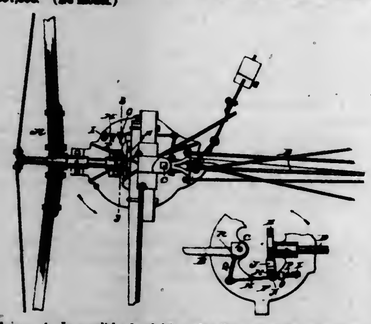
7. The body in combination with the rods, 35, having the eccentric hooks, 36; the draw-bars, 15, provided with angle-plates, 31, having the L-shaped openings, 33, for receiving said hooks; a harrow-wheel journaled to said side-bars and mechanism for locking said bars to said body.

8. In a rotary harrow, the body provided with the swinging draw bars 15, having dependent lugs 25, and with whiffle trees at their front ends in combination with the axles journaled in said lugs, substantially as described.

9. In a harrow, the combination of a body, laterally swinging draw bars thereon, provided with the angle irons 17, having downwardly projecting lugs, an axle journaled in said lugs, a wheel on said axle, the upper end of said angle iron being provided with an eye, and a fastening device adapted to encircle the upper end of said angle iron and being held thereto by a pin projecting through the eye.

10. In a harrow, the combination of a body, laterally swinging drawbars, an angle iron connected to said draw bars, an axle journaled in said angle iron, a wheel on said axle, provided with spokes having longitudinal slots, the slot of each alternate spoke being shorter than the slots in the other spokes, said spokes being connected to the sides of the wheel and having U-shaped plates disposed over the ends thereof.

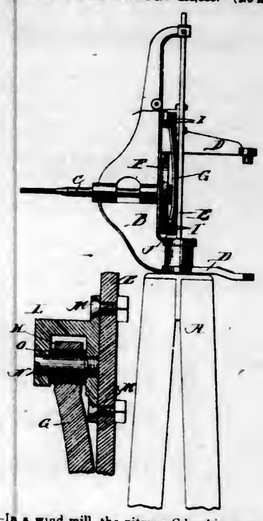
490,295. WINDMILL-BRAKE. JOHN H. MILLER and WILLIAM E. BURNHAM, Batavia, Ill., assignors to the United States Wind Engine and Pump Company, same place. Filed June 27, 1891. Serial No. 397,099. (No model.)



Claim.—1. In a solid wheel, hinged tail-vane wind mill, the turn-table carrying the wind wheel shaft and tail-vane; the tail-vane pivoted to the turn table; the spring brake lever H having one end attached to the turn-table and the other end connected to the tail-vane, being lightly in tension when the wheel stands face to wind; a brake attached to the spring-lever and held by it to engage with the crank-wheel only when the wind wheel swings approximately parallel with the tail vane; and the crank-wheel with which the brake engages, the spring brake lever serving the double purpose of governing the wind wheel and carrying the brake, as specified.

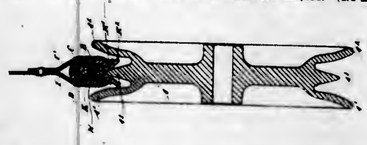
2. The turn-table of a solid wheel wind mill; the spring brake lever H, attached to the turn-table; the brake-shoe block K and brake-shoe; the guide O attached to the turn-table and serving to guide the spring brake lever; the stop P serving to increase the tension of the spring; the crank-wheel or plate E; and the hinged tail-vane connected to the spring brake lever to apply the brake to the crank plate as the wheel swings out of wind.

490,296. PITMAN-BEARING. JOHN H. MILLER, Batavia, Ill., assignor to the United States Wind Engine and Pump Company, same place. Filed Apr. 6, 1892. Serial No. 428,063. (No model.)



Claim.—In a wind mill, the pitman G having open bearings H at each end provided with lugs or flanges I on the sides of the bearings, making the openings to the bearings and the lugs or flanges out of line of the thrust of the pitman; bolts passing through the lugs or flanges of the bearings to tighten the bearing; and graphite thimbles O fitting the bearings, which can be cut and adjusted with the bearings to take up the wear, substantially as specified.

490,297. ELECTRIC-RAILWAY CONDUCTOR. HOWARD A. MINER, New York, N. Y. Filed June 3, 1892. Serial No. 435,256. (No model.)



Claims.—1. In a trolley railway system, the feeder wire D, suspended in contact with the conductor wire B, and arranged to serve both as a mechanical support and an electrical feeder for the latter, in combination therewith, and with a case E partially inclosing both wires, as herein specified.

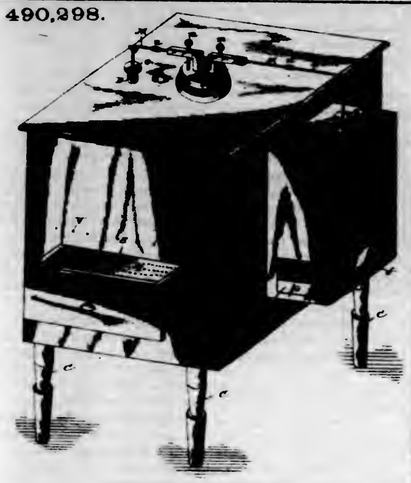
2. In a trolley railway system, the conductor wire B, and feeder wire D, in combination with each other, and with the partial insulating coating C, and with the casing E, having flanges or lips E^2 at its lower edges, and partially inclosing both wires, as herein specified.

3. In a trolley railway system, the conductor wire B, and feeder wire D, the insulating coating C, both wires being partially inclosed in the casing E, flanged or lipped at its lower edges, in combination with each other, and with the trolley wheel A, having flared flanges A', A^2, and a central rib A^3, arranged for joint operation substantially as herein specified.

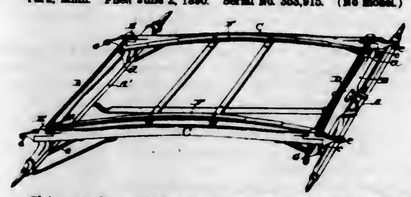
490,298. INCUBATOR. FRANK MEYER, Corning, Kans. Filed Aug. 5, 1892. Serial No. 442,266. (No model.)

Claim.—In an incubator, the combination of the casing, a closed heating tank arranged in the top of said casing, a heating box at one side of the casing, the heating lamp supported by said box, an open hot air flue leading from said lamp through the top of said heating box, packing inclosing said hot air flue within said heating box, a circulating pipe leading from said hot air flue through said heating tank and back through the top of the heating box, a heat escape tube extending through said tank and the top of the casing, and automatically controlled valves working over the top of said escape tube and said hot air flue, substantially as set forth.

490,298.



490,299. SIDE-SPRING VEHICLE. HENRY A. MUCKLE, St. Paul Park, Minn. Filed June 2, 1890. Serial No. 353,915. (No model.)



Claim.—1. In a vehicle gear, the combination with the bolster and rear axle, of side bars mounted upon and attached to said bolster and axle, bearings mounted upon said side bars over said bolster and axle, and equalizing rods journaled at the ends in said bearings and provided inside of the side bars with rigid depending ears with which the springs are connected at their ends, said bearings being sufficiently elevated by said side-bars to allow the ears on the equalizing rods to swing clear of said bolster and axle, substantially as and for the purposes set forth.

2. In a vehicle gear, the combination with the bolster and rear axle, of side bars mounted upon and attached to said bolster and axle, side springs, equalizing rods provided inside of the side bars with rigid depending ears with which the springs are connected at their ends, and metallic scrolls constituting the ends of said side bars and provided over said axle and bolster with bearing for said equalizing rods, substantially as and for the purposes set forth.

3. In a vehicle gear, the combination with the bolster and back axle, of metallic scrolls attached to and constituting the ends of said bolster, and formed with raised seats on their upper sides, side bars resting at their front ends upon said seats and at their rear ends upon the top of the back axle, metallic scrolls attached to and constituting the ends of said side bars and formed with suitable bearings over said bolster and axle, and equalizing rods journaled at the ends in said bearings and provided with rigid ears with which the springs of the vehicle are connected, said bearings being sufficiently elevated by said side bars to allow the ears on the equalizing rods to swing clear of said bolster and axle, substantially as and for the purposes set forth.

490,300. AXLE-LUBRICATOR. JOHN MELLMAN, Dayton, Ohio. Filed May 11, 1892. Serial No. 432,662. (No model.)

Claim.—1. In an axle-lubricator, the combination with the box and the shoulders *a* and B, the latter provided with the annular channel *b*, in the outer end thereof, and horizontal longitudinal passage-ways extending from said channel, of the nut-washer G, provided with apertures registering with the passage-ways in said shoulder, and a screw cap provided with a central opening, said screw cap adapted to inclose the outer end of the box, thereby forming the primary oil chamber *j*, and an inner tube provided with openings 5 and 6, said tube adapted to engage at both ends with the interior shoulders *a* and B, and thereby form the secondary oil chamber E, substantially as herein described.



2. In an axle-lubricator, the combination with the spindle, of a box provided with an interior shoulder at its inner end and the interior shoulder B at its outer end, the latter shoulder provided with the annular channel *b*, and passage-ways or conduits extending longitudinally from said channel, and the nut-washer G provided with apertures registering with the passage-ways in the shoulder B, an inner tube provided with openings 5 and 6, said tube adapted to engage with the shoulders of the box and thereby form the secondary oil chamber E, between the inner surface of the box and the outer surface of the tube, the screw cap provided with a central opening, and the concave surface *h*, said screw cap adapted to inclose the outer end of the box thereby forming the primary oil chamber *j*, between the outer surface of the nut washer and the inner surface of the cap, substantially as herein described.

3. An axle boxing consisting of the outer casing A provided with interior screw threaded shoulders *a* and B, the latter shoulder provided with the annular channel *b* in the outer end thereof, and the longitudinal passage-ways 1 2 3 4 leading from said channel, the inner tube with openings 5 and 6 and flange *e*, said tube secured in the outer casing by its screw threaded ends engaging with the shoulders of the casing, whereby the secondary oil chamber E is formed between the tube and the casing, the nut washer G provided with apertures registering with the passage-ways in shoulder B, said nut washer adapted to engage with the spindle and maintain the same within the box, a screw cap adapted to inclose the outer end of the box, and form the primary oil chamber *j*, said screw cap provided with a nut-closing central opening through which the oil is conveyed to the primary chamber from whence it is conveyed to the secondary oil chamber through the herein described passage-ways, as set forth.

4. The combination with the outer casing provided with an interior screw threaded shoulder at its inner end, and the screw threaded shoulder B, at its outer end, the latter provided with the annular channel *b*, and horisontal longitudinal passage-ways or conduits extending from said channel, the nut washer provided with apertures registering with the passage-ways in said shoulder B, when said nut washer is engaged with the spindle, the screw cap H, with central opening, adapted to inclose the outer end of the box and thereby form the primary oil chamber *j*, the tube C with flange *e* at its inner extremity and screw threads on the ends thereof, to engage with the shoulders of the outer casing, whereby the secondary chamber E is formed, and the openings 5 and 6 in said tube through which the oil is conveyed from said secondary chamber to the spindle, substantially as herein described.

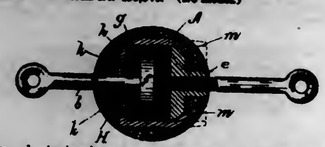
490,301. SEWER WELL AND GRATE. CORNELL MUNSON, Utica, N. Y. Filed May 13, 1892. Serial No. 432,957. (No model.)



Claim.—1. The combination of a circular sewer well, and a curb section having a vertical grated curb face, spanning the circle of the well and the curb section being of a form whereby a portion of the top of the well is exposed and a part is covered by the section, the curb section being rotatable on and independent of the well, to enable the curb face of the curb section to conform to the curb line of the street without reference to the well, substantially as set forth.

2. The combination of a circular sewer well having a grate supporting rib, a gutter grate partially covering the top of the well and resting on the rib, and a curb section having a vertical grated curb face spanning the circle of the well and the curb section being of a form as shown, whereby a portion of the top of the well is exposed and a part is covered by the section and having projections projecting adjacent to the grate supporting rib and adapted to engage and retain the gutter grate in position, the curb section being rotatable on and independent of the well, whereby the curb face of the curb section and the gutter grate may be made to conform to the curb line of the street, substantially as set forth.

490,802. INSULATOR. LOUIS MCCARTHY, Boston, Mass. Filed July 6, 1892. Serial No. 439,272. (No model.)

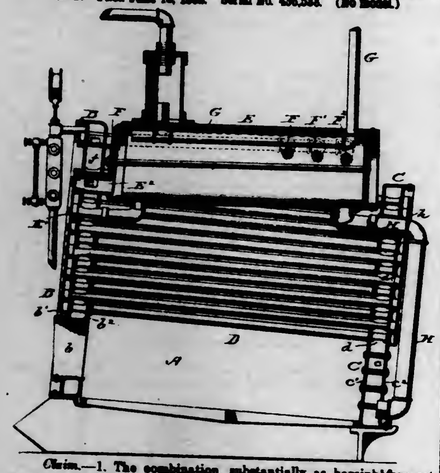


Claim.—1. An insulator comprising a case, a metallic connecting piece placed therein, insulating material consisting of comminuted mica and sheet mica surrounding said piece to insulate the same from said case, said sheet mica being interposed between the connecting piece and the open end of the said case, substantially as set forth.

2. An insulator comprising a case, a headed connecting piece placed therein, a series of sheets of mica interposed between the head of the connecting piece and the end of said case to insulate the connecting piece therefrom and a mass of comminuted mica surrounding the head of the said connecting piece to insulate the sides thereof from the said case, substantially as set forth.

3. An insulator comprising a case, a headed connecting piece placed therein, a series of sheets of mica surrounding said connecting piece adjacent the head thereof, and a mass of mica surrounding the other portions of the connecting piece to insulate the same from said case, and an exterior molded covering surrounding the case and filling the opening therein and the space between the connecting piece and the surrounding sheets of mica, substantially as set forth.

490,803. STEAM-BOILER. DANIEL P. MCGOWEN, Schenectady, N. Y. Filed June 13, 1892. Serial No. 436,583. (No model.)



Claim.—1. The combination, substantially as hereinbefore set forth, in a steam-boiler, of a shell, head, water-box or water-leg; a steam-drum, and water-pipes passing through the tube-sheets into the steam drum through expanded joints, and having lateral connections with the water-space of the head.

2. The combination, substantially as hereinbefore set forth, of the front-head or water-leg of a steam-boiler; a steam-drum, and pipes directly connecting the water-spaces of the head and steam drum by means of expanded joints, and having lateral openings connecting the pipes and spaces.

3. The combination, substantially as hereinbefore set forth, in a steam-boiler, of a water-head or leg; a sleeve therein; a steam-drum, and a downflow pipe passing from the water-space of the drum through this sleeve, and terminating in the lower part of the water-space, whereby expansion and contraction of the parts is compensated and free circulation maintained.

4. The combination, substantially as hereinbefore set forth, in a steam-boiler of a fire-box; its water-heads or legs; laterally-perforated water-pipes connecting these heads; a steam-drum overlying the fire-box; water-pipes directly connecting the water-space of these heads with the drum by means of expanded joints, and a downflow pipe passing from the drum through a sleeve in the rear-head, and terminating in its water-space near the bottom, to maintain free water-circulation.

5. The combination, substantially as hereinbefore set forth, in a steam-boiler, of a water-head; a steam-drum, and a series of steam-pipes connecting the steam-spaces of the head and drum at different points near the rear end of the latter.

6. The combination, substantially as hereinbefore set forth, in a steam-boiler, of a fire-box; its heads; water-tubes connecting them; a drum overlying the water-tubes; water-pipes directly connecting the water-spaces of the head and drum at one end; a downflow pipe passing from the bottom of the opposite end of the drum through a sleeve in the adjacent head and terminating near its bottom, and steam-pipes extending from the upper end of the upward-flow water-head to the drum near the downflow pipe, to produce pressure therein.

7. The combination, substantially as hereinbefore set forth, in a steam-boiler, of the character described, of a head; an inclined shell or drum adjacent thereto; water-inlet and outlet pipes connecting the water-spaces of the head and drum at opposite ends of the latter, and steam-pipes extending from the head to the opposite end of the drum and entering the latter at an angle to, and near the downflow pipe, to promote circulation therein.

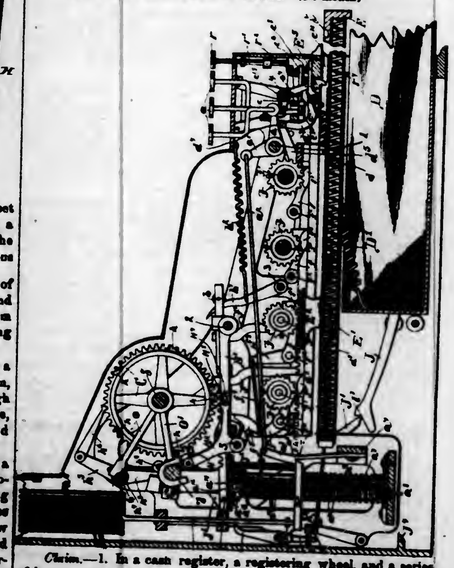
8. The combination, substantially as hereinbefore set forth, in a steam-boiler, of a head; a drum; water-pipes connecting them at opposite ends; longitudinal steam-exit pipe perforated on its upper side and having upwardly-bent ends; and steam-inlet pipes connecting the head with the opposite end of the drum, between the steam-exit and downflow pipes, to diminish priming and increase circulation.

9. The steam-boiler hereinbefore described, consisting of the combination of the fire-box; its shell or heads; the water-tubes connecting the heads inclining upward toward the firing-end of the fire-box; the drum overlying the tubes between the heads and inclined upward and backward from the firing-end; water pipes directly connecting the firing end of the drum at its adjacent head; the downflow pipe passing through a sleeve in the opposite head, and terminating in the bottom of the water-space; steam-inlet pipes connecting the firing-end head with the rear end of the drum, and the longitudinal, perforated steam-exit pipe, for the purposes specified.

10. The joint hereinbefore described, consisting of a perforated tube-sheet; a pipe through one of these perforations, and having its outer end expanded to form a flange; a ferrule expanded inside the tube, and a cap closing the end of the ferrule.

11. A boiler shell having inner and outer sheets at front and rear, in combination with a water tube having an opening *d*, in its lower wall only, between the front and back sheets, substantially as and for the purpose specified.

490,804. CASH-REGISTER. HARRY M. NEER, Springfield, Ohio, assignor of two-thirds to O. W. Kelly and Thomas Raynolds, same place. Filed Nov. 16, 1891. Serial No. 412,081. (No model.)



Claim.—1. In a cash register, a registering wheel, and a series of keys, a reciprocating rack adapted to engage said registering wheel, and a series of stop-pins each controlled by one of the keys of said series, each of said keys being adapted to release said rack, and cause it to move to the position governed by the stop-pin connected to said key, and means for positively forcing said rack into engagement with said wheel and returning it to its normal position, thus registering the amount indicated by said key, substantially as specified.

2. In a cash register, a registering wheel and a reciprocating rack adapted to engage said wheel, a series of keys controlling a series of stop-pins adapted to limit the movement of said rack and an auxiliary mechanism released by each of said keys, adapted, when returned to its normal position, to positively force said rack into engagement with the registering wheel and return the same to its normal position, thus revolving said wheel a number of units corresponding to the number on said key, substantially as specified.

3. In a cash register, the registering wheel and the rack adapted to engage the same, a series of stop-pins adapted to limit the movement of said racks, a spring actuated bar for raising said stop-pins, an indicator loosely connected to said bar and a series of keys, one for each stop-pin, adapted, when depressed, to release said bars and permit the indicators and stop-pins to be elevated, and a releasing mechanism common to all of said bars adapted to be contacted by each of said bars and release the registering rack, substantially as specified.

4. In a cash register, a series of registering wheels, and an operating rack for each of said wheels, a series of keys for each registering wheel, each of said keys being adapted to control a spring actuated stop-pin to limit the movement of said registering rack, a series of indicators one for each pin, also controlled by said keys and a releasing lever common to said series adapted, as any key of said series is depressed, to release said rack and permit it to move in contact with said stop-pin, and an auxiliary mechanism common to all of said registering wheels, adapted to be released by the depression of a key in any series, said auxiliary mechanism being adapted to produce a positive longitudinal and upward movement of each of said registering racks in successive order, as said mechanism is returned to its normal position, substantially as specified.

5. The combination with a series of registering wheels and a reciprocating rack for each of said wheels, a series of keys for each of said racks, a spring actuated stop-pin controlled by each of said keys, a releasing lever common to all the stop-pins of one series, adapted, as one of said pins is released, to release said registering rack, a spring for moving said rack when so released until it contacts with one of said pins, and an auxiliary operating mechanism, common to all of said racks and adapted to be released by the depression of any key in any series, said auxiliary mechanism being adapted to produce an upward and longitudinal movement of each of said racks, as said auxiliary mechanism is returned to its normal position, substantially as specified.

6. The combination with a series of registering devices and a series of keys for each of said registering devices, an intermediate spring actuated auxiliary mechanism adapted to be released by any key of any series and to move said registering devices when returned to its normal position, and a spring actuated cash receptacle independent of said auxiliary mechanism but normally connected thereto, and means, substantially as described, for disconnecting said cash receptacle from said auxiliary operating device, to permit said cash receptacle to open independently thereof, substantially as specified.

7. In a cash register and indicator, a series of registering devices one for each denomination to be registered, each of said devices being provided with a registering wheel, an operating reciprocating rack, a series of spring actuated stop-pins arranged in successive order to limit the movement of said rack and a series of keys each adapted to control one of said stop-pins, an indicator for each key loosely connected to each of said stop-pins, an engaging projection for holding said registering rack, and an operating lever connected to said engaging projection and adapted to be contacted by any of the stop-pins in said series when released, and means for moving said rack when so released to cause it to contact with said stop-pin, substantially as specified.

8. The combination with the registering wheel and the reciprocating rack, of a series of T-shaped bars each provided with a stop-pin and an indicator, spring catches for controlling said bars, and keys connected to said spring catches, an engaging projection for holding said rack and a T-shaped lever connected to said projection adapted to be engaged by each of said T-shaped bars, and a spring connected to said rack to cause it to move in contact with any of said stop-pins when released by the operation of one of said bars, substantially as specified.

9. The combination with a series of registering wheels and a reciprocating rack for each of said wheels, a series of keys for each of said racks, and mechanism connected with each of said keys to release the said rack, a series of auxiliary racks one for each registering rack and a series of pinions arranged in successive order and each connected through suitable means to one of said auxiliary racks, a spring actuated rack segment adapted to be released by the depression of any key in any series and successively engage said pinions, and a cam projection on said rack segment adapted, through suitable mechanism, to produce an upward movement of the registering racks at the same time the said segment is in contact with the pinion which controls the auxiliary rack belonging thereto, and means for producing a positive movement of the registering rack to its normal position when the auxiliary rack is moved by the operation of said rack segment and pinion substantially as specified.

10. The combination with a series of registering wheels and a reciprocating rack for each of said wheels, a series of keys for each registering wheel, each adapted to release and limit the movement of said registering rack, a spring actuated rack segment adapted to be released by any key in any series and a series of pinions arranged in successive order along the line of travel of said rack segment, and intermediate mechanism between each of said pinions and said registering racks to cause a positive movement of said registering racks to their normal positions, substantially as specified.

11. The combination with a series of registering wheels, and a registering rack for each wheel, a series of keys adapted to release and control the movement of said rack, a reciprocating spring actuated rack segment adapted to be released by any key in any series, a series of pinions arranged in successive order along the line of travel of said rack segment and connected by suitable mechanism to each of said racks, and independent means for forcing said registering racks into engagement with the registering wheels when the rack segment is engaged with the pinion controlling said registering wheel and rack, substantially as specified.

12. In a cash register, a series of registering wheels and a series of registering racks one for each wheel but normally disconnected therefrom, a series of keys for each wheel and rack, adapted to release and control the movement of said rack independent of said wheels and a spring actuated reciprocating rack segment adapted to be released by any key of any series, a series of pinions in the line of travel of said rack segment adapted to be successively engaged thereby, and connecting mechanism from each of said pinions to each of said operating racks, and independent means for producing an upward movement of said registering racks to cause the same to be engaged with the registering wheel during the time the rack segment is in engagement with the pinion controlling said registering rack, when turning to its normal position, substantially as specified.

13. The combination with a registering wheel, a reciprocating rack adapted to engage therewith, a series of key levers and a series of spring actuated stop-pins, one stop-pin for each key, said keys being adapted to release said stop-pins and limit the movement of said rack, a normally closed cash receptacle and means connected with said cash receptacle for returning said stop-pins to their normal positions when said receptacle is open and closed, substantially as specified.

14. The combination with the registering wheels and a reciprocating rack one for each wheel, an oscillating frame supporting said rack, a series of keys for each registering wheel, adapted to set into operation mechanism which releases and limits the movement of said rack, and an auxiliary operating device also released by said key, adapted, when returned to its normal position, to produce an upward movement of said reciprocating frame and a backward movement of said rack, to cause said rack to engage and move said registering wheel, substantially as specified.

15. The combination with the registering wheels, of the spring actuated reciprocating racks, one for each wheel, each of said racks being supported in a pivoted frame in proximity to said wheel, a series of keys for each of said registering wheels, each adapted to set into operation intermediate devices to release and limit the movement of said rack, and an auxiliary mechanism also released by said key adapted, through suitable means, to elevate said pivoted frame and produce a backward movement of said rack, when returned to its normal position, substantially as specified.

16. The combination with a registering wheel and a spring actuated rack in proximity thereto, but normally disconnected therefrom, a pivoted frame for supporting said rack, a series of keys adapted to set into operation devices for releasing and controlling the movement of said rack and a reciprocating spring actuated rack segment also released by each of said keys, said rack segment being adapted, as it is returned to its normal position, to set into operation mechanism which produces an upward movement of said pivoted frame and a backward movement of said rack to its normal position, whereby the registering wheel, is caused to turn a number of teeth corresponding to the key depressed, substantially as specified.

17. The combination with a registering wheel and a spring actuated reciprocating rack normally disconnected therefrom and a movable frame for supporting said rack, a series of keys each adapted to set into operation mechanism for releasing said rack and limiting the movement thereof, and an auxiliary mechanism also released by said key and an intermediate connection between the auxiliary mechan-

ism, a movable frame and rack adapted to cause said frame to move toward said wheel and the said rack moved backward to its normal position, as the auxiliary mechanism returns to its normal position, substantially as specified.

18. The combination with a toothed registering wheel and a rack for operating the same, a movable supporting frame for said rack, of a stop device adapted to engage the teeth of said registering wheel, said stop device being connected to said frame so as to be moved out of contact with said registering wheel when the rack is moved into gear therewith, substantially as specified.

19. The combination with the registering wheel and its operating rack, of a gear segment having a limited movement, normally engaging said registering wheel, said gear segment being so connected to said rack that the gear segment is thrown out of mesh with said registering wheel, when the rack is thrown into mesh therewith, substantially as specified.

20. The combination with the registering wheel and operating rack normally disconnected therefrom, a pivoted frame for supporting said rack, a gear segment having a limited movement supported on a pivoted arm in proximity to said pivoted frame, so that said gear segment is normally in mesh with said registering wheel, and a pivoted connection between said arm and frame, whereby the said gear segment is thrown out of mesh with the said registering wheel when the frame is moved to carry the rack into mesh therewith, substantially as specified.

21. The combination with a series of registering wheels and the devices for operating the same normally disconnected therefrom, and transferring mechanism operated by one wheel to produce a movement of the next succeeding wheel, and a gear segment having a limited movement and normally in gear with said registering wheels, and means, substantially as described, for withdrawing said segment from mesh with said registering wheel, as the registering devices are connected thereto, substantially as specified.

22. The combination with the registering wheel having peripheral teeth and an operating rack having corresponding teeth but normally disconnected therefrom, a series of keys and a series of stop-pins one for each key, adapted, as a key is depressed, to release said rack and limit the movement thereof, an auxiliary reciprocating actuating mechanism also released by said key, and intermediate connecting mechanism, adapted, as said auxiliary device is returned to its normal position, to produce an upward and backward movement of said rack to cause it to engage with said registering wheel and turn the same as it is moved to its normal position, substantially as specified.

23. The combination with a series of registering wheels and a series of operating racks, one for each wheel, but normally disconnected therefrom, operating keys arranged in series for each registering wheel, each key of said series being adapted to set into operation mechanism for releasing and limiting the movement of said rack and each key of all the series being adapted to set into operation auxiliary mechanism, actuating devices for each of said racks adapted to be successively operated by the auxiliary mechanism as it is returned to its normal position and cause said racks to be successively moved into engagement with said registering wheels and held in mesh therewith while being returned to their normal positions, substantially as specified.

24. The combination with the registering wheels and their operating racks, of the auxiliary racks one for each operating rack, and engaging projections on said auxiliary and operating racks to cause them to move together when returning to their normal positions, a series of keys adapted to release and determine the forward movement of each of said racks and a series of pinions arranged in successive order and each connected to one of said auxiliary racks, a reciprocating rack segment, adapted, when reciprocated, to successively operate said pinions, pivoted levers for effecting a lateral movement of each of said operating racks, and a cam projection on said rack segment adapted to successively operate said pivoted levers in returning to their normal positions, to cause the said operating racks to be moved into engagement with said registering wheels during the time the said auxiliary racks are being returned to their normal positions, substantially as specified.

25. The combination with a registering rack, a wheel, the spring actuated stop-pins and their actuating keys, of a transverse bar arranged in proximity to and adapted to contact said stop-pins, and bell-crank levers connected at each end of said bar, a normally closed cash receptacle having pivoted arms adapted to contact with said bell-crank levers to produce a movement of said bar as the cash receptacle is being returned to its normal position, an engaging projection adapted to produce a limited movement of said pivoted arms to cause them to release said bell-crank prior to the time the cash receptacle reaches the limit of its forward movement, substantially as specified.

26. The combination with a series of independently operating registering devices and a series of keys for operating each of said registering devices, transferring mechanism adapted to produce a limited movement of one wheel from a definite movement of the next preceding wheel, a stop bar arranged in proximity to each of said keys, adapted, when released, to lock all of said keys, retaining devices for holding said bar in its normal position, and means, substantially as described, connected with one of said registering devices to operate said retaining device, and thus release said stop bar, when said registering device has reached the limit of its registering capacity, substantially as specified.

27. The combination with a series of registering wheels having connecting mechanism so that a definite movement of one registering wheel produces a limited movement of the next succeeding registering wheel, a series of keys and connecting mechanism for operating each of said wheels, a stop bar arranged in proximity to the connecting mechanism of each of said keys, adapted, when released, to lock all of said keys, said bar being normally retained by a pivoted lever, and a cam projection on the registering wheel of the highest denomination, adapted, upon a complete revolution, to operate said retaining lever and release said locking bar, substantially as and for the purpose specified.

28. The combination, in a cash register, of a normally closed cash receptacle and a normally closed register actuating mechanism to which said cash receptacle is normally connected, independent spring devices for operating said cash receptacle and said register actuating mechanism, a series of keys each adapted to release said register actuating mechanism and thus release said cash receptacle, an independent key for disconnecting said cash receptacle from said register actuating mechanism, and thus release said receptacle and permit it to open independent of the register actuating mechanism, substantially as specified.

29. The combination with the registering wheels and their actuating mechanism, and a series of keys controlling the same, a series of indicators one for each key also controlled by said keys, a movable stop for engaging said indicators and holding them in their elevated positions when actuated by said key, and auxiliary mechanism for actuating the registering devices also released by said keys and a connection from the indicator stop to said auxiliary mechanism, whereby the said indicators are released by the outward movement of said auxiliary device, substantially as specified.

30. In a cash register, the combination, with a series of actuating keys, of a pivoted U-shaped frame normally in contact with each of said keys, said frame being provided with a beveled projecting spur operating through an opening in a stationary bar, a sliding bolt arranged beneath said stationary bar, adapted to be moved to a limited extent by the beveled face of said spur, when a key is depressed, a spring catch for holding said bolt in its normal position, said catch being adapted to be released by a limited movement of said bolt, spring actuating devices for moving said bolt, when released, to cause it to move under said spur by the reciprocating movement of said spur caused by the depression of a key, substantially as specified.

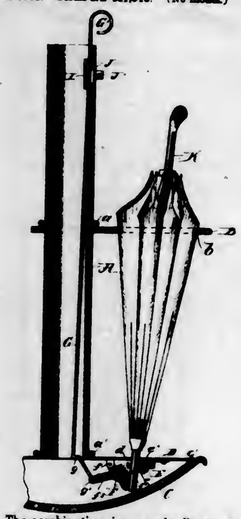
31. In a cash register, the combination, with a series of registering levers, of a spring actuated pivoted bar normally in contact with all the keys of the series, said spring actuated bar being provided with a projecting spur having a beveled face, a spring actuated sliding bolt adapted to contact with the beveled face of said spur, and thus be moved to a limited extent, when said spur is moved by the depression of a key, a spring catch for holding said bolt in its normal position, said catch being adapted to release said bolt, when said bolt is moved backwardly to a limited extent, and thus permit said bolt to be forced forward under said spur, when said spur returns to its normal position, and means, substantially as described, for returning said bolt and said catch to their normal positions, so as to release said bar and thus said keys, substantially as and for the purpose specified.

32. The combination with the registering wheels and the racks adapted to engage and move the same, pivoted frames for supporting said racks, a series of keys for releasing and controlling the forward movement of said racks, and a reciprocating actuated mechanism also released by said keys, a series of pivoted levers connected to said pivoted frames, each having a cam projection adapted to be engaged on one side of the outward movement of said actuating mechanism and on the opposite side by the inward movement thereof, whereby said pivoted frames and said actuating racks are held out of engagement with the said registering wheel during the outward movement of said mechanism and in engagement therewith during the inward movement thereof, substantially as specified.

33. The combination with a series of registering wheels, a normally disconnected registering mechanism, a series of keys for controlling said registering mechanism, a normally closed cash receptacle and an auxiliary intermediate frame having an outline corresponding to the outline of said cash receptacle, independent keys for operating said receptacle and frame, said receptacle being normally connected to said frame and operated therewith when said frame is released, but provided with independent devices to accomplish its release independent of said frame, and means connected with said frame for actuating said registering wheels by the inward movement thereof, substantially as specified.

34. The combination with the registering wheels, the registering devices connected therewith, the keys for controlling the same, a series of spring actuated indicators and a stop lever common to all the indicators of a series, an auxiliary sliding frame adapted to be released by any key in any series, said sliding frame, through intermediate mechanism, being adapted to actuate said registering wheels, and an independent connection from said frame to said stop lever, whereby the indicators previously engaged thereby are released on the outward movement of said frame, substantially as specified.

490,805. **UMBRELLA-STAND.** HARVEY B. PARK, Chicago, Ill. Filed Aug. 3, 1891. Serial No. 401,513. (No model.)



Claim.—1. The combination, in an umbrella stand, of a central standard, an upper receiving plate, a lower receiving plate, clamping dogs below the lower receiving plate brought into action by attempted withdrawal of the umbrella to firmly grasp the umbrella tip or end, a releasing rod for one of the clamping jaws to withdraw the dog and release the umbrella, and a lock for the releasing rod, substantially as and for the purposes specified.

2. The standard A, plate B, having the openings *b*, and plate D having the openings *d*, in combination with the dogs E and dogs F on opposite sides of the openings *d*, and each having an acting face engaging an umbrella end or tip by attempted withdrawal of the umbrella, releasing rods G, each having a ratchet *k'*, and swinging plates H, each having a tooth *h*, substantially as for the purposes specified.

3. The standard A, plate B, having openings *b*, and plate D, having openings *d*, in combination with the dogs E and dogs F on opposite sides of the opening *d*, and each having an acting face brought into engagement with an inserted umbrella tip or end by attempted withdrawal of the umbrella, releasing rods G, for the dogs F, each rod having ratchet teeth *k'*, swinging plates H, each having a catch *h*, and a lock for actuating the swinging plates, constructed to permit the withdrawal of the key with the engagement of the catch *h*, and prevent the withdrawal of the key when the lock is not turned, substantially as specified.

490,806. **CLOSED CONDUIT FOR ELECTRIC RAILWAYS.** RUSSELL PARKER and BENJAMIN F. SUTTON, Brooklyn, N. Y. Filed Jan. 9, 1892. Serial No. 417,689. (No model.)

Claim.—1. A flexible insulating tube, a main conductor extending along the interior of the tube, an interrupted electric conductor fixed to the tube opposite the main conductor and combined clamping and supporting plates, the jaws of which partially embrace the main conductor exterior to the insulating tube, substantially as set forth.

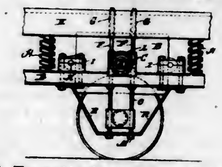
2. A flexible insulating tube consisting of a sheet of material having its edges brought into proximity to each other, a main conductor about the sides of which the insulating sheet extends toward its free edges, clamping plates having jaws which partially embrace the main conductor exterior to the insulating material and an interrupted electric conductor fixed to the tube opposite the main conductor, substantially as set forth.



3. The combination with the flexible tube and the electric conductors engaged therewith, of the clamping plates and the shields depending from the clamping plates, substantially as set forth.

4. The combination with an electric conduit, of supporting plates having their lower ends engaged with the conduit, their upper ends the one overlapping the other and means for holding the plates together, substantially as set forth.

490,807. **ELECTRIC LOCOMOTIVE.** ALEXANDER PHILIPPSON and MAX SCHIEMANN, Berlin, Germany, assignors to Siemens & Halske, same place. Filed Apr. 14, 1892. Serial No. 429,230. (No model.)



Claim.—1. The combination, in an electro locomotive car, of the traction wheels, a truck frame and electro-motor supported by the same and movable relative to the traction wheels, means for frictionally transmitting power from the motor shaft to said traction wheels, and a car body exerting its weight upon the transmission means and elastically supported upon said truck frame to vibrate independent of the motor and traction wheels.

2. The combination in an electro-locomotive car, of the traction wheels, axle boxes therefor guided so as to be capable of vertical motion, a truck frame and electro motor supported by the same and movable relative to the traction wheels, means for frictionally transmitting power from the motor shaft to said traction wheels, and a car body exerting its weight upon the transmission means and elastically supported upon said truck frame, the arrangement being such that the traction wheels, motor, and car body may conjointly vibrate or the said wheels and motor vibrate relative to the body, so as to preserve the frictional engagement, substantially as set forth.

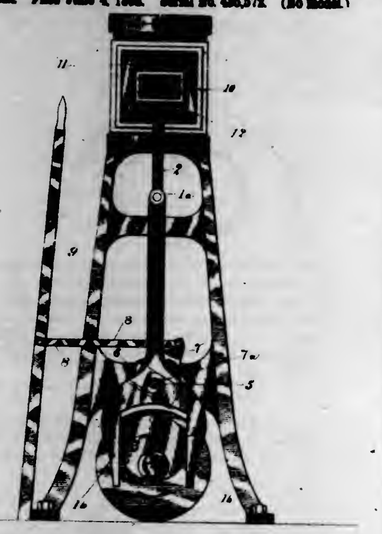
3. The combination in an electro locomotive car of the traction wheels, a truck frame and an electro motor supported by the same and movable relative to the traction wheels, means for frictionally transmitting power from the motor shaft to said traction wheels, a car body exerting its weight upon the transmission means and springs interposed between said truck frame and car body to permit the latter to vibrate independent of the motor and traction wheels, substantially as set forth.

4. In an electro-motive car the combination of the traction wheels having internal rims, an electro-motor, a suitable carrying frame supporting the motor and the car, a tubular shaft for the motor concentric with and surrounding the car axle, journal boxes for the said shaft located between the traction wheels supporting the carrying frame, frictional power transmitting wheels on the extremities of said motor shaft, and a transmitting wheel interposed in vertical line between the said wheels on the motor shaft and the internal rims of the traction wheels.

5. In an electro-motive car the combination of the traction wheels having internal rims, an electro-motor, a suitable carrying frame supporting the motor and the car, a tubular shaft for the motor concentric with and surrounding the car axle, journal boxes for the said

shaft located between the traction wheels supporting the carrying frame, frictional power transmitting wheels on the extremities of said motor shaft, and a transmitting wheel interposed in vertical line between the said wheels on the motor shaft and the internal rims of the traction wheels.

490,808. REVERSING-GEAR. DAVID PITCHFORTH, Preston Falls, Canada. Filed June 4, 1892. Serial No. 435,572. (No model.)



Claim.—1. A reversing gear for steam engines consisting of the combination of a steam chest, steam ports from said steam chest into the working cylinder, a valve to close said ports, a valve rod connected to said valve, an eccentric rod connected to the valve rod having a bifurcated end which encircles the eccentric wheel the main shaft, an eccentric wheel mounted on the main shaft, a cam secured to the frame work of the engine, a traveler secured to the eccentric rod said traveler working in said cam said cam adapted to reverse the stroke of the eccentric rod, substantially as described.

2. A reversing gear for steam engines consisting of the combination of a steam chest, steam ports from said steam chest into the working cylinder, a valve to close said ports, a valve rod connected to said valve, an eccentric rod connected to the valve rod, a bifurcated end to said eccentric rod, an eccentric wheel engaging with the bifurcated end, the frame work of the engine, a rocker bolt secured to the frame work of the engine, a cam mounted upon the rocker bolt, a traveler secured to the inner side of the eccentric rod, said traveler working in said cam, means for altering the position of said cam, said cam and traveler adapted to reverse the stroke of the eccentric rod, substantially as described.

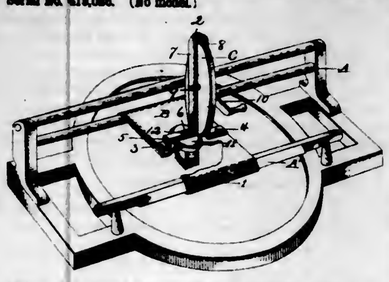
490,809. TREE-PROTECTOR. MICHAEL B. RYAN, St. Louis, Mo., and PLEASANT WARD, Madison, Ill. Filed Apr. 12, 1892. Serial No. 428,809. (No model.)



Claim.—1. In a tree-protector, the combination with a split band, of a strip secured to one of the ends thereof, and ears formed on said strip adapted to be folded over the overlapping contiguous end of the split band: substantially as, and for the purposes described.

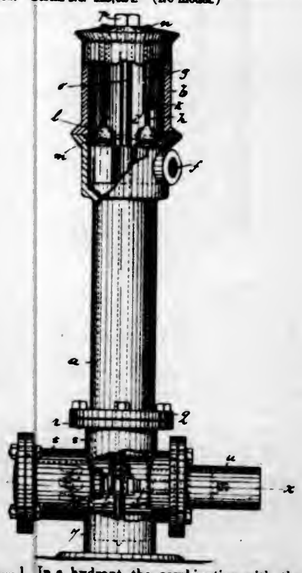
2. In a tree-protector, the combination with a split band provided with a circumferential groove in its upper edge, a packing secured in said groove, a metallic strip folded over and secured to one end of the band, and ears formed on said strip adapted to fold over and bind the other overlapping contiguous end of the split band: substantially as, and for the purposes described.

490,810. CLEANING ATTACHMENT FOR TYPE-WRITING MACHINES. WILLIAM W. RENTON, Corning, Iowa. Filed Jan. 23, 1892. Serial No. 419,026. (No model.)



Claim.—The cleaning device for type-writing machines, comprising the supporting-plate having a bearing formed therein, the bracket consisting of a single piece having the horizontal part 5, and vertical double portions 7, 8, the driving-wheel having a beveled edge, journaled between the vertical parts of the bracket, the horizontally arranged wheel 11 journaled between the horizontal part of the bracket and the supporting plate and having its shaft extended below the supporting-plate, and the brush on the extended portion of the shaft below the plate, as specified.

490,811. HYDRANT. ADAM SCHMID, Harrison, N. J. Filed Sept. 12, 1892. Serial No. 445,624. (No model.)



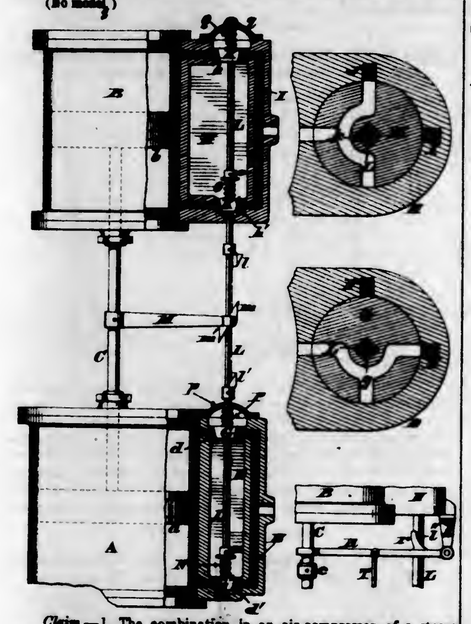
Claim.—1. In a hydrant, the combination with the shell, of a block secured in the upper portion of said shell, and provided with a series of openings, said openings being adapted to connect the interior of the hydrant with the outlets, a top removably secured to said shell, a series of downwardly extending tubes arranged in said top and on the center line of said openings, each of said tubes being provided with an upwardly extending slot, a rod arranged in each of said tubes and extending through said top and provided with a pin, adapted to operate in the slot of the tube, a cup secured to the lower end of said rod, a rubber ball loosely arranged in said cup, and when in normal position, resting on the opening of the block, and means for holding said ball and its rod in its raised position, all said parts, substantially as described and for the purposes set forth.

2. In a hydrant, the combination with the shell, of a piston chamber arranged at right angles to the center line of said shell, a bushing arranged on one end of said piston chamber and provided with a series of parallel slots, a tube secured in the opposite end of the piston chamber and provided with a series of vent holes, a double piston adapted to control the inlet into the bushing and also the vent holes in the tube, a rack arranged on said double piston, a pinion engaging

said rack, and means for so operating the said pinion, that one half revolution of the latter will fully open or close the hydrant inlet, all said parts, substantially as described.

3. In a hydrant the combination with the shell, of a piston chamber arranged at right angles to the center line of said shell, a bushing arranged on one end of said piston chamber and provided with a series of parallel slots, a tube secured in the opposite end of the piston chamber and provided with a series of vent holes, a piston arranged in the bushing and adapted to control the inlet to the latter, a piston arranged in the tube and adapted to control the vent holes, and means for operating said two pistons simultaneously, all said parts, substantially as described and for the purposes set forth.

490,812. PUMPING-ENGINE. JOHN D. P. SCHENCK, Nashville, Tenn., assignor of one-half to George Matthews, Cincinnati, and William W. Peabody, Madisonville, Ohio. Filed Feb. 26, 1892. Serial No. 423,402. (No model.)



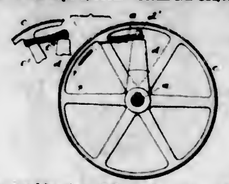
Claim.—1. The combination, in an air-compressor, of a steam cylinder having a chest provided with inlet and outlet passages and a pair of three-way valves, a pump cylinder having a chest provided with inlet and outlet passages and a pair of three-way valves, pistons traversing said cylinders and connected by a common rod, an arm projecting from said piston-rod and provided with a pair of actuating devices, and a single rock-shaft traversing said chests, without passing through their outer ends, and provided with a pair of bearings alternately operated by the actuating devices of said arm, the four three-way cocks being applied directly to said single rock-shaft, in order that they may all turn simultaneously and in the same direction, all as herein described.

2. The combination, in an air-compressor, of a steam cylinder and pump cylinder having valve-chests in line with each other, inlet and outlet passages and a pair of independently-seating three-way valves in each chest, a single rock-shaft to which said valves are directly applied, in order that they may turn simultaneously and in the same direction, and devices for rocking said shaft from the common piston rod of said cylinders, substantially as herein described.

3. The combination, in an air-pump or compressor, of the steam cylinder A, provided with a piston *a*, and chest D, having seats *d*, *d'*, passages E, F, and a pair of three-way valves G, G', a pump cylinder B, provided with a piston *b*, and chest H, having seats *k*, *k'*, passages I, J, and a pair of three-way valves K, K', a common valve-stem L, carrying said valves and wedges *l*, *l'*, a rod C, connecting said pistons *a*, *b*, an arm M, projecting rigidly from said rod and having inclined tappets *m*, *m'*, all as herein described.

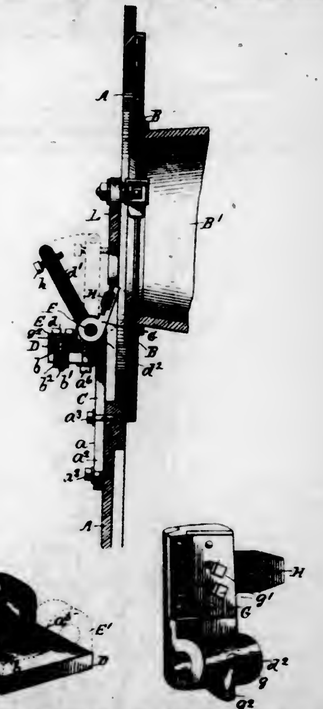
4. The combination, in an air-pump or compressor, of a pair of independently-seating three-way valves in the steam-cylinder chest, a pair of similar valves in the pump-cylinder chest, a common non-circular stem passing freely through said valves, collars attached to said stem, and springs applied between said collars and their respective valves, for the purpose described.

490,818. COUPLING FOR PULLEYS. CARL SCHLICHTING, Berlin, Germany. Filed Sept. 1, 1892. Serial No. 444,781. (No model.)



Claim.—The combination of the pulley, the arm and the inclined, breakable link connecting said arm and pulley, adapted to serve substantially as herein specified.

490,814. CROSING AND HOWELING MACHINE. JOHN A. SHAMAN, Chicago, Ill. Filed July 22, 1891. Serial No. 400,311. (No model.)



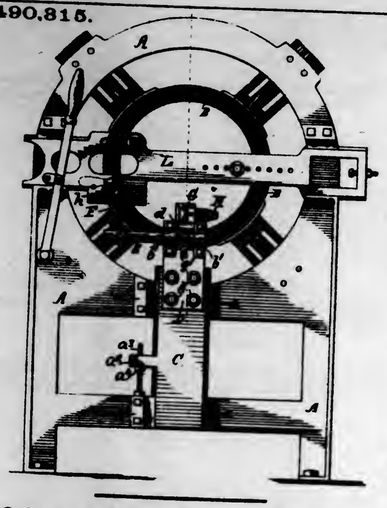
Claim.—1. The combination with a vertically adjustable supporting bracket, a table mounted thereon and adjustable to and from and laterally in the arc of a circle with respect to the work, and a rock shaft journaled on said table, of a holder mounted on said rock shaft and a cutter carried by said holder, substantially as set forth.

2. The combination with a table adjustable vertically, horizontally, and laterally in the arc of a circle with respect to the work, of a cutter holder carried thereby and having a positive limitation in its movement away from the work, and an adjustable limitation in its movement toward the work; substantially as described.

490,815. CROSING AND HOWELING MACHINE. JOHN A. SHAMAN, Chicago, Ill. Filed July 22, 1891. Serial No. 400,312. (No model.)

Claim.—The combination with the barrel retaining frame, of a slide vertically adjustable with respect thereto, the retaining guides, the plate bolted to the upper part of said slide, the rock shaft journaled in said plate, the holder mounted on said shaft, and the cutter seated in said holder, substantially as described.

490,315.

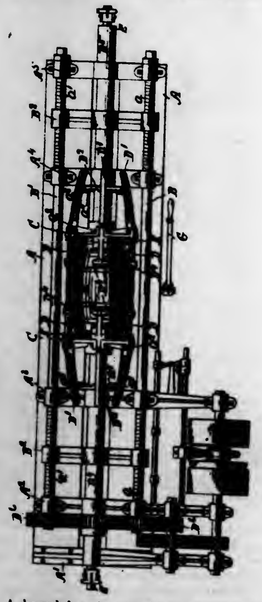


and the adjustable gage-plate, or plates, a^4, provided with guide-hooks adapted to engage the arms D' whereby the driver-arms may be set to approach the work at a proper angle, substantially as described.

5. In a barrel-hooping machine, the combination of a driver-arm, D, the head-block, D^3, pivoted to the inner end thereof and having a limited rocking movement, the companion head-pieces, D^4, provided with stems b^4 having an elongated slot and loosely inserted in said head-block, and the screw-bolts, passing through the respective ends of the head-block and engaging with said elongated slot, whereby the head-pieces are adapted to have an independent rocking movement, both with reference to each other and the retaining head-block, substantially as set forth.

6. In a barrel hooping machine, the combination with the main driving arms pivoted intermediate their lengths, of shorter driving arms pivoted to said main arms between the pivotal points and driving ends of the latter, whereby said shorter arms will follow the main arms in their adjustment toward and from the barrel, substantially as described.

490,316. MACHINE FOR HOOPING BARRELS. JOHN A. SHAHAN, Chicago, Ill. Filed Oct. 19, 1891. Serial No. 408,932. (No model.)



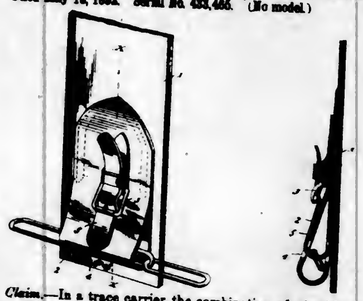
Claim.—1. A barrel hooping machine, wherein the series of drivers have an automatic adjustment, both toward and away from the barrel, and laterally with relation to the circumference of said barrel, substantially as described.

2. In a barrel hooping machine the combination with a drive arm and its head block, of two head pieces carried thereby, said pieces having an independent rocking movement both with reference to each other and to the head block, substantially as described.

3. In a barrel hooping machine, a driving head piece having a universal movement with respect to the barrel, substantially as described.

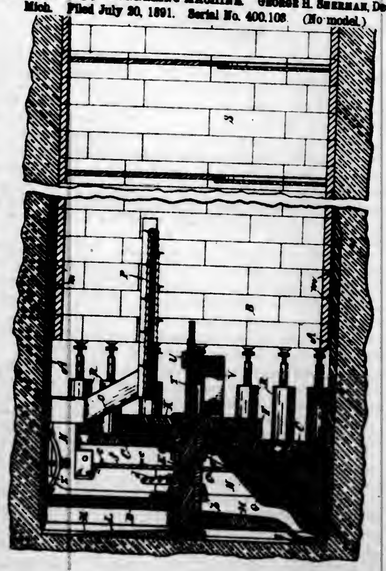
4. In a barrel-hooping machine, the combination of the circular driving-heads, the series of driver arms, D, pivoted thereto the spring-arms, D', secured to the outer ends of said driver-arms, the disks, D^2,

490,317. TRACE-CARRIER. WILLIAM E. SHAW, Charlotte, N. C. Filed May 18, 1892. Serial No. 433,465. (No model.)



Claim.—In a trace carrier, the combination of a backband having a loop thereon with an opening therein communicating with the interior of the lower portion thereof and a buckle on the exterior side of the same located above the said opening, and a supplemental strap having one end thereof permanently secured and the other end free, said free end of the strap being passed through said opening and a link of the trace, and extended upward over the outer side of the loop to removably engage the said buckle, substantially as described.

490,318. TUNNELING-MACHINE. GEORGE H. SHERMAN, Detroit, Mich. Filed July 20, 1891. Serial No. 400,108. (No model.)



Claim.—1. In a tunneling machine, the combination of the movable support or caisson, the revoluble excavating knives mounted therein to travel in opposite directions, and mechanism for driving said excavating knives, substantially as specified.

2. In a tunneling-machine, the combination of the movable caisson having the outer segmental bulk-head therein depending from the crown of the caisson and terminating at the axis thereof, the inner head crossing the entire diameter of the caisson some distance in the rear of said outer-head its upper edge terminating some distance above the lower edge of said outer head, forming an air-space between said heads, the revolable excavating knife mounted in said caisson so as to be withdrawn within said air-space, and mechanism for revolving said knife.

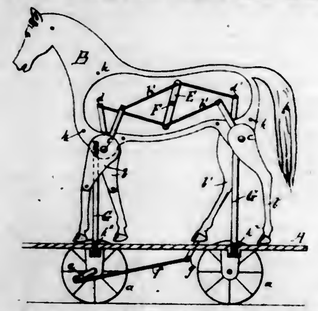
3. In a tunneling-machine, the combination of the movable caisson, the shaft journaled therein, the outer-bulk-head depending from the crown of the caisson and terminating at said shaft, the inner head extending diametrically across the caisson its upper edge terminating above the lower edge of the outer head, forming an air-space between said heads, the revolable excavating knife mounted on the outer end of said shaft and adapted to be withdrawn in under the outer head and into said air-space, and mechanism for driving said knife.

4. In a tunneling machine, the combination of the caisson provided with the head C, the segmental bulk-head in advance of the head C, and having the air-space between said heads, of the elevator passing through said air-space and discharging through the crown of the caisson, the revolable excavating knife journaled in said caisson, and the mechanism for operating said parts, as set forth.

5. In a tunneling machine, the combination of the caisson, the sleeve journaled therein carrying a gear-wheel on its inner end and an excavating knife on its outer end, the shaft passing through said sleeve, also having a gear-wheel on its inner end and carrying an excavating knife at its outer end, and means for rotating said gears so as to revolve the excavating knives in opposite directions.

6. In a tunneling machine, the combination of the caisson having the head C, the segmental bulk-head in advance thereof, and having the air-space between said heads, of the shaft carrying the excavating knife journaled in the head C so as to slide longitudinally, and means for adjusting said shaft endwise to withdraw the excavating knife within said air-space, as set forth.

490,319. TOY. EDWARD M. SKINNER and AUGUSTUS LEHNDORF, Canton, Ohio. Filed Aug. 6, 1892. Serial No. 442,357. (No model.)



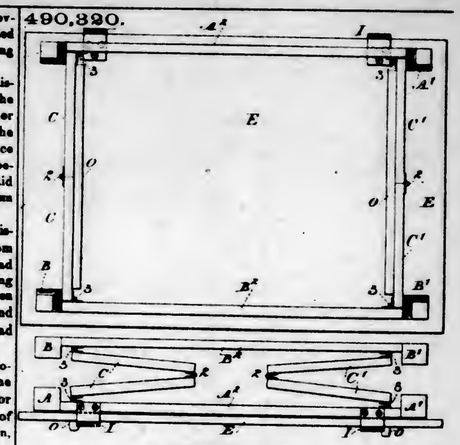
Claim.—In a toy the combination of the traveling platform A, the body B provided with the pivoted legs b and b', the arms d and d' the rock bar E, the connecting wires h' the bar g fixed to one of the legs b' the pitman f, the crank e the shaft D, the screw threaded apertures k' and k^4 and the posts G provided with right and left hand screw threads, substantially as and for the purpose specified.

490,320. FOLDING TABLE. SAMUEL SMITH, Pittston, Pa. Filed Oct. 7, 1892. Serial No. 448,107. (No model.)

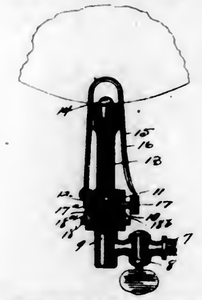
Claim.—1. The combination with the table legs united in pairs, of the bed pieces C hinged together in pairs and hinged to the respective pairs of legs, and the table top adapted to rest upon the legs when distended, and hinges near one edge of the table top for connecting the same to one pair of legs, so as to be reversible and hang down with the top surface next to the legs substantially as set forth.

2. The combination in a folding table of the legs united in pairs, the base pieces hinged together and to the respective pairs of legs, a table top, hinges for connecting the same near one edge to one pair of legs, and cleats upon the under side of the table top for holding the folding bed pieces when distended, substantially as set forth.

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490,321. SELF-CLOSING GAS-BURNER. ARTHUR SPEAR, Chicago, Ill., assignor of one-half to Edward F. Angell, same place. Filed Jan. 18, 1892. Serial No. 418,448. (No model.)



Claim.—1. In combination with a gas burner a thermostatic bow having one end secured to the side of the burner and arched above the tip thereof, a pin valve secured with the free end of said bow, a transverse aperture through which the pin valve slides, said aperture intersecting the supply way of the burner and a cam ring sleeved upon the body of the burner and adapted to thrust the bow outward whereby to withdraw the valve to cause its port to register with the supply way, said cam adapted when released to slide down so as to clear the bow, substantially as described.

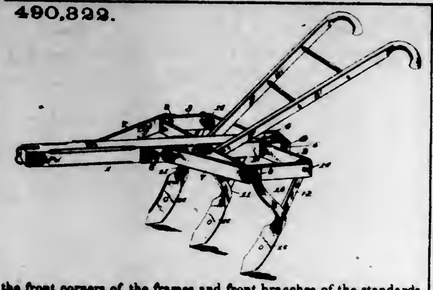
2. The combination with a gas burner having a supply way and a transverse aperture intersecting said supply way, a thermostatic bow having one end secured to the burner and the other to a pin valve adapted to slide in said aperture, said pin valve being normally in position to close said aperture, means for moving the pin valve to cause its port to register with the supply way, said bow when over heated being adapted to further withdraw the pin so as to partially close the port thereof whereby the quantity of gas consumed is regulated, substantially as described.

490,322. CULTIVATOR. COLUMBUS P. SUTTON, Hendrville, Ark. Filed Mar. 31, 1892. Serial No. 427,262. (No model.)

Claim.—1. The combination with the main beam, having a cultivator, of the opposite reversible and invertible substantially diamond-shaped frames removably bolted to the opposite sides of the beam and provided at their outer sides with bolt openings, and cultivator standards removably bolted to said frames, substantially as specified.

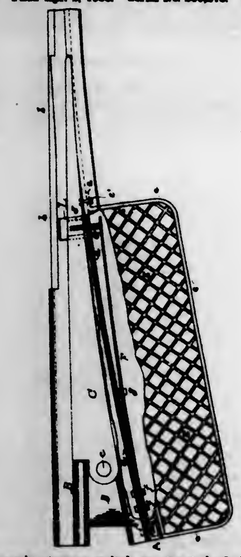
2. The combination with the cultivator-beam having the depending-standard, of the opposite reversible diamond-shaped frames terminating in laterally-bent securing ears, bifurcated standards having diverging branches connected to the front and rear corners of their respective frames, and the opposite braces removably bolted at their front ends to the opposite sides of the beam, and at their rear ends to

490,822.



the front corners of the frames and front branches of the standards, substantially as specified.

490,823. SPRING-TONGUE SWITCH. CLEMENT F. STREET, Milwaukee, Wis., assignor to the Johnson Steel Street Rail Company, of Kentucky. Filed Apr. 2, 1892. Serial No. 428,273. (No model.)



Claim.—A spring-tongue switch constructed of girder-rails, provided with a spring parallel to the web of one of said rails, connected at one end to said web, and provided with an adjusting bolt, having a bearing on said web, substantially as set forth.

490,824. DUMPING-CAR. EDWARD A. TRAFF, Paterson, N. J. Filed Apr. 20, 1892. Serial No. 429,894. (No model.)

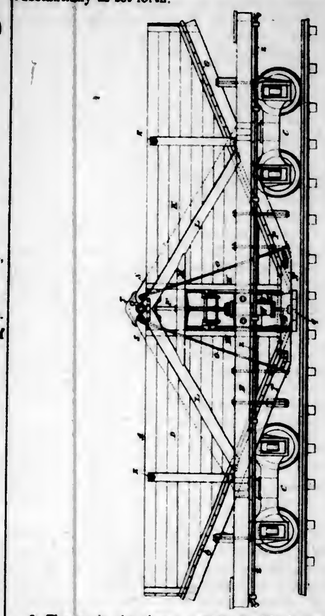
Claim.—1. The transportation car having the compartment provided with the inclined floor G and the discharge door, combined with the compressed air cylinder connected with said door for operating the same, and the supply pipe for compressed air to said cylinder; substantially as and for the purposes set forth.

2. The car having the compartments D, E, separated by a space and provided with the inclined floors G, the discharge doors and the corner inclines K; substantially as set forth.

3. The car having the compartments D, E, separated by a space and provided with the inclined floors and the discharge doors, combined with the beams S and the beam V extending through the compartments and connected with the bed frame; substantially as set forth.

4. The car having the compartments D, E, separated by a space and provided with the inclined floors and the discharge doors, combined with the inclined diverging beams L, horizontal beam M and rods O; substantially as set forth.

5. The car having the compartments separated by a space and provided with inclined floors and the discharge doors, combined with the air cylinder in said space, the supply pipe to said cylinder and mechanism intermediate the piston rod of said cylinder and said doors; substantially as set forth.

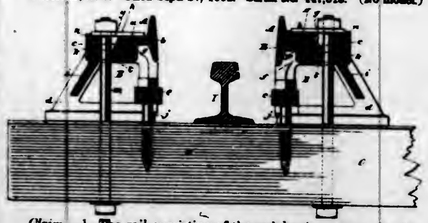


6. The car having doors, combined with the compressed air cylinder, the supply pipe to said cylinder, and lever mechanism intermediate the piston rod of said cylinder and said doors for operating the latter; substantially as set forth.

7. The series of doors, combined with the compressed air cylinder for each door or set of doors in said series, lever mechanism intermediate said door or set of doors and the cylinder, and the main supply pipe for the compressed air; substantially as set forth.

8. The car having the compartments separated by a space and provided with the inclined floors and discharge doors, combined with the compressed air cylinder, the levers *e*, *h*, connected with the piston rod of said cylinder, and the rods *i*, *m*, connecting said levers with the said doors; substantially as set forth.

490,825. GUARD-RAIL FOR RAILWAYS. EDWARD A. TRAFF, Paterson, N. J. Filed Sept. 27, 1892. Serial No. 447,013. (No model.)



Claim.—1. The rail consisting of the web having at one edge the double flange and at the other edge the arm extending at an obtuse angle therefrom; substantially as shown and described.

2. The rail consisting of the web having at one edge the double flange and at the other edge the arm extending at an obtuse angle therefrom, combined with the bed for said rail having an under-cut recess to receive the said arm; substantially as set forth.

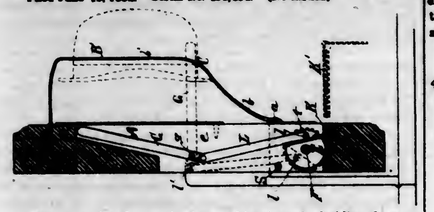
3. The rail consisting of the web having at one edge the double flange and at the other edge the arm extending at an obtuse angle therefrom, combined with the bed for said rail having the conforming recess to receive said arm, and the clip plate, substantially as set forth.

4. The guard rail, and the chair supporting same and having the bed *g* and shoulder *n*, combined with the clip plate secured on said bed and overlapping said guard rail; substantially as set forth.

5. The guard rail, and the chair supporting same and having the stud F, combined with the fish plates D, E, the lower of said plates having the elongated aperture G; substantially as set forth.

6. For use on curves and crossings the usual guard rail H combined with a guard rail supported with the edge of its double flange on said rail and increasing the height of said rail H; substantially as set forth.

490,826. LOCKING HAT-RACK. FRANK B. TROUT, Detroit, Mich. Filed June 13, 1892. Serial No. 436,451. (No model.)

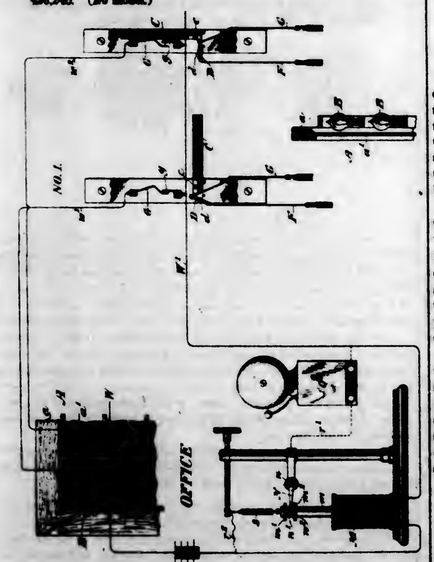


Claim.—1. In a hat rack, the combination of a holding frame, a locking lever, an actuating wheel actuating said locking lever, an interposed link connecting the wheel and lever, substantially as and for the purpose described.

2. In a hat rack, the combination of the hat holding frame, a locking lever, a toothed wheel adapted to operate said locking lever, a corrugated key-way, and a corrugated key provided with perforations, the teeth of the said toothed wheel extending into said key-way and adapted to engage with the perforations of said key, substantially as and for the purpose described.

3. In a hat rack, the combination of a metallic holding frame, a locking lever adapted to be thrown into locking engagement with said holding frame, an electric circuit, one terminal of which is formed by said holding frame, and another of which is formed by said locking lever, the said terminals being adapted to be insulated from each other by an interposed hat, and to form an electrical contact on the improper removal of such insulating hat, substantially as for the purpose described.

490,827. ELECTRIC-ANNUNCIATOR SYSTEM. HENRY VAN HOEVENBERGH, New York, N. Y. Filed Mar. 24, 1892. Serial No. 426,240. (No model.)

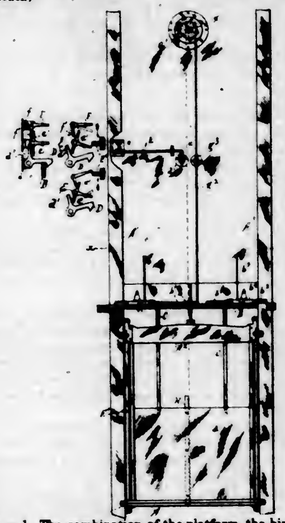


Claim.—1. In an annunciator system, the combination of an electric lamp, a circuit-closer for transmitting a current through said lamp, a visual signal which controls the action of said circuit-closer, and a frictionally mounted contact lever for momentarily actuating an audible signal, when said current is transmitted, substantially as set forth.

2. In an annunciator system, the combination of an electric lamp, a circuit-closer for transmitting a current through said lamp, a visual signal which controls the action of said circuit-closer, a device within a room for exhibiting said signal, and a device without said room for reversing said signal, substantially as set forth.

3. In an annunciator system, the combination of a helix, a core sustained upon a yielding support and movable within said helix, an electrical contact carried upon said core, or moving therewith, a contact-lever frictionally mounted upon a pivot, and an electrically actuated audible signal, substantially as and for the purpose set forth.

490,828. SAFETY DEVICE FOR PLATFORM-ELEVATORS. JACOB WALLENSTEIN, Cincinnati, Ohio. Filed Aug. 30, 1892. Serial No. 444,307. (No model.)



Claim.—1. The combination of the platform, the hinged door to close the floor-opening for the platform, the curved bars C, secured to the platform to open the door as the platform ascends, the gravitating catch D, having arm *d'*, the rock shaft E, having a bent end *e*, to trip the catch when the shaft is turned, the tappet secured upon the shaft, and the knocker E', secured upon the platform to move said tappet, rock the shaft and release the catch, substantially as hereinbefore set forth.

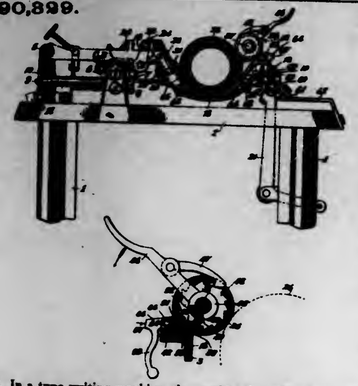
2. The combination in a platform elevator of the hinged door B, the curved bars secured to the platform to elevate it when the platform is ascending, the catch to hold the door open until tripped by a moving part of the platform, the rope drum driven by a click in one direction, the rack secured to the platform, and the pinion, ratchet, and pawl driven by said rack as the platform passes, the rope secured to the door and rope drum, and tripping mechanism operated by the platform to release the door after the platform has passed in either direction, substantially as shown and described.

3. In a trap door for use with platform elevators, the combination of the door body B, hinged to one side of the elevator well or shaft, slotted to pass the elevator cable and cut away at each forward corner to pass between the side guides A', the pivoted bar and spring to normally close the central slot, the sliding shutters at each side of the door, the springs to normally hold them open, and the cord attached to said shutters and the wall of the shaft, to draw said shutters closed when the door assumes the closed position.

490,829. TYPE-WRITING MACHINE. GEORGE B. WEBB, New York, N. Y., assignor to the Wyckoff, Seamans & Benedict, same place. Filed May 13, 1892. Serial No. 433,022. (No model.)

Claim.—1. In a type writing machine, the combination of a platen, and a platen-carrier depressed or sunken at each side or end below the plane of the underside of the platen, whereby paper of a greater width than the platen or the platen-carrier may be used.

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2. In a type writing machine, the combination of a platen, and a platen-carrier having its end or side bars depressed or sunken below the level of the underside of the platen.

3. In a type writing machine, the combination of a platen, a platen-carrier provided with depressed or sunken end bars below the level of the underside of the platen, and means for forcing said platen down upon said end bars.

4. In a type writing machine, the combination of a platen, a platen-carrier provided with depressed or sunken end bars below the level of the underside of the platen, and opposing feed-rollers arranged to contact with said platen on opposite sides and in a line above its center.

5. In a type writing machine, the combination of a platen, a platen-carrier having depressed or sunken end bars below the level of the underside of the platen, and opposing spring-pressed feed-rollers.

6. In a type writing machine, the combination of a platen, a platen-carrier having depressed or sunken end bars provided with ribs or projections, and means for forcing said platen against said ribs or projections.

7. In a type writing machine, the combination of a platen, and a platen-carrier, the back and front bars of which stand above the center of the platen and the end bars of which are bent or shaped to pass beneath said platen.

8. In a type writing machine, a platen carrier, the end bars or members of which are substantially U-shape to receive and support the periphery of a cylindrical platen.

9. In a type writing machine, the combination of a platen, a platen-carrier having depressed or sunken end bars, a pivotally-mounted feed-roller, and springs passing around the underside of said platen serving to force said roller against said platen.

10. In a type writing machine, the combination of a platen, a platen-carrier having depressed or sunken end bars, a feed roller mounted in pivoted arms or links, and a pair of springs, each connected at one end to said feed-roller and, after passing around the underside of the platen, at its opposite end connected to the platen-carrier.

11. In a type writing machine, the combination of a platen, a platen-carrier having depressed or sunken end portions, a pair of links, a feed-roller, a feed-roller shaft or axle mounted to turn in said links, and a pair of springs each of which is pivotally-connected at one end to the shaft or axle of said roller, and, after passing around the under side of said platen at its opposite end is connected to the platen-carrier.

12. In a type writing machine, the combination of a platen, a platen-carrier, a feed-roller, a feed-roller shaft or axle mounted in pivoted supports or links, a bracket attached to each end of said shaft or axle, and springs arranged to pass around the underside of the platen and hinged or pivoted each at one end to one of said brackets.

13. In a type writing machine, the combination of a platen, a platen-carrier having sunken or depressed side bars, a shaft or axle, a roller mounted thereon to bear upon the platen above its longitudinal center; and a pair of hinged spring-pressed brackets for supporting said shaft or axle above the plane of the platen-carrier.

14. In a type writing machine, the combination of a platen, a platen-carrier, a bracket hinged to the bar of said platen-carrier and consisting of a base-plate and an upwardly-extending arm provided with a bearing, a shaft or axle having a feed-roller supported in said bracket, a screw passing through a perforation in said base-plate and engaging a threaded hole in the bar of the platen-carrier, and a spring arranged between the upper surface of the base-plate and the underside of the head of the screw.

15. In a type writing machine, the combination of a platen, a platen-carrier having depressed or sunken end portions, a feed-roller pressing against said platen or the paper thereon, and line-spacing devices for turning said roller and said platen and moving the paper lengthwise.

16. In a type writing machine, the combination of a platen, a platen-carrier, a spring-pressed feed-roller, a line-space lever having a driving-pawl mounted on the shaft or axle of said roller, a ratchet-wheel fast on said shaft or axle, and a returning spring connected at one end to the line-space lever, and at the other end to a relatively-fixed member of the platen-carrier.

17. In a type writing machine, the combination of a platen, a platen-carrier having depressed or sunken end bars a release key-lever pivoted to one of said bars and bent to pass below the plane of the underside of said platen and arranged to extend forward of said platen, and the carriage feeding or escapement devices.

18. In a type writing machine, the combination of carriage feeding or escapement devices, a platen, a platen carrier having depressed or sunken end bars, and a release key-lever pivoted to one of said end bars and bent to pass below the plane of the underside of said platen and formed with a slot which embraces a guide and stop pin arranged on said end bar.

19. In a type writing machine, the combination with a platen-carrier, of a rotatory platen without axle or pivots.

20. In a type writing machine, the combination with a platen-carrier, of a rotatory platen without axle or pivots, and held in working position by pressure on its periphery.

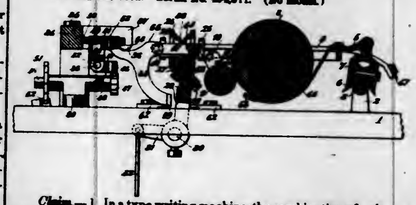
21. In a type writing machine, the combination of a platen-carrier, open at its ends in the line of the platen, a rotatory platen unattached at either end to said carrier, and means applied to the periphery of said platen for holding the same in working position.

22. In a type writing machine, the combination with a platen-carrier, of a rotatory platen without axle or pivots, and paper feeding devices which operate to also hold the platen in working position.

23. In a type writing machine, the combination with a platen-carrier, of a rotatory platen without axle or pivots, and paper feeding rollers which operate also to hold the platen in working position.

24. In a type writing machine, the combination of a platen carrier having depressed or sunken end bars, a pivotless rotatory platen, and paper feeding devices.

490,880. TYPE-WRITING MACHINE. GEORGE B. WEED, New York, N. Y., assignor to the Wyckoff, Seamans & Benedict, same place. Filed May 31, 1892. Serial No. 434,571. (No model.)



Claim.—1. In a type writing machine, the combination of a platen-carrier, a hinge-and-guide-rail therefor, and a step-by-step carriage arranged in rear of and detached from said hinge-and-guide-rail and connected to the platen-carrier back of said rail in a manner such as to carry said platen-carrier and also permit the platen-carrier to have an independent vibratory movement about said hinge-and-guide-rail.

2. In a type writing machine, the combination of a hinged platen-carrier, a hinge-and-guide-rail therefor, and a carriage having a sliding movement only, the said platen-carrier and the said carriage being loosely connected in rear of said hinge-and-guide-rail to enable the said platen-carrier to be turned up and down upon said rail as a center of motion independently of said carriage and to also move longitudinally upon said rail.

3. In a type writing machine, the combination of a carriage having a sliding movement only, a platen-carrier loosely-connected thereto, and a hinge-guide-and-shift-rail for said platen-carrier.

4. In a type writing machine, the combination of a sliding carriage, a platen-carrier loosely-connected thereto, and a hinge-guide-and-shift-rail for said platen-carrier arranged in front of the carriage and the point of connection between the carriage and the platen-carrier.

5. In a type writing machine, the combination of a carriage provided with a forwardly-extending arm, a hinged platen-carrier provided with a rearwardly-extending fork, and a hinge-and-guide-rail arranged forward of the fork, upon which said platen-carrier both swings and moves longitudinally.

6. In a type writing machine, the combination of a carriage having a forwardly-extending arm and a downwardly-curved arm, a platen-carrier having a rearwardly-extending fork, and a hinge-and-guide-rail arranged forward of the fork, upon which the platen-carrier both swings and moves longitudinally.

7. In a type writing machine, the combination of a carriage having a forwardly-extending arm and a downwardly-curved arm provided with a stop, a platen-carrier having a rearwardly-extending fork, and a hinge-and-guide-rail.

8. In a type writing machine, the combination of a carriage having a forwardly-extending arm and a downwardly-curved arm, a platen-carrier having a rearwardly-extending fork, and a hinge-guide-and-shift-rail.

9. In a type writing machine, the combination of a carriage, a platen-carrier loosely-connected thereto, a hinge-and-guide-rail, and a catch for preventing the platen carrier from being lifted bodily from said rail and accidentally disconnected from the carriage.

10. In a type writing machine, the combination of a carriage, a platen-carrier loosely connected thereto, a hinge-and-guide-rail, and a hook attached to the platen-carrier and surrounding the underside of the hinge-and-guide-rail.

11. In a type writing machine, the combination of a carriage having a forwardly-extending arm, a platen-carrier having a rearwardly-extending fork, and a pair of grooved rollers, a hinge-and-guide-rail, and a hook.

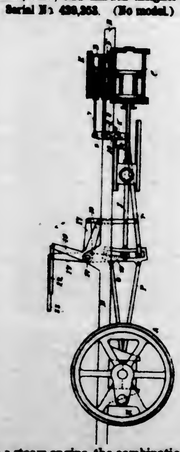
12. In a type writing machine, the combination of a carriage having a forwardly-extending arm and a downwardly-curved arm, a platen-carrier having a rearwardly-extending fork and a pair of grooved rollers, a hinge-guide-and-shift-rail, and means for actuating the same.

13. In a type writing machine, the combination of a bracket, a slide or carriage guided therein and provided with a forwardly-extending arm and a downwardly-curved arm, a platen-carrier provided with a rearwardly-extending fork, and a hinge-and-guide-rail forward of said fork, upon which the platen-carrier both swings and moves longitudinally.

14. In a type writing machine, the combination of a bracket, a slide or carriage guided therein, a pivoted rack-bar suspended from said slide, or carriage and connected with the escapement mechanism, a platen-carrier connected to said slide or carriage, a hinge-and-guide-rail therefor, and a release-key on the platen-carrier and connected to the said pivoted rack-bar.

15. In a type writing machine, the combination with a cylindrical guide-rail, of a platen-carrier provided with a grooved roller having faces to match the surface of said rail, and having also between said faces nearer the pivot of said roller, an annular depression.

490,881. VALVE-GEAR. FREDERIC C. WEIR and EDWARD W. HARDEN, Cincinnati, Ohio; said Harden assignor to said Weir. Filed Apr. 15, 1892. Serial No. 429,263. (No model.)



Claim.—1. In a steam engine, the combination with a supporting frame B, a cylinder C, a steam chest D, auxiliary and main valves E and F, cams A', cam rods O and P, and radial valve rods r and s, of the rock shafts K and K' mounted on the supporting frame and provided with crank arms 9 and 10 connected with the auxiliary and main valves and with crank arms 11 and 12 connected with the radial valve rods, substantially as described.

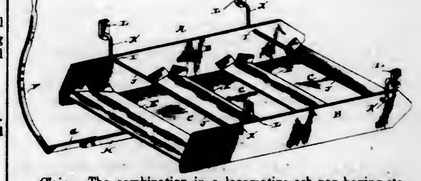
2. In a steam engine, the combination with a supporting frame B, a cylinder C, a steam chest D, auxiliary and main valves E and F, cams A', cam rods O and P, and radial valve rods r and s, of the rock shafts K and K' mounted on the supporting frame and provided with crank arms 9 and 10 connected with the auxiliary and main valves and with crank arms 11 and 12 connected with the radial valve rods, and the bell crank levers 17 and 19 pivoted to the supporting frame and connected with the radial valve rods, substantially as described.

3. In a locomotive, the combination with the eccentric rods P, O upon each side of the engine, of the link L on each side of the engine, each supporting the radial valve rods r s, the eccentric shafts 14 and 16, the bell crank levers 17 and 19, secured respectively to said shafts, the valve moving mechanism connected respectively to the radial valve rods upon each side of the engine, and the lever connecting mechanism for separately and simultaneously operating the said valve rods on each side of the engine by one set of levers, substantially as described.

4. In combination with the link L, supporting the radial valve rods r, s, the bellcrank levers 17, 19, secured respectively to the concentric shafts 14 and 16, and lever mechanism connected to said shafts respectively, whereby they may be simultaneously or separately operated, substantially as specified.

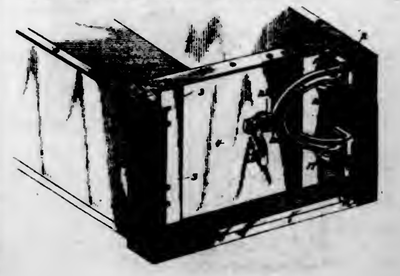
5. In a locomotive having an engine upon each side thereof, controlled by a main and auxiliary valve, a link L, supported upon a pendulous arm upon each side of said locomotive, the central shafts 14, the sleeve shaft 16 extending across the frame of the locomotive, the bellcrank 19, and crank arm 20 attached to each end of said shaft, and the bellcrank 17, and crank arm 18 attached to the sleeve shaft and severally connected to the radial valve rods supported in said compound links, and the levers 21, 24, connected respectively to said shafts 14 and 16, for operating the valves of the two engines simultaneously, substantially as specified.

490,882. LOCOMOTIVE ASH-PAN. ARTEMUS WELSH and ALBERTUS WELSH, Lawrence, Kans., assignors of one-half to J. M. Jones and J. R. Greenlees, same place. Filed Oct. 18, 1892. Serial No. 449,302. (No model.)



Claim.—The combination in a locomotive ash pan having stationary slats, a sliding dumping bottom moving under the slats, and perforations in the opposite sides thereof, of opposite parallel rock shafts having crank ends journaled in depending supports, said shafts extending transversely across and loosely engaging the perforations in the sides of the pan, and a single operating lever connected with the sliding bottom to control the same and also to provide means for simultaneously swinging the pan, substantially as set forth.

490,883. END-GATE. CARL A. ANDERSON, Lynn Centre, Ill. Filed Oct. 31, 1892. Serial No. 450,543. (No model.)



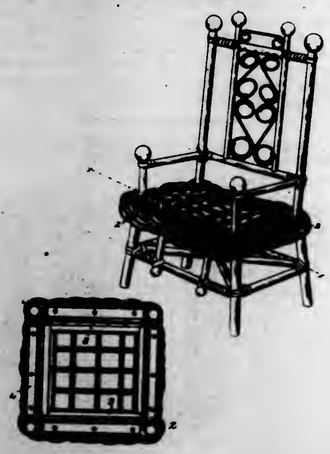
Claim.—1. The combination with a wagon body, of the vertical side plates provided at their rear edges with vertical flanges and having stop flanges at their tops and provided on their faces with sockets, an end gate having beveled ends, the plates 3 and 15 having angularly disposed portions fitting the ends of the end gate and provided with vertical flanges to engage those of the side plates and having at their tops lugs arranged to engage the stop flanges of the side plates, said plate 3 being provided with tongues to engage the sockets of one of the side plates, a forked locking lever fulcrumed on the plate 15 and provided with lugs to engage the sockets of the other side plate and a latch for securing the lever in operative position, substantially as described.

2. The combination with a wagon body, of the vertical side plates provided at their inner edges with vertical flanges and at their tops with stop flanges and having in their faces recesses and sockets composed of an L-shaped flange forming the top and the front of the socket and spanning its recesses and a horizontal flange forming the bottom of the socket, an end gate having beveled ends, the plates 3 and 15 having angularly disposed portions fitting the beveled ends of the end gate and provided with vertical flanges and having lugs at their tops, the hollow flanged tongues formed integral with the plate 3 and having projecting ends and adapted to engage the sockets of one of the side plates, a forked lever fulcrumed on the plate 15 and provided with projecting lugs adapted to engage the sockets of the other plate and a latch to secure the lever in operative position, substantially as described.

3. The combination with a wagon body, of the vertical side plates provided at their inner edges with vertical flanges and at their tops with stop flanges and having in their faces recesses and sockets composed of an L-shaped flange forming the top and the front of the socket and spanning its recesses and a horizontal flange forming the bottom of the socket, an end gate having beveled ends, the plates 3 and 15 having angularly disposed portions fitting the beveled ends of the end gate and provided with vertical flanges and having lugs at their tops, the hollow flanged tongues formed integral with the plate 3 and having projecting ends and adapted to engage the sockets of one of the side plates, the forked lever fulcrumed on the plate 15 and provided with lugs to engage the sockets of the other side plate and having a slotted shank, a notched lug mounted on the end gate and adapted to enter the shank and project through the same, and the latch lever pivotally mounted on the shank and having a circular head arranged to engage the notch of the lug, substantially as described.

4. The combination with a wagon body of vertical side plates secured to the sides of the body and having recesses and provided with sockets composed of the L-shaped flanges and the lower flanges 11, an end gate, the plates 3 and 15 secured to the end gate, the tongues formed integral with the plate 3 and adapted to engage the sockets of one of the side plates, the forked lever fulcrumed on the plate 15 and adapted to engage the sockets of the other side plate and a latch for locking the said lever in operative position, substantially as described.

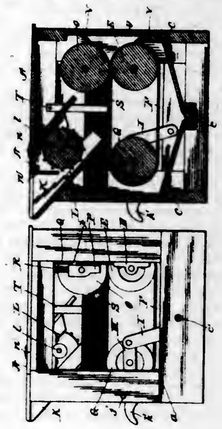
490,884. CHAIR. CLAIR F. J. BEER, Wakefield, Mass. Filed June 7, 1892. Serial No. 435,867. (No model.)



Claim.—1. A chair, divan, or like article of furniture consisting of a seat-frame formed with suitable openings, a woven seat-covering of cane, reeds, or like material extending and secured beneath said frame, and supporting legs extending through the woven seat-covering into the inclosed seat-frame thereby assisting in holding the seat-covering stretched over the seat-frame; substantially as set forth.

2. A chair, divan, or like article of furniture consisting of a seat-frame formed with suitable openings, a woven seat-covering of cane, reeds, or suitable material extending in one integral piece over the entire seat-frame and down around and beneath the said frame and secured beneath said frame, thereby assisting in holding the seat-covering stretched over the seat frame, supporting legs extending through the woven seat-covering into the inclosed seat-frame, and a back and arm rests having their posts extended through the woven seat-covering into the seat-frame for the same purpose; substantially as set forth.

490,885. CIDER MILL AND PRESS. DANIEL F. BRUMBEY, Lancaster, Ohio, assignor of one-half to Mark W. Brindle and Charles E. Reese. Filed Apr. 28, 1892. Serial No. 430,977. (No model.)



Claim.—1. In a cider mill, the combination with the casing having opposite removable sides, of a fixed belt roller mounted at one end and near the bottom of said casing, swinging roller supports, an opposite horizontally movable belt roller mounted in said swinging supports, means for adjusting said swinging supports, a permeable endless belt working over said rollers, a spring actuated vertically yielding pressure roller normally bearing on the belt directly over the fixed belt roller, a toothed feeding roller journaled over the other end of the belt, vertical supporting arms secured at their upper ends to the top inner sides of the casing, and horizontal side fenders secured to the lower ends of said arms and arranged over the opposite edges of the belt between the feeding and pressure rollers, substantially as set forth.

2. In a cider mill, the casing having opposite side and end openings, a fixed belt roller located at one end of said casing, swinging supporting links pivotally secured at their lower ends to the opposite sides of the casing, horizontally adjustable bars working through said end openings and pivotally connected at their inner ends to said swinging links and provided with a series of adjusting notches, locking studs projecting within said end openings and adapted to be engaged by the notches in said bars, a horizontally adjustable belt roller journaled in said opposite adjusting bars, an endless belt passing over said belt rollers and crushing rollers arranged over said endless belt, substantially as set forth.

3. In a cider mill, the inclosing casing, a horizontally arranged endless belt working in said casing, a spring pressed pressure roller normally bearing on one end of said belt, an inclined hopper arranged over the other end of said belt within the casing, a toothed crushing and feeding roller arranged within said hopper, a drop door hinged to the top of the casing and having a depending vertical wall adapted to inclose a portion of the crushing roller to direct the apples thereunder and the opposite screen fenders arranged along opposite edges of said endless belt between the pressure and crushing rollers, substantially as set forth.

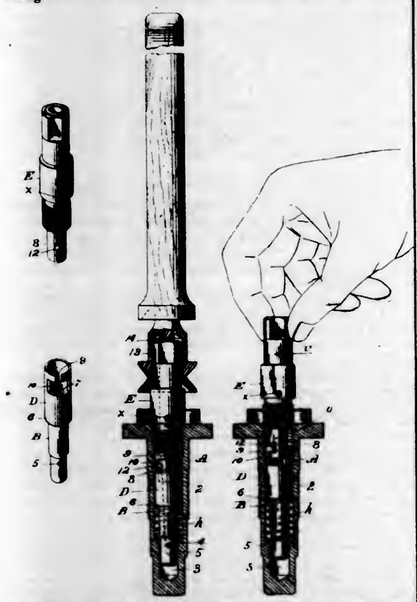
490,886. HARROW. KENNEDY C. BILLARD, Milledgeville, Ga., assignor of one-half to Burke D. Brown, same place. Filed Apr. 30, 1892. Serial No. 431,257. (No model.)



Claim.—In a harrow, the combination with a beam, of a pair of rear harrow-bars, each consisting of two hinged sections, pivotal connections between the rear ends of the harrow-bars and the beam, two front harrow-bars each consisting of two sections hinged together, the outer sections being pivoted to the outer sections of the rear harrow-bars, and the front sections pivotally connected to each other and a sleeve mounted loosely on the beam and adapted to be adjusted and pivotal connections between the front sections of the front bars and the sleeve, substantially as specified.

490,887. SPINDLE BOLSTER AND STEP. CHARLES G. BUTTRICK, Holyoke, Mass. Filed May 19, 1892. Serial No. 433,543. (No model.)

Brief.—To effectually interlock the bolster and step, the latter is provided with a horizontal slot and an opening from the upper edge of the step communicating therewith, a spiral spring tending to force the step upward, while the bolster is provided with a pin to engage the openings in the step and is screw-threaded to engage the bolster-casing.

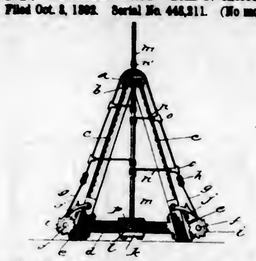


Claim.—1. Means for effecting the automatic interlocking of a spindle-bolster and step, consisting of a spring acting to move the step toward the bolster, a step having a socket in its upper end to receive the lower end of the bolster, and interlocking devices, substantially as described, at the meeting ends of said bolster and step, combined with the bolster and a case, substantially as described, to receive said bolster, step, and spring, substantially as set forth.

2. In combination, a step and bolster case having a shoulder around its inner wall, a coil spring resting by its lower end on said shoulder, a spindle step having a shoulder under which said spring engages, and a socket in its upper end in the side of which is a slot and an opening, substantially as described, a spindle-bolster screwing into said case whose lower end enters said socket, and having thereon a projecting pin for engagement with the borders of said slot and opening whereby the step and bolster are interlocked, substantially as set forth.

3. In combination, a spindle-step having a socket in its upper end in the side of which is a slot and an opening substantially as described, and a spindle bolster whose lower end enters said socket having thereon a projecting pin for engagement with the borders of said slot and opening, substantially as set forth.

490,888. LEATHER-FRAME. LUKE F. CAUFFIELD, Ashtabula, Ohio. Filed Oct. 3, 1892. Serial No. 448,311. (No model.)



Claim.—In a leather-stretching machine, the combination of a frame, a stretching-beam supported thereon, devices for engaging the horizontal edges of the leather and drawing the same taut over the beam, a vertical shaft journaled at each end of the frame, means for locking these shafts against rotation, cords connected at intervals to these shafts and carrying means for gripping the vertical edges of the leather, a cord connected to each of the shafts near its upper end and carrying means for gripping that portion of the leather adjacent to the beam, whereby gathering on the beam is prevented, substantially as described.

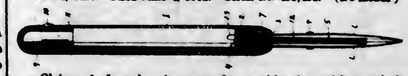
490,889. LEATHER-FRAME. LUKE F. CAUFFIELD, Ashtabula, Ohio. Filed Nov. 2, 1892. Serial No. 450,752. (No model.)



Claim.—1. The combination of a frame, carrying a stationary beam *a*, a vertically movable stretching beam *d* supported above the beam *a*, springs interposed between the two beams for normally upholding the upper beam, whereby as the stretched leather dries the upper beam may yield correspondingly to maintain approximately the original tension, substantially as described.

2. The combination of a frame, supporting a stationary beam, a stretching-beam supported above said beam, a rack-bar carried by one of the beams and a series of spring-pawls secured to the other of said beams and having their free ends normally engaging said rack bar, substantially as and for the purpose described.

490,340. FORCE-FEED RULING-PEN. EDMUND DICKEY, Fremont, Ohio. Filed June 4, 1892. Serial No. 435,692. (No model.)

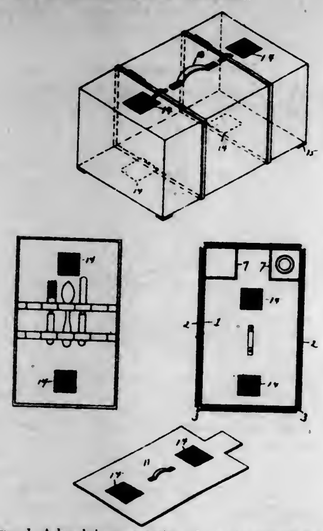


Claim.—1. In a drawing pen, the combination with a tubular body open at one end, of the screw plug having a central recess and perforation, the conducting pipe, the opposing blades the wedge between the blades and pipe, the encircling band for holding the blades.

2. In a drawing pen, the combination with the tubular body portion carrying the pen at one end and having a perforation near its upper end, a cylindrical compressor within the body portion, a pro-

junction thereon projecting through the body, and an annular enlargement at the end of the compressor adapted to bear upon the inner surface of the tubular body portion and prevent the escape of ink.

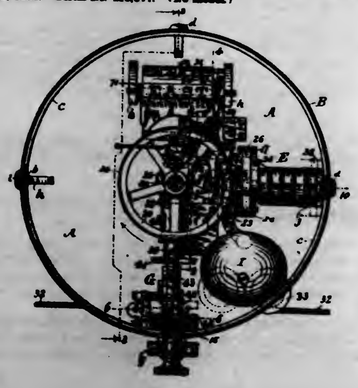
490,841. LUNCH-BOX. JOSEPH P. DUVAL, Richmond, Mo. Filed July 14, 1892. Serial No. 440,301. (No model.)



Claim.—1. A lunch box consisting of a body portion having on its bottom suitable feet and having in its corners suitable vessel compartments and having a set of upper and lower compartments separated by the horisontal diaphragm or partition, suitable netted perforations in the bottom of the body portion and suitable netted perforations in the horizontal disphragm or partition, and a suitable cover adapted to fit over said body portion and secured thereto in any suitable manner, said cover also being provided in its top with suitable netted perforations, thereby permitting a circulation of air to pass from beneath the box out through the top.

2. A lunch box consisting of a body portion having attached to each of its outer four sides flaps 2, said flaps hinged at their lower edges to the body of the box and the perpendicular edges of said flaps connected by the strips of fabric 3, to the body of the box, thereby forming pockets between said flaps and box, and a suitable top adapted to fit over the body of the box and being secured thereto in any suitable manner.

490,842. STREET-CAR REGISTER. LEO BEELICH, St. Louis, Mo., assignor to the St. Louis Register Company, same place. Filed Oct. 26, 1891. Serial No. 410,077. (No model.)



Claim.—1. The combination with the trip and permanent registers having their axes at right angles to one another, and their intermeshing beveled gears, of a ratchet connected with one of said beveled gears, an actuating pawl for the ratchet for moving both registers simultaneously step by step, an abutment for preventing the movement of the beveled gear of the permanent register and normally out of action, and means for disconnecting the beveled gears and placing said abutment in action, whereby the registers are disconnected and the permanent register locked against rotation, substantially as described.

2. The combination with the trip register, and its bevel wheel, a permanent register having its axis at right angles to the axis of the trip register, and its bevel pinion meshing with said bevel wheel, of a ratchet connected to said bevel pinion, an actuating pawl for the ratchet, and means for moving the pinion, ratchet, and pawl out of operative position to disconnect the trip and permanent registers, substantially as described.

3. The combination with the trip register, a permanent register having its axis at right angles to the trip register, a bevel wheel and intermeshing bevel pinion connected with the registers, of a ratchet connected to the bevel-pinion, an actuating pawl, a stop for locking the actuating pawl, and means for moving the pinion, ratchet, and pawl to disconnect the registers and lock the pawl, substantially as described.

4. The combination with the trip register, and a permanent register having its axis at right angles to the trip register, and a rocking frame in which the permanent register is mounted, of an actuating pawl, a stop for locking the same, and means for rocking the frame to disconnect the trip register and lock the pawl, substantially as described.

5. The combination with the trip register, and a rocking frame supporting the permanent register, and a pinion connecting it with the trip register, of an actuating pawl also carried by the rocking frame, and means for rocking the frame to disconnect the pinion, substantially as described.

6. The combination with the trip register and a rocking frame supporting the permanent register and the actuating pawl carrier and pawl, of a projection on the pawl carrier, an abutment, and means for rocking the frame to move the projection behind the abutment to lock the register against movement, substantially as described.

7. In a register, the combination with the rocking frame, of the actuating pawl carrier and pawl supported by the frame, a projection on the carrier, a coacting abutment and means for rocking the frame to move the projection behind the abutment to lock the pawl carrier, substantially as described.

8. In a register, the combination with the rocking frame, of the actuating pawl carrier and pawl supported by the frame, an abutment, a coacting projection on the carrier with a continuous rearward surface preventing the rocking of the frame until the carrier is returned to its normal position and means for rocking the frame to move the projection behind the abutment to lock the carrier, substantially as described.

9. In a register, the combination with the rocking frame supporting the permanent register and a pinion, of the trip register in gear with said pinion, and a reciprocating slide connected with said frame for rocking the pinion into and out of gear with the trip register, substantially as described.

10. The combination with the trip register, of a rocking frame, the permanent register, the actuating pawl and a pinion for gearing with the trip register, all supported by said frame and a reciprocating slide connected with the frame for rocking the latter to move the pinion into and out of gear, substantially as described.

11. In a register, the combination with the bevel gear of the trip register and a bevel pinion for rotating the gear, of an actuating pawl carrier and pawl for moving the pinion, said pawl-carrier mounted loosely on the shaft of the bevel pinion; and a detent moved by the carrier into engagement with the teeth of the bevel gear to prevent over movement of the trip register, substantially as described.

12. The combination with the trip register, of a setting device therefor consisting of a longitudinally movable and revoluble shaftand a coupler for connecting the shaft to the trip register, said coupler including a latch adapted to become locked to the co-operating part of the coupler, whereby upon the initial longitudinal movement of the setting-device the coupler is locked against disengagement, substantially as described.

13. The combination with the trip register, and an actuating pawl, of a setting device for the register consisting of a longitudinally movable and revoluble shaft and a coupler for connecting the shaft to the trip register, and connections between the setting device and the actuating pawl for disconnecting it from the register during the operation of said device, substantially as described.

14. The combination with the trip and permanent registers, of a setting device for the trip register, consisting of a longitudinally

movable and revoluble shaft and a coupler for connecting the shaft to the trip register, and connections with said setting device for disconnecting said two registers during the operation of the setting device, substantially as described.

15. The combination with the trip and permanent registers and a pivoted frame supporting the permanent register, of a setting device for the trip register, consisting of a longitudinally movable and revolable shaft and a coupler for connecting the shaft to the trip register, and a connection between the shaft and the frame for rocking the latter to disconnect the registers, substantially as described.

16. The combination with the trip register having a disk containing a recess movable in unison therewith, of a longitudinally movable and revoluble latch for engaging the disk and its recess for setting the trip register to the zero position, substantially as described.

17. The combination with the trip register having a disk movable in unison therewith, of a longitudinally movable and revoluble latch for engaging the disk for turning the register to the zero position, and a guide coacting with the latch to determine its return longitudinal movement, substantially as described.

18. The combination with the trip register, having a disk movable in unison therewith, of a longitudinally movable latch for engaging the disk, and a grasping piece for turning the latch, disk and register, substantially as described.

19. The combination with the trip register having a disk with a recess movable in unison therewith, of a longitudinally movable latch for engaging the recess in the disk, a guide for holding the latch in engagement with the recess, and a grasping piece for rotating the latch, disk, and register, substantially as described.

20. The combination with the trip register having a disk movable in unison therewith, of a longitudinally movable latch for engaging the disk, a guide for holding the latch in engagement therewith, means for rotating the latch, disk and register, and a stop limiting the movement of the latch, substantially as described.

21. The combination with the trip register having a disk movable in unison therewith, of a longitudinally movable latch for engaging the disk a grasping piece for revolving the latch, disk and register, and a zero stop and abutment for stopping the register at the zero position, substantially as described.

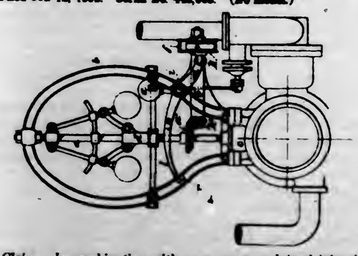
22. The combination with the trip register having a disk movable therewith, and an actuating pawl carrier and pawl, of a longitudinally movable latch for engaging the disk, a grasping piece for rotating the latch, disk and register, a zero stop on the register, and an abutment on the pawl carrier, and connections with the latch to move the abutment into the path of the zero stop, substantially as described.

23. The combination with the trip-register and a beveled and recessed disk movable in unison with said register, of a longitudinally movable latch for locking engagement with the beveled disk, to prevent the return of the latch until the recess is in line with said latch and means for returning the trip-register and disk to the normal starting position, substantially as described.

24. The combination with the trip and permanent registers, of a revoluble direction indicator, a setting device for returning the trip register to zero, a reciprocating slide operated by the setting device, and an anchor-lever connected with the slide for rotating the indicator two half steps for each change of direction, substantially as described.

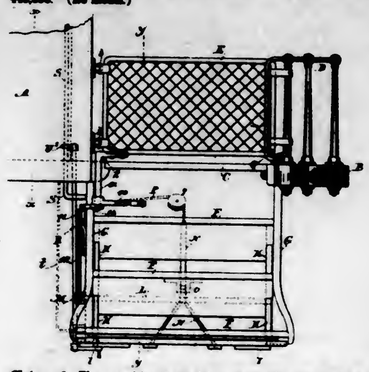
25. The combination with the trip and permanent registers, of a direction indicator, a setting device for returning the trip register to zero and connections for changing the indicator and a guard for the indicator moved with the setting device, substantially as described.

490,843. ENGINE-GOVERNOR. RICHARD DE ROCHEMONT, Paris, France. Filed Oct. 12, 1892. Serial No. 448,663. (No model.)



Claim.—In combination with a governor and its driving belt a lever having on one end a pulley which turns on the driving belt and a forked arm *l* on its other end arranged to straddle the governor shaft an arm rigid with the said lever and extending up from the pivotal point thereof a weight on the said arm a sleeve on the said shaft and valve-operating connections whereby the lifting of the said sleeve by the said lever closes the said valve substantially as set forth.

490,844. RAILWAY-CAR STEP. HENRY C. FARNHARDT, New York, N. Y. Filed Oct. 24, 1891. Renewed July 27, 1892. Serial No. 440,833. (No model.)



Claim.—1. The combination with a movable step and its slide bars, of stationary slide ways for such slide bars and a central forked lifter connected at its lower end with the movable step, and a stationary guide through which such lifter passes and a chain or connection to the upper end of the lifter for drawing up the step, substantially as set forth.

2. The combination with the movable step and its slide bars and stationary slide ways, of a central lifter connected with the movable step, a stationary guide through which the lifter passes, a chain connected to the upper end of the lifter and passing through the platform for lifting the movable step by hand from above the platform, substantially as set forth.

3. The combination with the stationary car steps and their side pieces, of a movable step, slide bars connected with the step, and stationary slide ways for the slide bars, a central lifter connected with the movable step and a stationary guide through which the lifter passes, the cross shaft and pawls for sustaining the slide bars and movable step, substantially as set forth.

4. The combination with the stationary steps, swinging platform and gate, of a movable step, a central lifter connected with the movable step and a stationary guide for the lifter, a chain extending from the lifter, pulleys for the chain and an arm upon the gate to which the chain is connected, substantially as set forth.

5. The combination with the stationary steps and the movable step, of slide bars, stationary slide ways for the bars, a cross shaft and pawls engaging the slide bars when the step is elevated, the levers M and R for moving the pawls, substantially as set forth.

6. The combination with the stationary steps and the movable step, of slide bars, stationary slide ways for the bars, a cross shaft and pawls engaging the slide bars when the step is elevated, the levers M and R for moving the pawls, and the rod S extending above the platform for actuating the parts to drop the step, substantially as set forth.

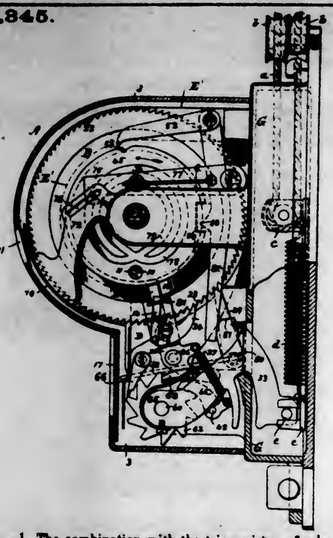
7. The combination with the stationary car steps, of a movable step, slide bars for the same and means for holding the step when elevated and a sustaining arm adapted to being turned beneath the movable step for holding the same in an elevated position, substantially as set forth.

8. The combination with the stationary car steps, of a movable step, slide bars for the same and means for holding the step when elevated, a sustaining arm adapted to being turned beneath the movable step for holding the same in an elevated position, and a shaft extending from the stationary arm above the platform for actuating the same, substantially as set forth.

9. The combination with the stationary car steps, of a movable step and means for holding the step when elevated, and a locking device for securing the movable step so that it cannot be lowered until the locking device is opened, substantially as set forth.

490,845. STREET-CAR REGISTER. FRANCIS K. FASSETT and OSBORNE REED, St. Louis, Mo., assignors to the St. Louis Register Company, same place. Filed Feb. 10, 1892. Serial No. 421,054. (No model.)

490,845.



Claim.—1. The combination, with the trip register, of a dog and a dog-carrier for moving the trip register, a revoluble ratchet, a pawl interposed between the dog-carrier and ratchet for vibrating the dog-carrier, and a single spring connected to said dog carrier and pawl, substantially as described.

2. The combination with a trip register and a permanent register, each having a ratchet secured thereto, a centrally pivoted dog carrier having at one end a dog for engagement with the ratchet of the trip register and at the other end an extension, an independent pawl interposed between the teeth of the ratchet of the permanent register and the extension of the dog carrier, a spring holding the extension of the dog carrier in contact with the pawl, and means for moving the ratchet of the permanent register step by step whereby said step by step movements are imparted through the pawl, dog carrier and dog to the ratchet of the trip register, substantially as described.

3. The combination with a trip register and a permanent register, each having a ratchet secured thereto, a centrally pivoted dog carrier having at one end a dog for engagement with the ratchet of the trip register and at the other end an extension, an independent pawl interposed between the teeth of the ratchet of the permanent register and the extension of the dog carrier, a spring holding the extension of the dog carrier in contact with the pawl, and an actuating arm having an axis of vibration coincident with the axis of the ratchet of the permanent register whereby its step by step movements are imparted through the pawl, dog-carrier and dog to the ratchet of the trip register, substantially as described.

4. The combination with a trip register and a permanent register, each having a ratchet secured thereto, a centrally pivoted dog-carrier having at one end a dog for engagement with the ratchet of the trip register and at the other end an extension, an independent pawl interposed between the teeth of the ratchet of the permanent register and the extension of the dog-carrier, a spring holding the extension of the dog-carrier in contact with the pawl, and an actuating arm having an axis of vibration coincident with the axis of the ratchet of the permanent register whereby its step by step movements are imparted through the pawl, dog-carrier and dog to the ratchet of the trip register, and a reciprocating slide connected with the end of said actuating arm for vibrating it in one direction and a spring connected to the slide to return the slide and vibrating arm to their normal positions, substantially as described.

5. The combination with the movable carrier and its indicators, and a permanent register and its shaft, of a dog and a dog-carrier for moving the carrier, and a ratchet secured to said shaft for vibrating the dog-carrier and moving the permanent register, substantially as described.

6. The combination with the movable carrier and its indicators and a permanent register and its shaft, of a dog and a dog-carrier for moving the carrier, a ratchet secured to the shaft carrying the permanent register, the unit wheel of which is also secured to the shaft, connections between the ratchet and the dog whereby upon the movement of the ratchet the dog is vibrated and the permanent register is moved, and means for moving said ratchet, substantially as described.

7. The combination with the movable carrier and its indicators, of a dog-carrier and a dog for moving the carrier, said dog provided with a projecting tongue, and an abutment for the tongue, in the normal idle position of the dog substantially as described.

8. The combination with a trip register and its ratchet, of a dog-carrier pivoted exterior to the circumference of the ratchet, a spring-pressed dog pivoted to said dog-carrier and engaging with the ratchet, and having a tongue extending at right-angles to the dog, an abutment interposed to meet said tongue of the dog when in its normal position, a spring holding the dog-carrier in its normal position, an actuating arm for vibrating the dog-carrier and dog positively in one direction to carry the projection away from the abutment, substantially as described.

9. The combination with a trip register, a vibrating dog-carrier carrying a yielding tongue, an actuating arm and connections for vibrating the dog-carrier and its dog and a movable abutment with which the yielding tongue of the dog may bear to hold the dog in engagement with the ratchet and to permit the passage of said abutment when the abutment is moved, substantially as described.

10. The combination with the carrier and its indicators, and means for moving the carrier, of a shaft supporting the carrier and a laterally moving coupler carried by said shaft and having a laterally yielding member for clutching the carrier and returning it to the zero position, substantially as described.

11. The combination with the carrier and its indicators, and means for moving the carrier, of a shaft supporting the carrier, a laterally moving coupler carried by said shaft and having a laterally yielding member for clutching the carrier and returning it to the zero position, and a stop for the coupler against which it moves as the movement is completed, substantially as described.

12. The combination with the movable carrier and its indicators, of a shaft upon which the carrier is loosely mounted, a coupler secured to said shaft and having a recess, and a yielding stud carried by the carrier and adapted to engage with the recess in the coupler, substantially as described.

13. The combination with the movable carrier and its indicators, of a disk independent of the carrier and having an abutment as 15, a dog and a dog-carrier for moving the carrier, said dog having a tongue adapted in its normal idle position to meet the abutment, substantially as described.

14. The combination with the carrier and its indicators, and means for moving the carrier, of a laterally moving coupler for clutching the carrier and returning it to the zero position, an abutment carried with the coupler and a stirrup or guard co-operating with the abutment to prevent premature uncoupling of the coupler, substantially as described.

15. The combination with the movable carrier and its indicators, of a disk adapted to couple and uncouple with the carrier and having an abutment as 15, a dog and dog carrier for moving the carrier, a tongue carried by the dog in the path of said abutment and a stirrup or guard preventing the premature uncoupling of the disk, substantially as described.

16. The combination with the carrier and its indicators, and means for moving the carrier to expose its indicators, of an incline against which the indicators bear to be returned within the carrier, and a co-operating elevating rod for aiding in returning the indicators within the carrier, substantially as described.

17. The combination with the carrier and its indicators, and means for moving the carrier to expose its indicators, of an elevating rod against which the indicators bear, a coupler for clutching the carrier to return it and the indicators to the zero position, and a lever interposed between the coupler and the elevating rod for moving the latter, substantially as described.

18. The combination with the carrier and its indicators, and means for moving the carrier to expose its indicators, of an elevating rod against which the indicators bear, a laterally moving coupling disk for clutching the carrier to return it and its indicators to the zero position, an arm on the elevating rod, and a lever bearing upon said arm and having a projection in the path of rotation of the coupling disk, substantially as described.

19. In a register, the combination with the permanent register having a ratchet secured thereto, of a trip register and its actuating dog, a carrier carrying said dog, a bell hammer and a bell, a single pawl between said ratchet, carrier and bell hammer, whereby effective movements of both the dog and the hammer are produced by the movement of the ratchet, and means for moving the ratchet, substantially as described.

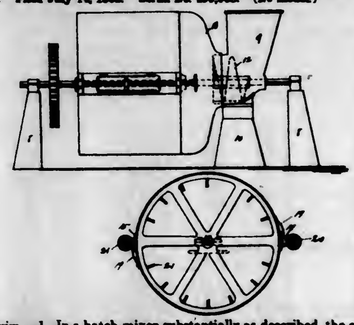
20. In a register, the combination with the trip register and means for returning it to the zero position, of a direction plate, a revoluble double grooved cam, and an engaging stud connected with the direction plate, substantially as described.

21. In a register, the combination with the trip register, and a revoluble coupler for returning the trip register to the zero position, of a direction plate, a double grooved cam carried by the coupler, and an engaging stud connected with the direction plate, substantially as described.

22. In a register, the combination with the trip register, and means for returning it to the zero position, of a pivotally mounted direction plate, a double grooved cam, and an arm engaging said plate and having a stud engaging the cam, substantially as described.

23. In a register, the combination with the trip register, and a laterally moving and revolvable coupler for returning it to the zero position, of a direction plate, a double grooved cam carried by said coupler, and a laterally moving stud engaging the cam and connected with the direction plate, substantially as described.

490,846. GLASS-BATCH MIXER. JOSEPH GOSSMAN, Pittsburg, Pa. Filed July 14, 1892. Serial No. 439,865. (No model.)



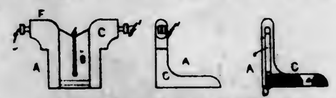
Claim.—1. In a batch mixer substantially as described, the combination of a bin or hopper a rotary cylinder communicating therewith and adapted to be rotated, and having a number of valves adapted to regulate the discharge of batch therefrom and means to rotate said cylinder substantially as and for the purpose herein described.

2. In a batch mixer substantially as described, the combination of a bin or hopper having a screw or worm secured therein, a rotary cylinder communicating with said bin and adapted to receive batch therefrom, and having a number of valves adapted to regulate the discharge of said batch, and means to rotate said cylinder substantially as and for the purpose set forth.

3. In a batch mixer substantially as described the combination of the bin "9" the cylinder "11" having valves, the pawls "16" and springs "19" adapted to maintain said valves closed and to open same substantially as described.

490,847. CLEARER FOR YARNS. MALCOM M. GREEVES, Belfast, Ireland. Filed June 26, 1892. Serial No. 437,977. (No model.)

Brief.—Plates with slots of different sizes for different-sized yarns are adapted to be placed in holders therefor, where they are held by means of spring-bolts. A guide-wire connects each two adjacent holders.



Claim.—1. In a yarn clearer A for reeling and winding machines the combination with a removable clearer plate B provided with a slit *b* of the desired size, of the fixed bracket holder C provided with grooves *c* and the spring bolt D which engages with and secures the clearer plate substantially as described.

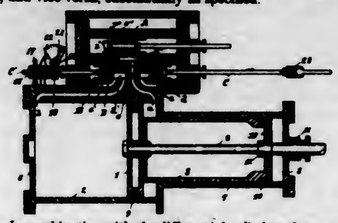
2. In a yarn clearer A the combination of the removable clearer plate B provided with the slit *b* and groove *d* the fixed bracket holder C provided with grooves *c* lugs F and holes *f* the spring bolt D which engages with and secures the clearer plate and the guide wires E which guide or direct the yarn to the slits *b* all substantially as described and shown.

490,848. DIRECT-ACTING AND COMPOUND ENGINE. EDWARD W. HARRIS, Cincinnati, Ohio, assignor to Frederic C. Weir, same place. Filed Feb. 10, 1892. Serial No. 421,295. (No model.)

Claim.—1. In combination with a differential cylinder having the ports *a*, *b*, *d'*, and a piston, of the main valve B provided with the live steam port *c*, and the port *d'*, for co-operating with the ports *a*, *b*, *d'* in the steam chest, whereby direct steam is admitted to the lesser piston area, and compounded upon the larger piston area, and then exhausted, substantially as specified.

2. In combination with a differential cylinder of an engine, provided with the ports *a*, *b*, and the exhaust ports *c*, *c'* on each side of the said ports *a*, *b*, the main valve B provided with live steam port *c*, and the ports *d d''* on either side thereof, substantially as specified.

3. In combination with the differential cylinder of an engine, provided with the ports *a*, *b*, and the ports *c*, *c'*, the main valve B provided with live steam port *c*, and the ports *d*, *d'*, on either side thereof, and mechanism for adjusting said valve longitudinally on its seat, whereby the engine may be converted from a compound to a simple engine, and vice-versa, substantially as specified.



4. In combination with the differential cylinder of an engine, the valve B provided with the ports *c*, *d* and *d'*, the upper valve seat provided with two live steam ports with which the ports *c* of the valve are pleasurably connected by the valve adjusting mechanism, substantially as specified.

5. In combination with the differential piston of a steam engine, the valve B provided with the live steam port *c*, and the ports *d d'*, formed in the under face of the valve, and with two cut-offs formed between said ports, whereby live steam is admitted on to the smaller piston and compounded on the larger piston, substantially as specified.

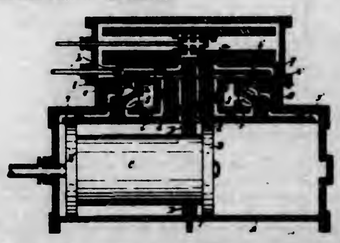
6. In a steam engine, the combination with a cylinder having ports, of steam port *c*, and the ports *d*, *d'*, in front and rear of the cut-offs for port *c*, and mounted upon the valve stem C projecting through the steam chest, and mechanism for revolving said piston rod to adjust the valve on its seat, and an indicator connected to said adjusting device, whereby the position of the valve is at all times indicated, substantially as specified.

7. In combination with the differential cylinder having ports, of the main valve B, provided with the ports *c*, *d*, *d'*, and mechanism for adjusting said valves to either of the live steam ports on the upper valve seat, and the auxiliary cut-off valve A for supplying the main valve with its requisite amount of steam, substantially as specified.

8. In combination with a steam engine having the steam ports *a*, *b*, and the exhaust ports *c*, *c'*, of the valve B having a single live steam port *c*, and two connecting and exhaust ports *d*, and *d'*, and an upper valve seat having two ports whereby steam is admitted alternately to the ports *a* and *b*, or interchangeably to the port *a* alone, substantially as specified.

9. In a steam engine the combination of a cylinder provided with ports, a main valve having ports to communicate with the ports in the cylinder, a valve A of hollow shell grid-iron form, said valve reciprocating so as to open ports on its seat at each end of its stroke, and means for adjusting the said main valve to convert said engine into a simple or compound engine, substantially as described.

490,849. STEAM-ENGINE. EDWARD W. HARRIS, Cincinnati, Ohio, assignor to Frederic C. Weir, same place. Filed July 14, 1892. Serial No. 440,094. (No model.)



Claim.—1. In a compound engine, in combination with the supply valve a two-way valve, located between the valve seat and the cylinder and interposed between ports one of which is cut in or cut out by the rotation of the valve, whereby the action of the engine is

changed from a compound to a simple and vice versa, substantially as described.

2. In a compound engine, the combination of the main valve with two or more live steam ports, with the steam cylinder provided with connecting ports and a two-way valve located between the valve seat and cylinder and interposed between the supply and exhaust ports, whereby the oscillation of said valve will direct the live steam on to one or both of said piston faces, substantially as specified.

3. In combination with the differential piston B, C, a supply valve F provided with steam ports *a*, *b*, with the valve seat provided with the ports *g*, *i*, and the valve H interposed between said ports, and the exhaust *j*, whereby the port *g* may be employed as a steam supply or a compounding port as desired, substantially as described.

4. In combination with a differential piston B, C, a supply valve F provided with steam ports *a*, *b*, with the valve seat provided with the ports *g*, *i*, and the valve H interposed between said ports and the exhaust *j*, whereby port *i* may be employed as an exhaust port or brought into connection with the port *g* for compounding, substantially as specified.

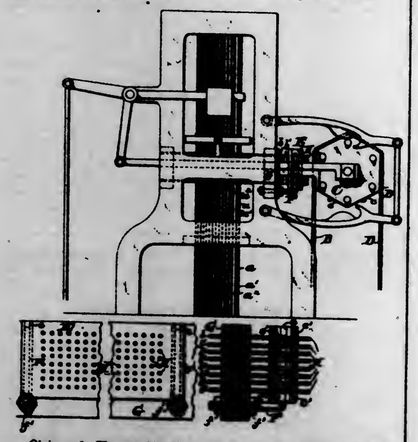
5. In combination with the differential piston B, C, the steam valve F having two supply passages *a*, *b*, communicating with two sets of ports in the valve seat, and the two-way valve H interposed between the ports *g* and *i* and *c*, *i* and *l*, whereby by the turning of said valve H the engine is converted from a compound to a simple acting, or vice versa, substantially as described.

6. In combination with the differential pistons B B' and C, the supply valve F provided with the supply ports *a*, *b*, *b'* the valve seat having two sets of supply and exhaust ports, one of which is brought into operation or cut out by the turning of the valve H, whereby one of said valves may be turned to use on end of the engine as a simple and the other as a compound, substantially as described.

7. In a steam engine, in combination with the differential pistons B B' C, the valve F provided with the supply ports *a*, *b*, *b'*, and the ports *h*, *h'* communicating with two sets of ports in the valve seat, and the two-way valves H H' interposed between the supply and exhaust ports, and mechanism connecting the said valves H together, and to the setting lever, whereby they may be simultaneously turned to convert the engine from a simple to a compound, or vice versa, substantially as specified.

490,850. JACQUARD MECHANISM. HARRY HARDWICK, Philadelphia, Pa. Filed Aug. 20, 1892. Serial No. 444,569. (No model.)

Brief.—An auxiliary-needle box is placed between the usual Jacquard needles and cylinder and contains a series of auxiliary needles bent to register with any desired hole in the pattern-card.



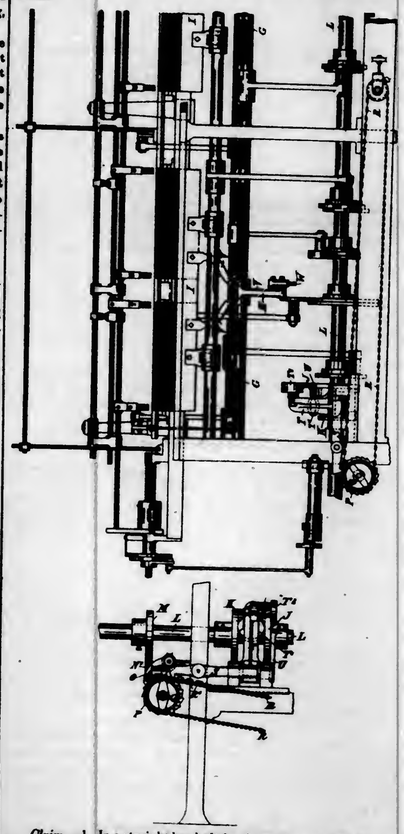
Claim.—1. The combination with the needles of a Jacquard machine and pattern cylinder of auxiliary bent needles interposed between the needles and the pattern cylinder one end of said bent needles in alignment with the needles and the other end in alignment with the desired orifice in the card cylinder the two ends being out of alignment with each other.

2. The combination with the needles of a Jacquard machine and pattern cylinder of an auxiliary needle box interposed between the card cylinder and needles and having orifices corresponding in position to the needles and orifices in the card cylinder, bent needles in said box, the ends of said bent needles being opposite orifices in said needle box but out of alignment with each other.

3. The combination with the needles of the Jacquard mechanism and pattern cylinder of auxiliary needles interposed between the Jacquard needles and the pattern cylinder, one end of said needles in alignment with the Jacquard needles, and the other end in alignment with the desired orifice in the card cylinder, the two ends of said auxiliary needles being out of alignment with each other.

490,851. STRAIGHT-BAR KNITTING-FRAME. GUSTAV REDLER, Chemnitz, Germany. Filed Dec. 23, 1890. Serial No. 376,542. (No model.) Patented in Germany Aug. 22, 1888, No. 47,251, and in Spain June 10, 1891, No. 12,040.

Brief.—The shogging of the cam-shaft is controlled by a pattern-chain through the agency of two levers, one of which is engaged by lugs on the chain, the other carrying the usual roller for engaging the face cams on the shaft, the free end of the first lever covering the outer end of the other lever. To prevent wear on the lugs of the pattern-chain, the head of its lever is raised at each revolution of the cam-shaft by a cam thereon, which acts upon a roller at the inner end of the shogging-lever. Other improvements are set forth in the claims.



Claim.—1. In a straight bar knitting frame the combination with the needles vertically arranged upon a movable needle bar, of lead sinkers and jack sinkers, the latter extending back further than the former and a stir-cock arranged to act directly upon the rear ends of the jack sinkers, substantially as described.

2. In a straight bar knitting machine the combination with the lead sinkers, of the jack sinkers having their rear ends thickened and extending back of the lead sinkers, guides F, F', grooved to receive both the lead and jack sinkers and guides E, E', having grooves to receive the rear or thickened portions of the jack sinkers, substantially as described.

3. In a straight bar knitting frame the combination with the lead sinkers and guides F, F', therefor, of jack sinkers having their forward ends sliding in the grooves of the guide bars, F, F', and their rear ends thickened, grooved guide bars E, E', for the thickened ends of the jack sinkers and a stir-cock D, arranged to contact with the thickened or rear ends of the jack sinkers, substantially as described.

4. In a straight bar knitting machine the combination with the chain R having studs R', and means for moving the chain intermittently, of the lever S, having one end arranged to bear upon the studs, the lever T, having one end in engagement with the lever S, and a cam U, upon which the opposite end of the lever T, bears, said cam and levers being constructed to raise the lever S, from the studs R', at each movement of the chain, substantially as described.

5. In a straight bar knitting frame the combination with the presser shaft of a jointed arm G' G^2 and set screws G^3 substantially as described and illustrated in the accompanying drawings.

6. In a straight bar knitting frame the combination with the presser shaft G, and needle bar I, of a jointed arm carrying an anti-friction roller or truck and an adjusting screw, an arm H, link W and yoke V, substantially as described and illustrated in the accompanying drawings.

7. In a straight bar knitting frame the combination with the cam shaft, of the chain R, having the studs R', the cam M, and connections for intermittently moving the chain, the lever S, having one end arranged to bear upon the studs R' the lever T, having one end in engagement with the lever S, and having at its other end the rollers T', T^2, cams J and K, arranged upon either side of the rollers T' and a cam U, upon which the roller T^2, bears, substantially as described.

490,852. SLACK-ADJUSTER FOR CAR-BRAKES. WILLIAM W. HOLMES, Chicago, Ill., assignor to the Consolidated Brake Adjuster Company, same place. Filed Nov. 11, 1892. Serial No. 451,696. (No model.)

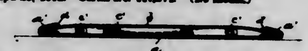
Claim.—1. In a slack adjuster for brakes, the combination with a threaded connecting rod, and a ratchet nut arranged thereon, of a pawl, and a cam slide mechanism for actuating the pawl; substantially as and for the purposes specified.

2. In a slack adjuster for brakes, the combination with a threaded connecting rod, and ratchet nut arranged thereon, of a reciprocating pawl, and a reciprocating slide having a slot inclined to its line of motion adapted to receive the reciprocating pawl, said slide arranged to move in a line substantially at right angles to the line of motion of the pawl; substantially as and for the purposes specified.

3. In a slack-adjuster for brakes, the combination with a threaded connecting rod and ratchet nut arranged thereon, of a pawl, and a reciprocating bar provided with an adjustable slotted disk which receives the pawl; substantially as and for the purposes specified.

4. In a slack-adjuster for brakes, the combination with a threaded connecting rod, and a ratchet nut arranged thereon, of a spring pawl, a pawl-case which incloses the pawl, a reciprocating bar, and an adjustable slotted disk arranged in the bar and which incloses the pawl-case; substantially as and for the purposes specified.

490,853. ELECTRIC MAT. WILLIAM G. JAMES, Harlem, Ill. Filed Sept. 29, 1892. Serial No. 447,271. (No model.)



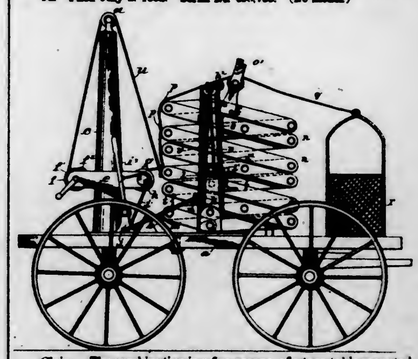
Claim.—An electrical mat consisting of a lower plate provided with upturned flanges at its edges, an elastic upper plate having its edges inserted in said flanges, this plate being normally held up out of contact with the lower plate and insulating material interposed between the edges of the two plates, substantially as described.

490,854. GLOVE. ETIENNE JAY and STEPHANE JAY, Grenoble, France. Filed Oct. 27, 1890. Serial No. 369,414. (No model.)



Claim.—In a glove, the palm or main portion, in combination with the thumb provided with an extension from one side only, terminating in an elongated tapering projection formed integral therewith and folded across between the thumb and main portion and down upon the opposite side with its edges joined to the thumb and main portion, substantially as described.

490,855. FIRE-ESCAPE. CLARENCE R. JOHNSON, Wilkes-Barre, Pa. Filed July 2, 1892. Serial No. 438,783. (No model.)



Claim.—The combination in a fire escape, of a turn table mounted upon a suitable base, a tower located at one side of said table, winding drums upon two sides of the tower, a pulley at the top of the tower, posts pivoted to the table at a point diametrically opposite that of the tower, drums located on the outer side of the posts, pulleys journaled in the top of the posts, lazy-tongs pivoted between the said posts, hoisting ropes secured to said sections and passing over said pulleys in the top of the posts and winding on the drums on the outside thereof, and a car hoisting cable passing over the sections and winding on one of the drums on the tower, all arranged and adapted to operate in the manner and for the purpose substantially as described.

490,856. SCREW-STOPPER LOCK. EDWIN W. LOSH, Meadville, Pa. Filed Mar. 17, 1892. Serial No. 425,262. (No model.)

Claim.—1. The combination of the hollow screw stopper, the cap thereon having a central opening for the insertion of the key, guards arranged between the cap and stopper, and obstructions in the path of the key to cause it to engage with and turn the stopper as set forth.

490,856.



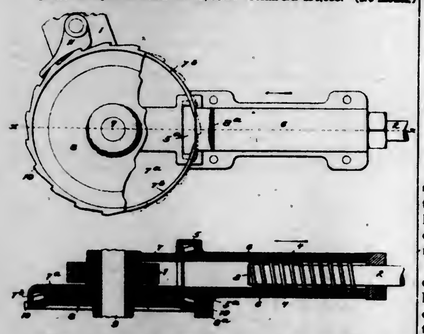
2. The combination of the hollow screw stopper having central pin and notch N, and the cap having guard J and opening K, substantially as and for the purpose set forth.

3. The combination with the top or wall of a vessel, of a sleeve, a hollow screw stopper, and a cap, engaging each other and let into the wall or top flush with the surface thereof and having an opening to admit a key, the cap being provided with suitable key guards, and the screw stopper with notches, to properly obstruct and permit the entrance and engagement of the key with the stopper, substantially as and for the purpose set forth.

4. The combination of the sleeve E, the screw stopper C engaging said sleeve and provided with flanges G, pin L and notch N, and the cap F having its edge turned over flange G and being provided with opening I and guard J and having opening K, substantially as and for the purpose set forth.

5. The combination of the screw stopper having a notched rim, and a cap having a key aperture, said cap being attached to the stopper and concealing the notch; substantially as described.

490,857. SLACK-ADJUSTER FOR CAR-BRAKES. WALDO H. MARSHALL, Chicago, Ill., assignor to the Consolidated Brake Adjuster Company, same place. Filed Nov. 5, 1892. Serial No. 451,092. (No model.)



Claim.—1. In a slack-adjuster for brakes, the combination with a threaded rod and nut arranged thereon, of gear mechanism for actuating the nut, said gear mechanism journaled on and actuated from a moving part of the brake system; substantially as and for the purposes specified.

2. In a slack-adjuster for brakes, the combination with a threaded rod, of a sleeve nut provided with a bevel pinion, a bevel gear which meshes with the pinion on the nut, said gear journaled on and actuated by a lever of the brake system; substantially as and for the purposes specified.

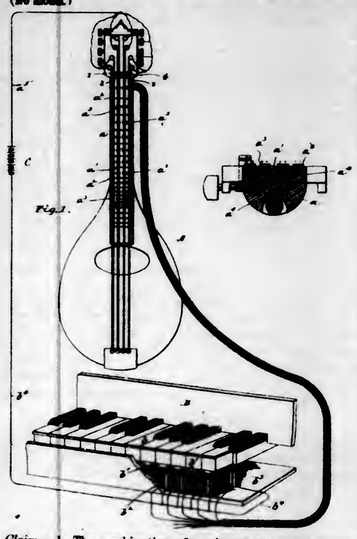
3. In a slack-adjuster for brakes, the combination with a threaded rod and nut arranged thereon, of a gear wheel for actuating the nut, and a pawl for actuating the gear wheel, said gear wheel and pawl arranged on a moving part of the brake system; substantially as and for the purposes specified.

4. In a slack-adjuster, the combination with a threaded rod and a sleeve nut arranged thereon and provided with a peripheral pinion, of a bevel gear arranged to engage the peripheral pinion of the nut, and an inclosing case slotted for the peripheral pinion of the nut and dished to protect the bevel gear; substantially as and for the purposes specified.

5. In a slack-adjuster for brakes, the combination with a brake lever of the system, of a threaded rod, a nut arranged on the rod and provided with a peripheral pinion, an inclosing case for the nut said case pivoted on the lever, a bevel gear journaled on the lever and which engages the pinion on the nut, and means for actuating the bevel gear from the lever; substantially as and for the purposes specified.

6. In a slack-adjuster for brakes, the combination with a brake lever of the system, of a threaded rod, a nut arranged thereon and provided with a pinion, an inclosing case for the nut said case pivoted on the lever, a bevel gear journaled on the lever and which engages the pinion of the nut, said bevel gear having peripheral ratchet teeth, and a pawl pivoted on the lever and which engages the peripheral ratchet teeth of the bevel gear; substantially as and for the purpose specified.

490,858. ELECTRICAL MUSICAL INSTRUMENT. ARAGILIO MONTANELLI, Portland, Oreg. Filed May 31, 1892. Serial No. 434,915. (No model.)

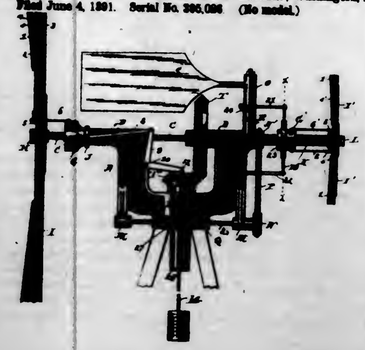


Claim.—1. The combination of a primary stringed instrument, a secondary instrument, electrical contacts or heads located adjacent to the strings of the primary instrument, electro-magnets controlling the keys of the secondary instrument, and electric circuits connecting said contacts or heads with the magnets respectively, the strings of the primary instrument being electrical conductors for the purpose set forth.

2. The combination of a primary stringed instrument electrical contacts located beneath the strings, above the key-board and on the head of the instrument, a secondary instrument and electro magnets controlling the keys thereof, and electric circuits connecting said contacts with respective magnets, the strings of the primary instrument being electrical conductors.

3. A guitar, violin, mandolin or other stringed primary instrument in which the tones are determined by pressing the strings against the head of the instrument, in combination with electric contacts located under the strings, a secondary instrument, electric circuits extending from said contacts to the tone producing devices respectively of the secondary instrument and a common return circuit from said tone producing devices to the strings of the primary instrument, the said strings being electrical conductors, for the purpose set forth.

490,859. WINDMILL. THOMAS H. MCCLEAN, Washington, Iowa. Filed June 4, 1891. Serial No. 395,086. (No model.)



Claim.—1. In a wind mill a principal fan wheel provided with means for automatically opening and closing its fan blades depending on the force of the wind in combination with a supplementary fan wheel; a tail or blade, a shaft supporting both of said fan wheels, a frame carrying said shaft in bearings and supporting said tail or blade, and means whereby the movement of said tail or blade changes the planes of the fan blades of the supplemental fan wheel before the wind, and the latter fan wheel overcomes the resistance of the power applied by the principal fan wheel and keeps the former fan wheel constantly before the wind; all substantially as shown.

2. In a wind mill a principal fan wheel whose fan blades are provided with means for automatically closing and opening before the pressure of the wind; a frame rotating upon a toothed wheel and provided with a rod or shaft having a screw thread engaging with said toothed wheel; a shaft held in said frame and carrying said principal fan wheel; means for communicating the motion and power of said shaft to the operative mechanism of said wind mill; and a tail or blade and a supplemental fan wheel with connections between said tail or blade and said supplemental wheel and means whereby forward or reverse motion may be given by the wind to the screw threaded shaft and its engaging toothed wheel and the principal fan wheel kept directly before the wind; all substantially as shown.

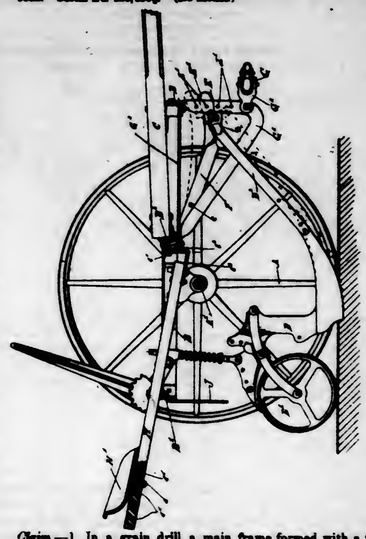
3. In a wind mill the combination of a frame rotatable upon a toothed wheel on the frame work of the mill and provided with journals and a screw threaded rod or shaft; a shaft held in journals of said frame; a principal fan wheel rigidly held upon one end of said shaft; means for communicating the power and motion of said principal fan wheel to the operative mechanism of said mill; a supplementary fan wheel supported on a sleeve on the other end of said shaft; a tail or blade movably supported by a sleeve upon a projection of said frame; and means connecting the sleeve of said fan or blade with the fan blades of the supplementary fan wheel whereby any change in direction of the axis of said tail or blade from that of the axis of the shaft changes the planes of the fan blades of the supplementary wheel; sprocket wheels rigidly located upon the shaft and the screw threaded rod or shaft, provided with an endless sprocket chain whereby the revolutions of the supplementary fan wheel caused by the wind operate the screw threaded shaft and toothed wheel engaging therewith, overcome the resistance of the operative mechanism and bring the tail or blade and the axis of the shaft into alignment in the direct course of the wind, all substantially as shown.

4. In a wind mill the combination of a frame having journals, a shaft supported in said journals, a fan wheel rotatable thereon; a sliding sleeve or collar upon the sleeve of said fan wheel provided with connections with the respective series of fan blades in said fan wheel whereby the movement of said sliding sleeve or collar on said main sleeve may open or close said fan blades; a ring or band pivotally supported by shoes moving in a groove in said sliding sleeve or collar and provided with arms one of which is pivotally attached to the frame by a strap or rod; a tail or blade supported by a sleeve held and rotatable on a projection from the frame and provided with a crank arm which is pivotally connected by a strap or rod with the second arm of said ring or band; a toothed wheel supporting said frame, and a rod held in brackets having a screw thread engaging with said toothed wheel, and means for connecting and communicating the motion of the rotatable sleeve of the fan wheel to the screw threaded rod; whereby any change in the direction of the tail or blade with reference to the axis of the shaft changes the planes or faces of the fan wheel from direct lines to angles to the course of the wind and the forward or reverse motion of the fan wheel is communicated to the toothed wheel and the frame and the latter caused to rotate until the shaft and the tail or blade are again in line in the direction of the wind; substantially as shown.

5. In a wind mill the combination of a tail or blade B held by a sleeve rotatable upon a projection of the frame, said sleeve provided with an arm or crank having pivotal connections with the head J supported in a groove in the sliding sleeve G', said sliding sleeve being located upon the sleeve K, which carries the fan wheel and is rotatably held upon one end of the shaft C; connections between the sliding sleeve G' and the respective series of fan blades in the fan wheel whereby the change in direction of the tail or blade B with reference to the axis of the shaft changes the direction of the planes of the blades of the fan wheel and enables the wind to give a direct or reverse motion to said fan wheel; all substantially as shown.

6. In a wind mill, a frame and a shaft supported therein, a fan wheel supported on a sleeve held rotatably upon one end of said shaft, a sprocket wheel held rigidly upon the sleeve of said fan wheel, and a toothed wheel rigidly attached to said frame, and a rod supported in brackets attached to said frame provided with a screw thread engaging said toothed wheel: a sprocket wheel and sprocket chain engaging said two sprocket wheels, a tail or blade supported upon said frame and connections between said tail and blade and said fan or wheel whereby the motion of said fan wheel is communicated to said toothed wheel and frame and the latter caused to revolve upon its axis; all substantially as shown.

490,860. GRAIN-DRILL. FRANK B. PASCHAL, Springfield, Ohio, assignor to the Superior Drill Company, same place. Filed Jan. 16, 1892. Serial No. 418,094. (No model.)



Claim.—1. In a grain drill, a main frame formed with a front and two sides substantially at right angles to said front from a single piece of angle iron, with the vertical wing of said angle iron on the outside, and a connecting bar or rail also of angle iron and parallel to the front bar, said connecting bar or rail being constructed at each end with a bearing plate formed by removing a piece of one flange of said angle iron and bending the projecting end of the other flange at right angles until it rests against the end of the shorter flange, said connecting bar being attached to the vertical wing of the said frame through the connecting plate thus formed, substantially as specified.

2. In a grain drill an iron frame formed with a front rail and side rails at substantially right angles thereto bent from a single piece of angle iron, and a connecting bar substantially parallel with the front rail and connected at each end to the side rails, said connecting bar being also formed of angle iron and provided at each end with a bearing plate formed by removing a portion of one wing and bending the extended end of the other wing inwardly at right angles so as to rest in contact with the end of the shorter wing, said bearing plate thus formed being connected to the vertical wing of the side rail with the horizontal wing of the connecting bar resting under and connected to the horizontal wing of the side rail—substantially as specified.

3. In a grain drill, a main frame and a series of planting shoes, a drag-bar for each of said shoes, a revolving shaft supported in said frame, said shaft being square in cross section and provided with projecting fingers in line with each other, to which the respective drag-bars are pivoted, and a pivoted latch having a notch adapted to engage said shaft and thus hold it in different positions of adjustment, whereby the angular position of all the drag bars and their shoes may be simultaneously changed without changing their relative positions, substantially as specified.

4. In a grain drill, a metallic frame having a connecting bar or bed-rail formed of angle iron with its ends connected to the side rails of said frame, and a wooden block connected to said connecting bar or bed-rail within the adjacent wings of said angle iron, substantially as and for the purpose specified.

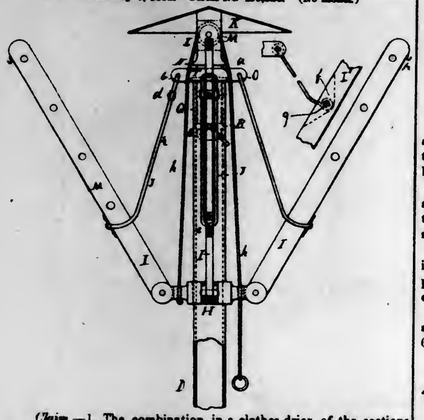
5. The combination with the main frame, of a hitch-bar formed of a single piece and connected to the front and bed-rails respectively of said frame, so that the front portion thereof is substantially at right angles to the plane of the frame, said bar being provided with a series of openings to receive the double tree hitch, substantially as specified.

6. The combination with a grain drill frame having the rear connecting rail formed of angle iron, and a seat in the rear of said rail,

of foot stirrups formed of a single piece of metal with a double bend, adapted, when turned to an unusual position, to enter the perforations in the vertical wing of said angle iron, substantially as specified.

7. The combination with the planting shoes and their lifting devices, of a foot stirrup or stirrups arranged above said shoes and pivotally connected to the main frame so as to be automatically moved out of the way of said shoes, when the shoes are raised, substantially as specified.

490,861. CLOTHES-DRIER. WILLIAM F. REDDING, King's Station, N. Y. Filed July 8, 1892. Serial No. 439,236. (No model.)



Claim.—1. The combination, in a clothes drier, of the sections L and Q, of a post carrying the hub O, the pulley M, and the hood K, the lower end, or section Q, entering, and turning in the upper end of the post D, and held from being moved upward and out of place by the pin S, entering into the recess R, substantially as and for the purpose set forth.

2. In a revolving clothes drier, the double-wire braces *r*, having the upper ends each bent inward, and made to enter, from opposite sides, a hole in the ears *a*, of the hub O and held in place by the clasp *d*; and the lower end bent outward, and connected with the arms I, on the lower or outer side, substantially as, and for the purpose set forth.

490,862. SECURING ATTACHMENT FOR FIRE-ESCAPES. ALFRED J. RICE, San Francisco, Cal. Filed Sept. 26, 1892. Serial No. 447,162. (No model.)

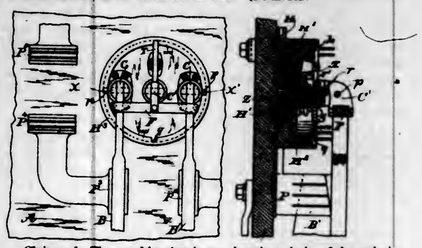


Claim.—1. In an attaching device for fire escapes, a combination with the wall pin thereof, provided with an inner and outer projecting shank, and the screw threads cut thereon, of the step or bracket having its ends terminating in the screw threaded limbs, and the thimble for securing the steps and wall pin together, said thimble being provided with internal right and left handed screw threads.

2. In a fire escape attachment, the combination with the escape ladder provided with a series of inwardly projecting limbs, of the wall pin adapted to be secured within the wall, said pin provided with an outwardly projecting screw threaded shank, of the securing thimble for forming connection between the ladder and wall pin, said thimble being provided with internal right and left handed screw threads.

3. In an attaching device for fire escapes, the combination with the wall pin provided with inner and outer projecting shanks, said shanks having righthand screw threads cut thereon, of the collar secured upon the wall pin, of the bracket or ladder provided with inwardly projecting limbs, said limbs being screw threaded to the reverse of the wall pin shank, and of the securing thimble, said thimble being provided with internal right and left hand screw threads.

490,863. ELECTRIC SWITCH. ALBERT L. ROHRER, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Mar. 17, 1892. Serial No. 425,295. (No model.)



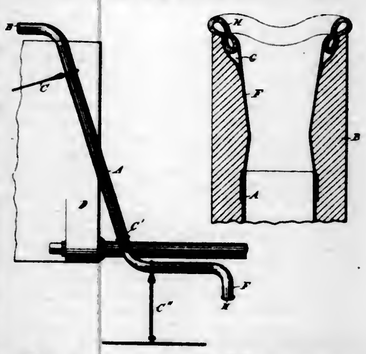
Claim.—1. The combination in an electric switch, of the switch arms B, B', each carrying one of the switch contacts and connected together mechanically, with the rotating supporting plate to which both said arms are pivoted on a common axis as at *p*.

2. The combination in an electric switch, of the rotating plate and switch arms pivoted thereto, with the pivoted catch released automatically by the movement of the switch arms on opening the switch, as set forth.

3. The combination in an electric switch of the plates H', H³, held in place by supporting plate H² but free to rotate, with the standards projecting from plate H³, and the switch arms pivoted to the other ends of such standards, as described.

4. The combination of the supporting plate free to revolve about a central axis, with the switch arm pivoted thereto and carrying cam C', and the stop T controlled by said cam, as described.

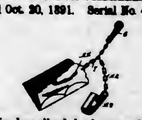
490,864. SPEAKING-TUBE. HENRY ROSE, British Royal Navy. Filed Sept. 27, 1892. Serial No. 447,093. (No model.) Patented in Italy June 30, 1892, No. 33,137.



Claim.—1. A voice tube or speaking tube clothed with non conducting material and carried by elastic suspension guys substantially as and for the purpose described.

2. A mouth piece or receiver for voice tubes or speaking tubes clothed with non conducting material and provided with an elastic encircling cushion at its orifice substantially as and for the purpose described.

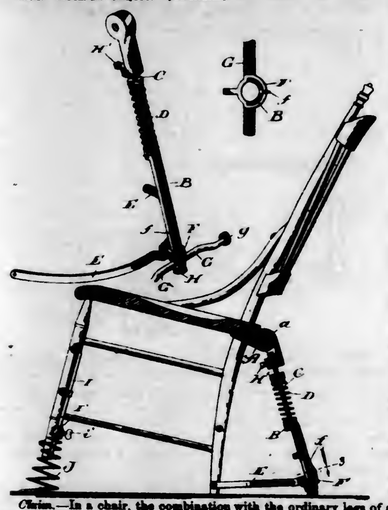
490,865. TAG-HOLDER FOR UMBRELLAS. JOSEPHINE RUSSELL, Tabor, Iowa. Filed Oct. 20, 1891. Serial No. 409,308. (No model.)



Claim.—The herein described device, consisting of a snap-hook 6 adapted to be secured to the ring of an umbrella runner, a short chain secured to the lower end of said snap-hook, a card-receiving frame attached to the opposite end of said chair and consisting of a plate having the edges at the bottom and sides bent back upon the plate

and the upper end open, the central part of said upper open end having a pointed spur extending outward at a right angle in line with the upper termination of the side bent edges to pass through the card and seat the same firmly against the bottom flange, said spur being struck out from the metal of the plate, and of a length equal to the thickness of the card to avoid an exterior projecting point, and a second chain attached to the aforesaid chain intermediate of the length of the latter and having a clasp movably attached to the lower end thereof and provided with serrated engaging jaws, as specified.

490,866. CHAIR. WHEELER SIMS, Chicago, Ill. Filed May 26, 1891. Serial No. 394,126. (No model.)



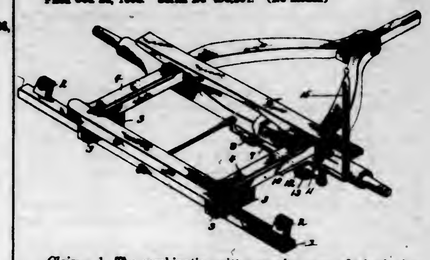
Claim.—In a chair, the combination with the ordinary legs of a supplementary leg, such leg being made in two parts secured together adjustably, a collar sliding on such leg, links connecting such collar with the ordinary legs, a spring engaging with such collar to hold it in position for use and yielding to allow the collar to slide up the leg, and a spring adapted to keep the two parts of the leg extended, substantially as described.

490,867. COMBINATION BEEF-MANGLER. BETTIE R. A. SELBERT, Crawfordsville, Ind. Filed Oct. 16, 1892. Serial No. 448,571. (No model.)



Claim.—A meat tenderer, comprising a shank, a head having a horizontal lower face with teeth and having its upper face inclined and provided with grooves, the blades arranged in the grooves and being bayonet-shaped in cross-section and having their shoulders resting upon the head, and clamping-screws securing the blades in grooves, substantially as described.

490,868. VEHICLE-BRAKE. JAMES F. SEBELER, Troy, Tenn. Filed Oct. 26, 1892. Serial No. 450,261. (No model.)

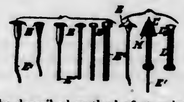


Claim.—1. The combination with a running gear, of a brake-bar arranged on the front hounds and carrying brake-shoes, a rock shaft arranged transversely of the running gear and provided at its inner end with an arm connected with the brake-bar, a hanger having a horizontal opening and provided with a tooth, a ratchet wheel mounted on the rock-shaft and adapted to be engaged by the tooth when the rock shaft is at the forward end of the opening, and the lever secured to the outer end of the rock-shaft, substantially as described.

2. The combination with a running gear, of a brake-bar carrying brake shoes, a rock-shaft provided at its inner end with an arm connected with the brake-bar, a hanger having an elongated opening and provided at the forward end thereof with a stationary tooth, a ratchet wheel mounted on the rock-shaft and adapted to engage the tooth of the hanger when the rock-shaft is at the forward end of the opening, and the lever secured to the outer end of the rock-shaft and adapted to turn the rock-shaft and move the same forward and backward in the elongated opening to carry the ratchet wheel in and out of contact and engagement with the stationary tooth, substantially as described.

3. The combination with a running-gear, of a brake-bar arranged on the front hounds thereof and carrying brake-shoes, a bracket plate clipped to the front axle and extending rearward therefrom and having a bearing, a hanger having a securing plate fastened to one of the front hounds and provided with a horizontal elongated opening and having on its outer face a curved lug, the lower end of which forms a tooth, a rock-shaft arranged in the elongated opening and in the bearing of the bracket plate and provided at its inner end with an arm, a rod connecting the arm of the rock-shaft with the brake-bar, a mutilated ratchet wheel provided at one side with ratchet teeth and mounted on the rock-shaft and arranged at the outer side of the hanger and adapted to engage the tooth thereof, and a lever secured to the outer end of the rock-shaft, substantially as described.

490,869. MEANS FOR PLUGGING HOLES IN RUBBER FABRICS. THOMAS B. SLOPER, Devizes, England. Filed July 25, 1892. Serial No. 441,102. (No model.) Patented in England Feb. 12, 1891, No. 2,919.



Claim.—1. The described method of stopping a hole or leak in an elastic cycle tire or other article whose interior is inaccessible excepting through said hole or leak, consisting in expanding or enlarging the hole against the resiliency of its walls, secondly inserting a headed plug therein and finally allowing the opening to contract outside of the head of the plug; substantially as described.

2. The improved pneumatic tire repairing means consisting of the hollow expander for entering the puncture and enlarging the same against the resiliency of its walls and the headed plug or stopper carried in the hollow of the expander and adapted to be discharged with the head within the tire; substantially as described.

3. The improved pneumatic tire repairing means consisting of the hollow expander for entering and temporarily enlarging the puncture

in combination with a tube working within said expander and a headed plug carried by the tube and adapted to be discharged from the expander with its head within the tire; substantially as described.

4. In a tool for the stoppage of leaks or closing of apertures in indiarubber tires and the like which are only accessible from one side the combination with a number of spring fingers such as A coming to a point as at A' of a tube such as B adapted when pushed forward to separate the said fingers and a plunger such as C substantially as and for the purpose described and illustrated in the accompanying drawings.

5. In a tool for the stoppage of leaks or closing of apertures in indiarubber tires and the like which are only accessible from one side the combination with a tube such as B adapted to enter the aperture to be closed of a plunger such as C having a peripheral recess as at C^2 adapted to receive and carry the solution for fixing the plug to the inner or inaccessible side of the material to be repaired substantially as described and illustrated in the accompanying drawings.

6. The process of repairing a leak or aperture in a rubber or other article accessible only from one side which consists in placing in a suitable instrument a plug such as E passing it together with the fixing solution through the temporarily enlarged opening which has to be closed withdrawing the instrument or means by which the hole was enlarged and drawing back the plug until its head or enlarged portion engages with the material substantially as described and illustrated in the accompanying drawings.

7. The herein described method of repairing punctured pneumatic bicycle tires, consisting in cutting out the punctured portion from the inside thereby forming a frusto conical opening with its base or larger portion inside, and filling said opening with a headed plug, whereby the plug is forced into more intimate contact with the tapering walls of the aperture by the internal air pressure; substantially as described.

8. In an instrument for cutting holes from the inaccessible side of cycle tires and the like accessible from one side only the combination with a stock such as P of a pointed cutting head such as Q' Q^2 adapted to pass through the material and cut from the inaccessible side of the material and to be operated from the accessible side thereof substantially as described and illustrated in the accompanying drawings.

9. In an instrument for cutting holes from the inaccessible side of cycle tires and the like accessible from one side only a cutting head such as Q' Q^2 adapted to first pass through the puncture and then remove the portion of the material containing the puncture substantially as described.

10. An instrument for cutting holes from pneumatic tires, &c, from the outside, consisting of the co-operating cutting members, one having a pointed end adapted to pass through the puncture and the other forming a tubular stock through which an operating rod for the first mentioned member passes; substantially as described.

11. In an instrument for cutting holes from the inaccessible side of cycle tires and the like accessible from one side only the combination with the cutting head Q' Q^2 and screwed rod or spindle Q Q^2 of a stock or nut such as P substantially as and for the purpose described.

12. In an instrument for cutting holes from the inaccessible side of cycle tires and the like accessible from one side only the combination with a cutting head such as Q' Q^2 and rod or spindle Q of a cutting block such as R substantially as described.

13. A new article of manufacture consisting of a plug of flexible material having an enlarged head at one end thereof and a string or stem at the other end for the purpose of repairing pneumatic tires substantially as described.

14. A new article of manufacture for repairing pneumatic tires and the like consisting of a disk of flexible rubber having a string or stem from the center of one side thereof substantially as and for the purpose described and illustrated in the accompanying drawings.

15. A device for closing punctures in pneumatic tires, &c., consisting of a plug having a pointed end and substantially flat inner surface with a stem or cord extending out from said inner surface for seating the same against the inside of the tire; substantially as described.

16. A plug of indiarubber consisting of a stem and a mushroom shaped head the concave or inner side of which is plain and the convex or outer side of which has ribs radiating from the center for the purpose of preventing the head from turning inside out.

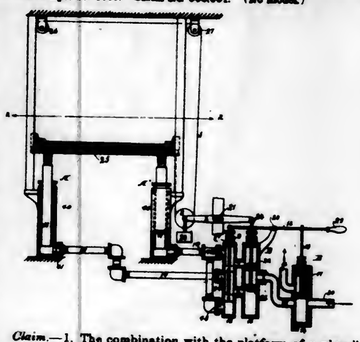
17. A plug for stopping or repairing holes in indiarubber or other articles consisting of a stem and a mushroom shaped head the under or concave side of which has circular ridges or corrugations and the outer or convex side of which is honeycombed cellular or ribbed substantially as and for the purpose described and illustrated in the accompanying drawings.

18. A new or improved article of manufacture consisting of a mushroom shaped plug for stopping or repairing holes in indiarubber or other articles (the interior of which hole is only accessible through the hole itself) such plug having its outer or convex side honeycombed or cellular for the purpose of allowing the head to be compressed and also for the purpose of preventing the head of the plug from turning inside out substantially as described.

19. A plug for stopping or repairing holes in indiarubber or other articles having a stem and a mushroom shaped corrugated head substantially as described and illustrated in the accompanying drawings.

20 An improved device for closing punctures in pneumatic tires consisting of the mushroom shaped plug having the substantially circular ribs on its inner surface; substantially as described.

490,370. ELEVATOR. RUDOLPH C. SMITH, Yonkers, N. Y., assignor, by mesne assignments, to the National Company, of Illinois. Filed Apr. 20, 1888. Serial No. 308,001. (No model.)



Claim.—1. The combination with the platform of a plurality of elevating cylinders A, A', a separate supply and discharge pipe to each cylinder, a valve device C, connected with both of said pipes having valves controlling the flow thereof, a valve device D, controlling separate ports communicating with the valve device C, and connections between the platform and the valve device D, arranged to shift the latter according as the platform moves from a horizontal position, substantially as described.

2. The combination of the platform, elevating cylinders A, A', valve devices D, C, a valve device B, controlling the inlet and discharge from the valve device D, and connections between the valve of the device D, and the platform to shift said valve as the platform moves from a horizontal position, substantially as described.

3. The combination of the platform with a pair of elevating cylinders, a valve device D, a valve device C, having ports 42, 43 and 44, in communication with said cylinders and ports 7 and 8, in communication with said valve device D, and a valve arranged to put the port 7 alternately in communication with ports 42 and 44, and the port 8, alternately in communication with the ports 43 and 44, and a valve for controlling the flow through the ports 7 and 8, said latter valve being connected to the platform and controlled by the inclination thereof, substantially as described.

4. The combination of the platform, the elevating cylinders, the valve device C, having ports 42, 43, and 44, the valve device D, having ports 7 and 8, communicating with the valve device C, the valves of the valve devices C and D, the lever connected to said valve of the device D, and having a pulley 3, and a rope or cable passing around said pulley and connected to the platform, substantially as described.

490,371. SAW-SET. EUGENE SMITH, Philadelphia, Pa. Filed May 12, 1892. Serial No. 433,772. (No model.)



Claim.—1. In a device for setting saw teeth, the combination of a frame, die plates pivoted within the frame and each provided near one end with a longitudinal slot F, and a lever fulcrumed between the die plates and provided on opposite sides of its fulcrum with short

shafts which extend into the slots in the die plates, substantially as and for the purpose described.

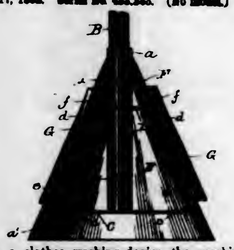
2. In a device for setting saw teeth, the combination of a frame, the die plates having the slots and pivotally secured on a screw shaft journaled in the frame, one of which plates is adapted to be adjusted by the shaft, and the lever fulcrumed in the frame between said die plates and provided with short shafts which fit in the slots in the plates, the spring secured to said lever, the lever being adapted to force the plates apart and operate the dies, substantially as described.

3. In a device for setting saw teeth, the combination of a frame provided with a rigid jaw, die plates pivoted on a single shaft within the frame, a clamping jaw pivoted within the frame and a lever fulcrumed between the die plates and arranged to operate said plates and the clamping jaw, substantially as described.

4. In a device for setting saw teeth, the combination of a frame provided with a rigid jaw, two die plates pivoted on a single shaft within the frame, a lever fulcrumed between and connected to both of said die plates and a clamping jaw pivoted on the pivot shaft of the die plates and contacting with a cam surface on the die operating lever, substantially as described, for the purpose specified.

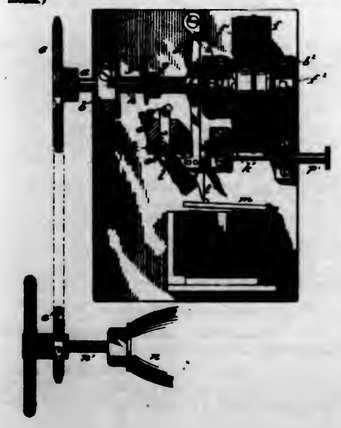
5. In a device for setting saw teeth, the combination of a frame, the screw shaft secured in said frame and having a threaded and a smooth portion, the die plates pivoted on said screw shaft, a lever adapted to operate said die plates, a clamping jaw secured on said screw shaft and adapted to be operated by the lever simultaneously with the die plates, and an arm on the lever to return said clamping jaw to its normal elevated position when the pressure is removed from the lever, substantially as described.

490,372. WASHING-MACHINE. FRED S. SPANGLER, Orion, Ill. Filed May 17, 1892. Serial No. 433,363. (No model.)



Claim.—In a clothes washing device, the combination of the shell A, the partitions C, D, dividing the shell into the chambers E, F, the openings *e*, *d*, in said partitions, respectively, the openings *e*, *f*, in the side walls of the chambers, and the tubes G covering the latter openings, substantially as described.

490,378. APPARATUS FOR STOPPING ENGINES. FREDERICK D. TAYLOR, Hartford, Conn., assignor to the Electro-Automatic Appliance Company, same place. Filed Apr. 26, 1892. Serial No. 430,794. (No model.)



Claim.—1. In an apparatus for stopping a steam engine or other motor, in combination, a spring actuated shaft having a threaded portion, a clutch part secured to said shaft, an actuating spring having one end secured to the shaft and the other to a fixed part of the frame, a reciprocating nut borne on the threaded portion of the shaft and held against rotation thereon, a spring actuated shipping lever extending across the shaft and with its outer end engaging a tumbler, the tumbler with its outer end adapted to engage the armature of an electro magnet, the spring pawl having a shoulder located in the path of movement of the shipping lever, and the trip device with one end adapted to engage the spring pawl and the other located in the path of movement of the nut, all substantially as described.

2. In an apparatus for stopping an engine or other motor, in combination, a spring actuated shaft having a threaded portion, a clutch device having one part secured to said shaft and the other part mounted in operative relation thereto, the shipping lever extending across the shaft between an elastic buffer and a reciprocating nut, the reciprocating nut borne on the threaded portion of the shaft and held against rotation thereon, and an electro magnet having its armature adapted to engage the tumbler of the releasing and resetting mechanism, all substantially as described.

3. In an apparatus for stopping a steam engine or other motor, in combination, a spring actuated shaft having a threaded portion, a clutch part secured to said shaft, the actuating spring connected to the shaft and to a fixed portion of the frame, the sprocket wheel secured to the outer end of the shaft, a reciprocating nut borne on the threaded portion of the shaft and held against rotation thereon, a shipping lever extending across the shaft and having its outer end engaging a cam slot in a tumbler, a buffer located back of the shipping lever, the tumbler having a cam slot in engagement with a projection on the shipping lever, and an arm engaging a catch on the armature of an electro magnet, the armature having a catch device, the clutch part mounted in operative relation to the shipping lever, the trip device with means for holding the clutch parts disengaged, and the reciprocating nut having a flange adapted to operate the trip device in its reciprocating movement along the shaft, all substantially as described.

4. In an apparatus for stopping a steam engine or other motor, in combination, the spring actuated shaft having a threaded portion, the clutch part secured to one end of the shaft, a sprocket wheel secured to the outer end of the shaft, an actuating spring secured to the shaft and to the fixed part of the frame, and mechanism substantially as described for releasing the clutch and automatically resetting the releasing mechanism, all substantially as described.

5. In combination in an apparatus for stopping a steam engine or other motor, a spring actuated shaft having a threaded portion, the shaft actuating spring, the clutch parts secured to the shaft and to the frame respectively, and the releasing and resetting mechanism comprising a flanged nut borne on the threaded portion of the shaft and held against rotation thereon, all substantially as described.

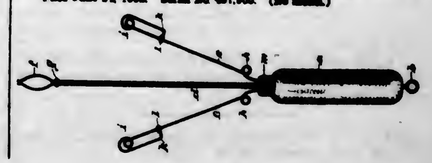
6. In combination in an apparatus for stopping a steam engine or other motor, a spring actuated shaft having a threaded portion, the shaft actuating spring, the clutch parts secured to the shaft and to the frame respectively, the releasing and resetting mechanism comprising a flanged nut borne on the threaded portion of the shaft and held against rotation thereon, the flange of the nut having a series of locking notches, all substantially as described.

7. In combination in an apparatus for stopping a steam engine or other motor, a spring actuated shaft, the clutch parts secured to the shaft and to the frame respectively, the releasing and resetting mechanism comprising with the other elements a tumbler and a swinging shipping lever in operative engagement with each other, all substantially as described.

8. In combination in an apparatus for stopping a steam engine or like motor, a spring actuated shaft having a threaded portion, the clutch parts secured to the shaft and to the frame respectively, the releasing mechanism substantially as described, and the resetting mechanism comprising a reciprocating nut borne on the threaded portion of the shaft and held against rotation thereon, all substantially

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490,374. CHIMNEY-CLEANER. PETER TEMPLE, Watertown, N. Y. Filed June 24, 1892. Serial No. 437,906. (No model.)



Claim.—1. In a lamp chimney cleaner, side arms or wires having coils near their base, coils upon the outer ends of the wires, the extreme ends of said wires being bent back and provided with a hook for engaging the main wire, whereby the cleaning material may be securely held on the same, substantially as described.

2. In a lamp chimney cleaner, side arms or wires having coils near their base, coils upon the outer ends of the wires, the extreme ends of said wires being bent back and provided with a hook for engaging the main wire, whereby the cleaning material may be securely held on the same, a longer central arm consisting of two wires having curved portions near their outer ends, and a slip ring on the wires for drawing the same nearer together, substantially as described.

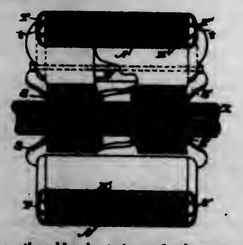
490,875. SEINE-HAULING APPARATUS. ERNST THIM, Milwaukee, assignor of one-half to Henry Venslin, Port Washington, Wis. Filed Oct. 24, 1892. Serial No. 449,888. (No model.)



Claim.—1. In a device for elevating or lifting fish nets, the combination of a vessel, standards secured thereto, a hollow rotatable shaft having its bearings in the standards provided with a series of perforations, a hollow reel carried by the shaft and provided with exit ports, and a steam pipe connecting with one end of the hollow shaft, and adapted to inject steam into the same and through the apertures thereof into the hollow reel, substantially as set forth.

2. In a device for elevating or lifting fish nets, the combination of a vessel, standards hinged thereto at their lower ends, a hollow rotatable shaft having its bearings in the upper ends of said standards and also provided with a series of apertures, a hollow reel carried by the shaft and provided with exit ports, and a steam pipe leading from a suitable source of supply, passing through staples extending from the side of one of the standards and connecting at its upper end with the end of the hollow shaft adjacent, whereby said pipe may be thrown inward with the hinged standards, substantially as set forth.

490,876. ARMATURE FOR DYNAMO-ELECTRIC MACHINES OR MOTORS. ELIHU THOMSON, Swampscott, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed July 10, 1891. Serial No. 398,942. (No model.)



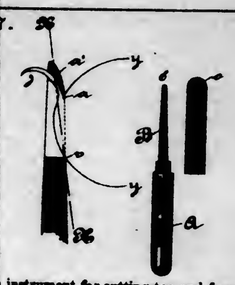
Claim.—1. A sectional laminated core for dynamo or motor armatures having overlapping sections, holes through said sections near the inner edge thereof and binding rods occupying said holes.

2. A sectional laminated core for dynamos or motors having overlapping sections, holes through said sections near the inner edge thereof and binding rods slotted along their length and occupying said holes.

3. The combination of the laminated armature core the supporting spiders therefor having hollow clamping heads engaging against the ends of the core.

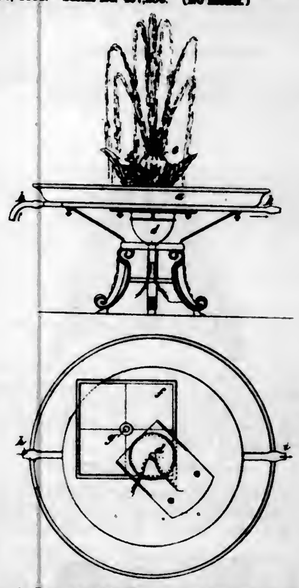
4. The combination of the laminated armature core the supporting spiders therefor having hollow ribbed clamping heads engaging against the ends of the core.

490,877. NAIL-TRIMMER. MAX THIEME, Berlin, Germany. Filed Aug. 4, 1892. Serial No. 442,204. (No model.)



Claim.—An instrument for cutting toe and finger nails, having a slot of about the thickness of a nail, the upper end of which slot is beveled to form a cutting edge, and the lower end of the slot being blunt to form a guide for guiding the cutting edge over the edge of a nail, and the length of the slot at that side of the trimmer at which the cutting edge is formed being less than the length of the slot at the opposite side of the trimmer, substantially as set forth.

490,878. FOUNTAIN. GUSTAVE TROUVÉ, Paris, France. Filed Sept. 30, 1891. Serial No. 407,259. (No model.)

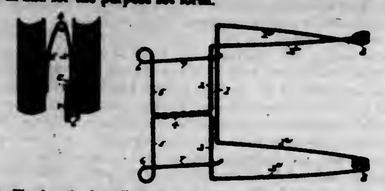


Claim.—1. In a portable illuminating fountain, the combination with the basin and illuminator, of a cup-shaped reflector *d* surrounding the illuminator, a transparent dome-shaped nozzle-chamber *c* over said reflector and formed contiguous with and projecting from the bottom of the basin, a transparent plate *b* interposed between said chamber and reflector and a series of colored transparent plates arranged between said plate *b* and reflector *d*, whereby light is reflected above said reflector in all directions, substantially as described and for the purposes set forth.

2. In an illuminating fountain, the combination with the described illuminating and reflecting mechanism and transparent nozzle-chamber *c* formed contiguous with and projecting from the basin bottom, of a reservoir *k*, pipe *l* connecting said reservoir with said nozzle-chamber, pipe *m* connecting the basin of the fountain with said reservoir and means for forcing water from said reservoir to said transparent nozzle-chamber, substantially as described and for the purposes set forth.

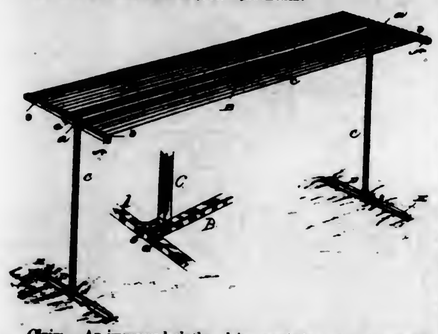
490,879. BOOK-SUPPORT. ARTEMAS H. WARD, Wichita, Kans. Filed Feb. 16, 1892. Serial No. 421,712. (No model.)

Claim.—1. A book support for libraries, consisting of the two part wire frame; the said parts being yieldingly connected together, and adapted to exert pressure in opposite directions; and of a card holder incorporated in the construction of one frame part, substantially as and for the purpose set forth.



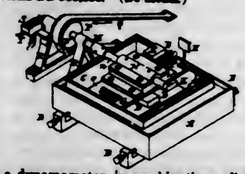
2. The herein described book support comprising the opposite frame parts 1 and 2, connected together by means of bands or coils as set forth; and the card holder fixed to one of said parts and consisting of the parts to form a back support, and the spring arms for clamping the face of a card, substantially as specified and shown.

490,880. CLOTHES-DRIER. THOMAS WARD, Howard, Ohio. Filed Oct. 4, 1892. Serial No. 447,817. (No model.)



Claim.—An improved clothes drier consisting of a frame of I-shape having its end cross bars joined by a single centrally disposed bar, the leg portions pivotally secured to the central bar and having cross bars or feet for supporting the drier, stops on the frame for limiting the outward movement of the leg portions, and the rope or cord, substantially as hereinbefore described.

490,881. DYNAMOMETER. JOHN R. WEBB, Millburn, N. J. Filed Feb. 4, 1891. Serial No. 380,393. (No model.)



Claim.—1. In a dynamometer, in combination, a liquid containing receptacle, a caisson adapted to be supported upon the liquid contained therein, a power absorbing, generating or transmitting mechanism mounted upon said caisson adapted to be connected with mechanism supported independently of said caisson, substantially as described.

2. In a dynamometer, in combination, a liquid containing receptacle, a caisson adapted to be supported upon the liquid contained therein, rotary mechanism mounted upon the caisson, other rotary mechanism mounted upon other supports and a power transmitting connection interposed between said two mechanisms, substantially as described, whereby the tendency of the caisson to careen measures the energy transmitted.

3. In a dynamometer in combination, a liquid containing receptacle, a caisson adapted to be supported upon the liquid contained therein, a power absorbing, generating or transmitting mechanism mounted on said caisson adapted to be connected with mechanism supported independently of said caisson and means for noting the deviation of said caisson under the influence of the energy transmitted, substantially as described.

4. In a dynamometer, in combination, a liquid containing receptacle, a caisson adapted to be supported upon the liquid contained therein, a power absorbing, generating or transmitting mechanism mounted on said caisson adapted to be connected with mechanism supported independently of said caisson and means whereby said caisson may be leveled, substantially as described.

5. In a dynamometer, in combination, a liquid containing receptacle, a caisson adapted to be supported upon the liquid contained therein, a power absorbing, generating or transmitting mechanism mounted on said caisson adapted to be connected with mechanism supported independently of said caisson and a semi-loose or flexible coupling, whereby said connection may be made, substantially as described.

6. In a dynamometer, in combination, a liquid containing receptacle, a caisson adapted to be supported upon the liquid contained therein, a power absorbing, generating or transmitting mechanism mounted on said caisson adapted to be connected with mechanism supported independently of said caisson and an elevated support on said caisson adapted to receive a weight whereby the height of the center of gravity may be regulated, substantially as described.

7. In combination, a liquid containing receptacle, a caisson adapted to be supported upon the liquid contained therein, a power absorbing, generating or transmitting mechanism mounted upon said caisson adapted to be connected with mechanism supported independently of said caisson, and mechanism adapted to support a counter and determine the length of time that it is in operation, substantially as described.

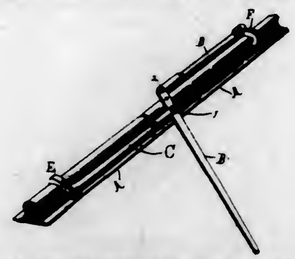
490,882. BOOKBINDING. LEONARD BAILEY, Hartford, Conn. Filed Apr. 6, 1890. Serial No. 347,112. (No model.)



Claim.—1. The within described method or process of book binding that consists in first treating the back edge of a mass of leaves with glue, then securing the mass to the hinge of the covers by glue and pressure while the mass of leaves are opened outward from about the center, then further securing the hinge to the back of the book by pressure under a die block with rounded bearing surfaces, all substantially as described.

2. The process of book binding that consists in first securing the back edges of the leaves together with adhesive material as glue, then stitching the mass together near the back edge, then securing the back to the hinge of the covers by adhesive material under pressure while the book is opened outward at about the center, then further securing the hinge to the back of the book by pressure and then further securing the lining strip to the cover by adhesive material, all substantially as described.

490,883. RAIL-PULLER. DANIEL C. BOWEN, Grand Rapids, Mich. Filed May 21, 1892. Serial No. 433,916. (No model.)



Claim.—1. The combination of the lever handle B, right and left connecting rods C and D, the shoulder G on said connecting rod D and clutch hooks E and F reversed as to each other so as to fit opposite sides of adjoining rails, as shown and for the purpose described.

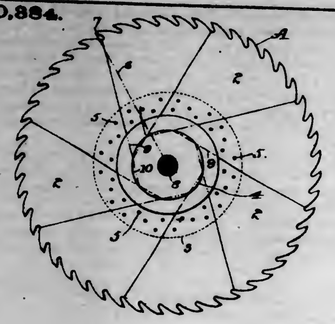
2. The combination of the lever handle B, connecting rods C—D, connected to said handle by the removable hand pins 1—2 and having jaws at both ends, and the clutch hooks E—F, hinged to said rods, all substantially as set forth and described.

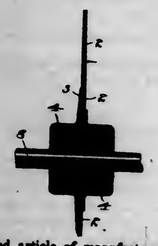
490,884. SEGMENT-SAW. GEORGE R. CRAFTSY, Merrill, Wis., assignor of one-half to Charles Cristadoro, St. Paul, Minn. Filed May 9, 1892. Serial No. 432,572. (No model.)

Claim.—1. A circular segment saw having each of its segments secured to the saw head at a point forward of a line drawn from the first tooth of the segment to the center of the saw.

2. A circular segment saw, the projected section lines of which intersect in a circle concentric with said saw.

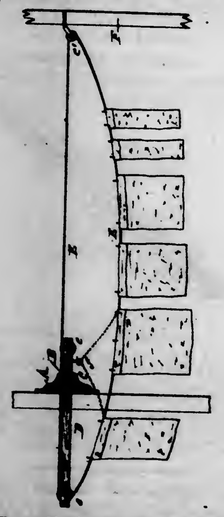
490,884.





3. As an improved article of manufacture, blades for segment saws, the forward section edge of each aligning with a point forward of the center of the saw.

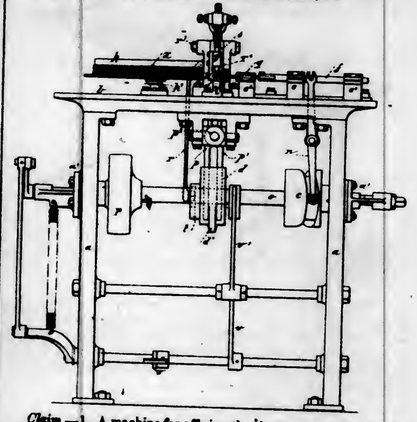
490,885. SWINGING SUPPORT FOR CLOTHES-LINES. CHARLES GEISSE and CARL G. J. GEISSE, Brooklyn, N. Y., assignors of one-half to Bertha M. Bruler, same place. Filed Nov. 14, 1891. Serial No. 412,080. (No model.)



Claim.—1. The combination, of a bracket attached to the outside of a window-casing, said bracket being provided with a central bearing and with holes located respectively above and below said bearing, a shaft supported in the bearing of said bracket and extending at right angles therefrom, said shaft being provided with a recessed lug, a pin for engaging said lug and either one of the holes in the bracket, a lever-arm attached to the lateral shaft or arm, said lever having a guide pulley at each end, and a clothes-line passing over said guide pulleys and over a distant pulley attached to a pole or other suitable support, substantially as set forth.

2. The combination, with a supporting-bracket attached to the window-casing, said bracket being provided with a central bearing and with holes located respectively above and below said bearing, of a shaft supported in the bearing of said bracket and extending at right angles therefrom, said shaft being provided with a recessed lug, a pin for engaging said lug and either one of the holes in the bracket, a lever-arm attached to the shaft, guide-pulleys at the outer ends of the lever-arm, a stretching-hook attached to the shorter end of the lever-arm, and a clothes-line guided over the pulleys of the lever-arm and over a distant pulley supported on a pole or other support, substantially, as set forth.

490,886. MACHINE FOR AFFIXING ELASTIC TO BOXES. LOUIS GUINARD, Buenos Ayres, Argentine Republic. Filed Oct. 17, 1890. Serial No. 368,492. (No model.) Patented in France Jan. 10, 1887, No. 180,795; in Germany Feb. 13, 1887, No. 40,409; in Spain May 25, 1887, No. 7,807; in Italy July 8, 1887, No. 327; in Belgium July 9, 1887, No. 78,146, and in England Feb. 1, 1888, No. 1,777.



Claim.—1. A machine for affixing the elastic on match and other boxes consisting of a frame having a driving shaft, a wire reel mounted on the frame, a wire feeding device consisting of oscillatory pinchers also mounted on said frame and adapted to grasp said wire, a wire cutting device consisting of an adjustable reciprocating knife vertically mounted in a guide and an apertured wire-guide fixed below said knife and adapted to co-operate therewith, an elastic carrying box in line with said guide having a longitudinal aperture and a circumferential groove intersecting one extremity of the aperture, a reciprocating needle working in said box and the wire-guide and having a hooked end adapted to engage the cut wire and the elastic and attach the same to a card-board box, and power connections from the main shaft to said operating parts, substantially as set forth.

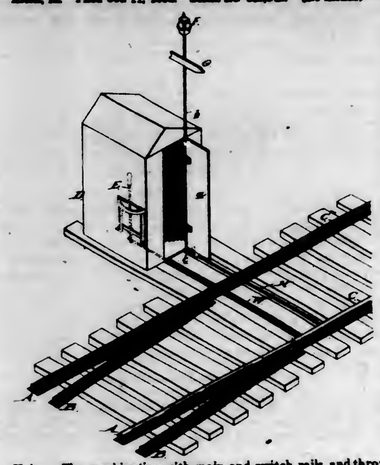
2. In a machine for affixing elastic on match and other boxes, the combination with the main driving shaft, of a wheel mounted thereon having a circumferential cam groove, a lever one end of which works in said groove, and an elastic-inserting needle adapted to be reciprocated by the other end of said lever and a holder for the elastic in line with the needle, substantially as set forth.

3. In a machine for affixing elastic on match and other boxes, a wire supplying device, consisting of a reel carrying the wire, oscillatory pinchers mounted on the frame of the machine and having spring-distended jaws, and a cam mounted on the driving shaft and adapted to oscillate said pinchers, and distend the handles thereof, whereby the closure of the jaws of the pinchers and the feeding of the wire is effected, combined with a holder for the elastic and an inserting needle substantially as set forth.

4. In a machine for affixing the elastic on match and other boxes, the box *g* having the needle aperture and the groove *g'* for the elastic, substantially as set forth.

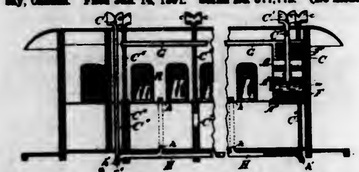
5. In a machine for affixing the elastic on match and other boxes, the guide *k*, combined with the elastic inserting needle substantially as and for the purpose set forth.

490,887. SWITCH-SIGNAL. CHARLES A. HIMS and HENRY HOYER, Alton, Ill. Filed Oct. 11, 1892. Serial No. 448,542. (No model.)



Claim.—The combination with main and switch rails, and throw rails adapted to be aligned with the main and switch rails, of a cage at one side of the rails having a door provided with a rod or axis about which it turns, said rod having a crank formed at its lower end and having its upper end extended and provided with a lamp signal and target, a rod leading from the throw rails and a lever within the cage connected therewith, and a second rod connected with the crank of the rod or axis of the door and also with the throw rails whereby the door is automatically opened and closed by the movement of the throw rails, substantially as herein described.

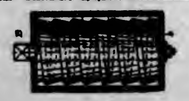
490,888. RAILWAY-CAR VENTILATOR. SAMUEL HOOKER, Lindsay, Canada. Filed Jan. 14, 1891. Serial No. 377,772. (No model.)



Claim.—1. In a ventilating system for railway carriages, the combination of a tank A having a waterspace, cooling space and air space, provided with water gage and draw-off cock, the cooling chamber B placed above the water space, the air tube C having a tight flexible joint *c'* and end *c''* and terminating at the top and above the roof of the car in a trumpet mouthed twin funnel *c c* with flap valve C', float D at the top of the water space supporting a false bottom, the perforated false bottom E supported by the float above the water level and carrying the lower end *c''*, of the air tube and the filtering material E', heating coils in the air space and perforated distributing tube G, substantially as set forth.

2. In a ventilating system for railway carriages, the combination of the longitudinal pipe H near the floor of the carriage and having upwardly extending branches *h* open at the top and downward projecting ends *h'* connecting with the open air, vertical blast pipes C' terminating above the roof in trumpet mouthed twin funnels having flap valves and having their lower ends contracted into nozzles *c'* which are inserted in the ends *h'* to form ejectors, substantially as set forth.

490,889. SPRING. REINHARD KAUFMANN, Langenwahe, Germany. Filed June 13, 1892. Serial No. 437,202. (No model.)



Claim.—1. The combination, with a spring composed of a metal band wound to form a series of funnel-shaped sections, of a spindle passing centrally through the spring, to which spindle one end of the spring is fastened, substantially as set forth.

2. The combination, with a casing and a central spindle in the same, of a spring having one end secured to the spindle and the other end to the casing, said spring being composed of a metal band wound to form a series of funnel-shaped sections, substantially as set forth.

490,890. FLEXIBLE RULER. GEORG W. KRAFT, Dresden, Germany, assignor to Lingner & Kraft, same place. Filed Aug. 6, 1892. Serial No. 442,301. (No model.) Patented in France July 17, 1890, No. 207,020; in Germany Feb. 17, 1891, No. 56,054; in England June 8, 1891, No. 9,097, and in Austria-Hungary Feb. 28, 1892.



Claim.—1. A flexible ruler capable of adapting itself to different forms of surfaces to be ruled composed of two elastic plates combined together, the one being a metal plate, the other being a plate of soft and elastic material, one edge of the metal plate forming the ruling edge while the other plate keeps the distance between the ruling edge and the paper to be ruled, substantially as herein set forth.

2. A flexible ruler composed of two or more superposed elastic plates of metal or other material, of which one has a permanent ruling edge, and a connection substantially as herein described between the said plates which permits the said plates to shift independently of each other in lengthwise direction when the ruler is in use to enable the ruler to adapt itself to curved surfaces, as herein set forth.

3. A flexible ruler composed of two or more flexible plates *a* and *a'* provided with studs or rivets *d* and with elongated slots *c* for the studs or rivets to enter into and to slide freely within, and a fastening between said plates which secures them firmly together at one point in their length while permitting them to slide freely the one relatively to the other throughout the rest of their length, substantially as herein described.

4. In a flexible ruler, the combination of two elastic plates separated from each other but connected together to shift lengthwise independently of each other and one of which has a permanent ruling edge, and an interposed filling of flexible and soft material, substantially as and for the purpose set forth.

490,891. WHEEL. HOSEA W. LIBBEY, Boston, Mass. Filed May 16, 1892. Serial No. 433,108. (No model.)



Claim.—1. In combination with a wheel consisting of a hub and rim connected together by spokes, a series of arms secured to the periphery of said rim the ends of the arms on each side having a rim or tire secured thereto substantially as set forth.

2. A wheel consisting of a hub, spokes and a central rim, arms secured to the said central rim, and projecting on each side, and an outer rim secured to the ends of the arms on each side of the central rim substantially as set forth.

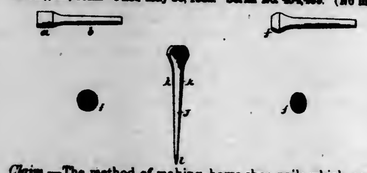
3. In combination with a tension wheel consisting of a hub A, spokes B, and rim C, a series of arms D, each having at its center a rounded projection *d*, to fit into the rim C, and secured thereto by a bolt *b*, the outer ends of each arm having a rounded recessed piece *d'*, the rims E, secured thereto and rubber tires F, substantially as set forth.

490,392. PROCESS OF MAKING HORSESHOE-NAILS. WILLIAM W. MINER, New Haven, assignor to the New Process Nail Company, Torrington, Conn. Filed May 20, 1892. Serial No. 433,772. (No model.)



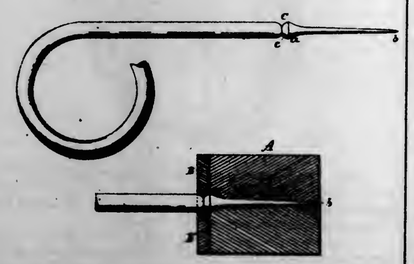
Claim.—The method of making horse-shoe nails substantially as set forth which consists in upsetting a rounded head on one end of a blank, reducing the body or shank of the blank to a tapering form circular in cross-section, annealing the blank and then flattening the head and shank of the blank and thereby stiffening it and producing a nail having flattened sides and rounded edges throughout its length.

490,393. METHOD OF MAKING HORSESHOE-NAILS. WILLIAM W. MINER, New Haven, assignor to the New Process Nail Company, Torrington, Conn. Filed May 26, 1892. Serial No. 434,489. (No model.)



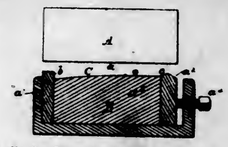
Claim.—The method of making horse-shoe nails which consists in cutting wire into blanks of suitable lengths; reducing a portion of the blank by swaging to circular form in cross-section and of less diameter than that of the original blank; upsetting a rounded head on the enlarged and unreduced end of the blank; then reducing the shank or body of the blank to a tapering form circular in cross-section throughout its length and flattening the head and shank of the blank thereby producing a horse-shoe nail having flattened sides and rounded edges throughout its length.

490,394. METHOD OF MANUFACTURING HORSESHOE-NAILS. WILLIAM W. MINER, New Haven, assignor to the New Process Nail Company, Torrington, Conn. Filed May 26, 1892. Serial No. 434,490. (No model.)



Claim.—The method of making horse-shoe nails which consists in reducing the end of a wire coil or length of wire by swaging and forming a blank consisting of a head circular in cross-section and a tapering shank circular in cross-section throughout its length; severing the blank from the coil or length of wire, annealing the blank and then flattening the head and shank of the blank and thereby producing a nail having flattened sides and rounded edges throughout its length.

490,395. DIE FOR THE MANUFACTURE OF HORSESHOE-NAILS. WILLIAM W. MINER, New Haven, assignor to the New Process Nail Company, Torrington, Conn. Filed May 26, 1892. Serial No. 434,492. (No model.)



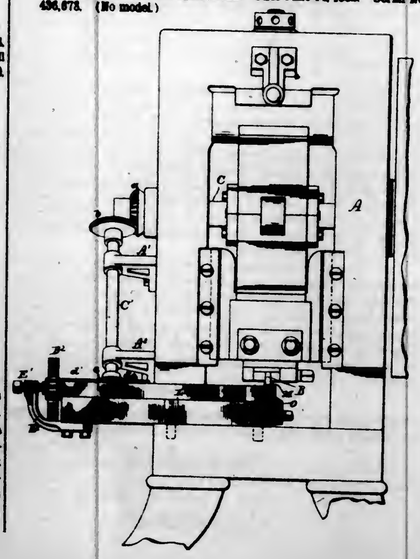
Claim.—A die for flattening horse shoe-nail blanks comprising a center piece and end pieces detachably secured together, the three part die forming a cavity the lower surface of which is formed on the center-piece and conforms to the contour of the curved side of the nail and extends the entire width of the die, while one of the detachable end pieces forms a wall or ledge against which abuts the head of the nail blank, and the other end piece forms the die surface on which the point of the blank is beveled, in combination with a receptacle for holding the three part die, and means for forcing the parts of the die in snug contact with each other, and for releasing them to enable them to be removed from their receptacle, substantially as set forth.

490,396. METHOD OF MAKING HORSESHOE-NAILS. WILLIAM W. MINER, New Haven, assignor to the New Process Nail Company, Torrington, Conn. Filed May 26, 1892. Serial No. 434,495. (No model.)



Claim.—The method of making horse shoe nails which consists in upsetting a head on the end of a wire blank, reducing the body of the blank by swaging to a tapering form circular in cross section throughout its length; grinding the end of the shank to a conical point and flattening the shank and beveling the ground point by pressure and thereby producing a horse shoe nail having flattened sides rounded edges and a smooth finished beveled point.

490,397. FEEDING MECHANISM FOR HORSESHOE-NAIL MACHINES. WILLIAM W. MINER, New Haven, assignor to the New Process Nail Company, Torrington, Conn. Filed June 14, 1892. Serial No. 436,673. (No model.)



Claim.—1. The combination with dies for flattening horse-shoe nail blanks throughout their entire length, of yielding fingers or guides located between the dies and serving as lateral guides for the blank while it is being flattened, said fingers being of less thickness than that of the flattened blank, and means for actuating said fingers and causing them to remove the blank from the die, substantially as set forth.

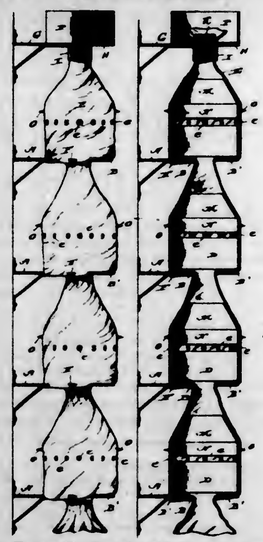
2. The combination with dies for flattening horse shoe nail blanks, of a feed screw for feeding the blanks to the dies, yielding fingers or guides located upon the lower die and parallel therewith said fingers or guides adapted to serve as lateral guides for the blank throughout its length and retain it in position while being flattened, substantially as set forth.

3. The combination with dies for flattening horse-shoe nail blanks, of spring fingers located upon the lower die and constructed to hold the blank in position while being subjected to the action of the upper die, and means for separating the fingers as the blank is flattened, substantially as set forth.

4. The combination with dies for flattening horse-shoe nails, of an oscillating arm provided with yielding fingers which rest upon the lower die and are parallel therewith, said fingers serving as lateral guides for a blank while being flattened, and means for automatically actuating said arm and removing the flattened blank from the die, substantially as set forth.

5. The combination with two flattening dies, of yielding fingers located between the dies and serving as lateral guides for the blank while being flattened; means for automatically feeding the blanks upon the lower die and into the space formed between said fingers and means for automatically actuating said fingers and sweeping the blank off from the die, substantially as set forth.

490,398. MILK-COOLER. CHARLES G. HERBER, Abilene, Tex. Filed Oct. 1, 1892. Serial No. 447,849. (No model.)



Claim.—1. The combination of a milk receptacle, a water vessel and a fabric sheath or covering having one end entering the water vessel and completely surrounding the milk receiving vessel, said covering being provided above the milk receptacle with a series of perforations or openings, substantially as and for the purpose described.

2. The combination of a milk receptacle, a water vessel arranged above the milk receptacle and provided with an opening in its bottom, a fabric sheath extending up through the opening in the water vessel and down around the milk receptacle and a plug fitted in the opening in the bottom of the water vessel and holding the fabric sheath in place therein, substantially as described.

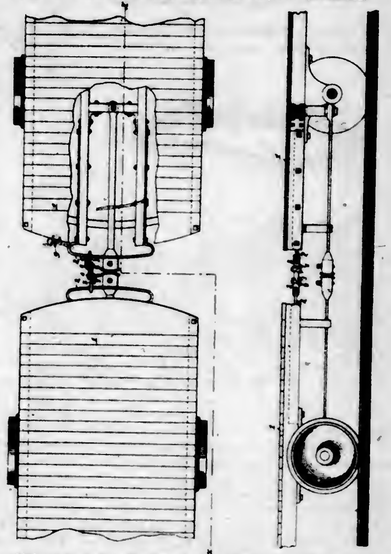
3. The combination of a bracket provided at its outer end with a support having a central opening or aperture, a water vessel, a fabric sheath extending through the opening in the support on the bracket and having one end entering the water vessel and a milk receptacle arranged within the fabric sheath, substantially as described.

4. The combination of a milk receptacle, a water vessel, a fabric sheath surrounding the milk receptacle and having one end entering the water vessel, said sheath being provided with a series of perforations and a drip cone arranged within the fabric sheath, substantially as described.

5. The combination of a milk receptacle, a water vessel, a fabric sheath, surrounding the milk receptacle and provided with a series of perforations, and having one end entering the water vessel and a drip cone arranged within the fabric sheath and provided with a series of laterally projecting spurs or pins, substantially as described.

6. The combination of a series of supports, each provided with an opening or aperture, a water vessel, a fabric sheath having one end secured in the water vessel and extending through the aligned openings in the supports, said fabric being provided, at intermediate portions of its length with a series of perforations, a series of milk receptacles arranged within the fabric sheath above each support and a drip cone arranged within the fabric sheath above each milk receptacle, substantially as described.

490,399. SAFETY-COUPLING FOR CARS. JOHN M. ROACH, Chicago, Ill. Filed Oct. 20, 1892. Serial No. 449,707. (No model.)



Claim.—1. In a railroad car the combination with the body of the car, 1, of the approximately U-shaped bar, 2, the transverse portion of which is adapted as a slide and support for a safety connecting link or eye-bar to slide and turn upon, and the sides of which are adapted to be bolted to the longitudinal string pieces of the body of the car and to give additional strength and support thereto, as and for the purpose specified.

2. In a railroad car the combination with the body of the car, 1, of a transverse bar, 2, solidly attached to the ends of the body and adapted for a slide and support for a safety connection link or eye-bar, and the safety link or eye-bar, 3, one end of which is adapted to slide and turn upon said transverse slide bar, 2, and the body of which is provided with rectangular tooth projections cut or formed upon one side of the said body perpendicular to the edge or center line thereof, said tooth projections adapted to fit into spaces formed by like tooth projections of a like mating bar and to interlock therewith, and means adapted for securing a pair of said eye-bars firmly interlocked together, and to practically form a continuous solid bar connection between the cars, as and for the purpose specified.

3. In a railroad car the combination with the body of the car of a safety connecting link or eye-bar adapted to slide horizontally across the ends of said body, said connecting safety link or eye-bar provided with tooth projections adapted to interlock with the tooth projections of a like mating bar, and means adapted to securely grip a pair of said bars together when interlocked, to form a continuous safety connection between the cars, as and for the purpose specified.

4. The combination with the body of a railroad-car of a link or

eye-bar attached to the ends of the body of the car, the said link or eye-bar provided with tooth projections which fit into spaces formed by like tooth projections of a like interchangeable or mating bar, the said tooth projections adapted for the adjustment of a pair of said bars to the length as may be required by the distance between the cars when coupled together, and to resist and sustain the tensile or pulling strain when thrown upon the interlocked bars, and means adapted to grip and hold the bars firmly together, as and for the purpose specified.

5. In a railroad car the combination comprising the body of the car, 1, the transverse slide bar, 2, solidly attached to the ends of the car, the safety links or eye-bars, 3, adapted to slide horizontally and turn vertically upon the said transverse slide bar, the said eye bars provided with rectangular tooth projections cut or formed across one of their sides or faces, the clamp bands, 4, solidly attached to the ends of said eye-bars, the hook plates, 5, solidly attached to or formed integral with the bottom side of said bands, the clamping levers, 6, attached to the top part or end of said bands by means of the screws, 7, and adapted to be turned thereon between the hook at the bottom of the strap and the back of the mating bar, to grip or clamp the bars firmly together, substantially as and for the purpose specified.

490,400. THREE-WHEELED CARRIAGE. GUSTAVE ROUY, Redlands, Cal. Filed Sept. 16, 1892. Serial No. 446,058. (No model.)



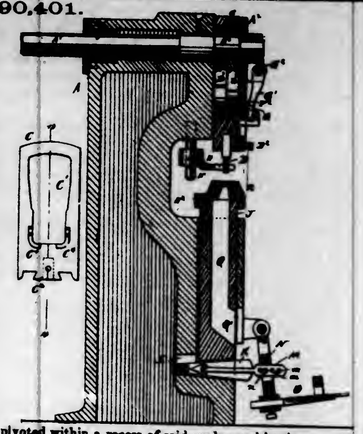
Claim.—1. A three wheeled vehicle comprising the combination of the axle swivel H provided at the lower ends of its arms with the axle boxes and with the hound securing sockets; the reach bar F pivoted upon the axle swivel; the reaches G G' secured to the ends of the reach bar; the front supporting springs arranged to rest upon the reach bar and secured thereto; the upper member of the fifth wheel secured to and projecting back from the reach bar; the lower member of the fifth wheel secured to the axle swivel; the fifth wheel supporting plate provided with lateral stay arms attached respectively to the reaches; the king bolt and fifth wheel brace secured to the upper member of the fifth wheel and to the fifth wheel supporting plate and arranged to rest upon the upper front hound socket and provided with the king bolt hole; the upper front hound having its socket pivoted upon the reach bar and provided with the king bolt hole; the lower front hounds connected with the boxes of the axle swivel; the draft bar secured to the front hounds and the king bolt arranged to pivotally secure the upper front hound and the axle swivel to the reach bar and fifth wheel brace.

2. A three wheeled vehicle comprising the combination of the axle swivel provided with the axle boxes; the reach bar pivoted upon such swivel and connected with the body of the vehicle; the draft bar; the lower draft hounds I, I secured respectively at their lower ends to the lower ends of the axle swivel and secured at their upper ends to the draft bar; the upper draft hound I' secured at its front end to the draft bar and pivoted to the reach bar, and the king bolt arranged to secure the upper hound, reach bar and axle swivel together.

490,401. PUNCHING, SHEARING, AND FORGING MACHINE. HANS A. SCHMIDGALL, New York, N. Y. Filed Apr. 19, 1892. Serial No. 429,705. (No model.)

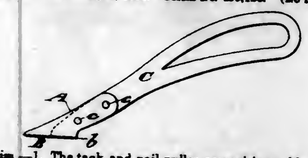
Claim.—The combination with a reciprocating tool-holder and means for operating said holder, of a vertically-adjustable support for a tool, a laterally-movable wedge supporting said adjustable tool, a

490,401.



link pivoted within a recess of said wedge and having a series of apertures at its outer end, a frame in which the tool-holder is guided, a foot-lever pivoted at its upper end to said frame and pivotally connected with the outer end of said link by a pin passed through a part of the foot-lever and through one of the apertures in the outer end of said link, substantially as set forth.

490,402. TACK OR NAIL PULLER. ALBERT B. SCHOFIELD, Brooklyn, N. Y. Filed July 6, 1892. Serial No. 439,129. (No model.)

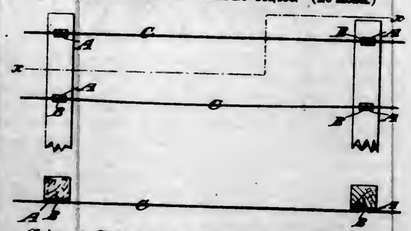


Claim.—1. The tack and nail puller comprising a blade of sheet metal having its sides turned upwardly upon opposite sides of its working edge into planes substantially at right angles with the base and a handle secured to the turned up sides, substantially as set forth.

2. The tack and nail puller comprising a blade of sheet metal having its sides turned up upon opposite sides of its working edge into planes substantially at right angles to the base and extending obliquely away from the point or front edge of the base, a handle secured between said sides and a pronounced angular heel at the rear of the base upon which the tool bears when in use, substantially as set forth.

3. The tack and nail puller comprising a sheet metal plate having its sides bent up upon opposite sides of its working edge in planes substantially at right angles to the base and extending obliquely back from the front edge of the base, a handle secured between the sides and bearing at its lower end upon the base and the notch in the front or working edge of the base, substantially as set forth.

490,403. FASTENING DEVICE. ALBERT B. SCHOFIELD, Brooklyn, N. Y. Filed July 26, 1892. Serial No. 441,136. (No model.)

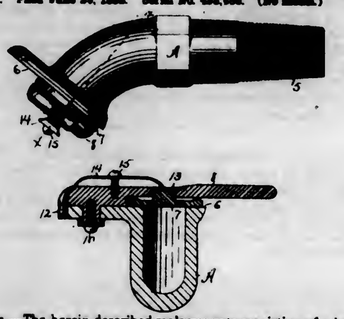


Claim.—1. The fastening device comprising a bearing piece having bearings on its outer face for the reception of a wire, said bearing piece being further provided with an open space, intermediate of the bearings and back of the plane of the bearings, for the movement of the wire intermediate of the bearings toward the bearing piece sup-

port, and a staple adapted to engage the wire intermediate of the bearings and hold the wire to its bearings and the bearing piece to its support, substantially as set forth.

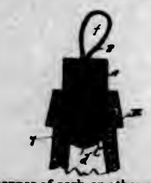
2. The fastening device comprising a plate having flanges turned at an angle to its face, the flanges provided with notches having converging sides for the reception of wire, and the plate being perforated intermediate of the flanges, and a staple adapted to embrace the wire intermediate of the flanges and pass through the perforated plate, substantially as set forth.

490,404. MOLASSES-GATE. CHARLES F. SMITH, New Britain, Conn. Filed June 30, 1892. Serial No. 438,288. (No model.)



Claim.—The herein described molasses gate consisting of a body having a flange or face 6, the lever 8 having a tenon orifice, the gate 7 held in connection with said lever by a tenon resting in said orifice, and the spring 15 secured on the face of the lever with one end of said spring resting on said tenon while its other end bears on the lever near the short end thereof, substantially as described and for the purpose specified.

490,405. BOTTLE-STOPPER. GEORGE F. ATWOOD, Malden, Mass., assignor, by direct and mesne assignments, to George M. French, same place. Filed Sept. 4, 1891. Renewed June 30, 1892. Serial No. 438,636. (No model.)



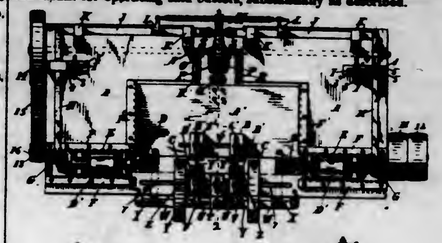
Claim.—A bottle stopper of cork or other suitable material having a recess *y*, formed in its bottom and provided with the button C, eye *d*, and lifting cord or wire B, substantially as specified.

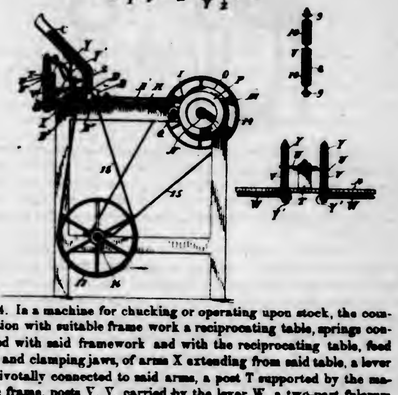
490,406. CHUCKING-MACHINE AND GAGE-LATHE. PETER DIXON, Grand Rapids, Mich., assignor to the Fox Machine Company, same place. Filed Nov. 11, 1891. Serial No. 411,602. (No model.)

Claim.—1. In a machine for chucking or operating upon stock, the combination with clamping jaws, and feed ways, of a reciprocating table carrying one set of the clamping jaws, vibrating feed fingers alternately entering the feed ways to feed single pieces of the stock, said fingers connected to and operated by the reciprocation of said table, knives adapted to move simultaneously to and from the stock to be operated upon, adjustable levers connected with said cutters, a wheel having a peripheral cam for moving the reciprocating table forward, said wheel having a cam surface on each of its two sides, for operating upon the levers to move the cutters into engagement with the stock, springs for retracting the reciprocating table, and a spring for moving the cutters away from the stock, substantially as described.

2. In a machine for chucking or operating upon stock, the combination with feed ways, a reciprocating table, and cutters of adjustable vibrating feed fingers, adjustable stock-holding clamps, adjustable levers connected with the cutters, and a wheel provided with three cams, for simultaneously moving the cutters to and from the stock to be operated upon, throwing the feed fingers alternately into and out of the feed-ways, and operating the stock-holding clamp, substantially as described.

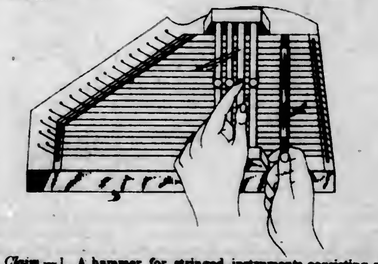
3. In a machine for chucking or operating upon stock, the combination with a reciprocating table, feed ways, and clamping jaws, of arms X, extending from said table, a lever W, pivotally connected to said arms, a post T supported by the machine frame, posts V, V, carried by the lever W, a two-part fulcrum supported by the post T and connected to the posts V, V, feed fingers Y, Y', carried by the posts V, V, means for vibrating said posts longitudinally movable cutters, and means for operating said cutters, substantially as described.





4. In a machine for chucking or operating upon stock, the combination with suitable frame work a reciprocating table, springs connected with said framework and with the reciprocating table, feed ways and clamping jaws, of arms X extending from said table, a lever W, pivotally connected to said arms, a post T supported by the machine frame, posts V, V, carried by the lever W, a two-part fulcrum supported by the post T and connected to the posts V, V, feed fingers Y, Y', carried by the posts V, V, longitudinally movable cutters, adjustable levers connected with said cutters, rods connected to said levers, a cam wheel engaging said rods and the reciprocating table, substantially as described.

490,407. HAMMER FOR AUTOHARPS. CHRISTIAN H. HEINEMANDT, Baltimore, Md. Filed May 6, 1892. Serial No. 432,095. (No model.)



Claim.—1. A hammer for stringed instruments consisting of a flexible strip, in combination with a rubber, felt or leather sleeve sheathing the same, substantially as set forth.

2. A hammer for stringed instruments consisting of a strip of metal, sheathed in a rubber, felt or leather sleeve and having a beak projecting beyond the rubber-sleeve, substantially as set forth.

3. A hammer for stringed instruments consisting of a strip of metal, sheathed in rubber, felt or leather and having a beak provided with a bulge or bead, as at *c*, the said beak extending beyond the rubber sheath, substantially as set forth.

490,408. SULPHO-BLUE DYE. ALBERT BERNHARD, Höchst-on-the-Main, Germany, assignor to the Farbwerke, vormals Meister, Lucius & Brüning, same place. Filed Feb. 9, 1892. Serial No. 420,900. (Specimens.)

Claim.—1. The process for the production of blue coloring matter, which is an oxidation product of the sulphonic acids of meta substituted tetraalkyldiamidotriphenylcarbinols, which consists in oxidising the sulphonic acids of meta-oxy-, meta-amido-, or alkalized meta-amido-tetraalkyldiamido-triphenylcarbinols with salts of iron or chromic acid, substantially as described.

2. As a new article of manufacture blue coloring matter, derived from tetraalkyl-diamido-triphenylcarbinols, a copper red powder with metallic lustre, soluble in water showing intense indigo blue coloration, insoluble in alcohol and benzine, dyeing wool and silk in acid bath very uniform blue shades.

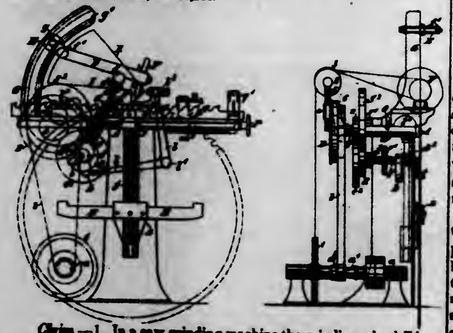
490,409. CHAIN. LEOPOLD HERRMAN, Cleveland, Ohio. Filed Feb. 11, 1892. Serial No. 421,201. (No model.)



Claim.—1. A link for a chain constructed of four separable pieces comprising two end pieces or yokes, having enlarged ends interiorly threaded, and two side pieces whose ends are enlarged in cross section, said enlarged ends being threaded and adapted to engage with the ends of the yokes or end pieces, substantially as and for the purposes set forth.

2. A link for a chain constructed of four separable pieces comprising two end pieces or yokes having enlarged ends interiorly threaded and provided with the shoulders *c* and bearing faces *d*, in combination with two side pieces whose enlarged ends are threaded and adapted to engage with the ends of the end pieces, substantially in the manner and for the purposes set forth.

490,410. MACHINE FOR SHARPENING AND SETTING SAWS. JOSEPH H. LARSEN, Carlton, near Zurich, Switzerland. Filed May 16, 1892. Serial No. 432,402. (No model.) Patented in France Sept. 26, 1890, No. 205,474; in Switzerland Sept. 29, 1890, No. 2,668, and in Germany Oct. 2, 1890, No. 57,216.



Claim.—1. In a saw grinding machine the grinding wheel F having its axis in the vertical plane of the saw in combination with its supporting frame D, the block E to which the said frame is pivoted, the segment G in which the said block is adjustably secured, the rotating cam d^9, the slide C in contact with the said cam and an attachment of the said slide arranged in contact with the said frame for raising and lowering the free end thereof as the said cam turns substantially as set forth.

2. In combination with a grinding wheel and a pivoted frame in which it is mounted, a cam, a slide acted on by the said cam and a spindle which supports the free end of the said frame and is screwed into the said slide to allow adjustment substantially as set forth.

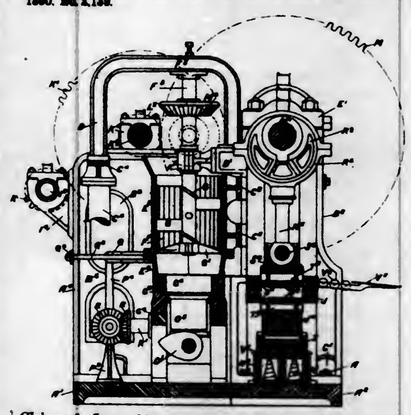
490,411. GLOVE-FASTENER STUD. ALBERT S. HEAD, Boston, Mass., assignor to William B. H. Dowse, trustee, same place. Filed Mar. 16, 1891. Serial No. 385,193. (No model.)



Claim.—1. A glove fastener stud consisting of a struck up dome shaped flanged head A firmly united to an unflanged clinching eyelet B having a round enlarged top *b* and the neck of the struck up flanged head A, being rolled in under and around said enlarged top *b*, substantially as described.

2. A glove fastener stud consisting of a struck up dome shaped flanged stud A in combination with a clinching eyelet B provided with a rounded enlarged top *b* rolled on to the head of the stud forming a contracted neck *a'* under and around said enlarged top and a washer C on the under surface of the material of the glove or garment against which and in said washer the shank of the eyelet is clinched, substantially as described.

490,412. APPARATUS FOR PRESSING BRICKS. JOSHUA G. TAYLOR and HARRY WILLIAMS, Richmond, Victoria. Filed Apr. 25, 1892. Serial No. 430,867. (No model.) Patented in Victoria Nov. 20, 1883, No. 6,264; in New South Wales Oct. 31, 1888, No. 1,806; in Queensland Nov. 6, 1888, No. 1,123; in England Mar. 4, 1890, No. 3,431; in New Zealand May 3, 1890, No. 4,208, and in South Australia Oct. 28, 1890, No. 2,139.



Claim.—1. In combination the pug mill the reciprocating table carrying a mold and arranged to move below the same to carry the said mold below the pug mill to receive the material and then to one side of the same, the vertically movable plunger in the mold and carried by the table, the means for moving the said plunger vertically when the table is at the limit of its outward movement, the press mechanism and the means for pushing the molded material when raised from the mold to the press mechanism, substantially as described.

2. In combination the pug mill the reciprocating table carrying two molds at different points thereon, so that while one is beneath the pug mill the other will be at one side thereof, the means arranged on both sides of the pug mill and in line with the movement of the table, the plunger in the said molds, the press mechanism, and the alternately sliding blocks for moving the molded material first from one side of the pug mill and then the other to the press mechanism, substantially as described.

3. In combination the pug mill, the reciprocating table carrying molds with plungers therein, the means for reciprocating the table so that the molds will be alternately presented to the opening in the pug mill and at one side thereof, the shaft, the cams O', arranged to act upon the plungers alternately at the limit of the table's movement, the press mechanism and the slides for pushing the molded material thereto, substantially as described.

4. The combination and arrangement of a crank, shaft (i) vertically arranged at one side of molding machine to actuate the sliding table (G^2) by means of a rod (H) with the collars (H^3) and (H^4) to alternately engage the eye-piece (H') at one end of said table, substantially as herein described and illustrated in our drawings.

5. The combination and general arrangement of the two rocking shafts (o^4) and (F) (worked by cranked disk) geared to work alternately the levers (P^4) and (P^5) provided with links (Q) and (Q) and sliding blocks (Q^2) and (Q^2) guided each by two rods, whereby the

molded bricks are advanced from the sliding table to the press and thence to the rollers of discharge tables, substantially as herein described and as illustrated in our drawings.

490,413. LINK FOR FASTENING CUFFS, &c. ARTHUR J. HEDGES, HORACE C. HEDGES, and WALTER C. HEDGES, London, England. Filed Jan. 9, 1892. Serial No. 417,868. (No model.)



Claim.—The combination in a link fastening for cuffs and similar articles, of two buttons having shanks and a looped link connecting said shanks one of said buttons having on its back a rib, a portion of which is swelled to form a snap and the link having its loop of a width to snap over the so swelled portion of said rib, substantially as and for the purpose herein set forth.

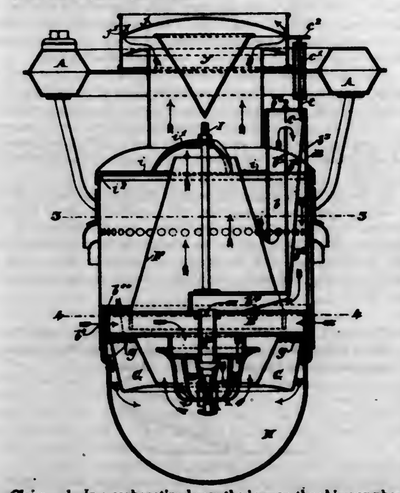
490,414. EAVES-TROUGH PROTECTOR. NEWTON J. PLANTENGA, Sterling, assignor of one-half to Alexander J. Mellett, Rock Falls, Ill. Filed Oct. 27, 1891. Renewed Nov. 21, 1892. Serial No. 452,633. (No model.)



Claim.—1. The combination of the trough A, provided with flange 1 and bead 2, and the sieve B, provided with the bands 5 and 6, adapted to clasp respectively the inner edge, and the bead 2, of said trough, substantially as shown and for the purpose described.

2. The combination of the trough A, provided on its respective sides with flange 1 and bead 2; the sieve B provided with bands 5 and 6, adapted respectively to clasp said flange and bead; the band C provided with hooks 3 and 4 to supplementarily embrace said sieve at the bead 2 and the clamp D adapted to embrace the bead 2 outside of said band C; substantially as shown and for the purpose described.

490,415. LAMP. ROBERT REID, ROBERT HASHA, THOMAS HOLROYD, and HENRY A. WEBAT, Melbourne, Victoria. Filed June 25, 1891. Serial No. 397,473. (No model.)



Claim.—1. In a carbureting lamp, the burner, the chimney above the same, the air chamber extending immediately about the said chimney, the walls of said air chamber constituting the outer body walls of the lamp, the said air chamber communicating with the outside air through openings in its walls, a converter arranged within the air chamber adjacent to the chimney and communicating with the said air chamber and being free from communication with the chimney, the reservoir for the oil, the conduit leading from the reservoir to the converter and the conduit leading from the converter to the burner, substantially as described.

2. In combination in a carbureting lamp, the lamp body the burner below the same, the chimney extending through the lamp body, forming with said body an air chamber around the chimney, communicating with the outside air, the converter within the lamp body and at one side thereof, the spreader plate extending through the said converter, the conduit from the converter to the air chamber, the conduit from the converter to the burner, the oil reservoir and the conduit therefrom to the converter, substantially as described.

3. In combination in a carbureting lamp, the lamp body, the burner below the same, the chimney extending therefrom up through the lamp body and forming therewith an air chamber, the converter within the lamp body, and projecting up outside the same, the uptake conduit *b*, from the air chamber to the converter, and the down take conduit from the converter to the burner, the said flues extending up into the projecting part of the converter, the valve the oil reservoir and the conduit therefrom to the converter, substantially as described.

4. In combination in a carbureting lamp the lamp body, the burner below the same, the chimney above the burner, extending through the lamp body and forming therewith an air chamber about the chimney, the converter within the lamp body, extending vertically at one side thereof, the conduit from the air chamber to the converter, the oil supply pipe, the conduit from the converter to the burner, and the spreader plate B, extending diagonally through the said converter, substantially as described.

5. In a carbureting lamp, the burner having a central vertical opening, the chimney above the same, the air chamber immediately about the chimney, the walls of said air chamber constituting the outer body walls of the lamp, the said air chamber communicating with the outside air through openings in its walls, a converter arranged within the air chamber adjacent to the chimney and communicating with the air chamber, the reservoir for the oil, the conduit from the reservoir to the converter and the conduit leading from the converter to the burner including the passage b^4 extending laterally at the base of the chimney and above the burner, and the central tube b^5 at the inner end of the lateral passage, said tube extending into the central vertical opening of the burner, substantially as described.

6. In combination in a carbureting lamp, the lamp body, the burner below the same, the chimney above the burner and extending through the lamp body, and forming an air chamber, the converter connected with the burner and with the air chamber, the means for closing the air chamber and holding the chimney in place consisting of the plate *i*, resting on the upper edge of the lamp body, and engaging the chimney, the rod I extending through the chimney and the tripod adjustable thereon and bearing upon the plate *i* substantially as described.

7. In a carbureting lamp, the combination of the lamp body, the burner within the lower part of the same, the chimney extending centrally of the lamp body above the burner, the annular reservoir A above the lamp body and arranged concentric thereto and to the chimney, the said reservoir being supported from the lamp body, the converter arranged below the reservoir and between it and the burner, and the connection from the reservoir to the converter and from the converter to the burner, substantially as described.

8. In combination in a carbureting lamp, the lamp body, the burner below the same, the chimney extending from the burner up through the lamp body and forming therewith an air chamber about the said chimney, the converter connected with said air chamber, the central tube b^5 of the burner, the lateral conduit b^4 from the converter to the central tube b^5, the transverse air passage E above the burner, and through which the pipe b^4 extends, the said passage E communicating with the burner, at its central part, and the said passage b^4 extending above and parallel with the air passage E substantially as described.

9. In combination, the burner D, transverse air passages E above the burner and opening thereto at its center, the annular air chamber G around and at a distance from the burner, the chimney F, the air chamber around said chimney, a converter into which said chamber discharges, and a vapor supply pipe from the converter to the burner, substantially as set forth.

490,416. COMBINED CANE AND CAMP-STOOL. EDWARD L. BUTTON and CHARLEY B. REED, Stillwater, Minn. Filed Apr. 9, 1891. Serial No. 388,298. (No model.)

Claim.—1. In combination with the main part A, the folding arms carried at the upper end thereof the means for operating them

both to fold and unfold consisting of the sliding case D having openings at its upper end, the ends of said arms and the openings being arranged in such relation to each other that the sliding movement of the case will cause the arms to engage the said openings and thus unfold or fold as the case is moved, the said operating case extending over the top of the arms and serving to inclose the same and locking means for holding the cam substantially as described.



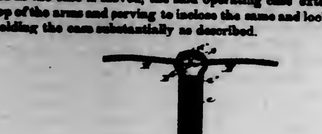
2. In combination the main part A, the folding arms resting loosely on the upper end thereof and having enlarged, unattached lower ends, and the sliding case having perforations adapted to permit the passage of the arms but not the enlarged heads, the said casing entirely inclosing the arms, when in raised position and the loose arms being in contact with each other at their enlarged heads, whereby they are maintained in correct position in relation to each other when within the sliding case, substantially as described.

3. In combination, the part A having projecting flanges or pins c', the case D sliding on part A, having slots d' and grooves e, e', to engage said projections the headed arms E within said case adapted to be projected through the slots d', and the cap having notches d and pivoted centrally to case D at d'' as set forth.

4. The base for the camp stool consisting of the sleeve F having ears g and opening f'', the legs G pivoted to said ears and provided with flanges g' and feet G', the ears h on said feet, the sleeve I having ears h', the braces pivoted to and connecting the feet with sleeve I, the part A supported in said sleeves F and I, and carrying the sliding case D and the arms E, substantially as set forth.

5. The combined cane and camp stool herein described consisting of a two part cane jointed at the middle, the upper part provided with a head carrying adjustable arms for supporting the seat, and with a lower tenon end, in combination with the base consisting of two sleeves formed to fit said tenon, and leg and braces connecting said sleeves as set forth.

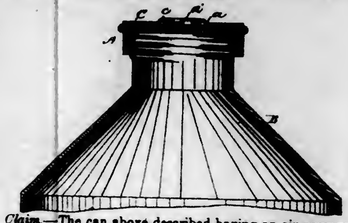
490,417. MACHINE FOR SEWING LOOPED FABRICS. ARMENT I. TRAVER, Hollisville, N. Y. Filed June 16, 1892. Serial No. 436,992. (No model.)



Claim.—1. In a turning-off machine, a feeding device having a series of stitch-pins, on which the knitted material to be stitched is impaled; means to move the feeding device; a deflector adapted to act upon and draw and hold the knitted fabric down on said stitch-pins; combined with a loop-destroyer, and actuating devices therefor, whereby the loop-destroyer is made to act on and destroy the surplus loops of the knitted fabric above the loops which are impaled on the stitch-pins, substantially as described.

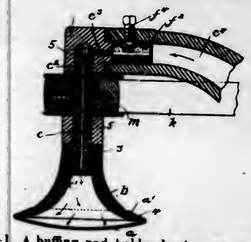
2. In a turning off machine, a series of stitch pins on which the knitted material to be stitched is impaled; a deflector adapted to draw and hold the knitted fabric down on said stitch pins; combined with a loop destroyer to cut on and destroy the surplus loops of the knitted fabric beyond the loops impaled on the stitch pins, a picking out device to remove the thread loops destroyed by the loop destroyer; and an actuating device for the said loop destroyer and picking out device, the deflector serving to prevent the loop destroyer from drawing or straining the knitted courses, below the stitches, impaled on the said stitch pins, substantially as described.

490,418. CAN. LAFORREST P. TRUE, Clinton, Me. Filed Mar. 23, 1892. Serial No. 426,162. (No model.)



Claim.—The can above described having an air passage in one of its walls connecting the interior of the can with the atmosphere, said passage being curved as described and the ends of said passage overlapping, all as and for the purposes set forth.

490,419. BUFFING-MACHINE. HAROLD A. WEBSTER, Haverhill, assignor to George H. P. Flagg, Boston, Mass. Filed Oct. 14, 1892. Serial No. 448,831. (No model.) Patented in Canada Oct. 26, 1892, No. 40,792.



Claim.—1. A buffing pad holder having an elastic or resilient margin, in combination with a removable pad having a permanently formed in-turned flange, the interior of the pad being smaller than the normal size of the holder, substantially as set forth.

2. A buffing pad holder having an elastic or resilient margin reduced to a thin edge at its periphery and presenting a tapering or inclined outer surface, in combination with a removable pad having a permanently in-turned flange, the interior of said pad being smaller than the normal size of the holder, for the purpose set forth.

3. A disk-shaped buffing pad holder having an elastic or resilient margin, an air space or chamber inside the plane of the margin, and a normally open air inlet communicating with said chamber, as set forth.

4. A disk-shaped buffing tool comprising a recessed or chambered holder having a normally open air inlet and a buffing pad engaged with said holder and extending across the recess or chamber thereof, as set forth.

5. In a buffing machine, the combination of a pad holder having an internal chamber, a pad at one side of said chamber, a shaft secured to the holder and having a passage communicating with the chamber, a supporting-frame having bearings for said shaft and a passage communicating with the passage in the shaft, and a pump or forcing apparatus adapted to maintain pressure in said chamber, as set forth.

490,420. PLOW-CLEANER. FREDERICK WOLFF, Rich Prairie, Minn.; Angela Wolff administratrix of said Frederick Wolff, deceased. Filed Feb. 4, 1892. Serial No. 420,572. (No model.)

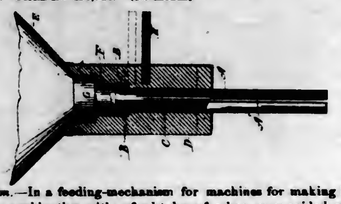


Claim.—In combination with a plow the cleaner A, consisting of the perforated shank a, cap b, flange b', extending from said cap, arm c, extending forward from said cap, prong d, extending upward toward the landside and bending backward, substantially as shown and described.

490,420.



490,421. FEEDING MECHANISM FOR MACHINES FOR MAKING BUTTONS. CLARENCE WOOSTER, Saugatuck, Conn. Filed Oct. 31, 1892. Serial No. 450,821. (No model.)



Claim.—In a feeding-mechanism for machines for making buttons, the combination with a feed-tube, of a hopper provided at its lower end with a sleeve, the lower end of which is bored out to receive the upper end of the tube, and the upper end whereof is bored out to form a circular chamber concentric with the said bore, and larger than the diameter of the tube, and opening upward into the hopper, one of the said parts being movable relative to the other to agitate the disks and cause them to enter the said chamber, and thence be discharged into the upper end of the tube, substantially as set forth.

490,422. LETTER-SCALE. SETH W. BARRETT, Meriden, Conn., assignor to the Wilcox Silver Plate Company, same place. Filed May 9, 1892. Serial No. 432,399. (No model.)



Claim.—1. In a letter scale, the combination with the case thereof, of levers and a rack suspended therein, a weighted yoke also suspended within the case, a shaft mounted in the said yoke and carrying an indicator at its outer end, and a pinion mounted on the shaft and held against the rack by the action of gravity on the yoke, the said yoke and case being constructed and arranged to limit the swinging movement of the yoke away from the rack, to the movement required by the bowed form thereof, substantially as set forth.

2. In a letter-scale, the combination with the case thereof, of levers and a rack suspended therein, a weighted yoke also suspended within the case, a shaft mounted in the said yoke, and carrying an indicator at its outer end, a pinion mounted on the shaft and held against the rack by the action of gravity on the yoke, and a stop located within the case to limit the swinging movement of the yoke away from the rack, substantially as specified.

3. In a letter-scale, the combination with the case thereof, of levers and a rack suspended therein, a weighted yoke also suspended within the case, a shaft mounted in the said yoke and carrying an indicator at its outer end, a pinion mounted on the shaft and held against the rack by the action of gravity on the yoke, and a yielding stop located within the case to limit the swinging movement of the yoke away from the rack, substantially as specified.

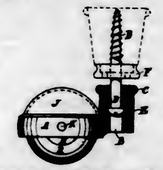
4. In a letter-scale the combination with a case having an enlarged opening formed in its face, of levers and a rack suspended within the said case, a weighted yoke also suspended in the case, a shaft mounted in said yoke, passing through the said enlarged opening in the front of the case, and carrying an indicator at its outer end, a pinion mounted on the shaft and held against the rack by the action of gravity on the yoke, and a yielding stop for engagement by the weighted outer end of the yoke, substantially as set forth, and whereby the pinion may be disengaged from the rack against the action of the yielding stop, by taking hold of the projecting end of the shaft and moving the same in the enlarged opening formed in the face of the case.

490,423. BED-COUCH. CHAS. BOTT, New York, N. Y. Filed Sept. 2, 1892. Serial No. 444,559. (No model.)



Claim.—The combination of a couch with a folding frame, a bent lever pivoted to the couch and a U shaped leg pivoted to the lever and the folding frame and slotted to allow a movement on its pivot, substantially as specified.

490,424. CASTER. SAMUEL CHAMBERS, Sheffield, England. Filed May 19, 1892. Serial No. 433,504. (No model.) Patented in England July 9, 1891, No. 11,060.



Claim.—A furniture caster comprising a roller, a supporting shank therefor having a vertical opening, the upper part of which is enlarged, the screw seated in said opening and held by the seat against downward movement, and the perforated nut screwed into the upper enlarged portion of the opening to hold the screw to its seat, substantially as described.

490,425. TIRE FOR VELOCIPEDE-WHEELS. GEORGE D. CHAMBERLAIN, Springfield, Mass., assignor to the Warwick Cycle Manufacturing Company, same place. Filed Aug. 10, 1892. Serial No. 442,673. (No model.)



Claim.—1. The combination with a rim having between its one edge and center longitudinal line a longitudinally arranged series of separated hooks, of a pneumatic tire comprising an air-tube of suitable cross sectional form but having the walls thereof at each underside convergent toward the median longitudinal line at the inner periphery of the air-tube whereby the base thereof is so narrowed that it has its support only upon the middle portion of the rim, and a section which covers the tread and sides and has a seat at its opposite edges on the rim outside of the air-ring base one edge being suitably connected to the rim, the said cover section being provided at its other edge with a series of eyes to engage said hooks, for the purpose set forth.

2. The combination with a rim having between its opposite edges and its center two series of longitudinally arranged hooks, of a pneumatic tire comprising an air-tube of suitable cross-sectional form but having the walls thereof at each under side convergent toward the median longitudinal line at the inner periphery of the air-tube whereby the base thereof is so narrowed that it may have its seat upon the rim wholly between the two rows of intermediately arranged hooks, and the section which covers the tread and sides and has a seat at opposite edges on the rim outside of the air-ring base and provided with a series of eyes to engage said hooks, substantially as and for the purpose set forth.

3. The combination with a rim having between its opposite edges and its center two series of longitudinally arranged hooks, of a pneumatic tire comprising an air-tube of suitable cross-sectional form but having the walls thereof at each under side convergent toward the

median longitudinal line at the inner periphery of the air-tube whereby the base thereof is so narrowed that it may have its seat upon the rim wholly between the two rows of intermediately arranged hooks, and the section which covers the tread and sides which has its edge portions thickened and has a seat at opposite edges on the rim outside of the air-ring base and provided with a series of eyes to engage said hooks, substantially as and for the purpose set forth.

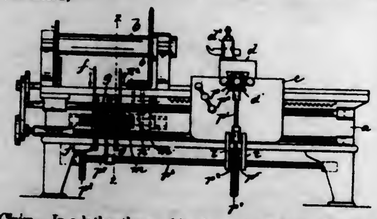
4. The combination with a rim of an air-tube having an arch shaped top, 10, with a base formed by converging sections, 12, 12, with a narrow uniting section, 13, to rest centrally on the rim, and an elastic covering for the air-tube having the thickened edge-portions or lobes, 15, 15, which lie between the marginal sections of the rim and said sections, 12, 12, and are secured to the rim, substantially as described.

5. A rim for a bicycle wheel consisting of a main or outer section, *j*, of trough or arc shape, and the secondary narrower section, *k*, of reversed arc form with the edge portions upwardly and inwardly turned from the longitudinal lines of support on the main section and having the openings formed therein from the edges to constitute therebetween the hooks, substantially as described.

6. A rim for a velocipede wheel consisting of a main or outer section, *a*, transversely of arc or trough form and the secondary section of reversed arc-form supported within the borders of the main section whereby the outlying portions of the main section constitute marginal tire supports and said secondary section having edge portions thereof upwardly and inwardly extended to constitute longitudinal series of hooks, in combination with a tire comprising an air-ring with a narrowed base resting between the hooks, and the covering having its edge-portions resting on said marginal supports and forming elastic base supports under each side of the air-ring, substantially as set forth.

7. The combination with the rim having edge rests as *x*, and hooks therewithin, of the tire comprising the air-tube, a narrowed base to rest on the rim within the space between the hooks and the outer covering having the eyes to engage said hooks and provided with the edge lobes, 15, 15, to lie upon and between said edge rests, *x*, and the portions of the air-tube which are next to the rim-supported part, with the inwardly extended lips, 17, 17, to overlie the hooks, substantially as and for the purpose set forth.

490,426. LATHE. ROBERT CHILES, Revere, assignor of one-half to Oscar L. Noble, Boston, Mass. Filed Feb. 1, 1892. Serial No. 419,807. (No model.)

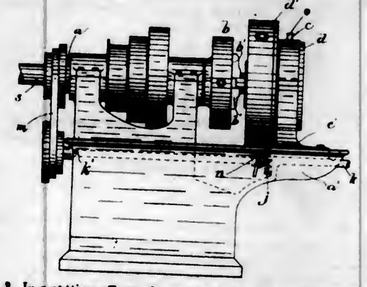


Claim.—In a lathe, the combination with the head-stock spindle *b* having gear *c* and cross-feed screw *d'* having bevel gear *p*, of the longitudinally movable shafts *e e'* in line with each other and at a right angle to spindle *b* and carrying friction wheels *i i'*, means for rotating said shafts in opposite directions, the friction disks *j j'* in contact with said wheels *i i'* and geared together and to the bevel gear *c* substantially as shown, the shafts p^4 p^{10} geared together and having arms engaging the shafts *e e'*, the worm gear p^5 splined to the shaft p^6, and the vertical shaft p^7 journaled in bearings on the lathe carriage and having bevel gear p^8 meshing with the gear *p* and the worm p^9 meshing with the gear p^4, as set forth.

490,427. CUTTING-OFF ATTACHMENT FOR LATHES. ROBERT CHILES, Revere, assignor of one-half to Oscar L. Noble, Boston, Mass. Filed Dec. 17, 1891. Serial No. 415,268. (No model.)

Claim.—1. In a lathe, the combination with the head-stock, chuck and feed-shaft, of the cutting-off attachment, composed of a bracket adapted to be attached to the bed; a casing secured to said bracket; a series of tool-carrying slides, movable on guides or ways in said casing toward and from the center thereof; slide-adjusting screws, arranged radially in the casing, and provided with pinions at their outer ends; an annular face-gear, mounted to rotate on a bearing in the casing, and engaged with said pinions, said gear having peripheral teeth, a movable pinion on the feed shaft meshing with the peripheral teeth of said face gear, whereby the slides may be simultaneously moved by the rotation of the feed shaft, and means for moving said pinion to engage it with or disengage it from said peripheral teeth.

2. In a lathe, the combination with the head-stock, chuck and feed shaft, of the cutting off attachment, composed of a bracket adapted to be attached to the bed; a casing secured to said bracket; a series of tool-carrying slides, movable in guides or ways in said casing toward and from the center thereof; slide-adjusting screws, arranged radially in the casing, and provided with pinions at their outer ends; an annular face-gear mounted to rotate in a bearing in the casing and engaged with said pinions, said gear having peripheral teeth, and a pinion on the feed shaft meshing with the peripheral teeth of said face-gear, whereby the slides may be simultaneously moved by the rotation of the feed-shaft; the said feed-shaft being vertically movable to engage its pinion with said face gear or disengage it therefrom; and means for holding the said feed-shaft and pinion in raised position, as set forth.



3. In a cutting-off attachment for lathes, the combination of the bracket formed to be attached to the lathe-head, the casing having a hub mounted to rotate in a bearing in said bracket, a series of tool-carrying slides radially movable in said casing, means for simultaneously feeding said slides, and a locking device whereby the casing may be locked to the bracket and prevented from rotating during the cutting-off operation, and released and permitted to rotate when the cutting tools are being adjusted, as set forth.

490,428. PADLOCK. FREDERICK BOGE, Bridgeport, Conn., assignor to the Smith & Egge Manufacturing Company, same place. Filed Oct. 22, 1892. Serial No. 449,858. (No model.)



Claim.—1. In a padlock the combination of the shackle consisting of a single wire link open at one side and bow-shaped at both ends, the lower extremity of the wire at said opening being flattened, said shackle having a shoulder at its back, the spring around said shackle and confined between said shoulder and the case of the lock, and the tumblers provided with springs which bear against the lock-case and having gates, said tumblers being pivoted within the lock-case independent of the shackle, substantially as shown and set forth.

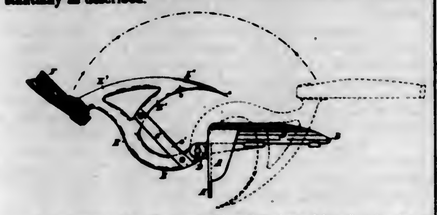
2. In a padlock, the combination with the pivoted and gated tumblers having springs which bear against the side of the lock-case, of the shackle made from a single piece of wire bow-shaped at both ends and open at the front side, and an independent spring by which said shackle is actuated, the lower extremity of said wire being flattened and adapted to enter the gates of the tumblers during unlocking, substantially as shown and described.

490,429. CORN-HUSKER. VICTOR FALKNER, Sydney, New South Wales. Filed Nov. 10, 1891. Serial No. 411,486. (No model.)

Claim.—1. In combination the ear holder consisting of the two sides B, B, the bracket E pivoted to the rear end of the said holder adjacent to the rest for the stem portion of the ear, the said bracket having an arm E' curved forwardly, the knife secured to the end of the said arm on the edge nearest the pivot or the rear of the holder, the said arm lying of wedge like form along the forward edge opposite the knife whereby the said edge will push the ear forwardly as it is severed from the stem, substantially as described.

2. In combination the ear holder the bracket E pivotally supported and having a curved forwardly extending wedge like arm E' and a knife *c*, and a second knife *c'*, carried by the pivoted bracket in rear of the first knife, substantially as described.

3. In combination the ear holder comprising the sides B, B, the pivoted bracket carrying knives and having a wedge like forward extension, and the inclined ear adjuster carried by the holder, substantially as described.



4. In combination the ear holder, the pivoted bracket having a forwardly extending arm carrying a knife to operate transversely of the stem of the ear placed in the holder, and a second knife in rear of the first arranged to operate against the side of the stem and longitudinally thereof to split the same to the end, substantially as described.

490,430. FORK-GUARD. FREDERICK C. FRENCH, Northampton, Mass., assignor to the Northampton Cutlery Company, same place. Filed Sept. 27, 1892. Serial No. 447,073. (No model.)



Claim.—In combination, a fork-shank having on its side the boss or protuberance, 4, having an apex, as described, a rear face consisting of the portions, 3, and *v*, respectively at right angles, and at an incline to the face, *x*, of the shank adjoining said boss, a guard pivoted to said shank and consisting of the arm, 6, and the legs, *c*, said arm having the perforation, *e*, therein, and a guard-spring having one end fixed in the arm, 6, at the base of said perforation, the free end of said spring having a free vibratory spring movement within said perforation, *e*, and pressing upon the apex and face-portions, 3, and *v*, of said boss, successively, when the guard is operated, substantially as set forth.

490,431. WINDOW-CLEANER. GEORGIANA FREEMAN, Mount Vernon, N. Y. Filed Aug. 22, 1892. Serial No. 443,711. (No model.)



Claim.—1. In a window-cleaner, the combination, with a handle, and a head, of a fender located between the opposite faces of the head, in the plane thereof, and projecting beyond its edges; and two pivotal holding frames, located on opposite sides of the said fender, respectively, and intermediate in size between the head and fender, to which they conform in general shape, substantially as set forth.

2. In a window-cleaner, the combination, with a handle, of a head composed of two corresponding blocks, grooved to receive the said handle, a fender interposed between the said blocks, and projecting beyond the edges thereof, and two wire holding-frames, respectively located on opposite sides of the fender, and intermediate in size between the same and the blocks, substantially as set forth.

3. In a window-cleaner, the combination with a handle, of a head composed of two corresponding rectangular blocks, grooved to receive one end of the said handle, a fender interposed between the said blocks, extending into a slit in the said handle, and projecting beyond the edges of the blocks; two pivotal wire holding-frames, respectively located on opposite sides of the fender, and intermediate in size between the same and the blocks, and means for coupling the two frames together, when in their closed positions, substantially as set forth.

490,432. VISE. WILHELM GERHARDS, Berlin, Germany. Filed Apr. 2, 1892. Serial No. 427,351. (No model.)

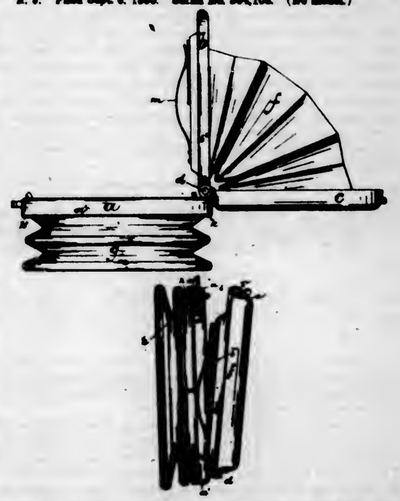


Claim.—1. The combination with an independent base having parallel guides and perforated as described, of a vise having a horizontal extension sliding between said guides and secured in engagement by a bolt passing through the extension and the base, substantially as set forth.

2. The combination with an independent base having parallel undercut guides, of a vise provided with a lower stop shoulder *f* and horizontal extension having beveled edges, together with a bolt passing through said extension and base to lock the extension against sliding movement between the guide ribs, substantially as set forth.

3. The combination with an independent base provided with guide ribs, a vise having an extension sliding between said ribs and a top plate P, together with a bolt detachably passing through the plate, extension, and base to rigidly lock said parts, substantially as set forth.

490,433. BAG OR PURSE FRAME. ARTHUR GOSSER, Newark, N. J. Filed Sept. 6, 1890. Serial No. 364,103. (No model.)



Claim.—1. The combination with the frame *c* and its bag, *g*, of a hinged cover comprising inner and outer plates *b*, *c*, the inner plate being bent toward the center, its edge portions lying on the face of the frame *c*, and the central parts being lowered into the central opening of the said frame to close the joint between said frame and inner plate at the inside, to prevent coin from entering the joint, substantially as set forth.

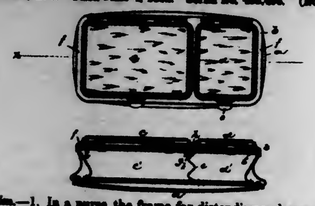
2. The combination with the frame, *c*, and its bag, *g*, held open or distended by said frame, of a cover consisting of two plates hinged together and to said frame, the plate, *b*, next adjacent to the frame being centrally bent and conforming in plan to the outlines of the opening in the frame, to give increased capacity to the chamber between said plates and to break the joint between the frame and said plate *b*, and suitable catches holding said plates closed together and to the frame, substantially as set forth.

3. In combination with the centrally open frame and its bag, a rigid covering plate, *b*, hinged to said frame and a ticket spring, *m*, secured to the face of said plate and lying in said central opening in the frame, the said spring being adapted to clamp the tickets against said plate substantially as set forth.

4. In a bag or purse, the combination with the centrally open frame *c*, the edges of which are bent and form flanges *c'*, c^2, a distending frame *h* adapted to enter between said flanges, said frame, *h*, being bent at its outer edges and an inlay *j*, adapted to clamp the edges of the open end of the bag body to said distending frame, and means, *k*, for holding said distending frame and inlay in position be-

tween the flanges of the frame *c*, substantially as set forth and shown.

490,434. PURSE AND FRAME THEREFOR. ADOLF GERSTE, Newark, N. J. Filed June 4, 1892. Serial No. 435,626. (No model.)



Claim.—1. In a purse, the frame for distending and carrying the bag of said purse, having means for holding said bag thereto and having the transverse bar, *h*, forming separate openings *c'*, *d'*, and covers *c*, *d*, hinged to said frame and closing said openings substantially as set forth.

2. In a purse, the frame consisting of a facing section and an inlay for holding the bag, the said facing section having an integral bar, *h*, dividing the opening in said facing section into two, and covers hinged to said facing section and independently closing the divided or separate openings substantially as set forth.

3. In combination with a facing section of a frame having separated openings therethrough, the parts surrounding said openings being concaved on the underside, and the upper side having independent covers *c*, and *d*, hinged thereon to close said openings, an inlay secured in the concavities beneath said facing section and having lips or flanges, *i*, to hold the body or bag material thereto and a bar, *j*, corresponding with the partition, *h*, between the openings in said frame, and said bag having its edges secured to the inlay and having a partition, *e*, and a clamping piece, *k*, all arranged and combined substantially as set forth.

490,435. GLOVE OR CLOTHING FASTENER. FRANK H. HALL, Newton, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed Dec. 26, 1891. Serial No. 416,110. (No model.)



Claim.—1. A socket member of a two-part spring glove and clothing fastener provided with an internal flat continuous ring having inwardly projecting spring wings forming a polygonal opening for the fastener stud, substantially as described.

2. A socket member of a two-part spring glove and clothing fastener consisting of a flat cover in combination with a recessed retaining washer, a flanged socket-eyelet, provided with a flaring portion *c*, a collet and a flat spring ring held between said collet, and the eyelet flange, said ring being provided with two arms extending in opposite directions, substantially as described.

3. A two part spring glove and garment fastener comprising a stud member and a socket member said socket member being provided with a ring consisting of a flat continuous rigid outer ring having two resilient wings or arms in substantially the plane of the ring whose sides come in contact with said stud substantially as shown and described.

4. In combination, a stud and a socket member of a two part spring glove and clothing fastener, provided with a ring, consisting of a continuous outer ring having two arms extending in the plane of the ring in opposite directions from its interior edge, substantially as described.

490,436. GLOVE-FASTENER. FRANK H. HALL, Newton, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed Sept. 16, 1892. Serial No. 446,002. (No model.)



Claim.—1. In a spring button fastener, the combination of a stud member and socket member having a stud receiving part *f* provided with an anvil plate *d*, and a struck up spring *e* in combination with an attaching rivet B, substantially as described.

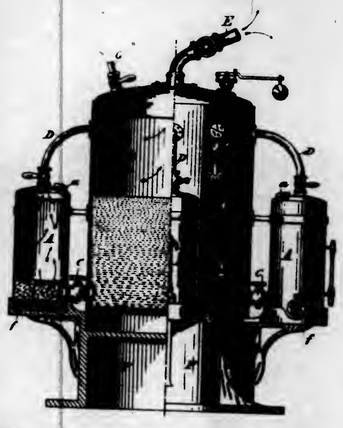
2. A spring button fastener consisting of a stud member and a socket member, the stud member consisting of a headed sheet metal stud and a malleable steel pronged rivet having prongs cut from its solid shank having a solid flanged supporting and finishing head and a socket member provided with an anvil plate substantially as described.

3. A spring button fastener consisting of the combination of a socket member and a stud member, wherein the socket member is provided with a scalloped shaped mouth formed by four partial circumferences of equal radii, substantially as described.

4. A socket member of a spring button fastener, consisting of a rivet B, the washer *c*, anvil piece *d*, the spring *e*, and the collet *f*, in combination with a stud member substantially as described.

5. A socket member of a spring button fastener consisting of a steel pronged riveting cap and a sheet metal anvil-containing stud chamber consisting of the washer *c*, the anvil piece *d*, and the collet *f* substantially as described.

490,437. HYDROGEN-GAS GENERATOR. WILLIAM HAWKINS and THOMAS HAWKINS, Portsmouth, England. Filed Nov. 12, 1891. Serial No. 411,764. (No model.) Patented in England Aug. 20, 1891, No. 14,051, and in Luxemburg Nov. 14, 1891, No. 9,022.



Claim.—1. In combination with a generating chamber, a single chamber B to contain the acid solution in its lower part and the gas in its upper part, the valved fluid inlet pipe between the lower part of the chamber B and the generating chamber and the valved gas outlet pipe between the generating chamber and the upper part of the chamber B, substantially as described.

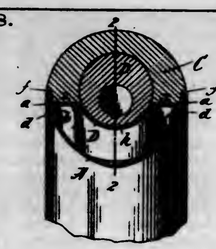
2. In combination with a stand or base F and a series of brackets extending therefrom, a central chamber B supported thereby and containing the acid solution, a series of generating chambers supported by the brackets and having independent valved pipe connections with the upper and lower parts of the chamber B, substantially as described.

3. In combination with a single chamber B to contain the acid solution in its lower part and the gas in its upper part, a series of generators arranged around said chamber B and in connection therewith at the bottom by valved inlet pipes, with valved outlet pipes between the generators and the said chamber at the upper part for the gas and an outlet pipe from the chamber B for the gas, substantially as described.

490,438. VEHICLE-WHEEL. JOEL H. HAWKINS, Springfield, Mass., assignor to the Warwick Cycle Manufacturing Company, same place. Filed Oct. 19, 1891. Serial No. 408,184. (No model.)

Claim.—The combination with the trough shaped section B having its extreme edges bent into hooked lips *d*, of the rim section A having the inturned portions *a* lying against the inner curved surface of said section and bent at their edges into hooked lips *b* located inside the inturned portions *a* to form an open top groove into which the hooked lips *d* can be set and brazed, and the elastic tire C resting in the trough shaped rim section B, substantially as described.

490,438.

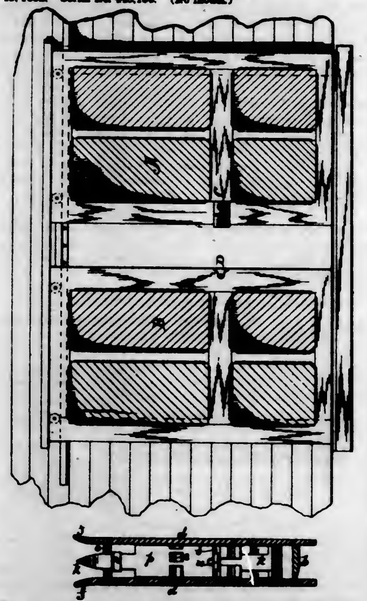


490,439. RAILWAY-SPIKE. ISAIAH G. HOWE, Kansas City, Mo. Filed Mar. 12, 1892. Serial No. 424,625. (No model.)



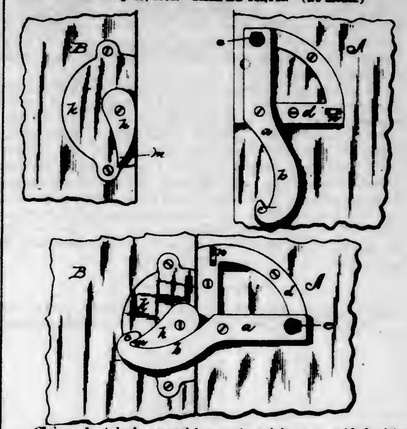
Claim.—A railway spike having the main portion of the body elliptical in cross section with the major axis thereof at right angles to the overhanging spike head, but having a different cross-section under the head substantially of the form described and of the same area as the elliptical portion of the body and a tapering point of similar cross-section but gradually reduced minor axis, substantially as set forth.

490,440. LOCK. LYMAN R. JACOBUS, Rensselaer, N. Y. Filed July 15, 1892. Serial No. 440,136. (No model.)



Claim.—A lock and latch consisting of a casing having a slotted face, a latch mounted upon the knob-spindle, a knob-spindle, a loop upon the latch, a locking-bolt passing through said loop and adapted to rock upon the latch body, and bifurcated rearwardly and recessed transversely to said bifurcation, a T-headed stop-pin erected upon the latch and standing in said bifurcation and having its head normally in engagement with one of said recesses, and a slotted catch adapted to receive the head of the latch, in combination, as set forth.

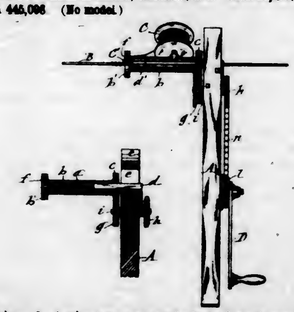
490,441. SLIDING-DOOR LOCK. LYMAN R. JACOBUS, Rensselaer, N. Y. Filed July 15, 1892. Serial No. 440,140. (No model.)



Claim.—1. A lock comprising a pivotal lever provided with a cam concavity in one edge, and a terminal hook at the end of said concavity projecting backward partly over it, in combination with a pivotal convex cam, adapted to fit into the concavity of said lever cam, and having a point adapted to engage with said hook when said lever is operated.

2. A lock comprising a pivotal lever provided with a cam concavity in one edge, and a terminal hook at the end of said concavity projecting backward partly over it, in combination with a pivotal convex cam, adapted to fit into the concavity of said lever cam, and having a point adapted to engage with said hook when said lever is operated, and a spring catch in said lever adapted to secure said lever in its locked and unlocked positions.

490,442. MACHINE FOR TYING CROSS-WIRES IN WIRE FENCES. JAMES R. KELLY, Waterloo, N. Y. Filed Sept. 5, 1892. Serial No. 445,096. (No model.)



Claim.—1. A wire-tyer composed of a tool-stock provided with a seat by which it rests on the stationary wire or rod, a spindle fixed to said tool-stock and provided with a corresponding seat for said wire or rod, a collar mounted revolubly on said spindle and provided with a lateral slot for the passage of the stationary wire or rod, and with a guide for the wire to be coiled about the aforesaid wire or rod, and manually operated mechanism imparting rotary motion to said collar, as set forth.

2. The within described wire-tyer consisting of a tool-stock, a spindle rigidly attached to said tool-stock and provided with a seat for the stationary wire or rod, a sleeve mounted revolubly on said spindle and provided with a slot for the passage of the aforesaid wire or rod, a wire-carrying spool pivoted to said sleeve, a collar on the sleeve provided with a guide for the wire from the spool to the stationary wire or rod, and manually operated mechanism imparting rotary motion to said sleeve, as set forth.

3. A wire-tyer consisting of a tool-stock provided with a seat by which it rests on the stationary wire or rod, the spindle —e— rigidly

secured to said tool-stock and provided with the groove —d—, the sleeve —h— journaled on said spindle and provided with the slot —d'—; the collar —k— provided with the slot —d''— and eye —f—, the spool —O— pivoted to the sleeve, the pinion —e— fixed to the sleeve and provided with the slot —d'''—, the pinion —g— meshing with the aforesaid pinion, and a hand-crank imparting rotary motion to said pinions, as set forth.

4. A wire-tyer consisting of the tool-stock —A— provided with the slot —c—, the spindle —a— fixed to said tool-stock and provided with the groove —d— registering with the aforesaid slot, the sleeve —h— journaled on said spindle and provided with the slot —d'—, the collar —k— provided with the slot —d''— and eye —f—, the spool —O— pivoted to the sleeve, the pinion —e— fixed to the sleeve and provided with the slot —d'''—, the shaft —i— journaled to the tool-stock, the pinion —g— fixed to said shaft and meshing with the pinion —e—, the sprocket-wheel —b— fixed to the same shaft, the sprocket-wheel —l— pivoted to the tool-stock, the sprocket-chain —n— connecting said sprocket-wheels, and the crank —D— attached to the sprocket-wheel —l—, substantially as set forth.

490,443. MACHINE FOR SHAVING LEATHER. FRANK C. KIMBALL, Salem, Mass. Filed July 11, 1892. Serial No. 439,566. (No model.)



Claim.—1. In a machine for shaving leather, a bed upon which the leather may be placed, combined with a reciprocating knife, the line of reciprocation of which is diagonal with relation to the bed, whereby the knife is given a movement both lengthwise and crosswise the bed, substantially as and for the purposes specified.

2. In a machine for shaving leather, a bed upon which the leather may be placed, combined with a knife set diagonally with relation to the length of the bed, and means to reciprocate it in a line diagonal with relation to the length of the bed, to operate, substantially as described.

3. In a machine for shaving leather, a bed for the leather, combined with a reciprocating carriage, fixed guides therefor, a knife-carrying head positively connected with and carried by said carriage, and a knife rigidly attached thereto and thereby movable always in a line parallel with the guides, means to automatically throw the knife out of cutting position during one part of each reciprocation and into cutting position during the other part of each reciprocation, and an adjustable stop to limit the movement of the head when the knife is moved into its cutting position to insure accuracy of cut, substantially as described.

4. In a machine for cutting leather, a bed for the leather, combined with a reciprocating carriage, a knife-carrying head positively attached to and movable therewith in a line parallel with the guides, means to automatically move the knife into and out of cutting position, and devices under the control of the operator to positively maintain the knife in its inoperative position in its fixed guides, substantially as described.

5. In a machine for shaving leather, a bed for the leather, a reciprocating carriage and fixed guides therefor, combined with a knife-carrying head pivoted to said carriage, and a knife thereon, and means to automatically turn the knife-carrying head and knife on its pivot out of cutting position during one part of each reciprocation, substantially as described.

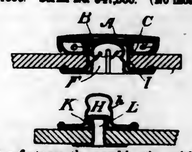
6. In a machine for shaving leather, a bed, a reciprocating carriage and fixed guides therefor, combined with a shaving head pivotally carried by and movable with said carriage in a line parallel with the guides, fixed abutments on the frame, and mechanism on the reciprocating carriage actuated by the fixed abutments to turn the shaving head on its pivots into operative and inoperative position, substantially as and for the purposes specified.

7. In a machine for shaving leather, a bed, a reciprocating carriage and fixed guides therefor, combined with a shaving head pivotally carried by and movable with said carriage in a direction parallel with the said guides, a slide-rod connected to and reciprocated with said head, and fixed abutments to cause longitudinal movement of the slide-rod with relation to the carriage on which it is mounted, to thereby act upon and tip the head on its pivots, substantially as described.

8. In a machine for shaving leather, a bed, a reciprocating carriage and fixed guides therefor, combined with a shaving head pivotally carried by and movable with said carriage in a direction parallel to the guides, a slid-rod on the reciprocating carriage connected with the said head, and fixed abutments to act upon and cause longitudinal movement of the slide-rod, to thereby tip the head on its pivots in the carriage, and a friction device for said slide-rod, substantially as described.

9. In a machine for shaving leather, a bed, and fixed guides, combined with a carriage, and means to reciprocate the same in said guides, the yoke *f* carried by said carriage, the head A pivoted therein, the shaving knife *e* carried by said head, adjusting screws *t* for the head and knife, the slide-rod *n* and abutments on the frame to move the same, all to operate substantially as described.

490,444. GLOVE-FASTENER. EDWIN J. KRAETZER, Gloversville, N. Y., assignor to the Consolidated Fastener Company, Portland, Me. Filed Apr. 11, 1890. Serial No. 347,500. (No model.)

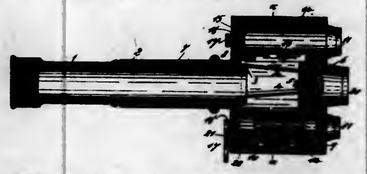


Claim.—1. In a fastener the combination with a cover provided with suitable riveting and retaining devices of a flanged resilient covered socket slit up from its flanged end and having a rolled in neck and a separate flanged clinching eyelet having its flange clinched to that of the socket with the tubular portion of the eyelet surrounding the body of the socket, substantially as and for the purposes described.

2. The button hole member of a fastener consisting of the combination with an anvil piece, a doubly flanged retaining piece and a dome cover clinched around said piece, of a tubular flanged covered socket F slit up from its flanged end and having a rolled in neck and a clinching eyelet I having its flange clinched to that of the socket with the tubular portion of said eyelet surrounding the body of the socket and engaging with the anvil piece substantially as and for the purposes described.

3. The button member of a fastener comprising a hollow dome-shaped flanged stud having a rolled-in neck, A, and an independent member inside of the hollow dome, forming a riveting chamber, and having a flange clinched around that of said stud, and a tubular rivet L, substantially as described.

490,445. HOSE-NOZZLE. WILLIAM LEGGETT, Butler, N. J. Filed Apr. 7, 1892. Serial No. 428,113. (No model.)



Claim.—1. A hose nozzle in which is comprised a water supply pipe for coupling to the hose, a chamber connected to said supply pipe, a plurality of stream exits from the front of said chamber, and means for independently regulating said exits from the rear of the chamber, substantially as set forth.

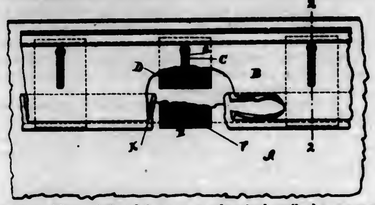
2. In a device of the character herein specified, the combination with the water chamber, of a plurality of inwardly projecting exit tubes, each open at the side within the chamber, said inwardly projecting exit tubes being each surrounded by a movable tube, also having an opening in the side, substantially as shown and described.

3. In a device of the character herein specified, the combination with a fixed exit tube mounted in a water chamber and open at one side, of a surrounding movable tube, closed at its inner end, having

an opening in the side, and being provided with means for moving the said outer tube, substantially as shown and described.

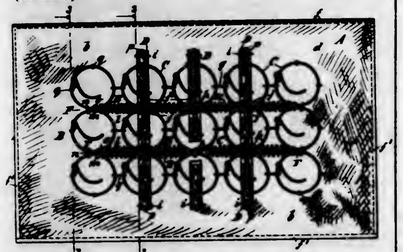
4. In a device of the character herein specified, a fixed water supply pipe bearing at one extremity arms whereon is mounted a plug; an outer pipe movably mounted upon the supply pipe, said outer pipe bearing a water chamber, having an exit tube into which the above mentioned plug may pass, the whole combined and arranged to operate, substantially as shown and described.

490,446. WAISTBAND FOR TROUSERS. ABRAHAM LEVY, Boston, Mass., assignor to Colby & Co., Brooklyn, N. Y. Filed July 27, 1892. Serial No. 441,492. (Model.)



Claim.—The waistband for trousers, herein described, composed of a strip of cloth to which are secured elastic straps, the medial material of which is frilled and inelastic, and button-holes cut and stitched through the cloth and said frilled inelastic material of the straps, for the purpose set forth.

490,447. SPRING-PILLOW. WILLIAM H. LEWIS, Rome, assignor to Morris Lary, New York, N. Y. Filed Oct. 10, 1892. Serial No. 448,462. (No model.)



Claim.—1. In a spring pillow, the covering A, in combination with a set of springs B therein consisting of a plurality of rows of connected springs C C, the end springs of each row being secured directly to said covering, as by stitching *q*, whereby displacement of the set of springs is prevented.

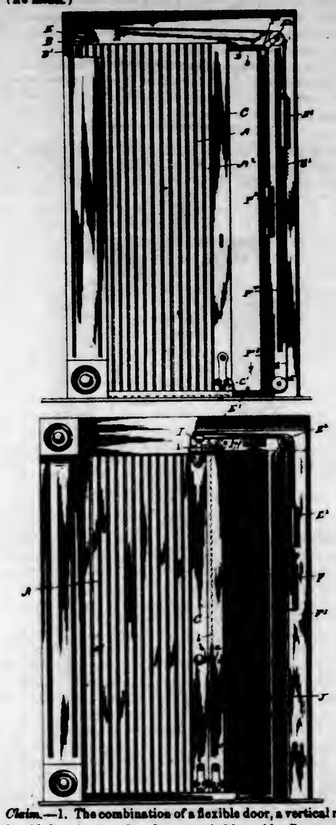
2. In a spring pillow, a set of springs, as B, in combination with a longitudinal spring, as *k*, and a connecting head, as F, consisting of a shank portion, as *l*, embracing the end of said longitudinal spring, and a link portion, as *m*, embracing the adjacent sides of the end springs of the rows by being bent thereabout, as and for the purpose set forth.

3. In a spring pillow, a set of springs B consisting of a plurality of rows of springs C C, and the longitudinal spring *k*, in combination with a connecting head F consisting of a wire bent on itself and having the shank portion *l* entering the end of said spring *k*, and the link portion *m* embracing the adjacent sides of the end springs C C of the rows, as and for the purpose set forth.

4. In a spring pillow, a set of springs B consisting of a plurality of rows of springs C C, and the longitudinal spring *k*, in combination with a connecting head F consisting of a wire bent on itself and having the shank portion *l*, and constructed with an eye, as *n*, at one of its free ends embracing the adjacent springs C C at the ends of the rows, and with an eye, as *o*, at its other free end embracing said springs, and the end on which said eye *n* is carried.

5. In a spring pillow, a plurality of rows of springs C C and intermediate longitudinal springs *k*, in combination with a lateral tape D coupled to said springs C C and consisting of a single thickness of tape constructed with a loop *j* at its inner side embracing said spring *k*, as and for the purpose set forth.

490,448. FLEXIBLE DOOR. BENJAMIN H. B. LOOMIS, Worcester, Mass., assignor, by direct and mesne assignments, to the Loomis Flexible Door Company, Portland, Me. Filed May 20, 1890. Serial No. 352,302. (No model.)



Claim.—1. The combination of a flexible door, a vertical roll upon which said door is wound, a drum carried by said roll, a cord wound upon said drum a weight attached to said cord and acting by the force of gravity to wind up said door, a cord attached to said flexible door, and a weight attached to said cord and acting as a counterbalance to said winding weight, substantially as described.

2. The combination with the casing of a door, of a flexible door with its edge entering a groove in said casing, a band attached at one end to said door and covering said groove as the door is opened, substantially as described.

3. The combination with a flexible door, arranged to move along a grooved track, of a band having one end attached to said door, so as to be drawn over and cover said track, substantially as described.

4. The combination with a flexible door arranged to move along a horizontal track, of a vertical roll upon which said door is wound, a helical drum attached to said roll, a cord wound upon said drum, a band with one end attached to said door so as to be drawn over and cover said track as the door is opened, said band being connected with said cord wound upon the helical drum, so as to be drawn from the track as the door is closed, substantially as described.

5. The combination with a flexible door arranged to move along a horizontal track, of a roll upon which said door is wound, a helical drum attached to said roll, a cord wound upon said drum, a band attached at one end to said door and connected at its opposite end with said cord, and a spring interposed between said band and said cord, substantially as described.

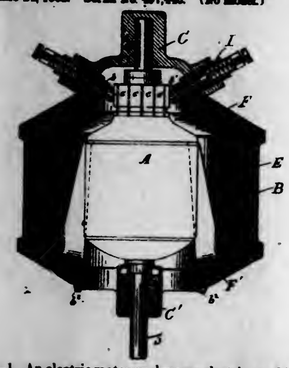
6. The combination with a flexible door wound upon a vertical roll and arranged to move upon a horizontal track, of a screen door

wound upon a vertical roll, and connected with said flexible door so that the screen door will be closed as the flexible door is opened, substantially as described.

7. The combination with a flexible door and a grooved track in which said door is moved, said track having grooves upon its opposite sides, of a band with one end attached to said door and sliding in said grooves, substantially as described.

8. The combination with a flexible door arranged to move upon a horizontal track, of a band attached to said door and arranged to be drawn over and cover said track as the door is opened, substantially as described.

490,449. DYNAMO-ELECTRIC MACHINE. ROBERT LUNDELL, Brooklyn, assignor of two-thirds to Edward H. Johnson, New York, N. Y. Filed June 21, 1892. Serial No. 437,446. (No model.)



Claim.—1. An electric motor or dynamo electric machine having a single field magnet coil which incloses or surrounds inwardly projecting field magnet poles in combination with a rotary armature having its axis coincident or parallel with the axis of the field magnet coil said poles being located in the annular space between the field magnet coil and the armature substantially as described.

2. An electric motor or dynamo electric machine having a cylindrical inclosing shell with inwardly projecting pole pieces and a single field magnet coil in combination with a rotary armature having its axis coincident or parallel with the axis of the field magnet coil the inwardly projecting pole pieces lying in the annular space between said coil and the armature substantially as described.

3. An electric motor or dynamo electric machine having a single field magnet coil and a rotary armature surrounded thereby the effective field magnet poles being included in the annular space between the field magnet coil and the armature and the journal bearings of the armature shaft being secured to the ends of the field magnet core so as to inclose all the operative parts of the machine substantially as described.

4. An electric motor or dynamo electric machine having a hollow cylindrical field magnet core inclosing the field magnet coil and armature, the latter being sustained by a shaft in journal bearings secured to the heads of the cylindrical core and the effective field magnet poles being included in the annular space between the field magnet coil and the armature substantially as described.

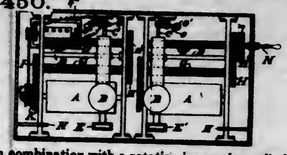
5. An electric motor having a single field magnet coil and an armature, the axis of which is co-incident with the axis of the field magnet coil and one or more inwardly projecting field magnet poles located in the annular space between the field magnet coil and the armature, substantially as described.

6. An electric motor or dynamo electric machine having a hollow cylindrical shaped field magnet core provided with inwardly projecting field magnet poles located in the annular space between the field magnet coil and the armature, said field magnet coil and armature being inclosed by a cylindrical shell or drum and the armature sustained by a shaft located in journal bearings detachably secured to the heads of the shell or drum.

490,450. COIN-FREED MACHINE. WILLIAM L. MADDEN, London, England. Filed Apr. 16, 1892. Serial No. 347,497. (No model.) Patented in England Dec. 7, 1892, No. 17,987.

Claim.—1. In combination with a rotating impression cylinder, a counterbalanced pivoted lever, a vibrating diaphragm carried thereby, a coin receptacle also carried by said lever, the said lever and the impression cylinder being adapted to move longitudinally, with respect to one another, substantially as described.

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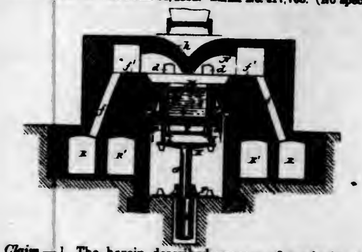
2. In combination with a rotating impression cylinder, a counterbalanced pivoted lever, a vibrating diaphragm carried thereby, a coin receptacle also carried by said lever, means for moving the lever back and forth, and a pivoted retaining catch O, substantially as described.

3. In combination with a rotating impression cylinder, a weighted pivoted lever, a vibrating diaphragm carried thereby, a coin receptacle also carried by said lever, means for moving said lever longitudinally of the cylinder, a coin slide, a shutter P for obstructing the said coin slide, said shutter being operated by the end of the pivoted lever, substantially as described.

4. In combination with a rotating impression cylinder, a weighted pivoted lever, a vibrating diaphragm carried thereby, a coin receptacle also carried by said lever and parallel screws driven from a source of power, and engaging said pivoted lever to move it back and forth, substantially as described.

5. In combination with a rotating impression cylinder, driven from a source of power, parallel screws driven by gear connections with the cylinder shaft and each other, a weighted lever pivoted between the screws and driven therefrom, a diaphragm carried by said lever, a coin receptacle also carried thereby, and a catch O, substantially as described.

490,451. METHOD OF MAKING METAL PLATES. JOHN B. HAU, New York, N. Y. Filed Jan. 11, 1892. Serial No. 417,765. (No specimens.)



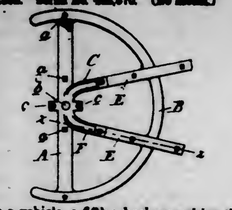
Claim.—1. The herein described process of producing heterogeneous metal blocks with different physical characteristics and different compositions in different zones, which method consists in causing the upper side or surface a mass of homogeneous iron or steel contained in a suitable vessel (and having its upper surface subjected to a high heat) to be liquid or semi-liquid and the bottom solid, then introducing into the liquid side additional material of different nature and composition which will unite with the original metal, thereby producing a block of heterogeneous metal whose composition and qualities will gradually vary from the liquid side through the pasty region to the opposite side, and then allowing the mass to solidify, as and for the purpose set forth.

2. The herein described process of producing heterogeneous metal blocks with different physical characteristics and different compositions in different zones, which method consists in causing the upper side or surface of a mass of homogeneous iron or steel contained in a suitable vessel (and having its upper surface subjected to a high heat.) to be liquid or semi-liquid, and the other side solid, then introducing into the liquid side additional material of different nature and composition which will unite with the original metal, thereby producing a block of heterogeneous metal whose composition and qualities will gradually vary from the liquid side through the pasty region to the opposite side, then allowing the mass to solidify, and then reducing the solidified mass into a plate of the desired thickness and dimensions, thereby obtaining a steel plate of heterogeneous character, gradually varying in composition from one side to the other, and then hardening the same by any known process.

3. The herein described process of producing sound heterogeneous metal blocks without honey combed structure and with different physical characteristics and different chemical composition in different zones, which method consists in causing the upper side or portion of a mass of liquid iron or steel contained in a suitable vessel to be exposed to a high temperature while the lower regions are exposed to a lower temperature, whereby a slow and gradual solidifying of the mass from the lower toward the upper region may be obtained,

then when this upper region is still liquid or semi-liquid introducing into it additional material of different nature and composition, which will unite with the original metal and produce a block of heterogeneous metal whose composition and qualities will gradually vary from the liquid side through the pasty region to the opposite side, then allowing the mass to solidify gradually and last in the upper surface, substantially as and for the purpose set forth.

490,452. FIFTH-WHEEL. WILLIAM A. PATTERSON, Flint, Mich. Filed Aug. 16, 1892. Serial No. 443,070. (No model.)

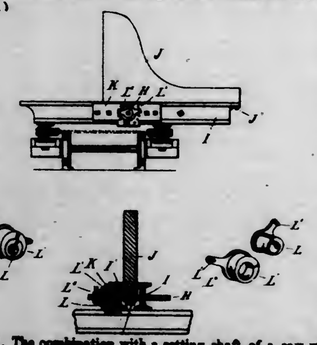


Claim.—1. In a vehicle, a fifth wheel comprising the head plate A, circle bar B, the perch irons C formed integral with and connected at their opposite ends respectively to the head plate, and circle bar, the reach, and securing means for the reach on the under side of the perch irons at the forward end thereof, substantially as described.

2. In a vehicle, a fifth wheel comprising a head plate, a circle bar depending below the ends thereof, the perch irons extending from the head plate to and connected with the circle bar and consisting of the curved portion D and horizontal portion C arranged in the plane of the circle bar, the whole being formed in one integral piece, the reach on the under side of the perch irons, and means for securing the reach to the perch irons near the forward end thereof, substantially as described.

3. In a vehicle, a fifth wheel comprising the head plate, the circle bar and perch irons the latter extending from the plate to the bar and formed integral in one piece, the perch irons extending rearward in the plane of the circle bar, the reach, the connecting plate H on the reach, the flanges F at the forward end of the perch irons, cross-bar G at the rear end of said flanges, the bolt J passing through the perch irons and connecting plate in front of said cross-bar, substantially as described.

490,453. SAWMILL-CARRIAGE ATTACHMENT. GEORGE W. ROSEBAUER, Jackson, Mich. Filed Aug. 13, 1891. Serial No. 402,994. (No model.)



Claim.—1. The combination with a setting shaft of a saw mill carriage of a bearing therefor consisting of an adjustable boxing and independent movable yielding eccentrics in the boxing, through which the shaft passes, means for moving the eccentrics, and means for decreasing the diameter of the eccentrics, substantially as described.

2. The combination and arrangement with the setting shaft of a saw-mill carriage, of an outer stationary sectional box, an adjustable bearing, composed of two split eccentrics, one forming an eccentric bearing for the shaft directly and the other forming an eccentric bearing for it within the stationary outer box, substantially as described.

3. The combination and arrangement with the setting shaft of a saw-mill carriage, of an adjustable bearing for said shaft consisting of two split eccentrics one within the other, the inner one forming an eccentric bearing for the shaft, and the outer one eccentrically supporting said bearing a divided outer box, each of said eccentrics being provided with means for relatively adjusting it independently of each other, substantially as described.

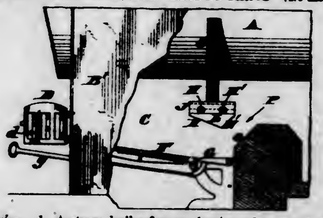
4. The combination and arrangement with the setting shaft of a saw mill carriage, of an adjustable bearing for said shaft consisting of two split eccentrics, one within the other, the inner one forming an eccentric bearing for said shaft and the outer one eccentrically supporting said bearing within an outer box, said outer box being made in halves adjustably secured to the frame of the carriage, substantially as described.

5. The combination and arrangement with the setting shaft of a saw-mill carriage, of an adjustable bearing for said shaft consisting of two split eccentrics, one within the other, the inner one forming an eccentric bearing for said shaft and the outer one eccentrically supporting said bearing within an outer box made in halves, adjustably secured to the carriage, and an arm on each eccentric provided with holding devices for adjustably holding each eccentric in position within the outer box, substantially as described.

6. The combination and arrangement with the setting shaft of a saw mill carriage, of an adjustable bearing for said shaft consisting of two split eccentrics, one within the other, the inner one forming an eccentric bearing for said shaft and the outer one eccentrically supporting said bearing within an outer box, an outer box in vertically divided halves adjustably secured to the carriage, an arm for each eccentric provided with means for holding said eccentric independently adjustable within the outer box, by engaging directly with the box, substantially as described.

7. The combination and arrangement with the setting shaft of a saw mill carriage, of the two split eccentrics L L', one within the other, the outer box K made in vertically divided halves adjustably secured to the carriage, the arms L^2 on the eccentrics provided with pins L^3, the adjusting holes L^5 on the box K and a removable collar or sleeve for holding the eccentrics in position upon the setting shaft, substantially as described.

490,454. STEAM-BOILER FURNACE. JOSEPH A. ROSS, Cincinnati, Ohio. Filed Oct. 10, 1892. Serial No. 448,574. (No model.)



Claim.—1. A steam-boiler furnace having a hanging-bridge supported upon a series of laterally-shiftable interlocking-sections carried by pipes communicating with the water space of a boiler, substantially as herein described, and for the purpose set forth.

2. A steam-boiler furnace having a hanging-bridge supported upon a series of laterally-shiftable interlocking-sections carried by a pair of pipes, one of which enters the boiler, while the other pipe is adapted to communicate with a pump, substantially as herein described.

3. A sectional slab or tile for a hanging bridge, which slab consists of an upper part J having a longitudinal groove *j*, longitudinal tongue K, and transverse notches *k*, *k'*, and a lower part L, having a longitudinal groove *l*, longitudinal tongue M, and transverse notches *m*, *m'*, all as herein described.

4. In a steam-boiler furnace, the pipes H, H', connected at one end to the manifold I, and having collars R, R', screwed to their other end, said pipes being in communication with the water space of the boiler, for the purpose described.

5. A steam-boiler furnace having a hanging-bridge built upon a series of laterally-shifting interlocking-sections carried by suitable supports, substantially as herein described.

490,455. CORSET. EMIL SCHWENNESEN, New York, N. Y. Filed Aug. 15, 1892. Serial No. 443,112. (No model.)

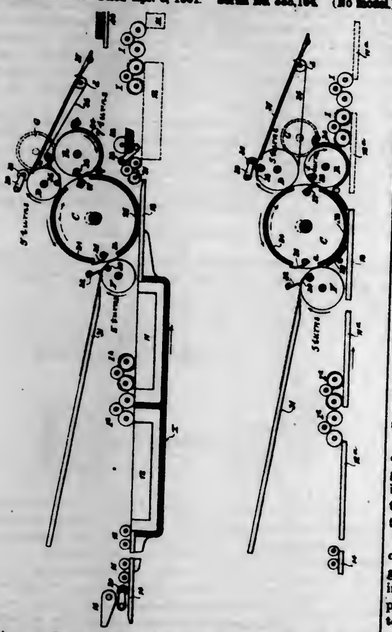
Claim.—The combination, with a corset, of a series of reinforcing devices attached separately to the inside of the corset, which reinforcing devices each consists of a series of short strips of resilient material, held between two layers of fabric that are attached together along the end and side-edges and between the several strips of resilient material, said strips of resilient material extending in the direction from the top to the bottom-edge of the corset, and said reinforce-

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ing devices being attached to the corset at points at or near the center of said reinforcing devices, substantially as set forth.

490,456. MULTICOLOR-PRINTING MACHINE. WALTER SCOTT, Plainfield, N. J. Filed Apr. 8, 1891. Serial No. 388,164. (No model.)



Claim.—1. In a multicolor printing machine, the combination of an oscillating impression cylinder having first and second impression surfaces, with a retaining cylinder taking the once-printed sheet from the first impression surface during a forward movement of the impression cylinder and delivering the same to the second impression surface after the impression cylinder has made its backward movement, substantially as and for the purposes described.

2. In a multi-color printing machine the combination of an oscillating impression cylinder having first and second impression surfaces, grippers for each surface, a retaining cylinder taking the once-printed sheet from the first impression surface during the forward movement of the impression cylinder and delivering the same to the second impression surface after the impression cylinder has made its backward movement, and a delivery cylinder taking the twice printed sheet from the second impression surface, substantially as described.

3. In a multi-color printing machine, the combination of a reciprocating type bed carrying two forms, with an oscillating impression cylinder having first and second impression surfaces, and geared to the bed and making one turn to each stroke of the bed, and a retaining cylinder taking the once printed sheet from the first surface during a forward movement of the impression cylinder and delivering the said sheet to the second surface after the impression cylinder has made its backward movement, substantially as described.

4. In a multi-color printing machine, the combination of a reciprocating type bed carrying two forms, an oscillating impression cylinder having first and second impression surfaces and grippers therefor, feed means substantially as described for supplying sheets to the first impression surface and a retaining cylinder taking the once printed sheet from the first surface during a forward movement of the impression cylinder and passing the same to the second surface during the next forward movement of the impression cylinder, substantially as and for the purposes described.

5. In a multi-color printing machine, the combination of a reciprocating type bed carrying two forms, an oscillating impression cylinder having first and second impression surfaces and grippers therefor, a feed cylinder supplying sheets to the first impression surface, a retaining cylinder taking the once printed sheet from the first impression surface during a forward movement of the impression cylinder and passing the same to the second impression surface during the next forward movement of the impression cylinder, and a delivery cylinder taking the twice printed sheets from the second impression surface and delivering the same, substantially as described.

6. In a multi-color printing machine, the combination of a reciprocating type bed carrying two forms, an oscillating impression cylinder having first and second impression surfaces grippers for each surface, a retaining cylinder taking the once printed sheet from the first impression surface during one forward movement of the impression cylinder and delivering the same to the second impression surface during the next forward movement of the impression cylinder, and a feed cylinder receiving sheets from the feed board while it and the impression cylinder are at rest, substantially as described.

7. In a multicolor printing machine, the combination with an oscillating impression cylinder having first and second impression surfaces and a feed cylinder at one side of said impression cylinder supplying sheets to the first surface, of a retaining cylinder taking the once printed sheets from the first surface and passing them to the second surface as described, and a delivery cylinder, both at the other side of the impression cylinder, substantially as described.

8. In a multi-color printing machine, the combination with an oscillating impression cylinder having first and second impression surfaces, and a feed cylinder at one side of said impression cylinder supplying sheets to the first surface, of a retaining cylinder taking the once printed sheet from the first surface and delivering the same to the second surface as described and a delivery cylinder, both at the other side of the impression cylinder, the delivery cylinder being above the retaining cylinder, substantially as described.

9. In a multi-color printing machine, the combination with an oscillating impression cylinder having two impression surfaces and grippers therefor, of a retaining cylinder taking the sheet from one impression surface and delivering the same to the other impression surface, substantially as and for the purposes described.

10. In a multi color printing machine, the combination with an oscillating impression cylinder having two impression surfaces and grippers therefor, of feeding means supplying sheets to one of said impression surfaces, and retaining devices, substantially as described, taking the sheet from one impression surface and delivering the same to the other impression surface, substantially as described.

11. In a multi-color printing machine, the combination with an oscillating impression cylinder having two impression surfaces and grippers therefor, of feeding means supplying sheets to one of said impression surfaces, and a retaining cylinder receiving the once printed sheet from the first impression surface and delivering the same to the second impression surface, substantially as and for the purposes described.

12. In a multi-color printing machine, the combination with an oscillating impression cylinder having two impression surfaces and grippers therefor, of feeding means supplying sheets to one of said impression surfaces, retaining devices substantially as described, receiving the once printed sheet from the first impression surface and delivering the same to the second impression surface, and delivery mechanism receiving the twice printed sheet from the second impression surface and delivering the same, substantially as described.

13. In a multi-color printing machine, the combination with an oscillating impression cylinder having two impression surfaces and grippers therefor, of feeding means supplying sheets to one of said impression surfaces, a retaining cylinder receiving the once printed sheet from the first impression surface and delivering the same to the second impression surface, and delivery mechanism receiving the twice printed sheet from the second impression surface and delivering the same, substantially as described.

14. In a multi-color printing machine, the combination with an oscillating impression cylinder having two impression surfaces and grippers therefor, of retaining devices substantially as described, receiving the once printed sheet from the first impression surface and delivering the same to the second impression surface, and delivery mechanism receiving the twice printed sheet from the second impression surface and delivering the same, substantially as described.

15. In a multi-color printing machine, the combination with an oscillating impression cylinder having two impression surfaces and grippers therefor, of a retaining cylinder receiving the once printed sheet from the first impression surface and delivering the same to the second impression surface, and delivery mechanism receiving the twice printed sheet from the second impression surface and delivering the same, substantially as described.

16. In a multi-color printing machine, the combination of a reciprocating type bed having two forms, color rolls for each form, an oscillating impression cylinder having two impression surfaces, and retaining devices, substantially as described, taking the once printed sheet from one impression surface and delivering the same to the second impression surface, substantially as and for the purposes described.

17. In a multi-color printing machine, the combination of a reciprocating type bed having two forms, color rolls for each form, an oscillating impression cylinder having two impression surfaces, and a retaining cylinder taking the once printed sheet from one impression surface and delivering the same to the other impression surface, substantially as and for the purposes described.

18. In a multi-color printing machine, the combination of a reciprocating type bed having two forms, color rolls for each form, an oscillating impression cylinder having two impression surfaces, feeding means supplying sheets to one of said impression surfaces, and retaining devices substantially as described, taking the sheet from the first impression surface and delivering the same to the second impression surface, substantially as described.

19. In a multi-color printing machine, the combination of a reciprocating type bed having two forms, color rolls for each form, an oscillating impression cylinder having two impression surfaces, feeding means supplying sheets to one of said surfaces, and a retaining cylinder taking the sheet from the first impression surface and delivering the same to the second impression surface, substantially as described.

20. In a multi-color printing machine, the combination of a reciprocating type bed having two forms, color rolls for each form, an oscillating impression cylinder having two impression surfaces, feeding means supplying sheets to one of said impression surfaces, retaining devices substantially as described, taking the once printed sheet from the first impression surface and delivering the same to the second impression surface, and delivery mechanism taking the twice printed sheet from the second impression surface and delivering the same, substantially as described.

21. In a multi-color printing machine, the combination with a reciprocating type bed having two forms, color rolls for each form, of an oscillating impression cylinder having two impression surfaces, feeding means supplying sheets to one of said impression surfaces, a retaining cylinder taking the once printed sheet from the first impression surface and delivering the same to the second impression surface, and delivery mechanism receiving the twice printed sheet from the second impression surface and delivering the same, substantially as described.

22. In a multi-color printing machine, the combination with a reciprocating type bed having two lithographic forms, of color rolls for each form, water rolls, an oscillating impression cylinder having two impression surfaces, and retaining devices, substantially as described, taking the once printed sheet from the first impression surface and delivering the same to the second impression surface, substantially as and for the purposes described.

23. In a multi-color printing machine, the combination with a reciprocating type bed having two lithographic forms, of color rolls for each form, water rolls, an oscillating impression cylinder having two impression surfaces, and a retaining cylinder taking the once printed sheet from the first impression surface and delivering the same to the second impression surface, substantially as and for the purposes described.

24. In a multi color printing machine, the combination with a reciprocating type bed having two lithographic forms, of color rolls for each form, water rolls, an oscillating impression cylinder having two impression surfaces, feeding means supplying sheets to one of said impression surfaces, and retaining devices, substantially as described, taking the once printed sheet from the first impression surface and delivering the same to the second impression surface, substantially as described.

25. In a multi-color printing machine, the combination with a reciprocating type bed having two lithographic forms, of color rolls for each form, water rolls, an oscillating impression cylinder having two impression surfaces, feeding means supplying sheets to one of said impression surfaces, and a retaining cylinder taking the once printed sheet from the first impression surface and delivering the same to the second impression surface, substantially as described.

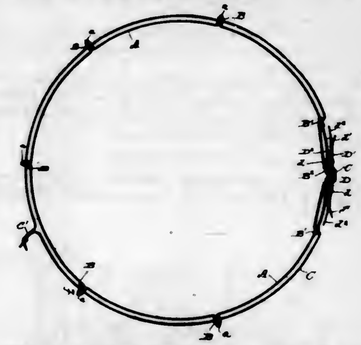
26. In a multi-color printing machine, the combination with a reciprocating type bed having two lithographic forms, of color rolls for each form, water rolls, an oscillating impression cylinder having two impression surfaces, feeding means supplying sheets to one of said impression surfaces, retaining devices substantially as described, taking the once printed sheet from the first impression surface and delivering the same to the second impression surface, and delivery mechanism receiving the twice printed sheet from the second impression surface and delivering the same, substantially as described.

27. In a multi-color printing machine, the combination with a reciprocating type bed having two lithographic forms, of color rolls for each form, water rolls, an oscillating impression cylinder having two impression surfaces, feeding means supplying sheets to one of said impression surfaces, a retaining cylinder taking the once printed sheet from the first impression surface and delivering the same to the second impression surface, and delivery mechanism receiving the twice printed sheet from the second impression surface and delivering the same, substantially as described.

28. In a multi-color printing machine, the combination with a reciprocating type bed carrying two lithographic forms color rolls for each form, an oscillating impression cylinder having two impression surfaces, and a feed cylinder at one side of the impression cylinder, of a retaining and a delivery cylinder and water rolls at the other side of the impression cylinder, substantially as described.

29. In a multi-color printing machine, the combination with an oscillating impression cylinder having first and second impression surfaces, and a feed cylinder at one side of the impression cylinder, of a retaining and a delivery cylinder and damping devices at the other side of the impression cylinder, substantially as described.

490,457. BAG-TIE OR ANALOGOUS FASTENING. FRANCIS J. SHEPPARD, Concord, and ADELBERT C. HOPKINS, Ashippun, Wis. Filed Feb. 20, 1892. Serial No. 423,165. (No model.)



Claim.—1. The combination with a bag or analogous article, of two plates of spring metal secured together at their centers and attached to the outside of the bag or other article and provided with laterally extending arms, concavo-convex in cross section a series of eyelets in the margin of the bag or other article, and a cord passed through said eyelets and adapted for engagement between said laterally extending arms, substantially as set forth.

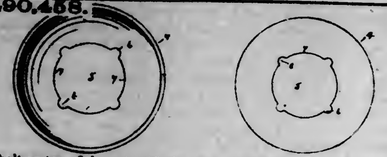
2. The combination with a bag or analogous article provided around its margin with a series of external folds, metallic eyelets passed through said folds, a cord passed through said series of eyelets, and a holding device comprising two plates of spring metal, secured together at their centers and attached to the outside of the bag, by means of eyelets passed through said plates and bag, said cord being also passed through the latter eyelets, said plates being provided with laterally extending arms bent so as to form spaces between them for the reception of the ends of said cord, substantially as set forth.

3. The combination with a bag having a series of external folds around its margin, of a series of eyelets located in said folds, a cord passed through said series of eyelets, and a holding device comprising two plates of metal secured together and centrally attached to the outside of the bag, by eyelets passed through said plates and bag, said cord being also passed through the latter eyelets and spring arms extending from each of said plates and bent slightly apart at their ends and also bent so as to form spaces or recesses between them for the reception of the ends of said cord, substantially as set forth.

490,458. NUT-LOCK. CHARLES P. SHERMAN, Toledo, Ohio, assignor, by direct and mesne assignments, to the Sherman Nut Lock Company, Detroit, Mich. Filed Apr. 27, 1891. Serial No. 390,552. (No model.)

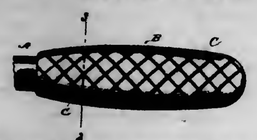
Claim.—In a nut lock, the combination with a threaded bolt, of a nut screwed thereon, and a concavo-convex washer arranged upon

490,458.



the bolt on top of the nut, with the apex against the nut said washer being provided with a series of notches in the central opening, and being adapted to be flattened upon the upper face of the nut whereby the washer impinges against the bolt and holds the nut down.

490,459. CYCLE-HANDLE. ALEXANDER STRAUS, New York, N. Y. Filed July 28, 1892. Serial No. 441,069. (No model.)



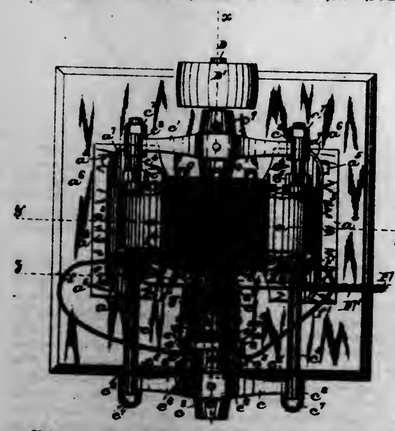
Claim.—1. A handle having its outer surface made up of bits of cork united by rubber or analogous elastic cement.

2. A handle composed of pieces of cork united by a mixture of rubber and ground cork.

3. A handle of rubber and ground cork having larger pieces of cork set in its surface with their outer faces forming part of the general surface of the handle.

4. The method of forming a handle which consists in pasting the broad surfaces of pieces of cork upon the interior surface of a handle mold, filling the remaining space with a cement of rubber and ground cork and subjecting the whole to pressure.

490,460. DYNAMO-ELECTRIC MACHINE. CHARLES WAGNER, Newark, N. J. Filed June 13, 1892. Serial No. 436,470. (No model.)



Claim.—1. The herein described dynamic electric machine, comprising therein, the iron frame-pieces or supports *a*, connected with the outer ends of a stationary magnet, provided with supports having foot-pieces and laterally projecting flanges, and provided with semi-circular edges a^3, an armature shaft and an armature thereon, rotating between said semi-circular edges, and a commutator on said shaft, consisting of two sections b^2 and b^3, having longitudinal slots or openings, each section having an annular portion b^4 and an undercut portion b^5, insulated commutator sections between said annular portions, suitable brass rings *j* and *j'* and screws or bolts for securing all of said parts together, substantially as and for the purposes set forth.

2. The herein described electro-magnet, for a dynamo electric machine, comprising therein a solid core *b* having its ends turned out, as at b^2, forming annular rings b^4, and provided with shoulders b^5, and fiber disks arranged on said shoulders, said rings b^4 extending through central openings in said disks and being adapted to be turned over and against said disks, substantially as and for the purposes set forth.

3. In a dynamo electric machine, the herein described commutator consisting essentially of porcelain sections, having longitudinal slots or openings, each section having an annular portion h^2 and an undercut portion h^3, insulated commutator sections between said annular portions, suitable brass rings *j* and *j'* and screws or bolts for securing all of said parts together in the manner, substantially as and for the purposes herein set forth.

4. In a dynamo electric machine, the herein described commutator consisting essentially of porcelain sections, having longitudinal slots or openings, each section having an annular portion h^2 and an undercut portion h^3, insulated commutator sections between said annular portions, suitable brass rings *j* and *j'* and screws or bolts for securing all of said parts together in the manner, substantially as herein set forth, in combination, with the shaft of the machine, a screw *l* and a nut *l'*, arranged in one of said sleeve-like sections, substantially as and for the purposes set forth.

5. In a dynamo electric machine, in combination, a stationary electro magnet, iron frame-pieces *a* connecting the outer edges of said magnet, provided with supports having foot pieces and laterally projecting flanges, and provided with semi-circular edges a^3, and an armature rotating between said edges, said armature consisting essentially of insulated semi-circular plates or rings provided with dove-tail portions, and wound with wire coils to form semi-cylindrical armature sections, two of said sections being dove-tailed together, plates *n* provided with spider arms, insulated bolts for securing said armature sections between said plates, and a commutator consisting essentially, of porcelain sections, having longitudinal slots or openings, annular portions or rings h^2 on said sections provided with undercut portions h^3, insulated commutator sections between said annular portions, suitable brass rings *j* and *j'*, and screws or bolts for securing all of said parts together, and means for securing said commutator on the shaft, all arranged substantially as and for the purposes set forth.

490,461. EXTRACTOR FOR GREASE, GRIT, &c., FROM EXHAUST-STEAM. WARREN WEBSTER, Philadelphia, Pa. Filed Nov. 5, 1892. Serial No. 451,303. (No model.)



Claim.—1. An extractor for the purpose named consisting of a steam receiver having inlet and outlet pipes on opposite sides, and a discharge opening in the lower end thereof, and a trap within said receiver formed of vertical plates connected at top and bottom with perforated diaphragms, said plates having turned edges forming gutters, said parts being combined substantially as described.

2. A steam receiver with a skeleton trap formed of separated vertical plates having edges forming gutters, and perforated diaphragms, and inlet and outlet passages between said diaphragms, said parts being combined substantially as described.

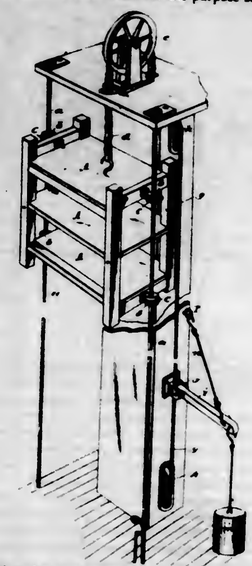
3. In an extractor for the purpose set forth, channeled baffle or trap plates, in combination with a containing vessel provided with inlet and outlet pipes, and a discharge opening, said plates converging at said discharge opening, substantially as described.

490,462. DUMB-WAITER. JOHN T. WERWOOD, Wheeling, W. Va., assignor of one-half to David Henry Taylor, same place. Filed Oct. 31, 1892. Serial No. 450,450. (No model.)

Claim.—1. In a dumb-waiter or elevator, the combination with the waiter, having a suspending rope and a counterweight adapted to elevate it, of an endless operating rope having one side connected with said weight, for the purpose stated.

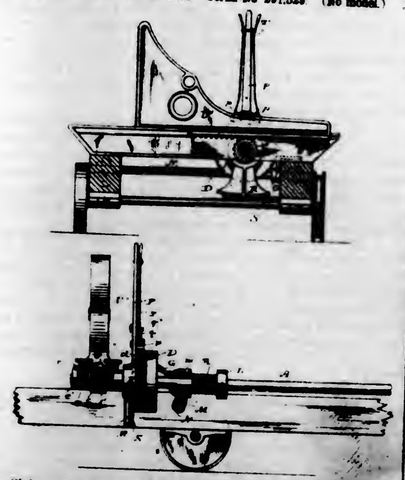
2. In a dumb-waiter or elevator, the combination with the waiter having a suspending rope and a counterweight adapted to elevate it, of an endless operating rope having one side connected with said weight and a suitable brake or stop device connected to the other side of said endless rope for the purpose stated.

3. In a dumb-waiter or elevator, the combination with the waiter having a suspending rope and a counterweight adapted to elevate it, of an endless operating rope connected with said weight, a suitable brake or stop device connected with said endless rope, and a device for holding said brake out of action for the purpose stated.



4. In a dumb-waiter or elevator, the combination with the waiter having a suspending rope and a counterweight adapted to elevate it, of an endless operating rope connected with said weight, and a brake consisting of a weighted-lever forming one member of a clamp or brake and suitable means for holding said brake out of action, substantially as described.

490,468. SAWMILL-SETWORKS. THEODORE S. WILKIN, Milwaukee, Wis. Filed Nov. 22, 1892. Serial No. 291,539. (No model.)



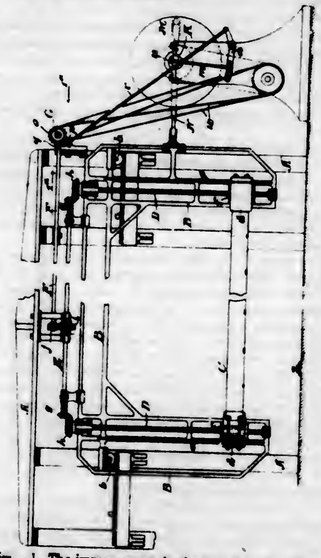
Claim.—1. An improved clutch mechanism, for saw-mills, &c., consisting of a loose pulley, a split ring operatively located with reference to said pulley, a sliding sleeve mounted upon the pulley shaft and having an inclined head, and an arm or lever operatively connected at one end to the split ring and at the opposite end engaging the inclined head so that its movement shall expand and contract the ring, substantially as set forth.

2. The combination with the main setting shaft and the sleeve and setting pinions and wheel carried thereby of a split ring housed in said wheel, a wedge for expanding the same, a spring head and lever operated by the spring head to force the wedge between the ends of the split ring and a spanner and treadle for retracting the spring head.

3. In a saw-mill, the combination of a shaft carrying a loose pulley, a lever journaled upon the shaft and held in normal position by frictional contact with a suitable spring, a spring pressed double pawl pivoted upon the lever, and engaging the notched periphery of the pulley, and a pair of oppositely acting grip-levers operatively connected to the pawl and to the operating lever, substantially as described.

4. The combination with the setting shaft, and pinion and setting wheel of the lever and pawls for operating the wheel and a holding spring adapted to bear upon the lower end of the lever to give it a tendency to stand in a vertical position when not in operation.

490,464. METHOD OF OPERATING DIAMOND STONE-SAWING MACHINES. GEORGE H. WILLIAMS, Jr., New York, N. Y., assignor of one-half to Benjamin A. Williams, same place. Filed Mar. 7, 1892. Serial No. 423,973. (No model.)



Claim.—1. The improvement in the art of sawing stone with a reciprocating saw blade set with diamonds or borts which consists in feeding said saw-blade to the stone on one stroke in a positive manner and in excess of the cutting power of the saw, and suppressing said positive feed on the return stroke, whereby the cut on said return stroke is effected through a non-positive, spring feed as set forth.

2. The improvement in the art of sawing stone with a reciprocating saw-blade set with diamonds or borts which consists in feeding said blade positively to the stone on one stroke, in excess of the cutting power of the saw and in proportion to the speed at which it is moving at all points in said stroke, and suppressing said positive feed on the return stroke, substantially as set forth.

3. The improvement in the art of sawing stone with a reciprocating saw blade provided with diamonds or borts, and strained longitudinally whereby it is free to be pressed upward to a slight extent, said improvement consisting in feeding said saw blade to the stone in a positive manner on one stroke only, whereby said blade is fed to the stone on the return stroke by its own resiliency or elasticity, as set forth.

4. In a stone sawing machine the combination with a frame, a reciprocating sash mounted therein, and a saw blade provided with diamonds or the like, strained longitudinally in said sash and free to be pressed upward to a limited extent, and means for feeding said saw blade to the stone in a positive manner on one stroke only, whereby on the return stroke the blade will be fed to the stone by its own resiliency, as set forth.

490,465. ROCKING-HORSE MOTOR. SAMUEL WILSON, Philadelphia, Pa. Filed Mar. 12, 1892. Serial No. 425,044. (No model.)



Claim.—1. In a rocking-horse motor, the combination of a running-gear, a rocking-horse pivotally supported on said gear, a driving-shaft, the shell K secured on the latter, a pair of pinions *l* having the shoes on their arms *l'* in alternate engagement with the rim of said shell, and a toothed arm secured to said horse and adapted to engage with the upper edge of one and the lower edge of the other of said pinions, substantially as specified.

2. In a rocking-horse motor, the combination of a running-gear, a rocking-lever supported on said gear, a rocking-horse sustained on the lever, a driving-shaft, the shell K secured on the latter, a pair of pinions *l* having the shoes on their arms *l'* in alternate engagement with the rim of said shell, the arm *f* secured to said lever and having its forks *f' f²* in engagement with said pinions, substantially as specified.

3. In a rocking-horse motor, the combination of a running-gear, the frame E of the latter, the rock-shaft *d*, the lever C sustained on said shaft, a rocking-horse secured on the lever, a driving-shaft and the shell K thereon, a pair of pinions *l* having the shoes on their arms *l'* in alternate engagement with the rim of said shell the arm *f* secured to the lever C and having its forks *f' f²* in engagement with said pinions, substantially as specified.

4. In a rocking-horse motor, the combination of a running-gear, a rocking horse supported on and actuating said gear, the driving-wheels provided with suitable brakes, the reins or bridle, and connections intermediate the latter and said brakes, substantially as specified.

5. In a rocking-horse motor, the combination of a running-gear, a rocking-horse supported on and actuating said gear, the driving-wheels provided with suitable brakes, the yoke *e* pivoted on the head of said horse, the reins or bridle secured to said yoke, and a connection intermediate the latter and said brakes, substantially as specified.

6. In a rocking-horse motor, the combination of a running-gear, the frame E of the latter, a rocking-horse supported on said frame and actuating the driving-wheels, the shaft m^2 having thereon the brake-levers *m m'* for said wheels, springs m^3 between said levers and frame, the arm *n*, the strap N, the yoke *e*, and the reins or bridle secured to said yoke, substantially as specified.

7. In a rocking-horse motor, the combination of a running-gear, a rocking-horse supported on and actuating said gear, the steering-wheels, a track or way, and a guide for said wheels engaging with said track or way at a point in advance of the axle of the wheels, substantially as specified.

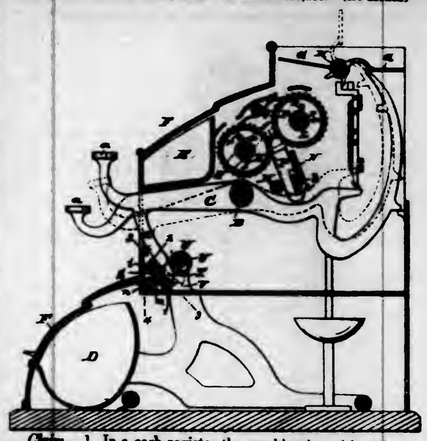
8. In a rocking-horse motor, the combination of a running-gear, a rocking-horse supported on and actuating said gear, the steering-wheels, a track or way, and a grooved roller projecting forwardly of the axle of said wheels and engaging with the track or way, substantially as specified.

9. In a rocking-horse motor, the combination of a running-gear, a rocking-horse supported on and actuating said gear, the steering-wheels, a track or way, a forwardly projecting arm secured to the axle of said wheels, and a grooved roller journaled in the outer end of said arm and engaging with the track or way, substantially as specified.

10. In a rocking-horse motor, the combination of a running-gear, a rocking-horse supported on and actuating said gear, the steering-wheels, the axle A^4, the arm *r* pivotally supported on the latter, the spring *t* intermediate the end r^3 of said arm and the head A, the roller R in the outer end of the arm, and a track or way for reception of said roller, substantially as specified.

11. In a rocking-horse motor, the combination of a running-gear, the frame E of the latter, a rocking-horse supported on said frame and actuating said gear, the steering-wheels, the axle A^4, the head A, the arm *r* pivoted in the lugs r' on said head, the spring *t* intermediate the latter and the end r^3 of said arm, the roller R in the forked end of the arm *r*, and a track or way for reception of said roller, substantially as specified.

490,466. CASH REGISTER AND INDICATOR. PHILIP TOR, Dayton, Ohio. Filed Mar. 31, 1892. Serial No. 427,159. (No model.)



Claim.—1. In a cash register the combination with each operating key, registry wheel to register the value thereof and loose gravity dog to effect said registration, of stops at the front and rear of said dog to limit its vibration and acting in conjunction with said registry wheel to positively arrest the movement of the wheel after each registration, substantially as shown and described.

2. In a cash register the combination with a series of operating keys, registry wheels to register the values thereof and loose gravity dogs to effect said registration, of stop bars common to all of said dogs at the front and rear thereof to limit their vibration and acting in conjunction with said registry wheels to positively arrest the movement of any of said wheels after each registration, substantially as shown and described.

3. In a cash register the combination with each operating key primary registry wheel to register the value thereof, and secondary registry wheel to receive transfers from said primary wheel, of a broad registry pawl having a width just sufficient to fit between the ratchet teeth of said primary and secondary wheels upon the completion of a registration whereby said primary wheel will be positively stopped from further movement, substantially as shown and described.

4. In a cash register the combination with a series of operating keys registry wheels to register the values thereof and loose gravity pawls to effect said registration of a stop bar common to all of said pawls, rectangular in cross section, to limit the vibration of the pawls and provided with a shoulder with recesses in said pawls to be engaged by said shoulder, and to thus limit the stroke thereof, substantially as and for the purpose described.

5. In a cash register the combination of a series of operating keys, each provided with an arm carrying a tooth or lug and a ratchet bar extending across said keys, provided with a series of sets of ratchet teeth or lugs, one set for each key arm, said ratchet bar sliding in guides across the plane of movement of the keys, to allow same to operate, with spring or equivalent to return same to its normal position, substantially as shown and described.

6. In a cash register the combination of a series of operating keys each provided with an arm carrying a tooth or lug, and a ratchet bar extending across said keys, provided with a series of sets of double acting ratchet teeth or lugs, one set for each key arm, said ratchet bar sliding in guides across the plane of movement of the keys to allow same to operate with spring or their equivalent, to return said bar to its normal position when shifted in either direction, by the positive or reverse stroke of the key operated, substantially as shown and described.

7. In a cash register the combination with a series of operating keys, each provided with an arm, of a shaft extending across said keys and a series of hubs loosely mounted on said shaft rotatable and movable longitudinally thereon, and having their edges beveled, said hubs arranged so as to permit the operation of one key at a time and to prevent the operation of two or more keys of the series simultaneously, substantially as shown and described.

8. In a cash register, the combination, with a series of groups of operating keys, each provided with an arm, of a shaft extending across all of said groups and a series of sets of hubs loosely mounted on said shaft and both rotatable and movable longitudinally thereon and having their edges beveled, with stops on said shaft between each group of hubs, said hubs arranged so as to permit the operation of one key of each group simultaneously but so as to interfere with and prevent the simultaneous operation of two or more keys of each group, substantially as shown and described.

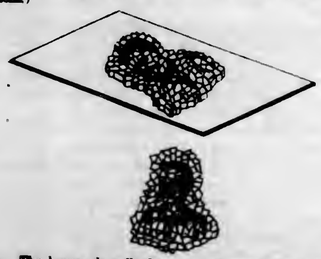
9. In a cash register the combination with a series of operating keys each provided with an arm carrying a lug, and a transverse shiftable ratchet bar having a series of sets of ratchet teeth, one set for each key, of a shaft extending across said keys, parallel with said ratchet bar, with a series of hubs loosely mounted on said shaft and movable laterally thereon, said hubs arranged to permit the operation of one key at a time and to prevent the operation of two or more keys of the series simultaneously whereby the operated keys may be properly arrested and the unoperated keys locked through the medium of a single arm on each key lever, substantially as shown and described.

10. In a cash register the combination with a series of numbered registry wheels, loosely mounted on a common shaft, each wheel carrying a lug on its inner periphery, and said shaft being slotted longitudinally, of a resetting bar fitting within said slot and shiftable lengthwise therein with spring to return said bar to its normal position, said bar having lugs to engage with the lugs on the registry wheels and normally held out of engagement therewith but shiftable into engagement when it is desired to reset the wheels to zero, substantially as shown and described.

11. In a cash register the combination with a resetting device for the registry wheels consisting of a bar provided with lugs laterally shiftable into line with corresponding lugs on the registry wheels, of a slot in the case to receive the outermost lug with shoulder on inner edge of the slot and spring acting on said resetting bar to return the bar to the inner edge of the case after it has passed the shoulder on the slot and thus to stop the resetting bar after each complete revolution, substantially as shown and described.

12. In a cash register the combination with a resetting device for the registry wheel consisting of a bar provided with lugs laterally shiftable into line with corresponding lugs on the registry wheels, of a slot in the case to receive the outermost lug with shoulder on the inner edge of the slot, spring acting on said resetting bar to return it to its normal position, pin on said bar without the case and curved arm without the case to engage with said pin and prevent the complete revolution of the bar until the spring has acted on said bar to bring the outermost lug thereof into the pathway of the shoulder on the slot and thus stop the resetting bar with each complete revolution substantially as shown and described.

490,467. PROCESS OF MAKING MOSAICS. Raimund B ALLARTS, Frenchtown, Mont. Filed July 23, 1892. Serial No. 441,082. (No specimens.)

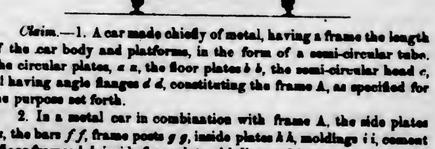


Claim.—The herein described process of reproducing pictures in mosaic which consists of tracing on a plate of glass by means of transparent colors the picture to be reproduced, then removably cementing blocks of stone or other substance of which the mosaic is to be composed, and of shades corresponding to the colors on the glass, on the under surface of said glass plate, and then coating the under surface of said blocks with a coating of suitable cement and lastly removing said glass plate and polishing the surface of said colored blocks substantially as and for the purpose set forth.

490,468. MACHINE FOR SPLITTING FEATHERS. FRANKLIN H. BUNNS, Newark, N. J., assignor to Bunnell Hayes, New York, N. Y. Filed Mar. 26, 1892. Serial No. 426,466. (No model.)

Claim.—1. In a feather splitting machine, the combination with means for singly feeding forward the feathers of means for splitting or dressing off a portion of the thickness of the stem or rib, and means for automatically gaging the quantity thus removed proportionally to the varying thickness of the stem, as herein specified.

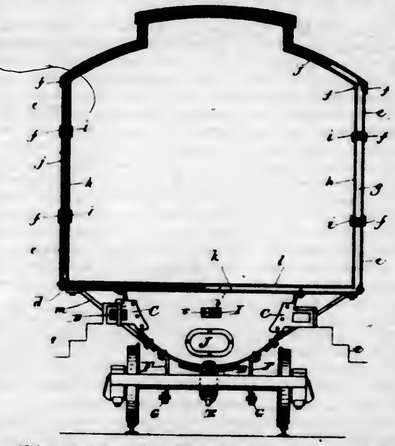
2. In a feather-splitting machine, the combination with means for singly feeding the feathers of means for dressing off a portion of the thickness of the stem, the table L rising and sinking as the thickness of the stem varies, and to the full extent of such variation, and the roller G levers D adjustable pivots A^5 and links C operated by the levers for raising and lowering the cutting means to a less extent, as herein specified.



3. In a feather-splitting machine, the combination with means for singly feeding forward the feathers of means for splitting or dressing off a portion of the thickness of the stem, the fixed bed A', roller G, movable table L rising and sinking to the full extent of the motion of said roller, and the levers D, each having one end operated by the roller and the other end adjustable on the fixed framing, the adjustable pivots E carried in said levers, the links C and shaft B, all arranged for joint operation substantially as herein specified.

4. In a feather-splitting machine, the combination with the lower feed-rolls J of soft-surfaced upper feed-rolls I and yielding levers R carrying the latter, and driving means adapted to rotate each member of the several pairs, and with the fixed bed A', roller G, movable table L rising and sinking to the full extent of the motion of said roller, and the levers D, each having one end operated by the roller and the other end adjustable on the fixed framing, and the adjustable pivots E carried in said levers, and connecting by the links C with the shaft B, all arranged for joint operation substantially as herein specified.

490,469. METALLIC CAR. GEORGE M. REED, Boston, Mass. Filed Mar. 5, 1890. Serial No. 342,793. (No model.)



Claim.—1. A car made chiefly of metal, having a frame the length of the car body and platforms, in the form of a semi-circular tube. The circular plates, *a a*, the floor plates *b b*, the semi-circular head *c*, all having angle flanges *d d*, constituting the frame A, as specified for the purpose set forth.

2. In a metal car in combination with frame A, the side plates *e e*, the bars *f f*, frame posts *g g*, inside plates *h h*, moldings *i i*, cement *j*, floor frames *k k*, inside floor plates *l l*, diagonal braces *m m*, as specified and described.

3. In a metal car in combination with frame A, the sockets C C secured by flanges on the outside ends of frame A, each side of platform, extending beyond the ends of same such a distance as will allow the cars to move around curves without the buffer beams coming in contact at either end. The link bars D D made to nearly fill the sockets up and down, and of such a length that they cannot come in contact with pins O O, unless the buffer beams are forced together on their inside ends.

4. In a metal car, in combination with a car truck, the male center casting B secured to frame A, going through truck center plate B', the king bolt E, going through frame A, and center castings B B', the hangers F F, the bar G, as specified for the purposes set forth.

5. In a metal car, the frame A, having an apartment for storing heating pipes H, and other material, the registers *p*, opening out of the apartment, the man-holes J, as specified for the purpose set forth.

490,470. APPARATUS FOR BURNING HYDROCARBONS MIXED WITH AIR AND SUPERHEATED STEAM. John Dunn, Rochester, assignor of one-half to John H. Reynolds, Troy, N. Y. Filed June 17, 1892. Serial No. 437,092. (No model.)

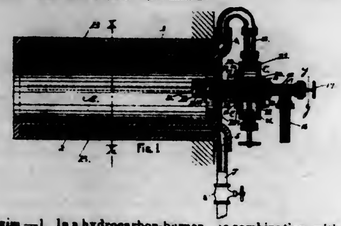


Fig. 1.

Claim.—1. In a hydrocarbon-burner, the combination, with a vaporizing-chamber surrounded by an annular passage which forms a superheater for the steam circulating through said passage, and inlet and outlet steam-pipes connecting with said passage; said vaporizing-chamber being provided with a cap-plate provided with series of inlet air-openings which are arranged around a central opening fitted to receive the discharge-pipe of an injector, an injector consisting of an annular passage which is connected with the outlet pipe of said superheater, a valved-opening leading from said annular-passage into an inner chamber, an annular opening leading from said inner chamber into a pipe which connects the injector with the cap-plate of the vaporizing-chamber, a valved inlet-pipe for conveying the oil through said annular opening into the discharge end of said injector, and a series of perforations—corresponding in number and position to the air-openings of said cap-plate—leading from the annular passage of said injector; said injector being arranged to leave an open space between its inner face and said cap-plate, as and for the purpose herein specified.

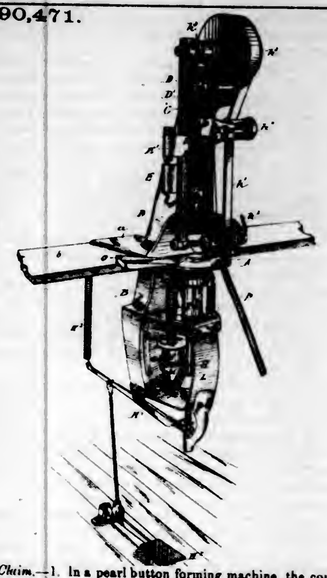
2. The combination, of a vaporizing-chamber surrounded by an annular passage which forms a superheater for the steam circulating through said passage; said superheater being integral with the walls of said chamber, an inlet- and an outlet-steam-pipe leading into and out from said annular passage, a cap-plate which forms a closure for the outer end of said chamber; said cap-plate having a series of constantly-open apertures for the admission of mixed steam and air into the outer end of said vaporizing-chamber, an injector connected to the said outlet-steam-pipe, and—by a central discharge-pipe—to said cap-plate so as to leave a clear air-space between the adjacent faces of said cap-plate and injector; the latter being provided with a series of perforations corresponding in number and position to the apertures of said cap-plate, and an oil-supply-pipe which communicates with said central discharge-pipe; whereby a simultaneous forcible injectment of mixed steam and air into the outer end of said vaporizing-chamber and of mixed steam and oil into the interior of said chamber may be effected, substantially as herein specified.

3. In a hydrocarbon-burner, the combination with a vaporizing-chamber, A, provided with a front-plate, D, having a series of air-inlet openings, 28, formed therein, of an injector, C, having a discharge-pipe, 19, connected to said front-plate; said injector having a steam-chamber, 12, into which a steam supply-pipe, 13, leads to supply steam to said injector, a series of steam-outlets, 27, corresponding to the air-inlet openings of said front-plate, a steam-chamber, 23, formed in the body of said injector, a valved opening, 24, forming a communication between the steam-chambers 12 and 23, an oil supply-pipe, 16, communicating with an inwardly-extending oil-delivery pipe, 18, and an oil-regulating valve, 17, for governing the inflow of oil into the apparatus, as and for the purpose herein specified.

4. An apparatus, substantially as described, for effecting a forcible injectment of mixed steam and air from the exterior into the interior of a vaporizing-chamber of a hydrocarbon-burner, and a simultaneous forcible injectment of mixed steam and oil into said chamber; the point of delivery of said steam and oil being farther from the outer end of said chamber than the point of delivery of the mixed steam and air, as and for the purpose herein specified.

5. The combination with a vaporizing-chamber having a series of constantly-open apertures in its outer head, of an injector adapted to forcibly inject currents of external air into said apertures by means of steam or other fluid under pressure; said injector also constituting an oil-atomizer whereby mixed steam and oil are forcibly injected into said vaporizing-chamber, as and for the purposes herein specified.

490,471. MACHINE FOR FORMING PEARL BUTTONS. George Garlter, Detroit, Mich., assignor to the Standard Pearl Button Company, Limited, same place. Filed Dec. 26, 1891. Serial No. 416,163. (No model.)



Claim.—1. In a pearl button forming machine, the combination with a rotating grinding wheel, of a chuck arranged with its face in a horizontal plane and a table, plate or guide over or along which the blanks are moved into the chuck opening whereby the blanks can be delivered to and removed from the chuck horizontally, substantially as set forth.

2. In a pearl button forming machine, the combination with a rotating grinding wheel, of a horizontally arranged chuck having its chucking face flush, or nearly so, with a table plate or guide over or along which the blanks are moved into the chuck opening, of means for raising such chuck above the surface of the table plate or guide to bring the blank in contact with the grinding wheel, substantially as set forth.

3. In a pearl button forming machine, the combination with a rotating grinding wheel, of a horizontally arranged chuck movable toward and away from the grinding wheel, a table, plate or guide over or along which the blocks are moved into the chuck opening and means for opening and closing the chuck operated by the movement of the chuck, substantially as set forth.

4. In a pearl button forming machine, the combination with a rotating grinding wheel, of a chuck mounted upon a vertical spindle and having a horizontal chucking face, said spindle being longitudinally movable to move the chuck toward and away from the grinding wheel, a table, plate or guide over or along which the blanks are moved into the chuck opening and means for throwing the chuck spindle into connection with the power as the chuck is moved toward the grinding wheel, substantially as set forth.

5. In a pearl button forming machine, the combination with a rotating grinding wheel, of a chuck movable toward and away from said grinding wheel, means for closing the chuck upon the blank operated by its forward movement, and means for connecting the chuck with the source of power to rotate the same as the chuck is moved forward, substantially as set forth.

6. In a pearl button forming machine, the combination with a rotating grinding wheel, of a vertical chuck spindle carrying a horizontal chuck, a horizontal table or plate with whose surface the chuck is flush, or nearly so, means for moving the chuck vertically above the table or plate and toward the grinding wheel, means for opening and closing the chuck operated by its movement, and a power connection with the chuck spindle brought into operation by the forward movement of the chuck, substantially as set forth.

7. In a pearl button forming machine, the combination with the rotating grinding wheel, of a chuck movable toward and away from said wheel, arms pivoted in the chuck-head carrying the clamping plates, and a collar encircling said arms and forcing them inwardly as the chuck is moved forward, substantially as set forth.

8. In a pearl button forming machine, the combination with the moving chuck, of the pivoted arms carrying the chucking plates, the encircling collar, and the springs connecting said collar with the frame, substantially as set forth.

9. In a pearl button forming machine, the combination with the chuck movable toward and away from the grinding wheel, of a stationary rod passing through the chuck and loosening the blanks from the chuck as it moves backward, substantially as set forth.

10. In a pearl button forming machine, the combination with the rotating grinding-wheel, of the automatic chuck mounted upon a movable spindle, and the cone friction wheels connecting the chuck spindle with the power as the chuck is moved forward, as set forth.

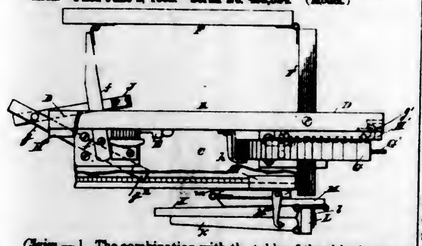
490,472. ATTACHMENT FOR BROOMS. Charles J. Clements, Brooklyn, N. Y. Filed Mar. 17, 1891. Serial No. 385,434. (No model.)



Claim.—1. As an article of manufacture, a scraper blade provided with clamps conforming to the back and edges of a push brush or like device, and means for securing the said clamps to the said device, substantially as and for the purposes set forth.

2. As an article of manufacture, a hoe shaped scraper blade for attachment to push brushes, provided with integral arms *b*, formed in continuation of and substantially in the plane of the blade, and arms *b'* also formed integrally with the blade and conforming to the back of the brush for which they are designed, and means for securing the said arms to the brush with which it may be used, substantially as set forth.

490,473. WORK-TABLE. Stephen A. Cornell, Grand Rapids, Mich. Filed June 2, 1892. Serial No. 435,394. (Model.)



Claim.—1. The combination with the table of the skirt board removably attached thereto, the sliding supports for said board, and the rod and pivoted catch for locking it in position, when the supports are adjusted thereunder substantially as described.

2. The combination of the table with the skirt board, the rod loosely connected to said board and adapted to engage a keeper on the table, and the catch for locking said board to the table substantially as specified.

3. The combination of the table and the bars sliding thereunder, with the bosom board pivoted to the outer end of said bars, and folding therewith, and adapted to be turned over the edge of table when the bars are drawn out, substantially as and for the purpose described.

4. The combination of the table having notches in its end, and a slotted end bar; with the pair of bars sliding through said end bar, and the bosom board pivoted to the outer ends of said bars and adapted to be turned over the edge of table and rest thereupon in one of the notches thereof, substantially as set forth.

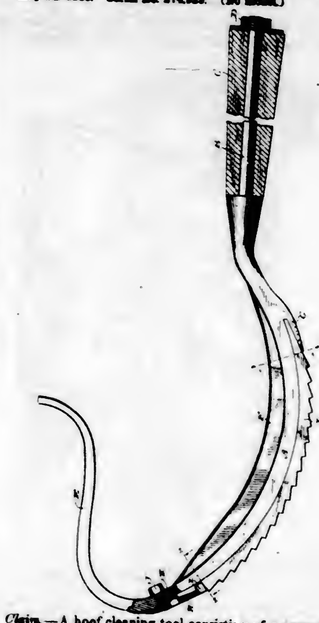
5. The combination of the table, the folding connection slidably attached thereto, the block attached to the outer end of the second member of said connection and the sleeve board attached to said block, substantially as and for the purpose described.

6. The combination of the table, the folding connection attached thereto, the block secured to said connection by a swivel and hinge joint, and the pair of sleeve pressing boards hinged to said block, all constructed and arranged to operate substantially as and for the purpose described.

7. The combination of the table, a seam pressing bar, an arm hinged to one end of the bar and pivoted to the edge of the table adapted to form a continuation of the bar when the latter is lowered, and an arm hinged to the underside of bar near its other end also pivoted to table, substantially as described.

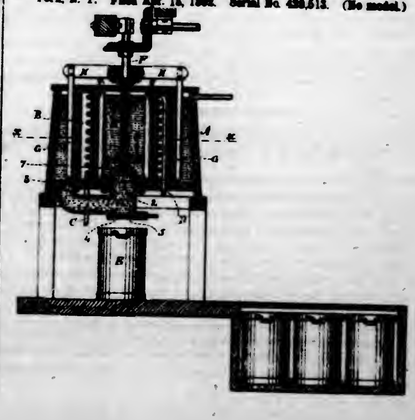
8. The combination of the table, its folding leaf, the presser bar adapted to lie between the adjoining edges of the table top and leaf when folded, and the supports for said bar connected thereto and to the table, one of said supports being constructed to form a continuation of the bar, so that the table top is unbroken when the leaf is extended and the presser bar closed, all constructed and arranged to operate substantially as described.

490,474. HOOF-CLEANER. Joseph W. Parent, Troy, Wis. Filed May 24, 1893. Serial No. 274,929. (No model.)



Claim.—A hoof cleaning tool consisting of a curved back-piece having one end thereof provided with a handle and prolonged at the other end to form another handle having a compound curve, the permanent lip G on the back-piece, the lip H having the side flanges 1, the set-screw J engaging the latter lip and back-piece, and a file retained on said back-piece by said lips, substantially as set forth.

490,475. ICE-MAKING MACHINERY. Daniel L. Holden, New York, N. Y. Filed Apr. 18, 1892. Serial No. 429,513. (No model.)

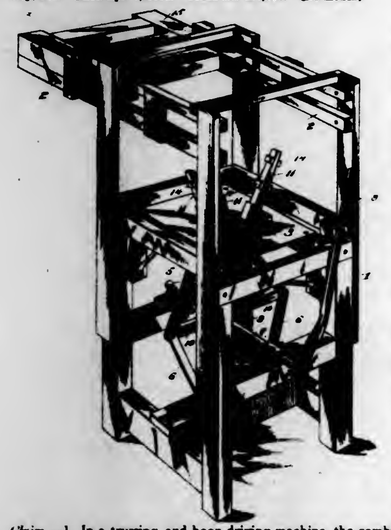


Claim.—1. In an ice making apparatus, the combination with the vat, of an annular refrigerating chamber, pipes for supplying to such chamber the refrigerating material, a central shaft and scrapers connected therewith within the annular refrigerating chamber, and a discharge pipe and valve, substantially as set forth.

2. In an ice making apparatus, the combination with the vat, of an annular refrigerating chamber, pipes for supplying to such chamber the refrigerating material, a central shaft and scrapers connected therewith within the annular refrigerating chamber, a discharge pipe and valve, and scrapers outside the annular refrigerating chamber and connections from the same to the revolving central shaft, substantially as set forth

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490,476. HOOP-DRIVING MACHINE. WILLIAM J. HOOK, Union City, Ind. Filed Apr. 1, 1892. Serial No. 427,267. (No model.)



Claim.—1. In a trussing and hoop driving machine, the combination of a frame, open or free at the top to allow the insertion and removal of the vessel, a guide or supplemental frame, a board or platen moving in the said supplemental frame and adapted to close the open end of the main frame to provide an abutment, a follower mounted in the main frame, mechanism for moving the follower, uprights carried by the follower having feet formed with slots, screws or bolts passing through said slots for adjustably securing the uprights, and lugs on the uprights for receiving the hoops, all adapted to operate in the manner described.

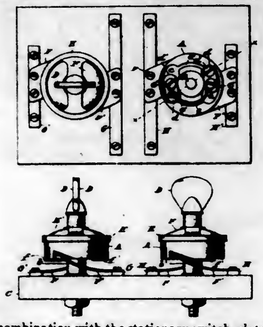
2. In a trussing and hoop driving machine, the combination of the main frame, open at the top to allow the insertion and removal of the vessel, the guide frame, the board or platen movable in said frames, and closing the open end of the main frame to form a stop or abutment, the follower in the main frame, the levers connected to the follower and to the frame, the oscillating disks, the links connecting the levers and disks, the uprights carried by the follower and having the adjustable feed and lugs to hold the hoops, substantially as described.

490,477. ELECTRICAL CONNECTING DEVICE. JOSEPH HOFFMANN, New York, N. Y. Filed Sept. 16, 1892. Serial No. 445,948. (No model.)

Claim.—1. A chambered safety-catch plug carrying exterior switch contacts and having within its chamber a safety-catch link connecting such exterior switch contacts, said plug being constructed for ready connection with and removal from the operative parts of a rotating circuit making and breaking switch and adapted to form the rotating element of such a switch, substantially as set forth.

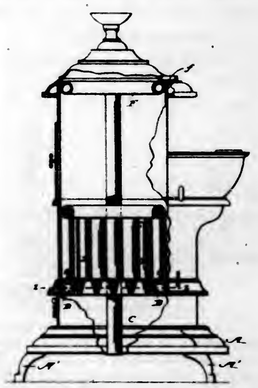
2. A chambered safety-catch plug carrying exterior switch contacts and having within its chamber a safety-catch link connecting such exterior switch contacts, said plug being constructed to form the rotating element of a circuit making and breaking switch and having a central opening through it adapting it to be readily mounted upon and removed from a rotating switch spindle, substantially as set forth.

3. The combination with stationary switch plates, of the rotating plug A having movable switch plates on its under side, said plug being chambered on its upper side, a safety-catch located in the chambered upper side of the plug, a cover for the safety-catch chamber, the rotating spindle B, and the thumb-piece D, substantially as described.



4. The combination with the stationary switch plates F, F', of the safety-catch plug A having ratchet teeth on its under side, two of which are surfaced with metal plates *f*, *f'*, a safety-catch chamber in the upper part of the said plug containing a safety-catch connecting such plates *f*, *f'*, a cover for said chamber, the rotating spindle B, and the thumb-piece D, substantially as described.

490,478. HEATING-STOVE. CHARLES A. C. KORSTER, Belvidere, Ill. Filed Mar. 8, 1892. Serial No. 424,159. (No model.)



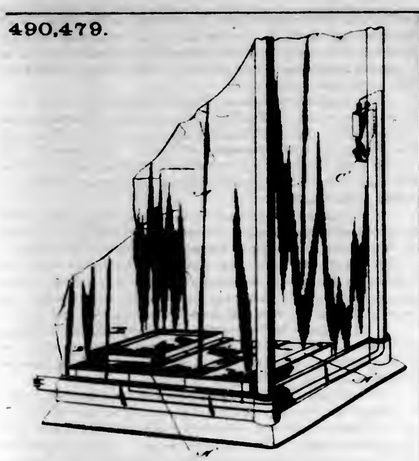
Claim.—The combination with the lower surrounding tube B rectangular in cross section, of the grate having outwardly-extending flange *a* resting upon said tube, the surrounding flue E about midway of the height of the stove, the vertical flues D connecting the flues B and E and forming the sides of the fire-pot, the upper surrounding flue F, the side flues connecting the same with the flue E, and the air inlet flues C passed up through the bottom of the stove and communicating with the flue B, all substantially as shown and described.

490,479. ELECTRIC SHOW-CASE ALARM. RUDOLPH C. KRISCHER, Duluth, Minn. Filed July 9, 1892. Serial No. 439,491. (No model.)

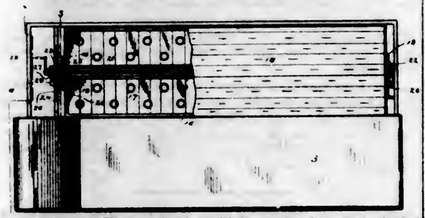
Claim.—1. The combination with the show case tray, of a fixed contact and a movable contact arranged to clasp an article between them and the movable contact to be actuated by the article being held and to sound an alarm automatically when such article is removed, substantially as specified.

2. The combination with a show-case tray, of a fixed contact, and a contact movable with relation to the fixed contact and arranged to be actuated by the article being held and to sound an alarm when such article is removed, and a supplemental spring at right angles to the movable contact for retaining the article upon the movable contact, as set forth.

490,479.



490,480. BED-LOUNGE. LOUIS LA TOUR, Bridgeport, Conn. Filed May 12, 1892. Serial No. 432,716. (No model.)



Claim.—1. The combination with frame 1 and frame 6 adapted to slide within it, of frame 16 within frame 6, plates 19 having rack teeth and outwardly extending ribs at the ends of frame 16, a shaft carrying pinions engaging the rack teeth, plates 22 and 23 in which the shaft is journaled and which are provided with grooves which receive the ribs, a ratchet on the shaft and a pawl engaging the ratchet to retain frame 16 at the raised position.

2. The combination with frame 1 and frame 6 adapted to slide within it and having a cross piece 24, of frame 16 having plates 19 provided with rack teeth in the planes of the plates and outwardly extending ribs, plates at the lower end of frame 6 and on the cross piece having grooves to receive said ribs, a shaft journaled in said plates and having pinions engaging the rack teeth and a ratchet, a pawl engaging the ratchet and a crank between the cross piece and the end of frame 6 whereby frame 16 may be raised and lowered.

490,481. CLOUD-CREATOR OR NEBULATOR. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 25, 1892. Serial No. 434,200. (No model.)

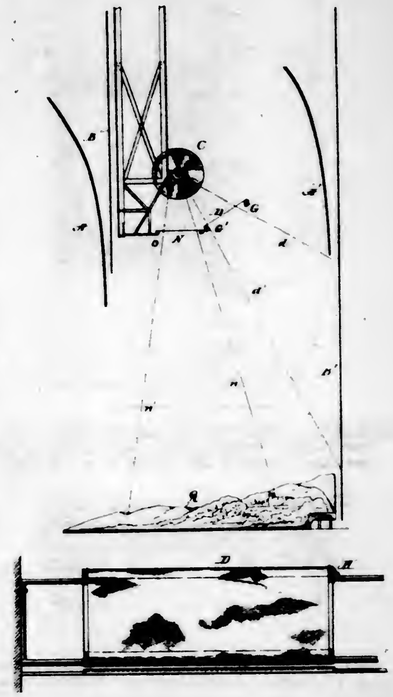
Claim.—1. An apparatus for producing moving cloud effects or cloud shadows, comprising a movable cloud cloth having the desired forms thereon, an illuminating device arranged in proximity to the cloud cloth, and means for moving the cloth in the desired direction for producing the moving clouds or shadows, substantially as described.

2. In apparatus for producing scenic effects, the combination with the cloud cloth having the desired forms thereon, the illuminating device, the sliding frame carrying said cloth and means for moving the cloth across the path of movement of the sliding frame, so as to produce a two-fold movement of the cloth and cloud effects, substantially as described.

3. In combination with the sliding frame, the rollers journaled therein, the cloud cloth secured to said rollers and adapted to be wound thereon, and gearing for imparting motion to said rollers by the movement of the sliding frame, substantially as described.

4. In combination with the illuminating device, the obliquely arranged sliding frame, the cloud cloth supported thereon, and means for causing the cloud cloth to move across the path of movement of the sliding frame, substantially as described.

5. In combination with the illuminating lamp, the sliding frame supporting the cloud cloth thereon, mechanism for causing said cloth to move across the path of movement of the sliding frame, and means for adjusting and securing said frame at any desired angle in respect to the lamp, substantially as described.



6. An apparatus for producing scenic effects, comprising a movable cloud cloth and an illuminating and coloring device, substantially as described, whereby cloud effects or shadows may be thrown upon the scenic arrangements or sky foundation in variegated colors, substantially as described.

7. In combination with the illuminating devices, the nebulator, the umbrator, and means for actuating said devices so as to produce the effect of clouds and cloud shadows moving simultaneously over the landscape and sky foundation, or other scenic arrangements, substantially as described.

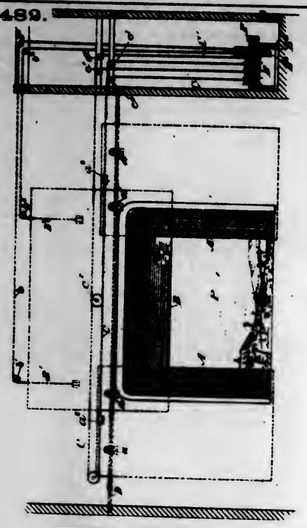
490,482. PROSCENIUM-ADJUSTER. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 25, 1892. Serial No. 434,200. (No model.)

Claim.—1. In combination with the proscenium opening of a theater or similar structure, the laterally adjustable side wings or slides, the vertically adjustable slide or drop, and means for adjusting the same, substantially as described.

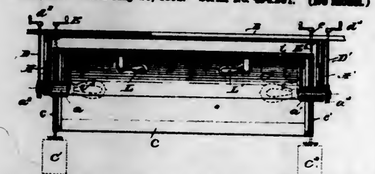
2. In combination with the proscenium opening of a theater or similar structure the laterally adjustable slides, the vertically adjustable drop, and means for simultaneously adjusting said slides and drop so as to uniformly enlarge or contract the proscenium opening, substantially as described.

3. In combination with the proscenium opening of a theater or similar structure the laterally adjustable side wings or slides, the vertically adjustable drop and means for simultaneously adjusting the drop and slides, so as to cause the drop to move at a greater rate of speed than the side wings, for the purpose of uniformly enlarging or contracting the proscenium opening, substantially as described.

490,482.



490,488. APPARATUS FOR PRODUCING SCENIC EFFECTS. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 26, 1892. Serial No. 434,291. (No model.)



Claim.—1. An apparatus for producing scenic effects, comprising a variously colored sheet or drum consisting of a substance through which light may pass, means for causing the passage of rays of light therethrough onto the surface or object to be illuminated, and mechanism for causing the variously colored portions of such substance to pass successively in proximity to the light, substantially as described.

2. An apparatus for producing scenic effects, comprising a variously colored sheet or drum composed of a transparent substance, means for causing the passage of light therethrough onto the surface or scene to be illuminated, and mechanism for causing the variously colored portions of such substance to pass successively in proximity to the light, substantially as described.

3. An apparatus for producing scenic effects, comprising a variously colored sheet or drum composed of a transparent substance, a reflector arranged in proximity thereto so as to cause the rays of light to pass through such substance onto the surface or scene to be illuminated, and means for causing the variously colored portions of such substance to pass successively in front of the reflector, substantially as described.

4. An apparatus for producing scenic effects, comprising a variously colored sheet or drum composed of a transparent substance, a duplex reflector or "illumiscope" arranged in proximity to such substance so as to cause the rays of light to pass therethrough onto the surface or scene to be illuminated, means for passing the variously colored portions of such substance in front of such reflector, and mechanism for adjusting the reflector so as to control the direction, amount, and extension of light that may be thrown upon such surface, substantially as described.

5. In an apparatus for producing scenic effects, the combination of the colorator, the illumiscope, and means substantially as described for causing the variously colored portions of the colorator to pass successively the opening in the illumiscope for the passage of light, substantially as described.

6. An apparatus for producing scenic effects, comprising a rotary drum having upon its periphery a variously colored substance which will permit the passage of light therethrough, a lamp fitted within the drum, and means for rotating the drum so as to cause the light from the lamp to pass successively through the variously colored portions of such substance to the surface on which the rays of light may fall, substantially as described.

7. An apparatus for producing scenic effects, comprising a rotary drum having on its periphery a variously colored substance which will permit the passage of light therethrough, a reflector fitted within the drum, and means for rotating the latter so as to cause the light to pass successively through the variously colored portions of such substance to the surface on which the rays of light may fall, substantially as described.

8. An apparatus for producing scenic effects, comprising a rotary drum whose peripheral surface is composed of variously colored transparent material, an adjustable segmental reflector or illumiscope rotatably fitted within the drum, means for rotating the latter, and mechanism for adjusting the illumiscope so as to control the amount and extension of light which may pass through such transparent material to the surface to be illuminated, substantially as described.

9. In an apparatus for producing scenic effects, the illumiscope consisting of the independent rotatable segments having concave reflecting surfaces and means for independently rotating the segments, substantially as described.

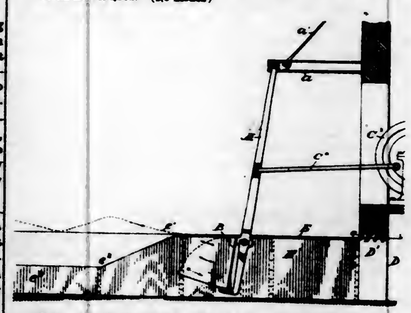
10. An apparatus for producing scenic effects, comprising a series of rotary drums having peripheral surfaces composed of variously colored transparent material, lamps fixed within said drums, and means for simultaneously rotating the latter so as to cause the light from the lamps to pass successively through the variously colored portions of the transparent material to the surface or scene to be illuminated, substantially as described.

11. In an apparatus for producing scenic effects the combination with the rotatable colorator, of the auxiliary rotatable colorator and means for rotating both colorators, substantially as described.

12. In combination with the rotatable colorator and mechanism for rotating the same, the auxiliary removable colorator and means for rotating the latter simultaneously with the former, substantially as described.

13. In an apparatus for producing scenic effects, the combination with the rotatable colorator, the illumiscope placed therein, means for adjusting the latter so as to control the amount and extension of light which may pass through said colorator, the auxiliary colorators, and mechanism for simultaneously rotating the several colorators, substantially as described.

490,484. WAVE-MAKER. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 26, 1892. Serial No. 434,292. (No model.)



Claim.—1. In theatrical appliances, a wave maker comprising an operating arm or lever, a wave-plate hinged thereto, and means for imparting a to and fro or vibratory movement to the lever, substantially as described.

2. In theatrical appliances, a wave maker comprising a swinging pendulum lever, a wave-plate hinged thereto and means for imparting a vibratory movement to the lever, substantially as described.

3. In theatrical appliances, a wave maker comprising the swinging pendulum lever having the yoke arms rigid therewith, the angular extensions on said arms, the pins secured to said extensions, the wave-plate having one edge thereof hinged to said arms and adapted to be supported in either an upright or horizontal position by said arms and pins, and mechanism for actuating said lever, so as to impart a swinging or to and fro movement to the hinged wave-plate, substantially as described.

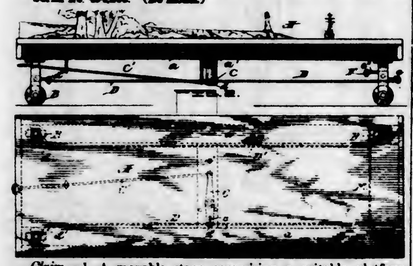
4. In combination with the wave maker, the water channel for controlling the direction of movement of the waves, substantially as described.

5. In combination with the wave maker the water channel consisting of the side plates having their upper edges extending a suitable distance in proximity to the wave maker nearly to the water line and thence extending the remaining length of the channel beneath the water line so as to avoid forming obstructions near the surface of the water, substantially as described.

6. In combination with the pendulum lever provided with the wave-plate and having the depending arms with friction rolls journaled thereto, the water channel having the side plates arranged at either side of said arms so as to contact with said rolls, substantially as described.

7. The combination with the swinging pendulum lever provided with the depending yoke-arms having the angular forward extensions with inwardly projecting pins thereon, of the wave-plate pivoted to said yoke-arms so as to bear thereon in an upright position on the forward movement of the lever, and to drop down onto said pins on the reverse movement, and means for vibrating the lever, substantially as described.

490,485. SLIDING STAGE. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 26, 1892. Serial No. 434,293. (No model.)



Claim.—1. A movable stage comprising a suitable platform mounted on steering wheels or rollers having their axles or spindles arranged parallel with each other and fitted in rotable standards or supports, together with mechanism connecting the rotable supports to a common actuating lever, whereby the several wheels may be moved in unison for the purpose of changing the direction of motion, substantially as described.

2. In combination with the stage or platform, the vertically pivoted rotable wheel supports or standards, the wheels journaled in said standards, the longitudinally reciprocating rods pivotally connecting said standards in pairs, the transverse rod connecting two standards of opposite pairs of wheels, and means for reciprocating said rods so as to simultaneously rotate said wheel supports in the same direction, substantially as described.

3. In stage appliances, the combination with the movable platform or body, the pivotally connected steering and supporting wheels or rollers journaled in rotable supports beneath said body and mechanism for simultaneously rotating said supports in the same direction so as to control the movements of the body, substantially as described.

4. In combination with the stage and wheeled supports pivoted thereto, the steering mechanism comprising a pair of reciprocating rods and a transverse rod pivotally connecting arms or brackets projecting from the pivoted wheeled supports, an oscillating lever having one arm pivoted to one of said rods, and an actuating rod pivoted to the other arm thereof and provided with a suitable handle, substantially as described.

490,486. TELESCOPIC STAGE. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 26, 1892. Serial No. 434,294. (No model.)



Claim.—1. In theatrical appliances, a telescopic stage or stages comprising two or more independent movable sections, and means for coupling the same together so as to cause the sections to move in unison, substantially as described.

2. In theatrical appliances, a telescopic stage or stages comprising two or more independent movable sections, and means for automatically coupling the same together so as to cause the sections to move in unison, substantially as described.

3. In theatrical appliances, a stage or stages comprising two or more independent telescopic sections, means for coupling the sections together so as to cause them to move in unison, and mechanism for propelling such sections, substantially as described.

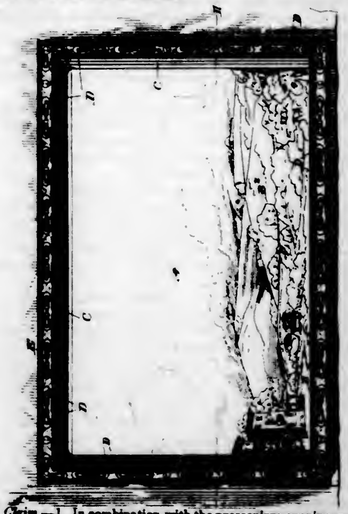
4. In theatrical appliances, a stage or stages comprising two or more independent telescopic sections, means for automatically coupling the sections together so as to cause them to move in unison, and mechanism for propelling such sections, substantially as described.

5. In theatrical appliances, the combination with the telescopic stage or stages formed in two or more movable sections, of the trip-lever, and stop on one of said sections, and the coupling pin on the adjacent section for automatically actuating said trip-lever so as to lock the sections together when said parts engage each other, substantially as described.

6. In combination with the telescopic stage or stages, the automatic coupler, comprising the trip-lever having the cam-lug thereon, the vertically slotted bracket and the stop on one stage, and the coupling pin on the adjacent stage projecting into the path of said stop, together with means for automatically disengaging the coupling pin at a pre-determined point in the movement of the stages, substantially as described.

7. In theatrical appliances, a series of independent movable stages, with set-scenes or other objects thereon, mechanism for propelling each stage independently of the other, and automatic coupling mechanism for locking adjacent stages together at a pre-determined point in the movement of the foremost stage, together with means for unlocking the stages at such pre determined point on the reverse movement of the stages, substantially as described.

490,487. LUXAULEATOR. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 26, 1892. Serial No. 434,295. (No model.)



Claim.—1. In combination with the proscenium opening, a series of lamps bordering the same and provided with backings adapted to throw the space back of the lamps and opening into complete shade, while flooding the opposite portion of space with light, so as to form in effect a vivid curtain or screen of light that will intercept all sight of persons or things occupying the shaded portion of the space, substantially as described.

2. In combination with the proscenium arch or wall having the usual opening therein, a series of lamps arranged in the form of a border about said opening, and a reflector or reflectors adapted to screen the light from such opening so as to throw the space at the rear thereof into shade and flood the opposite space with light, substantially as described.

3. In combination with the wall or arch forming the proscenium

opening, the continuous concave reflector surrounding such opening, and a series of lamps set in said reflector so as to exclude the light from the opening, substantially as and for the purpose set forth.

4. In combination with the division wall having the opening therein, a series of lamps bordering such opening and provided with backings or reflectors adapted to flood the space at one side of the opening with light and throw the opposite space into shade, substantially as described.

490,488. FLOATING STAGE. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 26, 1892. Serial No. 434,202. (No model.)



Claim.—1. In theatrical appliances, a movable floating stage and mechanism, substantially as described, for propelling the stage to and fro or sustaining it in a fixed position partly submerged in water, substantially as described.

2. A floating stage comprising a suitable hull or body adapted to be partially submerged in or float upon a body of water, vertically adjustable supporting wheels whereby the stage may be sustained in a fixed position or moved to and fro upon the water, and means for raising and lowering said wheels and for rotating the same, substantially as described.

3. A floating stage comprising a suitable hull or body mounted upon wheels which have their bearings in vertically adjustable slides, means for adjusting said slides and locking the wheels in the desired position, and mechanism for rotating the wheels for the purpose of moving the stage when partly submerged in water, substantially as described.

4. In theatrical appliances, a movable rotatable floating stage, and mechanism substantially as described for effecting the movements of the stage and sustaining it in a fixed position partly submerged in water, substantially as described.

5. In combination with the floating stage having the hull with curb projecting upwardly therein, the vertically movable slides, the hand lever, the crank shaft and supporting wheel journaled in said slides, and gearing connecting said shaft and wheel whereby the latter may be rotated, substantially as described.

6. In combination with the floating stage having the carb extending upwardly through the bottom thereof, the vertically movable slides, the crank shaft and supporting wheel journaled in opposite ends of said slides, the toothed wheels and endless chain connecting said shaft and supporting wheel and the hand lever and means for adjusting and securing said supporting wheel in the desired position, substantially as described.

7. In combination with the floating stage having the curbs therein arranged at the sides and ends of the stage, the vertically adjustable slides fitted in said curbs and having the supporting wheels journaled therein; the end wheels being arranged at right angles to the wheels at the side of the stage, the crank axles also journaled in said slides, the toothed wheels fixed on said crank and wheel shafts, the endless chains connecting said toothed wheels, the hand levers pivoted to said slides, and the perforated standards or rack-bars and means for adjustably securing said levers thereto, substantially as described.

8. In combination with the floating stage, the vertically adjustable supporting wheel journaled in slides which project into the interior of the hull, the crank shaft also journaled in said slides, and gearing connecting said crank shaft and wheel for the purpose of rotating the wheel, substantially as described.

490,489. APPLIANCE FOR THEATERS. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 26, 1892. Serial No. 434,207. (No model.)

Claim.—1. An automatic announcer or silent interpreter for theaters and other places of amusement, comprising a sheet of cloth or other suitable material bearing thereon the words that are to be uttered by the singers or performers and arranged in proximity to the proscenium opening in position to be moved so as to exhibit in the desired order the explanatory matter thereon simultaneously with the presentation or exhibition of the exercise or performance, a series of lamps arranged in the form of a border about said sheet, a back ing in which said lamps are set adapted to throw the light upon the sheet and screen the proscenium opening, and means for moving the cloth past the lamps, substantially as described.



2. The combination with the proscenium of a theater or other similar structure, provided with an automatic announcing sheet or silent interpreter, consisting of a traveling sheet of suitable material having the desired explanatory matter placed thereon, and mechanism for unfolding or drawing out the sheet so as to exhibit such explanatory matter in the desired order, of the reflector consisting of a metallic plate having a concave reflecting surface bordering the traveling sheet, and a series of lamps set in said reflector so as to throw the light upon the front of said sheet and screen the proscenium opening, substantially as described.

490,490. APPARATUS FOR PRODUCING INCREASED REALISM IN SCENIC EFFECTS. STEELE MACKAYE, Chicago, Ill., assignor to the Spectatoria Company, same place. Filed May 26, 1892. Serial No. 434,743. (No model.)

Claim.—1. In combination with the scenic department of a theater or other similar structure, two or more movable stages adapted to support the scenic arrangements for various scenic performances and propelling mechanism for effecting the movements of the stages so as to produce the desired moving scenic effect, substantially as and for the purpose set forth.

2. In combination with the scenic department of a theater or other similar structure, a series of curved tracks, movable stages mounted on said tracks and provided with the desired scenic arrangements thereon, and mechanism for propelling the stages to and fro upon the tracks so as to produce the desired scenic effect, substantially as described.

3. In combination with the scenic department of a theater or other similar structure, a series of curved tracks or guide ways, a corresponding series of movable stages constructed in the form of segments mounted on said tracks, and means for moving the stages with any desired scenic arrangement, persons or objects thereon, for the purpose of producing scenic effects substantially as described.

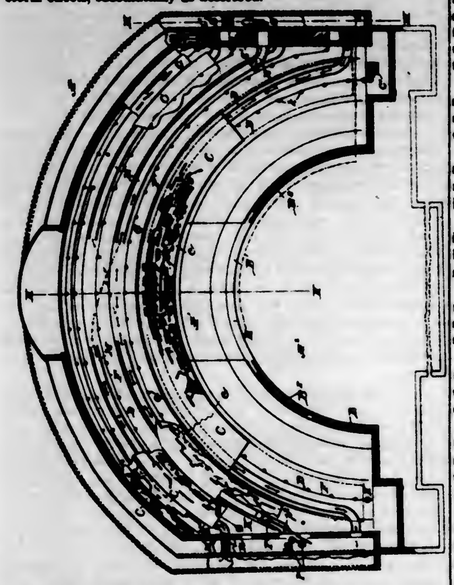
4. In combination with the scenic department of a theater or other similar structure, a series of curved tracks or guide ways, a similar series of independently movable stages constructed in the form of segments mounted on said tracks and supporting the scenic arrangements, and mechanism for automatically moving the stages so as to produce the desired scenic effect, substantially as described.

5. As a means for producing scenic effects, the combination of two or more movable stages and mechanism for moving the two stages simultaneously at different rates of speed so as to produce the desired perspective or other moving scenic effect, substantially as described.

6. The combination with the scenic department of a theater or similar structure, of two or more independently movable stages, and

means for moving the same simultaneously at different rates of speed for the purpose of producing the desired perspective or other moving scenic effect, substantially as described.

7. The combination with the scenic department of a theater or similar structure adapted for producing scenic effects of movable stages for supporting the scenic arrangements, and a wind making apparatus and means for controlling the direction of the air currents produced by such apparatus for the purpose of producing various wind-storm effects, substantially as described.



8. The combination with the movable stages supporting the desired scenic arrangements of the scenic department of a theater or similar structure, of the wind maker comprising an air forcing apparatus communicating with suitable ducts or air inlets at either side or end of the scenic department, substantially as described.

9. The combination with the sceniterium provided with air ducts or inlets at either side or end thereof, and air forcing apparatus connected therewith, of an air forcing apparatus centrally disposed above the side or end apparatuses, and means for controlling the direction of the air currents issuing from the latter apparatuses, whereby various wind-storm effects may be produced, substantially as described.

10. In combination with the sceniterium, a series of movable stages adapted to support the scenic arrangements, means for moving said stages in the same or opposite directions at any desired rate of speed, and a wind making apparatus, whereby wind-storm effects may be produced simultaneously with the exhibition of the scenic effect, substantially as described.

11. The combination of the sceniterium provided with air ducts or inlets at either side or end thereof, air forcing apparatus connected therewith, and means for controlling the direction of the air currents produced by such apparatus, substantially as described.

12. The combination with the sceniterium provided with the water reservoir, of the water current maker and the wind making apparatus, substantially as described.

13. The combination with the sceniterium, provided with the reservoir, of the water current maker, the wind maker, and the wave maker, substantially as described.

14. The combination with the sceniterium provided with the water reservoir, of the water current maker and the wave maker, substantially as described.

15. The combination with the sceniterium provided with the water reservoir of the water channels leading through said reservoir, the wave maker and the wind making apparatus, adapted to build up the waves, substantially as described.

16. The combination with the sceniterium provided with the water reservoir, of the movable stages supported thereon, and the water current maker, substantially as described.

17. The combination with the sceniterium provided with the water reservoir, of the movable stages supported thereon, means for moving said stages, and the wave maker, substantially as described.

18. The combination with the sceniterium provided with the water reservoir, of the movable stages, the water current maker and the wave maker, substantially as described.

19. The combination with the sceniterium provided with the reservoir, of the movable stages supporting the scenic arrangements, the wave maker, and the wind making apparatus, substantially as described.

20. In combination with the movable stages having the scenic arrangements supported thereon substantially as described and mechanism for moving the stages, the apparatus for producing cloud effects or cloud shadows, so as to give the effect of clouds or cloud-shadows moving over the landscape or scenic arrangements substantially as described.

21. In combination with the movable stages substantially as described having the desired scenic arrangements placed thereon, mechanism for actuating the stages, and the mechanically actuated cloud creator or nebulator, substantially as described.

22. In combination with the movable stages substantially as described having the desired scenic arrangements placed thereon, and mechanism for actuating the same, the nebulator, and the illuminating and coloring devices, substantially as described.

23. In combination with the movable stages substantially as described and mechanism for actuating the same, the nebulator, the umbrator, and the illuminating and coloring devices, substantially as described.

24. In combination with the sceniterium provided with the water reservoir, a series of movable stages, mechanism for actuating the same, a wave maker, and an illuminating and coloring device, substantially as described.

25. In combination with the sceniterium provided with the water reservoir, a series of movable stages, mechanism for actuating the same, a wave maker, and a wind making apparatus, substantially as described.

26. In combination with the sceniterium provided with the water reservoir, a series of movable stages, mechanism for actuating the same, a wave maker, a wind making apparatus, and means for controlling the direction of motion of the air currents produced by such wind making apparatus, substantially as described.

27. In combination with the water reservoir, the movable stages, the wave maker, the wind making apparatus and the illuminating and coloring devices, and actuating mechanism substantially as described.

28. In combination with the sceniterium provided with the air ducts, the air inlets, the slides controlling said inlets and the air forcing apparatus whereby currents of air may be produced and caused to pass through said ducts or directed into or out of the interior of the scenic department for the purpose of producing various wind-storm effects, substantially as described.

29. In combination with the scenic department of a theater or similar structure, an air forcing apparatus, and a flexible combined inlet and outlet tube for controlling the direction of motion of the air currents, substantially as described.

30. In combination with the scenic department of a theater or similar structure, an air forcing apparatus and a flexible telescopic combined inlet and outlet tube for controlling the direction of motion of the air currents, substantially as described.

31. In combination with the scenic department of a theater or similar structure, a wind making apparatus comprising a series of fans located at the sides or ends of the scenic department, air inlets communicating with said fans, movable slides controlling said inlets, flexible tubes connected with said fans, and an auxiliary fan located in the dome of the sceniterium, whereby various wind storm effects may be produced, substantially as described.

32. In combination with the scenic department of a theater or similar structure, a fog making apparatus, and a wind making apparatus co-operating with the fog maker for the purpose of lifting or dissipating the fog, substantially as described.

33. In combination with the scenic department of a theater or similar structure, a rain making apparatus and a wind making apparatus and means for controlling the rain-fall and the direction of motion of the wind, for the purpose of producing rain and wind storm effects, substantially as described.

34. In combination with the scenic department of a theater or other similar structure, a wind making apparatus, a rain making apparatus, and an illuminating and coloring device, substantially as described.

35. In combination with the scenic department of a theater or similar structure, provided with the water reservoir and conduits connecting therewith, the current makers and the water channels leading from said conduits, and having the gap therein intermediate the scenic department, substantially as and for the purpose set forth.

36. In combination with the movable stages, the operating mechanism therefor comprising the cables and means for connecting the

stages thereto, the driven shaft having the loose pulleys thereon, over which cables work and means for causing said pulleys to rotate with the shaft at will, so as to impart motion to the stages substantially as described.

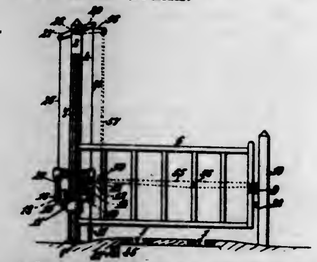
37. In combination with the movable stages, the operating mechanism therefor comprising the cables and means for connecting the stages thereto, the driven shaft having loose pulleys of different diameters thereon, over which said cables work and means for causing said pulleys to rotate with the shaft at will so as to impart motion to the cables and thereby cause the stages to move at different rates of speed, substantially as described.

38. In combination with two or more movable stages, and mechanism for propelling the same, independently of each other means for effecting the initial movement of one or more of the stages at a certain predetermined point in the movement of a preceding stage or stages whereby the several stages are adapted to move at intervals in regular order of succession so as to produce the desired moving scenic effect, substantially as described.

39. In combination with the movable stages, the cables, the guide pulleys, the driven shaft provided with loose pulleys and clutch couplings for causing said pulleys to rotate with the shaft, and the screw shaft geared to said driven shaft and provided with the traveling tappets for engaging and disengaging said clutch couplings, substantially as described.

40. In apparatus for producing scenic effects, the fog maker, comprising the water tank or trough, the perforated receptacle suspended above the open top of said trough, and means for raising and lowering said receptacle and sustaining the same in the desired position above the trough, substantially as described.

490,491. GATE. WILLIAM HESS, Bartlett, Tex. Filed Apr. 13, 1892. Serial No. 429,099. (No model.)



Claim.—1. In an automatic gate for railways or carriage roads, the combination with a gate having a post provided with an inclined cam disk, of a spring actuated lever having a roller in bearing contact with said cam, a rock-shaft, a rod connecting said lever with an arm on the rock-shaft, and mechanism connected with the rock-shaft and adapted to be actuated from a distance to cause the said lever and its roller to operate on the cam and swing the gate, substantially as described.

2. In an automatic gate for railways or carriage roads, the combination with a gate having a post provided with a cam, of a spring actuated lever having a roller in bearing contact with the cam on said post, a rock-shaft provided with oppositely projecting arms, a rod connecting said lever with one of the arms on said rock-shaft, a lever pivoted at or near the level of the road, a rod connecting said lever with the other arm of the rock-shaft, a trip device located in the road or adjacent to a railway track rail, and a rod and chain connecting said last named lever with the trip device, substantially as described.

3. In an automatic gate for railways or carriage roads, the combination with a gate having a post provided with an inclined cam disk, of oppositely oscillatory levers having rollers in bearing contact with said cam, an elevated rock-shaft provided with oppositely projecting arms, a rod connecting one of said oscillatory levers with one of the rock-shaft arms, and a tripping mechanism located at a distance from the gate and connected with another arm of the rock-shaft, substantially as described.

4. In an automatic gate for railway grade crossings, the combination of a gateway parallel with the railway track, a gate having a post provided with an inclined cam disk, oppositely oscillatory levers having rollers in bearing contact with said cam, a rock-shaft supported on the gateway above the gate and provided with oppositely projecting arms, a rod connecting one of said oscillatory levers with one of the rock-shaft arms, a lever pivotally supported adjacent to the gate-way, a rod connecting said lever with another rock-shaft arm, and a trip device located adjacent to the side of one of the track rails at a distance from the crossing and connected with said last named lever, substantially as described.

5. In an automatic gate for railway grade crossings, the combination of a gate having a post provided with an inclined cam, a lever having a roller for acting on said cam, a rock-shaft supported on the gateway above the gate and provided with oppositely projecting arms, a rod connecting said lever with one of the rock-shaft arms, a lever pivotally supported adjacent to the gateway a rod connecting another one of the rock-shaft arms with said lever, a trip device located adjacent to the side of one of the track rails at a distance from the crossing and connected with said last named lever, a latching device on one of the posts of the gateway, a rock-shaft located parallel to the track and having at one end a trip arm and at its other end a weighted arm, and a rod connecting said weighted arm with the latching device to unlatch the gate when the trip arm of the rock-shaft is depressed by a passing train, substantially as described.

6. In an automatic gate for railway grade crossings, the combination of a gate, provided with an operating lever, a rock-shaft supported above the gate and provided with oppositely projecting arms, a rod connecting one of said rock-shaft arms with the gate operating lever, mechanism for automatically latching and unlatching the gate, a lever pivotally supported adjacent to the lower part of the gateway, a rod connecting said lever with one of the rock-shaft arms, a trip device located at the side of one of the track rails at a distance from the crossing, a rod and chain connecting said trip device with the lever adjacent to the lower part of the gateway, and mechanism located adjacent to the railway track and connected with said last named lever to restrain or prevent movement of the gate after it has been unlatched and until the train has passed the crossing, said restraining mechanism being controlled by the passing train substantially as described.

7. In an automatic gate for railway grade crossings, the combination with a gate adapted to swing horizontally across the railway track and having a catch, and a gate post having a movable catch to engage and disengage the catch on the gate, of a trip device located adjacent to the side of one of the track rails at a distance from the crossing and connected with the gate operating lever mechanism, a rock-shaft extending longitudinally beside one of the track rails and provided at one end with a trip arm and at its other end with a weighted arm connected with the catch on the gate post, and a pivotally supported supplemental rail located at the side of one of the track rails and connected with one of the levers of the gate operating mechanism to restrain movement of the gate after it has been unlatched and until the train has passed the crossing, said restraining mechanism being controlled by pressure of a passing train on the said supplemental rail, substantially as described.

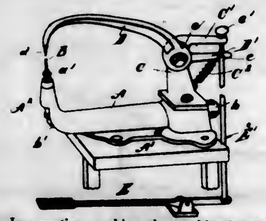
8. In an automatic gate for railway grade crossings, the combination of a gateway, a gate having a post provided with a cam, a lever adapted to act on said cam to swing the gate, a rock shaft supported above the gate and provided with oppositely projecting arms, a rod connecting one of said arms with said lever, automatic latching mechanism, a rock-shaft located at the side of one of the track-rails and provided at one end with a trip arm and at its other end with an arm that is connected with the latching mechanism to automatically unlatch the same when the trip arm is depressed by a passing train, a supplemental rail supported on pivotal levers at the side of one of the track rails and adapted to be depressed and continuously held down by a passing train to restrain or prevent movement of the gate after it has been unlatched and until the train has passed the crossing, a lever 31 connected with one of the levers or pivotal supports of said supplemental rail, a rod connecting said lever 31 with one of the arms of the rock-shaft supported above the gate, a trip device located at the side of one of the track rails at a distance from the crossing, and a rod and chain connecting the lever 31 with said trip device, substantially as described.

9. In an automatic gate, the combination of the gate 6 having a pivotal post 7 provided with a cam 11, the oppositely oscillatory levers 14 and 15 having rollers 12 and 13 adapted to act on said cam to swing the gate in opposite directions, the rock-shaft 26 having arms 27 and 29, the rod 28 connecting the arm 27 and lever 15, the lever 31, the rod 30 connecting said lever with the rock shaft arm 29, the weighted lever 35 located at a distance from the gate and provided with a trip arm 37, and the rod 33 and chain 34 connecting said levers 31 and 35, substantially as described.

10. In an automatic gate, the combination of the posts 2 and 3 one of which is provided with a latch 23, the gate 6 having a post 7 provided with a cam, a lever 15 having a roller adapted to act on said cam, the rock shaft 26 provided with arms 27 and 29, the rod 28 connecting the lever 15 and rock shaft arm 27, the lever 31, the rod 30 connecting said lever with the rock shaft arm 29, the weighted lever 35 located at the side of a railway track rail at a distance from the gate and provided with a trip arm 37 adapted to be depressed or tilted by a passing train, the rod 33 and chain 34 connecting said levers 31 and 35, the rock shaft 45 supported at the side of one of the track rails and provided at one end with a trip arm 44 and at its other end with an arm 46, a rod 50 connecting said arm 46 with the latch 23 to unlatch the same when the trip arm 44 is depressed by a passing train, and the supplemental rail 51 having pivotal supports 52 and 53 one of which is connected with the lever 31, said supplemental rail being adapted to be depressed and held down by a passing train to restrain or prevent movement of the gate after it has been unlatched and until the train has passed the gate, substantially as described.

11. In an automatic gate, the combination of the gate 6 provided with operating levers and automatic latching and unlatching mechanism, a trip device 37 located at the side of a railway track rail in position to be operated by a passing train and connected with the gate operating mechanism, a signal supported at or near the gate, a trip device 43 connected with said signal and located adjacent to the track in position to be operated before the gate operating mechanism is set in motion, and a supplemental rail 51 pivotally supported adjacent to one side of the track and connected with the gate operating mechanism for the purpose of restraining or preventing movement of the gate after it has been unlatched and until the train has passed, substantially as described.

490,492. ROUTING-MACHINE. HARPER P. NEVIN and WILLIAM S. FARRAR, Detroit, Mich. Filed Feb. 9, 1892. Serial No. 420,892. (No model.)



Claim.—1. In a routing machine, the combination of a rotating cutter a smooth pointed holding guide in axial alignment with said cutter and means for moving the holding guide axially with respect to said cutter substantially as and for the purpose specified.

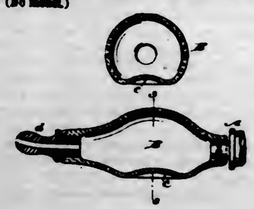
2. In a routing machine, the combination of a rotating cutter head, a smooth round pointed holding guide in axial alignment with said cutter head, means for moving the guide axially with respect to said cutter head and a stop limiting its approach thereto, substantially as and for the purpose described.

3. In a routing machine, the combination of a cutter head, a movable holding guide adapted to move into axial alignment therewith, a foot lever and suitable connecting links adapted to force said holding guide toward the cutting tool, an adjustable stop adapted to prevent the approach of the guide beyond a predetermined point, substantially as and for the purpose described.

4. In a routing machine, the combination of a cutter head fixed in position, a swinging goose neck terminating in a pointed holding guide, mechanism adapted to swing the goose neck, and thereby to bring the pointed holding guide opposite to and in axial alignment with the cutting tool, and a stop limiting the throw of the goose neck, substantially as and for the purpose described.

5. In a routing machine in combination with a rotatable cutting tool fixed in position, a pointed holding guide, a foot lever and suitable connecting links adapted to force said holding guide against a limiting stop, the bit of the cutting tool, and the styles of the holding guide, both projecting from their respective supports whereby work may be held between the two at various angles with the axis of the cutter, substantially as and for the purpose described.

490,493. DEVICE FOR ADMINISTERING MEDICINE. FRANKLIN H. OLMSTED, Yokohama, Japan. Filed June 1, 1892. Serial No. 435,157. (No model.)



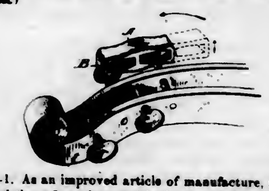
490,493.



Claim.—1. In devices for administering medicines, the combination, with the elastic hand bulb, of the glass or transparent liquid medicine receiver having a flattened and concave surface on its under side, substantially as specified.

2. The glass or transparent liquid medicine receiver having side measuring graduations, in combination with the hand bulb at the one end of said receiver, and a suction or charging tube at the opposite end thereof, essentially as and for the purposes herein set forth.

490,494. DEVICE FOR TUNING MUSICAL INSTRUMENTS. JESSE P. OLMSTED, Hot Springs, Ark. Filed Sept. 14, 1892. Serial No. 445,980. (No model.)



Claim.—1. As an improved article of manufacture, a tuning instrument consisting of an elongated body provided with two longitudinally-aligning recesses extending in a plane transversely to said body; substantially as and for the purpose set forth.

2. As an improved article of manufacture a tuning instrument for tuning violins, guitars and the like, and consisting of a body provided with two longitudinally aligning recesses conforming in contour to the tuning pegs of the musical instruments, said recesses opening at one side of said body; substantially as and for the purpose set forth.

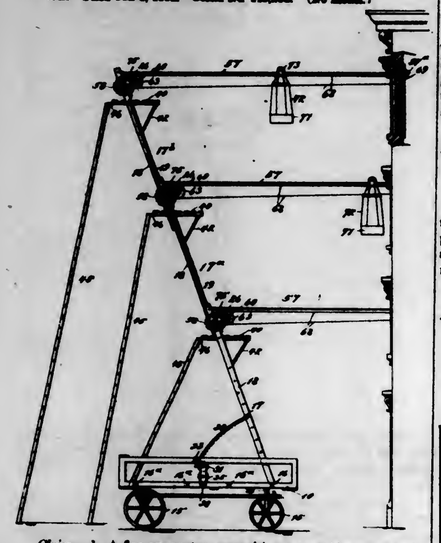
490,495. CORSET-SHIELD. RUSSELL W. FARRABOUR, Asbury Park, N. J. Filed May 4, 1892. Serial No. 431,767. (No model.)



Claim.—1. As an improved article of manufacture, a corset shield consisting of a series of parallel stiffeners and a transverse centrally-located brace interwoven with said stiffeners for securely holding and connecting them with a hinged connection.

2. As an improved article of manufacture a corset shield consisting of a series of parallel stiffeners and a transverse brace interwoven with said stiffeners for securely holding and connecting them with a hinged connection, and a cover of elastic textile fabric upon both sides of the stiffeners, the opposing faces of the cover being united by an adhesive material, substantially as described.

490,496. FIRE APPARATUS. MELVIN A. FAHLY, Eau Claire, Wis. Filed Oct. 5, 1892. Serial No. 448,262. (No model.)



Claim.—1. A fire apparatus, comprising a portable wagon body, an extensible ladder carried by the body and comprising a series of sliding sections, a gear mechanism for raising the extensible ladder, a series of horizontally traveling cars to convey the persons from the building to the platforms, and mechanism for operating the cars from the platforms, a series of landings or platforms adapted to extend horizontally from the upper portions of the ladder sections, substantially as described.

2. A fire apparatus, comprising a series of sliding sections, a gear mechanism for raising the ladder into an inclined position, a gear mechanism arranged at the top of each ladder section and adapted to operate the next higher section, platforms or landings arranged near the tops of the ladder sections, cable tracks adapted to be extended from above each platform to the building and connect therewith a car for each track and mechanism for moving the cars to and from the building, substantially as described.

3. A fire apparatus, comprising a portable wagon body, an extensible ladder hinged to the body and comprising a series of sliding sections, a gear mechanism for raising the extensible ladder, platforms or landings arranged near the tops of the ladder sections, and detachable ladders adapted to be fastened to the platforms and to extend downward to the ground, substantially as described.

4. A fire apparatus, comprising a portable wagon body or support, a swinging extensible ladder carried by the body and comprising a series of sliding sections, a swinging platform arranged near the top of each section, supporting arms secured to the free edges of the platforms and adapted to engage the ladder rungs, and detachable ladders adapted to be fastened to the opposite edges of the platforms and extend down to the ground substantially as described.

5. A fire apparatus, comprising a main ladder, means for supporting the ladder in an inclined position, a series of detachable ladders adapted to be connected with the main ladder, adjustable tracks extending from the ladders near the platforms and adapted to connect with a building, cars held to run upon the tracks, and a drum and rope mechanism for moving the cars forward and back, substantially as described.

6. A fire apparatus, comprising an extensible ladder having landings or platforms near the tops of the sections, detachable ladders adapted to connect with the platforms and extend to the ground, cables or tracks secured to the ladders above the platforms and adapted to connect with a building, drums arranged above the platforms and beneath the tracks, a gear mechanism for operating the drums, endless ropes carried by the drums and adapted to be supported on pulleys which are hooked into rings, and movable cars connected with the ropes and held to run upon the tracks or cables, substantially as described.

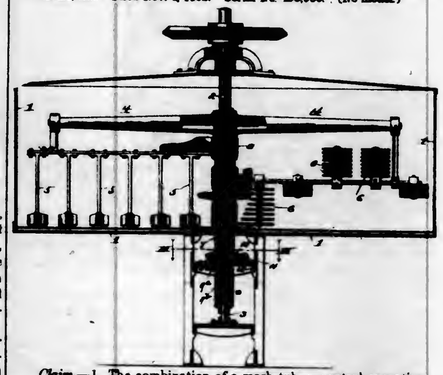
7. In a fire apparatus, the combination of the revoluble drum, the rope carried by the drum and adapted to connect with a car, a revoluble screw shaft geared to the drum shaft, a nut held to slide on the screw shaft, and guide arms carried by the nut and arranged to embrace the drum, the arms having terminal eyes to receive the rope, substantially as described.

8. In a fire apparatus of the character described, the combination with the main extensible ladder of the detachable ladder sections having the meeting ends of their rails reduced and adapted to fit together, and a fastening strap secured to one rail and embracing the next rail, the strap being jointed at the corners, substantially as described.

490,497. PROCESS OF PURIFYING PYROLIGNITES. FREDERICK H. PICKLES, Fairfield, and ROBERT H. PICKLES, Marple, England. Filed May 24, 1892. Serial No. 434,234. (No specimens.)

Claim.—The process of purifying pyrolignites which consists in treating a liquid pyrolignite with a quantity of the herein described pruniate residue while at the same time the temperature is raised to about the boiling point and then separating the combined insoluble matters substantially as described.

490,498. MASH-MIXING MACHINE. TILLMAN PUETT, Jr., St. Louis, Mo. Filed Nov. 4, 1892. Serial No. 450,996. (No model.)



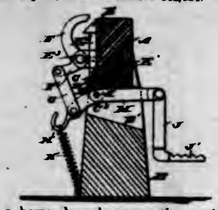
Claim.—1. The combination of a mash tub, a central operating shaft, stirrers or shovels adapted to slide on said shaft, and a fixed means for elevating said stirrers or shovels out of the mash consisting of a hollow threaded sleeve surrounding the central shaft and connected with the stirrers or shovels for raising them, a worm-wheel having a fixed bearing, and engaging said threaded sleeve, a worm working said wheel, and means for imparting power to said worm, substantially as and for the purpose set forth.

2. The combination of a mash-tub, a central shaft, shovels or stirrers mounted on said shaft and a fixed means for raising said shovels or stirrers out of the mash consisting of a threaded sleeve, a threaded wheel surrounding and engaging said sleeve and having a fixed bearing and means for turning said wheel to raise and lower the sleeve, substantially as and for the purpose set forth.

3. The combination of the mash tub and stirrer, the threaded sleeve 7 sliding in the bottom of the tub beneath the stirrer, worm wheel 10 having a fixed bearing and engaging the threaded portion of said sleeve, a worm 11 engaging said wheel, a worm shaft 13 on which the worm is mounted, and means for turning the shaft, substantially as and for the purpose set forth.

4. In a mash tub the combination of a central shaft, having suitable power driving connections, a stirrer mounted to be rotated by said shaft but movable vertically thereon, and a stationary means for raising the stirrer located without the tub and having clutch connection with power driving connections, said means consisting of the threaded sleeve fixed against rotation and having connection with the stirrer, the threaded wheel surrounding and engaging the sleeve, but fixed against vertical movement, and working connection between said threaded wheel and the clutch shaft, all substantially as and for the purpose set forth.

490,499. HORSESHOE-SHARPENER. JEROME W. RAPP, Pinoville, Pa. Filed July 20, 1892. Serial No. 441,021. (No model.)



Claim.—1. In a horse shoe sharpener, the combination with a keeper provided with lugs, of a die having its shank secured to the keeper and provided with lugs, a clamping lever pivoted to the lugs of the die shank, a spring pressed operating lever pivoted to the lugs of the keeper, and a link pivoted to the clamping lever and to the operating lever, substantially as described.

2. In a horse-shoe sharpener, the combination with a vertically-adjustable keeper provided with teeth, of a die formed with teeth engaging the said teeth of the keeper, a bolt for fastening the said die to the said keeper, and the latter to the anvil, a lever pivoted on the shank of the said die, a link connected with the said lever, a spring pressed lever pivoted on the said keeper and connected with the said link, and an arm pivoted on the said spring pressed lever and provided with a foot piece, substantially as shown and described.

3. A horse shoe sharpener, comprising a slotted keeper provided with teeth and depending lugs, a die having its shank provided with lugs and with teeth engaging the teeth of the keeper, a bolt for securing the keeper and die together and the keeper to an anvil, a curved clamping lever pivoted to the lugs of the die shank, an operating lever pivoted to the lugs of the keeper, a link pivoted to the said levers, and an arm pivoted to the operating lever and provided with a foot piece, substantially as herein shown and described.

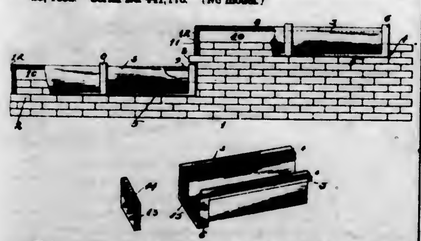
490,500. PROCESS OF TREATING VULCANIZED RUBBER TO RENDER IT ADHESIVE. JEAN M. RAYMOND, Paris, France. Filed Oct. 14, 1892. Serial No. 448,895. (No specimens.) Patented in France Mar. 30, 1892, No. 220,530.

Claim.—1. The process herein described of rendering vulcanized rubber adhesive, consisting of treating the rubber with benzine or a substance having an analogous action thereupon, and by immersion thereof in a solution of permanganate of potassium, substantially as described.

2. The process herein described of treating vulcanized rubber to render it adhesive, consisting of opening the pores of the vulcanized rubber by soaking it in benzine or a substance having an analogous action thereupon, then securing its superficial desulphuration by immersion in a solution of permanganate of potassium, and then plunging the rubber into benzine or an analogous substance, substantially as described.

3. The process herein described of rendering vulcanized rubber adhesive consisting of treating said rubber with benzine or a substance having an analogous action thereupon, then immersing the rubber in a solution of permanganate of potassium and a suitable acid, and again treating the rubber with benzine or a substance having similar action thereon, substantially as described.

490,501. COPING. AUGUST RICK, Jr., St. Louis, Mo. Filed July 25, 1892. Serial No. 441,176. (No model.)

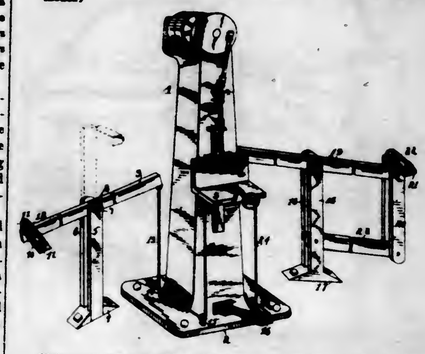


Claim.—1. An improved coping for brick walls consisting of tile preferably made of earthenware, L-shaped in cross-section provided each throughout its length upon its two edges with flanges 5, a surrounding flange 6 upon one end of each tile to receive the plain end 7 in the next tile of the order of construction, and a vent-hole 9 in the top of said coping 3, and preferably adjacent said flange 6, substantially as set forth.

2. A wall coping provided in one surface with a vent-hole and at one end with a recess, and a removable perforated plate adapted to fit in said recess; substantially as set forth.

3. An improved coping for the ends of brick walls having flanges 5 and a surrounding flange 6 which provides a socket for the securing therein of a removable plate 13, provided with perforations 14 for the admission of air, substantially as set forth.

490,502. ATTACHMENT FOR MORTISING-MACHINES. HARRY ROBERSON, St. Louis, Mo. Filed June 20, 1892. Serial No. 437,394. (No model.)



Claim.—1. An attachment for mortising machines, comprising a supporting roller means for supporting said roller in alignment with a mortising table and in the same horizontal plane, and means for connecting said supporting roller with said table, whereby said roller is automatically raised or lowered during the respective movement of the latter; substantially as and for the purpose set forth.

2. An attachment for mortising machines, comprising a support, a lever fulcrumed therein and carrying at its outer end a supporting roller adapted to be arranged in alignment with a mortising table and in the same horizontal plane, and means for connecting the inner end of said lever with the mortising table, whereby the supporting roller is automatically raised or lowered during the respective movement of the latter; substantially as and for the purpose set forth.

3. The combination, with a mortising machine provided with a vertically-movable table, of a roller arranged in alignment with said table and in the same horizontal plane, and devices connecting the roller with the table, whereby when the latter is raised or lowered a corresponding movement is automatically imparted to the roller; substantially as and for the purpose set forth.

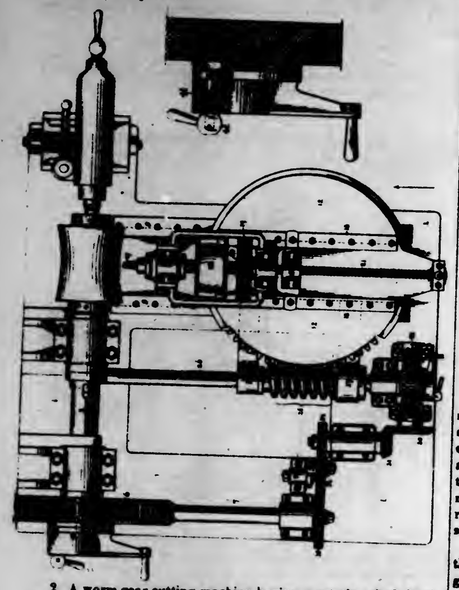
4. An attachment for mortising machines having a base 4, upright supporting pieces 5 and 6 mortised therein, a balancing bar 9 pivoted at its center thereto, a roller suitably mounted upon the outer end of said balancing bar 9, a rope secured to the inner end of said bar 9, and passing through pulleys 14 and 15 to the table of the machine, and said roller 12 fitted to be kept in alignment with the table 3 by means of the connection between the inner end of the balancing bar 9, and the table 3 by means of the rope 13, substantially as set forth.

5. An attachment for mortising machines, having a base 17, upright supporting posts 18 mortised therein, a balancing bar 19 pivoted between the upper ends of said upright posts 18, depending connecting bars 20 pivoted upon the outer end of said bar 19, their lower ends connected with the upright posts 18 by means of a connecting lever 23, a roller suitably mounted upon the upper projecting ends of the connecting bars 20, and said roller adapted to be kept in alignment with the table 3 by means of a rope 24 passing through pulleys 25 and 26, and connecting the inner end of the bar 19 with the table 3, substantially as set forth.

490,503. WORM-GEAR-CUTTING MACHINE. GRAHAM & ROBERTSON, Philadelphia, Pa. Filed Apr. 11, 1892. Serial No. 428,644. (No model.)

Claim.—1. A worm gear cutting machine having a rotating shaft carrying the worm blank, a swinging plate, the axis of which is adjustable laterally from and toward that of the shaft, a rotating cutter.

occupying a position between the worm blank shaft and the axis of the swinging carrier and a carriage for the said cutter being adjustable on said swinging plate from and toward the axis of the shaft, substantially as specified.



2. A worm gear cutting machine having a rotating shaft for the worm blank, a swinging carrier for the cutting tool, said carrier having an axis adjustable laterally from and toward the shaft, and gearing whereby the rotating shaft and swinging tool carrier are connected, that element of said gearing which engages with the swinging carrier being movable laterally with said carrier, substantially as specified.

3. A worm gear cutting machine having a swinging carrier for the cutting tool, a rotating shaft for the worm blank, a driving wheel loose on said shaft, a clutch adapted to connect the shaft to the driving wheel after each of a series of equidistant circumferential movements, and gearing connecting the worm blank shaft and swinging tool carrier and providing for movement of the latter simultaneously and in consonance with the said shaft substantially as specified.

4. A worm gear cutting machine having a rotating shaft carrying the worm blank, a swinging carrier for the cutting tool, a primary power shaft, a set of worm gears interposed between said primary power shaft and the rotating shaft of the machine, a shaft having a worm meshing with worm teeth on the swinging tool carrier and a worm wheel meshing with a worm on a second shaft at right angles thereto and subordinate gearing interposed between the primary power shaft and said right angled shaft, substantially as specified.

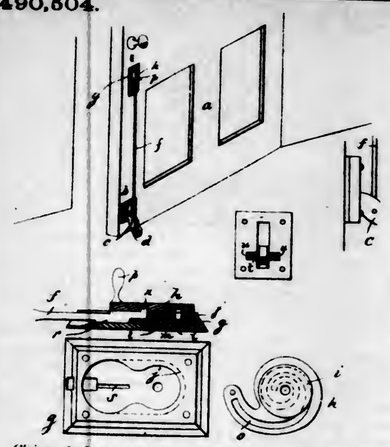
5. A worm gear cutting machine having a rotating shaft for the worm blank, a rotary cutting tool having its axis at right angles to but in the same plane as the axis of the said shaft, a swinging carrier for said cutting tool having its axis adjustable from and toward the shaft, and a slide having bearings for the cutter shaft and mounted upon the swinging carrier, so as to be adjustable from and toward the axis of the worm blank shaft, substantially as specified.

6. A worm gear cutting machine having a rotating shaft carrying the worm blank, the swinging carrier for the cutting tool, and gearing interposed between the said shaft and the swinging carrier for effecting the joint and simultaneous operation of said shaft and cutter carrier, elements of said gearing being change wheels, whereby the speed of movement of the cutter carrier in respect to that of the rotating shaft may be varied, substantially as specified.

7. The combination of the table having a central upwardly projecting post, and inner and outer annular bearing walls beyond the same, with the swinging tool carrier confined vertically to said post and having inner and outer depending ribs in contact respectively with the inner and outer annular bearing walls of the table, substantially as specified.

490,504. DOOR-CHECK. ROBERT P. SARTELL, St. Cloud, Minn. Filed Aug. 10, 1892. Serial No. 442,703. (No model.)

490,504.

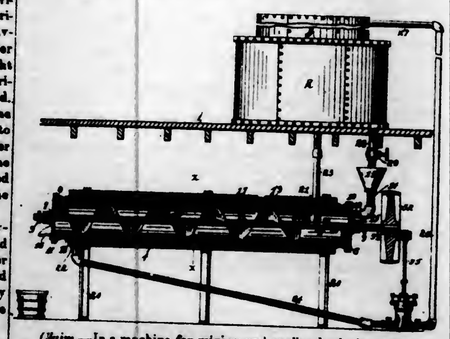


Claim.—1. In a door check, the combination of a foot the connecting rod operating the same, a base block having an elongated socket open at one end and having over hanging edges at the other end, the wheel having a cam groove controlling the connecting rod as described, said wheel having the headed stud on its under side turning in said socket beneath its edges and so that the wheel can be moved to the open end of the socket and removed, and means for removably retaining the wheel under said edges, substantially as described.

2. In a door check, the combination of the base block having the elongated socket undercut at one end, the wheel having a cam groove and the headed stud on its under side fitted in said socket under the edges thereof, the removable headed pin passing through said block into said stud, substantially as described, and the reciprocating rod controlled by said groove and operating a foot, as set forth.

3. In a door check, the combination of the operating wheel, the connecting rod operated thereby, the swinging foot lever to which the lower end of said rod is pivoted, the base plate therefor formed in sections, the outer section slotted to receive the inner end of said lever and having the lateral groove in its inner face to receive and conceal the pivot of said lever, as described.

490,505. MACHINE FOR MIXING AND COOLING LARD. HENRY SARTORIUS, St. Louis, Mo. Filed June 9, 1892. Serial No. 436,154. (No model.)



Claim.—In a machine for mixing and cooling lard, the combination, with a cylinder provided at opposite ends with an inlet and an outlet, respectively, a cooling chamber surrounding said cylinder, a reservoir for the cooling medium, and inlet and outlet pipes affording communication between the cooling chamber and the reservoir, of a shaft journaled in the cylinder and provided with mixing arms at the receiving end thereof and a conveyer in rear of said arms, a pump interrupting one of said pipes, and a band wheel mounted on said shaft and adapted to operate the same and the pump; substantially as and for the purpose set forth.

490,506. BEER-COOLER. EDWARD SMITH, Peoria, Ill. Filed July 7, 1892. Serial No. 439,276. (No model.)



Claim.—1. The beer cooler having the wide shallow beer channel with flat top and bottom walls, said channel having the inlet opening through its top wall with its diameter substantially equal to the width of the inlet end of the channel and the exit pipe at the opposite end of the channel opening through the top wall thereof so as to be flush with or above the under surface of said wall and with its diameter substantially the same as the width of the exit end of the channel for the purposes described.

2. The beer cooler formed of a body having the wide shallow beer channel in its upper face, the inclined deflectors in said channel integral with said body and projecting partially across the channel alternately from opposite sides thereof, and the top plate clamped on said body, substantially as described.

490,507. SCALE-BEAM. MOSES H. SEVIER, Vernon, Tex. Filed Aug. 29, 1892. Serial No. 444,412. (No model.)



Claim.—1. A scale beam having a series of indicating projections upon its upper edge forming depressions between them and a series of indicating marks in each depression, substantially as described.

2. A scale beam having a series of projections upon its upper edge forming depressions between them, and a series of notches formed in the upper edge of each depression, substantially as described.

3. A scale beam having a series of projections forming scallops, and indicating or weighing points at different elevations on the same, substantially as shown and described.

4. A scale beam having a series of projections on its upper edge having sides which diverge downward from their upper ends, and weighing points or notches formed at intervals on the said sloping sides, substantially as shown and described.

5. A scale beam having a series of projections on its upper edge which are formed with sides which diverge downward from their upper ends forming scallops between the projections, and notches formed at the upper ends of the projections; at their bases, and between their upper ends and bases, substantially as shown and described.

490,508. APPARATUS FOR PURIFYING WATER FROM AIR IN THE PROCESS OF FREEZING. THOMAS SHAW, Philadelphia, Pa. Filed May 24, 1892. Serial No. 434,131. (No model.)

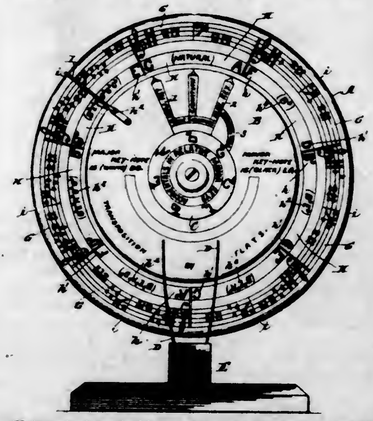
490,508.



Claim.—1. In an ice making apparatus, the combination of the water containing tank or can, a flexible tube extending into the tank near to its bottom, and means for forcing air through such tube under pressure, whereby the flexible tube is caused to vibrate in the body of the liquid contained in the can substantially as set forth.

2. In an ice making apparatus, the combination of the water containing freezing tank or can, the tube *b* which enters the can provided with the flexible end *c*, and means for forcing air through such tube under pressure, substantially as set forth.

490,509. MUSICAL KEY AND TRANSPOSITION GUIDE. J. BENJAMIN F. SHOWALTER, Valparaiso, Ind. Filed June 8, 1892. Serial No. 436,086. (No model.)



Claim.—1. A musical key and transposition guide comprising a signature section, a minor accidental section, and a pointer or indicator section, the said sections being relatively movable and fixed substantially as set forth.

2. A musical key and transposition guide comprising a signature section, a minor accidental section, and a pointer or indicator section arranged between the signature and accidental sections substantially as set forth.

3. A musical key and transposition guide comprising a signature section, and a minor accidental section fixed with relation to each other, and an indicator or pointer section concentric with the signature and minor accidental sections, substantially as set forth.

4. A musical key and transposition guide provided with relatively fixed and movable sections and having representations of the signatures of the several major and minor keys and the designations thereof and also having inscribed the several accidentals of the different minor keys and indicating means whereby to couple or connect the said accidentals with the designations of their respective minor keys substantially as and for the purposes set forth.

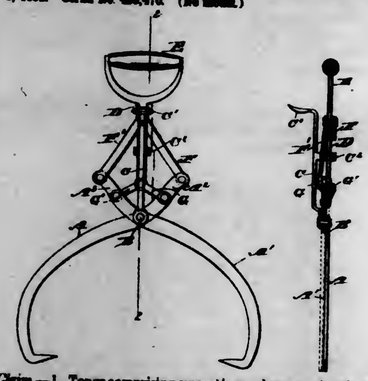
5. In a musical key and transposition guide a signature section inscribed on one side with the signatures of the several sharp keys and upon its opposite side with the signatures of the several flat keys, said signatures being in circular series and accompanied by inscriptions designating the corresponding major and relative minor keys substantially as set forth.

6. In a musical key and transposition guide the combination of the circular signature sections the circular indicator or pointer section and the accidental section concentric with and fixed to the signature section and arranged on the opposite side of the pointer section from the signature section substantially as and for the purpose set forth.

7. In a musical key and transposition guide the combination with the signature section provided with the signatures of the several keys and the designations of the major and minor keys corresponding to said signatures, and the accidental section fixed with relation to the signature section and having represented thereon the accidentals incident to the several minor keys, of the section having pointers indicating the registered major and minor keys and a pointer indicating the accidental incident to the indicated minor key substantially as and for the purposes set forth.

8. In a musical key and transposition guide the combination with the base and the opposite indicator section connected and fixed with respect to said base of the signature section supported to turn between said indicator sections and the minor accidental sections connected to turn with the signature section and arranged outside the indicator sections substantially as set forth.

490,510. TONGS. THOMAS SMITH, Breckenridge, Minn. Filed July 9, 1892. Serial No. 439,470. (No model.)



Claim.—1. Tongs comprising curved legs, a bar carrying the pivot for the said legs and formed with a bearing, a handle bar fitted to slide in the said bearing, and sets of links connecting the said handle bar with the said legs, substantially as shown and described.

2. Tongs comprising two curved legs having their ends projecting beyond their pivot and provided with inwardly extending points, a bar formed with a finger piece and carrying the pivot for the said legs, a bearing formed on the said bar, a handle bar fitted to slide in the said bearing, and two sets of links connecting the said handle bar with the legs, substantially as shown and described.

490,511. WATER-COOLING REFRIGERATOR. ROBERT L. SUTTON, Chattanooga, Tenn. Filed Sept. 2, 1892. Serial No. 444,980. (No model.)



Claim.—1. The combination with a refrigerator structure having an opening and closing door in its top wall, of a water cooler and ice holder composed of an iron box removable through said door and having a metallic bottom, side and end walls, a vertical metallic partition separating the box into a water and an ice chamber, and a metallic water conduit leading from the partition through the ice-chamber and connected with a discharge faucet, substantially as described.

2. The combination with a refrigerator structure having an opening and closing door in its top wall, of a water cooler and ice holder composed of a metallic box removable through said door and having a metallic bottom, side and end walls, a vertical partition separating the box into a water chamber and an ice chamber, an arched plate secured to the bottom wall of the ice chamber to form a water conduit which connects with the vertical partition, a lid hinged to the upper edge of one of the vertical side walls of the iron box directly beneath the door in the top wall of the refrigerator structure, and a faucet located outside the refrigerator structure and communicating with the said conduit, substantially as described.

3. A domestic refrigerator having a pair of refrigerator chambers and racks in its upper portion, an opening and closing door centrally along its top wall, a water cooler and ice-holder composed of a metallic box interposed between the said pair of racks in coincidence with said door so as to be removable therethrough, said box comprising a bottom, side and end walls, a vertical partition separating the box into a water and an ice chamber, a lid for said ice-chamber, and a water conduit leading from the partition through the ice-chamber and connected at its outer end with a faucet outside the refrigerator structure, substantially as described.

490,512. NECKSCARF. SAMUEL B. SOLOMON, Rochester, N. Y. Filed June 6, 1892. Serial No. 435,653. (No specimens.)



Claim.—A neck-scarf having a fixed vertical perforated shield within the top piece, in combination with a plate held movably within the shield, an elastic band joined to the lower end of the plate and the upper end of the shield, and a tape secured to the upper end of the plate and passing through the shield, substantially as shown and described.

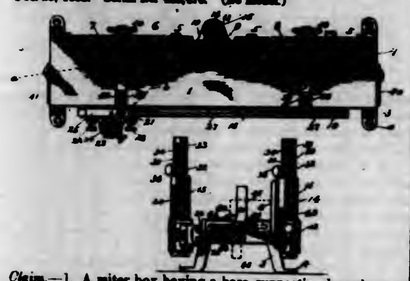
490,513. EYE-SHADE. SILAS G. SOULE and HORACE E. BROWN, Hudson, Mass. Filed June 30, 1892. Serial No. 438,498. (No model.)



Claim.—1. An eye shade comprising a nose piece, two forwardly projecting trough-like shades A, A, projecting from the ends of said nose piece and adapted at their inner ends to fit close up to the lower lids and means for securing the shade in place; whereby the line of vision will be longitudinally through the two trough-like shades and will not be interrupted by rays from below, substantially as described.

2. An eye shade, comprising a nose piece, two forwardly projecting parallel trough-like shades A, A, at the ends of the nose piece, a screen at the inner ends of the shades; and means for securing the shade to the wearer; whereby the line of vision will be longitudinally through the trough like-shades while the screen will prevent any light from reaching the eyes from below the inner ends of the shades, substantially as described.

490,514. MITER-BOX. JOHN J. SPEARS, Cincinnati, Ohio. Filed Feb. 29, 1892. Serial No. 423,672. (No model.)



Claim.—1. A miter box having a base, supporting legs thereon, a back uprising from the base separated vertically into two sectional shields, and provided directly under the opening, dividing said sections, with apertured casting, 10, having integral therewith an extending flange permanently secured to the under surface of the base, said casting supplied with hollow standard, 14, having opposite lengthwise slots, 15, extending to the upper edge of back shields, free to turn within casting 10, said standard provided with concentric tubular saw guide adapted, to be reciprocated vertically therein and rigidly held at required elevations by screw controlled spar, 36, the saw guide provided with opposite vertical slots, 34, maintained in parallel alignment with slots, 15, of standard, 14, by spline, 30, extending outwardly from lower end of the saw guide and entering groove, 31, in inner surface of the standard, in combination with similar standard, tube and saw guide at opposite side of the base, having block, 21, conformed to intermesh with track on front of the base and adapted to be slid thereon and be held at any point of its length by thumb screws, 56, substantially as described.

2. In a miter box saw guiding tube, 29, having extending nearly the full length thereof opposite vertical slots 32, the upper ends of which have lateral extensions, 33, for passage therethrough of saw blade and thickened back, and at right angles thereto intermediate slot, 34, into which is inserted screw bolt, 35, carrying cam lever 36, the shank of which is surrounded with spiral spring, 39, whereby the saw guide tube is held within inclosing standard at elevation relative to depth of cut required on material under treatment and by actuation of spring controlled lever the saw and its guiding tube can be readily lifted during progressive operative steps of the device as and for the purpose intended, substantially as described.

3. In a miter box, swiveling saw guiding standards and supports therefor, provided with longitudinally moving hollow tubes, 29, within said swiveling standards said tubes having vertical slots to receive and guide a saw blade, each of said slots having upper lateral enlargement 33, for passage of the saw back, spring controlled cam lever, 36, pivotally journaled on bolt, 35, passing through vertical slot 32, of tubes 29, and extending outwardly therefrom whereby said tubes can be held at required elevations within the standards as the device is operated, the saw be gaged to cut wholly or partially through material under treatment, and be lifted therefrom, from time to time, substantially as described.

4. In a miter box, swiveling slotted standards, hollow saw guiding tubes therein, having slots to receive a saw, levers to limit the movement of said tubes in said standards, set screws having shanks extending through said levers and into said tubes, and springs, surrounding said screws, between the heads thereof, and the levers, to impart a yielding pressure to said levers, substantially as described.

5. In a miter box, swiveling slotted standards connected to the base of the box, hollow tubes, within said standards, having slots, 32, to receive and guide a saw, and slots, 34, to receive the shank of a screw, in combination with said screws, levers mounted thereon and bearing against said tubes, threaded thumb nuts upon the outer ends of said screws, and springs upon said screws, between said thumb nuts and levers, for the purpose set forth.

6. The combination of a miter box having a base, a back connected thereto, a saw guiding standard upon each back and a track iron at the forward edge of said base, with a removable casting, 53, having a grooved end provided with set screws to fit and be secured upon said track iron, and an end provided with ribs to receive and retain the movable standard bearing block, 22, substantially as described.

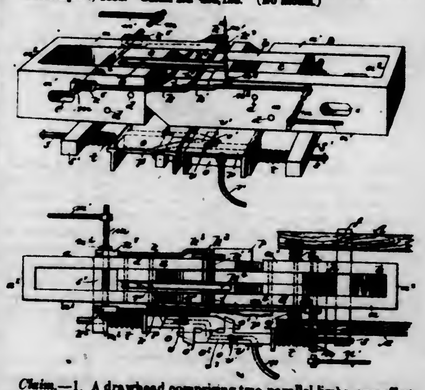
7. A miter box having a base, a back secured thereto, adjustable saw guiding standards connected to said base and L-shaped clamping dogs, 40 and 41, one arm of which has lengthwise slot, 43 each of said dogs being pivotally connected at opposite ends of the base by screw, 44, whereby they can be turned, and elevated above the base and there-over extend and present a V-shaped support at any desired angle, substantially as described.

8. The combination with a miter box, having a base, a back and saw guiding standards, of a removable bar or rod, 59, connected to the rear of said box and held extended therefrom horizontally within perforated lugs, 60, an adjustable stop, 62, upon said rod and means for holding said stop at any desired point on said rod, substantially as described.

9. The combination with a miter box having a base, a back thereon and adjustable saw guiding standards at front and back of said base of a removable straight scale or measure, 69, extending horizontally from the rear of the box and means, substantially as described, for securing said measure to said box, as and for the purpose specified.

10. The combination of a miter box having a base, a back connected thereto, and saw guides at front and back of said base with a rod extending from said box and provided with adjustable stop, a measure extending parallel with said rod, a clamp to secure said measure to said rod and means substantially as described to secure the rod and measure to the box, as and for the purpose set forth.

490,515. CAR-COUPLING. FRANK M. STANLEY, Guthrie, Okla. Filed Apr. 7, 1892. Serial No. 428,128. (No model.)



Claim.—1. A drawhead comprising two parallel limbs, one offset to produce an abutment shoulder at its outer end, and a spacing block between the limbs, all secured together, substantially as described.

2. A drawhead comprising two integral parallel limbs, one shorter than the other, an extension limb lapped upon the inner side of the shorter limb, and a spacing block between the latter and the extension limb, all secured together, substantially as described.

3. A drawhead comprising two integral parallel limbs one shorter than the other, an extension limb lapped upon the shorter limb on its inner side, and a spacing block between the latter and the extension limb, all secured together, the longer limb and extension limb being tapered at the front end and both grooved transversely on the upper side near the front end, substantially as described.

4. A drawhead, comprising two integral parallel limbs, one shorter than the other, an extension limb lapped upon the inner side of the shorter limb, and a spacing block between the latter and the extension limb, all secured together, a bail loop pivoted in the limbs of the drawhead, and means for rocking the bail loop, substantially as described.

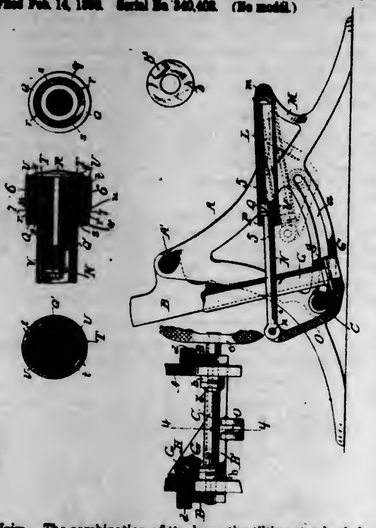
5. The combination with a drawhead constructed substantially as described, of a supporting cross bar located in longitudinal slots in parallel limbs of the drawhead, and buffer springs adapted to cushion end thrust and draft strain on the drawhead, substantially as described.

6. The combination with a drawhead comprising parallel limbs tapered at the front end, transversely grooved on top near the front

end, and held apart by a spacing block, of a transverse rock shaft on the drawhead, a lever on the outer end of the shaft, a lifting arm on the lever projected forwardly and adapted, when rocked, to release a coupling ball loop of an opposing drawhead from its groove, substantially as described.

7. The combination with a drawhead having spaced parallel limbs, of a ball loop secured on a transverse rock shaft thereon, adapted to interlock with lipped cross grooves in limbs of a similar drawhead, a plate spring pressing the ball loop, and a lever on the end of the rock shaft, substantially as described.

490,516. DENTAL CHAIR. ELI T. STARR, Philadelphia, Pa., assignor to the S. S. White Dental Manufacturing Company, same place. Filed Feb. 14, 1892. Serial No. 421,402. (No model.)



Claim.—The combination of the base, the tilting standards having jointed connection with the base, the chair frame carried by the standards and partaking of their tilting movements, the clamping mechanism for locking the standards to the base at the inclination to which they may be adjusted, and the fluid retarding apparatus for checking backward tilting movement of the standards while allowing them to be tilted forward quickly, said apparatus consisting of the reservoir and the piston provided with the perforated valved head reciprocating in the reservoir, the said reservoir and piston having joined connection the one with the base and the other with the tilting standards, substantially as and for the purpose set forth.

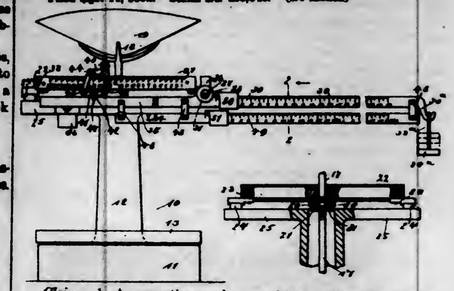
490,517. LATCH. PHILIP SCHNEWALD and ALBERT CORBINS, Staunton, Ill. Filed Sept. 21, 1892. Serial No. 446,266. (No model.)



Claim.—1. As an improved article of manufacture, the catch, composed of the fixed, centrally-perforated knob, A, adapted for attachment to a door and having the lugs H projecting inwardly from its base, the catch proper, F, pivoted to the outer ends of said lugs so that its free end is contiguous to said base, the sliding rod, C, having a knob D, and the spring, E, arranged between the latter and an internal shoulder of the fixed knob, as shown and described.

2. A catch comprising a fixed knob having a central aperture, a rod fitted to slide in the said knob and provided at its outer end with a knob, a spring held in the said fixed knob and pressing outwardly on the said rod, a catch pivotally-connected with the inner end of the said rod and pivoted on the said fixed knob, and provided with a projecting portion, F, forming a stop for limiting the outward movement of the rod, substantially as shown and described.

490,518. COMPUTING-SCALE. JOHN H. SWINART, Dayton, Ohio. Filed Apr. 11, 1892. Serial No. 428,646. (No model.)



Claim.—1. A computing scale comprising a tilting lever frame adapted to support the weight of the load, parallel connected scale beams fulcrumed near the free edge of the lever and made to indicate price and weight, and an adjustable connection between one of the beams and the tilting lever frame, substantially as described.

2. A computing scale comprising a tilting lever frame adapted to carry the load, a price per pound beam fixed to the free edge of the lever frame, parallel beams indicating price and weight, fulcrumed adjacent to the free edge of the lever, and an adjustable bearing connecting one of the parallel beams and the price per pound beam, substantially as described.

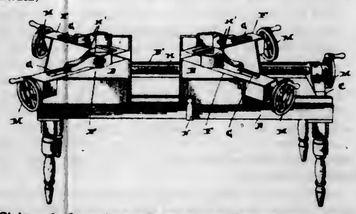
3. A computing scale, comprising a vertically movable rod having connection with the scoop and with the weighing platform, a tilting lever frame connected with the vertical rod, said platform lever having a price per pound beam at its free edge, independent parallel beams arranged to indicate price and weight, said beams being fulcrumed near the free edge of the lever frame, and an adjustable bearing connecting one of the parallel beams with the lever frame, substantially as described.

4. A computing scale comprising a fixed support, a tilting lever frame fulcrumed on the support and adapted to carry a load, said lever frame having a price per pound beam at its free edge, a price beam fulcrumed on the support and having one end extending beneath the price per pound beam, an adjustable sliding bearing connecting the price beam and the price per pound beam, and a weight beam extending beneath and parallel with the price beam, substantially as described.

5. The combination with the lever frame and the price per pound beam thereon, of the tilting price beam fulcrumed adjacent to the lever, and the sliding bearing comprising a frame carrying grooved rollers adapted to run on the two beams, and an indicator adapted to move over the price per pound beam, substantially as described.

6. The combination with the support having a goose neck at its front edge, of the socket plate having side lugs fulcrumed in the goose neck, and the price beam connected by a ball joint with the socket plate, substantially as described.

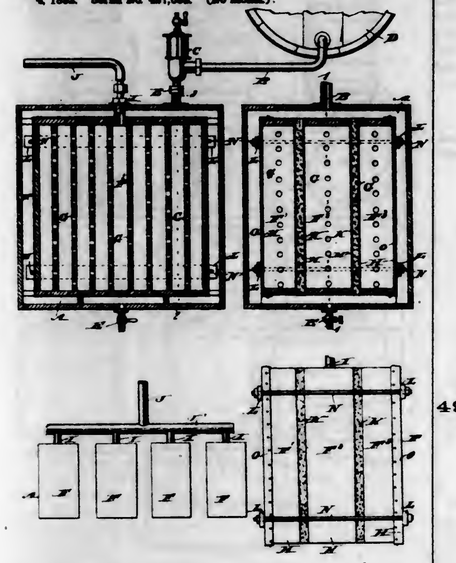
490,519. PICTURE-FRAME CLAMP. COLUMBUS A. WAYLAND, Middlesborough, Ky. Filed Mar. 25, 1892. Serial No. 426,400. (No model.)



Claim.—1. In a picture frame clamp, the combination of a support, the top sections or tables, the converging wooden blocks F rigidly secured in slots in said tables, as described, so as to be approximately flush with the upper faces of said tables and projecting outwardly beyond the edges of the tables, as shown, each block longitudinally slotted, sliding clamps on the blocks having shanks extending down through the slots provided with threaded sleeves beneath the same, each block having a threaded shaft L' extending along its under side and beyond the outer end thereof and through the threaded sleeve and journaled at the ends of the block, substantially as shown and described.

2. In combination, the support having the ways, the stationary table D, the table E movable on said ways, the tables D, E, respectively, having the rigid blocks I, J, centrally at their adjoining edges, the screw shaft H passing through a threaded opening in block J and journaled in block I, the converging slotted blocks F secured in the tables and abutting against the respective blocks I, J, the clamps on said blocks extending through the slots therein, and the screw shafts L', controlling said clamps and located on the under sides of the blocks F, and at their outer ends journaled to said blocks and at their inner ends journaled in their respective blocks I or J, as and for the purpose shown and described.

490,520. FILTER. AUGUST WEBER, Brooklyn, N. Y. Filed Apr. 4, 1892. Serial No. 427,662. (No model.)



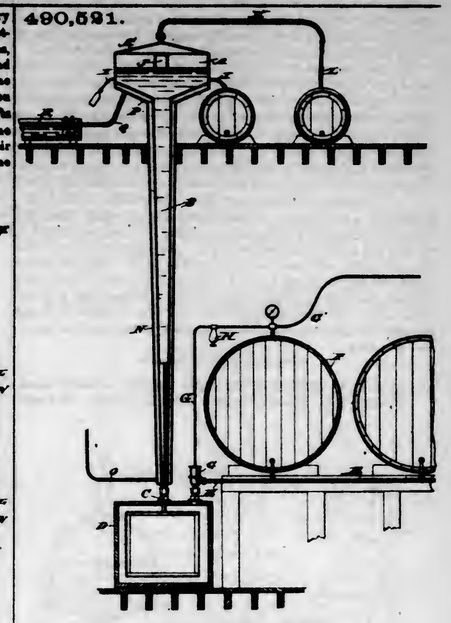
Claim.—A filter comprising a receiving vessel connected with the supply, a series of connected frames suspended in the said vessel and of which one is connected with the outlet, each frame being provided with perforated transverse plates, a cover made of filtering fabric and inclosing each of the said frames and stretched over the outer edges of the said plates, a layer of loose filtering material placed between the covers of two adjacent frames, and means, substantially as described, for connecting the several frames with each other and to hold the loose filtering material clamped by said means between said frames, substantially as shown and described.

490,521. FROTH AND LIQUID SEPARATOR. AUGUST WEBER, Brooklyn, N. Y. Filed Apr. 4, 1892. Serial No. 427,663. (No model.)

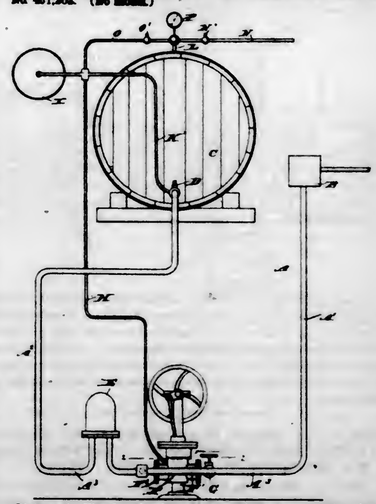
Claim.—1. In a froth and liquid separator the combination with a receiving receptacle provided with filling nozzles of a liquid supply tube having an inverted cone-shape form and connected at its base with the said receiving receptacle, a liquid supply cask connected with the small end of the said tube and a gas supply connected with the said cask for maintaining a pressure on the liquid therein corresponding to the hydrostatic pressure of the column of liquid in the said supply tube and the pressure desired in the vessels to be charged, substantially as shown and described.

2. In a froth and liquid separator the combination with a receiving receptacle provided with filling nozzles, of a liquid supply tube having an inverted cone-shape form and connected at its base with the said receiving receptacle, a filter connected with the small end of the said tube, a liquid supply cask connected with the said filter and a gas supply connected with the said cask for maintaining a pressure on the liquid therein, corresponding to the hydrostatic pressure of the column of liquid in the said tube and the pressure desired in the vessels to be filled, substantially as described.

490,521.



490,522. METHOD OF AND APPARATUS FOR CHARGING LIQUIDS. AUGUST WEBER, Brooklyn, N. Y. Filed Apr. 20, 1892. Serial No. 431,202. (No model.)



Claim.—1. The herein described method for charging liquids, consisting of forming a moving column of liquid, then entering the gas into the flowing liquid at or near the base of said column under the own weight or hydrostatic pressure of the said column and then discharging the charged liquid into a receiving vessel at the initial pressure of the liquid at the upper end of the column, substantially as shown and described.

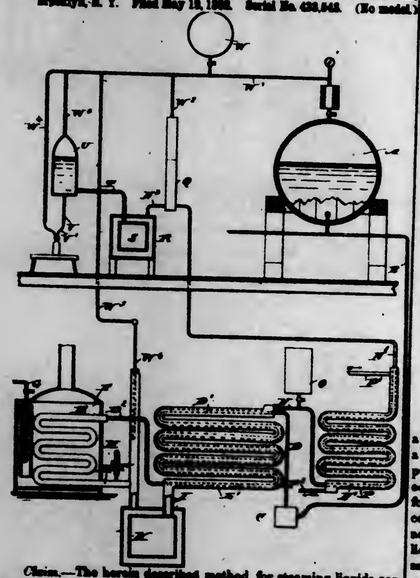
2. The herein described method for charging liquids, consisting of forming an approximately U-shaped moving column of liquid connected at one end with a liquid containing vessel and at its other end with a liquid receiving vessel, the inflow into the latter being under

the initial pressure of the outflow of the liquid from the containing vessel, then entering the gas into the moving column of liquid at or near the base thereof and against the weight or hydrostatic pressure of the said column of liquid, substantially as shown and described.

3. An apparatus for charging liquids comprising a vertically disposed pipe approximately U-shaped, a pump or other equivalent device connected with one end of the said pipe to cause the liquid to flow in a column through the said pipe to a receiving vessel, a second pump or equivalent device connected with the said pipe at or near the base thereof to charge the liquid with gas under the hydrostatic pressure of the column of the flowing liquid, and a gas supply connected with the said second pump, substantially as shown and described.

4. An apparatus for charging liquids, comprising a vertically disposed pipe approximately U-shaped and through which flows the liquid to be charged, a pump or other equivalent device connected at its inlet and outlet with the said pipe, a gas supply connected with the inlet of the said pump to mix a quantity of gas with part of the liquid, the mixture being forced by the pump through its outlet into the pipe, and a pump or other equivalent device connected with the liquid supply and discharging into the said pipe to force the liquid through the latter into the cask to be filled, substantially as shown and described.

490,523. METHOD OF STEAMING LIQUIDS. ADOLF WERNER, Brooklyn, N. Y. Filed May 19, 1892. Serial No. 433,643. (No model.)

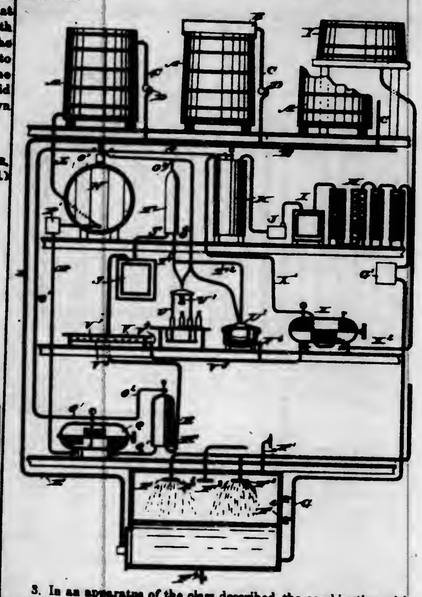


Claim.—The herein described method for steaming liquids consisting of first forming a moving column of liquid and subjecting the column of liquid to the action of heat at or near the base of said column under the hydrostatic pressure of the column, and then discharging the heated liquid into a receiving vessel at the initial pressure of the liquid at the upper end of the column, substantially as shown and described.

490,524. METHOD OF AND APPARATUS FOR THE MANUFACTURE AND FILLING OF LIQUIDS. ADOLF WERNER, Brooklyn, N. Y. Filed July 14, 1892. Serial No. 440,062. (No model.)

Claim.—1. The herein described method of gathering the gaseous products of fermentation in the fermenting tun and permitting the same to flow by their own gravity to a collecting reservoir, then withdrawing the gases from the latter and purifying the same by passing the gas through a purifier to produce pure carbonic acid gas, storing this gas under pressure in a tank, drawing the liquid from the fermenting tun and storing it in a storage cask, drawing the stored liquid from the storage cask and part of the gas contained in the said tank simultaneously into a mixing device to charge the said liquid with the said purified carbonic acid gas preparatory to filling the liquid into bottles or kegs, filling the charged liquid into bottles or kegs and maintaining on the liquid in the said storage cask and in the bottles or kegs during the filling operation a uniform pressure derived from the gas in the said tank, substantially as shown and described.

2. The herein described method for treating liquids consisting of gathering the gaseous products of fermentation in the fermenting tun and permitting the same to flow by their own gravity to a collecting reservoir, then withdrawing the gases from the latter and purifying the same by passing the gas through a purifier to produce pure carbonic acid gas, storing this gas in a tank and then charging the liquid with the said purified carbonic acid gas preparatory to filling the liquid into bottles or kegs, withdrawing part of the purified gas from the tank and mixing it with water to form a wash water for washing the bottles or kegs before filling the same, substantially as shown and described.



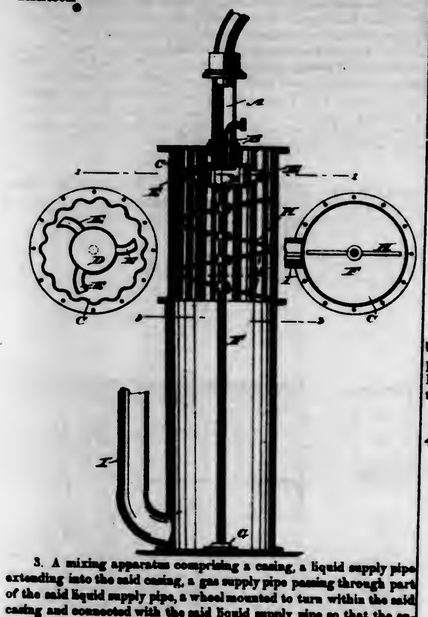
3. In an apparatus of the class described, the combination with a fermenting tun, of a hood adapted to be temporarily secured thereon, a reservoir connected with the said tun at the upper end thereof, a purifying device connected with the said reservoir to purify the gaseous products of fermentation to form pure carbonic acid gas, a tank for storing the said carbonic acid gas, a storage cask adapted to receive the liquid from the said fermenting tun, a charging device connected with the said tank and with said storage cask containing the liquid drawn from the said fermenting tun, means for connecting the said storage cask with the said tank to maintain a pressure in the said cask corresponding to that in the said tank, and a filtering device connected with the said charging apparatus and with the said tank, substantially as shown and described.

4. In an apparatus of the class described, the combination with a fermenting tun, of a hood adapted to be temporarily secured thereon, a reservoir connected with the said tun at the upper end thereof, a purifying device connected with the said reservoir to purify the gaseous products of fermentation to form pure carbonic gas, a tank for storing the said carbonic acid gas, a mixing apparatus connected with the said tank and also connected with a fresh water supply so as to mix the water with the said carbonic acid gas, and a pipe leading from the said mixing apparatus and connected with washing devices for washing the bottles or barrels with the said mixture of water and carbonic acid gas, substantially as shown and described.

490,525. MIXING APPARATUS. ADOLF WERNER, Brooklyn, N. Y. Filed Aug. 2, 1892. Serial No. 441,903. (No model.)

Claim.—1. A mixing apparatus comprising a wheel adapted to be driven by the moving column of liquid, a liquid supply pipe opening into the said wheel at the center thereof, and a gas supply pipe extending into the said liquid supply pipe so as to discharge its gas into the said wheel simultaneously with the liquid from the said liquid supply pipe, substantially as shown and described.

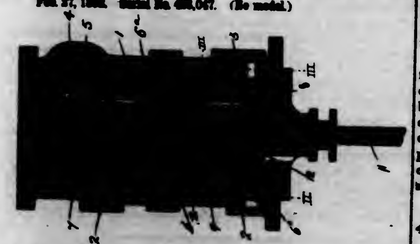
2. A mixing apparatus comprising a casing, a liquid supply pipe extending into the said casing, a gas supply pipe passing through part of the said liquid supply pipe, and a wheel mounted to turn within the said casing and connected with the said liquid supply pipe so that the entering liquid revolves the said wheel, substantially as shown and described.



3. A mixing apparatus comprising a casing, a liquid supply pipe extending into the said casing, a gas supply pipe passing through part of the said liquid supply pipe, a wheel mounted to turn within the said casing and connected with the said liquid supply pipe so that the entering liquid revolves the said wheel, and agitating arms held on the shaft of the said wheel within the said casing, substantially as shown and described.

4. In a mixing apparatus, the combination with a corrugated casing, of a wheel mounted to turn therein and connected with the liquid supply and gas supply to furnish the motive power for revolving the said wheel, a shaft carrying the said wheel, and agitating arms secured on the said shaft within the said corrugated casing, substantially as shown and described.

490,526. AIR OR GAS COMPRESSOR. CLARA H. WHEELER, administratrix of HERMAN W. WHEELER, deceased, New York, N. Y. Filed Feb. 27, 1892. Serial No. 423,067. (No model.)



Claim.—1. In a compressor, the combination of the upright cylinder and piston, the opposing faces of the cylinder head and the piston being slanted from one side to the other in parallel planes whereby all the gas is forced out, and also all the oil except enough to seal the clearance spaces.

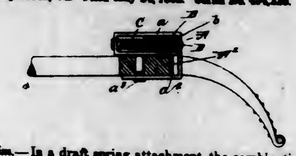
2. The combination of the cylinder whose head S has the inclined inner surface 10 slanted continuously from one side to the other and the outlet port or ports situated at the summit of said slant on one side of the cylinder and the piston having the face opposite to said head formed with a corresponding parallel slant, substantially as set forth.

3. The combination of the upright cylinder, the large discharge valve at one end thereof having a slanted inner surface, and a valveless piston in said cylinder having its surface opposite to said valve formed with a corresponding parallel slant, substantially as set forth.

4. The combination of the cylinder, the large discharge valve at one end thereof having a projection of the same diameter as and entering the base of the cylinder and formed with a slanted surface, and the valveless piston having a correspondingly slanted surface on the side opposite to said valve substantially as set forth.

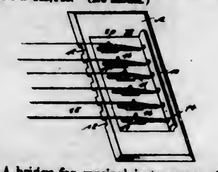
5. The combination of the piston having the slanting face or faces 9 and the correspondingly slanted cylinder head having the oil cavity 12 around the piston rod, for sealing the bearing of and lubricating said rod substantially as and for the purposes set forth.

490,527. DRAFT-SPRING FOR VEHICLES. JOSEPH S WISE, Honey Creek, Va. Filed May 24, 1892. Serial No. 434,228. (No model.)



Claim.—In a draft spring attachment, the combination with the bar A, bent up to form a clip having the arm a^3, as described, of the pivotal bolt a^2, securing said clip centrally of the whiffletree, the bolt D, supporting the whiffletree and the spiral spring encircling said bolt to exert a pressure on said whiffletree, for the purpose set forth.

490,528. ADJUSTABLE BRIDGE FOR STRINGED MUSICAL INSTRUMENTS. GEORGE WOLTER, Fort Apache, Ariz. Filed Oct. 17, 1892. Serial No. 448,140. (No model.)



Claim.—1. A bridge for musical instruments, the same consisting of a bridge plate, an anchor plate, and string rests adjustable upon the bridge plate, as and for the purpose specified.

2. In a bridge for musical instruments, a bridge plate provided with adjustable string rests, and locking devices for clamping the rests to the plate, as and for the purpose set forth.

3. In a bridge for musical instruments, a bridge plate provided with a series of string rests independently adjustable, each string rest having an independent locking device, as and for the purpose specified.

4. In a bridge for musical instruments, the combination with a bridge plate provided with channels on its under side and with holes communicating with the said channels, of string rests upon the bridge plate over the slots thereof, locking plates in the channel of the bridge plate, and screws passing through the slots and connecting the string rests and locking plates, substantially as described.

5. In a bridge for musical instruments, the combination with a foundation board having an opening therein and provided with an anchor plate, of a bridge plate fitted in the opening of the foundation board and provided with grooves on its under side and with slots communicating with said grooves, string rests upon the bridge plate over the slots therein, locking plates in the grooves of the bridge plate, and screws passing through the slots of the bridge plate and connecting the string rests and locking plates, substantially as herein shown and described.

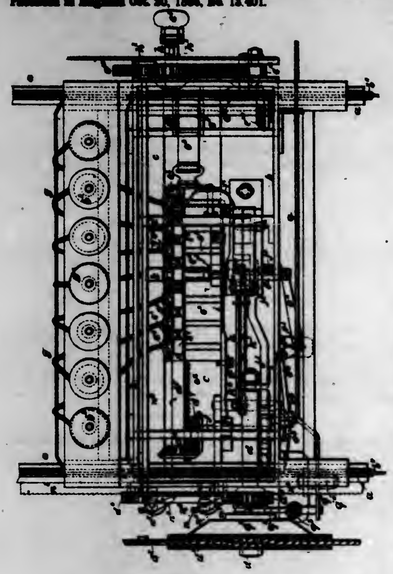
490,529. SAFETY-CAR. JOHN A. YARNES, New Hampton, Iowa. Filed Feb. 17, 1892. Serial No. 421,948. (No model.)

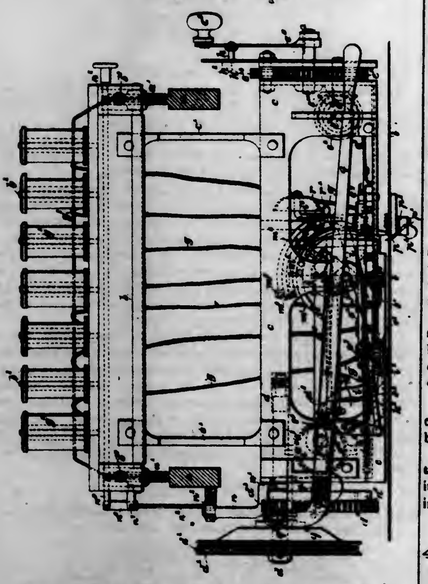


Claim.—A railway car having an opening in its top, with a flange *a*, extending slightly above the roof, with pins projecting upwardly therefrom, the supplemental top having side and end pieces and a

shouldered lower edge to engage the flange and recesses to receive the pins, substantially as described.

490,530. LOOM FOR WEAVING TUFTED FABRICS. WILLIAM YOUNGMAN, Kidderminster, England, and JAMES L. HARRIS, Washington, D. C.; said James L. Harris ancillary administrator of William Taylor, deceased. Filed Oct. 31, 1891. Serial No. 410,511. (No model.) Patented in England Oct. 30, 1886, No. 13,401.





Claim.—1. The combination with the carriage *b* adapted to be moved on rails *a*, of feed mechanism comprising the feed slide *c'*, feed rolls *c²*, cam wheel *c*, and means for operating the said cam wheel, substantially as and for the purpose specified.

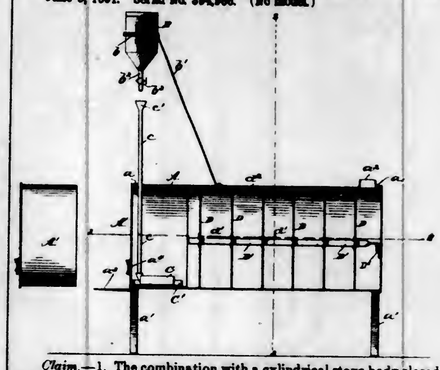
2. The combination with the carriage *b* adapted to be moved on rails *a* of the knotting mechanism comprising the forked arm *k'*, the nippers *m*, the oscillating segment *j³* and an eccentric *j* for driving the said segment, substantially as and for the purpose specified.

3. The combination with the carriage *b* adapted to be moved on rails *a*, of feed mechanism comprising the feed slide *c'*, feed rolls *c²*, cam wheel *c*, means for operating the said cam wheel, a knife or cutter *i*, and a cam *i'* for operating the said knife, substantially as described.

4. The combination with the feed slide, of the feed rolls *c²* with means for operating the same, and a device for supporting the worsted as it issues from the said feed rolls and then permitting it to fall upon the ground chain substantially as and for the purpose specified.

5. The combination, with a loom of the carriage *b* adapted to be moved on rails *a*, feed mechanism comprising the feed slide *c'*, feed rolls *c²*, cam wheel *c*, and means for operating the said cam wheel, the knife or cutter *i* and a cam *i* for operating the knife and knotting mechanism comprising the forked arm *k'* nippers *m* the oscillating segment *j³* and an eccentric *j* for driving the said segment substantially as and for the purpose specified.

490,531. STOVE. ALBERT W. ALGER, Kansas City, Mo. Filed June 3, 1891. Serial No. 394,966. (No model.)



Claim.—1. The combination with a cylindrical stove body closed at one end and open at the other, of a series of deflecting dampers arranged within the same, a telescopic head section adapted to fit the open end and a burner arranged within said head section substantially as shown and described.

2. The combination with a cylindrical stove body, closed at its rear end, of a band encircling said body near its closed end, the supporting legs attached to said band, the telescopic head section the band encircling the same, and the legs connected with said band substantially as shown and described.

3. The combination with a cylindrical stove body of a head section, an oil burner, an oil supply pipe, a reservoir and a reservoir discharge pipe independent of the oil supply pipe substantially as shown and described.

4. The combination with a cylindrical stove, of an extension head section, an oil burner, an oil supply pipe connected therewith and provided with a funnel at its outer end, a reservoir and a discharge pipe independent of the supply pipe and adapted to discharge into the funnel substantially as shown and described.

5. The combination with a cylindrical stove of the extension head section, the oil burner, the supply pipe passing through the head and body portions, and carrying a funnel, the reservoir, the support, discharge pipe and stop-cock all arranged substantially as shown and described.

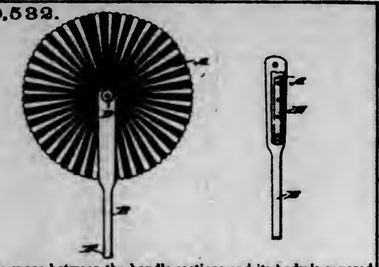
6. The combination with a cylindrical stove body of a series of circular deflecting damper disks, and one or more blast boards secured between two of the said disks substantially as shown and described.

7. The combination with a cylindrical stove body, of an essentially rectangular frame supported within the said body, the deflecting dampers pivoted within the said frame and spacing and connecting rod attached to said dampers substantially as shown and described.

490,532. FAN. SAMUEL H. BARR, Brooklyn, N. Y. Filed Aug. 26, 1892. Serial No. 444,173. (No model.)

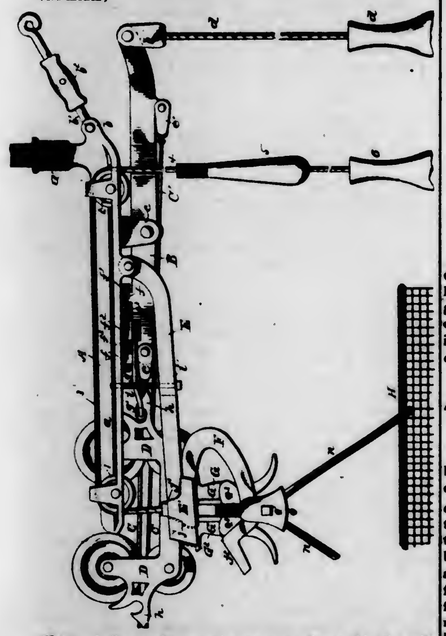
Claim.—In a fan of the class herein referred to, the combination, with the handle sections B C, of the sheet metal L stripe E, and E', rigidly secured upon the flat inner sides of said handle section at opposite sides thereof, as shown, and their outer ends being at a point near the pivot pin, D, and the web, A, pivoted directly upon the said pin, as shown and described, whereby the base of the web occupies

490,532.



the entire space between the handle sections and its body is covered and protected when the fan is closed, as specified.

490,533. CASE AND PACKAGE CARRIER APPARATUS. SAMUEL W. BARR, Mansfield, Ohio. Filed Aug. 4, 1892. Serial No. 442,163. (No model.)



Claim.—1. In a package carrier apparatus, the combination with a car and a basket, of a fork or bracket pivotally connected to the car, a yoke carried by the basket, a dog carried by the yoke, and blocks carried by the fork or bracket and adapted to be engaged by said dog, whereby said dog is manipulated and locked to the fork or bracket, substantially as set forth.

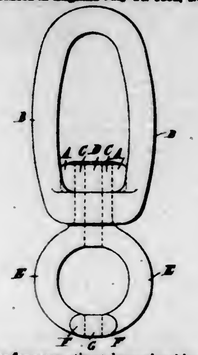
2. In a package carrier apparatus, the combination with a car and a basket, of a fork or bracket connected to the car, a yoke carried by the basket, a dog carried by the yoke and so constructed and supported as to be normally disposed in an inclined position, and blocks carried by the fork or bracket and adapted to be engaged by said dog, whereby said dog is manipulated and locked to or unlocked from the fork or basket, substantially as set forth.

3. In a package carrier apparatus, the combination with a car and a basket, of a fork or bracket connected to said car, each arm of said fork or bracket being made with an elongated slot or opening, blocks located in said slots or openings and a dog carried by the yoke and adapted to engage said blocks and be operated by them to lock the yoke to or unlock it from said fork or bracket, substantially as set forth.

4. In a package carrier apparatus, the combination with a car and a basket, of a fork or bracket attached to the car and provided in each arm with slots or openings, a block in the slot or opening of one arm of the fork or bracket in proximity to the lower end thereof, a block in the slot of the other arm located at a higher elevation than the block in the slot or opening of the other arm and an angle block or plate located in proximity to the upper end of the slot or opening in one of said arms, and a dog carried by said yoke and adapted to engage and be operated by said blocks, substantially as set forth.

5. In a package carrier apparatus, the combination with a basket and wires, of a yoke having sockets in the ends of its arms for the reception of the wires forming the bail of the basket and set screws for securing said wires in the sockets of the yoke, substantially as set forth.

490,534. SUPPORT FOR TELEGRAPH-CABLES. FREDERICK LE B. BRIDWELL, London, England. Filed Sept. 26, 1892. Serial No. 446,866. (No model.) Patented in England July 21, 1892, No. 13,360.



Claim.—A device for connecting telegraph cables with vessels, &c., consisting of the loop link B having an opening at one end, the eye E having the boss F provided with an orifice G for the passage of a telegraph cable, and the tubular pin C extending through the opening at one end of the link and swiveling the eye thereto, said tubular pin being located approximately in coincidence with the orifice in the boss of the eye, substantially as and for the purpose described.

490,535. PROCESS OF MANUFACTURING PURPLE-ORE BRICKS. HENRY BIRD, Plymouth, England. Filed Apr. 2, 1892. Serial No. 427,571. (No specimens.)

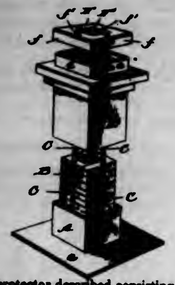
Claim.—The herein described method of making hard purple-ore blocks or bricks, consisting in grinding under the action of heavy edge runners the ordinary dry commercial loose or pulverulent purple ore without the addition of water or liquid or other extraneous matters, whereby the apparently dry ore is reduced to a state of slurry, then putting the slurry into molds of suitable form for producing bricks or blocks, then drying the slurry in the molds artificially upon a drying floor until it can be removed and the bricks or blocks so formed will stand of themselves on the floor without breakage, then further drying the bricks or blocks on said floor as turned out of the molds, then further drying them in a suitable burning kiln, and then burning them, substantially as set forth.

490,536. CHIMNEY-PROTECTOR. OSCAR W. BOWEN, David City, Nebr. Filed May 2, 1892. Serial No. 431,403. (No model.)



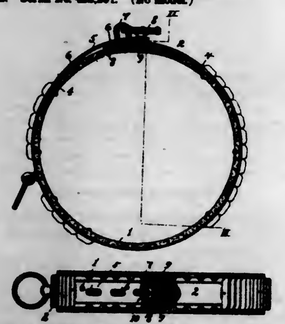
Claim.—1. The chimney protector described, consisting of a body portion, with flange, a portion to embrace the said body portion at the upper end thereof, a cap piece and rods arranged between

said portions and the chimney which they embrace having their lower ends designed to be secured to some fixed part and their upper ends passed through the cap piece and provided with adjusting nuts, as set forth.



2. The chimney protector described consisting of the body portion with flange at its lower end, the adjacent portion having flange at its upper end and its lower end sleeved loosely over the body portion, a cap-piece with depending flange to embrace the flange of the intermediate portion and a central depending collar to fit within a chimney, and screw threaded rods secured at their lower ends to some fixed part, passed within the body and intermediate portions and between the same and the chimney and through the cap piece and provided with adjusting nuts, substantially as specified.

490,537. PADLOCK. ISIDOR BARBER, Brooklyn, N. Y. Filed Feb 20, 1892. Serial No. 422,291. (No model.)



Claim.—1. In combination with a padlock, a loop fixed thereto in a plane crossing the padlock and adapted to act as keeper and at the same time hold the padlock in place on the object to which it is attached, substantially as set forth.

2. The combination of a collar having a staple, and a padlock having a locking bar by which it is secured to the staple, and a loop or keeper at the back by which it is secured to the collar; substantially as described.

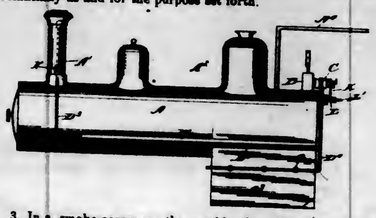
490,538. PROCESS OF PREPARING RAW GRAIN. HORACE T. BROWN and GEORGE H. MORRIS, Burton-on-Trent, England. Filed Mar. 18, 1891. Serial No. 385,481. (No specimens.) Patented in England May 20, 1889, No. 7,889, and in Belgium Mar. 6, 1891. No. 94,041.

Claim.—The herein described process for preparing raw grain or other amylaceous substances for mashing, by mixing the ground or pulped material with water and green or air dried malt or infusion thereof, and digesting the mixture at a temperature not exceeding 120° Fahrenheit so that the cytase dissolves the walls of the starch containing cells and renders the starch granules accessible to diastase for saccharification.

490,539. SMOKE-CONSUMER. CHARLES CARY, Chicago, Ill., assignor of one-half to Benjamin F. Bushnell, same place. Filed Aug. 20, 1892. Serial No. 443,976. (No model.)

Claim.—1. In a smoke-consumer, the combination with a boiler, of a controlling valve constructed as described with two conducting pipes connected thereto, one of which conveys and discharges steam and air into the fire-box through the medium of jets or injectors constructed as set forth, and the other conveys and discharges steam into the smoke-stack through one or more truncated-cones and sleeves constructed as described substantially as and for the purpose set forth.

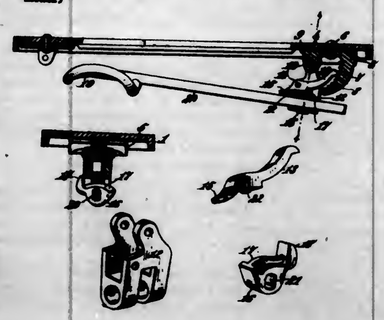
2. In a smoke-consumer, the combination with a boiler, of a controlling valve having a cavity to receive steam from the boiler, with a valve-head to open and close the same, and lateral channels or ports leading from said cavity and having valve-heads to open and close them, and the conducting pipes, one of which discharges steam and air into the fire-box, through jets or injectors O, and the other steam into the smoke-stack through one or more truncated-cones and sleeves, substantially as and for the purpose set forth.



3. In a smoke-consumer, the combination with a boiler, of the controlling valve C, having the hollow projection *c*, the cavity C', having the opening *c*², and the valve-stem E, provided with the head E⁴, to admit and shut off steam to said cavity, the channels or ports C³, having the stems E⁵, provided with the heads E⁷, the channels C⁵, C⁴, connected at their lower ends with the conducting pipes D³, D⁴, respectively, the cavity H, having therein the piston or comb-valve H³, provided with the openings I, partition I', and teeth or ribs *i*, the stem H², secured to said valve and having near its outer end a turn-buckle and pin to regulate the length and motion of the stem, the channels G, having the valve-heads F⁴, and stems F⁵, to open and close the same, the pipes D³, and D⁴, connected with the channels C³, and C⁴, and adapted to convey and discharge steam into the smoke-stack and fire box, respectively, all constructed, arranged and operating substantially as and for the purpose set forth.

4. In a smoke-consumer, the combination with a boiler, of the controlling valve C, having the hollow projection *c*, the cavity C', having the opening *c*², and the valve-stem E, provided with the head E⁴, to admit and shut off steam to said cavity, the channels or ports C³, having the stems E⁵, provided with the heads E⁷, the channels C⁵, C⁴, connected at their lower ends with the conducting pipes D³, D⁴, respectively, the cavity H, having therein the piston or comb-valve H³, provided with the openings I, partition I', and teeth or ribs *i*, the stem H², secured to said valve and having near its outer end a turn-buckle and pin to regulate the length and motion of the stem, the channels G, having the valve-heads F⁴, and stems F⁵, to open and close the same, the pipe D³, connected with the channel C³, and extending into the smoke-stack and having the openings *d*, the truncated-cone M, placed around the pipe D³, and said openings, the sleeve N, having the flaring mouth *n*, and enlarged chamber *n'*, secured around the cone M, within the smoke-stack, the pipe D⁴, connected with the channel C⁴, and extending around the fire-box, and having the pipes *p*, provided with the screw-threaded enlargements *p'*, having the grooves *p*², the thimble O', having the flaring mouth *o*, and placed around the pipe *p*, all constructed, arranged and operating, substantially as and for the purpose set forth.

490,540. STIRRUP ATTACHMENT FOR CHAIRS. FRANK R. CASE, Canton, Ohio. Filed June 28, 1892. Serial No. 438,284. (No model.)



Claim.—1. The combination with a part of a chair having a vertically arranged ratchet bar, of a yoke or frame pivoted to a part of the chair and adapted to swing in the arc of a circle independent of said ratchet bar, a shank carried by the yoke or frame and having a foot-supporting-stirrup at its outer end portion, and a pawl carried by the yoke or frame for engaging the ratchet bar so that the pawl will ride over the teeth of the ratchet bar in raising the foot-supporting-stirrup and automatically engage the ratchet-bar and lock the stirrup when the latter is raised to the desired height, substantially as described.

2. The combination with a part of a chair, of a rotatable plate or disk journaled thereupon and having a pendent ratchet bar, a yoke or frame pivoted to a part of the chair and adapted to swing independent of any movement of the ratchet bar, a shank carried by the yoke or frame and having a foot-supporting-stirrup at its outer end portion, and a pawl pivoted to the yoke or frame for engaging the ratchet-bar, substantially as described.

3. The combination with a part of a chair having a vertically arranged ratchet bar, of a yoke or frame pivoted to a part of the chair and adapted to swing independent of the ratchet bar, a pawl pivoted to the yoke or frame for engaging the ratchet bar, and a shank movable lengthwise in the yoke or frame and having a foot-supporting-stirrup at its outer end portion, substantially as described.

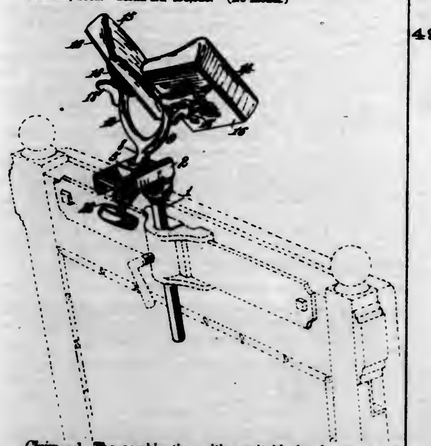
4. The combination with a part of a chair, of an axially turning stirrup-carrying-shank, a pawl and ratchet mechanism for adjusting the stirrup to different elevations, and a pawl-operating-device actuated by the turning of the stirrup-carrying-shank to release the pawl from the ratchet, substantially as described.

5. The combination with a part of a chair having a vertically arranged ratchet-bar, of a pivoted yoke or frame, a pawl carried by the yoke or frame for engaging the ratchet-bar, an axially turning stirrup-carrying-shank mounted on the yoke or frame, and a pawl-operating cam piece actuated by the turning of the stirrup-carrying-shank to release the pawl from the ratchet-bar, substantially as described.

6. The combination with a part of a chair having a ratchet-bar, of a pivoted yoke or frame, a pawl carried by the yoke or frame, a pawl-operating-cam piece mounted in the yoke or frame, and a stirrup-carrying-shank movable lengthwise through the yoke or frame and the cam piece and engaging the latter to release the pawl from the ratchet-bar when the stirrup-carrying-shank is axially turned, substantially as described.

7. The combination with a part of a chair, and a stirrup-carrying shank, of a ratchet, and a pawl having a thumb piece for adjusting the stirrup to different heights, and a suitable device actuated by the movement of the stirrup-carrying-shank for releasing the pawl from the ratchet, substantially as described.

490,541. HEAD-REST. FRANK R. CASE, Canton, Ohio. Filed June 28, 1892. Serial No. 438,285. (No model.)



Claim.—1. The combination with a suitable head-rest-support, adapted for adjustable connection with a chair back and a pad-support, carried by the head rest support of a pair of rest-pads independently adjustable in a lateral direction on the pad-support and having tongue and groove connections with the latter, and independent devices for rigidly securing the rest-pads in fixed positions after adjustment, substantially as described.

2. The combination with a suitable head-rest-support, adapted for adjustable connection with a chair back and a pad-support, carried by the head rest support of a pair of rest-pads independently adjustable in a lateral direction on the pad-support and having tongue and groove connections with the latter, and independent devices for rigidly securing the rest-pads in fixed positions after adjustment, substantially as described.

3. The combination with a suitable head-rest-support, and a sliding carrier-block mounted thereupon, of a bifurcated pad-support provided with a shank having a ball and socket connection with the carrier-block, means for holding the latter in different positions on the head-rest-support, rest-pads mounted on the extremities of the bifurcations of the pad-support and independently adjustable thereupon, and independent devices on the extremities of the bifurcations for clamping the rest-pads in fixed positions after adjustment, substantially as described.

4. The combination with a suitable head-rest-support, of a sliding carrier-block mounted on said support, a pad-support having a ball and socket connection with the carrier-block, a screw for clamping the carrier-block in different positions on the head-rest-support, a pair of rest-pads having tongue and groove connections with the pad-support and slidable thereupon for their independent lateral adjustment, and independent devices for rigidly clamping the rest-pads in fixed positions after adjustment, substantially as described.

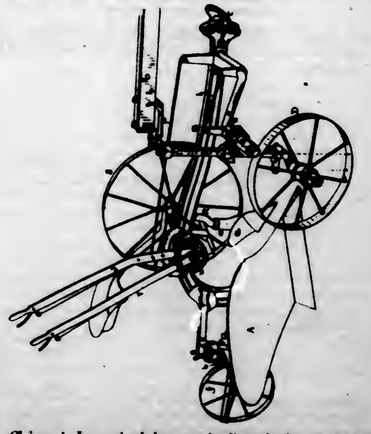
5. The combination with a head-rest-support, of a carrier-block adjustable on said support, a pad-support provided with laterally adjustable rest-pads and having a ball and socket connection with the adjustable head-rest-support, and means for clamping the carrier-block in different positions of adjustment, substantially as described.

6. The combination with a head-rest-support, of a divided carrier-block slidable on said support, a pad-support provided with rest-pads laterally adjustable independent of each other and having a ball located between the carrier-block sections, and means for clamping the ball and carrier-block sections in different positions, substantially as described.

7. The combination with a head-rest-support, of a divided carrier-block slidable on said support, a pad-support provided with laterally adjustable rest-pads and having a ball located between the carrier-block sections, and a screw which clamps the ball and also the carrier-block sections in different positions, substantially as described.

8. The combination with a suitable head-rest-support adapted for adjustable connection with a chair-back, of a pad-support carried by the head-rest-support and provided with slots, a pair of rest pads having tongue and groove connections with the pad support and slidable on the slotted parts thereof to laterally adjust said rest-pads independent of each other, and independent screws extending through the slots of the pad-support for clamping the rest-pads in fixed positions after adjustment, substantially as described.

490,542. PLOW. CHESTER W. CLARK, Mishawaka, Ind. Filed Mar 24, 1892. Serial No. 426,360. (No model.)



Claim.—1. In a wheeled plow a leading wheel, a spindle E for the same, a tongue O attached to the top of the said spindle, a crank

H. to support and attach the same to the plow frame and means adapted to preserve the parallelism of said wheel spindle as said wheel is raised or lowered.

2. In a wheel plow, a leading wheel, a vertical spindle E, a tongue O attached to the top of said spindle, a crank H. and parallel rod I whereby said wheel and spindle may be raised or lowered in parallelism.

3. In a wheeled plow a leading wheel mounted upon a vertical spindle whose axis is in advance of the tread point of said wheel, and a tongue attached to the spindle of said wheel.

4. In a wheeled plow, the leading wheel D. and vertical spindle E bent at its lower end to constitute an axle for said wheel and so that the vertical axis of said spindle prolonged downward will cut the rim of said wheel a little in advance of its point of tread for the purpose set forth.

5. In a wheeled plow, the leading wheel D. provided with an axle attached to a vertical spindle in advance of its point of tread combined with a tongue plate P, adapted to receive a tongue O. for the purpose set forth.

6. A wheeled plow provided with a leading caster wheel and a tongue adapted to be attached to the caster wheel spindle for the purpose set forth.

7. The caster wheel D. the spindle E provided with lugs M. M. combined with the latch N, substantially as set forth.

8. The wheel D. the spindle E provided with the collars K. L., lugs M. M. combined with the sleeve box F and the latch N. pivoted to said box substantially as set forth.

9. In a wheeled plow a jointer Q mounted upon a cranked standard R. seated at its lower end in a socket plate attached to the mold board of said jointer and set screws to fasten the same in position thereon whereby said jointer is adjustable laterally for the purpose set forth.

10. In a wheeled plow a land wheel, a crank axle for the same, an adjusting lever and a tension spring interposed between said lever and axle, combined with means whereby said yielding connection may be made rigid at will.

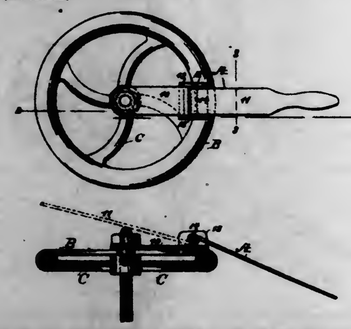
11. In a wheeled plow, a land wheel, a crank axle for the same, an adjusting lever attached to said axle with a certain range of lost motion and a tension spring whereby said land wheel is rendered yielding within said range, combined with a device adapted to be interposed at will to prevent said yield and render the connection rigid between said axle and lever.

12. In a wheeled plow, a land wheel S., a crank axle T for the same, an adjusting lever V and tension spring W combined with a block Y as and for the purpose set forth.

13. In a wheeled plow a rear wheel *f* provided with an automatic gravity lock *g* substantially as described, combined with means whereby said lock may be rendered rigid and positive at will.

14. In a wheeled plow a rear wheel *f* provided with a spindle head in two parts *a*. and *d*. whereof one part is provided with an inclined sided locking stud *g* and the other side is provided with a corresponding recess, combined with the studs *b*. *b*. projecting from the part *a*. and the pivoted latch *e*.

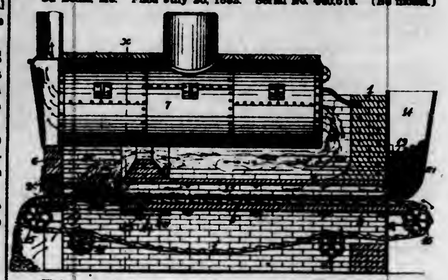
490,543. LEVER ATTACHMENT FOR BRAKE-WHEELS. BENJAMIN CRAWFORD, Louisville, Ky. Filed Nov. 23, 1892. Serial No. 452,822. (No model.)



Claim.—1. The combination with a brake wheel, of a lever formed of two sections, the inner section being pivotally connected with the wheel and adapted to engage the wheel to turn it and provided with ears, and an outer section provided with an eye to receive a pivot pin passed through the said ears, substantially as described.

2. A lever attachment for brake wheels, consisting of an inner section provided with ears at its outer end and with a finger projecting from its under side, and an outer section provided with an eye to receive a pivot pin passed through the said ears, substantially as set forth.

490,544. SMOKELESS BOILER-FURNACE. ALBERT B. CROWDER, St. Louis, Mo. Filed July 20, 1892. Serial No. 440,616. (No model.)



Claim.—1. A furnace having a combustion-chamber in which the draft is in a given direction, a coking-chamber constructed with a lower dead-plate or wall, to coke and expose fuel to the heat of this combustion-chamber, and an endless-grate arranged to travel in contact with said dead-plate or wall of the coking-chamber and carry raw fuel thereinto, and coked fuel from same into the combustion-chamber, substantially as specified.

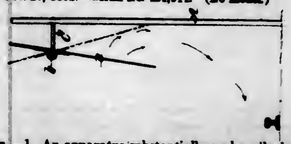
2. A furnace having a combustion-chamber at its front-end in which the direction of the draft is fixed, a coking-chamber constructed with a dead plate to coke and expose fuel to the heat of the combustion-chamber in rear of said combustion-chamber, beneath the object to be heated and having a width equal to or in excess of the width of the grate in the combustion-chamber, and an endless-grate arranged to travel in a direction opposite to the direction of draft in said combustion-chamber and to carry fuel from the rear end of the furnace first into said coking-chamber and then into the combustion-chamber, substantially as and for the purpose set forth.

3. A furnace having a feed-hopper at its rear, a combustion-chamber at its front in which the direction of draft is in a certain direction, a coking-chamber constructed with a dead-plate to coke and expose fuel to the heat of the combustion-chamber and located intermediate of said combustion-chamber and the rear of the furnace beneath the object to be heated, and an endless-grate mounted to travel from rear to front of said furnace in said coking and combustion chambers and carry raw fuel into the coking-chamber and remove coked fuel from same, substantially as set forth.

4. A furnace having a combustion-chamber, a dead-plate or wall approximating in width the width of and located in rear of said chamber, beneath the object to be heated, and an endless-grate approximating in width the width of and arranged to travel in close contact with said dead-plate and carry fuel to said combustion-chamber, the direction of movement of said grate and the fuel carried thereby being opposite to the direction of draft in said combustion-chamber, substantially as set forth.

5. The mode of continuously treating and feeding fuel in a furnace, which consists in first preparing a uniform thin layer of raw fuel approximating in width the width of the furnace-grate, subjecting this uniform thin layer of fuel to direct heat of the furnace in a coking-chamber beneath the object to be heated, heating and coking it in said coking chamber, and continuously conveying the thin layer of fuel as fast as prepared uninterruptedly toward said combustion-chamber and into the same in a direction opposite the direction of draft in said combustion-chamber, substantially as set forth.

490,545. APPARATUS FOR PREVENTING RAILROADS FROM BEING BLOCKADED WITH SNOW. SIMON H. DIXSON, Cleghorn, Iowa. Filed Feb. 17, 1892. Serial No. 421,911. (No model.)



Claim.—1. An apparatus substantially as described consisting of the uprights or posts provided with the projecting arms, and the wing hinged to said arms at points slightly above its middle, the uprights being extended above the arms whereby the uprights will form stops

for both the upper and lower ends of the wing all substantially as set forth.

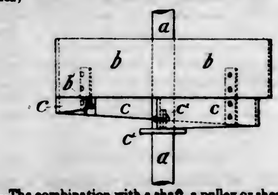
2. In an apparatus substantially as described, the combination of the uprights the arms projecting from said uprights and the wing pivotally jointed to said arms whereby it is supported at one side of and may swing toward and from the uprights substantially as set forth.

3. The improved wind conductor substantially as herein described consisting of the uprights A, the arms C projecting laterally from the said uprights, and the wing pivotally jointed to said arms C eccentrically between its upper and lower edges whereby it may be automatically swung to its different adjustments by wind pressure all substantially as and for the purpose set forth.

4. In a wind conductor the combination of the support having uprights A and the wing arranged to one side of the uprights A and pivotally connected with the support below the upper ends of the uprights A whereby the wing may abut and be stopped by the said uprights in both its adjustments substantially as set forth.

5. An improved wind conductor comprising a support or frame and a deflecting wing pivoted to said support or frame eccentrically between its upper and lower edges whereby the said wing will be adjusted upon its pivot by the wind pressure acting directly against the said wing all substantially as and for the purposes set forth.

490,546. DEVICE FOR PLACING BELTS ON PULLEYS. SAMUEL DOBBIE, Durham, England. Filed May 6, 1892. Serial No. 432,063. (No model.)



Claim.—The combination with a shaft, a pulley or sheave thereon, and a curved bar connected at its inner end with the shaft and at its outer end with the peripheral portion of the pulley or sheave for placing a driving belt upon the latter, of a collar secured to the shaft in juxtaposition to the inner end of the curved bar for the purpose of preventing the accidental engagement of the belt with the pulley or sheave, substantially as described.

490,547. NON-INFLAMMABLE PAINT. RICHARD J. DOYLE, Owen Sound, Canada. Filed July 20, 1892. Serial No. 440,602. (No specimens.)

Claim.—1. The hereinbefore described composition forming a non-inflammable oil or paint, consisting of vinegar, lime water, salt, alum, white vitriol, and linseed or other drying oil, compounded substantially in the proportions and in the manner hereinbefore described.

2. The hereinbefore described composition forming a non-inflammable oil or paint, consisting of vinegar, lime water, salt, alum, white vitriol, linseed or other drying oil and petroleum, compounded substantially in the proportions and in the manner hereinbefore set forth.

490,548. NON-INFLAMMABLE CEMENT. RICHARD J. DOYLE, Owen Sound, Canada. Filed July 20, 1892. Serial No. 440,603. (No specimens.)

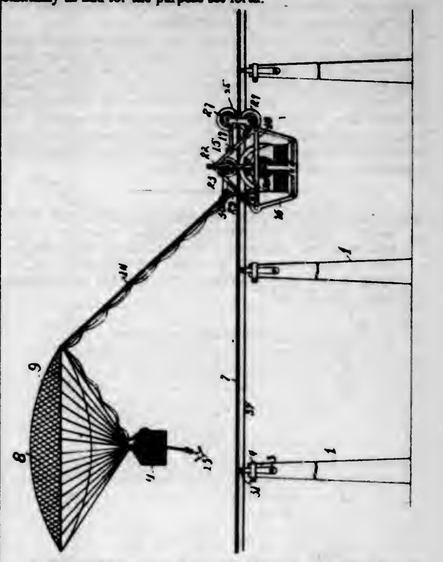
Claim.—1. The hereinbefore described composition of matter, forming a non-inflammable cement consisting of a mixture of vinegar, lime water, salt, alum, white vitriol, linseed or other drying oil, petroleum, and dry, ground, soft, unctuous clay containing from twenty five to eighty per cent of silicate of alumina mixed substantially in the proportions and manner set forth.

2. The hereinbefore described composition of matter, forming a non-inflammable cement consisting of a mixture of vinegar, lime water, salt, alum, white vitriol, linseed or other drying oil, and dry, ground, soft, unctuous, clay containing from twenty five to eighty per cent of silicate of alumina mixed substantially in the proportions and manner set forth.

490,549. ELEVATED-RAILWAY SYSTEM. CHARLES DELL and HENRY J. SCHMITT, St. Louis, Mo.; said Schmitt assignor to said Dell. Filed Feb. 16, 1892. Serial No. 422,046. (No model.)

Claim.—1. An electric air ship consisting of a carriage provided with a motor or motors, a balloon movably laterally independent of said carriage and connected therewith by a single flexible cable, and a car carried by the balloon and independent of the track along which the motor travels; substantially as and for the purpose set forth.

2. An electric air ship consisting of a carriage provided with a motor or motors, a balloon connected with the carriage by a single flexible cable and laterally movable independent thereof, a car carried by the balloon and independent of the track along which the motor travels, and means for drawing the latterd ownwardly; substantially as and for the purpose set forth.



3. The combination, with an elevated rope or cable, of a carriage suspended therefrom and provided with a motor or motors, a balloon connected with the carriage by a single flexible cable and laterally movable independent thereof, a car carried by the balloon and independent of the track along which the motor travels, electrical connections, and a controlling switch located in the car, substantially as and for the purpose set forth.

4. An electric air ship consisting of a balloon, a car suspended by the same, a device located within the same, for drawing the said balloon to the ground, a rope mounted upon suitable posts or columns at a suitable distance from the ground, a vehicle movable upon said rope, motors mounted upon said vehicle, a rope or other device for attaching the said balloon to the said vehicle, a switch located in the said car, suitable wire connection between the said switch and said motors, and a suitable source of electrical energy in electrical contact with said motors, substantially as described.

5. The combination, with an elevated rope or cable, of a carriage suspended therefrom and provided with a motor or motors, a balloon connected with the carriage by a single flexible cable and laterally movable independent thereof, a car carried by the balloon and independent of the track along which the motor travels, and devices for supplying electrical energy to the said motor or motors; substantially as and for the purpose set forth.

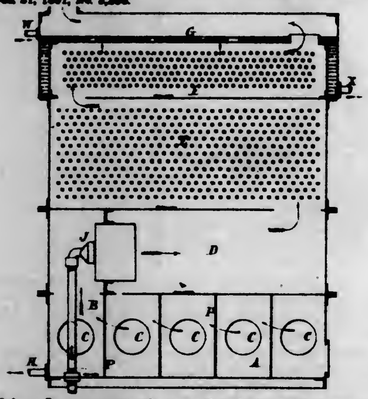
6. An "electric air ship" consisting of a carriage, comprising side frames, wheels mounted upon the same, for supporting and guiding the said carriage, a motor or motors carried by the said carriage and in electrical connection with a suitable source of electricity, a drive-wheel mounted upon the armature shaft or shafts of said motor or motors for propelling the said carriage, a rope or other device mounted upon suitable supports and at a suitable distance from the ground upon which the rope of the said carriage is adapted to be moved, conducting wires arranged along the line for supplying electrical energy to the said motor or motors, a balloon comprising a car adapted to be moved to and from the ground independent of the said vehicle, and a rope or other device for connecting the said balloon with the said vehicle or carriage, for guiding and propelling the said balloon, substantially as described.

7. An "electric air ship" consisting of a carriage 15, motors 20 mounted upon the same, a groove wheel such as 28 located between said motors and mounted upon the shaft of the same, guides and supporting wheels such as 24 and 27, bolts or columns 1 having supports 2 attached to the upper ends of the same, a rope such as 7 secured

to the ends of the said support upon which the said carriage is adapted to move for guiding the direction of the same, a balloon such as S, a car 11 suspended by the same, a rope 14 leading from the said balloon and attached to the said carriage, a windlass located in the said car having a rope, an anchor attached to the said rope and adapted to be lowered to and from the ground, a switch located in the said car, suitable wire connection between said switch and motors, and suitable conductors located along the line for supplying electrical energy, substantially as described.

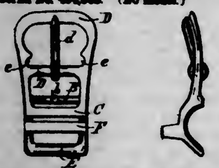
8. The combination, with supports or columns, and a rope or cable suspended thereon, of a carriage carried by said rope or cable and provided with a motor or motors, a balloon attached to the carriage by a single flexible connection and laterally movable independent of said carriage, a car carried by the balloon and independent of the track along which the motor travels, devices for supplying the motor or motors with electrical energy, electrical connection between the motor or motors and the car, and a switch located in the latter; substantially as and for the purpose set forth.

490,550. APPARATUS FOR REMOVING IMPURITIES FROM SMOKE. EDWARD B. DUDLEY, London, England. Filed Nov. 11, 1891. Serial No. 411,594. (No model.) Patented in England Apr. 6, 1891, No. 6,026; in France Nov. 2, 1891, No. 217,180; in Belgium Nov. 3, 1891, No. 97,009; in New South Wales Dec. 7, 1891, No. 3,484, and in Victoria Dec. 21, 1891, No. 9,266.



Claim.—In an apparatus for removing the impurities from smoke, the combination of a chamber A, having communication with source of smoke, a chamber D communicating therewith, a steam injector for injecting steam into said chamber D, and chambers E and F, having communication with the chamber D, said chambers E and F, provided with cooling surfaces, substantially as described.

490,551. BUCKLE. ALBERT DYER, Newport, R. I., assignor, by direct and mesne assignments, to Jere K. Sullivan, same place. Filed Aug. 31, 1891. Serial No. 404,393. (No model.)



Claim.—1. An improved buckle comprising in its structure, a frame having a tongue-bar, a tongue located on said tongue bar at a point substantially midway its ends, and adapted to enter a slit provided therefor in a strap, and recesses formed in said frame adjacent to the ends of the tongue bar to receive the edges of the strap, said tongue bar having portions on each side of the tongue to form a bearing for those parts of the strap between its edges and the slit therein, substantially as described.

2. An improved buckle, comprising in its structure a frame having a tongue-bar, a single-bar tongue located on said tongue bar at a point substantially midway its ends and adapted to enter a slit provided therefor in a strap, recesses in said frame adjacent to the ends of the tongue-bar to receive the edges of the strap, said tongue bar having portions on each side of the tongue to form a bearing for those parts of the strap between its edges and the slit therein, and a cross-bar provided with a pin extending therefrom arranged in rear of the tongue-bar, substantially as described.

3. In a buckle, the combination with a frame having a tongue-bar and a tongue, of a cross-bar provided with a pin extending therefrom, a friction bar C, in rear of the pin a holding down bar F, and recesses formed in said frame in front of and adjacent to said tongue bar, substantially as described.

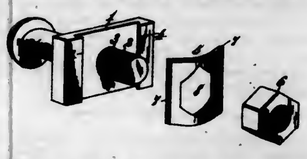
4. In a buckle, the combination with frame having a tongue-bar and a tongue, of a cross bar provided with a pin extending therefrom, a triangular friction bar located in proximity to said cross-bar, and a hold-down bar above said friction bar, substantially as described.

490,552. SADDLE-TREE. ALBERT DYER, Newport, R. I., assignor of one-half to Jere K. Sullivan, same place. Filed Oct. 6, 1891. Serial No. 407,946. (No model.)



Claim.—The combination with a saddle-tree having holes, a seat having a hole coincident with one of the holes in the saddle-tree, a crupper-loop having a hole coincident with the other of said holes in the saddle-tree, a lug projecting from the seat and entering the hole in the crupper-loop and the hole in the saddle-tree which is coincident therewith, a screw engaging said lug, a check-hook secured to said seat and provided with a hooked-projection engaging the hole in said seat and the hole in the saddle-tree which is coincident therewith, substantially as described.

490,553. NUT-LOCK. GEORGE W. GRAFFLIN, Jr., Baltimore, Md. Filed Oct. 8, 1892. Serial No. 448,234. (No model.)



Claim.—The combination of a base-plate having a bolt hole and opposite undercut shoulders, with a bolt, an angular screw nut, and an arched metallic washer-plate formed with an angular orifice receiving the angular nut, said washer-plate being adapted to be pressed from its arched form into a flat condition so that opposite edges thereof interlock with the opposite undercut shoulders of the base-plate, substantially as described.

490,554. CAR-BRAKE. FERDINAND GABLER, Topeka, Kans. Filed Mar. 21, 1892. Serial No. 425,864. (No model.)

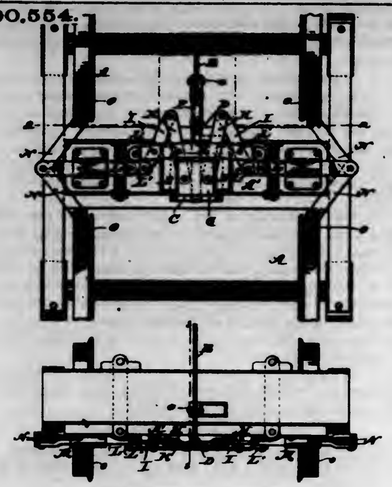
Claim.—1. In a brake, the combination with a truck, and brake shoes suspended therefrom, of transversely sliding rods, toggle levers pivoted to the outer ends of the said rods and to the brake shoes, a longitudinally sliding block, connections between the said block and rods, and means for operating the said block, substantially as described.

2. In a brake, the combination with toggle levers and brake shoes carried thereby, of transversely sliding rods pivoted at their outer ends to the toggle levers, a longitudinally sliding block, arms pivotally connected with the sliding block, levers pivoted to the ends of the said arms, and links pivoted to the levers and to the sliding rods, substantially as described.

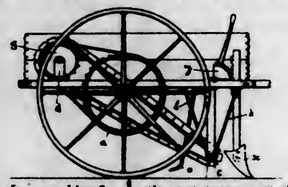
3. The combination with the truck and shoes suspended therefrom, the brake lever and bar, the slide block, the toggle levers, the laterally movable arms connected therewith, the levers attached to the arms, and arms connecting the said levers and slide block substantially as shown and described.

4. The combination with the truck and shoes suspended therefrom, of the toggle levers, the laterally movable arms, the levers connected with said arms, the brake levers, the brake bar, slide block and plate, the connecting arms pivoted between said block and plate and connected with the levers attached to the movable arms, and the metallic strap extended across said parts substantially as shown and described.

490,554.



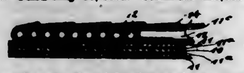
490,555. POTATO-PLANTER. ALVIN G. SHEHLER, Prosburg, Md. Filed Aug. 31, 1892. Serial No. 444,602. (No model.)



Claim.—1. In a machine for planting potatoes, a cart, the frame, the box supported within the frame, the shovel, the seed carriers situated between the side bars of the frame and the box and provided with dropping pockets, said carriers extending from about the level of the box to the level of the shovel, whereby the seed is dropped directly from the pockets into the furrow; substantially as set forth.

2. In a machine for planting potatoes, a cart, the frame, the box supported within the frame, the shovel, the seed carriers situated between the side bars of the frame and the box and provided with dropping pockets, said carriers consisting of endless belts passing obliquely down between said frame bars and box and about wheels below and above the box, and terminating near the ground behind the shovel whereby seed deposited in the pockets near the rear and top of the box is dropped directly from the pockets into the furrow, substantially as set forth.

490,556. MAT OR SIMILAR FLEXIBLE ARTICLE. HENRY R. T. GERHARD, Mattapan, Mass., assignor of one-half to Edwin J. Tucker, New York, N. Y. Filed May 16, 1892. Serial No. 433,112. (No model.)



Claim.—1. As an improved article of manufacture, a mat, or similar flexible article, comprising a flexible waterproof base, and a surface of overlapping scraps or strips, the base and scraps being secured together by rubber cement and vulcanized, substantially as described.

2. As an improved article of manufacture, a mat, or similar flexible article, comprising a flexible base, a body formed of flexible tubes secured to the base, and an outer surface of waterproof scraps or strips, the several parts being held together by rubber cement and vulcanized, substantially as described.

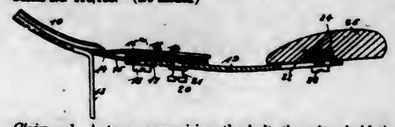
490,557. NUT-LOCK. GEORGE W. GRAFFLIN, Jr., Baltimore, Md. Filed Oct. 6, 1892. Serial No. 448,232. (No model.)

Claim.—1. The combination of a screw nut having its outer face provided with opposite undercut shoulders, with a bolt having a longitudinal angular extension at one end, and a metallic washer-plate engaging the angular extension of the bolt and having opposite edges interlocked with the undercut shoulders on the outer face of the nut, substantially as described.



2. The combination of a screw nut having its outer face provided with opposite undercut shoulders, with a bolt having a longitudinal angular extension at one end, and an arched metallic washer-plate engaging the angular extension of the bolt and adapted to be pressed from its arched form into a flattened condition to engage its opposite edges with the undercut shoulders of the nut, substantially as described.

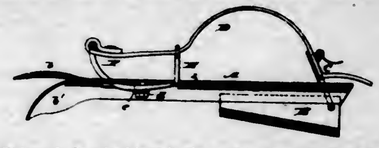
490,558. TRUSS. JOHN GRAY, Buffalo, N. Y. Filed Dec. 28, 1891. Serial No. 416,186. (No model.)



Claim.—1. A truss, comprising the belt, the wires held therein and having bent ends 15ª, the plate 16 having apertures receiving said ends, a securing plate 17 bolted over said ends, and a pad carrying bar or arm adjustably secured to plate 16, substantially as set forth.

2. A truss, comprising the belt provided with flaps 12, 13, the wires 15, a plate to which said wires are secured between the flaps, a pad carrying arm secured to the said plate by a screw 20; the outer flap 13 having an aperture to receive the head of the said screw, substantially as set forth.

490,559. HUSKING-PIN. SVEIN M. HALVARSSAARD, South Sioux Falls, S. D. Filed June 25, 1892. Serial No. 438,082. (No model.)

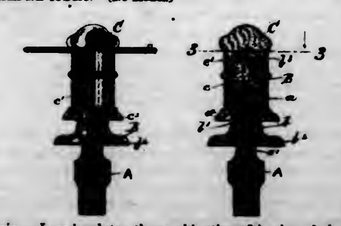


Claim.—1. In a husking pin, the combination, with the stripping blade or plate, of a lower, externally convex, longitudinally-sliding palm-piece, arranged on the under side of the rear portion of said plate and provided with a strap-carrying buckle or holder embracing said plate, substantially as and for the purposes herein set forth.

2. In a husking pin, the combination, with the stripping blade or plate, and its lower rear longitudinally-sliding palm-piece, having an attached buckle embracing the plate, of the longitudinally-adjustable forward finger piece, and the flexible strap connecting said finger piece with the buckle of the palm-piece, essentially as described.

3. In a husking pin, the combination of the stripping blade or plate A having claws *b b'*, slots *c c*, at its forward end, the finger rest or adjustable slide F, extending its end through said slots and clamped to the under side of the plate, the saddle or key E, the longitudinally-sliding palm-piece B on the under side of the rear end of the plate and having a buckle C embracing the plate A, and the flexible strap D, substantially as shown and described.

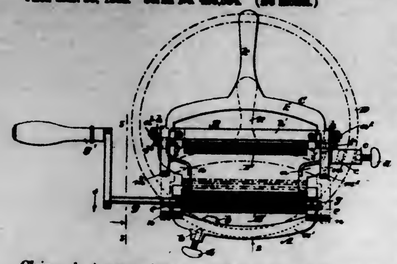
490,560. INSULATOR. ABSENTE J. HAUPT, Salisbury, Pa., assignor of one-third to John Burns, same place. Filed Aug. 20, 1892. Serial No. 444,405. (No model.)



Claim.—In an insulator, the combination of the threaded standard, the outer cap having its inner periphery threaded oppositely to the standard and provided with a longitudinal slot, and the inner or in-

intermediate cap having its outer periphery threaded to register with the threaded portion of the outer cap, and its inner periphery threaded to register with the threaded portion of the standard, substantially as and for the purposes described.

490,561. MOP-WRINGER. JOHN B. RISEK, Jr., Brooklyn, N. Y. Filed Mar. 26, 1892. Serial No. 426,554. (No model.)



Claim.—1. A mop wringer, comprising a frame adapted to be mounted on a tub or pail and provided with a roller and a lug beyond the roller, a swinging frame pivoted to the main frame, a roller journaled in said frame, and a pressure lever pivoted on the free end of the swinging frame and having a forwardly projecting arm the extremity of which is adapted to engage said lug, substantially as set forth.

2. The combination with a main frame having two limbs projecting in the same direction, and ears adapted to embrace the edge of a pail and provided with set screw bolts, a roller journaled on the main frame, and having a crank handle, of a rocking frame on the main frame having two depending limbs pivoted at the ends to the limbs of the main frame, a rotatable roller on the rocking frame, and a pressure lever having limbs which are loosely pivoted on ends of the rocking frame and project toward lugs on the main frame, and adapted to hook beneath said lugs when the rollers are adjacent, substantially as described.

3. The combination with a main frame substantially U-shaped in contour and having pairs of depending limbs thereon adapted to embrace the free edge of a pail, set screw bolts passing through one of each pair of limbs, locking lugs on the main frame laterally and oppositely projected therefrom, and a roller journaled on the main frame and having a crank handle, of a rocking frame on the main frame, having depending limbs pivoted to the main frame, a roller rotatable on the rocking frame and adapted to approach or recede from the main frame roller when the rocking frame is vibrated, and a pressure lever having parallel limbs loosely connected to the projecting journal ends of the rocking frame roller, and bent to adapt their free ends to interlock with the lugs on the main frame, substantially as described.

490,562. WHEEL-VEHICLE. THOMAS HILL, Jersey City, N. J. Filed Apr. 5, 1892. Serial No. 428,026. (No model.)



Claim.—1. In a draft wheel vehicle, the spring carrying pedestals which support the body of the vehicle constructed to form integral portions of the main frame, and provided on the under side of the castings of which the pedestals form a part, with recesses adapted to receive the vehicle axle within them, in combination with U or clip-shaped bolts adapted to brace and support the sides and body of the axle, whereby the pedestals are made to carry the axle, substantially as described.

2. In a draft wheel vehicle, the tubular T-shaped portions B B' of the main frame constructed to receive the side pieces of the vehicle frame within or through them, and to form upper tubular pedestals integral with the main frame, and provided with recesses on their under side adapted to receive the upper side of the vehicle axle within them, essentially as described.

3. In a draft wheel vehicle, the tubular T-shaped portions B, B' of the main frame constructed to receive the shaft or side pieces of the vehicle frame within or through them, and to form upper tubular pedestals, and provided with recesses on their under side adapted to receive the vehicle axle within them, and with brace-carrying brackets integral with the bodies of said T-shaped portions, substantially as specified.

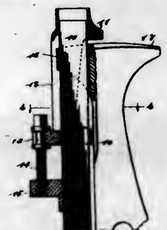
4. In a draft wheel vehicle, the combination, with the side pieces A A of the main frame, of the tubular T-shaped pedestal portions B B', recessed on their under side to receive the vehicle axle within them, and provided with brace-carrying brackets *b* integral therewith, and the U-shaped bolts *c* constructed to support the lower part of the vehicle axle and arranged to pass through the body parts of the T-shaped portions and side frame pieces therein, essentially as described.

5. The combination of the vehicle axle D, the side shafts or frame pieces A, A, the tubular T-shaped pedestal castings B B' having brace-carrying brackets *b*, the U-shaped or clip-like axle supporting bolts *c*, the brace C, and the bolts *g h*, substantially as specified.

6. The combination, with the open topped pedestal having a vertical slot in its inner side, opening upward through the pedestal, of a cap or cover to the pedestal constructed to also form a box or bearing integral with the cap and free to move up and down within the pedestal, substantially as set forth.

7. The combination, with the capped pedestal box and pedestal, of the longitudinal bolt d^3, passing entirely through both pedestal and said box, as and for the purposes described.

490,563. HAT BLOCKING AND STRETCHING MACHINE. ADIN W. HILDRETH, Orange, N. J. Filed Apr. 11, 1892. Serial No. 428,653. (No model.)



Claim.—1. In a hat blocking machine, the combination with the adjusting bar and the upper jaw sliding longitudinally thereon and means for adjusting said jaw along the bar, of an arm or bar having a sliding connection with the adjusting bar and provided with the lower jaw, substantially as set forth.

2. In a hat blocking machine, the combination with the two pivoted bars or levers having a loose connection at or near their upper ends, one bar having the lower jaw on its upper end, of the upper jaw overhanging the lower jaw, and sliding longitudinally on the other bar or lever, and a longitudinally extending adjusting screw connecting said upper jaw with its carrying bar or lever, substantially as set forth.

3. In a hat blocking machine, the combination with the adjusting ring 19, the bar or lever 10 pivoted at its lower end thereto and having a lug 15, the sliding jaw 11 on the said bar or lever, and the set screw 14 extending down through a projection on the lower end of said jaw into said lug 15 to adjust the jaw up or down, of the bell crank lever 16 having the lower jaw 17 on its upper end and a strap 18 loosely embracing the bar or lever 10, substantially as set forth.

490,564. TUNING-PIN FOR STRINGED MUSICAL INSTRUMENTS. CHARLES W. HUTCHINS, Springfield, Mass. Filed Mar. 28, 1892. Serial No. 426,642. (No model.)



Claim.—1. A tuning peg longitudinally slotted at its projecting end to adapt the string to be combined therewith by being inserted in the open end of said slot, substantially as shown and described.

2. The combination of a taper tuning peg having a projecting end provided with a longitudinal slot opening to said end, and forming a string securing device; of a metallic ring or washer combined with the head of the instrument and the peg, to present a hard surface to the string in the act of withdrawing the peg, as and for the purpose set forth.

490,565. DEVICE FOR HANDLING FERMENTED LIQUIDS. FREDERIK C. C. IMMÉ and HERMAN P. LUNDSGAARD, Copenhagen, Denmark. Filed Dec. 4, 1891. Serial No. 414,068. (No model.)

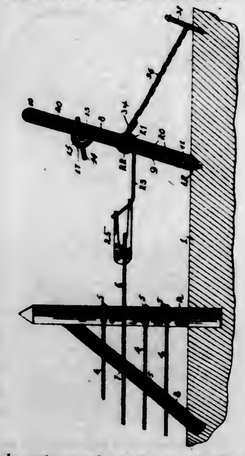


Claim.—1. In an improved device for impregnating liquors with carbonate acid gas, consisting of a high pressure chamber, connected with a low pressure chamber by means of a passage; a valve within the passage; a flexible diaphragm within the low pressure chamber; an elastic sphere pressing against said diaphragm and means substantially as described for regulating the pressure upon the said elastic sphere, substantially as and for the purposes described.

2. An improved device for impregnating liquor with carbonate acid gas, consisting of a high pressure chamber provided with a suitable strainer, and communicating with a low pressure chamber by a suitable passage; a valve within said passage and a diaphragm within said low pressure chamber and connected with the aforesaid valve, substantially as and for the purposes described.

3. An improved device for impregnating liquor with carbonate acid gas, consisting of a high pressure chamber communicating with a low pressure chamber by means of a passage; a valve within said passage and secured to one side of the diaphragm; an elastic sphere secured to the opposite side of the diaphragm and a hood or similar device adjacent to the opposite side of the sphere, and an adjusting screw for varying the pressure on the aforesaid elastic sphere, substantially as and for the purposes described.

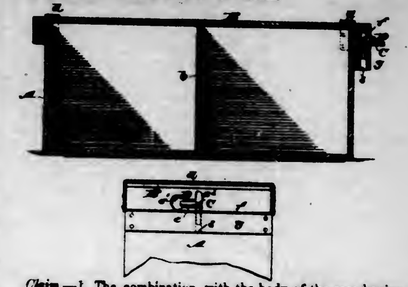
490,566. WIRE-STRETCHER. ADOLPH KAHL, Sorento, Ill., assignor of one-half to Thomas Scharf and Albert Kahl, same place. Filed July 21, 1892. Serial No. 440,751. (No model.)



Claim.—1. In a wire stretcher of the class described, the combination, with the frame carrying a reel, of a spool journaled in said frame and longitudinally adjustable therein, and a bail mounted on the shaft of said spool and adapted to serve as a support for the frame, whereby the frame is supported approximately in alignment with the strain of the wire which is being stretched; substantially as and for the purpose set forth.

2. In a wire stretcher of the class described, the combination, with the frame comprising parallel bars provided with coincident apertures, and a reel journaled between said bars, of a pin 21 adapted to be inserted in a pair of said apertures, a spool 22 bearing on said pin, and a bail 34 also bearing on said pin at each side of the spool; substantially as and for the purpose set forth.

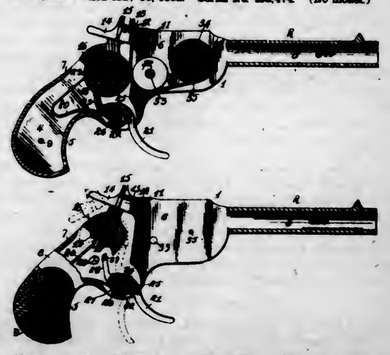
490,567. BOX-FASTENER. DAVID B. KERR, Portland, Me. Filed May 9, 1892. Serial No. 432,340. (No model.)



Claim.—1. The combination, with the body of the case having an apertured locking end strip, of the sliding lid or top having a correspondingly apertured end strip provided with a substantially right angled recess in its outer face, and a crank-shaped vertically sliding and horizontally turning bolt adapted to engage said apertured strips and to lie within the right angled recess and to turn at its upper bent or handle end out of said recess when the lid is unlocked, to permit the bolt to be raised out of the aperture in the lower locking strip essentially as shown and described.

2. The combination with the box having transverse stationary end loops *d d'*, and a transverse locking strip on one end adjacent to its upper edge and provided with a vertical aperture *e*, of the cover B sliding through the loop adjacent to said strip into the opposite loop, a transverse strip *f* having an angular recess D in its outer face and a vertical aperture communicating with the recess D at the lower end of its vertical branch e^3, and the angular bolt, the vertical member of which turns in the two registering strip apertures to permit the horizontal member to be moved into and out of the branch *e* and slides vertically into the branch e^3 to release its lower end from aperture *e*, substantially as set forth.

490,568. REPEATING TOY PISTOL. JOHN F. W. KOSTTER, St. Louis, Mo. Filed May 10, 1892. Serial No. 432,474. (No model.)



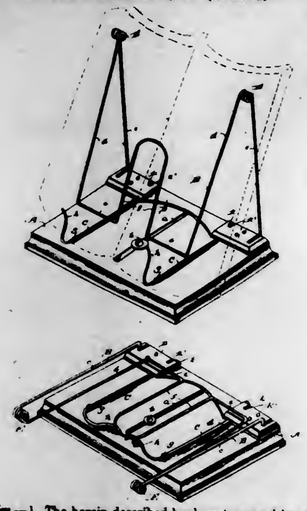
Claim.—1. In a self-cocking toy pistol, the combination, with the pistol proper, and a spring-held hammer provided with a projecting shoulder, of a pivoted spring-held trigger provided with a sear adapted to engage said shoulder, and with a conical bearing eye; substantially and for the purpose set forth.

2. In a self-cocking toy pistol, the combination, with the pistol proper, a hammer, and a trigger provided with a sear for operating said hammer, of a bearing for carrying a fulminating tape, a feed-roller, and a ratchet feed disk arranged adjacent to said roller and adapted to be rotated by the sear; substantially as and for the purpose set forth.

3. In a self-cocking toy pistol, the combination, with the pistol proper, of a spring-held hammer provided with a projecting shoulder, a pivoted spring-held trigger provided with a sear adapted to engage

said shoulder, and with a conical bearing eye, for the purpose described, a feed-roller, a ratchet feed-disk actuated by the sear, and means for carrying a fulminating tape, said tape being automatically fed between said roller and disk; substantially as set forth.

490,569. BOOK-REST. DANIEL G. LEHMAN, Fultonville, N. Y. Filed June 20, 1892. Serial No. 436,572. (No model.)



Claim.—1. The herein described book rest, comprising the base board or block, the horizontal wires C, C, secured thereto, one near each lateral edge, and terminating at their forward ends in upwardly turned arms A, A, serving to hold the lower front portion of the book, the vertical parallel single wire arms *c*, *c*, rising from said base, and an integral transverse spring loop connecting the upper ends of said arms, said loop extending downward and forward obliquely to within a short distance of the arms A, A, and serving as a support for the back of the book, said loop being free at its lower portion, whereby it may yield to receive different sizes of books, substantially as specified.

2. The combination of the base, the arms *c*, *c*, loosely secured thereto, said arms having the spring coils at their upper ends, the spring loop depending from the upper end of said arms and extending forwardly therefrom, and the wires C, C, loosely secured to the base and formed at their forward ends with upwardly turned arms A, A, said parts being designed to collapse or fold in the manner as specified.

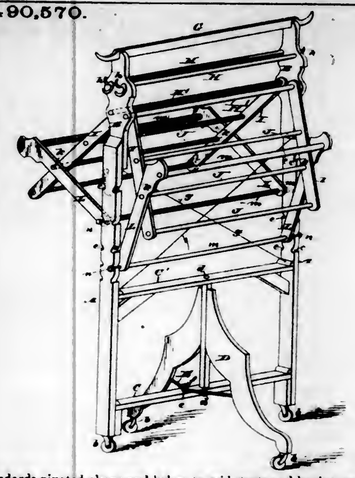
3. The combination with the base having means whereby it may be adjustably secured to a desk or table, and the notched plate D secured to the rear edge thereof, of the wire arms *c*, *c*, loosely secured to the base by said plate, the depending oblique spring loop carried by said arms, and the wires C, C, loosely held to the base and formed with the arms A, A, said parts being arranged to fold or collapse as specified, and means for locking the arms A, A, in upright position while in use, substantially as specified.

490,570. CLOTHES-DRIER. GEORGE A. LEIGHTON, Newaygo, Mich., assignor to Willard C. Lovejoy, same place. Filed June 30, 1892. Serial No. 438,497. (No model.)

Claim.—1. A clothes rack, comprising the two uprights A A connected by upper and lower cross bars and each having a series of notches in both edges, the two pairs of arms I pivoted to the uprights and having cross bars J, the legs L pivoted to and crossing the arms I near their free ends and provided with cross bars *m* and with lateral projections at their free ends to enter the said notches, and supports for the lower ends of the uprights, substantially as set forth.

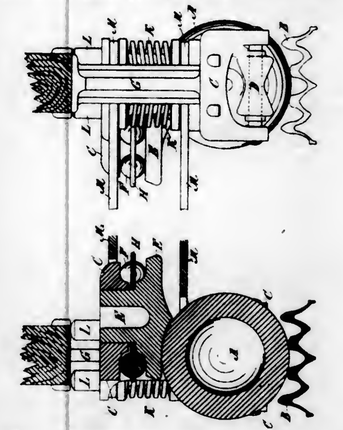
2. In a folding and adjustable clothes rack composed of notched uprights having castors at their lower ends, and braced at a suitable height above said castors by connecting struts arranged one above the other, and outwardly and inwardly swinging rack frames, having pivoted legs adapted to engage with the notches in the uprights as described, the combination therewith of the turning or swinging cross

490,570.



standards pivoted above and below to said struts and having casters at their lower ends, a spring wire or rod connecting opposite parts or legs of said standards on reverse sides of the lower strut, and a pin on the latter adapted to snap or engage with a crook in the spring rod, essentially as described.

490,571. CAR-WHEEL. ALOYS M. LEHWATHER, Basle, Switzerland. Filed Oct. 24, 1892. Serial No. 449,831. (No model.) Patented in Switzerland July 2, 1890, No. 2,456; in Germany July 11, 1890, No. 60,143; in England July 23, 1890, No. 11,543; in France July 26, 1890, No. 207,215; in Belgium Aug. 20, 1890, No. 91,673, and in Austria-Hungary Nov. 13, 1890, No. 3,314 and No. 3,273.



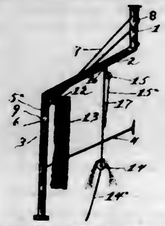
Claim.—1. The combination of the spherical wheel or ball A with the guard C provided with downwardly projecting arms and guiding rollers D journaled in said arms in contact with said ball, substantially as and for the purposes described.

2. The combination of spherical wheel A, guard C and guiding rollers D, with longitudinally corrugated rails B, substantially as described.

3. The combination of spherical wheel A, guard C, pivot plate B and antifriction balls F, substantially as described.

4. The combination of spherical wheel A, guard C, spiral springs K and bolts L.

490,572. CURTAIN-EXHIBITOR. ANN LEHNBERG, Ogden, Utah. Filed July 20, 1892. Serial No. 441,111. (No model.)



Claim.—1. A device for exhibiting curtains consisting of the vertical and inclined standards connected to each other having continuous grooves, a pole having its ends traveling in said grooves, and provided with suitable means for holding the curtain, and means for raising said pole, substantially as described.

2. In combination with the vertical and inclined rods having continuous grooves therein, a pole having its ends adapted to travel in said grooves, hooks carried by the pole adapted to support the curtain, arms at the upper ends of the inclined rods, and projections carried by the pole for engaging said arms and causing the pole to turn to release the curtain, substantially as described.

3. In combination with the vertical and inclined rods having continuous grooves therein, a pole having its ends traveling in said grooves, hooks carried by the pole for supporting the curtain, arms carried by the inclined rods for engaging projections on the pole to cause it to release the curtain at the limit of its upward movement, and counter balancing poles supported beneath the inclined rods and adapted to receive the curtain when released, substantially as described.

4. In combination with the vertical and inclined rods having the continuous grooves therein, the curtain supporting pole traveling in said grooves, means for raising the curtain pole and means for causing it to automatically release the curtain when at the limit of its upward movement, and spring arms located at the upper extremity of the vertical rods and carrying concealing curtains, said arms being adapted to yield to allow the curtain to pass through in its upward movement, and to return to place to conceal the curtain when dropped, substantially as described.

490,573. CONNECTION WITH DOMESTIC FIRE-RANGES OR OTHER RANGES. EDWIN MABEN, Leeds, assignor to Henry Leggott, Bradford, England. Filed Apr. 21, 1892. Serial No. 430,048. (No model.) Patented in England July 23, 1890, No. 11,769.



Claim.—1. A fire space or furnace F, fitted with louver bars at the front and rotating grooved or fluted rollers R. R. at the bottom, substantially as shown and described.

2. A fire space or furnace F, fitted with louver bars A, at the front a back N, with opening M, at the underside and the grooved or fluted rollers R. R. at the bottom, all arranged substantially as shown and described.

490,574. HOISTING APPARATUS. VICTOR MATHIEU, Inverness, Fla. Filed Oct. 22, 1892. Serial No. 449,093. (No model.)

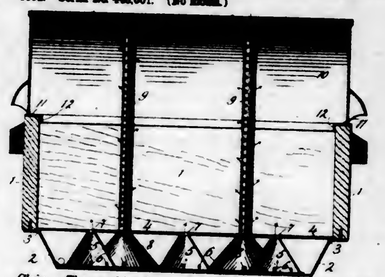


Claim.—1. In an apparatus of the class described, the combination of two towers, a track or way supported thereby, a carriage on said way, a rope for moving backward and forward the said carriage, guides supported on the track or way having upwardly extending flaring arms for guiding the said rope, and a hoisting rope supported by the carriage, substantially as shown and described.

2. In an apparatus of the class described, the combination of a suitably supported track or way, a carriage thereon, a suitably operated rope for adjusting the carriage on the way, combined guiding and supporting devices movable on the said way, upwardly extending flaring arms at the upper ends of the devices for guiding the said rope, a hoisting rope extending to the carriage, and rollers in the lower ends of the said guiding and supporting devices over which the said last named rope passes, for the purpose shown and described.

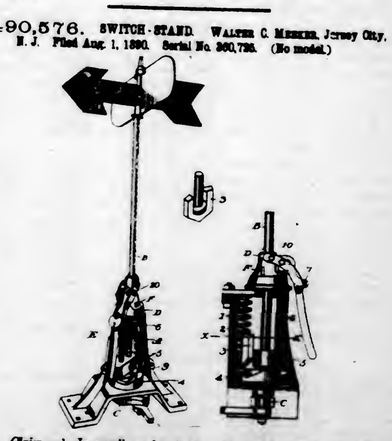
3. In an apparatus of the class described, the combination of a suitably supported track or way, a carriage, a rope for adjusting the same, a suitably operated hoisting rope passing to the carriage, movable devices on said way having forked upper ends for guiding the first named rope, the sides of each of the said devices being formed of continuous pieces of metal, rollers in the lower ends of the devices over which passes the said hoisting rope, and connecting chains between the said devices, substantially as shown and described.

490,575. WASH-BOILER. JOHN A. MEDLEY, Comanche, Tex., assignor of one-half to Robert H. C Henderson, same place. Filed Oct. 11, 1892. Serial No. 448,601. (No model.)



Claim.—The combination with the body 1, of the false bottom 4 formed with openings 7 and having on its under face conical chambers 5 communicating with said openings and provided with conical chambers 8 and perforated tubes 9 extending upwardly from and communicating with said chambers, substantially as and for the purposes described.

490,576. SWITCH-STAND. WALTER C. MERKER, Jersey City, N. J. Filed Aug. 1, 1890. Serial No. 360,726. (No model.)



Claim.—1. In a rail road switch stand a cam with its actuating surfaces arranged to operate in the direction in which the shaft passes through it, in combination with a plunger with two inclined surfaces bearing against two corresponding inclined surfaces of said cam, said plunger being actuated by a spring and independent of the shaft, a crank shaft, and a mechanism for connecting and disconnecting said cam with the crank shaft, substantially as shown and described.

2. In a railroad switch stand, a rod or pin connected directly to the hand operating lever for engaging and disengaging the crank shaft with the spring actuated mechanism, substantially as shown and described.

3. In a railroad switch stand, a rod or pin connected directly to the hand operating lever for engaging and disengaging the crank shaft with the spring actuated mechanism, and provided with an arm for locking the hand operating lever substantially as shown and described.

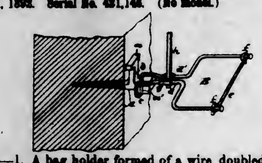
4. In a railroad switch stand a cam with actuating surfaces operating in the direction in which the shaft passes through it, in combination with a crank shaft and cap, a hand operating lever, a locking rod or pin connected directly to the said hand operating lever, and a spring arranged to partially resist the rotary movement of said cam, all substantially as shown and described.

490,577. POT-SCRAPER. CHRISTOPHER G. MEMMINGER, Charleston, S. C. Filed Aug. 16, 1892. Serial No. 443,314. (No model.)



Claim.—As an article of manufacture, the herein described pot scraper, formed spoon shaped with the pointed bowl, and the handle, projections D, E, extending from one edge of the bowl, and the bulge F in the inside of the bowl below said projections, as set forth.

490,578. BAG-HOLDER. THOMAS MERRY, Chicago, Ill. Filed Feb. 11, 1892. Serial No. 421,146. (No model.)



Claim.—1. A bag holder formed of a wire doubled or returned upon itself forming a loop with each arm of the loop offset or bent twice at right angles, the arms of the loop being connected at the free end with a looped wire, and means for supporting the wire loop, substantially as specified.

2. A bag holder, formed of a wire doubled or returned upon itself forming a loop, the arms of which are bent laterally at right angles to the plane of the loop, then bent forward at right angles, forming two arms parallel with each other, the curved or looped end of the wire being bent at right angles to the plane of the loop to receive the supporting screw, a wire connecting the two arms of the loop at their free ends, and a screw provided with one or more T-shaped heads adapted to engage the angled end of the loop, substantially as specified.

3. A bag holder, formed of a wire doubled or returned upon itself, forming a loop the arms of which are bent laterally at right angles to the plane of the loop, then bent forward at right angles, forming two arms parallel with each other, the curved or looped end of the wire being bent at right angles to the plane of the loop to receive the supporting screw, a wire connecting the two arms of the loop at their free ends, a screw provided with one or more T-shaped heads adapted to engage the angled end of the loop, a clasp or slide placed on the narrower portion of the loop, and a bag-supporting rod inserted in the slide, substantially as specified.

4. A bag holder, formed of a metal loop provided with a shank, and a holder constructed to receive the shank, substantially as specified.

490,579. HOT-AIR PIPE. AUGUST MILLER, Burlington, Iowa. Filed June 13, 1892. Serial No. 436,844. (No model.)

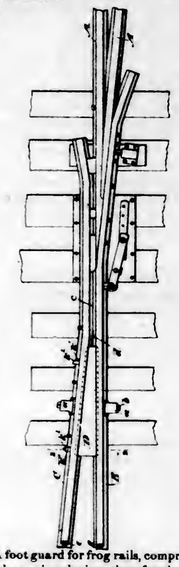


Claim.—1. A double-walled pipe for the transmission of hot air, made in sections, each having at one end a perforated connection between the two walls, and each of said walls at the lower end being open, and also slitted or cut out at the corners, as and for the purpose set forth.

2. In combination with the doubled walled hot air pipe made in sections, each section having beveled edges, as described, the V-shaped and perforated strips in each section adapted to receive the said beveled edges of the adjacent section, said beveled edges acting by friction chiefly to hold the two sections together.

3. A double walled hot air pipe each section of which has its lower ends slitted or cut out, and at its upper ends is provided between the walls with perforated guide pieces, substantially as set forth.

490,580. FOOT-GUARD FOR RAILROADS. WILLIAM B. MITCHELL and FRANK BENNINGER, Galion, Ohio. Filed June 4, 1892. Serial No. 435,569. (No model.)



Claim.—1. A foot guard for frog rails, comprising a wedge shaped box-like piece, and securing devices therefor that retain the box-like guard piece between converging rails, by clamping it to the rail bases substantially as described.

2. A foot guard for frog rails, comprising a tapering body adapted to engage the webs and heads of converging frog rails, and a securing bolt therefor, engaging the guard body, and a clamp plate that bears on the base flange of one rail substantially as described.

3. A foot guard for frog rails, comprising a tapering box-like structure, notched on the side edges, and a bent bolt adapted to retain the guard piece from longitudinal displacement, substantially as described.

4. A foot guard for frog rails, comprising a tapering box-like structure provided at one end with lateral wings, notched in side edges, and engaged by a securing bolt at the end opposite the winged end, substantially as described.

5. In a foot guard for frog rails, the combination with a tapering box-like structure notched on side edges to engage a transverse frog bolt, and winged on one end, of a bent bolt engaging the box-like structure at its opposite end, a clamping plate on the bolt, and a nut on the bolt bearing on the clamping plate, substantially as described.

6. In a foot guard for frog rails, the combination with a laterally tapered box-like structure, and wings at one end of said structure adapted to engage the overhanging heads of converging T-rails, of a securing bolt interlocking with the opposite end of the box-like structure, limbs projected oppositely on said bolt, a hook on the end of one limb, a clamping plate on the other limb, and a nut engaging the bolt and plate, substantially as described.

490,581. RIDGE-CRESTING. WILLIAM H. MULLEN, Salem, Ohio. Filed Jan. 29, 1892. Serial No. 419,905. (No model.)



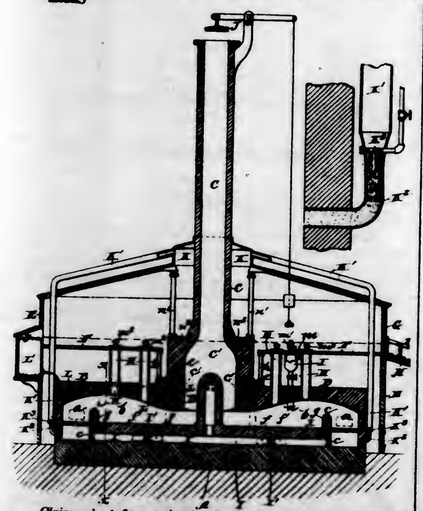
Claim.—1. A cresting block having an upright ornamental section with a slit tubular base provided with inwardly projecting flanges for engaging a ridge-roll, whereby said block is retained in position.

2. An adjustable cresting-block having an upright ornamental section with a slit tubular base provided with inwardly projecting end flanges for engaging a ridge-roll and retaining said block in position.

3. A cresting-block consisting of ornamental connected plates, each plate having a downwardly projecting curved flange constituting one side of a slit tubular base for embracing a ridge-roll.

4. A ridge cresting consisting of corresponding joined face-plates, and oppositely curved integral base flanges, in combination with a ridge-roll embraced thereby.

490,582. FURNACE FOR BURNING GARBAGE, &c. WILLIAM McCLAVE, Scranton, Pa. Filed Oct. 20, 1892. Serial No. 449,503. (No model.)



Claim.—1. A furnace having, in combination, a stack mounted on its top, a central column of refractory material extending up from its bottom, a main lateral combustion chamber, a circular combustion chamber in the base of the stack, and a suitable system of hot air channel-ways for supplying air to facilitate combustion, and charging passages for the introduction of garbage or dead animal matter, or nightsoil and the like, into the main combustion chamber, substantially as described.

2. A furnace having, in combination, a central stack mounted on its top and constructed with a circular combustion chamber in its base and concentric with said stack, a plurality of lateral combustion chambers in communication with said circular combustion chamber, and a system of passages and channel-ways for supplying heated air to facilitate combustion, and also passages inclosed by suitable reservoirs or tubes for the introduction of the offensive substances into the furnace to be burned, substantially as described.

3. A furnace having, in combination, lateral combustion chambers, the side-walls thereof being carved at the inner terminus or termini so as to tangentially, or nearly so, deflect the flowing gases or flames; a stack having a circular combustion chamber in its base, a central column of refractory material extending up from the bottom of the furnace, whereby the gases are caused to whirl or have a cyclonic action, and are expanded and thoroughly intermixed with heated air, and all the vapors thoroughly disintegrated and heated to a very high temperature at the point where the heat is the greatest, and the life germs and odors in the gases and vapors destroyed substantially as described.

4. The combination of the odor conducting pipes with the interior chamber of the building containing the furnace, and with the steam and air blast ducts of the ash pits of the furnace, substantially as described.

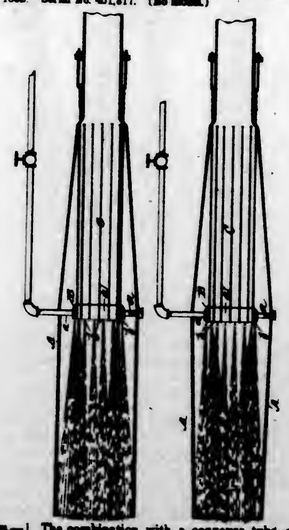
5. The combination with the charging passages of the furnace, of the tubes for the introduction of garbage or dead animal matter, and the reservoirs for nightsoil and the like, said tubes and reservoirs being connected by air vents and conducting channels, substantially as described.

6. The furnace having a primary and a secondary combustion chamber with a refuse chamber between them and constructed with the hot air channel-ways beneath its bottom, and with air entrance passages, and branch passages leading into the several chambers, substantially as described.

7. The combination with the primary and secondary combustion chambers and the refuse chamber of the furnace, the latter having a tangential discharging throat, of the central column extending up into the secondary combustion chamber, and a petroleum oil tank and the supply pipe thereof leading into the said secondary combustion chamber, substantially as described.

8. The furnace having, in combination, the lateral combustion chamber, a stack having a circular combustion chamber, a hot air channel-way beneath the furnace bottom, and a hollow perforated central column extending up from the bottom of the furnace and in communication with the hot air channel-way, substantially as described.

490,583. STEAM-JET CONVEYER FOR ASHES OR OTHER LIGHT SUBSTANCES. WILLIAM McCLAVE, Scranton, Pa. Filed Nov. 12, 1892. Serial No. 451,817. (No model.)



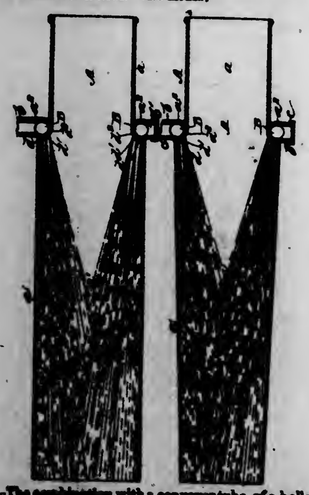
Claim.—1. The combination with a conveyer tube, of a steam jetting device of ring or analogous form having a plurality of steam

jet discharging orifices or nozzles near its outer edge, and a large open or substantially unobstructed central passage through it for the air and unpulverized substances conveyed, to pass through; the said steam jet orifices of said jetting device being constructed and arranged to eject from the same jetting device the steam, with one portion of the orifices or nozzles, with a convergence toward the center of the tube, and with the other portion of jets or nozzles, at the same time, eject the steam either parallel with the inner longitudinal surface of said tube or divergent outwardly from the center of the tube, or parallel with said surface and outwardly divergent from said center of the tube, substantially as described.

2. The combination with a conveyer tube, of two or more steam jetting devices, each having a plurality of steam jet discharging orifices or nozzles, and the inner one having a large open or substantially unobstructed central passage through it for the air and the large pieces of substances being conveyed, to pass through it, and the outer jetting device or devices also having a passage or passages through them for the powdered portion of the substances to pass through, the said steam jet orifices of each jetting device being arranged to eject the steam from a portion of the orifices, with a convergence toward the central longitudinal axis of the tube, and the other portion of the jets, at the same time, eject the steam either parallel with the inner surface of said tube, or parallel with said surface and outwardly divergent from said center, substantially as described.

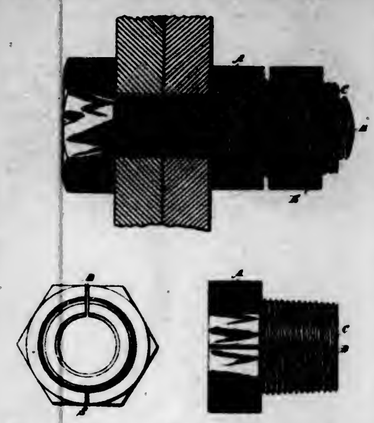
3. The combination with a conveyer tube, of a steam jetting device having a plurality of steam jet discharging orifices or nozzles near its outer edge, and a large open or unobstructed central passage through it for the air and unpulverised as well as the pulverised substances, to pass through it, a portion of said jetting orifices or nozzles jetting steam substantially parallel with the axis of the tube, and the other portion jetting steam with a convergence toward the center of the tube; and a guiding and guarding open-work tube for directing the solid particles of the substances through the central passage of the steam jetting device, and, at the same time, allowing the pulverised substances to pass off outside the steam jetting device, between it and the inner surface of the tube, substantially as described.

490,584. STEAM-JET CONVEYER FOR ASHES OR OTHER LIGHT SUBSTANCES. WILLIAM MCCLAVE, Scranton, Pa. Filed Nov. 12, 1892. Serial No. 451,512. (No model.)



Claim.—The combination with a conveyer tube, of a hollow steam jetting device of ring or analogous geometrical form and having steam jet discharging orifices or nozzles between its inner and outer boundaries, said devices being applied substantially outside the range of the substances being conveyed as well as of the air which is caused to flow into the tube by the action of the steam jets, and thus offering no obstruction to the steam within the tube, the said steam jet orifices or nozzles of said steam jetting device being arranged to jet steam from the same jetting device by one portion of the orifices or nozzles with a convergence at a certain or different angles toward the center of the tube, and with the other portion of the orifices or nozzles parallel or substantially parallel with and near the inner surface of the said tube, substantially as described.

490,585. NUT-LOCK. CHARLES W. MCCORMICK, Emporia, Kans. Filed June 16, 1892. Serial No. 436,868. (No model.)

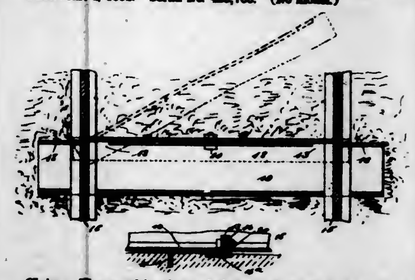


Claim.—1. A nut provided with a tube externally tapered and threaded, the tube and nut being slitted entirely through on one side, substantially as set forth.

2. A nut provided with a tube externally tapered and threaded, the tube and nut being slitted entirely through on one side, in combination with a tapered clamp nut, substantially as set forth.

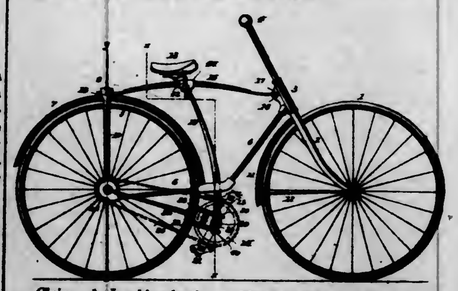
3. A nut provided with a tube externally tapered and threaded, the tube and nut being slitted entirely through on one side, and the nut being slotted on another side, substantially as set forth.

490,586. RAILWAY-TIE. SAMUEL MCELFATRICK, Princeton, Ky. Filed Mar. 4, 1892. Serial No. 423,703. (No model.)



Claim.—The combination, of the flat tie body having clamping devices near its ends to fit the outer flanges of the rails, and a straining bar adapted to extend between the rails and fit their inner flanges, the straining bar having a bottom flange extending beneath the body of the tie, substantially as described.

490,587. VELOCIPEDE. FRANCIS P. MCHARDY, Chicago, Ill. Filed Mar. 11, 1892. Serial No. 424,561. (No model.)



Claim.—1. In a bicycle, the combination of the steering-fork, the front wheel journaled therein, the rearwardly extending forked frame-bar, the rear wheel mounted between the forked ends of said bar, the spring 14 extending between the two wheels, the transverse journal-box and its driving-shaft and pedals, and the standard 19, having its upper end connected to the spring 14, and its lower end extended between the forks of the frame-bar and connected to the journal-box, whereby the journal-box and driving-shaft are permitted a slight vertical movement independently of the frame.

2. In a bicycle, the combination with the forked frame bar of the standard extending loosely therethrough, the seat sustained at the upper end of the standard, the driving-shaft sustained at its lower end, and the coiled spring applied to the standard and having its ends connected with the frame and with the journal-box in such manner as to limit both the upward and downward movements of the standard, journal-box, and shaft.

3. In a bicycle, the combination of the front and rear wheels, the forked frame-bar connecting the two, the spring extending between the wheels, the seat sustained thereby, the journal-box and its driving-shaft, the standard extending between the forks of the frame-bar having its upper end connected to the spring 14, and its lower end connected to the transverse journal-box, and the coiled spring encircling the standard between the forked frame and the journal-box and having its ends connected respectively thereto.

4. In a bicycle, the combination of the forked frame-bar, the roller journaled on the inner side of the fork, the standard extending between the forks in contact with the roller, the seat at the upper end of the standard, the journal box at its lower end and the driving-shaft mounted in said journal-box.

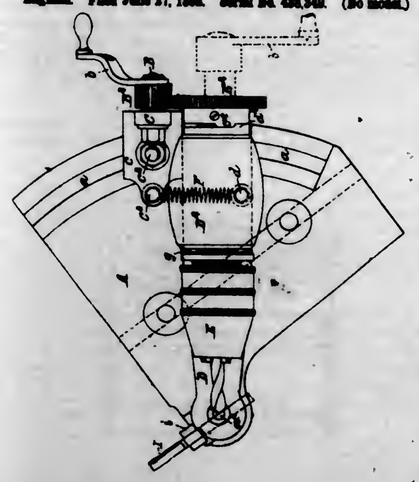
5. In a bicycle, the combination of the steering-fork, the front wheel journaled therein, the rear wheel, the connecting frame within which the said wheel is journaled, the clip 6, the vertical bar 10, sustaining the same, the roller journaled in said clip and the springs 14, having its front end sustained by the steering-fork and its rear end seated upon the roller.

6. In a bicycle, the combination with the front and rear wheels and the connecting-frame of the journal-box with its driving-shaft, mounted to move vertically to a limited extent, the perforated lugs on the journal-box, the connecting rods having their forward ends forked and extended through the said lugs, and their rear ends mounted on the axis of the rear wheel, the springs seated on the forked ends of the rods, and the adjusting nuts to vary the tension of the springs.

7. In a bicycle, the combination of the steering-fork, the front-wheel mounted therein, the rearwardly-extending forked frame-bar 6, the rear wheel mounted within said bar, the vertical rods 10, the clip sustained at their upper ends, the spring 14, having its front end connected to the steering fork and its rear end sustained loosely by the clip, the seat sustained by the spring 14, the journal-box, the driving-shaft mounted therein, the sprocket wheels and chains, the standard 19, extending between the forked ends of the frame-bar in front of the rear wheel, with its upper end connected to the spring 14, and its lower end to the journal box, the spiral spring applied to the standard, and the connecting rods having their rear ends mounted on the axis of the rear wheel and their front ends yieldingly connected to the journal-box

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490,588. APPARATUS FOR GRINDING THE POINT ENDS OF DRILLS, &c. ALFRED PALMER and FRANCIS R. BLACKMORE, Reading, England. Filed June 27, 1892. Serial No. 438,349. (No model.)



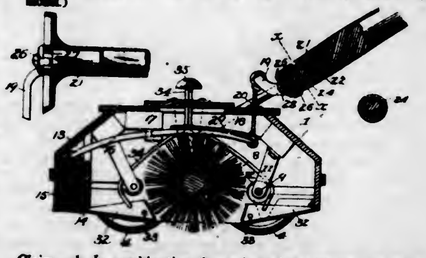
Claim.—1. In an apparatus for grinding the points of drills and the like, a drill carrier capable of oscillating or vibrating on a center the extreme point of the drill being gaged so as to be situated in the same axial line as that of the center on which the said carrier oscillates or vibrates in combination with means for rotating the drill and means whereby as the drill rotates the angle of the carrier is altered by being turned upon the said center to give the required backing off at each wing or rib of the drill on each revolution thereof substantially as hereinbefore described.

2. In an apparatus for grinding the points of drills or the like, a carrier for the drill and means for rotating it and means whereby as the drill revolves the angle of the carrier is altered to give the required backing off at each wing or rib of the drill at each revolution thereof and means for removing the drill from the grinder as each groove in the drill comes opposite to it, substantially as and for the purpose hereinbefore described.

3. In an apparatus for grinding the points of drills and the like, the combination of a bed plate, an arm centered on the bed-plate, a rotating drill holder carried by the said arm, and a groove in the bed plate the said groove being an arc having its center in axial line with the center of oscillation of the arm, with a standard adjustable in the said groove and connections between the standard and the said arm to oscillate the arm as the drill holder rotates, all substantially as and for the purposes set forth.

4. In an apparatus for grinding the points of drills, the combination of a bed plate having an arm centered thereon and a groove being an arc having its center in axial line with the center of oscillation of the said arm, a rotating drill holder carried by the arm, two cam surfaces, one on the arm and one on the drill holder, adapted to act upon each other, with a standard adjustable in the said groove, and connections between the standard and the drill holder and arm to rotate the drill holder and oscillate the arm, all substantially as and for the purposes set forth.

490,589. CORNER AND BASE CARPET-SWEEPER. JACOB W. ROOF, Harrisburg, Pa. Filed Oct. 22, 1891. Serial No. 409,481. (No model.)



Claim.—1. In combination the main casing with its main chamber and collecting means, a supplemental chamber forward of the main chamber, and supplemental collecting means in connection therewith, substantially as described.

2. In combination the main chamber, the supplemental chamber, the supplemental collecting means in connection therewith, and the operating means therefor connected to the handle, substantially as described.

3. In combination the casing, the supplemental chamber and the movable collecting means within the chamber, with means for operating it, substantially as described.

4. In combination the casing, the supplemental chamber, and the supplemental collecting brush movable therein and guided by the walls thereof, and operating means for the brush, substantially as described.

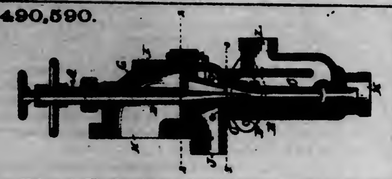
5. In combination the casing, the supplemental chamber formed by the partition 14, and the supplemental collecting means in connection with said chamber, and the operating means therefor.

6. In combination the casing, the supplemental chamber having inclined walls, the brush guided thereby and the operating means for the brush.

7. In combination, the casing with the main and supplemental collecting means, the yoke having the socket provided with a notch, the swivel handle to turn in said socket, having a wearing thimble, carrying a stud to engage the yoke notch and a finger 19, and the connection from the figure to the supplemental collecting means, substantially as described.

490,590. INJECTOR. ALEXANDER SIMPSON, Scranton, and MATHIAS SPENCHER, Archbald, Pa. Filed July 19, 1892. Serial No. 440,594. (Model.)

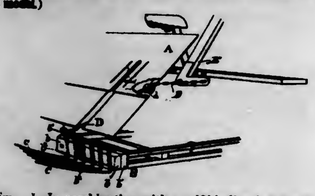
490,590.



Claim.—1. The herein-described injector, comprising the shell formed with the openings for both exhaust and live steam, the water-supply opening, the delivery opening, and the overflow, the steam jet or tube, the dividing spindle, the suction and combining tube having the annular series of openings formed in its flanged upper end, and the automatic valve arranged to automatically close the said series of openings, substantially as and for the purpose set forth.

2. The herein-described injector, comprising the shell formed with the openings for both exhaust and live steam, the water-supply opening, the delivery opening, the overflow, and the opening F having the removable cap-plate, the steam jet or tube, the dividing spindle, the suction and combining tube having the annular series of openings formed in its flanged upper end, and having the cylindrical part *d* threaded at its lower end, the automatic annular valve arranged as specified, and the adjusting-nut E working on the threaded lower end of the part *d*; substantially as and for the purpose set forth.

490,591. SHEAF-CARRIER FOR SELF-BINDING HARVESTERS. JOHN F. STEWARD, Chicago, Ill. Filed Mar. 24, 1892. Serial No. 426,409. (No model.)



Claim.—1. In combination with a self-binding harvester and secured to the frame thereof, a finger-supporting bar substantially parallel with the line of advance of the machine, having holes which form journal bearings bored therethrough, said holes leaning so as to be farther rearward at the upper edge of the bar than at the lower edge, sheaf-supporting fingers placed parallel with each other and thus forming a sheaf-receiver and having axes formed by bending the said rods so as to pass through said diagonal bearings bored through the supporting bar, substantially as described, by which arrangement of axes the weight of the load of sheaves is made to be instrumental in turning the fingers on their axes and force an initial movement as well as continue the movement from under the load.

2. In a sheaf-carrier, a supporting bar sustained from the harvesting machine and substantially parallel with the line of advance of the said machine, and having bearings for the sheaf-supporting fingers formed in the said bar, diagonal thereacross, so that the lower end of said bearing is farther forward than the upper end, a series of fingers pivoted therein and sustained in position or released by suitable mechanism, at will, substantially as described, by means of which rearwardly leaning axes the weight of the sheaves is instrumental in forcing the said fingers to have an initial movement on their axes in the direction of discharge.

3. In a sheaf-carrier of the kind in which the fingers of a series are secured to a supporting bar that is sustained from the main frame of the machine substantially parallel with the line of advance of the said machine and a series of fingers adapted to be supported with their free ends projecting substantially transverse to the line of advance of the machine to receive the load and then move rearward and downward to a position near the side of the machine and thus swing and draw from beneath the load, a finger-supporting bar having journal bearings parallel with each other but leaning so as to be farther to the rear at their upper ends than at their lower ends, the finger-axes extending through said bearings, substantially as described, by which rearwardly leaning arrangement of the said axes the weight of the load of accumulated sheaves becomes the means for giving the sheaf-receiving fingers their initial swinging movement in the direction of discharge by forcing them to turn on their axes.

4. In a sheaf-carrier of the kind having a series of fingers projecting transverse to the line of advance of the machine, and there sustained while receiving the load, said which fingers, in dumping, are permitted to move to the rear and draw from beneath the load, a finger-supporting bar having journal bearings adapted to receive the axes of the sheaf-receiving fingers and sustain the latter so that at their upper ends they shall lean so as to be farther to the rear than at their lower ends, by which leaning arrangement of the axes the weight of the load of sheaves is made instrumental in giving the fingers their initial movement in the direction of the discharge, substantially as described.

5. In a sheaf-carrier of the kind in which sheaf-supporting fingers project transversely to the line of advance of the machine to receive the sheaves, a series of fingers journaled to a supporting bar upon axes that are farther to the rear at their upper ends than at their lower ends, whereby the weight of the load of sheaves becomes an impelling means for causing the initial movement of the sheaf-receiving fingers to pass them from their receiving position to their discharging position, in combination with a lever under the control of the driver and suitable connecting mechanism whereby the lever resists the tendency of the weight of the bundles to move the fingers in the direction of discharge, until set free by the attendant, substantially as described.

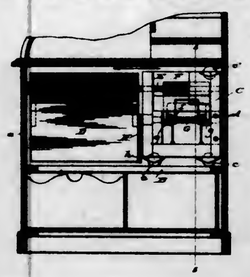
6. In a sheaf-carrier, a supporting bar sustained from the harvesting machine to which the said carrier is attached, said bar substantially parallel with the line of advance of the machine, said support having journal bearings adapted to sustain the axes of sheaf-receiving fingers in such a manner that the said axes shall lean rearwardly, sheaf-supporting fingers formed of rods having axes bent in them, said axes extending downwardly and forwardly through the said journal bearings, and the rods extending thence outwardly in a substantially horizontal direction and curved upwardly at their outer ends to prevent the sheaves from rolling off when the said fingers are in the receiving position, by which diagonal arrangement of the axes the weight of the load becomes the means for giving the said fingers their initial movement as well as final movement in the direction of discharge, combined with means under the control of the attendant for returning the fingers to the receiving position and holding them there until he desires the load to fall, substantially as described.

490,592. CAR-COUPLING. ERASMUS R. TRAMMELL, Lakeland, Fla. Filed June 24, 1892. Serial No. 437,862. (No model.)



Claim.—The combination with a twin-jaw car coupling, of a depending rectangular stirrup frame rigidly connected with the draw-head of the coupler and comprising vertical sides arranged at the sides of the draw-head and embracing the same and secured thereto, said sides having their upper ends bent inward forming supporting lugs arranged on the top of the draw-head and a transverse bottom piece formed integral with the sides and arranged beneath the knuckle of the coupling, substantially as and for the purpose described.

490,593. TYPE-WRITER CABINET. FREDERICK VETTER, Rochester, N. Y. Filed Sept. 22, 1892. Serial No. 446,630. (No model.)



Claim.—1. In a type-writer cabinet the combination of a receiving chamber open at the front, a supporting carriage mounted to slide back and forth in said chamber, and a machine-support or platform on said carriage, rotatively mounted to turn down in front of the same.

2. In a type-writer cabinet the combination of a receiving chamber open at the front, a carriage mounted to slide back and forth in said chamber, and a machine supporting table or platform rotatively supported on a horizontal axis projecting from the carriage.

3. In a type-writer cabinet the combination of a receiving chamber, a supporting carriage mounted to slide back and forth in said chamber, and a machine supporting table or platform rotatively mounted on a horizontal axis projecting from the carriage in the direction of the line of movement of the latter.

4. In a type-writer cabinet the combination of a receiving chamber, a supporting carriage mounted to slide back and forth in said chamber, a machine supporting table rotatively mounted on a horizontal axis projecting from the carriage in the direction of movement of the latter, and a stop for holding the table in horizontal position.

5. A type-writer cabinet comprising an office desk having at one end a chamber open at the front, a carriage in said chamber adapted to slide back and forth therein, and a platform or table supported on a horizontal shaft in front of the carriage and adapted to swing down in a plane at right angles to the line of movement of the carriage.

6. The combination with the chamber of the sliding carriage therein, the platform sustained by the carriage on the horizontal axis parallel with the direction of movement of the same, the counterbalance weight also sustained by the carriage on a horizontal axis and suitable connections between the counterbalance weight and the platform, to secure the latter in horizontal position.

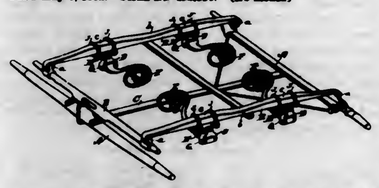
7. The combination with the chamber provided with guides of the carriage movable back and forth therein, the downwardly-swinging platform sustained by said carriage, the counterbalance weight sustained by the carriage on a horizontal axis, the slotted arm carried by the counterbalance weight and the pin attached to the platform and engaging the slot in the arm.

8. The combination with the desk having the transverse chamber of the sliding carriage movable back and forth therein and the platform rotatively sustained by said carriage on a horizontal axis extending in the direction of the movement of the carriage.

9. The combination of the chamber, the sliding carriage therein, the horizontal rock shaft mounted near one edge of the carriage and extending beyond the same, the platform sustained on the projecting end of the rock-shaft, a second rock-shaft mounted in the carriage, a counterbalance weight thereon, a slotted arm carried by the second rock-shaft, a pin on the platform engaging in the slot in the arm and a retarding device adapted to resist the movement of the platform.

10. The combination with the chamber of the sliding carriage therein, a downwardly-swinging platform sustained by the carriage, the pin projecting in its rear edge, the counterbalance weight mounted in the carriage on a horizontal axis and the longitudinally and transversely slotted arm carried by the counterbalance weight and adapted to receive the pin on the platform.

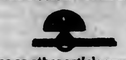
490,594. CARRIAGE-SPRING. PAUL WOODS, Wakefield, R. I. Filed May 9, 1892. Serial No. 432,309. (No model.)



Claim.—1. The combination with the axles A, A, the front bolster B, and the reach C connecting the rear axle with the bolster, of the side springs E, E, thinned at their middle portion and also at their ends, the springs F F adapted for attachment at one end to the body of the carriage, and at the other to the thickened portion of the side springs, the double jointed shackles for the springs F F, and the attaching clips substantially as described.

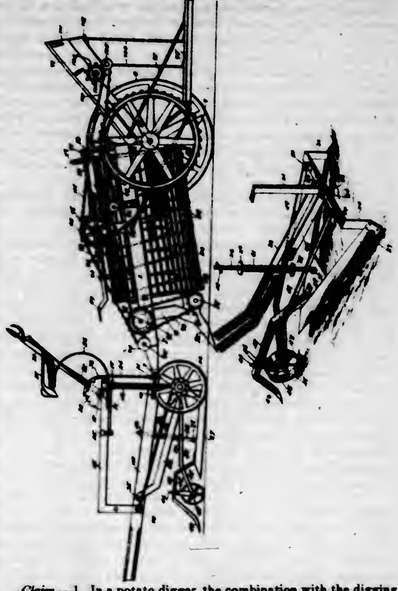
2. The combination with the axles A, A, the front bolster B, the reach C, connecting the rear axle with the bolster and the side springs E E, also connecting the rear axle and the bolster, of the ears H, H, attached to the springs E by means of the clip bolts J, J, the shackles D, pivoted to the ears H by means of the bolts I, and the springs F, F, secured to the shackles D by means of the pivot bolts G, substantially as described.

490,595. BUTTON FOR SHOES OR OTHER ARTICLES. EDWARD P. ALLAN, Cincinnati, Ohio, assignor, by direct and mesne assignments, of seven-tenths to Abraham Goldsaw, seven-tenths, and Thomas James, Newport, Ky. Filed Jan. 27, 1892. Serial No. 419,408. (No model.)



Claim.—A boot, shoe or other article provided with a button having an eye shank rigidly attached to its head and comprising two parts passed through the material of the article and bent beneath it with their ends abutting; substantially as described.

490,596. POTATO-HARVESTER. JAMES COLGROVE, Clear Water, Minn. Filed June 14, 1892. Serial No. 436,710. (No model.)



Claim.—1. In a potato digger, the combination with the digging and cleaning mechanism, of a V-shaped cutter comprising converging blades, laterally disposed, inclined and means for yieldingly pressing the cutter upon the ground, substantially as specified.

2. In a potato digger, the combination with the digging and cleaning mechanism, of a pair of converged laterally disposed inclined cutting-blades, means for yieldingly pressing the blades upon the ground, and means for raising and lowering the blades and digging mechanism, substantially as specified.

3. In a potato digger, the combination with the digging and cleaning mechanism, of a pair of converging blades located in front of the same, a dividing finger located in front of the blades, and a roller located in the path of the finger, substantially as specified.

4. In a potato digger, the combination with the digging mechanism and the framework for supporting the same, of a draft-pole connected to the framework, an axle provided with ground-wheels, loose connections between the axle and draft-pole, a pair of converging cutters located below the pole, a dividing finger-bar extending from the cutters, hinge-connections between the pole and cutters, a lever, a rock-shaft for the same, means for locking the lever, a segmental arm upon the rock shaft, and a chain connecting the segmental arm with the loose connection between the draft-pole and framework, substantially as specified.

5. In a potato digger, the combination with the digging devices, the framework for the same, and the draft-pole loosely connected to the front end of the framework, of a V-shaped cutter located below the draft-pole, a rod loosely hinged to the cutter and having its upper end extended through a hole in the pole and provided with a stop, a head on the rod below the pole and near the cutter, a loose washer on the rod below the pole, and a coiled spring upon the rod and interposed between the head and washer, substantially as specified.

6. In a potato digger, the combination with the main frame, the digging and cleaning devices carried thereby, and the draft-pole loosely coupled to the front end of the frame, of the inverted U-shaped axle arranged over the rear end of the pole and provided with ground-wheels, the opposite angle-bars loosely connected to the axle and to the draft-pole between its ends, the brace-rods pivotally connected at their front ends to the pole and at their rear ends to the axle, a rock-shaft journaled on the L-shaped bars, a toothed locking standard at one side of the shaft, a segmental arm mounted on the shaft, a chain connected to the arm and to the loose connection between the frame and pole, a hand-lever mounted on the shaft, and a spring-pressed pawl mounted on the hand-lever for engaging the teeth of the locking-standard, substantially as specified.

7. In a potato digger, the combination with the framework, the digging and cleaning mechanism, the pole loosely connected to the front end of the framework, the inverted U-shaped axle having ground-wheels, the opposite inverted L-shaped bars pivotally connected to the pole at their front ends and at their rear ends slipped to the axle, a lever supported by the bars, connections between the lever, and connection of the pole and frame, of the brace-rods pivotally connected to the pole and at their rear ends to the axle, the V-shaped cutter below the pole, the yoke connecting the rear extremities of the cutter, the bars pivotally connected to the yoke and to the pole, the standard pivoted to the yoke and rigidly secured to the pole, the forwardly-disposed bars pivoted to the yoke, an axle connected to the front ends of the same, a wide rim wheel mounted on the axle, a frame for the same, and a bar extending forwardly from the V-shaped cutter, perforated to receive the shank of the same, and bent in front of the same to form a declining separating finger, substantially as specified.

8. In a potato digger, the combination with the framework, the digging and cleaning mechanism, and the draft-pole connected to the framework, of a V-shaped cutter supported below and by the draft-pole, a bar extending forward from the cutter and bent at its front end to form a depending dividing finger, said bar being provided in rear of its finger with a threaded perforation, an inverted U-shaped frame located under the bar and having an upwardly-disposed threaded shank, opposite clamping-nuts above and below the bar, and a flat rim wheel having its axle journaled in the frame below the bar and adapted to travel in the path of the finger, substantially as specified.

9. In a potato digger, the combination with the framework, the open cylinder mounted therein, and means for rotating the cylinder, of a shovel at the front end of the cylinder, a conveyer at the rear end, means for moving the conveyer, a spiral partition located in and moving with the cylinder, and a transverse partition inserted between the last two spirals of the partition, substantially as specified.

10. In a potato digger, the combination with the framework, the cleaning cylinder journaled therein, and means for rotating the cylinder, of a platform in rear of the frame, standards rising therefrom, an endless carrier and its case supported upon the standards, the front end of the carrier extending into the cylinder, means for directing the potatoes from the cylinder to the lower end of the carrier, opposite openings at the opposite sides and at the rear end of the casing, a vibrating door or cutoff pivoted below the center of the casing and adapted to close either opening, a central pair of hooks below the openings, and opposite side pairs at the opposite sides of the openings, substantially as specified.

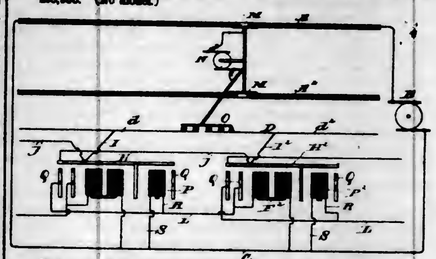
11. In a potato digger, the combination with the rectangular frame, the cylinder mounted for rotation therein, means for rotating the cylinder, and a spiral partition located in the cylinder and provided between its last two spirals with a transverse partition, of an endless carrier having its front end extending into the rear end of the cylinder, the semicircular guard embracing the under side of the carrier frame and concentrically curved with relation to the spiral partition, and means for operating the carrier, substantially as specified.

12. In a potato digger, the combination with the rectangular frame, the bearing-standard, the axle, the ground wheels mounted thereon, the sprocket-wheels carried by the axle, the rotatable cylinder having peripheral sprocket-teeth, of standards rising from the main frame, a transverse shaft journaled in the standards and terminating at its ends in heads, clutch sleeves splined on the shaft near the heads, springs for normally pressing inward upon the clutch-sleeves, loose sprocket-wheels mounted on the shaft and having toothed hubs to be engaged by the clutch-sleeves, chains connecting the sprocket-wheels with those of the axle, a pair of longitudinally opposite bearings, a short longitudinal shaft journaled therein, a sprocket-wheel on said shaft, a sprocket-chain passing around the same and the teeth of the cylinder, and intermeshing beveled gears mounted on the front end of the longitudinal shaft, and an intermediate point of the transverse shaft, and means for shifting said clutches, substantially as specified.

13. In a potato digger, the combination with the main frame, the axle, the ground-wheels, the sprocket-wheels mounted on the axle, the rotatable cylinder, the inclined carrier in rear of the same and extending into the cylinder, the shovel at the front end of the cylinder, the transverse shaft journaled in the sides of the shovel and provided with arms, the sprocket-wheel on the shaft, the pair of upper sprockets, the pulley in front of the same, of the transverse shaft arranged above the cylinder, sprocket-wheels thereon, sprocket-chains connecting the same with the wheels of the axle, the clutch-sleeves for engaging the toothed hubs of the sprocket-wheels, a pair of rods extending inwardly from the clutch-sleeves, a transverse bar in front of the transverse shaft above the cylinder, a lever pivoted between its ends upon the bar and connected at opposite sides of its fulcrum to the sleeve-operating rods, means for locking the lever, a pair of fixed sprockets mounted on the transverse shaft, chains passed about the sprockets, one of which extends in rear and under the sprocket-wheel of the carrier and over a pulley in rear of the same, and the other of which passes forward and over the inner sprocket-wheel of the pair above the shovel and around the pulley in front of the same, and a short sprocket-chain around the outer sprocket-wheel of the pair and around the sprocket-wheel of the shovel, substantially as specified.

490,597. CONDUCTOR SYSTEM FOR ELECTRIC RAILWAYS.

RAPHEL HAYDEN, Fairmont, W. Va. Filed Apr. 13, 1892. Serial No. 428,955. (No model.)



Claim.—1. In an electric railway system, an insulated conductor connected with a dynamo, a contact conductor which is divided at intervals into sections normally disconnected from the insulated conductor and from each other, and means, including one or more electro-magnets, by which, at the time when a current collector passes off of a section preceding a given section, and onto the given section, the preceding section is disconnected from the insulated conductor, and a section succeeding the given section is connected with the insulated conductor, substantially as described.

2. An electrical railway system, comprising a dynamo or other source of electrical supply, metallic rails, one or both of which are connected with the source of supply, a car running on the rails, and carrying a motor electrically connected with the track, a conductor arranged in line with the track and composed of disconnected sections, a connection between the motor on the car and the sectional conductor, an insulated conductor connected with the source of electrical supply, and a series of connections between the insulated conductor and the sections, the connection being composed wholly or partly of insulated wire wound round one or more soft iron cores, an armature designed to be moved toward the cores, and wires connecting the armatures and the sections, each armature being provided with an insulated contact-point electrically connected to the armature of the next succeeding magnet, and an electrical connection between a point coming in contact with the insulated point and the next succeeding electro-magnet, substantially as described.

490,598. TRUCK.

CHARLES L. HUSTON, Coatesville, Pa. Filed July 16, 1892. Serial No. 440,384. (No model.)

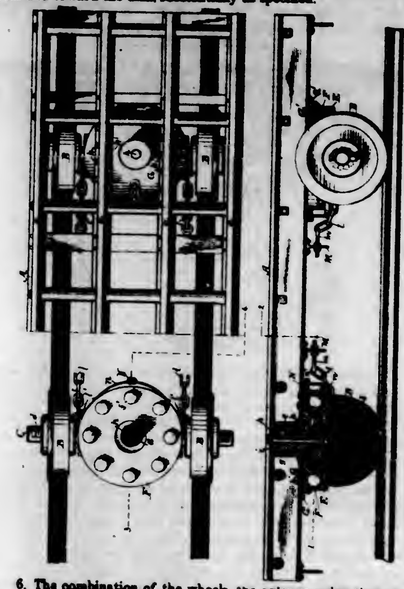
Claim.—1. The combination of the platform, a disk secured thereto and having a bearing *g*, a lower disk, a journal thereon adapted to said bearing *g*, an axle carried by said lower disk and supporting wheels mounted on said axle, substantially as specified.

2. The combination of the disk G, the platform to which said disk is secured, a bearing *g* secured to or forming part of said disk, a lower disk E, a journal carried thereby and adapted to the bearing *g*, an axle carried by said lower disk, and supporting wheels mounted upon said axle, substantially as specified.

3. The combination of the platform, a bearing disk secured thereto, a lower movable disk E, an axle carried thereby, and flanged supporting wheels mounted upon said axle, said supporting wheels having their flanges upon the outside of the rails, substantially as specified.

4. The combination of the platform, the disk G secured thereto, the lower disk E, an axle carried thereby, supporting wheels on said axle, and a friction shoe adapted to bear upon the periphery of said lower disk, substantially as specified.

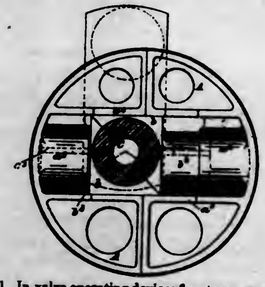
5. The combination of the platform, the disk G secured thereto, the lower disk E, the axles secured to said disk, supporting wheels mounted upon said axle, a friction shoe adapted to bear upon the periphery of said disk E, and devices for adjusting said friction shoe from and toward the disk, substantially as specified.



6. The combination of the wheels, the axles carrying the same, the movable disks E, the fixed disks G, and a supporting platform to which said fixed disks G are secured, said platform comprising longitudinal bars *a*, spacing blocks between said bars, and securing bolts for holding the parts in position, substantially as specified.

490,599. VALVE-OPERATING DEVICE FOR ENGINES.

DAVID JOY, London, England. Filed Feb. 10, 1892. Serial No. 420,964. (No model.)



Claim.—1. In valve operating devices for steam, or other motive power engines, the combination of the crank-shaft having passages therein, and an eccentric or eccentrics adjustably mounted thereon, with means for the admission of fluid, or semi-fluid, or plastic material through the passages in the shaft, to operate the eccentric or eccentrics, substantially as described.

2. In valve operating devices for steam, or other motive power engines, the combination of the crank-shaft, having passages therein and an eccentric or eccentrics adjustably mounted thereon, by means of cylinder and piston connections, with means for the admission of fluid, or semi-fluid, or plastic material through the passages in the shaft directly to the cylinders of the eccentric or eccentrics whereby the position of the eccentric or eccentrics relatively to the shaft is effected by direct pressure of the said fluid, or semi-fluid or plastic material, substantially as described.

3. The combination of a crank-shaft and eccentrics adjustably mounted thereon, with cylinders and pistons connecting the said shaft and the said eccentrics, and passages leading from the ends of the shaft to one cylinder of each end eccentric, and intermediate passages through the shaft connecting one cylinder of one eccentric to one cylinder of the next eccentric for the passage of fluid, substantially as and for the purpose set forth.

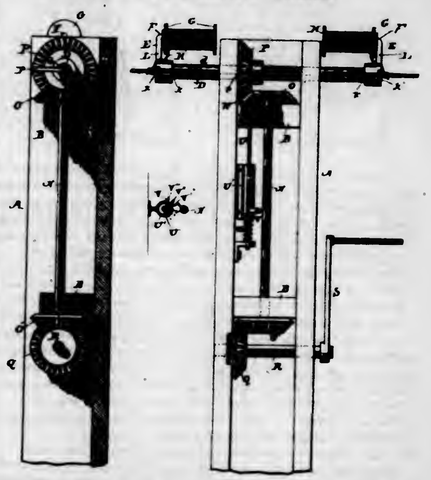
4. The combination of a crank-shaft, and an adjustable eccentric or eccentrics mounted thereon, with cylinders and pistons to control the relative positions of the said shaft and eccentric, passages through the shaft leading to the cylinders for the admission of fluid, and means for controlling the said fluid, all substantially as set forth.

5. The combination of a crank-shaft, an adjustable eccentric mounted thereon, with cylinders and pistons to control the relative positions of the said shaft and eccentric, passages leading to the cylinders, a fluid cylinder, from each end of which one of the said passages leads respectively, and a piston for, and a reservoir connected to the said fluid cylinder, all substantially as and for the purpose set forth.

6. The combination of a crank shaft, and an adjustable eccentric or eccentrics mounted thereon, and cylinders and pistons to control the relative positions of the said shaft and eccentric, with a fluid cylinder and piston therefor, a recuperative valve L, a fluid reservoir and passages leading from the fluid cylinder to the shaft, all substantially as and for the purpose set forth.

490,600. MACHINE FOR ATTACHING CROSS-WIRES IN WIRE FENCES.

HAWKINS A. KING and ALBERON J. WEBSTER, Conway, Mich. Filed Aug. 12, 1892. Serial No. 442,903. (No model.)



Claim.—1. In a fence-machine, the revoluble longitudinally-grooved twisting-rod, combined with the brackets provided with eyes fitting upon said rod and provided with slots to register with the groove in the latter, the spools carried by said brackets, and operating mechanism for the twisting-rod, substantially as specified.

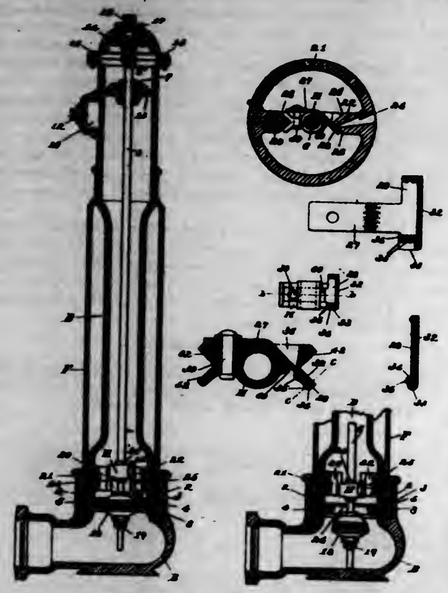
2. In a fence-machine, the revoluble grooved twisting-rod, the brackets carrying spools and provided with eyes fitting upon the twisting-rod, which eyes are provided with slots to register with the groove in the twisting-rod, guide fingers arranged upon opposite sides of said slots, and oblique guide-perforations, and operating means for the twisting-rod, substantially as specified.

3. In a fence machine, the combination with a longitudinally-grooved twisting-rod, and feeding-spools connected to said rod, of a shaft N carrying a striking-pin and connected to the twisting-rod, a spring-actuated locking-pin carrying radial studs in the path of said striking-pin, and a guide in which the locking-pin is mounted, substantially as specified.

4. In a fence machine, the combination with a grooved twisting-rod and spools, of a shaft N carrying a striking-pin, intermeshing gears O and P fixed to the shaft N and twisting rod, respectively, a slidable locking pin U, a tubular slotted guide U' containing said locking pin, an actuating spring *s* arranged in the guide and connected to the locking-pin, and lateral studs carried by the locking-pin in the path of the said striking pin and adapted to be received by the slot

in the guide U', the gear O being provided with a socket to receive the end of the locking-pin, substantially as described.

490,601. HYDRANT. FRANCIS H. RICHARDS, Hartford, Conn., assignor to Walter Wood, Philadelphia, Pa. Filed Nov. 23, 1891. Serial No. 412,991. (No model.)



Claim.—1. In a hydrant, the stock, or barrel, having a seat for the main-valve and having oppositely-disposed guides substantially as described located in said stock above the main-valve seat, of which guides one has opposing guide-faces and has in one of said opposing faces a laterally-opening discharge-outlet, combined with the main-valve rod fitted to slide in engagement with said guides and to engage the opposite faces of the guide having therein the discharge-outlet, and a spring waste valve carried with the valve-rod and bearing on said outlet-provided guide-face, all substantially as set forth.

2. In a hydrant, the combination with the stock or barrel having the valve-seat at the lower end thereof, and having oppositely disposed guides extending into said barrel above said valve-seat, and having in one of said guides a discharge-outlet, of the valve-rod carrying the main valve, the cross-head fixed on said rod and fitted to slide between said guides, the spring waste-valve fixed at one end to said cross-head and at the other end bearing on the said guide having the discharge outlet, and means for holding the free end of said valve in place vertically of the cross-head, substantially as described.

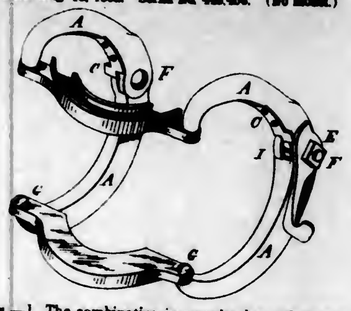
3. In a hydrant, the combination with the stock or barrel having the valve-seat at the lower end thereof, of the oppositely-disposed guides located within said barrel above said valve-seat and having in one of them a discharge-outlet, and both projecting inwardly to lines within the circle of said valve-seat, the valve-rod carrying the main valve, the cross-head of a length less than the diameter of the valve-seat and fixed on said rod to slide between said guides, and a waste-valve carried by said cross-head to open and close said discharge-outlet, whereby the discharge-outlet is opened and closed on the upward and downward movements of the valve-rod, and whereby the valve-rod, with the cross-head thereon, may be passed through the valve-seat when disassembling the hydrant, substantially as described.

4. In a hydrant, the combination with a pair of guides substantially as described, having in one of them the discharge-outlet 25, of the cross-head fitted to slide between said guides and having the mortise 38, and a waste-valve bearing against the guide-surface having said opening, and carried by one end of a spring plate which passes through said mortise and is fixed at the other end to the cross-head, substantially as described.

5. In a hydrant, the combination with the guides having in one of them the discharge-outlet, and with the cross-head fitted to slide between said guides, of the waste-valve 26 carried by the cross-head and having the face 33 fixed to said valve-plate on the back side thereof, carried under the lower end, and connected to said plate at the upper end thereof, substantially as set forth.

6. In a hydrant, the combination with the stock or barrel having the valve-seat at the lower end thereof, of the oppositely-disposed guides 20 22 located within said stock above the valve-seat, the valve-rod carrying the main valve, the cross-head having at one end the faces 52 and 62 fitting the guide 20, and having at the other end the face 42 fitting one side of the guide 22, and a spring substantially as described fixed to the cross-head and bearing at its free end against the opposite side of the guide 22, whereby the cross-head is maintained in close contact with both guides for preventing vibration, substantially as set forth.

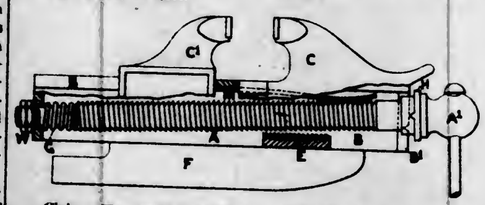
490,602. ANIMAL MOUTH OPENER. JAMES H. RYAN, Sycamore, Ill. Filed Aug 18, 1892. Serial No. 443,456. (No model.)



Claim.—1. The combination in an animal mouth opener of two pairs of distensible vertical jaws, each pair being separately pivoted together, the lower one of each pair provided with a set of ratchet teeth, and the upper one of each pair furnished with a spring pawl to engage the said ratchet teeth of the said lower jaw, a cam lever for releasing the said spring pawl from the said ratchet teeth, secured to the pivot or bolt which holds each pair of jaws together, and two parallel bits, one of which is connected by means of swivel joints to the outer ends of the two upper jaws, and the other one connected by means of swivel joints to the outer ends of the two lower jaws, whereby one pair of jaws may be folded over, or upon the other pair, substantially as shown and for the purposes specified.

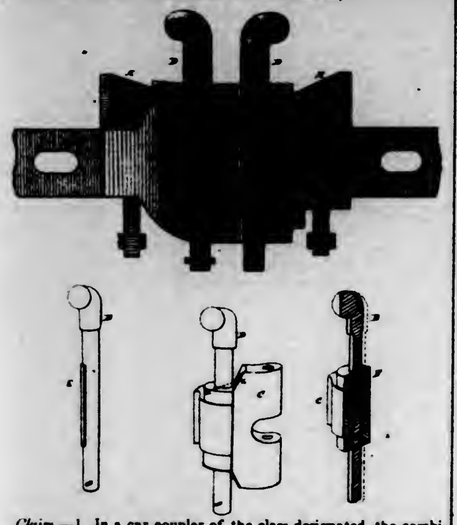
2. The combination in an animal mouth opener having two pairs of distensible vertical jaws, each pair being separately pivoted together, one of each pair being provided with a set of ratchet teeth, and the other one of each pair furnished with a spring pawl to engage the said ratchet teeth of the opposite jaw, a cam lever for releasing the said spring pawls from the said ratchet teeth, of two parallel curved bits provided with curved grooves to receive the front teeth of the animals operated upon, the opposite ends of one of the said bits being connected by means of swivel joints to the outer ends of the two upper jaws, and the opposite ends of the other bit connected by means of swivel joints to the outer ends of the two lower jaws, whereby one pair of jaws may be folded over or upon the other pair, substantially as shown and for the purposes specified.

490,608. PARALLEL VISE. FREDERICK T. SCHNIDT, Bradford, England, assignor to the Mutual Engineering Company, Limited. Filed Mar. 22, 1892. Serial No. 426,018. (No model.) Patented in England May 4, 1890, No. 7,171.



Claim.—The combination with a sliding box B having a jaw C and provided at its front end with a vertical slot D, and a bed plate F having a stationary jaw C' and a sectional screw nut E, of a lengthwise movable rotary screw A loosely mounted in the rear end of the sliding box and adapted to rise and fall at its front end portion, a collar on the front end portion of the rotary screw which is moved into engagement with the front end of the sliding box by rotating the screw while engaged with the sectional nut, and a spring G acting to move the rotary screw lengthwise when it is lifted from the sectional screw nut for disengaging the collar on the screw from the front end of the sliding box, substantially as described.

490,604. CAR-COUPLING. ADAM TRAUTMAN, Galion, Ohio, assignor of two-thirds to Arthur W. Ball and C. A. Allen, same place. Filed Nov. 1, 1892. Serial No. 450,890. (No model.)



Claim.—1. In a car coupler of the class designated, the combination with the knuckle, of a hinge-pin arranged to turn with said knuckle, and having a horizontally projecting end arranged to overhang the coupler of the opposite car when the couplers are locked, substantially as shown and described.

2. In a car coupler of the class designated, the combination with the knuckle, of a pin having a projecting end arranged to overhang an opposite coupler, and provided with means, as a feather, for causing it to move in unison with said knuckle, substantially as shown and for the purpose specified.

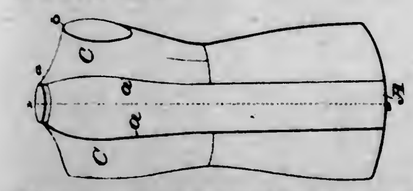
490,605. ELECTRIC-LAMP SOCKET AND TAP. ALEXANDER F. VETTER, New York, N. Y., assignor to J. C. Vetter & Co., same place. Filed May 20, 1892. Serial No. 433,662. (No model.)



Claim.—1. In an electric lamp socket and tap, the combination with the lamp-holding device, of a pair of electrical contacts, a switch for closing the circuit between the contacts, and external electrical connections mounted on the socket whereby an external translating device may be thrown into the circuit in parallel or in series with the lamp, substantially as specified.

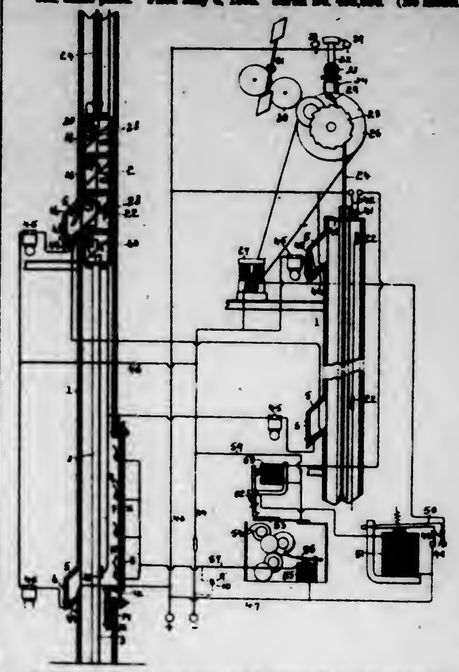
2. In an electric lamp socket and tap, the combination with the socket, of the contact springs *k*, *r*, the switch lever C, the binding posts *i*, *i'*, *i²*, and electrical connections, substantially as described.

490,606. MEASURING-JACKET. JOHN R. CAMPBELL, Arlington, Mass., assignor to Julia A. McCabe, same place. Filed Feb. 4, 1892. Serial No. 420,265. (No model.)



Claim.—A measuring jacket having back and side breadths of usual construction, and narrow measuring fronts detachably connected to the side breadths and to the back breadths at the shoulder portions, substantially as described.

490,607. APPARATUS FOR DISTRIBUTING MAIL. FREDERICK D'A. GOULD, New York, N. Y., assignor of one-half to Joseph Hotchkiss, same place. Filed May 6, 1892. Serial No. 432,092. (No model.)



Claim.—1. The combination, in an apparatus for distributing articles, of a guideway, a carriage movable along the same and adapted to contain articles separated into as many subdivisions as there are distribution points, means for retaining the articles in the carriage, and magnetic releasing devices brought into operation as the carriage moves along and constructed to allow the escape of the articles intended for one point only at each operation, substantially as described.

2. The combination, in an apparatus for distributing articles to several points, of a guideway, a carriage movable along the same, having several compartments or subdivisions, one for each delivery point, doors or valves held closed by detents for retaining the articles in their compartments, and magnets and armatures controlling said detent, the circuits of which magnets are automatically controlled by the moving carriage, for delivering the articles from the proper compartments when the carriage successively reaches the delivery points, substantially as described.

3. The combination, in an apparatus for distributing articles to several points, of a carriage movable along by the delivery points and having several subdivisions, one for each delivery point, means, such as doors or valves, held closed by detents, for retaining the articles in their subdivisions, and magnets and armatures for releasing the detent when the carriage successively reaches the delivery points, said magnets being in circuits controlled by the moving carriage, each circuit controller on the carriage being arranged to close the circuit of its own magnet only, substantially as described.

4. A movable carriage for distributing articles at several different delivery points and having several subdivisions, said subdivisions being arranged in several columns side by side, means for retaining articles in the several subdivisions, and a magnetic releasing device for each of said means, substantially as described.

5. The combination of a carriage adapted to contain articles separated into several subdivisions, means for retaining the articles in the carriage, and magnetic releasing devices brought into operation as the carriage moves along and constructed to allow the escape of a part only of said articles each time a magnetic device is operated, substantially as described.

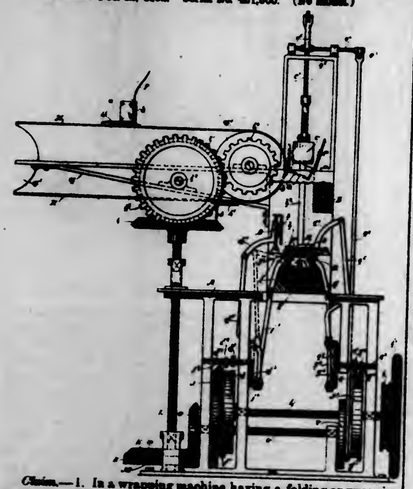
6. The combination of a carriage having several subdivisions, a hoisting drum and cable, a motor connected to the drum to raise the carriage, means for opening the subdivisions automatically, a circuit controlling device near the end of movement of the carriage in a circuit which controls the motor, and means independent of the motor for controlling the return movement of the carriage, whereby the motor may be cut of use while the carriage descends, substantially as described.

7. A movable carriage for distributing articles, having several subdivisions, means for retaining articles in the subdivisions, and magnetic releasing devices on the carriage, brought into operation in a pre-determined order for releasing articles in the several subdivisions at desired points, substantially as described.

8. A carriage in which articles may be placed, a door therein, means giving articles in the carriage a tendency to move out of the door, a magnet and armature controlling said door, and a circuit-controller for said magnet and operated by movement of the carriage, substantially as described.

9. The combination of a guide-way or track, a carriage movable along the same, a delivery box or point, automatic means for delivering articles from said carriage to said box or point an alarm circuit, a circuit-controller in said box or at said point operating to change the condition of the alarm circuit when an article is deposited in the box, and an alarm controlled by said circuit-controller, substantially as described.

490,608. WRAPPING-MACHINE. IRA B. HUTCHINSON, Fresno, Cal. Filed Feb. 12, 1892. Serial No. 421,305. (No model.)



Claim.—1. In a wrapping machine having a folding or wrapping chamber, the combination of a vertically reciprocating plunger for advancing the article to be wrapped into the chamber and opposing horizontal top flaps on each side of and swinging inwardly over the top of the chamber, to fold the sides of the paper down upon the top of the article, said flaps being made of separated plates connected and controlled by springs whereby they adjust themselves to different thicknesses of articles to be wrapped, substantially as herein described.

2. In a wrapping machine having a folding or wrapping chamber, a vertically reciprocating plunger having a central recess or socket adapted to fit over the article to be wrapped whereby the ends of said plunger pass over the ends of said article, and press down the upper portion of the ends of the paper thereon, substantially as herein described.

3. In a wrapping machine having a wrapping or folding chamber, the combination of opposing horizontal top flaps on each side of and swinging inwardly over the top of the chamber for folding the sides of the paper down upon the top of the article to be wrapped, and a reciprocating plunger having a central recess or socket fitting over the article whereby its ends pass over the ends of said article, and press down the upper portion of the ends of the paper thereon, substantially as herein described.

4. In a wrapping machine having a folding or wrapping chamber, the combination of opposing horizontal top flaps on each side of and swinging inwardly over the top of the chamber to fold the sides of the paper upon the top of the article to be wrapped, the reciprocating plunger having the central recess or socket fitting over said article whereby its ends pass over the ends thereof and fold the upper portion of the ends of the paper upon the ends of said article, and the swinging end flaps each consisting of separated connected plates mounted to swing inwardly from each side by the ends of said article and to fold the sides of the ends of the paper in upon the ends of said article, substantially as herein described.

5. In a wrapping machine having a folding or wrapping chamber with a bottom discharge aperture in which the final folds of the paper are made, the combination of the opposing top flaps on each side of and swinging inwardly of the top of the chamber to fold the sides of the paper upon the top of the article to be wrapped, the reciprocating plunger having the central recess or socket fitting the article whereby its ends pass over the ends thereof and fold the upper portion of the ends of the paper upon the ends of said article, and the swinging end flaps, each consisting of separated connected plates mounted to swing inwardly from each side by the ends of the article and to fold the sides of the ends of the paper in upon the ends of said article, substantially as herein described.

6. In a wrapping machine having a folding chamber, the combination of the endless traveling carrier having a holder upon which the paper and article to be wrapped therewith are laid, and by which they are advanced to a position over the chamber, and a reciprocating plunger adapted to force the article and its wrapping paper from the holder down into the chamber, substantially as herein described.

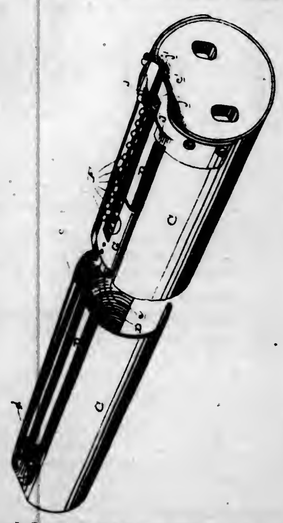
7. In a wrapping machine having a folding or wrapping chamber, the periodically traveling endless carrier having a holder upon which the wrapping paper and article are laid and by which they are advanced to a position over the chamber and held there temporarily and a reciprocating plunger to force the article and paper from the holder down into the chamber, substantially as herein described.

8. In a wrapping machine having a folding or wrapping chamber, the combination of the endless traveling carrier, the swinging spring controlled holder-plate upon said carrier for receiving the wrapping paper and article and advancing it to and over the chamber, and a reciprocating plunger to force said article from the swinging holder-plate down into the chamber, substantially as herein described.

9. In a wrapping machine, the swinging opposing top flaps D and E, in combination with the mechanism for operating them, consisting of the main power shaft I having the wheels J and J', the toothed or rack segments carried by said wheels, the crank arms of the flaps, and power transmitting connections between said crank arms and the toothed or rack segments, substantially as herein described.

10. In a wrapping machine, the end flaps F and G each having the connecting bail, in combination with the means for operating said flaps, consisting of the main shaft I having the wheels J and J', the toothed or rack segments carried by said wheels, and power transmitting connections between said segments and the bails of the end flaps, substantially as herein described.

490,609. RIVET-FEEDING DEVICE. JOHN H. MARTIN, Oroville, Cal. Filed Mar. 24, 1892. Serial No. 426,266. (No model.)



Claim.—1. In a rivet feeder, the combination of the hollow or channeled guide adapted to receive a row of up-ended rivets and having a slot in its top through which the upper ends of the rivets project, a follower slidable on said guide in line with the row of rivets and means for actuating the follower to feed the rivets forward, substantially as herein described.

2. In a rivet feeder, the combination of a depressible and slotted guide adapted to receive a row of up-ended rivets a follower slidable on said guide in line with the row of rivets, and means for actuating the follower to cause it to feed the rivets forward, substantially as herein described.

3. In a rivet feeder, the combination of a depressible guide for carrying a row of up-ended rivets, a movable follower bearing against the back end of said row to force the foremost rivet to place, a fixed stop to limit the forward movement of said row and a fixed bearing at the end of the guide to receive and sustain the foremost rivet when the remainder of the row and the guide are depressed, substantially as herein described.

4. A rivet feeder consisting of a frame or stock, a spring-controlled depressible slotted guide mounted in the top thereof and adapted to receive a row of up-ended rivets, a follower acting on said row to force it forward continually, and a fixed bearing or support on the stock end upon which the foremost rivet is forced whereby it may pass through the hole in the pipe while the rest of the row with the guide are depressed by the weight of said pipe, substantially as herein described.

5. A rivet feeder consisting of a slotted frame or stock having at one end a fixed bearing, the shouldered stop with a discharge slot, secured to said end, a spring-controlled depressible guide mounted in said frame or stock and adapted to receive a row of up-ended rivets and a spring-controlled follower mounted upon said guide, to force the rivets forward whereby the foremost rivet is forced upon the fixed bearing of the frame or stock, and is limited by the stop, substantially as herein described.

6. A rivet feeder consisting of the frame or stock having the fixed bearing at one end, the shouldered stop with discharge slot, secured to said end, the depressible guide mounted in said frame or stock and adapted to receive a row of upended rivets, the spring controlled follower mounted upon said guide and acting on the row of rivets to force the foremost rivet on to the fixed bearing of the frame or stock, and the fastening arm of said guide whereby it is held down when necessary, substantially as herein described.

7. A rivet feeder consisting of the frame or stock having at one end the fixed bearing, the limiting stop on said end having the shoulder and discharge slot, the channeled guide mounted in the top of the frame or stock and adapted to be depressed therein, the fastening arm and controlling spring of said guide, the follower on said guide for forcing the row of rivets forward and the spring drum and the cord connecting said drum with the follower, substantially as herein described.

8. The rivet feeder consisting of the frame or stock, the depressible rivet guide, the spring-controlled follower and the support and stop for the forward rivet, in combination with the pointer, the end of which is in the vertical plane of said forward rivet to indicate its position, substantially as herein described.

9. In combination with the arm B of a pipe-maker's stake, the stock or frame C attached to the end of the arm and extending in line therewith, the depressible guide carried by the stock for carrying a row of up-ended rivets, the follower for bearing against the back end of the row of rivets, the fixed bearing or head to receive and support the foremost rivet, the stop shoulder and the slot to permit the removal of the rivet, substantially as herein described.

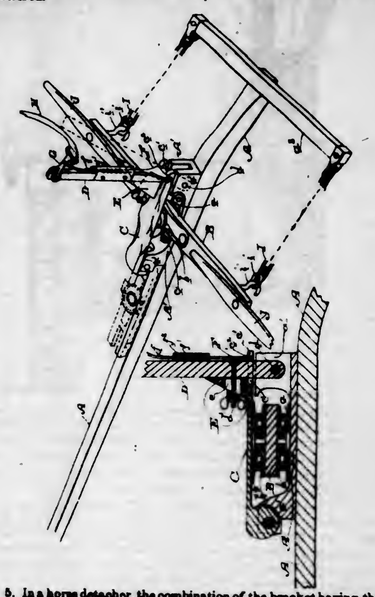
490,610. HORSE-DETACHER. WILLIAM MAYER, Sebastopol, Cal. Filed Sept. 19, 1892. Serial No. 446,231. (No model.)

Claim.—1. In a horse detacher, a whiffletree and its support, in combination with detachable pivotally connected bearing irons between the two, a latch-plate pivoted at its forward end and passing over and holding the whiffletree to its connection with its support, and a vertically disposed horizontally swinging lever with locking catch engaging the rear end of the latch-plate whereby said plate is held and is tripped when required to permit the whiffletree to be released from its support, substantially as herein described.

2. In a horse detacher, a whiffletree and its support, in combination with detachable pivotally connected bearing irons between the whiffletree and its support, the overlying latch-plate hinged at its forward end, the pivotally connected separable bearing irons between said latch-plate and whiffletree, and the vertically disposed lever pivotally secured at its lower end and provided with locking catch engaging the rear end of the latch-plate, substantially as herein described.

3. In a horse detacher, a whiffletree and its support, in combination with detachable pivotally connected bearing irons between the whiffletree and its support, the overlying latch-plate hinged at its forward end, the pivotally connected separable bearing irons between said latch-plate and whiffletree, the swinging lever with locking catch engaging the rear end of the latch-plate, and the pawl for holding and tripping the lever, substantially as herein described.

4. In a horse detacher, a whiffletree and its support, in combination with detachable pivotally connected bearing irons between the whiffletree and the base of the bracket, the overlying latch-plate hinged at its forward end, the pivotally connected separable bearing irons between said latch-plate and whiffletree, the swinging lever with locking catch engaging the rear end of the latch-plate, and the pivoted handle connected with the upper end of the swinging lever and with the pawl, substantially as herein described.



5. In a horse detacher, the combination of the bracket having the hinged latch-plate, the whiffletree seated in the bracket, the pivotally connected bearing irons between the whiffletree and the base of the bracket and between said whiffletree and the latch-plate, the swinging lever pivoted in the rear of the bracket, the locking catch on the lever engaging the latch-plate and the pawl for holding the lever, substantially as herein described.

6. In a horse detacher, the combination of the bracket having the hinged latch-plate, the whiffletree seated in the bracket, the pivotally connected bearing irons between the whiffletree and the base of the bracket and between said whiffletree and the latch-plate, the swinging lever pivoted in the rear of the bracket, the locking catch on the lever engaging the latch-plate, said catch being vertically adjustable on the lever and bearing adjustably on the latch plate to take up the wear of the bearing irons, and the pawl for holding and tripping the swinging lever, substantially as herein described.

7. In a horse detacher, the detachable and turnable whiffletree having the open front hooks on its lower side and mechanism for detachably securing said whiffletree, in combination with the stay chains or straps having the link on the forward ends engaging said hooks, substantially as herein described.

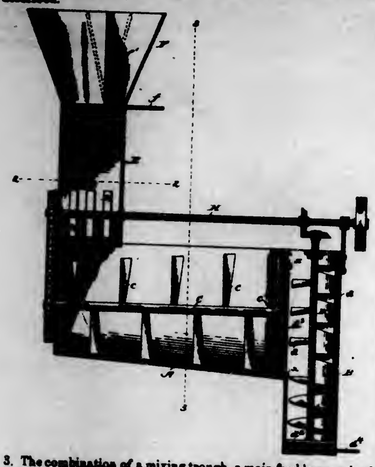
8. In a horse detacher, the whiffletree and its support, in combination with a detachable pivotal connection between the two, the swinging latch plate holding said connection, the swinging lever with its locking catch for holding the latch-plate, the pawl for locking the lever, the stay chains having the links on their forward ends and the open front hooks under the ends of the whiffletree engaging said rings, substantially as herein described.

490,611. PUG-MILL. ALONZO B. MILLER, Washington, D. C., assignor of one-half to Scott Hamlin, same place. Filed June 13, 1892. Serial No. 437,205. (No model.)

Claim.—1. The combination of a mixing trough, a feed hopper leading to said trough, having projecting wings and a shaft having

blades to register with said wings to close and open the passage from the hopper to the trough, substantially as described.

2. The combination of a mixing trough, a fixed hopper leading to said trough having means for opening and closing the passage from hopper to trough, and a supplemental measuring hopper leading to the fixed hopper having a movable gate at its bottom, substantially as described.



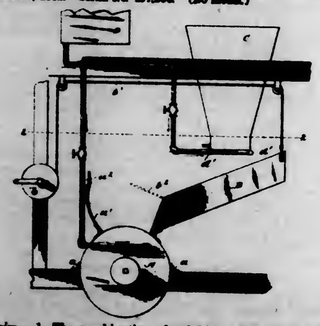
3. The combination of a mixing trough, a main feed hopper, leading to said trough having means for opening and closing the passage from hopper to trough and a supplemental measuring hopper having a gate between it and the main feed hopper, and an adjustable partition for regulating the relative quantity of the several ingredients to be introduced to the machine, substantially as described.

4. The combination of a mixing trough, mixing blades mounted to revolve in said trough, a vertical well at one end of the trough, a gate or cut-off between the trough and well and a rotatable shaft in said well carrying horizontal mixing blades and a conveyer and means for operating the mixing blades in the trough and the shaft and its appendages in the well.

5. The combination of a mixing trough having its lower side inclined, mixing blades mounted to rotate in said trough measuring and feed hoppers as described, a well adjacent to the trough, a gate between the trough and well, a shaft carrying mixers and conveyer in the well and means for operating the mixing blades and conveyer, substantially as described.

6. The combination of a mixing trough and a detachably connected well adjacent to said trough, substantially as described.

490,612. LIME-SLAKING MACHINE. ALONZO B. MILLER, Washington, D. C., assignor of one-half to Scott Nesbitt, same place. Filed June 20, 1892. Serial No. 437,206. (No model.)
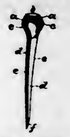


Claim.—1. The combination of a slaking vessel, an agitator for incorporating the water and other ingredients within the vessel, means for directing lime to the vessel, a conduit for distributing water over and through the lime to begin the slaking process and a conduit leading to the vessel for supplying water to complete the slaking process, substantially as described.

2. The combination of a slaking vessel, an agitator, for incorporating the water and lime within the vessel, a tilting platform-chute discharging into the vessel, a hopper discharging onto the tilting platform, perforated border pipes below the mouth of the hopper for applying water to the falling lime, and means for supplying water to the vessel to complete the slaking process, substantially as described.

3. The combination of a slaking vessel, an agitator within the vessel for incorporating lime and water, means for feeding lime to the vessel, separate means for introducing water to the vessel and a lid or cover for closing the vessel to confine the heat during the final slaking process, substantially as described.

490,618. HORSESHOE-NAIL. WILLIAM W. MIERS, New Haven, assignor to the New Process Nail Company, Torrington, Conn. Filed May 26, 1892. Serial No. 434,494. (No model.)



Claim.—1. A horse shoe nail flattened on its opposite sides and having rounded edges the head of the nail being formed with a flat top and gradually enlarged from the top to its juncture with the tapering shoulder or underside of the head, substantially as set forth.

2. A horse shoe nail having flattened sides, rounded side edges and a head formed with a flat top and gradually enlarged in width from its flat top to a point substantially midway between its upper and under sides, the side edges of the head being rounded, substantially as set forth.

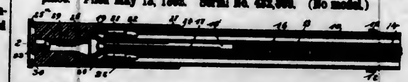
3. A horse shoe nail having flattened sides, and rounded edges extending the length of the nail, the head of the nail being of greatest width at or substantially at its vertical center, substantially as set forth.

4. A horse shoe nail having its head and shank flattened on opposite sides, and rounded on their opposite edges, the head being formed with a flat top, and gradually contracted in width above and below a line taken through its widest portion, substantially as set forth.

5. A horse shoe nail having a head formed with a flat top, flattened sides, and rounded edges, the latter being curved to form a convex shoulder connecting the head and shank; the shank of the nail having flattened sides and rounded edges, substantially as set forth.

6. A horse shoe nail having a head formed with a flat top flattened sides and rounded edges, and a shank gradually tapering from the head to the point, the sides of the shank being flattened and its edges rounded, substantially as set forth.

490,614. RIFLE ATTACHMENT FOR SHOTGUNS. WILLIAM J. REDWINE, Concordia, Kans., assignor of one-half to H. B. Brown, same place. Filed May 13, 1892. Serial No. 432,869. (No model.)



Claim.—1. An attachment of the character described, comprising a barrel having longitudinal bores therein, a spring-pressed ejector arranged at the butt end of the barrel and having bores to register with the barrel bores, a detachable shell secured to the butt of the barrel so as to inclose the ejector, and mechanism for exploding the cartridges, substantially as described.

2. An attachment of the character described, comprising a barrel having longitudinal bores, a spring-pressed plunger held to slide in the butt end of the barrel, an ejector carried by the plunger and having bores to register with the barrel bores, and a shell detachably secured to the butt end of the barrel and having a longitudinal cartridge-holding bore aligning with the plunger, substantially as described.

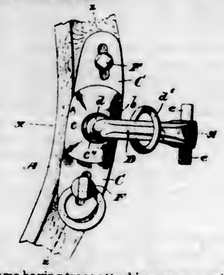
3. An attachment of the character described, comprising a barrel having longitudinal bores, a spring-pressed ejector disk adapted to carry cartridges and having bores to register with the barrel bores, a detachable shell secured to the butt end of the barrel, said shell having a longitudinal cartridge holding bore aligning with the ejector, and branch bores opening outward from the central bore, substantially as described.

4. The combination, with the barrel having longitudinal bores,

of the spring-pressed plunger held to slide in the rear end thereof, said plunger having a squared outer end portion with a shoulder thereon, a terminal socket, and an ejector disk held to slide on the plunger and having bores to register with the barrel bores, substantially as described.

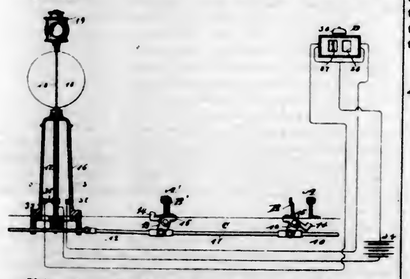
5. An attachment of the character described, comprising a barrel having longitudinal bores therein adapted to receive cartridges, a detachable shell secured to the butt end of the barrel, a limiting flange produced on the butt end of the shell, a ring arranged around the front end of the barrel, and mechanism for exploding the cartridges in the barrel, substantially as described.

490,615. HAME. JOHN Q. A. RUSSELL, Superior, Nebr., assignor of one-half to Mary A. Dickey, Eskridge, Kans. Filed Mar. 26, 1892. Serial No. 426,840. (No model.)



Claim.—A hame having trace attaching means consisting of a bar attached to the front side, by a ball and socket connection and that extends forward, then laterally and then rearward to a point in rear of said front side, the socket being composed of a base-plate provided with a projecting part having an outer inclined face in which is a semi-spherical recess, a second plate provided with a projecting part having a recess for receiving and containing the projecting part of the base-plate and inclined face in which is a semi-spherical recess, which with the semi-spherical recess in the base-plate forms a spherical socket for the ball, said socket plates having ears or extensions that are provided with slots through which bolts pass, substantially as and for the purpose shown and described.

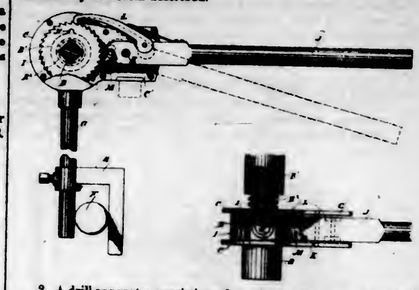
490,616. SAFETY-LOCK FOR RAILROAD-SWITCHES. JOHAN E. SANDELIN, New York, N. Y. Filed May 2, 1892. Serial No. 431,593. (No model.)



Claim.—In a railroad switch, the combination, with the main or with the side rails and switch points, of a shifting rod, elbow levers pivotally connected with the shifting rod, said elbow levers being provided with locking lips adapted for engagement with the flanges of the main or of the siding rails, plates secured to the switch points and pivotally connected with the locking levers, and means for reciprocating the shifting rod as shown and described.

490,617. RATCHET-BRACE. ALFRED TAYLOR, San Francisco, Cal., assignor of one-half to Michael Cusack and Frank Knobloch, same place. Filed Aug. 4, 1892. Serial No. 442,178. (No model.)

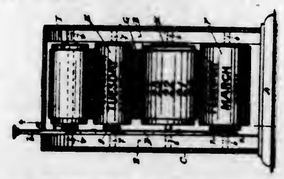
Claim.—1. In a drilling apparatus, a rotary drill socket, a casing through which said socket extends, a fixed standard at one side, an arm extending from the casing upon one side of the standard, and a second arm adjustable upon the first extending upon the opposite side of the standard forming a guide whereby the casing is prevented from rotating, a ratchet wheel secured to the drill socket within the casing, a lever arm fulcrumed within the casing and movable independently thereof, and pawls secured to the lever arm engaging the ratchet whereby the latter is rotated by the reciprocation of the lever arm, substantially as herein described.



2. A drill apparatus consisting of a casing having a ratchet wheel contained therein, a drill socket turning loosely in the casing and having the ratchet wheel secured thereto, a guide arm extending from one side of the casing and engaging a vertical standard whereby the arm and casing are prevented from rotating while allowed to advance in the direction of the length of the standard, a chambered extension upon one side of the casing, a lever fulcrumed in this extension so that the inner end projects beyond the fulcrum pin, pawls pivoted to the lever, one exterior and the other interior to the fulcrum pin, said pawls engaging the ratchet wheel upon opposite sides of the center whereby the reciprocations of the lever within the casing rotates the ratchet and drill socket, substantially as herein described.

3. In a drill, a casing, a drill socket extending through said casing and turning loosely therein, a ratchet wheel secured to the drill socket within the casing, a chambered extension at one side of the casing, a lever fulcrumed within said extension movable upon its fulcrum pin independently of the casing, pawls pivoted to the lever exterior and interior to the fulcrum pin so as to move in opposite directions and engaging the teeth of the ratchet upon opposite sides of the center, a guide rod extending outwardly from the casing adapted to engage a vertical stationary standard whereby the casing is prevented from rotation while allowed to advance along the standard, a screw extension of the drill socket, and an interiorly threaded sleeve fitting said screw having the upper end made conical, a corresponding socketed support against which the cone of the sleeve fits, a lug upon the exterior of the sleeve and a spring stop projecting downward from the stationary support and engaging the lug whereby the rotation of the sleeve is arrested and made intermittent for the purpose of feeding the drill forward at intervals, substantially as herein described.

490,618. CALENDAR. JOSEPH WALLIS, Boston, Mass., assignor to Charles O. Danforth, same place. Filed Apr. 2, 1892. Serial No. 427,236. (No model.)



Claim.—1. The combination with the case A, provided with the openings *c*, *d* and *e*, the rolls E, F and I, provided with the ratchet wheels *g*, *p* and *w*, respectively, the spring actuated roll H, and the ribbon G, of the operating bar D, provided with the catches *i*, *r* and *l*, for operating the rolls E, F and I, substantially as described.

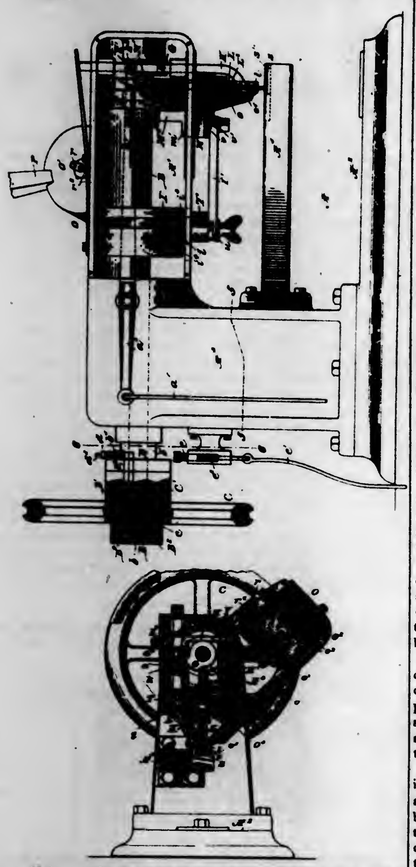
2. The combination with the spring actuated roll H, the roll I, ratchet wheel *w*, pawl *x*, and ribbon G, of the operating bar D, provided with the catch I, adapted to turn the ratchet wheel *w* in one direction, and the engaging lip *a'*, adapted to raise the pawl *x*, to allow the unwinding of the ribbon from the roll I, substantially as described.

3. The combination with the roll E, provided with the ratchet wheel *g*, and the roll F, provided with the ratchet wheel *p*, of the operating bar D, provided with the catch *i*, for operating upon the ratchet wheel *g* of the roll E, and the catch *r*, for operating upon the ratchet

wheel *p* of the roll F, upon a special movement of the bar D from its normal position, substantially as described.

6. The combination with the roll F, provided with the ratchet wheel *p*, the spring actuated roll H, the roll I provided with the ratchet wheel *w*, and the pawl *x*, of the operating bar D, provided with a catch *l* adapted to operate the roll I upon the normal movement of the said bar, and with a catch *r*, adapted to operate the roll F upon a special movement of the said bar from its normal position, substantially as described.

490,619. MACHINE FOR SECURING BUTTONS TO FABRICS. EDWARD T. ALLAN, Cincinnati, Ohio, assignor of seven-tenths, by direct and mesne assignments, to Abraham Godshaw, same place, and Thomas Jones, Newport, Ky. Filed June 9, 1892. Serial No. 436,070. (No model.)



Claim.—1. In a machine for securing buttons to fabrics, a suitable support for the material, a button hole spreader, a plunger, mechanism for reciprocating said plunger, and means for delivering a button beneath the plunger; substantially as described.

2. In a machine for securing buttons to fabrics, a support for the fabric curved to conform to the line of buttons, a button hole spreader, a plunger, mechanism for reciprocating the same, and means for delivering a button beneath the plunger to be acted upon thereby; substantially as described.

3. In a machine for securing buttons to fabrics, a suitable support for the material, a spreader for the button hole, a main shaft, a plunger, mechanism for delivering a button beneath the plunger, and connections between the spreader and plunger and the main shaft whereby the former are operated; substantially as described.

4. The combination with a support for the fabric, of a spreader for the button hole, a main shaft, a cam on said shaft for actuating the spreader, a plunger also operated by a cam on said shaft, and means for delivering a button beneath the plunger; substantially as described.

5. The combination with a support for the fabric, of a spreader for the button hole, a plunger, means for vertically reciprocating the same, means for moving the plunger forward and back, and means for delivering a button beneath the plunger; substantially as described.

6. The combination with a support for the fabric, of a spreader for the button hole, means for moving the same vertically, a plunger and means for moving the same vertically, a suitable hopper, a chute adapted to deliver buttons from the hopper to a point beneath the plunger, a main shaft, and connections between the main shaft and the plunger and chute for giving the same a forward and backward movement in accordance with the distance between the buttons; substantially as described.

7. The combination with the spreader for the button hole, of the plunger, the hopper and chute and means for giving them the desired movements, all actuated from the main shaft, a rotating brush or stirrer within the hopper, and connections between the main shaft and stirrer for actuating the latter; substantially as described.

8. In combination with a plunger, and means for operating the same, a horn or support for the fabric having removable dies, and a spreader for the button holes; substantially as described.

9. In combination with the plunger mechanism and means for operating it, a button hole spreader, a horn or support for the fabric provided with a removable die, said die having a tapering finger or tongue around which the shank of the button passes; substantially as described.

10. In combination with the plunger mechanism and means for operating it, a button hole spreader, a horn or support for the fabric provided with a die having a curved groove therein and a tapering tongue or finger in said groove around which the shank of the button passes; substantially as described.

11. In combination with the support for the fabric, a main shaft, a spreader, a cam on said shaft for raising the spreader, a spring for keeping it normally down, a plunger, a second cam on said shaft for actuating the plunger, and means for sliding said cam and plunger backward and forward; substantially as described.

12. The combination with a support for the fabric, of a spreader for the button hole, means for moving the same vertically, a plunger, and means for moving the same vertically, a main shaft, and connections between the main shaft and the plunger for moving the same forward and backward; substantially as described.

13. The combination with a support for the fabric, of a spreader for the button hole, means for moving the same vertically, a plunger and means for moving the same vertically, a main shaft, and adjustable connections between the main shaft and the plunger for moving the same forward and backward; substantially as described.

14. The combination with the main shaft, of a spreader, a cam on said shaft for actuating the spreader, a plunger, a cam on said shaft for actuating the plunger, a wheel on said shaft provided with a cam groove, a slide actuated by said cam groove, and connections between said slide and the plunger for giving the same a forward and backward movement; substantially as described.

15. The combination with the main shaft, of a spreader, a cam on the shaft for actuating the spreader, a wheel on said shaft having a cam groove, a slide operated by said cam groove, a second slide, a plunger carried thereby, a cam sliding on said shaft operated by said second slide and engaging with the plunger to raise and lower the same, and connections between the first and second slides; substantially as described.

16. The combination with the main shaft, of a wheel thereon having a cam groove, a slide operated by said cam groove, a second slide, a plunger carried thereby, a cam sliding on said shaft and operated by said second slide and engaging with the plunger to raise and lower the same, a button chute supported by said second slide, means for delivering a button to said chute, and operating connections between the first and second slides; substantially as described.

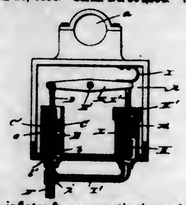
17. The combination with the main shaft, of a wheel thereon having a cam groove, a slide operated by said cam groove, a second slide, a plunger carried thereby, a cam sliding on said shaft and operated by said second slide and engaging with the plunger to raise and lower the same, a hopper and button chute supported by said second slide, means for feeding a button down said chute, and connections between the first and second slides; substantially as described.

18. The combination with the main shaft, of a wheel thereon having a cam groove, a slide operated by said cam groove, a second slide, a plunger carried thereby, a cam sliding on said shaft and operated by said second slide and engaging with the plunger to raise and lower the same, connections between the slides, a hopper and button chute, means for delivering buttons to the action of the plunger, and a rotating brush or stirrer within the hopper and connections between the main shaft and the same for actuating it; substantially as described.

19. In combination with the main shaft, spreader and plunger, and means for operating the same, a suitable hopper having a plurality of grooves in its bottom, a chute into which said grooves pass, a rotating brush or stirrer within said hopper, and connections between the main shaft and brush for rotating the latter; substantially as described.

20. The combination with the main shaft, of a wheel thereon having a cam groove, a slide operated by said cam groove, a second slide, connections between the slides, a plunger carried by the second slide, a cam sliding on the shaft operated by said second slide and engaging with the plunger to raise and lower the same, a hopper and button chute supported by said second slide, a rotating brush or stirrer within the hopper to feed the buttons to the chute, and a third slide actuated by the cam groove on the main shaft, and connections between said slide and the brush whereby the latter is rotated; substantially as described.

490,620. INFLATER FOR PNEUMATIC TIRES. SIDNEY H. BLAIR, Waverly, N. Y., assignor to G. S. Scofield and F. M. Scofield, Greenwich, Conn. Filed May 29, 1891. Serial No. 394,536. (No model.)



Claim.—1. The inflater for pneumatic tires, which inflater is carried by the wheel hub and operated by the revolution thereof, and a governor automatically throwing said inflater into and out of operation, substantially as specified.

2. The inflater for pneumatic cycle tires comprising the box or casing carried by the wheel hub and having an air compressor therein operated by the revolution of said hub, and a governor operated by a surplus of pressure to automatically throw said pump into and out of operation, substantially as specified.

3. The inflater for the purpose described, comprising the box or casing adapted to be rigidly secured to the wheel hub, an air compressing cylinder and piston in said casing, a pipe communicating with said cylinder and with the tire, an arm connected with said piston adapted to engage a projection of the frame upon the revolution of the wheel, and a governor for automatically throwing said arm into and out of position to engage said projection, substantially as specified.

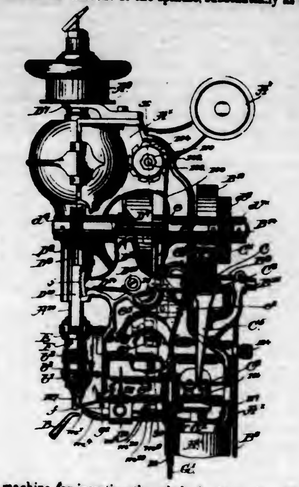
4. The inflater comprising the box or casing adapted to be rigidly secured to a wheel hub, an air compressing cylinder and piston in said casing, an oscillating beam or lever connected at one end to said piston, its shaft, the cam arm thereon adapted to engage a projection on the frame when the wheel is revolved, whereby said piston is forced downwardly, the spring for returning said piston, the air conducting pipe, and a governor operated by back pressure from said pipe to throw the cam arm into and out of position to operate the pump, substantially as specified.

5. The combination with the compressing cylinder, its piston, the oscillating beam or lever, its shaft, the cam arm on said shaft, and the air conducting pipe, of the cylinder connected with said pipe, the piston therein, and the rod connected to said piston and operated thereby to throw the cam arm into and out of position to operate the pump, substantially as specified.

6. The combination with a wheel hub, of a box or casing carried thereby and revolved therewith, an air compressor in said casing, a connection between the piston rod of said compressor and an arm operated by a projection on the frame whereby said compressor is operated and a governor in said casing operated by back pressure to automatically throw said arm into and out of position to be operated by said projection, whereby the operation of said compressor and the inflation of the tire are automatically regulated, substantially as specified.

490,621. MACHINE FOR UNITING SOLES TO UPPERS. LOUIS GOSSE, Winchester, assignor to James W. Brooks, principal trustee, Petersham, and Frank P. Stanley, associate trustee, Swampscott, Mass. Filed Apr. 7, 1892. Serial No. 428,151. (No model.)

Claim.—1. In a machine for inserting screw threaded wire, a continuously rotating wire carrying spindle slotted longitudinally for the reception of gripper levers; and a gripper carrier provided with gripper levers; combined with devices to vibrate said gripper levers and to move them longitudinally with relation to the length of the said spindle, whereby said gripper levers are first closed positively upon the wire and then made to feed the latter longitudinally through the spindle without the descent of the spindle, substantially as described.



2. A machine for inserting threaded wire into soles of boots and shoes for the formation of fastenings, it containing the following instrumentalities, viz:—a continuously rotating wire carrying spindle slotted longitudinally for the reception of a gripper; a gripper carrier,; a gripper made as a lever and pivoted thereon, and a gripper closing device, and devices to reciprocate the gripper carrier vertically and slide the gripper longitudinally with relation to the spindle and in the slot therein—whereby the gripper is made to act against the wire and feed the same, the contact of the gripper with the wire being increased or diminished in accordance with the resistance offered by the material to the passage of the wire through it, substantially as described.

3. A machine for inserting threaded wire, it containing the following instrumentalities, viz:—a rotating wire carrying spindle provided with slots near its lower end, a gripper carrying sleeve surrounding said spindle and adapted to rotate with and to be slid vertically thereon; a series of wire feeding grippers made as levers; a feeding sleeve; a lever D; a cam to move it; connections between said lever and said feeding sleeve to move the same vertically during the rotation of the said spindle, the said feeding sleeve being shaped at its lower end to, in its descent, first act upon the grippers and cause them to firmly grasp the wire preparatory to moving the said gripper levers longitudinally with relation to the spindle to feed the wire out from the spindle into the stock, substantially as described.

4. In a machine for inserting threaded wire, the following instrumentalities, viz:—a wire carrying spindle; a connected gripper carrier; a series of wire feeding grippers carried thereby; a feeding sleeve, surrounding the spindle loosely and having gripper closing surfaces; and a series of friction blocks extended through openings in the said feeding sleeve and gripper carrier and bearing against the said spindle frictionally, the said blocks bearing frictionally against the spindle while the latter is moved vertically, substantially as described.

5. In a machine for inserting threaded wire, the following instrumentalities, viz:—rotating wire carrying spindle; a connected gripper carrier; a series of wire feeding grippers carried thereby; a surrounding feeding sleeve having gripper closing surfaces; a series of friction blocks extended through openings in the said sleeve and gripper carrier and bearing against the said spindle frictionally; and means to rotate the said spindle and gripper carrier in unison the openings in the feeding sleeve for the reception of the friction blocks being longer than the said blocks to afford lost motion, whereby the grippers during the descent of the sleeve may be made to grasp the wire, the said sleeve as it is elevated retiring from the grippers, leaving the latter free to open and retire from engagement with the wire, substantially as described.

6. In a machine for inserting threaded wire, the following instru-

mentalities, viz:—a wire carrying spindle; a surrounding gripper carrier provided with grippers to engage the wire; a feeding sleeve provided with surfaces to actuate the grippers and cause them to clamp the wire preparatory to feeding the same; a series of friction blocks; and an adjusting device to cause the said friction blocks to engage the spindle with more or less force, substantially as described.

7. In a machine for inserting threaded wire, the following instrumentalities, viz:—a rotating wire-carrying spindle fluted externally; a feeding sleeve fluted internally to be engaged thereby and provided with openings, and having gripper closing surfaces; friction blocks working in said openings means to automatically reciprocate the said feeding sleeve on the said spindle for a greater or less distance according to the thickness of the stock; and a gripper carrying sleeve provided with a series of grippers to engage the wire, and having openings for the passage through it of the said friction blocks, substantially as described.

8. In a machine for inserting threaded wire, the following instrumentalities, viz:—a rotating wire carrying spindle provided with a worm; a cam shaft having at one end a worm gear in engagement with the said worm, and provided at its other end with a toothed gear and having a series of cams; combined with an auxiliary shaft parallel to the cam shaft and provided at one end with a worm gear and at its other end with a pinion, the latter worm gear being also driven by the worm on the spindle, the pinion on the auxiliary shaft engaging the toothed gear on the cam shaft, to operate, substantially as described.

9. In a machine for inserting threaded wire, the following instrumentalities, viz:—a rotating wire carrying spindle provided with a worm; a cam shaft having at one end a worm gear in engagement with the said worm, and provided at its other end with a toothed gear and having a series of cams; combined with an auxiliary shaft parallel to the cam shaft and provided with at one end with a worm gear and at its other end with a pinion, the latter worm gear being also driven by the worm on the spindle, the pinion on the auxiliary shaft engaging the toothed gear on the cam shaft, a gripper carrying sleeve; a series of wire feeding grippers made as levers; a feeding sleeve to act on and cause the said grippers to firmly grip the wire preparatory to feeding the same; and connections between the said carrier and sleeve, to operate, substantially as described.

10. In a machine for inserting metallic fastenings, the following instrumentalities, viz:—a wire carrying spindle; a gripper carrying sleeve; wire grippers made as levers having beveled or inclined arms; and friction devices; combined with a feeding sleeve which in its descent first acts on and closes the grippers upon the wire whatever may be its diameter, and thereafter by continued pushing on the grippers causes the gripper carrying sleeve to move downwardly on the spindle overcoming the friction between the friction devices and the spindle, substantially as described.

11. A wire carrying spindle; a surrounding gripper carrier; its attached wire feeding grippers having serrated or toothed ends to engage the wire, the inclination of the said teeth being at an angle or different from that of the threads of the wire at the point where the grippers engage the same, substantially as described.

12. A wire carrying spindle; a surrounding gripper carrier having attached wire feeding grippers; and a feeding sleeve having gripper closing surfaces; combined with friction blocks extended through the said sleeve and gripper carrier and engaging the said spindle; and a tapering ring to act upon the outer sides of the said friction blocks to govern the extent of friction between the blocks and the spindle; substantially as described.

13. A wire carrying spindle; a surrounding gripper carrier having attached wire feeding grippers; and a feeding sleeve having gripper closing devices; combined with friction blocks extended through the said sleeve and gripper carrier and engaging the said spindle; and a tapered yielding ring to act upon the outer sides of the said friction blocks to govern the extent of friction between the blocks and the spindle, substantially as described.

14. The rotating wire carrying spindle, its slotted detachable extension, and attached nose, combined with wire feeding gripper-levers made to extend through slots in the said spindle extension, and means to actuate the said gripper levers to feed the wire through the said spindle, substantially as described.

15. The wire carrying spindle having a yoke-like portion between its ends, and the wire carrying spool pinned therein; combined with a pin having its point-end the heavier; to operate, substantially as described.

16. The combination with the head, of the lever D^{14}, and its fulcrum pin, bored, threaded, and split, as described, and provided with an expanding device, to operate, substantially as set forth.

17. The rotating wire carrying spindle, the wire carrying spool mounted thereon and moved thereby; and intermittingly actuating wire feeding devices located near the lower ends of the spindle; combined with a rotating brake and co-operating guides located between the spool carrying the wire and the said wire feeding devices to prevent the wire from sliding backwardly within the said spindle, substantially as described.

18. The combination with the rotating wire carrying spindle forked at its upper end to receive and carry the coil of wire; of a rotating brake located between the spool carrying the wire and the feeding devices for the wire; and a pawl to prevent retrograde motion of the said brake, substantially as described.

19. A rotating wire carrying spindle, combined with a brake, having an annular groove a detent to prevent retrograde motion of the brake, and a guide constructed substantially as described to receive the wire coming from the spool carried by the spindle and direct it into the annular groove of the brake, to operate, substantially as described.

20. A rotating wire carrying spindle; its spool to carry the wire, combined with a rotating brake, and with a guide, as n^4, and with means to adjust one with relation to the other to compensate for wear of the parts and wire of different diameters, substantially as described.

21. In a machine for inserting screw threaded wire, the following instrumentalities, viz:—a continuously rotating wire carrying spindle slotted longitudinally for the reception of gripper levers; a gripper carrier; wire gripping levers mounted thereon; a feeding sleeve; a lever as D^{14}, a cam to actuate said lever, the latter sliding the said sleeve vertically with relation to the said spindle, yet allowing it to rotate freely therewith; a measuring leg jointed to the said lever; a horn to support the material; connections intermediate the said horn and measuring leg and made adjustable with relation to the said measuring leg by or through variations in the thickness of the stock, the said feeding sleeve in its longitudinal descent upon the rotating spindle, acting first upon the gripper levers to cause them to be closed upon the wire, and thereafter in the continued descent of the sleeve continuing to hold the said gripper levers in contact with the wire and move them longitudinally in the slots of the spindle and with them the wire, to feed the latter into the material resting upon the horn, substantially as described.

22. The combination with the head of a nailing machine provided with one or more vertical serrations as g, of a longitudinally adjustable foot having ore or more serrations to engage the said serrations g, and with a screw to retain said foot in adjusted position upon the said head, substantially as described.

23. The cutter carriers having teeth, combined with the oscillating rack to engage the said teeth and open and close the carriers, and with a guard to prevent chips of wire from getting into the space between the said teeth and thus prevent the proper action of the carriers, substantially as described.

24. The ratcheted pawl-carrier forming part of the shoe feeding mechanism; and the actuating cam B^{18}, combined with the lever e, the lever e^2 having a rack, and an adjustable connection between said levers whereby the throw of the said pawl-carrier may be varied as desired, substantially as described.

25. The feed wheel, the shaft having teeth to engage and rotate it, the sleeve in which the said shaft rotates, a ratchet attached to said shaft, a pawl-carrier mounted loosely on the said shaft, a guide to receive one end of said shaft, an adjusting screw, and a washer interposed between the end of the said shaft and the said adjusting screw, substantially as described.

26. In a machine for inserting screw threaded wire, the following instrumentalities, viz:—a rotating spindle having a hollow passage for the wire, a brake or device located at a considerable distance from the lower end of the spindle and adapted to prevent retrograde motion of the wire; intermittingly acting wire feeding levers to act upon the wire near the lower end of the spindle to feed the same; and cutting mechanism to sever the wire at the end of the spindle while the feeding levers break their contact with the wire and leave the latter free to fall behind the speed of the spindle during the cutting operation, substantially as described.

27. In a machine for inserting screw threaded wire, the following instrumentalities, viz:—a support for the stock; a rotating wire carrying spindle; intermittingly acting wire feeding grippers adapted to grasp and feed the wire and then release the same and retire therefrom; actuating devices for said grippers to move them for a greater or less distance according to the thickness of the material; cutting mechanism located below the said spindle and the said intermittingly acting wire feeding devices; and a brake for the wire located on and carried by the spindle at a point above the wire feeding grippers, the said brake preventing retrograde motion of the wire in the direction opposite its feeding movement, to operate, substantially as described.

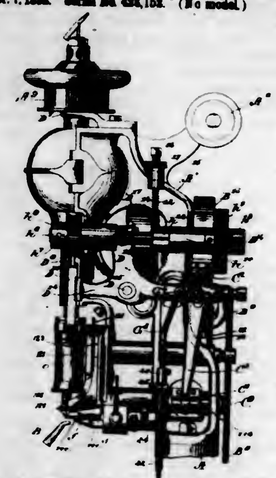
28. In a machine for inserting threaded wire the following instrumentalities, viz:—a rotating wire carrying spindle provided with a worm; a cam shaft having at one end a worm gear to engage the worm of the spindle and having at or near its other end a cam B^{12} provided with toes, and also a pinion; wire cutting mechanism; a shaft parallel to the cam shaft, and provided at one end with a worm gear and at its other end with a pinion, and means to adjust that one

of said pinions carried by the cam shaft with relation to the toes on the cam B^{12}, to operate, substantially as described.

490,622. MACHINE FOR UNITING SOLES TO UPPERS.

Lewis Gomez, Winchester, assignor to James W. Brooks, principal trustee, Peterahem, and Frank F. Stanley, associate trustee, Swampscott, Mass.

Filed Apr. 7, 1892. Serial No. 428,153. (No model.)



Claim.—1. In a machine for inserting screw-threaded wire into soles of boots and shoes, leather, &c., the following instrumentalities, viz:—a continuously rotating longitudinally slotted spindle having external projections and grooves; a feeding sleeve surrounding the said spindle loosely; a gripper-carrier interposed between the said sleeve and the said spindle and having projections and grooves at its inner side to engage the projections and grooves of the spindle, and wire grippers entering the slots of the said spindle, gripping the wire, and made movable by the said gripper-carriers in said slots in the direction of the length of the spindle during its rotation to feed the wire through the said spindle, substantially as described.

2. In a machine for inserting screw-threaded wire into soles of boots and shoes, leather, &c., the following instrumentalities, viz:—a continuously rotating longitudinally slotted spindle having external projections and grooves; a feeding sleeve surrounding the said spindle loosely; a gripper-carrier interposed between the said sleeve and the said spindle and having projections and grooves at its inner side to engage the projections and grooves of the spindle; wire grippers pivotally mounted upon said gripper-carrier and entering the slots of the spindle to grasp the wire, the gripper levers entering slots in the said spindle and made movable in the said slots in the direction of the length of the spindle to feed the wire through the said spindle; and a friction device connected with the gripper-carrier and engaging and rotating the feeding sleeve in unison with it and with the spindle, substantially as described.

3. In a machine for inserting screw-threaded wire, the following instrumentalities, viz:—a continuously rotating spindle provided with longitudinal grooves and projections, and having an extension slotted for the reception of gripper levers; a gripper-carrier surrounding the said spindle and having grooves and projections to be engaged and rotated by the spindle; wire-feeding gripper levers mounted on the said gripper carrier; a feeding sleeve loosely mounted upon the said spindle and having a beveled or inclined portion; and a friction device connected with the gripper-carrier and engaging the spindle, a part of the friction device being extended into a slot or space of the feeding sleeve, the said slot or space being longer than the part of the friction device extended therein to enable the feeding sleeve to be reciprocated for a slight distance before it takes with it the gripper-carrier, substantially as and for the purpose described.

4. In a machine for inserting screw-threaded wire, the following instrumentalities, viz:—a hollow continuously rotating spindle; its surrounding gripper-carrier; gripper levers pivoted thereon and having inclined or beveled shoulders below their pivots; and a feeding sleeve having suitable bevels or inclines to act upon the bevels or inclines of the gripper levers and cause the latter to grasp the wire, and devices to actuate the said feeding sleeve vertically on and during the rotation of said spindle and independently of and vertically with relation to the length of the said gripper levers, substantially as described.

5. In a machine for inserting screw-threaded wire, the following instrumentalities, viz:—a hollow continuously rotating spindle; a surrounding gripper-carrier, each connected with the other by suitable grooves and projections so that the carrier rotates in unison with the spindle but is free to be moved vertically thereon; wire-feeding grippers pivoted upon the said gripper-carrier; a feeding sleeve having beveled or inclined surfaces to act upon and close the grippers upon the wire in the downward motion of the sleeve; a friction device carried by the gripper-carrier and engaging a part of the spindle, the said friction device also engaging and rotating the feeding sleeve with the gripper-carrier and spindle; means to adjust the friction of the friction device upon the spindle; and a brake or check for the wire, said brake having a beveled and tapered surface and being free to move longitudinally in the said spindle, substantially as described.

6. The rotating spindle; its surrounding gripper-carrier, each connected with the other by suitable grooves and projections so that the carrier rotates in unison with the spindle but is free to be moved vertically thereon; wire-feeding grippers pivoted upon the said gripper-carrier; a feeding sleeve having beveled or inclined surfaces to act upon and close the gripper levers upon the wire in the downward motion of the sleeve; a friction device carried by the gripper-carrier and engaging a part of the spindle, the said friction device also engaging and rotating the feeding sleeve with the gripper-carrier and spindle; means to adjust the friction of the friction device upon the spindle; and a brake or check for the wire, said brake having a beveled and tapered surface and being free to move longitudinally in the said spindle, substantially as described.

7. The rotating spindle; its surrounding gripper-carrier, each connected with the other by suitable grooves and projections so that the carrier rotates in unison with the spindle but is free to be moved vertically thereon; wire-feeding grippers pivoted upon the said gripper-carrier; a feeding sleeve having beveled or inclined surfaces to act upon and close the grippers upon the wire in the downward motion of the sleeve; a friction device carried by the gripper-carrier and engaging a part of the spindle, the said friction device engaging and rotating the feeding sleeve with the gripper carrier and spindle; means to adjust the friction of the friction device upon the spindle; a brake or check composed of two or more parts shaped externally to resemble a cone; and a spring to act upon end of the said brake to aid in keeping the same in proper contact with the wire to thus maintain the proper amount of friction, substantially as described.

8. In a machine for inserting threaded wire into soles of boots and shoes, &c., the following instrumentalities, viz:—a hollow spindle; wire-feeding grippers; a carrier therefor; a lever, as D^{14}; intermediate devices between said lever and said gripper-carrier to reciprocate the gripper-carrier and cause the grippers to grasp and release the wire; an actuating cam for said lever, the said cam having a movable section near its point of greatest throw; and a co-operating toe, whereby the said lever is released instantly, as described, to enable the wire-feeding grippers to be released from the wire, as and for the purpose set forth.

9. The continuously-rotating wire-carrying spindle, and its slotted extension composed of two parts containing a chamber, and a vertically-movable wire-holding brake located in said chamber, and a loose yielding support in said chamber between it and the brake, substantially as described.

10. In a machine for inserting metallic fastenings, a continuously rotating wire-carrying-spindle having a yoke at its upper end and slotted and chambered below that point for the reception of a brake and of wire feeding devices, combined with a reel carrying the wire to be fed through the spindle, a vertically movable wire holding brake, and a wire feeding device located at a distance below said brake and close to the end of the spindle, and means to reciprocate the wire feeding devices, to operate, substantially as described.

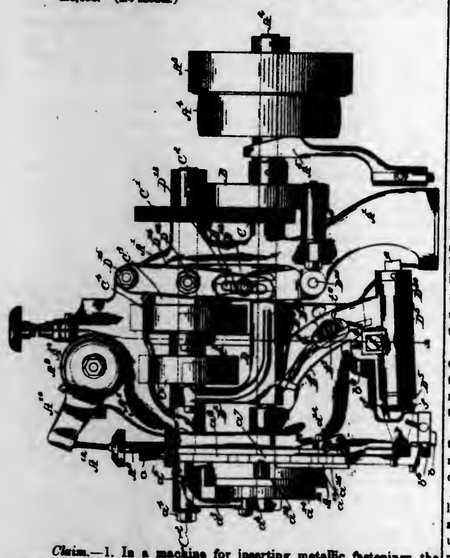
11. The continuously-rotating wire-carrying spindle, and its slotted extension composed of two parts containing a chamber, and a vertically-movable wire-holding brake made in pieces and having a tapering upper end to engage a tapering part of the spindle extension and located in said chamber, and a spring to act against said brake, substantially as described.

12. In a machine for inserting screw-threaded wire into soles of boots and shoes, leather, &c., the following instrumentalities, viz:—a continuously-rotating longitudinally slotted spindle having external projections and grooves, a feeding sleeve surrounding the said spindle loosely, a lever, as D^{14}, connections between said lever and said feeding sleeve, a measuring leg connected with said lever; a horn: intermediate devices located between said measuring leg and said horn and varied in position with relation to the measuring leg by or through differences in thickness of material upon the horn, a gripper carrier interposed between the said sleeve and the said spindle, and having projections and grooves at its inner side to engage projections and grooves of the spindle that they may rotate in unison, and lever-like

wire grippers pivotally mounted on and carried by the said gripper carrier, the points of the grippers entering the slots in the spindle and engaging the wire, the gripper carrier in its descent acting upon the gripper levers, forcing them inwardly against the wire and thereafter moving the gripper levers downwardly with it during the feeding of the wire longitudinally through the spindle, as and for the purposes set forth.

13. In a machine for inserting screw-threaded wire, the following instrumentalities, viz:—a hollow continuously rotating spindle; a loosely connected gripper carrier; grippers pivoted thereon, and made as levers having beveled or inclined surfaces; a hollow feeding sleeve surrounding said gripper carrier and also the upper ends of said gripper levers, and devices to reciprocate the said feeding sleeve vertically with relation to both the gripper-carriers and the said spindle, and adapted to act on said gripper levers below their pivots to thus cause the said gripper levers to engage firmly the wire; and friction devices, to operate, substantially as described.

490,623. NAILING-MACHINE. Louis Gosse, Winchester, assignor to James W. Brooks, principal trustee, Peterham, and Frank F. Stanley, associate trustee, Swampscott, Mass. Filed Apr. 7, 1892. Serial No. 428,188. (No model.)



Claim.—1. In a machine for inserting metallic fastenings, the combination of the following instrumentalities, namely:—a movable frame, the attached arm provided with a hollow sleeve-like bearing, an adjusting device to alter the angle of the said sleeve-like bearing upon or with relation to the movable frame and the line of its reciprocation, an oscillating strip-carrier mounted in said bearing, and cutting mechanism to sever the said strip, substantially as described.

2. In a machine for inserting metallic fastenings, a movable frame; an attached arm having a sleeve-like bearing; a strip-carrier mounted in said sleeve-like bearing; and two levers D^9, D^{14} adjustably connected together; the lever D^9 carrying and moving said frame, the lever D^{14} serving to actuate the lever D^9 for a variable distance; and mechanism to move the said lever D^{14}, substantially as described.

3. The movable frame; its attached sleeve-like bearing for the reception of a strip-carrier; and a collar loose on and to actuate the said frame and provided with rack teeth; combined with a lever having rack teeth, and with means for moving said lever, substantially as described.

4. The movable frame; its attached sleeve like bearing for the reception of a strip-carrier; and an adjustable collar loose on and to actuate the said frame and provided with rack teeth, combined with a lever having rack teeth, and with means for moving said lever, substantially as described.

5. The movable frame; its attached sleeve-like bearing; the oscillating strip-carrier mounted therein and having gear teeth; combined with a sliding rack bar having its bearings at right angles to the said sleeve-like bearing; and means to reciprocate the said rack bar, substantially as described.

6. The movable frame; its attached hollow sleeve-like bearing; the oscillating strip-carrier therein provided with gear teeth; and the rack bar in engagement therewith; combined with the connecting rod, universally jointed to the said rack bar, to operate, substantially as described.

7. The movable frame; its attached hollow sleeve-like bearing; the oscillating strip-carrier therein provided with gear teeth; and the rack bar in engagement therewith; combined with the connecting rod universally jointed to the said rack bar, the lever c^3; and universal joint connections between it and the said connecting rod, to operate, substantially as described.

8. The movable frame; the adjustably attached arm provided with a hollow sleeve-like bearing; the strip carrier therein; and a rack to oscillate the strip-carrier; combined with an adjusting device to alter the angle of the said sleeve-like bearing upon or with relation to the said movable frame and the line of its feeding movement, substantially as described.

9. In a machine for inserting metallic fastenings, the following instrumentalities, viz:—a movable frame having an adjustably attached sleeve-like bearing; an adjusting device to alter the angle of said bearing with relation to the frame, a strip-carrier mounted in the said bearing; a rack to oscillate the said strip-carrier; cutting mechanism to sever the strip; a nose or nail guide in which the nail is deposited; a driver; and an awl feeding device, to operate, substantially as described.

10. The shaft A^3; its attached cam A^{16} the cam surface a^{14}; and the longitudinally slotted feed bar adapted to slide and rock upon its fulcrum; and the vertically adjustable fulcrum extended through the slot, combined with a lever actuated by the said cam A^{16}, and with a jointed connection between the said lever and feed bar, whereby the feed bar may be moved vertically; and a roll or stud carried by the feed bar and actuated by the cam surface a^{14}, to vibrate the said feed bar, substantially as described.

11. In a machine for inserting metallic fastenings, the following instrumentalities, viz:—an oscillating and reciprocating strip-carrier, nail-cutting mechanism consisting of a stationary and a movable cutting blade, and actuating devices for one of said blades; and a notched spring-supported nail-holder located at the inner side of the stationary blade and in the path of movement of the movable blade when passing the edge of the stationary blade, the said nail-holder receiving against it the side of the nail being cut from the strip and yielding under the action of the nail and the movable cutter during the cutting operation, substantially as described.

12. In a machine for inserting metallic fastenings, the movable cutter carrying member b^{16}, its attached cutter; and an opposed cutting member; combined with a cap to keep the portion b^5 of the said movable member seated in its bearing in the frame-work, substantially as described.

13. In a machine for inserting metallic fastenings, the combination with two cutters to act on opposite sides of and sever nail material, of a yielding nail holder having a rectangular notch into which one of the cutters places the nail, substantially as described.

14. The movable frame; the attached arm provided with a hollow sleeve-like bearing; and the strip-carrier therein; combined with an adjusting device to alter the angle of the said sleeve-like bearing upon or with relation to the movable frame and the line of its reciprocation, substantially as described.

15. In a nailing machine, the combination with a driver bar and strip cutting mechanism and a movable frame, of an arm made adjustable on said frame in the arc of a circle struck from substantially the center of the strip at the cutting point, the strip carrier supported by said arm and means for both oscillating the strip-carrier and for moving the said strip carrier backwardly over the strip while held by the cutting mechanism, substantially as described.

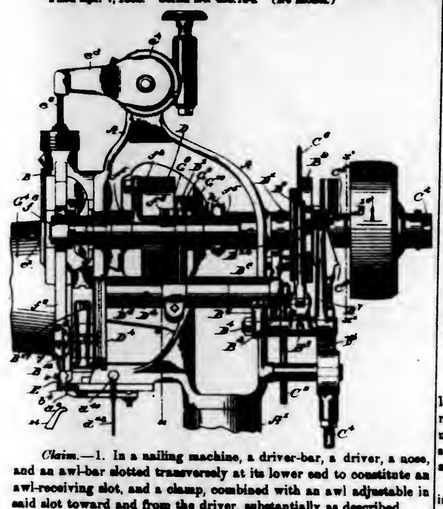
16. In a machine for inserting metallic fastenings, cutters to sever a strip; a movable frame; an arm having a sleeve-like bearing; means to adjust the said arm in the arc of a circle on or with relation to the said frame; a strip-carrier mounted in said sleeve-like bearing; a rack to oscillate the said strip-carrier; a lever as c^3; and a connecting rod universally jointed to the said rack and to the said lever, to operate substantially as described.

17. In a nailing machine, the combination with a driver bar and strip cutting mechanism, of an arm made adjustable in the arc of a circle struck from substantially the center of the strip at the cutting point, and provided with rolls, as f', f^3, to act upon the strip, and means for moving the said strip-carrier backwardly over the strip while held by the cutting mechanism, substantially as described.

18. In a machine for inserting metallic fastenings the combination with two cutters to form nails, of a spring-supported nail-holder held against one side of the stationary cutter, said nail holder yielding in the direction of the movement of and by the action of the movable cutter and preventing axial rotation of the nail between the cutting and driving operations, a nail-driver and means to actuate it, the driver driving the nails from between the end of the movable cutter and the said nail-holder, substantially as described.

19. In a machine for inserting metallic fastenings, a movable frame; its attached sleeve-like bearing for the reception of a strip-carrier; and a collar on the said frame provided with rack teeth; combined with a lever having rack teeth; a pivot for said lever, said pivot being substantially at right angles to the longitudinal center of said strip carrier; and means for moving said lever and with it the strip carrier in the direction of the length of the latter, substantially as described.

490,624. MACHINE FOR UNITING SOLES TO UPPERS. Louis Gosse, Winchester, assignor to James W. Brooks, principal trustee, Peterham, and Frank F. Stanley, associate trustee, Swampscott, Mass. Filed Apr. 7, 1892. Serial No. 428,154. (No model.)



Claim.—1. In a nailing machine, a driver-bar, a driver, a nose, and an awl-bar slotted transversely at its lower end to constitute an awl-receiving slot, and a clamp, combined with an awl adjustable in said slot toward and from the driver, substantially as described.

2. In a nailing machine, a driver-bar, a driver, a nose, and an awl-bar slotted transversely at its lower end to constitute an awl-receiving slot, and a clamp, combined with an awl adjustable in said slot toward and from the driver, and a guide for the awl between its ends, substantially as described.

3. In a nailing machine, a pivoted head B, provided with a projection B^{16} to leave a slot as D^6, and a rock-shaft D^8 having a grooved arm D^4, combined with a stud made adjustable in the slot of said arm and provided with blocks D^7 to slide in the slot D^4, substantially as described.

4. In a nailing machine, the rotating cam shaft C^3 having at its front end a driver-bar lifting cam, and a cam g^4, located on the plate which carries the driver-bar-lifting-cam, combined with a driver, a nose, a separator lever, its separator, and a roadway for the nails to be driven, substantially as described.

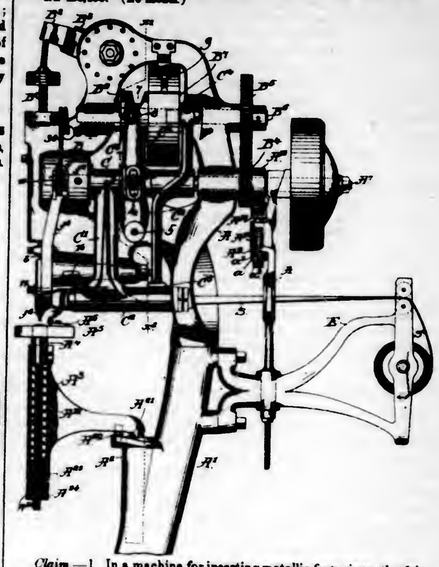
5. The pivoted head B carrying the driver and awl bars and the nose, and a separator lever movable with the head, and a roadway, combined with a hopper having a stationary shelf located above the receiving end of the roadway, substantially as described.

6. In a nailing machine, the arm G, its attached disk-like portion, $G^\times$ having a hopper G^{18} fixed to it, the shaft G^2; and the lifter attached thereto and provided with buckets, combined with the roadway; the delivery plate G^4 attached to said disk-like portion; and a nose and pivoted head B, the latter in its movements causing the roadway to be reciprocated independently of said delivery plate, substantially as described.

7. The nail pot, and its carrying arm, and the head B, having the stud F', combined with the carrying frame, the guide rod on which the roadway and its carrying frame is free to slide, the said guide rod being jointed to the said nail pot carrying-arm, substantially as described.

8. In a nailing machine, the main shaft; nail-driving mechanism, a brake pulley connected to said shaft, and brake shoe; combined with a three armed lever, one arm having a series of teeth B^4, and being engaged by the rod C^4, to operate, substantially as described.

490,625. NAILING-MACHINE. Louis Gosse, Winchester, assignor to James W. Brooks, principal trustee, Peterham, and Frank F. Stanley, associate trustee, Swampscott, Mass. Filed Apr. 7, 1892. Serial No. 428,155. (No model.)



Claim.—1. In a machine for inserting metallic fastenings, the following instrumentalities, viz:—the carriage; the cam to rock the carriage; a lever; a cam to move the said lever positively back and forth upon its pivot; means to adjustably connect the said lever with the said carriage; a strip carrier; devices to oscillate the strip carrier; and cutting mechanism to sever the strip, substantially as described.

2. In a machine for inserting metallic fastenings, the following instrumentalities, viz:—a support for the material; a driver bar; strip cutting mechanism; a carriage; means to oscillate said carriage, a lever as C^3, a variable fulcrum for said lever, and devices to reciprocate the said lever positively in both directions; and a lever to oscillate the said strip carrier, substantially as described.

3. The combination with a carriage and cutting mechanism, of a strip carrier mounted on said carriage and devices to move the carriage longitudinally and to reciprocally oscillate the strip carrier, and clamping rolls to act upon, ride and roll over a strip while held by the cutting mechanism, substantially as described.

4. The carriage, and the oscillating strip carrier therein consisting of bars having rolls to act upon the opposite sides of and hold the strip, and guides, and means for adjusting the same to adapt the guides to strips of varying width, substantially as described.

5. The combination with the carriage, the tube therein, and the bars forming part of the strip carrier, of a threaded block connected with the bars, and a nut as a^9 the rotation of which effects the longitudinal movement of the bars in the carriage causing the rolls to clamp the strip more or less as desired, substantially as described.

6. The carriage; the tube therein; and the bars provided with rolls, combined with a block d^9 having projections which receive against them the ends of the bars, and means to unite the bars and block, substantially as described.

7. The carriage; the tube therein provided at one end with bevels, combined with the bars D', D^3 having beveled surfaces, and with devices to adjust the said bars longitudinally, to operate, substantially as described.

8. A carriage and oscillating strip carrier therein having a detachable slotted block at its receiving end for the passage through the strip carrier of the strip to be cut into nails, the said strip carrier at or near its delivery end having rolls to act upon and hold the strip, substantially as described.

9. A carriage; a strip carrier therein; gages co-operating with the strip carrier; means to adjust the gages to adapt them to strips of different widths; and a friction device to act upon the gages, as and for the purposes set forth.

10. In a machine for inserting metallic fastenings, cutting mechanism to cut a strip transversely; a carriage; means to reciprocate

the said carriage toward and from the cutters; a reciprocally oscillating strip carrier mounted in said carriage and provided with clamping rolls frictionally engaging and holding the strip to thereby insure its forward movement with the carriage and strip carrier, said rolls rolling over the strip in the strip carrier as the latter and the carriage are drawn away from the cutters, the latter then holding the end of the strip, substantially as described.

11. The combination with the driver bar, its driver, a nail tube, and an arm pivoted at one side the line of movement of the driver and having a work supporting surface, of a locking device to retain the said arm in working position, and a fixed cam surface to automatically move the said arm into its inoperative position when the locking device is disengaged, substantially as described.

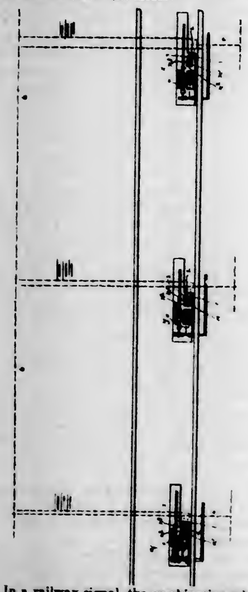
12. A driver-bar having a driver, combined with a supporting column, work-support and a swing-frame for such support pivoted to said column out of line with the driver and adapted to be swung from the column to bring the work-support in line with the driver and a locking device to retain it in such position, and also adapted to be swung toward and be arrested by the column to move the work-support out of line with the driver, substantially as described.

13. A driver bar having a driver; an arm as A^3 pivoted at one side of the line of movement of the driver—a locking device to retain it in operative position, combined with a spring-sustained shank, a work-support secured thereto, and an adjusting device to control the effective strength of the said spring, and means to determine the position to which the work-supporting surface may rise, substantially as described.

14. A driver-bar having a driver, an arm, as A^3, pivoted out of the line of reciprocation of the driver, a spring sustained work-support having a screw-threaded shank, and set-nuts for controlling the effective strength of the spring, combined with a locking device for the said arm, substantially as described.

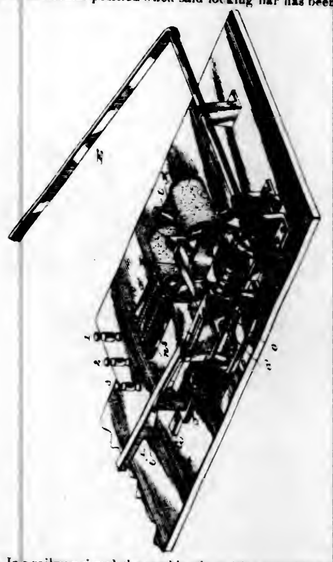
15. In a machine for inserting metallic fastenings the combination with a strip carrier having strip-engaging rolls, means to move said carrier to feed the strip, and means to oscillate said carrier to turn the strip, of a support for the coil of metal strip separated from the carrier, substantially as described.

490,626. RAILWAY-SIGNAL. IRA L. GREEN, Kittanning, assignor, by direct and mesne assignments, of five-sixths to James M. Patterson, Sharpsburg, George M. Fox, Wythington Reynolds, and Christopher C. Shadle, Kittanning, and Marcus D. Wayman, Ford City, Pa. Filed Jan. 9, 1892. Serial No. 417,468. (No model.)



Claim.—1. In a railway signal, the combination with the shaft, a segment mounted on said shaft, and a lever also mounted on said shaft, and located in the path of a trip lever carried by a train, of a longitudinally movable bar having teeth intermeshing with the teeth of said segment, a sleeve adapted to be moved rearward with said movable bar, a lever pivoted to said sleeve, and adapted to move with the same, a means for elevating the forward end of said lever as it is moved rearward, a means for locking said sleeve in its rearward position, and a means at the entrance of the succeeding block for releasing said sleeve.

2. In a railway signal the combination with a movable sleeve, a lever pivoted to said sleeve, and movable therewith, a transverse locking bar, having a trigger mounted on one of its ends, said trigger being operated by said sleeve, and a hook adapted to engage the opposite end of said locking bar when the same is in its abnormal position, of means for moving said sleeve rearward when a train enters the block, means for elevating the forward end of said lever when it is moved rearward; means for disengaging said hook from the locking bar when the train has left the block, and means for forcing said sleeve to its normal position when said locking bar has been released.



3. In a railway signal, the combination with a movable sleeve, having openings in its top, bottom and side, the opening in the bottom of said sleeve having an inclined wall, a rod upon which said sleeve is mounted loosely, said rod having a vertical opening adapted to register with the openings in the top and bottom of said sleeve, a locking bar having its inner end extending through the opening in the side of said sleeve into said rod, and a trigger mounted upon the inner extremity of said locking bar and located within the vertical opening in said rod, said trigger having a beveled edge adapted to be engaged by the inclined wall of the opening in the bottom of said sleeve, of a lever, pivoted to said sleeve and movable therewith, means for elevating said lever as it is moved rearward, a means engaging the locking bar, whereby the sleeve will be locked in its rearmost position, a means at the entrance of the succeeding block for releasing said locking bar, and a means for forcing the sleeve to its foremost position when said locking bar has been released.

4. In a railway signal, the combination with a movable sleeve, a longitudinal lever pivoted to said sleeve and movable therewith, a transverse locking bar fulcrumed near its inner end and adapted to have its outer portion depressed by the rearward movement of said sleeve, and a hook for engaging the outer end of said locking bar, of an electro-magnet in the circuit with the next succeeding apparatus, the armature of said electro-magnet being connected with said hook, means for forcing said sleeve to its forward position when the hook is disengaged from the locking bar, and means for elevating the forward end of the longitudinal lever when the same is in its rearward position.

5. In a railway signal the combination with a longitudinally movable lever adapted to be moved rearward when a train enters the block, means for elevating the forward end of said lever as it is moved rearward, a transverse bar for locking said longitudinal lever, of a hook for engaging the rear end of said locking bar when the longitudinal lever is in its rearmost position, an electro-magnet in the circuit with the apparatus at the entrance to the next succeeding block, the armature of said electro-magnet being connected with said hook, whereby the hook will be disengaged from the locking bar when the train has passed out of said block, and means for forcing said longitudinal lever to its foremost position when said hook is disengaged from said locking bar.

6. In a railway signal, the combination with the shaft, a segment mounted on said shaft, a lever, also mounted on said shaft and located in the path of a trip lever carried by said train, whereby it will be depressed when the train enters the block, a longitudinally movable bar having teeth intermeshing with the teeth of said segment, a lever, I, connected with said bar and moved rearward by the same, and means for elevating the forward end of said lever when it is in its rearward position, of a transverse bar for locking said longitudinal lever, a hook for engaging the rear end of said locking bar when the longitudinal lever is in its rearmost position, an electro-magnet in the circuit with the apparatus at the entrance to the next succeeding block, the armature of said electro-magnet being connected with said hook, whereby the hook will be disengaged from the locking-bar when the train has passed out of said block, and means for forcing said lever I to its foremost position when said hook is disengaged from the locking bar.

7. In a railway signal, a longitudinal lever I having a bereled lug *i*, and means operated by a train entering the block for moving said lever rearward of a stand having an inclined surface engaging said bereled lug *i* whereby the end of the lever will be raised simultaneously with the rearward movement of said lever, means for locking said lever in its rearward position, means operated by the train passing out of said block for releasing said lever, and means for forcing said lever to its foremost position when released.

8. In a railway signal, a longitudinal lever I pivoted at its rear end, said lever being located at the entrance to a block, means operated by a train entering the block for moving said lever rearward, and means for raising the forward end of said levers simultaneously with the rearward movement thereof, of means for locking said lever in its rearward position, means operated by the train passing out of said block for releasing said lever, and means for forcing said lever in its foremost position when the same is released.

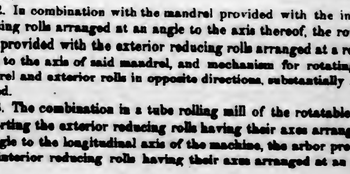
9. In a railway signal, the combination with a visual signal located in the engineer's cab, an electro magnet, having its armature pivoted at one end and a hook at its opposite end, and a door having a projection adapted to be engaged by said hook of the armature and the door thereby held in position to cover the signal when the magnet is not energized, of means for energizing said magnet upon the entrance of a train into a block occupied by another train, whereby the armature will be attracted and the door released, thereby displaying the visual signal, as specified.

10. In a railway signal, the combination of a case located in the engineer's cab, a lamp in said case, a glass in front of said lamp, an electro-magnet having its armature pivoted at one end and its opposite end hook-shaped, a door having a projection adapted to be engaged by said hook-end of the magnet, means for energizing said magnet upon the entrance of a train into a block occupied by another, and thereby disengaging the armature from the door, and allowing the latter to drop and display the visual signal, with a projection x' on said door, a contact plate x^2, an alarm bell and a bell-operating mechanism in the circuit between said contact point and bell, whereby when the door has dropped its projection x' will be in contact with contact plate x^2 and the circuit closed through the bell, substantially as described, whereby both a visual signal will be displayed and an audible alarm sounded in the engineer's cab if he enters a block occupied by another train, as specified.

11. In a railway signal, the combination with a lever I located at the entrance to a block, means for raising the same when a train enters the block, means for locking said lever in raised position while the train is in the block, means at the entrance to the succeeding block for releasing said lever when the train has left the block, and means for lowering said lever when the same is released, with a pivoted plate carried by the train and carrying a contact point, said plate being arranged to be elevated by said lever when the latter is in its elevated position, a contact point adjacent to the contact point on said plate, an electro-magnet in the engineer's cab, electrically connected with said contact point, the armature of said magnet being pivoted at one end and having a hook at its other end, a visual signal in the engineer's cab, and a door for normally covering said signal, said door having a projection engaged by the hook end of said armature, substantially as described and for the purposes specified.

12. In a railway signal, the combination with a lever I located at the entrance to a block, means for raising the same when a train enters the block, means for locking said lever in raised position while the train is in the block, means at the entrance to the succeeding block for releasing said lever when the train has left the block, and means for lowering said lever when the same is released, with a pivoted plate, carried by the train and carrying a contact point, said plate being arranged to be elevated by said lever when the latter is in its elevated position, a contact point adjacent to the contact point on said plate, an electro-magnet in the engineer's cab, electrically connected with said contact point, the armature of said magnet being pivoted at one end and having a hook at its other end, a visual signal in the engineer's cab, a door for normally covering said signal, said door having projections located one above the other, the lower of said projections being normally engaged by said hook end of the armature, and the door thereby held in elevated position, an electric bell, and a contact plate in the circuit with said bell, said contact plate being arranged to be engaged by the upper of said projections on the door, all substantially as described and for the purposes set forth.

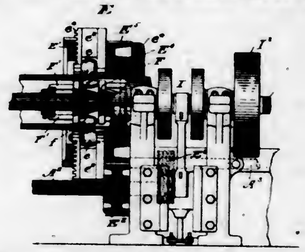
490,627. GLOVE-FASTENER. FRANK K HALL, Newton, Mass. Filed Oct. 16, 1890. Serial No. 368,302. (No model.)



Claim.—1. The button hole member of a fastener for gloves and other articles consisting of a cover A provided with a downwardly projecting flanged clinching eyelet E held therein, in combination with a flanged stud clasping socket B having a rolled-in clasping neck and having a covered rounded head, an anvil piece C and a retaining piece D, said anvil and retaining pieces being held within the flange of the socket forming the recess K, all constructed and arranged in a manner whereby the clinching eyelets coacts with the rounded head of the socket to automatically shear a hole through the material to which the button hole member is secured, substantially as described.

2. The button hole member of a fastener for gloves and other articles consisting of a cover provided with a downwardly projecting flanged clinching eyelet having a cutting edge in combination with a rounded covered stud-receiving flanged socket having a rolled-in clasping neck and coacting with the eyelet to automatically shear a hole through the glove or other material, said socket being provided with eyelet clinching and retaining portions, substantially as described.

490,628. UNIVERSAL TUBE-ROLLING MILL. WILLIAM HENRY, Findlay, assignor of one-half to Benjamin Butterworth, Cincinnati, Ohio. Filed Dec. 11, 1891. Serial No. 414,695. (No model.)



Claim.—1. A universal tube rolling mill comprising a rotating head supporting the exterior reducing rolls, an oppositely rotating arbor or mandrel supporting the interior reducing rolls, a pair of pushers arranged one in front and the other at the rear of said rolls; each pusher being adapted to act alternately as a puller: means supported by the pushers for grasping the tube or stock and holding the same in line as it is drawn through the rolls, and mechanism for rotating said head and arbor in opposite directions, substantially as described.

2. In combination with the mandrel provided with the interior reducing rolls arranged at an angle to the axis thereof, the rotating head provided with the exterior reducing rolls arranged at a reverse angle to the axis of said mandrel, and mechanism for rotating said mandrel and exterior rolls in opposite directions, substantially as described.

3. The combination in a tube rolling mill of the rotatable head supporting the exterior reducing rolls having their axes arranged at an angle to the longitudinal axis of the machine, the arbor provided with interior reducing rolls having their axes arranged at an angle

to the axes of the exterior rolls, and mechanism substantially as described for rotating said head and arbor in opposite directions.

4. In combination with the exterior and interior reducing rolls and means for rotating the same in opposite directions, the pushers provided with chucks having radially sliding jaws which are adapted to grasp and support the ends of the stock at the front and in rear of the reducing rolls; each pusher being adapted to act alternately as a puller so as to jointly assist in moving the stock at each passage through the rolls by pushing and pulling in alternation, substantially as described.

5. In a universal tube rolling mill, the combination with the rotatable head carrying the exterior reducing rolls having their axes arranged at an angle to the longitudinal axis of the machine, of the oppositely rotating arbor carrying the interior reducing rolls having their axes arranged at an angle to the axes of the exterior rolls and mechanism for actuating the rolls whereby the stock is adapted to remain neutral or without rotation in its passage through the rolls, substantially as described.

6. In combination with a tube rolling mill, the pusher mounted on suitable ways thereon, mechanism for impelling the pusher along said ways, and an intermediate friction-brake device connecting the pusher and impelling mechanism, whereby the pusher is yieldingly impelled and its speed made to conform to the speed of the stock, substantially as described.

7. The combination in a universal tube rolling mill, of the pusher and mechanism for operating the same, comprising a driving screw shaft, a worm wheel engaging said shaft, a friction brake-device connecting the worm wheel shaft with the pusher and a lever for applying the brake, whereby the pusher is frictionally geared to the driving shaft and adapted to move in harmony with the movements of the stock, substantially as described.

8. In a universal tube rolling mill, the combination of the rotating head having the exterior reducing rolls adjustably mounted thereon, the arbor carrying the interior reducing rolls, mechanism for rotating said head and arbor in opposite directions, and mechanism connected with a movable element of the machine for gradually and automatically adjusting the exterior rolls for the purpose of tapering the tube, substantially as described.

9. In a tube rolling mill, the combination with the rotatable head and arbor supporting the reducing rolls, of the pushers provided with chucks for grasping and holding the stock in line between the rolls, the pivoted jaws mounted upon the forward pusher and forming a bearing for the arbor of the interior rolls, and means for opening and closing said pivoted jaws, substantially as described.

10. In a tube rolling mill, the combination with the revolving head provided with movable carriers which support the exterior reducing rolls, of the rotatable adjusting disk, engaging said carriers and mechanism for rotating the disk so as to impart a radial movement to the reducing rolls; such mechanism comprising a conical series of loose gears placed on the driving shaft, a reversely arranged conical series of fixed gears engaging the loose gears, suitable gearing connecting the fixed cone of gears with said rotatable disk, and means for locking any one of the series of loose gears to the driving shaft, substantially as described.

11. In a tube rolling mill, the combination with the rotating head supporting the exterior reducing rolls, of the oppositely rotating expansible mandrel supporting the interior reducing rolls, mechanism for rotating said head and mandrel in opposite directions, a pattern, and intermediate mechanism whereby the interior rolls may be automatically moved in and out so as to roll the interior of the stock to correspond with the pattern, substantially as described.

12. In a tube rolling mill, the rotatable head provided with the radially adjustable carriers having the exterior reducing rolls mounted spirally thereon, the interior reducing rolls adjustably mounted on an oppositely rotatable arbor at an angle to the exterior rolls, means for adjusting said carriers and interior rolls, and mechanism for rotating said head and arbor in opposite directions, substantially as described.

13. In combination with the longitudinally grooved arbor having the interior reducing rolls adjustably mounted thereon, the adjusting screw rod fitted in said groove, the pinion on said rod, the internally toothed hand wheel engaging said pinion, and means connecting the screw rod with the adjusting mechanism of the rolls, whereby the latter may be moved in or out by rotating said hand wheel, substantially as described.

14. In combination with the exterior reducing rolls mounted on a rotating head, the interior reducing rolls adjustably mounted on an oppositely rotating arbor, means for rotating said head and arbor in opposite directions mechanism substantially as described for gradually adjusting the interior rolls, and independently-actuated mechanism whereby said interior rolls may be instantly adjusted, substantially as described.

15. In combination with the longitudinally grooved arbor or mandrel, the expansible mandrel head supporting the interior reducing rolls, the sliding rod fitting the groove of said arbor and means connecting the same with said head so as to cause the rolls thereof to move out or in with the movements of the rod, the collar on said arbor connected to said rod so as to slide therewith, the bell-crank engaging said collar and provided with an actuating lever, and a suitable rack and catch for securing the lever, whereby the interior rolls may be instantly adjusted and secured in the desired position, substantially as described.

16. In a tube rolling mill, the combination with the reducing rolls, of the pushers, the screw shafts for actuating the pushers, means for rotating said shafts in opposite directions the head stock mounted in suitable guide-ways of the machine, the arbor having its rear end supported by said head stock and geared to one of said screw shafts, the worm wheel loose on the latter shaft, the rack engaging said worm-wheel, the clutch adapted to lock the worm wheel to the shaft the clutch and an operating lever for engaging and disengaging the worm wheel and clutch whereby the head stock may be given an intermittent longitudinal motion for the purpose of withdrawing the arbor from the exterior rolls, substantially as described.

17. The combination in a tube rolling mill, of the arbor or mandrel having the expansible head thereon; said head comprising a pair of collars fixed to the arbor and provided with inwardly projecting lugs, a sliding hub arranged between said collars and provided with inclined guide-ways extending in the plane of the lugs, and projecting portions adapted to enter the recesses or spaces between the lugs rolls mounted in bearings which are confined between opposite lugs so as to slide in said guide-ways, and means for moving the hub longitudinally, substantially as described.

18. The combination in a tube rolling mill of the arbor having the longitudinal groove therein, and the expansible head fixed thereon; said head comprising a pair of collars fixed to the arbor and provided with inwardly projecting lugs, a sliding hub arranged between said collars and provided with inclined guide-ways extending in the plane of the lugs, and projecting portions adapted to enter the recesses or spaces between the lugs, rolls mounted in bearings which are confined between opposite lugs so as to slide in said guide-ways; and a rotatable sliding rod fitted in the groove of the arbor and connected to said hub so as to move the same longitudinally when the rod is either rotated or moved lengthwise, and means for rotating and sliding the rod, substantially as described.

19. The combination in a tube rolling mill of the reducing rolls, the pushers mounted on suitable ways on the machine, one in front and the other at the rear of said rolls, each pusher being provided with means for grasping the end of the stock; and mechanism for imparting motion to the pushers so as to cause the same to move back and forth in the same direction along said ways in harmony with the movements of the stock, such mechanism comprising for each pusher a screw-feed shaft extending longitudinally of the machine and geared to the main driving shaft, a transverse shaft having a worm-wheel thereon engaging the screw-feed shaft, a band-wheel or wheels fixed on said worm-wheel shaft, and a friction brake-band partially encircling the band-wheel having one end fixed and the other end thereof secured to an eccentric or cam lever, whereby the speed of the pusher may be made to conform to the speed of the stock, substantially as described.

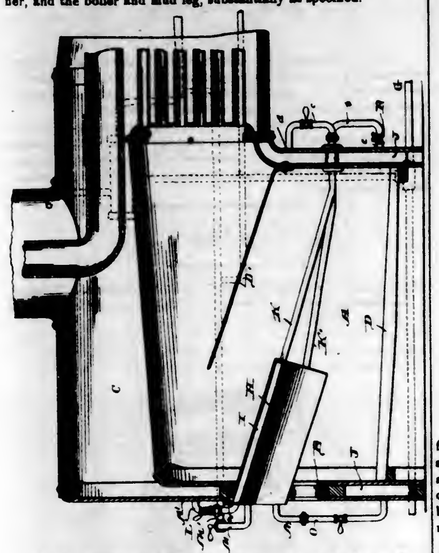
20. The combination in a tube rolling mill of the rotating head carrying the exterior reducing rolls, the arbor carrying the interior reducing rolls, the pusher movable along suitable ways upon the machine and provided with a support for the free end of said arbor, and the headstock also movable in suitable ways along the machine and having the opposite end of the arbor journaled in bearings thereon, together with mechanism for impelling said pusher and rotating said head and arbor in opposite directions, and means for imparting an intermittent longitudinal movement to said headstock, comprising a rotary driving shaft having a pinion keyed thereon in engagement with a gear wheel fixed on said arbor, a worm wheel loose on said shaft, a stationary rack engaging the worm wheel, and a sliding clutch adapted to engage said worm wheel and cause the same to rotate with the shaft, substantially as described.

21. In combination with the rotating head and arbor carrying the exterior and interior reducing rolls, respectively, and the screw-feed shafts and gearing connected therewith so as to rotate said head and arbor in opposite directions, the pushers movably mounted on suitable guide-ways and provided with means for grasping the stock, and friction gearing connecting the pushers with said screw-feed-shafts, substantially as and for the purpose set forth.

490,629. LOCOMOTIVE FIRE-BOX. CHARLES W. HULLIHEN, Philadelphia, Pa., assignor of one-half to Jesse W. Thatcher, same place. Filed Apr. 30, 1892. Serial No. 431,202. (No model.)

Claim.—1. The combination with the locomotive boiler, and the fire box, having a fuel opening, of the baffler extending through the upper part of said fuel opening, said baffler having therein a water chamber and pipe connections between said water chamber and the boiler, and between said chamber and the mud leg, substantially as specified.

2. The combination with the boiler, and the fire box having a fuel opening, of the arched hollow baffler extending through the upper part of said opening, a series of lead pipes communicating with the inner portion of said baffler, and detachably connected at their forward ends with pipes communicating with the mud leg and with the boiler, and detachable pipe connections between the outer end portion of said baffler, and the boiler and mud leg, substantially as specified.

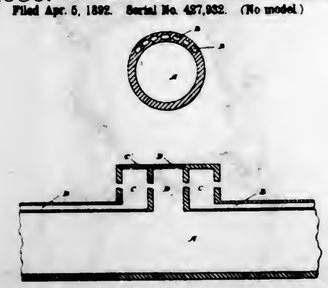


3. In a locomotive boiler, the combination with the fire box having the fuel opening therein, of the baffler extending through the upper part of said fuel opening, said baffler having therein a water chamber, and lead pipes communicating with the front and rear ends of said baffler, whereby a circulation is kept up therein, substantially as specified.

4. The combination with the boiler, and the fire box having a fuel opening, of the baffler extending through the upper part of said opening, said baffler having therein a water chamber, and lead pipes communicating with the front and rear ends of said chamber, whereby a circulation is kept up therein, and detachable unions for said pipes, together with shut cocks, whereby said baffler may be removed, substantially as specified.

5. In a locomotive boiler, the combination with the fire box, having the fuel opening therein, of the baffler extending through the upper part of said fuel opening, said baffler having a water chamber therein, and lead pipes to and from said chamber, whereby a circulation is maintained therethrough, substantially as specified.

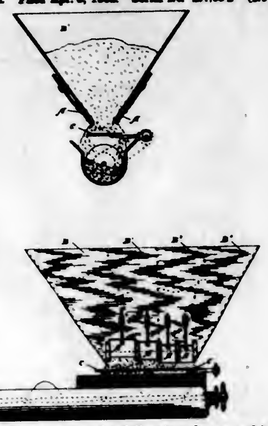
490,630. ELECTRIC CONDUIT. ERNEST L. RANSOME, Oakland, Cal. Filed Apr. 5, 1892. Serial No. 427,932. (No model.)



Claim.—1. A water conduit with passages for electric conductors formed in the walls thereof, in combination with a manhole and entrance chamber common to all, substantially as described.

2. A water conduit with passages for electric conductors formed in the walls thereof in combination with double entrance chambers, the one leading to the water conduit, and the other leading to the passages for electric conductors, substantially as described.

490,631. CONCRETE-MIXING MACHINE. ERNEST L. RANSOME, Oakland, Cal. Filed Apr. 5, 1892. Serial No. 427,934. (No model.)

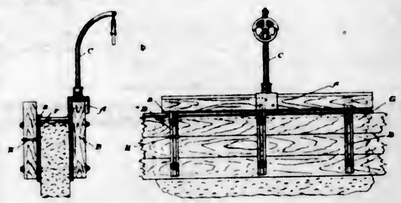


Claim.—1. The apparatus for delivering the several ingredients for concrete to a mixer in automatically proportioned quantities, consisting of a row of containing chambers situated above a conveyer and athwart its line of travel, each having an independent discharge opening and regulating gate through which the contents of the chambers are gaged and carried by the conveyer below the chambers directly to the mixer underneath, substantially as described.

2. The apparatus for delivering the several ingredients for concrete to a mixer in automatically proportioned quantities, consisting of a row of containing chambers, situated above an oscillating bottom and athwart its line of travel, each having an independent discharge opening and regulating gate through which the contents of the chambers are gaged and carried by the oscillating bottom below the chambers to the mixer underneath.

3. The apparatus for delivering the several ingredients for concrete to a mixer in automatically proportioned quantities, consisting of a row of containing chambers, situated above a traveling bottom and athwart its line of travel, each having an independent discharge opening and regulating gate through which the contents of the chambers are gaged and carried by the traveling bottom below the chambers to the mixer.

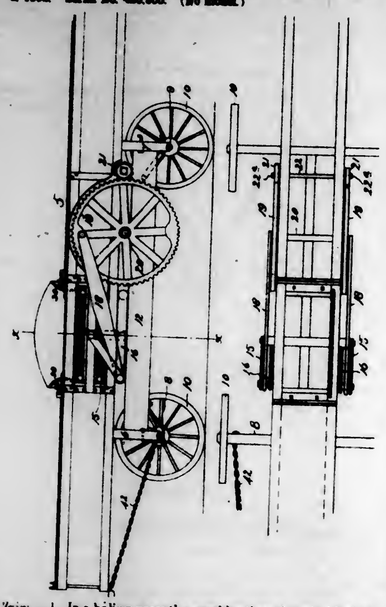
490,632. CONCRETE-DISTRIBUTING APPARATUS. ERNEST L. RANSOME, Oakland, Cal. Filed Apr. 5, 1892. Serial No. 427,933. (No model.)



Claim.—1. A carrier "A" provided with a davit "C" adapted for hoisting and delivering materials upon a concrete wall, said carrier having a channeled underside adapted to slide longitudinally astride the top ends of the mold standards "B," whereby the material may be distributed to various points upon the wall, substantially as described.

2. A carrier "A," having a channeled underside adapted to slide longitudinally astride the top ends of the mold standards "B," substantially as described.

490,688. BALING-PRESS. FRANKLIN P. BROWN, Denver, Colo., assignor to the Globe Manufacturing Company, same place. Filed Feb. 8, 1892. Serial No. 420,803. (No model.)

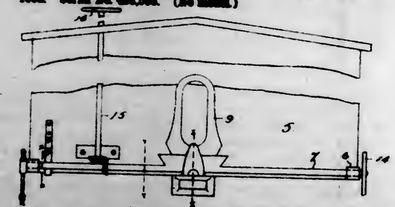


Claim.—1. In a baling press the combination of a suitable framework mounted upon wheels, power wheels mounted upon a shaft journaled within the frame, a plunger and carriage, the carriage being composed of bars provided with antifrictional bearings engaging a support forming a part of the frame, the plunger being rigidly secured to the carriage which is provided at one extremity with transverse rods 17, bars connecting the plunger head with rods 17, and pitman rods pivoted to the rods 17 at one extremity and to the power wheels at the opposite extremity whereby as said wheels are rotated a reciprocating movement is imparted to the carriage and plunger, substantially as described.

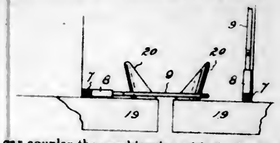
2. In a baling press the combination of a baling chamber, a folder located at each end of the chamber and consisting of a curved plate projecting into the path of the plunger and a rearwardly projecting shank-plate, its rear edge engaging a suitable stop, the plate being provided with slots through which pass bolts extending into the framework of the chamber, the bolts being surrounded by springs engaging the bolt heads at one extremity and the shank plate at the opposite extremity, substantially as described.

3. In a baling press the combination with the baling chamber of the tension rods connecting the top and bottom plates, the threaded extremities of the bolts being provided with separated nuts and an angular socket fashioned to fit the nuts and provided with a ledge or ridge extending into the space between the nuts, and lugs on its upper extremity adapted to receive a lever arm whereby the nuts may be adjusted at pleasure, substantially as described.

490,684. CAR-COUPLING. JOHN H. CAMPBELL, Denver, Colo., assignor of one-half to Michael H. McKeown, same place. Filed Apr. 11, 1892. Serial No. 428,808. (No model.)



Claim.—1. The combination with the drawhead provided with the upwardly projecting dog, the transverse movable bar secured to the end of the car, a link located in a socket formed in said bar and having both a longitudinal and lateral movement therein, and means for rotating the movable bar whereby the link is thrown over the dogs of both the drawheads, substantially as described.



2. In a car coupler the combination with the hooked or dogged drawhead of the rotating bar supported upon the car and carrying the link, means for actuating the bar, a spring attached to the car and engaging the rotating bar, substantially as described.

3. In a car coupler the combination with the rotating transverse bar suppported upon the car and carrying the link, and a rotating vertical bar connected with the transverse bar by suitable gear wheels, the last named bar being actuated from the top of the car, substantially as described.

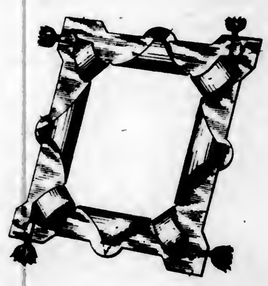
DESIGNS.

22,145. ALTO-RILIEVO. EDGAR C. PLANT, Momence, Ill., assignor to Alexander A. Fordon, Buffalo, N. Y. Filed Nov. 5, 1892. Serial No. 451,115. Term of patent 3½ years.



Claim.—The design for an alto-rilievo substantially as herein shown and described.

22,146. PICTURE-FRAME. ADOLPH SAMUEL, Brooklyn, N. Y. Filed Nov. 28, 1892. Serial No. 453,432. Term of patent 7 years.



Claim.—The design for a picture frame herein shown and described.

22,147. PAMPHLET-COVER. LEWIS S. GRAHAM, New Orleans, La. Filed Dec. 5, 1892. Serial No. 454,174. Term of patent 7 years.



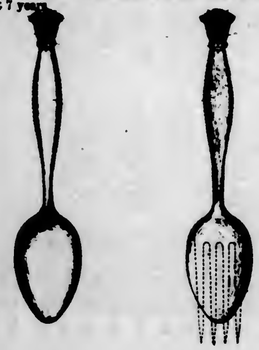
Claim.—The design for a pamphlet cover, as herein described and shown.

22,148. FONT OF PRINTING-TYPE. RUDOLPH GRIESWITZ, Ashbourne, assignor to the Mother Manufacturing Company, Philadelphia, Pa. Filed Dec. 12, 1892. Serial No. 454,973. Term of patent 7 years.

A B C D E F G H I
J K L M N O P Q R
S T U V W X Y Z
Æ Œ & $ £
a b c d e f g h i j k
l m n o p q r s t u
v w x y z æ œ
. , ; : ' - ! ?
1 2 3 4 5 6 7 8 9 0

Claim.—The design for a font of printing types substantially as shown and described.

22,149. HANDLE FOR SPOONS OR FORKS. GEORGE W. SHIMLER, Brooklyn, N. Y. Filed Sept. 30, 1892. Serial No. 447,493. Term of patent 7 years.



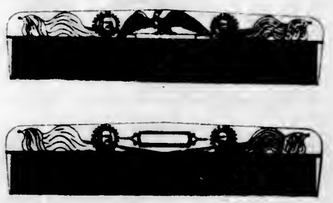
Claim.—The design for the handle for spoons, substantially as shown and described.

22,150. BREASTPIN, &c. MARTHA A. NYE, Chicopee Falls, Mass. Filed Aug. 19, 1892. Serial No. 443,532. Term of patent 14 years.



Claim.—The design for breast-pins and other similar articles, substantially as herein shown and described.

22,151. COMB. PAUL WITTEN, Butler, N. J., assignor to the Butler Hard Rubber Company, New York, N. Y. Filed Dec. 14, 1892. Serial No. 455,197. Term of patent 3½ years.



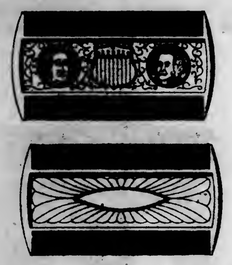
Claim.—The design for a comb substantially as shown and described.

22,152. COMB. PAUL WITTEN, Butler, N. J., assignor to the Butler Hard Rubber Company, New York, N. Y. Filed Nov. 14, 1892. Serial No. 452,006. Term of patent 7 years.



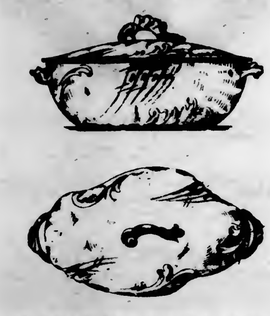
Claim.—The design for a comb, substantially as shown and described.

22,153. COMB. PAUL WITTEN, Butler, N. J., assignor to the Butler Hard Rubber Company, New York, N. Y. Filed Nov. 14, 1892. Serial No. 452,607. Term of patent 7 years.



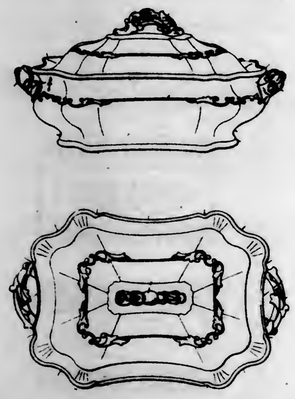
Claim.—The design for a comb, substantially as shown and described.

22,154. DISH. PIERRE DE LA RAFFINE, Limoges, France. Filed Dec. 19, 1892. Serial No. 456,742. Term of patent 3½ years.



Claim.—The design for dishes, substantially as herein shown and described.

22,155. COVERED DISH. DAVID F. HAYNES, Baltimore, Md. Filed Dec. 30, 1892. Serial No. 456,709. Term of patent 3½ years.



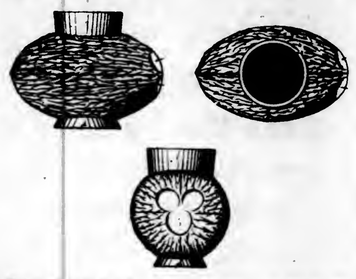
Claim.—The design for a covered dish as herein shown and described.

22,156. EWER OR JUG. DAVID F. HAYNES, Baltimore, Md. Filed Dec. 30, 1892. Serial No. 456,710. Term of patent 3½ years.



Claim.—The design for a ewer or jug as herein shown and described.

22,157. JAR. CHARLES WARNER, New York, assignor to Ashley M. Herron, Palisades, N. Y. Filed Dec. 8, 1892. Serial No. 454,535. Term of patent 14 years.



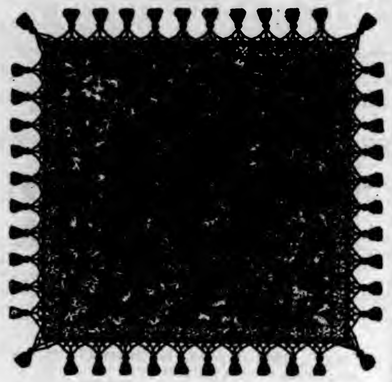
Claim.—The design for a jar, substantially as shown and described.

22,158. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed Dec. 30, 1892. Serial No. 456,846. Term of patent 3½ years.



Claim.—The design for a woven fabric, as shown in the accompanying drawing.

22,159. WOVEN FABRIC. WILLIAM G. OLDHAM and WILLIAM H. SMITH, Philadelphia, Pa., assignors to William T. Smith & Son, same place. Filed Dec. 30, 1892. Serial No. 456,847. Term of patent 3½ years.



Claim.—The design for a woven fabric, as shown in the accompanying drawing.

22,160. WOVEN FABRIC. WILLIAM T. SMITH and WILLIAM G. OLDHAM, Philadelphia, Pa., assignors to William T. Smith & Son, same place. Filed Dec. 30, 1892. Serial No. 456,848. Term of patent 3½ years.



Claim.—The design for a woven fabric, as shown in the accompanying drawing.

22,161. HANDLE FOR FURNITURE. JOHN F. WILMOT, Chicago, Ill., assignor to A. H. Andrews & Company, same place. Filed Dec. 16, 1892. Serial No. 456,304. Term of patent 7 years.



Claim.—The design for a handle, substantially as shown and described

22,162. WALL-FIXTURE FOR COUNTERS. DAVID ROTHSCHILD, Cincinnati, Ohio. Filed Dec. 27, 1892. Serial No. 456,482. Term of patent 3½ years.



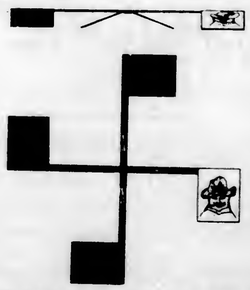
Claim.—A design for wall fixture for counters, substantially as shown and described.

22,163. WALL-FIXTURE FOR COUNTERS. DAVID ROTHSCHILD, Cincinnati, Ohio. Filed Dec. 27, 1892. Serial No. 456,484. Term of patent 3½ years.



Claim.—A design for wall fixture for counters, substantially as herein shown and described.

22,164. HEAD FOR A TOY WINDMILL. FREDERICK T. TERRIS, Milwaukee, Wis. Filed Oct. 8, 1892. Serial No. 448,257. Term of patent 7 years.



Claim.—The design for the head of a toy windmill, substantially as herein shown and described.

TRADE-MARKS

REGISTERED JANUARY 24, 1893.

22,354. DRESS-STAYS. HANNAH LUBLIN, New York, N. Y. Filed Dec. 24, 1892.

Twin Dress Stay

Essential feature.—The words "TWIN DRESS STAY." Used since June 30, 1891.

22,355. BOOTS AND SHOES. ISAAC PROUTY & Co., Spencer and Boston, Mass. Filed Dec. 19, 1892.



Essential feature.—The representation of the tanned hide of a dromedary, and the word "DROMEDARY." Used since October 18, 1892.

22,356. CHOCOLATE. HENRY L. PIERCE, Boston, Mass. Filed Nov. 21, 1892.



Essential feature.—The representation of a girl like the original picture of "La Belle Chocolatier" by Leotard, distributed at various angles over the surface of a label. Used since June 24, 1892.

22,357. CHEWING-GUM. CARLETON & Co., Malden, Mass. Filed Dec. 27, 1892.

CHULIKET

Essential feature.—The word "CHULIKET." Used since October 1, 1892.

22,358. WHEAT-FLOUR. BRYAN, MINER & READ, New Haven, Conn. Filed Dec. 19, 1892.

WHITE LOAF

Essential feature.—The words "WHITE LOAF." Used since January 10, 1878.

22,359. WHEAT-FLOUR. NORTHWESTERN CONSOLIDATED MILLING COMPANY, Minneapolis, Minn. Filed May 6, 1892.

PERFECT

Essential feature.—The word "PERFECT" formed of letters having an open space at or near the center thereof, with four triangular marks arranged in said space. Used since July 1, 1891.

22,360. MEAT EXTRACTS. THE THOMSON & TAYLOR SPICE COMPANY, Chicago, Ill. Filed Dec. 5, 1892.

GOLD BAND

Essential feature.—The words "GOLD BAND." Used since November 14, 1892.

22,361. LYE PRODUCT. JULES PICOT, Paris, France. Filed Dec. 28, 1892.



Essential feature.—The words "LESSIVE PHENIX," together with the representation of a woman washing clothes, the conventional representation of a Phœnix, and the fac-simile signature, "J. PICOT." Used since November 17, 1879.

22,362. CEMENT. THE PHŒNIX PORTLAND CEMENT COMPANY, LIMITED, Frindsbury, near Rochester, and London, England. Filed Nov. 28, 1892.



Essential feature.—The representation of a phœnix. Used since May 1, 1881.

22,363. PERFUMERY, SACHET-POWDERS, AND TOILET SOAP. THE FIRM OF SOLON PALMER, New York, N. Y. Filed Nov. 25, 1892.

BABY RUTH

Essential feature.—The words "BABY RUTH." Used since November 17, 1892.

22,364. TOILET SOAP. ROBINSON, BROS. & Co., Boston, Mass. Filed Dec. 21, 1892.

Liberty

Essential feature.—The word "LIBERTY." Used since September 1, 1892.

22,365. NATURAL MINERAL WATER. SALUTARIS NATURAL MINERAL WATER COMPANY, St. Clair, Mich. Filed May 5, 1888.



Essential feature.—The representation of a globe of the earth surrounded by clouds, with the representation of a ribbon with loose ends passing twice around the same. Used since October 15, 1885.

22,366. COGNAC BRANDY. BROSSAULT & Co., Bordeaux, France. Filed Nov. 10, 1892.



JEAN D'ARTOIS

☆☆

Essential feature.—The words "JEAN D'ARTOIS" in connection with the representation of a plumed knight on horseback, and two stars. Used since January, 1885.

22,367. ANTISEPTICS AND EMBALMING FLUIDS. THE EMBALMERS' SUPPLY COMPANY, Newark, N. J., New York, N. Y., and Westport, Conn. Filed Dec. 27, 1892.

PHORENCINA

Essential feature.—The word "PHORENCINA." Used since June 1, 1892.

22,368. DISINFECTANTS. THE EMBALMERS' SUPPLY COMPANY, Newark, N. J., New York, N. Y., and Westport, Conn. Filed Dec. 27, 1892.

ANTIDOTINA

Essential feature.—The word "ANTIDOTINA." Used since December 1, 1892.

22,369. LINIMENT. WILLIAM W. SMITH, Chicago, Ill. Filed Dec. 19, 1892.

GOLD

Essential feature.—The word "GOLD." Used since November 28, 1892.

22,370. SUPPOSITORIES FOR DISEASES OF THE BOWELS AND RECTUM. HENRY K. WAMPOLE & Co., Philadelphia, Pa. Filed Dec. 27, 1892.

22,370.

AL-VI-NINE

Essential feature.—The word "AL-VI-NINE." Used since November 1, 1891.

22,371. MEDICINAL INHALER IN THE FORM OF A BOTTLE PROVIDED WITH TUBES. WILLIAM H. BERGFELD, Newark, N. J. Filed Nov. 17, 1892.



Essential feature.—The representation of a medicinal inhaler in the shape of a bottle with a stopper having a bent tube inserted therein and another tube projecting therefrom with the word "BRAG-FELS" above the bottle and "ALCOHOL" and "INHALER" upon opposite sides of it. Used since November 1, 1892.

22,372. POWDER USED AS A REMEDY FOR DYSPEPSIA AND OTHER STOMACH TROUBLES. HOME MEDICAL COMPANY, Chicago, Ill. Filed Dec. 9, 1892.

DYSPEPSO

Essential feature.—The word "DYSPEPSO." Used since July 1, 1892.

22,373. CERTAIN-NAMED LINE OF PROPRIETARY REMEDIES. FIVE POINTS CHEMICAL CO., Rolla, Mo. Filed Dec. 5, 1892.

FIVE POINTS



Essential feature.—The words "FIVE POINTS," and the symbolical representation of a five pointed star. Used since November 1, 1892.

22,374. REMEDY FOR GONORRHŒA, FEMALE WEAKNESSES, AND ANALOGOUS DISEASES. SANDALIDE CO., New York, N. Y. Filed Dec. 15, 1892.

Sandalide Ferrand

Essential feature.—The words "SANDALIDE FERRAND." Used since October 20, 1892.

22,375. REMEDIES FOR CANCEROUS DISEASES. THE FIRM OF E. MERCK, Darmstadt, Germany. Filed Dec. 17, 1892.

Cancroin

Essential feature.—The representation of a rectangle having a double border line across its lower side, and the word "CANCROIN" printed in the upper space of said rectangular figure. Used since October 1, 1892.

22,376. METALLIC FASTENINGS FOR LEATHER BELTING. JUDSON L. THOMSON MANUFACTURING COMPANY, Waltham and Boston, Mass., New York, N. Y., London, England, and St. Petersburg, Russia. Filed Nov. 26, 1892.

CONNECTING LINK

Essential feature.—The words "CONNECTING LINK." Used since October 1, 1892.

22,377. HOUSEHOLD AND OTHER WARE MADE FROM WOOD PULP AND WATERPROOFED. UNITED INDURATED FIBRE COMPANY, Portland, Me. Filed Oct. 17, 1890.

FIBROTTA

Essential feature.—The word "FIBROTTA." Used since November, 1889.

22,378. HOUSEHOLD AND OTHER WARE MADE FROM WOOD PULP AND WATERPROOFED. UNITED INDURATED FIBRE COMPANY, Portland, Me. Filed Oct. 17, 1890.



Essential feature.—The representation of a fleur-de-lis. Used since November, 1889.

22,379. ELEVATED-BOILER, BRICK-SET, AND PORTABLE RANGES, COOK-STOVES AND HEATING-STOVES, AND ALL KINDS OF GAS, GASOLINE, AND OIL STOVES AND RANGES. A. WEISKITTEL & SON, Baltimore, Md. Filed Dec. 30, 1892.

GOLDEN RULE

Essential feature.—The words "GOLDEN RULE." Used since July 12, 1892.

22,380. GAS-STOVES, GAS-RANGES, AND GAS-HEATERS, AND GASOLINE, OIL, COAL, AND WOOD BURNING STOVES. A. WEISKITTEL & SON, Baltimore, Md. Filed Dec. 30, 1892.

FIRE KING

Essential feature.—The words "FIRE KING." Used since February 1, 1888.

22,381. CAR-COUPLERS AND THEIR PARTS. THE TROJAN CAR COUPLER COMPANY, Troy, N. Y. Filed Dec. 15, 1892.

Essential feature.—The word "TROJAN." Used since April 1, 1890.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

HOUSE v. BUTLER.

Decided January 14, 1893.

PRACTICE—RULE 109—MOTION TO AMEND UNDER.

It is within the discretion of the Examiner of Interferences to extend, upon a proper showing, the limitation of time within which a motion for leave to amend an application under Rule 109 should be brought.

APPEAL on motion.

FLOUR-SIFTER.

Application of Warren D. House filed June 14, 1892, No. 436,743. Application of Harry F. Butler filed June 16, 1892, No. 436,522.

Messrs. Pennie & Goldsborough for House.

Mr. Richard H. Manning for Butler.

FROTHINGHAM, *Assistant Commissioner:*

This is an appeal taken on behalf of House from the decision of the Examiner of Interferences transmitting to the Primary Examiner the motion of Butler "to amend his application in accordance with Rule No. 109."

It appears that on December 1, 1892, and within twenty days after the preliminary statements had been received and approved, Butler filed a motion for leave to amend his application and file certain additional claims; that on December 2, 1892, said motion was dismissed by the Examiner of Interferences, mainly upon the ground that it was not noticed for hearing on any day certain, but "without prejudice to the right of Butler to renew the same and give the notice required by the rules;" that on December 13, 1892, more than twenty days after the statements had been received and approved, Butler filed what may fairly be called a renewal of the motion filed December 1, 1892, and that the Examiner of Interferences held with reference to the last-named motion that the record afforded "ample explanation why the same was not brought within the twenty days," and ordered that the motion "be transmitted to the Primary Examiner for his action under Rule 109."

From this latter decision the present appeal is taken and the following are alleged to be the reasons therefor:

1. That the motion in question was not brought within the period specified by Rule 109.
2. That the Examiner of Interferences has no authority to extend the limitation of time prescribed by said rule within which such motions are to be brought.
3. That the proposed amendment forming a part of the motion papers is not an amendment authorized by the rule, for the reason that the claims it presents are not the same or substantially the same as those made by House.

That part of Rule 109 which is involved in the present appeal is as follows:

* * * The applicant may, at any time within twenty days after the preliminary statements * * * of the parties have been received and approved, on motion duly made, * * * file an amendment. * * *

The language of Rule 122 relating to the time within which motions to dissolve are to be brought is as follows:

Motions to dissolve an interference * * * should, if possible, be made not later than the twentieth day after the statements of the parties have been received and approved.

When a regular and seasonable motion to dissolve under Rule 122 is filed, the Examiner of Interferences has no discretion in the matter; but it is his clear duty to transmit such motion with the files and papers to the Primary Examiner for his determination. (*Green* v. *Hall* v. *Siemens* v. *Field*, 37 O. G., 1475.) When a motion to dissolve under Rule 122 is filed after the expiration of the twenty days, the Examiner of Interferences is required by the decisions to exercise his judicial discretion in passing upon the showing concerning the delay, and his decision thereon will not be disturbed, except in cases of abuse of discretion or of disregard of some rule or law. (*Reynolds* v. *Haberman*, 49 O. G., 130, and cases therein cited.)

In the case of *Laurent-Cély* v. *Payen* (51 O. G., 621) it was held, with reference to Rule 122, that—

the intermediate period of twenty days is not inelastic, but may be made to extend into a prior or later period when the circumstances warrant such action on the part of the Office. * * *

By analogy I see no good reason why the Examiner of Interferences should not have a like jurisdiction over a motion filed pursuant to the provisions of Rule 109. It can scarcely be contended that the language of Rule 109, above quoted, prohibits the exercise of any discretion on the part of the Office in permitting a motion made thereunder to be brought after twenty days. Furthermore, the Examiner of Interferences had at the time of the bringing of the motion under consideration jurisdiction of the interference, and by the provisions of Rule 123 the motion was properly brought before him in the first instance.

In the case of *Keller* v. *Sherfelt* v. *Appleby* v. *Hanson*, (30 MS. Dec., 105,) wherein an amendment was sought to be made to the claims, the twenty days having expired, the Commissioner directed that the moving party should go "to the Examiner of Interferences and enter a motion predicated upon a proper showing."

In the case of *Bowen* v. *Bradley* (58 O. G., 386) the present Commissioner held that motions to reopen an interference case and all similar motions should be brought in the first instance before the Examiner of Interferences.

In view of what has been said above, it follows, with respect to the second reason of appeal, that upon a proper showing the Examiner of Interferences has authority to extend the limitation of time prescribed within which a motion for leave to amend under Rule 109 should be brought. In view of what has been stated, it is not necessary to consider the first reason of appeal. With reference to the third reason of appeal, it is held that the question whether or not the claims presented by the proposed amendment are the same or substantially the same as those made by House is one which should be considered by the Primary Examiner, and not by the Examiner of Interferences, in the first instance. It follows, therefore, that the reasons of appeal are not well taken.

Upon examination of the whole case, I do not feel warranted in disturbing the decision of the Examiner of Interferences, and it is accordingly hereby affirmed.

EX PARTE AMERICAN CHEMICAL COMPANY.

Decided January 19, 1893.

TRADE-MARK—WORD "MAGICO."

The word "Magico" *Held* not anticipated by the word "Magic" already registered for use on a similar class of goods.

APPEAL from Examiner of Trade-Marks.

PLASTIC SOAP.

Application of the American Chemical Company for Trade-Mark filed May 19, 1892.

Messrs. Paul & Merwin for the applicants.

SIMONDS, *Commissioner:*

This is a petition taken from the decision of the Examiner of Trade-Marks declining to register the word "Magico" as a Trade-Mark for a cleaning compound, in view of the fact that the word "Magic" has already been registered to another party for a like kind of compound, the Examiner saying:

This case has been rejected on reference to the word "Magic," registered March 31, 1885, No. 12,057, for bar-soap, and No. 21,011, of April 19, 1892, for a compound for removing grease from clothing, which seems so closely to resemble applicant's Trade-Mark as claimed as to be calculated to deceive the purchasing public. Attention is called to the fact that the device as shown and described consists of more than the mere word "Magico" and is clearly distinguished from the Trade-Marks cited by the presence of a number of dwarfish figures known as "Brownies." The inclusion of these in the essential features would entirely remove the Examiner's objections, as he has already suggested to the applicant, and would make his Trade-Mark absolutely distinctive; but as claimed, his right to it is doubtful, and it seems to fall within the line of cases in regard to which the Commissioner has decided that the doubt should be resolved against the applicant. (See case of *Ex parte Coon*, 58 O. G., 945.)

The Examiner's ground of objection would be well taken if "Magico" were a mere known variation of "Magic;" but it is thought that this newly-coined word brings with it such an element of novelty as to of itself attract attention and prevent confusion in the minds of ordinary purchasers.

The decision of the Examiner is reversed.

EX PARTE BRAND STOVE COMPANY, (LIMITED.)

Decided January 19, 1893.

TRADE-MARK—WORD "FAMOUS" NOT PROPER SUBJECT OF.

The word "Famous" is merely descriptive in its nature and not registrable as a Trade-Mark.

APPEAL from Examiner of Trade-Marks.

COOKING-STOVE AND RANGE.

Application of the Brand Stove Company, (Limited,) for Trade-Mark filed July 15, 1884.

Mr. H. G. Underwood for the applicants.

SIMONDS, *Commissioner:*

This is a petition from the refusal of the Examiner of Trade-Marks to register the word "Famous" as a Trade-Mark for cooking-stoves, ranges, and heating-stoves. The Examiner says:

The refusal is based on the Examiner's opinion that this word is not an arbitrary or fanciful word-symbol, but an advertising epithet such as any person producing merchandise may freely use. When employed in connection with any merchandise, it conveys the idea that such merchandise is actually famous—that is, widely known or celebrated—such expressions being actually synonomous with it.

It would seem to be clear that the word "Famous" is normally merely descriptive in its nature and as such not subject to sequestration by any one as a Trade-Mark. No showing is made which gives the word "Famous" in this connection any other than its normal meaning.

The petition is denied.

EX PARTE PEYSER & CO.

Decided January 19, 1893.

1. TRADE-MARK—GLOVES.

A "representation of a band with eyelets therein and cross-lacings connecting the eyelets" *Held* not registrable as a Trade-Mark, since its function is purely decorative in the connection in which it is intended for use.

2. SAME.

The primary function of a Trade-Mark is to denote the origin of the article which bears it. A "representation" which upon its face appears clearly to have another purpose, such as decoration, and which by reason of that decorative character creates no suspicion that it is intended as a Trade-Mark, is not registrable as such.

APPEAL from Examiner of Trade-Marks.

GLOVES.

Application of Henry M. Peyser & Co. filed July 22, 1892.

Messrs. Munn & Co. for the applicants.

SIMONDS, *Commissioner:*

This is a petition from the decision of the Examiner of Trade-Marks refusing registry as a Trade-Mark for gloves a "representation of a band with eyelets therein and cross-lacings connecting the eyelets."

The primary function of a Trade-Mark is to denote the origin of the article which bears it. A "representation" which upon its face appears clearly to have another purpose—such, for instance, as decoration—and which by reason of its purely decorative character creates no suspicion that it is intended as a Trade-Mark, does not seem to be within—the fair purview of the law. Words and symbols which do not seem to be within a fair purview of the law sometimes acquire a Trade-Mark character by long use, which courts protect, and when such words and symbols have acquired that character in the courts then the Office should register them.

But it is thought that the Office should not, in the absence of a sustaining court adjudication, register as a Trade-Mark a "representation" such as this one, which on the face of things is purely decorative in its character and as such cannot create a suspicion that it has a Trade-Mark character.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Second Circuit.

THE NEW YORK BELTING AND PACKING COMPANY *v.* THE NEW JERSEY CAR SPRING AND RUBBER COMPANY.

Decided December 6, 1892.

DESIGN PATENT—INFRINGEMENT—DESIGN FOR RUBBER MATS.

Design Patent No. 11,208, March 27, 1879, to George Woffenden, for a Design for rubber mats, *Held*, in view of the prior state of the art, and particularly of the English patent for rubber brushes to Fanshawe and Jacques, No. 2,935, November 29, 1860, limited to the mere Design or pattern shown in the drawing, and therefore not infringed.

STATEMENT OF THE CASE.

This is an appeal from an interlocutory decree of the Circuit Court in the Southern District of New York for injunction and accounting. The suit is brought upon Letters Patent of the United States to George Woffenden, No. 11,208, dated March 27, 1879. A demurrer was interposed to the bill, and the patent as to each of its three claims was held void by the circuit court, (30 F. R., 785.) Appeal was taken to the Supreme Court, which reversed the circuit court, (137 U. S., 445.) Thereafter the case came on for hearing on pleadings and proofs with the result above indicated. The facts are set forth in the opinion.

Mr. Arthur v. Briesen for the appellant.

Mr. Benjamin F. Lee for the appellee.

Before Judges LACOMBE and SHIPMAN.

LACOMBE, *J.:*

The patent is for a Design for rubber mats. The specification sets forth that—

In accordance with this Design the mat gives under the light different effects, according to the relative position of the person looking at it. If the person changes his position continuously, the effects are kaleidoscopic in character. In some cases moiré effects, like those of moiré or watered silk, but generally mosaic effects, are produced. Stereoscopic effects, also, or the appearance of a solid body or geometric figure may at times be given to the mat, and under proper conditions an appearance of a depression may be presented.

The Design consists in parallel lines of corrugations, depressions, or ridges arranged to produce the effects as above indicated.

[Then follows a reference to a drawing of the mat and a description of the same, after which the specification proceeds:]

The above forms simply one of the many ways in which my invention may be carried into effect. The corrugations in the center and outer border need not extend entirely around the mat; but in each of the sections a depression in one section may be opposite a ridge in the next, and it is not necessary that the corrugations be parallel with the sides of the mat. They may run in any direction. The ridges and depressions in the intermediate borders might be made to form different angles with each other or with those in the other sections, or the borders might be increased or diminished in number. It will of course be understood that the effect produced and the manner in which the appearance varies are modified more or less by these changes. Instead of making the corrugations in the center of the mat to bend four times they may be made to change their line of direction any desired number of times in a regular or irregular way—that is to say, instead of having four series of parallel depressions and ridges a number of series less or more arranged at various angles with each other may be employed. I may divide the mat by a number of imaginary lines representing a projection of any geometrical figure and in each of the sections so formed make parallel corrugations or alternate ridges and elevations, the different sets of corrugations making with each other the proper angle to give the effects sought for.

To give the moiré effects, I usually make the ridges and depressions undulating, while maintaining the parallel position with relation to each other. I desire, therefore, to have it understood that I do not intend to limit the Design to parallel corrugations which are straight throughout any considerable portion of their length, (as represented on the drawing, for example,) but that it includes the undulating ridges and depressions, or other disposition or formation in which the corrugations alter their direction irregularly, or in which they may be straight for a certain distance and then formed in undulations, and that it includes the corrugations arranged in concentric circles, in spirals, in zigzags, or according to any desired figure.

The claims are as follows:

1. A Design for a rubber mat, consisting of corrugations, depressions, or ridges in parallel lines, combined or arranged relatively, substantially as described, to produce variegated, kaleidoscopic, moiré, stereoscopic, or similar effects, substantially as set forth.

2. A Design for a rubber mat, consisting of a series of parallel corrugations, depressions, or ridges, the lines of the said corrugations being deflected at one or more points, substantially as set forth.

3. A Design for a rubber mat, consisting of a series of parallel corrugations, depressions, or ridges arranged in sections, the general line of direction of the corrugations in one section making angles with or being deflected to meet those of the corrugations in the contiguous or other sections, substantially as described.

It is manifest that whoever drew this specification did not intend thereby to describe and claim a Design for a rubber mat. He meant to cover any and every Design, whatever its pattern, device, or variety of ornamentation, which presented to the eye the kaleidoscopic, moiré, or stereoscopic effects which are produced by the juxtaposition of parallel corrugations on the surface of rubber when arranged in series or sections of parallels having differing directions. What he sought to patent was in substance not a Design at all, but the product resulting from corrugating the surface of rubber, so that whatever designs might be formed from such corrugations should present the kaleidoscopic and other described effects. It may be doubted whether the alleged invention, as he understood it, was properly the subject of a Design patent at all; but that question need not be decided.

The circuit judge who sustained the demurrer held that—

although there is an illustration in the drawing, and although each claim is for a Design "substantially as described," the language of the specification is carefully expressed so as not to restrict the claims to the Design shown in the drawing, but so that the first claim shall include every variety of Design which can be produced by the arrangement of corrugations, depressions, or ridges in parallel lines—

And that—

none of the claims can be limited to a Design which produces any definite or concrete impression to the eye.

The Supreme Court held that the circuit judge was right in holding that the first claim was altogether too broad to be sustained, and approved of the reasons given for that opinion. As to the other claims, however, that Court held that they—

may fairly be regarded as confining the patentee to the specific Design exhibited in his patent and shown in the drawing.

The decree sustaining the demurrer was therefore overruled, so that the question whether the single design thus shown was in fact new might be determined upon evidence as to the state of the art. The opinion of the Supreme Court closes with an intimation (*obiter*) that the peculiar kaleidoscopic effects produced by the impression of parallel lines forming a particular Design on the surface of rubber—

may constitute a quality of excellence which will give to the Design a specific character and value and distinguish it from other similar Designs that have not such an effect.

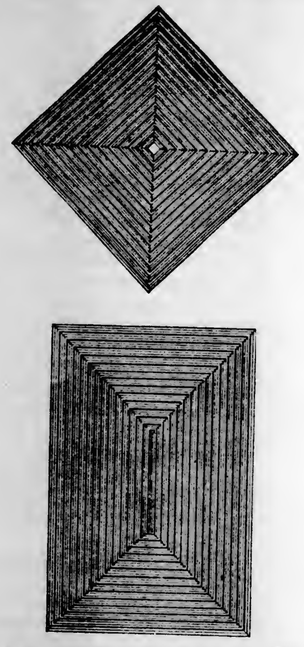
The circuit court—

with some hesitation, reached the conclusion that under the intimation of the Supreme Court the patent [should] be sustained.

Subsequently to the decision of the Supreme Court the holder of the patent filed a disclaimer to the first claim and to the words in the specification "in concentric circles"

The proof shows that the patentee was not the first to arrange parallel corrugations on the surface of rubber, grouped in sections and deflected so as to produce changes of light and shade as the position of the observer shifts relatively to the object, thus

giving the kaleidoscopic effects described in the patent. An English patent to Fanshawe and Jacques, No. 2,985, of November 29, 1860, relates to rubber brushes with flexible rubbing-surfaces in the shape of projecting ridges. These ridges are arranged in various designs, one, (Fig. 3 on the drawing annexed to that patent and herewith reproduced) being



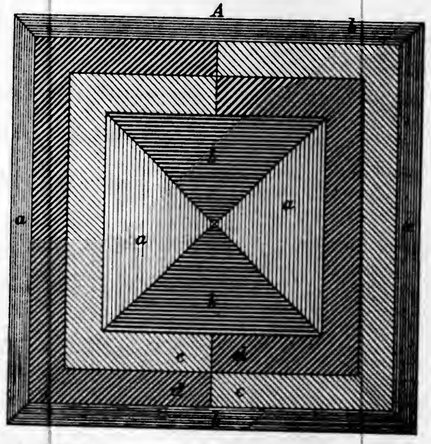
substantially of the same pattern as the central panel of the drawing in complainant's patent, another (Fig. 4) being of the same pattern as the central panel of defendant's mat. Although undoubtedly intended to be attractive to the eye of the purchaser, the production of Designs pleasing to the taste was not the immediate object sought to be attained by the maker of the bath-brushes. Still, from the description in the patent, from an examination of the drawings of the brush-surfaces, (there are several varieties of them shown in the English patent,) and from what is known as to the shifting of light and shade on the surface of a corrugated object viewed from different positions, it might be fairly inferred that in these bath-brushes there would be found the—

active power of producing a physical effect upon the rays of light so as to produce different shades and colors, according to the direction in which the various corrugated lines are viewed,

which was referred to in the dictum of the Supreme Court as a feature of the patent in suit, which, perhaps, "presents a novel aspect." But this conclusion is not a mere matter of inference. Complainant put in evidence a bath-brush of the design shown in Fig. 4, *supra*, reproduced in rubber, and proved by its expert that it was a correct representation of the thing shown in the English patent. The ridges or corrugations of the brush are thinner, higher, and more flexible than those of complainant's mat, and the Design is not the particular Design shown in the drawing of the patent in suit; but when the brush and the central panel of complainant's mat are laid side by side and looked at from different points of view precisely the same variations of light and shade, of tone, tint, and color sweep over their surfaces. In the face of that English patent, it was not open to the patentee of complainant's mat to claim broadly the production of kaleidoscopic and similar effects by such an arrangement of parallel corrugations on the surface of rubber—to claim anything more than the mere Design or pattern shown in his drawing. All that was open to him was such an arrangement of the corrugations as would produce a novel Design, as the Supreme Court defines that word in its opinion in this case, viz:

a thing of distinct and fixed individuality of appearance—a representation, a picture, a delineation, a device—[which] addresses itself to the senses and taste and produces pleasure or admiration in its contemplation.

The drawing of the patent, which represents a mat embodying the Design, is as follows:


A
a
a
a

U. S. Circuit Court—Eastern District of Pennsylvania.

KOHLER MANUFACTURING COMPANY *v.* BESHORE.

Decided November 22, 1892.

1. TRADE-MARK—INFRINGEMENT.
"One Night Cure" *Held* not infringed by words "Beshore One Night Cough Cure."
2. CERTIFICATE OF REGISTRATION CONCLUSIVE AS TO MARK.
A certificate of registration *Held* conclusive as to description of plaintiff's Mark where he sought to enlarge its terms on a suit for infringement.
3. MERE ADOPTION CARRIES NO RIGHTS WHERE CONTINUOUS USE DOES NOT CONCUR.
A mere adoption of a Mark carries no rights unless there concur a continuous use of it and public familiarity with it. To establish a proprietary right in such a Mark, it is necessary that the public understanding respecting the purpose of its use shall be fully proved.

Messrs. Price & Steuart for the complainant.

Mr. William Henry Browne and *Mr. Jerome Carty* for the defendant.

BUTLER, *J:*

The plaintiff claims ownership of a common-law Trade-Mark in the words "One Night Cough Cure," used as a label on medicine which it manufactures. Granting that a Trade-Mark may be acquired in this collocation of words, the plaintiff, to sustain its claim, must show that the words have been used in the connection stated so uniformly and so long as to have become familiar to the public as a sign of this article of its manufacture. To show merely an adoption of the words without such continuous use and public familiarity and understanding would amount to nothing. The use even for a brief period in connection with occasional sales would amount to little, if anything, more. To establish a proprietary right in the language, it is necessary that the public understanding respecting the purpose of its use shall be fully proved.

The evidence before us is unsatisfactory. In the first place, it is uncertain respecting the collocation of words used, and in the second it is equally uncertain as respects the public understanding. It shows that Messrs. Yeakel & Greeble, who united as partners under the firm-name of the "Kohler Manufacturing Company," and entered upon the manufacture of medicines about 1838, procured from Dr. Kohler's estate certain recipes for corn, cough, and other remedies and commenced manufacturing accordingly; that they at once began selling the corn remedy labeled "One Night Corn Cure" and the cough remedy labeled "Rocky Mountain Cough Syrup;" that in February, 1890, the plaintiff company was incorporated and the business and assets of the firm transferred to it; that in the month of November or Decembr, 1889, the firm ran out of labels for the "Rocky Mountain Cough Syrup" and resolved to sell it thereafter labeled "One Night Cough Cure;" but, not intending to "push" this remedy, and to avoid the expense of printing such labels, so many as needed (possibly four or five dozens) were written and used; that for a time thereafter the remedy was sold under both names, (see records, p. 18:) that in the fall of 1891 the plaintiff, then resolving to "push" the business, put the medicine up in a different form, procured labels to be printed and put them upon it and that thenceforward until the date of suit —February, 1892—the printed labels were used. The foregoing statement seems to be justified by the testimony, though from the ignorance of some witnesses and the unreliability of others it is difficult to determine even this much with precision. The corn remedy and cough remedy and the labels for the one and the other appear to be so mixed up as to render it difficult to understand what is intended to apply to the one and what to the other. No dealers in such medicines, properly considered, were examined, nor any other reliable disinterested persons of any importance not connected with the plaintiff. But there is another fact of great importance about which no room for dispute exists. In January, 1891, the plaintiff applied to the Patent Office for registration of its Trade-Mark, and in this application the words claimed are essentially different from those now set up and testified to by the witnesses. The label recorded is as follows:

TRADE-MARK.

—o—

KOHLER MANUFACTURING COMPANY.

Corn Salve and Cough Syrup.

No. 18,867. Registered Jan. 20, 1891.

ONE NIGHT CURE.

Proprietor:
KOHLER MFG. CO.,
Per LOUIS YAKEL,
Secy.

Witnesses:
VICTOR G. BLOEDE,
WM. G. DAUGHERTY.

The plaintiff's sworn statement is as follows:

The Trade-Mark of said company consists of the words "One Night" preceding the word "Cure" or "Remedy." These have generally been arranged as shown in the accompanying fac-simile of one of their labels, which represents the words "One Night Cure" printed on a circular label; but the style of printing and the shape of the label are unimportant and can be varied at will without affecting the character of the Trade-Mark, the essential feature of which is the words "ONE NIGHT CURE."

This Trade-Mark has been continuously used by said corporation since about the middle of January, 1890.

The class of merchandise to which this Trade-Mark is appropriated is medical preparations, and the particular description of goods comprised in such class on which it is used by the said corporation is corn salve and cough syrup. It is usually affixed to the goods by printed label or stencil on the boxes or other packages in which the goods are put.

[L. S.] KOHLER MANUFACTURING CO.
LOUIS YAKEL,
Sect.

This statement is made by Louis Yakel, whose testimony taken in the case before us is irreconcilable with it. The plaintiff certainly knew what its Trade-Mark was, if it had one, and the foregoing statement should therefore be regarded as conclusive. The registration was notice to everybody that the Trade-Mark claimed was what is there set up and nothing else. This the defendant has not infringed. His label "Beshore One Night Cough Cure" is materially different. No man could mistake it for the other.

But, furthermore, there is no sufficient evidence that the plaintiff had acquired a Trade-Mark in either of the collocations of words stated. The occasional use of the written label prior to the fall of 1891 was unimportant. It was insufficient to make any public impression. And the period between the fall of 1891 and February following, when suit was commenced, was too short, in the most favorable view of the evidence, to have established or fixed the label (whatever it was) in the public mind as a known sign or indicia of the plaintiff's manufacture of cough medicine.

Sufficient has been said to justify a dismissal of the bill, and other questions raised need not therefore be considered.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Amended Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 23, 1893.

Rule 25 and the first paragraph of Rule 122 of the Rules of Practice (edition of April 1, 1892) of the United States Patent Office are hereby amended to read as follows:

Rule 25. In case of the death of the inventor, the application will be made by and the patent will issue to his executor or administrator. In such case the oath required by Rule 46 will be made by the executor or administrator. In case of the death of the inventor during the time intervening between the filing of his application and the granting of a patent thereon, the Letters Patent will issue to *the executor or administrator upon proper intervention by him.*

Rule 122. Motions to dissolve an interference upon the ground that no interference in fact exists, or that there has been such irregularity in declaring the same as will preclude a proper determination of the question of priority, or which deny the patentability of an applicant's claim, or his right to make the claim, should, if possible, be made not later than the twentieth day after the statements of the parties have been received and approved. Such motions *should be noticed for hearing upon a day certain before the Examiner of Interference upon the question of transmission to the Primary Examiner*, and when in proper form will be transmitted by the Examiner of Interferences, with the files and papers, to the proper Primary Examiner for his determination, *who will thereupon fix a day certain when the said motion will be heard before him upon the merits, and give notice thereof to all the parties. If a stay of proceedings is desired, a motion therefor should accompany the motion for transmission.*

W. E. SIMONDS,
Commissioner.

Approved January 26, 1893.
GEO. CHANDLER,
Acting Secretary of the Interior.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

Notice.

(ORDER NO. 789.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 26, 1892.

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

W. E. SIMONDS,
Commissioner.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of January 31, 1893.

Patents	430—No	490,635 to No. 491,064, inclusive.
Designs	26—No.	22,165 to No. 22,190, inclusive.
Trade-Marks	36—No.	22,382 to No. 22,417, inclusive.
Labels	None.	
Reissue	1—No.	11,302.
Total issue	493	

TO CITIZENS OF THE UNITED STATES

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	4	....	Nevada	1	....
Arizona Territory	....	....	New Hampshire	1	....
Arkansas	3	....	New Jersey	26	3
California	15	....	New Mexico Ter	....	....
Colorado	5	....	New York	63	7
Connecticut	22	....	North Carolina	2	....
Delaware	....	....	North Dakota	....	....
District of Columbia	8	....	Ohio	32	3
Florida	....	....	Oregon	....	....
Georgia	3	1	Pennsylvania	52	1
Idaho	....	....	Rhode Island	2	1
Illinois	39	2	South Carolina	....	....
Indian Territory	1	....	South Dakota	1	....
Indiana	6	....	Tennessee	2	....
Iowa	12	....	Texas	5	2
Kansas	3	....	Utah Territory	....	....
Kentucky	5	....	Vermont	2	....
Louisiana	2	....	Virginia	2	....
Maine	3	....	Washington	3	1
Maryland	4	1	West Virginia	1	....
Massachusetts	33	2	Wisconsin	5	2
Michigan	13	1	Wyoming	....	....
Minnesota	5	....	U. S. Army	....	....
Mississippi	1	....	U. S. Navy	....	....
Missouri	19	1			
Montana	4	....	Total to citizens of the United States	412	28
Nebraska	2	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Austria-Hungary	1	....	Netherlands	....	....
Barbadoes	....	....	Newfoundland	....	....
Belgium	2	....	New South Wales	....	....
Bermuda	....	....	New Zealand	....	....
Brazil	....	....	Norway	1	....
Canada	10	....	Porto Rico	....	....
Chili	....	....	Portugal	....	....
Colombia	....	....	Russia	....	....
Cuba	....	2	Scotland	....	....
Denmark	....	....	South Australia	....	....
England	15	1	Spain	....	....
France	6	....	Sweden	....	....
Germany	8	5	Switzerland	....	....
India	....	....	Tasmania	....	....
Hawaii	....	....	Victoria	1	....
India	....	....			
Italy	....	....	Total to citizens of foreign countries	44	8
Mexico	....	....			

APPLICATIONS UNDER EXAMINATION.

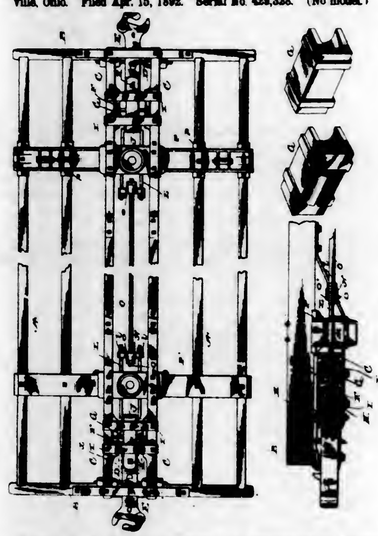
Condition at Close of Business January 24, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Dec. 30	Jan. 14	87
	Between one and two months in arrears.			
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Nov. 30	Jan. 16	223
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Nov. 25	Jan. 16	139
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Nov. 25	Jan. 16	174
8	Furniture, Toilet, Umbrellas and Canes, etc.	Dec. 5	Jan. 11	256
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Nov. 25	Jan. 10	153
24	Sewing-Machines and Apparel	Nov. 18	Jan. 5	129
21	Textiles, etc.	Nov. 28	Jan. 4	181
12	Mechanical Engineering, Store-Service, etc.	Nov. 19	Dec. 27	226
2	Farm Stock, Products, etc	Nov. 25	Dec. 27	202
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Nov. 25	Dec. 24	221
10	Carriages and Wagons and Railway-Cars.	Nov. 26	Dec. 17	367
19	Stoves and Furnaces	Nov. 25	Dec. 15	432
9	Hydraulics, Fire-Extinguishers, etc.	Nov. 25	Dec 13	359
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Nov. 29	Dec. 5	206
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 1	Dec. 3	197
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Nov. 28	Dec. 3	241
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Nov. 25	Nov. 30	256
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Nov. 25	Nov. 30	297
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Nov. 24	Nov. 25	293
4	Civil Engineering, etc.	Nov. 25	Nov. 16	357
	Between two and three months in arrears.			
13	Metal-Working, Arms and Projectiles, etc.	Nov. 7	Jan. 3	182
18	Steam-Engineering, etc.	Nov. 21	Dec. 10	176
7	Harvesters, Games and Toys	Nov. 10	Dec. 13	347
1	Tillage and Fences	Nov. 1	Dec. 12	257
17	Paper-Manufactures and Printing.	Oct. 31	Nov. 18	314
	Between three and four months in arrears.			
22	Fire-Arms, Navigation, Signals, etc.	Oct. 22	Dec. 22	293
23	Instruments of Precision, Acoustics, Optics, etc.	Oct. 4	Dec. 16	308
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Oct. 1	Nov. 25	385
	Between four and five months in arrears.			
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Sept. 21	Dec. 1	362
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 13	Jan. 3	351
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	May 25	Nov. 14	501
	Total number of applications awaiting action			8,652
	Under one month in arrears.			
Designs		Jan. 13	Jan. 17	52
Trade-Marks		Jan. 19	Jan. 17	17

PATENTS

GRANTED JANUARY 31, 1893.

490,635. DRAW-BAR ATTACHMENT. PERRY BROWN, Sharonville, Ohio. Filed Apr. 15, 1892. Serial No. 429,338. (No model.)



Claim.—1. In a draft attachment, the combination of a coupler and follower block, with a yoke J having its central part curved in the rear of said follower block, substantially as described.

2. In a draft attachment, the combination of a coupler and follower blocks, with a yoke J and L, the cross head N, and connecting rod O, substantially as described.

3. In a draft attachment, the combination of a coupler, a follower block having its rear curved, a yoke substantially fitting said curved rear and connected with the coupler, as set forth.

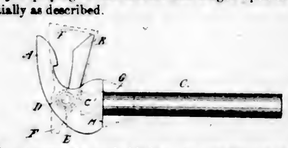
4. In a draft attachment, the combination of a coupler, a pair of follower blocks, one of which has its rear curved, a yoke J substantially fitting said curved rear connected with the coupler, and a second yoke passing through said yoke J and connected with the coupler at the opposite end of the car, substantially as described.

5. In a draft attachment, the combination with a coupler, and a yoke connected thereto, a second yoke connected with the coupler at the opposite end of the car, of a follower block, and a detachable wearing piece between the yoke connected to the coupler and the follower block, substantially as described.

6. In a draft attachment, the combination with the followers of a coupler having round recesses formed in its rear, and a yoke having corresponding projections fitting into said recesses, substantially as described.

490,686. KNOTTING-HOOK FOR TYERS FOR GRAIN-BINDERS. WILLIAM W. BURGUS, Chicago, Ill. Filed Dec. 2, 1884. Serial No. 149,345. (No model.)

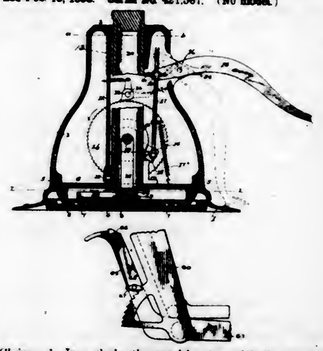
Claim.—1. In a knotter for grain-binders, the combination with the cast metal head and fixed jaw, having a slotted opening or mortise and pivotal bearings in said mortise integral with the head, of the movable jaw playing in said mortise and hinged upon said bearings, substantially as described.



2. In a knotter for grain-binders, the combination of a wrought metal spindle, a cast metal head and fixed jaw having a slotted opening or mortise, and a movable jaw playing in the opening and pivoted upon a bearing integral with the head and fixed jaw, and co-operating with said fixed jaw, substantially as described.

3. In a knotter for grain-binders, the combination of a wrought metal spindle, a cast metal head and fixed jaw having a chilled seat or bearing surface at its juncture with the spindle and a slotted opening or mortise through its body with chilled bearings in said opening integral with the body, and a movable jaw playing in the opening and hinged upon said bearings, substantially as described.

490,687. DENTAL CHAIR. MAGNUS BUTLER, Rochester, N. Y., assignor of one-half to the Archer Manufacturing Company, same place. Filed Feb. 15, 1892. Serial No. 421,567. (No model.)



Claim.—1. In a chair, the combination with the seat standard, of the rotatable base in which the standard is movable, the winding drum, the cable connecting the standard and drum, the shaft carrying the drum, the ratchet wheel on the shaft, the pawl engaging with it, the clutch wheel, the clutch and means for actuating the latter, all said parts being located within the base, substantially as described.

2. In a chair, the combination with the seat standard of the base in which it operates, the winding drum, the cable connected to the drum and standard, clutch mechanism for operating the drum, retaining devices for arresting backward movement the speed governor and a clutch between said drum and governor permitting the independent rotation of the drum to raise the standard, but causing its automatic engagement with the governor when rotated in the opposite direction, substantially as described.

3. In a chair, the combination with the base, the seat standard the cable, the shaft having the drum, the ratchet wheel and clutch devices actuated from the exterior of the base, of the speed governor, the gear on the shaft connected with the governor, and the clutch between the gear and drum whereby the drum may be actuated to raise the standard independently of the gear but is automatically connected thereto when rotated in the opposite direction, substantially as described.

4. The combination of the base 3, the seat standard operating therein, the rotating shaft in the base having the winding drum, ratchet and clutch wheels thereon, the clutch and detent, the cable connecting the drum and standard, a speed governor and a clutch between the drum and governor for automatically causing their connection when the drum is rotated in one direction, substantially as described.

5. The combination with the base 3, the seat standard operating therein, the shaft, the drum fixed on the shaft, the lifting cable, the gear loose on the shaft and the clutch between it and the drum, of the speed governor and gearing between it and the first mentioned gear, of clutch devices for rotating the drum and devices for securing it from backward rotation, substantially as described.

6. The combination of the base, the seat standard, the shaft, the drum, the cable connected to the standard and drum, the gear, and a clutch connecting it with the drum when the latter moves in one direction, the vertical shaft having the pinion in engagement with the gear, the horizontally rotating spider having the gear and the weighted brake shoes and the gear on the vertical shaft engaging the one on the spider, substantially as described.

7. The combination with the base or column containing the lifting mechanism and the seat standard operating therein, the base casting 4 secured to the column having the central boss, the spider mounted thereon having the weighted brake arms co-operating with the rim of the casting constituting a speed governor, and gearing connecting the spider with the lifting mechanism, of the base plate and the pivot bolt entering the casting 4 and securing it to the said plate, substantially as described.

8. In a chair, the combination with the base, seat standard, and the lifting mechanism for the latter having the movable pitman, of the lifting lever pivoted in the base, the stud on the lever embracing the pitman and detachable connections between said stud and the pitman, whereby the lever may be disconnected and allowed to fall beside the base, substantially as described.

9. The combination with the chair base, the pivoted lever, having the stud and spring projected bolt, of the pitman having the recess with which the bolt co-operates for locking it to the pitman and means for operating said bolt, substantially as described.

10. The combination with the chair base, the pivoted lever the stud mounted thereon having the spring projected bolt, the lever connected to said bolt and adapted to be operated from the exterior of the chair base, of the pitman connected to the seat lifting mechanism passing through the stud and having the recess with which the bolt co-operates, substantially as described.

11. The combination with the chair base, the pivoted lifting lever, the stud pivoted thereon having the aperture and the spring projected bolt, the lever mounted on the pivot of the lifting lever and the link connecting it with the bolt, of the pitman connected to the seat lifting mechanism passing through the stud and having the recess with which the bolt co-operates, substantially as described.

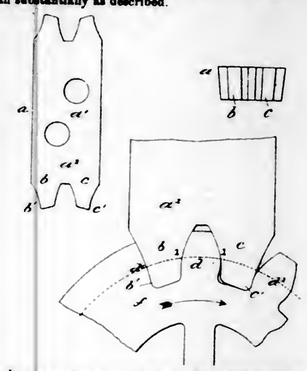
12. The combination with the seat frame having the depending arms constituting guides and the segmental rack thereon, of the platform sliding in said arms, the foot lever pivoted on said depending arms having forwardly extending arms projecting beneath the platform and on which it is supported and the spring operated pawl engaging the rack, substantially as described.

13. The combination with the seat frame having the depending arms constituting guides, the bolt or rod connecting them and the segmental rack, of the platform sliding on said arms, the sleeve encircling the rod having the forwardly extending arms projecting beneath and supporting the platform, the rearwardly projecting foot lever, the spring pawl thereon co-operating with the rack, the rod connected to the pawl arranged in proximity to the tread of the lever, whereby the operator may operate the foot lever to raise the platform or release the pawl and govern its descent, substantially as described.

490,638. DUPLEX GEAR-CUTTER. ROSSE M. CLOUGH, Tolland, Conn. Filed Feb. 27, 1892. Serial No. 423,094. (No model.)

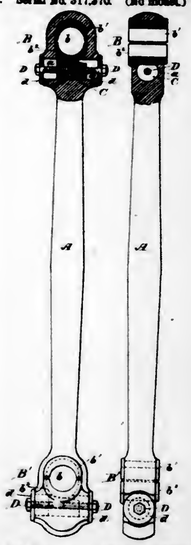
Claim.—1. In an improved duplex gear cutter, the branched cutters having the approximate inside surfaces and the outside surfaces formed duplicates of each other respectively and provided with cutting edges whereby the outer end only of a given tooth and the base only of each adjacent teeth are formed at one operation, all substantially as described.

2. In a duplex gear cutter having the cutter branches with the inside approximate surfaces and the outside surfaces formed duplicates of each other respectively and each provided with cutting edges whereby the outer surface only of a given tooth and the under cut base only of each adjacent tooth are formed to shape at one operation, all substantially as described.



3. In a gear cutter comprising a plural number of branches the inside approximate surfaces and the outside surfaces of which are respectively duplicates of each other and provided with cutting edges whereby the outer end only of certain teeth and the under cut bases of each adjacent tooth are formed at one operation, all substantially as described.

490,639. ADJUSTABLE BEARING FOR CONNECTING-RODS, &c. CONRAD M. CONRADSON and ERUNO V. HORDEMAN, Milwaukee, Wis. Filed July 13, 1889. Serial No. 317,370. (No model.)



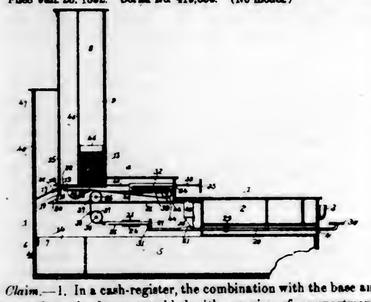
Claim.—1. A head having a slotted opening and a cylindrical key seat cutting one end of said opening, in combination with two bearing pieces inserted in said opening, one movable toward the other, and a key adapted to said key seat and formed by the intersection of a cylinder and a plane inclined to its axis, substantially as and for the purposes set forth.

2. A head having an oval opening in combination with two bearing pieces having rounded backs adapted to said opening, one being movable toward the other, a cylindrical key seat cutting one end of said opening, and a key adapted to said seat and formed by the intersection of a cylinder and a plane inclined to the axis of the cylinder, substantially as and for the purposes set forth.

3. A head having an oval opening and a cylindrical key seat cutting one end of said opening in combination with two bearing pieces adapted to said opening, one movable toward the other, and a key adapted to said key seat and having a surface inclined to its axis, substantially as and for the purposes set forth.

4. A head having an oval opening and a cylindrical key seat cutting one end of said opening, in combination with two bearing pieces, one movable toward the other, and having rounded exterior faces adapted to said opening, and a key adapted to said key seat and having a bearing surface inclined to its axis, substantially as and for the purposes set forth.

490,640. CASH-REGISTER. JACOB M. CRIPE, Sandusky, Ohio. Filed Jan. 23, 1892. Serial No. 419,059. (No model.)



Claim.—1. In a cash-register, the combination with the base and ticket-portions, the latter provided with a series of compartments and offsets from the rear end of the base, the offset 47 extending from the ticket-receiving portion, the glass panel 48 connecting the same with the rear wall of the base, of a ticket-receiving drawer located in the base, a sliding-till, punches, means for operating the same, a pivoted delivery-table occupying the space between the rear walls of the base and ticket-portions of the casing, connections between the till and delivery-table, and means for returning the delivery-table, substantially as specified.

2. In a cash-register the combination with a casing comprising a base and superimposed divided ticket-portion, having openings at the opposite sides of its lower end, of a series of punches located in the openings, a till mounted in the base of the casing, a series of key-levers fulcrumed in the till, and connections between the punches and rear ends of the key-levers, whereby a reciprocation of the latter will cause a reciprocation of the punches, substantially as specified.

3. In a cash-register, the combination with a casing comprising a base and superimposed divided ticket-receiving portion, having openings at the front and rear sides of its lower end, of a series of punches mounted in the openings, a perforated rest-bar, a series of pins mounted in the perforations of the bar, and adapted to reciprocate and terminating at their front ends in shoulders or heads, intermediate pulleys, cords passing over the same, and connecting the rear ends of the pins with the punches, a till, a series of key-levers pivoted therein and having their rear ends upwardly disposed to engage the heads or shoulders of the pins, whereby a depression of a key-lever will cause the same to engage with the shoulder or head of its respective pin, substantially as specified.

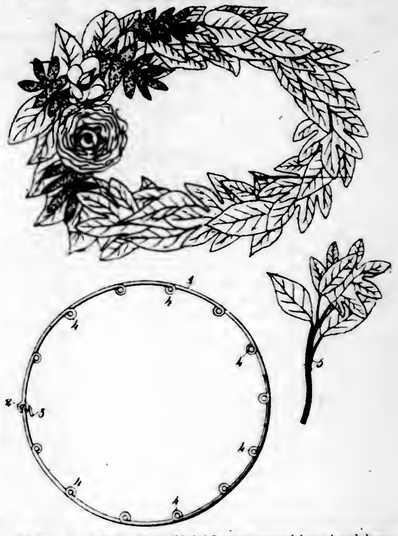
4. In a cash register, the combination with a casing comprising a base and superimposed divided ticket-receiving portion, having openings at the front and rear sides of its lower end, of a series of punches mounted in the openings, a perforated rest-bar, a series of pins mounted in the perforations of the bar, and adapted to reciprocate and terminating at their front ends in shoulders or heads, intermediate pulleys, cords passing over the same and connecting the rear ends of the pins with the punches, a till, a series of key-levers fulcrumed in the till and extending through openings formed in the same and bearing-disks, and at their rear ends engaging with the heads of the pins, the longitudinal bar 49 the cam-bar 50, triangular in cross-section and hinged at its front upper edge to the bar 49, and the cam-lugs 51 mounted on the key-levers, substantially as specified.

490,641. INSULATING COMPOUND. MATHEW H. DEVEY, Chester, Pa. Filed Jan. 30, 1892. Serial No. 420,369. (No specimens.)

Claim.—1. A composition of matter for electrical purposes consisting of powdered slag, glass and a binding medium in the proportions specified.

2. A composition of matter for electrical purposes consisting of powdered slag, glass, boiled linseed oil, driers, shellac and paraffine in the proportions specified.

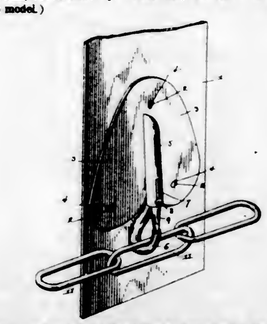
490,642. FRAME FOR ARTIFICIAL FLOWERS. EMIL DIEHM, St. Louis, Mo. Filed Oct. 10, 1892. Serial No. 448,380. (No model.)



Claim.—1. A frame for artificial flowers comprising a band, loops formed in the band and forming a continuation of the same and short wires arranged in tufts passed through said loops and twisted around the said band, said short wires forming stems for attaching suitable leaves and flowers, substantially as set forth.

2. A frame for artificial flowers consisting of a wire 1, an eye 2 formed in one end of the same, a hook 3 formed at the opposite end of said wire for uniting said ends, loops 4 formed in the said wire intermediate its ends at predetermined distances apart, and short wires 5 arranged in tufts having their ends passed through the said loops 4, and wrapped around the wire 1, the said wires constituting stems for suitable leaves and flowers, substantially as set forth.

490,648. BACK-BAND BUCKLE. THOMAS R. DORIS and WILLIAM F. DORIS, Providence, Ky. Filed May 14, 1891. Serial No. 392,737. (No model.)



Claim.—A back band buckle consisting of a flat heart-shaped base plate 3 having a lower central indentation and a central enlargement extending vertically over a portion of the said plate, the said enlargement having an outer inclined surface and provided with an inclined opening extending partially the length thereof in which a spring-actuated bolt is mounted, and a hook 6 extending downwardly

from the lower central indentation of the plate and having the free end turned upward to be engaged by the outer end of said bolt, said hook being integral with the stock of the plate and forming a part thereof, being rounded and bent into form and having the greater portion thereof in rear of the vertical plane of the back side of the plate, substantially as described.

490,644. LIGHT-VARYING ATTACHMENT FOR LAMPS. BENJAMIN F. DUER, Kansas City, Mo. Filed May 26, 1892. Serial No. 434,380. (No model.)



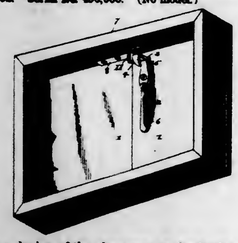
Claim.—1. A light-varying attachment for lamps, comprising a vertically movable slide for surrounding a burner tube, and having its upper end provided with a V-shaped recess or cut, and provided also midway of its width with a vertical recess communicating with the middle of the V-shaped recess or cut, substantially as set forth.

2. A light-varying-attachment for lamps, comprising a vertically movable slide having a horizontally arranged bracket secured thereto and below the diaphragm, and having outstanding and horizontal flanges or arms and a rock shaft having a crank arm extending longitudinally with said flanges or arms and having its free end, bent and extending transversely thereto, and between said flanges or arms, and adapted to engage the upper or lower flange or arm, respectively, to raise or lower the slide, substantially as described.

3. A light-varying attachment for lamps, comprising a vertically movable slide having a horizontally arranged and approximately U-shaped bracket secured thereto and below the diaphragm, and a rock shaft having a crank arm at its inner end, extending longitudinally with the arms of the guide bracket, and having its free end, bent and extending transversely thereto, and between the flanges or arms of the bracket, and a cross supporting rod having an eye or loop bearing for the inner end of the rock arm, adjacent to the inner crank arm, substantially as described.

4. A light-varying attachment for lamps, comprising a vertical slide for surrounding the burner tube and provided below the diaphragm with a horizontally arranged bracket approximately U-shaped in cross section, a rock shaft journaled near its opposite ends in the burner casing, and a supporting rod secured therein, oppositely disposed crank-arms at each end of the rock shaft, with a continuous flexible connection or endless cord connected to the lower end of the outer or pendent crank arm and suitably arranged pulleys for guiding said endless connection, substantially as described.

490,645. LATCH. CHARLES L. RADER, Blue Ridge, Mo. Filed June 30, 1892. Serial No. 438,600. (No model.)



Claim.—In a device of the character set forth, the combination of a gravitating hook consisting of an upper bent end having a cam-edge terminating in a depending overhanging end, and a fixed catch or keeper horizontally disposed and having a lower angularly-bent arm with a beveled cam face or edge arranged on the front portion thereof, and a rear straight edge, the cam edges of the gravitating hook and the fixed catch automatically coacting to bring the depending overhanging end of the hook in engagement with the rear straight edge of the catch or keeper, the said hook being secured to a door and in a normal vertical position, and the catch or keeper to the upper part of the frame of the door, substantially as described.

490,646. TROUSERS-HANGER. ADOLPH FRIEDER, Lexington, Ky. Filed Apr. 6, 1892. Serial No. 427,983. (No model.)



Claim.—1. As an article of manufacture, a trousers hanger, consisting of a body comprising two strips 10 and 11 arranged side by side and adapted to slide independently, and tabs arranged in pairs, each tab being fitted to receive a button and a pair of tabs being located at each end of the body, substantially as and for the purpose set forth.

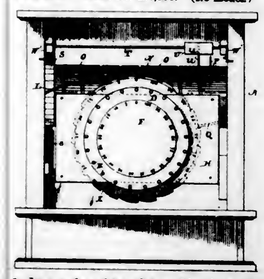
2. A trousers hanger, consisting of two body strips 10 and 11 arranged parallel and adapted to slide independently, and tabs constructed to receive buttons and arranged in pairs, the tabs of each pair having a hinge connection, and a removable connection between the tabs and the body strips, as and for the purpose specified.

3. A trousers hanger, consisting of two body strips or members capable of sliding end-wise one upon the other and provided with locking devices, and attaching devices adapted to be located at the ends of the body, the said attaching devices consisting of plates having a hinge connection, flexible tabs connected with the plates, said tabs being constructed to receive buttons, a pivotal connection between the attaching devices and the body strips or members, and a suspension device connected with the body strips or members, substantially as and for the purpose specified.

4. In a trousers hanger, the combination, with a body consisting of two strips held to slide one upon the other, the inner ends of the strips being provided with straps passing through them, and a hanging mechanism adjustable upon the body strips, of clips located near the ends of the body strips, and attaching devices carried by the clips, the said attaching devices consisting of tabs constructed to receive a button, the said tabs being arranged in pairs, and the tabs of each pair having a hinge connection, substantially as shown and described.

5. In a trousers hanger, the combination, with the body portion thereof, consisting of two strips having end movement one upon the other, tension devices embracing the strips, a suspension device having sliding movement upon the strips, and clips located near the outer ends of the strips, of attaching devices consisting of tabs arranged in pairs and fitted to receive a button, each pair of tabs having a hinged connection and being provided with a bail for connection with the clips, as and for the purpose specified.

490,647. CASH-REGISTER. LINUS S. FIELD, Storm Lake, Iowa. Filed June 22, 1892. Serial No. 437,596. (No model.)

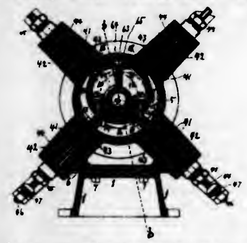


Claim.—1. In a cash register, the combination with a rotary dial bearing a series of consecutive numerals, of a rotary cylinder provided with a spiral groove inscribed with a continuous series of numerals, a horizontally slidable pointer traveling upon a guide bar and engaging the groove of the cylinder, and means for communicating motion from the dial to the cylinder, consisting of an arm carried by the dial to successively engage radially-disposed pins upon the cylinder, substantially as specified.

2. In a cash register, the combination with the rotary dial, of the cylinder provided with a spiral groove inscribed with a continuous series of numerals, the transverse guide bar, fitted at its extremities in brackets and held in place by pressure springs, and the pointer mounted upon said guide bar and engaging the groove in the cylinder, whereby as the latter is rotated the former is moved laterally to indicate successive numerals, substantially as specified.

3. In a cash register, the combination of the rotary dial provided with projecting knobs or pins designated by numerals, the indicator carried by said dial and inscribed with a corresponding series of numerals, only one of said numerals being visible through a perforation in the case at one time, the cylinder provided with a spiral groove inscribed with numerals and having a series of radial pins to be engaged by a radial arm on the indicator, and the pointer engaging the groove in the cylinder, substantially as specified.

490,648. ROTARY ENGINE. OSCAR S. GARDNER, St. Paul, Minn., assignor of one-half to Andrew M. Magnuson and Charles Lindberg, same place. Filed Apr. 5, 1892. Serial No. 428,406. (No model.)

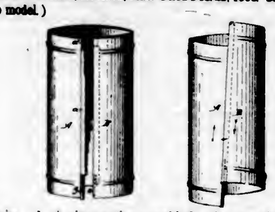


Claim.—1. In a rotary engine the combination of an eccentrical piston secured upon a shaft centrally located in a steam cylinder, said piston having two longitudinal chambers, each of said chambers having two longitudinal steam ports of which one is covered by a hinged valve located inside the chamber, each chamber also having a steam port extending in opposite directions into annular grooves formed into the ends of the piston around the shaft for delivering or receiving steam through annular grooves and conduits in the cylinder heads, with a cylinder having through its wall several longitudinal slots of even length with the piston, abutments moved by the piston outward in said slots, and springs for moving inward and holding said abutments at all times in contact with the cylindrical surface of the piston, for dividing the steam space in the cylinder into several compartments, substantially as shown and described and for the purpose set forth.

2. In a rotary engine the combination of the eccentric piston 10, secured upon the engine shaft 4, centrally located in a steam cylinder, said piston having longitudinal steam chambers, each of said chambers having two longitudinal steam ports of which one is covered by a hinged valve located inside the chamber; each chamber also having a steam port extending in opposite directions into annular grooves formed in the ends of the piston around the shaft, for receiving or delivering steam through registering annular grooves and conduits in the cylinder head, with the cylinder 5, having through its walls several longitudinal slots of even length with the piston, abutments moved by the piston in and out in said slots. The abutment chambers, 42, for guiding and housing the slides, the rods 44, and stuffing boxes 45, the yokes consisting of the bars 47, and 48, connecting together such two and two of the abutments as are located in opposite sides of the cylinder, said abutments being made in two pieces, grooved together so as to partly slide into each other, and having sliding bolts as 56, for holding the pieces together and springs as 61, housed in holes in the rear part of the abutments for pressing upon the heads of the sliding bolts 56, thereby pressing the front part of the abutment against the face of the piston; the screw-threaded plugs, 62, for retaining in place and compressing the said springs 61, substantially as shown and for the purpose specified.

3. In a rotary engine the combination of the narrow bed-plate 1, stands 2, journals 3, shaft 4, with the cylinder 5, having the flat side or bottom portion 6, abutments 43, having yokes 46, 47, 48, the abutment chambers 42, two of which straddle the bed-plate, the piston 10, having the chambers 11, and 12, conduits 13, 14, 20, 21, valves 19 and 22, steam ports 23, and 30, the cylinder heads 8 and 9, having annular grooves around the shaft of the engine, the conduits 27, 28, pipes 78, 79, elbows 31, 32, pipes 33, 34, 36, 37, valves 35, 40, graduated quadrant 39, and handle 38, substantially as shown and described and for the purpose set forth.

490,649. STOVEPIPE. OLIVER S. GARRETSON, Buffalo, N. Y., and WALTER S. SHIPE, Minerva, Ohio. Filed Feb. 23, 1888. Serial No. 265,607. (No model.)

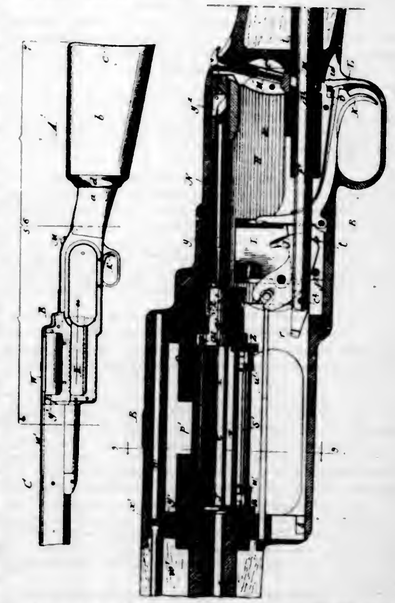


Claim.—1. A pipe section provided at its opposing longitudinal edges with interlocking flanges *a b* turned in opposite directions, the flange *a* being cut away at one end of the section to form a notch or recess *a'* and the flange *b* being provided opposite the recess *a'* with a reverse fold or lip *c* turned in an opposite direction to the flange *b*, the flanges of the opposing edges of the section being interlocked by a lengthwise movement of the flanges upon each other, substantially as set forth.

2. The combination with the interlocking longitudinal flanges *a b*, of the pipe section, of a spur or hook *f* formed on one of the edges of said section, and a reduced flange *g* formed on the opposite edge of the section, substantially as set forth.

3. The combination with the interlocking longitudinal flanges *a b* of the section, of a reverse fold or flange *c* and recess *a'* formed on said flanges at one end of the pipe section, and a spur or hook *f* and reduced flange *g* formed on said flanges at the opposite end of the section, substantially as set forth.

490,650. BREECH-LOADING GUN. DUNCAN R. GRANT, Quebec, Canada, assignor of one third to Annie Ritchie, same place. Filed Nov. 16, 1891. Serial No. 412,050. (No model.)



Claim.—1. In a breech loading gun, the combination with a frame or casing having feed and discharge openings for the cartridges,

of an oscillating semi-cylindrical receiver concentric with the barrel of the gun, and having the slot through which the cartridges are received and ejected, substantially straight and of the same width throughout its length; said receiver being adapted to both receive and eject the cartridges by gravity, all substantially as shown and described.

2. In a breech loading gun, the combination with a frame or casing having openings for the reception and discharge of cartridges, of an oscillating semi-cylindrical receiver concentric with the bore of the gun,—the slot through which the cartridges are received and ejected being substantially straight, all substantially as shown and described, whereby the receiver is capable of closing simultaneously both the feed and discharge openings.

3. In combination with a frame or casing having an opening through which the cartridges are inserted, a rotatable receiver P provided with an inclined slot h' and a notch g^3, and the breech-bolt carriage H provided with pin c' and feather d' to engage, respectively, the slot and notch.

4. In combination with a frame or casing having a cartridge feed opening, a rotatable receiver slotted at its ends at i' and j'; a holder Q in which the receiver is mounted provided with a slot k' having a beveled wall b'; a breech-bolt provided with an extractor z and a spring a' for the latter; and a breech-bolt carriage H adapted to impart motion to the receiver.

5. In a breech-loading gun, the combination of a frame, or casing, having openings for the reception and discharge of cartridges, with an oscillating semi-cylindrical receiver concentric with the bore of the barrel, and adapted to close simultaneously both the feed and discharge ports during the process of loading and while the breech is closed, and to simultaneously open the discharge port, and close the feed port during the process of unloading.

6. In a gun, the combination with a frame having suitable feed and discharge openings, of a rotatable receiver and means for actuating the same, and the inclined plate Y leading from the receiver to the discharge opening.

7. In a gun, the combination with a frame having suitable feed and discharge openings, of a rotatable receiver and means for actuating the same, the inclined plate Y leading to the discharge opening, and the spring-pressed plate l', all combined substantially as shown and described.

8. In a gun, the combination with a frame having suitable feed and discharge openings; of the rotatable receiver and means for actuating the same, and the spring-pressed plate l' adapted to bear against and to hold the cartridge while in the receiver.

9. In a gun, the combination with the frame having a discharge opening r' in its side, of a cover X for the opening, and a breech-bolt carriage connected with the cover and adapted to open and close the cover as the frame moves back and forth relatively to the breech-bolt carriage.

10. In combination with the frame having a feed opening, the rotatable receiver adapted to receive the cartridges one at a time, through the feed opening in the frame, the vertically moving block I carrying the hammer, and the breech-bolt carriage adapted to actuate the receiver.

11. In combination with a frame B, and the holder Q having end walls with inclined shoulders on the lower portions, the detachable magazine R, provided with the side retaining clip T, the ends x^2 of which project beyond the ends of the magazine, and engage with the inclined walls g^2.

12. In combination with a frame B and the holder Q, the detachable magazine R formed of the two pieces S and T,—the piece S forming the ends and sides, and the piece T forming the top and held in place by ears q' on the piece S.

13. In combination with frame B, holder Q having gaps or openings p' in its side walls, and the detachable magazine R provided with the clip T; the latter having the side tongues U for the purpose of holding the cartridges in the magazine, corresponding in size and position to the gaps or openings in the side walls of the holder.

14. In combination with frame B, a holder Q provided on the end walls with seats n' of different widths, and a detachable magazine R, provided on the ends with ribs n' of correspondingly-different widths.

15. In combination with frame B provided with a feed opening and with a holder Q, the spring-actuated pins V projecting through the end walls of holder; the detachable magazine R, provided with notches or recesses on its ends for the accommodation of said pins V.

16. In combination with the frame of a gun, a rod or tube D provided with a notch l,—the tube and the frame being adapted to move, one in relation to the other; the spring-actuated yoke or catch M provided with a bar to enter the notch, a trigger, and a safety lever L, provided with arms v and w adapted to lock the catch and trigger against movement.

17. In combination with the stock sections a and b, the tube or rod D secured to section b and passing through section a, the bar E within tube D, provided with a slot p and nose q, a spring O also within tube D to act upon the bar E, a pin or stud o projecting from section a to limit the movement of the bar E, the lever F, and the link G connecting the lever with the tube D.

18. In combination with stock section a, the butt or section b provided with a heel plate c, a tube D secured to the heel plate and projecting into the end section a; the spring j between the two sections a, b, and the buffer k interposed between the said sections.

19. In combination with the stock section a, the butt or section b encircling the rear portion of section a and provided with ring d, heel plate c, and connecting screws e.

20. In combination with the frame or casing B, a stock section a provided with a tube i screwing into the casing at its forward end, and flared or enlarged at its rear end.

21. In a gun, the combination with a two-part stock, of the frame or casing carried by the movable part, a rotatable receiver, a breech-bolt carriage adapted to actuate the latter, a vertically moving locking block carrying the hammer which is automatically cocked as the block rises; a lever F connected with the carriage, and also adapted to actuate the vertically moving block, and a tube D extending from the stationary portion of the stock and connected with the lever by a link G, whereby the reciprocation of the frame of the gun relatively to the stationary portion of the stock shall effect the actuation of the various mechanisms.

22. In a breech-loading arm, the combination of an oscillating semi-cylindrical receiver journaled concentric with the barrel, and provided with a cylindrical head having a slot cut spirally round its exterior, with a breech-bolt carriage set in guides or ways, parallel to the axis of the barrel, and having a pin projecting from one side adapted to enter the spiral slot on the head of the receiver and oscillate the said receiver, as it is reciprocated past the breech bolt carriage in the acts of loading and unloading.

23. In a gun, a safety for locking the trigger or triggers, consisting of a curved lever having a cross head, pivoted over the rear end of the trigger, and so placed that when the lever is within a recess in the lower side of the "grip" or "hand" of the gun, the trigger is locked by the cross head coming in contact with its upper side, and when the lever is turned down so as to lap over the rear end of the trigger guard, the cross head is raised so as to permit of the movement of the trigger; in combination with a spring adapted to retain the lever in whichever position it is placed by bearing on its head.

24. The combination of an extractor consisting of a lever pivoted near its rear end to the breech-bolt, and urged upward by a spring placed in the slot beneath it, with a holder Q having a slot for the passage of the extractor cut to two different levels, which are connected by a beveled or incline plane section b' by contact with which, in the act of loading, the extractor head is depressed into engagement with the cartridge head, and which on the return of the breech-bolt in the act of unloading, permits the head of the extractor to be raised out of engagement with the cartridge head by the spring q' beneath it.

25. In combination with the holder Q having end walls with inclined shoulders on the lower portion, the detachable magazine R, provided with the side retaining clips T, the ends x^2 of which project beyond the ends of the magazine, and are adapted to pass on either side of the straight portion of the holder end walls as the magazine is inserted, and to be gradually spread by the inclined shoulders of the lower portion until the tongues U are sufficiently clear of the lowest cartridge to permit it to descend onto the receiver P.

26. In a gun stock composed of two sections as described a buffer or elastic cushion k placed between the rear end of section a and the inside of the heel-plate c on section b for the purpose of easing the shock of the recoil of the gun on the shoulder.

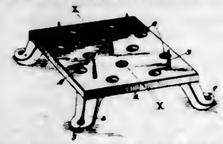
27. In a breech-loading gun, the combination of a stock consisting of two parts,—the first part a being secured to the "shoe" or casing of gun, and the second part b forming a sleeve, closed at the rear end by the heel-plate, wherein section a slides; with a coiled spring j bearing with one end against a shoulder formed in section a, and with the other against the heel-plate attached to section b; and a tube or rod D, passing through spring j and section a, and forming a positive connection between the heel-plate and the breech-bolt, whereby the said breech-bolt may be actuated both in loading and unloading by the movement of the gun or the heel-plate, relatively to each other.

28. In a breech loading gun, the combination with a breech bolt and its carriage, of a heel plate, and a positive connection substantially such as shown between the heel plate and the breech bolt, adapted to hold the breech bolt stationary or at a given distance from the shoulder of the operator while the cartridge is drawn into the barrel or withdrawn from it by the gun itself being reciprocated relatively to the breech bolt.

490,651. POST-SUPPORT. SIELS HANSEN, Cedar Falls, Iowa. Filed Apr. 26, 1892. Serial No. 430,708. (No model.)

Claim.—1. A base-plate for posts, having a series of apertures therein, and spurs or spikes rising therefrom, substantially as described.

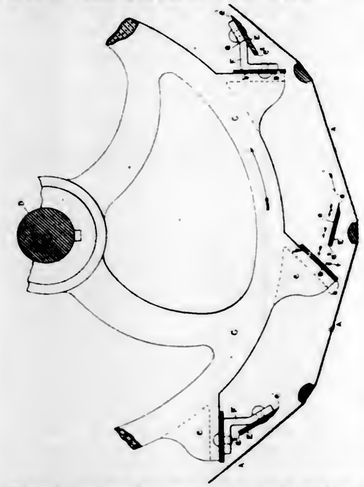
2. A base-plate for posts, having a series of apertures therein, spurs or spikes rising from the upper surface thereof, and feet extending from the lower side of the same, substantially as described.



3. A base-plate for supporting posts, having feet extending from the lower portion thereof and provided with recesses or concaves in the under sides of the same, substantially as described.

4. A base-plate for supporting posts, consisting of a body with a series of openings extending therethrough, spurs or spikes rising from the upper surface of the same, and cross-braces or ribs on the under side of the body terminating in feet arranged at an angle thereto to elevate the device, said feet having recesses or concaves in the under sides thereof, substantially as described.

490,652. CENTRIFUGAL DRESSING-MACHINE. JAMES HIGGINBOTTOM, Liverpool, England. Filed July 23, 1890. Serial No. 359,610. (No model.) Patented in England Apr. 15, 1889, No. 6,370.

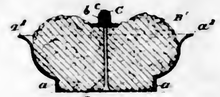


Claim.—1. In a centrifugal separating or dressing machine, the combination with the pervious cylinder or casing of a series of longitudinal spreader bladee mounted on a rotary support and inclining backward and outward, and a series of deflecting blades supported in front of the spreader blades and inclining backward and inward with open spaces between the deflectors and spreaders, whereby the material is first gathered and deflected inward against the spreaders and then thrown outward by the latter.

2. In combination with the casing A and beater B, the deflecting plate E mounted on the face of said beater and having its forward edge moving in approximately the same path as the outer edge of the beater and its rear edge located at a suitable distance from the said beater face and moving in the path nearer the center of rotation than that of its forward edge, substantially as described.

3. In a centrifugal separating or dressing machine, the combination with the pervious cylinder or casing of a longitudinal rotary shaft within the same, a series of longitudinal spreaders supported from said shaft in proximity to the casing, and inclining backward and outward, and a series of longitudinal deflecting blades supported in front of the spreaders and inclining backward and inward with open spaces between the said deflectors and spreaders, the front faces of the deflectors standing in planes inclined to the front faces of the beaters and passing through the same.

490,653. SPONGE-CUP. ROBERT HITCHCOCK and HAMILTON D. WAITE, Watertown, N. Y. Filed June 11, 1892. Serial No. 436,269. (No model.)



Claim.—1. As a new article of manufacture a sponge-holder, comprising a cup provided with a pointed securing screw or pin projecting from the bottom of the cup and adapted to penetrate and hold the sponge, substantially as described.

2. In a sponge-holder the combination with a cup having an upwardly and outwardly projecting rim around the mouth thereof, of a pointed screw or pin for securing the sponge, adapted to penetrate the same said screw or pin being attached to the bottom of the cup, substantially as described.

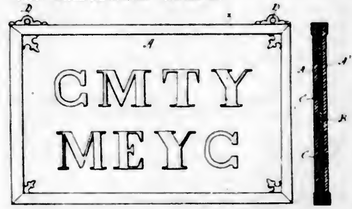
3. As an article of manufacture a sponge cup formed with a vertical wall around the bottom thereof, extending into an outwardly bulged portion, and terminating in a flaring mouth and provided with means for holding the sponge in place, against the bottom of the cup, the lower portion of the sponge being contracted within the said vertical portion of the wall as set forth.

4. The combination with the sponge-cup, of a pointed screw-threaded securing pin passing from the bottom of the cup upwardly through the sponge, and an internally screw threaded knob or button engaging the upper end of the securing pin, substantially as described.

5. The combination with the sponge-cup and devices for holding the sponge in place, of a weight in the form of a disk or plate adapted to rest on the bottom of the cup, substantially as described.

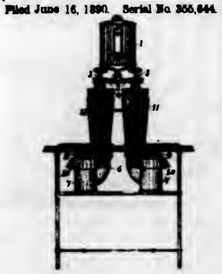
6. A sponge-holder comprising a cup, a removable plate adapted to rest on the bottom of the cup, and a pin having a head or button, the sponge being held between the plate and the said head or button, substantially as described.

490,654. SIGN. MAX HOLPERT, Dayton, Ohio. Filed June 22, 1891. Serial No. 397,012. (No model.)

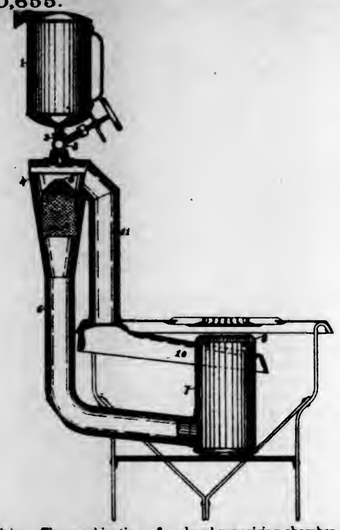


Claim.—As an improved article of manufacture, the hereinedescribed sign, the same consisting of semitransparent letters or designs and a semitransparent back ground, the color of the letters or designs and the color of the back-ground being in contrast, the letters or designs being flush on both faces with the corresponding faces of the back-ground, and consisting further of two transparent plates, one on each side of the back-ground, and means by which such plates are held against the back-ground so as to hold the letters or designs flush with the back-ground, in which they are inlaid.

490,655. VAPOR-STOVE. CHARLES M. HOLLINGSWORTH, Cleveland, Ohio. Filed June 16, 1890. Serial No. 355,644. (No model.)

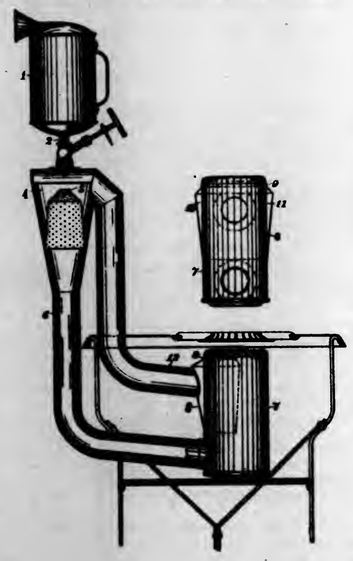


490,655.



Claim.—The combination of a closed vaporizing chamber, and suitable means for delivering thereinto a regulated supply of liquid hydrocarbon, a conducting pipe extending downward and laterally from said chamber, and a metallic burner shell in communication with the lower end of said pipe, with an inverted hood entirely open on its under side, which at one end is adjacent to the burner shell and is in contact therewith below the burner cap, and from this end inclines upward toward the other end, and a pipe connected with said other end and extending therefrom upward and connected with the upper part of the vaporizing chamber, substantially as set forth.

490,656. VAPOR-STOVE. CHARLES M. HOLLINGSWORTH, Cleveland, Ohio. Filed Dec. 15, 1890. Serial No. 374,849. (No model.)

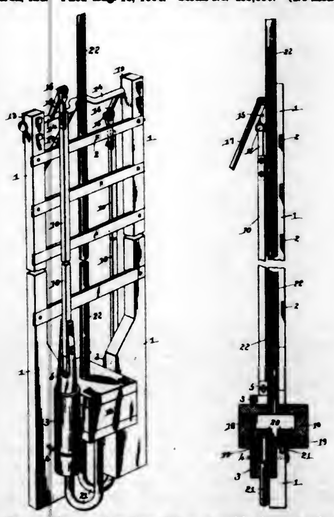


Claim.—1. The combination of a closed vaporizing chamber and suitable means for delivering a regulated supply of liquid hydro carbon thereto, a conducting pipe extending downward and laterally therefrom, and a burner shell communicating with said pipe, with a casing adjacent to said burner shell, the upper edge of said casing being in close contact with the burner shell below the burner cap, a suitable opening for admitting air between the casing and burner shell, and a pipe connected with said casing and with the vaporizing chamber, and adapted to deliver into said vaporizing chamber, the air taken into the chamber formed between the casing and burner shell, substantially as and for the purpose specified.

2. The combination of a closed vaporizing chamber, and suitable means for delivering a regulated supply of liquid hydro-carbon thereto, a conducting pipe extending downward and laterally from said vaporizing chamber, and a burner shell communicating with said pipe, with a heating chamber, formed in part by a casing adjacent to said burner shell, and in contact therewith below the burner cap, said chamber being provided with suitable inlet openings for the admission of air thereto, and a pipe connecting the said heating chamber with the upper part of the vaporizing chamber, said inlet openings and outlet pipe being arranged with reference to each other, substantially as shown whereby the air passing through said chamber travels partly around said burner and in contact with the burner shell, for the purpose specified.

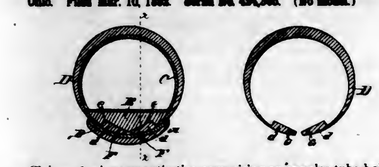
3. The combination of a closed vaporizing chamber, and suitable means for delivering a regulated supply of liquid hydro carbon thereto, a conducting pipe extending downward and laterally from said vaporizing chamber, and a burner shell communicating with said pipe, with a suitably bent metallic casing partly surrounding said burner shell with its upper and lower edges in contact therewith, the former just below the burner cap, whereby a heating chamber is formed, into which the air may pass through slots left between the vertical edges of the casing and the burner shell, and a closed pipe leading from said heating chamber to the vaporizing chamber, substantially as and for the purpose specified.

490,657. PUMP. OSBORN G. HOWELL and JEREMIAH M. HORR, Arba, Ind. Filed Aug. 18, 1891. Serial No. 403,089. (No model.)



Claim.—The combination with a portable frame-work having vertical parallel supports, connected by spaced cross-bars to form a ladder, of twin vertically-disposed single-acting pump cylinders, attached to the lower ends of said supports, respectively upon opposite sides of the plane of the frame-work, an interposed receiver connecting such cylinders and arranged between the supports, a service-pipe communicating at its lower end with the receiver, a rock-shaft journaled in bearings at the upper ends of the supports and provided with oppositely-extending arms or cranks which operate vertically above and in the planes of the axes of the cylinders, respectively, the rigid piston-rods pivotally connected at their upper ends to the arms or cranks of the rock-shaft and provided at their lower ends with plungers operating in the cylinders, and means to operate the rock-shaft, substantially as and for the purpose specified.

490,658. PNEUMATIC TIRE FOR VELOCIPEDES. RUDOLPH W. HUNT, Chicago, Ill., assignor to the American Tire Company, Cleveland, Ohio. Filed Mar. 10, 1892. Serial No. 424,905. (No model.)



Claim.—1. A pneumatic tire comprising an annular tube-holder, an annular tubular air-cushion confined within the annular tube-holder, and an annular band confined within the said tube holder and providing therein a base support for the air-cushion, substantially as described.

2. A pneumatic tire comprising an annular tube-holder, an annular tubular air cushion confined within the annular tube-holder, and an annular band confined within the tube holder and made of segmental shape in cross-section so as to leave within the said tube holder a tube space which is of segmental area in cross-section, substantially as described.

3. In a pneumatic tire, the annular split tube holder, combined with an annular tubular air-cushion, confined within said tube-holder, and an annular band confined within the tube holder between the line of split along the latter and the said air-cushion, substantially as described.

4. In a pneumatic tire, the annular tube holder, combined with an annular tubular air cushion confined within said tube holder, and an annular band E confined within the tube holder and recessed to receive inwardly projecting catch portions with which the tube-holder is provided, substantially as described.

5. The annular tube-holder provided with teeth or pins and containing an annular tubular air-cushion, combined with a wheel-tire provided with a seat for the tube holder, the teeth or pins of the tube-holder being arranged to engage in said seat, substantially as described.

6. The annular tube holder, containing a tubular air-cushion, in combination with a wheel rim supporting the annular tube holder and provided with teeth or pins F projecting from the middle portion of the periphery of the rim in two annular series and arranged to incline toward the middle line of the rim and engage the tube holder, substantially as described.

7. The combination of the annular split tube-holder containing a tubular air-cushion, and provided with teeth or pins and the wheel rim provided with an annular seat and with pins projecting from said seat, the pins of the tube-holder being arranged to engage in the seat, and the pins on the wheel-tire being arranged to engage in the tube-holder, substantially as described.

8. In a pneumatic tire, the annular split tube holder containing a tubular air-cushion, in combination with the annular band confined within and holding the edge-portions of the split tube-holder and reinforced so as to prevent lateral stretch, substantially as described.

9. The combination of the annular, split tube holder, the tubular air-cushion confined within the annular tube-holder, the annular band E confined within the annular tube holder and interlocking with the edge-portions thereof, the seating band B on the wheel-tire, the wheel tire provided with pins F, and pins G on the tube-holder, substantially as and for the purpose described.

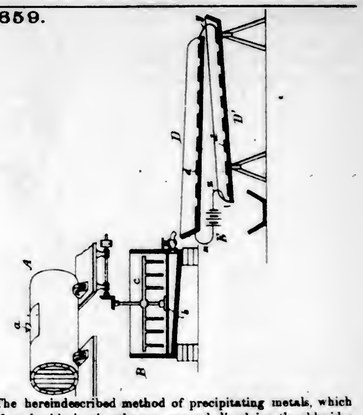
10. The combination of an annular split tube-holder containing the air-cushion and provided with projecting teeth or pins along its edge portions, and a wheel-tire provided with a peripheral seat for the tube-holder, the pins of said tube-holder being forced into the seat on the wheel-rim, substantially as described.

11. The combination of an annular split tube-holder containing the air cushion, and the wheel rim provided with teeth or pins F projecting from the middle portion of the periphery of the rim in two annular series and arranged to incline toward the middle line of the rim and engage in the edge portions of said tube-holder; substantially as described.

490,659. PROCESS OF TREATING ORES. WILLIAM B. JACKSON, Pueblo, Colo. Filed Oct. 14, 1891. Serial No. 408,695. (No specimens.)

Claim.—1. The hereindescribed method of precipitating metals held in a hypo-sulphite solution, which consists in subjecting the solution to the action of one or more zinc plates whereby the metal is precipitated in fine clean powder free of zinc.

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2. The hereindescribed method of precipitating metals, which consists first, in chlorinating the ore; second, dissolving the chlorides with a hypo-sulphite solution; and third, subjecting the solution to the action of one or more zinc plates whereby the metal is precipitated in fine clean powder free of zinc.

3. The hereindescribed method of precipitating metallic silver and gold, which consists in dissolving silver and gold compounds in a hypo-sulphite solution, and then subjecting the solution in the presence of zinc to electrolytic action.

4. The hereindescribed method of recovering metals which consists in dissolving the metals in a solution of a hypo-sulphite and chloride of sodium, and then subjecting the solution to an electrolytic precipitating action in the presence of zinc.

5. The hereindescribed apparatus for precipitating metals held in solution consisting of an inclined trough having a series of disconnected zinc plates arranged therein, an electric generator and connections leading from the generator into the ends of the trough, the connections and zinc plates being arranged to be formed in a continuous conductor by the presence of the solution.

6. The hereindescribed apparatus for precipitating metals held in solution consisting of an inclined trough having a series of disconnected zinc plates arranged therein and forming a broken conductor, an electric generator, one pole connected with one of said plates and another leading from a terminal in the trough to the other pole of the generator, whereby the solution fed to the trough over the broken conductor forms a conductor of greater resistance between said plates.

490,660. PROCESS AND COMPOSITION OF MATTER FOR THE MANUFACTURE OF STEEL. JOHN B. JENKINS, Pittsburg, Pa., assignor to the Hutchinson-Jenkins Steel Company, of West Virginia. Filed Mar. 17, 1892. Serial No. 425,230. (No specimens.)

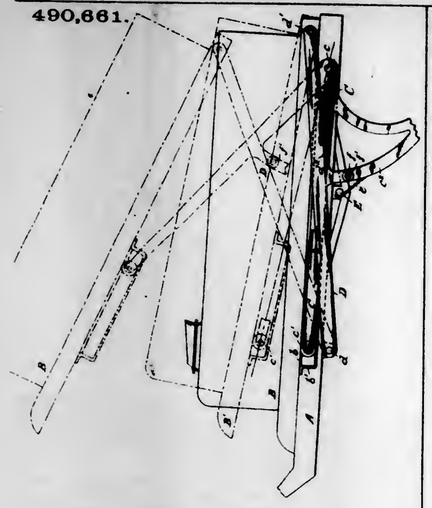
Claim.—1. The process of treating malleable or cast iron, cast steel Bessemer steel, open hearth steel &c., and converting the same by the annealing or cementating process in fine steel consisting of packing the product to be treated between alternate layers of a granulated or powdered compound consisting of the following reagents mixed together namely:—charcoal, binoxide of manganese, chloride of sodium, cyanide of potassium and chloride of ammonium and subjecting the whole to a uniform heat substantially as described.

2. The within described compound for converting malleable cast iron, cast steel, Bessemer steel, open hearth steel, &c., into fine steel by the annealing or cementating process, said compound consisting of granulated or powdered charcoal, binoxide of manganese, chloride of sodium, cyanide of potassium and choride of ammonium mixed together substantially as described.

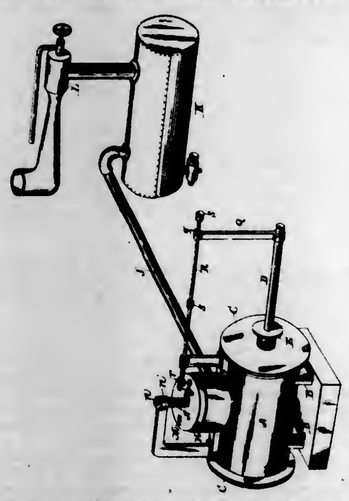
490,661. DUMPING-WAGON. JAMES A. KLEIN, Reading, Pa. Filed Oct. 30, 1891. Serial No. 410,513. (No model.)

Claim.—The combination with the running gear and body, of main elevating arms and supplemental elevating arms both pivoted to the frame and extending across each other to opposite portions of the body, one pair being positively pivoted to the body and the other in movable connection with the same, said main arms being arranged to elevate one portion of the body for a limited distance independently of the supplemental arms and thereafter to operatively engage said supplemental arms and thereby elevate both ends of the body simultaneously substantially as set forth.

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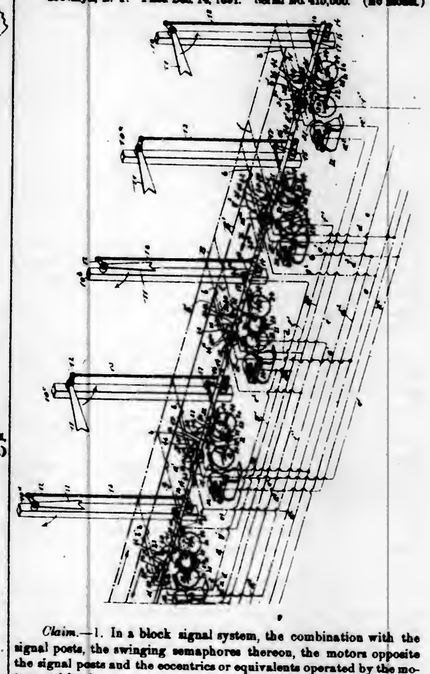


490,662. ENGINE. JOSEPH KNAPPER and STUART B. MARTON, Connellsville, Pa. Filed Jan. 20, 1892. Serial No. 418,662. (No model.)



Claim.—In an atmospheric-vacuum engine, the combination of a cylinder having a circular valve casing entirely open at its top and inclosing the flat valve seat, opposite cylinder ports opening into said valve seat and each end of the cylinder and a central vacuum exhaust port communicating with the center of said valve seat between the ports and a vacuum apparatus, an oscillating valve registering with said open valve casing, which forms a bearing therefor, and provided with atmosphere ports extending vertically therethrough and a right angle vacuum exhaust groove formed in the bottom face thereof and connecting one of the cylinder ports with the central vacuum port while an atmosphere port registers with the other cylinder port, a bearing bracket arranged over the valve, a valve rod or stem connected at its lower end to the center of the valve and having its upper end turning in said bearing bracket a spring arranged upon said stem over said valve to hold the same to its seat, the piston rod having an upwardly extending valve controlling arm, and a valve rod pivotally connected to the top of said valve and provided with tappets engaged alternately by said arm, substantially as set forth.

490,668. ELECTRIC BLOCK-SIGNAL SYSTEM. JOHN LA BURT, New York, assignor to the Agricola La Burt Manufacturing Company, Brooklyn, N. Y. Filed Dec. 14, 1891. Serial No. 415,000. (No model.)



Claim.—1. In a block signal system, the combination with the signal posts, the swinging semaphores thereon, the motors opposite the signal posts and the eccentrics or equivalents operated by the motors and having a crank connection with the semaphores, the eccentrics having also insulated conducting faces, of contacts arranged in the path of the eccentrics, double contacts arranged adjacent to the track rail and connected with a source of electricity, means for closing the circuit through the double contacts by the movement of a train, and connections between the double contacts, the eccentric contacts and the motors along the track, substantially as described.

2. In a block signal system, the combination with the signal posts and the swinging semaphores thereon, of motors arranged adjacent to the signals, eccentrics geared to the motors and having crank connections with the semaphores, the eccentrics also having insulated conducting faces, contacts arranged in the paths of the eccentrics and connected respectively with a source of electricity and with adjacent motors, movable contacts arranged adjacent to the track rails and connected with a source of electricity and with the several motors, and means for closing the circuit through the movable contacts by the passing of a train, substantially as described.

3. In a block signal system, the combination with the contacts 46 and 46ª connected with a source of electricity and with the track motors as described, of the bent lever pivoted adjacent to the track and carrying contacts adapted to connect with motors along the track, the said lever having one end bent upward into the path of a locomotive wheel and having a depending end, a gravity latch adapted to engage the depending end of the lever and hold it in a raised position, and means for automatically releasing the latch, substantially as described.

4. In a block signal system, the combination with the motors and eccentrics connected with the semaphores as described, the eccentrics having stops on their upper sides, of the contacts 46 and 46ª connected with the line wires and motors, the bent lever pivoted adjacent to said contacts and having one end extending into the path of the locomotive wheels, and the opposite end bent downward, contacts carried by the lever and adapted to engage the contacts 46, 46ª and close the circuit through adjacent motors, and a gravity latch adapted to engage the bent lever, said latch having a pin projecting into the path of an eccentric stop, substantially as described.

5. In a block signal system, the combination with the semaphores and the eccentrics connected therewith, said eccentrics having an insulated conducting face, of insulated track sections connected with electric contacts arranged in the paths of the eccentrics, and an electrical signaling apparatus carried by the locomotive and having electrical connections with the wheels of the locomotive, whereby the circuit will be closed through the apparatus by the contact of the wheels with the track sections, substantially as described.

6. The combination with electrically-connected track sections, the motor operated semaphores along the track, and circuit closing eccentrics operated by the semaphore motors and adapted to close the circuit through the track sections and an engine carried by the locomotive and adapted to operate the shut off valve thereof, of the electric motor carried by the locomotive and geared to operate the valve of the engine, and connections between the motor and the wheels of the locomotive, whereby the circuit through the motor will be closed by the contact of the wheels with the track sections, substantially as described.

490,664. CONVERTIBLE STEP-LADDER AND WINDOW-PLATFORM. JOHN LA BURT, New York, N. Y., assignor of one-third to Alexander Marion Lowry, same place. Filed Oct. 20, 1891. Serial No. 409,289. (No model.)



Claim.—1. The combination with a step ladder having a pivoted leg supporting brace formed with an abutment to bear against a window sill, of a clamping device mounted on the ladder to engage the outer side of a window frame.

2. The combination with a step-ladder, having an abutment thereon adapted to bear against a window sill, of a clamp bar pivotally held thereto, said clamp bar being adjustable longitudinally of the ladder, and movable into line with the ladder and transversely thereto, substantially as described.

3. The combination with a step-ladder, having a pivoted leg supporting brace formed with an abutment adapted to bear against a window sill, of a clamp bar, adjustable both longitudinally and transversely of the ladder, substantially as described.

4. The combination with a step ladder, having an abutment adapted to bear against a window sill, of a clamp bar held thereto, and movable into line with the ladder and transversely thereto, the clamp bar also being adjustable longitudinally of the ladder and transversely of the same, substantially as described.

5. The combination with a step-ladder and its hinged legs, of braces pivoted at one end to the ladder proper and having a bend therein forming an abutment, the free end of the pivoted braces being adapted to engage pins or projections on the legs of the ladder proper, and a clamp bar movable toward and from said braces, substantially as described.

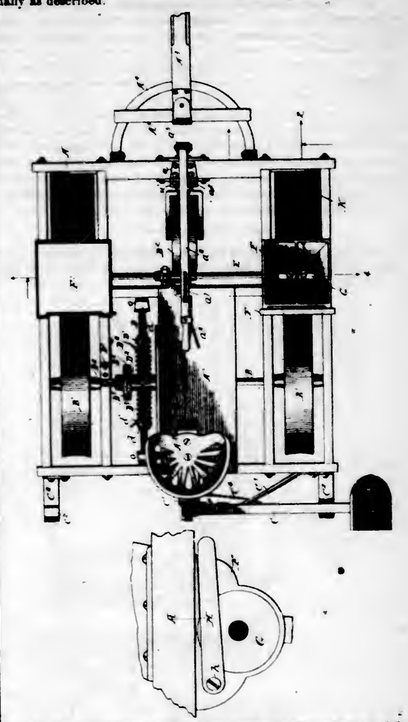
6. The combination with a step-ladder having an apertured strip secured to the steps at the back thereof, of a longitudinally adjustable clamp bar held to said strip by a bolt passing therethrough and into one of the apertures of the said strip, the clamp bar being movable on said bolt into line with the strip or at right angles thereto, and braces bent to form abutments which act in conjunction with the clamp bar in securing the ladder to a window, substantially as described.

7. The herein described convertible structure, comprising a step-ladder, and hinged legs thereon, braces pivoted to the ladder and adapted to engage the legs, the said braces being stepped to form abutments for the purpose specified, a clamp bar held to the ladder, and adapted to be swung into line therewith or transversely thereto, and adjustable longitudinally of the ladder and transversely thereto, and a footing formed of cleats B' secured to the lower ends of the legs on the inner side thereof and spacing them from the ladder proper, substantially as described.

490,665. CORN-PLANTER. SALEM T. LAMB, New Albany, Ind. Filed Aug. 24, 1891. Serial No. 403,633. (No model.)

Claim.—1. The combination with the frame of the machine, supported on a rotating axle mounted on wheels, of the longitudinal marker pivotally attached to the frame, and a transverse marker loosely mounted upon said axle, and carrying one member of a clutch, the other member of the clutch being splined to and movable upon said axle, and means for shifting the latter clutch member, substantially as described.

2. In a corn planter, the transverse marker comprising tubes, the spring actuated marker arms moving in the tubes, and the loops engaging the marker arms for the purpose of raising them, substantially as described.



3. The combination with the rotating axle of the planter, of the sleeve mounted thereon, hollow arms connected to the sleeve, spring actuated transverse marker arms sliding in said hollow arms, a clutch mounted on the axle and connecting the sleeve to the latter, the clutch having a large number of teeth for the purpose of securing accurate adjustment, substantially as described.

4. The combination with the main shaft, of a sleeve mounted thereon, hollow slotted tubes projecting therefrom, marker arms sliding in said tubes, collars connecting the tubes and arms, springs interposed between the collars and the sleeve, and the loops connected to the collars and extending beyond the sleeve, substantially as described.

5. The combination with the hoppers and counter shaft, of the cylinders removably mounted within the hoppers, and upon and connected with said shaft, and an arm connected to the hopper and extending across the end of the cylinder therein for retaining the cylinder in position, substantially as described.

6. The combination with the counter shaft having cross pins near its ends, of the cylinders each having a reduced inner end portion provided with a slot adapted to engage one of the cross pins, the cylinders being removably supported in the hoppers and driven by the shaft, and an arm pivoted to each hopper and extending across the outer end of the cylinder therein, substantially as described.

7. The combination with the main frame, of the pivoted frame connected thereto, springs interposed between the main and pivoted frame, and braces connected to the main frame and arranged adjacent to the rear portion of the pivoted frame, substantially as described

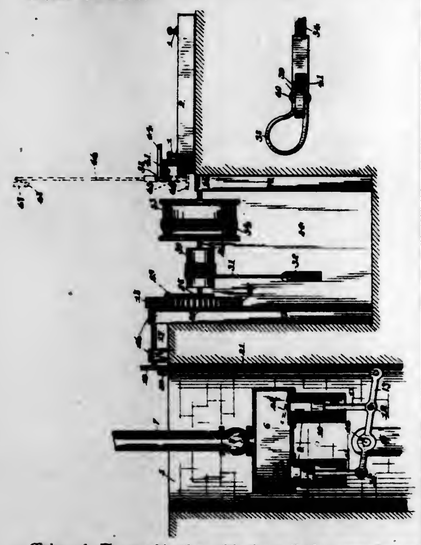
8. The combination with the hoppers having chutes for the delivery of the grain, the hoppers being mounted upon the main frame, of a pivoted frame connected to the main frame by pivots extending lengthwise thereof and carrying shoes arranged to embrace the chutes, substantially as described.

9. The combination with the hoppers having chutes, cylinders in the hoppers for delivering the grain into the chutes, of a centrally pivoted frame connected to the main frame by pivots extending lengthwise thereof and carrying shoes, the shoes being perforated to receive the chutes of the hoppers, substantially as described.

10. In a corn planter the combination of the main frame, of the supplemental frame pivoted longitudinally to the main frame, the hoppers mounted on the main frame and delivering the grain through shoes attached to the supplemental frame, the caster wheel and means for adjusting the same, whereby the main frame may be adjusted to accommodate itself to the wheel and the supplemental frame is automatically adjusted, substantially as described.

11. In a corn planter the combination of the main frame, of the covering wheels, the supplemental frame pivotally connected to the main frame and cutting shoes in line with the covering wheels, the hoppers arranged to deliver the grain to the shoes, a longitudinal marker connected to the frame, a transverse rotary marker also connected to the frame, a caster wheel and means for adjusting the frame in relation thereto, substantially as described.

490,666. AUTOMATIC RAILWAY PUMPING MACHINERY. HIRAM D. LATHAM, Little Rock, Ark. Filed Sept. 23, 1891. Serial No. 407,094. (No model.)



Claim.—1. The combination with the well, the pump located therein, the tank located at one side of the pump and a pipe connecting the pump with the tank, of an intermediate shaft, bearings for the shaft, a gear loosely mounted on the shaft, mechanical connections between the gear and pump, a ratchet-wheel mounted on the shaft, and rigid therewith, a pawl engaging the ratchet-wheel and pivoted to the loose gear of the shaft, a re-winding drum, a cable thereon, a weight secured to the free end of the cable, a main drum mounted on the shaft at the side of the re-winding drum, a cable thereon, and a loop located at the free end of the cable and supported in a position to be engaged by a projection on a moving train, substantially as specified.

2. The combination with the pump, plungers, the walking-beam fulcrumed adjacent thereto and connected with the pump, a tank and a supply-pipe having a valve leading from the pump-head to the tank, a transverse shaft located between the well and track, bearing-posts for the shaft, one of which is extended above the other and provided with a bearing in its upper end, a short bearing-post at one side of the latter, a short transverse shaft mounted in the two last mentioned bearings, a crank-disk at one end of the same and provided with a crank-pin, a connecting-rod between the crank-pin and the free end of the plunger-operating lever, a small gear at the outer end of the short transverse shaft, a large loose gear mounted on the first mentioned transverse shaft and engaged with the small gear, a ratchet-wheel at the side of the large gear, and that upon the shaft, a pivoted pawl at the side of the large gear engaging the ratchet-wheel, a re-winding drum, a cable thereon terminating at its lower end in a weight, a main drum at the side of the re-winding drum, an operating cable thereon, a loop or eye at the free end of the operating cable, and suitable guides for supporting the same at one side of the track, substantially as specified.

3. The combination with the pump, the tank the supply-pipe leading from the pump to the tank, of a track-bar having its forward end curved, located adjacent to the track, an intermediate shaft, bearings for the same, means for communicating motion from the shaft to the pump, means for re-winding the shaft, a main drum on the shaft, a cable wound upon the drum and having its free end located at the side of the track, a loop secured to the end of the cable, and a roller connected to the loop and adapted to engage the track-bar and be deflected by the latter, substantially as specified.

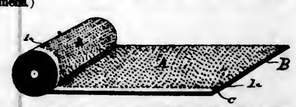
4. The combination with the pump, the tank, the supply-pipe leading from the pump to the tank, and pump-operating mechanism, of a drum for operating the mechanism, a cable passed about the drum, and terminating at its front end in an eye provided at one side with bearing-ears, a loose roller journaled in the eye, and a track-bar supported upon the ties at one side of the track-rails, and forming a path for the roller, the forward end of said track-bar being outwardly curved or deflected, substantially as specified.

490,667. COMPOSITION OF MATTER FOR PAVEMENTS, &c. GEORGE S. LEE, Hawthorne, N. J., assignor, by mesne assignments, to the East Coast Manufacturing Company of New Jersey. Filed Jan. 30, 1892. Serial No. 419,845. (No specimens.)



Claim.—A composition for paving and the like, consisting of asphaltum, distilled coal-tar, residuum of petroleum, disintegrated paper or wood pulp and air slaked lime, substantially as specified.

490,668. ROOFING MATERIAL. GEORGE S. LEE, Hawthorne, N. J., assignor, by mesne assignments, to the East Coast Manufacturing Company of New Jersey. Filed Jan. 30, 1892. Serial No. 419,846. (No specimens.)



Claim.—A roofing material consisting of a sheet of textile material, a layer of asphaltum, a backing of burlap or the like, a layer of crush rock embedded in the asphaltum and leaving a barren marginal edge, and a non-adhesive material placed over said barren edge and adapted to be removed therefrom, substantially as herein described.

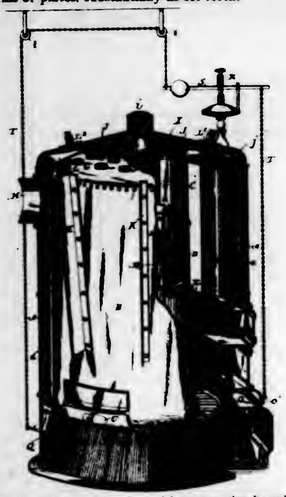
490,669. VERTICAL BOILER. HARRY H. LEIDENUTH, Harrisburg, Pa. Filed Apr. 26, 1892. Serial No. 430,583. (No model.)

Claim.—1. In a boiler, the combination of an inner and outer casing forming an annular heat jacket and heat dome between the crown sheets of said casings; of an interior water space inclosed within said inner casing, smoke flues passing through said water space from the fire box to said dome, and a movable heat regulating spider within said dome and occupying the entire space therein, substantially as set forth.

2. In a boiler, the combination of an inner and outer casing forming an annular heat jacket and heat dome between the crown sheets, an interior water space, smoke flues passing into said dome from the fire box, heat guiding plates arranged within said heat jacket, and a covered and radially armed oscillating heat regulating spider mounted within said dome and adapted to align with said plates, substantially as set forth.

3. In a boiler, the combination with an annular heat jacket and heat dome communicating with said jacket, a circumferential series of vertically arranged division or heat guiding plates within said jacket, and a covered or capped oscillating heat regulating spider mounted within said dome, to occupy the entire space therein and adapted to align with the upper ends of said vertical plates, substantially as set forth.

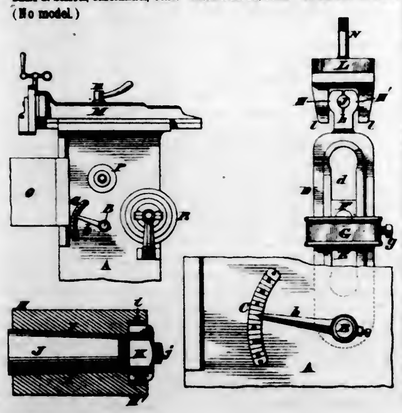
4. In a boiler, the combination with an annular heat jacket terminating in a heat dome, and smoke flues opening into said dome, of vertically arranged division heat guiding plates arranged within said jacket from said dome to a point short of the bottom of said jacket, and an oscillating heat regulating spider, having a series of radially extending arms or plates adapted to be aligned with the upper ends of said division plates, and a cover inclosing the top of said radially extending arms or plates, substantially as set forth.



5. In a boiler, the combination with an annular heat jacket terminating in a heat dome, smoke flues opening into said dome and an escape pipe leading from the jacket near its upper end; of vertically arranged division heat guiding plates located within said jacket, an oscillating heat regulating spider having a series of radially extending arms or plates adapted to be aligned with the upper ends of said division plates, a cover inclosing the top of said radially extending arms, and an arc door or gate projecting from one of the spider arms near its end and adapted to open and close the space between the upper ends of the division plates on each side of the escape pipe, and means for operating said spider, substantially as set forth.

6. In a boiler, the combination with an annular heat jacket, an inclosed water space, and a heat chamber projecting into the water space above the fire box, of a series of drop water tubes opening into the water space through the crown sheet of said heat chamber and depending within said chamber, and concentric circulating pipes arranged within said drop tubes, terminating short of the bottom ends thereof, and provided with a series of radially extending wings meeting the sides of the drop tubes and forming a series of circulating passages, substantially as set forth.

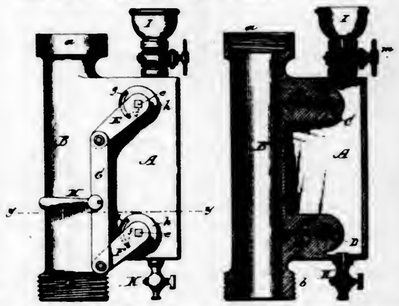
490,670. METAL-SHAPING MACHINE. JAMES MILLS and ALBERT S. SMITH, Cincinnati, Ohio. Filed Feb. 16, 1892. Serial No. 421,699. (No model.)



Claim.—1. The combination, in a metal-shaping machine, of a frame carrying a reciprocating-ram, a lever D coupled at its upper end to said ram, and provided with a longitudinal slot *d*, a block E traversing said slot, and operated by an adjustable crank-pin F, a rock-shaft B projecting rigidly from the lower part of said lever, and serving as its center of vibration, and a shiftable clamping-band G applied to said slotted-lever, said band being open on one side and having a screw *g* tapped in one end, all as herein described and for the purpose stated.

2. In a metal shaping machine the combination with a frame having a graduated scale on its outer face, a ram mounted to reciprocate therein, a lever D, coupled at its upper end to said ram and provided with a longitudinal slot *d*, a block E, traversing said slot and operated by an adjustable crank pin F, a rock shaft B projecting, rigidly from the lower part of said lever and serving as its center of vibration, one end of said rock shaft being provided with an index which plays over the scale on the frame, and a shiftable clamping band G, applied to said slotted lever, said band being open on one side and having a screw *g* tapped in one end, substantially as set forth.

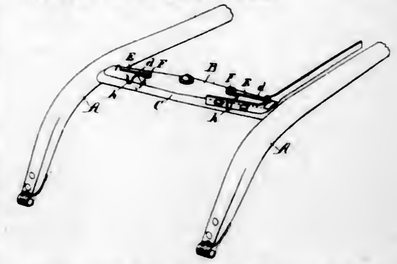
490,671. INCRUSTATION DEVICE. JOHN J. MONAHAN, Nashville, Tenn., assignor of one-half to Ebenezer Bradley, same place. Filed Mar. 8, 1892. Serial No. 424,238. (No model.)



Claim.—1. A device for feeding lubricant for preventing incrustation, consisting in a pipe-coupling casting provided with a chamber upon its side, passages communicating with the chamber and inside of the coupling controlled by the stop-cocks, and means for opening and closing said cocks, substantially as and for the purpose set forth.

2. A device for feeding lubricant for preventing incrustation, consisting in a pipe-coupling casting provided with a chamber upon its side, passages communicating with the chamber and inside of the coupling controlled by stop-cocks, a feed-cock on top and a drip cock on the bottom of the chamber, and means for operating the stop-cock, substantially as and for the purpose described.

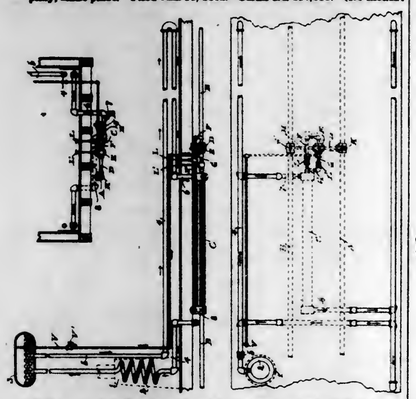
490,672. WHIFFLETREE-HOOK. JAMES MCCRUDDEN, Flint, Mich., assignor of one-half to Arthur R. Caldwell, same place. Filed Apr. 14, 1892. Serial No. 429,103. (No model.)



Claim.—A trace lock, consisting of a single strand of spring wire provided with an eye in the body portion thereof, one of the end portions of said strand extending directly from said eye and along the upper face of the singletree parallel therewith, its outer end being provided with an upwardly bent hook, the other end portion extending at right angle to its companion part and laterally from the singletree and having the downwardly bent hook at its end, the recessed confining cap that receives said eye, said cap having the depending

flange provided with an aperture therethrough through which said strands pass.

490,673. RAILWAY-CAR HEATING APPARATUS. JAMES F. MCELROY, Albany, N. Y., assignor to the Consolidated Car-Heating Company, same place. Filed Jan. 11, 1892. Serial No. 417,633. (No model.)



Claims.—1. A railway car heating system consisting of a steam supplying pipe connected with the locomotive, a return pipe conducting the water of condensation from the car to the locomotive, a drum provided with heating surface, connections between the drum and the steam supplying pipe and the return pipe, a water circulating system provided with a stove containing a circulating coil, piping about the car connected with said coil, an expansion chamber communicating with the coil and also with the piping about the car, the water of circulation passing through the drum provided with the heating surface, a pipe connecting the upper portion of the expansion chamber with the pipe connecting the drum containing the heating surface with the return pipe, substantially as described and for the purpose set forth.

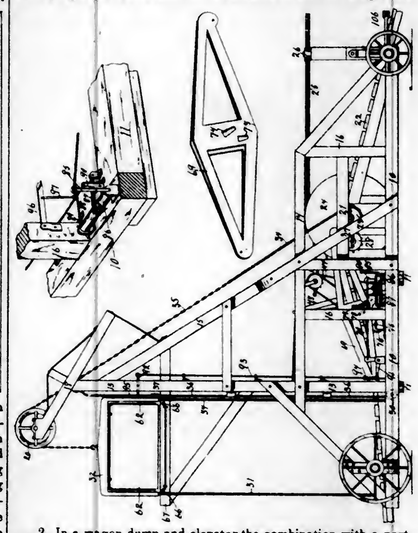
2. A system for heating railway cars consisting of a steam supplying pipe connected with the locomotive, a return pipe to carry the water of condensation back to the locomotive, a drum having a surface heated by means of the steam passing through the steam supplying pipe, which is connected with said drum, a water circulating system which is connected with said drum and which is provided with a stove containing a circulating coil, an expansion chamber connected with said coil and with piping in the car, the upper portion of said expansion chamber communicating with the return pipe, substantially as described and for the purpose set forth.

3. In a system for heating railway cars, the combination of a stove, a water circulating coil therein, an expansion chamber connected with said coil, piping within the car connected with said coil and also with said expansion chamber, a drum containing a heated surface connected with the piping in the car, a steam supplying pipe connected with said drum a return pipe connected with said drum, through which return pipe the water of condensation is pumped back to the locomotive, a pipe connecting the upper portion of the expansion chamber with the return pipe, substantially as described and for the purpose set forth.

4. In a car heating system, the combination with a system of water circulating pipes within the car, of a suitable radiator in contact with said circulating system, mechanism for supplying said radiator with steam as a primary means of heating said circulating system, mechanism for returning the water of condensation from the steam supplying system, with a pipe connecting the upper portion of the expansion chamber of said water circulating system with the mechanism for returning the water of condensation from the steam supplying system, substantially as described and for the purpose set forth.

490,674. WAGON DUMP AND ELEVATOR. CHARLEY A. NELSON, Des Moines, Iowa. Filed Mar. 21, 1892. Serial No. 426,542. (No model.)

Claims.—1. In a wagon dump and elevator, the combination of a portable frame and vertical guides thereon, sheaves mounted at the upper ends of said guides, chain belts run over said sheaves and fixed at one of their ends to a traveling frame which latter is adapted to be moved vertically along said guides, sprocket chains fixed at one of their ends to the remaining ends of the chain belts, the remaining ends of which sprocket chains are fixed to the lower portion of the said traveling frame, direction pulleys acting on said sprocket chains to guide the same, sprocket wheels acting on said sprocket chains, and rotating mechanism acted upon by a cable to operate said sprocket wheels, together with an elevator box mounted in said traveling frame.



2. In a wagon dump and elevator the combination with a portable frame, of a shaft located in the lower portion of said frame, sprocket wheels mounted on said shaft, a traveling frame suspended by chains engaging said sprocket wheels and supported by sheaves, an elevator box mounted in said traveling frame, hooks depending from said box and stops adapted to be engaged by said hooks to tilt said box, gates in said box and tripping mechanism automatically operated during the elevation of said box to open said gates, and a cable and drum for causing said chains to travel.

3. In a wagon dump and elevator, the combination with the portable frame and elevating mechanism of a dumping platform, comprising truss frames pivoted at one end to the portable frame, a platform pivoted at the center of its parallel sides to the truss frames, connections between said truss frames and the elevating mechanism for lifting the platform and manually operated rotating mechanism for tilting said platform.

4. In a wagon dump and elevator, the combination with a portable frame and elevating apparatus, of a dumping platform pivotally suspended within said portable frame, a main shaft of the elevating apparatus, a supplemental shaft having connection with said dumping platform, sprocket mechanism, between said shafts, and clutch mechanism on said supplemental shaft which is adapted to be automatically operated to cause the platform to be elevated by the movement of the elevating apparatus.

5. A wagon dump and elevator comprising a portable frame a dumping platform pivotally mounted on said frame, an elevator box suspended within said frame, and windlass mechanism for raising said box, rope and windlass mechanism for raising said platform, clutch mechanism interposed between the two said windlass mechanisms, tripping mechanism acted upon by the elevating mechanism to control the clutch mechanism and manually constructed rope and windlass mechanism for tilting the dumping platform.

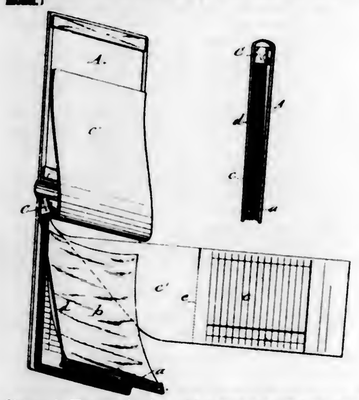
6. In a wagon dump and elevator the combination with a dumping platform pivotally mounted within a portable frame, of a shaft mounted below the central portion of said platform and extending transversely thereof, drums mounted on said shafts, ropes fixed to said drums and extending in opposite directions therefrom to points of attachment to opposite ends of said platform, and manually operated mechanism for rotating said shaft whereby said platform is tilted.

7. In a wagon dump and elevator the combination with a dumping platform of a wagon lock comprising hooked arms, adapted to embrace the rear axle of a wagon, pivotally mounted on said platform, rock shafts located beneath said platform and having connection with said hooked arms, a manually actuated lever connected to said rock shafts and means for locking said hooked arms in different positions.

8. In a wagon dump and elevator the combination with the elevator box and means for hoisting the same, of gates hinged to said box spring pressed hooks mounted on said box and normally engaging said gates, crank shafts journaled transversely of said box beneath and in engagement with said hooks, means for tilting said box and stops adapted to engage said crank shafts and release the said hooks from engagement with said gates.

9. In a wagon dump and elevator the combination with an elevator box, a support for said box and means for hoisting the same, of hooks depending from the end of said box and stationary stops on the elevator frame adapted to be engaged by the depending hook to tilt the said box as required to dump the contents thereof.

490,675. MANIFOLD MEMORANDUM-BOOK. WALTER W. O'HARA, Arlington, Mass., assignor to the Carter & Company, Limited, Niagara Falls, N. Y. Filed Feb. 23, 1892. Serial No. 422,358. (No model.)



Claims.—1. The combination, with a memorandum book having its leaves bound together at one end, of a rod attached at one end to said book at the fixed ends of the memorandum leaves and extending along only one side of the book, a clamp on the free end of said rod, and the carbon sheet attached to said clamp and lying with its free end normally adjacent to the fixed ends of the memorandum leaves whereby the uppermost copy-leaf may be drawn out laterally from under the carbon sheet and severed from the book, and a memorandum retained in the book as set forth.

2. A manifold memorandum book having its leaves arranged in sets of three each, the top and bottom leaves of each set having rows of perforations to facilitate the severing thereof from the book, the intermediate leaf being of tissue paper, and a sheet faced with carbon on both sides and inserted between the tissue paper and subjacent copy-leaf, substantially as described.

490,676. ADJUSTABLE DIE-STOCK. HERMAN W. OUTES, Cleveland, Ohio. Filed June 27, 1892. Serial No. 438,077. (No model.)



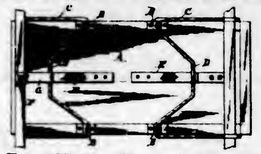
Claim.—1. In an adjustable die stock, the cam plate E, held in place by the collar F, and having a scale on said collar and plate, in combination with the pivoted clamp Q and set screw T, in the manner substantially as and for the purpose set forth.

2. In an adjustable die stock, the cam plate E, having an adjusting link attached by a suitable set screw to an outer annular flange thereof, in combination with a pivoted clamp and a set screw in the manner substantially as and for the purpose set forth.

3. In an adjustable die stock, the upper and under cam-plate, two clamps at opposite ends of a rod passing through a projection of the stock and a set-screw, said clamps overlapping said cam-plates, in combination with the pivoted clamp Q having a thumb-screw at the outer terminal thereof, said clamp Q being pivoted to the stock arm D' and projecting onto the upper cam-plate, in the manner substantially as and for the purpose set forth.

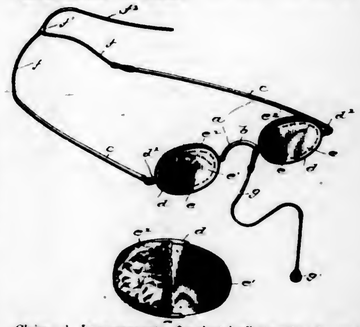
4. In an adjustable die stock, the combination of two cam plates, an adjusting link and set screw, an upper and under clamp connected by a rod with a set screw threaded thereto, and a pivoted clamp having a set screw in one end thereof substantially as described.

490,677. VEHICLE-SPRING. CORODEN R. PEARL, North Bangor, N. Y. Filed July 16, 1892. Serial No. 440,235. (No model.)



Claim.—The combination with a vehicle body and running gear, of a cranked-shaft, mounted in bearings upon the under side of the body and provided with arms whose extremities are fixed to the running gear, and the leaf spring, composed of two or more leaves, which leaves are secured together at one end and diverge toward their free ends, one of said free ends being secured to the body and the other being engaged by the crank of the said shaft, which slides freely upon the surface thereof, substantially as specified.

490,678. APPARATUS FOR ELECTRICALLY TREATING THE EYES. WILLIAM A. PRIOR, Iowa Falls, Iowa. Filed Sept. 24, 1892. Serial No. 446,756. (No model.)



Claim.—1. In an apparatus for electrically treating the eyes, the combination with a suitable source of electricity, of a conductor for conveying the current therefrom, eye electrodes connected to the end of said conductor and having a concaved or recessed engaging surface, whereby the electrical connection with the eyes is made more complete, and a second electrode or electrodes connected to the terminal of the first and adapted for use in connection with the nose, both of said electrodes being designed to deliver the current to the affected parts, which in turn serve as a conductor for conveying the current back to the generator, substantially as described.

2. An electrical device for treating the eyes which consists of a metallic frame provided with arms for holding it upon the head, in combination with electrodes formed of absorptive material secured to and in electrical contact with said frame and in such juxtaposition as to bear against the eyes of the patient, and insulated conductors leading to a generator, substantially as and for the purpose described.

490,679. APPARATUS FOR ELECTRICALLY TREATING THE EAR. WILLIAM A. PRIOR, Iowa Falls, Iowa. Filed Sept. 29, 1892. Serial No. 447,206. (No model.)

Claim.—1. The herein described electrical treating device, consisting of a conductive skeleton frame for treating the outer portions and drum and tympanum of the ear, substantially as described.

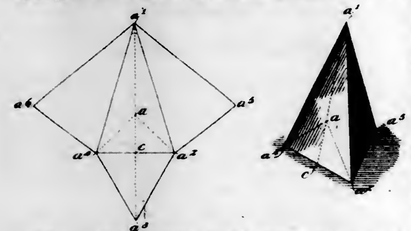
2. The herein described electrical treating device, consisting of a conductive skeleton frame, a conductive surface or face on the inner

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side of said frame and insulated therefrom, an arm or prong extending through the central portion of said frame and in electrical contact therewith, and an absorptive body on the end of and in electrical contact with said arm, substantially as and for the purpose described.

490,680. FOLDING HOLLOW BODY. ELLWOOD W. ROBERTS, Brooklyn, N. Y. Filed Feb. 5, 1892. Serial No. 420,419. (No model.)

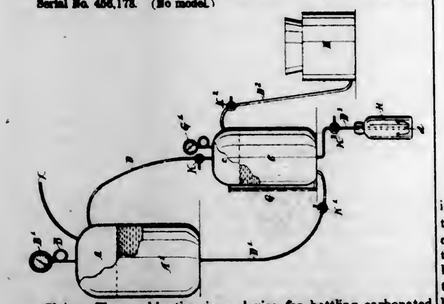


Claim.—1. As a new article of manufacture a sealed hollow body of any one of the forms described provided with a suitable air opening, having a governing fold on the perpendicular of any one side, continued, in the same vertical plane, through the abutting side or sides, and auxiliary folds in either of said sides, each running from the perpendicular or the continuation thereof, to the corners of the nearest abutting side, substantially as described, whereby the hollow body may be folded flat.

2. As a new article of manufacture—a sealed hollow body of any one of the shapes described provided with a suitable air opening composed of a single piece of material, cut substantially as described and put together in the manner indicated, having a governing fold on the perpendicular of any one side, continued in the same vertical plane, through the abutting side or sides, and auxiliary folds in either of said sides, each running from the perpendicular or the continuation thereof to the corners of the nearest abutting side, substantially as described whereby the hollow body may be folded flat.

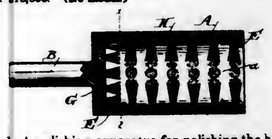
3. As a new article of manufacture a sealed hollow body of any one of the forms described, provided with a suitable air opening, having a governing fold on the perpendicular of any one side, continued in the same vertical plane through the abutting side or sides, and auxiliary folds in either of said sides each running from the perpendicular or the continuation thereof to the corners of the nearest abutting side, substantially as described, and provided with one or more openings in the side walls for the reception of articles, the whole being arranged to fold flat.

490,681. BOTTLING CARBONATED FLUIDS. HARRY ROBERTSON, Jersey City, N. J. Filed June 23, 1891. Renewed Dec. 23, 1892. Serial No. 456,178. (No model.)



Claim.—The combination in a device for bottling carbonated fluids of a main chamber adapted to be partially filled with fluid and gas, connected to an auxiliary chamber by two pipes, one of which controls the gas flow, and one the fluid flow, the auxiliary chamber having a fluid gage, and a gas pressure gage upon it, and a gas chamber connected to the auxiliary chamber by a pipe; the pipe connections between the different chambers being controlled by cocks, as and for the purpose herein described and set forth.

490,682. APPARATUS FOR POLISHING THE CAPS OF BOTTLES, &c. HERMANN ROEMER, Philadelphia, Pa. Filed Jan. 23, 1892. Serial No. 418,893. (No model.)



Claim.—1. A polishing apparatus for polishing the heads of bottles consisting of a rotary cylindrical head open at one end and having the other end closed and provided with a polishing medium on the interior of the closed end.

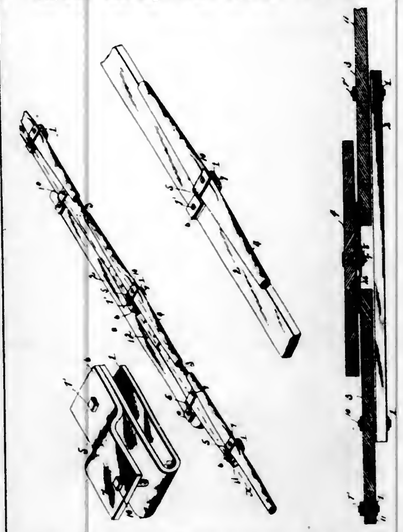
2. A polishing apparatus for polishing the heads of bottles consisting of a rotary cylindrical head, a removable piece inserted within the interior of the cylindrical head, and a polishing medium carried by said removable piece.

3. A polishing apparatus for polishing the heads of bottles consisting of a rotary cylindrical head open at one end and having the other end closed and provided with a polishing medium on the interior both about the sides and at the closed end.

4. The polishing head A having a recessed portion to receive the object to be treated in combination with a removable piece adapted to be inserted in said recessed portion, and a polishing medium carried by said removable piece.

5. The recessed polishing head A in combination with the removable end piece G and side piece H and the polishing brushes carried by said pieces G and H.

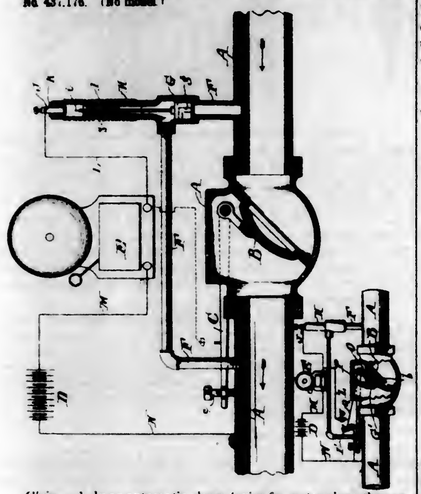
490,688. WHIFFLETREE-CLIP. ELDRIDGE H. SAWYERS, Unionville, Iowa. Filed Aug. 11, 1892. Serial No. 442,828. (No model.)



Claim.—1. In a device of the character set forth, a clip consisting of a lower U-shaped plate bent into form and extending the entire length of the device, and an upper brace having its rear end secured to the upper part of said plate by a bolt that extends therethrough and through the said plate and the front part of the same bent upward and having a bolt extending therethrough and through the front of the said plate, said brace and plate being separated and bent into proper form and the bolts forming pivots and means of attachment for the parts of the whiffletree, substantially as described.

2. In a device of the character set forth, the combination of singletrees having slotted plates secured to the inner ends thereof, said slotted plates having the slotted portions thereof overlapping each other between the inner ends of the said singletrees, and another singletree having the clip attached to the center thereof and embracing the said overlapped portions of the slotted plates and having a bolt passing therethrough and through the slots of said plates, substantially as described.

490,684. AUTOMATIC ALARM DEVICE. GEORGE W. SCHILLING and JOHN G. HARLAN, Philadelphia, Pa. Filed June 18, 1892. Serial No. 437,176. (No model.)



Claim.—1. In an automatic alarm device for water pipes, the combination of a normally closed pipe, an automatically movable part located in said pipe and operated by the pressure of the water, a second automatically movable piece movable independently of the first and at less pressure, an electric circuit, an alarm therein, a movable contact in the circuit, a connection between the movable contact and said second movable piece, whereby the latter may be operated independently of the main movable part to move the contact and complete the electrical circuit through the alarm, a second movable contact in the circuit and connections between the second movable contact and the main movable piece.

2. In an automatic alarm device for pipes, the combination of a main pipe, a main movable part located therein and operated automatically by the pressure in the pipe, an auxiliary movable piece independent of the first and operated automatically at lower pressure than the first, and alarm mechanism operated by said main movable piece and auxiliary movable piece respectively.

3. In an automatic alarm device for pipes, the combination of a main pipe, a main movable part located therein and operated automatically by the pressure in the pipe, a branch pipe leading around the main movable part, an auxiliary movable piece independent of the first located in the branch pipe and operated automatically at lower pressure than the first, and alarm mechanism operated by said main movable piece and auxiliary movable piece respectively.

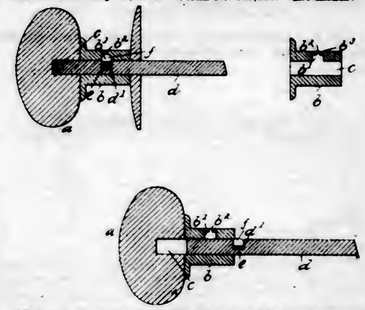
4. In an automatic alarm device for pipes, the combination of a main pipe, a main movable part located therein and operated automatically by the pressure in the pipe, the main pipe having a communicating passageway from one side of the main movable part to the other, a second automatically movable piece closing said passageway, and operating at a lower pressure than the main movable part, an alarm, and connections respectively between said main movable piece and the second movable piece and the alarm.

5. The combination of the battery D, the alarm E electrically connected therewith, the pipe A, the main movable part B in the pipe, the branch pipe F about the part B, the movable piece G in the branch pipe F, the contact piece I carried by the piece G, the contact piece J and electrical connections between the battery D and the piece G, and the contact J and alarm E.

6. The combination of a battery, an alarm electrically connected therewith, a main pipe, a main movable part therein, a branch pipe around the main movable part, a movable piece in the branch pipe, an extension of the branch pipe, a contact piece carried by the movable piece in the branch pipe and arranged within the extension thereof, an electrical connection between the movable piece in the branch pipe and the battery, a second contact piece carried by the extension of the branch pipe, and an electrical connection between the second contact piece and the alarm.

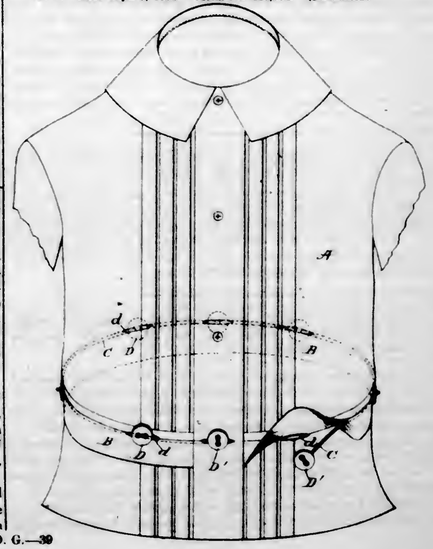
7. The combination of a battery, an alarm electrically connected therewith, a main pipe, a main movable part therein, a branch pipe around the main movable part, a movable piece in the branch pipe, a hollow extension of the branch pipe, a contact piece carried by the movable piece in the branch pipe and arranged within the extension thereof, an electrical connection between the movable piece in the branch pipe and the battery, a second contact piece carried by the extension of the branch pipe and insulating air tight plug in the extension of the branch pipe carrying the second contact piece, and an electrical connection between the second contact piece and the alarm.

490,685. KNOB ATTACHMENT. WILLIAM SCHILLING, Hartford, Conn. Filed July 11, 1892. Serial No. 439,616. (No model.)



Claim.—In combination with a knob and its appurtenant shank, a spindle socket located within the shank, and the concealed spindle locking means consisting of a recess located within the wall of the socket in the shank and with a smaller opening extending from this recess to the outside of the shank, a spindle fitting the socket in the shank and provided on one side with a recess adapted to register with the recess in the wall of the shank, and a spring seated pin located in the recess in the side of the spindle, all substantially as described.

490,686. WAIST OR BLOUSE. CAROLINE A. SCRIVEN, New York, N. Y. Filed Sept. 5, 1892. Serial No. 445,064. (No model.)

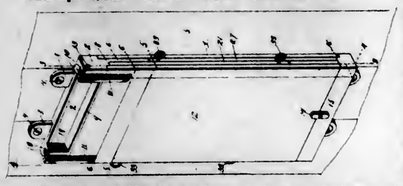


Claim.—1. A waist body A having a series of perforations combined with the cord C and the sliding buttons D thereon, the perforations in the waist body for each button being of such an extent in the direction of the cord, that the portion of the cord on the outer side of the body A and upon which the buttons slide in the direction of the length of the cord is longer than the diameter of the button, substantially as specified.

2. The combination of the perforated waist-body A, cord C, buttons D' attached to the ends of said cord and buttons D, said buttons D being removable together with and adjustably carried by said cord C, substantially as described.

3. The blouse or waist A having a row of apertures combined with the removable cord C carrying longitudinally sliding buttons D and means substantially as described for removably securing the ends of said cord, all arranged so that part of the cord will lie on one side and part with the longitudinally sliding buttons on the other side of said blouse or waist, the sliding buttons being owing to the extent of the apertures adjustable as to spacing after all parts have been assembled and removable together with the cord, substatially as herein shown and described.

490,687. LABEL-HOLDER. JOHN S. SMITH, Leavenworth, Kans. Filed Apr. 21, 1892. Serial No. 430,009. (No model.)



Claim.—1. A holder for freight car cards, &c., comprising a suitable framework, a cover or face hinged to said framework and pendent therefrom, a route card mounted upon said framework immediately beneath the cover or face plate, and a number of pivotal inscription carrying plates mounted in said framework to the rear of the route card, and movable laterally outward from said framework, to display the inscription, and a number of suitably arranged holes provided in said inscription carrying-plates and removable retaining pins adapted to engage one or the other of the holes in the inscription carrying plates, to support said plates in their open or closed position, substantially as described.

2. A holder for freight-car cards, &c., comprising a frame-work of approximately oblong rectangular form having a top-piece and a bottom-piece, a pendent flange carried by the top-piece, a vertical and upwardly extending flange carried by the bottom-piece, a cover hinged to the top-piece, a vertical rib mounted upon the front of the back portion of the frame-work, a number of inscription carrying plates pivoted in the frame and movable outwardly therefrom, at opposite sides of the frame, and having projections on their outer margins a plate for carrying a route-card secured to the frame-work directly beneath the cover, and an opening for the escape of foreign substances formed through the bottom-piece of the holder, substantially as set forth.

490,688. INSECTICIDE. DARWIN SMITH, Des Moines, Iowa. Filed Nov. 17, 1892. Serial No. 452,941. (No specimens.)

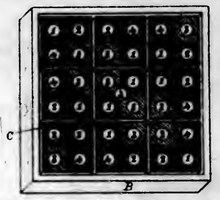
Claim.—1. The hereinbefore described composition of matter consisting of borax and colocynth in the quantities and proportions specified, thoroughly mixed together; all substantially as described.

2. The hereinbefore described composition of matter consisting of borax, colocynth and yellow ocher, all thoroughly mixed in the proportions specified; all substantially as shown.

490,689. PUZZLE. EDWIN L. THURSTON, Cleveland, Ohio, assignor to Leonard Watson, Denver, Colo. Filed Sept. 30, 1890. Serial No. 366,617. (No model.)

Claim.—1. A puzzle composed of eight square tablets, each of which is divided into four substantially equal sections, combined with four symbols disposed upon the several tablets in the following manner, to wit: each section contains a symbol and the same symbol does not appear twice on the same tablet the arrangement of symbols being different on every tablet,—said tablets being adapted to be placed in contact and form a square outline figure, when only those sections on contiguous tablets are in contact which contain the same symbol.

2. A puzzle composed of eight tablets, each in the form of a parallelogram and divided into four sections, combined with four symbols which are disposed in the sections on said tablets in the following manner, to wit, each tablet bears the four symbols, one in each section thereof,—the arrangement of said symbols being different on every tablet, said tablets being adapted to be placed in contact and form an outline figure, similar in form to the tablets composing it, when only those sections of contiguous tablets are in contact which contain the same symbol.



3. A puzzle composed of eight tablets in the form of parallelograms, which are each divided into four sections, each section containing a symbol,—said symbols being arranged upon the tablets in the following manner, to wit, the same symbol does not appear twice on the same tablets the arrangement of symbols being different on every tablet, and all the tablets are adapted to be placed in contact forming an outline figure, similar in shape to the separate tablets, with only those sections on adjacent tablets in contact which contain the same symbols, each tablet bearing a distinguishing mark in some uniform position, combined with a box adapted to hold said tablets when arranged as above specified.

4. A puzzle composed of eight tablets, each in the form of a parallelogram and divided into four sections, each section on the separate tablets being colored one of the four colors selected, the same color not appearing twice on any single tablet, the arrangement of colors being different on every tablet—said tablets being adapted to be arranged in contact when only those sections of adjacent tablets touch which are similarly colored.

490,690. RAILWAY-YOKE. MORRIS S. TOWSON, Cleveland, Ohio, assignor to the Love Electric Traction Company, Chicago, Ill. Filed Oct. 10, 1892. Serial No. 448,385. (No model.)



Claim.—1. The combination with a rail having a depending flange, of a yoke provided with a projection J to receive said rail, and a bolt passing horizontally through said rail and into the projection J, substantially as described.

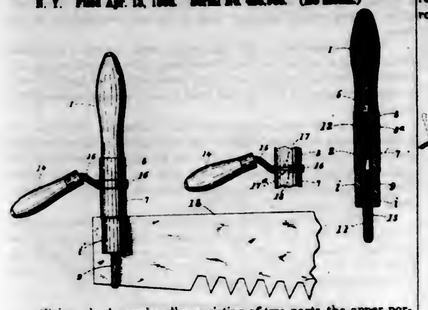
2. The combination with a rail I having a depending flange and with a yoke provided with a projection J, having a recess *j* and hole *j'*, of a nut set in said recess and a bolt passing through said flange and into the nut, substantially as described.

3. A railway yoke provided with a projection forming a seat for a slot rail, a hole to receive the threaded end of the securing bolt, a box for receiving and protecting the head, and a cap closing the top of the box, substantially as described.

4. A yoke for an electric railway, provided with a projection to receive a slot rail, a substantially horizontal surface forming a seat for the tram rail, perforations constructed to receive securing bolts substantially at right angles to each other, and inclined surfaces beneath the seat to receive the pressure of the bolt nuts, substantially as described.

5. An electric railway yoke provided with projections to receive the slot rail, and seats for the tram rails; each seat comprising a hollow box E having a substantially horizontal surface forming a seat for the rail, and two inclined surfaces beneath said seat, said box being perforated to receive bolts substantially at right angles to each other, substantially as described and shown.

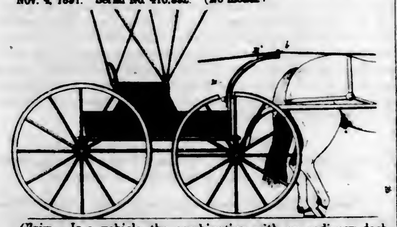
490,691. CROSSCUT-SAW HANDLE. MOSES E. TEED, Batavia, N. Y. Filed Apr. 13, 1892. Serial No. 428,968. (No model.)



Claim.—1. A saw handle consisting of two parts, the upper portion having a screw nut secured within its connecting end and the lower portion provided with a clamping rod for holding the saw, having at its upper end a screw shank adapted to screw into the nut for drawing the saw and handle portions together, in combination with an auxiliary handle having at the end of the shank projecting therefrom a ring portion provided with depressions into which the end portions of the handle fit when secured rigidly together, substantially as described.

2. A cross-cut saw handle, consisting of an upper handle portion provided with a ferrule having a screw nut connected by arms with the ferrule so as to be in one piece with it longitudinal and cross openings in the end of the handle adapted to receive the ferrule, its connecting arms and nut, in combination with a slotted longitudinal clamping rod a lower handle portion provided with a ferrule at its upper end having notches to receive the top of the saw blade and a split portion below the ferrule extending down over each side of and clamping closely to the slotted longitudinal clamping rod and a screw on the clamping rod adapted to screw into the nut in the upper handle, whereby the saw is rigidly drawn in place and the clamping rod is firmly secured between the split portions of the lower portion of the handle, substantially as described.

490,692. DASHBOARD. FRANK R. TURRISSIN, Quincy, Ill. Filed Nov. 4, 1891. Serial No. 410,892. (No model.)



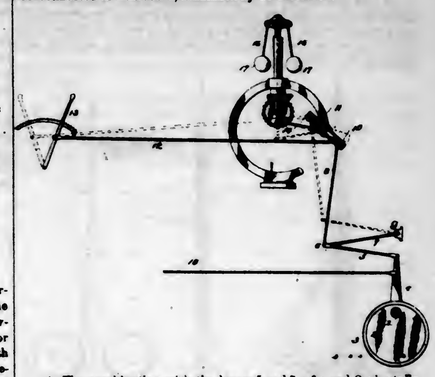
Claim.—In a vehicle, the combination with an ordinary dashboard, of the herein described supplementary board, forming a guard or screen, said supplementary board being of curved segmental form, resting on the upper edge of the ordinary board, and projecting upwardly and forwardly thereof, and rods or strips on said supplementary board held in clamps or sockets on the ordinary board, substantially as specified.

490,693. VALVE-GEAR. FRANKIN M. WALKER, Newark, Ohio, assignor of one-half to James H. Smith, same place. Filed May 14, 1892. Serial No. 433,009. (No model.)

Claim.—1. The combination with levers 5 and 7, of a rod 8 pivotally connected with both levers arranged to be operated by the movement of a governor, and a bar 4 having a reciprocating and vibrating motion connected to said lever 5, and a valve rod connected with said bar 4, substantially as described.

2. The combination with the levers 5 and 7, of a rod 8, connected with both and operated by a governor, and a bar 4 connected with an eccentric strap 3 mounted upon a revolving eccentric 2, and a valve rod connected with said bar, substantially as described.

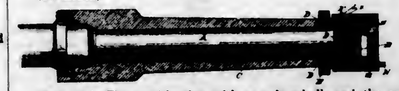
3. The combination with levers 5 and 7, of a rod 8 pivotally connected at one end with both, a lever 11 connected to the opposite end, having an arm 14 connected to a rod 15 operated by the governor, a reciprocating vibrating rod 4 connected to the lever 5, and a valve rod connected to said rod 4, substantially as described.



4. The combination with the levers 5 and 7, of a rod 8, pivotally connected at one end with both, a slide 10 connected to its opposite end, a slotted lever 11 in which said slide moves having an arm 14 connected to the governor rod 15, means for moving said slide from one end of the lever 11 to the other, a reciprocating vibrating rod 4, connected to the lever 5 and a valve rod connected to said rod 4, substantially as described.

5. The combination with the revolving eccentric 2, strap 3, rod 4, levers 5 and 7 and rod 8, of the slotted lever 11 having slide 10 working therein, and an arm 14, the rod 15 connected to the arm 14 and operated by the governor, the rod 12, and the lever 13, all substantially as described.

490,694. AXLE-NUT. WILLIAM A. WARNER, Bethel, assignor to Daniel Warner, Bronson, Mich. Filed Apr. 15, 1892. Serial No. 429,237. (No model.)



Claim.—1. The combination with an axle spindle and the axle box, of a sectional axle nut comprising a cap nut having an exteriorly threaded bore engaging the spindle and a deep circular groove surrounding the bore, a take up collar having an end flange or shoulder overlapping the axle box end and a thimble sliding in said circular groove, and means for adjusting said thimble in said groove, substantially as set forth.

2. The combination with an axle spindle and the axle box; of a sectional axle nut comprising a cap nut having an interiorly threaded bore engaging the spindle end, a deep circular groove surrounding the bore, a threaded perforation in one face and a threaded perforation in the outer end thereof and opening into said circular groove, a shouldered take-up collar overlapping the axle box end and having a thimble sliding in said circular groove and provided with a notch, a binding screw working in the perforation in the face of said nut and adapted to impinge upon said thimble, and an adjusting screw working in said end perforation into said circular groove and engaging said notch, substantially as set forth.

490,695. CASH-CARRIER APPARATUS. HENRY M. WEAVER, Mansfield, Ohio. Filed May 19, 1892. Serial No. 433,636. (No model.)

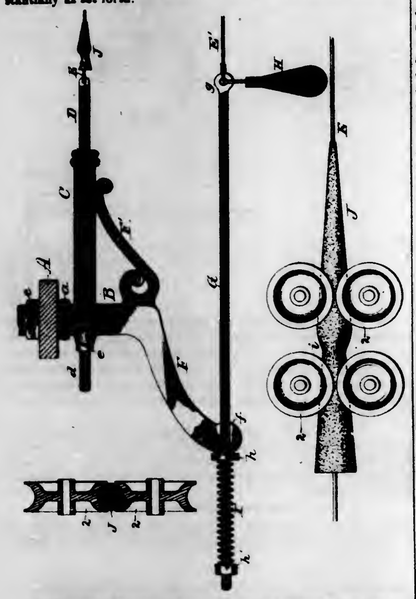
Claim.—1. The combination with a supporting bracket provided with a tapering opening, of a rod passing through this opening and capable of vibrating therein, its center of vibration being approximately at the smaller end of the opening, and a propelling wire connected with the rod, substantially as set forth.

2. The combination with a supporting bracket, and a track wire attached thereto, of an arm projecting from the bracket, said arm having a conical opening therein, a rod passed through the opening, a spring connected with the rod for forcing it in one direction, and a wire attached to the rod, substantially as set forth.

3. The combination with a bracket or hanger having an arm projecting therefrom, said arm having a transverse opening therein, of a rod passing through said opening, a spring on the rod in rear of said

arm, and a propelling wire attached to said rod, substantially as set forth.

4. The combination with a bracket or hanger having an arm projecting therefrom, said arm having a transverse tapering opening, of a rod passing through said opening, a spring on said rod in rear of the bracket or hanger, and a propelling wire secured to said rod, substantially as set forth.



5. The combination with a bracket or hanger having an arm projecting therefrom, said arm having a transverse tapering opening, a rod passing through said opening, a disk on said rod behind the arm of the bracket or hanger, an adjustable nut on one end of said rod, a spring encircling the rod between said disk and nut, and a propelling wire secured to said rod and a knob connected to the free end of said arm, substantially as set forth.

6. The combination with a track wire having a yielding stop thereon, said stop formed with two enlargements and a restricted portion between them, of a carrier having wheels thereon opposite each other and adapted to engage the stop on opposite sides, substantially as set forth.

7. The combination with a track, of a stop of elastic material formed with two ridges with a restricted portion between them, substantially as set forth.

8. The combination with a track wire, of a stop composed of yielding material and made in the form of a series of yielding cones connected by narrow necks, substantially as set forth.

9. A stop for cash carriers composed of a number of consecutive conical bodies made of elastic material and pointing in the same direction whereby the butt or large end of one is adjacent to the point or small end of the next one, substantially as set forth.

10. The combination with a track-wire and car thereon, of a stop on the wire composed of a number of consecutive conical bodies made of elastic material and pointing in the same direction whereby the small or point end of one is adjacent to the next one, and a neck tapering in the opposite direction from the cones and connecting adjacent ends of the cones, substantially as set forth.

11. In a cash carrier apparatus, the combination with the car, of a clamp constructed and arranged to carry letters, papers &c, said clamp provided with an upturned projection at its free end to prevent the letters, papers &c. from sliding from its grasp, substantially as set forth.

12. In a cash carrier apparatus the combination with a car, of a spring actuated clamp pivoted at the lower end of the car and provided with an upwardly extended projection at one end and an arm at the other end between which letters, papers, &c, are adapted to be held, substantially as set forth.

13. In a cash carrier apparatus, the combination with the car, of a pivoted lever, a rod pivotally connected to one arm thereof, and a spring encircling said rod and adapted to maintain the lever normally pressed toward the base plate of the car, substantially as set forth.

14. The combination with the car of a cash carrier, of a pivoted lever having a loop at one end thereof and a broadened portion between its ends an upwardly extending projection at its free end, and a spring for normally forcing said lever toward the car, substantially as set forth.

15. In a cash carrier apparatus, the combination with a car, of a lever pivoted at one end thereof and adapted to embrace the other end, a lug projecting from the car, a rod pivotally connected to one arm of said lever and passing through said lug, and a spring encircling said rod and adapted to maintain said lever normally pressed toward the car, substantially as set forth.

16. The combination with a car having a longitudinally grooved or concaved lower face, of a spring actuated lever hinged to the car and lying normally opposite the grooved or concaved portion of the lower face and adapted to hold letters, papers &c, between it and the lower face of the car, substantially as set forth.

490,696. SAWING-MACHINE. JAMES A. WELLS, Liberty, assignor of one-half to John H. Rump, Quincy, Ill. Filed Dec. 24, 1891. Serial No. 416,087. (No model.)



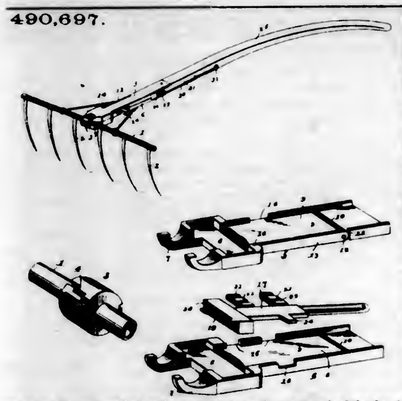
Claim.—The combination with a steam engine and boiler, of horizontal bars secured to and projecting outwardly from the front end of the smoke box and the boiler and arranged parallel, a flat plate connected to the under portion of one of the said bars and projecting at right angles therefrom in a horizontal plane, a saw-mandrel mounted on said bars having a saw on one end thereof relatively positioned to said plate and a small pulley on the opposite end of the same, and divergent braces having their inner converging ends secured to the under part of the front of the boiler and their outer ends attached to the opposite horizontal bars at the under side of the latter, substantially as described.

490,697. HAY-RAKE. BENJAMIN F. WISNER, South English, Iowa. Filed May 9, 1892. Serial No. 432,289. (No model.)

Claim.—1. In a rake, the combination with the cylindrical head provided at its center with an annular boss having its periphery provided with wards, of a handle, opposite metal sections clamped to the handle and having their inner faces recessed and terminating at their front ends in bearing-eyes for receiving the heads at opposite sides of the boss, the reciprocating latch mounted in the recess and narrower than the same, a spring for pressing the same forwardly, a head at the front end of the latch having a transverse series of teeth arranged in a diagonal line, means for adjusting the latch laterally, and means for withdrawing the teeth of the same from engagement with the wards, substantially as specified.

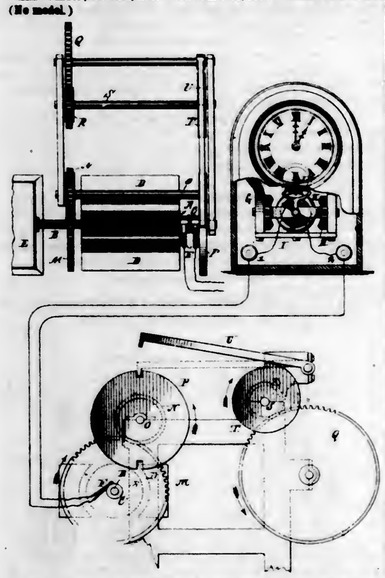
2. In a rake, the combination with the rake-head, provided at its center with a cylindrical boss having a pair of series of wards, the wards of each series being arranged one in advance of the other, of a handle, opposite metal sections embracing the handle, said sections having their outer ends provided with hooks combining to form bearing-eyes for receiving the rake-bar at opposite sides of the boss, and said sections having their opposing faces recessed, a latch narrower than the recess mounted therein and adapted for reciprocation, said latch being provided at one side with a pair of lugs projecting through the section and having transverse recesses or kerfs and at its opposite side with a manipulating lug, a head at the front end of the latch having a diagonal series of teeth corresponding with and adapted to engage the wards, a washer perforated to receive the rear end of the latch and mounted for movement in transverse grooves formed in the

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opposing faces, a coiled spring mounted on the rear end of the latch between a shoulder formed thereon and the washer, a lever pivoted in the handle, connections between the lever at its inner end and the rear end of the latch, a pull connected to the outer end of the lever and terminating near the rear end of the handle, and a locking-lever pivoted on one of the sections and adapted to engage the notches of the lugs, substantially as described.

490,698. ELECTRICAL TIME-INDICATING APPARATUS. EDWARD WESTON, Newark, N. J. Filed June 16, 1891. Serial No. 396,435. (No model.)



Claim.—1. Two loop conductors connected in circuit and movable in fields of force, and in combination with one of said conductors, a means of operating the same and thereby causing a series of electric impulses to traverse the second conductor at predetermined intervals, and in combination with said second conductor, an indicating device for showing the movement thereof.

2. Two loop conductors connected in circuit, and pivoted in fields of force, and in combination with one of said conductors a means of vibrating, oscillating or rotating the same at predetermined intervals and thereby causing a series of electric impulses to traverse the second conductor, and a time indicating device controlled by the movement of said second conductor.

3. Two loop conductors connected in circuit and pivoted in fields of force, and in combination with one of said conductors and actuating the same a motor and a means of arresting the movement of said motor at predetermined intervals, and in combination with the other conductor and controlled by the movement thereof, a time indicating mechanism.

4. Two loop conductors connected in circuit and pivoted in fields of force, and in combination with one of said conductors and actuating the same a motor and a means of arresting the movement of said conductor at predetermined intervals, and in combination with the other conductor and controlled by the movement thereof a time indicating mechanism.

5. The combination of a dynamo electric machine, a means of actuating the same at predetermined intervals, a loop conductor vibrating or oscillating in the field of force and in circuit with said dynamo, and a time train controlled by said loop conductor.

6. The combination of a dynamo electric machine, a means of actuating the same at predetermined intervals, a loop conductor vibrating or oscillating in the field of force and in circuit with said dynamo, and a time train controlled by the said loop conductor.

7. The combination of an alternating current dynamo electric machine, a means of actuating or arresting the same at predetermined intervals, a loop conductor vibrating or oscillating in the field of force and in circuit with said dynamo, and a time train controlled by said loop conductor.

8. Transmitting time electrically by causing a loop conductor moving in a field of force to produce electric impulses of definite duration and frequency in a circuit including a second coil located in a field of force at a distant station and thereby, through the movement of said coil, controlling at said station a time indicating mechanism.

9. Transmitting time electrically by intermittently actuating at definite chronometric intervals a loop conductor in a field of force, and thus causing electric impulses of definite duration and frequency to be produced in a circuit including a second coil located in a field of force at a distant station and thereby through the movement of said coil controlling at said station a time indicating mechanism.

10. Transmitting time electrically by intermittently at definite chronometric intervals arresting the movement of a loop conductor moving in a field of force and thus causing electric impulses of definite duration and frequency to be produced in a circuit including a second coil located in the field of force at a distant station, and thereby, through the movement of said coil, controlling at said station a time indicating mechanism.

11. A coil rotary in a field of force, a motor actuating said coil, a stop or catch on the coil axis, a dog or latch engaging with said stop, a chronometric mechanism controlling said dog, and in circuit with said coil a second coil movable in a field of force, and an indicating device for showing the movement of said second coil; the said dog being controlled by said chronometric mechanism to engage with said stop and so to arrest the movement of said coil at definite time intervals, thereby interrupting the generation of the current in a circuit and producing a series of electric impulses which actuate said second coil and cause said intervals to be shown by said indicating device.

12. The combination of a dynamo, a motor driving the same, a notched wheel or disk on the armature shaft of the dynamo, a dog engaging with said notched disk, a chronometric mechanism controlling said dog to cause said engagement at definite time intervals, and in circuit with said dynamo a coil rotatory, vibrating or oscillating in a field of force, and a time train controlled by the movement of said coil.

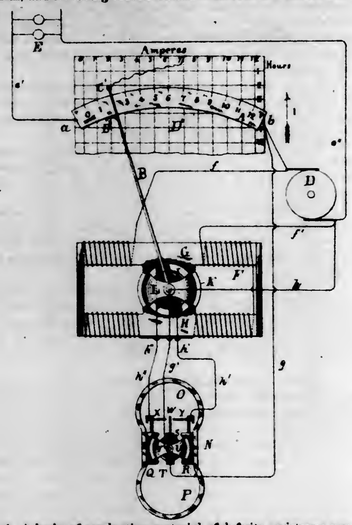
490,699. RECORDING-AMMETER. EDWARD WESTON, Newark, N. J. Filed Mar. 18, 1892. Serial No. 425,431. (No model.)

Claim.—1. A coil in electrical circuit supported and vibrating in a field of force, an arm actuated by said coil, a tracing device controlled by said arm, a moving record surface upon which said tracing device marks, a means for controlling the direction of the current in and consequent direction of vibration of said coil in accordance with the rise and fall of current strength in said circuit.

2. A body of conducting material of known resistance per unit length connected in direct circuit and in shunt circuit, an arm moving in contact therewith, and a motor mechanism actuated by the current on said circuit and actuating said arm; the said parts being constructed and arranged that upon a change in current strength on the direct circuit the corresponding change in electrical pressure on the shunt circuit shall determine the operation of said motor mechanism and the movement thereby of said arm along said body to a position whereat a definite potential difference on the shunt circuit is re-established.

3. A body of conducting material of known resistance per unit length connected in direct circuit and in shunt circuit, an arm moving

in contact therewith, and a motor mechanism actuated by the current on said circuit and actuating said arm; (the said parts being constructed and arranged that upon a change in current strength on the direct circuit the corresponding change in electrical pressure on the shunt circuit shall determine the operation of said motor mechanism and the movement thereby of said arm along said body to a position whereat a definite potential difference on the shunt circuit is re-established), in combination with a tracing device controlled by said arm, and a moving record surface whereon said device marks.



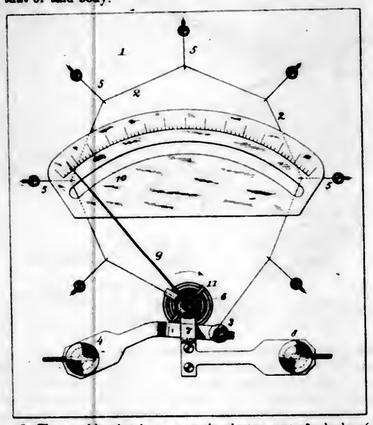
4. A body of conducting material of definite resistance per unit length in direct circuit and in shunt circuit, a coil supported and vibrating in a field of force, an arm actuated by said coil to move in contact with said body, and means for controlling the direction of the current in and consequent direction of the vibration of said coil in accordance with variation in electric pressure on said circuits; the said parts being constructed and arranged that upon a change in current strength on the direct circuit the corresponding change in electrical pressure on the shunt circuit shall determine the operation of said motor mechanism and the movement thereby of said arm along said body to a position whereat a definite potential difference on the shunt circuit is re-established.

5. The combination in an electrical measuring instrument of the elongated conducting body A in direct circuit, and in shunt circuit said body A, an arm B, moving in contact with said body, a pivot shaft supporting said arm, two coils J and J' wound in reverse directions and supported on said shaft and arranged in a field of force, a coil, T, carrying a contact arm, W, and supporting and vibrating in a second field of force, contact stops, X and Y, arranged on opposite sides and in the path of said arm W, and circuit connections, substantially as described; the aforesaid parts being constructed and arranged that upon a change of current strength on the direct circuit, the corresponding change in pressure on the shunt circuit shall determine the vibration of the coil T and the movement of the arm W into contact with one or the other stop, X or Y, whereby current is diverted to one or the other coil, J or J', and the arm B thereby moved along said body A to a position whereat a given potential difference in the shunt circuit is re-established.

490,700. ELECTRICAL MEASURING-INSTRUMENT. EDWARD WESTON, Newark, N. J. Filed Mar. 29, 1892. Serial No. 426,882. (No model.)

Claim.—1. The combination in a measuring instrument of a body of material variable in dimension under temperature changes, a means of indicating extent of such variation, and a support for said body constructed of material different from, but having the same coefficient of expansion as, said body.

2. The combination in a measuring instrument of a body of material variable in dimension under temperature changes, a means of indicating extent of such variation, and a support for said body constructed of two or more substances combined to produce a homogeneous compound substance having a coefficient of expansion the same as that of said body.



3. The combination in a measuring instrument of a body of material variable in dimension under temperature changes, a means of indicating extent of such variation, and a support for said body constructed of two or more metals selected and combined to produce an alloy having a coefficient of expansion the same as that of said body.

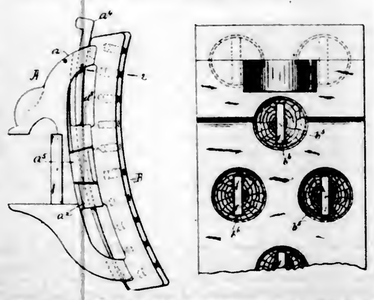
4. The combination in a measuring instrument of a wire or filament of metal, an index controlled by the elongation and contraction of said wire, and a support for said wire constructed of an alloy having the same coefficient of expansion as said wire.

5. In an electrical measuring instrument containing an expansible wire or filament in circuit and an index controlled by the expansion of said wire, a support for said wire constructed of an alloy having the same coefficient of expansion as said wire.

6. In an electrical measuring instrument containing a wire or filament of a palladium, platinum and silver alloy in circuit and an index controlled by the expansion of said wire, a support for said wire constructed of an alloy of copper and nickel combined substantially and in proportion as specified.

7. In an electrical measuring instrument, a fine wire or filament in loop form, a means of indicating the extent of elongation of said wire due to temperature changes acting thereon, a series of arms supporting said loop, and a support for said arms constructed of a material having the same coefficient of expansion as said wire.

490,701. BRAKE-SHOE. WILLIAM W. WHITCOMB, Boston, Mass. Filed Nov. 22, 1892. Serial No. 452,800. (No model.)



Claim.—1. A composite brake-shoe, consisting of a metallic portion having one or more sockets or holes, non-metallic portions inserted into said holes or sockets, and a locking device or key to firmly secure the said non-metallic portion in its socket, substantially as described.

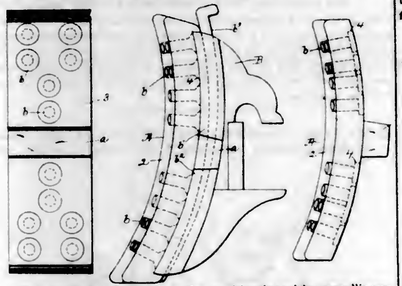
2. A composite brake-shoe, consisting of a metallic portion having one or more sockets or holes, non-metallic portions inserted into said holes or sockets, and a locking device or key embedded in the said non-metallic portion to firmly secure the same to the metallic portion, substantially as described.

3. The hereindescribed composite brake shoe, consisting of a metallic portion having a solid rear portion and provided with one or more sockets or holes extended from the front face of the shoe toward the solid rear portion, non-metallic plugs inserted into said holes or sockets, and a key or device to lock the said plug in its socket, substantially as described.

4. The hereindescribed composite brake-shoe, consisting of a metallic portion having one or more sockets enlarged at their rear ends, non-metallic plugs inserted therein and a key or locking device to distend the rear end of the non-metallic plug into the enlargement of the socket or hole, substantially as described.

5. A composite brake-shoe consisting of a metallic portion having one or more holes or sockets, one or more plugs of a softer material inserted into said sockets, and a locking device or key to firmly secure the plug in its socket, substantially as described.

490,702. BRAKE-SHOE. WILLIAM W. WHITCOMB, Boston, Mass. Filed Dec. 3, 1892. Serial No. 453,933. (No model.)

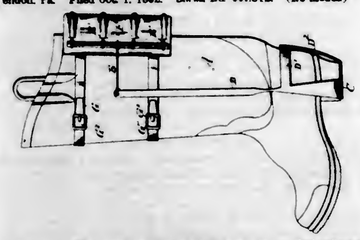


Claim.—1. In a brake-shoe, the combination with a metallic portion having a plurality of holes or sockets extended through the shoe and enlarged at their rear end, of a plurality of plugs inserted into the said holes or sockets and enlarged at their rear end, substantially as described.

2. The combination with a brake-shoe consisting of a metallic portion provided with a plurality of holes or sockets extended through the shoe and enlarged at their rear end, and a plurality of plugs inserted into the said holes from the rear of the shoe and enlarged at their rear ends, and a cover for said plugs secured to the rear side of the shoe, substantially as described.

3. The combination with a brake-shoe consisting of a metallic portion provided with one or more holes or sockets extended through the shoe, of a plurality of plugs inserted into said holes or sockets, the said holes or sockets and plugs being constructed to prevent forward displacement of the plugs, and a cover for the back or rear face of the shoe to prevent rearward displacement of the plugs, substantially as described.

490,703. VENTILATED BOOT. DAVID B WHITEHILL, North Clarendon, Pa. Filed Oct. 1, 1892. Serial No. 447,512. (No model.)



Claim.—1. The combination with a boot leg and the foot portion thereof, of a bellows attached to the leg portion, a tube leading from said bellows to the foot portion of the boot and arms connected to said bellows and boot substantially as described so that air will be positively forced to the foot portion of the boot when the latter is in use, substantially as set forth.

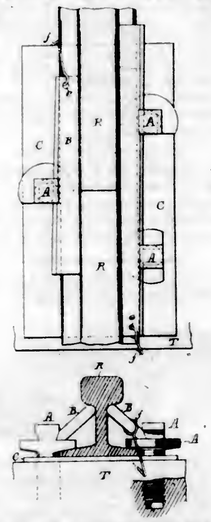
2. The combination with a boot, and a supplemental insole having perforations, said supplemental insole being constructed substantially as described so as to leave a space beneath it, of a bellows attached to the leg portion of the boot, a tube communicating with said bellows and the space beneath the supplemental insole, and arms connected to said bellows and the heel portion of the boot, substantially as set forth.

3. The combination with a boot, of arms secured to the heel portion thereof, a bellows connected with the upper ends of said arms, straps counecting said bellows with the boot leg, and a tube communicating with said bellows and the foot of the boot, substantially as set forth.

4. The combination with a boot, of arms rigidly secured to the heel portion thereof, a metallic strap secured at its ends to the said arms in proximity to the ankle portion of the boot, a plate or brace secured at one end to said strap and at the other end to the heel of the boot, a bellows connected with the upper ends of said arms, a tube connecting said bellows with the foot of the boot, and a valve between said bellows and tube, substantially as set forth.

5. The combination with a boot, of arms secured to the heel portion thereof and extending upwardly parallel with the leg of the boot, a frame, arms connecting said frame with the first mentioned arms, a bellows supported by said frame and adapted to lie against the leg of the boot, and a tube communicating with said bellows and with the foot portion of the boot, substantially as set forth.

490,704. TRACK-FASTENING. JAMES M WOODCOCK, Bridgeport, Ohio. Filed Apr. 11, 1892. Serial No. 428,640. (No model.)



Claim.—1. In a railway track-fastening, a screw-post having a screw-threaded lower end, a circumferential flange immediately above the threaded-portion, and an angular head above said flange, the flange being cut away in line with one side of said head, substantially as hereinbefore specified.

2. In a railway track-fastening, a screw-post having a screw-threaded lower end, a circumferential flange immediately above the threaded portion, and an angular head above said flange provided with notches in some or all of its sides, in combination with a rail one base-flange of which is engaged by said flange of the screw-post, and a key-wedge the respective edges of which engage with the head of the rail and with a notched side of the head of the screw-post, substantially as hereinbefore specified.

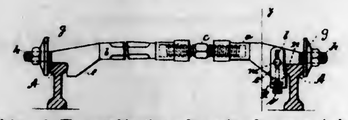
3. The combination with a wooden cross-tie and a superposed rail of one or more screw-posts, each of which is screwed into said cross-tie and has a flange which engages with a base-flange of the rail, and one or more key-wedges interposed between the head of the rail and said heads of the screw-posts, and each provided with a hook which is driven into the cross-tie to keep the key-wedge from working loose, substantially as hereinbefore specified.

4. In combination with a wooden cross-tie and the adjoining ends of two superposed rails, the metallic shoe-plate C, a pair of screw-

posts at the outside of the rail and a central screw-post at the inside of the rail inserted through said shoe-plate into the cross-tie, a key-wedge common to said pair of screw-posts, and a shorter key-wedge at the inside of the rail, said screw-posts having flanges which engage with the adjacent rail-flanges and angular heads above the flanges first named, and said key-wedges serving to lock said screw-posts and to brace the rails, substantially as hereinbefore specified.

490,705. TRACK-GAGE. ARTHUR ALTHAUS, Rostock, assignor to Samuel Gray, Cologne, Germany. Filed Jan. 19, 1892. Serial No. 418,052. (No model.) Patented in Germany Feb. 24, 1889, No. 50,831; in France Sept. 17, 1890, No. 208,206; in England Apr. 21, 1891, No. 6,869; in Belgium Apr. 30, 1891, No. 94,034, and in Austria-Hungary Oct. 4, 1891, No. 16,941 and No. 36,731.





Claim.—1. The combination of a pair of arms *a*, *b*, having threaded ends *h*, and shoulders *c*, with the disks *g*, and with connecting screw *c*, substantially as specified.

2. The combination of a pair of arms *a*, *b*, with the connecting screw *c*, and with the vertically movable slide *k*, having offset *n*, substantially as specified.

490,706. BRONZE. JOHN D. BROKER, Peoria, Ill. Filed Apr. 14, 1892. Serial No. 429,201. (No specimens.)

Claim.—The herein described composition of matter forming a bronze for frescoing and other purposes consisting of bronze, glycerine carbolic acid, gum arabic and musk in the proportions specified.

490,707. PAPER-FILE. CHARLES H. BEELY, Chicago, Ill. Filed Mar. 21, 1890. Serial No. 304,118. (No model.)



Claim.—1. In a paper file the combination with a receptacle or base board for the papers, of two or more spring pressers each consisting of a cross-bar and two arms supporting said cross-bar, the arms being connected with the body of the file and projecting therefrom in the same direction when the pressers are in bearing upon the papers, the cross-bars of the pressers having such bearing upon the papers at two different and separated places.

2. The combination, with a receptacle or base-board, of two or more hinged pressers each consisting of a cross-bar and two arms supporting the same, and a spring or springs actuating said pressers, the arms of one presser being shorter than those of the other so that the cross-bars of the pressers will be nearer each other when said pressers are folded backwardly than when in operative position, substantially as described.

3. The combination with a receptacle or base-board of a hinged presser consisting of a cross-bar extending transversely of the receptacle or base-board and provided with two arms, having inwardly extending pivot rods, which have hinged or pivotal connection with the receptacle or base-board and are provided at their inner ends with eccentric crank-arms located adjacent to each other at the center of the base-board or receptacle, and a spring attached to the base-board or receptacle and acting by pressure upon both of said crank-arms, substantially as set forth.

4. The combination, with a recessed receptacle or base-board, of a hinged presser consisting of a cross-bar and two arms supporting the same, said arms being provided with pivot-rods having crank-arms, which crank arms are located within the recesses of the receptacle or base board and a spring or springs attached to the receptacle or base-board acting upon the said crank-arms, and covering said recesses substantially as described.

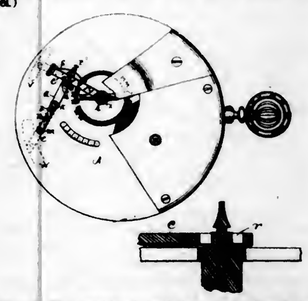
5. The combination, with a recessed receptacle or base-board, of a hinged presser consisting of a cross-bar and two arms supporting the same, said arms having inwardly extending pivot rods provided with crank-arms, which crank arms are located within the recesses of the receptacle or base board and a spring or springs attached to the receptacle or base-board acting upon the said crank-arms, and covering said recesses, substantially as described.

6. The combination, with a base-board, of a hinged presser consisting of a cross-bar and two arms supporting the same, said arms being provided with inwardly extending pivot-rods which are hinged to the base-board and terminate near each other, and are provided with crank-arms at their adjacent ends, and a spring acting upon both of said crank-arms, substantially as described.

7. The combination, with a base-board provided with a transverse groove, of a presser consisting of a cross-bar and two arms supporting the same, said arms being provided with inwardly extending pivot rods inserted in the said groove and provided with crank-arms, and a spring or springs secured to the base-board and acting upon said crank-arms, substantially as described.

8. The combination with a base-board provided with a transverse groove, of a presser consisting of a cross-bar and two arms supporting the same, said arms being provided with inwardly extending pivot rods inserted in the said groove and provided with crank-arms, formed by doubling the ends of the pivot rods, and a spring or springs secured to the base-board and acting upon said crank-arms, substantially as described.

490,708. BALANCE-STAFF PROTECTOR FOR WATCHES. GEORGE H. EISELE, Crete, Ill. Filed June 20, 1892. Serial No. 437,262. (No model.)

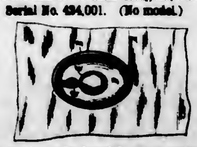


Claim.—1. The combination of the watch plate A, lever c having weight *v* on its outer end and loop *r* on its inner end for surrounding the balance staff, arm *e* having weight *w* on its outer end, arm *a* pivotally connected near its outer end to lever *c* and connected at its inner end with arm *c* through the medium of a short shaft passing through said plate, and having the shoulder *i* adjacent to lever *c*, bow spring S, thumb screw P and spring plate *s. s.* all arranged to operate substantially as and for the purpose set forth.

2. In a balance staff protector for watches an arm or lever having a loop on one end for surrounding the balance staff, and having a weight on its outer end, and fulcrumed between its loop and weight substantially as and for the purpose set forth.

3. In a balance staff protecter for watches, an arm or lever having a loop on one end for surrounding the balance staff, and a weight at its opposite end, and pivotally attached between its ends to the watch, and the means for maintaining said loop out of contact with the balance staff, and for permitting such contact in case the watch falls substantially as and for the purpose set forth.

490,709. CURTAIN-FASTENER. AMADEUS A. FROEHLICH, Brooklyn, assignor of one-half to William Hodgson, New York, N. Y. Filed Mar. 7, 1892. Serial No. 424,001. (No model.)

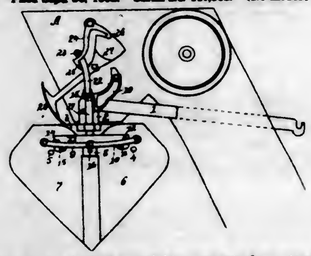


Claim.—1. As an improved article of manufacture, a curtain fastener, consisting of a base plate, B, having a central eye formed therein for the passage of a knob or pin, two spring actuated dogs, pivoted upon said base plate, a cam P located between the said dogs, a case D, inclosing the said dogs and cam, and a thumb piece Q located without the case and a spindle formed thereon having a bearing in said case and connected with said cam whereby to operate the said dogs, substantially as and for the purposes herein before set forth.

2. As an improved article of manufacture, a curtain fastener, consisting of a base plate B, having a central eye formed therein for the passage of a knob or pin, two spring actuated jaws or dogs K—K, pivoted upon opposite sides of the eye and extending normally across the same, a cam P located between the longer free ends of said jaws, a case D inclosing the said jaws and cam, and a thumb piece Q located without the case and attached to said cam whereby to operate the said jaws, substantially as described.

3. In combination in a curtain fastener, a base plate B, having a central eye formed therein, two spring actuated jaws pivoted upon opposite sides of the eye and extending normally across the same, a cam P located between the longer free ends of said jaws, a case D inclosing the jaws and provided with the clinch fingers E passing through the said base and adapted to engage the leather or other material upon which the fastener is mounted, and a thumb piece Q located without the said case and secured to the cam whereby to operate the same to open said jaws, substantially as described.

490,710. GRAIN-WEIGHER. CHARLES J. HARTLEY, Decatur, Ill., assignor of two-thirds to John K. Warren and Bradford K. Durbin, same place. Filed Sept. 30, 1892. Serial No. 447,263. (No model.)



Claim.—1. A bivalvular weighing receptacle, a toggle joint adapted to hold the valves closed when fully extended, and a trip for the toggle joint adapted to be actuated by the descent of the receptacle.

2. In weighing receptacles, the combination of the end plates sustained from the scale beam, the valves pivoted on the end plates, the toggle joint connecting the valves above the pivots thereof, the trip bar connecting with the toggle joint, and the permanent stops adapted to arrest the motion of the trip bar, substantially as set forth.

3. In weighing receptacles, the combination of end plates suspended from a scale beam, valves pivoted on the end plates, a toggle joint connecting the valves above the pivots thereof, a horizontal bar having pins engaging the arms of the toggle joint, a vertical bar extending upward from the horizontal bar, and permanent stops adapted to arrest the motion of the vertical bar, substantially as set forth.

4. In weighing receptacles, the combination of the end plates, the valves pivoted on the end plates and together constituting the entire receptacle, and the stop block on an end plate in position to prevent the valves from swinging past their normal closing place, substantially as set forth.

5. The combination with the end 27 of the arm of the chute closing valve 28, of lever 24 having dog 26 and foot 25, and a trip bar adapted to release the dog by acting on the foot, substantially as set forth.

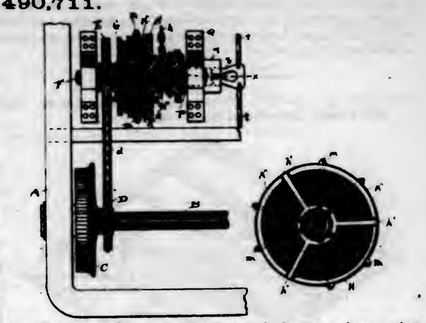
490,711. CAR-BRAKE. WILLIAM W. HOSKEN, Cleveland, Ohio. Filed Nov. 9, 1892. Serial No. 451,628. (No model.)

Claim.—1. The friction mechanism herein described, comprising a shaft, a friction disk keyed on said shaft, a friction wheel, having its face constructed to engage said disk and provided with a drum for the brake chain and a sliding collar and cam to force said wheel into friction engagement, substantially as described.

2. The shaft carrying the friction mechanism, the friction disk fixed on the shaft, the friction wheel having a paper surface to engage the disk and free to slide on the said shaft, in combination with a collar on said shaft having a lateral projection and a cam pivoted to engage said projection, substantially as described.

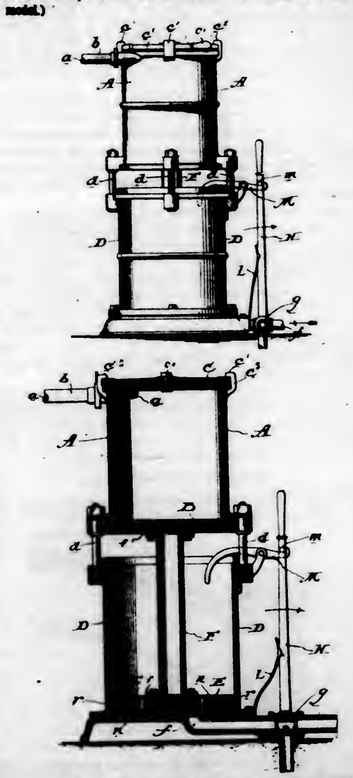
3. In friction mechanism for cars, the shaft and the friction wheels thereon, in combination with a collar on said shaft having a projection extending through the hanger of said shaft, and a cam

490,711.



pivoted in a lateral projecting portion of the hanger to bear against the projection of the said collar and thus force the friction wheels into engagement, substantially as described.

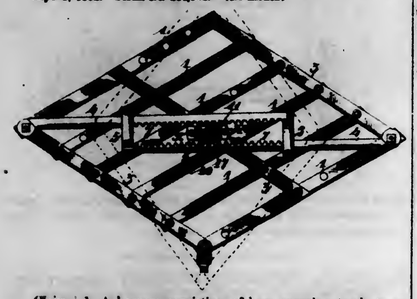
490,712. SAUSAGE-STUFFING MACHINE. CHARLES W. HOFFMAN, Philadelphia, Pa. Filed Feb. 13, 1892. Serial No. 421,262. (No model.)



Claim.—The combination in a sausage stuffing machine of the pressure cylinder D having an open upper end, a piston in said cylinder, a cylinder A having an outlet *a*, and so mounted above the cylinder D as to leave a space between the two for the circulation of air, a plunger in said cylinder A, a piston rod F connecting the piston and plunger, rings *f* of non-conducting material between the ends of the piston rod F and the piston and plunger, the pressure inlet pipe leading into the cylinder D, a cock in said pipe, a hand lever connected

to said cock, a spring acting on said lever and normally tending to keep the cock closed, and a pivoted catch lever engaging the hand lever at one end and having its opposite end in the path of the piston substantially as specified.

490,718. HARROW. KORNELIAN LAPTEWSKI, St. Louis, Mo. Filed Sept. 3, 1892. Serial No. 444,982. (No model.)



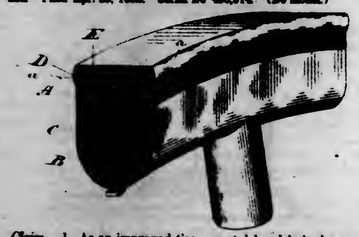
Claim.—1. A harrow consisting of bars carrying teeth, transverse pieces movably secured to said bars, arms movably attached to the opposite corners of said harrow, teeth formed on the said arms, and a pinion movably fixed to one of the transverse pieces, the teeth of which mesh with the said teeth formed on the arms, substantially as described.

2. A harrow consisting of parallel bars and transverse pieces movably connected, arms 4 attached to the opposite corners of the harrow, one end of said arms being bent at right angles and forked, said forked ends co-operating with said arms and forming guides for the same, teeth formed on the said arms, and a pinion fixed to the harrow the teeth of which mesh with the teeth formed on the said arms, substantially as described.

3. A harrow consisting of parallel bars and transverse pieces movably connected, a keeper 11 fixed to one of said transverse pieces, a shaft passed through said transverse piece and keeper, a pinion keyed to the said shaft, arms 4 attached to the opposite corners of the harrow having teeth along their inner edges, means for holding said arms in proximity with one another, a crank 15 one end of which is adapted to be inserted into the cavity 13 formed in said shaft for turning said pinion, and a pointed end 16 formed on said crank and adapted to be passed through the opening 17 and cavity 18 formed in the keeper and pinion respectively, for locking the pinion against movement, substantially as described.

4. A harrow having a removable socket 19 attached to and supported by one of its teeth, a clamp carried by said socket for holding the said socket in place, a metallic socket 23 adapted to receive the first mentioned socket having extensions 25, and a wheel 26 located between said extensions, substantially as described.

490,714. CUSHION-TIRE. WOODSTOCK LAUNDRY, Toronto, Canada. Filed Apr. 25, 1892. Serial No. 430,814. (No model.)



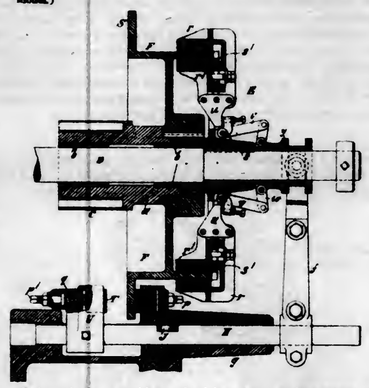
Claim.—1. As an improved tire, a metal band bolted, or otherwise secured to the felly, a rubber band overlapping the metal band and an outer metal band shrunk onto the rubber band so as to compress its outer edges tightly against the felly, substantially as and for the purpose specified.

2. As an improved tire, a metal band narrower than and rigidly secured to the felly, a rubber band substantially the same width as the felly and having an inner recess to fit over the metal band and an outer metal band shrunk upon the rubber band, substantially as and for the purpose specified.

3. As an improved tire, a metal band narrower than and rigidly secured to the felly, a rubber band substantially the same width as the felly and having an inner recess to fit over the metal band, the outer edges of the rubber band being grooved to receive the flanges formed upon the outer metal band which is shrunk upon the rubber band, substantially as and for the purpose specified.

4. As an improved tire, a metal band bolted or otherwise secured to the felly, a rubber band over-lapping the metal band and touching the felly so as to inclose the same and an outer metal band surrounding the rubber band.

490,715. CLUTCH MECHANISM FOR POWER-PRESSES. FRANK M. LEAVITT, Brooklyn, N. Y., assignor to the E. W. Bliss Company, Limited, London, England. Filed Apr. 30, 1892. Serial No. 431,336. (No model.)



Claim.—1. In a machine to be driven for a predetermined time, the combination with its operating shaft of a friction clutch for engaging it to a driving part, a tension-device tending to apply said clutch, a catch-device consisting of two members, one of which is connected with said clutch, a starting lever for disconnecting the catch-device, thereby severing said members and permitting the clutch to be applied, a movable part driven from the machine, connected to one member of the catch device, and moving toward the end of the predetermined operation of the machine to re-engage said member with the other member of the catch-device, and to retract both to their normal position, and thereby to disengage the clutch and stop the machine at the end of said operation.

2. In a machine to be driven for a predetermined time the combination with its operating shaft, of a driving part, an interposed friction-clutch, for coupling the machine to the driving part, a brake for stopping the machine, and a clutch-mechanism comprising a moving part connected to the clutch and brake, adapted by its starting movement to release the brake and apply the clutch and by its opposite or stopping movement to release the clutch and apply the brake, a tension device tending to impart to it its starting movement, a catch-device restraining it from moving under the stress of said tension device, a starting lever for disengaging the catch-device, and a disengaging device driven from the machine for imparting to said moving part its stopping movement, restoring it to its normal position and leaving it engaged by the catch device.

3. The combination with the operating shaft of a machine to be driven, of a friction clutch for driving it, and a clutch-mechanism for operating said clutch, comprising a longitudinally-sliding shaft H, means for sliding said shaft, a mechanical connection between said shaft and the clutch, a tension-device for thrusting said shaft in the direction to engage the clutch, and a disengaging mechanism driven from the machine for thrusting said shaft in the contrary direction.

4. The combination with the operating shaft of a machine, of a clutch for driving it, a clutch-mechanism for operating said clutch, comprising a reciprocating slide H, and means for stopping the machine consisting of a friction-flange 8 connected with the operating shaft, and a friction-brake consisting of a stationary shoe *t* on one side of said flange and a movable shoe T on the other side, connected to and moved by said slide H.

5. In a machine to be driven for a predetermined time, a clutch for engaging its operating shaft to the source of power, a friction flange or disk 8, and a friction brake consisting of a brake-shoe *t* on one side of said flange and a brake-shoe T on the opposite side, a reciprocating part H constituting part of the clutch mechanism, connected to and moving said shoe T, and a spring through which the braking motion is transmitted to said shoe, whereby the braking pressure cannot exceed the tension of said spring.

6. The combination with the operating shaft of the machine to be driven and a clutch for engaging it to the source of power, of a friction flange or disk 8, and a friction brake consisting of a stationary brake-shoe *t* on one side of said flange and a movable brake-shoe T on the opposite side, a reciprocating part H constituting part of the clutch mechanism, connected to and moving said brake shoe T and a spring *g* interposed between said part H and the brake-shoe, and means for adjusting the tension of said spring.

7. The combination with an operating shaft 8, of a friction clutch, a tension-device tending to apply said clutch, a catch-device normally restraining said tension-device, and a disengaging mechanism comprising a cam, as P, deriving motion from the operating shaft, and a mechanical connection through which its thrust is transmitted to the clutch to disengage it against the stress of said tension-device, the said catch-device constituting part of said connection by one member thereof being connected to and moved by the cam and the other member thereof being connected to the clutch, whereby when the operating shaft is driven the cam by reciprocating one member of the catch device first engages it with the other member thereof, and then transmits motion through both members to restore the clutch to its normal position.

8. The combination with the operating shaft of a machine to be driven, and a friction clutch interposed between it and the source of power, of a clutch mechanism comprising a vertically movable rod, as K, a tension device applied thereto, to cause it to tend to fall, the said rod connected to the clutch so that its descent shall apply the clutch, a catch-device for normally upholding said rod, a starting device adapted to disengage the catch-device and permit the rod to fall to apply the clutch, and a disengaging device driven by the machine and adapted to re-engage the catch device and through it to lift the rod to its initial position and thereby disengage the clutch.

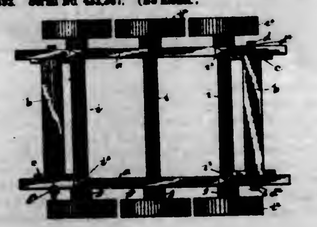
9. The combination with the operating shaft of a machine to be driven and a friction clutch interposed between it and the source of power, of a clutch-mechanism comprising a vertically movable rod K connected to the clutch, a tension device tending to draw said rod downward to apply the clutch, a catch-device comprising a pawl *j* engaging a notch in said rod, a cam, as P, driven from the machine, and mechanical connections between said cam and pawl, whereby the pawl is lowered and raised by the operation of the cam to substantially the effect specified.

10. The combination with an operating shaft and a cam P driven therefrom, a lever M moved by said cam, a sleeve L connected to said lever, a pawl *j* carried by said sleeve, a notched rod K, normally hung from said pawl, a tension-device acting on said rod, and a mechanical connection between said rod and the clutch, whereby the descent of the rod applies the clutch.

11. The combination with the operating shaft of a machine to be driven and a friction-clutch interposed between it and the source of power, of a clutch-mechanism comprising a rod K connected to the clutch, a tension-device imparting to the rod a tendency to descend, a dash-pot R for checking the descent of the rod, a catch-device for holding the rod normally elevated, and a disengaging device driven from the machine and adapted to lift the rod back to its initial position.

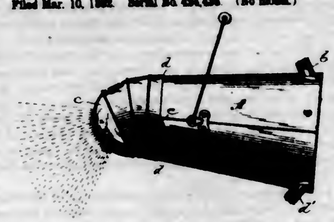
12. In a machine to be driven the combination with a friction-clutch interposed between its operating shafts and the source of power, of a clutch mechanism comprising a vertically movable rod K connected to the clutch, a tension device tending to move it downward to apply the clutch, a catch-device holding it normally elevated and comprising a pivot-pawl *j*, and a starting-device comprising a starting lever or treadle G, and a throw-off lever Q connected thereto and engaging the tail of said pawl so that by its vibration it vibrates the pawl, releasing the rod K and permitting it to descend and apply the clutch to start the machine.

490,716. TRUCK. ANDREW MURPHY, Columbus, Ohio. Filed May 9, 1892. Serial No. 432,267. (No model.)



Claim.—In a truck, the combination of the metallic side-pieces *a*, ears *f* formed therewith, shaft bearing openings *f'* in said ears, projecting hoods *g* above said openings, cross pieces *b* connecting said side pieces as described, and wheel carrying shafts *i* journaled in said ears, substantially as and for the purpose specified.

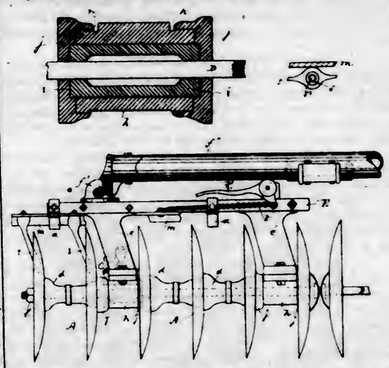
490,717. FIRE-BUCKET. WILLIAM HEBACHER, Cleveland, Ohio. Filed Mar. 10, 1892. Serial No. 424,436. (No model.)



Claim.—1. A fire bucket provided with suitable handles by which it may be swung and having a gradually tapering body portion terminating in a perforated cover closing the upper end and forming an uninterrupted continuation of the gradually diminishing diameter of the bucket from the bottom to the top, substantially as described.

2. A fire bucket, provided with suitable handles by which it may be swung and having a gradually tapering body portion terminating in a perforated cover turned to one side of the line of the bucket's length, said cover forming an uninterrupted continuation of the gradually diminishing diameter of the bucket from the bottom to the top, substantially as described.

490,718. HARROW. JOHN R. MURRAY and HENRY G. GILBERT, Dayton, Ohio, assignors to the Mulberry Manufacturing Company, same place. Filed June 23, 1892. Serial No. 437,768. (No model.)



Claim.—1. In a disk harrow or cultivator, the combination with disk gangs and frames, of a shaft or axle box composed of one casting, and the part (i) sleeved on the shaft and inclosed by said box, the ends thereof extending beyond the ends of the box, a washer with recesses adapted to receive the respective ends of the sleeve and the box, and bear rigidly against the former, said washer provided also with an inwardly projecting beveled rim, which, when placed on the end of the box, forms therewith, a groove, extending partially around the upper circumference of said box, substantially as herein described.

2. In a rotary disk harrow or cultivator, the combination of disk, gangs of frames or bars, and of a dust-proof axle or shaft box, cast in one piece, having a standard forming an integral part thereof, a gutter or dust channel extending partially around the upper surface of the said box adapted to be increased in depth by the insertion on the ends of the said box, of a washer or dust cap having a slanting edge, the said washer adapted to bear rigidly against a chambered sleeve inclosed by said box, and press rigidly against the same, substantially as herein described.

3. In a rotating harrow or cultivator, the combination with a frame, a shaft box and standard composed of a single casting, having a bearing of suitable length, a sleeve having a chambered interior

adapted to be sleeved on the shaft, and inclosed by the box, the ends of said sleeve extending beyond the ends of the box, a dust cap or washer adapted to fit on the ends of the said box and form a channel on the upper surface of the box into which sand may be thrown as the shaft sleeve and washer are rotated by the driving mechanism.

4. In a rotary disk harrow or cultivator, the combination with a carrying frame and gangs, an equal-bearing ball and socket joint, the ball and standard being of a single casting, the cap being secured thereto by means of a bolt, the said bolt having sufficient room to swivel or adjust itself by construction of elliptical-shaped apertures in the ball and cap and the chambered interior of the ball.

5. In a disk harrow, the combination with the gangs of disks, and the shaft supporting them, and the sleeve (*i*) on said shaft, and the box inclosing said sleeve, and provided with lateral flanges, and the washer (*j*); of the standard (*e*) bolted to the flanges of the box, and having a semi-spherical shell on the upper end, forming an integral part of the standard, and the cap (*f'*) connected with said shell by a transverse bolt passing through elliptical-shaped apertures in said shell and cap, whereby a universal joint is formed above the gang frames, as herein described.

6. In a disk harrow or cultivator the combination of the frame of the machine, of the standards attached, thereto, with the bearings of the disk shaft, consisting of a box inclosing a sleeve adapted to revolve freely therein, the said bar having dust channels on its upper side and a cap at each end, the rim of said cap extending to the edge of said channel, for the purposes herein set forth.

7. In a disk harrow, the combination of the cross-beam, and the socket thereof, having cap *f'*, with the standard (*e*) having a semi-spherical shell, and the shaft box having flanges to which said standard is bolted. The cap *f'* and shell held in socket by a transverse bolt passing through oblong apertures therein, by means of which the bearing of the gangs is distributed among points, on a plane with the axes of the disks on the one hand, and above the gangs on the other, substantially as herein set forth.

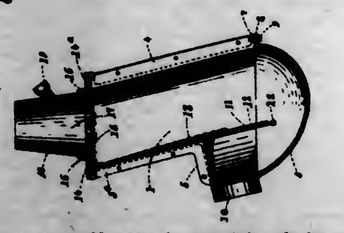
8. In a disk harrow, the cross-beam attached to the gangs by means of a socket-joint consisting of the cap (*f'*) and semi-spherical shell (*f*), the latter being an integral part of the standard (*e*) which standard is bolted to the flanges of the shaft box, the said socket-joint formed on a plane above the periphery of the disks by means of a transverse bolt passing through elliptical apertures in the cap and shell, and means for angling the gangs, as herein described and for the purposes set forth.

9. In a rotating disk harrow, the combination with the disks, of a series of individual scrapers provided each with the boss (*s'*) and shank (s^2), said shank adapted to receive a nut whereby it is secured vertically, in an aperture in the lateral extension of the horizontal bar (*m*) and means for adjusting said bar to conform to the different angles taken by the disks, substantially as herein described.

10. In a disk harrow, the combination with a series of scrapers journaled in the lateral extension of the horizontal bar (*m*), the pivotal point of said scraper, being above the periphery of the disks, said scrapers adapted by means of the boss (*s'*) to receive a vibratory motion against the downwardly extending part of the scraper bar (*m*) and thereby the scraper adjusts itself to the face of the disk, substantially as herein described.

11. In a disk harrow, the combination, with the disks of a series of individual scrapers pivoted directly in a horizontal scraper bar (*m*) at a point above the periphery of the disks, whereby the scrapers are permitted to rock or vibrate freely by means of the boss (*s'*) bearing against the downward extending part of said bar, and means of adjusting the bar (*m*) in a manner to bring the scrapers in and out of contact with the disks, substantially as herein shown and described.

490,719. SELF-CLEANING OUTSIDE WATER-CLOSET. THOMAS J. O'BRIEN, Buffalo, N. Y. Filed Oct. 17, 1892. Serial No. 449,094. (No model.)



Claim.—1. An outside water closet consisting of a lower or receiver portion provided with an outlet pipe to connect with the sewer and having a trap or shut off plate mounted in slideways so as to open or close the trap, in combination with a cone shaped portion, 18, provided with an inlet pipe to connect with a suitable water supply substantially as described.

2. In an outside water closet, the combination with a receiver having a pipe to connect with a sewer, a sliding shut off plate connected by a chain with said receiver and mounted in inclined slideways, a tubular removable portion adapted to fit within a rim at the top of said receiver and a water inlet pipe connected to one side of said tubular portion, as and for the purposes described.

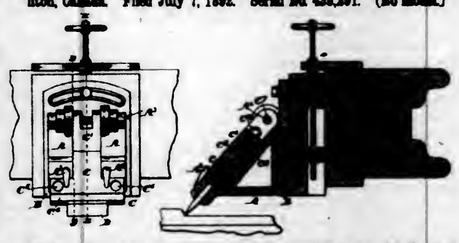
490,720. COVER FOR JARS. THOMAS H. OGBAN, Washington, D. C. Filed Mar. 31, 1892. Serial No. 427,142. (No model.)



Claim.—1. A cover or cap for a jar or like vessel having an open top, a transparent or diaphanous material, a label arranged below said transparent or diaphanous material, and a bottom or plate arranged in said cover or cap, below said label, said cover or cap containing said diaphanous or transparent material, plate or bottom, and label, substantially as specified.

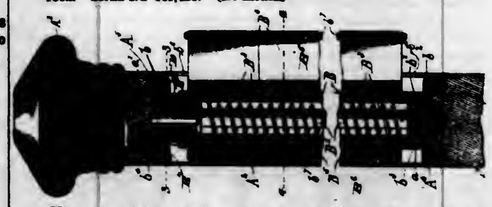
2. A cover or cap for a jar or like vessel having an open top, a transparent or diaphanous material, a label arranged below said transparent or diaphanous material, a bottom or plate below said label, and a vertical flange above said plate or bottom, having lugs upon its upper edge adapted to be bent inwardly upon said transparent or diaphanous material, said cover or cap containing said diaphanous or transparent material, plate or bottom, and label, and forming said vertical flange with its lugs, substantially as specified.

490,721. STONE-CUTTING MACHINE. MICHAEL A. PIGOTT, Hamilton, Canada. Filed July 7, 1892. Serial No. 439,291. (No model.)



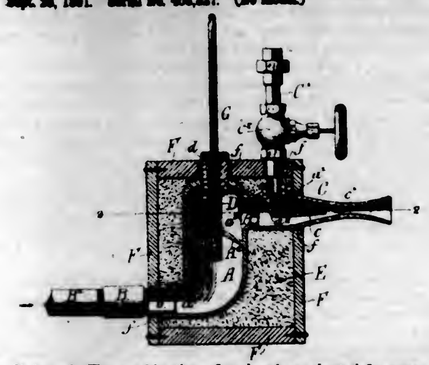
Claim.—In a stone cutting machine the combination with the tool block A, having flanges A' and dogs A^2, of the tool-holder C, comprising the parts C, C', C^3, C^4, and C^5, the part C being swiveled to the part C', by the bolt or part C^5,—the parts being constructed and arranged to operate substantially as set forth.

490,722. CANE. OLIVER C. PUSH, Chicago, Ill. Filed July 28, 1892. Serial No. 441,489. (No model.)



Claim.—A stick or staff, comprising a body-portion and a head and also a tubular portion interposed longitudinally between the body-portion and the head, a non-revoluble rod located centrally within the tubular portion and having one end fixed in the head, a hollow revoluble barrel surrounding the rod and located wholly within the tubular portion, a coiled spring surrounding the rod and also located wholly within the tubular portion and connected at one end to the rod, a short pin inserted into one end of the barrel and having an outward extension working freely in the end of the body-portion, a second short pin inserted into the opposite end of the barrel and carrying ratchet-teeth, the opposite end of the coiled spring being connected to said pin, a pivoted spring-pressed pawl carried by the head and engaging the ratchet-teeth, and also located within the tubular portion, a push-pin carried by the pawl and protruding through the tubular portion, and a flexible strip secured at one end to the barrel and extending through a slot in the tubular portion, substantially as set forth.

490,723. PYROMETER. WILLIAM R. RENET, Chicago, Ill. Filed Sept. 26, 1891. Serial No. 406,827. (No model.)



Claim.—1. The combination of a chamber adapted for connection with a heated inclosure, a closed tube or cup projecting within the chamber, and an air exhausting device connected with the chamber, substantially as described.

2. The combination of a chamber, a closed tube or cap projecting within the chamber, an air exhausting device connected with the chamber, and a pipe attached to the chamber and adapted for insertion into a heated inclosure, substantially as described.

3. The combination of a chamber having an inlet and outlet, an air exhausting device connected with the outlet, a heat indicating device projecting within the chamber, and a deflector located within the chamber between said inlet and outlet, substantially as described.

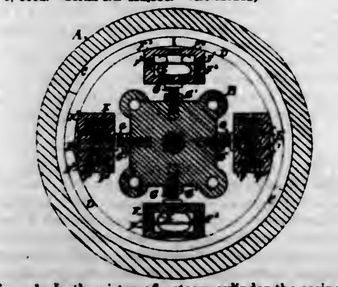
4. The combination of a chamber having an inlet and outlet, an air exhausting device connected with said outlet, a notched deflector located between said inlet and outlet, and a heat indicating device projecting within the chamber and passing loosely through the notch of the deflector, substantially as described.

5. The combination of a chamber, a closed tube or cup projecting within the chamber, an air exhausting device connected with the chamber and a pipe, attached to the chamber and consisting of short detachable sections, whereby any desired portion of the heated chamber may be reached by said pipe, substantially as described.

6. The combination of a chamber adapted for connection with a heated inclosure, an air exhausting device connected with said chamber, a tubular cup projecting within the chamber, and a thermometer located within said cup, substantially as described.

7. The combination of a chamber, a closed tube or cup projecting within said chamber and a thermometer located within said cup, an exhausting device connected with the chamber, a non-conducting covering surrounding the chamber, and a case inclosing said non-conducting covering, substantially as described.

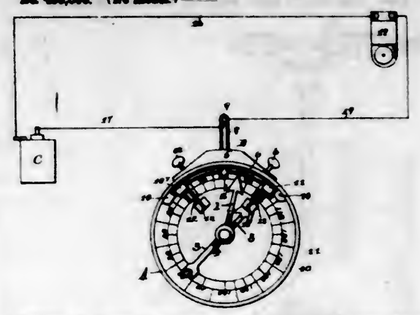
490,724. PISTON. MILARD M. SMITH, Brooklyn, N. Y. Filed May 9, 1892. Serial No. 432,233. (No model.)



Claim.—1. In the piston of a steam cylinder the casings F, F', in combination with the springs E, rings D, and C, adjusting screws G, and piston B, when constructed and operated substantially as, and for the purposes herein shown and set forth.

2. In a steam piston the casings F, F', having the guides F^3, and curved surfaces F^2, in combination with the springs E, rings D, and C, and adjusting screw G, having the nuts G', when constructed and operated substantially as, and for the purposes herein shown and described.

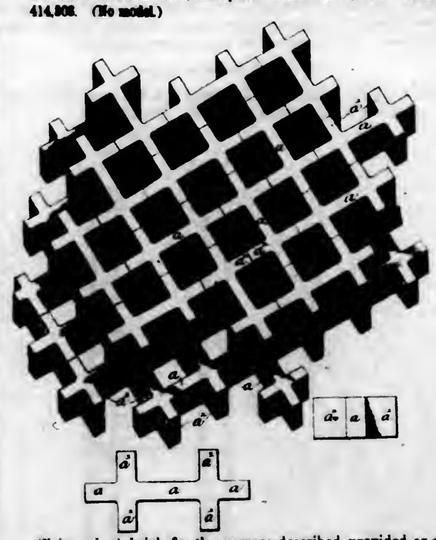
490,725. ELECTRICAL PRESSURE-INDICATOR FOR STEAM-GAGES. EDWARD G. SMITH, San José, Cal. Filed July 6, 1892. Serial No. 439,066. (No model.)



Claim.—1. In an electric pressure-indicator, the attachment B, consisting of a non-conducting support, adapted to be fixed to a pressure-gage, wires held in the support, adjustable arms on the wires provided with contacts on the free ends, and a pointer pivoted in the gage, arranged to move between the contacts of the arms, as and for the purpose specified.

2. In a pressure-gage, the combination of a pressure-pointer journaled in the gage, an adjustable circuit closing pointer journaled on the arbor of the pressure-pointer, a non-conducting support on the rim of the gage, circuit-wires held in the support, adjustable arms on the wires standing with their free ends normally open, and arranged to receive the end of the adjustable circuit-closing pointer, and establish the circuit, substantially as and for the purpose specified.

490,726. BRICK. JOHN L. STEVENSON, Chicago, Ill., assignor of one-half to James E. York, same place. Filed Dec. 12, 1891. Serial No. 414,808. (No model.)



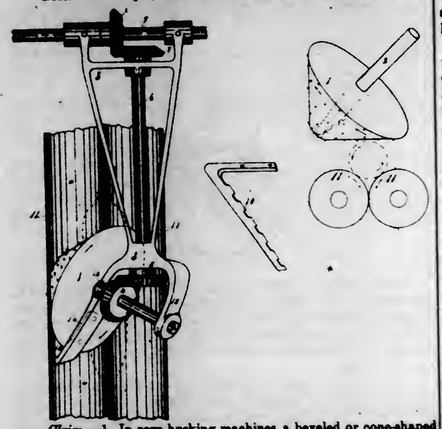
Claim.—1. A brick for the purpose described, provided on each side with two lateral projections arranged at right angles to the body of the brick at points midway between the middle and the ends of the same, substantially as described.

2. A brick for the purpose described, provided with lateral projections arranged at right angles to the body of the brick at points distant from its ends, the length of said lateral projections being

equal to the distance from the same to the ends of the brick, substantially as described.

3. A brick for the purpose described, provided with lateral projections at its ends arranged at right angles to the main part or body of the brick, the length of said projections being equal to the distance of said projections from the ends of the brick, and the distance between the projections being equal to twice their length, substantially as described.

490,727. HUSKING-MACHINE. CHARLES H. TAYLOR, Lincoln, Nebr. Filed July 7, 1892. Serial No. 438,614. (No model.)

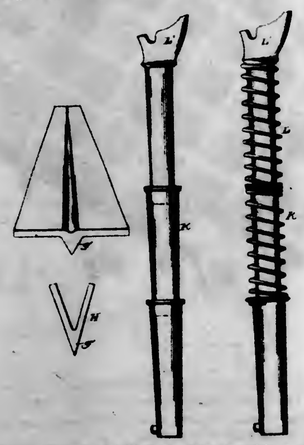


Claim.—1. In corn-husking machines, a beveled or cone-shaped roller in combination with a pair of husking rollers, substantially as set forth and for the purposes specified.

2. The combination in a corn-husking machine of beveled or cone-shaped rollers, their driving or operating mechanism, the means for holding them adjustably in their proper position, and the husking rollers all substantially as set forth.

3. In corn-husking machines, a beveled or cone-shaped roller with its surface provided with teeth or other suitable roughness, in combination with a guard (10) and means for supporting the same, substantially as set forth and for the purposes specified.

490,728. GRAIN-DRILL. WILLARD A. VAN BRUNT, Horicon, Wis. Filed Aug. 2, 1892. Serial No. 441,941. (No model.)



Claim.—1. In a grain drill, the combination with an axle, carrying wheels mounted on said axle, a reach and a caster wheel carried by the rear end of said reach, of a seed box, braces extending from the seed box to the axle, and devices for elevating the rear end of the machine, connecting said seed box with the rear end of the reach, substantially as set forth.

2. In a grain drill, the combination with an axle, carrying wheels mounted on said axle, a reach and a caster wheel carried by the rear end of the reach, of a seed box, braces extending from the seed box to the axle, a toothed segment secured to the seed box, a pivoted lever having a locking bar to engage said segment, and a link connecting said pivoted lever with the bracket which supports the caster wheel, substantially as set forth.

3. In a grain drill, the combination with an axle, and carrying wheels, of a seed hopper, a caster wheel for supporting the rear end of the machine, and a lifting lever connected with the bracket which supports said caster wheel, and a toothed segment for locking said lever in position, substantially as set forth.

4. In a grain drill, the combination with an axle, carrying wheels mounted on said axle, a reach and a seed box or hopper, and a series of shoes, of a lever pivoted to the reach, a segment for retaining said lever in a locked position, an arm projecting from the axle, a rod connecting said arm with the pivoted lever, arms projecting downwardly and rearwardly from said axle, and draw bars connecting said last-mentioned arms with the shoes, substantially as set forth.

5. The combination with an oscillatory axle having arms thereon, and wheels in which the axle is supported, of a shoe, a link or bar connecting the forward end of the shoe to one of the arms, a pivoted hand lever, and a link or bar connecting this hand lever with an arm on the axle, substantially as set forth.

6. The combination with the frame of a seeder, oscillatory axle having arms thereon, and wheels in which the axle is supported, of shoe having yielding connection at one end or point with the frame, a link or bar connecting the opposite end of the shoe with an arm on the axle, a hand lever pivoted to the frame, and link or bar connecting this hand lever to an arm on the axle, substantially as set forth.

7. A shoe for grain drills constructed of a flat tapering strip of metal with a thickened central portion which constitutes a cutting edge, the sides extended at an angle to each other from this thickened portion, substantially as set forth.

8. A shoe for grain drills constructed of a flat tapering strip of metal having a central channel and thickened at this point, the sides bent at an angle to each other, substantially as set forth.

9. A feed tube for a grain drill composed of several independent tubes adapted to telescope, and springs for holding these tubes yieldingly in place, substantially as set forth.

490,729. BOTTLE AND STOPPER. ROBERT S. WIRSENFELD, Baltimore, Md. Filed Apr. 12, 1892. Serial No. 428,863. (No model.)



Claim.—1. A sealing-plate for bottles, made of soft material and provided with a part *h* adapted to close the throat of a bottle, part *i* to rest in a slot in the head of the bottle, and shoulders *k*, *k'* for the purpose specified.

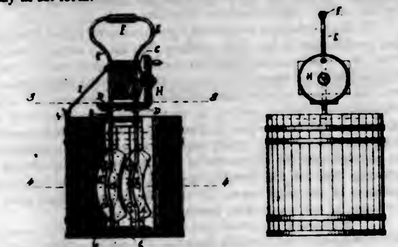
2. A sealing-plate for bottles having the extended portion *h*, enlarged portion *i* and shoulders *k k'*, in combination with a bottle provided with a transverse slot, a seat to receive the portion *h* of the sealing-plate, and shoulders *g g'* in its head.

3. A tapered sealing-plate for bottles provided with a portion to close the throat of a bottle and an enlarged portion to engage the head of a bottle, in combination with a bottle having a transverse slot in its head provided with a seat for the sealing-plate

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490,730. CHURN. FREDERICK WILEY, Avoca, Iowa. Filed Mar. 26, 1892. Serial No. 426,487. (No model.)

Claim.—1. In a churn the combination with a suitable vessel, of the base piece C, fixed to said vessel, the vertical rod B journaled in said vessel and curved laterally, the perforated crescent-shaped dashers A, fixed to the curved portions of the rods, the inter-meshing gear wheels mounted on the upper ends of said rods, the crank wheel H, the brace G, on which said crank wheel is mounted, said crank wheel meshing with one of said gear wheels, and the hooked braces I, detachably connecting the vessel with the churn mechanism, substantially as set forth.



2. In a churn the combination with a suitable vessel and manually operated gear mechanism, of vertical rods curved laterally at their lower portions, which rods are journaled in said vessel and connected with said mechanism, perforated crescent-shaped dashers fixed to the curved portions of the said rods, and detachable hooked braces adapted to connect the said mechanism to the vessel, as and for the purposes set forth.

490,731. SAND-BAND. SYLVESTER WILSON, Crooked Tree, Ohio. Filed June 23, 1892. Serial No. 437,788. (No model.)



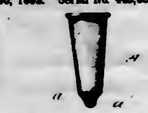
Claim.—In a sand band for vehicle axles, and hubs, the combination with the axle and hub mounted thereon, a band *c* on the inner end of said hub, said band having an inclined face or periphery and an outer shoulder portion *c'* as described, of a spring metal shield or hood *d* having its shank secured to the axle as described, and a flaring head or outer end portion on said shield having an inturned edge adapted as described to spring over and against said shoulder *c'* and an oil tube *g* passing through said shield and provided with a detachable stopper, substantially as and for the purpose specified.

490,732. FORGE. FREDERICK W. ALTHEN, Rome, Ohio. Filed May 2, 1892. Serial No. 431,573. (No model.)



Claim.—A forge pan or tray, consisting of a flat upper face, having a depressed front, a bottom formed of inclined side walls, the foremost wall terminating at a point in the plane of the bottom of the depressed portion, and carried forward horizontally to form a table, and an aperture at the base of the inclined sides, formed with inclined side walls, substantially as described.

490,733. FINGER-PROTECTOR. THOMAS ARMAT, Washington, D. C. Filed Aug. 20, 1892. Serial No. 443,650. (No model.)

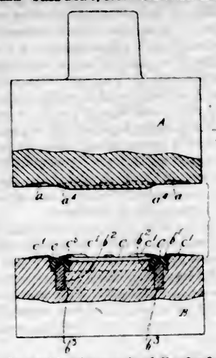


Claim.—1. In a thimble, a tapering body portion, a thickened cap portion formed at the smaller end thereof and interiorly of said body portion an upwardly projecting stud, substantially as specified.

2. In a thimble, a tapering body portion having one or more beads formed thereon and terminating in a reduced and thickened cap portion and interiorly of said body portion an upwardly projecting and hollowed out stud with an annular space around the same, substantially as specified.

3. In a thimble, a tapering body portion, reduced at its smaller end to form a cap, the upwardly projecting stud on the interior of said body portion and the perforations, as specified.

490,734. DIE FOR MAKING HORSESHOES. JOSEPH BENFIELD, Walsall, England. Filed Dec. 8, 1891. Serial No. 414,471. (No model.)

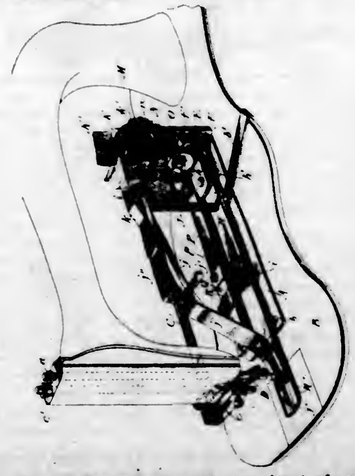


Claim.—1. In combination a pair of dies for forming horse shoes and adapted to receive a roughly bent bar, the lower die having a recess *b'* in the form of the shoe designed to receive the bent bar one of the said dies having lateral depressions *a* substantially as described for the formation of clips.

2. In combination a pair of dies one of which has a recess *b'* of the form of the shoe a projection b^3 extending around in said recess, and one of the dies having lateral recesses for the formation of clips on the shoe substantially as described.

3. In combination a pair of dies one of which has a recess *b'* of the form of the shoe and the other having a projecting portion a^4 with sloping edges adapted to enter a corresponding depression in the other die and having also the lateral depressions *a* for forming the clips.

490,735. BUTTONHOLE ATTACHMENT FOR SEWING-MACHINES. JOHN W. BLODGETT, Chicago, Ill., assignor to himself and the Abbott Machine Company, same place. Filed Apr. 13, 1891. Serial No. 388,661. (No model.)



Claim.—1. The combination with a base plate A, of a swinging lever H having a cloth plate H' at its outer end, a transversely sliding plate F pivotally connected with the inner end of the swinging lever, a rotating clutch head K provided with a switch cam M means for intermittently rotating the clutch head, a pitman *k* connected with the swinging lever and adjustably engaged with the clutch head, a

horizontally sliding plate N intermittently operated by the switch on the clutch head, a swinging lever P connected with the horizontally sliding plate, and a pivotal connection R between the swinging levers P and H, substantially as described.

2. The combination of the shaft C, shell K, devices for intermittently moving the shell K, pitman *k*, lever H connected with said pitman, wheel E, devices for intermittently rotating said wheel, sliding-plate F having rollers F' and pivotally connected with the lever H, lever P, sliding-plate N, arm O, and arm R, substantially as specified.

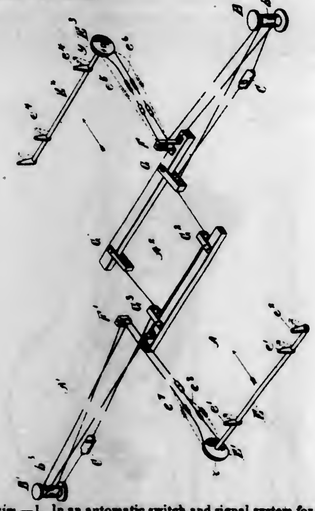
3. The combination with a base plate A, of a swinging lever H having a cloth plate H' at its outer end, a transversely sliding plate F pivotally connected with the inner end of the swinging lever, a rotating clutch head K provided with a switch cam M, means for intermittently rotating the clutch head, a pitman *k* connected with the swinging lever and adjustably engaged with the clutch head, a horizontally sliding plate N intermittently operated by the switch cam on the clutch head, a swinging lever P connected with the horizontally sliding plate, and an arm R pivoted at one end to the swinging lever H and at its opposite end pivoted to and adjustable along the swinging lever P, substantially as described.

4. The combination with the lever H and plates H', and J', of devices for swinging said lever, devices for moving said lever longitudinally, a shell K, plate N, switch cam M, lever P, and arm R, substantially as and for the purpose specified.

5. The combination with a plate A having a vertical portion *a*, of a screw-threaded bolt *e*, set-nut *e''*, cam-wheel E, sliding plate F having rollers F', and swinging lever H carrying a cloth plate H', substantially as specified.

6. The combination with a base plate A having an upright portion provided with a pivot-bolt *e*, of a cam wheel E rotating on the pivot-bolt, a transversely sliding plate F having slots *g*, the adjustable plates *f* provided with the friction rollers F' bearing against different portions of the cam wheel, mechanism for intermittently rotating the cam wheel, a swinging lever H having a cloth plate H' at its outer end, connections between the inner end of the swinging lever and the transversely sliding plate, and means for longitudinally reciprocating the swinging lever, substantially as described.

490,736. COMBINED SWITCH AND SIGNAL DEVICE FOR RAILWAY-CROSSINGS. JOHN BOUCHER, Belle River, Canada, assignor of one-half to David Bechard, same place. Filed Sept. 12, 1891. Serial No. 405,472. (No model.)



Claim.—1. In an automatic switch and signal system for railway crossings, the combination of semaphore signals situated at suitable distances from the crossing on a track approaching it, double cables connecting said semaphores adapted to operate them simultaneously, and mechanism adapted to be actuated by a passing train to operate said semaphores by means of said double cables, said mechanism consisting of trips, and operating sheaves to which said cables are fastened, each system of trips and operating sheaves being rigidly attached to a common rotating shaft, whereby the depression of the trips toward the crossing shall set the signals at "danger" and the depression of the trip outwardly from the crossing shall set the signal at "safety," substantially as described.

2. In an automatic switch and signal system for railway crossings, the combination of derailing switches situated at suitable distances from the crossing on the track approaching it, double cables connecting said switches adapted to operate them simultaneously upon the two sides of said crossing, and mechanism for operating said cables, consisting of trips adapted to be operated by the passing train, and operating sheaves to which said cables are attached, each system of trips and sheaves being rigidly attached to a common rotating shaft so adjusted that the depression of the trips respectively toward the crossing shall set the derailing switches for side-tracks and the depression of the trips outwardly from the crossings shall reset the switches for the main track, substantially as described.

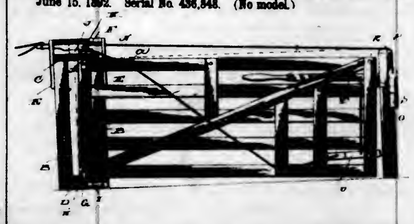
3. In an automatic switch and signal system for railway crossings, the combination of derailing switches situated at suitable distances from the crossing on the track approaching it, double cables connecting said switches adapted to operate them simultaneously upon the two sides of said crossing, mechanism for operating said cables, consisting of trips adapted to be operated by the passing train, and operating sheaves to which said double cables are attached so adjusted that the depression of the trips respectively toward the crossing shall set the derailing switches for side-tracks and the depression of the trips outwardly from the crossings shall reset the switches for the main track, and means for returning the trips to their normal position, the trip, sheaves and means for returning the trips being operated by a common shaft, substantially as described.

4. In a signal mechanism for railway crossings, the combination of a shaft operating transversely to the line of railway with which it is connected, trips rigidly attached thereto said shaft adapted to be operated by the passing train by rotating the shaft in either direction corresponding to the passage of the train, a sheave rigidly located upon said shaft and adapted to turn either way with double operating cables permanently attached to said sheave, and adapted to be operated thereby, mechanism whereby said cables are adapted to operate signals and switches to set them at "danger," and to return them at "safety," and means for returning the trips to their normal position whereby they may be operated by a train passing in either direction, substantially as described.

5. In an automatic crossing signal system, the combination with the track of two transverse shafts located in said track and upon opposite sides of a crossing, trips rigidly attached to said shafts adapted to be operated by a train passing in either direction, sheaves rigidly attached to said shafts, and double cables permanently attached to said sheaves and so adjusted that actuation of one trip and shaft to set the signals at "danger" shall adapt the trip upon the opposite side of the crossing, when actuated in the same direction, to rotate the signals to "safety," substantially as described.

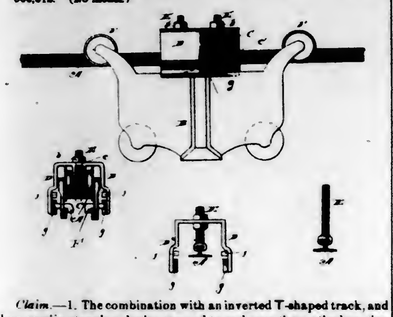
6. In an automatic crossing signal system, the combination with the track of two transverse shafts located in said track and upon opposite sides of a crossing, trips rigidly attached to said shafts adapted to be operated by a train passing in either direction, sheaves rigidly attached to said shafts, double cables permanently attached to said sheaves and relatively so adjusted in length that actuation of one trip and shaft to set the signals at "danger" shall adapt the trip upon the opposite side of the crossing, when actuated in the same direction, to rotate the signals to "safety," and means of adjustment of the length of said cables, substantially as described.

490,737. GATE. ALEXANDER BOYD, Whitewright, Tex. Filed June 15, 1892. Serial No. 436,848. (No model.)



Claim.—The combination with the gate and the latches mounted thereon and connected together, of a stirrup at the upper rear corner of the gate, forming a part of the hinge, a longitudinally adjustable guide on the upper portion of the gate near said stirrup, a fixed guide at the bottom of the gate, and a cable secured to the stirrup, passing through the adjustable and fixed guides and secured to the lower latch in advance of its pivot.

490,738. ADJUSTABLE STOP DEVICE FOR HAY-CARRIERS. JOHN H. BURKHOLDER, Ashland, Ohio. Filed Mar. 26, 1891. Serial No. 386,812. (No model.)



Claim.—1. The combination with an inverted T-shaped track, and a hay carrier stopping device secured to and over the vertical portion of said track, and carrying on both sides the double inclined lug *g*, of a hay carrier having a vertically movable catch block F the upper ends of which extend above the sides of said carrier and have lateral projections, which engage with said inclines, as set forth.

2. The combination with an inverted T-shaped track, and a hay carrier stopping device secured to and over the vertical portion of said track, and having wings D, D, which arch over the tread of the track and extend downward, as shown, parallel with the vertical portion of the said track, and a suitable distance removed from the side edges of the horizontal portions thereof, and provided with the double inclined lug *g*, as described, of a hay carrier having a vertically movable catch block F the upper ends of which extend above the sides of the carrier and have lateral projections which engage with said inclines, as set forth.

3. The combination of a track having a bead on the upper edge of its vertical part, a casting consisting of legs C, C, having recesses *c'* in their lower edges and wings D, D, projecting laterally from the upper part of said legs and then downwardly a suitable distance so as to stop the progress of a carrier moving on said tracks, a bolt having hooks projecting from each side of the head thereof which grasp and hold the bead of the track between them and a suitable nut *b*, as set forth.

4. A track B having a bead on the upper edge of its vertical part, in combination with a casting consisting of the legs C, C, having recesses *c'* in their lower edges and wings D, D, as described, a bolt E having a rectangular head *e* and hooks *d*, *d*, projecting one on each side on opposite ends of said head and extending downward and inward therefrom, and a nut *b*, as set forth.

5. A track B having a bead on the upper edge of its vertical portion, a casting having the wings D, and devices as described for securing said casting to said track, said wings having suitable lugs *g* and J in their lower edges below the plane of the said track the said lugs *g* having their upper edges formed with a double incline, in combination with a hay carrier having a catch block F which is provided with lateral projections from its upper end which enter the channels in said wings, as set forth.

6. A track B having a bead on the upper edge of its vertical portion, a casting consisting of the legs C having its lower edges provided with recesses *c'* and having wings D projecting laterally from the upper ends of said legs and then extending downwardly to below the plane of the track where their lower edges are provided on the inner surfaces thereof with lugs *g* and J the former having its upper edge provided with a double incline, a bolt E having the hooks *d* projecting, as described, from the head thereof, in combination with a hay carrier having a vertical movable catch block F which latter has lateral extensions from its upper end which extend beyond the sides of said carrier and enter the said channel in the said wings D, as set forth.

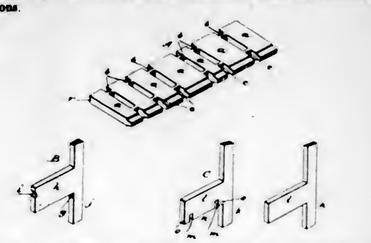
490,739. TYPE-BAR. ISAAC M. CHASE, Washington, D. C. Filed Feb. 1, 1892. Serial No. 419,918. (No model.)

Claim.—1. An unjustified type-bar approximating the length of a line of composition and provided with character sections and sections between the character sections of less resistance than said character sections to stress applied longitudinally of the bar.

2. An unjustified type-bar approximating the length of a line of composition and provided with integral, compressible sections between the character sections.

3. An unjustified type-bar approximating the length of a line of composition and provided with character sections and spaces and compressible and extensible integral sections of less cross sectional area than the character sections and located in the spaces between the character sections.

4. An unjustified type bar approximating the length of a line of composition and provided with one or more character sections and transverse openings through the bar between said sections and connecting integral sections of less cross sectional area than the character sections.



5. An unjustified type-bar approximating the length of a line of composition and having character sections and transverse openings between the sections and curved sections in the openings connecting the character sections.

6. A matrix having a vertical bar and an arm projecting from one side thereof and of a length equal to the width of the body of a type-bar and forming the top of the mold, in combination with a base for the mold.

7. A character-matrix having a vertical bar provided with a character and an arm on one side and above said character and of a length equal to the width of the body of a type-bar and forming the top of the mold, in combination with a base for the mold.

8. A space-matrix having a vertical bar and an arm on one side provided with recesses in the lower edge and of a length equal to the width of the body of a type-bar and forming the top of the mold, in combination with a base for a mold.

9. The method of justifying linotype, which consists in casting type-bars in lengths approximating the length of lines of composition and justifying the line by applying stress to the bar longitudinally to shorten or lengthen said bar.

490,740. NUT-LOCK. JOHN W. R. COOK, Camden, Ark. Filed June 14, 1892. Serial No. 436,690. (No model.)



Claim.—1. In a nut lock, the combination with two nuts of a washer plate lying between and passing beneath both of said nuts, the said washer plate having a hole therein near each nut and partially covered by the said nut; and a brace made of resilient metal somewhat longer than the distance between the said nuts and having at each end a tongue adapted to be sprung into said holes in the washer plate and to be partially covered by said nuts, and a bearing face adapted to press against one of the faces of the said nuts, substantially as and for the purposes described.

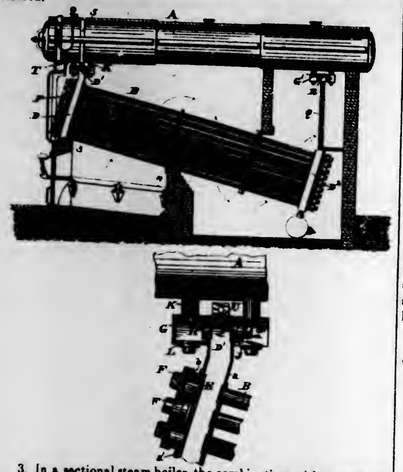
2. In a nut lock, the combination with two bolts and nuts, of a washer plate D^3 having holes *d* registering with said bolts and adapted to allow the same to enter freely, and holes *d'* with parallel sides d^3 and sloping side d^4, the said holes being partially covered by the said nuts; the brace E^3 made of resilient material and having bent arms e^{31} and bearing faces e^{32}, the said arms fitting in the said holes *d'* and being partially covered by the said nuts, and each of the said bearing faces bearing against one of the sides of a nut, substantially as and for the purposes described.

490,741. SECTIONAL STEAM-BOILER. GODFREY ENGEL, South Baltimore, Md. Filed Jan. 30, 1892. Serial No. 419,751. (No model.)

Claim.—1. In a sectional steam boiler, the combination, with a steam and water drum, water tubes arranged in vertical section or series and extending in the direction of the drum, and headers connecting the ends of said vertical sections or series of tubes, of straight pipes entering the drum and extending in radial lines from the center thereof, and swivel joints between said radial pipes and the headers, adjustable in a plane crosswise of the drum, substantially as described.

2. In a sectional steam boiler, the combination, with a steam and water drum, water tubes below the same arranged in vertical section

or series and extending in the direction of the drum, and headers connecting the ends of said vertical series of tubes, of straight pipes entering the said drum in radial lines with the center thereof, and boxes swiveled to the headers and receiving the said radial pipes, and adapted to be adjusted in a plane cross-wise of the drum, substantially as described.



3. In a sectional steam boiler, the combination, with a steam and water drum, water tubes below the same, and headers connecting the ends of said tubes, of swiveled boxes each connecting with one side of each header, pipes connecting the said drum and swiveled boxes, a nipple in the side of each header opposite that to which its box is connected, and screw-caps for closing said nipples, substantially as described.

4. In a sectional steam boiler, the combination, with a steam and water drum, water tubes below the same and headers connecting the ends of said tubes, of swiveled boxes connecting each with one of said headers, pipes K connecting said boxes with the steam and water drum, and nipples in said boxes opposite the ends of said tubes K and closed by screw-caps, substantially as described.

5. In a sectional steam boiler, the combination, with a steam and water drum, water tubes below the same arranged in vertical section or series, and headers connecting the ends of said tubes, of pipes entering the drum in radial lines with the center thereof, and boxes swiveled to the headers and receiving the said pipes, alternate boxes being secured to opposite sides of the headers, substantially as described.

6. In a sectional steam boiler, the combination, with a steam and water drum, and water tubes below the same, of headers connecting the ends of said tubes and having lugs on top, straps passing over said drum and means for attaching the said lugs to the ends of said strap, substantially as described.

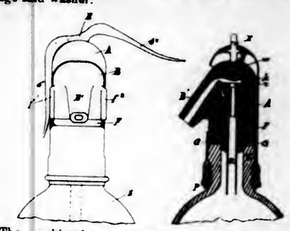
7. In a sectional steam boiler, the combination, with a steam and water drum, and a roller mounted in bearings and supporting the end of the drum, of water tubes below the drum, and a strap passing over said drum and supporting the ends of the water tubes, all arranged substantially as described.

490,742. SIPHON FOR AERATED LIQUIDS. GEORGES FERRARD, Brussels, Belgium, and GUSTAV GOTT, Carlsbad, Austria-Hungary. Filed July 18, 1892. Serial No. 440,234. (No model.) Patented in Belgium Jan. 26, 1892, No. 90,986; in Germany Apr. 30, 1892, No. 65,592; in France July 23, 1892, No. 222,008; in England July 25, 1892, No. 10,769; in Austria-Hungary Sept. 15, 1892, No. 1,611 and No. 6,465, and in Spain Oct. 31, 1892, No. 8,851.

Claim.—1. The combination of a stepped cone adapted to be affixed to a bottle or the like, a stepped cone shaped sleeve washer adapted to be placed around said cone, an outlet piece having a stepped cone shaped recess placed around the cone shaped washer, and means for compressing and releasing the outlet-piece.

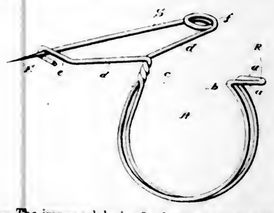
2. The combination of a cone C, a cone shaped washer D placed thereon, an outlet piece B having a cone recess placed upon said washer, a casing A, a lever E having bearings in the casing and adapted to compress and release said outlet piece.

3. The combination of a stopper-cone having a series of annular steps thereon, a flexible cone washer having a series of annular steps thereon fitting over and concentric with the steps on the stopper, and a cap outlet fitting over said washer, having a valve-piece adapted to engage said washer.



4. The combination of a conical stepped stopper C, a conical stepped washer fitting over said stopper, a cap outlet having conical stepped surfaces fitting over said washer and provided with a valve seat and outlet, and a casing fitting over said cap outlet having a lever journaled therein at its top provided with a cam.

490,748. PAD-FASTENER. GEORGE FOLAND and SAMUEL F. CAREY, Wilmington, Ohio. Filed June 19, 1891. Serial No. 396,573. (No model.)



Claim.—The improved device for fastening horse pads to collars consisting essentially of a single piece of wire having the three quarter circle A, formed with parallel branches and the wire bent outwardly at one end of the circle to form the straight hame loop R, and twisted at the opposite end of the circle as shown at *e*, and having the branches leading from the twisted portions in opposite directions as at *d*, and one branch turned into a coiled spring *f*, and terminating in a pin S, and the opposite branch turned into a hook E, thereby forming the three quarter circle A and the pin at approximately right angles to each other, and the twist serving to stiffen the parts, substantially as specified.

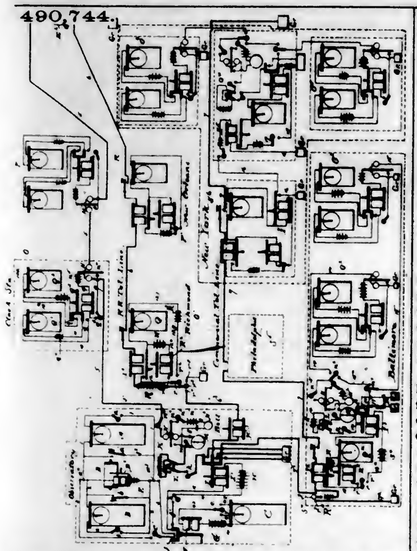
490,744. ELECTRIC TIME SYSTEM. WILLIAM F. GARDNER, Washington, D. C. Original application filed Dec. 13, 1888, Serial No. 293,452. Divided and this application filed Sept. 4, 1891. Serial No. 404,760. (No model.) Patented in France Dec. 10, 1889, No. 201,060.

Claim.—1. The herein described improvement in the art of transmitting and receiving time signals, it consisting in sending from a transmitting station, a series of electric impulses of a predetermined number over the main line of an electric telegraph circuit and through a main line repeater to a local circuit, receiving a part of the said impulse in a telegraphic sounder or equivalent instrument in said local circuit, and then, before all the said impulses have been transmitted, switching into the said local circuit one or more clocks or equivalent time signal receiving instruments whereby the remaining said impulse or impulses of the series are transmitted to the said clocks or instruments, substantially as set forth.

2. The herein described improvement in the art of transmitting and receiving time signals, it consisting in sending from a transmitting station, a series of electric impulses of a predetermined number over a main line and through a main line repeater to local circuits and of different electro-motive force, receiving a part of said impulses in a telegraphic sounder in the weaker of said local circuits, and then receiving the remainder of said impulse or impulses of the said series in the stronger local circuit, substantially as set forth.

3. The herein described improvement in the method of operating and testing the electric circuits of a time signaling system, it consisting in imparting electric impulses to a main line, and causing said impulses to close local circuits, each through a polarized relay by a current of given polarity, and in testing such main line by imparting thereto a current of opposite polarity and reversing the direction in which the last said current traverses the magnets of the said polarized relays, substantially as set forth.

490,744.



490,745. SAW COTTON-GIN. FREDERICK GARRAUX, Atlanta, Ga., assignor to the Winship Machine Company, same place. Filed Sept. 26, 1892. Serial No. 446,932. (No model.)



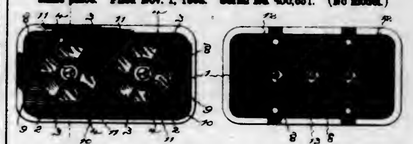
Claim.—1. A cotton gin comprising saws for separating the cotton from the seed, a stripping brush for clearing the cotton from the saws, a whipping and carding roll having its axis arranged in a vertical plane in front of the axis of the stripping brush, and an adjustable mote board inclined from its rear end upwardly and having its working edge arranged below the stripping brush in rear of the whipping and carding brush.

2. A cotton gin comprising a series of saws, ribs through which the saws work, a stripping or clearing brush for cleaning the cotton from the saws, and a mote board N, inclined from its rear end upwardly and having a beveled edge *o* inclined from its upper side downwardly to present a sharp edge at the top of its front end, substantially as described.

3. The combination of the saws and ribs, the rotary stripping brush, the rotary carding and whipping brush, a mote board L arranged around the front of the whipping brush, an inclined mote board E, below the whipper and an adjustable inclined board N, in rear thereof.

4. A cotton gin comprising a series of saws, ribs through which they work, a clearing brush for cleaning the cotton from the saws, an inclined adjustable mote board N, having a beveled edge *o*, and a stationary inclined mote board E, having a beveled edge *m*.

490,746. ELECTRIC SWITCH. JACOB S. GIBBS, Hartford, Conn., assignor to the Perkins Electric Switch and Manufacturing Company, same place. Filed Nov. 1, 1892. Serial No. 450,631. (No model.)

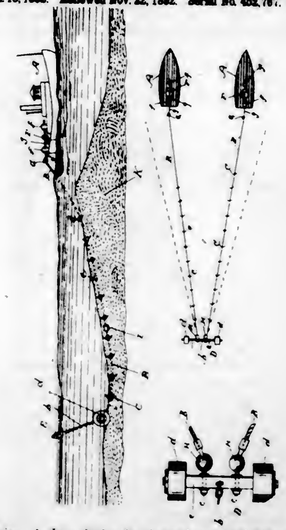


Claim.—1. In an electric switch in combination with an insulating base having two series of annularly arranged insulating ratchet teeth formed integral with the upper surface and a double set of stationary contact pieces secured thereto for the attachment of the circuit wires, double revolving pole-pieces pivoted in the center of each series of teeth, a single key, and a connection between the key and both of the revolving pole-pieces, substantially as specified.

2. In an electric switch in combination with an insulating base having two series of annularly arranged insulating ratchet teeth formed integral with its upper surface and a double set of stationary contact pieces secured thereto for the attachment of the circuit wires, double revolving pole-pieces pivoted in the center of each series of teeth, cog-wheels connected with the shanks of the movable pole-pieces, a cog-wheel meshing with both of said wheels, and a key secured to the latter cog-wheel, substantially as specified.

3. In an electric switch in combination with an insulating base having annularly arranged insulating ratchet teeth formed integral with its upper surface and stationary contact pieces secured thereto for the attachment of the circuit wires, a revolving pole-piece extending across the ratchet teeth pivoted to an arbor in the center, a yoke loosely connected with the revolving pole-pieces secured to the arbor, a spring between the yoke and movable pole-piece, a disk connected with the opposite end of the arbor, and a key for rotating the disk, substantially as specified.

490,747. MACHINE FOR REMOVING MUD OR SAND FROM RIVERS OR HARBORS. CHARLES R. GLOVER, Houston, Tex. Filed Jan. 13, 1892. Renewed Nov. 22, 1892. Serial No. 452,767. (No model.)



Claim.—1. In a device for deepening or widening channels of rivers or harbors, a cable provided with revoluble agitators or cutters rigidly connected thereto, a track connected to the trailing end of the cable by a ball and socket connection, substantially as and for the purpose set forth.

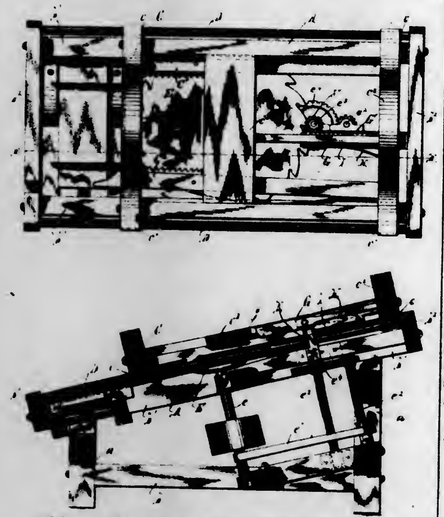
2. In a device for widening or deepening the channels of rivers or harbors, a cable having agitators rigidly connected thereto at intervals throughout its length, a truck connected thereto by the ball and socket joints, and a buoy attached to the truck, substantially as and for the purpose set forth.

3. In a device for widening or deepening channels of rivers and harbors, a cable having agitators attached thereto, a trailing truck to which the cable is connected through a ball and sockot joint, a counter shaft on the tug, and universal joint connection between the cable and shaft, substantially as and for the purpose set forth.

4. In a device for widening and deepening the beds of water courses, pairs of cables, B, supplied at intervals of their length with agitators, C, having radially extending from central plate, c', a series of curved pointed blades, a, the forward end of each chain being connected by universal joint to a shaft operated by suitable gearing on steam tugs the opposite ends of the chains each connected by ball and socket to trailing truck, D, said cables being provided with anchors L, and buoys, E, all in combination with tugs, A, whereby through operative gearing on the tugs, the cables and connections can be propelled in any direction and revoluble motion imparted thereto, as and for the purpose intended, substantially as described.

5. In a device for scouring and loosening beds of water courses, the combination of shafts, B', having attached thereto by universal joint, cable, B, provided with fixed agitators, C, and loosely attached buoys, E, and anchors, L, with countershaft, g geared to main shaft, A, of steam tug, whereby when motion is imparted thereto said cable and its attached agitators will revolve, substantially as described.

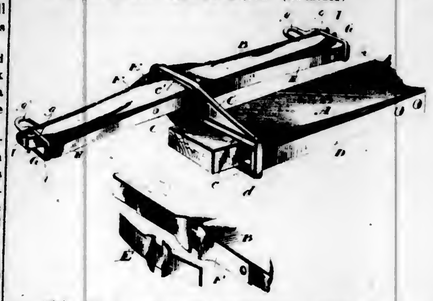
490,748. FEED MECHANISM FOR SAWING-MACHINES. JEROME V. GUE, North Western, N. Y. Filed Oct. 13, 1890. Serial No. 367,941. (No model.)



Claim.—1. The combination with a frame, a projection —K— on the frame and a carriage movable reciprocally npoo the frame: of a feed pinion journaled on the frame, a rack having both ends movably supported on the carriage and adapted to engage said pinion to effect the movement of the carriage, a spring for forcing the rack into its normal position in engagement with the pinion, and a rib on the rack having its opposite ends movable beyond the projection —K— and its opposite faces successively engaged by said projection as the carriage travels to and fro upon the frame, substantially as and for the purpose set forth.

2. In combination, a frame having a guide, a carriage movable on said guide and provided with a pair of slots, a feed gear wheel for moving said carriage, a rack having its opposite extremities movably mounted in the slots in said carriage for engaging said wheel, a depending rib on the rack of less length than the toothed portion of the rack, a spring for forcing the one extremity of said rack toward the feed wheel and the other extremity in an opposite direction, and a stationary projection on said frame for engaging the inner side of the rib upon the upward movement of the rack, substantially as and for the purpose specified.

490,749. WHIFFLETREE. ROBERT F. KING, Bozeman, Mont. Filed May 25, 1892. Serial No. 434,304. (No model.)



Claim.—1. In combination, a doubletree, a singletree, the plate connecting them having openings in different horizontal planes, said openings being longer than the part inclosed thereby, and a spring engaging one end of each opening and the whiffletree and doubletree substantially as shown and described and for the purpose specified.

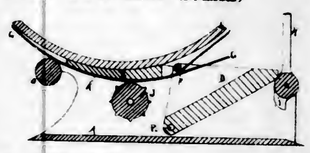
2. In combination, a double tree, a single tree, the connecting plate having an opening through which the single tree passes made longer in one direction than the width of the said tree, the notched plate attached to the edge of the single tree and engaging the sides of the opening, and a spring engaging the whiffletree, the doubletree and the end of the opening, substantially as and for the purpose described.

490,750. CLOCK-ATTACHING DEVICE FOR CYCLES. EDMOND KUHN, Brooklyn, N. Y. Filed Mar. 3, 1892. Serial No. 423,577. (No model.)



Claim.—The combination with the handle rod C, of the two-part clamp detachably secured thereto, the flat spring arm E having a portion lying flat on and held to the upper part of the said clamp and curved as shown and its other end curved and extended at right angles to the length of the arm to conform to the curvature of a clock and to partially embrace the same, and the clock under which the spring arm passes and to which it is secured, substantially as shown and described.

490,751. TIRE-SHRINKER. WILLIAM LEHNER, Chicago, Ill. Filed July 1, 1892. Serial No. 438,700. (No model.)



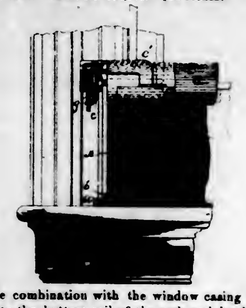
Claim.—1. In a tire-shrinker, the combination with a base "A" of a perforated band, a sprocket wheel engaging with the band for drawing taut around the tire, a pivoted block connected with the band and mechanism for oscillating the block in such a manner as to tighten the band about the tire.

2. In a tire-shrinker, the combination with a base "A" of a perforated band, a sprocket wheel engaging with the band, and keyed to the same shaft with a ratchet wheel, provided with means for drawing the band taut about the tire, a block connected with the band and mechanism for operating the block substantially as herein show and described.

3. In a tire-shrinker, the combination of a base "A," a perforated band, a sprocket wheel and ratchet wheel, a dog in connection with the ratchet wheel for locking it and the sprocket wheel in place, a block connected with the band, and mechanism for operating the same substantially as herein shown and described.

4. In a tire-shrinker, the combination of a base "A," a perforated band, a support "O" for the band, a sprocket wheel, a pivoted block connected with the band and mechanism for operating the same substantially as herein shown and described.

490,752. AUTOMATIC ADJUSTABLE WINDOW-SCREEN. PETER H. HILM, Potwin Place, assignor of one-half to A. M. LEGG, Topeka, Kans. Filed Sept. 2, 1891. Serial No. 404,573. (No model.)



Claim.—The combination with the window casing and sash, a bolster secured to the bottom rail of the sash and having its front surface flush with the front of the window casing, and arms or supports secured to said bolster, of a spring-actuated roller journaled in swinging-brackets pivoted to said arms or supports, the screen having one end attached to the roller and the other to a bar removably secured to the window-sill, and a spring, one end of which is secured to one of the arms or supports and the free end bearing against a stud on one of the swinging brackets, whereby the roller and side edges of the screen are maintained in contact with the front face of the window-casing, substantially as specified.

490,753. SECONDARY-BATTERY ELECTRODE. HARRY G. OSBURN, Chicago, Ill. Filed Nov 21, 1891. Serial No. 412,664. (No model.)



Claim.—An electrode for secondary batteries, comprising a grid or plate having a multiplicity of connected ribs or bars which are deflected in opposite directions, and form open receptacles for active material, a reinforcing conductor extending through the receptacles and the filling of active material substantially as specified.

490,754. REVERSING-GEAR. ANDREAS RADOVANOVIC, Pilsen, Austria-Hungary. Filed Apr. 13, 1892. Serial No. 429,043. (No model.) Patented in Austria-Hungary May 26, 1887, No. 5,178 and No. 24,396, and in Germany Nov. 11, 1888, No. 51,247, and July 28, 1891, No. 62,063.



Claim.—1. The combination with a driving shaft and the steam distributing devices of the motor for said shaft, of a reversing gear comprising an eccentric lever on the driving shaft, said lever connected with the steam distributing devices, and an adjusting device as an adjustable ring seated in and controlling the movements of said lever, for the purpose set forth.

2. The combination with a driving shaft and the steam distributing devices of the motor for said shaft, of a reversing gear comprising an eccentric lever on the driving shaft, said lever provided with a ring bearing, a disk or ring seated in said bearing, and a shifting device for shifting the position of said disk or ring relatively to the eccentric that operates the lever, for the purpose set forth.

3. The combination with a driving shaft and the steam distributing devices of the motor for said shaft, of a reversing gear comprising an eccentric lever on the driving shaft, said lever provided with a ring bearing, a disk or ring seated in said bearing, and a shifting device for displacing the center of said disk or ring relatively to the axis of oscillation of the lever and to its point of connection with the steam distributing devices, for the purpose set forth.

4. The combination with a driving shaft and the steam distributing devices of the motor for said shaft, of a reversing gear comprising an eccentric lever on the driving shaft, connected with said steam distributing devices, a reversing shaft, a disk or ring on said shaft, said disk or ring revoluble in a bearing of the eccentric lever, and a shifting device for shifting the center of the disk or ring relatively to the center of the reversing shaft, for the purposes set forth.

5. The combination with an eccentric lever provided with a ring bearing and a disk or ring seated in said bearing, of an adjusting device, as a revoluble shaft, and a block or blocks, as c^3, revoluble with the shaft and connected with the ring or disk so as to displace the center of the latter relatively to the center of the eccentric that actuates the lever and cause said disk or ring to oscillate or reciprocate in the plane of displacement of its (the disk's) center, for the purpose set forth.

6. The combination with an eccentric lever provided with a ring bearing, as b^2, and a disk or ring, as c, seated in bearing, b^3, of an adjusting device, as a revoluble shaft, a block or blocks revoluble with the shaft, and a guide or guides connected with the disk or ring in which said block or blocks work so as to displace the center of the disk or ring relatively to the center of the eccentric that actuates the lever when a partial rotation is imparted to the shaft, and to cause said ring or disk to oscillate or reciprocate on or with the block or blocks in the plane of the displacement of its (the disk's) center, for the purpose set forth.

7. The combination with an eccentric lever provided with a ring bearing and a disk provided with a slot, as c', seated in said bearing, of an adjusting device, as a revoluble shaft, and a block, as c^3, revoluble with said shaft and working in the slot of the disk so as to displace the center of the latter relatively to the center of the eccentric that actuates said lever when said shaft is partly revolved and cause the disk to oscillate or reciprocate on the block in the plane of displacement of its (the disk's) center, for the purpose set forth.

8. The combination with an eccentric lever provided with a bearing, as m, a ring bearing, as b^2, and a disk or ring, as c, seated in bearing b^3, of an adjusting device, as a revoluble shaft, a block or blocks revoluble with the shaft, and a guide or guides connected with the disk or ring in which said block or blocks work so as to displace the center of the disk or ring relatively to the center of the eccentric that actuates the lever when a partial rotation is imparted to the shaft, and to cause said ring or disk to oscillate or reciprocate on or with the block or blocks in the plane of the displacement of its (the disk's) center, for the purpose set forth.

490,755. CONNECTOR FOR ELECTRICAL CONDUCTORS. GEORGE L. RUSSELL, Middletown, Conn., assignor to the Schuyler Electric Company, of Connecticut. Filed Aug. 12, 1892. Serial No. 442,910. (No model.)



Claim.—1. A connector for electric conductors, consisting of a plate having a sharp edge, a clamping piece having a hook to co-act with said edge, and means for adjustably fastening said parts together, substantially as described.

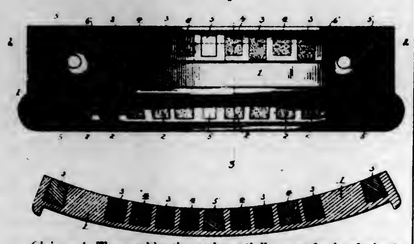
2. A connector for electric conductors, consisting of a plate bent twice at about right angles, a clamping piece similarly bent, and ending in a downwardly extending hooked portion and a screw for fastening them together, substantially as described.

3. A connector for electric conductors, consisting of a plate having a notch in one end, a clamping piece having a hook adapted to enter said notch, and means for fastening said parts together, substantially as described.

4. The combination with a plate a bent twice at about right an-

gles, and having a notch *f* at one end, of a clamping piece *b* having a curved hook *d* to enter said notch, and a screw *c* to fasten said parts together, substantially as set forth.

490,756. BRAKE-SHOE. PITT WILLIAM SARGENT, Aurora, assignor to the Congdon Brake Shoe Company, Chicago, Ill. Filed May 27, 1892. Serial No. 434,670. (No model.)

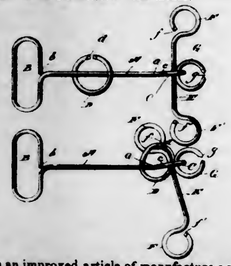


Claim.—1. The combination, substantially as set forth, of a brake shoe, a series of grinding or friable abrading surfaces adapted to grind the wheel, and a series of friction surfaces, as 5, to prevent too great a wear of the brake shoe, and to hold the particles which are worn from the abrading surfaces and cause them to act on the wheel tire.

2. The combination, substantially as set forth, of a brake shoe with a series of grinding or abrading surfaces and a lip as 6, on the outer edge of said shoe to prevent a too rapid escape of the grinding particles.

3. A brake shoe composed of cast iron or like material, and having embedded therein a series of protecting blocks, as 5, and a series of grinding blocks, as 2, 3 and 4, said shoe having also a lip, as 6, on its outer edge substantially as set forth.

490,757. PUZZLE. JOHN A. SCHAFFER, Kensington, Ill. Filed Oct. 14, 1892. Serial No. 448,856. (No model.)



Claim.—As an improved article of manufacture a puzzle, consisting of the main stem A, having the rings or enlargements B, and C, the cross-stem or arm E, encircled by the ring C, and having the broken rings F, and F', provided with the beveled ends *f*, and *f'*, respectively, the broken ring G, having the beveled ends *g*, and linked in the ring C, and the broken removable or main ring D, having the beveled ends *d*, all constructed, arranged and operating substantially as shown and described and for the purpose set forth.

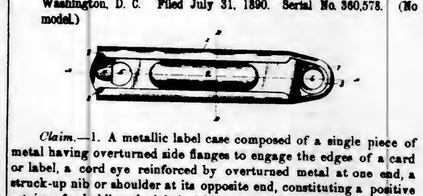
490,758. STOP MECHANISM FOR KNITTING-MACHINES. DANIEL F. SULLIVAN and EDWARD F. STAPLES, Lowell, Mass. Filed Mar. 10, 1892. Serial No. 424,443. (No model.)

Claim.—1. In a knitting machine, substantially as described, the combination with a movable series of needles, and means for moving the series of needles; of a spring-pressed detector normally impinging against the textile as it is taken up from the needles and adapted to take through said textile when it finds a hole therein, an arm connected to the detector and adapted to take through the series of needles when the detector takes through the textile, and mechanism connected with and actuated by the detector adapted to stop the movement of the series of needles: substantially as and for the purpose set forth.

2. In a knitting machine, substantially as specified, the combination with the drive shaft, a movable gear wheel mounted thereon, the needle cylinder or head carrying needles, a gear-wheel carried by

490,758.





said cylinder or head, a shipper lever loosely connected to the gear on the drive shaft and having a hook adjacent to one end, a retracting spring connected to said lever, and a keeper lever fulcrumed at an intermediate point in its length and having a hook adjacent to one end to engage the hook of the shipper-lever, and a lug adjacent to the other end; of a central, vertical shaft having an arm at its lower end adapted to engage the lug of the keeper lever, the sleeve or socket extending radially from said shaft, and the spring-pressed detector adapted to normally impinge against the textile; substantially as and for the purpose set forth.

490,759. METALLIC LABEL-CASE. RADOLPHUS D. S. TYLER, Washington, D. C. Filed July 31, 1890. Serial No. 360,578. (No model.)

Claim.—1. A metallic label case composed of a single piece of metal having overturned side flanges to engage the edges of a card or label, a cord eye reinforced by overturned metal at one end, a struck-up nib or shoulder at its opposite end, constituting a positive retainer for holding the label within the flanges, and a hole within the nib whereby the label may be lifted clear of the nib for removal.

2. The herein described label case having overturned side flanges, a cord or staple eye at one end, an elongated slot at the other end both reinforced by overturned metal and a struck-up shoulder constituting a positive retainer for holding the label within the flanges.

490,760. ELECTRICAL MEASURING-INSTRUMENT. EDWARD WESTON, Newark, N. J. Filed Oct. 3, 1892. Serial No. 447,679. (No model.)

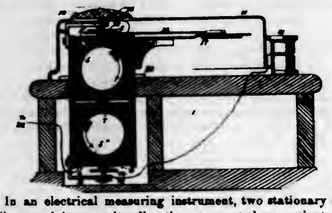
Claim.—1. In an electrical measuring instrument, two stationary coils, two coils wound in opposite directions movable about an axis common to both and respectively located in the fields of said stationary coils, and a spring opposing and counterbalancing the impressed action of said movable coils.

2. In an electrical measuring instrument, two stationary coils, two coils wound in opposite directions having a common diametral pivot and vibrating respectively in the fields of said stationary coils, and a spring opposing and counterbalancing the impressed action of said movable coils.

3. In an electrical measuring instrument, two stationary coils, two coils wound in opposite directions supported on a pivot shaft common to both and located respectively in the fields of said stationary coils, and a spring connected to said pivot shaft and to an abutment and opposing the vibration of said shaft,

4. In an electrical measuring instrument, two stationary coils

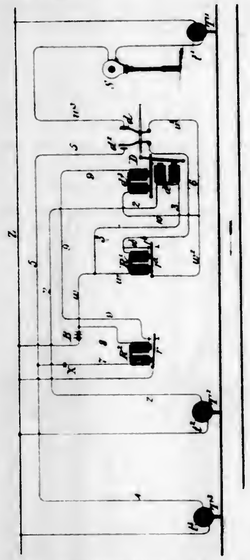
placed side by side, a shaft extending diametrally through both of said coils, two coils wound in opposite directions supported on said shaft and disposed within said fixed coils, and a spring connected to said shaft and to an abutment and opposing the vibration of said shaft.



5. In an electrical measuring instrument, two stationary coils, two coils wound in opposite directions supported on a pivot shaft common to both and located respectively in the fields of said stationary coils, and springs connected to said pivot shaft and to abutments and opposing the vibration of said shaft; the said coils and springs being inserted and the said springs being disposed respectively to lead the actuating current into and out of said movable coils.

6. The combination in an electrical measuring instrument of the fixed coils 2 and 3, the movable coils 5 and 5× wound in opposite directions and respectively disposed within said fixed coils, the pivot shaft 7 8 9 carrying said movable coils, and the springs 12 and 14 opposing the vibration of said shaft.

490,761. ELECTRIC SIGNALING SYSTEM. ADONIRAM J. WILSON, Port Chester, N. Y., and WILMER W. SALMON, Chicago, Ill., assignors to the Hall Signal Company, of Maine. Filed Sept. 14, 1892. Serial No. 445,861. (No model.)



Claim.—1. In a railway block signaling system, the combination of a main signaling circuit,—a circuit controller in said main circuit operated by a moving train and located at the entrance of a guarded block or section,—a circuit breaker in said main circuit,—a clear circuit controlling said circuit breaker,—a circuit controller located at the exit end of the guarded block or section, operating said clear circuit and operated by the train,—and a device for breaking the clear circuit connected with and also controlled by the said clear circuit controller, substantially as set forth.

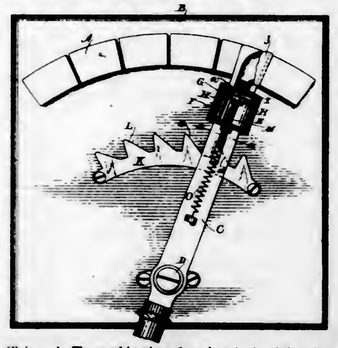
2. The combination of a main signaling circuit,—a circuit controller in said main circuit operated by a moving train and located at the entrance of a guarded block or section,—a circuit breaker in said main circuit,—a clear circuit controlling said circuit breaker,—a circuit changer in both the signaling and the clear circuits,—an electro-magnet controlling said circuit changer and controlled by a device located within the guarded block or section and operated by the moving train,—a circuit controller located at the exit end of the block and adapted to be operated by the moving train and thus operate the clear circuit and the said circuit changer whereby the clear circuit and the signal circuit are restored to normal, substantially as set forth.

3. The combination of a railway signaling circuit, a circuit controller in said circuit operated by a moving train and located at the entrance end of a guarded block,—a circuit breaker in said circuit,—a clear circuit controlling said circuit breaker,—a circuit changer in both the signaling and the clear circuits,—an electro-magnet controlling said circuit changer and controlled by a device operated by the moving train and located within said guarded block,—a circuit controller located at the exit end of said block and operated by the moving train,—to energize the clear circuit, and also a secondary circuit thereby operating an electro magnet controlling said circuit changer, whereby the clear circuit and signal circuit are restored to normal and whereby the signal circuit is shunted as long as the said circuit controller at the exit end of the block is in an active state of operation, substantially as set forth.

4. In a railway signaling system, the combination with the main signaling circuit having signaling relay R' and circuit controller f', f^2 and f^3, operated by a moving train, of a clear circuit including said signaling relay, a double circuit instrument or circuit changer D in both signaling and clear circuits, operated by said circuit controller f^2, and a shunt circuit having shunt relay R^1 controlled by said circuit controller f^3, arranged to operate substantially as set forth.

5. In an electric block signaling system a normally closed signal circuit adapted to maintain a signal normally at safety, and including a normally closed circuit controller operated by a magnet R', a circuit controller located at the entrance of a block adapted to be operated by a train to throw the signal to danger, a clear circuit including the magnet R', a circuit controller for said clear circuit adapted to be operated by a train, a normally closed circuit breaker included in the signal circuit, a normally open circuit closer included in a clear circuit, a circuit controller adapted to be operated by a train and located within the block but near the end thereof, and a circuit for said circuit controller adapted to open the circuit breaker of the signal circuit and close the circuit closer of the clear circuit, a normally open circuit adapted to restore the said circuit closer and the said circuit breaker to normal and including the circuit controller operated by the magnet R', and means for closing the said normally open circuit as long as the circuit controller located at the end of the block is being acted upon, substantially as and for the purpose set forth.

490,762. ELECTRIC-CIRCUIT BREAKER. EDWARD M. BENTLEY, Boston, Mass., assignor to the General Electric Company, of New York. Filed Nov. 19, 1892. Serial No. 452,594. (No model.)



Claim.—1. The combination of an electric circuit breaker having at least one moving member, with a compressor, and means controlled by the movement of the moving member of the circuit breaker for actuating said compressor and delivering a jet of insulating fluid across the arcing space, as set forth.

2. The combination of an electric circuit breaker having at least one moving member, a compressor actuated by said member a valve controlling the delivery of a jet of air or other insulating fluid across

the arcing space, and means controlled by the moving member of the circuit breaker, for opening said valve at or about the instant the circuit is broken, as set forth.

3. The combination of an electric circuit breaker having a traveling arm or lever as one member, with a compressor moving with the arm and automatically delivering air or like insulating fluid across the arcing space at or near the instant the circuit is broken, as set forth.

4. The combination of a circuit breaker having a traveling arm or lever as one member, with a compressor moving with said arm, a cam or tappet causing a forward stroke of said compressor when the lever is thrown to break the circuit, and an escape valve allowing a puff of air to escape across the arcing space when the circuit is broken, as set forth.

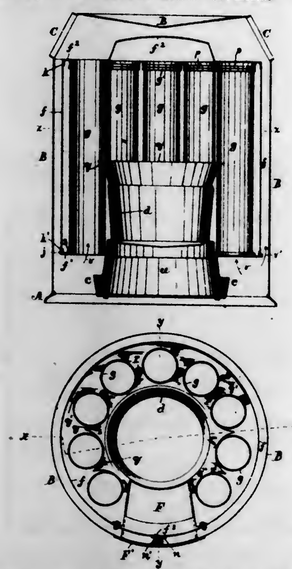
5. The combination of an electric circuit breaker having a traveling arm as one member, a compressor moving with the arm, a cam fixed in the path of the movement of the arm for moving the piston forward automatically, and a valve controlling the escape of the compressed air, and opened automatically when the piston is at or near the forward limit of its stroke, as set forth.

6. The combination of a pivoted traveling arm adapted to sweep over and make contact with a series of insulated contacts, with a compressor moving with the arm and means automatically causing a forward stroke of the piston of the compressor as the arm passes from one contact to another and thereby delivering a jet of air or like insulating fluid across the arcing space, as set forth.

7. The combination in an electric circuit breaker, of a traveling arm and stationary row of contacts, with a compressor on the arm and the rack bar with alternate raised or depressed portions in the path of movement of the compressor, and giving a forward stroke to the piston of the same as the arm moves from one contact to the next, as set forth.

8. The combination in an electric circuit breaker, of a traveling arm and compressor, with the actuator bar K and the hinged arm N connected with the piston of the compressor and rigid in one direction but not in the other, for the purpose described.

490,763. TUBULAR AIR-WARMER. JOSEPH J. BLACKMORE, Newark, N. J., assignor to the Blackmore Heating Company, same place. Filed May 16, 1892. Serial No. 433,340. (No model.)



Claim.—1. In an air warmer, the combination, with the ash box and the fire pot, of the seat *e* upon the exterior of the ash box and below the top of the same, the radiator bottom *f'* supported by such seat with the radiator top f^3 connected thereto by the jacket *f*, and the hot air tubes *g* extended through the radiator, substantially as and for the purpose herein set forth.

2. In an air warmer, the combination, with the casing B, of the ash box having the fire pot set removably upon the same, of the frame *b* extended from the ash pit through the casing, the frame F extended through the casing as set forth, the seat upon the fire pot with radiator bottom *f'* supported thereby, the radiator top connected therewith by the jacket *f*, the air tubes *g* extended through the radiator, and bolts attached to the jacket and extended through the sides of the frame G to tighten the jacket, as and for the purpose set forth.

3. In an air warmer, the combination, with the casing B, of the ash box having the fire pot set removably upon the same, of the frame *b* extended from the ash pit through the casing, the frame F extended through the casing to the top of the fire pot, the seat upon the fire pot with radiator bottom *f* supported thereby, the radiator top connected therewith by the jacket *f*, the air tubes *g* extended through the radiator, angle irons attached to the jacket above the frame F with bolts inserted through the same, and the bolts *l* attached to the jacket and extended through the sides of the frame G to tighten the jacket, as and for the purposes set forth.

4. In an air warmer, the combination, with the fire pot, of the radiator with the jacket *f* extended to the bottom of the fire pot, and the hot air tubes extended downward past the fire pot and inserted in the top and bottom of the radiator, and the deflecting plate *q*, *q'* dividing the radiator horizontally at the rear edge of the fire pot and connected together by means of bolts and bolting lugs *r*, as and for the purpose set forth.

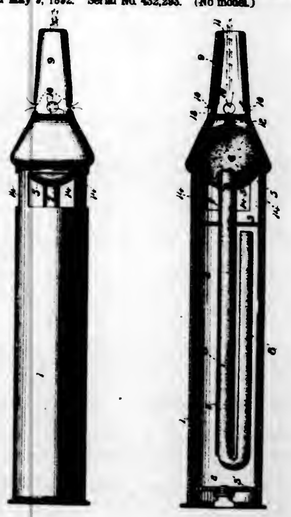
5. In an air warmer, the combination, with the casing B, the ash box and fire pot inclosed within the same, of the frame F inserted through the casing at the top of the fire pot, the radiator bottom surrounding the bottom of the fire pot with the projecting flanges *j* and *k'* of different heights, and bolts attached to the jacket and extended through the sides of the frame G to tighten the jacket against the flange *k'* and top f^3, as and for the purpose set forth.

6. In an air warmer, having a radiator with cast metal head and bottom, and sheet metal jacket, the combination, with the same, of metal tubes formed at their upper ends with the collars *g'*, and the collars *p* projected inward from the head of the radiator to receive the necks of the pipes, and provided with a space around such neck for an annular packing, substantially as herein set forth.

7. In an air warmer, the combination, with the casing and an ash box and fire pot inclosed within the same, of a water trough cast integral with the lower edge of the ash box and encircling the exterior of the same, as and for the purpose set forth.

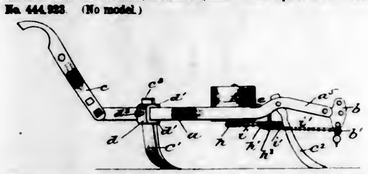
8. In an air warmer, the combination, with the casing and an ash box and fire pot inclosed within the same, of a water trough cast integral with the lower edge of the ash box and encircling the exterior of the same, a feeder cup without the casing, and a pipe connecting the feeder cup with the water trough, substantially as shown and described.

490,764. GAS-BURNER. JOHN M. DÖHRER, Bridgeport, Conn. Filed May 9, 1892. Serial No. 432,293. (No model.)



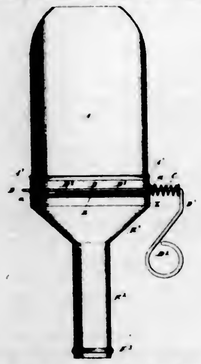
Claim.—A gas burner of the character described comprising in combination, liquid reservoir 2, having closed ends as shown; wick tube 7 carrying wick 8, said tube extending well into the reservoir as shown and projecting outward therefrom and terminating in the gas chamber 5, having gas outlet leading therefrom, substantially as shown; said chamber firmly packed with a substance sufficient to arrest the vapor arising from the reservoir, so that, heat being applied to the external surface of the chamber the vapor therein, or in the wick leading thereto, is converted into gas and to be forced therefrom as shown, to unite with the proper amount of oxygen in tube 9 to support combustion, apertures 14 between the gas chamber and the closed end 3 of the reservoir to admit cold air to check the rapid rise in temperature between the gas chamber and the interior of the liquid reservoir, as described.

490,765. CULTIVATOR. MARTIN B. GOULD, Bastrop, assignor of one-half to S. H. Puckett, Locharbor, La. Filed Sept. 2, 1892. Serial No. 444,923. (No model.)



Claim.—The combination of the beam *a*, bent in proper shape to form the frame of the cultivator and adapted to carry suitable handles, plow points and drawhead; hopper E, provided with the vertical slots *g*, and dropping orifices *c'*; false bottoms c^4, secured over the said orifices by means of bolts c^4, passing through said slots *g*, and secured by proper nuts; stirrer *f*, pivoted vertically in the center of said hopper with its arms adapted to play under said false bottoms and over said dropping orifices; sprocket wheel *h*, secured to the lower end of the shaft of said stirrer; sprocket wheels *h'* and h^3, secured to a rod extending from the tongue of the frame; drawhead *b*, secured in the front end of the tongue; single tree *b'*, pivoted to said drawhead; sprocket chain *i*, passing around the sprocket wheels *h* and *h'*; sprocket chain *i'*, passing around the sprocket wheel h^3, and having its ends secured to each end of said single tree, substantially as shown and described and for the purposes set forth.

490,766. FLOUR SCOOP AND SIFTER. THOMAS W. GOULD, Paterson, N. J. Filed Dec. 2, 1891. Serial No. 413,794. (No model.)



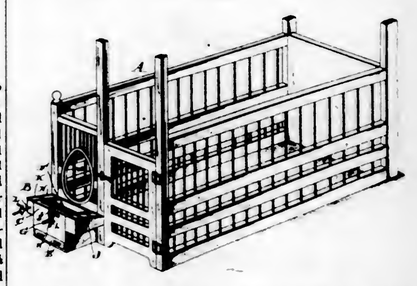
Claim.—1. In a combined scoop and sifter, having an agitator and means for operating it, the detachable band E, cone E' and smaller cylinder or tube E^2, in combination with the body A and permanently attached sieve B, and bayonet fastenings allowing the detachable portion to serve as a handle when used as a scoop, a guide for the sifted product when used as a sieve, and a funnel for general use when detached, all substantially as herein specified.

2. In a combined scoop and sifter, the combination with the body A and sieve B and the detachable part E E' E^2, serving both as a handle and as a guide for the sifted product of the agitator D^2 composed of a wire or similar metallic part formed in a flat frame lying close to the sieve, and the reciprocating rod D, extending across the body, guided in holes *a*, and having an arm D' adapted to be worked by a finger of the same hand which holds the scoop, as herein specified.

3. In a combined scoop and sifter, the detachable part E E' E^2, serving both as a handle and as a guide for the sifted product the reciprocating rod D, having an arm D' adapted to be worked by a finger of the same hand which holds the scoop, and the agitator D^2 composed of a wire or similar metallic part formed in a flat frame lying close to the sieve and adapted to be thereby reciprocated, in combination with each other, and with a spring C exerting a constant force urging the agitator into one extreme position, as herein specified.

4. In a combined scoop and sifter, having an agitator and means for operating it, the detachable band E, cone E' and smaller cylinder or tube E^2, in combination with the body A and permanently attached sieve B, and bayonet fastenings allowing the detachable portion to serve as a handle when used as a scoop, a guide for the sifted product when used as a sieve, and a funnel for general use when detached, and with the smaller detachable band G, conical extension G' and tube G^2, adapted for joint operation as herein specified.

490,767. MANGER. HENRY S. HALE, Philadelphia, Pa. Filed Aug. 19, 1891. Serial No. 403,067. (No model.)



Claim.—1. In a manger, the combination of a frame provided with a support for hay or other material and having slots *b* adjacent to and in front of the support, and a rack F having its ends provided with projections *f* adapted to fit into said slots to form a pivoted connection for the rack F, said rack being free to move toward the support.

2. In a manger, the combination of a frame having a support for hay or other material, a grated rack F having one end pivoted adjacent to and above the support and the other end free, and a spring pressed dog engaging and locking the free end of the rack against movement away from the support but permitting movement toward it.

3. In a manger, the combination of a box frame having a stationary support for hay or other material, a grated rack pivoted at one end adjacent to and in front of the support and having its outer or free end provided with a projecting arm, a toothed dog pivoted to the box frame adjacent to the projecting arm of the rack, and a spring to press said toothed dog into engagement with the arm.

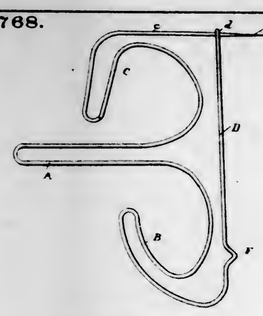
4. In a manger, the combination with a supporting diaphragm for hay or other material of a movable weighted rack arranged in front of said supporting diaphragm and moved toward it by the force of gravity, and a lock to positively hold said rack against movement away from the support, whereby the rack is kept pressed upon the hay on the supporting diaphragm.

5. In a manger, the combination with a support for hay, of a gravity actuated rack arranged above said support and movable toward it by the action of gravity, a lock to hold said rack against movement away from the support, and a spring normally acting upon said lock to hold it in action to positively prevent upward movement of the rack.

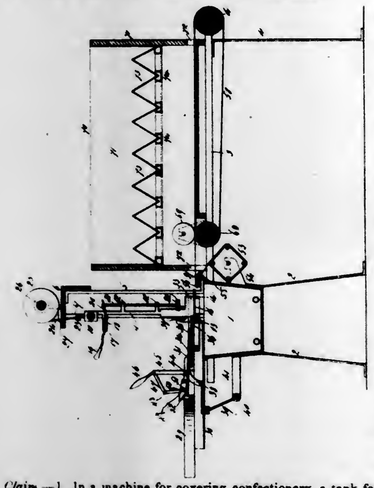
490,768. HAT AND COAT HOOK. HARMON S. HOGUE, Metropolis City, Ill., assignor of one-half to Walter P. Cutting, same place. Filed Aug. 4, 1892. Serial No. 442,142. (No model.)

Claim.—The herein described hat and coat hook formed of a single piece of wire, and comprising a rear bar D provided at its upper terminal with an eye *d* and at an intermediate point with a spur F, a lower looped hook B, a horizontal looped stud or arm A, and a downwardly curved looped hook C the upper side *c* of which is carried horizontally rearward through and beyond the eye *d* to form a securing screw E, substantially as specified.

490,768.



490,769. MACHINE FOR COATING CONFECTIONERY. DANIEL M. HOLMES, Arlington, N. J., assignor to John R. Van Derveer, New York, N. Y. Filed June 2, 1892. Serial No. 435,237. (No model.)



Claim.—1. In a machine for covering confectionery, a tank for holding the coating material; a frame fixed above said tank; a movable frame mounted within said fixed frame and bearing a series of fingers mounted upon cross-bars, as set forth, and a movable holding device mounted within the movable frame, the whole combined and arranged to operate, substantially as shown and described.

2. In a device of the character herein specified, the combination with the support at the bottom of the movable frame, of the reciprocatable centering and moving device, substantially as shown and described.

3. In a device of the character herein specified, the combination with the dipping mechanism, of the means for feeding the drops thereto, substantially as shown and described.

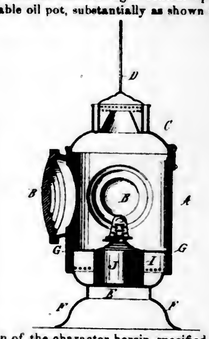
4. In a device of the character herein specified, the combination with the dipping mechanism, of the drop feeding device, having means for moving the same forward and causing it to tilt and release the drops, and the supporting leaf over which the drops are made to move, substantially as shown and described.

5. The combination with the supporting fingers forming a part of the dipping mechanism, of the drop centering and moving device, and the transverse scraping bar fixed beneath the supporting fingers, substantially as shown and described.

490,770. SIGNAL LAMP OR LANTERN. LAWSON G. HUNTINGTON, New York, N. Y., and ROBERT J. ARMOUR, Newark, N. J. Filed Dec. 27, 1890. Serial No. 376,150. (No model.)

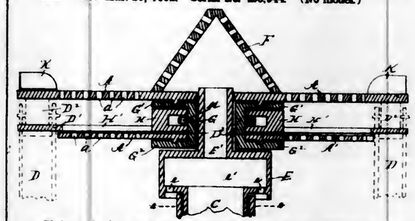
Claim.—1. The combination with a lamp or lantern body bearing lenses and having a closed bottom, of a removable perforated plate supported within the lamp body, as set forth, and arranged to hold the oil pot in place, substantially as shown and described.

2. The combination with a body of a lamp of the character herein specified, having a closed bottom, of a removable perforated plate supported therein and having a central opening in which is seated a removable oil pot, substantially as shown and described.



3. In a lamp of the character herein specified, having a closed bottom, the combination with the removable perforated plate having an opening in its center, and a supporting ring or cup, of a removable oil pot seated in said ring or cup, substantially as shown and described.

490,771. GAS-PRODUCER. OLIVER W. KETCHUM, Toronto, Canada. Filed Mar. 29, 1892. Serial No. 426,944. (No model.)



Claim.—1. In a gas producing furnace a grate composed of an upper and a lower circular plate rigidly connected by a flanged collar, said upper plate having gear teeth on its periphery and a hollow cone located above its center, and means for rotating said plates substantially as described.

2. In a gas producer a grate composed of an upper and a lower plate each provided with openings B, B, said upper plate having the gear teeth and carrying two or more pivoted scrapers and the hollow cone; a casting provided with the chamber E and having a pipe E' extending up through a central hole in said plates and connected to an air supply pipe substantially as shown.

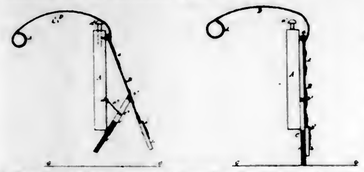
3. In a gas producer, a grate composed of an upper and a lower plate rigidly connected by a flanged collar, said upper plate having the gear teeth and carrying the pivoted scrapers and the hollow cone; the casting E having the chamber e' provided with the holes e e and the pipe E' extending up through a central hole in said plates, the standards D D supporting the plate D' which carries the rollers D^2, said plate D' being rigidly connected to a disk H by the arms H', substantially as described.

4. In a gas producer the combination of the upper plate having the gears and carrying the pivoted scrapers and the cone, the lower plate rigidly secured to said upper plate by the flanged collar and means for rotating said plates, the casting E connected to the air supply pipe and having the chamber and the pipe E', the standards supporting plate D' which carries the rollers; and the disk H fitting around said flanged collar and connected to said plate D' by the arms H', H', which are adapted to sweep the plate A' substantially as shown.

490,772. TRACK-CLEARER. CHARLES MANOR, Washington, D. C. Filed Jan. 12, 1892. Serial No. 417,846. (No model.)

Claim.—1. In a device for removing obstructions from car tracks, a vertically arranged main fender adapted to be pivoted to the frame or truck of a car, and a vertically arranged auxiliary fender connected to the main fender and also adapted to be connected to the guard plank, the two arranged to be brought together substantially as described whereby the fenders act conjointly to close the space between the guard plank and track when applied to the car as set forth.

2. In a device for removing obstructions from car tracks, a vertically arranged main fender adapted to be connected to the car frame or truck, a vertically arranged auxiliary fender connected thereto and adapted to be actuated thereby the two arranged to be brought together to close the space between the guard plank and track and a counterbalance substantially as described, whereby the fenders are automatically returned and held in their normal position after being released from an obstruction as set forth.



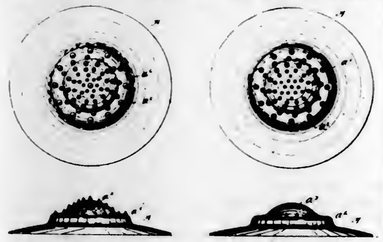
3. In a device for removing obstructions from car tracks, a main fender adapted to be pivoted to the car frame or truck, an auxiliary fender pivoted to the rear face of the main fender, a link to connect the auxiliary fender with the car frame or truck, and a counterbalance weight to act on the fenders substantially in the manner and for the purpose set forth.

4. In a device for removing obstructions from car tracks, a main fender adapted to be pivoted to the car frame or truck, having its lower edge made of yielding or flexible material, and an auxiliary fender secured in rear thereof and adapted to be actuated thereby, substantially as set forth.

5. In a device for removing obstructions from car tracks, a main fender adapted to be pivoted to the car frame or truck, and an auxiliary fender connected to and actuated thereby made in brush form, said fenders acting conjointly to close the space between their support and the track, substantially as and for the purpose set forth.

6. In a device for removing obstructions from car tracks, a main and auxiliary fender connected to the guard plank and to each other substantially as described, and a spring shield having one portion secured to the guard plank and its free portion to extend over the inner edges of the fenders, as and for the purpose set forth.

490,773. METHOD OF PERFORATING METAL. CHARLES OSBORNE, New York, N. Y., assignor to the Whiting Manufacturing Company, same place. Filed May 27, 1892. Serial No. 434,556. (No model.)



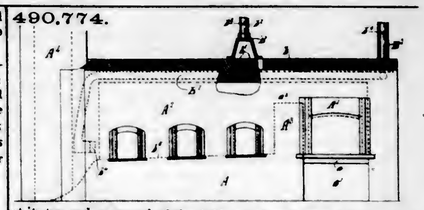
Claim.—The process of forming perforations in metal tops for bottles consisting in first forming the blank with a number of imperforate hollow projections and in subsequently removing said projections by cutting from the outer side, substantially as specified.

490,774. FURNACE. JACOB ROBERTS, Catasauqua, Pa. Filed July 30, 1892. Serial No. 441,695. (No model.)

Claim.—1. A furnace having a fire chamber and puddling or heating chamber partially separated by a bridge wall, ports or passages for air or oxygen communicating with the puddling or heating chamber at its top and rearward of the bridge wall, and arranged to direct the air or oxygen directly downward into the puddling or heating chamber, and ports or passages for air or oxygen communicating with the rear portion of said puddling or heating chamber near its bottom, substantially as specified.

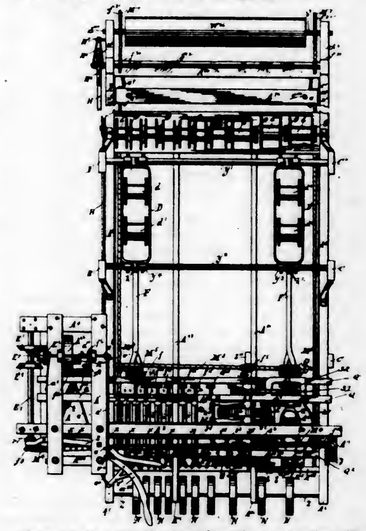
2. A furnace having a fire chamber and puddling or heating chamber, partially separated by a bridge wall, ports or passages for air or oxygen communicating with the puddling or heating chamber

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at its top and rearward of the bridge wall, and arranged to direct the air or oxygen directly downward into the puddling or heating chamber, ports or passages communicating with the rear portion of said puddling or heating chamber near its bottom and pipes or flues extending along the walls of the furnace and communicating with said last named ports or passages, substantially as specified.

490,775. MACHINE FOR MAKING WIRE FENCING. PETER SOMMER, JOHN SOMMER, and PETER W. SOMMER, Tremont, Ill. Filed Sept. 10, 1891. Serial No. 405,353. (No model.)



Claim.—1. In a wire fabric machine, the combination with a series of sectional twisters for warp wires, adapted to be intermittently rotated, each independent section of the series alternately in an opposite direction and each having perforations in both journals of the respective sections for the passage through of wires, of a shifting section for the weft-wire adapted to have a lateral movement on its journals for successive matching relation with the journals of said series of sections and having a perforation in one of its journals for the passage through of a wire, whereby when the said shifting section and any one of the series of sectional twister journals are in conjunction and rotated together, the said wires will be twisted together, all substantially as described and set forth.

2. In a wire-fabric machine, the combination with a series of sectional twisters for warp wires adapted to be intermittently and successively rotated each independent section of the series alternately in an opposite direction, each having its journals flattened on one side to form one half of the complete journal, and each having perforations in both half journals of the respective sections for the passage through of wires, of a shifting section for the weft wire having corresponding flattened journals to form the other half of a complete journal and a perforation in one of the said half-journals for the passage through of a wire, shifting carriage having semi circular recess bearings for the half-journals of said shifting section and stationary bearing frame having semi-circular recess, bearings for the half-journals of each of the series of stationary sections and mechanism for reciprocating the shifting carriage to bring the journals of the shiftable

section and of stationary sections, of the series in co-incidence successively for simultaneous rotation, both together to twist the wires together, all substantially as described and shown.

3. In a wire fabric machine, the combination, with a series of successively rotating sections for the warp wires, the rotation of each section being in an alternate direction in its successive rotation but in the same direction as the other sections of the series in their successive rotation, each having a semi-circular depressed from between its half-journals and each having perforations in each of its respective half-journals, of a bifurcated section journaled above said series of sections and having a perforation in one of its half-journals for passage through of a wire, and a spool mounted in said section for carrying the weft-wire, said journaled parts when in co-incident relation constituting a twisting device, and actuating mechanism for shifting the shiftable carriage and section laterally to bring its half-journals in conjunction with the half-journals of each of the series of sections in succession and to rotate the said combined sections together and each independent section of the series alternately in opposite directions but always in the same direction as the alternate rotation of each of the respective sections of the series to twist the wires together, all substantially as described and shown.

4. In a wire fence machine, the combination, with a series of successively rotating sections each having perforations in their half journals for the warp-wires, the rotation of each independent section of the series being alternately in opposite direction but always the same direction as the alternate rotation of each of the respective sections of the series, of a shiftable section having perforations in one of its half-journals for the weft-wire actuating mechanism for shifting said shiftable section with a carriage in which it is carried to bring its half-journals in matching relation with the half-journals of the series of sections successively and to rotate said combined sections, the shiftable section with each one of the series successively to twist the wires together, a clamp formed of two sections arranged one above the other and designed to bear over and engage the wire fabric for the purpose of drawing backward the said fabric by the application of suitable power and a fabric roll in advance of the clamp, all substantially as described and shown.

5. In a wire fabric machine, the combination, with a series of successively rotating sections, having perforations in their respective half-journals for the warp-wires, the rotation of each independent section of the series being alternately in opposite direction but always in the same direction as the alternate rotation of each of the respective sections of the series, a shiftable section, having a perforation in one of its half-journals for the weft-wire, and actuating mechanism for shifting said shiftable sections with a carriage in which it is carried to bring its half-journals in matching relation with the half-journals of the series of sections successively and to rotate said combined sections, the shiftable section with each one of the series successively to twist the wires together, of a clamp formed of two sections arranged one above the other and designed to bear over and engage the wire fabric for the purpose of drawing the same backward by the application of suitable power, a series of wide-faced wheels over which the warp-wires are carried situated in advance of the perforated half-journals of the series of sections for spacing the warp-wire, all substantially as described and shown.

6. In a wire-fabric machine, the combination, with a series of successively rotating sections, having perforations in each of their respective half journals, for the carrying through of the warp wires, the rotation of each independent section of the series being alternately in opposite direction but always in the same direction as the alternate rotation as each of the respective sections of the series, a shiftable section having a perforation in one of its half-journals for the weft-wire and actuating mechanism for shifting said shiftable section with a carriage in which it is carried to bring its half-journals in matching relation with the half-journals of the series of sections successively and to rotate the said combined sections, the shiftable sections with each one of the series successively to twist the wires together, of a clamp formed of two sections arranged one above the other and designed to bear over and engage the wire fabric for the purpose of drawing the same backward by the application of suitable power, a series of wide-faced wheels over which the warp-wires are carried situated in advance of the perforated half-journals of the series of sections and provided to properly space the said warp-wires and a take up reel for operation in way described, all substantially as described and shown.

7. In a wire fence machine, the combination, with a series of successively rotating sections having perforations in each of their shiftable half-journals for the carrying through of the warp-wires the rotation of each independent section of the series being alternately in opposite direction but always in the same direction as the alternate rotation as each of the respective sections of the series, of the shiftable section, having a perforation in one of its half-journals for the weft-wire and actuating mechanism for shifting said shiftable section with a carriage in which it is carried to bring its half-journals in matching relation with the half-journals of the series of sections successively and to rotate the said combined sections, the shiftable sections with each one of the series successively to twist the wires together, of a clamp formed of two sections arranged one above the other to engage the wire fabric and to draw the same backward when suitable power is applied, a take-up reel for operation in manner described and mechanism for operating the combined sections to rotate them relatively in matching relation with the half-journals of the series of sections successively and to rotate the said combined sections, the shiftable sections with each one of the series successively to twist the wires together, of a clamp formed of two sections arranged one above the other, and designed to bear over and engage the wire fabric for the purpose of drawing the same backward by the application of suitable power, a series of wide-faced wheels over which the warp wires are carried situated in advance of the perforated half-journals of the series of sections and provided to properly space the said warp-wires, a take-up reel for operation in way described and a series of pivoted fingers arranged in pairs and adjusted immediately in front of the series of sections and in such position that the warp-wires are carried between the fingers of the respective pairs and are provided to engage with the wire meshes formed in the fabric to keep the same in proper form, the said fabric being enabled to be drawn over the said fingers when the wires are being drawn out, thus depressing the fingers which are returned to proper position by means of suitable springs provided for the purpose, all substantially as described and shown.

8. In a wire fabric machine, the combination, with the series of sections for carrying the warp-wires and a shiftable section for carrying the weft-wire, of the pinions on each of the series of sections, the same being segmentally toothed and the remainder of the surface thereof being depressed in circular form, and a segmentally toothed cog-wheel a portion of its circumferential face being smooth and provided to engage said pinions successively, a sliding frame in which the shiftable section and suitable mechanism for shifting said carriage and shiftable section frame one section of the series to the other in succession alternately traveling over every section of the series and returning, all substantially as described and shown.

9. In a wire fence machine, the combination of the main frame, movable carriage, wire twisting device comprising the series of twister sections and the shiftable section in the carriage, the shiftable section designed to intersect with each one of the series of sectional twisters in succession, the wire spools mounted upon the main framework at the rear of the twister sections, the frames, spools, and bar connections between the spool frames and sprocket wheels on ends of side sectional twisters for carrying the wires designed to form the side cables of the fabric, mechanism for revolving the twisting device, mechanism for drawing strands of wire from the spools, mechanism for rolling up the wire fabric, and mechanism for moving the carriage, all substantially as described and set forth.

10. In a wire fence machine, the combination of the main frame, of the bearing frame formed with segmental openings, the series of twister sections mounted therein, the movable carriage, the shiftable twister section carrying a spool for the weft wire moved by the carriage and designed to be carried over and to be revolved with each one of the series of twister sections in succession to form the several twists, the spool, spool frames, and bar connections with sprocket wheels on the ends of side sectional twisters for carrying wires to be used in forming cable at the sides of the fabric, the intermediate spools mounted upon the main framework at the rear of the sectional twisters for carrying the remainder of the warp wires, mechanism for drawing the wires from off the spools, mechanism for operating the twister, mechanism for moving the carriage, and mechanism for rolling up the wire fabric, all substantially as described and set forth

11. In a wire fabric machine, the combination with the series of sections for carrying the warp-wires arranged in parallel relation having perforated journals connecting with semi-circularly depressed central body and stationary carrying frame, having semi-circular bearings for said journals, of a shiftable section for carrying the weft-wire, a frame work or movable carriage having semi-circular bearings for the journals of said shiftable section adapted to move along upon the stationary carrying frame to bring the shiftable section or the journal thereof successively in conjunction with the journals of the respective sections of the series, means for rotating the combined section viz: the shiftable section with each one of the series successively in its movement back and forth with the sliding carriage as it traverses from one side to the other of the fabric in forming the twist, the said rotation of combined sections in the passage of the shiftable section with the carriage in one continued direction being the same and in the opposite movement of the shiftable section with the carriage, the direction of rotation is the same throughout, but the reverse for that in the opposite movement of the shiftable section and carriage, and means for shifting the said carriage and shiftable section in a step-by-step manner, all substantially as described and set forth

12 In a wire fabric machine, a twisting device for carrying the warp and the weft-wires, consisting of a series of parallel adjusted and successively rotative sections supplemented by a shiftable section rotative successively with each section of the series, a clamp formed of two sections, adjusted one above the other to engage the wire fabric and to draw the same backward when suitable power is applied, a take-up reel for operation in manner described and mechanism for operating the combined sections to rotate them relatively in

the same direction, consisting of a pinion on each section of the series segmentally cogged and having the uncogged portion depressed in circular form, a larger cog-wheel segmentally cogged and the uncogged portion of its circumference provided with smooth face for an engagement with the circular depression in the segmentally cogged pinion whereby each pinion is rotated a fixed portion of a revolution of said segmentally cogged larger wheel and held non-rotative the remainder of each revolution, all substantially as described and shown.

13. In a wire fence machine, the combination, with the main frame, of the carriage formed with the central oppositely and alternately rotatable shaft S' journaled therein and bearing the disk wheel G loose thereon, the sprocket wheels f^{16}, f^{16}, the cog wheel R, the shiftable hollow shafts S^2 and S^{13} that bear the friction clutches and the friction clutch wheel A^{12} keyed thereon, the oppositely alternately shiftable shaft S^5, having secured thereto the arms S^6, the sprocket wheel f^{16} loose thereon and the pivoted arms k^4, k^4 that operate the friction clutches; the rotatable shaft L bearing keyed thereon the partially cogged wheel L^{11}, the cam L^5, and the disk wheels b and b' carrying between them the small roller b' and loose thereon the sprocket wheel f; the plate R^2 carrying the adjustable finger rods j^3—j^3 connected with the disk wheel b and operated in connection therewith through the connecting arm l''' and the levers l, l''', and l''; the shaft G^4 bearing the sprocket wheel f^{11}, the cog wheel f', and the partially cogged wheel f^{13}, that meshes successively with each one in succession of the partially cogged wheels on the ends of the sectional twisters, the partially cogged wheel T that meshes with the partially cogged wheel L^{11} to give an intermittent motion; the twister section k formed with half journals and carrying spool d^6; suitable mechanism for moving the carriage back and forth upon and across the main frame upon suitable bearings, and suitable mechanism for operating the working parts of the carriage, all substantially as described and set forth

14. In a wire fence machine, the combination with the main frame, of a wire reel formed of the roller W^{26} bearing upon the roller W^3 and journaled in the pivoted frame pieces A^{26}, the ratchet wheel H^5 fixed upon the shaft S^{13} and turned by means of the pawls H^7 and H^8 actuated through the movement of the pivoted arms H^{10} and H^9 imparted thereto by the back and forth movement of the depending pivoted arm b^5; suitable sprocket wheel and sprocket chain connection between the roller shaft and the ratchet wheel shaft, and suitable means for imparting the back and forth movement to the arm b^5, all substantially and for the purpose set forth.

15. In a wire-fabric machine, the combination with the series of spools d^{10}—d^{10}—d^{10} &c. having the rims as shown and designed to be filled with wire, of the friction blocks W, depressed circularly to fit the rims on the said spools d^{10} and said spools being held in suitable standards to prevent side motion, the combined structure being formed to provide and produce a regular and unvarying tension upon the wire on said spools while same is being wound thereon, all as particularly described and shown.

16. In a wire fence machine, the combination therewith, of a wire reel formed of the roller journaled in arms pivoted to permit its being raised or lowered and bearing upon another roller suitably journaled, the ratchet wheel keyed upon the shaft connected by suitable means with the reel roller shaft, the combination of pivoted arms journaled upon the same shaft with the ratchet wheel and bearing at their middle pivoted joints the oppositely actuating pawls, and all the arms pivoted together at their rear extremities to a depending bar, the depending bar pivoted at a point between its extremities and depending downward through the slot in the adjustable arm below, and suitable mechanism for operating the depending pivoted lever for the purpose of imparting motion to the respective parts to turn the reel, all substantially as described and shown.

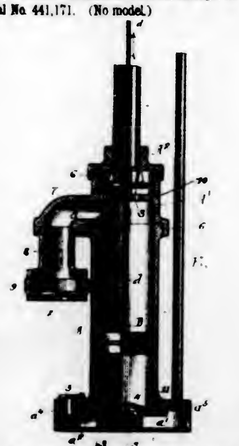
17 In a wire fabric machine, a twisting mechanism composed of a series of warp-wire carrying sections successively rotated each in the same direction and having a fixed relation to the stationary carriage frame and a shiftable section designed to be successively matched and rotated with each of the respective sections of the series and rotated with said sections to twist the wires together and a series of pivoted fingers arranged in pairs immediately in front of the respective sections of the series to hold the wires in alignment and to hold the mesh of the fabric in form while the twist is being made and a clamp designed to engage the wire fabric and by the application of suitable power to draw the same backward to draw out the wires from off the spools and through the respective sections of the series, all substantially as described and shown.

18. In a wire fence machine, the combination therewith of the clamp A^{73} designed to be secured to the wire fabric at the forward part of the machine and having connected therewith the sprocket chains M' and M'' carried upon suitable sprocket wheels at the forward and rear ends of the machine, provided for the purpose of drawing out the wires from off the spools; the roller W^{26} journaled in the pivoted frame pieces A^{26} and carried upon the roller W^3, the ratchet wheel H^5 fixed upon the shaft S^{13} and turned by means of the pawls H^7 and H^8 actuated through the movement of the pivoted arms H^{10} and H^9 imparted thereto by the back and forth movement of the depending pivoted arm b^5, suitable sprocket wheel and sprocket chain connection between the roller shaft and the ratchet wheel shaft, suitable mechanism for moving the clamp A^{73} for the purpose of drawing out the wires, and suitable mechanism for imparting a back and forth movement to the arm b^5 for the purpose of operating the wire reel for rolling up the wire upon the roller W^{26} as the wire fabric is drawn backward by the clamp A^{73}, all substantially as described and set forth.

19. In a wire fabric machine, the combination, with a series of warp wire carrying sections constructed to be successively rotated, each in constant direction and having a fixed relation to the stationary carrying frame and a shiftable section for carrying the weft-wire, constructed and arranged to be successively moved or shifted and matched and rotated by and with the independent sections of the series successively for the purpose of twisting wires together, of a series of pivoted fingers arranged in pairs immediately in front of the respective section, of the series to hold the warp wires in alignment and to hold the mesh of the fabric in form while the twist is being made, the clamp formed of two sections designed to engage the wire fabric and by the application of suitable power to draw the same backward to draw out the wire from off the spools and through the respective sections of the series, a series of wide-faced wheels adjusted at intervals apart for carrying the wire-fabric and to assist the turning of its direction of movement and take-up reel for operation in the way described, all substantially as described and shown.

20. In a wire fabric machine, the combination, of a series of parallel adjusted sections for warp-wires, having a fixed relation to the frame, each having a wire delivery passage in each of its respective half-journals and a broken or segmental pinion on one end of each of the respective sections, with a shiftable section for the weft wire, shiftable laterally successively from section to section in a step-by-step motion in a plane above said series of sections, a gear connected shaft carried in the same carriage or shiftable frame with the shiftable section and having a segmental gear wheel adjusted to engage successively with each section pinion to effect the rotation of said combined sections the said shifting section successively with each section of the series, each section in the same direction according to the direction of the lateral movement of the shifting-section, mechanism for shifting the said shiftable section and frame also suitable mechanism for rotating the sections when in conjunction to form the several successive twists and means for drawing out the wires, all substantially as described and set forth.

490,776. PUMP. MORRIS D. TEMPLE, Chicago, Ill. Filed July 25, 1892. Serial No. 441,171. (No model.)



Claim.—1. The combination of a pump cylinder having at or near one and the same end stationary air in-let and out-let passages whereby air is admitted to and discharged from said cylinder and having at or near its opposite end water in-let and out-let passages, an air in-let pipe connecting the stationary air in-let passage with the outer air, suitable valves for controlling said several passages and a piston closed against access of air and working between said air passage at one end of the cylinder and the water passages at the opposite end of the cylinder, substantially as described.

2. A pump comprising a cylinder having its base formed with air inlet and outlet passages and its upper part formed with water inlet and outlet passages, suitable valves for controlling said passages, air inlet pipe connecting the base of the cylinder with the outer air, and a piston working between said water passages and said air passages, substantially as described.

3. A pump comprising the combination of a cylinder A having a base formed separate therefrom and provided with air inlet and outlet passages, having the cap formed separate therefrom and provided with water inlet and outlet passages, an air inlet pipe E forming a continuance of the air inlet passage, suitable valves for controlling the several inlet and outlet passages and a piston working between the base and cap of the cylinder, substantially as described.

490,777. SHEARING-MACHINE. SAMUEL TRETHEWEY, Pittsburg, Pa., assignor to the Trethewey Manufacturing Company, same place. Filed Apr. 16, 1892. Serial No. 429,443. (No model.)

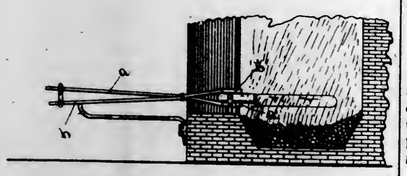


Claim.—1. In a metal shearing apparatus, the combination of a rectangular shearing knife having cutting edges at each corner thereof, and a knife carrier having a seat provided with a back face against which the knife fits receding from the face where the shearing takes place, to give clearance to the knife, substantially as and for the purposes set forth.

2. In a metal shearing apparatus, the combination of a table having a shearing knife, a reciprocating knife carrier having a shearing knife, the vertically movable hold-down *k* having sockets k^2, the operating levers *m*, weights m^3, on said levers *m* rollers *n*, journaled in said levers, the shaft *c* cams *p* carried thereby and adapted to press upon the rollers *n* the bolts *l* connected to said levers and passing through the sockets k^2, and the springs k^3 confined between said sockets and shoulders on said bolts, substantially as and for the purposes set forth.

490,778. TONGS FOR USE IN HARDENING CUTLERY. GEORGE W. WATSON and CHARLES B. SNOW, Norwich, Conn. Filed Sept. 12, 1892. Serial No. 445,610. (No model.)



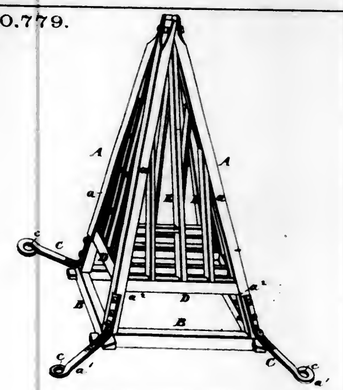


Claim.—As an improvement in tongs, the combination of two plate-jaws, one having projections a^2 extending toward the companion jaw, and also outward projections a^3 forming feet to support the complete tongs, all substantially as specified.

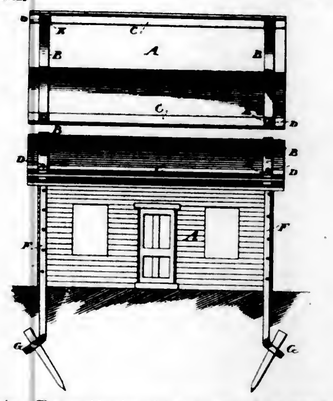
490,779. BUILDING FOR PROTECTION AGAINST CYCLONES, &c. CASPER ZIMMERMAN, Denver, Colo. Filed May 24, 1892. Serial No. 434,204. (No model.)

Claim.—The combination of the vertical beams *a*, sills B and anchors C fastened to the ground, the said anchors, sills and a portion of the beams being sunk in the ground as and for the purpose set forth.

490,779.



490,780. SAFETY ATTACHMENT FOR HOUSES. CASPER ZIMMERMAN, Chicago, Ill. Filed July 6, 1892. Serial No. 439,134. (No model.)



Claim.—The combination with a building, of the saddle plates B B, longitudinal plates C C, and the anchor bars F, the latter having upper threaded ends passing through roof and plates and receiving clamp nuts while the lower looped ends extend into the ground where they are staked as shown and described.

490,781. REAPING OR MOWING MACHINE. GERARD BERKMAN, New York, N. Y. Filed Feb. 19, 1892. Serial No. 422,056. (No model.)

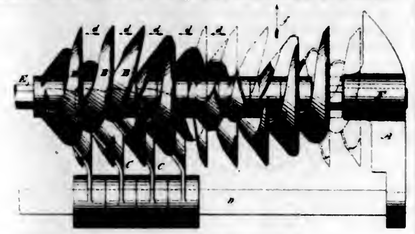
Claim.—1. In a reaping or mowing machine a cutting apparatus, consisting in a series of conic shells divided in their surfaces to form cutters, located along a substantially horizontal axis, the apex of each conic shell lying within the base of an adjoining conic shell, so as to feed the stalks laterally from one shell to another into the rotary path of each cutting edge, when advancing through the grain or grass, substantially as described.

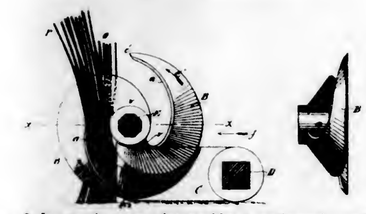
2. In a reaping or mowing machine, a rotary sickle moving on a substantially horizontal axis, provided with hooked knives to seize the grain, and means for feeding the grain laterally into said hooks when they advance as described

3. In a reaping or mowing machine, a continuously rotating cutter composed of a series of knives on a common axis having their cutting edges in the form of conic spirals forming gathering hooks for the grain.

4. In a reaping or mowing machine, a rotating cutter provided with a helical cutting edge lying in the surface of a cone or other figure having differential diameters; the part of the cutting edge foremost in the course of rotation being that occupying the greatest radius, for the purpose described.

5. In a reaping or mowing machine, a continuously rotating cutter composed of a series of knives adjacently located on a common shaft, the surfaces of the said knives forming portions of conic shells extending around the said shaft, or nearly so, forming practically continuous lateral feeders for the grain, substantially as described.





6. In a reaping or mowing machine, a continuously rotating cutter composed of a series of knives on a common horizontal axis having cutting edges lying in the surfaces of cones or other convex figures such as described, the outer extremities of said knives overlapping the bases of adjacent knives, and projecting in the direction of rotation, and in combination therewith, stationary knives having cutting edges corresponding to the figures described by the rotation of the said rotary knives adapted to operate as set forth.

490,782. REAPING OR MOWING MACHINE. GERARD BERKMAN, New York, N. Y. Filed May 6, 1892. Serial No. 432,001. (No model.)



Claim.—1. The herein-described cutting apparatus for reaping and mowing machines, consisting in a series of spiral fingers rotating on a horizontal axis, projecting in the direction of rotation to form hooks, their acting surfaces describing a cylindrical path; said fingers adapted when advancing through the grain, to feed the same laterally from the inclined outer surface of one finger into the hook formed by the inner surface of another, and to sever the grain by their rotation, substantially as described.

2. In a reaping or mowing machine, the combination of a series of spiral fingers rotating on a horizontal axis, projecting in the direction of rotation to form hooks, their acting surfaces describing a cylindrical path, and a stationary blade having its cutting edge coincident with the said cylindrical path.

3. The herein-described cutting apparatus for reaping or mowing machines, consisting in two series of spiral fingers which project in alternating directions of spiral inclination upon opposite sides of a common axis and form hooks, adapted when they rotate to feed the grain uncut by one series to be seized by the other series, substantially as described.

4. The herein-described cutting apparatus for reaping or mowing machines, consisting in a series of spiral fingers upon a common horizontal axis projecting in the direction of rotation to form hooks; their acting surfaces describing a cylindrical path the position of successive fingers along the shaft being arranged in a gradual spiral progression, substantially as set forth.

490,783. POCKET STAMP-HOLDER. THEOPHILUS A. BROUWER, Jr., East Hampton, N. Y. Filed Aug. 23, 1892. Serial No. 443,982. (No model.)

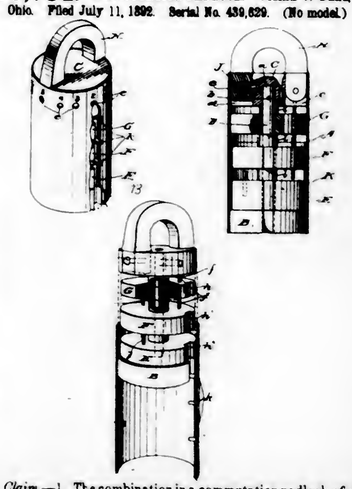
Claim.—1. In a pocket stampholder the combination of the case A, with spacing and holding shafts E and F, cog-wheels C and G, ribbon or coil B and thumb-nut or handle D, substantially as and for the purpose herein described.



2. In a pocket stamp holder a ribbon or coil B attached to and adapted to wind and unwind on shafts E and F, and the cog-wheels C and G spaced and held by case A in combination with thumbnut or handle D, substantially as and for the purpose herein described.

3. In a pocket stampholder the combination of shafts E and F split to receive the ends of ribbon or coil B, with the ribbon or coil B and with cog-wheels C and G and with thumb-nut or handle D, substantially as and for the purpose herein described.

490,784. PERMUTATION-PADLOCK. JOSIAH J. DEAL, Canton, Ohio. Filed July 11, 1892. Serial No. 439,629. (No model.)

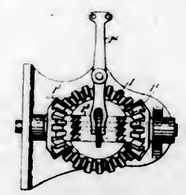


Claim.—1. The combination in a commutation padlock of a cylindrical case whose diameter is less than the length thereof, of a series of locking pins arranged longitudinally and projecting therein, and the tumblers having engaging pins, and peripheral grooves, substantially as described and for the purpose set forth.

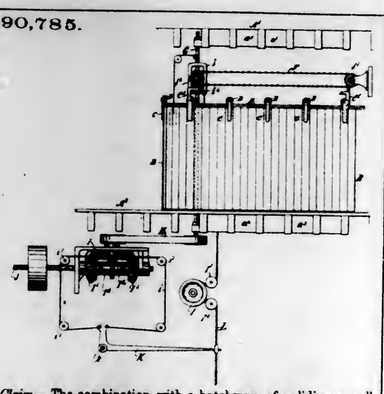
2. The combination with the tubular inclosing case, having inwardly projected locking pins and a stop screw, of the sliding heads B and C, the tumblers interjacent the heads to rotate transverse the tubular case, and the spring brake K to embrace the tumblers A' and A^3 to hold them in desired position, substantially as described and for the purpose set forth.

3. The combination in a commutation lock of the tubular case, having inwardly projected locking pins and perforations *e*, of the head B, having secured therein a shaft projected therefrom through the case, tumblers to rotate on said shaft transverse the case, the head C, shackle H and spring bolt J, substantially as described and for the purpose set forth.

490,785. ELEVATOR-GUARD. ABRAHAM ELLIOTT, Rochester, assignor of one-half to the Excelsior Elevator Guard and Hatch Cover Company, New York, N. Y. Filed Feb. 16, 1892. Serial No. 421,673. (No model.)



490,785.



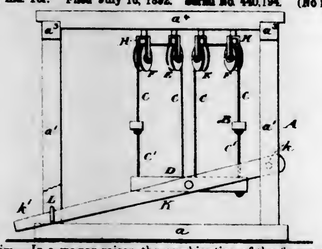
Claim.—The combination, with a hatchway, of a sliding or rolling door for closing the hatchway, a shaft for moving said door, a connection between said shaft and door, an engine shaft, reversible connections between said door-moving shaft and said engine shaft, and an attendant's rope operating the engine reversing mechanism and connected to the reversible connection between the door-operating shaft and the engine shaft, substantially as specified.

490,786. STRAINER AND SIEVE. CHARLES R. GORRINGE, London, England. Filed Mar. 3, 1891. Serial No. 383,657. (No model.) Patented in England Feb. 9, 1889, No. 2,308.



Claim.—In combination, a strainer or sieve, consisting of the upper portion *e*, flared inwardly at its lower portion; the gauze *d*, over the lower end of said upper portion *e*; the cylindrical rim *c*, bearing against the flared in portion of the said upper portion *e*; and retaining said gauze *d*, in its position; and the clips *a*, hinged at *b* to said upper portion *e*, and engaging with and over said rim *c*, substantially as described.

490,787. WAGON-RAISER. CLARENCE C. HALLMAN, Paul's Valley, Ind. Ter. Filed July 16, 1892. Serial No. 440,194. (No model.)

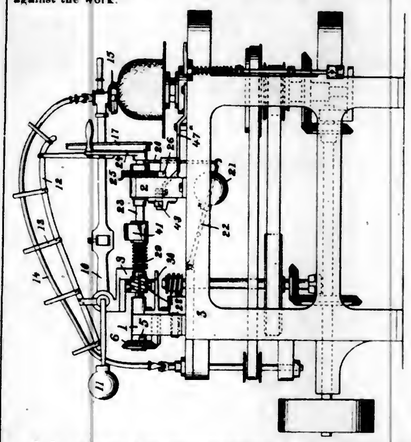


Claim.—In a wagon raiser, the combination of the frame A carrying on its upper horizontal beams, hanging pulleys E F and G G, the wagon-supports B B and middle-pivoted lever D connected by ropes as shown, and the lever K carrying the fulcrum of lever D, all substantially as described and for the purpose set forth.

490,788. HAT-POUNCING MACHINE. JOHN B. HOWE, Danbury, Conn. Filed Mar. 21, 1892. Serial No. 426,732. (No model.)

Claim.—1. In a hat pouncing machine, the combination with the pouncer lever, of a slitted arm or lever embracing said pouncer lever and adapted to carry it over the surface of the hat, means as shown and described for the operation of said slitted lever, a sliding rack engaging said pouncer lever, a gear for actuating said rack, and means as described for imparting to said gear a quick rotative movement, substantially as and for the purpose set forth.

2. The combination with the shaft 4 of the lever 17 carried thereby, the pouncer lever engaged and operated by the lever 17, the straps and strap wheel connected to the pouncer lever, and the lever and weight substantially as described, whereby the pouncer is forced against the work.



3. In a machine of the character described, the combination with a pouncing lever, of the pouncer head, a flexible shaft whereby said pouncer head is driven, and a frame or rack carried by the pouncer lever for the support of said flexible shaft, said frame consisting of the bar 12 connected to the pouncer lever and the loops 13 projecting from the bar, the whole arranged substantially as set forth.

4. In a machine of the character described, the combination with the pouncer lever, of the shaft 4 and the feeding lever 17, the parallel weight-actuated shaft, a gear borne upon said shaft, a rack meshing with said gear, and a locking device in the path of the pouncer lever and adapted to be actuated thereby, whereby the shaft 23 is released, substantially as set forth.

5. The combination in a machine of the character described, with the shaft 4 and the pouncer lever carried thereby, of the constantly rotating sleeve 5, clutch mechanism interposed between the shaft 4 and sleeve 5, the weight-actuated shaft 23, and means connected to said shaft and to the clutch, whereby the faces of the latter are engaged or disengaged according to the position of the shaft 23, substantially as described.

6. The combination in a machine of the character described, of the following elements, viz. the pouncer lever and its pouncer, a feeding lever moving through the arc of a circle and engaging said pouncer lever, a longitudinally movable rack, a weight-actuated shaft, a gear upon said shaft engaging the rack, means for locking said shaft with the weight in its raised position, and a trip in the field of rotation of the pouncer lever whereby the weight-actuated shaft is released from its lock, substantially as described.

7. In a machine of the character described, the combination with the following elements, viz, the pouncer lever and its pouncer, the shaft 4 whereby said pouncer lever is carried, a constant source of power as the sleeve 5, a clutch interposed between the last-named part and the shaft 4, a weight-carrying shaft, a lever engaging the clutch, means carried by the weight-carrying shaft for moving the lever, and thereby engaging and disengaging the clutch, a lock for holding the shaft with its weight in a raised position, and means for releasing said shaft and permitting the weight to descend, substantially as described.

8. In a machine of the character described, the combination with the following elements, viz, the shaft 4 and means for driving the same, the pouncer lever 10 and the lever 17 operated by said shaft 4, the longitudinal sliding rack having means adapted at certain times to engage the pouncer lever, the shaft 23 bearing a weight, and a gear meshing with the rack, a locking lever 33 having one end engaging the shaft 23 and adapted to hold its weight in a raised position, and a trip mechanism actuated by the descent of the pouncer lever, whereby the shaft 23 is released, and the rack 26 actuated in the direction of its length.

9. In a machine of the character described, the combination of the shaft 4 and its engaging clutch, add a source of power, of the pouncer lever, the lever 17 connected therewith, the sliding rack, the shaft 23 having a gear engaging with said rack, a weight carried by said shaft 23 and adapted to operate the latter by gravity, a locking lever engaging the shaft 23 and actuated by the descent of the pouncer lever, a worm on the shaft 33, and a lever operated by said worm and engaging and adapted to control the position of the clutch upon the shaft 4, the whole arranged and adapted to operate substantially as and for the purpose set forth.

10. In a machine of the character described, the combination with the rotative hat block and means for permitting a change in its center of rotation, of the shaft 4, the cam 49ª on said shaft, the lever 47 whereby the lateral movement of the block is effected, and a connection, substantially as described between said cam and lever.

490,789. COMBINATION-WRENCH. WILLIAM H. HUSTON, Mexico, Mo., assignor of one-half to George T. Dorsey, Litchfield, Ill. Filed June 15, 1892. Serial No. 436,860. (No model.)

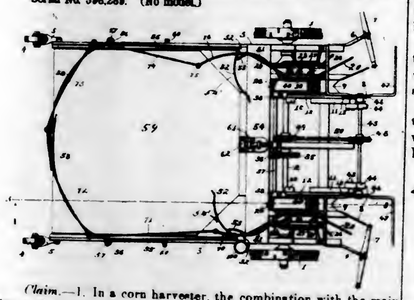


Claim.—1. In a wrench, the combination with the stationary jaw, of a rod and pipe attachment provided with parallel arms to engage the shank and a perpendicular split pin to engage a perforation in said jaw, substantially as specified.

2. In a wrench, the combination of the shank carrying the stationary jaw, the hollow handle secured to said shank and having an open rear side, the movable jaw having a toothed stem, a toothed operating lever fulcrumed in the handle to engage the stem of the movable jaw and adapted to fold into the open rear side of the handle, and the independent tools fulcrumed in the lower end of the handle to fold into the latter, and adapted to be locked in said folded position by the operating lever when the latter is folded, substantially as described.

3. In a wrench, the combination of the hollow handle having an open rear side and closed front side, the shank secured to the handle at its open side and forming, with the closed side thereof, a pocket, the sliding jaw having a rack-arm which fits and is guided in said pocket, and the operating lever provided with teeth to engage the rack-arm, substantially as specified.

490,790. CORN-HARVESTER. JOHN J. MEALY, Iola, Kans., assignor of one-half to Marshall M. Hart, same place. Filed July 2, 1891. Serial No. 398,289. (No model.)



Claim.—1. In a corn harvester, the combination with the main frame, the cutting apparatus thereon, a rearwardly extending passageway being formed above said apparatus, and stalk-moving devices in said passageway; of standards rising from the frame, inwardly projecting and spring-actuated holders pivoted to said standards, a delivery table in rear of said passageway, and a vertically movable retaining loop above the delivery edge of said table, substantially as described.

2. In a corn harvester, the combination with the main frame, the cutting knives at the front corners thereof, and fingers adjacent to said knives; of the revolving reel above said knives, a tilting delivery table, retaining arms at the delivery edge thereof which are pivoted so as to move to permit the delivery of the stalks and an upwardly-movable retaining loop, substantially as described.

3. In a corn harvester, the combination with the main frame, the cutting apparatus thereon, a rearwardly extending passageway being formed above said apparatus and stalk-moving devices in said passageway; of standards rising from the frame, inwardly projecting and spring-actuated holder arms pivoted to said standards, a delivery table, and retaining arms at the delivery edge thereof, substantially as described.

4. In a corn harvester, the combination with the main frame, the cutting apparatus thereon, a rearwardly extending passageway being formed above said apparatus and stalk moving devices in said passageway; of standards rising from the frame, inwardly projecting and spring-actuated holder arms pivoted to said standards, a delivery table in rear of said passageway, a vertically movable retaining loop above the delivery edge of said table, and spring-actuated retaining arms upon which said loop normally rests, substantially as described.

5. In a corn harvester, the combination with the main frame, and the cutting apparatus thereon; of a dumping table pivoted to the side-bars of the frame, front and rear standards rising from each side-bar respectively near the front and rear edges of the table, retaining arms secured to the front standards, making spring-coils around the rear standards, and extending inwardly above the rear edge of the table where they lap each other, and a retaining loop, substantially as described.

6. In a corn harvester, the combination with the main frame, and the cutting apparatus thereon, of a dumping table pivoted to the side-bars of the frame, front and rear standards rising from each side-bar respectively near the front and rear edges of the table, spring-actuated retaining arms projecting inwardly from the rear standards and lapping each other above the rear edge of the table, an eye on one front standard and a hook carried by the other, and a retaining loop comprising long links normally resting on said arms, the ends of the loop being connected to said eye and hook, substantially as described.

7. In a corn-harvester, the combination with the main frame, and the cutting apparatus thereon, of a dumping table pivoted to the side-bars of the frame, front and rear standards rising from each side-bar respectively near the front and rear edges of the table, retaining arms secured to the front standards, making spring-coils around the rear standards, and extending inwardly above the rear edge of the table where they lap each other, and a retaining loop comprising long links normally resting on said arms, and an eye in one front standard and a hook in the other with which the ends of said loop are connected, as and for the purpose set forth.

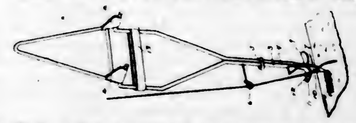
490,791. PROCESS OF UNHAIRING HIDES. JACOB MELLINGER, Waverly, Md. Filed Sept. 14, 1892. Serial No. 445,912. (No specimens.)

Claim.—1. A composition for removing hair from hides which consists of the following ingredients in approximately the proportions heretofore described—hydrated sulphide of soda fifteen pounds, starch five pounds, white creosote eight ounces, four pounds of fifty per cent. Baumé solution of carbolic acid, mixed in the manner substantially as hereinbefore described.

2. A composition for removing hair from hides which consists of the following ingredients—hydrated sulphide of soda fifteen pounds, white creosote eight ounces, mixed and applied in the manner substantially as described.

3. A composition for removing hair from hides which consists of the following ingredients—hydrated sulphide of soda fifteen pounds, white creosote eight ounces, carbolic acid four pounds fifty per cent. Baumé solution.

490,792. FABRIC-TURFING IMPLEMENT. ANDREW F. POOR, Palouse, Wash. Filed Apr. 11, 1892. Serial No. 428,691. (Model.)



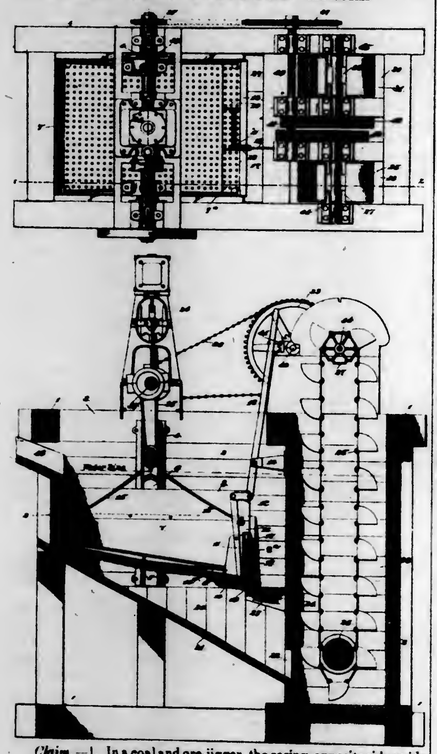
Claim.—1. In a rug worker, the combination of a handle having divergent legs with sockets on the ends thereof arranged at right angles thereto, and a follower bar and a needle bar respectively carrying a follower and a needle and having angularly bent ends engaging said sockets, said follower bar also having a loop surrounding it through which the needle bar has free movement, and said needle bar having a loop-guide for the passage therethrough of the turfing material, substantially as described.

2. In a rug-worker, the combination of a handle, a follower-bar and needle-bar hinged thereto respectively carrying a follower and needle and provided with stops projecting therefrom adjacent to the follower and needle, and a guide projecting from the needle-bar, substantially as described.

3. In a rug-worker, the combination of a handle and a follower-

bar and needle-bar hinged thereto respectively carrying a follower and needle and provided with stops projecting laterally therefrom adjacent to the follower and needle thereof, substantially as described.

490,793. COAL OR ORE JIGGER. VERNON H. ROOD, Jeansville, Pa. Filed Mar. 30, 1892. Serial No. 427,049. (No model.)



Claim.—1. In a coal and ore-jigger, the casing, opposite side guide blocks having parallel flanges, the vertically reciprocating pan or receptacle, opposite guide blocks removably secured to opposite sides of the pan or receptacle and working between said parallel flanges, independent diagonal brace rods connected to opposite inner sides of said pan at one end and having their other ends passing through and bolted to opposite sides of the removable guide blocks to equalize the strain, and means for reciprocating said removable guide blocks in said side guides, substantially as set forth.

2. In a coal and ore jigger, opposite side guides, a vertically reciprocating pan or receptacle having short parallel lugs 6ª, fast on opposite sides thereof, and sliding blocks removably secured to opposite sides of the pan and moving in said guides, said blocks being provided with cutaway or notched side portions registering with said short lugs, which are fast on the pan sides to relieve the fastenings of the blocks from undue strain substantially as set forth.

3. In a coal and ore jigger, the casing having opposite elevator shafts at one end and an inclosed well having a bottom declining diagonally from one side of the casing to one elevator shaft, an elevated inclosed coal chute secured to one of the walls of the well above the declining bottom and provided with a straight side wall, and an oppositely inclined bottom leading to the other elevator shaft, a vertically reciprocating separating pan mounted in the well between the straight wall of the coal chute and the opposite wall of the well, and having its inner integral wall or end bent from its upper edge over the straight wall of the chute and depending at the inner side thereof, forming an overflow dam and seal, and means for reciprocating said pan, substantially as set forth.

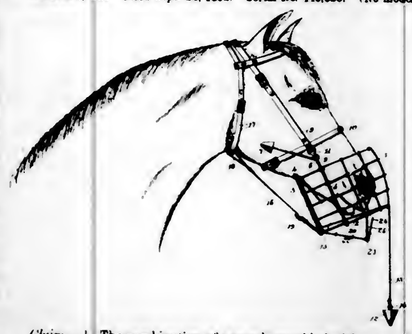
4. In a coal and ore jigger, the combination with the casing having the elevator shafts at one end: of a coal chute supported within the casing above its bottom and provided with a straight inclosing side wall, a sharply declining bottom and a short supplemental chute at the lower terminal of said bottom and itself declining into one of the elevator shafts, and the vertical reciprocating separating pan mounted in the casing and having upwardly extended sides and an integral outwardly depending overhanging lip or flange turned down from one end to take over the straight wall of the chute and form an overflow dam and seal, substantially as set forth.

490,794. VEHICLE-SPRING. RICHERD J. SKILLEN, Pittsburg, Pa. Filed Sept. 30, 1892. Serial No. 447,402. (No model.)



Claim.—The combination with the bolster having side posts or standards at its opposite ends: of a bolster plate, removably seated on said bolster and provided with end notches or recesses loosely embracing said side posts or standards, bearing brackets fixedly secured to the opposite notched ends of said plate and provided with integral cylindrical bearings, horizontal shafts or pintles removably fitted in said bearings and having their ends extending outward from the opposite ends thereof, opposite pairs of swinging shackles or stirrups mounted on the extended ends of said shafts and each comprising tubular journals in a line with said bearings and parallel perforated arms extending from the opposite ends of the tubular journals and normally at an inclination, the opposite bow springs arranged on opposite sides of the bolster and having looped ends, spring supporting bolts removably coupling the looped ends of the springs within said shackles or stirrups, and the bed-plate supported on the springs and bolted thereto and provided with end notches or recesses loosely embracing the side posts or standards, substantially as set forth.

490,795. MUZZLE. GEORGE C. WATSON and JAMES S. WILLIAMS, Chestnut, Ala. Filed Sept. 24, 1892. Serial No. 446,823. (No model.)



Claim.—1. The combination of a muzzle provided with upwardly extending arms having eyes and adapted to be hinged to a halter, counterbalancing weights arranged at the outer ends of the arms and adapted to lift the muzzle when the head of an animal is lowered, and a weight loosely connected with the muzzle and adapted to swing the muzzle downward when the head of an animal is raised and to be supported on the ground when the head of the animal is lowered to relieve the muzzle, substantially as described.

2. The combination of a muzzle, a rectangular brace extending transversely of the bottom and up the sides and provided with extended arms having inclined portions and provided with eyes, counterbalancing weights arranged at the outer ends of the arms, and a weight loosely connected with the front of the muzzle, substantially as described.

3. The combination of a muzzle provided with upwardly extending arms and having a back hinged at the top and adapted to swing rearward to open the muzzle, counterbalancing weights attached to the outer ends of the arms, a strap connected with the hinged back and passing through the front of the muzzle, and a weight secured to the strap, substantially as described.

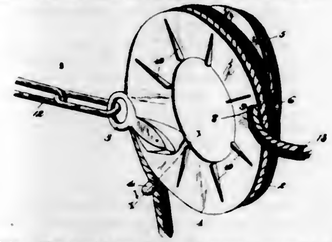
4. The combination with a halter, of a muzzle provided with upwardly extending arms hinged near their inner ends to the halter and provided at their outer ends with counterbalancing weights, a hinged back, a strap bifurcated throughout the greater portion of its length to form opposite sides and having the same passed through the muzzle and connected to the hinged back, a weight connected to the strap and depending from the front of the muzzle, and a strap connected to the hinged back and to the throat latch of the halter, substantially as described.

5. A muzzle provided on its bottom with a frame hinged at its rear end and provided at its front end with upwardly extending points, substantially as and for the purpose described.

6. The combination of a muzzle, a frame hinged to the bottom thereof and provided with upwardly extending points, and loops arranged at opposite sides of the frame and connected therewith and loosely receiving the muzzle whereby the frame is adapted to swing inward and outward, substantially as described.

7. The combination with a muzzle, a frame hinged at one end to the muzzle and provided at its opposite end with inwardly extending points adapted to enter the muzzle, and having eyes arranged adjacent to the point, a transverse bar passing through the eyes, and side loops connected with the ends of the bar and loosely receiving wires of the muzzle at opposite sides thereof, substantially as described.

490,796. WIRE-ROPE FASTENER. LOUIS J. WIDMER, Abilene, Tex. Filed June 21, 1892. Serial No. 437,513. (No model.)



Claim.—The herein described rope fastener, consisting of a disk with a circumferential groove and having a segmental obliquely positioned extension with a groove therein, and located on one side only thereof the end portions of the groove in the extension running into and across the groove of the disk below the level of the said groove in the said disk, and a hook secured to the said disk, substantially as and for the purposes specified.

490,797. DISINFECTANT AND DEODORIZER. ALBERT E. WOOLF, New York, N. Y., assignor to Thomas J. Montgomery and Rosamond Woolf, same place. Filed Dec. 23, 1892. Serial No. 456,172. (No specimens.)

Claim.—A disinfecting and deodorizing solution containing chlorine, chlorides, hypochlorites, free oxygen and ozone in suitable proportions, substantially as described.

490,798. PLOW SWEEP AND SHOVEL. JESSE W. BALL, Tyler Town, Miss. Filed Aug. 31, 1892. Serial No. 444,655. (No model.)



Claim.—1. A cultivator-shovel formed of a single piece of metal and having a main portion or wing A, having the point D formed at the lower end of its front edge, and a triangular sweep D, the upper edge of which is flush with the upper edge of the main portion, and the rear edge of which inclines forward toward its lower end and merges into the front edge of the main-portion above the point B, the adjacent portions of the main wing and sweep being arranged approximately at right angles to each other, substantially as specified.

2. In combination with a plow shovel, the triangular sweep, integral with the shovel and arranged at an angle to the plane thereof, the rear edge of said sweep merging into the front edge of the shovel above the lower end thereof and the upper edge of the sweep being flush with the upper edge of the shovel, substantially as specified.

490,799. CAR-COUPLING. WILLIAM H. BAILL, Willow Springs, assignor of one-half to George Flint, De Soto, Mo. Filed June 24, 1892. Serial No. 437,848. (No model.)

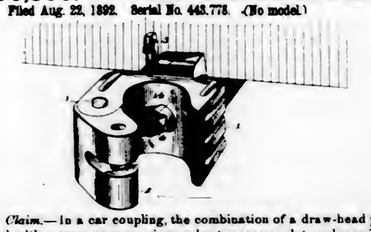


Claim.—1. In a car coupling the combination of a draw-head having in its top longitudinal and transverse openings, a hook hinged to the draw-head and depending through the longitudinal opening and the vertically arranged oppositely disposed lateral flanges depending through transverse openings and adapted to engage the upper face of a link, substantially as described.

2. In a car coupling, the combination of a draw-head provided in its top with an opening, a hook hinged to the draw-head and depending through the opening and adapted to be engaged by a link and provided at its inner end with an arm, and a weight depending from the hook and provided with a stem secured to the arm, substantially as described.

3. In a car coupling, the combination of a draw-head provided in its top with longitudinal and transverse openings, and hook 5 depending through the longitudinal opening in the top of the draw-head and having a plate hinged to the latter and provided at opposite sides with depending transverse flanges arranged in the transverse opening, said plate being provided at one side with a hook 15 and at the opposite side with an arm, a weight suspended from the arm and arranged at one side of the draw-head, and means for engaging the hook 15 to lift the hook 5 for uncoupling, substantially as described.

490,800. CAR-COUPLING. MARTIN L. CABLE, Reidsville, N. C. Filed Aug. 22, 1892. Serial No. 443,778. (No model.)



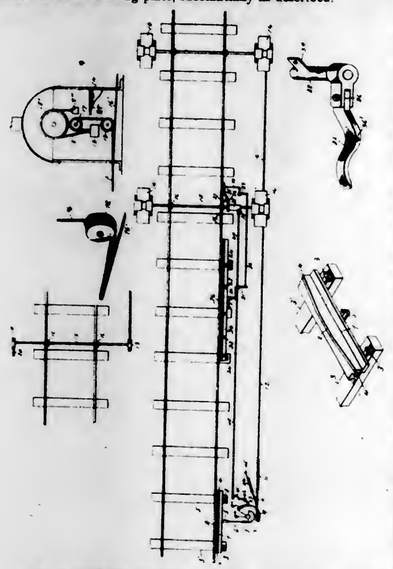
Claim.—In a car coupling, the combination of a draw-head provided with a transverse opening and a transverse slot and provided with a vertical key opening, a knuckle hinged to the draw-head, a vertically movable key arranged in the key opening and provided near its lower end with a shoulder, a rod arranged in the transverse opening and having its inner end connected to the rear end of the knuckle and its outer end threaded, a spiral spring disposed on the rod and interposed between the rear end of the knuckle and the draw-head and adapted to hold the knuckle normally open, a supporting plate arranged in the transverse slot and adapted to hold the key elevated and having its outer end bent downward and provided with an opening receiving the outer end of the rod, and nuts arranged on the outer end of the rod and adjustably connecting the plate to the rod, substantially as described.

490,801. AUTOMATIC RAILWAY-GATE. EDWARD A. CHAPEL, Marengo, Ill. Filed Oct. 22, 1891. Serial No. 409,433. (No model.)

Claim.—1. In an automatic railway gate, the combination, with a gate and gate operating mechanism, of a closing plate for closing said gate, a releasing arm for releasing the gate and permitting it to open, and a retaining plate for preventing said arm from permitting said gate to open until after the passage of the train over said retaining plate, substantially as described.

2. In an automatic railway gate, the combination, with a gate and gate operating mechanism, of a closing plate adapted to be depressed by the wheels of a passing train, means connecting said closing plate and gate operating mechanism for causing the gate to be

closed by the depression of the closing plate, a ratchet and pawl or other locking device for locking the gate operating mechanism, a releasing arm adapted to be depressed by the wheels of the train for releasing said locking device, and a retaining plate likewise adapted to be depressed by the wheels of the train for preventing said releasing arm from releasing the locking device until after the passage of the train over said retaining plate, substantially as described.



3. In an automatic railway gate, the combination, with a gate and gate operating mechanism, of a closing plate adapted to be depressed by the wheels of a passing train, means for causing the gate to be closed by the depression of the closing plate, and a ratchet and pawl or other locking device for locking the gate operating mechanism, of a releasing arm pivotally supported and adapted to be depressed about its pivot by the wheels of the train, but capable of being so moved as not to be acted upon by said wheels, means connecting said releasing arm and said locking device whereby said locking device is released by the depression of the releasing arm, a yieldingly supported retaining plate adapted to be depressed by the wheels of the train and to remain depressed during the passage of the train, ropes and bell-cranks for connecting said releasing arm and retaining plate whereby said releasing arm is moved beyond the reach of the wheels of the train by the depression of the retaining plate, and a spring for restoring the releasing arm to position after the rise of the retaining plate, thereby permitting it to be acted upon by the last wheels of the train, substantially as described.

4. In an automatic railway gate, the combination, with a retaining plate adapted to be depressed by the wheels of a passing train and to remain depressed during the passage of the train, and provided with springs or other suitable device for raising said retaining plate after the passage of the train, of a releasing arm adapted to be depressed by the wheels of the train, suitable mechanism released by the depression of the releasing arm for causing the gate to open, and suitable mechanism operated by the depression of the retaining plate for preventing said releasing arm from so releasing the gate operating mechanism, thereby retaining the gate closed until after the passage of the entire train, substantially as described.

5. In an automatic railway gate, the combination, with a retaining plate adapted to be depressed by the wheels of a passing train and to remain depressed during the passage of the train and provided with springs or other suitable means for raising said retaining plate after the passage of the train, of a releasing arm pivotally supported and adapted to be depressed by the wheels of the train, but capable of some lateral movement, a cable and bellcranks or other suitable means for causing the releasing arm to be moved laterally by the depression of the retaining plate, thereby preventing said releasing arm from being acted upon by the wheels of the train while the retaining plate is depressed, a spring for restoring said releasing arm to its normal position after the retaining plate rises, thereby permitting the releasing arm to be depressed by the last wheels of the train, and suitable mechanism released by the depression of the releasing arm for causing the gate to open, substantially as described.

6. In an automatic railway gate, the combination, with a gate and gate operating mechanism, of a closing plate adapted to be depressed by the wheels of a passing train, two pulleys rigidly secured together and revolubly mounted on a vertical shaft, means connecting one of the said pulleys with the closing plate, means for connecting the gate operating mechanism with the other of the pulleys, thereby causing the gate to be closed by the depression of the closing plate, a spring for restoring the said pulleys and closing plate to their normal position, thereby permitting the gate to open, ratchet teeth on one of the said pulleys and a pawl engaging therewith, and releasing mechanism operated by the last wheels of the train for disengaging said pawl, thereby permitting the gate to open, substantially as described.

7. In an automatic railway gate, the combination, with a gate and gate operating mechanism, of a closing plate adapted to be depressed by the wheels of a passing train, two pulleys rigidly secured together and revolubly mounted on a vertical shaft, means connecting one of said pulleys and the closing plate, means connecting the other pulley with the gate operating mechanism, thereby causing the gate to be closed by the depression of the closing plate, a spring for restoring said pulleys and closing plate to their normal positions, thereby permitting the gate to open, ratchet teeth on one of the said pulleys and a pawl engaging therewith, a releasing arm adapted to be depressed by the wheels of the train and means for causing said pawl to be disengaged by the depression of the releasing arm, and a retaining plate yieldingly supported and adapted to be depressed by the wheels of the train and to remain depressed during the passage of the train, for preventing said releasing arm from disengaging said pawl so long as said retaining plate is depressed, thereby retaining said gate closed until after the passage of the train over said retaining plate, substantially as described.

8. In an automatic railway gate, the combination, with a closing plate formed of angle iron placed with one side adjacent to the rail and having pivotal supports in a line parallel to the line of rails adapted to permit said closing plate to swing downwardly and inwardly about its pivots, of two pulleys rigidly secured together and revolubly mounted on a vertical shaft, means for connecting said closing plate and one of said pulleys, a cable connecting the other of said pulleys and the gate operating mechanism, and a spring arranged to hold the pulleys in their normal positions, substantially as described.

9. In an automatic railway gate, the combination, with a pivoted closing plate having its axis parallel to the line of rails, horizontally arranged pulleys, means for connecting said closing plate and said pulleys, a cable connecting said pulleys and the gate tilting mechanism, a spring for holding said pulleys in their normal positions, means for holding said pulleys in their adjusted positions, and means adapted to be operated by the rear wheels of the last car of the train for releasing said pulleys from their adjusted positions.

10. In an automatic railway gate, the combination, with a pivoted closing plate having its axis parallel to the line of rails, of horizontally arranged pulleys, one of which is formed with ratchet teeth, means for connecting said pulleys and closing plate, a pawl or latch engaging said teeth, a spring for holding said pulleys in their normal positions, a transverse shaft, a cable connecting said shaft and pulleys, a crank mounted on said shaft, a bent arm pivoted to said crank, and a cable connecting said crank and said pawl whereby when said arm is depressed said pawl will be disengaged from said ratchet teeth, substantially as described.

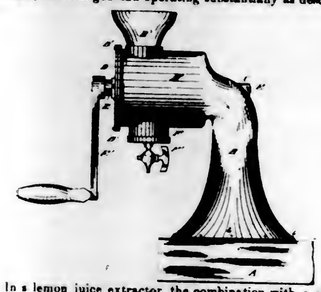
11. In an automatic railway gate, the combination with a pivoted closing plate having its axis parallel to the line of rails, of horizontally arranged pulleys, one of which is formed with ratchet teeth, a pawl engaging said teeth, a spring for holding said pulleys in their normal positions, means for connecting said pulleys and said closing plate, a transverse shaft, a crank mounted thereon, a bent arm or plate connected loosely to said crank, a cable connecting said crank and pawl, a retaining plate adapted to be depressed, and means for connecting said bent arm or plate and said retaining plate, substantially as described

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490,802. LEMON-SQUEEZER. JAMES S. DUNHAM and ELLSWORTH D. MIDDLEKAUFF, Stockton, Cal. Filed July 2, 1890. Serial No. 357,579. (No model.)

Claim.—1. In a lemon squeezer the combination substantially as described of the bell shaped body B, the cylinder B', provided with the funnel B^3 and with the juice receptacle F and faucet F', said cylinder B' being at right angles to the body B, the shaft E and its rear bearing C, its front bearing the face plate D attached to the face of the head B' by the bolts D', the handle E' attached to the shaft E, the roller G upon the shaft E and provided with the lemon cup G', cutter G^2 and channel G^3, and the ribs H upon the inside of the cylinder B'.

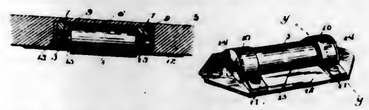
2. The combination of the body B and the cylinder B' at right angles thereto, of the shaft E, carrying the grooved core G, provided with a lemon cup, cutter and pulp channel, the said cylinder B' having a funnel on its top, a juice receptacle at its bottom, and ribs H on its inside surface, all arranged and operating substantially as described.



3. In a lemon juice extractor, the combination with a cylinder provided with ribs upon its interior and having the inlet and outlet openings for the lemon, and strainer perforations for the passage of the expressed juice thereof; of a core or roller mounted on a shaft suitably journaled in the cylinder, the peripheral spiral groove in said core or roller adapted to conduct the pulp and skin of the lemon to the discharge opening therefor, and the knife arranged at a suitable point in the said groove, adapted to cut the lemon, whereby the juice may be expressed, substantially as and for the purpose set forth.

4. The combination with the cylinder, having the ribs upon its interior and provided with feed and discharge openings for the lemon and a strainer discharge for the expressed juice thereof; of a core or roller mounted on a shaft suitably journaled in the cylinder and provided with a peripheral spiral groove whereby the lemon pulp and skin are conducted to the discharge opening therefor, the pocket arranged at a suitable point in said groove for the reception of the lemon from the feed opening; and a knife also arranged in said groove and adapted to cut the lemon whereby the juice may be expressed, substantially as specified.

490,803. RUNNING-GEAR FOR WAGONS. WILLIAM A. DOSS, Stewartsville, Mo. Filed Mar. 26, 1892. Serial No. 426,541. (No model.)



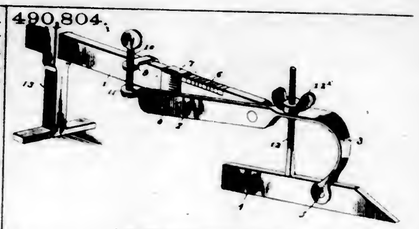
Claim.—1. The combination with the coupling-pole, of a plate secured thereto having an opening through which a portion of an anti-frictional roller projects, boxes secured to said plate to receive the journals of said anti-frictional roller and having openings therein of considerably greater diameter than the said journals, steel rods surrounding the journals in said boxes, and cap-plates removably fitted over the ends of said boxes and secured to said plates supporting the anti-frictional roller, substantially as described.

2. The combination with a coupling pole having a mortise therein, of a plate with an opening therethrough, boxes secured to said plate, an anti-frictional roller between and having its journals bearing in said boxes, steel rods surrounding the journals of said anti-frictional roller, and cap-plates removably fitted against the ends of said boxes and having lugs extending through openings in the first-named plate and upset thereon, substantially as described.

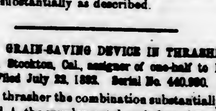
490,804. VEHICLE-AXLE GAGE. THOMAS H. EDWARDS, Latrobe, Cal., assignor of one-half to Daniel Kies, same place. Filed May 3, 1892. Serial No. 431,718. (No model.)

Claim.—In an axle set, the combination of the guide-bar 1, the gage-bar 2 pivoted to the front end thereof having a front yoked end 3, the gage shoe 4 pivoted to the lower end of the said yoke and of a length to agree with the length of the axle spindle, the screw-rod 12 rising from the rear portion of the upper edge of the gage-shoe and passing through the aforesaid yoked end of the gage-bar and provided with an adjusting thumb-nut, the adjusting devices for the inner end of the gage-bar, the indicator 7, and the rest 13, substantially as described.

490,804.

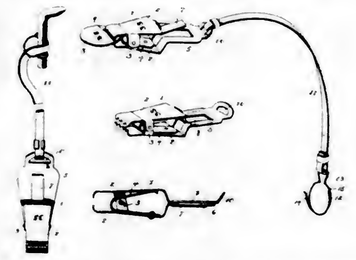


490,805. VEHICLE-POLE TIP. LEWIS P. GORROW, Downington, Mich. Filed May 5, 1892. Serial No. 431,913. (No model.)



Claim.—The within described vehicle hold-back, consisting of the main or body piece *a*, having a socket *g* at one end and a hook *b* at the other, the inner edge of the hook being recessed to receive a mousing *c*, the said mousing being integral and bent to a rectangular form to adapt it to close the opening between the hook and the main body portion and to form its own pivots, substantially as described.

490,806. BAGGAGE-CHECK. ASHLEY J. GULICK, Clearfield, Pa. Filed Apr. 15, 1892. Serial No. 429,344. (No model.)



Claim.—1. A baggage check, consisting of a clasp composed of two jaws pivotally connected and spring actuated, one of said jaws having a rear downwardly bent finger and the other jaw formed with a slot in the rear part thereof for the free movement therethrough for the said finger and the said slotted jaw being bent upward at the point where the slot thereof is formed to provide a table, said finger and slotted portion of the jaws of the clasp being formed to removably hold a return check between the same and said return check and the clasp being provided with corresponding numbers, substantially as described.

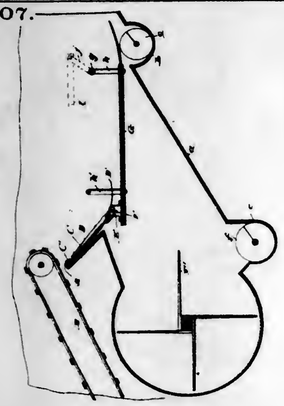
2. A baggage check, consisting of a strap having a clasp at one end thereof and a ring at the opposite end of the same, provided with operating arms and a return-check, said clasp and check having corresponding numbers thereon, substantially as described.

3. A baggage check, consisting of a strap having at one end thereof a clasp and a ring at the other end of the same composed of two curved arms continuous from a rear attachment loop and provided with outward bent ends, adapted to freely open away from each other and a return-check adapted to be employed in connection with said device, substantially as described.

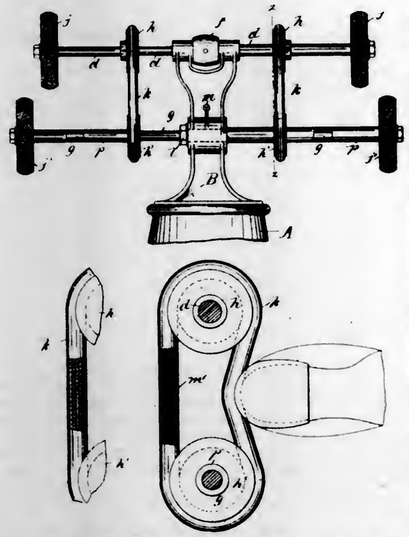
490,807. GRAIN-SAVING DEVICE IN THRASHERS. GEORGE W. INGERSOLL, Stockton, Cal., assignor of one-half to Benjamin Holt, same place. Filed July 22, 1892. Serial No. 440,980. (No model.)

Claim.—In a thrasher the combination substantially as described of the grain board A, the supplemental grain board C attached by the hinges C' to the board A, the bars D provided with jaws at their lower ends, the sieve G, the lugs E provided with the pins F engaging with the jaws of the bars D, and the fingers D' attached to the rear edge of the board C.

490,807.



490,808. HEEL AND SHANK FINISHING MACHINE. CHARLES H. KELLEY, Revere, Mass. Filed Oct. 3, 1891. Serial No. 408,126. (No model.)

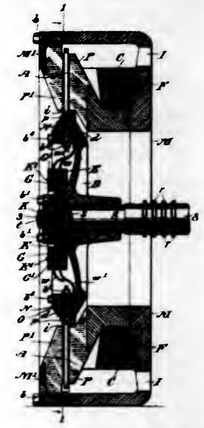


Claim.—1. The combination with the standard A and the upright B of the shaft *d* journaled in the said upright and provided with a pulley *h* and polishing brush *j*, of a rotary sleeve or shaft *p* carrying the pulley *h'* and brush *j'* and an elastic belt *k* connecting the said pulleys, and forming a combined polishing and driving belt, and means for operating the shaft *d* substantially as shown and described.

2. The combination with the standard A and the upright B of the shaft journaled in the said upright and provided with pulleys *h* and polishing brushes *j*, of rotary sleeves or shafts *p* carrying pulleys *h'* and brushes *j'* and elastic polishing belts *k* connecting said pulleys, each of said belts being provided with an interior flexible and weighted stiffener, substantially as shown and described.

3. The combination with the standard A and the upright B of the shaft *d* journaled in the said upright and provided with pulleys *h* and polishing brushes *j*, of rotary sleeves or shafts *p* carrying pulleys *h'* and brushes *j'* and elastic polishing belts *k* connecting said pulleys, each of said belts being provided with an interior flexible and weighted stiffener consisting of a spiral wire spring, substantially as shown and described.

490,809. DYNAMO-ELECTRIC MACHINE. ROBERT LUNDELL, Brooklyn, assignor of two-thirds to Edward H. Johnson, New York, N. Y. Filed Apr. 22, 1892. Serial No. 430,200. (No model.)



Claim.—1. A dynamo electric machine having a disk armature and a single field magnet coil lying in a plane on one side of said armature and parallel thereto, in combination with radially disposed multipolar pole pieces between which the armature rotates, substantially as described.

2. A dynamo electric machine having a disk armature and a single field magnet core provided with radially disposed multipolar pole pieces magnetized by a single field magnet coil lying in a plane on one side of said armature and parallel thereto, substantially as described.

3. A dynamo electric machine having a single field magnet coil, a single field magnet core with radially disposed pole pieces and a disk armature, the field magnet coil being located on one side of the armature with its windings located in planes substantially at right angles to the armature shaft substantially as described.

4. A dynamo electric machine having a single cylindrical field magnet core with a single energizing field magnet coil and a disk armature located between oppositely disposed multipolar pole pieces, the field magnet coil being located on one side of the armature substantially as described.

5. A cylindrical or disk shaped field magnet core surrounding or inclosing a single energizing field magnet coil and provided with radially disposed multipolar field magnet poles embracing an armature which rotates in a plane parallel with the inner end of the energizing coil substantially as described.

6. A hollow cylindrical or disk shaped field magnet core inclosing an energizing field magnet coil and provided with multipolar field magnet poles of opposite polarity and a rotary armature located between said poles the armature and the field magnet coil being situated in independent parallel planes substantially as described.

7. A hollow ring shaped field magnet core inclosing an energizing field magnet coil said field magnet core being provided with multipolar pole pieces of opposite polarity both sets of pole pieces being located on the same side of the field magnet coil substantially as shown and described.

8. A hollow ring shaped field magnet core inclosing its energizing field magnet coil and provided with multipolar pole pieces and ventilating holes, all of the pole pieces being located on one side of the field magnet coil substantially as described and shown.

9. A hollow ring shaped field magnet core made in three annular pieces inclosing or surrounding a single energizing field magnet coil and having multipolar pole pieces arranged in two integral sets both located on the same side of the field magnet coil substantially as shown.

10. A hollow ring shaped field magnet core having two integral sets of multipolar pole pieces energized by a single inclosed coil both sets of pole pieces being located on the same side of the coil substantially as shown.

11. A disk armature made up of a series of flat bobbins each provided with an independent adjustable clamping device and all secured to a hub or collar, substantially as described.

12. A disk armature made up of a series of bobbins which bear laterally against each other and each provided with adjustable means

secured to a carrying collar or hub whereby they may be securely held against centrifugal action, substantially as described.

13. A disk armature made up of individual sectional bobbins provided with clamps and means for securing them all to a common collar or hub, as described.

14. A disk armature made up of a series of flat elongated bobbins connected at their inner ends by independent adjustable yokes and bolts to a hub or collar, in combination with a flat ring or disk which bears on said yokes and is bolted to the hub or collar, substantially as described.

15. An armature carried by a shaft provided with means for preventing end thrust, in combination with means for adjusting the armature in either direction on the shaft, and additional means for adjusting the armature on the shaft in the direction of its rotation substantially as described.

16. A disk armature carried by a shaft having means for preventing end thrust, in combination with means for moving the armature in either direction on the shaft, and additional means for adjusting the armature on the shaft in the direction of its rotation substantially as described.

17. A disk armature secured to a hub having longitudinal movement on a rotary shaft, in combination with means for moving the hub in either direction on the shaft, and additional means for adjusting the armature on the shaft in the direction of its rotation substantially as described.

18. An armature carried by a hub keyed to and having sliding motion on a rotary shaft, in combination with screw threaded adjusting connections for accurately adjusting the position of the armature, in the direction of the length of the armature shaft and additional means for adjusting the position of the armature on the shaft in the direction of its rotation substantially as described.

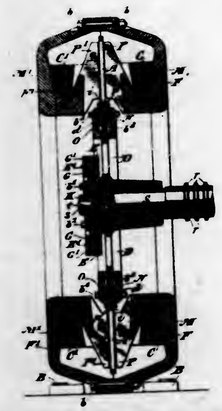
19. A ring shaped field magnet core having multipolar field poles radially disposed and a flat or disk armature adapted to rotate between said poles and connected to a rotary shaft by adjusting devices whereby it may be maintained in the magnetic field out of mechanical contact with the field poles, substantially as described.

20. A disk armature made up of sections or bobbins having side lugs connected together in series by conducting strips in combination with clamps and means for securing said parts all to a common collar or hub substantially as described and shown.

21. A dynamo electric machine having its field magnet core made of a hollow ring or disk shape inclosing the field magnet coil and provided with ventilating holes for admitting air to the interior of the machine, substantially as described.

22. A dynamo electric machine having its field magnet core made of ring or disk like shape with radially disposed multipolar pole pieces between which the armature rotates in combination with a single magnetizing coil inclosed within the core and ventilating holes for admitting air to the interior of the machine, substantially as described.

490,810. DYNAMO-ELECTRIC MACHINE OR ELECTRIC MOTOR. ROBERT LUNDELL, Brooklyn, assignor of two-thirds to Edward H. Johnson, New York, N. Y. Filed Apr. 22, 1892. Serial No. 430,201. (No model.)



Claim.—1. A dynamo electric machine having two hollow disk shaped field magnet cores which wholly inclose or surround each a single field magnet coil, said field magnet coils being located on opposite sides of the armature and in planes parallel therewith substantially as described.

2. A dynamo electric machine having two hollow disk shaped field magnet cores each having radially disposed multipolar pole pieces in combination with two inclosed field magnet coils located on opposite sides of a disk shaped armature and in planes parallel therewith substantially as described.

3. A dynamo electric machine having two hollow cylindrical field magnet cores wholly inclosing two energizing field magnet coils, each core being provided with integral multipolar pole pieces, in combination with a disk shaped armature adapted to rotate between said pole pieces, the field magnet coils being located on opposite sides of the armature in planes parallel therewith substantially as described.

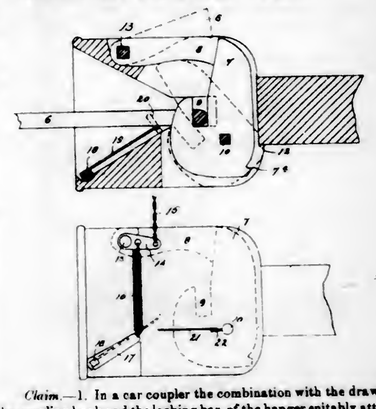
4. A dynamo electro machine having hollow disk shaped field magnet cores provided with integral multipolar pole pieces radially disposed in parallel planes between which the armature rotates, in combination with field magnet coils located on opposite sides of the armature, said coils being wholly inclosed substantially as shown and described.

5. A dynamo electric machine having two flat cylindrical field magnet cores provided each with multipolar field magnet poles located in parallel planes with inclosed energizing coils for said cores, the windings of which are in planes parallel to the faces of the field magnet poles, and located on opposite sides of the armature substantially as shown and described.

6. A dynamo electric machine having two flat hollow cylindrical field magnet cores placed end to end; each core having a multipolar series of radially disposed poles located in parallel planes, in combination with a pair of wholly inclosed energizing coils and a rotary disk armature, substantially as shown and described.

7. A pair of field magnet cores having each a single inclosed energizing coil and a set of radially disposed multipolar field magnet poles, in combination with a disk armature adapted to rotate between said sets of poles and provided with adjustable means for regulating its position, in two directions substantially as described.

490,811. CAR-COUPLING. HENRY O MILLER, Baton, Colo., assignor of one-half to Aaron J. Baton and Edgar F. Hurdle, same place. Filed Apr. 11, 1892. Serial No. 428,583. (No model.)



Claim.—1. In a car coupler the combination with the drawhead, the coupling hook and the locking bar, of the hanger suitably attached to the end of the car, means for connecting the hanger with the locking bar, and means for manipulating the hanger from either side or from the top of the car, substantially as described.

2. In a car coupler the combination with the drawhead, the coupling hook and the spring actuated locking bar, of the hanger suitably attached to the end of the car and connected with the locking bar, and bars suitably attached to the end of the car and provided at their inner extremity with crank arms engaging the hanger, and at their outer extremity with handles whereby the hanger may be manipulated from either side of the car and the cars uncoupled without stepping between the same.

3. In a car coupler the combination with the drawhead, the coupling hook and the locking bar, of a hanger suitably attached to the end of the car and connected with the locking bar and means for operating the hanger from the top of the car consisting of a rope, cord or chain connected with the hanger at one extremity and with a suitable hand piece located at the top of the car at the opposite extremity, substantially as described.

4. In a car coupler the combination with the drawhead, the coupling hook, the spindle journaled in the sides of the drawhead and to which the coupling hook is made fast, its extremities being provided with lugs or projections located outside of the drawhead, and springs attached to the drawhead at one extremity and engaging said lugs or projections at the opposite extremity whereby the coupling hook is normally maintained at its forward limit of movement when the cars are coupled, and suitable means for locking said hook in the coupled position, substantially as described.

5. In a car coupler the combination of the drawhead, the coupling hook, the locking bar, the spindle journaled in the sides of the drawhead and to which the locking bar is made fast, spring actuated arms secured to the extremities of said spindle outside of the drawhead, whereby the locking bar is normally maintained in the locked position, and means attached to the end of the car and connected with said arms whereby the locking bar is raised and the car uncoupled, substantially as described.

6. In a car coupler the combination of the drawhead the coupling hook, the locking bar, the spindle journaled in the drawhead and to which the locking bar is made fast, arms connected with the extremities of the spindle outside of the drawhead, springs connected with said arms whereby the locking bar is normally maintained in the locked position and means attached to the end of the car and with said arms whereby the bar is raised and the cars uncoupled, from either side or from the top of the car, substantially as described.

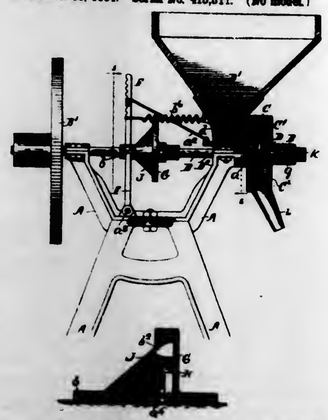
7. In a car coupler the combination with the drawhead and link, of the spring actuated link-supporting or adjusting plate pivoted in the front part of the drawhead beneath the link when in place, substantially as described.

8. In a car coupler the combination with the drawhead and link, of the link supporting and adjusting plate, the spindle journaled in the sides of the drawhead and to which the plate is made fast, and spring actuated arms attached to the extremities of the spindle outside of the drawhead and automatically supporting the plate at its upward limit of movement, substantially as described.

9. In a car coupler the combination with the drawhead and link, of the link supporting and adjusting plate located in the front part of the drawhead, the spindle journaled in the sides of the drawhead, the arms attached to the extremities of the spindle outside of the drawhead and springs attached to the arms at one extremity and to the drawhead at the opposite extremity whereby said plate is normally maintained at its upward limit of movement, substantially as described

10. In a car coupler the combination with the drawhead and link, of the coupling hook, the locking bar and the spring actuated link-supporting plate, substantially as described.

490,812. PORTABLE GRINDING-MILL. JOHN G. MOLE, Batavia, Ill. Filed Dec. 16, 1891. Serial No. 415,311. (No model.)



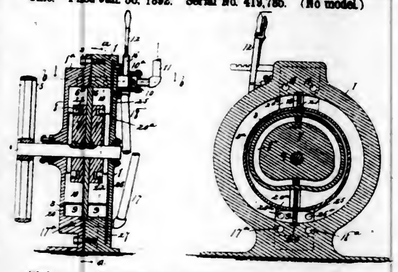
Claim.—1. In a grinding mill, the combination of the feed slide projecting in the feed passage between the hopper and grinding rings, a governor connected to said slide for imparting an endwise movement thereto for regulating the feed in accordance with the speed of the grinding mechanism, and an auxiliary shelf *d* in the hopper above the feed slide for carrying the contents toward the opening made by said feed slide, substantially as set forth.

2. In a grinding-mill, the combination with the driving or millshaft, of a governing device, consisting of a chambered disk, rigidly mounted on said shaft, a number of curved arms, pivoted to said disk, a conical cap, loosely mounted and having an endwise movement on said shaft and adapted to inclose said arms, a lever, to which the governor-cap is attached, and a spring connected to said lever, substantially as set forth.

3. In a grinding-mill, the combination of the pivoted lever F, provided with the curved extension b^3, of the conical governor-cap, provided with the pins b^2 b^4, substantially as set forth.

4. In a grinding mill the combination with the driving shaft, an adjustable bridge tree therefor, a feed slide, and a governing device, for controlling said feed slide, of the spring b^4 operating to retract the feed slide and to force the driving shaft against the bridge tree, substantially as set forth.

490,818. ROTARY STEAM-ENGINE. JAMES M. McIVER, Winchester, Tenn., assignor of one-half to John Van Wordragen, Cincinnati, Ohio. Filed Jan. 30, 1892. Serial No. 419,785. (No model.)

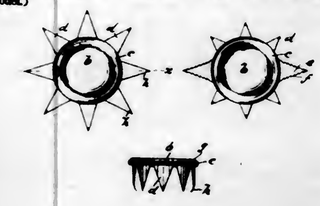


Claim.—1. In a rotary engine, the combination of the casing having annular steam spaces in each head, a piston disk located between and closing the open sides of said annular steam spaces, and having piston heads to work in said annular spaces, valves 19 located at diametrically opposite points in the casing and adapted to slide radially, provisions for operating said valves from the piston disk, and means for simultaneously admitting and exhausting the steam from the said annular steam spaces on opposite sides of the said piston disk, substantially as described.

2. In a rotary engine, the combination of the casing having annular steam spaces in each head, a piston disk located between and closing the open sides of said annular steam spaces, and having piston heads to work in said annular spaces, means for admitting and exhausting steam from said annular steam spaces simultaneously on opposite sides of the said piston disk and at diametrically opposite points, cut off valves for controlling the ports through which the steam is admitted and exhausted, and valves 19 connected with the said cut off valves and adapted to be actuated from the said piston disk, substantially as set forth.

3. The combination, of the outer casing having the inwardly-extending annular flanges, forming the annular steam spaces, 3^a, 3^a, the central revolving shaft, the central piston-disk, secured on said shaft, and having on each of its sides the eccentrically grooved cam-disks 7, 7, and the outwardly extending piston-heads 9, 9, the radial sliding valves 19 having the small rollers at their inner ends fitting in the grooves of the cam-disks 7, the valve-chest having the exhaust, the main-ports 14 and 15, communicating with the valve-chest and with the top of the steam-spaces 3^a on both sides of the piston, the steam-tubes 17 and 18, and ports 17^a and 18^a, leading from the main ports 14 and 15 to the lower ends of the steam-spaces 3^a on both sides of the piston-disk, the cut-off valves 25, arranged and operated as specified, and the reversing valve 10: substantially as set forth.

490,814. METALLIC FASTENER FOR ENVELOPES. JOHN A. SHETTY, Paterson, N. J. Filed Oct. 14, 1892. Serial No. 448,834. (No model.)



Claim.—The metallic fastener for envelopes and the like, consisting of the circular disk *b*, having the annular rim *c* around the periphery and fingers *d* depending therefrom, said fingers being bent inwardly as at *h*, one or more of said fingers being serrated on the edges, substantially as described.

490,815. ROOF-GUTTER. LEWIS C. SIMS, Newark, Ohio. Filed June 25, 1892. Serial No. 438,029. (No model.)



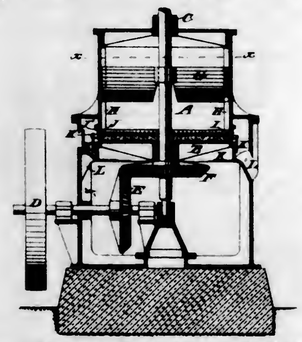
Claim.—As an article of manufacture a roof gutter struck from a single sheet of metal and comprising a hollow molding A having a convoluted front side B and a plain rear side or back C, adapted to be sprung toward or from each other for the purpose described, a flange E connected to the lower edge of the front side and provided at its extremity with a facing lip F, and a flange H connected to the lower edge of the rear side and adapted to be secured to the roof to adjust the separation of the front and rear sides of the molding, substantially as described.

490,816. METHOD OF CLEANSING SILVER. CHRISTOPHER J. TREUERNER, Newark, N. J. Filed June 4, 1892. Serial No. 435,549. (No specimens.)

Claim.—1. The process or method of polishing silver which consists in subjecting said silver, as an anode, to an electrolytic bath containing cyanide of potassium, one part, and yellow prussiate of potassium, two parts, substantially as set forth.

2. The process or method of polishing silver, which consists in subjecting silver coated with oxide to an electrolytic bath containing prussiate of potassium and cyanide of potassium, the oxide-coated silver being suspended as an anode of an electric circuit in said bath, substantially as set forth.

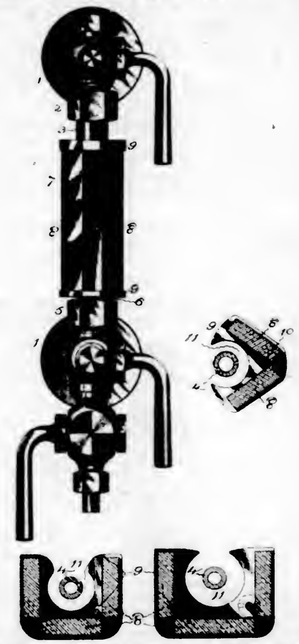
490,817. MACHINE FOR THE REDUCTION OF CORK, &c. RAPHAEL G. DE VARONE, Paris, France, assignor to the La Suberine, same place. Filed June 9, 1892. Serial No. 436,073. (No model.) Patented in France Jan. 22, 1889, No. 195,535, and Feb. 25, 1889, No. 196,284; in England July 14, 1890, No. 10,962, and in Belgium Jan. 24, 1891, No. 93,532.



Claim.—1. In a machine for reducing cork to fine fragments, the combination with the central rotary shaft C and the rasping disk B attached thereto and furnished with sectors faced with suitable rasping composition, of the non-rotary pressing traverse furnished with beveled sectors faced with similar composition, the fixed cylinder or curb A, and the saw blades J and J' attached respectively to the said disk and to said cylinder or curb, all substantially as herein set forth.

2. The combination of the fixed cylinder or curb A, the stationary circular trough K, the rotary disk B and the saw blades J and J' attached respectively to said disk and to said cylinder or curb, and the annular curtain or band affixed to said disk and dependent therefrom within the said trough, substantially as and for the purpose herein set forth.

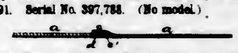
490,818. PROTECTOR FOR WATER-GAGES. GEORGE H. WALL, London, England. Filed Aug. 9, 1892. Serial No. 442,564. (No model.) Patented in England Oct. 12, 1889, No. 16,075.



Claim.—1. A protector for water gages, consisting of shoes having recesses for surrounding portions of the gage, plain strips of thick transparent material forming a shield placed at an angle with each other with their ends embedded in the shoes, and rods for holding the shoes together and on the ends of the strips, passing from one shoe to the other near the vertices of the angles of the adjoining strips, substantially as specified.

2. A protector for water gages, consisting of shoes having recesses for surrounding portions of the gage, two strips of thick transparent material forming a shield placed at an angle with each other with their ends embedded in the shoes, and a rod for holding the shoes together and on the ends of the strips, passing from one shoe to the other near the vertex of the angle of the strips, substantially as specified.

490,819. BINDING. MARCUS M. BERMAN, Syracuse, N. Y. Filed June 29, 1891. Serial No. 397,788. (No model.)

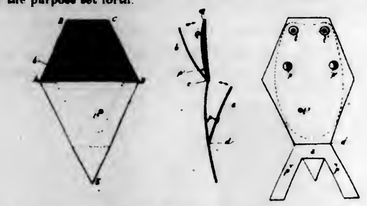


Claim.—A binding consisting of strips of material, having their meeting ends stitched together and having one of the butts reduced in its projection, exterior to the stitching, and having the long butt of one strip folded over the short butt of the adjoining strip, and secured by cement over said butt and onto the back of the adjoining strip, substantially, as and for the purposes set forth.

490,820. NECKSCARF. AUGUSTE BERTIN, Paris, France. Filed June 25, 1892. Serial No. 437,928. (No model.) Patented in Italy June 17, 1892, No 32,106; in Spain June 17, 1892, No. 13,460; in Luxemburg June 17, 1892, No. 1,643; in Belgium June 18, 1892, No. 100,165, and in England June 20, 1892, No. 11,467.

Claim.—1. A pasteboard cravat-body provided with a pad *Q* on

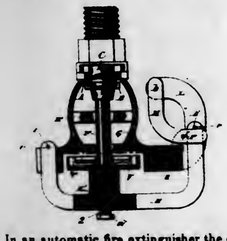
the upper part of its front, a hinged flap *b* arranged to cover the said pad and a flap *a* hinged to the lower part of the rear of the said body, the front of the said pad being provided with a point *p'* and the inner face of the flap *a* being provided with points *p* substantially as and for the purpose set forth.



2. In combination with the stiff body of a cravat and a fastening plate having holes corresponding to holes or sockets therein a neck-band formed in two parts having holes also corresponding to the said holes and sockets and devices for fastening the said body the said locking plate and the said neck-band together substantially as set forth.

3. A stiff cravat-body of five sided form as shown having a pad Q points *p'* and flap *b* at the front of its upper part and the flap *a* and points *p* at the rear of its lower part substantially as set forth.

490,821. AUTOMATIC FIRE-EXTINGUISHER. JAMES DE S. BROWN, Philadelphia, Pa. Filed June 12, 1891. Serial No. 396,058. (No model.)



Claim.—1. In an automatic fire extinguisher the combination of a case, a valve seat and a valve made from the non-corrodible and non-adhesible materials as described, the valve seat being cemented or screwed into the said case, and forming a part of the same, and the valve being cemented or screwed into a valve stem a rotary distributer on, and a stationary distributer firmly attached to the said valve stem, a guide to hold the said distributer, through the valve stem parallel with and equi-distant from the outlet of the said case, a non-conducting plate, made from a material being a poor conductor of heat, attached to the said case, a post attached to the said non-conducting plate and two levers, one, the holding lever having near its center a non-conducting plate, with a set screw fitted into it, which bears directly on the said valve stem and the fulcrum pin of this lever bearing on the projections from the said case: the other lever being at right angles with and supporting the said holding lever by a pin firmly fastened to it, soldered to the said post at, and through, its fulcrum pin by a metal fusing at a low temperature, for the purposes substantially as described.

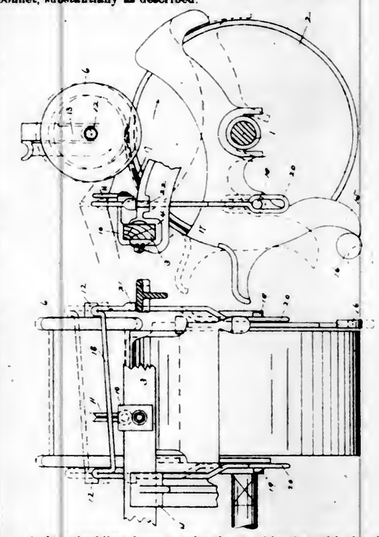
2. In an automatic fire extinguisher the valve stem F having the stationary deflector T with alternate projections and spaces as described, firmly fastened to it, with the rotary distributer V having four straight vertical planes, the summit of each sloping to the base of the next plane following, and placed above the said stationary distributer with the stem F for its axis.

3. In an automatic fire extinguisher the combination of the case G with the post L fastened to the same through the non-conducting plate K the holding lever R having a non-conducting plate K' inserted near its center, with the set screw *d* fitted into the said plate, one end of this lever bearing through the pin l on the projections from the case G with the releasing lever M soldered to the post L at, and through its fulcrum pin with a metal fusing at a low temperature.

490,822. DOUBLING DRUM SPOOLER. EDWIN R. BULLOCK, Pawtucket, R. I., assignor to the J. & P. Coats, Limited, Paisley, Scotland. Filed Sept. 8, 1892. Serial No. 445,296. (No model.)

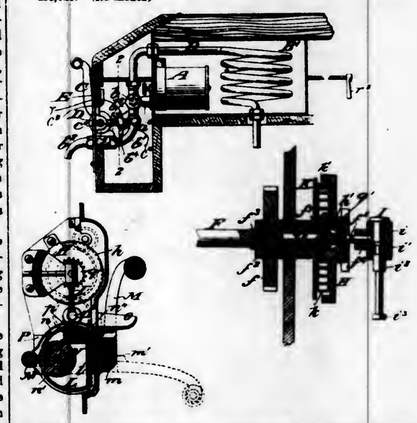
Brief.—When the spool is stopped upon the breaking of one thread, the relief-wire 18 lifts the threads out of the reciprocating thread guide 11 to prevent the thread chafing.

Claim.—1. The combination in a doubling drum spooler with the drum for rotating the spool, the yarn guide, and the bonnet for stopping the spool, of the relief-wire 18 linked to and operated by the bonnet, substantially as described.



2. In a doubling drum spooler the combination with the drum for rotating the spool, the bonnet for stopping the spool, and the relief-wire 18 linked to and operated by the bonnet, of a yarn guide 11 constructed of hard smooth wire so as to form a narrow vertical slot open and enlarged at the top, substantially as shown and for the purpose set forth.

490,823. LIQUID MEASURING AND RECORDING APPARATUS. WILLIAM M. FOWLER, Milford, Conn. Filed Apr. 11, 1892. Serial No. 428,639. (No model.)



Claim.—1. In combination, one or more dispensing mechanisms, a recording device and a registering device, the recording device being under the control of the dispensing mechanism to determine the price to be recorded for a single transaction and the registering device being simultaneously under the control of the dispensing mechanism to determine the sum total of a plurality of transactions, substantially as set forth.

2. In combination, one or more dispensing mechanisms, a recording device, a registering device, and a common connection between the dispensing mechanisms and the recording and registering devices, whereby the operation of the dispensing mechanisms, serves to determine the price to be recorded for that operation and registers the price either alone or in connection with other operations, substantially as set forth.

3. In combination, a dispensing mechanism, a recording mechanism, a shaft connecting the two and a variable connection between the said shaft and the dispensing mechanism whereby the shaft may be rotated more or less while the quantity of liquid dispensed remains constant, substantially as set forth.

4. In combination, a dispensing mechanism, a recording mechanism a shaft connecting the two, an operating lever for the recording mechanism and an impression device, the recording mechanism being under the control of the dispensing mechanism to determine the amount to be recorded and the impression device being under the control of said operating lever to make the record, substantially as set forth.

5. The dispensing mechanism comprising the measuring receptacle, means for supplying liquid thereto, means for withdrawing the liquid therefrom and a sliding piston within the measuring receptacle, the interior portion of the receptacle upon both sides of the piston being in permanent communication with each other, substantially as set forth.

6. The combination with the shaft and the dispensing operating mechanism for controlling the movements of the shaft, of a printing wheel having an interrupted connection with the shaft and means for controlling the connection of the printing wheel with the shaft, substantially as set forth.

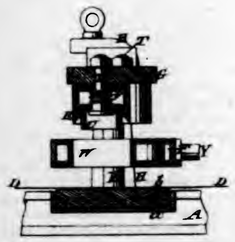
7. The combination with the shaft and means for rotating it, of a spring actuated printing wheel having an interrupted engagement with the shaft, an impression device, means for moving the impression device toward and away from the printing wheel and a key under the control of the impression device and its operating means to throw the printing wheel into engagement with the shaft, substantially as set forth.

8. The combination with a dispensing device the shaft and means for rotating the shaft, of a printing wheel having an interrupted engagement with the shaft, an impression device, means for moving the impression device toward and away from the printing wheel, a tape supply roller carried by the frame of the impression device, tape feed mechanism and means for interrupting the feed during a portion of the movement of the impression device, substantially as set forth.

9. The combination with a dispensing device the printing wheel and means for operating it, of the impression device supported in a reciprocating frame, a tape supply roller, a tape conduit on the frame, tape feed mechanism, a cutter carried by the frame a stop carried by the frame to temporarily lock the printing wheel and means for operating the frame and thereby securing an impression, feeding the tape and severing the printed portion, substantially as set forth.

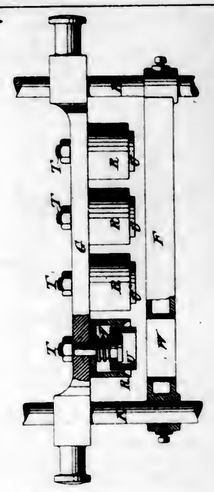
10. In combination, several dispensing mechanisms each provided with its own operating lever, locking mechanism in position to prevent the simultaneous movement of two operating levers, the connection between the locking device and the levers being such that a second lever may be operated as soon as the preceding lever has completed its advance stroke, substantially as set forth.

490,824. MACHINE FOR CUTTING CAOUTCHOUC SHEETS. GUSTAV L. HILLS, Bolton, England. Filed Aug. 24, 1892. Serial No. 444,002. (No model.)

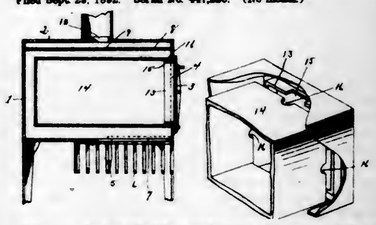


Claim.—In a machine for cutting caoutchouc sheets, the combination with the cutters of a surrounding heating chest or chamber, substantially as herein described.

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490,825. MUFFLE-KILN. THEODORE HOELSER, Toledo, Ohio. Filed Sept. 29, 1892. Serial No. 447,296. (No model.)



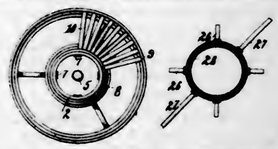
Claim.—1. In a muffle kiln, a casing, a muffle supported therein, means for causing combustion beneath the muffle openings in the top of the casing, and movable closures for the openings.

2. In a muffle kiln, a casing having a collar upon the interior of one end, and a muffle of an area to fit thereon, the collar and muffle being rectangular in cross section.

3. In a muffle kiln, a casing having a collar upon the interior of one end formed with a recess, a muffle of an area in cross section to fit upon the collar irrespectively of the side that is uppermost, each side having recess formed in the end having less depth than the width of the collar except at the recess.

4. In a muffle kiln, a casing, a muffle secured thereon, the bottom plate of the casing being formed with an opening, a grate detachably secured beneath the opening, for the combustion of solid fuel, and a removable plate upon the opening for the combustion of gaseous fuel.

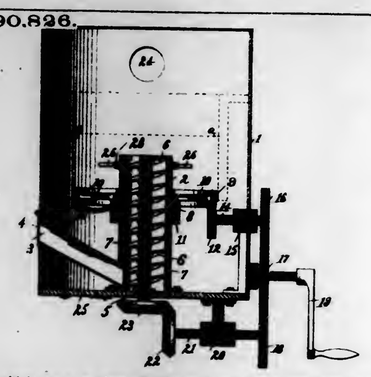
490,826. SMOKE-CONSUMING APPARATUS. ARTHUR KITSON, Philadelphia, Pa. Filed June 18, 1892. Serial No. 437,113. (No model.)



Claim.—1. In a furnace feeding apparatus the combination of the rotating grate, the tube which passes up through the center of said grate, mechanism for feeding fuel up through said tube and rotating the grate, and radiating fingers extending from the exterior of said tube out over said grate, substantially as described.

2. In a stove feeding apparatus the combination of the grate the

490,826.



tube which passes up through said grate, the longitudinal ribs inside said tube, the feed screw in said tube and mechanism which rotates said screw, substantially as described.

490,827. AIR-CUSHION TIRE. JOSEPH P. LAVIGNE, New Haven, Conn., assignor of one-half to Reuben H. Brown, same place. Filed July 6, 1892. Serial No. 439,161. (No model.)



Claim.—1. The herein described improvement in bicycle wheels, comprising in combination, a metal rim, a flexible tire adapted to hold compressed air, an independent air chamber situated between the tire and rim, wherein the air may be compressed, so as to sustain an exhausted or partially exhausted tire, and thereby prevent complete collapse of the same, substantially as described.

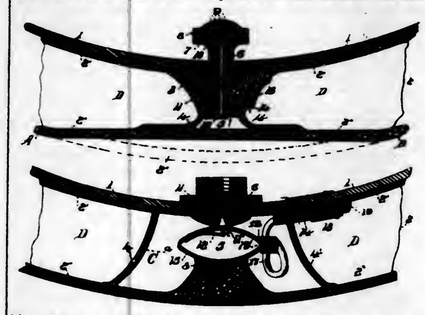
2. The herein described improvement in bicycle wheels, comprising in combination, a metal rim, a flexible tire, adapted to hold compressed air, an independent air chamber situated between the outer surfaces of the tire and rim, and circumferential therewith, such independent air chamber adapted to arrest the inward depression of an exhausted or partially exhausted tire by reason of the engagement of the depressed tire with the outer wall thereof, substantially as set forth.

3. The herein described improvement in bicycle wheels comprising in combination, a pneumatic tire adapted for holding compressed air and having a depression formed in its outer surface extending within the cavity of the tire and circumferential therewith, a metal rim having an outer convex face adapted to enter the depression in the tire partially filling the same, so as to leave an air space, or circumferential air chamber between the tire and rim, to sustain the tire—when exhausted, or partially exhausted—at a predetermined point within said tire, so as to prevent its total collapse, thereby rendering its traction safe, substantially as described.

4. The herein described improvement in bicycle wheels, comprising in combination, the pneumatic flexible tire 3, having the depression 4 in its outer surface, said depressed portion of the tire carried into the cavity of said tire, the metal rim having the raised outer surface 2 to engage with the sides of the depression in the tire for a part of its depth, and means substantially as described for attaching it thereto, the remaining distance between the rim and bottom of said depression of the tire forming an air chamber, against whose outer wall 8 the traction face of the tire proper may impinge, compressing the air within said chamber so as to form a cushion to sustain the tire against further depression, substantially as described and set forth.

490,828. BICYCLE-TIRE. JOSEPH P. LAVIGNE, New Haven, Conn., assignor of one-half to Reuben H. Brown, same place. Filed July 6, 1892. Serial No. 439,162. (No model.)

Claim.—1. The herein described improvement in bicycles comprising in combination, a pneumatic tire adapted to hold compressed air, flexible webs or partitions attached to the inner walls thereof, and arranged a suitable distance apart so as to form thereby a normal air-chamber provided with both inlet and outlet ports, substantially as shown; said chamber capable of being compressed by means of the yielding tread of the tire and at a point close to the normal working pressure of the same, and thereby force air into said tire; a vertically disposed anvil to assist in the compression of said chamber, the flexible webs or partitions forming the walls of the chamber being so curved or shaped, combined with their attachment to the inner walls of the tire, that they are able to resist the greater pressure of the air therein, and not collapse when the chamber is in its normal condition, and, by means of the resilient action of the tire, to more readily assume such normal condition after being compressed, substantially as set forth.



2. The herein described improvements in bicycles, comprising in combination, pneumatic tire 2, anvil 3 projecting within the tire and from the inner wall thereof, flexible webs or partitions 4—4' uniting the lower end of said anvil with the opposite wall of the tire, forming thereby the normal air-chamber 5, inlet and outlet ports substantially as shown leading to and from the same, said chamber arranged to be compressed by the yielding tread of the tire and against said anvil, at a point close to the normal working pressure of said tire, forcing air therein, substantially as described; the resilient action of the tire combined with the attachment of the webs or partitions therewith operating to restore the air-chamber to its normal position after compression, substantially as set forth.

3. The herein described improvement in bicycles, comprising in combination, a pneumatic tire, an air chamber therein, into which air is first admitted from without by means substantially as shown, a compression anvil erected on one of the inner walls of the tire, between which anvil, and the opposite wall, said chamber is placed, and between which two points it is compressed by the yielding tread of the tire and close to its normal working pressure, so that the compressed air in said chamber will be forced into the cavity of the tire through an outlet port in said chamber, a secondary normal atmosphere chamber surrounding the primary or compression chamber to protect it from the higher pressure in the tire, substantially as shown.

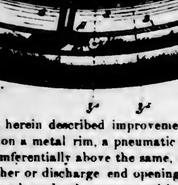
4. The herein described improvement in bicycles, comprising in combination pneumatic tire 2, anvil 3 projecting from the inner wall and into the cavity thereof, flexible webs or partitions 4—4' uniting said anvil with the opposite wall of the tire, forming thereby the normal air-chamber 5, inlet and outlet ports leading to and from said chamber, substantially as shown, air nozzle 7 communicating with the inlet port and filled with felt or other suitable packing to exclude particles of dust or other foreign substance from the air chamber, substantially as shown.

5. The herein described improvement in bicycles, comprising in combination a pneumatic tire, a flexible air bulb arranged therein and provided with inlet and outlet ports, anvil or anvils between which the air bulb is placed, and compressed by the yielding tread of the tire, a normal atmosphere chamber surrounding the bulb to protect it from the compressed air in said tire, substantially as shown.

6. The herein described improvement in bicycles comprising in combination, a pneumatic tire, an air bulb arranged therein, having inlet and outlet ports, a dust proof nozzle through which air is admitted thereto, an anvil projecting from one of the inner walls of the tire, between which and the base of the air nozzle or other point substantially as shown, the said bulb is compressed by the yielding tread of the tire so as to expel air therefrom into the cavity thereof; a normal atmosphere chamber surrounding the bulb to protect it from compressed air in said tire, all arranged to operate in the manner substantially as shown and for the purpose shown.

7. The herein described improvement in bicycles comprising in combination, a pneumatic-tire arranged to hold compressed air; a flexible air pump or chamber having inlet and out-let ports, said pump placed within the tire and arranged to be compressed by the yielding tread of the same, the flexible air pump surrounded by another chamber wherein air is maintained at its normal pressure, such outer or secondary chamber serving to protect the flexible air pump or inner chamber against the collapsing effect of the greater air pressure within the tire, substantially as set forth.

490,829. SELF-HOLDING TIRE FOR BICYCLES. JOSEPH P. LAVIGNE, New Haven, Conn., assignor of one-half to Reuben H. Brown, same place. Filed July 6, 1892. Serial No. 439,163. (No model.)



Claim.—1. The herein described improvement in bicycle wheels, comprising in combination, a pneumatic tire having in one side a depression or pocket, combined with a rim, anchor shape in its cross section, whose stock or enlarged portion of the shank engages with the pocket of the tire, as described.

2. The herein described improvement in bicycle wheels, comprising in combination, a pneumatic tire having a grooved depression formed in its upper surface, and extended within the cavity of the tire, and circumferential therewith, a rim, having a raised projection on its outer curved surface to fit the depression in the tire, substantially as described.

3. The herein described improvements in bicycle wheels comprising in combination the pneumatic tire 5, having the grooved depression 6 enlarged at the bottom and formed in the outer surface thereof, such depression extending within the cavity of the tire, and circumferential therewith rim 1 anchor shape in cross section, to engage with the depression of the tire, reduced shank 2 to engage with limbs 7 of said tire, the outer circle of said rim also engaging with a portion of the outer surface of the tire, all combined and arranged with the compressed air within the tire so that said tire is sustained to the rim, substantially as shown.

4. The herein described improvement in bicycle wheels, comprising in combination a tubular rim which is anchor shape in cross section, having a reduced shank and enlarged stock portion projecting outward from the rim proper, a pneumatic tire having a grooved depression enlarged at the bottom to fit the stock of the anchor shaped rim, said depression extending within the cavity of the tire, and circumferential therewith, so that, by reason of the formation of the tire and rim and the compressed air within the tire, the same is firmly sustained to the rim, all substantially as described and for the purpose set forth.

490,830. BICYCLE-TIRE. JOSEPH P. LAVIGNE, New Haven, Conn., assignor of one-half to Reuben H. Brown, same place. Filed July 7, 1892. Serial No. 439,230. (No model.)



Claim.—1. The herein described improvement in bicycles, comprising in combination a metal rim, a pneumatic tire; a flexible air tube arranged circumferentially above the same, one end opening to the outer air, the other or discharge end opening into the cavity of the tire, said air tube adapted to be compressed by the yielding tread of the tire, and the air forced therefrom, and into said cavity, substantially as set forth.

2. The combination with a metal rim and a pneumatic tire, of a flexible air tube placed between the two and circumferential therewith, one end opening to the outer air, the other or discharging end opening into the cavity of the tire; said tube so arranged that it may be compressed by the yielding tread of the tire and the air forced therefrom into the cavity of the tire, substantially as described.

3. The combination with a metal rim and a pneumatic tire, of a flexible air tube placed between the two and circumferential therewith, one end projecting without the tire and provided with a dust proof air nozzle, the other end having a valve opening into the cavity of the tire, substantially as shown; said tire and rim so constructed with respect to the position of the air tube that the latter will be compressed by the yielding tread of the tire and the air forced therefrom into the cavity of said tire, substantially as set forth.

4. The herein described improvement in bicycles, comprising in combination, a metal rim, a rib or bead projecting above the outer surface and circumferential with such rim, a pneumatic tire having a circumferential groove or depression in one side, and extending into its cavity to receive the rib of the rim, a flexible air tube placed between the bottom of said groove and the upper surface of the rib of the rim, one end of said tube opening to the atmosphere and having on such projecting end means substantially as shown for the admission of air and exclusion of dust, the other or discharging end provided with a valve, and opening into the cavity of the tire; said tube adapted to be compressed by the yielding tread of the tire and the air forced therefrom into the cavity of the said tire, as set forth.

5. The combination with a yielding hollow tire and a metal rim, of a flexible air tube arranged circumferentially about the same, one end opening to the atmosphere, the other or discharging end opening into the cavity of the tire, said tube adapted to be compressed by the yielding tread of the tire, so that the air will be expelled therefrom into the cavity of said tire, substantially as described.

490,831. TOOTH-BRUSH. HEINRICH LÖNERS, Heidelberg, Germany. Filed Mar. 10, 1892. Serial No. 424,463. (No model.)

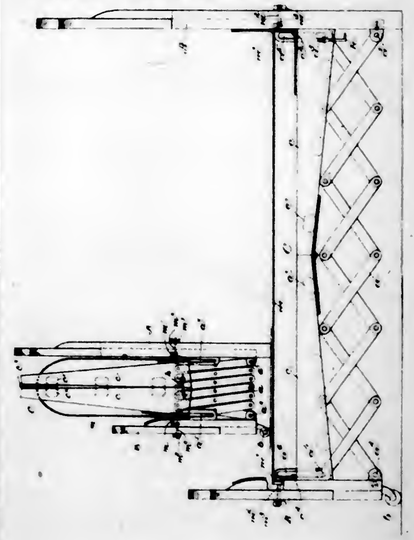


Claim.—1. A tooth brush having a detachable handle which is bent for convenience of brushing in the line of growth of the teeth and fastening devices consisting of a ring *g* provided with a central partition *g'* for engaging the brush rod and which allows the said brush to be turned on the said handle into various positions substantially as set forth.

2. A tooth-brush handle having a socket and slot in one end, in combination with a brush proper having a bifurcated tongue to enter the said slot, and a fastening collar which surrounds the neck of the brush and has a cross partition fitting in the slot of the handle and straddled by the bifurcated tongue substantially as set forth.

3. A tooth-brush handle having an elastic socket end, in combination with a tooth brush proper having a tongue which enters the said end and a fastening device for holding the said tongue and socket together the said tongue having a ring formed on it which enters a corresponding recess of the said socket substantially as set forth.

490,832. FOLDING BED. ANDREW J. MORSE, Boston, Mass. Filed Mar. 23, 1892. Serial No. 426,092. (No model.)



Claim.—1. The combination in a folding bed, of a head board and a foot board, "lazy tong" levers directly connecting the lower ends of the same, the fixed pivots a', a^3, for the lower endmost levers, the guide ways a^3, a^4, in which the upper endmost levers are pivoted to slide, and the side rails C, of equal length hinged to each other and to the head and foot boards above and independent of said levers, substantially as described.

2. In a folding bed, the combination with a head board and a foot board, movable one toward the other, and side rails hinged to each other and to the head and foot boards, and having squared abutting ends, of a mattress support, sustained at its ends by said head and foot boards alone, and above the pivotal points of the side rails, and a flexible connection below the side rails and between said head and foot boards to limit the outward movement thereof, to thereby retain the bed open, substantially as described.

3. In a folding bed, the combination with a head board and a foot board, and the hinged side rails C, of a mattress held above the pivotal points of said side rails and sustained by said head and foot boards, alone, and the "lazy tong" levers *a* connecting said head and foot boards below the pivotal points of the side rails, the mattress drawing the head and foot boards together in a plane above the side rails, and the "lazy tong" levers *a* limiting such movement and maintaining said boards upright, and a locking device on the outer ends of the side rails to hold the side rails together when the bed is closed, and retaining the head and foot boards in their closed position, substantially as described.

4. In a folding bed, the combination with a head board and a foot board, and the hinged side rails C, of a mattress held above the pivotal points of said side rails and sustained by said head and foot boards alone, and the "lazy tong" levers *a* connecting said head and foot boards below the pivotal points of the side rails, the mattress drawing the head and foot boards together in a plane above the side rails, and the "lazy tong" levers *a* limiting such movement and maintaining said boards upright, substantially as described.

5. In a folding bed, the combination with a head board and a foot board, movable one toward the other, and side rails hinged to each other and to the head and foot boards, and having squared abutting ends, of a mattress support, sustained at its ends by said head and foot boards alone above the pivotal points of the side rails, and adjusting devices connecting said support to the head and foot boards to vary the tension of said support, and a flexible connection below the side rails and between said head and foot boards to limit the outward movement thereof, and to thereby retain the bed open, substantially as described.

6. In a folding bed, the combination with head and foot boards connected by side rails C, C, hinged together at their inner ends, and at their outer ends to said head and foot boards, of a support *m* sustained at its ends by said head and foot boards above the side rails, a connection between said head and foot boards below the side rails, and cross slats c^x connecting opposite side rails, the support *m* and limiting connection being equal in length to thereby retain the head and foot boards in parallelism when the side rails are in alignment, substantially as described.

490,833. COMBINED DRILL-HOE AND CULTIVATOR-TOOTH. JOHN MUIR, Brantford, Canada. Filed Aug. 5, 1892. Serial No. 442,258. (No model.)



Claim.—1. A cultivator tooth connected to a drag-bar and having a grain boot attached to it in combination with a rearwardly curved shoe fixed to the tooth and having a hole through it where it passes below the bottom of the boot: substantially as and for the purpose specified.

2. A rearwardly curved shoe connected to the back of a cultivator tooth and having a hole punched through it so that the metal punched from the hole shall form the lower portion of the sides of the boot extending from the shoe: substantially as and for the purpose specified.

3. A rearwardly curved shoe connected to the back of a cultivator tooth, a boot attached to the tooth or plate, a hole made through the shoe at the bottom of the boot, in combination with a coverer attached to the curved shoe: substantially as and for the purpose specified.

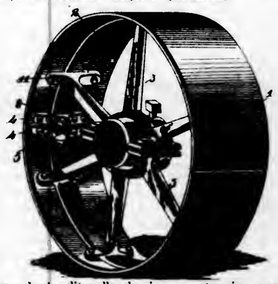
4. A cultivator tooth connected to a drag-bar and having a grain boot attached to it in combination with a rearwardly curved shoe fixed to the tooth and formed so that it will leave a passage way below the bottom of the boot, substantially as and for the purpose specified.

490,834. GATE-HINGE. ALBERT O. QUIMBY, Fresno, Cal. Filed June 13, 1892. Serial No. 436,514. (No model.)



Claim.—The combination with a pintle of a hinge eye having a shank and provided upon its under face with an open sided eye having oppositely extending cam portions and the eye proper formed upon its under face with a notch *d* arranged centrally of the opening between the cam portions of the open sided eye, substantially as described.

490,835. PULLEY. FREDERICK SIEBERT, St. Louis, Mo. Filed Oct. 10, 1892. Serial No. 448,407. (No model.)

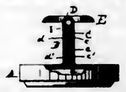


Claim.—1. A split pulley having an outer rim, a sectional inner rim having arms and hub integral therewith, said inner rim terminating at its sectional extremities in lugs between two adjacent arms, said lugs being secured directly to the outer rim and to each other and out of contact with radial arms extending from the hub, substantially as and for the purpose set forth.

2. A split pulley having an outer rim, a sectional inner rim secured thereto, lugs at the sectional extremities of said inner rim and integral therewith and with each other, said lugs being bolted to each other and secured to the outer rim, radial arms disposed out of contact with said lugs, and integral with the inner rim and with the hub, substantially as and for the purpose set forth.

3. A split pulley having an outer rim 1, a sectional inner rim 2 secured thereto, broad lugs 4 at the sectional extremities of said inner rim and integral therewith, the projecting lugs 5 having openings 9, a bolt 8 passing through the same and nuts 10 at the ends thereof, radial arms 3 out of contact with lugs 4 and integral with the inner rim, and the sectional hub at the inner end of the arms 3, all operating as and for the purpose set forth.

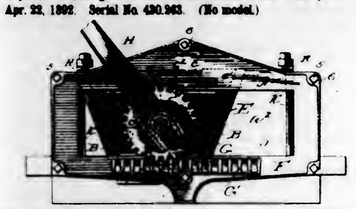
490,836. SLEEVE-BUTTON. CHARLES R. SMITH, Providence, R. I. Filed May 14, 1892. Serial No. 432,957. (No model.)



Claim.—1. The improved button herein described consisting of the head or front A, the hollow post B, attached to said head A and provided with interior knobs *c c'*, the solid post C longitudinally movable within the hollow post B and provided with sockets *d d'* and groove *e*, the tube D upon the outer end of the post C and the ring-shaped shoe E having lugs *s*, adapted to enter the ends of the tube D and to form a hinge therewith, substantially as specified.

2. The combination of the head or front A, the hollow post B attached thereto and provided with interior knobs *c c'*, the solid post C longitudinally movable within the hollow post B and provided with sockets *d d'* and groove *e*, the tube D upon the outer end of the post C and a shoe, mounted and hinged upon the post C, substantially as described.

490,837. TRIMMING-MACHINE. MILLARD E. STOCKWELL, Grand Rapids, Mich., assignor of one-half to William T. Hess, same place. Filed Apr. 22, 1892. Serial No. 430,963. (No model.)



Claim.—1. In combination, the frame, the knife carriage movable thereon, the knife movable on the carriage in addition to the carriage movement, the rack connected with the knife, the pinion on the carriage meshing with the knife rack and the means for operating the carriage and turning the pinion extending from the carriage into connection with the frame, substantially as described.

2. In combination the frame the knife carriage and knife the means for moving the carriage and knife laterally for the shear cut, the knife guided on the carriage to have additional movement up and down in relation to the work, said knife having an inclined cutting edge, and the means for moving the knife downward as it moves laterally on its cutting stroke from the center toward the end post of the frame substantially as described.

3. In combination the frame, the knife carriage the knives, the knife plates guided to move on the carriage, the racks along the opposing edges of the plates, the pinion between the plates and meshing with the racks and means for operating the pinion substantially as described.

4. In combination, the frame, the rack thereon, the carriage having guide ways for a knife movable thereon, the rack connected with the knife and the gear wheel connection between the rack on the frame and the knife rack said connection being carried by the carriage, substantially as described.

5. In combination the frame the knife carriage, the knife carried thereby to move up and down, the shaft journaled in the carriage, the gear G on said shaft, the rack on the frame meshing with the gear and the pinion and rack connection between the shaft and the knife substantially as described.

6. In combination the frame having an opening above the knife way, the knife the carriage therefor, the shaft journaled in the carriage the means for moving the knife up and down consisting of the gearing from the shaft to the knife plate arranged to permit the free removal of the knife plate when the gearing is released, and the means for moving the carriage laterally comprising the stationary rack and the shifting gear wheel G whereby the knives may be removed substantially as described.

7. In combination the frame the knife, the carriage therefor, the shaft journaled in the carriage, the means for moving the knife up and down consisting of the connection from the shaft to the knife plate, the stationary rack on the frame, the gear wheel G on the shaft engaging said rack the removable handle, said gear being adapted to be shifted out of engagement with the rack and being arranged to be held in engagement by the handle substantially as described.

8. In combination, the frame, the carriage, the knife plate movable vertically on said carriage and arranged between the same and the face of the frame, the means for operating the carriage and the knife plate thereon, and the guiding and holding means for the carriage comprising a supplemental frame F extending parallel with the main frame in the plane of the carriage and engaging therewith said supplemental frame being secured to the main frame with a space between them for movement of the interposed parts, and for the removal vertically of the sliding knife plate, substantially as described.

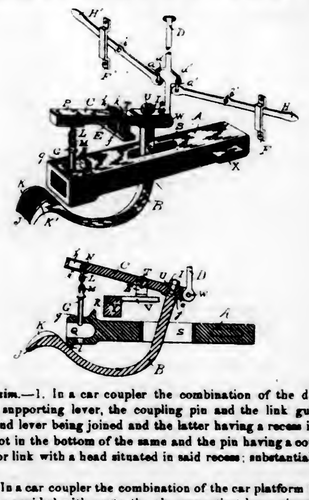
9. In combination, the main frame, the knife and carriage, the end gages K, and the intermediate parallel gage of curved form, the seat therefor arranged centrally between the end gages, said parallel gage having its rear bearing portion extending laterally of the central seat and of the main part of the gage, substantially as described.

10. In combination, the main frame, the knife and carriage therefor, the gage seat having a curved upper face, the main gage plate M adjustably held therein and being curved to conform to said seat and provide a concave upper side the supplemental gage pivotally connected with the main gage and the adjusting mechanism for the supplemental gage arranged between the same and the concave face of the main gage, substantially as described.

11. In combination, the main frame, the knife and knife carriage, the main adjustable gage M having a concaved upper face, the supplemental gage removably pivoted thereto by a projection and socket connection, the teeth on the supplemental gage and the holding bar engaging therewith and pivotally connected with the upper face of the curved main gage, substantially as described.

12. In combination, the main frame, the knife, the carriage therefor, the end gages K adjustably supported, and the parallel gage M adjustably connected to the bed intermediate of the gages K, the said gage M having inclined side edges converging toward the front of the machine, substantially as described.

490,838. CAR-COUPLING. JOSEPH THEO and ARARIOS PAQUIN, Claremont, N. H. Filed Apr. 13, 1892. Serial No. 428,996. (No model.)



Claim.—1. In a car coupler the combination of the draw-bar, the pin supporting lever, the coupling pin and the link guide, said guide and lever being joined and the latter having a recess in its end and a slot in the bottom of the same and the pin having a connecting device or link with a head situated in said recess: substantially as set forth.

2. In a car coupler the combination of the car platform having a bracket provided with posts, the pin supporting lever pivotally supported between said posts, the pin loosely supported in the end of the lever, a handle lever pivoted to the opposite end of the first named lever and the link guide fixed to said link supporting lever: substantially as set forth.

3. In a car coupler the combination of the draw-bar, the pivoted pin supporting lever having a recess and the pin having a link or like device provided with friction rollers, the link and rollers being adapted to automatically move in the recess; substantially as set forth

4. In a car coupler the combination of a pin, a pivoted supporting lever, a link guide and a draw-bar, said pin and its suspending devices being movable lengthwise of the lever; substantially as set forth.

5. The combination of a draw-bar, pin, pin supporting lever, link, guide and handle lever, the pin lever and guide being directly movable by the handle lever; substantially as set forth.

6. The combination of a draw-head, a link guide having a movable support and a handle or lever connected directly to said support; substantially as set forth.

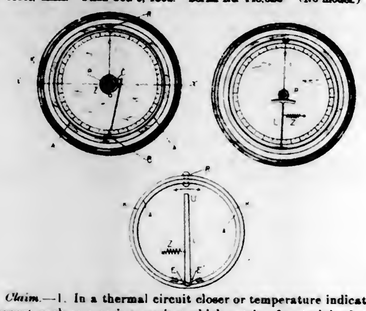
7. The combination of the link guide, the slotted draw-bar, the pivoted lever C and the pin supported by said lever; all substantially as set forth, whereby the movement of the lever to raise or lower the pin moves the link guide into and out of operative position.

8. The combination of the link guide, the friction roller, the slotted draw-bar, the pivoted lever C and the pin supported by said lever; substantially as set forth, whereby the movement of the lever to raise or lower the pin moves the link guide into and out of operative position.

9. The combination of the link guide, the slotted draw-bar, having a hinge joint, the pivoted lever C and the pin supported by said lever; all substantially as set forth, whereby the movement of the lever to raise or lower the pin moves the link guide into and out of operative position.

10. A draw-head combined with mechanism for raising and lowering it to adapt it to couple with draw-heads of different heights, and with a link guide, said mechanism being adapted to act directly upon the link guide and mediately upon the draw-head; substantially as set forth.

490,839. THERMAL CIRCUIT-CLOSER. ELIHU THOMSON, Swampscott, Mass. Filed Oct. 6, 1892. Serial No. 448,023. (No model.)



Claim.—1. In a thermal circuit closer or temperature indicator, a support, such as a casing, against which a strip of material, of relatively different expansibility, is held by spring pressure, a lever bearing against the free end or ends of said strip, and electric contact or indicator devices adapted to be actuated by the long arm of said lever.

2. The combination with a thermal circuit closer or temperature indicator of a casing having on its interior and bearing against the same a strip of material of different expansibility from the casing, with means, such as a multiplying lever, engaging with the free end or ends of said strip for registering the temperature or for operating electric contacts, as described.

3. The combination in a thermal indicator or thermometer, of a ring support or casing, a strip of material of different expansibility by heat fitting the same, and supported thereby, and edges on the strip at its ends bearing against the side of a lever so as to cause motion of the same, said edges bearing an offset relation to each other, as described.

4. In a thermometer or thermal circuit closer, a continuous casing of one material, and an open strip of different material fitting the same, a lever inserted between the split portion of the strip, as described, and a spring or weight Z tending to separate the free ends of the strip, as and for the purpose described.

5. In a thermal circuit closer or thermometer, two expansible elements, one of which is a strip spring pressed against a curved surface of the other element, and a lever or index adapted to be actuated by the relative movement of said elements.

490,840. COMPOSITION FOR SOLDERING ALUMINUM. GEORG WESNER, Berlin, Germany. Filed Apr. 20, 1892. Serial No. 429,853. (No specimens.)

Claim.—A composition to be used as a solder alloy for aluminum, consisting of one hundred and sixty-five parts lead, one hundred parts tin and nine parts of zinc as described.

490,841. PROCESS OF ELECTROPLATING ALUMINUM. GEORG WESNER, Berlin, Germany. Filed May 5, 1892. Serial No. 431,886. (No specimens.)

Claim.—The hereinbefore described process of galvanizing aluminum, consisting in first dipping into a bath at boiling temperature, containing cyanides of silver and mercury, to heighten its conductivity; then electrically coating with zinc, in a bath containing chloride of zinc and sulphate of soda, to protect the aluminum against the acid bath in coppering, silvering, gilding, &c.

490,842. HYPODERMIC SYRINGE. WILLIAM H. BREWSTER, Boston, Mass. Filed Sept. 24, 1892. Serial No. 446,796. (No model.)

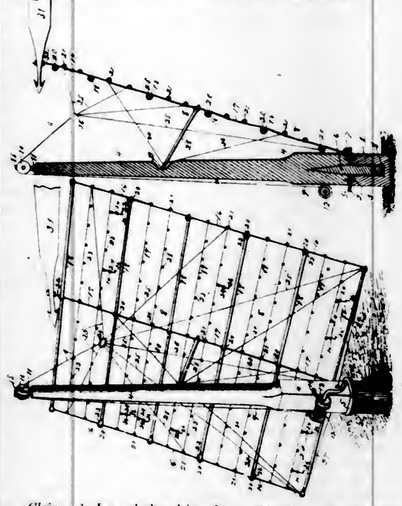
Claim.—1. In a syringe, a barrel provided at one end with an outlet, combined with an unperforated piston movable within and free from operative contact with the interior annular surface of the said barrel, and a packing for the piston at that end of the barrel through which the piston enters, substantially as described.

2. In a syringe, the combination with a barrel provided at one end with an outlet, of a cap secured to the opposite end of the barrel and provided with finger pieces as *b'*, a counterbored opening in said cap through which the piston may enter the barrel, a packing placed in the counterbored portion of said opening, a gland to act upon said packing, and a nut threaded upon the end of the cap to act upon said gland and compress the packing, substantially as described



3. In a syringe, a barrel having a closed end provided with an outlet, combined with a flanged needle and an independent threaded collar adapted to be screwed to the outlet end of the barrel and to act upon the flange of the needle to clamp the latter to the barrel, substantially as described

490,848. CLOTHES-DRIER. CHARLES BROLOWSKA, Port Huron, Mich. Filed Apr. 5, 1892. Serial No. 427,899. (No model.)



Claim.—1. In a clothes-drier, the combination, with the vertical and pivotally-connected base and main posts, of an inclined drying-frame hinged to said main post and suitable devices for lowering and raising said frame to and holding the same in various positions, substantially as described.

2. In a clothes-drier, a drying-frame provided with longitudinally-extending side and central bars, made of wire and formed with large and small circles upon their upper and lower sides, with transversely-extending, wooden stay-rods having flanges near their ends and with transversely-extending clothes-lines, said rods and lines being respectively mounted and secured at their ends within the large and small circles in said side-bars, substantially as described.

3. In a clothes-drier, an inclined and hinged drying-frame provided with longitudinally-extending side and central bars, with transversely-extending stay-rods and clothes lines, with wire braces secured at their outer ends to said side and central bars and with a ring to which the inner ends of said braces are converged and secured, in combination with means for lowering, raising and holding said frame, substantially as described.

4. In a clothes-drier, the combination, with a vertical and pivotally-connected base and main posts, of a drying-frame and wire braces secured at their outer ends to the lower corners of said drying frame and at their inner ends to the lower portion of said main post, substantially as described.

5. In a clothes-drier, the combination, with a vertical post, of an inclined drying-frame hinged thereto and provided with a rearwardly-projecting stop-rod arranged in line therewith, and devices for lowering and raising said frame to and holding the same in various positions substantially as described.

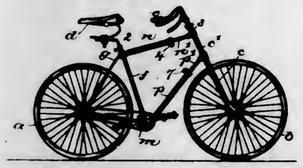
6. In a clothes-drier, the combination, with a vertical post formed with a recess in its upper portion, of an inclined drying-frame hinged thereto and provided with a rearwardly-projecting stop-rod having its rear end normally fitting within said recess, and devices for lowering, raising and holding said frame, substantially as described.

7. In a clothes-drier, the combination, with a vertical post formed with a recess in its upper portion, of an inclined drying-frame hinged thereto and provided with a rearwardly-projecting stop-rod having its rear end normally fitting within said recess, and with wire braces attached at their inner ends to said stop-rod and at their outer ends to different points of said frame, and devices for lowering, raising and holding said frame, substantially as described.

8. In a clothes-drier, the combination, with a vertical and pivoted post, of an inclined drying-frame secured thereto and provided at its upper portion with a rigidly-secured vane, substantially as described.

9. In a clothes-drier, the combination, with a vertical and pivoted post, of an inclined and hinged drying-frame provided with two side bars and a central bar, the latter having a vertical extension at its upper end, and with an arrow-shaped vane rigidly secured to said extension, and means for lowering, raising and holding said frame, substantially as described.

490,844. BICYCLE. GEORGE O. DRAPER, Hopedale, Mass. Filed June 9, 1892. Serial No. 436,075. (No model.)



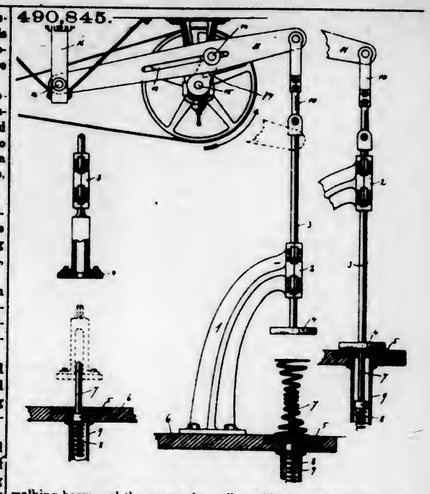
Claim.—A bicycle-frame having a jointed telescopic back-bone, and a jointed telescopic connection between the steering-shaft bearing, and the pedal-shaft bearing, substantially as described.

490,845. SPRING-SETTING MACHINE. OSCAR S. FOSTER and WILLIAM S. FOSTER, Utica, N. Y. Filed Apr. 22, 1892. Serial No. 430,169. (No model.)

Claim.—1. In a spring setting machine a table having a spring holding plate having a circularly grooved face fixed therein, a spring holding pin projecting from the center of the plate, a vertically sliding presser bar 3 mounted on guide sleeve 2 held by an arm directly over the plate in the table and carrying the presser plate having a circularly grooved face for engaging the spring to be operated on, all combined substantially as set forth.

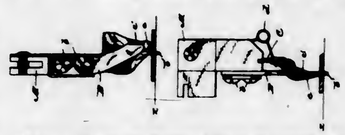
2. In a spring setting machine the combination of a circularly grooved faced spring holding plate fixed in a table, a movable spring holding pin projecting through the center of the plate, a spring under the pin adapted to force it upward, a barrel containing the spring and acting as a guide for the pin, a vertically sliding presser bar 3 on the lower end of which is provided a circularly grooved faced presser plate, guide sleeve 2 for the presser bar supported on a stand directly over the presser plate in the table, a slotted walking beam, a crank engaging in the slot and a connecting rod between the end of the

490,845.



walking beam and the presser bar, all combined substantially as set forth.

490,846. SEWING-MACHINE TRIMMER. CHARLES A. GATES, Gloversville, N. Y., assignor to The Singer Manufacturing Company of New Jersey. Filed June 16, 1892. Serial No. 437,153. (No model.)



Claim.—1. In a sewing machine trimmer, the combination with a stock or carrier and a trimming knife attached thereto, of a presser device having a yielding connection with the knife stock or carrier and consisting of a spring plate the inner face of the lower end of which is normally in the vertical plane of the knife, so as to bear against the latter with a yielding pressure as the knife descends, and being thus adapted to be moved laterally slightly by the knife when in contact with the work.

2. In a sewing machine trimmer, the combination with a knife carrier and a trimming knife or blade attached thereto, of a presser device having a yielding connection with said knife carrier, said pressing device consisting of a spring plate or plates the inner faces of the lower ends of which are normally in the vertical plane of the knife so as to be moved laterally slightly by the latter as it descends, and the said spring plate or plates, owing to their yielding connection with the knife carrier, being adapted to press upon the work or material with a yielding action.

3. In a sewing machine trimmer, the combination with the knife carrier or stock and a trimming knife or blade attached thereto, of a pressing device having a yielding connection with said knife carrier, said pressing device comprising two thin plates of spring metal arranged on opposite sides of the said knife and normally in contact with each other below the edge of the knife, and being thus adapted to be forced asunder slightly, when in contact with the material, as the knife descends between them

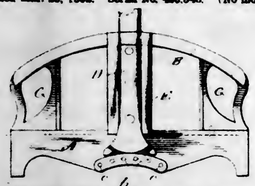
4. The combination with the stock or knife carrier A, of the knife B attached thereto, the presser device consisting of the stock C carrying the spring plates *c* and *c'* normally in contact with each other below the edge of the knife, the said stock being provided with a slot c^3, the spring *d* for forcing the said pressing device downward, and the screw *a* which attaches the said spring to the said stock or knife carrier A and the inner end of which enters the said slot c^3 to limit the downward or outward movement of the said pressing device relative to the said stock or knife carrier.

490,847. PROCESS OF TREATING ORES CONTAINING NICKEL. ARTHUR L. GRAFT and CHARLES G. RICHARDSON, Toronto, Canada; said Graft assignor to Arthur Bawden English, same place. Filed Apr. 4, 1892. Serial No. 427,732. (No specimens.) Patented in Canada Apr. 14, 1892, No. 36,749.

Claim.—1. The process herein described of treating ores containing sulphur in combination with metallic bodies, the same consisting in subjecting said ores in conjunction with sulphate of calcium, or other sulphate, and silica or silicates to the action of heat until fused, whereby the sulphur in combination with an easily oxidizable metal such as iron is oxidized and driven off and the less easily oxidizable metals such as nickel or nickel and copper left in the form of a sulphide or sulphides which separates from the resultant slag of calcium and other silicate compounds, substantially as described.

2. The process herein described of treating nickel ores containing sulphur, the same consisting in subjecting the ores to the action of sulphate of calcium, or other suitable sulphate, and heat, whereby the sulphur combined with the iron in the ore is oxidized, the sulphate of calcium decomposed and a greater part of its sulphur liberated, substantially as specified.

490,848. TRIMMING-MACHINE. WILLIAM T. HIRE, Grand Rapids, Mich. Filed Mar. 26, 1892. Serial No. 426,340. (No model.)



Claim.—1. In combination, the frame the rack thereon, the lever extending alongside the frame and having its lower end toothed and engaging the rack to turn or fulcrum thereon and the knife secured to the lever and extending approximately parallel therewith, said knife being arranged entirely above the turning point of the lever, substantially as described.

2. In combination the bed, the knife, the lever carrying the same and having a toothed end, the upper guide on the frame for the lever, and the fulcrum for the lower end of the lever consisting of the rack arranged on the frame below the lower toothed end of the lever and engaging the same, said lever being vertically movable in relation to the said rack, whereby it may be adjusted thereon, substantially as described.

3. In combination, the bed, the knife, the lever extending alongside the bed and carrying the knife, said lever having a lower toothed end, the rack on the bed having a wall along its outer edge only whereby the lever and knife may move freely toward the bed, the said outer wall and the face of the lever being beveled substantially as described.

4. In combination the bed, the knife, the lever carrying the same, and having its lower end curved and provided with teeth, the curved guide way for the lever and the fulcrum for its lower end, consisting of the rack curving downwardly from the center to the ends whereby the bearing point of the lever is constantly falling as the lever is swung aside substantially as described.

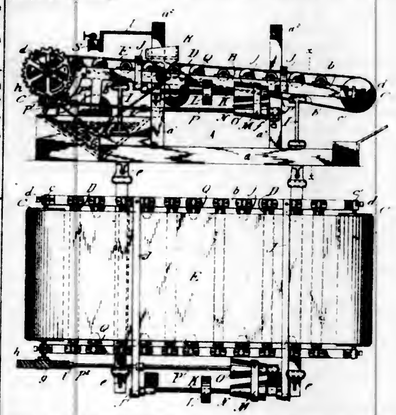
490,849. ORE-CONCENTRATOR. GEORGE JOHNSTON, San Francisco, Cal. Filed July 25, 1891. Serial No. 400,730. (No model.)

Claim.—1. In combination, a belt frame, means for sustaining the same consisting of links I at its opposite sides pivoted to the belt frame and the main frame to have movement laterally thereof only said links being permanently set at an angle to each other, and means for moving the frame on the angularly arranged supporting links, substantially as described.

2. In combination, a belt frame means for supporting and directing the movement of the same consisting of the links I having movement transversely of the frame only, said links being set permanently at an angle to each other and being capable of adjustment to vary the said angle, and the means for moving the frame, substantially as described.

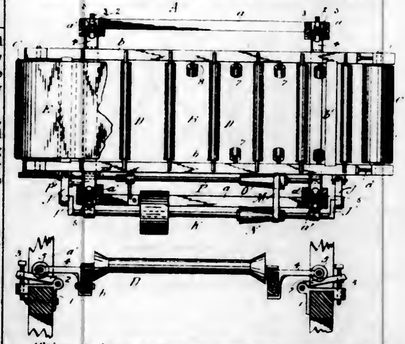
3. In an ore concentrator, the combination of a stationary main frame, an oscillating belt frame carrying a longitudinally moving belt, a shaft journaled in the main frame, gearing for driving the belt, and a flexible section in the said shaft for transmitting the motion of the shaft to the belt, and yet permitting the belt and its frame to oscillate, the end of said flexible shaft being journaled on the oscillating frame substantially as set forth.

4. In an ore concentrator, and in combination, a stationary main frame, a transversely oscillating belt frame having guide rollers for a longitudinally movable belt, a gear wheel connected to one of said rollers, a shaft composed of two rigid parts, one journaled in the main frame, the other in the belt frame, and connected together by a flexible section, and a worm on the part of the shaft connected to the belt frame, and engaging said gear wheel, substantially as, and for the purposes set forth.



5. In an ore concentrator, a water distributing box, having its front board provided with a series of vertical holes extending partially through it, a series of horizontal holes extending transversely through the board and intersecting the vertical series, vertical grooves or saw cuts and screws or plugs in the vertical holes for regulating the flow of water through the horizontal holes, substantially as set forth.

490,850. ORE-CONCENTRATOR. GEORGE JOHNSTON, San Francisco, Cal. Filed Oct. 23, 1891. Serial No. 409,574. (No model.)

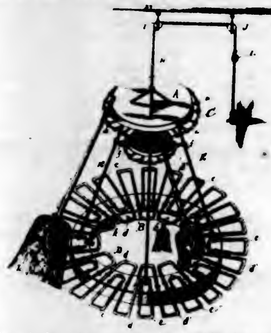


Claim.—1. In an ore concentrator, a main supporting frame, a traveling belt, a belt frame and means for oscillating it laterally, pivoted inclined guides on the main frame and supports between the belt frame and said guides, movable on the latter, substantially as described.

2. In an ore concentrator, the main supporting frame, a traveling belt, a belt frame, means for oscillating it, brackets secured to the side beams of the belt frame and inclined pivoted and adjustable guides for the support of the brackets, substantially as described.

3. In an ore concentrator, a traveling belt, a belt frame having side beams, rollers D supported thereon, brackets 9 secured to the inner faces of the side beams, intermediate of the rollers D, terminating in inclined arms 8, and rollers 7 supported thereon, substantially as described.

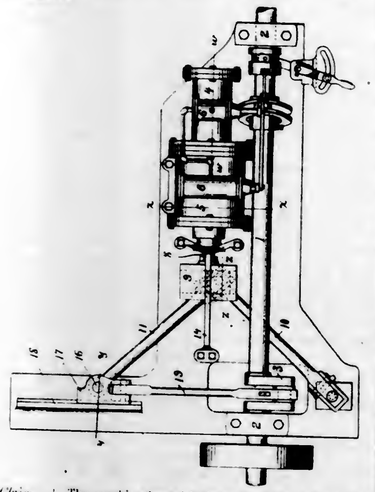
490,851. BROOM-RACK. WESLEY C. JOHN, Warrensburg, Mo., assignor to Trustin A. Sollors and Jerome B. Greer, same place. Filed June 20, 1892. Serial No. 437,399. (No model.)



Claim.—1. In a broom-rack, the combination with a top disk having loops for holding broom-handles, of a smaller disk of like construction but of smaller diameter suspended beneath the top disk, and a base-ring suspended beneath both disks and having spaces exteriorly and interiorly for the broom-heads, substantially as described.

2. In a broom-rack, the combination with a base-ring having receiving and holding spaces for the broom-heads both interiorly and exteriorly, said spaces being formed concentrically thereabout, of suspension cords for said base-ring, and means for holding the handles of the brooms in a higher plane than that occupied by the broom-heads, substantially as described.

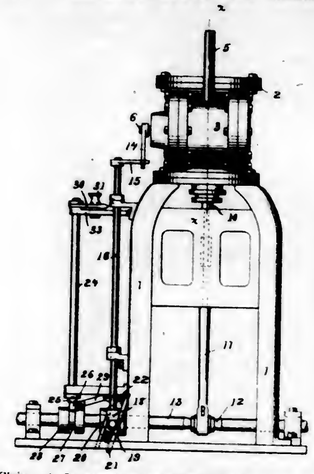
490,852. CONNECTION FOR STEAM-ENGINES. CHARLES F. LITTLEJOHN, Bridgeport, Conn. Filed Mar. 21, 1892. Serial No. 426,739. (No model.)



Claim.—1. The combination with the piston rod, of the guided cross head having therein a transverse slide way, the levers 10 and 11 fulcrumed together and guided in the cross head, a sliding head 17 operated at right angles to the length of the piston by one of said levers, and a pitman connecting said head to the main shaft crank, the whole arranged as described and for the purpose set forth.

2. The combination with the piston rod and means for driving the same, of the cross head 9 guided in ways in the line of the piston stroke and having a transverse slide way arranged therein, the lever 10 fulcrumed to the base, the lever 11 fulcrumed to the lever 10, and the joint arranged to have movement in the cross head, the slide head 17 carried by the lever 11, and the pitman 19 whereby the main shaft is driven, the whole arranged substantially as and for the purpose specified.

490,858. VALVE-GEAR. CHARLES F. LITTLEJOHN, Bridgeport, Conn. Filed Mar. 21, 1892. Serial No. 426,740. (No model.)



Claim.—1. In a machine of the character described, the shaft 13 provided with a hub, in combination with the ring 21 having a groove 22 in its periphery, a gimbal connection between said ring and the hub, the rock shaft 16, a pivoted shoe 19 projecting outward from the lower end of said rock shaft and entering the groove in the ring, and a connection between said rock shaft and the valve, the whole arranged and adapted to operate substantially as and for the purpose set forth.

2. In a machine of the character described, the shaft 13 provided with a hub, in combination with the ring 21 having a groove 22 in its periphery, a gimbal connection between said ring and the hub, the rock shaft 16, a pivoted shoe 19 projecting outward from the lower end of said rock shaft and entering the groove in the ring, a connection between said rock shaft and the valve, the grooved hub 28 splined upon the shaft, the shoe 26 running in said groove, and the rock shaft and lever whereby movement is imparted to said shoe and the hub 28, the whole being arranged and adapted to operate substantially as specified.

490,854. FEED MECHANISM FOR SEWING-MACHINES. FRANK W. MERRICK, Boston, Mass. Filed Aug. 31, 1891. Serial No. 404,304. (Model.)

Claim.—1. In a sewing machine, the combination with an operating shaft and a feed actuating device or cam carried thereby, of a feed lever operated by the latter, a feeding device operatively connected therewith, a feed regulating lever carrying an adjustable fulcrum for said feed lever, and a link connecting said fulcrum with said feed-lever.

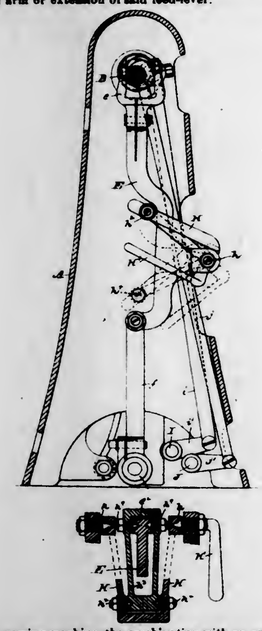
2. In a sewing machine, the combination with an operating shaft and a feed actuating device or cam carried thereby, of a rock shaft, a feeding device operatively connected with said rock shaft, a feed lever also connected with said rock shaft, a feed regulating lever carrying an adjustable fulcrum for said feed-lever, and a link connecting said fulcrum with said feed-lever.

3. In a sewing machine, the combination with an operating shaft and a feed actuating device or cam carried thereby, a feed lever operated by said cam, a feed regulating lever carrying an adjustable fulcrum, a link connecting said fulcrum with said feed lever, a rock shaft having at its rear end an arm to which said feed lever is jointed and provided at its forward end with a second arm, a needle carrying bar carried by the said second arm, and means for reciprocating said needle bar vertically.

4. In a sewing machine, the combination with an operating shaft and a feed actuating device or cam carried thereby, of a feed lever operated by the latter and provided with a lateral arm or extension, a feeding device operatively connected with said feed lever, a feed regulating lever carrying an adjustable fulcrum for said feed lever,

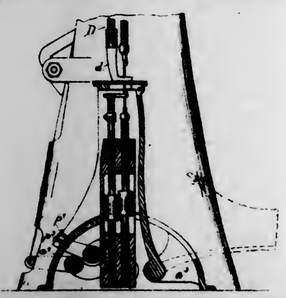
and a link connecting said fulcrum with the said lateral arm or extension of said feed-lever.

5. In a sewing machine, the combination with an operating shaft and a feed actuating device or cam carried thereby, a rock shaft, a feeding device operatively connected with said rock-shaft, a feed lever also connected with said rock shaft and provided with a lateral arm or extension, a feed regulating lever carrying an adjustable fulcrum for said feed-lever, and a link connecting said fulcrum with the said lateral arm or extension of said feed-lever.



6. In a sewing machine, the combination with an operating shaft and a feed actuating device or cam carried thereby, a feed lever operated by said cam and provided with a lateral arm or extension, a feed regulating lever carrying an adjustable fulcrum, a link connecting said fulcrum with the said lateral arm or extension of said feed lever, a rock shaft having at its rear end an arm to which said feed lever is jointed and provided at its forward end with a second arm, a needle bar carried by the said second arm, and means for reciprocating said needle bar vertically.

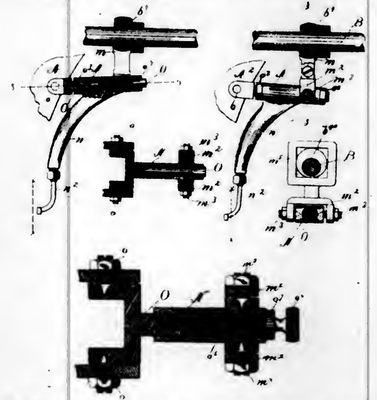
490,855. WORK-SUPPORT FOR SEWING-MACHINES. FRANK W. MERRICK, Boston, Mass. Filed Mar. 7, 1892. Serial No. 424,014. (No model.)



Claim.—1. In a sewing machine, the combination with a needle and cast-off arranged below the work plate of the machine, and the bars by which said parts are carried, of a vertical work supporting-post pivoted at its lower end to the frame of the machine and carrying the said work plate at its upper end, the said work-supporting post having a rigid connection with the machine frame at a point removed from its pivot; whereby the said post may be turned down for access to the needle and cast-off below the work plate, when desired, and whereby it is held rigidly in place when in its operative position.

2. In a sewing machine, the combination, with a work supporting post, split at its upper end and recessed to receive the work plate, of a work plate therefor, and a clamping screw, substantially as shown and described.

490,856. THREAD-CARRIER MECHANISM FOR SEWING-MACHINES. FRANK W. MERRICK, Boston, Mass. Filed Mar. 7, 1892. Serial No. 424,015. (No model.)



Claim.—1. In a sewing machine, the combination with a hooked or barbed needle and its operating mechanism, of a rotating shaft having an eccentric, a rocking sleeve with which said eccentric is connected, said sleeve having a depending arm, a thread carrier attached to said arm, and a pivoted lever on which said rocking sleeve is mounted; whereby both the vertical and horizontal throws of said eccentric will be utilized to move the operative part of said thread carrier around the vertical path of the needle, substantially as shown and described.

2. In a sewing machine, the combination with a hooked or barbed needle and its operating mechanism, of a rotating shaft, an eccentric thereon, a rocking sleeve connected with said eccentric, and having a depending arm, a thread carrier attached to said arm, a pivoted lever on which said sleeve is adjustably mounted and means for adjusting said lever laterally, substantially as shown and described.

3. In a sewing machine, the combination with a hooked or barbed needle and its operating mechanism, a thread carrier and its supporting arm, a support, as O, on which said arm is pivoted and an adjusting screw whereby the position of said arm longitudinally of said support and relative to the path of the needle may be varied, substantially as shown and described.

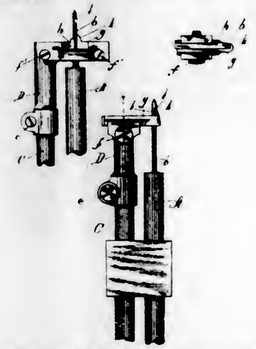
490,857. SEWING-MACHINE. FRANK W. MERRICK, Boston, Mass. Filed Mar. 7, 1892. Serial No. 424,016. (No model.)

Claim.—1. The combination with the needle and its actuating mechanism, of the holder D and the needle brace A, said brace being arranged at right angles to the longitudinal axis of the needle and being adjustable toward and from the needle, for the purposes and substantially as set forth.

2. The combination with the needle and its actuating mechanism, of the holder D and the cast-off *k* provided with a shank which is arranged at right angles to the longitudinal axis of the needle, or approximately so, and which is adjustable relative to the said needle; whereby the face of the cast-off adjacent the needle is parallel with the needle in all positions of adjustment, substantially as set forth.

3. The combination with the needle and its actuating mechanism, of the holder D, the needle brace A, and the cast-off *k*, said needle brace and the shank of said cast-off being both arranged at right angles to the longitudinal axis of the needle, or approximately so, for the purposes and substantially as set forth.

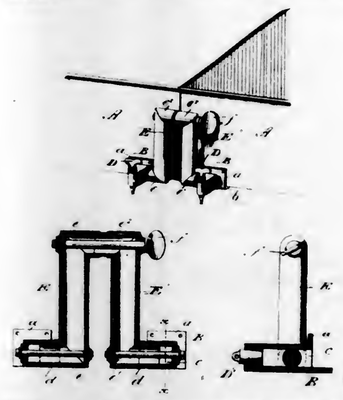
4. The combination with the needle and its actuating mechanism, of a combined needle brace and cast-off, the needle brace being on one side of the needle and the cast-off on the opposite side thereof and that portion of the needle brace which comes in contact with the needle being V-shaped; whereby needles of different diameters may be employed without changing the needle brace, substantially as shown and described.



5. The combination with the needle and its actuating mechanism of a cast-off mounted at right angles to the longitudinal axis of the needle and having the face thereof which is next the needle tangential to the circumference of said needle and vertically parallel to the needle, substantially as and for the purposes set forth.

6. The combination with the needle and its actuating mechanism, of the needle brace A, holder D, and cast-off bar C said holder D having both a vertical and rotary adjustment on said bar C, substantially as shown and described.

490,858. TRANSFER FOR EVAPORATING-PANS. LABASURE O. MCLANE, Lincsville, Pa. Filed Apr. 28, 1892. Serial No. 430,995. (No model.)

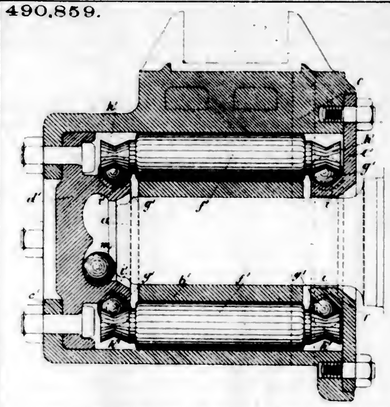


Claim.—1. A transfer for evaporating pans, consisting of castings or sections B having straight portions at right angles with each other which are adapted to engage with the side and bottom of the pans to which they are attached, said sections being connected to each other by pipes E and E', the parts at the points of attachment having movable connecting-joints, substantially as set forth.

2. A transfer for evaporating pans, consisting of a section or casting B having an aperture *c* to which a pipe connected to the adjacent pan is secured, and a projecting portion having a draw-off plug, substantially as shown, and for the purpose set forth.

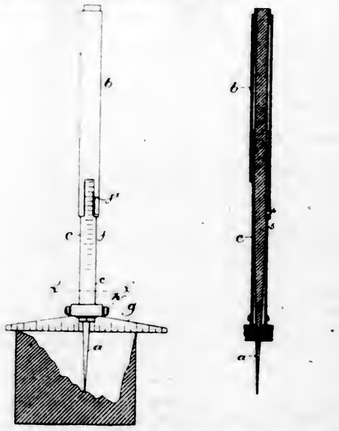
490,859. ROLLER-BEARING. FREDERICK PURDON, HARRY E. WALTERS, and WILLIAM H. WOODCOCK, London, England. Filed Nov. 27, 1891. Serial No. 413,272. (No model.) Patented in England Apr. 21, 1891, No. 6,860.

490,859.



Claim.—The combination, with the axle and its bearing sleeve *b'* of the axle-box having a cylindrical chamber and the end flange *e'*, the front end cover slid within the said chamber and secured to the end flange and provided with the groove *i'*, the rear end cover encircling the axle and secured to the axle-box and provided with the groove *i*, the rollers *f''* provided with grooved ends and arranged within the said chamber, and the balls running between the said grooved ends in the said grooves *i* and *i'*, substantially as and for the purpose set forth.

490,860. DEPTH-GAGE. ALBERT SEDECK, Ensival, Belgium. Filed Feb. 29, 1892. Serial No. 423,362. (No model.)



Claim.—1. A tool to measure the diameter of holes, it consisting of a tapering spindle and an index provided with a scale, the said parts being longitudinally movable one with relation to the other, substantially as described.

2. The tapering spindle and its hand-piece, combined with a movable index having a scale extended longitudinally thereon and adapted to slide longitudinally on the spindle and between it and the hand-piece, substantially as described.

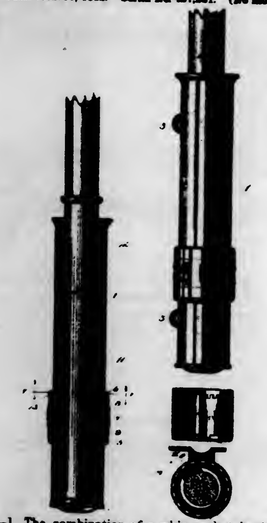
3. The tapering spindle, and its hand-piece having a scale, combined with a movable index *c* having a scale extended the length thereof and adapted to slide on the spindle between it and the hand-piece, the outer end of the index forming the base or rest for the tool, the scale on the hand-piece being arranged parallel to and co-operating with the scale on the index *c* at any point thereof, and constituting a vernier or micrometer, substantially as described.

4. The spindle, and an index co-operating therewith, provided

with a scale the said parts being longitudinally movable one with relation to the other, combined with a yoke supporting the index and having a lateral scale whereby the depth of a hole may be indicated at any distance from its side wall, substantially as described

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490,861. WHIP-SOCKET. JAY L. BRADLEY, St. Louis, Mo., assignor of two-thirds to Ferdinand Meyrose and Caleb Chartonnier, same place. Filed Mar. 31, 1892. Serial No. 427,321. (No model.)



Claim.—1. The combination of a whip socket having a pin, a spring catch, and a sleeve fitted on the socket, having horizontal and vertical movement over said pin and adapted to force said catch inwardly and lock it in position: substantially as and for the purpose set forth.

2. In combination with a whip socket, a catch provided with an inclined outer surface, and a pin secured to the socket, a sleeve fitting on the socket, and having an upper and a lower internal annular groove, and a vertical groove connecting the upper and lower grooves; all substantially as and for the purpose set forth.

3. In combination with a whip socket provided with a catch and a pin, a sleeve having an upper and lower annular groove, a vertical groove connecting the upper and lower grooves, and having teeth or notches at the bottom of the upper groove: substantially as and for the purpose set forth.

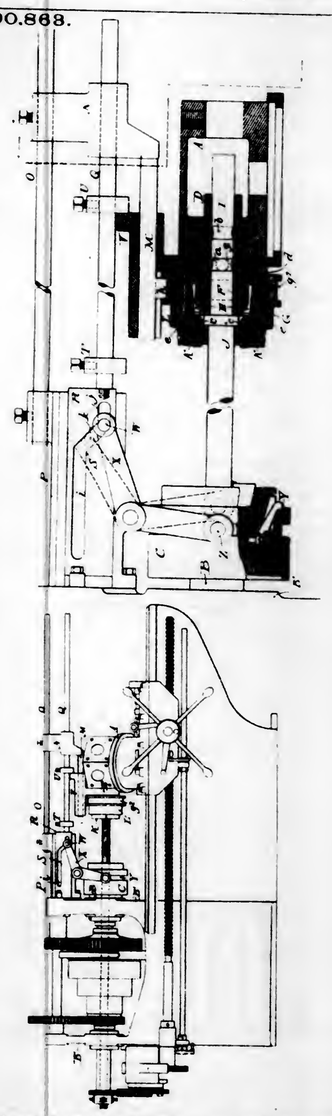
4. In combination with a whip socket, having a catch 9 secured to a spring plate 11, and a pin 13, a sleeve 4 having a lower groove 5 with a stop 15, an upper groove 6 with notches 8, and a vertical groove 7; said collar being graduated, and said socket having a mark to co-operate in connection with the graduations on the collar: substantially as, and for the purpose set forth.

490,862. FOUNTAIN-PEN. FRANCIS C. BROWN, New York, N. Y. Filed Mar 18, 1892. Serial No 425,451. (No model.)



Claim.—In a fountain pen, a barrel or tube, a ball or weight loosely contained therein, and a device by which the movement of the ball or weight is arrested at a point above the discharge outlet, substantially as described, whereby the ball or weight acts as a resistance to the increased volume of air as the ink is withdrawn, and is adapted to rest freely in the closed end of the barrel when not in use, as set forth.

490,863. AUTOMATIC CHUCK AND ROD-FEEDER. CONRAD M. CONRADSON, Madison, Wis. Filed Mar. 18, 1892. Serial No. 426,209. (No model.)



Claim.—1. In combination with a stationary head stock, a hollow arbor journaled therein and provided with a chuck, the jaws of which are actuated by the movements of the gripping devices, and a turret or tool holder provided with the said rod gripping devices and movable toward and from the chuck.

2. In combination with the stationary head stock, the hollow arbor journaled therein and provided with a chuck, a gripping device movable toward and from the chuck and adapted to take hold of the work and draw or feed it through the chuck, and mechanism for actuating the chuck jaws controlled by the movements of the gripping device, substantially as shown and described.

3. In combination with the stationary head stock the hollow arbor journaled therein and provided with a chuck, a gripping device

movable toward and from the chuck, and intermediate connections between the gripper and the chuck whereby when the gripper is moved to draw the stock through the arbor the chuck jaws shall be automatically released.

4. In combination with the stationary head stock, the hollow arbor journaled therein and provided with a chuck, a gripping mechanism movable toward and from the same, and means substantially such as shown and described controlled by the movements of the gripping mechanism for automatically causing the chuck jaws to grasp and to release the rod or stock.

5. In combination with the hollow arbor, a chuck secured thereto, a reciprocating cam plate and connections for actuating the chuck jaws, a rod for said cam plate provided with stops T and U, and a rod-gripping device movable toward and from the chuck and designed to engage the stops.

6. In combination with the hollow arbor, a chuck, the bell crank levers for actuating the chuck, plate R provided with the cam slot S, to receive the pin W of the levers, a rod Q for the cam plate provided with the stops T U, and a rod gripping device movable toward and from the chuck and adapted to engage the stops.

7. In combination with the hollow arbor, a chuck, the bell crank levers N provided with a pin W, bracket P, plate R mounted on the bracket and provided with a cam slot S (having straight portions *i j* and inclined portion *k*) to receive the pin W, a rod Q provided with stops T U, and a rod gripping device movable toward and from the chuck and provided with an upward extension V to engage the stops.

8. In combination with the hollow arbor, a chuck, the bell crank levers N provided with a pin W, bracket P, plate R mounted on the bracket and provided with a cam slot S (having straight portions *i j* and inclined portion *k*) to receive the pin W, a rod Q provided with stops T U, a rod gripping device movable toward and from the chuck and provided with an upward extension V to engage the stops, a rod M carried by and movable relatively to the rod gripping devices, a support O, and a stop N carried by the support, to engage the rod M.

9. In combination with bushing D, spindle I provided with head J and gripping jaws or levers K, a plate E provided with circular flange G, a collar F encircling the bushing, a band or shell L encircling the flange G, and a spring *e* for each lever bearing against the inner face of the shell L and serving to hold the jaws or levers normally off the rod or stock.

10. In combination with the hollow arbor and chuck, the bell crank levers, and the rod for actuating the same, the rod gripping devices having the sliding grooved shell L, the rod M provided with the arm *h* to enter the groove, and the stop N for the rod M.

11. In combination with the hollow arbor, a chuck, the jaws of which are actuated by the movements or gripping devices, a turret or tool holder provided with the said rod gripping devices and movable toward and from the chuck, and stops with which said rod gripping devices are designed to come into engagement and thereby determine the point at which the chuck jaws shall be actuated.

12. In combination with the hollow arbor and its chuck, a gripping device movable toward and from the chuck and adapted to take hold of the work and draw or feed it through the chuck, mechanism for actuating the chuck jaws controlled by the movements of the gripping device, and adjustable stops by means of which the chuck operating mechanism may be brought into and out of action at a point sooner or later in the travel of the rod gripping devices.

13. In combination with a hollow arbor and its chuck C, a rod Q and intermediate connections substantially such as shown, for actuating the chuck jaws, adjustable collars T and U secured upon said rod Q, and a rod gripping device movable toward and from the chuck and adapted to engage the collars T and U, all substantially as shown and described.

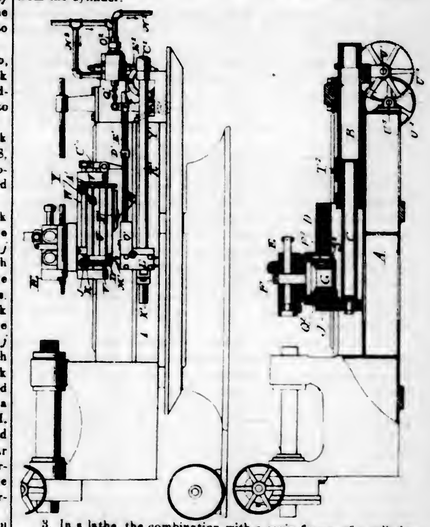
14. In combination with a hollow arbor and its chuck C, a rod Q and intermediate connections substantially such as shown, for actuating the chuck jaws, adjustable collars T and U secured upon said rod Q, a rod gripping device movable toward and from the chuck and adapted to engage the collars T and U, and a rod M, carried by the rod gripping devices and adapted to come into engagement with a fixed stop N, substantially as and for the purpose set forth.

15. In combination with the hollow arbor, a chuck the jaws of which are actuated by the movement of the gripping devices, a turret or tool holder provided with the said rod gripping devices and movable toward and from the chuck, and two stops with which said rod gripping devices are adapted to come into engagement, one of said stops being designed to determine the point at which the jaws of the chuck shall be actuated, while the other determines the point at which the rod gripping devices shall be released.

490,864. LATHE. CONRAD M. CONRADSON, Madison, Wis. Filed Mar. 24, 1892. Serial No. 426,260. (No model.)

Claim.—1. In a lathe, the combination with the main frame and a tool-post-carriage, one of said parts being provided with a cylinder and the other with a piston to act with the cylinder,—of a fluid-pressure mechanism for causing a travel of the tool-post carriage, relatively to the main frame.

2. In a lathe, the combination with a main frame, of a tool-post carriage provided with a piston, a cylinder to receive the piston, and means for controlling the admission of a fluid to and the exhaust from the cylinder.



3. In a lathe, the combination with a main frame, of a cylinder mounted lengthwise thereof, means for controlling the admission and exhaust of a fluid to and from the cylinder, a tool-post or turret carriage movable lengthwise upon the bed or frame and provided with a piston to work within the cylinder.

4. In a lathe, the combination with a main frame, of the turret slide mounted thereon, fluid pressure mechanism for reciprocating the turret slide, and a main controlling valve actuated by the turret slide.

5. In a lathe, the combination with a main frame, of the turret slide mounted thereon, fluid pressure mechanism for reciprocating the slide, and a regulating valve actuated by the turret slide, whereby a variation in speed is secured.

6. In a lathe, the combination with a main frame, of the turret slide mounted thereon, fluid-pressure mechanism for reciprocating the turret slide, and a main controlling valve and a regulating valve both operated by the slide.

7. In a lathe, the combination with a main frame, of the turret slide provided with a turret, fluid pressure mechanism for reciprocating the turret slide, a stop bar journaled in the slide and geared to rotate with the turret, and valve mechanism actuated by the stop bar.

8. In combination with turret slide D, turret E provided with worm-wheel H; shaft J provided with worm I, and gear M; stud O; sleeve T provided with gear N; and a band wheel frictionally secured to the sleeve.

9. In combination with turret slide D and turret E, a shaft J for rotating the turret, provided with a stop X; a stop bar U geared to rotate with the turret; a rod W adapted to engage the stop X; and a cam plate A′ rotating with the stop bar and adapted to actuate the rod W.

10. In combination with turret slide D a fluid pressure mechanism for actuating the same provided with a main valve and an operating rod as E′; a turret; a stop bar U geared with the turret; a rod W adapted to engage the turret-actuating shaft J; a cam A′ mounted upon the stop bar to move the rod W in one direction; a lever C connected to the rod; and a block D′ mounted upon rod E′ to rock the lever and thereby move rod W in the opposite direction.

11. In combination with a main frame a turret slide thereon, fluid pressure mechanism for actuating the latter, a main valve and its reciprocating rod E′, the regulating valve and its rockshaft K′, a block L′ mounted upon shaft K′ and connected with rod E′, and a stop bar provided with cams to depress the block and rock the shaft, and to move the rod E′ longitudinally.

12. In combination with a main frame, a turret slide thereon,

fluid pressure mechanism for the latter, a main valve rod E, a rock-shaft K' for the regulating valve, a block L' mounted upon the shaft K' so as to slide lengthwise and also to turn therewith, and connected to rod E, a stop bar provided with two sets of cams F' and G' to act successively to depress the block L' and rock the shaft K', and also with a cam or stop H' to engage the block and effect a reciprocation of the rod E'.

13. In combination with the shaft K', the block L' keyed thereto and provided with the pins M' and N', and a stop bar U provided with the cams F' and G' to engage the pins.

14. In a lathe, the combination of a main frame, a turret slide mounted thereon, fluid-pressure mechanism for reciprocating the slide, a regulating valve E^3 for the pressure mechanism, a block L' secured to the shaft of said valve a series of pins carried by the block, and a stop bar provided on its different faces with cams to engage the respective pins.

15. In a lathe, the combination of a main frame, a turret, and a turret slide mounted thereon, fluid-pressure mechanism for actuating the slide, a regulating valve E^3 provided with a rockshaft K', a block L' secured to the shaft and provided with pins M' corresponding in number with the turret tools, and a stop bar geared to rotate with the turret and provided with cams to correspond to the pins M'.

16. In a lathe, the combination of a main frame, a turret slide mounted thereon, fluid pressure mechanism for actuating the slide, a main valve for said mechanism adapted to be actuated or moved in one direction by the turret slide, and means such as wheel T for also moving the valve, whereby a dwell is secured at the end of the travel of the turret slide.

17. In a lathe, the combination of a main frame, a turret slide mounted thereon, fluid pressure mechanism for actuating the slide, and controlling means substantially such as shown and described for causing a variation in the rate of travel of the slide.

18. In a lathe, the combination of a main frame, a turret slide mounted thereon, fluid pressure mechanism for actuating the slide and controlling means substantially such as shown and described for causing a dwell at the end of the travel of the slide.

19. In a lathe the combination with a main frame, of a turret slide mounted thereon, fluid pressure mechanism for actuating the slide, a main valve Q' for said mechanism provided with a lever P', a rotating shaft U' provided with disk T', teeth S' and B^2 applied to said disk, and means for holding the disk against rotation, adapted to be released by the movement of the valve or its rod or lever.

20. In a lathe, the combination with a main frame, of a turret slide mounted thereon, fluid pressure mechanism for actuating the slide, main valve Q', provided with rod E' and lever P', the elbow lever A^3 pivoted to the frame, the lever X' pivoted to lever P' and adapted to engage the lever A^3, a rotary shaft U', a disk T' mounted thereon and adapted to turn therewith when released, and teeth S' and B^2 secured to the disk and adapted to engage, respectively, the levers P' and A^3.

21. In a lathe, the combination with turret slide D and a fluid pressure mechanism for actuating the same, of a main valve Q', provided with a rod E', a turret, a stop-bar geared thereto, a rod W to engage the turret actuating shaft J, a cam A' rotating with the stop-bar to actuate the rod W, a lever C' connected with the rod, a block D' secured to rod E' to engage the lever C', and means such as disk T' for moving the rod, all substantially as shown and described.

22. In a lathe, the combination with a main frame, of a turret slide, a feed mechanism for the latter, a rotatable turret, gearing for rotating the turret, a continuously rotating band wheel P forming an element of the turret gearing, a stop mechanism which holds the turret-rotating-gearing out of action, and means for automatically withdrawing the stop at a predetermined point in the travel of the turret slide.

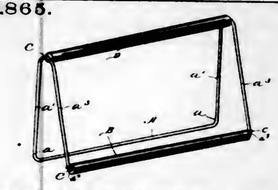
23. In a lathe, the combination with a main frame, of a turret slide and a rotatable turret, means for actuating the slide, gearing for rotating the turret, a stop which prevents the operation of such gearing, a locking pin P^3 for the turret and means substantially such as shown for withdrawing the pin and also the stop.

24. In combination with a turret slide and a fluid pressure mechanism therefor, a main controlling valve, and an interposed regulating valve, whereby a variation in the speed of the slide is attained.

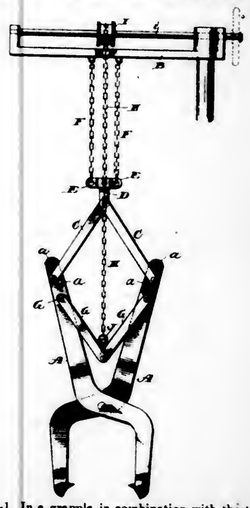
490,865. HEAD-REST. STEPHEN S. DRENBACH, Catawissa, Pa. Filed Aug. 20, 1892. Serial No. 443,773. (No model.)



Claim.—In the herein described head rest, the frame work consisting of the metal wire having the cross bar A bent at the ends to form the portions a' a', then back on itself at a^3 to form the portions a^3 a^4 and finally to form the prongs a^4, a^5, the wooden bar D uniting the bends a^3, the bar B uniting the ends a^4, the covering of textile material applied to the frame and the pad or cushion held thereby on the outside of the frame; substantially as described.



490,866. GRAPPLE OR GRIP-TONGS. JAMES A. FITZSIMMONS, Wheeling, W. Va. Filed Nov. 7, 1892. Serial No. 451,214. (No model.)



Claim.—1. In a grapple, in combination with the tongs, the two sets of bars or links pivoted to said tongs one set being adapted to cause closing of the tongs and the other their opening, the suspending means connected to the former set, and the suspending means connected to the other set and adapted to be lengthened and shortened, substantially as specified, and for the purpose described.

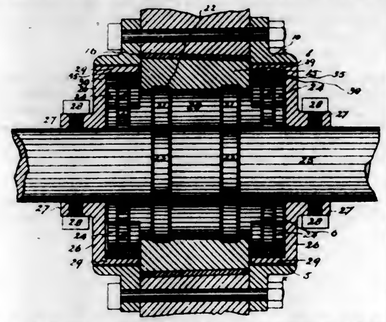
2. In a grapple, in combination with the tongs, the links pivoted thereto and to each other, the horizontal bar pivotally connected to said links at their point of connection, and the two separated suspending chains connected to the opposite ends of said bar.

490,867. ANTIFRICTIONAL JOURNAL-BEARING. CHARLES F. PAGE, Denver, Colo., assignor of two-thirds to John C. Rice and Joseph P. Riley, same place. Filed July 24, 1891. Renewed June 15, 1892. Serial No. 436,764. (No model.)

Claim.—1. The combination with the shaft of the engaging rolls 20, the surrounding bushing engaging said rolls, two sets of end spacing rolls 24 engaging rolls 20 and projecting beyond the face of the same, rolls 24 being provided with circumferential beads, corresponding grooves formed in rolls 20 for the reception of said beads, plain rings surrounding rolls 24 and engaging the beads thereon and collars formed integral with or attached to the rings and made fast to the shaft substantially as described.

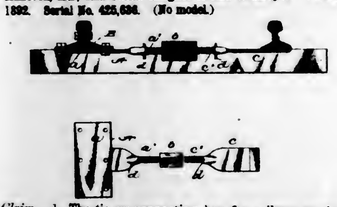
2. In an anti-friction roller bearing the combination with the shaft, of the engaging rolls 20, a suitable surrounding bushing engaging the same, two distinct sets of end spacing rolls 24 engaging rolls 20, projecting beyond the face of the same and traveling around the shaft in a larger orbit than rolls 20, rolls 24 being provided with circumferential beads, corresponding grooves formed in rolls 20 for the reception

of these beads, plain rings surrounding rolls 24 and engaging the face of the beads but not touching the adjacent parts of the roll, and collars secured to the shaft and made fast to the rings whereby the rings are made to rotate uniformly with the shaft, substantially as described.



3. In an anti frictional roller bearing the combination with the shaft, of rolls 20 surrounding and engaging the same, the shaft and rolls being connected by counter part beads and grooves, a surrounding casing or bushing engaging said rolls, two distinct sets of end rolls 24 engaging rolls 20 and provided with circumferential beads, corresponding grooves formed on rolls 20 for the reception of said beads, plain rings surrounding rolls 24 and engaging the beads but free from the adjacent parts of the rolls' face, and collars made fast to the shaft at each end of the rolls and formed integral with or rigidly secured to the rings whereby the latter are made to rotate with the shaft, substantially as described.

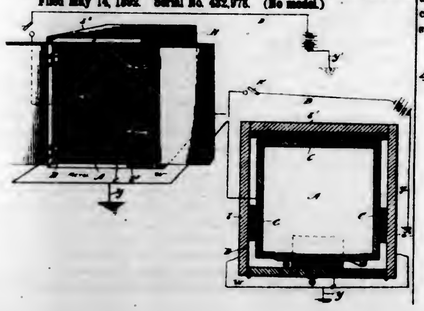
490,868. RAILWAY. LEMUEL S. WIDMEYER and JACOB F. FIELDS, Hancock, Md.; said Fields assignor to said Widmeyer. Filed Mar. 19, 1892. Serial No. 425,636. (No model.)



Claim.—1. The tie or connecting bar for railway tracks comprising the T-shaped bar and chair-plates bolted or secured thereon and the opposite rail chair connected to said T bar, substantially as specified.

2. The combination with the T-shaped bar having bolted to its cross or head portion chair plates, of the opposite rail-chair and the coupling nut or sleeve having right and left handed screw-threaded connection with said T-shaped bar and rail chair, substantially as specified.

490,869. BURGLAR-PROOF SAFE. WARREN H. CARR, Bath, Me. Filed May 14, 1892. Serial No. 432,978. (No model.)

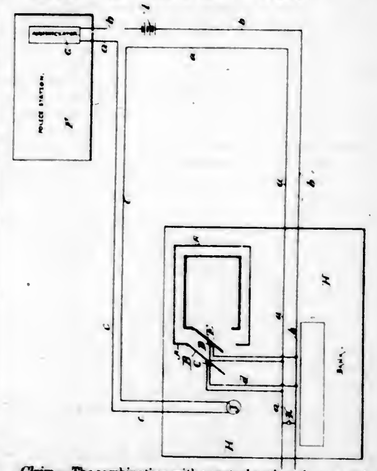


Claim.—1. The combination, with a safe or vault, and means for charging the same with electricity, of a non-conducting casing inclosing the safe or vault and a ground contact-strip around the safe but disconnected from the same and included in the electric circuit, whereby a person standing upon said strip and touching the insulating casing is protected from the current; substantially as and for the purpose set forth.

2. The combination, with a safe or vault, and means for charging the same with electricity, and a ground contact strip around the base of the safe, insulated therefrom and included in an electric circuit, of a non-conducting casing inclosing the safe or vault and provided interiorly upon its sides, back and top with blocks or projections, and doors inclosing the front of said casing; substantially as and for the purpose set forth.

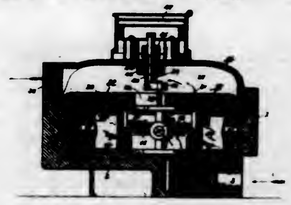
3. The combination, with a safe included in an electric circuit, of a normally open electric circuit fed by a suitable source of electricity, a circuit controller for said circuit, and a contact strip around the safe yet not electrically connected therewith but included in the electric circuit, whereby a person standing upon said strip and touching the safe completes the circuit from the safe to the strip through the body.

490,870. ELECTRIC BURGLAR-ALARM. WARREN H. CARR, Bath, Me., assignor to himself and James W. Wakefield, same place. Filed Sept. 22, 1892. Serial No. 446,572. (No model.)



Claim.—The combination, with a central station, electro-mechanical annunciating and indicating apparatus located at said station and included in an electric circuit, and an electric circuit fed by a suitable source of electricity and extending from said station to a distant safe, of a rectangular wholly-metallic casing surrounding the safe and insulated therefrom by an air-space, a circuit controlling lock on a door of said casing and included in the electric circuit, a circuit controlling lock on the safe door and included in the same electric circuit, a controlling switch for said circuit located near the safe, and a push button included in a multiple arc branch from the main circuit; said branch being arranged to short-circuit the safe when closed, substantially as specified.

490,871. WATER-METER. GEORGE F. CHAPPELL, New York, N. Y. Filed Sept. 6, 1889. Serial No. 323,171. (No model.)



Claim.—1. In a meter or analogous machine, an outer reciprocatory piston, a central piston within the same and moving therewith and having also transverse reciprocations independent of those of the outer piston, in combination with the stud 28, spindle 40 and the slotted crank 41 and the cover 34 which forms a discharging chamber, substantially as shown and described.

2. In a meter or analogous machine the combination with a piston chamber provided with inlet ports, of an outer piston and a central piston placed therein and provided with ports, a cover over both pistons provided with outlet ports, and a cover which forms a discharging chamber substantially as shown and described.

3. In a meter or analogous machine the combination with the outer piston and the central piston, operating as described, of a stud or pin on the inner piston, an inner cover, an outer cover, a power shaft or spindle and a crank, substantially as shown and described.

4. In a meter or analogous machine, the combination with a piston chamber provided with inlet ports and passage ways 3, 4, 6, 7, 8, 9, 10, 11, 12, 13 of an outer piston a central piston provided with ports and passage ways, 22, 23, 24, 25, 26 and a cover provided with outlet ports or openings 31, 32, 33, substantially as set forth and described.

5. In a meter or analogous machine the combination with a piston chamber provided with suitable ports, of an outer piston adapted to be reciprocated therein, a central piston adapted to reciprocate with the outer piston and also to have transverse reciprocations within the outer piston, said central piston being provided with suitable ports and passage ways, a pin or stud on the central piston, a cover over both pistons provided with outlet ports and with an opening to permit of the movements of the stud 28, a spindle 40, and the slotted crank arm 41, and the cover 34 to form a discharging chamber, substantially as described.

6. In a meter or analogous machine, a piston provided with a recess 22 and water-ways 23, 24, 25, said piston being adapted to move within an outer piston and to form a valve therefor, substantially as set forth and described.

7. The combination with the chamber 14^a, of the hollow outer piston 14 adapted to reciprocate therein, the central piston 16 adapted to reciprocate in piston 14, the stud 28 on piston 16, the spindle 40, the gear 46, and the slotted crank 41, substantially as and for the purpose described.

8. In a meter or analogous machine containing an outer and a central piston, an internal cover 29, provided with outlet ports 31 and 32 and a central opening 33, said internal cover being arranged to constitute a valve face for both the outer and central pistons, substantially as described.

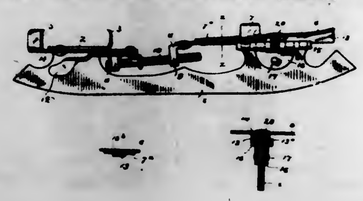
9. In a meter or analogous machine, an outer piston provided with an internal piston chamber receiving an inner or central piston, said outer piston with its internal chamber constituting a valve for actuating the central piston, and a cover having ports into which the internal piston chamber of the outer piston directly discharges, substantially as shown and described.

10. In a meter or analogous machine the combination with an outer piston and a central piston operating substantially as described, of a stud on the central piston, a power shaft or spindle, an inner cover 29, an outer cover to form a discharging chamber, and a slotted crank in whose slot 42 the stud 28 is placed, substantially as described.

11. In a meter or analogous machine, the combination of a case having two inwardly projecting side walls 2^a 2^a, and provided with suitable passage ways and ports in the bottom of the case, and forming a valve face for two pistons, and an internal cover having suitable passage ways and ports, and arranged to form a valve face for two pistons, of an outer dome or dome-shaped cover to form a discharging chamber for both pistons, substantially as shown and described.

12. In a meter or analogous machine a circular piston chamber 14^a provided with projections 2^a 2^a at opposite sides, and provided with inlet ports, an outer and a central piston placed therein and provided with ports, a cover over both pistons provided with outlet ports, and a cover which forms a discharging chamber, substantially as shown and described.

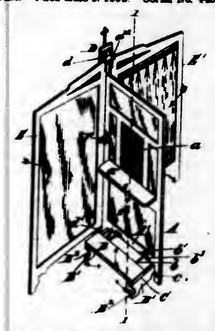
490,872. EXTENSION-SKATE. MARSHUE B. DUNBAR, Torrington, Conn. Filed Mar. 22, 1892. Serial No. 426,951. (No model.)



Claim.—1. The combination with a blade and a plate 15 rigidly secured thereto and provided with threaded holes, of a sole plate having on its under side a rib 13, a tongue and groove connecting said plate and said rib, slots 13^b at the rear end of the rib, sole clamps engaging said slots and connected to a plate 8 having a lug 9, an adjusting screw engaging said lug, a hole 19 through the sole plate and rib 13, and a screw adapted to pass through the hole in the sole plate and rib and engage either of the holes in plate 15.

2. The combination with the blade having a plate 15 rigidly secured thereto said plate having threaded holes 18 and sole clamps of ordinary construction, of the sole plate having on its under side a rib, a tongue and groove connection between said plate and said rib said rib having slots 13^b at its rear ends which are engaged by the shanks of the sole clamps for the purpose set forth, and a screw passing through the sole plate and engaging either of the holes in plate 15.

490,873. FOLDING CONFESSIONAL. GEORGE A. FIRESTEEL, Cincinnati, Ohio. Filed Aug. 3, 1892. Serial No. 442,397. (No model.)



Claim.—1. A folding-confessional, composed of the main partition or screen proper A, having an upright or standard D attached along its rear edge, and a pair of laterally disposed wing-panels E, E', the latter being provided at their upper and lower inner corners with vertical pivots or pins d^2 which engage suitable openings in angular or L-shape brackets d and d', secured to said standard immediately above and below, respectively; said partition whereby said wing panels are adapted to be folded contiguous with said partition, and when open, presenting no vertical openings or cracks at the rear of said partition substantially as and for the purpose herein set forth.

2. In a confessional, a vertical partition or screen proper suitably supported and latticed, and provided with a pair of hinged hand-rests one at either side said partition, beneath the lattice therein a single swinging-bracket or button a^3 formed from and operating in a corresponding opening within the frame of said partition so as to project laterally and independently from both sides said partition beneath said rests to form a single support for both rests acting on both simultaneously, substantially as herein set forth.

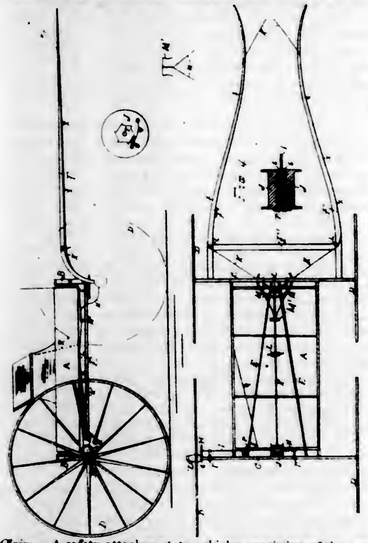
3. In a confessional, a vertical partition or screen proper A, suitably supported and latticed, and provided with a folding kneeling-stool comprising a board having connecting-bars which project inwardly therefrom intermediate its ends and are adjustably hinged at their inner ends by means of pivots b^3 engaging or traveling in slotted lugs or cheeks b^3 attached to the lower cross-bar of said partition, and suitable supporting devices for said stool, substantially as herein set forth.

4. In a folding-confessional, a main upright partition or screen proper A suitably supported and latticed, and provided with a kneeling-stool hinged by means of the intermediate connecting-bars b, b', and pivots b^3, the latter engaging and traveling in slotted-lugs b^3 on the lower cross-bar of said partition, and a pair of horizontally swinging arms or leg-blocks B', the latter being hinged at their inner ends, one at either end the opening at the bottom of said partition, and adapted to support said kneeling-stool at both its ends, in a horizontal position, at either side said partition as occasion may require, substantially as herein set forth.

5. In a folding-confessional, the combination with the main partition or screen proper A having an upright supporting-standard D attached along its rear edge, and wing-panels E, E' the latter being hinged to said standard by means of L-shaped brackets d and d' at top and bottom, respectively, of said standard, and vertical pivots or pins d^2 on both wing-panels engaging suitable openings in the horizontal portions of both said brackets; and thereby adapted to be folded against said partition, and also arranged at right angles thereto of a

button F pivotally mounted within the main partition, and, when turned outward therefrom, engaging both said wing-panels to firmly clamp them against the standard and thereby hold them open or extended at right angles to said partition, and, when in its normal position folded flush with the partition, adapting the said wing-panels to be folded and to lie in close contact with the main partition, substantially in the manner and for the purpose herein shown and described.

490,874. HORSE-HITCHING DEVICE. ALONZO FISHER and GONES H. PRESTLEY, Stockton, Cal.; said Fisher assignor of one-sixth to said Prestley. Filed Oct. 10, 1892. Serial No. 448,401. (No model.)



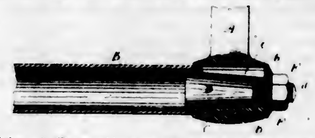
Claim.—A safety attachment to vehicles consisting of the gear wheel G attached to the inner end of one of the hubs D', a gear wheel H intermeshing with the gear wheel G, and attached to the end of the shaft I, the spool J having a core or hub S, the shaft I inserted in and keyed to such core, the ratchet T, on the end of the core S, its spring pawl, U V, on the end of the spool J, the plates I' attached to the rear axle C and to the shaft I, the spiral spring N between one of the plates I' and the spool J, the cords K attached to the spool J and extending forwardly through pulleys L and double guide head M' attached beneath the body A, and eyes X attached to the shafts, and the device for throwing in and out of gear consisting of the collar O on the shaft I, the angle arm P, the rod Q and the lever R, all operating substantially as shown and described.

490,875. DUST-PAN. ALVA L. HOLLANDER, Millis, Mass. Filed Aug. 22, 1892. Serial No. 443,733. (No model.)



Claim.—As an article of manufacture, a sheet metal dust pan having a handle composed of sheet metal rolled into tubular form and overlapped as at a^3, and having two curved cut away portions or openings a' a', the metal above and between said cut away portions being bent downward and riveted to the inside of the back part of the pan the upper edge of which enters the openings a' a', and the metal of the handle below the openings being bent outward to form two quadrantal flanges overlapping each other at their lower ends and riveted to the outside of the back of the pan, as set forth.

490,876. MACHINE-JOINT. ALBERT W. KIRSCH-KIRK, Chicago, Ill. Filed May 26, 1892. Serial No. 434,454. (No model.)



Claim. 1. The combination with a part having a socket, of a hollow expansible part fitting in said socket, an expansible bushing fitting in said hollow part, and means for expanding the bushing, substantially as set forth.

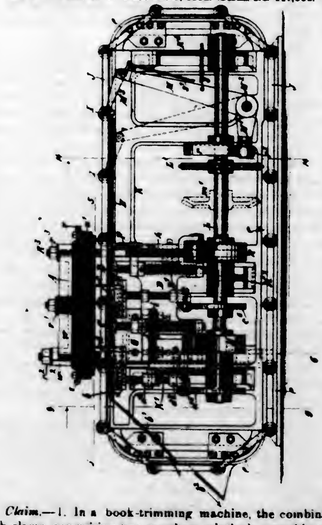
2. The combination with a part having a socket, of a hollow expansible part fitting in said socket, an expansible bushing fitting in said hollow part, a tapering plug fitting in said bushing, and means for holding said plug against endwise movement, substantially as set set forth.

3. The combination with a part having a socket, of a hollow expansible part fitting in said socket, an expansible bushing, fitting in said hollow part and having a tapering bore, a tapering plug fitting in said bushing and having a screw threaded extension and a nut on said extension for drawing the plug into the bushing, substantially as set forth.

4. The combination with a part having a socket and a hollow expansible part fitting in said socket, of an expansible bushing fitting in said hollow part, and having a tapering bore, a tapering plug fitting in said bushing and having a screw threaded extension, a washer fitting on said extension and bearing against said bushing, and a nut on said stem engaging said washer, substantially as set forth.

5. The combination with the part A having a socket a, of the hollow part B, split as at b, the split bushing C fitting in said part B and having a tapering bore, the tapering plug D fitting in said bushing and means for forcing said plug into said bushing, substantially as set forth.

490,877. BOOK-TRIMMING MACHINE. CHARLES W. LOVELL and ALFRED BRENNEMAN, Brooklyn, assignors of one-third to John W. Lovell, New York, N. Y. Filed Oct. 3, 1892. Serial No. 447,600. (No model.)



Claim.—1. In a book-trimming machine, the combination of a book-clamp comprising two members relatively movable to clamp a single book between them, a trimming knife arranged to trim off one edge of a book while held by said clamp, mechanism for intermittently closing said clamp actuating said knife and opening said clamp, and a book-feeding mechanism movable relatively to said clamp and adapted to engage successive books and transfer them one by one from a receiving position outside of said clamp between the members of said clamp flatwise into position to be clamped and trimmed.

2. In a book-trimming machine, the combination of a book clamp

comprising two members relatively movable to clamp a single book between them, a trimming knife arranged to trim off one edge of a book while held by said clamp, mechanism for intermittently closing said clamp actuating said knife and opening said clamp, a book-receiving table upon which the books to be trimmed are received, and a book-feeding mechanism movable relatively to said clamp and adapted to engage successive books and transfer them one by one from a receiving position on said table to a position flatwise between the members of said clamp ready to be clamped and trimmed.

3. The combination with automatic trimming mechanism comprising clamping devices for clamping fast the book to be trimmed and knives for trimming its side and end edges, of feeding mechanism adapted to carry the books to be trimmed successively into position to be acted on by said trimming mechanism, and also subsequently to feed the trimmed books from the trimming mechanism.

4. The combination with primary and secondary trimming mechanisms adapted to make successive cuts at right angles to each other for trimming a book, of a feeding mechanism for transferring the partly trimmed book from the primary to the secondary trimming mechanism.

5. The combination with primary and secondary trimming mechanisms adapted to make successive cuts at right angles to each other for trimming a book, of feeding mechanism for carrying the books to be trimmed in succession first to the primary and then to the secondary trimming mechanisms.

6. In a book-trimming machine, a book-clamp comprising two members relatively movable to clamp a single book between them, knives for trimming off the side and end edges of a book while held by said clamp, and mechanism for intermittently closing said clamp actuating said knives and opening said clamp, in combination with a feeding mechanism movable relatively to said clamp and consisting of an endless traveling chain or conveyer provided at intervals with means for engaging books whereby successive books are carried one by one in turn to the trimming mechanism.

7. In a book-trimming machine, a trimming mechanism, in combination with a feeding mechanism comprising a conveyer having two endless traveling sections which travel on opposite sides and outside of the trimming mechanism and which are provided with means for engaging books and carrying them to the trimming mechanism.

8. The combination with trimming mechanism of a feeding mechanism consisting of a ladder chain with its links running on opposite sides of the trimming mechanism, and cross-bars extending between, the links, said cross-bars adapted to push the books before them to the trimming mechanism.

9. The combination of an intermittently operating trimming mechanism comprising clamping devices for clamping a book and knives for trimming its edges, an intermittently advancing feeding mechanism adapted to carry the books to be trimmed successively into position to be acted on by the trimming mechanism, and a driving mechanism adapted to actuate alternately the feeding mechanism and the trimming mechanism, whereby the books are first fed to the trimming mechanism, then engaged and clamped and trimmed by the latter and then released and again fed forward.

10. The combination of an intermittently acting trimming mechanism comprising opposite clamping devices for holding the book between them, constructed to open and close intermittently and knives for trimming the book, constructed to act while the clamping devices are closed of a feeding mechanism comprising bars or pushers movable intermittently between said clamping devices while the latter are open during the periods of rest of the trimming mechanism.

11. The combination of an intermittently acting trimming mechanism comprising clamping devices for holding the book and knives for trimming it, a feeding mechanism comprising feed bars or pushers movable between the clamping devices, and adapted to carry the books to be trimmed into position to be grasped by the clamping devices, a stop-gage for insuring the correct position of the book, and means for moving this gage out of the path of said feed bars upon the opening of the clamping devices after the trimming operation.

12. The combination of a trimming mechanism comprising clamping devices between which the book is clamped and knives for trimming the book, a feeding mechanism adapted to move the books sidewise to the trimming mechanism into position to be grasped by the clamping devices, movable end gages for insuring the correct position of the book relatively to the end trimming knives consisting of longitudinal bars between which the book passes as it is fed between said clamping devices, and mechanism for moving said gages out of the way of the knives.

13. The combination of a trimming mechanism comprising clamping devices between which the book is clamped and knives for trimming the book, a feeding mechanism adapted to move the books sidewise to the trimming mechanism into position to be grasped by the clamping devices, and end gages for insuring the correct position of the book relatively to the end trimming knives consisting of bars adapted to grasp the ends of the book between them as it is fed to the clamping devices, mounted on pivoted arms and having mechanism for moving the arms toward and from each other.

14. A trimming mechanism comprising a cutting bed, a knife-carrying frame, said frame and bed being movable relatively to one another to bring the knives against the bed, primary and secondary clamping devices comprising two spring-seated clamping plates arranged adjacent to the respective knives and adapted to clamp the books against said cutting bed, combined with a feeding mechanism comprising feed bars or pushers movable intermittently between said clamping plates and bed to carry the books to be trimmed successively first into position to be grasped by the primary clamping plate for making the first cut, and subsequently into position to be grasped by the secondary clamping plate for making the second cut.

15. The combination to form a book trimming mechanism of a cutting bed or block, a clamp for clamping the book against said bed, a trimming knife, and a frame carrying said knife, said bed and knife frame being movable relatively to one another to cause the knife to cut against the bed, and said bed being mounted rotatively to permit it to be moved to bring new surfaces into position to receive the cutting action of the knife.

16. The combination to form a book trimming mechanism of a cutting bed or block, a clamp for clamping the book against said bed, a trimming knife, a frame carrying said knife, said bed and knife frame being movable relatively to one another to cause the knife to cut against the bed, and a mechanism for intermittently rotating said bed to cause the successive knife cuts to come in different places on its surface.

17. The combination of trimming mechanism comprising a cutting bed or block mounted rotatively, clamping devices and cutting knives movable against said bed, a feeding mechanism adapted to carry the books to be trimmed successively into position to be acted on by said trimming mechanism, and driving mechanism adapted to intermittently operate the trimming mechanism and alternatively therewith to operate the feeding mechanism and a mechanism driven therefrom to impart successive rotative movements to said cutting bed.

18. In a trimming mechanism, the combination of an overhead cutting bed with trimming knives acting against it from beneath, said bed being pivotally mounted at one side in order that it may be disconnected and swung out of place to give access to said knives.

19. The combination of side frames K K, cutting bed A mounted over said frames, a post R on which said bed is pivoted so that it may be swung over said frames, and posts R' R² adapted to be separably connected to said bed when the latter is in place.

20. The combination with an endless feed-chain J of a driving mechanism therefor consisting of a vibrating arm M, a sprig actuated dog M³ carried thereby and adapted to engage the successive links of the chain, a driving shaft, and interposed mechanism for vibrating said arm M to alternately exert a pushing thrust against the chain through said dog and to retract said dog.

21. The combination with endless chain J of a driving mechanism for intermittently propelling it consisting of pivoted dog M², rock lever M, M³, M', driving shaft L, and cam r thereon acting against said lever.

22. The combination of feeding table H, clamping plate B approximately level therewith, cutting bed A above said clamping plate, knife F, frame D carrying said knife and clamping plate, a feeding mechanism for pushing a book from said feed-table over onto said clamping plate, and driving mechanism for lifting said frame D to raise the book on said plate against the cutting bed, thereby clamping it, and subsequently bringing the knife against said bed to trim the book.

23. The combination of cutting bed A, a clamping plate beneath said bed, and a vertically movable knife adjacent to said plate, a stop-gage e for determining the position on said plate of the book to be trimmed, a feeding mechanism comprising cross-bars or pushers I movable between said clamping plate and cutting bed, and driving mechanism adapted to successively elevate said clamping plate and knife, to depress them, and with them to lower said gage out of the path of said feed bars, thereupon to actuate the feed mechanism, and after the passage of a feed-bar over said gage to elevate the latter into its active position.

24. In a trimming mechanism, the combination of a stop-gage e, a vertically sliding frame therefor comprising posts as c', a top plate c² on which said gage is longitudinally adjustable, an anti-friction roller, and a driving shaft having a cam c⁴ acting against said roller for raising and lowering said gage.

25. In a trimming mechanism, the combination of a secondary stop-gage d, a sliding frame therefor comprising relatively adjustable plates d' d³, an adjusting screw for operating them to adjust the position of the gage, and a driving shaft, having a cam d⁴ acting against said sliding frame for protruding and retracting the gage.

26. In a trimming mechanism, the combination with clamping and cutting devices, of end gages p p, carrying arms p' p' therefor, and springs p² p² adapted to yield to the outward thrust of the gages as the book enters between them.

27. In a trimming mechanism, the combination of end gages p p, supporting arms p' therefor, stops for limiting the inward movement of the gages, and springs p² acting to press the gages inwardly against said stops, one of said springs being stronger than the other in order to cause one gage to yield while the other directs the book to position.

28. In a trimming mechanism, the combination of end gages p p, supporting arms p' therefor, carrier blocks q to which said arms are pivoted, supporting bar q', and an adjustable connection between said blocks and bar, whereby the blocks may be adjusted to or from each other to vary the position of the gages and accommodate them to longer or shorter books.

29. In a trimming mechanism, the combination with clamping plate C and trimming knives G G' of end gages p p for said knives, spring-pressed arms p' carrying said gages, and cam projections i' in connection with said knives adapted upon the ascent of the knives to engage said arms and thrust the gages out of the way of the knives.

30. The combination of the knife carrying frame D, clamping plate C, end gages p p, spring-pressed carrying arms p' therefor formed with projections p⁴, and cam projections i' carried by said slide D and adapted upon the upward movement thereof to encounter said projections p⁴ and thrust the end guides out of the way of the knives.

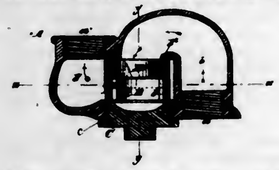
31. The combination with trimming mechanism of feeding mechanism comprising cross-bars or pushers adapted to carry the books to be trimmed successively into position to be acted on by said trimming mechanism and driving mechanism for intermittently advancing said feeding mechanism, and means for subsequently slightly retracting it to bring the pushers out of the way of the trimming mechanism.

32. The combination with trimming mechanism of feeding mechanism comprising cross-bars or pushers I I, a driving mechanism acting to intermittently advance said feeding mechanism, and a retracting device carried by the trimming mechanism and acting after each feeding movement to thrust back the feeding mechanism out of the way of the trimming mechanism.

33. The combination with trimming mechanism comprising a reciprocating knife-carrying frame, of feeding mechanism comprising cross-bars or pushers I I, driving mechanism acting intermittently to advance said cross-bars or pushers, and a cam l connected to said knife carrying frame and adapted to act against said cross-bars to thrust them back in advance of the action of the knife.

34. The combination with trimming mechanism comprising vertically moving knife-carrying frame D, of feeding mechanism consisting of endless ladder-chain J having cross bars I I, a driving mechanism for intermittently advancing said chain, and means for retracting said chain after each feeding movement, consisting of cam projections l l carried by said frame D and adapted during the upward movement thereof to engage said cross-bars and thrust them back.

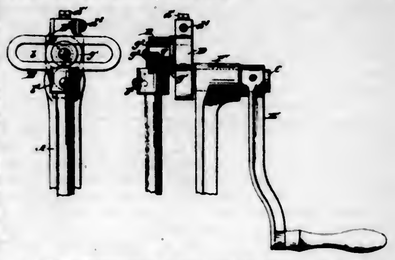
490,878. VALVE. HENRY E. MARCHAND, Bayonne, N. J., assignor, by mesne assignments, to Thomas P. Ryan, New York, N. Y. Filed Mar. 23, 1890. Renewed Aug. 3, 1892. Serial No. 442,027. (No model.)



Claim.—The combination with the inlet chamber, *b*, having a downward opening aperture, and provided with a valve-seat, b^2, of the valve chamber B having guides as b^3, an aperture closed with a plug as C, a third aperture into the outlet chamber b', the float D adapted to serve against said valve-seat b^2, and a plug, as C, substantially as set forth.

490,879. ADJUSTABLE CRANK. HENRY E. MARCHAND, Bayonne, N. J., assignor, by mesne assignments, to Thomas P. Ryan, New York, N. Y. Filed Mar. 22, 1890. Renewed Aug. 3, 1892. Serial No. 442,028. (No model.)

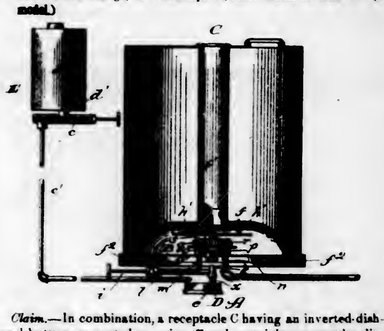
Claim.—1. The combination, of a crank and its spindle, a crank-arm eccentrically secured to the spindle, said crank-arm provided with a rectangular slot, a wrist-pin having its inner end passing into said slot, and provided with a threaded aperture, and its outer end connected to the piston-rod, a vertical screw passing freely through one end of the crank-arm, and also passing through the threaded opening of the wrist-pin, and a screw passing horizontally through a perforation of the crank-arm and engaging an annular recess in the vertical screw, substantially as set forth.



2. The combination of a crank and its spindle, a crank-arm secured eccentrically thereto, said crank-arm provided with a central elongated slot, a wrist-pin having an inner square end fitting the elongated slot and vertically adjustable therein, a horizontally slotted bearing to which the piston-rod is attached, the slot of said bearing adapted to receive the outer rounded end of the wrist-pin, substantially as set forth.
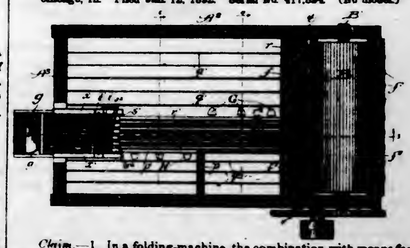
3. The combination of the slotted crank arm D, the wrist pin G, the adjusting screw d', and means as d^6 for fixing its position, with the bearing B, as set forth.

490,880. GASOLINE-HEATER. THOMAS C. MOSELY and ALPHEUS H. KIPSHAW, Chicago, Ill. Filed Apr. 13, 1891. Serial No. 388,719. (No model.)



Claim.—In combination, a receptacle C having an inverted-dish-shaped bottom supported on a ring f^3 and containing an annular diaphragm B, and a burner A, having its burner-head supported over the opening in the diaphragm and surmounted by a spreading-plate A greater in diameter than the diaphragm-opening and affording a space *s* between it and the burner-head, substantially as described.

490,881. PAPER-FOLDING MACHINE. DANIEL P. MCLAUGHLIN, Chicago, Ill. Filed Jan. 12, 1892. Serial No. 417,894. (No model.)



Claim.—1. In a folding-machine, the combination with means for advancing the sheet, of a folding blade, extending along the line of travel of the sheet and fluid-blast mechanism acting against one side of the sheet to carry it bodily over the folding-blade, substantially as described.

2. In a folding-machine, the combination with means for advanc-

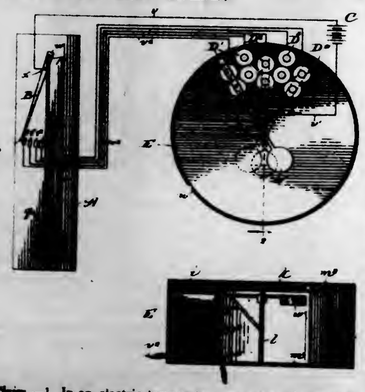
ing the sheet through the machine, of a folding blade located along the line of travel of the sheet, fluid-blast mechanism at the side of the blade acting against one side of the sheet to carry it bodily over the said blade, a second folding blade located along the line of subsequent travel of the sheet, and a second fluid-blast mechanism, at the side of said second blade, acting against one side of the folded leaves of the sheet to carry them bodily over the said second blade, substantially as described.

3. In a folding-machine, the combination with means for advancing the sheet through the machine, of a folding-blade located along the line of travel of the sheet, fluid-blast mechanism at the side of the blade acting against one side of the sheet to carry it bodily over the said blade, a second folding-blade located along the line of subsequent travel of the sheet, a second fluid-blast mechanism, at the side of said second blade, acting against one side of the folded leaves of the sheet to carry them bodily over the said second blade, folding-rollers extending crosswise of the line of travel of the sheet, beyond the second folding-blade, and means for driving the sheet into the bite of the folding-rollers, substantially as described.

4. The combination with the web-severing cylinders and co-operating cutter-mechanism thereon, and with means for advancing the partly-severed sheet, of a resilient projection on one of the said cylinders engaging the web in rear of the cutter-mechanism and acting to retard the web by pressing it in the backward direction against the other cylinder, thus assisting the operation of severing, substantially as described.

5. The combination with the web-severing cylinders B, C, and co-operating cutter-mechanism thereon, and with means for advancing the partly severed sheet, of the strip K, of resilient material, secured along the cylinder B in rear of the cutter-mechanism, and a groove in the cylinder B in rear of the strip K, the strip acting, with each revolution of the cylinders, to engage the web and turn over, in the said groove, to retard the web by pressing the same in the backward direction against the cylinder C, thus assisting the operation of severing, substantially as described.

490,882. TELETHERMOMETER. HOWARD B. PAYNE, Chicago, Ill., assignor of one-half to David B. Van Slyke, same place. Filed May 20, 1892. Serial No. 433,714. (No model.)

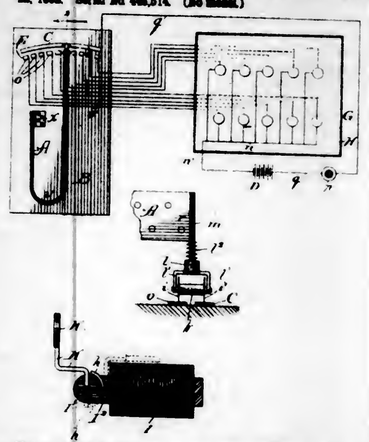


Claim.—1. In an electric temperature apparatus, the combination of a bar *r* formed of material differentially affected by temperature and fastened at one end to a base, a contact-finger B forming one terminal of a generator and pivotally supported on the said base and connected at one side of its pivot directly with the free end of the said bar, and contacts *t*, *t'*, *t²*, &c., supported in the plane of movement of the free end of the finger B and forming the opposite terminal of said generator, substantially as described.

2. In an electrical apparatus for use in indicating temperature, the combination with an electric generator and a telethermometer in a circuit thereof, of an indicator E comprising a case *m* supporting electro magnets in circuit with the thermostat, an arbor *l* pivotally supported in the case and carrying an armature F and an index-finger *k*, and a dial *m²*, substantially as described.

3. An electrical apparatus for use in indicating temperature comprising, in combination with a battery, C, a telethermometer A having a base *g* carrying the bar *r*, a pivotal contact-finger B connected with one pole of the battery and engaged by the said bar, and contacts, and an indicator E having electro-magnets connected, each, with one of said contacts and with the opposite pole of the battery, a pivotal armature F carrying a dial-finger *k*, and a dial *m²*, the whole being constructed and arranged to operate substantially as described.

490,883. TELETHERMOMETER. HOWARD B. PAYNE, Chicago, Ill., assignor of one-half to David B. Van Slyke, same place. Filed Sept. 23, 1892. Serial No. 446,514. (No model.)



Claim.—1. An electric temperature apparatus comprising, in combination with an electric generator, a contact-bar C connected with one pole of the generator, a series of contacts *o*, a bar formed of materials differentially affected by temperature, fastened at one end and free toward its opposite end, a spring contact-device on the free end of the bar, and formed with a roller *k* carrying disks i and i' normally bridging contacts C and *o*, and an indicator, or the like having electro-magnets connected with the contacts *o* and with the opposite pole of the said generator, substantially as and for the purpose set forth.

2. An electric temperature apparatus comprising, in combination with an electric generator and its circuit, and a telethermometer having contacts, an annunciator G having electro-magnets I each connected with a different contact and all with one pole of the generator and provided with pivotal armatures I' provided with extensions *h* carrying signs, and a circuit-closer *p* in the circuit, substantially as and for the purpose set forth.

3. An electric temperature apparatus comprising, in combination with an electric generator and a telethermometer normally connecting a contact-bar C forming one terminal of the generator with a contact *o* in a series thereof, an annunciator G, comprising a case H containing electro-magnets I having pivotal armatures I' provided with extensions *h* and carrying arms K provided with tags K', said magnets being each connected with a different contact *o* and all with the generator, and a circuit-closer *p* in the connection of the contact-bar C with the generator, substantially as and for the purpose set forth.

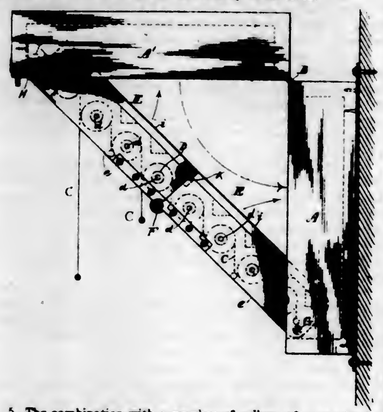
490,884. MAP-CASE. GODFREY P. PETERSON and SHERMAN U. STEWART, Chicago, Ill. Filed May 10, 1892. Serial No. 432,467. (No model.)

Claim.—1. The combination of a rack having two separate sections, hinged together and adapted to fold upward, means supporting the outer sides of said sections and permitting the rack to be either folded up until the two sections lie against each other, or unfolded until the two sections occupy substantially the same plane, and means preventing the further downward movement of the hinged sides of said sections when the parts have reached this last named position, substantially as set forth.

2. The combination with a case having a cover hinged thereto, of a rack having one of its sides pivotally connected to the case proper, and the other of its sides pivotally connected to the cover, said rack being formed in separate sections hinged together and adapted to fold inward as the case is closed, and a number of articles supported by said rack, substantially as set forth.

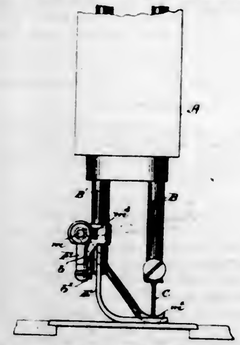
3. The combination with the case consisting of the two similar parts A and A', hinged together, of the folding rack having one of its sides pivotally connected to the part A, and the other of its sides pivotally connected to the part A', said rack having the braces E, E, each formed of two separate but similar parts *e*, *e*, jointed together and adapted to fold inward as the case is closed, and a number of rollers supported by said rack, substantially as set forth.

4. The combination with a roller having the stems *d* and *d'* of a rack having a perforation for receiving the stem *d*, and a slot for receiving the stem *d'*, and the hook M adapted to engage the stem D' and hold it in place in the slot, substantially as set forth.



5. The combination with a number of rollers, of a case having one of its vertical sides open, a cover hinged to the top portion of the case and adapted to close its open side, and a rack in which the rollers are journaled, pivoted at one side to the bottom portion of the case and having its other side engaged and supported by the cover when open, substantially as set forth.

490,885. GUIDE FOR SEWING-MACHINES. WILLIAM RABUSKE, Boston, Mass. Filed Apr. 1, 1892. Serial No. 427,380. (No model.)

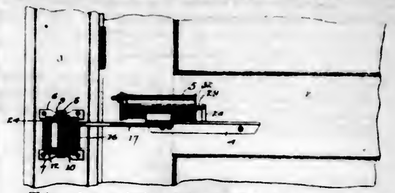


Claim.—1. A gage having a face and a right-angled shank, a block to constitute a bearing for the sleeve, and a sleeve mounted loosely therein and having a shouldered hub or wheel said shank being connected to the sleeve, combined with a locking device co-operating with said shouldered hub and adapted to retain it and the gage with its face in operative, or in inoperative position, as and for the purposes set forth.

2. The presser-bar, the bearing, and the sleeve movable axially therein and provided with the toothed portion H', combined with a gage having a substantially right-angled shank, means to adjust said gage shank and sleeve longitudinally one with relation to the other, and a locking spring to co-operate with said toothed portion to retain the gage raised or lowered, substantially as described.

3. The presser-bar, its block F, the sleeve axially movable therein, and restrained from longitudinal movement, and the gage having the gage face and a right-angled shank extended through and longitudinally movable in said sleeve, whereby the gage face may be adjusted toward and from the line of stitching and presser-bar, combined with means to retain the adjusted shank fixed in the sleeve, substantially as described.

490,886. COMBINED DOOR SPRING AND CHECK. FERDINAND ROCK, St. Paul, Minn., assignor of one-half to Anne Mary Clausen, same place. Filed Nov. 5, 1891. Serial No. 410,904. (No model.)



Claim.—1. In a device of the class described, the combination with the operating arm, of a rotatable pivot therefor, a spring interposed between and acting oppositely upon said pivot and said arm, adjustable means for holding said pivot from rotating under the tension of said spring, and means for locking said pivot to said arm so that it will turn therewith, substantially as described.

2. In a device of the class described, the combination with the operating arm and its support, of a two part pivotal connection between said arm and support, to one of which said arm is fixed, an actuating spring interposed between said parts acting oppositely upon both, and adjustable means for holding the part not connected to the arm against the tension of the spring while allowing it limited movement in the opposite direction and adjustable means for locking said arm to said last named part, substantially as described.

3. The combination with the arm and its support, of a two part pivotal connection between them, one part being fixed to the arm, and both rotatable upon said support, a spring interposed between and operating oppositely upon them, adjustable means for holding the part not connected to the arm against the tension of said spring, and means for interlocking said part and said arm through a predetermined angle of rotation adapted to be automatically disengaged therefrom by the turning of the arm beyond the limited angle, substantially as described.

4. The combination of the arm and its support, the pivot turning in said support, its rotatable case, the inclosed spring engaging both said pivot and case, a fixed connection between the arm and one of the rotatable parts, and a pawl and ratchet attachment by means of which said arm can be locked to the other part through a predetermined angle of rotation, substantially as described.

5. In a device of the class described, the combination with the operating arm, and its rotatable pivot, of the actuating spring connected to said pivot and said arm, means for applying tension to said spring, adjustable means for holding said pivot from rotating under the tension of said spring, and means for locking said pivot and arm together in adjusted positions, substantially as described.

6. In a device of the class described, the combination of the operating arm, its rotatable pivot, the actuating spring engaging said pivot and said arm, means for holding said pivot in adjusted positions against the tension of said spring, and adjustable means for limiting the resiliency of said spring, substantially as described.

7. In a device of the class described, the combination of the operating arm, its rotatable pivot, the coiled spring upon said pivot having its ends in engagement respectively with said pivot and said arm, the pawl and ratchet connection between said arm and pivot, and the stop for holding said pivot in adjusted positions against the tension of said spring, substantially as described.

8. In a device of the class described, the combination of the operating arm, its sliding connection with the door, a pneumatic cylinder for checking its sliding movement on the door, the rotatable pivot for said arm, the coiled spring upon said pivot connected thereto, the inclosing case for said spring connected to it and to said arm, the pawl and ratchet connection between said arm and said pivot, and the stop for holding said pivot in adjusted positions against the tension of said spring, substantially as described.

9. In a device of the class described, the combination with the operating arm, its actuating spring, and the pivot and the spring inclosing case both connected to said spring, and one connected rigidly to the arm and the other having a limited, rotatable movement, of means for applying tension to said spring, and adjustable means for locking said pivot and case together to restrain the resiliency of the spring through a predetermined angle of rotation, substantially as described.

10. In a device of the class described, the combination of the pivoted operating arm, its coiled actuating spring, having one end connected to the arm and the other provided with a rotatable support,

adjustable means for holding said support from rotating under the tension of the spring, and adjustable means for locking the support and arm together to restrain the resiliency of the spring, substantially as described.

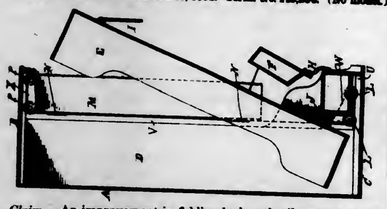
11. In a device of the class described, the combination with the pivoted lever having an actuated spring, of a horizontal guide upon the door engaging the end of the lever, a pneumatic cylinder in alignment with said guide and a piston carried by said lever and working in said cylinder, substantially as and for the purposes set forth.

490,887. SOAP-RECEPTACLE. MARIAN L. ROUSCH, Bay City, Mich., assignor of three-fourths to Ansel H. Rousch, Augustus R. Rousch, and Maggie A. Rousch, same place. Filed Apr. 15, 1892. Serial No. 429,303. (No model.)



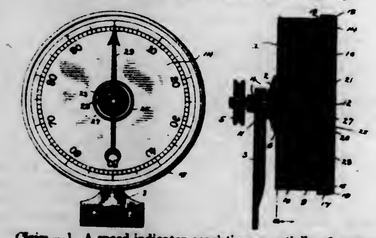
Claim.—As an improved article of manufacture, the receptacle for soap composed of a bottom 1, having a series of perforations, the sides 2, provided with outwardly turned lugs 6, having screw openings, the front 3, provided as described, on its upper edge with an inwardly turned flange 4, and with a centrally located vertical slot 5, extending through the flange, substantially as set forth.

490,888. FOLDING BED AND TOILET-CASE. PERCY A. SANGUINETTI, Chicago, Ill., assignor of two-thirds to A. J. Hewings and William R. Bowles. Filed Oct. 18, 1892. Serial No. 449,326. (No model.)



Claim.—An improvement in folding beds and toilet cases consisting of a main case, as described, the bed E hung to swing therein in combination with two end frames adjustable within the case, and a two-part toilet case hinged thereto, to form the face of the main case when the bed is inclosed, to be opened to permit the bed to be swung out; and to be run back into the main case and closed to form a headboard to the bed; as, and for the purposes specified.

490,889. SPEED-INDICATOR. HORACE T. SMITH, Port Jefferson, N. Y. Filed May 29, 1888. Serial No. 434,090. (No model.)



Claim.—1. A speed indicator consisting essentially of a rotary shaft provided with an inner disk carrying wings, an outer disk carrying wings lying in the same plane as the wings upon the inner disk, a shaft by which the outer disk is carried, a spring the inner end of which is connected to the shaft which carries the outer disk, the outer end thereof being secured to a stationary portion of the device, so that when the shaft carrying the inner disk is placed in motion the shaft carrying the outer disk will be rotated until the power of the spring equalizes the power applied to the shaft carrying the inner disk.

2. A speed indicator consisting of a shaft carrying an inner disk provided with wings, an outer disk having wings lying in the same plane as the wings upon the inner disk, a shaft by which the outer disk is carried, a pointer and a collar on the shaft carrying the outer disk and a spring one end of which is secured to the collar and the other to a stationary portion of the device so that when power is applied to the shaft carrying the inner disk the outer disk and pointer will be rotated until the spring equalizes the power.

3. The combination with shaft 4, belt pulley 5 and disk 6 carrying wings 7, of shaft 12 carrying a disk 9 having wings 10, lying in the same plane as wings 7 a pointer and a collar on said shaft and a spring the inner end of which is connected to the collar, the other end being secured to a stationary portion of the device.

4. The combination with a case having a suitable hub, a shaft 4 journaled in said hub and carrying a belt pulley, and an inner disk provided with wings 7, of a face plate and disk 21, a shaft 12 mounted in said disk and face plate and carrying an outer disk provided with wings 10, lying in the same plane as wings 7 a collar on shaft 12, and a spring the inner end of which is secured to the collar and the outer end to a stationary portion of the device.

5. The combination with shaft 4 and the inner disk having wings 7, the case and the face plate having hub 19, of disk 21 lying in said hub and having lug 23 shaft 12 journaled in said hub and said disk, the outer disk carried by said shaft and having wings 10 lying in the same plane as wings 7 and collar 26 and a spring the inner end of which is connected to the collar and the outer end to a stationary portion of the device, and the outer coil of which is engaged by the lug.

6. The combination with an inner disk having wings 7, an outer disk having wings 10, lying in the same plane as wings 7 and shaft 12 by which the outer disk is carried, of ring 25 having loop 28, and a spring the inner end of which is connected to shaft 12, the other passing through loop 28 so as to be readily adjustable.

7. The combination with the case and the face plate having hub 19 and shoulders 20, of disk 21 resting against said shoulders, ring 25, shaft 12 journaled in said disk and said hub, disk 9 carried by said shaft and provided with wings, disk 6 having wings lying in the same plane as the wings on disk 9 and a spring the inner end of which is connected to shaft 12 and the outer end to said ring.

8. The combination with disk 6 having wings 7, and disk 9 having wings 10 and hub 11, of face plate 14 having hub 19 lying within hub 11 and provided with a shoulder 20, a disk resting against said shoulder, shaft 12 journaled in said disk and hub 19 and carrying disk 9, ring 25 having a loop 28, and a spring the inner end of which is connected to shaft 12 and the other adjustably connected to the ring by means of loop 28.

9. The combination with the inner disk having wings 7, and the outer disk having wings 10 and hub 11, of the face plate having hub 19 and shoulder 20, disk 21 lying against said shoulder and having lug 23, shaft 12 journaled in disk 21 and hub 19 and carrying the outer disk, ring 25 and a spring 27 the ends of which are connected to shaft 12 and to the ring, and the outer coil of which is engaged by the lug.

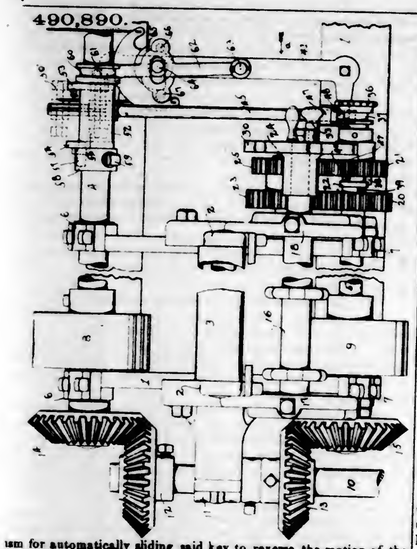
490,890. PATTERN-REVERSING MECHANISM FOR LOOMS. WILLIAM WATTIE, Worcester, Mass., assignor to the Knowles Loom Works, same place. Filed June 23, 1892. Serial No. 437,795. (No model.)

Claim.—1. In a loom, the combination with mechanism for reversing the motion of the pattern chain, consisting of a system of gears, and a driving key movable longitudinally in the lower cylinder shaft and revolving therewith, and said shaft, of a supplemental mechanism for automatically operating said key to reverse the motion of the pattern chain, as desired, said mechanism consisting of a rock shaft provided with an arm to engage the driving key, and with a double arm provided with faces to be engaged by the cam surfaces on a sleeve mounted on the top cylinder shaft, and said shaft, and said sleeve provided with cam surfaces, and adapted to revolve with said cylinder shaft, and to slide thereon, and mechanism for sliding the sleeve on said shaft, said mechanism operated by cords or connections to the pattern mechanism, substantially as set forth.

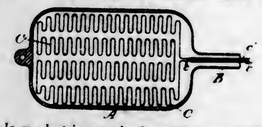
2. In a loom, the combination with the pattern chain cylinder shaft, star wheel, pin wheel, reverse gears, and sliding driving key of the reverse mechanism, of means for automatically sliding the key to reverse the motion of the pattern chain, consisting of an arm engaging said key, a rock shaft carrying said arm, and also a double cam arm, and a sleeve mounted on the top cylinder shaft, and said cylinder shaft, and the sleeve adapted to revolve with said shaft and slide thereon, and provided with cam surfaces to engage the double cam arm, and a lever for sliding said sleeve, and a cam lever for operating said lever, said cam lever operated by cords or connectors to the pattern mechanism, substantially as set forth.

3. In a loom, the combination with mechanism for reversing the motion of the pattern chain, consisting of a system of gears, and a driving key movable longitudinally in the lower cylinder shaft and revolving with said shaft, and said shaft, of a supplemental mechanism for automatically sliding said key to reverse the motion of the pattern chain, said mechanism consisting of a rock shaft provided with an arm for engaging the driving reverse key, and with a double arm at its upper end to be acted on by the cam surfaces on a sleeve, said double arm adapted to slide on said rock shaft, and be moved out of engagement with the cam surfaces on said sleeve for the purpose stated, and said sleeve provided with cam surfaces and mounted on the top cylinder shaft, and said shaft, and the sleeve adapted to revolve with said shaft and slide thereon, the sliding motion of said sleeve controlled by cords or connectors to the pattern mechanism, through intervening mechanism, substantially as set forth.

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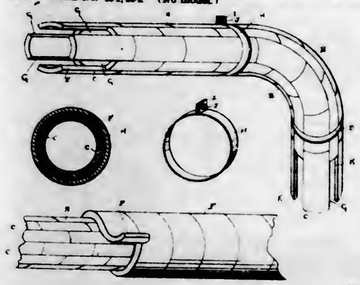


490,891. ELECTRIC WARMING-BOTTLE. THOMAS AHEARN, Ottawa, Canada. Filed Sept. 8, 1892. Serial No. 445,385. (No model.)



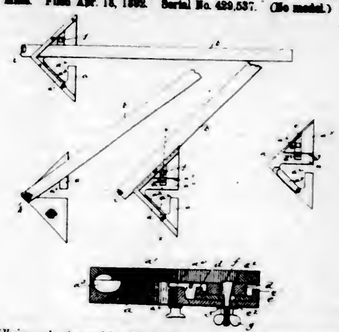
Claim.—In an electric warming bottle, the combination of a bottle or bag of flexible water-proof material, A, a long neck B with mouth *b* therein, a resistance coil C within said bottle and the leads *c* extending through said neck, substantially as set forth.

490,892. WOOD WATER-PIPE. MELFORD D. ARMS, San Diego, Cal., assignor of one-half to Frank R. Strong, same place. Filed Nov. 8, 1892. Serial No. 451,404. (No model.)



Claim.—A wood pipe constructed of suitable staves having beveled edges, and formed exteriorly with circumferential grooves, in combination with a continuous covering of wood veneerings secured to said pipe by a cement coating, and a spring band or clasp surrounding the pipe within the grooves, substantially as shown and for the purpose set forth.

490,893. COMBINATION-SQUARE. HENRY K. AUSTIN, Reading, Mass. Filed Apr. 14, 1892. Serial No. 429,537. (No model.)



Claim.—1. A combination tool—comprising a head preferably in the shape of a right angle triangle, a blade or straight edge adapted to be inserted along one right angle side, or at right angles to the hypotenuse of said right angled head; recesses in said head to accommodate said blade and sliding plates having upwardly projecting lips adapted to engage a groove in said rule whereby said rule is clamped in position, substantially as described.

2. In a combination tool, the head *a* having shoulder a^4 a^7, a blade adapted to be supported in said head, plates *d e* having lips d' e' adapted to engage a slot in said blade, said plates having perforations located over a perforation in the head, a tapering stud adapted to be passed through said plates and head, and an adjusting nut whereby said plates and lips are forced toward each other to lock said blade against the shoulder formed by the recesses, substantially as described.

3. In a combination tool, a head having recesses and a top plate, a blade or straight edge adapted to be inserted in said head at different angles, sliding plates having lips and perforations, said perforations adapted to be engaged by a tapering stud whereby said lips are pressed against a groove in said blade or straight edge, substantially as described.

4. In a combination tool, a recess or pocket, a head having a removable frame adapted to cover said pocket and form a center square, a blade or straight edge adapted to be inserted at different angles between said head and frame, and a spirit level inserted in said pocket and held in place by the removable plate, substantially as described.

5. In a combination tool, the combination of a blade or straight edge having a groove therein, and sliding plates having perforations for the insertion of a tapering stud whereby the plates are moved toward and held against shoulders to clamp said blade or straight edge, substantially as described.

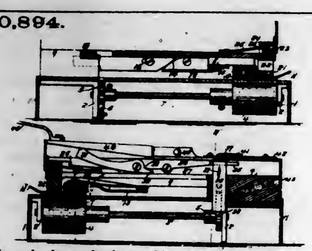
6. A combination tool comprising in its construction a head, shoulders on said head, sliding plates whereby a blade is clamped against said shoulders, a perforation in said blade and a clamping screw on the reverse side of said head whereby said blade is set at any desired angle, substantially as described.

490,894. CHECK-PUNCH. EDWIN R. BEACH, Jersey City, N. J., and HENRY A. BENDER, Brooklyn, N. Y. Filed Jan. 2, 1892. Serial No. 416,790. (No model.)

Claim.—1. In a check punch, a yielding roll for receiving the impact of the punches, arranged below the base plate and extending slightly above the same and engaging with a friction roll, in combination with spring punches and means for actuating the same substantially as described.

2. In a check punch, a yielding wheel or roll for receiving the impact of the punches, mounted on a longitudinal shaft below the base plate and projecting slightly above the same, a friction roll above the base plate, means for automatically revolving the yielding wheel or roll, and means for separating the friction roll and the yielding wheel or roll, in combination with spring punches and means for actuating the same, substantially as described.

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3. In a check punch, the combination with spring punches and means for operating the same of a yielding wheel or roll for receiving the impact of the punches, mounted on a longitudinal shaft below the base plate and projecting slightly above the same; a friction roll above the base plate and an additional pair of friction rolls, one above and one beneath, the base plate, and co-operating with said yielding lower roll and means for separating the upper and lower rolls, substantially as described.

4. In a check punch, the combination with spring punches and means for operating the same of a yielding wheel or roll for receiving the impact of the punches, and constituting also one of a pair of friction rolls, the upper companion roll being mounted on a spring piece, and means for raising said upper roll, substantially as described for the purposes set forth.

5. In a check punch, a yielding wheel or roll for receiving the impact of the punches and constituting also one of a pair of friction rolls, the upper companion roll being mounted on a spring piece and provided with a forwardly projecting apertured pointer, in combination with spring punches and means for forcing said punches downwardly through the aperture in the pointer and means for raising said upper roll and pointer, substantially as described.

6. In a check punch, a yielding wheel or roll for receiving the impact of the punches and constituting also one of a pair of friction rolls, the upper companion roll being mounted on a spring piece and provided with a forwardly projecting apertured pointer, and an auxiliary pair of friction rolls, the upper one of which is also carried on a spring piece and means for raising the upper rolls from their companions, in combination with spring punches and means for forcing said punches downwardly through the aperture in the pointer substantially as described.

7. In a check punch, upper and lower feed rolls, the upper rolls being mounted on a spring piece, and means for raising the upper rolls from their companions, said means consisting of a plate passing beneath said spring piece and provided with a cam-faced shoulder, engaging with an oppositely cam-faced connecting rod, and an actuating lever, combined and arranged to operate, substantially as described.

8. In a check punch, provided with spring punches and means for operating the same an automatic feed device comprising a longitudinal shaft passing beneath the base plate, said shaft having secured to one end a yielding wheel or roll, one portion of which receives the impact of the punches, and the other portion of which engages a friction roll, and a cog or gear-wheel at the opposite end of said shaft, in combination with a vertical rod carrying at its lower end a spring pawl engaging with the said gear-wheel and means for automatically raising and lowering, said rod, substantially as and for the purpose described.

9. In a check punch, an automatic feed device comprising a longitudinal shaft passing beneath the base plate, said shaft having secured to one end a yielding wheel or roll, one portion of which receives the impact of the punches, and the other portion of which engages a friction roll; and a cog or gear-wheel mounted on the opposite end of said shaft, in combination with a vertical rod shouldered at its upper end and carrying at its lower end a spring pawl, said rod being retained in its normal position by a spring; a horizontal bar engaging with the shouldered rod and provided with a forwardly projecting finger engaging with a finger on an upwardly curved lever, and a series of punches actuated by a vertically movable plate adapted also to depress the free end of the said curved lever and actuate the feed mechanism, substantially as described.

10. In a check punch a rotatory quadrant-shaped punch carrier swinging between two fixed parts; means, substantially as described attached to one of said fixed parts for automatically feeding the paper, a lever operating on oppositely cam-faced connections to separate friction rolls, secured to the other fixed part, in combination with spring punches and means for actuating the same, all combined and arranged to operate substantially as specified.

11. In a check punch a rotatory quadrant-shaped punch carrier pivoted between two fixed parts; a spring hammer, and means substantially as specified attached to one of said fixed parts for automatically feeding the paper, a lever operating on oppositely cam-faced connections to separate friction rolls, secured to the other fixed part, in combination with friction rolls, spring punches and means for actuating the spring hammer, substantially as described.

12. In a check punch, a rotatory quadrant-shaped punch carrier pivoted between two fixed parts; spring punches secured in the arc-shaped portion of the carrier and actuated by a spring hammer secured in one of the fixed parts, said hammer being operated by a depressible plate forming a cover for the punch carrier, substantially as described.

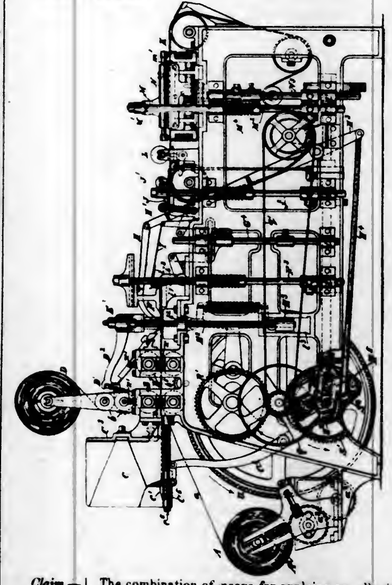
13. In a check-punch, a rotatory quadrant-shaped punch carrier pivoted between two fixed parts; spring punches secured in the arc-shaped portion of the carrier and actuated by a spring hammer secured in one of the fixed parts and operated by a depressible plate forming a cover for the punch carrier, in combination with means for automatically moving the paper after each character is punched, substantially as described.

14. In punches for checks a rectangular base from the under surface of which depend puncturing pins, and from the upper surface of which extends a circular upright portion, said punches being retained in their normal position in the punch carrier by means of flat or tongue springs secured at one end to said punch carrier and engaging at their free ends in channels in the circular portions of said punches, substantially as described.

15. In a check punch, two fixed longitudinal bars or blocks, affording upper and lower bearings for a swinging punch carrier, a swinging segmental punch carrier located between said bars, the upper one of which carries a hammer for striking the punches, said hammer being actuated by a segmental depressible plate hinged to an extension of the pivot of the said punch carrier, and a handle for depressing the said plate, substantially as described.

16. A depressible plate forming a cover for a horizontally swinging punch carrier, provided with a projecting lever-handle, and with a rearwardly projecting pointer, in combination with a dial indicating the proper character to be struck, a spring hammer, spring punches and means for automatically feeding the paper, substantially as described.

490,895. BOOK-COVER MACHINE. ALFRED BRENDENBERG, Brooklyn, N. Y., assignor of two-thirds to Charles W. Lovell, same place, and John W. Lovell, New York, N. Y. Filed Apr. 27, 1891. Serial No. 390,548. (No model.)



Claim.—1. The combination of means for applying an adhesive coating to a web of covering fabric, means for applying side boards against its coated surface, and a feed mechanism for drawing forward said web consisting of pressure rolls having an intervening space greater than the thickness of the fabric but less than the thickness of the fabric and boards, whereby by the revolution of said rolls the fabric is grasped between them where said boards are applied to it, and in the spaces between said boards the rolls avoid contact with the gummed surface of the fabric.

2. The combination of means for gumming and feeding forward a web of covering fabric and means for applying pairs of side boards against its gummed surface, with means for applying strips of stiffening fabric against the gummed surface thereof between the two boards of each pair, said means comprising a guide for directing the stiffening fabric to place, and a cutter for cutting it off into lengths.

3. The combination of means for gumming and means for feeding forward a web of covering fabric and means for applying pairs of side boards against its gummed surface, with means for applying strips of stiffening fabric against the gummed surface thereof between the two boards of each pair, said means comprising a feeder for feeding forward the stiffening fabric, a cutter for cutting it off into lengths, and a guide for directing the cut off lengths to position against the gummed web.

4. In a machine for making book-covers, means for folding over the projecting flaps of the cover blank consisting of a table on which the blank is placed, a reciprocating clamp for holding it down on said table, and a folder consisting of two active parts, the one of which is constructed to turn the projecting flap up and hold it against the edge of the board and the other of which is constructed to fold down the flap upon the inner side of the board.

5. In a machine for making book-covers, means for folding over the projecting flaps of the cover blank upon the side board consisting of a table on which the blank is laid with the flap to be folded projecting beyond the edge of the table, a reciprocating clamp for holding the blank down against said table, constructed to clamp the board with its edge portion exposed on which the flap is to be folded, a folder acting against the edge of said table to first turn up said projecting flap and press it against the edge of the board and subsequently to turn down the flap against the inner side of the board, and driving mechanism for the clamp and folder constructed to first close the clamp upon said table to grip the blank, then to hold it there while actuating the folder, and finally when the folder has finished its operation to retract the clamp and release the blank.

6. In a machine for making book covers, the combination of means for applying an adhesive coating to a covering fabric, means for applying side-boards against the gummed surface of said fabric leaving edges thereof projecting to form flaps, and means for folding over the projecting flaps consisting of end folders acting to fold down the end flaps upon the boards, rollers for rolling down the folded end flaps, and side folders acting subsequently to fold down the side flaps.

7. In a machine for making book-covers, means for folding over the projecting flaps of the cover blank consisting of folders acting to fold down the flaps at opposite sides or ends of the blank, provided with means for creasing or indenting the flaps at the corners, and folders acting subsequently to fold down the remaining flaps, whereby a neat corner finish is insured.

8. In a machine for making book-covers, means for folding over the projecting flaps of the cover blank consisting of folders acting to fold down the flaps at opposite sides or ends of the blank, said folders comprising rollers for turning down the flaps against the inner sides of the boards, and creasing flanges carried by said rollers for indenting the flaps at the corners of the boards, whereby when the remaining flaps are folded down a neat corner finish will be made.

9. In a machine for making book-covers, means for folding down the projecting flaps at the ends of the cover blank comprising a roller for folding down said flaps against the inner sides of the boards, constructed with a middle portion of increased diameter adapted to enter the space between the boards to fold down the flap upon the back portion of the cover.

10. In a machine for making book-covers, the combination of means for applying a pair of side boards and an intervening stiffening strip against the gummed surface of a covering fabric, end folders for folding down the projecting end flaps thereof, and a roller for pressing said stiffening strip against said fabric in the space between said side boards.

11. In a machine for making book-covers, the combination of means for apply a pair of side boards against the gummed surface of a covering fabric, a first end-folder for folding down the projecting flap at one end of the blank upon the boards, a second end folder for folding down the opposite end flap upon the boards, side folders for subsequently folding down the side flaps upon the boards, and feeding mechanisms for feeding the blank from the point of application of the boards to the first end folder, and from the second end folder to the side folders.

12. The combination of means for applying an adhesive coating to a web of covering fabric, means for applying successive pairs of side boards against its coated surface, a cutter for cutting off said fabric into lengths between the successive boards, and folders for folding the projecting edges or flaps of said fabric down upon the inner side of said boards, with two feeding mechanisms, the first adapted to draw forward said web of fabric before it is cut off, and the second constructed to move forward the severed cover blanks between the successively acting folders.

13. The combination with a feed mechanism for feeding forward a web of gummed covering fabric of means for applying cover boards thereto consisting of a magazine having two compartments for holding two piles of such boards and a reciprocating pusher adapted to eject one board from each pile, the compartments of said magazine constructed of side walls connected to a transverse front wall, by laterally adjustable connections, whereby the compartments may be adjusted bodily toward or from each other to adapt the machine for making book-covers for books of different thicknesses, and the walls of each compartment adjustable toward or from each other to adapt them to side boards of different widths.

14. The combination with a feed mechanism for feeding forward a web of gummed covering fabric of means for applying cover boards thereto consisting of a magazine having two compartments for holding two piles of such boards and a reciprocating pusher adapted to eject one board from each pile, a driving shaft, said feed mechanism driven intermittently therefrom, a cam driven from said shaft and angularly adjustable relatively thereto, and a lever vibrated by said cam and connected to said pusher to impart reciprocatory movement thereto, whereby the time at which the pair of boards is fed to the web of fabric may be varied by an angular adjustment of said cam.

15. The combination of means for applying gum to a web of covering fabric and means for applying successive pairs of side-boards thereto, of a feed mechanism for drawing forward said web consisting of two pairs of pressure rolls engaging said web subsequently to the application of said boards thereto, the two rolls of each pair set sufficiently far apart to engage the fabric only through the medium of said boards, and the successive pairs of rolls arranged a distance apart no greater than the length of said boards, whereby the rolls of the second pair engage the advancing ends of the boards before the following ends thereof pass from between the rolls of the first pair, so that the feed is made continuous without bringing the rolls against the gummed surface of the web.

16. In a machine for making book-covers, a feed mechanism for drawing forward the web of covering fabric consisting of feed rolls and a driving mechanism for driving them forward intermittently comprising a revolving crank, a vibrating arm formed with a longitudinal slideway, a block sliding therein and engaged by said crank, a pawl carried by said arm, a wheel engaged by said pawl so that it is driven forward during the vibration of said arm in one direction and remains stationary during the return vibration thereof, and said wheel geared to said feed rolls.

17. In a machine for making book-covers, a feed mechanism for drawing forward the web of covering fabric consisting of feed rolls and a driving mechanism for driving them forward intermittently and adjustable to vary the length of such feeding movements, said mechanism comprising a revolving crank the throw of which is adjustable, a vibrating arm having a slideway, a block sliding therein and engaged by said crank, a pawl carried by said arm, a feed-wheel engaged by said pawl during each forward vibration of said arm, and said feed-rolls geared to said feed-wheel, whereby by adjusting the throw of said crank the length of the feeding movement is correspondingly varied.

18. In a machine for making book-covers, a feed mechanism for drawing forward the web of covering fabric consisting of feed-rolls and a driving mechanism for driving them forward intermittently and adjustable to vary the length of such feeding movements, said mechanism comprising a revolving crank consisting of a crank-arm formed with a longitudinal slideway, a block carrying the crank stud and sliding along said slideway, a screw for adjusting said block along said slideway, a vibrating arm formed with a longitudinal slideway, a sliding block sliding along the slideway on said arm and engaged by the crank-stud, a pawl carried by said vibrating arm, a feed-wheel engaged by said pawl and driven thereby at each forward vibration of the arm to an extent proportional to the throw of said crank, and said feed-rolls geared to said feed-wheel.

19. The combination with means for feeding forward a web of gummed covering fabric and means for applying side-boards thereto, of a cutter for cutting off said fabric into lengths consisting of a straight blade for making a transverse cut across said web, and angular blades carried therewith for simultaneously cutting out V-shaped pieces at the sides of the web to form the corner portions of the flaps of the cover blank, and operating mechanism geared to move said cutter to cut off the fabric in the spaces between each two successive pairs of sideboards.

20. The combination with means for feeding forward a web of

gummed covering fabric and means for applying side-boards thereto, of a cutter for cutting off said fabric into lengths consisting of a straight blade for making a transverse cut across said web, and angular blades for cutting out V-shaped pieces at the sides of the web, a cutter-frame to which said straight blade is fixed, and adjustable frames to which said angular blades are fixed, whereby to adjust the cutter to a different width of fabric the straight blade may be replaced by one of different length, and the angular blades adjusted out or in to bring them against the ends of the straight blade.

21. The combination with means for feeding forward a web of gummed covering fabric and means for applying side-boards thereto, of a cutter for cutting off said fabric into lengths consisting of a straight blade for making a transverse cut across said web, and angular blades for cutting out V-shaped pieces at the side of the web, a cutter-frame to which said straight blade is fixed, and sliding frames to which said angular blades are fixed, and an adjusting screw to move said sliding frames simultaneously toward and from the intervening fixed blade.

22. In a machine for making book-covers, the combination with means for feeding forward a web of gummed covering fabric and means for applying side-boards thereto, of a cutter for severing the web of cover fabric consisting of a cutting block, a rising and falling cutter frame carrying a cutting blade, a toggle for thrusting down said cutter-frame, a driving shaft, a cam thereon acting to straighten said toggle and thereby force said cutting blade against said block, and gearing for causing said cam to act to make the cut when the feeding mechanism brings the space between two successive pairs of boards opposite the knife.

23. The combination of means for feeding forward a web of gummed covering fabric and means for applying side-boards thereto, with an arbor carrying a roll of stiffening strip, a pair of feed-rollers for advancing said strip geared to the mechanism for feeding said web, a knife for cutting off said strip, and a guide for directing the cut off lengths thereof against said gummed web.

24. In a machine for making book-covers, a folder for turning a projecting flap of covering fabric over the edge of the side-boards consisting of means for holding the cover blank, an oscillating shaft having radial arms, a folding down roller carried by said arms, a folding blade mounted on an arm carried on said shaft and pressed forward by a spring so that when the blade is retracted it stands in advance of said roller, and means for oscillating the shaft to bring said blade against the edge of the blank thereby turning up the flap and for continuing its oscillation whereby the roller is carried over the top of said blade to fold down the flap on the inner side of the board, and for oscillating said shaft backward to retract said roller and blade.

25. In a machine for making book-covers, a folder for turning a projecting flap of covering fabric over the edge of the side-boards consisting of means for holding the cover blank, an oscillating shaft having radial arms, radially sliding rods carried by said arms, springs for drawing said rods downwardly, and a folding down roller carried by said rods and adapted by the oscillation of said shaft to be moved over the upper surface of the blank, whereby it presses the flap down against the side-board with a pressure determined by the tension of said springs.

26. The combination of table *f* adjustable longitudinally, clamp F also adjustable longitudinally, end folder G carried by said table *f* so as to be adjustable therewith, reciprocating frame G^2 having slotted head g^6, and a link g^5 connecting said folder to said frame and engaging the slotted head thereof, whereby as said table and folder are adjusted to different positions, the connection of said link may be made in different portions of said slotted head.

27. The combination of first end folder G, second end folder G', and means for feeding the blank from the first end folder to the second consisting of a bridge-plate I, and feeding arms H H adapted to propel the blank over said plate.

28. The combination of first end folder G, second end folder G', bridge-plate I, feeding arms H H, vibrating lever-frame H' carrying said arms, and a cam for vibrating said lever-frame.

29. The combination of table *j*, clamp J, end folder G', means for feeding the blank onto said table, and gages *k* for stopping the blank in the correct position, and mechanism for moving said gages out of the way of the blank before the next feeding movement.

30. The combination of clamp J, roller *j'* carried thereby, feeding apron K, and a driving mechanism adapted to lift said clamp and cause it to dwell at a height sufficient to release the blank but not enough to lift off the weight of said roller *j'*, whereby the latter serves to hold the blank in frictional contact with said apron so that the latter may feed it forward.

31. In a machine for making book-covers, the combination of end folders G' constructed to fold the end edges of the covering fabric down upon the boards, side folders N N, constructed to fold the side edges of the fabric down upon the boards, the end and side folders constructed to act while the blank is held stationary, and feeding apron K for feeding the blanks from the end folder to the side folders, with driving mechanism for driving said apron intermittently, advancing it during the interval between the folding operations.

32. In a machine for making book-covers, the combination with end folders of means for folding the side flaps comprising a folding table *m*, a clamp M for holding the blank against said table, reciprocating side folders N N for folding down said flaps over the side edges of the blank, and a driving mechanism for actuating said clamp and folders, adapted to first operate the clamp to hold the blank, and then impart the working stroke to the folders.

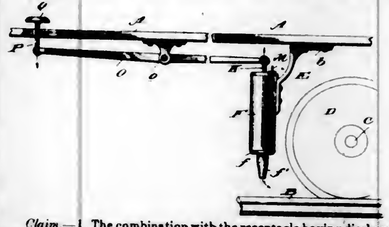
33. In a machine for making book-covers, means for folding down the side flaps of the blank consisting of a table made in two sections adjustable to different widths, a clamp for holding down the blank against said table made in two sections adjustable to different widths, and side folders carried by the respective sections of said table, whereby they are adjusted with the latter.

34. In a machine for making book-covers, the combination of side folders for laying down the side flaps, a table and clamp for holding the blank during the operation thereof, a feeding apron moving over said table while said clamp is elevated, and gages carried by said clamp for stopping the blank as it is fed over said table and holding it stationary in the correct position until the stoppage of the apron.

35. The combination of table *m* constructed with laterally adjustable sections, side folders N N adjustable therewith and comprising folders carried by rock shafts having arms n^3 operated through links n^4, and a vertically-reciprocating frame N^3 for operating said folders, formed with an elongated slot n^7 to which said links may be pivoted in different positions according to the different positions to which the side folders are moved by the adjustment of the sections of said table.

36. In a machine for making book-covers, the combination as a means for feeding forward the cover blanks of an endless apron K having drums over which it is carried, a continuously revolving driving drum under which it is carried, a tightening roller, and a reciprocating frame carrying said roller and adapted to move it to such extent as to draw the apron against said driving drum so, that the latter is propelled intermittently, being causing to travel forward whenever it is drawn taut by said roller.

490,896. SANDING DEVICE FOR STREET-CARS. AUGUSTUS S. BUNKER, Lawrence, Mass. Filed Oct. 28, 1892. Serial No. 450,232. (No model.)



Claim.—1. The combination with the receptacle having discharge spout and cap, of a tube within the vessel depending from the cap, a smaller tube sliding within said tube, a spring within the tubes, and a rod connected with the inner tube and passed through the cap, as set forth.

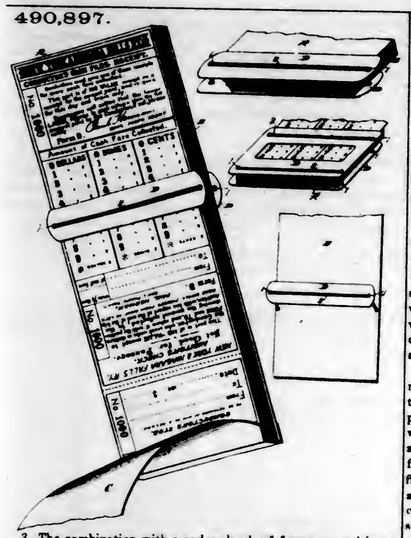
2. The combination with the vessel having bottom with discharge spout and a cap with a neck and a tubular portion, of the tube secured to said neck, the smaller tube sliding within said tube, the spring within the tubes, the block in the inner tube and the rod held to said block and passed through the tubular portion and through the cap, as set forth.

490,897. RECEIPT-FORM AND STRIPPER THEREFOR. WILLIAM H. CAMPBELL, New York, N. Y. Filed May 31, 1892. Serial No. 434,941. (No model.)

Claim.—1. A receipt form comprising a receipt and check printed reversely from opposite ends, and provided between the receipt and check portions with duplicate reversely printed columns of characters representing sums of money, the characters in one of the duplicate columns being arranged one step below those of the corresponding column, substantially as described.

2. A receipt form comprising a receipt and check printed reversely from opposite ends, and provided between the receipt and check portions with duplicate reversely printed columns of digits representing dollars, dimes and cents, the digits in each one of the duplicate columns being arranged one step below those of the corresponding column, substantially as described

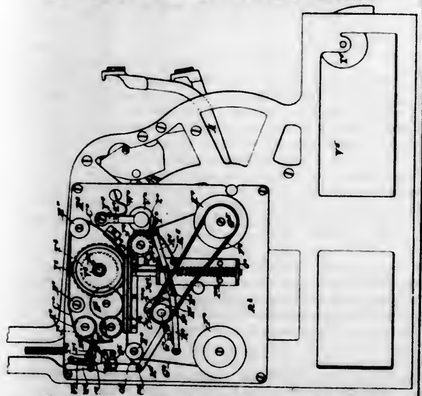
490,897.



3. The combination with a pad or book of forms comprising a receipt and check printed reversely from opposite ends and provided between the receipt and check portions with duplicate columns of characters representing sums of money, the characters in one column being arranged one step below those of the corresponding column, of a stripper on said book consisting of strips secured together by an elastic band or bands and inclosing the forms substantially as described.

4. The combination with a pad or book of forms comprising a receipt and check printed reversely from opposite ends and provided between the receipt and check portions with duplicate columns of characters representing sums of money, the characters in one column being arranged one step below those of the corresponding column, of a stripper on said book consisting of two stripe D both movable on the book and secured together to inclose the forms by elastic band or bands 2, substantially as described.

490,898. CASH REGISTER AND INDICATOR. THOMAS CARNEY, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed May 24, 1892. Serial No. 434,136. (No model.)



Claim.—1. The combination of the key levers A provided with the pins H, the co-operating levers F hung on the same pivotal support as the levers A, the indicator rods J adapted to be lifted by the levers F and provided with the collars or projections M, and the supporting bar L co-operating with the projections M, substantially as described.

2. The combination of the key levers A having the plates E provided with pins D^2, and the vibrating frame pivoted at its rear and carrying at its forward edge the transversely and vertically slotted plate B^2 co-operating with the pins D^2, whereby the operated key levers are coupled to the vibrating frame, substantially as described.

3. The combination of the key levers A having the plates E provided with the pins D^2, and the vibrating frame having at its forward edge the slotted plate B^2 provided with the peaded curved portion and co-operating with the pins D^2, whereby the operated keys are coupled to the vibrating frame and the unoperated ones are locked from movement, substantially as described.

4. The combination of the key levers A having the plates E provided with the pins D^2, the vibrating frame pivoted at its rear and having at its forward edge the transversely and vertically slotted plate B^2 co-operating with the pins D^2, the toothed segment F^2 carried by the vibrating frame, the double toothed pawl G^2 co-operating with the segment, and the spring latch H^2 co-operating with the pawl, whereby the operated keys are coupled to the vibrating frame and obliged to make a complete stroke in each direction, substantially as described.

5. The combination of the key levers A having the plates E, the rock shaft N having the arms Q fast thereon, the links R connecting the plates E and arms G, the rack V carried by the rock shaft N, the pinion W meshing with the rack V, the clutch member Y turning with the pinion W, the sliding clutch member Z mounted on the shaft A and co-operating with the member Y, the revoluble shaft G', the shifter for the clutch Z operated by a cam upon the shaft G', the vibrating frame lifted by the operation of the key levers, and means intermediate said frame and the revoluble shaft G' for converting the reciprocating movement of the frame into rotary motion in the shaft, substantially as described.

6. In a registering machine, the combination of the operating keys, a vibrating frame movable thereby, the primary registering wheel and the secondary registering wheel, a cam turning with the former and a ratchet turning with the latter, a pawl arm reciprocating with the vibrating frame and adapted to co-operate with the ratchet, and a latch co-operating with the cam, for holding the pawl out of engagement with the ratchet excepting when the latch is tripped by the cam, substantially as described.

7. The combination of the primary registering wheel B', the secondary wheel V^3, the ratchet C^2 turning with the wheel V^3 and the cam disk I^2 turning with the wheel B', the operating key levers, a vibrating frame lifted thereby, the pawl arm B^2 carried by the frame and adapted to co-operate with the ratchet C^2, the pin F^2 co-operating with the projection E^2 on the pawl arm, the spring D^2 acting on the pawl arm, the latch arm G^2 co-operating with the cam-disk I^2, the arm L^2 interposed between the latch G^2 and projection E^2 on the arm B^2, and the spring J^2, substantially as and for the purpose described.

8. The combination of the key levers A having the plates E, the rock shaft N, the arms Q fast thereon, the links R connecting the plates E and arms Q, the rack V carried by the shaft N, the shaft X, the pinion W fast thereon and meshing with the rack V, the type wheel W^2 turning with the shaft X, and the impression platen co-operating with the type wheel, substantially as described.

9. The combination of the key levers A having the plates E, the rock shaft N, the arms Q fast thereon, the links R connecting the plates E of the cent keys with the arms Q, the rack V carried by the shaft N, the shaft X, the pinion W fast thereon and meshing with the rack V, the sleeve L^2 mounted on the shaft N and having fast upon it the arms J^2, the links I^2 connecting the plates E of the dollar keys with the arms J^2, the rack N^2 carried by the sleeve L^2, the sleeve V^2 loose on the shaft P^2, the pinion O fast on said sleeve and meshing with the rack N^2, a type wheel Y^2 also fast upon said sleeve, a type wheel W^2 loose apon the sleeve V^2 and geared to the shaft G', and an impression platen co-operating with the two type wheels, substantially as described.

10. The combination of the spools A^4 B^4 provided with the ratchets J^2, the lever K^2, the plate M^2 pivoted thereto and carrying the pawl N^2 co-operating with the ratchets, the spring latch Q^2 co-operating with the notched end of the plate M^2, and the revoluble shaft G' carrying the cam D^2 co-operating with the lever K^2, substantially as described.

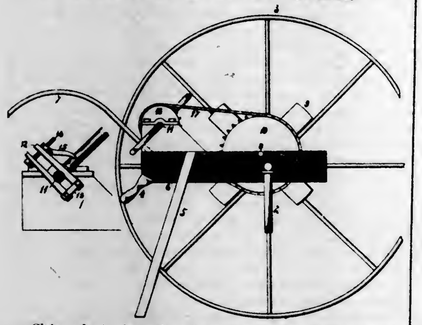
11. The combination of the spools A^4 B^4, provided with the ratchets J^2, the lever K^2, the plate M^2 pivoted thereto and carrying the pawl N^2 co-operating with the ratchets, the spring latch Q^2 co-operating with the notched end of the plate M^2, the bell crank plate S^2 carrying the pawls R^2 co-operating alternately with the ratchets J^2 and provided with the pins T^2 embracing the pawl N^2, the spring-latch U^2 co-operating with the notched end of the plate S^2, and the revoluble shaft G' carrying the cam D^2 co-operating with the lever K^2, substantially as described.

12. The combination of the supply reel F^4 and storage reel K^4 for the paper strip, the feed rollers J^4 U^4, the former provided with a ratchet V^4, the lever A^3 carrying the pawl Z^4 co-operating with the ratchet V^4, the revoluble shaft G' carrying the cam D^4 co-operating with the lever A^3, and the endless yielding band F^5 passed around the disk G^3 on the storage reel and the disk H^3 on the shaft G', substantially as described.

13. The combination of the key levers A, the vibrating frame moved by the operation of any one of said levers, the money drawer V^3, the lever S^3 adapted to have its upper end thrown over the vibrating frame to look the same from movement, the sliding rod U^5 connected to the lower end of said lever and carrying the plate W^3 extending behind the drawer, and the spring X^3 acting upon the rod U^5, substantially as and for the purpose described.

14. The combination of the money drawer V provided with the supporting flanges W^3, the rollers X^4, the guide rod A^5, and the slotted guide plate Z^5 and friction rollers C^3 carried by the drawer and co-operating with the rod A^5, substantially as described.

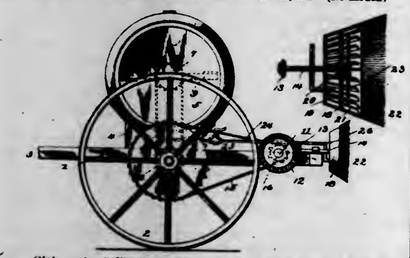
490,899. WIRE-REEL CARRIER. FLOYD H. CARTER, Shiriand, Ill. Filed Sept. 10, 1892. Serial No. 445,575. (No model.)



Claim.—1. A wire reel carrier composed of a frame supported upon carrying wheels, said frame supporting a spool and a transverse shaft having a chain belt connection, the ends of the transverse shaft being in crank form, carved bars which have a connection with the frame, and rest upon the shoulders of the operator and the rear ends of the frame provided with handles.

2. A wire reel carrier composed of a frame supported upon carrying wheels, said frame supporting a spool and a transverse shaft having a chain belt connection, the ends of the transverse shaft being in crank form, carved bars which have a connection with the frame, and rest upon the shoulders of the operator, the rear ends of the frame provided with handles and a friction device having a connection with the frame and an engagement with the transverse shaft for preventing the unwinding of the wire from the spool.

490,900. SPRINKLING-MACHINE. WALTER A. COLLINS, Tullytown, Pa. Filed Aug. 29, 1892. Serial No. 444,434. (No model.)



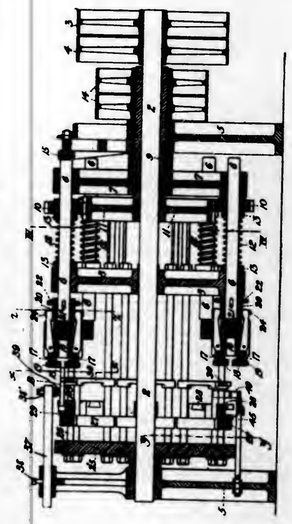
Claim.—1. A distributer for sprinkling machines consisting of a revoluble truncated cone-shaped casing, an axis, a water-deflecting disk secured to said casing at or near the discharge end disposed at a substantially right angle to the line of the axis, a water nozzle discharging within said casing and means for revolving said casing, substantially as described.

2. A distributer for sprinkling machines consisting of a revoluble casing, a water-deflecting disk secured in said casing at or near the outer end at a substantially right angle to the line of axis of said casing, a water nozzle inwardly directed toward said deflecting disk and brush provided upon the outer edge of the casing, substantially as described.

3. In a sprinkling machine the combination of a tank, revoluble casing, a water-deflecting disk provided in said casing at right angles to the line of the axis of said casing, a water nozzle in said casing in proximity with the inner face of the deflecting disk and brush provided upon the outer edge of said casing, substantially as described.

4. A distributer for sprinkling machines consisting of a revoluble casing provided upon a centrally disposed axis, a water deflecting disk secured to said casing at or near the discharge end, bristles provided upon said casing at the discharge end, series of blades diagonally disposed upon inner face of the casing, water nozzle protruding within said casing in proximity with the deflecting plate and means for revolving said casing substantially as described.

490,901. BOLT-THREADING MACHINE. HUBERT CRENAN, Pittsburg, Pa., assignor to the Oliver Iron and Steel Company, same place. Filed Dec. 9, 1891. Serial No. 414,461. (No model.)



Claim.—1. In a machine for cutting screw threads the combination of a rotary frame having bolt holders, cutters rotary with the frame and movable to engage the bolts and thread the same, and a spring which is adjustable along the bolts and bears against the same upon the under side of the machine, substantially as described.

2. In a machine for cutting screw-threads, the combination of a rotary frame having bolt-holders, cutters rotary with the frame and movable to engage the bolts, a curved bar supported beneath the machine, at right angles to the bolt holders, and a curved leaf spring adjustably secured thereto and arranged to bear upon the bolts; substantially as and for the purposes described.

3. In a machine for cutting screw-threads, the combination of a rotary frame having bolt holders cutters rotary with the frame, and movable to engage the bolts, a curved bar supported beneath the machine, a curved leaf spring extending along the bar, a pin limiting the upward throw of the leaf spring and a second spring holding the leaf spring up to its normal position, substantially as described.

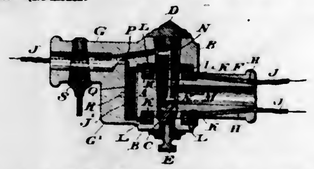
490,902. ICE-HOLDER. ROBERT H. GALBREATH, Cincinnati, Ohio. Filed Mar. 14, 1892. Serial No. 424,827. (No model.)

Claim.—An ice holder, consisting of a tight vessel for holding a cooling mixture, whose parts are screwed with a tight joint, to a partition arranged substantially as and for the purpose described.

490,902.



490,903. COMBINED GAS AND ELECTRIC LIGHT FIXTURE. FRANCIS X. GARTLAND, Philadelphia, Pa. Filed Jan. 23, 1892. Serial No. 419,045. (No model.)



Claim.—1. A coupling for electric conductors consisting of knuckles with an interlocking plug, contact rings insulated in said knuckles, and pipes connected with said knuckles and provided with openings for the electric conductors, said plug having a bore opening on opposite sides of the plug and communicating with the bores of the pipes, said parts being combined substantially as described.

2. A coupling for electric conductors consisting of knuckles with an interlocking plug, insulated contact rings in said knuckles, pipes connected with each of said knuckles having openings therein, electric conductors in the openings in each knuckle leading to the contact rings in the said knuckle, and an arm on one of said knuckles having a passage for a portion of an electric conductor from its contact ring to the opening in the pipe, said parts being combined substantially as described.

3. A coupling for electric conductors having knuckles with an interlocking plug, insulated rings in said knuckles, electric conductors connected with said rings and pipes connected with said knuckles having openings for said conductors, the bore of said plug having openings on opposite sides in peripheral recesses of said plug, and communicating with the bores of the said pipes, said parts being combined substantially as described.

4. A coupling for electric conductors having knuckles with grooves therein, an interlocking plug, contact rings in said knuckles, insulating grooved disks receiving said rings and having tongues entering said grooves in the knuckles, and engaging with the walls thereof, and pipes connected with said knuckles, said parts being combined substantially as described.

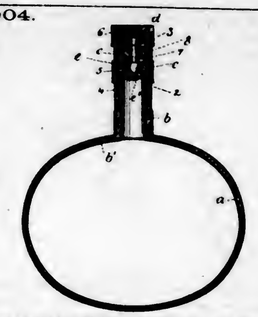
5. A coupling for electric conductors having knuckles with an interlocking plug, contact rings in insulating disks in said knuckles, pipes on said knuckles provided with openings for the conductor, said plug having a bore opening on different sides thereof, said parts being combined substantially as described.

490,904. VALVE FOR PNEUMATIC TIRES. WILLIAM A. GRAY, Elizabeth, N. J., assignor to himself, and Edward B. De Wolfe, New York, N. Y. Filed Apr. 18, 1892. Serial No. 429,056. (No model.)

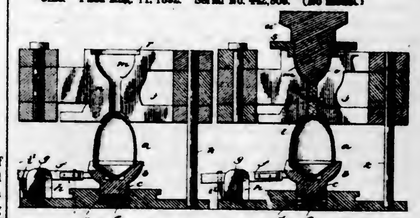
Claim.—1. The combination with the tubular case *b*, and the perforated tubular head *c* screwing upon the case *b*., of the hollow hemispheroidal perforated septum of rubber having a base *e*, held between the head *c* and the end of the case *b* substantially as set forth.

2. The combination with the inflatable or hollow expansible tube *a*, the tubular cylindrical case *b* and its disk *b'* molded into the tube *a*, of the perforated and tubular cylindrical head *c* screwing upon the cylindrical case *b*, the soft rubber septum having a base *e* and perforated hollow hemispheroidal center *c'*, the base *e* being seated and held between the upper end of the cylindrical case *b* and the inner surface of the cylindrical head *c* with the apex of the hemispheroidal center toward the tube *a*, substantially as and for the purposes set forth.

490,904.



490,905. APPARATUS FOR FORMING STEMMED GLASS ARTICLES. JOSEPH T. HANES and THOMAS BLANKINSHIP, Martin's Ferry, Ohio. Filed Aug. 11, 1892. Serial No. 442,803. (No model.)



Claim.—1. A device for joining glass bodies comprising a hinged mold having an upper cavity adapted to form a cup-shaped foot, a cap and a plunger for said cavity, a central opening therein extending to and terminating in a bottom opening adapted to receive the base of a blown bowl, a fixed base having a socket, a spring within said socket, a cup adapted to receive the blown neck or mouth of said bowl, and seated upon said spring, a lever pivoted to said cup, and a fixed stop for engaging said lever for holding said cup down against the upward pressure of said spring, whereby to support the blown body upon said cup when the mold is open and to automatically elevate and support with a yielding pressure said blown body within the said bottom cavity for the purpose stated.

2. A device for joining stems to glass bowls, comprising an open upward flaring spring sustained cup for containing a blown bowl, a ratchet lever device for holding said cup in a depressed position, in combination with a mold having an open cup shaped cavity on its underside, a cup shaped cavity on its upper side and a contracted central communicating opening therefor, and a press actuated plunger for the upper cup, substantially as described.

3. A device for joining glass bodies comprising a mold of matching hinged sections supported upon legs and a hinge forming pin and having a cup shaped cavity in its upper side, and an open inverted cup shaped cavity in its lower side, and a central contracted opening communicating with said cavities, in combination with a spring sustained upward flaring cup below and centrally with said mold, a ratchet lever device for holding said cup down against the pressure of said spring, and a press-actuated plunger for the upper mold cup, whereby a bowl blown in a separate mold is supported in a cold state while the stem is press-molded and united to said blown bowl.

490,906. HAND-REST FOR PENMEN. GEORGE S. HELMBOLD, Medina, assignor of one-half to Edgar Knapp, Middleport, N. Y. Filed Oct. 17, 1892. Serial No. 449,112. (No model.)

Claim.—1. In a hand-rest for penmen, the combination of extensible rigid parts adapted to embrace the palm and partly the back of the hand in front of the thumb, with a ring on the curved part next the fore-finger for retaining the pen-holder in position, and a clamp for said extensible parts, substantially as described.

2. The combination, in a hand-rest for penmen of extensible rigid

parts adapted to embrace the palm and partly the back of the hand in front of the thumb, and a clamp for said extensible parts, with a ring pivotally and adjustably connected to the curved part next the fore-finger for retaining the pen-holder, and a rest or prop projecting from the base of the curved part next the little finger, substantially as described.



3. A hand-rest for penmen consisting of rigid extensible parts adapted to embrace the palm and partly the back of the hand in front of the thumb, a clamp for said extensible parts, a ring standing out from the curved part next the fore-finger, for retaining the pen-holder in position above the thumb, and a rest or prop standing out from the curved part next the little finger, substantially as described.

4. A hand-rest for penmen consisting of two separate rigid strap parts lapped upon each other and connected by a loop on the end of each lapping part, a clamp-screw in one of said lapping parts, the outer ends of each part terminating in a return curved end or arm adapted to fit over the back of the hand, a prop or rest projecting from the return end next the little finger, a ring having a slotted arm, and a clamp-screw for adjustably securing the latter to the return end part next the fore-finger, substantially as described.

5. A hand-rest for penmen consisting of two separate rigid strap parts, 1 and 2, one end of each having a loop engaging the other part in lapping relation, the under lapping part having a clamp screw 5, and at its other end formed with a return arm or end 3, and a prop or rest 9 at the base thereof, and in line with the lapped parts, the upper lapping part having a return curved end or arm 4, the said return parts adapted to fit partly over the back of the hand and set and clamped thereto, as shown and described.

490,907. SASH-HOLDER. JOHN H. JOHNSTON, Little Rock, Ark., assignor of one-half to George Purves, same place. Filed Sept. 26, 1892. Serial No. 446,899. (No model.)



Claim.—1. In a sash lock or fastener, a pivoted reversible plate provided with eccentric cam-faces and having a flange or hold to serve as a lift, substantially as specified.

2. In a sash lock or fastener, the pivoted, reversible plate provided at its opposite ends with oppositely-disposed cam-faces, which are thickened and have beveled or rounded inner surfaces, and further provided with a perpendicular flange or hold, connecting said cam-faces and flush at its terminal edge with those of said faces, substantially as specified.

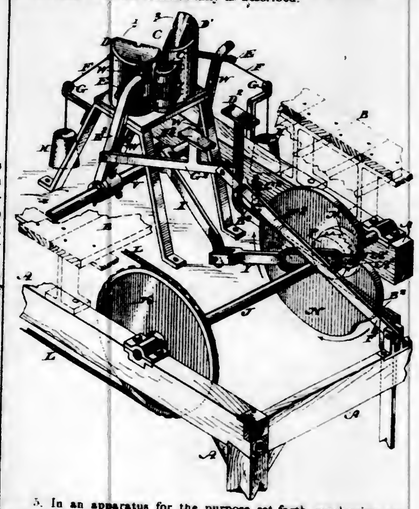
490,908. APPARATUS FOR OPERATING GLASS-MOLDS. WILLIAM H. JOHNS, Glassborough, N. J., assignor to the Whitney Glass Works, same place. Filed Apr. 18, 1892. Serial No. 429,633. (No model.)

Claim.—1. An apparatus for the purpose set forth having a hinged sectional mold provided with arms, mechanism substantially as described connected with said arms for opening the said sections, and mechanism having arms bearing against said arms on the mold for closing said sections, said parts being combined substantially as described.

2. In an apparatus for the purpose set forth, mechanism connected with the sections of a mold for automatically opening the same, a rock shaft with arms rigidly connected therewith and bearing against said sections so as to close the same, a toggle lever having one of its members rigidly attached to said shaft, and the other member having a recess or slot therein, and a shaft or support on which said slotted member moves, said parts being combined substantially as described.

3. In an apparatus for the purpose set forth, mechanism connected with the sections of a mold for opening the same, a rock shaft with arms bearing against said sections, a rotary shaft, a toggle lever having one of its members connected with said rock shaft and its other member supported and guided on said rotary shaft, and a cam loosely mounted on the rotary shaft for connecting the said cam and shaft, said parts being combined substantially as described.

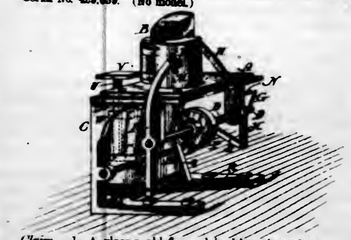
4. In an apparatus for the purpose set forth, mechanism bearing against and closing the sections of a mold, a cam loosely mounted on a shaft, clutch mechanism secured to said shaft for connecting the said shaft and cam, and a treadle operating said clutch mechanism, said parts being combined substantially as described.



5. In an apparatus for the purpose set forth, mechanism connected with the sections of a mold for automatically opening the same, a rock shaft with an arm loosely mounted thereon and in contact with one of the sections of the mold, a toggle lever pivoted to said arm and to a suitable support, and a foot piece connected with said toggle lever, said parts being combined substantially as described.

6. In an apparatus for the purpose set forth, the combination of a rotary shaft, with a wheel secured thereto, a cam wheel loosely mounted on said shaft, a disk secured to said cam, a spring pawl movable in said disk and normally engaging in said ratchet wheel, and a spring-actuated lever bearing against said pawl, substantially as described.

490,909. GLASS-MOLD. WILLIAM H. JOHNS, Glassborough, N. J., assignor to the Whitney Glass Works, same place. Filed Apr. 18, 1892. Serial No. 429,639. (No model.)



Claim.—1. A glass mold formed in hinged sections, a rotatable shaft, levers connected with said shaft and said sections, a closing spring for one of said sections, and separate means for closing the other section, said parts being combined substantially as described.

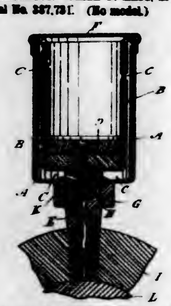
2. A glass mold having levers connected with the sections thereof, a rotary shaft to which one of the levers is secured, and on which the other lever is loosely mounted, and an arm secured to said shaft and adapted to engage with said loose lever, whereby both sections of the mold may be simultaneously opened when the shaft is rotated, the parts named being combined substantially as described.

3. A glass mold having levers connected with the sections thereof, a rotary shaft having one of said levers fixed thereto, and the other lever loosely mounted thereon, a spring attached to the fixed shaft, a toggle lever connected with the loosely mounted lever, a shaft having one limb of the toggle lever pivoted thereto, and means for rotating said shaft, the parts named being combined substantially as described, whereby the sections of the mold may be opened as stated.

4. In a glass mold, a shaft having a lever fixed thereto, another lever freely mounted thereon, and a projecting arm adapted to engage with said freely mounted lever, said levers being attached to the sections of the mold, a returning spring connected with the fixed lever, a toggle lever pivoted to freely mounted lever, a rotary shaft to which the latter is pivoted, and means to operate said shafts, the several parts being combined substantially as described, whereby the mold may be opened and closed as stated.

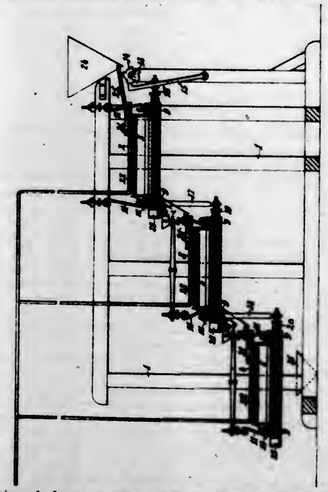
5. A frame with a table thereon, a hinged sectional mold supported on said table, two shafts mounted in said frame, levers on one of said shafts and connected with sections of the mold for opening the same, a spring connected with one of the levers for closing its section, and a lever mounted on the other shaft and connected with the other lever of the first shaft for closing its section, said parts being combined substantially as described.

490,910. LUBRICATOR. PHILIP F. KRUG, Brooklyn, N. Y. Filed Apr. 6, 1891. Serial No. 387,731. (No model.)



Claim.—In a lubricator for loose pulleys &c. the inner oil cup B containing piston D adapted to be forced outward by centrifugal force, shell A surrounding cup B, so as to form space C communicating with the interior of cup B, and attached to nipple G containing oil passage E, and an air passage leading to the underside of the piston, substantially as set forth.

490,911. ORE-SEPARATOR. WILHELM KRUG, Krien Siegen, Germany. Filed Oct. 26, 1891. Serial No. 409,842. (No model.)

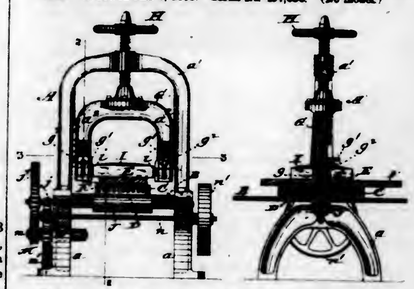


Claim.—1. In an ore separator the combination of a supporting frame, a series of swinging frames suspended therefrom one below the other, belts mounted in said frames forming floors, spring connections between said floors to vibrate all the floors in unison, means substantially as described to operate said belts, and gearing connected to one of said floors to vibrate the same and vibrate all of said floors, substantially as and for the purposes set forth.

2. In combination, a supporting frame, a series of swinging frames mounted in different horizontal planes, connections between said frames, means substantially as described arranged to vibrate the upper frame and thereby vibrate all of said frames, said swinging frames provided with movable floors, means for distributing water thereon, a receptacle for each floor to catch the material washed therefrom, and vessels arranged to discharge on the floors, substantially as described.

3. In combination, a supporting frame, a series of vibrating frames arranged in different horizontal planes and provided with movable floors, means for vibrating said floors, water pipes arranged to wash the materials on the floors toward an edge of each, a receptacle at said edge of each compartment, divided into different compartments, receiving vessels, corresponding compartments of said receptacles connected to discharge into said vessels, and connections from other compartments of said receptacles discharging on lower floors, substantially as described.

490,912. EMBOSSING-MACHINE. DANIEL J. LATTIMORE, St. Louis, Mo., assignor, by direct and mesne assignments, of three-fourths to Emma C. Hammack and Mina Tucker, same place. Filed Jan. 15, 1892. Renewed Jan. 7, 1893. Serial No. 457,650. (No model.)



Claim.—1. In an embossing machine, the combination of the plate C adapted to be heated, the stencil, and an adjustable pressure plate I, substantially as described.

2. In an embossing machine, the combination of the plate C the burner D, the stencil, and the adjustable pressure plate, I, substantially as described.

3. The combination of the frame A, the table B, the flat plate C, adapted to be heated, the stencil, the pressure plate, I, the adjustable yoke, and the screw H, substantially as described.

4. The combination of the frame A, the table B, the flat plate C, the burner D, the stencil, the pressure-plate, the adjustable yoke, and the screw, said yoke having the bearings for said pressure plate and provided with the keepers, substantially as described.

490,918. PISTON-HEAD. HENRY M. LEE, Waterville, Me. Filed Dec. 9, 1892. Serial No. 454,572. (No model.)

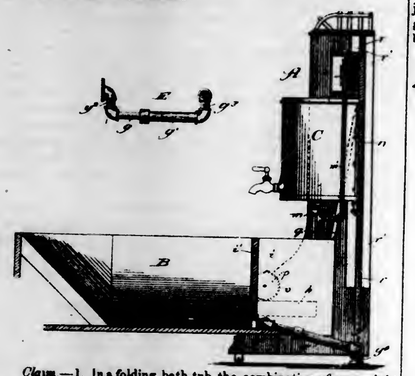


Claim.—1. In a piston-head, the combination with the split metal ring and packing, of the thimble E loosely supported upon the hub *e* and carrying compound springs and means for regulating them, substantially as and for the purpose set forth.

2. In a piston-head, the plate A cast with a central hub *e*, the split ring C and packing, in combination with the thimble E loosely

supported upon the hub and adapted to turn thereon, said thimble having screw-rods *f*, compound springs F G, and means for regulating the tension of the compound springs, substantially as and for the purpose set forth.

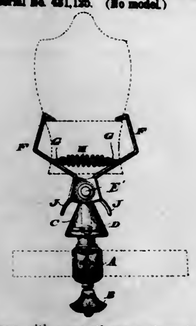
490,914. FOLDING BATH-TUB. GUSTAV MADDEN, Chicago, Ill., assignor to Thomas G. Mosely, same place. Filed Mar. 30, 1891. Serial No. 387,007. (No model.)



Claim.—1. In a folding bath-tub, the combination of an upright case A provided near its base with lateral rests *k* and having vertical guides at its inner sides, a back *n* movably confined in said guides, a water-supply tank C supported on the said back over a suitable heater, a tub B provided at opposite sides near its rear end with rigid circular bearings *p* supporting the tub on the said rests, straps *o* secured at opposite ends respectively to the case and the peripheries of the circular bearings, and links *q* connecting the tub and sliding back, the weight of the back with the apparatus upon it tending to counterbalance the tub, substantially as described.

2. A folding bath-tub comprising, in combination, an upright case A provided near its base with lateral rests *k* and having vertical guides at its inner sides, a back *n* movably confined in said guides, a water-supply tank C supported on the said back over a suitable heater, a tub B having a flexible waste-pipe connected with its waste-opening, the tub being provided at opposite sides near its rear end with rigid circular bearings *p* supporting the tub on the said rests, straps *o* secured at opposite ends respectively to the rests and the peripheries of the circular bearings, and links *q* connecting the tub and sliding back, the weight of the back and the apparatus upon it tending to counterbalance the tub, the whole being constructed and arranged to operate substantially as described.

490,915. SHOE-REST. MANUEL S. MILLER, Philadelphia, Pa. Filed Apr. 20, 1892. Serial No. 431,125. (No model.)



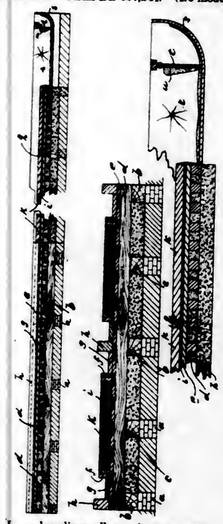
Claim.—1. A sleeve with a cone thereon, pivoted jaws connected with a stem adjustable on said cone, and heels adapted to abut against said cone when the jaws are open, said parts being combined substantially as described.

2. A stem supporting the jaws of a rest, in combination with a cone in which said stem is vertically adjustable, the jaws being provided with heels adapted to abut against said cone and thereby limit the outward motions of the jaws, the parts named being combined substantially as described.

3. A sleeve, a cone thereon and pivoted jaws having lips and heels, said lips being connected by a spring, and said heels being adapted to abut against said cone when the jaws are fully opened, said parts being combined substantially as described.

4. Self-closing jaws provided with heels, a stem supporting said jaws, a cone adjustably supporting said jaws and encircled by the finger pieces thereof, and a sleeve sustaining said cone, the parts named being combined substantially as described.

490,916. BOWLING-ALLEY. HENRY MONTGOMERY, Newark, N. J. Filed June 20, 1892. Serial No. 437,241. (No model.)



Claim.—1. In a bowling alley, piers or piles arranged in the ground at certain intervals, beams or sills arranged on said piers and extending longitudinally and parallel to each other throughout the alley, the space between said beams being filled up with concrete, cross-bars secured to said beams at certain intervals, a pine floor arranged on said cross bars, double binders on each side of the alley, a layer of felt, rubber, or any suitable material between said binders and on said floor, and a series of narrow strips of wood arranged edgewise on said felt and adapted to form the surface for the alley, substantially as described and for the purposes set forth.

2. In a bowling alley, piers or piles arranged in the ground, beams or sills arranged on said piers and extending longitudinally and parallel to each other throughout the alley, center beams arranged between said beams and extending for a certain distance from or about from the home end of the alley, the space between all said beams being filled up with concrete, cross bars secured to said beams, and spaced narrower or wider as specified, a pine floor arranged on said crossbars, double binders on each side of the alley, a layer of felt, rubber or any suitable material between said binders and on said floor, and a series of narrow strips of wood standing edgewise on said felt and adapted to form the surface for the alley, substantially as described and for the purposes set forth.

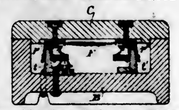
3. In a bowling alley, piers or piles arranged in the ground, beams or sills arranged on said piers and extending longitudinally and parallel to each other throughout the alley, center beams arranged between said beams and extending for a certain distance from or about from the home end of the alley, the space between all said beams being filled up with concrete, cross bars secured to said beams, and spaced narrower or wider as specified, a pine floor arranged on said cross bars, double binders on each side of the alley, a layer of felt, rubber, or any suitable material between said binders and on said floor, and a series of narrow strips of wood standing edgewise on said felt and arranged in four sections of Georgia pine and maple alternately, said sections being adapted to form the surface for the alley, substantially as described and for the purposes set forth.

4. In a bowling alley, a pit provided with a curved extension, a bumper pivotally secured at the radial center of said curve and a cushion secured to said bumper, said cushion having its greatest thickness at the top, all said parts substantially as described and for the purposes set forth.

5. In a bowling alley, a pit having its rear wall built substantially in the form of an upwardly extending curve in combination with a bumper and cushion swung in bearings above the arc of said circular rear wall and arranged so that the lower end of said swinging bumper and cushion will just clear the circular wall of the pit, substantially as described.

6. In a bowling alley, a pit having a circular rear wall, in combination with a bumper and cushion swung in bearings arranged in the radial center of said circular wall and arranged so that their lower edge will just clear the said wall of the pit, said cushion being substantially wedge shaped in cross-section, the thickest portion being at the top of said cushion, substantially as described.

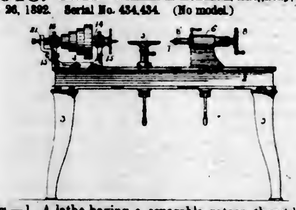
490,917. SWITCH AND SAFETY-FUSE. ELMER P. MORRIS, Boston, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Feb. 11, 1892. Serial No. 421,144. (No model.)



Claim.—1. The combination of a box containing a switch having a spindle, a cover for said box traversed by said spindle, and having contact plates with a fuse secured thereto, contacts in the box connected to line and to the switch and engaging with said contacts on the cover, and a handle removably secured to the spindle and engaging with the cover.

2. The combination of a box containing a rotary switch having a spindle, a cover for said box traversed by said spindle and having contact plates with a fuse connected thereto, contacts in the box connected to the line and the switch and engaging with said contacts on the cover and a bead or projection on the cover engaging with the box.

490,918. LATHE. WILLIAM H. MCKENNA, Allegheny, Pa. Filed May 26, 1892. Serial No. 434,434. (No model.)



Claim.—1. A lathe having a separable rotary thrust-block secured beyond the outer end of the head-stock and arranged to press against the protruding end of the live mandrel substantially as described.

2. In a lathe having the usual head-block and live mandrel, a rotatory thrust block outside the mandrel-bearing and arranged to press against the projecting end of the mandrel, and a screw spindle carrying said thrust-block; substantially as described.

3. A lathe, having a brace secured to the outer end of the head-stock, a screw-threaded spindle passing therethrough, and a rotatory thrust-block carried upon the spindle and arranged to press against the protruding end of the live spindle; substantially as described.

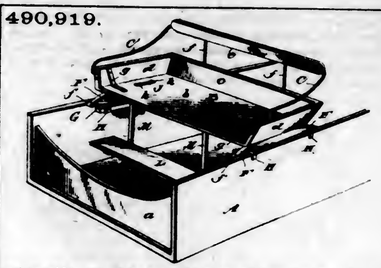
4. A lathe having a brace secured to the outer end of the head-stock, a screw-threaded spindle passing therethrough, and a rotatory thrust-block carried upon the spindle and provided with a disk having a ball-bearing and arranged to press against the protruding end of the live spindle; substantially as described.

490,919. VEHICLE-SEAT. WILLIAM S. O'BRIEN, Lafayette, Ind. Filed Oct. 20, 1892. Serial No. 449,461. (No model.)

Claim.—1. The combination with a wagon body, of a spring-supported seat mounted to move vertically between the sides of the body, and a detachable and adjustable foot-rest supported from the seat and arranged between the sides of the body, as set forth.

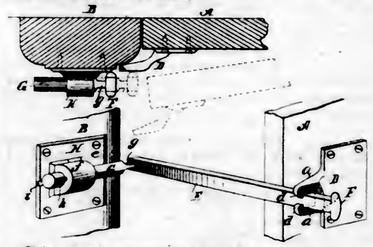
2. The combination with the seat, of the bars upon the under side thereof, the bars parallel with said bars, the springs held between

490,919.



and to said bars, and the hooked plates on the lower bars and adapted to engage over the sides of the wagon body, and a foot-rest detachably supported from said seat as set forth.

490,920. DOOR-CHECK. SAMUEL P. OLIVER and JAMES M. REED, Brooklyn, N. Y.; said Reed assignor to said Oliver. Filed Apr. 30, 1892. Serial No. 431,280. (No model.)



Claim.—1. The combination of the bracket D, with a bar having an enlargement F, and a rod G, carrying said bar, said rod being longitudinally movable to permit the bar E, to engage the bracket D, and to remain in front of said bracket when the door is closed, substantially as described.

2. In a door check, the combination of a bracket having arms *a*, *a*, and lips *d*, *d*, a longitudinally movable rod G, and bearings for said rod, said rod being narrower at *g*, than the distance between the lips *d*, *d*, and with a bar E, having enlargement F substantially as described.

3. In a door check, the combination of a bracket D, with a bar E, having a head or enlargement F, a rod G, carrying said bar, a projection *h*, on said rod extending in about the same direction as the bar E, bearings for the rod G, and a groove in the back of said bearings to receive said projection, whereby when the projection *h*, is passed through said groove and the rod G, turned, the latter will be locked in its bearings, substantially as described.

490,921. FASTENER FOR GARMENTS. WALTER F. PERRY, Philadelphia, Pa. Filed July 14, 1892. Serial No. 439,986. (No model.)

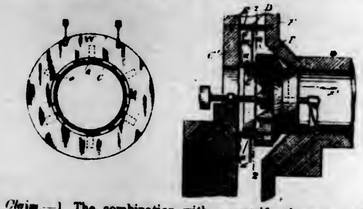


Claim.—1. In a garment fastener hook and an angular jaw therein in the same plane, and projecting from an attaching plate common to both hook and jaw, said parts being combined substantially as described.

2. In a garment fastener, a hook proper, and an angular jaw with in the same, and an attaching plate with which said hook and jaw are connected, said jaw having a nose projecting beyond the plane of said hook, and the parts being combined substantially as described.

3. In a garment fastener an eye formed of a T-shaped plate, one limb of which is slotted and twisted at a right angle to the other limb, substantially as described.

490,922. CENTRIFUGAL PUMP AND VENTILATOR. FRIEDRICH PELZER, Dortmund, Germany. Filed Feb. 18, 1891. Serial No. 381,868. (No model.) Patented in Germany Oct. 18, 1889, No. 52,231; in Austria-Hungary June 22, 1890, No. 10,364 and No. 25,770, and in England Sept. 1, 1890, No. 19,694.

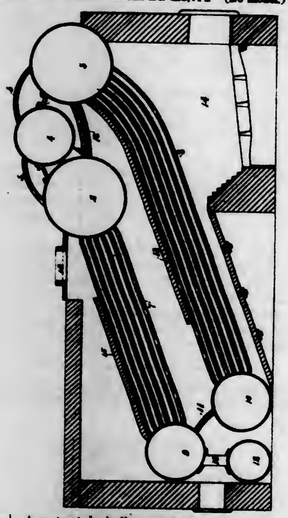


Claim.—1. The combination with a centrifugal pump or fan-blower, of an annular plate concentric with the same and adjustable on the line of the axis of said fan-blower, between which adjustable plate and an adjacent surface a slot is formed for the escape of air or liquid from the fan-blower or pump, substantially as set forth.

2. The combination with a centrifugal pump or fan-blower, of an annular plate concentric with the blower and adjustable on the axis of said blower and a funnel in which part of the blower is located, substantially as set forth.

3. The combination with a centrifugal pump or fan-blower, of an annular plate concentric with the fan-blower and adjustable on the axis of the same, and a funnel surrounding the fan-blower and also adjustable on the axis of the same, substantially as set forth.

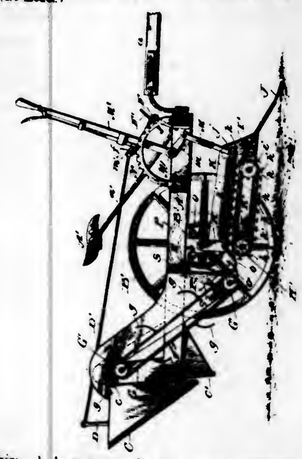
490,923. WATER-TUBE BOILER. JAMES PIERPOINT, Pittsburg, Pa. Filed Mar. 21, 1892. Serial No. 425,714. (No model.)



Claim.—1. A water-tube boiler, consisting of two steam and water drums having connecting tubes, a steam-drum connecting with these drums, two mud-drums located in the rear thereof, tubes connecting the drums with the steam and water drums, pipes connecting these mud-drums, and an additional mud-drum located beneath and connecting with one of said mud-drums; substantially as and for the purposes described.

2. A water-tube boiler, consisting of two steam and water-drums having connecting tubes, a steam-drum connecting with these drums, two mud-drums located in the rear thereof, tubes connecting the drums with the steam and water-drums, pipes connecting these mud-drums, partition-walls over the pipes connecting the mud-drums to the steam and water-drums, and an additional mud-drum located beneath and connecting with one of the first mentioned mud-drums; substantially as described.

490,924. POTATO-DIGGER. GEORGE M. D. POMEROY and GEORGE H. WERNER, Lebanon, Ind. Filed July 20, 1892. Serial No. 440,533. (No model.)



Claim.—1. In a potato digger a carrier consisting of endless bands and cross slats flexibly connected and independent separated portions extending from the slats to support the potatoes out of contact with the slats, as set forth.

2. The combination with the elevator and shovel, of an interposed endless carrier, and spring toothed receptacle a pivoted frame therefor, and carrying the shovel and means for raising and lowering the carrier and shovel, as set forth.

3. The combination with the elevator and the shovel, of the interposed endless carrier and spring toothed receptacle and means for raising and lowering the shovel and carrier, as set forth.

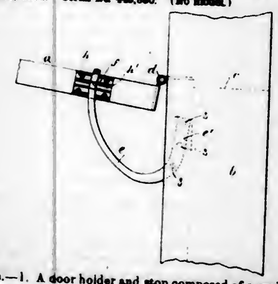
4. The combination with the main frame and the elevator, of the pivoted frame at the front end of the main frame, the shovel and the endless carrier on said pivoted frame the spring toothed receptacle and means for operating the elevator and carrier from the main axle, as set forth.

5. The combination with the elevator and shovel, of the interposed carrier and receptacle carried by a pivoted frame, the spring toothed receptacle as set forth.

6. The combination with the elevator and shovel, of an interposed endless carrier, a relatively fixed spring toothed receptacle between the carrier and elevator and means for operating the carrier and elevator from the main axle, as set forth.

7. The combination with the main frame and the pivoted frame carrying the shovel and carrier, the elevator and the interposed spring toothed receptacle of the toggle connection between the two frames, a lever and a connection between the lever and the toggle as shown and described.

490,925. DOOR-CHECK. THOMAS RAE, New York, N. Y. Filed Aug. 23, 1892. Serial No. 443,880. (No model.)

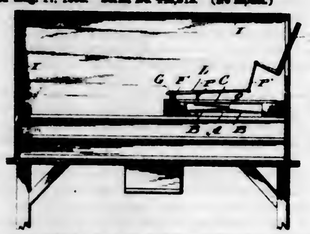


Claim.—1. A door holder and stop composed of a spring arc bar adapted to be fastened at one end to the door casing and having a downward projection near the other end to pass into a groove or recess at the top of the door and hold the same, substantially as specified.

2. A door holder and stop composed of an arc bar having a projection and adapted to be connected to a casing above a door, in combination with a grooved plate adapted to be connected to the top edge of a door, substantially as specified.

3. A door holder and stop composed of a spring arc bar *e*, having an inner end *e'*, to be secured to a door casing and having a downward projection *f*, at the other end, and a curved plate *h*, with a central depression or groove *h'*, adapted to be connected to the top edge of a door, the edge of the plate at one side of the groove being higher than at the other side substantially as and for the purposes set forth.

490,926. THERMOSTAT. JOHN B. ROBERTS, Homer City, Pa. Filed Aug. 17, 1892. Serial No. 443,212. (No model.)



Claim.—1. The herein described thermostat, the same consisting of a casing, a strip of expansible material secured at its ends to said casing and forming an angle between them, a lever pivoted to the casing, a spring extending over said angle and secured at one end to the strip near its angle, and a rod between its other end and the lever, as and for the purpose set forth.

2. The herein described thermostat, the same consisting of a casing, a strip of expansible material secured at its ends to said casing and forming an angle between them, a lever pivoted to the casing, a spring extending over said angle with one end bent sharply back and secured to the strip near its angle, and connections between its other end and the lever, as and for the purpose set forth.

3. The combination with an incubator having a ventilating register; of a thermostat comprising a casing within said incubator, a strip of expansible material secured at its ends to said casing and forming an angle between them, a spring extending over said angle and secured at one end to the strip near its angle, and connections between its other end and the register, as and for the purpose set forth.

4. In a thermostat, an expansible strip secured at its ends to a base and bent upward at its center in an angle, a transverse row of perforations being here provided, the strip each side of said angle being wider and its edges bent down; in combination with connections between such angle and the work to be done, as and for the purpose set forth.

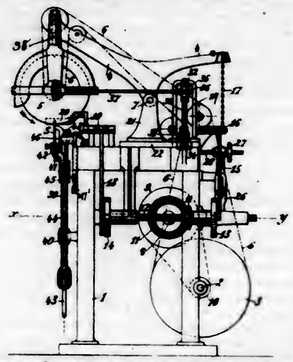
5. In a thermostat, an expansible strip having an upward angle at its center and a transverse series of perforations near each end outside of which the ends are bent up and then out to form a foot; combined with connections between said angle and the work to be done, a base, blocks thereon upon which said feet rest, and screws through the ends of the strips into the blocks, as and for the purpose set forth.

6. In a thermostat, an expansible strip bent into an obtuse angle at its center and there provided with a transverse row of perforations, its ends being bent up to form feet, series of transverse perforations just inside said feet, the body of the strip between said center and end perforations being wider and its edges bent down; combined with a base, blocks on the same to which said feet are secured, and connections between said angle and the work to be done, as and for the purpose set forth.

7. In a thermostat, the combination with a base having grooves; of an expansible strip having an upwardly-bent angle at its center and depending side flanges extending from near said angle to near its ends, the outer ends of said flanges resting in said grooves in the base, means for securing the ends of the strip to the base, and connections between said angle and the work to be done, as and for the purpose set forth.

490,927. MACHINE FOR SHARPENING SAWS. FRIEDRICH SCHMALTZ, Offenbach-on-the-Main, Germany. Filed Nov. 9, 1891. Serial No. 411,410. (No model.) Patented in Austria-Hungary Mar. 30, 1889, No. 50,047, Aug. 16, 1890, No. 15,790, and Apr. 2, 1890, No. 51,900; in Belgium Apr. 4, 1890, No. 85,760, and Dec. 31, 1890, No. 89,032; in England Apr. 12, 1890, No. 6,573; in France Apr. 16, 1890, No. 197,596; in Germany Nov. 24, 1889, No. 52,361; in Norway May 9, 1890, No. 1,650, and in Sweden Oct. 23, 1890, No. 2,621.

Claim.—1. In a saw sharpening machine, the combination of a main frame, a slide, a vertically rocking frame mounted on the slide, a horizontally turnable frame mounted in one end of the rocking frame and provided with the grinding wheel, means substantially as described to rock said rocking frame, intermediate mechanism substantially as described to reciprocate said slide, intermediate mechanism substantially as described to turn said frame in which the grinding wheel is mounted, and driving mechanism substantially as described.

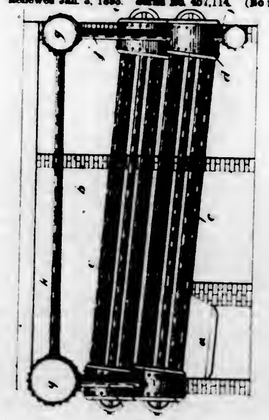


2. In a saw sharpening machine, the combination of a main frame, a slide, the grinding wheel, the movable frames mounted on the slide and carrying said wheel, means to actuate the grinding wheel, a shaft provided with a cam, a rod reciprocated by said cam, a threaded rod secured to the slide, and a rocking lever having an adjustable fulcrum and at one end secured to the cam operated rod, and at its other end adjustably secured to said threaded rod by a nut as and for the purposes described.

3. In a saw sharpening machine, the combination of a frame, a vertically swinging frame, the grinding wheel carried by said swinging frame, a slide carrying said swinging frame, means substantially as described to reciprocate said slide, and a shaft provided with a crank connected with said swinging frame to rock the same, substantially as described.

4. In a saw sharpening machine, the combination of a main frame, a grinding wheel, a slide, and means to reciprocate the same, a frame mounted thereon, the grinding wheel holder mounted in said frame to turn in a horizontal plane, a vertical shaft on said slide, a slotted lateral arm from said shaft, a stationary pin in the main frame in the slot of said arm, whereby said vertical shaft is rocked as the slide reciprocates, another lateral arm from said shaft and flexible connections therefrom to the grinding wheel holder, substantially as described.

490,928. STEAM-GENERATOR. CASSIUS R. SNEPLER, Pittsburg, Pa., assignor to W. H. Latshaw, trustee, same place. Filed Mar. 11, 1892. Renewed Jan. 3, 1893. Serial No. 457,114. (No model.)



Claim.—1. The hereindescribed steam generator consisting of separate adjacent series of tubes, separate headers for the opposite ends thereof, water tubes connecting all the headers at each end, steam drums transversely arranged above the headers, separate steam pipes from each header to the steam drum above the same, and one or more pipes connecting the steam drums, substantially as described.

2. In a furnace, the series of water tubes, separate headers for each series of water tubes, the headers at each end being connected by water tubes and arranged so that the water freely circulates between all the heads and tubes, the steam drums transversely arranged above the headers, connections from the headers to the steam drums, and series of tubes connecting the steam drums.

3. A steam generator comprising adjacent series of tubes, headers for the opposite ends of each series of tubes, water tubes connecting all the headers at corresponding ends so that the water has free outlet from each header to the other headers, a steam reservoir, and separate outlets from each header to the reservoir, substantially as described.

4. A steam generator comprising adjacent series of steam generating water sections, water pipes connecting corresponding ends of all the sections at both ends thereof so that the water can freely circulate through all of the sections, a steam reservoir or drum and separate steam pipes from the ends of each section directly to said steam reservoir, substantially as described.

5. In a steam generator, the series of nested water tubes, separate headers for each end thereof, the lower headers at each end being connected by lateral tubes, and each lower header being connected with the upper header by an inclined lateral tube, and each header having a separate steam outlet to the steam drum or reservoir, substantially as described.

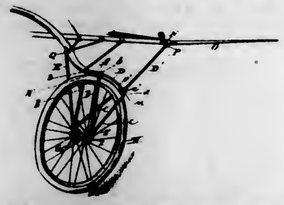
6. In a steam generator, the series of nested water tubes each series having headers at their ends provided with steam outlets, the headers at corresponding ends connected by water tubes the feed water pipe in one of the upper headers provided with discharge pipes extending through said water tubes into lower headers, substantially as described.

7. In a steam generator, a feed water heater in one of the headers of the nest of tubes provided with discharges through the water pipes into the lower headers, said feed water heater discharging at points approximately below the centers of said lower headers substantially as described.

8. In a steam generator, the nested tubes having headers in combination with the feed water heater in one of the headers having discharges into other headers.

9. In a steam generator, the series of nested water tubes having headers connected by lateral tubes, and coiled or circular feed water pipe in the lower header of the upper series of tubes and provided with discharge extending through said lateral pipes into the lower headers substantially as described.

490,929. WHEEL-CARRYING FRAME FOR SULKIES. William H. Shortsleeve, Chicopee Falls, Mass., assignor to the Overman Wheel Company, Hartford, Conn. Filed Nov. 21, 1892. Serial No. 452,708. (No model.)



Claim.—1. In a wheel-carrying frame, the combination with a sleeve adapted to fit over a wheel-axle, of two supporting members attached at their upper ends to the said sleeve, and adapted at their extreme lower ends to receive a wheel-axle, two draft members connected to the lower ends of the said supporting members, and a stay extending from the sleeve forward to the forward ends of the draft members which are fixed to it, and thence forward for attachment to a vehicle shaft, substantially as set forth.

2. In a wheel-carrying frame, the combination with a sleeve adapted to fit over a wheel-axle, of two supporting members attached at their upper ends to the said sleeve, and adapted at their extreme lower ends to receive a wheel-axle, two draft-members connected to the lower ends of the said supporting members, and a stay extending in bowed form from the sleeve forward to the forward ends of the draft-members which are fixed to it, and thence forward for attachment to a vehicle-shaft, substantially as described.

3. In a wheel-carrying frame, the combination with a sleeve adapted to fit over a wheel axle, of two supporting members attached at their upper ends to the said sleeve, and adapted at their extreme lower ends to receive a wheel-axle, two draft-members connected to the lower ends of the said supporting members, a stay extending from the sleeve forward to the forward ends of the draft members which are fixed to it, and thence forward for attachment to a vehicle-shaft, and means for adjusting the said stay, longitudinally, substantially as set forth.

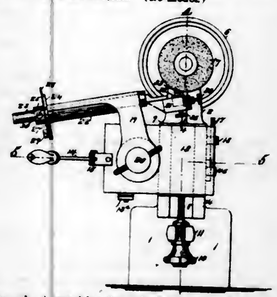
4. In a wheel-carrying frame, the combination with a sleeve adapted to fit over a wheel-axle, of two supporting members attached at their upper ends to the said sleeve, and adapted at their extreme lower ends to receive a wheel-axle, two draft members connected to the lower ends of the said supporting members, and a stay extending from the sleeve forward to the forward ends of the said draft members, where it is made with an eye, permitting them to be bolted to it, and thence extending forward for attachment to a vehicle shaft, the said stay being made in one piece, substantially as set forth.

5. In a wheel-carrying frame, the combination with a sleeve adapted to fit over a wheel-axle, of two supporting members attached at their upper ends to the said sleeve, and adapted at their extreme lower ends to receive a wheel-axle, two draft members connected to the lower ends of the said supporting members, a stay extending from the sleeve forward to the forward ends of the draft-members which are fixed to it, and thence forward for attachment to a vehicle shaft, and a secondary stay connected to the lower end of one of the said members, and extending inward and upward for attachment to the vehicle-axle, substantially as set forth.

6. In a wheel-carrying frame, the combination with a sleeve adapted to fit over a wheel-axle, of two supporting members attached at their upper ends to the said sleeve, and constructed at their lower ends with eyes, and below the same with vertical slots two draft members having their inner ends bolted to the said eyes, and a stay for connecting the forward ends of the draft members with a vehicle shaft, substantially as described.

7. In a wheel-carrying frame, the combination with a sleeve adapted to fit over a wheel-axle, of two supporting members attached at their upper ends to the said sleeve, and constructed at their lower ends with open vertical slots opening downward and with circular recesses, formed in their outer faces, concentric with the inner ends of the said slots which intersect their lower edges; washers to fit into the said recesses, and two draft-members attached to the lower ends of the said supporting members, and a stay for connecting the forward ends of the draft members with a vehicle-shaft, the said slots of the supporting members being designed to receive the axle of the wheel carried by the frame, substantially as described.

490,930. DENTAL MACHINE FOR GRINDING ARTIFICIAL TOOTH-CROWNS. Rufus G. Stanbrough, New York, N. Y. Filed Mar. 15, 1892. Serial No. 425,052. (No model.)



Claim.—1. A machine for grinding artificial tooth crowns, comprising a frame, a shaft journaled in said frame, carrying a grinding-wheel, in combination with a right-angled arm, to the free end of which the crown is secured, and means for moving said arm to bring the crown into, and out of, contact with the face of the grinding wheel, substantially as described.

2. A machine for grinding artificial tooth crowns, comprising a frame, a shaft journaled in said frame and carrying a grinding wheel, in combination with a holder for the crown, vertically adjustable in the arc of a circle to vary the angle of the axial line of said crown to the vertical diameter of the grinding wheel and means for moving said crown in its adjusted position, into and out of contact with the face of the grinding wheel, substantially as described.

3. A machine for grinding artificial tooth crowns comprising a frame, a shaft journaled in said frame, and carrying a grinding wheel, in combination with an adjustable holder for the crown to vary the angle of the axial line of said crown to the vertical diameter of the grinding wheel, and means for imparting an oscillating movement to said crown holder and crown at right angles to the plane of its adjustment, and means for moving said crown into and out of contact with the face of the grinding wheel, substantially as described.

4. A machine for grinding artificial tooth crowns comprising a frame, a shaft journaled in said frame and carrying a grinding wheel, in combination with an adjustable holder for the crown to vary the angle of the axial line of said crown, with the vertical diameter of the grinding wheel, and means for imparting an oscillating motion to said crown holder and crown, at right angles to the plane of its adjustment, a stop to limit the oscillating movement, and means for moving said crown into and out of contact with the face of the grinding wheel, substantially as described.

5. A machine comprising a frame, a shaft journaled in said frame, and carrying a grinding wheel; a vertically recessed plate below said shaft and grinding wheel, in combination with a block having a vertical tenon arranged to slide in said recessed plate and capable of adjustment therein, and having also a horizontal tenon which engages a recess in a horizontally sliding plate, a crown holder pivotally secured to said plate, and crown holder, substantially as described.

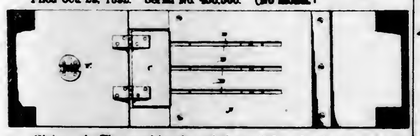
6. In combination with a frame having a shaft journaled therein, and carrying a grinding wheel and a vertically recessed plate below said shaft; of a block having a vertical tenon and a horisontal tenon, the former engaging the recess in said vertical plate, and means for regulating the altitude of the block in said plate, and a horisontal tenon engaging a recess in a horisontally sliding plate, an adjustable crown holder secured to the latter plate, and a compound lever secured to the tenoned block, and pivoted to the horizontally sliding plate for imparting a reciprocating motion to said plate, and crown holder, substantially as described.

7. A machine comprising a base, a standard or upright an arm and a faced web provided with a vertical recess; a shaft journaled in the standard and arm, said shaft carrying a pulley and a grinding wheel; a block having on either side a vertical and a horizontal tenon, the former engaging the recess in the faced web and a set screw for regulating the altitude of the block in said web; and a recessed plate sliding over the horizontal tenon on said block and a compound lever secured to the tenoned block and pivoted to the sliding plate, in combination with a right angled arm secured to said sliding plate, by a regulating screw, the horizontal portion of said arm affording a bearing for a shaft, a crown holder or socket secured to one end of said shaft, and stops for limiting the movement of said shaft in either direction at the opposite end thereof, substantially as described.

8. In a machine for grinding artificial tooth crowns, an adjustable right angled arm, the upper portion of which affords a bearing for a shaft, a crown holder or socket secured to one end of said shaft, said socket being provided with a guide pin, an adjusting screw and a retaining screw, substantially as described.

9. In a machine for grinding artificial tooth crowns, an oscillating shaft in combination with a stop device comprising a semi-circular plate, screwed to said shaft, a ring having wings adjusted relatively to said plate and shaft, by a screw, and a suitable pin or projection, for engaging the semi-circular plate and ring, substantially as described.

490,931. STALL-FLOOR. Marshall St. Germain, St. Albans, Vt. Filed Oct. 29, 1892. Serial No. 450,360. (No model.)



Claim.—1. The combination of the stall floor having an opening through it, the door for closing this opening, the slide placed under the floor and adapted to be moved back and forth in relation to the door, the connecting rods, and the lever for moving the slide, substantially as shown.

2. The combination of the stall floor having the slits B, and an opening to receive the door C, the slide D, F provided with projections to extend up into the slits, the conducting rods and lever, substantially as described.

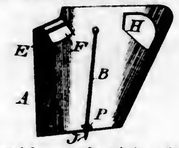
3. The combination of the slide, the door C placed in an opening in the floor, the connecting rod, the lever *g*, the socket, and the handle having its lower end forked, so as to catch over the pin or rod *e*, substantially as set forth.

490,932. GRATE-BAR. Charles A. Tillot, Lille, France. Filed May 14, 1892. Serial No. 433,089. (No model.) Patented in France June 29, 1889, No. 196,995; in Belgium May 8, 1890, No. 90,451; in England Aug. 11, 1890, No. 12,557; in Germany Aug. 14, 1890, No. 59,263, and in Austria-Hungary Dec. 3, 1890, No. 36,894.



Claim.—A grate bar having a body with a flat upper surface with deep inclined notches *a* at intervals but leaving an unbroken flat portion *u* throughout the length of the bar, and with lateral projections *l* having inclined notches *n* longitudinally of the bar, all substantially as and for the purpose set forth.

490,933. NECKSCARF. Frank O. Ward, Philadelphia, Pa. Filed Apr. 11, 1892. Serial No. 428,626. (No model.)



Claim.—1. A head for a scarf consisting of a plate of suitable material having openings therein in its opposite corners, a pin connected with said plate between said openings, a keeper for said pin connected with said plate, and a tongue fastened to one side of one of said openings, said parts being combined substantially as described.

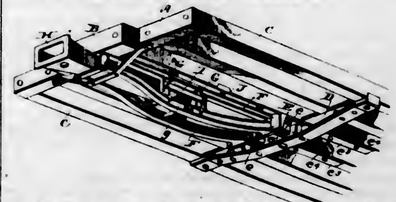
2. A head for a scarf consisting of a plate of suitable material having openings therein on opposite corners, a pin and a keeper secured to one side of said plate, and a tongue connected with the plate on the same side thereof as the pin, and adjacent to one of said openings, said parts being combined substantially as described.

490,934. ANTI-RATTLER FOR THILL-COUPLINGS. Edwin H. Watrous, Pawlet, Vt. Filed Aug. 16, 1892. Serial No. 443,300. (No model.)



Claim.—The herein described anti-rattler for thill couplings, comprising the casting A, having a horizontal flange or base *a'*, formed with a screw-threaded perforation therethrough, and a vertical plate portion *a*, adapted to be inserted between the thill iron and clip, the transverse eye *f* in the upper end of said plate portion, the movable seat-piece B, a set-screw engaging said piece through said perforation in the base, the concaved bearing piece C having an upward lip or flange adapted to enter between the thill iron and plate portion, and the removable pin F detachably engaging the eye *f* and bearing on the clip lugs, substantially as specified.

490,935. DRAFT DEVICE FOR CARS. Nick Weir, Paducah, Ky. Filed Oct. 5, 1892. Serial No. 448,351. (No model.)



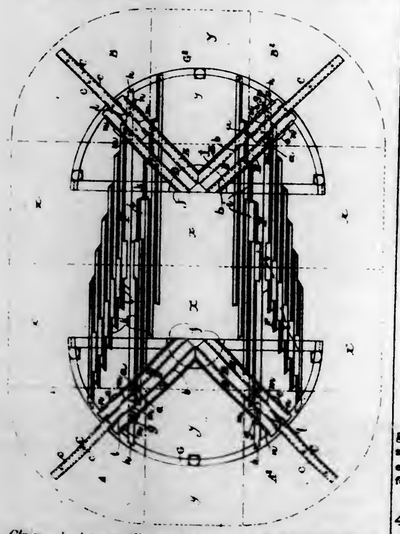
Claim.—1. In a car the combination of the H-shape iron J secured to the longitudinal sill, the draft beams attached to the car and having lugs to embrace the edges of the cross bar of said H-shape iron J, and the draw bar carried and supported by said draft beam, substantially as and for the purpose set forth.

2. In a car the combination of parallel draft beams having their rear ends flanged to receive fastening bolts, and having lugs f' to engage with a cross piece which is secured to a longitudinal sills, and having openings f, transverse plates arranged to work in said openings, a draw bar having the rear portion extended through said plates, and a spring mounted on the rear portion of the draw bar and located between said plates, substantially as set forth.

3. In a car the combination of parallel draft beams adapted to support the draw bar, and having their rear end flanged, a transom plate having parallel portions e which are connected by cross pieces e' and e^2, and having rear parallel portions e^3 which are provided with lugs e^4 to enter recesses in the sills of the car, and fastening bolts passing through the flanged ends of the draft beams and the portions e, e' and e^3 of the transom plate, substantially as specified.

4. In a car the combination of parallel draft beams a transom plate having the cross piece e^2, and the rear portion e^3 which are secured to the sills of the car, and a transom iron composed of an upper portion and a lower truss brace portion between which said cross piece e^2 is located and secured, substantially as set forth.

490,936. EXTENSION-TABLE. WILLIAM H. WINDSATT, London, England, assignor to Johnstone Norman & Co., same place. Filed Jan. 13, 1892. Serial No. 417,983. (No model.) Patented in England Nov. 23, 1891, No. 20,773.



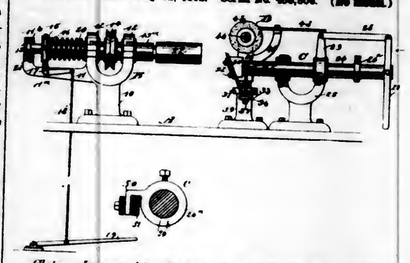
Claim.—1. An expanding table having a frame carrying the table, and supporting legs rigidly affixed thereto, in combination with a top divided into four parts and guides whereby each of said top parts is capable of radial extension, and tongues and grooves connecting these radial top parts with the frame and forming the means of support for said top parts when extended, substantially as set forth.

2. An expanding table having a frame divided into two parts, and longitudinally sliding extension bars connecting the two parts, in combination with a top divided into four parts and guides whereby each of said top parts is capable of radial extension, each part of the frame carrying two parts of the top whereby the table may be extended in a lateral direction as well as a longitudinal direction, substantially as set forth.

3. In an expanding table having a top divided into four parts capable of being radially expanded and at angles to each other, the combination of bars E forming guideways D on the frame of the table, the said bars being provided with grooves f with a rib or projection C on each part of the top, the said ribs adapted to slide in the guideways D, and angular metal tongues e on each of the said top-parts, adapted to engage in the grooves f, all substantially as set forth.

4. In an expanding table having a top composed of several parts or divisions capable of being moved outward at an angle one to another from the center of the table, the combination of a rib or projection C, on each of said divisions, the said ribs being provided with tongues a and grooves c, and angular metal tongues e also secured to each division, with bars E provided with tongues d and slots b and f, on the table frame, the tongues a and c on the divisions adapted to slide in the grooves b and f respectively, in the bars E, and the tongues d on the bars E adapted to slide in the grooves c of the bars C, as and for the purpose set forth.

490,937. BUTTON-TURNING MACHINE. MARTIN WOODS, Newark, N. J. Filed July 12, 1892. Serial No. 439,806. (No model.)



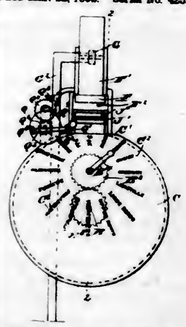
Claim.—In a machine for turning buttons and like articles, the combination, with a hollow shaft, a support for the shaft in which it is capable of movement endwise and of revolving, one end of the hollow shaft being provided with an interior beveled surface, a clutch connected with the end of the shaft opposite that having the beveled surface, and a spring having bearing at one end upon a fixed support and at the other end against the clutch, of a shaft held to turn in the hollow shaft and extending through it, a chuck located at one end of the interior shaft, the said chuck being provided with an essentially conical surface to engage with the beveled surface of the hollow shaft, and a lever connected with the clutch, whereby by the manipulation of the lever the hollow shaft, which is the drive shaft, will be carried into frictional engagement with the chuck, substantially as shown and described.

490,938. SPRING. CHARLS H. YARRINGTON, Torrington, assignor of one-half to Carlos French, Seymour, Conn. Filed Oct. 27, 1892. Serial No. 450,173. (No model.)



Claim.—A spring composed of two strips of sheet-metal bent together to form a double series of inclined steps of which those of one strip alternate with those of the other strip, the said steps crossing each other at right angles in their alternations, substantially as set forth.

490,939. TICKET-PRINTING APPARATUS. ALBERT R. ABBOTT, Boston, Mass. Filed Mar. 22, 1892. Serial No. 425,919. (No model.)



Claim.—1. In a ticket printing apparatus, the combination with a type wheel carrying in its periphery sets of type for printing various tickets and a counting mechanism arranged one for each set of type in the said wheel, to count the individual sets of tickets printed by each set of type, of a platen moving toward and from the said sets of type to make the impression and to actuate the said counting mechanism, a spring-pressed paper holder mounted to slide and formed with a slot through which passes the paper, the said holder being actuated by and moving with the said platen to bring the paper over the said type previous to the platen making the impression, an inking mechanism for inking the type previous to the downward movement of the said paper holder, and a paper feeding mechanism for moving the paper through the slot in the said holder and into the space between the type and platen, substantially as shown and described.

2. In a printing mechanism, the combination with a type wheel carrying in its periphery sets of type for printing the various tickets, and counting mechanisms arranged one for each set of type in the said wheel to count the individual sets of tickets printed by each set of type, of a consecutive numbering and printing mechanism arranged next to the said wheel and having its uppermost type in line with the uppermost set of type in the said wheel, a platen moving toward and from the said sets of type to make the impression, the said platen being also arranged to actuate the said consecutive numbering mechanisms and the said counting mechanisms, a spring-pressed paper holder mounted to slide and formed with a slot through which passes the paper, the said holder being actuated by and moving with the said platen to bring the paper over the said type previous to the platen making the impression, an inking mechanism for inking the said type and the consecutive numbering mechanism previous to the downward movement of the said paper holder, and a paper feeding mechanism for moving the paper through the slot in the said holder and into the space between the platen and the type and consecutive numbering and printing mechanism, substantially as shown and described.

3. A ticket printing apparatus provided with a platen and a paper holder formed with a slot through which passes the paper, the said holder being pressed by a spring and mounted to slide and actuated from the platen, substantially as shown and described.

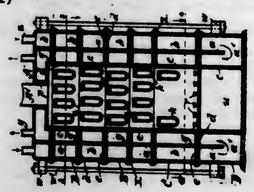
4. In a ticket printing apparatus, the combination with a movable platen, and a type wheel containing sets of type on which the platen makes an impression, of a paper holder formed with a slot through which passes the paper, the said holder being spring pressed and mounted to slide and adapted to be pressed by the said platen at the time the latter moves downward to make the impression, substantially as shown and described.

5. In a ticket printing apparatus, a type wheel provided with sets of type, a plate adapted to be moved toward and from the said type, a lever carrying the said plate, a link connected with a treadle and with the said lever for actuating the latter, in combination with an inking mechanism comprising a roller adapted to travel over the type in the said type wheel, arms carrying the said roller, disks pivotally connected with the said arms, a shaft carrying the said disks, gear wheels for rotating the said shaft, a pawl engaging one of the said gear wheels and pivoted on the said link, and a fixed pin adapted to engage the said pawl to throw the latter out of engagement with the corresponding gear wheel, substantially as shown and described.

6. In a ticket printing apparatus, an inking device comprising a roller for inking the type, arms in which the said roller is journaled, crank disks pivotally connected with the said arms, a shaft carrying the said disks and provided with a gear wheel, a second gear wheel in mesh with the said first named gear wheel, and a spring pressed pawl mounted to travel and engaging the said second gear wheel, substantially as shown and described.

7. In a ticket printing apparatus, an inking device comprising a roller for inking the type, arms in which the said roller is journaled, crank disks pivotally connected with the said arms, a shaft carrying the said disks and provided with a gear wheel, a second gear wheel in mesh with the said first named gear wheel, a spring pressed pawl mounted to travel and engaging the said second gear wheel, and a fixed pin for throwing the said pawl out of mesh with the said second gear wheel, substantially as shown and described.

490,940. STEAM-BOILER AND WATER-HEATER. THOMAS G. ANDREWS, New York, N. Y. Filed Oct. 24, 1892. Serial No. 449,897. (No model.)



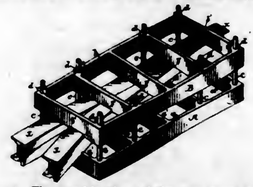
Claim.—1. A boiler, comprising a plurality of sections superposed and secured together, a central heat compartment in the several sections, a hot water chamber around the heat compartment in each section and all made to communicate, and communicating water return chambers exterior of the hot water chambers and equal in width therewith, substantially as described.

2. A boiler, comprising a plurality of sections superposed and secured together, a central heat compartment in each section, a surrounding integrally formed hot water chamber next to the heat compartment of each section, a return water chamber at each side of the hot water chamber of section, and integral therewith connections between the hot water chambers, connections between the return water chambers, a series of transverse spaced tubes in the central heat compartments, a fire box section below said tubes, and an ash-pit section below the fire-box section, substantially as described.

3. In a boiler, comprising a plurality of sections superposed and secured together, a stack in the cap section, an ash-pit in the base section, a fire-box in the section above the ash-pit section, a series of transverse tubes in the boiler sections intermediate of the cap section and fire-box section, doors for the tubed sections and for the fire-box and ash pit sections, hot water chambers around the central heat compartment in the boiler sections, return water chambers exterior of the hot water chambers, all the chambers communicating, and circulating pipes for the water chambers, substantially as described.

4. A composite boiler made up of a series of superposed rectangular sections held together by bolts, a central heat compartment in each section, a draft stack on the top section, an ash-pit in the base section, a fire-box in the section above the ash-pit, grate bars in the fire-box section, doors for the two lower sections, transverse tubes in the boiler sections intermediate of the cap and fire-box sections, a hot water chamber around the heat compartment of each section, which chambers are in communication, return water chambers on the sides of the boiler sections exterior of the hot water chambers, and communicating with each other and also with the hot water chambers in the base section of the boiler, substantially as described.

490,941. APPARATUS FOR THE MANUFACTURE OF TRACK STRUCTURES. VICTOR ADDERER and CHARLES A. PHILANDER, Philadelphia, Pa., assignors to the William Wharton, Jr., & Company, Incorporated, same place. Filed May 16, 1892. Serial No. 433,147. (No model.)



Claim.—1. The combination of the two open frames between which are clamped the rails or equivalent parts, and devices for securing the frames together and against the rails, said frames being open to receive the sand of the mold and the molten metal, substantially as specified.

2. The combination of two clamping frames, one situated above the other, between which are confined the rails or equivalent parts, devices for securing the frames together and against the rails, and a mold in which the clamp is embedded and in which the casting is made, substantially as specified.

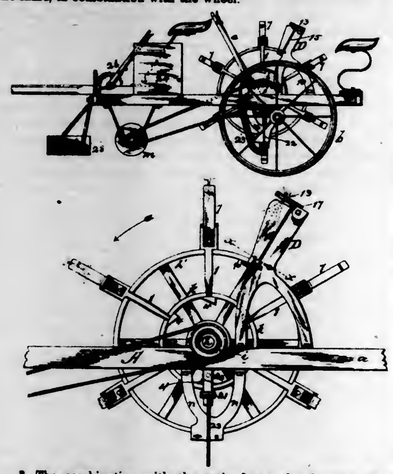
3. The combination of the lower frame A composed of longitudinal and transverse bars, the upper edges of the transverse bars being notched, posts on said frame, an upper frame B composed of longitudinal and transverse bars, the lower edges of the transverse bars being notched, said frame having openings through which the posts pass, and devices for locking the frames together, substantially as described.

490,942. TRANSPLANTER. JOHN O. BRUNER and HERBERT H. BRUNER, Fayetteville, N. Y. Filed Dec. 1, 1891. Serial No. 413,708. (No model.)

Claim.—1. The combination with the dropper wheel, provided with a rim and a ring inside of it, secured upon its spokes, of plant droppers secured and adjustable upon said rim and ring.

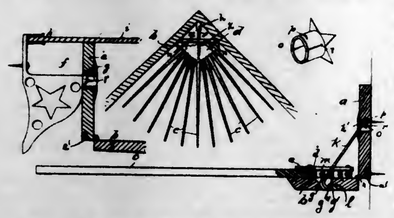
2. In a transplanter, a dropper comprising two plates pivotally connected having their outer ends normally adapted to hold the stem of the plant, and thence diverging toward the pivot, creating a chamber to receive the top of the plant, and having their inner ends diverging and a spring between them, and means to mount it adjust-

ably in the rim of a rotating dropper wheel, and projecting beyond the same, in combination with the wheel.



3. The combination with the main frame, the dropper wheel journaled thereon, and provided with a rim, and an inner concentric ring secured upon the spokes, and droppers consisting of a shank detachably secured to said ring, a head recessed inwardly to fit over said rim and plant holders pivoted in said head and having their outer ends normally in contact, and their inner ends projecting beyond the sides of said head, of an auxiliary frame erected upon the main frame, straddling said wheel and droppers, and cams upon the inner faces of the vertical bars of said auxiliary frame, with which the inner ends of the plant holders engage to open their outer ends as said wheel rotates.

490,948. CLOTHES-DRIER. CHRISTOPHER C. F. BRANDT, Muscatine, Iowa. Filed Mar. 22, 1892. Serial No. 426,114. (No model.)

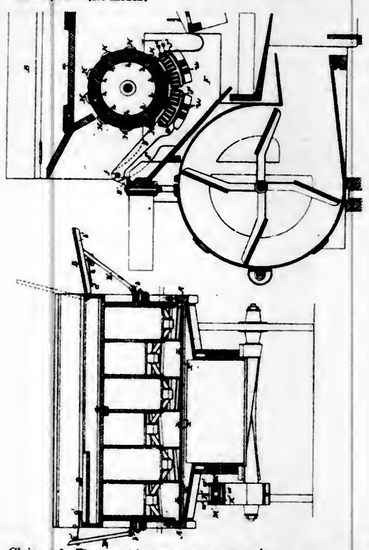


Claim.—1. The corner bracket for supporting a clothes rack and a shelf, formed in one piece and at its upper end provided with the two horizontal arms to receive the shelf edge between them, and said bracket below said arms extending outwardly and provided with the upwardly projecting hook to support the rack, substantially as described.

2. In combination, the back, the leaf hinged thereto and carrying the arms, the plate secured on the leaf and provided with an elongated slot, the leaf having an opening beneath said slot containing a catch, and a link at its upper end pivoted to the back and at its lower end extending through said slot and provided with a hook beneath said slot to engage said catch and detachably uphold the leaf, substantially as described.

3. In a clothes rack, a back, the leaf hinged thereto to swing vertically, the pivoted arms, the plate secured on said leaf and confining the arms thereon, an elongated slot in said plate, the leaf provided with an opening beneath the front end of said slot containing a cross bar, and the link pivoted to said back and extending through said slot and provided with an enlarged hook beneath said slot arranged to engage said cross bar in the manner and for the purposes set forth.

490,944. THRASHING-MACHINE. WILLIAM H. BUTTERWORTH and JOHN BUTTERWORTH, Jr., Trenton, N. J. Filed June 12, 1888. Serial No. 276,866. (No model.)



Claim.—1. The combination of the main frame or casing, the hinged side tables at the top of the same, braces for said tables pivoted at their lower ends, and connections between the upper portions of the braces and the tables, whereby as the latter are thrown inward the braces will likewise be drawn inward toward the sides of the machine, all substantially as specified.

2. The combination of the feed aprons, and the supporting rod therefor, with a brace for said rod comprising one or more arms projecting from the concave, and one or more studs carried by the fixed frame of the machine, and each having a straight face along which the rod is free to move in its vertical adjustment, all substantially as specified.

3. The combination of the cylinder, with a strengthening band consisting of a series of coils or wrappings of wire or its equivalent as described, adapted to a groove in the cylinder and ribbed thrashing plates applied to the periphery of the cylinder outside of said band, substantially as specified.

4. A cylinder for thrashing machines having sunken strengthening bands and ribbed metal thrashing plates secured to the cylinder outside of said bands and extending from the outer edge of the cylinder at one end to the edge of said cylinder at the opposite end, and having on their faces diagonal ribs carried out full to the ends of the cylinder, substantially as specified.

5. The combination of the cylinder, having end strengthening bands adapted to recesses in the cylinder, and ribbed plates extending from end to end of the cylinder and overlapping said strengthening bands, all substantially as specified.

6. The combination of the cylinder, and strengthening bands adapted to recesses at the ends of the same, with the ribbed plates extending from end to end of the cylinder and overlapping said strengthening bands, said plates having hooked lugs engaging with the strengthening bands, all substantially as specified.

7. The combination of the barrel of the cylinder composed of staves, with the ribbed plates secured to the staves and having tongues adapted to grooves formed in the bodies of the staves, and intervening sheathing plates covering the joints between the staves and having tongues, likewise adapted to said grooves, all substantially as specified.

8. The combination of the end plates of the concave, the transverse metal bars secured to said end plates and having discharge spaces between them, and one or more interposed stiffening bars having lugs projecting between the transverse bars and forming filling pieces, substantially as specified.

9. The combination of the transverse metal bars of the concave, with the end plate, consisting of a segmental block having ribs for the attachment of the bars, a segmental flange, and a projecting lug for bearing upon the supporting spring, all substantially as specified.

10. The combination of the casing of the tailings elevator, with the endless chain, its scraping bars, the opposite carrier drums, and the intermediate directing roll notched for the passage of the scraping bars, all substantially as specified.

11. The combination of the tailings spout and cylinder of the machine, with the tailings elevator curved backward at the upper end so as to discharge the tailings in a direction the reverse of that in which they are carried up and forwardly over the feed table and toward the cylinder, substantially as specified.

12. The combination of the thrashing machine, the binder, means for driving said binder from one of the shafts of the thrashing machine, and clutching devices whereby the binder can be stopped and started independently of the thrashing mechanism, all substantially as and for the purpose set forth.

13. The combination of the thrashing mechanism and the binder, a driving belt adapted at one end to a pulley or wheel on one of the shafts of the thrashing machine and at the other end to a wheel or pulley adjacent to but free to turn independently of the primary shaft of the binder, and a clutch and gearing whereby the movement of said loose wheel or pulley may be transmitted to the primary shaft of the binder, all substantially as specified.

14. The combination of the thrashing machine, and the binding mechanism, with a detachable deck adapted to cover the binding mechanism and guide the loose straw over the same as it comes from the machine, all substantially as and for the purpose set forth.

15. The combination of the framework of the machine, overhanging the rear axle and carrying the binder, with a brace pivoted to the upper part of said frame and adjustable so as to bear either upon the axle or upon a support beneath the frame, all substantially as specified.

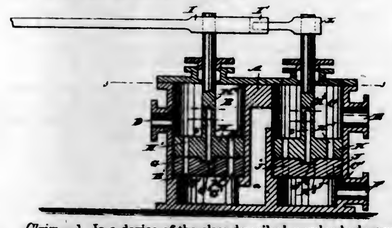
16. The combination of the rear axle, and the overhanging frame, with the brace comprising the opposite pivoted bars and the transverse bar extending from one of said pivoted bars to the other, all substantially as specified.

17. The combination of the rear axle having one or more notched shoes thereon, with a brace comprising a transverse bar adapted to said shoes, and opposite bars pivoted at their upper ends, and bearing at their lower ends upon said transverse bar, all substantially as specified.

18. The combination of the base bar of the brace and its inclined bearing plates, with the pivoted side bars of the brace engaging with said bearing plates, and a screw stem and nuts whereby the side bars of the brace can be drawn together or forced apart, all substantially as specified.

19. The combination of the overhanging frame of the machine, with the opposite side bars of the brace, and with a block to which said bars are pivoted, said block being hung to the fixed portion of the frame by a pin at right angles to the pivot pin of the brace bar, so as to form a universal joint for the latter, all substantially as specified.

490,945. VALVE. JOHN W. CABOT, Boston, Mass. Filed Mar. 21, 1892. Serial No. 426,255. (No model.)



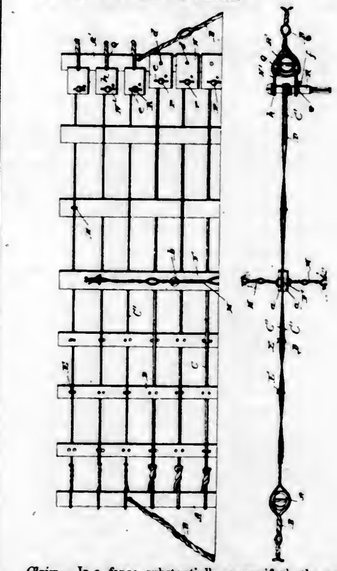
Claim.—1. In a device of the class described, a valve body provided with an inlet and outlet and an exhaust, apertured valve seats arranged between the said inlet, outlet and exhaust and apertured valves mounted to turn on the said seats and arranged in such a manner that when one opens the other closes, substantially as shown and described.

2. In a hydraulic valve, the combination with a valve body having connected cylinders provided with an inlet and outlet and an exhaust, of two apertured valve seats of which one is located between the said inlet and outlet and the other between the outlet and the exhaust, and apertured valves mounted to turn on the said valve seats and arranged in such a manner that when one opens the other closes, substantially as shown and described.

3. In a hydraulic valve, the combination with a valve body having an inlet and an outlet cylinder arranged alongside each other, and of which the inlet cylinder is connected at its bottom by a channel with the top of the outlet cylinder, the said inlet cylinder being provided near its upper end with an inlet, and the outlet cylinder being provided at its upper end with an outlet leading to the machinery to be actuated and also provided, at its bottom, with an exhaust, of apertured seats held in the said cylinders near their lower ends, and valves mounted to turn on the said seats and provided with apertures to register with the apertures in the said seats, substantially as shown and described.

4. In a hydraulic valve, the combination with a valve body having an inlet and an outlet cylinder arranged alongside each other, and of which the inlet cylinder is connected at its bottom by a channel with the top of the outlet cylinder, the said inlet cylinder being provided near its upper end with an inlet and the outlet cylinder being provided at its upper end with an outlet leading to the machinery to be actuated and also provided, at its bottom, with an exhaust, of apertured seats held in the said cylinders near their lower ends, valves mounted to turn on the said seats and provided with apertures adapted to register with the apertures in the said seats, a lever held on the outer end of the stem of the pressure valve in the inlet cylinder, and an arm secured on the stem of the valve in the outlet cylinder, the free end of the said arm being engaged by the said lever, substantially as shown and described.

490,946. FENCE. GEORGE J. CLINE, Goshen, Ind. Filed Aug. 1, 1892. Serial No. 441,840. (No model.)



Claim.—In a fence, substantially as specified, the combination with an end post and a series of line wires connected thereto, of another end post, a series of hangers connected to said post and respectively comprising a concavo convex body adapted to rest against the post, parallel branches, and a wire loop, embracing the post and serving to connect the hanger thereto the transverse shafts journaled in the branches of the hangers and adapted to wind the line wires, the keys securing said shafts in position and the pins adapted to engage the keys, substantially as and for the purpose specified.

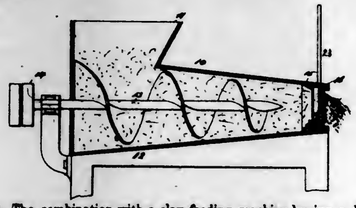
490,947. STONE-SEPARATOR. JAMES CORNELIUS and EDMUND R. COLLINS, Brooklyn, N. Y. Filed Mar. 21, 1892. Serial No. 426,743. (No model.)

Claim.—1. The combination, with a clay feeding machine having a discharging nozzle, of screens held transversely in the nozzle and adapted to move across the same so that one screen will follow and replace another, substantially as described.

2. The combination, with a clay feeding machine having a discharge nozzle, of screens held to move transversely across the nozzle and replace one another in operative screening position, said screens

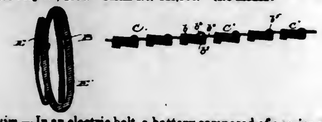
having inwardly extending stone removing flanges, substantially as described.

3. The combination with a clay feeding machine having a discharging nozzle, of a reciprocating screen held to slide across the nozzle, and provided with inwardly-extending flanges, substantially as described.



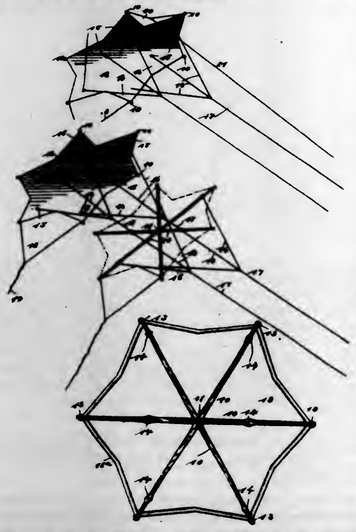
4. The combination with a clay feeding machine having a discharging nozzle, of a reciprocating screen held to slide across the nozzle, and a lever mechanism for moving the screen, substantially as described.

490,948. ELECTRIC BELT. JOHN W. CUMMINGS, Gold Hill, Nev. Filed July 27, 1892. Serial No. 441,360. (No model.)



Claim.—In an electric belt, a battery composed of a series of cells, each cell consisting of a zinc plate folded upon itself and punctured as described, a wrapping of narrow absorbent tape entirely surrounding the zinc plate, and the copper plate folded around the absorbent packing and having a longitudinal groove and the connecting wire uniting the cells, the copper plate being provided with the longitudinal grooves to receive said wire, substantially as set forth.

490,949. KITE. JOHN W. DAVIS, New York, N. Y. Filed Apr. 18, 1892. Serial No. 429,382. (No model.)



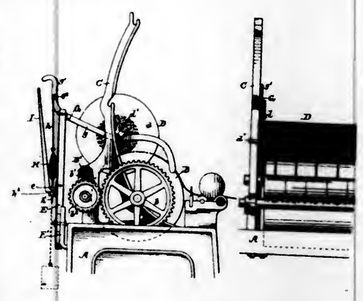
Claim.—1. A kite, comprising a plurality of ribs pivoted together near the center, a detachable cover for the kite, the bridles secured to the kite on opposite sides of its center, the bridles being each connected with a flying line, substantially as described.

2. The combination, with a kite having cross ribs as shown, of bridles secured on opposite sides of the center of the kite, the bridles comprising several cords having their attached ends in alignment, and flying lines secured to the free ends of the bridles, substantially as described.

3. The combination, with a kite, of a cross cord connecting two of its projecting ribs, and a separate steering line secured to the cross cord, substantially as described.

490,950. SPOOL-SUPPORT FOR MULES. THOMAS C. DILL, Philadelphia, Pa., assignor to the T. C. Dill Machine Company, same place. Filed Aug. 20, 1892. Serial No. 443,577. (No model.)

Brief.—The invention consists in the devices for relieving the driving-drum of a spinning-mule from the full weight of the spool, in order to prevent the breaking of the yarns owing to the packing of the strands upon the spool.



Claim.—1. The combination in a mule, of the drum, the spool, a pivoted lever for taking part of the weight of the spool, an upright E to which said lever is hung, and a bracket E', the said upright being vertically adjustable on said bracket, substantially as set forth.

2. The combination in a mule, of the drum, the spool mounted thereon, guides for said spool, and levers for supporting said spool and relieving the driving drum of the full weight of said spool, substantially as described.

3. The combination in a mule, of the driving drum, the spool mounted thereon, guides therefor, a pivoted lever, one arm of said lever passing under the trunnions of the spool, a spring connected to the other arm of the lever and in such relation to the pivot of said lever that as the yarn is drawn off from the spool, the leverage of the spring will be decreased, substantially as described.

4. The combination of the drum B, the spool D mounted thereon, standard C for guiding the spools, levers G, uprights E to which the levers are pivoted, the long arm of each lever passing under the trunnions of the spools, springs connected to the short arms of each lever and to the uprights, and adjustable so as to alter the amount of tension, substantially as described.

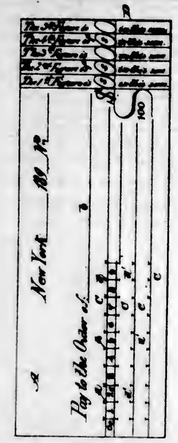
5. The combination of the drum, the spools mounted thereon, the standards guiding said spools, the levers for supporting the spools, uprights upon which the levers are mounted, a spring connected to the short arm of each of the levers, an abutment for the short arm of each lever and mounted upon the spring so that when the lever is relieved of the weight of the spool it will be cushioned by its spring, substantially as described.

6. The combination in a mule, of the drum and spool, with mechanism for sustaining part of the weight of the spool in such a manner that the spool will at all times have a given bearing upon the drum, substantially as and for the purpose described.

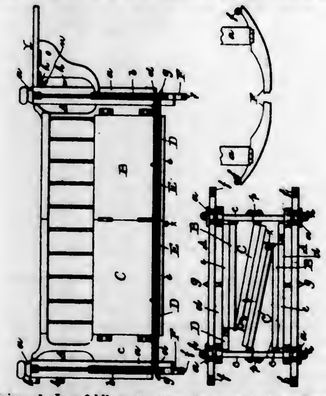
490,951. BLANK CHECK, DRAFT, MONEY-ORDER, OR SIMILAR INSTRUMENT. WILLIAM T. DORRIUS, Flatbush, N. Y. Filed July 7, 1892. Serial No. 439,197. (No model.)

Claim.—A blank check, draft, money order or similar instrument, of the character described, having on its face longitudinal spaces or lines with consecutive numbers applied to an upper one of said spaces or lines, and provided with a stub-like extension D at its end, divisible into separate coupons each of which is provided with a well defined space *s*, adapted to contain a single figure in the sum of the instrument, and two or more of which combined serve to contain in regular order the different figures in the entire sum, or mainly so, essentially as described.

490,951.



490,952. CONVERTIBLE FURNITURE. AMOS BOKEMY, Gettysburg, Pa. Filed Feb. 17, 1892. Serial No. 421,805. (No model.)



Claim.—1. In a folding structure, the two similar end sections A, A, each having two inwardly-extending side pieces *c c*, of equal length in combination with the side sections B one of which is hinged to one of the side pieces *c* of each end section, and the side sections C one of which is hinged to the other side piece *c* of each end section, the side section B of one end section being hinged to the side section C, of the other end section, and said sections B being hinged farther back from the inner edge of their side pieces *c* than the side sections C, substantially as set forth, whereby said end sections A A may be brought together and said side sections B B C C may be folded together and accommodated in the space formed between said end sections and their meeting side pieces.

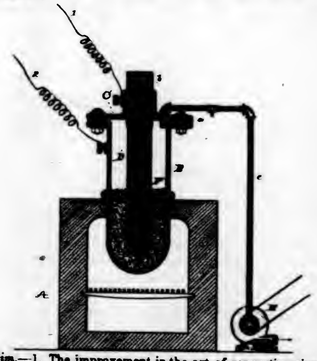
2. Arched reversible supports F, F, in combination with an article of furniture to which said supports are applied, whose leg-posts *a a* rest upon the concave surfaces of said supports when their convex surfaces are turned down to serve as rockers, and whose body portion rests upon the convex surfaces of the supports when their extremities are turned down to serve as simple supporting legs, substantially as set forth, whereby the structure is directly supported by said supports F, F, in either of their positions.

3. A crib frame having end sections of equal height and having hinged sides, each side being composed of two sections B C hinged together and to the two ends of the crib frame respectively in such manner that by a slight approach of said ends the sides of the crib frame are bent inwardly and two obliquely opposite sections, B B or C C, are caused to overlap, in combination with means for securing together the ends of said overlapping sections and maintaining them firmly in their overlapped position, substantially as set forth, whereby the crib frame is adapted to receive a dining-table-top and the sections B, C, are folded in to leave space beneath the table at the sides.

4. In combination with a crib frame and its corner posts *a a*, a folding table top composed of a central section G carrying the swinging slats H H adapted to be secured to the posts *a a*, and the additional leaves or sections J J which are supported by said slats H H on either side of the section G, substantially as set forth.

5. A folding table top adapted to be secured to a crib frame, comprising the supporting slats H, and plurality of separate leaves or sections supported thereby, said supporting slats H H being pivoted to the underside of one of said leaves or sections in such manner that they may be extended to rest upon the posts of the crib frame or may be swung horizontally on their pivots to a position entirely beneath the section to which they are pivoted, substantially as set forth.

490,958. ART OF GENERATING ELECTRICITY. THOMAS A. EDISON, Menlo Park, N. J. Filed Nov. 1, 1883. Serial No. 110,560. (No specimens.)



Claim.—1. The improvement in the art of generating electricity consisting in causing the dry decomposition of a chemical compound, in a rarefied atmosphere and in the presence of a positive element which is attacked by such compound and is electrically charged thereby, and a negative element which is electrically charged by the dry chemical reaction, substantially as set forth.

2. The improvement in the art of generating electricity, consisting in causing the dry decomposition of a chemical compound under conditions of heat and rarefaction, in the presence of a positive element which is attacked by such compound and is electrically charged thereby and a negative element which is electrically charged by the dry chemical reaction, substantially as set forth.

3. The improvement in the art of generating electricity, consisting in causing cumulative or reciprocal dry chemical reactions within a suitable vessel in the presence of electrodes electrically charged, thereby, substantially as set forth.

4. The improvement in the art of generating electricity, consisting in causing cumulative or reciprocal dry chemical reactions in a rarefied atmosphere, and in the presence of electrodes charged thereby, substantially as set forth.

5. The improvement in the art of generating electricity, consisting in causing cumulative or reciprocal dry chemical reactions under conditions of heat and rarefaction in the presence of electrodes charged thereby, substantially as set forth.

6. The improvement in the art of generating electricity, consisting in subjecting carbon to heat in an exhausted chamber and in the presence of an agent which combines therewith, substantially as set forth.

7. The improvement in the art of generating electricity, consisting in subjecting carbon to conditions of heat and rarefaction in the presence of a decomposable oxide, substantially as set forth.

8. The combination in electrical generating apparatus, of positive and negative electrodes, a surrounding decomposable compound, an inclosing chamber and exhausting apparatus, substantially as set forth.

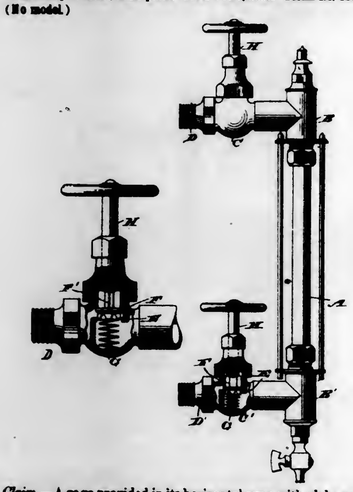
9. The combination in electrical generating apparatus, of positive and negative electrodes, a surrounding decomposable compound, an inclosing chamber, exhausting apparatus and a furnace, substantially as set forth.

490,954. MANUFACTURE OF CARBON FILAMENTS FOR ELECTRIC LAMPS. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Nov. 6, 1889. Serial No. 329,182. (No model.)

Claim.—1. The herein described improvement in the method of manufacturing carbon filaments for incandescent electric lamps, consisting in first forming filaments of carbonizable material, then partially carbonizing the same before they have been soaked or otherwise similarly treated, then soaking the same in a solution of a carbonizable substance and finally completely carbonizing the whole.

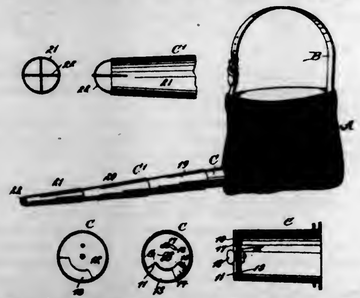
2. The improvement in the art of manufacturing filaments for incandescent electric lamps which consists in forming filaments of carbonizable material, maintaining them in the desired shape, and partially carbonizing the same before they have been soaked or otherwise similarly treated, then filling the pores of the filaments by soaking them in a liquid carbonizable material, and finally completely carbonizing the filaments, substantially as described.

490,955. SAFETY-VALVE FOR WATER-GAGES. JOHN FERGUSON, Walla Walla, Wash., assignor to himself, John A. Cameron, and John Henry Watson, same place. Filed Oct. 4, 1892. Serial No. 447,777. (No model.)



Claim.—A gage provided in its horizontal arms with globe valves each containing a spring-pressed check valve, the check valve in the steam globe valve being provided with an aperture to permit the steam to pass to the under side of the said check valve when seated, substantially as shown and described.

490,956. BROADCAST HAND-SEEDER. HARM H. FRAMKEN, Golden, Ill. Filed Oct. 19, 1892. Serial No. 449,364. (No model.)



Claim.—1. A broadcast seeder having its nozzle provided with an internal transverse partition having an opening 13, a disk having a central set screw binding it adjustably to the partition and having a peripheral recess 11 and a thumb piece 15, substantially as set forth.

2. A broadcast seeder having its nozzle C provided with an internal transverse partition 12 having an opening 13, a disk 10 having a central set screw 16 securing it adjustably to the partition, a peripheral recess 11 terminating at one end in the finger piece 15, and a curved slot 18, and the limit pin or screw 17 extending through said slot into the partition, substantially as set forth—

3. A broadcast seeder having its nozzle provided at its inner end with an internal partition 12 having an opening 13, the centrally pivoted valve having a peripheral recess, and the crossed wires 22 at the outer end of the nozzle, substantially as set forth

490,957. AUTOMATIC GRAIN-WEIGHER. HORACE M. FULWIDER, Redmon, Ill. Filed Oct. 10, 1892. Serial No. 448,427. (No model.)



Claim.—1. The combination of a support, scale beams fulcrumed thereto, a weigher box supported by the beams an axial rod extending through the box, a shifting partition secured thereto, arms secured to the outer ends of the said rod, bars pivoted to one side of the box center, stops projecting from the bars which are adapted to engage either one side or the other of the said arms, and a tripping mechanism which operates the said bars, substantially as shown and described.

2. The combination of a support, scale beams fulcrumed thereto, a weigher box supported by the said beams, an axial rod extending therethrough, a partition on said rod, arms secured to the projected ends of the rod, bars pivoted to one side of the box center, stops on the bars which engage the said arms, and arms extending from the support which engage the same bars, substantially as shown and described.

3. The combination of an elevator, scale beams fulcrumed thereto, a weigher box supported by the beams beneath the discharge of the elevator, a shifting partition within the box, an axial rod upon which said partition is mounted having extended ends, arms secured to said ends which extend in line with the partition, bars pivoted at their ends to one side of the box and which extend across the same being weighted at their opposite free ends, rollers secured to the said bars in a vertical line with the axial rod and which engage said arms, stops L, projecting from the bars, and arms H, projecting from the elevator having eyes in their outer ends into which the said stops project, substantially as shown and described.

490,958. CAR-COUPLING. GEORGE S. GAINER, Corona, Ala. Filed Sept. 15, 1892. Serial No. 446,052. (No model.)

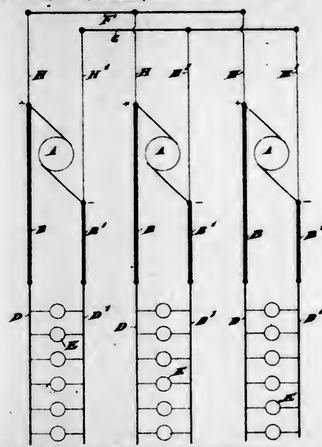


Claim.—1. In a car coupling, in combination, the draw head, the coupling pin, a yielding plate at one side of the pin, a fixed fender or guide on the opposite side, having its lower front edge cut out to form a recess, and the link having a reduced rear end adapted for movement in said recess, and an enlarged head portion adapted to engage the fender at a point above such recess all as and for the purposes described.

2. In combination with the drawhead A, having the usual mortise B, and the pin C, of the yielding bearing plate D at one side of the pin, the outwardly bent fender or guide plate on the opposite side, having its outermost portion at a point in advance of the pin, a cut

out portion on its lower front edge extended to a point to the rear of the pin, the link having its rear pivotal end reduced, and movable in said recess, and a coupling hook at its front edge adapted to engage said fender at a point above its recess, substantially as described.

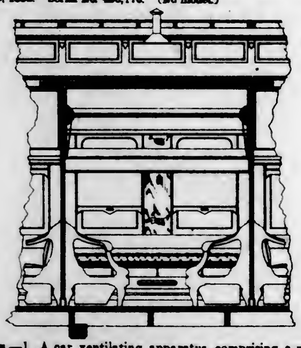
490,959. COUPLING OF DYNAMO-ELECTRIC MACHINES IN PARALLEL. ALBERT GAY, London, England. Filed Jan. 11, 1892. Serial No. 417,726. (No model.)



Claim.—1. In a parallel arrangement of dynamos the combination with a number of dynamos, external circuits, and main fuses or cut-outs connecting the terminals of said dynamos to said external circuits of auxiliary fuses or cut-outs arranged in two groups or series those in each group or series being connected to like poles of the dynamos substantially as herein described for the purpose specified.

2. In a parallel arrangement of dynamos, the combination with a number of dynamos, external circuits, and main fuses or cut outs connecting the terminals of each of said dynamos to one of said external circuits, of two conductors and two series of auxiliary fuses or cut outs, the auxiliary fuses or cut outs in one series being arranged to connect the positive terminals of the dynamos to one of said conductors, and those in the other series to connect the negative terminals of the dynamos to the other of said conductors substantially as herein described for the purpose specified.

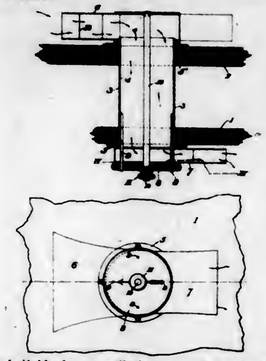
490,960. CAR-VENTILATOR. WILLIAM A. GAY, Corry, Pa. Filed Feb. 3, 1892. Serial No. 420,176. (No model.)



Claim.—1. A car ventilating apparatus, comprising a rotatory external hood, a passage leading therefrom through the side of the car, and a rotatory tube or hood at the inner end of the passage; substantially as and for the purposes described.

2. A car-ventilating apparatus, comprising a rotatory external hood, a tube leading into the car, an inner tube or hood, means for rotating the outer hood, and a clamp to fix the same; substantially as and for the purposes described.

3. A car-ventilating apparatus, comprising a rotatory external hood, a tube leading into the car and fixed to said hood, an inner hood rotatory independently of the tube, a cap secured to the tube and adapted to rotate the same, and a clamp; substantially as and for the purposes described.



4. An individual car-ventilating apparatus, comprising an outer ventilating hood, a passage leading therefrom into the car, and an inner discharge tube, movable to direct the air as desired; substantially as and for the purposes described.

5. In car-ventilating apparatus, an outer ventilating hood, having an open end for in-draft of air, an opposite smaller opening, and a passage leading into the car; substantially as and for the purposes described.

6. The combination with a sleeping car berth, of an individual ventilator leading thereinto, said ventilator having a rotatable deflector upon its inner end; substantially as and for the purposes described.

7. A car-ventilating apparatus, comprising a rotatory external hood provided with means for preventing the entrance of cinders and dust, a passage leading therefrom through the side of the car, means for rotating said hood from the interior of the car; and a rotatable deflector at the inner end of the passage substantially as and for the purposes described.

8. A car-ventilating apparatus, comprising a rotatory external hood, a tube leading into the car, an inner hood, and a rod passing through these parts and arranged to adjustably clamp the same together; substantially as and for the purposes described.

490,961. PROCESS OF PRODUCING METALLIC ALLOYS. WILLIAM H. GREENE and WILLIAM H. WAHL, Philadelphia, Pa. Filed July 2, 1892. Serial No. 438,738. (No specimens.)

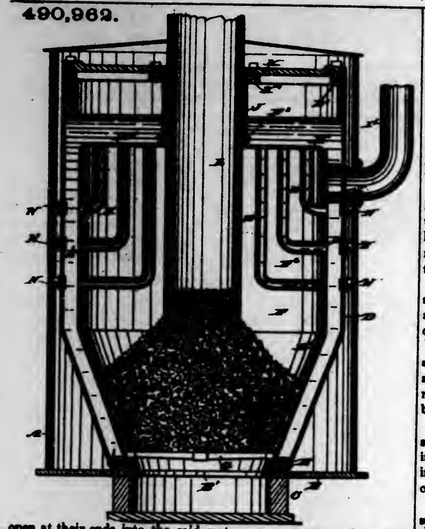
Claim.—1. In the art of manufacturing metallic alloys, the herein described process which consists in heating to a suitable temperature and in presence of suitable fluxes a metallic oxide, in contact with a silicide of a metal capable of alloying with the reduced metal whereby the primary reduction of the metallic oxide to the metallic state is effected by the silicon of the silicide employed and the reduced metal alloys with the base of the silicide.

2. In the art of manufacturing metallic alloys, the herein described process which consists in heating to a suitable temperature in a furnace chamber or crucible free from carbon and in presence of suitable fluxes, a metallic oxide in contact with a silicide of a metal capable of alloying with the reduced metal whereby the primary reduction of the metallic oxide to the metallic state is effected by the silicon of the silicide employed and the reduced metal alloys with the base of the silicide.

490,962. BOILER-FURNACE. THOMAS J. GROSS, Savanna, Ill. Filed Apr. 15, 1892. Serial No. 429,289. (No model.)

Claim.—In a boiler furnace the combination with an exterior cylindrical shell having an inverted cone-shaped lower end, of a fire box arranged concentric within the shell and provided with an inverted cone-shaped lower end for the fuel and arranged concentric to the end of the said shell, the said shell forming a water compartment with the said fire-box, and water flues having their ends expanded and calked in the top and cylindrical sides of the said fire box, the said tubes extending in the combustion chamber of the fire box and

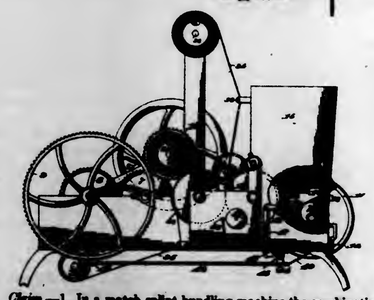
490,962.



open at their ends into the said water compartment, a sleeve connecting the top of the fire box with the removable cover of the said shell and a filling tube extending through the said sleeve below the said water flues to deliver the fuel into the cone-shaped end of the fire box, substantially as shown and described.

490,968. MATCH-SPLINT-BUNDLING-MACHINE. JOHN F. HAMILL, PETER B. LEWIS, and CHARLES T. COLE, York, Pa. Filed July 15, 1892. Serial No. 440,117. (No model.)





Claim.—1. In a match splint bundling machine the combination with the hopper, of a pair of serrated plates separated from each other and forming the bottom of the hopper, and means for vibrating said plates, whereby the perfect splints are supported by the plates while the short splints and other refuse matter are permitted to drop through the opening between the plates, substantially as described.

2. In a match splint bundling machine the combination with the hopper, of a pair of inclined serrated plates, the said plates being separated from each other and pivoted at their lower ends, and a rotating shaft provided with eccentrics upon which the plates rest, the separated plates forming the bottom of the hopper which retains the perfect splints and permits the broken splints and refuse to drop out, substantially as described.

3. In a match splint bundling machine the combination with the hopper of the splint roller 19 having a broad central peripheral groove, the check plate fixed to a rock shaft 17 and lying normally in said groove, and means for automatically raising the check plate from the groove when the belt is full of splints, whereby the feeding of splints from the hopper is automatically stopped, substantially as described.

4. In a match splint bundling machine the combination with the hopper of the splint roller 19 having a broad central peripheral groove, the check plate lying in said groove and fixed to a rock shaft at the lower end of the hopper, the serrated plates loosely pivoted on the rock shaft at each side of the check plate, and means for vibrating the serrated plates, substantially as shown.

5. In a match splint bundling machine, the combination with the splint roller 19, the check plate and the rock shaft 17, of the swinging arm 31, the cam connections to said arm, and connected between the cam and said rock shaft, substantially as shown.

6. In a match splint bundling machine the combination with the splint roller 19, the check plate and the rock shaft of the swinging arm 31, and adjustable connections between the swinging arm and rock shaft whereby the stoppage of the feed may be varied to suit belts of different lengths substantially as shown.

7. In a match splint bundling machine the combination with the splint roller 19, the check plate and the rock shaft 17, of the swinging arm 31, the cam upon the hub of said arm, the lever 41, connecting rod 43, rock shaft 45, arms, 44, 46 and 48, and connecting rod 47, constructed and arranged substantially as described.

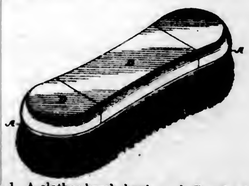
8. In a match splint bundling machine the combination with the splint roller 19, the check plate and the rock shaft 17, of the swinging arm 31, connections between the swinging arm and said rock shaft, and a latch for holding the check plate up when raised, substantially as described.

9. In a match splint bundling machine the combination with the splint roller 19, the check plate and the rock shaft to which the check-plate is connected of the rock shaft 45, the arms on said rock shafts the rod connecting said arms and provided with a notch, and the spring bolt arranged to enter said notch when the check plate is raised, substantially as described.

10. The combination with the splint rollers 19, 21, having central peripheral grooves, of the guard plate arranged between and overlapping said rollers said guard plate having a tongue fitting within the groove of said roller 21 and a perforation for the passage of a belt substantially as described.

11. The combination with the splint rollers 19, 21, having broad central peripheral grooves, of the combined splint guide, belt guide and transfer plate consisting of the reversely curved plate 25 fitting the peripheral grooves, and the curved plates 26 fitting the periphery of the roller 21 betwen the central grooves and its ends, substantially as described.

490,964. COMBINED CLOTHES-BRUSH, FLASK, AND DRINKING-CUP. THOMAS W. HELM, Danville, Va., assignor of one-half to John T. Carter, same place. Filed Nov. 4, 1892. Serial No. 450,926. (No model.)

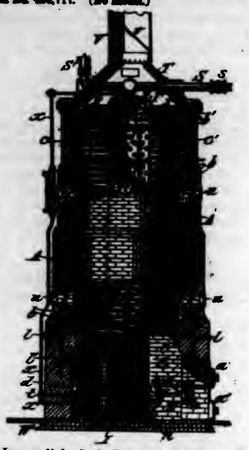


Claim.—1. A clothes brush having a hollow back in two parts, one part being secured to the brush and forming a flask, and the other part being detachable and forming a drinking cup, substantially as specified.

2. The combination of the brush block with the flask secured thereto, and a drinking cup fitted snugly to the base of the reduced neck of the flask and to the brush block, substantially as specified.

3. The combination of the brush block, a flask secured to the back of the same and having a reduced neck with stopper closing the same, and the drinking cup fitting snugly to the reduced neck of the flask and to the brush block, and inclosing and hiding the nozzle of the flask, substantially as specified.

490,965. STEAM DRYING AND SUPERHEATING APPARATUS FOR STEAM-BOILERS. BENJAMIN W. HOYT, Brooklyn, assignor to Edward Seldon Townsend Kennedy, New York, N. Y. Filed Mar. 26, 1892. Serial No. 426,717. (No model.)



Claim.—1. In a radial tube boiler a steam drying and superheating apparatus comprising a steam distributing chamber closed at top and opening at the bottom into the stand pipe, a surrounding steam discharge chamber closed at the bottom, and a series of distributing pipes radiating from the distributing chamber, substantially as described.

2. In a radial tube boiler the combination with the stand-pipe of a steam distributing chamber, a surrounding discharge chamber, and a series of open ended pipes leading from the distributing chamber into the discharge chamber, substantially as described.

3. In combination with the stand-pipe a diaphragm plate, having an opening, a steam distributing chamber connecting therewith at its opening and closed at the top, the annular discharge chamber and a series of distributing pipes, connecting with said distributing chamber, substantially as described.

4. In combination with the stand pipe, a steam distributing chamber closed at the top and open at the bottom, a surrounding discharge chamber closed at the bottom and having a series of radial superheating tubes, and a series of steam distributing pipes leading from said distributing chamber into the outer superheating tubes, substantially as described.

5. In combination with a stand-pipe or other steam dome a steam distributing chamber closed at the top and containing an open ended pipe or cylinder communicating with the stand-pipe, a discharge chamber surrounding said distributing chamber, and a series of distributing pipes radiating from the distributing chamber, substantially as described.

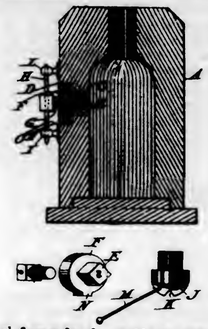
6. In combination with the distributing and discharge chamber and distributing pipes arranged as described, a drain pipe leading from the bottom of the discharge chamber down into the stand-pipe, substantially as described.

7. In combination with a stand-pipe, or steam dome, a diaphragm plate connecting therewith and having a central opening, a steam distributing chamber, secured to said plate at its opening and having a closing plate at the top, a second plate secured to the steam escape pipe above and connected by long bolts and spacing sleeves or ferrules to a flange of the distributing chamber, substantially as described.

8. In combination with the steam dome of a boiler, the diaphragm plate having a central opening and a distributing chamber, connecting with the plate at said opening, and having numerous small outlets for dividing the steam into numerous currents or streams, said diaphragm-plate and distributing chamber forming a discharge chamber in the dome, substantially as described.

490,966. LABEL-FORMER FOR GLASS-MOLDS. JOHN S. IRWIN, Salisbury, Pa. Filed June 2, 1892. Serial No. 435,262. (No model.)

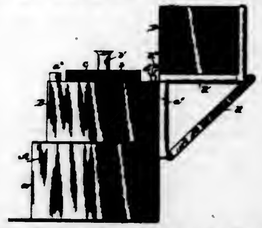
Claim.—1. In a label former for glass molds, the combination with the mold having an opening formed in its side for the insertion of the label die, said opening having its outer portion enlarged as shown at D to form a shoulder in the opening, of a label die, having its outer portion enlarged to form a shoulder F to bear against the shoulder inside the opening in the side of the mold, substantially as and for the purposes described.



2. In a label former for glass molds, the combination with the mold formed with an opening in its side to receive the label die, of a removable label die to fit in said opening, and a tongue formed on the wall of one of said parts to fit into a corresponding recess formed in the wall of the other part, said tongue lying inside of the opening in the mold when the label die is in place, to serve as an index for the proper insertion of the label die and to prevent the die from turning, substantially as and for the purposes described.

3. In a mold for forming glass articles in which the mold is formed with an opening for a die, the combination with the die and a cross rod for holding it in place in the mold, of an adjusting screw having its inner end bearing on the die for effecting a register with the cross rod, said rod being detachable and adapted to be connected with said screw after the latter has been adjusted to effect the register, substantially as and for the purposes described.

490,967. EVAPORATOR. JOSEPH KEITH, Duncan's, Va. Filed Aug. 31, 1891. Serial No. 404,302. (No model.)



Claim.—1. The herein-described improved evaporator, comprising the boiler having upper, inwardly bent flanges, a tube extending down into said boiler and communicating with the bottom thereof, and a cooking vessel located in said boiler and secured by said flanges, and having rests projecting from its underside, and a tank located above said boiler and designed to supply the same with hot water as set forth.

2. The herein-described improved evaporator, comprising the fire-box, the boiler fitted thereon having a flue at its rear end leading from said fire-box, a cooking vessel located in said boiler, and a hot-water tank located at a higher level than said boiler and having a flue extending under its bottom and up its rear wall communicating with said flue of the boiler, said tank being designed to supply water to said boiler as set forth.

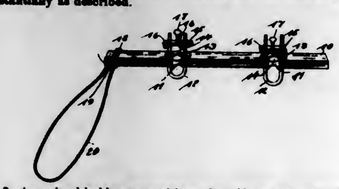
3. The combination with the fire-box, of the boiler secured thereon having a flue at its rear end leading from said fire-box, and having a funnel or opening in its upper portion, a cooking vessel located in said boiler, and a hot water tank having a flue extending under its bottom and up its rear wall communicating with said flue of the boiler, and provided with a faucet or outlet opening over said funnel or opening in said boiler, substantially as set forth.

490,968. ANIMAL-HOLDER. OLIVER M. KELLY, Rock Rapids, Iowa. Filed Sept. 12, 1892. Serial No. 445,813. (No model.)

Claim.—1. An animal holder, comprising a bar, movable yokes held to slide transversely in the bar and adapted to embrace the legs

of an animal, clamping pieces held to slide upon the yokes, and a fastening device to secure the yokes and clamping pieces in place, substantially as described.

2. An animal holder, comprising a bar, yokes held to slide transversely in the bar and adapted to embrace the legs of an animal, clamping pieces held to slide on the yokes and at one side of the bar, locking plates held to slide on the yokes, a fastening device to secure the locking plates to the yokes, and thumb screws held to turn in the locking plates and adapted to impinge on the clamping pieces, substantially as described.



3. An animal holder, comprising a bar, U-shaped yokes held to slide transversely in the bar, bent clamping pieces held to slide on the yokes at one side of the bar, locking plates held to slide on the yokes outside of the clamping pieces, fastening devices to secure the locking plates to the yokes, and adjusting screws held to turn in the locking plates and impinge on the clamping pieces, substantially as described.

4. An animal holder, comprising a bar having reduced and rounded portions which fit against the legs of an animal, yokes held to slide transversely in the bar and to span the reduced portions thereof, the yokes being also adapted to embrace the legs of an animal, clamping pieces held to slide on the yokes at one side of the bar, and fastening devices to secure the clamping pieces to the yokes, substantially as described.

5. The combination with the bar, of fastening devices to secure it to the legs of an animal, a clip or clasp attached to one end of the bar, and a loop secured to the clip or clasp and adapted to embrace the neck of an animal, substantially as described.

490,969. THERMOCAUTER. JOHN E. LEE, Conshohocken, Pa. Filed Oct. 22, 1892. Serial No. 449,560. (No model.)

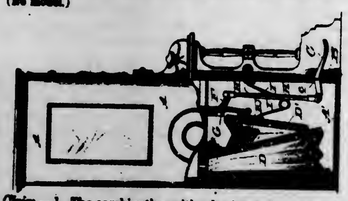


Claim.—1. A thermo-cauterizing apparatus having a carburetor carrying two independently operated valves, one controlling the supply of air to the carburetor and the other the supply of fresh air to the cauterizer, substantially as described.

2. A thermo-cauterizing apparatus provided with a closing cap having a valve controlling the supply of air to the carburetor and a cock in the said valve controlling the supply of fresh air to the cauterizer, substantially as described.

3. A thermo-cauterizing apparatus, provided with a valve controlling the supply of air to the carburetor and having three nipples, of which one is for the air supply in combination with a three-way cock controlling the connections between said three nipples, substantially as described.

490,970. PEDAL ATTACHMENT FOR ORGANS. HORACE LEER and JACOB DIEHL, Easton, Pa. Filed Sept. 22, 1892. Serial No. 446,513. (No model.)



Claim.—1. The combination with a horizontally-arranged pedal, pivoted between its ends and the bellows, of a bell-crank lever arranged with its pivot uppermost and connected with the bellows and pivotally with the pedal, as set forth.

2. The combination with a horizontally-arranged pedal pivoted between its ends and the bellows, of an interposed pivotal connection between the same, as set forth.

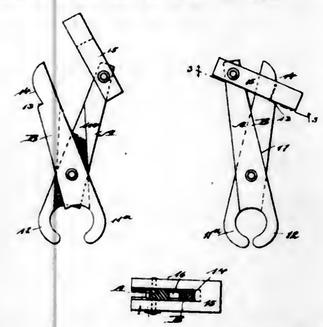
3. The combination with a horizontally arranged pivoted pedal, of a rod pivotally connected therewith, and a bell-crank lever pivoted with its elbow uppermost and pivotally connected with said rod and adapted for pivotal movement with the bellows of an organ, as set forth.

4. The combination with a pivoted pedal, of a crank arm connected with the bellows, a bell crank lever connected with said arm and pivotally connected with the pedal, as set forth.

5. The combination with a plate having a depression, of a pedal pivoted in said depression, a rod pivotally connected with the pedal, and a bell-crank lever pivotally connected with the said rod and adapted for connection with the bellows of an organ, as set forth.

6. The combination with a pivoted pedal and the bellows, of a crank arm mounted on the bellows and a bell crank lever having one arm mounted on said crank arm and the other pivotally connected with the pedal, substantially as described.

490,971. CLOTHES-PIN. JOHN R. LOCKWOOD, Helmville, Mont. Filed May 20, 1892. Serial No. 433,665. (No model.)



Claim.—As an article of manufacture, a clothes pin, the same consisting of two members pivotally connected, each section having one end shaped as a handle and the other as a clamping jaw, the jaws being curved in direction of each other, the said sections being also provided with opposing diagonally located recessed surfaces whereby the jaws are brought face to face and their movement outward and inward limited, a cam surface produced upon the outer face of the handle portion of one section, this section being also provided with a shoulder at the base of the cam surface, and a latch pivoted to the handle portion of the opposite section, the latch comprising a block provided with a recess to receive the cam surface above mentioned, which latch is diagonally located across the section when in locking position and engaged with the said shoulder, substantially as and for the purpose set forth.

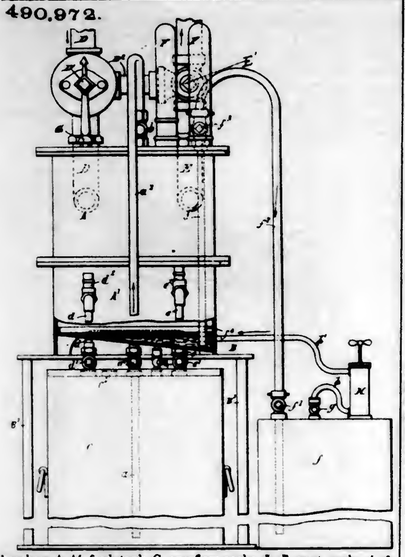
490,972. APPARATUS FOR CARBURETING GAS OR AIR. JAMES LOVE, Barking, assignor to the Gas Economising Foreign Patents, Limited, London, England. Filed May 17, 1892. Serial No. 433,346. (No model.) Patented in France Nov. 17, 1891, No. 201,341; in Belgium Nov. 17, 1891, No. 97,231, and in Germany Nov. 19, 1891, No. 51,730.

Claim.—1. An apparatus for carbureting gas or air comprising the carbureting chambers A, A', the tank C containing the supply of carbureting liquid and connected by pipes a, a^2 with the chamber A, the purge drum f for receiving the heavy hydrocarbons or residual products of the carburetor connected by pipes f^3, f^4 with the chamber A', and a pump H by pipes h h' connecting the drum f with the tank C, all arranged in a closed system so that when the pump is operated the carburetor is charged with fresh liquid and at the same time the residual products are withdrawn therefrom, substantially as described.

2. The combination of the carbureting chambers A, A' the feed tank C connected with the chamber A by pipes a, a^2, the purge drum f connected with the chamber A' by pipes f^3, f^4 and with the drum C by pipes h, h', and pump H, the overflow pipe d leading from chamber A' to tank C, and the vent pipe e also connecting the chamber A' with the tank C but having its mouth at a higher level than that of the pipe d, substantially as described for the purpose specified.

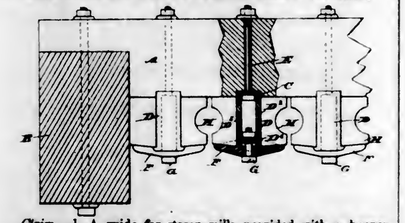
3. In a carbureting apparatus the combination of the carbureting

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chambers A A', feed tank C, overflow cocks d', d^2, vent cocks e', e^2, feed cocks c', and interlocking rods m, n, o, passing through holes in the squares of the said cocks for locking the same, substantially as described.

490,973. GUIDE FOR STAMP-MILLS. EDMUND MAJOR, Terraville, S. D. Filed June 1, 1892. Serial No. 435,169. (No model.)



Claim.—1. A guide for stamp mills, provided with a keeper, adapted to be secured to the girt or rail and a flange plate held removably thereon, and projecting over the front faces of the bearing blocks substantially as shown and described.

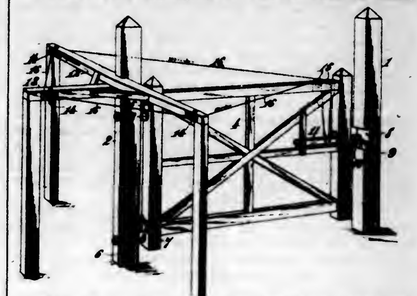
2. A guide for stamp mills, provided with a keeper adapted to be fastened to the girt or rail and formed with downwardly and outwardly inclined sides, and a flange plate detachably secured on the said keeper and extending sidewise from the latter to pass over the front faces of the guide or bearing blocks, substantially as shown and described.

3. A guide for stamp mills, provided with a keeper adapted to be fastened to the girt or rail and formed with downwardly and outwardly inclined sides, flanges formed on the said sides and having a recess, and a flange plate fitting into the said recess and adapted to be secured to the said keeper, substantially as shown and described.

4. A guide for stamp mills, provided with a keeper adapted to be fastened to the girt or rail and formed with downwardly and outwardly inclined sides, flanges formed on the said sides and having a recess, a flange plate fitting into the said recess and adapted to be secured to the said keeper, and a bolt engaging lugs or ribs extending from the sides of the keeper, the said bolt serving to fasten the said flange to the keeper, substantially as shown and described.

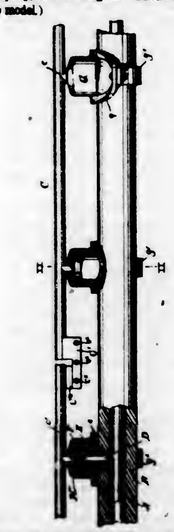
5. A guide for stamp mills, provided with a keeper, and a flange plate held removably on the said keeper, and provided with ribs adapted to engage corresponding recesses in the front surfaces of the guide blocks, substantially as shown and described.

490,974. GATE-OPENING MECHANISM. CAMERON B. MATHEWS, Pushmataha, Ala. Filed Aug. 27, 1892. Serial No. 444,316. (No model.)



Claim.—The combination with a latch post 1, a gate post 2, and a gate 4 hinged to the gate post and provided with a latch 11 and pulleys 15, of a horizontal bar or arm 12 secured intermediate its extremities to the gate post, extending substantially parallel with the roadway and provided at each end with a pulley 14, a secondary arm 13 extending from the gate post and provided with a pulley, and a single continuous cord 16 trained over said pulleys and having both ends secured to the gate latch, substantially as described.

490,975. ELECTRIC RAILWAY. EDWARD W. MITCHELL, Covington, Ky., assignor to the Mitchell-Thompson Underground Electric Conductor Company, of West Virginia. Filed June 23, 1892. Serial No. 437,796. (No model.)



Claim.—1. In an electric railway the combination with a main line-conductor or feed-wire extending within an insulating covering having openings therethrough at intervals, of a sectional service-conductor consisting of rigidly connected insulated sections extending along the line of said feed-wire in proximity thereto, each insulated section being provided with a plurality of contacts adapted to establish electrical connection between the same and said feed-wire, and means for yieldingly holding said contacts normally out of contact with said feed-wire, substantially as described.

2. In an electric railway, the combination with the insulated feed-wire, of the sectional service-conductor consisting of a series of rigidly connected conducting sections insulated from each other and provided each with a series of contact posts adapted to make contact with said feed-wire, and means for connecting said feed-wire and service-conductor and retaining said posts normally out of contact with

the feed-wire in position to make contact therewith when pressure is exerted on said service-conductor, substantially as described.

3. In combination with the insulated feed-wire, and the sectional service-conductor, the contact post integral with said conductor and having the nut screwed thereon, the elastic cylinder interposed between said nut and feed-wire, and means for connecting said parts together so as to permit the rubber to yieldingly hold said post normally out of contact with said feed-wire, substantially as described.

4. In combination with the continuous line-conductor, having the insulating covering, the sectional service-conductor having upon each section a plurality of contact posts formed integrally therewith, the nuts screwed upon said posts, the elastic cylinders through which said posts pass interposed between said nuts and said insulating covering, and means for connecting and retaining said parts in their normal positions, substantially as described.

5. In combination with the line-conductor, the sectional service-conductor consisting of a series of rigidly connected insulated sections each provided with a plurality of plunger-contacts formed integrally therewith and means for yieldingly sustaining said contacts in normal position out of contact with said line-conductor, substantially as described.

6. In combination with the line-conductor, the sectional conductor having the plunger-contacts thereon, means for yieldingly holding said contacts in proximity to said line-conductors, and the clamping device consisting of a hat shaped casting fitting about said plunger-contacts and a separable piece passing underneath said line-conductor and secured to said casting so as to connect and sustain the several parts in operative position, substantially as described.

7. In an electric railway, the combination of the conduit castings having the perforated base plates with U-shaped standards or yokes rising therefrom and provided with inwardly projecting lugs or conductor-supports, the removable cover, and the U-shaped metallic castings extending between the yokes and having their ends seated in recesses in the sides of the yokes, substantially as described.

8. In combination with the open-slotted continuous metallic trough-like conduit having openings in the bottom thereof at intervals, a second sub concrete conduit at corresponding intervals arranged below said openings, and the box-like castings interposed between said surface and sub conduits and extending between the ties so as to prevent the walls of the concrete structure from caving, substantially as described.

9. An open-slotted conduit for electric railways, comprising the cross-ties, the castings having the yoke arms with side recesses and inwardly projecting lugs thereon mounted on said ties, the U-shaped castings extending between said castings and having their ends seated in said recesses, and the detachable plates forming the cover for said conduit, substantially as described.

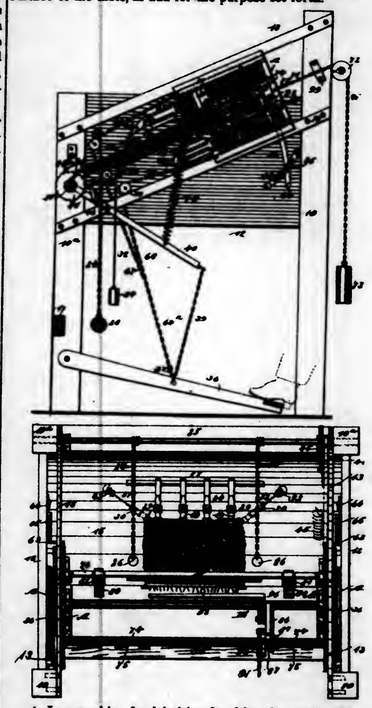
10. In combination with the line-conductor or feed-wire and its insulating covering having openings therein at intervals, the sectional service-conductor or trolley-wire provided with contact posts or plungers, the elastic bushings or coverings of insulating material through which the plungers pass, the nuts or collars on said plungers resting upon said bushings, and the clamping devices constructed in separable parts which embrace and clamp the feed-wire covering; one of said parts having a central opening to receive a bushing which projects therethrough and an arched portion or elevated bridge-piece spanning said opening and perforated to receive and serve as a guide for the plunger working therein, substantially as described.

490,976. MACHINE FOR DEHAIRING FUR-SKINS. CHARLES MOSER and CONRAD SCHNEIDER, Brooklyn, N. Y. Filed Feb. 13, 1892. Serial No. 422,144. (No model.)

Claim.—1. In a machine for dehairing fur, the combination, with a table located at an inclination and having its upper forward edge beveled downward, the said edge being adapted to receive the skin to be treated, clamping devices adapted for engagement with the skin, and tension devices connected with the clamping devices, of rakes, one located above the table near its beveled end and the other located in front of the table at the beveled end, and carriages having sliding movement in direction of the table, the said rakes being operated from the said carriages, substantially as and for the purpose specified.

2. In a machine for dehairing fur skins, the combination, with a table having one of its edges beveled downward, of rakes, the teeth of which are adapted to engage with the sharpened edge of the table, one at the top and the other at its beveled surface, a carriage having movement to and from the table and connected with the rakes, and a trip mechanism located upon the carriage and acting upon the rakes, whereby one rake is carried away from the edge over the table and the other downward in engagement with the beveled surface of the edge, substantially as and for the purpose specified.

3. In a machine for dehairing fur skins, the combination, with a table, one edge of which is beveled downward, a shaft located at one end of the table, a treadle, and an actuating mechanism between the treadle and the shaft, of chains attached to the shaft at one end and passing over the table and beneath it, the lower ends of the chains being weighted, bars connecting the chains at top and bottom, and clamps carried by the bars and adapted to receive and hold the ends of the skin to be treated when said skin is passed over the beveled surface of the table, as and for the purpose set forth.



4. In a machine for dehairing fur skins, the combination, with a table placed at an inclination and the upper edge whereof is beveled downward, and a winding mechanism located near the lower end of the table, of weighted chains attached to a shaft and passing over and beneath the table, clamps carried by the chains and adapted to receive the edges of the skin under treatment, and auxiliary clamps located at the bottom of the table and adapted for engagement with the corners of the skin, the said clamps having weights attached thereto, as and for the purpose set forth.

5. In a machine for dehairing fur skins, the combination, with a table over which the skin is to be stretched, of shear blades extending practically parallel with one edge of the table, one above the other, links connected with the blades and pivoted together at one end, slides connected with the links, and a lever operating the slides, substantially as shown and described.

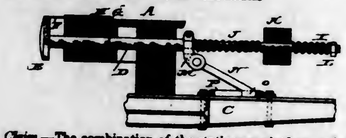
6. In a machine for dehairing fur skins, the combination, with a table located at an inclination, the upper edge whereof is beveled and adapted to receive the skin to be treated, of shear blades extending essentially parallel with the beveled edge of the table, one above the other, guards located at one side of the blades, the guards of the blades being adapted for interlocking connection, a lever, and a connection between the lever and the shear blades and their guards, whereby through the medium of the lever the blades and guards are simultaneously operated, as and for the purpose specified.

7. In a machine for dehairing fur skins, the combination, with a frame having inclined tracks, a table located at an inclination between the tracks, the upper edge being a beveled edge, of carriages held to travel upon the tracks, weights attached to one end of the carriages, a treadle connected with the opposite ends of the carriages, slides held to move in the carriages, rakes carried by the carriages and operated from the slides, one rake being located above and the other

substantially below the table, one engaging with the table at its beveled edge and the other with the beveled edge, and a shifting mechanism connected with the table and adapted for engagement with the skin to be treated, as and for the purpose specified.

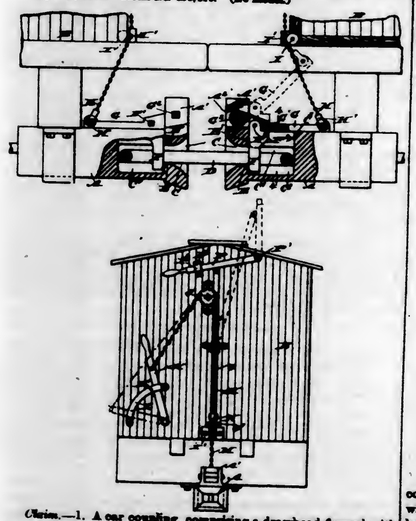
8. In a machine for dehairing fur skins, the combination with a frame, track diagonally secured to the frame, a table diagonally located between the tracks its upper edge being a beveled edge, and a shifting mechanism connected with the table and adapted to receive and hold upon said table the skin to be treated, of carriages held to travel upon the track, the forward ends of the carriages being weighted, a treadle connected with the lower ends of the carriages, slides having limited movement in the carriages, rakes connected with the carriages and operated from the slides, one rake being located above and the other practically beneath the table, the upper one engaging with the upper surface of the table at its upper edge and the other with the beveled surface of said table, and an adjusting mechanism whereby the upper rake may be carried in direction of or away from the table, as and for the purpose specified.

490,977. BUFFER FOR RAILWAY-CARS. THOMAS I. MCKEE, New York, N. Y., assignor to Isaac G. Johnson & Co., same place. Filed July 15, 1892. Serial No. 440,104. (No model.)



Claim.—The combination of the stationary platform and drawbar, the buffer for sliding in a recess below the same, between it and the coupling, the shouldered guard-plate, and the false platform secured to the top of the buffer-head, and projecting rearwardly into the recess between the underside of the guard-plate and the top of the stationary platform; the springs, the plate connected with the buffer, and the push-rod connected therewith and sliding in a slot in the plate secured to the drawbar, substantially as and for the purpose set forth.

490,978. CAR-COUPLING. ARTHUR F. HENRY, Milton, Pa. Filed Apr. 16, 1892. Serial No. 429,410. (No model.)

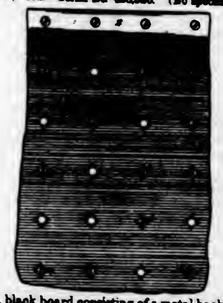


Claim.—1. A car coupling, comprising a drawhead formed with an entrance opening and a recess for the link, an arm extending vertically into the said recess and adapted to rest against shoulders formed in the drawhead, a lug projecting from the said arm, and a lever fulcrumed on the top of the drawhead and carrying the pivot for the upper end of the said arm, the lug of the latter being adapted to engage the under side of the said lever, substantially as shown and described.

2. A car coupling, comprising a drawhead formed with an entrance opening and a recess for the link, an arm extending vertically into the said recess and adapted to rest against shoulders formed in the drawhead, a lug projecting from the said arm, a lever fulcrumed on the top of the drawhead and carrying the pivot for the upper end of the said arm, the lug of the latter being adapted to engage the under side of the said lever, and means, substantially as described, for imparting an upward swinging motion to the said lever to lift the said arm in an upward direction, as set forth.

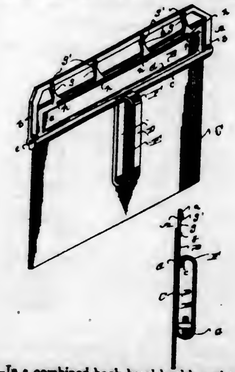
3. A car coupling, comprising a drawhead formed with an entrance opening and a recess for the link, an arm extending vertically into the said recess and adapted to rest against shoulders formed in the drawhead, a lug projecting from the said arm, a lever fulcrumed on the top of the drawhead and carrying the pivot for the upper end of the said arm, the lug of the latter being adapted to engage the under side of the said lever, and means, substantially as described, for limiting the upward swinging motion of the said lever, as set forth.

490,979. ARTIFICIAL-SLATE BLACKBOARD. HENRY A. NEWMAN, Huntsville, JAMES D. WEBBER, Kansas City, and OMAR A. STEPHEN, St. Louis, assignors of one-fourth to THOMAS M. HIMORE, Huntsville, Mo. Filed Feb. 6, 1892. Serial No. 420,880. (No specimens.)



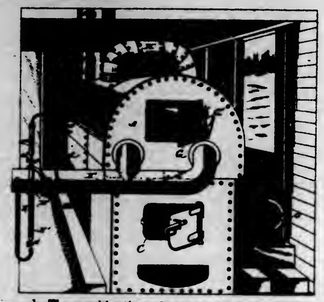
Claim.—A black board consisting of a metal backing plate 1 having a flanged rim 2, and punctures 3 and clinches 4 for holding the composition to the plate and to the rim whose flange overlaps it, and the composition molded on the plate within the flanged rim; substantially as described.

490,980. TRACE-CARRIER. EDWARD A. HIBBOLA, Crockett, Tex. Filed Aug. 20, 1892. Serial No. 444,496. (No model.)



Claim.—In a combined back band buckle and trace carrier, the combination with the buckle frame, having its lower bar *c* set forward of the plane of the upper bar, of the tongue frame within said buckle frame, and having its lower bar *d* behind said lower bar *c* and pivoted in the lower angles of the said buckle frame, an arm *D* carried centrally by said lower bar *d*, and bent to form an elongated vertical trace carrier loop, open at its upper end, and an arm or projection *F* on said lower bar *c* adapted to close said loop, said arm or projection being raised from said loop when the buckle frame is turned backwardly, substantially as specified.

490,981. FUMIGATING APPARATUS. SAMUEL B. OLLIPHANT and THOMAS A. CLAYTON, New Orleans, La. Filed Jan. 25, 1892. Serial No. 419,172. (No model.)



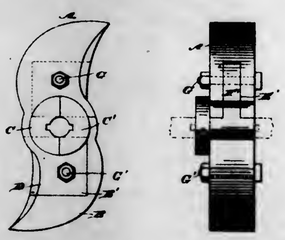
Claim.—1. The combination of a furnace for heating, a retort for generating gas, a receiver or gasometer, a fan, and pipes for connecting the retort, fan and receiver with the vessel or compartment to be fumigated in a closed system through which a continuous circulation of the gas alone may be maintained, substantially as set forth.

2. The combination with a furnace for generating a disinfecting gas, inlet and outlet pipes to said furnace, a receiver or reservoir, a pipe connected with the outlet pipe of the furnace and entering said receiver or reservoir at top and extending nearly to the bottom, and a pipe leading from the side of said receiver and extending up inside nearly to the top, substantially as set forth.

3. The combination of a suitable furnace, a chamber above said furnace for generating a disinfecting gas, suitable pans in the generating chamber, an inlet pipe to said chamber which is adapted to be connected with the compartment to be fumigated, an outlet pipe leading from said generating chamber, a receiver or reservoir into which said outlet pipe extends, a fan communicating with said receiver for drawing the gas therefrom, and a lead of pipe extending from said fan and also adapted to be connected with the compartment to be fumigated, whereby a continuous circulation of the fumigating gas can be maintained through the generating chamber and compartment being fumigated, substantially as and for the purpose set forth.

4. The combination with a furnace for generating a disinfecting gas, inlet and outlet pipes, a receiver or reservoir for the gas, the outlet pipe for the furnace extending into said receiver, and a pipe leading from said receiver, the pipe which enters said receiver being of larger diameter than the pipe which leads from the receiver, substantially as and for the purpose set forth.

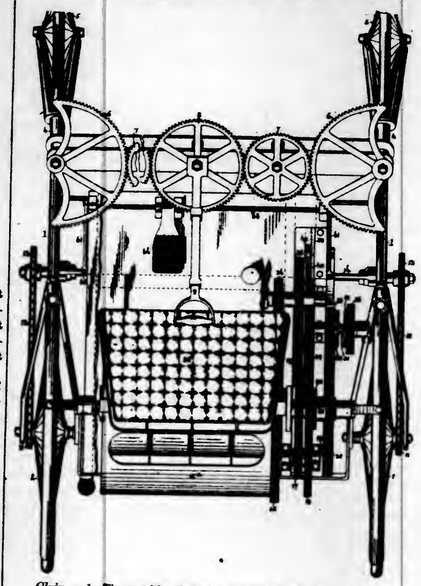
490,982. CAM. GIACOMO FARRO, Sierra City, Cal. Filed Oct. 12, 1892. Serial No. 448,713. (No model.)



Claim.—1. A sectional cam, comprising two sections each formed with a half hub, one section being provided with a slot extending on opposite sides of the hub and at right angles thereto, and the other section provided with a tongue extending in opposite sides of the hub and fitting in the slot of the first section, substantially as described.

2. The herein described sectional cam, consisting of the section A provided with the half hub C, the extension D and the slots E E' at right angles to the hub, the section B provided with the half hub C', the recess B' and the tongues F F', and the bolts G for securing the parts together, as specified.

490,983. SPRING-PROPELLED VEHICLE. DANIEL M. PFAFFS, Philadelphia, Pa., assignor to the Compound Spring Power Company, Camden, N. J. Filed Feb. 29, 1892. Serial No. 423,290. (No model.)



Claim.—1. The combination of the spring shaft, the winding lever having two pawls, right and left ratchets, one engaged by one pawl, and the other by the other pawl, a spur wheel connected to one ratchet and meshing directly with a wheel of the winding train, and a spur wheel connected to the other ratchet and meshing indirectly with said wheel of the winding train through the medium of an interposed pinion or pinions, whereby the continuous winding of the springs may be effected by a back and forth vibration of the winding lever, substantially as specified.

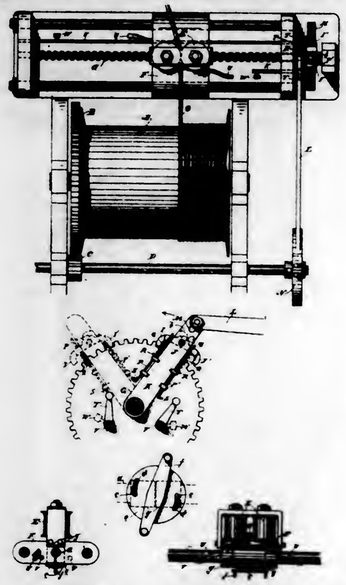
2. The combination of the spring drum, the driving shaft, a pinion loose thereon, gearing connecting said pinion to the spring drum, a clutch for connecting said pinion to the driving shaft, a second pinion also loose on the driving shaft, a clutch for connecting said second pinion to the driving shaft, and gearing whereby the movement of said second pinion is caused to impart reverse movement to the transmitting gearing, and thence to the spring drum, in order to re-wind the springs through the medium of the driving shaft, substantially as specified.

3. The combination of the driving wheels of the vehicle, the brake shoes normally held in engagement with said wheels by springs, a treadle, and lever mechanism whereby said brake shoes can be withdrawn from contact with the wheels by the pressure of the foot, substantially as specified.

490,984. ROPE-LEADER FOR WINDING-DRUMS. NORTON H. PIER, Eureka, Cal. Filed June 20, 1892. Serial No. 437,385. (No model.)

Brief.—The traversing screw has attached to it a ratchet-wheel, which is driven by a double pawl on an oscillating arm. The screw is rotated in either direction according to which end of the pawl is in engagement with the ratchet-wheel. As the traverse-carriage approaches either end the tracks U contact with the rollers W, which brings either of the arms T into position to contact with the rods P or P', which reverses the pawl.

Claim.—1. A rope leader for winding drums consisting of a traveler having guides between which the rope or cable passes before reaching the drum, a screw parallel with the axis of the drum and attached to the traveler so as to move the latter from end to end, a mechanism by which the screw is rotated consisting of a ratchet wheel fixed to the screw shaft, an oscillating arm fulcrumed to turn about the screw-shaft, a double pawl fulcrumed upon the oscillating arm and adapted to engage the teeth of the ratchet-wheel, an eccentric mounted upon a rotating shaft, a connecting rod uniting it with the oscillating arm whereby the pawl is moved over the ratchet wheel when the latter and screw are rotated, and means for shifting the pawl when the traveler has reached either end of the screw substantially as herein described.



2. In a rope leader for winding drums, a traveler having guides between which the rope or cable passes before reaching the drum, a screw parallel with the axis of the drum, a nut fixed to the traveler and movable upon said screw, mechanism by which said screw is rotated consisting of a ratchet wheel, a double pawl one end of which engages the ratchet wheel to rotate it in one direction and the other to rotate it in the other, in combination with a mechanism whereby one end of the pawl is disengaged and the other is engaged when the traveler has reached either end of the screw, substantially as herein described.

3. In a rope leader for winding drums, the rotating screw, the traveler having a nut adapted to move upon said screw and guides between which the rope passes before reaching the drum, an oscillating arm having a double pawl either end of which engages the teeth of the ratchet wheel, and a spring by which either end is held in engagement with the teeth, in combination with the vertically movable rods P and P' passing through the ends of the pawl, springs Q surrounding the rods and acting upon the pawl, rocker arms T by which either one or the other of the rods P P' are forced upward to reverse the pawl, and the rods with which the rocker arms are connected, together with the cam-shaped tracks U upon the traveler, and the arms W whereby the rocker arms T are moved and the reversal of the pawl takes place, substantially as herein described.

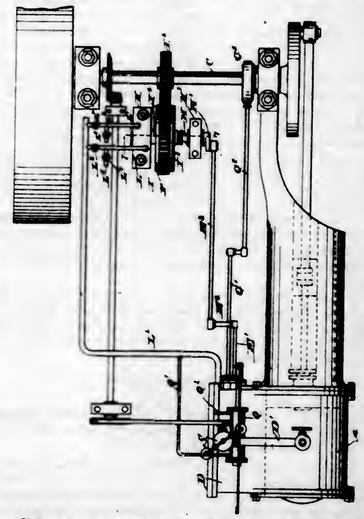
490,985. PUMP. WILLIAM H. POOLE, Cairo, Ga. Filed Aug. 26, 1892. Serial No. 444,068. (No model.)

Claim.—In a pump attachment, the combination with a pump cylinder or stand and a piston rod moving vertically therein; of the attaching ring or band removably clamped to the upper end of said cylinder or stand, opposite parallel bearing arms or uprights arising from opposite sides of said ring or band and provided with bearings at their upper ends, a horizontal crank shaft mounted in the bearings at the upper ends of said arms, a balance wheel mounted upon the shaft at one end thereof between said arms, a curved guide yoke arranged between said arms at right angles thereto and provided with a guide perforation in its upper curved end adapted to receive the piston rod, and a slotted connecting rod pivotally connected at its upper end to the crank of said crank shaft and at its lower end to said piston rod below the upper curved end of said yoke, substantially as set forth.

490,985.



490,986. VALVE-GEAR FOR STEAM-ENGINES. THOMAS M. PERRY, West Chester, Pa. Filed June 22, 1892. Serial No. 437,571. (No model.)



Claim.—1. A steam engine provided with a variable rotary shaft controlled by the pressure of the motive agent rotated from the main driving shaft, and connected with the valve governing the inlet of the motive agent to the cylinder, substantially as shown and described.

2. A steam engine provided with a slide valve controlling the inlet ports of the motive agent to the cylinder, a rotary crank shaft rotated from the main drive shaft and having its crank or eccentric connected with said slide valve, said shaft also being controlled by the motive agent through suitable connections, substantially as set forth.

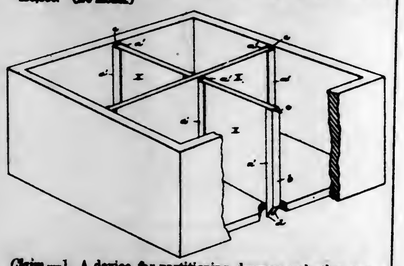
3. A steam engine provided with a cylinder having separate inlet and exhaust ports, a slide valve for the said inlet ports and controlled through the medium of suitable mechanism by the motive agent entering the steam chest, and a slide valve for the said exhaust ports and controlled from the main driving shaft of the engine, substantially as shown and described.

4. A steam engine provided with a casing mounted to turn and driven from the main driving shaft, the said casing containing a spring

pressed wing connected with the slide valve for the inlet ports, substantially as shown and described.

5. A steam engine provided with a valve operating and controlling mechanism comprising a casing mounted to turn and driven from the main driving shaft of the engine, a wing mounted to oscillate in the said casing and acted on by the motive agent leading to the casing from the steam chest, springs pressing on opposite sides of the said oscillating wing, and a shaft carrying the said wing and provided with a crank arm connected with the sliding valve for the inlet ports of the engine, substantially as shown and described.

490,987. DEVICE FOR PARTITIONING DRAWERS, &c. WILLIAM B. RICHARDS, New York, N. Y. Filed July 1, 1892. Serial No. 438,668. (No model.)



Claim.—1. A device for partitioning drawers and other structures, consisting of a body portion adapted to receive and retain a partition piece, and provided with spurs, for attaching said device to the structure to be partitioned, substantially as shown and described.

2. A device for partitioning drawers and other structures, consisting of a channeled body portion adapted to receive and retain a partition piece, and provided with spurs, for attaching said device to the structure to be partitioned, substantially as shown and described.

3. A device for partitioning drawers and other structures consisting of a channeled body piece having spurs for engaging with the side and bottom of the structure, substantially as described.

4. A device for partitioning drawers and other structures provided at one end with a part adapted to engage the bottom of such structure and at the other end with a part adapted to engage the side of said structure, substantially as shown and described.

5. In a device for partitioning drawers and other structures, made as described, the channeled body piece having the side pieces forming the channel, extended at their lower end to a point forming spurs for engaging the bottom of such structure, substantially as shown and described.

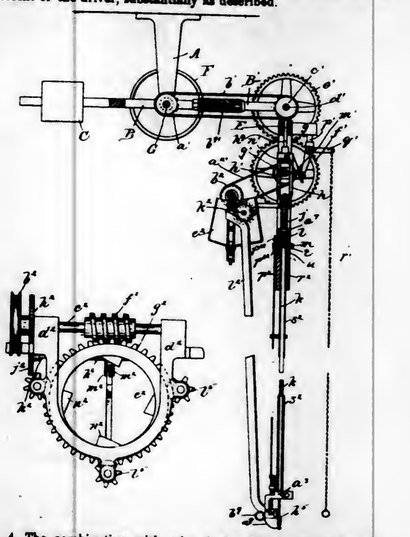
6. A device for partitioning drawers and other structures, consisting of a body portion *b*, side pieces bent at an angle thereto, and continued at their lower end to a point, the top of part *b* being also continued to a point and bent in the opposite direction to the side pieces, substantially as shown and described.

490,988. TACKING-MACHINE. FRANK G. ROGERS, Haverhill, assignor of one-half to Charles H. Kelley, Revere, Mass. Filed Nov. 25, 1891. Serial No. 412,102. (No model.)

Claim.—1. The combination with a driving shaft, a counterbalanced frame pivoted to swing vertically concentrically with the axis of the said driving shaft, a yoke pivoted to the said counterbalanced frame to swing laterally thereon, a driven shaft journaled in bearings in the said yoke, driving connections whereby the said shaft is actuated from the driving shaft, a depending frame hung concentrically with the driven shaft, a hopper and race bar carried by the said depending frame, a tack-feeder for placing tacks contained in the hopper upon the race-bar, a transferring device at the delivery end of the race-bar for separating the tacks and transferring them to the tack-grasping device, a tack-grasping device, a spring actuated tack-driver, an actuating shaft mounted in bearings in the depending frame and driven from the said driven shaft, a wheel carried by said shaft and provided with a projecting pin, a pivoted notched arm connected with the tack driver, means whereby said arm may be pressed into engagement with the said pin, and connections with the said actuating shaft through which the feeder, transferring device and grasping device are made operative, substantially as described.

2. The combination with the race-bar, of the carrier having the slot f^2 and located adjacent to the end of the race-bar, an operating lever for the said carrier, the spring-pressed pusher having a cam-piece connected therewith, and a reciprocating rod carrying collars or projections engaging said lever to move the carrier, the said rod also acting against the cam-piece to move the pusher oppositely to the spring, substantially as described.

3. The combination with the race-bar of the carrier having the slot f^2 and located adjacent to the end of the race-bar, the pusher, and devices for sliding the carrier across the end of the race-bar and actuating the pusher to eject a tack from the slot f^2, of the spring-pressed holders between which the tack is forced when it is ejected from the slot f^2, a spring supporting the said holders, a driver, means for actuating the driver, and holder-opening projections below the race-bar against which the arms of the holders are carried in the descent of the driver, substantially as described.



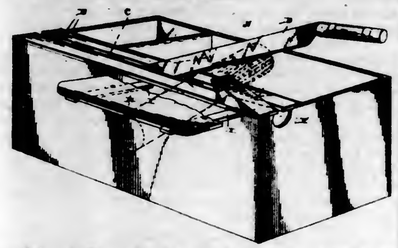
4. The combination with tube e^3, the driver-rod within said tube, the driver connected with the lower end of said driver-rod, and devices at the upper end of said driver-rod for actuating the said rod and driver, of the frame f^3, the spring connected with the said frame and tending to hold it against the lower end of the tube, the spring-pressed holders carried by the said frame, and the fixed projections against which the arms of the holders are carried in the descent of the driver and which serve to separate the holders, substantially as described.

5. The combination with the driver, the driver-bar, and a connected yoke, of a rotating wheel, carrying a pin or projection, a shouldered arm pivoted to the said yoke, means whereby the said arm may be pressed inward to occasion engagement between the shoulder and the projection or pin aforesaid, and a spring actuated arm or arms operating to depress the driver and connected parts after the shoulder has become disengaged from the pin or projection substantially as described.

6. The combination with a driver, a driver-rod screw-threaded at its upper end, the internally-threaded coupling screw *j* having the external threaded portions j^3, j^3, the yoke *h* fitted to portion j^3, the shouldered arm pivoted to the said yoke, a rotating wheel carrying a projecting pin adapted to engage with the shoulder when the arm is pressed toward the same, means for pressing inward the said arm when desired, a flanged sleeve fitted to the portion j^3 of the screw *j*, and a spring-actuated arm or arms acting against the flange of the sleeve, all substantially as described.

7. The combination with a driver, a driver-rod having a projection or flange moving therewith, and means for actuating said driver-rod and driver, of an actuating rod having nuts or stops thereon to be engaged alternately by the projection or flange as the said driver-rod reciprocates, collars or projections also carried by said actuating rod, a lever having one arm thereof disposed in position to be engaged by the said collars or projections alternately as the actuating rod is reciprocated, a transferring carrier receiving successive tacks of a series, a spring-pressed pusher for ejecting the tacks from the carrier and having a cam-piece adapted to be borne upon by the lower end of the actuating rod, and a tack-holder between the jaws of which the tacks are successively pushed, when ejected from the carrier by the pusher, and held in position to be acted upon by the driver, substantially as described.

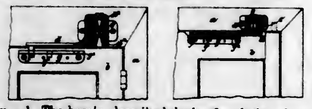
490,989. STRAW-CUTTER. GEORGE W. ROSS, Booneville, Tex., assignor of one-half to John A. Winebrener, same place. Filed May 14, 1892. Serial No. 433,083. (No model.)



Claim.—1. The combination with a box and strips secured to the upper side thereof forming a slot between them, of a stop secured to one of the said strips which is formed with a bearing surface cut at an angle to the plane of the strips, and a knife adapted to be reciprocated in said slot substantially as shown and described.

2. In a straw cutter, the combination of a box having opening F in one end thereof, parallel strips B secured to the upper open side of the box near one edge thereof, the said strips forming the slot C which communicates at one end with opening F, knife D, antifriction rollers E at one end thereof, which knife is placed in position for cutting by being first placed within the box, then passing the handle thereof outward, through opening F, and drawing the blade up through slot C, substantially as shown and described.

490,990. DOOR-CLOSING DEVICE. CHARLES SCRIVEN, Leeds, England. Filed Aug. 18, 1892. Serial No. 443,386. (No model.) Patented in England Aug. 31, 1891, No. 14,167.

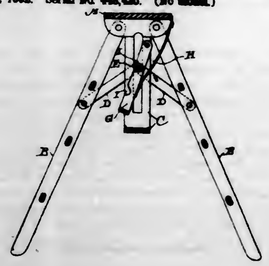


Claim.—1. The herein described device for closing doors, comprising a bracket and a lever pivoted thereto, one of these parts being adapted to be connected to the door and the other to the door frame, with a torsion spring of rubber or similar elastic material forming an axial connection between the lever and bracket, substantially as described.

2. The herein described device for closing doors, comprising a bracket and a lever pivoted to the bracket, one of these parts being adapted to be connected with the door and the other to the door frame, in combination with a torsion spring of rubber or similar elastic material connecting the lever and bracket and devices substantially as described for automatically holding the door in the position to which it may be moved.

3. The herein described devices for closing doors comprising a bracket adapted to be secured to the door frame, a lever pivoted to the bracket, a torsion spring of rubber or similar elastic material connecting these two parts, with a slotted and notched plate adapted to be secured to the door and to engage with the said lever.

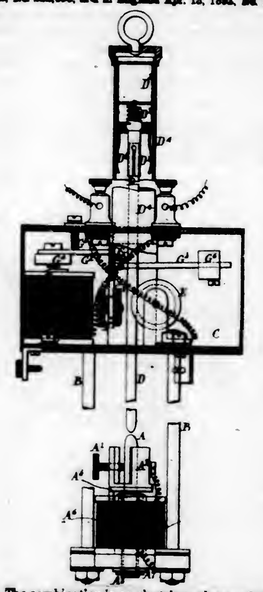
490,991. STEP-LADDER. SAMUEL R. SMITH, Colusa, Cal. Filed Oct. 10, 1892. Serial No. 448,626. (No model.)



Claim.—1. The ladders pivoted at the upper ends and having the bases movable to or from each other, links connected together at their meeting point and having their outer ends pivoted to the sides of the ladders, in combination with a spring actuated yoke having notches upon one side adapted to engage the central pivot pin of the links, whereby the links and the ladders are locked, substantially as herein described.

2. The ladders having their upper ends pivoted and their lower ends movable to or from each other, links having the outer ends pivoted to the sides of the ladder and their meeting ends connected by a pivot pin about which they turn, a slotted frame fixed centrally between the ladders and serving as a guide within which the pivot pin travels up and down, a yoke having its upper end fulcrumed at one side of the pivot pin, springs pressing against the back of the yoke to force its front edge in contact with the pivot pin, and notches formed in the front edge of the yoke adapted to engage the pivot pin and lock the ladders at any point whereby they are prevented from moving and a permanent base maintained, substantially as herein described.

490,992. ELECTRIC-ARC LAMP. JAMES SUDDEN and WALLACE J. L. SADDY, London, England, assignors to Charles Henry Freedman, Frank West Suter, and Harrington Wyman, same place. Filed July 13, 1892. Serial No. 439,913. (No model.) Patented in France June 28, 1892, No. 222,053, and in England Apr. 13, 1892, No. 7,095.



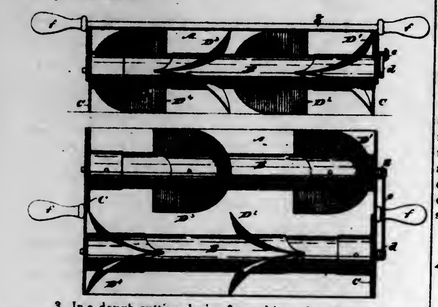
Claim.—The combination in an electric arc lamp, of a lower electro magnet having a spring supported armature to which the lower carbon is attached, with a closed air tube, a piston within the closed air tube to which the upper carbon is attached, a roller at one side of the upper carbon, and an electro magnet having an armature lever the arm of which is located at the opposite side of the upper carbon and acts in connection with the roller as a brake to hold the upper carbon stationary, substantially as described.

490,998. CAKE-CUTTER. ANDERS A. SODERBERG, Boston, Mass. Filed May 16, 1892. Serial No. 433,126. (Model.)

Claim.—1. A dough cutting device for making cakes, composed of a frame, a pair of horizontal parallel shafts or rollers carried by said frame, linked together to work in unison, cutting wheels on the ends of said rollers operating to rotate the latter and to guide the device as it is run over the dough, and radial cake forming cutters projecting from opposite sides of the rollers arranged, lengthwise of the two rollers, out of line but in overlapping relation with each other and at right angles in a radial direction or relation to one another, whereby each roller is made to cut one part of each cake

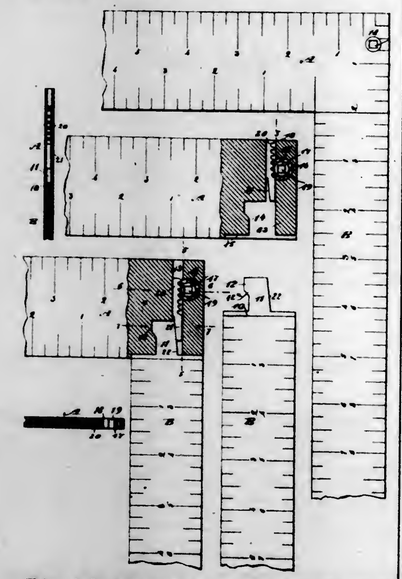
and the other roller the other part of each cake, to give the cake its desired form or figure, substantially as specified.

2. In a dough cutting device of the character described, the combination with rollers and cake cutters on said rollers, of cutting and running wheels one on each roller at opposite ends thereof, substantially as described.



3. In a dough cutting device for making cakes, the combination of the frame A, the shafts or rollers B, B, the cutting wheels or disks C, C, on the ends of said rollers, the cranks *d d* and connecting link *e*, and the cake-forming cutters D^1, D^2, D^3 and D^4, on said rollers arranged in relation with each other, substantially as described.

490,994. SEPARABLE SQUARE. HARRY M. STOCKING and EUGENE L. VROOM, Castleton Corners, N. Y. Filed July 20, 1892. Serial No. 440,579. (No model.)

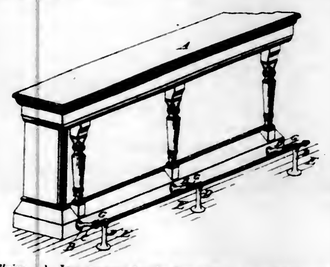


Claim.—1. In a carpenter's square, the combination, with the body member and the arm member, the said members being separable, and one of the members being provided with a socket, of a tongue secured to the other member and adapted to enter the socket, a rack held to slide in the member carrying the socket and provided with a locking head to engage with the tongue, and a pinion exteriorly operated and meshing with the teeth of the rack, as and for the purpose set forth.

2. In a separable carpenter's square, the combination, with a body member provided with a socket having one straight wall, a recess in the opposite wall and a channel leading into the recess, of a rack having movement in the channel and provided with a head having one inclined side, a rack having movement in the body member and engaging with the head, and a tongue secured to one end of the arm member, the said tongue being adapted to enter the socket in the body member, and said tongue being also provided with a lip or extension at one side to enter the recess in the wall of the socket, the opposite side of the tongue being inclined and adapted for locking engagement with the head of the rack, as and for the purpose set forth.

3. In a separable carpenter's square, the combination, with a body member provided with a socket, one wall of which is straight and the other provided with a recess and a second recess produced at the mouth of the socket, and a rack having sliding movement in the body member and in the socket, one end of the rack having one of its sides inclined, of a pinion engaging with the rack, a flange formed upon the arm member of the square and adapted to enter the recess at the mouth of the socket, a tongue projected from the flange and having one beveled side adapted for engagement with the inclined surface of the rack, the tongue being also provided with a lip or extension at its opposite side to enter the recess in the wall of the socket, substantially as shown and described.

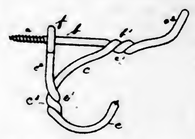
490,995. BRACKET OR SUPPORT FOR FOOT-RAILINGS. SAMUEL A. STONE, Fennimore, and JOHN PHILIPPS, Lancaster, Wis.; said Stone assignor to said Philipps. Filed July 11, 1891. Serial No. 399,356. (No model.)



Claim.—1. In a support for the foot railings of counters, the combination of the bracket arm B, adapted to be attached to the counter, the leg or foot D provided with openings F and integral with the arm G, hinged to the said arm B, and the foot railing R passing through said opening F, substantially as described.

2. In a support for foot railings for the front of counters, the combination of the curved bracket arms B, adapted to be attached to either a perpendicular or the beveled sloping surface near the bottom of a counter, the legs or feet D provided with openings F, and integral with the arms G hinged to said arms B, and the foot railing R passing through said openings F, substantially as described.

490,996. SUSPENSION-HOOK. CHARLES H. THURSTON, Boston, Mass., assignor to Frank W. Thurston, same place. Filed Oct. 19, 1891. Serial No. 409,140. (No model.)



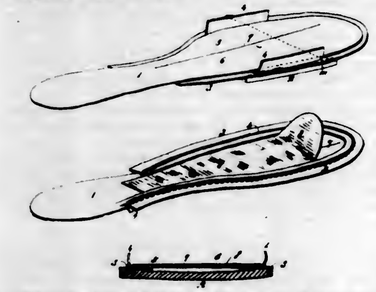
Claim.—A hook formed of a single, continuous piece of wire and consisting of a screw shank *a*, a horizontal arm *b* continuous with said screw shank, a hook portion consisting of the return bend or loop b^3 c^3, a second hook consisting of the return bend or loop *d e*, a single vertical portion e^3 the upper end of which is tightly locked upon the horizontal arm *b*, and the inclined brace *c* locked to the horizontal arm *b* and to the vertical portion or arm e^3, at or about the centers of their respective lengths, by being intertwisted therewith, the whole of the twist of the wire forming the lock between the said inclined brace and the said vertical portion or arm e^3 of the lower member being in front of a plane which coincides with the back surface of the said vertical portion or arm.

490,997. SHOE-LACE FASTENER. WILLIAM T. TIMMERMAN, New York, N. Y., assignor to himself and John W. Alexander, same place. Filed Nov. 3, 1892. Serial No. 450,861. (No model.)



Claim.—A shoe-lace fastener, consisting of an endless wire loop C having the closed oblong eye *c'* in the form of a prolate ellipse, the closed eye *c* and formed integral with a pair of shoulders c^2 located between the two eyes and bearing in close contact against each other, the oblong eye serving to engage one of the lacing hooks of a boot or shoe and the other eye to engage the shoe-lace, substantially as described.

490,998. SOLE. WILLIAM H. TRIER, St. Louis, Mo., assignor to the Self Adjusting Shoe Company, same place. Filed Feb. 13, 1892. Serial No. 421,326. (No model.)



Claim.—1. The combination, in a boot or shoe, of an inner sole, divided longitudinally by a slit extending from the toe of the boot or shoe to the instep of the same, and an upper secured at one edge to one member of the divided inner sole, and at the other edge to the other member of the divided inner sole: substantially as and for the purpose set forth.

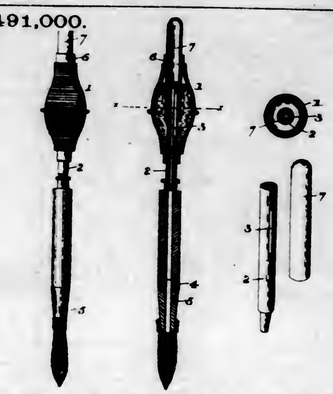
2. The combination, in a boot or shoe, of an inner sole divided longitudinally by a slit extending substantially from the toe of the boot or shoe substantially to the instep of the same, and an elastic portion secured by one edge to one member of the divided inner sole and by the other edge to the other member of the divided inner sole, and an upper secured by one edge to one member of the divided inner sole, and by the other edge to the other member of the divided inner sole: substantially as, and for the purpose set forth.

490,999. METALLIC FASTENING FOR UMBRELLA-COVERS. FREDRIK S. UGHERMANN, Christiansand, Norway, assignor of one-half to John T. Odegard, Cooperstown, N. D. Filed May 12, 1892. Serial No. 432,752. (No model.)



Claim.—In an umbrella or parasol, the combination with the cover, and the ribs having their outer ends bifurcated and twisted together forming eyes, of the clamp consisting of a piece of metal bent over upon itself forming clamping plates and a loop, and provided with teeth and overlapping tongues, and the rings engaging with said loops and the eyes in the ribs, substantially as described.

491,000. FOUNTAIN MARKING-BRUSH. DAVID W. WHITAKER, Durham, N. C., assignor of one-half to Starling B. Carrington, same place. Filed Aug. 11, 1892. Serial No. 442,772. (No model.)



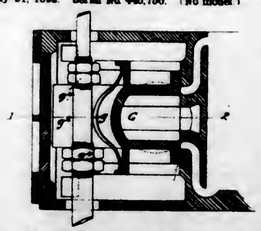
Claim.—In a fountain marking brush the combination with the elastic and flexible bulb open at top, and at its upper end provided with a thimble, of the supply tube having an elongated opening near its upper end, a removable hollow plug to which the bristles are secured located in its lower end, and the vertically movable tube passing through the thimble and slidable upon the supply tube, substantially as and for the purpose specified.

491,001. DETACHABLE HANDLE FOR COFFEE-POTS. MARY C. WOODWARD, Pony, Mont. Filed May 12, 1892. Serial No. 432,751. (No model.)



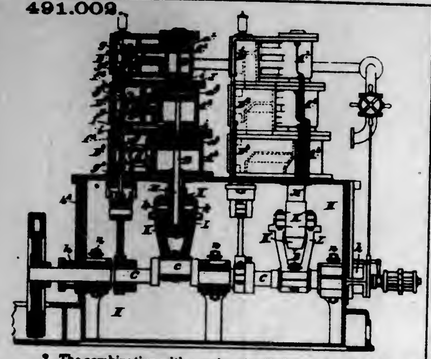
Claim.—The combination with a coffee pot having plate B provided with the side-beads C, bosses E F, and central grooved stud D, of the detachable handle H having plate G provided with the side channels C' C', end caps E' and F', aperture I i and spring-actuated hook J; all constructed and combined to operate substantially as and for the purpose shown and set forth.

491,002. STEAM-ENGINE. JOSEPH WRIGHT, London, England. Filed July 21, 1892. Serial No. 440,750. (No model.)



Claim.—1. The combination with the cylinder and valve-rod, of a removable valve formed with a curved bearing face engaging in a corresponding seat, and rotatable in said seat about the valve rod, and means for clamping the valve rod to the valve, substantially as described.

491,002.



2. The combination with a series of cylinders, valves therefor and valve casings, said valves having a common valve-rod, and being rotatable in their seats about the same means for clamping the valves to the rod and for removing each or any valve from its casing without disturbing or displacing the rod, substantially as described.

3. In a steam or fluid pressure engine, the combination with the valve rod, of one or more valves each having its face formed in the arc of a circle stricken from the rod valve as a center rotatable about the same and engaging in corresponding seats, and means for engaging said valve or valves with the valve rod, substantially as described.

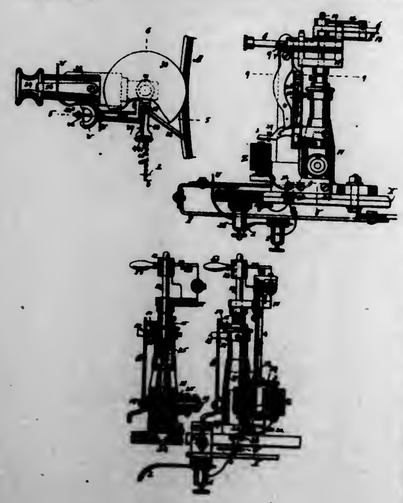
4. In a fluid pressure or steam engine, the combination with the piston and connecting rods, of a lower stuffing box having a sleeve projecting therefrom through which the piston rod passes, a tubular slide, to which the lower end of the piston rod is secured, engaging about said sleeve and to the lower end of which is pivoted the connecting rod, substantially as described.

491,008. PAINT. WILLIAM R. ABBOTT and WILLIAM SCHERER, Washington, D. C. Filed Oct. 8, 1892. Serial No. 448,175. (No specimens.)

Claim.—1. A base for the manufacture of mixed paints consisting of mica reduced to an impalpable powder and ground with oil.

2. A paint compound consisting of a base of mica reduced to an impalpable powder and ground with oil, a pigment and a binder.

491,004. ELECTRIC STOP-MOTION FOR KNITTING-MACHINES. WINSLOW M. BELL, Milton, N. Y. Filed Dec. 18, 1890. Serial No. 375,139. (No model.)



Claim.—1. In an electric stop-motion for knitting-machines, the combination with the bed-plate Y, the shipper-lever and its retracting-spring J, of the arm I, connected with said shipper-lever, the standard 11, spindle 14, therein, rotating frames 10, 12, carried by said spindle, the rod 6, sliding in the frame 10, and provided with a latch 7, swinging arm 4, engaging said latch, the cam 15 and recessed collar 16, on the spindle 14, spring-plate G, resting at its upper end against said cam and adapted to enter the recess in said collar and adapted to operate the shipper-lever, flat spring 2, electric battery V, wires U, W, electric magnets Z, and armature 3, substantially as described.

2. The combination with a shipper-lever and its retracting spring, of an arm I connected to said shipper-lever and provided with a ledge H, the spindle 14, rotating frames, 10, 12, thereon, rod 6, sliding in frame 10, swinging arm 4, engaging the rod 6, a cam 15, on the spindle 14, a spring-plate G, resting at its upper end against said cam, and adapted to engage the ledge H, on the arm I, the flat spring 2, electro-magnet Z, armature 3, engaging the swinging arm 4, a battery V, and suitable electrical connections for forming a circuit, substantially as described.

3. In an electric-stop-motion for knitting machines, the combination of the bed-plate Y, the shipping-lever C, and its retracting spring, arm I connected with said shipping lever, flat springs 2, electro-magnets Z, armature 3, swinging arm 4, engaging said armature, standard 11, spindle 14, therein, rotating-frames 10, 12, on said spindle, a spring-actuated rod 6, sliding in the rotating frame 10, and provided with a latch 7, engaging the upper end of the swinging arm 4, a cam 15 and recessed collar 16, on the spindle 14, a spring-plate G, the upper end of which rests against the cam 15, adapted to enter the recess in said collar and adapted to operate the shipper-lever, electric wires U, W, and battery V, substantially as described.

4. In a knitting-machine, the combination with a sliding frame carrying the presser wheel, of a quarter saver mounted in said frame and having a rod 38 provided with a serrated end, a tube 40 containing a spring pressed sliding bolt 41, and means connected with said sliding bolt, operated by the breaking of the yarn to throw the serrated end of said arm 38 against the head of the cylinder whereby the presser-wheel is caused to move out of contact with the needles, substantially as described.

5. The presser wheel 30 mounted on a post or shaft 31, in combination with the yarn detector 45, the tube 40, the spring actuated sliding bolt 41 therein, the arms 38 and 39 mounted on the post or shaft 37, said arm 39 being arranged to be in front of said sliding bolt 41, to keep said bolt out of contact with the wire U, spring plate 42 and wire U, substantially as shown and described.

6. In a knitting machine, the combination of a sliding frame 32, a presser-wheel 30 mounted therein, a post 37, carrying arms 38, 39, and a tube 40, a spring actuated sliding bolt therein, a rocking bar 44, having a yarn detector 45 extending therefrom, a stop 46, against which the end of the arm 39, rests, a spring-plate carried by the sliding bolt 41, and electric wires U, W, substantially as described.

7. In a knitting machine, in combination with a frame 10, and a spring-actuated sliding rod therein, of the magnet Z, armature 3, and swinging arm 4, engaging said armature and said sliding rod, whereby said sliding rod is projected against the cloth on the cylinder on the closing of an electric circuit through the magnet Z, substantially as described.

8. The combination with the standard 11, spindle 14, therein, detachable frame 10 and frame 12 on said spindle, and the spring actuated rod sliding in said frame 10, provided with a catch 7, of the swinging arm 4, engaging the catch on the sliding rod, the armature 3 having a catch 5, to engage the swinging arm 4, whereby when the rod is released it will move toward the cylinder and its serrated end will engage with and be turned by the revolving cloth, substantially as described.

9. The frame 10 provided with the rod 6, having a catch 7 and the automatic and self-setting swinging arm 4, in combination with the armature 3 and its catch 5 with which the swinging arm automatically engages, substantially as described.

10. In combination with the frame 10 and the spring actuated sliding rod 6 therein, of the swinging arm 4 having a shoulder or catch adapted to engage the rod 6, the armature, armature-lever 3 having a catch 5, and the spring 26, connected with the armature lever normally operating to retain the armature lever in engagement with the arm 4, substantially as described.

11. The frame 10, in combination with frame 12, the spring-actuated sliding rod 6, the spindle 14, and standard 11, arranged so that said frame 10 is detachable from said spindle and standard, substantially as shown and described.

12. The combination with the forked standard T, the electric wire U and the dropper P, of the lifting lever 62 provided with a handle 63, constructed and adapted for limiting the extent of the downward motion of the dropper, substantially as shown and described.

13. The combination with the quarter saver, the spring-actuated

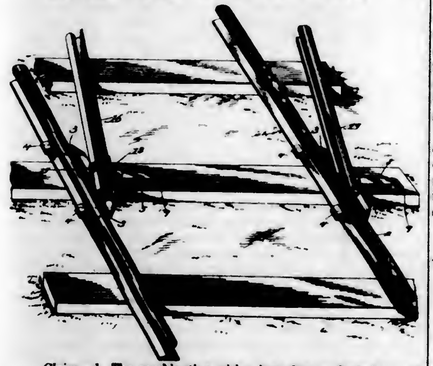
sliding bolt 41, the spring plate 42 and electric wire U, of the stationary pin 42ª, the tube 40 and the piece 43 on which it is mounted, the yarn detector 45; the stop 46, and the rocking bar 44, substantially as shown and described.

14. In an electric stop-motion for knitting machines, the combination with the bed-plate, the shipping-lever and its retracting spring; the arm 1 connected with said shipping lever, flat spring 2, electric wires U, W, battery V, electro-magnets Z, armature 3, the standard 11, spindle 14, stopped therein, rotating frames 10, 12, spring-actuated rod 6, sliding in the frame 10, and provided with a latch 7, a swinging arm engaging said latch 7 and a latch on the armature 3, a cam 15 and recessed collar 16 on the spindle 14, a spring plate G adapted to operate the shipping-lever, resting at its upper end against the cam 15 and adapted to enter the recessed collar 16, of the plush wheel R, for delivering the yarn to the needles, the dropper P, pivoted upon a support Pˣ and having a hook O at its inner end in proximity to the plush wheel R, substantially as described.

15. In an electric-stop-motion for knitting machines, the combination with a shipper-lever and means engaging the same to retain the machine in operation, of mechanism for releasing said shipper lever, consisting of a magnet, an armature, a swinging arm engages by said armature, the spindle 14, the frames 10 and 12 on said spindle, the spring-actuated sliding bar 6, in the frame 10, and the self-acting catch 7 on the sliding bar, engaging the swinging arm, substantially as described.

16. In an electric stop motion for knitting machines, the combination of the spindle 14, the frames 10 and 12 thereon, the spring-actuated sliding bar 6 in the frame 10, and the self acting catch 7, on the sliding bar 6, with the swinging arm 4 the shoulder 8 thereon, armature 3, provided with catch 5, and the electric magnets 22, substantially as described.

491,005. WRECKING-FROG. WILLIS C. BOURDETTE, Ridgway, Colo. Filed Sept. 8, 1892. Serial No. 445,294. (No model.)



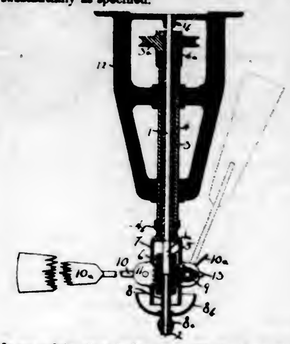
Claim.—1. The combination with a base frame adapted to rest on a cross-tie and extend under and engage a main line rail, of a rotatable shoe journaled on the base frame and having a pair of hooked standards or arms of different height to engage the tread or ball and the base flange of an ordinary railway rail so that the latter constitutes an inclined frog for replacing a car or engine, substantially as described.

2. The combination with a base frame adapted to rest on a cross tie and having hooked arms to extend under and engage a main line rail, of a rotatable shoe journaled on the base frame and having a pair of standards or arms to engage the tread or ball and the base flange of an ordinary railway rail so that the latter constitutes an inclined frog for replacing a car or engine, substantially as described.

3. The combination with a base frame adapted to rest on a cross tie and extend under and engage a main line rail, of a bar pivoted intermediate its ends to the base frame, and a rotatable shoe having a pair of hooked standards or arms of different height to engage the tread or ball and the base-flange of an ordinary railway rail so that the latter constitutes an inclined frog for replacing the car or engine, substantially as described.

491,006. REVOLVING FAN. ISRAEL D. BOYER, Dayton, Ohio, assignor to himself and Walter Edmund Bass, same place. Filed Dec. 2, 1891. Serial No. 413,893. (No model.)

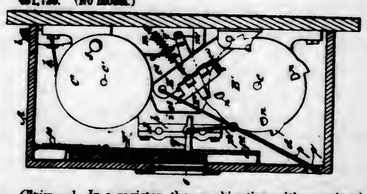
Claim.—1. Within the hub of a revolving fan two concentric sleeves each free to rotate relatively to the other; the inner sleeve confined against longitudinal movement; the outer sleeve screwed upon the inner and having a limited helical movement thereon; means for rotating the sleeves relatively to each other; and connecting mechanism between the blade shafts and the outer sleeve whereby the longitudinal component of its motion changes the inclination of the blades substantially as specified.



2. In a revolving fan a hollow hub with the blade shafts mounted tangentially therein; pinion sectors on the blade shafts; within the hub a concentric sleeve having around its outer periphery a series of grooves which mesh with the teeth of the pinion sectors, and on its inner periphery a screw thread which engages a corresponding thread on the exterior periphery of an inner sleeve, the inner sleeve mounted freely on the lower end of the fan shaft but confined against longitudinal motion thereon; each sleeve provided with a grasping handle; the construction and arrangement being such that normally all parts revolve together as a unit, but the sleeves may be grasped by hand and turned relatively to each other while the fan continues to revolve, the longitudinal component of the relative motion turning the blade shafts substantially in the manner and for the purpose specified.

3. In a revolving fan a hub having a pair of parallel projecting ears for each blade shaft; a collar fitting freely between each pair of ears but confined by the ears against lateral motion; a blade shaft passing at right angles through each pair of ears and through the intermediate collar; a set screw in the collar; all in combination substantially in the manner and for the purpose specified.

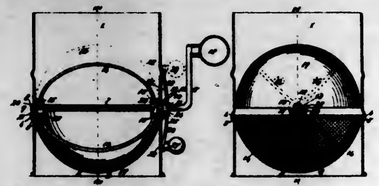
491,007. FARE-REGISTER. FRANK P. BOYLE, JOHN H. DONNON, and JOHN E. BOYLE, Youngstown, Ohio. Filed May 3, 1892. Serial No. 431,730. (No model.)



Claim.—1. In a register, the combination with a casing having an aperture and a spring retracted slide having certain data thereon and arranged to permit the exposure of said data through the aperture in the casing, and an arm projecting from the slide, of a spring retracted dog having a hinged or pivoted wing or cam, a series of wheels or disks, one having lateral projections adapted to be engaged by said wing, a tape bearing certain figures or numbers and connected to the shafts of said wheels, and means for actuating said dog, substantially as described.

2. The combination with a casing having an aperture, of pairs of wheels mounted on suitable shafts and one of said wheels having lateral projections coincident with peripheral teeth thereupon, a tape bearing numbers or figures and connected with the shafts of the wheels, spring pressed pawls for preventing retrograde movement of the wheels, a bridge having separated rolls under which the tape passes, a spring retracted dog having a pivoted spring retracted wing or plate, a spring retracted slide having a projecting arm and bearing numbers or figures adapted to be viewed through the aperture in the casing, and a line for actuating the dog, substantially as described.

491,008. FLOUR-SIFTER WITH REVERSIBLE CLOSED BOTTOM AND COVER. PRISCILLA M. BURNS, St. Louis, Mo. Filed Feb. 9, 1892. Serial No. 420,854. (No model.)



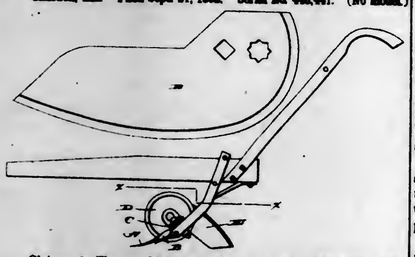
Claim.—1. In a flour sifter, the combination of the can, the adjustable axially mounted revoluble hemispherical cup 19, free to oscillate back and forth and conforming to the interior of the can and the crank arm 23, by which said cup is alternated to effect respectively a tight bottom and cover; substantially as described.—

2. In a flour sifter, the combination of the semi-spheric cup 19, the can 1, within which said cup is axially mounted, the combined crank arm 23 and counter extension 26, having the friction runner crooks 28, the said crank arm arranged to transpose said cup into its alternate positions to effect respectively a tight bottom and top, and said runner crooks 28, friction-locking said cup in said respective operating positions; substantially as described.

3. In a flour sifter, the combination of the flour can, the crank axle 7, the wire screen, the rotary beaters fast mounted on said axle, the sleeve 12 loosely mounted on said axle, the alternating cup 19 loosely mounted on said axle and fast mounted on said sleeve, and the crank arm 23 fast mounted on said sleeve; substantially as described.

4. In a flour sifter, the combination of the can 1, the crank axle 7, having its crank 17, the wire screen 3, the rotating beaters, 14, the sleeve 12 loosely mounted on said axle, the semi-spheric cup 19, loosely mounted on said axle and fast mounted on said sleeve, the crank arm 23, having the counter extension 26, the key pin 24 that locks said crank arm to said sleeve 12, and the runner crooks 28 on said crank arm, and its extension, that friction-lock said cup in its respective bottom and cover positions; substantially as described.

491,009. ATTACHMENT FOR PLOWS. JAMES M. CRADWICK, Gadsden, Ala. Filed Sept. 21, 1892. Serial No. 446,441. (No model.)



Claim.—1. The combination with a plow, of a deflecting wing attached directly to the blade of the plow, a circular fender supported from the plow blade and another deflecting blade arranged on the opposite side of the circular fender from the plow point, substantially as described.

2. The combination with a plow, of a deflecting wing attached directly to the plow blade, a slotted plate secured on the plow blade, a circular fender fitted on a through bolt attached to the slotted plate and another deflecting wing secured on said through bolt on the opposite side of the circular fender from the plow blade, substantially as described.

3. The combination with a plow, of a deflecting wing arranged on the upper face of the plow blade, a slotted plate arranged in front of said wing and having one end bent upwardly, a single bolt connecting the slotted plate and wing adjacent thereto to the plow blade, a circular fender carried by a bolt attached to the bent up end of the slotted plate and another deflector wing secured on said bolt, substantially as described.

491,010. PNEUMATIC TIRE. HARRY OSBORNE, Fulton, N. Y., assignor of one-half to William J. Watson, same place. Filed July 19, 1892. Serial No. 440,497. (No model.)

Claim.—1. A pneumatic bicycle-tire, consisting of a raw-hide tube, a canvas covering for said tube, and a rubber tread applied to the exterior of the canvas covered raw-hide tube, substantially as described.



2. A pneumatic bicycle tire, consisting of a raw-hide tube, a canvas coating cemented to the inside of said tube, a canvas coating cemented to the outside of the said tube, and a rubber tread applied to the canvas covered raw hide tube, substantially as described.

491,011. CLAMP-FILE AND MANUFACTURE OF SAME. ALEXANDER DOE, Mount Healthy, assignor to the Globe Company, Cincinnati, Ohio. Filed Nov. 18, 1892. Serial No. 452,428. (No model.)



Claim.—1. The combination of tablet A, base B attached to said tablet and clamp D, said base having the ears b, b and b^3 cut and struck-up therefrom, the clamp having depending side ears d which latter are pivoted to the ears b by means of a shaft C, the latter having thereon a coiled spring E the end portions of which impinge against the rear lower face of the clamp, said spring having a central looped portion e engaging with the ear b^3 on the base, substantially as set forth.

2. As a new article of manufacture, a base for a clamp-file constructed substantially as herein set forth, said base consisting of sheet metal and having the ears b b and central ear b^3 cut and struck-up therefrom to form bearings for the clamp and a catch for the looped portion of the clamp-spring, as set forth.

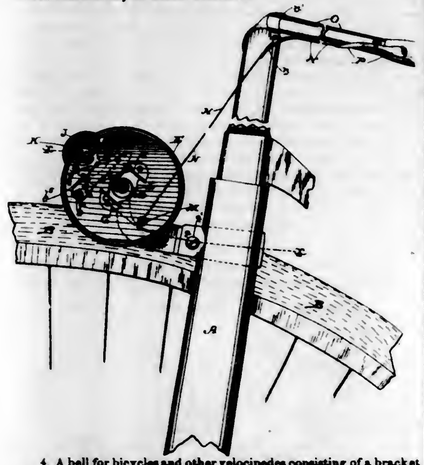
3. The base B formed from sheet-metal and having the ears b b and b^3 cut and struck-up therefrom, the front of said base having an upturned flange b^4, in combination with tablet A, clamp D, shaft C and spring E, said clamp having depending ears d pivotally connected to the ears b by means of said shaft, around which latter said spring is coiled, the free ends of said spring impinging against said clamp, the central looped portion of the spring engaging with ear b^3, as set forth.

491,012. BICYCLE-BELL. LEWIS B. BELCHER, San Francisco, Cal. Filed Apr. 26, 1892. Serial No. 430,601. (No model.)

Claim.—1. In a bell for bicycles and other velocipedes an oscillatory plate or disk mounted to turn in the rear of the gong, and complementary striking mechanism carried by said plate and adapted by the movement thereof to be thrown into and out of action by contact with and removal from the bicycle or velocipede wheel.

2. In combination with a gong carried by the frame of a bicycle or other velocipede, an oscillatory plate or disk carrying a striker adapted to operate on said gong, mechanism carried by said plate or disk for transmitting the power of the bicycle or velocipede wheel to operate the striker, and means for turning said plate or disk to throw its power transmitting mechanism into and out of contact with said wheel, substantially as herein described.

3. In combination with a gong carried by the frame of a bicycle or other velocipede, an oscillatory plate or disk fitted and adapted to turn freely in the inner side of the gong and carrying a striker adapted to operate on said gong, mechanism carried by said plate or disk for transmitting the power of the bicycle or velocipede wheel to operate the striker, and means for turning said plate or disk to throw its power transmitting mechanism into and out of contact with said wheel, substantially as herein described.



4. A bell for bicycles and other velocipedes consisting of a bracket secured to the fork of the machine and extending beside its wheel, a gong supported upon the outer end of the bracket, a plate or disk centrally pivoted on the outer end of the bracket and fitted and adapted to turn freely in the inner side of the gong and carrying a striker adapted to operate on said gong, mechanism carried by said plate or disk for transmitting the power of the bicycle or velocipede wheel to operate the striker, and means for turning said plate or disk to throw its power transmitting mechanism into and out of contact with said wheel, substantially as herein described.

5. In combination with the gong supported from the frame of a bicycle or other velocipede, an oscillatory plate or disk fitted and turning freely in the inner side of the gong, a spring-controlled striker carried by the plate or disk, a cam for operating said striker and a friction roller for operating the cam, said cam and wheel being carried by the plate or disk, and means for turning said plate or disk to throw its friction roller into and out of contact with the bicycle or velocipede wheel, substantially as herein described.

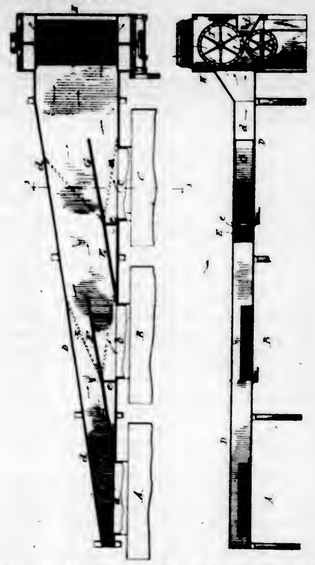
6. In combination with the gong supported from the frame of a bicycle or other velocipede, an oscillatory plate or disk fitted and turning freely in the inner side of the gong, a spring-controlled striker carried by the plate or disk a cam for operating said striker and a friction roller for operating the cam, said cam and wheel being carried by the plate or disk, and means for turning said plate or disk to throw its friction roller into and out of contact with the bicycle or velocipede wheel, consisting of the spring L, pull wire N and connections therewith, substantially as herein described.

7. A bell for a bicycle or other velocipede consisting of a bracket secured to the fork of the machine and having a journal pin at its outer end, a gong secured upon said pin, a disk or plate journaled on said pin and fitted and adapted to turn freely in the inner side of the gong, a pivoted striker carried by the plate or disk and having a spring to throw it forward to strike the gong, a shaft journaled in the plate or disk, a cam on the inner end of the shaft adapted to force the striker back, a friction roller on the outer end of the shaft adapted to be thrown into and out of contact with the wheel of the bicycle or velocipede, the spring L for turning the plate or disk in one direction to throw and hold the friction roller out of contact with the wheel, the stop pin on the plate or disk coming in contact with the bracket for limiting its movement in this direction and the pull wire and connections for turning said plate or disk in the other direction to force the friction roller into contact with said wheel, substantially as herein described.

8. In a bicycle bell, the combination of the oscillating plate or disk with the rear of the gong and provided with a striker having a pivoted handle, the rotating cam operating on the handle to force the striker back, the spring for throwing it forward and the fixed stop for arresting the spring, substantially as and for the purpose herein described.

491,013. COTTON CONDENSER AND FLUE. FREDERICK GARRAUX, Atlanta, Ga., assignor to the Whitney Machine Company, same place. Filed Sept. 26, 1892. Serial No. 446,961. (No model.)

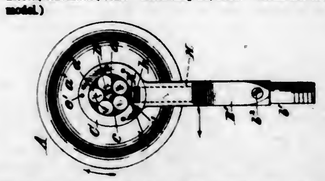
Brief.—The lint cotton from several gins is blown into a main flue common to all the gins and connected with a pair of condensing-rolls. By properly adjusting hinged valves or gates F G, one arranged opposite each gin flue, either gin or the main flue back of the gin may be entirely closed; or the valve may be so arranged that the current of air laden with lint cotton may enter the main flue in a line parallel with the air-currents from other gins, thus avoiding cross-currents and producing a more uniform lap. One of the condenser-rolls rotates faster than the other.



Claim.—1. The combination of a main flue, trunk or conduit, a condenser at one end thereof, a series of cotton gins each having a flue at its exit end communicating with the main flue, and a gate or deflector arranged in the main flue opposite one of the gin flues, and of such length as to either close the opening of the gin flue into the main flue or to close the main flue opposite the gin flue.

2. A condenser comprising two cylinders having perforated or wire gauze surfaces, one of said cylinders being smaller in diameter than the other, means for driving the shafts of the cylinders at the same speed, so that the surface of the smaller cylinder shall move more slowly than the surface of the larger cylinder, as the cotton passes between them, the construction, organization and operation being such that the larger cylinder affords a large condensing surface to the cotton, and the smaller cylinder retards the progress of the cotton by moving relatively slowly, and thus forms a thick, compact bat.

491,014. TROLLEY-WHEEL. JOHN J. GOETZ, Covington, and JOHN A. SMITH, Dayton, Ky., assignors to themselves, and Harvey M. Littell, Cincinnati, Ohio. Filed May 20, 1892. Serial No. 433,767. (No model.)



Claim.—1. In a trolley device, the combination, with a bifurcated harp-arm, the lower end of which is adapted to be secured to the trolley pole, and the upper end of each portion of the arm is perforated and provided with an outwardly facing cylindrical recess around the

perforation, a trolley wheel journaled in the arm, and provided with an axle rigidly secured thereto, the ends of which axle project through the said perforations into the respective recesses, a series of rotary bearings within each recess around each end of the axle, and a cap upon the outer surface of each portion of the arm, substantially as set forth.

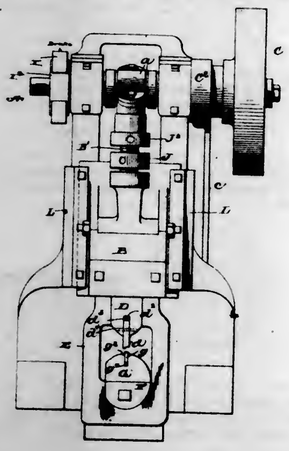
2. In a trolley device, the combination, with a bifurcated harp-arm, the lower end of which is adapted to be secured to the trolley pole, and the upper end of each portion is perforated and provided with an outwardly facing cylindrical recess around said perforation, also with a circular substantially cup-shaped recess to the rear of said outwardly facing recess, said recesses communicating with each other by means of an aperture, a trolley wheel journaled in the arm and provided with an axle rigidly secured thereto, the ends of said axle projecting through the registering perforations of the arm, and into the cylindrical recesses, a series of rotary bearings around each end of the axle within the cylindrical recess, and a cap upon each portion of the arm, substantially as set forth.

3. In a trolley device, the combination, with a bifurcated harp-arm, the lower end of which is adapted to be secured to the trolley pole, and the upper end of each portion of the arm is perforated and provided with an outwardly facing recess around each perforation, a trolley wheel journaled in the arm, the axle of which is rigidly secured thereto and rotates therewith, and the outer ends of which axle are shouldered, each shoulder being even with the bottom of the recess upon that side, a cup upon each portion of the arm, a series of cylindrical rollers around the reduced portion of each end of the axle within its respective recess, whereby the end thrust and the rotary motion of the axle is taken up by the rollers, substantially as set forth.

4. In a trolley device, the combination, with a bifurcated harp-arm, the lower end of which is adapted to be secured to the trolley pole, and the upper end of each portion of the arm is perforated and provided with an outwardly facing cylindrical recess, each of said portions being also provided with a recess or an oil receptacle, a trolley wheel journaled in said perforations, the end of the axle of which projects into its respective recess, a series of rotary bearings in each recess around the axle, a perforated cap upon each portion of the arm, the inner portion of which perforation is enlarged or countersunk, and a gasket between the cap and the bearings, the inner edge of which is cut away to form a communication between the two recesses, substantially as set forth.

5. In a trolley device, the combination, with a bifurcated arm, the lower end of which is adapted to be secured to the trolley pole, and the upper end of each portion is perforated and provided with an outwardly facing recess around each perforation, a trolley wheel journaled in said perforations, the sides of which are each concave, rotary bearings around each end of the axle within its respective recess, and a cap for each recess, said cap being provided with three arms, the outer end of each of which projects into the concave portion of the wheel, substantially as set forth.

491,015. CAN-MAKING MACHINE. ROBERT GIBSON, Chicago, Ill., assignor, by mesne assignments, to the Fairbank Canning Company, same place. Filed Dec. 15, 1891. Renewed Dec. 12, 1892. Serial No. 455,008. (No model.)

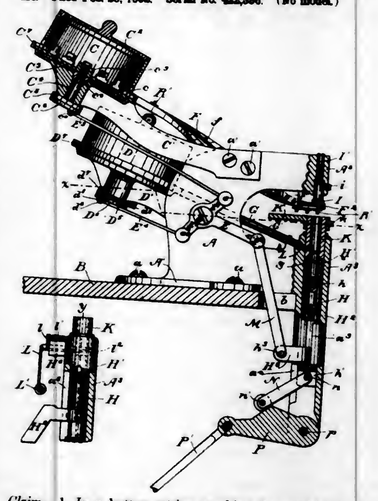


Claim.—1. In a machine for use in making sheet metal cans, a frame capable of reciprocating movement and having a blade on its lower face, a block connected to the reciprocating frame, a stationary block connected with the frame of the machine, and provided with a blade on its upper face, both blocks constituting a mandrel having a configuration corresponding to the shape to be assumed by the completed can, substantially as described.

2. In a machine for use in making sheet-metal cans, a frame capable of a reciprocating movement having a blade at its lower end, a yoke depending from the reciprocating frame having a block attached to it, and a stationary block attached to the frame of the machine projecting into the yoke, the stationary block being provided with a blade corresponding to that on the block carried by the reciprocating frame, substantially as described.

3. In a machine for use in making sheet metal cans, a frame capable of a reciprocating movement, a block secured to the frame, and a stationary block projecting from the frame of the machine, both blocks constituting a flattened mandrel whereby a corresponding contour will be given the can operated upon, substantially as described.

491,016. BUTTON-SETTING MACHINE. FRANK E. HALL, Newton, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed Feb. 23, 1892. Serial No. 422,336. (No model.)



Claim.—1. In a button setting machine the combination of a stationary die, means for holding a button head with its rivet centrally beneath said die, a guiding passageway, a movable die, fitting said passageway and having a vertical reciprocating motion therein, and a washer-guiding raceway communicating with said passageway just above the top of said movable die, when at its lowest position, and adapted to deliver a washer on the top of said movable die, substantially as described.

2. In a button setting machine the combination of a stationary die, means for holding a button head with its rivet centrally beneath said die, a guiding passageway, a movable die fitting said passageway and having a vertical reciprocating motion therein, an inclined washer-guiding raceway having communication with said passageway just above the top of said movable die, when at its lowest position, and a reciprocating gate moving between said raceway and passageway, whereby one washer at a time is delivered on said movable die, substantially as described.

3. In a button setting machine the combination of a stationary die and raceway F a guiding passageway, a movable die fitting said passageway and having a vertical reciprocating motion therein, an inclined washer-guiding raceway having communication with said passageway just above the top of said movable die, when at its lowest position, and a reciprocating gate F moving between said raceway and passageway, whereby one washer at a time is delivered on said movable die, substantially as described.

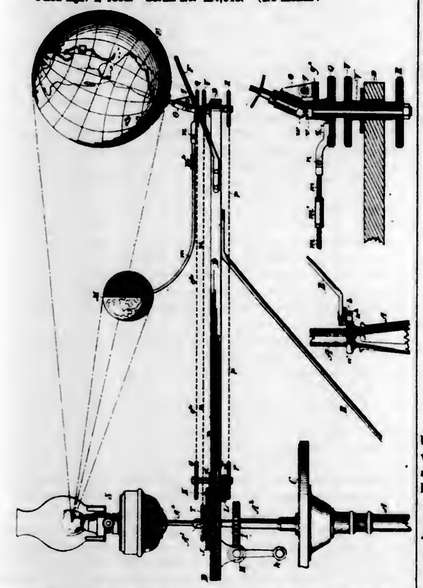
4. In a button setting machine the combination of a stationary die and raceway F a guiding passageway, a plunger, a movable die mounted on said plunger fitting said passageway and having a vertical

reciprocating motion therein, an inclined washer-guiding raceway having communication with said passageway just above the top of said movable die, when at its lowest position, and a reciprocating gate F horizontally movable across the path of said raceway between it and the passageway, said gate being beveled at its forward end, substantially as and for the purposes described.

5. In a button setting machine the combination of a stationary die and raceway F the plunger H, sleeve K, die H', inclined raceway G, spring actuated gate L, having the beveled portion l^3 and provided with the roller L', and the cam-arm H^3 secured to said plunger and engaging with said roller, substantially as and for the purposes described.

6. In a button setting machine the combination of a stationary die, a vertically reciprocating die, a plunger operating the movable die, hoppers for the button heads and rivets actuated by said plunger, a twisted raceway leading from the button-head hopper to the stationary die, an inclined raceway passing from the washer hopper to said movable die, and a plunger-operated washer-separating gate interposed between said raceway and said movable die, whereby at each stroke of the plunger a washer is moved from the raceway and deposited on the movable die at its lowest position, substantially as described.

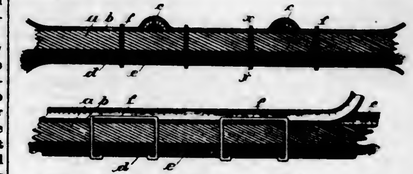
491,017. TELLURIAN. MARY A. HUNTMAN, Stapleton, N. Y. Filed Apr. 4, 1892. Serial No. 427,615. (No model.)



Claim.—1. In a tellurian, the main vertical shaft, the lamp representing the sun supported upon the said shaft, the bracket journaled on the main vertical shaft, shafts journaled in the bracket one of which is provided with a ratchet-head, a shaft carrying a globe representing the earth, at its upper end and having a ratchet-disk at its lower end engaging the ratchet-head, an adjustable sleeve in which said shaft is journaled, sprocket-wheels carried by the shafts connected by chains, an arm pivoted to one of the sprocket-wheels carrying the moon-globe at one end, a roller on the arm, the inclined-track secured on the bracket adapted to be engaged by the roller, and gear mechanism carried by the main vertical shaft for actuating the sprocket-wheels, substantially as described.

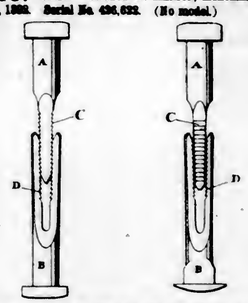
2. In a tellurian, a main vertical shaft, a lamp representing the sun supported thereon, a bracket journaled on the main vertical shaft, a brace-rod secured to the bracket at its outer end and carrying a roller on its inner end which engages a track on the vertical shaft, shafts journaled in the bracket one of which is provided with a ratchet-head, a shaft carrying a globe representing the earth at its upper end and having a ratchet-disk at its lower end engaging the ratchet-head, an adjustable sleeve in which said shaft is journaled, sprocket-wheels carried by the shaft connected by chains, an arm pivoted to one of the sprocket-wheels carrying the moon-globe at one end, a roller on the arm, the inclined-track secured on the bracket adapted to be engaged by the roller, and gear mechanism carried by the main vertical shaft for actuating the sprocket-wheels, substantially as described.

491,018. MATERIAL FOR THE MANUFACTURE OF TRUNKS. ERNST F. KRENKEL, Leipsic, Germany. Filed May 19, 1892. Serial No. 433,600. (No model.)



Claim.—A material for the manufacture of trunks or like articles, consisting of a body portion of wood, half-round brace strips running transversely to the grain of the body portion, an exterior covering of coarse material placed over said strips and body portion a fine fibrous material placed against the other side of the body portion, an interior lining of matting placed next to said fibrous material, and staples passing the whole and distributed throughout, the inner ends being bent under and clinched, in the manner and for the purpose set forth.

491,019. BOLT. GEORGE W. MARDEN, Menominee, Mich. Filed Mar. 26, 1892. Serial No. 426,632. (No model.)



Claim.—A self-locking bolt of two sections, A and B, section A being provided with a reduced portion having flattened sides with upwardly directed notches or serrations thereon, and rounded edges; and section B being split or bifurcated to form two yielding prongs having downwardly directed serrations substantially as described.

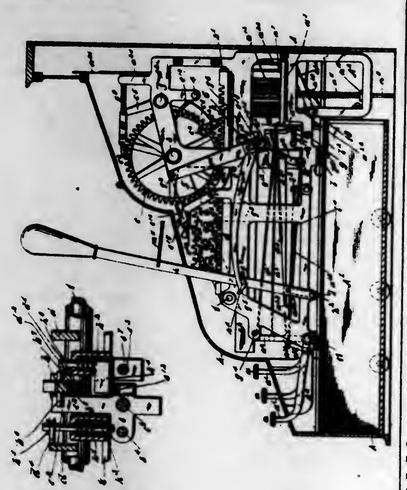
491,020. CASH REGISTER AND INDICATOR. HARRY M. NEES, Springfield, Ohio, assignor to O. W. Kelly and Thomas Reynolds, same place. Filed July 25, 1892. Serial No. 441,164. (No model.)

Claim.—1. In a cash register, a registering wheel and a series of keys, a reciprocating rack adapted to normally engage said registering wheel and hold it in its normal position, stop mechanism operated by the respective keys to limit the movement of said rack, when released, and an independent operating device, adapted, when operated, to release said rack from said registering wheel and permit it to be moved to the position determined by said stop mechanism, and means, substantially as described, for returning said rack to its normal position, thus moving said registering wheel during the movement of said operating device, substantially as specified.

2. In a cash register, a registering wheel and a reciprocating rack adapted to normally engage said wheel, a catch for locking said rack against longitudinal movement, a series of keys controlling a series of stop-pins to limit the movement of said rack, when released, each of said keys being adapted, when depressed, to unlock said rack, and an independent operating mechanism, adapted, when operated, to temporarily disengage said racks from said registering wheel and to return them to their normal position during the movement of said operating device, substantially as specified.

3. In a cash register, a registering wheel and a reciprocating rack normally in engagement with said wheel, a movable catch to hold said rack against longitudinal movement, a series of keys controlling a se-

cies of stop-devices adapted to limit the movement of said rack, when released, each of said keys being also adapted to operate said catch to unlock said rack, and an independent operating mechanism adapted, when operated, to release said racks from said registering wheels and permit them to move a distance determined by the said stop-pins, said operating mechanism being adapted, before the completion of its movement, to cause said racks to re-engage said registering wheels and return to their normal position, and thus move said wheel, substantially as specified.



4. In a cash register, a series of registering wheels and a rack for each of said wheels normally in engagement therewith, a movable catch for locking each of said racks against longitudinal movement, a series of keys for each registering wheel, each of said keys being adapted to control one of a series of stop devices to limit the movement of said rack and also to withdraw said movable catch from said rack, and independent operating mechanism adapted, when moved, to release all of said racks from the registering wheels and to permit such as are disengaged to move to the distance determined by said stop devices, and means, substantially as described, for re-engaging said racks with said wheels and returning them to their normal position during the movement of said operating mechanism, substantially as specified.

5. The combination with a series of registering wheels and a reciprocating rack for each of said wheels, said racks being normally in engagement with said wheels, and a movable catch for normally engaging said rack, a series of keys for each of said racks, each adapted to operate one of a series of stop-pins and also to operate said movable catch, and independent operating mechanism adapted, when moved, to engage each of said racks from said registering wheel and permit a longitudinal movement thereof, a spring for actuating said rack against said stop-device and a spring actuated cross head forming a part of said operating mechanism, adapted, during the movement of said operating mechanism, to be forced against said rack and return it to its normal position and thus move said registering wheel, substantially as specified.

6. In a cash register a registering wheel and a reciprocating rack, a pivoted frame for supporting said rack, a supporting device for said frame to normally hold the rack in engagement with said wheel, a movable catch on said frame for holding said rack against longitudinal movement therein, and a spring for moving said rack, when disengaged by said catch, and a spring actuated crosshead normally in engagement with said rack, and a spring catch on said frame adapted to hold said cross head when moved out of engagement with said rack, said spring catch being adapted to be withdrawn from engagement with said cross head, when said rack frame is raised to its normal position, substantially as specified.

7. The combination with the registering wheel and the rack engaging therewith, the pivoted frame for supporting said rack, of the spring actuated cross head adapted to engage said rack, and the spring catch for engaging said cross head, said spring catch being adapted to be operated by said frame so as to disengage said cross head, when the frame is raised to its normal position, substantially as specified.

8. The combination with a series of registering wheels each having a reciprocating rack to engage therewith, a pivoted frame for supporting each of said racks, and a spring actuated cross head for operating each of said racks, means for raising and lowering said rack frame to cause said racks to engage or disengage said registering wheel, a spring catch operated by each of said frames, to engage and disengage said cross heads, and an auxiliary spring actuated shoe for each of said cross heads, adapted to be moved in one direction by said cross head, and an independent spring catch for retaining said shoe when so moved, a supporting device for each of said rack frames adapted to be operated by the spring actuated shoe of the next preceding rack frame, and means, substantially as described, for releasing the shoe of each rack frame when the cross head approaches the limit of its movement, substantially as specified.

9. The combination with the registering wheel and the reciprocating rack and the movable frame for supporting said rack, a movable support for said rack frame, and reciprocating cross heads adapted to operate said rack, a spring catch for retaining said cross head, adapted to be operated by the movement of said frame, an independent spring actuated shoe adapted to be moved in one direction by said cross head, a spring catch for retaining said shoe when moved by said cross head, and means on said cross head for operating said spring catch to release said shoe, during the movement of said cross head to its normal position, and means, substantially as described, for operating the next succeeding rack frame when the said shoe has returned to its normal position, substantially as specified.

10. In a cash register the combination with a reciprocating rack and a pivoted rack supporting frame, a movable cross head adapted to be engaged by a spring catch operated by the raising and lowering of said pivoted frame, a reciprocating shoe also operated by said cross head, and a spring catch for independently retaining said shoe, said spring catch being adapted to be operated to release said shoe during the movement of said cross head in returning to its normal position, substantially as specified.

11. In a cash register, two or more registering wheels and a reciprocating rack for each of said wheels, a pivoted rack frame for supporting each of said racks, a holding device for normally holding said frame, to cause its rack to engage with said wheel, a spring actuated operating device for each of said racks, adapted, when moved from its normal position, to release the rack frame of the next succeeding rack, and means, substantially as described, for returning said rack frame to its normal position after the spring actuating device of the preceding rack has completed its movement, substantially as specified.

12. In a cash register, the combination with a series of registering wheels and a reciprocating rack for each of said wheels, a pivoted rack frame supporting each of said racks, a supporting projection for each of said rack frames connected to the actuating mechanism of the next preceding rack, a spring actuated device for operating said rack, and an auxiliary operating device adapted to operate the holding projection of the next preceding rack frame, movable catches for engaging said spring actuating devices, the rack operating device being adapted to be disengaged by an upward movement of said frame and the auxiliary device being adapted to be disengaged by a forward movement of said rack operating device, substantially as specified.

13. The combination with the operating rack and its pivoted frame, a spring actuated cross head for said rack and a movable catch for engaging said cross head, said movable catch being connected to said frame so as to be withdrawn from said cross head by an upward movement of said frame, substantially as specified.

14. The combination, in a cash register, of a spring actuated cross head and a movable catch therefor, a spring actuated shoe normally engaged with said cross head having an independent spring catch, said shoe being provided with an engaging projection, adapted, as it approaches the limit of its movement, to operate the spring catch and disengage said shoe, substantially as specified.

15. The combination with a pivoted frame and a spring actuated cross head adapted to be engaged by a movable catch connected to said frame, a spring actuated shoe normally in engagement with said cross head and adapted to be engaged by a spring catch independent of said frame, and an operating projection on said cross head adapted to release said shoe when it approaches the limit of its movement, substantially as specified.

16. In a cash register, the combination with a series of registering wheels and a reciprocating rack for each of said wheels, a pivoted supporting frame for each of said racks and a series of spring actuated cross heads adapted to operate said racks, an auxiliary shoe normally connected to each of said cross heads and adapted to operate the rack frame of the next succeeding rack, a hand-lever adapted to simultaneously move all of said cross heads and said operating shoes, each of said cross heads being adapted, as it approaches the limit of its movement to its normal position, to release its auxiliary shoe, and thus cause the respective racks to be successively moved into engagement with their registering wheels and returned to their normal positions, substantially as specified.

17. The combination with a series of registering wheels and a reciprocating rack for each of said wheels, a pivoted rack frame for supporting each of said racks, and a spring actuated cross head for operating each of said racks, a spring catch on each of said frames, and means connected to each of said frames to temporarily retain said spring actuated cross heads, an auxiliary spring actuated shoe normally in engagement with each of said cross heads and adapted to actuate the next preceding rack frame to cause its rack to be moved out of or into engagement with its registering wheel, a retaining device for said shoe independent of said rack frames, and means on each of said cross heads for operating said shoe retaining devices, each of said operating cross heads being adapted to be released and operate its rack, when the rack supporting frame is elevated, substantially as specified.

18. In a cash register, a series of keys and a series of stop-pins, one for each key, adapted to determine the movement of the registering devices, each of said stop-pins being supported on a spring actuated cross bar perforated at each end to receive stationary guiding bars, substantially as specified.

19. A series of keys and series of spring actuated stop-pins, one for each key, a spring catch connected to each key, adapted to engage its stop-pin, a spring actuated pivoted bar arranged adjacent to said spring catches, and a locking device for said bar, adapted, when one catch is operated, to release said locking bar and cause it to engage all the catches of said series, substantially as specified.

20. In a cash register, the combination with a series of registering wheels and a reciprocating rack for each of said wheels, a pivoted rack frame for each rack, a series of spring actuating devices normally in engagement with said racks, and a transverse bar adapted to engage all of said spring actuating devices, a hand-lever normally connected to said bar, and means for disconnecting said hand-lever from said bar, when it is moved to the forward limit of its stroke, a spring for returning said bar to its normal position, and means, substantially as described, for releasing the respective spring actuating devices in successive order, when said bar returns to its normal position, substantially as specified.

21. The combination with a series of registering devices each having a reciprocating rack and spring actuating devices therefor, an auxiliary device in each of said registering devices, adapted, as the rack of one registering device approaches the limit of its movement, to set into operation the actuating device of the next succeeding registering mechanism, an operating bar adapted to engage all of said actuating devices when moved in one direction, and means, substantially as described, for releasing the first of said actuating devices, when the operating bar is returned to its normal position, substantially as specified.

22. In a cash register, a series of registering devices, each having a registering wheel and an operating rack, a pivoted rack supporting frame, movable supports for normally holding said rack frames to cause said racks to engage with said wheels, spring actuating devices for operating each of said racks, and means, substantially as described, for operating the rack frame of one registering device when the next preceding one has been operated by its spring actuating device, an operating lever for simultaneously moving all of said actuating devices in one direction, and means, substantially as described, for releasing the actuating device of the first series when said lever has reached the limit of its forward movement, substantially as specified.

23. The combination with a series of registering devices and a reciprocating rack for each of said devices, a series of printing wheels, one for each registering device and stop devices adapted to determine the movement of each of said racks, when released, spring actuating devices for returning said racks to their normal position and thus moving said registering wheel, and a movable platen adapted to be brought into contact with said printing wheels after said registering racks have been released and prior to the time they are returned to their normal position, substantially as specified.

24. In a cash register, a normally closed cash receptacle and a series of registering devices, a series of keys each adapted to release said cash receptacle and to determine the movement of the registering devices, and a hand-lever for operating said registering devices when so released, a spring actuated drum having a cable thereon, connected at each end to said cash receptacle and adapted to open the same when released by said keys, and a connection from said hand-lever to said drum, whereby said drum is caused to revolve and thus close said cash receptacle, as said hand-lever is operated to operate the registering devices, substantially as specified.

25. In a cash register, a registering device, consisting of a series of registering wheels, and a printing device having a series of printing wheels, one for each registering wheel, and means for connecting said registering and printing wheels, a hand-lever for operating said registering devices, a movable platen forming a portion of said printing device, and a connection from said hand-lever to said platen to cause said platen to be operated during the operation of said registering mechanism, substantially as specified.

26. The combination with the registering wheels and the reciprocating racks, the printing wheels connected directly to said registering wheels, stopping mechanism operated by a series of keys to determine the movement of said racks and also of said printing wheels, spring actuated mechanism for operating said registering wheels through the medium of the reciprocating racks, a movable bar adapted to simultaneously withdraw all of said spring actuating devices, and a movable platen adjacent to said printing wheels, and a direct connection from said movable bar to said platen, whereby said platen is operated against said printing wheels as the reciprocating racks reach the limit of their forward movement, substantially as specified.

27. In a cash register and indicator, a series of printing wheels connected to the registering devices, a movable platen adjacent to said printing wheels, feeding rolls adjacent to said printing wheels, an endless belt or cable connected to one of said feeding rolls, an operating mechanism to operate the registering devices, and a clutch on said operating mechanism adapted to operate said endless cable, whereby the feeding rolls are caused to advance at each movement of the registering devices, substantially as specified.

28. The combination with the printing wheels, the movable platen, feeding rolls, and a cutting knife, an endless cable connected to said feeding rolls, a swinging bar carrying a clutch device adapted to engage said cable, a link connection from said swinging bar to a hand-lever, an engaging projection on said link adapted to operate said platen, and an engaging projection on said knife adapted to be engaged by said handle, substantially as specified.

29. The combination with the swinging bar, the feeding rolls, and the endless cable connected to said rolls, a portion of said cable moving laterally across the path of the swinging bar, a sliding head on said bar, a pivoted pawl and an engaging projection on said sliding head, said pawl and projection being adapted to rest on opposite sides of said cable and engage the same when the bar is moved in one direction, whereby a lateral movement of the cable is produced by a swinging movement of said bar, substantially as specified.

30. The combination with a series of registering devices and a printing wheel, one for each registering device, means for connecting said printing wheels to said registering device, a series of keys for each registering device adapted to determine the movement of said registering device and of the printing wheel connected thereto, a normally closed cash receptacle adapted to be released by each of said keys, a spring actuated drum connected through the medium of a cord or cable to said drawer, a pivoted hand-lever connected respectively to said registering device, said printing device and said spring actuated drum, so that a movement of said hand-lever shall produce an operation of said registering devices, the printing device and of said drawer, substantially as specified.

31. In a cash register, a series of keys and a series of spring catches, one for each key, connected thereto, a spring actuated cross bar adapted to be engaged by each of said spring catches, a stop-pin on said cross bar, a spring actuated supporting finger adapted to be operated by the movement of each of said spring catches and moved in contact with said spring catches when the key is depressed, and thus lock all the keys in a series, substantially as specified.

32. The combination with a series of stop-pins and their operating devices, of a series of keys one for each stop-pin, and spring catch connected to each key, a spring actuated supporting finger adapted to be moved by each of said spring catches, and a locking bar normally supported by said finger, said locking bar being adapted to be disengaged and be moved in contact with said spring catches, when said finger is moved, and means, substantially as described, for returning said locking bar to its normal position, substantially as specified.

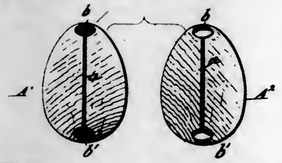
33. The combination with the registering wheel and the reciprocating rack normally in engagement therewith, a pivoted rack frame for supporting said rack, and a pivoted catch on said rack frame, adapted to normally engage with said rack, a series of spring actuated cross bars, each adapted, when released, to engage said catch, and each provided with a stop-pin adapted to limit the movement in one direction of said rack, spring actuated mechanism connected to an operating handle, adapted, by a movement of said handle, to be set into operation, so as to successively release said racks and return them to their normal position, and means, substantially as described, for returning the cross bars and the stop-pins to their normal position, after the respective racks have completed their movement, substantially as specified.

34. The combination with a registering wheel and a reciprocating rack, a pivoted rack frame for supporting said rack and a movable support for said rack frame, adapted to normally support it with the rack normally in engagement with said registering wheel, a pivoted

arm connected to said rack frame and a pivoted pawl on said arm, said pivoted pawl being adapted, when said rack frame is released, to engage said registering wheel and limit the movement thereof, substantially as specified.

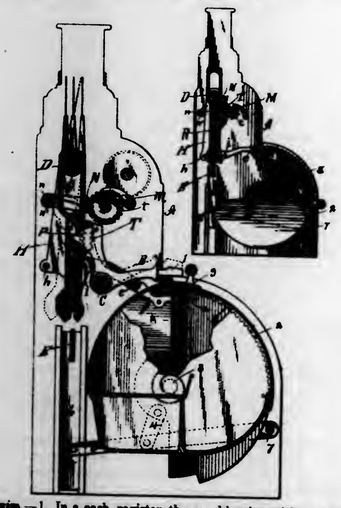
39. The combination with the reciprocating rack and the registering wheel, a rack frame supporting said rack, a pivoted arm connected to said rack frame, a pivoted pawl having a limited movement between stop projections, adapted, when said rack frame is released, to engage the teeth of said registering wheel, whereby a limited movement only of said registering wheel is permitted when said rack is disengaged therefrom, substantially as specified.

491,021. EGG-PUZZLE. ERNEST NIEMOTH, Tacoma, Wash. Filed Oct. 4, 1892. Serial No. 447,786. (No model.)



Claim.—The within described toy puzzle egg, consisting of an egg formed of hermetically united halves, each half constructed with a semi-cylindrical channel, and two end, communicating concavities, the halves, when united, forming a cylindrical channel and two communicating end chambers; and a sufficient quantity of quick silver to fill one or the other of the chambers at the point or butt of the egg, substantially as described.

491,022. CASH-REGISTER. FRANCIS C. OSBORN, Detroit, Mich., assignor to himself, George Maitland, and Joseph A. Marsh, same place. Filed June 11, 1891. Serial No. 395,848. (No model.)



Claim.—1. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, a bank of keys one for each tablet rod, means on the keys for engaging the rods to move the same laterally, a lifting bar for the tablet rods, a cash receptacle and means actuated upon the opening of the receptacle to elevate the lifting bar, substantially as described.

2. In a cash register, in combination with a series of tablet rods, a lifting bar and cash receptacle, means for connecting the lifting bar and said receptacle, whereby the lifting bar is raised by opening said receptacle, and means for presenting any desired one of said tablet rods to the actions of said lifting bar, substantially as and for the purpose described.

3. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, of a cash receptacle, and means rifled by opening the receptacle to elevate the tablet rods, substantially as described.

4. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, of a cash receptacle, a rotary lid for the same, a lifting bar for the tablet rods and a hinged connection between the lid and bar, arranged to elevate the bar as the lid is swung down to open the drawer, substantially as described.

5. In a cash register the combiuation with the tablet rods and lifting bar of a rotary lid, a swinging arm engaging the bar and a link connection between the lid and arm, substantially as described.

6. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, a cash receptacle, means for elevating the tablet rods as the receptacle is opened and a series of keys for presenting the tablet rods to the elevating means, substantially as described.

7. In a cash register the combination of a vertically movable tablet rod, a fixed guide near the upper end of said rod, a key provided with a Y the forks of the Y having an upward presentation, and being adapted to receive between them a pin projecting from said tablet rod, and thereby adapted to swing the lower end of said tablet-rod, a lifting-bar independent of said key adapted to raise said tablet-rod, substantially as and for the purpose described.

8. In a cash register the combination with two or more tablet rods, keys equal in number to said tablet rods and adapted to set said tablet rods in position to be lifted by a bar extending under all of them, a pinion or toothed wheel common to all of said tablet rods, a rack on each tablet rod arranged to mesh in the teeth of said pinion, a detaching rod adapted to be operated by any of said keys and to detach all of said tablet rods from engagement with said pinion, substantially as and for the purpose described.

9. In a cash register the combination with a series of vertically movable tablet rods carrying tablets, of a series of keys one for each tablet rod, a cash receptacle, a lock for the receptacle, means for disengaging the lock upon the movement of a key, a lifting bar and means for elevating the lifting bar as the drawer is opened, substantially as described.

10. In a cash register a tablet and tablet rod, a rack gear on said tablet rod, a pinion adapted to mesh with and be turned on its axis by said rack gear, a fixed guide controlling the movement of one end of the said tablet rod, a swinging hanger provided with the described holding rod and detaching rod, the said holding rod being adapted to compel the rack and pinion to remain in mesh after the tablet rod is elevated, substantially as and for the purpose described.

11. In a cash register the combination with a tablet-rod adapted to move vertically a rack immovably fixed thereto, a fixed guide permitting vertical but preventing lateral movement of one end of said rod, a lifting bar adapted to engage with the other end of said rod and to compel vertical movement and prevent lateral movement of the other end of said rod, a pinion connected with the registering mechanism and arranged to mesh with said rack and be turned on its axis as the rod rises, substantially as and for the purpose described.

12. In a cash register the combination with a series of tablet rods carrying tablets, of a money receptacle, a pivoted cover for the same, a lifting bar for the tablet rods and means actuated by the cover raising the lifting bar as the cover is being forced back to open the receptacle, substantially as described.

13. In combination with a rack and pinion and guides controlling the travel of said rack, an auxiliary rack adapted to form a continuation of the first mentioned rack when in contact therewith, but to remain in mesh with said pinion when the first mentioned rack is moved out of mesh, substantially as and for the purpose described.

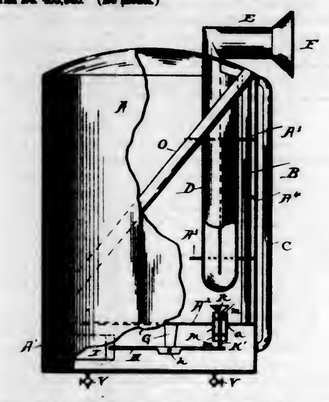
14. In a cash register the combination with a series of tablet rods and means for elevating the same, of a register, means actuated by the movement of a tablet rod for moving the register and means for retaining the tablet rods in an elevated position by continued engagement with the recorder actuating means, substantially as described.

15. In a cash registering machine a series of operating keys arranged in a single bank, a lifting rod provided with a horizontal handle extending across outside the register case, and immediately in front of the bank of keys adapted to receive the finger of the operator as it passes off of one of said keys after depressing the same; a series of tablet-rods each of which is adapted to be set by its proper key into a position to be raised by the movement of said horizontal handle, substantially as and for the purpose described.

16. In a cash register the combination with a series of swinging tablet rods and a register, of means carried by the rods for actuating the register normally out of alignment therewith, keys for forcing the rods into alignment with the register, means for elevating the rods and a movable frame for disengaging the register actuating means from the register substantially as described.

17. In a cash register, the combination with a series of tablet rods, a cash receptacle, means for lifting said tablet rods, actuated by opening said receptacle, independent means for holding the tablet rods in their elevated position, whereby they are upheld after the closing of said receptacle, substantially as described.

491,023. RESERVOIR. MILARD A. POMEROY and HOMER L. CARROLL, Cleveland, Ohio. Filed Nov. 30, 1891. Renewed Dec. 20, 1892. Serial No. 455,840. (No model.)



Claim.—1. A reservoir, comprising a primary and a secondary-chamber, located the one above the other and closed top and bottom, an air-pipe or tube establishing open communication between the external atmosphere and secondary-chamber, and an air-pipe or tube establishing open communication between the secondary-chamber and the upper portion of the primary-chamber, a trap in open relation with the primary-chamber and external atmosphere, and a feed-orifice for the passage of liquid from the primary to the secondary-chamber, a float in the secondary-chamber, a valve connected with said float and adapted to close or open said feed-orifice according to the level of the liquid in the secondary-chamber, substantially as set forth.

2. A reservoir, comprising a primary and a secondary-chamber, located the one above the other and closed top and bottom, an air-pipe or tube establishing open communication between the external atmosphere and secondary-chamber, and an air-pipe or tube establishing open communication between the secondary-chamber and the upper portion of the primary-chamber, a combined trap and siphon in open relation with the primary-chamber and external atmosphere, and a feed-orifice for the passage of liquid from the primary to the secondary-chamber, a float in the secondary-chamber, a valve connected with said float and adapted to close the aforesaid feed-orifice according to the level of the liquid in the secondary-chamber, and an air-tube or pipe establishing open communication between the external atmosphere, at or near the filling point of the reservoir and the diagonally opposite end of the primary-chamber, substantially as set forth.

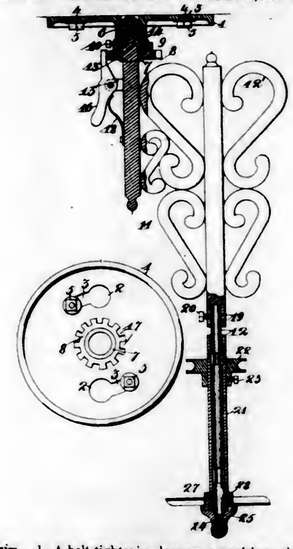
3. A reservoir, comprising a primary and a secondary chamber, located the one above the other and closed top and bottom, an air-tube or pipe establishing open communication between the external atmosphere and secondary-chamber, and an air-tube or pipe establishing open communication between the secondary-chamber and upper portion of the primary-chamber, a trap in open relation with the primary-chamber and external atmosphere and adapted to be used in filling the primary-chamber, the air-tubes or pipes aforesaid being located at the filling-side of the reservoir, and a feed-orifice in the wall between the primary and secondary-chambers at the filling side of the reservoir, substantially as set forth.

4. A reservoir, comprising a primary and a secondary-chamber, located the one above the other and closed top and bottom, and an air-pipe or tube establishing open communication between the external atmosphere and secondary-chamber, and an air-pipe or tube establishing open communication between the secondary-chamber and the upper portion of the primary-chamber, a trap in open relation with the primary-chamber and external atmosphere, the wall between said chambers at the filling-side of the reservoir, having a feed-orifice for the passage of liquid from the primary to the secondary-chamber, and having a depending arm secured thereto, a valve for closing said feed-orifice, and a lever fulcrumed to the depending arm aforesaid, the one end of the lever carrying a float and the other end of the lever having connected therewith the stem of the valve aforesaid, substantially as, and for the purpose set forth.

5. A reservoir, comprising a primary and a secondary chamber, located the one above the other and closed top and bottom, an air-pipe or tube establishing open communication between the external atmosphere and the secondary-chamber, and an air-pipe or tube establishing open communication between the secondary-chamber and upper portion of the primary-chamber, a trap in open relation with the primary-chamber and external atmosphere, a feed-orifice for the passage of liquid from the primary to the secondary-chamber, and a chamber within the primary-chamber at the filling-side of the reservoir, substantially as, and for the purpose set forth.

6. A reservoir, comprising a primary and a secondary-chamber located the one above the other and closed top and bottom, an air-pipe or tube establishing open communication between the external atmosphere and secondary-chamber, and an air-pipe or tube establishing open communication between the secondary-chamber and upper portion of the primary-chamber, a feed-orifice for the passage of liquid from the primary to the secondary-chambers, a valve adapted to open and close said feed-orifice according to the level of liquid in the secondary-chamber, and transverse imperforate partitions in the primary chamber at the filling-side of the reservoir, substantially as and for the purpose set forth.

491,024. ADJUSTABLE BELT-TIGHTENER FOR FANS. WILLIAM RAHCH, St. Louis, Mo., assignor, by mesne assignments, of one-half to the Herrmann-Rahch Fan and Motor Manufacturing Company, same place. Filed Sept. 28, 1892. Serial No. 447,122. (No model.)



Claim.—1. A belt tightening hanger comprising a shaft supporting the same, a spindle located to one side of said shaft, and a rotating sleeve loosely mounted on said spindle, substantially as set forth.

2. A belt tightening hanger comprising a casting adapted to be secured to the ceiling there being a socket formed in the casting, a bracket carrying a spindle, a shaft located to one side of said bracket and movably secured within said socket, and means for holding the said bracket in proper adjustment, substantially as set forth.

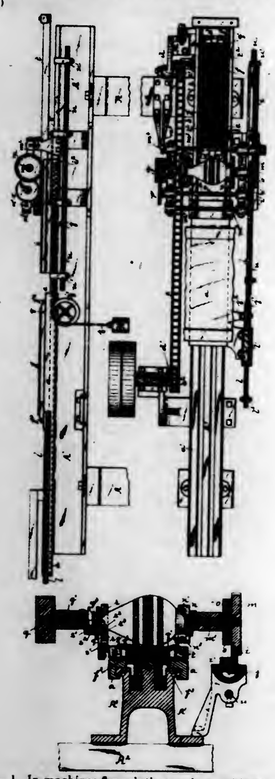
3. A belt tightening hanger comprising a bracket, a spindle forming a part of the same, a sleeve carried by said spindle, to which sleeve the fan or fans are attached, a belt pulley adjustably secured to said sleeve, a shaft located to one side of the said bracket and having an annular groove formed around it, a casting removably secured to the wall or ceiling and having a socket formed therein adapted to receive the said shaft, a toothed wheel fixed to the said casting, a bolt passing through the said wheel into said socket and into said annular groove, and a pawl fixed to the bracket and engaging with the toothed wheel for holding the bracket in adjustment, substantially as set forth.

4. In a belt tightening hanger, a casting having openings 2 located

opposite one another, narrow elongated openings 3 constituting arcs of circles in communication with said openings 2, and extending in opposite directions, and a socket formed in said casting for receiving a bracket, substantially as set forth.

5. A bolt tightening hanger consisting of a casting 1, having openings 2 formed in the same, narrow openings 3 communicating with openings 2, bolts 4 projecting from the wall or ceiling having nuts screwed thereon, a socket 6 having a decreased portion 7, a toothed wheel 8 fixed to said portion, a bracket 12', a shaft 13 located to one side of said bracket and having an annular groove 14 formed therein, a bolt 10 passing through said wheel, decreased portion 7, and into said annular groove, a pawl 16 movably secured to the bracket and engaging with said wheel, a spring 18 bearing against said pawl, a spindle 12 secured within the socket 19, a sleeve 21 carried by said spindle, a belt pulley adjustably secured on said sleeve, a casting 27 also secured to said sleeve, and a cap 25 screwed on the lower end of said spindle, substantially as set forth.

491,025. MACHINE FOR PRINTING GLASSWARE. CHRISTIAN Z. F. ROTT, Pittsburg, Pa. Filed May 23, 1891. Serial No. 393,865. (No model.)



Claim.—1. In machines for printing on lamp chimneys and like cylindrical articles, the combination with the article holder, turning in suitable bearings, of a longitudinally movable type-carrier having type-blocks journaled thereon and adapted to be canted to conform to the chimney or like article to be printed upon, substantially as and for the purposes set forth.

2. In machines for printing on lamp chimneys, and other like cylindrical articles, the combination with the article holder turning in suitable bearings, of a holder longitudinally movable type-carrier having type-blocks journaled thereon, and suitable guides for canting said type-blocks and so causing them to conform to the chimney or other article to be printed upon, substantially as and for the purposes set forth.

3. In machines for printing on lamp chimneys and like cylindrical articles, the combination with a chimney holder turning in suitable bearings, of a longitudinally movable type-carrier having type-blocks journaled thereon and provided with pins or fingers at the forward ends, and a suitable guideway with which said fingers engage for canting said type-blocks and so causing them to conform to the article to be printed upon, substantially as and for the purposes set forth.

4. In machines for printing on lamp chimneys and like cylindrical articles, the combination with a chimney holder turning in suitable bearings, of a longitudinally movable type-carrier having type-blocks journaled thereon and provided with pins or fingers at the forward ends, a suitable guideway with which said fingers engage for canting said type-blocks, and spring arms for retaining said type-blocks in their normal position, substantially as and for the purposes set forth.

5. In machines for printing on lamp chimneys, and like cylindrical articles, the combination with the chimney-holder turning in suitable bearings, of a longitudinally movable type-carrier, having type-blocks mounted thereon and adapted to be canted to conform to the article to be printed upon and a stationary or non-cantable type-block on said carrier, substantially as and for the purposes set forth.

6. In machines for printing on lamp chimneys and like cylindrical articles, the combination with the frame of the article holder turning in suitable bearings thereon, a type-carrier traveling back and forth in said frame, type-blocks journaled thereon and adapted to be canted to conform to the chimney, and inclined guide bars secured to the frame in the front of said type-carrier to cant said type-blocks, substantially as and for the purposes set forth.

7. In machines for printing on lamp chimneys and like cylindrical articles, the combination of the frame, the article holder mounted thereon in suitable bearings, gearing for turning said chimney holder, and a type-carrier reciprocating in said frame and operating a rack engaging with the gearing for turning the article holder, substantially as and for the purposes set forth.

8. In machines for printing on lamp chimneys and like cylindrical articles, in combination with the article holder, of a longitudinally movable type carrier having a series of type-blocks thereon, said type-blocks normally having their faces horizontal and on the same plane with each other, but one or more of said type-blocks being mounted so as to be canted to conform to the article to be printed upon, substantially as and for the purposes set forth.

9. In machines for printing on cylindrical and like glassware, the combination with the frame, of an article holder mounted thereon, a sliding rack mounted on the frame and operating a pinion adapted to rotate said holder and a reciprocating type-carrier traveling longitudinally on said frame and having an arm engaging said rack so as to rotate the article to be decorated, substantially as and for the purposes set forth.

10. In machines for printing on cylindrical and like glassware, the combination with the frame, of an article holder mounted thereon, a sliding rack mounted on the frame and operating said holder and a reciprocating type-carrier traveling longitudinally on said frame and having an arm engaging said rack so as to rotate the article to be decorated, said arm sliding in a suitable bearing in the type-carrier and having a weight connected thereto to hold it up to its work, substantially as and for the purposes set forth.

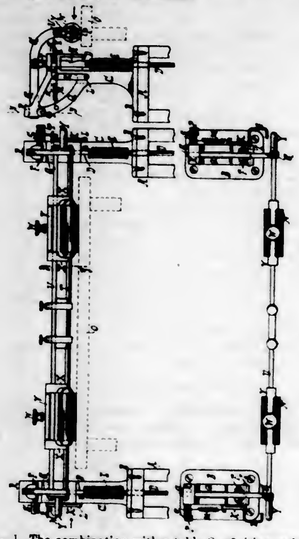
11. In machines for printing on cylindrical and like glassware, the combination with the frame, of an article holder mounted thereon, a sliding rack mounted on the frame and operating said holder and a reciprocating type-carrier traveling longitudinally in said frame and having an arm engaging said rack so as to rotate the article to be decorated, said sliding rack having a weight connected to the rear thereof to withdraw it upon the retreat of the type-carrier, substantially as and for the purposes set forth.

12. In machines for printing on chimneys and like cylindrical glass, the combination of the frame, of an article holder mounted thereon, a sliding rack mounted in said frame and acting to rotate said holder, a weight connected to said rack and acting to draw back the same, and a reciprocating type-carrier mounted on said frame and having an arm engaging said rack, said arm sliding in a suitable bearing in said type-carrier and having a weight connected to the same and adapted to force and hold it in its forward position, substantially as and for the purposes set forth.

13. In machines for printing on chimneys and like cylindrical glass, the combination with the frame of an article holder mounted thereon, a sliding rack mounted in said frame and acting to rotate said holder, a weight connected to said rack and acting to draw back the same, and a reciprocating type-carrier mounted on said frame and having an arm engaging said rack, said arm sliding in suitable bearings in said type-carrier and having a weight connected to the same and adapted to force and hold it in its forward position, and stops on said frame to regulate the forward and backward movement of said rack, substantially as and for the purposes set forth.

14. In machines for printing on chimneys and like cylindrical glass articles, the combination with the frame A, of the chimney supporting frame consisting of the arms m^2, cross arms m^3 hinged to uprights m^4, the adjustable lugs m^6 m^7 on the rear cross-arm m^3, and the inclined rib m^5, substantially as and for the purposes set forth.

491,026. DEVICE FOR HOLDING LINING OR OTHER MATERIALS FOR CUTTING. DAVID R. ROGUE, Yonkers, N. Y. Filed Oct. 27, 1892. Serial No. 450,160. (No model.)



Claim.—1. The combination with a table O, of rising and falling supports provided with pivots F, swinging arms G mounted on said pivots and adapted to oscillate thereupon, and a shaft T provided with pressure rollers N and carried by said swinging arms, substantially as described.

2. The combination with a table or support O of pressure rollers N adapted to act on the table, supporting arms for said rollers movable pivots for the arms and catches for holding the pivots elevated, substantially as described.

3. The combination with a table or support O of pressure rollers N adapted to act on the table supporting arms for said rollers, movable pivots for said arms, springs for holding down said pivots, and catches for holding the pivots raised against the action of the springs, substantially as described.

4. The combination with a table or support O, of pressure rollers adapted to act on the table, supporting arms for said rollers, movable pivots for said arms, springs for holding down said pivots, catches for holding the pivots raised against the action of the springs, and a detachable holder or catch P for the rear end of each arm, substantially as described.

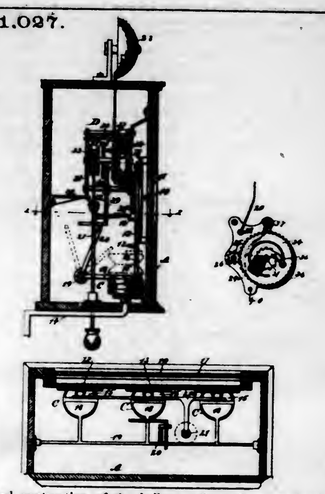
5. The combination with a table or support O of pressure rollers adapted to act on the table supporting arms for said rollers movable pivots for said arms springs for holding down said pivots, forks for guiding the rear ends of the arms and provided with bridges or stops R for limiting the upward movement of the rear ends of the arms and detachable catches P for holding up the rear ends of the arms, substantially as described.

6. The combination with a table O of pressure rollers adapted to act on the table, a shaft T on which said rollers are adjustably mounted, arms for supporting said shaft and movable pivots or joints for the arms, said arms being provided with a rod U and slides adjustably mounted on the rod and adapted to engage the rollers for setting the latter along their shaft, substantially as described.

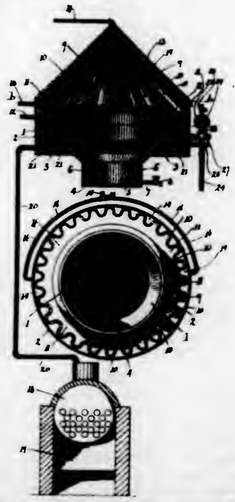
491,027. PNEUMATIC ANNUNCIATOR. JOHN SCHNEFF, New York, N. Y., assignor of one-half to William H. Delhany, same place. Filed June 11, 1891. Serial No. 395,980. (No model.)

Claim.—In a pneumatic signaling apparatus, the combination, with a bellows, an indicator tablet, an arm projected from the bellows supporting said tablet, and a crank arm operated by the expansion and contraction of the bellows, of an alarm mechanism, the spring shaft of which is provided with a drum carrying a chain connected with the drum and to an adjacent support, and a draw rod connected with the chain and provided with an extension adapted for engagement with the bellows arm, whereby when the rod is drawn downward a raised tablet will be lowered and the spring of the alarm mechanism wound, as and for the purpose specified.

491,027.



491,028. WATER-DISTILLING APPARATUS. JAMES E. THOMAS and ELISHA P. GROW, Bay City, Mich. Filed Nov. 2, 1892. Serial No. 450,736. (No model.)

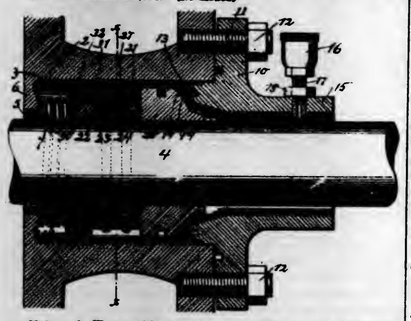


Claim.—1. In combination with an evaporating chamber and as a means for automatically preserving the level of water therein, a reservoir arranged exteriorly on a plane with the normal water level of the evaporating chamber, a pipe leading from the bottom of same to the interior of the chamber, a steam coil within the evaporating chamber connected to said reservoir, a waste pipe leading therefrom, and an escape pipe extending upward from the top thereof, substantially as described.

2. In a water-distilling apparatus, the combination with the evapo-

rating chamber, and a steam boiler, a steam pipe leading from said boiler and passed through and coiled within the lower portion of said chamber, a reservoir horizontally arranged on a plane with the normal water level of said chamber and connected with said steam pipe, a pipe leading from the bottom of the said reservoir to the interior of the chamber below the water level for supplying water to said chamber, a waste pipe connected with the reservoir and leading downward therefrom, and provided with a valve, and an escape pipe leading upward from the reservoir and provided with a valve, substantially as set forth.

491,029. ROD-PACKING. FREEMAN D. TOOMEY, Minneapolis, Minn., assignor of three-fourths to Frank Dunham, George McNair, and Frederick C. Johnson, same place. Filed July 21, 1891. Renewed Dec. 27, 1892. Serial No. 456,201. (No model.)



Claim.—1. The combination in a rod packing, of packing rings with a ball ring engaging the same, said packing rings and said ball ring forming a plane joint at right angles to the axis of the rod whereby lateral movement of said packing ring is permitted independently of said ball ring, and means for exerting an equal pressure upon all points of said ball ring, substantially as described.

2. The combination in a rod packing, of the packing ring or rings, retaining rings for holding said packing rings in place said packing rings and said retaining ring forming a plane joint at right angles to the axis of the rod whereby lateral movement of said packing rings is permitted independently of said retaining ring, a follower engaging said retaining ring and forming a ball joint therewith, and a series of springs engaging said follower, as and for the purpose specified.

3. The combination with the rod, of the packing rings adapted to engage the same with a ball ring arranged on the rod and engaging said packing ring and through which force may be exerted on said packing rings, a plane joint being formed between said packing ring and said ball ring at right angles to the axis of the rod whereby said packing ring may move laterally with the rod independently of said ball ring, and a series of spiral springs arranged around the said rod and adapted to exert a pressure upon the ball surface of said ring, substantially as described.

4. The combination with the rod, of packing rings arranged thereon, a follower ring to engage the same, a plane joint being formed between said packing rings and said follower ring at right angles to the axis of the rod and an oscillating ring provided with a series of springs and arranged to engage said following ring, a ball joint being provided between said oscillating and follower rings, and said oscillating ring having a center opening of greater diameter than the rod whereby said ring is made laterally movable with respect to the same, substantially as described.

5. The combination with a cylinder head, of a gland and rod adapted to pass through the same, packing rings arranged thereon, a retaining ball ring on each side of said packing rings, plane joints being formed between said ball rings and said packing rings at right angles to the axis of the rod, socket rings of a greater diameter than said rod and adapted to engage said ball rings, and to oscillate with respect to the rod, means for pressing the rear socket ring upon a ball ring and a socket ring arranged between the forward ball ring and a ground or plane surface on said gland, as described.

6. The combination with the rod, of a packing ring 47, and narrower rings arranged between the same and the rod, retaining rings to engage the sides thereof, and springs 51 arranged in one of said retaining rings and adapted to press said ring 47 against a ground surface on the outer ring, substantially as described.

7. The combination with a split packing ring 47, smaller split packing rings arranged between the same and the rod, a spring device passing around the said ring 47, and adapted to compress the same with an equal tension at all points, and retaining rings 43 and 46^3 provided with flanges or ribs 44 and 45, substantially as described.

8. The combination with the rod, of a stuffing box and removable gland, a plane surface provided upon the annular inner end of said gland, packing rings arranged about said rod, ball rings 43 and 46^3 provided with ribs or flanges, the gland and ring 14 and the oscillating ring to engage the retaining ring 46^3, ball joints between the same, and depending retaining rings, and means for pressing said oscillating ring forward, the inner shoulders of said rings 43 and 46 being substantially perpendicular to the rod, as described.

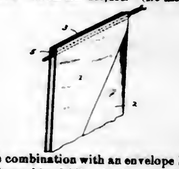
9. The combination with the cylinder head having a stuffing box, the rod passing through the same, an inner gland, a washer 35 adapted to closely embrace the rod and loosely secured on the end of said inner gland and outer gland, and a metallic packing arranged between said glands and on said rod, substantially as described.

10. The combination with the cylinder head, of the rod, said head provided with a stuffing box, an inner gland arranged therein, an outer gland arranged thereon, openings through the same and through the rear end of the stuffing box the same being larger than the rods and adapted to admit free lateral movement of the rod, and a packing composed wholly of metal and arranged between said glands, substantially as described.

11. The combination with the cylinder head, having the stuffing box, of the rod, an inner gland arranged in said stuffing box, a washer 35 secured thereon by bolts 37, counter-sunk openings for the heads of said bolts, and holes 38 to admit said bolts and larger than the same, an outer gland, metallic packing arranged between said glands, and stud bolts by means of which both of said glands are secured, said stud bolts being of a length sufficient to admit ordinary packing being placed between the washer 35 and the inner end of the stuffing box, substantially as described.

12. The combination with the gland 40, of the removable section 66 thereof, the bolts 67, and the locking key 68, as described.

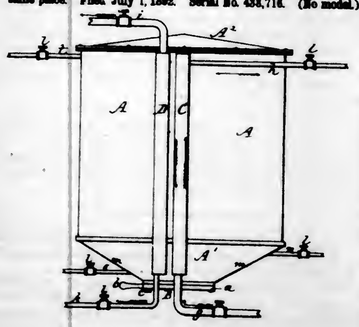
491,030. ENVELOPE. WILLIAM WEAVER, Norwalk, Conn., assignor of two-thirds to Charles Lapham and Frank T. Hyatt, same place. Filed Sept. 30, 1892. Serial No. 447,411. (No model.)



Claim.—1. The combination with an envelope having at one edge thereof a groove 5 formed by folding in the material of the envelope, of a double thread one strand of which lies within the envelope at the fold the other lying on the outer side of the envelope within the groove, the ends of said thread being suitably secured together.

2. The combination with an envelope having at one edge thereof a groove 5 formed by folding in the material of the envelope, of a double thread one strand of which lies within the envelope at the fold, the other lying on the outer side of the envelope within the groove, and a strip 4 covering the outer strand of thread substantially as described.

491,031. SIRUP-COOLING TANK. JOHN WERNER and FRANK E. WILLIAMS, Rochester, N. Y.; said Williams assignor to said Werner; said Werner assignor of one-half of the whole right to Fabian Hedges, same place. Filed July 1, 1892. Serial No. 438,716. (No model.)



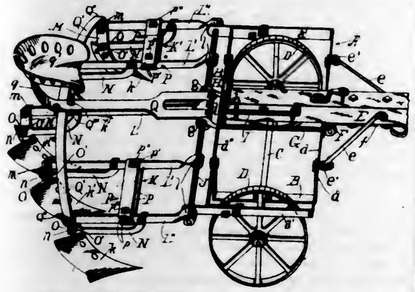
Claim.—The combination, with the tank A provided with the discharge valve B, of the stand pipes C and D, the interior pipes E E connected at opposite ends respectively with the stand pipes, and the perforated injecting pipe G arranged above the pipes E E, at the sides of the tank, as and for the purpose specified.

491,032. CLOTHES-LINE. GEORGE A. WHITTON, Bogard, assignor of one-half to J. Hunter Williams, McFall, Mo. Filed Apr. 7, 1892. Serial No. 428,159. (No model.)



Claim.—In an endless clothes line, a tension device comprising an integral casing having open bearing recesses at its outer end and composed of sides provided on their inner faces with oppositely disposed longitudinal ribs, and forming a longitudinal opening and having the said ribs terminating short of one end of the opening and a base plate adapted to be secured to a suitable support, a slide arranged within the casing and fitting snugly between the sides thereof and having longitudinal grooves in its side edges to receive the ribs and provided with an outwardly extending journal and having on its inner face an eye, said slide being adapted to be moved at one end of the opening beyond the ends of the ribs and thereby disengage from the latter the main pulley mounted on the journal and having a crank-handle, a windlass journaled in the bearing recesses and carrying a ratchet wheel, a pawl pivotally mounted on the casing and engaging the ratchet wheel, and a rope having one end wound around the windlass and having its other end secured to the eye of the slide, substantially as described.

491,033. ORCHARD-PLOW. CHARLES W. WINSTON and FRANK TROOP, San Gabriel, Cal.; said Troop assignor to said Winston and Rosso C. Rotkowsky, same place. Filed Aug. 11, 1892. Serial No. 442,786. (No model.)



Claim.—1. The improved orchard and vineyard plow set forth comprising the combination of the axle; the ground-wheels journaled thereupon; the rocking draft frame comprising the combination of the front transverse beam having rear-wardly extending side draft arms and the transverse rear beam having its ends secured to the side draft arms and the two axle brackets secured to the front and rear beam and extending across therebetween and secured to the axle substantially mid-way between the front and rear beams; the tongue pivoted to the front transverse beam and secured to the rear of such frame by means which allow the vertical adjustment of the rear end of the tongue and the rear of the frame with relation to each other, and the plows pivotally attached to the rear of the frame.

2. The improved plow set forth comprising the combination of the axle; the ground wheels journaled thereon; the rocking draft frame mounted upon such axle; the tongue pivoted to the front of such draft frame and adjustably connected with the rear of such frame; the pivot bolt extending across from side to side at the rear of such rocking frame; the plows pivoted to the rear of the rocking frame by such pivot bolt, and means for adjustably connecting the rear end of the tongue with the rear end of the rocking frame.

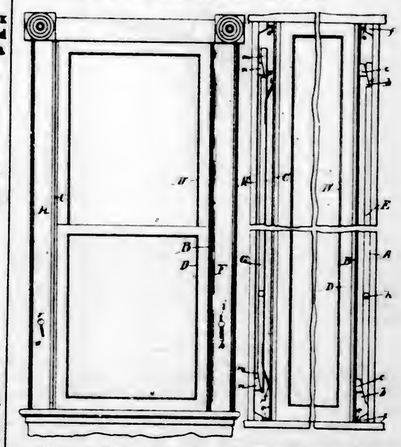
3. The combination of the wheel-supported rocking draft frame; the tongue pivoted to the front of such frame and adjustably secured to the rear of such frame; the plows having their beams pivoted to the rear of such frame; the seat frame pivoted to the rear of the draft frame and extending toward the rear and provided with the laterally extending brace arranged to rest upon the plow beams and provided with suitable lugs or pins arranged to engage the plow beams to hold them in place against lateral displacement.

4. In an orchard and vineyard plow, the combination of the wheel supported truck; a tongue hinged to the front of such truck, a vertically arranged frame adjusting standard secured to the rear of such truck and provided with suitable perforations; a bolt secured upon the tongue and arranged for axial movement to allow the bolt to be shot into and be withdrawn from the perforations in the frame adjusting standard, and the plows having their beams pivotally secured to the rear of the truck substantially as and for the purpose set forth.

5. In an orchard and vineyard plow, the combination of a frame comprising a front transverse beam, two rearwardly extending side draft arms, a rear transverse beam secured to such side draft arms in front of their rear ends, and the axle brackets secured to the front and rear beams and extending across there-between; an axle secured to such axle brackets; two supporting wheels journaled upon such axle; a tongue hinged to the front transverse beam by a suitable hinge joint; the lateral braces bolted to the tongue at one end and having their other ends hooked through eye-bolts attached to the front transverse beam; suitable means for adjusting the frame horizontally with relation to the tongue, and a series of plows having their beams pivotally attached to the rear of the frame.

6. The improved plow set forth comprising the combination of the axle; the ground wheels journaled thereon; the rocking draft frame mounted upon such axle; the tongue pivoted to the front of such draft frame and adjustably connected with the rear of such frame; the plows pivoted to the rear of the rocking frame, and means for adjustably connecting the rear end of the tongue with the rear end of the rocking frame.

491,034. WINDOW-FRAME. WILLIAM YOUNG, Weston, Mich. Filed Feb. 23, 1892. Serial No. 422,344. (No model.)



Claim.—1. The combination with the window-frame, of the movable jamb located therein and having the beveled bearings on the outer face thereof, the gravity wedge interposed between said bearings and the frame, the stem and knob attached to said wedge by means of which it may be actuated, substantially as set forth.

2. The combination with the window-frame, of the movable jamb therein supported at its ends on guide pins, the beveled bearings on the inner face of the frame, the gravity wedge carrying the spring arms and interposed between said bearings and movable jamb, the knob stem attached to said wedge and projecting through an inclined slot in the casing, substantially as specified.

3. In a window-frame, the combination of the movable jambs B, C, forming a part thereof, and supported on guide pins *c*, *c*, the bearings *c*, the wedge E engaging said bearings and the frame A, the stem A connecting said wedge through the slot *i* of the case F, the bearings *n* on the frame A', the wedge G engaging said bearings and carrying the spring-arms *s* that engage the jamb C, the stem *v* attached

to the wedge G and extending through the slot *u* of the case H, substantially as and for the purposes specified.

491,085. PROCESS OF MANUFACTURING STEEL. TAYLOR ALLERDICE, Swissvale, assignor to the Carnegie Steel Company, Limited, Pittsburg, Pa. Filed Feb. 3, 1892. Serial No. 420,219. (No specimens.)

Claim.—1. In the manufacture of steel, the improvement which consists in treating the metal in the furnace or converter for conversion into steel, placing in a receiving vessel or ladle a definite amount of free carbon proper to raise the carbon content of the steel to the point desired, and then pouring the steel upon the same: substantially as and for the purposes described.

2. In the manufacture of steel, the improvement which consists in treating the metal in the furnace or converter for conversion into steel, introducing into a receiving vessel or ladle having a discharge opening a layer of molten steel sufficient to cover the opening, then introducing free carbon, and pouring the steel upon the carbon: substantially as and for the purposes described.

3. In the manufacture of steel, the improvement which consists in treating the metal in the furnace or converter for conversion into steel, introducing into a receiving vessel or ladle a layer of molten metal, then introducing upon said layer a definite amount of free carbon proper to raise the carbon content of the steel to the point desired, and pouring the steel upon the carbon: substantially as and for the purposes described.

4. In the manufacture of steel, the improvement which consists in treating the metal in the furnace or converter for conversion into steel, placing in a receiving vessel or ladle an easily destructible case containing a definite amount of subdivided free carbon proper to raise the carbon content of the steel to the point desired, and pouring the steel: substantially as and for the purposes described.

491,086. HARROW. ROSWELL H. BUCKINGHAM, Chicago, Ill. Filed Oct. 12, 1891. Serial No. 408,474. (No model.)



Claim.—1. The herein described harrow consisting of the combination of the bar which carries the teeth, the strap or clip embracing said bar having holes therein located just within the plane of the outer edge or edges of the bar and the tapering tooth adapted to be forcibly driven into said holes, and bind the parts together, all substantially as shown and described.

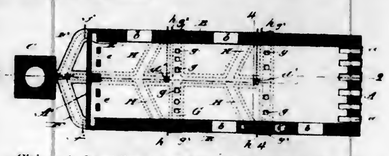
2. The herein described harrow consisting of the combination of the elastic bar which carries the teeth, the strap or clip embracing said bar having holes therein located just within the plane of the outer edge or edges of the bar and the tooth adapted to be forcibly driven into said holes and bind the parts together, all substantially as shown and described.

3. The herein described harrow consisting of the combination of the elastic bar which carries the teeth, the strap or clip embracing said bar having polygonal holes therein one angle of which is located within the plane of the outer edge or edges of the bar and the tooth fitting and adapted to be forcibly driven into said holes, all substantially as shown and described.

4. The herein described harrow consisting of the combination of the V-shaped bar A, the strap B embracing said bar, having the holes *b*, *b*, therein located partially within the plane of the outer edges of the arms D and E, and the tooth C adapted to be forcibly driven into said holes, all substantially as shown and described.

5. The herein described harrow consisting of the combination of the elastic V-shaped bar A, the strap B passing over one arm F thereof, and extending beyond the edges of the arms D and E, the holes *b*, *b*, in the ends of said strap located partially within the plane of the outer edges of said arms and the tooth C fitting and adapted to be forcibly driven into said holes, all substantially as shown and described.

491,087. BRICK-KILN. JOSEPH COSLEY, St. Joseph, Mo., assignor of one-half to Hugh J. Bowen, same place. Filed Oct. 6, 1892. Serial No. 448,083. (No model.)



Claim.—1. In a kiln, the combination of the end wall provided with apertures and grate-bars, the opposite end wall having transverse flues and apertures, the ends of said flues connecting with a horizontal flue located below the floor of the kiln, said flue connecting with the interior of the kiln and chimney, substantially as shown, and for the purpose set forth.

2. In a kiln having an end wall A with a series of apertures, grate bars and ash pits extending from the exterior of said wall within the same, a longitudinal flue connecting the interior of the kiln with a chimney, side walls and end wall, the side walls having doorways and the end wall above the floor of the kiln having flues which connect with the interior of the kiln above the floor and with the central flue by flues or conduits F, transverse flues having apertures above the same which lead to the interior of the kiln, the side openings of said flues being above the floor level of the kiln, substantially as shown, and for the purpose set forth.

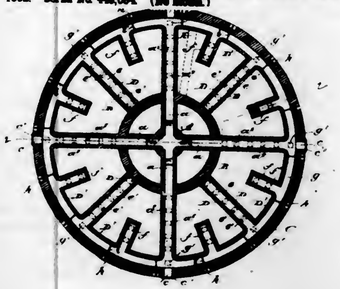
3. In a kiln, the combination of the end and side walls constructed substantially as shown, of a central longitudinal flue having apertures and dampers or cut-offs for closing the same, transverse flues with apertures leading to the interior of the kiln and openings in the side walls above said flues, forwardly inclined flues H connecting with the transverse flues within the side walls and with the central longitudinal flue below the floor of the kiln, substantially as shown, and for the purpose set forth.

4. In a kiln, the combination of the inclosing walls, transverse flues G below the floor of the kiln, the outer ends of said flues within the side walls having upwardly extending portion *g'* and apertures connected therewith, the upwardly projecting portions also connecting with flues H which connect with the longitudinal flue D substantially as shown whereby the openings and outlets G' are located above or on a line with the floor of the kiln, and dampers or cut-offs intersecting the flues H, substantially as shown, and for the purpose set forth.

5. A permanently constructed kiln consisting of end walls A and A', side walls B, flues D G and H located below the floor of the kiln and provided with apertures and dampers as shown, the end wall A' having flues E above the floor level and apertures *e* connecting the interior of the kiln therewith, said flues being connected by conduits F with the longitudinal flue D, of a furnace built adjacent to the end wall A, the brick constituting the furnace or furnaces not forming a permanent portion of the kiln, for the purpose set forth.

6. In a kiln, the combination of a rectangular structure having at one end a starting furnace and at the opposite end a flue which is connected with the chimney, a central longitudinal flue connecting with the chimney and with the interior of the kiln by apertures or openings formed above said flues in the base of the kiln, a plurality of transverse flues which connect with the central flue and with the interior of the kiln, substantially as shown.

491,088. CIRCULAR BRICK-KILN. JOSEPH COSLEY, St. Joseph, Mo., assignor of one-half to Hugh J. Bowen, same place. Filed Oct. 6, 1892. Serial No. 448,084. (No model.)



Claim.—1. In a circular kiln an outer wall, an inner wall and a central chimney, a circular flue adjacent to the outer wall and flues connecting the circular flue with the chimney, and intermediate flues *e* and *j*, said flues having apertures in the upper portion thereof which lead to the interior of the kiln, the circular flue being provided with cut-offs *i* arranged to separate each flue from the adjacent one, substantially as shown, and for the purpose set forth.

2. In a circular kiln, the combination with the inner and outer circular walls intersected below the ground level by flues *a*, openings *c* in the outer wall located above the ground level and connected with the flues *a*, dampers *d* adapted to cut off the flues *a* from the chimney, intermediate flues *e* and *j*, each flue having openings connecting the same with the interior of the kiln, a series of cut-offs adapted to intersect the flue *g* and cut off the flues from the interior of the kiln, and a partition wall, substantially as set forth.

3. In a circular kiln for burning brick, the combination of the inner and outer circular walls and central chimney, the outer wall having openings and flues opposite thereto which lead to the chimney, openings in the floor of the kiln connecting with said flues, a series of radiating flues connecting with the main flues, said radiating flues and connecting flue being provided with openings which lead therefrom to the interior of the kiln, substantially as shown.

491,039. LAWN-MOWER. JAMES R. CROOK and JOHN J. DAVIS, Lincoln, Nebr. Filed May 5, 1892. Serial No. 431,942. (No model.)



Claim.—1. The combination in a mowing machine, of the frame plates A, the drive wheels journaled on tubular studs on said plates, the propeller frame, also journaled on studs on said frame concentric with the wheel studs, the reciprocating knife bar located in front of the drive wheel studs and the cutter frame supported on the drive wheel studs and cam shaft, substantially as described.

2. The combination in a mowing machine, of the frame plates forming also covers for the gearing, the drive wheels journaled on stud axles on said plates, the reciprocating knife bar and its actuating cam-shaft, the cutter frame supporting said knife bar and supported upon both the drive wheel studs and the cam shaft and the ground wheel or caster arm, pivoted to and adjustable on said plates, substantially as described.

3. The finger bar provided with the spear headed fingers and the knife guiding groove, in combination with the knife bar having the rib engaging and moving in said groove and the knife sections having the triangular extensions on their forward ends substantially as described

4. In a mowing machine the spear headed and shouldered guard fingers provided with the open caps, in combination with the knife sections having triangular extensions of their points terminating in straight forward edges parallel with the line of motion of the knife bar, substantially as and for the purpose described.

491,040. BICYCLE ATTACHMENT. THEODORE CUNNIUS, Dover, assignor of one-half to Jacob C. Van Horn, Marlsborough, N. J. Filed Feb. 18, 1892. Serial No. 421,986. (No model.)

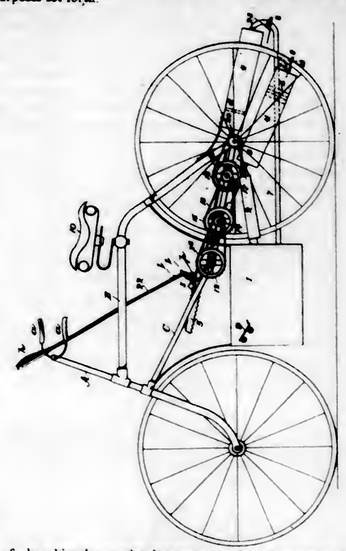
Claim.—1. The combination of a cylinder for containing a fluid under pressure and provided with a single-acting-power-piston; gearing connecting said piston to a driving or power-transmitting shaft; and means substantially as described for forcing back said piston against its impelling fluid-pressure, as and for the purposes set forth.

2. The combination with a tank or reservoir, for holding fluid under pressure, and a cylinder provided with a single acting piston, means for opening and closing communication between said reservoir and cylinder and means substantially as described for forcing back said piston against its impelling fluid-pressure, as and for the purposes set forth.

3. The combination of a cylinder for containing a fluid under pressure, and provided with a single acting power piston, gearing connecting said piston to a driving or power transmitting shaft; a screw threaded rod for controlling the stroke of said piston; and a fixed stop or block for taking the thrust of said screw threaded rod, substantially as and for the purposes set forth.

4. The combination of a cylinder for containing a fluid under pressure, and provided with a piston and hollow rotary piston rod, gearing connecting said piston rod to a driving or power transmitting shaft, a screw threaded rod extending within said piston rod, and a fixed stop or block for taking the thrust of said screw-threaded-rod, substantially as and for the purposes set forth.

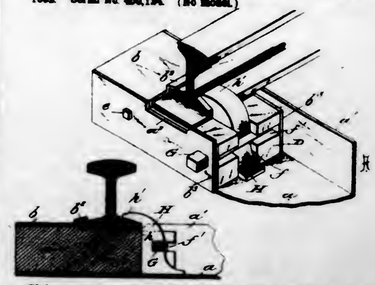
5. The combination of a cylinder, for containing a fluid under pressure, provided with a single acting power piston; a hollow ball-jointed-piston-rod; a screw threaded rod extending within said piston rod; a rack-bar and gearing connecting said piston rod to a driving or power transmitting shaft; a fixed thrust block for said screw rod, and means for rotating said piston-rod, substantially as and for the purposes set forth.



6. In a bicycle, or other locomotor-machine, the combination of a cylinder, for containing fluid under pressure, provided with a single-acting-piston and a rotary piston rod; a rack bar and gearing connecting said rod to the axle of the machine; a screw threaded rod and thrust-block therefor and a treadle-motion and gearing for rotating said piston rod, substantially as and for the purposes set forth.

7. In a bicycle, or other locomotor-machine, the combination of a cylinder, for containing fluid under pressure, provided with a single-acting-piston and a rotary piston-rod; a rack-bar and gearing connecting said rod to the axle of the machine; a screw-threaded-rod and thrust-block therefor; and a treadle-motion and ratchet-gearing for rotating said piston-rod in either direction, substantially as and for the purposes set forth.

491,041. RAILWAY-TIE. HIRAM D. DASHER, Middletown, assignor of one-half to Samuel P. Fowler, Jenkintown, Pa. Filed Oct. 27, 1892. Serial No. 450,124. (No model.)



Claim.—1. In a railway tie, the combination of the metal tie A having vertically disposed side pieces, of a metal section B having a

horizontal portion and depending side plates, a block D secured within the section B, one end of said block being adapted to receive a clamp, and means substantially as shown for locking the parts together.

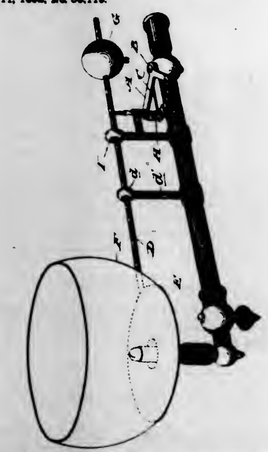
2. In a railway tie, the combination of the metal tie having vertical sides, a section B having a horizontal portion and depending sides, a block D having a vertical recess *f*, a bolt or pin securing the parts A B and D together, and a clamp secured removably within the recess *f* by a tapered locking pin, the parts being organized substantially as shown and for the purpose set forth.

3. In combination with a metallic railway tie having a base and vertical sides, said sides having apertures *b* and slots *c*, a metallic section or plate B having a horizontal portion extending to engage with a rail and vertical sides which are provided with apertures and slots which register with the apertures and slots in the tie and section B, and a block D located within the section B and having at one end a horizontal recess and a vertical recess, and a clamp H adapted to rest upon the base of the tie and engage with the rail and be engaged by a tapered locking key which passes through the slots in the tie A and section B and through the horizontal recess in the block, substantially as shown.

4. In combination with a railway tie made up of the parts A and B which are connected to each other and retain a wooden block, the upper side of said block carrying an elastic strip upon which the rail rests, together with a removable clamp H, substantially as shown, and for the purpose set forth.

5. In combination with the tie A having upwardly projecting side pieces with recesses a^3, a bent plate or section B adapted to lie within the side pieces of said tie, said section having depending sides and a horizontal portion which is cut away and bent to form a hook b^3 which engages the rail, a wooden block D having a vertical recess within which lies a clamp H, said clamp having a hooked end which engages the rail on the opposite side from the hook b^3 and a base which rests upon the base of the tie, together with a locking key adapted to pass through the tie A, section B, wooden block D and clamp H to hold the parts in engagement with the base flange of the railway rail, substantially as shown.

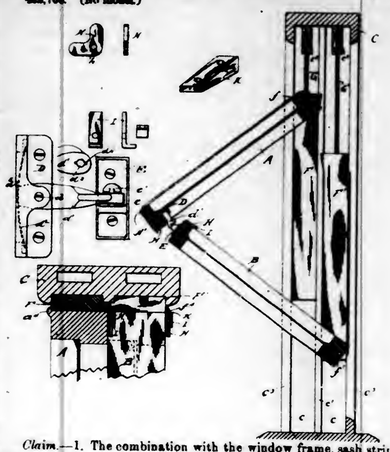
491,042. CUT-OFF FOR GAS-BURNERS. ELI DENNIS, Newmarket, assignor of one-half to Frederick Arthur Denne, Stayner, Canada. Filed Apr. 25, 1892. Serial No. 430,600. (No model.) Patented in Canada June 11, 1892, No. 39,119.



Claim.—1. In a gas burner, a pivoted lever, one end carrying a horisontal disk E surrounding the gas burner and the other end of the lever in proximity to the gas cock, in combination with a spring arranged to actuate the gas cock and means for connecting the pivoted lever to the cock by which the rocking of the lever on its pivot will cause the spring to close the cock, substantially as and for the purpose specified.

2. A notched quadrant A, connected to the gas cock B, which is actuated by the spring C, in combination with the lever D, supporting the globe F, on the disk E, in combination with the weight G, and pin H, substantially as and for the purpose specified.

491,043. WINDOW. BENJAMIN F. DEITZEL, Reading, assignor to William W. Loeher, Monserville, Pa. Filed Feb. 26, 1892. Serial No. 423,766. (No model.)



Claim.—1. The combination with the window frame, sash strips mounted therein to slide past each other, and sashes pivoted to said strips at their upper and lower ends respectively, of L-shaped locking ears pivoted to said sashes, and tapered plates, secured to said strips and adapted to be engaged by said locking ears, substantially as described and for the purposes specified.

2. The combination with a window frame, sash strips mounted therein to slide past each other, and sashes pivoted to said strips at their upper and lower ends respectively, of locking ears pivoted to said sashes, plates secured to said sash strips and designed to be engaged by said locking ears, and weather strips on the inner of said sash strips and the outer sash respectively, said weather strips serving to break the junction between said sash strips and sash when the same are brought together, substantially as described.

3. The combination with the window frame, sash strips mounted therein to slide past each other, and sashes pivoted at their upper and lower ends respectively to said strips, and hinged together at the meeting rail, of L-shaped locking ears pivoted to said sashes, and tapered plates secured to said strips and adapted to be engaged by said locking ears, substantially as described and for the purposes specified.

4. The combination with a window frame and sashes capable of sliding or tilting therein, of a combined hinge connection and sash lock consisting of a laterally swinging arm pivoted to the meeting rail of one sash and having a round opening with oblong extension, and a bearing piece fixed to the meeting rail of the other sash and having a projection adapted to enter said oblong opening when the meeting rails are together but to prevent lateral movement of said arm when the sashes are tilted, substantially as set forth.

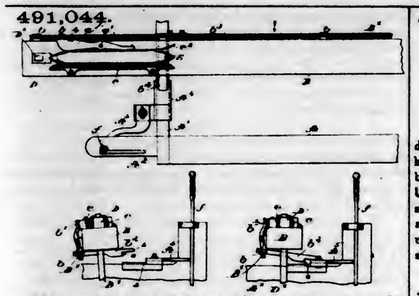
5. The combination with a window frame, sash strips mounted therein to slide past each other, sashes pivoted to said strips at their upper and lower ends respectively, and means for locking said sashes to said strips when desired, of a laterally swinging arm pivoted to the meeting rail of one sash and having a round opening with oblong extension, and a bearing piece fixed to the meeting rail of the other sash and having a projection adapted to enter said oblong opening when the meeting rails are together but to prevent lateral movement with, of said arm when the sashes are tilted, substantially as set forth.

6. The combination with a window frame, and sashes capable of sliding or tilting therein, of the plate D, secured to the meeting rail of one sash, arm d^7 pivoted to said plate and having near one end an opening with an oblong extension, spring d^8 engaging one end of said arm, a bracket secured to the meeting rail of the other sash and provided with a bearing pin *e* having a wing at its end, all arranged and operating substantially as set forth.

491,044. LOOM. WILLIAM F. DRAPER, Hopedale, Mass., assignor to George Draper & Sons, same place. Filed Oct. 3, 1892. Serial No. 448,205. (No model.)

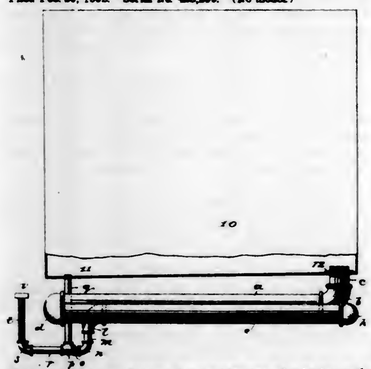
Brief.—When the shuttle fails to properly box or rebounds from the box the stopping devices are operated by one of the two shoulders on the dagger.

491,044.



Claim.—In a loom the following instrumentalities, viz:—a lay provided with a shuttle-box; a protector-rod having a binder finger located near the outer end of the shuttle-box; a binder having a free end in the outer end of the shuttle-box and interposed between said finger and the shuttle when properly lodged in the shuttle-box, and a stop-motion device, combined with a dagger connected with the said protector-rod and having two acting shoulders, one to operate with the stop-motion device to stop the loom in case the shuttle fails to come into the box, the other shoulder acting to stop the loom in case the shuttle rebounds and is thus put out of proper position in the shuttle-box as the picker is about to act, substantially as described.

491,045. GAS HEATER. HENRY C. EARLE, New York, N. Y. Filed Feb. 29, 1892. Serial No. 423,209. (No model.)



Claim.—1. In a gas heater, the combination of a hydro carbon gas burner, and a water heater consisting of a pipe coil, whereof one length is directly exposed to the action of the gas flames and is at a higher level than the other lengths, which said other lengths form water reservoirs that are connected in series with the first named length and with each other.

2. In a gas heater, the combination of a hydro carbon gas burner, a boiler exposed to the direct action of the gas flame, water reservoirs at a lower level than the boiler and operatively connected therewith, and a deflector interposed between the burner and the reservoir.

3. In a gas heater, the combination of a hydro carbon gas burner, boiler and water reservoirs in continuous connecting series, and the boiler at a higher level than the reservoirs, a deflector interposed between the burner and the reservoirs, a filler at a level with the top of the boiler and connected with the reservoirs, and a radiator operatively connected with the boiler and also with the reservoirs.

4. In gas heaters, and in combination with a hydro-carbon gas burner, a heater consisting of a boiler and reservoirs arranged in a continuous connecting series, and the boiler being at a higher level than the reservoirs, a steam supply pipe from the boiler, and a drip pipe trapped below the water reservoirs and operatively connected therewith.

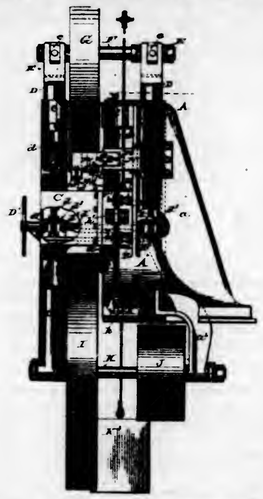
491,046. INK-ROLLER SUPPORTING DEVICE FOR PRINTING-MACHINES. JOHN M. FARNHAM, Hartford, Conn., assignor to the Type Writing Machine Company, same place. Filed Apr. 27, 1892. Serial No. 430,893. (No model.)

491,046.



Claim.—The combination with the inking roller substantially as described, of a holder therefor consisting of a single piece of wire having its intermediate portion bent into U-form, each of its side members having one or more convolutions, g^4, thence extended from said U-portions in divergent sections, g^5, each provided with the depression, *i*, and shoulder, *j*, and the said sections continued in the parallel arms, g^6, with the eyes, *g*, at their terminals in which the roller-journals are mounted, and the clasp, A, substantially as described and shown.

491,047. BAND-SAW MILL. EDWARD E. FITZGERALD, West Duluth, assignor of one-half, by mesne assignments, to Frank W. Merritt, Duluth, Minn. Filed Nov. 9, 1891. Serial No. 411,348. (No model.)



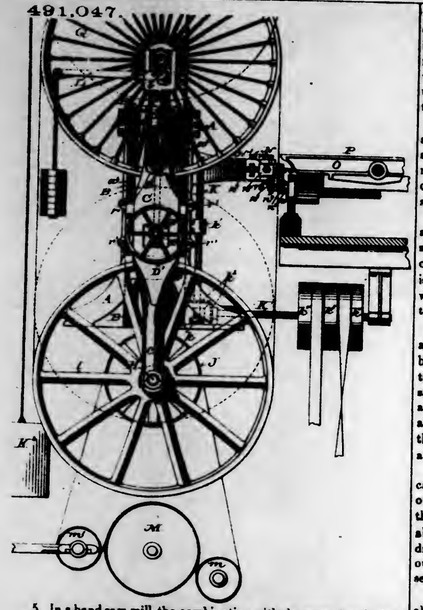
Claim.—1. In a band saw mill, the combination with a work support or carriage upon which the work is movable horizontally past the saw, of vertically movable band wheels located one above the other, and a band saw mounted thereon and movable therewith so as to bring the point where said saw leaves the upper wheel as close as possible to the work and thereby dispense with the upper guide, substantially as and for the purposes set forth.

2. In a band saw mill, the combination of band wheels located one above the other, a band saw mounted thereon, a fixed frame or column and a vertically movable frame or column supported thereby and carrying said band wheels and saw, whereby the upper wheel is brought close to the work and buckling and deflection of the saw is prevented without the use of an upper guide, substantially as and for the purposes set forth.

3. In a band saw mill, the combination with a support or carriage on which the work is moved horizontally past the saw, of band wheels located one above the other, a band saw mounted thereon with its working side in a vertical position, a fixed frame or column, a vertically adjustable frame or column supported thereby and carrying said band wheels and saw, and a screw for raising and lowering said movable frame or column, substantially as and for the purposes set forth.

4. In a band saw mill, the combination with a carriage or support upon which the work is moved horizontally past the saw, of band wheels located one above the other, a band saw mounted thereon with its working side in a vertical position, a fixed frame or column, a vertical adjustable frame or column supported thereby and carrying said band wheels and saw, a screw having a bearing in said fixed frame or column and engaging with a nut on said adjustable frame or column, and a reversible driving connection for turning said screw in opposite directions, substantially as and for the purposes set forth.

491,047.



5. In a band saw mill, the combination with the upper band wheel and its shaft, of vertically movable boxes for said shaft and independent straining levers fulcrumed to the box supports and acting upwardly against said boxes independently of each other, whereby the upper wheel is permitted to accommodate itself to variations of strain in the front and rear edges of the saw, substantially as and for the purposes set forth.

6. In a band saw mill, the combination with the upper band wheel and its shaft of trunnioned boxes journaled in vertically movable slides whereby either end of said shaft is permitted to rise or fall without causing it to bind in said boxes, and straining levers fulcrumed in the box supports and acting independently of each other upwardly against said boxes so as to maintain a uniform tension in the front and rear edges of the saw, substantially as and for the purposes set forth.

7. In a band saw mill, the combination with the upper band wheel and its shaft of extensible stems carrying the journal boxes of said shaft, vertical screws having step bearings at their lower ends in the frame of the mill and engaging with nuts in said stems, a cross shaft above said step bearings in the same vertical plane with said screws provided at the ends with bevel gears working with similar gears on said screws, and a hand wheel or lever mounted upon a shaft in line with said cross-shaft and provided with a bevel gear working with a gear on one of said screws, substantially as and for the purposes set forth.

8. In a band saw mill, the combination with the upper band wheel and its shaft of trunnioned boxes supporting said shaft, extensible stems forked at their upper ends to receive said boxes, vertically movable trunnion-blocks having sliding bearings in the forked arms of said stems, and straining levers fulcrumed in said stems and bearing upwardly against said boxes, substantially as and for the purposes set forth.

9. In a band saw mill, the combination of band wheels located one above the other, a fixed frame or collar having vertical ways on the sides, a vertically movable cylindrical column adapted to and supported by said fixed frame or column and carrying the band wheels, and bearings on said vertically movable column, working with the vertical ways on the fixed frame or column and holding the one from turning in the other, substantially as and for the purposes set forth.

10. In a band saw mill, the combination of a fixed frame or column having vertical ways on the sides, a vertically movable frame or column supported by said fixed frame or column and carrying the band wheels, and adjustable bearings on said vertically movable frame or column arranged to bear against the vertical ways on the fixed frame or column, substantially as and for the purposes set forth.

11. In a band saw mill, the combination of a fixed frame or column having vertical ways on the sides, a vertically adjustable cylindrical column carrying the band wheels one above the other and fitted in said fixed frame or column, and provided on opposite sides with friction rollers which bear upon said vertical ways and thus hold the vertically adjustable column from turning in the fixed frame or column and facilitate its vertical adjustment, substantially as and for the purposes set forth.

12. In a band saw mill, the combination with a vertically movable frame or column carrying the band wheels and having on opposite sides horizontally adjustable roller blocks provided with friction rollers, and a fixed frame or column supporting said adjustable frame or column and provided with vertical ways for said friction rollers, substantially as and for the purposes set forth.

13. In a band saw mill, the combination of a vertically adjustable cylindrical column carrying the band wheels provided on opposite sides with horizontally adjustable friction rollers, a fixed frame or column provided with bearings for said cylindrical column, which is capable of turning and sliding vertically therein, and with vertical ways against which said rollers bear thereby preventing the mill from turning, substantially as and for the purposes set forth.

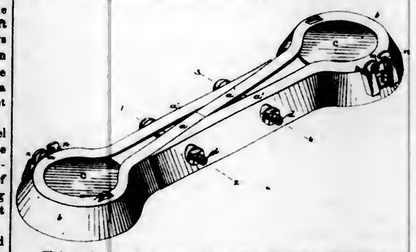
14. In a band saw mill, the combination with a vertically adjustable frame carrying the band wheels, one above the other, and a band saw mounted thereon with its working side in a vertical position; of a self adjusting driving connection comprising a counter-shaft and driving pulley mounted thereon, below the mill a fixed and a vertically movable idler on opposite sides of the counter-shaft, and a belt passing over the driving pulley, thence under the idlers and thence over a pulley on the lower band wheel shaft, substantially as and for the purposes set forth.

15. In a band saw mill, the combination with a work support or carriage occupying a fixed position vertically with relation to the saw, of band wheels located one above the other, a band saw mounted thereon with its working side in a vertical position, a vertically movable frame or column carrying the band wheels, and a self adjusting driving connection whereby the mill may be raised or lowered without interrupting its operation, substantially as and for the purposes set forth.

16. In a band saw mill, the combination with a vertically movable frame carrying the band wheels, one above the other, the band saw mounted thereon with its working side in a vertical position and mechanism for raising and lowering said frame, of a counterweight connected with said frame and acting upwardly thereon, a counter-shaft below the mill and a self adjusting driving connection between the lower band wheel shaft and said counter-shaft substantially as and for the purposes set forth.

17. In a band saw mill, the combination of a vertically movable frame carrying the band wheels, a fixed frame supporting said vertically movable frame, and a lower guide permanently attached to said fixed frame, substantially as and for the purposes set forth.

491,048. RAILWAY-TIE. CHARLES A. GILDEMEYER, Haddonfield, N. J., assignor of one-half to Oscar Twitchell, same place. Filed June 27, 1891. Serial No. 397,673. (No model.)



Claim.—1. A railway cross tie formed of two or more sections of angle iron beat into suitable shape and so disposed that the shorter arms of the beat portions will abut and form a bar extending diagonally across the tie, and overlapping longer arms extending substantially parallel to each other on either side of said diagonal bar, substantially as specified.

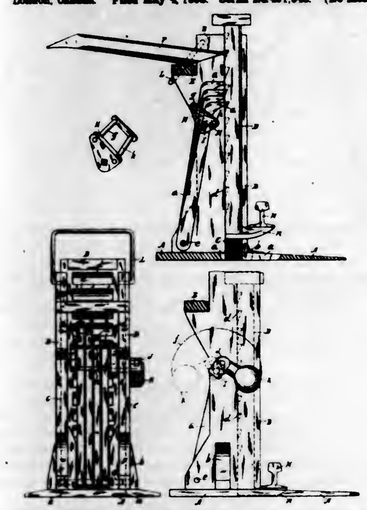
2. A railway cross tie formed of two or more sections of angle iron beat into suitable shape and so disposed that the shorter arms of the beat portions will abut and form a diagonally extending bar, and longer arms extending on either side of the diagonal bar, said longer arms being tapered at their extreme ends to fit snugly against said diagonal bar, with transverse bolts for securing the sections together, substantially as specified.

3. A railway tie formed of angle iron and having enlarged end portions, with covering plates adapted to fit within such enlarged end portions, below the upper flange of the angle iron substantially as specified.

4. The combination in a cross tie made of angle iron having an inclined body portion and an internal flange extending around the upper edge, with covering plates for the opening formed between the flanges, substantially as specified.

5. The combination of the tie, the rail, a beat plate having bolt receiving pockets, headed bolts adapted to said pockets, the heads of said bolts being adapted to engage with the lower flange of the rail, and a securing bolt for holding said plate to the side of the tie, substantially as specified.

491,049. LEVER TRACK-JACK. JOHN HENRY, Ilderton, assignor, by direct and mesne assignments, to Philip A. Harding and David Smith, London, Canada. Filed May 4, 1892. Serial No. 431,843. (No model.)



Claim.—A lever track jack, consisting of the bed plate, A, in which an opening, *a*, is formed, the uprights, B, B, having the grooves, C, formed therein, the sliding standard, D, having recesses, *d*, formed therein, and provided with a foot, *s*, in combination with the dogs, G, the socket arm, H, shaft, I, crank, J, and weight, K, substantially as shown and described, and for the purpose specified.

491,050. RAILWAY-SPIKE. SAMUEL C. HILL, Washington, D. C., assignor to Joseph R. Hill, same place. Filed Nov. 20, 1890. Renewed June 9, 1891. Again renewed Dec. 17, 1891. Serial No. 415,415. (No model.) Patented in England Sept. 22, 1890, No. 14,954, and in France Sept. 23, 1890, No. 208,364.

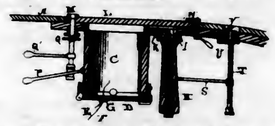
Claim.—1. A spike having a shank provided with a chisel edge or wedge point at its lower end, the shank having a convex curve on the inside, or side, which, in use, will be nearest to the rail, from the base of the wedge upward to near its upper part, below the head, and from there, continuous with it, a concave curve to the under part of the head, on the opposite side or side which, in use, will be farthest from the rail, a concave curve from the top of the wedge upward to near its upper part below the head, and from there, continuous with it, a convex curve to the head, substantially as and for the purpose described.

2. A spike having a shank provided with a chisel edge or wedge point at its lower end, the shank having a convex curve on the inside or the side which, in use, will be nearest to the rail, from the base of the wedge upward to near its upper part, below the head, and from there, continuous with it, a concave curve to the under part of the head, on the opposite side or side which, in use, will be farthest from the rail, a slight bulge or convex curve followed by a concave curve from the top of the wedge upward to near its upper part, below the head, and from there, continuous with it, a convex curve to the head, and an enlarged throat, substantially as and for the purpose set forth.

491,050.



491,051. SUBMARINE GUN. JOHN P. HOLLAND, Bayonne, N. J. Filed May 23, 1892. Serial No. 433,903. (No model.)



Claim.—1. In combination with a torpedo boat, a pair of guns secured at their muzzles in the shell of said boat, and a covered passage communicating with both nozzles.

2. In combination with a pair of guns secured at their muzzles in the shell of a boat, a single cover extending over both muzzles and a passage-way connecting the muzzles beneath the cover.

3. In combination with a pair of guns secured at their muzzles in the shell of a boat, a single cover for both muzzles pivoted to the side of the boat, a passage-way connecting the muzzles under said cover and an operating handle and clamps for said cover.

4. In combination with the shell of a torpedo boat, a breech-loading gun having its muzzle permanently secured to said shell, a breech piece to said gun having an aperture provided with a water-tight bushing and a wire passing through said aperture and attached to the projectile in the gun, as set forth.

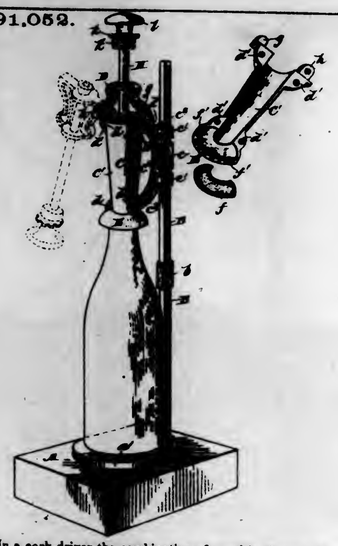
5. The combination with the shell of a boat of a muzzle-pivoted gun, a front pivoted telescope, and a connecting link between the body of the gun and telescope whereby the two are held in parallelism, substantially as described.

6. In combination with the shell of a boat, a gun pivoted at the muzzle in a water-tight packing in said shell and a counterpoise attached to and supporting the gun at the breech, as set forth.

491,052. CORK-DRIVER. ANTHONY IMES and ALBERT IMES, Lancaster, Pa., assignors to Charles R. Hester, Henry R. Osborn, and Marion R. Hartman, same place. Filed Aug. 26, 1892. Serial No. 444,216. (No model.)

Claim.—1. In a cork-driver the combination of a base having a concave recess *a* with a block *a'* having a flat top but convex underneath to fit the said recess, a fixed guide rod or support and cork driving devices which are attached thereto, the said devices being arranged to supply corks to a bottle which stands on the flat top of the said block and kept in alignment with the feed supplying device by the movability of the said block in the said recess substantially as set forth.

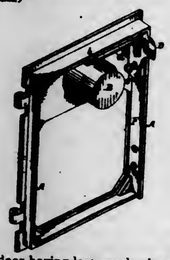
491,052.



2. In a cork-driver the combination of a rocking base with cork driving devices for a bottle standing thereon and a support for the said cork driving devices, the said base being constructed with hemispherical surfaces fitting together and operating after the manner of a ball and socket joint substantially as set forth.

3. In a cork driver the combination with a base proper of an auxiliary rocking base, a cylinder support a funnel shaped cylinder adjustable on said support a reciprocating plunger and a guide hinged to said cylinder and an adjustable buffer on said plunger substantially as set forth.

491,053. LATCH. MILSON JACKSON, Philadelphia, Pa., assignor to the Miller Lock Company, same place. Filed Sept. 14, 1892. Serial No. 445,894. (No model.)



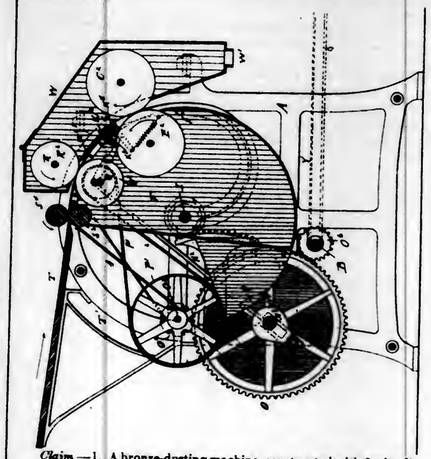
Claim.—1. The door having lock mechanism, a latch carried by a spring arm independent of said lock mechanism, and a slack or lost motion connection between the latch and a movable projecting portion of the lock, whereby the retraction of the latch by the lock mechanism is provided for, and the latch permitted to yield without imparting movement to said lock mechanism, substantially as specified.

2. The door having lock mechanism, a latch carried by a spring arm independent of said lock mechanism, and a slotted bar providing a lost motion connection between the latch and a projecting operating portion of the lock, substantially as specified.

3. The combination of the lock, the spring arm carrying the latch, a connection between said latch and lock, and a pin adapted to an opening in the latch and serving to prevent lateral movement of the same, substantially as specified.

4. The combination of the lock, the spring arm carrying the latch, a connection between said latch and lock, and a headed pin adapted to an opening in the latch, and serving to restrict the yielding movement of the spring arm, substantially as specified.

491,054. BRONZE-DUSTING MACHINE. EMILE JARDE and MORRIS ADELMAN, Brooklyn, N. Y. Filed Sept. 10, 1892. Serial No. 445,304. (No model.)



Claim.—1. A bronze-dusting machine, constructed with feed-rollers, arms having a reciprocating motion, grippers supported by said arms and means for automatically opening and closing said grippers to grip and release the sheets and brushes for brushing the sheets, substantially as setting forth.

2. A bronze-dusting machine, constructed with rotary brushes, a curved guide for the sheets, arms mounted to reciprocate on a curved line, grippers supported by the ends of said arms, and mechanism for automatically opening and closing the grippers, substantially as set forth.

3. In a bronze-dusting machine, the combination, with two casings, of which one has a convex face and the other a concave face, said convex and concave faces being a short distance from each other and forming a passage for the sheets arms mounted to reciprocate on a curved line, grippers supported on said arms for drawing the sheets through the above-mentioned passageway, means for automatically opening and closing said grippers, and brushes in the said casings, substantially as set forth.

4. In a machine for dusting bronze, the combination, with a casing having a convex face and a casing having a concave face, said convex and concave faces being a short distance from each other and forming a passageway for the sheets, brushes in said casings, arms mounted to reciprocate on curved lines, grippers on said arms, a spring for automatically keeping the grippers closed, cam-arms for opening said grippers, mechanism for operating said cam-arms and projections on the casings for opening the grippers at the end of the stroke and releasing the sheets, substantially as set forth.

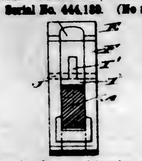
5. In a machine for dusting bronze, the combination, with a frame, of a feed-table, feed-rollers at the ends of the same, two casings provided with brushes between which casings a passageway for the sheets is formed, reciprocating arms, grippers on said arms for gripping the sheets and mechanism for automatically closing and opening said grippers, substantially as set forth.

491,055. CHURN. ISAAC KEY, Winamac, Ind., assignor of one-half to Oliver Capron and Jeremiah Hahn, same place. Filed Feb. 27, 1892. Serial No. 423,002. (No model.)



Claim.—The churn consisting of the cream receptacle or body of an approximately pyramidal shape, the dasher having the cross-bars or beaters successively varying in length and having its staff or shaft provided at the upper end with a cross-pin, and the driving mechanism, the shaft of a pinion of which carries a vertically adjustable or sliding sleeve adapted to engage said cross-pin of the dasher shaft, substantially as set forth.

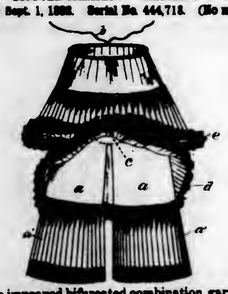
491,056. WRENCH. CHARLES H. F. KRAFT, Battle Creek, Mich. Filed Aug. 26, 1892. Serial No. 444,188. (No model.)



Claim.—1. In a wrench, the combination with a handle having a fixed jaw, of a movable head on the handle and having an outwardly inclined tongue on its upper surface, a wedge shaped jaw sliding on the said tongue and connected therewith by a pin and slot connection a spring for pressing the jaw inward, and means for locking the head on the handle, substantially as described.

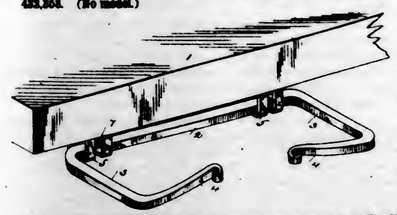
2. In a wrench, the combination with a handle having a fixed jaw, of a head movable on the handle and having an outwardly inclined and slotted tongue on its upper surface, a pin secured in the jaw and passing through the slot of the tongue, a spring secured in a recess of the jaw and head for forcing the jaw inwardly, and means for locking the head to the handle, substantially as herein shown and described.

491,057. BICYCLE-GARMENT. MARGARET H. LAWSON, Boston, Mass. Filed Sept. 1, 1892. Serial No. 444,718. (No model.)



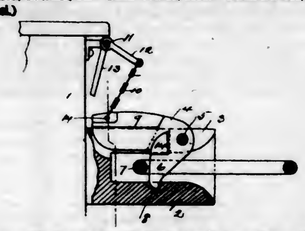
Claim.—The improved bifurcated combination garment comprising full leg portions provided with plaits at their lower extremities, and a plurality of skirts or flounces of different lengths outside the garment, the said skirts or flounces being permanently connected to the trousers at different elevations thereof below the waist band, substantially as described.

491,058. UMBRELLA-HOLDER. ALBERT G. MIDDLETON and CHARLES S. MIDDLETON, Allegheny, Pa. Filed May 9, 1892. Serial No. 433,354. (No model.)



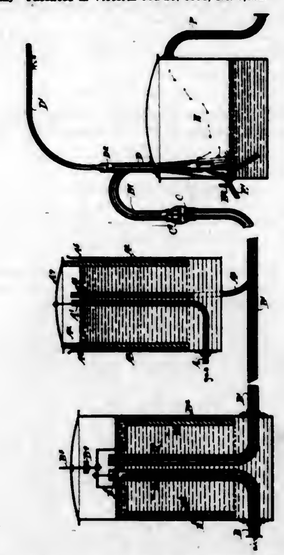
Claim.—The combination with the counter or support, of the divided U-shape bearings, provided with openings for attaching the same to the counter, a rod having a straight portion and bends at each side at right angles to the straight portion and inwardly projecting ends bent nearly parallel to said straight portion, and the flat springs secured to the divided bearings and engaging the upper surface of the straight portion of the rod, said straight portion of the rod arranged to rest in the U-shape bearings, substantially as specified.

491,059. CAR-COUPLING. WALTER C. REHARD and HARRY HARMON, Bethlehem, Pa. Filed Oct. 10, 1892. Serial No. 448,482. (No model.)



Claim.—The herein described car coupling consisting of the draw head 2 having the opening 3 formed at the top of and in the direction of the length of the same, the link engaging device 4 having a downwardly projecting portion 6, and a flanged top portion 9, the integral portions 14 to bear against the sides of the opening, the pin 5 for pivoting the said device in position, and the notch 8 to engage with the portion 6 the connecting chain 10, the shaft 11, the lever 12, and the cranks 13, all arranged and combined for service, substantially as and for the purpose described.

491,060. APPARATUS FOR MIXING AIR AND GAS. THOMAS SMITH, Melbourne, Victoria, assignor to Benja de Lissa and John Alston Wallace, same place. Filed Nov. 5, 1892. Serial No. 451,089. (No model.) Patented in Victoria Oct. 29, 1891, No. 9,183.



Claim.—1. In an apparatus for mixing air and gas, the combination with an air and a gas supply tank, each having an outlet pipe said outlet pipes being connected together beyond the respective tanks forming a single passage whereby the air and gas to be mixed flows through a single passage of a mixing tank, to which said single air and gas supply pipe forms the inlet, and a tromp arranged in said supply pipe and adapted to draw the air and gas from their respective tanks and to force them into said mixing tank, substantially as set forth.

2. In an apparatus for mixing air and gas, the combination with the mixing tank and the respective air and gas supply tanks of a pipe communicating between the air supply tank and the mixing tank a check valve in said pipe a second pipe leading from the gas supply tank and opening into the said air supply pipe between the valve

therein and the air supply tank, and means for drawing said air and gas into said mixing tank, substantially as set forth.

3. In an apparatus for mixing air and gas, the combination with a mixing tank having an inlet tube for the gas and air and a water supply pipe having a nozzle arranged in said inlet tube beyond the mixing tank, of a gas holder comprising a liquid containing vessel and a movable hood inclosing the gas inlet and outlet of said gas holder a valve in the water supply pipe whereby the flow of water therethrough may be regulated and a lever connected to said valve whereby the same is operated, the free end of said lever being connected to the movable hood of the gas holder, substantially as set forth.

4. In an apparatus for mixing air and gas the combination with a gas holder, comprising a liquid containing vessel having a gas inlet and a gas outlet and a movable hood inclosing said inlet and outlet, of a mixing tank having a gas and air inlet pipe and a gas outlet pipe, an air supply pipe communicating with the inlet pipe of the mixing tank, a check valve arranged in said pipe, a gas supply pipe communicating between the outlet of the gas holder and said air supply pipe beyond said check valve, a water supply pipe communicating with said gas and air inlet pipe between said check valve and the mixing tank, said water supply pipe having a nozzle arranged inside said inlet pipe and an outlet pipe for leading away the water from said mixing tank, substantially as set forth.

491,061. AUTOMATIC RAILWAY-SIGNAL. JESSE FRYBERGER, Hanover, Pa. Filed Apr. 7, 1892. Serial No. 428,239. (No model.)



Claim.—1. In an automatic railway train arrester the bar B having a convex face; said bar being adapted to move to and from the railway track, substantially as described.

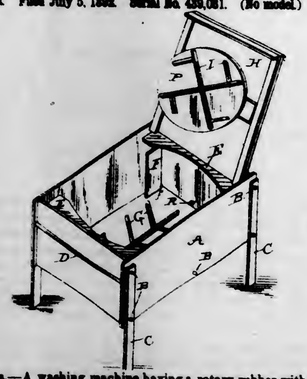
2. In an automatic railway train arrester the bar B having a double inclined or convex edge which edge is vertically concaved substantially as described.

491,062. TROUSERS-STRETCHER. LORENZO O. GRANGER, San Francisco, Cal. Filed Nov. 16, 1891. Serial No. 412,064. (No model.)



Claim.—A trousers stretcher consisting of a bow-shaped spring rod, having its ends bent backward and upward, and then downward, so as to form spring loops as set forth.

491,063. WASHING-MACHINE. HENRY T. HENDERSON, Keokuk, Iowa. Filed July 5, 1892. Serial No. 439,081. (No model.)



Claim.—A washing machine having a rotary rubber with a horizontal rubbing face arranged to rest on the clothing and rise and fall so as to act thereon at any position, and an angular box with flat deflectors in its corners arranged to turn freely from side to side as the turning of the rubber may change and to be held on each side by blocks or catches in the proper angles to deflect and guide the water, as it is carried around by the rubber and clothing, inward to intermix the suds continuously.

491,064. ROTATING MEASURING-VESSEL. L. T. NICHOLS, West Concord, Minn. Filed Sept. 26, 1891. Serial No. 406,536. (No model.)



Claim.—1. In combination with any suitable device or means for delivering grain, a rotatable receiving and discharge drum, having within it a hinged and movable partition extending its whole length, whereby at will the size of the grain receiving space can be regulated, substantially as set forth.

2. In a device substantially as described, in combination with a receiving and discharging drum having inside of it a fixed partition extending from end to end, a movable partition of the same length hinged thereto, substantially as and for the purposes set forth.

3. In a device, as described, in combination with the rotatable drum C, having an internal fixed partition C', the movable partition c^3, adapted to be held at any desired position by means of the spring catch c^4, substantially as and for the purposes set forth.

REISSUES.

11,802. PAINT-POT. WILLIAM B. DENNIS and HENRY C. FULLER, Bentonville, Ark. Filed Oct. 8, 1892. Serial No. 448,266. Original No. 433,083, dated Sept. 6, 1892.



Claim.—1. A paint-pot having a transverse partition located therein, and dividing the same into opposite non-communicating compartments, each of said compartments having a spout at longitudinally opposite points, both compartments being coverless, said partition being deeper than the pot, whereby its upper edge projects above that of the pot, and forms a guard to prevent the splashing or intermingling of the contents of the two compartments, substantially as specified.

2. A paint-pot having a transverse central partition dividing the same into opposite non-communicating compartments, each of said compartments having a spout at longitudinally-opposite points, and both compartments being coverless and substantially horizontal flanges or guards extending from the partition at each side thereof near the edge of the pot, substantially as specified.

3. A paint-pot having a transverse central partition dividing the same into opposite non-communicating compartments, both compartments being coverless said partition being deeper than the pot and extending above the upper edge of the same to form a guard, and provided at its opposite sides over each compartment and near the upper edge of the pot with substantially horizontal flanges or guards extending at an angle to the partition, substantially as specified.

4. A paint-pot having a central dividing partition, and the wire bail rigidly secured at its ends to said partition, said bail having its intermediate portion twisted to form a shank above which its terminals are spread and bent to form a broad bearing, rung-engaging, hook disposed at a right angle to the bail, substantially as specified.

5. The combination of a paint-pot, provided at its ends with openings, the tapering paint-brush receiving spouts arranged at longitudinally opposite points of the pot and communicating with the interior of the same by means of said openings, a transverse partition dividing the pot into two compartments, both compartments being coverless and the inclined flanges arranged at the top of the partition and on both sides of the same, and extending transversely from one side of the pot to the other to form shields to prevent the paint of one compartment splashing into the other, substantially as specified.

6. The combination of a paint-pot, provided at its ends with openings, the tapering paint-brush receiving spouts arranged at the ends of the pot and communicating with the interior of the pot by means of said openings, a transverse partition dividing the pot into two compartments and extending above the upper edge thereof, the curved flanges secured to the partitions and extending therefrom over the compartments and forming shields, and a wire hook having divergent shanks secured to the partition at the opposite sides of the pot, substantially as specified.

7. A paint pot having a transverse partition located therein and dividing the same into opposite non-communicating compartments each of said compartments having a spout at longitudinally opposite points and being coverless, said partition being deeper than the pot, whereby its upper edge projects above the upper edge of the pot and forms a guard to prevent the splashing or intermingling of the contents of the two compartments, and substantially horizontal flanges or guards secured to the partition at each side thereof near the edge of the pot, substantially as specified.

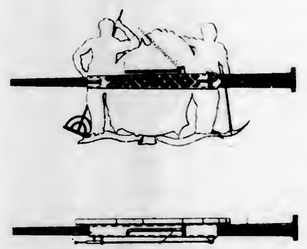
DESIGNS.

22,165. BASE OR PEDESTAL. JULIUS LIEBOWICH, New York, N. Y. Filed Nov. 3, 1892. Serial No. 450,905. Term of patent 7 years.



Claim.—The design for a base for statuary as herein described and shown.

22,166. BREASTPIN. JOHN H. LEYSON, Butte City, Mont. Filed Aug. 16, 1892. Serial No. 443,305. Term of patent 3½ years.



Claim. The design for a breast pin substantially as shown and described.

22,167. BOTTLE. CLIFTON H. BEAGE, Pittsburg, Pa., assignor to the Saltsburg Bottle Works Company, Limited, same place. Filed Dec. 12, 1892. Serial No. 454,975. Term of patent 7 years.



Claim.—The herein-described design for bottles, comprising the cylindrical body rounded at its lower end, the sloping upper part between said cylindrical body and the neck, and the neck having at its lower end an annular bead or shoulder separating it from the sloping upper part of the bottle; and at its upper end or top two beveled beads contiguous to each other, but the upper bead overlapping the lower, as shown and specified.

22,168. BOTTLE STOPPER OR TOP. JULIUS LIEBOWICH, New York, N. Y. Filed Nov. 3, 1892. Serial No. 450,903. Term of patent 7 years.



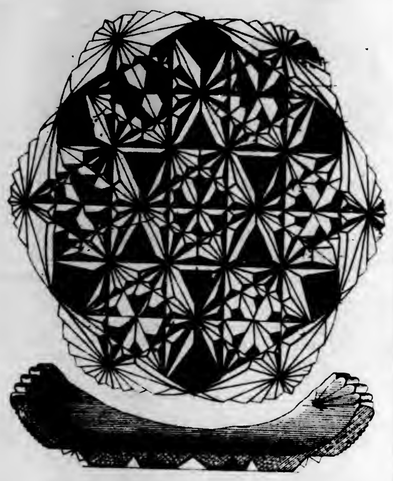
Claim.—The design for a bottle stopper, or top, herein shown and described.

22,169. ORNAMENTAL GLASS DISH. THOMAS SINGLETON, Jr., New Bedford, Mass., assignor to the Mount Washington Glass Company, same place. Filed Sept. 16, 1892. Serial No. 446,109. Term of patent 7 years.



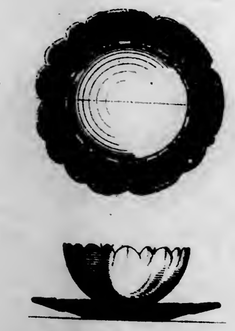
Claim.—The design for an ornamented glass dish as herein described and shown.

22,170. ORNAMENTAL GLASS DISH. THOMAS SIMPLETON, Jr., New Bedford, Mass., assignor to the Mount Washington Glass Company, same place. Filed Sept. 22, 1892. Serial No. 446,942. Term of patent 7 years.



Claim.—The design for an ornamented glass dish, as herein shown and described.

22,171. VESSEL. ALBERT STEFFIN, New Bedford, Mass., assignor to the Mount Washington Glass Company, same place. Filed Feb. 23, 1892. Serial No. 422,554. Term of patent 7 years.

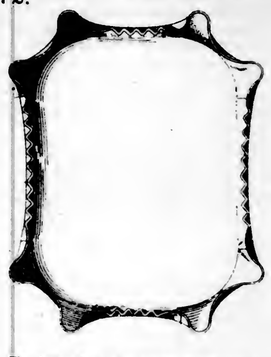


Claim.—The design for a vessel herein shown and described.

22,172. DISH. FREDERICK RATCLIFF, New Bedford, Mass., assignor to the Fairpoint Manufacturing Company, same place. Filed Feb. 23, 1892. Serial No. 422,595. Term of patent 7 years.



22,172.



Claim.—The design for a dish herein shown and described.

22,173. ORNAMENTATION OF GLASS. WILLIAM L. PILKINGTON, St. Helen's, England, assignor to himself, William Pilkington, Thomas Pilkington, William W. Pilkington, Richard Pilkington, and George H. Pilkington, same place. Filed Nov. 19, 1892. Serial No. 452,563. Term of patent 14 years. Patented in England Aug. 12, 1892, No. 196,749.





Claim.—The design for the surface ornamentation of glass, herein shown and described.

22,174. BRUSH OR MIRROR BACK. HENRY BERRY, Shelton, Conn., assignor to the Derby Silver Company, same place. Filed Jan. 3, 1893. Serial No. 457,144. Term of patent 3½ years.



Claim.—The design for a back for mirrors, brushes and other articles, substantially as shown and described.

22,175. BRUSH OR MIRROR BACK. HENRY BERRY, Shelton, Conn., assignor to the Derby Silver Company, same place. Filed Jan. 3, 1893. Serial No. 457,145. Term of patent 3½ years.



Claim.—The design for a back for mirrors, brushes and other articles, substantially as shown and described.

22,176. BRUSH OR MIRROR BACK. HENRY BERRY, Shelton, Conn., assignor to the Derby Silver Company, same place. Filed Jan. 3, 1893. Serial No. 457,146. Term of patent 3½ years.



Claim.—The design for a back for mirrors, brushes and other articles, substantially as shown and described.

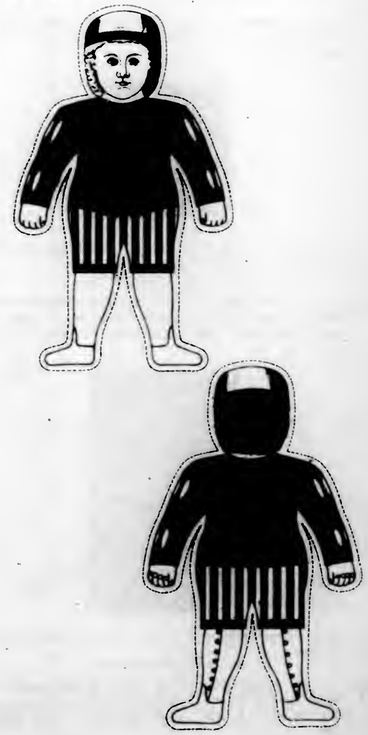
22,177. BRUSH OR MIRROR BACK. HENRY BERRY, Shelton, Conn., assignor to the Derby Silver Company, same place. Filed Jan. 3, 1893. Serial No. 457,147. Term of patent 3½ years.

22,177.



Claim.—The design for a back for mirrors, brushes and other articles, substantially as shown and described.

22,178. PATTERN FOR PRINTED FABRICS. CELIA M. SMITH. Ithaca, N. Y. Filed Nov. 12, 1892. Serial No. 451,822. Term of patent 3½ years.



Claim.—The design for a pattern for printed fabrics herein shown and described.

22,179. PATTERN FOR TEXTILE FABRICS. JEAN P. GELAS, St. Etienne, France. Filed Nov. 28, 1892. Serial No. 453,432. Term of patent 3½ years.



Claim.—The design for a pattern for textile fabrics herein shown and described.

22,180. PATTERN FOR TEXTILE FABRICS. JEAN P. GELAS, St. Etienne, France. Filed Nov. 28, 1892. Serial No. 453,494. Term of patent 3½ years.



Claim.—The design for button stock herein shown and described.

22,181. PATTERN FOR TEXTILE FABRICS. JEAN P. GELAS, St. Etienne, France. Filed Nov. 28, 1892. Serial No. 453,495. Term of patent 3½ years.



Claim.—The design for a pattern for textile fabric herein shown and described.

22,182. BOOKBINDERS' CLOTH. GEORGE H. WINTERBOTTOM, Manchester, England, assignor to Archibald Winterbottom & Sons, same place. Filed June 13, 1890. Serial No. 355,249. Term of patent 14 years.



Claim.—The design for book binders' cloth, substantially as shown and described.

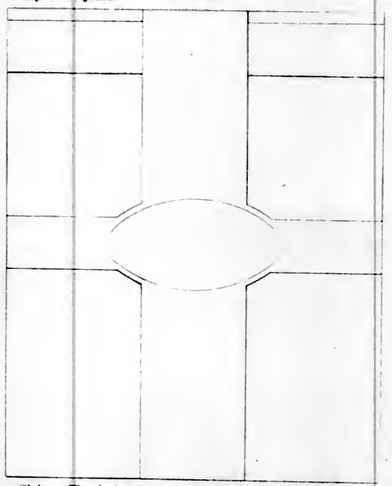
22,183. BOOKBINDERS' CLOTH. GEORGE H. WINTERBOTTOM, Manchester, England, assignor to Archibald Winterbottom & Sons, same place. Filed June 13, 1890. Serial No. 355,250. Term of patent 14 years.

22,188.



Claim.—The design for bookbinders' cloth, substantially as shown and described.

22,184. SHEET OF WRAPPING-PAPER. BENJAMIN B. VAN DERVEER, New York, N. Y. Filed Dec. 8, 1892. Serial No. 454,534. Term of patent 7 years.



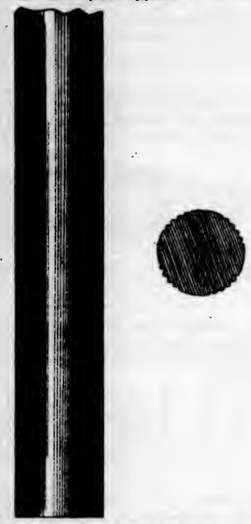
Claim.—The design for a sheet of wrapping paper, substantially as shown and described.

22,185. CURTAIN-POLE. LESLIE R. HARSHA, Chicago, Ill., assignor to the L. R. Harsha Manufacturing Company. Filed Jan. 6, 1893. Serial No. 457,554. Term of patent 3½ years.



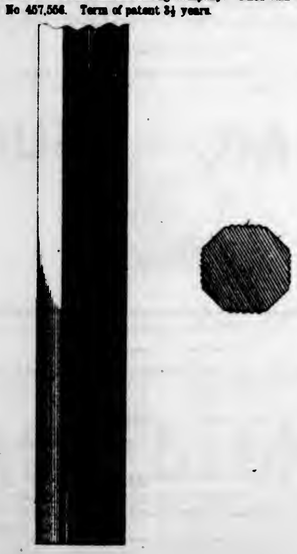
Claim.—The design for a curtain pole herein shown and described, being regularly octagonal in cross-section, each face of the pole having its middle portion longitudinally reeded or corrugated and marginal portions plain: substantially as set forth.

22,186. CURTAIN-POLE. LESLIE R. HARSHA, Chicago, Ill., assignor to the L. R. Harsha Manufacturing Company. Filed Jan. 6, 1893. Serial No. 457,555. Term of patent 3½ years.



Claim.—The design for a curtain pole herein shown and described, which is, in general, cylindrical, alternate segments of the cylindrical surface being longitudinally reeded and alternate surfaces left of plain cylindrical form: substantially as set forth.

22,187. CURTAIN-POLE. LESLIE R. HARSHA, Chicago, Ill., assignor to the L. R. Harsha Manufacturing Company. Filed Jan. 6, 1893. Serial No. 457,556. Term of patent 3½ years.



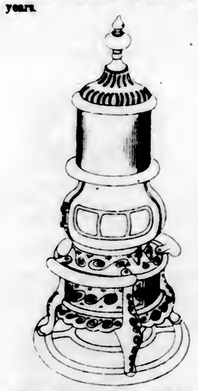
Claim.—The design for a curtain pole herein shown and described, being in cross-section of the pole, polygonal with an even number of faces greater than four, alternate faces being plain and the other alternate faces reeded or corrugated, substantially as set forth.

22,188. PIANO-CASE. ANNA C. DUNCAN, Kansas City, Mo. Filed May 31, 1892. Serial No. 435,072. Term of patent 3½ years.



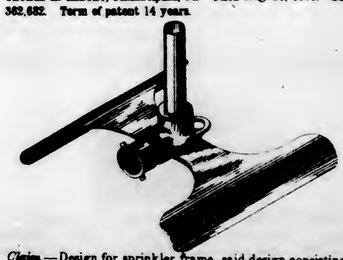
Claim.—The design for a piano case, as herein shown and described.

22,189. STOVE. GEORGE W. COPE, Detroit, assignor to Hugh L. Smith, Jackson, Mich. Filed July 12, 1892. Serial No. 439,827. Term of patent 3½ years.



Claim.—The design for a stove substantially as herein shown and described.

22,190. FRAME FOR LAWN-SPRINKLERS. JOHN G. BAKER and THOMAS H. ASBURY, Philadelphia, Pa. Filed Aug. 21, 1890. Serial No. 362,682. Term of patent 14 years.



Claim.—Design for sprinkler frame, said design consisting of the H-form base A and standard B projecting vertically therefrom, as described, and as shown in the annexed drawing.

TRADE-MARKS

REGISTERED JANUARY 31, 1893.

22,382. WATCHCASES. CRESCENT WATCH CASE COMPANY, Newark, N. J. Filed Jan. 3, 1893.

PLANET

Essential feature.—The word "PLANET." Used since September 1, 1890.

22,383. WATCHCASES. CRESCENT WATCH CASE COMPANY, Newark, N. J. Filed Jan. 3, 1893.

C. W. C. CO.

Essential feature.—The letters and abbreviation "C. W. C. Co." Used since June 12, 1892.

22,384. COTTON, LINEN, SILK, WOOLEN, AND HAIR YARNS AND THREAD. AKTIENGESELLSCHAFT FÜR TEXTIL-INDUSTRIE, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Filed Dec. 8, 1891.



Essential feature.—The representation of a rectangular figure having ornamental squares at its corners, and enclosing an oblong panel with projecting ends in which are the letters "D·M·C." Used since June 15, 1891.

22,385. COTTON, LINEN, SILK, WOOLEN, AND HAIR YARNS AND THREAD. AKTIENGESELLSCHAFT FÜR TEXTIL-INDUSTRIE, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Filed Dec. 8, 1891.



Essential feature.—The representation of a rectangular figure bearing an oblong panel with semi-circular ends having in its center the letters "D·M·C." Used since June 15, 1891.

22,386. COTTON, LINEN, SILK, WOOLEN, AND HAIR YARNS AND THREAD. AKTIENGESELLSCHAFT FÜR TEXTIL-INDUSTRIE, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Filed Dec. 8, 1891.



Essential feature.—The representation of a rectangular figure consisting of a square and a parallelogram united, the parallelogram having three panels, and the square inclosing a wreath within which are the letters "D·M·C." Used since June 15, 1891.

22,387. COTTON, LINEN, SILK, WOOLEN, AND HAIR YARNS AND THREAD. AKTIENGESELLSCHAFT FÜR TEXTIL-INDUSTRIE, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Filed Dec. 8, 1891.



Essential feature.—The representation of a rectangular frame or border having square ornaments at its corners and inclosing the letters "D·M·C." Used since June 15, 1891.

22,388. COTTON, LINEN, SILK, WOOLEN, AND HAIR YARNS AND THREAD. AKTIENGESELLSCHAFT FÜR TEXTIL-INDUSTRIE, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Filed Dec. 8, 1891.



Essential feature.—A circular label bearing a banderole on which are the words and character: "DOLLFUS-MIEG & CIE." and having the letters "D M C" between its ends. Used since June 15, 1891.

22,389. CHOCOLATE. JOHN M. CHAPMAN, New York, N. Y. Filed Jan. 6, 1893.

COLUMBIA

Essential feature.—The word "COLUMBIA." Used since December 1, 1892.

22,390. CHEWING-GUM. GEORGE ELSENDORF, Elmira, N. Y. Filed Feb. 3, 1892.

TAR GUM



Essential feature.—A portrait of the registrant and the words "TAR GUM." Used since October 1, 1891.

22,391. HEADACHE POWDERS. NORMAN L. MUNRO, New York, N. Y. Filed Dec. 22, 1892.

ROYAL

Essential feature.—The word "ROYAL." Used since November 15, 1892.

22,392. CURE FOR THE TOBACCO HABIT. KOSSUTH TINKER and WILL A. HIBBARD, Athens, Ohio. Filed Dec. 21, 1892.

22,392.



Essential feature.—The representation of an equilateral triangle with the initial letters "H T C" in the corners and the figure of an ellipse which surrounds the word symbol "GOLD." Used since June 18, 1892.

22,393. REMEDY FOR DISEASES OF THE BLOOD AND LIVER. THE SHAWNEE REMEDY CO., Toledo, Ohio. Filed Nov. 25, 1892.



Essential feature.—The representation of an Indian flintstone arrow point and the word "SHAWNEE" thereon. Used since October, 1891.

22,394. VARNISHES, STAINS, DRIERS, JAPANS, AND KINDRED GOODS. CHICAGO VARNISH COMPANY, Chicago, Ill. Filed Jan. 3, 1893.

NAVALITE

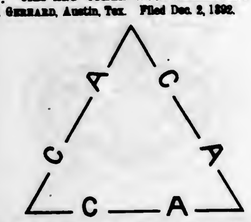
Essential feature.—The word "NAVALITE." Used since March 15, 1892.

22,395. PAINTS, VARNISHES, STAINS, DRIERS, JAPANS, AND KINDRED GOODS. CHICAGO VARNISH COMPANY, Chicago, Ill. Filed Jan. 3, 1893.

Enamelite

Essential feature.—The word "ENAMELITE." Used since April, 1889.

22,396. OILS AND OTHER WOOD-PRESERVING COMPOUNDS. PHILIP H. GERHARD, Austin, Tex. Filed Dec. 2, 1892.



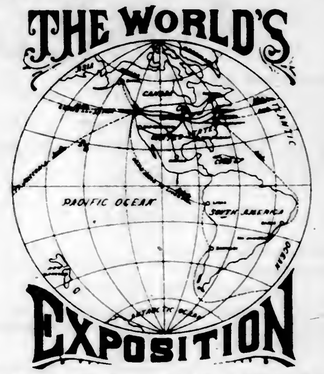
Essential feature.—The representation of a triangle and the letters "C. A." Used since October 10, 1892.

22,397. PAINTS FOR ROOFS AND OTHER PURPOSES. MICA ROOFING CO., New York, N. Y. Filed Dec. 3, 1892.

ASBESTONE

Essential feature.—The word "ASBESTONE." Used since December 1, 1892.

22,398. FLOUR AND MEAL. GEORGE F. MOYER, Seattle, Wash. Filed Dec. 31, 1892.



Essential feature.—The words "THE WORLD'S EXPOSITION" and a representation of the Western Hemisphere. Used since April, 1892.

22,399. CANNED FRUITS, VEGETABLES, FISH, MEAT, OYSTERS, CATSUP, AND SOUP. ALBERT F. RENY & CO., Mansfield, Ohio. Filed Dec. 22, 1892.



Essential feature.—The representation of a policeman. Used since January 1, 1890.

22,400. SUGAR-CURED HAMS. JERSEY CITY PACKING COMPANY, Jersey City, N. J. Filed Feb. 13, 1892.

EAGLE BRAND

Essential feature.—The words "EAGLE BRAND." Used since 1861.

22,401. LARD, SAUSAGE, HAMS, BACON, SALT PORK, DRIED BEEF, AND BEEF-TONGUES. I. R. MASON & SONS, Providence, R. I. Filed Dec. 15, 1892.

COLONIAL

Essential feature.—The word "COLONIAL." Used since December 1, 1892.

22,402. CIGARS. FRED HARCHETS, Binghamton, N. Y. Filed Dec. 24, 1892.



Essential feature.—The representation of a porcupine. Used since September 1, 1892.

22,408. CIGARS. FRANCISCO MENENDEZ, Havana, Cuba. Filed Dec. 22, 1892.

22,403. EL CENTENARIO DE COLON M HABANA

Essential feature.—The words "EL CENTENARIO DE COLON," the monogram "F M, and the word HABANA." Used since November 19, 1892.

22,404. CIGARETTES AND CUT TOBACCO. RAMÓN LÓPEZ, Havana, Cuba. Filed Dec. 22, 1892.



Essential feature.—The words "LA VENCEDORA," and the monogram composed of the letters "R L V." Used since June 2, 1892.

22,405. CARBONATED AND NATURAL MINERAL WATER AND GINGER ALE. BETHESDA MINERAL SPRING COMPANY, Waukesha, Wis. Filed Dec. 13, 1892.

BETHESDA

Essential feature.—The word "BETHESDA." Used since 1880.

22,406. NUTRIENT OR TONIC BEVERAGES. THE COCA COLA COMPANY, Atlanta, Ga. Filed May 14, 1892.

Coca-Cola

Essential feature.—The word "COCA-COLA." Used since June 26, 1887.

22,407. WHISKY. GEORGE T. GAMBRILL, Baltimore and Hagerstown, Md. Filed Dec. 23, 1892.

ROXBURY RYE

Essential feature.—A diamond-shaped figure inclosing the letters "G. T. G." and the words "ROXBURY RYE." Used since September 1, 1892.

22,408. GLASSWARE, INCLUDING TABLE-WARE AND FANCY ARTICLES. MT. WASHINGTON GLASS COMPANY, New Bedford, Mass. Filed Dec. 12, 1892.



Essential feature.—A monogram composed of the letters "R" and "F." Used since March 1, 1892.

22,409. GLASSWARE, INCLUDING TABLE-WARE AND FANCY ARTICLES. MT. WASHINGTON GLASS COMPANY, New Bedford, Mass. Filed Dec. 12, 1892.



Essential feature.—A monogram composed of the letters "C" and "M." Used since March 1, 1892.

22,410. SLATES. THE HYATT SCHOOL SLATE COMPANY, LIMITED, Bethlehem, Pa. Filed Dec. 13, 1892.

Essential feature.—The representation of an anchor. Used since December 15, 1892.

22,411. BRUSHES. GUSTAV GERBER, St. Louis, Mo. Filed Nov. 16, 1892.

STAR H.C.

Essential feature.—The word "STAR" between the representations of two stars, and the letters "H. G." also between the figures of two stars arranged in two parallel lines. Used since May 15, 1877.

22,412. INCANDESCENT ELECTRIC LAMPS. ELECTRIC MANUFACTURING COMPANY, Oconto, Wis. Filed Oct. 4, 1892.



Essential feature.—The word, "BRILLIANT" and the representation of a jewel with rays radiating therefrom and three incandescent lamps mounted upon it. Used since August 1, 1892.

22,413. BICYCLES. ROYAL CYCLE WORKS, Marshall, Mich. Filed Dec. 9, 1892.

Royal

Essential feature.—The word "ROYAL." Used since September 1, 1891.

22,414. COFFINS. WILLIAM H. SHOCKEY, Tyler, Tex. Filed Dec. 27, 1892.

EUREKA

Essential feature.—The word "EUREKA." Used since December 10, 1892.

22,415. WASHER-SCRUBBERS FOR GAS PURIFICATION. KIRKHAM, HULETT & CHANDLER, LIMITED, London, England. Filed Jan. 4, 1893.

STANDARD

Essential feature.—The word "STANDARD." Used since June, 1881.

22,416. VALVES AND HYDRANTS. KENNEDY VALVE MANUFACTURING COMPANY, New York, N. Y. Filed Dec. 5, 1892.



Essential feature.—A monogram composed of the letters "K V" with a ribbon intertwined, and carrying on the left side the letters "M F G," and on the right the letters "C O," inclosed by a border. Used since September 1, 1892.

22,417. PLOWS, CULTIVATORS, ROLLERS, AND HARROWS. WIARD PLOW COMPANY, Batavia, N. Y. Filed Aug. 3, 1892.



Essential feature.—The representation of a ring surrounded by five incomplete circles. Used since November 1, 1871.

THE HORGE PETERS CO. PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

DE LA VERGNE REFRIGERATING MACHINE COMPANY *v.* FEATHERSTONE *et al.*

Decided January 9, 1893.

1. PATENT—VALIDITY OF GRANT TO A PATENTEE DEAD AT TIME OF ISSUE.

A patent to a man dead at the time of the grant is not void for want of a grantee, since the phrase "his heirs or assigns" must be construed as creating a grant in the alternative, and the use of the word "heirs" in a patent grant raises no limitation in the sense of the strict common-law rule applied to realty. (Reversing *De La Vergne R-fg. Co* v *Featherstone*, 58 O G, 1842.)

2. AMENDMENT BY ATTORNEY AFTER APPLICANT'S DEATH—RATIFICATION BY ADMINISTRATRIX.

Where objection was made to the validity of a patent because of an amendment made by the attorneys after the applicant's death, no new power of attorney having been filed at the Patent Office and no administrator having intervened and filed a new oath, *Held* (1) the amendment was within the scope of the original specification and required no new oath; (2) it appearing that the attorneys had power in fact to act, and that their acts were subsequently ratified by both administratrix and assignee, the amendment did not invalidate the patent. (Distinguishing *Eagleton Mfg. Co.* v. *West*, 111 U. S., 490.)

ON a certificate from the United States Circuit Court of Appeals for the Seventh Circuit.

STATEMENT OF THE CASE.

This was a bill in equity charging appellees with infringement of Letters-Patent of the United States No. 175,020, issued to "James Boyle, his heirs or assigns," March 21, 1876, for an improvement in gas-liquefying pumps.

The bill set forth, among other things, a full history of the proceedings before the Patent Office, and alleged that, shortly after filing his application for the patent, James Boyle died, and that thereafter his administrator, who was also an assignee of a half interest, prosecuted the application, paid the final fee, and took out the patent, it being issued in the name of "James Boyle, his heirs or assigns."

Appellees demurred generally to the bill, and, the cause having been heard by the circuit court thereon, a decision was announced sustaining appellees' demurrer, on the ground that Boyle, having previously died, there was no grantee in being capable of taking at the time the patent was issued, and hence that the patent never had any validity. The opinion will be found reported in 49 *Federal Reporter*, 916.

A decree was thereupon entered dismissing the bill for want of equity, and complainant appealed to the Circuit Court of Appeals for the Seventh Circuit, which entered an order certifying several questions or propositions of law upon which it desired the instruction of this Court for their proper decision. These questions or propositions of law are as follows:

I.

On October 29, 1875, James Boyle, of Houston, Tex., having made an invention in refrigerating machines, executed an application for a patent therefor in due form and verified by the proper oath, and appointed Alexander & Mason his attorneys to prosecute the same, which application was filed in the Patent Office November 24, 1875.

Thereafter and on the 27th day of November, 1875, and while said application was still pending in the Patent Office, James Boyle died, leaving surviving him a widow and four children.

Thereafter the said application was prosecuted by the said attorneys under the direction of Thomas L. Rankin, who had been appointed temporary administrator of the estate of James Boyle, deceased, March 9, 1876, and who obtained the said patent and paid all the Patent Office and solicitors' fees therefor. The patent issued March 21, 1876, and the grantees therein expressed were "James Boyle, his heirs or assigns."

On these facts the instruction of the Court is desired upon the question—

1. Whether the grant to James Boyle, his heirs or assigns, was void because of the death of Boyle before the patent was issued or whether such grant was valid on the ground that it should be construed in the alternative as a grant to James Boyle or his heirs or assigns, the words "heirs or assigns" including a grantee or grantees in being capable of taking the patent, and the grant inuring to his or their benefit.

II.

Prior to the aforesaid application of James Boyle for a patent he made a contract with said Thomas L. Rankin by which Rankin agreed to advance money to apply for and obtain the patent and Boyle agreed to assign to Rankin one-half interest in the invention and patent.

On December 2, 1875, after the death of James Boyle and while the application for the patent was pending in the Patent Office, Rankin made an agreement with Theresa Boyle, the widow of James Boyle, then acting as executrix *de son tort*, in the words and figures following:

"HOUSTON, TEXAS, *December* 2, 1875.

"*Article of Agreement Between T. L. Rankin and Mrs. James Boyle.*

"T. L. Rankin of the first part, agrees to complete the ice machine commenced by himself and James Boyle and to provide for Mrs. Boyle while said machine is under construction until next spring, say May first, and also to press the application for patents on the part of said machine claimed by James Boyle and in case said machine is a success, and said patents are obtained, is to use his best efforts to introduce the same, and to divide with Mrs. Boyle the profits of said business until she shall have received five thousand dollars for her share; after which, Mrs. James Boyle agrees to release any further interest in said patents to be obtained and the machines then in use, and from this date, agrees that the said T. L. Rankin shall operate and control any interest James Boyle had pertaining to ice machines, together with his interest in the Arctic Ice Company. Stock to vote, proxy of same.

"T. L. RANKIN.
"THERESA BOYLE.

"Witness: W. T. SCOTT."

After the grant of the patent as above stated, and on the 18th day of July, 1876, the issue of temporary letters of administration to Rankin were superseded by the appointment of the said Theresa Boyle as permanent administratrix. She thereafter filed an inventory of her husband's estate, in which she included the patent in question as held and owned jointly with Thomas L. Rankin.

Neither Theresa Boyle, nor her children, nor Thomas L. Rankin ever repudiated the proceedings whereby said patent was obtained, but enjoyed the beneficial ownership thereof, and sold their interests therein for a valuable consideration.

On these facts the instruction of the Court is desired as to the following questions:

2. Whether the above quoted instrument should, under the above facts, be construed as an assignment to Thomas L. Rankin.

3. Whether the patent should be construed as a grant to Thomas L. Rankin as assignee.

4. Whether, under the above-recited facts, the patent should be held to be obtained by the authority of Theresa Boyle as administratrix as well as of Thomas L. Rankin.

III.

During the proceedings in the Patent Office, and after the death of James Boyle, the specification originally filed with said application for a p tent was amended within the scope of the original oath and the invent on described in said original specification and by way of limitation of the claims, but without the filing of any new oath or power of attorney.

5. Did such amendment render the patent void?

6. Is the patent void because no oath was filed after Boyle's death?

It also appearing that the cause of action below was disposed of upon a demurrer filed to appellant's bill and exhibits, which demurrer the court below sustained and dismissed the bill, and no witnesses being examined in said ca se, it is further ordered that the record as printed in this cause be also certified up as a full statement of facts upon which the questions and propositions stated for the instruction desired from the Supreme Court of the United States are based, and the clerk of this court is hereby directed to transmit to the clerk of the Supreme Court of the United States a certified copy of said record, together with this certificate.

Sections 4884, 4886, 4895, and 4896 of the Revised Statutes are as follows:

Sec. 4884. Every patent shall contain a short title or description of the invention or discovery, correctly indicating its nature and design, and a grant to the patentee, his heirs or assigns, for the term of seventeen years, of the exclusive right to make, use, and vend the invention or discovery throughout the United States, and the Territories thereof, referring to the specification for the particulars thereof. A copy of the specification and drawings shall be annexed to the patent and be a part thereof.

Sec. 4886. Any person who has invented or discovered any new and useful art, machine, manufacture or composition of matter, or any new and useful improvement thereof, not known or used by others in this country, and not patented or described in any printed publication in this or any foreign country, before his invention or discovery thereof, and not in public use or on sale for more than two years prior to his application, unless the same is proved to have been abandoned, may, upon payment of the fees required by law, and other due proceedings had, obtain a patent therefor.

Sec. 4895. Patents may be granted and issued or reissued to the assignee of the inventor or discoverer; but the assignment must first be entered of record in the Patent Office. And in all cases of an application by an assignee for the issue of a patent, the application shall be made and the specification sworn to by the inventor or discoverer; and in all cases of an application for a reissue of any patent, the application must be made and a corrected specification signed by the inventor or discoverer, if he is living, unless the patent was issued and the assignment made before the eighth day of July, eighteen hundred and seventy.

Sec. 4896. When any person, having made any new invention or discovery for which a patent might have been granted, dies before a patent is granted, the right of applying for and obtaining the patent shall devolve on his executor or administrator, in trust for the heirs at law of the deceased, in case he shall have died intestate; or if he shall have left a will, disposing of the same, then in trust for his devisees, in as full manner and on the same terms and conditions as the same might have been claimed or enjoyed by him in his lifetime; and when the application is made by such legal representatives, the oath or affirmation required to be made shall be so varied in form that it can be made by them.

Mr. Chief Justice FULLER delivered the opinion of the Court:

The grant was to "James Boyle, his heirs or assigns," and in this followed the language of section 4884 of the Revised Statutes. But although Boyle made the application, he was dead at the time the patent issued, and it was therefore held by the circuit court that the patent was utterly void for want of a grantee.

The reasoning of the court was that all the rights and remedies of inventors to the exclusive property in their inventions come from the statute, and that under sections 4886, 4895, and 4896 only three classes of persons are recognized to whom a patent for an invention can issue, namely: The inventor himself; the assignee of the inventor, when the assignment is made before the issue of the patent; and the executor or administrator of the inventor if he dies before the patent is granted; that a patent for an invention is a grant for the exclusive privilege of making, using, and vending, and authorizing others to make, use, and vend, an invention; and that just as the term was originally used in England, to describe written instruments emanating from the King, sealed with the great seal, whereby lands, honors, or franchises were conferred upon individuals, so it is used in this country as descriptive of an instrument whereby some exclusive right is granted by the sovereign power to the person named therein. Hence, continued the court, a patent for an invention is a grant and must have a grantor and a grantee. It must grant the franchise or monopoly to a person named and who is capable of taking, and in this respect a patent does not differ from a patent or deed for lands. And as a deed to a person not then living and his heirs would be void, since, the word heirs being one of limitation and not of purchase, there is no person to take under it, so a patent for an invention to a dead man is wholly inoperative, and such must be the construction of a patent issued under section 4884 to the patentee, his heirs or assigns, when the patentee thus named is dead at the date of the grant.

The conclusion reached rests upon the assumption that the form of grant specified in section 4884 can only be pursued when the inventor is living, and that the intention of Congress was that the personal representatives of the inventor could not be treated as grantees under that section

We are to remember that it is to be assumed that James Boyle had made a useful invention and taken all the necessary steps to secure the benefits to be derived therefrom, and that in view of the policy of the Government to encourage genius and promote the progress of the useful arts, by securing to the inventor a fair and reasonable remuneration, a liberal construction in favor of those who claim under him must be adopted in the solution of the principal question before us.

It is also to be observed that, under the practice of the Patent Office, a considerable time necessarily elapses after a patent for an invention is allowed before it actually issues; that the applicants often reside at a great distance; that the cases when an inventor dies between the date of the application and the allowance, and the allowance and the issue, must be of frequent occurrence; and that this may happen when neither the Office nor the inventor's solicitors are aware of the death. The reflection is a natural one that Congress, which, in framing the provisions of the patent laws, must be presumed to have had these possible occurrences in mind, did not contemplate that all patents issued under such circumstances should be invalidated by the death of the inventor.

What, then, was the intention of Congress in providing for a grant to the "patentee, his heirs or assigns?" Must it be construed as merely a personal grant to the individual, or may his personal representatives be treated as grantees?

The words "heirs," and "heirs of his body," [says Mr. Williams,] are quite inapplicable to personal estate; the heir, as heir has nothing to do with the personal property of his ancestor. Such property has nothing hereditary in its nature, but simply belongs to its owner for the time being. Hence, a gift of personal property to A. simply, without more, is sufficient to vest in him the absolute interest. While, under the very same words, he would acquire a life interest only in real estate, he will become absolutely entitled to personal property. (Per. Prop., 297.)

The privileges granted by Letters Patent are plainly an instance of an incorporeal kind of personal property, which, as personalty, in the absence of context to the contrary, would go to the executor or administrator in trust for the next of kin. (Williams's Executors, p. 817; Schouler's Executors, sec. 200; Williams's Per. Prop., 271; *Patterson* v. *Kentucky*, 97 U. S., 501; *Miller* v. *Taylor*, 4 Burr., 2303; *Shaw Relief Valve Co.* v. *New Bedford*, 28 O. G., 283; 19 Fed. Rep., 753.)

The rule in *Shelley's Case* was that when an estate of freehold is limited to a person for life, and the same instrument contains a limitation either mediate or immediate to his heirs or the heirs of his body, the word heirs is a word of limitation, and the grantee takes the whole estate either in fee tail or fee simple. This is a rule of law, and not a rule of construction. (*Evans* v. *Evans*, 1892, 2 Ch., 173, 184, 188.) It applies to nothing but real estate, and if resorted to in connection with personal estate, it is only by way of analogy, and as a rule of construction in order to promote the intention.

We do not perceive any sound reason for holding that the word "heirs" in a patent for an invention should be regarded as a definition of the extent of the patentee's own interest in the patent. There is nothing technical in the word as used. It indicates persons who are to have the benefit in the event of death, but the absolute character of the interest of the patentee is not attributable to it. The words in the statute, "the patentee, his heirs or assigns," whether construed according to the rules of grammar, or to the evident intent of Congress, mean "the patentee or his heirs or assigns." They comprehend the legal representatives, assignees in law and assignees in fact, and the phraseology raises no limitation in the sense of the strict common-law rule applied to realty.

It is said that if the word "heirs" were not used in the grant, the patent would end with the life of the patentee, and would have no descendible or inheritable quality, but we are not persuaded that this would be so, any more than that the omission of the word from any transfer of personal property would have that effect. The exercise of the right vested is not in its nature dependent upon the continued existence of the person whose merit earned the reward. The statute has long been that "the patentee" may obtain an extension in certain cases, without adding that his executors or administrators may do this, (Act 1836, sec. 18, 5 Stat., 117, 124; Act 1870, sec. 63, 16 Stat., 208; R. S., sec. 4924;) yet it was decided that an executor or administrator can obtain an extension, (*Wilson* v. *Rousseau*, 4 How., 646,) and that the extended term is assignable, although not expressly so provided. (*Nicholson Pavement Co.* v. *Jenkins*, 14 Wall., 452; *Railroad Co.* v. *Trimble*, 10 Wall., 367.) And so, that a patent issued to an inventor after an assignment of his entire interest has been entered of record, immediately and by operation of law inures to the benefit of his assignee. (*Gayler* v. *Wilder*, 10 How., 477.)

If the patent had issued to Boyle when living, although an assignment of his entire interest had been recorded before, the patent would have inured to the benefit of the assignee, and it is difficult to see why, if Boyle died prior to the issue of the patent and after he had made the application and assigned his interest, the assignee should lose the benefit of the assignment because of the death.

Under section 4896, when the inventor dies before the patent is granted, the right of applying for and obtaining the patent devolves upon his executor or administrator in trust for his heirs at law or legatees, and doubt has been suggested as to the applicability of the section when the death transpires after the application has been filed, but the rulings and practice of the Patent Office are to the effect that in the latter contingency no new application need be made or new fee be paid, but the executor or administrator may file his letters and the case be disposed of as if the applicant had not died. (*Rice* v. *Burt*, C. D., 1879, p. 291; *Ex parte Smith*, Ib. 1888, p. 24.)

Neither this section nor section 4895, providing that patents may be granted and issued, or reissued, to the assignee of the inventor or discoverer, prescribe any form of grant, which is alone to be found in section 4884. The statute does not require the patent to issue under section 4896 to the executor or administrator, and inasmuch as a patent is personal property, and as such goes to the executor or administrator, in trust for the next of kin, it would appear that this result would follow where the grant is to the patentee, his heirs or assigns.

Sections 4895 and 4896 cover cases where the application is made by the legal representatives or assignees, but where the application is made by the inventor, and he dies, a grant in the terms stated apparently accomplishes all the objects aimed at by both these sections.

Section 1 of the act of 1790 provided for a grant to—

the petitioner or petitioners, his, her or their heirs, administrators, or assigns, (1 Stat., 109, 110,)

and the act of February 21, 1793, was in the same language. (1 Stat., 3 8, 321.) Section 5 of the act of 1836 read that the patent should—

in its terms grant to the applicant or applicants, his or their heirs, administrators, executors or assigns, &c (5 Stat., 117, 118.)

The statute of 1870 required the patent to contain—

a grant to the patentee, his heirs or assigns, (16 Stat., 198, 201,)

which is carried forward into section 4884 of the Revised Statutes.

As remarked by Judge Lowell in *Shaw Relief Valve Co.* v. *New Bedford*, *ubi supra*, the omission of the word "executors" prior to 1836 did not affect the title of the executors, nor did the omission of "administrators and executors" from the act of 1870 make any difference. "The law was not changed by it." Taking the sections together, the legislative intent seems to have been that a grant to the patentee, his heirs or assigns, should vest title in the executor or administrator where the death occurred pending the application. If there be no executor or administrator, or letters of such are not recorded, still the general form of grant prescribed in section 4884 is applicable, and the patent may run to "the patentee, his heirs or assigns." The statute does not make it imperative that the patent shall issue in the name of the executor or administrator, the grant under section 4884 being sufficient to vest title in the patentee's legal representative, whether he be administrator, executor or assignee. If there are adverse claims of heirs and legatees, they may be left to be determined by the courts in whose jurisdiction they arise, rather than by the Patent Office. It is enough if it is found that the pat-

ent is proper to be granted, and it is so granted to the personal representatives of the deceased.

Sections 4895 and 4896 designate who should make the oath in case of death or assignment, but where the application has been made in the lifetime of the inventor, and remains in effect unchanged, there is no necessity for a new application or oath, except, of course, in the case of a reissue; and, as we have seen, a grant to the patentee, his heirs or assigns, sufficiently designates in whom the title to the patent shall vest in case of assignment or death.

In view of these considerations, as the language of the statute admits of a construction which, in sustaining the grant, effectuates the settled policy of the Government in favor of inventors, our judgement is that that construction should be adopted, and that the statute should be read in the alternative, and the grant be treated as made to the patentee or his heirs or assigns. This conclusion is supported by the practice advisedly adopted in the Land Office (another branch of the Executive Department known as that of the Interior) of using disjunctive terms for the purpose of preventing the defeat of grants by the death of the original grantee. In *Hogan* v. *Page*, (2 Wall., 605,) the court, speaking through Mr. Justice Nelson, said:

A difficulty had occurred at the Land Office, at an early day, in respect to the form of patent certificates and of patents, arising out of applications to have them issued in the name of the assignee, or present claimant, thereby imposing upon the Office the burden of inquiring into the derivative title presented by the applicant. This difficulty, also, existed in respect to the boards of commissioners under the acts of Congress for the settlement of French and Spanish claims. The result seems to have been, after consulting the Attorney-General, that the Commissioner of the Land Office recommended a formula that has since been very generally observed, namely, the issuing of the patent certificate, and even the patent, to the original grantee, or his legal representatives, and the same has been adopted by the several boards of commissioners. This formula, "or his legal representatives," embraces representatives of the original grantee in the land, by contract, such as assignees or grantees, as well as by operation of law, and leaves the question open to inquiry in a court of justice as to the party to whom the certificate, patent, or confirmation, should inure.

And see *Carpenter* v. *Rannels*, (19 Wall., 138;) *Bowman* v. *Long*, (89 Ill., 19;) *Warnecke* v. *Lembca*, (71 Ill., 91;) *Read* v. *Kearsley*, (14 Mich., 225;) *Grand Gulf R. R. Co.* v. *Bryan*, (8 S. & M., 234.)

The action spoken of by Mr. Justice Nelson was evidently taken in order to prevent hardships occurring under the old form of land grants, as indicated in *Galloway* v. *Finley* (12 Pet., 264) and other cases; but no such such action was considered necessary in reference to invention patents, although the same reason might have existed if the same form had originally been prescribed.

It appears from the certificate that James Boyle died on November 27, 1875, and that the application was thereafter prosecuted by the attorneys who had been previously appointed by him for that purpose, under the direction of Thomas L. Rankin, who had been appointed temporary administrator of Boyle's estate, March 9, 1876 and who obtained the patent and paid all the Patent Office and solicitors' fees therefor. It is also stated that prior to Boyle's application he had made a contract with Rankin, by which it was agreed that the latter should advance the money to apply for and obtain the patent, and Boyle should assign to Rankin a one-half interest in the invention and patent; and that on December 2, 1875, Rankin made an agreement with Theresa Boyle, the widow of James Boyle, "then acting as executrix *de son tort*," by virtue of which Rankin was to acquire the right to the whole patent. Under the statutes of Texas a temporary administrator possesses the rights and powers of a general administrator so far as expressly confided to him by the order of appointment. (1 Sayles' Tex. Civ. Stat., 584.)

The failure to record the title papers in the Patent Office, it appearing that the administrator and equitable owner in part obtained the patent, cannot, in the view we take of the case, make the patent void. The identity of the grantee might be determined by extrinsic testimony. If the grant be construed as made directly to the heirs, executors, administrators, or assigns of Boyle, there can be no doubt as to its validity, even though when the patent issued it was not made to appear who they were.

The case of *Eagleton Manufacturing Co.* v. *West* (111 U. S., 490) is cited to the proposition that, where the inventor dies, a patent is invalid when not issued upon the application and oath of his personal representative, but in that case the application was so amended after the inventor's death that it was equivalent to a new application, yet none such had been made nor had the administratrix made the oath rendered necessary under such circumstances. In the case at bar the application remained in substance unchanged and no new application or oath was essential to jurisdiction.

We ought, perhaps, to add that in our opinion the patent would not be absolutely void, even if the objections taken by appellees were better founded than we hold they are. If the proceedings in the Patent Office may be considered as analogous to the condition of a pending suit at law upon the death of the p aintiff, the great weight of authority in this country is to the effect that where the court has acquired jurisdiction of the subject-matter and the person during the lifetime of a party, a judgment for or against a dead man is not wholly void or open to collateral attack. It is very rarely that proceedings are wholly void and without force or effect as to all persons and for all purposes, and therefore incapable of being or being made otherwise; and we are entirely clear that this patent cannot be treated as falling within that class.

The record shows, as we have said, the existence of a contract between Rankin and Boyle, by which the latter was to advance the money to apply for and obtain the patent for a half interest, and that Rankin carried out the contract on his part. The agreement between Rankin and the widow, then acting as having a colorable right to administer, is also set out, under which Mrs. Boyle agreed that as soon as she should receive five thousand dollars in the way specified she would—

release any further interest in said patents to be obtained and the machines then in use.

Rankin was appointed temporary administrator, March 9, 1876, and on July 18, 1876, the temporary letters of administration issued to Rankin—

were superseded by the appointment of the said Theresa Boyle as permanent administratrix. She thereafter filed an inventory of her husband's estate, in which she included the patent in question as held and owned jointly with Thomas L. Rankin. Neither

Theresa Boyle, nor her children, nor Thomas L. Rankin ever repudiated the proceedings whereby said patent was obtained, but enjoyed the beneficial ownership thereof, and sold their interest therein for a valuable consideration.

When Mrs. Boyle took out the letters of administration, her prior acts, presumably upon this record beneficial to the estate and certainly not such as appellees have any right to complain of, should be viewed in the same light as though she had been made administratrix upon the death of her husband. And upon the facts stated, without discussing the particular nature of the instrument of December 2, 1875, we conclude that Rankin acquired under the two contracts the equitable title to the patent; and the circumstance that there was no record evidence of the transaction in the Patent Office made no difference, in the absence of question as to the rights of third parties. The patent, therefore, inured to his benefit. (*Hartshorn* v. *Day*, 19 How., 211; *Day* v. *India Rubber Co.*, 20 How., 216; *Gayler* v. *Wilder*, 10 How., 477.)

Boyle made the oath to the application filed in his lifetime in accordance with section 4892 of the Revised Statutes, and the certificate states that after his death—

the specification originally filed with said application for a patent was amended within the scope of the original oath and the invention described in said original specification, and by way of limitation of the claims, but without the filing of any new oath or power of attorney.

In *Eagleton Manufacturing Co.* v. *West*, (27 O. G., 1237; 111 U. S., 490, 493,) before referred to, the patent was held invalid because the authority given to Eagleton's attorneys ended at his death, and the patent was granted upon amendments made by the attorneys without any new oath by the administratrix. And Mr. Justice Blatchford, speaking for the Court, said that the file wrapper showed—

beyond doubt, that there was no suggestion, in the specification signed and sworn to by Eagleton, of the invention described in the amendment—

and that—

in view of the entire change in the specification, as to the invention described, the patent, to be valid, should have been granted on an application made and sworn to by the administratrix. The specification, as issued, bears the signature of Eagleton and not of the administratrix, and it is sufficiently shown that the patent was granted on the application and oath of Eagleton, and for an invention which he never made.

In the case at bar, there was not only no amplification of the original application by the amendment, but it was within the scope of the original specification and a limitation and narrowing of the original claim, so that it was the identical invention sworn to by Boyle, and there was no more reason for requiring a new oath from his administratrix than there would have been for requiring it from Boyle himself. The attorneys who had acted for Boyle continued to act under Rankin's direction, and although it is not shown that their authority was conferred in writing by a power of attorney executed and filed in accordance with the rules of the Office, that is not a fatal objection, since the attorneys had authority in fact, and their acts were subsequently ratified by Rankin and by Mrs. Boyle.

We are of opinion that the grant was not void because of the death of Boyle before the patent was issued, and that it should be construed in the alternative as a grant to James Boyle, or his heirs, or assigns, which would include a grantee or grantees in being capable of taking the patent and to whose benefit the grant would inure; that the patent should be construed as a grant to Thomas L. Rankin as assignee, and held to have been obtained by the authority of Mrs. Boyle as administratrix, as well as of Rankin; and that the amendment did not render the patent absolutely void, nor did the fact that no oath was filed after Boyle's death.

These conclusions answer the questions propounded, and will be certified accordingly.

U. S. Circuit Court—District of Massachusetts.

TUBMAN *v.* WASON MANUFACTURING COMPANY.

Decided January 3, 1893

PATENT—INFRINGEMENT—CAR-WINDOWS.

Letters Patent No. 192,014, to George S. Roberts, June 12, 1877, for improvement in car-windows, *Held*, in view of the prior state of the art, limited to the specific structure described and shown—viz., a bay-window whose two sides are oblique to the side of the car and meet in an obtuse angle, and therefore not infringed by a structure whose two sides are oblique to the side of the car, but connected at their outer extremities by a line parallel therewith.

Mr. William K. Tubman pro se.

Mr. Robert J. Fisher and *Mr. Benjamin Price* for the defendant.

CARPENTER, *J.*:

This is a bill in equity to enjoin an alleged infringement of Letters Patent No. 192,014, granted June 12, 1877, to George S. Roberts, for an improvement in car-windows.

The claim of the patent is as follows:

A railway-car constructed with two lines of alternating posts, *a a* and *c c* for the insertion of windows in oblique or zigzag positions, and for forming bays or recesses in the sides of the car, opposite to the several seats thereof, substantially as and for the purpose herein specified.

As thus described the invention might well be called, as the complainant suggests, an "improvement in the construction or formation of the side of a railway-car." The claim of the complainant is that the—

invention consisted, broadly, in conceiving the method of forming the side of the car with or into a series of bays integral therewith in and as a part thereof.

He has not argued his claim orally, but relies entirely on his brief, and if I correctly follow the argument of the brief the words "integral therewith" and "in and as a part thereof" import that the essence of the invention lies in the fact that the bays, like the other parts of the side of the car, extend from the floor to the roof and that no part of the bay projects beyond the general line of the side of the car.

Coming, then, to a consideration of the state of the art, I observe, first, that cars having bay-windows as part of the sides thereof have long been in use and known to the trade here involved. I shall not undertake to describe all these except to notice that in all of them, so far as I observe, the windows project beyond the general side line of the car. As a fair type of whole I may refer to the ventilator patented by H. M. Paine January 6, 1852, and shown in the drawing attached to his Letters Patent No. 8,645. It therefore seems clear that a car side with bay-windows was well known when Roberts made his invention. What, then, were the elements of bay-windows as

then known to constructors? It may be taken as matter of common knowledge that bay-windows have long been constructed in the walls of houses in such manner that the "projecting space," so to call it, extends from floor to ceiling, and in such manner also that no part of the bay-window projects outwardly beyond the general side line of the wall. The functions of the old bay-windows also seem to me to be the same as those of the Roberts invention. The view from the window is broadened alike in all. The bay-window in the house-wall presents this advantage without extending beyond the line fixed by the limit of ownership or by other considerations for the outer line of the wall, in like manner as the bay-window in the car side obtains the same advantage without projecting beyond the limits allowed by considerations of safety or otherwise for the general width of the car. The advantage of ventilation is obtained certainly as well in a bay-window which projects beyond the side of the car as in one which, as the complainant puts it, is in and a part of the side of the car.

From these considerations it seems clear to me that the Roberts patent properly construed involves an invention only of the specific structure described and shown therein. Thus interpreted, I am clear that it is not infringed by the respondents. They have constructed cars in substantial accordance with the plan shown in Patent No. 335,770, issued February 9, 1886, to B. Price. The bay-window of Roberts has a general outline which may be diagrammatically represented by two lines each oblique to the side of the car and meeting in an obtuse angle. The bay-window constructed by the respondents would in like manner be represented by two lines oblique to the side of the car and connected at their outer extremities by a line parallel with the side of the car. This is not the structure of the Roberts patent, and therefore, because the respondents do not infringe that patent, I think the bill must be dismissed, with costs.

U. S. Circuit Court—Southern District of New York.

LALANCE AND GROSJEAN MANUFACTURING COMPANY *v.* HABERMANN MANUFACTURING COMPANY.

Decided January 5, 1893.

PATENT—INFRINGEMENT—INJUNCTION.

A complainant is ordinarily entitled to an injunction after final hearing and decree in his favor, and in the Southern District of New York it will be suspended only in exceptional cases. (*Pasteur* v. *Blount*, 51 Fed. Rep., 610; 61 O. G., 1484, disapproved.)

MEMORANDUM on motion to stay injunction.

Mr. Robert N. Kenyon for the motion.

Mr. Arthur v. Briesen opposed.

COXE, *J.*:

This motion presents the situation which usually arises where a patent has been sustained.

The defendant asserts that his business will be irreparably injured if he is compelled to stop infringing. The complainant, on the other hand, is equally strenuous in contending that his business will be destroyed if the infringement continues. If the two parties stood on equal footing, the question would be a difficult one. But they do not. The complainant is the owner of a valid patent and the defendant is a trespasser. The one is right and the other is wrong.

In such circumstances the former is entitled to relief.

The rule as enunciated in *Pasteur* v. *Blount* (51 Fed. Rep., 610; 61 O. G., 1484) is not, as I understand it, the law of this circuit.*

The injunction has sometimes been suspended here after final hearing, but only in exceptional cases. This is not such a case.

I am convinced that the rights of the public will not suffer and that the defendant's employés will not be disturbed if the usual course is adopted here.

The defendant can enamel its goods in any way it sees fit, and the record shows that the ways are numerous, so long as it does not use the patented process.

That any injury will result, other than that which generally follows where an injunction overtakes an infringement, I cannot believe. The injury here will not be unusual or exceptional.

A bond will offer little or no indemnity. An injunction is the complainant's only available remedy.

I think the case should take the ordinary course.

The motion is denied.

*Motion of complainant to vacate and set aside supersedeas allowed the defendant on his appeal from the order granting an injunction. *Held*, in the prosecution of an appeal to the circuit court of appeals under section 7 of the act of March 3, 1891, from an order granting an injunction, "there is no discretion in the court or judge allowing the same to deny or refuse the appellant a supersedeas. There is a discretion in respect to the bond that may be required of the appellant for the protection and indemnity of the appellee." (Southern District of Ohio, Judge Jackson, August 12, 1892.)

THE
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OF THE
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[BY AUTHORITY OF CONGRESS.]

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Amended Rules of Practice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 23, 1893.

Rule 25 and the first paragraph of Rule 122 of the Rules of Practice (edition of April 1, 1892) of the United States Patent Office are hereby amended to read as follows:

Rule 25. In case of the death of the inventor, the application will be made by and the patent will issue to his executor or administrator. In such case the oath required by Rule 46 will be made by the executor or administrator. In case of the death of the inventor during the time intervening between the filing of his application and the granting of a patent thereon, the Letters Patent will issue to *the executor or administrator upon proper intervention by him.*

Rule 122. Motions to dissolve an interference upon the ground that no interference in fact exists, or that there has been such irregularity in declaring the same as will preclude a proper determination of the question of priority, or which deny the patentability of an applicant's claim, or his right to make the claim, should, if possible, be made not later than the twentieth day after the statements of the parties have been received and approved. Such motions *should be noticed for hearing upon a day certain before the Examiner of Interferences upon the question of transmission to the Primary Examiner*, and when in proper form will be transmitted by the Examiner of Interferences, with the files and papers, to the proper Primary Examiner for his determination, *who will thereupon fix a day certain when the said motion will be heard before him upon the merits, and give notice thereof to all the parties. If a stay of proceedings is desired, a motion therefor should accompany the motion for transmission.*

W. E. SIMONDS,
Commissioner.

Approved January 26, 1893.
GEO. CHANDLER,
Acting Secretary of the Interior.

Notice.

(ORDER No. 789.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., November 26, 1892.

It is hereby directed that in the printing of claims of applications for patents the punctuation of the claims as made by applicants be strictly followed, and that the punctuation of the specification made by applicants be not departed from except to cure a manifest absurdity.

W. E. SIMONDS,
Commissioner.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Price of Printed Copies of Patents.

Attention is called to the fact that under date of May 14, 1891, the price of uncertified printed copies of patents was fixed at the *uniform price of ten cents each*, whether purchased singly or in quantities.

Copies of Decisions Furnished.

Hereafter an uncertified copy of every decision or action by any tribunal in this Office will be furnished by such tribunal to the interested party or parties without charge.

This order does not include the written statements of the grounds of decisions made by Examiners to the appellate tribunal in *ex parte* cases.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $3.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

ISSUE OF FEBRUARY 7, 1893.

Patents	444—No.	491,065 to No. 491,508, inclusive.
Designs	19—No.	22,191 to No. 22,209, inclusive.
Trade-Marks	38—No.	22,418 to No. 22,455, inclusive.
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Reissues	5—No.	11,303 to No. 11,307, inclusive.
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Indiana	15	.....	Tennessee	4	.....
Iowa	6	.....	Texas	6	1
Kansas	3	.....	Utah Territory	1	.....
Kentucky	3	2	Vermont	1	.....
Louisiana	.....	.....	Virginia	1	.....
Maine	1	.....	Washington	2	.....
Maryland	9	.....	West Virginia	1	.....
Massachusetts	43	7	Wisconsin	15	3
Michigan	25	1	Wyoming	.....	.....
Minnesota	2	.....	U. S. Army	.....	.....
Mississippi	1	.....	U. S. Navy	1	.....
Missouri	12	1	Total to citizens of the United States	412	33
Montana	.....	.....			
Nebraska	4	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Mexico	.....	.....
Austria-Hungary	.....	.....	Netherlands	.....	.....
Belgium	.....	.....	Newfoundland	.....	.....
Bermuda	.....	.....	New South Wales	.....	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	5	1	Norway	.....	.....
Chile, Republic of	.....	.....	Roumania	.....	.....
Cuba	.....	.....	Russia	.....	.....
Denmark	.....	.....	Scotland	1	.....
Ecuador	.....	.....	South Austral'a	.....	.....
England	18	.....	Spain	.....	.....
France	11	4	Sweden	2	.....
Germany	10	.....	Switzerland	3	.....
India	.....	.....	Victoria	.....	.....
Ireland	.....	.....			
Italy	1	.....	Total to citizens of foreign countries	51	5
Japan	.....	.....			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business January 31, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Jan. 7	Jan. 15	103
	Between one and two months in arrears.			
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Dec. 3	Jan. 21	164
8	Furniture, Toilet, Umbrellas and Canes, etc.	Dec. 6	Jan. 9	251
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Dec. 5	Jan. 19	200
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 1	Jan. 18	180
2	Farm Stock, Products, etc	Dec. 1	Jan. 17	214
21	Textiles, etc	Dec. 2	Jan. 11	195
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Dec. 10	Jan. 10	159
18	Metal-Working, Arms and Projectiles, etc	Dec. 1	Jan. 3	163
12	Mechanical Engineering, Stores-Service, etc.	Dec. 7	Dec. 31	254
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Dec. 2	Dec. 31	229
10	Carriages and Wagons and Railway Cars	Dec. 1	Dec. 17	409
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Dec. 1	Dec. 15	200
19	Stoves and Furnaces	Dec. 1	Dec. 15	454
9	Hydraulics, Fire-Extinguishers, etc.	Dec. 1	Dec. 13	376
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Dec. 2	Dec. 10	287
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 1	Dec. 5	208
	Between two and three months in arrears.			
24	Sewing-Machines and Apparel	Nov. 29	Jan. 5	143
18	Steam-Engineering, etc	Nov. 21	Dec. 20	186
22	Fire-Arms, Navigation, Signals, etc.	Nov. 5	Dec. 23	299
7	Harvesters, Games and Toys	Nov. 18	Dec. 15	548
1	Tillage and Fences	Nov. 7	Dec. 12	238
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Nov. 28	Dec. 5	275
26	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Nov. 26	Dec. 2	312
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Nov. 30	Dec. 1	303
17	Paper-Manufactures and Printing	Oct. 31	Nov. 30	341
4	Civil Engineering, etc	Nov. 29	Nov. 21	350
	Between three and four months in arrears.			
23	Instruments of Precision, Acoustics, Optics, etc.	Oct. 12	Dec. 22	307
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Oct. 1	Dec. 1	363
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Oct. 1	Nov. 25	398
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Aug. 15	Jan. 3	389
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	June 6	Nov. 4	531
	Total number of applications awaiting action			9,019
	Under one month in arrears.			
	Designs	Jan. 24	Jan. 24	51
	Trade-Marks	Jan. 21	Jan. 23	15

PATENTS

GRANTED FEBRUARY 7, 1893.

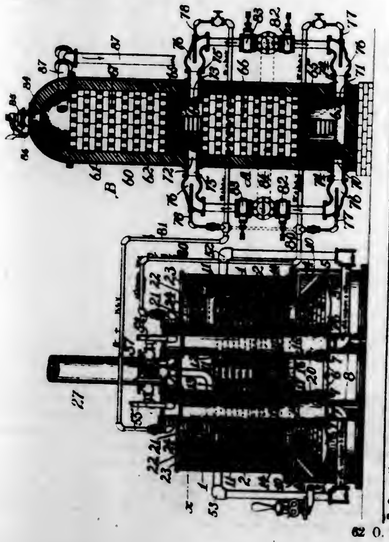
491,065. HORSE-COLLAR. WILLIAM C. AGNEW, Creston, Ill. Filed Mar. 17, 1892. Serial No. 425,315. (No model.)



Claim.—1. A horse-collar having its body stuffed with corn-chaff and straw, those portions coming in contact with the animal being filled with the corn-chaff and covered with felt, and a partition arranged within the body of the collar, and separating the corn-chaff from the straw, substantially as described.

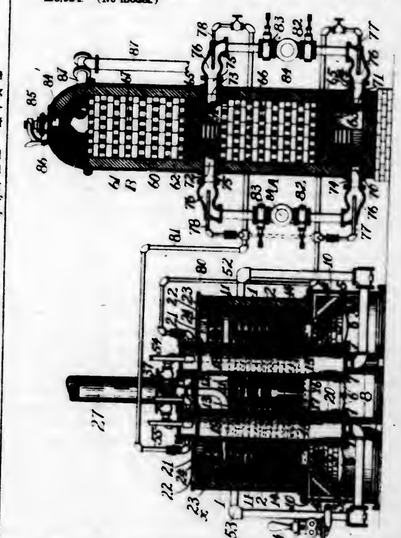
2. A horse-collar having its body stuffed with corn-chaff and straw, those portions coming in contact with the animal being filled with the corn-chaff and covered with felt, to which is attached a lining of canvas or the like, and a partition arranged within the body of the collar and separating the corn-chaff from the other portion of the filling, substantially as described.

491,066. PROCESS OF MANUFACTURING GAS. JOHN R. ARCHER, Washington, D. C. Filed Mar. 22, 1892. Serial No. 425,900. (No specimens.)



Claim.—The process for the manufacture of illuminating gas from oil and steam, which consists in passing a highly heated mixture of the steam and oil gases low in carbon over highly heated iron surfaces; then injecting into the gas thus formed a highly heated mixture of the steam and oil gases richer in carbon and also passing this mixture over highly heated iron surfaces, substantially as described.

491,067. APPARATUS FOR THE MANUFACTURE OF GAS. JOHN R. ARCHER, Washington, D. C. Filed Apr. 12, 1892. Serial No. 428,924. (No model.)



Claim.—1. In a gas producer of the character described, the combination of an elliptical chamber, a heating coil 11, extending around the inside of the said chamber, two heating coils 12 and 13 arranged within the said heating coil 11, a steam supply pipe connected with the said heating coils, and having valves to control the supply of steam thereto, horizontal mixing pipes arranged in series and passing back and forth across the ends of the chamber, and connected with the heating coils, and an oil supply pipe connected with both of the series of mixing pipes, and having valves by which the flow of oil may be controlled, with vertical retorts arranged within the coils 12 and 13, and connected with the mixing pipes, a fire chamber below the said retorts, mixing pipes, and heating coils, and an upwardly and inwardly inclined wall 9 inclosing said fire chamber, an air space 10 extending around the fire chamber and vents through the wall 9 communicating with the air space 10, substantially as and for the purposes described.

2. In a gas producer of the character described, the combination of an elliptical chamber, a heating coil 11 extending around the inside of the said chamber, two heating coils 12 and 13 arranged with-

in the said heating coil 11, a steam supply pipe connected with the said heating coils and having valves to control the supply of steam thereto, horizontal mixing pipes arranged in series and passing back and forth across the ends of the chamber, and connected with the heating coils, and an oil supply pipe connected with both of the series of mixing pipes, and having valves by which the flow of oil may be controlled, with vertical retorts arranged within the coils 12 and 13, and connected with the mixing pipes, a fire chamber below the said retorts, mixing pipes, and heating coils, and an upwardly and inwardly inclined wall 9 inclosing said fire chamber, an air space 10 extending around the fire chamber, vents through the wall 9 communicating with the air space 10, and triangular brackets 4 within the air space 10 to support the heating coils, substantially as and for the purposes described.

3. In a gas producer of the character described, the combination of an elliptical chamber, a heating coil 11 extending around the inside of the said chamber, two heating coils 12 and 13 arranged within the said heating coil 11, a steam supply pipe connected with the said heating coils, and having valves to control the supply of steam thereto horizontal mixing pipes arranged in series and passing back and forth across the ends of the chamber and connected with the heating coils, and an oil supply pipe connected with both of the series of mixing pipes, and having valves by which the flow of oil may be controlled, vertical retorts arranged within the coils 12 and 13 and connected with the mixing pipes, a fire chamber below the said retorts, mixing pipes, and heating coils, an upwardly and inwardly inclined wall 9, inclosing said fire chamber an air space extending around the fire chamber, vents through the wall 9 communicating with the air space 10, and triangular brackets 4 within the air space 10 to support the heating coils, with a converter having two tiers of tile and iron checker-work with a chamber at the base of each tier, and pipes connected with the said vertical retorts, and to the air, opening into each of said chambers, substantially as and for the purposes described.

4. In an apparatus for the manufacture of gas from steam and oil, the combination with a producer having heating coils, mixing pipes, and retorts, connected with each other in series, a fire chamber beneath said heating coils, mixing pipes, and retorts, steam supply pipes connected with the heating coils, oil supply pipes connected with the mixing pipes and means for controlling the supply of steam and oil; of a converter having a lining of refractory material and two tiers of tile and iron checkerwork, with an arched chamber at the base of each of said tiers, pipes capable of admitting air opening into said chambers, and pipes capable of admitting the mixture of steam and oil from the said producer also opening into the said chambers, substantially as and for the purposes described.

5. In an apparatus for the manufacture of gas from steam and oil, the combination with a producer having heating coils, mixing pipes, and retorts, connected with each other in series, a fire chamber beneath said heating coils, mixing pipes and retorts, steam supply pipes connected with the heating coils, oil supply pipes connected with the mixing pipes, and means for controlling the supply of steam and oil; of a converter having a lining of refractory material with two tiers of tile and iron checkerwork, with an arched chamber at the base of each of said tiers, pipes opening into the opposite side of the said chambers adapted to admit air into said chambers, and pipes connected to the said retorts in the said producer and passing within the said air pipes, substantially as and for the purposes described.

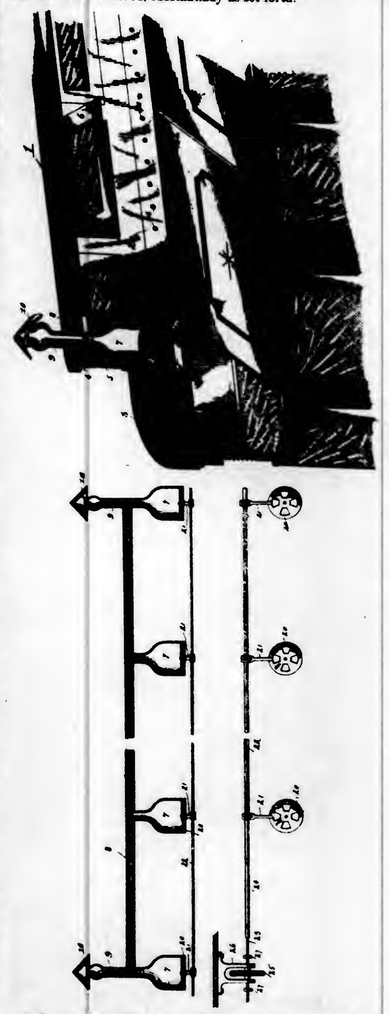
6. In an apparatus for the manufacture of gas from steam and oil, the combination with a producer having heating coils, mixing pipes, and retorts, connected with each other in series, a fire chamber beneath said heating coils, mixing pipes, and retorts, steam supply pipes connected with the heating coils, oil supply pipes connected with the mixing pipes, and means for controlling the supply of steam and oil; of a converter having a lining of refractory material with two tiers of tile and iron checkerwork with an arched chamber at the base of each of said tiers, pipes opening into said chambers adapted to admit air with enlarged portions exterior to said chamber, said enlarged portions serving as mixing chambers, and pipes connected to the retorts in the said producer passing through said air pipes, and opening into said mixing chambers, substantially as and for the purposes described.

491,068. CAR-VENTILATOR. GEORGE W. RAMBSDEY and CHARLES B. HAWKSHAW, Chicago, Ill. Filed July 13, 1892. Serial No. 439,755. (No model.)

Claim.—1. In a car, the combination of a folding bunk or berth having an air inlet at the side thereof which is lowermost when the bunk or berth is folded, and an air outlet arranged above said inlet, between the side of the car and the bunk or berth when the latter is folded, substantially as set forth.

2. In a car, the combination of a folding bunk or berth having an air inlet at the side thereof which is lowermost when the bunk or berth is folded, and a suction device arranged above said inlet between the side of the car and the bunk or berth when the latter is folded, substantially as set forth.

3. In a car, the combination of a folding bunk or berth having an air inlet at the side thereof which is lowermost when the bunk or berth is folded, an air escape or outlet formed in the roof over said bunk or berth, between the side of the car and the bunk or berth when the latter is folded, substantially as set forth.



4. In a railway car, the combination of the transom wall, the bunk or berth hinged to the side of the car and adapted to be folded up adjacent to the transom wall, air inlets at the lower side of said bunk, and air outlets arranged between the side of the car and said transom wall, above said air inlets, substantially as set forth.

5. In a railway car, the combination of the upper and lower decks or roofs, the transom wall 2, and an outer wall 4, air chambers set in the lower deck between said outer wall and transom wall and communicating with the interior of the car and with the external atmosphere, substantially as set forth.

6. In a railway car, the combination of the upper and lower decks or roofs, the transom wall and the outer wall, a number of air chambers disposed at intervals between said outer wall and transom wall, and having communication with the interior of the car, a draft flue arranged between said walls and decks and communicating with said chambers and the external atmosphere, substantially as set forth.

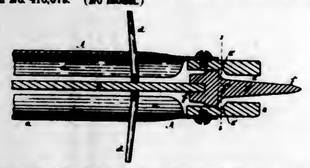
7. In a railway car, the combination with the upper and lower decks, the transom wall and the outer wall 4, air chambers located between said decks and walls and communicating with the interior of the car, a draft pipe located between said decks and walls and communicating with said chambers, and pipes leading from said draft pipe, and provided with horizontally arranged openings in the external atmosphere, substantially as set forth

8. In a railway car, the combination of a bunk or berth having air or ventilating holes at its upper and lower sides, the said upper holes communicating with the interior of the car, and a ventilator arranged above the bunk and communicating with the external atmosphere, substantially as set forth.

9. In a railway car, the combination of a bunk or berth having air or ventilating holes at its upper and lower sides, a valve for closing said upper ventilating holes, and a ventilator arranged above the bunk, and communicating with the external atmosphere, substantially as set forth.

10. In a railway car, the combination of a bunk or berth having air or ventilating holes at its upper and lower sides, the upper holes communicating with the interior of the car, the transom ventilators near the roof of the car, a ventilator communicating with the interior of the bunk when the latter is closed and with the external atmosphere, and a valve for closing the said upper air holes, substantially as set forth.

491,069. TOOL FOR FINISHING THE NECKS AND MOUTHS OF BOTTLES. CLIFTON H. BEACH, Pittsburg, Pa. Filed Oct. 28, 1891. Serial No. 410,079. (No model.)



Claim.—A tool for finishing the mouths of bottles, having a conical plug with its base sloping gradually down to the lower edge thereof, and jaws having concave faced recesses formed therein, which are rounded off to meet the sloping base of the conical plug, the joint between the plug and jaws being formed on the top face of the bottle flange, substantially as and for the purposes set forth.

491,070. FASTENING FOR GARMENTS. BENNY BERNSTEIN, New York, N. Y. Filed Nov. 20, 1891. Serial No. 412,536. (No model.)

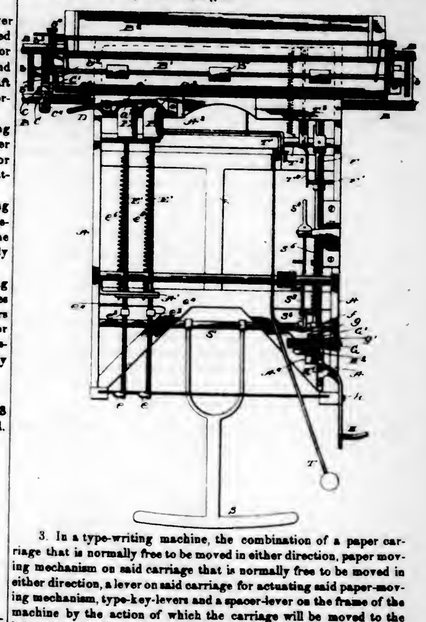


Claim.—In a fastening device, the combination, with a keeper plate having at one end and on its under side a circular countersunk aperture and a slot leading out from said aperture, the plate being upturned at the sides of said slot forming inclined guideways, of a base plate, a circular shank on the base plate, of greater diameter than the slot in the keeper plate, adapted to enter the aperture in the keeper plate and an arm swiveled on said shank and adapted to pass into the slot in the keeper plate, said arm being weighted at its free end, substantially as shown and described.

491,071. TYPE-WRITING MACHINE. GEORGE C. BLICKENSDERFER, Stamford, Conn. Filed Mar. 26, 1892. Serial No. 426,505. (No model.)

Claim.—1. In a type-writing machine, the combination of a paper carriage, a driving shaft for moving said carriage on its ways, means for rotating said shaft to move said carriage toward the left as the type-keys and spacer-key is operated, and a reversing lever and proper gearing actuated thereby for rotating said shaft reversely and thereby moving said carriage backwardly or to the right.

2. In a type-writing machine, the combination of a paper carriage, a driving shaft for moving said carriage on its ways, means for rotating said shaft for moving the carriage toward the left as the type-keys and spacer key are actuated, said means being normally out of engagement with said shaft, and a reversing lever and proper gearing actuated thereby which is normally out of engagement with said shaft, for rotating said shaft reversely and thereby moving said carriage backwardly or to the right.



3. In a type-writing machine, the combination of a paper carriage that is normally free to be moved in either direction, paper moving mechanism on said carriage that is normally free to be moved in either direction, a lever on said carriage for actuating said paper-moving mechanism, type-key-levers and a spacer-lever on the frame of the machine by the action of which the carriage will be moved to the left, a reversing lever on the frame of the machine by the action of which the carriage will be moved to the right, and means on the frame of the machine for contacting with and actuating the lever for moving the paper-moving mechanism on the paper carriage when said carriage is being moved by the said reversing lever.

4. In a type-writing machine, the combination of a paper carriage that is normally out of engagement with its actuating means and, hence, free to be moved manually in either direction, mechanism for moving said carriage to the left through the action of the type-keys and the spacer-key, gearing for reversing the action of the said carriage and bringing it back to normal and a lever on the frame of the machine in proximity to the key-board for operating said carriage reversing gearing.

5. In a type-writing machine, the combination of a paper carriage having a reciprocating movement, means on said carriage for moving the paper at right angles to the line of the reciprocating motion of the carriage, a ruling device on the frame of the machine, means for bringing said ruling device into action against the paper, and means for turning said ruling device so as to properly act upon the paper when being moved by either the reciprocating movement of the carriage or at right angles thereto or when being simultaneously moved in both said directions.

6. In a type-writing machine, the combination of a paper carriage that is normally free to be moved manually on its ways, means on said carriage for moving the paper at right angles to the reciprocating movement of the carriage, which paper moving means are free to be moved manually in either direction, a ruling device on the frame of the machine, means for bringing said ruling device into action against the paper, and means for turning said ruling device so as to properly act upon the paper when being moved by either the reciprocating movement of the carriage or at right angles thereto or when being simultaneously moved in both said directions.

7. In a type-writing machine, the combination of a reciprocating carriage, means on said carriage for moving the paper at right angles to the reciprocating movement of said carriage and means on the frame of the machine for drawing lines upon the paper when being moved either by the reciprocating action of the carriage or by the paper moving means on the carriage or simultaneously by both.

8. In a type-writing machine, the combination with the carriage moving shaft F of the lever H, having thereon the segment gear H', the pinion H^2 meshing with said segment, a driving gear moved by said pinion H^2, and a driven pinion on the shaft F and meshing with the driving gear whereby said shaft is rotated by the action of said lever H, substantially as and for the purposes set forth.

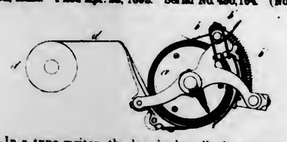
9. In a type-writing machine, the combination of the carriage moving shaft F, a clutch f, on said shaft, a loose sliding worm pinion G' on said shaft and having a clutch g for engaging said clutch f, a worm-wheel G, for rotating and sliding said pinion G', into engagement with said clutch f, a mitered pinion H^2 for rotating said worm wheel and a lever H, with segment H' for acting upon said mitered pinion H^2.

10. In a type-writing machine the combination with the carriage and the platen thereof, a ruling device consisting of the head E, and rod E', the inking pad e^2 and wheel e' in said head, said ruling device being journaled on the frame of the machine and provided with means for turning the same and for holding the same in position and being also longitudinally movable in its bearings.

11. In a type-writing machine, the combination of a carriage, a platen on said carriage, a ruling device journaled on the frame of the machine, that consists of the head E, the rod E', the wheel e', the inking pad e^2, the crank handle e, the arm e^3 with holding pin e^4, adapted to engage the holes a in the frame piece A', and the reacting springs e^5.

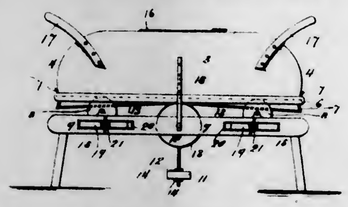
12. In a type-writing machine, the combination of the roller-platen B', the ratchet b' on the shaft of said platen, the pawl C, the pawl-carrying plate C', having limiting faces c^2 and c^3 and the pointer c^4, and the limiting stop b^3, the limiting screw b^4 and the gage-plate b^5 on the frame B of the carriage in which said platen is journaled.

491,072. TYPE-WRITING MACHINE. WILLIAM BODENBROWN, Jr., Boston, Mass. Filed Apr. 22, 1892. Serial No. 430,164. (No model.)



Claim.—In a type-writer, the herein described combination of a platen with a straight edge extending lengthwise the platen with one edge contiguous thereto, and means for adjusting the straight edge toward and away from the platen all substantially as and for the purpose set forth.

491,073. WASHING-MACHINE. AUGUST C. BRANDT, Fort Wayne, Ind. Filed July 30, 1892. Serial No. 441,647. (No model.)



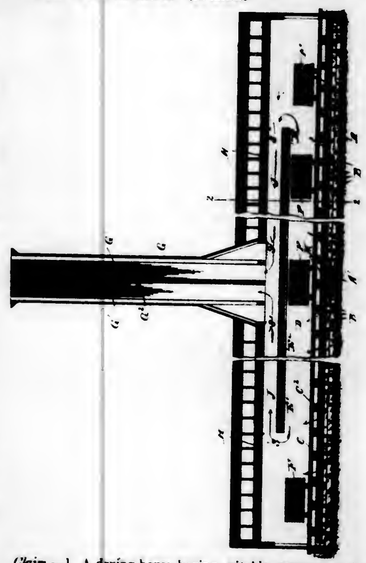
Claim.—1. The combination of a suds-box provided with rounded ends and with vertical slats near each end, with grooved guide plates adapted to move upon and be held in place by friction rollers: a supporting frame provided with friction wheels adapted to support said guide plates and suds box: a drum provided with journals mounted in bearings upon said supporting frame transversely: a cord encircling said drum and secured with tension to both ends of said suds-box: a rod attached to said drum and provided with a counter weight adjustably attached to the rod.

2. In a washing machine, the combination of a suds-box, with guide plates adapted to move upon friction wheels and be guided thereby: a supporting frame provided with friction wheels adapted to support and engage said guide plates; a drum provided with a counter weight and journals, mounted revolvably and transversely upon said supporting frame, and means whereby the drum is revolved by the movement of the suds-box over it.

491,074. METHOD OF TREATING CLAY FOR POTTERY-WARE. WILLIAM M. BREWER, New Brighton, assignor of one-half to Frank P. Musser, Beaver Falls, Pa. Filed Apr. 15, 1892. Serial No. 429,342. (No specimens.)

Claim.—The method herein described of treating clay which consists in first burning the same, thus reducing the burnt clay or biscuit to powder, and mixing therewith about one-third its bulk of raw or unburnt clay, then adding glass, sand, flint, slaked lime and common salt in about the proportions specified, then storing away and finally tempering to the proper consistency for use, substantially as set forth.

491,075. DRIER. WILLIAM C. BYRNE, Chicago, Ill. Filed Mar. 19, 1892. Serial No. 426,568. (No model.)



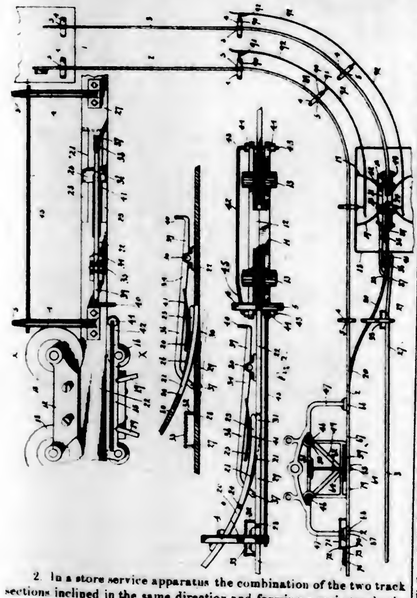
Claim.—1. A drying house having suitable entrances and exits at the opposite ends respectively, and the chimney for the egress of the drying current substantially midway between the ends; and the horizontal baffle plate or ceiling extending through the middle portion of the length of the drying chamber and to within a comparatively short distance of both ends: in combination with heating pipes occupying the lower part of the drying chamber throughout the length thereof, and suitable air induction openings at or below the level of the heating pipes midway between the ends of the drier, substantially as and for the purpose set forth.

2. In combination with the drying chamber having its fresh air supply at substantially the middle point of its length at the bottom, and the chimney for the egress of the air currents communicating at substantially the middle point of said length at the top, and a horizontal baffle plate or ceiling extending over the middle portion of the chamber whereby the air is compelled to pass from its ingress both ways toward the ends respectively of the chamber and return from both directions toward the middle for egress through the chimney substantially as set forth.

3. In a drying house, in combination with the heating and drying room having longitudinal tracks for the passage of cars loaded with the material to be dried; and having fresh air induction apertures at the middle of its length, heating pipes extending throughout the length of the chamber at the bottom, a horizontal flue extending longitudinally above such room and communicating therewith at both ends, and the chimney with which said horizontal flue communicates intermediate its said end communications with the drying room: and dampers in said horizontal flues respectively: substantially as set forth.

491,076. STORE-SERVICE APPARATUS. ADOLPH A. CAILLE, Saginaw, Mich. Filed Mar. 17, 1892. Serial No. 426,363. (No model.)

Claim.—1. In a store service apparatus, the combination of two inclined main track sections, the first section having its forward end provided with a curve leading to a side track, and having in the upper edge of the curve a recess with a tongue fitted to fill out said recess and pivoted to the track by its forward end and with its rear free end capable of swinging out of the recess, a spring for moving the tongue into the recess, a switch section pivoted by its forward end to the rear end of said second main track section and with its rear end reaching into the said recess and in alignment with said first main track section, a spring for moving the free end of the switch section into said recess, and means substantially as described for automatically moving the rail outwardly by the action of a carrier, substantially as set forth.



2. In a store service apparatus the combination of the two track sections inclined in the same direction and forming a main track, the first section being provided at its lower end with a horizontal curve leading to a branch track, and having in the upper edge of the curve a recess, a tongue adapted for filling the recess and pivoted by its forward end to the track and having its outer free end capable of horizontal movement away from the recess, the second track section having its higher end adjacent to the outer side of said curve, a switch section pivoted by its forward end to the end of said second track section, and having its rear end adapted to fit into the rear end of said recess, a spring for actuating said switch section into said recess and for moving the tongue out of the same, a horizontal lever pivotally supported on the inner side of the said first track section, and having its end adapted for moving the switch section out of the recess, and a carrier for moving over the track and provided with devices for automatically operating the lever to move the switch section, substantially as set forth.

3. In a store service apparatus, the combination of the track section 22, having its forward ends curved to a side track and provided with a recess 21, a tongue 23, fitted to fill said recess and pivoted to the track by its forward end, a spring for actuating the rear end of the tongue outwardly, with the forward track section 27, with its end adjacent to said curve, a switch section 29, pivoted by its forward end to the rear end of the section 27, and having its rear free end fitted to the rear end of said recess in alignment with track section 22, a spring for actuating the free end of the switch section inwardly to displace the free end of the tongue and to fit into said recess, with a horizontal lever pivotally secured to the inner side of the section 22, and having its forwardly extending long arm turned toward the track and bearing against the inner side of said switch section and provided on its rear short end with an outwardly and downwardly turned portion 40, a carrier for running over the track and provided on its inner side with projecting devices adapted for contact with said part 40, for actuating the switch section and the tongue outwardly, substantially as set forth.

4. In a store service apparatus, the combination of the main track section 22, having a forward end curved to a side track and provided with a recess 21, in its upper edge, and a main track section 27, with its end beyond the curve and in alignment with the section 22, a tongue 23, fitted to fill out said recess and pivoted by its forward end to the track and with its opposite end capable of moving out of the recess, a switch section pivoted by its forward end to the end of the section 27, and with its forward end adapted to swing into said recess, a spring for actuating the forward end into the recess, a horizontal lever pivotally secured to the inner side of said track section 22, and having a long arm reaching over and with its end bearing against the inner side of said switch section and having a spring adapted for actuating said tongue into the recess, and provided with a rearwardly extending short arm having an outwardly projecting portion 40, and a carrier adapted for running over the track and provided on its inner side with a bar 42, adapted for engaging with the inner side of said portion 40, and provided on its ends with inwardly turned screw threaded portions passed through the carrier frame and with adjusting nuts on the said portions on each side of the frame, substantially as set forth.

5. In a store service apparatus, the combination of the inclined main track having a portion cut out forming two sections with their ends projecting toward each other, a track section for filling the space between said ends and pivoted by one end to the end of the higher track section, and with its opposite end loosely connected to the end of said lower track section, the vertical ways beside said pivoted track section, an elevator frame having guides for sliding on said ways and carrying on its lower portion a track section having one end adapted for coincidence with the end of said lower track section when the elevator is at the end of its upward travel, and provided on its upper portion with an arm extending beneath and carrying a roller for contact with the under side of said pivoted track section for lifting the loose end of the latter with the upward movement of the elevator, substantially as and for the purpose set forth.

6. In a store service apparatus the combination with an inclined track having a section cut out forming a rear end 65, and a front end 66, projecting toward each other, a track section 67, between said ends and secured to the end 65, by a horizontal pivot and provided on its opposite end with a dog engaging with the end 66, of the bell crank lever 73, pivoted to a support on the inner side of the end portion 65, and having a long arm 76, extending rearwardly and provided with an end 77, turned inwardly and passed through the track, and having an outwardly projecting short arm 72, a rod 71, pivoted by one end to the said short arm and by its opposite end to the middle portion of said track section 67, and an elevator frame adapted for contact with the inner side of track section 67, for lifting the free end of the latter, substantially as set forth.

7. The combination in a store service apparatus of the inclined track having a portion cut out forming the ends 65, and 66, projecting toward each other, with a track section 67, secured to the end 65, by a horizontal pivot and with its opposite end in contact with the end 66, the vertical ways opposite the said track 67, an elevator 49, arranged for moving on said ways and provided with a portion 62, extending beneath said track section and provided with a roller 63, for contact therewith, and with guide pins 64, on each side of and extending above said roller for contact with the sides of said rail section when the elevator nears the extremity of its upward movement, substantially as set forth.

491,077. STOCK WATERING-TROUGH. HIRAM CARROLL, Pawling, N. Y. Filed Apr. 14, 1892. Serial No. 429,181. (No model.)



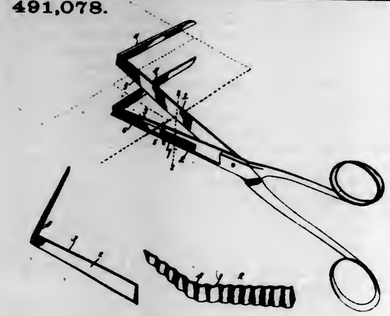
Claim.—In a stock watering device, a receptacle having the lines of its interior composed wholly of curves, a tapering combined cap seat and valve seat arranged below the bottom of the receptacle, a valve located in said seat and a tapering cap retained in said seat by frictional contact and provided with openings

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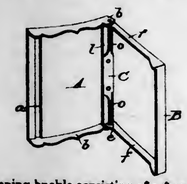
491,078. SHEARS. WILLIAM R. CLARKE, Kansas City, Mo. Filed Sept. 8, 1892. Serial No. 445,290. (No model.)

Claim.—A shears, having one of the blades, thereof, provided with a longitudinally extending groove, in its outer side, and a sliding block adapted to slide within said groove, and a stop bar carried by the sliding block, projecting both above and below the upper and lower edges of the blades, substantially as described.

491,078.

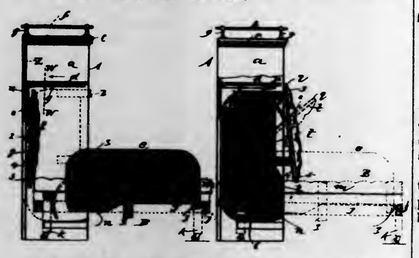


491,079. CLASP. ISAAC COE, Jersey City, assignor to Frank H. La Pierre, East Orange, N. J. Filed Oct. 4, 1892. Serial No. 447,822. (No model.)



Claim.—A clamping buckle consisting of a front and back plate, one of said plates being provided with ears to receive the ends of the pintle, and the other plate being provided with a clamping lip and having a spring pintle secured thereto, substantially as shown and described.

491,080. BED. ALBERT F. CHAFF, Boston, Mass. Filed Dec. 5, 1890. Serial No. 373,906. (No model.)



Claim.—1. The combination of cabinet A, having requisite space between its ends *a*, *a* and below shelf *d*, bed B formed to be in part arranged in the space in the cabinet as shown; the sliding bar *x* arranged beneath said shelf and thereto secured with adaptation for a forward and back sliding motion, and adjustable back *q*, pivotally attached to said bar, substantially as specified.

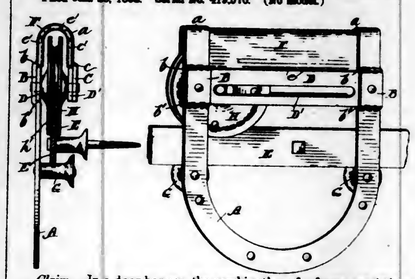
2. The combination with back *q* of bar *x* arranged beneath shelf *d* to slide forward and back, hinge *u* secured to back *q*, the pivot plates *v*, connected with hinge *u* and secured to back *q*, the guiding clamp 2 and spring 4 attached to the plate and back, substantially as specified.

3. The combination with cabinet B, and the bed, of the head and foot boards, pivotally attached to the ends of the cabinet and arranged to be turned up and down, substantially as specified.

4. The combination with cabinet A, of the bar *x*, arranged therein to slide from front to rear; the adjustable back *q*, and the hinges *u*, pivotally attached to said bar and back, substantially as specified.

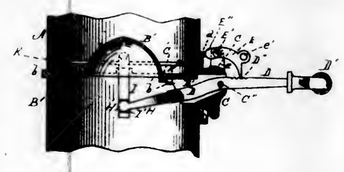
5. In a convertible bed, the combination of the inclosing case, the folding head and foot boards provided with the studs 3, and the back hinged to the case and provided with projections 8, arranged to engage beneath said studs when the back is thereby supported, substantially as specified.

491,081. DOOR-HANGER. JAMES W. CONGHAR, Dubuque, Iowa. Filed Jan. 28, 1892. Serial No. 419,570. (No model.)



Claim.—In a door hanger, the combination of a frame consisting of recurved limbs having offsets provided in them which form approximately square shoulders, two parallel rider bars secured to the limbs between the shoulders by rivets or other suitable fastening means, whereby the weight of the suspended door is removed from the fastening devices which secure the rider bars to the frame and is transferred to the frame proper, substantially as described.

491,082. DRAFT-REGULATOR. PHILLIP W. CORNWELL, Brockton, Mass. Filed June 2, 1892. Serial No. 435,278. (No model.)



Claim.—1. The combination with the flue and main damper B provided with the openings *g*, of the supplemental damper or ring K, the vertical reciprocating guide-rods I located on opposite sides of the center of the flue and rigidly secured to said ring, and the actuating lever D and semi-circular or curved bar H rigidly secured to said lever and engaging said rods I, substantially as described.

2. The combination of the vertically reciprocating rods I for actuating the supplemental damper and provided with the slots I′ near their lower ends, and the curved bar H provided at its ends with the enlarged curved portions H′, said bar being rigidly secured to the actuating lever D, substantially as set forth.

3. In combination, the rotative thimble C provided with the extension *e*, the stationary plate *d* secured to the flue and having its rim provided with the notch *d′*, the pawl E formed with the extension or heel E″, and the notched actuating lever D, substantially as described.

491,083. CERAMIC BOILER. ALLEN P. CREQUE, New York, N. Y. Filed Jan. 5, 1885. Serial No. 152,063. (No model.)

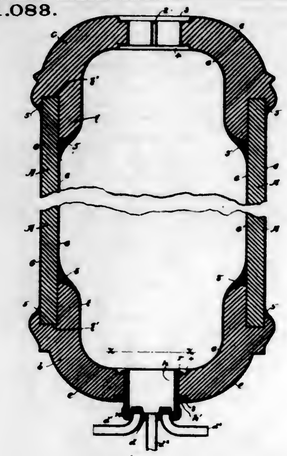
Claim.—1. A boiler comprising a cylindrical body, a head and a bottom, each made of ceramic ware, the square ends of the body being fitted to grooves in the head and bottom, and united by plastic clay, and the whole enameled and baked, substantially as described.

2. A boiler provided at its end with a hand-hole, and grooved at 2, and a ring cut away at its sides to enter the boiler through the said grooves, combined with a threaded sleeve *h* having flange *h′*, substantially as described.

3. A boiler provided at its end with a hand-hole, a ring *r* reduced in diameter to permit it to be inserted into the said boiler through the said hand-hole, combined with a screw threaded sleeve provided with a flange, a multi-passage cover *d*, and with a threaded nut or ring *n* to engage the said sleeve and clamp the cover *d* thereto, substantially as described.

4. A boiler of ceramic ware comprising a cylindrical body, a head and a bottom, the said head and bottom being made with annular grooves to receive opposite ends of the body, and also having the annular interior extensions *t*, and the shoulders *t′*, the said body and head and bottom being united by plastic clay, and enameled and baked, substantially as described.

491,088.



491,084. ART OF SEPARATING METALS. JOHN J. CROOKER, New York, N. Y. Filed June 1, 1892. Serial No. 435,203. (No specimens.)

Claim.—1. The improvement in the art of separating foreign metals from impure copper and lead, which consists in supplying oxygen to the copper or lead in a fused condition to form oxide, and applying to the oxide ammonium chloride, substantially as described.

2. The improvement in the art of separating foreign metals from impure copper and lead, which consists in supplying oxygen to the copper or lead in a fused condition to form oxide, and applying to the oxide ammonium chloride and finely divided carbon, substantially as described.

3. The improvement in the art of separating foreign metals from impure copper and lead, which consists in subjecting the copper or lead in a fused condition to an air blast to form oxide and applying to the fused metal at suitable intervals ammonium chloride, substantially as described.

4. The improvement in the art of separating foreign metals from impure copper and lead, which consists in subjecting the copper or lead in a fused condition to an air blast to form oxide and applying to the fused metal at suitable intervals ammonium chloride and finely divided carbon, substantially as described.

5. The improvement in the art of separating foreign metals from impure copper and lead, which consists in supplying oxygen to the surface of the copper or lead in a fused condition to form oxide, and applying to the surface of the fused metal at suitable intervals ammonium chloride, substantially as described.

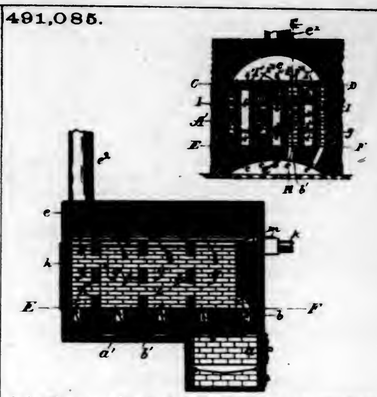
6. The improvement in the art of separating foreign metals from impure copper and lead, which consists in supplying oxygen to the surface of the copper or lead in a fused condition to form oxide, and applying to the surface of the fused metal at suitable intervals ammonium chloride and finely divided carbon, substantially as described.

491,085. APPARATUS FOR PRODUCING FERROFERRIC AND FERRIC OXIDES. ANTHONY CROMBLET, Pontypool, and JAMES W. JONES, Whalley Range, England. Filed Nov. 18, 1891. Serial No. 412,336. (No model.) Patented in England June 9, 1890, No. 8,914.

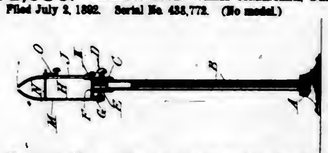
Claim.—1. In a furnace of the class herein described, the combination of a fire chamber, a floor of fire brick having flue openings therein above said fire chamber, walls I of fire brick built upon the said floor, alternate flues and retorts between said walls, longitudinal ribs upon the walls of the retorts, trays to slide in upon the said ribs, slabs I′ which close the tops of the retorts; doors A, having ventilating openings O, which close the ends of the retorts, an acid chamber *l*; and pipes *k* communicating with the retorts and the acid chamber, substantially as and for the purpose described.

2. In a furnace of the class herein described, the combination of a fire chamber, a floor of fire brick having flue openings therein above said fire chamber, walls I of fire brick built upon the said floor, alternate flues and retorts between said walls, longitudinal ribs upon the walls of the retorts, trays to slide in upon the said ribs, means for closing the tops and ends of the retorts, pipes *k* for conducting the acid vapor from the retorts, ties *f* across the flues to brace the walls I and a chamber *d* above the flues and communicating therewith to conduct the products of combustion away, substantially as and for the purposes described.

491,085.



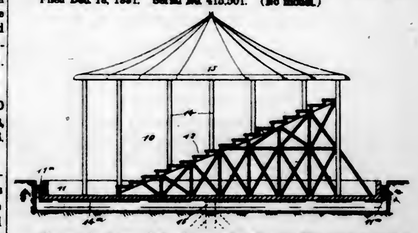
491,086. HARNESS-TOOL. JAMES CUNNINGHAM, Dunbore, Pa. Filed July 2, 1892. Serial No. 438,772. (No model.)



Claim.—1. The combination with the standard, of the detachable and replaceable head formed of shank E adapted to fit to the top of the standard, the horizontal plate F secured to the top of the shank and extending beyond the sides thereof, and the vertical flange G depending from along one edge of the horizontal plate, said horizontal plate and vertical flange being formed for the attachment and detachment of an implement and serving as an anvil when the implement is detached therefrom, substantially as described.

2. The combination with the standard formed with a socket at its upper end, of the head plate formed of the horizontal and depending plates and the shank, and the stitching clamp having its movable jaw secured to the horizontal plate and its rigid jaw secured to the vertical plate, substantially as and for the purposes described.

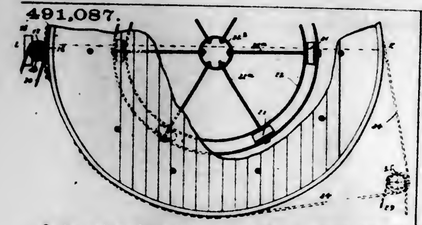
491,087. GRAND STAND. PASCAL P. CUPLIN, West Bend, Iowa. Filed Dec. 18, 1891. Serial No. 415,501. (No model.)



Claim.—1. A grand stand, comprising a basin-like base mounted to revolve on a central post and supporting the usual superstructure, and means engaging the rim of the base to revolve the same, substantially as described.

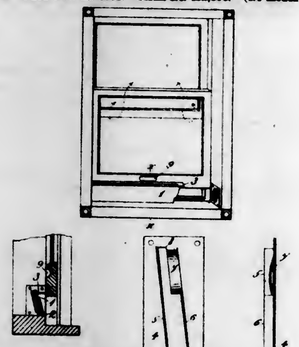
2. A grand stand, comprising a base having an upwardly projecting flange at its rim and supporting the usual superstructure, the said base being mounted to turn on a post, gear teeth on the flange of the base, and a vertical shaft mounted in suitable support adjacent to the flange of the base and provided with a pinion meshing with the teeth thereof, substantially as described.

491,087.



3. A grand-stand comprising a reservoir, a revoluble base held to float in the reservoir, and the usual superstructure carried on the base, substantially as shown and described.

491,088. WINDOW-VENTILATOR. JULIUS DE LOSE, Brooklyn, N. Y. Filed Nov. 28, 1892. Serial No. 453,894. (No model.)



Claim.—1. A window attachment, in which is comprised two slotted cleats, each provided with an outwardly projecting spring tongue, said cleats being secured to the sides of the window frame near the sill; and a sloping plate having a narrow flexible projecting lip at its lower edge, and a wide flexible lip near its upper edge, arranged to bear against the lower rail of a window sash, the whole combined and arranged to operate, substantially as shown and described.

2. In a device of the character herein specified, a plate, having a narrow flexible lip at the bottom edge, and a wide flexible lip projecting horizontally from the face of the plate near its upper edge, in combination with means for removably securing said plate in a slanting position upon a window sill, substantially as shown and described.

3. In a device of the character herein specified, the combination with the removable plate, of a slotted holding cleat provided with a securing spring projecting into the slot, substantially as shown and described.

4. In a device of the character herein specified, a slotted holding cleat, provided with a spring tongue projecting into the slot, substantially as, and for the uses and purposes set forth.

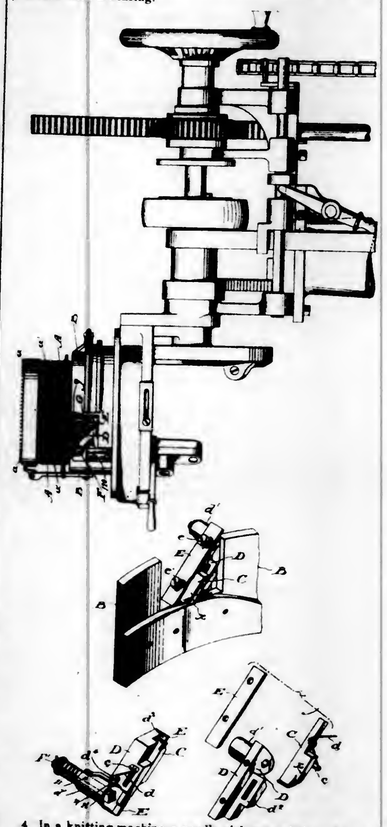
491,089. NEEDLE-PICKING DEVICE FOR CIRCULAR-KNITTING MACHINES. WILLIAM BURNS, Philadelphia, Pa., assignor to Frederick Bentheimer and Victor G. Driesbach. Filed Sept. 9, 1891. Serial No. 405,102. (No model.)

Brief.—The notched end of the cam C engages a needle and (in narrowing) slides therewith up the cam-plate D, the cam being returned to operative position by the spring *d*. The cam-plates of the cams or pickers used in narrowing are pivoted upon the outside of the cam-cylinder. The cams for bringing the needles into action again are carried in cam-plates mounted to slide in and out upon square pins on the cam-cylinder, said cams or pickers sliding down in bringing the needles into action and being returned to the operative position by springs.

Claim.—1. In a circular knitting machine, a needle picker consisting of a cam adapted to engage the needle and a plate in which said cam is adapted to slide.

2. In a circular knitting machine, a needle picker consisting of a cam adapted at the end to engage the needle and be operated thereby, a plate in which said cam is adapted to slide and a spring adapted to be rendered active when said cam slides.

3. In a circular knitting machine, a needle picker consisting of a cam adapted at the end to engage the needle and be operated thereby and a plate in which said cam is adapted to slide, said plate being provided with a bearing.



4. In a knitting machine, a needle picker consisting of a cam as C, a plate as D, to which said cam is connected, said plate being provided with a bearing as *d'*.

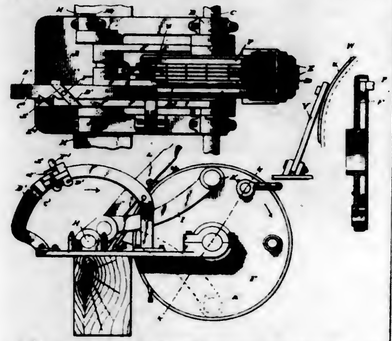
5. In a knitting machine, a needle picker consisting of a cam as C, a plate as D, an orifice in said plate, a pin connected to said cam and passing through said orifice, a spring attached to the plate and bearing on said pin and a guide plate as E connected to said cam plate.

491,090. SETTING DEVICE FOR SAW-MILL CARRIAGES. JAMES H. DOOGE, Eau Claire, Wis. Filed May 12, 1892. Serial No. 432,801. (No model.)

Claim.—1. In a setting device for saw-mill carriages, the combination with a set-shaft, of an operating-wheel provided in its opposite sides with annular grooves, the clutch-levers arranged in proximity to the opposite sides of said wheel and provided with clutch-studs to engage the said grooves, the disks or rotary plates provided with studs to engage slots in the free ends of said clutch-levers, and means to rotate said disks alternately in opposite directions, substantially as specified.

2. In a setting device for saw-mill carriages, the combination with a set-shaft, of an operating-wheel provided with opposite annular grooves, the opposite clutch levers provided with clutch-studs to engage said grooves, the opposite rotary disks provided with studs to engage slots in the free ends of said clutch-levers, and the crank shaft provided with a hand-lever and connected to said disks by oppositely-extending operating-bars, substantially as specified.

3. In a machine of the class described, the combination with a set-shaft, operating-wheel, clutch-mechanisms, and a crank-shaft connected to said clutch-mechanisms, of an operating lever, a notched sector, and a stop A' provided with a tooth D' and a retaining spring to hold the tooth in engagement with the desired notch, substantially as specified.



4. In a setting device for saw-mill carriages, the combination with a set-shaft, of an operating-wheel, the opposite rotary disks, means to operate said disks in opposite directions, the opposite clutch-levers provided at one end with clutch-studs to engage annular grooves in opposite sides of the wheel and connected at their free ends, respectively, to the said disks, and the stop-pins arranged adjustably in the path of that end of each clutch-lever which bears the clutch-stud, whereby the lateral movement of said end of the lever is limited, substantially as specified.

5. In a setting device for saw-mill carriages, the combination with a set-shaft, of an operating-wheel, opposite rotary disks, means to rotate said disks in opposite directions, clutch-levers connected to the disks and provided with clutch-studs to engage annular grooves in opposite sides of said wheel, the movable bands arranged between the disks and the adjacent sides of the wheel, the stop-pins carried by said bands and arranged in the path of the clutch-ends of said levers, and means to adjust said bands to bring opposite stop-pins in contact with the clutch-levers, substantially as specified.

6. In a setting device for saw-mill carriages, the combination with a set-shaft, of an operating-wheel, the opposite rotary disks, means to rotate said disks in opposite directions, movable bands arranged between the opposing surfaces of the disks and the wheel, clutch-levers loosely connected at one end to the disks and provided at the opposite end with clutch-studs to engage annular grooves in opposite sides of the wheel, stop-pins adjustably mounted in said bands, eccentrics rotatably mounted in bearings in the disks, and slide-guides carried by the bands and engaged by said eccentrics, substantially as specified.

491,091. SUPPORTING-LUG. GEORGE H. DRAKE, Omaha, Nebr., assignor, by direct and mesne assignments, of two-thirds to Alfred M. Castle, Chicago, Ill., and William J. Wickes, Saginaw, Mich. Filed Dec. 17, 1891. Serial No. 415,333. (No model.)



Claim.—1. A boiler lug constructed from a sheet or plate of metal so bent as to provide an upright and a horizontal member and marginal ribs or flanges connecting said members, substantially as described.

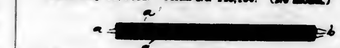
2. A boiler lug constructed from a blank of plate or sheet metal so bent as to provide two members angularly disposed with reference to each other and marginal ribs or flanges connecting said members and widest at the angle and gradually tapering toward and terminating at the extremities of said members, substantially as described.

3. A boiler lug constructed from sheet or plate metal and so bent as to provide two members angularly disposed with reference to each other and side ribs or flanges connecting said members, and one of said members having corrugations in its horizontal portion, substantially as described.

4. A supporting lug formed of metal plate bent to provide a vertical portion and a horizontal portion and said vertical portion having a part extending below the plane of the horizontal portion, substantially as described.

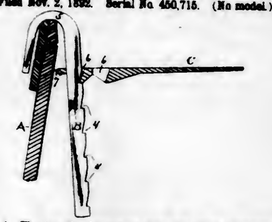
5. A boiler lug constructed from sheet or plate metal bent to provide an upright member adapted to be fitted to the boiler and a horizontal member adapted to rest upon the boiler support, and said lug having an integral strengthening rib or web extending longitudinally of its exterior and connecting the upright and the horizontal members of the lug, substantially as described.

491,092. ARTIFICIAL BOARD. JAMES H. EATON, Utica, N. Y. Filed July 16, 1892. Serial No. 440,189. (No model.)



Claim.—As an article of manufacture, an artificial board composed of several layers, of strawboard or fibrous vegetable material, united together by cementation, two or more of said layers being saturated with a hardening composition, and an unsaturated layer being interposed between said hardened layers, and unsaturated material composing the outer layers, substantially as and for the purpose set forth.

491,093. HANGING SHELF. CHARLES W. EDGERTON, Bristol, Conn. Filed Nov. 2, 1892. Serial No. 450,715. (No model.)



Claim.—1. The herein described hanging shelf consisting of the hanger having a hook at its upper end adapted to hook over the top edge of a receptacle while its body extends down upon the inside thereof and the shelf C adjustably supported upon said hanger, within said receptacle substantially as described and for the purpose specified.

2. The combination of the hanger B having a hook 5 at its upper end and series of holding shoulders 4, below said hook the shelf C having a mortise adapted to engage the shouldered portion of said hanger and provided with holding points 7 upon each side thereof, substantially as described and for the purpose specified.

3. In a hanging shelf consisting of a supporting hanger and shelf adjustably supported thereon, the shelf C having holding points 7 adapted to rest against the inner wall of a receptacle and different mortises at different distances from said holding points, into either of which mortises said hanger may be received, substantially as described and for the purpose specified.

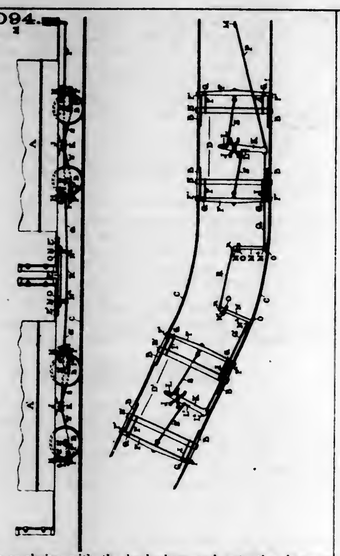
491,094. CAR-BRAKE. MARCUS R. ELLSWORTH, Hudson, Ohio. Filed Oct. 27, 1892. Serial No. 450,131. (No model.)

Claim.—1. In a railway car brake, a shaft having two integral arms, one of said arms terminating in an ear, a lever centrally pivoted beneath a car and provided with openings, in combination with a series of rods or chains, brake-bars and shoes, and an actuating lever or brake-rod, in the manner substantially as and for the purpose set forth.

2. A perforated lever centrally pivoted beneath a car and a series of rods or chains, in combination with an actuating lever or brake-rod, a double-armed shaft attached to said car and a series of brake-bars and shoes, in the manner substantially as and for the purpose set forth.

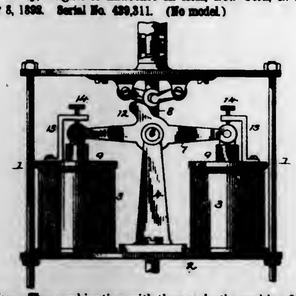
3. The combination, in a railway car brake, of one or more double-armed shafts connected, by a series of rods or chains, with one or more perforated levers, said perforated levers connected, by a se-

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ries of rods or chains, with the brake-bars and actuating lever or brake-rod of one or more cars, in the manner substantially as and for the purpose set forth.

491,095. ELECTRIC-ARC LAMP. WALLACE E. FREEMAN, Long Island City, assignor to Lawrence M. Clous, New York, N. Y. Filed July 5, 1892. Serial No. 439,311. (No model.)



Claim.—The combination with the spools, the rocking frame and the cores, of the clutch levers, embracing the carbon carrying rod, and the cam on the rocking frame, whereby the levers are operated substantially as specified.

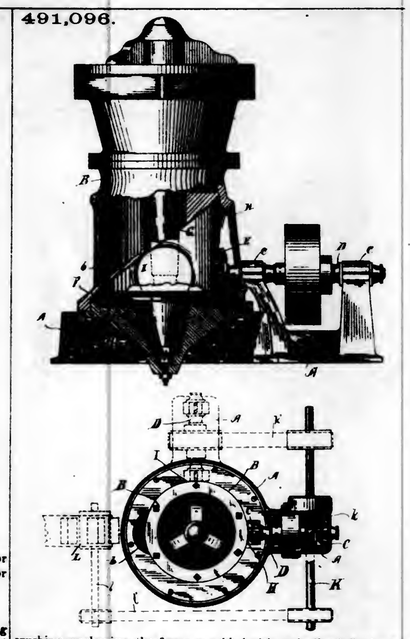
491,096. STONE-BREAKER. ALBERT J. GATES, Chicago, Ill., assignor to the Gates Iron Works, same place. Filed Sept. 22, 1892. Serial No. 446,250. (No model.)

Claim.—1. In stone breakers or crushers, the combination of a lower portion forming the base, driving mechanism firmly secured thereto, an upper portion, containing the crushing mechanism, having openings through which the driving gear is inserted, and secured rotatably to the lower portion, substantially as described.

2. In stone breakers or crushers, the combination of a lower portion forming the base, driving mechanism firmly secured thereto, an upper portion secured rotatably to the lower portion, containing the crushing mechanism, and provided with three openings through which the driving gear is inserted, two of said openings being slightly smaller in diameter than the remaining one, substantially as described.

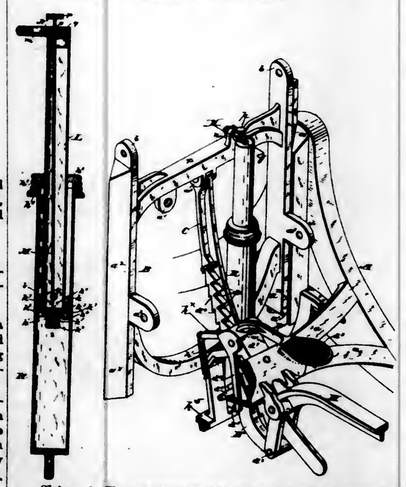
3. In stone breakers or crushers, the combination of a lower portion forming the base, driving mechanism firmly secured thereto, an upper portion secured rotatably to the lower portion, containing the

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crushing mechanism, the frame provided with an inclined diaphragm or discharge chute, an opening in the opposite side of the frame through which the driving gear cam be inserted, and two openings somewhat smaller in diameter at right angles to the same, substantially as described.

491,097. DENTAL CHAIR. AARON P. GOULD, Canton, Ohio. Filed Apr. 16, 1888. Serial No. 270,757. (No model.)



Claim.—1. The combination with the base A, of the frame B, of a rack C having co-operating pawls and levers to raise and secure the chair-body in desired vertical adjustment, a fluid-containing cylinder

mounted on the base A, a hollow piston secured to the body-supporting frame B, said piston adapted for vertical movement in the fluid-containing cylinder, and having at its lower end an outwardly-moving valve L^4, an aperture L^2 and a manually operated valve *l* carried by the piston by which the rapidity of descent of the chair-body may be previously determined by the flow of the fluid from the cylinder through the aperture L^2 into the piston, substantially as set forth.

2. The combination with the base A and frame B adapted to be reciprocated vertically therein of the rack C, co-operating lifting and locking pawls and levers, of a fluid cylinder mounted on said base having a hollow piston of smaller diameter than the annular bore of the cylinder, the upper end of said piston secured to the frame B, the lower end provided with a head *k* perforations L^3, L^2, in said head valves *l* and L^4, for the respective perforations packing L^7 surrounding said head and perforations *r* above the aforesaid perforations through which fluid may pass from the space about the piston to within the piston, substantially as set forth.

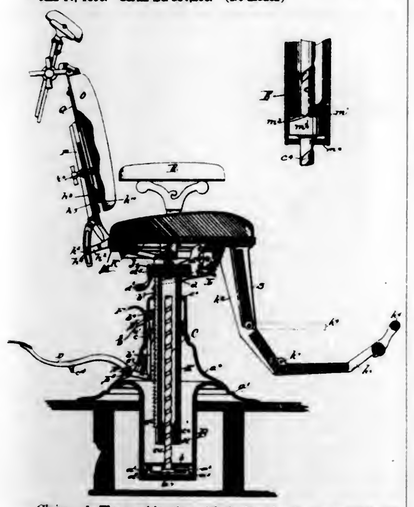
3. In a chair, the combination of the base A, frame B, rack C and co-operating pawls and levers, to raise and secure the chair in desired adjustment, of a fluid cylinder mounted on the base A, and a piston secured to the frame B, said piston provided with a downwardly opening out-let valve and a central opening L^2 by which communication between the piston and cylinder is at all times established, and a stem for regulating the flow of fluid through said opening L^2, whereby the downward movement of the chair may be regulated, substantially as set forth.

4. In a chair, the combination with the base and the conical portion secured thereto provided with oblique grooves in its inner surface and the supporting stem provided with rack teeth, of the spring-actuated foot lever having an upwardly projecting pawl for operating on the rack and provided with trunnions engaging with said oblique grooves, a second foot lever provided with prongs, and the pawl pivoted on such lever and engaged by said prongs to release it from the rack substantially as described.

5. In a chair, the combination with the base, the downwardly extending well or cup, the screw journaled in a step block connected with said well or cup and the supporting stem having a nut at its lower end, with which said screw engages, of the yoke supported by said stem and having a rotary movement in a horizontal plane, a turn table section pivoted to said yoke and a chair body supported in tilting adjustment with said yoke, substantially as described.

6. In a chair, the combination with the base, the annular well or cup formed integral therewith, provided with a step block and the screw journaled in said step block, of the supporting stem, having a cylindrical chamber in its lower end, the rack teeth formed therein and the nut having a screw-threaded aperture located in said chamber and provided with upwardly projecting teeth, adapted to engage with said rack teeth, substantially as described.

491,098. DENTAL CHAIR. AARON P. GOULD, Canton, Ohio. Filed Jan. 17, 1890. Serial No. 337,360. (No model.)



Claim.—1. The combination with the base having a central downwardly extending portion, forming a well or cup, having an annular wall and central step box at its lower end, and the upper portion superimposed upon and secured to said base, of the downwardly extending supporting stem having a nut at its lower end, a screw journaled in said step box and engaging with the said nut, and a friction brake connected with said screw, substantially as described.

2. The combination with the base having a central downwardly extending portion, forming a well or cup, with a step box at its lower end and the upper portion superimposed upon and secured to said base, of the downwardly extending supporting stem, having a nut at its lower end, a screw journaled in said step box and engaging said nut, the cross bar secured to the lower end of said screw, the arms connected with said cross bar and the friction shoes pivoted to said arms, substantially as described.

3. In a chair, the combination with the base, the conical portion secured thereto, and the supporting stem having a series of rack teeth, of the spring-actuated foot lever, the upwardly extending pawl pivoted thereto, for operating on the rack a second foot lever provided with prongs and the pawl pivoted on such lever and engaged by said prongs to release it from the rack, substantially as described.

491,099. DENTAL ENGINE. AARON P. GOULD, Canton, Ohio. Filed May 31, 1892. Serial No. 435,334. (No model.)



Claim.—1. The combination in a dental engine of a vertical support, a head having a swiveled engagement therewith, a curved slotted arm pivoted to said head, an arm support pivoted to said head, independently of the curved slotted arm said arm support provided with an extension, and a sleeve portion, an arm inserted in said sleeve portion, means for retaining the arm in adjusted position therein, and a set-screw carried by said extension and engaged with the curved slotted arm.

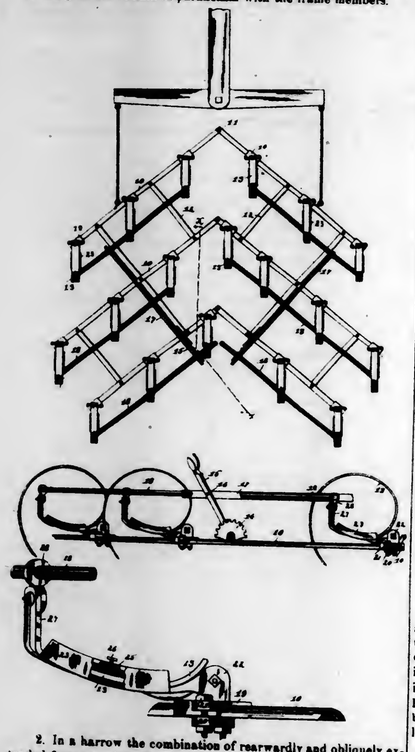
2. The combination in a dental engine of the drive wheel, vertical support, the swiveled head and the shaft support, with two sheaves carried by the shaft support, the hand piece N pivotally secured to the arm J, clamp M adjustable thereon, sheaves *p* and *q* sheaves *w w'* intermediate double sheave H and the belt F.

3. The combination in a dental engine of the hand piece N and tool holder *u* with the adjustable sheave holder M. and cone sheave *v*.

491,100. HARROW. WILLIAM W. GREEN, Chicago, Ill., assignor of one-half to Alice V. Terry, Brookport, Ill. Filed June 24, 1892. Serial No. 437,918. (No model.)

Claim.—1. In a harrow, the combination of rearwardly and obliquely extended frame members, harrow teeth having a pivoted or

hinged connection with said frame members, linking members between the harrow teeth and the manually operating devices for raising and lowering and adjusting the teeth, and a joint connection between the said harrow teeth and the linking members, whereby the latter in describing an arc remain in parallelism with the frame members.



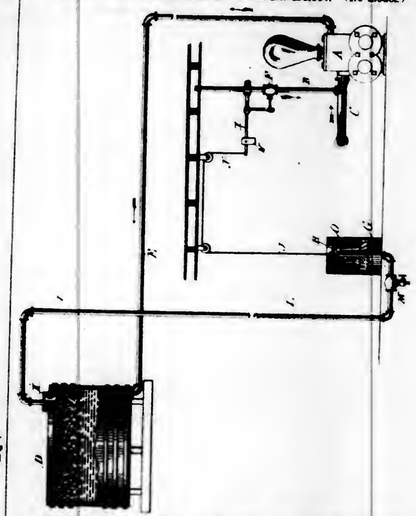
2. In a harrow the combination of rearwardly and obliquely extended frame members, harrow teeth having a pivoted or hinged connection with said frame members, rearwardly and obliquely extended linking members joining the harrow teeth adjustably with manually operated mechanism for raising and lowering and adjusting the teeth, and a joint connecting member between each of the linking members and each of the harrow teeth, said joint connecting members providing means by which the linking members are maintained parallel with the frame members in describing an upward arc in raising and lowering the harrow teeth.

3. In a harrow the combination with rearwardly and obliquely extended frame members, of tooth holding members pivoted or hinged upon the frame members, teeth secured thereon and detachable therefrom, manually operated devices for raising and lowering and adjusting the teeth, linking members secured to and operated by the manually operated devices, and a joint connection between the linking members and the separable teeth holding members.

4. In a harrow the combination with rearwardly and obliquely extended frame members, of teeth-holding members, separable from said teeth, pivoted or hinged on said frame members and extended in the plane of the draft, and which said members have upwardly extended lugs or projections so positioned as to be parallel with the frame members manually operated devices for raising and lowering the harrow teeth, linking members connected to said devices and extended parallel with the frame members, and a jointed, hinged or pivoted connection between the linking members and the said projections of the teeth holding members.

5. In a harrow, the combination of rearwardly and obliquely extending frame members, holding devices pivoted or hinged to the frame members, harrow teeth secured to and carried by said holding devices, upward extensions also secured to the said tooth holding devices, which extensions are positioned angularly and in the plane of the frame members, manually operated devices for raising and lowering the harrow teeth, linking members secured with the manually operated devices and a pivoted, jointed or hinged connection between said upward extensions and the linking members.

491,101. PUMP-REGULATOR. WILFRED S. GRIFFITH, Ambler, assignor of one-half to Charles S. Solomon, Philadelphia, Pa. Filed Nov. 20, 1891. Renewed Nov. 3, 1892. Serial No. 450,807. (No model.)



Claim.—1. The combination of a supply tank, automatic mechanism for filling the same, an open-bottomed air-chamber fixed in the tank so that the rise of the liquid therein will compress the air in the chamber, a secondary tank, an open-bottomed air-vessel suspended in the secondary tank, and air pipe extending from the air-chamber in the supply tank into the secondary tank above the surface of the liquid therein and under the secondary air-chamber, and connections between the secondary air-chamber and the mechanism for controlling the automatic tank-filling mechanism, substantially as described.

2. The combination of a pump, a supply pipe, a supply tank, an air-chamber connected with the latter so as to permit the rising of the liquid therein to compress the air in said air-chamber, a secondary air-chamber, a pipe connection between said air-chambers, and connections between a movable part of the secondary air-chamber and the controlling mechanism of the pump, substantially as described.

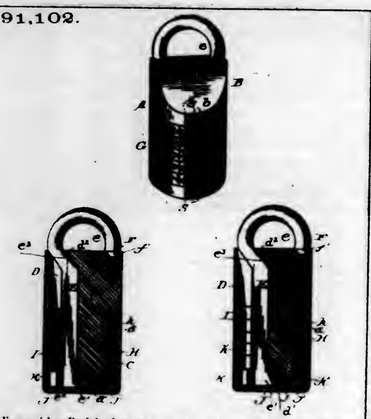
3. The combination of a pump, a supply pipe, a supply tank, an open-bottomed air-chamber arranged in the supply tank so as to permit the rising of the liquid therein to compress the air in the chamber, a secondary tank, a secondary open-bottomed air-chamber suspended, in the secondary tank, an air-pipe extending from the primary air-chamber into the secondary tank under the secondary air-chamber therein, and connections between the secondary air-chamber and the regulating mechanism of the pump, substantially as described.

491,102. PERMUTATION-PADLOCK. JOHN A. HALLDEN, Ishpeming, Mich. Filed Apr. 30, 1892. Serial No. 431,374. (No model.)

Claim.—1. In a permutation lock, the combination with a cylindrical body provided at one side with a longitudinal slot having at his base inclined ways, of an obliquely and longitudinally movable shackle working in said slot and provided with opposing inclined ways, and with an outwardly-projecting lug at its inner end, and a series of collars loosely encircling said cylindrical body and each provided at its interior with a recess: substantially as and for the purpose set forth.

2. In a permutation lock, the combination, with a cylindrical member provided at one side with a longitudinal slot having at its base inclined ways, and a shackle comprising an arm working in said slot and having opposing inclined ways, of a series of collars loosely

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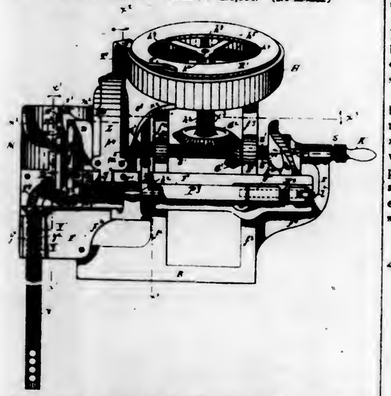


encircling said cylindrical member and each provided at its interior with a recess; substantially as and for the purpose set forth.

3. In a permutation lock, the combination, with a cylindrical member provided at one side with a longitudinal slot having its base downwardly beveled at one end and provided with a beveled shoulder at its opposite end and with an intermediate recess, and a shackle comprising an arm provided at its distal end with a beveled lug, and having its opposite end beveled, of a series of collars loosely encircling said cylindrical member and provided each with an interior recess; substantially as and for the purpose set forth.

4. In a permutation lock, the combination, with the body provided with an under-cut recess, of a shackle working obliquely in said body and having its hook end outturned and adapted to be received by said recess and means for locking the shackle: substantially as and for the purpose set forth.

491,103. MACHINE FOR THREADING BUTTON-FASTENERS INTO THE EYES OF BUTTONS. ALBERT W. HAM, Lansingburg, assignor to the Trojan Button Fastener Company, Incorporated, Troy, N. Y. Filed Mar. 21, 1892. Serial No. 425,691. (No model.)



Claim.—1. In a mechanism for threading fasteners into the eyes of shank-buttons, said mechanism having a circular button hopper that is constructed with a button slot in its bottom near its outer edge, and made with a side passage way through which said slot leads, and provided with a rotating ring having brushes on its under face, substantially as described; of a button-striker operated by a spring on the hopper exterior and a cam on the said rotating ring, to enter and recede from the side passage of the button hopper substantially in the manner as and for the purposes set forth.

2. The combination with the hopper H, made with the side opening O^3, button slot h^3, the rotating ring R', the latter having brushes h^3, and a cam C', of the button striker T, having the leaf-spring f, at one of its ends attached to the hopper exterior and at its other end made with the cam-lip f^6, and a striker f^5 constructed and arranged to operate substantially in the manner as and for the purposes set forth.

3. The combination with a button fastener hopper of a blade having a downwardly inclined upper edge, and provided with a slide-way in the hopper bottom; a plunger connected with the bottom of said blade; and a connecting rod provided with an interior spring by which said connecting rod makes an elastic connection with an operating wheel and said plunger, substantially in the manner as and for the purposes set forth.

4. The combination with the fastener hopper M, made with the cut away part m^2, and having the blade m^3, made with an inclined upper edge, and adapted to be vertically reciprocated within said hopper; of the plate N, arranged to be in vertical alignment with said blade, and having an inclined upper edge; the pivoted detaining plate n^3, provided with a spring n^4, and cam n^5; the arm D, made with the cam d^5, threading finger d^6, and the down-curved fastener passage-way n^7, constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

5. The combination with the button-chute L, made with the button slot g^3, which at its upper end connects with a button hopper and is made with a cover-part g^4, the horizontal slot-part g^5, and the down-curved slot-part g^6; of the curved fastener passage-way n^7, adapted to receive fasteners at its upper end, and at its lower end connect with said horizontal slot-part; the pivoted arm D, made with the threading finger d^6, adapted to be reciprocated within said fastener passage-way; the springs I' and I^3, arranged to face on the said horizontal slot-part; and the plunger P^3, adapted to be reciprocated so as to engage with and move buttons in said horizontal slot-part substantially in the manner as and for the purposes set forth.

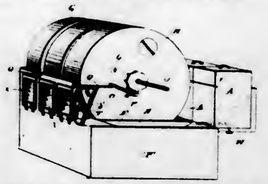
6. The combination with the horizontal slot-part g^5, adapted to receive buttons substantially as described; of the fastener passage-way n^7, which at its lower end terminates in the horizontal slot-part, and adapted to receive fasteners at its upper end, and provided with a threading finger; and the leaf-spring I^3, arranged opposite the connection made between the said fastener passage-way and horizontal slot-part substantially in the manner as and for the purposes set forth.

7. In a machine for threading fasteners into the eyes of shank buttons, the combination of a button chute containing a slot, having a downwardly curved part and a horizontal part; a fastener passage-way having its lower end connecting with said horizontal slot-part, and provided with a fastener threading finger; a button detaining spring at the junction of the horizontal slot-part and fastener passage-way; and a plunger substantially in the manner as and for the purposes set forth.

8. The combination with the horizontal slot-part g^5, of the spring I^3; the fastener passage-way n^7, connecting at its lower end with said horizontal slot-part; the threading finger d^6, arranged to be reciprocated in said fastener passage-way; and the plunger P^3, operated substantially in the manner as and for the purposes set forth.

9. The combination with the horizontal slot-part g^5, having the button detaining spring I^3, of the passage-way n^7, provided with the threading finger d^6, and at its lower end connecting with said horizontal slot-part; the wheel W^3, arranged on the shaft S', and provided with a perimetral cam K^3, having the contracted part k^4; the lever P, pivoted at one end to the machine frame and made with cam-pins P^5 and P^6; and the plunger P^3, pivotally connected to said lever on that end of the latter which is opposite to that where pivoted to the frame substantially in the manner as and for the purposes set forth.

491,104. ICE-CREAM FREEZER. JAMES M. HART, Topeka, Kans. Filed June 18, 1892. Serial No. 437,221. (No model.)



Claim.—1. In an ice cream freezer a refrigerator box having a circular shaped space inside and a series of cream pans in the bottom and a series of cream vessels arranged in one side each vessel having stop cock connection with its separate cream pan in combination with a series of drums mounted on the same axle in the circular space in

the refrigerator having ratchets on the axle adapted to revolve one or more or all of said drums at the same time, a hinged scraper in front of each drum, a handle with cog wheels to turn the axle, and a series of bolts to disengage the ratchets from the drums, all substantially as described.

2. In an ice cream freezer a refrigerator box having a circular shaped space inside and a series of cream pans in the bottom and a series of cream vessels arranged in one side each vessel having stop-cock connection with its separate cream pan in combination with a series of drums mounted on the same axle in the circular space in the refrigerator having ratchets on the axle adapted to revolve one or more or all of said drums at the same time, a hinged scraper in front of each drum, a handle with cog wheels to turn the axle, a series of bolts to disengage the ratchets from the drums, and a spring secured to each drum acting as a dog to prevent reverse motion, all substantially as described.

491,105. BLACKING-BRUSH. THEODORE HASWELL, Denver, Colo., assignor to William S. Haswell, same place. Filed July 5, 1892. Serial No. 438,990. (No model.)



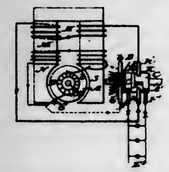
Claim.—1. The combination with a brush of a tubular handle formed from sheet metal and having outer flanges at the meeting edges of the sheet metal piece forming the said handle, and a metal plate having inner flanges to engage with the said outer flanges for purposes of securing the parts together, substantially as set forth.

2. The combination with a tubular handle for brushes having a projection in its side, of a box adapted to be inserted in the open end of said handle and having a corresponding depression to receive the said projection and a cap to close the said handle and box, substantially as specified.

3. The combination with a tubular handle having a stop *h*, of a dauber having a shank to be inserted and work within the said handle, and having a shoulder *g'*, and a spiral spring mounted on the said shank and confined between the said stop *h* and the shoulder *g'* to return the said shank within the tubular handle when released, substantially as described.

4. The herein described dauber having its shank provided with a shoulder *g'*, the tubular handle H to receive the shank of the dauber which is adapted to work therein, and having inner flange *h*, the spiral spring mounted on the shank of the dauber and held between the shoulder *g'* and the flange *h* and adapted to return the said shank within the handle when released, and a sleeve or case constructed to slide on the handle to cover or uncover the dauber, substantially as and for the purpose described.

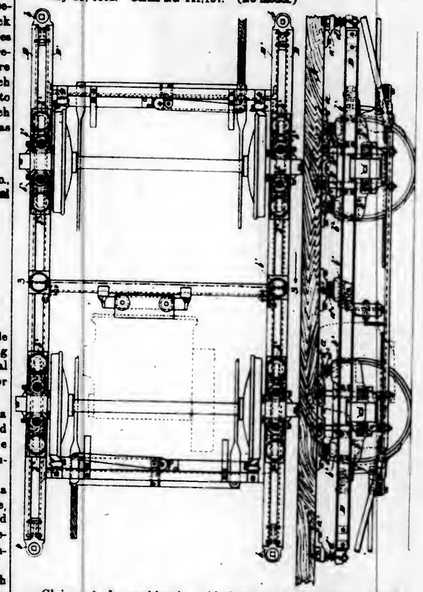
491,106. BIPOLAR ELECTRICAL MACHINE. THOMAS H. HICKS, Detroit, Mich., assignor of one-half to George F. Case, same place. Filed Feb. 8, 1892. Serial No. 420,672. (No model.)



Claim.—1. In a bi-polar electrical machine the combination of an armature symmetrically wound, its conductor B and its brushes, field magnet coils M supplied with continuous currents from said armature, an external working circuit supplied with alternating currents from said armature, the field magnets provided with supplemental windings H in series with the external working circuit, and a second commutator K provided with rings C C' supplying the external working circuit with alternating currents, the bars of said commutator K locally straightening the current through the supplemental windings H of the field magnets, substantially as described.

2. In a bi-polar electrical machine, field magnets wound with two sets of coils, an armature, and an external working circuit, one set of said coils on the field magnets being in series with the external working circuit, said external working circuit supplied with alternating currents and the other set of said coils on the field magnets supplied with currents direct from the armature, both sets of said coils acting mutually to maintain the field of force, substantially as described.

491,107. STREET-CAR. LOUIS J. HIRT, Arlington, Mass. Filed July 26, 1892. Serial No. 441,157. (No model.)



Claim.—1. In combination, side bars arranged in pairs, recessed on their under side to permit vertical play of the axle boxes, pedestals connected to the bars between the bars of each pair about the recessed portions as described.

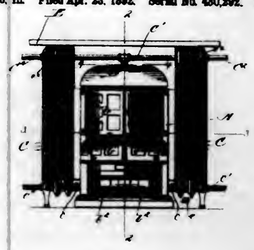
2. In combination side bars arranged in pairs, pedestals embracing the axle boxes and secured between the bars of each pair and spring cups formed on the upper surfaces of the pedestals.

3. In combination, side bars arranged in pairs, pedestals secured between the bars of each pair, spring cups formed on the pedestal castings and other spring cups and their shanks, the shanks projecting between the bars and secured to them as described.

4. The improved truck which comprises the combination of sill plates, side bars parallel with the sill plates, pedestals secured to the side bars, springs interposed between the pedestals and sill plates; other springs supporting the side bars and supports upon the axle boxes upon which the latter springs rest, substantially as described.

5. In combination a coiled spring reduced in diameter at each end; cups in which each end of the spring is seated; headed bolts projecting through the cups with their heads engaging the small ends of the spring and retaining the ends within the cups, substantially as set forth.

491,108. MANTEL HOT-WATER HEATER. TIMOTHY HOLLAND, Chicago, Ill. Filed Apr. 23, 1892. Serial No. 430,292. (No model.)



Claim.—1. In a mantel hot water heater, the combination with an inclosed fire pot, of a concave water back, a hollow water hood over the water back, a down flue in the water back communicating through the hood with the fire pot, an up-flue in the water back communicating with the down-flue at the bottom, nipples connecting the water back and hood, a loop radiator on each side of the water back, connected by nipples with the bottom portion of the water back and by nipples and a pipe with the top of the hood, and a mantel shelf supported on the top of said loop radiators substantially as specified.

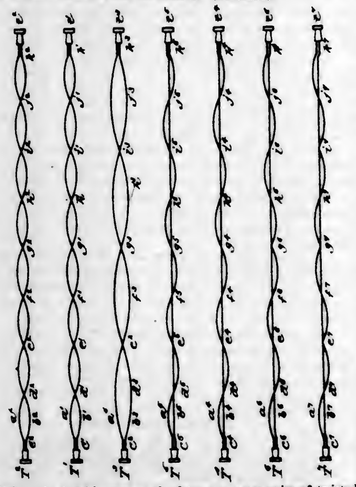
2. In a mantel hot water heater, the combination with an inclosed fire pot provided in front with a door and draft regulator and in the rear with a concave water back, of a water hood over the fire pot and connected by nipples with the water back, a down flue and an up flue in the water back communicating with one another at the bottom and with the fire pot under the hood at the top of the up-flue, a loop radiator on each side of the water back, connected therewith at the bottom and with the hood at the top, for causing a circulation of water through said loops, water back and hood, substantially as specified.

3. In a mantel hot water heater, the combination with an inclosed fire pot, of a water back, a water hood over the fire pot, a loop radiator on each side of the water back, and a mantel shelf surmounting the same, the loops of said radiators being connected with said water back and water hood so as to afford a circulation of water therein, substantially as specified.

4. In a mantel hot water heater, and in combination, an inclosed fire pot, a water hood over said fire pot, flues communicating with said fire pot, and having a meandering course through said water back, a radiator composed of a series of separate vertical loops on each side of said water back, extending above the said hood and surmounted by a mantel shelf, said radiator loops, water back, and hood, being connected so as to afford a circulation through the same, substantially as specified.

5. In a mantel hot water heater of the class described, the water back provided with a fin on each side, a series of separate radiator loops at each side provided with fins adapted to be used in conjunction with one another and the fins on the water back to form air flues behind said loops, and a mantel shelf mounted on said radiator loops and adapted to deflect the heat from said air flues outward from the walls, as specified.

491,109. TELEPHONE-CABLE. SILAS W. HOLMAN, Boston, Mass. Filed Nov. 5, 1892. Serial No. 451,082. (No model.)

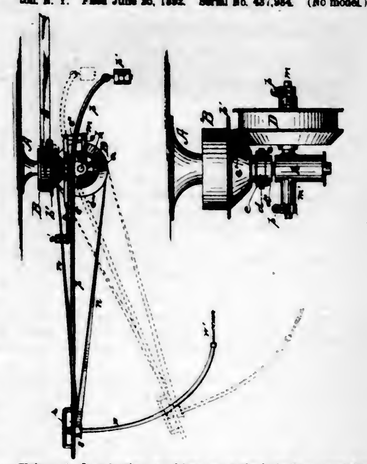


Claim.—1. A cable composed of two or more pairs of twisted electric conductors, each pair having a twist of different pitch from that of any adjacent pair, for the purpose specified.

2. A cable composed of two or more twisted pairs of electric conductors, in a part or all of which pairs the direction of the twist is periodically reversed, and in which such sections of twist in each pair differ in length from those in any adjacent pair.

3. A cable composed of two or more twisted pairs of metallic circuit electric conductors, each pair having a twist of different pitch from any adjacent pair and each pair having the direction of its twist reversed at regular intervals, which intervals in each, differ in length from those in any adjacent pair, for the purpose substantially as described.

491,110. BORING-MACHINE. CLARENCE F. HOTCHKISS, Binghamton, N. Y. Filed June 25, 1892. Serial No. 437,964. (No model.)

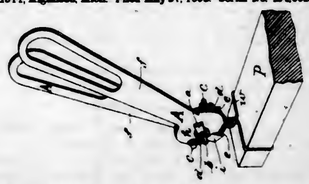


Claim.—1. In a boring machine, a vertical shaft, a cone-faced drive pulley loose thereon, a sleeve loose upon said shaft below said pulley, a second cone-faced pulley loose upon a shaft projecting from said sleeve and in engagement with the other pulley, a counterbalanced frame pivotally connected to said sleeve, a driven pulley mounted in the free end of said frame, and a flexible tool-carrying shaft connected to said driven pulley, and means to drive said pulleys, in combination as set forth.

2. In a boring machine a vertical shaft, a cone-faced drive pulley, loose thereon, a collar loose upon the hub thereof, a collar secured thereto below the loose collar, a sleeve loose upon said shaft below said pulley, a second cone-faced pulley loose upon a shaft projecting from said sleeve and in engagement with the other pulley a weighted lever pivotally connected to said sleeve, a driven pulley mounted in the free end of said frame, and a flexible tool-carrying shaft connected to said driven pulley, and means to drive said pulleys, in combination as set forth.

3. In a boring machine, a vertical shaft, a drive pulley loose thereon and flanged to carry the driving belt, and having a cone face of different material secured to it below said flange, a sleeve loose upon said shaft, a grooved and cone-faced pulley loose upon a horizontal shaft secured to said sleeve, a counterbalanced frame pivotally connected to opposite sides of said sleeve, a driven pulley mounted in the free end of said frame and having a horizontal flange to carry a belt, a flexible tool-carrying shaft connected to and driven by the latter pulley, and means to drive said pulleys, in combination as set forth.

491,111. WIRE STRETCHING AND TWISTING TOOL. ELI T. HOTT, Algansee, Mich. Filed May 27, 1892. Serial No. 434,692. (Model.)



Claim.—A tool for stretching and twisting wires, which consists of two disks having a lug on the outer face of each, a groove under each lug extending along the edge of the disk, said grooves being

oppositely arranged, locking means for holding the wires in engagement with the lugs, means for pivoting the disks together, and operating handles, substantially as set forth.

491,112. AIR-VALVE FOR RADIATORS. ALLEN HUBBARD, Boston, Mass. Filed Feb. 2, 1892. Serial No. 420,633. (No model.)



Claim.—1. In an air valve for radiators, a valve casing having an inlet and an outlet, an adjacent valve seat, and an abutment, combined with a valve normally resting on said valve seat, and an expansion rod between the valve and the abutment, the combined lengths of said rod and valve at ordinary temperatures being less than the distance between the valve seat and the abutment, but substantially equal thereto when the rod is expanded, substantially as described.

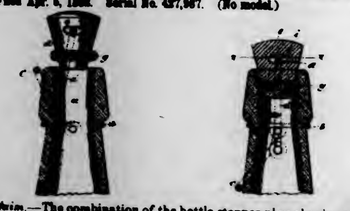
2. In an air valve for radiators, a valve casing having an inlet and an outlet, an adjacent valve-seat, and a fixed abutment, combined with a valve normally resting on said seat and movable therefrom by pressure, and an expansion rod between and bearing against said abutment and valve when expanded by heat, to keep the latter seated, substantially as described.

3. In an air valve, a plug having an inlet passage, and adapted to be tapped into a radiator, a valve seat for said passage, an inclosing case attached at one end to said plug, and provided with an outlet and an abutment at the other end of said casing, combined with a valve normally resting on said seat, and an expansion rod longitudinally movable and interposed between said valve and abutment, the length of said rod at ordinary temperatures being less than the distance between the valve and the abutment, substantially as described.

4. In an air valve for radiators, a valve casing having an inlet and an outlet, an adjacent valve seat therefor, and an abutment, combined with a valve, a spring to normally maintain it against its seat, and an expansion rod between said valve and abutment, to prevent movement of the valve while expanded, substantially as described.—

5. In an air valve for radiators, a valve casing having an inlet and an outlet, a valve seat therefor, and a fixed abutment, combined with a valve, and an expansible rod interposed between the valve and abutment, the rod when expanded preventing movement of the valve, the latter being free to move when the rod is contracted, substantially as described.

491,113. BOTTLE-STOPPER. KARL HUTTER, New York, N. Y. Filed Apr. 6, 1892. Serial No. 427,967. (No model.)



Claim.—The combination of the bottle-stopper-plug *c* having substantially heart-shaped slot *i*, the apex of said slot being lowermost and centered in said plug *c*, with the bail-wire *d* having bent ends d^3 and means substantially as described for connecting said bail-wire to the bottle, the slot *i* being wider than the bend d^3 of the bail-wire is long, as and for the purposes described.

491,114. SASH-BALANCE. FRANK P. JOHNSON, Danville, Pa. Filed July 15, 1892. Serial No. 440,171. (No model.)

Claim.—1. In a sash-balance, the combination of an inner axial member with drums mounted thereon a part of said drums being radially slotted, said axial member being of single form and having said drums at opposite ends thereof, a resilient member controlling the movement of said drums, a winding device for said parts, and a casing surrounding the same, substantially as described.

491,114.



2. In a sash-balance, the combination of an inner axial rod or member with a drum fixed on each end thereof, other drums rotatably mounted thereon, and an independent spring arranged in connection with each of the ends of said balance, substantially as described.

3. In a sash-balance, the combination of an inner axial telescopic rod or member with a drum fixed on each end thereof, other drums rotatably mounted thereon, a part of said drums being radially slotted a coiled spring arranged in connection with each of the ends of said balance, and a winding device in connection with opposite ends of said balance and adapted to engage said radially slotted portions of the drums, substantially as described.

4. In a sash-balance, the combination of an inner axial rod having drums thereon, an outer tubular member, other drums in connection with the ends of the device, individual springs to control the movements of the drums, and winding levers having slotted arms, substantially as and for the purpose set forth.

5. In a sash-balance, the combination of an inner axial telescopic member having drums in connection therewith, other drums at the ends of the device, independent springs at opposite ends of the device, and an outer telescoping tubular casing, substantially as described.

6. In a sash-balance, the combination of an axial rod telescopically fitted in a tubular sleeve having a rod or stub connected to the opposite end thereof, drums connected to said parts, other drums located thereon, springs located at opposite ends of the device and independent of each other, and an outer tubular casing composed of telescopic sections, substantially as described.

7. In a sash-balance, the combination of an inner axial member having drums thereon, other drums on said member, a portion of said drums having projections extending from one side thereof, springs for controlling the movement of said drums, and a winding lever in connection with each end of the device having a finger projecting thereinto adapted to engage said projections of the drums, substantially as described.

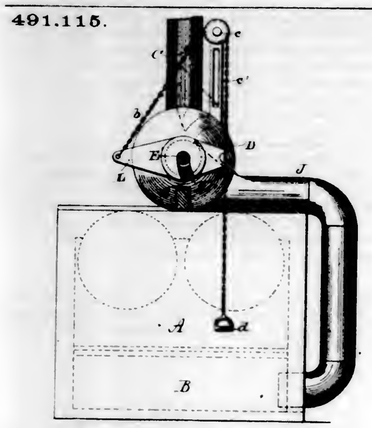
8. In a sash-balance, the combination of an inner axial member having drums on the inner and outer portions thereof, an expansible tube, a wooden bushing in a portion of said drums, springs surrounding said axial member for operating the several parts, and a paper tube within the said expansible tube, substantially as described.

9. In a sash-balance, the combination of an inner axial member, inner and outer drums thereon, sleeves having flanges between said inner and outer drums, springs on said inner axial member, winding levers between the flanges of said sleeves and said outer drums, and leather washers between said levers and said outer drums, substantially as described.

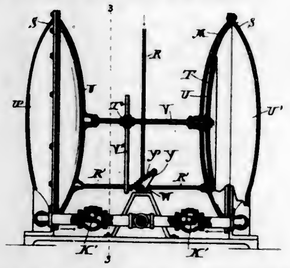
491,115. FURNACE. MILTON W. KERR, Dallas, Tex., assignor of one-third to Louis R. Henkie, same place. Filed Aug. 20, 1892. Serial No. 443,584. (No model.)

Claim.—The combination with a furnace, a smoke stack, and a pipe extending from one to the other, of a chamber formed in the pipe, a rotary fan therein, said chamber having an opening for air formed around the axle of the fan, a valve pivoted at one end at a point adjacent to the axle of the fan and provided with an open slot whereby it straddles the axle, a flexible device for raising the free end of the valve, and said valve adapted to drop by gravity and rest upon the axle when in its extreme depressed position, substantially as set forth.

491,115.



491,116. SYSTEM AND DEVICE FOR ELEVATING WATER BY PNEUMATIC PRESSURE. CHARLES H. KENNEY, Milwaukee, Wis. Filed June 6, 1891. Serial No. 395,363. (No model.)

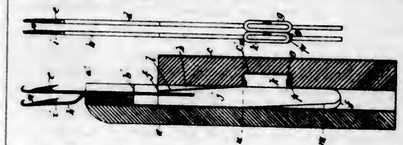


Claim.—1. A device for elevating water, comprising two receptacles located opposite each other, flexible diaphragms therein dividing each receptacle into two compartments, a rod connecting the diaphragms and compelling the equal and concurrent movement thereof, induction and eduction water pipes leading to and from one compartment in each receptacle, said pipes being provided with check valves, induction and exhaust pipes leading to and from the other or air compartments of the receptacles, a four-way valve in the latter pipes arranged to open and close the pipes to a compartment and to the exhaust alternately, a crank arm on the valve, a valve-actuating arm secured to and carried by the diaphragm-connecting rod, and projecting therefrom in such manner as to be carried thereby past the axis of the valve on the side thereof opposite to its crank arm, and a spring connecting the arm to the crank arm on the valve, substantially as described.

2. A device for elevating water, comprising two receptacles located opposite each other, flexible diaphragms therein dividing each receptacle into two compartments, a rod connecting the diaphragms and compelling the equal and concurrent movement thereof, induction and eduction water pipes leading to and from one compartment in each receptacle, said pipes being provided with check valves, induction and exhaust pipes leading to and from the other or air compartments of the receptacles, a four-way valve in the latter pipes arranged to open and close the pipes to a compartment and to the exhaust alternately, a crank arm on the valve, a valve-actuating arm secured to and carried by the diaphragm-connecting rod, and projecting therefrom in such manner as to be carried thereby past the axis of the valve on the side thereof opposite to its crank arm, a block T adjustable on the diaphragm-connecting rod in which the valve-actuating arm is adjustable transversely to the diaphragm-connecting rod and a spring connecting the end of the arm to the crank arm on the valve, substantially as described.

491,117. NEEDLE FOR KNITTING-MACHINES. ROGER KIRKPATRICK, Philadelphia, Pa. Filed May 31, 1890. Renewed Nov. 13, 1891. Again renewed July 6, 1892. Serial No. 439,184. (Model.)

Brief.—The object of the invention is to allow the needle-jack to rock in its groove without springing the needle and to allow uniform stitches to be made.



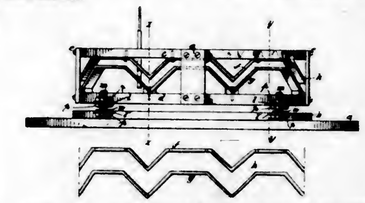
Claim.—1. A bent needle having a jack which is beveled off at its front upper and its diagonally opposite or back lower portion substantially as and for the purposes set forth.

2. A bent needle having a jack which is beveled off at its front upper and its diagonally opposite or back lower portion and provided with a beveled crank *k* substantially as and for the purpose set forth.

3. A bent needle uniform in thickness from its latch to its junction with the jack in combination with the jack which is beveled off at its front upper and diagonally opposite or back lower portion and provided with a beveled crank *k* substantially as and for the purpose set forth.

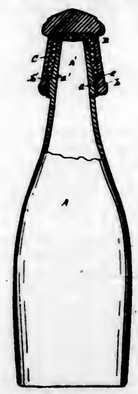
491,118. CAM-CYLINDER FOR KNITTING-MACHINES. ROGER KIRKPATRICK, Philadelphia, Pa. Filed June 5, 1890. Renewed June 15, 1891. Again renewed Dec. 24, 1891. Again renewed July 6, 1892. Serial No. 439,185. (No model.)

Brief.—The object of the invention is to expose the needles throughout the whole of their circuit and to allow the lint to pass down and out.



Claim.—In a rotary knitting machine a cam-cylinder consisting of two plain rings braced together with an intervening space between them, and supporting in said space a skeleton or open cam-race, substantially set forth.

491,119. BOTTLE-STOPPER. JOSEPH LAUROFF, Detroit, Mich. Filed May 26, 1892. Serial No. 434,234. (No model.)



Claim.—1. A bottle stopper consisting of an outer cap interiorly threaded at its lower end, and a lining located within the cap, extending down the interior sides of the cap to embrace the side of the neck

of the bottle, and extending over the upper end of the chamber of said cap to cover the mouth of the bottle, substantially as described.

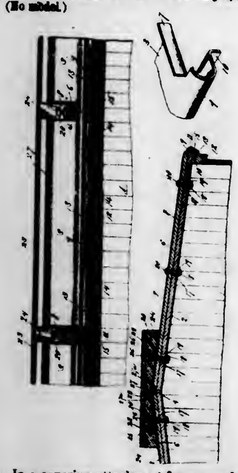
2. A bottle stopper consisting of an outer cap interiorly threaded at its lower end, and an elastic lining located within the cap covering the upper end of the chamber within the cap, to cover the mouth of the bottle, and extending down the interior sides of the cap to the threaded portion thereof, forming a shoulder at the base of the lining, substantially as described.

3. The combination with a bottle having its neck exteriorly threaded below the upper edge thereof and provided with a shoulder above the threaded portion, of a stopper consisting of an outer cap threaded to engage the threaded portion of the neck, and a lining located within the cap to seat upon the upper edge of the neck and upon said shoulder, said lining covering the upper end of the chamber within said cap to cover the mouth of the bottle, substantially as described.

4. The combination with a bottle having a neck tapered at its upper end and threaded below the tapering portion and provided with a shoulder above the threaded portion, of an outer cap threaded at its lower end to engage the threaded portion of the neck, and provided with an interior lining located above the threaded portion of the cap, to seat upon the upper edge of the neck, upon the tapered portion thereof, over the mouth of the bottle, and upon said shoulder, substantially as described.

5. A bottle stopper consisting of an outer cap interiorly threaded at its lower end and formed with a shoulder "*b*" above the threaded portion, and an elastic lining located within the cap extending across the top of the chamber within the cap, and having its adjacent lower edge seated upon said shoulder, substantially as described.

491,120. COVERING ATTACHMENT FOR CAR-ROOFS. ALEXANDER B. MORTIMER, Springfield, Mo. Filed July 8, 1892. Serial No. 439,337. (No model.)



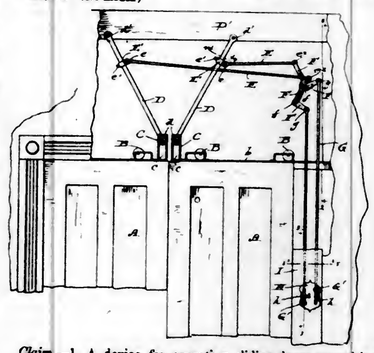
Claim.—1. In a covering attachment for car-roofs, the combination of a number of strips or plates, having at their upper ends and two side margins, upwardly turned flanges, and having their lower ends curved semi-circularly downward and inward, and the extreme end thereof, bent vertically downward, with a bead, to fit against the vertical ends of the strips or plates, and secured to the side of the car, substantially as described.

2. In a car-roofing attachment, the combination of the transverse cleats, and strips or plates, laid upon the roof, between said cleats, and having side marginal flanges fitting against said cleats and a marginal flange at the upper end of each strip or plate, and a cap-piece fitting over each transverse cleat and adjacent side marginal flanges of the roof-covering strips or plates, with a number of strips placed upon the ridge-pole of the roof, and having depending marginal flanges fitting over the flanges at the upper ends of the roof-covering strips or plates, and lateral extensions, fitting upon the upper or inner ends of the caps covering the transverse cleats, substantially as described.

3. In a roof-covering attachment, the combination of a number of transverse cleats extending from opposite sides of the ridge pole, of the car-roof, with a number of strips or plates laid upon the roof between said cleats, and having side marginal flanges extending to the lower ends of the transverse cleats, and side extensions projecting laterally beyond said marginal flanges, the adjacent lateral extensions of each strip or plate, meeting about midway of the width of the transverse cleat, and a cap or casing fitting over the cleat and adjacent marginal flanges of the roof-covering strips or plates, and also over the lateral extensions of said strips or plates, substantially as described.

4. An attachment for covering car-roofs, comprising a number of parallel strips laid transversely upon the roof and a number of covering strips or plates interposed between said strips and bent over the outer edges of the roof, a number of elongated caps or casings inclosing the cleats and extending at their outer ends around the outer edges of the roof, and a bead having a chamfered inner side to receive the covering-plates, and also a recessed upper side to receive the extensions of the caps, substantially as set forth.

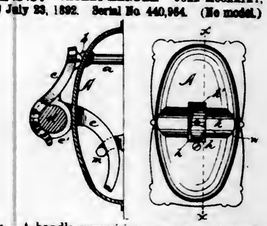
491,121. DEVICE FOR OPERATING SLIDING DOORS. FRANK H. MUELLER, Milwaukee, Wis., assignor, by mesne assignments, of one-third to Julius Oelke, same place. Filed May 11, 1892. Serial No. 432,572. (No model.)



Claim.—1. A device for operating sliding doors comprising a pendulous lever pivotally supported at its upper end, a slotted standard upon the upper edge of the door having an operative engagement with the free end of said lever, a rock shaft carrying two arms, a link pivotally connected with the end of one of said arms at one end and adjustably engaged with said pendulous lever at its other end, and a vertically movable rod provided at its lower end with an operating handle and having operative engagement at its upper end with the other one of said arms, substantially as set forth.

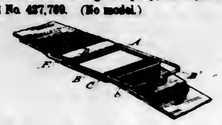
2. The combination with a pair of sliding doors, of a pair of pendulous levers pivotally engaged at their upper ends with timbers above the doorway and provided at their lower ends with suitable anti-friction rollers, a slotted standard upon the upper edge of each of said doors having operative engagement with the roller upon one of said pendulous levers two rock shafts each carrying an arm linked to one of said pendulous levers, two arms secured to each of said rock shafts and vertically movable rods engaged at their upper ends with said arms and arranged to extend downwardly adjacent to the inner surfaces of the wall and provided at their lower ends with angular projections adapted to extend outwardly upon opposite sides of the wall and each provided with an operating handle, substantially as set forth.

491,122. CASKET-HANDLE. JOHN MCCARTHY, Syracuse, N. Y. Filed July 23, 1892. Serial No. 440,964. (No model.)



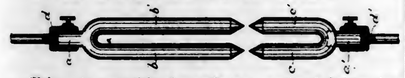
Claim.—A handle comprising a convex casing, a handle bar having an arm hinged thereto, a relief bar slotted longitudinally and connected to the handle bar, and passing through a slotway in the casing, and a headed stop having its shank inserted through the slot in the relief bar and secured to the article upon which the casing is secured and with which the relief bar engages when the handle-bar is extended in combination as set forth.

491,123. BUCKLE. ALBERT R. MCCLURE, Sedalia, Mo., assignor to the McClure Manufacturing Company, same place. Filed Apr. 4, 1892. Serial No. 427,769. (No model.)



Claim.—As an improved article of manufacture, a buckle comprising an under link or ring member, C, and an upper link or ring member, B, having a cross-bar, *b*, and a portion projecting beyond said cross-bar and forming a free lifting end, the said members B and C being pivotally connected so that the cross bar of the outer member B comes adjacent to the outer end of the inner member C and operates in conjunction therewith; substantially as set forth.

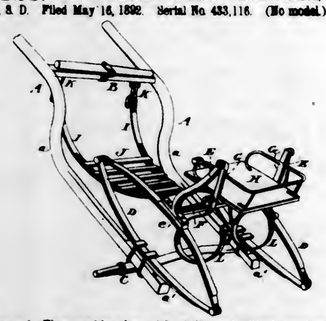
491,124. ARC-LIGHT CARBON. JAMES MCLAUGHLIN, Chicago, Ill. Filed May 5, 1891. Serial No. 391,631. (No model.)



Claim.—As an article of manufacture, an electric light carbon for arc lamps consisting of a plurality of separated members, which members are all integrally joined together at one end, by means of a joining or connecting member, and a socket piece integral with the connecting member whereby said carbon may be interchangeably attached to or detached from different lamps

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491,125. TWO-WHEELED VEHICLE. EUGENE MCPHEE, Lead City, S. D. Filed May 16, 1892. Serial No. 433,116. (No model.)



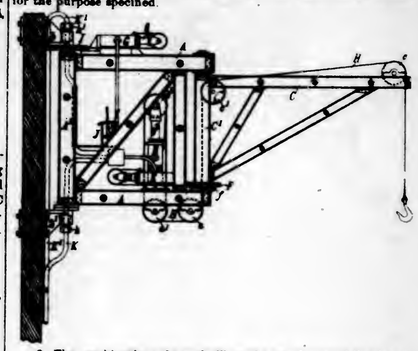
Claim.—1. The combination with thills and elliptic springs, of the T-head uprights E, and the cross-bar F connecting the tops of said springs, the crank-shaft G journaled in the upper ends of said uprights and the seat H arranged as shown on the crank shaft as and for the purpose set forth.

2. The combination with the seat H and thill crossbar B, of the footrest J provided with side-rods I I loosely connected with the bottom of seat and with the said cross bar by a doublejointed bar K as shown and described.

491,126. JIB-CRANE. ERNEST W. HAYLOR, Cleveland, Ohio. Filed Apr. 26, 1892. Serial No. 430,574. (No model.)

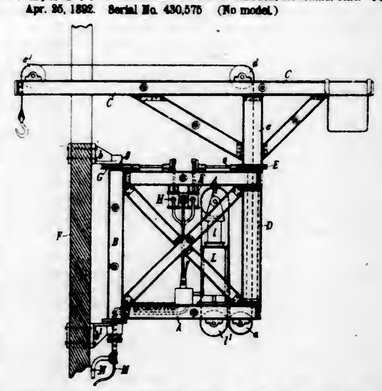
Claim.—1. The combination of a fixed support, a main jib hinged thereto, a supplemental jib hinged to the main jib, two independent motors mounted on the main jib, mechanism connecting one of said motors with the supplemental jib whereby the latter may be swung on its axis, and mechanism connecting the other motor with the fixed support whereby the main jib may be swung on its axis, substantially as and for the purpose specified.

2. The combination of a fixed support, a main jib hinged thereto, a supplemental jib hinged to the main jib, a sheave c fixed to the supplemental jib, a hoisting cable which passes over said sheave, sheaves over which said cable passes to the main jib, three independent motors mounted on the main jib, mechanism connecting one motor with the fixed support, mechanism connecting another motor with the supplemental jib, and cable take up mechanism suitably connected with the third motor, whereby the main jib and the supplemental jib and hoisting cable may be independently operated, substantially as and for the purpose specified.



3. The combination of a main jib, and a supplemental jib hinged thereto, mechanism for turning the main jib on its axis, mechanism for turning the supplemental jib on its axis, independent hydraulic motors for operating said turning mechanisms, with two pipes arranged axially with reference to the main jib, for conveying the hydraulic pressure to and from the main jib, and a nest of valves on the main jib for controlling the movement of the hydraulic columns, substantially as set forth.

491,127. JIB-CRANE. ERNEST W. HAYLOR, Cleveland, Ohio. Filed Apr. 26, 1892. Serial No. 430,575. (No model.)

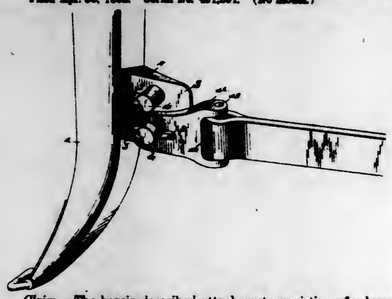


Claim.—1. The combination of a main jib pivoted to suitable supports, and a supplemental jib longer than the main jib lying outside of the main jib, and pivoted to its free end, and independent motors carried on the main jib and adapted to turn said main and supplemental jibs on their respective axes, substantially as set forth.

2. The combination of a pivoted main jib, and a supplemental jib hinged to its free end, with a worm wheel secured axially to the supplemental jib, a worm mounted on the main jib, and a motor for operating said worm, substantially as set forth.

3. The combination of a main jib hinged to suitable supports, a fixed worm wheel placed axially with reference to the mast of said jib, a worm mounted on said jib and a motor for operating said worm, with a supplemental jib hinged to the free end of the main jib, a worm wheel secured axially to said supplemental jib, a worm mounted on the main jib and an independent motor for operating the said worm, substantially as set forth.

491,128. HAME-STAPLE. CHARLES A. NELSON, Ithaca, Mich. Filed Apr. 30, 1892. Serial No. 431,291. (No model.)



Claim.—The herein described attachment, consisting of a hame staple having a series of posts thereon with lugs extending from the upper portions thereof arranged adjacent to each other, and a cock-eye having a single key-hole slot therein as set forth for engagement with the said posts, the said hame staple having obliquely arranged securing legs which are driven into the hame and an inner curved side and an outer beveled or inclined face from which said posts project, substantially as described.

491,129. PENCIL-SHARPENER. ALBERT P. ODELL and NED E. SMITH, Bradford, Pa. Filed Apr. 23, 1892. Serial No. 430,434. (No model.)



Claim.—1. A pencil sharpener comprising a vertically slotted tube, two spiral knives projecting upward in said tube and so arranged in relation to each other as to form spaces between their adjacent cutting edges and a band for securing together the knife sections at their lower ends, substantially as shown and described.

2. A pencil sharpener comprising a cap having openings for the passage of shavings, and two knives with spiral cutting edges, the said knives tapered to a point, and constructed with a space between the adjacent edges thereof, substantially as described.

3. A pencil sharpener comprising a cap having openings for shavings, two knives secured at their lower ends to the inner side of the said cap, a ring at the top of the cap, the knives formed into a point at their upper ends which extend into the said ring, and an opening in the top of the cap opposite the ring, substantially as set forth.

4. A pencil sharpener comprising two knives secured at their lower ends, having spiral cutting edges, the knives formed to a point at their upper ends and to form spaces between the adjacent edges thereof, substantially as specified.

491,130. CASH AND PARCEL CARRIER APPARATUS. EDWARD A. OWEN, East Saginaw, Mich., assignor to the Union Store Service Company, same place. Filed Apr. 14, 1890. Renewed Aug. 12, 1892. Serial No. 442,857. (No model.)

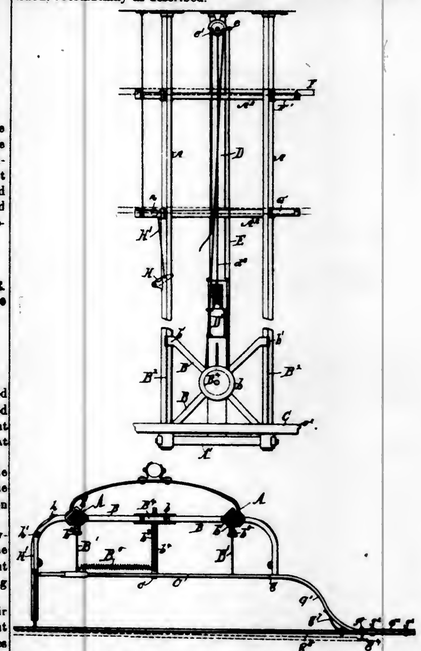
Claim.—1. In a cash or parcel carrier apparatus, the combination, with the elevator frame, of a section of track on which the car rides, said track supported adjacent to its middle by the projection *c* working in the slot *c* of the track, and supported at its ends by the pivoted arms B', substantially as described.

2. In a cash or parcel carrier apparatus, the combination with the elevator frame, of an elevating section of track on which the car rides, said track supported by said frame and movable lengthwise thereon, and the spring B^4 for returning said elevating track to its normal position laterally after it has been moved, substantially as described.

3. In a cash or parcel carrier, the combination with the track G, provided on its ends with the projection *g* and latch *g'*, of the elevating track C supported by the elevating frame, said track C provided on its ends with the projections c^3 and c^4, adapted to engage with the projection *g*, and pivoted latch *g'*, respectively, substantially as described.

4. In a cash or parcel carrier apparatus, the combination with the car track G provided on its ends with the projection *g* and the pivoted latch or pawl *g'*, and the elevating frame, of the elevator track, movably supported by said frame, and having the projections c^3 and c^4 adapted to engage the projection *g* and latch *g'* respectively, and the stop B^3 on said elevator track, the construction being such that as a car rides on the elevator track and strikes the stop B^3, its momentum moves the elevator track until it disengages from its supports *g*, *g'*, and is thus released, substantially a described.

5. In a cash or parcel carrier apparatus, the combination with an inclined track, one or more side tracks extending therefrom, and cars adapted to travel on said tracks, of switch mechanism for switching each car to its respective side track, consisting of the spring impelled switch portion g^4 held in contact with the main portion G by suitable retaining mechanism, and a projection on the car for tripping said retaining mechanism, thereby allowing the spring impelled switch section g^4 to be thrown out and the car conveyed to the side track, substantially as described.



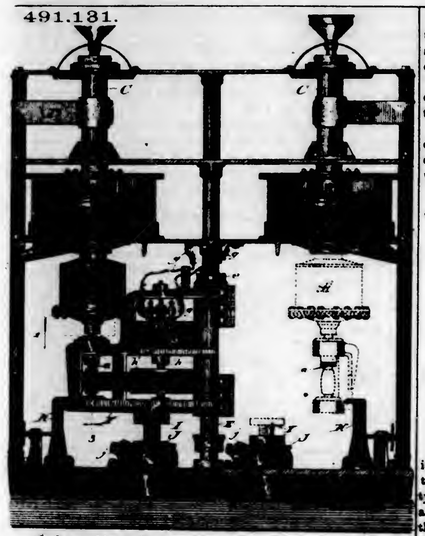
6. In a cash or parcel carrier apparatus, the combination with an inclined track G, one or more side tracks G' extending therefrom, and cars adapted to travel on said tracks, of switch mechanism for conveying each car to its respective side track, consisting of the spring impelled switch portion g^4 held in contact with the main portion G by the plate G^3, beveled catch g^4 and trigger G^2 engaged with said plate G^3, and the adjustable projection on the bed plate of each car adapted to operate its respective trigger, whereby a movement of the trigger releases the spring impelled switch section G^2, and thus conveys the car to the side track, substantially as described.

7. In a cash or parcel carrier apparatus, the combination with the inclined track leading to the station, provided with switch mechanism, substantially as described, and the elevator for raising and lowering the car, of the pivoted latch H located in the path of the elevator and adapted to be operated thereby, said latch connected with said switch mechanism, whereby the lowering of the elevator operates to close the switch, substantially as described.

491,131. MACHINE FOR CENTRIFUGALLY TREATING MOLTEN MATERIALS. ORRIN B. PECK, Chicago, Ill., assignor to Melinda Peck, same place. Filed May 24, 1890. Serial No. 353,070. (No model.)

Claim.—1. In machinery for centrifugally treating molten material, the combination of two or more revoluble vessels in series through which molten material successively passes for treatment, and supports for at least one of the revoluble vessels so constructed that it may be moved out of conjunction with the other without stopping its rotation, substantially as described.

491,131.

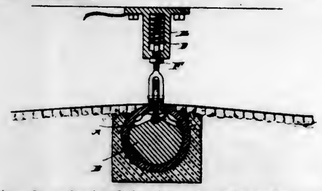


2. In machinery for centrifugally treating molten material, the combination of two or more revoluble vessels in series through which molten material successively passes for treatment, and supports for at least one of the revoluble vessels so constructed that it may be moved out of conjunction with the other without stopping its rotation, and another revoluble vessel into conjunction with which the movable vessel may be brought to form a new series, substantially as described.

3. In machinery for centrifugally treating molten material, the combination of two or more revoluble vessels in series through which molten material successively passes for treatment, and in which at least one of the revoluble vessels is mounted on a swinging arm or frame by which it may be moved out of conjunction with the other without stopping its rotation, substantially as described.

4. In machinery for centrifugally treating molten material, the combination of two or more revoluble vessels in series through which molten material successively passes for treatment, and in which at least one of the revoluble vessels and the means for effecting its rotation are mounted on a swinging arm or frame by which it may be moved out of conjunction with the other without stopping its rotation, substantially as described.

491,132. INCLOSED CONDUCTOR FOR ELECTRIC RAILWAYS. FRANK C. PERKINS, Dunkirk, N. Y. Filed May 27, 1892. Serial No. 434,544. (No model.)



Claim.—1. An insulated electric supply conductor for a traveling contact inclosed in an elastic metallic tube adapted to be depressed by the traveling contact and establish electric connection with the conductor.

2. An insulated electric supply conductor for a traveling contact inclosed in a water-tight metallic tube having an elastic metallic face extending along the line of travel of the contact adapted to be depressed by said contact into electric connection with the conductor.

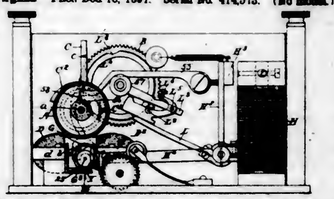
3. An electric conductor for leading current through a traveling contact, said conductor being supported upon an insulator in an elastic metallic tube inclosing the conductor in a watertight envelope the wall of the tube adapted to be depressed to establish electric connection with the contact.

4. An electric conduit comprising a slotted trough, an elastic metallic tube supported therein and a bare conductor mounted upon insulators in said tube, the wall of the tube adapted to be depressed into electrical connection with the conductor by a traveling contact.

5. An electric conductor for leading current through a traveling contact comprising a bare conductor supported upon insulators in a thin metallic tube corrugated to give increased elasticity.

6. An electric conductor for leading current through a traveling contact comprising a bare conductor supported upon insulators in a continuous elastic metallic tube composed of sections connected by watertight joints.

491,133. PRINTING-TELEGRAPH RECEIVER. MAJOR D. PORTER, Brooklyn, N. Y., assignor to the National Ticker Company, of West Virginia. Filed Dec. 10, 1891. Serial No. 414,573. (No model.)



Claim.—1. The combination in a printing telegraph, of a vibrating escapement lever, two type wheels revolving together and controlled thereby, a press lever, a magnet in the line circuit with the type wheel magnet for actuating the same, a shiftable printing mechanism carried by said press lever, and a position controlling stop therefor carried by the escapement lever.

2. In a printing telegraph receiving instrument, the combination substantially as described, of two type wheels mounted to revolve together and having the characters on one arranged opposite the spaces on the other, a polarized receiving magnet having a vibratory lever actuating the escapement for said wheels, a neutral magnet in the same main line, a shiftable printing mechanism carried by the armature lever of said neutral magnet, and a position controlling device engaged thereby and oscillating with the escapement lever.

3. The combination substantially as described, in a printing telegraph, of a vibrating escapement lever, two type wheels revolving together and having the characters on one arranged opposite the spaces on the other, a press lever, a shiftable printing device carried thereby for printing from one wheel at a time, and a shifting stop or abutment therefor vibrating with the escapement lever.

4. The combination substantially as described, of two type wheels, a vibratory escapement therefor carrying the position controlling stop for the press device, a press lever having two pads mounted upon a swinging support, and an arm or arms connected to said swinging pads and adapted to engage with the stop carried by the escapement lever.

5. The combination substantially as described, with a printing telegraph receiver having two type wheels, of a polarized magnet controlling the escapement therefor, a press magnet in the line circuit with said polarized magnet, a shiftable printing mechanism actuated thereby, and a position controlling device therefor carried by the escapement lever of the type wheel.

6. The combination substantially as described, with the press lever, of the two press pads G, G^2, pivoted so as to oscillate in a plane parallel to the type wheels, a stop or stops carried by the escapement levers of said type wheels, and an arm connected to said pads and adapted to engage with the stops when the press lever is actuated to print.

7. The combination, substantially as described, of the shiftable oscillating stop I, a vibratory armature lever operating the same and upon which the stop is mounted, a press lever, a pair of shiftable pads G, G^2, mounted on the press lever and adapted to rock together, and the arms *l*, connected with said pads and adapted to engage with the stop I, as and for the purpose described.

8. The combination in a printing telegraph, of a polarized escapement magnet, a press magnet in circuit therewith and adapted to respond only to an increased current, a shiftable printing mechanism actuated thereby, and a position controlling device carried by the escapement lever of the polarized electro-magnet.

9. The combination in a printing telegraph, of a type wheel, an actuating spring therefor, a ratchet and pawl at one end of said spring, a winding device normally disconnected from the spring, and a press magnet having its armature lever connected to said winding device.

10. The combination in a printing telegraph, of the type wheel, an actuating spring therefor having one end fixed, a winding drum or wheel, an actuating pawl therefor normally disengaged from said

drum or wheel, and a press magnet having a press armature lever connected to said actuating pawl, as and for the purpose described.

11. The combination in a printing telegraph, of a type wheel, a driving wheel therefor, an actuating spring one end of which is fixed, a winding drum to which the other end is attached, a ratchet and pawl connection between said winding drum and the driving wheel, and a winding device normally disengaged from the drum and actuated by an electro-magnet in the main line circuit.

12. In a printing telegraph receiver, the combination substantially as described, of the winding drum and its actuating magnet, an actuating pawl, and a pivoted supporting arm therefor hung upon a lever and provided with an adjustable stop for limiting the movement of said support upon the lever.

13. The combination substantially as described in a printing telegraph, of a winding pawl, a swinging support therefor engaged by the actuating device, and a pivoted arm carrying said support, as and for the purpose described.

14. The combination substantially as described, with the winding drum, of the lever L^2, the arm L^3, pivoted thereon and having an adjustable stop L^7, a pawl carried by the arm L^3, and an actuating arm engaging with the arm L^3.

15. The combination in a printing telegraph, of a type wheel or wheels, a polarized escapement magnet, an actuating spring or weight, a ratchet and pawl connecting the same with said type wheel, a neutral press magnet in the main line, and a rewinding mechanism normally disconnected from the spring and operated by said press magnet.

16. The combination in a printing telegraph, of two type wheels mounted to rotate together, a polarized escapement magnet, an actuating spring or weight for said type wheel, a press magnet, a rewinding device actuated thereby, and a shiftable press mechanism the position of which is controlled by the position of the escapement lever for the type wheel, as and for the purpose described.

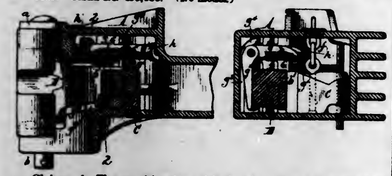
17. The combination, substantially as described, of a pair of type wheels mounted to rotate together, a polarized escapement magnet, a neutral press magnet, a shiftable printing mechanism actuated thereby for printing from one or the other of said wheels at pleasure, an actuating spring or weight for supplying the power constantly tending to rotate the type wheels, and a rewinding mechanism therefor actuated by said neutral press magnet, but normally disconnected from the spring, and a ratchet and pawl at one end of the spring for holding while the said mechanism is disconnected.

18. In a printing telegraph receiver, the combination substantially as described, of a unison stop lever, a driving spring or weight, and a cam or hub connected with said spring and serving to normally hold the unison lever out of position for engagement by the unison stop.

19. The combination substantially as described, in a printing telegraph receiver, of the winding drum or wheel, the unison lever resting on the hub thereof which is cut away at one point, and a stop pin or projection from the type wheel shaft.

20. In a printing telegraph receiver, the combination, substantially as described, of the driving spring or weight, the winding wheel, a ratchet and pawl connection between the same and the type wheel driving wheel, and a unison stop device the movable lever or stop member of which is normally held out of stop or unison position by a cam or hub rotating with the winding wheel.

491,134. CAR-COUPLING. WILLARD F. RICHARDS, Buffalo, assignor to the Gould Coupler Company, New York, N. Y. Filed Dec. 15, 1892. Serial No. 455,095. (No model.)



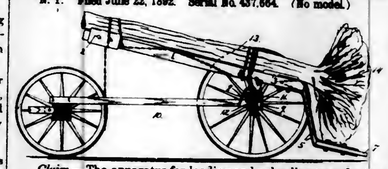
Claim.—1. The combination with the draw head, the coupling jaw, and its lock, of a shifting device for opening the jaw, having an actuating arm, projecting into the path of the lock and a depending shifting finger for throwing the jaw to its open position when unlocked, substantially as set forth.

2. The combination with the draw head, the coupling jaw, having a locking arm and the movable lock, of a rock shaft journaled in the draw head, having an actuating arm arranged in the path of the movable lock and a depending arm which engages against the locking arm and throws the jaw to its open position when unlocked, substantially as set forth.

3. The combination with the draw head and the coupling jaw having a locking arm and the vertically movable lock for holding the jaw in its closed position of a horizontal rock shaft journaled in the draw head and having a horizontal arm arranged above the vertically movable lock and in the path thereof, and a depending shifting finger, arranged on the rear side of the locking arm of the coupling jaw, substantially as set forth.

4. The combination with the draw head and the coupling jaw, having a locking arm, and the lock, of a shifting device having an arm projecting into the path of the lock, and a depending shifting finger engaging against the locking arm of the jaw, and a guard which protects the shifting finger from the blow of the jaw, substantially as set forth.

491,135. TREE-TRANSPLANTER. LEWIS H. ROGERS, Buffalo, N. Y. Filed June 22, 1892. Serial No. 437,664. (No model.)



Claim.—The apparatus for loading and unloading trees for transportation, consisting of the beam 1, with the grooved block 2 and beveled cleats 3, 3, for the reception of the tree trunk, the securing chains 4, 4, the tail-board 7 secured to the beam 1 by the metal strips 5, 5, and 6, 6, and the cross-piece 8 having the depending yokes 9, 9, adapted for engagement with the rear cross piece or axle of the carrying vehicle, all combined and operating substantially as herein shown and described.

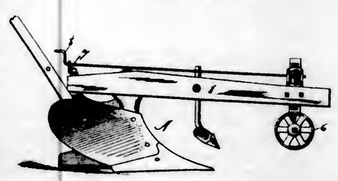
491,136. SPRING FOR MEDICINE-CASES. HARRY M. ROSENBLATT, CLARENCE A. DICKSON, and THOMAS G. OWEN, Chicago, Ill.; said Dickson and Owen assignors to said Rosenblatt. Filed July 19, 1892. Serial No. 440,437. (No model.)



Claim.—1. In medicine cases, the combination of a pad or support provided with slits, and U-shaped springs having their free portions or fingers pass through the slits in the pad or support, substantially as described.

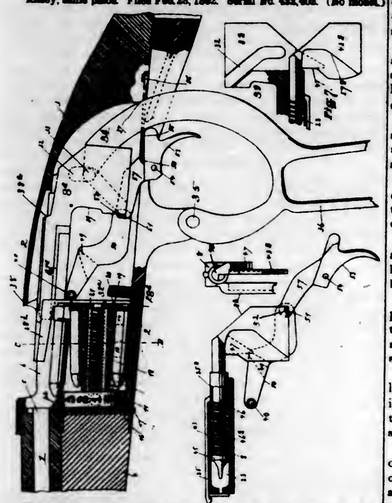
2. In medicine cases, the combination of a pad or support provided with slits, and U-shaped springs having their free portions or fingers pass through the slits in the pad or support to hold them in place and having outwardly flaring ends, substantially as described.

491,137. PLOW. FRANK B. ROWLAND, Collamer, N. Y. Filed Apr. 13, 1892. Serial No. 428,951. (No model.)



Claim.—The combination with the plow beam, of a bracket mounted thereon, the vertically mounted plate having a wheel at its lower end and a shaft mounted upon the beam, having a cog adapted to rotate therewith and engaging with the opening in said plate, one face of said cog being stepped and adapted to engage with the recess in the bracket, and a spring interposed between the opposite face of the cog and the inner face of the bracket, as set forth.

491,138. MAGAZINE-FIREARM. ARTHUR W. SAVAGE, Utica, N. Y., assignor to J. Morris Childs, Richard S. Reynolds, and Edwin H. Risley, same place. Filed Feb. 23, 1892. Serial No. 422,402. (No model.)



Claim.—1. In a gun, the frame, the longitudinally moving bolt, the abutment in the frame in front of which the bolt swings in a sectoral plane in locking and unlocking, and a cam surface on the bolt acting against a fixed abutment in the frame to retire the bolt slightly during its sectoral movement in unlocking, all combined substantially as described.

2. The frame, the bolt having a longitudinal movement therein and swinging to locked position from a center of movement at its front, a cam surface on said bolt, and an abutment in the frame against which the cam surface acts, and a lever connected to the frame and operating on the bolt to swing and retire the same, in combination substantially as described.

3. The bolt having a side wing at its rear end, said wing having an inclined surface, the frame having an abutment against which the rear of the bolt swings in an arc struck from the front of the bolt in locking, and a second abutment against which the inclined surface on the wing of the bolt bears in unlocking, and means for swinging and reciprocating the bolt, all combined substantially as described.

4. The reciprocating bolt, the frame having an abutment against which the rear of the bolt swings in locking, and a second abutment against which the side of the bolt rests at the completion of its swinging movement, and means for operating said bolt, all in combination.

5. The reciprocating bolt, having a bottom extension at its rear, the frame having an abutment at its top against which the rear of the bolt swings in locking and an abutment below the bolt against which the bottom of the bolt extension rests when locked, and the operating lever hung in the frame and connected to the extension of the bolt, all in combination substantially as described.

6. The reciprocating bolt having a rear extension and a cam face in said extension, the firing pin carried by said bolt and also having a rear extension with a cam face of a different inclination, and the operating lever having projections engaging the cams on the firing pin and bolt, to retire the firing pin slightly in advance of the bolt movement, all combined substantially as described.

7. The frame and the reciprocating brush block therein, the lever pivoted to the frame and having a curved arm thereon projecting upward and forward concentric with the lever pivot, the said breech block having a cam surface operatively engaged by said curved arm of the lever, and an abutment in the frame against which said arm rests when the lever is in closed position, all combined substantially as described.

8. The frame and reciprocating bolt therein, the lever pivoted to the frame and having an arm with operative engagement with the reciprocating bolt, and a solid abutment against which the forward portion of the lever arm comes to rest when the bolt is in closed position, in combination substantially as described.

9. The frame and reciprocating bolt therein, the lever pivoted to the frame and having a curved arm concentric with its pivot and extending forward into operative engagement with the bolt, and an abutment in the frame against which the front end of the curved arm bears when the bolt is closed, all combined substantially as described.

10. In a gun, the magazine having curved walls, the cartridge advancing core having a follower or wing connected thereto, a spiral spring connected to a shaft within the core and to the core, said shaft having a head with a series of holes into either of which a retaining device may extend and thus regulate the initial tension of the spring.

11. The magazine having curved wall, the central core and a spring bearing on the same to rotate it, and a rigid wing on said core and inclined transversely to the axis of the gun in all positions of said wing, substantially as described.

12. In a gun, the magazine having curved walls substantially as described, the cartridge advancing core smaller in diameter toward the front than toward the rear, and means for rotating said core, all combined substantially as described.

13. In a gun, the magazine having curved walls, the cartridge advancing core, and the cartridge retainer pivoted in the frame below the center thereof and having a detent for the cartridges, in combination, substantially as described.

14. The magazine having curved wall and a follower, the retainer pivoted below the bolt and having a holder or detent extending over the upper cartridge, and an arm on said retainer above said detent, and in the path of movement of the breech piece, all in combination substantially as described.

15. The magazine having curved wall and spring-actuated follower, the retainer pivoted in the frame and having a detent extending over the rear end only of the cartridge, and a cam face on the retainer in position to be engaged by the breech piece in closing, all substantially as described.

16. In a gun, the magazine with circular wall, the retainer pivoted low in the frame and having a detent extending over the rear of the cartridges below the bolt, and an arm projecting alongside of and nearly parallel with the bolt, the parts in combination substantially as described.

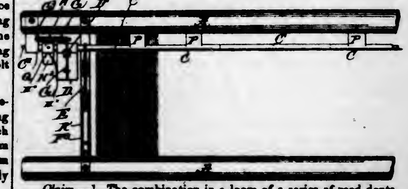
17. The magazine having a cartridge advancer, the movable retainer near the mouth thereof having a detent for the cartridges in the magazine, and an arm in position to be pressed back by a cartridge in the receiver in loading position, whereby the cartridges in the magazine are slightly retired, all combined substantially as described.

18. The combination with the magazine having a follower therein, of the movable retainer having a detent projecting over the rear end of the cartridges, an arm extending about parallel with the bolt, and a spring bearing said retainer toward the bolt, all substantially as described.

19. The frame having the magazine with curved walls and the projecting floor overhanging one side thereof and having recesses therein, and the cartridge advancing core having projections to extend between the cartridges and to move through said recesses, all combined substantially as described.

20. The combination with the magazine and reciprocating bolt, of the movable retainer at the mouth of the magazine and the shell ejector thereon, substantially as described.

491,139. AUTOMATIC WARP STOP-MOTION FOR LOOMS. EDWARD SMITH, Bradford, England, assignor, by mesne assignments, to George Draper & Sons, Hopedale, Mass. Filed Apr. 26, 1892. Serial No. 430,530. (No model.) Patented in England Mar. 26, 1884, No. 5,396; in Germany Jan. 11, 1885, No. 33,369; in France Jan. 26, 1885, No. 166,057, and in Belgium June 23, 1885, No. 69,382.



Claim.—1. The combination in a loom of a series of reed dents, catches for the warp threads entering the spaces between the reed dents, each catch co-operating with two or more warp threads passing through its reed space to detect the breakage of either of the threads in said space without interfering with the shedding of the same, and a stopping mechanism for the loom controlled as to its operation by said catches whereby the loom may be stopped by the breakage of

any one of two or more threads in a reed space, substantially as described.

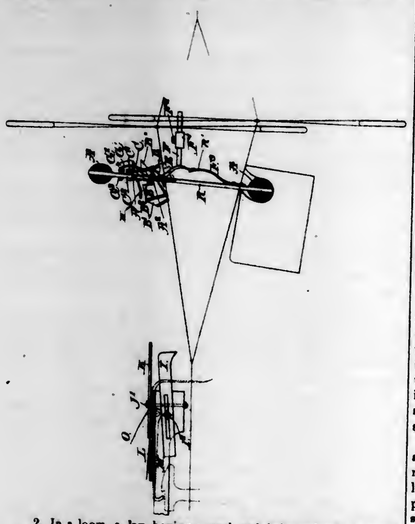
the weft thread and thereby effect the stopping of the loom, substantially as described.

8. In a warp stop motion for looms, a reed, and a series of catches

491,140.

Brief.—The device presses into place the top-flats of a carding machine after they have been stripped, and the result aimed at is to

any one of two or more threads in a reed space, substantially as described.



2. In a loom, a lay having a reed and independently movable catches entering the spaces between the dents of the reed, each adapted to co-operate with two or more warp threads passing through its reed space to detect the breaking of either of said threads, but yet not interfere with the crossing movements of the warp threads in the formation of sheds, combined with a dagger, the position of which is controlled during the forward movement of the lay toward the breast beam, by the position of the said catches, whereby the loom may be stopped by the breakage of any one of two or more threads in a reed space, substantially as described.

3. A loom containing the following instrumentalities, viz;—a series of reed dents between which the warp threads are passed, a series of catches working in the spaces between the reed dents, each of which is adapted to be moved from its normal into its abnormal position by a warp thread provided such warp thread is unbroken; and a stopping mechanism adapted to be actuated by a catch when in its normal position, substantially as described.

4. A loom containing the following instrumentalities, viz;—a lay; a reed carried thereby to receive and guide the warp threads; a shed forming mechanism and a series of catches entering the spaces between the dents of the reed, one catch for each dent space and adapted to be moved by the unbroken warp threads of its dent space as the threads are moved by the shed forming mechanism, substantially as described.

5. In a warp stop motion for looms, a reed, a series of catches entering the spaces between the dents thereof and resting upon and adapted to be moved from their normal into their abnormal positions by the warp threads, provided such threads be unbroken, combined with a feeler automatically moved toward and from the said catches and adapted to contact with any catch remaining in its normal position by reason of the breakage of a warp thread, substantially as described.

6. A loom containing a lay, a series of reed dents, catches arranged between the said reed dents and resting upon and moved from their normal into their abnormal positions by said threads provided the latter are unbroken, combined with a feeler automatically moved toward the said catches and limited in its movement by the position of said catches, and a dagger on the lay adapted to be moved with said feeler, and co-operating mechanism to stop the loom, substantially as described.

7. A warp stop motion for looms containing the following instrumentalities, viz;—a shed forming mechanism, a series of catches adapted to be acted upon and moved from their normal into their abnormal positions by the warp threads as the latter are moved to form a shed provided the threads are unbroken, a carrier for the said catches, a weft fork substantially as described, a stopping mechanism for the loom controlled thereby, and mechanism actuated by a catch remaining unmoved in its normal position to prevent turning of the fork by the weft thread and thereby effect the stopping of the loom, substantially as described.

8. In a warp stop motion for looms, a reed, and a series of catches arranged between the dents thereof and having thickened heads extended laterally at one side of the said reed, substantially as described.

9. A loom containing the following instrumentalities, viz;—a reed, a series of pivoted catches each co-operating with a space therein and adapted to be moved from their normal into their abnormal positions by the warp threads passed through the respective spaces as the threads are opened to form a shed provided said threads are unbroken, and a stopping mechanism for the loom actuated by a catch when in its normal position, substantially as described.

10. A loom containing the following instrumentalities, viz;—a shed forming mechanism; a series of pivoted catches out of contact with the warp threads when the shed is closed and adapted to have their free ends acted directly upon and be moved by the unbroken warp threads of an open shed, a feeler adapted to be moved toward said catches and be stopped in its movement by a catch left in its normal position by reason of a broken warp thread, and a stopping mechanism controlled by said feeler, substantially as described.

11. A loom containing the following instrumentalities, viz;—a series of reed dents; a series of catches adapted to be acted upon and moved from their normal into their abnormal positions by the warp threads if the latter are unbroken; a feeler, a spring to move the same in one direction; an abutment to move the same in an opposite direction, a latch to catch the feeler when moved by the abutment and hold it in its new position, a second abutment to move the latch to release said feeler, and a stopping mechanism for the loom controlled by said feeler, substantially as described.

12. In a warp stop motion for looms, a lay, a series of reed dents; and a series of pivoted catches entering the spaces between the said reed dents, said catches contacting with only those warp threads lifted into the upper plane of the shed, and a stop for the catches to prevent their contact with the warp threads when the shed is closed, substantially as described.

13. In a warp stop motion for looms, the combination with a reed of a series of catches pivoted between the dents thereof and adapted to be acted upon and moved by the warp threads also passed between the said reed dents, and a stopping mechanism for the loom actuated by a catch not properly moved by a warp thread, substantially as described.

14. In a warp stop motion for looms, the combination of the following instrumentalities, viz;—a lay, a series of catches thereon, a segmental feeler C, abutments to cause automatic movement of the same toward and from the said catches, and a stopping mechanism for the loom controlled by the said feeler, substantially as described.

15. In a warp stop motion for looms, the combination of the following instrumentalities, viz;—a series of reed dents, a series of catches, entering the spaces between the same a weft fork, a lever adapted to be moved into position to prevent turning of the weft fork, and mechanism intermediate the catches and lever, to move the said lever, substantially as described.

16. A series of warp stop motion catches, combined with a guard to support all the catches, and a support for the guard, substantially as described.

17. In a warp stop motion for looms the combination with a series of catches adapted to be acted upon and moved by the warp threads, of a supporting device to hold some of the catches in an inoperative position with the remaining catches free to operate, substantially as described.

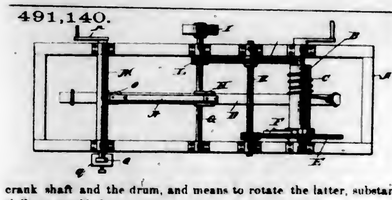
18. In a warp stop motion for looms, the combination with a series of catches adapted to be acted upon and moved by the warp threads, of a rod resting upon all the detectors to cause uniform movement of the same, substantially as described.

19. A loom containing the following instrumentalities, viz:—a shed forming mechanism; a reed; a series of catches working between the dents of the reed, said catches being out of contact with the warp threads when the shed is closed and adapted to be acted upon and moved by the unbroken warp threads of an open shed; a feeler adapted to be moved toward said catches and be stopped in its movement by a catch left in its normal position by reason of a broken warp thread; and a stopping mechanism controlled by said feeler, substantially as described.

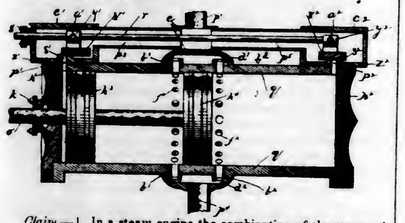
491,140. SPRING-MOTOR. DANIEL H. SMITH, Morrisdale, Pa., assignor of one-fourth to Aaron C. Flegal, same place. Filed June 30, 1892. Serial No. 438,609. (No model.)

Claim.—In a churn motor, the combination of a rock-shaft, M, provided with a loop O and a crank R, a pendulum Q attached to the rock-shaft and provided with an adjustable weight, g, a crank-shaft G carrying a pulley I and provided with a crank H, a pitman connecting said crank to the loop O, a drum C, gearing between the crank shaft and the drum, and means to rotate the latter, substantially as specified.

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491,141. STEAM-ENGINE. GEORGE SMITH, Little Rock, assignor, by direct and mesne assignments, of nine-tenths to Dixie A. Neal, Orrin B. Neal, Afton H. Neal, Stan A. Neal, John L. Booth, A. G. Griffin, T. S. Anderson, J. H. Emison, J. M. Wright, and W. P. Davis, El Paso, and John A. Phelps, White County, Ark. Filed Oct. 3, 1892. Serial No. 447,634. (No model.)

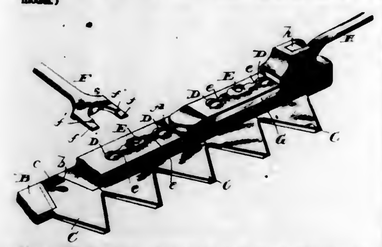


Claim.—1. In a steam engine the combination of the steam admission valves at each end of the cylinder, with the two sets of exhaust ports located centrally in the cylinder and the two pistons which control the exhaust ports.

2. In a steam engine the combination of the two pistons with the cylinder provided with two sets of exhaust ports centrally located in the cylinder and controlled by the pistons, the distance between the ports being such that they are opened to each side of one of the pistons at the end of its stroke, whereby the steam may be exhausted each side of the piston.

3. In a steam engine the combination of the cylinder provided with two sets of exhaust ports located centrally in the cylinder with a sectional conduit attached to the cylinder, which connects the exhaust ports to the main exhaust pipe.

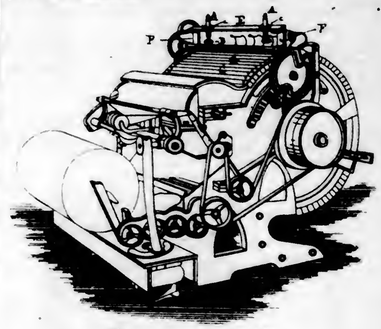
491,142. CUTTER-BAR FOR MOWING-MACHINES. MILTON C. SOOTER, Palace, Mo. Filed June 1, 1892. Serial No. 435,137. (No model.)

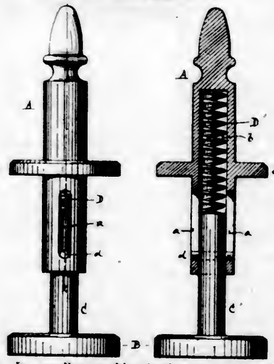


Claim.—The combination with the lower bar having dove-tailed recesses in its upper face, of the knives having shanks fitted to said recesses, the upper bar placed over said recesses and shanks, the screws passed through the upper bar and through the shanks of the knives and into the lower bar and having flaring heads seated in countersinks in the upper bar, and slots in the upper faces of the heads extending length-wise of the bars, and the flat spring locking plate secured at its center to the upper face of the upper bar between the shanks of two adjacent knives and having its ends narrowed and seated in the slots of the heads of two adjacent screws, all substantially as shown and described.

491,148. SPRING-PRESSER FOR CARDING-MACHINES. JEREMIAH D. STARWOOD, Warren, R. I. Filed Nov. 14, 1892. Serial No. 451,572. (No model.)

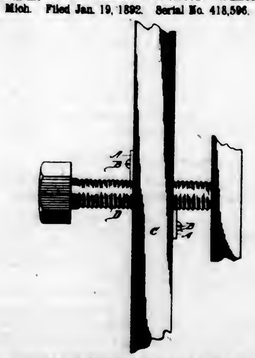
Brief.—The device presses into place the top-flats of a carding machine after they have been stripped, and the result aimed at is to furnish a spring-presser having a central bearing and so constructed that it will force the flats into place without permitting them to tilt to one side or the other.





Claim.—In a carding machine, having an arch-board and top-flats, the combination therewith of the cap-piece A having the longitudinal slots *a*, the tubular socket *b* and the flange *c*, the presser B having the stem C, movable in said socket and provided with the pin *d*, and the spiral spring D, contained in said socket and adapted normally to force the presser outwardly against the top-flats, substantially as specified.

491,144. SCREW-CLEANING DEVICE. WILBUR F. STEVENS, Detroit, Mich. Filed Jan. 19, 1892. Serial No. 418,596. (No model.)



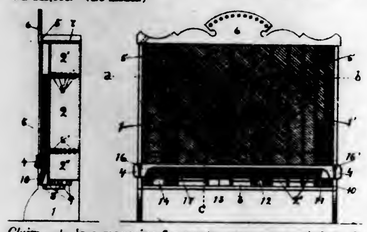
Claim.—1. A screw cleaning device consisting of a cleaning point

supported by the nut or interiorly threaded portion, and running in the thread of the screw in advance of the interiorly threaded portion, substantially as described.

2. The combination of a nut or interiorly threaded portion, and a cleaning point independent of the interior thread, said point adapted to clean the thread of the screw, to facilitate the passage of the said interior thread, substantially as described.

3. A screw cleaning device consisting of an adjustable cleaning point supported by the nut or interiorly threaded portion, and running in the thread of the screw in advance of the interior thread, substantially as described.

491,145. PARCEL-CABINET. HENRY R. TAYLOR, Blair, Nebr., assignor to Palmer & Taylor, same place. Filed Aug. 22, 1892. Serial No. 443,606. (No model.)



Claim.—1. In a magazine for empty cases or parceled goods, a cell opening downward a support a distance below the lower edges of the walls of the cell adapted to retain a column of superimposed cases or parcels within the cell, a drop-slide-door forming a portion of the lower edge of the walls of the cell, its lower edge normally flush with the lower edge of walls and adapted to be slid upward substantially as shown and described.

2. In a magazine for empty cases or parceled goods the combination of a series of compartments opening downward a larger upper portion of the front wall of the compartment transparent and stationary, a smaller lower portion loosely suspended and adapted to slide up, with a bar disposed centrally and a distance beneath the compartments substantially as shown and described.

3. In a magazine for empty cases or parceled goods the combination of two end standards connected at the top by a soffit, and having a front, and a back with horisontal slots, perpendicular partitions supported at the rear edges by screws passed through the slots, a bar extending centrally beneath the partitions from one end standard to the other, the top surface of the bar a distance below the lower edges of back and front substantially as shown and described.

4. In a magazine for empty cases or parceled goods the combination of the standards 1 and 1' the soffit 7 the back consisting of parts 2, 2' and 2" separated to form horisontal slots the partitions 9, 9, attached to the back by the screws 8, 8, passed through the slots the glass front 5 seated in grooves in the standards the bar 3 disposed centrally beneath the partitions, its ends attached to the standards the top surface of the bar lower than the lowest edges of front and back substantially as shown and described.

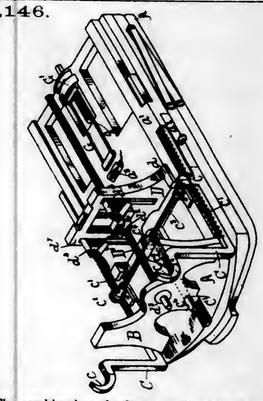
5. In a magazine for empty cases or parceled goods the combination of the standards 1 and 1', the soffit 7 the back 2, 2' and 2" having horisontal slots adapted to receive the screws 8, 8, in the rear edges of the partitions 9, 9, 9 &c. the glass front 5 seated in grooves in the standards, the drop bar 4 having the chamber 17, and loosely suspended on the screws 16 and 16' in perpendicular slots at each end the lower edge of the drop bar 4 hanging normally below the lower edge of the glass and adapted to be raised flush with the same, the bar 3 disposed centrally beneath the partitions, its top surface lower than the lowest edges of the front and back substantially as shown and described.

491,146. WINDOW-JACK. DOUGLAS A. THURSTON, Toronto, Canada. Filed Jan. 2, 1893. Serial No. 416,702. (No model.)

Claim.—1. In a window jack, the combination of a frame, the stationary supports B, the sliding supports C, C, provided with the hooks *c*, screw shaft, worm gear, and rack and pinion for operating said supports C, C, and the sliding support D with the screw shaft for operating it, substantially as described.

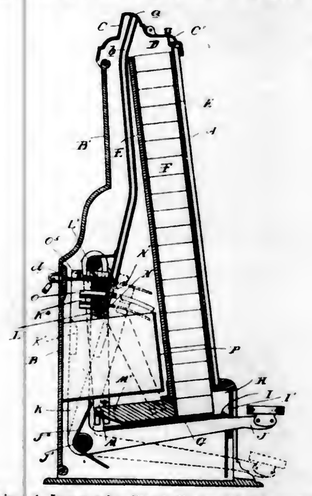
2. In a window jack, the combination of a frame, stationary supports, sliding supports provided with hooks adapted to engage inside of the window seat, means for operating said sliding supports and holding the same in position in engagement with the window, and a movable support with means for operating and holding it in position, substantially as described.

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3. The combination of a frame, stationary supports, sliding supports provided with hooks for engagement with the window seat, a rack and pinion for operating said supports, and means for operating said rack and pinion and holding them in position, and a movable support D with means for operating it and holding it in position, substantially as described.

491,147. MERCHANDISE-SELLER. FREDERICK TOWLE, Detroit, Mich. Filed Apr. 7, 1892. Serial No. 428,214. (No model.)



Claim.—1. In a merchandise vending machine, the combination of a supply chute, an ejecting mechanism, comprising a lever and actuating arm a lock therefor adapted to be unlocked upon the insertion of a coin, and movement of the lever and a yielding lock applied to the ejecting mechanism during its return to prevent the partial actuation, substantially as described.

2. In a merchandise vending machine, the combination of a supply chute, a transverse discharge chute at one end thereof, an ejecting block therein, an actuating mechanism therefor, consisting of a key lever, a yielding arm thereon, a connection between said arm and the block, a lock for the arm, engaging the lever a coin chute having a coin holder at the lower end, and a cam on the arm adapted to bear against the coin to release the lock and formed with a rear locking shoulder, substantially as described.

3. In a merchandise vending machine, the combination of a supply chute, a transverse discharge chute at one end thereof, an ejecting block therein, an actuating mechanism therefor, consisting of a key lever, an arm thereon, a cam on said arm, a lever connected to the block in the path of the cam, a coin operated lock for the arm, engaging the key lever and a normally closed door for the discharge chute opened by the actuation of the key lever, substantially as described.

4. In a merchandise vending machine, the combination with supply chute, a discharge chute and an ejecting mechanism, of the coin chute, a normally locked actuating arm for the ejecting mechanism, carrying a coin shelf adapted to support the coin at the lower end of the chute, means for moving the arm and a cam on the arm adapted to bear against the edge of the coin to release the lock thereof upon the prior movement of the arm, substantially as described.

5. In a merchandise vending machine, the combination with the ejecting mechanism, of a coin chute, a normally locked actuating ejecting arm carrying a coin shelf across the chute to support the coin, a cam on said coin to move the arm laterally to disengage the lock, and an actuating lever for rocking the arm, to move the shelf from beneath the coin, substantially as described.

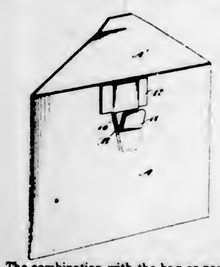
6. In a merchandise vending machine, an actuating arm, a lock therefor, and means for releasing said lock, consisting of a spring extension on the arm, a hook thereon engaging an abutment, and a cam adapted to engage a coin, and move the arm laterally to disengage the hook, substantially as described.

7. In a merchandise vending machine an actuating arm, a lock therefor, a spring extension on said arm, a hook on said extension engaging an abutment, a cam adapted to engage a coin to move the arm laterally to disengage the hook, means for discharging the coin at the end of the movement of the arm, and a notched plate with which said hook engages in its return acting as a lock to prevent partial operation, substantially as described.

8. In a merchandise vending machine, the actuating mechanism comprising the key and the arm K, the cam controlled lock therefor, the coin chute, the plate N at the end of the chute, the cam O, and the cut off *d*, substantially as described.

9. In a merchandise vending machine, the combination of the actuating mechanism comprising a rocking arm, the spring extension K^3, the cam O thereon adapted to bear against the coin, the hook O^2, abutment O^3, with which said hook normally engages, and the shoulder c on the cam, adapted to be moved in front of the coin at the end of its movement, substantially as described.

491,148. BAG OR POUCH. FREDERICK M. TURCK, New York, N. Y. Filed Mar. 21, 1892. Serial No. 426,752. (No model.)



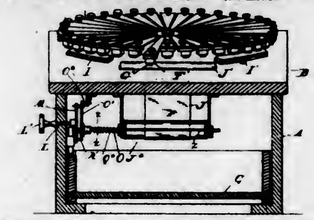
Claim.—1. The combination with the bag or pouch A, having a flap A', of the flat flexible strip 10 secured at its inner face to the outer face of the back of the bag or pouch at its mouth and with its lower end free or disconnected from the bag or pouch to be folded upon itself with the free end of the flap, substantially as set forth.

2. The combination with the bag or pouch A, having a flap A', of the flat flexible strip 10 secured at its inner face to the outer face of the back of the bag or pouch at its mouth with its lower end free or disconnected from the bag or pouch to be folded upon itself with the free end of the flap and a transverse keeper on the outer face of the strip near its lower end to receive the said flap, substantially as set forth.

491,149. HEEL-PLATE. HENRY R. VAN BERGHOUTEN, Hudson, N. Y. Filed Feb. 17, 1892. Serial No. 421,868. (No model.)

Claim.—A heel protector, consisting of a plate and an integrally extending securing prong, the under side of said plate having at its extreme inner and outer edges each a biting lip, on its upper side, a flat portion from *a* to *b*, an inclined inner edge, and a vertical outer edge, carved to conform to the curvature of the heel, substantially as set forth.

491,150. CASH-RECORDER. ANDREW J. WALTERS, Adrian, Mich. Filed Mar. 25, 1892. Serial No. 426,412. (No model.)



Claim.—1. In a cash recorder, the combination of a fixed rotary type wheel, a series of radially arranged spring type bars thereon, an inking pad, a paper strip upon which said type are adapted to be pressed, a guide rail extending beneath said type bars except at the strip, and a series of vertical guides for the type bars, arranged at points near the edge and center of the strip for dividing the strip into columns, substantially as described.

2. In a cash recorder the combination with a casing and a hinged top, of printing mechanism on the top, paper supporting rolls supported on the underside of the top, an actuating shaft independent of the top extending to the outside of the casing, a detachable connection between the shaft and one of the rolls and a pawl actuated by the movement of the shaft to actuate the roll, substantially as described.

3. In a cash recorder, the combination of the printing type bars, a paper strip, secured at one end to a supply roll, an intermediate printing roll and a feed roll, of an actuating mechanism therefor comprising an actuating shaft, a disk thereon having projecting pins, and a spring actuated oscillating arm controlling a ratchet and pawl connection to the feed roll, substantially as described.

4. In a cash recorder, the combination with the paper strip, the feed roll, the shaft L, disk M secured thereto the pins N thereon, the feed roll, the shaft thereof eccentrically arranged in relation to the disk, the spring actuated oscillating arm O journaled on said shaft, the spring pawl thereon, and the ratchet wheel on the shaft with which the pawl engages, substantially as described.

5. In a cash recorder, the combination with a printing mechanism, of a series of feed rolls, an actuating shaft for one of the rolls, extending to the outside of the casing a pawl actuated by the shaft for rotating the roll and a slidable connection intermediate the pawl and roll, substantially as described.

6. In a cash recorder, the combination with the paper strip and its feed roll, an actuating mechanism therefor comprising a rotary disk having pins thereon, a cash drawer, a locking bolt therefor and a head on said bolt adapted to be struck by one of said pins in the rotation of the disk, substantially as described.

7. In a cash recorder, the combination of the casing, a cover hinged thereto carrying printing mechanism and paper supporting and feed mechanism, of an actuating mechanism for said feed mechanism in the frame, and a detachable connection in said mechanism, substantially as described.

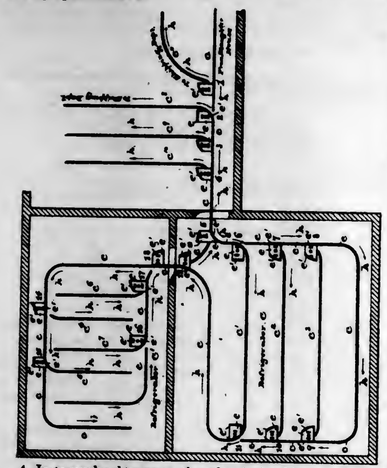
491,151. OVERHEAD TRAMWAY. PAUL F. WEBSER, Vallsburg, N. J., assignor to J. Duncan & Co., Boston, Mass. Filed Oct. 8, 1892. Serial No. 448,187. (No model.)

Claim.—1. In an overhead tramway, the combination of rail-sections, a connecting piece, and a pivoted switch board or turn table on said connecting piece, provided with two or more rail sections, substantially as and for the purposes set forth.

2. In an overhead tramway, the combination of rail sections, a connecting piece, a locking post thereon, and a pivoted switch board or turn table on said connecting piece, provided with two or more rail sections and two or more holes or openings adapted to be made to engage with the locking post, substantially as and for the purposes set forth.

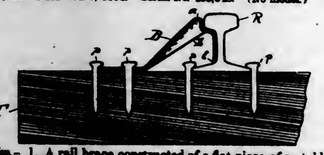
3. In an overhead tramway, the safety device *d*, having a locking post thereon, and a switch board or turn-table pivotally arranged on said safety device *d*, rail sections thereon, openings adapted to be made to engage with said locking post, and means for causing the disengage-

ment of said step-post with said switch-board or turn-table, whereby the switch board or turn-table may be turned, substantially as and for the purposes set forth.



4. In an overhead tramway, the safety device *d*, having a locking post thereon, and a switch board or turn-table pivotally arranged on said safety device *d*, rail sections thereon, openings adapted to be made to engage with said locking post, and means for causing the disengagement of said locking-post with said switch board or turn table whereby the switch board or turn table may be turned, consisting essentially of a rod *f* turning in said safety device and secured to said switch board, and a handle connected with said rod for turning the same, substantially as and for the purposes set forth.

491,152. RAILWAY-RAIL BRACE. WILLIAM R. WILLIAMS, Chicago, Ill. Filed Oct. 7, 1891. Serial No. 408,048. (No model.)



Claim.—1. A rail brace constructed of a flat piece of metal having a raised portion which is adapted to rest against the side of the rail head, and a strengthening rib extending along the brace between its ends at either side of the center, substantially as described.

2. A railway rail brace constructed substantially out of a plate or bar with a bearing on the tie thence bent upward and forward to a bearing against the rail head and thence bent downward with the ends resting on the base of the rail said upward and forward bent portion between the tie and the rail head compressed laterally to add stiffness and to permit the spikes to be driven into the tie against the base of the rail adjacent to and underneath said brace substantially as shown and described.

3. A railway rail brace made out of a plate or bar with a bearing on the tie thence bent forward and upward to a bearing against the rail head with a shoulder forming part of said bearing made by swaging up the central portion of said bar and the forward end of said bar bent downward resting on the base of the rail substantially as shown and described.

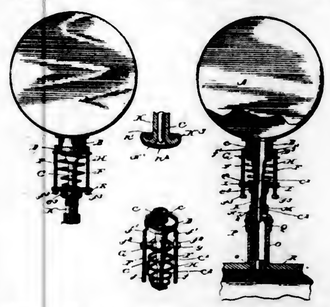
4. A railway rail brace made from a plate or bar with a bearing on the tie thence curved or bent upward and forward to a bearing against the rail head with a shoulder formed by swaging the bar and with the said upward extension between the tie and rail head stiffened by swaging upward a portion of the bar and with an extension of the bar bent downward resting on the base of the rail substantially as shown and described.

5. A railway rail brace constructed substantially with a bearing on the tie thence bent upward to a bearing against the rail head and with an extension bent downward resting on the base of the rail said brace being formed of a plate or bar said plate or bar cut so that the points at one end of the piece overlap the end of the other piece thereby effecting a saving of material substantially as shown and described.

6. A rail brace constructed of a piece of flat metal and having a central raised portion and a crown, and a supplemental strengthening rib along the brace between its ends and having its end bent down beneath the crown, to rest against the flange of the rail, substantially as described.

7. A railway rail brace formed from a blank substantially as described, with a shank and shoulder bearing against the rail head struck up from the body of said blank and the forward end of said blank bent downward transversely of its length forming the rest on the base of the supported rail as and for the purpose described.

491,153. LUBRICATOR. ERA E. WITTER, Milford Centre, Ohio. Filed Mar. 24, 1891. Renewed June 30, 1892. Serial No. 438,637. (Model.)



Claim.—1. The combination in a lubricator, of a suitable oil receptacle, a perforated flexible cap or thimble fitting over the mouth of said receptacle, and provided with an annular flange or thickened portion around said perforation in the thimble for strengthening it around said perforation, substantially as and for the purpose set forth.

2. The combination of an oil can, and its nozzle, with a suitable perforated valve-carrying device supported on said nozzle, and a perforated flexible disk or valve carried by said device, the perforation in said disk being normally closed to guard the exit opening of the nozzle, and the nozzle being adapted to slide through said device for opening the valve, substantially as set forth.

3. The combination of an oil can, and its nozzle, with a suitable perforated valve-carrying device confined on the nozzle, a perforated flexible disk or valve carried by said device, and a spiral spring confined between the base of the nozzle and said valve-carrying device for holding it normally at the outer end of the nozzle, the perforation of said disk or valve being normally closed, and the nozzle being adapted to slide through said device for opening the valve, substantially as herein set forth.

4. The combination of an oil can, and its nozzle, with a perforated valve-carrying device, a flexible disk or valve having a normally closed outlet and carried by said device, guide rods supported from the nozzle and passed through suitable perforations in the valve carrying device, and a spiral spring confined between the base of said nozzle and said device, substantially as set forth.

5. The combination of an oil can, and its nozzle, with the plate E having an opening *e* through its center and perforations *e'*, *e'*, to the side of the central opening, a perforated flexible disk carried by said plate, guide rods F secured to the base of the nozzle and passing through the perforations *e' e'*, the yoke G for bracing the rods, the spiral spring H surrounding the nozzle and confined between the base thereof and the plate E, and means for confining the plate E on the guide rods and nozzle, substantially as set forth.

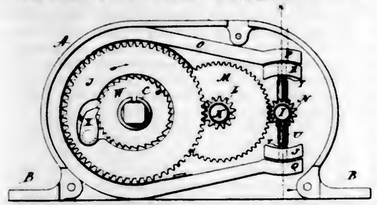
6. The combination of an oil can and its nozzle, a sleeve mounted upon said nozzle, perforated flexible disks secured to the opposite ends of said sleeve and also mounted on said nozzle, and means for confining said sleeve on the nozzle, whereby the nozzle can slide through said sleeve and perforated disks, substantially as set forth.

7. The combination of an oil can, and its nozzle, a sleeve mounted upon said nozzle, perforated flexible disks secured to the opposite ends of said sleeve and fitting snugly around the nozzle, a spiral spring between the base of the nozzle and said sleeve for keeping it normally out at the end of the nozzle, and means for confining said sleeve on the nozzle, substantially as set forth.

8. The combination of an oil can, the sleeve carrying the perforated flexible disks, the nozzle C having two contracted tubular portions *c'*, and *c²*, around which the flexible disks are respectively snugly fitted, and means for confining the sleeve on the nozzle, substantially as set forth.

9. The combination of an oil can, and its nozzle, the plate E supported on the nozzle, the sleeve K, the perforated flexible disks L and N, a spiral spring confined between the plate E and the base of the nozzle, guide rods supported from the base of the nozzle and passing through suitable perforations in the plate E, and means for confining the plate E, upon the nozzle and guide rods, substantially as set forth.

491,154. DOOR SPRING AND CHECK. GRANVILLE W. WRIGHT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Feb. 23, 1892. Serial No. 422,473. (No model.)

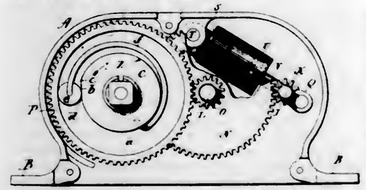


Claim.—1. A door-check consisting of a magnet, a revolving shaft carrying the armature of the magnet, a principal shaft, with connection therefrom to the door, and so that a corresponding rotative movement is imparted to said principal shaft by the opening and closing movement of the door, gearing between said principal shaft and the armature, whereby the rotative movement of the said principal shaft will communicate a rapid revolution to the armature, substantially as described.

2. A door-check consisting of a principal shaft with connection therefrom to the door, and so that a corresponding rotative movement is imparted to the said principal shaft by the opening and closing movement of the door, a stationary magnet, a second shaft carrying an armature adapted to revolve therewith and arranged between the poles of the magnet, a train of gearing between said principal shaft and the armature-shaft, whereby the rotative movement imparted to said principal shaft will communicate rapid revolution to the armature shaft, and mechanism substantially such as described for disengaging said principal shaft from the gearing in the opening movement and engaging it in the closing movement of the door, substantially as described.

3. The combination of a case or frame adapted for attachment to the lintel of a door, a vertical principal shaft in said frame, a volute spring around said shaft, the inner end of the spring secured to the shaft and the outer end of the spring secured to the case, a lever extending from said principal shaft and adapted to receive a swinging movement by the opening and closing of the door, and impart a corresponding rotative movement to said principal shaft, a crank-shaft parallel with the principal shaft, a train of gearing between the said principal shaft and the crank-shaft, a cylinder hung in said frame, a piston in said cylinder, its rod hung to said crank, and mechanism substantially such as described to engage the said principal shaft with the gearing in the closing movement of the door, but produce disengagement in the opening movement of the door, substantially as described.

491,155. DOOR-CHECK. GRANVILLE W. WRIGHT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Feb. 23, 1892. Serial No. 422,474. (No model.)

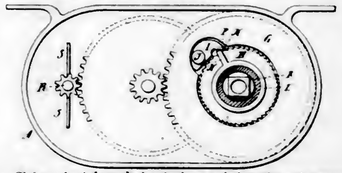


Claim.—1. A door-check consisting of a cylinder hung so as to oscillate in a plane parallel with its axis, a piston within the cylinder, the cylinder and piston adapted for the admission to and escape of air from the cylinder under the movement of the piston, a crank-shaft with which the said piston is connected, and through which it receives reciprocating movement, a principal shaft with connection therefrom to the door, and so that a corresponding rotative movement is imparted to said principal shaft by the opening and closing movements of the door, gearing between said principal shaft and crank-shaft, whereby the movement of the said principal shaft communicates a rapid revolution to said crank-shaft and corresponding reciprocating movement to said piston in the cylinder, substantially as described.

2. A door-check consisting of a cylinder hung so as to oscillate in a plane parallel with its axis, a piston within the cylinder, the cylinder and piston adapted for the admission to and escape of air from the cylinder under the movement of the piston, a crank-shaft with which the said piston is connected and through which it receives reciprocating movement a principal shaft with connection therefrom to the door, and so that a corresponding rotative movement is imparted to said principal shaft by the opening and closing movement of the door, gearing between said principal shaft and crank shaft, whereby the movement of the principal shaft may communicate a rapid rotative movement to said crank-shaft and corresponding reciprocating movement to said piston in the cylinder, and mechanism substantially such as described for disengaging the said principal shaft from the gearing in the opening movement and engaging it in the closing movement of the door, substantially as described.

3. The combination of a case or frame adapted for attachment to the lintel of a door, a vertical principal shaft in said frame, a volute spring around said shaft, the inner end of the spring secured to the shaft and the outer end of the spring secured to the case, a lever extending from said principal shaft and adapted to receive a swinging movement by the opening and closing of the door, and impart a corresponding rotative movement to said principal shaft, a crank-shaft parallel with the principal shaft, a train of gearing between the said principal shaft and the crank-shaft, a cylinder hung in said frame, a piston in said cylinder, its rod hung to said crank, and mechanism substantially such as described to engage the said principal shaft with the gearing in the closing movement of the door, but produce disengagement in the opening movement of the door, substantially as described.

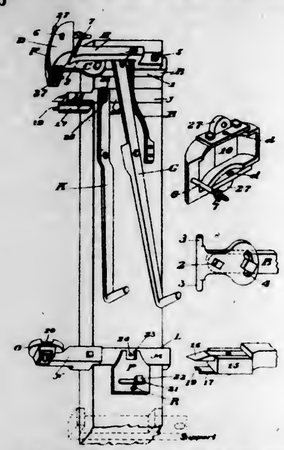
491,156. DOOR-SPRING. GRANVILLE W. WRIGHT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed May 18, 1892. Serial No. 433,455. (No model.)



Claim.—1. A door closing device consisting of an arbor supported in suitable bearings, combined with a volute spring around said arbor, the outer end of the spring held stationary, the arbor constructed with a single longitudinal groove, one side of the groove forming substantially a radial shoulder facing in the direction in which the spring is to wind, the other side of the groove inclined outward and backward from the said shoulder, the inner end of the spring bent inward to form a hook to engage upon said shoulder as the arbor rotates in one direction, but so as to escape therefrom as the arbor rotates in the opposite direction, and the arbor provided with a lever by which connection may be made between the door and the arbor, substantially as and for the purpose described.

2. In a door-check, an arbor adapted for rotation in one direction by the opening movement of the door, and for rotation in the opposite direction by the reaction of a spring, the combination therewith of a gear loose upon the said arbor, a ratchet fixed upon the arbor concentric with said gear, a spring pawl hung upon the gear-wheel, its nose adapted to engage the teeth of said ratchet in one direction and to escape therefrom in the opposite direction, an arm arranged in frictional contact with said ratchet, and so as to partake to a limited extent of the rotation of said ratchet, the said arm adapted to bear upon the pawl between its nose and pivot, substantially as described, and whereby as the ratchet is rotated in one direction, the said arm will operate to throw and hold the pawl out of engagement with the teeth of the ratchet, but permit the pawl to engage the ratchet in the reverse direction, substantially as described.

491,157. TUB OR PAIL MAKING MACHINERY. CHARLES D. ANES, Portland, Ind., assignor to the Creamery Package Manufacturing Company, Chicago, Ill. Filed Aug. 7, 1891. Serial No. 402,023. (No model.)



Claim.—1. In a tub and pail making machine, the combination of a longitudinally sliding bar A., a reciprocating bar B. seated transversely therein, and a knife head D. pivotally and adjustably seated on the end of said bar B. and provided with a knife F., substantially as shown and for the purpose described.

2. The combination of a sliding bar A. reciprocating transverse bar B. seated transversely therein, head D. pivotally and adjustably seated on bar B. and provided with the knife F. and the lever G. pivoted intermediately on bar A. and pivotally attached to bar B. substantially as shown and for the purpose described.

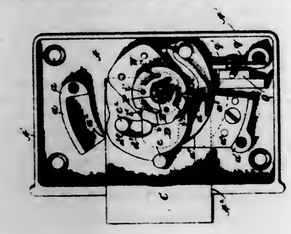
3. The combination of the sliding bar A., bar B. seated in ways transversely thereon, head D. seated on the end of bar B. and provided with knife F., and a spring H. seated on bar A. and adapted to press the bar B. outwardly, substantially as shown and for the purpose described.

4. The combination of the sliding bar A., bar M. seated transversely thereon, and arm N. pivotally seated on bar M. and projected laterally beyond the side of bar A. and provided with knife head O. having recess 20, adapted to carry suitable smoothing knives, substantially as shown and for the purpose specified.

5. The combination of the sliding bar A., bar M. seated transversely thereon, arm N. pivotally seated on bar M. and provided with knife head O. and a slotted feeding plate P on the bar A, one end of which engages with the bar M, and the other end is provided with means for moving the plate, substantially as shown and for the purpose specified.

6. The combination of the sliding bar A., bar B. seated transversely thereon and provided with knife head D. and means substantially as shown for permitting a limited oscillating action to said knife head, in both vertical and horizontal planes, substantially as shown and for the purpose specified.

491,158. COMBINATION-LOCK. JAMES D. CRAIG, Rogers Park, assignor to the Keyless Lock Company, Chicago, Ill. Filed May 23, 1891. Serial No. 394,264. (No model.)



Claim.—1. A index tumbler having serrations and a radial notch or notches in its periphery, and provided with a slot in its body subtending a segmental part of a sector thereof whose peripheral arc does not correspond in length to the distance between any two serrations,—or the distance between the hollow of a serration and a radial notch, in combination with a bolt and with means for operating the tumbler.

2. An index tumbler having depressions in the form of serrations and a radial notch or notches in its periphery, and provided with two or more slots in its body, each of said slots subtending a segmental part of a sector thereof whose peripheral arc surface differs in length from the distance between the hollows of any two serrations,—or the distance between the hollow of a serration and a radial notch,—the corresponding end of each of said slots sustaining a similar relation to the peripheral depressions, in combination with a bolt and with means for operating the tumbler.

3. A reversible index tumbler provided with serrations and one or more radial notches in its periphery, and having slots in its body to receive the pin of another tumbler, the corresponding end of each of said slots affording room for the pin to take operative position therein and have a similar relation to a serration depression or a radial notch depression in the periphery immediately above, the different ends of each slot being of different relation to immediately adjacent depressions in the periphery of the tumbler, in combination with a bolt and with means for operating the tumbler.

4. A driver tumbler connected with a knob, and provided with one or more tumbler key notches, and an index tumbler provided with serrations and a radial notch or notches in its periphery, and having slots in its body to receive a pin of another tumbler, the corresponding end of each of the slots having the same relation to adjacent depressions in the periphery while the other end of each of the slots has a distinctive relation of its own to adjacent peripheral depressions, in combination with a bolt and means for operating the tumbler.

5. A driver tumbler provided with one or more slots in its body, and having one or more tumbler key notches in its peripheral portion, and having a portion of the peripheral surface elevated above the rest, and means for positively engaging and turning said driver tumbler, in combination with an index tumbler, provided with serrations in its periphery and one or more radial notches therein.

6. A driver tumbler connected positively with a knob spindle, and provided with one or more tumbler key notches, and an index tumbler provided with serrations in its periphery and one or more radial notches, and having slots in its body to receive a pin of another tumbler, one corresponding end of each of said slots affording room for the pin to take operative position therein and be, at the same time, either beneath the hollow of a serration or beneath a radial notch while the other corresponding end of each slot will not allow the pin to take operative position therein, and be, at the same time, either beneath the hollow of a serration or beneath a radial notch.

7. A driver tumbler connected to a knob and provided with a tumbler key receiving notch or notches and with slots in its body, a reversible index tumbler provided with serrations and radial notches in its periphery, and slots in its body, in combination with one or more tumblers, a sliding bolt, a tumbler key, and mechanism connecting the latter with the sliding bolt.

8. A driver tumbler provided with an elevated smooth arc surface and having a V-shaped notch in its periphery in combination with a bolt and with means for operating the tumbler.

9. A driver tumbler having a V-shaped notch or notches in its periphery, a tumbler having a notch or notches in its periphery, a sliding bolt, a tumbler key carried by a dog or lever, and a flange having a circular face bearing against the tumbler key.

10. A two-part tumbler, one part being an annular disk provided with a pin, and the other part an annular disk provided with a series of holes with a slot intervening, each of said apertures being adapted to receive the pin in combination with a bolt and with means for operating the tumbler.

11. A reversible cam-plate having an exterior bearing face and an interior bearing face, and provided with a central opening to fit around the base of the standard, in combination with a sliding bolt.

12. A reversible sliding lock bolt, and a reversible cam-plate in combination with a driver tumbler and one or more tumblers, each tumbler being provided with a tumbler key notch, in combination with a tumbler key and mechanism connecting the latter with the bolt.

13. A lock mechanism, in which all the single tumblers are reversible, in combination with a two-part tumbler one part of which is reversible, a sliding reversible bolt, a tumbler key and a reversible cam plate, and mechanism connecting the key and the cam-plate.

14. A driver tumbler having a tumbler key notch or notches, and a slot or slots to receive the pin of another tumbler, an index tumbler, a tumbler key, a dog or lever and mechanism connecting the tumbler key and a sliding bolt, and a catch piece for engaging the bolt.

15. A reversible index tumbler having serrations and one or more radial notches in its periphery, and a driver tumbler having a smooth arc-shaped elevated surface and a notch in the periphery and an arc-shaped slot in its body, in combination with a tumbler having a radial notch in its periphery, and a tumbler key carried on the end of a lever provided with mechanism connecting it with the sliding bolt.

16. A tumbler having a V-shaped notch in its periphery provided with inclined sides for throwing out a tumbler key, in combination with a bolt and a tumbler key and means for keeping the latter in the said notch while moving the bolt into locking position.

17. A tumbler having a V-shaped notch in its periphery provided with inclined sides for throwing out a tumbler key in combination with a tumbler key and means for holding the latter in the notch during a part of the rotary movement of the tumbler.

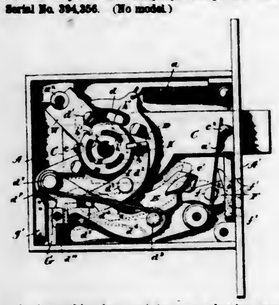
18. A tumbler having a V-shaped notch in its periphery provided with inclined sides for throwing out a tumbler key, in combination with a tumbler having a notch in its periphery, and a tumbler key for engaging in the notch of each, and means for operating the tumbler key.

19. A cam-plate having an exterior bearing or cam face and an interior bearing or cam face, in combination with a sliding bolt provided with pins or projections for said cam faces to engage.

20. A base plate having interior flanges and a standard between the flanges combined with tumblers mounted on said standard, the tumbler key, and means for operating the tumblers.

21. A base plate having interior curved flanges and a standard between the flanges combined with tumblers mounted on said standard, the tumbler key, and means for operating the tumblers.

491,159. COMBINATION-LOCK. JAMES D. CRAIG, Rogers Park, assignor to the Keyless Lock Company, Chicago, Ill. Filed May 23, 1891. Serial No. 394,256. (No model.)



Claim.—1. A tumbler key and lever mechanism carrying the same, in combination with one or more tumblers, a switch cam device, and means for bringing the latter into play or throwing it out as may be desired.

2. A tumbler key combined with one or more notched tumblers, the former connected by lever mechanism with a switch cam device, and means for throwing the latter out of operation and holding it out.

3. A driver tumbler and one or more additional tumblers, a tumbler key provided with lever connections, combined with a catch piece having a bearing face to operate the lever connections and hold them in a changed position with the lever key held away from the tumblers.

4. A driver tumbler and an index tumbler, combined with a tumbler key connected with a cam plate by lever mechanism, the latter being provided with a switch cam device, means for throwing the latter out of position for operation, and means for holding the tumbler key, at the same time, in operation.

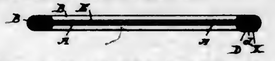
5. A driver tumbler, and one or more tumblers, a sliding bolt, a tumbler key carried by lever mechanism, combined with a catch piece having a bearing face to engage the lever mechanism, and a toe piece to engage the bolt.

6. A driver tumbler having a continuous elevated arc-shaped peripheral portion, the remaining peripheral surface of the tumbler being smooth excepting where provided with one or more parallel-sided radial notches.

7. A driver tumbler having a continuous elevated peripheral portion, A^4, and a lower circular or curved peripheral portion or surface and provided with one or more parallel-sided radial notches in the said lower peripheral surface, and having one or more slots in its body, in combination with an index tumbler, a tumbler key, and mechanism for moving the latter out of a radial notch.

8. A reversible tumbler having an elevated peripheral surface, A^4, and a lower circular or curved peripheral surface and having one or more parallel-sided radial notches in the said lower otherwise smooth peripheral surface, in combination with a tumbler key and mechanism connecting the latter with a sliding bolt.

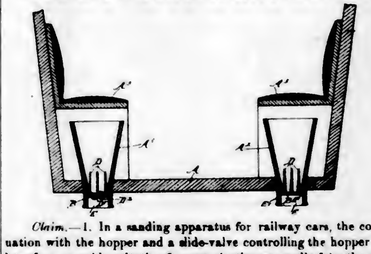
491,160. PROCESS OF TEACHING AND CORRECTING FREE-HAND DRAWING. ARNOS K. CROSS, Boston, Mass. Filed Apr. 18, 1892. Serial No. 429,720. (No specimens.)



Claim.—1. In the art of teaching free hand drawing the improvement which consists in making a drawing upon a transparent slate, then holding the slate between the object and the eye in a position substantially perpendicular to the line of vision and moving said slate back and forth until, to the eye, the drawing will, as nearly as practicable, cover the object, whereby the inaccuracies of the drawing may be discovered, substantially as set forth.

2. In the art of teaching free hand drawing the improvement which consists in placing an opaque sheet or object behind a transparent slate, making a drawing upon said transparent slate, then holding the slate separated from the opaque sheet between the object to be represented and the eye in a position substantially perpendicular to the line of vision, and moving said slate back and forth until, to the eye, the drawing will, as nearly as practicable, cover the object, whereby the inaccuracies of the drawing may be discovered, substantially as set forth.

491,161. SAND-BOX FOR STREET-CARS. EMIL F. DE WITT, Lansingburg, N. Y. Filed Oct. 22, 1892. Serial No. 449,570. (No model.)

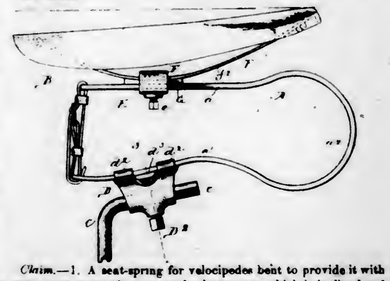


Claim.—1. In a sanding apparatus for railway cars, the combination with the hopper and a slide-valve controlling the hopper outlet, of a removable agitating finger projecting upwardly from the valve into the hopper and a detachable connection between the finger and valve, substantially as described.

2. In a sanding apparatus for railway cars, the combination with the hopper and valve, of a blade projecting upwardly from the valve into the hopper and secured to the valve edgewise to its line of movement, substantially as described.

3. In a sanding apparatus for railway cars, the combination with a hopper having a bottom discharge opening, of a slide-valve controlling such opening and a slide-way for the valve beneath the hopper and located entirely without the periphery of the discharge opening therein, substantially as described.

491,162. VELOCIPEDE-SADDLE. WILLIAM J. EDWARDS, Chicago, Ill., assignor to the Union Manufacturing and Plating Company, same place. Filed Dec. 14, 1889. Renewed July 13, 1891. Serial No. 398,278. (No model.)



Claim.—1. A seat-spring for velocipedes bent to provide it with an upper seat supporting arm and a lower arm which is inclined and

adjustably held by a bearing so that by adjusting said lower arm independently of its bearing the height of the seat can be varied.

2. The bent seat spring provided with an upper straight seat supporting arm *a*, and a lower arm *a'*, which is adjustably held on the velocipede and for a portion of its length inclined downwardly toward its outer end, for the purpose described.

3. A seat spring formed with an upper seat supporting arm, and a lower inclined arm *a'*, combined with a bearing which is adjustably supported and which adjustably holds said lower arm of the seat spring, whereby the seat can be adjusted vertically and longitudinally.

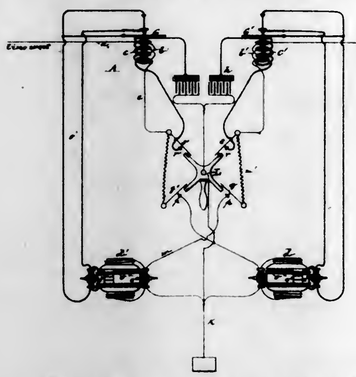
4. A seat provided with a spring for supporting the same, said spring being bowed, and a spring supported bearing adjustably connected with the bowed portion of said spring so that by adjusting the bowed spring on its bearing the seat can be tilted.

5. A seat provided with a spring for supporting the same, said spring being bowed, a bearing adjustably connected with the bowed portion of said spring, and a supporting spring upon which said bearing is adjustably held.

6. The combination of a substantially U-shaped spring, the saddle provided with a spring for supporting the same, said spring being bowed, and a bearing adjustably held on the upper arm of the substantially U-shaped spring and adjustably holding the bowed portion of the spring of the seat, for the purpose described.

7. The combination with the seat supporting spring A of the holder or bearing D provided with a gib and set-screw for the purpose set forth.

491,168. VIBRATORY TELEGRAPHY. STEPHEN D. FIELD, Yonkers, N. Y. Filed Jan. 7, 1892. Serial No. 417,249. (No model.)



Claim.—1. The combination of a local circuit including signal transmitting devices, a line circuit, and low and high tension coils connected to the respective circuits, said coils being in inductive relation to the magnetic system of a continuously operating dynamo electric machine.

2. In a signal or intelligence transmitting system a local circuit containing resistance varying devices, a dynamo electric machine having such circuit in shunt relation to a low resistance armature coil, and an auxiliary high tension armature coil connected to line.

3. The combination with a signaling system, of a dynamo electric generator having its armature adapted to be connected to line, and a shunt to an armature polarizing coil including a local circuit containing signal transmitting devices.

4. The combination of a local circuit, a line circuit, and a dynamo electric machine having its armature discharging through carbon brushes into said circuits, the local circuit being in shunt relation to one pair of brushes, said dynamo electric machine being in continuous operation during transmission.

5. The combination of a local circuit, a line circuit, and a dynamo electric machine having its armature discharging into said circuits through carbon brushes having multiple and independently movable carbon contacts, the local circuit being in shunt relation to one pair of brushes, said dynamo electric machine being in continuous operation during transmission.

6. The combination of a dynamo electric machine having independent high and low potential windings on its armature and independent pairs of brushes for the two windings, a local and line circuit connected to the respective windings, the local circuit containing current varying devices, and a coil electrically connected to the local circuit, said coil being in inductive relation to the high potential circuit.

7. The combination of a dynamo electric machine having independent high and low potential windings on its armature, local and line circuits connected to the respective windings, the local circuit containing signal transmitting devices and being in shunt relation to a coil inductively related to both armature windings.

8. The combination of a dynamo electric machine, independent high and low potential windings, a line circuit connected therewith a local circuit including signal transmitting devices and a regulating coil connected with the local circuits surrounding the armature and fixed relatively to the line of commutation.

9. The combination of a dynamo electric machine, having independent high and low potential windings, a line circuit connected with the high potential circuit, signaling transmitting devices connected with the low potential circuit, and a coil controlled by the signal transmitting devices for varying the output, said coil surrounding the armature and being angularly adjustable with relation to the line of commutation.

10. A transmitting or receiving instrument for electric vibrations or undulations comprising an electro-magnet and an armature therefor controlled by a gaseous retractile agency.

11. A transmitting or receiving instrument for electric vibrations or undulations comprising an electro-magnet and an armature therefor held retracted by the pressure of a gaseous current.

12. A transmitting or receiving instrument for electric vibrations or undulations comprising an electro-magnet, and a diaphragm or other inharmonious armature therefor, said diaphragm being held in a retracted position by a current of air.

13. In a signaling system a relaying or repeating station at which the lines from the terminal stations are normally grounded, transmitting or receiving instruments at the relay station in communication with each line, each instrument being surrounded by a vibration damping material for the purpose described, and provided with externally projecting mouth or ear pieces, whereby an operator may communicate with both lines, means for reinforcing vibrations or undulations from either line, and a switch controlled by the operator for placing this reinforcing agency in operative relation to either line.

14. A transmitting or receiving instrument provided with a vibratory armature, an electro-magnet, and a retractile agency consisting of a stream of compressed air, means for isolating the armature from disturbing local vibration, and means for excluding vibration through the stream of air.

15. A transmitting or receiving instrument for signaling systems operated by electric vibrations or undulations of varying frequency, having sectional coils, each section having an independent return path, adjacent sections being reversely wound, separate magnetic circuits being provided for each section.

16. An electro-magnet for responding to electric vibrations of varying character, having a series of coil sections in series successive sections being reversely wound, a common core, a pole piece at both ends of each section, and an armature acted upon by all of the pole pieces.

17. An electro-magnet having connected at one or more intermediate points of its convolutions, one or more condensers, said condenser being connected with a return path from the electro-magnet, whereby impulses of different character may pass more freely.

18. A transmitting or receiving instrument having a number of coil sections and one or more condensers connected in shunt relation to the line and the several coil sections.

491,164. MEANS FOR HANDLING DRILL-BITS FOR OIL OR ARTESIAN WELLS. WILLIAM FORKER, Pittsville, Pa. Filed Oct. 22, 1892. Serial No. 449,567. (No model.)

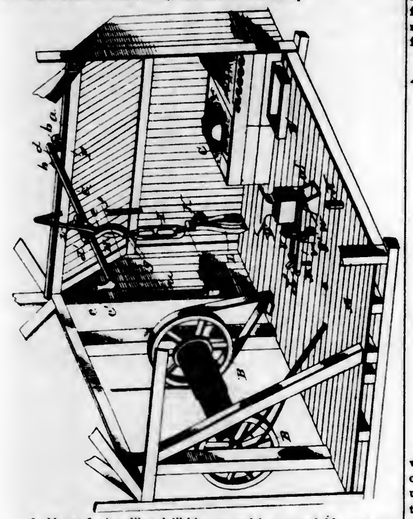
Claim.—1. Means for handling drill-bits, comprising a movable jib, a trolley movable on said jib, a clevis pivotally connected to said trolley and a lever fulcrumed in said clevis, in combination with means for connecting said lever to a drill-bit.

2. Means for handling drill-bits, comprising a jib, a trolley to which the jib is pivotally connected, and a track supporting said trolley, in combination with a trolley supported on said jib, a clevis connected to the latter trolley, a lever connected to the clevis, and means for connecting the lever to a drill.

3. Means for handling drill-bits, comprising a movable jib, a trolley movable on said jib, a two part clevis pivotally connected to the trolley at its upper end and having its arms bent to bring the lower ends of the arms in a line approximating the transverse center of the trolley, and a lever pivoted in the clevis, in combination with means for connecting said lever to a drill-bit.

4. Means for handling drill-bits, comprising a clevis a lever eccentrically pivoted in said clevis and an elongated counter-balancing link attached to the short arm of the lever, in combination with a clamp to engage a drill-bit, and intermediate connections between said link and bit.

5. Means for handling drill-bits, comprising a clevis, a lever fulcrumed in said clevis, a counter-balancing link open at one end and connected to said lever, in combination with a clamp to engage a drill-bit, and means for connecting the link to the clamp.



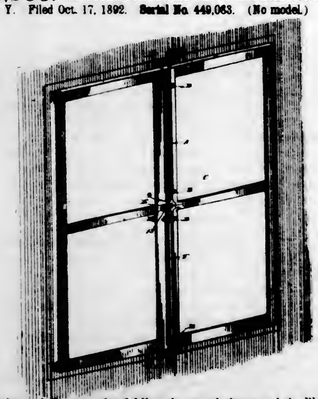
6. Means for handling drill-bits, comprising a revoluble rest to receive the end of a drill-bit and a resilient support to sustain the weight of the bit while being engaged with the box of a drill-stem.

7. Means for handling drill-bits, comprising a pair of parallel bars, a spring, and a revoluble rest for the bit, supported on said bars.

8. Means for handling drill-bits, comprising a pair of parallel bars pivotally connected to a pedestal at one end, a cage provided with a spring adjustable on said bars, and a revoluble rest also supported by said bars.

9. Means for handling drill-bits, comprising a movable jib, means for raising, conveying and lowering a drill-bit, and a clamp for engaging said bit, in combination with a resilient support and a revoluble rest.

491,165. SHUTTER-FASTENER. LOUIS M. FROBERG, New York, N. Y. Filed Oct. 17, 1892. Serial No. 449,063. (No model.)



Claim.—A fastener for folding doors, windows and the like, consisting of a rod, journaled in bearings adapted to be secured to one of the folding parts and having its ends adapted to project beyond the part to which it is secured and provided with projecting hooks adapted to engage recesses formed in the window frames, said shaft having an enlargement formed substantially midway its length, said enlargement having a slot formed in it at one side and an opening in its side opposite said slot; a bent spring arm, pivoted in said opening and projecting through said slot in the opposite side of said enlargement; the free end of said arm projecting beyond the edge of said folding part to which the rod is secured and being adapted to engage a catch plate secured to the other folding part, substantially as set forth.

491,166. VALVE. BERNEY H. GOLD, Chicago, Ill. Filed Apr. 18, 1892. Serial No. 429,569. (No model.)

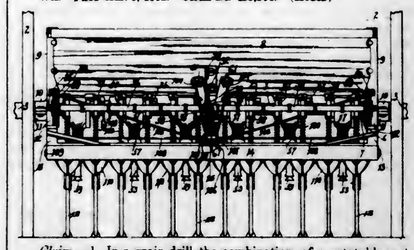


Claim.—1. The combination of a valve case provided with a valve seat; a valve adapted to seat itself thereon and having a tapered orifice extending through it; a second valve adapted to seat itself upon the first named valve and having a stud projecting into the tapered orifice I; and means adapted to first lift the smaller valve from its seat and afterward the larger valve, substantially as described.

2. The combination of a valve case provided with a valve seat; a valve adapted to seat itself thereon and having a tapered orifice extending through it; a spring adapted to hold said valve upon its seat; a second valve adapted to seat itself upon the first named valve and having a stud projecting into the tapered orifice I; and a valve spindle adapted to first lift the smaller valve from its seat and by its continued movement to lift the larger valve, substantially as described.

3. The combination of a valve case provided with a valve seat; a valve adapted to seat itself thereon and having a tapered orifice extending through it; a spring adapted to hold said valve upon its seat; a second valve adapted to seat itself upon the first named valve and having a stud provided with a removable tip projecting into the tapered orifice I; and a valve spindle adapted to first lift the smaller valve from its seat and by its continued movement to lift the larger valve, substantially as described.

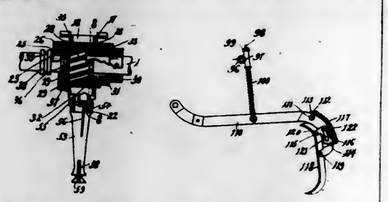
491,167. BROADCAST SEEDER. ERNST H. GRAFUNDER, Horicon, Wis. Filed Mar. 3, 1892. Serial No. 423,598. (Model.)



Claim.—1. In a grain drill, the combination, of a rotatable and longitudinally movable axle, a cut-off for regulating the width of the seed opening from the hopper, a flanged plate movable longitudinally with the axle but not rotatable therewith, said plate constructed to prevent the passage of the seed above the cut-off, and a seed conveying cylinder rotatable with the axle, and also having a rotation independent thereof as said axle and the flanged plate are moved longitudinally, substantially as set forth.

2. In a grain drill, the combination, of a hopper having a series

of seed openings therein, a rotatable and longitudinally movable axle, a series of cut-offs fast upon said axle, one end of each of said cut-offs being enlarged and provided with a series of spiral grooves extending a distance inwardly, flanged plates movable longitudinally with the cut-offs, and axle, but not rotatable therewith, said cut-offs constructed to regulate the width of the opening from the hopper, a series of seed conveying cylinders through which the axle loosely passes, provided with spiral ribs forming seed pockets or cavities, said ribs constructed to engage the radial grooves of the cut-offs, and the cylinders held against longitudinal movement with the axle, and feed-cups beneath the hopper through which the axle passes and in which the cut-offs, flanged plates and cylinders operate, substantially as set forth.



3. In a grain drill, the combination, of a shaft having a crank arm extending therefrom, a horizontally sliding rack bar, a link connecting the forward end of said bar with the crank arm of the shaft, and a lever having a spring pawl engaging the rack bar, substantially as set forth.

4. In a grain drill, the combination, of a shaft having a crank arm extending therefrom, a horizontally sliding rack bar, a link connecting the forward end of said rack bar with the crank arm, a rotatable shaft carrying a medial and an end gear wheel fast thereon, a pivoted curved pawl having a curved slot therein, and provided with a depending lug adapted to engage the end gear wheel, and an operating lever provided with a spring-actuated pawl engaging the medial gear wheel and with a spring-actuated arm having a lug engaging the slot of the curved arm, substantially as set forth.

5. In a grain drill, the combination of a movable frame consisting of pivoted side pieces, and a front connecting piece, a series of share-carrying frames secured thereto, a clip or yoke pivotally connected to the forward connecting piece of the frame, a pole or thill having its forward end passing through the clip or yoke, and its rear end provided with an operating handle or arm having a spring pawl thereon, and depending arms provided with elongated slots, receiving the ends of trunnions extending from the pole, and having their rear edges formed into racks adapted to be engaged by the spring pawl, substantially as set forth.

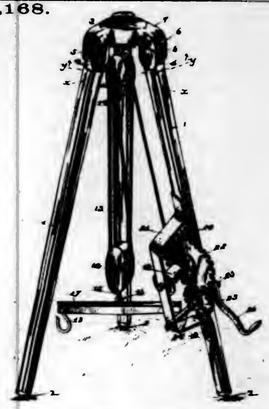
6. In a grain drill, the combination, of a drag-bar having its rear curved end spread apart and also having an eyed lug extending upwardly from said spread apart portion, a crank within the opening provided with an elongated slot to receive a transverse pin, a curved rod having its lower end pivotally secured to the crank and its upper end passing through the eye of the lug, a spring encircling said rod, and a share pivoted medially to the extremity of the frame and also connected near its upper end to the crank, substantially as set forth.

7. In a grain drill, the combination of a drag-bar consisting of two side pieces connected together, having their forward ends, connected to the frame proper of the machine and their rear ends spread apart and carved downwardly and rearwardly, an eyed lug extending upwardly from the rear curved portion of the bar, a crank disposed between the spread apart rear portion of the sides of the bar, said crank provided with an elongated slot to receive a transverse pin, a curved rod having its lower end pivoted to an upwardly extending lug from one end of the crank and having its other end passing through the eye of the lug, a spring encircling said rod, and a share pivoted medially to the extremity of the frame, and also connected near its upper end to a downwardly extending lug from the crank, substantially as set forth.

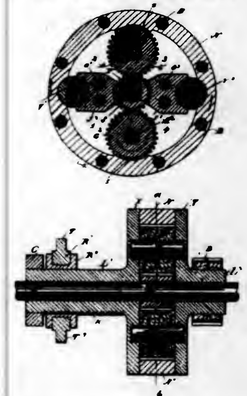
491,168. HOISTING-MACHINE. CHARLES GRIFFITH, South Waverly, Pa. Filed June 4, 1892. Serial No. 435,508. (No model.)

Claim.—In a hoisting machine, the combination of a cap-plate having arms arranged in triangular form, stirrups secured to the under sides of said arms, legs pivotally connected to said stirrups and having a sheath or covering over the ends thereof, an upper pulley connected to the under side of said cap-plate, a lower pulley suspended from said upper pulley and having a hook on the under side thereof, a yoke or arm removably connected to the hook of said lower pulley and provided with hooks at the ends thereof, and a windlass secured to one of the said legs, substantially as described.

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491,169. CLUTCH MECHANISM. THOMAS GRISWOLD, Jr., Cleveland, Ohio. Filed May 21, 1892. Serial No. 433,918. (No model.)



Claim.—The combination, for the purpose specified, with a cogged wheel fast upon a shaft, of a hollow disk-shaped wheel mounted loosely thereon concentrically about said cogged wheel, partitions in said disk-shaped wheel radiating centrally from within a close operative proximity to the peripheral surface of the said cogged wheel; gear wheels upon opposite sides of said partitions, meshing with said cogged wheel and having their surfaces in close operative proximity with the interior surface of said hollow wheel; oil, or other suitable fluid in said hollow wheel between said partitions, there being orifices in said partitions, and means for opening and closing said orifices at will, substantially as shown and described.

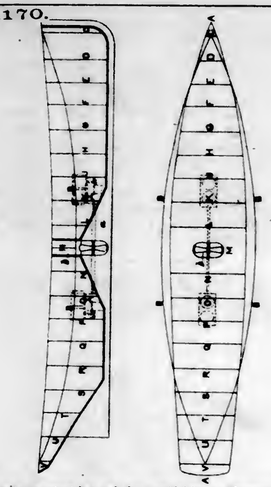
491,170. STEAMSHIP. CHARLES HARRIS, Brighton, England. Filed July 13, 1891. Serial No. 399,333. (No model.) Patented in England Mar. 3, 1891, No. 3,787.

Claim.—1. A steamship hull whose walls extend continuously from keel to bulwarks, and have in each side an outwardly carving bulge, projecting beyond the outline of the deck, said bulge being widest amidships and sheering from the waterline amidships to the level of the deck at stem and stern substantially as described.

2. A steam ship hull whose walls extend continuously from keel to bulwarks and have in each side a bulge projecting beyond the outline of the deck on lines curved outward from stem and stern to a point amidships, and sheering upwardly from said amidships point to the level of the deck at stem and stern, substantially as described.

3. A steam ship hull whose walls extend continuously from keel

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to bulwarks its greatest beam being amidships on the water line, the greatest breadth of the sections fore and aft of this point coinciding with a curved line sheering from the water line amidships to the level of the deck at stem and stern, substantially as described.

491,171. RETOUCHING DEVICE. ALBERT S. HARRY, Steubenville, Ohio. Filed Nov. 15, 1892. Serial No. 452,081. (No model.)

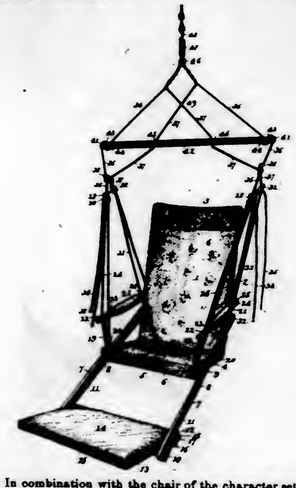


Claim.—A retouching device comprising a suitable hand-piece provided with a curved base, whereby it may be rocked, an electro-magnet supported in said hand-piece, a stylus projected by the armature of said magnet, a spring for retracting said stylus, and side plates secured to said hand-piece to cover and protect the magnets and armature, substantially as herein described.

491,172. SUSPENDED CHAIR. MARK A. HART, Sortbner, Cal. Filed June 20, 1892. Serial No. 437,279. (No model.)

Claim.—1. In a chair of the character set forth, the combination with the back and seat hinged to each other, of a spreader having grooves in the ends thereof, a pair of openings adjacent to the said ends and extending transversely through the said spreader at each end thereof, and other openings nearer the center of said spreader and extending transversely therethrough, a series of cords or ropes attached to said back and seat and arranged on each side of the latter, a portion of said cords or ropes on each side passing over the grooved end of the spreader and downward and up through the pair of openings adjacent to the said grooved end and extending up to a fastening device, and the remaining portion of said cords or ropes passing upward through the openings nearer the center of the spreader and crossing each other and attached to the aforesaid cords or ropes, and buttons below the said spreader through which the said ropes or cords pass and by means of which they may be freely adjusted to raise and lower the chair, the arrangement of the cords or ropes with the said spreader preventing entanglement and twisting of the same, substantially as described.

2. In a chair of the character set forth, the combination with a seat and back hinged to each other, of braces pivoted to the said back on opposite sides and adjustably attached to the seat and movably carrying a foot-rest, a pair of cords or ropes on each side movably attached to the seat and the upper ends of said braces and adjustable, whereby the foot-rest may be adjusted simultaneously with the adjustment of the back and seat by contracting or extending the length of the said cords or ropes, a series of buttons on said ropes or cords for attaining the adjustment when desired, the free ends of the cords depending on opposite sides in proximity to the back and seat, and a spreader through which said cords or ropes continuously extend and a portion of which cross each other above said spreader at the inner portion of the latter and are attached to a hanging device, substantially as described.



3. In combination with the chair of the character set forth having suspending cords or ropes, and headed studs or pins projecting from the seat portion thereof, bars or braces having slots therein to engage said headed studs or pins, a foot-rest also having headed studs or pins fitted in a portion of the slots of said bars or braces, a rod journaled in the said foot-rest, and heads on the ends of said rod adapted to engage said bars or braces to hold the foot-rest in proper position at an angle to the said bars or braces, or be adjusted to permit the said foot rest to be folded down between the said bars or braces, substantially as described.

491,173. NUT-LOCK. JACOB L. HAYWARD, Wadesville, N. C., assignor of one-half to W. B. Crittenden, Bucyrus, Ohio. Filed Oct. 22, 1892. Serial No. 449,502. (No model.)



Claim.—1. A nut lock consisting of a corrugated piece of metal having teeth punched or made from the body of the metal itself, some of the teeth projecting at one side of the metal and some at the other side, substantially as set forth.

2. A nut lock consisting of a corrugated piece of metal having teeth thereon which project in opposite directions, the points of which teeth fall within the planes of the corrugations at each side of the metal substantially as set forth.

491,174. COUPLING-GAGE. GEORGE B HAMLEHURST and FRANCIS J. COLE, Baltimore, Md. Filed Oct. 14, 1892. Serial No. 448,917. (No model.)

Claim.—1. A gage plate for testing the wear of an automatic hook coupler which consists of a plate of metal the exterior of which on three sides conforms in shape either wholly or in part to the standard interior contour of the coupler, with a projection upon its front edge projecting beyond the standard contour line of the interior of the knuckle of an extent sufficient to prevent said plate from passing through the coupling until the wear of said knuckle reaches a predetermined limit, substantially as described.

2. A gage plate for testing the wear of an automatic hook-coup-

ler which consists of a plate of metal the exterior of which on three sides conforms in shape either wholly or in part to the standard interior contour of the coupler, with a line inscribed across said plate so as to pass through the center of the knuckle pin for the purpose of locating the point at which the diameter of said knuckle joint shall be measured, as and for the purpose specified.

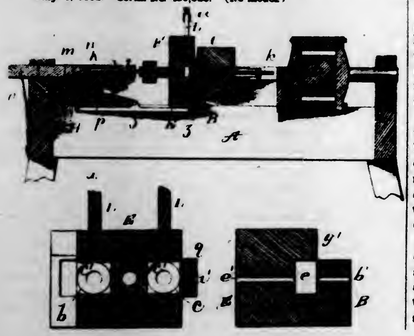


3. A gage plate for testing the wear of an automatic hook-coupler which consists of a plate of metal the exterior of which on three sides conforms in shape either wholly or in part to the standard interior contour of the coupler, with a line inscribed across the said plate about mid-way of its straight edge for the purpose of determining the point at which the wear of the guard arm A is to be measured, as and for the purpose specified.

4. A gage plate for testing the wear of an automatic hook-coupler which consists of a plate of metal the exterior of which on three sides conforms in shape either wholly or in part to the standard interior contour of the coupler, and provided on the fourth side with a square lug of a size greater than the normal diameter of the pin hole in the knuckle joint, as and for the purpose specified.

5. A gage plate for testing the wear of an automatic hook-coupler which consists of a plate of metal the exterior of which on three sides conforms in shape either wholly or in part to the standard interior contour of the coupler, with a slot cut into its edge upon the fourth side of a predetermined width which will be less than the normal thickness of the wall between the interior surface of the knuckle and the interior of the pin hole in the extremity of the knuckle, as and for the purpose specified.

491,175. NUT-MACHINE. MAURICE F. HIGH, Lebanon, Pa. Filed July 9, 1892. Serial No. 439,523. (No model.)



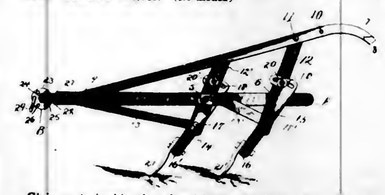
Claim.—1. In a machine for making nuts, a die provided with a movable discharger constituting one side of the nut cavity in the die, while the nut is being formed.

2. In a machine for making nuts, a die provided with a plurality of nut forming cavities and movable dischargers constituting one side of said cavities, while the nuts are being formed.

3. In a machine for making nuts a movable male die and a fixed female die provided with nut forming cavities in different vertical planes, in combination with vertically movable dischargers constituting one side of the cavities in the fixed die, while the nuts are being formed.

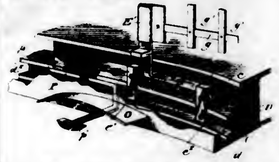
4. In a machine for making nuts, a pair of dies provided with nuts forming cavities having recesses in their upper sides, in combination with dischargers having heads filling said recesses while the nuts are being formed.

491,176. DOUBLE-SHOVEL CULTIVATOR. WILBER W. HINKLE, Hood's Mills, and IRA H. GAITHER, Cookeysville, Md. Filed June 26, 1892. Serial No. 438,015. (No model.)



Claim.—A double shovel cultivator having a laterally curved beam for the attachment of shovels to avoid tracking in combination with shovel carriers having loops at their lower extremities and adjustable in slots at their outwardly curved upper extremities, finger nuts within the slots for holding the shovel carriers in the position desired, handles attached to the beam near its forward end and to the upper end of the standards, supporting the shovel carriers, braces extending from the beam to the supporting standards and the supporting standards, substantially as described.

491,177. SAFETY-GATE FOR DRAWBRIDGES. ADOLPH HOEFFLER and FRANK L. G. CHAPMAN, Stevens Point, Wis. Filed Dec. 21, 1891. Serial No. 415,798. (No model.)



Claim.—1. The combination with a bridge of a flexible safety gate wound upon a vertical shaft, and adapted to be closed by the bridge when the latter is turned, a locking device to hold the gate closed, a releasing device attached to the bridge, and means for automatically winding up the gate when released, substantially as described.

2. The combination with a pivoted drawbridge of a flexible safety gate wound upon a shaft and adapted to be closed by the bridge, a locking device to hold the gate closed, a releasing device attached to the bridge, and adapted to trip the locking device in whichever direction the bridge may be turned in closing the draw, and an automatically operating winding up device permanently connected with the gate, substantially as described.

3. The combination with a draw bridge of two flexible gates, wound upon shafts one on each side of the road way, and engaged by the bridge whereby a gate will be closed by the opening of the draw in either direction, locking devices to hold said gates closed, releasing devices attached to the bridge and adapted to release the closed gate when the draw is closed in either direction, and an automatically operating winding up device permanently connected with each gate, substantially as described.

4. The combination with a drawbridge of a flexible gate wound on a shaft, means for rotating said shaft, a latch pivoted on the bridge and engaging with the gate, a locking lever to hold the gate closed, a cam to disengage the latch from the gate, and an arm on the bridge to trip the locking lever when the draw is closed, substantially as described.

5. The combination with a drawbridge, of two flexible safety gates one on each side of the roadway, a pivoted latch on each side of the bridge engaging with a gate, a cam plate on each side of the roadway to disengage the latches, a pivoted stop near each cam plate to hold the gate closed, and an arm on the bridge near each latch to depress the stop and release the gate when the draw is closed, irrespective of the direction in which the bridge is turned, substantially as described.

6. The combination with a drawbridge, of a slotted conduit extending along the edge of the quay, a carriage traveling in the conduit, and having a standard projecting through the slot, and a safety gate attached to said standard, substantially as described.

7. The combination with a drawbridge, of a slotted conduit extending along the edge of the quay, a track in said conduit, a carriage traveling on said track and having a standard projecting through the slot, and a safety gate attached to said standard, substantially as described.

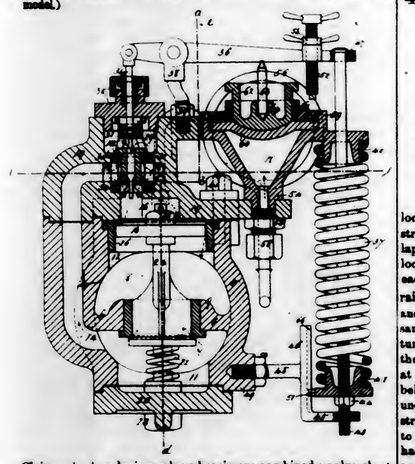
8. The combination with a drawbridge, of a slotted conduit extending along the edge of the quay, a T-headed rail in said conduit, a carriage, having arms adapted to engage with the head of the rail, and a standard projecting through the slot, and a safety gate attached to said standard, substantially as described.

9. The combination with the slotted conduit, of the T-headed rail, the carriage having the depending arms carrying wheels bearing on the upper and under side of the head of the rail, and the standard projecting up through the slot, substantially as described.

10. The combination with the slotted conduit, of the rail, the carriage traveling thereon, and having an inclined groove in its under side, and the lever pivoted in the conduit and having a finger projecting up through a slot in the rail substantially as described.

11. The combination with a drawbridge, of the latches pivoted thereto, one being higher than the other, the two safety gates, the carriage having standards to which said gates are attached, and the lugs on the standards arranged at different heights, so that each is engaged by its respective latch, only, substantially as described.

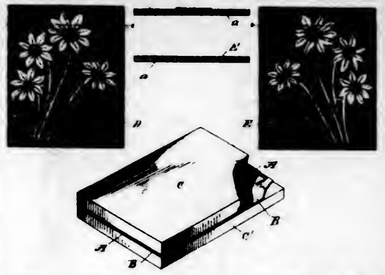
491,178. PRESSURE-REDUCING VALVE. ALEXANDER HORSBURGH, Cathcart, Scotland. Filed Sept. 5, 1892. Serial No. 445,086. (No model.)



Claim.—1. A reducing valve wherein are combined a valve-chest 5, formed with chambers 7, 8, openings 11, 12, and ports 14, 17, and fitted with a valve 10, and piston 13: a valve 15, pivotally attached to a lever 36: adjustable spring operating devices 37, 42, 43, tending to open the valve 15: a water-charged chamber 18, connections 56, and devices 60, 62, 63, tending to close the valve 15: a cover-casting 19: and bottom plate 20: as set forth.

2. A reducing valve, wherein are combined a valve-chest 5, formed with chambers 7, 8, openings 11, 12, and ports 14, 17, and fitted with a valve 10, and piston 13, fitted with a valve 27: a valve 15, pivotally attached to a lever 36, fitted with a stopping device 52: adjustable spring operating devices 37, 42, 43, tending to open the valve 15: a water-charged chamber 18, connections 56, and devices 60, 52, 63, tending to close the valve 15, a cover-casting 19: and bottom plate 20: as set forth.

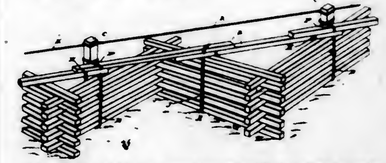
491,179. METHOD OF MAKING DIES FOR PRODUCING DESIGNS ON SOFT METAL. BENJAMIN F. KELSEY, Somerville, assignor to the American Soda Fountain Company, Boston, Mass. Filed June 13, 1892. Serial No. 436,584. (No specimens.)



Claim.—1. The process of making an electro-type die, which consists in producing on a soft-metal surface an intaglio fac-simile or counterpart of the woven pattern or design of a piece of textile fabric by impressing said fabric by hydraulic or other suitable pressure upon or against the said soft metal surface, and then taking an electro-type from said intaglio counterpart to form the die or mold in cameo, substantially as set forth.

2. The process of making an electro-type die, which consists in producing on a soft-metal surface an intaglio fac-simile or counterpart of the woven pattern or design of a piece of textile fabric by impressing said fabric by hydraulic or other suitable pressure upon or against the said soft metal surface, then taking an electro-type from said intaglio counterpart, and finally taking a second electro-type from the first electro-type to form an intaglio die or mold, substantially as described.

491,180. FENCE. JOHN R. KLINE, Casey, Ill. Filed Dec. 19, 1891. Serial No. 415,629. (No model.)



Claim.—In a fence, the combination with the zigzag panels of locking rails in direct alignment with each other and running in a straight line centrally above the fence panels and having their overlapped ends resting upon the top rail in the center of each panel, a locking stake placed vertically upon one side and at the center of each panel and extending above the overlapped ends of the locking rails, a single locking wire secured to the lower end of each stake and passing under the bottom rail of the panel and up the side of the same parallel with and opposite to the stake, thence behind and returned back over the end of the under locking rail, under and over the upper locking rail, from thence completely around and crossed at one side of the stake, behind and under said upper rail, over and below the outside end of the under locking rail and finally crossed under one of the intermediate rails of the panel and secured to the straight portion of the locking wire, said locking rails being adapted to be swung into alignment with each other after said locking wire has been arranged in position, to force the said wire into its locking position and spring the rails together, to bind or clamp their ends together and straight running wires stretched from stake to stake above and parallel with said locking rails, substantially as set forth.

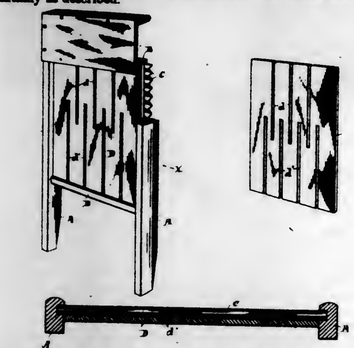
491,181. WASHBOARD. JOSEPH H. LAPHAM and OWEN T. LAPHAM, Cleveland, Ohio. Filed Jan. 14, 1892. Serial No. 418,094. (No model.)

Claim.—1. A wash-board composed of a frame having cross-pieces and a rubbing plate of usual or approved construction, and a back secured in the said cross-pieces by its ends and having its sides free, and slotted in the direction of the length of the wash-board, substantially as described.

2. In a wash-board a frame having cross-pieces and a rubbing plate combined with a wooden back secured in said frame solely by

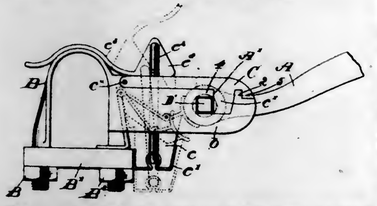
engagement of its ends with the cross-pieces and slotted in the direction of its grain, substantially as described.

3. In a wash-board, the frame, its cross pieces and corrugated rubbing plate, combined with a back board fitted between the sides of the frame without connection therewith and secured by its ends to the cross-pieces and provided with series of parallel slots running crosswise with relation to the corrugations of the rubbing plate, substantially as described.



4. In a wash-board, the frame, its side-pieces and connecting cross-pieces and rubbing plate, combined with a back-board fitted freely between the side-pieces and having its ends secured in the cross-pieces and provided with slots extending from opposite ends past the center of the board, substantially as described.

491,182. THILL-COUPLING. WALTER F. LEIGHTON, Boston, Mass. Filed Nov. 27, 1891. Serial No. 413,199. (No model.)



Claim.—1. A shaft shackle having a jaw-like portion composed of arms having L-shaped under-cut notches, a bolt adapted to fit the eye piece of a shaft iron, and to be held in the under-cut portion of said notches, and shaped to prevent longitudinal motion, a cap pivoted to the shackle at the rear of the notches and having lugs extended from its lower side to enter the open portion of said notches to form a front stop for and to lock said bolt in place, and means to hold the cap in place, substantially as described.

2. A shaft shackle having a jaw-like portion composed of arms having L-shaped under-cut notches, and a projection adjacent the opening thereof, a bolt adapted to fit the eye-piece of a shaft iron, the bolt having its ends polygonal to enter the under-cut portions of said notches and be restrained from rotation therein, and shouldered to prevent longitudinal motion, a cap pivoted to the shackle at the rear of the notches and having lugs extended from its lower side to enter the open portion of said notches and lock the bolt in place, notches in the underside of said cap to be entered by the projections on the arms, and means to hold the cap in place, substantially as described.

3. A shaft shackle having a jaw-like portion composed of notched arms, a bolt adapted to fit the eye piece of a shaft iron, and shaped to prevent longitudinal motion, a cap hinged to said arms and having a lug to lock said bolt, in place and means including a lever, its movable fulcrum, and a cam portion to slide upon and clamp the cap in position to hold the said bolt, substantially as described.

4. A shaft shackle having a jaw-like portion composed of notched arms, a bolt adapted to fit the eye piece of a shaft iron, the said bolt having its ends polygonal to prevent rotation thereof and to enter said notched arms, and being shaped to prevent longitudinal motion, a cap having projections to engage the said arms and having lugs to enter said notches and lock the said bolt, in place, a lever and a spring adapted to be compressed by the said lever, a stirrup connecting said lever and spring, and a bearing plate acted upon by the spring, and in turn acting by its concaved face against the eye part of the shaft iron, substantially as described.

5. In a shaft shackle, notched arms *b* constituting jaws, a bolt shaped to fit the said notched arms, and be restrained against rotation, therein and against motion in the direction of the length of the bolt, and a covering cap having projections to lock the said bolt, in place a shaft iron, a pivotally supported plate as *d* having a concaved face to fit the eye part of the said shaft iron, and means to hold the said plate in a yielding manner against the eye part of the shaft iron, and also retain the cap in position, to operate, substantially as described.

6. A shaft shackle having a jaw-like portion composed of notched arms, a bolt adapted to fit the eye piece of a shaft iron, the said bolt having its ends polyonal so as to prevent rotation thereof, and being shaped to prevent longitudinal motion, a cap having dogs to engage the said arms and having a lug to lock the said bolt in place, locking means to hold the cap in place, and anti-rattling mechanism to cooperate with the eye piece of the shaft iron, and connections between said mechanism and the locking means, to actuate them simultaneously, substantially as described.

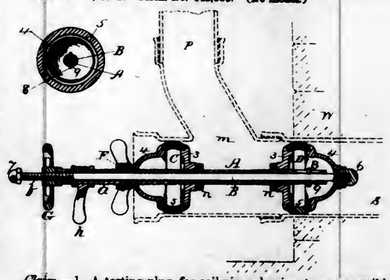
491,183. MUSICAL INSTRUMENT. JOHN F. LOBDELL, Marshfield, Mass. Filed Aug. 18, 1892. Serial No. 443,458. (No model.)



Claim.—1. In a musical instrument, the combination with the membraneous head thereof, of a wire-ring around which the head passes, said wire having longitudinal grooves or corrugations around its entire surface to prevent the head from slipping thereon, substantially as and for the purpose specified.

2. A banjo provided with suitable means for tightening the membraneous head thereof, and a wire ring around which the head passes, said wire having longitudinal grooves or corrugations around its entire surface, substantially as and for the purpose described.

491,184. DOUBLE TESTING-PLUG FOR SOIL-PIPES. JOHN F. MCCARTHEY, Worcester, Mass., assignor to Henry A. Desper, same place. Filed Oct. 12, 1892. Serial No. 448,639. (No model.)



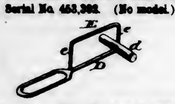
Claim.—1. A testing-plug for soil-pipes, having two expansible stoppers on a single continuous stem with an intervening space between said stoppers for spanning the month of the branch pipe, and means for independently expanding and releasing said stoppers operative from the outer end of the stem, for the purpose set forth.

2. A testing-plug for soil-pipes having two expansible stoppers arranged with intervening space, both in connection with a common tubular body or hollow stem, an operating rod extending through said hollow stem, one end of said rod connected to the operating part of one of said stoppers, and its opposite or outer end having thereon a nut or means for effecting endwise movement of said rod, substantially as set forth.

3. The combination, of the tubular-stem, the two stoppers C and D, comprising the head-plate, elastic annulus, and movable cap or compressing disk, their head-plates fixed on said stem, the operating-nut F fitted to the screw-threaded exterior of said stem and turning against the cap of stopper C, the rod extending through said tubular stem and coupled to the cap of the stopper D, and the operating nut G arranged on the threaded end of said rod, all substantially as and for the purpose set forth.

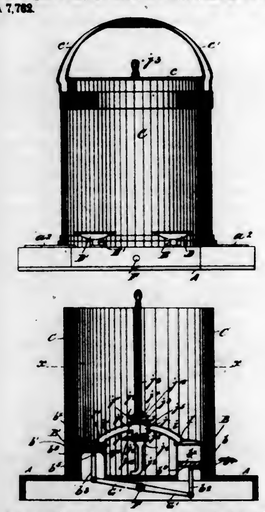
4. The rod B, provided with the end-nut 6 and pin 8, in combination with the hollow stem A slotted, as at 9, the stopper D having its cap 4 separated from and fitting against said end nut, and the hand wheel-nut G fitted on the opposite threaded end of said rod against the tubular stem, as set forth.

491,185. CAR-COUPLING. JOSEPH C. MCILWAIN, Lochloosa, Fla. Filed Nov. 28, 1892. Serial No. 453,302. (No model.)



Claim.—A link for a car-coupling, the same comprising a loop at one end and a cross-bar at the other, and a loop connecting said loop and the cross-bar and arranged at right angles to the first mentioned loop, substantially as shown and described.

491,186. PORTABLE PUMPING APPARATUS. DONALD NOBLE, Leeds, England. Filed Mar. 8, 1892. Serial No. 424,319. (No model.) Patented in England July 25, 1889, No. 11,890, and in Victoria May 30, 1890, No. 7,762.



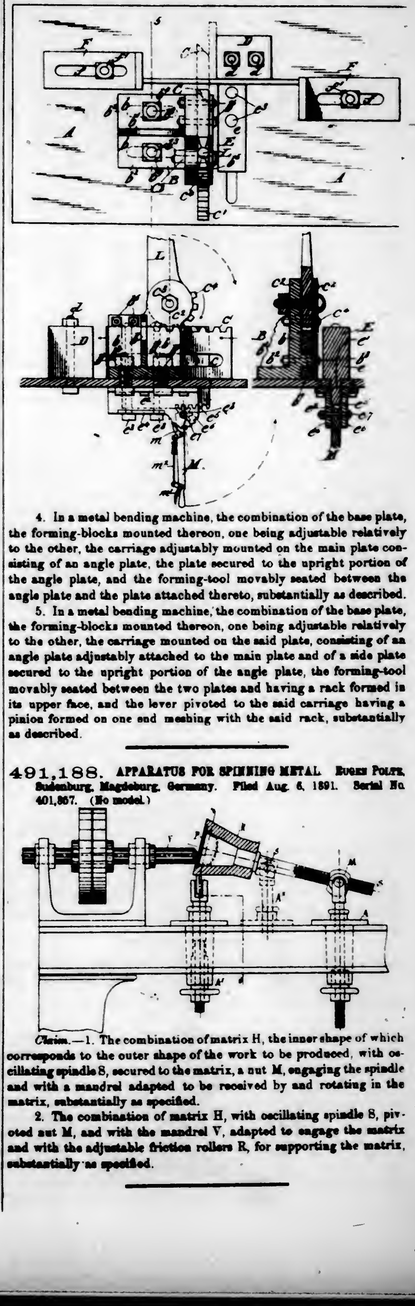
Claim.—In portable pumping apparatus worked by the heels of the operator's feet, the combination of the bi-partite cylinders and pistons with pedals D, D' levers G, G' shaft F fitted revolvingly to platform A, and connections b^3, b^4, E, E' as set forth.

491,187. METAL-BENDING MACHINE. EDMUND PARTZKA, Buffalo, N. Y. Filed June 16, 1892. Serial No. 436,886. (No model.)

Claim.—1. In a metal bending machine, the combination of the base plate, the forming-blocks mounted thereon, being relatively adjustable, the carriage adjustably mounted on the said plate and the forming-tool mounted in the carriage, so as to be movable independently of the movement of the said carriage, substantially as described.

2. In a metal bending machine, the combination of the base plate, the forming-blocks mounted thereon, one of which is adjustable relative to the other, the carriage adjustably mounted on the said plate, forming-tool mounted in the carriage, so as to be movable independently of the movement of the said carriage, and the adjustable gages, substantially as described.

3. In a metal bending machine, the combination of the base plate, the anvil block fixed thereto, the dog mounted on the said plate relatively adjustable to the anvil and having an extension projecting through the main plate and having a rack formed on the said extension, the lever provided with a pinion engaging with the said rack, the carriage adjustably mounted on the said plate, and the forming-tool movably mounted in the said carriage, substantially as described.



4. In a metal bending machine, the combination of the base plate, the forming-blocks mounted thereon, one being adjustable relatively to the other, the carriage adjustably mounted on the main plate consisting of an angle plate, the plate secured to the upright portion of the angle plate, and the forming-tool movably seated between the angle plate and the plate attached thereto, substantially as described.

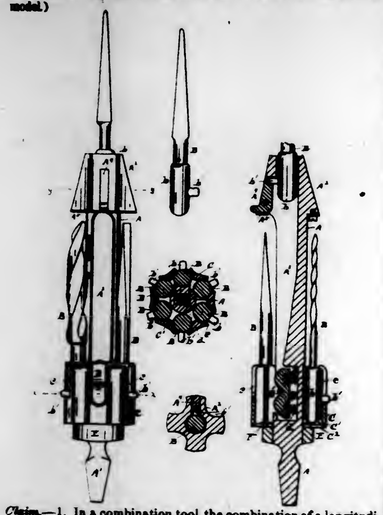
5. In a metal bending machine, the combination of the base plate, the forming-blocks mounted thereon, one being adjustable relatively to the other, the carriage mounted on the said plate, consisting of an angle plate adjustably attached to the main plate and of a side plate secured to the upright portion of the angle plate, the forming-tool movably seated between the two plates and having a rack formed in its upper face, and the lever pivoted to the said carriage having a pinion formed on one end meshing with the said rack, substantially as described.

491,188. APPARATUS FOR SPINNING METAL. EUGEN POLTE, Sudenburg, Magdeburg, Germany. Filed Aug. 6, 1891. Serial No. 401,357. (No model.)

Claim.—1. The combination of matrix H, the inner shape of which corresponds to the outer shape of the work to be produced, with oscillating spindle S, secured to the matrix, a nut M, engaging the spindle and with a mandrel adapted to be received by and rotating in the matrix, substantially as specified.

2. The combination of matrix H, with oscillating spindle S, pivoted nut M, and with the mandrel V, adapted to engage the matrix and with the adjustable friction rollers R, for supporting the matrix, substantially as specified.

491,189. COMBINATION-TOOL. ALEXANDER REINHOLD and FRANK J. REINHOLD, Detroit, Mich., assignors to the Detroit Combination Tool Company, same place. Filed Nov. 5, 1891. Serial No. 410,901. (No model.)



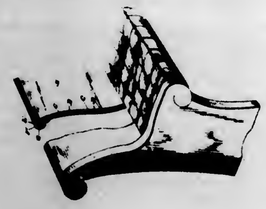
Claim.—1. In a combination tool, the combination of a longitudinally grooved body provided with a tool holder at one end, a magazine cylinder rotatable about the body at the opposite end, a series of individual tools having their shanks engaged in said cylinder, said cylinder formed with a series of through slots "c," and each of said tools formed with a stop at its shank to engage in said slot, said cylinder and slots open at the forward end thereof adjacent to the forward end of the shanks in place therein, substantially as described.

2. In a combination tool holder, the combination of a longitudinally grooved body provided with a tool holder at one end, a magazine cylinder rotatable about said body at the opposite end, a series of tools having their shanks engaged in the cylinder, said cylinder formed with an inwardly turned flange at its forward end adjacent to the forward end of said shanks and engaged therewith when the tools are in place, to hold the tools in position, substantially as described.

3. In a combination tool holder, the combination with a longitudinally grooved body provided with a tool holder at one end, of a magazine cylinder rotatable about the body at the opposite end, a series of tools having their shanks engaged in the cylinder, the forward end of said cylinder terminating at the forward end of the shanks of the tools and open to receive said shanks, and a device to control the admission and discharge of the tools into and from said cylinder, substantially as described.

4. In a combination tool holder, the combination of a longitudinally grooved body provided with a tool holder at one end, a rotatable magazine cylinder at the opposite end, a series of tools having their shanks engaged in said magazine cylinder and exposed forward of said cylinder, said cylinder open at its forward end to receive the shanks of the tools, and means to control the admission and discharge of the shanks of the tools into and from said cylinder, substantially as described.

491,190. PEW-BACK, &c. WILLIAM H. ROSIER and CHARLES ROSIER, Bucyrus, Ohio. Filed June 30, 1892. Serial No. 438,422. (No model.)

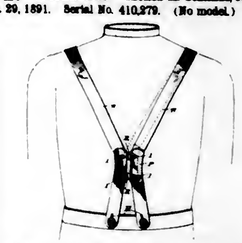


Claim.—1. A device of the class described, provided with kerfs parallel with its surfaces and terminating short of its center to form a web of solid material, and veneers or cores fitting in said kerfs, substantially as specified.

2. A device of the class described, provided in its opposite edges with inward-extending kerfs or grooves which terminate near the center thereof, and curved veneers or cores fitting in said kerfs or grooves, substantially as specified.

3. A pew-back, provided in its opposite edges with kerfs or grooves, veneers or cores fitting in said kerfs, and a bead or molding comprising a covering strip E, an intermediate or break-joint strip F, and an ornamental strip G, substantially as specified.

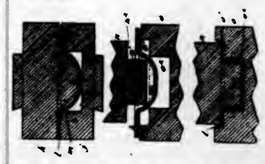
491,191. SUSPENDERS. GEORGE M. SCHAMM, Jamestown, N. Y. Filed Oct. 29, 1891. Serial No. 410,379. (No model.)



Claim.—1. The herein described suspenders, consisting of two members or webs having a pad connected to each near the lower terminating end of the same at the back arranged in vertical parallel alignment and continuous of the said webs or members, the inner opposing edges of the said pads being split to provide pockets, and a pair of metallic connecting members extending transversely across from one pad to the other in parallel planes, the said connecting members being located at the upper and lower portions of the pockets and have their opposite ends inclosed within the latter and secured by pivots passing through the pads, substantially as described.

2. The herein described suspenders, comprising two members or webs each having a pad connected thereto and provided with a vertical slit in the edge thereof extending into the same, and a pair of connecting-members having their ends located in said slits and arranged in horizontal positions, and additional vertical connecting-members engaging the opposite ends of said horizontal connecting-members and lying wholly within said slits of the pads, the said connecting-members having their ends united by pivots which pass through the pads, substantially as described.

491,192. MANUFACTURE OF CENTER-BEARING PLATES. CHARLES T. SCHOEN, Allegheny, Pa. Filed Apr. 19, 1892. Serial No. 429,807. (No model.)



Claim.—1. The improvement in the art of die-stamping center-bearing plates from wrought metal, which consists in preparing a plate of suitable size and of substantially uniform thickness throughout, such as flat sheet or plate steel, and forming therein a central depression of greater area than the projection finally formed therefrom and leaving a surrounding flat portion to constitute the body and flanges of the center-bearing plate, and then bending the depressed portion into final shape without materially drawing or thinning the metal, and forming the flanges, substantially as described.

2. The improvement in the art of die-stamping center-bearing plates from wrought metal, which consists in preparing a plate of suitable size and of substantially uniform thickness throughout, such as flat sheet or plate steel, and forming therein a central depression of greater area than the projection finally formed therefrom and leaving a surrounding flat portion to constitute the body and flanges of the center-bearing plate, and bending the said centrally depressed portion of the blank into frusto conical shape, without materially drawing or thinning the metal, substantially as described.

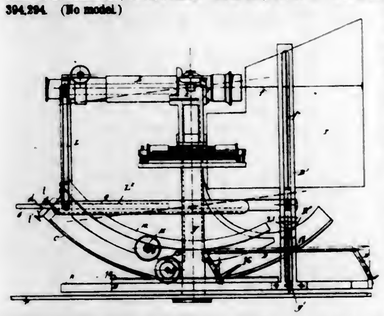
3. The improvement in the art of die-stamping center-bearing plates from wrought metal, which consists in preparing a plate of suitable size and of substantially uniform thickness throughout, such as merchant sheet or plate steel, and forming therein a central depression of greater area than the projection finally formed therefrom and leaving a surrounding flat portion to constitute the body and flanges of the center-bearing plate, and bending the said centrally depressed portion of the blank into frusto-conical shape without materially drawing or thinning the metal, and at the same time bending the flanges, substantially as described.

4. A series of dies for stamping up or pressing center-bearing plates from plate or sheet metal, comprising a set of first operation dies having a rounded or curved projection and a complemental matrix of greater dimensions than the finished product, and a set of finishing dies having a frusto-conical projection and flange-forming shoulders, and complemental matrices, substantially as described.

5. A series of dies for stamping up or pressing up center-bearing plates from plate or sheet metal, comprising a set of first operation dies having a rounded or curved projection and a complemental matrix of greater dimensions than the finished product, and a set of finishing dies having an annular projection and flange-forming shoulders and complemental matrices, substantially as described.

6. A series of dies for stamping up or pressing center-bearing plates from plate or sheet metal consisting of a set of first operation dies having a rounded or curved projection and a complemental matrix of greater dimensions than the finished product, and sets of finishing dies for completing the pair of plates from like blanks produced by the first operation dies, one of such sets of finishing dies having a frusto-conical projection and adjacent flange-forming shoulders and complemental matrices, and the other set of finishing dies having an annular projection and adjacent flange-forming shoulders and complemental matrices, substantially as described.

491,193. APPARATUS FOR MAPPING OR DRAWING LANDS. JEAN F. D. SCHRADER, Paris, France. Filed May 27, 1891. Serial No. 394,294. (No model.)



Claim.—1. An apparatus comprising in connection with a telescope mounted in alt-azimuth and a tablet-holder, the following parts, namely, a pencil or marker supported in a vertical position and connections whereby the movements of said telescope in altitude and azimuth are transmitted to said pencil or marker and may be traced upon a horizontal tablet, substantially as described.

2. In combination with a telescope and the bar the horizontal piece and the post constituting with said telescope, a jointed parallelogram, the following parts; namely the slide in said horizontal piece, a horizontal adjustable rule an upright carried by said rule and having a slot and pin connection with said slide, and a pencil or marker supported vertically by said rule substantially as described.

3. The combination with a telescope, a tablet-holder and the bar, the horizontal piece and the post, constituting with said telescope a jointed parallelogram, of the slide in said horizontal piece, an adjustable rule, an upright carried by said rule and having a slot and pin connection with said slide, and a pencil supported in a vertical position by and movable with said rule, substantially as described.

4. The combination with a telescope and the bar, the horizontal piece and the post constituting with said telescope a jointed parallelogram, of the slide in said horizontal piece, an adjustable rule, the upright on said rule and an adjustable micrometer connected with said slide, substantially as described.

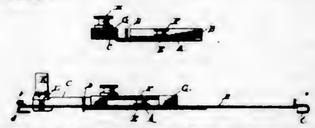
5. The combination with a telescope, a tablet holder, and the bar, the horizontal piece and the post constituting with said telescope a jointed parallelogram, of the slide in said horizontal piece, an adjustable rule, the upright on said rule, an adjustable micrometer connected with said slide, and a pencil or marker movable with said rule, substantially as described.

6. The combination with a telescope provided with a tablet secured thereto in a vertical position, and the bar, the horizontal piece and the post constituting with said telescope a jointed parallelogram, of the adjustable micrometer, the slides in said horizontal piece, an adjustable rule, the upright on said rule, and the wires one in the line of vision, the other upright, substantially as described.

7. An apparatus comprising a jointed parallelogram of which the telescope is part, a pencil or marker, an adjustable micrometer, and a vertical tablet, substantially as described.

8. An autographic telescopic instrument comprising in connection with a telescope mounted in alt-azimuth and a pencil or marker, two sets of pencil operating devices as follows; namely, first the rule and connections through which the movements of the telescope in alt-azimuth may be transmitted to said pencil or marker, and second the adjustable micrometer, the bar and horizontal piece constituting with said telescope and its post, a jointed parallelogram, the adjustable rule and upright and slide in said horizontal piece connected with said micrometer and also with said upright, substantially as described.

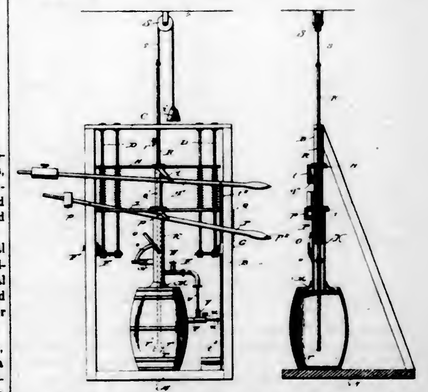
491,194. SEWING-MACHINE ATTACHMENT. RACHEL A. SHELLARD, Virginia City, Nev. Filed Aug. 27, 1892. Serial No. 444,292. (No model.)



Claim.—1. An attachment for sewing-machines, having a presser-foot bar a base-plate and a reversible and invertible sliding plate mounted upon said base-plate and provided at opposite ends and upon opposite faces with guides, substantially as specified.

2. An attachment for sewing-machines, having a presser-foot bar, a base-plate provided with a slotted guide fitting upon said bar and carrying a gage-flange, a reversible and invertible sliding plate mounted upon the base-plate and carrying guides, and means to lock said parts in the desired relative positions, substantially as specified.

491,195. APPARATUS FOR FILLING BARRELS. PERRY H. SHUMWAY, Sinerville, Pa. Filed May 3, 1892. Serial No. 431,642. (No model.)



Claim.—1. The combination with a cask or barrel and a supporting frame, of the vertically movable cross heads, the corking cylinder connected to the lower cross-head, means for forming an air tight joint between the lower end of said cylinder and the upper head of the barrel or cask, a corking tube connected to the upper cross-head and extending into the corking cylinder, and a vertically movable filling tube extending through the corking tube and cylinder into the barrel and adapted to be connected with a suitable source of supply, substantially as described.

2. The combination with a barrel or cask and a supporting frame, of the vertical guide rods secured to the supporting frame, the cross

heads mounted on said guide rods, the corking cylinder connected to one of said cross heads and having its lower end resting on the upper head of the cask or barrel, the corking tube connected to the other cross head and extending into the upper end of the corking cylinder, a filling tube extending through the corking tube and cylinder and provided with an enlarged head or nozzle at its lower end and with a regulating cock, and means for moving the corking and filling tubes vertically, substantially as described.

3. The combination with a cask or barrel and a supporting frame, of the vertically movable cross-heads, the corking cylinder connected to one of said cross heads, a lever fulcrumed on the supporting frame and provided with means for engaging with a rack on said frame, connections between said lever and the cross head to which the working cylinder is attached, the corking tube connected to the other cross head and extending into the corking cylinder, and a vertically movable filling tube extending through the corking tube and cylinder into the barrel, substantially as described.

4. The combination with a cask or barrel and a supporting frame, of a corking cylinder arranged above the cask or barrel, means for making an air tight joint between such cylinder and the head of the barrel, a cork receiving trough communicating with the interior of the corking cylinder, a lever fulcrumed on said cylinder, a finger attached to one end of said lever and extending into the cork receiving trough, a vertically movable corking tube fitted in the corking cylinder, and a vertically movable filling tube fitted in and extending through the corking tube, substantially as shown and described.

5. The combination with a barrel or cask and a supporting frame, of a corking cylinder adjustably mounted on the supporting frame, a cork receiving trough attached to and communicating with the interior of said cylinder, means for forcing a cork from said trough into said cylinder, a cross-head mounted on suitable guides, a corking tube connected to said cross head and extending into the corking cylinder, a filling tube extending through the corking tube and cylinder, and means for reciprocating the filling and corking tubes, substantially as described.

6. The combination with a barrel or cask and a supporting frame, of a corking cylinder provided at its lower end with a flexible flange, means for introducing a cork or stopper into said cylinder, a vertically movable corking tube having its lower end extended into the corking cylinder, a filling tube extending through said corking tube, and means for reciprocating said corking and filling tubes, substantially as described.

7. The combination with a cask or barrel and a supporting frame, of the vertical parallel guide rods attached to the supporting frames, the cross heads fitted loosely on said guide rods, the corking cylinder carried by the lower cross head, means for holding the lower end of the corking cylinder closely against the upper head of the barrel or cask, the corking tube carried by the upper cross head and extending into the corking cylinder, the filling tube adapted to be connected with a source of supply and extending through the corking tube, the lower end or nozzle of the filling tube being enlarged, connections between the corking tube and bung hole of the cask or barrel, said connections being provided with a short transparent tube, a weighted lever fulcrumed on the supporting frame and connected to the upper cross head, and a treadle connected to one end of said lever, substantially as described.

8. The combination with a barrel or cask and a supporting frame, of a corking cylinder provided at its lower end with a flexible flange, means for introducing a cork or stopper into said cylinder, an escape valve to regulate the pressure in the barrel, a vertically movable corking tube having its lower end extended into the corking cylinder, a filling tube extending through said corking tube, and means for reciprocating said corking and filling tubes, substantially as described.

491,196. COIN-ACTUATED MACHINE. WILLARD A. SMITH, Providence, R. I. Filed June 15, 1892. Serial No. 436,734. (No model.)

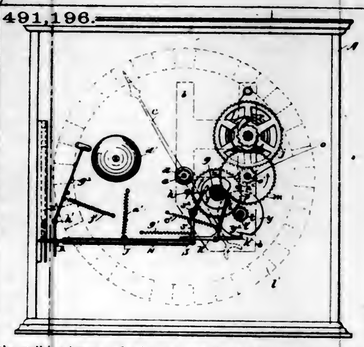
Claim.—1. The combination of two or more dials having pointers normally free of all operating devices and arranged to be operated successively by the same set of devices substantially as described, with a motor for operating said devices arranged to be released by the action of a coin deposited in an opening for that purpose.

2. In a coin operating apparatus, the combination of the shaft *e*, having wheel *d*, fast thereon, spring *f*, arranged to strike and turn said wheel *d*, when released lever *k*, to retain said spring *f*, with a motor, and a coin operating lever for releasing the mechanism for action, substantially as specified.

3. In a coin operating machine, the combination of lever J, carrying the sliding rod S, provided with a fork R, with a chute to guide the coin, a pointer and a dial with mechanism for turning the pointer, adapted to be released for operation by the lever J, substantially as set forth.

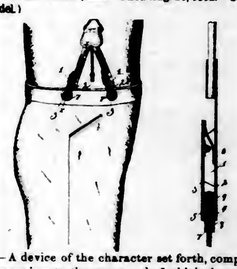
4. The combination of a bell and striking lever with a coin actuated lever carrying a sliding coin releasing rod, arranged to operate

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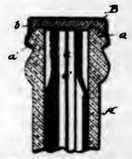
the striking lever, and a lever connecting said rod with the motor, substantially as described.

491,197. SUSPENDER-BUTTON. JOHN F. STAIGER and CHARLES SOERER, Mount Vernon, Ind. Filed Aug. 20, 1892. Serial No. 443,656. (No model.)



Claim.—A device of the character set forth, comprising an elongated stationary jaw to the upper end of which the suspender-end is adapted to be secured, and having a socket at the lower end of the same, and a movable jaw that is pivoted to the said stationary jaw and has a stud 5 on the free end thereof that is opposed to and adapted to be received and inclosed by the socket on the said stationary jaw, said pivoted jaw being spring-actuated to hold it normally closed against the stationary jaw and shorter than the said stationary jaw, said jaws adapted to be employed in connection with metallic annular plates attached to the garment, substantially as described.

491,198. BOTTLE. ALEXANDER L. STRAUS, Baltimore, Md. Filed May 16, 1892. Serial No. 433,300. (No model.)



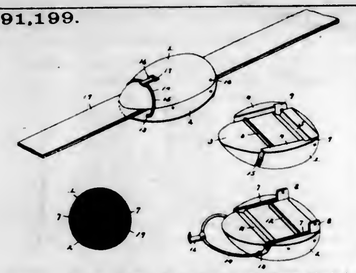
Claim.—1. A bottle having the interior of its neck near the mouth other than circular in sectional outline, and its head constructed to receive and retain a cap or seal, substantially as described and for the purpose set forth.

2. A bottle having one or more projections or depressions in its throat near the mouth and its head constructed to receive and retain a cap or seal, substantially as described and for the purpose set forth.

3. A bottle having a lip and an annular groove on its head to receive and retain a cap and projections or depressions in its throat near the mouth, substantially as described and for the purpose set forth.

491,199. REIN-BUTTON. JOHN T. SWARNS, Tyrone, Pa. Filed Oct. 31, 1892. Serial No. 450,880. (No model.)

491,199.



Claim.—1. In a line-holder, the combination with opposite halves or sections one of which is recessed longitudinally through and through, forming opposite side flanges, transverse superficial ribs, and corresponding grooves formed on and located in the adjacent faces of said sections, between the flanges of locking devices for clamping the sections together, substantially as specified.

2. In a line-holder, the combination with the opposite sections one of which is recessed on its inner face from end to end in a longitudinal direction forming opposite side flanges, of a hinged connection between the adjacent ends of said sections, means for locking the sections together in a clamped position, and transverse ribs and grooves registering with each other and formed on and located in the adjacent faces of said sections, between the flanges substantially as specified.

3. In a line-holder, the combination with the opposite sections hinged together at the corners of their adjacent ends and provided with transversely-disposed ribs and grooves formed on and located in the adjacent faces of the sections between the flanges and registering with each other, of a bail pivotally secured to one section and adapted to be sprung over the companion section, and a circumferential-groove formed in said companion section for engaging the bail, substantially as specified.

4. In a line-holder, the combination with the opposite halves or sections hinged together at adjacent ends and provided with corresponding ribs and grooves formed on and located in their adjacent faces, of a pintle passed through one of the sections, a wire bail loosely mounted on the pintle, a hook loosely connected to the bail, and a groove formed in the opposite section for receiving the bail and in rear of the same an opening for the reception of the hook, substantially as specified.

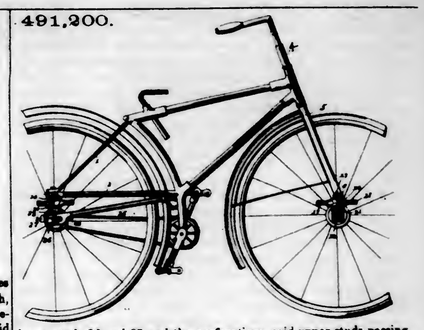
5. In a line-holder, the combination with the sections 1 and 2, the former having its under side and inner face longitudinally grooved throughout its length at 3 forming the flanges 4, the bottom of the groove 3 being provided with a depending rib 6 and in rear of the same with the transverse groove 5; and the lower section 2 having the longitudinal ribs 7 for taking between the ribs 4 and the front transverse groove 11 and rear transverse rib 12 registering respectively with the ribs and grooves 6 and 5, the ears formed on the groove 7 and taking into recesses formed in the section 1, and the pintle passed through the ears and section 1, of a transverse pintle 13 passed through the section 2 near one end, the bail 14 mounted thereon, the hook upon the bail, the circumferential-groove for receiving the bail, and an opening for receiving the hook, the groove and opening being formed in the section 1, substantially as specified.

491,200. BICYCLE. FRANK SWEETLAND, Angola, N. Y. Filed June 4, 1892. Serial No. 435,517. (No model.)



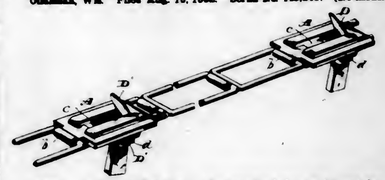
Claim.—In a bicycle, the combination with the upper and lower forks 1 and 2, terminating at their lower ends in eyes, said lower forks being provided with depending perforated lugs, of the bars 25 bifurcated at their front ends to receive and pivoted to the lugs and provided upon their upper sides near their rear ends with perforated lugs and upon their under sides with L-shaped brackets with which they combine to form slots, bearing-boxes mounted in the slots, set-screws passed through the front ends of the brackets and into the boxes, the blocks 30 having the perforated bearing-ears 32 embracing the lugs or tenons on the bars 25, said blocks being provided with perforations and with upwardly-disposed studs, the plates 34 having the upper and

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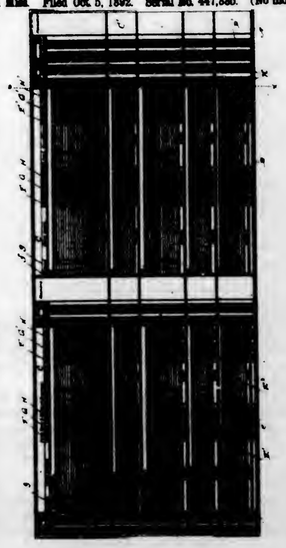
lower studs 36 and 37 and the perforations, said upper studs passing through the eyes in the frame, the springs perforated to receive the adjacent studs, the nuts on the studs, and the pairs of U-shaped clips passing through the plates and blocks and embracing springs, substantially as specified.

491,201. GRAVITY-DOG FOR GANG-EDGERS. JESSIE TARRANT, Onalaska, Wis. Filed Aug. 16, 1892. Serial No. 443,215. (No model.)



Claim.—A chain link having a longitudinal slot, and a weighted dog pivoted to work in said slot and to automatically fold therein and to be stopped by the engagement of its upper end with the front cross portion of the link, as set forth.

491,202. BOOK FOR BOOKKEEPING. GUSTUS D. THOMAS, Greenville, Miss. Filed Oct. 5, 1892. Serial No. 447,885. (No model.)



Claim.—1. A book for the purpose described, composed of a series of full size leaves and a series of shorter leaves, one or more of the shorter leaves being arranged between each pair of full size leaves, said full size leaves being provided on both sides near each end with a double "trial balance" column and having the space between said columns suitably divided, and the shorter leaves being provided on

means for operating the body from inside the car, substantially as described.

491,204. MATCH. CHARLES M. BOWMAN, Lebanon, Pa. Filed May 9, 1892. Serial No. 432,257. (No model.)

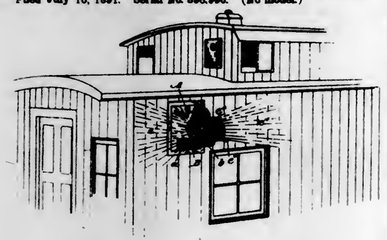
posed of the double headed bolt, a clevis key, and the securing pin passing through the clevis, substantially as shown and described.

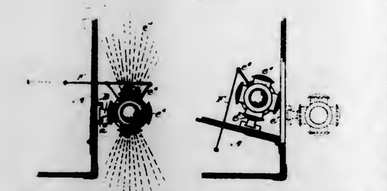
491,209.

Claim.—1. A book for the purpose described, composed of a series of full size leaves and a series of shorter leaves, one or more of the shorter leaves being arranged between each pair of full size leaves, said full size leaves being provided on both sides near each end with a double "trial balance" column and having the space between said columns suitably divided, and the shorter leaves being provided on one side only, near one end, with a "trial balance" column and the body of said shorter leaves being divided in a manner similar to the body of the pages of the full size leaves, substantially as described.

2. As a new article of manufacture, a book composed of a series of leaves of different lengths, each page of the longer leaves being ruled to provide a series of parallel vertical columns D, E, F, G, H, E', F', G', H' and D' arranged in consecutive order as specified and provided, respectively, with the headings "Trial balance," "Debit items," "Amount of merchandise cr. sales," "Amount of other accounts," "Total debits," "Credit items," "Dr. merchandise amount received," "Amount of other accounts," "Total credits," and "Trial balance" each page of the shorter leaves being provided with a series of parallel vertical columns E, F, G, H, E', F', G' and H' similar to the corresponding columns on the pages of the longer leaves and on one page with a column K having a heading or caption "Trial balance" and the vertical columns on all the pages being divided into a series of sections by horizontal division lines, substantially as described.

491,203. CAR-SIGNAL. JAMES G. TOMLINSON, Birmingham, Ala. Filed July 10, 1891. Serial No. 398,996. (No model.)





Claim.—1. The combination with a railway car of a signal lantern, consisting of a stationary base fastened to the car and carrying one or more fixed blinds, a body rotatably mounted on said base and containing four semaphores, and a suitable device for rotating the body from within the car, substantially as described.

2. The combination with a stationary base having a circular shoulder and two diametrically opposite blinds, of a cylindrical body rotatably mounted on said shoulder and carrying four semaphores, an arm rigidly attached to said body, and a rod jointed to said arm, substantially as described.

3. The combination with a railway car, of a door in the side of said car opening inwardly, and a signal lantern attached to the outside of said door, substantially as described.

4. The combination with a railway car, of a door in the side of said car adapted to open inwardly, a lamp bracket attached to the outside of said door, a rotatable lantern body mounted on said bracket, and means for operating said body from inside the car, substantially as described.

5. The combination with a railway car, of a door in the side of said car adapted to open inwardly, a lamp bracket attached to the outside of the door, a cylindrical lantern body rotatably mounted on said bracket, and carrying four semaphores, an arm rigidly fastened to said body, and a rod jointed to said arm and passing through a hole in the door, substantially as described.

6. The combination with a railway car, of a door in the side of said car adapted to open inwardly, a lamp bracket attached to the outside of the door, and carrying fixed blinds, a lantern body rotatably mounted on said bracket and carrying four semaphores, and means for operating the body from inside the car, substantially as described.

491,204. MATCH. CHARLES M. BOWMAN, Lebanon, Pa. Filed May 9, 1892. Serial No. 432,257. (No model.)

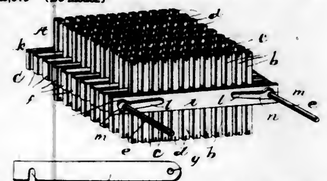


Claim.—1. An improved article of manufacture, a match having a portion of the splint removed from the center of one end forming a normally open slot, and the fulminate keyed into and surrounding the splint.

2. An improved article of manufacture, a match having a slot in one end formed by removing a portion of the splint, and bounded on two sides by longitudinal projections, in combination with fulminate keyed into said slot, surrounding the projections and completely incasing the end of the match.

3. A match splint having uniform parallel sides throughout its length, a portion of one end removed forming a slot and provided with two parallel walls constituting a fulminate receptacle, in combination with fulminate keyed into the fulminate receptacle and incasing the end of the match.

491,205. METHOD OF AND DEVICE FOR MAKING MATCHES. CHARLES M. BOWMAN, Lebanon, Pa. Filed Sept. 14, 1892. Serial No. 445,870. (No model.)

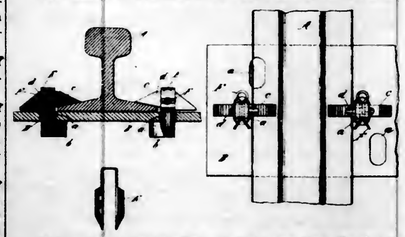


Claim.—1. The method of making matches, which consists in forming cards of match-splints, cutting slots in the outer ends of the splints, and applying paraffine and fulminate to entirely envelop the tips of the splints.

2. The method of making matches, which consists in forming match-cards with an uncut portion or body and match splints on both sides of said body integral therewith, cutting slots in the outer ends of the splints, assembling the cards in a suitable tray, separating the cards and securing them in a separated position in a holder at the uncut portion of the card, and treating the tips with paraffine and fulminate.

3. A match card holder consisting of parallel rods, bars engaging one of said rods at one end to swing thereon, and provided with a slot on the underside of the opposite end to engage the opposite bar of the holder, a clamping plate and means for applying tension thereto.

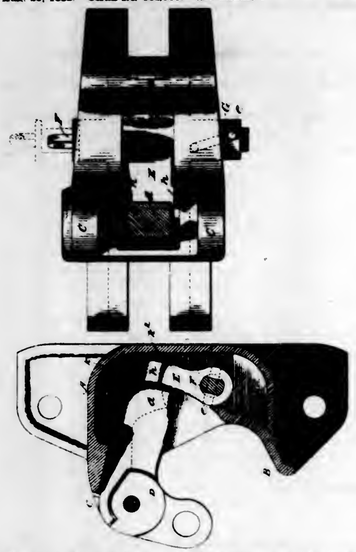
491,206. LOCK FOR METALLIC PLATES. WILLIAM H. BROOKS, West Point, N. Y. Filed Mar. 4, 1892. Serial No. 423,785. (No model.)



Claim.—1. The combination with two or more metallic plates or parts having oblong perforations, of a double headed bolt, a clevis key located in the perforations to prevent the bolt from turning, and a securing pin passing through the clevis, substantially as explained and for the purposes set forth.

2. The herein described lock for metallic plates, the same composed of the double headed bolt, a clevis key, and the securing pin passing through the clevis, substantially as shown and described.

491,207. CAR-COUPLING. HARRY C. BUNDY, Chicago, Ill. Filed Aug. 26, 1892. Serial No. 444,086. (No model.)

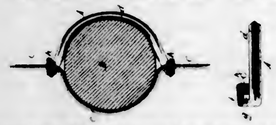


Claim.—1. In a twin jaw coupler, the combination with a knuckle or revolving hook coupler, of a wing-lock, a pin, and inclines for actuating the wing lock from the pin, substantially as and for the purposes specified.

2. In a twin jaw coupler, the combination with a knuckle, or revolving hook coupler, and a wing-lock, of a pin and inclines for actuating the wing-lock, and a spring for actuating the knuckle from the wing-lock; substantially as and for the purposes specified.

3. In a twin jaw coupler, the combination with a knuckle or revolving hook coupler, of a wing-lock, a pin and inclines for actuating the wing-lock, and a pivoted bow spring for actuating the knuckle from the wing-lock; substantially as and for the purposes specified.

491,208. INSULATOR-CLIP. WILLIAM H. EDMUNDS, New York, N. Y. Filed Aug. 9, 1892. Serial No. 442,588. (No model.)

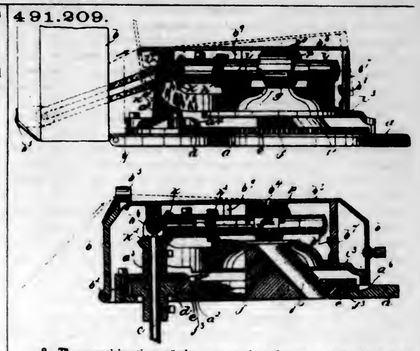


Claim.—An attachment for securing electrical conducting wires to insulators, comprising in combination with a loop, lugs *f f* extending upward and over to ends of said loop to form tapering slots for receiving the wire, and teats *h h* arranged on the ends of the lugs and adapted to be bent over to close the slots, substantially as set forth.

491,209. COILER FOR CARDING-ENGINES. FREDERICK A. FLATHER, Newton, Mass. Filed Nov. 5, 1891. Serial No. 410,917. (No model.)

Claim.—1. The combination of the sliver delivering and feeding mechanism of a coiler, with a movable cover for said mechanism, composed of two separately movable parts, one containing a guide passage for the sliver, and having a support independent of the other part and the other constituting the main inclosing case or cover for the delivering mechanism, and being movable to uncover the said mechanism without movement of the part containing the sliver guide passage substantially as and, for the purpose described.

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2. The combination of the supporting frame or bed plate and sliver feeding and delivering mechanism of a coiler, with a two-part cover, one part of which contains the guide passage for the sliver, and the other part of which is hinged on the base plate and provided near its hinged end with a guide seat over which the sliver passes to the guide passage in the other portion of the cover, substantially as and for the purpose described.

3. The combination of the base plate of the coiler head provided with a central opening and a groove around the same, with the revolving sliver delivering head having a portion that fits loosely in said opening and having a toothed periphery and an annular rib of less diameter than the toothed portion, which rib enters the said groove, and is engaged by the wall thereof to constitute the bearing for the said delivering head, and a bracket a^4, and main shaft having its bearing therein, provided with a gear engaging the toothed periphery of the sliver delivering head, said bracket being provided with a projection a^4, over said sliver delivering head whereby the latter is prevented from being thrown out of its bearing, substantially as described.

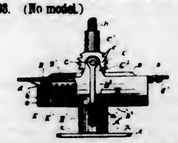
4. The combination of the base plate of the coiler head provided with a central opening and a groove around the same, with the revolving sliver delivering head having a portion that fits loosely in said opening and an annular rib that enters the said groove, and is engaged by the wall thereof, to constitute the bearing for said delivering head; a cover for said sliver delivering head, and co-operating mechanism, fitting closely on said base plate and an oil channel in said base plate from the outside of the cover to the bearing groove for the delivering head, substantially as described.

5. The combination with the feed rolls of a coiler, of the removable cap *p* supported on and co-operating with said rolls, substantially as and for the purpose described.

6. The combination of the rolls one supported in fixed bearings and the other in bearings movable with relation to the said fixed bearings, with the movable cover, and the projection interposed between said movable bearings, and cover as described, whereby said cover is raised when the movable feed roll is forced apart from the co-operating feed roll, substantially as described.

7. The combination of the base plate and sliver delivering head having its bearing thereon, with the feed rolls and their supporting frame having a pivotal movement with relation to the base plate, and a two-part cover the portion of which that is immediately over the feed rolls being pivoted on the same axis as the feed roll frame, and supported in working position on the said frame, substantially as described.

491,210. TROLLEY-STAND. SAMUEL HARRIS, Cleveland, Ohio, assignor to the Steel Motor Company, same place. Filed Nov. 14, 1892. Serial No. 451,893. (No model.)

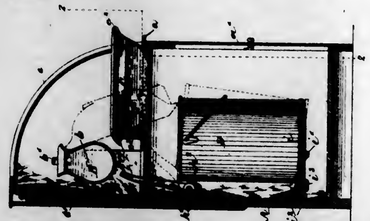


Claim.—1. In combination, a trolley-pole stand having a stationary base provided with an upright hub, a housing having a sleeve concentric with the hub, an inner loose sleeve with a series of anti-friction rollers located in the annular chamber between the inner sleeve and hub, substantially as and for the purpose set forth.

2. In combination, a stationary base and hub, a housing swiveled upon such hub, a horizontal rack-bar operating in ways of the housing, a coiled spring located inside the housing, washers abutting the spring inside of and engaging the end walls of the housing, the rack-bar having lugs engaging the outer faces of the washers, the end walls of the housing having openings for the passage of such lugs, substantially as and for the purpose set forth.

3. In trolley-pole stand, in combination, a stationary base having an upright hub, a housing swiveled thereon, a rack-bar of the mortise variety operative in ways of the housing, cylindrical coiled springs, the one spring operating within the coils of the other spring, such springs being located in the chamber of the housing, washers interposed between the ends of the springs and the end walls of the housing, lugs of the rack-bar located outside of and opposing the washers, openings in the end walls of the housing for the passage of these lugs, an oscillating head having teeth engaging the teeth of the rack-bar, such head having attachments, for engaging the trolley-pole, substantially as and for the purpose set forth.

491,211. WASHSTAND. JAMES P. HAYES, Mount Vernon, N. Y. Filed Aug. 29, 1891. Renewed Jan. 4, 1893. Serial No. 457,284. (No model.)



Claim.—1. A wash-stand, comprising a suitable stand to support a wash-bowl, the said wash-bowl, mounted on trunnions or pivots and provided with a stop-piece, a shelf below said bowl to support a slop-pail, the said pail, and a locking-bar, hinged to the stand at the back and adapted to stand normally with its free end adjacent to the stop-piece on the bowl, whereby, when the locking-bar is in this position the bowl cannot be tilted, said locking-bar, when in its locking position occupying the room destined to be occupied by some part of the slop-pail when the latter is in place and adapted to be uplifted by the said pail when the latter is placed on its support, as and for the purpose set forth.

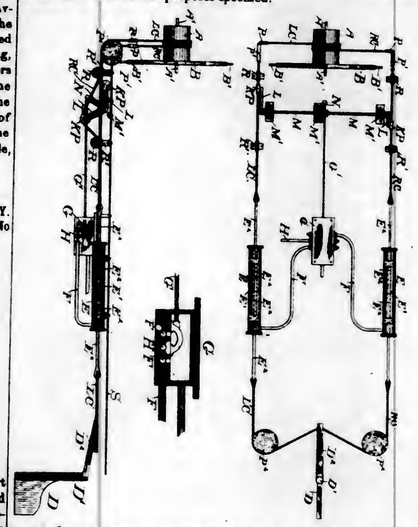
2. In a wash-stand, the combination with the stand to support the wash-bowl, of the said bowl mounted on pivots or trunnions on the stand and adapted to be emptied by tilting it backward, a removable slop-pail mounted on a tilting shelf under said bowl, and a locking-bar hinged to the stand at the back and adapted to stand, normally, with its free end adjacent to some part of the back part of the bowl, and a slop-pail having the proper dimensions to strike and uplift said locking-bar and unlock the bowl, when said pail is in place, the said pail being also adapted, when filled to a predetermined extent, to tilt forward and allow the locking-bar to again descend, as set forth.

491,212. STEERING APPARATUS. WILLIAM T. JOHNSTON, Newport, Ky. Filed May 26, 1892. Serial No. 434,413. (No model.)

Claim.—1. In a steering apparatus, the steering ropes, and a device for tightening one or the other, as desired, one of the ropes being slack, and a motor mechanism employing a motor fluid, and a valve mechanism connected by suitable connections to the rudder, and the right and left bearings KP, respectively located upon the left and right ropes, and mechanism connecting the said bearings with said valve mechanism, for enabling the drawing taut of one of the ropes to cause the valve device to admit the motor fluid to the motor mechanism, for operating the rudder in a given direction, substantially as and for the purposes specified.

2. In a steering apparatus, the steering ropes, and a device for pulling one or the other, as desired, one of the ropes being slack while the other is tight, and cylinders, and valve mechanism for regulating the admission of operating fluid to them, and the exit of fluid therefrom, and mechanism substantially as described for enabling the drawing taut of one of the ropes to cause the valve device to admit steam to the cylinder operating the rudder in a given direction, substantially as and for the purposes specified.

3. In a steering apparatus, the steering ropes, and a device for pulling one or the other as desired, one of the ropes being slack, and motor cylinders for being operated by a motor fluid, and connected by suitable connections with the rudder and valve mechanism, adapted, when moved slightly to admit steam into one cylinder while the other has steam, and when moved a greater distance to exhaust the steam from one cylinder while the other takes steam, and mechanism substantially as described for enabling the drawing taut or approximately taut of one of the ropes, to operate the said valve mechanism, substantially as and for the purposes specified.



4. In a steering apparatus, the steering ropes and a device for pulling on one or the other of said ropes as desired, one of the ropes being slack, and motor cylinders for being operated by a motor fluid, and connected by suitable connections to a rudder and a three port valve and a slide valve having an inside lap, and mechanism substantially as described for enabling the drawing taut or approximately taut of one of the ropes to operate the said valve, substantially as and for the purposes specified.

5. In a steering apparatus, the steering ropes and a device for pulling one or the other as desired, one of the cords being slack while the other is tight, and cylinders having pistons, and piston rods, the latter extending through both ends of their respective cylinders, and in front connected to the forward portion of the adjacent steering rope and at rear connected to the rear portion of the said rope, and valve mechanism for operating these cylinders alternately, and mechanism for enabling the drawing tight of either rope to cause, through the agency of the valve mechanism, the cylinder connected with said taut rope, to pull the rear portion of said rope and turn the rudder, and hold it when turned, substantially as and for the purposes specified.

6. In a steering apparatus, the steering rope and a device for pulling one or the other as desired, one of the cords being slack while the other is tight, and cylinders having pistons, and piston rods, the latter extending through both ends of their respective cylinders, and in front connected to the forward portion of the adjacent steering rope and at rear connected to the rear portion of the said rope, and a valve having three ports and slide valve, and mechanism for enabling the drawing tight of either rope to cause through the agency of the operated valve, the said piston connected with the said taut rope to pull the rear portion of said rope and turn the rudder and hold it when turned, substantially as and for the purposes specified.

7. In a steering apparatus, the steering ropes having slack and the bearings KP, one against one rope and the other against the other rope, and the levers L, L, respectively connected to the said bearings, and having a shaft connection, in combination with a motor operated by a motor fluid, and connected with means for operating the rudder, and valve mechanism for operating the motor, and in turn operated through the agency of the shaft connection, substantially as and for the purposes specified.

8. In a steering apparatus, the steering ropes having slack, and the bearings K, P, one against one rope and the other against the other rope, and the levers L, L, respectively connected to the said bearings and to a common shaft M, and lever or crank N, fixed to the shaft, and having rod G′ fixed to the free end of the lever, and the valve G operated by the rod G′, and a motor mechanism connected to the rudder, and operated by said valve, by means of a motor fluid, substantially as and for the purposes specified.

9. In a steering apparatus, the steering ropes having slack and the bearings K, P, one against one rope and the other against the other rope, and the levers L, L, respectively connected to the said bearings and to a common shaft M, the levers L, L, lying in planes making an angle with each other, and lever or crank N fixed to the shaft, and having rod G′ fixed to the free end of the lever, and the valve G operated by the rod G′, and a motor mechanism connected to the rudder, and operated by said valve, by means of a motor fluid, substantially as and for the purposes specified.

10. In a steering apparatus, the steering ropes having slack and the bearings K, P, one against one rope and the other against the other rope, and the levers L, L, respectively connected to the said bearings and to a common shaft M, and lever or crank N, fixed to the shaft, and having rod G′ fixed to the free end of the lever, and the valve G operated by the rod G′, and the cylinders E, E, each having piston rod E extending through both ends of the cylinder, and connected at front and rear to the steering ropes on their respective sides of the vessel, and conduits F, F, respectively connected to their respective cylinders, substantially as and for the purposes specified.

11. In a steering apparatus, the steering ropes having slack, and the bearings K, P, one against one rope and the other against the other rope, and the levers L, L, respectively connected to the said bearings and to a common shaft M, and the lever or crank N, fixed to the shaft, and having rod G′ fixed to the free end of the lever, and the valve G on the three port valve seat and operated by said rod, and having an inside lap, and two cylinders one for operating the right rear rope R, C, and one for operating the left rear rope L, C, and connections between said valve and said cylinders, substantially as and for the purposes specified.

12. In a steering apparatus, the steering ropes having slack and the bearings K, P, one against one rope and the other against the other rope, and the levers L, L, respectively connected to the said bearings and to a common shaft, and the lever or crank N, fixed to the shaft, and having rod G′ fixed to the free end of the lever, and the valve G on the three port valve and operated by said rod, and having an inside lap, and the cylinders E, E, each having a piston rod E extending through both ends of the cylinder and connected at front and rear to the steering ropes at their respective sides of the vessel, and conduits F, F, respectively connected to their respective cylinders, substantially as and for the purposes specified.

13. In a steering apparatus, the first or usual steering wheel and its ropes R, C, and L, C, in combination with the rudder, and a second steering wheel, and its ropes R, C, and L, C, having slack, and a motor mechanism using a fluid motor, and a valve for operating the same and bearings in combination with the said ropes, the said bearings being respectively adapted as their respective ropes are tightened to operate the said valve, so as to set the motor mechanism in action, and operate the rudder, substantially as and for the purposes specified.

14. In a steering apparatus, the first or usual steering wheel and its ropes R, C, and L, C, in combination with the rudder, and a second steering wheel and its ropes R, C, and L, C, having slack, and the cylinders E, E, each having a piston extending through both ends of it, and at rear attached by connections to the rudder and in front connected to both the ropes which on that side are respectively connected to the first steering wheel and the second steering wheel, and a valve for operating the pistons of said cylinders through the agency of a motor fluid, and the bearings K, P, respectively resting upon the ropes of the second wheel, and connected to levers L, L, adapted by means substantially as described to reciprocate the valve, substantially as and for the purposes specified.

491,213. APPARATUS FOR CASTING INGOTS. TIMOTHY KAYE, Homestead, Pa., assignor of one-fifth to John G. Oeffner, same place. Filed Nov. 30, 1891. Serial No. 413,564. (No model.)

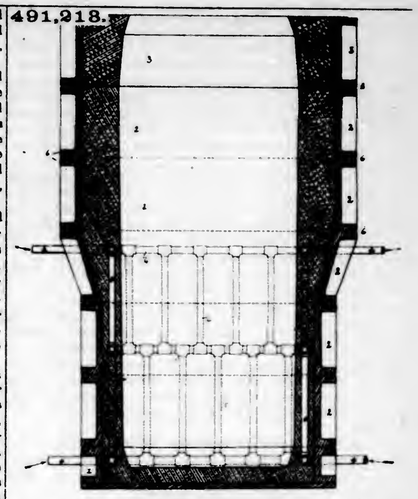
Claim.—1. A molded ingot mold having a matrix with downwardly-converging sides, and means for cooling the lower portion of the mold, substantially as described.

2. A molded ingot mold having a matrix with downwardly-converging sides and cooling pipes embedded in the lower portion of the mold, substantially as described.

3. A molded ingot mold, having a matrix with downwardly converging sides, a removable top section, and means for cooling the lower portion of the mold; substantially as and for the purposes described.

4. A molded ingot mold, having a matrix with downwardly converging sides, a removable top section tapering in the opposite direction, and means for cooling the lower portion of the mold; substantially as and for the purposes described.

491,218.



491,214. FOLDING CHAIR. CYRUS KERR, Lakeside, Ill., assignor to the North Western Wire Mattress Company, Kenosha, Wis. Filed Jan. 11, 1892. Serial No. 417,747. (No model.)

Claim.—1. The combination of the legs, C, C, side-rails, A, A, seat, B, hinged to said legs at its front, and a link connection hinged to the rear edge of said seat and extending thence upward a distance substantially equal to half the distance between the hinges at the front and rear of said seat and there hinged to the side-rails, A, A, these several parts being otherwise so spaced and hinged as to allow said legs, seat, and link connection to fold parallel with and entirely within the space between the side-rails, A, A, and a stop to limit the forward movement of the seat and upper ends of the legs when the chair is unfolded, substantially as described.

2. The combination of the legs, C, C, side-rails, A, A, seat, B, hinged to said legs at its front, and a link connection hinged to the rear edge of said seat and extending thence upward a distance substantially equal to half the distance between the hinges at the front and rear of said seat and there hinged to the side-rails, A, A, these several parts being otherwise so spaced and hinged as to allow said legs, seat, and link connection to fold parallel with and entirely within the space between the side-rails, A, A, and a stop to limit the forward movement of the seat and upper ends of the legs when the chair is unfolded, and a stop to limit the rearward movement of said legs and seat, substantially as described.

3. The combination of the side-rails, A, A, legs, C, C, seat, B, hinged at its front to said legs, back, D, hinged at its lower end to the rear of said seat, and hinged at its sides to the side-rails, A, A, at proper position to allow said lower end and the rear end of said seat to pass rearward and upward between the side-rails, A, A, into a position parallel with and wholly within the space between the side-rails, A, A,

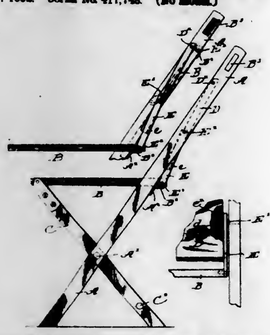
while the legs, C, C, fold parallel to and wholly within the space between the side-rails, A, A.

4. The combination of the side-rails, A, A, legs, C, C, hinged to said side-rails, seat, B, hinged by its front to the upper ends of the legs, C, C, back, D, hinged by its lower end to the rear end of the seat, B, and near its middle to the side-rails, A, A, these several parts being so spaced and hinged as to fold parallel to and wholly within the space between the side-rails, A, A, and a stop for limiting the forward movement of said seat and the upper ends of the legs, C, C, substantially as shown and described.

5. The combination of the side-rails, A, A, legs, C, C, hinged to said side-rails, seat, B, hinged by its front to the upper ends of the legs, C, C, back, D, hinged by its lower end to the rear end of the seat, B, and near its middle to the side-rails, A, A, these several parts being so spaced and hinged as to fold parallel to and wholly within the space between the side-rails, A, A, and stops, A^3 and B^3, for limiting the forward movement of the seat and the upper ends of the legs, C, C, substantially as shown and described.

6. The combination of the side-rails, A, A, legs, C, C, hinged to said side-rails, seat, B, hinged by its front to the upper ends of the legs, C, C, back, D, hinged by its lower end to the rear end of the seat, B, and near its middle and forward of the plane of said back to the side-rails, A, A, these several parts being so spaced and hinged as to fold parallel to and wholly within the space between the side-rails, A, A, and a stop for limiting the forward movement of said seat and the upper ends of the legs, C, C, substantially as shown and described

491,215. FOLDING CHAIR. CYRUS KERR, Lakeside, Ill., assignor to the North Western Wire Mattress Company, Kenosha, Wis. Filed Jan. 11, 1892. Serial No. 417,743. (No model.)



Claim.—1. The combination of the side rails, A, A, legs, C, C, hinged to said side rails, seat, B, hinged by its front end to the front ends of said legs, links, E, hinged by their lower ends to the rear of said seat and by their upper ends to the side rails, A, A, and a stop for limiting the forward movement of said seat and the legs, C, C, substantially as shown and described.

2. The combination of the side rails, A, A, legs, C, C, hinged to said side rails, seat, B, hinged by its front end to the front ends of said legs, links, E, hinged by their lower ends to the rear of said seat and by their upper ends to the side rails, A, A, and a stop for limiting the forward movement of said seat and the legs, C, C, and a stop for limiting the rearward movement of said seat and legs, substantially as shown and described.

3. The combination of the side rails, A, A, legs, C, C, hinged to said side rails, seat, B, hinged by its front end to the front ends of said legs, links, E, hinged by their lower ends to the rear of said seat and by their upper ends to the side rails, A, A, and a stop for limiting the forward movement of said seat and the legs, C, C, and a back located between the side rails, A, A, substantially as shown and described.

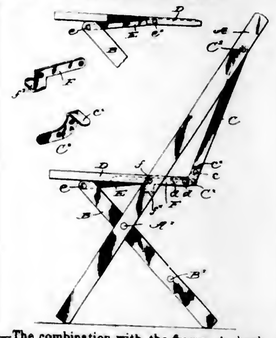
4. The combination of the side rails, A, A, legs, C, C, hinged to said side rails, seat, B, hinged by its front end to the front ends of said legs, links, E, hinged by their lower ends to the rear of said seat and by their upper ends to the side rails, A, A, a stop for limiting the forward movement of said seat and the legs, C, C, and a stop for limiting the rearward movement of said seat and legs, and a back located between the side rails, A, A, substantially as shown and described.

5. The combination of the side rails, A, A, legs, C, C, hinged to said side rails, seat, B, hinged by its front end to the front ends of said legs, links, E, hinged by their lower ends to the rear of said seat and by their upper ends to the side rails, A, A, a stop for limiting the forward movement of said seat and the legs, C, C, and a hinged back located between said side rails, A, A, substantially as shown and described.

6. The combination of the side rails, A, A, legs, C, C, hinged to said side rails, seat, B, hinged by its front end to the front ends of said legs, links, E, hinged by their lower ends to the rear of said seat and by their upper ends to the side rails, A, A, a stop for limiting the forward movement of said seat and the legs, C, C, and a hinged back located between said side rails, A, A, substantially as shown and described.

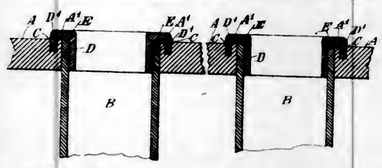
7. The combination of the side rails, A, A, legs, C, C, hinged to said side rails, seat, B, hinged by its upper end to the upper ends of the legs, C, C, links, E, E, hinged by their lower ends to the rear of said seat, and hinged above said seat to the side rails, A, A, and extending above said last-mentioned hinge and having laterally-directed studs, e', a back hinged by its upper end to the side rails, A, A, and having a slot, d, into which the studs e' extend, substantially as shown and described.

491,216. FOLDING CHAIR. CYRUS KERR, Lakeside, Ill., assignor to the North Western Wire Mattress Company, Kenosha, Wis. Filed Jan. 25, 1892. Serial No. 419,154. (No model.)



Claim.—The combination with the frame, A, back, C, located within said frame and hinged to the latter at its upper end, the legs, B, located within and hinged to said frame, the seat D, located within said frame, A, and extending to the lower portion of said back, and extending over the upper ends of the legs, B, and the hinged links, E, joining the upper ends of said legs and the rear portion of said seat, of links, F, having extensions f'' and being hinged to the side rails, A', and extending rearward and hinged to the seat, D, and hinge-plates C^3 secured to the seat, D, and back, C, and having the extensions c^3, substantially as and for the purposes herein set forth.

491,217. STEAM-GENERATOR. ALFRED LAMSTON, Deptford Pier, England. Filed July 19, 1892. Serial No. 440,453. (No model.)

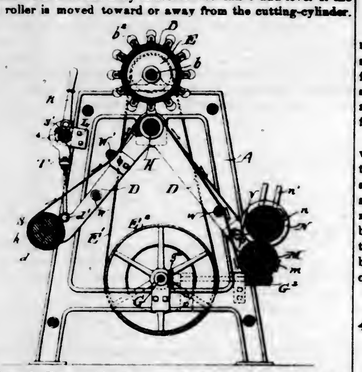


Claim.—1. The means above described for securing a water-tight connection between the tube plates and the tubes of steam generators and consisting in the combination with a tube having an externally cylindrical end and a tube plate having in its outer face around the tube hole a groove inside of which is an externally cylindrical portion, of a ferrule entering the tube and having an internally cylindrical return flange which fits the said externally cylindrical portion of the plate and forms a cylindrical metal to metal joint between the ferrule and the plate, as herein set forth.

2. The combination with the tube and a tube plate having in its outer face around the tube hole a groove forming a cylindrical portion, of a ferrule which enters the tube and has an internally cylindrical return flange fitting the said cylindrical portion and which is screw-threaded to engage with a screw-thread in the tube or tube plate, substantially as herein set forth.

491,218. CHENILLE-CUTTING MACHINE. OSWALD LEVER and WILLIAM S. GRESDY, Philadelphia, Pa. Filed Sept. 21, 1892. Serial No. 446,412. (No model.)

Brief.—The grooved roller over which the chenille threads pass, to be operated upon by the cutting-knives, and the let-off roller are journaled in a frame D, pivoted at m, so that by raising or lowering the opposite end of frame D by means of the link T and lever R the grooved roller is moved toward or away from the cutting-cylinder.



Claim.—1. The combination with the frame A, the cutting roller B mounted therein, and mechanism to drive the said roller, of a grooved roller H, a double link D in the apex of which the same is mounted, a let-off roller supported by said double link D on its free arm, the other arm of said link D being hinged to the frame of the machine, with means to temporarily sustain said link and its supported rollers in normal position; substantially as described.

2. The combination with the frame A, the cutting roller B mounted therein, and mechanism to drive said roller, of a grooved roller H, a double link D in the apex of which the same is mounted, a let-off roller supported by said double link D on its free arm, the other arm thereof being hinged on the shaft of the friction take-up roller, a lever R hinged to the frame of the machine, and connecting mechanism between said lever and the free end of the link D whereby the latter may be temporarily supported in normal position and also be moved up and down when desired; substantially as described.

3. The combination with the frame A, the cutting roller B mounted therein, and mechanism to drive the said roller, of a grooved roller H, a double link D in the apex of which the same is mounted, a let-off roller supported by said double link D on its free arm, the other arm thereof being hinged on the shaft of the friction take-up roller, a fixed bracket L, a lifting arm T between said link and bracket, a stop s, and a lever R operating to raise and lower said lifting arm when desired; substantially as and for the purpose described.

4. The combination with the frame A, the cutting roller B mounted therein, and mechanism to drive the said roller, of a grooved roller H, a double link D on each side of the frame of the machine in the apex of which the roller is mounted, guide post W whereby the chenille may be guided and tensioned, a let-off roller supported by said double link D on its free arm, the other arm being hinged on the shaft of the friction take-up roller, a fixed bracket L, a lifting arm T between said link and bracket, and a lever R operating to raise and lower said lifting arm when desired; substantially as and for the purpose described.

491,219. GOVERNOR. PAUL LOCHMANN, Gohlis, near Leipsic, Germany. Filed June 7, 1892. Serial No. 435,891. (No model.) Patented in Switzerland Jan. 20, 1892, No. 4,487.



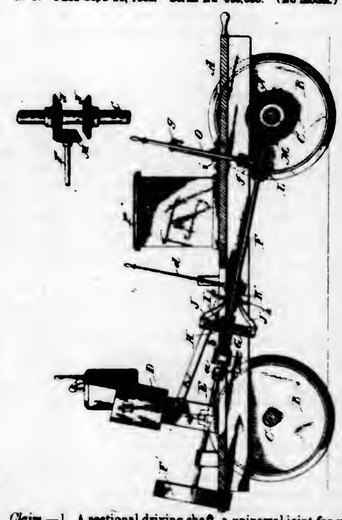
Claim.—A governor for driving mechanism comprising a spindle resilient vanes or fliers fixed diametrically opposite each other on said spindle, the free ends of said vanes being curved or bent, for the purpose specified substantially as described and shown.

491,220. PROCESS OF AND COMPOUND FOR COATING METALS. WILLIAM MILD, Hamilton, Ohio, assignor of one-half to Stephen Crane, same place. Filed Feb. 3, 1892. Serial No. 420,762. (No specimens.)

Claim.—1. In the process of coating with metal, immersing the metal to be coated in a bath consisting of lead, block tin, bismuth, sodium, and muriate of ammonia in about the following proportions for a one ton bath to wit: lead thirteen hundred pounds block tin seven hundred pounds, bismuth one-half pound, sodium six ounces, and muriate of ammonia two pounds prepared substantially as specified.

2. The process of coating metal with a flexible adherent coating, which consists in preparing the metal to be coated by first immersing the same in a warm bath of diluted sulphuric acid, then rinsing the same in clear water, then dipping the article in a bath of muriatic acid two hundred pounds muriate of ammonia two pounds, spelter zinc ten pounds, and after drying dipping the article in a hot metallic bath of lead, block tin, bismuth, sodium, and muriate of ammonia, in the proportions specified and finally plunging the article in a bath of boiling water and muriate of ammonia in the proportions one pound of muriate of ammonia to forty gallons of water.

491,221. DRIVING MECHANISM. JACOB V. MOTTER, Brooklyn, N. Y. Filed Sept. 26, 1892. Serial No. 446,926. (No model.)



Claim.—1. A sectional driving shaft, a universal joint for uniting the sections thereof, and an interposed clutch for operatively connecting and disconnecting the sections at will.

2. A sectional driving shaft, a universal joint for uniting the sections thereof, and a clutch comprising a friction disk carried by one of the members of the universal joint and clutch arms carried by one of the shaft sections.

3. A sectional driving shaft, a universal joint for uniting the sections thereof, a clutch comprising a friction disk carried by one of the members of the universal joint and terminating in a sleeve in which one of the shaft sections is inserted, and clutch arms carried by said shaft section.

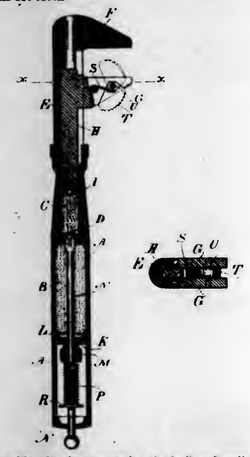
4. The combination with the shaft F and pinion M of the sleeve L, and the operating lever adjustably connected with said sleeve, substantially as described.

491,222. WRENCH. AUGUSTE PELLET, New York, N. Y. Filed Dec. 2, 1892. Serial No. 453,933. (No model.)

Claim.—1. The combination with the stationary jaw in a wrench, of a moving jaw, a cylinder in the handle of the wrench containing a liquid, a plunger or ram connected with the moving jaw and acting

within the cylinder of the handle, and a valve to confine the liquid within the cylinder of the handle, substantially as set forth.

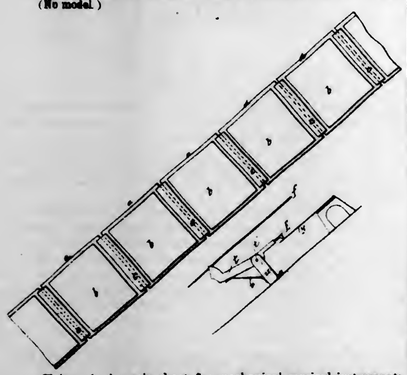
2. The combination in a wrench, of a hollow handle containing two cylindrical chambers with an intervening passage and valve, a stationary jaw connected with the handle, a moving jaw and a plunger or ram within one of the chambers of the handle, a stem connected with the valve, and a piston surrounding and moving upon the valve stem for acting upon the liquid in the second chamber of the handle, substantially as set forth.



3. The combination in a wrench, of a hollow handle containing two cylindrical chambers with an intervening passage and valve, a stationary jaw connected with the handle, a moving jaw and a plunger or ram within one of the chambers of the handle, a stem connected with the valve, and a piston surrounding and moving upon the valve stem for acting upon the liquid in the second chamber of the valve, and a spring to act upon the piston for moving the same and forcing the liquid from one cylinder into the other when the valve is open, substantially as set forth.

4. The combination with the stationary jaw, the ram and the liquid holding chamber and its valve, of a jaw, slotted, and a toothed sector pivoted within the slotted jaw, and a spring for retaining such toothed sector in one position or another, substantially as set forth.

491,223. MECHANICAL MUSICAL INSTRUMENT. FERDINAND PIETSCHMANN, Berlin, Germany. Filed Aug. 11, 1892. Serial No. 442,800. (No model.)



Claim.—1. A music sheet for mechanical musical instruments, composed of a series of links jointed together, each link being composed of two plates of sheet metal secured to each other, face to face, substantially as set forth.

2. A music sheet for mechanical musical instruments, composed of a series of links united by flexible strips attached to said links, each link being composed of two plates fastened to each other face to face, substantially as set forth.

3. A music sheet for mechanical musical instruments, composed of metal plates having parts forced out to form projections, which projections are at an inclination to the vertical longitudinal plane through the sheet, substantially as set forth.

4. A music sheet for mechanical musical instruments, composed of metal plates having parts punched out to form projections, said projections being at an inclination to the longitudinal vertical axis of the sheet and the base of each projection or part of the projection connected with the plate being parallel with the direction of the movement of the sheet, substantially as set forth.

5. In a mechanical musical instrument, a cover or top-plate having ledge or guide bars for guiding the music sheet, made integral with said top-plate, substantially as set forth.

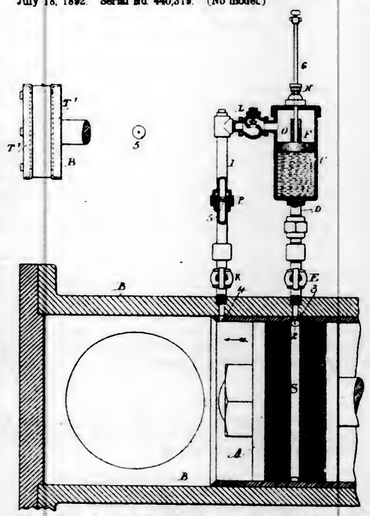
6. In a mechanical musical instrument, the combination, with the push point and striking levers, of a bail mounted pivotally on the axis of said levers, a stem turning in the base plate, a cam secured to said stem, and an arm on the bail on which arm the cam can act, substantially as set forth.

7. In a mechanical musical instrument, the combination, with a set of reeds, of an independent damper provided for each reed, said dampers consisting of elastic material and resting on the tongues or reeds, substantially as set forth.

8. In a mechanical musical instrument, the combination, with a set of levers, of a damper for each reed, said damper consisting of a spring strip having a recess or slot at or near the upper end, which spring is held a short distance from the end of the reed or tongue, substantially as set forth.

9. In a mechanical musical instrument, the combination, with a casing having rollers, of a support for the music band on the underside of said casing, and a tapering link on the end of said support or arm, substantially as set forth.

491,224. LUBRICATOR. TOWNSEND POORE, Scranton, Pa. Filed July 18, 1892. Serial No. 440,319. (No model.)



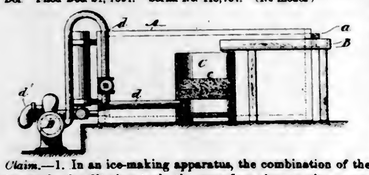
Claim.—1. The combination with a cylinder and a piston or similar moving body to be lubricated, of a lubricant vessel, a pipe connecting the upper part of the lubricant vessel with the cylinder or source of pressure upon the lubricant and a pipe for the lubricating material opening into the cylinder and alternately covered and uncovered by the moving body, so that the pressure is exerted to discharge lubricating material upon the moving body when the same intervenes to exclude pressure from the lubricating pipe, substantially as specified.

2. The combination with a cylinder and a moving piston, or other device to be lubricated, of the lubricant vessel and the pipe and cock

therefrom to the place to be lubricated, a piston within the lubricant vessel, a second pipe and cock connecting the cylinder or source of pressure to such lubricant vessel above the piston thereof and a disk with a small perforation therein, so that the pressure acts gradually upon the piston and lubricant to project the same at the place to be lubricated when there is a less pressure at the place to be lubricated than there is in the second pipe substantially as set forth.

3. The combination with a cylinder having a piston with packings and a recess between the packings, of a lubricant vessel and a lubricant pipe from the lower part of the same opening through the cylinder to the space between the packings of the piston, and a second pipe between the upper part of the lubricant vessel and the cylinder at a point sufficiently distant to allow the pressure of the fluid in the cylinder to force the lubricant from its vessel into the annular recess of the piston when the same coincides with the lubricant pipe, substantially as set forth.

491,225. ICE-MAKING APPARATUS. LEA PUSEY, Wilmington, Del. Filed Dec. 21, 1891. Serial No. 415,707. (No model.)



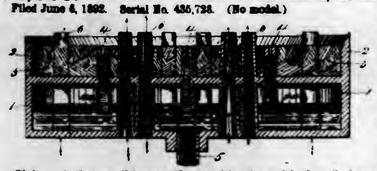
Claim.—1. In an ice-making apparatus, the combination of the freezing tank, the filtering tank, the over-flow pipe or pipes, communicating between said tanks, the suction and force pump, and the influx and efflux pipes, the one communicating with said filtering tank, the other with the freezing tank, the recited elements being relatively arranged, substantially as shown, whereby the water may flow by gravity from the freezing tank to the filtering tank and be thereby maintained in its circulation, and at a uniform level, in said freezing tank, substantially as described.

2. In an ice-making apparatus, the combination of the open freezing tank, the filtering tank, the over-flow pipe or pipes, communicating between said tanks, the suction and force pump, and the influx and efflux pipes, the one communicating with said filtering tank, the other with the freezing tank, together with means for maintaining a partial or retarded vacuum in the pipe between the tank C and the pump substantially as described.

3. In an ice-making apparatus, the combination of the freezing tank, the filter tank, the over-flow pipe or pipes communicating between said tanks, the suction and force pump, and the influx and efflux pipes, the one communicating with said filtering tank, the other with the freezing tank, together with the stand-pipe, substantially as described.

4. In an ice-making apparatus, the combination of the freezing tank, the filtering tank, the over-flow pipe or pipes, communicating between said tanks, the suction and force pump, and the influx and efflux pipes, the one communicating with said filtering tank, the other with the freezing tank, together with the siphon and the stand-pipe, substantially as described.

491,226. OIL-BURNER. BENJAMIN ROBERTS, Indianapolis, Ind. Filed June 6, 1892. Serial No. 436,738. (No model.)



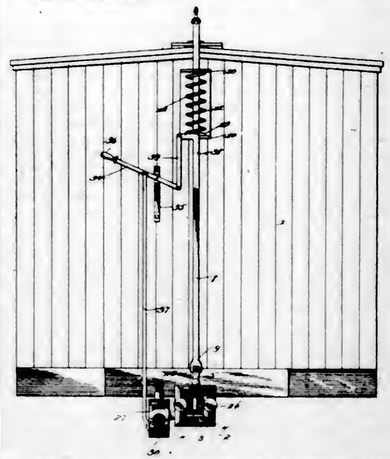
Claim.—1. In an oil burner the combination with the oil chamber thereof, of an ejecting oil nozzle formed on said chamber with its top ejecting end above the top surface of said chamber, and its induction end projecting into the interior of said chamber slightly beneath the surface of the liquid contained therein, and an absorbing material on the top surface of the chamber and surrounding the tips of said nozzles, substantially as set forth.

2. In an oil burner, the combination with the oil chamber thereof, of the oil nozzles formed on the top wall of said chamber with their top ejecting ends or tips projecting above the surface of said chamber and its eduction ends projecting into the interior of said chamber and slightly beneath the surface of the liquid contained therein, an absorbing material covering the top surface of said chamber and surrounding said top ends of the tips of said ejecting nozzles, said absorbing material having its top surface on a level with the tips of said nozzles, and suitable air ducts or tubes extending from the under surface of, through the interior, and above the top surface of, said chamber and said absorbing material, substantially as set forth.

3. In an oil burner the combination with the oil chamber thereof, an upwardly projecting flange extending along or around the edge thereof, of an oil nozzle projecting downwardly in said chamber and beneath the surface of the oil contained therein and having its tip beneath the level of said flange, and an absorbing material surrounding said nozzles on the surface of said burner, substantially as and for the purpose set forth.

4. In an oil burner, the combination with the oil chamber thereof, and an upwardly projecting flange extending along or around the top edge of said chamber, of an oil nozzle projecting downwardly in said chamber and beneath the surface of the oil contained therein, and having its tip or top ejecting end beneath the level of said flange, an absorbing material surrounding said nozzles on the surface of said burner, and suitable air ducts or pipes extending from the under surface of, through the interior and above the top surface of said chamber and absorbing material, substantially as and for the purpose set forth.

491,227. COMBINED CAR AND AIR-BRAKE COUPLING. JACOB C. SMITH, Luling, Tex., assignor of one-half to John Hood Golfin and Emmanuel J. Hardeman, same place. Filed Oct. 26, 1889. Serial No. 328,347. (No model.)



Claim.—1. An automatic air-brake coupling comprising a sectional coupling box having air-tight communication with the train-pipe and adapted to receive and couple the end of the coupling pipe section, means for holding the coupling box in open position, and means controlled and actuated by the bumping together of the cars for closing the coupling box and coupling the air brake pipes, substantially as set forth.

2. An automatic air brake coupling comprising a sectional coupling box having air tight communication with the train-pipe and adapted to receive and couple the end of the coupling pipe section, one of the sections of the coupling box being pivotally supported, a system of levers connected to said pivoted section and adapted to open and close the same, a sliding yoke for supporting the levers and holding the sections of the coupling box in open position, a spring for forcing the section of the coupling box into closed position, and sliding bumper rods adapted to move the sliding yoke and allow the coupling box to be closed when the cars bump together, substantially as set forth.

3. An automatic air-brake coupling comprising a sectional coupling box having air tight communication with the train-pipe and adapted to receive and couple the end of the coupling pipe section, one of the sections being pivotally supported, a vertically movable rod connected to said pivoted section, means for holding said rod in lowered position for keeping the coupling box open, means for raising said rod for closing the coupling box, a cock in the train-pipe and a suitable

connection between the cock and said vertically movable rod, whereby the air in the train-pipe will be cut off when the coupling box is open and vice versa, substantially as set forth.

4. An automatic coupling mechanism for railway cars and their air-brake pipes, comprising a suitable car coupling, an air-brake coupling having air-tight communication with the train pipe, suitable means connecting the car and air-brake couplings for holding them in uncoupled position, and means actuated by the bumping together of the cars for simultaneously tripping said car and air-brake couplings, substantially as set forth.

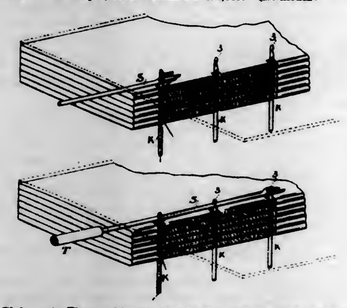
5. An automatic coupling mechanism for railway cars and their air-brake pipes, comprising a coupling pin and link, an air-brake coupler composed of a stationary section having an air-tight communication with the train-pipe and a movable section adapted to be moved to and from the stationary section, and suitable devices connecting the movable section of the air-brake coupling with the coupling pin, whereby both coupling devices can be operated simultaneously, substantially as set forth.

6. An automatic coupling mechanism for railway cars and air-brakes, comprising a coupling pin and link, a vertically movable rod connected to the pin, a spring for forcing said rod and pin normally downward, a lever for raising said rod and pin against the action of the spring, a sliding yoke adapted to engage the end of the pin and hold it in raised position, bumper rods connected to said yoke, an air-brake coupler composed of a stationary section having air-tight communication with the train-pipe and a movable section adapted to be moved to and from the stationary section, and suitable levers connecting the movable section with the vertically movable rod, substantially as and for the purpose set forth.

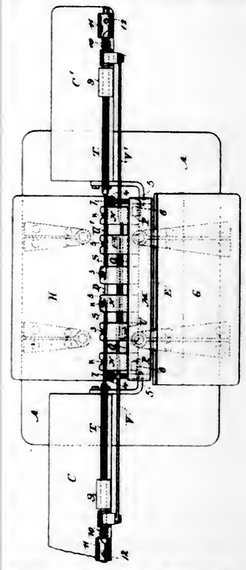
7. An automatic coupling mechanism for railway cars and air-brakes, comprising a coupling pin and link, a pin lifting arm engaging the pin, a vertically movable rod pivoted to the pin-lifting arm, a spiral spring surrounding the vertically movable rod and engaging at one end a collar on said rod and at the other end a lug on the car body, an operating lever attached to said rod, a sliding yoke supported on the draw-head and adapted to support the pin, sliding spring pressed bumper rods mounted on the draw-head and connected to and adapted to actuate the sliding yoke, an air-brake coupling composed of a stationary member having air-tight communication with the train-pipe, and a movable section supported in proper relation thereto, and a suitable system of levers connecting the movable section of the air-brake coupling with the vertically movable rod, substantially as and for the purpose set forth.

8. The combination with a railway car, a coupling pin and link, a vertically sliding rod attached to the pin and adapted to move the same vertically, a spring for forcing the rod normally downward, a sliding yoke mounted upon the draw-head and adapted to support the pin in uncoupled position, sliding bumper rods connected with the yoke and adapted to move it from under the pin when the cars bump together, an automatic sectional coupling box having air tight connection with the train-pipe, and means for connecting the coupling box with the pin-controlling rod, whereby the cars and air-brake pipes are coupled simultaneously.

491,228. BOOK-SEWING MACHINE. DAVID M. SMYTH, Northwood, N. H., assignor to the Smyth Manufacturing Company, Hartford, Conn. Filed July 5, 1892. Serial No. 438,865. (No model.)

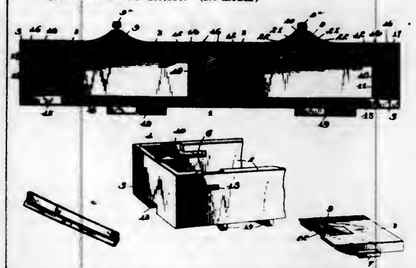


Claim.—1. The combination in a book sewing machine of a needle bar and needles carried thereby and arranged in groups or series, the end needle in each group being eye pointed and carrying a thread and the intermediate needles being hook pointed, and loopers passing in opposite directions toward each other and laying loops of thread over the end hook pointed needles of each group, and mechanism for turning one half of the folded signature over on the other half, and mechanism for actuating the needle bar and loopers substantially as specified.



2. The combination in a book sewing machine with the receiving and second table for the unsewed and sewed signatures, of a needle bar and vertical needles in groups adapted to pass through the sawcuts in the signatures, the end needles in each group being eye-pointed and carrying threads, the other needles being hook pointed, loopers each having a finger projecting near the end and mechanism for moving the same toward and from each other and for giving to the loopers a partial rotation as they come nearest together for passing the loops of thread taken from the eye-pointed needles over the hooks at the ends of the groups, and a turner for turning over the folded signature, the one half upon the other half, and fingers and mechanism for actuating the same, whereby the sewed signatures and the table supporting the same are pressed downwardly by the action of the fingers, substantially as set forth.

491,229. METALLIC CROSS-TIE. NATHAN M. THOMAS, Aberdeen, Md., assignor of one-third to Harry B. James, same place. Filed Aug. 13, 1892. Serial No. 443,085. (No model.)



Claim.—1. The combination of a hollow metallic cross-tie comprising end and side walls and provided at opposite sides with ways, a rail, the clip plates arranged in the ways and forming a top for the cross-tie and provided with clips receiving and engaging the bottom flanges of the rail, and the wedges arranged at the outer edges of the clip plates and forcing the latter into engagement with the rail, substantially as described.

2. The combination of a cross-tie having the inner faces of its ends clined and provided at its center with a transverse web having inclined faces, the sides of said cross-tie being provided on their inner faces with ways, rails, clip plates arranged in said ways and provided with clips receiving the bottom flanges of the rails, and wedges arranged at the outer edges of the clip plates and having inclined faces engaging the inclined faces of the cross-tie, substantially as and for the purpose described.

3. The combination of a cross-tie having the inner faces of its ends inclined and provided in its sides with ways and having a transverse web provided with inclined faces, clip plates arranged in said ways and provided with clips, the wedges arranged at the outer edges of the clip plates and provided with horizontal grooves, and the locking bars arranged transversely of the cross-tie and engaging the grooves of the wedges, substantially as described.

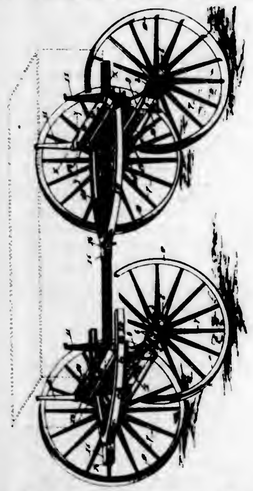
4. A cross-tie provided in its sides with L-shaped grooves and having slots, the clip plates provided with clips and having lugs arranged in said grooves, the wedges arranged at the outer ends of the clip plates and provided with grooves, the transverse locking bars arranged in said slots and engaging the grooves of the wedges, and fastening devices arranged at the ends of the locking bar and securing the same to the cross-tie, substantially as described.

5. A cross tie provided on its lower face with V-shaped ribs arranged at opposite sides of the cross-tie to prevent longitudinal movement of the same, and separated from one another by intervening spaces, and having their opposite sides parallel with each other, substantially as described.

6. The combination of the cross-tie provided at its sides with ways, the clip plates arranged in the ways and provided with clips and having projections in the same, a rail, fish plates arranged on opposite sides of the rail and provided with notches engaged by said projections, and wedges arranged at the outer ends of the clip plates, substantially as described.

7. The combination of a hollow cross-tie comprising end and side walls and provided with ways, the clip plates arranged in the ways and forming a top for the cross tie and provided at their inner ends with clips to receive the bottom flanges of a rail, wedges arranged at the outer ends of the clip-plates and locking bars passed transversely through the cross-tie and engaging the wedges, substantially as described.

491,230. WAGON RUNNING-GEAR. THOMAS F. UPDEGROVE, Avery, Kans. Filed July 5, 1892. Serial No. 438,936. (No model.)

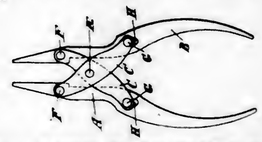


Claim.—1. The herein described running-gear for a wagon, consisting of an axle, an axle-beam of I-shaped form to provide upper and lower flanges projecting from opposite sides thereof, an I-shaped bolster mounted on said beams and above the same and in like manner formed with flanges, and single bolts extending through the flanges of said parts at opposite sides and ends thereof and having their lower ends secured against the under portion of the axle-beam, substantially as described.

2. The herein described running-gear for a wagon, consisting of an axle, an axle-beam of I-shaped form to provide upper and lower flanges projecting from opposite sides thereof, U-shaped angle-plates centrally mounted on said axle-beam apart from each other to form a guide, an I-shaped bolster mounted on said angle-plate and secured thereto, a reach-bar adapted to fit between and move through said angle-plates, and a single bolt arranged at each of the opposite ends of said parts on opposite sides of the same and extending through the flanges thereof and secured at their lower ends against the under portion of the axle, a space also being formed by the said angle-plate between the bolster and axle-beam for the insertion and retention of the hounds, substantially as described.

3. The herein described running-gear for a wagon, consisting of an axle of hollow metal having solid ends formed into spindles, an axle-beam of I-shaped form to provide upper and lower flanges projecting from opposite sides thereof and having the ends beveled or cut away, an I-shaped bolster mounted on and above said beam, U-shaped angle-plates mounted between the said beam and bolster to provide an intervening space or guide, hounds of U-shaped form having portions thereof between the said beam and bolster and the front ends of the same formed into boxes, a tubular reach-bar adjustably mounted on the hounds and extending through the space or guide formed by the angle-plates, and vertical bolts extending through the flanges of the hounds, bolster, and beam and located on both sides of said parts at opposite ends thereof and being of single form at said opposite ends of said sides and having the lower ends of the same secured adjacent to the under side of the axle, substantially as described.

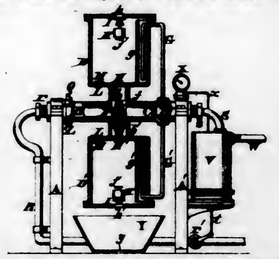
491,231. PARALLEL PLIERS. FRIEDRICH L. VOGELAAR and HEINRICH BECKER, Frankfort-on-the-Main, Germany, assignors to Spohr & Krämer, same place. Filed Nov. 7, 1892. Serial No. 451,962. (No model.)



Claim.—1. In pinchers, and similar instruments, the combination with two jaws and legs each jaw and leg being in one piece which is situated entirely on one side of the instrument, of two pairs of crossed links one pair on each side of the legs, the links of each pair being pivoted together at their intersection and being connected each at one end with the jaws by pins on which they turn and at the other end by pins which work in slots in the legs, substantially as herein set forth.

2. In parallel pinchers, and the like, the combination with legs A B each made in one solid piece with one of the jaws, of cross links C, C' and D, D' applied on both sides of the legs and adapted to move parallel to each other, the ends of such links being connected to the legs A, B of the pinchers on one side of the joint by pins F on which they turn and on the other side by pins G which work in slots H in the legs so that the cross links can both rotate and slide, substantially as hereinbefore described.

491,232. HYDRAULIC AIR-COMPRESSOR. GEORGE H. WALKER, Cincinnati, Ohio. Filed Apr. 5, 1892. Serial No. 427,860. (No model.)



Claim.—1. The combination, in a hydraulic air-compressor, of a revolving tubular-shaft communicating with the source of water supply, a pair of tanks attached to said shaft, and having an excess of weight on one side of the latter, a water-inlet to each of said tanks, a reciprocating valve that closes said inlets alternately, automatically-

acting air-valves and water-discharge valves applied to each tank, and air-channels leading from said tanks to a common outlet, the arrangement of these parts being such that when the upper tank is sufficiently filled, it swings over, elevates the other tank, and thereby insures an intermittent revolving of the apparatus in one direction, substantially as herein described, and for the purpose stated.

2. The combination, in a hydraulic air-compressor, of a revolving tubular shaft, consisting of two parts B, B', separated by a solid partition C, the part B, communicating with the source of water supply, a pair of water tanks D, D', attached to said shaft, and communicating therewith by inlets H H', a reciprocating valve F, that closes said inlets alternately, automatically acting air-valves M, M, and water discharge valves I I, applied to each tank, and pipes G, G', leading from them and discharging air into the part B', of the tubular shaft, substantially as herein described.

3. The combination, in a hydraulic-air compressor, of a revolving tubular shaft having means for admitting water, a set of tanks applied to said shaft, and having an excess of weight on one side of the latter a valve-governed water-inlet, an air-inlet valve and a water-discharge valve for each of said tanks and air-discharge passages leading from them to a common outlet, the arrangement of these parts being such as to cause an intermittent revolving of the apparatus in one direction, substantially as described.

4. A hydraulic air-compressor consisting of a set of tanks applied to a revolving shaft with an excess of weight on one side of the latter and having devices that automatically control the admission and discharge of air and water, the apparatus being arranged in such a manner as to revolve intermittently in one direction, substantially as described.

5. A hydraulic air-compressor consisting of a set of tanks applied to a revolving shaft and having devices that automatically control the admission and discharge of air and water, each tank being arranged to have an excess of weight on one side of said shaft, whereby a preponderance of weight is afforded to revolve the apparatus intermittently in one direction, substantially as described.

6. In a hydraulic air-compressor, arranged and operating as herein described, the revolving tubular shaft B, the tanks D, D', applied to said shaft and communicating therewith by a reciprocating valve F, having a series of longitudinal flutes or grooves *f*, *f'*, at its opposite ends, for the purpose stated.

7. The combination, in a hydraulic air-compressor, of the two-part revolving tubular shaft B B', separated by a solid partition C, the lateral necks *b b'*, projecting from said tube, the tanks D D', attached to said necks and communicating therewith by inlets H H', the reciprocating valve F *f f'*, adapted to travel back and forth within said necks, air-inlets L, L, to said tanks, water outlets *h h'*, of the same, valves I I, adapted to close these outlets, levers *i*, *i*, carrying said valves, reciprocating weights K K, applied to said levers, pipes G, G', leading from the upper part of said tanks to the part B', of said tubular-shaft, a water pipe R, coupled to shaft B, a delivery pipe S, coupled to shaft B', and a receiver V, with which said pipe S communicates, all as herein described.

8. In a hydraulic air-compressor, arranged and operating, as herein described, the tank D, having a partition *g*, open at top, but closed at bottom, and the air-escape G, communicating with said tank, and extending down almost to the lower end of said partition, for the purpose described.

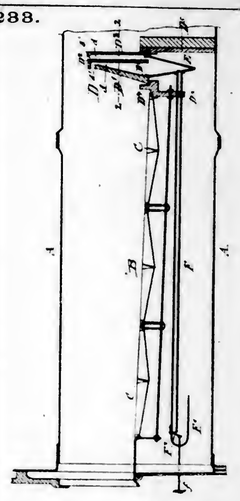
9. In a hydraulic air-compressor, arranged and operating as herein described, the revolving tubular-shaft E, provided with lateral necks *b*, *b'*, the coupling *d d'*, attached to said neck, the valve seats E *e* E' *e'*, inserted within said couplings, and the reciprocating valve F *f*, *f'*, traversing said necks and couplings, for the purpose described.

491,238. SMOKE-CONSUMING FURNACE. WILHELM ARNEMANN, Hamburg, Germany. Filed Nov. 28, 1892. Serial No. 453,327. (No model.)

Claim.—1. In a smoke consuming furnace, the combination of a hollow fire bridge composed of outer plates D^c and D^d supported respectively on the rear bar D^a of the grate and an upright breast plate D^b, and an inner plate D^e connected to said outer plates at the ends, a collecting box connecting the lower ends of the outer plates, and conducting pipes extending from the collecting box below the grate bars toward the front of the furnace.

2. In a smoke-consuming furnace, the combination, of a hollow fire-bridge, composed of a number of plates forming passages or channels, a collecting box at the lower parts of said channels, conducting pipes extending from the collecting-box or casing below the grate-bars toward the front of the furnace, deflectors or hoods attached to the ingoing ends of said pipes and regulating valve or valves arranged at the front-end of said pipes, substantially as set forth.

491,288.



491,234. METHOD OF MAKING STARCH AND CATTLE-FOOD. ARNO BEHR, Chicago, Ill. Filed Oct. 28, 1892. Serial No. 450,266. (No specimens.)

Claim.—1. The herein described method of treating Indian corn for the manufacture therefrom of starch and of a rich cattle food; which consists in first steeping the corn in a watery solution of sulphurous acid, then removing the corn and grinding and mixing it with water and separating and collecting the starch, corn bran and gluten from the resulting mixture by the ordinary methods; secondly, in adding to the steeping water, after the corn has been removed therefrom, an amount of strong acid, such as sulphuric acid, which is chemically equivalent to the amount of sulphurous acid present in the steeping water, then evaporating the greater part of the steeping water, then forming a mixture of the resulting condensed liquid with an absorbent such as corn bran, or gluten meal, or both corn bran and gluten meal, and in finally drying the resulting mixture.

2. As a by-product of the manufacture of starch from Indian corn, a meal in dry form suitable for cattle food, composed of certain nutritive ingredients consisting of the albuminoids, sugar, carbohydrates, phosphates and potassium salts obtained from the water in which the corn has been soaked, and an absorbent.

3. As a by-product of the manufacture of starch from Indian corn, a meal in dry form suitable for cattle food, composed of certain nutritive ingredients consisting of the albuminoids, sugar, carbohydrates, phosphates and potassium salts obtained from the water in which the corn has been soaked, and gluten meal.

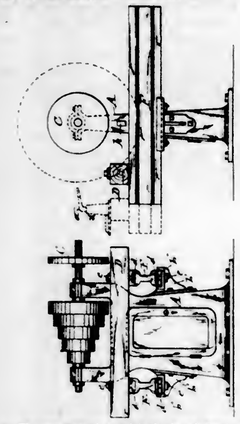
491,235. DEVICE FOR HOLDING METALLIC STAPLES. WILLIAM J. BROWN, Philadelphia, Pa. Filed Oct. 20, 1892. Serial No. 449,488. (No model.)



Claim.—1. A holder for strung staples mounted thereon, provided with a longitudinal groove or recess, in combination with a device for retaining the train of staples thereon, consisting of a wedge key having a base adapted to project beyond the groove of the holder with a centrally longitudinal rib C thereon adapted to enter the said groove of the holder and spread the sides thereof; substantially as and for the purpose set forth.

2. A holder for stringing metallic staples, longitudinally recessed or grooved, and a device for spreading or distending the sides of the groove against the legs of the staples mounted on said holder, consisting of a wedge or key having a flat base *c* projecting beyond the edge of the groove and abutting against the under face of the holder with an upright rib C longitudinally central thereon, narrower at its top and wider at its base than the groove of the holder into which it is to be inserted, said parts being constructed, combined and arranged substantially as described.

491,236. LATHE. ALFRED CATHEPOLE, Geneva, N. Y. Filed Apr. 16, 1892. Serial No. 429,470. (No model.)



Claim.—1. The combination, with the head-stock, of cross-beams secured longitudinally adjustable to said head-stock to project a greater or less distance from the side thereof, and a longitudinal beam secured to said cross-beams and supporting the tool-rest, as set forth.

2. The combination, with the head-stock, of cross-beams secured longitudinally adjustable to said head-stock, and a longitudinal beam mounted on said cross-beam adjustable laterally toward and from the side of the head-stock and supporting the tool-rest as set forth.

3. The combination, with the head-stock —A—, of the brackets —*b'*—*b'*— rigidly secured to said head-stock and formed with the seats —*b''*—*b''*—, the cross-beams —F—F— mounted on said brackets and provided with the T-shaped longitudinal grooves —*d*—*d*— in their tops and bottoms, the longitudinal beam —D— mounted on the cross-beams, and bolts —*e*—*e*— having their heads in the aforesaid grooves and fastening the beams in their respective positions as set forth.

4. The combination with the head-stock —A— of the shears —B— supported removably from and to its normal position under the axis of the lathe, as set forth.

5. The combination, with the head stock, of a cross-beam secured to said head-stock and the shears mounted on said cross-beam and movable laterally thereon as set forth.

6. The combination, with the head-stock —A— of the cross-beams —F—F—, shears —B— mounted on one of said cross-beams adjustably to and from its normal position under the axis of the lathe, and the longitudinal beam —D— extending along the side of the head-stock and mounted on the two cross-beams, substantially as and for purpose set forth.

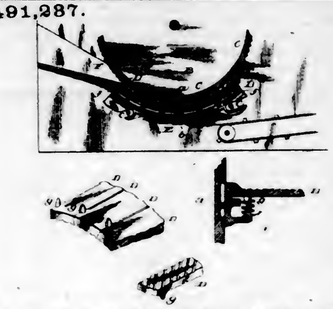
7. The combination, with the head-stock —A—, of the cross-beam —F—, the shears —B— mounted on said cross-beam adjustably to and from its normal position under the axis of the lathe, and stops —*h*— and —*i*— attached respectively to the head-stock and shears, substantially as and for the purpose set forth.

8. The combination, with the head-stock —A— and shears —B—, of the cross-beam —F— provided with the T-shaped groove —*d*— in its top, the plate —P— attached to the shears and riding on the aforesaid beam, and bolts —*e*— passing through said plate and having their heads in the groove —*d*— and provided with nuts on their upper ends, substantially as and for the purpose set forth.

491,287. FLAX-THRASHING MACHINE. DE YOE C. CHIPMAN, Peoria, Ill., assignor to the Port Huron Engine and Thresher Company, Port Huron, Mich. Filed Aug. 29, 1892. Serial No. 444,431. (No model.)

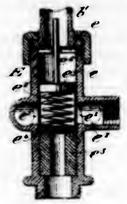
Claim.—The combination of the hangers having longitudinal flanges, the concave bars supported by the hangers with their edges in juxtaposition, whereby a continuous surface is presented to the flax, and provided with half nipples on their under sides at their edges,

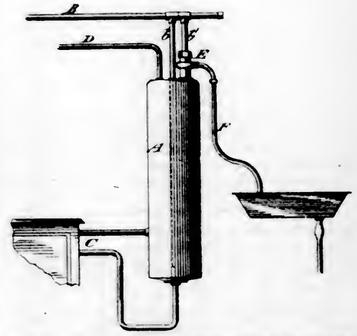
491,287.



and a series of springs each having its lower end resting on the flange of the hanger and its upper end coiled around the half nipples at the adjacent edges of two adjoining concave bars.

491,238. SAFETY-VALVE FOR KITCHEN-BOILERS. THOMAS R. CLATWORTHY, Waterbury, Conn., assignor to Randolph & Clowes, same place. Filed Apr. 19, 1892. Serial No. 429,743. (No model.)





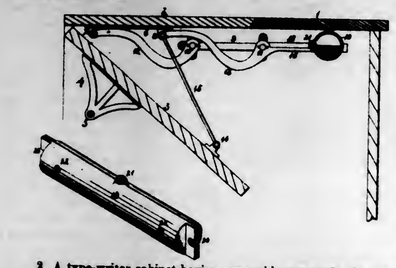
Claim.—1. In combination, a hollow cylindrical valve casing open at top and bottom and having a lateral opening, a valve consisting of a hollow plunger fitted to said cylinder to open and close the bottom and lateral openings of said cylinder, a piston fitted to said hollow plunger and a spring between said piston and the bottom of the plunger, substantially as herein set forth.

2. In combination, a boiler, a water supply pipe and a feed pipe forming uninterrupted communication between the said supply pipe and the boiler, a valve-casing having lateral openings therein and having at its lower end a communication with the boiler and at its upper end communication with the supply pipe independently of the feed pipe, a valve for opening and closing communication between the lower end and lateral openings of said valve casing, and an elastic cushion above said valve, substantially as herein set forth.

491,239. TYPE-WRITER CABINET. SAMUEL L. COUPE, Rockford, Ill. Filed July 27, 1892. Serial No. 441,483. (No model.)

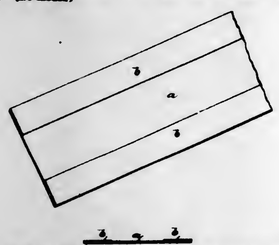
Claim.—1. In a typewriter cabinet having a movable support for

the type-writer, a portion of the top made movable, two pairs of parallel arms connecting the top with the cabinet, a connection between the support and top, one pair of the arms of the parallel arms provided with an extension and a counterbalance having a connection with the extensions.



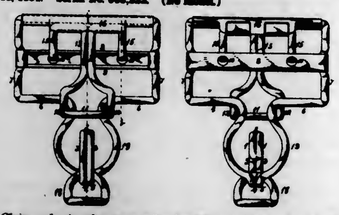
2. A type-writer cabinet having a movable support for the type-writer, a portion of the top made movable, two pairs of parallel arms connecting the top with the cabinet, a connection between the support and top, one pair of the arms of the parallel arms provided with an extension, and a weight connecting the extensions and made adjustable in the lengthwise direction of the extensions.

491,240. DOCTOR-BLADE FOR FABRIC-PRINTING MACHINES. GEORGE CROMPTON, Cranston, R. I. Filed May 28, 1892. Serial No. 434,726. (No model.)



Claim.—An improved doctor blade for the use in fabric printing machines, made thin in its middle for one-half to three-fourths of its width throughout its length to increase its elasticity, to a certain extent, and having the strips on each side of said thin portion, to the edges of the blade, made of the usual thickness, substantially as set forth.

491,241. BUCKLE. JAMES H. FARNE, Rockford, Ill. Filed May 18, 1891. Serial No. 393,232. (No model.)



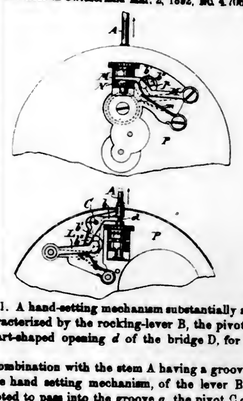
Claim.—1. A wire suspender buckle consisting of a frame of rectangular form having a hook depending from the lower bar and a central cross bar connecting the ends of the frame having its center depressed a hinged clamping section having a horizontal upper portion and depending, pointed free ends and a clasp surrounding the horizontal portions and the upper cross bar, and means for locking the hinged section in its closed position.

2. In a buckle, a frame composed of two sides connected by ends, a clamping bar longitudinally across said frame, combined with a lever made from wire doubled, the two branches turned to the right and left, and the ends of the branches returned substantially parallel with the lever, the said lever hinged to the frame by said right and left bend of the branches, and the returned ends of the branches bent backward toward the bar and forming prongs, the said bar constructed with holes corresponding to the said ends of the prongs.

3. In a suspender buckle, the combination, with the buckle frame formed of wire with a toothless cross piece secured thereto of the locking lever formed of wire with means for the engagement of the co-operating member pivotally connected to the frame and having its ends pointed and turned toward the engaging loop to form holding teeth between which and the cross bar the web is held.

4. In a suspender buckle, the combination with the buckle frame, of the locking lever formed with the wire loop having its ends turned back and forming holding teeth or points, and the sheet metal pivotal piece pivotally connected to the buckle frame and having the lugs or ears embracing the locking lever.

491,242. STEM WINDING AND SETTING WATCH. LOUIS FAVRE, Cormeret, Switzerland. Filed Oct. 12, 1892. Serial No. 448,712. (No model.) Patented in Switzerland Mar. 2, 1892, No. 4,706.



Claim.—1. A hand-setting mechanism substantially as described, specially characterized by the rocking-lever B, the pivot C of which plays in a heart-shaped opening *d* of the bridge D, for the purpose specified.

2. The combination with the stem A having a groove *a*, and the gearing of the hand setting mechanism, of the lever B, one end of which is adapted to pass into the groove *a*, the pivot C of said lever and the bridge D having a heart-shaped opening for said pivot C, substantially as specified.

3. The combination with the stem having a groove *a*, ratchet pinion N upon said stem and the lever M for actuating said ratchet pinion N, of the lever B having an arm *b* to pass into the groove *a* and also having a projection *b''* to take against the lever M, and a spring for returning the parts, substantially as specified.

4. The combination with the stem having a groove *a*, the ratchet pinion upon said stem, the lever M for actuating said ratchet pinion and the safety latch L, of the lever B having an arm to pass into the groove *a*, and a projection *b''* to actuate both the lever M and latch L, substantially as and for the purpose specified.

491,243. BED. ORRIN G. FRANKS, Kenosha, Wis., assignor to the North Western Wire Mattress Company, same place. Filed Nov. 14, 1892. Serial No. 451,917. (No model.)



Claim.—1. The combination with the bed-bottom, A, of end pieces, B, B, having mortises, B', side rails, C, having cylindric tenons extending into said mortises, rails, E, and rungs, E', joined to each other to constitute side frames, end frames, D, having corner posts, D', provided with mortises, D^2, bars, d^2, extending across said mortises, and hooks, C^2, extending from the body of the bed into said mortises and over said bars, and said corner posts being detachably joined to the ends of said rails, E, substantially as described.

2. The combination with the bed-bottom, A, of end pieces, B, B, having mortises, B', side rails, C, having cylindric tenons extending into said mortises, rails, E, and rungs, E', joined to each other to constitute side frames, end frames, D, having corner posts, D', provided with mortises, D^2, bars, d^2, extending across said mortises, and hooks, C^2, secured to the tenons of said side rails, C, and adapted to extend into said mortises and over said bars d^2, and said corner posts being detachably joined to the ends of said rails, E, substantially as described.

491,244. BED. ORRIN G. FRANKS, Kenosha, Wis., assignor to the North Western Wire Mattress Company, same place. Filed Nov. 14, 1892. Serial No. 451,918. (No model.)



Claim.—1. In a bed, the combination with the body, A, B, C, B, C, of upright end frames secured to said body by a telescopic connection, and side frames intervening between the corner posts of said end frames and hinged at their lower corners to said body, and detachably secured by their upper corners to the corner posts of the end frames, substantially as described.

2. In a bed, the combination with the body, A, B, C, B, C, of upright end frames secured to said body by a telescopic and hinged connection, and side frames intervening between the corner posts of said end frames and hinged at their lower corners to said body, and detachably secured by their upper corners to the corner posts of the end frames, substantially as described.

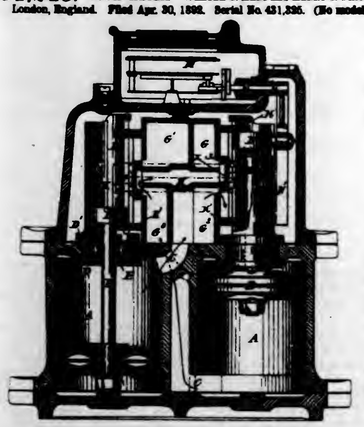
3. In a bed, the combination with the body, A, B, C, B, C, of rigid posts, F, located at the corners of said body, end frames having corner posts telescoping over said posts, F, and side frames intervening between said end frames and hinged at their lower corners to said body, and detachably secured at their upper corners to the corner posts of said end frames, substantially as described.

4. In a bed, the combination with the body, A, B, C, B, C, of rigid posts, F, located at the corners of said body, end frames having corner posts telescoping over and hinged to said posts, F, and side frames intervening between said end frames and hinged at their lower corners to said body, and detachably secured at their upper corners to the corner posts of said end frames, substantially as described.

5. In a bed, the combination with the body, A, B, C, B, C, of rigid posts, F, located at the corners of said body, end frames having corner posts telescoping over said posts, F, and side frames intervening between said end frames and hinged at their lower corners to said body by means of said posts, F, and detachably secured at their upper corners to the corner posts of said end frames, substantially as described.

6. In a bed, the combination with the body, A, B, C, B, C, of posts, F, rising from the corners of said body, end frames having corner posts telescoping over and hinged to said posts, F, and side frames intervening between said end frames and hinged by the lower corners to said body by means of said posts, F, and detachably secured by their upper corners to the corner posts of said end frames, substantially as described.

491,245. FLUID-METER. WALTER G. KENT and HENRY S. PRICE, London, England. Filed Apr. 30, 1892. Serial No. 431,235. (No model.)



Claim.—1. In a fluid meter, the combination of a cylinder casting having in it two cylinders, pistons working in the cylinders, piston rods fixed to the pistons and passing out at the top of the cylinders, passages in the cylinder casting leading from its upper surface to both ends of each of the two cylinders, a block on the top of the casting containing passages leading from its underside (in continuation of the passages in the casting) to valve faces on opposite sides of it and valves on the valve faces worked by the piston rods.

2. In a fluid meter, the combination of a cylinder casting having in it two cylinders, pistons working in the cylinder, piston rods fixed to the pistons and passing out through the tops of the cylinders, passages in the cylinder casting leading from its upper surface to both ends of each of the two cylinders and to an inlet and outlet respectively, a block on the top of the casting containing passages leading from its underside (in continuation of all the passages in the casting except the inlet passage) to valve faces on opposite sides of it, valves on the valve faces worked by the piston rods and a casing into which the inlet leads surrounding the block and the valve.

3. The combination of the casting provided with two cylinders A A, and having the passages C, leading from its upper surface to both ends of the two cylinders, a port block J, above the casting provided with passages leading from its underside and communicating with and forming continuations of the passages C, in the casting, valve faces on opposite sides of the port block, valves operating thereon, pistons working in the cylinders, and connections between the pistons and the valves.

4. The combination of the cylinder casting having the two cylinders A A therein, pistons working in the cylinders, piston rods fixed to the pistons and passing out through the tops thereof, passages C, in the cylinder leading from its upper surface to both ends of each of the two cylinders, a port block on the top of the casting provided with passages leading from its underside (in continuation of the passages in the casting), valve faces on opposite sides of the port block, valves working in the valve faces, connections between the valves and the piston rods and a casing surrounding the port block and the valves above the cylinders.

5. The combination of a cylinder A, piston B, working therein, a piston rod B' extending out through the top of the cylinder, a gland passing out from the inside of the cylinder through an opening in one end thereof, a guide D'', for the piston, formed in one piece with the gland, and a nut on the outside of the cylinder for securing the gland and guide in place.

6. The combination of a cylinder having one end formed integrally with its sides, a piston working in the cylinder, a piston rod secured thereto, a gland passing out from the inside of the cylinder through one end thereof, a guide D'' formed integrally with the gland, a head B^x, secured to the piston rod and working in the guide D'', and a nut on the outside of the cylinder for securing the gland and guide in place.

7. The combination of the cylinder casting provided with the two cylinders A A, and having formed with it the passages C, extending to both ends of each cylinder, the port block J, above the cylinder casting, and having the passages G G' G^2 G^3, and the discharge passage H, the vertically moving valves K, having the arms K', pistons working in the cylinders piston rods formed with heads engaging with the arms K', and a casing inclosing the port block and valves.

491,246. RECLINING-CHAIR. WILLARD E. MARTIN and PETER WALRAD, Herkimer, N. Y. Filed May 21, 1892. Serial No. 433,816. (No model.)

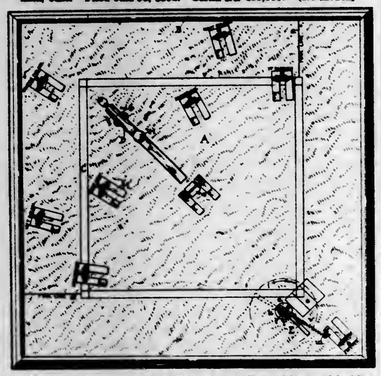


Claim.—1. The combination in a chair of a seat and back pivoted to the rear of the seat, an arm pivoted to the back above the seat and having a slot bolt opening in its forward end, an inclined slot plate 10, located over the slot opening in the arm and inclined from the front downwardly toward the rear and adjusting bolt mounted in a fixture on the seat, passing through the slot in the arm and engaging in the slotted plate 10, and a spring 12, secured at one end to the end of the bolt 8, and at the other end to the arm substantially as set forth.

2. In a reclining chair, a seat, a swinging back pivoted to the seat, and a rigid projection 6 projecting from the upper face of the seat, an arm pivoted to the back above the pivotal point at the seat and sliding at its forward end on the projection 6, an inclined slotted plate 10 inclining from the front downward toward the rear of the chair, and contained within a chamber within the arm, a bolt 8 pen-

ing through the opening in the projection 6 and through the slotted opening in plate 10 and having its head contained in the chamber in the arm, a nut 9 provided on the bolt 8, and a righting spring 12 secured at one end to the head of the bolt adjacent to the inclined plate, and at the other end to the arm on the side toward the back, the spring being contained in the chamber in the arm, all combined substantially as set forth.

491,247. TOY BASE-BALL GAME. JOSEPH A. MEARER, Cleveland, Ohio. Filed Jan. 20, 1892. Serial No. 419,353. (No model.)

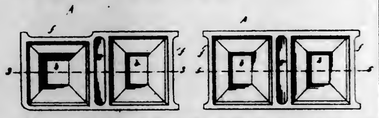


Claim.—1. In a toy base ball game, a ball catching and holding device comprising a strip of resilient material firmly secured at one end only, and having its free end bent vertically upward, and then at a slight angle to the horizontal, and directed toward the point from which the ball will come, substantially as described.

2. In a toy base ball game, a ball catching device consisting of a strip of resilient metal firmly secured at one end and inclining upwardly toward the point from which the ball will come, substantially as described.

3. In a toy base ball game, a ball catching device consisting of a strip of resilient material firmly secured at one end, and having its other end bifurcated and inclined upwardly toward the point from which the ball is to come, substantially as described.

491,248. BRICK. JOHN MOELLERS, New York, N. Y. Filed May 17, 1892. Serial No. 433,295. (No model.)

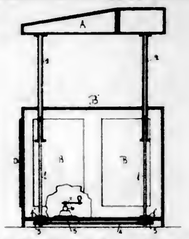


Claim.—1. A hollow brick having a transverse partition provided with depressions on its upper and lower edges, the openings on opposite sides of said partition being enlarged toward the top and bottom of the brick, said brick being provided on a vertical face with a recess adapted to register with the partition depressions of adjacent bricks above and below.

2. A hollow brick having a transverse partition provided with depressions on its upper and lower edges, the openings on opposite sides of said partition being enlarged toward the top and bottom of the brick, said brick being provided on two vertical faces with recesses adapted to register with the partition depressions on adjacent bricks above and below.

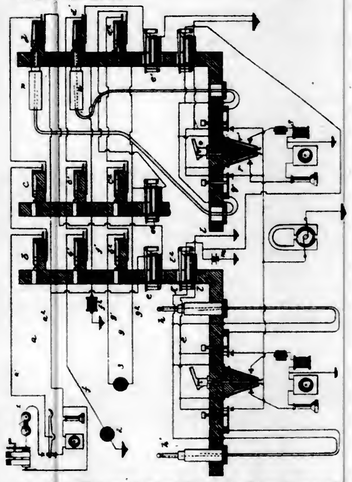
3. A hollow corner brick for interior work having a transverse partition provided with depressions on its upper and lower edges, the openings on opposite sides of said partition being enlarged toward the top and bottom of the brick, said brick being provided at one end and along one half of one side with recesses adapted to register with the partition depressions of adjoining bricks above and below, substantially as set forth.

491,249. ADJUSTABLE DESK. SYLVANUS J. REYNOLDS, Saginaw, Mich. Filed June 20, 1892. Serial No. 437,406. (No model.)



Claim.—In an adjustable desk the combination with the desk or cabinet B provided with a top B' suitable for a writing desk, screw rods 1, 1, 1, 1, incased in each corner thereof, each rod furnished with a sprocket wheel 3 on its lower end incased in the bottom of the desk B, and each rod provided also with a collar 1' resting upon the top of the bottom of the desk and supporting the rods, and the sprocket wheels 3, 3, 3, 3, the sprocket wheel 5, shaft 6, and crank 7, journaled in the base in the same plane with sprocket wheels 3. 3. 3. 3 the sprocket chain 4 running over the said sprocket wheels, of the adjustable desk top A supported by the hollow legs 2. 2. 2. 2. screw threaded upon their inside and adapted to engage the screw rods 1. 1. 1. 1. in the desk, and the hollow legs 2. 2. 2. 2. substantially as described and as and for the purpose set forth.

491,250. TESTING APPARATUS FOR MULTIPLE-SWITCHBOARD SYSTEMS. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Sept. 9, 1890. Serial No. 364,442. (No model.)



Claim.—1. The combination with a pair of loop plugs and cords of a branch from that strand of said cords connecting the sleeves thereof, said branch extending through a winding of the clearing out annunciator and a battery to ground.

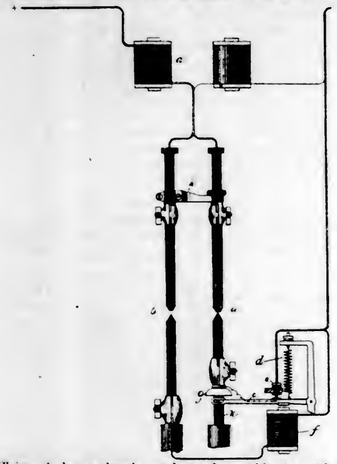
2. The combination with the clearing out annunciator of two windings placed thereon, a pair of loop, plugs and cords connecting like parts thereof one of said windings being connected in a circuit branched from the strand of the cord connecting the sleeves and through a test battery to ground, the other winding being connected in a branch from the cord connecting the tips of the plugs and directly to ground and the switches connected with the subscribers' lines, whereby the lines may be connected together and a test provided without disturbing the electrical balance of the lines.

3. The combination with a clearing out annunciator, of a pair of loop plugs and their cords and branch connections from the different strands of said cords, each branch including a different winding of said annunciator and extending to ground, a battery being connected

with that branch which extends from the strand connecting together the sleeves of said plugs, substantially as and for the purpose specified.

4. The combination with a metallic circuit telephone line, of the generator of the subscriber included therein and the clearing out annunciator at the central office provided with two windings each connected in a ground branch from different sides of said metallic circuit, whereby the subscriber may operate said clearing out annunciator, substantially as and for the purpose specified.

491,251. DUPLEX ELECTRIC-ARC LAMP. CHARLES E. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Oct. 20, 1890. Serial No. 368,854. (No model.)



Claim.—1. In an electric arc lamp, the combination with the upper carbon rods adapted to move in unison, of corresponding carbon holders for the lower carbons, one of said lower carbon holders being fixed and the other being movable and controlled by an electromagnetic device in circuit with said fixed carbon holder; substantially as described.

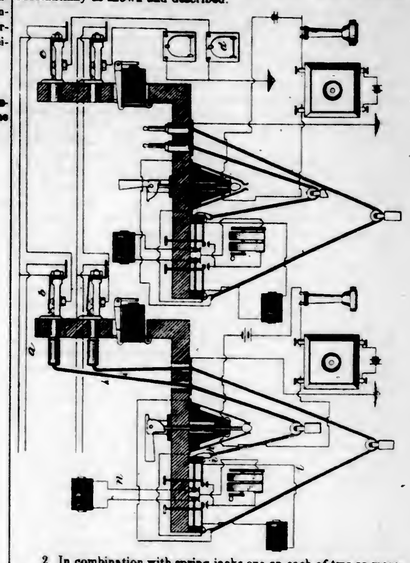
2. In an electric arc lamp one electrode holder having two carbons and mechanism for regulating the same, an electro magnetic device connected with and adapted to move one of the carbons of the lower pair, the said electro magnetic device being in the circuit of the other lower carbon, a contact point included in the circuit of the lower carbon controlled by the electro magnetic device and an automatic cut out operated by an abnormal arc, whereby the lamp may be extinguished and the upper carbons raised and the arc alternated by the electro magnetic device, substantially as and for the purpose specified.

3. In an electric arc lamp the combination with the upper carbon rods adapted to move in unison, of corresponding holders for the lower carbons, one of said lower holders being controlled by an electro magnetic device in circuit with the fixed lower carbon holder, substantially as and for the purpose specified.

4. In an electric arc lamp two pairs of carbons, the upper members of the two pairs being adapted to move in unison and the corresponding lower carbons being the one fixed and the other movable, in combination with an electro magnetic device in circuit with the fixed lower carbon and mechanically connected with the support of the movable carbon to raise and lower the same, substantially as and for the purpose specified.

491,252. METALLIC CIRCUIT FOR MULTIPLE-SWITCHBOARD SYSTEMS. JOHN A. SEELY, New York, N. Y., assignor to the Western Electric Company, Chicago, Ill. Filed Nov. 15, 1886. Serial No. 218,947. (No model.)

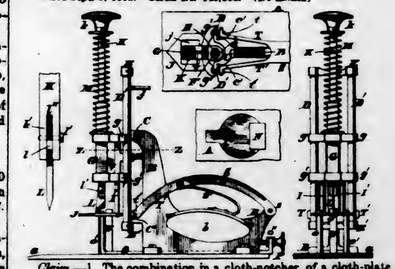
Claim.—1. In a multiple system of telephone exchange, the combination with a spring jack switch on each of two or more boards, of a metallic circuit provided with a branch circuit to ground at the subscriber's station, one of the branches of said circuit being normally connected through said spring jacks and an annunciator to ground, and the other branch being connected with the insulated frames or test pieces of said switches and normally open, and switching apparatus at the subscriber's station, whereby said ground at the subscriber's station may be taken off and the two branches connected together through the subscriber's telephone to form a metallic circuit substantially as shown and described.



2. In combination with spring jacks one on each of two or more multiple switch boards, of a metallic circuit consisting of two branches, one branch being normally connected through the spring jack switches to ground, the other branch being connected to the insulated frames or test pieces of said switches and normally open, and switching apparatus at the subscriber's station and at the central office, whereby said branches may be united to form a metallic circuit substantially as described.

3. In a multiple switch board exchange system the spring jacks of a telephone line, one on each board, said spring jacks being each provided with an insulated frame or test piece to which one branch of the metallic circuit is connected, the other branch being connected through said spring jack switches, testing apparatus at the central office and switching apparatus at the subscriber's station for connecting said lines to ground or with each other in metallic circuit, whereby one branch of said circuit may be used as a test wire or united with the other branch in a metallic circuit substantially as described.

491,253. CLOTH-NOTCHER. FRANK J. STOLLE, Cincinnati, Ohio. Filed Sept. 5, 1892. Serial No. 445,095. (No model.)



Claim.—1. The combination in a cloth-notcher, of a cloth-plate, a standard projecting therefrom, a vertically reciprocating frame applied to said standard, a handle coupled at its opposite ends to said standard and frame, a spring for restoring said frame to its normal position, a vertically adjustable carrier applied to said frame and pro-

vided with a presser-foot, a reciprocating plunger traversing said carrier, and a knife secured to this plunger, for the purpose described.

2. The combination in a cloth-notcher of a vertically reciprocating frame, an adjustable presser-foot carrier capable of being locked to said frame, a plunger traversing said carrier, and a knife secured to this plunger, for the purpose described.

3. The combination, in a cloth-notcher, of a vertically reciprocating frame having a locking-bar journaled eccentrically therein, a presser-foot carrier having a perforated lug traversed by said locking-bar a plunger traversing said carrier, and a knife secured to said plunger, for the purpose described.

4. The combination, in a cloth-notcher, of a cloth-plate, a standard projecting therefrom, and carrying the cutting appliances, a longitudinal groove in the base of said standard, and a shiftable gage-plate inserted within said groove, the front end of said plate being provided with a pair of stops, and its rear end being turned up and having an adjusting screw applied to it, all as herein described, and for the purpose set forth.

5. The combination, in a cloth-notcher, of a standard, carrying the cutting appliances and a plunger, and a guiding post in front of and independent of said standard, which post serves as a bearing for the back of said plunger only when the latter is depressed, all as herein described, and for the purpose set forth.

6. The combination, in a cloth-notcher, of a standard B, having a pair of brackets C, C, with guides *c. c. c' c'* at their ends, the side-bars D, D', united at top and bottom and provided with longitudinal grooves *d. d'*, traversed by said guides *c. c. c' c'*, a handle S pivoted to said standard at *s*, a pair of forks T, T', branching from said handle and coupled to said side-bars at *t. t'*, and a spring *s'*, that elevates said handle and bars, substantially as described.

7. The combination, in a cloth-notcher, of the vertically-adjustable carrier G provided with a presser-foot J having an opening *j* in it, a fixed post N projecting upwardly from the cloth-plate of the implement and traversing the rear of this opening *j*, and a gage-plate O, capable of being shifted longitudinally of said cloth-plate and having at its front end a pair of vertical stops *o. o'*, that traverse the sides of said opening *j*, all as herein described, and for the purpose stated.

8. The combination, in a cloth-notcher, of a cloth-plate, a standard projecting therefrom, a reciprocating frame applied to said standard, an adjustable carrier applied to said frame, and provided with a presser foot, a reciprocating plunger traversing said carrier, and a knife secured to this plunger, substantially as herein described, and for the purpose set forth.

491,254. PROCESS OF SEPARATING TIN FROM IRON OR STEEL. THOMAS TWYMAN, London, England. Filed Sept. 20, 1892. Serial No. 447,260. (No specimens.)

Claim.—1. The hereinbefore described process for separating tin from iron or steel, which consists in first coating the surface of the tin, then heating the combined metals until the tin is oxidised, and then separating the oxidised from the unoxidised metal in a water bath, substantially as set forth.

2. The hereinbefore described process for separating tin from iron or steel, which consists in first coating the surface of the tin, then heating the combined metals until the tin is oxidised, then separating the oxidised from the unoxidised metal in a water bath, and finally separating the oxide of iron from the oxide of tin, substantially as set forth.

3. The hereinbefore described process for separating tin from iron or steel, which consists in first coating the tin with a film which when heated will form a scale capable of being separated from the iron or steel, then heating until the scale is formed, and then separating the tin-containing scale from the iron or steel, substantially as described.

491,255. PIPE-WRENCH. WILLIAM J. WALKER, St. Louis, Mo. Filed Nov. 11, 1892. Serial No. 451,617. (No model.)

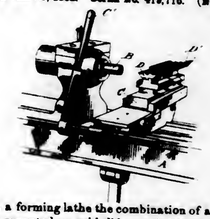


Claim.—1. A pipe wrench consisting of a stationary jaw, an extension formed on the same, a movable member having a passage for the reception of said extension, teeth formed on the said extension, teeth carried by the said movable member, a lever movably attached to the movable member, one end of which forms the movable jaw, a spring carried by the movable member and located within the passage formed in the same, and a cam lever movably attached to said member and normally in contact with said spring for locking the jaws, substantially as set forth.

2. A pipe wrench consisting of a stationary jaw 1, an extension 3 forming part of the same, teeth 4 formed on the upper edge of said extension, a movable member 5 having a passage 6 for receiving said extension, a removable toothed block 7 located within said passage and at one end thereof, a flat spring 23 secured within said passage and below the lower edge of the said extension 3, a cam lever 24 movably attached to said member 5 and below the said spring, and a lever 13 carried by said movable member one end of which forms the movable jaw, substantially as set forth.

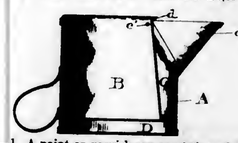
3. A pipe wrench consisting of a stationary jaw 1, an extension 3 forming a part of the same, a movable member 5 provided with a passage 6 for the reception of said extension, teeth formed on the said extension, a removable block 7 having teeth 11, dovetail 8 formed on the said block and adapted to be received by correspondingly shaped grooves formed in the member 5, a binding screw 12 for holding said block, a flat spring 23 carried by said movable member and located within said passage below the lower edge of the extension 3, a cam lever carried by the said movable member and adapted to be brought in contact with said spring, and a lever 13 attached to said member 5, substantially as set forth.

491,256. LATHE-TOOL AND SUPPORT. WALTER I. CHENEY, Meriden, Conn., assignor to the Meriden Machine Tool Company, same place. Filed Jan. 29, 1892. Serial No. 419,716. (No model.)



Claim.—In a forming lathe the combination of a transverse slide, a tool or cutter mounted on said slide, a subsidiary slide, mounted on said first named slide and adjustable thereon and a tool or cutter mounted on said subsidiary slide, substantially as described.

491,257. PAINT OR VARNISH CUP. GEORGE W. DAVIS, Hot Springs, Ark. Filed June 9, 1892. Serial No. 436,089. (No model.)



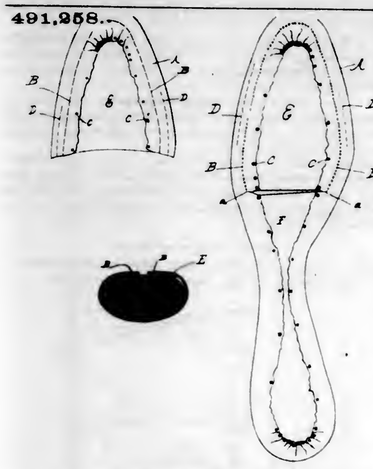
Claim.—1. A paint or varnish cup consisting of the outer cup A, having the lip *a*, and pins *c*, and inside cup B, having the straight front *b*, rim *d*, and indentations *c'*, registering with the pins *c*, said cup leaving between itself and the outer cup the spaces C and D, substantially as shown and described and for the purposes set forth.

2. A paint or varnish cup consisting of the outer cup A, having the lip *a*, pins *c*, and inverted handle c^3, and inside cup B, having the straight front *b*, rim *d*, and indentations *c'*, registering with the pins *c*, said cup leaving between itself and the outer cup spaces C and D, substantially as shown and described and for the purposes set forth.

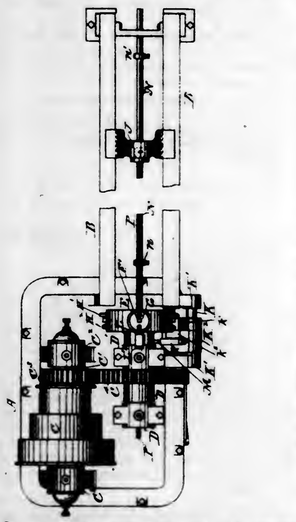
491,258. PROCESS OF MAKING BOOTS OR SHOES. GEORGE W. DAY, Haverhill, Mass., assignor to the Boston Footwear Machine Company, of Maine. Filed June 20, 1891. Serial No. 397,061. (No specimens.)

Claim.—The process of the manufacture of boots and shoes which consists in weakening, or impairing the strength of, the upper on a line inside the line of the fastenings of the outer sole, before the latter is applied, and in lasting, securing the upper inside of the weakening line, then removing the last, then securing the outer sole outside of the said weakening line, and, finally, removing the surplus upper inside of said weakening line substantially as described.

491,258.



491,259. CORRUGATING-MACHINE. BICKNELL HALL, Taunton, assignor to the Wainwright Manufacturing Company, Boston, Mass. Filed Jan. 4, 1892. Serial No. 417,057. (No model.)



Claim.—1. In a corrugating machine provided with a rotating head having a tube passage through it, said head carrying one or more corrugating tools located about said passage and adapted to be moved toward and from its axis, a rod adapted to be reciprocated, provided with a stop, a tube support suitably mounted and adapted to engage with said stop, in combination with means substantially as described connected with said rod whereby the position of said tools may be altered, all as and for the purposes set forth.

2. In a corrugating machine, in combination with a rotating head, the tool carrying bushing G adapted to be moved about a longitudinal axis, a tool holder mounted in said bushing and adapted to be moved longitudinally therein, a pin passing through said tool holder, each end of said pin being mounted in an eccentric bushing supported in said tool carrying bushing G adapted to be turned therein, and a cam mounted on said pin and means whereby said cam may be oscillated thereon, all as set forth.

3. In a corrugating machine, a tool carrying bushing in which is mounted a tool holder and means for moving the tool holder and tool toward and from the tube to be corrugated, said means consisting of the following parts, namely:—two tappets mounted, one on each side of said tool holder in said tool carrying bushing and adapted to slide therein, and lever fulcrumed to said tool holder and carrying a cam adapted to engage therewith, said lever being pivotally connected at each end with one of said tappets, all as set forth.

4. In a corrugating machine, a rotating head carrying one or more pairs of tool moving tappets, in combination with a sliding tappet bar, provided with a cam surface adapted to engage with either one of each pair of tappets, as set forth.

5. In a corrugating machine, the sliding tappet bar K^3, the lever *k* pivoted thereto and means whereby it may be latched on either side of its vertical position, in combination with a rotary head, carrying fingers adapted to engage respectively with said lever in its respective latched positions as set forth.

6. In a corrugating machine having a rotating tool-carrying head with one or more pairs of projecting tappets, each pair being adapted to change the position of the tool in said head, a sliding tappet bar adapted to throw either one of each pair of tappets, and a tube carrying carriage connected with said tappet bar, in substantially the manner described, all as and for the purposes set forth.

7. In a corrugating machine, in combination with a rotating tool carrying head, one or more pairs of projecting tappets, each pair being adapted to change the position of the tool in said head, the sliding tappet bar carrying a forked lever *k* normally lying vertically, and also two latches, one located on each side of said vertical lever, and the rock shaft M carrying a rocker arm lying in the slot in said vertical lever, said shaft being adapted to be oscillated in substantially the manner described.

8. In a corrugating machine, the tube carriage above described, provided with a projection *j* adapted to center the end of the tube, and two eccentric rolls j', j^3 located in close proximity to the projection *j* and adapted to grip the end of said tube against it, all as set forth.

491,260. THREAD HOLDER AND CUTTER. REMEMBER C. JENKINS, Shrewsbury, Mass. Filed Feb. 27, 1892. Serial No. 423,006. (No model.)



Claim.—1. A thread cutter and holder comprising a disk having a portion of its periphery turned up, a slit formed in its upturned portion whereby two meeting cutting edges 8 and 9 are formed, which cutting edges are adapted to hold the end of the thread after the same has been cut off, and means whereby the disk may be fastened to a spool, substantially as described.

2. A thread holder and cutter comprising a disk, having a portion of its periphery upturned, and having a slit formed in its upturned portion, whereby cutting edges are formed, a catch 4 struck up from said disk, said catch and cutter being adapted to hold the thread, and means for fastening said disk to a spool, substantially as described.

3. A thread cutter and holder comprising a disk, having a portion of its periphery upturned, and having a slit formed in said upturned portion, whereby cutting edges are formed, a catch 4 struck out from said disk, and spring arms 3 cut out and bent down from said disk, whereby the disk may be attached to the spool, substantially as described.

491,261. SPOOL-HOLDER. REMEMBER C. JENKINS, Shrewsbury, Mass. Filed Mar. 3, 1892. Serial No. 423,563. (No model.)



Claim.—1. The spool holder comprising a wire frame consisting of the transverse bar 4, the end bars terminating in coils, said coils having spool journals, and the portions 9 and 12 forming with one of the end bars as 5, a catch between the end bar 5 and the portion 9, and a cutter between the portion 9 and 12, substantially as described.

2. A spool holder comprising a wire frame consisting of the transverse bar 4, the end bars 3 and 5 terminating in coils, said coils having spool journals, and the loops 9 and 12 bent back on the por-

tion 5, a guiding shoulder as 10 on the portion 5, and a cutting edge as 13 formed between the portions 9 and 12, substantially as described.

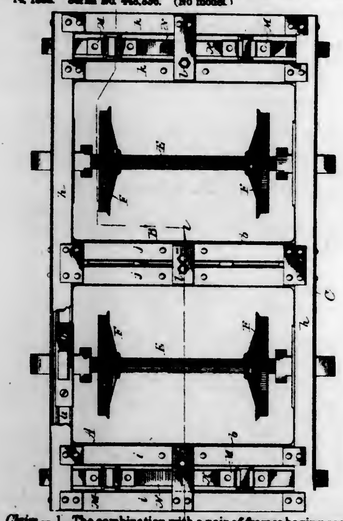
491,262. COMBINED THREAD HOLDER AND CUTTER. BENJAMIN C. JENKINS, Shrewsbury, Mass. Filed Mar. 3, 1892. Serial No. 423,564. (No model.)



Claim.—1. The thread holder consisting of a spring band bent upon itself and having ears upon one end thereof, a cutter formed on the other end thereof, and a hole drilled through the body portion of the spring band, substantially as described.

2. The thread holder consisting of a spring band adapted to clasp an unwound convolution of thread, and having one of its ends provided with an outward projection, said projection having cutters formed therein, substantially as described.

491,263. CAR-TRUCK. SIDNEY D. KING, Pittston, Pa. Filed Oct. 14, 1892. Serial No. 448,836. (No model.)



Claim.—1. The combination with a pair of frames having rockers at their longitudinal centers, one frame supported upon the other and the rockers of one upon the rockers of the other, of a bolt or equivalent device extending from one frame to the other for connecting the frames together at the longitudinal centers, substantially as set forth.

2. The combination with a pair of frames, and axles upon which said frames are supported, of a truck frame, composed of longitudinal and transverse strips secured together and spanning or overlapping the sides of the frames whereby lateral and longitudinal movement of the truck frame relative to the other frames is prevented, substantially as set forth.

3. The combination with a pair of frames having rockers at their longitudinal centers, of a truck frame provided with rockers adapted to bear and rock upon the rockers of the frames, and hooks for holding the truck frame on the other frames, substantially as set forth.

4. A truck frame composed of longitudinal and transverse angle iron strips secured together, and frames upon which the truck frame is supported, said frames so constructed and located that they are overlapped and covered by the horizontal leaves of the angle iron strips, substantially as set forth.

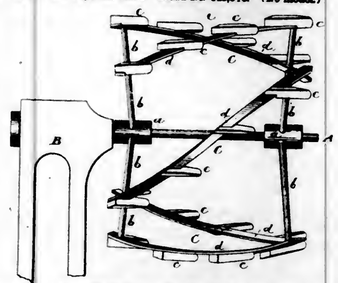
5. A wheel frame comprising two endless strips of metal placed edgewise and parallel and forming the sides and ends of the frame, and spacing devices located between these strips, substantially as set forth.

6. The combination with a truck frame, and rockers for supporting it at its longitudinal center, of brackets yieldingly supported or cushioned on the truck frame and to which the car body is secured substantially as set forth.

7. The combination with a truck frame having depending strap plates, of brackets yieldingly supported on the plates and to which the car body is secured, and guides between which these brackets operate, substantially as set forth.

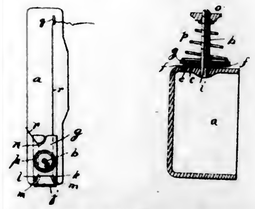
8. The combination with axle frames, of a truck frame pivotally supported on the axle frames at its longitudinal center, springs interposed between the outer sides of the axle frames and main frame, and springs connected with the main frame for supporting the car body, substantially as set forth.

491,264. HARVESTER-REEL. ADAM REKART, Fort Jennings, Ohio. Filed Sept. 19, 1892. Serial No. 446,318. (No model.)



Claim.—The combination with the shaft of a harvester reel, of the hubs *a* and spokes *b*, diagonal bars *d* secured to the extremities of said spokes, and wings *c*, secured to said diagonal bars, at intervals, in position to catch the grain, substantially as set forth and described.

491,265. TENSION DEVICE FOR SEWING-MACHINES. GABRIEL F. RUBY, Columbus, Ohio. Filed Mar. 23, 1892. Serial No. 426,116. (No model.)

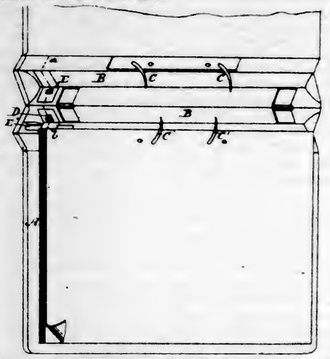


Claim.—1. In a tension device, the combination of a post, a support therefor, a base plate eccentrically mounted on the post, a tension plate loosely mounted on the post and bearing on said base on one side of the post, and provided with the thread eyes to hold the thread away from the post and longitudinally of and between the base and tension plate, and a spring yieldingly holding the tension plate in position.

2. In a tension device, the combination of a support, a base, a post, a laterally and longitudinally tilting tension plate having an enlarged aperture between its ends through which said post passes, the longitudinal clamping faces of the plate and base located to one side of and parallel with the longitudinal axis on which the plate rocks, the spring on the post holding the plate to the base, and means substantially as described to hold the thread between said clamping faces and away from the post, substantially as described.

3. The tension device comprising a support, a base, a post, a tension plate having an aperture between its ends and side edges loosely fitted on the post to permit swing on longitudinal and transverse axes, one edge of said plate extending beyond the corresponding edge of the base, a spring on the post bearing on the plate, one end of the plate having two thread eyes, respectively, on opposite sides of the longitudinal axis of the plate and one thread eye at the other end of the plate on one side of the longitudinal axis thereof substantially as described.

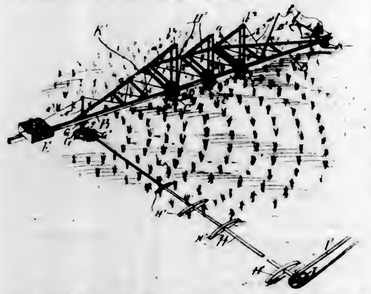
491,266. LETTER-FILE. ANDREAS TRINEWALL, Helsingborg, Sweden. Filed Oct. 15, 1890. Serial No. 368,170. (No model.) Patented in Sweden Mar. 30, 1889. No. 2,331.



Claim.—1. A letter file comprising a divided back, hinges connecting the back sections, rigid strips secured to said back sections, covers flexibly attached to said rigid strips, plates or bars carrying curved impaling prongs connected to the insides of the rigid strips, and a spring lock or latch secured to the inside of the divided back, to hold the back sections in a closed position, one of said back sections carrying the projecting hook or bolt and thumb piece of the lock, and the other section having a catch for said hook or bolt, all substantially as described.

2. A letter file provided with a divided back and hinges for connecting the same, combined with means for holding the back closed rigidly, consisting of a spring hook secured to one division of the back and a catch located in a cavity in the other division, and a spring thumb-piece to operate the hook extending across the same to the end of one side of the back of the file, substantially as described.

491,267. HORSE-POWER. JOHN DAGM, Navarre, Ohio. Filed Sept. 12, 1892. Serial No. 445,645. (No model.)



Claim.—1. The combination of the post A, having pivoted thereon the bar B, the bar B provided with the braces *a* and *b*, the section B' removably attached to the main bar, and the traveling wheels C substantially as and for the purpose set forth.

2. The combination of the main or center-post A, a sweep formed in sections and pivoted on the top or upper end of the main post A, the counter-balance bearing upon the main bar B, the post A', located above the main or center post A, the guy-wires a^3, the traveling wheels C, and the main bar B, substantially as and for the purpose specified.

3. The combination of a sweep formed in sections, the traveling wheels C, provided with the cog-wheels F, the pinions *f* meshing with the cog-wheels F, the shafts *g*, the pinion *g'*, the cog-wheel G meshing with said pinion *g'*, the cog-wheel G', the pinion G^2, and the power-shaft H, substantially as and for the purpose specified.

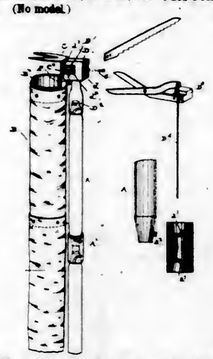
4. The combination of the sections composing a sweep, and having attached thereto the T-shaped bar L, the clamp L', the bar L^2, and the eccentric L^3, substantially as and for the purpose specified.

491,268. LAMP-SOCKET. EDWIN R. ELLIOTT, Litchfield, Ill. Filed Mar. 28, 1892. Serial No. 426,799. (No model.)



Claim.—In a lamp socket, the combination of the key C, carrying the lug *c*, the spring E surrounding said key and the spring contact piece so arranged in the path of movement of said key with which the lug is adapted to engage to close the circuit and to be held in such position thereby, against the tension of said spring E.

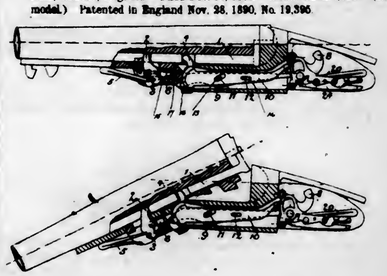
491,269. COMBINED FRUIT-PICKER AND PRUNING IMPLEMENT. JOHN H. GRISWOLD, Oakland, Cal. Filed Feb. 26, 1891. Serial No. 382,910. (No model.)



Claim.—1. The herein described pruning and fruit-picking implement, the same consisting of a handle, a head carried thereby and having a lateral groove in one side with an overhanging lip, and a set screw passing upwardly into said groove; combined with a tool substantially as specified, and a block secured to said tool and of a shape to closely fit said groove in the head, as and for the purpose set forth.

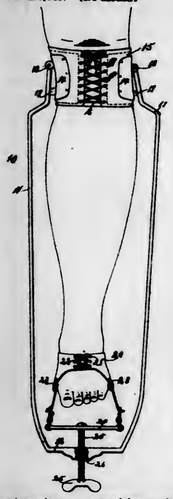
2. The herein described pruning and fruit-picking implement, the same consisting of a handle, a head carried thereby and having a lateral groove in one side with an overhanging lip, a clamp on the other side of the head, and a set screw passing upwardly into said groove; combined with a cutting tool detachably secured to the head by said clamp, pruning and picking tools substantially as specified, and blocks secured to each of said latter tools and of a shape to closely fit said groove in the head, as and for the purpose set forth.

491,270. EJECTOR MECHANISM FOR DROP-DOWN GUNS. JOHN ROSS, London, England. Filed Feb. 16, 1892. Serial No. 421,701. (No model.) Patented in England Nov. 26, 1890. No. 19,396.



Claim.—The combination, with the ejector rod carried by the barrel and provided with a slot, of the stationary limb 4 engaging with the said slot, the pivoted spring-actuated hammer 2 for striking the end of the ejector rod, the rotary sear journaled parallel with the barrel and provided with the projection 15 normally holding the hammer 2 and having a lateral projection 17, and the longitudinally-movable limb 10 provided with a projection 16 adapted to be thrust forward under the projection 17 when the gun is fired, whereby the sear is revolved and the hammer 2 released when the gun is fully opened, substantially as set forth.

491,271. **FRACTURE APPARATUS.** JAMES F. ROWLEY, Des Moines, Iowa, assignor of one-half to A. M. Linn, same place. Filed Mar. 26, 1892. Serial No. 426,619. (No model.)



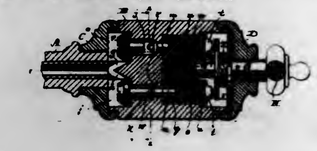
Claim.—1. A fracture brace, comprising a rigid frame adapted to inclose the foot and extend upward on either side of the limb to a point below and in proximity to the knee, a band secured to one end of said frame and adapted to encircle the limb at a point adjacent to and below the knee, a band adapted to be mounted upon the foot adjacent to the ankle, and means for increasing the distance between said bands.

2. A fracture brace comprising a U-shaped frame, a band secured to said frame and adapted to be laced upon the limb at a point adjacent to and below the knee, and an adjusting screw, carrying a swivel plate, seated in the end of said frame opposite to said band and adapted to produce extension between the knee and foot.

3. In a fracture brace the combination with a U-shaped frame extending, from a point in proximity to and below the knee, around the foot and on both sides of the limb, of a band hinged to said frame and adapted to encircle the limb below and adjacent to the knee, and screw devices mounted on said frame acting in conjunction with the ankle band to extend the limb between the knee band and the said ankle band.

4. In a fracture brace, the combination with a frame and extension devices, of a band adapted to encircle the limb in contiguity to and below the knee, which band is laced on two opposite sides, thus adapting the brace for both the right and left limbs.

491,272. **SODA-FOUNTAIN.** ADOLPH SCHIER, Chicago, Ill. Filed May 2, 1892. Serial No. 431,556. (No model.)



Claim.—1. In a soda-fountain draft-apparatus, the combination of a pair of automatic seating valves, a pivotal plate reciprocative at right-angles to its rotation and arranged to come in opposition to the stem of either valve, and a single hand-lever controlling the plate, whereby each valve may be unseated by the same means independent of the other, substantially as set forth.

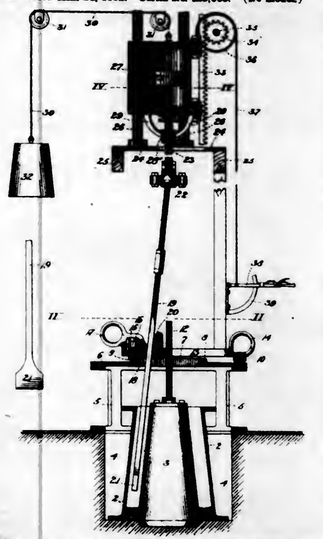
2. In a soda-fountain draft-apparatus, the combination of a pair of automatic seating valves, a spring-controlled pivotal plate reciprocative at right angles to its rotation and arranged to come in opposition to the stem of either valve, and a single hand-lever connected to the plate, whereby each valve may be unseated by the same means independent of the other, and said lever automatically returned to its normal position, substantially as set forth.

3. In a soda-fountain draft-apparatus, the combination of a pair of automatic seating valves, a pivotal spring-controlled stem reciprocative at right angles to its rotation, a plate carried by the stem to come in opposition to the stem of either valve, and a hand lever connected to said stem, substantially as set forth.

4. In a soda-fountain draft-apparatus, the combination of a chest provided with two independent valve-controlled passages, a discharge-tip that depends from the chest and has a central aperture communicating with one of the passages and a perforated cup communicating with the other of said passages; and a single lever and spring-controlled push-plate arranged to come in opposition to the stem of either valve independent of the other, substantially as set forth.

5. In a soda-fountain draft-apparatus, the combination of a chest having two independent outlet passages, cut-off valves for the passages provided with spring-controlled stems, a spiral spring seated in the chest intermediate of the valve-stems, a pivotal stem in opposition to this spring, a segment plate and cam-lugs on the latter stem, a cam-notched sleeve engaging the cam-lugs, and a single hand-lever fast to the stem that carries said lugs, substantially as set forth.

491,278. **MOLDING-MACHINE.** WILLIAM B. STERRITT, Pittsburg, Pa. Filed Mar. 31, 1892. Serial No. 426,683. (No model.)



Claim.—1. In a molding machine for deep molds, a vertically movable cylinder, a rammer having a flexible connection with the piston rod of said cylinder, and guides on which the cylinder is arranged to rise automatically as the sand rises in the mold; substantially as and for the purposes described.

2. In a molding-machine, the combination of a vertically movable motive-cylinder having suitable guides, a counterweight connected to the cylinder, and a rammer having a flexible connection with the piston-rod of said cylinder; substantially as described.

3. In a molding-machine, the combination of a vertically movable motive-cylinder having a rack and pinion connection, a brake arranged to check the vertical movement of the cylinder, and a rammer connected to the piston-rod of said cylinder; substantially as described.

4. In a molding-machine, the combination of a vertically movable motive-cylinder, means for allowing the same to rise as the sand rises in the mold an apertured guide fixed to and carried beneath the cylinder, and a rammer having a flexible connection with the piston-rod of the cylinder, which rod passes through the guide; substantially as described.

5. In a molding-machine, the combination of a motive-cylinder, means for moving the same vertically, a rack fixed to the side of the cylinder and engaging a pinion, a brake upon the pinion-shaft, and a rammer connected to the piston-rod of the motive-cylinder; substantially as described.

6. In a molding-machine, the combination of a motive-cylinder, means for moving the same vertically, a rammer connected to the piston-rod of said cylinder by a ball and socket joint, and a guide for the rammer above the top of the mold; substantially as described.

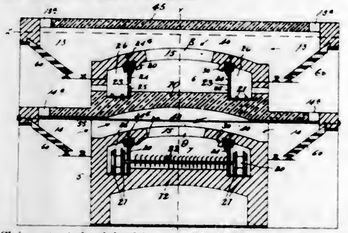
7. In a molding-machine, the combination of a rammer, means for vertically reciprocating the same, and an independently supported guide through which the rammer passes, said guide arranged to be moved over the various parts of the mold; substantially as described.

8. In a molding-machine, the combination with the mold, of a rotary carriage mounted thereover, a rammer flexibly connected to an actuating part, a guiding aperture in the carriage through which the rammer passes, and means for reciprocating said rammer; substantially as described.

9. In a molding-machine, the combination with the mold, of a rotary carriage mounted thereover, a pattern having a stem passing through a slot in the carriage, a guiding aperture in the carriage through which the rammer passes, and means for reciprocating the rammer; substantially as described.

10. In a molding machine, the combination with the mold, of a plate having an aperture and an encircling flange of substantially the same shape as the mold, and a carriage having a wheel arranged to ride upon the flange, and having a guiding aperture for the rammer; substantially as described.

491,274. **DESULPHURIZING-FURNACE.** THOMAS THOMAS, Denver, assignor of one-half to Josiah Burgess, Argo, Colo. Filed Apr. 26, 1892. Serial No. 430,618. (No model.)



Claim.—1. A desulphurizing and chloridizing furnace having an endless distributing chain supported upon side carriages in combination with depending partitions lying between said carriages and the roasting chamber proper and supported in wedge-shaped socket-grooves, the edges of the partitions received by the grooves being of corresponding shape, substantially as described.

2. A desulphurizing furnace having an endless distributing chain suitably supported at the extremities of the furnace and intermediately supported by side carriages, of partitions separating the carriage chambers from the roasting chamber proper, and composed of an upwardly projecting part and a depending part, the latter being supported in wedge-shaped socket-grooves formed in metal bars secured to the top walls of the chambers, substantially as described.

3. The combination in a desulphurizing furnace having two chambers one located above the other and an endless distributing chain supported on side carriages, and passing through both chambers of metal bars secured to the upper arches of the chambers and provided with wedge shaped socket-grooves, and depending partitions fashioned to enter said grooves and located between the carriage chambers and the roasting chamber proper, substantially as described.

4. The combination in a desulphurizing furnace having two chambers one located above the other and an endless distributing chain supported upon side carriages, and passing through both chambers of partitions separating the roasting chambers proper from the carriage chambers and consisting of a suitable upwardly projecting part resting upon the bottom of the chamber and a depending part, the latter being supported by bars provided with socket grooves for the reception of the correspondingly shaped edge of said depending part, substantially as described.

5. A desulphurizing furnace having upper and lower chambers and an endless distributing chain provided with supporting carriages and passing through both chambers in combination with partitions separating the chambers into a central roasting compartment and two side compartments for the carriages, each partition being composed of two parts, namely a lower part supported by the bottom of the chamber and a depending upper part supported by bars having wedge-shaped grooves for the reception of the upper edge of the partition which is correspondingly shaped and adapted to fit loosely therein, substantially as described.

6. The combination in a desulphurizing furnace having upper and lower chambers, of partitions composed of fire clay tiles, and separating each chamber into three longitudinal compartments, namely, a central compartment for roasting the ore and two narrow side compartments for the carriage supporting the distributing chain, each partition being composed of two parts, an upwardly projecting part resting on the bottom of the chamber and a depending part composed of sections having their upper edges wedge-shaped, and metal bars secured to the top of the chambers and having grooves of corresponding shape for the reception of the wedge shaped edges of the partition-sections, substantially as described.

7. A desulphurizing furnace having upper and lower chambers and an endless distributing chain supported by carriages, and passing through both chambers of fire clay partitions dividing each chamber longitudinally into three compartments, each partition being composed of two parts, the upper part being composed of sections having their upper edges wedge-shaped and supported by metal bars having socket grooves of corresponding shape for their reception, the depending sections being provided with inner projections adapted to protect the lower edges of the grooved bars from the heat, and the top of the arch being provided with a depending fire-brick protector for the sides of the metal bars, substantially as described.

8. A desulphurizing furnace having fire-clay partitions dividing the chambers longitudinally each partition having a depending sectional part, the upper edges of the sections being wedge-shaped and supported by metal bars secured to the upper arches, of the chambers, and provided with socket-grooves in which the wedge-shaped edges of the partition sections fit loosely, the metal bars being suitably protected from the heat of the furnace, substantially as described.

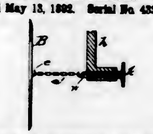
9. A desulphurizing furnace having upper and lower chambers and suitable fire-boxes communicating therewith, the upper arches of the chambers being continuous in front of the fire boxes and between said boxes, and suitable openings in the arches for the passage of heat to the chambers, there being a space left above the arch to allow the heat to pass from the fire box to these openings, substantially as described.

10. A desulphurizing furnace having upper and lower chambers, and suitable fire boxes communicating therewith, the upper arches of the chambers being provided with central openings in front of the fire boxes, said arches being continuous between these openings and said boxes, there being a space left above the arches for the passage of heat from the fire box, the heat being directed to the openings by transverse partitions on each side thereof, substantially as described.

11. In a desulphurizing furnace the combination of the upper and lower chambers, the endless distributing chain located therein and supported by side carriages, fire boxes communicating with the chambers through openings in the tops of the arches above the chambers, said arches being continuous between the openings and the fire boxes, and metal bars secured to said arches and provided with dovetail-sockets or grooves forming a continuous support for the depending partition sections which separate the carriage compartments from the roasting compartment of the furnace, substantially as described.

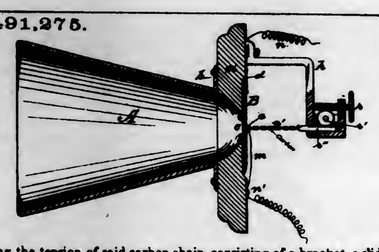
12. A desulphurizing and chloridizing furnace having upper and lower chambers, fire boxes communicating therewith, the upper arches of the chambers being continuous except where the openings are left for the passage of heat to the chambers, a space being left above the arch of the lower chamber, transverse partitions on each side of the openings in this arch and intermediate air chambers through which the transverse tie rods pass, substantially as described.

491,275. **TELEPHONE-TRANSMITTER.** HARRY L. TYLER, Corning, N. Y. Filed May 13, 1892. Serial No. 432,873. (No model.)



Claim.—In a telephone transmitter, the combination of a non-conducting diaphragm, a hook secured to said diaphragm, a carbon chain connected to said hook, and means for supporting and regu-

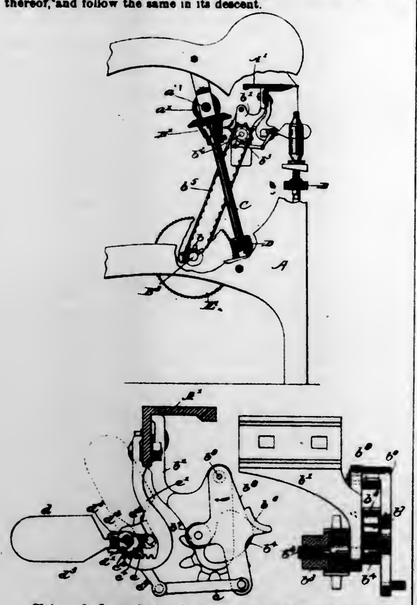
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lating the tension of said carbon chain, consisting of a bracket, a sliding rack-bar mounted in said bracket, a pinion in engagement with said rack-bar and the worm screw engaging said pinion, said sliding rack-bar being provided with a hook for engaging the other end of the chain, substantially as shown and described.

491,276. SEPARATOR MECHANISM FOR SPINNING-FRAMES. EDWARD WHITTON, Fall River, Mass. Filed Mar. 28, 1892. Serial No. 426,647. (No model.)

Brief.—The separators, each having a divided hub square in cross-section to permit ready adjustment upon the shaft, are actuated by a sprocket-chain from the heart cam-shaft, which rotates a shaft having a cam embraced by a lever from the separator-shaft, whereby the separators are lifted in advance of the ring-rail, and independently thereof, and follow the same in its descent.



Claim.— 1. In a spinning frame a series of separators attached to a tumbling shaft having a series of toothed legs secured thereto, combined with a series of toothed racks for the said legs, and devices to turn the said shaft independently of the ring rail and cause the said toothed legs to travel on the said racks and the separators to rise in advance of the ring rail, substantially as described.

2. In a spinning frame, the stand b'; the shaft b^3 and cam b^4 thereon, and a lever shaped substantially as described to embrace and be actuated positively to and fro by the said cam, combined with a separator carrying shaft, the connections between said lever and shaft to oscillate the shaft positively in both directions of its movement for the purposes set forth.

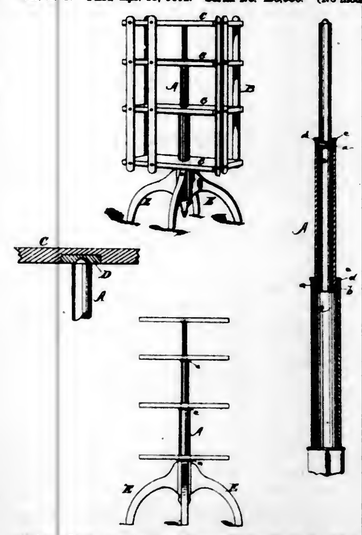
3. The heart shaft B^2, the rotating shaft b^3 located above the ring rail and having a cam b^4, and devices between the said shafts to rotate the shaft b^3 and shafts to rotate the said cam; combined with a separator carrying shaft; its series of separators; a lever actuated positively by the said cam, and intermediate connectors between said lever and said separator carrying shaft whereby the separators are lifted in advance of and without aid from the ring rail, substantially as described.

4. A separator carrying shaft, shaped substantially as shown and described in cross section, and a series of separators having their inner ends notched to partially embrace said shaft, combined with a series of caps notched to embrace the opposite side of the said shaft, and means to connect the said caps to the separators and effect the clamping of the separators on the said shaft, substantially as described.

5. A separator carrying shaft shaped substantially as shown and described in cross section; and a series of separators having their inner ends notched to partially embrace said shaft, and notched to receive a bolt, combined with a series of caps notched to embrace the opposite side of the said shaft, and a bolt to connect the said caps to the separators and effect the clamping of the separators on the said shaft, substantially as described.

6. In a spinning frame, a series of separators attached to a tumbling shaft having a series of toothed legs; and counterbalancing devices secured thereto; combined with a series of toothed racks for the said legs; and devices to turn the said shaft independently of the ring rail and cause the said toothed legs to travel on the said racks and the separators to rise in advance of the ring rail, substantially as described.

491,277. REVOLVING BOOKCASE. WILLIAM F. BERGER, Morovia, N. Y. Filed Apr. 13, 1892. Serial No. 428,986. (No model.)

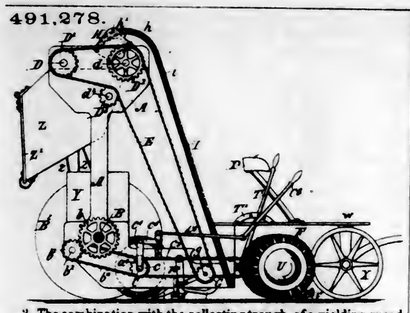


Claim.—In the revolving book case the combination with the hollow spindle, constructed in sections, and the upper end of each section, except the upper one, being threaded internally, and the lower end of each section except the lower one, threaded externally, each upper section adapted to slide into the lower section when unscrewed at their ends, said sections having shoulders upon their upper ends and rings adapted to rest upon said shoulders; shelves having central openings adapted to rest upon said rings, the upper section of said spindle being rounded or cone shaped, and adapted to rotate within the recess of the plate "D," and the plate "D" secured to the lower face centrally of the upper shelf as set forth.

491,278. STREET-SWEEPING MACHINE. AUGUST BERTRAM, Brooklyn, N. Y. Filed Aug. 11, 1891. Renewed Aug. 1, 1892. Serial No. 441,876. (No model.)

Claim.—1. In a street sweeping machine, the combination with a pair of wheels and a suitable frame, of a revolving brush or broom, a collecting trough arranged in front of said brush or broom adapted to receive the sweepings directly therefrom, an elevating-trough adjacent to said collecting-trough and fed by same, and a receptacle into which said elevating trough dumps its load, all arranged substantially in the manner specified.

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2. The combination with the collecting trough, of a yielding guard located in front of same, and connections between said guard and trough, whereby the trough is automatically raised clear of any obstruction met with by the guard, substantially as described.

3. The combination with the side brush F having internal sleeve f^3 and axle f^3, of the hand lever T, pivoted to the frame and in rigid connection with said axle, substantially as and for the purpose set forth.

4. The combination with the side brush and its axle, of the bar or rod v' and deflectors v, v, for the purpose described.

5. The combination with the wheel B^2, having drum B^3 and frames A, A, of the pulley shaft D, pulleys 3, 3, and 4, and sprocket wheels D', D', mounted thereon, belts 2, 2, between said drum and pulleys, chains E and E', and suitable guiding pulleys therefor, pulleys or sprocket wheels g, g, elevating trough H, ways or guides I, and connections between said trough and the chains, all combined and arranged so that said elevating trough may be automatically raised and lowered in said ways or guides at proper intervals, substantially as and for the purpose specified.

6. The combination with the side frames A, having slots a, formed as described, and inclines m^3, of the rod n, collecting trough M, having projecting pins m' and tripping arms O, pivoted lever P, bell-crank trip lever Q, and the elevating trough H, all combined and arranged so that at each descent of the elevating trough the collecting trough will be raised and its contents emptied into such elevating trough, substantially in the manner described.

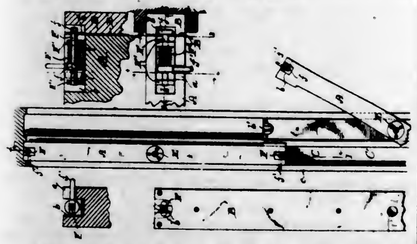
7. The combination with the belts 2, 2, of the tightening device consisting of roller y^4, rod y', cross-bar c^7, and hand lever c^8, said cross-bar and hand lever being also used for adjusting the main brush, as described.

8. The combination with the pulleys on the pulley shaft and with the belts and the chain E', having projecting pins c and c', of the belt-shifting device consisting of sliding bar K, having incline k^3 and projection k' and bar L, engaging the belts and having rollers l, l, impinging upon said incline, substantially in the manner set forth.

9. The combination with the side or gutter brush having internal sleeve f^3 of the wearing plate or disk U, having spindle u entering said sleeve, and means for retaining same loosely, arranged so that said wearing plate may revolve, and act as a fender for the gutter brush, substantially as set forth.

10. The combination with the said frames A, A, main brush C, and the collector-trough M, of the curtain M' and its rod M^3, for the purpose described.

491,279. WINDOW. JAMES W. CAMERON, West Bend, Wis. Filed May 15, 1891. Serial No. 392,537. (No model.)



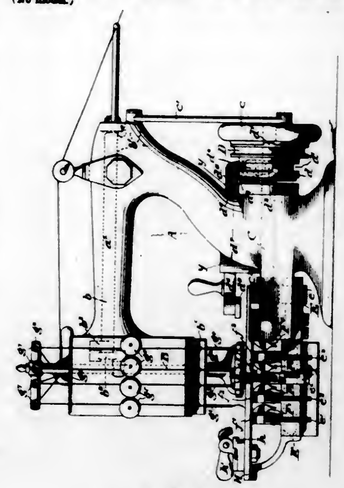
Claim.—1. The combination with a window casing, of vertically movable strips engaged with the inner surfaces of said casing, a window sash located between and pivoted to said strips, recesses formed in the upper and lower ends of said strips, metallic facings upon the inner surfaces of the strips and provided with elongated slots communicating with said recesses, and locking pins revolubly seated in mortises in the corners of the sash and provided with T-shaped ends for engagement with said metallic facings at the sides of said slots, substantially as described.

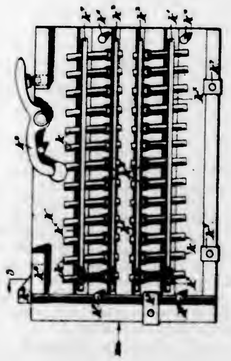
2. The combination with a window casing, of vertically movable strips engaged with the inner surfaces of said casing, a window sash located between and pivoted to said strips, recesses formed in the upper and lower ends of said strips, metallic facings upon the inner surfaces of the strips and provided with elongated slots communicating with said recesses, locking pins revolubly seated in mortises in the corners of the sash and provided with T-shaped ends for engagement with said metallic facings at the sides of said slots, angular projections upon said pins for rotating the same, and springs for automatically retracting said pins when they are freed from engagement with said slots, substantially as described.

491,280. CEMENT. BERNARD DREYFUS, New York, N. Y., assignor to Rosa Dreyfus, same place. Filed Mar. 7, 1892. Serial No. 424,064. (No specimens.)

Claim.—The composition as herein set forth consisting of pulverized spent lime, pulverized carbon, silica, oxide of iron, alumina, lime, and magnesia; and slaked rock-lime, and sand in the described proportions.

491,281. MACHINE FOR CARDING HOOKS AND EYES. JOHN W. GRABERS, Philadelphia, Pa., assignor of one-half to Richardson & De Long Brothers, same place. Filed July 30, 1892. Serial No. 440,575. (No model.)





Claim.—1. In combination with a sewing machine provided with a plurality of needles, complemental stitch-forming mechanism, and a bed plate,—a carrier which is formed with openings through which said needles pass, and which has means to contain within it in fixed but temporary relationship both a card and a number of hooks and eyes to be sewed to said card, and to present said card and hooks and eyes, as so contained and related, to the action of the needles,—and means for occasioning the predetermined traverse of said carrier relatively to said needles,—substantially as and for the purposes set forth.

2. In combination with a sewing machine provided with a plurality of needles, complemental stitch-forming mechanism, and a bed plate,—a carrier which is formed with openings through which said needles pass, and which has means to contain within it in fixed but temporary relationship both a card and a number of hooks and eyes to be sewed to said card, and to present said card and hooks and eyes, as so contained and related, to the action of the needles,—means for guiding the traverse of said carrier relatively to the bed plate,—and means for occasioning the predetermined traverse of said carrier relatively to said needles,—substantially as and for the purposes set forth.

3. In combination with a sewing machine provided with a plurality of needles, complemental stitch-forming mechanism, and a bed plate,—a carrier formed with openings through which said needles pass, and which is composed of two members relatively separable and embodying between them spaces adapted to contain hooks and eyes and a card to which said hooks and eyes are to be sewed,—and means for occasioning the predetermined traverse of said carrier relatively to said needles,—substantially as and for the purposes set forth.

4. In combination with a sewing machine provided with a plurality of needles, complemental stitch-forming mechanism, and a bed plate,—a carrier formed with openings through which said needles pass, and which is composed of two members relatively separable and embodying between them spaces adapted to contain hooks and eyes and a card to which said hooks and eyes are to be sewed,—means for guiding the traverse of said carrier relatively to the bed plate,—and means for occasioning the predetermined traverse of said carrier relatively to said needles,—substantially as and for the purposes set forth.

5. In combination with a sewing machine provided with a plurality of needles, complemental stitch-forming mechanism, and a bed plate,—a carrier formed with openings through which said needles pass, and which has means to contain and present to the action of the needles a card and a number of hooks and eyes to be sewed to said card,—a ratchet bar formed upon or connected with said carrier,—a feed pawl presenting through the bed plate,—and mechanism for occasioning the stroke of said pawl,—substantially as and for the purposes set forth.

6. In combination with a sewing machine provided with a plurality of needles, complemental stitch-forming mechanism, and a bed plate,—a carrier formed with openings through which said needles pass, and which has means to contain and to present to the action of the needles a card and a number of hooks and eyes to be sewed to said card,—means for occasioning the predetermined traverse of said carrier relatively to said needles,—and stop mechanism operated by the carrier upon the completion of its traverse to occasion the stoppage of the machine,—substantially as and for the purposes set forth.

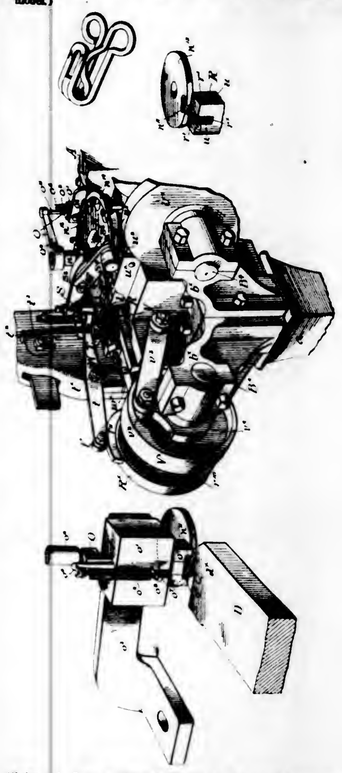
7. A carrier for a sewing machine for sewing hooks and eyes upon a card,—composed of two relatively separable members which embody between them spaces adapted to contain hooks and eyes, and also a space within which a card may be placed so as to be presented to the hooks and eyes,—and which members are respectively formed with corresponding rows of vertically extending parallel needle openings,—substantially as and for the purposes set forth.

8. A carrier for a sewing machine for sewing hooks and eyes upon a card,—composed of two relatively separable members one of which members is provided with sockets to contain hooks and eyes, between which members there is a space for a card, and both of which members are provided with parallel rows of vertically extending corresponding needle openings,—substantially as and for the purposes set forth.

9. A carrier for a sewing machine for sewing hooks and eyes upon a card,—composed of two relatively separable members one of which is provided with sockets to contain hooks and eyes, between which members there is a space for a card, which members are formed with parallel rows of vertically extending corresponding needle openings, and one of which members is provided with gages to adjust the set of the card,—substantially as and for the purpose set forth.

10. A carrier for a sewing machine for sewing hooks and eyes upon a card,—composed of a body formed with one or more rows of internal sockets bisecting one or more series of rows of needle openings,—and of a cover removably applicable to said body and formed with one or more corresponding series of rows of needle openings,—substantially as and for the purposes set forth.

491,282. MACHINE FOR MANUFACTURING HOOKS AND EYES. JOHN W. GRAGSER, Philadelphia, Pa., assignor to Richardson & De Long Brothers, same place. Filed July 20, 1892. Serial No. 440,576. (No model.)



Claim.—1. In a machine for making a garment hook, in combination with mechanism for advancing a partly bent blank,—a rotary carrier provided with peripheral thread eye sockets,—mechanism for occasioning the intermittent predetermined rotation of said carrier,—the tappet O,—and mechanism for occasioning the predetermined stroke of said tappet,—substantially as and for the purposes set forth.

2. In a machine for making a garment hook, a bill-bending mechanism which bends over the bill to form the completed hook, and which is composed of the following elements in combination, namely:—a bill-bending matrix bar provided with a matrix proper and with walls formed with pin-throats,—a bill-bending pin adapted to the aforesaid pin-throats,—a bill-upturning former, operating subsequent to, and angularly with respect to the plane of movement of, said bill-upturning former,—a bill-closing former,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

3. In a machine for making a garment hook, a bill-bending mechanism which bends over the bill to form the completed hook, and which is composed of the following elements in combination, namely:—a bill-bending matrix bar, embodying a matrix proper,—a rotary carrier,—a bill-depressing pin,—a bill-bending pin,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

4. In a machine for making a garment hook, a bill-bending mechanism which bends over the bill to form the completed hook, and which is composed of the following elements in combination, namely:—a bill-bending matrix bar embodying a matrix proper,—a rotary carrier,—a bill-depressing pin,—a bill-bending pin,—a bill-upturning former,—a bill closing former,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

5. In a machine for making a garment hook,—a bill-bending matrix embodying a matrix proper laterally confined by two walls respectively provided with aligned pin throats, and the floor of which is provided with a "hump"-supporting rib,—substantially as and for the purposes set forth.

6. In a machine for making garment hooks, in combination with a rotary carrier, a matrix bar embodying a matrix, and a blank gripper,—mechanism for operating said gripper composed of the gripper lever s' and the transversely reciprocating slide u^x formed with a tilting incline z^3,—substantially as and for the purposes set forth.

7. In a machine of the class above recited,—in combination with a rotary carrier formed with peripheral thread eye sockets,—and with mechanism for advancing the partly bent blank into position before a given socket,—a guide way o^6 fixed with respect to the periphery of the carrier and which guides the blank as advanced into position above said socket,—substantially as and for the purposes set forth.

8. In a machine of the class above recited,—in combination with a rotary carrier formed with peripheral thread eye sockets,—the tappet o,—the guide way o^6 with respect to which the tappet o is centered, and which guides the blank beneath the tappet and above a given socket,—and mechanism for occasioning the predetermined stroke of said tappet,—substantially as and for the purposes set forth.

9. In a machine of the class above recited,—in combination with a matrix bar, embodying a matrix laterally inclosed by walls respectively provided with aligned pin throats,—a straight bill-bending pin adapted to be entered through and to be withdrawn from out said throats,—and mechanism for imparting predetermined rectilinear movements of advance and retraction to said bill-bending pin,—substantially as and for the purposes set forth.

491,283. PROCESS OF AND APPARATUS FOR PRODUCING ORNAMENTAL WOODWORK. AUGUSTE GUATTARI, Milan, Italy. Filed Dec. 17, 1891. Serial No. 415,338. (No model.) Patented in France Sept. 22, 1888, No. 193,143; in Belgium Sept. 26, 1888, No. 83,366; in England Sept. 27, 1888, No. 13,951; in Germany Oct. 28, 1888, No. 48,680, and in Italy Dec. 31, 1888, XLVIII, 346.

Claim.—1. The herein described process of producing ornamental wood-work by means of a series of heated molds, having the same design, consisting in submitting a piece of wood to the successive and consecutive action of each newly heated mold of the series as desired, and without removing the piece of wood from the mold press, substantially as described.

2. The herein described process of ornamenting wood which consists in burning the design, subjecting it to a bath while cleaning and finally subjecting it to pressure in a finishing press, substantially as described.

3. In an apparatus for producing ornamental wood-work, the combination with the die, and a die-pressing mechanism adapted to be adjusted in a horizontal plane of means for raising the die from the wood when desired, and of a mold and apparatus for heating the same, all said parts being arranged and adapted to operate substantially as described and for the purpose set forth.

4. In an apparatus for producing ornamental wood work, the combination with a series of molds having the same design, of a die press adapted to be moved forward in a horizontal plane and means for regulating the extent of motion of said die press, all of said parts being arranged to operate, substantially as described, and for the purposes set forth.

491,284. COMPOUND FOR WATERPROOFING OIL-RECEPTACLES. GUSTAV GOEBEL, Strasburg, Germany. Filed June 17, 1892. Serial No. 437,095. (No specimens.)

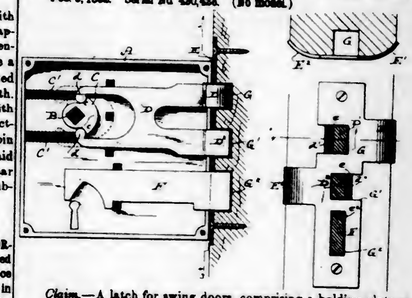
Claim.—1. The herein described composition of matter, which consists of the waste liquor from the manufacture of sulphite cellulose, glue, and an alkaline earth, in substantially the proportions set forth.

2. The herein described composition of matter, which consists of the waste liquor from the manufacture of sulphite cellulose, glue, and hydraulic lime, all in substantially the proportions set forth.

3. The herein described process of preparing a compound for waterproofing oil receptacles, which consists in concentrating the waste liquor from the manufacture of sulphite cellulose to about 25° Baumé, then adding glue, to said concentrated liquor and then adding to said mixture hydraulic lime, all substantially in the proportion set forth.

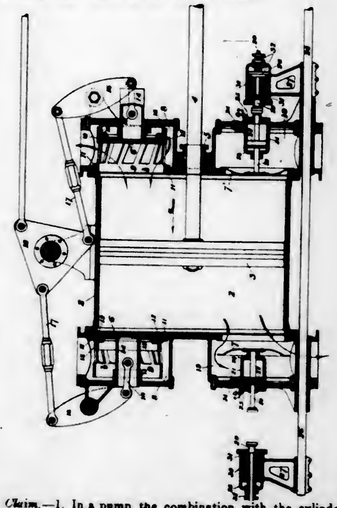
4. The herein described process of preparing a compound for waterproofing oil receptacles, which consists in first concentrating the waste liquor from the manufacture of sulphite cellulose to about 25° Baumé, then mixing with this liquor boiling glue, in about the proportion of seventy parts of the liquor to five parts of the glue, and then adding to this mixture about twenty-five parts of hydraulic lime, substantially as set forth.

491,285. LATCH. CHARLES P. HERRMANN, Milwaukee, Wis. Filed Feb. 5, 1892. Serial No. 420,432. (No model.)



Claim.—A latch for swing doors, comprising a holding plate secured to the door casing and provided upon opposite sides with laterally extending curved projections arranged at different elevations, and with notches or sockets, in line with said projections, and a latch bar provided at one end with two oppositely beveled projections arranged one above another and in line with the projections on said plate, and adapted to engage with said notches or sockets when the door is in its closed position, substantially as set forth.

491,286. PUMP-VALVE. JULIAN KENNEDY, Latrobe, Pa. Filed Feb. 24, 1891. Serial No. 382,459. (No model.)



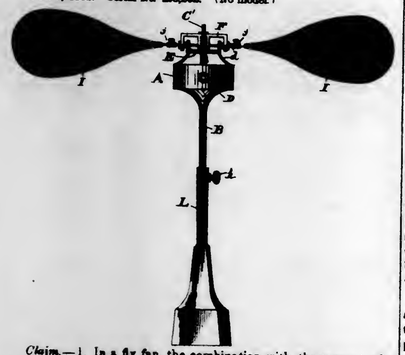
Claim.—1. In a pump, the combination with the cylinder and reciprocating piston, of an inlet valve chamber situate at the head of

the cylinder, a piston-valve adapted to reciprocate therein to and from the cylinder to open and close communication therewith, said valve having a hollow trunk, a link extending into the trunk and a lever connecting the valve with the operating mechanism; substantially as and for the purposes described.

2. In a pump, the combination with valves situate at opposite ends of the pump-cylinder and having projecting stems, of a reciprocating rod having spring-backed tappets, adapted to engage the stems and to close the valves; substantially as and for the purposes described.

3. In a pump, the combination of a valve, positively-acting mechanism for closing it, and an auxiliary-opening cylinder having a piston connected with the valve-stem, said cylinder being in communication with the pump-cylinder or valve-chamber and deriving therefrom its motive fluid, and provided with properly arranged outlets on the outer end of said auxiliary cylinder, to enable it to bring the piston to rest gradually without shock; substantially as and for the purposes described.

491,287. FLY-FAN. JAMES W. KIRKHAM, Baltimore, Md. Filed Feb. 4, 1892. Serial No. 420,292. (No model.)



Claim.—1. In a fly fan, the combination with the support, of a cross shaft journaled therein, and provided with means for continuously rotating said shaft in the plane of its length, and driving mechanism for positively rotating said shaft upon its axis, first in one direction and then in the opposite direction as it rotates in said plane, substantially as set forth.

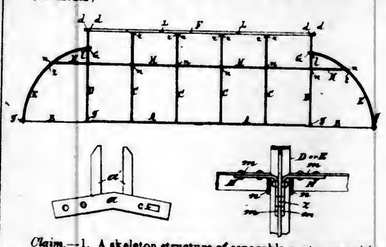
2. In a fly fan, the combination with a standard the outer end of which is provided with a fixed wheel, a rotating shaft projecting through said wheel, a cross shaft, connected with said first mentioned shaft and continuously rotated thereby in the plane of its length above and parallel with said wheel, the cross-shaft being provided with means for engaging with the wheel and alternately rotating said shaft in its bearing as it is rotated above said wheel, and means for rotating the vertical shaft, substantially as set forth.

3. In a fly fan, the combination with a stationary plate or wheel the outer surface of which is circumferentially provided with multiple series of cogs and smooth surfaces, the cogs projecting above the smooth portions, and each series being located diametrically opposite a smooth portion of the wheel, a shaft extending diametrically across said wheel in a plane parallel therewith and alternately engaging with the cogs upon opposite sides of the wheel, and means for continuously rotating said shaft in said plane, substantially as set forth.

4. In a fly fan, the combination with a standard the outer end of which is provided with a fixed plate or wheel, the outer surface of which is circumferentially provided with multiple series of cogs and smooth portions, the cogs projecting above the smooth portions and each series being located diametrically opposite a smooth portion, a shaft projecting through said wheel, a frame secured to the shaft and provided with arms, a cross shaft journaled in bearings in said arms and extending diametrically across said wheel, and rotated in a plane parallel with said wheel two pinions upon said shaft, one upon each side of the center of rotation thereof, said pinions alternately engaging with the cogs upon diametrically opposite sides of the wheel, and alternately rotating the cross-shaft in opposite directions on its axis and means for rotating said first mentioned shaft, substantially as set forth.

5. In a fly fan, the combination with a standard, the outer end of which is provided with a wheel, the outer surface of which is provided with multiple series of raised and depressed portions, each raised portion located diametrically opposite a depressed portion, a rotatable shaft, the upper end of which is detachable and projects through the wheel and is provided with an opening and a notch, a frame secured to the detachable portion above the opening and provided with arms, a cross shaft journaled in bearings in the arms of the frame and through the opening of the detachable portion of the shaft, two pinions upon said horizontal shaft, one upon each side of the other shaft adapted to alternately engage with the raised portions upon diametrically opposite sides of the wheel, and a fan secured to each end of the cross shaft, substantially as set forth.

491,288. SEPARABLE SKELETON STRUCTURE. HENRY P. DE LASTELLE, Paris, France, assignor to Société Nouvelle de Constructions Systeme Tollet, same place. Filed June 25, 1892. Serial No. 437,996. (No model.)



Claim.—1. A skeleton structure of separable parts, comprising a base frame formed of the shoes A and B, connected together, the trusses C and D, of ogival form, secured at their feet to the shoes A, the trusses E, at the respective ends of the structure, secured at their feet to the shoes B, and at their upper ends to the end trusses D, the ridge pole F, secured to the apexes of the trusses C and D, and the series of intermediate bars H, extending around the structure and tying together the trusses C, D and E, the members of the structure being keyed together and adapted to be put together and taken apart with facility, as set forth.

2. In a skeleton structure, the combination with the members of an ogival truss, of a plate *a*, secured rigidly to one member of the truss at the apex and keyed to the other member of the truss, and provided with a fork *a'*, to receive the ridge pole F, and the said ridge pole, provided with plates *d*, *d*, forming a keeper to engage a branch of the fork *a*, substantially as set forth.

3. In a skeleton structure, the combination with the members of the end trusses D, the plates *a*, which secure said members together in pairs, the members of the intermediate trusses C, and the plates which secure said members together in pairs, of the ridge pole F, provided with keeper plates *d*, to engage the branches of the forks on the plates *a*, and with keepers R to embrace the apexes of the trusses C, substantially as set forth.

4. In a skeleton structure, the combination with the series of trusses, of the ridge pole F, composed of sections gained at their extremities and provided with securing keys L and *p*, as set forth and with keeper plates, *r*, in pairs, on the underside of the pole as described.

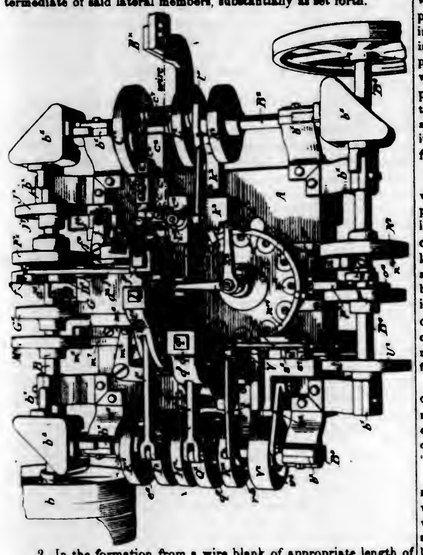
5. In a skeleton structure of separable parts, the combination with the members of the trusses of flanged metal provided each with a collar *n* of the cross pieces or bars H, each provided with a flat hook *m*, which hooks into the said collar, and a key *o*, which passes through registering apertures *z*, in the member and the hooks *m*, as set forth.

6. In a skeleton structure of separable parts, the combination of the truss members, provided each with a forked bracket *g*, and the securing bolt *h*, provided with a snug *h'* and nut *k*, of the flat sole plates, B, each having in one end an eye *e*, with a notch h^3 and on the other hook, *f*, the whole assembled, substantially as set forth.

7. In a skeleton structure of separable parts, the combination with the end truss D, of ogival form, the sole plates, and the ogival truss members E, secured at their bases to the sole plates and provided at their upper ends with tenon plates *l*, which extend through the flanges of the members of the trusses D and are secured by key, substantially as set forth.

491,289. METHOD OF AND MACHINE FOR MAKING GARMENT-HOOKS. ROBERT C. MANVILLE, Waterbury, Conn., assignor to Richardson & De Long Brothers, Philadelphia, Pa. Filed July 30, 1892. Serial No. 440,574. (No model.)

Claim.—1. In the formation from a wire blank of appropriate length of a garment hook embodying between its lateral members a spring tongue formed with a "hump,"—the method herein described, which consists in curving or bending to the form of a "hump" that portion of the blank which in the ultimate structure constitutes the spring tongue, before said portion is bent into its ultimate position intermediate of said lateral members, substantially as set forth.



2. In the formation from a wire blank of appropriate length of a garment hook embodying between its lateral members a spring tongue formed with a "hump,"—the method herein described, which consists, first, in carving or bending to the form of a "hump" that portion of the blank which in the ultimate structure constitutes the spring tongue, before said portion is bent into its ultimate position intermediate of said lateral members, and in then bending said spring tongue portion to form a loop after said portion has been brought into its aforesaid ultimate position, substantially as set forth.

3. The method herein described of making from a single piece of wire a garment hook embodying between its lateral members a loop-provided "humped" spring tongue, which consists in the performance in due order of the following steps, namely:—feeding a wire;—forming a length of the wire so fed into a "humped" spring tongue having a prolonged end portion;—forming thread eyes upon the wire so conformed;—bending the spring tongue portion of the wire into parallelism with its body portion between the thread eyes;—bending said body midway of the thread eyes to form the apex of the bill;—bending over into its ultimate position the bill portion of the bent blank so formed;—and bending over the prolonged end portion of the spring tongue to form a loop;—substantially as and for the purposes set forth.

4. The method herein described of making from a single piece of wire a garment hook embodying between its lateral members a loop-provided "humped" spring tongue, which consists in the performance in due order of the following steps, namely:—feeding a wire;—clamping the wire so fed and cutting it off to a blank of appropriate length;—forming the blank with a "humped" spring tongue having a prolonged end portion;—forming the blank with thread eyes;—bending the spring tongue portion of the blank into parallelism with its body portion;—bending the body portion of said blank midway of the thread eyes;—bending over into its ultimate position the bill portion of the bent blank so formed;—and bending over the end portion of the tongue to form a loop;—substantially as set forth.

5. The method herein described of making from a single piece of wire a garment hook embodying between its lateral members a loop-provided "humped" spring tongue;—which consists in the performance in due order of the following steps, namely:—feeding a wire;—forming a length of the wire so fed into a "humped" spring tongue having a prolonged end portion;—imparting to said end portion an initial loop-like bend;—forming thread eyes upon the wire so conformed;—bending the spring tongue portion of the blank into parallelism with its body portion;—bending said body midway of the thread eyes to form the apex of the bill;—bending over into its ultimate position the bill portion of the bent blank so formed;—and imparting a final bend to the end portion of the tongue to form the completed loop;—substantially as set forth.

6. The method herein described of making from a single piece of wire a garment hook embodying between its lateral members a loop-provided "humped" spring tongue, which consists in the performance in due order of the following steps, namely:—feeding a wire;—forming a prolonged end portion;—forming thread eyes upon the wire so formed with a tongue;—bending said tongue into parallelism with the body portion of the wire between the thread eyes;—bending said body portion midway of the thread eyes;—and, contemporaneously bending, by a single operation and by a common instrumentality, both the bill into its ultimate position and the end portion of the tongue into its looped form;—substantially as set forth.

7. The method herein described of making from a single piece of wire a garment hook embodying between its lateral members a loop-provided "humped" spring tongue, which consists in the performance in due order of the following steps, namely:—feeding a wire;—clamping the wire so fed and cutting it off to a blank of appropriate length;—forming the blank with a "humped" spring tongue having a prolonged end portion;—forming the blank with thread eyes;—bending the spring tongue portion of the blank into parallelism with its body portion;—bending the body portion of said blank midway of the thread eyes;—and, contemporaneously bending, by a single operation and by a common instrumentality, both the bill into its ultimate position and the end portion of the tongue into its looped form;—substantially as set forth.

8. In a machine for making a garment hook from a single piece of wire, the following instrumentalities in combination, namely:—mechanism for bending the wire to form the bill, the shank, the thread eyes, and the "humped" spring tongue of a garment hook of the character described,—and mechanism for forming a loop upon the "humped" spring tongue,—substantially as set forth.

9. In a machine for making garment hooks, the following instrumentalities in combination, namely:—first, a wire-bending mechanism which forms the left thread eye; second, a wire-bending mechanism which forms the right thread eye; third, mechanism for forming a spring tongue with a "hump" in it; fourth, mechanism for forming a loop upon said spring tongue; fifth, mechanism for bending the blank midway of the thread eyes to form the apex of the bill; and, sixth, mechanism for bending over the bill;—substantially as set forth.

10. In a machine for making garment hooks, the following instrumentalities in combination, namely:—first, a wire-bending mechanism which forms the left thread eye; second, a wire-bending mechanism which forms the right thread eye; third, mechanism for forming a spring tongue with a "hump" in it; fourth, mechanism for forming a loop upon said spring tongue; fifth, mechanism for bending the blank mid-way of the thread eyes to form the apex of the bill; sixth, mechanism for flattening the bill; and, seventh, mechanism for bending over the bill;—substantially as set forth.

11. In a machine for making garment hooks, the following instrumentalities in combination, namely:—first, wire-bending mechanism which forms the left thread eye;—second, wire-bending mechanism which forms the right thread eye;—third, mechanism which forms a spring tongue with a "hump" in it and which imparts an initial bend to a loop to be formed on said tongue;—fourth, mechanism for bending the wire mid-way of the thread eyes to form the apex of the bill:—and, fifth, mechanism for bending over the bill and completing the formation of the loop on the tongue;—substantially as set forth.

12. In a machine for making garment hooks, the following instrumentalities in combination, namely:—first, wire-bending mechanism which forms the left thread eye;—second, wire-bending mechanism which forms the right thread eye;—third, mechanism which forms a spring tongue with a "hump" in it and which imparts an initial bend to a loop to be formed on said tongue;—fourth, mechanism for bending the wire midway of the thread eyes to form the apex of the bill;—fifth, bill-flattening mechanism;—and, sixth, mechanism for bending over the bill and completing the formation of the loop on the tongue;—substantially as set forth.

13. In a machine for making a garment hook, in combination with a group of associated and co-operating instrumentalities consisting of a wire-feeding mechanism, a wire-clamping mechanism, a wire-shearing or dividing mechanism, a wire-bending mechanism which forms the left thread eye, a wire-bending mechanism which forms the right thread eye, tongue-conforming mechanism which forms a "humped" spring tongue, tongue paralleling mechanism, and bill-forming mechanism;—and in combination also with bill-bending mechanism;—blank-advancing mechanism which automatically advances the blank formed by the action of the foregoing group of instrumentalities to a carrying off mechanism;—and a carrying-off mechanism intermediate the blank advancing mechanism and the bill-bending mechanism and which automatically delivers the advanced blank to the bill-bending mechanism;—substantially as set forth.

14. In a machine for making a garment hook, the following instrumentalities in combination, namely:—first, a wire-bending mechanism;—second, a wire-clamping mechanism;—third, a wire-shearing or dividing mechanism;—fourth, a wire-bending mechanism which forms the left thread eye;—fifth, a wire-bending mechanism which forms the right thread eye;—sixth, mechanism which forms a "humped" spring tongue and imparts an initial bend to a loop to be formed on said tongue;—seventh, mechanism which parallels the tongue with the clamped body of the blank;—eighth, bill-forming mechanism;—ninth, bill-advancing mechanism;—tenth, carrying-off mechanism;—and, eleventh, mechanism which bends over the bill and completes the formation of the loop upon the tongue;—substantially as set forth.

15. In a machine for making a garment hook, the following elements in combination, namely:—the clamping carrier die D,—the pin block E,—the right-angling former G,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

16. In a machine for making a garment hook, a wire shearing or dividing mechanism which cuts off a length or blank of wire sufficient to form one hook, and which is composed of the following elements in combination, namely:—the shears carrier F, provided with a guide throat f,—the pivoted shears f^3 mounted upon said shears carrier,—mechanism essentially such as set forth for occasioning the predetermined lift and drop of said shears carrier,—and mechanism essentially such as set forth for occasioning the oscillation of said shears relatively to said guide throat,—substantially as and for the purposes set forth.

17. In a machine for making a garment hook, a wire-bending mechanism which forms the left thread eye of the hook, and which is composed of the following elements in combination, namely:—the clamping carrier die D, provided with the eye-bending notch d',—the pin block E, provided with the thread eye pin e^4,—the right angling former G,—the tongue-paralleling former M,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

18. In a machine for making a garment hook, a wire-bending mechanism which forms the right thread eye of the hook, and which is composed of the following elements in combination, namely:—the clamping carrier die D,—the pin block E,—the rear former J,—the front former K, provided with the shoulder k,—the eye-closing former L, provided with the eye-bending recess l,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

19. In a machine for making a garment hook, a wire-bending mechanism which forms a "hump" in the spring tongue and imparts an initial bend to the end portion of said tongue, and which is composed of the following elements in combination, namely:—the clamping carrier die D,—the pin block E, provided with the thread eye pin e^4,—the lower "humping" die H, provided with the "hump" h and with the incline h^x,—the upper "humping" die I,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

20. In a machine for making a garment hook, the following elements in combination, namely:—the clamping carrier die D,—the pin block E, provided with the thread eye pin e^4,—the right-angling former G,—the tongue-paralleling former M,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

21. In a machine for making a garment hook, a wire-bending mechanism which bends the wire blank midway of the thread eyes to form the apex or point of the bill, and which is composed of the following elements in combination, namely:—the clamping carrier die D, provided with the apex-bending recess d^x,—the pin block E, provided with the apex pin e^5,—mechanism for occasioning the predetermined elevation and depression of the pin block,—and mechanism for occasioning the predetermined advance and retreat of the clamping carrier die,—substantially as and for the purposes set forth.

22. In a machine for making a garment hook, in combination with the clamping carrier die D, provided with the apex-bending recess d^x, and with mechanism for occasioning the predetermined advance and retreat of said clamping carrier die,—the rotary carrier N, provided with the peripheral thread eye sockets n^{11},—and mechanism for occasioning the intermittent rotation of said rotary carrier,—substantially as and for the purposes set forth.

23. In a machine for making a garment hook, in combination:—a rotary carrier provided with peripherally disposed thread eye sockets,—mechanism for occasioning the intermittent rotation of said carrier,—mechanism for supplying a partly-bent blank in turn to each socket of said carrier,—bill-bending mechanism for bending over the bill to form the ultimate hook,—and means for operating said several mechanisms in due order,—substantially as and for the purposes set forth.

24. In a machine for making a garment hook, in combination:—a rotary carrier provided with peripherally disposed thread eye sockets,—mechanism for occasioning the intermittent rotation of said carrier,—mechanism for supplying a partly-bent blank in turn to each socket of said carrier,—a bill-swaging mechanism for swaging the bill of each partly-bent blank,—bill-bending mechanism for bending over the bill to form the ultimate hook,—and means for operating said several mechanisms in due order,—substantially as and for the purposes set forth.

25. In a machine for making a garment hook, in combination:—a rotary carrier provided with peripherally disposed thread eye sockets,—mechanism for occasioning the intermittent rotation of said carrier,—mechanism for supplying a partly-bent blank in turn to each socket of said carrier,—bill-swaging mechanism for swaging the bill of each partly-bent blank,—bill-bending mechanism for bending over the bill to form the ultimate hook,—hook-discharging mechanism,—and means for operating said several mechanisms in due order,—substantially as and for the purposes set forth.

26. In a machine for making a garment hook:—a carrying-off mechanism consisting of the rotary carrier N, provided with peripherally-disposed thread eye sockets,—a fixed guard flange for said sockets,—and mechanism for occasioning the predetermined intermittent rotation of said carrier,—substantially as and for the purposes set forth.

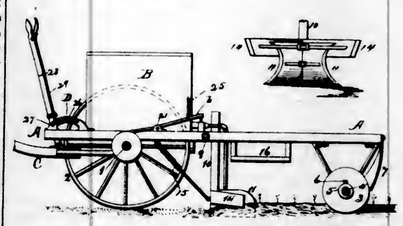
27. In a machine for making a garment hook:—a carrying-off mechanism consisting of the rotary carrier N provided with peripherally-disposed thread eye sockets,—a fixed guard flange for said sockets,—mechanism for occasioning the predetermined intermittent rotation of said carrier,—and mechanism for locking said carrier during the period of each of its dwells,—substantially as and for the purposes set forth.

28. In a machine for making a garment hook, a bill-swaging mechanism which flattens the bill of the partly-bent blank, and which is composed of the following elements in combination, namely:—the anvil Q,—the under swaging die q,—the upper swaging die q^x,—means for occasioning the predetermined stroke of said upper swaging die,—and the rotary carrier die N which presents the blank to the lower swaging die,—substantially as and for the purposes set forth.

29. In a machine for making a garment hook, a bill-bending mechanism which bends over the bill to form the completed hook, and which is composed of the following elements in combination, namely:—the bill-bending matrix bar R, provided with the matrix proper r^x,—the bill bending pin U,—the bill-upturning former V,—the bill-closing former W,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

30. In a machine for making a garment hook, a bill-bending mechanism which bends over the bill to form the ultimate hook, and which is composed of the following elements in combination, namely:—the bill-bending matrix bar R, provided with the matrix proper r^x,—the blank gripper S,—the rotary carrier N_1,—the bill-depressing pin T,—the bill-bending pin U,—the bill-upturning former V,—the bill-closing former W,—and means for operating said several elements in due order,—substantially as and for the purposes set forth.

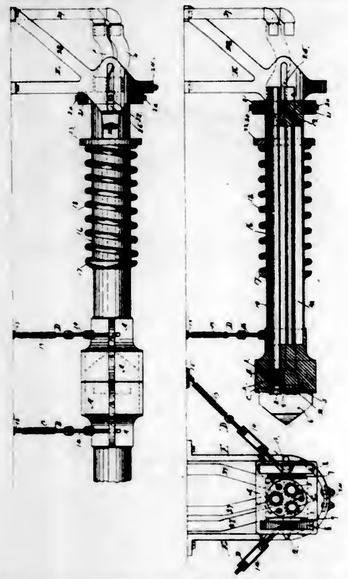
491,290. TRANSPLANTER. CHARLES D. MANWARING, CHARLES C. NAGLEY, and FRANK G. NAGLEY, Memphis, N. Y. Filed May 31, 1890. Serial No. 353,707. (No model.)



Claim.—1. In the transplanter the combination with the beam and its support in the main frame, of a V, plow provided with mold boards having outwardly projecting top and bottom edges.

2. In a transplanter the combination with the beam and its support in the main frame, of a V, plow provided with mold-boards having an outwardly projecting undercutting lip upon their lower rear edges tapering forward toward the front edge.

491,291. AUTOMATIC COUPLING FOR STEAM AND AIR PIPES FOR RAILWAY-CARS. JAMES R. MARBLE, Albany, N. Y., assignor of one-half to Joseph W. Fuller, same place. Filed Sept. 3, 1892. Serial No. 444,973. (No model.)



Claim.—1. In an automatic coupling for steam- and air-pipes which is held in contact with a like coupling by means of a car-coupler, the combination of a head, A, provided with a series of chambers, 1, each of which contains a spring, 2, a removable face-plate, B, which covers said chambers and is provided with a series of movable annuluses, C, arranged correspondingly to said chambers; the inner end of said annuluses being arranged to bear against a corresponding spring 2 and the outer end of the same projecting beyond the vertical plane of the end of said head, a gasket, 4, interposed between said face-plate and head so as to encircle each of said annuluses; the head A being provided with tongues, 6 and 7, and with mortises, 8 and 9, so arranged that the tongues of one head will engage with the corresponding mortises of a conjoining head of a like coupling, and a series of pipes, 10, leading rearwardly from said chambers, as and for the purpose herein specified.

2. The combination with a steam and air pipes of railway-cars, the combination with a coupling-head, A, which is carried by flexible suspenders, D, which are adjustable; said suspenders consisting of a spring, 13, and a turn-buckle, 14, of pipes, 10, leading rearwardly from said head and inclosed in a tubular extension, 16, having a collar or flange, 17, a spring, 18, bearing against said collar, a loosely-fitted collar, 23, through which said extension slips loosely, a loosely-fitted ring, 21, pivoted to the inner end of said extension and provided with trunnions, 22, a hanger, E, fixed to the body of a car and provided with slotted openings, 25, for receiving the trunnions 22, and with arms, 26, fitted to take against the collar 23, as and for the purpose herein specified.

3. In a coupling for steam- or air-pipes for railway-cars, the combination of a chambered head, a removable face-plate provided with spring-actuated annuluses fitted to move inwardly and outwardly in the chamber of said head, and a gasket interposed between said head and face-plate so as to encircle each annulus; whereby steam or air is prevented from escaping around said annuluses and from passing from one chamber into another in the same head, substantially as herein specified.

4. In a coupling for steam- or air-pipes for railway-cars, the combination of a coupling-device having a head provided with means, substantially as described, for interlocking with—and forming steam-tight joints between the openings of—a conjoining head of like construction; the inner end of said device having a universal-joint provided with oppositely-located trunnions, hangers provided with slotted openings for receiving said trunnions, and adjustable flexible-suspenders connected to the outer end of said device, as and for the purpose herein specified.

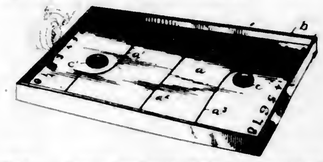
491,292. STOVE-KNOB. HENRY A. MATTHEWS, Southbury, Conn. Filed Oct. 24, 1892. Serial No. 449,812. (No model.)



Claim.—1. In a stove-knob, the combination with a sheet-metal shell, of a flanged ring applied over the open end, and having its outer edge turned down upon the outer face, thereof; of a flanged glass jewel interposed between the said shell and ring, the inner edge of the latter engaging with its flange and retaining it in place, substantially as described.

2. The combination with a sheet-metal shell, of a disk applied to the open end thereof, a flanged ring applied over the said end of the shell, and a flanged glass jewel interposed between said disk and ring, the inner edge of the said ring engaging with its flange to hold it in place, substantially as described.

491,293. GAME-BOARD. GEORGE H. MOSES, Boston, Mass. Filed May 16, 1892. Serial No. 433,111. (No model.)

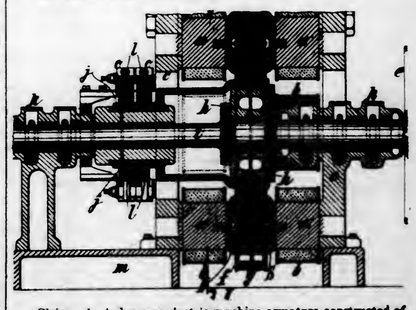


Claim.—1. A game board, comprising a base, two pockets formed therein, one near each end of the board, said pockets being arranged on the median line of the board, suitable walls inclosing the board, and two rows of service points extending across the median line of the board, each row being located between one of the pockets and the adjacent end of the board, as set forth.

2. In a game of the character described, a suitable board, four spaces or fields marked thereon, recesses or pockets within the fields at the ends of the board, a suitable number of service points marked on the board near the ends thereof, a disk, a cushion of rubber on periphery thereof, a central perforation therein, and a set of cues having rounded ends to engage the perforation of the disk, substantially as described.

3. A game comprising the board a, having service points marked thereon, pockets c c', spaces or courts w, x, y, z, disk e having reduced portion e' perforation e^3 and rubber cushion e^4 fitting in annular groove in said disk and cue d having rounded end d^3 and ball d', substantially as described.

491,294. DYNAMO-ELECTRIC MACHINE. GABRIEL V. M. A. PARROT and ANTOINE C. REICHNER, Paris, France. Filed Aug. 3, 1892. Serial No. 442,065. (No model.) Patented in France Aug. 26, 1889, No. 200,411, and Nov. 9, 1891, No. 217,303; in Belgium Mar. 16, 1892, No. 96,821, and in England Mar. 22, 1892, No. 5,654.

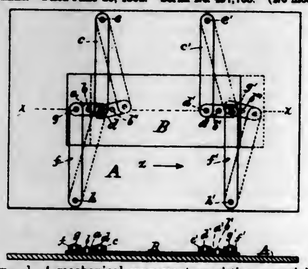


Claim.—1. A dynamo electric machine armature constructed of

strips formed of two metals, the one being iron and the other copper and superposed on each other substantially as described.

2. A dynamo electric machine armature constructed of two juxtaposed disks each constructed of bi-metallic strips, as specified, each strip of the one disk being electrically connected to a corresponding strip of the other disk, substantially as specified.

491,295. MECHANICAL MOVEMENT. WILLIAM ROBINSON, Boston, Mass. Filed June 20, 1892. Serial No. 437,795. (No model.)



Claim.—1. A mechanical movement consisting essentially of a base, a traveler, two or more links pivotally connected to said traveler, and a series of bars having one end pivotally connected to said base and the opposite ends pivotally connected to said links, substantially as described.

2. A parallel motion apparatus consisting essentially of a base, a traveler, links pivotally connected to said traveler, parallel bars having one end pivotally connected to said base and the opposite ends pivotally connected to said links, whereby the swinging movement of said parallel bars will cause said traveler to move in a straight line relatively to said base, substantially as described.

3. In combination, substantially as described, a base or fixture, a traveler or body arranged to move relatively to said base, two or more links pivotally connected to said movable body, and two or more sets of bars having their inner ends pivotally connected to said links, one set of said bars having their outer ends pivoted to said base or fixture on one side of said traveler and the other set of said bars having their outer ends pivoted to said base on the opposite side of said traveling body, whereby the position and direction of movement of said traveling body, relatively to said base, are controlled by said links and pivoted bars.

4. In combination, substantially as described, a base or fixture, a movable body arranged to travel relatively to said base, two links pivotally connected to said movable body, two parallel bars, each having its outer end pivotally connected to said base at one side of said movable body and its opposite end to one of said links, and two additional parallel bars, each having its outer end pivotally connected to said base at the opposite side of said movable body and its inner end to the opposite or free end of one of said links, whereby said bars and links control the position of said movable body and directs its movement in a straight line.

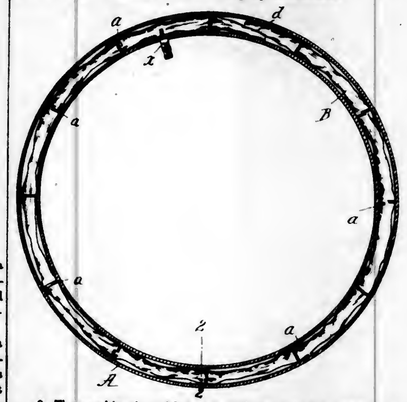
5. In combination, substantially as described, the base A, the traveler B, the links, *a*, *a'*, pivoted to said traveler B, the parallel bars *c*, *c'*, each having one of its inner ends pivotally connected to one end of one of said links, and its outer end to said base A, and the parallel bars *f*, *f''*, each having one of its inner ends pivotally connected to one of the opposite or free ends of one of said links *a*, *a'*, and its outer end to said base A, the series of bars *c*, *c'*, and *f*, *f''*, extending in opposite directions from said links *a*, *a'*.

6. In combination, substantially as described, a base, a traveling body movable relatively to said base, a series of links flexibly connected to said traveling body and two series of controlling bars flexibly connected to said base and to said links, said bars controlling the movements of said links and through them the position and direction of movement of said traveling body.

491,296. PNEUMATIC TIRE. DANIEL H. SMITH, Holyoke, Mass. Filed June 24, 1892. Serial No. 437,916. (No model.)

Claim.—1. The combination with the air-tube of a pneumatic tire, of a tube of thin, impermeable, flexible material located and extended around, within, and near the inner wall of the air-tube, the same being of an apertured construction, that is, open to communication with the space within the air-tube, so as to receive an equilibrium of the pressure within the tire at opposite sides thereof, whereby when the air-tube is inflated, said inclosed tube will neither be collapsed, nor, by inflation, forced in tension against the inner wall of the inflatable tube, substantially as and for the purpose set forth.

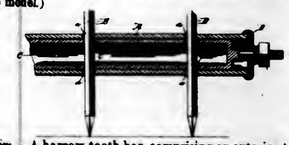
2. The combination with the air-tube of a pneumatic tire, of a suitably formed web or layer of thin, impermeable material, located and extended around, within, and near the inner wall of the air tube, the same being throughout substantially in entire area normally slack and unsecured or free from the air-tube-inner-wall and of such an unclosed construction as to be subject to an equilibrium of the pressure within the tire at the opposite sides thereof, whereby it may not be distended or forced in tension against the inner wall of the air-tube, substantially as explained and for the purpose set forth.



3. The combination with a pneumatic tire, of a tube of thin, flexible, impermeable material, located within and extended around and adapted to lie near the inner wall of the tire, said tube being through substantially all portions thereof normally slack, and unsecured or free from the inner tire wall, and the valve for the tire having a tubular portion thereof extended within said inclosed tube and said inclosed tube having an apertured construction whereby it may be subject to an equilibrium of air pressure upon its inner and outer sides, substantially as described.

4. The combination with a pneumatic tire, of a tube of freely flexible, impermeable material, located within and extended around and adapted to lie near the inner wall of the tire and provided at intervals with the transverse circular ribs which substantially form within the tire proper and which ribs, while flexible, are less flexible than the said tube, and said tube being normally slack or free from the inner tire wall, substantially as and for the purposes set forth.

491,297. DEVICE FOR HOLDING HARROW-TEETH. JAMES G. STOWE, Kansas City, Mo. Filed Sept. 12, 1892. Serial No. 445,633. (No model.)

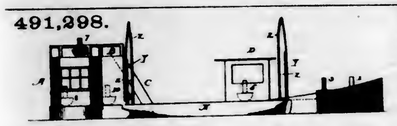


Claim.—A harrow-tooth bar, comprising an exterior tube having perforations therethrough, an interior tube having a closed end and a longitudinally extending screw-threaded projection, and also provided with perforations, said perforations of each tube being adapted to register with each other, a flanged cap fitting against and around the end of the outer tube and provided with a central opening or bore through which the screw-threaded projection passes, and a clamping nut, engaging the screw-threaded projection, and bearing against the outer side of the flanged cap, substantially as set forth.

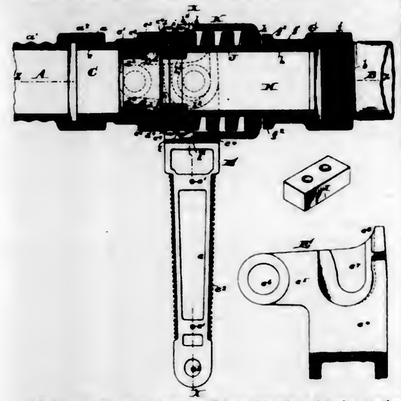
491,298. GAME APPARATUS. CORSO THEODOR, Paris, Ill. Filed Mar. 3, 1892. Serial No. 423,644. (No model.)

Claim.—In a game apparatus or puzzle the combination of a large vessel in the shape of a boat, two smaller vessels of a similar shape hung to davits attached to the larger vessel and at a distance therefrom, and figures of pith loaded so as to retain an upright position, and adapted to be moved from the larger boat into the smaller by manipulating the device substantially as described and set forth.

491,298.



491,299. PIPE-COUPLING. AXEL S. VOGT, Altoona, Pa. Filed Nov. 26, 1892. Serial No. 453,258. (No model.)

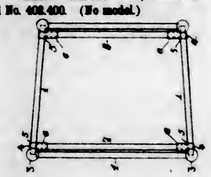


Claim.—1. In a pipe coupling the combination of a pipe section C having lugs or projections C'; a pipe section H having a shoulder *h*; a spring J abutting against said shoulder; a sleeve K formed to inclose the spring and having a flange *k* adapted to extend down and engage the back end thereof; and trunnions or projections k^2 corresponding to those on section C; and a lever E having bearings e^2 by which it is pivoted to one pair of trunnions, and recesses e^1 formed to engage the other pair when pushed down, all substantially as and for the purpose specified.

2. In a pipe coupling the combination of a pipe section C having lugs or projections C'; a pipe section H having a shoulder *h*; a spring J abutting against said shoulder; a sleeve K formed to inclose the spring and having a flange *k* adapted to extend down and engage the back end thereof; and trunnions or projections k^2 corresponding to those on section C; a lever E having journals e^2 by which it is pivoted to one pair of trunnions and recesses e^1 formed to engage the other pair when pushed down; and a guide as I arranged to engage the sleeve K and section C together in correct alignment, all substantially as and for the purpose specified.

3. In a pipe coupling, the combination of a pipe section C having trunnions or projections C'; and projecting flange c^3; a packing holder D secured in the end of section C inside its flange c^3; a pipe section H having its end *h'* formed to fit in the flange c^3 of section C; and a shoulder *h* formed on its outer surface; a spring J abutting against the shoulder *h*; a sleeve K surrounding spring J and having a flange *k* extending down to engage the rear end of said spring; and trunnions or projections k^2 corresponding with those on the section C; a guide as I, secured to the end of section H and arranged to engage the ends of the sleeve K and pipe section C and hold them in correct alignment; and a lever E journaled on the trunnions C' and having recesses e^1 with flaring edges e^3 formed to engage the projections k^2 and clamp the two parts of the coupling together.

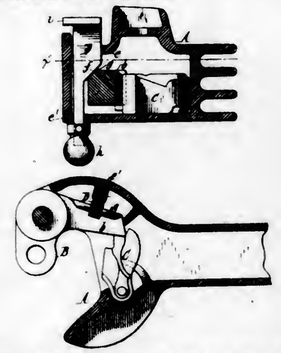
491,300. CHAIR. ALBERT VOSS, Pittsfield, Vt. Filed Aug. 11, 1891. Serial No. 402,400. (No model.)



Claim.—1. A seat-frame for a chair, consisting of side-stretchers mortised into the chair-legs, front and rear seat-supporting bars disconnected from the legs but positively connected to the side stretchers on the inner sides of the legs by couplings having sockets receiving the ends of the seat supporting bars and provided with eyes surrounding the side-stretchers, said couplings being substantially straight continuations of the seat-supporting bars, whereby the line of strain in said couplings is substantially identical with the axes of the front and rear seat-supports, substantially as specified.

2. A seat-frame for a chair, consisting of side-stretchers mortised into the front and rear legs, front and rear seat-supporting bars disconnected from the legs, metallic couplings having sockets entered by the ends of the seat-supporting bars in the longitudinal line of the sockets, and provided at their other ends with eyes engaging the side-stretchers adjacent to the legs, said couplings being substantially straight continuations of the front and rear bars, and front and rear stretchers lying in the spaces between the front legs and rear legs and lying parallel with and adjacent to the seat-supporting bars, substantially as specified.

491,301. CAR-COUPLING. MARTIN E. WALLACE, Aurora, Ill., assignor to the Gould Coupler Company, New York, N. Y. Filed Sept. 29, 1892. Serial No. 447,346. (No model.)



Claim.—1. The combination with the draw-head, the swinging coupling-hook having a locking arm and its lock, of an independent shifting bar sliding vertically on the draw head and provided above the locking arm of the coupling hook with an incline which rests upon said locking arm and supports the shifting bar in an elevated position when the coupling hook is in its locked position, and which automatically moves the coupling hook to its open position by the descent of the shifting bar when the coupling hook is unlocked, substantially as set forth.

2. The combination with the draw-head, of the swinging coupling hook having a locking arm provided in its upper side with an incline, a lock for retaining the coupling hook in its closed position, and an independent shifting bar provided above said locking arm with an incline which bears against the incline on said arm and supports the shifting bar in its elevated position when the coupling hook is locked and which automatically swings the coupling hook into its open position by the descent of the shifting bar when the coupling hook is unlocked, substantially as set forth.

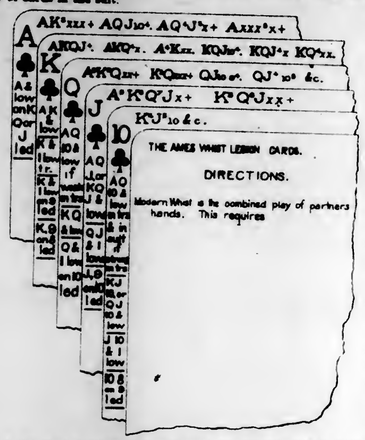
3. The combination with the draw-head, of the coupling hook having a locking arm provided on its upper side with an incline, a lock for retaining the hook in its closed position, and a vertical shifting bar sliding in openings in the draw-head and having at its lower end a weight and above the locking arm of the coupling hook an incline bearing against the incline of said locking arm and which automatically opens the coupling hook when unlocked, by the descent of the shifting bar, substantially as set forth.

491,302. PLAYING-CARD. FISHER ARMS, Newton, Mass. Filed Jan. 22, 1892. Serial No. 418,905. (No specimens.)

Claim.—1. The herein described playing cards, provided on their faces with letters, figures or marks, as set forth, the marks on each card indicating the combinations of cards including the one so marked from which combinations the card so marked is the proper lead.

2. The herein described playing cards provided on their faces with letters, figures or marks, as set forth, said marks indicating the combinations of cards including the one so marked from which com-

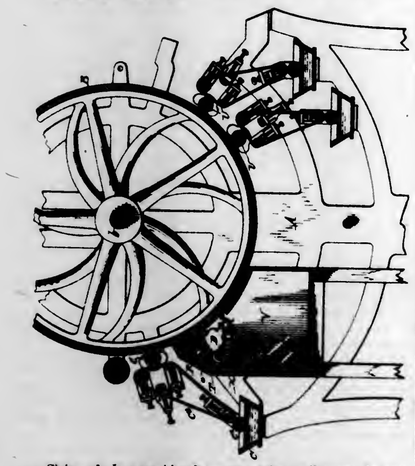
binations the cards so marked is the proper lead, and having additional marks indicating the correct second lead according to the number of cards in the suit.



3. The herein described playing cards having on their faces marks indicating the various combinations of cards including the one so marked from which combinations the card so marked is the proper second hand play, substantially as set forth.

4. The herein described playing cards, provided on their faces with letters, figures or marks, as set forth, the marks on each card indicating the combinations of cards including the one so marked from which combinations the card so marked is the proper play.

491,303. APPARATUS FOR PRINTING AND BRONZING WALL-PAPER. GEORGE K. REED, Buffalo, N. Y. Filed Sept. 27, 1892. Serial No. 446,996. (No model.)



Claim.—1. In a machine for ornamenting wall paper, the combination with the printing surface, of a size printing roller provided with the bronze pattern, and bronze atomizers arranged opposite said printing surface beyond the size printing roller and in register with the pattern thereof, substantially as set forth.

2. In a machine for ornamenting wall paper, the combination with the printing surface, of a size printing roller provided with the bronze pattern, bronze atomizers arranged opposite said printing surface beyond the size pattern roller, and mechanism whereby the bronze atomizers are intermittently actuated in unison with the movement of the printed bronze pattern, substantially as set forth.

3. The combination with the atomizer composed of a receptacle for the dry bronze having a delivery nozzle and a blast pipe opening into said nozzle, of a valve arranged in said blast pipe, a spring whereby said valve is closed, and a cam whereby said valve is opened, substantially as set forth.

4. The combination with the printing surface and the size printing roller provided with the bronze pattern, of bronze atomizers having blast pipes opening into their delivery nozzles, valves arranged in said blast pipes, and mechanism whereby said valves are automatically operated, substantially as set forth.

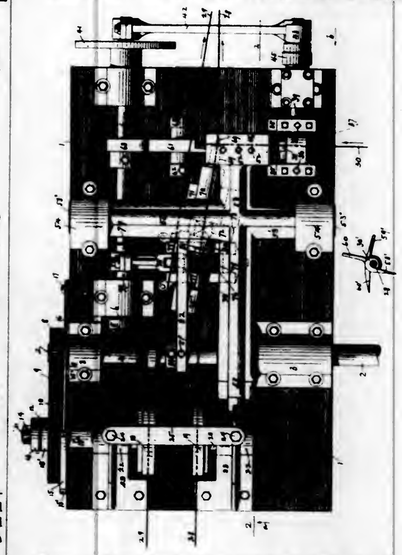
5. The combination with the printing surface and the size printing roller provided with the bronze pattern, of a series of bronze atomizers arranged opposite the printing surface beyond said roller and made individually adjustable transversely of the printing surface, and a series of cams whereby said atomizers are intermittently actuated and which are made correspondingly adjustable, substantially as set forth.

6. In a machine for printing wall paper, the combination with the printing surface, of a size printing roller provided with the bronze pattern, a series of atomizers each containing a receptacle for dry bronze, a blast pipe and a valve controlling said pipe, an air supply whereby compressed air is continuously supplied to said atomizers, and cams whereby the valves are intermittently opened and the compressed air is sent intermittently through the blast pipe of the atomizers, substantially as set forth.

7. The combination with the printing surface and the size printing roller provided with the bronze pattern, of a series of adjustable bronze atomizers, an air supply pipe provided with flexible branch pipes connecting with said atomizers, air valves arranged in said atomizers, and cams whereby said valves are actuated, substantially as set forth.

8. The combination with the printing surface, of a size printing roller provided with the bronze pattern, a cross bar arranged opposite the printing surface beyond said roller, bronze atomizers mounted on said cross bar and made laterally adjustable thereon, and a shaft provided with cams which are laterally and circumferentially adjustable and which actuate the valves of the atomizers, substantially as set forth.

491,304. MANUFACTURE OF BARBED WIRE. JOHN D. CURTIS, Worcester, Mass. Filed July 16, 1892. Serial No. 440,199. (No model.)



Claim.—1. In the manufacture of barbed wire of the class described, the method of forming and applying the barbs which consists in first partly severing the barb from the main wire to form some of the barb points or prongs, second, wrapping or coiling the free end of the partly severed barb around one of the fence strands, and third, completely severing the barb from the main wire to form the last barb point or prong, substantially as set forth.

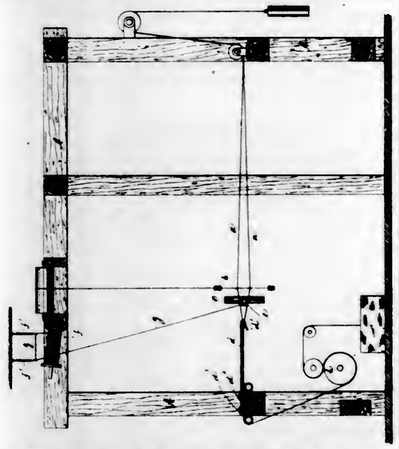
2. In machinery for making barbed wire of the class described, the combination with fence strand feeding mechanism and barb wire feeding mechanism, of mechanism for cutting the barb from the body of the wire and forming barb points or prongs thereon, and a coiling spindle arranged and timed in its movement relatively to the cutting mechanism so as to coil the central portion or body of the barb around one of the fence strands, after the barb has been partly severed from the main wire in the operation of forming some of the prongs or points, and before the cutting mechanism operates to completely sever the barb from the wire to form the last barb point or prong, substantially as set forth.

3. In machinery for making barbed wire of the class described, the combination of fence strand feeding mechanism, barb wire feeding mechanism, a series of cutters by which the successive cuts needed to form the points or prongs and sever the barb from the wire are made, and a coiling spindle which operates to coil the body or central portion of the barb around one of the fence strands after the cutters preceding the last one have done their work and before the last cutter has severed the barb from the main barb wire, substantially as set forth.

4. The combination of the barb cutting mechanism, the coiling spindle, and prong bending mechanism which operates upon the barb after it has been coiled upon the fence wire, substantially as and for the purpose hereinbefore set forth.

491,305. FRINGE ATTACHMENT FOR LOOMS. KARL ESCHENBERG, New York, N. Y. Filed Mar. 7, 1892. Serial No. 423,996. (No model.)

Brief.—The weft thread for the formation of fringes passes from a stationary spool between rollers upon a shuttle which thereby guides and lays but does not carry the weft. The shuttle is also provided with guards for the retention of the weft. The rod about which the weft is laid is provided with bent ends for the purposes stated and with a knife-edge section.



Claim.—1. A loom for weaving fringes provided with a weft spool *f*, and with a shuttle having a pair of rollers between which the weft thread passes, substantially as specified.

2. The combination in a loom for weaving fringes, of weft spool *f*, with the shuttle *e*, having a pair of guide rollers e', and a guard e^3, substantially as specified.

3. In a loom for weaving fringes, a hooked rod having a bent shank for the reception of attaching screws, a knife edge section d^5, and a bent head adapted to engage the weft, substantially as specified.

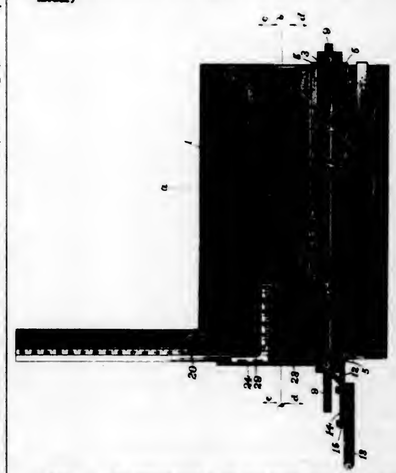
4. The combination in a loom for weaving fringes of weft spool *f*, with shuttle *e* having guide rollers e', and guard e^3, and with the hook *d*, substantially as specified.

491,306. BOTTLE-STOPPER EXTRACTOR. GEORGE W. GARDNER, Roseville, Ill., assignor to himself and Edmond Putnam, same place. Filed May 20, 1892. Serial No. 433,654. (No model.)



Claim.—The combination with a cork, of an attachment detachably secured thereto, said attachment consisting of a single piece of flexible wire formed into a substantially rectangular staple, the ends of the top or horizontal portion of which rests upon the top of the cork, and the central portion is formed into an arch or bow which projects above the top of the cork and the side bars are bent at an angle to the top portion and are of less length than the length of the cork, and rest against the sides thereof, and are each provided at its lower end with an inwardly projecting foot which extends into the side of the cork at a distance above the lower end thereof, substantially as set forth.

491,307. PICTURE-MAT-CUTTING DEVICE. EDWARD L. GAYLORD, Bridgeport, Conn. Filed Sept. 8, 1892. Serial No. 445,356. (No model.)



Claim.—1. The combination of the graduated strip 20, the plate 21 capable of sliding along said strip, means for holding said plate in position the gage-bar 25 hinged to said plate and carrying the adjustable marker, and the spring 29 whereby said bar is normally elevated, substantially as set forth.

2. In a mat-cutting machine, the combination of the bed, the clamp-bar supported on said bed and capable of being elevated and lowered, the hangers depending from said bar and provided with vertical gates, the slide bar abutted against the bottom of the bed and having inclines on the underside at its ends, which latter extend within said gates, the vertically adjustable shoes in the bottoms of said hangers and affording supports for said inclines, the spring which keeps the clamp-bar normally raised, and means for moving the slide-bar to and fro, substantially as shown and set forth.

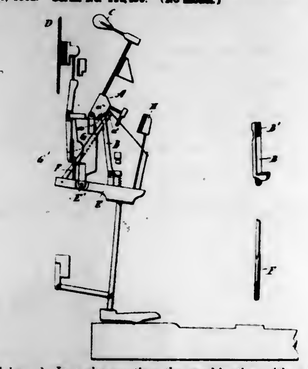
3. The hereindescribed device for positively limiting the action of the cutting knife to a predetermined distance, the same comprising the clamp-bar having a raised rib, the clips 31, 32, adapted to slide on said rib and provided with projecting fingers 39, 40, the stop 35 also adapted to slide on said rib, the gage-plate 37 confined against said rib by the clip 32 and stop 35 and having at its inner end a lip 38, and means—as set screws—for securing said stop and clip in their adjustments, substantially as set forth.

4. The hereindescribed knife for cutting mats, the same comprising a handle, a blade adjustable therein, and a stop-guide depending from said handle and provided with notches which are in different vertical planes, in combination with the guide-rib of the clamping-bar, substantially as set forth.

5. The combination of the handle 41, the knife adjustable within said handle, the plate secured to the handle over said knife, the stop

guide depending from said plate and having notches as described, the set screw whereby said knife is secured in any desired adjustment, and the guide rib against which said stop guide bears when the knife is in operation, substantially as and for the purposes set forth.

491,808. PIANO-ACTION. FREDERICK A. GUTH, Waverly, Ohio, assignor of one-half to Gustav H. Ohlstrom, Shelton, Conn. Filed Aug. 30, 1892. Serial No. 444,499. (No model.)



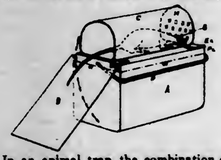
Claim.—1. In a piano-action, the combination with a hammer-butt constructed at its lower end with an upper and a lower shoulder, of a fly located below the said butt in position to co-act with the lower shoulder thereof, a secondary fly co-acting with the said upper shoulder, and a rocker having the lower ends of the flies pivoted to it on opposite sides of its fulcrum, substantially as set forth.

2. In a piano-action, the combination with a hammer-butt constructed at its lower end with an upper and a lower shoulder, of a fly located below the said butt, co-acting with the lower shoulder thereof, and having its upper end bifurcated; a secondary fly extending at its upper end through the bifurcated upper end of the main fly to co-act with the upper shoulder of the butt, and a rocker having the lower ends of the said flies pivoted to it on opposite sides of its fulcrum, substantially as set forth.

3. In a piano-action, the combination with a hammer-butt constructed at its lower end with an upper and a lower shoulder, of a fly located below the said butt in a position to co-act with the said lower shoulder, a secondary fly co-acting with the said upper shoulder, a rocker having the lower ends of the flies pivoted to it on opposite sides of its fulcrum, and an action-rail constructed to permit the secondary fly to play through it, substantially as set forth.

4. In a piano-action, the combination with a hammer-butt constructed at its lower end with an upper and a lower shoulder, of a fly located below the said butt, in a position to co-act with the said lower shoulder, a secondary fly co-acting with the said upper shoulder, a rocker having the lower ends of the flies pivoted to it on opposite sides of its fulcrum, and an action-rail having a transverse opening formed in it to permit the secondary fly to play through it, substantially as set forth.

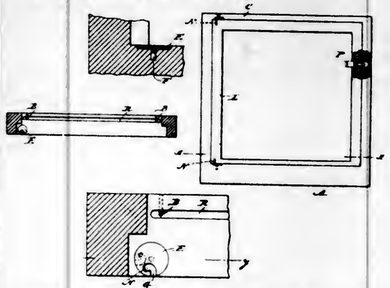
491,809. ANIMAL-TRAP. LUDWIG HERMAN, Cleveland, Ohio. Filed May 21, 1892. Serial No. 433,573. (No model.)



Claim.—1. In an animal trap, the combination of a swinging cage or compartment pivotally hung in the upper portion of a suitable box, a bait hook located at the inner and closed end of said cage, a lever or rod, one end of which is connected to said bait hook, the opposite end being adapted to engage with a detent projecting inwardly from said box, the parts being so constructed and arranged that, as the lever is released from the detent through the action of the bait hook, the said cage will swing downwardly into the said box, substantially in the manner and for the purpose described.

2. In an animal trap, the combination of a box, a swinging cage located and pivotally hinged at its extremities in the upper portion of said box, an adjustable door at one end of said cage, and the means described for retaining said cage in its horizontal or "set" position, substantially as set forth.

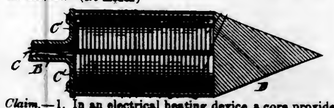
491,810. WINDOW. ADRIAN HITT, Anderson, Ind. Filed Feb 24, 1890. Serial No. 341,440. (No model.)



Claim.—1. The combination with the main sash having a rabbet in the top, and side rails, and a groove in the top of the lower rail, said groove being provided with outlets through the body of the sash, as set forth; of the hinged frame for holding the glass, fitting into the main sash, and concealing the groove in the lower rail of the main sash, substantially as shown and described.

2. The combination with the main sash, of the pivoted perforated plate on the under side of the top rail, the pivoted slotted plate on the upper side of the bottom rail, and the swinging, removable inner frame provided with pins at the top and bottom for engaging with the plates in the main sash, substantially as shown and described.

491,811. ELECTRICALLY-HEATED SOLDERING-IRON. SAMUEL R. JENKINS, Boston, Mass., assignor, by mesne assignments, to the American Electric Heating Company, same place. Filed June 8, 1892. Serial No. 436,927. (No model.)

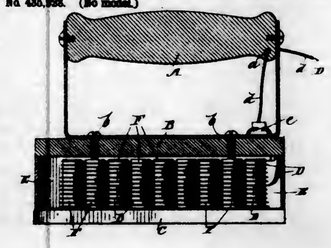


Claim.—1. In an electrical heating device, a core provided with a series of bars or sub-cores in combination with a conductor of electricity woven between and around the said bars substantially as and for the purpose set forth.

2. In an electrical heating device, a core of magnetic material provided with a series of bars or subcores in combination with a conductor of electricity woven between and around the said bars substantially as and for the purpose set forth.

3. In an electric soldering iron the combination of a head or point having a series of bars extending rearwardly therefrom with an electric conductor woven about and between the said bars substantially as and for the purpose set forth.

491,812. ELECTRICALLY-HEATED SMOOTHING-IRON. SAMUEL R. JENKINS, Boston, Mass., assignor, by mesne assignments, to the American Electric Heating Company, same place. Filed June 8, 1892. Serial No. 436,928. (No model.)



Claim.—In an electrically heated smoothing iron the combination of a bottom plate having a series of bars or sub cores raised thereon with a conductor of electricity woven between and about the said bars substantially as and for the purpose set forth.

491,813. ELECTRIC CURLING-IRON HEATER. SAMUEL R. JENKINS, Boston, Mass., assignor, by mesne assignments, to the American Electric Heating Company, same place. Filed June 8, 1892. Serial No. 436,929. (No model.)



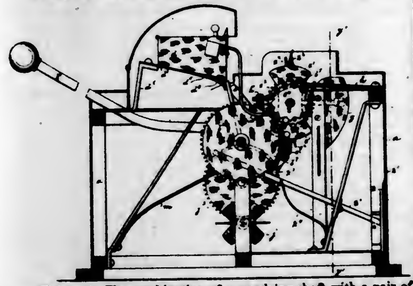
Claim.—1. A curling-iron heater provided with a central bore which is open at one end to receive the curling iron, an electrically heated resistance surrounding the said bore and a shank extending rearward from the other end of the said heater substantially as set forth.

2. A curling iron heater having a shank adapted to screw into a support and a hollow body provided with an electrical resistance surrounding a bore which is open at one end to receive the curling iron substantially as set forth.

3. An outer metallic shell and an inner metallic shell in combination with the wire which is wound in the space between the said shells and forms part of an electric circuit, the inner shell being extended to form a shank through which the ends of the said wire pass and the other end of the said inner shell being open to receive the rod which is to be heated substantially as set forth.

4. An electrically heated curling iron heater having one end open to receive the iron the other end being extended to form a shank which is provided with slots allowing a draft of air through the bore substantially as shown.

491,814. AUTOMATIC MATCH-LIGHTER. RUDOLF KRAUS, Long Island City, N. Y., assignor of three-twentieths to Franz Bergmann, same place. Filed Aug. 20, 1892. Serial No. 443,579. (No model.)



Claim.—1. The combination of a revolving shaft with a pair of jaws secured thereto, a vibrating hopper, a pivoted stop between the hopper and the jaws and with a rubbing surface, substantially as specified.

2. The combination of a revolving shaft with a pair of jaws having spring fingers and with a vibrating hopper, a pivoted gate controlling its discharge orifice, a stop and a rubbing surface, substantially as specified.

3. The combination of a shaft with a pair of jaws, a hopper, springs supporting the same, a star wheel for agitating the hopper, a shelf controlling the discharge orifice of the hopper and with a rubbing surface, substantially as specified.

4. The combination of a shaft *b*, with intergeared shaft *c*, jaws *c'*, secured thereto and having fingers c^3, and with hopper *d*, shelf d^3, inclined slide *s*, stop *e'*, and rubbing surface *g*, substantially as specified.

5. The combination of shaft *b*, having hand lever *b'*, and loose wheel b^2, with shaft *c*, having jaws *c'*, and adapted to be intergeared with shaft *b*, and with a hopper, a pivoted shelf, a slide, a stop and a rubbing surface, substantially as specified.

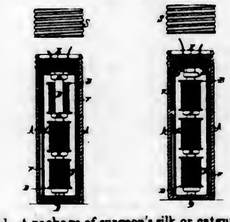
6. The combination of shaft *b*, with intergeared shaft *c*, having jaws *c'*, wheel *i*, having shoulders i^2, and an arm i^3, adapted to engage such shoulders, substantially as specified.

7. The combination of shaft *b*, with intergeared shaft *c*, having jaws *c'*, and with a hopper, a pivoted stop, a rubbing surface and with a knife *k*, operated by the shaft *b*, substantially as specified.

8. The combination of shaft *b*, with notched gear wheel *j'*, pawl j^2, a fly *j*, and with a shaft *c*, having jaws *c'*, a hopper, a stop and a rubbing surface, substantially as specified.

9. The combination of a shaft *c*, with a pair of jaws *c'*, a vibrating hopper, a pivoted gate having a shoulder d^3, and controlling the discharge orifice of the hopper and with a stop between the hopper and the jaws, substantially as specified.

491,815. SURGICAL-LIGATURE RECEPTACLE. JOHN R. LEE, Conshohocken, Pa. Filed Sept. 28, 1892. Serial No. 447,160. (No model.)



Claim.—1. A package of surgeon's silk or catgut, consisting of a receptacle, having spools of the thread and a longitudinal carrying spindle provided with flanges or projections between the adjoining ends of the spools, as and for the purpose set forth.

2. A package of surgeon's silk or catgut consisting of a receptacle, containing one or more spools of the thread with a guide having an eyelet hole opposite each spool for the thread thereof, substantially as described.

3. A package of surgeon's silk or catgut consisting of a receptacle having one or more spools lengthwise of the receptacle, and a tubular guide between the spools and the receptacle, such tubular guide being provided with an eyelet hole opposite each spool, substantially as set forth.

4. A package of surgeon's silk or catgut, consisting of a receptacle having one or more spools of the thread with a tubular guide around the spools and provided with an eyelet opposite each spool, said guide having an enlarged or flared end to fit one end of the receptacle and leave a space for the passage of the thread between the said guide and the inner wall of the receptacle, substantially as set forth.

5. A package of surgeon's silk or catgut, consisting of a receptacle having one or more spools of the thread and a stopper through which the thread is passed with a close fit, and a tubular guide provided with an eyelet for each thread and with a reduced end in contact with the inner face of the stopper, all substantially as and for the purpose set forth.

491,816. TOOL-HOLDER. JAMES R. LOW and MAGNUS DAHL, Chicago, Ill.; said Dahl assignor to said Low. Filed Sept. 22, 1890. Serial No. 365,794. (No model.)

Claim.—1. In a clutch or tool holder having relatively stationary and longitudinally movable parts for the contraction and expansion of the clutch, the combination with the longitudinally movable member, of a toggle for imparting longitudinal motion thereto and means for actuating said toggle.

2. In combination with the relatively stationary and longitudinally movable members of a clutch device, a toggle arranged to give the longitudinal movement to one of said members, and a sliding sleeve or ring for extending the toggle.

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3. The combination with the tube B provided with a slot, of a clutch rod C, a toggle applied to said rod, and a ring surrounding the tube B arranged to press on the toggle for the extension of the latter.

4. The combination with a tube provided with a slot and interiorly tapered at its end, of a rod fitted to said tube and carrying spring clutch jaws within the tapered end of the tube, a toggle arranged opposite the slot and working in the plane thereof, one of the arms of said toggle being attached to the rod and the other to a stationary part, a sliding ring embracing the tube B and provided with a presser having bearing upon the toggle through the slot.

5. The combination with the slotted tube B, sliding rod C carrying clutch jaws, toggle arms C^3 C^3, the adjustable part C^4 connected with the toggle, and a sliding ring for extending the toggle.

6. The combination of a non-rotating shell composed of parts of which the parts A′ and A^2 are separated by a space, and a surrounding sleeve covering said space and adapted to slide on the adjacent members of the shell, of a rotating tube B provided with a slot opposite the space in the shell and suitably shouldered to the shell for the retention of the parts of the latter in their places on said tube, a rod C carrying spring jaws, a toggle attached to said rod and to a stationary member, a ring surrounding the tube B and provided with a presser bearing upon the toggle, and means for retaining said ring in place with respect to the surrounding sleeve while revoluble with respect thereto, substantially as described.

7. The combination of the shell composed of the members A A′ A^2 A^3 and sliding member A^4 of the revoluble tube B properly shouldered with the separated portions of the shell for their retention in place thereon, the rod C carrying the spring clutch jaws of the clutch proper, the adjustable part C^4, the toggle members C^3 C^3 connected with the parts C and C^5, a spring arranged to flex said toggle, a ring a^4 revoluble within the sleeve A^4 and provided with a presser bearing upon the toggle, and retaining shoulders on the interior of the slide A^4.

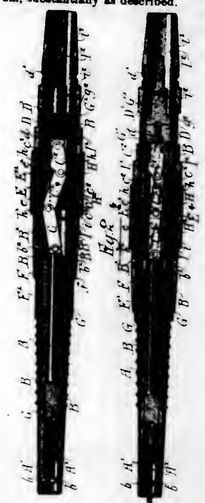
491,817. TOOL HOLDER. JAMES R. LOW and MAGNUS DAHL, Chicago, Ill.; said Dahl assignor to said Low. Filed Oct. 1, 1891. Serial No. 407,496. (No model.)

Claim.—1. The combination with the relatively fixed and longitudinally movable members of a clutch, and a toggle connecting said members, of an actuating device acting positively upon the toggle both in flexing and straightening the same, substantially as described.

2. The combination with the relatively fixed and longitudinally movable members of a clutch, and a toggle connecting said members one link of which is fulcrumed in one of said clutch members, of an actuating device acting positively upon the toggle both in flexing and straightening the same, substantially as described.

3. The combination with the relatively fixed and longitudinally movable members of a clutch, of a toggle fulcrumed in one of said members, one of the links of said toggle being provided with a projection, and a longitudinally movable presser acting upon the projection on the toggle, substantially as described.

4. The combination with the relatively fixed and longitudinally movable members of a clutch, of a block having longitudinal movement in the fixed member, a toggle connecting the members of the clutch and having one of its links fulcrumed in the longitudinally movable block, and means acting on the toggle to shift the fulcrumed link on its fulcrum, substantially as described.



5. The combination of a casing embodying a movable sheath, a rotating part contained therein carrying the fixed and movable members of a clutch, a toggle controlling the position of said movable member, and means connected with the movable sheath and imparting positive movement to the toggle in flexing and straightening the same, substantially as described.

6. The combination of a casing, a rotating part therein carrying the fixed and movable members of a clutch, a toggle one link or member of which is fulcrumed in said rotating part for controlling the position of said movable member, and means connected with the casing for moving the toggle in both directions on its fulcrum to flex and straighten the same, substantially as described.

7. The combination of a casing embodying a longitudinally sliding sheath, a rotating part therein carrying the fixed and movable members of a clutch, a toggle controlling the position of said movable member, and means connected with the sliding sheath of the casing imparting positive movement to the toggle to flex and straighten the same, substantially as described.

8. The combination of a casing embodying a movable sheath, a rotating part therein carrying the fixed and movable members of a clutch, a toggle one part or link of which is fulcrumed in said rotating part, for controlling the position of the said movable member, and a presser connected with the movable sheath and imparting positive movement to the toggle to flex and straighten the same, substantially as described.

9. The combination of a casing embodying a movable sheath, a rotating part therein carrying the fixed and movable members of a clutch, a toggle one of the links of which is fulcrumed in said rotating part and one of the links of which is provided with a projection, and means connected with the movable sheath of the casing and acting upon said projection on the toggle link, substantially as described.

10. The combination of a casing embodying a movable sheath, a rotating part therein carrying the fixed and movable members of a clutch, a toggle fulcrumed in said rotating part and connected with said movable members, one of the links of said toggle being provided with a projection, and a presser attached to the movable sheath and adapted to shift the fulcrumed link on its pivotal center, substantially as described.

11. The combination of a casing embodying a movable sheath, a rotating tubular part contained therein carrying the fixed and movable members of a clutch, a toggle connected with the members of the clutch, a block located within the tubular part in which block one of the links of the toggle is fulcrumed, and a presser connected with the said sheath and acting upon the toggle, substantially as described.

12. The combination of a casing embodying a movable sheath, a rotating tubular part contained therein carrying the fixed and movable members of a clutch, a longitudinally movable block seated in said tubular part, a toggle connected with the members of the clutch and having one of its links pivoted to the guide block, and a presser connected with the said sheath and acting upon the toggle, substantially as described.

13. The combination of a casing embodying a movable sheath, a rotating part contained therein carrying the fixed and movable members of a clutch, a toggle connected at one end with the movable part of the clutch and at its other end connected adjustably with the fixed part of the clutch, means connected with the sheath giving positive movement to the toggle for flexing and straightening the same, and a stem which affords connection with a motor and locks the adjustable end of the toggle, substantially as described.

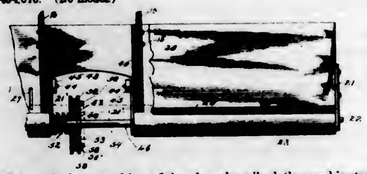
14. The combination of a casing embracing a longitudinally slotted sleeve and a movable sheath sliding thereon, a tubular part rotating in the casing carrying the fixed and movable members of a clutch, a toggle connected at its ends with said fixed and movable members, a sliding sleeve upon said tubular part and within the longitudinally slotted sleeve of the casing, a presser seated in a longitudinal slot in said tubular part and acting on the toggle, said presser being attached to said sliding sleeve, and means extending through the slots of the longitudinally slotted sleeve of the casing for connecting the sleeve with the movable sheath, substantially as described.

15. The combination of a casing embodying a movable sheath, a rotating part therein carrying the fixed and movable members of a clutch, a toggle fulcrumed in said rotating part and having a projection on one of its links, and a presser connected with the movable sheath and having a longitudinal movement exceeding the distance between said fulcrum and projection, substantially as described.

16. The combination with a revoluble tube carrying clutch members and their operating devices and having an encircling sliding sleeve carrying means for actuating said clutch operating devices, of a non-rotating casing consisting of a tip, a longitudinally slotted part which embraces the sliding sleeve and is connected with the tip, a two part sleeve embracing said slotted part and provided with flanges extending through the slots of the said slotted part of the casing to engage the ends of the sliding sleeve, and a sliding sheath provided interiorly with an annular recess to receive said two-part sleeve, substantially as described.

17. The combination with the revoluble clutch-carrying tube and its encircling sliding sleeve, of a journal sleeve mounted on the tube, a tip secured to said journal sleeve, a forked sleeve the forks of which embrace the sliding sleeve and are at their ends secured to said journal sleeve, a two-part sleeve embracing said forks and provided with flanges which extend through the slots formed by the forks to engage the ends of the sliding sleeve, and a sliding sheath provided interiorly with an annular recess to receive the two-part sleeve, substantially as described.

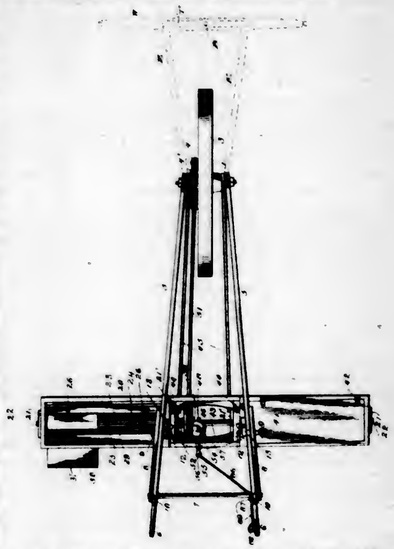
491,318. FERTILIZER OR INSECTICIDE DISTRIBUTER. DAVID J. MANNING, Chippewa Falls, Wis. Filed May 27, 1892. Serial No. 434,813. (No model.)



Claim.—1. In a machine of the class described, the combination with the main wheel, a pulley secured thereto, and side bars mounted on the axle of said wheel and having handles at their rear ends; of a hopper, arms connected with the hopper and journaled on the axle, supports secured to the hopper and having slots struck around said axle, set screws through said slots into the side bars, a feeder within the hopper, and a belt leading from said pulley to the feeder, as and for the purpose set forth.

2. In a machine of the class described, the combination with the main wheel, a pulley secured thereto, and side bars mounted on the axle of said wheel and having handles at their rear ends; of a hopper, arms connected with the hopper and journaled on the axle, supports secured to the hopper and adjustably connected with the side bars, a feed roller journaled below and adjacent the mouth of the hopper, a pulley connected with this roller, and a belt connecting the pulleys, as and for the purpose set forth.

3. In a machine of the class described, the combination with the main wheel, a pulley secured thereto, and side bars mounted on the axle of said wheel and having handles at their rear ends; of a hopper standing across and beneath the side bars, two vertical partitions within and near the center of the hopper between which partitions its walls are cut away, arms connected with the partitions and journaled on the axle, supports secured to the partitions and adjustably connected with the side bars, brackets depending from the partitions and ends of the hopper, two rollers whose shafts are journaled in said brackets, a pulley on the shaft between the partitions, and a belt connecting the pulleys, as and for the purpose set forth.



4. In a machine of the class described, the combination with the main wheel, a pulley secured thereto, and side bars mounted on the axle of said wheel and having handles at their rear ends; of a hopper standing across and beneath the side bars and supported thereby, two vertical partitions within and near the center of the hopper between which partitions its walls are cut away, brackets depending from the partitions and ends of the hopper, rollers below and adjacent the mouths of the hopper sections, pins in the outer ends of the rollers journaled in the outer brackets, a shaft journaled in the inner brackets and having squared ends seated in the rollers, a pulley on this shaft, and a belt connecting the pulleys, as and for the purpose set forth.

5. In a machine of the class described, the combination with the main wheel, a pulley secured thereto, and side bars mounted on the axle of said wheel and having handles at their rear ends; of a hopper standing across and beneath the side bars and supported thereby, two vertical partitions within and near the center of the hopper between which partitions its walls are cut away, brackets depending from the partitions and ends of the hopper, rollers below and adjacent the mouths of the hopper sections, pins in the outer ends of the rollers journaled in the outer brackets, a shaft journaled in the inner brackets and having squared ends seated in the rollers, a pulley mounted loosely on this shaft, a clutch between this pulley and shaft, a tripper for the clutch extending through the rear wall of the hopper where cut away and to within reach of the operator, and a belt connecting the pulleys, as and for the purpose set forth.

6. The herein described hopper having converging walls, vertical partitions in the hopper near its center and between which said walls are cut away, brackets on the partitions and ends of the hopper, rollers below and adjacent the mouths of the hopper-sections, pins in the outer ends of the rollers journaled in the outer brackets, a shaft journaled in the inner brackets and seated in the inner ends of the rollers, a pulley mounted loosely on the shaft, a clutch between the pulley and shaft, a spring normally engaging the clutch members, a bracket carried by the rear wall and at the center of the hopper, a lever pivoted on a pin in this bracket and having a forked inner end bearing against the smooth face of the pulley outside its clutch, and a tripper leading from the outer end of the lever to within reach of the operator; combined with a hopper-support mounted on a wheel, a pulley carried by

the wheel, and a belt connecting the pulleys, as and for the purpose set forth.

7. The herein described hopper having converging walls, vertical partitions in the hopper near its center and between which said walls are cut away, brackets on the partitions and ends of the hopper, rollers below and adjacent the mouths of the hopper-sections, pins in the outer ends of the rollers journaled in the outer brackets, a shaft journaled in the inner brackets and seated in the inner ends of the rollers, a pulley mounted loosely on the shaft, a clutch between the pulley and shaft, a spring normally engaging the clutch members, a bracket carried by the rear wall and at the center of the hopper, a lever pivoted on a pin in this bracket and having a forked inner end bearing against the smooth face of the pulley outside its clutch, a bolt sliding in guides and having a ring handle, and a rod connecting the bolt with the outer end of said lever; combined with a hopper-support mounted on a wheel, a pulley carried by the wheel, and a belt connecting the pulleys, as and for the purpose set forth.

8. The herein described hopper having converging walls, vertical partitions in the hopper near its center and between which said walls are cut away, brackets on the partitions and ends of the hopper, rollers below and adjacent the mouths of the hopper-sections, pins in the outer ends of the rollers journaled in the outer brackets, a shaft journaled in the inner brackets and seated in the inner ends of the rollers, a pin through said shaft, a pulley mounted loosely on the shaft and having beveled wings, a spring throwing the wings into engagement with the pin, a bracket carried by the rear wall and at the center of the hopper, a lever pivoted on a pin in this bracket and having a forked inner end bearing against the smooth face of the pulley outside said wings, and a tripper leading from the outer end of the lever to within reach of the operator; combined with a hopper-support mounted on a wheel, a pulley carried by the wheel, and a belt connecting the pulleys, as and for the purpose set forth.

9. The herein described hopper having converging walls, vertical partitions in the hopper near its center and between which said walls are cut away, brackets on the partitions and ends of the hopper, rollers below and adjacent the mouths of the hopper-sections, pins in the outer ends of the rollers journaled in the outer brackets, a shaft journaled in the inner brackets and seated in the inner ends of the rollers, deflectors against the rear walls of the hopper-sections, stop plates against their front walls, bolts in said plates extending through slots in said walls, and a pulley on said shaft; combined with a hopper-support mounted on a wheel, a pulley carried by the wheel, and a belt connecting the pulleys, as and for the purpose set forth.

10. The herein described hopper having converging walls, vertical partitions in the hopper near its center and between which said walls are cut away, brackets on the partitions and ends of the hopper, rollers below and adjacent the mouths of the hopper-sections, pins in the outer ends of the rollers journaled in the outer brackets, a shaft journaled in the inner brackets and seated in the inner ends of the rollers, deflectors against the rear walls of the hopper-sections, stop plates against their front walls, bolts in said plates extending through slots in said walls, the rear walls and deflectors being slotted, cut-offs removably inserted in said slots, a pulley on said shaft, a clutch between the pulley and shaft, and means for operating the said clutch; combined with a hopper-support mounted on a wheel, a pulley carried by the wheel, and a belt connecting the pulleys, as and for the purpose hereinbefore set forth.

491,819. HAT-BRIM-SOFTENING DEVICE. WILLIS MITCHELL, Malden, assignor, by mesne assignments, to the American Electric Heating Company, Boston, Mass. Filed June 3, 1892. Serial No. 435,981. (No model.)



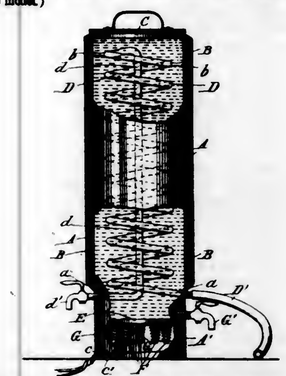
Claim.—1. In combination with an exterior casing, an inner casing or deflector arranged to leave an annular space between them and an electrical heater which is arranged in this space and surrounds the said deflector substantially as set forth.

2. In combination with an exterior casing having openings through it near the bottom an inner casing or deflector arranged to leave an annular space between them which is open at the top and an electrical heater arranged in the said annular space, the top edges of the said casings being arranged to support a hat-brim in position to be acted on by the ascending steam and hot air substantially as set forth.

3. In combination with an external casing or receptacle, a deflector in the shape of an inverted cone arranged within the said receptacle so as to leave an annular space between the rims of these parts, and an electric heater surrounding the said deflector substantially as set forth.

4. In combination with a receptacle or casing, a deflector in the shape of an inverted cone attached to and supported on the bottom of the said receptacle, a metallic cylinder constituting the core of an electric heater and surrounding at an interval the said deflector, an electric conductor wound on the said cylinder and forming part of an electric circuit, and rigid arms or brackets connecting the said receptacle to the said cylinder and the said cylinder to the said deflector substantially as set forth.

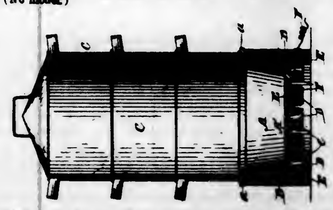
491,820. ELECTRIC WATER-HEATER. WILLIS MITCHELL, Malden, assignor, by mesne assignments, to the American Electric Heating Company, Boston, Mass. Filed June 3, 1892. Serial No. 435,932. (No model.)



Claim.—1. A receptacle divided by a partition into two spaces, one of which contains water, in combination with cores formed on the opposite side of the said partition, electric heating devices surrounding the said cores and a worm arranged in the water-containing space and discharging outside of the said receptacle substantially as set forth.

2. In an electrical water heater a cylinder having a partition of heat-conducting material across its inner space or chamber the said partition having cores formed with it, in combination with a conductor forming part of an electric circuit and wound on or applied to the said cores the space above the said partition being adapted to hold water and the space below it containing only air substantially as set forth.

491,821. ELECTRICALLY-HEATED VESSEL. WILLIS MITCHELL, Malden, assignor, by mesne assignments, to the American Electric Heating Company, Boston, Mass. Filed June 3, 1892. Serial No. 435,933. (No model.)



Claim.—1. In combination with a cooking utensil having cores formed integral therewith electrical heating-devices applied to the said cores and a reflecting shell surrounding the same substantially as set forth.

2. In combination with a cooking vessel having cores on its bottom, electric heating devices applied to the said cores and a reflecting shell surrounding the same as set forth.

3. In combination with a cooking vessel provided with cores, electrical heating devices applied to the latter, and an inclosing reflecting shell which also supports the said vessel substantially as set forth.

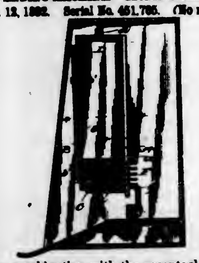
491,822. ELECTRICALLY-HEATED GRIDIRON. WILLIS MITCHELL, Malden, assignor, by mesne assignments, to the American Electric Heating Company, Boston, Mass. Filed July 2, 1892. Serial No. 438,908. (No model.)



Claim.—1. A frying-pan or gridiron consisting of a flat plate provided with integral studs C which also serve as supporting legs, in combination with electrical heaters applied to the said studs for the purpose set forth.

2. A frying pan or gridiron provided with magnetic studs or cores in combination with a conductor wound on the said studs or cores in successive concentric helices, these being separated from each other by approximately cylindrical partitions or layers of insulating material substantially as set forth.

491,823. VENDING-MACHINE. GEORGE I. SLATER, South Bend, Ind. Filed Nov. 12, 1892. Serial No. 451,705. (No model.)



Claim.—1. The combination with the receptacle having flanges at its front side, with the retaining strips adjustably secured to said flanges, substantially as described.

2. A receptacle for the purpose described having a bottom, the front corners of which are diagonally cut away, substantially as described.

3. A receptacle having a bottom cut away so as to prevent a V-shaped front edge and longitudinally slotted, substantially as described.

4. The combination with the receptacle having a vertical slot, with a series of separating plates adapted to partially project through said slot, substantially as specified.

5. The combination with a receptacle and an ejector, of a series of plates alternating with the articles in the receptacle and adapted to successively rest upon the ejector and to fall from the receptacle when the underneath article is discharged therefrom, substantially as and for the purpose set forth.

6. The herein described receptacle having front side flanges B, B, and a bottom C having its front corners diagonally cut away, substantially as specified.

7. The combination with a vertically slotted receptacle and ejector, of the notched separating plates adapted to partially project through the slot in the receptacle, substantially as described.

8. The combination of the swinging vertically slotted receptacle the stationary ejector finger, and the separating plates adapted to partially project through the slot in the receptacle, substantially as and for the purpose set forth.

9. The combination of the swinging receptacle having a stud on its side, with a stationary ejector and the rotatable cam G adapted to alternately engage and disengage said stud when rotated and its actuating devices, substantially as described.

10. The receptacle A, having flanges B, B, on its sides and slotted in rear and at bottom, with the adjustable pieces *b*, *b*, attached to flanges B, and the ejector finger, all constructed and arranged to operate substantially as described.

11. The receptacle A having flanges B, B, on its sides and slotted in rear and at bottom, with the adjustable pieces *b*, *b*, attached to flanges B, and the ejector finger, and the separating plates K, K, substantially as set forth.

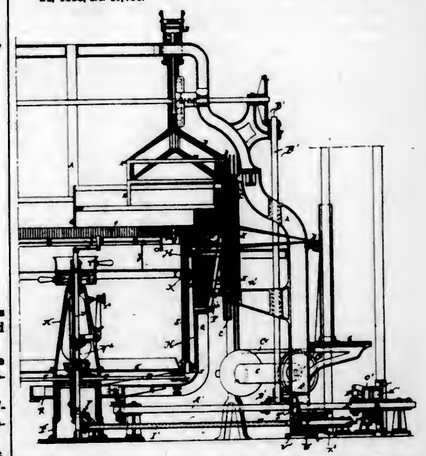
12. A receptacle having a bottom cut away so as to present a V-shaped front edge, and slotted substantially as described, in combination with the ejector finger operating through the slot in the bottom, substantially as described.

13. A receptacle having a bottom cut away so as to present a V-shaped front edge, and slotted substantially as described, in combination with the ejector finger operating through the slot in the bottom, and the separating plates, substantially as and for the purpose set forth.

14. In a vending apparatus the combination of a vertically slotted receptacle having a discharge opening at the bottom an ejector and a series of vendible articles or packages: with a series of separating plates intermediate and alternating with the articles, substantially as specified.

15. The combination with a receptacle having a vertical slot in its back and a longitudinal slot in its bottom, and a series of vendible articles or packages therein; of a series of separating plates and an ejector operating through the slot in the bottom, substantially as and for the purpose set forth.

491,824. CIRCULAR LOOM. ADRIEN H. SORET, Elbeuf, and JACQUES HURTU and VICTOR HAUTIN, Paris, France. Filed Oct. 24, 1888. Serial No. 288,063 (No model.) Patented in France Feb. 20, 1888, No. 183,836; in England Aug. 10, 1888, No. 11,631, and in Germany Aug. 21, 1888, No. 47,760.



Claim.—1. In circular looms a device for taking up the woven fabric consisting of two hoops, a cam to press the one against the other, and mechanism substantially as described for lowering the hoops step by step, substantially as set forth.

2. In circular looms a device for taking up the woven fabric consisting of hoops, a cam to press the one against the other, mechanism substantially as described for lowering the hoops step by step, and devices for rapidly raising the hoops to again grasp the cloth, substantially as set forth.

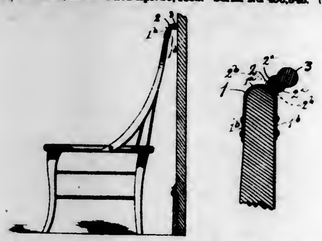
3. In a circular loom, the combination of the inner breast-beam, and a hoop Z, with a shuttle provided with lenticular wheels which bear against the breast-beam and hoop, and a divided batten and means to reciprocate the latter to close in behind the shuttle and propel it forward, and to complete the beating up of the weft, substantially as set forth.

4. In a circular loom the combination of a circular breast-beam, a divided batten surrounding the breast-beam, heddles outside the batten, beams for the warp and an external platform for the attendant watching the bobbins, with an internal platform, take-up mechanism inside the breast-beam, and mechanism for stopping and starting the loom and for operating the take-up device, located at or near the center of the internal platform and within reach of the weaver on the internal platform, substantially as described.

5. A circular loom comprising beams provided with brakes, Jacquard mechanism, heddles operated by the Jacquard mechanism, a breast-beam, a hoop adapted to be closed down upon the breast-beam, shuttles adapted to bear against the breast-beam and hoops, battens

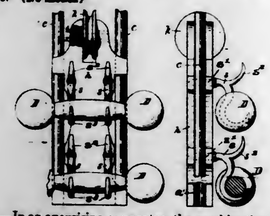
to act on the shuttles, a cam adapted to oscillate the battens, a take-up device consisting of vertically reciprocating hoops, starting and stopping devices and mechanism to operate the movable parts, substantially as described.

491,325. CHAIR-PAD. JOHN J. TOTMAN and EARL G. WHEELER, Amsterdam, N. Y. Filed Apr. 23, 1892. Serial No. 430,343. (No model.)



Claim.—A chair-pad A, consisting of a piece 1 formed with a saddle 1^a adapted to rest on the top of the back of a chair, having legs 1^b adapted to straddle the back, the rearwardly inclined gripping piece 2 adapted to rest over the rear edge of the top of the back, providing parallel finger grooves 2^a, and having curved spring jaws 2^b, and the cylindrical cushion 3 of elastic material grasped and held by the jaws; substantially as described.

491,326. WEIGHT-HOLDER FOR CABINET-GYMNASIUMS. JAMES E. WHITNEY, Rochester, N. Y. Filed Jan. 18, 1892. Serial No. 418,473. (No model.)



Claim.—In an exercising apparatus, the combination of a casing, a vertically movable weight holder suspended therein and provided with a series of sockets in its face, and hangers each having a shank adapted to enter and fit the sockets in the weight holder, the outer end of each of the hangers being forked or branched, the upper branch curving upward and the lower branch extending downward and then curving upward, substantially as set forth.

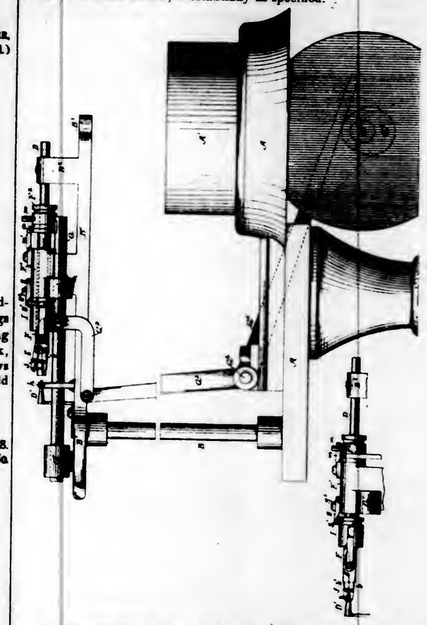
491,327. EXTRA-THREAD-FEEDING DEVICE FOR KNITTING-MACHINES. LOUIS N. D. WILLIAMS, Philadelphia, Pa., assignor of one-half to Robert W. Scott, same place. Filed Nov. 2, 1892. Serial No. 450,772. (No model.)

Brief.—The clamp and shears are carried by a sleeve mounted to slide longitudinally, and having a pulley at one end for a driving-belt. The longitudinal movements are imparted from a cam on the main shaft. The jaws of the clamp are closed by a spring, and are opened when the sleeve is slid away from the extra thread by a recess in the bearing of the sleeve, and which receives an arm on the movable jaw of the clamp. When the clamp is moved to engage the extra thread a pin on the pulley engages a projection on the bearing, thereby stopping the rotation of the sleeve. The clamp carries the extra thread one or more times around the main thread before the jaws are opened.

Claim.—1. The combination in a reinforcing thread device for knitting machines, of the guides for the main and reinforcing threads, with a clamp for the reinforcing thread, and with means for rotating said clamp around the main knitting thread, substantially as specified.

2. The combination in a reinforcing thread device for knitting machines, of the guides for the main and reinforcing threads with a clamp for the reinforcing thread, and with means for imparting both a longitudinal reciprocating motion and a rotating motion around the main knitting thread to said clamp, substantially as specified.

3. The combination in a reinforcing thread device for knitting machines, of the guides for the main and reinforcing threads, with a clamp for the reinforcing thread, and means for rotating said clamp around the main knitting thread, a portion of the main knitting thread guide being so located in respect to said clamp that the first turn or turns of the reinforcing thread will be formed upon said guide instead of upon the main thread, substantially as specified.



4. The combination in a reinforcing thread device for knitting machines, of a tubular guide for the main knitting thread, a tubular shaft surrounding said tubular guide, and carrying a clamp for the supplementary thread, and means for rotating and for longitudinally reciprocating said tubular shaft, substantially as specified.

5. The combination in a reinforcing thread device for knitting machines, of the guides for the main and reinforcing threads with a clamp for the reinforcing thread, and means for reciprocating said clamp and for rotating it around the main knitting thread, and a stop for arresting the rotative movement when the clamp is in its forward position, substantially as specified.

6. The combination in a reinforcing thread device for knitting machines of the guides for the main and reinforcing threads, with a clamp for the reinforcing thread, means for reciprocating said clamp and for rotating it around the main knitting thread, and means for causing the opening of the clamp as it approaches one limit of its reciprocating motion and the closing of said clamp as it approaches the other limit of said motion, substantially as specified.

7. The combination in a reinforcing thread device for knitting machines, of the guides for the main and reinforcing threads, with a clamp for said reinforcing thread, means for reciprocating said clamp, and for rotating it around the main knitting thread, and a cam slide acting upon the clamp to open the same, said cam slide having a limited longitudinal movement with the clamp, substantially as specified.

8. The combination in a reinforcing thread device for knitting machines, of the guides for the main and reinforcing threads, with a combined clamp and shears for said reinforcing thread, and means for rotating the same around the main knitting thread, substantially as specified.

9. The combination in a reinforcing thread device for knitting machines, of the guides for the main and reinforcing threads, with a combined clamp and shears for said reinforcing thread, means for rotating and reciprocating said clamp, and shears and provision for opening and closing the same, substantially as specified.

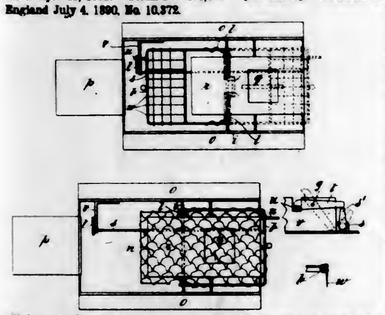
491,328. ALARM-CLOCK. ELIAS B. WIDNER, Chicago, Ill. Filed June 3, 1892. Serial No. 435,350. (No model.)

Claim.—1. In an alarm bell, the combination with a suitable frame, bell and time mechanism, of a pointer connected with the winding arbor and rotated by the movement of the latter, a stop to prevent the pointer from passing the zero point of the dial, and a striking device actuated by the return of the pointer to the zero mark; substantially as described.



2. In an alarm bell, the combination with a suitable base, of a bell rotatably mounted thereon and provided with a time mechanism which is wound up by the turning of the bell in one direction, and which in unwinding rotates the bell in the opposite direction, a mark upon the bell, a stop to prevent said mark from passing the zero point, and a striking device actuated by the return of the bell to said zero point; substantially as described.

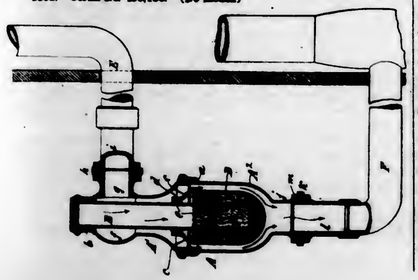
491,329. ANIMAL-TRAP. GEORGE ANDREWS, Ashford, England. Filed Apr. 12, 1892. Serial No. 428,910. (No model.) Patented in England July 4, 1890, No. 10,372.



Claim.—1. In an animal trap, a receptacle having a pivoted platform thereon, a rod with which the same is connected, said rod having a cam or engaging lug on its extremity, a pivoted trigger or latch with which the latter engages, a spring-actuated impaling flap pivoted over said platform, and means thereon for engaging the opposite end of the impaling flap and thereby setting the trap.

2. An animal trap having a series of hinged flaps secured to the top edges of the casing thereof, to be turned over on the same and thereby conceal the trap mechanism when the trap is set, substantially as herein described.

491,330. STENCH-TRAP. THOMAS C. BEAUMONT, New York, N. Y., assignor to the Henry Huber Company, same place. Filed June 10, 1892. Serial No. 436,186. (No model.)



Claim.—The combination of an outer shell A expanded at its lower portion and made in two sections A' and A^2 separably united at its expanded portion, an outlet pipe B fastened in the upper section and extending down within the lower section of the shell, a cup D inclosing the lower part of said pipe formed with arms e, and ring d screwing on said pipe, a back-air connection formed on the upper part of said shell, and a waste connection formed at the lower end of said shell.

491,331. CREASE OR SEAM DAMPENER. WILLIAM A. BLAIR, Chicago, Ill., assignor of one-half to D. W. Blair, Jr., same place. Filed Sept. 12, 1892. Serial No. 445,652. (No model.)



Claim.—1. A crease-dampener for laundry use, comprising a hollow revoluble reservoir composed or two sections or shells, and a ring or mass of absorbent material interposed between the edges of said shells, substantially as described.

2. A crease dampener for laundry use, comprising a revoluble hollow reservoir consisting of a plurality of sections or shells, a mass of absorbent material interposed between the edges of said shells and projecting somewhat through the shells, and a handle in which said reservoir is revolubly mounted, substantially as described.

3. A crease-dampener for laundry use comprising a hollow revoluble reservoir composed of two separable sections or shells, a ring or mass of absorbent material interposed between the edges of said shells, and means for forcing together the shells for clamping the ring between the same, substantially as described.

4. A crease-dampener for laundry use, comprising a hollow revoluble reservoir composed of two sections or shells, a mass or ring of absorbent material interposed between the adjacent margins of said shells, and means for holding the said ring from inward movement, substantially as described.

5. A crease-dampener for laundry use, comprising a hollow revoluble reservoir composed of two sections or shells, a mass or ring of absorbent material interposed between the adjacent margins of said shells, and means for holding the said ring from inward movement consisting of serrations on the adjacent margins of the shells, substantially as described.

6. A crease-dampener for laundry use, comprising a hollow revoluble reservoir composed of two shells or sections, a mass or ring of absorbent material interposed between the margins of said shells or sections, a handle provided at one end with a fork, a spindle extending between the arms of the fork and passing through said shells or sections, and means for forcing the shells toward each other and against the ring or mass of absorbent material, substantially as described.

7. A crease-dampener for laundry use, comprising a hollow revoluble reservoir composed of two shells or sections, a mass or ring of absorbent material interposed between the margins of said shells or sections, a handle provided at one end with a fork, a screw-threaded spindle extending between the arms of the fork and passing through said shells or sections, and a jam-nut upon the spindle abutting against one of said shells or sections for forcing the same together, substantially as described.

8. A crease-dampener for laundry use, comprising a revoluble reservoir composed of two shells or sections, a mass or ring of absorbent material interposed between the margins of said shells or sections, a handle provided with a fork, a spindle passing through the said reservoir shells or sections and having bearing at one end in one of the arms of the fork, and a bearing-screw having screw-threaded engagement in the other arm of the fork and bearing against the end of the spindle, substantially as described.

9. A crease-dampener for laundry use, comprising a revoluble reservoir composed of two shells or sections, a mass or ring of absorbent material interposed between the margins of said shells or sections, a handle provided with a fork, a spindle passing through the said reservoir shells or sections and having bearing at one end in one of the arms of the fork, a bearing-screw having screw-threaded engagement in the other arm and bearing against the end of the spindle, and a jam-nut upon the said spindle for forcing said shells or sections toward each other, substantially as described.

10. A crease-dampener for laundry use, comprising a revoluble

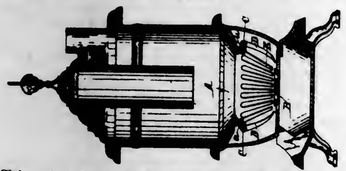
reservoir composed of two shells or sections, a mass of absorbent material interposed between the margins of said shells or sections, one of said shells or sections being provided with an inlet opening or orifice and with a plug removably inserted therein, substantially as described.

491,882. TOOTH-FASTENING FOR ICE-PLOWS. JOHN G. BODENSTEIN, Shoestburg, N. Y. Filed Sept. 12, 1890. Serial No. 364,857. (No model.)



Claim.—The combination with a plow beam consisting of the members A, A, and the supporting plates B B interposed between said members and bolted thereto at a distance a part of a tooth C located between said members and abutting against one of the supporting plates, and having a shoulder to engage the lower edge of one of the members, a stop plate D, a wedge F, having a screw-threaded shank and a perforated head pivoted to the upper end of the stop plate, and a nut to clamp the head in place, on the shank of the wedge, substantially as and for the purpose set forth.

491,883. STOVE FIRE-POT AND STOKER. DANIEL BRAKER, Detroit, Mich., assignor of one-half to William H. Carson. Filed Apr. 14, 1892. Serial No. 429,083. (No model.)



Claim.—1. A fire-pot having an annular rim and upper body portion, and an angular lower body portion or base, the walls of said pot converging, and all of the opposed angular portions thereof being provided with depending fingers.

2. The combination of the fire-pot having a series of depending fingers, the rock-shaft journaled outside of, but adjacent to said pot, the series of tines mounted on said shaft so as to depend vertically therefrom and normally hang remote from the fire-pot, said tines being so arranged as to be reciprocated in the arc of a circle by the actuation of said shaft, and alternately projected through and withdrawn from said pot through the side thereof between said depending fingers.

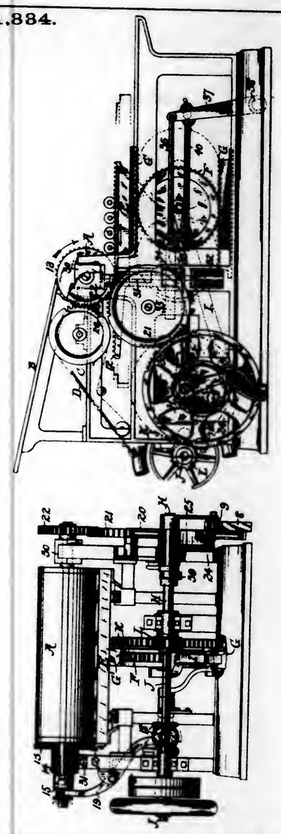
3. The combination of the fire-pot having a series of openings in opposite sides thereof, the rock shafts the series of tines mounted on said shafts and arranged opposite said openings, and mechanism for actuating said shafts to cause said tines to alternately swing into and withdraw from said openings on opposite sides of the fire-pot, substantially as specified.

4. The combination of the fire-pot having openings on opposite sides thereof, the series of opposite tines mounted on rock shafts and arranged opposite said openings, the arms connected to said rock shafts, the revoluble crank-shaft, the connecting-rods coupling said crank-shaft to the respective arms on said rock-shafts, whereby by the rotation of said crank shaft, the rock shafts are simultaneously oscillated to alternately swing the opposed series of tines, into and out of the fire-pot, through said openings, substantially as specified.

491,884. BED AND CYLINDER PRINTING-MACHINE. JOHN BROCCA, Plainfield, N. J., assignor to Charles Potter, Jr., Horace W. Fish, Joseph M. Tilsworth, and David H. Tilsworth, New York, N. Y. Filed Dec. 31, 1891. Serial No. 416,022. (No model.)

Claim.—1. In a cylinder printing machine, the combination with the form bed and the impression cylinder, of a shaft bearing two cranks, one having connections with the form bed and the other having connections with the impression cylinder, whereby the cylinder and bed will move at the same surface speed during the impression, substantially as described.

491,884.



2. In a cylinder printing machine in which the bed is driven from the crank-shaft, the combination with the impression cylinder, the form bed, and the crank-shaft, of a driving gear concentric with its axis of rotation and mounted eccentrically with respect to and connected with the crank shaft, and gearing between said driving gear and the impression cylinder, substantially as described.

3. The combination with the impression cylinder, its form bed, and crank-shaft for reciprocating the bed, of a driving gear geared with the impression cylinder, and sliding connections directly between the crank-shaft and the driving gear for moving the impression cylinder and bed in unison at the same surface speed during the printing operation, substantially as described.

4. The combination with the impression cylinder, its form bed, and crank-shaft for reciprocating the bed, of the driving gear geared with the impression cylinder, a guideway carried by the driving gear, and a driving arm fast to the crank-shaft and engaging with said guideway, substantially as described.

5. The combination with the impression cylinder, its form bed and a crank shaft for reciprocating the bed, of a driving toothed wheel eccentrically mounted to the crank shaft, and gearing between said wheel and the impression cylinder, a curved guideway carried by the driving toothed wheel, and a driving arm fast to the crank shaft and engaging with said curved guideway.

6. The combination with the cylinder revolving continuously at an irregular speed in one direction and a reciprocating bed, also moving at an irregular speed of an oscillating toothed wheel in gear with the bed, a coupling device for coupling the toothed wheel with the cylinder whereby the latter and the bed move in unison, and a driver for both the cylinder and the bed whereby both are moving at substantially the same surface speed at the time the coupling device couples said toothed wheel and cylinder together, substantially as described.

7. The combination with the impression cylinder revolving continuously in one direction, and a reciprocating bed, of an oscillating toothed wheel in gear with the bed, a clutch, one member on the toothed wheel and the other carried with the cylinder, and a revolving cam for moving the members into and out of engagement, substantially as described.

8. The combination with the impression cylinder, the form bed and a shaft bearing two cranks, one crank having connections with the form bed, and the other crank having connections with the impression cylinder; for driving the cylinder and bed during impression at the same surface speed, and a coupling device for coupling the bed and cylinder together during impression, substantially as described.

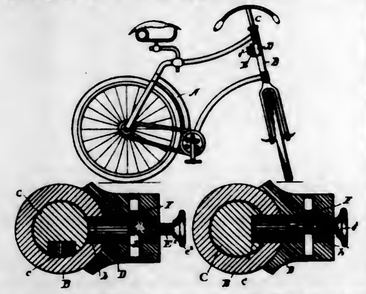
9. The combination with the impression cylinder, the form bed and crank-shaft for moving the bed, of gearing interposed between the crank-shaft and impression cylinder for driving the latter during impression at the same surface speed with the bed, and an oscillating toothed wheel in gear with the bed a clutch for coupling the cylinder to the toothed wheel during impression, and a revolving cam and connections for moving one clutch member into engagement with the other, substantially as described.

10. The combination with the impression cylinder, its form bed, and means for moving the bed at an irregular speed, of a driving toothed wheel geared with the impression cylinder, a driven shaft and sliding connections embracing a compensating guide between the shaft and driving toothed wheel for rotating the cylinder at an irregular speed in unison with the bed, substantially as described.

11. The combination with the impression cylinder, its form bed, and means for moving the bed at an irregular speed, of a driving toothed wheel geared with the impression cylinder, a driven shaft mounted eccentrically to the axis of said toothed wheel and sliding connections embracing a compensating guide between the shaft and toothed wheel, substantially as described.

12. The combination with the impression cylinder, its form bed, and a crank-shaft having connections with the bed for reciprocating it, of a driving toothed wheel mounted eccentrically to and independent of the crank-shaft, and geared with said cylinder, and sliding connections between the crank-shaft and toothed wheel, substantially as described.

491,885. BICYCLE-LOCK. EDWARD BUTNER, South Bend, Ind. Filed Aug. 12, 1892. Serial No. 442,969. (No model.)



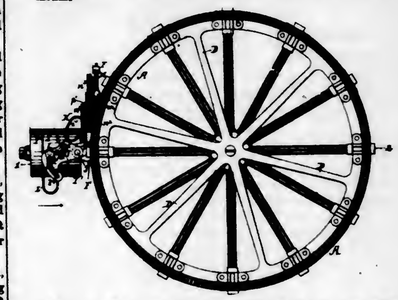
Claim.—1. In a bicycle the combination of the frame, sleeve, and fork journaled in said sleeve; with the lock case attached to the sleeve, the longitudinally movable bolt therein, having an annular groove, adapted to engage a socket in the shank of the fork and lock the same, and a tumbler pivoted in the case adapted to engage the groove of said bolt and lock it until released by a key, substantially as described.

2. The combination with the bicycle sleeve, and fork shank, of a reciprocating and rotatory bolt adapted to engage said fork shank through an opening in the sleeve and having an annular cammed groove, a tumbler adapted to engage said groove and prevent longitudinal movement of the bolt until it is partly rotated and to lock the bolt after it engages the fork, substantially as and for the purpose specified.

3. The combination of the case, the sliding and revolving bolt having an annular groove and a cammed groove, and a tumbler adapted to engage the annular groove when the bolt is projected whereby the bolt is positively locked against longitudinal movement, but can rotate, and to engage the cammed groove when the bolt is retracted, substantially as and for the purpose described.

4. In a bicycle the combination of the lock case attached to the fork sleeve, and a bolt in said case adapted to project through the sleeve and engage a socket in the fork shank within the sleeve, said bolt having a projecting finger piece, a cammed groove and an annular groove substantially as described, with a spring controlled tumbler pivoted in the case and adapted to engage said cam groove when the bolt is retracted and said annular groove when it is projected, and thereby positively lock the bolt, substantially as and for the purpose specified.

491,886. DYEING-MACHINE. THOMAS A. CLOUGH and THOMAS J. BROWN, Philadelphia, Pa. Filed Apr. 6, 1891. Serial No. 387,781. (No model.)



Claim.—1. The combination in a machine for dyeing yarn, of the tank, the pivoted yarn carrying frame, with mechanism for driving said frame first in one direction and then in the reverse direction, and means for automatically shifting said mechanism, substantially as and for the purpose set forth.

2. In a machine for dyeing yarn, the combination of the tank, a carrying frame, spindles mounted on said frame, mechanism substantially as described for driving the spindles independently of the carrying frame, mechanism for driving the carrying frame first in one direction and then in the opposite direction, mechanism for automatically shifting said driving mechanism, whereby the yarn is first carried through the liquid in one direction, while the yarn is moved on its spindle in one direction, and then carried through the liquid in the reverse direction and the direction of the movement of the yarn on the spindles reversed, substantially as described.

3. The combination in a rotary yarn dyeing machine, of the tank, a carrying frame, spindles on said frame, said spindles being driven in their bearings, from the periphery of the tank, a vertical shaft clutched to the carrying frame, mechanism for driving said shaft, reversing mechanism, and means for automatically acting on the reversing mechanism, whereby the carrying frame and yarn rollers are first turned in one direction, and then reversed and turned in the opposite direction, substantially as and for the purpose set forth.

4. The combination of the tank, the yarn carrier, spindles thereon on which the yarn is mounted, a vertical shaft passing through the center of the tank, said shaft being clutched to the carrier, a horizontal shaft, fast and loose pulleys thereon, a shifting lever having cam slots therein, looped levers having pins adapted to said cam slots, belts passing through the loop of each of the looped levers, a rod connected to the shifting levers and a projecting pin on said rod, a wheel geared to the horizontal shaft and a pin on said wheel adapted to strike the pin on the shifter rod, to effect the reversal of the direction of travel of the yarn carrier and the yarn, substantially as described.

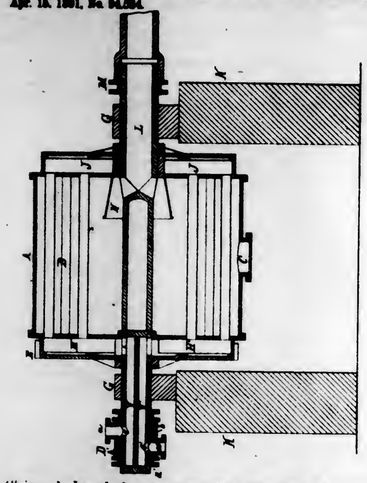
5. The combination, in a yarn dyeing machine, of the tank, the yarn carrier, a driving shaft for the carrier, fast and loose pulleys on said shaft, belt shifting lever, shifting rod connected thereto having a projection, and a wheel geared to the driving shaft, with one or more pins adjustable on said wheel, whereby the reversing of the yarn carrier may be regulated, substantially as set forth.

491,887. COAT-COLLAR SUPPORTER. WILLIAM P. OELVER, Detroit, Mich. Filed June 6, 1892. Serial No. 435,594. (No model.)



Claim.—In a device for the purpose set forth, the combination of the plate having a button receiving aperture and two parallel slots therein, the tape passing through said slots and adapted to be attached to a garment, substantially as specified.

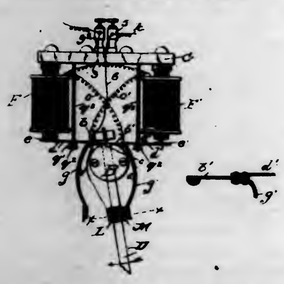
491,388. APPARATUS FOR DRYING IN VACUUM. DESIRÉE DESMARS, Rouen, France. Filed Feb. 16, 1892. Serial No. 421,957. (No model.) Patented in France Feb. 13, 1890, No. 199,952, and in Belgium Apr. 15, 1891, No. 94,594.



Claim.—1. In a drying apparatus, the combination of a rotary body closed at each end by a steam chamber, and pipes passing through the said body and connecting the steam chamber at one end with the steam chamber at the other end, one of the said steam chambers being partitioned to form two divisions, with a hollow shaft divided at one end, one of the passages connecting one of the divisions with the steam supply and the other passage connecting the other division with the exhaust outlet, whereby the steam is caused to circulate through half the pipes to the undivided steam chamber and back through the other half of the pipes to the outlet.

2. In a drying apparatus the combination of a rotary body provided with a steam chamber at each end and pipes passing through the said body and connecting the said chambers, one of the chambers being divided, and a hollow shaft partitioned at one end to form a steam inlet passage to one division in the divided steam chamber, and a steam outlet passage to the other division, the other end of the hollow shaft opening into the interior of the said body, as and for the purposes set forth.

491,389. ELECTRIC CLOCK. JOHN H. DYSON, Belleville, Wis. Filed June 6, 1892. Serial No. 436,603. (No model.)



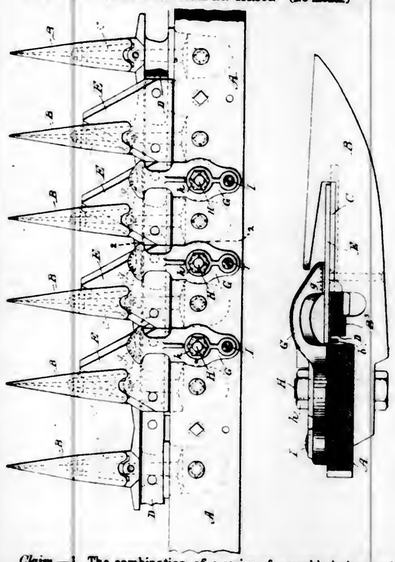
Claim.—1. In combination the pivoted pendulum, the magnets, F F' the pivoted armatures of said magnets, the depending arms *g g'* connected with the said armatures and arranged to make and break the circuits substantially as described.

2. In combination, the pivoted pendulum, the magnet, F F' the pivoted armatures of said magnets, the arms *g g'* carried thereby, the interposed contact collar M on the pendulum, the electrical circuits, including the magnets, the contact points on the depending arms, and the interposed collar, the said arms being arranged to make and break contact with said collar, substantially as described.

3. In combination the pivoted pendulum, the magnets, the armatures thereof, the depending arms carried by said armatures, the collar M on the pendulum and in the electrical circuit, said collar being adapted to contact with the contact points of the depending arms and the means for limiting the falling movements of said arms substantially as described.

4. In combination, the pivoted pendulum, the magnets, the armatures carrying the arms, *g g'*, the contact collar M, interposed between the arms *g g'*, the electrical connection, including the depending arm H, having the mercury cup K at or near the pivot of the pendulum, and the rod R' connected with the collar, and having its upper end immersed in the said mercury cup, and the means for limiting the movement of the arms *g g'*, substantially as described.

491,340. CUTTING APPARATUS FOR MOWERS OR REAPERS. WILLIAM ST. G. ELLIOTT and WILLIAM ST. G. ELLIOTT, Jr., Washington, D. C. Filed Jan. 19, 1892. Serial No. 418,566. (No model.)



Claim.—1. The combination of a series of movable knives and stationary ledger plates or fingers, with stationary devices acting between said fingers for independently adjusting each knife and holding it in unyielding shearing contact with the ledger plates substantially as described.

2. The combination in a cutting apparatus of the finger bar, a reciprocating bar, a series of cutting knives carried thereby and the guard fingers; with devices attached to the finger bar and acting on said knives between said fingers for independently adjusting each knife in relation to its guard finger so as to cause it to shear cut therewith, without affecting the adjustment or operation of any other knife, substantially as specified.

3. The combination in a cutting apparatus of a reciprocating bar a series of independently removable knives connected thereto and movable therewith, and a series of stationary holders between said fingers, one for and acting on each knife, confining said knives to the bar, substantially as and for the purpose set forth.

4. The combination of a reciprocating bar, a series of independent knives loosely connected thereto, not longitudinally movable thereon but separately removable therefrom when lifted vertically from the bar and a series of stationary holders on the finger bar one for each knife adapted to keep the knives on the reciprocating bar by preventing vertical movement of the knives thereon, and means for adjusting said holders, substantially as described.

5. The combination of the horizontal reciprocating bar, knives loosely connected thereto and reciprocated thereby, but separately removable therefrom if lifted vertically thereof, and the guard fingers co-operating with said knives, with a stationary independent holder for each knife adapted to hold such knife down on the bar and also to regulate and maintain the contact between such knife and coacting guard fingers and means for independently adjusting said holders, substantially as and for the purpose specified.

6. The combination of the reciprocating bar, the knives loosely connected thereto and movable therewith but separately removable therefrom in a direction perpendicular to the bar, and the guard fingers or ledger plates; with an unyielding stationary holder, one for each knife attached to the finger bar between said fingers for both independently preventing vertical movement of said knives on the bar, and for independently regulating the contact between each of said knives and their coacting ledger plates, substantially as described.

7. In a cutting apparatus the combination of a reciprocating bar, a series of knives attached thereto, the finger bar and fingers coacting with said knives; with a stationary anti-friction slide bearing underlying and supporting the rear end of each knife, substantially as and for the purpose described.

8. The combination of the finger bar, the reciprocating bar, the pin rigidly connected thereto, the knives loosely, and removably fitted on said pins and movable with said bar, the anti-friction slide supporting the rear of said knife, and the stationary devices connected to the finger bar for retaining said knives on said reciprocating bar, substantially as described.

9. The combination of the finger bar, the knife bar, the pins rigidly connected thereto, the knives fitting said pins, and an adjustable holder for each knife connected to the finger bar, having an anti-frictional contact with the knife, substantially as and for the purpose specified.

10. The combination of the finger bar and guard fingers, the horizontal reciprocating bar and independent knives loosely attached to said bar and independently removable therefrom in a vertical direction, with an independent and adjustable holder for each knife connected to the finger bar between adjoining guard fingers and overreaching its relative knife and having an anti-friction rubber in its end contacting the knife whereby said knife is kept on the bar and in shearing contact with the guard fingers, substantially as and for the purpose set forth.

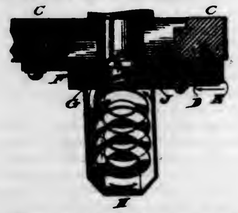
11. An adjustable holder for the knives of mowing machines consisting of the head at one end for holding the knife down, an adjusting screw at the other end, and a fulcrum and bolt hole between said head and said screw, said bolt hole being between said screw and said fulcrum, substantially as specified.

12. The combination of a reciprocating bar, a series of knives removably and loosely connected thereto, a finger bar and a series of guard fingers thereon coacting with said bar; with an anti-friction slide bearing underneath and supporting the rear end of each knife, and means for holding each knife independently on the reciprocating bar, substantially as described.

13. The combination of the finger bar and a reciprocating cutter bar, a series of knives secured on the cutter bar against longitudinal movement but separately removable therefrom in a direction perpendicular to the bar; with stationary holders on the finger bar one for each knife which hold them in contact with the ledger plate and prevents their movement in a direction perpendicular to the bar, substantially as and for the purpose described.

14. The combination of the finger bar, the guard fingers and ledger plates, and the anti-friction bearings *b*; with the reciprocating bar the knives loosely attached thereto by studs and sockets, and the independent stationary castings for holding each of said knives on the bar and adjusting them, substantially as and for the purpose set forth.

491,341. MACHINE FOR ROLLING AND BENDING METAL INTO SPIRAL FORMS. WILLIAM D. BYRNE, Philadelphia, Pa. Filed July 21, 1892. Serial No. 440,734. (No model.)



Claim.—1. The combination of rolls with a guide for the metal on one side of the rolls, and a die on the opposite side of the rolls in a line with the guide, and having a working face extending between the peripheries of the rolls, substantially as described.

2. The combination of rolls with a guide having a longitudinally-extending passage with an enlarged side, and an adjustable die on the opposite side of the rolls, substantially as described.

3. The combination of rolls having flanges on their opposite sides, with a guide having a longitudinally-extending passage, and a die on the opposite side of the rolls having a working face between the peripheries of the rolls, and in line with the said longitudinal passage, substantially as described.

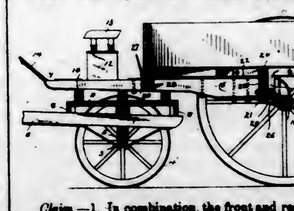
4. The combination of rolls suitably mounted in a housing, and having flanges on their sides, a guide having a longitudinally-extending passage therein with an enlarged side a die on the opposite side of the rolls, and having a working face in line with the passage of the guide, and a guard secured to the guide closing the front of the passage and extending in front of the rolls, substantially as described.

5. Rolls for flattening a piece of metal, a bending die having a working face extending outwardly from a point between the rolls and a trough extending laterally from said rolls to receive the spirally shaped metal or flight, substantially as described.

6. A housing having rolls mounted therein, the same being adapted to flatten a piece of metal, a guide secured to the housing in advance of said rolls, said guide having thereon a passage, a portion of which is enlarged, a die opposite said guide, and a guard adjacent to said guide, substantially as described.

7. Rolls for flattening a piece of headed or widened metal, a guide for said piece having a passage adapted to the shape of said piece, and a die for bending said piece at the discharge side of the rolls, the working face of said die extending outwardly from the point of discharge of the flattened metal, thus bending the latter, substantially as described.

491,342. COMBINED COASTING-PEDAL AND LOCK FOR BICYCLES. WALDO G. FAY, Columbus, Ohio. Filed Apr. 2, 1892. Serial No. 427,434. (No model.)



Claim.—1. In a combined bicycle lock, and coasting pedal the combination with the pedal *c* and a lock mechanism carried by the inner end thereof, of a fork clamp within which said pedal is pivotally connected, said locking mechanism adapted to be so manipulated as to form a rigid connection between said clamp and pedal, substantially as and for the purpose specified.

2. In a combined coasting pedal, and bicycle lock the combination with the pedal *c*, a tubular extension *c'* on the inner side thereof, a lock mechanism therein, a key-way therein, of a cap *c''* pivoted on said tubular extension and a fork clamped on said cap, said cap and tubular extension being adapted to be rigidly connected by said lock mechanism, substantially as and for the purpose specified.

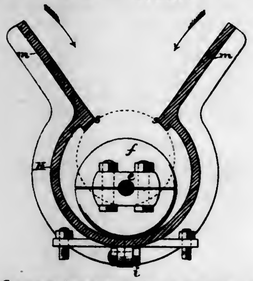
491,848. DUMPING-WAGON. ROBERT FITZ-ROY, Bridgeport, Conn. Filed May 12, 1892. Serial No. 432,709. (No model.)

Claim.—1. In combination, the front and rear axles, the doubled reach connected thereto, the cross-bar 21, extending between the lower portions of side members of the double reach and of less height than said side members, the wagon body adapted in width to rest on the side members and carrying the cross bar 20 depending below the sills of the body and adapted in length to extend only partially across the wagon body and to fit between the upper portions of the reach members upon the cross bar 21, and the arms 24, depending from the

wagon body along the rear faces of the bars 20, 21 and pivotally connected to the cross bar 21, substantially as described.

2. In combination, the front and rear axles, the double reach connected thereto, the cross bar 21 extending between the side members of the double reach, the wagon body adapted to rest on the double reach, the cross rod 26 arranged adjacent to the rear face of the cross bar 21, and connected at its ends to the reach members, the eye bolts extending from the cross bar 21 and about the rod at a slight distance from the reach members, and the hangers having arms 23, extending longitudinally of the sills, and having depending arms 24, extending along the inner faces of the reach members with their lower ends journaled on the cross rod, between the eye bolts and the said reach members, substantially as described.

491,844. CONVEYER. MICHAEL GARLAND, Bay City, Mich. Filed Oct. 10, 1892. Serial No. 448,274. (No model.)



Claim.—1. In a trough-conveyer, the combination of a tubular trough substantially circular in cross-section, having an opening extending along its uppermost portion as specified; a suitable traveling cable, or chain, arranged to travel within said trough; and flights substantially circular in contour, but of materially less face area than the cross-sectional area of the trough, mounted on said cable or chain; the whole arranged and operating together in substantially the manner and for the purposes hereinbefore set forth.

2. In a trough conveyer the combination with a tubular trough, having an opening extending along its uppermost portion, as specified; and suitable means for conveying through said trough the material supplied to it, of flared, or divergent, extensions *m*, *m*, to the upper edges of said trough opening; all in substantially the manner and for the purposes hereinbefore set forth.

3. In a trough conveyer, the combination of the following named instrumentalities, arranged and operating together substantially as and for the purposes hereinbefore described; first, a conveyer trough partially tubular in cross-section, being open along its uppermost portion; second, a suitable cable, or chain, arranged to travel within said conveyer trough; third, flights secured to said cable, or chain, that are substantially circular in contour, but each of less superficial area than the cross-sectional area of the conveyer trough; and fourth, longitudinal flight-confining devices, or detaining stops, as at *s*, *s*, which prevent the flights from being lifted beyond a predetermined point.

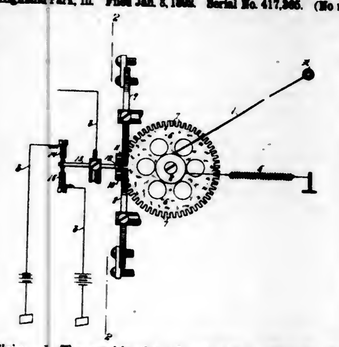
491,845. BURR-WHEEL. ROBERT W. GORELY, Troy, N. Y. Filed Sept. 15, 1892. Serial No. 445,934. (No model.)



Claim.—1. The combination in a burr-wheel of a fixed spindle; a blade-supporting body-section provided with a central spindle-socket closed at its outer end; a fixed support; and a connection between the fixed support and the body-section for rotatably securing the body-section upon the spindle, substantially as described.

2. In a burr-wheel, the combination with a fixed spindle and spindle-inclosing oil-cup; of a blade-supporting body-section; a flanged bushing adapted to receive the spindle and inserted in a central aperture in the body-section; a cap for closing the outer end of the bushing; a sleeve rotatably secured to the body-section; and means for securing the sleeve to the oil-cup, substantially as described.

491,846. ELECTRO-MECHANICAL MOVEMENT. ELISHA GRAY, Highland Park, Ill. Filed Jan. 8, 1892. Serial No. 417,365. (No model.)



Claim.—1. The combination of a magnet, a movable series of teeth, and a lever mounted so that it may vibrate and placed within the range of magnetic influence of the magnet, the movement of the teeth operating to make and break the magnetic circuit and thereby give a vibratory movement to the lever, and an electric circuit controlled through the movement of the lever, substantially as set forth.

2. The combination of a magnet, a movable series of teeth forming, when in proper position, a part of the magnetic circuit of the magnet, and a vibrating electric circuit breaker, the movement of the teeth operating to make and break the magnetic circuit and thereby give a vibratory movement to the electric circuit breaker, substantially as set forth.

3. The combination of a magnet, a toothed wheel, the teeth thereof forming, when in proper position, a part of the magnetic circuit of the magnet and a vibrating electric circuit breaker, the revolution of the wheel operating to make and break the magnetic circuit and thereby give a vibratory movement to the electric circuit breaker, substantially as set forth.

4. The combination of a magnet or magnets constituting two partially or wholly independent magnetic circuits, a movable series of teeth, and a vibrating electric circuit breaker, the movement of the teeth operating to alternately make and break said magnetic circuits and thereby vibrate the electric circuit breaker, substantially as set forth.

5. The combination with a lever mounted so that it may vibrate and provided with a bifurcated magnetizable portion, of a series of teeth adapted to attract the magnetizable portion of the lever and movable with reference thereto, said teeth being so arranged with reference to the lever that as they are moved in proximity to it the lever is caused to vibrate, substantially as set forth.

6. A magnet in which one pole piece is provided with a lever mounted so that it may vibrate, and the other pole piece is movable and provided with a number of teeth of magnetic material so arranged with reference to the lever that as they are moved in proximity to it the lever is caused to vibrate, substantially as set forth.

7. A magnet in which one pole piece is provided with a bifurcated lever mounted so that it may vibrate, and the other pole piece is movable and provided with a number of teeth of magnetic material so arranged with reference to the lever that as they are moved in proximity to it the lever is caused to vibrate, substantially as set forth.

8. The combination with a lever mounted so that it may vibrate and provided with a magnetizable portion, of a rotatory disk provided with a number of teeth adapted to attract the magnetizable portion of the lever, said teeth being so arranged with reference to the lever that as the disk is rotated the lever is caused to vibrate, substantially as set forth.

9. The combination with a lever mounted so that it may vibrate and provided with a bifurcated magnetizable portion of a rotatory disk provided with a series of teeth adapted to attract the magnetizable portion of the lever, said teeth being so arranged with reference to the lever that as the disk is rotated the lever is caused to vibrate, substantially as set forth.

10. A magnet in which one pole piece is provided with a lever mounted so that it may vibrate, and the other pole piece is provided with a number of teeth attached to a rotatory disk and so arranged with reference to the lever that as the disk is rotated the lever is caused to vibrate, substantially as set forth.

11. A magnet in which one pole piece is provided with a lever mounted so as to vibrate and acting as a circuit maker and breaker, and the other pole piece is movable and provided with a number of teeth so arranged with reference to the lever that as they are moved in proximity to it the lever is caused to vibrate, substantially as set forth.

12. A magnet in which one pole piece is provided with a lever mounted so that it may vibrate and acting as a circuit maker and breaker, and the other pole piece is provided with a number of teeth attached to a rotatory disk, and so arranged with reference to the lever that as the disk is rotated the lever is caused to vibrate, substantially as set forth.

13. The combination of a telautographic transmitting pen, an electric circuit, a vibrating electric circuit maker and breaker for sending pulsations to line, and a source of magnetic energy and a circuit or circuits therefor serving to transmute the movements of the transmitting pen into vibrations of the circuit maker and breaker, substantially as set forth.

14. The combination of a telautographic transmitting pen, an electric circuit, a circuit making and breaking lever for producing pulsations in said circuit, a source of magnetic energy and a circuit or circuits therefor, a series of teeth connected with the transmitting pen so as to move therewith, the movement of the teeth operating to change said magnetic circuit or circuits and thereby cause the circuit making and breaking lever to vibrate, substantially as set forth.

15. The combination of a telautographic transmitting pen, an electric circuit, a circuit making and breaking lever for producing pulsations in said circuit, said lever being provided with a bifurcated magnetizable portion, a series of teeth adapted to attract the magnetizable portion of the lever and connected with the transmitting pen so as to move therewith, said teeth being so arranged with reference to the magnetizable portion of the lever that as they are moved in proximity to it the lever is operated, substantially as set forth.

16. The combination of a telautographic transmitting pen, an electric circuit, a circuit making and breaking lever for producing pulsations in said circuit, and a magnet of which the lever or a part thereof constitutes one pole piece and the other pole piece whereof is provided with a series of teeth connected with the transmitting pen so as to move therewith, said teeth being so arranged with reference to the lever that as they are moved in proximity to it the lever is operated to produce pulsations in the circuit, substantially as set forth.

17. The combination of a telautographic transmitting pen, an electric circuit, a circuit making and breaking lever for producing pulsations in said circuit, said lever being provided with a magnetizable portion, a rotatory disk provided with a number of teeth adapted to attract the magnetizable portion of the lever and connected with the transmitting pen so as to be rotated as the pen moves, said teeth being so arranged with reference to the magnetizable portion of the lever that as they are moved in proximity to it the lever is operated, substantially as set forth.

18. The combination of a magnet, a movable tooth or series of teeth, and a lever mounted so that it may vibrate, the movement of the teeth operating to make and break the magnetic circuit and thereby give a vibratory movement to the lever, and an electric circuit controlled through the movement of the lever, substantially as described.

491,847. TELAUTOGRAPH. ELISHA GRAY, Highland Park, Ill. Filed Sept. 21, 1892. Serial No. 446,490. (No model.)

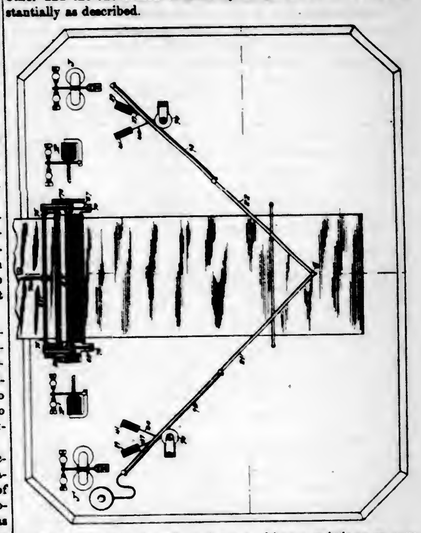
Claim.—1. The combination of a motor, a telautographic receiving pen driven thereby, and a magnetic clutch through which the power of the motor is transmitted to the driven mechanism, said clutch consisting of two members each of magnetizable material, one having a rotatory and the other a rectilinear motion, substantially as set forth.

2. The combination of a telautographic receiving pen, a motor or other power mechanism for driving the receiving pen, and a magnetic clutch for transmitting power from the motor to the pen, said clutch consisting of two members, each of magnetizable material, one caused to rotate by the power mechanism and the other receiving a rectilinear movement therefrom, substantially as described.

3. As a means for controlling the application of power, a disk or disks of magnetizable material mounted upon the power shaft, a plate or bar of like material located in proximity thereto and having a sliding motion on guides and means for magnetically exciting the disk and plate when it is desired to transmit power, substantially as described.

4. As a means for controlling the application of power, a disk or disks of magnetizable material mounted upon the power shaft, a plate or bar of like material located in proximity and tangentially to the disk and receiving motion therefrom, and means for magnetically exciting the disk and plate when it is desired to transmit power, substantially as described.

5. As a means for transmitting power, a rotating disk or disks of magnetizable material and a plate or bar of like material having a sliding motion on guides, and a reciprocating plate or bar of like material, in such magnetic condition that they are attracted to each other and the one caused to move by movement of the other, substantially as described.



6. The combination of a telautographic transmitting pen, a receiving pen, a motor or other power mechanism for driving the receiving pen, power transmitting mechanism for conveying power to the receiving pen, consisting in part of a magnetic clutch one member of which is a disk of magnetizable material rotated by the power mechanism, and the other member is a plate or bar of like material located in proximity to the exterior of the disk and connected with the receiving pen, and means operated through the movement of the transmitting pen for magnetically exciting said disk and plate to cause movement of the receiving pen, substantially as described.

7. As a means for transmitting power to drive the drum of a receiving pen alternately in opposite directions, two pairs of rotating disk of magnetizable material, two reciprocating plates or bars of like material, one placed in proximity to each pair of disks, connections between the plates and drum whereby the plates may be caused to drive the drum respectively in opposite directions, and means for alternately exciting each pair of disks to cause the power to be transmitted through the corresponding plate substantially as described.

8. The combination of a telautographic transmitting pen, a receiving pen, a motor or other power mechanism for driving the receiving pen, power transmitting mechanism for conveying power to the receiving pen consisting in part of two magnetic clutches, one member of each of which is a pair of magnetizable disks rotated from the source of power, and the other member a magnetizable reciprocating plate or bar located in proximity to the pair of disks and connected to the receiving pen, and means operated through the movement of the transmitting pen for alternately magnetically exciting each pair of disks and its plate for causing the direction of movement of the receiving pen to be reversed in accordance with reversal in direction of movement of the transmitting pen, substantially as described.

9. The combination of a telautographic transmitting pen at a transmitting station, a receiving pen at a receiving station, electrical connections between the two stations, mechanism for driving the receiving pen, a part of said mechanism consisting of a magnetic clutch provided with a rotating disk or disks and a reciprocating plate or bar both of magnetizable material, a magnet for controlling the magnetic condition of said clutch, and means whereby the electrical condition of said magnet is controlled from the transmitting station and the movements of the receiving pen thereby effected, substantially as described.

10. The combination of a motor or other power mechanism, a telautographic receiving pen or other mechanism driven thereby, and a magnetic clutch through which the power of the motor is transmitted to the driven mechanism said clutch consisting of two members, each of magnetizable material, one having a rotatory motion and the other reciprocating in the plane of rotatory motion and in a direction perpendicular to a radius of the rotatory member, substantially as described.

11. The combination of a telautographic receiving pen, a motor or other power mechanism for driving the receiving pen, a reversing mechanism consisting of two magnetically controlled clutches one or the other of which is put into operation according to the direction of motion desired for the receiving pen, and an additional mechanism for regulating and limiting the amount of power transmitted to the receiving pen, substantially as described.

12. The combination of a telautographic receiving pen, a motor or other source of power for driving the receiving pen, a reversing mechanism for reversing the direction of movement imparted to the receiving pen to follow similar changes in the movement of the transmitting pen, and additional mechanism for regulating and limiting the amount of power transmitted to the receiving pen, substantially as described.

13. The combination of a telautographic receiving pen, a motor or other power mechanism for driving it, and a frictional power regulator between the power mechanism and the receiving pen, substantially as set forth.

14. The combination of a telautographic receiving pen, a motor or other source of power for putting the same under tension to move in a given direction, an escapement for holding the receiving pen in restraint as against said tension, and a mechanically acting friction clutch for limiting the amount of power applied to the receiving pen, substantially as described.

15. The combination of a telautographic receiving pen, a motor or other source of power for putting the same under tension to move in a given direction, an escapement for holding the receiving pen in restraint as against said tension, and a frictional power regulator for regulating the amount of power applied to the receiving pen, substantially as described.

16. The combination of a telautographic receiving pen, a motor or other power mechanism for driving the same, and a regulator for regulating the amount of power applied to the receiving pen consisting of two surfaces in frictional contact, by means of the friction between which the power is transmitted, substantially as described.

17. In combination with a receiving pen and a motor or other power mechanism for driving the same, a power regulator, the members of which are a plate and cushion in frictional contact, one of said members being driven from the power mechanism and the other connected to the receiving pen to drive the same, and means for holding the plate and cushion one against the other, so that the power is transmitted to the receiving pen by reason of said friction, substantially as described.

18. The combination of a telautographic transmitting pen at a transmitting station, a receiving pen at a receiving station, electrical connections between the two stations, a motor for driving the receiving pen, means operated through the transmitting pen for sending electrical impulses to line to control the movement of the receiving pen, and two frictional power regulators, one for each of two crosswise directions of movement of the receiving pen, whereby a uniform and precisely adjusted application of power to the receiving pen is secured, substantially as described.

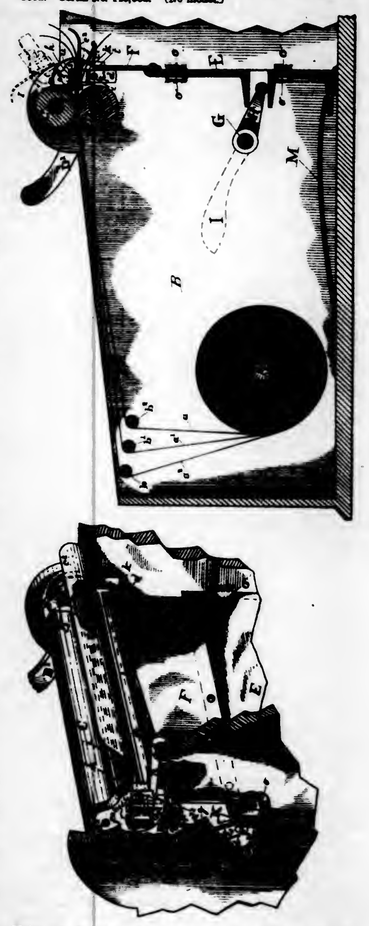
19. In a telautograph, the combination of a motor or other source of power, a paper feeding mechanism driven thereby, a magnetic clutch for transmitting the power of the motor to the feed mechanism, said clutch consisting of two pieces of magnetizable material receiving motion one from the other when magnetically excited, and means for controlling the magnetic condition of the clutch, and thereby the feed of the paper, substantially as described.

20. The combination of a telautographic receiving pen, a motor or other power mechanism for driving the same, a paper feeding mechanism, and a magnetically controlled clutch through which the power of the power mechanism is transmitted to the paper feeding mechanism, said clutch having two members each of magnetizable material, one member receiving motion from the other by reason of their mutual magnetic attraction, substantially as described.

21. The combination of a telautographic receiving pen, a motor or other power mechanism for driving the same, a magnetic clutch for transmitting power from the power mechanism to the paper feeding mechanism, said clutch consisting of two members, each of magnetizable material, one member being rotated by the power mechanism and the other receiving motion therefrom, and means for controlling the magnetic condition of the clutch from the distant station, and thereby the feed of the paper, substantially as described.

22. The combination in a telautograph of a paper shifting mechanism, an electro magnet for controlling the operation thereof, and a circuit breaker for breaking the magnet circuit when the paper shifter has moved sufficiently, the same being operated automatically by the paper shifting mechanism at its extreme point of movement, substantially as described.

491,848. AUTOGRAPHIC REGISTER APPARATUS. CHARLES D. GRIMES, Dayton, and GEORGE H. HARTER, Springfield, assignors to the Dayton Autographic Register Company, Dayton, Ohio. Filed Sept. 23, 1892. Serial No. 446,652. (No model.)



Claim.—1. In an autographic register, in which a plurality of strips of paper are employed, a paper cutter, a paper dividing medium, and means for operating the latter whereby it is moved out of the path of the cutter to permit the paper to be severed.

2. In an autographic register in which a plurality of strips of paper are employed, a paper cutter, a paper dividing medium, and means for operating the latter whereby it is moved out of the path of the cutter simultaneously with the operation of the latter.

3. In an autographic register in which a plurality of strips of paper are employed, a paper cutter, a feeding device for propelling the paper to the cutter and a dividing medium for separating the paper, the dividing medium being located within the path of the cutter, in combination with means for moving the dividing medium out of the path of the cutter to permit the paper to be severed.

4. In an autographic register in which a plurality of strips of paper are employed, a paper cutter, a feeding device for propelling the paper to the cutter, and a dividing medium located within the path of the cutter, in combination with means for moving the dividing medium out of the path of the cutter simultaneously with the operation of the latter.

5. In an autographic register, a cutter blade rigid when in its cutting position, and a vertically movable blade provided with means for protecting the edges of the cutter blades, in combination with ways in which the movable blade slides and a dividing medium for directing the paper in different paths.

6. In an autographic register in which a plurality of strips of paper are employed, a paper cutter, a dividing medium for directing the paper in different directions, the same being located within the path of the cutter, in combination with means for operating the dividing medium whereby it may be moved in one direction out of said path, to permit the operation of the cutter and in another direction to a convenient position for arranging the paper.

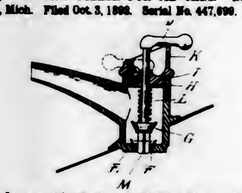
7. In an autographic register in which a plurality of strips of paper are employed, a paper cutter and dividing medium for directing the paper in different directions, same being located within the path of the cutter, and automatically movable in one direction out of said path, and movable in another direction to a position convenient for arranging the paper.

8. In an autographic register in which a plurality of strips of paper and a paper cutter are employed, a dividing medium for separating and directing the paper in different paths, said dividing medium being composed of one or more bars arranged transversely of the register and in the path of travel of the movable blade of the cutter and extending beyond the cutter, mechanism for moving said bar or bars out of the path of the cutter while the paper is being severed, after which said bar or bars are returnable to place and will then direct the paper in its forward movement beyond the cutter and other obstruction in combination with means for propelling the paper.

9. In an autographic register in which a plurality of strips of paper are employed, the combination of a paper cutter consisting of a blade as *h*, held rigid when in its cutting position, and movable out of said position for convenience in arranging the paper, said blade being provided with a cutting edge as *i*, blade as F, provided with a cutting edge as *p*, and vertically movable in ways, a dividing medium for directing the paper in different paths, a feeding device for feeding the paper through the dividing medium to and past the cutter, and a suitable guide for directing and protecting the edges of the cutter blades.

10. In an autographic register in which a plurality of strips of paper and means for propelling the same are employed. The combination of a paper cutter consisting of a blade as *h*, provided with a cutting edge as *i*, and connected with pivoted end plates as *f f'*: and a reciprocating blade as F, having a cutting edge as *p* and a safety guide as *t*, a dividing medium consisting of two bars as *c c'*, connected with the pivoted end pieces as *d*, *d'*, and curved bar as c^3, connected with the pivoted end plates *f*, *f'*. A pivoted spring actuated arm as L, adapted to be operated by a reciprocating blade carrier as E, and thereby simultaneously move the dividing medium out of the path of travel of the cutter. A spring actuated pawl as *n*, stop as *m*, and spring as *k* the whole adapted to operate in a manner substantially as set forth.

491,849. TAP AND FILLER FOR OIL-CANS. NICOLAS HARDER, Detroit, Mich. Filed Oct. 3, 1892. Serial No. 447,690. (No model.)



Claim.—1. In a combined oil tap and filler, the combination with the can, of a vertical tubular casing secured thereto apertured at top and bottom, a detachable plug at the top thereof, a discharge spout on the side of said tube, a vertical movable valve stem carried by and passing through said plug, a crank handle on the valve stem, a valve on the opposite end of said stem, a valve seat at the lower aperture of the casing, a spring to normally force the valve down and an inclined circumferential flange on the upper face of said plug adapted to support the valve stem against the tension of the spring when the valve is open, substantially as described.

2. In a combined oil tap and filler, the combination of the vertical tubular casing apertured at top and bottom, a lateral discharge spout on the casing the annular flange by means of which the casing may be secured upon a can, the detachable plug in the aperture at the upper end of the casing, the inclined flange on the upper face of said plug, the valve in the casing, the valve stem carrying said valve and extending through the block a crank at the upper end of the valve stem adapted to bear upon the inclined flange, a spring sleeved upon the stem between the valve and plug, to normally close the valve, substantially as described.

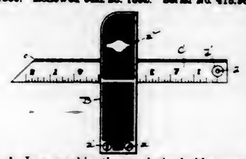
491,850. PENDANT FOR DRESS-TRIMMINGS. GEORGE F. HIMMEL, Philadelphia, Pa. Filed Feb. 1, 1892. Renewed Jan. 5, 1893. Serial No. 457,306. (No model.)



Claim.—1. A tassel or pendant for trimmings, having figures or designs formed thereon by means of a decorative surface cord, held in place by tying threads passing through openings in the block, some of the terminations of said figures or designs being at points between the opposite ends of the block, substantially as set forth.

2. A tassel or pendant for trimmings, having figures or designs formed thereon by means of a decorative surface cord held in place by tying threads passing through openings in the block, said surface cord extending from the center of the block at one end to points between said end and the opposite end of the block, substantially as specified.

491,851. BEVEL-SQUARE. ARTHUR HITT, Holyoke, Mass. Filed Oct. 4, 1889. Renewed Jan. 23, 1892. Serial No. 418,967. (No model.)

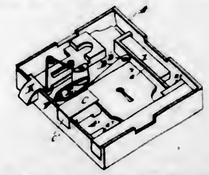


Claim.—1. In a combination tool, the holder composed of members A, B secured together at one end and having their opposite ends adjustably connected together, (one of said members having a marking point detachably connected thereto,) and blade C adapted to be adjustably held between said members said blade having means, as the hole *c'*, for receiving and holding said marking point, when the tool is used as a gage, substantially as set forth.

2. In a combination tool, a holder composed of member A having shoulder *a* upon its inner face and having groove 1 within said face, member B having grooves 3, 4 within its inner face, and thumbscrew a^2 passing through a hole in one of said members into a threaded hub on the other, and blade C corresponding substantially in thickness with the width of said shoulder on member A and having rib *c* extending longitudinally thereof, said rib, in cross-section, corresponding substantially with said grooves, substantially as set forth.

3. In a combination tool, the holder composed of members A, B, said member A having the rabbeted edge a^4 and a threaded hole in its rear end, and said member B having groove 2 therein, combined with blade C having rib *c* and hole *c'*, and marking point *d* having a threaded shank and the binding nuts d' d^2, whereby said point is adapted to be interchangeably held in said holder and blade, substantially as set forth.

491,852. LOCK. MARTIN HIGGINS, Niles, Ohio. Filed Feb. 11, 1892. Serial No. 421,213. (No model.)



Claim.—1. In a lock, the combination of a case A, provided with a base plate B, a locking dog pivoted to the front wall of the case, adapted to be lifted by the key, a locking bolt C provided with recesses adapted to be engaged by the locking dog at the different positions of the bolt, one or more thin portions on the bolt adapted to engage the wards on the key, means for guiding the bolt, substantially

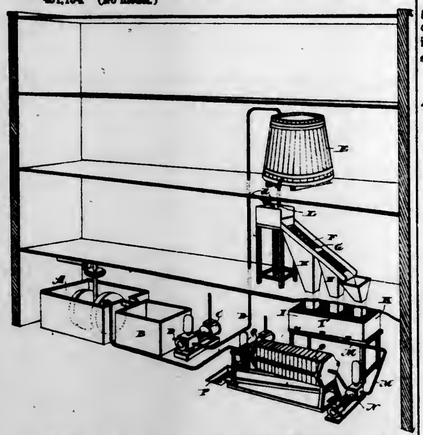
as described, a shield plate between the bolt and the front plate, an additional bolt integral with the shield plate, and a locking bolt I, adapted for locking said plate and bolt integral therewith, working in suitable guideways, substantially as described.

2. In a lock, a shield plate H, provided with a key-hole adapted to register with the key-hole of the case in one position thereof, a bolt integral with the shield plate, a pin A passing through a slot in the case, and a locking bolt I, substantially as described.

3. In a lock, a shield plate H, provided with a key-hole adapted to register with the key-hole of the case in one position thereof, a bolt integral with the shield plate, a pin A passing through a slot in the case and secured to the shield plate, and means for securing the plate and attached bolt in either position of its movement, comprising the locking bolt I, partition a^4, slot a^5, stud i, and pivoted catch J, substantially as and for the purpose set forth.

4. In combination with the pivoted and spring actuated locking dog D, provided with lug d, the bolt C, provided with slot C^4, recesses C^5 and C^6, thin projection C^7, and V shaped depression C^8 and pin G upon the lock case, substantially as described.

491,858. MANUFACTURE OF WHITING. HENRY C. HIGGINSON, Newburg, N. Y. Filed Nov. 2, 1891. Renewed Nov. 7, 1892. Serial No. 451,134. (No model.)



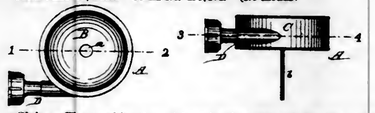
Claim.—1. In an apparatus for the manufacture of whiting, in combination with a tank containing liquid and the crushing apparatus working therein, a series of screens differing in fineness of mesh, circulating devices connecting said tank and screens for causing the liquid from the crushing tank, containing the crushed material in suspension, to flow over said screens, and suitable separate receptacles to receive the matter passing through the different screens, substantially as and for the purpose described.

2. In an apparatus for the manufacture of whiting in combination with the liquid containing tank and the crushing apparatus working therein, an overflow device for allowing exit of the upper part of the liquid from the tank, a receptacle into which such overflow discharges, circulating devices for drawing off the mingled liquid and crushed material from such receptacle, screens connected by said devices with said receptacle over which the mingled liquid and material are passed, a suitable receptacle to receive what passes through the screen, a press, and connections between it and the receptacle below the screen, through which the contents of such receptacle can flow into the press to be there compacted, substantially as and for the purpose shown.

3. In an apparatus for the manufacture of whiting, in combination with the liquid containing crushing tank and the crushing apparatus therein, one or more screens, circulating devices between said tank and screens for discharging over the latter the liquid flowing from the crushing tank containing the crushed material in suspension, a receptacle for each screen, to receive what passes through the latter, a press for compacting the material connected with such receptacle, and circulating devices for returning the liquid issuing from the press to the crushing tank, substantially as and for the purpose set forth.

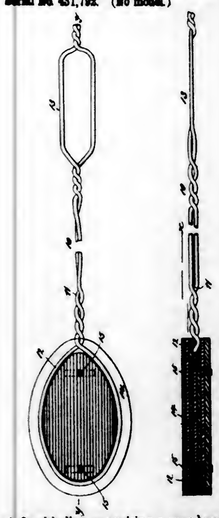
4. In an apparatus for manufacturing whiting, a tank containing water crushing mechanism operating in the same, an overflow outlet from the upper part of the tank, a receptacle into which such overflow discharges, means for drawing off the mingled water and whiting from such receptacle, a series of grading screens over which the mingled liquid and whiting is discharged by the draw off device, a series of chambers each connected with one of the screens, a force pump, the inlet pipe thereof connected by suitable valved pipes with the different chambers of the series, the press into which the eduction pipe of said pump discharges having its farther or outer end adapted to allow the flow of water while keeping back any whiting in the latter, and means for returning the water issuing from the press back to the crushing tank again, all combined substantially as and for the purpose described.

491,854. LAWN-SPRINKLER. JAMES JETT, Walla Walla, Wash. Filed June 20, 1892. Serial No. 438,471. (No model.)



Claim.—The combination with a circular reservoir having a tangential inlet, of plates convex on their inner side secured to each other so as to provide an opening within the receptacle which diminishes in size toward the center where the discharge opening is located, substantially as shown, and for the purpose set forth.

491,855. FIRE-KINDLER. ALBERT JOHNSON, Haverhill, Mass., assignor to the Indestructible Fuel Company, same place. Filed May 4, 1892. Serial No. 431,792. (No model.)



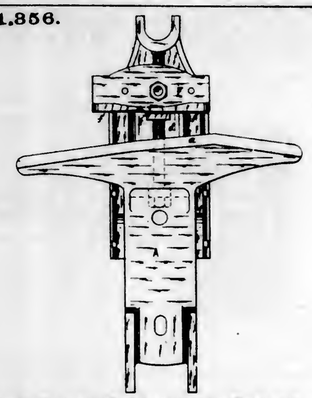
Claim.—A fire kindler, comprising a wire handle formed with a loop 12 at one end, a series of absorbent leaves lying face to face and between which lies the said loop, and the transverse fastenings 15 securing the leaves together upon the loop, substantially as set forth.

491,856. APPARATUS FOR GRINDING FLATS OF CARDING-ENGINES. JOSEPH JOHN, Dukinfield, England. Filed June 2, 1892. Serial No. 435,296. (No model.) Patented in England Apr. 16, 1889, No. 6,631.

Claim.—1. In apparatus for grinding the flats of carding engines the combination with the fixed horn bracket A provided with a slide C of the upright sliding bracket D carrying the journal E, the guide plate F affixed to the sliding bracket D and moving up and down with it and the adjusting screw d substantially as described.

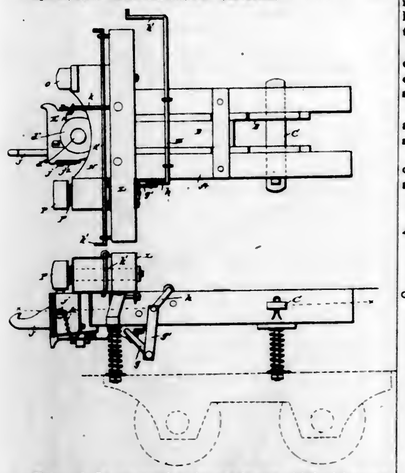
2. In apparatus for grinding the flats of carding engines the combination with the fixed horn bracket A slide C and sliding bracket D

491,856.



which carries the journal E of the guide plate F the under side of which is provided with two surfaces one at right angles to and the other at an inclination to the axis of the sliding bracket D to heel or tilt the flats, the screw d by which the guide plate is adjusted, and the lifting plate G by which the flats are raised into contact with the guide plate D substantially as described.

491,857. CAR-COUPLING. JACOB JOST, St. Joseph, Mo. Filed Apr. 27, 1892. Serial No. 430,917. (No model.)



Claim.—1. In a car coupling the combination with draft bars connected to the car beams, of a draw bar connected with the said draft bars, and a lifting bar constructed to move the draft bars vertically to change the elevation of the coupling carried by the said draw bar, substantially as described.

2. In a car coupling the combination with draft bars connected to the car beams and adapted to be moved vertically, of a draw bar yieldingly connected with the said draft bars, and having an independent vertical movement, substantially as and for the purpose described.

3. In a car coupling the combination with draft bars connected to car beams, and a lifting bar for elevating the said draft bars, of a draw bar yieldingly connected with the said draft bars and having an independent vertical movement, substantially as and for the purpose described.

4. In a car coupling the combination with draft bars connected to the car beams, and having slots *b*, of a draw bar having slot d^3, cross bars at the ends of the slot d^3, having their ends extending into the slots *b*, and a spring between the said cross bars, substantially as described for the purpose specified.

5. In a car coupling the combination with the car beams, having grooves *c*, in their opposing sides, the draft bars connected with the said car beams and having slots *b*, of a draw bar having slot d^3, cross bars at the ends of the slot d^3, and extending through the slots *b*, and projecting into the grooves *c*, and a spring between the said cross bars, substantially as described.

6. In a car coupling the combination with draft bars connected to the car beams, and having slots *b*, which are wider at one end than the other, of a draw bar having a slot d^3, cross bars at the ends of slot d^3, and extending into the slots *b*, and a spring between the said cross bars, substantially as specified.

7. In a car coupling the combination with a draw bar having opening *d*, of a coupling head pivotally connected with the draw bar, and having a rear extension to enter the said opening *d*, substantially as set forth.

8. In a car coupling the combination with a draw bar having opening *d*, of a coupling head pivotally connected with the said draw bar, and having a rear extension to enter the said opening *d*, and springs between the sides of the said rear extension, and the sides of the said opening, substantially as described.

9. In a car coupling the combination with a draw bar having parallel ears *d'*, and having an opening *d*, of a coupling head, pivotally supported between the said ears, and having a rear extension to enter the said opening *d*, and springs secured to the said rear extension and adapted to bear laterally against the sides of the opening *d*, substantially as set forth.

10. A coupling head having a link at one side, and having a catch and lock bar at the opposite side, substantially as set forth.

11. The combination with a coupling head, of a link, a horizontal pin pivotally connecting the link with the said head, and a vertical pin to interlock with the said horizontal pin, substantially as described.

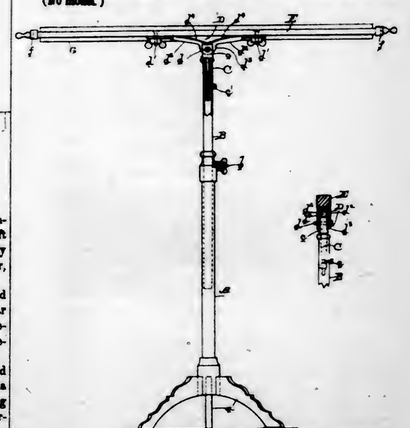
12. The combination with a coupling head having an opening in its side, of a link, a pin pivotally connecting the link with the said head, and a chain passing through the said opening and connecting the link and pin, substantially as set forth.

13. The combination with a coupling head having curved slots *i'*, of a catch having its ends projected into the said slots, and having an extension *i*, by which it is pivotally connected with the said head, substantially as described.

14. In a car coupling the combination with the coupling head, and a swinging catch, of a lock bar to hold the said catch from swinging, substantially as set forth.

15. The combination with the coupling head, and the swinging catch, of a vertical lock bar, having a reduced portion, substantially as described for the purpose specified.

491,858. ADJUSTABLE MAP OR CHART STAND. JACOB H. KAUFMAN, Marysville, Cal. Filed Oct. 1, 1892. Serial No. 447,516. (No model.)



Claim.—1. A map and chart stand consisting of a standard, a rod vertically movable and adjustable therein, a spindle axially turn-

able in the upper end of the rod, an arm connected with the spindle and a roller carried by the arm and to which the map or chart is secured, substantially as herein described.

2. A map and chart stand consisting of a standard, a rod vertically movable and adjustable therein, an arm and a roller carried by said arm and to which the map or chart is to be secured and a hinge connection between the arm and rod whereby the former may be turned from a horizontal to a perpendicular position and vice versa, substantially as herein described.

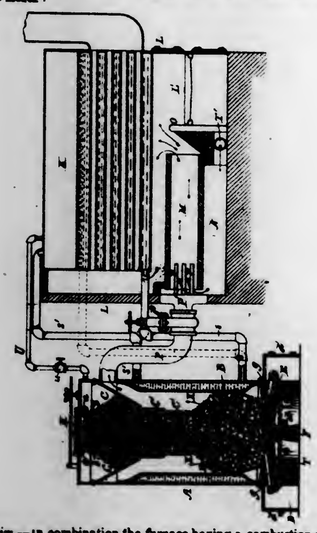
3. A map and chart stand consisting of a standard, a rod vertically movable and adjustable therein, a spindle axially turnable in the upper end of the rod, an arm and a roller carried by said arm and to which the map or chart is to be secured and a hinge connection between the arm and the spindle whereby the former may be turned from a horizontal to a perpendicular position and vice versa, substantially as herein described.

4. A map and chart stand consisting of a standard, a rod vertically movable and adjustable therein, a spindle axially turnable in the upper end of the rod, a bracket hinged to spindle whereby it is adapted to turn to and from a horizontal position, an arm secured to the bracket and a roller carried by the arm and to which the map or chart is to be secured, substantially as herein described.

5. A map and chart stand consisting of a standard, a rod vertically movable and adjustable therein, a spindle axially turnable in the upper end of the rod, a bracket hinged to the spindle whereby it may turn to and from a horizontal position, an arm carrying a roller for the map or chart and a removable connection between the bracket and arm, substantially as herein described.

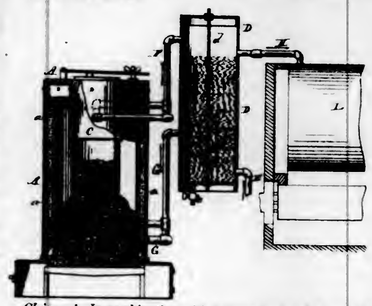
6. A map and chart stand consisting of a standard, a rod vertically movable and adjustable therein, a spindle axially turnable in the top of said rod, said spindle having an enlarged head, a bracket having spaced flanges with ears fitting over the head of the spindle, the horizontal pin pivoting said ears to the spindle head and the spring between the flanges and bearing on the head whereby said bracket may be turned to and from a horizontal position, and the roller carrying arm secured to the bracket, substantially as herein described.

491,359. STEAM-BOILER GAS-PRODUCING FURNACE. OLIVER W. KETCHUM, Toronto, Canada. Filed June 10, 1891. Serial No. 395,793. (No model.)



Claim.—In combination the furnace having a combustion chamber beneath the same, a bridge wall O, therein, a grate L' between said bridge wall and one end of combustion chamber, a chamber M extending from the bridge wall toward the other end of the combustion chamber with a space between it and the bottom and end of the combustion chamber for the admission of air, a gas producer and, a pipe connecting said gas producer with the chamber M, substantially as described.

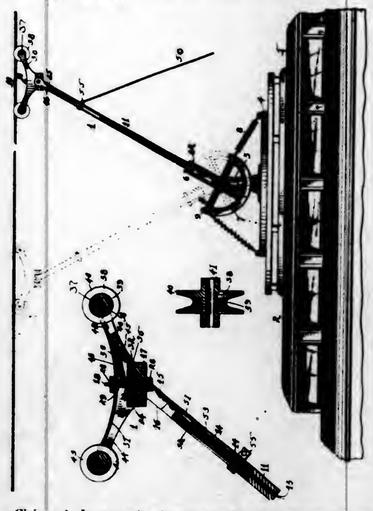
491,360. WATER HEATING AND PURIFYING DEVICE. OLIVER W. KETCHUM, Toronto, Canada. Filed Aug. 22, 1891. Serial No. 403,457. (No model.)



Claim.—1. In combination with a water jacketed gas-producer the elevated circulating tank provided with baffle plates, *d*, a water supply pipe connecting below the plates, a pipe connecting tank, D, with the lower end of the water-jacket, a pipe connecting the upper end of the water jacket with the upper end of tank, D, and a discharge pipe for hot water and steam connecting with tank, D, substantially as described.

2. The combination with a water-jacketed gas-producer of the elevated circulating tank, D, the pipes, F and G, connecting such pipes respectively with the top and bottom of the water jacket, a steam boiler and a discharge pipe, H, leading from the tank at a suitable height to maintain the water level in said tank above the top of the water-jacket and connecting with the steam boiler, substantially as described.

491,361. ELECTRIC-RAILWAY TROLLEY. BENJAMIN KOONS and ALBERT KOONS, St. Louis, Mo. Filed July 25, 1892. Serial No. 441,193. (No model.)



Claim.—1. In an overhead electric trolley, the combination, with a fork-shaped yoke adapted to be mounted on the upper end of a trolley-pole, of a block pivoted horizontally between the arms of said yoke and capable of a vertical oscillatory movement independent of said yoke, and a laterally-movable frame pivoted upon said block and carrying contact wheels; substantially as set forth.

2. In an overhead electric trolley, the combination, with a laterally-movable frame carrying a contact wheel at each end and provided at its sides with two springs 46, of a bar 48 fixed against independent

lateral movement and adapted to bear against one of said springs when the frame is turned; substantially as set forth.

3. In an overhead electric trolley, the combination, with a laterally-movable frame, and contact wheels journaled at the ends thereof, of means fixed against independent movement and adapted to assist the alignment of the follower wheel when said frame is turned; substantially as and for the purpose set forth.

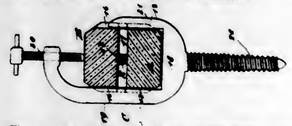
4. In an overhead electric trolley, the combination, with a pivot block 17, of a frame 30 carrying contact wheels and comprising a block 32 mounted above said pivot-block and provided in its under side with a recess or depression, a bolt 18 pivotally connecting said blocks together, and a flat spring 35 mounted on said bolt between the blocks and in said recess or depression; substantially as and for the purpose set forth.

5. In an overhead electric trolley, the combination, with a fork-shaped yoke 15, of a pivot-block 17 mounted between the arms of the latter, bolts 23 for securing the block to said arms, and spring plates 50 interposed between the arms and the respective ends of the block; substantially as and for the purpose set forth.

6. In an overhead electric trolley, the combination, with a frame 30, of contact wheels journaled at the ends thereof and provided with cylindrical projections, and brushes secured to the frame and having their free ends bearing upon said projections; substantially as and for the purpose set forth.

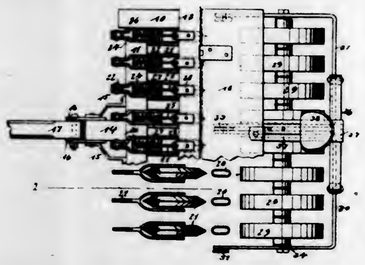
7. In an overhead electric trolley, the combination, with a laterally-movable frame carrying a contact wheel at each end and provided at its sides with two adjustable springs 46, of a pivot-block 17, a bolt 18 keyed to said block and forming the bearing for the frame, and a rigid arm 48 projecting from said bolt and between the springs 46; substantially as and for the purpose set forth.

491,362. INSULATOR. AUGUSTUS R. LANE, New York, N. Y. Filed May 13, 1892. Serial No. 432,857. (No model.)



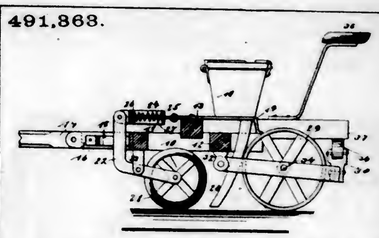
Claim.—The combination, with a frame comprising a base having a fastening device secured thereto, the said base being provided with a short arm, and a longer, parallel arm curved inward over the base, of an insulator constructed in two sections, a lower section having a rabbeted outer marginal surface, a channel extending from side to side of its central raised portion created by the rabbet, and an upper section, said section being provided with a flange to fit into the rabbeted portion of the lower section, and with channels in its flange registering with the channel in the lower section, both sections being provided with exterior registering grooves receiving the arms of the frame, and set screws carried by the frame and engaging with the upper section, as and for the purpose set forth.

491,363. SEED-PLANTER. ALEXANDER LEARMONTH and ARNOLD A. BERTRAM, Tower City, N. D. Filed Apr. 15, 1892. Serial No. 429,315. (No model.)



Claim.—In a seed-planter, the combination, with the frame and seed-conducting chutes of the furrow wheels 21, the L-shaped bearings, 22, pivoted to pendent studs, and the spring-tension attachments connecting the upper arms of said bearings with the portion of the frame in rear of them, as shown and described.

491,363.



491,364. METHOD OF PRODUCING LEAF-METAL PATTERNS ON WOVEN FABRICS. FRANZ LEHMANN, Copenick, Germany. Filed Aug. 30, 1892. Serial No. 444,556. (No specimens.)

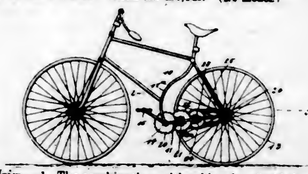
Claim.—The method of producing leaf-metal ornaments on textile fabrics, consisting in applying a foil of leaf-metal on the right side of the fabric, and pressing the wrong side of the same by means of an embossed stamp daubed with an adhesive matter, substantially as and for the purpose described.

491,365. PROCESS OF MAKING PURE CARBONIC-ACID GAS. EDUARD LUHMANN, Andernach, assignor to the Stürther Maschinenfabrik, vormals H. Hammerschmidt, Stürth, near Cologne, Germany. Filed Aug. 8, 1892. Serial No. 442,509. (No specimens.)

Claim.—1. The method of obtaining pure carbonic acid gas consisting in introducing the gases containing carbonic acid into a solution of a phosphate of alkali and in thereafter liberating the absorbed carbonic acid gas by heating the mixed solution resulting therefrom for the purpose as described.

2. The method of obtaining pure carbonic acid gas consisting in introducing the gases containing carbonic acid into a solution of a phosphate of soda and in thereafter liberating the absorbed carbonic acid gas by heating the mixed solution, resulting therefrom, for the purpose as described.

491,366. BICYCLE-GEAR. WILLIAM MAHONEY, New York, N. Y. Filed Mar. 31, 1892. Serial No. 427,149. (No model.)



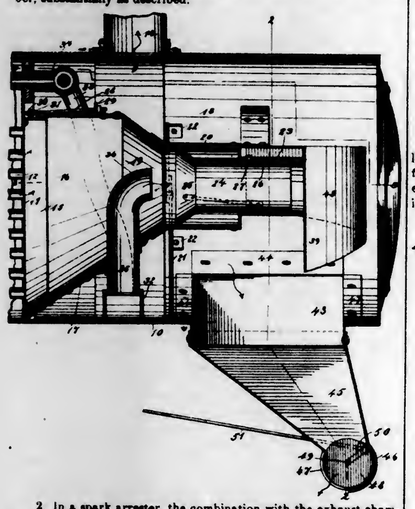
Claim.—1. The combination with a bicycle, of a U-shaped frame secured to the main frame and journaled on the rear axle, the U-shaped frame being made to embrace the front portion of the rear bicycle wheel, a shaft journaled in the U-shaped frame and having a sprocket wheel and chain connection with the rear bicycle wheel, a pedal-operated crank shaft journaled in the U-shaped frame, an intermediate shaft arranged between the crank shaft and the sprocket wheel shaft, and a gear connection between the crank shaft and the intermediate shaft, and between the latter and the sprocket wheel shaft, all substantially as described.

2. The combination, with a bicycle, of a U-shaped frame embracing the forward portion of the rear wheel and secured to the main frame, a brace connecting the front portion of the frame with one side thereof, a counter-shaft journaled in one side of the U-shaped frame and in the brace, said shaft having a sprocket mechanism connecting it with the bicycle driving wheel, a driving shaft journaled in the front portion of the U-shaped frame, and a speed-multiplying gear connection between the driving shaft and the counter-shaft, substantially as described.

491,367. SPARK-ARRESTER. HARRY B. MAXWELL, Stromsburg, Nebr. Filed Oct. 11, 1892. Serial No. 448,552. (No model.)

Claim.—1. The combination with an engine having the usual flues and smoke box, of a reducing exhaust chamber arranged in the smoke box and having its walls fastened to the flue sheet around the flues, a reducing nozzle produced on the front end of the exhaust chamber, a housing to cover the top and sides of the outlet of the chamber, a vertical diaphragm extending downward in the smoke box from the rear portion of the housing, a curved deflector arranged

in front of the chamber nozzle and adapted to throw back the product emitted by the nozzle, and an exhaust nozzle extending through the wall of the chamber and delivering into the nozzle of the chamber, substantially as described.



2. In a spark arrester, the combination with the exhaust chamber having a reducing nozzle, and an exhaust nozzle held to deliver into the nozzle of the chamber, of a longitudinally adjustable petticoat pipe held in the chamber nozzle, substantially as described.

3. In a spark arrester, the combination with the reducing exhaust chamber arranged to receive the products of combustion from the engine flues, of a housing arranged to cover the top and sides of the outlet of the chamber, a vertical diaphragm embracing the outlet of the chamber and extending across the smoke box of the engine, and a deflector arranged opposite the outlet of the chamber, the deflector having a central edge extending across the outlet, and oppositely curved wings adapted to throw the products of combustion back beneath the housing, substantially as described.

491,868. METHOD OF MANUFACTURING HORSESHOE-NAILS. WILLIAM W. MISER, New Haven, assignor to the New Process Nail Company, Torrington, Conn. Filed May 26, 1892. Serial No. 434,493. (No model.)

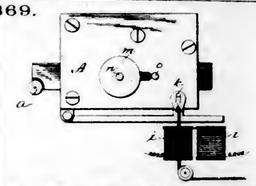


Claim.—The method of making horse-shoe nails which consists in reducing the end of a wire coil, severing a blank from the coil thereby producing a blank with a reduced shank and an enlarged end, upsetting a rounded head on the enlarged end of the blank, reducing the body or shank to a tapering form circular in cross-section and flattening the head and shank of the blank and thereby producing a nail having flattened sides and rounded edges throughout its length.

491,869. ELECTRIC LOCK. OLIVER A. MOYER and HENRY W. RHODES, Ogden, Utah. Filed Apr. 9, 1892. Serial No. 428,442. (No model.)

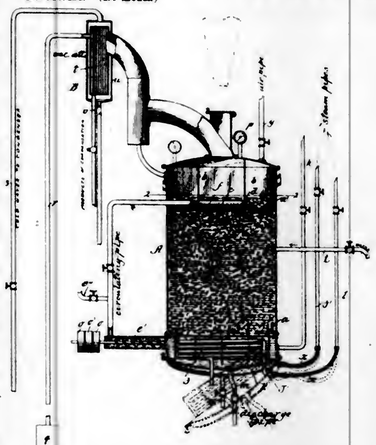
Claim.—1. In combination with a lock frame, a sliding bolt therein, a spring for placing the bolt under tension, a notch in the bolt a lever pivoted at one end of the frame having a dog engaging the notch under spring tension and means for releasing the bolt by swinging the lever on its pivot and withdrawing the dog from engagement therewith, substantially as described.

491,869.



2. In combination with a locking bolt under spring tension, a lever pivoted at one end of the frame having a dog projecting therefrom and engaging a notch in said bolt also under spring tension, electro magnets in proximity to the pivoted bar or levers for retracting the same under the impulse of a current, substantially as described.

491,870. PROCESS OF AND APPARATUS FOR MAKING EXTRACTS. JOHN R. MCCARTY, Elkins, W. Va.; Ella M. McCarty administratrix of said John R. McCarty, deceased. Filed July 3, 1891. Serial No. 398,431. (No model.)



Claim.—1. The process of making extracts, which consists in holding the material to be acted on submerged in hot water in a closed vessel for a suitable length of time, maintaining a regulated degree of pressure and temperature, and simultaneously and mechanically producing a vertical circulation of the hot liquid through the mass, substantially as specified.

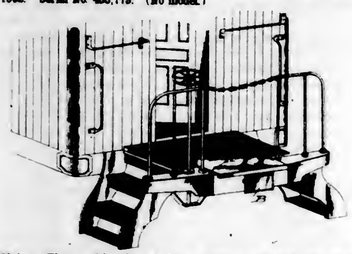
2. In an apparatus for making extracts, the combination of the vessel or boiler A, having perforated horizontal diaphragms, between which the material is confined, and a hinged bottom or head adapted to open as specified, an air-conducting pipe water pipe, and steam pipe connected respectively with the top, middle and bottom portions of said vessel, a circulating pipe and pump and vacuum attachment connected and arranged as specified.

3. In an apparatus for making extracts, the boiler or vessel A having its bottom or lower head hinged and adapted to open as specified, the perforated diaphragm supported upon and rigidly attached to said head, a steam coil arranged in the space between the head and diaphragm, and a flexible pipe connection for said coil, all combined as shown and described.

4. In an apparatus for making extracts, the combination with the vessel A having the two horizontal perforated diaphragms as specified, of the circulating pipe connected with the upper and lower portions of the vessel, a pump arranged in such pipe, and a steam pipe coil connected with the portion of the vessel below the lower diaphragm, as shown and described.

5. In an apparatus for making extracts, the combination, with the vessel A, adapted to be tightly closed and having a perforated diaphragm for supporting the material to be acted upon, and means for applying steam heat to the vessel, of a pipe connected with the upper and lower portions of said vessel, and a mechanical circulating pump connected with such pipe whereby the liquid may be circulated vertically through the material without increasing the quantity of the liquid and diluting the extract, substantially as shown and described.

491,871. BUFFER FOR CARS. THOMAS L. MCKEEN, New York, N. Y., assignor to Isaac G. Johnson & Co., same place. Filed June 6, 1892. Serial No. 435,773. (No model.)



Claim.—The combination of the stationary platform, the spring actuated buffer stem having its outer end rounded and provided with an aperture, the buffer plate having openings near each end, central rearwardly extending lugs with aligned apertures and the curved recess to receive the end of the buffer stem, the pintle passing through the apertures in the said lugs and stem, the movable top plate connected near each end of the buffer plate by means of bolts passing through the apertures in said plate, and overlapping the stationary platform and the guard plate or shield fastened upon the car platform and overlapping the inner end of the movable top plate, substantially as described.

491,872. VIOLIN-SUPPORTER. GIORGIO NARBERTI, New York, N. Y., assignor to himself and Carlo Brizzi, same place. Filed Oct. 24, 1892. Serial No. 449,873. (No model.)



Claim.—1. A violin supporter, comprising an arm having a limited swinging motion on the end of the violin body, and a breast plate pivotally-connected at one end to the free end of the said arm, and a locking device for fastening the said breast plate to the said arm in either a vertical or a horizontal and folded position, substantially as shown and described.

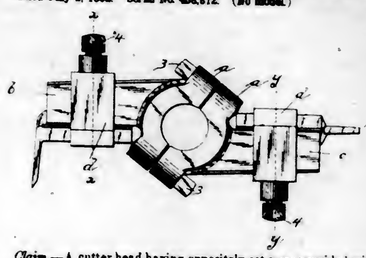
2. A violin supporter, comprising a pivot pin driven into the rib of the violin body, at the end thereof, an arm pivoted on the said pivot pin and having a limited swinging motion, and a breast plate pivoted on the free end of the said arm and adapted to be locked thereto in either a vertical or folded position, substantially as shown and described.

3. A violin supporter, comprising a pivot pin driven into the rib of the violin body, at the end thereof, an arm pivoted on the said pivot pin and having a limited swinging motion, a breast plate pivoted on the free end of the said arm and adapted to be locked thereto in either a vertical or folded position, and a locking device for the said plate, and comprising a spring fastened to the said arm and carrying a pivot pin adapted to engage apertures in the pivot end of the said plate, substantially as shown and described.

4. A violin supporter, comprising a pivot pin having a tapering shank driven into the rib of the violin body, an arm having a limited swinging motion on the said pivot pin and provided on its free end with a socket, a collar or neck plate secured in the said socket, and a breast plate pivoted on the free end of the pivoted arm and adapted to be locked thereto in either a vertical or a folded position, substantially as shown and described.

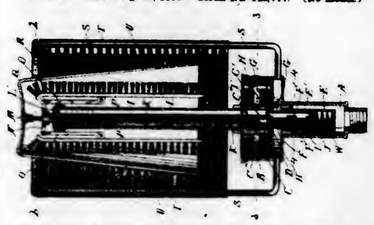
5. A violin supporter, comprising a pivot pin having a tapering shank driven into the rib of the violin body, an arm having a limited swinging motion on the said pivot pin and provided on its free end with a socket, a collar or neck plate secured in the said socket, a breast plate pivoted on the free end of the pivoted arm and adapted to be locked thereto in either a vertical or a folded position, and means, substantially as described, for locking the said plate to the said arm in either a vertical or a horizontal and folded position, as set forth.

491,873. CUTTER-HEAD. THOMAS R. REMER, Mansfield, Ohio. Filed July 2, 1892. Serial No. 438,812. (No model.)



Claim.—A cutter head having oppositely set arms provided with longitudinal grooves fitted to receive the cutter shanks, combined with stirrups encircling said arms and provided with set screws, said stirrups being adjustable toward and from the center of the head for the purpose of balancing the same, substantially as described.

491,874. TUMBLER-WASHER. ORTON H. ROBINSON, Grand Rapids, Mich. Filed Aug. 10, 1892. Serial No. 442,711. (No model.)



Claim.—1. The combination in a tumbler or cup washer, of a water conducting tube adapted to enter the tumbler or cup and discharge water thereinto, a rotary tube provided with pivoted arms, a series of oscillating brushes each of which is pivoted intermediate its ends to one end of one of the pivoted arms and with the latter thrown outward by centrifugal force when the tube rotates, means for delivering water into the water conducting tube, and mechanism for revolving the arm carrying tube, substantially as described.

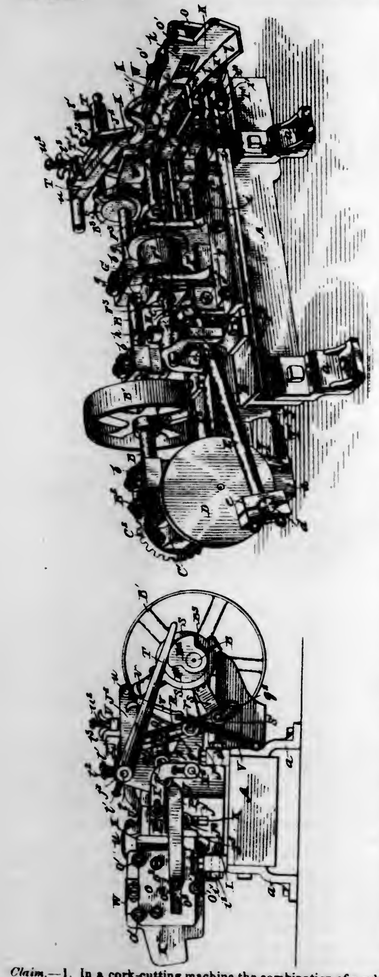
2. The combination in a tumbler or cup washer, of a water conducting tube adapted to enter a tumbler or cup and discharge water thereinto, a support provided with pivoted arms, a series of oscillating brushes each of which is pivoted intermediate its ends to one end of one of the pivoted arms and with said arms thrown outward by centrifugal force when the arm support rotates, means for delivering water into the water conducting tube, and mechanism for revolving the arm support, substantially as described.

3. The combination in a tumbler or cup washer, of a stationary water conducting tube having perforations, a rotary tube extending through the water conducting tube and provided with pivoted arms, brushes or scrubbers carried by the pivoted arms and with the latter thrown outward by centrifugal force by the movement of the rotary tube, a water motor for operating the rotary tube, a valve mechanism for controlling the passage of water to the water motor, and a rod connected with the valve of the valve mechanism and extending through the rotary tube, substantially as described.

4. The combination of pivoted swinging brushes or scrubbers, arms supporting said brushes; a collar to which said arms are pivoted, a revolving tube or rod connected to said collar; a tube containing water and having small openings for directing small streams of water against the inner surface of the article to be operated upon; and a water-wheel or motor connected to the revolving rod or tube which supports the brushes or scrubbers, substantially as described.

5. The combination in a tumbler or cup washer, of a water conducting tube adapted to enter the tumbler or cup for discharging water thereinto, a rotary support provided with pivoted arms, brushes or scrubbers carried by the pivoted arms and thrown outward by centrifugal force, means for supplying water to the water conducting tube, mechanism for operating the rotary support, a case surrounding the brushes on the pivoted arms and provided with brushes for cleaning the outside of the tumblers or cups, and water conduits for delivering water to the outside of said tumblers or cups, substantially as described.

491,375. CORK-CUTTING MACHINE. SAMUEL F. ROTE and LEVI K. LANDIS, Lancaster, Pa. Filed May 21, 1892. Serial No. 433,851. (No model.)



Claim.—1. In a cork-cutting machine the combination of a relatively fixed jaw and a relatively movable one constituting together a feeding clamp with devices for giving the said clamp a forward and backward feeding motion, a spring acting on the said clamp and means for positively operating the said movable jaw against the said spring, the said positively acting means and spring being arranged to cause the said clamp to close on the strip of cork before feeding it forward and to automatically release the said cork before returning substantially as set forth.

2. In a cork-cutting machine, the combination of a relatively fixed jaw and a relatively movable jaw constituting together a feeding clamp, with a spring acting on said movable jaw to close the same actuating mechanism for reciprocating the said feeding clamp as a whole and a device connected to said actuating mechanism and arranged to open the said jaw before the backward motion of the said clamp and to allow the said spring to close the said jaw before the said clamp begins its forward feeding motion, substantially as set forth.

3. In a cork-cutting machine the combination of a plate having lugs at the ends and an inclined recess or face with mechanism for reciprocating the said plate, a clamping jaw movable at right angles to the said plate and provided with a bar having a correspondingly beveled end arranged to be acted on by the beveled part of the said plate, a relatively fixed jaw arranged between the said lugs of the said plate, and a spring bearing against the said movable jaw to force it toward the said fixed jaw, the said plate having a slight independent motion by reason of the lugs being farther apart than the width of the jaw between them, so that the spring may be allowed to close the clamp on the cork-strip which is to be fed, before the feeding motion begins and the said plate may open the said clamp before carrying back the clamp to its first position substantially as set forth.

4. In a cork-cutting machine the combination with a reciprocating cutter of a pressure arm bearing on the strip of cork above the point at which the cutting takes place, mechanism arranged to bear intermittently on the said presser foot and a spring bearing on the said mechanism to subject the said presser foot to yielding pressure when thus in contact but leaving it otherwise not under tension substantially as set forth.

5. In a cork-cutting machine, the combination with a cutter, of a presser foot arranged to bear on the top of the strip during the cutting, a rock-shaft having two arms one of which holds down the said presser foot, an eccentric on the main shaft acting against the other arm of the said rock shaft to lift it and free the presser-foot, and a spring attached to one of the said arms to hold them down and thereby hold down the said presser foot substantially as set forth.

6. In a cork-cutting machine, the combination of a cutter, feed way and feeding devices with a spring pressed presser-foot bearing on the strip of cork opposite or nearly opposite to the point where the cutting takes place and a spring attached to the said presser-foot and bearing on the said strip between the feeding devices and the presser-foot for guiding the strip to the latter and preventing damage from a broken or irregular strip substantially as set forth.

7. In a cork cutting machine the combination of a cutter and feed way with a pressure arm arranged to bear on the strip of cork, a pivotal device bearing intermittently on the said pressure arm, a spring drawing the said device against the said pressure arm and a gage for regulating the distance to which the said pressure bar will be allowed to descend under the action of the said spring substantially as set forth.

8. In a cork-cutting machine the combination of a cutter and feedway with a pressure arm arranged to bear on the strip of cork, a shaft / and arms T T' arranged to bear with arm T' on the said pressure arm, a spring operating to cause this action, a rock shaft having an arm arranged for raising the arm T' against the action of the said spring and actuating mechanism for the said rock shaft substantially as set forth.

9. In a cork-cutting machine, the combination of a cutter and feedway with a spring-pressed pressure arm a screw for adjusting the same so that the holding position will be lower or higher and devices for correspondingly adjusting the feedway up or down at will, in order that the central line of the cork-strip may always be opposite the center of the cutter substantially as set forth.

10. In a cork-cutting machine, the combination of a cutter and feedway with a pressure arm for holding down the strips of cork, a gage-screw attached thereto for regulating the lowest position of the said arm, a rock-shaft having two detachable arms one of which bears on the said pressure arm, a spring holding down the said arms of the rock-shaft a cam acting against one of them to lift them, and a clamping screw whereby the said arm may be radially adjusted on the said shaft to correspond with the adjustment of the pressure arm substantially as set forth.

11. In a cork cutting machine, the combination of the cutter and feeding mechanism with the feedway, a finger reciprocating longitudinally into and out of the said feedway beyond the cutter to prevent the strip from being fed too far a fixed part of the machine provided with an opening to aduit and guide the said finger, and mechanism for alternately protruding and withdrawing the said finger substantially as set forth.

12. In a cork-cutting machine, the combination of a finger for preventing the strips of cork from being fed too far, a rod which is longitudinally movable and carries the said finger with it in such motion, a rotating shaft and cam acting to force back the said rod and finger and a spring acting to draw them forward so that the said finger will be in its holding position substantially as set forth.

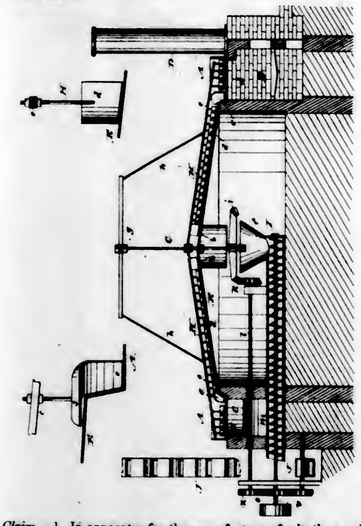
13. In a cork-cutting machine, the combination of the longitudinally movable cutter and cutter-arbor with a shaft and pitman for reciprocating them, a sliding carriage providing bearings for the said arbor, a guideway for the said carriage and a fixed clearer which enters the said cutter arbor and cutter to eject the cork from the latter as the cutter withdraws substantially as set forth.

14. In a cork-cutting machine, the combination of a cutter with a feedway which is adjustable toward the said cutter to compensate for the wear of the latter and also vertically to conform to the size of the cutter and of the cork-strip substantially as set forth.

15. In a cork-cutting machine, a feeding-clamp for strips of cork, consisting of a relatively fixed jaw provided with a guide-way, a bar having a beveled protruding end and movable in the said guideway, a relatively movable jaw which is fastened to the said bar, screws passing through slots in this latter jaw to allow its independent adjustment to conform to the width of the cork strip, a spring connected to said bar and movable jaw for closing the latter, a plate and connections for opening the jaw and reciprocating the feeding-clamp as a whole and a frame forming the feedway which supports the said clamp and is slotted to receive parts of it for guiding and bracing them substantially as set forth.

16. A feeding clamp for a cork-cutting machine in combination with devices for opening and closing the movable jaw thereof and additional devices for independently adjusting the said jaw toward or from the other jaw in conformity to the thickness of the cork strip substantially as set forth.

491,376. APPARATUS FOR MANUFACTURING SALT. JOHN ROSEMAN, Goderich, Canada. Filed Apr. 6, 1892. Serial No. 427,975. (No model.)



Claim.—1. In apparatus for the manufacture of salt, the combination of an outer continuous and stationary annular evaporating pan or trough, means for heating said pan arranged to extend around and beneath it, and a drying table arranged to occupy a concentric position within or on the inside of the evaporating pan, substantially as specified.

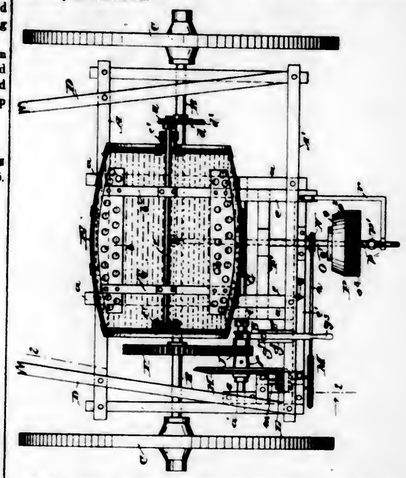
2. The combination, of the annular evaporating pan or trough A, the concentric drying table E, arranged above the level of the bottom of said trough and having central outlet apertures *b*, and the series of rakes H, having oblique blades *d*, and arranged for rotation over and around said table, essentially as described.

3. In combination with the annular evaporating pan or trough A, and the concentric drying table E, having central outlet apertures *b*, the series of rakes H, having oblique blades *d*, and arranged to rotate over and around said table and within the pan, and the plows or scoops *e*, carried by said rakes, substantially as specified.

4. The improved apparatus for the manufacture of salt, comprising the annular evaporating pan or trough, the drying table arranged within and sloping or inclining upward and inward from said trough toward its center and having an outlet or discharge at such center, and mechanism whereby to transfer salt from the trough to the drying table and work it up the latter to the central outlet or discharge, all substantially as and for the purpose set forth.

491,377. SPRINKLING DEVICE. HENRY I. SCHADE, Holmdel, and CHARLES B. ELLIS, Freehold, N. J. Filed May 6, 1892. Serial No. 432,097. (No model.)

Claim.—1. In a sprinkling apparatus, the combination with a main frame, an axle journaled in the frame and traction wheels rigidly secured on said axle, of a liquid holder supported on the frame, a rocking frame supported below the liquid holder, gearing on the axle and rocking frame that is meshed or detached by a vibratile lever, a shaft rotatable from said gearing and projecting rearward, a spraying head on said shaft, a tubular conduit extending from the holder oppositely of the spraying head, and a stop valve on the conduit, substantially as described.



2. In a sprinkling apparatus, the combination with a main frame, an axle rotatable thereon, fixed traction wheels on the axle, a liquid holder on the main frame and a dasher device within the holder rotated from the axle, of a rocking frame on the main frame below the liquid holder, a shaft on the rocking frame projected rearward, a spraying head on said shaft, gearing on the axle and rocking frame adapted to rotate the spray head shaft, hose extended from the liquid holder oppositely of the spraying head, a jet nozzle on said hose, and a stop valve for the nozzle, substantially as described.

3. In a sprinkling apparatus, a main frame, a liquid holder on the main frame, and an axle and supporting wheels for the main frame, a rocking frame below the main frame and supported on a countershaft parallel with the axle, a spur wheel on the axle, and gearing on the rocking frame that is adapted to be rendered dormant or active and connected with the spur wheel, a supported rotatable spraying head receiving motion from said gearing, a conduit leading from the liquid holder to the spraying head, and a stop valve for the conduit, substantially as described.

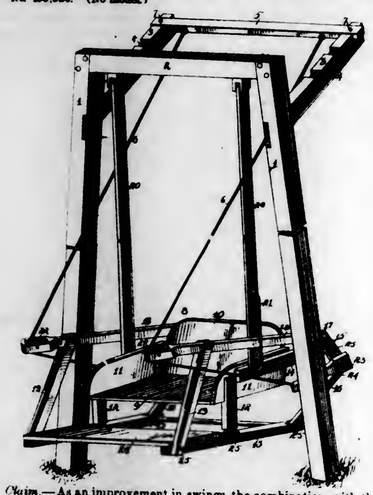
4. In a sprinkling apparatus, a spraying head, comprising a back plate, a flaring wall on the back plate, a perforated cylindrical shell projected from the edge of the flaring wall, and a series of radial wings within the shell, substantially as described.

491,378. VIOLET-BLUE INDULINE DYE. JAKOB SCHMID and JOHANNES MOSLER, Basle, Switzerland, assignors to the Society of Chemical Industry in Basle, same place. Filed Aug. 26, 1892. Serial No. 444,102. (No specimens.) Patented in France Mar. 12 1892, No. 220,102.

Claim.—1. The within described process of producing a violet-blue induline dye-stuff which consists in melting a mixture of para-phenylene-diamine, hydro-chlorate of para-phenylene-diamine and alpha-nitro-naphthylamine at a temperature of from 160° to 190° centigrade, then dissolving the melt in dilute muriatic acid and finally precipitating by means of common salt, substantially as described.

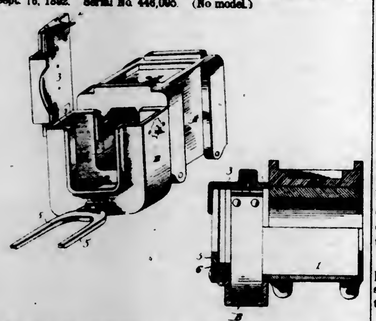
2. As a new product, the violet-blue coloring matter which can be derived from a mixture of para-phenylene-diamine, hydro-chlorate of para-phenylene diamine and alpha-nitro-naphthylamine and which is a glittering powder of metallic luster, insoluble in ether, benzene and chloroform, but easily soluble in water and alcohol with a red-violet and in concentrated sulphuric acid with a green color.

491,379. SWING. JOHN W. SHIPMAN, Kirkwood, Mo., assignor of one-half to Edward J. Weber, same place. Filed June 4, 1892. Serial No. 435,526. (No model.)



Claim.—As an improvement in swings, the combination, with the frame, the seat and supports therefor, of downwardly projecting pieces 12, cross levers 13 pivoted thereto, rearwardly-projecting pieces 14 located at the sides of the seat, levers 15 pivoted to the free ends of the latter, levers 16 pivotally connecting the levers 13 and 15, horizontal levers 18 pivoted to the upper ends of the levers 15 and provided at their forward ends with pulleys 22, levers 19 connecting the levers 13 and 18, a cross piece 23 rigidly secured to the levers 15, levers 24 projecting forwardly from the ends of the piece 23, ropes 6 secured to said levers 24, passing over the pulleys 22 and connected at their free upper ends with the frame, and a foot-board 26 connecting the forward ends of the levers 13 and adapted for operating the swing: substantially as and for the purpose set forth.

491,380. AXLE-BOX. JOHN McG. SMITH, Charleston, S. C. Filed Sept. 16, 1892. Serial No. 446,095. (No model.)



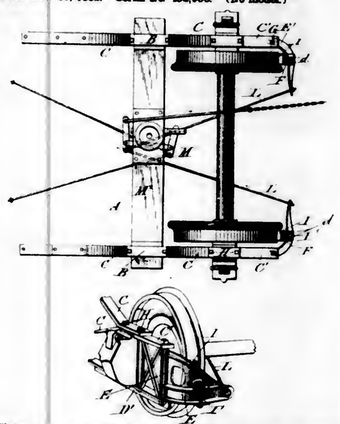
Claim.—1. In a locomotive axle box, the combination with a duct or gland having a reservoir extending below the bottom of the latter, of a separate hinged door for the front and top of the reservoir, substantially as set forth.

2. The combination with the duct or gland, and an oil reservoir in communication therewith, of a cover for the top of the reservoir and one for the front thereof, one adapted and constructed to hold the other closed, substantially as set forth.

3. In a locomotive axle box, the combination with an oil reservoir provided with an open front, of a hinged rim or cover, and a packing interposed between the outer face of the reservoir and the cover, and a hinged top adapted to close over the cover whereby to keep it closed, substantially as set forth.

4. The combination with a box composed of two sections one having a duct or gland constructed to slide in the other, of a reservoir formed at one end of the duct or gland, and covers for the front and top of this reservoir, substantially as set forth.

491,381. CAR-BRAKE. WILLIAM J. STAHR, Bloomsburg, Pa. Filed Nov. 23, 1892. Serial No. 452,960. (No model.)



Claim.—1. In a car brake, a curved brake holder and support E of approximately V-form, and having a vertical tubular portion at its broad end of sufficient length to allow of the extensions of the tie bar and arch-bar of the side frame of the truck being run parallel with each other on substantially the planes of the top and bottom of the axle box for their whole length beyond the axle box; said tubular portion being adapted to be located as far back as, or beyond, the periphery of the wheel, and confined by a vertical-pivot clamping bolt passed through the upper bar, tubular portion of the support and the lower tie bar, so as to give great sustaining power under the great strains thrown upon it when applying the brake, and thus avoid the necessity of employing other supports than the side beam for the brake shoe, said support carrying a rigidly connected brake shoe holder and a brake shoe, and being adapted to swing on the vertical pivot, and, in swinging horizontally, bring the shoe properly upon the periphery of a car wheel, substantially as described.

2. The curved brake shoe holder and support of approximately V-form, and having a vertical tubular portion at its broad end, and adapted for carrying a shoe holder and shoe, and by its tubular end portion to be connected to the side frame beam of a truck by setting it between the extensions of said beam and passing a bolt down through the beam and the tubular portion of the support, substantially as described.

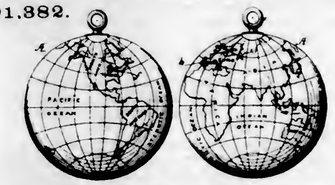
3. The combination with the side beam of a car truck having extensions beyond the axle box on planes of the top and bottom of said box, of the curved brake shoe holder and support of approximately V-form and having a tubular broad end, and carrying a shoe holder and shoe, and applied on the extensions of the side beam, in combination with a brake lever mechanism suspended from a bolster or spring plank of the truck, and connected directly by rods L with the brake shoe support and holder, substantially as described.

4. The brake adapted to swing horizontally toward and from the periphery of a car wheel, and a brake shoe holder attached to its support and adapted to be moved sidewise away from the flange of the wheel, substantially as described.

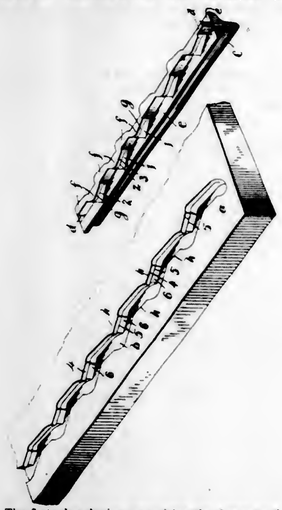
491,382. WATCH-CHAIN CHARM OR OTHER ARTICLE OF JEWELRY. SAMUEL A. STARL and BENJAMIN KLIPPER, Knoxville, Tenn. Filed Nov. 15, 1892. Serial No. 452,073. (No model.)

Claim.—As a new article of manufacture, the within described charm or piece of jewelry, of globular construction, representing the earth with its land and water divisions appearing thereon, and having holes made in or through it at fixed places of historical or national importance, in combination with a microscope or microscopes inserted therein at said places and containing views illustrative of the particular events which associate or give notoriety to said places, substantially as specified.

491,382.



491,383. FASTENING FOR FURNITURE. JAMES H. STIGGLEMAN, Wabash, Ind. Filed Feb. 9, 1892. Serial No. 420,909. (No model.)



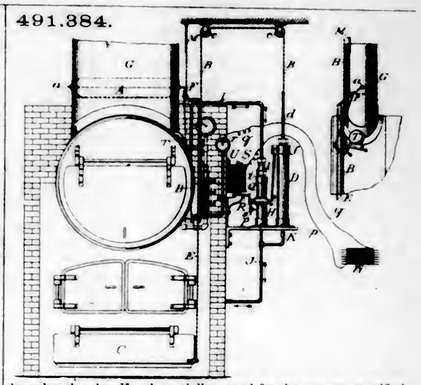
Claim.—The fastening device comprising the frame work having the rib, the wedge shaped keys longitudinally located on opposite sides of the rib and all longitudinally inclined toward the same end of the rib and extending from the frame-work to the upper edge of the rib, each key having at its upper surface the longitudinally inclined lateral ledge, wedge shaped on its under surface as described, each key as a whole forming the three bearing surfaces 1, 2, and 3, in combination with the wood work formed with the holding groove having inclined seats corresponding to the keys and all inclined toward the same end of the groove and each undercut as described, and having the three bearing surfaces corresponding to the bearing surfaces of the keys.

491,384. DAMPER-REGULATING APPARATUS. PETER ST. MARY and JOSEPH ST. MARY, San Francisco, Cal. Filed Oct. 15, 1891. Serial No. 408,809. (No model.)

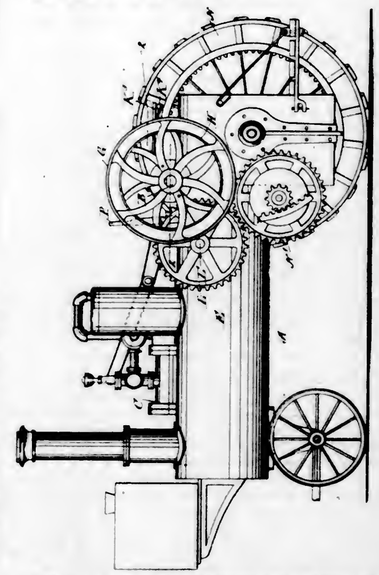
Claim.—1. In a damper regulator, the combination of a steam generator having a chimney flue, an adjustable damper therein, a steam cylinder containing a piston, fitted on a piston rod, a lever F connected to the stem of the aforesaid damper, a chain connection B, connecting the lever F with the piston rod, a valve chamber H located alongside of the steam cylinder and having a chamber i in one end thereof, a steam pipe I running from the steam boiler to the chamber i, a double pointed valve *g* within the chamber H, and the pipe *l* running from the valve chamber H to the steam cylinder and the waste pipe J, substantially as described.

2. In a damper-regulating apparatus, the combination of the double-ended spindle valve *g*, the valve chamber H having the ports *n* and *o* the waste pipe J running from the chamber H, the lever or crank N applied to the center of the valve *g*, together with the steam generator having a chimney flue, an adjustable damper therein, a steam cylinder containing a piston fitted on a piston rod, a pipe connecting the valve chamber and the steam cylinder, a lever F connected to the stem of the aforesaid damper, the connection B connecting the lever with the piston rod and the steam pipe I entering the valve chamber H, substantially as and for the purpose specified.

491,384.



491,385. TRACTION-ENGINE. JAMES A. STOUT, Belleville, Ill., assignor to the Harrison Machine Works, same place. Filed Oct. 18, 1892. Serial No. 449,292. (No model.)



Claim.—1. A traction engine provided with differential driving pulleys adapted to connect with the traction gearing to impart either a slow or a high speed to the engine the larger pinion being recessed to fit over and inclose the smaller pinion, substantially as shown and described.

2. The combination in a traction engine with the drive shaft provided with a belt pulley carrying a small pinion, a friction pulley mounted on the hub of the belt pulley and adapted to be rotated from said belt pulley, and a recessed pinion keyed to the hub of the friction pulley to rotate therewith and slide toward said small pinion and inclose it, of a gear wheel forming part of the traction gearing lying in the plane of the small pinion and movable on the arc of a circle into mesh with either of said two pinions, substantially as set forth.

3. A traction engine provided with differential driving pinions actuated from the main driving shaft, and a gear wheel for the traction gearing and adapted to be shifted in the arc of a circle to move it in gear with the smaller of the said driving pinions, or to retain the

said gear wheel in an outermost position to permit of moving the larger driving pinion in gear with it, substantially as shown and described.

4. A traction engine provided with a belt pulley secured on the driving shaft, and a friction pulley adapted to engage the said belt pulley and pressed on by springs in line with the driving shaft to relieve the bearings of the latter of any side strain, to prevent overheating, substantially as shown and described.

5. In a traction engine, the combination with a belt pulley, of a friction pulley in frictional contact with the said belt pulley, springs pressing on the said friction pulley, in line with the driving shaft to hold the friction pulley in contact with the belt pulley, and a shifting device for moving the said friction pulley out of contact with the belt pulley, substantially as shown and described.

6. In a traction engine, the combination with a main driving shaft, a small driving pinion, and a belt pulley, both secured on the said shaft, of a friction pulley adapted to move in frictional contact with the said belt pulley, springs arranged longitudinally in the hub of the said belt pulley, and blocks pressed on by the said springs and engaging the face of the said pinion, substantially as shown and described.

7. In a traction engine, the combination with a main driving shaft, a small driving pinion and a belt pulley, both secured on the said shaft, of a friction pulley adapted to move in frictional contact with the said belt pulley, springs arranged in the hub of the said belt pulley, blocks pressed on by the said springs and engaging the face of the said pinion, and a second driving pinion mounted to slide on and to turn with the hub of the said friction pulley, substantially as shown and described.

8. In a traction engine, the combination with a main driving shaft, a small driving pinion and a belt pulley, both secured on the said shaft, of a friction pulley adapted to move in frictional contact with the said belt pulley, springs arranged in the hub of the said belt pulley, blocks pressed on by the said springs and engaging the face of the said pinion, a second driving pinion mounted to slide on and to turn with the hub of the said friction pulley, and a shifting mechanism for imparting a sliding motion to the said second driving wheel, substantially as shown and described.

9. In a traction engine, the combination with a main driving shaft, a small driving pinion and a belt pulley, both secured on the said shaft, of a friction pulley adapted to move in frictional contact with the said belt pulley, springs arranged in the hub of the said belt pulley, blocks pressed on by the said springs and engaging the face of the said pinion, a second driving pinion mounted to slide on and to turn with the hub of the said friction pulley, a shifting mechanism for imparting a sliding motion to the said second driving pinion, and means for connecting the said second driving pinion with the said friction pulley to move the latter out of frictional contact with the belt pulley at the time the shifting mechanism is actuated beyond its normal position, substantially as shown and described.

10. In a traction engine, the combination with a segmental guideway, of a bearing fitted to slide in the said guideway and carrying a gear wheel, a lever for moving the said bearing in the said guideway, and a locking mechanism for locking the said bearing in position in its guideway, substantially as shown and described.

11. In a traction engine, the combination with a bearing for a gear wheel and having recesses, of a segmental guideway in which is fitted to slide the said bearing, a bolt fitted to slide in the said guideway and adapted to engage either of the said recesses in the bearing, a lever for shifting the bearing, and a hand lever for shifting the bolt, substantially as shown and described.

12. In a traction engine, the combination with a bearing for a gear wheel and having recesses, of a segmental guideway in which is fitted to slide the said bearing, a bolt fitted to slide in the said guideway and adapted to engage either of the said recesses in the bearing, a lever for shifting the bearing, a hand lever for shifting the bolt, and a spring pressing on the said bolt to hold the latter in engagement with either of the said recesses, as set forth.

491,386. CYCLE-TIRE. ALEXANDER STRAUS, New York, N. Y. Filed Feb. 27, 1892. Renewed Jan. 5, 1893. Serial No. 457,286. (No model.)



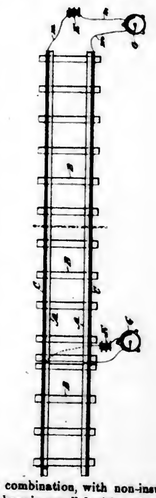
Claim.—1. The combination with a wheel rim, of a tire lying therein and a tire cover, consisting of an endless strip, wrapped about the tire, and having its overlapping side or edge secured by a series of studs lying without the surface covered by the rim.

2. As a tire cover, an endless strip adapted to be wrapped about the tire tube and by overlapping to form a double thickness upon the tread, a series of buttons or studs arranged to engage, when the parts are thus overlapped, securing the overlapping part to the part overlapped.

3. The combination with an endless-strip tire cover opening laterally along a line outside of, or beyond, the surface to be met by the rim, of means for securing the edge of the cover along the line of such lateral opening, and a series of studs, in the plane of the wheel, projecting from said surface, substantially as and for the purpose set forth.

4. Cycle tire consisting of an inner pneumatic tube and an endless cover wrapped about the same and having its overlapping edge secured by buttons or studs and having along the portion next the wheel rim, a series of projecting studs adapted to enter apertures in the rim.

491,387. ELECTRIC CIRCUIT FOR RAILWAY-SIGNALING. LOUIS TRAUER, New York, N. Y. Filed Aug. 24, 1892. Serial No. 443,950. (No model.)



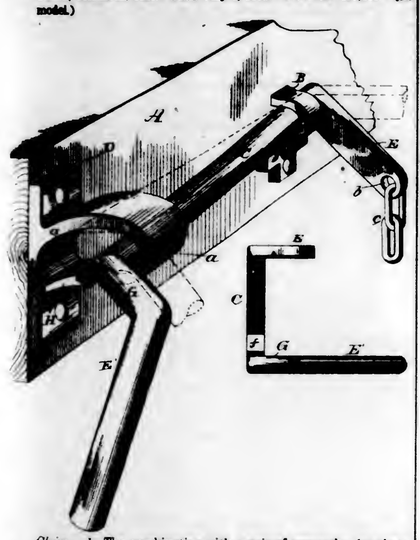
Claim.—1. The combination, with non-insulated track rails, of connected insulated bars in parallel with and sustained on said rails, projected slightly above their top faces, a battery, and an electric indicator in open circuit with the bars, which circuit will be closed by car wheels which impinge the track rails and depress the bars substantially as described.

2. The combination, with non-insulated track rails of a block, of electrically connected conductor bars non-electrically supported on said track rails at their sides, a battery, and an electric indicator in normally open circuit with the conductor bars, which circuit will be closed when a car traverses the track rails and its wheels depress the parallel bars substantially as described.

3. The combination, with parallel non-insulated track rails of a block, and lateral insulated supporting devices for parallel bars on each track rail, of electrically connected conductor bars engaging said devices and sustained by them in parallel with the rails but spaced therefrom, a battery, an electric indicator, and means to electrically connect the bars with the battery and indicator in normally open circuit, which will be closed by car wheels impinging the rails and depressing the bars substantially as described.

4. The combination, with the non-insulated track rails of a railway block, a set of insulated spring boxes for each rail secured thereon to project laterally, springs in said boxes, and slide-bolts loosely engaging the springs, of a conductor bar for each track rail having the upper ends of slide bolts attached thereto, an electric connection between adjacent conductor bars, a battery at a block station, an electric indicator therefor, and electric conductor wires connecting the bars near a station with the battery and indicator in normally open circuit, substantially as described.

491,388. UNLOCKING-LEVER FOR CAR-COUPLINGS. JAMES TIERE, Columbus, Ohio. Filed July 8, 1892. Serial No. 439,410. (No model.)

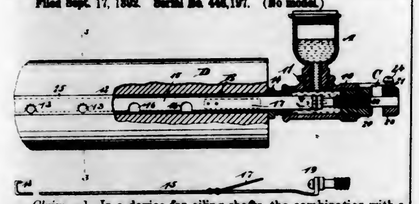


Claim.—1. The combination with a pair of supporting brackets, of a rock bar held by said brackets, one of the brackets provided with an elongated horizontally disposed slot, a lug formed on said bracket below the slot, and an arm formed on the rock bar adjacent to the outer face of the bracket in position to rest directly upon the lug, substantially as set forth.

2. The combination with a pair of brackets, of a rock bar having two arms thereon adjacent to the outer faces of the brackets whereby endwise movement of the bar is prevented, one bracket provided with an elongated horizontally disposed slot and a lug on the outer face of said bracket adapted to form a stop for the adjacent arm of the rock bar, substantially as set forth.

3. The combination with a rock bar having an arm on its outer end, of a pair of brackets for supporting this rock bar, one of said brackets provided with an elongated approximately horizontal slot, and a lug projecting ontward in the direction of the arm on the rock bar, said lug located above the inner end of the slot in the bracket and at a point some distance inward from the outer end of the bracket, substantially as set forth.

491,389. LUBRICATOR. CHARLES TRESCOTHE, New York, N. Y. Filed Sept. 17, 1892. Serial No. 446,197. (No model.)



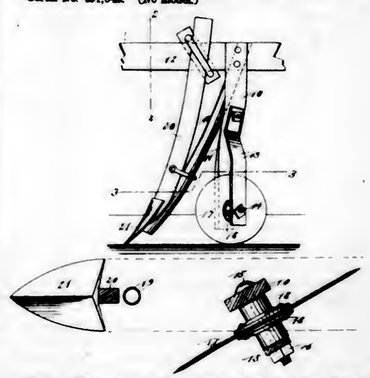
Claim.—1. In a device for oiling shafts, the combination with a tubular body, an apertured casing in communication with the body and an oil cup in communication with the body, of a slide fitted in the casing and provided with apertures and a screw projecting from one end of the tubular body and having a swiveled connection with the slide, substantially as described.

2. In a device for oiling shafts, the combination with a tubular body, an oil cup in communication with the body and an apertured casing in communication with said body, of a spring held slide in the casing and provided with apertures, a screw projecting through one end of the body and having its inner end swiveled to the slide, and means for limiting the movement of the screw, substantially as herein shown and described.

3. In a device for oiling shafts, the combination, with a tubular body, an oil cup in connection therewith and a valve connected with the tabular body, said valve comprising a casing having a series of apertures therein, a slide having movement in the casing and provided with openings, and a spring pressing the slide against the surface of the valve casing containing the openings, of an adjusting device adjustably connected with the tubular body and also connected with the valve slide, substantially as and for the purpose specified.

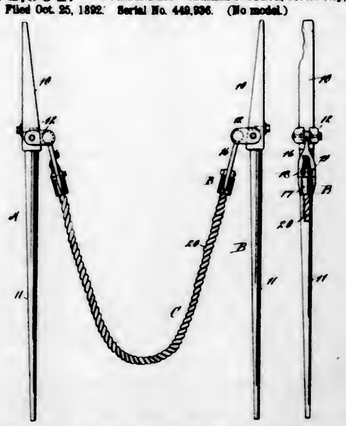
4. In a device for oiling shafts, the combination of a tubular body an oil cup and an apertured casing, of an apertured slide in the casing, a screw having a swiveled connection with the slide and projecting through one end of the casing, an adjustable nut on the end of the screw, and an arm secured to the body and adapted to be engaged by a projection carried by the nut, substantially as and for the purpose set forth.

491,390. FURROW-CLOSING ATTACHMENT FOR CORN-PLANTERS. ANDREW W. TROTTER, Petersville, Ind. Filed Nov. 5, 1892. Serial No. 451,043. (No model.)



Claim.—The combination, with a standard, the plow, the support for the plow and the seed-dropping tube located at the rear of the plow, of a covering attachment located at the rear of the seed drop tube, comprising a standard secured at its upper end to a fixed support upon the planter, and a covering wheel located at the rear of the lower end of the seed drop tube and standing at an angle to the path of said tube and diagonally across the furrow created by the plow, as and for the purpose specified.

491,391. SHOCK-BINDER. CHARLES S. UHRICH, Steele City, Nebr. Filed Oct. 25, 1892. Serial No. 449,936. (No model.)



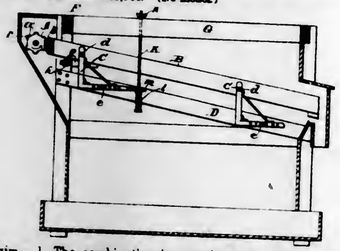
Claim.—1. A device for compressing shocks, the same consisting of two levers, clips having universal connection with the levers, and a

yielding binding section, as rope, attached to the clips and connecting them, substantially as shown and described.

2. A device for compressing shocks, the same consisting of two levers, clips having a ball and socket connection one with each lever, and a rope adjustably held at its end portions in the clips, as and for the purpose set forth.

3. A device for compressing shocks, the same consisting of two levers, sockets attached one to each lever, clips attached to the sockets, each clip comprising a tubular body, a shank connected with the body and provided with an opening communicating with the interior of the body, and a ball formed at one end of said shank, loosely mounted in the clip with which it is to be connected, of a flexible binding section, as a rope, having its ends adjustably secured in the clip, and clamping devices connected with the clips and engaging with the rope, as and for the purpose specified.

491,392. SCALPER. ARSON VAN CAMP, Decatur, Ind. Filed Dec. 15, 1891. Serial No. 415,510. (No model.)

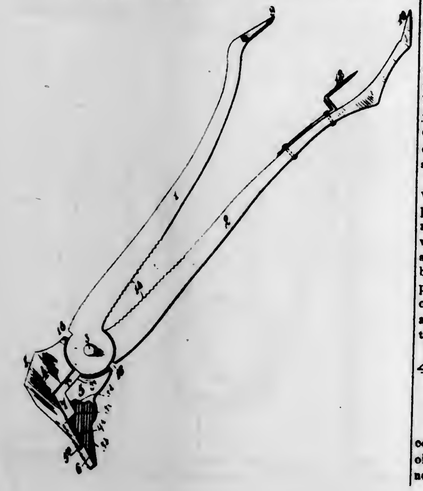


Claim.—1. The combination in a scalping machine, of a main shaft carrying a wheel provided with cams upon its periphery, a sieve actuated by said cams, supporting rockers pivoted to the sieve and frame respectively, and an adjustable supporting rod, substantially as described.

2. The combination in a scalping machine, of a main shaft carrying roller cams, a sieve actuated by said cams, a lug on said sieve adapted to engage a stop or cushion, supporting rockers pivoted to said sieve and frame respectively, an adjustable rod and a spring on said rod, substantially as described.

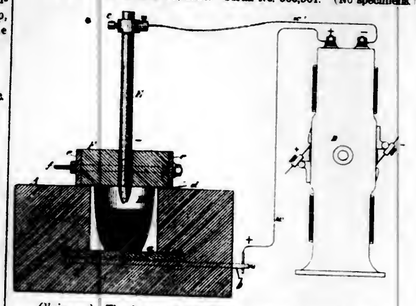
3. In a scalping machine, the combination with a vibrating sieve, of adjustable rectangular rockers supporting said sieve, and a fulcrum for supporting said rockers, substantially as described.

491,393. IMPLEMENT FOR LIFTING PANS. JAMES T. WATKINS and WILLIAM C. BAYLESS, Mossy Creek, Tenn. Filed June 11, 1892. Serial No. 436,387. (No model.)



Claim.—The herein described improved implement comprising, two handles pivoted together, and formed with an upper narrow jaw and a lower broader jaw, said lower jaw provided at its lower end with a gripping part 5^b, and immediately above said gripping part with a horizontal ledge or seat 5^c, having a vertical rear wall 5^d communicating with a horizontal ledge or seat 5^e, substantially as described.

491,394. PROCESS OF ELECTRICALLY REDUCING ALUMINIUM AND FORMING ALLOYS THEREOF. THOMAS L. WILLSON, Brooklyn, N. Y. Filed Mar. 25, 1891. Serial No. 386,301. (No specimens.)



Claim.—1. The herein described process of reducing refractory metallic oxides, consisting in subjecting them in the presence of comminuted carbon as a reducing agent to the heat of an electric arc passing between a molten metallic bath beneath and a carbon electrode above said bath, the electrode being out of contact with the molten bath and with any other conducting substance of sufficiently low resistance to extinguish the arc.

2. The herein described process of reducing refractory oxides which consists in subjecting them in the presence of a base metal to be alloyed therewith, to the heat of an electric arc passing between the molten bath of said base metal and a carbon electrode above said bath in the presence of comminuted carbon as a reducing agent, the electrode being out of contact with the molten bath and with any other conducting substance of sufficiently low resistance to extinguish the arc.

3. The herein described process of reducing refractory oxides which consists in subjecting them to the action of an electric arc passing upwardly from an anode consisting of a molten bath of a base metal beneath to a cathode above said bath in the presence of comminuted carbon as a reducing agent, the electrode being out of contact with the molten bath and with any other conducting substance of sufficiently low resistance to extinguish the arc whereby said comminuted carbon combines with the liberated oxygen and protects the cathode from oxidation.

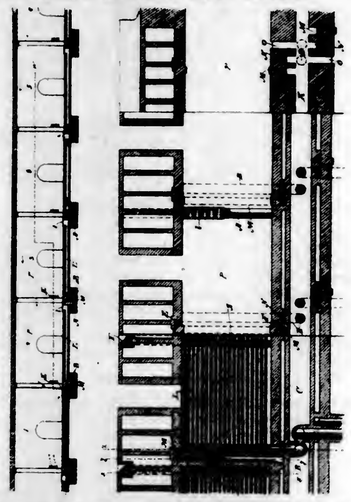
4. The herein described process of producing aluminium alloys which consists in subjecting alumina in the presence of comminuted carbon as a reducing agent to the heat of an electric arc passing between a molten bath of base metal and a carbon electrode above said bath the electrode being out of contact with the molten bath and with any other conducting substance of sufficiently low resistance to extinguish the arc, whereby the oxygen freed by the decomposition of the alumina combines with said comminuted carbon and its corrosion of the carbon electrode is prevented.

5. The herein described process of producing aluminium alloys which consists in subjecting alumina to the action of an electric arc passing upwardly from an anode consisting of a molten bath of base metal beneath to a cathode above said bath and out of contact therewith and with any other conducting substance of sufficiently low resistance to extinguish the arc, and in the presence of comminuted carbon as a reducing agent, whereby the oxygen freed by the decomposition of the alumina combines with said carbon so that corrosion of the cathode and the crucible by it is avoided, and the liberated aluminium is dissolved in the bath of base metal, forming an alloy therewith.

491,395. COMPOSITION FOR ROOFING, PAVING, &c. DAVID A. WRAY, Pittsburg, Pa., assignor of one-half to Samuel M. Boyd, same place. Filed Oct. 16, 1891. Renewed Oct. 25, 1892. Serial No. 449,939. (No specimens.)

Claim.—The herein described roofing and paving compound or composition consisting of tar or the residuum or heavier products of oils, mixed with chloride of sulphur and chloride of iron in the manner and in about the proportions, substantially as specified.

491,396. CONTINUOUS KILN. PETER L. YOUDERIS, Oakland, Cal. Filed Aug. 4, 1892. Serial No. 442,169. (No model.)



Claim.—1. In a continuous kiln the combination of longitudinal flues disposed below its compartment floors and communicating with said compartments, and a hot air flue K having branch, damper-controlled communications with the tops of the compartments and with said longitudinal flues, substantially as herein described.

2. In a continuous kiln, the combination of a hot air flue K and the branch flue M communicating with said hot air flue and extending down below the floor and communicating with the outside and inside of the kiln compartment, substantially as herein described.

3. In a continuous kiln, the combination of the flues L under the compartment floors and communicating with said compartments, the transverse exit passages B communicating with said flues L and with the smoke chamber, the hot air flue K and the damper controlled branch flues M from said hot air flue, said branch flues passing under the kiln compartments and having communications with the inner and outer sides thereof, substantially as herein described.

4. In a continuous kiln, the combination of the flues L under the compartment floors, and communicating with said compartments, the transverse exit passages B communicating with said flues L and with the smoke chamber, the hot air flue K, the damper controlled branch flues O from said hot air flue and communicating with the upper portions of the kiln compartments, and the damper controlled branch flues M from said hot air flue, said branch flues passing under the kiln compartments and having communications with the inner and outer sides thereof, substantially as herein described.

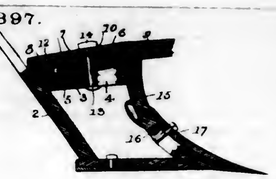
5. In a continuous kiln the combination of the flues L under the compartment floors and communicating therewith, the transverse passages B communicating with flues L, the hot air flue K, the damper controlled flues O communicating with the hot air flue and with the kiln compartments, and the damper controlled flues N communicating with said hot air flue and with the transverse passages B, substantially as herein described.

6. In a continuous kiln, the combination of the flues L under the compartment floors and communicating therewith, the transverse passages B communicating with flues L, the flues N communicating with the passages B and the cover controlled flues u communicating with the flues N and with the outer air, substantially as herein described.

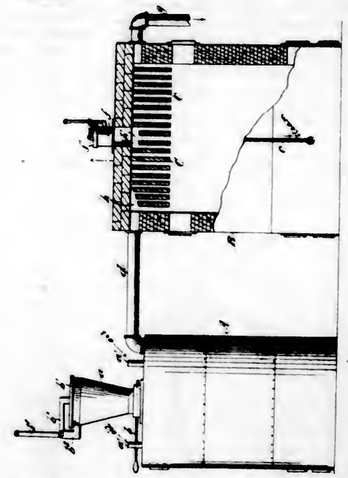
491,397. PLOW. WILLIAM H. ARNOLD, Little Rock, S. C. Filed Oct. 15, 1892. Serial No. 448,901. (No model.)

Claim.—In a plow the combination with the upright having its upper edge concaved and formed with an elongated slot and a series of holes, of the convex plate having a central aperture and a downwardly projecting pin adapted to engage with the holes in the standard, the plow beam formed with an aperture, the headed bolt passing through said apertures and slot, and the nut engaging with said bolt, substantially as described.

491,397.



491,398. APPARATUS FOR THE MANUFACTURE OF GAS. JOSEPH ASKINS, Lima, Ohio. Filed May 11, 1892. Serial No. 432,585. (No model.)



Claim.—1. In a gas making apparatus, the combination of the hydrocarbon generator A, the water gas generator B, the pipe *d* connecting the upper portions of said generators and arranged to conduct hot hydrocarbon vapors and gases from the hydrocarbon vapor generator into the water gas generator, a series of spaced apart tiles C supported in the upper part of the water gas generator opposite the end of the connecting pipe *d* and arranged for the horizontal passage of the hot hydrocarbon vapors and gases in contact with ascending currents of water gas whereby the water gas is carbureted and fixed, and a gas outlet pipe *g* leading from the upper part of the water gas generator opposite the pipe *d* that connects the generators, substantially as described.

2. In a gas making apparatus, the combination of the hydrocarbon vapor generator A, the water gas generator B, the pipe *d* connecting the upper portions of said generators, the spaced apart tiles or tile-sections C supported in the upper part of the water gas generator opposite the end of the connecting pipe *d* and having perforations for the passage of gas in a horizontal direction from the pipe *d*, and the gas outlet pipe *g* leading from the upper part of the water gas generator, substantially as described.

3. In a gas making apparatus, the combination of the hydrocarbon vapor generator A, the water gas generator B having the outlet *f* in its top and the outlet pipe *g* leading from the upper part of said generator on one side, the pipe *d* connecting the upper portions of said generators and arranged to conduct hot hydrocarbon vapors and gases from the hydrocarbon vapor generator into the water gas generator, and a series of spaced apart perforated tiles or tile sections C supported in the upper part of the water gas generator and reduced or cut away opposite the end of the pipe *d* and opposite the outlet *f*, substantially as described.

491,399. HOOK AND EYE. CHARLES E. BARNES, Paterson, N. J. Filed Oct. 6, 1892. Serial No. 448,090. (No model.)

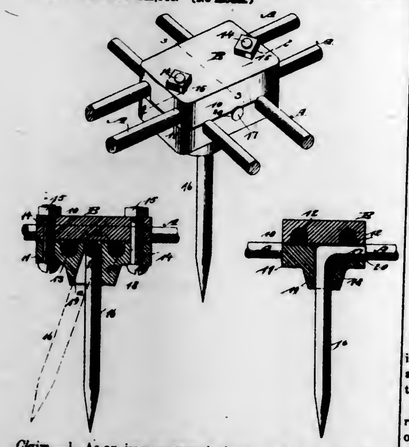
Claim.—1. A hook and eye, consisting of an eye, having loops or openings in each end for securing it to the cloth and having an intermediate part which is bent in a plane perpendicular to the surface

to which the eye is attached, one end of this eye being secured at the edge of the fabric, and the hook having an inner angular portion provided with a loop whereby it is secured to the fabric, and having an outer angular part secured by a loop near the edge of the fabric to which it is attached, and having a hooking part which is adapted to engage the eye by being moved in a plane parallel to the surface to which the eye is secured, all the parts of the said hook being situated in the same plane, substantially as described.



2. In a hook and eye, an eye having an intermediate length, at each end of which is an eye or loop used for the purpose of stitching the eye to the fabric, one of said loops being secured at the edge of the fabric, while the intermediate length is bent in a plane perpendicular to the surface to which the eye is secured and the hook having an angular outer bend formed with an eye or loop for stitching it to the opposite edge of the fabric and a projecting angular part *b* adapted to engage the aforesaid eye, said part *b* having a terminal loop *b'* adapted to lie close to the inner angular portion of the hook, which angular portion is provided with an eye for securing it likewise to the fabric, all the parts of the hook being situated in the same plane and substantially as described.

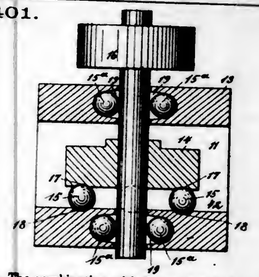
491,400. HARROW. NIELS L. BECK, Brayton, Iowa. Filed Aug. 6, 1892. Serial No. 442,310. (No model.)



Claim.—1. As an improvement in harrows, the combination of the frame bars A arranged in sets disposed at right angles to each other, the securing blocks at the intersection of such sets of bars, said blocks consisting each of upper and lower sections 10, 11, the upper section having longitudinal grooves on its lower face to receive the longitudinal set of bars A, the lower section having transverse grooves in its upper face to receive the transverse bars A said section also having a vertical bore 19 at a point intermediate the transverse grooves formed with lateral extension 20 at its upper end, the harrow tooth 16 fitting the bore 19, and having a head portion 17 fitting the extension 20, and the securing bolts 14 and 15, all arranged substantially as and for the purpose described.

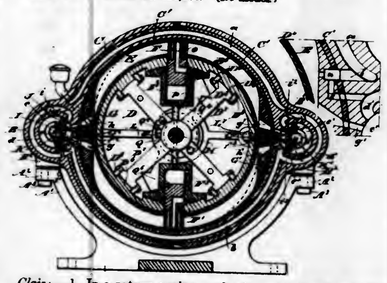
2. In a harrow, the combination with a body portion, consisting of two sets of bars, A crossing each other at right angles, of securing blocks, each consisting of an upper and lower section, the upper section having longitudinal grooves in its under face, the lower section transverse grooves in its upper face, such upper and lower faces bearing respectively upon the transverse bars A and against the longitudinal bars A, the lower section having a vertical bore 19 centrally between the transverse grooves, said opening having an inclined face 19^a and a lateral extension 20, the tooth 16 fitting the bore 19 and having a head portion seating in the extension 20, and the securing bolts 14, passed through sections, and arranged at the outside of the transverse bars A and projected up between the longitudinal bars A, all arranged substantially as shown and for the purposes described.

491,401. ANTIFRICTION-BEARING. PETER BUCKMAN, Bucksport, Maine. Filed June 21, 1892. Serial No. 437,451. (No model.)



Claim.—The combination with the support 11 having horizontal bearing portions 12, 13 provided with aligned apertures, the walls of which are provided with annular grooves 19, 19; the upper face of the portion 12 having a groove 18 concentric with groove 19, of the vertical shaft extending through the said bearing portions 12, 13, series of balls 15^a in the grooves 19, a disk 14 on the shaft between the portions 12, 13, balls 15 in the annular groove 18 and on which the disk 14 rests, substantially as set forth.

491,402. ROTARY ENGINE. ALBERT D. BELLINGER, Black River Falls, Wis., assignor to himself and Henri B. Cole, same place. Filed Dec. 8, 1891. Serial No. 414,360. (No model.)



Claim.—1. In a rotary engine, a wheel provided with a rim having projections, a spider abutting with its arms on the said projections, and plates attached to the spider arms and abutting on the sides of the said projections, substantially as shown and described.

2. A rotary engine, provided with a wheel comprising a spider, a rim formed with inwardly-extending projections abutting on the arms on the spider, plates secured on the spider arms and engaging opposite sides of the said projections, a lining held on the outer surface of the said rim, and packing rings supported on the said rim and abutting against the said lining, substantially as shown and described.

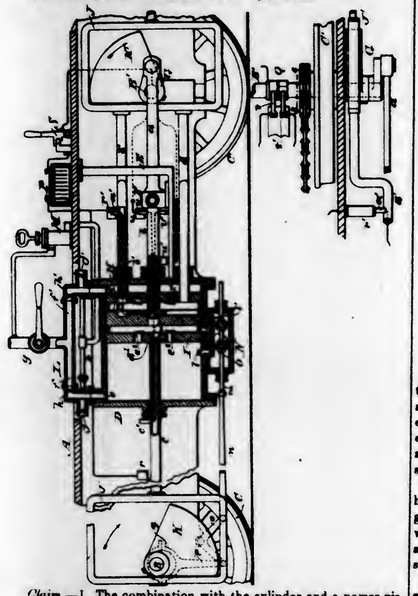
3. A rotary engine; provided with a wheel comprising a spider, a rim formed with inwardly-extending projections abutting on the arms of the spider, plates secured on the spider arms and engaging opposite sides of the said projections, a lining held on the outer surface of the said rim, packing rings supported on the said rim and abutting against the said lining, and outer rings abutting against the said packing rings and secured on the said rim, substantially as shown and described.

4. In a rotary engine, the combination with a cylinder provided with a lining in the form of a ring having annular shoulders, of a wheel mounted to turn within the said cylinder and comprising a ring, a spider carrying the said rim, a lining held on the said rim, and packing plates extending from the said rim and its lining to the shoulders on the lining of the said cylinder, and rings secured to the outer edges of the said rim to hold the packing rings in place, substantially as shown and described.

5. In a rotary engine, the combination with a cylinder provided with a lining in the form of a ring having annular shoulders, of a wheel mounted to turn within the said cylinder and comprising a rim, a spider carrying the said rim, a lining held on the said rim, and packing plates extending from the said rim and its lining to the shoulders on the lining of said cylinder, rings secured to the outer edges of the said rim to hold the packing rings in place, projections extending inwardly from the said ring, and plates attached to the spider arms and engaging the sides of the said projections, substantially as shown and described.

6. In a rotary engine, the combination with a wheel provided with sliding pistons, of a cylinder forming a steam space with the said wheel and provided with an inlet channel and an exhaust channel, a channel leading from the said inlet channel to the said steam space, and an auxiliary channel leading from the last mentioned channel to the exhaust channel, and a valve fitted to slide in the channel connecting the steam space with the inlet channel, substantially as shown and described.

491,408. GAS-ENGINE. JOHN S. BEGAR, Whittenborough, Cal. Filed Oct. 12, 1891. Serial No. 408,451. (No model.)



Claim.—1. The combination with the cylinder and a power piston having contacts on both faces, of the valved transfer pistons at opposite sides of the power piston and each having a contact to engage those of the power piston, and the electrical connections, substantially as set forth.

2. In a gas engine, the combination of the power cylinder, the power piston provided with a tubular piston rod, and electrical contact points, the transfer pistons provided with check valves and furnished with tubular piston rods and contact points, and the electric generator and electrical connections, substantially as specified.

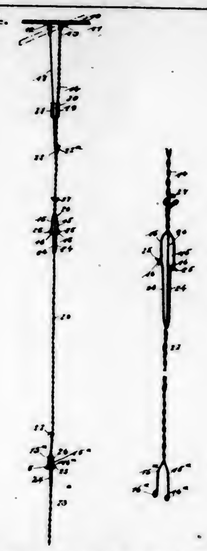
3. In a gas engine, the combination of the power cylinder provided with inlet and exhaust ports, a power piston, two transfer pistons, said three pistons each having a tubular piston rod, contact points on both sides of the power piston, a contact point on the inner face of each transfer piston to respectively engage the contacts on the power piston, electric connections leading from said contact points through the piston rods to the outside of the cylinder and there connected with contacts on the rods, contact plates in the paths of the piston-rod-contacts and means for operating the transfer pistons, substantially as specified.

491,404. FLUE-CLEANER. PERRY A. BURGESS, Steamboat Springs, Colo. Filed May 24, 1892. Serial No. 434,186. (No model.)

Claim.—1. A flue cleaner, comprising a blade, a handle hinged to one side of the blade at about its center, and an adjusting rod having one end hinged to the blade at one side of its center and in the same horizontal plane with the handle, and its other end detachably connected to the handle, substantially as described.

2. A flue cleaner, comprising a blade, a handle hinged to one side of the blade at about its center, an adjusting rod having one end hinged to the blade at one side of its center and in the same horizontal plane with the handle and its other end detachably secured to the handle, and a guide secured to the handle and through which the adjusting rod works, substantially as described.

491,404.

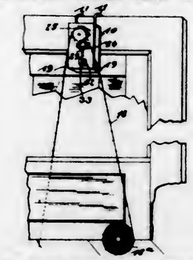


3. A flue cleaner comprising a blade, a handle pivotally connected therewith, an adjusting rod also pivotally connected with the blade at one end and detachably connected with the handle at its opposite end; the handle being formed of sections provided at their adjacent ends respectively with eyes and spring prongs to enter therein, and an arm on one section having a keeper to embrace the other section, substantially as set forth.

4. A flue cleaner comprising the scraping blade provided with a handle pivotally connected therewith and having an aperture and a guide between the blade and aperture, and a rod pivotally connected with the blade to one side of the handle, extending through the guide and having its inner end bent at an angle to enter the said aperture, substantially as set forth.

5. The combination with the handle having terminal eyes at the ends of the handle sections, spring prongs to engage the eyes, and an elongated arm terminating in a keeper adapted to embrace the handle, substantially as described.

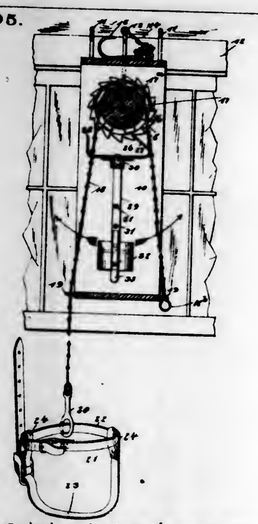
491,405. FIRE-ESCAPE. PERRY A. BURGESS, Steamboat Springs, Colo. Filed June 9, 1892. Serial No. 436,062. (No model.)



Claim.—1. A fire escape, comprising an open sided frame having suspending hooks at the top and on one side and keepers at its lower end opposite its open side, a bail secured to the top and having a fastening chain and hook connected therewith, a sprocket wheel journaled in the frame, a chain carried by the sprocket wheel and held to slide through the keepers, a load-securing harness arranged at one end of the chain, a ratchet wheel held to turn with the sprocket wheel, and a pendulum escapement to limit the speed of the ratchet wheel, substantially as described.

2. The combination of the frame having keepers thereon, the sprocket wheel journaled in the frame, speed controlling mechanism for the sprocket wheel, and a chain extending over the sprocket-

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wheel and having a load securing device at one end and a stop to engage the keeper at the other, substantially as described.

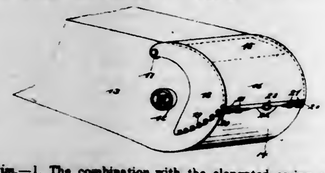
491,406. BUTTER-PAIL. LE ROY DAUGHERTY, Muncie, Ind. Filed Aug. 20, 1892. Serial No. 443,647. (No model.)



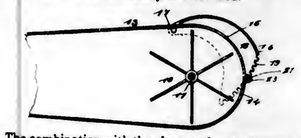
Claim.—1. In a butter package, the combination with the vessel A provided with a flange *a*, and its cover B, of the fastening mechanism consisting of the bar E recessed upon its upper opposite ends and the clamps F, F, turned inwardly at their lower ends, as at *f*, to engage the flange *a* and bent inwardly at their upper ends, as at f^2, and slotted as shown, and screws passing through said slotted ends of the clamps and engaging said bar E, substantially as described and for the purpose specified.

2. In a butter package, the combination with the vessel A provided with a flange *a* and its cover B, of the fastening mechanism consisting of the bar E having adjustably secured to its opposite ends clamps F, F, provided with inwardly turned ends *f*, *f*, adapted to engage the said flange *a*, and the thumb screw H, tapped through the bar E and engaging the cover B, the clamps F, F, being provided with ears I, I, and having secured therein the ends of a bail J, substantially as described.

491,407. FAN. THEODORE F. DAVIS, Marshalltown, Iowa. Filed June 28, 1892. Serial No. 438,312. (No model.)

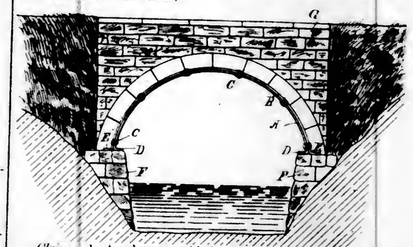


Claim.—1. The combination with the elongated casing closed at the sides and having a transverse slot in one end of the fan held to revolve in the casing and the hood-like damper held to embrace the end of the casing and cover the slot, the damper being adjustable to and from the slot, substantially as described.



2. The combination with the elongated casing having closed sides and a transverse end opening, of a hood-like damper pivoted on the casing and arranged to swing over the opening, the damper having side flanges to embrace the casing, and means for adjusting the damper to and from the opening in the casing, substantially as described.

491,408. CULVERT. CHARLES B. DAVIS, Savona, N. Y., assignor to himself and David A. Crandall, same place. Filed Nov. 5, 1892. Serial No. 451,033. (No model.)



Claim.—1. A culvert provided with a metallic arch composed of curved plates placed one on top of the other to break joints, and riveted together, substantially as shown and described.

2. A culvert provided with a metallic arch comprising two sets or series of metallic plates placed one on top of the other to break joints, rivets for fastening the two series of plates together, and flanges formed on the ends of the said sets of plates and bent on opposite directions to form a foot for the arch, substantially as shown and described.

491,409. TOBACCO-PIPE. WILLIAM DEMUTH, New York, N. Y. Filed Oct. 15, 1892. Serial No. 448,994. (No model.)



Claim.—1. As an improved article of manufacture, a tobacco pipe having a spheroidal bowl provided with a pipe stem and a weight inserted into the base of the bowl and projecting into the pipe stem for causing the bowl to normally stand in an upright position, substantially as described.

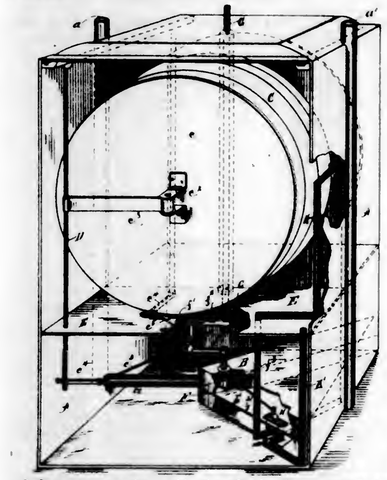
2. A tobacco pipe having a spheroidal bowl provided with a pipe stem, a flattened base and a weight inserted into the base of the bowl and projecting into the stem for causing the bowl to normally stand upright, substantially as described.

491,410. BLUE-BLACK AZO DYE. THEODOR DIEBL, Berlin, Germany, assignor to the Actien-Gesellschaft für Anilin Fabrikation, same place. Filed Mar. 14, 1892. Serial No. 424,908. (Specimens.)

Claim.—The blueblack dyes derived from the tetrazocompound of para-amido-benzine-azo-amido-alpha naphthaline and gamma amido-naphtholmonosulphoacid, beta naphthol-alpha monosulphoacid or naphthionic acid, said dyes being solnble in water, sparingly soluble in alcohol, turning blue in sulphuric acid, from which solution they are precipitated by water, substantially as set forth.

491,411. GAS-METER. THOMAS F. DOWNEY, Detroit, Mich. Filed Aug. 12, 1892. Serial No. 442,940. (No model.)

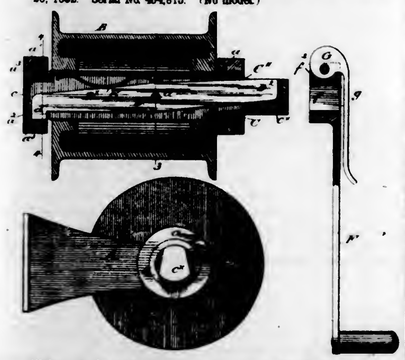
Claim.—1. In a gas meter, the combination with the upper wall thereof, of a transverse perpendicular diaphragm dividing the gas and bellows chamber into two parts, a tubular shaft wall extending from a valve chamber below the gas chamber and formed within the perpendicular diaphragm connected to and opening through the upper wall, and an auxiliary detachable chamber containing indicating mechanism and connection, and located upon the upper wall, substantially as described.



2. In a gas meter, the combination of a chamber containing bellows and adapted to contain gas, a valve chamber adapted to receive and transmit gas, an intermediate chamber between the bellows chamber and the valve chamber containing the mechanism for operating the valves, from which gas is excluded, an upper chamber containing the indicator, and a tubular passage formed in a perpendicular diaphragm and connecting the upper and intermediate chambers, and a shaft located therein and connected at the lower end with the operating mechanism and at the other end with the indicator, substantially as described.

3. In a gas meter, in combination with the casing A, carrying shaft G, extending through its upper wall, an auxiliary case A^3 permanently connected to casing A, and surrounding the upper end of shaft G, one side of casing A^3 being detachable and carrying the indicating mechanism, and means for bringing the indicating mechanism into engagement with shaft G simultaneously with placing the detachable portion of casing A into position, substantially as described.

491,412. WINDLASS FOR LOWERING OR RAISING STREET ELECTRIC LAMPS. CHARLES R. EDDY, Springfield, Mo. Filed May 28, 1892. Serial No. 434,815. (No model.)



Claim.—1. In a windlass, in combination, the supporting arms, the shaft journaled therein and having the drum fixedly held thereon, one end of such shaft projected beyond its bearing, locking devices carried by the shaft, to normally lock the shaft to its bearing and a detachable crank member, having unlocking means, adapted to be moved into contact with the shaft locking devices, to unlock them when the crank is applied to the shaft, substantially in the manner and for the purposes described.

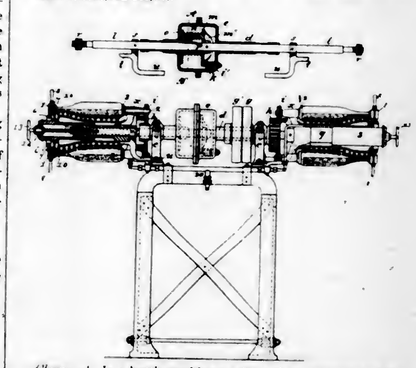
2. The combination with the supporting arms having bearing apertures, one of such apertures having lock notches, of a drum carrying shaft journaled in such apertures said shaft having one end projected to form a crank receiving end, such shaft slotted longitudinally, a spring actuated lever pivoted in such slotted shaft, and normally held with one end in locked engagement with one of the lock notches, its other end flush with the outer face of the crank end and a crank member having an eccentric or cam lever adapted to be moved into engagement with the upper end of such lever to tilt it, when the crank is applied substantially as and for the purpose described.

3. The combination of the supporting arms *a a'*, the arm *a'* having radial lock notches a^2, the slotted shaft C journaled in such arms *a a'*, and carrying the drum B, and having an extension c^x, the spring actuated lever D having a member *d* normally in engagement with one of the notches a^2, its opposite end projected to the top of the extension c^x, the detachable crank F having its aperture formed with a radial slot f^2 and the cam lever G journaled in such slot f^2 all substantially as and for the purpose described.

491,413. COMPOSITION OF MATTER FOR REMOVING GREASE, &c. BENEDIKT ERBAN, Brownwood, Tex. Filed July 2, 1892. Serial No. 438,774. (No specimens.)

Claim.—The compound described, consisting essentially of gasoline, chloroform, sulphuric ether, alcohol, spirits of ammonia, powdered borax, powdered carbonate of soda, and saltpeter in lumps, combined in the proportions and manner, substantially as herein set forth.

491,414. BOTTLE-WASHING MACHINE. LORENZ A. REINDERS, Worms, Germany. Filed June 15, 1891. Serial No. 396,330. (No model.) Patented in Germany Oct. 29, 1890, No. 56,829, and in France Nov. 7, 1890, No. 209,360.



Claim.—1. In a bottle-washing machine, the combination of the hollow rotative shaft *d*, bearings for the same, the rod *l* passing loose through said shaft and having an arm *w* parallel thereto, a guide in which the arm slides, mechanism in connection with shaft *d* and rod *l* whereby longitudinal reciprocating motion of the rod is derived from the rotation of the shaft, sleeves *x* carried by rod *l*, axles *z* rotating in sleeves *x* and having each a pinion *i* and disk 2, the latter fitting to the bottom of a bottle, spur-wheel *h* keyed on the shaft *d* and gearing with pinions *i*, and spring-pressed bottle-clamping devices, carried by rod *l* and having blocks 1 provided with recesses for the mouths of the bottles to rotate in, substantially as described.

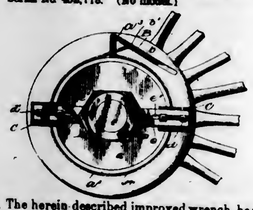
2. In a bottle-washing machine, the combination of the rod *l*, sleeves *x* carried by the same, spindles *z* mounted in said sleeves and having disks 2, means for rotating the spindles *z*, tube 3 carried by rod *l* and capable of sliding lengthwise thereto, spring-pressed bottle-clamping devices mounted on tube 3 and having blocks 1 with recesses for the mouths of the bottles to rotate in, and an adjusting-mechanism whereby the tube 3 can be shifted relatively to rod *l*, substantially as specified.

3. In a bottle-washing machine, the combination of the rod *l*, the tube 3 carried by rod *l* and capable of sliding lengthwise thereto,

means for holding the bottles in the machine and for rotating them, brushes composed of two parts 14, 15, adapted to slide lengthwise to each other, the brush-parts 15 being secured to rod *l*, while the parts 14 are attached to tube 3, and an adjusting-mechanism whereby the tube 3 can be shifted relatively to rod *l*, substantially as described.

4. In a bottle-washing machine, the combination of the hollow rotating shaft *d* composed of two united parts forming together a housing *e*, the rod *l* passing through the shaft *d*, means for preventing the rod from rotating without hindering its longitudinal motion, and a mechanism placed inside of the said housing and through the medium whereof longitudinal reciprocating motion is imparted to the rod *l* by the rotation of the shaft *d*, substantially as specified.

491,415. WRENCH. ELISHA L. BEELEY, Chicago, Ill. Filed Nov. 21, 1892. Serial No. 452,718. (No model.)



Claim.—1. The herein described improved wrench, having an adjustable band designed to encircle and be secured on a wheel hub opposite adjustable clamping jaws carried by said band and means for holding said jaws stationary at any point, substantially as set forth.

2. The herein-described improved wrench, comprising the band, means for binding the same, the plates secured to said band, and the clamping jaws adjustably secured to said plates, substantially as set forth.

3. The herein-described improved wrench, comprising the band, means for binding the same, the plates secured to said band and having serrated faces, and the clamping jaws having serrated arms adjustably held to said plates, substantially as set forth.

4. The herein-described improved wrench, comprising the band, the lever fulcrumed on one end of said band and having the other end thereof adjustably secured thereto, and the opposite clamping jaws carried by and located within said band, substantially as set forth.

5. The herein-described improved wrench, comprising the band, the lever fulcrumed on one end of said band and having the other end thereof adjustably secured thereto, the plates carried by said band, and the clamping jaws having arms adjustably secured to said plates, substantially as set forth.

6. The herein-described improved wrench, comprising the band having a post or stud projecting from one end thereof, its other end being forked, the lever fulcrumed on said post or stud and having a series of holes therein, the bolt holding the forked end of said band to said lever, and the opposite adjustable clamping jaws carried by said band, substantially as set forth.

7. The herein-described improved wrench, consisting of the band designed to encircle the hub of a wheel, the lever connected to the ends of said band for effecting the binding thereof, the opposite plates carried by said band and having serrated faces, the clamping jaws of V-shape having arms projecting therefrom, said arms having serrated faces and longitudinal slots, and the nutted bolts for binding said arms to said plates, substantially as set forth.

491,416. MILK-COAGULATING PRODUCT. CLARENCE P. BYRD, Chicago, Ill., assignor to the Nutriment Company, same place. Filed Nov. 29, 1890. Serial No. 373,060. (No specimens.)

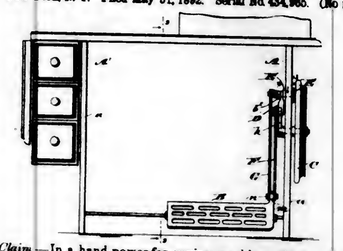
Claim.—The described rennin product, being a milk-coagulating ferment, exhibited in solid form, practically free from pepsin, trypsin, &c., whereby the specific milk-coagulating action of the rennin alone is obtained, from any given quantity, substantially as described.

491,417. METALLIC CALKING-STRIP. FRANCIS W. FISCHER, Pentwater, Mich. Filed July 20, 1892. Serial No. 440,711. (No model.)



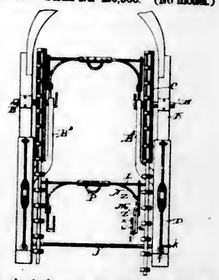
Claim.—A means for stopping the seams of boats consisting of a strip of sheet metal doubled upon itself from its sides toward the center, thence at a right angle forming a flange portion and a tongue portion, said tongue portion adapted to be inserted into the seam of a boat, then turned outwardly forming an inner flange, said flanges adapted to be received in rabbets in the outer and inner edges of the planks, and to be secured therein substantially as described.

491,418. HAND-POWER ATTACHMENT. FINLEY M. FOSTER, New York, N. Y. Filed May 31, 1892. Serial No. 434,965. (No model.)



Claim.—In a hand power for sewing machines, the combination of a clamp comprising two separate clamp plates, adapted to be placed at the sides of a machine frame to engage the same, a shouldered bolt adapted to aligning apertures in said plates, the said bolt between the shoulder and head forming a journal, a hand lever apertured intermediately its length to be received on the said journal, and a pitman having connection with said hand lever beyond the aperture of the latter, and adapted at its other end for connection with the treadle of a machine, the screwing up of the bolt serving to move the clamp plates bodily for causing them to firmly bind on the machine frame, substantially as described.

491,419. HOD-ELEVATOR. EDWARD J. GARRARD, Franklin, Pa. Filed Mar. 26, 1892. Serial No. 426,580. (No model.)



Claim.—1. In a hod elevator, the combination with the grooved standards D, and standards E, carrying the bracket arms B^3, in which are mounted the shafts B', with wheels C', and the perforated screw threaded blocks, as described, of screw-threaded vertical shafts F, engaging said blocks, the cross-shaft *i*, and suitable gearing for operating the several shafts to adjust the uprights E, substantially as and for the purposes specified.

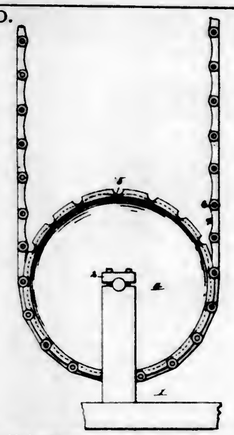
2. In a hod elevator, substantially as described, the combination with a pair of parallel elevator chains, and a cross-bar connecting said chains; of a pair of hod hangers respectively comprising a body having an inwardly-directed, lateral branch and diverging arms extending upwardly from said branch, hanger links connecting the hod hangers to the cross-bar and a brace connected to the cross-bar and connecting the hanger links; substantially as and for the purpose set forth.

3. In a hod elevator, substantially as described, the combination with a pair of parallel elevator chains, a cross bar connecting said chains, a pair of hod hangers and hanger-links connecting said hangers and the cross-bar; of a brace connected to the cross-bar and connecting the hanger-liuks, and a hook or eye connected to and depending from said brace; substantially as specified.

491,420. CHAIN-GEARING. EDWARD J. GARRARD, Franklin, Pa. Filed June 23, 1892. Serial No. 437,743. (No model.)

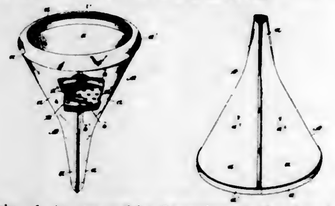
Claim.—A chain wheel having a peripheral groove and provided with notches in the walls thereof, with intervening unbroken surfaces between said notches, in combination with a sectional chain, the links

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of which are provided with curved body portions having knuckles at opposite ends, said curved body portions adapted to engage the curvature of said peripheral groove, and the knuckles engaging the notches therein; substantially as and for the purpose specified.

491,421. FUNNEL. AUGUSTUS GERSDORFF, Washington, D. C. Filed Mar. 19, 1888. Serial No. 267,645. (No model.)



Claim.—1. As a new article of manufacture, a funnel made of longitudinal sections united together by longitudinal seams and each section forming a part of the body and nozzle of the funnel, the nozzle having flattened sides which form air vents that extend longitudinally of the nozzle, into the body, and above the line where said nozzle joins the body, substantially as described.

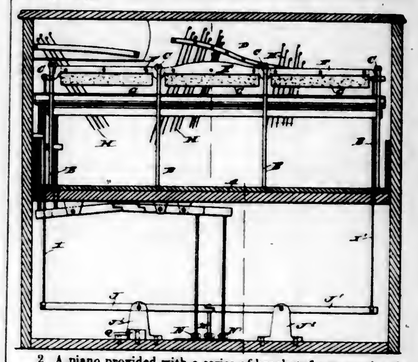
2. As a new article of manufacture, a funnel made of longitudinal sections united together by longitudinal seams and each section forming a part of the body and nozzle of the funnel, the nozzle having flattened sides which form air vents that extend longitudinally of the nozzle, into the body, above the line where the nozzle joins the body, the seams of the body being formed by interlocking and soldering flanges and the seams in the nozzle being soldered together, whereby the inner surface of the body and nozzle is made smooth, substantially as described.

491,422. BROWN DYE. ROBERT GREEN and JAKOB SCHMID, Basle, Switzerland, assignors to the Society of Chemical Industry in Basle, same place. Filed Aug. 25, 1892. Serial No. 444,111. (Specimens.) Patented in France Mar. 7, 1892, No. 219,925.

Claim.—The new brown dyestuff herein described being the sodium salt of an azo derivative of meta-diazo-benzoic acid and the so called Bismarck brown, which is a dark brown powder, insoluble in benzene but easily soluble in water, dissolving with difficulty in alcohol with a brown-orange color and soluble in concentrated sulphuric acid from which solution it precipitates by addition of water.

491,423. PIANO. WILLIAM P. HAINES, New York, N. Y., assignor to Haines Brothers, same place. Filed May 11, 1892. Serial No. 432,649. (No model.)

Claim.—1. A piano provided with brackets supporting the action and formed with guideways, and a rail mounted to slide in the said guideways and carrying strips of damper fabric adapted to be moved into or out of the path of the hammers, substantially as shown and described.



2. A piano provided with a series of brackets for supporting the action, and formed at their upper ends with guideways, substantially as shown and described.

491,424. WASHING-MACHINE. WILLIAM H. HAYDON, Santo, Tex. Filed June 11, 1892. Serial No. 436,357. (No model.)



Claim.—In a washing machine, the combination with a casing having ribbed rollers journaled therein, an endless belt with slats mounted on said rollers, of a rubbing board with cross pieces thereon pivoted to the casing, a spring at the rear central portion of the board, a counter-acting tension spring secured to the end of the casing, and adapted, at its free end, to hold a cord said cord being secured at one end to the board, its opposite end passing through an opening in the end of the casing and adapted to engage with said tension spring, whereby the rubbing board is adjusted to or from the slats of the belt, substantially as specified.

491,425. SWIVEL-LOOM. BENJAMIN HATTOX, Paterson, N. J., assignor to Hess, Goldsmith & Co., New York, N. Y. Filed Sept. 6, 1890. Serial No. 364,105. (No model.)

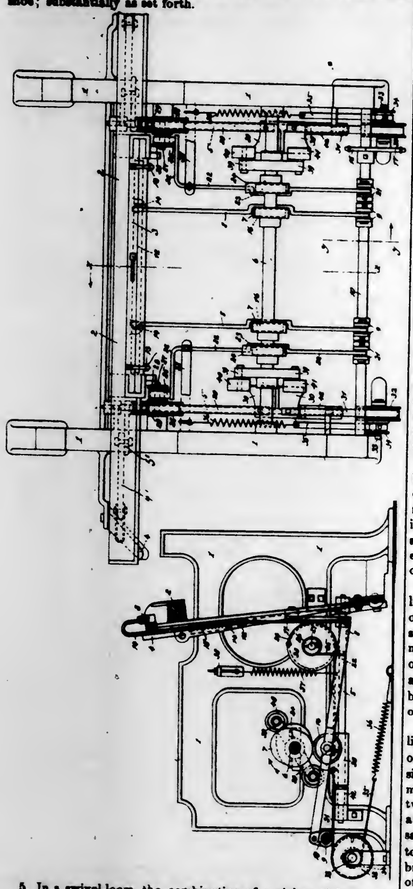
Claim.—1. In a swivel loom, the combination of the picker-sticks, the rock-shafts operatively connected thereto, a shoe mounted on each rock-shaft, a lever, means to operate it, a connection between the said lever and one end of the said shoe, and a spring connected to the other end of said shoe so that the shoe may be slid back and forth on said shaft, substantially as described.

2. In a swivel-loom, the combination of a picker-stick, a rock-shaft operatively connected thereto, a shoe mounted to slide on said shaft, a constantly-revolving shaft having arms, to vibrate said shoe and actuate said rock-shaft, and having also a cam, a lever adapted to be depressed by said cam, and connections intermediate said lever and one end of said shoe whereby when the lever is depressed the shoe will be moved out of the path of action of the constantly-revolving arms; substantially as set forth.

3. In a swivel-loom, the combination of a picker-stick, a rock-shaft operatively connected thereto, a shoe mounted to slide thereon, a constantly-revolving shaft having arms and a cam, a lever adapted to be depressed by said cam, connections between said lever and one

end of said shoe, a returning-spring, and connections between said spring and the other end of said shoe; substantially as set forth.

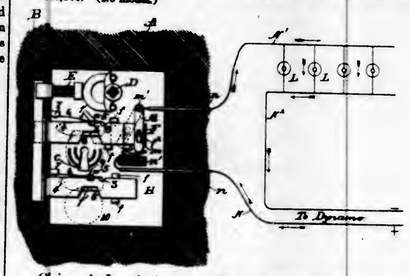
4. In a swivel-loom, the combination of a picker-stick, a rock-shaft operatively connected thereto, a shoe mounted to slide on said shaft, means for rocking said shaft through said shoe, a lever, a cam for depressing the same, a drum, a pulley, and flexible connections between the lever and the drum and the pulley and one end of the shoe; substantially as set forth.



5. In a swivel-loom, the combination of a picker-stick, a rock-shaft operatively connected thereto, a shoe mounted to slide thereon, means for rocking said shaft, a lever, a cam for actuating the same, a drum and a pulley on one side of said shoe, and a drum and pulley and spring on the opposite side of said shoe, a band connecting the lever with one drum, a band connecting one pulley with the shoe on one side, a band connecting the other pulley with the shoe on the other side, and a band connecting the spring with the other drum; substantially as set forth.

6. In a swivel loom, the combination of the swivel shuttle beam, the rock-shaft 10, means for rocking said shaft from the pattern mechanism, the constantly-revolving shaft 6, the cams 7 thereon, the levers 8 operatively connected to the rock-shaft 10 and to the swivel shuttle beam, and adapted to be actuated by the cams 7, levers 22 operatively connected to said rock-shaft, cams 24 on the shaft 6 to actuate said levers 22, the rock-shafts 5, arms 29 on the shaft 6, a shoe on each rock-shaft 5, connections between said shoe and its associated lever, whereby the shoe may be slid back and forth during the movements of said lever, and the picker-sticks operatively connected to said rock-shafts, 5, substantially as described.

491,426. COMBINED ELECTRIC SWITCH AND DOOR-LOCK. JOHN H. L. HOLCOMBE, U. S. Navy. Filed Oct. 24, 1892. Serial No. 449,879. (No model.)



Claim.—1. In a device of the character described, the combination with an electric light circuit and electric lights therein, of a door lock provided with keyholes on either side of said lock, an electric switch controlling the current admitted to lights in said circuit, and a key for said lock adapted to move said switch when turned in the keyhole at one side of said lock, and not to move said switch when turned in the keyhole at the other side of said lock, substantially as and for the purposes described.

2. In a device of the character described, the combination with an electric light circuit and electric lights therein, of a door lock adapted to be operated from either side, a contact making and breaking device connected to said circuit and to said lock, and means for operating said lock from one side without affecting said contact making and breaking device, and for operating said lock from the other side and moving said contact making and breaking device, substantially as and for the purposes described.

3. The combination with an electric light circuit and electric lights therein, of a door lock provided with keyholes on either side of said lock, a bolt within said lock adapted to be moved from either side thereof, an electric switch connected to said circuit and in proximity to said bolt, and a key for said lock adapted to engage said switch, when entered and turned from one side of said lock, and not to engage said switch when entered and turned from the opposite side of said lock, substantially as and for the purposes described.

4. The combination with an electric light circuit and electric lights therein, of a door lock provided with keyholes on either side of said lock, a bolt within said lock adapted to be moved from either side thereof, a double bell crank lever pivoted within said lock and normally closing said circuit, and a key for said lock adapted to pass over said lever when inserted and turned from one side of said lock and so leave said circuit undisturbed, and to engage in said lever and break said circuit when inserted and turned from the opposite side of said lock, substantially as and for the purposes described.

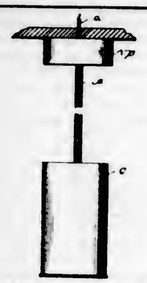
5. The combination with an electric light circuit and electric lights therein, of a door lock provided with keyholes on either side of said lock, a bolt within said lock adapted to be moved from either side thereof, a double bell crank lever M' pivoted with said lock, terminals for the electric circuit in the form of spring bearings engaging two of the arms of said bell crank lever, and so closing said circuit, and a key for said lock adapted to pass over the opposite arms of said lever when inserted and turned from one side of said lock and to leave said circuit undisturbed, and to engage in said levers and break said circuit when inserted and turned from the opposite side of said lock, substantially as and for the purposes described.

6. The combination with an electric light circuit and electric lights therein, of a door lock provided with keyholes on either side of said lock, a bolt within said lock adapted to be moved from either side thereof, a double bell crank lever M' pivoted with said lock, terminals for the electric circuit in the form of spring bearings engaging two of the arms of said bell crank lever, and so closing said circuit, an insulated clip for holding said lever when detached from said spring bearings, and a key for said lock adapted to pass over the opposite arms of said lever when inserted and turned from one side of said lock and to leave said circuit undisturbed, and to engage in said levers and break said circuit when inserted and turned from the opposite side of said lock, substantially as and for the purpose described.

491,427. FLY-CATCHER. GILBERT D. HORTON, Snohomish, Wash. Filed Aug. 29, 1892. Serial No. 444,406. (No model.)

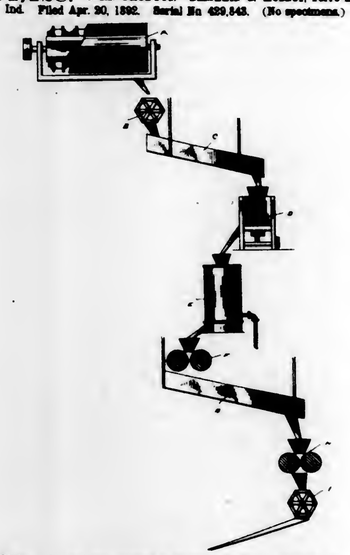
Claim.—The herein described fly catcher, comprising a suspended cord, having a sticky or adhesive coating, an open cup or receptacle to which the lower end of said cord is attached, and a cover D normally removed from said cup or receptacle and carrying a fastening

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device by which it is attached to an overhead support and to which the upper end of the cord is fastened, substantially as specified.

491,428. CORN PRODUCT. BENJAMIN G. HUDNUT, Terre Haute, Ind. Filed Apr. 20, 1892. Serial No. 429,843. (No specimens.)



Claim.—1. As a new article of manufacture, a product from corn consisting of small, light, crystalline, soluble, partly converted starchy particles comparatively free from dextrine, substantially as described.

2. As a new article of manufacture, the corn product made from hominy, screened, dried and cleaned, partly converted by heat, flattened, dried, reduced and graded, substantially as described.

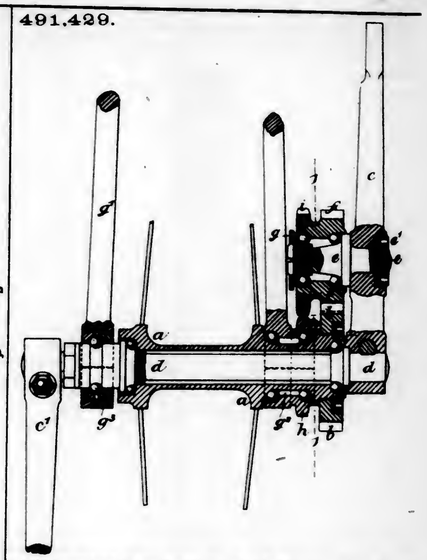
3. The process of treating corn, which consists in first making it into hominy; second, separating, drying and cleaning the hominy; third, partly converting the hominy by heat; fourth, flattening it; fifth, drying it; sixth, reducing the material, and, finally, grading it, substantially as shown and described.

491,429. VELOCIPEDE DRIVING-GEAR. JOHN KEEN, THOMAS R. MARRIOTT, and FREDERICK COOPER, London, England. Filed Feb. 26, 1892. Serial No. 422,910. (No model.)

Claim.—1. In velocipede driving gear, the combination of the fork bearings, the hub of the driving wheel journaled in one of them, the crank spindle journaled in the hub and in the other fork-bearing, a sun-wheel fixed on the hub, a planet-wheel on the crank meshing with the sun-wheel, a wheel fixed rigidly to the fork-bearing, a wheel fixed to the planet-wheel, and means for communicating motion to the planet-wheel, through the medium of said rigid wheel, substantially as described.

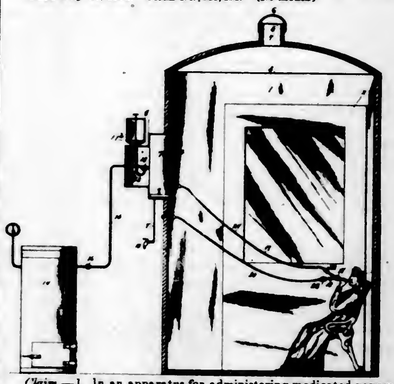
2. In velocipede driving gear, the combination of the fork-bearings, the hub of the driving-wheel journaled in one of them, the crank-

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spindle journaled in the hub and in the other fork-bearing, a sun-wheel fixed on the hub, a planet-wheel on the crank meshing with the sun-wheel, a wheel fixed rigidly to the fork-bearing, a wheel fixed to the planet-wheel, and a chain passing around the wheels fixed to the fork-bearing and planet-wheel, whereby when the cranks are turned, the chain revolves the planet-wheel and its attached-wheel, and through said planet-wheel revolves the sun-wheel and the driving-wheel at a greater rate of speed than the cranks, substantially as described.

491,430. APPARATUS FOR ADMINISTERING MEDICATED VAPORS. EZRA R. LONGSTRETH and LEMUEL R. SPUHR, Dumontville, Ohio. Filed July 28, 1892. Serial No. 441,493. (No model.)



Claim.—1. In an apparatus for administering medicated vapors, the combination with the cabinet, of a recess in the side thereof adapted to receive steam, of a movable perforated slide adapted to close the recess, substantially as and for the purpose specified.

2. As a part of an apparatus for administering medicated vapors, a cup provided with a bent feed tube having an upwardly-opening nozzle, and means for controlling the feed of medicament from the cup to the tube, substantially as set forth.

3. A cabinet for administering medicated vapor, provided with a perforated transverse partition in its upper part, a flue, a perforated cover thereon, and a movable cap for opening or closing the flue, substantially as and for the purpose specified.

491,481. BOTTLE-SEALING DEVICE. MIRABEAU H. LYNN, Rising Sun, Ind. Filed Apr. 11, 1892. Serial No. 428,587. (No model.)



Claim.—1. A bottle provided with a cup shaped extension above the neck thereof, said extension being re-enforced at any suitable point an inflexible cap adapted to fit loosely over and around the extension and to be retained thereon by a filling of sealing material between the two, substantially as shown and described.

2. A bottle provided with a ribbed extension above the neck thereof, a cap having a ribbed flange adapted to fit loosely over such extension and be sealed thereto by a filling of sealing material, such material resting on a washer above the cork, whereby an air space is formed between the two, holes formed in the extension on a line with such air space, and wires adapted to be secured through such holes to the neck of the bottle, substantially as shown and described.

3. A bottle having an ordinary neck and mouth, an extension above the neck thereof, the connecting part between the extension and neck made thinner and provided with holes through which wires are passed above the cork and secured to the neck of the bottle, a cap adapted to fit loosely over such extension and be retained thereon by a filling of sealing material between the two, such sealing material resting on a washer above the cork and the retaining wires, substantially as shown and described.

4. A bottle having an ordinary neck and body, a cup-shaped extension above such neck, the connecting part between the extension and the neck made thinner, a cup-shaped cap adapted to fit loosely over such extension, the interior of the extension and the intervening space between the cap and extension being filled with sealing material, such sealing material resting within the cap upon a suitable washer above the cork, substantially as shown and described.

5. A bottle having an ordinary neck and body, a cup-shaped extension above the neck, the connecting part between the extension and the neck made thinner, and provided with several holes, a cap having flanges adapted to fit within and without the extension, and be retained thereon by a filling of sealing material, such filling resting upon a washer within the extension, and above the cork, substantially as shown and described.

6. A bottle having a cup-shaped extension above its neck, a cup-shaped cap adapted to fit loosely over such extension, the intervening space and the inside of the extension being filled with suitable sealing material, such sealing material resting upon a washer above the cork, the outside of the extension and the inside of the cap of such form as to interlock with the sealing material when the latter is hardened, substantially as shown and described.

7. A bottle having an ordinary neck and body, a cup-shaped extension above the neck, the part between the extension and the neck made thinner, a cap having flanges adapted to fit loosely within and without the extension, such extension and the space between the same and the outer flange of the cap filled with suitable sealing material, whereby the cap is retained on such extension, substantially as shown and described.

491,482. BOTTLE-SEALING DEVICE. MIRABEAU H. LYNN, Rising Sun, Ind., and ELMORE P. LYNN, Cincinnati, Ohio. Filed June 22, 1892. Serial No. 437,063. (No model.)



Claim.—1. A bottle having about the neck thereof at the mouth an annular flange which is partially separated on the upper side from the neck of the bottle by means of a cut or groove, a cap adapted to fit over the mouth of such bottle and under the projecting ring which can be removed only by a blow breaking off the annular flange, substantially as shown and described.

2. A bottle having a projecting ring or flange formed around the neck near the mouth of the same, with a groove on the upper side thereof partially separating the same from the neck of the bottle, a cap fitting over the mouth of such bottle, a flange of such cap fitting around and under such annular flange, such cap filled with sealing material, whereby it is held firmly in place, a seat over the mouth of the bottle separating the sealing material from the same, the whole adapted to be removed only by breaking away the annular flange, substantially as shown and described.

3. In a bottle, a sealing device consisting of a cap formed in two sections adapted to interlock with each other in place over the mouth of the bottle and filled with sealing material, an annular flange around the neck of the bottle at the mouth to hold on such cap and so made as to be readily broken off by a blow from beneath when it is desired to open such bottle, substantially as shown and described.

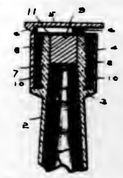
4. In a bottle, a sealing device consisting of a cap formed in two sections, such sections grooved about the inside periphery thereof so as to fit over an annular flange formed at the mouth of such bottle about the neck thereof, such flange so made as to be readily broken by a blow from beneath when it is desired to open such bottle, substantially as shown and described.

5. In a bottle, a sealing device consisting of two sections, both of such sections having flanges around the lower part of the same to fit over an annular flange about the neck of the bottle at the mouth thereof, one of such sections having as a part thereof a lid fitting over the entire top of the bottle, and on one side having a flange adapted to fit in a groove formed on the other section of such cap, whereby such sections when held in place by sealing material will effectually lock, substantially as shown and described.

6. In a bottle, a sealing device consisting of a ring about the neck at the mouth of the bottle, a cap formed in two sections, each adapted to fit over such annular flange, one of such sections having as a part thereof a lid fitting over the entire top of the bottle, and having a flange on one side adapted to fit in a groove in the smaller section of such cap, such section having a flange extending inwardly so that when such cap is filled with sealing material, the sealing material will be filled in between such flange of the cap and the annular flange on the neck of the bottle, whereby such section on the cap is held firmly in place, substantially as shown and described.

7. In a bottle, a sealing device consisting of a cap formed in two sections, each section having a flange adapted to fit about and beneath an annular flange about the neck of the bottle at the mouth, one section of the same having a lid extending across the top of the bottle, and having a flange on the edge of such lid, the other section having a groove on the upper part thereof, so that the flange on such lid will fit in such groove and prevent such section from being moved outward, a flange on the upper part of such smaller section extending inward with cement above and below it, so that it cannot be moved vertically, a seat fitted over the mouth of such bottle, such cap filled with sealing material, whereby the lower flanges thereof are held firmly against the lower part of such projecting ring around the neck of the bottle, and the upper parts are firmly held and locked together, so that such cap cannot be removed without breaking away such annular flange, substantially as shown and described.

491,483. BOTTLE-SEALING DEVICE. ELMORE P. LYNN, Cincinnati, Ohio. Filed June 13, 1892. Serial No. 436,501. (No model.)



Claim.—1. In a bottle, a sealing device consisting of a cap adapted to fit over the mouth and neck of the same, suitable sealing material between the sides of the cap and neck of the bottle, the lid of such cap so supported on the body thereof that it will break off when struck, such lid separated from the sealing material by a seat made of any suitable material, substantially as shown and described.

2. In a bottle, a sealing device consisting of a cap adapted to fit over the mouth and neck of the same, the lower part of such cap resting upon an annular flange around the neck of such bottle, suitable sealing material between the sides of the cap and neck of the bottle, the lid of such cap so supported on the body thereof that it will break off when struck, such lid separated from the sealing material by a seat made of any suitable material, substantially as shown and described.

3. In a bottle, a sealing device consisting of a cap adapted to fit over the mouth and neck of the same, the inside of such cap having a roughened surface, suitable sealing material between the sides of the cap and neck of the bottle, the lid of such cap so supported on the body thereof that it will break off when struck, such lid separated from the sealing material by a seat made of any suitable material, substantially as shown and described.

4. In a bottle, a sealing device consisting of a cap adapted to fit over the mouth and neck of the bottle, the lower part of such cap resting upon an annular flange around the neck of the bottle, suitable sealing material between the sides of the cap and neck of the bottle, the lid on such cap supported on the sides of the same by legs which can be readily broken, such lid separated from the sealing material by a seat made of any suitable material, whereby the bottle is sealed and can be opened only after breaking off such lid, substantially as shown and described.

5. In a bottle, a sealing device consisting of a cap with the inside thereof formed in an irregular shape resting upon a projecting ring about the neck of the bottle, suitable sealing material filled in between the sides of the cap and the neck of the bottle, a lid supported on the side of the cap by legs made of any breakable material, a seat over the mouth of such bottle, whereby the sealing material is prevented from contacting with such lid, so that the bottle can be emptied of its contents only after breaking off the lid of the cap, substantially as shown and described.

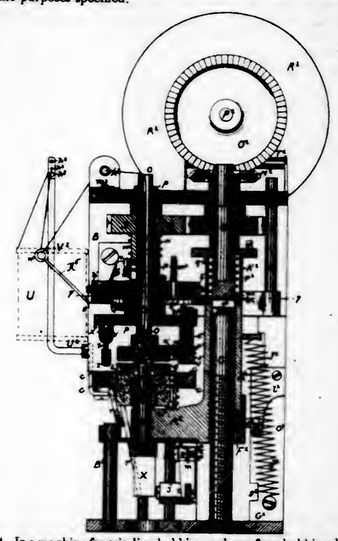
6. A bottle having an annular flange around the neck thereof, a cap adapted to fit over the neck and mouth of such bottle and rest upon such flange, legs supporting the lid of such cap on the body thereof, a cork in such bottle, sealing material interposed between such cap and the cork and neck of the bottle, and seats made of suitable material separating such sealing material from the lid and also from the cork of the bottle, the legs supporting the lid of the cap adapted to be readily broken, whereby the lid and cork may be withdrawn, substantially as shown and described.

491,484. MACHINE FOR WINDING BOBBINS. CHARLES S. MARSHALL, Brockton, Mass. Filed Jan. 26, 1891. Serial No. 34,737. (Model.)

Claim.—1. In a machine for winding bobbins, a clamp for a bobbin adapted to be opened and closed and to receive and hold a bobbin with its open edge exposed, a carrier for the thread to be wound on the clamped bobbin, and means to revolve said thread-carrier about the exposed edge of said bobbin, substantially as described, for the purposes specified.

2. In a machine for winding bobbins, a clamp for a bobbin adapted to be opened and closed and to receive and hold a bobbin with its open edge exposed, a carrier for the thread to be wound on the clamped bobbin, means to revolve said thread-carrier about the exposed edge of said bobbin, a carrier for a bobbin, a guide-way for said bobbin-carrier and means to move said bobbin-carrier on its said guide-way to and from said bobbin-clamp substantially as described, for the purposes specified.

3. In a machine for winding bobbins, a hopper adapted to receive the bobbins to be wound, a carrier for a bobbin, a guide-way for said bobbin-carrier, means to move said bobbin-carrier forward and backward on its said guide-way, a clamp for a bobbin adapted to be opened and closed and to receive a bobbin from said bobbin-carrier and to hold it with its open edge exposed, a carrier for the thread to be wound on the clamped bobbin and means to revolve said thread-carrier about the exposed edge of the clamped bobbin, substantially as described, for the purposes specified.



4. In a machine for winding bobbins, a clamp for a bobbin adapted to be opened and closed and to receive and hold a bobbin with its open edge exposed, a carrier for the thread to be wound on the clamped bobbin, means to revolve said thread-carrier about the exposed edge of the clamped bobbin, a carrier for a bobbin, a guide-way for said bobbin-carrier and means to move said bobbin-carrier on its said guide-way to and from said bobbin-clamp and said operating means for the bobbin-carrier and said carrier adapted for a rest of the carrier at the end of each of its movements and for a discharge of the wound bobbin from the bobbin-clamp and the insertion of another bobbin to be wound, substantially as described, for the purposes specified.

5. In a machine for winding bobbins, a clamp for a bobbin adapted to be opened and closed and to receive and hold a bobbin with its open edges exposed, a support for said bobbin-clamp, means on said support to hold said bobbin-clamp closed, a carrier for the thread to be wound on the bobbin, means to revolve said thread-carrier about the exposed edge of the clamped bobbin, a follower adapted to rest on the thread as it is wound on the bobbin and adapted to move outward as the bobbon fills the thread, means to revolve said follower about the bobbin, and means carried by said follower and adapted to release said means for holding the bobbin-clamp closed, substantially as described, for the purposes specified.

6. In a machine for winding bobbins, a clamp for a bobbin adapted to be opened and closed and to receive and hold a bobbin with its open edge exposed, a carrier for the thread to be wound on the bobbin, means to revolve said thread-carrier about the exposed edge of the clamped bobbin, a device for severing the thread leading to the bobbin, means to revolve said thread-severing device about the bobbin, and means to move said thread-severing device inward toward the bobbin, and its clamp, substantially as described, for the purposes specified.

7. In a machine for winding bobbins, a clamp for the bobbin adapted to be opened and closed and to receive and hold a bobbin, consisting essentially of a horizontal stationary jaw M suitably supported, of a horizontal jaw M^3 movable vertically and toward and away from jaw M, and an up and down moving-carrier X for said jaw M^3, in combination with a horizontal shoulder v' of said jaw-carrier X, an up and down moving pintle carrier A^3, with its vertical pintle Z having a horizontal, shoulder y' to engage said shoulder v' of said jaw-carrier X, a horizontal section screw-nut F^3 sliding horizontally on said vertical moving pintle-carrier A^3 and backed by a spring c^9, a continuous rotating vertical screw-threaded shaft C^3 passing loosely through said pintle carrier A^3 and in position to be engaged by said screw-nut F^3, horizontal arms f^{13}, y^3, of said screw-nut, a vertical sta-

tionary guide-plate G^3 for a rest and a vertical guide, at its front and rear sides, to the horizontal arm f^3 of said screw-nut, in the up and down movement of said screw-nut and said pintle-carrier carrying it, upper and lower horizontal notches h^3, g^3 through said guide-plate G^3, a spring-plate i^3 on front side and covering upper notch h^3 of said guide-plate G^3, a horizontal arm z^3 in position for a rest thereon of arm y^3 of said screw-nut F and backed by a spring b^3, a revolving thread-carrier x to wind the bobbin clamped in said bobbin-clamp, a revolving thread-follower V at rest upon and moving outwardly with the thread as wound by said thread-carrier on said clamped bobbin, and an inner-piece W of said thread-follower V and revolving and moving outwardly therewith and having a raised lip f' to work against said spring supporting arm z^3, substantially as described, and for the purpose specified.

8. In a machine for winding bobbins, a clamp for the bobbin adapted to be opened and closed and to receive and hold a bobbin, a carrier for the thread to be wound on the bobbin and means to revolve said thread-carrier about said bobbin-clamp, consisting essentially of a horizontal gear-wheel S carrying it, a vertical continuously rotating shaft C^3, a horizontal gear-wheel D^3 loose upon shaft C^3 and meshing said gear-wheel S and mechanism substantially such as described to place said gear-wheel D^3 in and out of connection with its said shaft C^3, substantially as described, for the purpose specified.

9. In a machine for winding bobbins, a clamp for the bobbin constructed of opposed jaws M, M^3 means to open and close said jaws, in combination with a carrier for the thread to be wound on a bobbin held by said clamp, a vertical shaft O which carries said thread-carrier and is made hollow and with a side opening a' and is adapted to swivel in said clamp jaw M, a suitable support for said shaft, and means to rotate said shaft and thereby to move said thread-carrier around the clamped bobbin, substantially as described, for the purpose specified.

10. In a machine for winding bobbins, a clamp for the bobbin adapted to be opened and closed and to receive and hold a bobbin with its open edge exposed, a carrier for the thread to be wound on the clamped bobbin, means to revolve said thread-carrier about the exposed edge of said bobbin, a device V adapted to rest and follow on the thread as it is wound on the bobbin, a vertical spindle c' carrying said thread-follower V, a horizontal rotating disk T, in which said spindle turns, and a horizontal thread-severer c' having severing edge s', and carried by a sleeve p' which loosely surrounds said spindle c' and has an elongated notch r' into which projects a pin q' of said thread-follower and a spring s', connecting it and said thread-follower, substantially as described, for the purpose specified.

11. In a machine for winding bobbins, a clamp for a bobbin adapted to be opened and closed and to receive and hold a bobbin with its open edge exposed, means to hold said clamp closed, a carrier for the thread to be wound on the bobbin, means to revolve said thread-carrier about the clamped bobbin, a device or follower to rest and follow on the thread as it is wound on the bobbin, means to revolve said thread-follower about the clamped bobbin, a finger-piece W having a raised lip f', means to revolve said finger-piece about the clamped bobbin and to permit the outward movement of said finger-piece with said thread-follower, a fixed vertical flange B' extending in a curvilinear direction about the axis of the bobbin-clamp and adapted for said lip f' of said finger-piece W to pass to the rear side thereof and thereby to act on said means to hold the bobbin-clamp closed, substantially as described, for the purposes specified.

12. In a machine for winding bobbins, a clamp for a bobbin made of opposed jaws adapted to be opened and closed and to receive and hold a bobbin with its open edge exposed and having one of its jaws notched on its opposite sides, means to open and close said clamping-jaws, a carrier J for a bobbin and having a circular opening K to receive a bobbin and which opening is continued with tines a, a, a horizontal guide-way H for said bobbin carrier J, having registering openings in its upper and lower walls, a carrier for the thread to be wound on said clamped bobbin and means to revolve said carrier about the clamped bobbin, substantially as described, for the purposes specified.

13. In a machine for winding bobbins, a clamp for a bobbin adapted to be opened and closed and to receive and hold a bobbin with its open edge exposed, a carrier for the thread to be wound on said bobbin, means to revolve said thread-carrier about the clamped bobbin, a carrier J for a bobbin, a guide-way for said bobbin-carrier, an angular lever m, means connecting the arm l of said angular lever m to said bobbin-carrier and adapted as said lever is swung to move said bobbin-carrier forward and backward in its said guide-way, the notch g at the outer end l of the arm o of said angular lever m, an up and down moving horizontal arm m^3, in one movement by its vertical face o^3 bearing against and escaping from the outer end l, and in its other movement passing through the notch g, of the arm o of said angular lever m, and means to move said horizontal arm m^3 up and down, substantially as described, for the purpose specified.

491,435. GARMENT-HOOK. GEORGE B. MERRIMON, Jr., Sesame, assignor of one-half to George B. Merrimon, Philadelphia, Pa. Filed July 11, 1892. Serial No. 439,560. (No model.)



Claim.—A garment hook formed of a shank with side members each having an attaching eye, a central member and a front portion or hook proper continuous of said side members, said central member extending between the sides of said front portion and being continuous of the attaching eye of a side member of the shank and the central member thereof, the terminus of said central member being within the attaching eye of one of the side members, said parts being combined substantially as described.

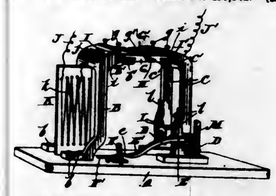
491,436. WASHBOILER. BENJAMIN F. MERSHMANN, Moberly, Mo. Filed June 26, 1892. Serial No. 438,064. (No model.)



Claim.—1. In a wash boiler, the combination of the boiler the perforated central tube provided with a hood located therein, a perforated bottom, a series of deflectors connecting the perforated bottom to the central tube, and a perforated soap receptacle secured to the perforated bottom substantially as shown and described.

2. In a wash boiler, the combination of the boiler, the perforated central tube located therein, a cap or hood provided with a series of tubes detachably secured thereto, a perforated bottom, having a perforated soap receptacle secured thereto, a series of deflectors, and suitable means for elevating the perforated bottom and deflectors from the bottom of the boiler, substantially as set forth.

491,437. ELECTRIC METAL-HEATING DEVICE. WILLIS MITCHELL, Malden, assignor to the American Electric Heating Company, Boston, Mass. Filed June 16, 1892. Serial No. 436,972. (No model.)



Claim.—1. In combination with a fixed support and a resistance secured thereto a pivoted support a resistance secured to it, a spring or springs bearing against the said pivoted support to force it away from the fixed support, conductors completing the circuit through said resistances and a locking device for holding the said movable support in its nearest position to the said fixed support substantially as set forth.

2. In combination with a fixed support and a resistance attached thereto, a pivoted support, a resistance secured to it, a spring or springs being against the said movable support to force it away from the said fixed support, a brace or braces M raised behind the said pivoted support to limit its outward motion and support it when moved into contact therewith and electrical connections completing the circuit through the said resistances substantially as set forth.

3. In combination with a fixed support and a resistance secured thereto, a pivoted support having swells l formed on its inner face a

spring L bearing against the said swells, a resistance secured to the said pivoted support and electrical connections completing the circuit through the said resistances substantially as set forth.

4. In combination with a fixed support and a resistance secured thereto, a pivoted support a spring bearing against the latter to force it away from said fixed support, an arm attached to the said pivoted support, a rack engaging the said arm but movable away therefrom, a resistance carried by the said pivoted support, and electrical connections completing the circuit through the said resistances substantially as set forth.

5. In combination with a fixed support and a resistance block or plate secured thereto, a pivoted support, a resistance plate or block secured to the latter, an arm extending from the said pivoted support and having a footrest and tooth formed thereon, a ratchet bar arranged to engage the said tooth for locking the said resistance plates together, electric conductors making circuit through the said plates and means for permitting the disengagement of the said tooth and ratchet bar when the said plates are to be separated.

6. In combination with a fixed support and a resistance plate secured thereto, a pivoted support, a resistance plate secured to the latter, an arm extending from the said pivoted support and provided with a foot-rest and a tooth, a pivoted spring-pressed ratchet-bar arranged to engage the said tooth for locking the said pivoted support in position to clamp an article between the resistance plates and electric conductors making circuit through the said resistance plates, substantially as set forth.

7. In combination with a fixed support B having a jaw B' formed on it and provided with a recess b, a pivoted support C having a jaw C' formed therewith and provided with a recess c, electrically insulating linings for the said recesses, resistance plates or blocks fitted into the said recesses, electric conductors making circuit through the said resistance plates or blocks and means for locking the said plates or blocks together on an intervening article substantially as set forth.

491,438. ELECTRICALLY-HEATED MUFFLE. WILLIS MITCHELL, Malden, assignor to the American Electric Heating Company, Boston, Mass. Filed July 5, 1892. Serial No. 438,950. (No model.)



Claim.—1. A carbon consisting of a mixture of comminuted material of greater electrical resistance and comminuted material of less electrical resistance, the proportion of the former being greater at the heating end of the said carbon substantially for the purpose set forth.

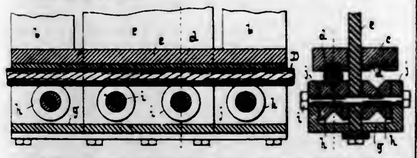
2. A carbon composed of a mixture of plumbago and fire clay or other material of higher resistance to electricity, the proportion of fire-clay being greater at the heat producing end than at the other end of the said carbon substantially as set forth.

3. A carbon having its rear end incased in a metallic shell, the latter being provided with a metallic leaf which is embedded in the said carbon substantially as set forth.

4. In combination with a pair of carbons and electrical conductors making circuit through them a muffle arranged between the said carbons and adapted to be supported as well as heated by them substantially as set forth.

5. A muffle provided with a pair of ledges on each of two opposite sides, in combination with carbon plates which fit between the said ledges and support the said muffle and electric conductors making circuit through the said carbons and muffle, substantially as set forth.

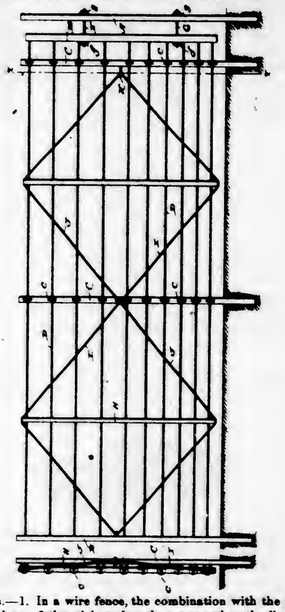
491,439. GRIPPING DEVICE FOR CABLE RAILWAYS. REUBEN A. MCCAULEY, Baltimore, Md. Filed July 29, 1892. Serial No. 441,562. (No model.)



Claim.—1. In a gripping mechanism, the lower jaw thereof provided with split rollers adapted to separate as they are brought into contact with the under side of the cable and their sides forced out into contact with unyielding portions of the gripping mechanism, substantially as specified.

2. A cable grip having one of its jaws formed of one or more grooved rollers, each of which is formed in two sections, and friction plates against which said sections are forced during operation—substantially as set forth and described.

491,440. WIRE FENCE. ELBRIDGE H. MCCREDDY, Camden, Mich. Filed Aug 13, 1892. Serial No. 443,087. (No model.)

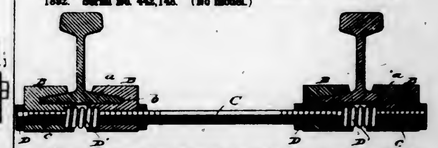


Claim.—1. In a wire fence, the combination with the posts, and the line wires, of the pickets loosely connected to the line wires at points between the posts, an evener-bar adjustably connected by tension devices with a post and having the line wires fastened thereto, and the crossed lock-wires fastened to the posts and connected to the pickets, substantially as and for the purpose described.

2. In a fence, the combination with the line wires and the posts, of the vertical pickets arranged about the middle of the fence panels and adapted to loosely receive the line wires, and the lock wires loosely connected at their ends to the end posts, and the top and bottom of each picket, and crossing each other at the intermediate posts, substantially as described.

3. In a fence, the combination with the end and intermediate posts, of the vertical evener-bar, the pickets between the intermediate posts, the line wires passing loosely through the pickets and intermediate posts and fastened to the evener-bar, the lock wires connected to the pickets and crossing each other at the intermediate posts, and adjustable connections between the evener bar and a fence post, substantially as described.

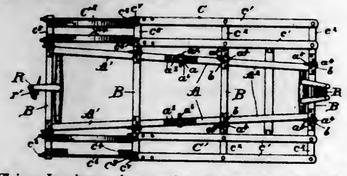
491,441. DEVICE FOR PREVENTING SPREADING OF RAILWAY-TRACKS. ALFRED H. NEWPHER, Pullman, Ill. Filed Aug. 4, 1892. Serial No. 442,143. (No model.)



Claim.—The combination with the rails of a railway track, of clamping plates arranged on opposite sides of and adapted to receive the foot of a rail, a connecting rod joining the clamps on the rail, a coiled spring fitted around the rod, between the clamping plates on each rail and having its ends fitted in sockets in the adjacent faces

of said plates, and locking nuts fitted in the connecting rod to hold the clamping plates in position thereon, substantially as described.

491,442. HAY-RACK. ABRAM H. PARKER, Clinton, Ill. Filed July 23, 1892. Serial No. 440,867. (No model.)



Claim.—In a hay rack or carriage, the combination of a frame A composed of the two pairs of side pieces A′ and A² of equal length joined together at their inner ends by double-hinged joints provided with removable pins or bolts; cross pieces B bolted upon said side pieces, side frames C′ composed of slats c' and cross pieces c^3 removably hinged to the frame A; side frames C^3 also removably hinged to said frame A, said side frame C^3 being composed of bows c^4 and cross pieces c^5, with rods c^6 for preventing the said cross pieces c^5 from spreading under pressure and sockets c^7 on the forward one of said cross pieces c^5 to engage studs c^8 on the rear ends of slats c' of the side frames C^3; with any suitable end racks or standards R and R′ all joined together substantially as and for the purposes described.

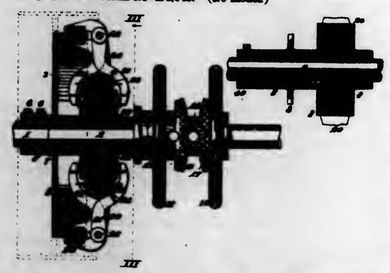
491,443. HOSE-HOLDER. LEWIS F. PEARSON, Medicine Lodge, Kans. Filed Oct. 13, 1892. Serial No. 448,780. (No model.)



Claim.—1. In a hose-supporter, the combination with a pair of legs and clamp, of a third leg pivoted to the first pair, substantially as and for the purpose specified.

2. A hose-supporter composed of spring metal bent to form a pair of legs, and an intermediate eyelet and clamp, of a third leg pivoted in the eyelet, substantially as set forth.

491,444. CLUTCH. CHARLES K. PICKLES, St. Louis, Mo., assignor of two-thirds to John O'Brien and Samuel J. Weaver, same place. Filed May 3, 1892. Serial No. 431,643. (No model.)



Claim.—1. In a friction clutch or pulley, the combination of a spider having a rim or flange, a cylinder having a liquid space, and chambers provided with pistons, levers pivoted to arms on the cylinder and against the inner ends of which said pistons bear, a movable sleeve, pistons fitting in chambers of the cylinder, and against which said sleeve bears, and means for moving the sleeve, substantially as and for the purpose set forth.

2. In a friction clutch or pulley, the combination of a spider having a rim or flange, a cylinder provided with radial arms, levers pivoted to said arms, pistons located in chambers of said cylinder, and which bear against the inner ends of the toags, a sleeve threaded on the neck of the cylinder, pistons fitting in chambers in said cylinder, and against which the sleeve bears, and a wheel for turning said sleeve; said cylinder having a space to contain liquid, substantially as and for the purpose set forth.

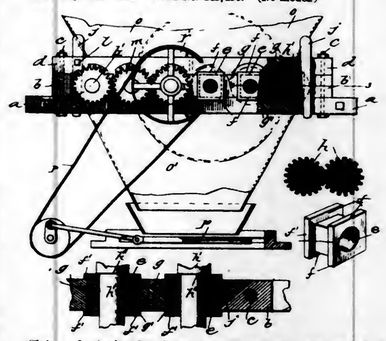
3. In a friction clutch or pulley, the combination of a spider having a flange or rim, a cylinder having a liquid space, levers for engaging the rim or flange of said spider, pistons fitting in chambers in said cylinder and bearing against the ends of said levers, a sleeve threaded on the neck of said cylinder, pistons located in chambers in said cylinder, and against which said sleeve bears, a wheel for moving said sleeve forward, a collar connected to said sleeve, pinions journaled in said collar and geared to said sleeves, and a second wheel journaled on said collar, and geared to said pinions, all substantially as and for the purpose set forth.

4. In a friction clutch or pulley, a liquid cylinder provided with pistons, mechanism located between said pistons and the friction rim of the clutch or pulley to engage said rim, and means for compressing the liquid in said cylinder to displace said pistons, substantially as and for the purpose set forth.

5. In a friction clutch or pulley, the combination of a liquid cylinder provided with pistons, mechanism adapted to be moved by said pistons to engage the friction rim of the clutch or pulley, and a second piston or pistons 27, and means for moving the same, substantially as and for the purpose set forth.

6. In a friction-clutch or pulley, in combination, with mechanism for engaging the friction rim of the clutch or pulley, and means for moving said mechanism, consisting of a sliding collar, two cog wheels, and a pinion located between the cogs of said wheels and journaled on said collar; substantially as described.

491,445. GLASS-BATCH MIXER. DAVID FOSH, Cumberland, Md. Filed Sept. 10, 1892. Serial No. 445,499. (No model.)



Claim.—1. A glass batch mixer consisting of a supporting frame, a series of horizontal rolls, mounted in said frame means for adjusting said rolls horizontally independently of each other and simultaneously, and for holding them rigidly in their adjusted positions and means for driving said rolls, substantially as described.

2. A glass batch mixer consisting of a supporting frame, a series of horizontal rolls, movable journal boxes for said rolls, means for adjusting said journal blocks horizontally independently and simultaneously and for rigidly holding them in their adjusted position, and means for varying the distance between said journal blocks, substantially as described.

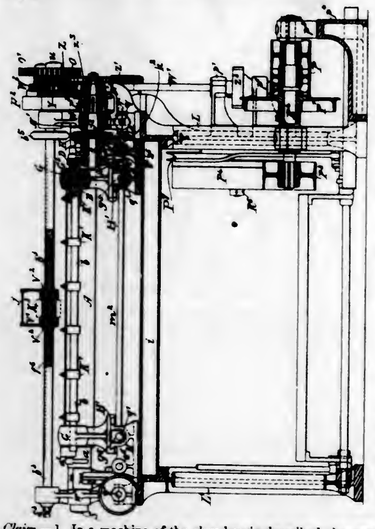
3. A glass batch mixer consisting of a supporting frame, a series of horizontal rolls, movable journal-blocks for said rolls, means for varying the distance between the journal-blocks and for moving the journal-blocks simultaneously, a rigid top for the journal blocks at the center of the series of rolls and means for adjusting the journal blocks on each side thereof against said stop, and for holding them rigidly in their adjusted position and means for driving said rolls, substantially as described.

4. A glass batch mixer consisting of a supporting frame, a series of horizontal rolls, movable journal boxes for said rolls, means for varying the distance between the journal blocks consisting of thin removable strips g' placed between said boxes and means for drawing the journal blocks together tightly, substantially as described.

5. A glass batch mixer consisting of a supporting frame, the beams a mounted on said frame, the beams d supported above beams a and parallel therewith, journal-boxes supported between each pair of beams a and d, said boxes being formed with grooves in their upper and lower faces which fit the beams a and d, the flanges formed by said grooves embracing the sides of the beams, flanges being also formed on the vertical edges of these boxes, rolls supported in these boxes, spacing blocks which fit between the journal boxes and are held in place by the vertical flanges thereof, and means for adjusting the journal boxes tightly, together and for driving the rolls, substantially as described.

6. A glass batch mixer consisting of a supporting frame, beams a and d arranged as described, journal blocks supported between each pair of beams, rolls A journaled in said journal boxes, means for varying the distance between the journal boxes consisting of the spacing blocks g, and thin removable spacing strips g' placed between the blocks g and the journal boxes, means for moving the journal boxes sidewise and means for driving the rolls, substantially as described.

491,446. MACHINE FOR TREATING HIDES. WILLIAM R. PULLMAN and HARRY SMITH, Godalming, England. Filed Nov. 7, 1891. Serial No. 411,206. (No model.) Patented in England Jan. 3, 1891, No. 131.



Claim.—1. In a machine of the class herein described, the combination with a perch roller, having a longitudinal slot in one side thereof; a hinged door to close said slot and bind the edge of the hide thereunder; means for holding the said door down upon the hide; and means for rotating the said perch roller, of vibrating knives to operate upon the hide, substantially as described.

2. In a machine of the class herein described, the combination with a perch roller, having a longitudinal slot in one side thereof; a hinged door to close said slot and bind the edge of the hide thereunder; means for holding the said door down upon the hide; and means for rotating the said perch roller, of a tension bar and means for dressing the hide, substantially as described.

3. In a machine of the class herein described, a perch roller consisting of a hollow cylinder mounted in antifriction bearings and having a slot in one side thereof, a door hinged to one edge of the said slot, to close upon and bind the edge of the hide against the opposite edge of the slot; and cams upon the said roller to turn down upon and bind the said door upon the hide, substantially as described.

4. In a machine of the class herein described, a perch roller consisting of a hollow cylinder mounted in antifriction bearings and having a slot in one side thereof, a door hinged to one edge of the said slot, to close upon and bind the edge of the hide against the opposite edge of the slot; and cams upon the said roller to turn down upon, and bind the said door upon the hide, and springs within the roller to open the door when released from the cams, substantially as described.

5. In a machine of the class herein described, the combination with a rock shaft b having screw threads cut upon a part thereof, a fork x upon one end of the said shaft; arms carrying knife blades secured to the shaft; a bearing G having screw threads to engage the threads upon the shaft; a sliding bearing G having screw threads to engage the threads upon the shaft; a depending roller b^2; and a screw g' to slide the said bearing, of a shaft e geared to the operating parts of the machine and having the female member E of a friction clutch thereon; an eccentric X mounted with antifriction bearings upon the shaft e, to rotate within the fork x and vibrate the same; the male member D of the said friction clutch upon one end of the said eccentric; a sliding bearing for the said eccentric having a depending lug with an inclined plane b^4 to engage the roller b^2; a spring b^3 to normally press the member D of the clutch away from the member E; and means for operating the said devices, substantially as and for the purposes described.

6. In a machine of the class herein described, the combination with a rock shaft b having screw threads cut upon a part thereof; a fork x upon one end of the said shaft; arms carrying knife blades secured to the shaft; a sliding bearing G having screw threads to engage the threads upon the shaft; a depending roller b^2; and a screw g' to slide the said bearing, of a shaft e geared to the operating parts of the machine and having the female member E of a friction clutch thereon; an eccentric X mounted with antifriction bearings upon the shaft e, to rotate within the fork x and vibrate the same; the male member D of the said friction clutch upon one end of the said eccentric; a sliding bearing for the said eccentric having a depending lug with an inclined plane b^4 to engage the roller b^2; a spring b^3 to normally press the member D of the clutch away from the member E; and means for operating the said devices, substantially as and for the purposes described.

7. In a machine of the class herein described, the combination with a shaft b^2 having a friction roller b^3; pivoted bearings w' in which the said shaft is journaled, toothed segments attached to the said bearings, a shaft g^2 having a worm w^2 to engage the teeth of the said segments, and means for rotating the shaft g^2 to turn the said bearings and bring the friction pulley in contact with the operating part of the machine; of a rotary cutter K^2 mounted upon the shaft b^2 in position to operate upon the hide, substantially as and for the purposes described.

8. In a machine of the class herein described, the combination with a shaft b^2 having a friction roller b^3, pivoted bearings in which the said shaft is journaled, toothed segments upon the said bearings, a shaft g^2 having a worm to engage the toothed segments and means for rotating the said shaft to turn the bearings and bring the friction pulley upon the shaft b^2 into engagement with an operating part of the machine to impart rotary motion to the said shaft; of a rotary cutter keyed upon the shaft b^2, and free to slide longitudinally thereon; a cutter box inclosing the cutter and loosely mounted upon the said shaft, a guide rod rigidly connecting the two bearings together and passing through the cutter box to guide the latter; a glass j, inserted in the upper part of the cutter box; and a gage V pivotally attached to the said cutter box, substantially as and for the purposes described.

9. In a machine of the class described, the combination of a perch roller, a door upon the said perch roller to bind the hide thereon, means for rotating the said perch roller; a tension bar over which the hide passes, a rock shaft b, having arms to which knife blades are attached, a fork x upon the end of the said rock shaft, a sliding bearing box G, in which the rock shaft has a screw bearing, thereby imparting longitudinal movement to the said shaft; a screw shaft g' having a bearing in the frame of the machine and entering a threaded aperture in the bearing box G, a toothed wheel g^4; mounted loosely upon the screw shaft g', and a clutch to clutch the toothed wheel to the screw shaft; a roller b^2 journaled in and depending from the bearing box G; a shaft e journaled in the frame of the machine and geared to the operating parts thereof; the female member E of a friction clutch upon the said shaft e; an eccentric X mounted with antifriction bearings upon the shaft e and carrying the male member D of the friction clutch; a sliding bearing c' for the said eccentric, an inclined plane b^4 to engage the roller b^2, and hold the two clutch members together, a spring b^3 which tends to press the clutch members apart; a shaft b^2 having a friction roller b^3; a rotary cutter mounted upon the shaft b^2; pivoted bearings w' in which the said shaft is journaled; toothed segments attached to the said bearings; a worm shaft having a worm to engage the teeth of the said segments; a toothed wheel g mounted loosely upon the said worm shaft, and a clutch to clutch the toothed wheel to the worm shaft; a shaft s^3 journaled in the frame of the machine, a toothed wheel secured upon the shaft s^3 and meshing with both of the wheels g and g^4; and a handle upon shaft s^3 whereby the several parts can be operated to engage the members D and E of the clutch and so cause the knives upon the rock shaft b to operate upon the hide, or to withdraw the said knives, disengage the clutch, and lower the shaft b^2 to bring the friction pulley thereon in engagement with the clutch member E, and the rotary cutter in position to operate upon the hide; substantially as and for the purposes described.

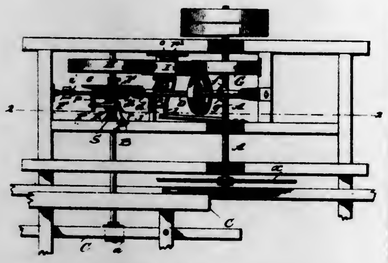
10. In a machine of the class herein described, the combination with a shaft v' journaled at its ends in the frame of the machine; arms v^2 upon the said shaft; rollers v upon the ends of the said arms; a toothed segment n^2 upon the shaft v'; a worm shaft journaled in the frame of the machine, the worm of which meshes with the toothed segment n^2, and a hand wheel n' by which the worm shaft may be turned to rotate the shaft v'; of uprights l'; bearing blocks l resting upon the rollers v and free to slide in the said uprights; and a perch roller A′ journaled in the bearing blocks l, which will be raised or lowered when the shaft v' is turned, substantially as and for the purposes described

11. In a machine of the class herein described, the combination with a perch roller; bearing blocks *l* in which the said perch roller is journaled, uprights *l'* in which the said bearing blocks are free to slide; a toothed pinion Y' upon the end of one of the journals of the perch roller; a sleeve having a spur wheel Y^2 on one end and a sprocket wheel Z' on the other, mounted just below the pinion Y'; a sleeve having a spur wheel Y on one end, a sprocket wheel Z geared to the wheel Z', and a spur wheel O geared to the operating part of the machine, mounted just above the pinion Y', of a shaft *v'* journaled at its ends in the frame of the machine; arms v^2 upon the said shaft; rollers *v* upon the ends of the said arms upon which the bearing blocks *l* rest; a toothed segment n^2 upon the shaft *v'*, a worm meshing with the said segment and having a shaft journaled in the frame of the machine; and a hand wheel *n'* by which motion may be imparted to the shaft *v'* to raise or lower the perch roller and bring the pinion thereon in engagement with the spur wheel Y or Y^2, substantially as and for the purposes described.

12. In a machine of the class herein described, the combination with a perch roller A', having a clamp to hold the edge of a hide, and means for rotating the said roller; of a stoning or emery roller R in position to operate upon the said hide; a shaft *r* extending therethrough; a grooved pulley r^2 geared to the operating part of the machine to impart rotary motion to the said roller; bearing blocks O^2 through which the ends of the shaft *r* pass; antifriction rollers r^4 journaled upon the bearing-blocks O^2, upon which rollers the shaft *r* is supported; and spring washers r^3 upon the ends of the shaft *r* whereby the said roller is allowed a little freedom in its bearings, substantially as and for the purposes described.

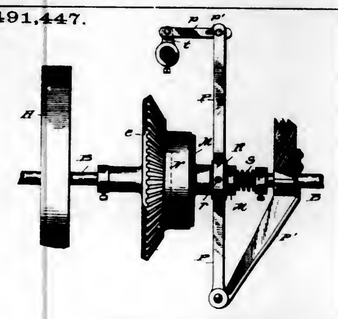
13. In a machine of the class hereindescribed, the combination with a perch roller, having a longitudinal slot in one side thereof; a hinged door to close said slot and bind the edge of the hide thereunder; means for holding the said door down upon the hide; and means for rotating the said perch roller; of an adjustable tension bar; sliding bearing supports G', G^3, having screw-threaded bearings therein; a rock shaft *b'* having at one end an enlarged screw threaded portion B^2 to engage the screw threads in the bearing support G^3; a fork *x'* upon the opposite end, arms K' secured upon the said shaft *b'*, knife blades K secured to the outer ends of the said arms; a sleeve B' exteriorly screw threaded to engage the threads in the bearing support G' and mounted loosely upon the shaft *b'*; a curved piece b^3 secured to the sleeve B' and partly encircling the shaft *b'*; arms K^2 secured to the curved piece b^3, knife blades K^3 upon the ends of the arms K^2; a fork x^2 secured upon the end of the sleeve B'; a shaft geared to the operating parts of the machine: an eccentric sleeve mounted upon the said shaft and having opposite eccentrics to operate within the forks *x'* and x^2 respectively; and means for clutching the said eccentric sleeve to the said shaft to impart vibratory motion to the shaft *b'* and sleeve B'; substantially as and for the purposes described.

491,447. MECHANISM FOR OPERATING SAWMILL-CARRIAGES. EDWIN A. REESE, SAMUEL H. HENCH, and WALKER A. DROMGOLD, York, Pa.; said Reese assignor to said Hench and Dromgold. Filed Dec. 3, 1892. Serial No. 453,995. (No model.)

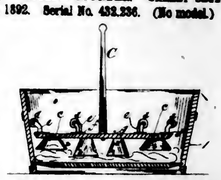


Claim.—The combination of the carriage, the carriage shaft, the backing mechanism, the forward feed mechanism independent of and separate from the backing mechanism and comprising as one of its members a gear wheel loose upon the carriage shaft, a single operating lever connected to and controlling both of said mechanisms, and a clutch mechanism also connected to and operated by the said operating lever whereby the said forward feed gear wheel is clutched to or unclutched from its shaft according as the feed mechanism or the backing mechanism is in action, substantially as and for the purposes hereinbefore set forth.

491,447.

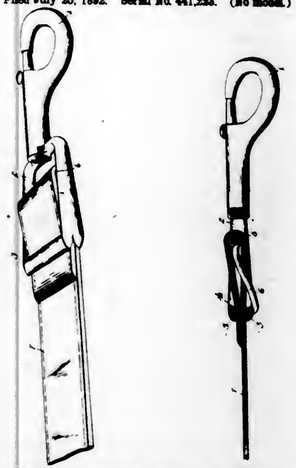


491,448. CLOTHES-POUNDER. GARRET SAGER, Buffalo, N. Y. Filed May 9, 1892. Serial No. 432,236. (No model.)



Claim.—A washing machine, consisting of a disk having a scalloped and indented periphery, a series of inverted cups depending from the under face of said disk in a substantially concentric outer circle and located between the indentations in the periphery of said disk, a series of inverted cups depending from and located centrally of said disk and of greater depth than the depth of the outer series of cups, upwardly and outwardly-extending arms secured to the upper face of said disk, rollers journaled in the upper portions of said arms, and an operative handle extending vertically upward from the center of said disk, substantially as and for the purpose set forth.

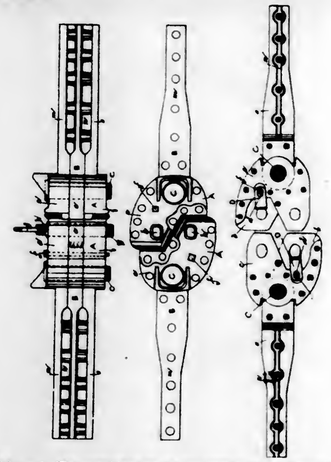
491,449. SNAP AND BUCKLE. DANIEL W. SIMMONS, Cave Spring, Ga. Filed July 25, 1892. Serial No. 441,233. (No model.)



Claim.—The herein described improved snap-hook and buckle, the same consisting of the snap-hook proper, having the integrally formed buckle-frame at its rear end, said buckle-frame having its opposite side-bars widened toward their rear ends, a pair of parallel cross-bars in substantially the same vertical plane elliptical in cross-section connecting the rear corners of the side-bars and converged

transversely toward each other at their rear ends thereby forming a passage-way flared toward its inner end or mouth, forming biting edges an intermediate cylindrical-bar connecting the side-bars between their ends and in front of the passage-way, and the rearwardly projecting buckle-tongue loosely hang upon the intermediate cross-bar and adapted at its free end to overlap and lie upon the upper, end cross-bar, substantially as specified.

491,450. CAR-COUPLING. WILLIAM H. STARKEY and JAMES T. STARKEY, Moncton, Canada. Filed Apr. 12, 1892. Serial No. 428,777. (No model.)



Claim.—1. The combination in car-couplers of a drawhead A made in three parts *a*, *b* and *c*, and having its shank B, made in horizontal sections *m*, *n*, *o*, a pin tripper D with oblique base *e*, having a slotted opening *d*, a steel pin *f*, a coupling pin A, shackle *j*, attached to coupling pin A, lever *k* having slotted opening *k'*, and pivot pin C, substantially as herein before described and shown and for the purposes therein set forth.

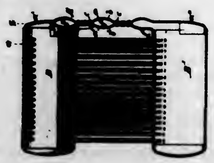
2. The combination of a pin tripper D which has an oblique base and a vertical slotted hole (*d*) through which a steel pin (*f*) is placed to guide it, with a drawhead having a cavity with an inclined plane, *g*, upon which the oblique base of the pin tripper, *e*, moves up and down when pushed in by center section of the drawhead when cars are shunted together the pin tripper holding the coupling pin in position ready to drop when cars are shunted together substantially as hereinbefore described and for the purposes therein set forth.

3. The pin tripper D having an oblique base also slotted opening *d*, and a steel pin *f*, passing through it as shown and described and for the purposes set forth.

4. The lever "*k*" of the peculiar shape shown in the drawings and having in its extremity a slotted opening *k'* of the peculiar shape shown in which a shackle works for the purpose of lifting the coupling pins in position substantially as and for the purposes hereinbefore set forth and described.

5. A shank B made of suitable metal in three longitudinal horizontal sections *m*, *n*, *o* respectively the upper center and bottom sections, as shown in drawings, substantially as hereinbefore described and for the purposes therein set forth.

491,451. STEAM-BOILER. ALLAN STERLING, New York, N. Y., assignor to the Stirling Boiler Company, Chicago, Ill. Filed June 9, 1892. Serial No. 436,128. (No model.)



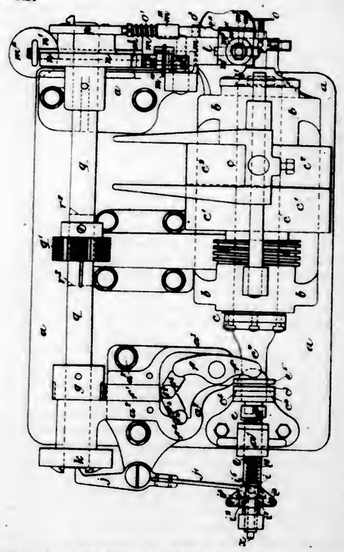
Claim.—1. The combination with a steam boiler, of a water leg exteading the entire width of the furnace structure at the rear portion of the latter and composed of two metal plates each of which is provided with cup-shaped cavities made to overlap each other and with flat spaces *d* at the edges and between the cup-shaped cavities, substantially as described.

2. The combination with a steam boiler, of a water leg composed of two metal plates each of which is provided with cup-shaped cavities made to overlap each other and with flat spaces *d* at the edges and between the cup-shaped cavities, and a pipe *p* leading from one of the water spaces of the water leg into the water space of the boiler, substantially as described.

3. The combination with the steam and water drums B B and the mud drum B' of a waterleg composed of two metal plates each of which is provided with cup shaped cavities substantially as described.

4. The combination with the steam and water drums B B and the mud drum B' of a waterleg composed of two metal plates, each of which is provided with cupshaped cavities and pipes *p p'* extending from the water-spaces of the waterleg into said drums substantially as described.

491,452. APPARATUS FOR MANUFACTURING METAL BALLS. GEORGE TAYLOR, Coventry, England, assignor to Taylor, Cooper & Bednell, Limited, same place. Filed Oct. 22, 1891. Serial No. 409,563. (No model.)



Claim.—1. In machinery for turning metal balls or spheres, the combination of the head stock having the hollow rotating driving spindle coned out at its forward end, a hollow chuck spindle passed through the driving spindle and carrying a cone centering chuck whose jaws are held normally up in open position by an annular spring, a spiral spring between the end of the driving spindle and a collar on the chuck spindle for keeping the chuck normally closed onto the blank rod, the continuation of the hollow driving spindle, a collar secured thereon, anti-friction washers, balls between said washers, a pivoted lever engaging one of said anti-friction washers and moving the driving spindle longitudinally for releasing the chuck, means for opening said lever, a feeding mechanism and a cutting mechanism substantially as described.

2. In a machine for turning metal balls or spheres, the combination of the head stock having the hollow rotating driving spindle, a hollow chuck spindle passed through the driving spindle and carrying a chuck which is held in operative position by said driving spindle through the means of a spiral spring supported between the end of said driving spindle and a collar on the chuck spindle, a collar on the driving spindle, a pivoted lever *f* in engagement with said collar, the toggle levers f^2 engaging the other end of said lever *f*, the slide f^1, the cam *g*, suitable feeding mechanism, and suitable cutting mechanism, substantially as set forth.

3. In machinery for turning metal balls or spheres, a head stock having a hollow driving spindle, a hollow chuck spindle within the driving spindle, an automatic gripping and releasing chuck on said chuck spindle, and a turning tool, in combination with an intermittent automatic sliding grip consisting essentially of a body portion i formed with an opening through it for the passage of the rod and perforated ears i^2 for supporting the gripping jaws, the gripping jaws i^2 pivoted at their inner ends to the ears i^2 and adapted to engage the blank rod when moved forward, a spring for holding the gripping jaws in their disengaged position, and an operating lever engaging the outer ends of the gripping jaws and adapted to move them into engaged position against the action of the spring, substantially as set forth.

4. In machinery for turning metal balls, or spheres, a head stock having a hollow driving spindle, a hollow chuck spindle within the driving spindle, an automatic gripping and releasing chuck on said chuck spindle, and a turning tool or cutter in combination with a stop for limiting the forward movement of the blank, and an intermittent automatic feed consisting essentially of a sliding grip i adapted to engage the blank rod when moving forward, means for returning the grip, and a pivoted lever *j* operated by a cam *k* and having a forward spring arm *j'* engaging said grip, substantially as and for the purpose set forth.

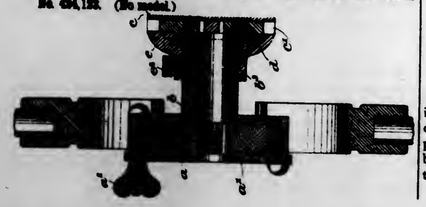
5. In machinery for turning metal balls or spheres, a head stock having a hollow driving spindle, a hollow chuck spindle within the driving spindle, an automatic gripping and releasing chuck on said chuck spindle, and a turning tool or cutter, in combination with an intermittent automatic feed consisting essentially of a sliding chuck i provided with pivoted jaws i^2, and an arm i^2 pivoted to said jaws, a lever *j* engaging said arm i^2, a cam operating said lever *j* and a spring for holding said chuck i in retracted position, substantially as set forth.

6. In machinery for turning metal balls or spheres, a head stock having a hollow driving spindle, a hollow chuck spindle within the driving spindle, an automatic gripping and releasing chuck on said chuck spindle, and a turning tool or cutter in combination with an automatic intermittent feed, and a movable or disengaging stop for regulating the feed of the blank metal rod, and a cam and spring adapted to place said stop in front of the blank rod during the feed and to cause it to retire out of the way during the turning operation, substantially as set forth.

7. In machinery for turning metal balls or spheres, a head stock having a hollow driving spindle, a hollow chuck spindle within the driving spindle, and an automatic gripping and releasing chuck on said chuck spindle, in combination with a transversely supported cutting tool formed with an approximately semi circular concave cutting edge having its outer or forward corner extending up to or a little beyond the horizontal center of rotation of the machine, and its inner corner a little short of said horizontal axis of rotation, substantially as and for the purpose herein set forth.

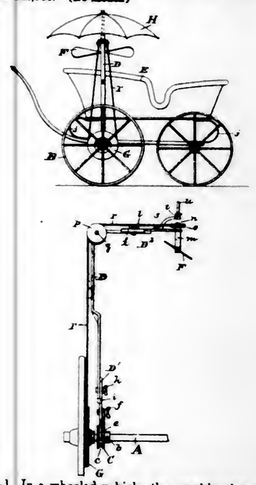
8. In machinery employed in the turning of metal balls or spheres, a head-stock, having a hollow rotating driving spindle coned out at the front end, a hollow chuck spindle passed through the driving spindle and fitted with a coned centering chuck, a spring acting between the end of the driving spindle and a collar on the chuck spindle, to keep the chuck normally in its closed position, in combination with a cam operated lever acting upon one of such spindles to move it endwise and so release the chuck, loose disks at the rear end of such spindle, bearing balls between such disks, a grip feeder to feed the blank metal rod forward through the chuck spindle, a spring for keeping such feeder normally free of the blank metal rod, a cam for causing such feeder to grip and feed the blank metal rod forward at the required times, a slide carrying the turning tool or cutter, a cam and weight to give the required to and fro motion to such slide, a movable or disengaging stop for regulating the feed of the blank metal rod, and a cam and spring to place such stop in front of the blank rod during the feed, and to cause it to retire out of the way during the turning operation, substantially as herein shown and described.

491,458. DIE-STOCK. BERNARD THAYER, Boston, Mass., assignor of one-half to Charles H. Stuart, same place. Filed Mar. 8, 1892. Serial No. 424,123. (No model.)



Claim.—A die-stock having a long tubular guide or support *b* extended from its rear side and annularly grooved at b^2, an enlarged head fixed to the extremity of the guide and having radial guideways upon its inner face, and adjustable jaws movable therein, combined with an independent cam-head rotatable on said guide intermediate the die-stock and jaws and abutting against the latter, cam-surfaces to act upon the jaws and move them, and a clamping screw carried by the cam-head and entering the annular groove to serve as a retaining and clamping device for said cam-head, substantially as described.

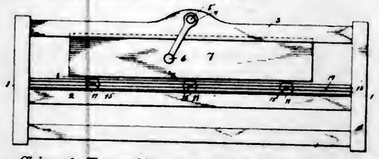
491,454. FAN FOR VEHICLES. MERRILL H. TRIPPE, Baltimore, Md., assignor of two-thirds to Dallas M. Harrison. Filed Aug. 12, 1892. Serial No. 442,906. (No model.)



Claim.—1. In a wheeled vehicle, the combination of a supporting arm pivoted on an axle of the vehicle concentric with a wheel on said axle, and extending vertically alongside the body of the vehicle to the top thereof where it has a lateral extension projecting over the said body; a vertical shaft in a bearing on said lateral extension and carrying horizontal fan-blades at the lower end and a pulley at the upper end; suitable pulleys at the angle of the supporting arm; a driving pulley fast with the vehicle-wheel and concentric therewith; and a belt connecting said driving pulley and the fan-shaft pulley and passing over the pulleys at the angle of the supporting arm.

2. In a wheeled vehicle, the combination of a bearing-block fastened on an axle of the vehicle and having a radial slot entering one side to receive the said axle, and a circular head concentric with the axis of the axle; a supporting arm having an arc-shaped crotch engaging said circular head and adjustably fastened thereto; a rotary fan carried by said supporting arm; a driving pulley mounted to rotate with a wheel of the vehicle which is concentric with the circular head of the bearing-block; and a belt connecting said pulley with the rotary fan.

491,455. MANGLE. SUSAN WIGGINS, Stewartsville, Ind. Filed Sept. 3, 1892. Serial No. 445,007. (No model.)

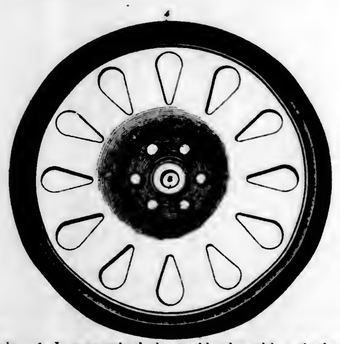


Claim.—1. The combination in a mangle, of the table, a supporting frame, a presser frame, the longitudinal ways, located at the sides of the supporting frame and constructed of spring metal, and the presser rollers having their journals arranged to travel in said ways by which they are caused to bear with a yielding pressure, substantially as specified.

2. In a mangle, the combination of the frame provided with spring guides, a presser frame and mechanism for operating it, and rollers for supporting and carrying the presser-frame, said rollers being guided by the spring guides, substantially as specified.

491,456. CAR-WHEEL. WARREN J. WILLITS, Three Rivers, Mich. Filed May 27, 1892. Serial No. 434,648. (No model.)





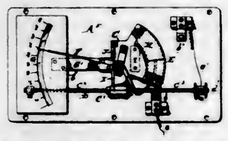
Claim.—1. In a car-wheel, the combination with a tire having an annular flange, of a main body portion having a web and flange corresponding to the inside of the tire and flange, the parts being fastened together through the flanges, substantially as set forth.

2. The combination in a car wheel, of the body having a returned flange at its edge, the tire having an overlapping returned flange at its edge, the intermediate insulating annulus, and the securing bolts, substantially as specified.

3. The combination with a car wheel of the body, having a returned flange at its outer edge, the tire having an overlapping flange, the connecting bolts, and the flanged hub, and bolts by which it is secured to the center of the body, substantially as specified.

4. The combination with a car wheel of the body having a returned flange, the tire having an overlapping returned flange, the intermediate insulating annulus, and confining bolts and flanged hub, secured to the center of the body of the wheel, substantially as specified.

491,457. ELECTRICAL MEASURING-INSTRUMENT. ELMER G. WILLYOUNG, Philadelphia, Pa., assignor to Samuel L. Fox and Edward R. Fox, same place. Filed Aug. 11, 1892. Serial No. 442,767. (No model.)



Claim.—1. In a measuring instrument for measuring electrical currents, the combination of a case or support, a dial, a frame for the expansive wire and bearings for the pointer supported from the case at a place of small area, an expansion wire and a pointer sustained thereby, and a connection between the pointer and expansion wire, whereby warping, bending, or splitting of the case will not affect the relative positions of the several operative parts of the instrument.

2. In a measuring instrument for measuring electrical currents, the combination of a case or support, a dial, a frame for the expansion wire, air chamber and bearings for the pointer supported from the case at a place of small area, an expansion wire and a pivoted pointer sustained thereby, the pointer having a piston for the air chamber, and a connection between the pointer and expansion wire, whereby warping, bending or splitting of the case will not affect the relative positions of the several operative parts of the instrument.

3. In a measuring instrument for measuring electrical currents, the combination of a case or support, a dial, a frame for the expansion wire and bearings for the pointer supported from the case at a place of small area, an expansion wire and a pivoted pointer sustained thereby, a spring to move the pointer against the action of the expansion wire, and a connection between the pointer and expansion wire, whereby warping, bending or splitting of the case will not affect the relative positions of the several operative parts of the instrument.

4. In a measuring instrument for measuring electrical currents, the combination of the case or support, a frame for the pointer and expansion wire having a connection of small area with the case or support, an expansion wire, a pointer, and a connection between the pointer and expansion wire.

5. In a measuring instrument for measuring electrical currents, the combination of the case or support, a frame for the pointer and expansion wire having a conection of small area with the case or support, an expansion wire, a pointer, a connection between the pointer and expansion wire, and a spring to pull the pointer away from the expansion wire.

6. In a measuring instrument for measuring electrical currents, the combination of the case or support, a frame for the pointer and expansion wire having a compensating construction and a connection of small area with the case or support, an expansion wire, a pointer, and a connection between the pointer and expansion wire.

7. In a measuring instrument for measuring electrical currents, the combination of the case or support, a frame for the pointer and expansion wire having a compensating construction and a connection of small area with the case or support, an expansion wire, a pointer, a connection between the pointer and expansion wire, and a spring to oppose the action of the expansion wire on the pointer also carried by the frame for the pointer and expansion wire.

8. In a measuring instrument for measuring electrical currents, the combination of a dial, a pointer therefor, a stretched expansion wire over which a current is made to pass, a compensating support for the wire and pointer having a small area of support, a connection between the pointer and expansion wire intermediate of its ends, and a spring to oppose the action of the wire upon the pointer.

9. In a measuring instrument for measuring electrical currents, the combination of a movable pointer having a piston, formed integral therewith with an air chamber in which the piston works to make the pointer dead-beat, and means actuated by the current to be measured to move the pointer.

10. In a measuring instrument for measuring electrical currents, the combination of a movable pointer having a piston, formed integral therewith with an air chamber in which the piston works to make the pointer dead-beat, and means actuated by the current to be measured consisting of an expansion wire connected with and adapted to move the pointer.

11. In a measuring instrument for measuring electrical currents, the combination of a dial, a pointer therefor, a stretched expansion wire over which a current is made to pass, a connection between the pointer and expansion wire intermediate of its ends, a spring to oppose the action part of which is stationary and part movable and integral with the pointer of the wire upon the pointer, and an air damper to cause the pointer to move with a dead-beat action.

12. In a measuring instrument for measuring electrical currents, the combination of a dial, a pointer therefor, a stretched expansion wire over which the current is made to pass, a compensating support for the wire, a connection between the pointer and expansion wire intermediate of its ends, a spring to oppose the action part of which is stationary and part movable and integral with the pointer of the wire upon the pointer, and an air damper to cause the pointer to move with a dead-beat action.

13. In a measuring instrument for measuring electrical currents, the combination of an expansion wire, a pointer actuated thereby, a compensating support for the expansion wire having its ends provided with means for holding the wire in tension, and an intermediate frame for sustaining the support in the air.

14. In a measuring instrument for measuring electrical currents, an expansion wire, a pointer moved thereby, a compensating support for the wire composed of a central frame and two oppositely projecting rods or bars, a connection between the end of one of the rods or bars and the expansion wire, an insulating support carried by the end of the other rod or bar, and a connection between the other end of the expansion wire and the insulating support.

15. In a measuring instrument for measuring electrical currents, an expansion wire, a pointer moved thereby, a compensating support for the wire composed of a central frame and two oppositely projecting rods or bars of different metals having different coefficients of expansion but such that the resultant expansion equals the coefficient of expansion of the expansion wire, a connection between one of the rods or bars and the expansion wire, an insulating support carried by the end of the other rod or bar, and a connection between the other end of the expansion wire and the insulating support.

16. In a measuring instrument for measuring electrical currents, the combination of an expansion wire, a pointer moved thereby, and a compensating support for the expansion wire consisting of two independent metal parts of different coefficients of expansion secured together mechanically but in which the resultant coefficient of expansion of the entire support is equal to the coefficient of expansion of the expansion wire.

17. In a measuring instrument for measuring electrical currents, the combination of an expansion wire, a pointer moved thereby, a support for the wire, an electrical connection between the support and one end of the wire, an insulator at the other end of the support, a connection between the insulator and the other end of the expansion wire, and two terminal posts one connected electrically with the support and the other with the end of the wire connected to the insulator.

18. In a measuring instrument for measuring electrical currents, the combination of an expansion wire, a pointer moved thereby, and a compensating support for the expansion wire consisting of two independent metal parts of different coefficients of expansion mechanically secured together and having a resultant coefficient of expansion equal to the coefficient of expansion of the expansion wire, and means to adjust the tension of the expansion wire while sustained in the support.

19. In a measuring instrument for measuring electrical currents, the combination of a case of wood or material liable to warp a pivoted pointer, a frame in which the pointer is pivoted secured to the case, an arm extending from said frame near the pivot of the pointer, and clear of the case and a dial secured to the free end of the arm, whereby the dial and pointer bearings always maintain the same relative positions and are not relatively affected by warping of the case.

20. In a measuring instrument for measuring electrical currents, the combination of a case or box having a movable cover, the meter proper in said box or case having a pointer moved by the expansion of a wire by heat, a resistance of exposed wire arranged in the cover connected in series with the expansion wire but so as to be considerably removed from the meter proper when in use, and flexible or movable connecting circuits between the meter proper and resistance.

21. In a measuring instrument for measuring electrical currents, a case having a fixed upper and removable lower or bottom portion, combined with terminal posts fixed to the fixed upper portion and having contacts, and a meter proper secured to the removable lower or bottom portion having spring contacts adapted to form connection with the contacts on the fixed upper portion when the parts are assembled, whereby the meter proper may be detachably connected with the terminal binding posts.

22. In a measuring instrument for measuring electrical currents, a case having fixed and removable portions, a glass plate for the dial and terminal binding posts secured to the fixed portion, and a meter proper secured to the removable portion, and spring contacts carried by said portions for automatically connecting the said binding posts in circuit with the meter proper upon assembling the parts.

23. In a measuring instrument for measuring electrical currents, the combination of a case or box having a hinged cover, a meter proper arranged in the box and embodying a pointer movable over a scale and an expansion wire connected with the pointer so as to move it under the application of heat due to the passage of a current through the expansion wire and a resistance arranged in the cover and connected in series with the expansion wire so as to control the current passing through the expansion wire and yet be greatly removed from it when the meter is in use and the lid opened.

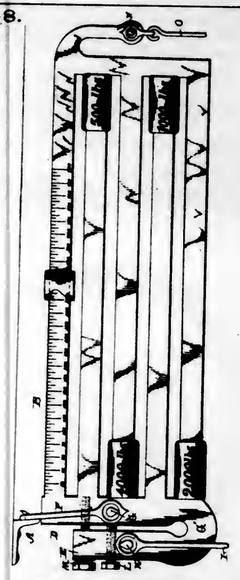
491,458. SCALE-BEAM. LEONIDAS G. WOOLLEY, Grand Rapids, Mich. Filed June 2, 1892. Serial No. 435,269. (No model.)

Claim.—1. A scale beam having its inner end formed into integral substantially parallel portions, one parallel portion capable of movement in relation to the other, a bearing in each portion, and a means for moving and holding said movable portion, substantially as described.

2. A scale beam having its inner end substantially U-shaped, a bearing in each portion of the U-shape inner end, and a means for adjusting one parallel portion of the inner U-shaped end in relation to the other.

3. A scale beam having its inner end substantially U-shaped, a bearing in each portion of the U-shape, a screw passing through one portion of the U-shape and screwed into the other, and a screw passing through one portion and resting against the other portion thereof, whereby one portion is adjustable in relation to the other, substantially as set forth.

491,458.

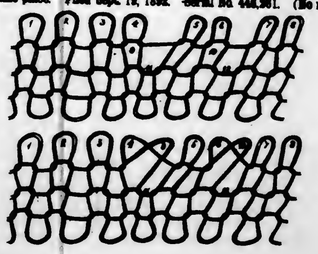


491,459. GRAIN-PLANTER. ORSMITH F. YARBROUGH, Dallas, Tex. Filed June 13, 1892. Serial No. 436,606. (No model.)



Claim.—The combination with the hopper and hollow receptacle, of a movable part, provided with a feed aperture, and an arm pivoted within a shouldered recess within the hollow recess, and adapted to sweep off the grain during the movement of the movable portion, the bottom of the recess serving as a stop to limit the movement of the arm, substantially as specified.

491,460. METHOD OF KNITTING FABRICS. WILLIAM ROCK, Rockford, Ill., assignor to the Rockford Mitten and Hosiery Company, same place. Filed Sept. 19, 1892. Serial No. 446,261. (No model.)

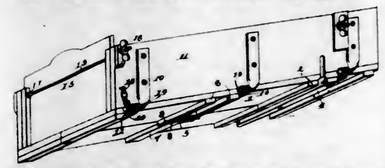


Claim.—1. The herein described method of knitting fabrics, consisting in knitting the smaller portion, transferring it to a greater number of needles by skipping certain needles and in placing upon each of the skipped needles a stitch which has been previously knit and continuing the knitting upon the greater number of needles.

2. The herein described method of knitting stockings, consisting in knitting the foot and ankle portion, transferring it to a greater number of needles, by skipping certain needles, and in placing upon each of the skipped needles a stitch which has been previously knit and continuing the knitting upon the greater number of needles.

3. The herein described method of knitting garments, consisting in knitting the smaller portion, transferring it to a greater number of needles by skipping certain needles in a portion thereof and in placing upon each of the skipped needles a stitch which has been previously knit and continuing the knitting upon the greater number of needles.

491,461. WAGON-BODY. MELVILLE M. BAKER, Chestnee Mills, Tenn. Filed July 14, 1892. Serial No. 440,019. (No model.)



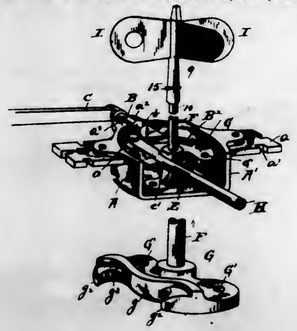
Claim.—A sectional wagon body having on one sectional portion of its bottom strips 6, its opposite sectional bottom portions having a strip 7, the end of which is interposed between the strips 6, said strips 6 and 7 having staples with securing bolts, and the side portions 11 being provided with projections 10, which enter hinges, as shown, the front projections and hinges having securing devices 12 and 13, and the ends of wagon body having securing devices as 17, 18 and 19, all combined and arranged to operate as specified.

491,462. BUCKLE. JAMES BARKLEY, Carlyle, Ill. Filed Nov. 23, 1891. Serial No. 413,429. (No model.)



Claim.—A buckle formed of a single piece of wire, with a cross-bar 1, the side-bars 2, the bends 4, and the ends 3 extending from the bends having extremities 3ª riding on each other and forming a single tongue projecting over the cross-bar; the points of the ends spreading when the strain is brought to bear on the bends, substantially as described.

491,468. SWITCH-STAND. FRANK A. BERMAN, Cleveland, Ohio, assignor of two-thirds to Clarence A. Carpenter and Edward A. Handy, same place. Filed Feb. 3, 1892. Serial No. 420,695. (No model.)



Claim.—1. In a switch-stand, in combination, two cams adapted to engage each other and having their axes at right angles or approximately at right angles to each other, suitable means for operatively connecting the one cam with the railway switch, and a lever operatively connected with the other cam, substantially as set forth.

2. In a switch-stand, in combination, two shafts arranged at right angles or approximately at right angles to each other and a cam on each of said shafts, said cams being adapted to engage each other and communicate motion from the one shaft to the other, suitable means, comprising a link or rod, for operatively connecting the one cam with the railway-switch, and a lever operatively connected with the shaft carrying the other cam, substantially as set forth.

3. In a switch-stand, the combination with two shafts and a cam on each of said shafts, said cams being adapted to engage each other and communicate motion from the one cam to the other, of a link or rod for operatively connecting the one cam with the switch, said last-mentioned cam having two ears or members provided each with a vertical pin or bolt-hole so located that as said link or rod is pivotally secured at one or the other of said holes the throw of said link or rod will be greater or less as the case may be, substantially as set forth.

4. In a switch-stand, the combination with a casing having a lateral flange or member, a horizontal shaft having bearing in said lateral flange or member of the casing, a cam rigid with said shaft and a lever operatively connected with the shaft, of a block integral with or rigidly secured to the bottom of the casing, an upright shaft having bearing in said block and a cam rigid with said upright shaft and adapted to engage or be engaged by the cam on the horizontal shaft, and suitable means for operatively connecting the cam on the upright shaft with the switch, substantially as set forth.

5. In a switch-stand, the combination with a casing having a lateral flange or member, a horizontal shaft having bearing in said lateral flange or member of the casing, and a cam, as at B^3, rigid with said shaft inside of the casing, of a block integral with or rigidly secured to the casing and undercut to accommodate the movement of the cam aforesaid, an upright shaft having bearing in said block, a cam, as at G, rigid with said upright shaft, and suitable means for operatively connecting said cam G with the switch, the aforesaid cams being adapted to engage each other and communicate motion from the one to the other, substantially as set forth.

6. In a switch-stand, the combination with a switch-signal-bearing shaft and a cam rigid with said shaft, of a horizontal or approximately horizontal shaft, as at B, a cam, as at B^4, rigid with said shaft B, and a lever, as at C, operatively mounted on shaft B, cam B^3 being adapted to engage and communicate motion to the cam on the switch-signal-bearing shaft, substantially as set forth.

7. In a switch-stand, the combination with a switch-signal-bearing shaft, and a cam rigid with said shaft and suitable means for operatively connecting said cam with the railway-switch, of a shaft, as at B, arranged at right angles or approximately at right angles to said switch-signal-bearing shaft, a cam rigid with shaft B, and a lever operatively connected with said last-mentioned shaft, the aforesaid cams being adapted to engage each other and communicate motion from the one to the other, substantially as and for the purpose set forth.

8. In a switch-stand, the combination with a casing having a lateral flange or member, a horizontal shaft having bearing in said lateral flange or member, a cam rigid with said shaft inside of the casing, and a lever, as at C, operatively connected with said shaft, of a block integral with or rigidly secured to the bottom of the casing, a switch-signal-bearing shaft having bearing in said block, a cam on said last-mentioned shaft and adapted to be engaged by the cam on the horizontal shaft, substantially as and for the purpose set forth.

9. In a switch-stand, the combination with a shaft, as at B, a cam on said shaft, as at B^3, said shaft being provided with a shoulder or stop, as at b', and a lever, as at C, provided with a chamber or perforation, as at C, for embracing said shaft, said chamber or perforation having a lateral enlargement, as at C^3, forming shoulders, as at C^3, at either end of said lateral enlargement, of a cam, whose axis is at right angles or approximately at right angles to the shaft aforesaid, and suitable means for operatively connecting said cam with the railway-switch, the arrangement of parts being substantially as shown and described.

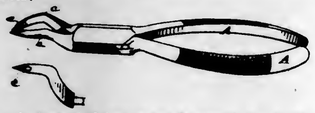
10. In a switch-stand, the combination with an upright switch-signal-bearing shaft, a cam rigid with said shaft and suitable means for operatively connecting said cam with the railway-switch, of a horizontal or approximately horizontal shaft, as at B, a cam rigid with said shaft and adapted to engage or be engaged by the cam on the switch-signal-bearing shaft aforesaid, a lever operatively connected with said horizontal or approximately horizontal shaft, and suitable means whereby the signal-bearing shaft is caused to make a quarter or approximately a quarter revolution during the full stroke of the aforesaid lever, substantially as set forth.

11. In a switch-stand, the combination, horizontal and upright

shafts, B and F, cams, B* and G, rigid with said shafts, respectively, a lever, C, operatively connected with shaft B, suitable means for operatively connecting cam G with the railway-switch, and means, substantially as indicated, for turning shaft F but a quarter or approximately a quarter revolution during the full stroke of the lever, the arrangement of parts being substantially as and for the purpose set forth.

12. In a switch stand, an upright signal bearing shaft composed of two sections one having a socket adapted to receive the other, said socket section provided with one or more lateral holes and the other section provided with a hole, and a pin or other suitable device to enter the holes when they register to lock the sections together, substantially as set forth.

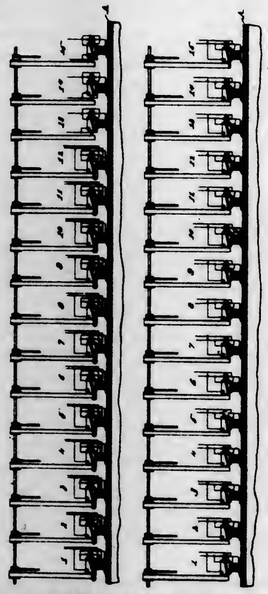
491,464. SURGICAL FORCEPS FOR DENTAL USE. CHARLES E. BLAKE, Sr., San Francisco, Cal. Filed Nov. 6, 1891. Serial No. 411,098. (No model.)



Claim.—1. A surgical instrument for dental use, having two sharpened tapering blades, triangular in cross-section, the sides of the points being made hollow or concave and the edges sharpened, substantially as described.

2. A surgical instrument for dental use having two pivoted sharpened, tapering blades, triangular in cross-section, the lateral edges of the blades being sharpened and forming cutting edges, as set forth.

491,465. ELECTRICAL TRANSMISSION OF POWER. CHARLES S. BRADLEY, Avon, N. Y. Filed Apr. 4, 1892. Serial No. 427,587. (No model.)



Claim.—1. A system for electrically transmitting power by direct current comprising a multiplicity of generators coupled in series relation, and highly insulated from earth, a series of motors similarly arranged, a connecting line, and a highly insulated flooring or platform about the machines, upon which an attendant must stand to gain access to any machine.

2. A generating station for high tension direct current comprising a multiplicity of generators coupled in series and highly insulated from earth, and a highly insulated floor over which an attendant must pass to gain access to a machine, the several machines being highly insulated from each other and spaced a sufficient distance apart to prevent an attendant establishing accidental connection between them.

3. A system of apparatus for generating and transmitting a direct electric current of high electro-motive-force, comprising a multiplicity of generators coupled in series relation and highly insulated from earth, the winding of each generator being electrically connected with its frame.

4. A system of apparatus for transforming a high potential direct electric current into mechanical energy, comprising a multiplicity of motors coupled in series relation and highly insulated from earth, the winding of each motor being electrically connected with its frame.

5. A system of apparatus for electrically transmitting power by direct electric current, comprising a multiplicity of generators coupled in series relation and highly insulated from earth, the winding of each generator being electrically connected with its frame, a multiplicity of motors in circuit with the generators, said motors being coupled in series relation and highly insulated from earth, the winding of each motor being electrically connected with its frame.

6. A system for electrically transmitting power by direct current comprising a multiplicity of generators coupled in series relation and connected with a common driving shaft, a series of motors similarly arranged, and a controlling switch for short circuiting any machine, said switch being highly insulated and located at a sufficient distance from any machine to prevent an attendent forming an accidental contact between the machine and any part of the switch.

7. A battery of direct current dynamo electric machines or motors coupled in series mounted upon a floor of glass or other insulating material, said floor surrounding the machines for the purpose described, the several machines being spaced a sufficient distance apart to prevent an attendant from forming an accidental contact with any two machines simultaneously.

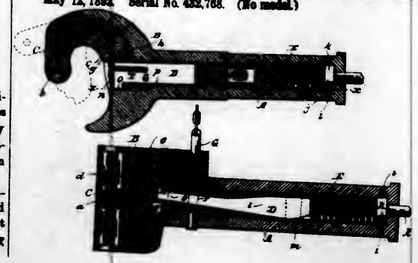
491,466. EMERY-WHEEL DRESSER. WILLIAM W. BRIDGES, Cleveland, Ohio, assignor to James E. Rundle, same place. Filed Sept. 3, 1892. Serial No. 445,012. (No model.)



Claim.—1. In an emery grinding-tool comprising a series of disks mounted upon a sleeve, means for securing the sleeve and disks rigidly together consisting in the internal securing medium of fusible metal C introduced into central openings in the disks, and into annular and transverse cavities with which the adjacent edges of the disks are provided—substantially as described.

2. In an emery grinding tool comprising a series of disks, provided with central openings and annular and transverse cavities on their meeting faces communicating with said central openings, the combination therewith of a sleeve B, and intervening metal medium, introduced in the liquid state into the central opening and cavities, whereby rigid connection is made between the disks and sleeve substantially as described.

491,467. CAR-COUPLING. JAMES H. BROWN, Denver, Colo. Filed May 12, 1892. Serial No. 432,768. (No model.)



Claim.—1. In an automatic car coupling, the combination, with a hollow draw-bar, of a locking bar arranged longitudinally in said draw-bar and adapted to form a link to couple with a link and pin coupling, substantially as described.

2. In an automatic car coupling, the combination, with a hollow draw-bar, of a locking bar loosely arranged longitudinally in said draw-bar and adapted to form a link to couple with a link and pin coupling, and means for securing the rear end of said bar to the draw-bar, substantially as described.

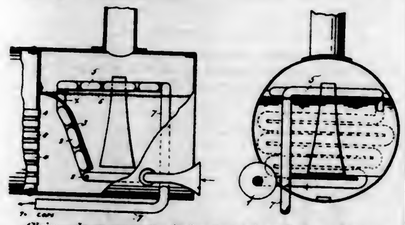
3. In an automatic car coupling, the combination, with a hollow draw-bar, and a swinging knuckle, of a bar arranged longitudinally in said draw bar and adapted to have a vertical movement at its outer end and to be bodily moved longitudinally in said draw-bar, and a pin for securing said bar in the draw-bar and for raising one end thereof, whereby said bar is adapted to form a lock for the knuckle and to form a link for a link and pin coupling, substantially as described.

4. In an automatic car coupler, the combination of a hollow draw-bar, and a swinging knuckle, of a locking bar longitudinally arranged within said draw-bar, a spiral spring for normally forcing said locking bar forward, and means connected to the uncoupling lever for raising or lifting one end of said locking bar, substantially as described.

5. In an automatic car coupling, the combination, with a hollow draw-bar, and a swinging knuckle having a tail piece formed with shoulders on its front edge, of a locking bar arranged longitudinally in said draw-bar and formed with an elongated slot at its forward end, a spring adapted to force said bar outwardly, and a pin having shoulders on its lower end for raising or lifting one end of said locking bar, substantially as described.

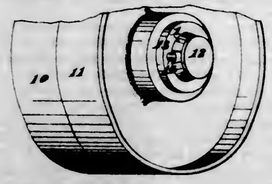
6. In an automatic car coupling, the combination, with a draw-head having a vertical shoulder, a hollow draw bar and a swinging knuckle, of a locking bar longitudinally arranged within said draw-bar and having a lateral shoulder near its head end, a spring for forcing said bar forward, and a pin adapted to limit its forward movement and to lift one end of said locking bar, substantially as described.

491,468. HEATING AND VENTILATING RAILWAY-CARS. JOHN J. BERWELL, Covington, Ky. Filed Mar. 30, 1892. Serial No. 427,126. (No model.)



Claim.—In an apparatus for heating and ventilating railway cars, the combination of an induction tube located in front of the locomotive with the serpentine coil of pipe 2, located at the rear of the diaphragm 3, and in front of the open ends of the boiler flues 4, the connecting pipe *x*, passing upwardly through said diaphragm, the supplementary coil 5, and the netting 6, which it overlies, and the eduction pipe 7, extending downward and to the cars, all as shown and described.

491,469. FASTENING DEVICE FOR WHEELS, &c. HENRY C. CARVER, Manchester, assignor to Edmund Drinkwater Carver, Wimbledon, England. Filed Oct. 16, 1891. Serial No. 408,916. (No model.) Patented in England Feb. 27, 1891, No. 3,605; in France Aug. 27, 1891, No. 215,761; in Belgium Aug. 27, 1891, No. 96,180, and in Germany Sept. 30, 1891, No. 65,405.



Claim.—1. For retaining a wheel or other object in position, a pin having an annular groove formed therein and arranged to extend through said wheel or object, and a spring split collar of hollow truncated conical form, having its smaller end arranged within said groove so as to encircle said pin and its larger end to bear against the wheel or object to be retained in place whereby the end thrust of said collar on the outer end wall of said groove will fall within the outer periphery of said end wall substantially as herein described.

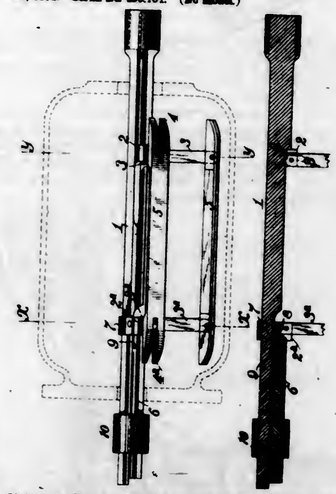
2. For retaining a wheel or other object in position, a pin having an annular groove formed therein and arranged to extend through said wheel or object, a spring split collar of truncated conical form having its smaller end encircling the grooved part of said pin and its larger end extending toward said wheel or other object, and a washer interposed between said collar and wheel or other object substantially as herein described for the purpose specified.

3. For retaining a wheel or other object in position, a pin having an annular groove formed therein and arranged to extend through said wheel or other object, a spring split collar of truncated conical form having its smaller end encircling the grooved part of said pin and its larger end extending toward said wheel or object, and a washer arranged between said collar and wheel or other object and fixed in relation to said collar substantially as herein described for the purpose specified.

4. For retaining a wheel or other object in position, a pin having an annular conical surface formed thereon and arranged to extend through said wheel or other object, and a spring split collar of truncated conical form having its smaller end bearing against the conical surface on said pin and its larger end directed toward said wheel or other object substantially as herein described for the purpose specified.

5. For retaining a wheel or other object in position, a pin arranged to extend through said wheel or other object and having an annular conical surface formed thereon, a spring split collar of truncated conical form, having its smaller end bearing against said conical surface, and a washer arranged between said wheel or other object and the larger end of said collar substantially as herein described for the purpose specified.

491,470. CORE-BAR. FRANCIS I. CLARK, Wilkinsburg, assignor to the Westinghouse Air Brake Company, Pittsburg, Pa. Filed June 27, 1892. Serial No. 438,151. (No model.)



Claim.—1. In a core bar, the combination of a shaft, a slide movable along the shaft, bars forming the outer supports for the core material, and links connecting the bars with the shaft and slide respectively, and adapted to support the bars when shifted outwardly to operative position, said parts being so constructed and connected as to permit of the bars being folded down upon or approximately upon the shaft, substantially as set forth.

2. In a core bar, the combination of a shaft, a slide movable along the shaft, bars forming the outer supports for the core material and having slotted ends and links connecting the ends of the bars with the shaft and slide respectively and adapted to enter the slots in the bars, when the latter is closed against the shaft, substantially as set forth.

3. In a core bar, the combination of a shaft, a slide movable along the shaft, bars forming the outer supports for the core material and

links connecting the ends of the bars with the shaft and slide respectively, the links being provided with shoulders for holding the links rigidly in operative position, substantially as set forth.

4. In a core bar, the combination of a shaft, a slide movable along the shaft, bars forming the outer supports for the core material, links connecting the bars with the shaft and slide respectively, and adapted to support the bars when shifted outwardly to operative position, said parts being so constructed and connected as to permit of the bars being folded down upon or approximately upon the shaft, and a lock for holding the bars in position when shifted outwardly, substantially as set forth.

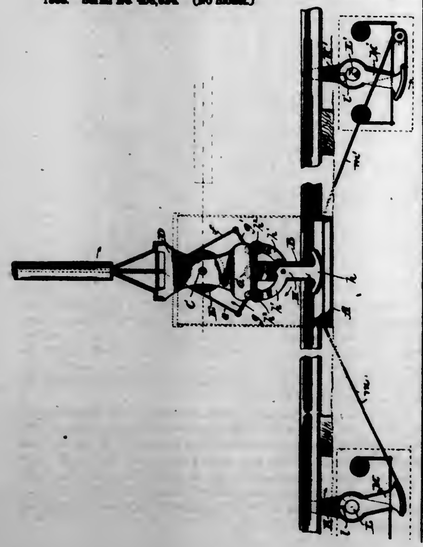
5. In a core bar, the combination of a shaft, a slide movable along the shaft and held thereto by a strap, bars forming the outer supports for the core material, links connecting the bars with the shaft and slide respectively, an abutment interposed between the slide and shaft and a clamping device for drawing together the portions of the shaft and slide outside of the abutment, substantially as set forth.

491,471. GLOVE. LOUIS COZ, Birmingham, England. Filed Aug. 27, 1892. Serial No. 444,262. (No specimens.) Patented in England May 6, 1892, No. 8,891.



Claim.—An article of manufacture, to wit a glove adapted for use in riding or driving, having the body of the glove constructed in the usual way, and the side pieces of the fingers of roughened india rubber, substantially as and for the purposes described.

491,472. AUTOMATIC RAILWAY-GATE. FREDERIC A. CURTIS, Muskegon, Mich., assignor of two-thirds to Patrick J. Connell, Simon O'Day, James D. Sheridan, and Francis X. Vovis, same place, and Ashley B. Curtis, Iron River, Wis. Filed Mar. 31, 1892. Renewed Jan. 16, 1893. Serial No. 458,694. (No model.)



Claim.—1. The combination of a shaft carrying a gate arm; a spring having two arms reversely connected to said shaft; a bifurcated lever, the arms of which engage the spring arms, and means whereby the said lever will be actuated by a passing train, substantially as described.

2. The combination of a shaft carrying a gate arm; pulleys mounted on said shafts; a spring having arms connected with said pulleys; a bifurcated lever, the arms of which engage the spring arms, and means whereby said lever will be actuated by a passing train.

3. The combination of a shaft carrying a gate, pulleys mounted on the said shaft; a spring having spring arms; cables connecting the spring arms with the pulleys, and a bifurcated lever having its bifurcated portions extending on opposite sides of said spring and notched in their upper ends and provided with rollers which receive the said arms, substantially as shown and described.

4. The combination with a support; a shaft journaled in the support and carrying a gate, and a pulley on said shaft, of a tension device, consisting of a plate, and a set screw passing through the support and adapted to force said plate with a greater or less degree of pressure against the said pulley, substantially as shown and described.

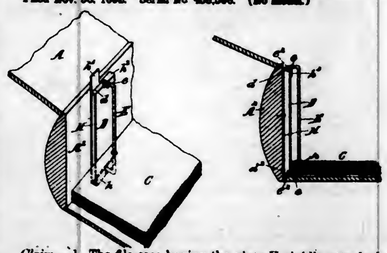
5. The combination with a shaft constructed to carry a gate, and a lever adapted to operate the said shaft and having a segment head, of a tension or brake device consisting of a plate to press against the said segment head, and a set screw to regulate the degree of pressure of the said plate on the segment head, substantially as set forth.

6. A gate-mast having on its outer end a cylindrical sleeve adapted to rotate freely thereon, substantially as shown and described.

7. The combination with the railroad gate support having lugs projecting therefrom, of a casing made in halves and having return notches in its edges to receive the said lugs, substantially as shown and for the purposes specified.

8. The combination with a gate support having lugs projecting therefrom, and a casing made in halves and having return notches in its edges to receive the said lugs, of a cap plate to close the top of the casing, having a cross bar, one end of the cross bar engaging with the support, and a lock bar engaging with the opposite end of the said cross bar and adapted to have its lower end locked by padlock to a projection near the lower end of said support, substantially as shown and described.

491,478. TEMPORARY BINDER FOR FILE-CASES. ALEXANDER DOU, Mount Healthy, assignor to the Globe Company, Cincinnati, Ohio. Filed Nov. 30, 1892. Serial No. 453,506. (No model.)



Claim.—1. The file-case having the plate H rigidly attached to its inner face, said plate having flanges h and h^2, which latter are adapted to detachably connect the index binder to said case, substantially as set forth.

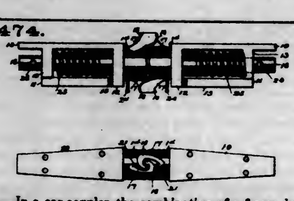
2. The binder consisting of plate D having end flanges d and d^2 with openings therein, in combination with rod E having the angular bent portions e^2 sprung within the openings in said flanges, and suitable means for detachably connecting said plate to a file-case, substantially as set forth.

3. A binder for a file-case, consisting of plate D having end flanges and rod E attached thereto, in combination with plate H having end flanges h and h^2, said flanges being adapted to engage and overlap the end portions of plate D, substantially as set forth.

4. The plate H attached to the inner face of a file-case, said plate having a lower upturned flange h with a recess h^2 therein and a top flange h^2 with a recess h^3 therein, in combination with plate D having end flanges d and d^2 with a bent rod E attached thereto, and an index attached to said rod, the said flanges h and h^2 being adapted to engage with and lock the index plate D, substantially as specified.

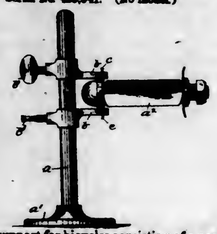
491,474. CAR-COUPLING. GUSTAF BELSER, Davenport, Iowa. Filed Oct. 15, 1891. Serial No. 408,934. (No model.)

491,474.



Claim.—In a car coupler, the combination of a frame, longitudinally supporting the draw head, the draw head supported therein and adapted to be partially rotated, the radial extensions upon the forward exterior part of the draw head, the lateral hooks extending in opposite directions from such extensions, the central longitudinal recess in the front end of such draw head, the guide bar in such recess and means for securing the same in position, the spiral spring surrounding the stem of such draw head, secured at one end to such draw head and at the other end to said frame, and means for rotating the draw head in a direction opposite to the line of force exerted upon said draw head by said spiral spring, substantially as described.

491,475. SUPPORT FOR VELOCIPEDES. STERLING ELLIOTT, Newton, assignor to the Hickory Wheel Company, Watertown, Mass. Filed Mar. 19, 1892. Serial No. 425,541. (No model.)



Claim.—1. A support for bicycles consisting of a post, and a pedal engaging clamp thereon, the clamping jaws of which are adjustable one with relation to the other, substantially as described.

2. A support for bicycles consisting of a post, and a pedal engaging clamp comprising the arm b, on the post, having a hole to receive the projection c, of the pedal, substantially as described.

3. A support for bicycles consisting of a post, and a pedal engaging clamp thereon, two arms b, b, each having at its outer end a hole to receive the projections c, c, of the pedal, substantially as described.

4. A support for bicycles consisting of a post, and pedal engaging clamp comprising the arm b, vertically adjustable on said post, and having a hole to receive a projection on the pedal, substantially as described.

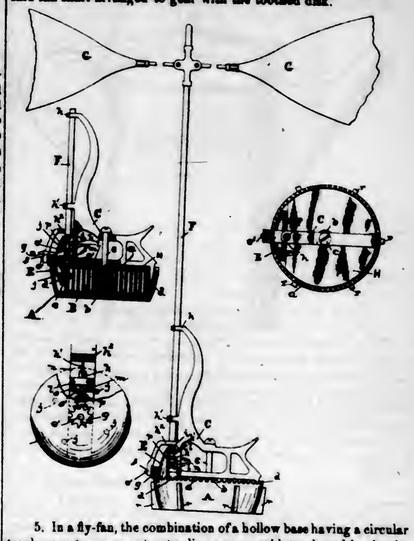
491,476. FLY-FAN. WILLIAM R. FOWLER, Baltimore, Md., assignor to Matthai Ingram & Co., same place. Filed Sept. 23, 1892. Serial No. 446,683. (No model.)

Claim.—1. In a fly-fan, the combination of a stationary base having a circular track; a rotary support having its axis at the center of said circular track and carrying a pinion which meshes with the latter and a toothed disk fast with said pinion; a motor to rotate the said support; and a fan-shaft having a pinion which meshes with the said toothed disk.

2. In a fly-fan, the combination of a stationary base having a circular track; a rotary support having its axis at the center of said circular track and carrying a wheel arranged to travel over the same and receive motion therefrom; a motor for rotating the support; a stop device to prevent rotation of said wheel; and a detachable fan-shaft driven through connections with the wheel and holding the said stop out of a position where it obstructs the wheel.

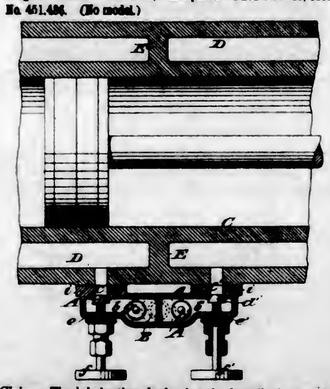
3. In a fly-fan, the combination of a stationary base having a circular track; a rotary support having its axis at the center of said circular track and carrying a pinion which meshes with the latter and a toothed disk fast with said pinion, and having a projection; a motor to rotate the said support; a sliding spring-actuated stop-piece arranged to take position in the path of the projection on the toothed disk; and a detachable fan-shaft arranged to gear with said disk and also engage the sliding stop-piece and hold it out of the path of the disk-projection.

4. In a fly-fan, the combination of a stationary base having a circular track; a rotary support having its axis at the center of said circular track and carrying a pinion which meshes with the latter and a toothed disk fast with said pinion, and having a projection; a motor to rotate the said support; a sliding spring-actuated pin having a head with a beveled stop-block on one side to stand in the path of the projection on the toothed disk; and a detachable fan-shaft fitting at one end over the said slide-pin and holding it down where the stop-block on its head will be out of the path of the projection on the disk,—said fan-shaft arranged to gear with the toothed disk.



5. In a fly-fan, the combination of a hollow base having a circular track; a rotary support extending across said track and having its axis at the center thereof, and spurs at the ends projecting into the base; a helical spring in the base, for driving said rotary support and confined between the spurs thereon; a cover-plate over the base and arranged to rotate with the support; a wheel carried by said support and arranged to travel over the circular track on the base, wherefrom it receives motion; and a fan-shaft driven through connections with said wheel.

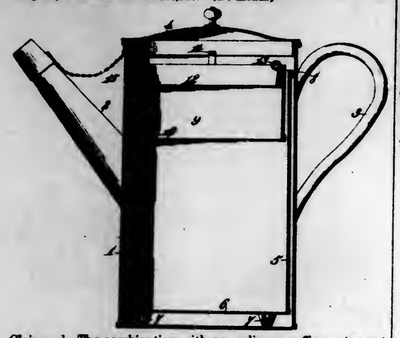
491,477. LUBRICATOR. WILLIAM F. GARRISON, Brooklyn, N. Y., assignor to Guild & Garrison, same place. Filed Nov. 10, 1892. Serial No. 451,486. (No model.)



Claim.—The lubricating device herein described consisting of a box having three compartments one of which has an inlet opening for lubricating liquid and the others of which have outlet openings for communication with the ends of the pump cylinder, two valves for automatically opening and closing communication between the first mentioned compartment and the other two compartments respectively and two adjustable valves for closing and regulating the open-

ing of the outlets of the said two compartments each independently of the other, substantially as and for the purpose herein set forth.

491,478. COFFEE OR TEA POT. GEORGE W. GOODWYN, Petersburg, Va., assignor of one-third to Bernard Mann, same place. Filed July 28, 1892. Serial No. 441,510. (No model.)



Claims.—1. The combination with an ordinary coffee or tea pot having a movable tight cover, of a removable vessel located in the pot, provided with a perforated bottom and having its top edge or rim located below the upper edge of the pot and the cover thereof, and a perforated tea or coffee strainer having a detachable hooked engagement with the top edge or rim of the removable vessel to positively suspend the strainer therein so that by disconnecting the strainer it can be moved downward and upward in the vessel, substantially as described.

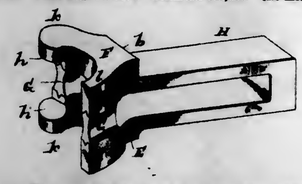
2. The combination with an ordinary tea or coffee pot, of a removable vessel located in the pot, provided with a perforated bottom and pendent feet or legs and having its top edge or rim terminating below the upper edge of the pot, and a strainer consisting of a ring or band having a perforated bottom wall, a removable perforated cover, a handle, and a rigid hook extending laterally from the top edge of the ring or band to engage over the top edge or rim of the removable vessel, substantially as described.

491,479. PNEUMATIC TIRE. CHRISTIAN H. GRAY, Silvertown, England. Filed July 28, 1892. Serial No. 441,452. (No model.)



Claim.—A tubular pneumatic tire having a tread composed of diagonal ribs extending in reverse directions from its center to its opposite edges, substantially as herein set forth.

491,480. MANUFACTURE OF DRAW-BARS. JOHN GREEN, Renovo, Pa., assignor of one-half to William L. Holman and John McCord, same place. Filed Aug. 17, 1892. Serial No. 443,397. (No model.)

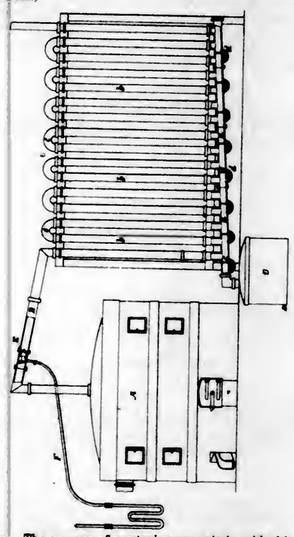


Claim.—1. The method of manufacturing draw-bars, which consists in forging a billet, drawing or forging said billet into a blank, spreading the ends of the blank, bending the blank in the center and bringing the two sides opposite each other, then inserting the herein described filling pieces between the spread ends of the blank, heating the head end of the blank and forging and shaping said head end of the blank and filling pieces in suitable dies to form a draw-bar head.

2. The method of manufacturing draw-bars, which consists in forging a billet, drawing or forging said billet into a blank, spreading the ends of the blank and removing a portion of the metal, bending the blank in the center and bringing the two sides opposite each other then inserting filling pieces between the free ends of the blank, heating the head end of the blank and forging and shaping said head end of the blank and filling pieces in suitable dies to form a draw-bar head.

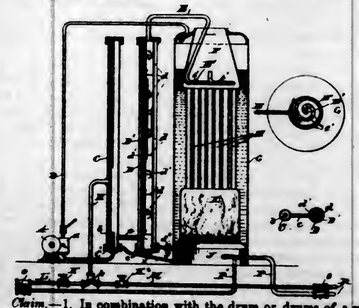
3. The method of manufacturing draw-bars, which consists in forging a billet, forging the billet into a blank, spreading the ends of the blank, cutting out a portion thereof and forming semi-heads thereon, forming kerfs or grooves in said semi-heads, then bending the blank and bringing the semi-heads opposite each other, inserting filling-pieces between the semi-heads in said grooves, heating the head end of the blank and completing the forging and shaping.

491,481. PROCESS OF MAKING NITRIC ACID. OSCAR GUTTMANN, London, England. Filed Jan. 22, 1892. Serial No. 418,952. (No specimens.)



Claim.—The process of producing pure nitric acid which consists in forming gaseous nitric acid in a distilling chamber, conducting it in a tube to a condenser and in introducing an air blast into the tube to act upon the gaseous nitric acid before condensation, substantially as specified.

491,482. COMBINED STEAM-MUFFLER AND HEATING APPARATUS. CALEB R. HEALY, Detroit, Mich. Filed June 20, 1892. Serial No. 437,363. (No model.)



Claim.—1. In combination with the drum or drums of a steam muffling device, substantially as described, an exhaust pipe leading from one of the drums and terminating in two branches provided with cut off valves, substantially as described.

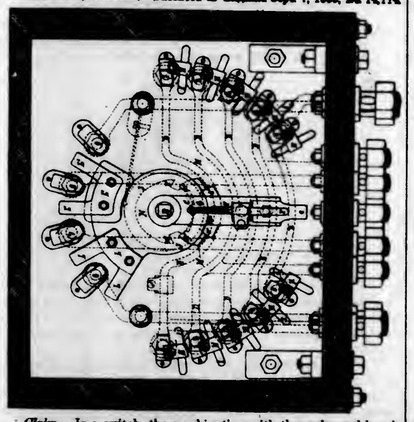
2. In combination with a high pressure boiler, engine and steam muffler for exhaust, substantially as described, an exhaust pipe leading from one of the muffler drums at a distance from the bottom, and terminating in two branches provided with stop valves, and outlet sections of pipe, projecting within the boiler ash-pit, substantially as and for the purpose set forth.

3. In combination with a boiler, engine and steam exhaust muffler, provided with vertical condensing drums, substantially as described, an auxiliary heating pipe leading from one of the drums at a distance from the bottom of the drums, branches leading from the pipe in opposite directions, provided with stop valves, and couplings at their open extremities, and open sections of pipe having their inner ends inserted in the ash pit of the boiler, and outer ends provided with pipe couplings, substantially as described.

4. In combination with an engine, boiler, and exhaust steam muffler drums, located upon a motor car, an auxiliary exhaust pipe leading from one of the drums at a point above the drip outlet, branches provided with stop valves leading from said pipe to either end of the motor car and provided with couplings. Open sections of pipe leading from either end of the motor car to their terminals in the ash-pit under the boiler, and a system of steam heating pipes, adapted to connect one of said branches with one of said terminal sections, the valve in the branch pipe completing a continuous heating device, being opened, and the valve in the open branch being closed, substantially as and for the purpose set forth.

5. In a steam car motor, a steam muffler for the exhaust consisting in vertical drums into which the exhaust steam is discharged from below in successive series, the last drum of the series being provided with partial partitions, having alternating openings, drip pipes from the drums having outlets in the ashpit of the steam boiler, a final exhaust pipe leading from the last drum of the series and disposed in a coil over the boiler tube openings, in combination with an auxiliary steam pipe leading from one of the drums and provided with one or more outlets, and a system of steam heating pipes, detachably secured to one outlet of said auxiliary pipe and to an open section of pipe discharging into the ash pit of the boiler, all as and for the purpose set forth.

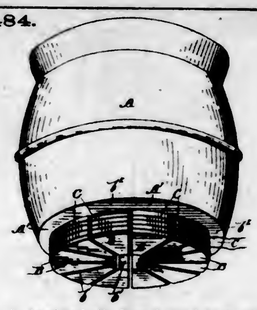
491,483. SWITCH FOR ELECTRICAL TRAM-CARS. MORITZ IMMISCH, London, England, assignor to the Immisch Electric Navigation and Power Company, of New Jersey. Filed Nov. 21, 1891. Serial No. 413,675. (No model.) Patented in England Sept. 7, 1889, No. 14,114.



Claim.—In a switch, the combination with the make and break or switch lever, of an oscillating disk, as J, on the axis of the switch lever, carrying contact pieces to work in conjunction with terminal contacts for making the desired changes, a pivoted anchor, as M, on said oscillating disk, having a recess in its outer surface, a fixed disk, as N, on the axis of the switch lever, having recesses to alternately receive and engage one of the teeth of said anchor, and a projection, as *d'* on the switch lever, to engage said recess of the anchor, the whole adapted to operate substantially as herein described, for the purpose set forth.

491,484. ELECTRICALLY-HEATED VESSEL. SAMUEL B. JUMPER, Boston, Mass., assignor to the Butterfield-Mitchell Electric Heating Company, same place. Filed June 9, 1892. Serial No. 436,044. (No model.)

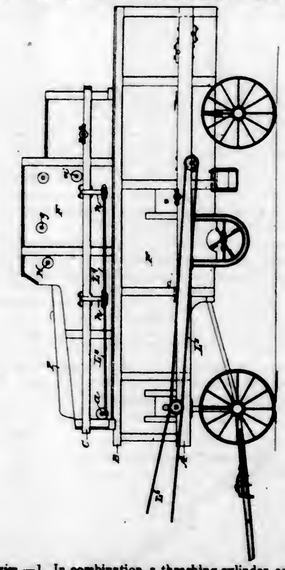
491,484.



Claim.—1. An electrically heated vessel having blocks formed on its bottom, in combination with an electrical conductor woven from block to block substantially as set forth.

2. A vessel having a circular series of sectoral blocks B formed on its bottom, having intervals or passages *b* between them, in combination with an electrical conductor woven from block to block through the said intervals, inclosing the whole series of blocks and having every part of the said conductor in contact with at least one of them substantially as set forth.

491,485. THRASHING-MACHINE. WILLIAM M. KOPPES, Orrville, Ohio. Filed Mar. 28, 1892. Serial No. 426,760. (No model.)

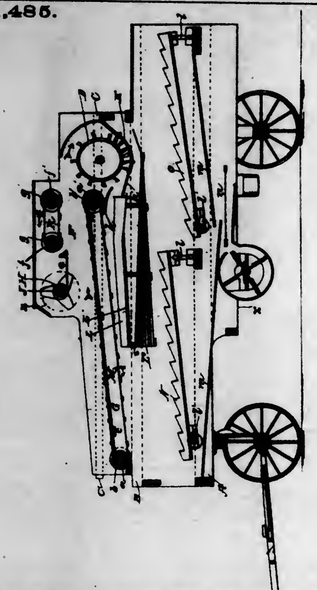


Claim.—1. In combination, a thrashing cylinder, an endless carrier to convey the sheaf to said cylinder, a grain table located beneath said carrier in close relation thereto, whereby the straw from said cylinder will be raked over said table by the under side of the carrier, substantially as set forth.

2. In combination, a thrashing cylinder located at the rear end of the machine, and endless carrier extending from the front end of the machine, to said cylinder, a vibratory table located beneath said endless carrier in close relation thereto, a grate extending from the concave of said cylinder to the said table whereby the loose grain is separated and allowed to fall through said grate and the straw raked over the table by the under side of the endless carrier.

3. In combination, a thrashing cylinder, an endless carrier, a band cutter, and an auxiliary carrier or compressor consisting of an endless slatted belt located above the first named carrier, and adapted to force or hold down the bundles after the band has been severed.

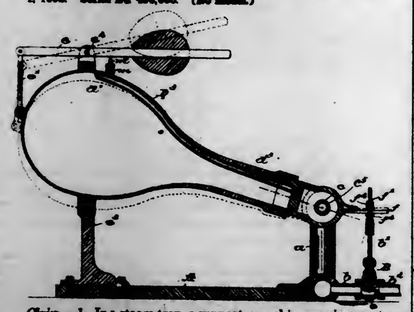
491,485.



4. In combination, a thrashing cylinder, an endless carrier therefor, a traveling auxiliary carrier or compressor located above the same, a band cutter located in advance of said auxiliary carrier or compressor, a table located beneath said endless carrier in such relation that the return side of the endless carrier will come in contact with the straw from the cylinder and rake it over said table, vibrating separator having its end inclined upward whereby the straw after leaving the front end of the grain table will be carried from the front of the machine to the rear thereof and a grain board located beneath said separator, substantially as set forth.

5. In combination, a thrashing cylinder, endless carrier therefor, a perforated grain table located beneath said carrier, a second table located beneath the perforated table and composed of ribs inclining from the center to the sides of the said tables, means for vibrating said tables, vibratory separators located beneath said tables, and a band cutter, substantially as set forth.

491,486. STEAM-TRAP. FRANK A. LITTLEFIELD, Pepperell, Mass., assignor to the Pepperell Machine Company, same place. Filed July 1, 1892. Serial No. 438,680. (No model.)



Claim.—1. In a steam trap, a support, a rocking receiver, a steam inlet pipe connected therewith, and a valve therein actuated by movement of the receiver, combined with a single pipe communicating with said receiver and serving both as a water inlet and water outlet therefor, an inlet pipe leading to said single pipe and provided with a check valve adapted to close when said single pipe serves as an outlet for the receiver; an outlet pipe connected with said single pipe and provided with a check valve adapted to close when said single pipe serves as an inlet for the receiver, whereby said single pipe by the alternate closing of the said check valves is caused to serve first as an inlet and then as an outlet for the receiver, substantially as described.

2. In a steam trap, a support, an axial pipe supported at its ends thereby and extending continuously from one point of support to the other and stopped at its middle, having outlet openings at each side thereof; a receiver mounted to rock about the said axial pipe; inlet and discharge openings connected through said axial pipe with the receiver; and a steam supply pipe connected with one end of said pipe, and a valve in said steam supply pipe operated by movement of said receiver, substantially as described.

3. In a steam trap, a support, an axial pipe carried thereby stopped at its middle and having outlet openings at each side thereof, a steam supply connected with one end of said pipe water inlet and discharge pipes connected with the opposite end of said pipe, a rocking head mounted on said axial pipe and having two chambers and into which the said openings respectively enter, a receiver carried by said head and communicating with one of said chambers, and a passage in the said receiver and communicating with the other of said chambers, substantially as described.

4. In a steam trap, a U-shaped support having a hollow arm connected with a steam supply, a steam valve to control the same, an inlet pipe carried by and communicating with the hollow arm of said support, and an outlet pipe carried by the other arm of said support with its axis in line with the axis of said inlet pipe, combined with a rocking receiver connected with the said inlet and outlet pipes and with and to move said steam valve, substantially as described.

5. In a steam trap, the U-shaped support *a*, the axial pipe *c* having openings c^4, c^5, connected at one end with a steam supply and at its opposite end with the water inlet and discharge pipes, combined with the head D having chambers connected respectively with said openings, a receiver connected with one chamber and a pipe leading into said receiver connected with the other of said chambers, and a counterbalance for the receiver, the valve B and its stem connected with and moved by the arm on the said head D, to operate, substantially as described.

6. In a steam trap, a rocking receiver D^4, and an inlet and outlet therefor, combined with a weighted lever *e* connected with and to act as a counterbalance for the said receiver, and a relief valve *m* for the receiver actuated by said lever, to operate, substantially as described.

491,487. CRANK-SHAFT. CHARLES K. LOEGENBIEHER, Painted Post, N. Y., assignor to the Weston Engine Company, same place. Filed Sept. 17, 1892. Serial No. 446,181. (No model.)



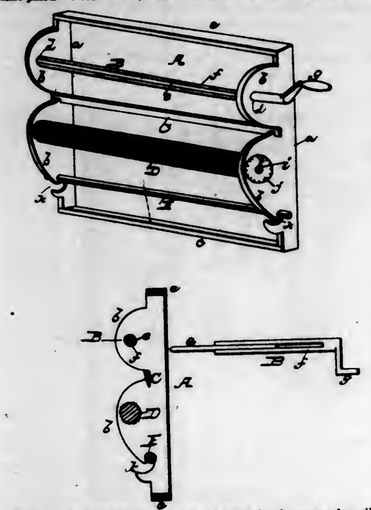
Claim.—1. The combination, with a crank shaft having an integral crank arm or web provided with a lateral flange, of a counterbalancing disk concentrically mounted on said shaft and adapted to be removably secured to the face of said flange, substantially as described.

2. The combination, with a crank shaft having an integral crank arm or web provided with a lateral flange, of a counterbalancing disk concentrically mounted on said shaft and removably secured to the outer face of said flange and having projections adapted to fit against the sides of said crank arm or web at its outer end, substantially as described.

3. The combination, with a crank shaft, the bosses, the laterally flanged crank arms or webs, and a wrist pin all in one piece, of weighted disks centrally mounted on said bosses and removably secured to said flanged arms or webs and having projections adapted to bear against the sides of said arms or webs at their outer ends, substantially as described.

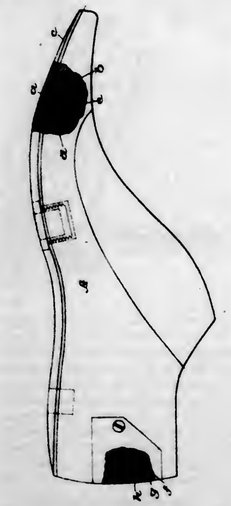
4. The combination, with a crank shaft having flanged crank arms or webs, and a wrist pin formed with oil ducts, of weighted disks removably secured to said flanged arms and having oil ducts corresponding to those of the wrist pin and formed with bosses having extensions to prevent the leakage of oil, substantially as described.

491,488. MACHINE FOR MEASURING WALL-PAPER. SINCLAIR S. LEEDY, Blanville, Ky., assignor of one-half to Charles Henry Knight, same place. Filed Oct. 15, 1892. Serial No. 448,975. (No model.)



Claim.—The combination in a machine of the character described of the crank bar, forked, having the slide, the main frame and knife the serrated roller having the pointer adapted to engage the dial on the frame and the rod E said rod, crank bar, and serrated roller having their end bearings in the frame, brackets, substantially as described.

491,489. LAST. HENRY C. MOODY, Avon, assignor of one-half to Henry A. Peach, Randolph, Mass. Filed July 15, 1892. Serial No. 440,093. (No model.)



Claim.—The combination with a last and a metallic shell or cup inserted therein, of a metallic cup containing an awl-receiving plug adapted to be removably inserted in said shell, substantially as described.

491,490. INSULATION OF DYNAMO-ARMATURES. THOMAS E. MONFORD, Minneapolis, Minn., assignor, by direct and mesne assignments, of one-half to the Enamel Insulator Company, of Illinois. Filed Jan. 26, 1891. Serial No. 379,573. (No model.)

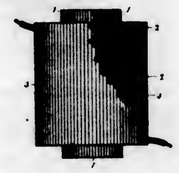


Claim.—1. In a dynamo armature, the combination with the core and the conducting coils, of an insulating enamel adherent to the core and embedding the coils, substantially as set forth.

2. In a dynamo armature, the combination with the core and the conducting coils, of an enamel securing the coils to while insulating them from the core and from one another, substantially as set forth.

3. The method of insulating dynamo armatures, which consists in coating a core with successive layers of an insulating enamel and afterward hardening the insulator, whereby an integral mass embedding the coils and adhering to the core is produced, substantially as set forth.

491,491. INSULATED MAGNETIC COIL. THOMAS E. MONFORD, Minneapolis, Minn., assignor, by direct and mesne assignments, of one-half to the Enamel Insulator Company, of Illinois. Filed Jan. 26, 1891. Serial No. 379,580. (No model.)



Claim.—1. In a magnet, the combination with the core and coils of an enamel in which the coils are embedded, substantially as set forth.

2. In a magnet, a core and coils, and an insulator consisting of an enamel made adherent to both the core and coils, substantially as set forth.

3. In a magnet, the combination with a suitable core, of coils insulated therefrom and embedded in an enamel, substantially as set forth.

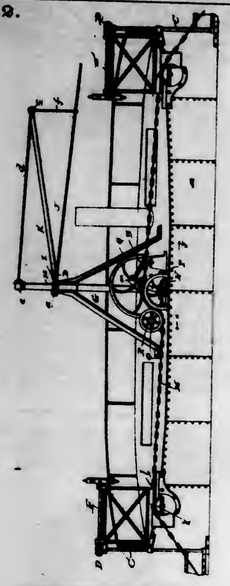
4. In a magnet, the combination with the core, of coils and an insulator consisting of an enamel applied in layers to the core and hardened after each series of coils is wound, substantially as set forth.

491,492. CHAIN-STRAMER. EDMUND I. PFEIFER and EDUARD A. PFEIFER, Austin, Tex. Filed June 4, 1892. Serial No. 435,563. (No model.)

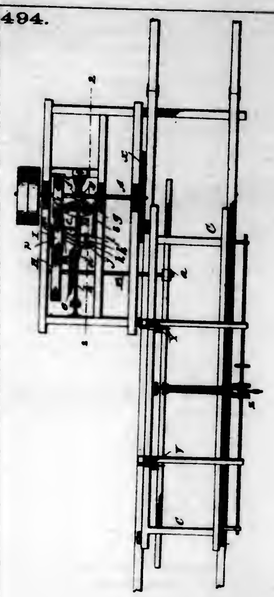
Claim.—1. As an improvement in means for effecting the propulsion of vessels, the combination with a chain or cable laid in the course of the vessel, the vessel adapted to take up the chain or cable, the drive shaft journaled in suitable bearings upon the vessel, and a sprocket wheel mounted on said shaft and resting beneath the chain or cable and adapted to engage said chain or cable, of bearings arranged in front and rear of the sprocket wheel, the shaft *q*, adapted to be alternately journaled in the said bearings, and the keeper wheel R, mounted on said shaft and adapted to engage the chain or cable, and to hold the same in engagement with the sprocket wheel substantially as pecified.

2. As an improvement in means for effecting the propulsion of vessels, the combination with a chain or cable laid in the course of the vessel; of the vessel adapted to take up the chain or cable and having the horizontal friction rollers *k*, and the friction wheels *l*, the drive shaft journaled in suitable bearings upon the vessel, a sprocket wheel mounted on said shaft and engaging the chain or cable, the bearings arranged in front and rear of the sprocket wheel, the shaft *q*, adapted to be alternately journaled in the said bearings, and the keeper wheel R, mounted on said shaft and adapted to engage the chain or cable, substantially as and for the purpose set forth.

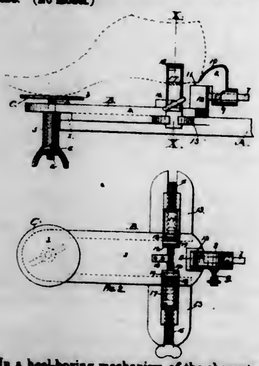
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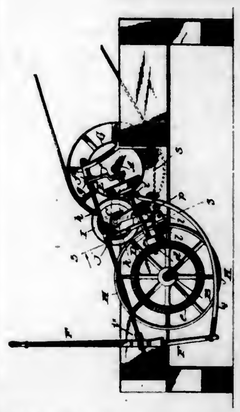
491,498. MACHINERY FOR BORING LASTS. DANIEL C. REDMUN, Albany, N. Y. Filed Feb. 5, 1890. Renewed Mar. 7, 1892. Serial No. 424,022. (No model.)



Claim.—In a heel-boring mechanism of the character herein described, the chuck B provided with a vertically adjustable toe-rest, C, an adjustable heel-guide, S, and adjustable side-guides, 17; whereby said chuck can be adjusted for receiving, centralizing, and retaining in position—during the operation of boring the first heel-plate holes—lasts of different sizes and forms, as and for the purpose herein specified.

491,494. MECHANISM FOR OPERATING SAW MILL-CARRIAGES. JAMES H. RISHEY, Carmichael's, and SAMUEL H. HIBBS and WALKER A. DRENNEN, York, Pa.; said Risbey assignor to said Hibbs and Drennen. Filed Aug. 2, 1892. Serial No. 441,869. (No model.)

Claim.—1. The combination with the eccentric shaft A, the feed shaft connected to and laterally adjusted by said shaft A, the sliding friction gear on the feed shaft, the pivoted lever F, and the friction wheels on the driver and carriage shafts respectively, of the intermediate I for engaging said wheels, its sliding bracket bearing *m*, the lever *l* pinned to said bearing and adapted to lift and lower it, the radial arm *j* on the eccentric shaft, and the rod *k*, by which said arm is connected to the lever *l*, substantially as and for the purposes hereinbefore set forth.

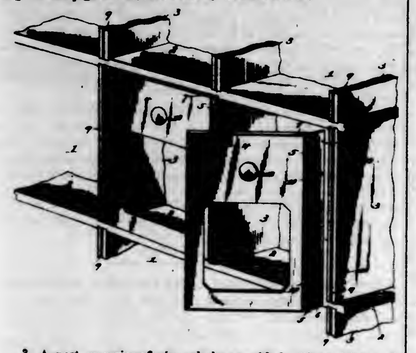


2. The combination of the driver friction disk E having friction rim G; the carriage friction wheel H; the intermediate I and its bracket bearing, movable to carry said intermediate into and out of engagement with friction rim G; the feed shaft, having on it a sliding friction gear to engage the friction disk E, and supported in bearings laterally movable to bring the said friction gear into and out of contact with the friction disk; the eccentric shaft connected to and adapted to give lateral movement to the feed shaft; and the lever F pivoted to the eccentric shaft, and connected to and adapted to operate the sliding friction feed gear, and the bracket bearing of the intermediate I, substantially as and for the purpose hereinbefore set forth.

491,495. POST-OFFICE LOCK-BOX. FRANK B. RIDELL, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, same place. Filed Nov. 28, 1892. Serial No. 453,502. (No model.)

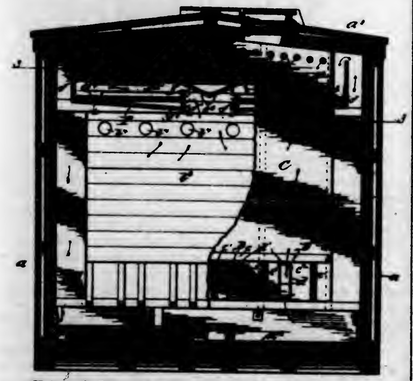
Claim.—1. The combination of a door for a box or pigeonhole, provided with a hinge, one leaf of which is attached to said door, and the frame, having one upright formed with a groove into which the other leaf of said hinge is inserted and means for securing the leaf in said groove, substantially as and for the purpose set forth.

2. A pigeonhole, provided with a groove in one of its sides, in combination with a door provided with a hinge, having one leaf formed to enter said groove, and rivets or equivalent fastenings, passing through the sides of the groove and the leaf for attaching the hinge to the pigeonhole, substantially as described.



3. A nest or series of pigeonholes provided with upright partitions which are first grooved to receive the leaf of the hinge and then set in place in the nest, substantially as described.

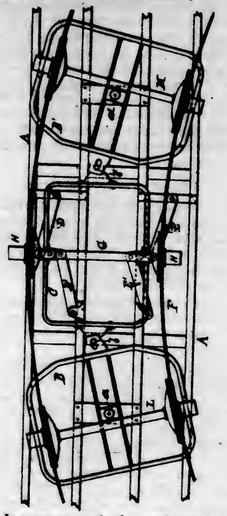
491,496. REFRIGERATOR-CAR. DENIS W. RIORDAN, Hiburn, Ill., assignor to Helena Riordan, same place. Filed Sept. 11, 1891. Serial No. 405,264. (No model.)



Claim.—1. In a refrigerator car, the ice tank C provided with a series of water chambers c^3 arranged below the ice body, in combination with flues D set in said chambers extending part way to the top thereof and provided with perforated covers d', substantially as described.

2. In a refrigerator car, the ice tanks, C, arranged within the ice chambers, B, at each end of the car so as to leave a space between the tanks and the chambers, and the upright sides, c^2, and *f*, with other suitable devices so arranged as to provide an air passage between the side of the car and the sides, *f*, up over the top thereof, and down through the ice tanks, C, under the side, c^2, in the refrigerator chamber at the bottom thereof, in combination with an overhead ice tank, E, extending the length of the car and opening at each end into the ice tank, C, so as to form a continuous overhead and end ice tank in the same car; said ice tank, E, being closed at its sides, and provided with a bottom composed of gratings, *e*, and a supplementary bottom, F, arranged under said grate bottom, and with an air passage between them, with suitable devices to arranged with reference to the sides, *f*, as to allow an air passage up over the sides *f*, and down on the outside of the tank, E, and underneath the grated bottom of the tank, and out, into the top of the center of the refrigerating chamber, substantially as described.

491,497. CAR-TRUCK. WILLIAM ROBINSON, Boston, Mass., assignor to the Robinson Radial Car Truck Company, Portland, Me. Filed Sept. 6, 1892. Serial No. 445,102. (No model.)



Claim.—1. In a car or truck, the combination, substantially as described, of a main frame, a truck or axle frame arranged to travel across said main frame, links or levers pivotally connected to said axle frame, and swing bars having their inner ends pivotally connected to said links and their outer ends to said main frame.

2. In a car or truck, the combination of the main frame, an axle frame arranged to travel crosswise of said main frame, a series of swing bars having their outer ends pivotally connected to said main frame and their inner ends to compensating devices attached to said axle frame, the whole arranged to cause said axle frame to travel across said main frame in a straight line, substantially as described.

3. In a car or truck, the combination of the main frame, an axle frame, links pivotally connected to said axle frame, parallel bars having one end pivotally connected to said main frame and the opposite ends pivoted to said links, whereby the swinging movement of said parallel bars will cause said axle frame, with its wheels, to move in a straight line relatively to said main frame, substantially as described.

4. In a car or truck, the combination, substantially as described, of the main frame, an axle frame movable relatively to said main frame, a series of links flexibly connected to said axle frame and two series of controlling bars flexibly connected to said main frame and to said links, said bars controlling the movements of said links, and, through them, the position and direction of movement of said axle frame with its wheels.

5. In a car or truck, the combination, substantially as described, of the main frame A, the truck or axle frame C, the links *c*, *c'*, pivoted to said axle frame C, the parallel bars D, E, each having one of its inner ends pivotally connected to one end of one of said links and its outer end to said main frame A, and the parallel bars D', E', each having one of its inner ends pivotally connected to one of the opposite or free ends of one of said links *c*, *c'*, and its outer end to said main frame A, the series of bars D, E, and D', E', extending in opposite directions from said links *c*, *c'*.

6. In combination, with the main frame A and the truck or axle frame C arranged to travel across said main frame, the friction bearing plates *i*, *i*, secured to said frames respectively, at or near the longitudinal centers of the same, and at opposite sides of the axle C, substantially as described.

7. In a car or truck, the combination, substantially as described, of a frame arranged between the opposite wheels of the truck, cross bars rigidly secured to said frame and extending beyond the outer face of said wheels, a crown bar secured to the outer ends of said cross bars above the journal box and pedestals secured to said crown bar.

8. In a car truck, the combination, substantially as described, of the frame C, the bars *m*, *m'* passing below said frame C at opposite sides of the wheels *w*, *w'*, said bars *m*, *m'* being rigidly secured to said frame C, the crown bar I rigidly secured to the outer ends of said

cross bars *m*, *m'*, and the pedestals *p*, *p'* secured to said crown bar I.

9. In a car truck, the combination of the following elements: a truck or axle frame arranged between the wheels, cross bars rigidly secured to said frame and extending beyond the outer face of said wheels, crown bars secured to the outer ends of said cross bars, pedestals secured to said crown bars, journal boxes located between said pedestals, and braces bracing the lower ends of said pedestals and crown bars to said axle frame, substantially as described.

10. In a car or truck, the combination, substantially as described, of a main frame, a truck or axle frame arranged to travel across said main frame, links or compensating devices connected to one of said frames, and swing bars having one end pivotally connected to the other frame and their opposite ends pivotally connected to said links or compensating devices.

491,498. PROCESS OF REFINING METALS. ANTOINE P. G. ROLLET, St. Etienne, France; Philip Mauro, Washington, D. C., administrator of said Rollet, deceased. Filed Aug. 26, 1890. Renewed Dec. 5, 1892. Serial No. 454,326. (No specimens.) Patented in France May 10, 1884, No. 162,603; in England Oct. 24, 1884, No. 14,364, and in Germany May 20, 1885, No. 32,592.

Claim.—1. The process of refining pig iron consisting in subjecting the same mixed with fuel, limestone, fluorspar and iron oxide, to the action of a blast and separating the refined iron from the slag, substantially as set forth.

2. The process of refining pig iron, consisting in mixing it with fuel, limestone, fluorspar and iron oxide, and heating the same to about 800° Fahrenheit, thereby forming an extra basic slag containing little iron oxide, and separating the refined iron from the slag; substantially as described.

3. The process of refining pig iron, consisting in mixing the same with fuel, limestone, fluorspar and iron oxide, and subjecting the mixture to the action of a hot blast, thereby forming an extra basic slag containing little iron oxide, and separating the refined iron from the slag as soon as the mixture descends below the action of the blast; substantially as described.

491,499. ANGLE ATTACHMENT FOR DENTAL ENGINES. SAMUEL P. SHARP, Knoxville, Tenn. Filed July 26, 1892. Serial No. 441,278. (No model.)



Claim.—1. In an angle attachment for dental engines, the combination, with the angle frame C having the arm *b* provided with the slot *h*, of the flat spring *f*, having its free end forked, and adapted to enter said slot, whereby it is adapted to hold the tool detachably in place, as shown and described.

2. In an angle attachment, the combination with the angle frame C having the apertured arms *b b'* one of which has a slot *h*, and the cross pin *e*, of the reversible tool D having two circumferential grooves *i* and *i'* and a flattened side portion, and the forked spring *f'* which is adapted to enter said slot and thus engage either groove and lock the tool in either position, as shown and described.

491,500. RAILWAY-SWITCH. WILLIAM TRIPPLE and GEORGE H. TRIPPLE, Bay City, Mich. Filed Sept. 28, 1892. Serial No. 446,703. (No model.)

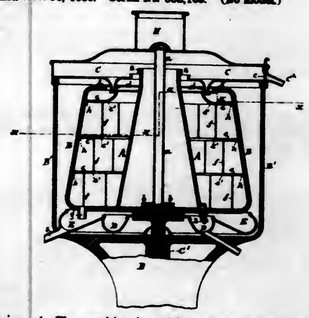


Claim.—1. In a railway switch, the combination with main rails and side rails having beveled ends, pivoted rail R, beveled on both sides of each end, the bevel of the head being back of the bevel of the web, the pivotal plate D, the bed B, the movable bar L, connected to the end of the rail R, the cables, C, C', capstan 6, of the capstan 7, bar L', connected to the movable ends of the end rails, A' and S', the end rails A' and S' of the inner main rail and side rail respectively, the ends of the said end rails being beveled or split to correspond and fit into the bevel of the main rail and side rail, thereby forming a long diagonal joint at each junction of the main rail and side rails substantially as described and as and for the purpose set forth.

2. In a railway switch the combination with the main rails A, A, and side rails S, S, the inner main rail and side rail having beveled or split ends, the bevel of the head projecting over the bevel of the web, the end rails A' and S' of the inner main rail, and side rail having their ends beveled as their principal rails, and their outer movable ends beveled, with the bevel of the head cut back of the bevel of the web, of the pivoted rail R, pivotal plate D, bed B, bar L secured to one end of the pivoted rail R, the cables, C, C', secured at one end to the outer end of the bar L, capstans 6 and 7, the bar L' to which the other ends of the cables C C' are secured and to which are secured the movable ends of the end rails A' and S', substantially as described and as said for the purpose set forth.

3. In a pivoted rail for railway switch, the combination with the rail R having each end beveled on each side forming a point, the bevel of the head being cut back of the bevel of the web, so that the web beveled point projects, and provided with a longitudinal groove through the web at about the middle of its length, of the plate D passing through the groove in the web of the rail, and being narrower than the groove, the bed piece B to which the plate D is bolted, and supporting the rail R upon the tie E, substantially as described and as and for the purpose set forth.

491,501. CENTRIFUGAL BUTTER-EXTRACTOR. ADOLPH WAHLIN, Stockholm, Sweden, assignor to R. Duncan Harris, New York, N. Y. Filed Nov. 30, 1889. Serial No. 332,108. (No model.)



Claim.—1. The combination with a centrifugal cream separator, of a butter separator connected to and revolving with the cream separator and having a series of annular shelves or ledges for retaining the cream and causing the buttery particles to adhere together by the centrifugal action and by such buttery particles passing in succession over the edges of the shelves or ledges, substantially as set forth.

2. The combination with two separating vessels rotating together, of the supply pipe for milk passing into the first separating vessel, a series of shelves or ledges in the second vessel, there being a passage from the first vessel into the second vessel for the cream and a delivery opening for the buttery particles and butter milk from the larger end of the second vessel, substantially as set forth.

3. A centrifugal butter separator having a series of annular ledges or shelves, increasing in diameter from the supply end of the separator and a delivery opening at the larger end of the separator for the discharge of the buttery particles and butter milk, the buttery particles being caused to adhere together as they are forced by the centrifugal action to pass over the edges of the annular shelves in succession, substantially as set forth.

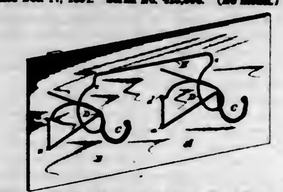
4. The combination with a centrifugal separator, of a butter separator, connected with the centrifugal separator at or near the cream discharge, such butter separator having a series of annular ledges, increasing in diameter outwardly for the retention and progressive discharge over the edges of the ledges of the buttery particles and skim milk, substantially as set forth.

5. The combination in a centrifugal butter separating apparatus, of a cream supplying device, ledges or surfaces over which the watery particles are caused to pass by the centrifugal action and upon which the buttery globules accumulate and coalesce, and a delivery for the watery and buttery materials substantially as specified.

6. The combination with a centrifugal cream separator of a butter separator receiving the cream from the cream separator, ledges or surfaces over which the watery particles are caused to pass by the centrifugal action and upon which the buttery globules accumulate and coalesce, and a delivery for the watery and buttery materials substantially as specified.

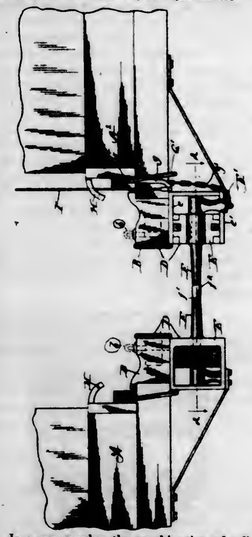
7. The method herein specified of separating the buttery globules from the watery substances in milk or cream, consisting in supplying the materials in a regulated quantity and subjecting the same to a centrifugal action, and causing the materials to progress regularly through the apparatus and spread in a very thin layer by the centrifugal action as such materials pass from one part or surface to another in order that the watery portions may be thrown off in a thin layer and caused to separate from the buttery portions and the latter to accumulate and coalesce substantially as specified.

491,502. RACK FOR HANGING STOVE UTENSILS. OSCAR WEAVER, Mount Clemens, assignor of one-half to Jacob Miller, Weatherly, Pa. Filed Dec. 17, 1891. Serial No. 415,266. (No model.)



Claim.—The combination with the back board B, of a rack constructed of a single piece of wire bent and twisted near its ends into hooks C, and spring coils D, the central portion constituting a horizontal bar E, which bears normally against the back board when the rack is in place, and the ends of the wire forming means of attachment to the back board, substantially as and for the purposes specified.

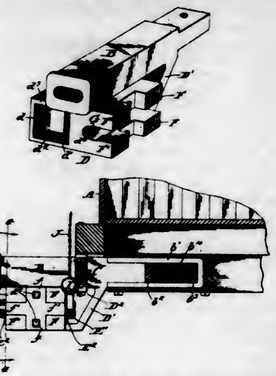
491,503. CAR-COUPLING. MILO J. ALTHOUSE, Waupun, Wis. Filed Mar. 14, 1892. Serial No. 424,737. (No model.)



Claim.—1. In a car coupler, the combination of a link and pin draw head with a head underneath such link and pin draw head integral therewith, parallel bars in such lower head to one side of its center, a rotatable arrow horizontally journaled in such lower head on the other side of such center so that the wings of the, head of the arrow are normally though yieldingly held in a horizontal plane, with the edges of the wings of the head of the arrow curved, whereby when two cars are brought together, each having such a coupler thereon, the head of the arrow of one coupler will enter the space between the parallel bars of the adjacent coupler, thereby partially rotating the arrow in its journal bearing, and pass beyond such bars, and thereupon such wings of the head of the arrow will automatically resume position in a horizontal plane and engage with the parallel bars of the adjacent coupler, and the link and pin draw-head forming part of such adjacent couplers will act as buffers to receive the shock incident to coupling; substantially as described.

2. In a car coupler, a hook having double wings with curved edges to such wings, in combination with a journal bearing in the draw bar, such journal bearing being circular in cross-section at the rear end thereof, and elliptical in cross-section at the front end thereof, with the minor axis vertical, and the major axis horizontal, whereby horizontal movement of the winged end of the hook is permitted in its journal bearing; substantially as described.

491,504. CAR-COUPLING. MILO J. ALTHOUSE, Waupun, Wis. Filed Aug. 11, 1892. Serial No. 442,780. (No model.)



Claim.—1. In a car coupler, the combination of a link and pin coupling with a head underneath such link and pin coupling, parallel bars in such head to one side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal plane, with the edges of the wings of the head of the arrow curved and the outer wing shorter than the inner wing, whereby when two cars are brought together, each having such a coupler thereon, the head of the arrow of one coupler will enter the space between the parallel bars of the adjacent coupler, and the inner wing of the head of the arrow on one coupler will engage with the inner one of the parallel bars of the adjacent coupler; substantially as described.

2. In a car coupler, the combination of a link and pin coupling with a head underneath such link and pin coupling, a brace integral with the link and pin coupling and with the head underneath it, and extending from the bottom plate of such head upward and backward to the under side of the link and pin coupling, parallel bars in such head to one side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of the arrow curved, whereby when two cars are brought together, each having such a coupler thereon, the head of the arrow of one coupler will enter the space between the parallel bars of the adjacent coupler, and engage therewith and the shock incident to the making of the coupling will be partially distributed by such brace throughout the entire coupling; substantially as described.

3. In a car coupler, the combination of a link and pin coupling with a head underneath such link and pin coupling, a brace integral with the link and pin coupling and with the head underneath it, and extending from the bottom plate of such head upward and backward to the under side of the link and pin coupling, parallel bars in such head to one side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of the arrow curved and the outer wing shorter than the inner, wing, whereby when two cars are brought together, each having such a coupler thereon, the head of the arrow of one coupler will enter the space between the parallel bars of the adjacent coupler, and engage with the inner one of the parallel bars of the adjacent coupler, such brace tending to resist the breaking of the coupler in the coupling thereof; substantially as described.

4. In a car coupler, the combination of a link and pin coupling with a head underneath such link and pin coupling, parallel bars in such head to one side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of the arrow curved, the journaled shaft of the arrow of less diameter than the extension of such journaled shaft, lugs on the side of such head and a plate having projections thereon fitting between such lugs, the horizontal ones of the projections on such plate being of about the width of the journaled shaft of the arrow, whereby in the moving of cars coupled thereby the shoulders adjacent to the journaled shaft of the arrows therein will be brought in contact with a rigid abutment on such head; substantially as described.

5. In a car coupler the combination of a link and pin coupling with a head underneath such link and pin coupling, parallel bars in such head to one side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of the arrow curved and the outer wing shorter than the inner wing, the journaled shaft of the arrow of less diameter than the extension of such journaled shaft, lugs on the side of such head and a plate having projections thereon fitting between such lugs, the horizontal ones of the projections on such plate being of about the width of the journaled shaft of the arrow, whereby in the moving of cars coupled thereby the shoulders adjacent to the journaled shaft of the arrows therein will be brought in contact with a rigid abutment on such head; substantially as described.

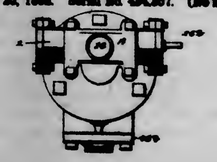
6. In a car coupler the combination of a link and pin coupling with a head underneath such link and pin coupling, a brace integral with the link and pin coupling and with the head underneath it, and extending from the bottom plate of such head upward and backward to the under side of the link and pin coupling, parallel bars in such head to one side of its center, a rotatable arrow horizontally journaled in such head on the other side of the center thereof such arrow weighted on one side of the axial line thereof so that the wings of the head are normally though yieldingly held in a horizontal plane, and with the edges of the wings of the head of the arrow curved and the outer wing shorter than the inner wing, the journaled shaft of the arrow of less diameter than the extension of such journaled shaft, lugs on the side of such head and a plate having projections thereon fitting between such lugs, the horizontal ones of the projections on such plate being of about the width of the journaled shaft of the arrow, whereby in the moving of cars coupled thereby the shoulders adjacent to the journaled shaft of the arrows therein will be brought in contact with a rigid abutment on such head; substantially as described.

491,505. SASH-FASTENER. ALFRED BARTON, Boston, Mass. Filed June 24, 1891. Serial No. 397,382. (No model.)



Claim.—The combination with upper and lower sliding-sashes and their sash frame, of a swinging catch F, fulcrumed on a plate E secured to the meeting-rail of the lower sash and having separated prongs F^2, F^3, notches *b* on the stile of the upper sash, notches b^2 on the parting bead A^7 of the sash-frame, a vertical movable locking-pin H held on and passing through said catch F, and two holes *f*, f^2 in said plate E, situated the one f^2, for said pin H to be engaged with it and when so engaged to lock the catch F engaged with notches *b* and b^2 and the other *f* for said pin to be engaged with it and when so engaged to lock the catch F disengaged from said notches *b*, b^2, all as described, for the purpose specified.

491,506. STEAM-ACTUATED VALVE. ALFRED R. BOLER, Norwood, Ohio, assignor of one-half to William T. Rothwell, Jersey City, N. J. Filed May 25, 1892. Serial No. 434,367. (No model.)



Claim.—1. The combination with the engine cylinder and its valve chest, having inlet and discharge ports as described, of the reciprocating and oscillating valve provided with longitudinal ports at its ends, the said ports provided with offset recesses at one of their corners and adapted to operate as described to cushion the valve during the major portion of its movement and permit the steam to gradually escape when nearing the end of its stroke, to prevent the hammering of the valve against the ends of the valve chest substantially as specified.

2. The combination with the steam cylinder and its ports, of the seat on the top of the cylinder having inlet and exhaust passages, the valve chest having ports and passages registering with the ports and passages in the seat, the flanged plate having a steam chest and recesses, and fitted to the upper part of the valve chest, and the valve having short ports or recesses at each end with offset recesses adapted to connect and disconnect with the inlet and outlet ports of the valve chest, so as to cushion the valve during the greater portion of its travel and permit the exhaust of the steam near the end of each stroke, substantially as specified.

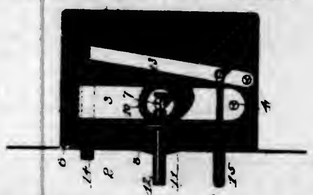
3. The combination with a piston cylinder and a steam chest; of a valve chest interposed between the cylinder and steam chest, and having the two inlet ports in one side, and the two obliquely aligned inlet ports in the opposite side, and a single exhaust in communication with the latter ports, and a rocking reciprocating valve having two transversely inclined ports to alternately communicate with the obliquely aligned inlet ports and alternately open and close the single exhaust from the latter inlet ports, substantially as specified.

4. The combination with a piston cylinder and a steam chest; of a valve chest interposed between the cylinder and steam chest, and having the two inlet ports in one side, and the two obliquely aligned inlet ports in the opposite side, and also having a single exhaust situated between the respective ports, and a rocking reciprocating valve arranged in the valve chest and having a transverse port always in communication with said exhaust port, and two transversely inclined inlet ports adapted to establish communication alternately with the aligned inlet ports of the valve chest, and alternately convert the ports at one side of the valve chest into inlet and exhaust ports, respectively as set forth.

5. The cylindrical valve having the transverse port or recess at or about midway of its length, and also having rack teeth in a plane transversely therewith, and further provided with two transversely inclined receiving ports and two short longitudinal ports at opposite ends having offset recesses arranged out of line with each other, substantially as and for the purposes set forth.

6. The cylindrical valve constructed as described, and having the short longitudinal ports at opposite ends provided with the offset recesses arranged out of line with each other, in combination with a valve chest having transverse exhaust ports, and inlet ports near opposite ends also arranged out of line with each other in a transverse plane, whereby the valve in its rocking reciprocatory movement will bring the offset recesses of its longitudinal ports alternately in communication with said inlet ports of the valve casing, and the exhaust ports of said casing will be likewise alternately brought in communication with the opposite ends of the said valve casing to cushion and exhaust, substantially as specified.

491,507. SASH-BALANCE. RICHARD I. BULLOCK, Hartford, Conn. Filed July 13, 1892. Serial No. 439,951. (No model.)

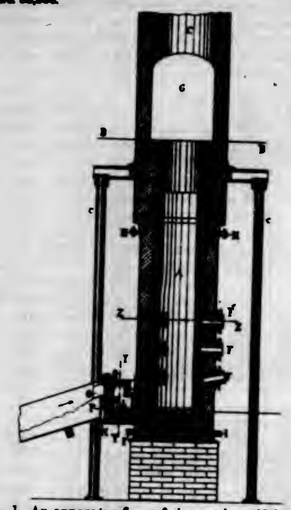


Claim.—1. A sash balance, consisting of a shell, an oscillating frame supported by a shell, a screw passing from the oscillating frame to the exterior, a friction wheel held by the frame, and a spring connected with the wheel, substantially as specified.

2. A sash balance, consisting of a shell, an oscillating frame supported by the shell, a screw passing from the oscillating frame to the exterior, a friction wheel held by the frame, a spring connected with the wheel, and a rotary shaft connected with the spring for coiling the same, substantially as specified.

3. A sash balance, consisting of a shell, an oscillating frame supported by the shell, a friction wheel held by the frame, a spring connected with the wheel, a spring belt passing from the interior to the exterior of the shell, and a push button connected with the bolt, substantially as specified.

491,508. APPARATUS FOR THE PURIFICATION OF CAST-IRON. ANSELME P. G. ROLLET, St. Etienne, France; Philip Mauro, Washington, D. C., administrator of said Rollet, deceased. Filed Aug. 26, 1892. Serial No. 443,199. (No model.) Patented in France May 10, 1884, No. 163,003; in England Oct. 30, 1884, No. 14,264, and in Germany May 20, 1885, No. 32,326.

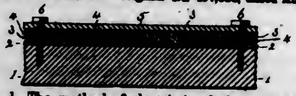


Claim.—1. An apparatus for refining and purifying melted pig metal, consisting of a substantially cylindrical receptacle with two or more rows of tuyeres located above the hearth, the lowest row of tuyeres having a dip or inclination inward and downward, while the tuyeres of the other rows are substantially horizontal, and a tap-hole arranged to keep the level of the molten metal below the tuyeres; substantially as and for the purposes described.

2. A cupola furnace, provided with two or more rows of tuyeres located above the hearth, the lowest row of tuyeres being inclined inwardly and downwardly, and a single tap hole arranged to keep the level of the molten metal below the tuyeres; substantially as and for the purposes described

REISSUES.

11,808. METHOD OF INSULATING ELECTRIC CONDUCTORS. THOMAS B. MORROW, Chicago, Ill., assignor, by direct and mesne assignments, to the Enamel Insulator Company, of Illinois. Filed June 3, 1892. Serial No. 435,455. Original No. 467,832, dated Aug. 18, 1891.



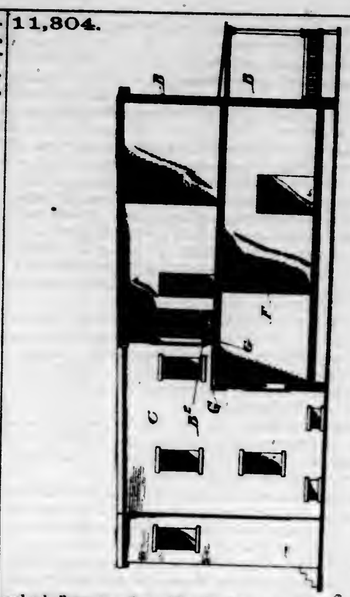
Claim.—1. The method of electric insulation, which consists in coating an object with a non-conducting substance that is made to adhere thereto and harden, next laying thereon an electric conductor, and next covering that with a non-conducting material and compressing it.

2. The method of insulating an electric resistance from a body to be heated thereby, which consists in coating the body with an adherent insulating enamel, glaze or film, laying thereon the resistance, and then placing over the same a compressible non-conducting substance and compressing it, substantially as set forth.

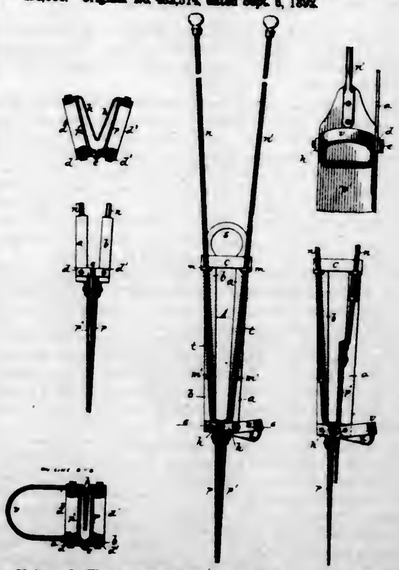
11,804. HOUSE. JAMES I. OSBLY, Philadelphia, Pa. Filed Aug. 26, 1892. Serial No. 444,322. Original No. 443,208, dated Dec. 23, 1890.

Claim.—1. A combination of the parallel walls A and A', the transverse girder G, the longitudinal girder G' with the wall B^2 supported on the transverse girder G, and part of the longitudinal wall C supported on the longitudinal girder G' and the partition F between the parlor and dining-room, arranged in the manner and for the purpose substantially as described.

2. A dwelling house having front and back buildings in which the first story front building is constructed into a front room or parlor and a hallway together with a back room or dining-room in the rear of them, and in which the second story front building is shortened and the second story back building is lengthened by dividing between them that part of the length of the house which in the first story is the width of the dining-room by constructing the wall B^3 and a part of the wall C on the girders G and G', respectively, and in which the full width and part of the length of the back room of the second story front building extends over a portion of the dining room, substantially as described.



11,805. TRANSPLANTER. HIRAM MOOS, Red Creek, assignor of one-half to John P. Criswell, Westbury, N. Y.; Prudence C. Moos administratrix of said Hiram Moos, deceased. Filed Nov. 4, 1892. Serial No. 451,001. Original No. 453,314, dated Sept. 6, 1892.



Claim.—1. The combination, substantially as hereinbefore set forth, of transplanter frame-sections; hinge-connections on which they are adapted to swing laterally, in opening and closing, and blades

adapted to traverse these frame-sections longitudinally, as well as to partake of their swinging movements.

2. The combination, substantially as hereinbefore set forth, of transplanter frame-sections; hinge-connections on which they are adapted to swing laterally, in opening and closing; blades adapted to traverse these frame-sections longitudinally, and gripping-devices carried by these frame-sections.

3. The combination, substantially as hereinbefore set forth, of transplanter frame-sections; hinge-connections on which they are adapted to swing laterally, and gripping-springs secured to the open edge of the frame-sections, and extending inwardly between the blades.

4. The combination, substantially as hereinbefore set forth, of a transplanter-frame; sections carried thereby; hinge-connections on which they are adapted to swing laterally, in opening and closing; blades adapted to traverse these frame-sections longitudinally, and independently said frame being adapted to automatically close the frame-sections.

5. The combination, substantially as hereinbefore set forth, of the frame-sections; hinge-connections on which they are adapted to swing laterally, in opening and closing; blades adapted to traverse these frame-sections longitudinally and independently; blade-handles, guides on the frame adapted to be traversed by these handles, and a spring tending to keep the blades closed.

6. The combination, substantially as hereinbefore set forth, of a transplanter-frame; sections carried thereby; hinge-connections uniting them at one end; handles adapted to slide on the frame, and blades adapted to be opened by squeezing the handles together.

7. The combination, substantially as hereinbefore set forth, of the spring frame-bars hinged together at one end; handles adapted to slide thereon, and blades thereon adapted to be opened by squeezing the handles together.

8. The combination, substantially as hereinbefore set forth, of a transplanter-frame; sections carried thereby; hinge-connections on which they are adapted to swing laterally, in opening and closing; blades adapted to traverse these sections longitudinally, and a step or foot-piece carried by one of the frame-sections.

9. The combination, substantially as hereinbefore set forth, of transplanter frame-sections, hinged together as described, to open and close laterally; blades adapted to traverse the frame-sections longitudinally, as well as to partake of their lateral or swinging movement, and a packer carried by the frame, for the purposes specified.

10. The hereinbefore described transplanter consisting of the combination of a frame; sections carried thereby; hinge-connections on which they are adapted to swing laterally, in opening and closing; blades adapted to traverse these frame-sections longitudinally; retracting-springs adapted to retract the blades, and gripping-springs adapted to hold the plant.

11,806. MULTIPLE-SWITCHBOARD SYSTEM. CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Nov. 6, 1891. Serial No. 411,100. Original No. 443,143, dated Dec. 9, 1890.

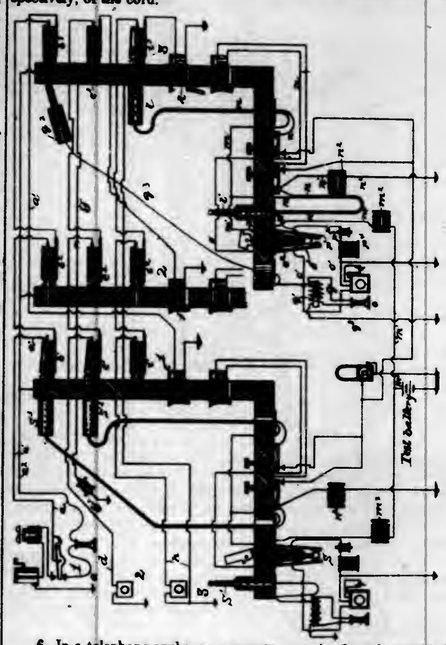
Claim.—1. The combination, with metallic-circuit telephone-lines looped together in metallic circuits by a pair of loop-plugs and flexible cords, of a branch circuit to ground from the strand connecting the sleeves of the plugs, said branch including a self-induction coil and a battery, said telephone-lines being connected each with different switches on each of two or more switch-boards, and the sleeves of said plugs being connected, respectively, with the test-pieces of the switches of the respective lines, whereby the test battery is connected to said test-pieces, while the flow of induced currents upon the metallic circuit is prevented, substantially as described.

2. The combination, with a telephone-line connected with switches distributed on different switch-boards, of test-pieces, one on each switch, the test-pieces being permanently connected together by a wire connected through resistance, of a loop plug inserted in one of said switches, the tip of said plug lifting the spring of the switch in which it is inserted and forming contact therewith, while the sleeve of said plug is connected with the test-piece of said switch, a branch circuit to ground from the strand of the cord connected with the sleeve of the plug, and a self induction coil and battery included in said ground branch, substantially as and for the purpose specified.

3. A pair of loop-plugs and flexible cords adapted to connect two telephone-lines together, in combination with a branch circuit from one of said strands through a self-induction coil and battery to ground, and a corresponding branch circuit to ground from the other strand through a corresponding self-induction coil, substantially as described.

4. The combination, with a metallic circuit telephone line extending from a subscriber's station to a spring-jack switch at the central station, of a loop plug inserted in said switch, a flexible cord having two strands connected with the different terminals of said plug, the operator's telephone outfit, and a corresponding dummy outfit, and a switching device whereby the telephone outfit and the dummy outfit may be connected to the different strands of the cords, substantially as described.

5. The combination, with the two strands of a flexible cord, each strand being provided with a permanent ground-connection of two branch circuits to ground connected with the different strands of the cord, one branch containing a telephone and the other branch containing a corresponding self-induction coil, and a switching device whereby the telephone and the corresponding self-induction device may be connected at the same time with the different strands, respectively, of the cord.



6. In a telephone-exchange apparatus, a pair of cords provided with terminal loop-plugs adapted to form connections between the telephone-line terminals, of a permanent branch connection from one of the strands of said cords through a self-induction coil and a battery to ground, substantially as and for the purpose specified.

7. The combination, with a metallic circuit *a*, extending from a subscriber's station to the central office and being there normally connected with several spring-jack switches $b' b^2 b^3$ on different switch-boards, of a single telephone-line circuit *d*, extending from its subscriber's station to the central office and being there connected with several spring-jack switches $c' c^2 c^3$ on different switch-boards, the test-circuit *g*, connected with the insulated frames or test pieces of said switches c', c^2, c^3, said test-circuits being connected through resistance *g'* to ground, a pair of loop-plugs $e^2 e^3$ and their cords connecting said telephone-lines together upon one of the switch-boards, a test-battery, and a self-induction coil branched to the strand of the cord connecting the sleeves of the plugs, and a current indicating device at another board adapted to be connected to the test-ring of either of the switches of said line, whereby it may be determined whether either of said lines is in use.

8. The combination, with a metallic circuit *a* extending from a subscriber's station to the central office and being there normally connected with several spring-jack switches $b' b^2 b^3$ on different switch-boards, of a single telephone-line circuit *d*, extending from its subscriber's station to the central office and being there connected with several spring-jack switches $c' c^2 c^3$ on different switch boards, the test-circuit *g*, connected with the insulated frames or test pieces of said switches c' c^2 c^3, said test-circuits being connected through resistance *g'* to ground, a pair of loop-plugs $e^2 e^3$ and their cords connecting said telephone-lines together upon one of the switch-boards, a test-battery, and a self-induction coil branched to the strand of the cord connecting the sleeves of the plugs, a corresponding branch to ground from the other strand of the cord, including a corresponding self-induction coil, and a current indicating device at another board adapted to be connected to the test-ring of either of the switches of said line, whereby it may be determined whether either of said lines is in use.

9. The combination, with a metallic circuit *a*, extending from a subscriber's station to the central office and being there normally connected with several spring-jack switches $b' b^2 b^3$ on different switch-boards, of a single telephone-line circuit *d*, extending from its subscriber's station to the central office and being there connected with several spring-jack switches $c' c^2 c^3$ on different switch-boards, the test-circuit *g*, connected with the insulated frames or test-pieces of said switches c' c^2 c^3, said test-circuit being connected through resistance *g'* to ground, a pair of loop-plugs $e^2 e^3$ and their cords connecting said telephone lines together upon one of the switch-boards, a test-battery, and a self-induction coil branched to the strand of the cord connecting the sleeves of the plug, and a corresponding branch to ground from the other strand of the cord, including a corresponding self-induction coil, substantially as and for the purpose specified.

10. The combination, with two metallic telephone-line circuits looped together at one of several multiple switch-boards with which said lines are connected, of a branch circuit from the side of the united circuit, said lines connected with the test-pieces of the switches, said branch including a self-induction coil and battery, and a corresponding branch circuit to ground from the other side of said metallic circuit through a corresponding self-induction device, whereby the said circuit is balanced with respect to inductive effects, substantially as and for the purpose specified.

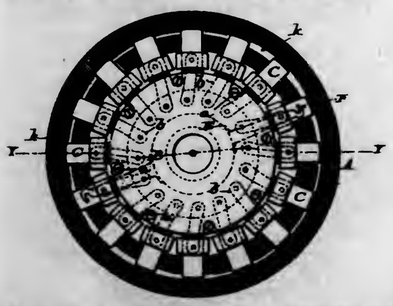
11. The combination, with an operator's telephone connected in circuit *c'*, and switching apparatus, of a bridge wire *q* between the terminals of said telephone, said bridge-wire containing one coil of a converter and a ground circuit q^2, including the other coil of said converter, and provided with a movable terminal q^3, substantially as shown and described.

12. The combination, with the telephone connected with a strand of a flexible cord in the united circuit of two telephone-lines, of a converter with one of its coils bridging said telephone, a circuit provided with a movable terminal, including the other coil of said converter, and a test-terminal, of another telephone-line, to which said movable-terminal is applied, substantially as and for the purpose specified.

13. The combination, with a telephone-line connected with switches on different switch-boards, the switches of said line being provided with test-pieces permanently connected together, of a loop-plug inserted in one of the switches of said line, one point or terminal of said plug being connected with the spring or line terminal of the switch and the other point or contact of said plug connected with the test-piece of said switch, the strand of the cord connecting with the terminal of the plug which is closed to the test piece of the switch being branched through a self-induction coil and battery to ground, substantially as and for the purpose specified.

14. The combination, with several pairs of cords and their loop-plug terminals, of telephone-lines each connected with two or more spring-jack switches distributed on different switch-boards, the test-pieces of the switches of the different lines respectively being permanently connected together, the terminals of the different loop-plugs being adapted to close the one to the line terminal or spring of the switch in which it is inserted and the other terminal to the test-piece of the switch and a battery branched through different self-induction coils to the strand of each of the pairs of cords, which strand connects with the terminals of the plugs which close upon the test-pieces of the switches, whereby a common battery supplies current for many test connections.

11,807. HYDROSTATIC TIRE-SETTER. CHARLES L. GRIBBS, Moline, Ill., assignor to William White & Co., same place. Filed July 26, 1892. Serial No. 441,536. Original No. 442,579, dated Dec. 9, 1890.



Claim.—1. In a hydrostatic tire-setter, the combination of the simultaneously-converging pistons CCCC, &c., and an equal number of links *b b b b*, connecting said pistons with the centrally-pivoted ring E, said links being set at an angle with radial lines and adapted to insure an equal and uniform travel of the pistons, all arranged and operating substantially as set forth.

2. In a hydrostatic tire-setter, the combination with the hollow chamber, and the radially-moving pistons projecting from the inner face thereof, of a support for the wheel located centrally with reference to the pistons, and a fluid-pressure mechanism and an equalizing device for forcing the pistons simultaneously and equally inward toward one another, all substantially as shown and described.

3. In a hydrostatic tire-setter, the combination with the hollow annular chamber, of the central wheel-support, the radial pistons projecting from the inner face of the chamber, fluid-pressure mechanism for forcing the pistons inward toward each other simultaneously, and means for retracting the pistons, all substantially as shown and described.

4. In a hydrostatic tire-setter, the combination with the hollow chamber and the radially-moving pistons, of a fluid pressure mechanism for forcing the pistons inward toward one another, a wheel-support, and means substantially such as shown and described for automatically retracting the pistons.

5. In a hydrostatic tire-setter, the combination with the hollow rim A having the arms D, of the plate B secured to said arms, the radial pistons, and a fluid-pressure mechanism for forcing the pistons simultaneously inward toward each other.

6. In a hydrostatic tire-setter, the combination with the hollow rim A, of the plate B secured thereto and provided with a depending boss or hub; a ring E journaled on the hub, a series of radial pistons C, links *b* connecting the pistons with the ring; a fluid pressure mechanism for forcing the pistons inward, and mechanical means for partially rotating the ring and retracting the pistons.

7. In a hydrostatic tire-setter, the combination with the hollow rim A and disk or plate B, of the radial pistons C and a fluid pressure mechanism for forcing the latter inward, a ring E journaled on the plate or disk, links *b* connecting the pistons and ring, arms F projecting from the rings, and weights G suspended from the arms and passing over an intermediate pulley or support.

8. In a hydrostatic tire setter, the combination with the hollow chamber, of the radially-moving pistons, and fluid pressure mechanism for projecting or forcing the pistons from the inner face of the hollow chamber.

DESIGNS.

22,191. BUTTON. MENDUS R. BLUMENBERG, Washington, D. C. Filed Jan. 4, 1893. Serial No. 457,283. Term of patent 3½ years.



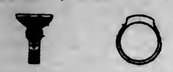
Claim.—The design for a button as herein described and shown.

22,192. FINGER-RING. HARRY LOEB, New York, N. Y. Filed Dec. 15, 1892. Serial No. 455,906. Term of patent 14 years.



Claim.—The design for a finger-ring, consisting of a gem-frame, shanks tapering from the sides of the frame, an eagle in relief on the tapering part of the shank, an arrow in one talon of the eagle and a twig in the other, substantially as set forth.

22,193. RING. JOSEPH KIRK, New York, N. Y. Filed Dec. 22, 1892. Serial No. 456,603. Term of patent 3½ years.



Claim.—The design for a ring substantially as shown and described.

22,194. SILVERSMITHS' STOCK. GILBERT L. CROWELL, Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Filed June 13, 1892. Serial No. 436,572. Term of patent 14 years.



Claim.—The design for silversmiths' stock, substantially as herein shown and described.

22,195. SPOON. JOSUA VREDENBURGH, Jersey City, N. J., assignor to Simpson, Crawford & Simpson, New York, N. Y. Filed Nov. 10, 1892. Serial No. 451,862. Term of patent 3½ years.



Claim.—1. In a design for a spoon, the obverse substantially as shown and described.

2. In a design for a spoon the reverse substantially as shown and described.

3. The design for a spoon, substantially as shown and described.

22,196. SPOON. JOSUA VREDENBURGH, Jersey City, N. J., assignor to the J. H. Johnston & Company, of New York. Filed Nov. 10, 1892. Serial No. 451,863. Term of patent 3½ years.



Claim.—The design for a spoon herein described consisting of a spoon decorated on the handle with the figure of "Santa Claus" and on the bowl with the figure of a Christmas tree, substantially as shown and described.

22,197. SPOON. JAMES F. HILYARD, Ramsdell, N. J. Filed Sept. 21, 1892. Serial No. 446,479. Term of patent 14 years.



Claim.—The design for a spoon substantially as herein shown and described.

22,198. PULSOMETER. FRANCIS M. CRESWELL, Washington, D. C. Filed Nov. 26, 1892. Serial No. 453,373. Term of patent 7 years.



Claim.—The design for a pulsometer, as herein shown and described.

22,199. DISH. THEODORE HAVILAND, Ambassa, France. Filed Jan. 10, 1893. Serial No. 457,951. Term of patent 7 years.



Claim.—The design for a dish substantially as shown and described.

22,200. DISH. THEODORE HAVILAND, Ambassa, France. Filed Jan. 10, 1893. Serial No. 457,952. Term of patent 7 years.



Claim.—The design for dishes substantially as shown and described.

22,201. CUP. CHARLES H. HAVILAND, Limoges, France. Filed Jan. 13, 1893. Serial No. 458,208. Term of patent 14 years.



Claim.—The design for a cup or other article, substantially as shown and described.

22,202. CUP. CHARLES H. HAVILAND, Limoges, France. Filed Jan. 13, 1893. Serial No. 458,209. Term of patent 14 years.



Cuaim.—The design for a cup or other article, substantially as shown and described.

22,203. GLASS DISH. THOMAS SIMPLETON, Jr., New Bedford, Mass. Filed Sept. 22, 1892. Serial No. 446,927. Term of patent 7 years.



Claim.—The design for an ornamental glass dish as herein described and shown.

22,204. HALTER-PLATE. HARVEY L. HEALD, Granville Centre, Pa. Filed Jan. 11, 1893. Serial No. 456,691. Term of patent 7 years.



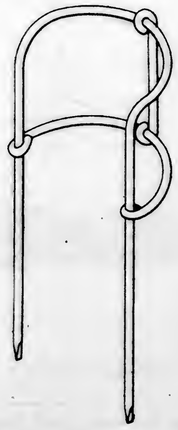
Claim.—The side plate for a halter trimming, substantially as herein described and shown.

22,205. CHEEK-PIECE. HARVEY L. HEALD, Granville Centre, Pa. Filed Jan. 11, 1893. Serial No. 456,692. Term of patent 7 years.



Claim.—The design for a cheek-piece, substantially as herein described and shown.

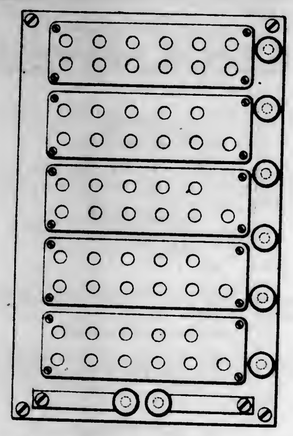
22,206. PLANT-SUPPORT. ANTHONY W. SMITH, Pittsburg, Pa. Filed Nov. 23, 1892. Serial No. 452,864. Term of patent 14 years.



Claim.—The design for plant supports substantially as herein shown and described.

22,207. DISH-HANDLE-BOX. EDWARD WEBER, Newark, N. J. Filed Sept. 10, 1892. Serial No. 445,267. Term of patent 14 years.

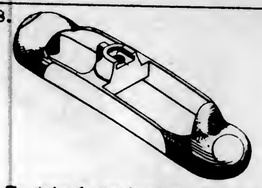
22,207.



Claim.—The design for a resistance box substantially as herein shown and described.

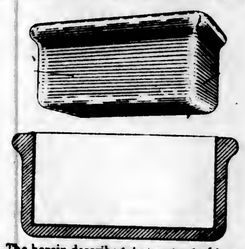
22,208. **FRAME FOR CIRCULAR PLANES.** RICHARD A. SCHADE, New Britain, Conn., assignor to the Stanley Rule and Level Company, same place. Filed Jan. 5, 1893. Serial No. 457,233. Term of patent 14 years.

22,208.



Claim.—The design for the frame of a circular plane herein shown and described.

22,209. **FLUSHING-TANK.** ALBERT D. SANDERS, Evanston, Ill. Filed Dec. 22, 1892. Serial No. 456,097. Term of patent 7 years.



Claim.—The herein described design for flushing tanks, the same consisting of the front *a*. and bottom *b*. and ends *c*. rounded at all external points of contact, and the outwardly rolling and rounded form of the front *a*. and ends *c*. at their upper extremities, substantially as shown in the accompanying drawings.

TRADE-MARKS

REGISTERED FEBRUARY 7, 1893.

22,418. **COMPOSITION WATCHCASE.** ILLINOIS WATCH CASE COMPANY, Elgin, Ill. Filed Jan. 16, 1893.

ROYAL GOLDEN

Essential feature.—The words "ROYAL GOLDEN." Used since December 1, 1892.

22,419. **PRINTED PERIODICAL.** THE FASHION COMPANY, New York, N. Y. Filed Dec. 27, 1892.

VOGUE

Essential feature.—The word "VOGUE." Used since July, 1892.

22,420. **CORSET-WAISTS.** OLIVIA P. FLYNT, Boston, Mass. Filed Jan. 3, 1893.

FLYNT WAIST & TRUE CORSET

Essential feature.—The words "FLYNT WAIST OR TRUE CORSET." Used since October, 1877.

22,421. **WOOL AND SILK AND WOOL BLACK DRESS GOODS.** LES FILS DE A. GUILLABERT & G. MARS, Paris, France. Filed June 18, 1892.



Essential feature.—A gilt copper plate applied to and covering the end of the board around which the goods are rolled. Used since July 28, 1887.

22,422. **CASHMERES.** ED. PEYRE & Co., Paris, France. Filed Nov. 5, 1892.

CACHEMIRE ANTIQUE

Essential feature.—The words "CACHEMIRE ANTIQUE," together with the representation of a heraldic shield having a diagonal bar and a hand in the upper panel and an eye in the lower panel of the shield. Used since September 27, 1892.

22,423. **HIDES, SIDES, SPLITS, OR SKINS, OR SIMILAR FORMS OF LEATHER.** HUGH SMITH, Newark, N. J. Filed Jan. 7, 1893.

Sammet

Essential feature.—The word "SAMMET." Used since September, 1892.

22,424. **CIGARS.** THOMAS R. HENNESSY, Northampton, Mass. Filed Jan. 5, 1893.

Hennessy's

Essential feature.—The representation of three stars, with the word "HENNESSY'S" arranged in a curve above them. Used since June 15, 1889.

22,425. **TWIST TOBACCO.** JOHN D. WALKER, Lexington, Ky. Filed Dec. 21, 1892.



Essential feature.—A blue ribbon attached to a twist of tobacco. Used since October 20, 1886.

22,426. **BORDEAUX WINE.** BRONSAULT & Co., Bordeaux, France. Filed Nov. 10, 1892.



Essential feature.—The representation of a medallion bearing a castellated shield having a lion rampant thereon and a flowing ribbon below the same; above the shield is a griffin with extended wings from which ornamental scrolls depend and surround said shield. Used since January, 1885.

22,427. LAGER-BEER. THE JOSEPH KOEHLER BREWING COMPANY, Philadelphia, Pa. Filed Dec. 30, 1892.



Essential feature.—The representation of a woman sitting upon a barrel, one arm resting on a shield, and the other holding a bundle of grain, while in the back-ground is the figure of a star. Used since November 15, 1892.

22,428. LAGER-BEER. HENRY RAHR'S SONS, Green Bay, Wis. Filed June 4, 1892.



Essential feature.—The representation of a body of water, with a disk above it. Used since May 1, 1892.

22,429. PRUNE-JUICE. THE BALL & CHEYNE COMPANY, New York, N. Y. Filed Oct. 31, 1892.



Essential feature.—The representation of St. George and the Dragon beneath which are the words "VERITABLE PRUNE JUICE." Used since May 1, 1892.

22,430. CERTAIN CARBONATED BEVERAGE. BELFORD CARBONATING Co., St. Louis, Mo. Filed Jan. 5, 1893.

ARO-MEL

Essential feature.—The word "ARO-MEL." Used since October 1, 1892.

22,431. EGG NOODLES. GEORGE A. PFAFFMANN, Cleveland, Ohio. Filed Oct. 27, 1892.



Essential feature.—The representation of a hen standing near a nest containing four eggs. Used since September 1, 1892.

22,432. BREAD. GEORGE ALBER, Lansingburg, N. Y. Filed Jan. 10, 1893.

QUEEN

Essential feature.—The word "QUEEN." Used since July 1, 1892.

22,433. COFFEE. R. T. SMITH & Co., Worcester, Mass. Filed Dec. 23, 1892.

Columbia

Essential feature.—The word "COLUMBIA." Used since November 30, 1892.

22,434. WHEAT-STARCH. H. KOHNSTAMM & Co., New York, N. Y. Filed Jan. 12, 1893.

NE PLUS ULTRA

Essential feature.—The words "NE PLUS ULTRA." Used since October 4, 1876.

22,435. BLEACHING COMPOUND. THE ROESSLER & HASSLACHER CHEMICAL COMPANY, New York, N. Y. Filed Dec. 31, 1892.

Peroxygene

Essential feature.—The word "PEROXYGENE." Used since November 1, 1892.

22,436. WASHING-FLUID. H. KOHNSTAMM & Co., New York, N. Y. Filed Jan. 12, 1893.

ATLAS

Essential feature.—The word "ATLAS." Used since September 8, 1892.

22,437. WHITE LEAD. ALBERT PFLUGE & Co., Hoboken, N. J. Filed Dec. 21, 1892.

GOLD EAGLE

Essential feature.—The words "GOLD EAGLE." Used since December, 1889.

22,438. MINERAL COAL. JELLICO AND BIRD-EYE COAL COMPANY, Louisville and Halsey, Ky. Filed Dec. 17, 1892.



Essential feature.—The words "BIRD EYE" and the representation of a block of mineral coal. Used since January 1, 1892.

22,439. HANDKERCHIEF-EXTRACTS. ALLEN B. WRISLEY, Chicago, Ill. Filed Jan. 16, 1893.

Flowers of America

Essential feature.—The words "FLOWERS OF AMERICA." Used since June, 1892.

22,440. PERFUMERY, SOAPS, OILS, TOOTH-POWDER, SMELLING-EXTRACTS, RICE-POWDERS, AND COLOGNE. ROGER & GALLET, Paris, France. Filed Sept. 16, 1892.

Parfumerie Vera-Violetta

Essential feature.—The words "PARFUMERIE VERA-VIOLETTA." Used since July 1, 1892.

22,441. DENTIFRICE. WILLIAM H. FARRAR, Rochester, N. Y. Filed Jan. 5, 1893.



Essential feature.—A representation of the Eiffel Tower. Used since February 1, 1892.

22,442. PREPARATIONS FOR THE SKIN AND COMPLEXION. MATHEW L. JOHANN, Milwaukee, Wis. Filed Dec. 27, 1892.

WHITE-VELVET

Essential feature.—The words "WHITE-VELVET." Used since December 3, 1892.

22,443. UNGUENTS. R. F. HOUGHTON & Co., Philadelphia, Pa. Filed June 4, 1892.

COSMOLINE

Essential feature.—The word "COSMOLINE." Used since June 4, 1870.

22,444. SALVES, LINIMENTS, PLASTERS, AND BITTERS. ELIZABETH DOST, Buffalo, N. Y. Filed Nov. 26, 1892.

ST. DOMINIC'S

Essential feature.—The words "ST. DOMINIC'S." Used since September 22, 1892.

22,445. OIL EXTRACTS FOR USE AS INTERNAL AND EXTERNAL REMEDIES FOR DISEASE. GEORGE W. HOOTON, Greenmont, Tex. Filed Dec. 2, 1892.



Essential feature.—A likeness or representation of the registrant, GEO. W. HOOTON. Used since March 10, 1892.

22,446. SALVE. Geo. L. BALDAUF & Co., Milwaukee, Wis. Filed Nov. 14, 1892.



Essential feature.—The word "BALDAUF'S," and the representation of an oval or elliptic device with the initials "G. L. B. & Co" in capital letters thereon. Used since October 20, 1892.

22,447. KIDNEY AND LIVER CURE. PETERBORO MEDICINE Co., Peterborough, Canada. Filed Dec. 5, 1892.



Essential feature.—The representation of a curved band bearing the word "MEMBRAY'S," behind which is a ball surrounded by clouds. Used since May 1, 1892.

22,448. GUMS, BULBS, PLANTS, AND FLOWERS. EMMA E. KUNZ, Chicago, Ill. Filed Dec. 24, 1892.



Essential feature.—The letter "H" bearing the representation of an eye at its center. Used since December 10, 1892.

22,449. STARCHING-MACHINES. LEWIS B. PORTER, Watertown, Mass. Filed Jan. 11, 1893.

UNIVERSAL

Essential feature.—The word "UNIVERSAL." Used since 1881.

22,450. COMBS FOR RECEIVING MASSES OF YARN OR THREAD WOUND THEREON. ARTHUR A. BRENNAN, Boston, Mass. Filed Dec. 31, 1892.



Essential feature.—A line or stripe extending around a cone, upon which yarn or thread is to be wound, on the exterior surface thereof and near its base and of a color contrasting therewith. Used since September 1, 1892.

22,451. PRESSURE-REDUCING VALVES AND PUMP-GOVERNORS. LOUIS BOUTHILLIER, Salem, Mass. Filed Jan. 3, 1893.

22,451.

BEATS ALL

Essential feature.—The words "BEATS ALL." Used since August 5, 1891.

22,452. CULTIVATORS AND BEAN-HARVESTERS. WELLS CULTIVATOR CO., Milford, Mich. Filed Jan. 14, 1893.

LITTLE GIANT

Essential feature.—The words "LITTLE GIANT." Used since 1880.

22,453. TIRES FOR VEHICLES. UNION CYCLE MANUFACTURING COMPANY, Boston, Mass. Filed Nov. 14, 1892.

AIRTITE

Essential feature.—The word "AIRTITE." Used since September 1, 1892.

22,454. BICYCLES, VELOCIPEDES, AND ARTICLES ACCESSORY THERETO. HULBERT BROS. & CO., New York, N. Y. Filed Jan. 7, 1893.

MAJESTIC

Essential feature.—The word "MAJESTIC." Used since November 1, 1891.

22,455. BICYCLES, VELOCIPEDES, AND ARTICLES ACCESSORY THERETO. THE YOST MANUFACTURING COMPANY, Toledo, Ohio. Filed Jan. 11, 1893.

FALCON

Essential feature.—The word "FALCON." Used since August 1, 1892.

THE NORRIS PETERS CO.

REPORT

OF THE

COMMISSIONER OF PATENTS

TO CONGRESS,

FOR THE YEAR ENDING DECEMBER 31, 1892.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., January 31, 1893.

To the Senate and House of Representatives of the United States of America in Congress assembled:

This report is rendered in compliance with the following section of the Revised Statutes:

Sec. 494. The Commissioner of Patents shall lay before Congress, in the month of January, annually, a report giving a detailed statement of all moneys received for patents, for copies of records or drawings, or from any other source whatever; a detailed statement of all expenditures for contingent and miscellaneous expenses; a list of all patents which were granted during the preceding year, designating under proper heads the subjects of such patents; an alphabetical list of all the patentees, with their places of residence; a list of all patents which have been extended during the year, and such other information of the condition of the Patent Office as may be useful to Congress or the public.

The detailed statements and lists of patents and patentees above specified will be found at the end of this report, following what is intended to be such "information of the condition of the Patent Office as may be useful to Congress or the public."

MORE ROOM NEEDED.

Secretaries of the Interior and Commissioners of Patents again and again have given voice to the crying need for more breathing-space for the men and women who work in the Patent Office, and however much of sameness it may entail, an ever-present menace to the health and safety of these people makes it the imperative duty of this report to present this matter again and first of all. On high authority an office occupant needs four thousand cubic feet of air space in a room having "ordinary ventilation," which he occupies two successive hours. Two hundred and seventy people in the examining force of this Bureau have but nine hundred feet of air space each, in rooms which they occupy for seven consecutive hours, and one hundred and ten persons in the assignment and draftsman's divisions have less than five hundred feet of air space each, in rooms which they occupy for the same length of time, and the ventilation is not "ordinary"; it does not rise to that dignity.

Originally the corridors in the Patent Office building ran to the exterior walls, where there are windows admitting light and air; but supposed necessity has since located a room at each extremity, converting the corridors into dead-air spaces, needing artificial light at noonday. The corridor-walls are lined on both sides with unsightly wooden closets and file-cases filled with record-papers. A great number of the force work in basement and sub-basement rooms, intended simply for storage purposes in the original planning of the building.

There are stored more than a thousand tons of copies of patents on five different floors, tucked into every nook and corner where an eager eye can discover a few feet of available space, so disconnected in order and arrangement that it not infrequently happens that to select two copies standing next each other in number one must travel from the sub-basement to the galleries, four stories above. These copies are stored upon these galleries beyond the limit of safety, the worst overloading being directly over the Commissioner's room, and in that near vicinity the cracking of the roof-supports gives daily evidence of the danger which constantly threatens all below.

The situation is serious. It is one which in reason demands immediate relief. The present Secretary of the Interior, commenting in appreciative and generous phrase upon this matter in his letter to the President of the Senate, dated March 18, 1892, says:

It is imperatively necessary that the Department of the Interior should be granted a public building in which to do its work and preserve its archives commensurate with the important service demanded and the great national services devolved upon it. As it is, burdens of material are not only heaped upon the buildings the Department occupies, beyond their strength, but burdens of labor are imposed upon the officials without regard to human endurance.

It would seem that no reasonable question can be made but that the permanent solution of the difficulty is thus correctly stated; but the Patent Office ought to have relief meanwhile. The immediate relief, which is possible, and which Congress has apparently approved in the past, is the present and entire removal of the General Land Office from the structure commonly known as "the Patent Office building."

By act approved March 3, 1887, it was enacted:

That as soon as practicable after the completion as provided for in the sundry civil act approved August fourth, eighteen hundred and eighty-six, and not later than December first, eighteen hundred and eighty-eight, the Secretary of the Interior shall cause to be removed to the Pension Building the General Land Office, Bureau of Education, Office of Commissioner of Railroads, and Bureau of Labor, and vacate the buildings rented for and now occupied by said offices and Bureaus, or portions thereof.

But under the act approved October 2, 1888, it was—

Provided further, That so much of the act approved March third, eighteen hundred and eighty-seven, as requires the removal of the General Land Office and the Bureau of Education to said Pension Building be, and the same is hereby repealed.

Congress, however, said this, by act approved March 3, 1891:

For rent of buildings for the Department of the Interior, namely: For the Bureau of Education, four thousand dollars; Geological Survey, ten thousand dollars; Indian Office, six thousand dollars; General Land Office, sixteen thousand dollars; in all thirty-six thousand dollars.

It is understood that less than $5,000 of the $16,000 thus appropriated for the rent of the General Land Office was used.

Now that the business of the Land Office is radically diminishing, and in the nature of things must soon become a small matter and so remain, while the business

of the Patent Office steadily increases and must continue so to do, the attention of Congress is earnestly called to this mode of relieving the Patent Office from its great trouble. In this connection it is fair to say that the entire structure now occupied in part by the Patent Office was planned as a Patent Office, and its construction begun under an act approved July 4, 1836. Hundreds of thousands of dollars of patent fees have been incorporated into that building, and inventors have now lying in the United States Treasury more than four millions of dollars, not raised under the taxing power of Congress, but realized under that clause of the Constitution which says that—

Congress shall have power * * * to promote the progress of science and useful arts by securing for limited times to * * * inventors the exclusive right to their * * * discoveries.

MORE FORCE NEEDED.

The number of applications for patent on hand and awaiting action July 1, 1890, was 6,585; the number July 1, 1891, was 8,911. During that year the work fell behind 2,326 cases. At the latter date ten persons were added to the examining corps and four persons to the clerical force. The present Commissioner began his duties August 1, 1891. His last annual report that for the year ending December 31, 1891, said:

Within the latter half of the year just passed ten persons have been added to the examining corps and four persons to the clerical force of the Patent Office, under provision made for that purpose by the last Congress, and that addition is a most grateful one. But it is not all that is needed. The experience of the last few months shows that the present examining corps may possibly be able to keep the work from falling behind to a greater degree than it is at present, although that is by no means sure.

The number of applications on hand and awaiting action January 1, 1893, was 9,011, showing an increase as compared with July 1, 1891, of 100 cases—that is, the Office had fallen behind to that degree in a year and a half. This comparison seems to show that the present examining force of the Patent Office is about adequate to the performance of the work as it comes in. It really lacks adequacy in a more substantial degree, for a large part of the examining corps has been worked over time since October 1, 1892, by special order. It ought not to be necessary to force the examining corps to work over time. It is believed that no like number of men in the world, assembled in one body, has to perform duties as delicate and difficult as those which are performed by the examining corps of the Patent Office.

There are one hundred and ninety-nine of these Examiners. They have before them, in round numbers, forty thousand applications for patent a year, on which are made something over one hundred and forty-five thousand separate actions, giving each Examiner an average of seven hundred and thirty actions on applications made yearly. In addition to this, they hear and decide a variety of motions, chief among them those for dissolution of interferences, which are argued by counsel, *pro* and *con*, and which require the same study, thought, and deliberation for proper decision as a case in a court of law. They make answers to interlocutory appeals and to appeals on the merits. The Principal Examiners keep the efficiency records of their divisions, and they keep the data for and render a number of reports. There is a variety of duties performed by the Examiners outside of the regular actions on the applications for patent. The United States Supreme Court has repeatedly spoken of patent law as the "metaphysics of the law," and that it is. A competent Examiner must possess a wide range of scientific and technical knowledge, a trained capacity for analysis and comparison of mechanism, a fair knowledge of law in general, and a thorough knowledge of that patent law which the Supreme Court says is the "metaphysics of the law." The code of procedure and practice in the Patent Office is more complicated than that of any court of law, and necessarily so. The necessity inheres in the nature of the work. It is a pleasure to be able to say that the great majority of the Examiners in the Patent Office are competent, and to repeat the statement that it is believed that there is no similar number of men in the world, gathered into one body, performing duties as delicate and difficult as those performed by the examining corps of the Patent Office. Men who do work of this character ought not to be obliged to work over time. Experience in various fields of mental labor has shown that ninety per cent. of all errors are made after five hours of continuous work. The Examiners ought to have ample opportunity for thought and deliberation, and the pace asked of them ought to be one that can be reasonably kept from day to day and year to year. Moreover, their salaries, fixed at their present figure a generation ago, should be properly increased.

Something important remains to be said. At the close of the calendar year 1891 the Patent Office had issued 476,271 mechanical patents, constituting a vast field, some particular lines in which have to be explored from first to last in connection with every one of the forty thousand applications for patent which are made each year. At the close of the calendar year 1892 the Patent Office had issued 498,932 patents. Twenty-three thousand new patents are added to this vast field of exploration yearly.

In order to make this exploration possible, the patents are divided into classes. But the classes necessarily so overlap each other that each class needs to be digested by itself, so that each Examiner in passing upon the novelty of an improvement presented for patent can examine all the classes where he is at all likely to find the improvement in question. Let this proposition be illustrated: One of the Examiners of the Office, as a matter of private enterprise, lately prepared and published a digest of cycles and velocipedes, making 1,503 pages, contained in two volumes. Under the classification of the Office all these improvements are supposed to be found in the sub-classes of Velocipedes and Tires, which are a part of the division of Carriages and Wagons. In order, however, to perfect the compilation, the Examiner found it necessary to read from one hundred and fifty thousand to two hundred thousand patents, comprised in one hundred and fifty other sub-classes, and in almost every one of these one hundred and fifty other sub-classes he found devices which it was necessary to include in his digest. Only two or three such digests exist, and they are the product of private enterprise. If all the classes of invention were thus digested, the work of examination into novelty would be wonderfully facilitated, and at the same time made more thorough than is now possible. The situation is such as to demand the making

of these digests. It is earnestly recommended that thirty-two additional Fourth Assistant Examiners (one for each division) be authorized by law expressly for this work; that sixteen additional Fourth Assistant Examiners be authorized for the purpose of bringing the current work up to date and keeping it there, and that $35,000 of annual appropriation be made to begin the publication of the digest.

FOR THE GOOD OF THE NATION.

It would almost seem as if there were a halt in the workings of that practical wisdom with which the nation has hitherto treated its inventors. The fathers who builded the Constitution with such rare foresight as to compel the admiration of the world in ever enlarging degree as we recede from the day in which they wrought, gave Congress the power to promote the progress of the useful arts by securing to inventors for limited times the exclusive rights to their discoveries. The Congress of 1790 promptly made a patent law in pursuance of that power. The Congress of 1793 revised it. The Congress of 1836 broadened the foundations of the system, created the Commissioner of Patents, and ordered the building of the Patent Office, substantially as it now exists. The Congresses of 1842, 1861, and 1870 added features of improvement.

The results have more than justified the constitutional provision and the legislation following in its wake. America has become known the world around as the home of invention. We march in the van of human progress. Now and then a great invention, like the telegraph or the telephone, leaps ahead of the line, but thousands upon thousands of busy inventive brains add each its mite of improvement, and before we know it the whole line has moved out to where the product of mighty genius but a little while ago stood alone. A vastly larger number of inventions are of real value than the great public dreams, and those which seem to fall dead contain within them the seed of suggestion which later lives and grows to rich fruition. There is a sad procession of martyrs mingled with the great inventive host; but the country and the world profit by their sacrifice.

Our inventors are the true nation builders, the true promoters of civilization. They take nothing from the public; they ask nothing from the public; they simply add to the sum of human knowledge, to the sum of human possessions, and to the sum of human happiness. With the Ruler of the Universe they share in humble degree His high prerogative of creation, and they but ask to enjoy for a little time the use of the valuable thing they create. The Greeks reserved their highest honors for inventors, and we shall sometime attain to a civilization of like degree.

Into every department of industry and into every possible thing that can conduce to human comfort American inventive genius has entered, to cheapen and to beautify. The Western farmer may know it not, but the inventor of the compound marine engine is possibly the best friend he ever had, and that farmer will find his reward in ascertaining for himself what its effect in cheapening transportation across the ocean has been upon his fortunes. Another example,—a single generation ago our carpets were made for us by foreign hands and the prices were excessive. A great American inventor produced the Bigelow carpet-loom; building upon the faith of an American patent a million dollars in one instance and a million and a half in another were risked upon the experiment. The result to-day is that our carpets cost about one-third of what they did, and less than one-hundredth of them are made by foreign looms. Had there been no patent law, these millions would never have been risked in the experiment so rich in result to the American people. If to-day the sewing-machine were produced for the first time and we had no patent law, its inventor would hawk it in vain up and down the land to find that foolish man who would risk a half-million dollars in its commercial development, with the certainty that success would but invite a ruinous competition.

If there be one class of men above all others to whom the American nation and the American people are in debt, it is the American inventors. Why not grant them the poor boon of expending for their benefit the moneys they pay?

THE CLASSIFIED SERVICE.

The officials and employés of the Patent Office are 605 in number, classified as follows:

Commissioner	$5,000
Assistant Commissioner	3,000
Chief Clerk	2,250
Two law clerks	2,000
Three Examiners-in Chief	3,000
Examiner of Interferences	2 500
Thirty-two Primary Examiners	2,500
Thirty four First Assistant Examiners	1,800
Thirty-eight Second Assistant Examiners	1,600
Forty-three Third Assistant Examiners	1,400
Fifty two Fourth Assistant Examiners	1,200
Financial clerk	2,000
Librarian	2,000
Three chiefs of divisions	2,000
Three assistant chiefs of divisions	1,800
Five clerks of Class 4 (one application clerk)	1,800
Machinist	1,600
Six clerks of Class 3 (one translator)	1,600
Fourteen clerks of Class 2	1,400
Fifty clerks of Class 1	1,200
Skilled laborer	1,200
Three skilled draftsmen	1,200
Four draftsmen	1,000
Messenger and property clerk	1,000
Twenty-five permanent clerks	1,000
Five model attendants	1,000
Ten model attendants	800
Sixty copyists (five of drawings)	900
Seventy-six copyists	720
Three messengers	720
Twenty assistant messengers	840
Forty-five laborers	720
Forty-five laborers	600
Fifteen messenger boys	480

The following are appointed by the President, by and with the advice and consent of the Senate, (S. 476, R. S.:)

Commissioner	$5,000
Assistant Commissioner	3,000
Three Examiners-in Chief	3,000

All of the remainder are in the classified service, and appointed through the medium of the Civil Service Commission, except the following, 138 in number, who are appointed by the Secretary of the Interior upon the nomination of the Commissioner of Patents, (S. 476, R. S.:)

Chief Clerk	$2,250
Two law clerks	3,000
Examiner of Interferences	2,500
Financial clerk	2,000
Three chiefs of divisions	2,000
One clerk of Class 1 (Commissioner's secretary)	1,200
Messenger and property clerk	1,000
Three messengers	840
Twenty assistant messengers	720
Forty-five laborers	600
Forty-five laborers	480
Fifteen messenger boys	360

If anything but good results have flowed from the establishment of the classified service in the Patent Office, they do not readily rise to mind. There is no proper place for politics in the Patent Office from top to bottom, and if, with the exception of the Chief Clerk, the law clerks, the financial clerk, and the personal clerk of the Commissioner, all who are now in the unclassified service were made a part of the classified it would be a measure of great practical value. One thousand applications a year is a reasonable estimate of the number of those made to the Commissioner for appointment in the unclassified service. By making the change suggested this tax on the time and feelings of the Commissioner—and it is the hardest thing he has to meet in a volume of work that is both great and severe—would be eliminated, and a similar tax on the time and attention of persons whose "influence" with the Commissioner is sought would suffer the same fate.

THE COMMISSIONERSHIP.

As the present Commissioner will soon cease to be such, the situation affords an opportunity for some remarks about the Office, which, it is believed, will find a decided and assenting echo in the minds of the great majority of inventors, of lawyers who practice before the Patent Office, of manufacturers, and of all Americans who take an intelligent interest in the Patent Office and in the advancement of the useful arts. The appointment of the Commissioner of Patents and the Assistant Commissioner ought at once and forever to cease to be political, their salaries should be increased, and they should hold office on the tenure of good behavior. These positions are, first of all judicial in their nature. During the calendar year 1892 the Commissioner and Assistant Commissioner heard or read arguments on and made written decisions in eight hundred and eight cases. Not infrequently there is an array of eminent counsel on both sides of these cases, and the hearing occupies the larger part of a day. If this volume of judicial work is surpassed in amount or importance by that of any other two persons in the land, it would not be easy to demonstrate the fact. Unless the persons who make these decisions have a previous training and education fitting them for these judicial duties, their performances are but a cruel travesty of true judicial action. Given fitness, it is still in the highest degree important that the lines upon which these judicial decisions are rendered should be stable and certain and not liable to change as the Office shifts from person to person at short intervals. There have been ten Commissioners since November 1, 1874, giving each an average term of a little less than two years. Again, the procedure of the Office is so intricate and peculiar that no Commissioner can master it at the moment he begins his duties. It requires an apprenticeship. Still again, the proper discipline and management of the Office force require stability in the tenure of the Commissioner. Under the present practice there must necessarily be a degree of demoralization in this regard for a period of time immediately preceding the retirement of a Commissioner and for a like period of time immediately succeeding the accession of a new one. The Patent Office is no more political in its nature than is a well-regulated court of law, and it would be just as reasonable to appoint and remove the judges of the Federal courts on a political basis as it is to do that same thing by the Commissioner of Patents. The fortunes of a political party cannot be advanced or retarded by what is done in the Patent Office. It is a business office, in close touch with the business interests of the country, and everything in and about it should proceed upon a business basis.

THE PATENT OFFICE AT THE WORLD'S COLUMBIAN EXPOSITION.

For more than a year past the preparation of a Patent Office exhibit for the World's Columbian Exposition at Chicago has been in progress. It has required the expenditure of a great amount of care, thought, and labor, which the Office could not afford to spare; but the result is gratifying. The exhibit comprises upward of twenty-five hundred models, nearly all of them working machines in all except size. They are divided into groups or classes as follows:

Plows (including Cultivators)	43
Harrows and Diggers	34
Seeders and Planters	22
Harvesters	58
Fences and Gates	25
Excavating	44
Bridges	8
Fire Escapes and Ladders	4
Centrifugal Machines	15
Boot and Shoe Machinery	111
Leather-Working Machinery	18
Screw-Making Machines	106
Nail-Making Machines	27
Horseshoe-Making	9
Chain-Making	5
File-Cutting and Gear-Cutting	17
Wire-Working	26
Sheet-Metal Working and Soldering	46
Punching and Shearing	13
Brick and Tile Making	96
Paper-Making	61
Electric Dynamos and Motors	93
Telegraphy	30
Electric Lighting	19
Telephony	40
Printing	106
Steam-Engines (including Locomotives)	206
Steam-Steering	8
Injectors and Ejectors	57
Locks	43
Carding and Combing	50
Spinning	23
Cordage	32
Weaving	50
Knitting and Netting	33
Cloth-Finishing (including Cloth-Measuring)	60
Felting and Fulling (including Hat-Making)	28
Marine-Propulsion	283
Ships	84
Ordnance	117
Firearms	160
Sewing-Machines	103
Threshing	35
Mills (including Grain-Weighing)	110
Laundry	43
Washing Apparatus	21
Refrigeration	13
Aeration and Bottling	7
Wood-Turning	13
Woodworking Machines	21
Wood Sawing	6
Type-writing Machines	36
Tanning	32

The models in each group are arranged in chronological order, beginning with the first crude implement and ending with the latest improvement. While omitting many details in various lines of improvement, these models constitute as a whole a most valuable and, as it is believed, a hitherto unequaled representation of the development of invention. The models necessary to illustrate the development of a number of the arts of greatest general interest have been selected with care from those on file in this Office, and these have been supplemented by building

such models as were found necessary to represent early inventions not in the possession of the Office. They have been further supplemented by loans from inventors and manufacturers of models of later patented inventions not represented in the Office by models. The responses made by inventors and manufacturers to requests of the Office for loans of this sort have been remarkably generous, and the Commissioner takes this occasion to heartily thank each and all of those who have made these loans for their cordial co-operation. The entirety forms a collection of very great cost, value, and beauty.

In the lines of inventions which are distinctively American, those which had their inception and highest development in this country under the encouragement afforded by our patent laws, such as the harvester, the sewing-machine, and the telephone, the exhibit has been made especially full.

In *harvesters*, an invention the value of which to the American farmer cannot be overestimated, the exhibit begins with a model representing a "header" used in Gaul in the first century, a model of Boyce's mowing-machine, patented in England in 1799, and several models illustrating early unsuccessful attempts at a mowing-machine made in this country. The stages through which the art advanced are shown by the Hussey mower of 1833, the McCormick reaper, patented in 1834, (two inventions which marked the beginning of the modern art,) the Mann harvester of 1850, the "New Yorker" reaper, manufactured and sold prior to 1850, the first knotter for self-binders—that patented by Behel in 1860—and many other of the pioneer inventions in this art. The growth of the art is traced through these inventions to its development in the latest complete machines which will be used in harvesting the crops of 1893. In this history of the harvester it has been necessary, on account of the destruction of models by the fire of 1877, to build a number of the earlier models and to ask the loan of others; but with these additions the history is believed to be full and accurate. To illustrate the growth of this art, there have been selected twenty-seven models from those on file in the Office; four have been built, and twenty-seven have been loaned for the purposes of this exhibit by inventors and manufacturers. Some of these last have been built by manufacturers at their own very considerable expense especially for this exhibit.

The exhibit of the growth of the *sewing-machine* begins with the earliest attempt at mechanical sewing devices of which there is a clear record, the Greenough machine of 1842, and the first machine of practical value as a sewing-machine, the invention of Elias Howe, patented in 1846. The successive steps of improvement from this beginning are illustrated each by a working model to the final development in the perfected machines manufactured under existing patents. To show this history of the sewing-machine, seventy-seven models have been selected from those on file in the Office and twenty-six, mostly modern machines now on the market, have been loaned by manufacturers and inventors. This is believed to be such a showing of the growth of the sewing-machine as can be furnished by no other institution in this or any other country.

In *telephones* substantially the whole history of the art is presented in the exhibit, beginning with the Bell telephone of 1876 and showing the important improvements down to the latest telephone used today. In this exhibit of the models on file in this Office twenty have been selected, and nearly twenty more are to be loaned by manufacturers.

In *agricultural implements other than harvesters*—such as plows, cultivators, and like implements—forty-three models, eleven of them loaned, illustrate the development from the primitive Egyptian and Assyrian plows down to the modern sulky-plows and cultivators. Twenty-two models of seeders and planters, three of them loaned, show the development of the latest practical devices in that line, and the development of the modern harrow is illustrated by twenty-eight models, seven of them loaned. Farm fences and gates are shown in improved forms by twenty-five models, two of which were loaned to the Office by inventors. A special effort in preparing this exhibit has been made to show the value of the patent system to the farmer, stimulating, as it has, the great improvements which give the American farmer of to-day the best implements to be found in the world. In harvesters, as well as in plows and cultivators, no substantial improvement took place from the beginning of the Christian era until the establishment of our patent system. Under this system the improvement has been continuous. This exhibit shows that fact, and it is a convincing proof of the value of the patent system to the farmer.

In *ordnance* a full history of the growth of the art to its development in the modern rapid-fire revolving cannon is shown, beginning with a model of the early Chinese wooden cannon used before gunpowder was known to Europeans. The successive stages of the growth of this art are illustrated in one hundred and fourteen models selected from those on file in this Office, supplemented by the models built expressly for the exhibit.

In *firearms* the inception of the art is shown by models of the early pyrotechnic hand weapon, fired like a Roman candle from the muzzle, and the hand culverin of the Middle Ages. The advance through the successive stages of the match-lock, the fire-lock, the flint-lock, the early percussion-lock, and the crude form of breech-loader is fully shown. The final development in the modern repeating breech-loader is shown by means of guns of the latest model, which have been furnished by the manufacturers. This history of the small-arm is shown by one hundred and thirty-eight models selected from those on file in the Office and twenty-two others, two of which have been built and twenty loaned from various sources.

In the *art of spinning* the exhibit begins with models of the ancient distaff and spindle, the early East Indian spinning-wheel, and the English spinning-wheel used in this country in Colonial times. Models of Hargreave's spinning-jenny of 1763, the first practical spinning-machine made, and Arkwright's water-frame of 1769, the first practical roller spinning-machine, are shown. The growth of the art since the beginning of the American patent system down to the latest self-acting mules is shown by fourteen

models selected from those on file in the Office. The earlier art is shown by nine models which have been built for this purpose.

In the *art of weaving* the history is shown from the ancient Egyptian and Roman looms, the primitive East Indian loom, and the Navajo Indian loom, through the successive stages of advance to the final development in the power-looms of recent date for weaving carpets and other figured fabrics of complicated structure and pattern. In this history are used forty-two models from the Office and eight models constructed especially for the exhibit.

The growth of the *art of printing* under the stimulus afforded by the wise provisions of the patent laws is represented by models of the Gutenberg press, the Franklin, and other early presses, showing what the art was before the beginning of our patent system, and a series of models of patented improvements in printing-presses, from the Adams press of 1830 down to the latest perfecting newspaper-press of the present day. One hundred and one models from the Office files are used in this history, supplemented by five furnished by inventors or manufacturers.

In *steam-engines* the exhibit shows the early forms of the engine, including Hero's aeropile of 150 B. C., the engines of Papin, Savery, Newcomen, and Watt, the early locomotive-engines of Trevethick, Stephenson, and others, down to the modern steam-engine and the modern locomotive. In this history of the steam-engine two hundred and six models are used ten of which were built expressly for the exhibit and ten others loaned by inventors.

In the other important arts the same growth under the encouragement afforded by our patent laws could be shown were it not for necessary limitation in exhibition space.

In each art in which an exhibit is made the models have been selected with a view to showing the history of the art as correctly as possible. Those inventions only have been selected which have had a direct bearing on the advance of the art toward its final development. And while, on account of the destruction of the Office models by the fire of 1877, the history cannot in all cases be as full as could be desired, yet, taken as a whole, they present a grand historical exhibit of the progress of the useful arts, which will not only show what has been done by our patent system, but will, it is believed, be of great interest not only to inventors and manufacturers, but to the public generally. The total number of models selected from the Office for the exhibits in all the arts enumerated is two thousand four hundred and fifty; the number of models built is fifty, and the number of models loaned to the Office is two hundred and fifty.

The preparation of this exhibit has only been made possible by the unwearying and unselfish labor of the Patent Office committee, with the Assistant Commissioner at their head, who have had it in charge, and it is with pleasure that the great value of their services is hereby specially recognized.

LEGISLATION DESIRED CONCERNING INTERNATIONAL MATTERS.

In the year 1883 an International Union for the Protection of Industrial Property was concluded at Paris through the agreement of several nations. The United States of America became a member of that union in 1887 by virtue of proceedings in the nature of an international treaty. Thereupon the articles of this union became a part of the fundamental law of the land under that clause of the Constitution which says that—

> all treaties made or which shall be made under the authority of the United States shall be the supreme law of the land.

But no statutes have been enacted in this country to enforce and carry out the provisions of this treaty. There is ground for difference of opinion as to just what laws ought to be made by the United States of America for this purpose; but there is no question but that some laws are needed, and at present the United States is open to the charge of non-fulfillment of its treaty obligations.

The condition is thought to be one that calls for careful and considerate inquiry as to the legislation which is necessary and desirable. Of course a committee of Congress can make that inquiry, or a commission might be created for that purpose, or the Commissioner of Patents might be called upon to report specifically in the matter, and possibly there are other modes of properly conducting such inquiry. Attention is thus called to the matter at this time for the purpose of earnestly urging that Congress prepare the way for early legislation by adoption of some measure adapted to elicit the desired information. If it shall thereby appear that our treaty obligations can be met without impairing the efficiency of our present laws, the way would seem to be clear for the enactment of appropriate legislation. If, on the contrary, the obligations which our Government has assumed are found so at variance with existing law that legislation to enforce them will materially impair our system, it may be found best to abandon the convention which imposes such obligations. The next conference of the international union will convene at Brussels in 1894, and it is to be hoped that then the American delegates may be able to show to the other nations which are members of the union that the Congress of the United States of America is fully sensible of the obligations assumed by the Government and is prepared to execute them, or else that, finding them inconsistent with our law, it has determined to withdraw from the union.

There is another matter of an international character which ought to have instant attention. Our patent law is exceptionally liberal toward foreigners. A foreign patent is no bar to a subsequent similar grant in the United States. Like liberality is not, as a rule, extended to American inventors by foreign countries. In the recent German patent law a provision exists apparently designed to ameliorate the present hard condition of American inventors by providing that an official publication of the specification of a patent shall not bar the grant of a subsequent patent in Germany if application is made in the latter country within three months from and after such publication, provided that the country in which the publication is made confers the reciprocal privilege on Germans. This privilege is conferred by our Government, and therefore our citizens are entitled to enjoy the benefit of this German

statute. It happens, however, that the German law of contains the additional proviso that the existence of the required reciprocity shall be certified by proclamation of the Imperial Chancellor, and although the German law has been in force for a year and a half that official has hitherto neglected or refused to make the publication which is necessary in order to enable American citizens to enjoy its benefits. Such an amendment to our patent law should immediately be made as will restrict the enjoyment of its privileges in this regard to the citizens or subjects of such states as shall grant reciprocal privileges to American citizens.

The following bill for this purpose is now pending before the Senate, and it is hoped that it may at once become a law:

Be it enacted by the Senate and House of Representatives of the United States of America in Congress assembled, That no patent shall be granted for an invention which has been patented or officially made public in any foreign country, unless such country shall grant the same privilege to citizens of the United States, or unless the application shall be made under a treaty or convention between the United States and such country.

OTHER DESIRED LEGISLATION.

The following amendments to the patent law and the trade-mark law are recommended:

First. An amendment to the effect that no improvement shall be patentable which has been for more than two years before application for patent thereon disclosed in any patent or printed publication issued in this country. Under existing law two years of public use in this country creates such a bar, and on principle two years of disclosure in a patent or printed publication should be put upon the same footing.

Second. An amendment to the effect that a patent shall not expire with the expiration of a prior foreign patent for the same invention. The existing law upon this subject has been found to work confusion, uncertainty, and fraud.

Third. An amendment compelling an applicant to take action upon his application at least once in every six months, in lieu of once in two years, as at present, and a further provision that a patent shall in no case live for more than twenty years from the date of the first application therefor. The adoption of such amendments would put an end to keeping applications for patents pending many years prior to issue

Fourth. An amendment requiring patent licenses to be recorded the same as assignments and grants. Licenses are often so drawn as to convey away the whole substance of a patent, and yet under existing law they do not need to be recorded. The same reason that calls for the recording of assignments and grants calls equally for the recording of licenses.

Fifth. An amendment putting aliens upon the same footing as citizens as to the filing of caveats. In all other respects than this our patent law makes no distinction between citizens and aliens, and the retention of this distinction in the statute is clearly an oversight.

Sixth. An amendment abolishing interference contests in the Patent Office and relegating them to the courts. These interferences are, to all intents and purposes, lawsuits between two or more parties who are seeking to patent the same invention. The Patent Office has not the power to compel witnesses to behave properly in these matters. It has not the tribunals adequate for the trial of these causes, and they entail a grievous burden of work upon the Office, which, distributed among the different courts, would not be felt as a sensible addition to their labors. Moreover, a court adjudication of one of these cases would be of great practical value to an interference contestant, which value is wholly lacking in an adjudication given by the Patent Office, and the cost of the litigation in a court could not be greater than it is at present.

Seventh. An amendment providing that no damages or profits shall be recovered in a suit for infringement, except such as accrue within the six years last preceding the bringing of the suit. The reason for the enactment of this statute of limitations is apparent without detailed explanation.

Eighth. A statute providing that an injunction issued by a court against the transfer of a patent may be registered in the Patent Office and thereupon be constructive notice to all the world. It is believed that the propriety of such a provision is obvious.

Ninth. A statute giving courts of equitable jurisdiction power to pass the title to Letters Patent in a proper case without any action on the part of the defendant. Now the courts must act in such a case by compelling the defendant to sign the necessary conveyance, and a defendant can readily defy the court by putting himself outside of its territorial jurisdiction.

Tenth. A provision in the law to the effect that the Commissioner of Patents may refund to the payer money paid into the Patent Office by mistake. This is the present practice of the Office—a practice founded in equity; but it ought to have the express sanction of law.

Eleventh. A permanent provision in the statute defining the duties of the Assistant Commissioner of Patents

Twelfth. An amendment to the trade mark law permitting registry of trade-marks which are used in commerce between the States, the permission now being restricted to trade-marks used in foreign commerce or in commerce with the Indian tribes.

RECEIPTS.

Detailed statement of all moneys received for patents, for copies of records or drawings, or from any source whatever.

Applications:		
Cash received		$1,114,795 00
Cash refunded		3,740 00
Net cash		1,111,055 00
Certificates of deposit		42,368 95
Total cash and certificates		1,153,423 95
Copies:		
Cash received		102,355 01
Cash refunded		5,716 53
Net cash		96,638 48
Certificates of deposit		869 35
Total cash and certificates		97,507 83
Recording assignments:		
Cash received		22,479 20
Cash refunded		1,227 85
Net cash		21,251 35
Certificates of deposit		203 00
Total cash and certificates		21,454 35

Subscription to Official Gazette:	
Cash received	13,620 79
Cash refunded	79 79
Net cash	13,541 00
Certificates of deposit	128 70
Total cash and certificates	13,669 70
Registration of labels:	
Cash received	2,868 00
Cash refunded	2,610 00
Net cash	258 00
Certificates of deposit	18 00
Total cash and certificates	276 00
Aggregates.	
Cash received	$1,256,118 00
Cash refunded	13,374 17
Net cash	1,242,743 83
Certificates of deposit	43,588 00
Total cash and certificates	1,286,331 83

EXPENDITURES.

Amount expended by this Office under the several appropriations from January 1, 1892, to December 31, 1892.

Salaries	$673,478 70
Official Gazette	55,668 80
Photolithographing	99,168 84
Scientific library	2,376 56
Transportation of publications to foreign governments	319 27
International Union for Protection of Industrial Property	681 76
Total	831,693 93

*Approximate amount reported by the Department of the Interior as expended on account of this Office from January 1, 1892, to December 31, 1892.**

Stationery	$10,623 10
Postage on foreign matter	2,415 00
Printing and binding	240,171 97
Watch force	16,600 00
Furniture	2,800 66
Carpets	2,013 90
Ice	275 12
Telephones	468 00
Washing towels	132 00
Sundries	3,545 56
Total	279,045 31
Aggregate amount of expenditures	1,110,739 24

RECEIPTS OVER EXPENDITURES.

Total receipts	$1,286,331 83
Total expenditures	1,110,739 24
Receipts over expenditures	175,592 59

Statement of balance in the Treasury of the United States on account of the patent fund.

Amount to the credit of the fund January 1, 1892	$4,004,317 67
Amount of receipts during the year 1892	1,286,331 83
Total	5,290,649 50
Deduct expenditures for the year 1892	1,110,739 24
Balance January 1, 1893	4,179,910 26

SUMMARY OF THE BUSINESS OF THE PATENT OFFICE.

Number of applications for patents for inventions	39,514
Number of applications for patents for designs	1,130
Number of applications for reissues of patents	109
Total number of applications	40,753
Number of caveats filed	2,290
Number of applications for registration of trade-marks	2,179
Number of applications for registration of labels	458
Number of disclaimers filed	7
Number of appeals on the merits	1,025
Total	5,959
Total number of applications, etc., requiring investigation and action	46,712
Number of patents issued, including designs	23,478
Number of patents reissued	81
Total	23,559
Number of trade-marks registered	1,737
Number of labels registered	6
Total	1,743
Number of patents expired during the year	13,291
Number of patents withheld for non-payment of final fees	3,836

*A literal compliance with the provisions of the statute requiring "a detailed statement of all expenditures for contingent and miscellaneous expenses" is not possible, for the reason that the contingent fund for the several bureaus of this Department was consolidated by the act of March 3, 1883, and hence no part of that fund is disbursed by the Patent Office, and I am furnished only with an approximate sum expended on behalf of the Patent Office.

PATENTS ISSUED.

Patents to citizens of the United States, with the ratio of population to each patent granted.

States and Territories.	Patents and designs.	One to every—
Alabama	104	14,548
Arizona Territory	16	3,726
Arkansas	102	11,060
California	652	1,852
Colorado	225	1,881
Connecticut	781	955
Delaware	33	5,105
District of Columbia	185	1,245
Florida	65	6,021
Georgia	95	19,340
Idaho	18	4,088
Illinois	2,170	1,763
Indian Territory	7	.....
Indiana	653	3,857
Iowa	417	4,584
Kansas	287	4,972
Kentucky	240	7,744
Louisiana	122	9,168
Maine	146	4,527
Maryland	287	3,632
Massachusetts	1,878	1,192
Michigan	794	2,637
Minnesota	386	3,381
Mississippi	55	23,447
Missouri	753	3,558
Montana	67	1,972
Nebraska	209	5,066
Nevada	13	3,520
New Hampshire	112	3,361
New Jersey	1,001	1,443
New Mexico Territory	17	9,034
New York	3,781	1,586
North Carolina	85	19,034
North Dakota	26	7,027
Ohio	1,533	2,395
Oklahoma Territory	3	20,611
Oregon	80	3,922
Pennsylvania	2,130	2,468
Rhode Island	252	1,371
South Carolina	69	16,683
South Dakota	64	5,137
Tennessee	133	13,289
Texas	359	6,227
Utah Territory	50	4,158
Vermont	76	4,373
Virginia	151	10,966
Washington	117	2,996
West Virginia	84	9,060
Wisconsin	507	3,327
Wyoming Territory	11	5,518
United States Army	10	.....
United States Navy	17	.....
Total	21,497	.....

Patents granted to citizens of foreign countries.

Argentine Republic	2	Netherlands	5
Austria-Hungary	66	Newfoundland	1
Belgium	15	New South Wales	16
Brazil	3	New Zealand	6
British Guiana	2	Norway	12
Canada	296	Peru	1
Cape Colony	2	Porto Rico	1
Colombia	1	Portugal	2
Costa Rica	2	Queensland	2
Cuba	9	Reunion Island, Indian Ocean	1
Denmark	5	Roumania	2
Egypt	1	Russia	23
England	653	Scotland	41
France	197	South Australia	3
Germany	507	Spain	5
Guatemala	1	Sweden	34
Hawaii	4	Switzerland	42
Honduras	1	Venezuela	3
India	6	Victoria	25
Ireland	16	West Australia	1
Italy	12	West Indies	1
Japan	2	Total	2,051
Luxemburg	1		
Mexico	20		

The following tables present a comparative statement of the business of the Patent Office since the enactment of the statute of 1836 and exhibit in detail the business of the Office during the last calendar year:

Comparative statement of the business of the Office from 1837 to 1892, inclusive.

Year.	Applications.	Caveats filed.	Patents and reissues.	Cash received.	Cash expended.	Surplus.
1837	.....	.....	435	$29,289 08	$33,506 98	.....
1838	.....	.....	520	42,123 54	37,338 92	.....
1839	.....	.....	425	38,019 97	34,543 51	$4,784 02
1840	.....	.....	473	38,056 51	39,020 67	3,476 46
1841	705	228	495	40,413 01	52,666 87	.....
1842	847	312	517	36,505 63	31,241 43	5,264 20
1843	761	291	519	35,315 81	30,776 96	4,538 85
1844	819	315	497	42,509 26	36,344 53	6,164 73
1845	1,045	380	452	51,078 14	39,395 65	11,680 49
1846	1,246	452	503	50,264 16	46,158 71	4,105 45
1847	1,372	448	638	63,111 19	41,878 35	21,232 84
1848	1,531	533	569	67,576 69	58,905 84	8,670 85
1849	1,628	607	653	80,752 78	77,716 44	3,036 34
1850	1,955	595	1,077	86,927 05	80,100 95	6,826 10
1851	2,193	602	993	95,736 61	86,916 93	8,821 68
1852	2,258	769	872	112,056 34	95,916 91	16,139 43
1853	2,620	996	1,019	131,527 45	132,869 83	.....
1854	2,673	901	961	163,789 84	167,146 32	.....
1855	3,324	898	1,844	216,459 35	179,540 33	36,919 02
1856	4,435	906	2,013	192,588 02	199,981 02	.....
1857	4,960	1,024	2,505	196,132 01	211,582 09	.....
1858	4,771	1,010	2,906	303,716 16	193,193 74	10,522 42
1859	5,394	943	3,710	345,942 15	210,278 41	35,663 74
1860	6,225	1,067	4,538	256,393 59	252,820 80	3,581 79
1861	7,653	1,084	4,819	137,354 44	221,491 91	.....
1862	4,643	700	3,840	215,754 99	182,810 39	32,944 60
1863	5,098	824	3,521	195,593 29	189,414 14	6,179 15
1864	6,014	787	4,170	240,919 98	229,468 00	11,051 98
1865	6,972	1,083	5,020	348,791 84	274,199 34	74,592 50
1866	10,664	1,937	6,616	495,065 38	361,724 28	133,941 10
1867	15,269	2,723	9,450	646,581 92	639,263 32	7,318 60
1868	21,276	3,397	13,015	681,565 86	628,679 77	52,886 09
1869	20,445	3,705	13,378	693,145 81	486,430 74	206,715 07
1870	19,171	3,624	13,986	669,456 76	557,147 19	112,309 57
1871	19,472	3,273	13,321	678,716 46	562,091 64	116,624 82
1872	18,246	3,306	13,033	699,726 39	665,595 00	34,131 39
1873	20,414	3,090	13,590	708,191 77	691,178 98	12,012 79
1874	21,602	3,348	12,864	738,378 17	679,288 41	58,989 76
1875	21,638	3,181	13,599	743,453 36	721,657 71	21,795 65
1876	21,425	3,094	14,837	757,997 65	652,542 60	105,445 05
1877	20,308	2,697	15,595	732,342 85	613,152 62	119,190 23
1878	20,260	2,909	14,187	725,375 55	593,082 89	132,292 66
1879	20,659	2,755	13,444	703,931 47	529,638 97	174,292 50
1880	23,012	3,020	13,213	749,686 32	538,865 17	210,820 15
1881	26,059	2,490	13,947	853,663 89	605,173 28	248,490 61
1882	31,522	2,406	16,584	1,009,219 45	682,987 67	326,231 78
1883	34,576	2,553	19,267	1,146,240 00	675,234 86	471,005 14
1884	35,600	2,741	22,383	1,075,796 80	970,579 76	105,219 04
1885	35,717	2,582	20,413	1,188,080 15	1,024,378 85	163,710 30
1886	35,968	2,513	22,508	1,154,551 40	992,508 45	162,047 95
1887	35,618	2,622	21,477	1,144,509 60	994,472 22	150,087 38
1888	35,797	2,251	20,506	1,118,516 10	973,108 78	145,407 32
1889	40,575	2,481	24,158	1,261,728 05	1,052,955 96	208,772 09
1890	41,048	2,311	26,292	1,340,372 66	1,099,297 74	241,074 92
1891	40,552	2,408	23,344	1,271,385 78	1,139,713 35	131,672 43
1892	40,753	2,290	23,559	1,286,331 88	1,110,739 24	175,592 59

Statement showing the number of the first patent, Design patent, and reissued patent, and the number of the first certificate of registration of a Trade-Mark and a Label issued in each calendar year since July 28, 1836, when the present series of numbers of Letters Patent commenced, together with the total number of each issued during the year.

[The number of patents granted prior to the commencement of this series of numbering (July 28, 1836) was 9,957.]

Year.	Number of first patent and certificate issued in each calendar year.					Number of patents and certificates of registration issued during each calendar year.						
	Patents.	Designs.	Reissues.	Trade-Marks.	Labels.	Patents.	Designs.	Reissues.	Total patents.	Trade-Marks.	Labels.	Total certificates.
1836 (July 28)	1					109						
1837	110					436						
1838	546		1			515		6				
1839	1,061		7			404		13				
1840	1,465		20			458		10				
1841	1,923		30			490		6				
1842	2,413		36			488		13				
1843	2,901	1	49			494	14	11	519			
1844	3,395	15	60			478	12	7	497			
1845	3,873	27	67			475	17	11	503			
1846	4,348	44	78			566	59	13	638			
1847	4,914	103	91			495	60	14	569			
1848	5,409	103	105			584	46	23	653			
1849	5,993	209	128			988	49	30	1,067			None
1850	6,981	258	158			884	83	36	993			1057
1851	7,965	341	184			757	90	25	872			1060
1852	8,622	431	209			890	109	20	1,019			None.
1853	9,512	540	229			846	86	29	961			
1854	10,358	626	258			1,759	57	28	1,844			
1855	12,117	693	286			1,892	70	51	2,013			1064
1856	14,009	753	337			2,315	107	83	2,505			
1857	16,324	860	420			2,686	113	97	2,896			
1858	19,010	973	517			3,467	102	126	3,695			
1859	22,477	1,075	643			4,165	108	231	4,504			
1860	26,642	1,183	874			4,363	183	232	4,778			
1861	31,005	1,366	1,106			3,040	142	147	3,329			
1862	34,045	1,508	1,253			3,221	195	116	3,532			
1863	37,266	1,703	1,369			3,781	176	227	4,184			
1864	41,047	1,879	1,596			4,638	139	248	5,025			
1865	45,685	2,018	1,844			6,099	221	296	6,616			
1866	51,784	2,239	2,140			8,874	294	290	9,458			
1867	60,658	2,593	2,430			12,301	325	400	13,026			
1868	72,959	2,858	2,830			12,544	446	420	13,410			
1869	85,503	3,304	3,250			12,957	506	534	13,997			
1870	98,460	3,810	3,784	1		12,157	737	439	13,333	121		121
1871	110,617	4,547	4,223	122		11,687	905	464	13,056	486		486
1872	122,304	5,42 2	4,687	608		12,200	884	529	13,613	491		491
1873	134,504	6,336	5,216	1,099		11,616	747	501	12,864	492		492
1874	146,120	7,083	5,717	1,591	1	12,230	886	483	13,599	559	232	791
1875	158,350	7,969	6,200	2,150	233	13,291	915	631	14,837	1,138	232	1,370
1876	171,641	8,884	6,831	3,388	465	14,172	802	921	15,795	959	472	1,431
1877	185,813	9,686	7,452	4,247	937	12,920	699	568	14,187	1,216	392	1,608
1878	198,733	10,385	8,020	5,463	1,329	12,345	590	509	13,444	1,455	492	1,947
1879	211,078	10,975	8,529	6,918	1,821	12,133	592	488	13,213	872	355	1,227
1880	223,211	11,567	9,017	7,790	2,176	12,926	515	506	13,947	349	203	552
1881	236,137	12,082	9,523	8,139	2,379	15,548	565	471	16,584	834	202	1,036
1882	251,685	12,647	9,994	8,973	2,581	18,135	851	271	19,257	947	304	1,251
1883	269,820	13,508	10,265	9,930	2,885	21,196	1,020	167	22,383	902	906	1,808
1884	291,016	14,528	10,432	10,822	3,791	19,147	1,150	116	20,413	1,021	513	1,534
1885	310,163	15,678	10,548	11,843	4,3 4	23,331	773	129	24,233	1,067	391	1,458
1886	333,494	16,451	10,677	12,910	4,695	21,797	595	116	22,508	1,029	374	1,407
1887	355,291	17,046	10,793	13,939	5,073	20,429	949	99	21,477	1,133	380	1,513
1888	375,720	17,905	10,892	15,072	5,453	19,585	835	86	20,506	1,059	327	1,386
1889	395,506	18,890	10,978	16,131	5,780	23,360	753	75	24,188	1,229	319	1,548
1890	418,065	19,553	11,053	17,360	6,099	25,322	886	84	26,292	1,415	304	1,719
1891	443,987	20,439	11,173	18,775	6,403	22,328	836	80	23,244	1,762	137	1,899
1892	466,315	21,275	11,217	20,537	6,540	22,661	817	81	23,559	1,737	6	1,743
1893	488,976	22,092	11,298	22,274	6,546							

Respectfully submitted,

W. E. SIMONDS,
Commissioner.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[*BY AUTHORITY OF CONGRESS.*]

VOL. 62.—No. 7. TUESDAY, FEBRUARY 14, 1893. PRICE—$5 per year.

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Notice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 10, 1893.

The attention of attorneys and inventors filing applications for patents is called to the following paragraphs from Rule 51, (4,) Rules of Practice:

Drawings should be made with the fewest lines possible consistent with clearness. * * * Shading (except on sectional views) should be used *only* on concave and convex surfaces, where it should be used sparingly, and may even there be dispensed with if the drawing is otherwise well executed.

The prohibition is not absolute; but drawings will be rejected which, in the opinion of the Office, have such surface shading as makes them objectionable for reproduction in the GAZETTE by photolithography.

W. E. SIMONDS,
Commissioner.

Construction of Statutes Relating to the Registration of "Prints" and "Labels."—Amended.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 9, 1893.

In the publication of this Office entitled "United States Statutes Concerning the Protection and Registration of Trade-Marks and Labels, with the Rules of the Patent Office Relating Thereto, Edition of January 4, 1892," the following matter on page 17 is hereby canceled:

The words "prints" and "labels," as used in this act, so far as it relates to registration in the Patent Office, are construed as synonymous, and are defined as any device, picture, word or words, figure, or figures (not a trade-mark) impressed or stamped directly upon the articles of manufacture, or upon a slip or piece of paper or other material to be attached in any manner to manufactured articles, or to bottles, boxes, and packages containing them, to indicate the contents of the package, the name of the manufacturer, or the place of manufacture, the quality of goods, directions for use, etc.

By the words "articles of manufacture" (to which such print or label is applicable by this act) is meant all vendible commodities produced by hand, machinery, or art.

But no such print or label can be registered unless it properly belongs to an article of commerce, and be as above defined; nor can the same be registered as such print or label when it amounts to a lawful trade-mark, or when its use in connection with the article to which it is applied is arbitrary or fanciful.

And the following is substituted therefor:

These sections of statute (referring to sections 3, 4, and 5 of the act of Congress relating to patents, trade-marks, and copyrights, approved June 18, 1874, 18 Statutes at Large, p. 78) are construed as authorizing the registry of "prints" and "labels." A label is a device or representation borne by an article of manufacture or vendible commodity. A print is a device or representation not borne by an article of manufacture or vendible commodity, but in some fashion pertaining thereto—such, for instance, as a pictorial advertisement thereof. A label cannot be registered if it bear a device capable of sequestration as a trade-mark until after such device is registered as a trade-mark. Both labels and prints, in order to be entitled to registry, must be intellectual productions in the degree required by the copyright law.

The note on page 19 is canceled.

W. E. SIMONDS,
Commissioner.

World's Columbian Exposition.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of February 14, 1893.

Patents	464—No. 491,509 to No. 491,972, inclusive.
Designs	15—No. 22,210 to No. 22,224, inclusive.
Trade-Marks	27—No. 22,456 to No. 22,482, inclusive.
Labels	None.
Reissue	None.
Total issue	506

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	....	Nevada	....	....
Arizona Territory	....	....	New Hampshire	2	....
Arkansas	....	....	New Jersey	20	1
California	21	....	New York	79	7
Colorado	4	1	North Carolina	3	....
Connecticut	19	2	North Dakota	1	....
Delaware	....	....	Ohio	41	1
District of Columbia	2	....	Oklahoma Territory	....	....
Florida	1	....	Oregon	....	....
Georgia	2	....	Pennsylvania	34	3
Idaho	....	....	Rhode Island	4	....
Illinois	28	....	South Carolina	4	....
Indian Territory	....	....	South Dakota	....	....
Indiana	10	1	Tennessee	3	....
Iowa	11	....	Texas	9	....
Kansas	2	1	Utah Territory	1	....
Kentucky	1	1	Vermont	2	....
Louisiana	....	....	Virginia	4	....
Maine	5	....	Washington	2	....
Maryland	6	....	West Virginia	3	....
Massachusetts	42	2	Wisconsin	16	....
Michigan	15	....	Wyoming	....	....
Minnesota	5	3	U. S. Army	....	....
Mississippi	2	....	U. S. Navy	....	....
Missouri	17	2			
Montana	....	....	Total to citizens of the United States	428	25
Nebraska	6	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Mexico	....	....
Austria-Hungary	1	....	Netherlands	....	....
Belgium	....	....	Newfoundland	....	....
Bermuda	....	....	New South Wales	2	....
Brazil	....	....	New Zealand	....	....
Canada	7	1	Norway	....	....
Ceylon	1	....	Roumania	....	....
Chile, Republic of	....	....	Russia	....	....
Cuba	....	....	Scotland	....	....
Denmark	....	....	South Australia	....	....
Ecuador	....	....	Spain	....	....
England	9	....	Sweden	....	....
France	7	1	Switzerland	2	....
Germany	21	....	Victoria	1	....
India	....	....			
Italy	....	....	Total to citizens of foreign countries	51	2
Japan	....	....			

APPLICATIONS UNDER EXAMINATION.

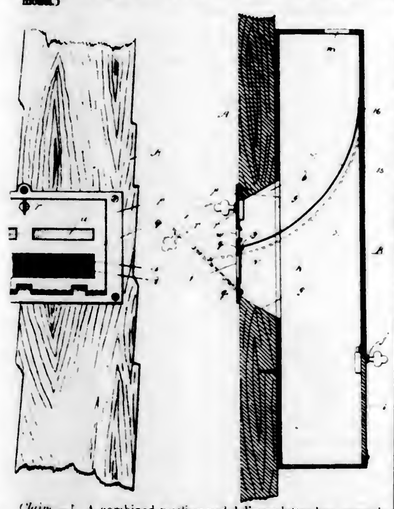
Condition at Close of Business February 7, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Jan. 13	Jan. 31	96
	Between one and two months in arrears.			
2	Farm Stock, Products, etc	Dec. 8	Feb. 1	189
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Dec. 8	Jan. 28	224
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 7	Jan. 25	192
8	Furniture, Toilet, Umbrellas and Canes, etc.	Dec. 10	Jan. 23	286
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone Working, etc.	Dec. 13	Jan. 21	157
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Dec. 8	Jan. 21	175
12	Mechanical Engineering, Stores-Service, etc.	Dec. 12	Jan. 17	252
21	Textiles, etc	Dec. 13	Jan. 13	181
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Dec. 9	Jan. 7	245
13	Metal-Working, Arms and Projectiles, etc.	Dec. 13	Jan. 6	215
7	Harvesters, Games and Toys	Dec. 8	Jan. 3	533
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Dec. 16	Dec. 31	214
10	Carriages and Wagons and Railway-Cars.	Dec. 8	Dec. 30	386
9	Hydraulics, Fire-Extinguishers, etc.	Dec. 8	Dec 17	369
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 10	Dec. 13	224
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Dec. 8	Dec. 8	280
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 7	Dec. 7	285
4	Civil Engineering, etc.	Dec. 7	Dec. 2	365
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 7	Dec. 2	318
	Between two and three months in arrears.			
20	Builders' Hardware, Cutlery, Sales, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Dec. 2	Jan. 11	316
18	Steam-Engineering, etc.	Nov. 22	Jan. 10	202
24	Sewing-Machines and Apparel	Dec. 2	Jan. 5	142
22	Fire-Arms, Navigation, Signals, etc.	Nov. 19	Dec. 31	256
19	Stoves and Furnaces	Dec. 1	Dec. 15	536
1	Tillage and Fences	Nov. 7	Dec. 15	251
	Between three and four months in arrears.			
23	Instruments of Precision, Acoustics, Optics, etc.	Nov. 3	Dec. 27	314
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Oct. 12	Dec. 20	351
17	Paper-Manufactures and Printing.	Oct. 31	Nov. 30	309
	Between four and five months in arrears.			
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Oct. 1	Nov. 25	438
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Sept. 1	Jan. 3	387
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	June 8	Nov. 4	545
	Total number of applications awaiting action			9,233
	Under one month in arrears.			
Designs		Jan. 28	Jan. 28	44
Trade-Marks		Feb. 1	Feb. 2	51

PATENTS

GRANTED FEBRUARY 14, 1893.

491,509. HOUSE-DOOR LETTER-BOX. HENRY E. ALDRICH, Boston, Mass., assignor, by mesne assignments, to the Postal Improvement Company, Norristown, Pa. Filed Mar. 17, 1891. Serial No. 385,351. (No model.)



Claim.—1. A combined mailing and delivery letter box comprising a box attachable to a door around the letter slot thereof a door for said slot and a plate or partition projecting across said box opposite the slot, substantially as described.

2. In a combined collection and delivery letter box, the combination of a support having a letter slot, a box into which said slot leads, a partition in the box opposite the slot, a door for closing the slot, a letter port in the door and a flap for closing the letter port.

3. In a combined collection and delivery letter box, the combination of a support having a letter slot, a box into which the slot leads, a partition in the box opposite the slot, a door for closing the slot, means for locking the door, a letter port in the door and a flap for closing the letter port, substantially as described.

4. In a combined collection and delivery letter box, the combination of a support having a letter port, a box or casing into which said port leads, a partition movable within the casing and a door for closing the port, substantially as described.

5. In a combined collection and delivery letter box, the combination of a support having a letter slot, a box into which the slot leads, a door for closing the port, a movable partition connected to the door and a support for the free end of the partition, substantially as described.

6. In a combined collection and delivery letter box, a door for the letter slot pivoted to swing in one direction provided with a flap pivoted to swing in an opposite direction, and having a letter port, substantially as described.

7. In a combined collection and delivery letter box, the combination of a receptacle having separate compartments communicating with a single opening, a door for said opening and locking mechanism to secure said door against access to one of said compartments, as described.

8. A combined mailing and delivery letter box comprising a box into which the door letter slot opens and a vertically curved plate having one end hinged to the letter slot flap or door and projecting across said box whereby it is divided into two compartments, substantially as and for the purpose set forth.

9. In a device of the character described, the combination of a door, wall or partition provided with a letter slot, with a box or receptacle into which said slot leads, a hinged door for closing said slot, a flap-closed slot in said door, and a movable plate operated by said door and dividing said receptacle substantially as described.

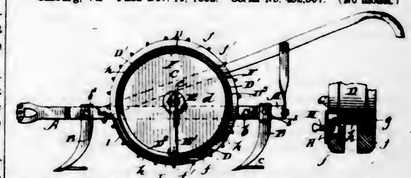
10. In a device of the character described, the combination of a door provided with a letter slot, with a receptacle into which said slot leads provided with a letter opening in its upper portion, a hinged slot door; locking mechanism therefor and a curved, movable bottom in said receptacle hinged to said door, substantially as described.

11. A door or wall provided with a letter slot in combination with a receptacle into which said slot opens, a hinged or pivoted door closing said slot; a lock therefor; a flap-closed letter slot in said door, and a movable partition in the receptacle operated by said lid, substantially as described.

12. In a combined collection and delivery letter box, the combination of a support having a letter slot, a box into which the slot leads, a door for closing the slot having a letter port, an oppositely pivoted flap for closing said port and a movable partition connected with and operated by the lid, substantially as described.

13. The door, A, provided with a letter slot, *b*, in combination with a hinged door closing the outer mouth of said slot; locking mechanism therefor; light openings in said door; a letter slot in said door, a receptacle, as B, provided with an opening, *m*, and discharge, *i*, and a plate, as *x*, hinged to said door above its letter slot its inner end being in sliding engagement with the inner wall of said receptacle, substantially as described.

491,510. SEED PLANTER AND CULTIVATOR. THOMAS F. BAIRD, Gasburg, Va. Filed Nov. 19, 1892. Serial No. 452,567. (No model.)



Claim.—1. The cultivator frame having its rear bar bent inward in a forward direction, and both its front and rear bars provided with bolting plates, and its side bars formed with flat sided journal bearings, in combination with cultivator teeth and a revolving seed hopper, substantially as described.

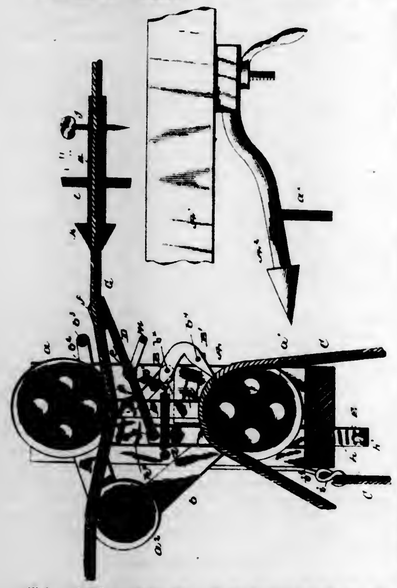
2. The within described seed planter, comprising a supporting frame A having a furrow opening tooth, and journal bearings with flat sides, a stationary axle having a yielding segmental plate F attached to it, a revolving hollow hopper formed of portions rabbeted on their inner edges, and a perforated plate, a slide or slides arranged in relation to the seed passages, and an external seed conductor attached to the frame, substantially as described.

3. The revolving seed hopper formed with a groove, and seed discharge passages in the plane of said groove, in combination with a yielding segmental plate set in said groove and attached fast to a stationary axle, substantially as described.

4. The combination of the slides for regulating the discharge of the seed, attached to adjusting screws, with the revolving hopper having seed discharge passages, and the screw tapped plates attached to the rims of the hopper, substantially as described.

5. The hollow revolving hopper formed of two portions, each having a spurred or toothed rim, and rabbeted on its inner edge, and the two portions connected by a perforated ring plate, in combination with regulating slides, a stationary axle, stationary segmental plate, a cultivator frame having journal bearings with flat sides, and removable confining cap plates, cultivator teeth and a seed conductor, substantially as described.

491,511. COMBINED ELEVATOR AND CARRIER. CHESTER M. BATES, Lehman, Pa. Filed Nov. 7, 1891. Renewed Sept. 1, 1892. Serial No. 444,762. (No model.)



Claim.—1. The combination, with the carriage having the rope-locking device comprising the spring-held dog and the curved levers having their upper, connected ends projecting a short distance beyond the carriage, and the additional spring-pressed lever whose upper end stands in the same vertical plane with the said upper connected ends of the curved levers and projects a short distance beyond the same, of the track having applied or connected thereto the detaching device having a conical head and a short distance in rear of said conical head, a stop adapted, after said head has engaged the connection between the upper ends of the said curved levers, to engage the upper end of said spring-pressed lever, substantially as set forth.

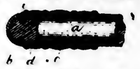
2. The combination, with the carriage and its rope track and the rope-locking device having the connected-together ends of its levers projecting beyond the carriage, of the spring-pressed lever pivoted in said carriage and having its outer end adapted to engage said track and hold it close to the connection between the first named levers of said rope-locking device, substantially as specified.

3. The combination, with the carriage and its rope track and the rope-locking device having its connected ends projecting beyond said carriage, of the spring-pressed lever pivoted in said carriage and having its upper end of pipe-bowl like shape to receive and hold the rope-track close to the connected ends of said rope-locking device, substantially as described.

4. The combination, with the carriage the rope-track, the lever pivoted therein and having a pipe bowl like end engaging said track, the sliding bars connected to said lever and a spring interposed between their lower connecting piece and the bottom of the carriage and adapted to act upon said bars, of the rope-locking device comprising the spring held dog pivoted near its engaging end to the carriage and the curved levers having a cross-bolt connection, at their lower ends, with the upper end of said dog, and their uppper connected ends outstanding from the carriage, being pivoted near said latter ends to the carriage, and means for releasing said rope-locking device, substantially as and for the purpose specified

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491,512. WHIP. CHARLES G. BACKER, Westfield, Mass. Filed Feb. 24, 1891. Serial No. 382,448. (No model.)



Claim.—In a whip, the combination of the stock-butt *a*, the plug *d* abutting the end of the stock and formed with a button on the end thereof, having an annular groove at its base, a ferrule uniting the stock and the plug, and an elastic cap to fit over the button and formed with an inwardly directed annular flange at the entrance of the cap to fit in and engage the annular groove at the base of the button, substantially as described.

491,513. WRENCH. WILLIAM BILL, Montreal, Canada. Filed Nov. 18, 1892. Serial No. 452,457. (No model.)



Claim.—1. A wrench comprising a shank, a fixed jaw solid upon the shank, a sliding jaw having teeth formed on its face contiguous to the shank, teeth formed upon the face of the shank contiguous to the sliding jaw, the teeth of the sliding jaw adapted to mesh with the teeth of the shank, a lever pivotally connected to said shank and adapted to lift the said sliding jaw outward to disengage the teeth of the sliding jaw from the teeth of the shank, substantially as and for the purpose described.

2. A wrench comprising a shank, a fixed jaw solid upon said shank, said shank terminating in and forming a handle, a lever pivotally connected to said shank, a sliding jaw sliding along said lever, teeth formed on said sliding jaw, teeth formed on said shank, the teeth on said sliding jaw adapted to mesh with the teeth on said shank to arrest the longitudinal movement of said sliding jaw, said lever adapted to move said jaw outward from said shank and to throw the teeth of said jaw out of engagement with the teeth on said shank, a longitudinal slot formed in said shank, a pin secured to said sliding jaw and adapted to enter said slot, substantially as and for the purpose described.

491,514. DENTAL FORCEPS. CHARLES R. BLAKE, Sr., San Francisco, Cal. Filed June 27, 1892. Serial No. 438,181. (No model.)



Claim.—1. A dental forceps for back molars, having jaws for grasping a tooth, and provided with a pendent vertically adjustable fulcrum adapted to bear upon the face or crown of the molar tooth in front of it, substantially as described.

2. In a dental forceps having jaws, B. B. a cross bar, *d*, having its ends fitting in holes, *c. c.* in the jaws, a depending fulcrum, or stem, connected with said cross bar, and a base or shoe, A, attached to the lower end of the fulcrum, or stem, substantially as and for the purpose described.

3. In a dental forceps having jaws, B. B., a cross bar loosely supported in said jaws, said cross bar having a nut at its middle, a screw stem, or fulcrum, adapted to be screwed into said nut and a shoe or flat base connected with the opposite end of said screw stem, substantially as described.

4. A dental forceps for back molar teeth, having jaws adapted to rest against the tooth upon its approximate anterior surface, and provided with a fulcrum upon which the wedge-shaped jaws are axially or pivotally and laterally movable, to secure a simultaneous wedging, and a prying, action upon the tooth, substantially as set forth.

491,515. DENTAL FORCEPS. CHARLES R. BLAKE, Sr., San Francisco, Cal. Filed June 27, 1892. Serial No. 438,183. (No model.)



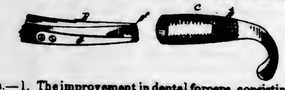
Claim.—The improved dental forceps, having its jaws or beaks each provided with three claws or prongs, the opposite middle prongs being adapted to grip the tooth at the bifurcation between the roots and the side ones to embrace the roots on their posterior and anterior surfaces, substantially as set forth.

491,516. DENTAL FORCEPS. CHARLES R. BLAKE, Sr., San Francisco, Cal. Filed June 30, 1892. Serial No. 438,515. (No model.)



Claim.—In a dental forceps adapted to receive interchangeable and removable beaks or points by means of tenons entering sockets in the stub jaws of the forceps, a transverse key adapted to draw the irregular abutting ends together, substantially as described.

491,517. DENTAL FORCEPS. CHARLES R. BLAKE, Sr., San Francisco, Cal. Filed June 30, 1892. Serial No. 438,516. (No model.)



Claim.—1. The improvement in dental forceps, consisting in making the handles in two telescopic parts, which are interchangeable and reversible, and which are adapted to be locked in position when connected together, substantially as described.

2. In handles for dental forceps, a permanent short handle or stub B, having a spring, *e*, and hook or catch *f*, and a tubular outer portion *c*, having openings *i* on either side to adapt it to be locked in place in either of its reversed positions, substantially as described.

491,518. DENTAL FORCEPS. CHARLES R. BLAKE, Sr., San Francisco, Cal. Filed June 30, 1892. Serial No. 438,517. (No model.)



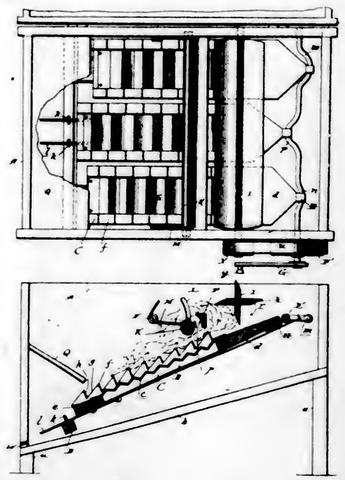
Claim.—The dental forceps having one jaw provided with a single, sharp, dissecting point, triangular in cross section, and its other jaw or beak bifurcated or provided with two claw-shaped prongs or points, substantially as set forth.

491,519. DENTAL FORCEPS. CHARLES R. BLAKE, Sr., San Francisco, Cal. Filed July 26, 1892. Serial No. 441,230. (No model.)



Claim.—A dental forceps having its jaws provided, one, with a two-claw-point, and the other jaw, with a tri-cuspidate or three-claw-point, substantially as set forth.

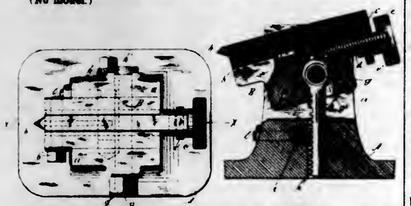
491,520. WASHING-MACHINE. JOSEPH BOUCHARD, St. Anne, Ill. Filed Apr. 16, 1892. Serial No. 429,471. (No model.)



Claim.—1. In a washing machine the combination with a box or case, of a cranked shaft journaled transversely in the upper sides thereof, and a supporting strip arranged transversely in the lower side of said box, reciprocating and oscillating rubbers connected at their upper ends to the respective cranks of the shaft, and having guides at their lower ends bearing upon said lower cross bars, a yielding pressure roll journaled above the rubbers and guarded as described and a rotary beater arranged transversely above the rubbers at their upper ends, substantially as specified.

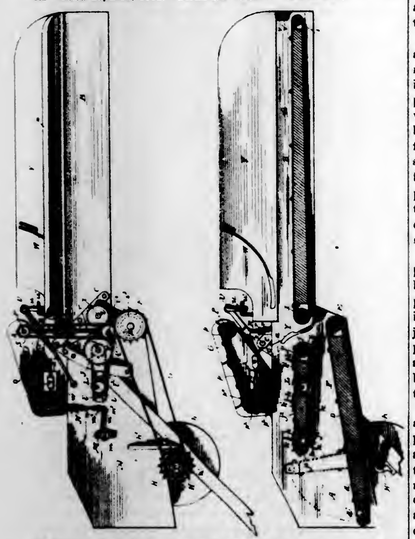
2. The improved washing machine comprising the box or frame provided with an inclined bottom, the cranked shaft journaled transversely in one end thereof, and provided with an operating handle and a belt pulley, the cross bar arranged in the lower end of said box and having the guide eyes, the reciprocating rubbers having the metallic corrugated faces, and the toothed side strips projected above said faces, the guide rods secured to the lower ends of the rubbers and passing through the eyes in the transverse bar, the straps connecting the upper ends of the rubbers with the cranks of the shaft, the pressure roller, arranged above the rubbers and having its journals bearing in curvilinear guides, the springs for exerting downward pressure on said roller, the rotatable beater also journaled transversely above the rubbers, and having a pulley at one end, a belt connecting said pulley with the crank shaft, the guard arranged transversely between the beater and pressure roller, and the deflector arranged transversely above the lower portions of the rubbers, substantially as specified.

491,521. TAIL-STOCK FOR MILLING-MACHINES. JOHN W. BOYNTON, Providence, R. I., assignor to the Brown & Sharpe Manufacturing Company, same place. Filed Mar. 4, 1892. Serial No. 423,701. (No model.)



Claim.—The combination, with a tail-stock provided with upwardly extending arms having vertical slots therein, of a block arranged to slide between said arms, said block carrying a center adjustable therein, a clamp-bolt passing through said block and the slots in the arms of the tail-stock, an eye-bolt through the eye of which said clamp-bolt passes, said eye-bolt being provided at its other end with rack-teeth, and a shaft mounted in the tail-stock, said shaft carrying a pinion engaging the rack-teeth upon said eye-bolt, substantially as described

491,522. BAND-CUTTER AND FEEDER. JOHN C. BRASH, Loami, Ill. Filed Sept. 16, 1892. Serial No. 446,077. (No model.)



Claim.—1. In a feeder for thrashing machines, the combination of the fixed and hinged frame member, the outer frame member hinged to the inner fixed member, an apron platform arranged within the fixed frame member and having an inner pivoted portion, a single endless shattered grain apron passing continuously over the pivoted and unpivoted portions of said platform, the bundle apron arranged in the hinged frame member, a toothed drag apron arranged above the shattered grain apron in a line with the bundle apron, and a spreading apron arranged to travel directly above the drag apron, substantially as set forth.

2. In a feeder for thrashing machines, the combination of the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames, respectively, and a vibrating drag apron arranged above the shattered grain apron and in a line with the bundle apron, substantially as set forth.

3. In a feeder, the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames respectively, a vibrating drag apron arranged above the shattered grain apron in the fixed frame member in a line with the bundle apron, and a spreading apron arranged over the vibrating drag apron, substantially as set forth.

4. In a feeder for thrashing machines, the fixed frame member, the outer frame member hinged to the fixed frame member, the shattered grain and bundle aprons moving through said frames respectively, and in different planes, a vibrating toothed drag apron moving in the fixed frame member over the shattered grain apron therein, and a toothed vibrating spreading apron arranged to move over the drag apron, substantially as set forth.

5. In a feeder for thrashing machines, the combination with the bundle and shattered grain aprons arranged in different planes, of a regularly vibrating drag apron arranged over the shattered grain apron, and a vibrating spreading apron connected with the drag apron and having an inner approximately vertical portion, substantially as set forth.

6. In a band cutter and feeder, the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames, respectively, and in different planes, a vibrating drag apron arranged above the shattered grain apron in a line with the bundle apron, a spreading apron arranged over the vibrating drag apron, and a series of stationary spring knives arranged over and beyond the bundle apron, substantially as set forth.

7. In a feeder for thrashing machines, the combination of the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames, respectively, an apron shaft journaled in the fixed frame member near the outer end thereof, a spring supported drag apron platform pivotally connected at one end to said apron shaft, a toothed drag apron moving over said platform, means for vibrating the platform, and a toothed vibrating spreading apron arranged above the drag apron and connected with the platform thereof, substantially as set forth.

8. In a feeder for thrashing machines, the combination of the fixed and hinged frame members, the shattered grain and bundle aprons moving through said frames, respectively, an apron shaft journaled in said fixed frame member above the apron therein, a drag apron platform pivotally connected at one end to said apron shaft and provided with side pins moving in the sides of said frame and projecting beyond the same, spring coils arranged on opposite sides of the fixed frame member and provided with extended spring arms connected to said side pins, slotted bearings arranged in opposite sides of the fixed frame, a cam shaft passing through the drag apron platform at a point intermediate of its ends and having cams on each end adapted to rotate in said slotted bearings, the toothed drag apron moving over said platform, and the vibrating spreading apron arranged over said platform, substantially as set forth.

9. In a feeder, the combination of the feeder frame and the apron passing therethrough, a vibrating drag apron platform mounted to vibrate in said frame over the apron therein and having spring supported side pins projecting through the sides of the frame, a spreading apron frame pivotally supported above the main feeder frame, adjustable connecting rods connected at their lower ends to said side pins, and adjustably connected at their upper ends to the sides of said spreading apron frame, and the toothed aprons passing over the vibrating platform and through said apron frame respectively, substantially as set forth.

10. In a feeder, the combination of the main feeder frame and the apron passing therethrough, a vibrating spring supported drag apron platform mounted in said frame, sectional adjustable uprights or standards pivotally connected at their lower ends to a suitable point of attachment on opposite sides of the feeder frame, an apron shaft connecting the upper ends of said uprights, an apron frame pivoted at one end to said apron shaft, adjustable connecting rods connecting said apron frame with said drag apron platform, side braces removably connected to the sides of said main feeder frame and to said uprights, and the outer hinged frame member, substantially as set forth.

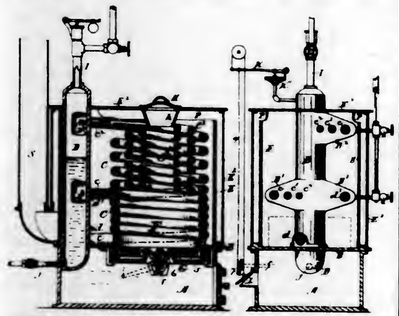
11. In a feeder, the combination of the feeder frame and the apron passing therethrough, a vibrating drag apron platform mounted in said frame, a spreading apron frame pivotally and adjustably supported above the drag apron platform and connected thereto, a drive apron roller at one end of said spreading apron frame, adjustable bearing blocks arranged at the other end of the frame, adjusting rods connected to said bearing blocks, guide rollers journaled in said bearing blocks one above the other, an intermediate under guide roller journaled in said frame, and an endless toothed spreading apron moving over said rollers, substantially as set forth.

12. In a band cutter and feeder, the combination of the fixed and hinged frame members, the separate aprons moving in said frames respectively, a central partition board removably supported centrally above the apron in the hinged frame member, upper cut spring knives secured to opposite sides of said partition board, side cut spring knives secured to the sides of the hinged frame member adjacent to the upper cut knives, and the under cut spring knives projecting beyond the inner end of the apron in the hinged frame member at a point between the upper and side cut knives, substantially as set forth.

13. In a band cutter and feeder, the combination of the feeder frame having flared sides, the endless apron moving through said frame, a cross bar connecting the outer ends of the frame, a supporting rod arranged over the inner end of the frame and provided with a depending central loop, a central partition board resting upon said cross bar at one end and having a supporting hook removably engaging said central loop, upper cut spring knives secured to opposite sides of the partition board and curved toward the inner end of the apron, side cut spring knives secured to the flared sides of the frame adjacent to the upper cut knives, and the under cut spring knives curved around the inner end of the apron from below the same, substantially as set forth.

14. The combination with the endless apron, of the forked spring teeth secured to the apron in transverse and longitudinal series and provided with extended spring tongues adapted to bear upon the body of the apron, substantially as set forth.

491,523. STEAM GENERATOR OR HEATER. FRANCOIS X. BRUNELLE, Worcester, Mass. Filed Nov. 4, 1892. Serial No. 450,970. (No model.)



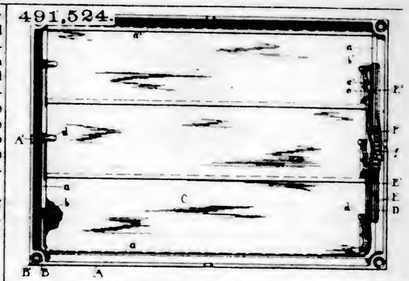
Claim.—1. In a steam generator or heater, the combination as described, of the helically coiled pipes having straight backwardly extended ends, with screw-threaded connections, the trunk or stand-pipe having laterally projecting hollow arms into which said extended ends are connected, the outer and inner upright casings, surrounding both said coils and stand-pipe, and the smoke flue leading from the intermediate space, substantially as set forth.

2. In a steam generator or heater of the character described, the fuel chamber wall formed by a cylindrical section of helically coiled pipe, its coils laid closely upon each other and having backwardly extended ends, in combination, with the base-plate fitted for supporting its lower coil, the upper series of coils comprising several independent sections formed in more open order, and the trunk or stand-pipe, disposed within the furnace-wall but outside the circle of the coils, and provided with laterally projecting hollow arms into which the backwardly extended ends of said coil-sections are connected in their order, substantially as set forth.

3. The fuel-chamber walls formed of closely laid coiled pipes, the overlying coils of more open order, and the central coils of smaller diameter above the fuel chamber forming a passage for the introduction of fuel to said fuel chamber, in combination with the stand-pipe, the fire-grate and the outer and inner inclosing casings having a removable cover above said center coil, as set forth.

4. In a heater or steam generator of the character described, the barrier device M consisting of the flanged frame and swinging valve *m* hinged thereto at *n*; in combination with the pipe coils C^3, and the handle rod *m'* for operating said valve, substantially as and for the purpose set forth.

491,524. HOT-AIR REGISTER. FREDERICK BURMEISTER, Cleveland, Ohio. Filed Sept. 10, 1892. Serial No. 445,571. (No model.)

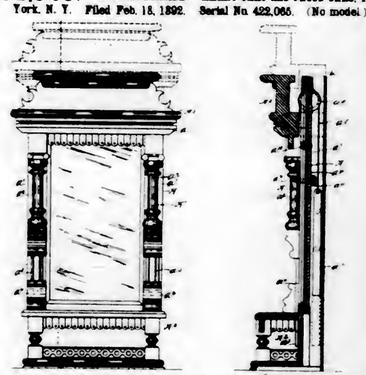


Claim.—1. In a hot air register, a series of leaves provided with trunnions at opposite ends, the lugs *e* and pins *e'*; the frame A having the flange *a* and the bearings *b* and *b'*, said bearings *b'* communicating with the openings *c*; and the reciprocating bar D having the pin *f* and the downwardly projecting ears *f''*, with openings to receive the pins *e'*, in combination with the locking-bar E and slotted segment F, said locking-bar being provided with a flange at the base, the guides E^2 and secured to the end of the frame A, in the manner substantially as and for the purpose set forth.

2. A hot air register consisting of the frame A pierced by the hole G', at one end, and having a perforated boss in each corner, the flanges *a* and *a'*, and bearings *b* and *b'*, said bearings *b* communicating with the openings *c*; trunnioned leaves provided with the lugs *e* and pins *e'*; the reciprocating bar D, locking-bar E, and slotted segment F secured, through the opening G', to said frame, in the manner substantially as and for the purpose set forth

491,524.

491,525. MIRROR-FRAME. HARRY CARO and JACOB CARO, New York, N. Y. Filed Feb. 18, 1892. Serial No. 422,066. (No model.)



Claim.—1. In a mirror frame, the combination with a base, of the stationary frame extending upward from the base and having a mirror, the standards comprised in said stationary frame, the adjustable frame movable on the outer surface of the standards and comprising a head movable above the top of the stationary frame, guides extending from the adjustable frame through slots in the standards, and a counterbalance for the adjustable frame, substantially as specified.

2. In a mirror frame, the combination with a base, of the stationary mirror frame comprising the hollow standards, the adjustable frame having the return portions embracing the outer sides of the standards, sockets through which the lower portions of the adjustable frame are movable, the weights within the hollow standards and flexible connections between the weights and the adjustable frame, substantially as specified.

491,526. SPINNING-RING AND TRAVELER. CHARLES H. CHAPMAN, Groton, Mass. Filed Nov. 19, 1885. Renewed July 7, 1890. Serial No. 357,963. (No model.)

Brief.—To equalize the variation in the tension upon the yarn due to the drag of the traveler, the tension being greatest at the beginning of winding and gradually decreasing, the ring is so constructed with a downwardly curved upper portion and flanged lower part that but one end of the ring engages therewith and is free to swing to and from the center of the ring.

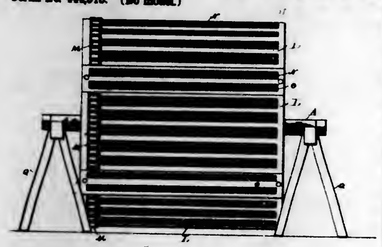
Claim.—1. The ring A constructed of sheet metal with the single rounded and downwardly curved portion as shown, combined with the holder D having the upturned flange *d* projecting inwardly beyond the ring, as set forth, whereby the traveler is held to the ring by one end only and allowed to swing vertically toward and from the center of the ring, substantially as specified.

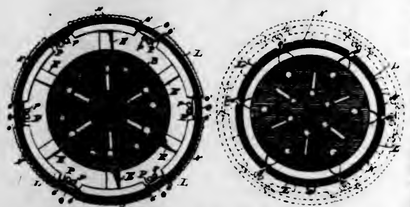
491,526.



2. The traveler ring constructed with the single rounded and downwardly curved portion or lip, and the holder having the upturned flange *d* projecting inwardly beyond the ring, combined with the double-hook shaped traveler secured to the ring by one end only and having its free end adapted to engage the yarn and swing freely toward and from the bobbin as demanded by the tension of the yarn, substantially as described.

491,527. PIPE-CORE. PATRICK CLIFFORD, Rhinelander, Wis., assignor of one-half to Louis Fridet, same place. Filed Aug. 30, 1892. Serial No. 444,515. (No model.)





Claim.—1. In a core barrel, the opposite heads, the staves radially adjustable to and from said heads, slide staves removably placed between said staves, and removable locking strips clamped to each end of the slide staves outside of the heads, substantially as set forth.

2. In a core barrel, the opposite heads, a series of arc staves radially adjustable to and from said heads and provided with raised beads at one end, and longitudinal grooves or serrations in their faces and said beads and slide staves adapted to be removably slid between said staves, and having corresponding grooved faces and locking devices for said slide staves at each end thereof outside of the heads, substantially as set forth.

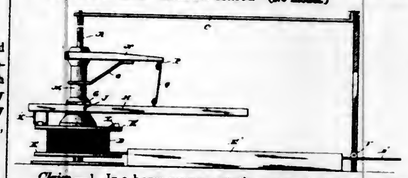
3. In a core barrel, the opposite disk heads having a radial series of guide recesses, radially adjustable toothed stave arms moving in said guide recesses, operating pinions mounted in said heads and engaging the teeth of said arms, and the staves secured to the outer ends of said stave-arms, substantially as set forth.

4. In a core-barrel, the combination of the opposite heads having a radial series of slots, and a radial series of guide recesses, the toothed stave arms moving in said guide recesses, the operating pinions journaled in said heads and engaging the teeth of said stave arms, the adjustment bolts moving in said slots and engaging the inner ends of said stave arms, and the staves secured to the outer ends of the stave arms, substantially as set forth.

5. In a core barrel, the combination with the central spindle or shaft; of the opposite heads, a series of separate arc staves radially adjustable to and from said heads and provided with rabbeted edges, means arranged on the heads for adjusting the staves, and grooved slide staves removably locked between the adjacent staves and engaging the rabbeted edges thereof, substantially as set forth.

6. In a core barrel, the combination with the opposite heads and the radially adjustable stave arms moving therein; of a series of arc staves secured to the outer ends of said stave arms and provided with rabbeted edges, grooved slide staves removably placed between the adjacent staves and engaging the rabbeted edges thereof, and a locking device connected with each end of said slide staves, substantially as set forth.

491,528. HORSE-POWER. EMMETT H. CONDIT, Outville, Ohio. Filed Sept. 20, 1892. Serial No. 447,394. (No model.)



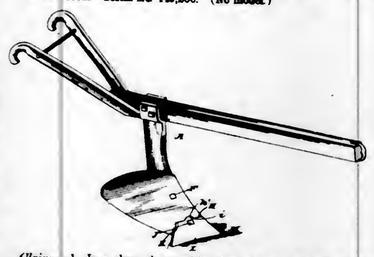
Claim.—1. In a horse power, a stationary vertical shaft, a wheel loosely mounted at the lower end of said shaft and provided with catch lugs, a pivotally mounted sweep lever loosely working over the shaft above said wheel and adapted to automatically engage and disengage said lugs at one end, and a swinging rod support for the long end of said lever, substantially as set forth.

2. In a horse power, the combination of a stationary vertical shaft, a flanged wheel or drum loosely mounted on said shaft and provided with ratchet lugs upon its top side, a collar loosely working on the shaft above the reel or drum, a weighted sweep lever pivoted to said collar and having an inner pawl end adapted to automatically engage and disengage said lugs and a swinging rod support for the long end of the lever, substantially as set forth.

3. In a horse power, a stationary shaft, a horizontal reel or drum loosely mounted upon said shaft and provided upon its top face with a series of ratchet lugs, a collar loosely working on the said shaft over said reel or drum, a weighted sweep-lever pivoted to said collar and provided with a fixed pawl at one end adapted to be automatically thrown in and out of the path of the lugs, a supporting arm loosely supported on the shaft above said lever, and a swinging connection loosely connecting the arm and said lever, substantially as set forth.

4. In a horse power, a stationary vertical shaft, a horizontal reel or drum loosely mounted on said shaft and provided with ratchet lugs, a collar loosely working on the shaft over the reel or drum, a weighted sweep-lever pivoted to and embracing said collar and provided with a fixed pawl at its inner end adapted to be automatically thrown in and out of the path of the lugs, a horizontal supporting arm loosely mounted on the shaft above the lever, a spacing sleeve interposed between the arm and lever and working loosely on said shaft, a diagonal brace rod connected to said horizontal arm and said spacing sleeve, and a swinging supporting rod loosely connected at its ends to said horizontal supporting arm and the sweep-lever, substantially as set forth.

491,529. PLOW. EDWARD S. COOK, Drake's Branch, Va. Filed Oct. 18, 1892. Serial No. 449,206. (No model.)



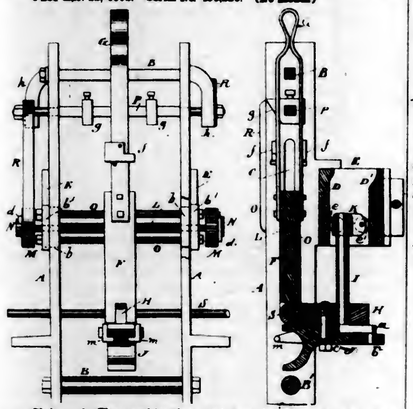
Claim.—1. In a plow, the combination of the standard having an enlarged integral foot plate curved at its front edge and beveled at one side of said curved front edge at C, and a curved securing flange projecting laterally and at an incline from the opposite side of said front edge, the mold board removably bolted to said curved flange and having at its inner edge a curved flange G, which registers with and overlaps the beveled edge C, of the foot plate, and an angular notch at its lower front end, a flat reversible share or point fitting said notch and detachably secured to the front end of the foot plate flange, and a flanged landside removably seated in one side and at the lower edge of the foot plate, substantially as set forth.

2. In a plow, the combination of the standard, the mold board removably secured to the lower end of said standard and provided

with an angular notch at the front end thereof, one of the edges or walls of which is beveled, and a supporting lug projecting from under said beveled edge, and a reversible double pointed share detachably secured to the lower end of the standard and having inner angular corners adapted to register with the angular notch in said mold board, and beveled side edges adapted to register with the beveled edge or wall of said notch and rest upon said supporting lug, substantially as set forth.

3. In a plow, the combination of the enlarged standard foot having an elongated shouldered recess at one side and the lower edge thereof, and a locking notch in one wall of the recess, the removable mold board and share secured to said foot plate, and the landside removably secured within the registering shouldered recess and having an inner projecting locking lug adapted to engage said locking notch and a slide flange lapping the lower edge of the standard foot, substantially as set forth.

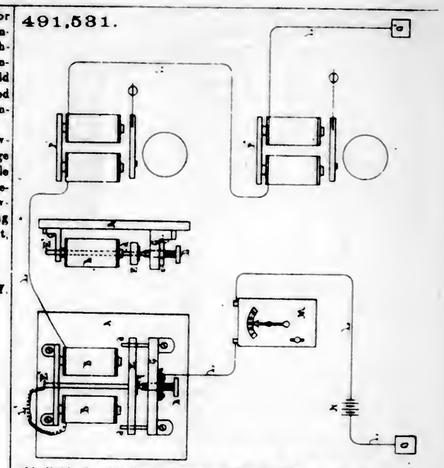
491,530. GRINDING-MACHINE. JOHN H. CRANE, Auburn, N. Y. Filed Apr. 22, 1892. Serial No. 430,239. (No model.)



Claim.—1. The combination, with two slotted standards, of two guide plates supported by said standards, a screw-shaft provided with guides and a column, movable on said screw-shaft, a vertical shaft mounted in a bearing carried by said column and provided with a crank, a pivoted tool-holder attached to said crank, a head-block secured to said vertical shaft, in position to move between said guide-plates, a cam-shaft mounted in said standards, pivoted tripping devices, and rack-bars secured to said cam-shaft and constructed to connect alternately with gearing on said screw-shaft, substantially as set forth and described.

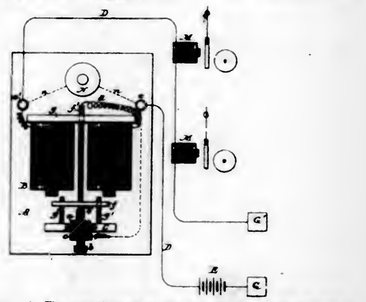
2. In a grinding machine, the combination with a supporting frame, of a screw-shaft L, having movable bearings, a column mounted on said screw shaft, a vertical shaft I carried by said column, a head block, provided with rollers, and connected with shaft I, a crank form and tool holder connected therewith, two guide plates, provided each with a curved inner surface, and mechanism for raising said column and for rotating said screw-shaft, substantially as set forth and described.

491,531.



of individual call bells, the automatically self adjusting regulator, arranged to interpose an air bridge in the circuit to prevent an excess of current, substantially as described.

491,532. ELECTRIC GOVERNOR FOR SIGNALING-CIRCUITS. JACOB B. CURRIER and DAVID H. RICE, Lowell, Mass. Filed Dec. 1, 1892. Serial No. 73,141. (No model.)



Claim.—1. The combination of the electric circuit, the magnet B, located in said circuit, its armature, *f*, arranged to be drawn toward the magnet and increase the resistance by an excess of the electric current, the contact point, *b*, arranged in the circuit to support said armature, and the resistance bridge, N, arranged to shunt a portion of the electric current around said magnet and armature, substantially as described.

2. The combination of the electric circuit, the magnet B located therein, its armature, *f*, arranged to be drawn toward it by an excess of the electric current, the adjustable contact point, *b*, arranged to support the magnet, and the resistance bridge, N, arranged to shunt a portion of the electric current around said magnet, substantially as described.

3. The combination of the electric circuit, a magnet, M, located therein and provided with a vibrating armature arranged to be actuated by a vibratory electric current, the magnet, B, located in said circuit, its armature, *f*, arranged to be drawn toward the magnet and increase the resistance by an excess of the electric current, the contact point, *b*, arranged in the circuit to support said armature, and the resistance bridge, N, arranged to shunt a portion of the electric current around said magnet and armature, substantially as described.

491,581. ELECTRICAL SIGNALING APPARATUS. JACOB B. CURRIER, Lowell, Mass., assignor to the Currier Telephone Bell Company, of Massachusetts. Filed Dec. 15, 1881. Serial No. 47,973. (Model.)

Claim.—1. The combination of an electric circuit, and an automatically shelf adjusting governor placed therein, formed of an electro-magnet and its armature both located in the main circuit arranged to interpose an air bridge in it under the influence of the electric current and regulate the latter, substantially as described.

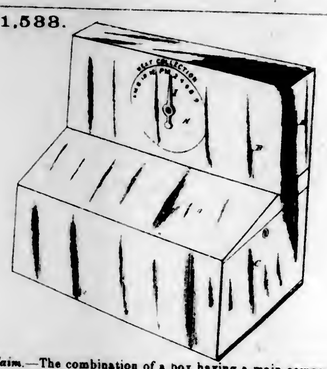
2. The combination of the electro magnet, B, the armature bar E, its electric contact point *f* sustaining the bar, and the electric circuit passing through said contact point, bar and magnet, substantially as described.

3. The combination of the electro magnet B, the armature E, its electric contact point *f* sustaining the same, and mounted on adjusting mechanism arranged to adjust the armature nearer to or farther away from the magnet, and the electric circuit passing through said contact point, bar and magnet, substantially as described.

4. In combination with an electric circuit provided with a series

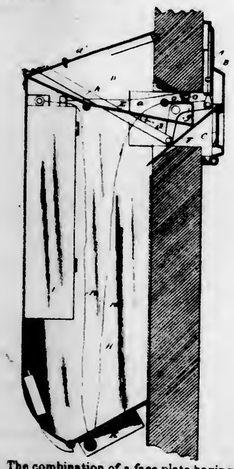
491,588. LETTER-BOX. ALFRED D. COMINGS and ALEXANDER MITCHELL, Wheeling, W. Va., assignors to the Postal Improvement Company, Norristown, Pa. Filed Sept. 23, 1891. Serial No. 406,602. (No model.)

491,533.



Claim.—The combination of a box having a main compartment for holding mail matter and a relatively narrow auxiliary compartment or passage for conducting the mail to the main compartment, a horizontally arranged tilting apron or partition arranged in the passage between the compartments and a vertically arranged swinging door or flap leading to the mail passage to main receptacle, substantially as described.

491,534. HOUSE-DOOR LETTER-BOX. ALFRED D. CUMMINS and ALEXANDER MITCHELL, Wheeling, W. Va., assignors to the Postal Improvement Company, Norristown, Pa. Filed Oct. 3, 1891. Serial No. 408,077. (No model.)



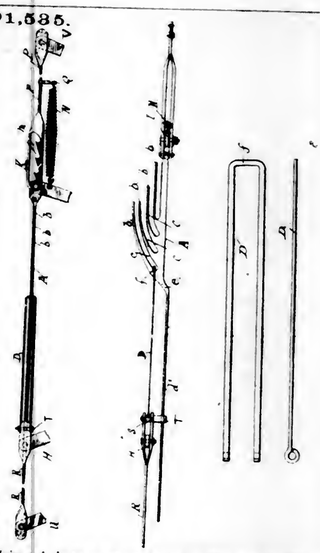
Claim.—1. The combination of a face plate having a port, a door having a mail slot or port, a box or receptacle for mail to be collected, an apron flexibly connected with the box, a flap and means, controlled by the door, for holding the apron above the flap when the door is closed and for permitting it to drop and form a chute over or on to the door when the same is opened, substantially as described.

2. The combination of a face plate having a port, a door having a mail slot, a flap pivoted to the door, a box or receptacle for collection mail, an apron flexibly connected with the box and a tongue connected with the door for holding and dropping the apron, substantially as described.

3. The combination of a mail box, a lid or cover for said box, a door leading from outside a wall to said box, a signal outside the box, a lever directly connected with the signal, a direct connection between the lever and the lid and a catch or dog arranged to engage the signal bar and hold it in adjusted position when the door is closed, substantially as described.

491,535. CAR-BRAKE ADJUSTER. FELIX CYR and JOSEPH W. CYR, Aurora, Ill. Filed July 28, 1892. Serial No. 441,469. (No model.)

491,535.



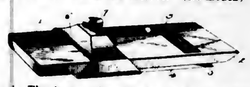
Claim.—1. In an automatic brake-adjuster or "take-up," the slide rod *d*, bent out of line, and provided at such bent portion with a series of fingers *b*, *b*, of different lengths, and a series of slits *c*, *c*, between such fingers, the parts *g*, *g*, of such slits being substantially in line with each other and adapted for a loop or clevis, all as set forth.

2. In combination with rod *d*, provided with the slits and fingers as described, the clevis D., and the notched piece K all as set forth.

3. In combination, the part A, having the fingers and slide rod as described, clevis D., notched piece K, spring N., and cylinder levers H. I., all substantially as and for the purposes set forth.

4. In combination with the brake rods, and brake levers, and with the piston cylinder, and its levers H. I., the fingered part A, *b*, *c*, *d*, having the construction described, the clevis D, part K., having a notched slot *m*, and the spring N., connected to lever I., the combination being and operating substantially as set forth.

491,536. PENCIL-SHARPENER. GEORGE DIEK, Santa Clara, Cal. Filed Nov. 5, 1892. Serial No. 451,076. (No model.)

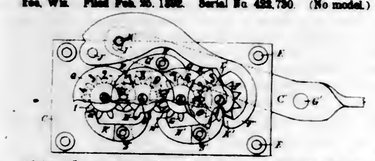


Claim.—1. The herein described pencil-sharpener, consisting of the oblong body-portion, having its front end undercut or beveled and immediately in rear of the same provided with a transverse slot, the blade located upon the under side of and lying flat against said body-portion and having its front end beveled in a direction opposite to that of the body-portion and terminating opposite the slot therein, and devices for securing the blade upon the body-portion, substantially as specified.

2. The herein described pencil-sharpener, consisting of the oblong body-portion having its front end undercut or beveled and immediately in rear of the same provided with a transverse slot, the blade located upon the under side of and lying flat against said body-portion and having its front end beveled in a direction opposite to that of the body-portion and terminating opposite the slot therein, and means for adjustably securing said blade upon the body-portion, substantially as specified.

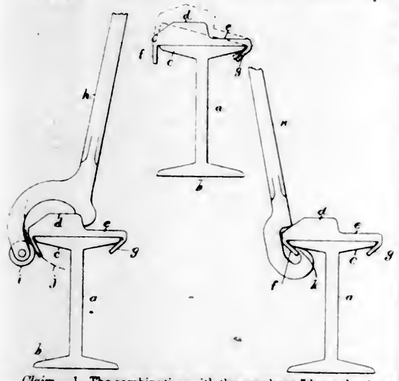
3. The herein described pencil-sharpener, the same consisting of the oblong body-portion formed of hard-wood having its front end undercut, and in rear of the same and contiguous thereto provided with a transverse slot whose front edge is undercut in a direction opposite to that of the front end of the body-portion, the blade located upon the under side of the body-portion and having its front end terminating under the slot therein and beveled in a direction opposite to that of the front end of the body-portion, the rectangular clip embracing the blade and body-portion and having its upper side provided with a threaded perforation, and the thumb-screw passed through the clip and bearing on the body-portion, substantially as specified.

491,537. COUNTING-REGISTER. WALTER N. DURANT, Milwaukee, Wis. Filed Feb. 25, 1892. Serial No. 422,730. (No model.)



Claim.—In an automatic register the combination of the star-wheel F, toothed-wheel G., H. and I., said wheels F., G. and H. being each provided with drums O' affixed to the journals of said wheels; drums O' each provided with recesses P' for the reception of the bearing arm of the locking pawl; a single driving tooth connected with the journals of said wheels and adapted once in each revolution to engage with one of the teeth of and turn the next succeeding wheel in said series; two-arm locking-pawls N', Q' and R', adapted to lock and retain said series of wheels at intervals as they are respectively rotated; vibrating lever C' and one or more electro-magnets adapted as the electric circuit is opened and closed to actuate said vibrating levers C'; all substantially as and for the purpose set forth.

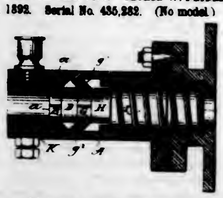
491,538. REMOVABLE CAP FOR STREET-RAILWAY RAILS. JOSEPH A. ESO, Newark, N. J. Filed Sept. 14, 1892. Serial No. 445,851. (No model.)



Claim.—1. The combination with the merchant I-beam having a web *a* and head *c*, as set forth, of the cap provided with the car-tread *d* and wagon-tread *e* having the flange *g* hooked upon one edge of the head *c* and the flange *f* bent cold against the opposite edge, as and for the purpose set forth.

2. The method of forming a continuous rail which consists in applying a flanged and hooked cap upon the heads of two I-beams over the joint of the same, with the hook upon one edge of the said heads, and then bending the flange under the opposite edge of the said heads, as set forth.

491,539. STEAM-PACKING. GEORGE W. FETNER, Columbia, S. C. Filed June 2, 1892. Serial No. 435,282. (No model.)



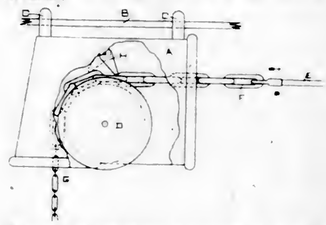
Claim.—The combination with a removable stuffing box having an inner shoulder at one end; of the constant rod packing comprising a fixed sectional packing collar resting against said shoulder and having an interiorly beveled edge, an oppositely beveled inverted V-shape sectional packing ring having one side thereof adapted to register with the inner beveled edge of said collar, a sectional auxiliary female packing ring having an interiorly beveled portion fitting over the opposite beveled side of the inverted V-shaped packing ring and adapted to constantly contact with said ring as the same wears away, and an opposite exteriorly beveled portion, an interiorly beveled packing follower taking over the exteriorly beveled portion of said auxiliary ring, and a packing spring arranged within the stuffing box and bearing against said follower, said auxiliary female packing under the pressure of the spring pressed follower being adapted to follow the diminishing shape of the V-packing ring, and assume the complete shape of the latter to fill the space between the collar and said follower after said packing ring has completely worn away, substantially as set forth.

491,540. ART OF MAKING ICE-TONGS. JOHN S. FIELD, Chicago, Ill. Filed June 9, 1892. Serial No. 436,115. (No specimens.)



Claim.—The process of uniting the handle to the shank of a pair of tongs herein described, which consists in forming the handle in the form of a ring, slitting the top of the shank, forming projections *c* on the side, then uniting the two at a welding heat and forming the said projections into a brace at the junction of the handle and shank, substantially as described.

491,541. LOCKING DEVICE FOR SUSPENDING-LINES. JOHN R. FLETCHER, Dayton, Ohio. Filed Feb. 16, 1892. Serial No. 421,680. (No model.)



Claim.—1. The combination of a movable suspending line with an enlarged portion and a locking dog adapted to hang free from the line proper but to engage the enlarged portion and thus lock the line from motion, and a pulley over which the line passes and to which the dog is opposed.

2. The combination of a suspending line with a locking device, the latter adapted to let the line freely pass and a part connected in such line and adapted to be engaged by the locking device, and a pulley over which the line passes and to which the locking device is opposed.

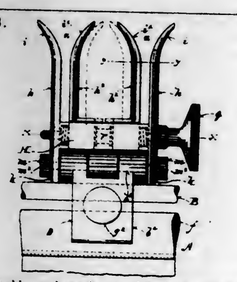
3. The combination of a pulley with a suspending chain adapted to pass thereover, a locking dog in proximity to said pulley and an enlarged chain portion, said dog adapted to engage such portion but to permit the chain proper to freely pass.

4. The combination of a pulley with a suspending line adapted to pass thereover, a locking dog in proximity to said pulley and an enlarged portion on such line, said dog disposed with reference to the pulley so as to engage the large portion where it is between such dog and pulley but to permit the line proper to freely pass.

491,542. REIN-HOLDER. ARSENE FOIST, West Gardner, Mass. Filed Oct. 10, 1892. Serial No. 448,369. (No model.)

Claim.—1. A rein-holder comprising a body attachable to a carriage-dasher; a rigid holder-finger on said body; having its journal spring-tensioned against longitudinal movement; a worm rotatable in said body and a companion finger fitted to travel on said worm.

491,542.

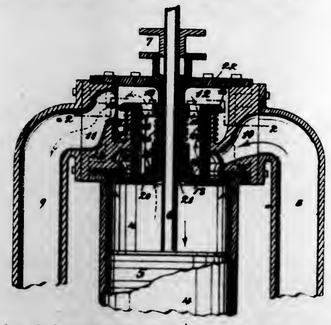


2. In a rein-holder a clamp for attaching it to a carriage dasher; a body pivoted to swing vertically on said clamp; tension mechanism for said body; a right and left hand worm fitted to rotate in said body and having a spring-tension longitudinal movement to its journal; rigid clamping-fingers on said body and companion clamping-fingers mounted to travel in opposite directions on said clamp, substantially as described.

3. In a rein-holder a clamp in combination with the body, H, pivoted thereon and provided with rigid fingers, A_1; a right and left spring-tensioned worm journaled in said body and the fingers, A^1, mounted to travel in opposite directions on said worm, substantially as described.

4. In a rein-holder, the clamp in combination with the body pivoted thereon; the horizontally sliding rotary spindle, p, in said body; the right and left worm, r, on said spindle; the springs, v, tensioning the longitudinal movement thereof; the rigid vertical fingers, i, on said body; and the companion fingers, A^2, fitted to travel on said worm all being arranged to operate substantially as described.

491,543. VALVE FOR PUMPS. HAMLIN F. FREMER, Covington, Ky. Filed Mar. 10, 1892. Serial No. 424,371. (No model.)



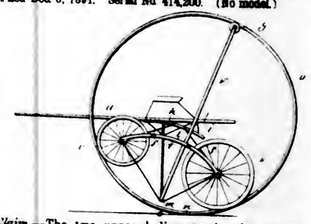
Claim.—1. In a valve-construction for pumps, a valve-chamber having both ingress- and egress-passages 10, and 11, and provided with a valve-way 17, a valve-seat 14, located at one end of the valve-chamber, a valve located within this valve-chamber and provided with a flange 16, which when coming in contact with the upper edge of valve-way 17, limits the drop of this valve and a second valve seated within and against the first valve and guided by an interior boss forming a part of the pump-head, all as substantially shown and described.

2. In a valve-construction for pumps, the combination of a pump-cylinder, a valve-chamber, having both ingress- and egress openings connected to it, a removable valve-seat annulus 14, located between the two former elements and held in place by them, a valve-way 17 located in the valve-chamber, a valve provided with a projecting flange 16, occupying it and limited in its movements by the upper edge of said valve-way and annulus 14, and a second valve seated within and against the valve first mentioned, all as substantially shown and described.

3. In a valve-construction for pumps, a valve-chamber having both ingress- and egress- openings 10, and 11, and valve-way 17, a valve-seat 14, at one end of the valve-chamber, a valve located within this valve-chamber and having connected to it an open head 18, part of which projects over the valve and forms a flange 16, which when coming in contact with the upper edge of valve-way 17, limits the drop of the valve, and a second valve seated within and against the first valve, all as substantially shown and described.

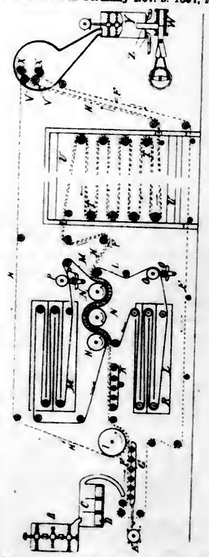
4. In a valve-construction for pumps, a valve-chamber having ingress and egress-openings and provided with a valve-way 17, a valve-seat 14, a valve located within this valve-chamber and provided with a flange 16, a second valve seated within and against the first valve, a spring 25, surrounding the exterior of valve-way 17, and engaging with the underside of flange 16, for the purpose of keeping the first valve normally closed and a spring 26, interposed between the two valves for keeping the second valve normally closed, all as substantially shown and described.

491,544. VEHICLE. SPENCER GARWOOD, Milford Centre, Ohio. Filed Dec. 5, 1891. Serial No. 414,200. (No model.)



Claim.—The two unequal diameter bearing wheels using the smaller in front to rim connected by a portable yoke within a large ground rim in combination with a vehicle axle and frame the axle passing at right angles down through a long slot of the upper part of the portable yoke and pivotally connected at the bottom of said yoke and said yoke connected by stay rods to a curved slide secured beneath the middle of the vehicle axle and frame said slide stayed by slotted braces with diameter bars bolted to middle of upper and lower half of said yoke with guide wheels at the top substantially as described and for the purpose set forth.

491,545. TREATMENT OR DESICCATION OF PEAT. JEAN M. A. GIRARD, Paris, France. Filed Nov. 13, 1891. Serial No. 411,815. (No model.) Patented in Germany Nov. 6, 1891, No. 59,640.

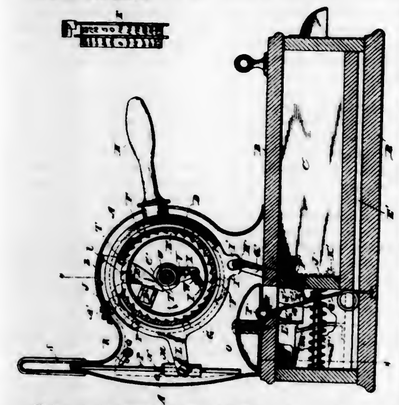


Claim.—1. The combination with the endless traveling wire netting bands, inclosing the peat in a thin layer, of the absorbent endless bands running in contact with the first named bands during part of their course, and pressure rollers and stoves for removing the moisture from the absorbent bands.

2. The combination with the endless traveling wire netting bands, inclosing the peat in a thin layer, of the absorbent endless bands running in contact with the first named bands during a part of their course, pressure rollers and stoves for removing the moisture from the absorbent bands, and guide rollers and stoves for the carrying bands after they leave the absorbent bands.

3. The combination with the endless traveling wire netting bands, inclosing the peat in a thin layer, of the absorbent endless bands running in contact with the first named bands during a part of their course, pressure rollers and stoves for removing the moisture from the absorbent bands, guide rollers and stove for the carrying bands after they leave the absorbent bands, and brushes bearing against the said last named bands for removing the peat adhering to said bands.

491,546. CASH REGISTER AND INDICATOR. HENRY J. GILBERT, Saginaw, Mich., assignor to the National Cash Register Company, Dayton, Ohio. Filed Jan. 5, 1891. Renewed Dec. 31, 1892. Serial No. 456,946. (No model.)



Claim.—1. In a cash register and indicator, the combination of a laterally movable operating handle, an indicator movable therewith to indicate different numbers according to the position to which the handle is moved, and a register actuated by movements of the handle transverse to the line of its lateral movement, substantially as described.

2. In a cash register and indicator, the combination of an operating handle mounted to slide laterally and rock axially upon a fulcrum, an indicator movable laterally with the handle, to indicate different numbers according to the position to which the handle is moved, and a register actuated by the rocking movements of the handle, substantially as described.

3. In a cash register and indicator, the combination of a laterally movable operating handle, an indicator movable therewith to indicate different numbers according to the position to which the handle is moved, a series of independent registering wheels, one for each amount to be indicated by the lateral movements of the handle, and an actuating pawl movable with the operating handle and arranged to engage and turn the registering wheels upon moving the handle transversely to the line of its lateral indicating movement, substantially as described.

4. In a cash register and indicator, the combination of an operating handle mounted to slide laterally and rock axially upon a fulcrum, an indicator movable laterally with the handle, a series of independent registering wheels, and a pawl movable with the operating handle and arranged to engage and turn the registering wheels upon rocking said handle on its fulcrum, substantially as described.

5. In a cash register and indicator, the combination of a laterally movable operating handle, an indicator movable therewith, a series of independent registering wheels arranged in sets of two each, and an actuating pawl carried by the operating handle and co-operating with the primary and secondary wheels of each set in the manner and for the purpose described.

6. In a cash register and indicator, the combination of an operating handle mounted to slide laterally and rock axially upon a fulcrum, an indicator movable laterally with the handle, a series of independent registering wheels arranged in sets of two each, and a pawl carried by the operating handle and arranged to actuate both the primary and the secondary wheels in the manner described.

7. In a cash register the combination of a hollow cylinder having a longitudinal opening, a series of registering wheels inclosed therein and bearing against its inner surface, and an actuating device movable lengthwise of said cylinder and arranged to engage with the several registering wheels and to turn the same by definite intervals, substantially as and for the purposes set forth.

8. The combination of the hollow cylinder an actuating pawl and the registering wheels inclosed therein, and having their bearings against its inner surface said wheels consisting of rings having notched flanges on their outer faces, and the cylinder having an opening to permit the actuating pawl to engage said flanges, substantially as described.

9. The combination of the hollow cylinder, the registering wheels inclosed therein and having their bearings against its inner surface, the operating handle fulcrumed on said cylinder and movable longitudinally thereof, and an actuating pawl carried by said handle and arranged to engage the registering wheels through an opening in the cylinder, substantially as described.

10. The combination of the hollow cylinder, the registering wheels inclosed therein, and having their bearings against its inner surface said wheels being in the form of rings, each provided with a projection on its inner surface, and a revoluble bar within and extending longitudinally of the series of rings near their inner surfaces, and adapted, when revolved, to engage the projections on the inner surfaces of the wheels and turn the latter with it until their projections are all brought into line, substantially as described.

11. The combination of the hollow cylinder, the registering wheels inclosed therein, and having their bearings against its inner surface said wheels being in the form of rings, each provided with a projection on its inner surface, and a revoluble bar within and extending longitudinally of the series of rings and spring-pressed toward their inner surfaces, said bar being adapted to yield to permit the projections on the wheels to pass it during the registering movements of the latter, but to engage said projections and turn the wheels until the projections are all brought into line when it is itself revolved, substantially as described.

12. In a cash register and indicator, the combination of a vertically and laterally movable indicator rod provided with a projection on one of its sides, and a supporting bar having a projection co-operating with the projection on the indicator rod in the manner described.

13. In a cash register and indicator, the combination of an operating handle mounted to slide laterally and rock axially upon a fulcrum, an indicator carried in a guide upon the rear end of said handle and provided with a supporting projection, and a supporting bar having projections arranged to co-operate with the projection on the indicator in the manner and for the purpose described.

14. In a cash register and indicator, the combination of a laterally movable operating handle, an indicator movable therewith, a register actuated by movements of the handle transverse to the line of its lateral movement, a money drawer, and a latch therefor released by the registering movements of the operating handle.

15. In a cash register and indicator, the combination of an operating handle mounted to slide laterally and rock axially upon a fulcrum, an indicator movable laterally with the handle, a register actuated by the rocking movement of the handle, a money drawer, and a latch therefor released by the registering movements of the operating handle.

16. In a cash register and indicator, the combination of a laterally movable operating handle, an indicator movable therewith, a register actuated by movements of the handle transverse to the line of its lateral movement, a money drawer, a latch therefor released by the registering movements of the operating handle, and a latch for automatically locking the operating handle upon the opening of the money drawer and holding it from movement until the drawer is closed.

17. In a cash register and indicator, the combination of an operating handle mounted to slide laterally and rock axially upon a fulcrum, an indicator movable laterally with the handle, a register actuated by the rocking movements of the handle, a money drawer, a spring for throwing it open, a latch for holding it closed released by the registering movements of the operating handle, and a latch acting automatically upon the opening of the drawer to lock said handle and prevent movement of it until the drawer is closed.

18. The combination of the hollow cylinder D, the toothed registering wheels E inclosed therein, the operating handle H fulcrumed on said cylinder and movable longitudinally thereof, and the pawl J carried by said handle, substantially as described.

19. The combination of the hollow cylinder D, toothed wheels E inclosed therein, operating handle H fulcrumed thereon and movable longitudinally thereof, pawl J carried by the handle, and the indicator N movable laterally therewith, substantially as described.

20. The combination of the hollow cylinder D, the registering wheels E inclosed therein, the ring G surrounding the cylinder D with interposed ball bearings, and the handle H and pawl J carried by said ring, substantially as described.

21. The combination of the hollow cylinder D, the registering wheels inclosed therein, the ring G surrounding the cylinder D with interposed ball bearings, and the handle H, pawl J, and indicator N carried by said ring, substantially as described.

22. The combination of the hollow cylinder D, the ring-shaped registering wheels E inclosed therein and provided with projections Y on their inner surfaces, and the bar W revoluble within the registering wheels near their inner surfaces, substantially as and for the purpose described.

23. The combination of the hollow cylinder D, the ring-shaped registering wheels E inclosed therein and provided with the projections Y, the revoluble shaft T' extending longitudinally through the center of the rings, and the bar W supported by said shaft and yieldingly pressed toward the inner surfaces of the wheels, substantially as and for the purpose described.

24. The combination of the hollow cylinder D, the ring-shaped registering wheels inclosed therein and provided with the projections Y, the revoluble shaft T' extending longitudinally through the center of the rings, the arms V tight on the shaft T' at each end thereof, and the bar W hung between said arms and spring-pressed toward the inner surfaces of the wheels E, substantially as and for the purpose described.

25. The combination of the hollow cylinder D, the ring-shaped registering wheels E inclosed therein and provided with projections Y on their inner surfaces, the bar W extending longitudinally through the series of wheels and revoluble in proximity to their inner surfaces, a revolvable support for said bar, and the lid Z of the casing provided with an inwardly extending plate B' co-operating with the revoluble support for the bar W to lock the same when the lid is closed, substantially as described.

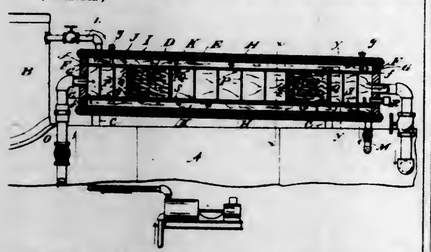
26. The combination of the vertically and laterally movable indicator N provided with a supporting projection P, and the supporting rod Q provided with projections R co-operating with the projection P in the manner described.

27. In a cash register and indicator, the combination of the money drawer C, the bell-crank plates G' G' engaging projections on its sides to hold it closed, the cross-rod H' connecting their upper ends, and the laterally and vertically movable operating handle H co-operating with the rod H' to rock the bell crank plates and release the drawer when said handle is depressed, substantially as described.

28. In a cash register and indicator, the combination of the money drawer C, the bell-crank plates G' G' engaging projections on its sides to hold it closed, the cross rod H' connecting their upper ends, the ring G mounted on the cylinder D containing the registering wheels and provided with projections embracing the rod H', and the operating handle H secured to the ring G, substantially as described.

29. In a cash register and indicator, the combination of the money drawer C, the bell-crank plates G' G' engaging projections on the sides of the drawer to hold it closed, the cross rod H' connecting the upper ends of the plates G' G', the cylinder D containing the registering wheels E, the ring G mounted on the cylinder D and provided with projections embracing the rod H', the operating handle H secured to the ring G, and the latches M' M' co-operating with the projections on the sides of the drawer and with the bell-crank plates G' G' in the manner and for the purpose described.

491,547. **FEED-WATER HEATER AND PURIFIER.** FRANK GOODFELLOW, Springfield, Ohio. Filed July 19, 1892. Serial No. 440,446. (No model.)



Claim.—1. In a feed water heater and purifier, the combination with an outer tube, an inner tube, suitable caps for the ends of said tubes, and steam and water pipes communicating with the space between the tubes and with the inner tube respectively, of a longitudinal strip, and disks carried thereby forming partitions in said inner tube, the said partitions leaving space between their edges and the tube for the passage of the water in sheet-like currents, for the purpose described.

2. In a feed water heater and purifier, the combination with an inner tube and an outer tube inclosing the former and constituting a steam space, of caps closing the ends of said tubes, longitudinal rods to maintain said caps in position, a valve-controlled steam pipe to admit steam into said steam space, a steam and drip discharge pipe, a set of cross partitions mounted on a connecting strip and having cut-away portions at the sides to form sheet-like currents of the water passed through the inner tube, whereby the partitions may be readily removed for cleaning, and effect a thorough heating of the water, and inlet and outlet water pipes to and from said inner tube.

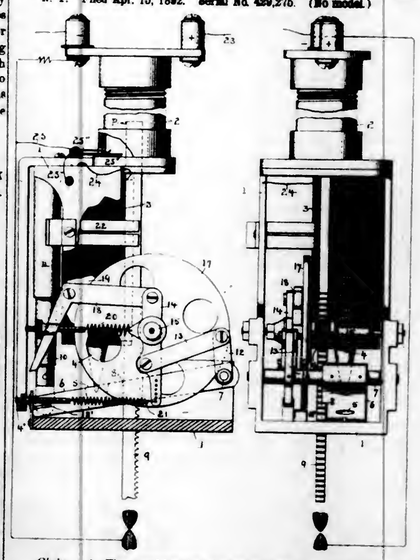
3. In a feed water heater and purifier, the combination with an outer and an inner tube, and closing end caps therefor suitably packed to constitute a steam space between the tube and a water space within the tube, inlet and outlet water pipes therefor through said caps, substantially as shown and described, cross partitions for said inner tube provided with alternately located cut-away portions, adapted to form the opposing water into thin sheet-like currents, and direct them against the walls of said inner tube, perforated partitions provided with an interposed purifying and filtering filling, all the partitions being mounted on a longitudinal strip and adapted to be withdrawn from the inner tube, together with the deposits from the feed water, and thus facilitate cleansing, and a suitable covering or wrapping about the outer tube to obstruct the said loss of heat from said steam chamber.

4. In a water heater and purifier, the combination with an inclosing tube adapted to receive and deliver water, and means to heat said tube, of cross partitions within said tube consisting of disks of nearly the diameter of the tube, and having cut-away portions to form the passing water into thin sheets adjacent to the sides of the tube, and a connecting strip on which said disks are mounted, the disks supporting themselves by contact with the tube and separated by the strip, whereby the strip-connected disks may be withdrawn from the tube for cleaning.

5. In a feed water heater and purifier, the combination with an inclosing tube, of the hereindescribed cross partitions, consisting of disks having cut-away portions near their edges adjacent to the tube, for the purpose described, the cut-away portions alternating in adjacent partitions, to commingle the water currents, and perforated partitions adapted to maintain a filtering filling in place, and a connecting strip for said partitions to preserve their relative positions when mounted within the tube, and allow of removing them therefrom, substantially as and for the purpose described

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491,548. **ELECTRIC-ARC LAMP.** FREDERICK D'A GOOLD, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Apr. 15, 1892. Serial No. 429,275. (No model.)



Claim.—1. The combination, in an arc lamp, of a shunt coil or magnet, an armature therefor, a carbon carrying rod, a pinion in gear

therewith, a brake-wheel for controlling movement of said pinion and rod, a brake-shoe bearing against the wheel, a pivoted lever, one end of which is connected to said brake-shoe and the opposite end of which is operatively connected to the armature, whereby as the armature is raised by the shunt coil the carbon rod is fed forward, substantially as described.

2. The combination, in an arc lamp, of a coil or magnet, an armature therefor, a carbon carrying rod, a pinion in gear therewith, a brake-wheel for controlling movement of said pinion and rod, a lever pivoted on the axis of said brake-wheel and pinion, a lever carrying a brake-shoe secured to said pivoted lever on one side of its pivot, the lever on opposite side of pivot being operatively connected to the armature, and means for carrying the brake-shoe away from the brake-wheel after a predetermined movement of the armature, substantially as described.

3. The combination, in an arc lamp, of a movable carbon carrying rack, a pinion in gear therewith, a brake-wheel on the axis of said pinion, a lever pivoted on said axis, the lever on one side of its axis being connected to an armature, so that when the latter is moved said lever is moved, a brake-lever connected to said pivoted lever on the opposite side of the axis, a brake-shoe carried by the brake-lever and resting against the brake-wheel, an armature, a shunt coil in position to attract said armature, and means to disengage the brake-shoe from the brake-wheel after a definite movement of the armature, substantially as described.

4. The combination, in an arc lamp, of the brake-wheel, the lever pivoted on the axis of said wheel, the brake-lever secured to said pivoted lever on one side of its pivot, the link or arm secured thereto on the opposite side thereof, the pivoted armature, the arm secured to pivot of the armature and to said link, and a coil or magnet adapted to attract the armature, substantially as described.

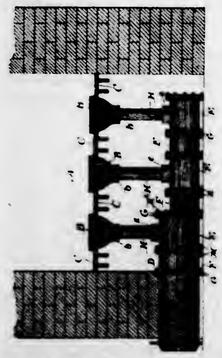
5. The combination, in an arc lamp, with a carbon carrying rod and feed mechanism, of a magnet and armature for operating the same, said armature having an opening in it, and said magnet having a pole projecting into said opening, and a second pole in proximity to the end of the armatnre, substantially as described.

6. The combination, in an arc lamp, with a carbon carrying rod and feed mechanism, of a magnet and armature for operating the same, said armature being pivoted and having an opening in it between the pivot and the end of the armature opposite the pivot, said magnet having a pole projecting into said opening, and a second pole in proximity to the end of the armature, substantially as described.

7. The combination, in an arc lamp, of the carbon carrying rod, a brake-wheel in gear therewith, a brake-shoe held against said wheel when the lamp is out of use, a shunt magnet or coil, an armature therefor, and means operated thereby for gradually moving the brake-wheel, the brake-shoe and the carbon carrying rod forward, and means for moving the brake-shoe from the brake-wheel, whereby it is caused to release its grip on the brake-wheel and allow the carbon carrying rod to slip forward, substantially as described

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491,549. **BLAST-PIPE FOR FURNACE-GRATES.** ELOMO J. GORDON, Greenville, Mich. Filed Sept. 26, 1892. Serial No. 446,906. (No model.)



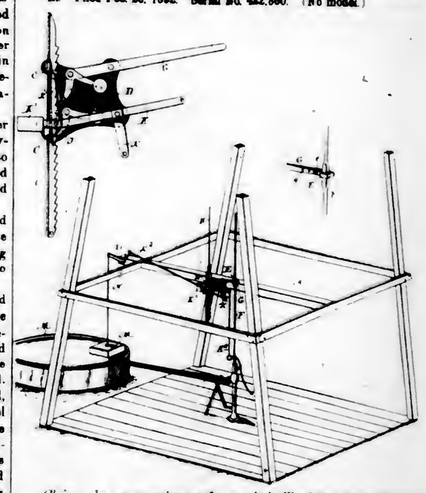
Claim.—1. In combination with a grate composed of hollow blast grate bars and other grate bars placed alternately, a sectional blast pipe comprising alternate T-sections and plain sections removably connected together, said T-sections being arranged directly under the hollow blast grate bars and made of uniform lengths equal to the width of the hollow blast grate bars directly thereover, and connections from each T-section to a hollow blast grate bar, substantially as set forth.

2. In combination with the hollow grate bars of a blast grate having depending receiving collars; the main blast pipe having collars or T-sections provided with interior annular coupling beads, and the vertical connecting pipes received by said collars, substantially as set forth.

3. In combination with the hollow grate bars of a blast grate the main blast pipe comprising alternate T and plain sections having circular end flanges and aligned in sections of two diameters to reduce the blast, the end plain section of pipe of the smaller or reducing section being further provided with an enlarged end flange of the same diameter as the end flange of the larger T-section coupled thereto, substantially as set forth

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491,550. **WINDMILL-REGULATOR.** HERMAN GROSS, Mendota, Ill. Filed Feb. 26, 1892. Serial No. 422,880. (No model.)

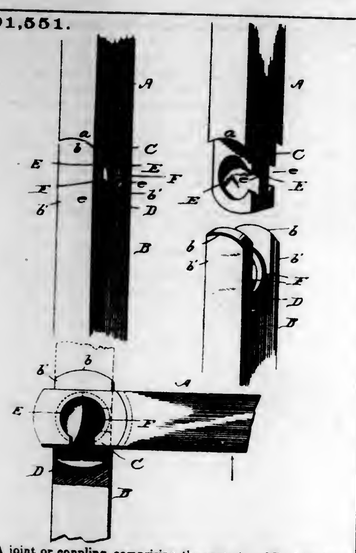


Claim.—In an attachment for a windmill of the character set forth, the combination of a metallic frame D having guides C thereon, a bar C having ratchet-teeth formed on its inner edge only and vertically movable in said guides C, a lever G pivotally connected to the upper part of the said frame and carrying a gravity-pawl 26 on one end thereof adapted to engage the ratchet-teeth of said bar C and provided with a projection h near the engaging end thereof, a pawl J pivotally attached to the frame D below the lever G and pawl H, having a projection j and adapted to hold said bar C in position while the pawl H works the said bar downward, a gravitating bar K pivoted to the lower part of the said frame D having a weight on one end thereof and having an upwardly-projecting arm k' nearer the weighted end thereof adapted to contact with the projection h of the pawl H, and a depending arm k nearer the free end thereof, the free end of said bar K having a cord connected thereto to operate the same to disengage the pawl H from the teeth of the bar C, and said bar K of itself being adapted to engage the projection of pawl J, a cord k^2 attached to the said arm k, a bell-crank lever to one portion of which said cord k^2 is attached, a float connected to the other portion of said bell-crank lever, a wire or cord B secured to the upper portion of the bar C and running to the wheel mechanism, and a pump-rod having a clip E thereon through which the free end of the said lever G passes, substantially as described.

491,551. **PUMP-ROD COUPLER.** BUTLER C. GUERRANT, Memphis, Tenn. Filed May 17, 1892. Serial No. 433,179. (No model.)

Claim.—1. The combination with the parts A and B having at their respective ends a tongue and a recess, the said tongue having circular recesses in its opposite sides and openings in co-incident relation leading from the said recesses through one edge of the said part, of approximately semi-circular projections on the opposing sides of the portions of the other part bordering on the said recess to enter the said recesses in the tongue through the said openings to couple the parts together, substantially as set forth.

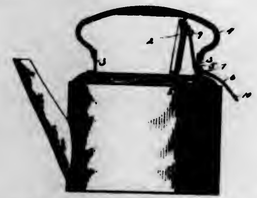
491,551.



2. A joint or coupling, comprising the parts A and B which have a tongue and recess at their respective ends, the tongue having circular recesses in its opposite sides, and having openings leading from the said recesses through one edge of the tongue, and semi-circular projections provided on the opposing sides of that portion of the part B bordering on the said recess and adapted to enter the circular recesses, the sides of the recesses and openings being undercut and the edges of the semi-circular projections being correspondingly beveled, substantially as and for the purpose set forth.

3. The herein shown and described coupler comprising the parts A and B, the part A having tongue C, and having circular recesses E in its opposite sides and openings *e* leading from the said recesses, and having the end of the tongue and the shoulders *a* at the base of the said tongue formed on a circle whose center coincides with the center of the circular recesses E, and the part B having semi-circular projections F on the opposing sides of the separated parts *b'* and *b'*, and having the ends of the said parts *b'* and *b'* formed on the arc of a circle whose center corresponds with the center of the said projections F, the sides of the recesses E, openings *e*, and shoulders *a* being undercut, and the corresponding sides of the parts F and *b* being beveled, substantially as and for the purpose set forth.

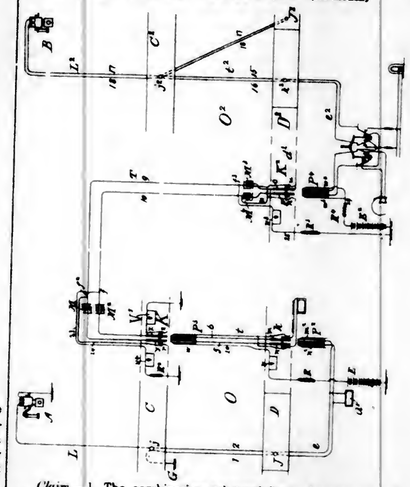
491,552. LID-LIFTING ATTACHMENT FOR KETTLES. CUTHBERT J. HAFEY, Eureka, Kans. Filed Oct. 14, 1892. Serial No. 448,573. (No model.)



Claim.—1. The combination with a vessel, and a lid hinged to the same, of a lever fulcrumed intermediate of its ends in rear of the hinge of the lid and having one end connected with the lid and its other end forming a handle, substantially as described.

2. The combination with a vessel having a hinged lid provided with a loop, ears secured to the vessel at opposite sides of the lid, one of the ears being slotted, and a pintle secured to the slotted ear and extending across the slot, of a lever provided intermediate of its ends with an eye and passing through the slot and receiving the pintle in its eye and having its inner portion loosely fitting in said loop and having its outer portion extending upward and forming a handle, substantially as described.

491,553. TRUNK-LINE SIGNALING APPARATUS AND CIRCUIT FOR TELEPHONE-EXCHANGES. EDWARD J. HALL, Morris, N. J., assignor to the American Telephone and Telegraph Company, of New York. Filed Oct. 13, 1892. Serial No. 448,763. (No model.)



Claim.—1. The combination substantially as hereinbefore described, of two divided switchboards located at different central telephone stations, and each comprising a terminal switchboard at which calls are answered, and a connecting switchboard at which connections called for are made; a series of substation lines centering at each of the said central stations, each passing through a connection device on the connecting board to a second connection device on the terminal board; an office trunk line at each central station extending from a plugsocket at the terminal board to a connecting plug at the connecting board; and a series of link connections at each terminal board, each comprising a flexible conductor and a connecting plug at both ends; with an inter-station trunk line uniting the connecting board at one station with the terminal board at the other station, and represented at each by a plugsocket, the said trunk line comprising a main line section, two inductively connected terminal sections therefor connected with the said plugsockets respectively, and a condenser interposed between each terminal section and the main line to constitute the said inductive connection thereof.

2. The combination of two divided switchboards located at different central telephone stations, each comprising a terminal switchboard at which calls are answered, and a connecting switchboard at which connections called for are made; a series of substation circuits converging to each of the said central stations, each passing through a plug socket on the connection board to a second plug socket on the terminal board; an office trunk circuit at each central station joining a plugsocket at the terminal board to a plug connector at the connecting board; and link connections at each terminal board, each formed of a flexible conductor fitted at both ends with a connecting plug whereby the plugsockets of the substation and trunk circuits may be united; with an inter-station trunk line uniting a plugsocket on the connecting board at one central station, to a plugsocket on the terminal board at the other station, the said trunk line comprising a main line section, two inductively connected terminal sections therefor connected with the said plugsockets respectively, and a condenser interposed at the junction between each terminal section and the main line section; and a system of automatic signals associated with said inter-office trunk line and consisting of a branch circuit at each end, permanently connected to the main line section thereof; one of the said branch circuits being closed through a signal indicator and a retardation coil, and the other including a battery, a retardation coil and a circuit closer being normally open but adapted to be closed by any connection made with its associated plugsocket of said trunk, substantially as hereinbefore described.

3. The combination of two divided switchboards located at different central telephone stations, each comprising a terminal switchboard at which calls are answered, and a connecting switchboard at which connections called for are made; a series of substation circuits centering at each of the said central stations, each passing through a connection device on the connecting board to a similar device on the terminal board; an office trunk line at each central station fitted at the terminal board with a plugsocket, and at the connecting board with a plug connector; and link connections at each terminal board, each formed of a flexible conductor fitted at both ends with a connecting plug adapted for insertion in the line and office trunk sockets; with a double conductor or metallic circuit interstation trunk line uniting a plugsocket on the connecting board at one central station to a plugsocket on the terminal board at the other central station, the said trunk line comprising a double conductor main line section, two inductively connected terminal sections therefor looping to the said plug sockets respectively, and condensers interposed at the junctions between the two ends of each terminal loop section and the corresponding ends of the two conductors of the main line section; and a reciprocal system of automatic signals for said trunk line comprising a branch circuit at each end of both conductors thereof, permanently connected with its main line sections, one branch of each of the said trunk conductors at opposite terminal stations being closed through a signal indicator and a retardation coil, and the other including a battery, a retardation coil and a circuit closer being normally oper in the plugsocket of said trunk line, and adapted to be closed by the insertion of a plug therein, whereby connections and disconnections of said trunk line at either end thereof may be automatically signaled to the other end substantially as specified herein.

4. A double conductor trunk line extending between two telephone stations, the two conductors thereof constituting respectively the direct and return conductors of a conversation circuit, and each severally forming a portion of an independent signaling circuit.

5. A double conductor telephone or conversation circuit, and two independent signaling circuits extending between two telephone stations; the two conductors of the said telephone circuit constituting respectively the main conductors of the said two signaling circuits, substantially as described.

6. In combination with a double conductor interoffice trunk telephone circuit adapted to unite the telephone circuits centering in one office, with those centering in the other; a reciprocal signaling system comprising two independent signaling circuits for indicating at each end of said trunk a connection or disconnection made at the other, the two conductors of said telephone circuit forming respectively the main conductors of the two circuits of said signaling system substantially as described.

7. A double conductor trunk line extending between two distant telephone stations, constituting a main line section common to independent telephone and signaling circuits, the terminals of the remaining portion of said telephone circuit being inductively connected therewith through condensers, and the terminals of the remaining portion of the said signaling circuits being conductively connected with the two main conductors respectively, through electromagnetic resistances, or retardation coils, substantially as described.

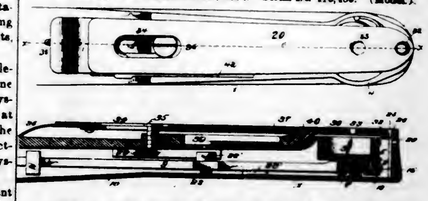
8. An interoffice trunk line; a telephone branch or loop therefor at both terminal offices; and a condenser interposed at each terminus between the said trunk line and loop; combined with a normally closed signal branch including a signal receiving appliance, and an electromagnetic or inductive resistance, connected with said trunk at one of the said terminal offices; a normally open signal transmitting branch therefor, a source of electricity, and means as indicated for automatically closing the said transmitting branch and for including the said source therein at the other of said terminal offices substantially as described.

9. The combination with a double conductor trunk telephone line extending between two stations to form a part of a metallic telephone circuit, and a condenser in the circuit of each conductor at both stations; of an earth terminal branch connected with each end of each of the said conductors, the two earth branches of each conductor including respectively signal receiving and signal transmitting devices, the receiving devices of one and the transmitting devices of the other conductor being at the same station; a battery in one of the earth branches of both conductors, and an electromagnetic resistance or self induction coil in both earth branches of each conductor whereby the two conductors of said trunk line are enabled severally to form portions of independent earth completed signaling circuits, substantially as described herein.

10. The combination substantially as hereinbefore described, of a metallic circuit or double conductor trunk telephone line extending between two telephone stations and having its two main conductors at each of the said stations connected through condensers respectively, with telephone loops to constitute a conversation circuit; with an associated reciprocal signaling system comprising the said two main conductors; a closed branch permanently connected with each at opposite terminal stations, and including a visual signal indicator; and an electromagnetic resistance or retardation coil; and a normally open branch for the other end of each, at the said opposite stations, including a battery or like generator, a similar electromagnetic resistance, and a circuit closer adapted to be operated, and to close and open the signaling circuit by connections or disconnections made with the telephone loop at the same station.

11. The combination of a metallic circuit or double conductor trunk line uniting two central telephone stations and composed of a double conductor main line section, two inductively connected terminal loop sections therefor, one at each station, a springjack in each of the said loop sections, and condensers interposed between the several ends of said loops and the corresponding ends of the main sections to constitute the said inductive connection; with two independent earth completed signaling circuits associated with said double conductor trunk to indicate at either end thereof a connection or disconnection made therewith at the other end; one of the said two signaling circuits being normally closed, and the other normally open at each of the two terminal stations, and each being composed of a separate one of the trunk main line sections, a closed and an open branch permanently connected with said section, an electromagnetic resistance in each of the said branches a visual signaling indicator responding to the closing and opening of the circuit in the closed branch, a circuit closer in the open branch mounted in the trunk springjack, and an electrical generator, whereby the insertion or withdrawal of a plug in or from the springjack at either end of the trunk line is enabled to operate the signal at the other without necessitating special signaling conductors, substantially as described.

491,554. SEWING-MACHINE. WILLIAM H. HANNA, Petersburg, Ill. Original application filed July 31, 1891, Serial No. 401,306. Divided and this application filed Oct. 31, 1891. Serial No. 410,489. (Model.)



Claim.—1. In a sewing machine, substantially as described the supporting arm having a circular shuttle-race and a tapered recess or opening therein at one side of the said circular shuttle-race, and the vertical tubular throat provided with an enlarged tapered base fitted and secured in the tapered recess in the arm, the inner side of the base being concentric with the circular wall of the shuttle-race, as and for the purpose described.

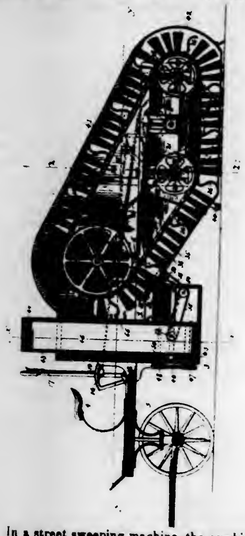
2. In a sewing machine, substantially as described, the supporting arm provided with a shuttle race and with a tapered recess or opening at one side of said shuttle race and the transverse hole in the arm below said recess or opening, and a tubular needle throat having an enlarged tapered base fitted snugly in said recess or opening in the arm, on the line of the transverse opening therein, for the purpose described.

3. In a sewing machine, substantially as described, the combination with a supporting arm and the vertical needle throat, of the vibrating throat plate having the spaced needle orifices and the longitudinal slot, the fixed stud fitted in said slot, and a reciprocating slide having means for actuating the vibrating plate vertically, as and for the purpose described.

4. In a sewing machine, substantially as described, the combination with the supporting arm and the vertical needle throat, of the longitudinally adjustable vibrating plate provided with the needle-orifices and the slot, a fixed stud fitted in said slot, a spring normally bearing against the vibrating plate to depress the same, and a reciprocating slide having means for lifting said vibrating plate, as and for the purpose described.

5. In a sewing machine, substantially as described, the combination with a supporting arm and a vertical needle throat, of the slotted vibrating plate having the spaced needle-orifices, the fixed stud in said slot of the plate, the spring attached to the heel of the vibrating plate, the stops on the arm in line with the spring and plate, and the reciprocating slide having means for actuating the vibrating plate, as and for the purpose described.

491,555. STREET-SWEEPER. HALE R. HAWK and OLIVER W. JOHNSON, Bucyrus, Ohio; said Johnson assignor to said Hawk, Alliance, Ohio. Filed June 30, 1891. Serial No. 396,974. (No model.)



Claim.—1. In a street sweeping machine, the combination with the framework, the upper and lower sprockets, and the endless brush-carrying belts, of an axle mounted in boxes, vertical guides for the boxes, and means for vertically adjusting said boxes in their guides, substantially as specified.

2. In a street sweeping machine, the combination with the framework having vertical guides, upper and lower sprockets, broom-carrying belts mounted on the sprockets and means for operating the sprockets, of an axle, boxes for the same mounted in the guides, wheels mounted on the axle, a lever pivoted to the frame and provided with a locking means, a bell-crank mounted in the frame, a link connecting the same with the boxes and a connecting rod between the bell-crank lever and the first mentioned lever, substantially as specified.

3. In a street-sweeper, the combination with a frame-work having bearings 9, vertically-arranged front and rear guides, and upper bearings located beyond the said front guide, of an axle mounted in bearings 9 and carrying drive-wheels, a shaft mounted in the upper bearings, sprocket-wheels mounted on the shafts, a brush-carrying belt connecting the same, driving mechanism between this axle and one of the shafts, and means for vertically adjusting the shaft-bearings which are mounted in the guides, substantially as described.

4. In a street sweeping machine, the combination with the framework having the upper bearings and the pairs of vertical guides, of boxes mounted in the guides, set screws for raising and lowering the same, shafts mounted in the boxes and in the upper bearings mounted on the shafts, means for driving the same, and brush-carrying belts mounted on the sprocket wheels, substantially as specified.

5. The combination with the endless chains, of the blocks secured to the opposite links thereof and provided with cleaning agents, and the bars 61 secured to the ends of the blocks, each of the bars being rearwardly extended and taking under the next succeeding bar, substantially as specified.

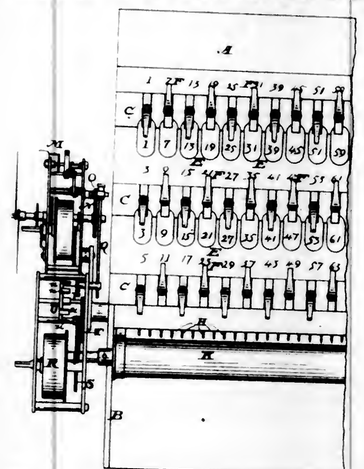
6. In a street sweeper, the flat table 31, arranged directly over the point where the sweeper comes in contact with the ground and provided with rollers 32, combined with the sprocket chains 30 arranged to run under the table against the rollers, and carrying the brushes, as set forth.

7. In a street sweeper, the chains 30 provided with transverse cleats 34, some of which are provided with brushes 35, while the others are provided with curved steel scrapers 36, arranged between the brushes, and the flat bars or plates 61* secured to the cleats and overlapping one another whereby the cleats are prevented from turning when the brushes and scrapers are in contact with the ground, as set forth.

8. In a street-sweeper, the framework provided with the ground wheels combined with the endless chains carrying the sweepers, supports therefor, the inclined apron hinged to the framework and over which apron the endless chain with its sweepers travels, and the braces or suspension-rods 39 39 for supporting the apron, and the wheel 40 carried by the apron to run on the ground, as set forth.

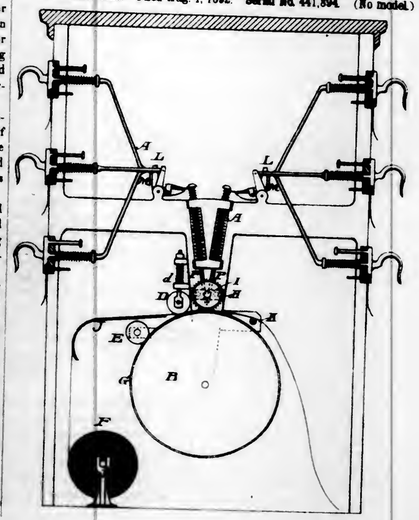
9. In a street-sweeper, the combination with the sprocket-chains 30 arranged to run in operative relation with the ground, of brushes carried by said chains, sprocket-wheels for the chains, and adjusting boxes for the shafts of the sprocket-wheels, substantially as described.

491,556. WORKMAN'S TIME-RECORDER. GEORGE W. HERRE, Cleveland, Ohio. Filed Feb. 9, 1892. Serial No. 420,923. (No model.)



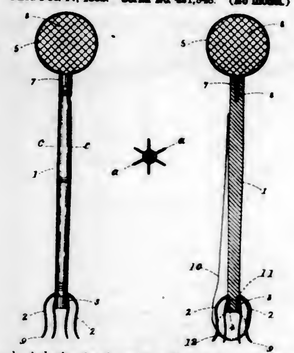
Claim.—In a workman's time recorder the combination of chart carrying roller K, gear S mounted on chart roller shaft, motor spring and gears R R, gear T, armed wheel U, tripping mechanism O P Q and clock M, constructed and arranged to operate substantially as and for the purpose set forth.

491,557. WORKMAN'S TIME-RECORDER. GEORGE W. HERRE, Cleveland, Ohio. Filed Aug. 1, 1892. Serial No. 441,894. (No model.)



Claim.—In a workman's time recorder a chart printing cylinder B rotated in unison with and by a clock, feed wheels H H journaled over and adapted to convey paper over said cylinder; a spring bearing impression roller D, an inking roller E in combination with punch mechanism substantially as described and for the purpose set forth.

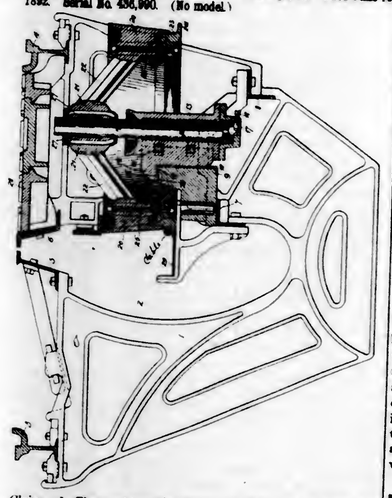
491,558. BALL-THROWING DEVICE. JULIAN P. HILL, Buffalo, N. Y. Filed Feb. 17, 1892. Serial No. 421,843. (No model.)



Claim.—1. A device for throwing balls, consisting of a handle, 1, a series of spring fork tines, 2, having their lower ends curved outward so as to adapt them for catching over and clasping a ball, and a cord, 10, for holding the ball until it is desired to let it go, substantially as and for the purposes described.

2. A device for throwing balls, consisting of a handle, 1, having a series of spring forks, 2, secured thereto by having the ends bent so as to pass down inside of the ferrule 3, and the ends 4 bent over the end of the handle so that their points meet, substantially as described.

491,559. MEANS FOR MOUNTING PULLEYS IN CURVES OF CABLE RAILWAYS. ELMER A. HOVEY, Chicago, Ill. Filed June 16, 1892. Serial No. 436,990. (No model.)



Claim.—1. The combination of a bracket 9 having its upper side provided with a recess 10, a journal box 13 having a lateral tongue 14 at its upper end portion which is provided with a lug 15 engaging the recess of the bracket, a shaft 19 located in the journal box, and a pulley 20 on the shaft, substantially as described.

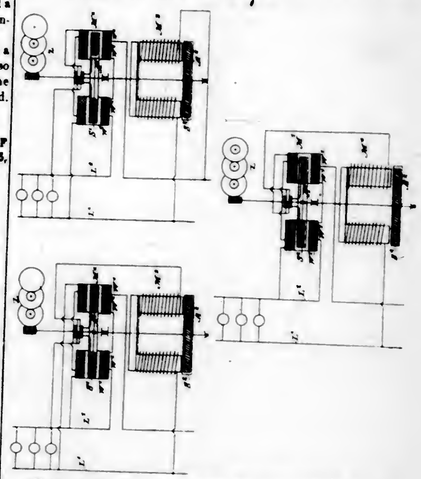
2. The combination of a bracket 9 having a concave recess 12 and provided at its upper side with a recess 10 and a lug or web 11, a journal box 13 fitting the concave recess and having a laterally projecting tongue 14 at its upper end portion which is provided with a lug 15 engaging the recess and the lug or web of the bracket, a shaft 19 arranged in the journal box, and a pulley 20 mounted on the shaft, substantially as described.

3. The combination of a bracket 9 having its upper side provided with a recess 10, a journal box 13 having a laterally projecting tongue 14 at its upper end portion which is provided with a lug 15 engaging the recess of the bracket, a key 16 extending through the bracket and journal box for detachably locking the latter in place, a shaft 19 arranged in the journal box, and a pulley 20 mounted on the shaft, substantially as described.

4. The combination, with a supporting bracket, of a journal box carried by the bracket and having a cup-shaped recess at its upper end, a pulley shaft journaled in and projecting above the journal box, and a pulley having its hub secured to the pulley shaft above the journal box and provided with oil passages which extend from the upper to the lower side of the hub for conducting oil into the cup shaped recess of the journal box for lubricating the latter, substantially as described.

5. In a cable railway having a suitable opening in its roadway, a journal box 13 supported in the cable conduit, an upright pulley shaft 19 solely supported by the journal box at its lower end and removable vertically therefrom, and a cable pulley 20 detachably mounted on the upper end of the pulley shaft at a point above the journal box, said pulley shaft being removable from the pulley so that the latter can subsequently be tilted and removed through the opening in the roadway, substantially as described.

491,560. COULOMBE-COUNTER. GEORGE HUMMEL, Nuremberg, Germany. Filed Feb. 16, 1891. Serial No. 381,645. (No model.) Patented in Germany Sept. 20, 1887, No. 43,487.



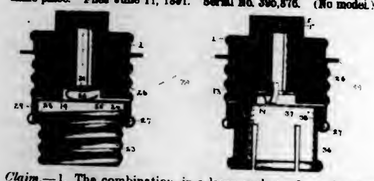
Claim.—1. In a registering meter for electric current the combination of an electric motor the stationary coils of which forming the field magnet of the said motor are traversed by the current to be measured and the movable coils of which in a shunt circuit form its armature, with a damping device consisting of a disk or cylinder of conducting material driven from the armature shaft, the magnets M^1 in the circuit arranged to act upon the damping device, the connection between the damping disk and the armature shaft being positive and non-yielding and the registering device in positive connection with the damping disk substantially as described.

2. In a registering meter for electric current the combination of an electric motor the stationary coils of which forming the field magnet of the said motor are traversed by the current to be measured having no iron in its magnetic field and the movable coils of which in a shunt circuit form its armature, with a damping device consisting of a disk or cylinder of conducting material driven from the armature shaft, the magnets M^1 in the circuit arranged to act upon the damping device, the connection between the damping disk and the armature shaft being positive and non-yielding and the registering de-

vice in positive connection with the damping disk substantially as described.

3. In a registering meter for electric current the combination of an electric motor the stationary coils of which forming the field magnet of the said motor are traversed by the current to be measured and the movable coils of which in a shunt circuit form its armature, with a damping device consisting of a disk or cylinder of conducting material moving in a constant magnetic field and a supplementary coil joined in series with the armature for the purpose set forth substantially as described.

491,561. INCANDESCENT-LAMP SOCKET. JOSEPH HUTCHINSON, New York, N. Y., assignor to the Edison General Electric Company, same place. Filed June 11, 1891. Serial No. 395,876. (No model.)



Claim.—1. The combination, in a lamp socket, of a socket base having an insulating body, a metal terminal thereon, having means for connecting it to an external supply circuit, a removable metal contact piece fitted to said terminal, and having an extension projecting into the path of one terminal of a lamp and a second contact for the other terminal of the lamp, substantially as described.

2. The combination, in a socket, of a body, a central socket contact suitably supported, means for connecting a supply wire thereto, a sleeve socket contact, and a spring or contact device to which a wire of a supply circuit may also be connected, said contact device being formed to make contact with said sleeve contact and being of such shape as to be adapted also to make contact with an edge terminal on a lamp base when the sleeve contact is removed, whereby by changing the central contact and by removing the sleeve contact, the socket is adapted for a different style of lamp, substantially as described.

3. The combination, in a lamp socket, of the insulating body, the body being provided with a grooved or socketed part and a contact device fitting or adapted to fit the same, and a second contact device, substantially as described.

4. The combination, in a lamp socket, of the insulating body, a metal terminal secured to the body and having a groove at each edge, a contact piece fitting into said groove, and a second contact device, substantially as described.

5. A lamp socket base the body of which is of molded insulating material and which has an opening through it for the passage of wires, and extensions formed integrally with the body of the base, in combination with terminals partially embedded in the extensions, whereby said terminals are held in place and detachable contacts connected to said terminals and means for connecting an external supply circuit thereto, substantially as described.

6. The combination, in a lamp socket base, of a metal cap, a metal sleeve within it, a molded body of insulating material in the cap, and having integral screw-threaded extensions, terminals supported on said extensions, and a screw-threaded sleeve fitting onto the said extensions, substantially as described.

7. The combination, in a lamp socket, of a base of insulating material and having screw-threaded extensions, and a screw-threaded sleeve fitting onto said extensions and projecting beyond said extensions, substantially as described.

8. The combination, in a lamp socket, of a metal cap, an insulating body therein, and having screw-threaded extensions rising above the cap, contacts adapted to co-operate with the terminals of an incandescent lamp supported on the extensions of the insulating body, a screw-threaded metal sleeve supported by said extensions, said sleeve having a shoulder at its outer end, an insulating ring within the sleeve and resting against the shoulder, and a metal sleeve within the insulating ring and adapted to receive a lamp, substantially as described.

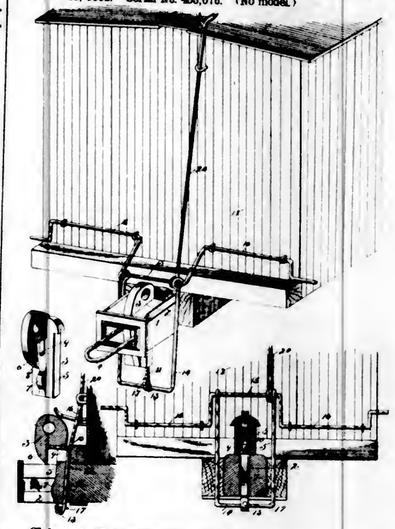
9. The combination with the body of a socket, of a sheet metal sleeve on said body and having an end bent at an angle to the body and provided with retaining devices for a shade, substantially as described.

10. A shade supporting device consisting of a sheet metal sleeve adapted to form a part of a lamp socket and having an end bent at an angle to the body and provided at the outer end of the bent portion with retaining devices for a shade, substantially as described.

11. The combination of the socket base, the metal sleeve supported thereon and having a shoulder at one end, an insulating ring within the sleeve and resting against the shoulder, and a second metal sleeve having a shoulder, said sleeve passing through the insulating ring and the shoulder bearing against it, substantially as described.

12. The combination of the metal sleeve having a shoulder at one end forming a part of a lamp socket, an insulating ring within the sleeve and resting against the shoulder, and a second metal sleeve having a shoulder, said sleeve passing through the ring and having its shoulder also resting against the ring, substantially as described.

491,562. CAR-COUPLING. DOCTOR R. JONES, Creighton, Mo. Filed Nov. 25, 1892. Serial No. 453,076. (No model.)



Claim.—1. The combination of a draw-head having a longitudinal opening and provided with a vertical slot, a catch mounted in the slot of the draw-head and provided with a longitudinal slot, a lifting bar arranged longitudinally of the catch and extending below the same and provided at its upper end with an arm arranged in the slot of the catch, and means for raising and lowering the lifting bar, substantially as described.

2. The combination of a draw-head having a longitudinal opening and provided with a vertical slot T-shaped in horizontal section, a catch arranged in the slot of the draw-head and consisting of a slide and a hook and provided with a slot, a lifting bar arranged back of the catch and provided with an arm arranged in the slot of the catch, and means for raising and lowering the lifting bar, substantially as described.

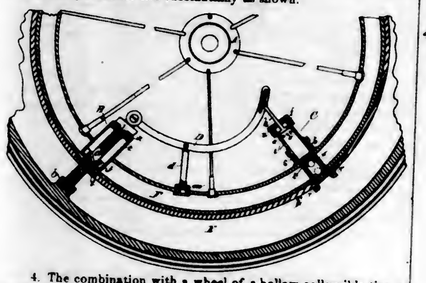
3. The combination of a draw head having a longitudinal opening and provided with a vertical slot T-shaped in horizontal section and having a groove at the back thereof, a catch mounted in the slot and consisting of a slide and a hook and provided with a vertical slot, a lifting bar arranged back of the slide in the groove of the draw-head and provided at its upper end with an arm arranged in the slot of the catch, a rock-shaft arranged transversely of the car and provided with a bend forming an arm, a rectangular link frame connected to the lower end of the lifting bar and extending upward at opposite sides of the draw-head and connected to the bend of the rock-shaft, and a rod extending upward from the end of the rock-shaft to the top of the car, substantially as described

491,563. AUTOMATIC INFLATING DEVICE FOR RUBBER TIRES. ROBERT M. KEATING, Springfield, Mass. Filed Dec. 5, 1891. Serial No. 414,075. (No model.)

Claim.—1. In combination with a wheel and hollow tire, a pump, an actuating device having a rod attached to the inner wall of the outer portion of the tire and a fulcrumed lever connecting the pump and actuating device substantially as described.

2. In an inflating device for pneumatic tires the combination of a connecting rod *g*, and collapsible sleeve *c* arranged as shown, a pump and suitable connecting mechanism substantially as and for the purposes stated.

3. The combination of an actuating mechanism, a pump and a fulcrumed lever, the short arm of which is attached to the actuating mechanism and the long arm to the pump all in combination with a wheel and pneumatic tire substantially as shown.



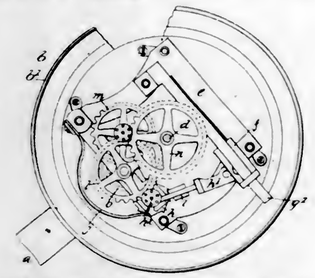
4. The combination with a wheel of a hollow collapsible tire, a pump mounted upon said wheel and a rod for actuating said pump, one end of which rod is secured to the interior portion of said tire and suitable air passages and connecting mechanism, substantially as shown.

5. The combination of a wheel having an inflatable tire, with an actuating device and pump, the pump having connection with the tire and the actuating mechanism being mounted upon the rim and connected with the tire, by a rod passing through the inner wall of the tire and connecting with the outer wall or tread and means to communicate motion from the actuating mechanism to the pump substantially as described.

6. The combination of the pump barrel provided with an annular outwardly turned flange, a hollow tire and a rim each provided with an opening to receive the pump, and a collar as *s* mounted upon the pump body to compress the rim and inner tire wall between said collar and flange, a fulcrumed lever to operate the pump and means to operate said lever substantially as and for the purposes stated.

7. The combination of a wheel and a hollow tire provided with openings for the operation of the connecting rod, with a collar i provided with an annular flange and arranged to engage the inner wall of the tire and a nut *j* and sleeve *c* one end of which sleeve is grasped between the nut *j* and flange upon the collar i substantially as shown.

491,564. REGISTERING DEVICE FOR TEXTILE-FABRIC MACHINES, &c. MAYRO KENNEY, Somerville, Conn. Filed Feb. 12, 1892. Serial No. 421,356. (No model.)

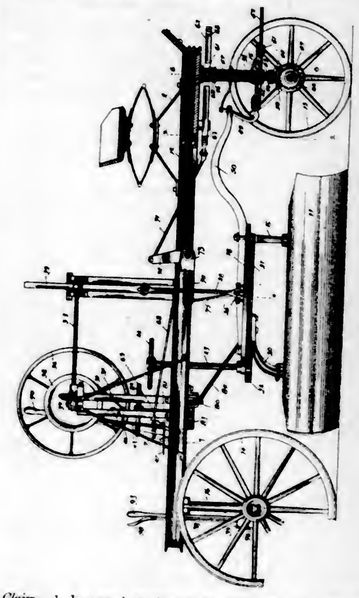


Claim.—1. In a registering device in combination with a swinging or rotary part the registering mechanism comprising a gravity operated slide, a detent wheel having a movement in one direction, a detent lever connecting the detent wheel and the slide, a train of gear wheels, an index hand and an index, all substantially as described.

2. In a registering device in combination with a gravity operated slide, a detent wheel, a detent lever pivoted to the shaft of the detent wheel and supporting a gravity operated pawl and also engaging the slide, a spring pawl operating to hold the detent wheel from movement in a reverse direction, an index hand borne on the shaft of a train of gears intermediate between the said detent wheel and the index shaft, all substantially as described.

3. In a registering device, the combination of a gravity operated slide, a detent lever connecting said slide with a detent wheel, the pawl engaging the teeth of the detent wheel in one direction of the movement of the detent lever only, a detent retaining spring, and an index hand borne on the shaft in operative engagement through a train of gears with the detent wheel, all substantially as described.

491,565. ROAD-SCRAPER. JAMES F. KIMBALL, Tilden, Me., assignor to the Western Wheeled Scraper Company, Aurora, Ill. Filed Oct. 24, 1891. Serial No. 410,183. (No model.)



Claim.—1. In a road machine, the combination of a carriage having a front steering axle, a suspended scraper blade, a shaft geared to and driven by the front steering axle, and lifting mechanism geared with the shaft and connected with the scraper blade for lifting the latter by the rotation of the front steering axle, substantially as described.

2. In a road machine, the combination of a carriage having a front steering axle, a suspended scraper blade, lifting mechanism geared to and operated by the front steering axle to lift the scraper blade, and devices for throwing the lifting mechanism out of gear with the said axle, substantially as described.

3. In a road machine, the combination with a carriage, and a scraper blade, of a bell-crank lifting lever for lifting the scraper blade, and mechanism operated by the rotation of the axle of the carriage to shift the bell crank lifting lever and elevate the scraper blade, substantially as described.

4. In a road machine, the combination with a carriage and a scraper blade, of a lever adapted to be operated to lift the scraper blade, a rack bar connected to said lever, a cogged wheel adapted to mesh with said rack bar, mechaniam for rotating said cogged wheel, and a lever adapted to be operated to throw said rack bar and cogged wheel into and out of engagement with each other, substantially as described.

5. In a road machine, the combination with a carriage and a scraper blade, of a lever adapted to be operated to lift the scraper blade, a rack bar connected to said lever, a rotatable shaft, gear wheels for rotating said shaft by the rotation of the carriage wheels, a cogged wheel upon said shaft, adapted to mesh with said rack bar, and a lever adapted to be operated to throw said rack bar and cogged wheel out of engagement with each other, substantially as described.

6. The combination with a carriage frame and wheels, of a hollow king bolt, a vertical shaft passing through said king bolt, bevel gear for rotating said shaft by the rotation of the carriage wheels, a scraper blade, a bell crank lever, a rack bar connected thereto, a cogged wheel on said shaft adapted to mesh with said rack bar, and

a lever for throwing said rack bar and cogged wheel into and out of engagement with each other, substantially as described.

7. The combination with a carriage, a scraper blade, and a lever 73 adapted to be operated to lift said blade, of a shaft adapted to be rotated by the rotation of the carriage wheels, a cogged wheel mounted upon said shaft, a rack bar adapted to mesh with said cogged wheel, said bar having a longitudinal slot, a lever 65, a hand lever 70, a connecting rod 71, a connecting rod connecting said levers 65 and 70, and a roller upon one end of said lever 65, said roller being adapted to move in the slot in the rack bar, substantially as described.

8. The combination with a carriage and a scraper blade, of a rotatable shaft, a cogged wheel mounted upon said shaft, a rack adapted to mesh with said cogged wheel, devices for moving said rack into and out of engagement with said cogged wheel, a lever for lifting the scraper blade, a connecting bar connecting said rack with said lifting lever, and devices for automatically throwing the rack out of engagement with the cogged wheel when the scraper blade has been lifted, substantially as described.

9. In a road machine, the combination with a carriage, a scraper blade, and lever for lifting said blade, of a shaft 58 cogged wheel 61 carried thereby, rack 62, levers 65 and 70, connecting rod 68, and chain 79, substantially as described,

10. In a road machine, the combination with a frame, wheels carrying said frame, a beam adapted to be moved laterally at its rear end, and a scraper blade carried thereby, of guide plates, sliding block 85, rack bar 80, hand wheel 82, and rods 84, connecting the sliding block and the rack bar, substantially as described.

11. In a road machine, the combination with a frame, the levers 26 and 27 pivoted to opposite sides of the frame and extending transversely thereof in reverse directions, the racks 29 and 30 arranged at opposite sides of the frame, the cog wheels 31 and 32 respectively engaging the racks, means for independently rotating either one of the cog wheels, the bars 25, the rods 28 connecting the bars respectively with the reversely arranged levers, and a scraper blade swung from the said bars, substantially as described.

12. In a road grading machine, a hollow king bolt adapted to pivotally connect the body frame with the front axle, in combination with a shaft rotating therein and driven by said axle, substantially as described.

13. In a road grading machine, the hollow king bolt, the shaft 58 having central gearing on the rotating front axle, which permits the swaying of said axle in turning without interfering with its rotation, substantially as described.

14. The combination of the extensible axle 86–87, perforated plate 90, lever 98, and pin 100, substantially as described.

15. The combination of the extensible axle 86–87, perforated plate 90, lever 93, pin 100, the main frame 12 and the rollers 102, substantially as described.

16. In a road machine, the combination with a carriage and a scraper blade, of mechanism operated by the rotation of the front steering axle to lift the scraper blade, and wheels on said front steering axle adapted to effect its rotation only when they are rotated in a forward direction, substantially as described.

17. In a road machine, the combination with a carriage, a scraper blade, and mechanism adapted to be operated by the rotation of one of the axles to lift the scraper blade, of pawls mounted upon said axle, wheels carried by said axle, said wheels having ratchets adapted to be engaged by said pawls, substantially as described.

18. In a road grader, the combination with an extensible axle composed of sections, of a plate pivoted to one of said sections, and devices for clutching said plate, substantially as described.

19. In a road grader, the combination with an extensible axle composed of sections, of a perforated plate pivoted to one of said sections, a pin adapted to enter said perforations, and a lever for operating said pin, substantially as described.

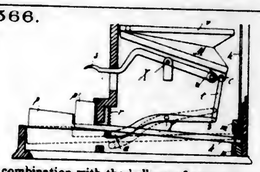
20. In a road grader, the combination with an extensible axle composed of sections, of a perforated plate pivoted to one of said sections, a pin 100, and levers 93, 97 and 98, substantially as described.

21. In a road grader, the combination with the frame 12 wheels, extensible axle 86–87 and devices for extending the axle, of clips 88, rollers 102, and a lever, whereby the frame may be shifted upon the axle, substantially as described.

491,566. PEDAL BASS ORGAN. KAREL KLÁR, Prague, assignor to the House of Al. Hujo Lhota, Králové Hradec, Austria-Hungary. Filed May 26, 1892. Serial No. 434,439. (No model.)

Claim.—1. In an organ, the bellows, the valve for controlling the wind, the pedal levers for operating the valves having a loose connection therewith, and the intermediate connections from the pedal levers to the bellows for operating said bellows in the initial movement of the pedal levers without operating the valves, substantially as described.

491,566.



2. In combination with the bellows of an organ or the like, the valves for regulating the wind pedal levers, for operating the valves and an auxiliary lever *a b* interposed between said pedal levers and the bellows and actuated by the depression of the said pedals, substantially as described.

3. In combination with the bellows of an organ or the like, the valves for regulating the supply of wind to the organ, pedal levers, loose connections to the pedal valves from the pedal levers and an intermediate lever connection between said pedal levers and bellows, said lever connection serving as a fulcrum on which the pedal levers pivot, and a spring for returning the levers, substantially as described.

491,567. CONDUCTOR FOR ARMATURES. EMIL KOLBEN, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Feb. 8, 1892. Serial No. 420,785. (No model.)



Claim.—1. A U-shaped bar conductor adapted to form part of an armature coil and having one limb wider than the other and having a radial saw-kerf dividing the wider limb for a part of its length only, substantially as described.

2. A U-shaped conductor adapted to form a part of an armature coil, one leg of said conductor being laminated, and the other leg and the section connecting the two legs being solid, substantially as described.

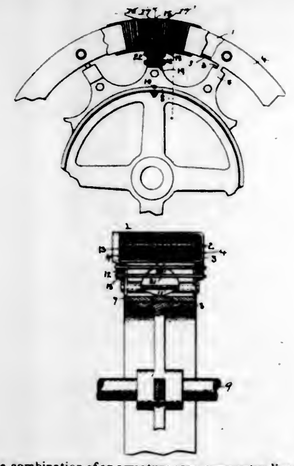
3. A U-shaped conductor having milled ends and adapted to form a part of an armature coil, one leg of said conductor being laminated, the other leg and the section connecting the two legs being solid, and a conductor milled to fit one of said ends and adapted to connect it to a similar adjacent conductor, substantially as described.

491,568. ARMATURE AND MEANS FOR SUPPORTING THE SAME. EMIL KOLBEN, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Feb. 8, 1892. Serial No. 420,787. (No model.)

Claim.—1. The combination of an armature ring or core, spider arms supporting the same, an armature conductor or coil surrounding the core, special conductors crossing the sides of the core at the spider arms, said special conductors being connected across the inner surface of the armature by suitable conductors passing around or by the arms, substantially as described.

2. The combination of an armature core, flanged rings secured thereto, spider arms extending from the inner periphery of the rings, and an armature conductor or coil surrounding the core and said rings but insulated therefrom, the conductors crossing the inner surface of the armature at the spider arms being at a distance from said surface, substantially as described.

3. The combination of an armature core, spider arms supporting it, an armature coil surrounding said core and a side of which is adapted to form a commutator surface, and special conducting sections interposed in said coil at each spider arm for continuing said coil by the arms, the portions of said special conductors crossing the commutator surface of the armature corresponding in shape to the main conductors of the coil crossing said face, substantially as described.



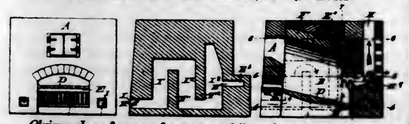
4. The combination of an armature core, arms extending from the inner periphery thereof for supporting it, conductors or coils surrounding the core and passing across its inner periphery, said arms being comparatively thin adjacent to said inner periphery whereby only a few regular cross conductors need be omitted, and conductors extending around said arms and across the armature at a distance from the inner periphery, substantially as described.

5. The combination of an armature core, wide spider arms having thin portions adjacent to the inner periphery of said core, means for connecting the arms to the core, armature coils covering the inner periphery of the core except in the space occupied by the arms, conductors supported by the arms and connected across the armature to complete the coil, substantially as described.

6. The combination of an armature core, spider arms extending from its inner periphery, insulating blocks on the arms, conductors extending across the sides of the armature and forming part of the armature coil supported by said insulating blocks, and conductors also forming parts of the armature coil connected to the conductors on the insulating blocks and extending across the armature at the sides of the arms, substantially as described.

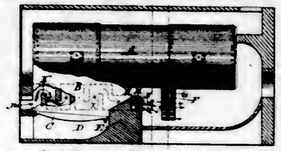
7. The combination of a core, conductors surrounding the core on all sides, arms extending from the inner periphery of the core for supporting the same, insulating blocks on the arms, conductors thereon extending across sides of the armature and connected at their upper ends to conductors extending across the outer periphery of the core, substantially as described.

491,569. POTTERY-KILN FURNACE. LEWIS LAWTON, Trenton, N. J. Filed June 9, 1890. Serial No. 354,699. (No model.)



Claim.—In a furnace for pottery kilns, the combination of the fire box, the bonnet arch F, inclined downwardly toward the rear, the constricted throatway G with its arch depending below the rear end of the bonnet arch, the chamber H communicating with the throatway and with the kiln, the air supply flues on each side of the fire-brick between its lining and the brick work, a transverse passage F^4 arranged over the rear of the bonnet arch, connected with the side flues and communicating with the openings F^2 at a point slightly above the throatway, a transverse passage F^3 in the rear of the throatway and communicating therewith by a series of openings F' and connected with the air supply tubes, and openings F^5 in the sides of the throatway and communicating with the rear of the air supply tubes, substantially as shown and described.

491,570. STEAM-BOILER FURNACE. LEWIS LAWTON, Trenton, N. J. Filed June 9, 1890. Renewed Nov. 3, 1892. Serial No. 450,822. (No model.)

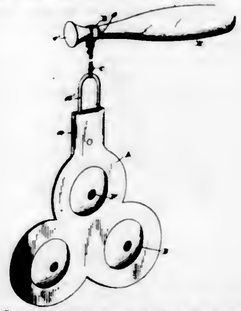


Claim.—1. In a furnace, the combination of the fire-box, the bridge-wall reaching above the grate bars, the arch in rear of the wall extending below its upper edge, the air flues in the side walls of the furnace, the air-chambers in the bridge-wall and the arch, communicating with the side flues and opening into the smoke flue, and the openings N, leading from the side flues into the rear of the combustion chamber between the bridge-wall and the arch, substantially as described.

2. In a steam-boiler furnace, the combination of the fire-box, the bridge-wall, the arch in rear of the latter, the air-flues in the side walls of the furnace having the partitions K', the air-passages in the bridge-wall and the arch, communicating at their ends with the air flues and opening into the smoke flue, and the openings N, whereby the air-flues communicate with the smoke flue between the bridge-wall and the arch, substantially as described.

3. In a steam boiler furnace, the combination of the fire-box, the bridge-wall, the air-flues in the side walls of the furnace, and the arch in rear of the bridge-wall, said arch being formed of the bricks E and E' cut away on their adjacent faces as at *e*, and *e'*, to form the air-passage G communicating with the air-flues and opening into the smoke-flue, substantially as described.

491,571. BIRD-WARBLER. EUGENE F. LOWE, Scranton, Pa. Filed Mar. 7, 1892. Serial No. 424,053. (No model.)



Claim.—In a toy of the character described, a flat base or support, a cord attached adjacent to the edge of one side of said base, and a number of whistles formed on the base or support and arranged so that their centers are at unequal distances from the point of attachment of the cord, substantially as described.

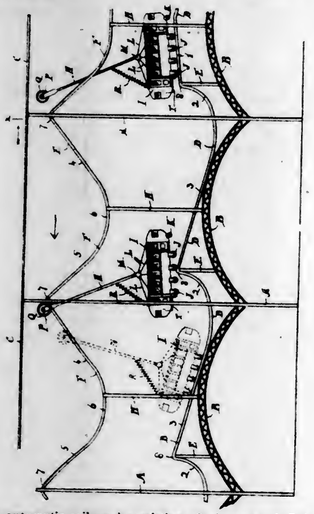
491,572. AUTOMATIC AERIAL RAILROAD. HOSEA W. LIBBEY, Boston, Mass. Filed Mar. 8, 1892. Serial No. 424,175. (No model.)

Claim.—1. An automatic aerial rail road having two sets of tracks an upper and lower one of undulating form, said tracks being supported at a proper distance apart substantially as set forth.

2. An automatic aerial rail road consisting of a lower track D, having inclined surfaces 3, in combination with an upper track F, having inclined surfaces 4, and suitable supports all arranged substantially as set forth.

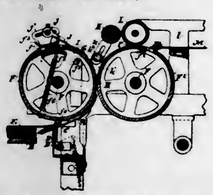
3. An automatic aerial rail road consisting of a track D, having stopping places 1, and inclined surfaces 3, up which the cars are caused

to run, and an upper track F, having inclined surfaces 4, from which the cars are suspended when they leave the lower incline 3, substantially as set forth.



4. An automatic rail road consisting of a lower track D, having stopping places 1, and inclined surfaces 3, and an upper track having inclined surfaces 4, in combination with a car I, having wedge shaped ends, and fitted with wheels to adapt it to run up the inclines 3, and a rod or bar N, attached to the roof, the upper end of said rod embracing an axle P, to which wheels Q are secured, and means for drawing said bar forward when the wheels Q are off the incline 4, substantially as set forth.

491,573. PAPER-BAG MACHINE. WILLIAM LIDDELL, Brooklyn, N. Y., assignor to Wells A. Bingham, Bloomfield, N. J. Filed Feb. 11 1892. Serial No. 421,133. (No model.)

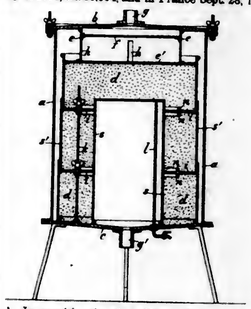


Claim.—1. In a machine for making paper bags from blanks severally having a lip on one side extending in the direction of the length of the bag blank beyond the other side, the combination of a cylinder provided with means for engaging the lip of one of said bag blanks while the side from which said lip extends is farther from the cylinder than the other side of the bag blank and also having means for engaging that side of the bag blank which is not provided with a lip and which latter side of the bag blank is contiguous to said cylinder, a second cylinder and a gripper on said second cylinder for engaging with that side of the bag blank lip which is the nearer to the first mentioned cylinder and pulling it away from the first mentioned cylinder and securing it to the second mentioned cylinder, substantially as specified.

2. In a paper bag machine, the combination of two cylinders, one of which has pins for engaging one side of a bag blank and a gripper for engaging the other side of a bag blank and the second of which cylinders is provided with a gripper constructed and adapted to engage with that side of the bag blank which is held by the gripper of the first cylinder and disengage it therefrom and secure it to the second cylinder, substantially as specified.

3. In a paper bag machine, the combination of a cylinder provided with needles and grippers for engaging opposite sides of a bag blank, a second cylinder having a gripper for taking the side of the bag blank which was engaged by the gripper of the first cylinder and transferring it to the second cylinder and a stripper co acting with the first cylinder for engaging that side of the bag blank which is fastened thereto by the said needles, substantially as specified.

491,574. FILTER. HEINRICH LIEBERICH, Neustadt, Germany. Filed May 9, 1892. Serial No. 432,277. (No model.) Patented in Germany Aug. 4, 1891, No. 61,994, and in France Sept. 28, 1891, No. 216,399.

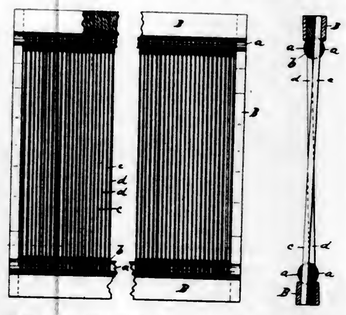


Claim.—1. In combination in a filter, of a casing containing the filtering drum, an inner cylinder for filtered water, a series of annular imperforate compression plates encircling the inner cylinder, an ingress opening and a ring *e* having a perforated head and vertical slots *h*, substantially as described.

2. The combination in a filter of a casing containiug the filtering drum, an inner cylinder for filtered water intermediate compression plates for dividing the filtered material into independent layers, and an ingress opening at the upper end of the casing, and a ring *e* having a perforated head located on the drum and provided with vertical slots *h*, substantially as set forth.

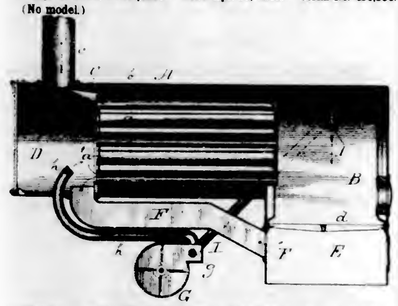
3. The combination in a filter of a casing containing the filtering drum with a space between the two, an inner water chamber, a series of annular imperforate compression plates encircling the water chamber, ribs projecting from the upper and lower sides of the partitions, an ingress opening and a ring *e* having a perforated head and vertical slots *h*, substantially as described.

491,575. REED FOR LOOMS. LOUIS F. LIOTARD, Paterson, N. J. Filed Sept. 29, 1892. Serial No. 446,534. (No model.)



Claim.—The combination in a reed in which the teeth are arranged in series which alternately cross each other; of the upper and lower frame pieces, B, in which the ends of the teeth are firmly secured, with two sets of cross-bars, *a*, *a*, semi-cylindrical in cross-section, each set of bars being arranged adjacent to the frame pieces respectively above the lower and below the upper frame piece, and placed with their flat surfaces on either side of the teeth, and with a wire, *b*, coiled in a double spiral, uniting the sets of cross bars the coils of said wire forming a guide or space for the teeth of the reed, all arranged so that the teeth pass through the coils of the wire, *b*, between the cross-bars *a*, *a*, and enter the frame pieces B, substantially as described.

491,576. COMBINED SMOKE-CONSUMER AND SPARK-ARRESTER. JOHN P. MALONEY, Chicago, Ill., assignor of one-half to Harry Campbell Bunn, same place. Filed Apr. 25, 1892. Serial No. 430,530. (No model.)



Claim.—1. The combination with a boiler furnace having an inclosed passage way leading from the ash-pit below the plane of the grate to the smoke arch, and provided with flues through the boiler, some of which connect only the smoke arch and furnace proper, and others of which connect the furnace with the smoke stack or chimney; of suitable devices for directing an artificially created down draft in the fire chamber, which causes the products of combustion to issue below the grate, from thence to the smoke arch and then back again to the furnace and into the fire.

2. The combination with a boiler furnace having a passage way leading from the ash-pit below the grate to the smoke arch, and having flues some of which connect only the smoke arch and furnace proper and others of which lead from said furnace to the smoke stack or chimney, of suitable devices for directing a down draft in the fire chamber which causes the products of combustion to issue below the grates and into and through said passage way to the smoke arch, and a rearwardly directed draft in front of the said boiler causing the return of the products of combustion to the furnace proper, substantially as set forth.

3. The combination with a fire chamber B, boiler A, having a smoke box D and provided with a lower series of longitudinally disposed flues *a* connecting the smoke box and fire-chamber, and an upper series of flues connecting said fire-chamber and the smoke stack, and a passage F connecting the ash pit, and smoke arch, of the pipes I for injecting into and creating a down draft in said fire-chamber, as set forth.

4. The combination with a fire-chamber B, boiler A provided with a lower series of flues connecting the smoke box and fire-chamber, and an upper series connecting the fire-chamber and smoke stack, said smoke box, and a passage connecting the ash pit and smoke box, of pipes I for creating a down draft in the fire-chamber, and pipe A for creating a rearwardly moving current through the lower series of flues in the boiler, as set forth.

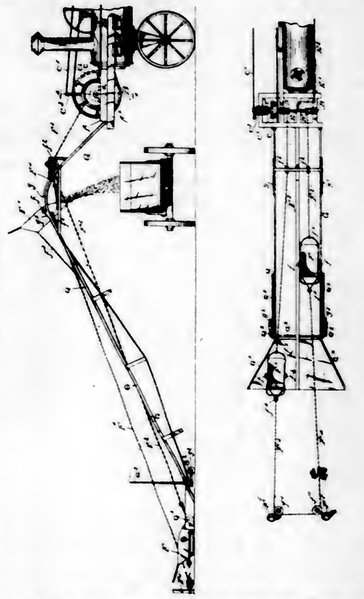
5. The combination with a fire-chamber B boiler A provided with a lower series of flues *a* connecting the smoke box and fire-chamber, and an upper series of flues connecting said fire chamber and the smoke-stack, said smoke box and smoke stack, the ash pit, and a passage F connecting the ash pit and smoke box, of a blast fan G, pipes I, I, leading therefrom downward into the fire-chamber, and pipe A leading therefrom to the smoke box where it is bent so as to create a rearward blast through the lower flue of the boiler, as set forth.

491,577. EXCAVATOR. MONTGOMERY C. MEIGS, Lafayette, Ind. Filed Feb. 9, 1892. Serial No. 420,824. (No model.)

Claim.—1. The combination, in an excavator, of the engine or motor by which the excavating mechanism is driven, an arched framework one end of which rests upon the ground and the other is supported on said motor, and said excavating mechanism, said structure as a whole being thus easily removed from place to place, substantially as set forth.

2. The combination, with a scraper or conveyer of an excavator, and the chains or ropes by which it is operated back and forth, of a stay-chain *f*⁴ connected to the rear of the scraper and to the chain by which it is drawn back, whereby when the scraper or conveyer is dumped or unloaded, it is prevented from being turned entirely over, substantially as set forth.

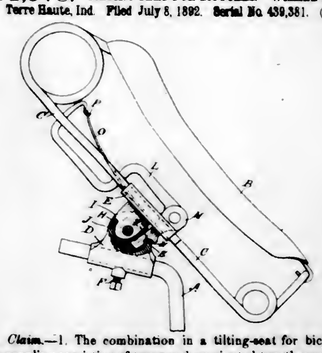
3. In a device for excavating and elevating, tracks G having stops *g* and projections *g'*, and scrapers and conveyers having trucks running upon said tracks, and chains connected to mechanism by which said scrapers or conveyers are moved from one point to the other and automatically unloaded at the terminal point, substantially as set forth.



4. In a device for excavating and elevating, the combination of tracks having upward projections thereon over which the bearings on the conveyers will run, said conveyers, and chains connected thereto whereby the conveyers are dumped upon the beginning of the return thereof after being raised to the highest point, substantially as set forth.

5. The combination, in an excavator, of a power mechanism or motor, a frame-work one end of which is mounted thereon and the other end of which rests upon the ground, trucks mounted on a crank-shaft at said other end, and a lever also attached to said crank-shaft, whereby the same may be raised from contact with the ground and the whole structure thus supported upon wheels for transportation, substantially as shown and described.

491,578. TILTING SEAT FOR BICYCLES. WILLIAM R. MERCER, Terre Haute, Ind. Filed July 8, 1892. Serial No. 439,381. (No model.)

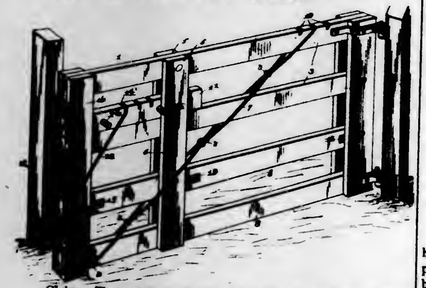


Claim.—1. The combination in a tilting-seat for bicycles, of a seat-coupling consisting of two members pivoted together so as to turn one upon the other, one of the said members being adapted to be rigidly secured to the bicycle frame and the other member adapted to swing in a vertical plane upon the said fixed member, said fixed member of the coupling being provided with a pair of shoulders which

limit the movement of the swinging member, a lever having a long and a short arm and pivoted to said swinging member of the coupling so as to swing in a vertical plane thereon, the long arm of said lever being arranged to project below the seat-support and the short arm of the lever arranged to engage one of the shoulders on the fixed member of the coupling, and a spring arranged to hold said lever normally in engagement with said shoulder all arranged to co-operate substantially as and for the purpose set forth.

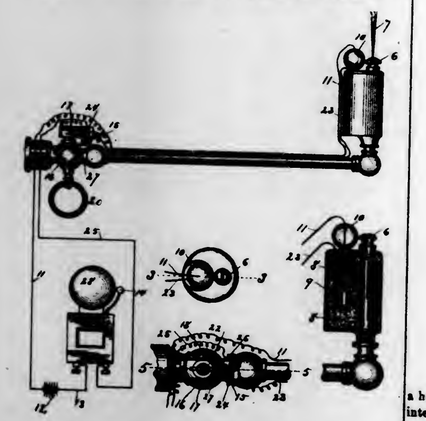
2. In a tilting-seat for bicycles, the combination of the fixed member D of the seat-coupling, having shoulder N and interior projection S, the tilting member E, the lever L pivoted to said member E and provided with the notch R, and the spring O, all arranged to co-operate substantially as and for the purpose set forth.

491,579. GATE. RAHL MILLER, West Lafayette, Ohio. Filed Sept. 24, 1892. Serial No. 446,800. (No model.)



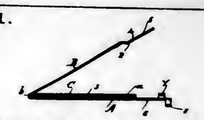
Claim.—The combination of a gate having one of its horizontal rails provided with intermediate and end slots and adapted to slide longitudinally to engage a latch post; a latch bar slidingly mounted on the gate and provided with stops and having notches in its upper edge, and a ball pivoted to the gate and arranged to engage the notches, substantially as described.

491,580. ESCAPING-GAS ALARM. CHARLES J. MILLIGAN, Chicago, Ill. Filed July 23, 1892. Serial No. 440,983. (No model.)



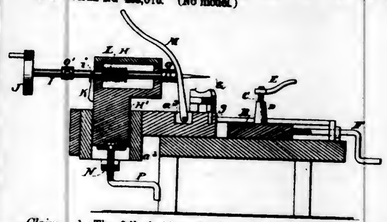
Claim.—In an automatic escaping gas alarm for gas burners the combination of a burner, a chamber containing a conducting fluid provided with a tube containing air and two wires in the chamber and tube respectively, said wires extending to a battery and thence to a sounding or recording instrument, forming an electric circuit which may be broken or connected, as, and for the purpose stated.

491,581. TAG-HOLDER. JAMES R. MORGAN, Davenport, Iowa. Filed Oct. 20, 1892. Serial No. 449,208. (No model.)



Claim.—In a tag-holder the combination, with the back provided with sides, the slot 6 and the projections 7 and 8, of the lid hinged to the back and provided with the slot 4 registering with the slot 6 and a slot 5 for the projection 7 to pass through, and a strap adapted to pass through the said projections and the slots 4 and 6 and secure the back and lid together, substantially as and for the purpose set forth.

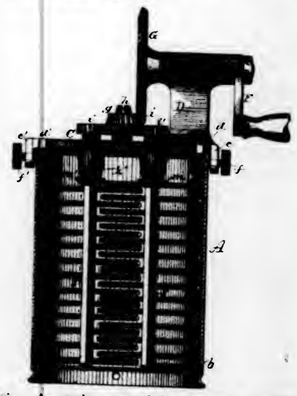
491,582. MACHINE FOR BORING FELLIES AND TENONING SPOKES. GEORGE W. MCALISTER, Lake Prairie, Mo. Filed Feb. 27, 1892. Serial No. 423,016. (No model.)



Claim.—1. The felly holder of a boring and tenoning machine, having the subjacent pins *g* to fit holes in the table and superposed pins *g'* to retain the felly in place; whereby the holder is held tightly but detachably to the table while the felly is held securely but detachably to the holder as and for the purpose set forth.

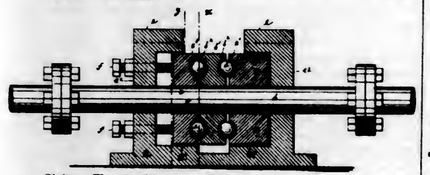
2. The combination with the guide H, of the tool-shaft I, provided with a spring L, constructed to press forward said shaft, a shoulder i and weighted catch K, substantially as set forth and described.

491,583. EGG-BEATER. JOHN M. O'NEILL, Janesville, Wis., assignor of one-half to Russell L. Colvin, same place. Filed Dec. 16, 1891. Serial No. 415,282. (No model.)



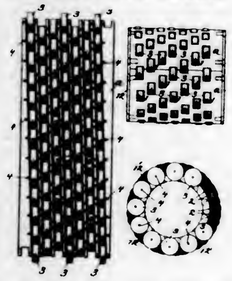
Claim.—An egg-beater consisting of a cup or receptacle having a handle on one side, hollow vertical ribs diametrically located in the interior of the receptacle, projections *b*, *b'* in the bottom of the receptacle, an oblong frame provided with depending projections at its ends, thumb screws operating in these projections for holding the frame on the cup or receptacle, said frame having sleeves projecting above and below it, shafts revolubly supported in these sleeves, said shafts having beaters thereon and drip cups located just below the sleeves, gear wheels on the upper ends of the shafts, an interposed gear wheel meshing with the gear wheels on each shaft, a bevel pinion connected with the interposed gear wheel, a standard having a horizontal shaft journaled therein, said horizontal shaft provided with a bevel gear wheel intermeshed with the other gear wheel, and a crank on the opposite end of the horizontal shaft, substantially as set forth.

491,584. THRUST-BLOCK FOR SHAFTS. WILLIAM C. PAUL and JOHN A. PAUL, Jersey City, N. J. Filed Aug. 10, 1892. Serial No. 442,863. (No model.)



Claim.—The combination of the slotted base piece, a shaft, a grooved collar thereon, grooved disks, one adjustable relatively to the collar, balls in the grooves, an L shaped cover projecting over each disk, and adjusting means bearing against one of the disks, substantially as specified.

491,585. ROLLER-BEARING. ALFRED PETTERSON, Baltimore, Md. Filed May 7, 1892. Serial No. 432,175. (No model.)



Claim.—1. In a roller bearing, a continuous shell or sleeve having openings in contiguous relation and surface grooves intersecting the opposite sides of said openings, in combination, with rolls having axis pins seated and confined within said grooves, substantially as described.

2. In a roller bearing, a continuous shell or sleeve having openings in contiguous relation, and surface grooves in its inner walls intersecting the opposite sides of said openings, in combination, with rolls having axis pins seated and confined within said grooves, substantially as described.

3. In a roller bearing, a cylindrical shell or sleeve having openings in contiguous relation arranged in parallel lines, which lines are diagonal to the ends of the shell and to its axis, in combination with rolls mounted on axis pins within said openings, whereby each two contiguous rolls are caused to lap in paths which are both parallel with and transversely of the axis of the shell, substantially as described.

4. A roller bearing comprising a cylindrical shell having openings in contiguous relation arranged in parallel lines, which lines are diagonal to the ends of the shell and to its axis, rolls within said openings, and axis pins for said rolls, the said shell, the rolls, and the pins, each capable of independent or separate rotation for the purpose stated.

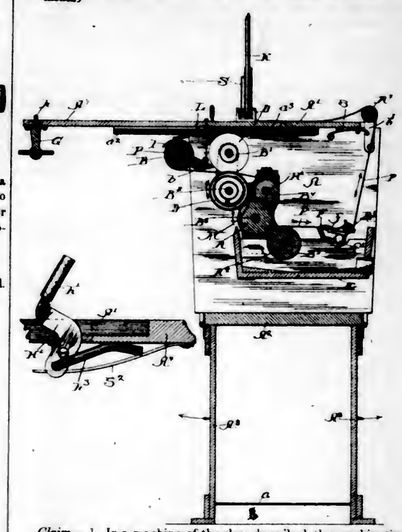
5. A roller bearing comprising a shell of longitudinal sections, each having openings in contiguous relation arranged in parallel lines, which lines are diagonal to the ends of the shell and to its axis, in combination with rolls of greater diameter than length mounted on axis pins within said openings, and rings at each end of said shell for uniting said sections, substantially as described.

6. In a roller bearing, the combination, with a continuous shell or sleeve having surface openings, rolls therein of greater diameter than length, and axis pins equal to the length of said shell, each pin having rolls disposed in lines, substantially as described.

7. As a new article of manufacture a roller bearing constructed substantially as described, that is, of a continuous shell having openings disposed as described, and provided with surface grooves intersecting the opposite sides of said openings, and rolls having axis pins retained within said grooves to render the shell complete for use.

8. In a roller bearing, the combination, with a shaft and a journal box, of a shell having openings in contiguous relation arranged in parallel lines which lines are diagonal to the ends of the shell and to its axis, and rolls within said openings having axis pins retained on the inner wall of said shell, as shown and described.

491,586. PAPER TRIMMING AND PASTING MACHINE. OLE PETTERSON, Hinsdale, Ill. Filed May 18, 1892. Serial No. 433,457. (No model.)



Claim.—1. In a machine of the class described, the combination with suitable trimming cutters and feed-rolls, of a box inclosing and supporting said parts and made up of ends, top and bottom and swinging side pieces hinged to the bottom and adapted to be dropped down to form supports for the machine; substantially as shown and described.

2. In a machine of the class described, the combination with suitable trimming and feeding devices, of a frame supporting said devices and having a table-like top, and a supplemental table hinged to said top and adapted to be swung from the position immediately over it to a position in the same plane with it; substantially as shown and described.

3. The combination with a supporting frame, the paper-supporting, feeding and cutting devices, the paste-box supported by the frame and the pasting roll mounted within the box and adapted to apply a coat of paste to one of the faces of the paper, of the scraper F, and guide roll R^3, supported by oscillating brackets *f*, adapted to vary the position of the scraper with reference to the guide roll and thereby to regulate the coat of paste upon the paper; substantially as shown and described.

4. In a machine of the class described, the combination with the supporting frame having a table-like top and a supplemental table hinged to said top, of paper-supporting, feeding, cutting and pasting mechanism supported by the frame and adapted to deliver pasted paper over the top of the frame and the supplemental table, gripping devices on the line of the hinge joint of the tables and gripping devices on the free edge of the supplemental table whereby the paper may be held at the free edge of the supplemental table and folded on the hinge line between the two tables; substantially as shown and described.

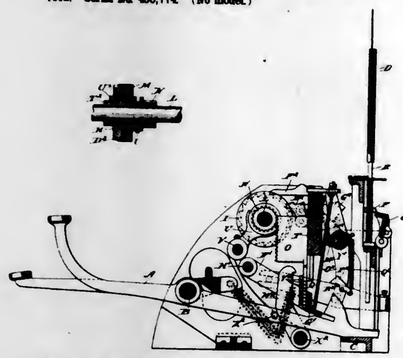
5. The combination with the supporting frame having the top A', of the suitably supported supplemental table A^4, hinged thereto, the plates H, H, pivoted to the free edge of the supplemental table and provided with fingers *h*, *h*, means for regulating said plates and bringing their fingers to bear upon the surface of the supplemental table, the plates H', H', pivoted to the top A', and provided with fingers *h'*, *h'*, and means substantially as shown and described, whereby the raising and lowering of the supplemental table shall operate the plates H', H', and their fingers *h'*, *h'*; substantially as shown and described.

6. The combination with the top A', and the top A^4 hinged thereto, of the plates H, H, pivoted to the free edge of the top A^4, and provided with fingers *h*, *h*, the plates H', H', hinged to the top A', and provided with fingers *h'*, *h'*, the rods h^3, h^3, engaging the ends of the plates H', H', and provided with ends h^3, h^3, impinging upon the supplemental table A^4, and adapted to be operated thereby, whereby the raising and lowering of the table A^4, may actuate the fingers *h'*, *h'*; substantially as shown and described.

7. The combination with the box having end pieces A, A, top A', bottom A^3, and swinging side pieces A^2, A^2, of the brackets *b*, *b*, pivoted to the end pieces of the box and the paper-supporting rod B, mounted in the ends of the brackets, whereby said rod may be swung down to a working position outside the limits of the box, or swung up to a position wholly within the box; substantially as shown and described.

8. The combination with the box constructed substantially as shown and described, and having swinging side pieces A^2, A^2, of the paper-supporting, feeding, cutting and pasting mechanism mounted therein, the brackets b^2, b^2, pivoted to the end pieces of the box, and the guide roll R^4 mounted between said brackets and adapted to be swung into a working position above the top of the box, or to be swung downward to a position wholly within the box; substantially as shown and described.

491,587. **CASH-REGISTER.** JOHN PFEIFER, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Nov. 2, 1892. Serial No. 450,774. (No model.)



Claim.—1. In a cash register, the combination of a series of operating keys of different values and having a uniform length of stroke, a vertically sliding registering plate overlying said keys and having its lower edge provided with a series of steps at different distances from the respective keys, a rack carried by said vertically sliding plate, a pinion meshing with said rack, a registering wheel, and a clutch between said pinion and wheel for causing the pinion to carry the wheel with it in one direction and move independently of it in the other, substantially as described.

2. In a cash register, the combination of two or more sets of operating keys, two or more vertically sliding registering plates, one overlying each set of keys and having its lower edge provided with a series of steps at different distances from the respective keys of its set, a rack carried by each vertically sliding plate, a pinion meshing with each rack, a registering wheel adjacent to each pinion, a clutch between each pinion and adjacent registering wheel, and means common to all of the keys for shifting the clutches to connect the pinions with and disconnect them from their respective registering wheels, substantially as described.

3. In a cash register, the combination of a series of operating keys of different values, a vertically sliding registering plate overlying said keys and having its lower edge provided with a series of steps at different distances from the respective keys, a rack carried by said vertically sliding plate, a pinion meshing with the rack, a registering wheel adjacent to the pinion, a sliding clutch turning with the pinion and capable of being slid into and out of engagement with the registering wheel, a shifter for said clutch, and means common to all of the keys for operating the shifter to disengage the clutch from the registering wheel at the end of the registering strokes of the keys, substantially as described.

4. In a cash register, the combination of two or more sets of operating keys representing different values, two or more vertically sliding registering plates, one overlying each set of keys and having its lower edge provided with a series of steps at different distances from the respective keys of its set, a rack carried by each vertically sliding plate, a pinion meshing with each rack, a registering wheel adjacent to each pinion, a sliding clutch interposed between each pinion and adjacent registering wheel, turning with the pinion and movable into and out of engagement with the registering wheel, an endwise sliding rod or bar carrying a series of shifters, one for each clutch, and means common to all of the keys for moving said rod in one direction at the end of the registering strokes of the keys to disengage the clutches from the registering wheels, substantially as described.

5. In a cash register, the combination of the vertically sliding registering plates P Q R carrying the racks O and having their lower edges provided with a series of steps, the three sets of operating keys co-operating with said plates, the pinions N meshing with the racks O and mounted to turn upon and slide longitudinally of the shaft L, the registering wheels H I J mounted upon the shaft L, the clutches M interposed between the pinions N and registering wheels and carried by the pinions N, the endwise sliding rod V, the spring W pressing it in one direction, the shifter plates U fast upon said rod and engaging the clutches M, a vibrating frame common to all of the keys, and means intermediate the frame and rod V for moving the latter endwise at the end of the registering strokes of the keys to cause the shifters U to disengage the clutches from the registering wheels, substantially as described.

6. In a cash register, the combination of the clutches, the sliding rod V, shifters U fast thereon, spring W, lever B', the vibrating frame common to all of the keys, the vertically sliding plate D' connected to said frame, and the swinging arm I' carried by the plate D' and provided with the cam J' co-operating with the lever B', substantially as described.

7. The combination of the vertically sliding registering plate P carrying the rack O and having its lower edge provided with the series of steps, the set of operating keys A co-operating with said plate, the pinion N meshing with the rack O, the registering wheel H, a clutch between said pinion and registering wheel, and the series of hooks W^3 co-operating with the projections Z^2 upon the keys A and with the projections V^3 upon the plate P, substantially as described.

8. In a cash register, the combination of a series of operating keys of different values, a registering plate common to all of said keys and movable different distances by keys of different values, a rack carried by said plate, a pinion meshing with the rack, a registering wheel adjacent to the pinion, an interposed clutch turning with the pinion and movable into and out of engagement with the registering wheel, a shifter for said clutch, and means common to all of the keys for actuating said shifter at the end of the registering strokes of the keys to disengage the clutch from the registering wheel, substantially as described.

9. In a cash register, the combination of two or more sets of operating keys of different values, two or more registering plates, one co-operating with each set of keys and movable different distances by the keys of different values, a rack carried by each of said plates, a pinion meshing with each rack, a registering wheel adjacent to each pinion, a sliding clutch interposed between each pinion and registering wheel and turning with the pinion, the endwise sliding rod or bar, a series of shifters carried by said rod, one for each clutch, and means common to all of the keys for moving said rod at the end of the registering strokes of the keys to cause the shifters to disengage the clutches from the registering wheels, substantially as described.

10. In a cash register, the combination of two or more sets of operating keys of different values, two or more graduated registering plates, one co-operating with each set of keys and movable different distances by the keys of different values, a rack carried by each plate, a sliding pinion meshing with the rack, a registering wheel adjacent to each pinion, a clutch interposed between each pinion and registering wheel and carried by the pinion, an endwise sliding rod or bar, a series of shifters carried by said rod one for each clutch, a spring pressing said rod in one direction to cause the shifters to hold the clutches in engagement with the registering wheels, a vibrating frame common to all of the keys, and means intermediate said frame and endwise sliding rod for moving the latter against the resistance of its spring to disengage the clutches from the registering wheels at the end of the registering strokes of the keys and maintain them out of engagement during the non-registering strokes of said keys, substantially as described.

11. In a cash register, the combination of the several sets of operating keys, the vibrating frame F' F' G' common to all of them, the vertically sliding registering plates P Q R and registering devices actuated thereby, the plates A^3 carried by the registering plates, and the rods B^3 loosely connecting the cross-bar G' of the vibrating frame with the plates A^3, substantially as described.

12. In a cash register, the combination of a primary and a secondary registering wheel, the latter provided with a ratchet and the former with a cam or projection, a transfer pawl co-operating with the ratchet of the secondary wheel, a spring tending to set said pawl for a transfer, a latch operating to hold the transfer pawl against movement by its spring and arranged to be tripped by the projection upon the primary wheel to release the transfer pawl and permit its spring to set it for the transfer, a series of operating keys, a vibrating frame common to all of the keys, and a trip movable with the transfer pawl and thrown into the path of the vibrating frame by the setting of said pawl for the transfer, said trip being arranged to yield to permit the passage of the vibrating frame in one direction and operating to actuate the transfer pawl to effect the transfer at the passage of the vibrating frame in the opposite direction, substantially as described.

13. In a cash register, the combination of the registering wheels H I, the former provided with one or more cams or projections N^3 and the latter provided with a ratchet D^3, the oscillatory sleeve H^3, the transfer pawl carried by said sleeve at one end and engaging the ratchet D^3 of the wheel I, the arm I^3 carried by the sleeve at its opposite end and provided with the lug J^3, the latch K^3 co-operating with the lug J^3 and with the projection N^3 on the wheel H, the spring M^3 tending to rock the sleeve H^3, the pendent arm O^3 carried by the sleeve H^3, the trip P^3 pivoted to the arm O^3, the operating keys A, and the vibrating frame F' F' G' common to all of the keys and co-operating with the trip P^3, substantially as described.

14. In a cash register, the combination of an axially movable shaft, a series of registering wheels loose thereon, a series of sliding clutches mounted thereon adjacent to the registering wheels, an endwise moving rod or bar carrying a series of shifters engaging said clutches, means intermediate the shaft and registering wheels for causing the shaft to pick up the registering wheels and carry them with it when it is turned in one direction, and means intermediate said shaft and the endwise moving shifter rod for moving the latter to disengage the clutches from the registering wheels when the shaft is turned to carry the registering wheels to initial position, substantially as described.

15. In a cash register, the combination of the axially movable shaft, the registering wheels loose thereon, the sliding clutches loose thereon adjacent to the registering wheels, the shifters for said clutches carried by an endwise moving rod, means intermediate the registering wheels and rock-shaft for causing the latter to pick up the wheels and carry them with it when it is turned in one direction, and a cam upon said shaft co-operating with the endwise moving shifter-rod to disengage the clutches from the registering wheels when the shaft is oscillated to return the registering wheels to initial position, substantially as described.

16. The combination of the axially movable shaft L having the operating handle S^3 fast upon it, the registering wheels loose upon the shaft and carrying the pawls U^3, the notched collars T^3, fast upon the shaft and co-operating with said pawls, the sliding clutches M co operating with the registering wheels, the endwise moving rod V, the shifters U carried by said rod and co-operating with the clutches, the spring W pressing said rod in one direction, the cam C^3 fast upon the shaft L, and the lever B' interposed between and co operating with said cam and the endwise moving shifter rod V, substantially as described.

17. The combination of the operating keys A, the vertically guided tablet rods E arranged to be lifted thereby and provided with collars or projections F, the supporting bar or wing G co-operating with the collars F, the vibrating frame common to all the keys A, the bell crank W' X', the plate V' pivoted thereto and provided with the cam U' co-operating with a pin T' upon the vibrating frame, and a connection, as by the arm A^3, between the arm X' of the bell-crank and the supporting bar or wing G, substantially as described.

491,588. **CURTAIN-HOLDING DEVICE.** EDWARD E. PIPER and GEORGE H. DAVIS, Portland, Me. Filed Sept. 5, 1892. Serial No. 445,060. (No model.)

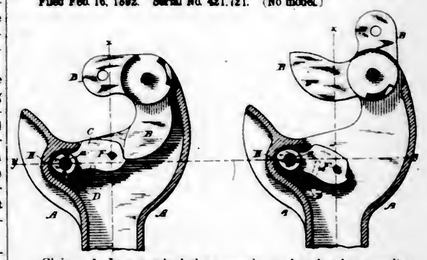


Claim.—1. A curtain stick for retaining window shades in position having a truck or wheel journaled in bearings in the end thereof said bearings being adapted to allow of a limited motion at right angles to the window casing, a spring actuated brake for checking the rotation of said wheel and at the same time forcing it against the casing, substantially as described.

2. A curtain stick composed of two hollow tubes connected by an open center piece, a truck or wheel journaled in bearings in the outer ends of said tubes said bearings being adapted to allow of a limited motion at right angles to the window casing, a spindle extending through each of said tubes into said center piece the outer end of each spindle being provided with a brake adapted to bear against one of said wheels, a spring for forcing each spindle outward, and a cam or button pivoted in said center piece so arranged as to retract the said spindles when turned, substantially as described.

3. A curtain stick for retaining window shades in place having journaled on the end thereof a truck or wheel, said truck or wheel being pressed normally against the window casing, a brake pressed normally against said truck or wheel and means for releasing said brake, substantially as described.

491,589. **CAR-COUPLING.** CHARLES A. POOLEY, Buffalo, N. Y. Filed Feb. 16, 1892. Serial No. 421,721. (No model.)



Claim.—1. In a vertical-plane coupler, a drawhead, a coupling jaw, and a swinging lock pivoted within said drawhead and co-operating with said jaw, said drawhead having an opening in its top, back of the position of the axis of the lock, in combination with a pin connected with said lock at a point forward of a position of the axis of the lock when the lock is in its normal coupling position, said pin extending from said point of connection through said opening in the top of the drawhead, substantially as set forth.

2. In a vertical-plane coupler, a drawhead, a coupling jaw, and a swinging lock pivoted within said drawhead and co-operating with said jaw, said drawhead having an opening in its top, back of a transverse line intersecting the axis of said lock and perpendicular to the longitudinal axis of the coupler, in combination with a pin connected with said lock at a point forward of said transverse line and at a longitudinal distance forward therefrom substantially equal to the longitudinal distance backward therefrom of the opening in the top of the drawhead, the longitudinal distance between said point of connection of the lock and pin and the opening in the top of the drawhead being substantially equal to the longitudinal travel of the lock, said pin extending from said point of connection through said opening in the top of the drawhead, substantially as set forth.

3. In a vertical-plane coupler having a drawhead and coupling jaw, a swinging lock co-operating with said jaw, said lock having a rigid operating pin connected therewith, said pin extending at all times through an aperture or opening in the top of said draw-head, whereby said pin is always accessible from the exterior of said drawhead, substantially as set forth.

4. In a vertical-plane coupler having a drawhead and coupling jaw, a swinging lock co-operating with said jaw, said lock having a rigid curved operating pin connected therewith, substantially as set forth.

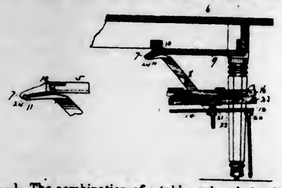
5. In a vertical-plane coupler, a drawhead having an incline, and a coupling jaw, in combination with a lock riding on said incline and co-operating with said jaw, said lock having a rigid pin connected therewith, said pin extending in a direction substantially parallel with said incline and extending at all times upwardly and outwardly through an aperture in the top of said drawhead, substantially as set forth.

6. In a vertical plane coupler having a drawhead and a coupling jaw, a swinging lock co-operating with said pin, said lock having an inclined operating pin connected therewith, substantially as set forth.

7. In a vertical plane coupler, having a drawhead and a coupling jaw, a swinging lock co-operating with said pin, said lock having an inclined operating pin rigidly connected therewith, substantially as set forth.

8. In a vertical plane car-coupler, the drawhead having an inwardly-projecting strain-sustaining rib, flange or bearing surface H, and the coupling jaw, in combination with the swinging lock or pawl which engages said coupling jaw, and which when it is in position to be so engaged bears against said rib, flange or bearing surface (and at no other of its positions) and transmits the strain of said jaw to said rib, flange or bearing surface, substantially as set forth.

491,590. COMBINED CHAIR AND TABLE. BRITTON POULSON, Fort Wayne, Ind. Filed Feb. 10, 1892. Serial No. 421,094. (No model.)



Claim.—1. The combination of a table and a chair with an arm connecting them together: a grooved plate attached to said table and adapted to receive and support movably a projection provided with lugs attached to said arm: an inclined end piece attached to said grooved plate and provided with a notch: an end or nose piece attached to the end of said arm adapted to engage said inclined end piece and be held in place by the notch thereof: a projection provided with lugs attached to said arm near said nose piece and adapted to move in the groove of said grooved plate, and be supported by its lugs resting upon said plate on either side of the groove, two projections of the lower end of said arm forming a groove or slot between them and connected by flanges on their lower sides, and provided with legs or supports: a sliding bar adapted to move in and be confined to the groove in said two projections of the lower end of said arm and provided with a threaded screw hole: a flange or plate provided with a screw bolt adapted to engage the threaded screw hole in said sliding bar: a chair seat attached to said flange or plate and means to lock said sliding bar in place.

2. The combination of a chair and table with an arm partially supporting the chair when in use and connecting them together; a slide plate attached to the table forming a support for said arm; projections on the ends of the slide plate and arm whereby the chair is held above the floor when not in use.

3. The combination of a table and a chair with an arm connecting them together: a grooved plate attached to said table and adapted to receive and support movably a projection provided with lugs attached to said arm: an inclined end piece attached to said grooved plate and provided with a notch: an end or nose piece attached to the end of said arm adapted to engage said inclined end piece and be held in place by the notch thereof: a projection provided with lugs attached to said arm near said nose piece, and adapted to move in the groove of said grooved plate, and be supported by its lugs resting upon said plate on either side of the groove: a chair attached to the other end of said arm and means to support the chair on the floor.

4. The combination of a table and a chair with an arm connecting them together: a plate attached to the table and adapted to form a slide and support for one end of said arm: an arm provided at one end with a projection adapted to slide upon and be supported by said plate, and provided at the other end with a groove or slot: a sliding bar adapted to move and be confined in the groove or slot in said arm: a seat attached to said sliding bar: and legs or supports attached to the lower end of said arm underneath said seat.

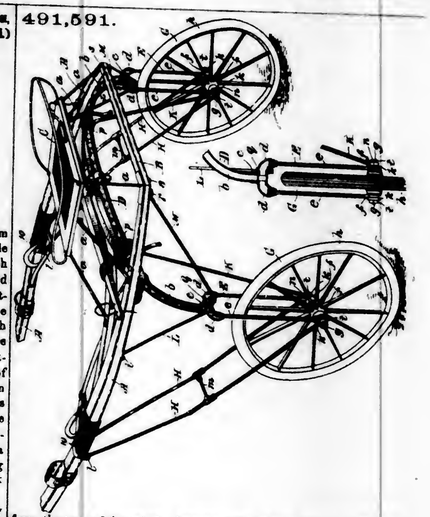
5. The combination of a table and a chair with an arm connecting them together; a plate attached to the table and adapted to form a slide or support for one end of said arm; a projection attached to the upper end of said arm adapted to slide on, and be supported by said plate; a seat or chair attached to the lower end of said arm, having legs or supports to sustain it upon the floor; projections on the ends of the slide plate and arm whereby the chair is held above the floor when not in use.

491,591. SULKY. JOSEPH F. PRAY, Boston, Mass. Filed Aug. 12, 1892. Serial No. 442,892. (No model.)

Claim.—1. In a sulky, a tubular axle having its ends curved or bent downward as shown, in combination with bifurcated tubular wheel hangers secured to the downwardly bent ends of the axle, and having solid welded ends provided with eyes for the reception of the wheel-spindles, and the tubular braces H, K, extending from the bottoms of the tubular wheel-hangers respectively to the shafts and axle, said braces having solid ends provided with means for attachment to the wheel-spindles, shafts, and axle, substantially as set forth.

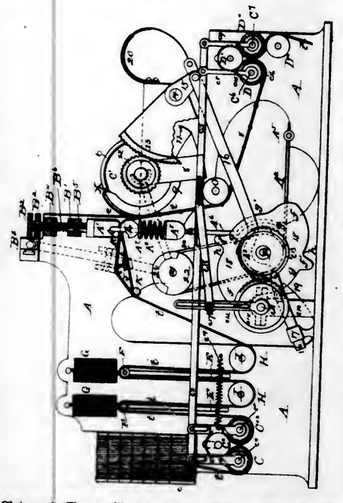
2. In a sulky, a tubular axle having its ends curved or bent downward as shown, in combination with the bifurcated tubular wheel-hangers E, E, secured to the downwardly bent ends of the axle and having solid welded ends provided with eyes for the reception of the wheel-spindles, the tubular braces H, K, extending from the bottoms of the tubular wheel-hangers respectively to the shafts and axle, said braces having solid welded ends provided with means for attachment to the wheel-spindles, shafts, and axle, and the braces L, M, extending from the tops of the tubular hangers to the shafts substantially as set forth.

491,591.



491,592. MACHINE FOR MAKING NETS. GEORGE W. PRICE, Baltimore, Md., assignor to William J. Hooper, same place. Filed Dec. 31, 1891. Serial No. 416,737. (No model.)

Brief.—Loops are formed in the warp-twines by semi-cylinders having a rotary reciprocating motion and a vertical motion. An oscillating frame carries hooks and bobbin-holders, and the hooks engage parts of the loops in the warps and draw the bights over the bobbins and let them slip between the bobbins and holders.



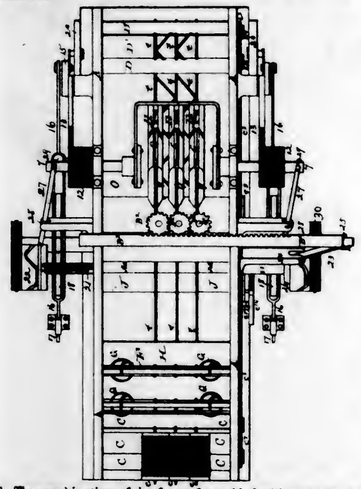
Claim.—1. The combination of the bobbin C with a ring provided with the spreader 6, as described.

2. The frame 8, in combination with the bobbin-holders 9, rigidly secured to the frame, and the bobbins C inserted in the bobbin-holders, substantially as shown.

3. The bobbin-holder 9, constructed in the form of an incomplete ring, in combination with the bobbin C, seated in the bobbin-holder and provided with the spreader 6, occupying the space between the ends of the bobbin holder ring, as described and shown.

4. The combination of the frame 8, bobbin-holders 9, secured to the frame, bobbins C seated within the bobbin-holders and hooks 11, as set forth.

5. The combination of the frame 8, and bobbin holders 9 rigidly secured thereto provided with journals as set forth, the supporting frame-work therefor, and mechanism for rotating the frame, as shown and described.



6. The combination of the frame 8 provided with journals as set forth, the supporting frame-work therefor, the bobbin-holders 9, and bobbins C seated within the holders, the hooks 11, and means for sliding the frame laterally, whereby the frame and its attachments are carried from one twine to the next adjoining one, substantially as shown.

7. The combination of the frame 8 provided with journals as set forth, the supporting frame-work therefor, bobbin-holders 9, bobbins C, hooks 11, and means for rotating the frame and sliding it laterally, as set forth.

8. The combination of the frame 8, provided with journals as set forth, the supporting frame work therefor, the bobbin-holders 9, bobbins C, and hooks 11, and means for giving the following rotary movements to the frame, first forward to enable the hooks to catch the twine, then backward to draw the loop over the bobbin, then forward to release the loop, substantially as shown.

9. A loop forming device, constructed in the form of a semi-cylinder and provided with a circumferential notch or groove at its lower end, substantially as described.

10. A loop forming device constructed in the form of a semi-cylinder, in combination with the pin A^3, and means for rotating the semi-cylinder around the pin, as set forth.

11. A loop forming device substantially as shown, in combination with the pin A^3, and means for rotating the loop-forming device one and a quarter turns around the pin and back again to its original position.

12. The combination of the loop-forming device substantially as shown, with the pin A^3, mechanism for rotating the loop forming device, and means for raising it as it turns to escape the twine, substantially as shown.

13. The combination of the semi-cylinders A', rods B', provided with screws B^5, cross-bar B^4, cog-wheels B^3, rack B^2, lever 23, and cylinder provided with cam groove 22, and mechanism for actuating said cylinder, substantially as shown.

14. The combination of the semi-cylinder A', and bar B^1, and means for imparting a rotary and vertical motion to the semi-cylinder A', substantially as shown.

15. The combination of the semi-cylinders A', and means for actuating the same, the pins A^3, means for pushing the loops from the semi-cylinders, and means for drawing down the pins, substantially as shown.

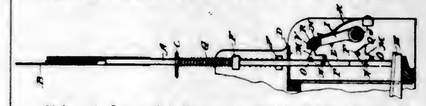
16. The combination of the semi-cylinders A', means for actuating the same, pins A^3, bobbin-holders 9, bobbins C and hooks 11, the frame 8, and means for actuating said frame, substantially as shown.

17. The combination of the plate M, plate J, thumb screw *d*, arranged and operating substantially as described.

18. The combination of the plate M, with means for tilting the plate to adapt it to the proper angle, and the hooks 11, and means for actuating said hooks, as set forth.

19. The combination of the plate A^1, projection D^1, standard D^2, arm D^4, ring D^3, and rod D^4, means whereby said rod is moved up and down, as set forth.

491,598. CASH REGISTER AND INDICATOR. HUGH C. PRITCHARD, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Nov. 19, 1892. Serial No. 452,547. (No model.)



Claim.—1. In a cash indicator, the combination of a movable indicator-supporting bar, a series of reciprocating indicator rods or supports, and a series of interposed plates, one between each rod and the supporting bar, said plates being arranged to force said bar aside when the indicator rods are moved to indicating position and to yield and support the rods in the manner described when the rods move backward toward normal position, for the purpose set forth.

2. In a cash indicator, the combination of a movable indicator-supporting bar, a series of reciprocating indicator rods or supports, and a series of interposed plates attached to the respective rods and having limited play thereon and adapted to co-operate with the supporting bar in the manner described, to force it aside during the movement of the rods to indicating position and to yield and catch upon it during the reverse movement of the rods, for the purpose set forth.

3. In a cash indicator, the combination of a movable indicator-supporting bar, a series of reciprocating indicator rods or supports, and a series of interposed plates pivoted to the respective rods and capable of limited movement thereon, said plates being maintained in rigid relation to their respective rods during the movement of the latter to indicating position and operating to force the supporting bar aside during such movement, and adapted to tilt and catch upon the bar when they engage it during the return movement of the rods, substantially as and for the purpose described.

4. In a cash indicator, the combination of the movable supporting bar H, the vertically guided indicator rods A carrying the indicators B, and the plates M pivoted to the rods A and capable of limited movement thereon, said plates being adapted to force the bar H aside during the upward movement of the rods and to tilt and catch upon it during the downward movement of the rods, substantially as and for the purpose described.

5. In a cash indicator, the combination of a movable indicator-supporting bar having both a supporting and a releasing portion, as described, a series of reciprocating rods or indicator supports, and a series of interposed plates attached to the respective rods and capable of limited movement thereon, each of said plates being adapted to force the bar aside during the upward movement of its rod and to yield and catch upon the supporting surface of the bar during the downward movement of the rod, and being adapted also to engage the releasing portion of the bar and force the bar aside if the rod be again moved upward before being returned to normal position, substantially as and for the purpose described.

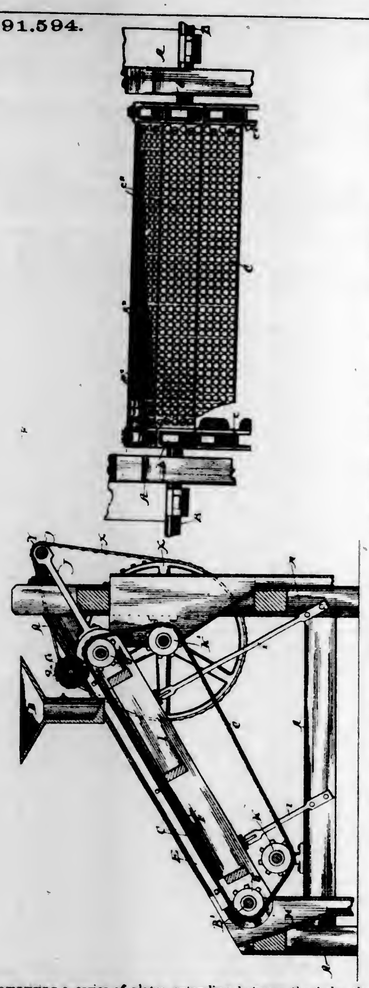
6. In a cash indicator, the combination of a movable supporting bar H having a supporting portion, and a releasing portion, as V, with the space R between them, a series of reciprocating rods or indicator-supports A, and a series of plates M pivoted to the rods A and capable of limited movement thereon, said plates being adapted to force the bar H aside during the upward movement of the rods and to tilt and catch upon the bar when they engage it during their downward movement, and being also adapted to engage the releasing portion V of the bar and force the bar aside if they are moved upward after they have been tilted and caught upon the supporting portion of the bar, substantially as and for the purpose described.

491,594. OAT-CLEANER. GEORGE H. RICH, Chicago, Ill. Filed Oct. 10, 1892. Serial No. 448,283. (No model.)

Claim.—1. In a separating machine and in combination with suitable supporting driving and feeding devices, a separating apron comprising two link belts upon opposite sides, and a series of pocketed metal plates filling the space between the two belts, the meeting edges of the upper surface of these plates being substantially in line with the pivotal axes of the links and the lower portions of these edges being beveled away; substantially as described.

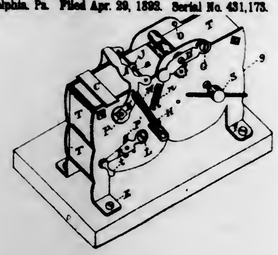
2. A traveling apron carried by link belts at its opposite edges

491,594.



and comprising a series of plates extending between the belts, the adjacent upper edges of these plates being substantially in line with the pivotal axes of the links and the lower edges of the plates being beveled away: substantially as shown and described.

491,595. TELEGRAPH-TRANSMITTER. ROBERT S. ROBERTS, Philadelphia, Pa. Filed Apr. 29, 1892. Serial No. 431,173. (No model.)



Claim.—In an automatic transmitter the combination of an angular transmitter A having two angle levers B, B', the axle F' journaled in and supporting the levers and transmitter, and the wheel J mounted on the transmitter, the axle and transmitter being electrically insulated from the other parts of the instrument substantially as shown and described.

491,596. ELECTRIC-LAMP FIXTURE OR BRACKET. JAMES T. ROSS, Mount Vernon, assignor to the Edison General Electric Company, New York, N. Y. Filed Aug. 31, 1891. Serial No. 404,228. (No model.)



Claim.—1. The combination of a fixture arm or tube, a base rigidly held at the end thereof, terminals on said base adapted to engage fixed terminals when placed in position and turned, said base forming a cover for the terminals, whereby the base can be put over the terminals and turned by means of the arm or tube to cause the terminals to be engaged, substantially as described.

2. The combination of a bracket adapted to support an electrical device and electrical conductors, a rigidly held base plate for the bracket having flanges or extensions and carrying terminals formed to engage with stationary terminals on a suitable support, the flanges or extensions separate from the terminals and being so arranged that the terminals can be engaged when the bracket base is placed over the stationary terminals in a certain predetermined position only, substantially as described.

3. The combination of a bracket adapted to support an electrical device and electrical conductors, a base plate for the bracket having an angular or irregular opening in which the bracket rests, being incapable of turning therein, when the bracket is turned in either direction, means rigidly securing the bracket in place in said opening, and terminals carried by the base and adapted to engage stationary terminals, substantially as described.

4. The combination of a bracket for supporting electrical conductors and an electric lamp or device, a base secured to the bracket and carrying hook-shaped terminals for the conductors, said base having a flange with a notch or opening, a box carrying terminals connected to a supply circuit and adapted to co-operate with the first mentioned terminals, said base forming a cover for the box, and a pin adapted to pass through the side of the box and through the opening in the flange when the cover has been turned to close the circuit, substantially as described.

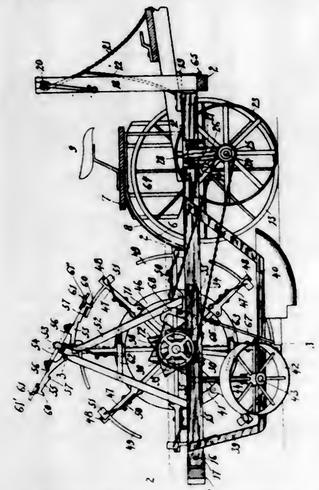
491,597. TRANSPLANTING MACHINE. JOHN M. SAILER, Janesville, Wis., assignor to James R. Mole, same place. Filed Mar. 28, 1892. Serial No. 426,661. (No model.)

Claim.—1. In a transplanting machine, the combination, of a horizontal table adapted to hold a series of plants or sprouts, of conveying mechanism turning in a circle at right angles thereto, said conveying mechanism constructed to engage the horizontal table, to partly rotate the same and to take the plants successively from said table at each partial revolution thereof and to deposit said plant in the ground, substantially as set forth.

2. In a transplanting machine, the combination, with a horizontal table having a series of radial guides secured to the periphery thereof, curved or deflected from a straight line and provided with slots throughout their lengths, of conveying mechanism turning in a circle at right angles to the table said conveying mechanism constructed to engage the slots of each successive guide, to partly rotate the table, and to take the plants successively from the guides upon the partial revolution and deposit the same in the ground, substantially as set forth.

3. In a transplanting machine, the combination of a table having a series of radial guides secured to the periphery thereof, said guides curved or deflected from a straight line and also provided at their forward ends with depending lugs, of conveying mechanism consisting of a wheel turning in a circle at right angles to the circle of the table, and a series of arms secured to the periphery of said wheel provided upon one edge with a laterally projecting lug and upon the opposite edge with a segment, the latter out of line laterally with the arm of which it forms a part, said laterally projecting lug constructed to engage the slot of the guide and the segment to enter between the depending lugs thereof after the former has passed through the slot,

whereby the table is given a partial revolution and the peripheral arms constructed to take the plant successively from the guides upon each partial revolution and deposit the same in the ground, substantially as set forth.



4. In a transplanting machine, the combination, of a horizontal table adapted to hold a series of plants or sprouts, a wheel turning in a circle at right angles thereto, arms projecting radially from the wheel, said arms constructed to successively engage the table partly rotate the same, and release the plant therefrom and clamping jaws secured to the arms and constructed to automatically engage the plants as they are released from the table and to deposit the same in the ground after the automatic opening of the jaws, substantially as set forth.

5. In a transplanting machine, the combination, of a rotating table, a series of guides secured thereto, deflected or curved from a straight line, each guide being slotted throughout its length and provided with side bulges, and at its forward end with an upwardly extending loop, a series of springs having their contacting arms passing through these loops, a conveying wheel, radial arms extending from said wheel constructed to engage the slots of the guides to give the table a partial revolution and to spread apart the springs in order to release the plants, sets of upper and lower inwardly curved arms, and spring clamps, the jaws thereof constructed to be held apart by the contracted space of the upper set of curved arms and to be subsequently held apart by the bulges of the guides as the peripheral arms traverse the slots thereof and upon leaving the bulged surfaces to automatically close upon the plant which is simultaneously released by the action of the peripheral arms in spreading the spring apart, said clamps conducting the plant to the furrow, where it is automatically released by the passage of the clamps into the narrow space of the lower set of curved arms, substantially as set forth.

6. In a transplanting machine, the combination, of a main frame, a medial frame pivoted to the rear thereof, a plow and covering wheels carried by the pivoted frame, and means for simultaneously raising the rear end of the main frame and the forward end of the pivoted frame, substantially as set forth.

7. In a transplanting machine, the combination, of a main frame, a tongue having its rear ends pivoted to said main frame, a medial frame pivoted to the rear of the main frame, uprights or standards projecting from the front of the main frame, a drum journaled between said uprights or standards, a chain connected to the tongue and wound upon the drum, and a branch chain connected to the front end of the pivoted frame, substantially as set forth.

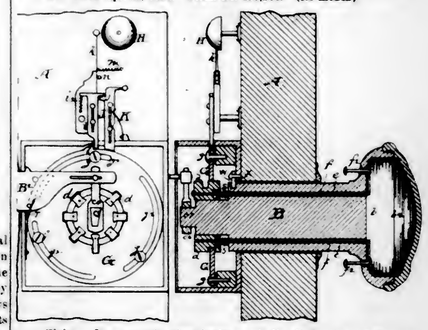
8. In a transplanting machine, the combination, of a frame, rods depending therefrom and covering wheels having the extended ends of their axles formed into clamps to engage the rods, said clamps receiving screws to retain them in their adjusted position, substantially as set forth.

9. In a transplanting machine, the combination of mechanism constructed to convey the plant to the furrow, a depending water pipe, and means in connection with said conveying mechanism for imparting to the pipe an oscillating movement during the rotation of the conveying mechanism, whereby the plant is watered during the time it is being automatically planted, substantially as set forth.

10. In a transplanter, the combination, of mechanism constructed through its rotation to convey the plant to the furrow, a cam wheel mounted upon the shaft of said conveying mechanism and turning therewith, an escapement oscillated by contact of the cam surfaces therewith, and a pipe connected with said escapement and oscillating therewith, substantially as set forth.

11. In a transplanting machine, the combination, of mechanism constructed through its rotation to convey the plant to the furrow, a cam wheel mounted upon the shaft of said conveying mechanism and turning therewith, an escapement provided with a laterally extending trunnion or pin having its bearing in the frame of the machine, and also provided with upper and lower rearwardly extending arms constructed to be alternately engaged by the cam surfaces, and a water pipe having its upper end passing through the pin or trunnion of the escapement, substantially as set forth.

491,598. COMBINATION-LOCK. WILLIAM A. SCHENCK, Richmond, Va. Filed Apr. 22, 1892. Serial No. 430,266. (No model.)



Claim.—In a combination lock, a spindle, B, having perforated half head and longitudinal bores, grooves *c c* in its inner end, rods *f, f*, contained in said bores, tumbler blocks *d d*, in said grooves *c, c*, and attached to the rods, springs *s s*, on said rods, slotted tumbler engagement disk G, gong H, hammer lever *h*, sliding bar *i*, on said hammer lever, stop bar J, and spring K, constructed and adapted to operate substantially as and for the purpose specified.

491,599. PLOW. HENRY G. SCHMITT, Hendy Creek, N. Y. Filed Apr. 9, 1892. Serial No. 428,488. (No model.)

Claim.—1. In a double mold board plow, the plate 26 pivotally supported on the standard and provided with stops 28, said stops being adapted to engage the standard and said plate being movable independently of the beam, and the handles fast on said plate combined with devices for locking them in different positions with respect to said standard and beam, consisting of a hook 30 and connecting bar 7; substantially as set forth.

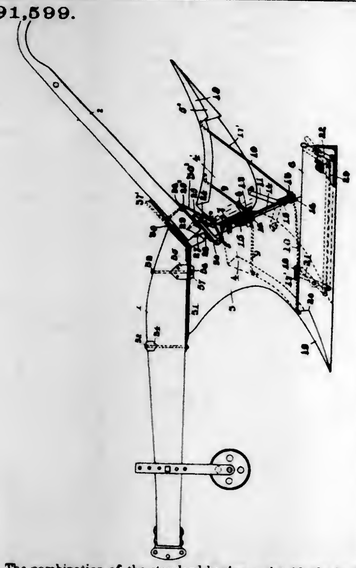
2. In combination the laterally adjustable plow beam, the beam pillow 31 having an upturned end provided with notches 40 and the spring lever handle 37 provided with a catch 39 adapted to be engaged with any one of said notches, said handle being adapted to move the plow beam independently of the plow handles and to operate the catch; substantially as set forth.

3. In combination the laterally adjustable plow beam, the standard having notch 37 to give access to nut 36 on bolt 33, the beam pillow 31 having an upturned end provided with notches 40 and the spring lever handle 37 provided with a catch 39 adapted to be engaged with any one of said notches whereby the beam can be moved and locked; substantially as set forth.

4. The double mold board having parts connected by the plates 7 and 8, and by bars or braces 9 and 10 adapted to receive the hinge pintle, brace 10 being further connected to each mold board by a brace 11 extending from near the middle of said brace 10 to near the upper joined ends of two plow boards; substantially as set forth.

5. In combination the double mold board having its parts connected by bent bars 9 and 10, said bars being provided with lugs or hinge extensions to receive a pintle in combination with the standard having similar lugs or extensions and provided with slots to receive the bar lugs, and the hinge pintle, the upper joined ends of the double mold board being connected by braces 11 with brace 10 near its hinge; substantially as set forth.

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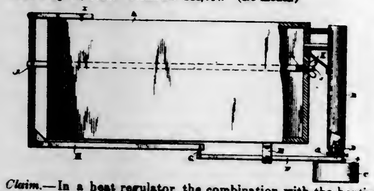


6. The combination of the standard having a slot 18, the landside, the hinged double mold board having bar 10 provided with slots 17 and a locking device adapted to enter either slot 17 and lock the mold board against the standard; substantially as set forth.

7. The combination of the standard having a slot 18 the landside, the hinged double mold board having bar 10 provided with slots 17 and a locking device adapted to enter either slot 17 and lock the mold board against the standard, said device consisting of the two pivoted bars and connecting rod; substantially as set forth.

8. The combination of the standard having a slot 18 the landside, the hinged double mold board having bar 10 provided with slots 17 and a locking device adapted to enter either slot 17 and lock the mold board against the standard, said device consisting of the two bars pivoted on the interior of the landside and having the free end of one lever extending from the rear end of the landside and adapted to be operated by the foot; substantially as set forth.

491,600. HEAT-REGULATOR. JOHN J. SCHRAG, Valentine, Kans. Filed July 30, 1892. Serial No. 441,717. (No model.)

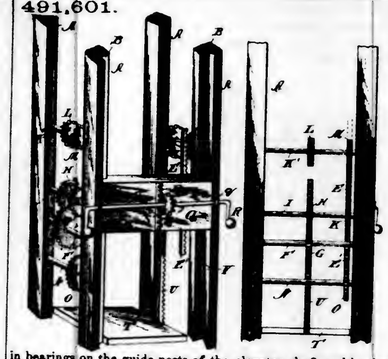


Claim.—In a heat regulator, the combination with the heating lamp; of the regulating sleeve moving over the wick having depending legs or arms, a horizontal lever pivotally mounted adjacent to the lamp and having a forked end engaging said depending legs or arms, an angle lever pivotally suspended from a suitable point of attachment at the upper end of its vertical arm, a link pivotally connecting one end of the horizontal arm of the angle lever to one end of said horizontal lever, and an adjustable thermostatic bar or rod pivotally connected at one end to the vertical arm of the angle lever, substantially as set forth.

491,601. AUTOMATIC ELEVATOR-GATE. PHILIP J. SCHREIBER, Dayton, Ohio. Filed Jan. 12, 1891. Serial No. 377,565. (No model.)

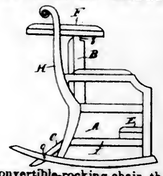
Claim.—The combination of an elevator car provided on opposite sides with upwardly extending rack bars, a sliding gate provided on its outer face with a central vertical rack, a transverse shaft journaled

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in bearings on the guide posts of the elevator shaft and having the weighted handles at its ends, a pinion secured on said shaft and meshing with the vertical rack on the outer face of the door, racks attached to and extending above and below the door, and a train of gears meshing with said racks and with the racks on the elevator car, substantially as described, for the purpose specified.

491,602. CONVERTIBLE CHAIR. CATHERINE SCHULTE, Port Huron, Mich. Filed Mar. 21, 1892. Serial No. 425,843. (No model.)



Claim.—In a convertible-rocking-chair, the combination of the frame, the hinged back adapted to swing to a horizontal position, the hinged bottom adapted to swing to a vertical position and support said back, the rockers, the braces pivoted thereto, and means connecting said braces with the hinged bottom, whereby when said bottom is raised said braces are thrown into position to block the rockers, substantially as and for the purposes specified.

491,603. DUPLEX ELECTRIC-ARC LAMP. CHARLES R. SCHRIEBER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Oct. 27, 1890. Serial No. 369,407. (No model.)

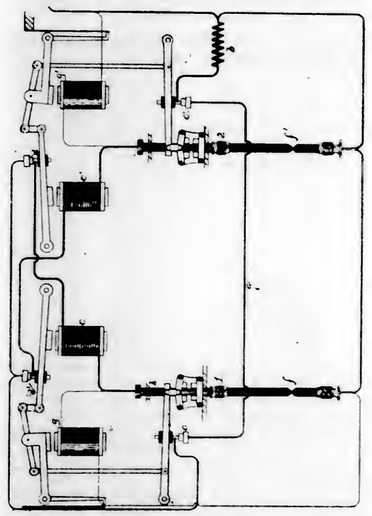
Claim.—1. In an arc like system two lamps each provided with lifting and feeding mechanism and connected in multiple arc, of contacts one for each lamp controlled by the lifting mechanism thereof, said contacts being placed reciprocally each in that part of the multiple circuit leading to the carbons of the other lamp, whereby when either lifting mechanism is actuated to separate the carbons of its lamp the contact controlled by said actuated lifting mechanism will be opened and held open.

2. The combination with two lamps adapted to burn one after the other and connected in the same circuit in multiple arc, of a shunt circuit containing resistance around both lamps passing through two contacts or cut outs, one controlled by the lever of each lamp whereby when the clutch lever of the lamp which is burning is lowered to close the contact or cut out controlled thereby both lamps will be shunted.

3. The combination with two lamps connected in multiple arc, of two contacts placed reciprocally in the multiple circuit including the other lamp, the carbons of each of said lamps being normally in contact, and a shunt around both lamps, including two cut outs one for each lamp, the feeding mechanism in each lamp in a shunt around the carbons thereof, and the lifting mechanism actuated a definite distance to separate the carbons of its lamp and establish the arc and hold open the contact in the multiple circuit including the other lamp.

4. Two lamps placed in multiple arc and provided with a shunt of low resistance around both, a cut out adapted to be closed on an abnormal increase of the electro motive force of the arc of its lamp being provided in said shunt at each lamp, the lifting magnet and carbons of the different lamps being reciprocally placed in circuit im-

mediately after a contact which is opened by the force of the lifting magnet of the other lamp when first excited, whereby one lamp is caused to burn after the other, the lamp burning first whose lifting magnet is first sufficiently excited to open the contact controlled thereby.



5. In an electric arc lamp system two lamps each having a lifting and a feeding mechanism, the lifting and feeding mechanisms having independent control of the carbon rod movements, a circuit closer for each lifting mechanism controlled thereby, a main circuit and derived circuits therefrom, each derived circuit including one of the lamps and the circuit closer of the other lamp, whereby when either of the lamps is burning the circuit of the other lamp is held open at the circuit closer.

6. In an electric arc lamp system the combination with two lamps in derived circuit, the lifting mechanism of one lamp controlling a circuit closer in circuit with the other lamp, a shunt circuit including resistance about both lamps, said shunt circuit including in its circuit a circuit closer or circuit closers controlled by each lamp, whereby the circuit may be reciprocally shifted from one lamp to the other.

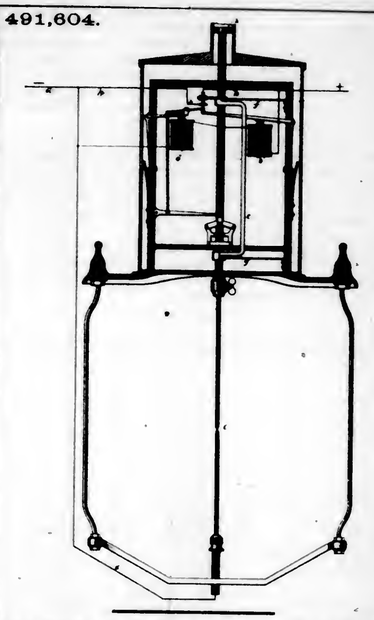
7. The combination in an electric arc lamp system, of a lifting mechanism and a feeding mechanism in each of two lamps, the two lamps being placed in multiple arc, the controlling electro magnet of the feeding mechanisms being in the shunt of the arc of its lamp, circuit closers operated by the lifting mechanism of each lamp, the circuit closer of each lamp being included in the circuit of the other lamp, a shunt circuit including resistance about the two lamps and circuit closers controlled by the clutch levers of the two lamps included in said shunt circuit.

491,604. ELECTRIC-ARC LAMP. CHARLES R. SCHRIEBER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Oct. 30, 1890. Serial No. 369,797. (No model.)

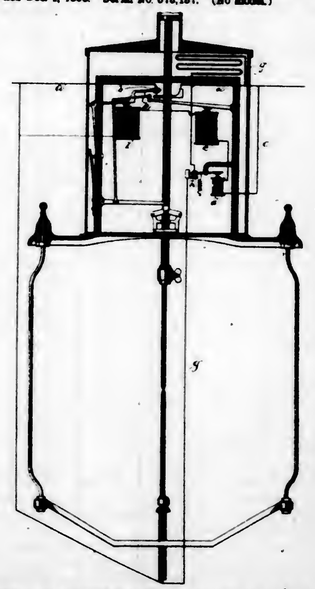
Claim.—1. A direct shunt around an electric lamp, said shunt containing a circuit closer, in combination with the carbon rod and a yielding guide for the carbon rod adapted to maintain said cut out opened or closed accordingly as the weight of the rod is placed upon or removed from the said yielding guide.

2. The combination with the carbon rod of an electric arc lamp, of a yielding guide therefor, contact points controlled by said guide to be closed when the weight of the rod comes upon the guide, and a shunt circuit about the lamp including said contact points, substantially as described.

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491,605. CUT-OUT FOR ARC LAMPS. CHARLES R. SCHRIEBER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed Dec. 1, 1890. Serial No. 373,137. (No model.)



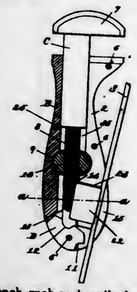
Claim.—1. The combination in an electric arc lamp, of an electro magnetic cut out device, the lifting magnet and carbons connected in series with a magnet controlling cut out in a shunt placed around

said electro magnetic cut out, said lifting magnet and said carbons, said electro magnetic cut out being adapted to hold said cut out shunt open while the lamp is burning and closed when the arc is extinguished and a direct shunt around the lamp containing a circuit closer controlled by the feeding mechanism of the lamp to momentarily close the circuit around the lamp on the formation of an abnormal arc to bring the electro magnetic cut out device into action, substantially as and for the purpose specified.

2. The combination with a shunt circuit *a* around the lamp containing a circuit closer *b* brought into action upon the formation of an abnormal arc to momentarily shunt out the lamp and extinguish the arc, of an electro magnetic cut out device adapted to close a permanent shunt about said lamp when actuated brought into action by such momentary closing of the shunt circuit *a*, substantially as and for the purpose specified.

3. The direct shunt *a* around an electric arc lamp including the circuit closer *b* in combination with the feeding mechanism for closing said circuit closer upon the formation of an abnormal arc, substantially as and for the purpose specified.

491,606. WRENCH. EDWARD L. SHULTS, Hartford, Conn. Filed Apr. 26, 1892. Serial No. 430,747. (No model.)



Claim.—1. In a wrench, such as described, the combination with the handle, the longitudinally movable wrench bar carried thereby and the co-operating nut clamping jaws at one end thereof, of the spoke gripping jaws at the opposite end having gripping faces inclined at an acute angle to the longitudinal center of the handle and adapted to be closed by the rearward movement of the wrench bar, whereby the body of the wrench lies close to the spoke when gripped thereon to facilitate its passage between adjacent spokes; substantially as described.

2. In a wrench, such as described, the combination with the handle, the longitudinally movable wrench bar carried thereby and having the rear end wedge shape, co-operating nut clamping jaws at one end of said bar and handle and the stationary spoke gripping jaw at the opposite end of the handle, of the movable spoke gripping jaw carried by the handle and co-operating with the wedge shape end of the wrench bar whereby it is closed against the stationary spoke gripping jaw; substantially as described.

3. In a wrench of the class specified, the combination with the movable jaw having the stem 8 inclined on one side thereof as set forth, of the handle having the grip-jaw face at one side of said stem and substantially longitudinal with said inclined face, and a jaw intermediate to said inclined face and handle-jaw and adapted to be actuated by the stem for gripping the spoke, substantially as shown and described.

4. In a wrench of the class specified, the combination with the wrench-handle having the fixed spoke-grip-jaw, and with the wrench-bar sliding in the handle and having a wedge substantially as described, of the rocking spoke-grip-jaw seated against said wedge and having its spoke-engaging edge movable laterally of the fixed jaw, substantially as set forth.

5. In a wrench of the class specified, the combination with the handle having the slot 13, of the blade D pivoted in said slot and having the detent-notches, and the wrench-bar having the projecting end fitted to engage in said blade-notches when the wrench-bar is closed, substantially as described.

6. In a wrench of the class specified, the combination with a handle having the grip-jaw 15, of the sliding stem 8 having an inclined face as set forth, and the movable jaw 23 having a concave grip-face co-acting with the said grip-jaw, the face-side of said movable jaw being adapted to have movement laterally of its closing movement, substantially as and for the purpose described.

7. The improved wrench-bar-blank herein shown and described for wrenches of the class specified, consisting in the two side plates 2 and 4 joined at their edges by the back-forming portion 25, and having therein, respectively, the wrench-bar grooves 3 and 5, and one of the sides having thereon the grip-jaw 15, said handle-blank being adapted to be closed upon itself to form the handle of the wrench and having therein the wrench-bar space, the nut-space, and the spoke-grip-jaw-space, substantially as set forth.

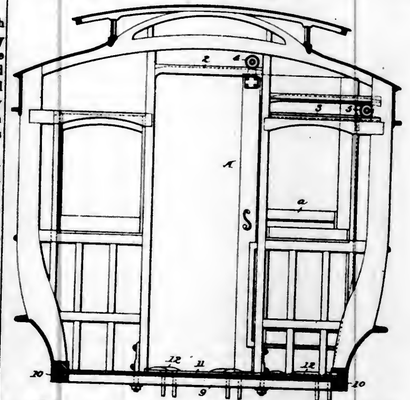
491,607. PIANO. GEORGE STECK, New York, N. Y. Filed June 13, 1892. Serial No. 437,164. (No model.)



Claim.—1. In a stringless piano, the combination of a perforated rail with a perforated slide and with a sound producing rod having a hook shaped end that engages the slide, substantially as specified.

2. In a stringless piano, the combination of a perforated rail with a perforated slide and with a sound producing rod having an inwardly bent hook shaped end that engages the slide, substantially as specified.

491,608. TRAM-CAR. JOHN STEPHENSON, New York, N. Y. Filed Sept. 5, 1892. Serial No. 445,119. (No model.)



Claim.—1. A tram car with its door bottom sliding between rising flanges on the door sill plate with its end resting on the side sill of the car body, substantially as described.

2. A tram car with its door hung on sheaves, the axle of the sheave being hollow and provided with a tube communicating with the interior of the axle and discharging to the exterior of the lower side thereof, substantially as described.

3. A tram car with its door hung at or near its top by sheaves having enlarged axles provided with oil chambers within the journals and tubes for dripping the oil on the sheave axle journals, and the door bottom sliding between rising flanges of the door sill plate with its end resting on the side sill of the car body, the plate carrying the platform bearer bolts which hold up the car platform with its load, substantially as described.

491,609. TRACK-CIRCUIT. JOSEPH B. SEWARD, Haverstraw, N. Y. Filed Nov. 5, 1892. Serial No. 451,065. (No model.)



Claim.—1. A system of electric railway signals having the rails of the adjacent signal sections connected with the ordinary mechanical connections only and the rails comprising each signal section connected by low resistance connectors, substantially as described.

2. A system of electric railway signals, having the rails of the adjacent sections connected by the usual mechanical connections only and the rails of each signal section connected by low resistance conductors, in combination with a battery of low power, a relay included in the circuit of said battery, and taps leading from said battery to the lines of rails, substantially as described.

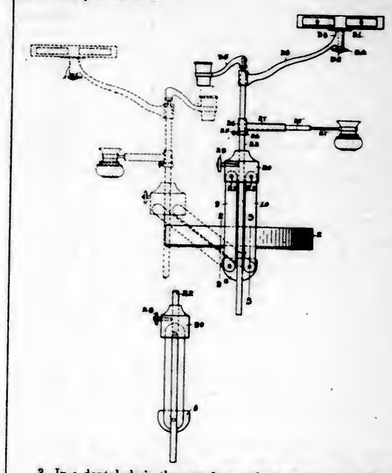
3. A system of electric railway signals, having the rails of the adjacent sections connected by the ordinary mechanical connections only and the rails of the section connected by low resistance conductors, in combination with a battery of low power, a relay connected in circuit with the battery, taps leading from the battery to the lines of rails, the resistance of the relay being so proportioned to the resistance of the section of rails to be protected that the relay will be normally energized, but will be de-energized on the passage of a train over the rails of the section, substantially as described

4. A system of electric railway signals having the rails of the adjacent sections connected by the usual mechanical connections only and the rails of each signal section connected by low resistance conductors, in combination with a battery of low power, a relay included in the circuit of said battery, taps leading from said battery to the lines of rails, and a local circuit controlling a signal device and controlled by the relay, substantially as described.

491,610. BRACKET FOR DENTAL CHAIRS. DEWELL STOCK, Rochester, N. Y. Filed Mar. 19, 1892. Serial No. 426,547. (No model.)

Claim.—1. In a chair the combination of a frame pivoted to a hanger attached to the seat frame approximately midway the side of the chair and movable in a plane parallel with said side and at a constant distance therefrom toward either the front or rear from its intermediate vertical position and also pivoted to a rod-supporting block, said rod and block, the rod being adapted to be constantly and automatically supported in a vertical plane at the intermediate position and on either side thereof an article-supporting arm secured to the rod and a friction block interposed between the frame and hanger; substantially as set forth.

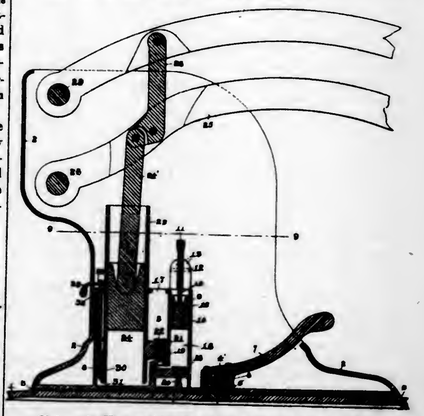
2. In a chair the combination of a frame pivoted to a hanger attached to the seat frame, approximately midway the side of the chair and movable parallel with said side toward either front or rear from its intermediate vertical position, and also pivoted to a rod-supporting block, said rod and block, an article-supporting arm secured to the rod, a friction block situated between the hanger and frame, and a set screw bearing on said friction block and adapted to vary the amount of friction and also to fasten the frame to the hanger; substantially as set forth.



3. In a dental chair the seat frame, the hanger secured thereto at its side having an upturned end 6, the frames 9 and 10 pivotally connected to said hanger and to a rod-supporting block, each frame being slotted to receive said upturned end of the hanger, the said block and the rod adjustably supported in the block, and means for counter-balancing the frame on either side of the vertical position; substantially as set forth.

4. In a chair the seat frame, the hanger secured thereto having an upturned end 6, the frames 9 and 10 pivotally connected to said hanger and to a rod-supporting block, each frame being slotted to receive said upturned end of the hanger the counter balancing spring and the friction block; substantially as set forth.

491,611. DENTAL CHAIR. DEWELL STOCK, Rochester, N. Y. Filed Mar. 19, 1892. Serial No. 426,548. (No model.)



Claim.—1. The combination of the standard, the parallel levers having fulcrums therein, the seat frame, the bar 39 pivoted to each of said levers and extending backwardly and over the point of application of power to said levers and journaled in said frame, and mechanism for moving the levers connected to the same at one side of said fulcrums and immediately under the connection of bar 39 with the seat frame, consisting of a piston having a rod pivotally connected therewith and with the levers and means for raising the piston; substantially as set forth.

2. The combination of the standard, the parallel levers having fulcrums therein, the seat frame, the bar 39 pivoted to each of said levers and extending backwardly and over the point of application of power to said levers and journaled in said frame, and mechanism for moving the levers about the fulcrums consisting of a piston having a rod pivotally connected therewith and with the levers and means for raising the piston; substantially as set forth.

3. The combination of the standard, the parallel levers having fulcrums therein, the seat frame, the bar 39 pivoted to each of said levers and extending backwardly and over the point of application of power to said levers and journaled in said frame, and mechanism for moving the levers about the fulcrums consisting of a piston having a rod pivotally connected therewith and with the levers, means for raising the piston, and means adapted to automatically lower the same; substantially as set forth.

4. In combination a seat frame, a rack fast on said frame, an elevating bar 39 loosely connected to and supporting the frame, mechanism for raising the bar consisting of the parallel bars fulcramed in a chair standard and the piston and piston rod, said rod being pivotally connected both to the piston and to the levers, and a pawl having a lever extension pivoted to and movable with said elevating bar; whereby the chair seat can be raised and automatically lowered and also tilted and locked in the tilted position at any desired elevation; substantially as set forth.

5. The standard having an open side and top and having its upper part enlarged or laterally extended, levers having fulcrums in said extensions and extending through the open side of the standard, the seat supported on said levers and means for raising and lowering the latter; substantially as set forth.

6. The rotatable chair standard provided with a lateral extension near its upper part and a vertical slot on the side opposite the extension, a seat elevating piston, a reservoir containing the same and situated adjacent to the standard wall below said extension, a centrally situated clamping lever, and seat elevating levers fulcrumed in said extension, both the clamping and the elevating levers extending through said slot; substantially as set forth.

7. The standard having aclosed bottom and circumferential walls adapted to inclose seat-elevating devices and provided with a lateral extension and with elevating levers fulcrumed in its extension and slotted at one side for the passage of a standard-clamping handle 7 and of the elevating levers, the open-topped reservoir situated on said bottom at one side of its center, the pump, and the main piston cylinder situated in the reservoir, and a valve having an operating handle situated above the reservoir and extending through the inclosing wall of the standard; substantially as set forth.

8. In combination the seat frame, the back frame slotted in its bottom and rear and pivotally connected to said seat frame, the brace pivoted to the same frame and having at its outer end a pivoted screw and clamping nut, said screw being adapted to move in the rear slot of the frame when not clamped; substantially as set forth.

9. In combination the swinging back frame 56, provided with grooves, the sliding frame 66 fitting said grooves and itself provided with grooves, the bar 69 fitting the latter grooves, the rod situated in a passage in the bar, and a friction pawl pivoted in the bar, and adapted to be operated by the rod to lock the slide bar to the sliding frame, means for relatively moving the bar and rod, means for clamping the main sliding frame to the back frame, and a head rest supported from the bar and rod; substantially as set forth.

10. In combination the head rest, the lever having arms embracing a part of said rest, a second lever crossing the first and having a seat for said part, said levers having a common fulcrum, a second pair of levers having a common fulcrum, and overlapping the pair first named, a bolt passing loosely through the overlapping arms of the four levers and engaging the interior ones, and mechanism for forcing together the ends of the said second pair of levers which are opposite said bolt to clamp the head rest; substantially as set forth.

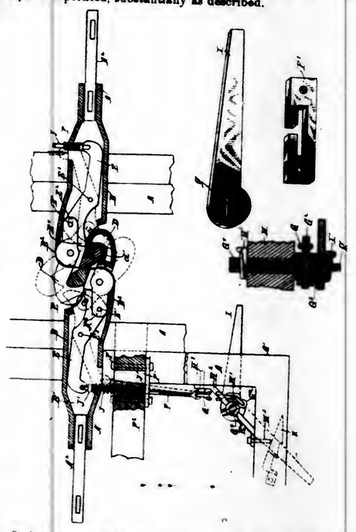
11. The foot rest roll frame having a curved groove in each end, and a foot rest or platform frame provided with lugs fitting said grooves the roll frame being provided with one or more rolls and adapted to be slid on the lugs to and from the chair seat to give various elevations of a roll; substantially as set forth.

12. A supporting roll-frame having a curved groove in each end and a foot rest frame having lugs fitting said grooves provided with one or more rolls, the roll frame being adapted to be slid on the lugs to and from the chair seat to give various elevations of a roll, one of said grooves communicating with notches on its under side to receive a lug whereby the roll frame is secured in different positions; substantially as set forth.

491,612. CAR-COUPLING. WILLIAM W. SWAIN, Seattle, Wash. Filed Nov. 30, 1892. Serial No. 453,642. (No model.)

Claim.—1. In a car coupler the combination of two draw heads a stationary and swinging hook attached to each, a spring actuated lever connected to and operating each of the swinging hooks and means connected with the lever by which it may be operated.

2. In a car coupler the combination of a pair of draw heads a stationary hook attached to each a swinging hook connected to each of the jaws levers pivotally attached to the swinging hook, rods connected to the levers, springs for actuating the lever and hence the swinging hook, and a second lever connected to the rod by which the coupler is operated, substantially as described.

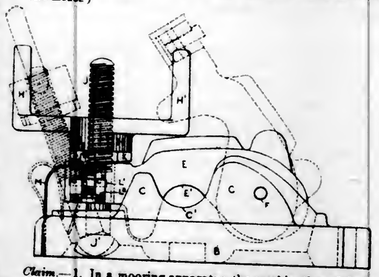


3. In a car coupling the combination of a pair of drawheads, a swinging and stationary hook attached to each, means on each drawhead for operating the swinging hook attached thereto and a lever arranged to engage the end of the swinging hook on the opposite drawhead.

4. In a car coupler the combination of a pair of drawheads, a swinging and stationary hook attached to each, a lever fulcrumed on each drawhead and by which the swinging hook attached thereto is operated, the free end of said lever being adapted to engage the end of the swinging hook of the opposite drawhead and when so operated, to throw said hook out of engagement with its stationary companion.

5. In a car coupler the combination of a pair of drawheads, a stationary and swinging hook attached to each, and a lever on each drawhead by which the swinging hook may be operated to uncouple the cars.

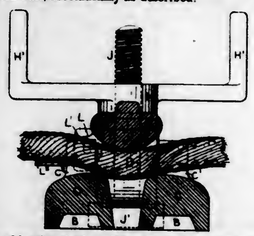
491,613. MOORING APPARATUS. WILLIAM THOMPSON and DAVID DEHART, Sunderland, England. Filed May 21, 1892. Serial No. 433,344. (No model.)



Claim.—1. In a mooring apparatus, the combination of the base portion B, the jaws C C, carried thereby and having indentations C' C', a movable jaw E having an indentation E' and slot E², said jaw being pivotally connected with the base portion, a bolt J pivoted below the jaw E and adapted to enter the slot E² and the nut H on the bolt arranged to hold the movable jaw, substantially as described.

2. In combination the base having the jaws C C, the movable jaw pivotally connected to the base and having a slot E, a bolt J pivoted below the jaw E and adapted to enter the said slot the nut H on the bolt, said nut having the ratchet teeth and a pawl L supported adjacent to the ratchet teeth to engage the same, substantially as described.

3. In combination the base having the jaws C C, the movable jaw pivoted to the base portion and having a slot E², a bolt J pivoted below the jaw E and adapted to the said slot, a nut H on the bolt having ratchet teeth K, a pawl L supported adjacent to the teeth to engage the same and the spring M supported on the base and bearing on the pivoted bolt, substantially as described.



4. In combination the base B, having a circular opening, the jaws C C carried thereby and having a circular projection fitting said opening, the jaw E pivotally connected with the base through one of the jaws C and the means for holding the jaws together, substantially as described.

5. In combination the base having a circular opening with a gap S at one side thereof, the jaws C, C, carried by the base and having a circular projection fitting in the opening in the base, the holding piece T fitting in the gap of the base, the movable jaws E pivotally connected with the base through one of the jaws C and the means for holding the jaws together, substantially as described.

6. In combination the base B having an opening, the jaws C, C, carried thereby and having a projecting fitting in the said opening, the jaw E arranged over the jaws C, C, and movable in relation thereto, the bolt for holding the jaws together pivoted to the jaw piece C, C, and movable therewith, and the nut on the said bolt, substantially as described.

491,614. COMBINED BADGE, PENCIL, AND BOUQUET HOLDER. HENRY O. THOMAS, Kimball, assignor of two-thirds to John W. Stevenson and Christopher Cusack, North Bend, Nebr. Filed Aug. 26, 1892. Serial No. 444,310. (No model.)



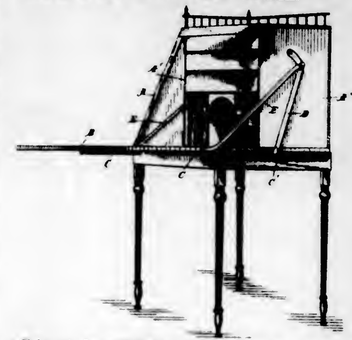
Claim.—1. A device of the character set forth, consisting of a badge head having an oblong shank and a shoe on the end thereof, and a spring of coiled form surrounding said shank and having one end formed into a pin and angularly bent, substantially as described.

2. In a device of the character set forth, a badge head having a shank of oblong form with a shoe on the end thereof, and a wire hook below said shank, and a coiled spring surrounding the shank and having one end thereof formed into a pin and provided with an angular bend and the opposite end of the spring formed into a small hook, substantially as described.

3. In a device of the character set forth, the combination with a badge as set forth, of a spring of coiled form removably attached thereto and having one end thereof formed into a pin and adapted to be employed either as a pencil holder or a bouquet holder, substantially as described.

4. A device of the character set forth, consisting of a badge head having an oblong shank and a shoe on the end thereof, and a spring of coiled form surrounding said shank, and an attaching pin, substantially as described.

491,615. DESK-SUPPORT. FRED W. TOBEY, Grand Rapids, Mich. Filed Oct. 29, 1892. Serial No. 450,967. (No model.)

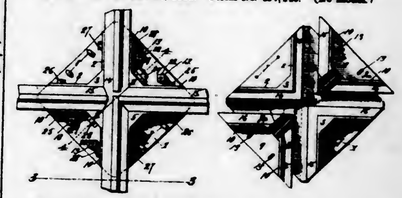


Claim.—1. In combination with a desk having a hinged front, and horizontally movable slides supporting the same, pendulum levers pivoted at their upper ends, and engaging said slides near their lower ends, and connecting rods pivoted to said levers and to said front, substantially as described.

2. In combination with a desk, having parallel ends and walls, a hinged front and horizontally movable slides supporting the same, levers between said ends and walls, having forwardly bent and pivoted ends, and connecting rods pivoted to said levers near said bent ends, and to said front near its hinged side, substantially as described.

3. In combination with a desk, having a front hinged at the bottom, horizontally movable cylindrical slides, having vertical openings near their inner ends, levers engaging said openings, and extending upward and forwardly bent and pivoted at their upper ends, and rods pivoted to the levers near said bends, and to said front near its hinged side, substantially as described.

491,616. RAILWAY-CROSSING PLATE. CHARLES VOGT, Kansas City, Mo. Filed June 21, 1892. Serial No. 437,449. (No model.)



Claim.—1. A railway crossing plate or frog comprising a suitable continuous base plate or body-portion having integral and divergent retaining ribs or flanges located in pairs upon said plate and extending oppositely from each other and removable members located upon the base or body-portion and having companion divergent ribs or flanges and also located oppositely from each other and intermediately of the sets of flanges or ribs of the base, substantially as set forth.

2. A railway crossing plate or frog comprising a continuous base plate or body portion having formed upon its upper side two sets of oppositely disposed divergent ribs or flanges provided each at the junction of their inner ends with strengthening bosses or enlargements, substantially as set forth.

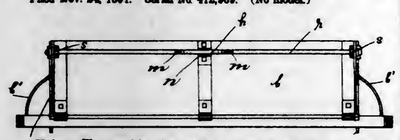
3. An attachment for railway crossing plates comprising a detachable member having formed upon its upper side a set of divergent retaining ribs or flanges united at their inner ends by an integral boss or enlargement and provided with an opening or channel extending longitudinally through such boss or enlargement, substantially as set forth.

4. A railway crossing plate or frog, comprising a continuous base plate or body-portion, having formed upon its upper side two sets of divergent flanges, and two removable members located upon the base or body-portion, and having formed upon their upper sides and integral therewith sets of divergent ribs or flanges, said members being designed to be interposed between the ribs or flanges of the base, and a through bolt, passing through the oppositely disposed removable

members, through the enlargements thereof and through the continuous rail, and having a retaining and locking nut thereon, substantially as described.

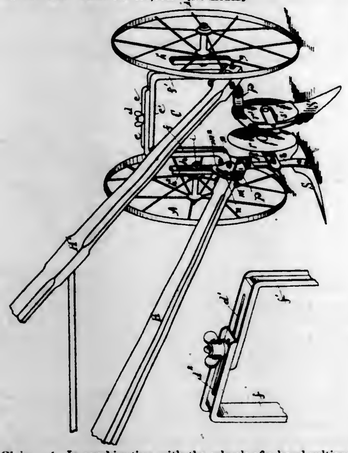
5. A railway crossing plate or frog, comprising a continuous base plate or body-portion, a pair of divergent ribs or flanges at the upper side of said plate and integral therewith, a pair of divergent flanges located diagonally opposite the first-named pair, and also at the upper side of the base plate and integral therewith, and two removable members located diagonally opposite each other and upon the base plate, one between the adjacent sides of each pair of stationary or integral members, and the outer sides of each divergent rib or flange provided with a longitudinal rib or enlargement, adapted to fit closely and conform to the curvature of the side of the rail against which it is placed, substantially as set forth.

491,617. END-GATE. WILLIAM K. WAGNER, Youngstown, Ohio. Filed Nov. 24, 1891. Serial No. 412,969. (No model.)



Claim.—The combination with a wagon bed having a catch secured thereto at each side and an end gate hinged to the rear end, of a latch rod secured to the end gate, each end of which is provided with a toothed latch which passes through the latch upon its respective side, and is provided with teeth upon its under edge, which engage with the catch, holding the end gate in the desired position, said rod being provided at its central portion with a clip forming a handle for rotating the rod and operating the latches, and a central bearing for the rod intermediate the ends of the clip, substantially as set forth.

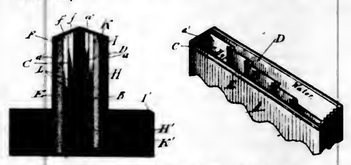
491,618. CULTIVATOR. JOHN F. WALTROUS, Chelsea, Mich. Filed July 14, 1892. Serial No. 439,991. (No model.)



Claim.—1. In combination with the wheels of a hand cultivator, an arched axle rising at its middle point above the plane of the hub, and dropping at each end near the hub, below the plane of the hub, and provided at the ends with upturned parts, adapted to engage with the hubs, operating handles and cultivator points adjustably secured to said arched axle below the plane of the hubs, substantially as and for the purpose described.

2. In a hand cultivator, the combination of supporting wheels an arched dropped axle provided with slotted vertical ends, and made in two parts slidingly secured together at the arch, operating handles secured to said axle at the drop part thereof, cultivator points, adjustable through an angle with respect to said handles, substantially as and for the purpose described.

491,619. PHOTOGRAPHIC FIXING AND WASHING TANK. ALFRED R. WARD, Toronto, Canada. Filed May 13, 1892. Serial No. 432,655. (No model.)



Claim.—1. A combined fixing and washing tank comprising a suitable vessel, a partition B dividing said vessel into two divisions one of said divisions adapted to contain a chemical solution and the other division adapted to contain water, means in each of said divisions for holding the photographic negatives in an upright position; a second partition within the division adapted to contain water, said second partition extending downwardly in said division from the top edge thereof to near the bottom to form a passage between itself and the outer wall, substantially as described.

2. A combined fixing and washing tank comprising a suitable vessel, a partition dividing said vessel into two divisions one of said divisions adapted to contain a chemical solution and the other division adapted to contain water, means in each of the said divisions for holding the negatives in an upright position, a second partition located intermediate the first partition and the outer wall of the said division to form a passage between itself and the said outer wall, a second division located on the outer side of each of the first mentioned divisions and arranged at a plane below the level of the top of the said first mentioned divisions and means in said second divisions for holding the negative plates in a vertical position, substantially as described.

3. A combined fixing and washing tank comprising a suitable vessel A, a partition B dividing it into two divisions C and D, the division C located on one side of the partition B adapted to contain a chemical solution and the division D located on the other side of the said partition adapted to contain water, means in each of the divisions C and D to hold the photographic negatives in an upright position, a second partition I located within the division D and in close proximity to the outer wall, to form a passage between itself and the outer wall of the said division, divisions C' and D' located respectively on the outer side of each of the first mentioned divisions C and D at a plane below the level of the top of the same, a partition I' located within the division D and extending downwardly from the top of the same and in close proximity to its outer wall to form a passage between itself and the said outer wall, substantially as described.

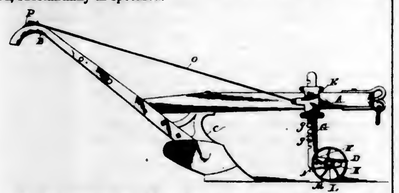
491,620. PNEUMATIC TIRE. WILLARD A. WARREN, Buffalo, N. Y. Filed Oct. 24, 1892. Serial No. 449,760. (No model.)



Claim.—The combination with the protective envelope of the tire adapted to bear against the wheel rim, and provided on its inner side, opposite its tread, with a raised rib or ridge, of a separate inflatable tube arranged within said envelope and bearing with its side portions against the adjacent inner wall of the envelope and resting with its outer side centrally upon said rib or ridge, whereby the contiguous portion of the tube is indented and spaces or recesses are formed on opposite sides of said ridge which separate the tube from the envelope, substantially as set forth.

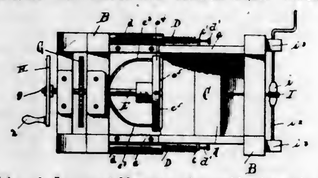
491,621. PLOW-STANDARD. HELON J. WASHBURN and JOHN F. WASHBURN, Ransomville, N. Y. Filed Aug. 26, 1892. Serial No. 444,163. (No model.)

Claim.—1. The combination with a plow-beam, of a casting or box fixed thereto, a standard slidably fitted in the casting or box and provided with notches, a spring-pressed locking pin engaging one of said notches, and the caster mounted at the lower end of the standard, substantially as specified.



2. The combination with a plow-beam, of a casting or box E, a notched standard F, slidably fitted in the casting or box and provided at its lower end with a horizontal perforated arm, a caster attached to said arm, a spring-pressed locking-pin mounted in the casting or box to engage the notches in the standard, and an operating cord or wire connected to the locking-pin and extending to the handles of the plow, whereby by means of such cord or wire the standard may be released to allow the front end of the plow-beam to be adjusted by varying pressure upon the handles, substantially as specified.

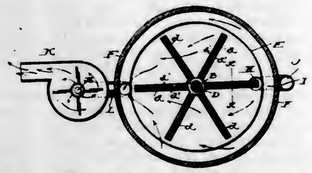
491,622. VEGETABLE-CUTTER. DAVID H. WRATHERS, Leavenworth, Ind. Filed June 20, 1892. Serial No. 437,243. (No model.)



Claim.—1. In a vegetable cutter, the combination with a spring actuated follower of means for adjusting the tension of said actuated springs, the winding drum and cable, the radially arranged and independently adjustable cutters and suitable gearing for imparting a rotary motion to the same, substantially as and for the purpose described.

2. In a vegetable cutter, the combination with the casing A, having slots a^2, formed therein of the follower provided with laterally projecting lugs c, c', entering said slots the winding drum and cable, the springs D, secured to said lugs, the tensionary screws d, the shaft E, carrying a cutter frame e^2, e^4, the radially arranged cutters e^3, having slotted projections e^5, and thumb screws e^6, and suitable gearing for imparting a rotary motion to said cutters.

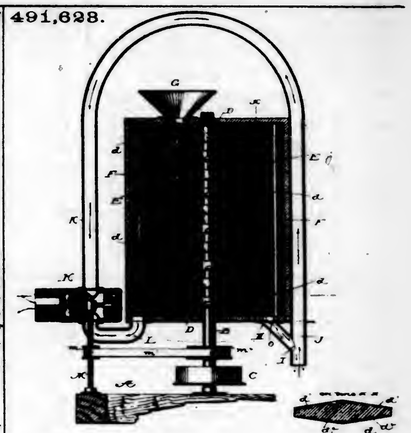
491,628. GRAIN-SCOURING MACHINE. ROSA W. WELCH, Baltimore, Md., assignor of thirteen-sixteenths to William H. Kellum and W. H. Kellum, trustee, same place. Filed Apr. 23, 1891. Serial No. 389,911. (No model.)



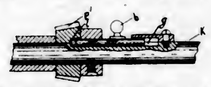
Claim.—1. In a grain-scouring machine, the combination of the pervious vertical cylinder, the vertical rotary shaft therein and the series of radial arms on said shaft, said arms being tapered or wedge-shaped in both directions from a median longitudinal line, and having on their faces teeth inclined to the path of rotation and having vertical outer faces.

2. In a grain-scouring machine, the combination of the pervious vertical cylinder, the vertical rotary shaft therein, and the series of radial arms or blades on said shaft, diamond-shaped in cross-section, and having on their upper and lower faces teeth or serrations inclined from the edges toward the outer ends and having their front walls vertical, whereby the movement of the arms in either direction will force the grain outward.

491,628.



491,624. BREAST-DRILL. WILLIAM H. WILKINSON, Boston, Mass. Filed June 16, 1892. Serial No. 436,985. (No model.)



Claim.—1. In a breast drill, the combination of a lock mounted on the stationary portion of the drill and adapted to engage the gear-train of the drill, whereby the gear train is made immovable while the drill chuck is being manipulated.

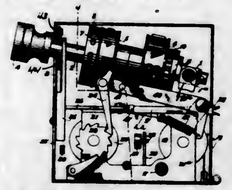
2. In a breast drill, in combination with the drill-actuating mechanism a bolt, sliding on the drill stock, adapted to engage a bolt-aperture in the gear train, and a member of the gear train containing the said bolt aperture, whereby the gear train is made immovable while the drill chuck is being manipulated.

491,625. ROOFING-TILE. CARL W. E. WUPPER, Germersdorf, Germany. Filed May 24, 1892. Serial No. 434,230. (No specimens.)



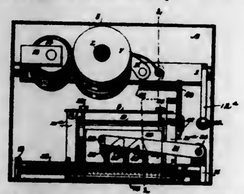
Claim.—A tile formed with a longitudinally raised central portion and depressions on each side thereof, a depression in the under surface with raised portions on each side thereof, and strengthening ribs at each end extending across said depression and connecting the raised portions, grooves upon the upper surface near one edge, and ribs upon the under surface, near the other edge, substantially as described.

491,626. CHECK PRINTER AND RECORDER. WILLIAM W. WYTHE and WILLIAM H. WYTHE, Orange, N. J., assignors to the National Cash Register Company, Dayton, Ohio. Filed Feb. 16, 1891. Renewed Feb. 12, 1892. Serial No. 421,286. (No model.)



Claim.—1. The combination of a type-carrier mounted upon a depressible support and axially movable to bring its different numbers

to the printing point, a platen co-operating therewith, a supply reel and a storage reel, a record-strip carried upon the supply-reel and led thence over the platen and wound upon the storage-reel, and means intermediate the type-carrier-support and the storage-reel for actuating the latter to advance the record-strip.



2. The combination of a type-carrier mounted upon a depressible support and axially movable to bring its different numbers to the printing point, a platen movable beneath the same transversely to its axis and provided with a guide-way or retaining device adapted to receive an inserted ticket and carry it with the platen, and means intermediate the type-carrier-support and platen for moving the latter and the inserted ticket transversely beneath the carrier, whereby upon inserting a ticket between the guides upon the platen and successively depressing the type-carrier the numbers upon the latter may be printed upon the ticket in different spaces and the ticket be then readily withdrawn, substantially as described.

3. The combination of a type-carrier mounted upon a depressible support and axially movable to bring its different numbers to the printing point, a platen co-operating with the type-carrier and movable beneath the same transversely to its axis, a supply-reel and a storage-reel movable with the platen, a record-strip carried upon the supply-reel and led thence over the platen and wound upon the storage-reel, and means intermediate the type-carrier-support and storage-reel for actuating the latter to advance the record-strip.

4. The combination of a type carrier mounted upon a depressible support and axially movable to bring its different numbers to the printing point, a platen co-operating therewith and movable transversely to its axis, a supply-reel and a storage-reel movable with the platen, a record-strip carried upon the former and led thence over the platen and wound upon the storage-reel, and means intermediate the type-carrier-support and the platen for moving the latter and the record-strip and reels transversely of the type-carrier.

5. The combination of a type-carrier mounted upon a depressible support and axially movable to bring its different numbers to the printing point, a platen co-operating therewith and movable transversely to its axis, a supply-reel and a storage-reel movable with the platen, a record-strip carried upon the former and led thence over the platen and wound upon the storage-reel, means intermediate the type-carrier-support and the platen for moving the latter transversely beneath the carrier, and means intermediate said type-carrier-support and the storage-reel for actuating the latter at the end of the transverse movement of the platen in one direction, to advance the record-strip.

6. In a cash-recording and check-printing apparatus, the combination of two type-carriers mounted upon a depressible support and axially movable in unison to bring corresponding numbers to the printing point, a record-strip led beneath one carrier, and a platen or platens co-operating with said carriers, whereby upon turning the carriers to any given number and depressing them said number may be printed by one carrier upon the record-strip and by the other upon an inserted card or ticket.

7. In a cash-recording and check-printing apparatus, the combination of two type-carriers mounted upon a depressible support and axially movable in unison to bring corresponding numbers to the printing points, two platens co-operating therewith and movable beneath the same transversely to their axes, a record-strip led between one carrier and its co-operating platen, and means intermediate the type-carrier-support and the platens for moving the latter transversely beneath the carriers, whereby upon successive operations of the type-carriers their numbers may be printed in different spaces upon the record-strip and upon an inserted card or ticket.

8. In a ticket-printing device, the combination of a casing provided with a transverse slot or opening permitting the insertion and lateral movement of a ticket, a type-carrier mounted upon a depressible support within the casing and axially movable to bring its different numbers to the printing point, a platen co-operating with the type-carrier, and between which and the carrier the ticket is inserted, a support and guide way for the inserted ticket movable transversely beneath the type-carrier, and means intermediate said support and the type-carrier-support for intermittently moving the inserted ticket transversely beneath the carrier at successive operations of the latter, for the purpose described.

9. The combination of an axially revoluble lever, a type-carrier fast thereon, a frame movable transversely beneath the type-carrier, a platen carried by said frame, a pair of spools also carried by said frame, for holding a record-strip passed over said platen, and mechanism intermediate the lever and transversely movable frame for giving the latter a step by step motion upon successive depressions of the lever, for the purpose described.

10. The combination of an axially revoluble lever, two type-carriers fast thereon, one for printing upon a record-strip and the other upon a card or ticket, impression platens co-operating with said carriers, and a pair of spools for holding the record-strip passed over one of said platens, whereby upon turning said lever to the proper point and depressing it the desired number may be printed both upon the record strip and upon the card or ticket.

11. The combination of an axially revoluble lever, two type-carriers fast thereon, one for printing upon a record-strip and the other upon a card or ticket, a frame movable transversely beneath the type-carriers, two impression platens carried by said frame and co-operating with the respective type-carriers, a pair of spools also carried by said frame, for holding a paper strip passed over one of said platens, and mechanism intermediate said transversely movable frame and the lever for giving the frame a step by step movement at successive operations of the lever, for the purpose described.

12. The combination of an axially revoluble, depressible lever, a type-carrier fast thereon, a platen co-operating with the carrier, a pair of spools for holding a paper strip passed over said platen, a ratchet upon one of said spools, a pawl for turning said ratchet, and mechanism intermediate the pawl and operating lever for actuating the pawl upon the stroke of each lever, whereby upon turning the lever until the desired number is brought to the printing point and then depressing and releasing it said number will be printed upon the paper strip and the latter advanced, for the next operation.

13. In a ticket printing device, the combination of a type-carrier, a platen, an operating lever or handle, and a lock for the operating lever arranged to be released by the insertion of the card or ticket between the platen and type-carrier.

14. In a ticket printing device, the combination of a type-carrier, a platen, an operating lever, a locking arm or lever for said operating lever, a latch for holding such arm in locking position, and a trip for the latch operated by the insertion of the card or ticket between the platen and type-carrier.

15. The combination of the casing A, the frame 1 pivoted therein, the shaft 2 journaled in the frame 1 and projecting through the slot 3 in the casing, the type-wheel 5 fast upon said shaft, the indicator wheel 7 also fast thereon beneath the opening 8 in the casing A, and the platen 25 co-operating with the type-wheel 5, substantially as described.

16. The combination of the pivoted frame 1, the shaft 2 journaled therein, the type-wheel 5 fast on said shaft, the sliding frame mounted on the shaft 17, the platen 25 carried by said frame beneath the type-wheel 5, the slotted plate 29 carried by said frame, the spring 35 acting on said frame, the rock-shaft 34, the arm 31 fast thereon and provided with the pin 32 engaging the slots in the plate 29, the arm 39 also fast on the rock-shaft 34, and the pendent arm 36 carried by the shaft 2 and co-operating with the arm 39, substantially as described.

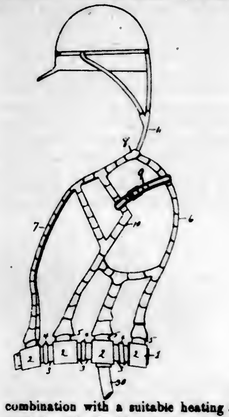
17. The combination of the pivoted frame 1, the shaft 2 journaled therein, the type-wheel 5 fast on said shaft, the platen 25, the spool 20 provided with the ratchet 23, the lever 40 provided with the pin 41, the spring 42 applied to said lever, and the pawl 24 carried by said lever and co-operating with the ratchet 23, substantially as described.

18. The combination of the pivoted frame 1, the shaft 2 journaled therein, the type-wheels 5 and 6 fast on said shaft, the bracket 13 on the pivoted frame, the inking roller 14 journaled in said bracket and bearing against the type-wheels, and the platens 9 and 25 co-operating with said type-wheels, substantially as described.

19. The combination of the pivot frame 1, the shaft 2 journaled therein, the type-wheel 6 fast on said shaft, the platen 9 co-operating with said type-wheel, the lever 43 provided with the locking hook 44 co-operating with the shaft 2, the spring 49, the latch 46 co-operating with the pin 45 on the lever 43, and the trip lever 47 co-operating with the latch 46 and arranged to be operated by the card or ticket inserted above the platen 9, substantially as described.

20. The combination of the casing A provided with the transverse slot 28, the platen 9 and guides 26 27 co-incident with the slot 28 and supported upon a transversely movable frame, the axially-movable depressible lever 2 projecting outside the casing, the type-carrier 6 fast thereon and co-operating with the platen 9, and means intermediate the lever 2 and platen-supporting frame for intermittently moving the platen transversely beneath the type-carrier 6 at successive operations of the lever 2, substantially as and for the purpose described.

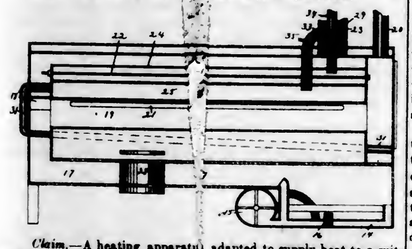
491,627. HOT-AIR APPARATUS. ROBERT H. YEOMAN, Omaha, Nebr. Filed Apr. 20, 1892. Serial No. 431,172. (No model.)



Claim.—1. In combination with a suitable heating apparatus, the jacket or coat, consisting of a flexibly jointed metallic belt having extending from it suitable branches, said branches and belt being hollow, and a suitable hollow connection between the belt and heating apparatus, the said coat or jacket adapted to impart heat to the body of the wearer, substantially as shown and described.

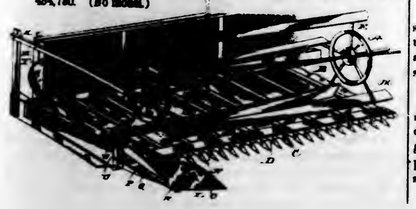
2. In combination with a suitable heating apparatus, the jacket or coat, consisting of a flexibly jointed metallic hollow belt having extending from it suitable hollow branches, said belt also being provided with the parts 2, having the inwardly extending recesses, the said belt being connected by a hollow tube with the heating apparatus, the said coat or jacket adapted to impart heat to the body of the wearer, substantially as shown and described.

491,628. HOT-AIR APPARATUS. ROBERT H. YEOMAN, Omaha, Nebr. Filed Aug. 1, 1892. Serial No. 441,831. (No model.)



Claim.—A heating apparatus adapted to supply heat to a suitable coat or jacket, said heating apparatus consisting of a furnace 13, surrounded by an air chamber, heat passage 17, having a diaphragm 18, cylinder 24, having passage 19, chambers 22, and 25, smoke stack 20, heat outlets 23, 29 and 33 and cold air inlets 28, and 31, all substantially as shown and described, and for the purpose set forth.

491,629. HEADING AND REAPING MACHINE. GEORGE H. ABEL and JAMES W. DALY, Maxwell, Cal. Filed May 23, 1892. Serial No. 434,730. (No model.)



Claim.—1. In a machine of the class described, the combination of an outwardly sloping fender, a pointed divider hinged at its lower edge to said fender, and means for securing said divider at any desired angle with regard to said fender, substantially as described.

2. In a machine of the class described, the combination of an outwardly sloping fender, a pointed divider hinged at its lower edge to said fender, a hooked finger carried by said divider, and eyes or staples secured to said fender, and adapted to engage with said finger, substantially as described.

3. In a machine of the class described, the combination of rollers, an endless belt or conveyor on said rollers, and a fender secured to the frame of the machine above the outer roller, or thereabout, inclined outwardly from the bottom up, rising gradually from front to rear in its forward portion, and bent inwardly at its rear portion, substantially as described.

4. In a machine of the class described, the combination of a revolving reel, with a divider below said reel, having its upper edge concaved to conform to the curvature of revolution of said reel, in combination with a fender, said divider being hinged to said fender substantially as described.

5. In a machine of the class described, the combination of a pointed divider hinged at its lower edge to a fixed portion of the machine, and a hooked finger adapted to engage one of a series of eyes or staples on the fender, substantially as and for the purpose set forth.

491,630. CAST-OFF BUCKLE. GEORGE B. ADAMS, New Britain, Conn., assignor to the Trout & Hine Manufacturing Company, same place. Filed Dec. 8, 1892. Serial No. 454,523. (No model.)

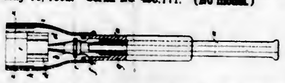


Claim.—1. In a cast-off such as described, the combination with the member having the headed stud thereon, of the co-operating cast-off member having the circular opening for the reception of the stud and the wire spring tongue or projection crossing the lower portion of the opening and secured rigidly to the body of the cast-off member; substantially as described.

2. In a cast-off, such as described, the combination with the member having the headed stud thereon, of the co-operating cast-off member having the circular opening for the reception of the stud, the wire spring having the substantially horizontal portion crossing the bottom of the circular opening, diverging portions secured rigidly to the body of the cast-off portion at the ends and the flanges bent over the diverging portions adjacent to the circular opening; substantially as described.

3. The combination with the buckle A having the depending tongue B and the headed stud C on said tongue, of the cast-off portion having the loop D, circular upper portion E with the circular opening *e*, the spring wire having the substantially horizontal and slightly curved portion F, the downwardly extending divergent portions *f* passing around the loop and secured rigidly to the cross piece and the flanges G bent around the diverging portions adjacent to the circular opening; substantially as described.

491,631. CIGAR OR CIGARETTE HOLDER. JOHANN J. BAUMGARTNER, St. Fiden, and HERRMANN DREHER, St. Gall, Switzerland. Filed May 16, 1892. Serial No. 433,171. (No model.)



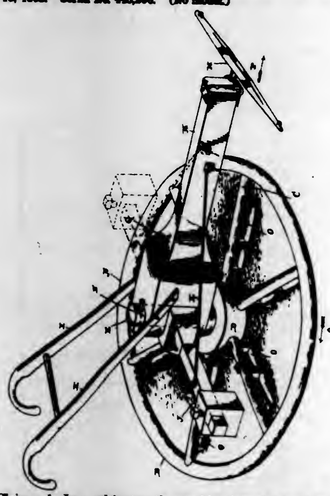
Claim.—1. In a cigar or cigarette holder, the combination of a series of movable parts which collectively form the orifice to receive the article held, with an elastic band for forcing these parts together and means for separating them and allowing draft through the device substantially as set forth.

2. In a cigar or cigarette holder, the combination of a series of movable rods having wings which collectively form the orifice to receive the article held, with an elastic band for forcing these parts together, a notched disk for engaging and holding the said rods, a tube provided with a cone for forcing the said rods apart and the necessary casings substantially as set forth.

3. In a cigar or cigarette holder a series of pivoted rods provided

with curved wings an elastic casing inclosing the same, a main tube supporting said casing and rods and another tube mounted in said main tube and provided with a grooved disk which engages said rods substantially as set forth.

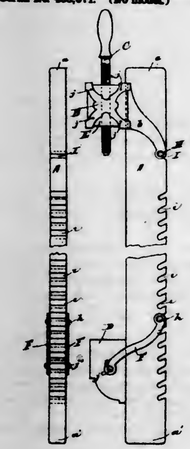
491,632. CULTIVATOR. CHARLES REH, Selma, Cal. Filed July 16, 1892. Serial No. 440,968. (No model.)



Claim.—1. In a cultivator, the combination of a shaft slightly inclined to the vertical, arms radiating from said shaft, said arms carrying cultivator teeth, and a secondary arm revolubly secured to said shaft and at right angles to it, and a weight secured to said revoluble arm, said weight being adapted to incline the shaft from the vertical, substantially as and for the purpose set forth.

2. In a cultivator, the combination of a draft-beam, a shaft rotating in one end thereof and slightly inclined to the vertical, arms radiating from said shaft and rotating therewith carrying cultivator teeth, an arm projecting from the shaft at right-angles to the draft-beam and secured thereto, a weight on the arm and means for securing the weight at any desired point upon the arm, substantially as described.

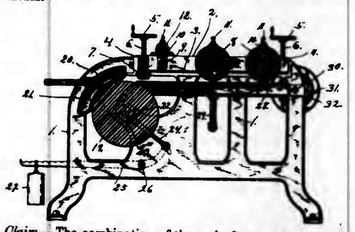
491,633. CLAMP. PIERRE R. BOURAMA, Montreal, Canada. Filed Oct. 7, 1891. Serial No. 408,071. (No model.)



Claim.—1. In a clamp, the combination with the perch A having at its lower face a series of transversal notches with the shoe having wooden block D with arms F, of plates B cramp H and block E having tongues *n* and groove *m*, all constructed and arranged to operate substantially as and for the purpose set forth.

2. In a clamp, the combination with the perch A having notches *i* and *l* with the shoe having block D, arms F, cramp *h* and rivet *j'*, the plates B having arms *b* projecting forward, ends *d* having holes *c* for the cramp H, stays *l* to hold securely the block E, said block having a groove *m* and tongues *n*, all constructed and arranged to operate substantially as and for the purpose set forth.

491,634. IRONING-MACHINE. CHARLES L. BEALEY and JOHN C. STEWART, Buffalo, N. Y. Filed Apr. 7, 1892. Serial No. 428,110. (No model.)

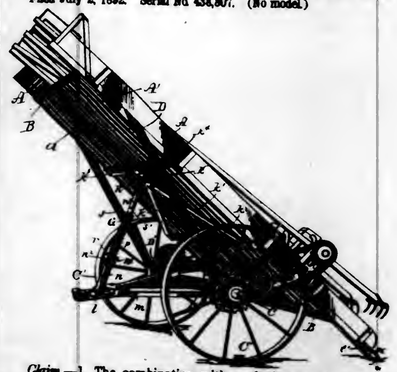


Claim.—The combination of the main frame, a horizontally disposed flat ironing bed secured therein, a presser roller arranged in rear and slightly under the ironing bed and having the highest point of its surface in the same plane with the surface of the bed, a curved ironing jacket arranged in rear of and concentric with the pressure roller, vertically adjustable frames mounted on the main frame above the horizontal ironing bed, and a series of vertically adjustable presser rollers mounted in said adjustable frames.

491,635. PROCESS OF MANUFACTURING WHITE LEAD. PAUL BROSSER, Stuttgart, Germany. Filed Oct. 6, 1892. Serial No. 448,077. (No specimens.)

Claim.—The process of manufacturing pure oxide of lead and white lead from crude sulphate of lead, which consists in digesting it, if necessary with sulphuric acid then washing it and treating it with a solution of carbonate of soda, washing, drying and annealing in a muffle the carbonate of lead thus produced, then digesting the pure oxide of lead with a solution of sugar of lead and ultimately precipitating the basic acetate of lead with carbonic acid, all substantially as described.

491,636. HAY-LOADER. EDSON B. CARTMELL, Lancaster, Ohio, assignor to the Hocking Valley Manufacturing Company, same place. Filed July 2, 1892. Serial No. 438,807. (No model.)



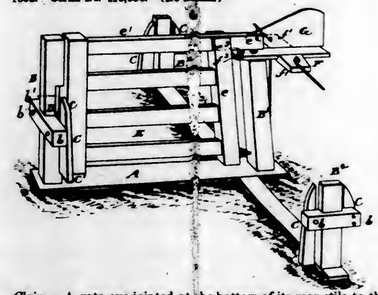
Claim.—1. The combination with a platform or frame, and a main supporting frame, of a cushioning device composed of telescoping sections the outer ends of which are hinged or pivotally connected with the two frames, and an interposed spiral spring bearing outwardly against the two sections, substantially as set forth.

2. The combination with a pair of frames hinged together, of a cushioning device composed of telescoping sections, a spring, and a collar having a contracted upper end, said collar screwed onto one section and adapted to prevent the removal therefrom of the other, the outer ends of the sections of the cushioning device hinged to the two frames, substantially as set forth.

3. In a hay loader, the combination with the main frame, and bars extending from the sides thereof to a point centrally between said sides, of a bracket or casting to which said bars are secured, ears projecting from said bracket at one end thereof, a cross bar secured at its ends to the sides of the frame and at its center between said ears, ears projecting from one face of the bracket, a cushioning device pivotally connected between the last mentioned ears, and a casting or bracket secured to the tongue-bounds of the loader, to which the lower end of said cushioning device is pivotally connected, substantially as set forth.

4. In a hay loader, the combination with the side bars, of shoes having recesses to receive the lower ends of the side bars, each shoe having an elongated slot whereby to receive a bolt to adjustably secure the shoe to the side bar, and a curved bearing face at the rearward end of each shoe, substantially as set forth.

491,637. GATE. JOHN L. CHADWICK, Cresson, Tex. Filed Feb. 1, 1892. Serial No. 419,950. (No model.)



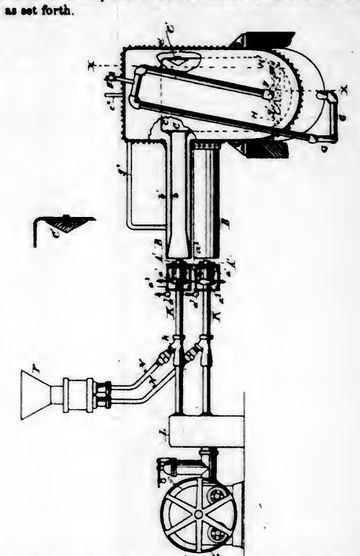
Claim.—A gate eye-jointed at the bottom of its rear stile to the post, to turn vertically as well as horizontally, and provided with an extension of the toprail on whose underside is arranged the pivot c^3, in combination with a lever F fulcrumed upon the hinged post and socketed to receive said pivot; whereby the gate is first raised in front to unlatch it and then inclined to one side to allow it to swing open by its own gravity—as described.

491,638. PROCESS OF AND APPARATUS FOR OBTAINING METALS FROM THEIR ORES. SAMUEL H. COCHRAN, Everett, Mass., assignor to the Cochran Gold and Silver Releasing and Steam Generating Company, of Maine. Filed Dec. 26, 1889. Serial No. 334,965. (No model.)

Claim.—1. The process herein described for preparing ores to facilitate the extraction and separation of the noble metals from their base associates, which consists, first, in conveying the pulverized ore by means of a violent air blast with which it is thoroughly commingled through a combustion chamber of small diameter and against an opposing surface in the presence of an intense flame, whereby the particles of ore are submitted to and commingle with the flames, and while still commingled therewith, are cracked and rubbed by friction and impact, thereby causing a reduction and condensation in the first instance of the said noble metals not subject to the subsequent oxidizing action, and also the secondary oxidization of the base metals, and second, in plunging the said particles thereafter and while still at an intense heat, into cold water, whereby oxidation of the baser metals is completed while the condition of the noble metals is unchanged, all as set forth.

2. A combustion flue having on a tunnel shaped mouth open to the atmosphere, in combination with a furnace A, a blast pipe, means for supplying air to said blast pipe and a feeder connected to said blast pipe substantially as described, whereby pulverized ore may be fed thereto, the mouth of said blast pipe and of said furnace being located in front of and in close proximity to the open mouth of said combustion flue, all substantially as described.

3. In combination with a combustion flue having one mouth open to the atmosphere, a furnace located in close proximity to said mouth and means for feeding to said flue in a direction parallel with its axis, the substance to be treated, and the combustion chamber C provided with a wall located in close proximity and opposite to the inner end of said combustion flue, and means substantially as described whereby the material which passes from the combustion chamber is collected, all as set forth.

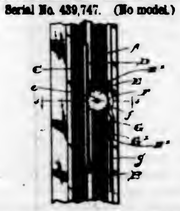


4. In an ore decomposer, in combination with the burner of the kind described, one or more jacketed flues and a jacketed combustion chamber, provided with a water inlet and outlet and connected as described, whereby a constant circulation of water may be maintained between said water inlet and outlet, and a condensing chamber of substantially the kind described located to receive the contents of said combustion chamber, all as set forth.

5. In an ore decomposer, in combination, one or more burners or furnaces of the kind described, one or more jacketed flues each located in front of one of said burners and adapted to receive the products of combustion therefrom, a jacketed combustion chamber located to receive the contents of said flues and provided with a water inlet and outlet connected as described, whereby a constant circulation of water may be maintained in its jacket between said water inlet and outlet and a condensing chamber of substantially the kind described located to receive the contents of said combustion chamber, all as set forth.

6. In an ore decomposer, in combination with a burner and combustion chamber both of the kind described, the condensing chamber above described having an entrance for the products of combustion and an outlet for the escape of gases and provided with a sloping floor, a water inlet located at the highest part of said floor, a second water inlet located between said entrance for the products of combustion and outlet for the gases and provided with one or more partitions whereby its cross area may be partially closed, all as set forth.

491,639. SASH-BALANCE. HIRAM L. CRAIG, Wayne, Ind. Filed July 12, 1892. Serial No. 439,747. (No model.)



Claim.—1. The combination, with the upper and lower sashes of a window, of a rack-bar secured to one, a pinion secured to the other, and a detent for said pinion by which it may be locked in place.

2. The combination with the upper and lower sashes of a window, of a fastening device, consisting of a rack-bar secured to one sash, a pinion secured to the other, and a pivoted or fulcrumed detent having a sliding lock whereby it is secured in locked position.

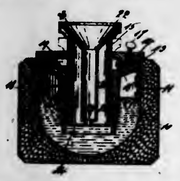
3. The combination with a rack and a pinion forming part of a sash fastener, of a detent for said pinion having an inclined surface, and a spring-operated sliding lock having a similarly inclined surface, whereby the parts are held together, and rattling prevented, substantially as set forth.

4. The combination with a rack and pinion forming part of a sash fastener, of a detent having an inclined and a straight surface, and a sliding lock for locking the same having corresponding surfaces, whereby the detent is first forced to position, and then securely held, substantially as shown and described.

5. The combination with a rack and pinion forming part of a sash fastener, of a detent, a sliding lock for holding the same, a spring whereby said sliding lock is held into contact with said detent, and a pull by which it is withdrawn from said contact, substantially as set forth.

6. The combination, in a sash fastener, of a rack, a pinion, a detent, a sliding lock, a spring for operating the same, a cord whereby said sliding lock may be withdrawn from contact, and a belaying pin or fastener to which said cord may be attached, substantially as shown and described.

491,640. INKSTAND. EBEN DAVIS, New York, N. Y. Filed Mar. 30, 1892. Serial No. 427,116. (No model.)



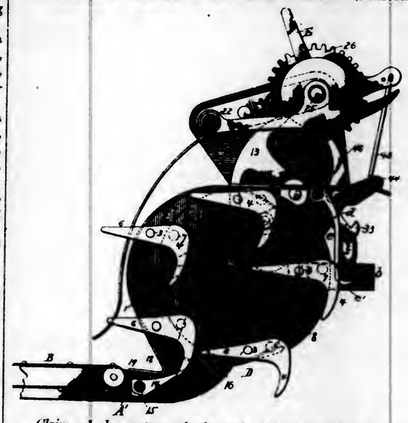
Claim.—1. An inkstand having a buoyant vertically-movable ink-supply tube, provided with air inlets at its lower end, and a flange or rim at the top of the pen cup at its upper end, and having the inlet for the ink at its lower end contracted, and means for holding said tube in equilibrium, for regulating the point of equilibrium of said tube and for filling the inkstand and an ink overflow chamber surrounding said tube, eccentrically thereto, substantially as shown and described for the purpose specified.

2. An inkstand having a buoyant vertically-movable ink-supply tube, provided with air inlets at its lower end, and a flange or rim at the top of the pen cup at its upper end, and having the inlet for the ink at its lower end contracted and means for holding said tube in equilibrium, for regulating the point of equilibrium of said tube, and for filling the inkstand, and an ink overflow chamber surrounding said tube, eccentrically thereto, and means for connecting the cover with the well, substantially as shown and described for the purpose specified.

3. In an inkstand the combination with a centrally apertured cover, having a diagonally-ranging aperture at one side of its center, and also having a central sleeve integral with its under face, and an eccentrically arranged ink overflow chamber in the sleeve next the cover, of a buoyant ink-supply tube movable in said sleeve and cover, provided with air inlets at its lower end, and having a flaring pen cup at its upper end, and a flange or rim at the upper end of the pen cup, the inlet for the ink at the lower end being contracted, a removable plug fitting the diagonally-ranging aperture in the cover of the ink well for holding said tube in equilibrium, for regulating the point of equilibrium of said tube and for filling the inkstand, and means for connecting the cover with the well, substantially as shown and described for the purposes specified.

4. In an inkstand, the combination with a centrally apertured cover, having a diagonally-ranging aperture at one side of its center, and also having a central sleeve integral with its under face, below the central aperture and open to the ink well, said well having a concave bottom, and an eccentrically arranged ink overflow chamber in the sleeve next the cover, and means for connecting the cover with the well; of a buoyant ink-supply tube movable in the sleeve and cover, provided with air inlets at its lower end, and having a flaring pen cup at its upper end, and a flange or rim at the upper end of the pen cup, and an ink inlet communicating with the ink well the lower end of which is contracted, and a removable plug fitting the diagonal aperture in the cover of the ink well, substantially as shown and described for the purposes specified.

491,641. GRAIN-BINDING HARVESTER. ANDREW GARDNER, Atlantic, Iowa. Filed Mar. 15, 1892. Serial No. 424,969. (No model.)



Claim.—1. In a rotary rake for grain binding harvesters, a series of hook shaped teeth pivotally supported at a point between the bend and one end whereby both ends of the teeth are free, substantially as set forth.

2. In a rotary rake for a grain binding harvester, a tooth having a vertical portion and a hook-shaped portion, said tooth being pivotally supported at a point above the juncture of the vertical and hook-shaped portions and away from the end, substantially as set forth.

3. In a rotary rake, the combination with loosely supported shafts, of hook-shaped teeth secured to these shafts at points between their ends and the angles formed between the two parts of the teeth, substantially as set forth.

4. In a rotary rake for grain binders, the combination with one or more hook-shaped teeth pivotally supported at a point between the ends whereby both ends are free, of a plate or plates pivotally connecting these teeth approximately at the angle formed between the ends, substantially as set forth.

5. In a rotary rake for a grain binding harvester, the combination with teeth having a vertical and a hooked shaped portion, said teeth being pivotally supported at points above the juncture of said portions of the teeth, and an eccentric ring connected to said teeth below their pivotal support, substantially as set forth.

6. In a rotary rake for grain binding harvesters, the combination with a support, of shafts loosely mounted therein and hook-shaped parts secured to the shafts at points between their ends forming a tooth at each end for engaging the grain, substantially as set forth.

7. The combination with revoluble supports, of shafts loosely mounted in the latter, hook-shaped teeth secured to the ends of the shafts at points between the ends of the hooks, and means whereby the teeth are made to point in the same direction during the entire revolution of the rake, substantially as set forth.

8. The combination with a support, of shafts carried thereby, rake teeth on the ends of these shafts, and annular rings loosely connected with the teeth on one end of the shafts, substantially as set forth.

9. In a rotary rake for a grain binding harvester, the combination with a shaft two central supports mounted thereon, of rake teeth suspended from the peripheries of said central supports, eccentric rings pivotally connected to the teeth on the inner ends of the shafts, and means for shifting both of said rings simultaneously, substantially as set forth.

10. In a rotary rake for a grain binding harvester, the combination with two central supports, of a series of shafts carried by each central support, depending hook-shaped teeth carried at each end of each shaft, eccentric rings pivotally connected with each inner series of teeth and means for shifting both eccentric rings simultaneously, substantially as set forth.

11. In a rotary rake for a grain binding harvester, the combination with two central supports, of a series of shafts carried by each central support, depending hook-shaped teeth carried at each end of each shaft, eccentric rings pivotally connected with each inner series of teeth, a rocker plate, and rollers carried by said rocker plate, one roller being adapted to run on the inner edge of each eccentric ring, substantially as set forth.

12. A revolving rake comprising loosely mounted shafts provided with sets of depending hooks and sets of vertical teeth and means for

maintaining these sets of hooks and teeth pointing in substantially the same directions as they are revolved from adjacent to the platform conveyer to the bundle receptacle, whereby the rake is adapted to elevating grain a greater distance than its own diameter, substantially as set forth.

13. A revolving rake comprising loosely mounted shafts provided with sets of depending hooks and sets of vertical teeth, and means for maintaining these hooks and teeth either in their normal positions for elevating and packing grain or inclined backward for separating the incoming grain from the bundle, substantially as set forth.

14. In a grain binding harvester, the combination with a platform conveyer and a longitudinally movable frame carrying a revolving rake, of a series of fingers carried by said longitudinally movable frame adjacent to the end of the platform conveyer and projecting under the rake, substantially as set forth.

15. In a grain binding harvester, the combination with rear and front end bars of the harvester frame, of a shaft mounted in said rear and front end bars, elevating and binding mechanism supported on said shaft, a bracket on one of the end bars of the frame, a roller in said bracket under the shaft, a bar between the end bars of the frame, a depending bracket carried by the binder frame, and a roller carried by said bracket and adapted to run on said bar, substantially as set forth.

16. In a grain binding harvester, the combination with a shaft, of central supports carried thereby, rake teeth pivotally connected to said central supports, eccentric rings also pivotally connected to said teeth, a rocker plate having rollers to run on the eccentric rings, a needle and a link connecting the rocker plate with the needle, substantially as set forth.

17. In a grain binding harvester, the combination with a shaft, and central rake supports carried thereby, of rake teeth pivotally connected to said central supports, eccentric rings also pivotally connected to the teeth, a rocker plate having rollers thereon to run on the eccentric rings, a needle shaft, a needle carried by said shaft, a link connecting said needle and rocker plate, and means carried by the needle shaft for releasing the binding mechanism, substantially as set forth.

18. In a grain binding harvester, the combination with a revolving rake comprising pivoted teeth, eccentric rings pivotally connected to said teeth, a rocker plate having rollers adapted to run on said rings, a needle bar, a link connecting the rocker plate and needle bar, a lever carried by the needle bar and provided with a hooked end, a notched lug or plate carried by a mutilated gear wheel, means for transmitting motion to said gear wheel, a yielding connection between the mutilated gear wheel and said lever, an arm projecting from said lever and carrying a roller, a trip shaft carrying a trip finger, and an arm carried by said trip shaft and adapted to engage said roller to release the locking mechanism when a bundle presses against the trip finger, substantially as set forth.

19. In a tripping mechanism, the combination of an oscillatory lever having a hooked arm, the face of said hook being curved, of a lug or plate carried by a gear wheel and having a curved edge to receive the curved edge of the hook, and a yielding connection between said lug or plate and the lever at the end opposite said hook, substantially as set forth.

20. In a locking and tripping mechanism, for self binding harvesters, the combination with the rock shaft C, pinion 28, gear wheel 26, lever 32, mounted on rock shaft C and provided with a hook 33, adapted to engage a hook 34 on gear wheel 26, and a pitman 36 provided with a spring 39 yieldingly connecting arm 32 with the mutilated gear wheel 26, of a trip shaft 45 provided on its inner end with a trip finger 46 and on its outer end with an arm 44 adapted to bear against arm 48 projecting from and attached to lever 32, and a lug or roller 40 projecting from the inner face of gear wheel 26 and adapted to operate in slot 41 of the pivotally supported cam lever 42 to raise and lower said lever, and a link connecting the free end of cam lever 42 with the free end of arm 44, substantially as set forth.

21. The combination with a harvester frame, platform conveyer, and driving wheel, of a transversely adjustable elevator and packer frame, placed intermediate between the platform conveyer and driving wheel, comprising substantially as shown the front and rear standards *d*, *d*, provided with offsets or flanges 17, 17, and parts 20 and 21 projecting upward from the offsets 17, 17, and the cross rods or bars 15, *c* and 22 connecting said standards, and a sleeve 23 projecting rearwardly from the upper end of part 20, the rear end of said sleeve being supported by means of brace 24 projecting from bar 22, and means for adjustably supporting said frame, substantially as set forth.

22. The combination with a frame, of a sectional revolving rake, each section comprising sets of pivotally supported hook shaped teeth, supported at points between their ends forming teeth at each end means for controlling the position of the teeth, and a rock shaft provided with a needle adapted to operate between the sections of the rake, substantially as set forth.

23. The combination with a platform conveyer and driving wheel, of a transversely adjustable frame placed intermediate between the platform conveyer and driving wheel, and means for supporting the frame, of a sectional revolving rake mounted in said frame adjacent to the platform conveyer, each section of the rake comprising sets of pivotally supported hook shaped teeth supported at points between their ends forming teeth at each end, means for controlling the position of the teeth, a binder table extending from the central or highest point of the rake outward over the driving wheel, a rock shaft placed beneath said binder table adjacent to the rake, and an underlying needle mounted on said rock shaft so as to lie normally between the rake sections, substantially as set forth.

24. The combination with a frame placed intermediate between the platform conveyer and driving wheel, of a revolving rake comprising sets of hook shaped teeth supported at points between their ends forming teeth at each end and means for controlling the position of the teeth, annular bands supported between the sets of teeth, and fingers attached to said frame extending outward under the rake frame adjacent to the platform conveyer, substantially as set forth.

25. The combination with a transversely adjustable frame placed intermediate between the platform conveyer and driving wheel, and means for supporting the frame, of a sectional revolving rake mounted in said frame adjacent to the platform conveyer, a binder table extending outward from the central or highest point of the rake over the driving wheel, a rock shaft provided with a needle adapted to operate between the sections of the rake, and laterally projecting strips or flanges carved inward and downward from laterally projecting parts of the binder table, to conform to the periphery of the rake for supporting the ends of grain which project beyond the rake teeth, substantially as set forth.

26. The combination with two standards extending upward and inclined outward from adjacent to the platform conveyer, and spaced apart by connecting rods, of a sectional revolving rake loosely mounted in said standards, and a rock shaft also loosely mounted in the standards adjacent to the rake and provided with an underlying needle adapted to lie normally between the two rake sections, said standards being provided with laterally projecting offsets at or near a level with the top of the rake and parts projecting upwardly from the outer ends of these offsets for supporting a binding mechanism, substantially as set forth.

491,642. CATCHING AND HOLDING TOOL. CHARLES E. GRIFFITH, Storm Lake, Iowa. Filed Aug. 8, 1892. Serial No. 442,497. (No model.)



Claim.—1. In a catching tool, the combination with a pair of arms connected together at one point, and a spring adapted to normally force these arms together or toward each other, of a jaw hinged at a point between its ends to the free end of each arm, said jaws

hinged together at their inner ends at which point they are adapted to be struck when open in order to close them, substantially as set forth.

2. In a catching tool, the combination with a pair of arms hinged together, and a spring adapted to throw said arms together, of curved jaws hinged or pivoted to the free ends of the arms, said arms hinged or pivoted together at one end in such manner that they lock the arms apart when opened, the connected ends of the jaws located opposite the opening formed by the open jaws and adapted to be struck to force the arms together, substantially as set forth.

3. In a catching tool, the combination with two arms hinged or pivotally connected together, of two jaws pivotally connected to said arms and pivotally connected together in such manner that when the jaws are open they will be out of alignment with each other, a stop on one of said jaws to prevent said jaws from moving too far when they are opened, and means for automatically closing and locking said jaws, substantially as set forth.

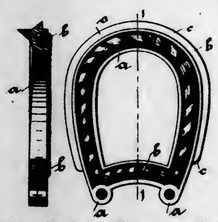
4. In a catching tool, the combination with two arms hinged or pivotally connected together, of a lug or bracket pivotally connected to each arm, a jaw pivotally connected to each lug or bracket, said jaws being pivotally connected together, in such manner that they will maintain themselves open, and means for automatically closing and locking said jaws, substantially as set forth.

5. In a catching tool, the combination with two arms hinged or pivotally connected together, of jaws pivotally connected with said arms and pivotally connected together, one of said jaws being provided with an elongated slot for the reception of the other jaw, and means for automatically closing said jaws, substantially as set forth.

6. In a catching tool the combination with two arms hinged or pivotally connected together, of jaws pivotally connected with said arms and pivotally connected together in such manner that they will maintain themselves open, a spring encircling said arms, and a ring also encircling the arms and in position to be forced toward the extremities of the arms when released, to close and lock the jaws, substantially as set forth.

7. In a catching tool, the combination with two arms hinged or pivotally connected together, of blocks pivotally connected to said arms and jaws pivotally connected to said blocks and pivotally connected together, substantially as set forth.

491,643. HORSESHOE WITH AUXILIARY FLANGES. JULIUS GUTMANN, Berlin, Germany. Filed July 23, 1892. Serial No. 441,052. (No model.)



Claim.—1. A horseshoe having the corresponding outside edges of its tread and top surface in alignment, and having an auxiliary support projecting from its outside rim and located intermediate of the top surface and tread, substantially as and for the purposes set forth.

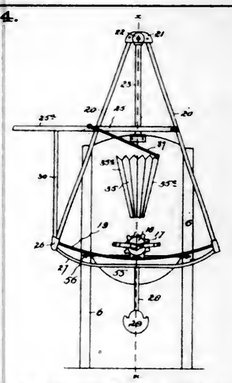
2. A horseshoe having the corresponding outside edges of its tread and top surface in alignment, and having a continuous flange projecting laterally from its outside rim and disposed above its tread in position for engaging the ground when the shoe is tilted, substantially as and for the purposes set forth.

3. A horseshoe having the corresponding outside edges of its tread and top surface in alignment, and having a continuous flange projecting laterally from its outside rim and disposed above its tread, and having a packing applied to its tread, substantially as and for the purposes set forth.

491,644. CHURN. THOMAS W. HANSEN, Denver, Colo. Filed Apr. 11, 1892. Serial No. 428,594. (No model.)

Claim.—1. In a churn the combination of a suitable cream tank, a dasher pivoted therein, a spindle engaging the dasher within the tank and carrying a sprocket pinion, and an oscillating frame having its axis supported upon the framework of the tank, and carrying a chain fashioned to engage said pinion and actuate the dasher and a tension rod to regulate the length of the chain, substantially as described.

491,644.

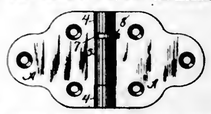


2. In a churn the combination with the cream tank, the rotating dasher and the externally projecting spindle carrying a sprocket wheel, of the oscillating A-shaped actuating frame having its arms connected by a chain adapted to engage the sprocket wheel, and a tension rod connecting the lower extremities of its arms and means for moving the arms upon the rod whereby the tension of the chain is regulated, substantially as described.

3. In a churn the combination with the cream tank, the rotating dasher and the externally protruding spindle carrying a sprocket wheel, of the oscillating frame for imparting motion to the spindle, said frame being provided with a depending weighted arm, and a chain engaging the sprocket wheel and a tension rod to regulate the length of the chain, substantially as described.

4. In a churn the combination of the cream tank and dasher having an externally protruding spindle carrying a sprocket wheel, of the external oscillating frame provided with a chain and the tension rod for regulating the same, the chain engaging the sprocket wheel on the spindle, and a bellows or other suitable air forcing apparatus supported upon the frame work of the tank and operated by the oscillating frame whereby the said tank is continually supplied with pure air, substantially as described.

491,645. STOP-HINGE. GEORGE P. HART, New Britain, Conn. Filed June 8, 1892. Serial No. 435,964. (No model.)



Claim.—The herein described stop hinge consisting of leaves, knuckles, and pintle, the flat inner faces of the leaves being substantially radial, and the winged stop washer mounted on the pintle and having radial stop shoulders for interposition between and engagement with said radial faces of said leaves, substantially as described and for the purpose specified.

491,646. MOUTHPIECE FOR MUSICAL INSTRUMENTS. THEODOR HEMMINGER, St. Paul, Minn. Filed Oct. 4, 1892. Serial No. 447,827. (No model.)



Claim.—In a mouth-piece for musical instruments the part of said mouth-piece which comes in direct contact with the lips having a roughened surface, substantially as and for the purpose set forth.

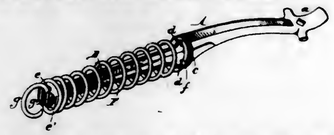
491,647. FLOOR. OTTO HETZER, Weimar, Germany. Filed July 11, 1892. Serial No. 439,690. (No model.)

Claim.—In a boarded floor the combination of the free sliding panels or boards *d* the frame timbers *a* and the ventilated skirting boards *b*, all constructed and arranged substantially as and for the purpose hereinbefore described and as illustrated by the accompanying drawings.

491,647.



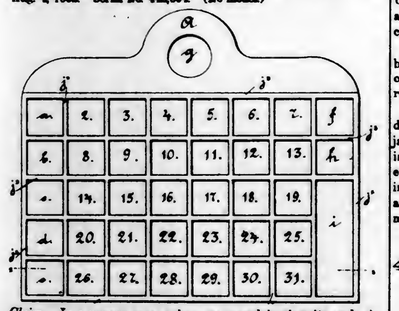
491,648. WIRE HANDLE. FREDERICK W. HOWER, Freeport, Ill., assignor to Charles G. Shepard and Walter J. Shepard, Buffalo, N. Y. Filed Nov. 12, 1892. Serial No. 451,746. (No model.)



Claim.—1. The combination with the shank of a stove lid lifter or other implement provided at its outer end with a transverse groove, at its inner end with a shoulder and adjacent to said shoulder with a lug or stop, of a flexible handle composed of spiral coils surrounding the shank and having its inner coil arranged between said shoulder and said stop, and provided at its outer end with a bar or portion extending diametrically across the handle and seated in the transverse groove of the shank, substantially as set forth.

2. The combination with the shank of a stove lid lifter or other implement provided at its outer end with a transverse groove, at its inner end with a shoulder and adjacent to said shoulder with spirally arranged stops or lugs, of a flexible handle composed of spirally coiled wire surrounding the shank and having its inner coil confined between the shoulder and the spiral lugs of the shank and provided at its outer end with a ring or loop arranged in the axial plane of the handle and seated with its inner portion in the transverse groove of the shank, substantially as set forth.

491,649. MONEY-TRAY. OTTO HOFMANN, Lissa, Germany. Filed Aug. 4, 1892. Serial No. 442,004. (No model.)



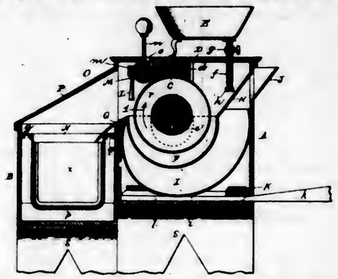
Claim.—In a money case, a base or panel having its ends depressed below the body portion and provided with a series of longitudinal and transverse dividing strips whereby a series of shallow compartments are formed upon the main portion and a series of deeper compartments at the ends, substantially as described.

491,650. ICE-CREAM FREEZER AND PACKER. JOSEPH JORALEMON, Troy, Pa. Filed Feb. 27, 1892. Serial No. 423,009. (No model.)

Claim.—1. In combination with the rotary refrigerant cylinder of an ice-cream freezer, a cream receptacle substantially concentric with said cylinder into which said cylinder extends, and an ice-chamber located beneath said cream receptacle and formed to correspond with the shape thereof, substantially as set forth.

2. In combination with the rotary refrigerant cylinder of an ice-cream freezer, a cream pan beneath said cylinder comprising a cream receptacle into which said rotary cylinder extends and an ice-chamber below said cream receptacle, substantially as set forth.

3. A rotary refrigerant cylinder having auxiliary heads *r r*, in combination with a cream receptacle into which said rotary cylinder extends, and an ice-chamber of less width than said cream receptacle extending centrally beneath the same, substantially as set forth.



4. A rotary refrigerant cylinder C having auxiliary heads *r r*, in combination with a cream pan below said cylinder formed with a cream receptacle and an ice-chamber, the cream receptacle of said cream pan receiving the lower portion of said rotary cylinder, and the ice-chamber of said cream pan being of less width than said cream receptacle and extending centrally beneath the same, substantially as set forth.

5. In an ice-cream freezer having a rotary refrigerant cylinder, the casing A, in which said cylinder is journaled, the ice-chamber I, at the bottom of said casing, and a supply opening in said casing for supplying a refrigerant to said ice chamber, in combination with the cream receptacle F, above said ice-chamber and below the rotary refrigerant cylinder, and the guide-plate or shield H, extending upward from said cream receptacle and terminating at a point above said supply opening, substantially as set forth.

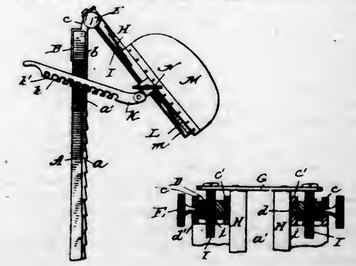
6. In an ice cream freezer, the rotary refrigerant cylinder C, the cream-supply pipe *f*, and the scraper L, in combination with the cream receptacle F beneath said cylinder, the bottom of the cream receptacle being continued both rearwardly and forwardly to form the upwardly-extending guide-plate H adjacent to said cream supply, and the delivery apron G, below said scraper, substantially as set forth.

7. In combination with the rotary refrigerant cylinder of an ice-cream freezer, the grainer M and scraper L connected together and adapted to be brought alternately in contact with the surface of said cylinder, substantially as set forth.

8. The rotary refrigerant cylinder of an ice-cream freezer, in combination with the rock shaft *m* arranged adjacent to said cylinder and carrying the scraper L and the grainer M, and means for rocking said rock shaft, substantially as set forth.

9. The freezer-casing A, having a front opening therein for the discharge of frozen cream, and the separate packer B, arranged adjacent thereto with its open top below the top of said front opening in the freezer casing, in combination with the removable hood O, covering said packer, B, and fitting against and around said opening in the freezer casing, thus closing both the open top of said packer and the front opening of said freezer-casing but not obstructing communication between said freezer and packer, substantially as set forth.

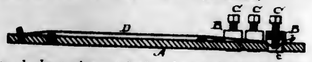
491,651. HEAD-REST. ANDREW P. JORDAN, Ellsworth, Me. Filed Oct. 7, 1892. Serial No. 448,129. (No model.)



Claim.—1. In combination the bifurcated slide A, bearing blocks pivotally secured to the upper end thereof, a frame having sliding connection with said bearing blocks, a head pad having sliding connection with said frame, a bar having one end pivoted beneath the frame and its free end passing through the bifurcation of the slide, said bar having a series of notches with overhanging edges adapted to receive a catch rod on the slide A, substantially as described.

2. In combination with the slide A, the ears projecting from the upper end thereof, bearing blocks pivoted between the ears, a frame supporting a head pad adjustably carried by the blocks said blocks having a projection upon the inner sides adapted to enter openings in the inner ears, and thumb screws passing into said blocks from the outer ears and serving both to form bearings for the blocks and to hold the frame in its adjusted position, substantially as described.

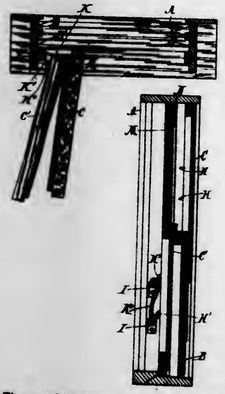
491,652. STRINGING PIANOS. LOUIS A. KIEDLER, Cleveland, Ohio. Filed Sept. 30, 1892. Serial No. 447,210. (No model.)



Claim.—1. In a piano stringing device the combination with frame A and strings D, of the slotted screws B B, and tension screws C mounted in the heads of screws B and provided with the swiveled nuts c, as and for the purpose specified.

2. In a piano stringing device the combination with frame A, slotted screws B having tension screws C provided with swiveled nuts c, mounted therein, of the continuous strings D, strung back and forth from the hitch pins and through the slotted screws B, substantially as and for the purpose specified.

491,653. WINDOW. HENRY KOEPP, Milwaukee, Wis., assignor of one-half to Frederick S. Holden, same place. Filed Aug. 31, 1892. Serial No. 444,669. (No model.)



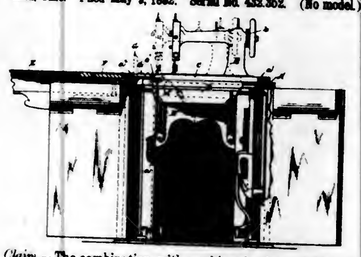
Claim.—1. The combination with a window frame and a vertically sliding sash therein, of lugs fixed on the sash in vertical alignment, other lugs fixed on the frame one above the other vertically, and a movable crane arranged to engage the lugs on the frame and on the sash and support the sash pivotally thereon, substantially as described.

2. The combination with a window frame and a vertically sliding sash therein, of a plurality of lugs fixed on the frame in vertical alignment other lugs fixed on the sash in vertical alignment adjacent to that part of the frame to which the lugs aforesaid are attached, and a removable crane having a plurality of pintles arranged in pairs to enter apertures in the lugs whereby the crane is made to support the sash, substantially as described.

3. The combination with a window frame and a plurality of vertically sliding sashes therein, of a pair of lugs fixed on each sash, a pair of lugs fixed on a frame, each lug having a plurality of apertures and a plurality of removable cranes of unequal extent laterally, adapted to engage the lugs on the frame and respectively to engage the lugs on the sashes, and support them so that the sashes can swing horizontally alongside each other, substantially as described.

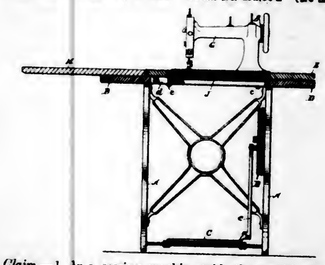
4. The combination with a window frame, a sash having a groove in its edge, and movable vertically in the frame, the sash being supported by weight-provided cords and means other than the cords for supporting the sash temporarily, of a pendent rod secured to the end of the cord and arranged to rest normally in the groove in the edge of the sash and to serve as a means for securing and drawing down the cord when released from the sash, substantially as described.

491,654. SEWING-MACHINE TABLE. THEODOR KUNDTS, Cleveland, Ohio. Filed May 9, 1892. Serial No. 432,352. (No model.)



Claim.—The combination, with a cabinet having a rigid top provided with a central opening having a ledge at one end, and grooves in the sides, said grooves being cut away at the ends remote from the ledge, of the hinged leaf, the vertically movable carrier, and the adjustable strap connecting the hinged leaf and carrier, a horizontally sliding frame mounted upon the carrier and adapted to carry the head, said frame having laterally projecting tongues at the end adjacent to the cut out portion of the grooves, said tongues being adapted to slide in the grooves and the opposite end of the frame rest upon the ledge, and a hand lid for holding the frame in its adjusted right hand position, substantially as shown and described.

491,655. SEWING-MACHINE TABLE. THEODOR KUNDTS, Cleveland, Ohio. Filed May 9, 1892. Serial No. 432,354. (No model.)



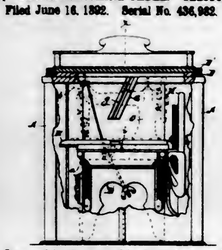
Claim.—1. In a sewing machine table the combination with a supporting frame, of a rigid table secured thereto and provided with a central opening, a movable top mounted upon the rigid table and adapted to slide horizontally thereon, said movable top having also an opening and a platform carrying a head hinged to the movable top, said platform being adapted to be moved up in horizontal alignment with the movable top and then slid horizontally with said top to rest upon the rigid table, substantially as described.

2. In combination, a rigid sewing machine table bearing a horizontally movable false top, these members having openings preferably central, the false top having end movement, the one extreme whereof causes the opening to register, a platform hinged to the internal edge of the false top in position to tilt downward through the opening, and to rest on the rigid table, accordiug as the false top is moved to one extreme or the other, such platform bearing the head, substantially as set forth.

3. In combination, a rigid sewing machine table provided with a horizontal false top or cover, the latter having end movement and both these members having approximately central openings, a platform hinged to the internal edge of the false top, such platform having a lip or projection for supporting the free edge of the platform, the latter bearing the head, and being arranged to engage or dis-engage the rigid table according to the position of the false top, substantially as set forth.

4. The combination with the rigid table, of the movable top thereon both having central openings, the table having a recess in the side of its opening, a tilting platform hinged to the movable top and carrying the head, said platform being provided with a lip adapted to pass through the recess in the table and rest on the table when the top is moved endwise, substantially as described.

491,656. SEWING-MACHINE TABLE. THEODOR KUNDTS, Cleveland, Ohio. Filed June 16, 1892. Serial No. 436,962. (No model.)

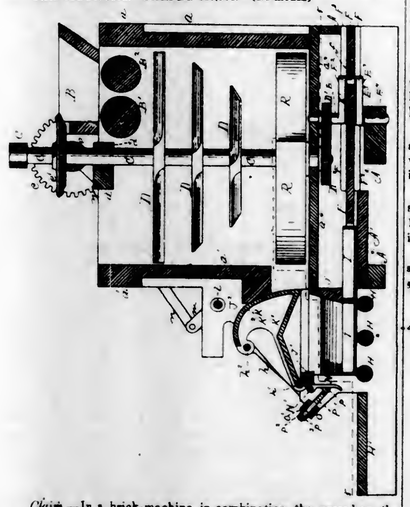


Claim.—1. In combination a cabinet sewing machine table, having a vertically reciprocating carrier, a horizontally sliding frame mounted on the carrier, such frame bearing the head, a stationary inclined way or guide, an attachment of the frame adapted to engage such way or guide, for shifting the frame and load horizontally by means of the vertical movements of the carrier, substantially as and for the purpose set forth.

2. In combination a sewing machine table having a carrier, and folding leaf operatively connected with the carrier, for raising and lowering the latter, a frame mounted on and movable endwise of the carrier, a pendent stationary block attached to the table and having an inclined groove, a member of the frame adapted to operate in such inclined groove, the arrangement being substantially as described.

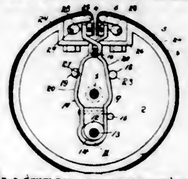
3. In combination a sewing machine table a carrier and folding leaf for operating the carrier, a horizontally moving frame mounted on the carrier, and means, substantially as indicated, for moving the frame horizontally with the vertical movement of the carrier, a spring catch or dog carried by the sliding frame and adapted to engage a recess in the table for locking the free edge of the sliding frame in the elevated position of the latter, substantially as and for the purpose set forth.

491,657. BRICK-MACHINE. VICTOR F. LABOUETTE, Dover, N. H. Filed Oct. 20, 1892. Serial No. 449,506. (No model.)



Claim.—In a brick-machine, in combination, the press-box, the vertically hanging and swinging gates or scrapers N hinged to the front wall or frame of the press-box in front of the different molds, rods P pivotally connected at their lower ends to the gates or scrapers, bar O provided with springs O' through which the upper ends of the rods extend, springs P^2 secured to said bar and pressing against said rods, and molds adapted to be forced under said gates or scrapers, substantially as set forth.

491,658. SANDING-DRUM. WILBUR F. LARISH, Oshkosh, Wis. Filed Aug. 6, 1892. Serial No. 442,363. (No model.)



Claim.—1. In a drum for sand paper or other abrading material, the combination of jaws for grasping the edges of the abrading material, the cam 16 for forcing said jaws together, and mechanism independent of said cam for moving said jaws radially inward or outward, substantially as set forth.

2. The combination with the drum and the grasping jaws and radially movable legs supporting the same, of a cam for forcing said jaws together, and means independent of said clamp for moving the jaws and legs radially.

3. The combination with the drum and grasping jaws, of the crossed legs supporting them, means for engaging said legs and separating them to force the jaws together, and an eccentric connected with the legs for moving them radially.

4. The combination with the drum and grasping jaws, of the crossed spring legs carrying the latter, the rotary cam pin between the legs, and the eccentric for moving them radially.

5. The combination with the drum, the grasping jaws, and the legs 10 supporting them and having the inclines 20, of stops engaging said inclines 20, means for moving the legs radially along said stops to open the jaws, and independent mechanisms whereby the jaws are moved toward each other to clamp the paper, substantially as set forth.

6. The combination with the drum, of a pair of longitudinally extending grasping jaws, and independent mechanisms adapted to be separately operated at different times for forcing said jaws toward each other and for moving them radially, substantially as set forth.

7. The combination with the drum, having end apertures and means for holding the abrading material, of an underlying sheet of relatively soft material, and means for stretching the latter consisting of rolls which are removable from the drum through said apertures with the said soft material attached thereto, substantially as set forth.

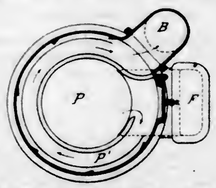
8. The combination with the drum, having end apertures and holding jaws or surfaces 27, of a relatively soft material such as canvas for underlying the abrading material, and rolls for stretching said canvas longitudinally removable through said apertures and adapted to be held by said jaws or surfaces 27, substantially as set forth.

9. In a sanding drum the combination of the grasping jaws, springs supporting the same, eccentrics for moving said jaws bodily inward or outward, and a cam pin engaging both of said jaws for operating them relative to each other, substantially as set forth.

10. In a sanding drum the combination of the grasping jaws 8, springs 9, supporting the same and having inclines 20, stops 18 and 19, cam pin 16, engaging both legs of said springs and means for moving the springs 9 radially.

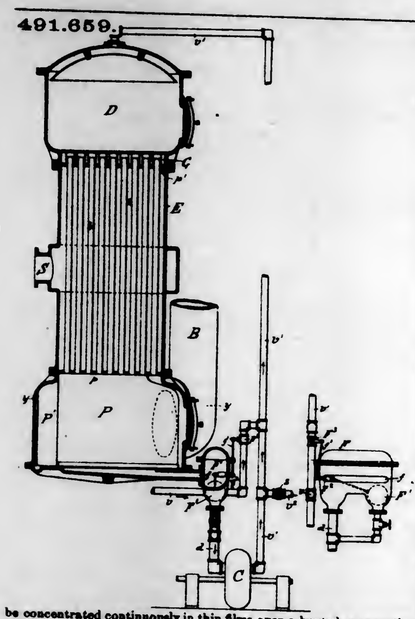
11. In a sanding drum, the combination of the grasping jaws 8, springs 9 supporting the same, cam pins 16, means for moving the springs radially, and rolls 28.

491,659. PROCESS OF EVAPORATING LIQUIDS. SAMUEL M. LILLIE, Philadelphia, Pa. Filed Jan. 7, 1890. Serial No. 336,203. (No specimens.)



Claim.—The process of concentrating a liquid by evaporation, consisting in circulating and recirculating a portion of the liquid to

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be concentrated continuously in thin films over a heated evaporating surface, and in continuously adding thin liquid to be concentrated in regulated quantities to the said circulating liquid, and simultaneously drawing away concentrated liquid from the circulating liquid substantially as described.

491,660. BOLT. ORTON C. LITTLE, Menasha, Wis., assignor of one-half to Duncan T. H. MacKinnon, same place. Filed Sept. 23, 1892. Serial No. 446,700. (No model.)



Claim.—1. As a new article of manufacture, a bolt, consisting of a shank having a head at one end and being adapted to have a nut fitted upon the other end, the head consisting of two wings and being of approximately the form of two dove-tails meeting each other at their narrowest ends, the side edges of said dove-tail shaped wings being inclined toward each other, from the top to the bottom side of the bolt head, substantially as described.

2. A device for connecting two sections of a separable pulley rim, or two plates, or bars, by the edges thereof, consisting of a shank having a nut screwed thereon, and a head having two wings of approximately the form of two dove tails meeting each other at their narrowest ends, the side edges of said dove-tail shaped wings being inclined toward each other from the top to the bottom side of the bolt head, in combination with said pulley rim sections, bars or plates, having sockets formed in the meeting edges thereof, said sockets having their sides inclined with a corresponding inclination of the side edges aforesaid of the wings of the bolt head, substantially as described.

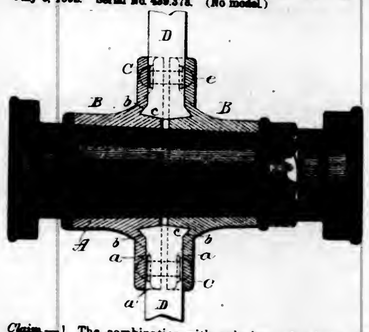
491,661. GARMENT-LOOP. CARL G. MEYER, Frohnau, Germany. Filed July 22, 1892. Serial No. 440,958. (No model.)



Claim.—1. The described suspender for garments comprising the suspender *c*, the flat holding plate *b*, having its edges folded over and closely embracing the said suspender, the shank *d* connected to the plate and the button *e*, substantially as described.

2. In combination, the flexible suspender *c*, the shank *d*, of the sheet metal having its base extended to form a plate, the edges of said plate being turned over to clamp the suspender, and the button *e*, fitting over said shank, substantially as described.

491,662. WHEEL. THOMAS R. MCKNIGHT, Aurora, Ill. Filed July 8, 1892. Serial No. 439,373. (No model.)

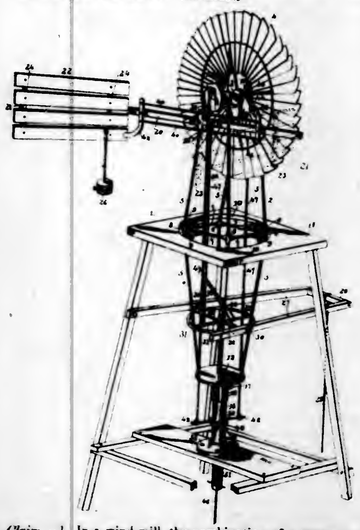


Claim.—1. The combination with axle box, of a hub made in two sections, mounted on the hub box, said sections having flanges in which sockets are formed for spokes, each section provided with an annular recess adapted to receive enlargements formed on the spokes, substantially as set forth.

2. The combination with a hub box, of a hub composed of two sections, mounted on the hub box, each section of the hub provided with an annular flange, and the flanges having U-shaped recesses formed therein to receive the spokes, said flanges each having an annular recess at its lower end adapted to receive enlargements on the spokes, substantially as set forth.

3. The combination with axle box, of a hub made in sections, each section provided with a flange and having an annular undercut recess formed at the point where the flange joins the body of the section, each flange having radial half sockets which lead to the annular recess, substantially as set forth.

491,668. WINDMILL. CHARLES PYLE and JOSEPH PYLE, Lebanon, assignors of one-third to William B. Bradsby, Greenville, Ill. Filed June 6, 1892. Serial No. 436,673. (No model.)



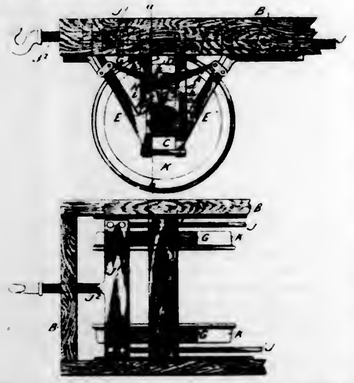
Claim.—1. In a wind mill, the combination of a tower, a vertical frame rotatively mounted therein, a wind wheel mounted on the frame, a vane bar secured to the frame and arranged parallel with the wind wheel, a horizontally swinging main vane hinged at one end of the vane bar, a supplemental vane journaled at the other end of said bar, and means for controlling the vanes, substantially as described.

2. In a wind mill, the combination of a tower, a vertical frame rotatively mounted therein, a wind wheel centrally arranged at the top of the frame, a vane bar secured to the vertical frame and arranged parallel with the wheel, a main vane hinged at one end of the vane bar, a supplemental vane journaled at the other end of the vane bar and provided with a depending weight, the curved levers fulcrumed on the vane bar and extending above and below the same, one of the levers being arranged to engage the supplemental vane and the other lever being connected with the main vane, a T-shaped lever fulcrumed on the vane-bar and connected by rods with the curved lever, and means for connecting the T-shaped lever with the base of the tower, substantially as described.

3. In a wind mill, the combination of a tower, a vertical frame rotatively mounted therein, a wind wheel arranged at the upper end of the frame, a vane bar secured to the frame and arranged longitudinally of the wind wheel, a main vane hinged to one end of the vane bar, a supplemental vane journaled at the other end of the vane bar, levers fulcrumed on the vane bar and adapted to turn the vanes, a ring arranged on the lower portion of the vertical frame and connected with said levers, and parallel levers each having one end fulcrumed on the tower and provided intermediate its ends with an anti-friction roller arranged on the ring and having its other end connected with a base of the tower, substantially as described.

4. In a wind mill, the combination of a tower, a vertical frame tapering from its middle to its end and rotatively mounted in the tower and carrying a wind wheel, a tube provided with a conical bearing at its upper end and having a securing flange at its lower end, a conical journal depending from the bottom of the vertical frame, and fitting in the conical bearing and provided with an annular groove, and a sleeve secured to the upper end of the tube and receiving the journal and provided with screws arranged in said annular groove, substantially as and for the purpose described.

491,664. BRAKE MECHANISM FOR CARS. LUKE ROBERTS and JAMES WHEATER, Bradford, England; said Wheater assignor to said Roberts. Filed Mar. 18, 1892. Serial No. 425,462. (No model.) Patented in England July 1, 1890. No. 10,151.



Claim.—1. In railway and tramway vehicles, the combination with the body of the vehicle, and a brake mechanism, normally applied by the weight of the body, of a draw bar mechanism, through which power to move the vehicle is applied, connected with said brake mechanism and operating to release the brake when power to move the vehicle is applied: substantially as described.

2. The combination with brake mechanism actuated by the weight of the vehicle, of a lever or its equivalent connected to the draw bar and adapted to raise the weight of the vehicle for the purpose of taking off the brake, substantially as herein shown and described.

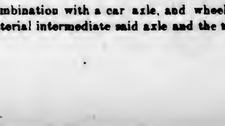
3. The combination with brake mechanism actuated by the weight of the vehicle of a lever connected to the draw bar having its fulcrum on the axle box or other part rigidly supported by the wheels, and having arms to bear upon the spring or its equivalent supporting the body of the vehicle, substantially as herein shown and described.

4. The combination with a brake mechanism actuated by the weight of the vehicle, of a lever connected to the drawbar having its fulcrum on the axle box or other part rigidly supported by the wheels and provided at its lower end with two laterally extending arms bearing against the support for the body of the vehicle, whereby when the drawbar is moved in either direction the weight of the vehicle will be raised and the brakes thrown off: substantially as herein shown and described.

5. In a bogie vehicle, the combination with levers *A'* or their equivalent adapted to remove the brake, of the circular attachments U and the coupling J^4, J^5, J^3, substantially as herein shown and described.

6. In railway and tramway vehicles constructed on the bogie principle, the combination with the circular attachment connected to the brake levers of each bogie, of a coupling loosely mounted upon and attached to the peripheries of said circular attachments and also connected to the draw bar of the vehicle, substantially as herein shown and described.

491,665. CURTAIN-RAISING DEVICE FOR VEHICLES. EDWARD ROBBS, ISAAC F. DOUDORO, and HENRY H. ROBBS, Marietta, Pa. Filed Feb. 20, 1892. Serial No. 422,201. (No model.)



Claim.—1. In a vehicle, the combination, with the frame of a curtain having one edge hinged to the vehicle, of a sliding rod supported beneath the roof thereof, a lever pivoted forward of said curtain frame, a pivoted connection between the sliding rod and the lever, and a connecting-rod between the sliding rod and the curtain frame pivotally attached to both, substantially as and for the purpose specified.

2. In a vehicle, the combination, with the frame of a curtain having one edge hinged to the vehicle, of a sliding-rod supported beneath the roof thereof, a lever pivoted forward of said curtain frame, a rod pivoted to the lever and having an adjustable pivoted connection with the sliding rod, and another rod having an adjustable pivoted connection with the sliding-rod and pivotally connected with the curtain frame, substantially as and for the purpose specified.

3. In a vehicle, the combination, with the frame of a curtain having one edge hinged to the vehicle, of eyes fastened to the frame of the body of said vehicle, a sliding rod engaging the eyes, movable collars embracing the sliding-rod, set screws for securing the collars in an adjusted position, a rack, a lever having a dog adapted to engage said rack, a connecting-rod pivotally attached to the lever and one of the collars, and a connecting-rod pivotally attached to the other collar and the curtain frame, substantially as and for the purpose specified.

491,666. ELECTRIC LOCOMOTIVE. SIDNEY H SHORT, Cleveland, Ohio, assignor to the Short Electric Railway Company, same place. Filed Jan. 16, 1891. Serial No. 377,964. (No model.)

Claim.—1. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propelling motor having an axially placed armature connected directly with said axle and the field magnets mounted in part at least on said axle by means of journal bearings with springs or buffers interposed, substantially as described.

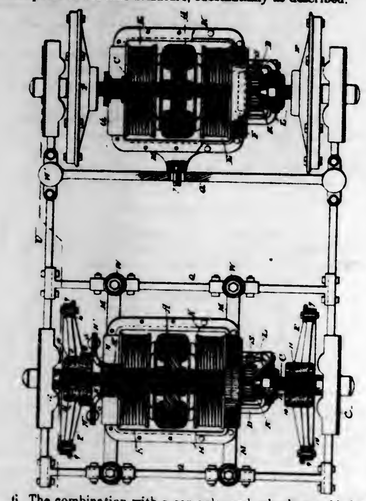
2. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propelling motor having both armature and field magnets mounted, in part at least, on said car axle, with springs or buffers interposed, the armature being connected directly with said axle, substantially as described.

3. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propelling motor mounted in part at least on said car axle by means of journal bearings and held from rotation by a cushioned connection with another part of the car, said motor having the armature axially placed and directly connected with said axle, substantially as described.

4. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propelling motor mounted in part at least on said car axle by means of journal bearings and held from rotation and supported by cushioned connections with another part of the car, said motor having an axially placed armature connected directly with said axle, substantially as described.

5. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propel-

ling motor having an axially placed armature connected directly with said axle and field magnets placed above or not materially below the lowest point of the said armature, substantially as described.



6. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propelling motor having an axially placed armature connected directly with said axle and field magnets at the sides of the armature, substantially as described.

7. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propelling motor having an axially placed armature connected directly with said axle and multipolar field magnets, substantially as described.

8. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propelling motor having an axially placed armature directly connected with said axle and multipolar field magnets arranged with the magnets of the two lowest poles equidistant from the lowest point of the armature in front and rear of the same respectively, substantially as described.

9. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propelling motor having an axially placed armature connected directly with said axle and field magnets projecting from yokes perforated for the passage of the car axle, substantially as described.

10. The combination with a car axle, and wheels provided with cushioning material intermediate said axle and the tires, of a propelling motor having an axially placed armature connected directly with said axle and field magnets projecting from yokes perforated for the passage of the car axle and provided with journal bearings, substantially as described.

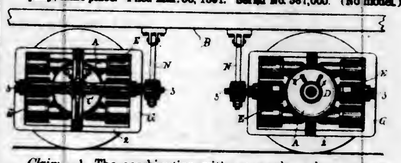
11. In an electrically propelled car, a car wheel comprising a bearing hub provided at its opposite ends with outwardly projecting flanges, and an outer hub provided at its outer ends with inwardly projecting flanges, in combination with a rubber cushion interposed between the two hubs, said cushion being of such thickness as to retain the adjacent flanges on the inner and outer hubs out of contact and prevented against displacement by said end flanges and serving to insulate the outer hub and wheel from the inner hub and axle, substantially as set forth.

12. The combination with a propelling motor having an axially placed and directly connected armature, of the car axles, and the car wheels having two part hubs with insulating cushions between, substantially as described.

13. The combination with a car axle and wheels provided with cushioning material intermediate said axle and the tires, of the armature and field magnets of a propelling motor encircling the axle, the armature being connected with the axle so as to rotate therewith, and yielding supports connecting the field-magnets with the truck-frame, substantially as set forth

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491,667. DIRECTLY-CONNECTED MOTOR FOR CARS. SIDNEY H. SHORT, Cleveland, Ohio, assignor to the Short Electric Railway Company, same place. Filed Mar. 30, 1891. Serial No. 387,005. (No model.)

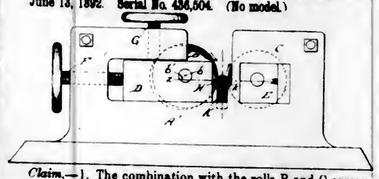


Claim.—1. The combination with a car-axle and an armature directly connected with the car axle so as to rotate therewith, of a field magnet yoke journaled at its opposite ends on the car axle, said yoke comprising a frame completely encircling the axle and made in separable sections whereby to facilitate its application to the car axle, and three or more pairs of field magnets secured within and completely encircled and protected by the yoke frame, substantially as set forth.

2. The combination with a car axle and an armature directly connected with the car axle so as to rotate therewith, of a field magnet yoke journaled at its opposite ends on the car axle, said yoke comprising a frame which completely encircles the axle and made in separable sections whereby to facilitate its application to the car axle and three or more pairs of field magnets placed on opposite sides of the car axle with their poles pointing toward the axle, said field magnets being secured within and completely encircled and protected by the yoke frame, substantially as set forth.

3. The combination with a car axle and an armature directly connected with the car axle so as to rotate therewith, of a field magnet yoke journaled at its opposite ends on the car axle, said yoke comprising a frame which completely encircles the axle and made in separable sections whereby to facilitate its application to the car axle, and provided with side bars connecting the upper and lower frame pieces of the yoke, and three or more pairs of field magnets placed on opposite sides of the car axle with their poles pointing toward the axle, said field magnets being secured within and completely encircled by the yoke, substantially as set forth.

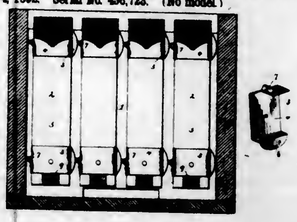
491,668. MACHINE FOR ROUNDING, STRAIGHTENING, AND PLANISHING METAL BARS. WALTER STEEL, Reading, Pa. Filed June 13, 1892. Serial No. 436,504. (No model.)



Claim.—1. The combination with the rolls B and C arranged to positively rotate in the same direction of the tool K located between said rolls and below their axes, the periphery of the roll B having a downward movement near the tool K and a greater speed than the upwardly moving adjacent periphery of the roll C, substantially as set forth.

2. The combination with the roll C having its axis arranged parallel with the movement of the bar under treatment of the roll B having its axis inclined to that of the roll C, and the tool K arranged to operate in connection with the rolls, said rolls being positively rotated in the same directions with different surface speeds, whereby said bar is simultaneously pressed against said tool and fed onward, substantially as set forth.

491,669. BEEHIVE. GEORGE W. STEPHENS, Denison, Iowa. Filed June 14, 1892. Serial No. 436,723. (No model.)

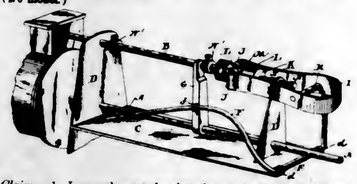


Claim.—1. In a hive, a spacing device for comb frames constructed of metal and consisting of a rectangular portion to be secured to a vertical bar of a comb frame, a vertically disposed segmental flange arranged at one end of the rectangular portion, and a horizontally disposed projection arranged at the other end of the horizontal portion, substantially as described.

2. In a bee hive, a spacing device for comb frames constructed of metal and consisting of a rectangular portion to be secured to a vertical bar of a comb frame, a vertically disposed segmental flange arranged at one end of the rectangular portion, and a horizontally disposed triangular flange arranged at the other end of the rectangular portion, and having its apex arranged beyond the rectangular portion and adapted to bear against the segmental flange of another spacing device, substantially as described.

3. In a bee hive, a spacing device for comb frames constructed of sheet metal and consisting of a rectangular portion, a vertically disposed segmental flange arranged at one end of the rectangular portion, and a horizontally disposed flange arranged at the other end of the rectangular portion and consisting of the material of the upper portion of the end piece, said material being bent upon itself to form the said projection, substantially as described.

491,670. VALVE MECHANISM FOR ENGINES. CLARENCE E. VAUGHN, East Palestine, Ohio. Filed May 3, 1892. Serial No. 431,734. (No model.)



Claim.—1. In a valve mechanism for engines, a fixed concaved wedge secured to the valve rod, and a corresponding reciprocating concaved wedge yieldingly contacting with the sides of said fixed concaved wedge and connected with the piston rod, substantially as set forth.

2. In a valve mechanism for engines, a fixed inclined wedge connected with the valve rod, and corresponding wedge rolls yieldingly contacting with the sides of said fixed wedge and connected with the piston rod, said wedge rolls riding over the ridge of the fixed wedge from side to side, substantially as set forth.

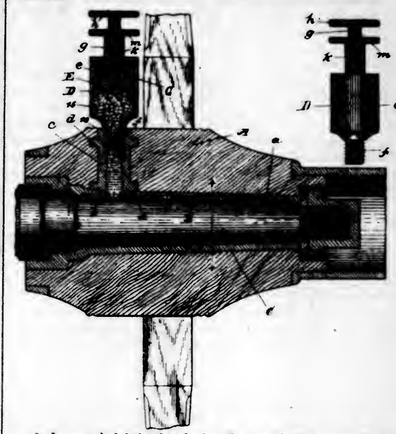
3. In a valve mechanism for engines, a fixed wedge block connected with the valve rod and having parallel grooves and an intermediate inclined ridge between said grooves, and adjacent wedge rolls pressing into said grooves and yieldingly riding over the intermediate ridge from one of the grooves to the other to reciprocate the valve stem or rod, substantially as set forth.

4. In a valve mechanism for engines, the combination with the reciprocating piston and valve rods; of a fixed inclined wedge carried by said valve rod, spaced buffers adjustably secured to the valve rod, an operating arm carried by the piston rod and sliding upon said valve rod between said buffers and provided with an eye on one side of the same, a suitably supported rock shaft having a curved or bowed lever arm passing through said eye and an upwardly extending rock arm, and a reciprocating spring yoke connected with said rock arm and carrying at its ends opposite wedge rolls yieldingly contacting with said fixed wedge, substantially as set forth.

5. In a valve mechanism for engines, the combination with the reciprocating piston and valve rods; of a fixed wedge block secured to the valve rod and provided with deep parallel grooves and an intermediate inclined ridge between said grooves, [illegible] pair of hooked [illegible] connecting [illegible] guards, an operating arm carried by said piston rod and provided with an eye, a rock shaft having a curved or bowed lever arm passing through said eye and an upwardly extending rock arm, and a reciprocating spring yoke connected with said rock arm and carrying at its opposite ends grooved wedge rollers yieldingly contacting with said fixed wedge and working over the intermediate ridge from one of said grooves to the other to sharply reciprocate the valve stem, substantially as set forth.

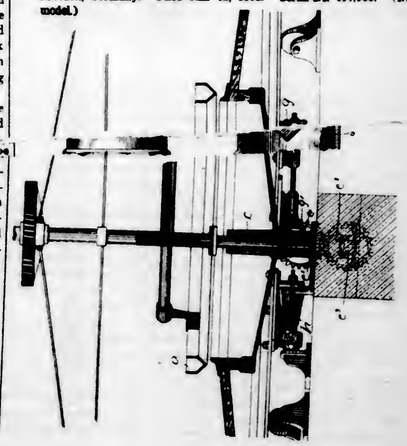
491,671. AXLE-LUBRICATOR. LEWIS E. ATKINSON, Boston, Mass., assignor, by direct and mesne assignments, to the Standard Lubricant Company, same place. Filed July 1, 1892. Serial No. 438,672. (No model.)

Claim.—1. In an axle-lubricating device, the cylindrical shell or body *e*, screw-threaded on its interior and adapted to contain a lubricating compound, and having a suitable discharge outlet, combined with a screw-threaded presser E fitting the internal thread of said shell and provided with a central stem *g* having a handle *h* at its outer end, and a check-nut G also fitting said internal thread and provided with a tubular portion or sleeve *k* encircling the stem *g* of the presser and having a handle *m* at its outer end located beneath the handle *h* of said presser, said handle *m* forming a stop or gage to limit the descent of the presser and thereby regulate the quantity of lubricating compound forced forward at a single operation, substantially as described.



2. In an axle-lubricating device, the combination, with the hub and axle-box, the latter provided on its interior surface with a longitudinal groove *a* open to the axle space and adapted to contain a lubricating compound and connected with a tube or passage leading to the exterior of the hub, of a lubricator consisting of a cylindrical shell or body *e* having a nipple or nozzle adapted to be screwed into the inlet opening in the hub, said shell *e* having an internal screw-thread, a screw-threaded presser E fitting said thread, and provided with a stem having a handle at its outer end, and a check-nut G also fitting the internal thread of the cylindrical shell and provided with a sleeve encircling the stem of the presser and having a handle located beneath the handle of the stem of the said presser, said check-nut serving to lock the presser in place when forced downward, and its handle forming a stop or gage to limit the descent of the presser and thereby regulate the quantity of lubricating compound forced into the axle-box at a single operation, all constructed and operating substantially as set forth.

491,672. ORE-DRESSING APPARATUS. WILHELM J. BARTSCH, Dresden, Germany. Filed Jan. 12, 1892. Serial No. 417,900. (No model.)

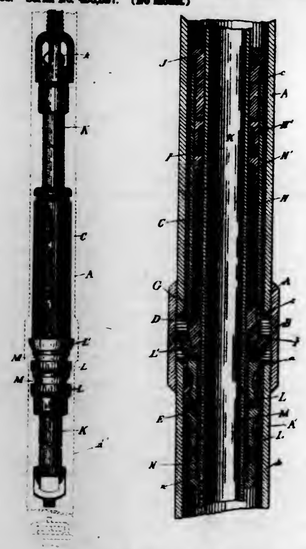


Claim.—An ore-dressing apparatus, comprising a rotatable annular feed-channel, a spiral perforated pipe secured to the same, a circular table, and means for effecting a vibrating horizontal motion of the table, for the purpose as described.

491,673. PROCESS OF PRINTING COLORS WITH ANILINE-BLACK. WILLIAM BROWNRIG, Accrington, England, assignor, by direct and mesne assignments, to the Arnold Print Works, North Adams, Mass. Filed July 30, 1892. Serial No. 441,737. (Specimens.) Patented in England June 18, 1892, No. 11,416.

Claim.—The process of producing and fixing upon cotton, designs in colors, in conjunction with aniline-black, which consists in, first, applying to the material a mordant formed by an astringent solution and a metallic salt; second, padding the material with an aniline mixture suitable for producing aniline black; third, printing upon the material in any desired designs a resist for aniline-black mixed with coloring matter which will enter into chemical combination with such mordant, and finally, steaming or aging the material so mordanted, padded and printed, to develop and fix the colors, substantially as described.

491,674. OIL-WELL PUMP. GEORGE D. BOURNE, Zelienople, Pa., assignor of one-fourth to C. J. D. Strobecker, same place. Filed Oct. 31, 1892. Serial No. 450,857. (No model.)



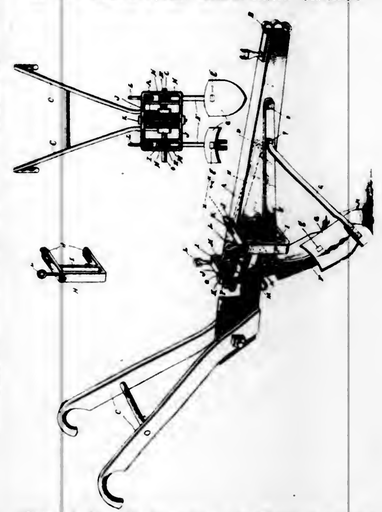
Claim.—1. In a deep well pump, the combination with the coupled well tube sections and the valved tubed plunger; of a combined stuffing box and head smaller in diameter than the well tube and having interior packing surrounding the plunger and exterior packing meeting the sides of one of the well tube sections, and a portion of which packing projects into the space between the coupled ends of the tube section, substantially as set forth.

2. The combination with the well tubing sections, one of which carries a valve, and the plunger moving therein; of a combined stuffing box and head having interior packing surrounding the plunger and a lower series of exterior packing rings meeting the sides of the valved tube section, one of said rings being of greater diameter than the other rings, and adapted to take into the space between the coupled ends of the tube sections, substantially as set forth.

3. In a deep well pump, the combination with the well tube sections and the valved tube plunger; of a stuffing box cylinder arranged within the tubing, packing arranged within said cylinder around the plunger, an extension tube removably secured to the lower end of said cylinder, and closely fitting the tube plunger and a series of exterior packing rings clamped onto said tube and meeting the sides of the well tube, said stuffing box cylinder and the extension tube supported thereby, being adapted to have a play limited by the space between the coupled ends of the tube sections, substantially as set forth.

4. In a deep well pump, the combination with the coupled tubing sections, one of which carries a valve and the valved plunger tube moving therein; of a combined stuffing box and head comprising a cylinder having upper and lower threaded ends, an extension tube of smaller exterior diameter than said cylinder and terminating at one end in an exteriorly threaded and beveled head secured to the lower end of the cylinder and having an inner shoulder, interior packing resting on said shoulder, flanged clamping rings arranged above the packing within the cylinder, a cup ring between said clamping rings, a follower threaded into the upper end of the cylinder and bearing on the clamping ring, a series of cup-shaped packing disks mounted on said extension tube, the uppermost of said disks fitting the beveled edge of said head and projecting into the space between the coupled ends of the tube sections, and a series of flanged and spacing clamping rings, arranged between the several cup disks, substantially as set forth.

491,675. ADJUSTABLE DOUBLE PLOW. JAMES R. DARBY, Batesville, Miss. Filed Oct. 18, 1892. Serial No. 449,216. (No model.)



Claim.—1. In a self adjusting plow, the combination of the opposite movable shovel beams and an intermediate crank connecting said beams, substantially as set forth.

2. In a plow, the combination with the main beam or stock, of the opposite shovel beams pivoted at one end to said stock, and an intermediate double crank journaled in said main beam or stock and loosely connected to said pivoted shovel beams, substantially as set forth.

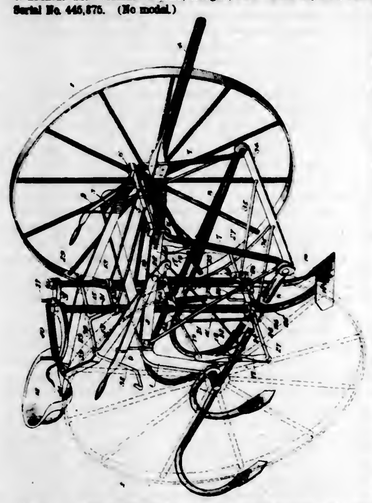
3. In a self adjusting plow, the main beam or stock, opposite guide frames, the opposite shovel beams pivoted to said stock and moving in said guide frames, and an intermediate crank connecting said pivoted beams, substantially as set forth.

4. In a self adjusting double plow, the main beam or stock, opposite slotted guide frames, opposite shovel carrying beams, pivoted to opposite side of the stock and moving in said guide frames, means for adjusting the movement of said shovel beams in said frames, and an intermediate crank connecting said beams, substantially as set forth.

5. In a self adjusting double plow, the main beam or stock opposite vertically slotted guide frames laterally adjustable on said stock, opposite shovel beams pivoted at one end to opposite sides of said main beam or stock and moving in the vertical slot of said guide frames, adjusting screws working in said guide frames directly over the shovel beams therein, and an intermediate double crank journaled in the main beam or stock and provided with oppositely disposed crank arms loosely connected to the opposite shovel beams, substantially as set forth.

6. In a plow, the main beam stock, the opposite shovel beams pivoted thereto, the double crank journaled therein and loosely connected to said shovel beams, and the laterally adjustable guide frames for the beams, substantially as described.

491,676. HOE ATTACHMENT FOR CULTIVATORS. EDUARD A. O. BRIESEN and WILLIAM H. DAY, Morgan, Tex. Filed Sept. 14, 1892. Serial No. 445,875. (No model.)



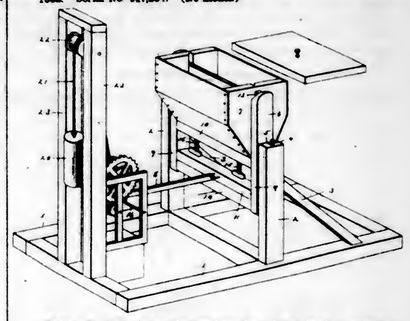
Claim.—1. The combination with a double cultivator, of a pair of vertical rotatable hoe-carrying standards supported between the cultivators thereof, means for maintaining the hoe-sections in closed position and a lever for simultaneously swinging the same out of closed position substantially as specified.

2. The combination with a double cultivator, of a pair of vertical standards, the tie-yoke connecting the same, hoe sections on the lower ends of the standards, levers at the upper ends of the standards the inner ends of which are pivoted together, an operating lever extending from one of said pivoted levers, a coiled spring connected to the pivot point between the levers and to a stationary point of the machine in rear thereof, substantially as specified.

3. The combination with a double cultivator, of a pair of hoe standards, tie-yokes connecting the standard hoe sections at the lower ends of the standards and adapted to overlap each other, levers at the upper ends of the standards, a pivot bolt connecting the levers, a handle extending from one of the levers in a direction opposite the same, short vertical standards secured at their middles to the outer plow-standards, links loosely connected to the ends of the short vertical standards and to the opposite extremities of the yokes, bearing shoulders formed on the vertical standards, connecting links between the tie-yokes, seat supporting bars extending rearward from the frame and embracing the hoe standards, a hook on said bars, a coiled spring between the hook and the pivot bolt of the levers, a transverse shaft having an intermediate crank, and a handle at the end thereof, a spring rod connecting the intermediate crank with the tie-yoke, substantially as specified.

4. The combination with a double cultivator, of a pair of hoe standards, tie-yokes connecting the standards, hoe sections at the lower ends of the standards and adapted to overlap each other, levers at the upper ends of the standards, a pivot bolt connecting the levers, a handle extending from one of the levers in a direction opposite the same, short vertical standards secured at their middles to the outer plow-standards, links loosely connected to the ends of the short vertical standards and to the opposite extremities of the yokes, bearing shoulders formed on the vertical standards, connecting links between the tie-yokes, seat supporting bars extending rearward from the frame and embracing the hoe standards, a hook on said bars, a coiled spring between the hook and the pivot bolt of the levers, a transverse shaft having an intermediate crank and a handle at the end thereof, a spring rod connecting the intermediate crank with the tie-yoke, a transverse bar connected to the front ends of the cultivator standards, rods loosely connected to the same and at their rear ends to the lower yoke, a transverse bar surmounting the hounds, and rods loosely connected at their front ends to the transverse bar, and at their rear ends to the hoe standards, substantially as specified.

491,677. CHURN. ABOS C. PELL, Newville, Ind. Filed Sept. 20, 1892. Serial No. 447,267. (No model.)



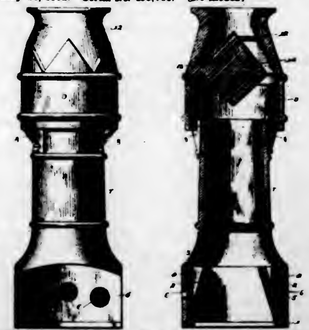
Claim.—1. In a churn, the combination of standards, an oscillating frame journaled intermediate of its ends in the standards and having one end weighted and provided at its opposite ends with ways, a churn body arranged in said ways and adapted to be adjusted therein, and means for securing the churn body in its adjustment, substantially as described.

2. In a churn, the combination of standards provided with bearings, an oscillating frame journaled intermediate of its ends in the bearings and provided at its lower end with a weight and having at its upper end ways, a churn body provided with ribs arranged in said ways, and adjusting screws arranged beneath the churn body and supporting the same and securing the body in its adjustment, substantially as described.

3. In a churn, the combination of standards provided with bearings, an oscillating frame comprising side bars provided intermediate of their ends with journals arranged in said bearings and the upper and lower cross-bars connecting the side bars near their lower end, said side bars projecting above the cross-bars and provided in their opposed faces with grooves, a churn body provided at its ends with ribs arranged in said grooves, adjusting screws mounted in the upper cross-bar and supporting the churn body, and a weight secured to the lower cross-bar, substantially as described.

4. In a churn, the combination of standards, an oscillating churn body mounted between the standards, a motor having a crank shaft, a pitman connected with the oscillating churn body and provided with an elongated opening, a sliding bearing arranged in the opening and receiving the crank shaft, and springs arranged in the opening and disposed on opposite sides of the sliding bearing to cushion the same, substantially as described.

491,678. CHIMNEY-TOP. ERNEST FISCH, Wellsville, Ohio. Filed May 20, 1892. Serial No. 433,716. (No model.)



Claim.—1. The combination with the rectangular frame having a series of inwardly inclined walls meeting to form an intermediate

conical opening or smoke passage and provided with a series of radiating flanges of the rectangular base fitting removably upon the flanges and provided with a series of openings and above the smoke-opening merging into a chimney-body, substantially as specified.

2. In a chimney, the combination with the cylindrical body having the series of L-shaped brackets, of a cap-ring of greater diameter

2. In a self binding harvester, the combination with an elevator and packer frame placed intermediate between the platform conveyer and driving wheel, of a sectional revolving rake mounted in said frame adjacent to the platform conveyer, each section of the rake comprising circular supports having a diameter substantially equal to the vertical distance between the

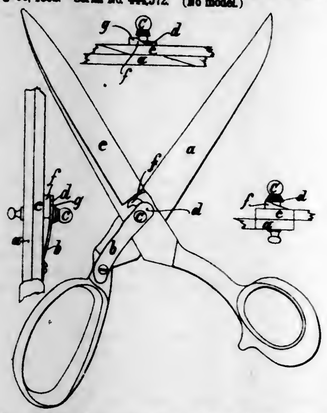
9. The combination with a transversely adjustable frame comprising substantially the front and rear standards 5 and 6 connected by the cross rods or bars 7, 8 and 9, of a rotary shaft 10, two sections of a revolving rake mounted on said shaft between the standards 5 and 6, a rock shaft 24^a, a needle mounted on said rock shaft so as to lie normally between the two rake sections, a shaft 29 loosely on the needle shaft to the gearing, said pitman provided with a spring adapted yieldingly to sustain the rake teeth and throw the needle gearing into operation when the locking mechanism is disengaged, substantially as set forth.

21. In a grain binding harvester the combination with a revolving rake comprising revolving supports and rake teeth pivotally mounted

conical opening or smoke passage and provided with a series of radiating flanges of the rectangular base fitting removably upon the flanges and provided with a series of openings and above the smoke-opening merging into a chimney-body, substantially as specified.

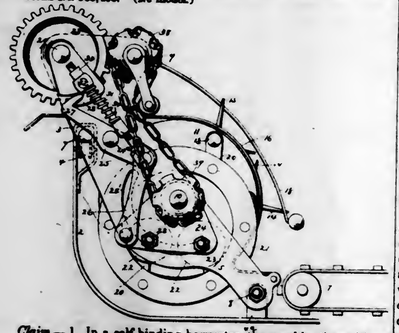
2. In a chimney, the combination with the cylindrical body having the series of L-shaped brackets, of a cap-ring of greater diameter than the body and having its inner surface at its lower end provided with a series of cam-faces agreeing in distance apart with the brackets and adapted to bind against the same, substantially as specified.

491,679. SHEARS. WALTHER FISCHER, Solingen, Germany. Filed Aug. 30, 1892. Serial No. 444,572. (No model.)



Claim.—A device for pressing the blades of shears, scissors and similar instruments against each other with an increasing pressure during the closing movement, consisting in the combination, with the lower blade *a* and the spring *b* screwed to the same, and having an elongation *d*, of the pin *c*, and the upper blade *e*, having an inclined offset *g* in the path of travel of the elongation *d*, for the purpose set forth.

491,680. ELEVATING AND PACKING MECHANISM FOR HARVESTERS. ANDREW GARDNER, Atlantic, Iowa. Filed Mar. 17, 1891. Serial No. 385,408. (No model.)



Claim.—1. In a self binding harvester, the combination with an elevator and packer frame placed intermediate between the platform conveyer and driving wheel, of a sectional revolving rake mounted in said frame adjacent to the platform conveyer, the diameter of said rake being substantially equal to the vertical distance between the platform conveyer and the binder table, a binder table extending approximately on a level from the central or highest point of the rake outward over the driving wheel, a rock shaft placed beneath said binder table and approximately within the angle formed by the binder table and the periphery of the rake, and an underlying needle mounted on said rock shaft so as to lie normally between the sections of the rake, said needle having substantially the same radius as the rake, substantially as set forth.

2. In a self binding harvester, the combination with an elevator and packer frame placed intermediate between the platform conveyer and driving wheel, of a sectional revolving rake mounted in said frame adjacent to the platform conveyer, each section of the rake comprising circular supports having a diameter substantially equal to the vertical distance between the platform conveyer and the binder table, a series of toothed shafts loosely mounted in said supports, and means connected with a rock shaft for simultaneously controlling the teeth of both sections, said rock shaft being separated from the central rake shaft by only sufficient distance to clear the rake, an underlying needle having substantially the same radius as the rake mounted on said rock shaft so as to lie normally between the sections of the rake, and a binder table extending approximately on a level from the central or highest point of the rake outward over the driving wheel, substantially as set forth.

3. In a self binding harvester, the combination with an elevator and packer frame placed intermediate between the platform conveyer, and driving wheel, of a sectional revolving rake mounted in said frame adjacent to the platform conveyer, each section of the rake comprising circular supports, a series of shafts loosely mounted in said supports, teeth extending from each shaft at approximately right angles to each other, and means for normally maintaining said teeth in approximately horizontal and vertical positions throughout the revolution of the rake, a binder table extending outward from the central or highest point of the rake, and an adjacent rock shaft provided with a needle adapted to operate between the sections of the rake, substantially as set forth.

4. In a self binding harvester, the combination with an elevator and packer frame placed intermediate between the platform conveyer and driving wheel, of a sectional revolving rake mounted in said frame adjacent to the platform conveyer, each section of the rake comprising circular supports, a series of toothed shafts loosely mounted in said supports, cranks on the shafts a ring pivotally connected with the several cranks and a movable plate provided with anti friction rollers to bear against the edge of the ring to control its position, a rock shaft provided with a needle, adapted to operate between the two sections of the rake, and a binder table extending outward from the central or highest point of the rake, substantially as set forth.

5. In a self binding harvester, the combination with a transversely adjustable elevator and packer frame placed intermediate between the platform conveyer and driving wheel, of a sectional revolving rake mounted in said frame adjacent to the platform conveyer, each section of the rake comprising circular supports, a series of shafts loosely mounted in said supports, teeth extending from each shaft at approximately right angles to each other, cranks on the shafts, a ring pivotally connected with the several cranks, and a hanger plate loosely mounted on the central rake shaft provided with anti friction rollers to bear against the edge of the ring to control its position, an adjacent rock shaft provided with arms, links respectively connecting said crank arms and hanger plates, an underlying needle mounted on said rock shaft so as to lie normally between the two rake sections, and a slotted deck extending a short distance outward from adjacent to the platform conveyer, thence curved upward and extended outward over the rake to form a binder table, substantially as set forth.

6. The combination with a frame, of a revolving rake composed of two sections mounted on a central shaft, each section comprising circular supports, a series of shafts loosely mounted in said supports cranks on the shafts, a ring connecting these cranks, teeth extending from each shaft at approximately right angles to each other, and means connected with an adjacent rock shaft for either normally maintaining said teeth of both sections in approximately horizontal and vertical positions or inclined from their normal positions throughout the revolution of the rake, substantially as set forth.

7. In a self binding harvester, the combination with a frame, of a revolving rake composed of two sections, each section comprising circular supports, toothed shafts loosely mounted in said supports, cranks on the shafts, a ring pivotally connected to the several cranks, and a hanger plate loosely mounted on the central rake shaft, provided with anti friction rollers to bear against the edge of the ring to control its position, and a rock shaft provided with crank arms, links connecting said crank arms and hanger plates, said rock shaft being given a periodical movement by means of connection with the binding mechanism, substantially as set forth.

8. The combination with a frame, of a revolving rake composed of two sections mounted on a central shaft, each section comprising circular supports, toothed shafts loosely mounted in said supports cranks on these shafts, ring connecting the cranks, and means connected with crank arms on an adjacent rock shaft for simultaneously controlling the position of the teeth of both sections, one of said crank arms being provided with means for adjusting the radius of its pivotal connection with the means which control the inclination of the teeth of the corresponding section, whereby the teeth of one section may be adjusted to greater inclination than the teeth of the other, substantially as set forth.

9. The combination with a transversely adjustable frame comprising substantially the front and rear standards 5 and 6 connected by the cross rods or bars 7, 8 and 9, of a rotary shaft 10, two sections of a revolving rake mounted on said shaft between the standards 5 and 6, a rock shaft 24^a, a needle mounted on said rock shaft so as to lie normally between the two rake sections, a shaft 29 loosely mounted in a sleeve projecting rearwardly from the upper end of front standard 5, ejectors 30 mounted on the rear end of such shaft, a gear wheel mounted on the opposite end of said shaft, and a pitman connecting said gear wheel with a crank arm on shaft 24^a, substantially as set forth.

10. In a locking and tripping mechanism, for self binding harvesters, the combination with the rock shaft 24^a and the gear wheel 28^a mounted on the shaft 29, of an arm 25, mounted on shaft 24^a provided with a hook 27 adapted to engage a hook 28 on the mutilated gear wheel 28^a, and a pitman 31 provided with a spring 34 yieldingly connecting arm 25 and gear wheel 28^a, substantially as set forth.

11. A revolving rake comprising supports shafts therein having teeth extending from them at approximately right angles to each other, means for normally maintaining said teeth approximately in horizontal and vertical positions during the entire revolution of the rake and the adjacent shafts of the rake located a distance apart greater than the length of the teeth, substantially as set forth.

12. A revolving frame composed of sections each section comprising supports, shafts therein having teeth extending from them at approximately right angles to each other, means for normally maintaining said teeth approximately in horizontal and vertical positions during the entire revolution of the rake, and the adjacent shafts of each section located a distance apart greater than the length of the teeth, substantially as set forth.

13. A revolving rake, comprising loosely mounted shafts, and teeth on each of these shafts extending approximately at right angles to each other, and means for maintaining the teeth pointing in the same directions throughout the rotation of the rake, said teeth being yieldingly supported and adapted to be backwardly inclined by the impact of the straw against them whereby the other parts of the machine are automatically set in motion, substantially as set forth.

14. The combination with a rotary shaft having circular supports thereon, of tooth carrying shafts loosely mounted in said supports, cranks on the shafts, rings with which these cranks are loosely connected, anti-friction rollers operating against the inner edges of these rings, and means for changing the position of the rollers whereby the rings are shifted and the teeth are rocked, substantially as set forth.

15. The combination with a rotary shaft having circular supports thereon, of tooth carrying shafts loosely mounted in the supports, rings operatively connected with the shafts for rocking them simultaneously, hanger plates loosely mounted in proximity to the rings and furnished with anti friction rollers, and means connected with the plates for rocking them whereby the position of the rollers relative to the rings is changed, substantially as set forth.

16. The combination with a rotary shaft having supports thereon, of shafts loosely mounted in the supports, rings operatively connected with the several shafts, a rotary shaft having a pinion thereon, a shaft having a mutilated gear wheel thereon, and means operatively connected with the rings, and the mutilated gear wheel for automatically locking and unlocking the mutilated gear wheel, substantially as set forth.

17. The combination with a revoluble rake having teeth loosely supported therein, of plates connected with lateral projections on the shafts on which the teeth are secured, vibratory devices having loose contact with the plates, needle mechanism, tripping mechanism connected with the needle mechanism and means connecting the vibratory devices with the needle mechanism for imparting movement to the trip mechanism, substantially as set forth.

18. The combination with a revoluble rake having loosely supported shafts carrying rake teeth, rotary plates provided each with a circular central slot connected with cranks on the tooth shafts, of vibratory devices having bearing contact with the inner edges of the plates, needle mechanism, tripping mechanism connected with the needle mechanism and mechanism connecting the vibratory devices with the needle mechanism for imparting movement to the trip mechanism, substantially as set forth.

19. The combination with a frame-work, of a revolving rake comprising a shaft, circular supports near its ends and near its center, toothed shafts loosely mounted in said supports, and a rocking shaft provided with a needle which operates between the central supports of the rake, substantially as set forth.

20. The combination with a rotary shaft, plates thereon, toothed shafts loosely mounted in the plates, rings loosely connected with the cranks on the toothed shafts, loosely mounted hangers having rollers thereon against which the inner edges of the rings bear, of a needle shaft having devices thereon connected with the hangers, gearing, locking mechanism, and a pitman extending from one of the devices on the needle shaft to the gearing, said pitman provided with a spring adapted yieldingly to sustain the rake teeth and throw the needle gearing into operation when the locking mechanism is disengaged, substantially as set forth.

21. In a grain binding harvester the combination with a revolving rake comprising revolving supports and rake teeth pivotally mounted thereon, eccentric rings connected with said rake teeth, rocker or hanger plates having rollers to run on said eccentric rings, a needle shaft, a lever carried by said needle shaft and having a hooked arm, a mutilated gear having a notched plate or lug with which said hooked arm engages, a pitman yieldingly connecting said lever with the mutilated gear, and gearing for transmitting motion to said mutilated gear, substantially as set forth.

22. The combination with a frame work, of a revolving rake comprising a shaft, supporting plates at its ends and near its center, toothed shafts loosely supported in the supporting plates, and a rocking shaft provided with a needle which operates between the central disks of the rakes, substantially as set forth.

491,681. WAFFLE-IRON. ALEXANDER R. GEORGE, Dallas, Tex. Filed June 14, 1892. Serial No. 436,717. (No model.)



Claim.—1. In a waffle iron the combination with a support having opposite bearings, of the irons proper, comprising a pair of hinged sections, lugs extending from each of said sections at points diametrically opposite the hinge, which lugs have their adjacent faces cut away to receive each other and are externally rounded to form a handle, and means for locking the lugs together, substantially as specified.

2. In a waffle-iron, the combination with the support having opposite bearings, of the irons proper, comprising a pair of iron-sections provided with corresponding lugs at one edge externally shaped to form a handle and having their inner faces cut away or recessed to receive each other, a ring mounted for sliding on the handle whereby the lugs are clamped together, a pair of lugs arranged face to face and extending from the sections diametrically opposite the handle-forming lugs, one of the said lugs being provided with a stop, and a pintle passed through the lug in advance of the stop, whereby the separation of the irons is limited, substantially as specified.

3. In a waffle-iron, the combination with the base having front and rear notches, side recesses, uprights on said base, and a yoke pivoted in said uprights and having recesses in its ends adapted to pass outside of and register with those in the base; of the irons proper, a hinge trunnion at one side and a handle at the other resting in said recesses, and lugs at front and rear engaging said notches, substantially as described.

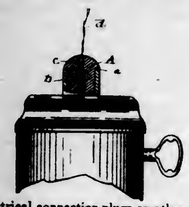
4. In a waffle-iron, the combination with the base having side recesses, uprights on said base, and a yoke pivoted in said uprights and having recesses in its ends adapted to pass outside of and register with those in the base; of the irons proper, and a hinge trunnion at one side and a handle at the other resting in said recesses, substantially as described.

5. In a waffle-iron, the combination with the base having side recesses, uprights on said base, and a yoke pivoted in said uprights and having recesses in its ends adapted to pass outside of and register with those in the base; of a handle on the base, a spring catch rising therefrom having a beveled head, and a handle on the yoke adapted to be engaged by said head when depressed, the irons proper having trunnions resting in the recesses of the yoke and base, substantially as described.

6. In a waffle-iron, the combination with the base having front

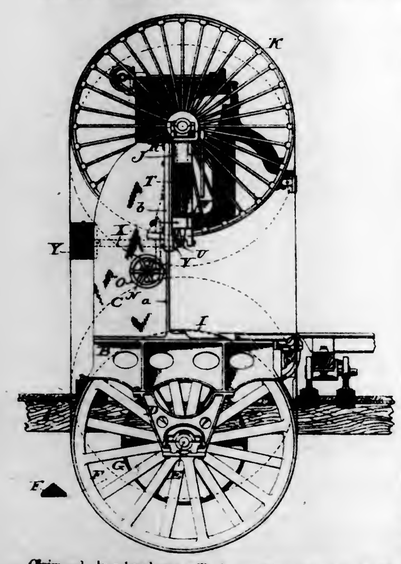
and rear notches, uprights on said base, and a yoke pivoted in said uprights and having recesses in its ends; of the irons proper, a hinge trunnion at one side and a handle at the other resting in said recesses, and lugs at front and rear engaging said notches, substantially as hereinbefore set forth.

491,682. BUSHING FOR INCANDESCENT-LAMP SOCKETS. CROMWELL A. B. HALVORSON, Saugus, assignor of one-half to Robert B. Lincoln, Boston, Mass. Filed Apr. 4, 1892. Serial No. 427,617. (No model.)



Claim.—In electrical connection plugs or other connections, the combination of a sheet metal plug and an externally smooth cork core or bushing tightly fitting therein, and having a perforation for the passage of the connecting wires, said core or bushing having a bulging portion extended beyond said plug whereby contact of the wires with the end of the plug is prevented, and the bushing is held in place substantially as described.

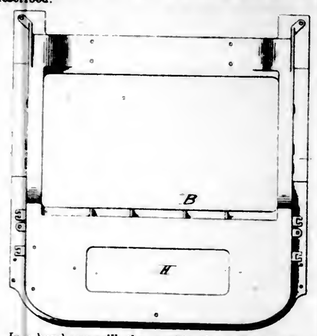
491,683. BAND-SAW MILL. GEORGE M. HIBBLEY, DEMPSEY B. HARMON, and WILLIAM H. TROUT, Milwaukee, Wis., assignors of one-half to the Edward P. Allis Company, same place. Filed June 18, 1892. Serial No. 437,136. (No model.)



Claim.—1. In a band saw mill, the combination with a framework or support, of a bed-plate B having an opening H up through which the lower band saw wheel may project, a shaft journaled in bearings on said bed-plate and provided with a lower saw-carrying wheel, an upright standard or column mounted upon but independent of the bed-plate, and an upper saw-carrying wheel mounted upon said standard.

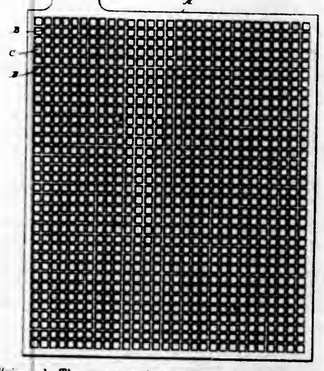
2. In combination with a frame work or support, a bed-plate B provided with the opening H, the shaft E journaled in bearings on the bed-plate and provided with a saw-carrying wheel F projecting up into the opening H, a plate I covering the upwardly-projecting portion of the wheel F, an upright column secured to but independent of the base plate, and a saw-carrying wheel supported by the upright column.

3. In a band saw mill, the combination with a frame in which the upper saw wheel is carried, of a bar hung upon hooks on said frame, a weighted lever connected with said bar, and rods supporting at their upper ends the bearings for the upper saw wheel shaft, and resting at their lower ends upon the rod or shaft, all substantially as shown and described.



4. In a band saw mill, the combination with a frame as J, provided with the perforated lugs *c*, of the hooks V having threaded shanks extending through the lugs where they are provided with nuts *d*, a rod or bar U notched to receive the hooks the upper saw wheel K having its shaft journaled in bearings R, S; rods T supporting at their upper ends the said bearings and resting at their lower ends in notches formed in the rod or bar U, and a counterweighted lever projecting from that side of the bar or rod U opposite the rods T.

491,684. MANUFACTURE OF SECONDARY-BATTERY ELECTRODES. ROBERT MCA. LLOYD, New York, N. Y. Filed Sept. 30, 1892. Serial No. 447,397. (No specimens.)



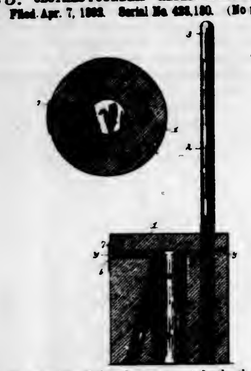
Claim.—1. The process, substantially as hereinbefore described of preparing secondary plates or elements, which consists in subjecting a plate to the action of a solution which is acid in the beginning, and which afterward becomes alkaline, thereby first producing honeycombs in the surface of the plate, and subsequently chemically depositing thereon active material, or material adapted to become active, and forming the plate in the usual way.

2. The process, substantially as hereinbefore described of preparing secondary battery plates or elements, which consists in subjecting a lead plate to the action of a hot solution, which is first acid and then becomes alkaline thereby first producing honey-combs in the surface of the plate, and subsequently chemically depositing active material or material to become active in the honey-combs, and forming the plate in the usual way.

3. The process, substantially as hereinbefore described of preparing secondary battery plates or elements, which consists in subjecting a lead plate to the action of a hot acid solution of dilute nitric acid

to which carbonate of potash, has been previously added producing honey-combs in the surface of the plate, and chemically depositing in the honey-combs active material, such as lead or some of its combinations in a state of minute sub-division.

491,685. CLOTHES-POUNDER. ANDREW C. MCKINNEY, Chatham Run, Pa. Filed Apr. 7, 1892. Serial No. 428,180. (No model.)



Claim.—In a device of the character set forth, the combination of a cylindrical body having a vertically disposed central opening with a transverse opening extending from the upper termination thereof to the outer side of the body and covered by an exterior automatically acting valve, said body also having a series of openings surrounding said central opening and converging toward and communicating with the latter below the upper termination thereof, the said body having an upper extended flat surface adapted to be engaged by the foot of the operator, and a handle eccentrically projecting upward from the said top of the body and having a crook at its upper end adapted to be gripped by the hand of the operator, substantially as described.

491,686. ORE-AMALGAMATOR. FRED O. HORTON, Clinton, Iowa. Filed Dec. 31, 1891. Serial No. 416,738. (No model.)



Claim.—1. In an ore amalgamator, a non-conducting amalgamating dish or vessel holding the mercury, a bearing arm mounted upon said vessel, a metallic float adapted to be supported upon the pulp within said vessel and having a sleeve free to move vertically in said bearing arm, the revolving agitator blades arranged under the pan and contacting with the bottom thereof and electrical connections with said float and the mercury in said vessel, substantially as set forth.

2. In an ore amalgamator a non-conducting mercury dish or vessel, a metallic float supported within said vessel, agitator blades located beneath said float, and electrical connections with said float and the mercury within said vessel, substantially as set forth.

3. In an ore amalgamator, a non-conducting mercury dish or vessel, a metallic float supported within said vessel, a revolving agitator having agitator blades working in contact with and beneath said float, means for revolving said agitator, and electrical connections with said float and the mercury in said vessel, substantially as set forth.

4. In an ore amalgamator, a non-conducting mercury dish or vessel, a transverse supporting arm supported upon said vessel and provided with a central bearing, a hollow conducting float pan having a sleeve working within said bearing, a revolving receiving and agitator tube working within said sleeve, a series of agitator blades radially secured to the lower end of said tube, and adapted to revolve beneath and in contact with the bottom of said float pan means for driving said tube, and electrical connections, substantially as set forth.

5. In an ore amalgamator, a non-conducting mercury dish or vessel, a transverse supporting arm supported over said vessel and provided with a central bearing, a hollow metallic float pan having a sleeve working within said bearing, a revolving receiving and agitator tube working within said sleeve and provided with an annular shoulder, a series of agitator blades radially secured to the lower end of said tube, a spring interposed between the upper end of said sleeve and said annular shoulder, the same being adapted to hold said agitator blades in contact with the bottom of said float pan, means for driving said tube, and electrical connections, substantially as set forth.

491,687. ATTACHMENT FOR SCREW-DRIVERS. JOHN R. GUILEY, Wilmington, Vt., assignor to Hosea Mann, Jr., same place. Filed Mar. 18, 1890. Renewed July 9, 1891. Serial No. 398,903. (No model.)



Claim.—1. In an attachment for screw-drivers, the combination, with the shank of a screw driver, of a two-part clamp, means for laterally adjusting the same upon said shank, and a rod which is connected to said clamp, adapted to slide loosely therethrough and provided with a downwardly-curved fork or claw at its front end, substantially as and for the purpose described.

2. In an attachment for screw-drivers, the combination, with the shank of a screw-driver, of a two part and laterally-adjustable clamp, and a spring-pressed rod which is connected to said clamp, adapted to slide loosely therethrough and provided with a downwardly-curved fork or claw at its front end, substantially as and for the purpose described.

3. In an attachment for screw-drivers, the combination, with a clamp open upon its under side and having lugs upon its upper and under sides and a thumb-screw passing through said under lugs, of a screw holding and releasing rod arranged between said upper lugs, substantially as described.

4. In an attachment for screw-drivers, the combination, with a clamp open upon its under side and having lugs upon its upper and under sides and a thumb-screw passing through said under lugs, a screw holding and releasing rod arranged between said upper lugs and having a fork or claw at its front end, and means for moving said rod and its fork or claw toward said clamp, substantially as described.

5. In an attachment for screw-drivers, the combination, with a clamp open upon its under side and having lugs upon its upper and under sides and a thumb-screw passing through said under lugs, of a screw holding and releasing rod arranged between said upper lugs and having a fork or claw at its front end, a thumb-piece on the rear end of said rod, a coiled spring surrounding said rod and arranged between said thumb-piece and clamp, and a doubled, horizontal spring attached to said clamp and provided with a bend at its front end fitting over said rod, substantially as described.

6. The combination, with a screw-driver, of a rod secured and adapted to be moved thereover and provided with a downwardly-curved fork or claw at its front end, and devices for moving said fork or claw downward and toward the rear of said screw-driver, substantially as described.

7. The combination, with a screw-driver, of a clamp provided with lugs, a rod sliding between said lugs and having a slight upward curve along its rear portion, a thumb-piece and a downwardly curved fork or claw at its front end, a spring for moving said rod rearward and a spring for forcing its forward or forked end downward or against the front end of said screw-driver, substantially as described.

8. The combination, with a screw-driver, of a clamp provided with lugs, a rod sliding between said lugs and having a slight upward curve along its rear portion, a thumb-piece and a downwardly curved fork or claw at its front end, a spring coiled around said rod between said clamp and thumb-piece, and a two-part, horizontal spring secured to said clamp and having a bend at its front end fitting over said rod, substantially as described.

9. The combination, with a screw-driver, of a clamp having two lugs upon its upper side, a pin or rivet connecting them, two lugs upon its lower side, a thumb-screw passing through them, a rod secured between said upper lugs and flexible rivet and provided with a fork or claw at its front end and with a thumb-piece at its rear end, a coiled spring arranged upon said rod between the upper lugs of said clamp and said thumb-piece, and a doubled, horizontal spring secured to said clamp and provided with a bend at its front end which fits over said rod, substantially as described.

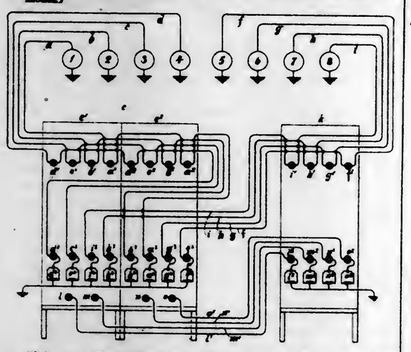
10. The combination, with a screw-driver, of a clamp having openings in its sides, two lugs upon its upper side, a pin or rivet, two lugs upon its lower side, a thumb screw passed through the latter lugs, a rod secured between said upper lugs and provided with a fork or claw at its front end, a coiled spring arranged upon the rear portion of said rod, and a doubled spring having its rear ends inserted

into the openings in said clamp and its front end bent and fitting over said rod, substantially as described.

11. The combination, with a screw driver, of the clamp 4 having the lugs 5 and 6, the openings 9, the rivet 12 and the thumb screw 7, the rod 10, reversely curved at its opposite ends and provided with the fork or claw 11 and the thumb-piece 14, the coiled spring 13 upon the rear portion of said rod, and the doubled spring 15 provided with the bend 16 fitting over said rod, substantially as described.

491,688. SWITCHING SYSTEM FOR TELEPHONE-EXCHANGES.

CHARLES R. SCRIBNER, Chicago, Ill., assignor to the Western Electric Company, same place. Filed May 19, 1892. Serial No. 433,630. (No model.)



Claim.—1. The combination with two groups of telephone lines, of answering jacks one for each line located upon one switchboard, line jacks connected with each line of one group and located upon said switchboard, and line jacks connected with each line of the other group, located upon another switchboard, and circuits adapted to connect any answering jack with any line jack of the exchange, substantially as specified.

2. In combination, two telephone switchboards, line spring jacks and answering jacks located upon one of the switchboards, line spring jacks located upon the other switchboard, telephone lines and circuits connecting each line with one answering jack, other circuits connecting some of the lines with line jacks upon the first mentioned of said switch-boards, and other of the lines with line jacks upon the last mentioned of said switchboards, means for establishing electrical connection from any answering jack to any line jack, upon said first mentioned switchboard, and a trunking system for electrically connecting any answering jack upon said first mentioned switchboard with any line jack upon said last mentioned switchboard, substantially as specified.

3. The combination with a multiple switchboard comprising several sections, of an auxiliary switchboard, telephone lines each connected with a spring jack upon each section of said multiple switchboard and with an annunciator at some one section of the same, other telephone lines each connected with a spring jack upon said auxiliary switchboard, and with an annunciator and answering spring jack upon a section of said multiple switchboard, trunk lines each connected with a spring jack at the auxiliary board and with another spring jack at some section of the multiple switchboard, and means at each switchboard for connecting together any two spring jacks thereat, substantially as described.

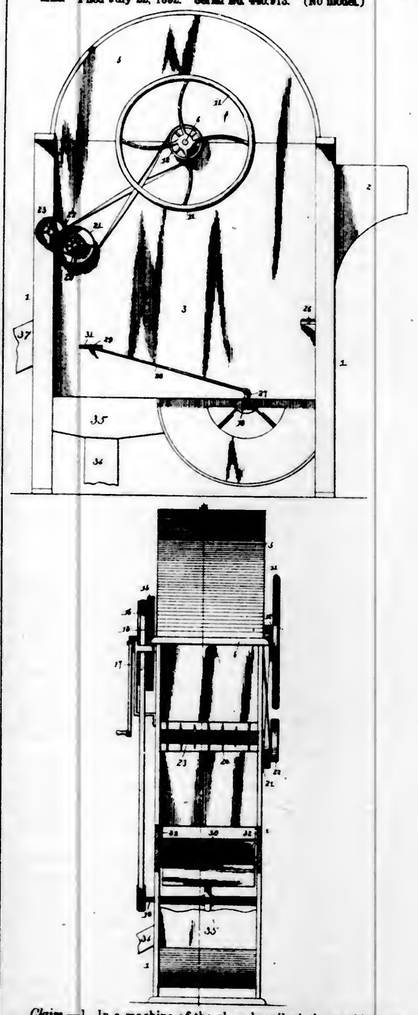
4. In combination, a main telephone switchboard, telephone lines each connected with a spring jack and with an annunciator upon said main switchboard, an auxiliary switchboard, other telephone lines each connected with a spring jack upon said auxiliary switchboard and with an annunciator and a spring jack upon said main switchboard, a trunk line terminating in a spring jack at each switchboard and connecting cords and plugs for connecting any two spring jacks at either switchboard, whereby calls are received from all subscribers at said main switchboard, but connections are made to subscribers' lines either upon the main board or upon the auxiliary board, according to the location of the line jacks of the line.

5. In combination, a main telephone switchboard, telephone lines each connected with a spring jack and with an annunciator upon said main switchboard, an auxiliary switchboard, other telephone lines each connected with a spring jack upon said auxiliary board and with an annunciator and an answering jack upon said main switchboard, means at said main board for electrically connecting any two jacks thereupon, and means for making electrical connection from any spring jack upon the main switchboard to any spring jack upon the auxiliary switchboard, substantially as described.

6. In combination, a multiple switchboard comprising several sections, telephone lines each connected with line jacks upon each of said sections, an auxiliary switchboard, other telephone lines each connected with a line jack upon said auxiliary switchboard and with an answering jack upon one section of said multiple switchboard, connecting cords and plugs at each of said sections for connecting any answering jack with any line jack thereat, and a trunk system for establishing connection from any answering jack of the multiple switchboard with any line spring jack of the auxiliary switchboard, substantially as described.

491,689. THRASHER AND SEPARATOR.

ROBERT T. STEEDLEY, Hillsborough, assignor of one-fourth to George A. Mollhenny, Forest, Miss. Filed July 22, 1892. Serial No. 440,913. (No model.)

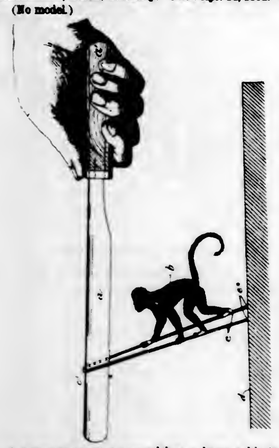


Claim.—1. In a machine of the class described, the combination with a casing having a side delivery, a feed chute, and a rotary thrasher having arms whose terminals traverse the mouth of the chute, of an imperforate inclined apron, arranged beneath the thrasher with its lower end under the feed chute, a rotary chaff-comb arranged between the upper end of the apron and the discharge opening, a screen located beneath the chaff-comb and the upper end of the apron, a fan, and means for operating the same and the thrasher, comb and screen, substantially as specified.

2. In a machine of the class described, the combination with the casing, having a lateral discharge opening of a shaft 6 mounted in bearings at its top, and provided with radial thrashing-arms, a removable domed cover 5 fitted upon the frame or cover, a feed-chute 2, arranged with its delivery end in proximity to the terminals of the thrashing-arms, an imperforate inclined endless apron arranged directly beneath the thrashing arms and having its lower end beneath the delivery end of the feed-chute, a rotary chaff-comb arranged between the upper end of the apron, and the discharge opening a reciprocatory screen 30 provided with hangers 32 and guides 32ª and arranged beneath the chaff comb and the upper end of apron, a fan 18, directing the blast through said discharge opening, means to operate the main-shaft and means whereby movement is communicated from the main-shaft to the apron, chaff-comb screen and fan, substantially as specified.

491,690. TOY.

MAXIMILIAN THIELE, CARL KÜPPERLING, and FRITZ SIGHTERMANN, Berlin, Germany. Filed Apr. 11, 1892. Serial No. 428,707. (No model.)



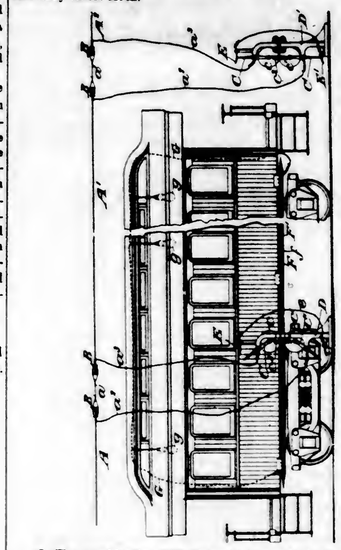
Claim.—A game apparatus comprising a base, a blade adapted to be held in the hand, and a grotesque figure connected with a bent wire, the construction being such that any muscular or nervous vibrations of the hand or arm or both cause the grotesque figure of the wire to travel along the blade, substantially as and for the purposes described.

491,691. SERIES SYSTEM FOR RAILWAYS.

GEORGE L. THOMAS, Brooklyn, N. Y. Filed June 16, 1892. Serial No. 436,901. (No model.)

Claim.—1. The combination with the vehicle carrying an electric conductor and contact pieces insulated from each other and connected with the opposite ends of the conductor carried by the vehicle, of a line wire, swinging arms interposed at intervals in the line wire and forming an essential and permanent part of the line wire circuit, and means for automatically swinging the arms toward one another, the said swinging arms being located in position to be swung away from each other in either of two opposite directions by the passage of the contact pieces carried by the vehicle as it moves along the track, substantially as set forth.

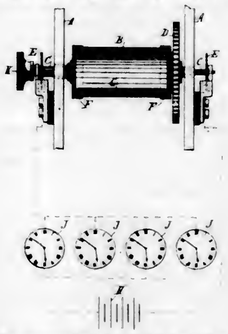
2. The combination with the vehicle carrying an electric conductor and contact pieces insulated from each other and connected with the opposite ends of the conductors carried by the vehicle, of a line wire, swinging arms interposed at intervals in the line wire and forming an essential and permanent part of the line wire circuit, rollers carried in the adjacent ends of the swinging arms, electrically connected contact pieces in position to engage the opposite ends of the swinging arms and means for automatically swinging the arms in one direction, the said swinging arms being located in position to be swung apart by the passage of the contact pieces carried by the vehicle, substantially as set forth.



3. The combination with the vehicle carrying an electric conductor and contact pieces insulated from each other and connected with the opposite ends of the conductor carried by the vehicle, of a line wire supported in sections connected by insulating joints, connecting loops leading from the adjacent ends of the line wire sections, swinging pivoted arms interposed in said loops and forming a permanent part of the continuous line wire circuit and means for automatically swinging the adjacent ends of the arms toward each other, the arms being located in position to receive the contact pieces carried by the vehicle between them, substantially as set forth.

491,692. TIME-CIRCUIT CLOSER.

ROBERT H. TWIGG, London, England. Filed Aug. 9, 1892. Serial No. 442,607. (No model.)



Claim.—The combination of a receptacle of insulating material containing mercury, separate metal pivots insulated from each other on said receptacle, and contact pins connected with said pivots for making contact with said mercury and thereby periodically closing an electric circuit through said pivots, substantially as herein set forth.

491,693. WOVEN PILE FABRIC.

ALBERT WEBB, Worcester, England. Filed Feb. 13, 1892. Serial No. 421,886. (Specimens.)

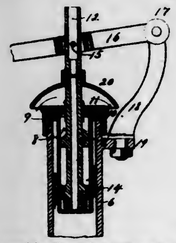
Claim.—A cut pile fabric having its surface composed of alternate rows of tufts of wool and hair and consisting of hair warps, wool

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warps and chain warps and a weft of which there are two shots above the hair and wool warps for every tuft of each of said warps, each of said shots serving to bind a tuft of wool and a tuft of hair and lying between a row of wool tufts and a row of hair tufts and each being separately secured by the chain warps, substantially as herein described.

491,694. AUTOMATIC SUPPLY-VALVE FOR TANKS. PETER WHITE, St. Louis, Mo. Filed July 6, 1891. Serial No. 398,534. (No model.)



Claim.—1. The combination of a balanced supply-valve, a float governing the same, a hood against which the water impinges when emerging from the valve, and suitable connection between said hood and the valve.

2. The combination of a balanced supply-valve, a float and lever governing the supply-valve, a hood carried by said lever between the fulcrum and the float, and against which the fluid emitted by the supply-valve impinges.

3. In an automatic supply-valve, a float governing the same, a valve, a piston connected to the said valve and working in a suitable chamber, one end of which chamber is normally in communication with the supply-pipe while the other end thereof is in communication with the external air, and a hood also suitably connected to the valve and against which the water impinges when emerging from the valve.

4. An automatic supply-valve for a tank, comprising a suitably perforated thimble or cylinder arranged in the supply-pipe, a hollow open-ended stem carrying two pistons working in said cylinder, the upper piston loosely fitting and the lower one snugly fitting said cylinder, the perforated part of the cylinder being normally between said pistons, a seat against which the upper piston comes, a float controlling said stem, and a hood carried by said stem for the purpose set forth.

491,695. ALTERNATING-CURRENT DYNAMO-ELECTRIC MACHINE. JAMES J. WOOD, Brooklyn, N. Y. Filed Oct. 30, 1890. Serial No. 369,823. (No model.)

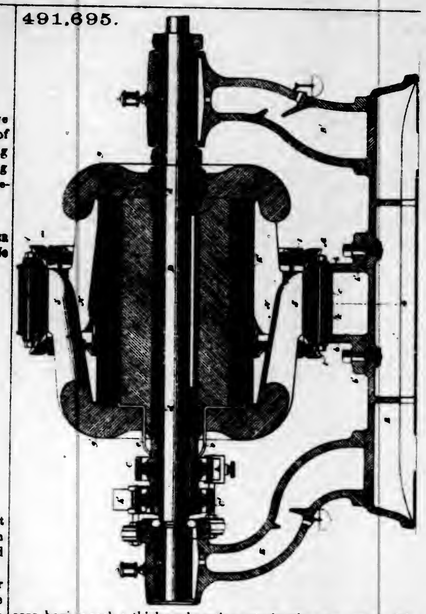
Claim.—1. An armature consisting of an annular core of magnetizable metal, devoid of polar projections two supporting rings fastened against its opposite sides, and a succession of flat coils arranged against the inner surface of the core crossing it from side to side and having their curved end portions bent outwardly and fastened against the supporting rings.

2. An armature consisting of an annular core of magnetizable metal, two supporting rings fastened against its opposite sides and having conical or flaring flanges projecting from the inner surface of the core, with a succession of flat coils arranged against the inner surface of the core crossing it from side to side and having their curved end portions bent outwardly and fastened against the flanges of said rings.

3. An armature consisting of an annular core of magnetizable metal, two supporting rings fastened against its opposite sides having flaring flanges projecting from the inner surface of the core, of a succession of flat coils arranged against the inner surface of the core crossing it from side to side with their curved end portions bent outwardly against said flanges, and fastening plates overlying said end portions and fastened to the rings.

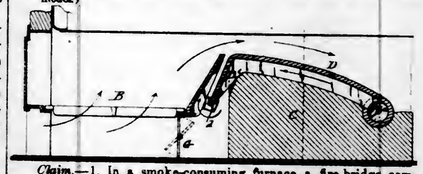
4. An armature consisting of an annular core of magnetizable metal having an approximately cylindrical inner surface, two supporting rings fastened against opposite sides of the core, a succession of flat coils arranged against its inner surface crossing it from side to side, and fastening plates for retaining said coils in place against the

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core, having each a thickened portion entering the open center of the coil and fastened against the core, and thinner portions or wings overlying the wires of the coil and holding them flat against the core.

491,696. SMOKE-CONSUMING FURNACE. WILLIAM ARRENMANN, Jr., New York, N. Y. Filed Dec. 7, 1892. Serial No. 454,326. (No model.)



Claim.—1. In a smoke-consuming furnace, a fire-bridge composed of a curved or inclined main-plate, arranged above the fire-bridge proper, an air-supply channel communicating with the rear part of said main-plate, said main-plate having a downwardly-extending front-portion, and an inclined front-plate located at the rear of the grate and converging toward the front-portion of the main-plate so as to form a channel of gradually decreasing width for heated air, substantially as set forth.

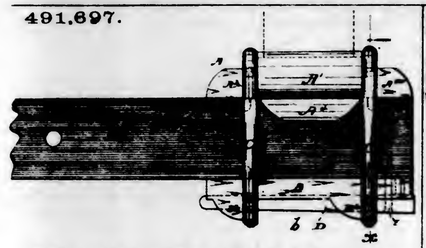
2. In a smoke-consuming furnace, a fire-bridge composed of a ribbed main-plate extending over said fire-bridge and provided with a downwardly-extending portion in front of the same, an air supply channel communicating with the rear-part of the main-plate, and an inclined front-plate located at the rear of the grate and converging toward the front portion of the main-plate, and a damper adapted for opening or closing the channel formed between the front-plate and the front-portion of the main-plate, substantially as set forth.

491,697. BRAKE-SHOE. MARCUS Y. BALDWIN, Caldwell, N. J. Filed May 6, 1892. Serial No. 432,109. (No model.)

Claim.—1. The improved brake shoe herein described, consisting of clamping plates, links and a wedge adapted to be inserted between said links and one of said plates, substantially as set forth.

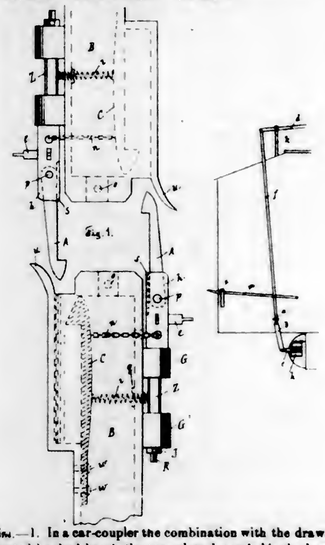
2. The combination with the carrier *a*, of a brake-shoe, comprising a concave plate, A', having recessed ears, A^2, A^3, and lips, A^4, a plate, B, having abutments, B^2, and links, C, C, bearing on said ears and abutments and a wedge D, all said parts being arranged and operating substantially as set forth.

491,697.



3. The combination with the carrier, of a brake-shoe having a friction surface to engage the wheel and bearings on opposite sides of said friction surface to receive links, said links and a wedge, all arranged and combined substantially as set forth.

491,698. CAR-COUPLING. AUGUST CARLSON, Peoria, Ill. Filed Apr. 30, 1892. Serial No. 431,317. (No model.)



Claim.—1. In a car-coupler the combination with the draw-head of the pivoted hooked bar A, the turn plate *h*, carried in the lugs G—G', the spring notched bar C, secured within the body of the draw head and adjacent to a recess therein, all substantially as described and set forth.

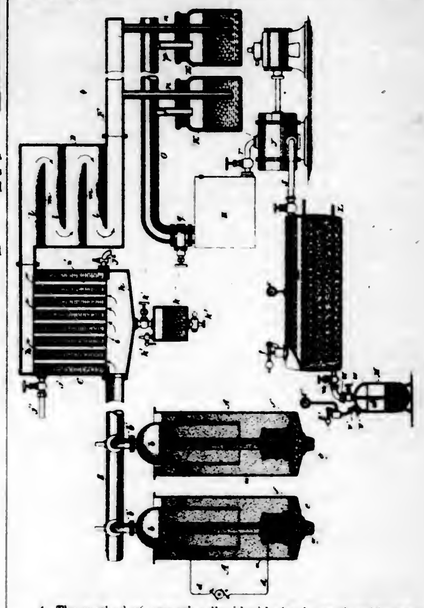
2. In a car-coupler the combination with a draw head of the pivoted hooked bar A secured to the turn plate *h*, which said plate is journaled as at G—G' to turn and with the spring S, to hold the bar A in place, the spring hooked bar C connected with the turn plate *h*, by means of the chain *n*, the spring *i*, the extension *c*, to which may be connected the operating means consisting of the bars *b*—*f*—*m*—*d* suitably pivoted and supported, all substantially for the purpose described and set forth.

491,699. PREPARING LIQUID CHLORINE. ELISHA B. CUTTER, New York, N. Y. Filed Dec. 30, 1891. Serial No. 416,561. (No specimens.)

Claim.—1. The method of producing liquid chlorine, which consists in first passing chlorine gas in contact with chilled or cooled surfaces, and thereby causing a deposition of contained moisture; second, subjecting said gas to the action of moisture abstracting substances, and third, subjecting said gas in a closed vessel to pressure and a low temperature, substantially as described.

2. The method of preparing liquid chlorine in a marketable condition, consisting in partly dehydrating the gas by cooling, then bringing it into contact with calcium chloride, and then into contact with anhydrous sulphuric acid, and then finally forcing it into a vessel under a pressure sufficient to cause its liquefaction.

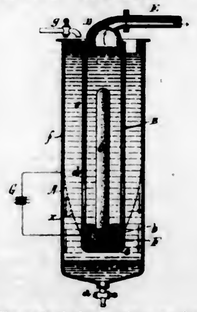
3. The method of freeing chlorine from other gases mixed therewith, which consists in subjecting the combined gases to pressure until the chlorine liquefies, and then separating the non-condensed gases from the liquid.



4. The method of preparing liquid chlorine in marketable condition free from other gases, which consists first in compressing the combined gases until the chlorine liquefies separating the non-condensed gases, and then drawing off the liquid chlorine into a hermetically sealed vessel.

5. The process of charging flasks or hermetically sealed vessels with liquid chlorine, which consists in first compressing the gas in a suitable receptacle until it liquefies, then allowing the liquid chlorine to flow from the bottom of said vessel to the bottom of said flask coupled thereto, and thereby causing said liquid chlorine to compress the air within said vessel until said pressure attains the point at which chlorine is liquefied, and then allowing said compressed air at pressures above said point to escape from said flask.

491,700. METHOD OF ELECTROLYTICALLY PRODUCING SODA AND CHLORINE. ELISHA B. CUTTER, New York, N. Y. Filed Dec. 30, 1891. Serial No. 416,562. (No specimens.)



Claim.—1. The method of separating a gas from a chemical compound containing the same, which consists in subjecting said chemi-

cal compound to electrolysis in a closed receptacle, and then withdrawing from the electrolyte by suitably exhausting the atmosphere above the same the gas which is generated by electro-decomposition within the fluid mass of said electrolyte.

2. The method of electrolytically producing caustic soda, which consists, first, in electrolyzing an aqueous solution of sodium chloride to produce chlorine and soda in said solution, and, second, withdrawing said chlorine from said solution by suitably exhausting the atmosphere above said solution.

3. The method of electrolytically producing a strong caustic soda solution, which consists in electrolyzing a solution of sodium chloride to produce chlorine and soda, and simultaneously preventing access of the freed chlorine to the freed sodium, causing said chlorine in gaseous form to rise to the upper portion of the electrolyte, and the said soda to accumulate by its own gravity at the lower portion thereof.

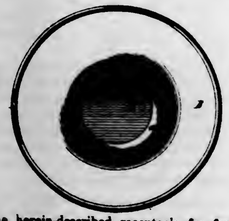
4. The method of electrolytically producing a strong caustic soda solution, which consists in electrolyzing a solution of sodium chloride in the presence of a comminuted solid disposed in the electrolytic cell and in contact with the cathode thereof, whereby the diffusion of the generated soda is substantially prevented and substantially all of said soda is caused to gravitate to the bottom of the cell.

5. The method of electrolytically producing a strong caustic soda solution, and also chlorine in gaseous form, which consists in electrolyzing an aqueous solution of sodium chloride to produce chlorine and soda in said solution; second, withdrawing the chlorine from the body of said solution, and hence away from the generated soda by suitably exhausting the atmosphere above said solution, and simultaneously preventing access to one another of the chlorine and soda within said solution; causing said chlorine to rise to the upper part of the electrolyte, and the said soda to accumulate by its own gravity at the bottom part thereof.

491,701. METHOD OF ELECTROLYTICALLY PRODUCING POTASSIUM CHLORATE. ELISHA R. CUTTER, New York, N. Y. Filed Apr. 11, 1892. Serial No. 428,738. (No specimens.)

Claim.—The continuous method of electrolytically producing potassium chlorate, which consists in electrolyzing, by means of a slowly alternating current, a solution of magnesium chloride in the presence of potassium chloride.

491,702. RECEPTACLE FOR FEEDING ANIMALS. NUMA J. FELIX, Brooklyn, N. Y. Filed Oct. 26, 1891. Serial No. 409,825. (No model.)



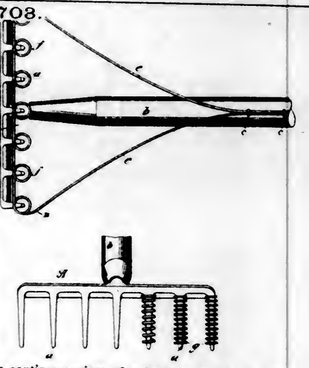
Claim.—The herein-described receptacle for feeding animals, comprising a central vessel A, made of metal or other suitable material, stamped or otherwise shaped, forming the walls *a* and giving to the wall a sufficient depth to hold the required amount of liquid or solid food, the vessel being then bent outwardly and slightly downwardly, forming a wide surrounding flange or base B to serve as a support and to impart to the article such a width of base as will overcome all danger or liability of the article being accidentally tipped or turned over, and the outer edges of the flange B being formed with the bend or spun rib *b* to prevent the contents from being spilled over the side if they should escape from the central well and also to impart to the article a more finished appearance, substantially as described.

491,708. RAKE. NUMA J. FELIX, Brooklyn, N. Y. Filed Dec. 23, 1891. Serial No. 415,972. (No model.)

Claim.—1. The herein-described rake guard for preventing the teeth of the rake from becoming clogged, consisting of a single piece of spring wire, having one or more coils passing around a series of rake teeth, the free ends of said wire then extending backward to the rake handle to which they are firmly secured, substantially as described.

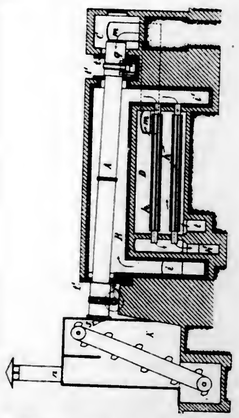
2. The combination with the rake A, of the rake guard for preventing the teeth of the rake from becoming clogged, which guard

491,703.



comprises a continuous piece of spring wire having a series of coils *f*, passing around the series of teeth *a*, and the free ends *c c* of said wire extending upwardly and inwardly and being secured to the rake handle *b* at the points *c c*, the whole combined and operating substantially in the manner described.

491,704. REVOLVING ROASTING-FURNACE. CHRISTIAN FELLNER, Bockenheim, Germany. Filed May 12, 1892. Serial No. 432,762. (No model.)



Claim.—1. The combination of an inclined rotative drum open at the lower end and having feeding and air-eduction apertures at the upper end, a heating chamber surrounding the middle portion of said drum, chamber C communicating with the lower end of the drum and separated from the heating-chamber by an intervening space, rollers for supporting the drum placed near its upper end and in the said space, mechanism for rotating the drum and means for introducing into the chamber C an aeriform fluid, substantially as described.

2. The combination of an inclined rotative drum open at the lower end and having feeding and air-eduction apertures at the upper end, a heating chamber surrounding the middle portion of said drum, chamber C communicating with the lower end of the drum and separated by an intervening space from the heating-chamber, rollers for supporting the drum placed near its upper end and in the said space, mechanism for rotating the drum, an air-heating stove connected to chamber C, and means for passing an aeriform fluid through the said stove, substantially as specified.

3. The combination of an inclined rotative drum open at the lower end and having feeding and air-eduction apertures at the upper end, a heating chamber surrounding the middle portion of said drum, chamber C, communicating with the lower end of the drum and separated by an intervening space from the heating-chamber, rollers for supporting and mechanism for rotating the drum and for altering its angle of

inclination, placed partly near its upper end and partly in the said space, and means for introducing into the chamber C an aeriform fluid, substantially as set forth.

4. The combination of an inclined rotative drum A, having near one end a collar a^2, a frame a^3 having trunnions a' with axial perforations, bearings *c* in which said trunnions rest, rollers *u* mounted in frame a^3 and adapted to carry the drum, rollers *u'* also mounted in frame a^3 and bearing from the side against collar a^2, worm-wheel p^3 secured on the drum, worm p' gearing with the worm-wheel and having a shaft *p* passing through the perforations of trunnions a', means for rotating the said shaft and worm, two rollers *q* placed under the drum near its other end, sliding bearings for rollers *q*, and means for shifting the said sliding bearings closer together and farther apart, substantially as set forth.

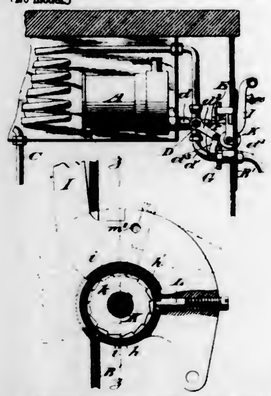
5. The combination of an inclined rotative drum A open at the lower end and having apertures at the upper end, mechanism for rotating the same and for altering its angle of inclination, heating-chamber B surrounding the middle portion of said drum, chamber C communicating with the lower end of the drum and separated from the heating chamber by an intervening space, the walls of the said chambers B and C having apertures for the drum to pass through that are larger than the latter, and sliding plates *i* encircling the drum and bearing against the walls of the chambers B and C, substantially as specified.

6. The combination of an inclined rotative drum open at the lower end, mechanism for rotating the same, means for introducing into the lower end of the drum an aeriform fluid, the said drum having at its upper end a head-plate H provided with a central feeding-aperture, and with eduction-apertures G' surrounding the feeding-aperture, and carrying inside elbow-tubes G communicating with the apertures G', the said elbow-tubes being bent contrary to the direction of rotation of the drum, substantially as specified.

7. The combination of an inclined rotative drum open at the lower end, mechanism for rotating the same, means for introducing into the lower end of the drum an aeriform fluid, the said drum having at its upper end a head-plate H provided with a central feeding-aperture and with eduction-apertures G' surrounding the feeding-aperture and carrying inside elbow-tubes G communicating with the apertures G', the said elbow-tubes being bent contrary to the direction of rotation of the drum, and a register plate applied to the head-plate H and adapted to close all or any of the apertures G', substantially as described.

8. In combination the inclined drum, the means for rotating it, the means for feeding the material thereto, said drum having ledges therein, said ledges being arranged in groups or series with spaces between said series the length of the ledges, being only a fraction of that of the drum, substantially as described.

491,705. LIQUID MEASURING AND DISPENSING APPARATUS. WILLIAM M. FOWLER, Milford, Conn. Filed Mar. 1, 1892. Serial No. 423,438. (No model.)



Claim.—1. Dispensing apparatus comprising a liquid receptacle, an outletting device, through which the liquid is adapted to pass directly downwardly and outwardly from the receptacle, said outletting device having a movement within the receptacle to raise and lower the point at which the liquid is permitted to enter the end of the outletting device to flow from the receptacle and means for operating the outletting device substantially as set forth.

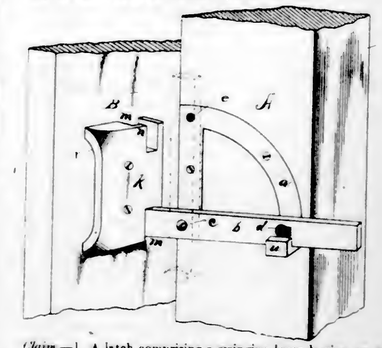
2. Dispensing apparatus comprising a liquid receptacle, an outletting device having a movement within the receptacle to adjust the quantity of liquid to be dispensed, means for operating the outletting device, a device for permitting and arresting the flow of liquid from the receptacle, a registry operating shaft and mechanism intermediate the registry operating shaft and the device for regulating the flow and the means for operating the outletting device, whereby the operating of the outletting device regulates the movement of the registry operating shaft under the control of the device for regulating the flow, substantially as set forth.

3. Dispensing apparatus, comprising a measuring receptacle, a general supply conduit leading thereto, an outletting device, means for operating the outletting device, a rotary registry shaft, an operating lever for permitting and arresting the flow into and out of the measuring receptacle, means for connecting the lever interruptedly with the shaft and a stop under the control of the outletting operating device to regulate the connection of the operating lever with the shaft, substantially as set forth.

4. Dispensing apparatus, comprising a measuring receptacle, a general supply conduit leading thereto, an outletting device having a rocking movement within the receptacle, means for rocking the outletting device predetermined distances, means of permitting and arresting the flow of liquid to and from the measuring receptacle, an operating lever for said means, a registry operating shaft, a dog for interruptedly connecting the operating lever and the shaft, a sleeve for stopping the dog from engaging the shaft and a connection between the sleeve and the means for operating the outletting device, substantially as set forth.

5. Dispensing apparatus, comprising a measuring receptacle, an outletting device, means for operating the outletting device, an operating lever for permitting and arresting the flow of liquid to and from the receptacle and a locking pin or bar adapted to engage the outletting operating means and the operating lever and mutually interlock them against movement except under predetermined conditions, substantially as set forth.

491,706. LATCH. LYMAN E. JACOBUS, Romulus, N. Y. Filed July 15, 1892. Serial No. 440,141. (No model.)



Claim.—1. A latch comprising a swinging lever having on one end a cam-faced head standing at an angle to the body of the lever, and a spring catch in its other end, and a body carrying the pivot pin upon which said lever is mounted, and also having an angularly projecting arm adapted to receive said lever, in combination with a catch plate mortised vertically to receive said lever and its cam-head, and having a lip overhanging said mortise behind which said head passes and with which it engages.

2. A latch comprising a swinging lever having a cam-faced head on one end standing outwardly at an angle to the body of said lever, and a spring catch in its other end, and a body carrying the pivot pin upon which said lever is mounted, and with which body said catch detachably engages, in combination with a catch plate mortised vertically and angularly in its upper and lower edges to create the overhanging lip with which said head engages in its passage behind it, the body of said lever also entering said mortise.

3. A lock comprising a swinging lever, provided with a laterally projecting cam head on one end, and a spring catch in the other end, and a catch plate having a cam-faced lip on one side with which said head engages while said lever enters the notch, and having a hand grip concavity in one edge.

491,707. ELECTRICAL INSULATING CONDUIT. CHARLES W. JEFFERSON, Schenectady, N. Y., assignor to Eugene Munsell & Co., New York, N. Y., and Elizabeth, N. J. Filed May 21, 1892. Serial No. 433,830. (No model.)



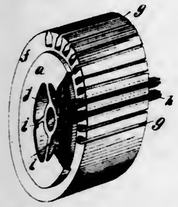
Claim.—1. An electrical insulating conduit, consisting of the combination of convolutions of elementary mica scales with their edges overlapping; and varnish or similar insulating cement between the mica layers and between the scales.

2. An electrical insulating conduit, consisting of the combination of convolutions of cloth covered mica scales and an insulating cement holding the same together in a mass.

3. An electrical insulating conduit coonisting of strips of series of joined mica scales wound helically upon one another in layers and having their edges overlapping one another.

4. An electrical insulating conduit consisting of the combination of layers of helically wound strips of mica, and cement holding the same together.

491,708. ELECTRIC MOTOR AND DYNAMO MICA INSULATOR. CHARLES W. JEFFERSON, Schenectady, N. Y., assignor to Eugene Munsell & Co., New York, N. Y., and Elizabeth, N. J. Filed June 1, 1892. Serial No. 435,171. (No model.)



Claim.—1. An annular disk for insulating armature head, consisting of laminæ of annular disks each of which consists of the combination of concentric rings formed of mica, with their edges overlapping and cemented together and a ring of mica scales overlapping and cemented to one another and to said first named rings.

2. A disk for insulating armature heads, consisting of concentric rings of mica scales, radiating from the center, overlapping and cemented together at their edges.

3. A disk for insulating armature heads, consisting of concentric rings of mica scales, radiating from the center, overlapping and cemented together at their edges, and a flange formed at the periphery of said disk.

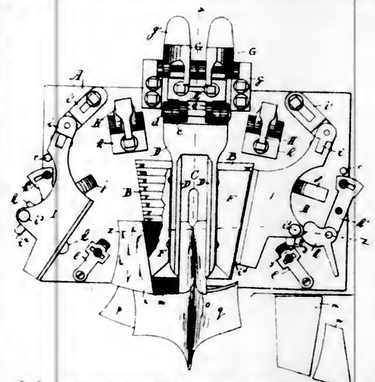
4. An armature consisting of the combination of a ring core supported upon radial spokes, a flanged annular mica disk, applied to each end of said ring, the flanges passing to the interior and exterior of said ring, curved mica sheets applied to the interior of said ring, between the spokes, slotted mica insulators *h*, applied in grooves which are provided on the exterior of said armature, and projecting from said grooves at the ends.

5. An armature consisting of the combination of a ring core supported upon radial spokes, a flanged annular mica disk, applied to each end of said ring, the flanges passing to the interior and exterior of said ring, curved mica sheets applied to the interior of said ring, between the spokes, slotted mica insulators *h*, applied in grooves which are provided on the exterior of said armature and projecting from said grooves at the ends, each of the said mica insulators being formed of mica scales cemented together with overlapping edges cemented together.

491,709. MACHINE FOR SETTING UP CONGRESS UPPERS. LOUIS JORDAN, Auburn, Me. Filed Sept. 6, 1892. Serial No. 445,187. (No model.)

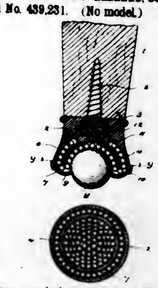
Claim.—1. In a machine for gluing seams of Congress uppers to prepare them for stitching, a bed having a slot or opening, a tongue resting on said bed and covering said slot, a gage plate raised above and secured to said bed at each side of said tongue, two parallel arms pivoted at the back of said bed, the inside edges of which rest when down on the outer edges of the tongue, gore wings secured to the outside of said arms having the form of the gores and covering said gage plates, the outer edge of said gore wings having a downward projecting flange combined with weights for pressing the seams and a clamp on each side for clamping the back lining against the outer edge of said gage plate, substantially as shown.

2. In a machine for gluing the seams of Congress uppers, a bed piece, a gage plate secured thereto raised above the surface of said bed piece, a clamp for clamping the edge of the half back lining against the edge of said gage plate, said clamp being pivoted to move along the surface of said bed and hinged to move at right angles thereto and having a projecting portion, a stop secured to the bed containing a recess to receive said projecting portions and to hold it down, a cam fastening for said clamp and a support to which said cam is pivoted, said support being secured to said bed, substantially as shown.



3. In a machine for gluing the seams of Congress uppers to prepare them for stitching, the combination of a bed having a slot or opening therein, a tongue pivoted to said bed and resting when down over said slot, an arm pivoted to said bed and resting when down on the edge of said tongue and a wing secured to said arm, said wing having the size and form of the gore, substantially as described.

491,710. CASTER. PER J. LEHNARD, Stamford, Conn. Filed July 7, 1892. Serial No. 439,231. (No model.)



Claim.—A caster consisting essentially of a casing, a cup within the casing having a recess 12 at the top, said cup and casing being so formed as to leave a recess between said parts, friction balls in said cup and recess, a caster ball resting on the friction balls in the cup, and a suitable holding ring by which the caster ball and friction balls are held in place, sufficient space being left between the lower end of the cup and the holding ring to permit the friction balls to pass freely into and out of the cup and recess, and the bearing of the friction balls on the cup being entirely on the side below the top thereof.

491,711. OPERA-GLASS HOLDER. LOUIS W. LEVY, New York, N. Y. Filed June 27, 1892. Serial No. 438,063. (No model.)

Claim.—1. In opera glass holders or similar devices, the gripper or jaw, in combination with a covering therefor enveloping a portion of the gripper, and a shield exteriorly of said covering.

2. In opera glass holders or similar devices, the gripper or jaw, in combination with a covering therefor of soft material applied over the working face of the gripper, and a shield of hard material carried by said gripper and protecting said covering at a point other than opposite said working face.

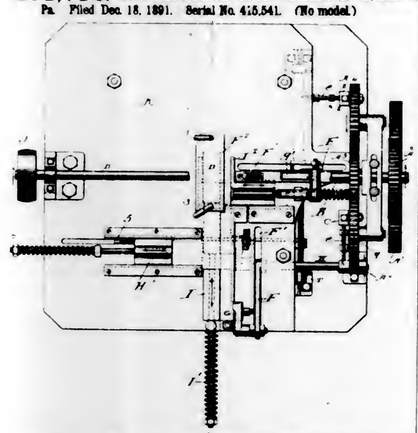
3. In opera glass holders or similar devices, the gripper or jaw, in combination with a covering therefor wrapped about the gripper, and a shield carried by the latter and concealing the edge of said covering.



4. In opera glass holders or similar devices, the gripper or jaw having a working face at front and having at rear thereof a slot, whereby a covering, when applied to said jaw, can extend over its working face, rearwardly over its sides and within said slot.

5. In an opera glass holder or similar device, the gripper or jaw in combination with the tubular covering as H enveloping a portion thereof, the shield as I carried at the rear thereof, and said jaw and shield having a slot or recess as *j*, between them, traversed by the covering, whereby the seam or joint of the latter can be concealed within said slot or recess.

491,712. AUTOMATIC BRICK-PRESS. THOMAS B. LEWIS, Renovo, Pa. Filed Dec. 18, 1891. Serial No. 415,541. (No model.)



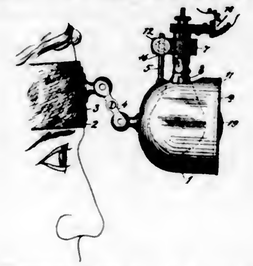
Claim.—1. The combination of the shaft B, provided with cog-wheels A^2, A^3; cog-wheels A^4, provided with slots 4; pitman rods C, pivoted to said wheels A^4, and having ball joints fitting into rocker shafts *e*; rocker shafts *e*, secured on shafts H; levers F, secured on said shafts; dogs G, G', secured on said shafts F; cam 5; feeding slides H', I, and push slides I^2, substantially as shown and described and for the purposes set forth.

2. The combination of the shaft B, provided with cog-wheels A^2, A^3; cog-wheels A^4, provided with slots 4; pitman rods C, pivoted to said wheels A^4, and connected to rocker shafts *e*, by ball joints; rocker shafts *e*, secured on shafts H; levers F, secured on said rocker shafts; dogs G and G'; carrier I^2, for the purpose of removing the brick from the press when finished; cam 5; feeding slides H' and I; shaft B^2, bearing on its outer end cog-wheel A, meshing with cog-wheel A^3; cams 1 and 2, on said shaft operating the plunger D; cam 3, operating piston F^4, and die F^3; cam 4, through its connection F^5, holding said die up level with the floor while the pressed brick is being removed, substantially as shown and described and for the purposes set forth.

491,713. ELECTRIC HEAD-LAMP. WILLIAM MAIR, Brooklyn, N. Y. Filed Oct. 29, 1892. Serial No. 450,376. (No model.)

Claim.—1. In an electric head lamp, the combination of the compound glass consisting of the annular ground-glass portion and the central plano-convex lens of clear glass, the lamp, and a universal joint, whereby may be obtained a central direct beam of light accurately focused, and in addition a surrounding diffused light, substantially as described.

2. In an electric head lamp, the combination of a lamp case or shell, the compound glass therein, consisting of the annular ground-glass portion and the central plano-convex lens of clear glass, a lamp, and a universal joint attached to said lamp-case, and supporting the lamp, whereby the light from the lamp may be accurately focused, so as to secure a central direct beam of great intensity, and in addition a surrounding diffused light, substantially as described.



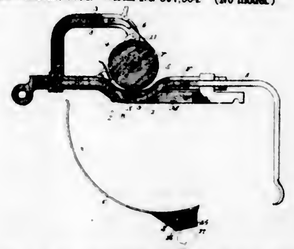
3. The combination of a lamp-case or shell, a lens therein, a lamp, an upright or post on said lamp-case, a universal joint playing on said upright and supporting the lamp, whereby the light from the lamp may be accurately focused, substantially as described.

4. The combination of a lamp-case or shell, a lens therein, an upright or post on said lamp-case, a cylindrical piece provided with a screw-threaded extension, a sleeve surrounding said cylindrical piece and both perforated to receive the upright or post, the lamp and lamp-socket, which latter is provided with a lug perforated to receive the screw-threaded extension of the cylindrical piece, and a thumb-nut on said screw-threaded extension, substantially as described.

5. The combination of an electric lamp with the universal joint comprising the post or upright, a cylindrical piece and surrounding sleeve, both perforated to receive said post or upright, and means for moving said cylindrical-piece and sleeve in opposite directions and securing them in adjusted position, substantially as described.

6. The combination of an electric lamp with the universal joint comprising upright or post 5, perforated sleeve 15, perforated cylindrical piece 14 provided with screw-threaded extension 13, perforated lug 12, and thumb-nut 16, substantially as described.

491,714. TYPE-WRITING MACHINE. HARRISON S. MARTIN, Brooklyn, assignor to Wyckoff, Seamans & Benedict, New York, N. Y. Filed June 22, 1891. Serial No. 397,064. (No model.)



Claim.—1. In a type-writer, a carriage having standards rising from the opposite ends thereof and provided with depending portions whose ends have bearings, combined with a platen roller journaled in the bearings at the ends and having its surface above the carriage frame whereby paper of greater width than the platen roller may be inserted in the carriage and operated upon, substantially as specified.

2. In a type-writer carriage, the combination with the carriage frame having at each end a curved bracket rising therefrom and provided with a depending free end; of the platen roller journaled between said depending ends with all parts of its lower face in a line above the end-bars of the frame, means for holding the paper against said roller, and line-spacing mechanism substantially as described following the shape of said bracket, as and for the purpose set forth.

3. In a type-writer carriage, the combination with the carriage frame having at each end a downwardly-bent portion, a movable portion sliding in said frame and also bent downwardly, and at each end of this movable portion a bracket rising therefrom and having a depending front end standing above said downwardly-bent portion; of the platen roller journaled between said depending ends with all parts of its lower face in a line above the upper sides of all said downwardly-bent portions, and a presser roller journaled in the movable portion

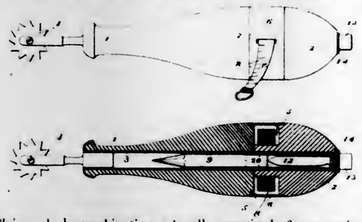
in rear of and bearing against the platen roller, substantially as described.

4. In a type-writer carriage, the combination with a platen roller, and the scale-bar adjacent the same having a slot opening through its rear face; of the spring-fingers having buttons frictionally seated in said slot, substantially as described.

5. In a type-writer carriage, the combination with the platen roller, and the scale-bar adjacent the same and having a longitudinal slot in its rear face of T-shaped cross-section; of the upwardly-curved spring-fingers following the curvature of the roller, and rectangular buttons at their lower ends frictionally seated in said slot, substantially as described.

6. In a type-writer carriage, the combination with the platen roller, and the scale-bar adjacent the same and having a longitudinal slot; of the upwardly-curved spring-fingers having buttons moving in said slot, and set-screws passing through the slot from the front and into said buttons, substantially as described.

491,715. COMBINATION-TOOL. HECTOR J. MONDOR, Holyoke, Mass. Filed Sept. 16, 1892. Serial No. 446,068. (No model.)



Claim.—1. In combination, a handle composed of two sections, each provided with a longitudinal recess, a hollow shaft mounted in said recesses, one of said sections having a reduced portion and the other section having a cavity in its end to receive the reduced portion of the other section and an opening in its wall leading into said cavity, a tape measure secured at one end to said reduced portion and having its other end passed through the opening in the other section, one end of said handle being adapted to receive a tracing wheel in said hollow, and the other end being adapted to receive a lead pencil, substantially as set forth.

2. In combination, a two part handle, one part of which is axially rotatable relatively to the other part, and one of said parts being provided with a perforated annular band, and the other part having a reduced portion fitting within said band and forming therewith a cavity, and a tape measure in said cavity secured to the reduced portion at one end, and projecting through the perforation of the band at the other end, one end of said handle being adapted to receive a tracing wheel and the other end being adapted to receive a lead pencil, substantially as set forth.

491,716. TRACING-WHEEL. SAMUEL NEWMAN, Buffalo, N. Y. Filed Jan. 26, 1892. Serial No. 419,128. (No model.)



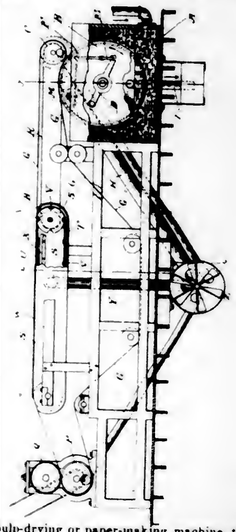
Claim.—In a device for tracing patterns the combination, consisting of a surrounding holding piece, 1, a wheel, 4, pivoted therein by a pin, 3, and a series of inclined teeth on said wheel, for the purposes set forth.

491,717. PULP-DRYING OR PAPER-MAKING MACHINE. HOWARD PARKER, GEORGE F. COMSTOCK, and HENRY FAIRBANKS, St. Johnsbury, Vt. Filed Aug. 29, 1890. Serial No. 363,457. (No model.)

Claim.—1. In a pulp drying or paper making machine, the couch roll and fixed bearings in which it is mounted, in combination with the mold roll and yielding bearings in which it is mounted, for the purpose herein set forth.

2. In a pulp drying or paper making machine, a hollow permeable mold roll and couch roll, and mechanism adapted to raise the mold roll into yielding contact with the couch roll, in combination with a short arbor, substantially a prolongation of the axis of the mold roll, but in fixed bearings, and carrying the drive wheel, and with a universal joint connecting said arbor and axis, for the purpose set forth.

3. In a pulp drying or paper making machine, a hollow perforated suction couch roll and fixed bearings in which it is mounted, and a hollow permeable mold roll with yielding bearings in which it is mounted, in combination with a traveling apron passing between and pressed by said rolls, and with an exhausting apparatus connected with the interior of said couch roll by an exhaust passage, substantially as set forth.



4. In a pulp-drying or paper-making machine, the combination of moving, permeable surfaces of suitable material adapted to receive, support or carry the film of pulp, inclosed chambers within or beneath such moving, permeable surfaces, air-tubes or passages leading from such chambers to a rotary exhausting fan mounted at the end of such air-passages and adapted to produce and maintain an exhaust air-current of large volume inwardly through such permeable surfaces and the film of pulp thereon; suitable vents being also provided, to permit the ingress of air to said chambers without passing it through said pulp, substantially as described.

5. In a pulp-drying or paper-making machine, a pulp-vat, a pulp-carrying apron, a hollow, rotating mold-roll mounted in the pulp-vat and adapted to be partially submerged in the pulp therein, said roll having its ends closed, its whole interior formed substantially in one chamber, and having a pervious cylindrical surface adapted to permit free ingress of air and water, in combination with a rotary exhausting fan connected by a suitable tube or passage with the interior of said roll and adapted to maintain a suction air-current of large volume inwardly through the unsubmerged portion of the surface of said roll and a flow of water inwardly through the submerged portion thereof, substantially as described.

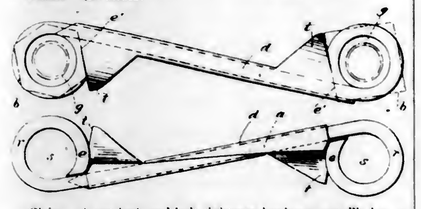
6. In a pulp-drying or paper-making machine, in combination with the endless traveling apron carrying the layer of pulp, a hollow roll over which the apron passes, said roll having its ends closed, its cylindrical surface perforated or otherwise made permeable to air and water, and so adjusted that when in operation a portion of its said surface will be covered by the pulp-carrying apron, and the remaining portion wholly or partially uncovered and exposed to the free inflow of the air-current through its said permeable surface, and a rotary exhausting fan connected by suitable passages with the interior of said roll and adapted to maintain a continuous exhaust air-current inwardly through the permeable surface of said roll and through and beneath said apron and the pulp-layer thereon, substantially as set forth.

7. In a pulp-drying or paper-making machine, the combination of the moving endless apron carrying the web of pulp, a suction-box over the top of which the apron passes and provided with suitable air-inlets admitting air to its interior, transverse rollers journaled in the ends of said box, a permeable endless traveling belt mounted on said rollers and moving over the top of said box beneath and in continuous supporting contact with said pulp-carrying apron, and a rotary exhausting fan connected by suitable passages with the interior of said box and adapted to maintain an exhaust air-current of large volume inwardly through and beneath said belt and apron and the web of pulp thereon, substantially as set forth.

8. In a pulp drying or paper making machine, in combination with the pulp carrying endless apron, a suction box of which the upper side is a permeable endless belt located beneath the pulp carrying surface of the apron and in contact with it, with means for supporting the flat surface of the belt forming this upper side, and end rollers over which it passes having their bearings in the sides of the box, and driven by power applied to one or both of these rollers, whereby the belt is actuated at the same speed as the apron resting upon it, substantially as set forth.

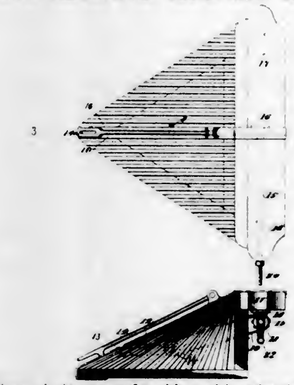
9. In a pulp drying or paper making machine, having a suction box with a traveling top, the combination of transverse supporting bars across the belt which forms the top of said box, link-work at the edges of said belt, and carrying rolls at the ends of the box, to which rolls the said links and bars are fitted, adapting said belt to be carried forward, coincidently with the pulp carrying apron, by the movement of the turning rolls, and to support said apron against the pressure of the atmosphere, substantially as herein set forth.

491,718. NUT-LOCK AND BOLT-TIGHTENER. JOHN G. PERRY, Wakefield, R. I. Filed Dec. 7, 1891. Renewed Aug. 4, 1892. Serial No. 442,123. (No model.)



Claim.—A nut lock and bolt tightener having a metallic bar *a*, with its ends bent around and down to encircle the bolts and to form short, stiff, spiral springs, with the plate *d*, having the points or ends *f f* swaged, stamped, turned or bent up to lock and hold the nuts,—the bar and plate being held together by having parts of said plate secured tightly around and against or to the bar, substantially as and for the purposes herein set forth.

491,719. LOCOMOTIVE-COUPLING. WILL P. PRENDERGAST, De Soto, Mo. Filed June 11, 1892. Serial No. 436,333. (No model.)

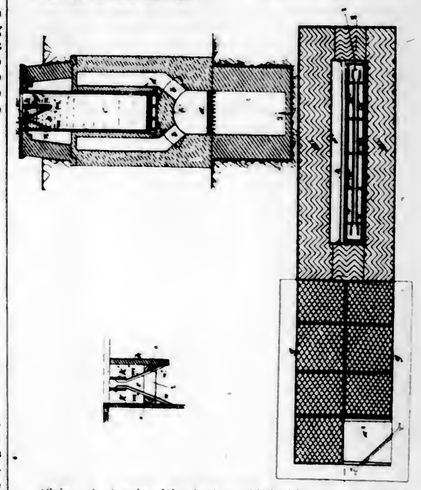


Claim.—1. As a means for raising and lowering the pilot draw-bar of a locomotive engine, the combination of an arm mounted beneath said draw-bar, an extensible shaft, a crank for rotating said extensible shaft, and intermediate mechanism between said extensible shaft and said arm, for the purpose set forth.

2. As a means for raising and lowering the pilot draw-bar of a locomotive engine, an arm rigidly mounted on a spindle, a wheel also rigidly mounted on said spindle, a second wheel suitably mounted, means for rotating said second wheel, and suitable connection between said two wheels, for the purpose described.

3. As a means for raising and lowering the drawbar of a locomotive, the combination of a shaft mounted beneath said drawbar, an arm rigidly mounted upon said shaft, a sprocket-wheel also rigidly mounted upon said shaft, a second sprocket-wheel mounted upon a second shaft, a handle for rotating said second shaft, and a sprocket-chain connecting said sprocket-wheels.

491,720. APPARATUS FOR GALVANIZING IRON. GUSTAVE REITTERER, Paris, France. Filed May 28, 1892. Serial No. 433,996. (No model.) Patented in France Apr. 14, 1892, No. 220,942, and in England Apr. 16, 1892, No. 7,333.

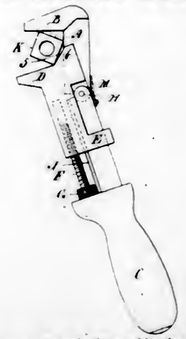


Claim.—1. A galvanizing bath provided with a substantially vertical partition in the upper part dividing said upper part into two spaces or compartments, one of said compartments being provided with movable guide bars or spreaders arranged normally near each other and constructed to be separated by the upward movement between the same of the material operated upon, substantially as described.

2. A galvanizing bath provided with a substantially vertical partition in its upper part dividing said upper part into two spaces or compartments one of said compartments being provided with two pivoted bars or spreaders arranged normally near each other, and to be separated by the upward movement between the same of the material operated upon, substantially as described.

3. A galvanizing bath provided with a substantially vertical partition in its upper part dividing said upper part into two spaces or compartments one of said compartments being provided with two movable bars or spreaders secured to downwardly extending pivoted arms or supports, substantially as described.

491,721. WRENCH. WILLIAM C. RIDDERBY, Carberry, Canada. Filed Nov. 28, 1892. Serial No. 453,393. (No model.)

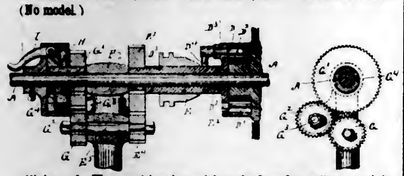


Claim.—1. In a screw wrench, the combination of the upper jaw having a stem A, provided with a handle C, and divided transversely

between said jaw and handle and connected by a hinge joint H, a spring M, secured to one section of said stem to keep the other section in alignment therewith, a lower jaw having a downward extension or socket E, sleeved on said lower section and having an upwardly extending cheek or flange 6, provided with an inclined plane 5, and an adjusting screw to reciprocate the lower jaw, as set forth for the purpose described.

2. In a screw wrench, the combination with the upper jaw having a stem A, divided transversely and connected by a hinge joint H, the lower jaw having a downward socket E, sleeved on said stem below the joint and provided with a screw F, and nut K, for adjusting the lower jaw, and a spring M, to keep the upper and lower sections of the stem A, in alignment, and permit the upper jaw to yield by the force of the lower jaw when taking a fresh grip of a nut, as described.

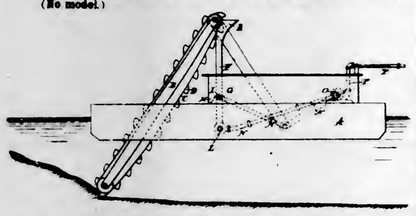
491,722. APPARATUS FOR REVERSING MOTION. WILLIAM J. WALSH, Worcester, Mass. Filed Mar. 1, 1890. Serial No. 342,321. (No model.)



Claim.—1. The combination with a shaft and a pulley revolving on said shaft, of a friction device by which said pulley can be connected with the shaft, a sleeve turning loosely on the shaft, a friction device by which said pulley is connected with said sleeve, a gear attached to said sleeve, a gear turning loosely on said shaft, intermediate gearing by which the gear upon said sleeve is made to turn the gear on the shaft with a motion reverse to the motion of the pulley and a friction device whereby the rotary motion of said gear upon the shaft is imparted to the shaft, substantially as described.

2. The combination with a shaft, of a pulley B, clutching devices by which the pulley and shaft are connected, sleeve D^3, clutching devices by which said sleeve and the pulley are united, gear G^3, gear G', intermediate gears E^4, G, and G^3 carried by an arm F, arm F, clutching devices by which the gear G' and the shaft are connected, shipping rod K and forks carried by said rod, whereby the clutching devices are simultaneously operated, substantially as described.

491,728. DREDGING APPARATUS. WILLIAM M. DOUGLAS, Galveston, Tex., assignor of one-half to the Bucyrus Steam Shovel and Dredge Company, Bucyrus, Ohio. Filed Jan. 26, 1892. Serial No. 419,296. (No model.)

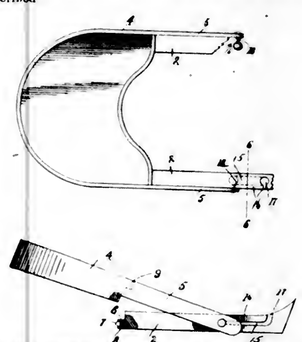


Claim.—The combination in a dredging apparatus of devices to lift the material, a hopper into which the material is deposited by the said devices, a conduit connecting with said hopper, a breaker in said conduit and a chamber below the breaker into which the material drops, a pipe connecting the chamber with a source of water supply, a suction pipe, a pump and a discharge pipe, substantially as set forth.

491,724. CHAIR. CHARLES B. HALSEY, New York, N. Y., assignor, by mesne assignments, to Effie A. Halsey, same place. Filed Mar. 15, 1892. Serial No. 424,953. (No model.)

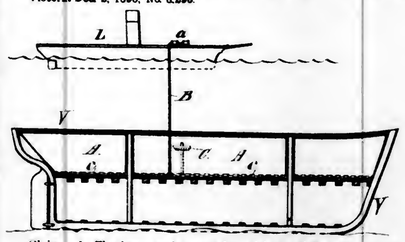
Claim.—1. The combination of the shelf, and the chair whose arms are longitudinally bored out and provided with slots parallel with and opening into said bored out portions, said slots and bored out portions opening toward the back of the chair, together with the extensions attached to the shelf and provided with large headed pins which pass through said slots and fit into said bored out portions of the arms, and the stops which limit the downward motion of the shelf substantially as described.

2. The combination of the chair whose arms have slots cut in the outside, said slots opening toward the back of the chair, the shelf provided with extensions embracing said chair arms and pins on the inner side of said extensions which fit into said slots, together with the stops which limit the downward motion of the shelf, substantially as described



3. The combination of the chair whose arms have slots cut in the outside, said slots opening toward the back of the chair, the shelf provided with extensions embracing said chair arms and pins on the inner side of said extensions which fit into said slots, together with the stops which limit the downward motion of the shelf, and the automatic spring catch between said arms and shelf, substantially as described.

491,725. MEANS FOR RAISING SUNKEN VESSELS. JOHN T. KELLY, North Fitzroy, and ARCHIBALD MCINTYRE, Fitzroy, Victoria. Filed Aug. 27, 1891. Serial No. 403,879. (No model.) Patented in Victoria Dec. 2, 1890. No. 8,298.



Claim.—1. The improved means for raising and floating sunken vessels which consists of a bag constructed of a flexible material and adapted to accommodate itself to the shape of the top and side or sides of a vessel's compartment said bag being open at bottom and having its lower edges weighted in combination with a flexible air forcing pipe entering the bag through the open bottom, substantially as and for the purpose set forth.

2. The improved means for raising and floating sunken vessels which consists of a bag constructed of a flexible material and adapted to accommodate itself to the shape of the top and side or sides of a vessel's compartment, said bag being open at bottom, in combination with a flexible air forcing pipe entering the open bottom of the bag, said pipe being provided with a float, substantially as and for the purpose set forth.

3. The improved means for raising and floating sunken vessels which consists of a bag constructed of flexible material and adapted to accommodate itself to the shape of the top and side or sides of a vessel's compartment, said bag being open at bottom and weighted at its lower edge, in combination with a flexible air forcing pipe entering the open bottom of the bag, said pipe provided at its outlet with a float, substantially as and for the purpose set forth.

491,726. ACCUMULATOR. WILLIAM A. MACLEOD, Boston, Mass. Filed Dec. 17, 1890. Serial No. 374,978. (No model.)

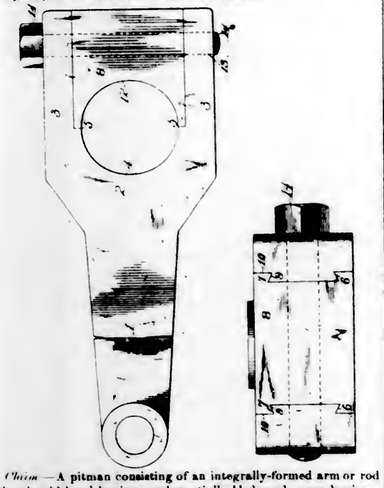
Claim.—1. An accumulator composed of one or more porous plates which receive and support the active material, and suitable conducting plates, said porous plates having canals or apertures passing in from the edges thereof, and for the purposes and substantially as shown and described.

491,726.



2. An accumulator composed of one or more porous plates which receive and support the active material, and having suitable conducting plates alternating therewith, said porous plates being composed of two parts in contact with one another and having the active material directly applied to their outer surfaces, substantially as shown and described.

491,727. PITMAN. JOHN C. MALONEY, Beaver Falls, Pa. Filed Sept. 21, 1892. Serial No. 446,463. (No model.)



Claim.—A pitman consisting of an integrally-formed arm or rod and head, said head having a substantially U-shaped recess having a semi-circular inner end and a straight vertical tenoned outer end, and a solid block or slide having a semi-circular inner end and straight vertical tenon-grooved sides, said head and slide having transversely-extending bolt holes threaded in one side of the head, and a head-and-slide-connecting bolt snugly fitting said bolt holes and having threaded engagement with one side of the head, substantially as and for the purpose set forth.

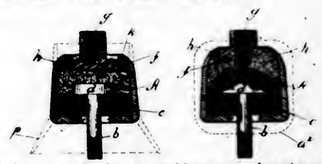
491,728. BELT-TIGHTENER. JOHN J. MILLER, Howell, Mich. Filed Oct. 24, 1892. Serial No. 449,869. (No model.)



Claim.—1. In a belt or apron tightener, the combination of the lever or handle A, provided at its end with the tongue *a*, and the laterally projecting pins *a'*, with the swinging catch-hooks B, pivoted to the lever at a point above the cross pins, substantially as described

2. The belt or apron tightener herein described and illustrated, the same consisting of the lever or handle A, provided at its work end with the tongue *a*, and the straight laterally projecting cross pins *a'*, and the swinging catch-hooks B, the same being formed of a single piece of wire pivotally connected to the handle above the cross pins and bent back upon itself and having its parts twisted together at *b*, all as and for the purpose set forth.

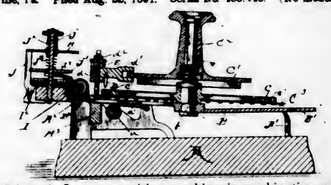
491,729. INSULATOR. LOUIS MCCARTHY, Boston, Mass. Filed Aug. 8, 1892. Serial No. 442,418. (No model.)



Claim.—1. An insulator comprising a case adapted to contain a connecting piece, an insulating material for insulating said connecting piece from said case, and a cap for said case said cap having beveled or rounded edges and being secured in place by bending or turning the case over the edges of said cap, substantially as set forth.

2. The process herein described of constructing an insulator which consists of employing a case, a connecting piece contained therein and a mass of insulating material surrounding said connecting piece within said case to insulate said piece therefrom, then placing a cap having beveled or rounded edges within said case and then subjecting the whole to pressure to compress and solidify the insulating material within the case and bend and set the end of the case over the cap to secure it in place while the insulating material is under compression, substantially as shown and described.

491,730. TYPE-WRITING MACHINE. PHILIP P. WEBB, Meadville, Pa. Filed Aug. 22, 1891. Serial No. 403,448. (No model.)



Claim.—1. In a type-writing machine, in combination, a tilting and sliding-frame bearing the type-wheel and bearing a barrel-wheel provided with a barrel-spring, the barrel-wheel engaging the feed-bar and engaging an escapement-wheel, the barrel-spring being adapted to feed the frame in one direction, one or more spaces the spring being wound up in reversing the frame by hand, substantially as set forth.

2. In combination, a sliding and tilting-frame having a spindle, a type-wheel and disk mounted on and the latter adapted to reciprocate lengthwise such spindle, the spindle being of such form in cross section as will cause the type-wheel and disk to revolve with the spindle, substantially as set forth.

3. In combination, a tilting and sliding-frame having an angular spindle, a type-wheel and disk mounted on the spindle said disk having an angular central opening adapted to receive the spindle so that the disk may reciprocate on and both may turn with the spindle, a spring interposed between the type-wheel and disk for elevating the latter, such disk having a hub serving as a thumb-piece in depressing the disk and in revolving the spindle and attachments, substantially as set forth.

4. In combination, a feed-bar, a rotating type-wheel and disk, an impression lever bearing the type-hammers, a slide mounted on such lever and having incline engaging projecting members of the loose hammers for elevating the hammers successively to their inoperative position, substantially as set forth.

5. In combination, an impression-lever bearing fixed and loose hammers, and bearing a slide for elevating the loose hammers against the action of their springs, a sliding-knee for actuating the slide, a bell-crank-lever for actuating the knee and means for actuating the lever by hand, substantially as set forth.

6. In combination, an impression lever bearing hammers and

slide substantially as indicated, a bracket or knee for operating the slide, a bell-crank-lever for operating the knee, finger-pieces bearing wedges, such wedges having one or more steps for depressing the lever one or more steps according to the movement of the finger-piece, substantially as set forth.

7. In combination, a barrel-wheel and inclosed spring, the teeth of the barrel-wheel engaging an escapement-wheel, a dog for locking the escapement-wheel, a reciprocating-pin adapted to engage the teeth of the escapement-wheel and acting on the wheel alternately with the dog, a fixed and movable stop for regulating the swinging movement of the pin thereby controlling the movement of the escapement-wheel, substantially as set forth.

8. In combination, an escapement-wheel, a rotating and reciprocating spindle having a common axis with the wheel, such spindle having attached a disk bearing a depending pin adapted to engage the teeth of such wheel in depressing the spindle, a spring for rotating the spindle in the opposite direction to the feeding movement of the wheel, a fixed and movable stop for limiting the swinging movement of the pin, substantially as set forth.

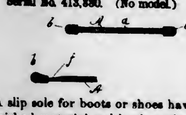
9. In combination, an escapement-wheel, reciprocating and rotating spindle bearing a pin for engaging the teeth of the wheel, substantially as indicated, a fixed and a movable stop for limiting the swinging movement of the pin, the movable stop being operatively connected with mechanism for lowering one or more hammers into operative positions, substantially as set forth.

10. In combination, an escapement-wheel, a pin adapted to engage the teeth of such wheel, fixed and movable stops for controlling the swinging movement of the pin, a lever for elevating the pin, such lever bearing a dog for engaging the escapement-wheel alternately with the engagement of the pin, such lever having a thumb-piece and having an abutment in position for engaging the impression-lever with the depression of the latter, substantially as set forth.

11. The combination, with the type-disk and type substantially as indicated, of an inking-plate over which the outer edge of the disk moves and an inking-roller operative on the plate, the roller being in position to engage the face of the passing type, substantially as set forth.

12. In combination, lever *e*, knee G and the spacing mechanism substantially as indicated, of a depressible spring connected with the knee, such spring in its elevated position forming an abutment for lever *e* for holding the lever one or more spaces in advance, a key for depressing such spring, the parts being arranged substantially as and for the purpose set forth.

491,731. SLIP-SOLE FOR BOOTS OR SHOES. GEORGE W. DIXON, Lynn, assignor to the American Shoe Tip Company, Boston, Mass. Filed Dec. 3, 1891. Serial No. 413,880. (No model.)



Claim.—1. A slip sole for boots or shoes having its edge bound with a piece of finished material and having a lengthwise scarfed slit or space whereby the sole may be varied in width, substantially as set forth.

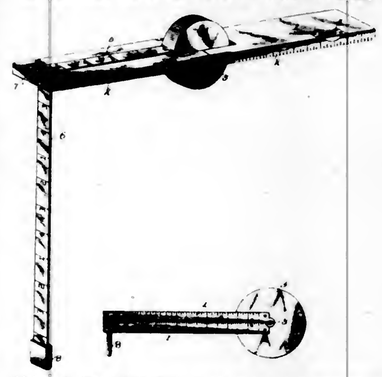
2. A slip sole for boots or shoes having a broad and shallow channel *f* inside the edge thereof and extending completely around the curved or outer edge thereof, and having such edge bound with a piece of finished leather, substantially as and for the purposes set forth.

491,732. PROCESS OF MAKING IMITATION SOLES. GEORGE W. DIXON, Lynn, assignor to the American Shoe Tip Company, Boston, Mass. Filed Mar. 18, 1892. Serial No. 425,382. (No model.)



Claim.—The process of making an imitation slip or tap sole from a strip of leather consisting in first molding the strip to the general shape of a slip or tap sole, then dieing it out to the exact contour required, and then binding the edge with a piece of finished material, substantially as shown and described.

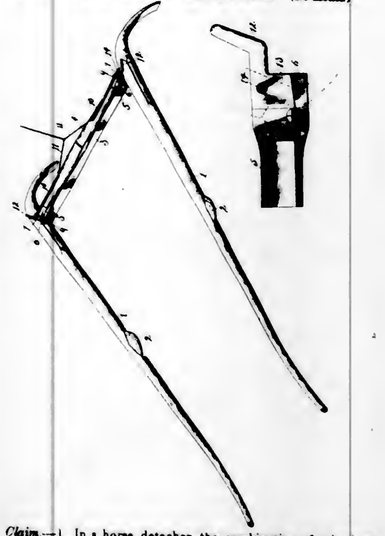
491,733. HORSE-MEASURING DEVICE. JOHN K. FOSTER, Greenville, Ohio. Filed June 30, 1892. Serial No. 438,602. (No model.)



Claim.—1. In a device of the character set forth, the combination of a folding support having a spirit level in connection with one end thereof, and a slot in the opposite end, said support being provided with a central hinge or joint, a casing centrally located in said support, and mounted on the pivot of said hinge or joint, and extending transversely through opposite sides of said support and a spring actuated tape in connection with said casing provided with a hands scale on one side and feet and inches on the opposite side, said tape passing through said slot and having a plumb-bob on the free end thereof, substantially as described.

2. In a device of the character set forth, the combination of a jointed support having scale marks thereon a casing mounted in said support and supported by the pivot of the joint thereof, and a spring actuated tape mounted in connection with said casing and movably extending through one end of said support, substantially as described.

491,734. HORSE-DETACHER. JOHN H. GARNER, Kingwood, W. Va. Filed Sept. 24, 1892. Serial No. 446,793. (No model.)



Claim.—1. In a horse detacher, the combination of a horizontally-disposed hook having a pivotally-mounted head integrally formed therewith and of a substantially rectangular form with angular straight edges, the pivot of said head being vertically disposed and eccentric thereto, a vertically-disposed rotatable post or pin having a recess therein extending longitudinally thereof, an open-ended socket in which said parts are movably mounted, and a lever attached to the upper end of said vertically-disposed post or pin and having an operating cord secured to the free end thereof by means of which the said post or pin may be turned to release the head, substantially as described.

2. In a horse detacher, the combination of a singletree having a socket on each end thereof with a horizontally-disposed bifurcation in the outer portion of the same, a head pivotally mounted in said bifurcation and having a hook extending therefrom, said head being of substantial rectangular form with angular straight edges, and the pivot thereof eccentrically mounted therein and extending through the outer rear corner of the said socket, a post or pin having a recess therein and adapted to be rotated, an operating lever connected to said post or pin of each socket and projecting inward toward the central portion of the singletree, and a cord attached to each of said levers and adapted to be operated to simultaneously rotate the posts or pins and permit the hooks to be extended forward to release the traces, substantially as described.

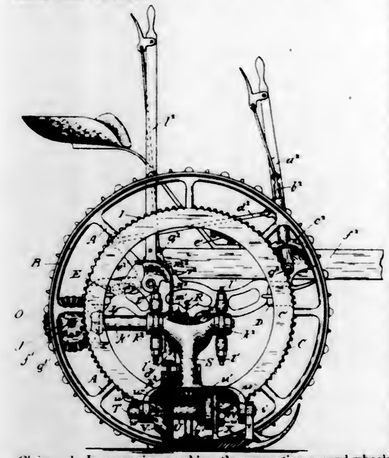
491,735. CHIMNEY-DOOR. JOSEF HOHENREINER, Munich, Germany. Filed Apr. 9, 1892. Serial No. 428,490. (No model.)



Claim.—1. A chimney closing device including a frame for engaging the chimney aperture provided with locking recesses, and a door for engaging said frame having a pivoted bolt provided with a series of locking arms for engaging said recesses rigidly secured to turn together on said pivot, a pivot plate secured to said pivot and provided with a socket for receiving an operating lever, a casing inclosing said plate and having a slot adjacent to said socket, substantially as described.

2. A chimney closing device including the frame for engaging the chimney recess having the locking recesses, the door for engaging said frame provided with a pivot plate having a pivot pin adapted to turn therewith an integral three armed bolt secured to turn with said pivot pin, said pivot plate having a socket for the reception of an operating lever, substantially as described.

491,736. MOWING-MACHINE. FRANK S. JACKSON, JOHN T. JACKSON, THOMAS JACKSON, and ALFRED JACKSON, Toronto, Canada. Filed May 19, 1888. Serial No. 274,427. (No model.) Patented in Canada Nov. 29, 1888, No. 30,300.



Claim.—1. In a mowing machine, the supporting ground wheels each having the inner rigid circular bearing surface and the open center in combination with the relatively movable rings sustained by said bearing surfaces, the front and rear transverse beams, rigidly connected to the said bearing rings, the frame R, connected at its ends respectively to the said beams, the radial shaft tube connected to the said frame R and extending therefrom outward and downward through the ground wheel, the cutting mechanism at the lower end of the shaft tube, and suitable connections between the ground wheels and the cutting mechanism for imparting motion to the latter, substantially as described.

2. The combination of the ground wheels having the circular racks, the frame sustained by said ground wheels, the transverse driving shaft and its pinion mounted on the frame, and arranged to be driven by the ground wheels, the bevel pinion O on said shaft, the shaft Q, also mounted on the frame at right angles to the driving shaft, the pinion thereon in position to be engaged by the pinion O and the pinion *m'* also on said shaft, the radial shaft tube sustained by the shaft Q, and extending downward and outward therefrom, the longitudinal shaft S' journaled therein, the pinion *l'* on its upper end in position to be engaged by the pinion *m'*, and the pinion *n'* on its lower end, the transverse shaft T, journaled in the lower end of the shaft tube, the pinion *i'* thereon in position to be engaged by the pinion *n'*, the cutting mechanism also attached to the lower end of the shaft tube and arranged to be operated by the shaft T, substantially as described.

3. In a mowing machine, the wheeled frame in combination with the intermediate shaft Q arranged to transmit motion from the ground wheels to the cutting mechanism, the shaft tube S, having the cutting mechanism at its lower end and its upper end encircling the shaft Q, and the supports for said shaft tube attached thereto and to the frame: whereby said supports serve the double purpose of sustaining the shaft tube and of supporting the intermediate shaft Q, and the strains and thrusts to which the cutting mechanism is subjected are received by the frame through the shaft tube and its supports, thereby relieving the shaft Q.

4. The combination with the wheeled frame of the cutting mechanism at the side thereof, the connecting member having its lower end connected to the cutting mechanism and its upper end mounted at each side in bearings on the frame, said bearings being independently adjustable.

5. In a mowing machine the combination with the wheeled frame of the shaft Q for transmitting motion from the ground wheels to the cutting mechanism, the shaft tube S having the bearing necks on its upper end, adapted to encircle and turn on the shaft the cutting mechanism at the opposite end of the shaft tube, the collars l^3, loosely encircling the bearing necks and the supports for said collars attached to the frame and having adjusting screws adapted to engage the upper and lower sides of the collars, substantially as described.

6. The combination with the main frame, of the cutting mechanism at the side thereof, the shaft tube S, having one end pivotally connected to the cutting mechanism and its other end attached to the frame, and provided on opposite sides with the upper and lower chain guides, the lifting lever fulcrumed on the main frame, and the lifting chain, having one end connected to said lever and extending over the guides and having its opposite end connected to the cutting mechanism, substantially as described

7. The ground wheels, the frame sustained thereby and movable on a horizontal axis parallel to the axis of the ground wheels, and the cutting mechanism on said frame, in combination with the draft tongue pivoted near its end to said frame in front of the horizontal axis of the latter, the link having one end pivoted to the tongue in rear of the axis of the frame, and its opposite end pivoted to the frame by a movable pivot, and suitable mechanism for varying the relative positions of the frame and the tongue whereby the said frame may be moved on its axis to raise or lower the points of the knives without changing the position of the forward portion of the tongue, substantially as described.

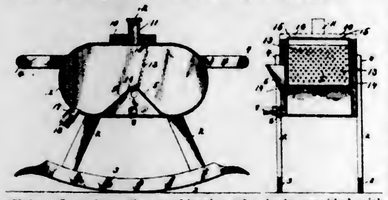
8. The ground wheels, the frame sustained thereby and revoluble therein on a horizontal axis in line with the axis of the main wheel and having the front and rear timbers and the cutting mechanism sustained by the said frame, in combination with the tongue pivoted near its end to the front beam by a horizontal pivot, the operating lever fulcrumed on said pivots the lever e^3 pivoted at its middle to the end of the tongue and having the two arms and the laterally extending pin i^3, the rod d^3 connected to one arm of the lever and to the operating lever, the bracket l^3 on the rear beam, provided with the slot adapted to receive the lateral pin on the arm of the lever substantially as described.

9. In a mowing machine the ground wheels, having the inner bearing ring provided with the lateral flange in combination with the interior ring F having the lateral flange *d'*, the series of anti friction balls, seated between the said rings and the intermediate packing adapted to prevent the contact of the balls, the lateral flanges on either ring constructed to extend across the annular space between the rings substantially as described.

10. The combination with the wheeled frame, of the radial shaft tube having its upper end connected thereto and extending downward and outward therefrom, the longitudinal shaft S journaled in said

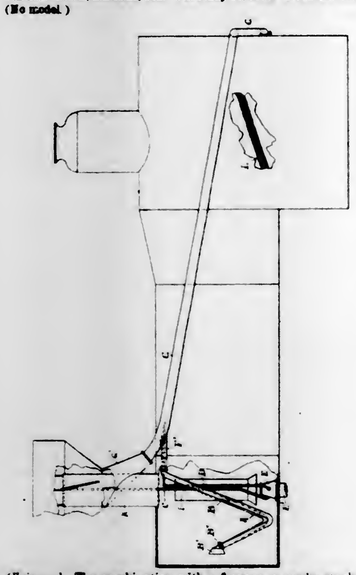
shaft tube and arranged to be driven by the ground wheels, the pinion n' on the lower end of the said shaft, the transverse shaft T, journaled in the lower end of the shaft tube in position to be driven by the pinion n', the finger bar having the shoe, the cutter bar, the said shoe being sustained by the transverse shaft and the radial shaft tube and movable on an axis in line with the axis of the said shaft, suitable connections between the shaft T and the cutter bar for imparting motion to the latter, and suitable lifting devices for elevating the outer end of the cutter bar, substantially as described.

491,787. CHURN. JAMES A. KERNODLE, Reidsville, N. C., assignor of two-thirds to George W. Ellington and George S. Kernodle, same place. Filed Aug. 26, 1892. Serial No. 443,573. (No model.)



Claim.—In a churn, the combination of a body provided with rockers and having rounded ends, an inverted V-shaped partition arranged within the body and mounted on the bottom and forming a water chamber, and a rectangular strainer arranged transversely of the body and having its lower end mounted on the apex of the partition and provided with curved arms engaging the same and having its upper end resting against the top of the body and provided with a handle, substantially as described.

491,788. CINDER AND SMOKE CONSUMING APPARATUS. FRANCIS LITTLE, Marshall, Tex. Filed May 21, 1892. Serial No. 433,891. (No model.)



Claim.—1. The combination with a furnace, a smoke stack and the barrel thereof of the air inlet pipes and the cinder pipe provided with the frusto-conical horn and extending from the foot of the stack cone near the top of the barrel to the furnace, said air pipes entering the smoke space of the furnace near its front and extending spirally about the walls of the same to near its top and rear portion and there communicating with the cinder pipe.

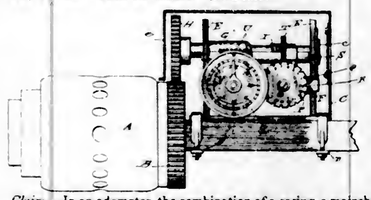
2. The combination of the boiler and furnace, the cinder pipe connecting the furnace stack and its fire place at the bottom of its door way and forming a sill or rest for the door, a pipe for discharging exhaust steam into said cinder pipe, a coupling F and air inlet pipes communicating with the cinder pipe by means of the coupling having a mouth provided with a downwardly inclined cover, said discharge pipe for steam passing through the said coupling and under the cover substantially as set forth.

3. The combination of the boiler, furnace, and stack, the latter having a barrel K having a frusto-conical horn surrounding the barrel and communicating with the space between its upper part and the stack cone at the foot of the latter, with the cinder pipe, the air inlet pipes passing through the smoke-space of the furnace, and the exhaust steam pipe passing through the said barrel and having its end bent toward the furnace and terminating near the enlarged mouth of the horn substantially as set forth.

4. The combination of the furnace and stack cone with the air inlet and cinder discharge pipe, said pipe having a horn with enlarged mouth fitting the contracted lower end of the stack cone and extending downwardly with a continuous inclination at the side of the boiler and furnace to the bottom of the door and steam pipes above and below the horn whereby cinders and air are forced into the furnace; substantially as set forth.

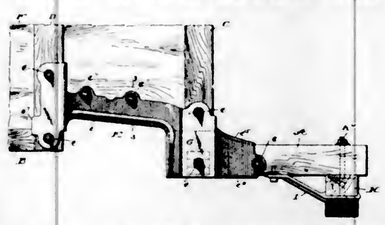
5. The combination of the furnace and stack cone with the air inlet and cinder discharge pipe, said pipe having a horn with enlarged mouth fitting the contracted lower end of the stack cone and extending downwardly with a continuous inclination at the side of the boiler and furnace to the bottom of the door and a steam pipe above and below the horn and a refractory arch whereby cinders and air are forced into the furnace under said arch; substantially as set forth.

491,789. CYCLOMETER. ELWIS J. MERRY, Magor, Canada. Filed July 16, 1892. Serial No. 440,252. (No model.)



Claim.—In an odometer, the combination of a casing, a mainshaft G journaled in the casing and provided with means for rotating it and a worm I, the worm being within the casing, a shaft K journaled at right angles to shaft G and carrying a worm L and a loose gear J meshing with worm I, a ratchet wheel on shaft K engaged by a pawl carried by the gear J, a loose notched disk O on one end of shaft K and a spring pawl for normally holding it against rotation, said disk being provided with indicating figures, a shaft S parallel to shaft G and provided with a worm U and gear T, the latter meshing with worm L, another shaft V provided with a gear meshing with worm U, a disk X secured on shaft V and carrying a finger adapted to engage the notches in disk O, an indicating hand Y on shaft V, and a dial Z, substantially as described.

491,740. CLOVER-HULLING MACHINE. ABRAHAM MILLER, Newark, Ohio. Filed Aug. 1, 1890. Serial No. 360,632. (No model.)



Claim.—1. In a clover huller, the combination of the front and rear sills having an open space between them for the reception of the sustaining wheels, the huller posts rising from the adjacent ends of said sills, and the arched plate spanning said open space and connected with the posts, substantially as shown and described.

2. In a clover huller the combination of the front and rear sills having an open space between them, the huller posts rising from the adjacent ends of said sills, and the arched plate spanning said open space and overlapping the posts and bolted thereto, substantially as shown and for the purposes described.

3. In a clover huller, the combination of the front and rear sills having an open space between them for the reception of the sustaining wheels, the huller posts rising from the adjacent ends of said sills, and the arched plate spanning said open space and overlapping the posts and having in its face vertical recesses for the reception of the same, substantially as shown and described.

4. In a clover huller, the combination of the front and rear sills having an open space between them for the reception of the sustaining wheels, the huller posts rising from the adjacent ends of said sills, the arched plates spanning said open space and connected with the posts, and having inwardly-projecting horizontal flanges *c'* to receive and sustain the ends of the blast-board.

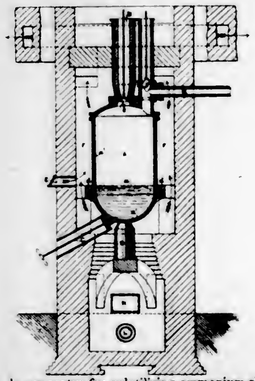
5. The combination of the front sills A, and the front huller posts C, the latter being gained into the former, and the plate E, overlapping the sill and post and bolted thereto and having in its face recesses for the reception of said members, substantially as shown and described.

6. The combination of the front and rear huller posts C, D, the side-boards F secured to the same, and the arched plate E, formed with recesses for the reception of the posts and bolted thereto and to the side-boards, substantially as shown and described.

7. The combination of the front sills A, the transverse bolster H, lying thereunder, and secured thereto, and the braces I, bolted to the under sides of the sills and bolster and recessed for the reception of the latter, substantially as shown and described.

8. The combination of the front sills A, the transverse bolster H, lying thereunder and secured thereto, and the braces I, bolted to the undersides of sills and bolster and having recesses for the reception of the latter and bosses H' projecting into the same.

491,741. APPARATUS FOR VOLATILIZING AMMONIUM CHLORIDE. LUDWIG MOND, Northwich, England. Filed Mar. 14, 1889. Serial No. 303,316. (No model.) Patented in England Feb. 6, 1889, No. 2,160.



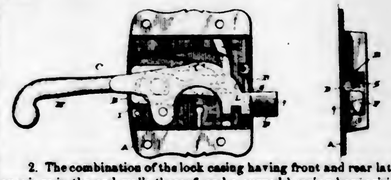
Claim.—1. In apparatus for volatilizing ammonium chloride the combination of the heating chamber and flues F, retort A, interior surface thereof of antimony *a'* and the fused chloride of zinc filling all that part of the retort exposed to direct fire heat, whereby an even temperature is secured all over the retort hot enough to volatilise ammonium chloride without undue heating of any part of the apparatus.

2. In apparatus for volatilizing ammonium chloride the combination of the retort A, interior surface of antimony *a'*, valve *b* and hopper B above for admitting solid chloride of ammonium and bath of fused chloride *a*, whereby the chloride of ammonium can be easily introduced into the retort and rapidly and uniformly heated by a good conducting liquid without the antimony being fused.

3. The combination of the heating chamber and flues F, retort A having its lower part set in and exposed to the heat of said chamber, lining of antimony *a'*, bath of easily fused chloride of zinc *a*, valve *b* for the entrance of ammonium chloride and exit tube G set in heating chamber for the delivery of the volatilizing ammonium chloride.

491,742. LATCH AND LOCK. JOHN D. PERKINS, Kenton, Ohio. Filed May 27, 1892. Serial No. 434,540. (No model.)

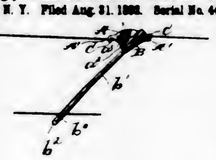
Claim.—1. The combination in a combined latch and lock, of the casing having a projecting pivot pin, a spring actuated handle latch moving in said casing and provided at an intermediate point with a right angularly disposed pivot arm loosely engaging over said pivot pin, a beveled latch end or head having a convexed or rounded bearing face directly opposite the slanting or beveled face thereof and adapted to contact with the inner wall of a keeper, and an integral inwardly projecting locking pin near said latch end, and a horizontally sliding locking bolt mounted within the casing alongside of the handle latch and provided at one end with a locking notch adapted to embrace said locking pin, to secure the latch, substantially as set forth.



2. The combination of the lock casing having front and rear latch openings in the end walls thereof, and a curved bearing boss arising from the front end of the casing within the front latch opening, and a spring-actuated latch pivotally mounted within said casing and provided with an under curved bearing shoulder registering with and sliding over said curved bearing boss, substantially as set forth.

3. The combination with a spring-actuated pivoted latch having a convexed bearing face; of a double reversible keeper or strike provided with a triangular side flange arising from one side of the base, a solid triangular strike head located at the apex of said side flange and projecting laterally from the same, said triangular strike head being provided upon the base thereof within the keeper with converging elevations converging from opposite inner corners of the head, and a central rest projection or boss between said opposite converging elevations, substantially as set forth.

491,748. WIRE-STRETCHING DEVICE. HENRY C. PRATT, Canandaigua, N. Y. Filed Aug. 31, 1892. Serial No. 444,645. (No model.)





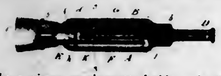
Claim.—1. Means for stretching wire including a spool having a central spindle and side plates having unequal diameters one of said plates having its edge provided with a wrench engaging projection in the plane of said plate, substantially as described.

2. Means for stretching wire including a spool having a central spindle and side plates having unequal diameters, said plates having recessed portions for the reception of a retaining pin, one of said plates having its edge provided with a wrench engaging projection in the plane of the plate and one of said plates having its inner face provided with a projection eccentric to the central spindle, substantially as described.

3. Means for stretching wire including the spool provided with a spindle and side plates of unequal diameter having the recessed portions for receiving a retaining pin, in combination with a wrench having at one end means for engaging the edges of one of said disks and having adjacent to its other end a retaining hook for engaging the wire, whereby said spool may be held in position by said retaining hook while the pin is being inserted, substantially as described.

4. The combination with the spool consisting of the central spindle and side plates having unequal diameters, one of said plates having a wrench engaging lug projecting from its edge in the plane of the plate, of a wrench having a flat face to engage one of said plates and a pair of projecting lugs for engaging the edges of said plate, substantially as described.

491,744. CIGAR OR CIGARETTE HOLDER. MAX C. ROESSEL, Philadelphia, Pa. Filed Mar 4, 1892. Serial No. 423,777. (No model.)

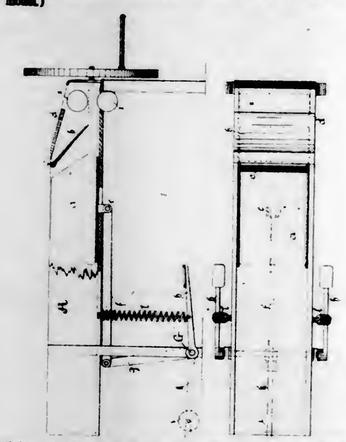


Claim.—1. In a cigar or cigarette holder a body portion comprising inner and outer tubes united at their front ends and separated at their rear ends, the inner tube divided by a transverse diaphragm near its front end, and having in front of said diaphragm a series of openings leading into the annular space between the two tubes, a holding socket communicating with the front end of the inner tube, and a mouth-piece connected with the rear end of the outer tube and having a hollow stem which projects forward into the inner tube.

2. In a cigar or cigarette holder, a body portion comprising inner and outer tubes united at their front ends, and open at their rear ends, the inner tube divided by a transverse diaphragm near its front end and having in front of said diaphragm a series of openings leading into the annular space between the two tubes, a separable holding socket communicating with the front end of the inner tube, a separable mouth-piece set in the rear end of the outer tube, and a separable hollow stem set in the front end of the mouth-piece and projecting forward into the inner tube.

3. In a cigar- or cigarette-holder, the combination with the casing open at its two ends and the holder proper and mouth-piece applied respectively to the front and rear of the same, of the tubes F and I, located within said casing, the former provided with openings *h*, *h*, &c., and the central wall and extending rearward and terminating a short distance from its rear end, and the latter extending forward within the first named tube and terminating a short distance from the central wall, and the packing surrounding the tube I, and partially closing the annular passage encircling said tube.

491,745. STRAW-CUTTING MACHINE. WILHELM ROECKER, Loschgau, Germany. Filed Apr. 12, 1892. Serial No. 428,824. (No model.)



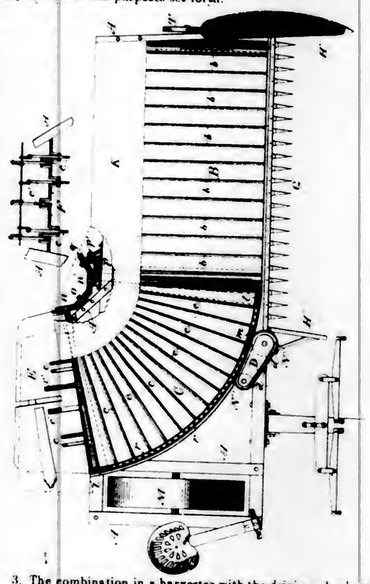
Claim.—1. In a straw cutter the combination with feeding devices for feeding the material to the cutter, of an auxiliary feeding device, a foot lever for operating the same and a retracting device for said auxiliary feeding device, substantially as described.

2. In a straw cutter the combination with the feeding devices for feeding the material to the cutter, of the auxiliary feeding device sliding upon the bottom of the machine, and having a bottom portion and side portions for engaging the straw, and a foot lever connected with said auxiliary feeding device, for moving it with respect to the machine bottom, substantially as described.

491,746. HARVESTER. OLE O. STOBLE, Milwaukee, Wis., assignor to the William Deering & Company, Chicago, Ill. Filed Dec. 7, 1886. Serial No. 184,893. (No model.)

Claim.—1. The combination in a harvester with the driving wheel, cutter bar and straight conveyor, of an endless laterally curved conveyer, rollers mounted upon diverging shafts and supporting said curved conveyer at the ends, and suitable connecting mechanism whereby said curved conveyer is simultaneously driven at both ends, substantially as and for the purposes set forth.

2. The combination in a harvester of an endless laterally curved conveyer, diverging shafts supporting said conveyer at the ends, and gearing connecting said shafts at their converging ends and arranged to rotate the same simultaneously in the proper direction, substantially as and for the purposes set forth.



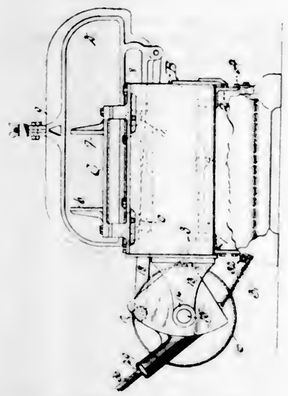
3. The combination in a harvester with the driving wheel, cutter bar and straight conveyer working behind the cutter bar and adapted to receive the grain as it is cut and conduct the same toward the driving wheel, of a laterally curved conveyer, a driving chain belt attached thereto, a sprocket wheel driven by said chain belt and a butter placed adjacent to the longer curve of said curved conveyer and actuated by said sprocket wheel, substantially as and for the purposes set forth.

4. The combination in a harvester with the driving wheel, cutter bar and straight conveyer working behind and parallel with said cutter bar, of a curved conveyer located between the inner end of said straight conveyer and said driving wheel and working in approximately the same plane with said straight conveyer, a chain belt attached to the longer edge of said curved conveyer, sprocket wheels and suitable rollers mounted upon diverging shafts and supporting and driving said chain belt and curved conveyer at both ends, an endless butter supported upon upright rollers with its working side tangential to the longer curved side of said curved conveyer and a binder located at the delivery end of said curved conveyer on the same side of the driving wheel and transversely to the line of travel of the machine, substantially as and for the purposes set forth.

491,747. BRICK OR TILE CUTTING MACHINE. JOHN THOMPSON, Bucyrus, Ohio, assignor to the Frey-Sheckler Company, same place. Filed Nov. 15, 1892. Serial No. 452,039. (No model.)

Claim.—1. The combination with a brick and tile cutting table consisting of a stationary base, a longitudinally movable table on the base having a platen mounted thereon to move therewith and a cutting-wire-frame arranged to move transversely across the movable table, of a shaft journaled on the side of the movable table, a crank on the shaft, a connecting-rod on the crank and having its other end fastened to the cutting wire-frame, a ratchet-sleeve fixed on the said shaft, and a lever and pawl to engage the ratchet-sleeve in the downward movement of the lever, and move the cutting-wire-frame across the table in both directions.

2. In a brick and tile cutting table, the combination of a stationary base-frame or support a longitudinally movable table on the stationary-frame provided with a platen movable therewith, a cutting-wire frame on the movable frame arranged to move transversely across the same, a shaft mounted on the longitudinally movable table, a crank on the shaft, a connecting-rod between the crank and the cutting wire-frame, a ratchet-sleeve on the said shaft provided with ratchets radially and oppositely arranged, a segmental-gear mounted to turn on the ratchet-sleeve, a pawl in the segmental-gear to engage the ratchets, a segmental-rack to engage the segmental-gear, and a handle in the segmental rack.



3. In a brick and tile cutting table the combination with the longitudinally moving table thereof, of a lever fulcrumed on the side of the longitudinally movable table, a bell-crank lever fulcrumed to a stationary point on the frame of the table a connecting chain between an arm of the bell-crank lever and the lever on the side of the table, and a pull-rod having one end attached to an arm of the bell-crank lever and the other end connected to the movable-frame of the table whereby when the table is run out from the clay-mill it may be returned to normal position.

4. In a brick and tile cutting table the combination with a longitudinally movable table, and a cutting wire-frame arranged to transversely move across the table, of a shaft journaled to the side of the movable table, a crank on the shaft, a connecting rod between the crank and the wire-frame, a ratchet sleeve on the shaft, a segmental-gear mounted to turn on the ratchet sleeve, a pawl in the segmental-gear to engage the ratchets of the sleeve, a segmental rack fulcrumed to the movable table in engagement with the segmental gear a bell-crank lever fulcrumed to the stationary support of the movable table, a flexible connection between the segmental-rack and the bell-crank lever, and a connecting-rod between the other arm of the bell-crank lever and the movable table.

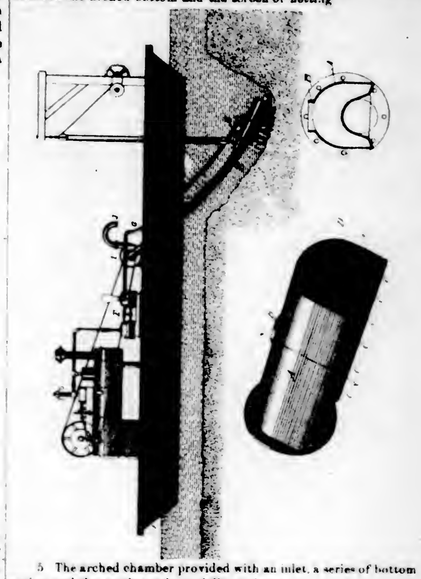
491,748. AGITATOR FOR SUCTION-DREDGES AND SAND-PUMPS. WILLIAM T. URIE, Kansas City, Mo., assignor to the Urie Dredge Manufacturing Company, same place. Filed Jan. 11, 1892. Serial No. 417,740. (No model.)

Claim.—1. The agitator and feeder for hydraulic dredges comprising an arched shaped elongated hollow vessel having an inlet opening for the introduction of water, and a series of outlet openings at the base of the arched chamber, substantially as shown and described.

2. The agitator and feeder for hydraulic dredges comprising an elongated hollow vessel having an inlet opening for the introduction of water, a concave or arched bottom, the concavity extending longitudinally from end to end, a series of openings along the base of the concavity, and a screen or netting across the concavity.

3. The agitator or feeder for hydraulic dredges comprising a hollow elongated casing or vessel having a concave or arched bottom, the concavity extending from end to end, a water inlet, and a series of openings along the base of the concavity, in combination with a suction pipe leading from one end of the concavity, and means for forcing water into the agitator under pressure.

4. The agitator and feeder for hydraulic dredges comprising an elongated hollow casing or vessel having a concave bottom, the concavity extending from end to end, a water inlet, a series of openings along the base of the concavity, and a screen or netting across the concavity, in combination with means for introducing water under pressure, and a suction pipe leading from one end of the concavity between the arched bottom and the screen or netting.



5. The arched chamber provided with an inlet, a series of bottom outlets and the grating, substantially as shown.

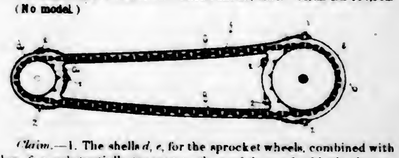
491,749. PIANO-HAMMER. FRANCIS W. WHITE, Norwich, Conn. Filed May 26, 1892. Serial No. 434,519. (No model.)



Claim.—1. A piano hammer head, made of thin metal, in form of a shell as described, in one piece, having two disks, to inclose the felt-block, with flanges, and countersunk surfaces, punched or swaged for screws, to answer as nuts, and bent to form also a socket, for the stick, (handle) which socket can be adjusted by one or more screws; and a back to act as a spring, as described and set forth.

2. A block, composed of a ring of felt, and a core or center piece of cork, adapted to fit into the above described shell, or piano hammer head, and to turn therein, as described and set forth.

491,750. SHIELD OR COVERING FOR DRIVE-CHAINS. STERLING ELLIOTT, Newton, Mass. Filed June 25, 1891. Serial No. 397,502. (No model.)



Claim.—1. The shells *d*, *e*, for the sprocket wheels, combined with tubes *f*, *g*, substantially tangent to the periphery of said wheels connecting said shells and inclosing the drive chain between them, substantially as described.

2. The shells *d*, *e*, for the sprocket wheels, having openings or passages therethrough for the drive chain, combined with tubes inclosing the drive chain between the said shells, one or both of said tubes being flexible, substantially as described.

3. The metallic shells *d*, *e*, having projecting lips, and having openings or passages for the drive chain, combined with flexible tubes inclosing said drive chain, and connected to the shells, substantially as described.

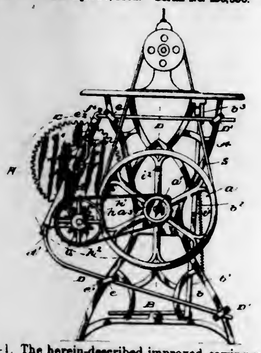
4. Stationary guards or shells inclosing the sprocket wheels and having openings for the passage of driving chain, in combination with a flange secured to and revolving with the sprocket wheel in close proximity to the stationary guard, substantially as described.

5. The combination with sprocket wheels and a sprocket chain, of flexible inclosing tubes for the said chain, substantially as described.

6. A sprocket wheel formed of an imperforate disk of metal, having attached to it near its periphery a flange as e^4, offset therefrom, combined with the stationary inclosing shell as e, provided with a rim and a flange e^3 substantially in the plane of the flange e^4, substantially as described.

7. The combination with sprocket wheels and a sprocket chain, of flexible inclosing tubes for the said chain, substantially tangent to the periphery of said wheels, substantially as described.

491,751. MOTOR FOR SEWING-MACHINES. HIRAM A. FRANTZ, Tamaqua, Pa. Filed Apr. 27, 1892. Serial No. 430,830. (No model.)



Claim.—1. The herein-described improved sewing machine motor, comprising, in combination with the fly-wheel of a sewing machine and a sprocket wheel moving therewith, the frame removably secured to said sewing machine, the spring-impelled wheel having its axle or shaft mounted therein and having two sets of teeth on its periphery, the shaft supported by said frame having a gear-wheel in engagement with said teeth of the spring-impelled wheel, the sprocket wheel on said shaft, and the chain encompassing said latter wheel also the sprocket-wheel movable with said fly-wheel the pedal, the pitman secured thereto, and the brake to which said pitman is secured, substantially as set forth.

2. The herein-described improved sewing machine motor, comprising, in combination with the fly-wheel of a sewing machine, and a sprocket wheel moving therewith, the frame removably secured to said sewing machine, the spring-impelled wheel mounted in said frame and having two sets of teeth in its periphery, means for winding and holding said wheel, the shaft supported by said frame, the wheel on said shaft engaging said spring-impelled wheel, the sprocket wheel on said shaft, the chain encompassing said sprocket wheels, the pedal, the pitman secured thereto, and the brake to which said pitman is secured, substantially as set forth

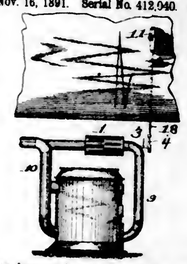
3. The combination with a sewing machine fly-wheel, and a sprocket wheel moving therewith, of a motor having a frame supporting or holding its mechanism, the arms or rods supporting said frame and removably secured to said sewing machine, the driving sprocket wheel, the chain encompassing the same and said sprocket wheel of the sewing machine the pedal, the pitman secured thereto, and the brake to which said pitman is secured, substantially as set forth.

4. The combination with the sewing machine fly-wheel, and a sprocket-wheel moving therewith, of a motor adjustably secured to said sewing machine and comprising the frame, the spring-impelled wheel having its shaft or axle supported by said frame, the spring secured to said shaft or axle and to said wheel, the gear wheel on said shaft or axle, the pinion engaging therewith having its shaft provided with a crank-handle, the ratchet wheel on the shaft of said spring-impelled wheel, the pawl engaging said ratchet-wheel, the shaft having a gear wheel engaging teeth of said spring impelled wheel, the sprocket-wheel also on said shaft, and the chain encompassing said latter wheel and the sprocket wheel moving with said fly-wheel, substantially as set forth.

5. The combination with a sewing machine fly-wheel, a strap encircling the same, and a motor for driving said fly-wheel, of the pedal, the pitman connected thereto, and the brake to which said pitman is secured and having a block or shoe designed to bind and hold said strap, substantially as set forth.

6. The combination, with a sewing machine fly wheel, an encircling driving strap, a motor for driving said fly wheel, a depending projection adjacent to said strap, of the pedal, the brake-arm pivoted to said projection and having a block or shoe designed to bind said strap against said projection, the pitman connection between said brake-arm and pedal, and the spring for normally holding said block or shoe against said strap, substantially as set forth.

491,752. DRAFT-REGULATOR. CHARLES D. HOWARD, Syracuse, N. Y. Filed Nov. 16, 1891. Serial No. 412,040. (No model.)

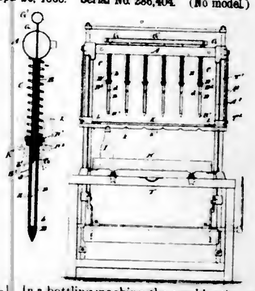


Claim.—1. The damper herein described, consisting of a rotary cylinder divided by a suitable partition into two compartments, and slotted longitudinally as described, in combination with an inclosing casing also longitudinally slotted as described, and the pipes leading from the casing to the ash-pit and escape-flues, respectively.

2. The combination, with the outer casing, of the damper-cylinder arranged to rotate within said casing, the dividing partition located between the ends of said damper-cylinder and the pipes leading from opposite ends of the casing to the ash-pit and escape-flue of the furnace, the casing and damper-cylinder being longitudinally slotted at each end, slots at one end being longitudinally out of line with those at the other, substantially as specified.

3. The combination with the damper-cylinder having two compartments, and the casing within which it is arranged to rotate, the cylinder and casing being slotted as described, the pipes leading to the ash-pit and escape-flue of the furnace, the lever connected with the damper-operating arm and the thermostat, whereby said lever is actuated to operate the damper-cylinder, substantially as and for the purpose set forth.

491,753. BOTTLING-MACHINE. ELLIS T. JONES, New York, N. Y. Filed Sept. 26, 1888. Serial No. 286,404. (No model.)

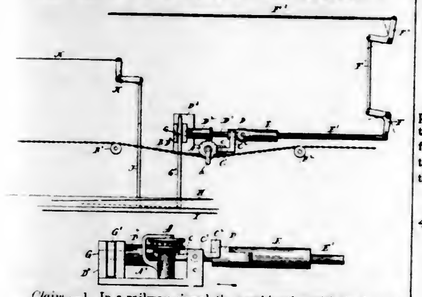


Claim.—1. In a bottling machine, the combination of a vertically reciprocating filling head having depending branch tubes or filling tubes, closed and pointed at their lower ends, and perforated near their lower ends, the slidable tubes surrounding said branch tubes, and having openings adapted to register with the perforations near the lower end of the latter, the vent tubes connected with and extending upwardly through the filling tubes, an air pipe connecting the vent tubes, a flexible connection between the filling head and the source of supply, a vent pipe extending into the latter above the level of the liquid therein, and a flexible connection between said vent pipe and the air pipe connecting the vent tubes, substantially as set forth.

2. In a bottling machine, the combination with the reciprocating cross head A filling tubes B, and connections for operating and supplying liquid thereto, of the rods A^3, cross bars K, and notched flaps K', arranged to adjust and hold the necks of the bottles in their correct position during the filling, and to release the same when the filling tubes B are withdrawn, as herein shown and specified.

3. In a bottling machine, having a reciprocating cross-head A and tubes B, and means for operating and supplying liquid thereto, and the carriage H, and provisions for supporting the bottles therein, the bars H^3 having notches A, and vertically moving bars A^3, having notches a, arranged to prevent the movement of one part until the other is in correct position, substantially as shown and specified.

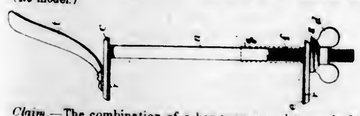
491,754. RAILWAY-SIGNAL. FRANK N. KELSEY, New Haven, Conn. Filed July 18, 1892. Serial No. 440,346. (No model.)



Claim.—1. In a railway signal, the combination with the locking connections of the switch and the operating connections of the semaphore, of a switch-detector comprising a sprocket-wheel engaged by the said operating-connections, and having face teeth, and a pawl adapted to engage with the said teeth and to be engaged and operated by a moving part of the said locking connections, substantially as set forth, and whereby when the switch is locked the pawl is disengaged from the said teeth but engaged therewith when the switch is unlocked, substantially as described.

2. In a railway signal, the combination with a stretcher bar, a plunger for engaging therewith and provided with a beveled head, means for actuating the said plunger and engaging it with and disengaging it from the said bar, a sprocket-wheel having face-teeth, a chain engaging with the said wheel and forming a part of the operating-connection of a semaphore, and a pawl adapted at one end to engage with the face teeth of the said wheel, and at its opposite end to be engaged by the beveled-head of the plunger, substantially as set forth, and whereby the said wheel is left free to rotate when the switch is locked, but locked against rotation when the switch is unlocked.

491,755. ARM-REST AND SUPPORT FOR GUITARS. HENRY E. LE VALLEY, Providence, R. I. Filed Sept. 14, 1892. Serial No. 445,856. (No model.)



Claim.—The combination of a bar having a plate made fast to one end at right angles thereto, and another plate arranged to slide freely on the bar in a parallel position to the stationary plate, a thumb-nut fitted to screw on a screw-thread made on said bar and a curved arm made fast on the stationary plate, substantially as specified.

491,756. HEEL-PAD. ISRAEL LEVY, Kouts, Ind. Filed Sept. 24, 1892. Serial No. 446,790. (No model.)



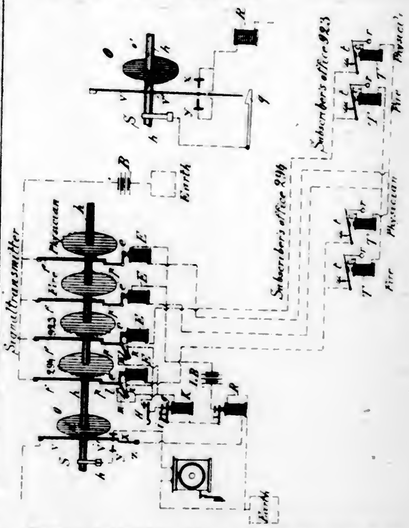
Claim.—As an improved article of manufacture, a heel pad for boots or shoes, consisting of the wedge-shaped piece C, having its upper surface slightly convexed and inclined toward the front, and the covering D, and padding E, interposed between the upper surface of the piece C, and the covering substantially as and for the purpose set forth.

491,757. SECTIONAL BRUSH-MOLD. WILLIAM MORRISON, Lansingburg, N. Y. Filed May 26, 1892. Serial No. 434,407. (No model.)



Claim.—A sectional mold for handle-brushes, comprising a crown-plate, a middle-plate having a brush-head-aperture and a handle-aperture continuous therewith, and a base-plate having a recessed table for supporting the bristles in the head-aperture, and a handle-molding table, continuous with the recessed table and closing the bottom of the handle aperture, substantially as described.

491,758. ELECTRIC SIGNALING APPARATUS. LUDWIG VON ORTH, Berlin, Germany. Filed Apr. 14, 1892. Serial No. 429,212. (No model.) Patented in France Oct. 21, 1891, No. 216,816; in Belgium Oct. 21, 1891, No. 96,885; in Norway Oct. 21, 1891, No. 2,472, and in Italy Dec. 31, 1891, XXV, 30,626, LX, 109.



Claim.—1. In a telephone system or other net-work of wires, an interpolated signaling apparatus consisting of signal keys located at the subscribers' offices for the several signals, a signal transmitter inserted into the existing net-work, and composed of a shaft carrying disks corresponding to the numbers of the subscribers' offices, and one or more disks corresponding to the signals to be transmitted, a motor for operating the transmitter normally held out of action, a local battery, the circuit of which is closed by the keys at the subscribers' offices, a contact arm for each disk, electro-magnets E for bringing the contact arms into contact with the transmitter disks when vitalized;—whereby the circuit from the main battery B is closed and the signals transmitted to the station, and a release for the motor operated by the closing of the circuit of the local battery, substantially as described.

2. In a telephone system or other net-work of wires, an interpolated signaling apparatus consisting of signal keys at the subscribers' offices, electro magnets having their armatures attached to the keys, a signal transmitter containing rotary signal disks and contact arms f for the same, a motor normally held out of action by a detent, an

electro-magnet K acting on said detent for releasing the motor when vitalized, a switch O*v* playing between contacts *x y*, and adapted to engage momentarily with a contact *z*, and a relay R vitalized by the closing of the circuit at *z* to break the circuit of the local battery L B through the key T and the electro-magnet K; whereby the key at the subscriber's office is released to indicate that the signal has been received, and the motion of the motor is arrested, substantially as described

3. In an apparatus of the character specified, the combination of the transmitter, its electro magnets E, switches playing between contacts *m m*, normally in contact with contacts *n*, signal keys at the subscribers' offices, and an electro-magnet K having its coil in the circuit of the local battery and its armature *g* in electrical connection with the contacts *m*, whereby the closing of the circuit at one of the subscribers' offices causes the electro-magnets E to be vitalized to close the circuit through the electro-magnet K, breaking the circuit over its armature *g* and thereby preventing a second subscriber's office from sending a signal, substantially as described.

4. In a telephone system or other net work of wires, an interpolated signaling apparatus embodying signal keys K located at the subscribers offices, a signal transmitter including in its construction circuit closers and actuating electro-magnets E for the same, combined with means for preventing telephonic conversation from being interrupted by the sending of a signal, consisting of suspension hooks H for the receivers placed in the circuit of the local battery and arranged to normally close the circuit through the signal keys and the electro-magnets E of the signal transmitter by the weight of the suspended receiver, and to automatically break said circuit when the receiver is removed, substantially as described.

5. In a telephone system or other net work of wires, an interpolated signaling apparatus embodying signal keys K at the subscribers offices, a signal transmitter having an intermittent rotary shaft *h* combined with means for preventing a signal from being interrupted by a telephonic conversation consisting of the disk O on the rotation of shaft *h*, a switch *r y x* actuated by the disk O on the rotation of shaft *h*, to break the telephonic circuit at *x* and establish the connection of the transmitter with the main line at *r y*, substantially as described.

6. The signal transmitter herein described, consisting of a shaft carrying disks corresponding to the number of the subscribers' offices and to the signals to be sent, a contact arm for each disk, an electro magnet for each arm, an insulated disk O provided with a recess and a contact arm, a main contact S, and a motor, substantially as described

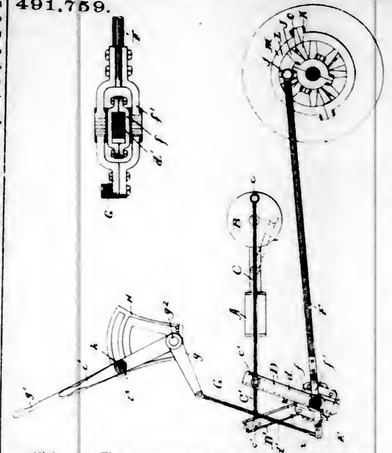
7. In a telephone system or other net-work of wires, the combination of signal keys at the subscribers' offices, a signal transmitter at the district station provided with a series of disks corresponding to the numbers of the subscribers' offices and with one or more disks corresponding to the signals to be transmitted, a motor for the transmitter normally held out of action, a contact arm *f* for each disk, electro-magnets E having their armatures in operative connection with the contact arms, an electro-magnet K, a contact operated by the suspension device for the receiver of the telephone, switches operated by the closing of the circuit through the electro-magnets E to close the circuit through the electro-magnet K, and thereby causing the release of the motor of the transmitter and the breakage of the circuit through the remaining offices; electro-magnets T acting on the signal keys at the subscribers' offices, a switch normally closing the circuit through the main line, but breaking the same during the operation of the transmitter, and a relay R for breaking the circuit through the electro-magnets and signal keys when a return signal is sent from the main line, substantially as described.

8. In a telephone system or other net-work of wires, an interpolated signaling apparatus consisting of signal keys at the subscribers' offices, a signal transmitter inserted into the existing net-work and comprising a shaft carrying disks for the numbers of the several subscribers' offices and signal disks, said disks being provided with projecting teeth corresponding to letters of the Morse alphabet, a motor for operating the transmitter, normally held out of action, a local battery, the circuit of which is closed by the keys at the subscribers' offices, a contact arm for each disk, and electro-magnets E for bringing the contact arms into contact with the transmitter disks when vitalized, all substantially as and for the purpose set forth.

9. In an apparatus of the character specified, the combination of signal devices at the subscribers' offices, a signal transmitter, a motor for the same normally held out of action, electrical connections for disengaging the motor on sending a signal from a subscriber's office, a disk O carried by the transmitter, the contact arm *r*, the contact *x*, and the relay R, all arranged and connected to automatically arrest the motion of the motor after receipt of the signal, by the passage of the return signal, substantially as described.

491,759. POWER-TRANSMITTING DEVICE. BROCK PROUTY, Chicago, Ill. Filed Sept. 13, 1892. Serial No. 445,613. (No model.)

491,759.



Claim.—1. The combination with the motor, the axle and the clutches upon the axle, of vibrating levers and rods movably attached to the levers and carrying power from the levers to the clutches, and a hand lever joined to said rods and adapted to change their positions upon the levers, substantially as set forth.

2. The combination with the motor, the axle and the clutches upon the axle, of vibrating levers and rods movably attached to the levers and carrying power from the levers to the clutches, a hand lever joined to said rods and adapted to change their positions upon the levers, and means for locking said hand lever in its positions, substantially as set forth.

3. The combination with the motor, axle, clutch and transmitting mechanism for carrying power from the motor to the clutch, of a hand lever controlling said transmitting mechanism and means for locking said lever in its various positions consisting of the cam, a slotted frame, a wrist pin and a lever for rotating the cam, substantially as specified.

4. In transmitting mechanism of the kind shown, the lever D, consisting of a frame one side of which forms a slide way for the box of the connecting rod, and the other side as a means of attachment of the actuating pitman and the supporting shaft, in combination with the rod, the pitman, and the shaft, substantially as specified

5. In transmitting mechanism of the kind shown, the lever D consisting of a frame formed of a U shaped piece *d* and straight piece *d'*, in combination with the supporting shaft and actuating pitman, both attached to piece *d*, and the connecting rod having a sliding attachment to piece *d'*, substantially as specified.

6. The combination with the motor, the axle and the transmitting devices, of the axle clutch consisting of a rimmed friction wheel rigidly secured to the axle and made in two parts, an oscillating spider also made in two parts and mounted upon the hub of the friction wheel, the transmitting devices being joined to such spider and serving to oscillate it, and a series of friction pawls confined between the hub of the spider and the rim of the wheel and thrown into action by the movement imparted to them by the spider, substantially as specified.

7. The combination with the motor and the power transmitting devices, of the axle clutch consisting of an oscillating spider, loosely surrounding the axle and actuated by the transmitting devices, a rimmed friction wheel rigid upon the axle, and a series of friction pawls which are confined between the hub of the spider and the rim of the wheel and are thrown into action by the movement imparted to them by the spider, substantially as specified

8. The combination with the motor, the power transmitting devices, and the car axle, of a clutch the friction wheel whereof is hollow and arms P rigid upon the shaft and located within the hollow of the wheel and with set screws mounted in the wheel and acting upon said arms, substantially as specified.

9. The combination with the car axle of a motor, two vibrating levers actuated by the motor, two connecting rods having sliding attachments to said levers, the oscillating spiders actuated by the rods, a friction wheel rigid with the axle, friction pawls confined between the spiders and the rims of the wheel and a single hand lever joined to the ends of the connecting rods which slide upon the vibrating levers, substantially as specified.

491,760. FOLDING TABLE. HENRY A. STEVENS, Morristown, Pa. Filed Nov. 7, 1892. Serial No. 451,183. (No model.)



Claim.—1. In a folding or knock-down table, a pair of legs pivoted together, whereof one is attached to a pivotally supported hinge on the table and a back-stop for said hinge on the table and whereof the other leg is attached to one member of a hinge having its other member provided with a spring-catch adapted to detachably engage the table, substantially as and for the purposes set forth.

2. In a folding or knock-down table, a top comprising a series of leaves hinged together and provided with a cleat or brace-rod pivotally connected with an outside leaf and adapted to engage a spring-clip, and a series of fingers, in combination with a pair of legs pivoted together, whereof one is attached to the table by a pivotally supported hinge and the other is attached to one member of a hinge having its other member provided with a spring-catch adapted to detachably engage the table, substantially as and for the purposes set forth.

3. In a folding or knock-down table, a top comprising a series of leaves hinged together and provided with a cleat or brace-rod pivotally connected with an outside leaf and adapted to engage a series of fingers connected with certain of the leaves, in combination with a pair of legs pivoted together, whereof one is attached to a pivotally supported hinge on the table and a back-stop for said hinge on the table and whereof the other leg is attached to one member of a hinge having its other member provided with a spring-catch adapted to detachably engage the table, substantially as and for the purposes set forth.

4. In a folding or knock down table, a pair of legs whereof one is attached to one member of a hinge having its other member pivotally attached to the table and whereof the other is attached to one member of a hinge having its other member provided with a spring-catch co-operating with a pocket secured to the table, substantially as and for the purposes set forth.

5. In a folding or knock down table, a pair of legs whereof one is attached to the table by a pivotally supported hinge and whereof the other is attached to one member of a hinge having its other member provided with a spring-catch adapted to detachably engage the table, substantially as and for the purposes set forth.

6. A folding or knock down table comprising a series of hinged leaves, a brace-rod or cleat pivoted at one extremity to one of the outside leaves and adapted to engage a spring clip and a series of fingers, two pairs of pivotal legs whereof one leg in each pair is connected to an outside leaf by a pivotally supported hinge and whereof the other leg in each pair is provided with a spring catch for engaging a pocket on an outside leaf and tie-rods pivotally attached to one leg of each pair and adapted to engage clips on the legs and sockets on one of the intermediate leaves, substantially as and for the purposes set forth.

491,761. CAR-SEAT. EMILE AXE and EDMONTON N. GILPILLAN, Chicago, Ill., assignors to Harris A. Wheeler, same place. Filed Nov. 24, 1891. Serial No. 412,996. (No model.)



Claim.—1. In a reversible car seat, the combination with the frame, of a pair of arms pivoted to both sides of said frame, the pivot of each arm serving as a stop for limiting the movement of the other arm, and the back pivoted to said arms, substantially as set forth.

2. In a reversible car seat, the combination with a frame and a back, of a pair of arms substantially equal in length, pivoted to each end of the back at their upper ends, and having their lower ends pivoted to the frame near the center thereof, the pivots connecting said arms to the back being arranged in a line extending at an angle to the plane of the back, substantially as set forth.

3. In a reversible car seat, the combination with a frame; and the back: of a pair of substantially parallel arms pivoted to said frame and to each side of said back, and such latter pivots being in a line at right angles to the plane of the back, substantially as set forth.

4. In a reversible car seat, the combination with the frame and the back; of a pair of substantially parallel arms pivoted at their ends respectively to each side of the back and the frame, the pivots thereof at the upper end of the pair being arranged in a plane at right angles to the back and at the other end in a horizontal plane, substantially as set forth.

5. In a reversible car seat, the combination with a frame and a back, of a pair of substantially parallel supporting arms, pivoted to the lower edge of said back, and to the frame, at each side and a stop for limiting the movement of said arms, the pivots connecting the arms to the back being arranged in a line extending at an angle to the plane of the back, and the pivots connecting the arms to the frame, being located near the center of the frame substantially as set forth.

6. In a reversible car seat, the combination with the frame having rocking bars, of a shiftable back and substantially parallel supporting arms secured to said bars and back at each side thereof and each having at its pivot a stop for arresting the movement of the other, substantially as set forth.

7. In a reversible car seat, the combination with the frame having the rocking bars P, Q, of a shiftable back and substantially parallel supporting arms secured to said bars and back, at each side thereof and each of said bars being provided with a bearing or stop for arresting the movement of said arms, substantially as set forth.

8. In a reversible car seat, the combination with a frame and a shiftable back; of a pair of substantially parallel pivoted supporting arms pivoted to said frame and to both sides of said back, each having an independent cam, projecting at an angle thereto and a shiftable bottom having lugs adapted to be impinged by said cams, substantially as set forth.

9. In a reversible car seat, the combination with the frame and a back, having the heads, T, secured to the bottom thereof at both sides of the rocking bars, P, Q, and substantially parallel arms mounted on said bars in pairs and having pivoted connection with each of said heads, substantially as set forth.

10. In a reversible car seat, the combination with the frame of the back having heads rigidly fixed to both sides thereof, and arms pivoted to the said heads, and to both sides of the frame near the center thereof, the pivots connecting said arms to the said heads being normally arranged in a line extending at an angle to the plane of the back, substantially as set forth.

11. In a reversible car seat, the combination with the frame of the back having heads rigidly fixed thereto and projecting below the lower edge thereof, and arms pivoted to said heads, and to both sides of said frame near the center thereof, the pivots connecting said arms to the heads being arranged in a line extending at an angle to the plane of the back, substantially as set forth.

12. In a reversible car seat, the combination with the frame and a shiftable back and the sills, B, C, having inclined or beveled surfaces of the bars, P, Q, journaled in said frame between said sills, substantially parallel arms pivoted at different points at both sides of said back and secured to both ends of said bars and adapted to rest upon said sills, substantially as set forth.

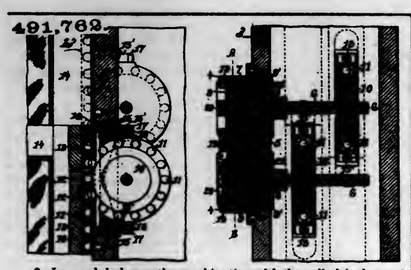
13. In a reversible car seat, the combination with a frame and the back having the heads T, arranged at the lower edge of both sides thereof of the rotary or rocking bars P, Q, journaled in said frame and substantially parallel arms secured to said bars in pairs, and having pivotal connection with each of said heads, substantially as set forth.

491,762. SASH-BALANCE. ROBERT K. BROWN, Whitinsville, Mass. Filed June 15, 1892. Serial No. 436,782. (No model.)

Claim.—1. A sash-balance consisting of a cylindrical case adapted to be secured to the window-casing, a cup adapted to rotate within the cylindrical case, a shaft, secured to the cup, extending into the window-casing, a gear secured on the shaft so as to rotate with the same, a rack secured to the window-sash, and a coiled actuating-spring one end of which is secured to the fixed and the other end to the rotating portion of the sash-balance, as described.

2. In a sash-balance, the combination with the cylindrical-case 4 adapted to be secured to the window-frame and provided with the sleeve 8, of the cup 7, the shaft 6 secured to the cup 7, the gear 10 connected with the shaft 6, the rack 13, and one or more springs adapted to balance the weight of the sash, as described.

491,762.



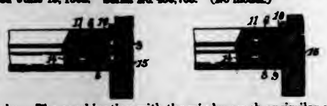
3. In a sash-balance, the combination with the cylindrical-case 4, the cup 7, the shaft 6, the gear 10 provided with the spherical teeth or projections 11, the rack 13 having the cavities 12, and one or more springs adapted to balance or partly balance the weight of the sash, as described.

4. The combination with the cylindrical case 4, the cup 7, the shaft 6 secured to the cup 7, the gear 10, the rack 13, and the actuating spring, of a locking device secured to the cup 7 and adapted to lock the same to the cylindrical case 4, as described.

5. In a sash-balance, substantially as herein described, the combination with the case 4 provided with the notches 19 on its inner surface, of the cup 7 and the pivoted arm 20 adapted to lock the sash-balance, as described.

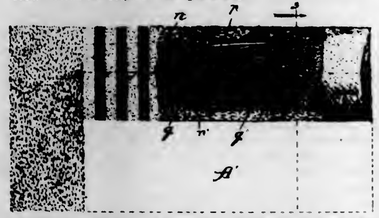
6. In a sash-balance, adapted for operating the upper and lower sashes of a window, the combination with two cylindrical-cases 4, cast in one piece, provided each with the sleeve 8, of the cups 7, the shaft 6 connected with the cups and the lifting-gears, the gears 10 provided with the spherical-teeth 11, the racks 13 having the cavities 12, and one or more springs adapted to balance or partly balance the weight of each of the two sashes, as described.

491,768. SASH-HOLDER. ROBERT K. BROWN, Whitinsville, Mass. Filed June 15, 1892. Serial No. 436,763. (No model.)



Claim.—The combination with the window-sash or similar article and the frame provided with a longitudinal groove, of the cylindrical piece 6 provided at one end with the bracket 8, the spring 11, and the roller 9, having a convex thread, adapted to enter the groove in the window-frame and to hold the sash to prevent rattling, as described.

491,764. METHOD OF BURNING CLAY TO MAKE BALLAST, &c. WILLIAM BUTLER and HENRY G. BUTLER, Kenosha, Wis. Filed Aug. 25, 1892. Serial No. 444,044. (No specimens.)



Claim.—1. In kiln-burning clay to produce ballast and the like, the method of constructing the kiln, which consists in building the walls to inclose the mass of the material to be burned by applying to the sides thereof a close covering of green earthy material, or analogous covering, and continuing building the said walls as the increment and burning of the said mass proceeds, substantially as described.

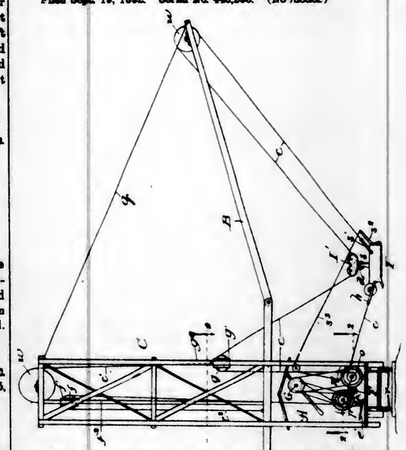
2. The method of kiln-burning clay to produce ballast and the like, which consists in forming a bed with fires, building the "fire" on said fires, inclosing the "fire" between close walls, kindling the "fire" and from time to time adding thereto the material to be burned, continuing the close-wall inclosing structure as the increment and burning of the "fire" proceed, substantially as described.

3. The method of kiln-burning clay to produce ballast and the like, which consists in forming a bed with ridges *r* of mixed clay and coal and forming transverse flues, building the "fire" on said flues, inclosing the "fire" in a kiln by applying close walls to the sides thereof forming the kiln-walls, kindling the "fire" and continuing the burning thereof and its increment and the kiln-wall construction to a desired height, and similarly forming a kiln and burning abreast of the said first-named kiln, utilizing the adjacent wall of the latter for the inner wall of the new kiln, substantially as described.

4. The method of kiln-burning clay to produce ballast and the like, which consists in forming a bed with transverse flues, applying kindling material on the flues and covering it with alternate layers of coal and clay and burning the pile, mixing the clay, before applying it, with coal and wetting it, and inclosing the "fire" thus formed between walls by applying green earthy material to the surface of the "fire" from time to time as the height thereof increases, substantially as described.

5. The method of kiln-burning clay to produce ballast and the like, which consists in forming a bed by applying thereto coal, forming transverse flues on said bed with mixed clay and coal, filling the said flues with kindling and piling kindling across the flues, piling on the kindling alternate layers of coal and clay and burning, mixing the clay, before applying it, with coal and wetting it, and inclosing the "fire" thus formed between walls by applying green earthy material to the sides of the "fire" from time to time as the height thereof increases, substantially as described.

491,765. SCRAPER-OPERATING APPARATUS. HENRY G. BUTLER, Kenosha, Wis., assignor of one-half to William Butler, same place. Filed Sept. 19, 1892. Serial No. 446,293. (No model.)



Claim.—1. In an apparatus of the nature set forth, the combination with a driving-shaft on a suitable support, of winding mechanism having drums loosely supported on rotary shafts provided with clutch-mechanism, a counter-shaft carrying loose pulleys respectively geared reversely with one of said drums, clutch mechanism for said pulleys and a tight pulley geared with the other drum, and a traveling conveyer supported on a cable fastened at its opposite ends to the last-named drum and suspended between its ends at a suitable distance from the winding mechanism, substantially as described.

2. In an apparatus of the nature set forth, the combination, with a driving-shaft on a suitable support, of winding mechanism comprising a pair of drums D and E loosely supported on rotary shafts provided with clutch mechanism, a counter-shaft geared to the drum D to be rotated thereby in either direction at will and geared to the drum E to rotate it in the direction of rotation of the drum D, a cable *c* fastened at opposite ends to the drum E, and suspended between its ends at a suitable distance from the winding mechanism, and a traveling conveyer, supported on the cable, the drum E being operated by the drum D through the counter-shaft to propel and return the conveyer, substantially as described.

3. In an apparatus of the nature set forth, the combination with a driving-shaft on a suitable support, of winding-mechanism comprising a pair of drums D and E loosely supported on rotary shafts provided with clutch-mechanism involving the disk-gears n^3 and m^3, a pinion on the driving-shaft between and meshing with said disk-gears, a counter-shaft geared to the drum D to be rotated thereby in either direction at will and geared to the drum E to rotate it in the direction of rotation of the drum D, a cable *c* fastened at opposite ends to the drum E, and suspended between its ends at a suitable distance from the winding mechanism, and a traveling scraper supported on and fastened to the cable, the drum E being operated by the drum D through the counter-shaft to wind and unwind the cable for propelling and returning the scraper and directly by the driving-shaft to wind the cable for filling the scraper, substantially as described.

4. In an apparatus of the nature set forth, the combination with a driving-shaft on a suitable support of winding drums D and E and a counter-shaft G through the medium of which the drum E is geared with and driven by the drum D, a cable *c* fastened at opposite ends to the drum E and suspended between its ends at a suitable distance from the winding mechanism, and a conveyer supported on the cable, substantially as described.

5. In an apparatus of the nature set forth, the combination with a driving-shaft on a suitable support, carrying a mast C, of winding mechanism comprising a pair of drums D and E loosely supported on rotary shafts provided with clutch-mechanism, a counter-shaft G geared to the drum D to be rotated thereby in either direction at will and geared to the drum E to rotate it in the direction of rotation of the drum D, vertically movable pulleys *g* and *f* in guides on the mast and connected by a cable *c'* passing over a guide *w'*, a cable *c* fastened at opposite ends to the drum E, suspended between its ends at a suitable distance from the winding-mechanism, and passing over the pulley *g*, a traveling conveyer supported on the cable *c* and a cable c^2 fastened at one end to the mast, passing thence over the pulley *f* and fastened at its opposite end to the drum D, the whole being constructed and arranged to operate substantially as described.

6. In an apparatus of the nature set forth, the combination with a driving shaft on a suitable support carrying a mast C, of winding mechanism comprising a pair of drums D and E loosely supported on rotary shafts provided with clutch-mechanism, a counter-shaft G geared to the drum D to be rotated thereby in either direction at will and geared to the drum E to rotate it in the direction of rotation of the drum D, vertically movable pulleys *g* and *f* in guides on the mast and connected by a cable *c'* passing over a guide *w'*, a cable *c* fastened at opposite ends to the drum E, suspended between its ends at a suitable distance from the winding mechanism and passing over the pulley *g*, a traveling scraper I having a hinged bottom provided with a catch connected with the drum E, said scraper being supported on and fastened to the cable *c*, a cable c^2 fastened at one end to the mast, passing thence over the pulley *f* and fastened at its opposite end to the drum D, a dumping attachment on the drum E and a brake for the drum D, the whole being constructed and arranged to operate substantially as described.

7. A scraper-operating apparatus comprising, in combination with a support A carrying a mast C, boom B, and driving-shaft F, having a pinion F', rotary shafts *p* and *o* provided with clutch gear-disks n^3 and m^3 meshing with the pinion, drums D and E loosely supported on said rotary shafts and provided with clutch-heads *n* and *m* and means for throwing them in and out of clutch, a brake for the drum D, pulleys *k'* and *i'* fixed on the shaft *p*, a countershaft G carrying loose pulleys *k* and *i* provided with an interposed clutch H and respectively geared by a straight belt k^2 and a cross-belt i^2 with the pulleys *k'* and *i'*, a fixed pulley *l* on the counter-shaft connected by a belt *l'* with the clutch-head *m* of the drum E, pulleys *g* and *f* supported and vertically movable in guides on the mast and connected by a cable *c'* passing over a guide-pulley *w'*, a cable c^2 fastened at one end to the mast, passing thence over the pulley *f* and fastened at its opposite end to the drum D, a cable *c* passing over a pulley *w* at the end of the boom and over the pulley *g* and fastened at its opposite ends to the drum E, a scraper I supported and fastened on the cable *c* and having a hinged bottom I' provided with a catch c^4, and a dumping-attachment on the drum E with which the said catch is connected, the whole being constructed and arranged to operate substantially as described.

491,767. ATTACHMENT FOR TYPE-WRITING MACHINES. FLORENCE M. CARTHY, Orange, N. J., assignor to the American Writing Machine Company, Hartford, Conn. Filed Oct. 14, 1892. Serial No. 448,804. (No model.)



Claim.—1. In a typewriting machine, the combination with the platen and type, of a shield arranged coincident with the last letter space of the platen; whereby when the said letter space is brought in line with the printing point of the type said shield stands as a barrier to the impression of the type.

2. In a typewriting machine, the combination with the platen and type, of a shield connected to travel with the platen and automatically intercept the type at the printing point; whereby the type impressions are prevented from being made one upon another.

3. In a typewriting machine, a traveling shield arranged to intercept the type at the printing point simultaneously with the arrival of the platen at the end of the line, and thus prevent the type from impressing the paper thereat.

4. The combination with the platen and type, of a traveling and independently-movable shield; whereby after stoppage of the platen the shield may be moved by hand to permit the insertion of an additional character.

5. The combination, with a typewriting machine provided with a suitable platen, of a shield pivoted upon the machine and projected into the path of the type adjacent to the platen, substantially as and for the purpose set forth.

6. The combination, with a typewriting machine having a suitable platen and a paper guide adjacent thereto at the end of the same, of a shield pivoted to the paper guide and projected inward therefrom in the path of the type and provided with an outwardly projecting finger for shifting the same, substantially as herein shown and described.

7. The combination, with a typewriting machine having a roller platen, and a paper guide at the end of the platen and adjacent thereto, of a shield pivoted to the paper guide and projected inward therefrom in the path of the type, the same being provided with an outwardly projecting finger and a transversely projecting ear for engagement with the end of the platen, as and for the purpose set forth.

8. The combination, with a typewriting machine having a roller platen, and a paper guide at the end of the platen and adjacent thereto, of a shield pivoted to the paper guide and projected inward therefrom in the path of the type, the same being provided with an outwardly projecting finger and a transversely projecting ear having an adjusting screw applied thereto, as and for the purpose set forth.
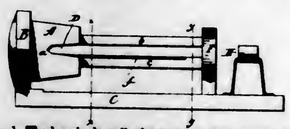
9. The attachment for typewriting machines which consists in a shield formed of yielding material fixed to a holder provided with means for securing the same to the paper guide of the machine, as and for the purpose set forth.

10. The attachment for typewriting machines which consists in the shield *a*, and the holder *c* with pivot hole *e*, as and for the purpose set forth.

11. The attachment for typewriting machines which consists in the holder *c* having the socket *b* and the pivot hole *e* adjacent thereto, and the shield *a* having one end secured within the socket, as herein shown and described.

12. The attachment for typewriting machines which consists in the holder *c* with the socket *b* and pivot hole *e* adjacent thereto, the shield *a* having one end secured within the socket and the other end

491,766. DEVICE FOR SHARPENING DRILLS. ALBERT CAMPBELL, Branford, Conn. Filed Sept. 12, 1892. Serial No. 445,670. (No model.)



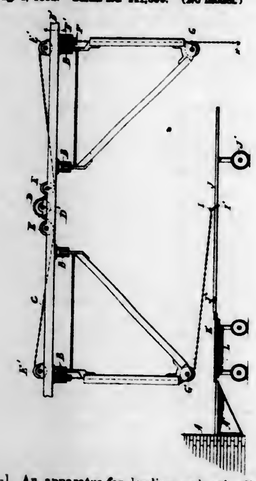
Claim.—1. The herein described apparatus for sharpening or setting rock-drills, consisting of the head A, supported in a horizontal position, the head constructed with recesses D E, opening through its face, and crossing each other, the said recesses extending into the

projected from one side of the holder, and the finger *d* projected from the opposite side of the holder, substantially as shown and described.

13. The attachment for typewriting machines which consists in the holder *c* with the socket *b*, the pivot hole *c* adjacent thereto, and the transversely projecting ear *n*, the shield *a* having one end secured within the socket and the other end projected from one side of the holder, and the finger *d* projected from the opposite side of the holder, as and for the purpose set forth.

14. The attachment for typewriting machines which consists in the holder *c* with the socket *b*, the pivot hole *c* adjacent thereto, and the transversely projecting ear *n* sustaining the adjusting screw *o*, the shield *a* having one end secured within the socket and the other end projected from one side of the holder, and the finger *d* projected from the opposite side of the holder, as and for the purpose set forth.

491,768. APPARATUS FOR CHARGING AND DISCHARGING ANNEALING-FURNACES. JAMES M. CHATTERLY, Thomaston, Conn. Filed Aug. 1, 1892. Serial No. 441,539. (No model.)



Claim.—1. An apparatus for loading and unloading annealing furnaces, comprising one or more frames suspended above the furnace in line with the door thereof, and arranged to be swung laterally to the same, but otherwise fixed in position, a chain running over, guided upon, and getting its purchase from the said frame or frames, and means for operating the chain by power, substantially as set forth.

2. An apparatus for loading and unloading annealing-furnaces, comprising two independent frames suspended in line in reverse position above the furnace in line with the door thereof, and arranged to be swung laterally to the same, a chain running over, guided upon and getting its purchase from the said frames, and means for operating the chain by power in opposite directions, substantially as set forth.

3. An apparatus for loading and unloading annealing furnaces, comprising a frame suspended above the furnace in line with the door thereof, and arranged to swing laterally thereto, a chain running over, guided upon and getting its purchase from the said frame, means for operating the said chain by power, and a pair of sheaves located near the suspension point of the outer end of the frame, and receiving the chain between them, substantially as described.

491,769. RETORT-LID. JOSIAH P. CLARK, Boston, Mass. Filed Sept. 16, 1891. Serial No. 405,922. (No model.)



Claim.—1. The combination with a retort, of a supporting bar hinged to the mouth of the retort and provided with a grooved block having an inclined bottom, a lid carried by said bar, and a wedge having an outer inclined portion for engaging the inclined bottom of the grooved block so that the lid can reciprocate laterally against the mouth of the retort to remove dust, tar and the like, substantially as described.

2. The combination with a retort, of a T-iron bar hinged to the retort and provided with a grooved block, a grooved plate hung on the block, a retort lid hung on the plate, and a wedge adapted to be reciprocated in the grooves to move the lid upon and against the mouth of the retort, substantially as described.

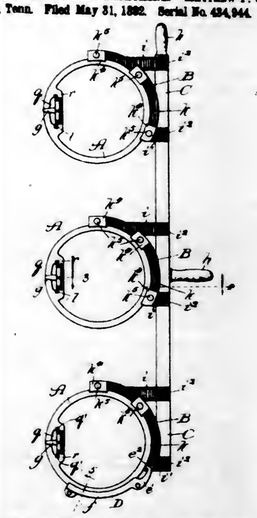
3. The combination with a retort, of a retort lid having grooved lugs *c'*, a lid supporting bar hinged to the retort, a plate *c* carried by the bar and having upwardly inclined projections *c'*, and a plate *d* having perforations to receive the said inclined projections, and provided with notches d^2 the edges of which engage the grooved lugs on the retort lid, substantially as described.

4. In a retort lid, a lid supporting bar hinged to the retort, a cam or eccentric attached to the retort constructed to lock the lid when closed, a block mounted on the lid supporting bar, inclined projections on the block, a plate supported by the projections, a lid hung on the plate, a wedge between and within grooves in the block and plate, inclines on the wedge and within the groove in the block to co-operate to produce a movement of the lid upon the mouth of the retort, for the purpose described, a hand lever to reciprocate the wedge, and a link connecting the hand lever with the wedge, substantially as described.

5. In a retort lid, a supporting bar hinged to the retort, a cam or eccentric attached to the retort to lock the lid when closed, a block mounted on the lid supporting bar, inclined projections on the block, a plate supported on the inclined projections and a lid carried by the plate, combined with a wedge and a wedge actuating lever interposed between the block and plate to separate them and thereby cause the lid to move upon and against the mouth of the retort, in order to remove dust, tar lamp black or other substances from between the lid and the mouth of the retort and to produce a gas tight joint between these parts when the lid is locked, as set forth and described.

6. The combination with a retort, and a retort lid, of a lid supporting bar *b* hinged at one end and provided at the opposite end with an incline b^3, a shoe or seat-piece *b'* movable to different positions on the said incline, devices for adjusting the shoe or seat piece on the incline and holding it in a fixed position after adjustment, and a swinging handle a^3 having a cam a^4 which acts upon the adjustable shoe or seat piece to force the lid against the retort, substantially as described.

491,770. HAND FENCE-MACHINE. MATTHEW F. CORBETT, Jr., Nashville, Tenn. Filed May 31, 1892. Serial No. 434,944. (No model.)



Claim.—1. In a wire-fence machine, the combination of a rotary twister-ring having an annular groove near its circumference and provided with eccentric engaging means for the wire, and a peripheral segmental sustaining guide for the ring extending into the said annular

groove and loosely embracing the circumferential edge of the ring, whereby the ring is held in the guide and is free to revolve, substantially as and for the purpose set forth.

2. In a wire-fence machine, the combination with the revolving twister and sustaining guide therefor, of engaging means for the wires, comprising a block provided with guides for the wires and secured to the revolving twister, eccentrically thereof, by a universal joint, substantially as and for the purpose set forth.

3. In a wire-fence machine, the combination of a rotary twister-ring having an annular groove *l* and provided with eccentric engaging means for the wires, a peripheral segmental sustaining guide for the ring extending into the said groove and loosely clamping the ring at its outer circumference, and a shoe D at the underside of the ring, secured to the said guide and extending into the groove *l* and loosely clamping the ring at its outer circumference, whereby the shoe is held in position and the ring is free to revolve in the guide and shoe, substantially as and for the purpose set forth.

491,771. TRELLIS-WIRE SUPPORT AND STRETCHER. WILLIAM H. COULSON, Jersey City, N. J., assignor to Thomas W. Weathered's Sons, New York, N. Y. Filed Apr. 23, 1892. Serial No. 430,054. (No model.)



Claim.—1. In a greenhouse or grapery trellis, the combination with means for holding and tightening the trellis wires at their respective ends, of the yoke clips adapted to be connected to the inclined rafters, the longitudinally movable eye rods passing through said clips for supporting the trellis wires at intermediate points, and the screws for clamping to place said eye rods, substantially as set forth.

2. The combination with the eye rods *i* of the yoke clips *h* perforated and internally grooved and having clamping screws 2, 3, substantially as set forth.

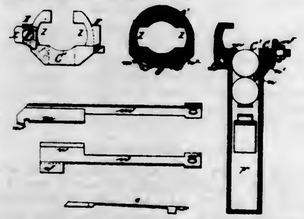
3. In a greenhouse or grapery trellis, the combination with means for supporting the trellis wires at intermediate points, of the plates and bosses adapted to be secured to the gable end rafters, the longitudinally movable and rotatable stretcher bars to which the ends of the trellis wires are connected, said bars passing through said bosses and the clamping screws 4, substantially as set forth.

4. The combination with the attaching plates *l* their bosses *l'* and clamping screws 4, of the stretcher bars *m*, having holes at 6 for the ends of the trellis wires and polygonal ends *m'*, to be engaged by a wrench in rotating said bars *m*, substantially as set forth.

5. The combination with the attaching plates *l* their bosses *l'* and clamping screws 4 of the polygonal stretcher bars *m* having holes at 6, for the ends of the trellis wires and polygonal ends m^1, for a wrench, and cylindrical or round parts m^2 for the coiled ends of the trellis wires, substantially as and for the purposes set forth.

6. The combination with the inclined rafters *a* and trellis wires *k*, of the eye rods *i* clips *h* and screws 2, 3, for supporting the trellis wires at intermediate points, the attaching plates *l* their bosses *l'* and clamping screws 4, and the rotatable stretcher bars *m* to which the respective ends of the wires are connected and by which said wires are drawn taut, substantially as and for the purposes set forth.

491,772. MAGAZINE-GUN. LOUIS M. R. DAUDETEAU, Vannes, France. Filed Jan. 20, 1891. Serial No. 379,009. (No model.) Patented in England Dec. 10, 1890, No. 20,185.



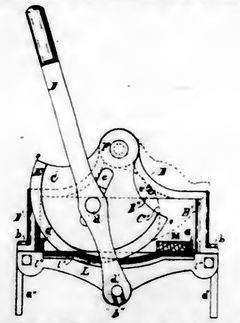
Claim.—1. In a repeating fire-arm, the combination of a receiver and a movable breech-bolt having a hand lever, with a magazine and spring-stops *m* and *n* at the entrance to the magazine, the said stops *m* and *n* being adapted to be actuated by the ejector and the base of the hand lever respectively, as and for the purpose set forth.

2. In a repeating fire-arm the receiver and movable breech-bolt therein in combination with a magazine opening into the receiver and two spring stops at the opening of the magazine, one stop above the first cartridge and the other between the first and second cartridges, a movable ejector, and means for operating the said stops, all substantially as and for the purposes set forth.

3. In a repeating fire-arm, the combination of a receiver having an opening *C'*, with a magazine attached to the underside of the receiver, and forming part of the trigger-guard, an elevator with trough J in the magazine, a movable breech bolt with a hand-lever, an ejector and stops *m* and *n* operated by the ejector and the base of the hand-lever respectively, all substantially as and for the purposes set forth.

4. In a repeating fire-arm, the combination of a receiver provided with an opening *C'*, a magazine having its entrance below the said opening, the said receiver provided with a circular groove *c* having a vent *c* and a recoil block R, all substantially as set forth.

491,773. MITERING-KNIFE. ALEXANDER DODDS, Grand Rapids, Mich. Filed Feb. 27, 1892. Serial No. 423,065. (No model.)



Claim.—1. The combination with a miter frame, of a semi-circular knife pivoted to said frame above the work, a guide for the lower portion of the knife, a slot in the knife support, and a lever pivoted to the frame below the work and provided with a pin to set in the slot *c* to carry the knife as desired, substantially as specified.

2. The combination with a miter frame of a yoke attached above the frame, a semi-circular knife pivoted to said yoke and suspended therefrom, a slot in the base of said knife, a guide way, a lever pivoted to the lower portion of the guide and connected with the base of the knife and miter guides, substantially as, and for the purpose set forth.

3. The combination with a miter frame, knife, lever, and guides; of a slot across the surface of the frame; a slide to work in said slot, posts attached to said slide and provided with slots *i*, and a pin *j* and hole for holding said slide in position, substantially as, and for the purpose set forth.

4. The combination in a mitering machine, of a frame, and yoke; with a knife pivoted above the work, a guide for the knife, a lever pivoted below the work, adjustable guides, and a detachable miter saw attachment, substantially as, and for the purpose set forth.

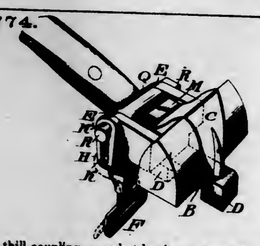
5. The combination with a miter frame having the knife pivoted above the work, and a detachable miter saw attachment; with guides provided with two curved ribs upon each guide made upon circles whose radii converge to the end *a'* of the guide, and curved slots in the bed of the machine for the reception of said ribs, and a bolt for securing the guides to the frame, substantially as specified.

491,774. THILL-COUPLING. GOTTLIEB F. KNEBLE, Philadelphia, Pa. Filed May 3, 1892. Serial No. 431,631. (No model.)

Claim.—1. A thill coupling, a socket having an arm for connecting it with an axle, a screw adjustable in said socket, an arm with a limb having a head in said socket, and a limb with slot for engagement with the axial bolt of the coupling, said screw bearing against said head, said parts being combined substantially as described.

2. A thill coupling having a bolt passed through the eye and ears of said coupling, a sliding elbow engaging with said bolt in order to lock the same, a socket carrying said elbow, and a screw fitted to said socket and bearing one limb of said elbow, said parts being combined substantially as described.

491,774.

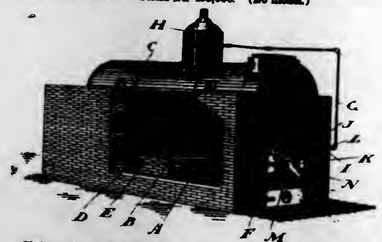


3. In a thill coupling, a socket having a screw fitted thereto, a spring located therein, and a block between said socket and coupling, in combination with an elbow having a head within the socket between said screw and spring, the outer limb of said elbow engaging the axial bolt of the coupling, in order to lock the same and prevent withdrawal thereof, substantially as described.

4. In a thill coupling, a movable arm or elbow connected with the coupling and engaging with the axial bolt, in order to lock the same after its location in the eye of the coupling, substantially as described.

5. In a thill coupling, a socket with a slot in its side, an arm with head in said socket, and one end provided with a slot having a circular recess at one end, a pivotal pin for the coupling eye having a reduced portion, a spring in said socket, and a tightening screw, said parts being combined substantially as described.

491,775. SMOKE-CONSUMER. JOHN T. ELLIS, Toronto, Canada, assignor to Joseph Ruse, same place, and John M. Cullis, Buffalo, N. Y. Filed June 6, 1892. Serial No. 435,680. (No model.)



Claim.—1. A furnace door, having an opening through it protected by an inwardly projecting fender and provided with a series of hinged shutters; substantially as and for the purpose specified.

2. A furnace door having an opening through it, protected by an inwardly projecting fender and provided with a series of hinged shutters, attached together and connected to a pivoted tube partially filled with quick-silver or some material which will move in the tube; substantially as and for the purpose specified.

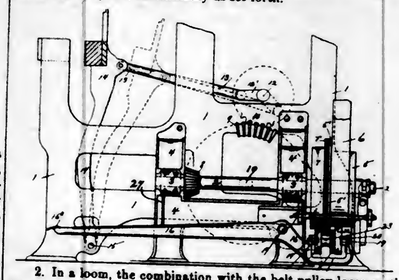
3. A steam pipe extending into a furnace, a valve controlling the passage of steam in said pipe and a lever controlling the movement of said valve in combination with a pivoted tube acting directly on said lever, substantially as described.

4. A steam pipe extending into a furnace, a valve controlling the passage of steam in said pipe and a lever controlling the movement of said valve, in combination with a pivoted tube supporting one end of said pivoted lever, an opening in the wall of the furnace, a series of shutters for controlling the admission of air through said opening, and a connection between said pivoted tube and the shutters, substantially as described.

491,776. REVERSING MECHANISM FOR LOOMS. GEORGE F. RIVENBURG, Worcester, Mass., assignor to the Knowles Loom Works, same place. Filed Oct. 20, 1892. Serial No. 449,473. (No model.)

Brief.—At one end of the treadle-lever is pivoted a yoke carrying two shafts, upon each of which is mounted a friction-pulley, one adjacent the loose driving-pulley and the other adjacent the fixed driving-pulley, with gearing between the two shafts. By depressing the lever the friction-pulleys are brought into contact with the driving-pulleys and the loom is driven in a reverse direction. The parts may also be operated by hand.

Claim.—1. In a loom, the combination with the belt pulley loose on the driving shaft, and the friction pulley fast on said shaft, and the gearing for operating the loom, of a supplemental mechanism for reversing the loom by power to move back the lay, consisting of a pivoted lever supporting a pivoted yoke carrying a pulley adapted to engage the belt pulley, and a second pulley adapted to engage the friction pulley, and intermediate gearing between the pulleys supported in said yoke, substantially as set forth.



2. In a loom, the combination with the belt pulley loose on the driving shaft, and the friction pulley fast on said shaft, of means for conveying power from the belt pulley to the friction pulley, to reverse the loom by power and move back the lay, consisting of a lever pivoted at one end of the loom, with its front end adapted to be engaged and operated from the front of the loom, and its rear end adapted to extend under the belt pulley and friction pulley, and provided with a pivoted yoke carrying two shafts, and a pulley mounted on each of said shafts, and intervening gearing between the shafts, for the purpose stated, substantially as set forth.

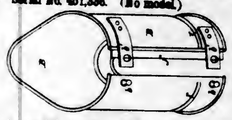
491,777. MEMORANDUM-TABLET FOR TELEPHONES. WILLIAM M. KLEINMAN, Columbus, Ohio. Filed Apr. 11, 1892. Serial No. 428,726. (No model.)



Claim.—1. In a memorandum tablet for telephones, the combination with the plate *a*, slotted opening b^2 in one end thereof, and a paper roll journaled beneath said plate, of an end plate *c'* and a feed roller journaled beneath the latter, substantially as and for the purpose specified.

2. In a memorandum tablet for telephones, the combination with the plate *a* having a slotted opening in one end, clamping lips *c* projecting from one side thereof, downwardly extending plates *d*, a paper roll journaled between said plates *d* and *a*, spring *i* secured at one end to the plate *a*, and having its remaining end in spring contact with said paper roll, of the end extension plate *c'* and a feed roller journaled beneath the latter and means for rotating the same, substantially as specified.

491,778. INHALER. JOHN R. LEE, Conshohocken, Pa. Filed Nov. 8, 1892. Serial No. 451,336. (No model.)



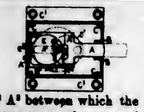
Claim.—1. An inhaler for anæsthetics, consisting of a bandage frame and an inclosing piece or cover of resilient material, with a catch or catches at the meeting edges, substantially as described.

2. An inhaler for anæsthetics, consisting of a bandage frame and an inclosing piece or cover therefor, of resilient material with a catch or catches at the meeting edges, the body of the inclosing piece having an internal rib for the support of the bandage frame, substantially as described.

491,779. LOCK. ARCHIBALD K. LEITCH, Dalhotta, Ceylon. Filed July 24, 1891. Serial No. 400,549. (No model.) Patented in England Feb. 14, 1890, No. 2,455, and in Belgium Feb. 26, 1891. No. 93,909.

Claim.—In a lock, the combination of an outer casing, having guides for the bolt and a notched circular eccentric E with a longitudinally reciprocating bolt provided with a spring for said notches

491,779.



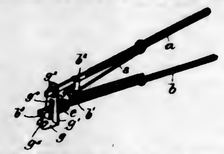
and with projections A^1 A^2 between which the eccentric fits, and a third projecting part A^4 to prevent the eccentric from making more than half a revolution in either direction, all substantially as described

491,780. COMBINATION POCKET IMPLEMENT. ABBOT A. LOW, Brooklyn, N. Y. Filed Jan. 27, 1892. Serial No. 419,397. (No model.)



Claim.—A combination implement substantially such as described, consisting of the shank A, pointed arm G, interior cutting blade D, and pivoted protector S, formed with the lateral projection s^4, extending in front of the point g^3, of the guard G, and toward the outer end of the blade D, so as to contract the entrance to the space in front of the interior cutting edge d^3, the whole arranged substantially in the manner and for the purpose herein set forth.

491,781. WATCH-HAND REMOVER. MARKHAM W. MALLETT, Waltham, Mass., assignor of one-half to Thomas G. Rollins, same place. Filed Dec. 21, 1891. Serial No. 415,832. (No model.)

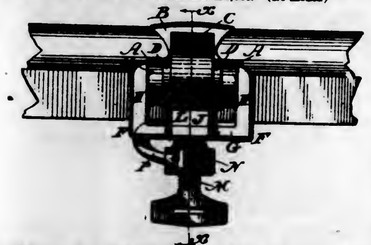


Claim.—1. A watch hand removing tool comprising in its construction two pivotally connected levers, one having a downwardly projecting pin formed to bear on the center post of a watch movement, and a jaw loosely hung upon the other lever and formed to be interposed between the dial and the collar of the hour hand, as set forth.

2. A watch hand removing tool comprising in its construction a jaw having a V-shaped recess and formed to be interposed between the dial and the collar of the hour hand, a shank on said jaw, and two pivotally connected levers, the said shank being loosely supported on one of said levers, while the other guides said shank, the guiding lever having a pin located over the jaw and arranged to bear on the center post when the jaw is in contact with the hour hand collar, as set forth.

3. A watch hand removing tool comprising in its construction a jaw having a V-shaped recess and formed to be inserted between the dial and the collar of the hour hand, a shank on said jaw, two pivotally connected levers, the said shank being loosely supported by one of said levers, while the other guides said shank, the guiding lever having a pin located over the jaw and arranged to bear on the center post when the jaw is in contact with the hour hand collar, said guiding lever having also a shoulder to form a bearing for the rear side of the shank of the jaw, for the purpose set forth.

491,782. THILL-COUPLING. ALBERT C. MATHESON, Philadelphia, Pa. Filed Oct. 26, 1892. Serial No. 450,016. (No model.)



Claim.—1. In a thill coupling, ears adapted to be secured to an axle, a thill iron with boss, a pin pivoting said boss and ears, a clevis with a cushion in contact with said boss and a screw working in a threaded opening in an arm and controlling said clevis, said parts being combined substantially as described.

2. A clip having ears and a projecting arm, a thill iron with a boss mounted on said ears, a clevis with cushion in contact with said boss, and an adjusting screw fitted in the said arm and bearing against and controlling said clevis, said parts being combined substantially as described.

3. In a thill coupling, a clevis having a base, front side and rear parts forming a recess, a cushion seated in said recess, and an adjusting screw for said clevis, said parts being combined substantially as described.

4. A thill coupling consisting of ears, a boss mounted on said ears, an arm carrying a screw, and a clevis formed of a base, front, side and rear pieces, and a cushion seated on said base between the front and rear pieces, the side pieces inclosing the pivotal pin of said boss, the parts named being combined substantially as described.

491,788. BOLSTER-PLATE. HARVEY A. MOYER, Syracuse, N. Y. Filed Dec. 15, 1890. Serial No. 374,733. (No model.)



Claim.—The combination, with the front axle and head-block, of the plates —P—P'— provided with eyes —*a*—*a*— beveled throughout their depths with the narrower ends at the adjacent faces of the plates, the rivet —*b*— of the form of two frusta of cones joined at their small ends and perforated at the center, and the king-bolt passing through said rivet, substantially as set forth.

491,784. MANUAL RECORDER. JOHN PFEIFER, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed May 17, 1892. Serial No. 433,275. (No model.)



Claim.—1. In a cash recorder, the combination of a supply-reel for the record-strip, a storage-reel therefor, an interposed writing tablet over which the record strip is drawn by the storage-reel, a money drawer, mechanism intermediate said money drawer and the storage-reel for actuating the latter by the movement of the drawer, a latch for holding the drawer closed, a lever connected with the latch for disengaging it from the drawer, and a combination lock co-operating with said lever to prevent operation of it without first operating the combination lock to release it, substantially as described.

2. In a cash recorder, the combination of a supply-reel for the record-strip, a storage-reel therefor, an interposed writing tablet over which the record-strip is drawn by the storage-reel, a money drawer, mechanism intermediate said drawer and the storage-reel for actuating the latter by the movement of the drawer, a lock for the drawer, a lever connected with the lock for releasing the drawer, a latch co-operating with the lever, and a combination lock applied to the latch for preventing movement of the lever without first operating such combination lock, substantially as described.

3. In a cash recorder, the combination with a writing tablet over which the record strip is passed, of a movable plate mounted above

the same and adapted to be moved to alternately cover and uncover the record strip at the writing point, means for moving the plate into position to cover the record strip, a money drawer, and mechanism intermediate the drawer and plate for returning the latter to normal position and uncovering the record strip at the closing of the drawer.

4. In a cash recorder, the combination with a writing tablet over which the record strip is passed, of the movable plate mounted above the same, and adapted to cover and uncover the record strip at the writing point, a money drawer, a lock and releasing device therefor, connections between said releasing device and the movable plate for moving said plate into position to cover the record strip by the act of releasing the drawer, and means intermediate the drawer and plate for restoring the latter to normal position upon the closing of the drawer.

5. In a cash recorder, the combination with the writing tablet, of the movable plate mounted above the same and adapted to cover and uncover the record strip at the writing point, a spring for yieldingly holding the plate in and returning it to normal position, a money drawer, a lock and releasing device therefor, connections between said releasing device and movable plate, for moving the latter against the resistance of its spring into position to cover the record strip when the drawer is released, a latch for holding it in such position against the stress of its spring, and a trip for the latch actuated by the closing of the drawer.

6. In a cash recorder, the combination of a supply reel and a storage reel for the record strip, an interposed writing tablet, a money drawer, a lock and releasing device therefor, connections between the drawer and the storage reel for turning the latter by the closing of the drawer, a movable plate mounted above the writing tablet and adapted to cover and uncover the record strip at the writing point, connections between said plate and the drawer-releasing device for moving the plate into position to cover the record strip upon releasing the drawer, and connections between the drawer and plate for restoring it to normal position and uncovering the record strip at the closing of the drawer.

7. In a cash recorder, the combination of a supply reel and a storage reel for the record strip, the latter provided with a ratchet, a writing tablet over which the record strip is drawn from the supply reel, a money drawer, a lock and releasing device therefor, a pawl co-operating with the ratchet of the storage reel and actuated by the closing of the drawer to turn the reel, a glass plate mounted to reciprocate above the writing tablet to cover and uncover the record strip at the writing point, connections between said plate and the drawer-releasing device for moving the plate over the writing point upon the release of the drawer, and connections between the drawer and said plate for restoring the latter to normal position, to uncover the record strip, at the closing of the drawer.

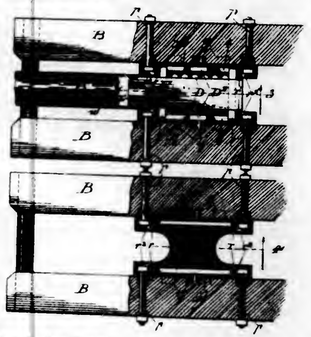
8. In a cash recorder, the combination of a supply reel and a storage reel for the record strip, the latter provided with a ratchet, a writing tablet over which the record strip is drawn from the supply reel, a money drawer, a lock and releasing device therefor, a pawl co-operating with the ratchet of the storage reel and actuated by the closing of the drawer to turn the reel, a glass plate mounted to reciprocate above the writing tablet to cover and uncover the record strip at the writing point, a spring for yieldingly holding said plate in and restoring it to normal position, connections between said plate and the drawer releasing device for moving the plate over the writing point upon the release of the drawer, a latch for holding it in such position while the drawer remains open, and a trip for the latch operated by the closing of the drawer.

9. In a cash recorder, the combination of the reciprocating glass plate Z′ arranged above the writing tablet and provided with the pendent projection E—³, the re-setting spring G—³ for said plate, the rock shaft U, lever V and arm W fast thereon, lever F—³ loose thereon and co-operating with the pendent projection of the plate Z′, the latch I—³ co-operating with the lever F—³, the trip rod J—³ for the latch I—³, and the money drawer C co-operating with the rod J—³, substantially as described.

10. In a cash recorder, the combination of the supply reel K and storage reel O for the record strip, the interposed writing tablet M, the ratchet P fast on the storage reel, the pawl arm Q, lever R and drawer C, the locking bolt E for the drawer, releasing lever F, rock shaft U, lever V and arm W fast thereon, the reciprocating plate Z′ above the writing tablet, the re-setting spring G—³ therefor, the pendent projection E—³ carried by the plate, the lever F—³ co-operating with the projection E—³ and arm W, the latch I—³ for the lever F—³, and the trip rod J—³ for the latch, actuated by the drawer, substantially as described.

491,785. DRAFT-RIGGING FOR CARS. PAUL H. REAGAN, Chicago, Ill. Filed May 7, 1892. Serial No. 432,150. (No model.)

Claim.—1. In a draft-rigging for the draw-bars of railway-cars, the combination with the draft-timbers of cheek-plates having pockets *o* in corresponding ends and provided at their opposite ends with lugs *n*, and a tie-plate removably inserted at one end into the said pockets and having at its opposite end eyes engaging the said lugs, substantially as described.



2. In a draft-rigging for the draw-bars of railway-cars, the combination with the draft-timbers of cheek-plates bolted to, and formed with studs *q* countersunk into, the draft-timbers, and a tie-plate connecting the cheek-plates at their bases, substantially as described.

3. In a draft-rigging for the draw-bars of railway-cars, the combination with the draft-timbers of cheek-plates having pockets *o* in corresponding ends and provided at their opposite ends with perforated lugs *n*, and a tie-plate C having at one end tongues *o′* at which to support it in the said pockets, and having at its opposite end eyes *n′* to embrace the said lugs, substantially as described.

4. In a draft-rigging for the draw-bars of railway-cars, the combination with the draft-timbers, draw-bar and draft-spring, of cheek-plates on the opposing sides of the draft-timbers, and stops D^3 projecting from the inner surfaces of the cheek-plates toward opposite sides of the draft-spring, substantially as and for the purpose set forth.

5. In a draft-rigging for the draw-bars of railway-cars, the combination with the draft-timbers and draw-bar of cheek-plates on the opposing sides of the draft-timbers and provided near their centers with abutting-lugs D^3 for the opposite sides of the draft-spring, a yoke *D′* connected with the draw-bar and embracing the draft-spring and follower-plates between which the spring is confined, and a tie-plate C removably supported on the cheek-plates and forming a separable base for the rigging, substantially as described.

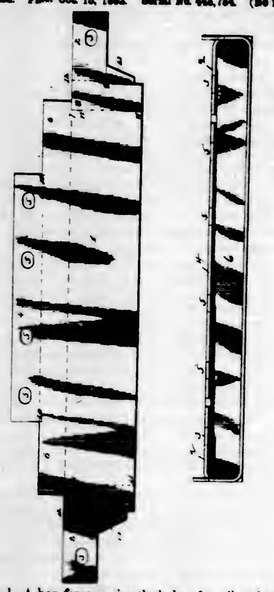
6. In a draft-rigging for the draw-bars of railway-cars, the combination with the draft-timbers B and draw-bar B′, of cheek-plates A having pockets *o* in their forward ends and provided at their rear ends with perforated lugs *n*, said cheek-plates being bolted to, and having formed on them studs *q* countersunk into, the timbers, a tie-plate C supported at its forward end in the said pockets and provided at its rear end with eyes *n′* engaging the said lugs, a yoke *D′* embracing the draft-spring D and follower-plates between which the spring is confined, a pin E inserted through the forward end of the yoke and rear end of the draw-bar and removably secured in place, and lugs D^3 on the cheek-plates to abut against the opposite sides of the spring, the whole being constructed and arranged to operate substantially as described.

491,786. FLOWER-POT. CARL H. SCHURIG and CARL PRÜFER, Mügeln, Germany. Filed Nov. 30, 1891. Serial No. 413,631. (No specimens.)



Claim.—In a flower pot the combination of a body A tapering to a point with an auxiliary pot C and a cap D as and for the purpose set forth.

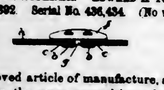
491,787. BOX FOR RAILROAD-JOINTS. ELIHU R. SMITH, Baltimore, Md. Filed Oct. 13, 1892. Serial No. 448,784. (No model.)



Claim.—1. A box for covering the bolts of a railroad splice joint which consists of a plate of metal one side and the ends of which are bent in upon the plate so as to form a box, the bent side being perforated with holes which register with the holes of the splice joint and through which the bolts of the splice joint may pass to hold the box firmly in position against the side of the rail.

2. A box for covering the bolts of a railroad splice joint which consists of a plate of metal one side and the ends of which are bent in upon the plate so as to form a box, the bent side being perforated with holes which register with the holes of the splice joint and through which the bolts of the splice joint may pass to hold the box firmly in position against the side of the rail, and provided with a cover fitting into the top of the box to close the same.

491,788. BUTTON-FASTENER. EDWARD L. TORSOR, Baltimore, Md. Filed June 13, 1892. Serial No. 436,454. (No model.)

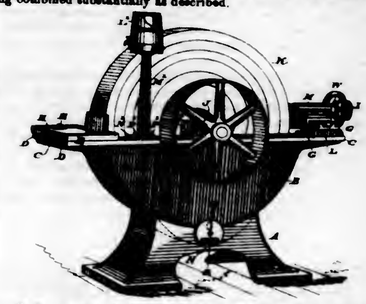


Claim.—As an improved article of manufacture, a button for attachment in a button-hole, the same comprising a head, *a*, and two parallel prongs, *b*, attached to said head, and each having a laterally-projecting point-end, *c*,—the two point-ends extending in opposite directions.

491,789. GRINDSTONE, EMERY-WHEEL, &c. DWIGHT F. WALKER, Philadelphia, Pa. Filed Feb. 8, 1892. Serial No. 420,962. (No model.)



Claim.—1. In a truing device for a grindstone, a ledge with slots therein, a bed adjustably secured to said ledge and having a plate with ways therein at a right angle with said slots, a carriage fitted on said ways and having an ear in which works a screw swiveled in said plate, an outer sleeve secured on said carriage, an inner sleeve within said outer sleeve having on one end a wheel abutting against the end of said outer sleeve, and a screw swiveled in the hub of said wheel having a cutter connected therewith within said inner sleeve, said cutter having a longitudinal groove in its exterior to receive a screw passing through an opening in the inner sleeve, said parts being combined substantially as described.



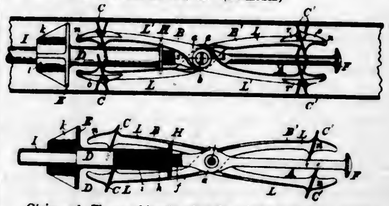
2. In a truing device, a bed plate adjustable longitudinally on the frame of the grindstone, a carriage adjustable transversely of said bed plate, a sleeve on said carriage secured thereto, an inner sleeve with wheel abutting against the end of said outer sleeve, a screw swiveled in said hub and having a nut thereon, and a cutter secured to said nut having a longitudinal groove in its exterior receiving a screw from the inner sleeve, said parts being combined substantially as described.

491,790. WHIFFLETREE-COUPLING. CORNELIUS WILCOX, Sunbury, Ohio. Filed July 3, 1891. Serial No. 398,329. (No model.)



Claim.—The combination with the cross-bar *g* and the whiffletree *d*, of the angular plate *b* secured to the upper and rear side of the said cross-bar and provided with an integral disk shaped bearing projection *c* and an extension b^3 having a screw threaded bolt hole b^3, the angular plate *a* secured to the under and rear side of the whiffle-tree and provided on its under side with a circular recess or seat into which works the said disk shaped bearing portion, and further provided with an extension a^4 having a curved slot a^5, a bolt *i* passed through the whiffle-tree, plates and cross-bar and provided with a nut *g′*, and a bolt *k* passed through the curved slot and having a screw-threaded engagement in the bolt hole b^3 and with a nut *k′*, substantially as described.

491,791. FLUE-CLEANER. JAMES R. WILSON, Buffalo, N. Y. Filed June 15, 1892. Serial No. 436,795. (No model.)



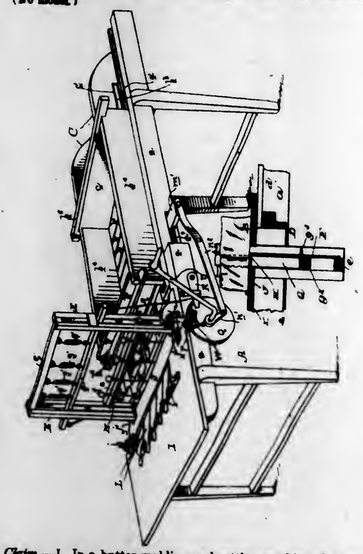
Claim.—1. The combination, in a flue-cleaner, of the central stem having a threaded portion at its inner end, a pair of frames, pivoted to the stem on each side thereof, and each consisting of two pairs of elastic divergent arms extending obliquely outward in opposite directions on each side the stem, and carrying circular segmental scrapers at their ends, and a threaded sleeve, adjustable on the stem and provided with a cleaner-disk of smaller diameter than the circular scrapers, and with a circular flange arranged to expand the scrapers, substantially as described.

2. The combination, in a flue-cleaner, of a central stem having a

threaded portion at its inner end, a pair of frames pivoted to the stem on each side thereof, and each consisting of two pairs of elastic divergent arms extending obliquely in opposite directions on each side of the stem, and carrying circular segmental scrapers at their ends, and a threaded sleeve, adjustable on the stem and provided with a circular flange arranged to expand the scrapers, and having an enlarged recess at its inner end around the threaded portion of the stem, whereby the flange is permitted to yield to compensate for irregularities in the contacting surfaces of the flange and arms, substantially as described.

3. The combination, in a flue-cleaner, of a central stem, having a threaded portion at its inner end, a pair of frames pivoted to the stem on each side thereof, and each consisting of two pairs of elastic divergent arms extending obliquely in opposite directions on each side of the stem, and carrying circular segmental scrapers at their ends, and a threaded sleeve, adjustable on the stem and carrying a cleaner disk of smaller diameter than the circular scrapers, and having an enlarged recess at its inner end around the threaded portion of the stem, and provided with a circular flange arranged to expand the scrapers, substantially as described.

491,792. BUTTER MOLDING AND CUTTING MACHINE. PETER O. ANDERSEN, Ferndale, Cal. Filed Oct. 10, 1892. Serial No. 448,498. (No model.)



Claim.—1. In a butter molding and cutting machine, the combination of a bottom or bed for supporting the butter, a series of spaced vertical cutters, means for advancing said bottom or bed and feeding the butter to the vertical cutters, whereby it is cut into longitudinally, and a vertically movable horizontal cutter for severing the butter transversely, substantially as described.

2. In a butter molding and cutting machine, the combination of a bottom or bed for supporting the butter, said bottom or bed being composed of detachable separate pieces or slats, a series of spaced vertical cutters, means for advancing the bottom or bed and feeding the butter to the vertical cutters whereby it is cut into longitudinally, means for detaching and dropping each slat of the bottom successively from under the advanced edge of the butter previously to being cut, and a vertically movable horizontal cutter for severing the butter transversely, substantially as described.

3. In a molding and cutting machine, the combination of the slatted bottom for supporting the butter, means for periodically advancing said bottom and butter, a series of spaced vertical cutters to which the butter is fed, whereby it is longitudinally cut into, a vertically movable frame carrying a horizontal cutter for severing the butter transversely, and a lug on said frame for engaging each slat of the bottom, and detaching and dropping each successively, to expose the end of the butter to the action of the vertical cutters, substantially as described.

4. In a butter molding and cutting machine, the combination of a periodically advancing bottom carrying the butter, a series of spaced vertical cutters, means for advancing said cutters to meet and cut into the advancing butter longitudinally, and a vertically movably horizontal cutter to sever the butter transversely, substantially as described.

5. In a butter molding and cutting machine, the combination of a periodically advancing bottom carrying the butter, a sliding carriage and means for advancing it to meet the moving butter, a series of spaced vertical cutters mounted on said carriage for cutting into the butter longitudinally, and a vertically moving frame mounted on said carriage and having a horizontal cutter for severing the butter transversely substantially as described.

6. In a butter molding and cutting machine, the combination of a periodically advancing bottom carrying the butter, said bottom being composed of separate detachable slats, a sliding carriage and means for advancing it to meet the butter, a vertically movable frame on said carriage having a lug engaging the slats of the bottom successively to detach and drop each from under the advanced edge of the butter, a series of spaced vertical cutters for cutting longitudinally into the advanced and exposed edge of the butter, and a horizontal cutter on the vertically movable frame for severing the butter transversely, substantially as described.

7. In a butter molding and cutting machine the combination of a stand having side rails, closer together at one end than at the other, a series of independent slats mounted upon the rails at the narrow end and forming a supporting bottom for the butter, means for feeding said slats toward the wider end, an advancing carriage with arms to receive and support the advancing slats successively, said carriage having an opening back of its arms to permit the drop of the slats successively, whereby the edge of the butter is exposed, and cutters on said carriage to cut the exposed edge of the butter into squares, substantially as described.

8. In a butter molding and cutting machine, the combination of a periodically advancing bottom for supporting and feeding the butter, a sliding carriage adapted to be moved toward the advancing butter, a series of spaced vertical cutters mounted on said carriage for cutting the advancing edge of the butter longitudinally, a vertically reciprocating frame on the carriage having a horizontal cutter for severing the butter transversely, a tilting apron mounted on the carriage to receive the cut squares and catches on the reciprocating frame for tilting the apron whereby the squares are discharged substantially as described.

9. In a butter molding and cutting machine, the combination of a periodically advancing bottom for supporting and feeding the butter, a carriage and means for moving it to and from the advancing butter, a series of spaced vertical cutters on said carriage to cut into the advancing edge of the butter, a vertically movable frame on the carriage having a horizontal cutter for severing the butter transversely, a tilting apron on said carriage to receive the cut squares, catches on the movable frame to tilt said apron, and fixed stops from under which said apron gradually withdraws, whereby its tilting movement and the return of the movable frame are controlled, substantially as described.

10. In a butter molding and cutting machine the combination of a periodically advancing bottom for supporting and feeding the butter, a carriage and means for moving it to and from the advancing butter, a series of vertical cutters on said carriage to cut into the advancing edge of the butter, a vertically movable frame on the carriage having a horizontal cutter for severing the butter transversely, a receiving board mounted on the carriage, a spring controlled apron hinged to the forward edge of said board and spring catches on the vertically movable frame for tilting the apron, substantially as described.

11. In a butter molding and cutting machine, the combination of the mold bottom for supporting the butter, the pusher frame behind said bottom for advancing it, said frame having the gravity pawl, the slide bars with ratchet teeth with which said pawl engages, and means for operating said bars, substantially as described.

12. In a butter molding and cutting machine, the sliding mold bottom and the sliding pusher frame with its front board, in combination with the slide bars having ratchet teeth, the pawl of the pusher frame engaging said teeth, the cross bar of said slide bar, the power shaft with its crank arm and the link connecting said arm with the cross bar substantially as described.

13. In a butter molding and cutting machine, the combination of the separable boards B of the mold bottom, the last board b' of said bottom, the pusher frame C having the cut away front into which board b' is adapted to withdraw and the removable supplemental board in said cut away portion substantially as described.

14. In a butter molding and cutting machine the combination of the pusher frame having the cut away front, the removable supplemental board therein, the board b' bearing on the front of the removable board and adapted to be forced back into the pusher frame,

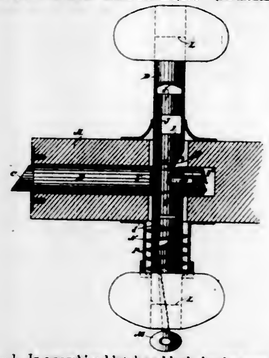
the separate boards B of the mold bottom, the series of spaced vertical cutters, the vertically movable horizontal cutter and the vertically movable detaching lug for the boards B substantially as described.

15. In a butter molding and cutting machine, the bottom boards of the mold, the pusher frame behind them having the pawl, the sliding ratchet bars engaging said pawl, and the sliding carriage with its cutters, in combination with the means for operating the bottom boards and carriage, consisting of the power shaft having the crank arm, the link connecting one of said arms with the sliding ratchet bars and the slotted link connecting the other of said arms with the carriage substantially as described.

16. In a butter molding and cutting machine the vertically movable frame carrying the horizontal cutter, in combination with the power shaft having the crank arms, the drums loosely mounted on said shaft and having the spring catches and cam tracks, the spring trip arms impinging on said tracks, the cords or cables connecting the drums with the movable frame and the springs for returning said frame substantially as described.

17. In a butter molding and cutting machine the periodically advancing mold bottom and pusher frame, the reciprocating carriage with its series of vertical cutters, and the vertically movable frame with its horizontal cutter, in combination with the power shaft having the crank arms, connections between said crank arms and the pusher frame and carriage respectively, the drums loosely mounted on the shaft, the spring catches and cam tracks on the drums, the spring trip arms, the cords or cables connecting the drums with the vertically movable frame and the springs for returning said frame substantially as described.

491,793. LATCH AND LOCK. JOHN H. ARMSTRONG, Santa Cruz, Cal. Filed Nov. 3, 1892. Serial No. 450,871. (No model.)



Claim.—1. In a combined latch and lock, having a reciprocating latch bolt with a contact lug, and a knob spindle with a cam impinging upon said lug to actuate the latch bolt, a locking pin carried by the knob spindle and adapted to be thrown into and out of engagement with the contact lug of the latch bolt, to lock and release said bolt, substantially as herein described.

2. In a combined latch and lock, having a reciprocating latch bolt with a contact lug and a knob spindle with a cam impinging upon said lug to actuate the latch bolt, a locking pin carried by the knob spindle and adapted to be projected through an opening in said contact lug and to be withdrawn therefrom to lock and release the latch bolt, substantially as herein described.

3. In a combined latch and lock having a reciprocating latch bolt with a contact lug and a knob spindle with a cam impinging on said contact lug to actuate the latch bolt, a locking pin within the knob spindle and adapted to engage and release said contact lug, and a suitable key-way through the knob and spindle whereby the locking pin is reached to be operated from without, substantially as herein described.

4. In a combined latch and lock, the combination of the reciprocating latch bolt having a perforated contact lug, a knob spindle having a cam impinging on said lug to actuate the latch bolt, a fixed guide piece within the spindle, a locking pin mounted in said piece and adapted to engage and relieve the perforated lug of the latch bolt, and suitable key-ways in the knob, the spindle and guide piece whereby the locking pin is reached to be operated from without, substantially as herein described.

5. In combination with the latch bolt having the perforated lug and the knob spindle with its cam, a fixed guide piece within the spindle, the sliding stem mounted in said piece and having end heads, the locking pin carried by one of said heads and adapted by the movement of the stem to be projected through and to be withdrawn from the contact lug of the latch bolt, and suitable key-ways in the knob and spindle to permit the entrance and engagement of a key with the heads of the sliding stem, substantially as herein described.

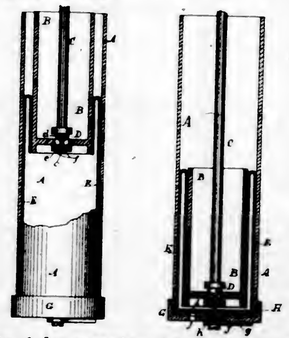
6. In combination with the latch-bolt having the perforated lug and the knob spindle with its cam, the fixed guide piece in the spindle, having the passage i^3, the spring with its holding pin in said passage, the sliding stem J in said passage adapted to be engaged and relieved by the holding pin, the engaging heads of the stem, the locking pin carried by one of said heads and adapted by the movement of the stem to engage and release the contact lug of the latch bolts, and suitable key-ways in the knob, the spindle and stem heads to receive a key for engaging the heads and relieving the stem of the holding pin, substantially as herein described.

7. In a combined latch and lock as herein described, the combination of the fixed piece I in the knob spindle having the passage i^3 with spring and holding pin therein, the sliding stem J in said passage having holes engaged by the holding pin, and end heads with offset sockets and key-ways, the locking pin carried by one of said heads, and a key having a long straight end for releasing the holding pin and a ward for engaging the end heads of the sliding stem, substantially as herein described.

8. In a combined latch and lock, the combination of the knob spindle having the limiting rib, the fixed sleeve N with its recess and stop shoulders and the freely turnable washer in the sleeve and snugly embracing the spindle, substantially as herein described.

9. In a combined latch and lock, the combination of the axially turnable and longitudinally movable knob spindle, the fixed sleeve at one end thereof, and the single coil spring secured to said spindle and to the sleeve, substantially as herein described.

491,794. PNEUMATIC REGULATING DEVICE. ARBURY BARKER, Peekskill, N. Y. Filed June 3, 1890. Renewed Dec. 9, 1892. Serial No. 454,583. (No model.)



Claim.—1. In a pneumatic regulating device the combination of the cylinder A, plunger B, flexible tube E, valve D and adjustable escape valve H, substantially as described.

2. In a pneumatic regulating device the combination of the cylinder A having opening j in its closed end, a plunger B within said cylinder, a valve D seated in the plunger head, with a valve disk H having a series of various sized openings i adapted to be brought into line with the said opening j, substantially as described.

491,795. FOUNTAIN-PEN. DAVID BRAUNEL, New York, N. Y. Filed May 14, 1890. Serial No. 351,832. (No model.)



Claim.—1. In a fountain pen, the combination with a nozzle, of a feed-plug having a feed-tongue, an air-duct extending through said plug and opening upon the inner or pen surface of said tongue, said plug provided with flat or cutaway sides forming together with the interior of the nozzle peripheral ink-ducts extending along the plug.

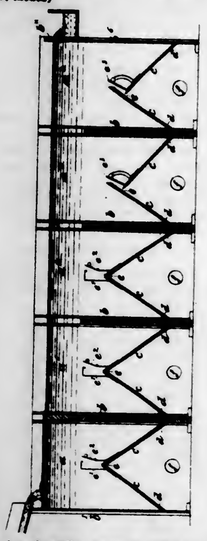
2. In a fountain pen, the combination with a nozzle, of a feed-plug having upper and lower feed-tongues, an air-duct extending

through said plug and opening upon the inner or pen surface of said tongues, said plug provided with flat or cutaway sides forming together with the interior of the nozzle peripheral ink-ducts extending along the plug.

3. In a fountain pen, the combination, with the nozzle, of a feed-plug having flat sides, upper and lower feed-tongues formed integral with the plug, and an air-duct extending throughout the length of the said plug.

4. As an article of manufacture, a feed-plug for fountain pens, consisting of a single piece of hard rubber having flattened sides, upper and lower feed-tongues formed integral with the plug, and an air-duct extending throughout the length of the said plug.

491,796. APPARATUS FOR CLEANSING SEWAGE, &c. WILLIAM BURDE, Manchester, England. Filed Oct. 17, 1892. Serial No. 449,154. (No model.)



Claim.—A series of settling tanks or compartments in juxtaposition on the same level, the partition walls being lower than the sides, each tank or compartment being provided with a false bottom, a sludge escape cock or valve below the false bottom, the latter being formed of two planes inclined upwardly toward one another and having an opening at their apex, the said opening being provided with an automatically closing flap and the said planes being provided at or near their lower edges with small holes, the total area of which is less than the area of the sludge escape cock or valve.

491,797. CULTIVATOR. ADDISON W. BUTT, Springfield, Ohio, assignor to Frances G. Butt, same place. Filed July 30, 1892. Serial No. 441,667. (No model.)

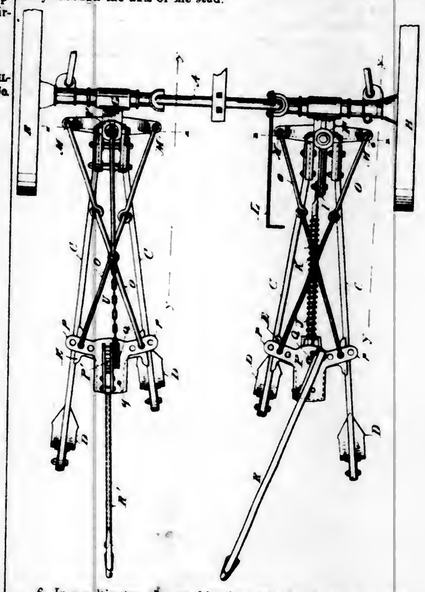
Claim.—1. In a cultivator, the combination with a frame, and a horizontally swinging beam pivoted thereto, of a plate pivotally attached to said beam and rotated horizontally, a handle secured to said plate, and a rigid connection from a fixed portion of the frame to some portion of the plate, the point of attachment being adjustable at different distances from the axis of the plate, whereby the leverage over the beam in operating the handle may be adjusted to different ratios.

2. In a cultivator, the combination with a frame and a swinging beam pivoted thereto on a vertical axis, of a plate pivoted to said beam and having holes at various distances from the pivot, and on either side thereof, a crossed connection between said plate and fixed points of the machine, and means to rotate said plate, whereby the adjustable leverage is obtained on said beam.

3. In a cultivator, the combination with a frame having a pipe-box mounted thereon provided with a vertical stud, and lateral extending horns adjacent to the stud, of a swinging beam mounted on said stud, a lever pivoted to said beam and having lateral extensions on each side of the pivot, and a crossed connection between said extensions and said horns for the purpose described.

4. The herein described pipe-box, the same consisting of a sleeve mounted on the frame and provided with a vertical stud and lateral extending horns adjacent thereto.

5. In a cultivator the hereindescribed pipe-box, the same consisting of a sleeve adapted to be mounted on the frame, and provided with a vertical stud for the cultivator beam, and with lateral extensions affording points of attachment lying in a plane passing substantially through the axis of the stud.



6. In a cultivator, the combination with the frame of a vertically swinging beam pivoted thereto, of a lever consisting of a winding segment pivotally connected to said beam, a flexible connection between said segment and a fixed point of the machine, and means to rotate said segment to wind up said connection and lift said beam.

7. In a cultivator, the combination with the frame and a vertically swinging beam, of a lever handle pivoted to said beam on a horisontal axis and rising to lift the beam, a ratchet segment adjacent thereto, a stop pawl carried by said handle and engaging with said ratchet, a disk or winding segment on said lever handle, and a flexible connection between said disk or winding segment and a fixed point on the machine for the purpose described.

8. In a cultivator, the combination with the frame and a vertically and horizontally swinging beam connected therewith, of a plate pivoted to said beam on a vertical axis and having a ratchet segment, a handle pivoted to said segment and adapted to be maintained in its adjusted position thereon, when operating vertically and to oscillate said plate horisontally, an operative connection between said plate and a point on the machine in line with the horisontal axis of the beam, and an operative connection between said lever handle and a point in line with the vertical axis of the beam, for the purpose described.

9. In a cultivator, the combination with the frame and a vertically and horizontally swinging beam pivoted thereto, of a plate pivoted to said beam on a vertical axis, a handle pivoted to said plate on a horisontal axis and adapted to oscillate the plate as well as move vertically, and connections between the frame and said plate and handle respectively, whereby the operation of the handle will effect a swinging of the beam in any direction.

10. In a cultivator, the combination with the frame, and cultivator beam, and a pipe-box mounted on the frame and provided with a vertical and lateral extension adjacent thereto, of a stud collar fitting over said stud and constituting a horizontal beam pivot, an oscillating plate pivoted to the beam on a vertical axis and having various points of attachment at equal distances from the pivot thereof, a crossed connection between said plate and the lateral extension of the pipe-box, a lever handle pivoted to said plate on a horisontal axis and adapted to oscillate the plate, and a connection between said lever handle and the vertical stud of the pipe-box substantially as and for the purpose described.

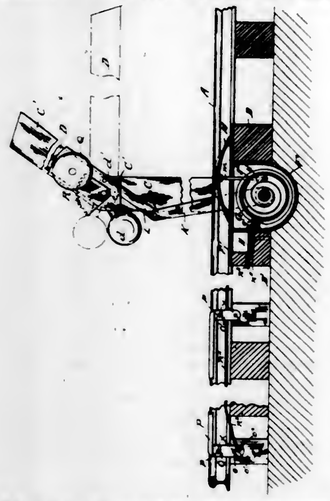
11. In a cultivator, the combination with the frame and a horizontally swinging beam pivoted thereto, consisting of branches carrying hoes, and connecting brackets between said branches, of an oscillating plate pivoted to said bracket and operative connections between said plate and frame, the said bracket and plate being provided with matching holes or recesses whereby the same may be interlocked and the oscillation of the plate itself prevented.

12. In a cultivator, the combination with a swinging beam pivoted thereto and having hoes, of a plate pivoted to said beam, a connection at one side of the pivot of the plate, from said plate to a fixed point on the machine, the said connection lying in substantially the same plane as the point to which the swinging beam is pivoted, and means to oscillate said plate, whereby the strain on the beam in swinging from side to side acts practically on the same level and without tendency to twist the beam on the pivot point of the machine.

13. In a cultivator, the combination, with a frame and a horizontally swinging beam, of a lever handle mounted on a pivot carried by the beam, and a connection, running from the handle to the frame, on which the handle acts, when moved laterally on its pivot, to swing the beam sidewise.

14. In a cultivator, the combination with a frame and a vertically swinging beam connected thereto, of a lever handle carried by the beam and operating a segment or winding-surface, and a connection attached to the frame and adapted to be shortened by being wound on said segment or surface, and thereby lift the beam.

491,798. RAILWAY SIGNALING APPARATUS. JAMES K. BYLER, Morgantown, Pa. Filed Feb. 6, 1892. Serial No. 420,604. (No model.)



Claim.—1. In a railway signaling apparatus the combination with the pivoted semaphore arm of the rotary shaft E extending transversely under a rail of the track and operatively connected with said arm, a casing loosely mounted on said shaft and connected therewith by a spring and means for automatically rotating the casing to produce a torsional strain upon the shaft, substantially as and for the purpose set forth.

2. In a railway signaling apparatus the combination with the pivoted semaphore arm of the rotary shaft E extending transversely under a rail of the track and operatively connected with said arm, a casing loosely mounted on said shaft and connected therewith by a spring, means for automatically rotating the casing to produce a torsional strain upon the shaft, and a trigger mechanism for locking said casing, substantially as set forth.

3. In a railway signaling apparatus the combination with the pivoted semaphore arm of the rotary shaft E extending transversely under a rail of the track and operatively connected with said arm, a casing loosely mounted on said shaft and connected therewith by a spring, means for automatically rotating the casing to produce a torsional strain upon the shaft, a trigger mechanism for locking said casing and means for automatically operating the trigger mechanism, all substantially as set forth.

4. In a railway signaling apparatus, the combination with the pivoted semaphore arm, and a rotary shaft operatively connected with said arm, and extending transversely under a rail of the track, of a casing loosely mounted on said shaft and connected therewith by a spring, a rod projecting from said casing and a spring plate engaging the upper end of said rod and adapted to be depressed by the wheels of a passing train, substantially as described and for the purposes specified.

5. In a railway signaling apparatus, the combination with the standard C, a semaphore arm pivoted thereto and having a weight at one end, a rotary shaft extending transversely under a rail of the track, and an arm K and link L, connecting said shaft and semaphore arm, of a casing loosely mounted on said shaft and connected therewith by a spring, a rod secured at its lower end to said casing, and a spring plate engaging the upper end of said rod and adapted to be depressed by the wheels of a passing train, substantially as described and for the purposes specified.

6. In a railway signaling apparatus, the combination with the standard C, a semaphore arm pivoted thereto and having a weight at one end, a rotary shaft extending transversely under a rail of the track, and an arm K and link L connecting said shaft and semaphore arm, of a casing loosely mounted on said shaft and connected therewith by a spring, said casing having notches on one side, a rod secured at its lower end to said casing near the side thereof, remote from said notches, a spring plate engaging the upper end of said rod and adapted to be depressed by the wheels of a passing train and thereby wind said spring in the casing, a pivoted trigger lever engaging said notches in the casing and serving to lock said casing, and means operated by a passing train for disengaging said trigger lever from the casing, as described.

7. In a railway signaling apparatus, the combination with the rotary shaft, and a semaphore arm connected with said shaft and provided with a weight adapted partly to balance it, of the spring secured at one end to said shaft and at the other end to a casing surrounding the same, a retracting plate connected to said casing and arranged adjacent to the track, and a trigger mechanism for holding said plate in depressed position, substantially as and for the purposes specified.

491,799. PROCESS OF METALLIZATION. EMILE DESBOIS, Paris, France, assignor to Charles Weber, same place. Filed Mar. 23, 1892. Serial No. 426,149. (No specimens.) Patented in England Nov. 26, 1886, No. 15,408, and in France Feb. 11, 1891, No. 196,171.

Claim.—1. A solution for use in connection with metallizing or electro plating process consisting of snail albumen and nitrate of silver, substantially as described.

2. The described process consisting in applying to or immersing in a solution of snail albumen and nitrate of silver the article to be coated, immersing the same in a bath of distilled water and dissolved nitrate of silver subjecting the article to the action of a reducing gas and finally subjecting the article to the coating step, substantially as described.

491,800. GAGE FOR COUNTING TICKETS. CHARLES H. FARNHAM, Boston, Mass., assignor of one-half to Arthur W. Crossley, same place, and Charles F. Brown, Reading, Mass. Filed May 24, 1890. Serial No. 353,015. (No model.)

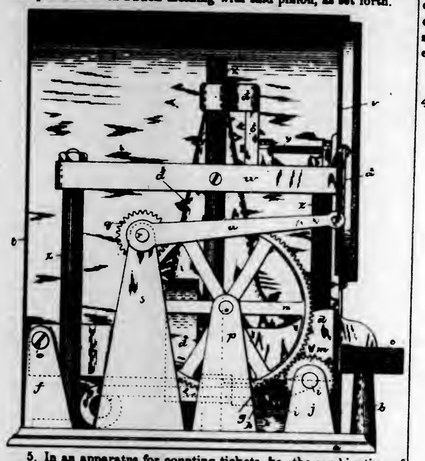
Claim.—1. In an apparatus for counting tickets, &c., the combination of a supporting bed for a package of tickets to be counted, a pivoted arm having its free end movable toward and from said bed and adapted to bear on the upper surface of the package, a movable pointer or indicator, and adjustable connections between the said pointer or indicator and said movable arm whereby a given movement of the arm with relation to the bed may be caused to produce any desired movement of the pointer or indicator, as set forth.

2. In an apparatus for counting tickets, &c., the combination of a supporting bed, a pressing surface movable toward and from said bed, an indicator, and connections between said pressing surface and indicator, said connections including a lever and a movable surface located in the plane of movement of said lever and an interposed bearing adjustable along the length of the lever, for the purpose set forth.

3. In an apparatus for counting tickets, &c., the combination of a bed, an arm pivoted at one end to a fixed support and having its free end arranged over said bed, a pointer or indicator and connections between the same and the arm whereby movements of the arm are imparted to the indicator, said connections including a part adjustable along the length of the pivoted arm a spring whereby the

arm is pressed toward the bed, and mechanism for moving the arm against the stress of said spring, as set forth.

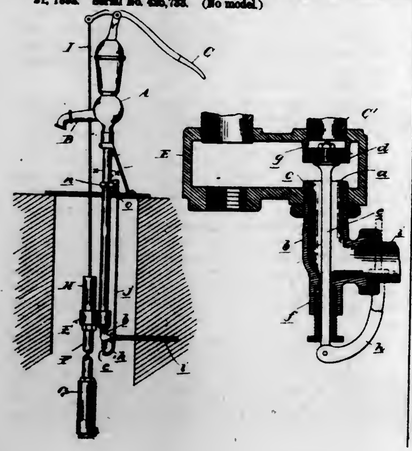
4. In an apparatus for counting tickets, &c., the combination of a bed, of a pivoted arm the free end of which is movable toward and from the bed, a fixed dial, a rotary shaft at the center of said dial having a hand or pointer at one end and a pinion at the opposite end, and a vertically movable crosshead supported by the movable arm and provided with a rack meshing with said pinion, as set forth.



5. In an apparatus for counting tickets, &c., the combination of a bed, a pivoted arm the free end of which is movable toward and from the bed, a fixed dial, a rotary shaft at the center of said dial having a hand or pointer at one end and a pinion at the opposite end, and a vertically movable crosshead having a rack engaging said pinion, and a shank or standard extending downwardly from said crosshead, and an adjustable support on the movable arm for said shank or standard as set forth.

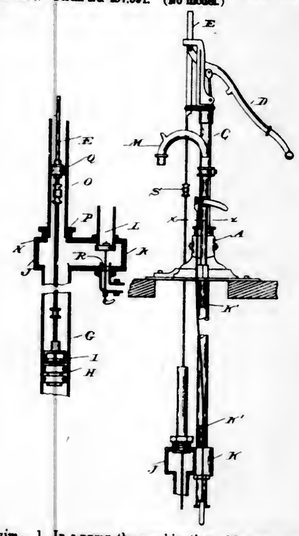
6. In an apparatus for counting tickets, &c., the combination of the ticket-supporting bed, the pivoted arm *d* the free end of which is movable toward and from said bed, the sliding support mounted on guides on said arm, means for adjusting said support lengthwise of the arm, a vertically movable crosshead bearing on said support, a fixed dial, a hand or pointer movable over said dial, and connections between said hand or pointer and the cross head whereby the pointer is moved by movements of the crosshead, as set forth.

491,801. PUMP. HENRY A. FRENCH, Lansing, Mich. Filed Mar. 21, 1892. Serial No. 425,753. (No model.)



Claim.—In a pump the combination with the standard of a curved laterally adjustable casting connected thereto having a lateral discharge formed with oppositely arranged apertures, a discharge pipe leading from one aperture, a discharge pipe leading in an opposite direction from the other aperture, a stuffing box formed on said latter pipe, a valve rod extending into the casting and carrying on its upper end a valve located between the apertures in the casting, a curved operating rod pivotally connected with said valve stem and extending up outside of the pipes, a movable collar surrounding the standard, and a lever pivoted to the collar and connected to the upper end of the operating rod, substantially as described.

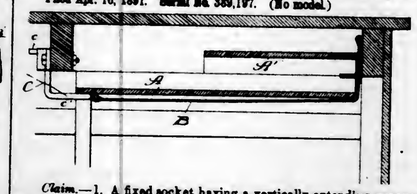
491,802. PUMP. HENRY A. FRENCH, Lansing, Mich. Filed June 24, 1892. Serial No. 437,891. (No model.)



Claim.—1. In a pump the combination with a standard and discharge pipe of a suction pipe, to one side of the discharge pipe, a coupling connecting the suction and discharge, and formed with a threaded aperture in its upper side directly over the suction pipe and of a diameter greater than the diameter of the suction, a bushing in the aperture, a forcing cylinder secured in the bushing, a pump rod passing through the cylinder, coupling and into the suction pipe, and a piston on the rod in the suction pipe, substantially as described.

2. The combination with a pump standard, of the goose neck discharge M, the coupling J having an offset portion K with which the lower end of said discharge pipe connects, the suction pipe G engaging in an aperture in the lower end of the coupling, the pump rod having a piston at its lower end and passing through the aperture W in the upper side of the coupling, the bushing P in said aperture, the pump base having an aperture in line with the suction pipe and the cap T for said aperture, substantially as described.

491,808. HOOK FOR STOCK-CARS. JOHN C. HIGHS, Chicago, Ill. Filed Apr. 16, 1891. Serial No. 389,197. (No model.)

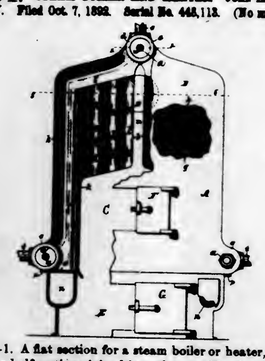


Claim.—1. A fixed socket having a vertically-extending groove *d*, and a transverse horizontal groove *d'*, above said groove *d*, said transverse groove having an inclined side, in combination with a self righting hook having a holding member *c'*, a vertical member located

in said groove *d* and capable of vertical and rotary movement therein, and a supporting member *c* co-operating with said transverse groove and riding on the inclined side thereof, whereby when said hook is elevated it drops by gravity and the holding member riding on said inclined side causes the hook to rotate in the groove *d* until the supporting member *s* of the hook lies in the bottom of the groove *d* and thereby maintains the holding member *c'*, in its proper holding position, substantially as set forth.

2. The combination of a socket provided with two grooves having inclined sides at an angle to each other, a hook rotatably and vertically movable in such socket and provided with a member adapted to engage with and support the device with which it is used, and a member to engage with one or the other of such grooves, whereby the hook is locked in a position to support such device or in a position which allows the device to be moved, substantially as described.

491,804. STEAM BOILER AND HEATER. JOHN LAPP, Rochester, N. Y. Filed Oct. 7, 1892. Serial No. 448,113. (No model.)



Claim.—1. A flat section for a steam boiler or heater, composed of two similar half-sections joined in a plane and having their opposite sides or faces corrugated, with water spaces within said half-sections, the latter being formed at their upper ends with parts or heads lapping upon each other and direct communication for water between them, and fastening bolts for the half-sections passing through said heads, substantially as shown and described.

2. A steam boiler consisting of a series of flat sections joined side by side each containing two water spaces (one in each half of the section) connected at the top, the opposing walls of the sections being similarly corrugated, the two extreme or outside troughs between corrugations of each section joining respectively the like troughs in the adjacent section to form continuous descending flues for the smoke, the walls of said flues being imperforate and unbroken, substantially as shown.

3. A steam boiler or heater consisting of sections joined, and having rows of vertical heat passages, and water spaces alternated with said rows of heat passages and separated therefrom by corrugated partitions, and descending smoke flues communicating with horizontal flues beneath the boiler, substantially as shown and described.

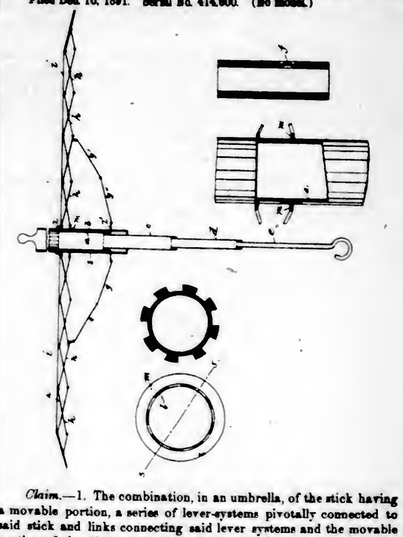
4. A steam boiler composed of joined sections, and having rows of heat passages and water spaces alternated and divided by corrugated partitions, and descending smoke flues communicating with horizontal flues beneath the boiler, said rows of heat passages and the water spaces being in parallel planes crossing the boiler, substantially as shown and described.

5. A steam boiler composed of joined sections, and having parallel rows of heat passages and water spaces alternated, and descending smoke flues at the sides of the boiler, the water spaces being divided by cross partitions, *y*, near the sides of the boiler, substantially as and for the purpose specified.

6. A steam boiler composed of sections joined and having parallel rows of heat passages and descending smoke passages terminating each of said rows of heat passages, said heat and smoke passages being alternated with water spaces in planes crossing the boiler, the water spaces being divided by cross partitions near the sides of the boiler and connecting the adjacent walls of said smoke passages, substantially as shown and described.

7. A steam boiler composed of sections joined and having parallel rows of heat passages and descending smoke passages terminating each of said rows of heat passages, said heat and smoke passages being alternated with water spaces in planes crossing the boiler, the water spaces being divided by cross partitions near the sides of the boiler and connecting the adjacent walls of said smoke passages, said cross partitions being perforated near their upper ends, and spaces beneath them, substantially as and for the purpose specified.

491,805. FOLDING UMBRELLA. LENA LINDER, Berlin, Germany. Filed Dec. 10, 1891. Serial No. 414,600. (No model.)

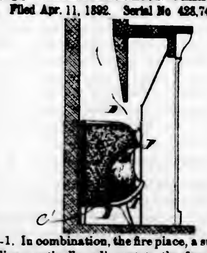


Claim.—1. The combination, in an umbrella, of the stick having a movable portion, a series of lever-systems pivotally connected to said stick and links connecting said lever systems and the movable portion of the stick, substantially as described and for the purposes specified.

2. The combination, in an umbrella, of the stick formed of telescopic sections, a plurality of lever-systems each of which is pivotally secured to a movable and an immovable section of said stick, and links connecting said movable section with said lever-systems, substantially as and for the purposes specified.

3. The combination, in an umbrella, of the stick formed of telescopic sections, the upper of which sections is immovable and formed above and below its center with a series of slots and the adjacent movable section formed at its extremities with outwardly extending projections moving in said slots, a plurality of lever-systems one of the inner levers of each of which systems is pivotally secured to the upper projection of said movable section of the stick and the other of the inner levers of each system being secured to about the center of the immovable section of the stick, links pivotally secured at their inner ends to the lower projections of said movable section and at their outer ends to said levers, and means for holding said umbrella in its open position.

491,806. HEATING APPARATUS. PHILIPPE MABONNEAU, Nevers, France. Filed Apr. 11, 1892. Serial No. 428,747. (No model.)

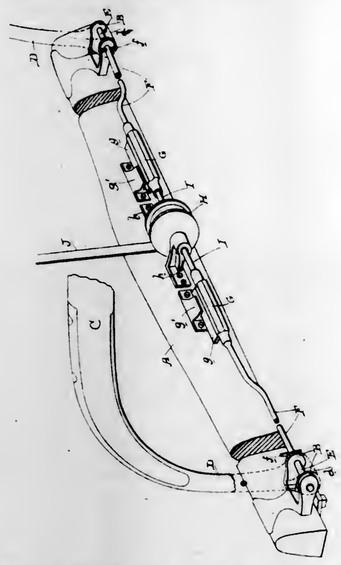


Claim.—1. In combination, the fire place, a supplemental receptacle C, extending vertically adjacent to the fire place adapted to receive the filling and having a bottom C' to support the same, and the dividing wall between the fire place and supplemental receptacle consisting of the grate bars set on end and extending vertically with spaces between them whereby the vertical face of the filling in the supplemental receptacle is exposed between the vertical grate bars thus forming a vertical reflecting wall, substantially as described.

2. In combination the open hearth fire place, a series of curved grate bars forming the back wall thereof and extending up from the main bars and forwardly over the said open hearth, and the supplemental receptacle on the opposite side of the said grate bars, adapted to receive the filling and leave the front part of the same exposed between the grate bars to form a reflecting back wall, said supplemental receptacle extending vertically adjacent to the open fire place and having an independent bottom C for supporting the said filling substantially as described.

3. In combination on the open hearth fire place, a series of grate bars set on end forming the back of the same, said bars curving vertically and being arranged in relation to each other to form a wall curved from side to side, and the supplemental chamber on the opposite side of the said grate bars, having a bottom C independent of the grate bars, substantially as described.

491,807. HORSE-DETACHER. IRVING A. MCCARLIN, Santa Clara, Cal., assignor of one-half to James A. Allen, same place. Filed Aug. 19, 1892. Serial No. 443,512. (No model.)

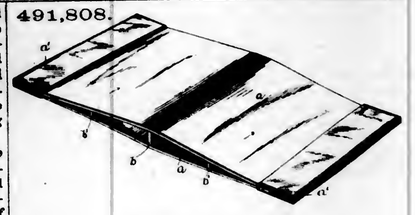


Claim.—An improved horse detaching apparatus, consisting of the vehicle axle having end clips for the shafts, the central bearing and a drum mounted therein, the oppositely moving rods having straight outer ends formed into thill coupling bolts adapted to engage the shaft clips from their inner sides, the internally threaded slides G on the inner ends of the rods having flanges extending from them parallel with the axle, the slotted guide pieces *g'* secured to said axle and receiving and guiding said flanges, the cross pins or stops *f* in the outer ends of the rods adapted to come in contact with the shaft clips to limit the outward movement of the rods, and the shaft I mounted in the central bearing and having exteriorly-threaded outer ends adjustably fitted to the slides, all constructed and arranged to operate, as herein described.

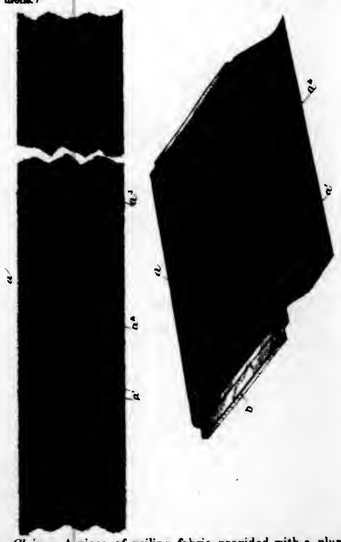
491,808. BOARD FOR WINDING VEILS. SIMON OPPENHEIMER, New York, N. Y. Filed Nov. 8, 1892. Serial No. 451,308. (No model.)

Brief.—The board is adapted for winding veilings which are thicker at the borders than at other parts. The material being wound in the direction of the arrows the bolt, when completed, will be of uniform thickness.

Claim.—A board for winding veils, consisting of two pieces or strips of suitable material fastened together at their ends and having separating braces secured between the central portions of said pieces, substantially as described.

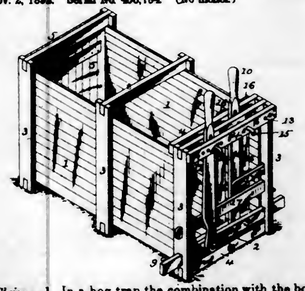


491,809. CONTINUOUS VEILING FABRIC. SIMON OPPENHEIMER, New York, N. Y. Filed Nov. 17, 1892. Serial No. 452,291. (No specimens.)



Claim.—A piece of veiling fabric provided with a plurality of veiling patterns, each pattern being composed of a raised ornamentation, a blank space being left between each two patterns, whereby patterns may be severed without the mutilation of either, substantially as described.

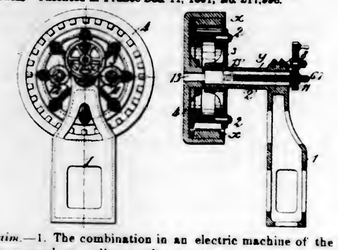
491,810. HOG-TRAP. FRANK R. PATCHETT, Reddick, Ill. Filed Nov. 2, 1892. Serial No. 450,784. (No model.)



Claim.—1. In a hog trap the combination with the body or passage-way, and holding or grasping mechanism, composed of a stationary jaw 6, an adjustable jaw 7, formed at the side of a lever 8, the lever 8 having its fulcrum on a transversely adjustable slide bar 9, and a lever 10 for adjusting the slide bar 9, substantially as set forth.

2. In a hog trap the combination with the body or passage-way, and holding or grasping mechanism composed of a stationary jaw 6, an adjustable jaw 7 formed at the side of a lever 8, the lever 8 having its fulcrum on a transversely adjustable slide bar 9, and a lever 10, and fulcrum link 11, for adjusting the slide bar 9, and locking mechanism for the levers 8, and 10, substantially as set forth.

491,811. ALTERNATING-CURRENT GENERATOR. OCTAVE PATIN, Paris, France. Filed July 8, 1892. Serial No. 439,440. (No model.) Patented in France Dec. 11, 1891, No. 217,996.



Claim.—1. The combination in an electric machine of the two crowns arranged at a distance from each other and connected by bolts 2, the interposed plates 18 arranged parallel with the heads, and the spools consisting of the rectangular open frames extending transversely of the heads and across the intervening plates, said frames being secured to the heads and having rounded ends to receive the wire wound thereon, substantially as described.

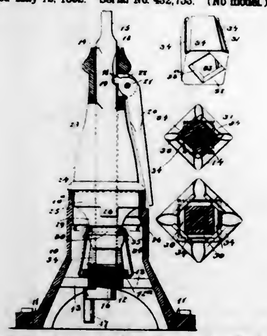
2. In combination the magnet, the tubular support therefor, the shaft extending concentric with said support, the armature ring carried by the said shaft and having a flange extending from its radial supporting arms laterally to one side and over the magnet, and means for withdrawing the magnet from the armature, substantially as described.

3. In combination the standard having a tubular projection on one side, the magnet supported on the outside of and at the end of said projection, the shaft 13 having an extension at the end of the said tubular projection, the armature ring supported on the said shaft extension and having a forwardly projecting flange over the magnet ring, the means at the end of the tubular support for retracting the magnet along the tubular support and the connections therefrom to the magnet extending alongside the said tubular support, substantially as described.

4. In combination, the magnet, the ring armature overhanging the same, the internal teeth on said overhanging portion, and the second series of teeth carried by the armature and projecting outwardly within the magnet, both of said series of teeth being radially arranged substantially as described.

5. In combination the magnet, and the ring armature having the series of spools formed about projecting teeth and the series of unwound projections opposite said spools, substantially as described.

491,812. SWITCH-STAND. MORRIS G. PRUTSMAN, Lehigh Gap, Pa. Filed May 12, 1892. Serial No. 432,753. (No model.)



Claim.—1. A switch-stand of the character described, comprising a hollow base, having a vertical crank spindle journaled therein and a channel produced in one side, a vertically movable and revoluble column held to slide on and turn with the spindle, said column having lugs near its lower end to enter the channel of the base, and a hand lever fulcrumed in a recess of the column, and having its inner end arranged to engage the spindle, substantially as described.

2. A switch stand comprising a hollow base, having a vertical crank spindle journaled therein, a channel produced in one side of the base, a movable column held to slide on and turn with the spindle, lugs produced near the lower end of the column, and adapted to enter the channel in the base, a hand lever fulcrumed in a recess of the column and having an inner end to engage the spindle, and means for locking the column to the spindle, substantially as described.

3. In a switch-stand, the combination with the base having a crank spindle journaled therein, a movable column held to slide on the spindle and adapted to be locked to the base, a fixed tenon arranged in the lower portion of the base, and a dilating spring having in one end a mortise to engage the tenon, and its opposite end formed into arms adapted to clamp the sides of the column, substantially as described.

4. The combination, with the hollow base, the fixed tenon therein, and the crank spindle journaled in the base, of the movable column held to slide on the spindle and having flattened sides at its lower end, and the dilating spring having a base portion with a mortise therein, to engage the tenon of the base, and spring side arms held to press against the flat sides of the column, substantially as described.

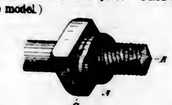
5. The combination with the base, the fixed tenon therein, the crank spindle journaled in the base, and the movable column held to slide on the spindle, and having the circumferential groove with flat back walls, of the dilating spring having a base portion with a mortise to engage the tenon of the base, and upwardly extending spring side arms with ribbed free ends to engage the groove of the column, substantially as described.

6. In a switch stand, the dilating spring comprising a flat base portion having a central mortise, and upwardly extending side arms terminating at their free ends in ribs, substantially as shown and described.

491,813. PROCESS OF MAKING CARAMEL MALT. REINHARDT RAHR, Manitowoc, Wis. Filed June 15, 1892. Serial No. 436,835. (No specimens.)

Claim.—The process of making caramel malt which consists in soaking or steeping the malt kernels in water, separating them from the water, then subjecting the malt to a low degree of dry heat, gradually raising the temperature of the malt to about 60° Reaumur and maintaining said temperature until the starch products are converted into maltose, and finally raising the temperature to a point short of carbonization and continuing the application of the elevated temperature until the maltose has been converted into caramel, substantially as described.

491,814. LOCK-NUT. GEORGE C. RICHARDS, Sisson, Cal., assignor of one-half to R. A. Shade, same place. Filed Apr. 1, 1892. Serial No. 427,397. (No model.)

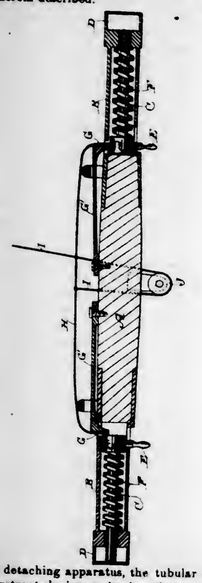


Claim.—A lock-nut, consisting of a coiled spring, the interior surface of which is formed with screw-threads, the entrance one of which is of greater diameter than the remainder, said nut having its normal interior diameter less than that of the bolt on which it fits, whereby said nut in seating itself on the bolt is forcibly expanded, and is thereby, on account of its springy character, tightened upon said bolt, substantially as herein described.

491,815. HORSE-DETACHER. GEORGE RILEY, Vallejo, Cal. Filed Sept. 27, 1892. Serial No. 447,080. (No model.)

Claim.—1. A horse detaching device consisting of a whiffletree having the tubular ends, plungers reciprocating within the tubes with pins projecting outwardly through the ends thereof, and adapted to engage the ends of the traces within keepers which are fixed exterior to the ends of the tubes, springs acting against the inner faces of the plungers tending normally to force them inwardly, and withdraw the pins from the traces, thumb-pieces connected with the plungers whereby the latter may be forced outwardly against the tension of the springs, spring latches fixed to the whiffletree and having projections which fall in behind the plungers and retain the pins in engagement with the traces, a wire connected with the ends of the spring latches passing over guide pins, and a wire or cord connected with the center of the first named wire so that a pull upon it depressing the first named wire will withdraw the latches and allow the

springs to act upon the plungers and disengage the pins from the traces, substantially as herein described.



2. In a horse detaching apparatus, the tubular whiffletree ends with the spring retracted pins projecting through their ends and adapted to engage and hold the traces when the latter are connected with the whiffletree, thumb pins by which the pins are forced outwardly against the action of the springs, and spring latches engaging and retaining the pins in place when forced out, a wire or cord connecting with said latches and actuated from the vehicle to withdraw them whereby the springs operate to disengage the traces from the whiffletree ends, and a spring catch slotted to engage the hip strap of the harness upon the horse, said catch being disengaged from the hip strap simultaneously with the disengagement of the traces, whereby the hip strap and hold-back straps are disengaged from the horse and left upon the shafts, substantially as herein described.

491,816. TAKE-UP MECHANISM FOR LOOMS. ROBERT J. RISK, Paterson, N. J., assignor to Benjamin Eastwood, same place. Filed Aug. 16, 1892. Serial No. 443,381. (No model.)



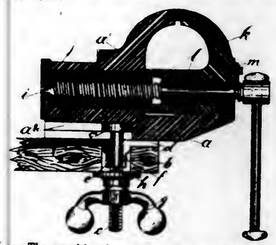
Claim.—1. In a take up mechanism, the combination with the shaft, of a roller loosely arranged on said shaft, a circular disk secured to said roller and provided with an annular flange, a collar secured to the shaft and provided with a groove, a pawl resting with one end in said groove and provided at its other end with a recess, adapted to engage the annular flange of the disk, a hand wheel provided with two pins and adapted to engage and operate said pawl, and a spiral spring adapted to bind the recess of the pawl and the flange together, all said parts, substantially as described and for the purposes set forth.

2. In a take up mechanism, the combination with the shaft, of a collar secured to said shaft and provided with a radially extending pin, a hand wheel loosely arranged on said collar, and provided with a groove or recess, adapted to be engaged by said pin, a pawl provided with a recess and adapted to be operated by said hand wheel, a roller provided with an annular flange, said flange being adapted to be engaged by the recess of the pawl, and a spiral spring normally adapted to bind said recess of the pawl and flange together, all said parts, substantially as described and for the purposes set forth.

3. In a take up mechanism, the combination with the shaft, of a roller loosely arranged on said shaft, a circular disk secured to said roller and provided with an annular flange, a collar secured to said shaft and provided with a radially extending pin, a hand wheel loosely arranged on said collar and provided with a groove or recess, adapted to be engaged by said pin, said hand wheel being also provided with two pins, a pawl arranged between said pins and resting with one end in a groove arranged in a collar, and provided at its other end with a recess, adapted to engage the annular flange of the disk, and a spiral spring secured with one end to the pawl, and with its other end to a pin arranged on the collar, all said parts, substantially as described and for the purposes set forth.

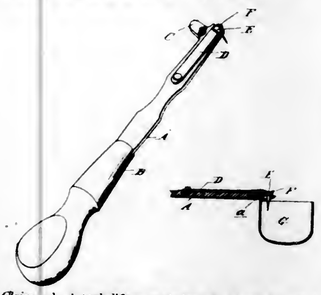
4. In a take up mechanism, the combination with the shaft, of a roller loosely arranged on said shaft, a circular disk secured to said roller and provided with an annular flange, a collar secured to the shaft and provided with a groove, a pawl resting with one end in said groove and provided at its other end with a recess, adapted to engage the annular flange of the disk, a hand wheel loosely arranged on said collar and adapted to operate said pawl, a spiral spring for controlling the return motion of said pawl, and a hand wheel secured to the roller, all said parts, substantially as described and for the purposes set forth.

491,817. PARALLEL VISE. JOSEPH SCHWENDEMANN, Reutlingen, Germany. Filed Apr. 30, 1892. Serial No. 431,375. (No model.) Patented in Germany Oct. 23, 1890, No. 57,106, and in England Oct. 31, 1891, No. 1,107.



Claim.—The combination with a vise having a slot a^3 in its base, of the screw c having a pin f and a head c' in said slot and on which the base may turn and slide, the plate d having a depending slotted hub e through which said screw projects with its pin in the hub slot, the washer h, and the nut g on the lower end of the screw, substantially as set forth.

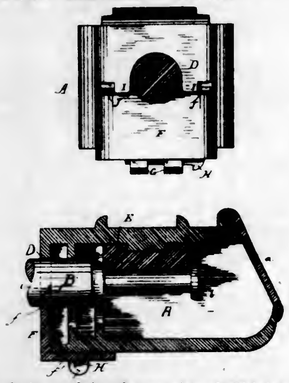
491,818. TACK-LIFTER. MARK A. SHELDON, Detroit, Mich. Filed Jan. 21, 1892. Serial No. 418,751. (No model.)



Claim.—1. A tack lifter consisting of a shank having a claw at its end formed with a centrally recessed upper face and a spring secured to the shank extending forward and bent down or curved at its end forming a foot normally resting in said recess, and having an upturned lip at its end substantially as described.

2. In a tack lifter the combination with the handle, of a claw having a beveled under portion, a recess at the end of the claw having a bottom formed in an inclined plane and vertical side flanges, a spring secured on the shank extending down over the claw having an upturned lip at its end and a depending foot entering the recess and adapted to clamp the head of the tack therein, substantially as described.

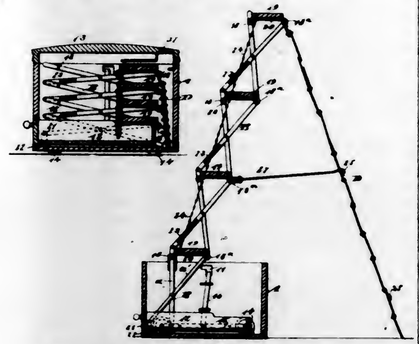
491,819. CAR-AXLE BOX. JACOB S. SPEER, Springfield, Mo. Filed Oct. 5, 1892. Serial No. 447,908. (No model.)



Claim.—1. A car axle box the rear plate of which is provided with the recesses i on either side of the opening through which the axle enters the box, in combination with a false or removable back having lugs which enter the said recesses, and means for securing the said back or removable plate to the axle box, substantially as set forth.

2. In combination with a car axle box having the rear plate thereof provided with the recesses i and the overhanging lugs I, in combination with the false or removable back F provided with the lugs J situated on either side of the curved bearing which rests against the under side of the axle, the perforated flange or plate f adapted to fit over lugs on the bottom of the car axle box, and the keys which hold the false back or removable plate in place, substantially as set forth.

491,820. STEP-LADDER. WILLIAM P. STEER, Belleville, N. J. Filed Apr. 12, 1892. Serial No. 428,815. (No model.)

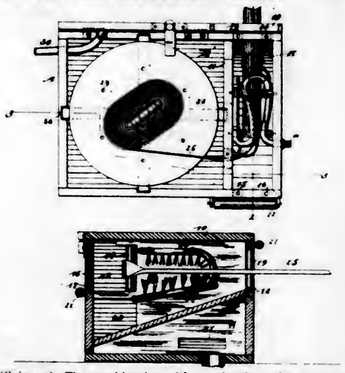


Claim.—1. A step ladder consisting of lazy-tongs sides, front and rear essentially parallel cross bars connecting the side lazy-tongs, steps hinged upon the rear bars, and a locking device carried by the steps and adapted for engagement with the front bars of the tongs, substantially as shown and described.

2. A ladder consisting of lazy-tongs sides, essentially transversely aligning cross bars connecting the side lazy-tongs, steps hinged to the rear cross bars and having locking engagement with the front cross bars, a chain or cable connection between all of the steps, a folding rear support connected with the body of the ladder, and braces and stays for said support, substantially as specified.

3. The combination, with a box, of a ladder consisting of side lazy-tongs pieces secured at their lower ends within the box, front and rear cross bars connecting the lazy-tongs sides, steps hinged to the rear cross bars and having locking engagement with the front cross bars, a rear support pivotally connected with the upper portion of the body of the ladder and consisting of lazy-tongs, locking devices connected with the rear support of the ladder, and a brace connection between the ladder and its rear support, substantially as shown and described, whereby the body of the ladder and its support may be folded down within the box or be carried outward therefrom, substantially as and for the purpose specified.

491,821. HOSE-WASHER. JOHN K. TABER, Fall River, Mass. Filed June 28, 1892. Serial No. 438,306. (No model.)



Claim.—1. The combination with a casing formed into two communicating compartments, of a perforated piping in one compartment, and a rotary table or reel, for the soiled hose, journaled removably in the other compartment and from which the hose may be unwound and passed through the connecting opening into the washing compartment, substantially as set forth.

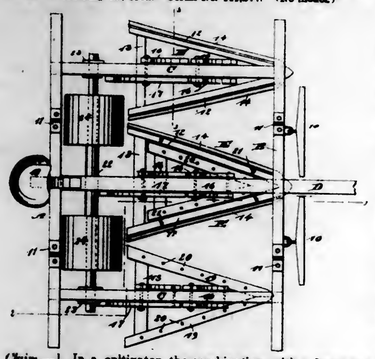
2. The combination with a casing formed into two communicating compartments, of a washing piping in one compartment, and a rotary table or reel in other compartment having apertures and removable pins, substantially as set forth.

3. A hose washer comprising a casing having a hinged lid closing its top, and divided into two communicating compartments both closed by said lid, a washing-piping in one compartment and a horizontally turning reel in the other compartment, substantially as set forth.

4. In a device for washing hose, the combination, with a receptacle provided with a partition dividing it into two compartments, a basin and a tunnel compartment, the tunnel compartment being provided with an inclined floor and the partition with openings at the lower portion of the floor, one above the other, communicating with the basin compartment, the upper opening being provided with a friction roller, the partition beneath the floor of the tunnel compartment being provided with an outlet opening located some distance from the floor of the receptacle, and an offtake pipe leading into the receptacle near the outlet, of a reeling device located in the basin compartment, and coils of perforated pipe spaced from each other and located in the tunnel compartment, which tunnel compartment is provided with outlets through which the hose after being washed is passed, as and for the purpose specified.

5. In a device for washing hose, the combination, with a receptacle provided with a partition dividing it into two compartments, a basin and a tunnel compartment, the tunnel compartment being provided with an inclined floor and the partition with openings at the lower portion of the floor, one above the other, communicating with the basin compartment, the upper opening being provided with a friction roller, the partition beneath the floor of the tunnel compartment being provided with an outlet opening located some distance from the floor of the receptacle, and an offtake leading into the receptacle near the outlet, of a reeling device located in the basin compartment, coils of perforated pipe spaced from each other and located in the tunnel compartment, which tunnel compartment is provided with outlets through which the hose after being washed is passed, a cover adapted to close the receptacle, and a perforated pipe carried by the cover and so located as to pass over the reeling device to direct a spray thereon, as and for the purpose specified.

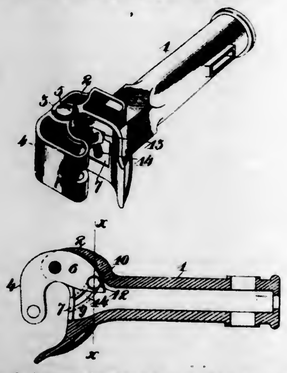
491,822. CULTIVATOR. WILLIAM A. WAGNER, Central City, Iowa. Filed July 26, 1892. Serial No. 441,277. (No model.)



Claim.—1. In a cultivator, the combination, with a frame constructed in sections, the said sections having a hinged connection, of triangularly shaped separators suspended from the cross bars of the sections of the frame, one alongside of the other, the said separators being provided with side plates inclined downward and outward, harrow frames removably located within the separators, teeth carried by the frames, and an adjustable link connection between the separators and the cross bars of the frame sections, as and for the purpose specified.

2. In a cultivator, the combination, with a frame constructed in sections, the sections having hinged connection and provided with cross bars, of separators located beneath the cross bars, the separators being essentially of triangular shape, their contracted ends facing forward, plates secured to the outer side surfaces of the separators and inclined downwardly and outwardly, the lower ends of the plates extending below the lower edges of the side pieces and having an outward curve, harrow frames removably secured within the separators, adjustable link connections between the separators and the cross bars of the frame, a shaft carried by the sections of the frame and located back of the separators, and rollers located upon the shaft, one immediately opposite the space intervening each two separators, as and for the purpose set forth.

491,828. CAR-COUPLING. WILLIAM J. WALKER, St. Louis, Mo. Filed July 6, 1892. Serial No. 439,342. (No model.)

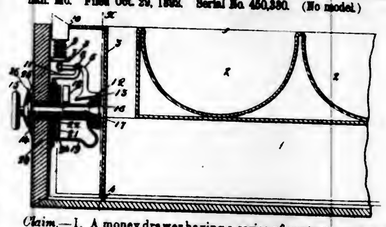


Claim.—1. A car coupler comprising a hook or knuckle, an opening formed in the tail end of the same, a pin 9 located in the said opening, and an opening 15 formed in the bottom of the said drawhead for receiving the lower end of the said pin, substantially as described.

2. A car coupler comprising a draw-head, a throat 7 formed therein, curved depressions 13 and 14 formed in the upper and lower walls of the same, an opening 15 formed in the lower of said walls and at the termination of the depression 14, and a pin 9 carried by the hook the lower end of which is adapted to be received by the said opening 15 substantially as described.

3. A car coupler comprising a draw-head 2, a throat 7 formed therein, curved depressions 13 and 14 formed in the upper and lower walls of the same, an opening 15 formed in the lower of said walls at the termination of the depression 14, a knuckle 4 movably secured to the said draw-head and provided with the tail 6, and a pin 9 having a head 10 carried by the said knuckle, substantially as set forth.

491,824. ELECTRIC-ALARM MONEY-DRAWER. WILLIAM J. WALKER, St. Louis, assignor of one-half to Alexander L. Bedford, Savannah, Mo. Filed Oct. 29, 1892. Serial No. 450,380. (No model.)



Claim.—1. A money drawer having a series of contacts arranged in a circle and interrupted by a space, a rotatable handle having a contact co-operating with said contacts and said space, a lock for said drawer, and suitable means for operating said lock when the handle is brought opposite the space between the contacts, substantially as set forth.

2. In a money drawer, a rotatable handle movably secured to the drawer, a spring for restoring the handle to its normal position connected with one end of the circuit, a cone piece at the rear end of said handle carrying a yoke, a contacting lug on said yoke, and contact plates co-operating with said lug, substantially as set forth.

3. In a money drawer, a rotatable handle secured to the wall of the drawer, an insulating annular disk adapted to be secured around said handle, an annular segmental plate attached to said disk having a series of contact plates, and a suitable contact on said handle co-operating with said contact plates, substantially as set forth.

4. In a money drawer, the curved lever 5 having an expanded portion 12, insulating material 13, the arm 11 pivotally supporting said lever at the point 6 forward of said curve, a vertically sliding rod 7, lug 8, bevel latch 10, coiled spring 9 between said lug and latch, and means for operating said lever, substantially as set forth.

5. A money drawer comprising a rotatable handle movably secured thereto, an insulating annular disk surrounding the handle and secured to the front wall of the drawer, an annular segmental plate attached to said disk and having a series of contact plates, exposing an insulated segment on said disk, a battery wire connected to the plate carrying the contact plates, means on said handle for co-operating with said contact plates, and suitable connections between said handle and the other wire of the battery, substantially as set forth.

6. A money drawer comprising a rotatable handle movably secured thereto, an insulating annular disk surrounding the handle, contact plates on said disk exposing an insulating segment on said disk, a battery wire leading to said contact plates, a cone piece at the rear end of said handle, a yoke secured to said cone piece and carrying a contacting lug, a spring for restoring the handle to its normal position co-operating with said cone piece, insulating material between the front end of said spring and the wall of the drawer, and a second battery wire connected to the front end of said spring, substantially as set forth.

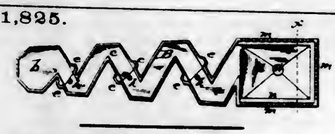
7. In a money drawer, a suitable lock, an annular number plate, a rotatable handle passing through said plate and provided with a suitable index to co-operate therewith, a cone piece at the rear of said handle, means co-operating with the cone piece for operating the lock, and a spring co-operating with said cone piece for restoring the handle to its normal position, substantially as described.

491,825. FEED-WATER APPARATUS. WILLIAM V. WALKER, Moravia, N. Y., assignor of one-half to Henry M. Jewett, same place. Filed Nov. 3, 1892. Serial No. 450,835. (No model.)

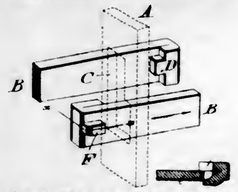
Claim.—1. A feed water purifier constructed in sectional parts, connected by tongue and groove joints in their vertical walls.

2. A feed-water purifier consisting of sectional parts, having their vertical walls connected by tongue and groove joints in their vertical walls, and a flange on each section projecting under the adjoining section, and means to secure said flanges.

491,825.



491,826. METAL FENCE. WILFORD WARNER, Philadelphia, Pa. Filed May 7, 1892. Serial No. 432,128. (No model.)



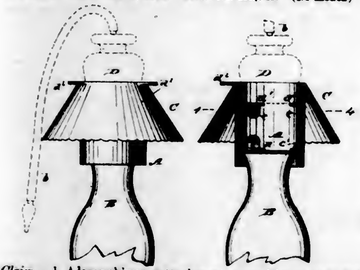
Claim.—1. A post with a slot which is wider at bottom than at top, and bars with an interlocking tongue and groove on the respective ends thereof, occupying the wide portion of said slot, said parts being combined substantially as described.

2. In a fence, metal bars having portions bent on themselves, with tongues and grooves on the ends of said portions, said parts being combined substantially as described.

3. Posts having vertical slots therein, in combination with rails having doubled ends with tongues and grooves, said slots being slightly wider at top than the thickness of a rail end, and at bottom slightly wider than the combined thickness of the ends of two adjacent rails, substantially as described.

4. In a fence, metal bars having portions bent on themselves, with tongues and grooves on the ends of said portions, and lugs on the sides of said bars, substantially as described.

491,827. LAMP-CHIMNEY ATTACHMENT FOR MEDICAL VAPORIZING AND HEATING PURPOSES. JOSEPH R. WEHMAN, East Liverpool, Ohio. Filed May 9, 1892. Serial No. 432,349. (No model.)



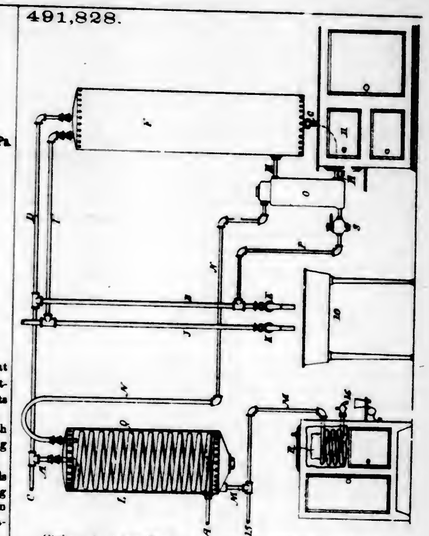
Claim.—1. A lamp chimney attachment, comprising an open ended tube A having an upper and lower series of projections d' d punched from its outer side inwardly and the series of apertures formed by the removal of the material forming the said projections, substantially as set forth.

2. A lamp chimney attachment, comprising an open ended tube having upper and lower apertures, upper and lower internal projections and the external depending conical cap C secured at its contracted end to the upper edge of the said tube, substantially as set forth.

3. A lamp chimney attachment for medical vaporizing and heating purposes, constructed substantially as described, of an independent tube A, of larger area than the top of the lamp chimney, and having two rows of lateral perforations c c', one above the other, internal supporting projections d d', upper outer supports or projections d^3, and a downwardly flaring cap C, essentially as and for the purposes herein set forth.

491,828. APPARATUS FOR PURIFYING, STERILIZING, AND FILTERING DRINKING-WATER OR OTHER POTABLE LIQUIDS. SIMEON L. WISE, Washington, D. C. Filed Apr. 26, 1892. Serial No. 430,712. (No model.) Patented in England Mar. 22, 1892, No. 5,068, and in France Mar. 22, 1892, No. 220,346.

491,828.

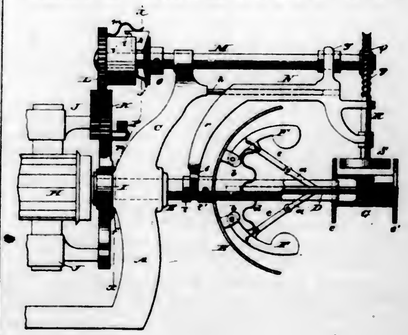


Claim.—1. A sterilized water service apparatus, a feed water supply thereto, and a thermal valve normally stopping the passage from said feed water supply to said sterilized water service apparatus, in combination with a hot water circuit in operative contact with said thermal valve, the water flowing through said hot water circuit having no communication with the water in said feed water supply, substantially as set forth.

2. A sterilized water service apparatus, a feed water supply thereto, and a thermal valve normally stopping the passage from said feed water supply to said sterilized water service apparatus, in combination with a hot water circuit in operative contact with said thermal valve, the water flowing through said hot water circuit having no communication with the water in said feed water supply, and a filter in said feed water supply for filtering the feed water to said sterilized water service apparatus before it reaches said thermal valve, substantially as set forth.

3. The casing O, having outer jacket 14, and inner chamber 13, said jacket and chamber having no communication with each other, in combination with the pipes H, H, of a hot water circuit communicating with said jacket 14, the feed water supply P, communicating with said chamber 13, the delivery pipe N, leading from said chamber 13, and the thermal valve located within said chamber 13, so as to be controlled by the temperature of the water therein, said valve controlling the outlet to said delivery pipe N, substantially as set forth.

491,829. ELECTRIC-MOTOR REGULATOR. JOSEPH A. WILLIAMS, Canal Dover, Ohio. Filed Feb. 11, 1892. Serial No. 421,137. (No model.)



Claim.—1. The combination with the armature shaft, a centrifugal governor having a spindle provided with a pair of friction disks or gears, and the brush carrying arm having a toothed sector, of a shaft parallel with the drive shaft and geared to the said sector, a sliding frame in which one end of said shaft is mounted, a transverse shaft mounted in said sliding frame, geared to the shaft carried thereby and provided at its lower end with a friction disk or gear between said parallel disks or gears, substantially as set forth.

2. The combination with the armature shaft, its pedestal A having an upward projecting arm C provided with a horizontal rod *h* parallel with the said shaft, a centrifugal governor on the armature shaft beneath said rod, and a pair of friction disks or gears *e e'* carried by the spindle of said governor, of a brush carrying arm I having a toothed sector K on its upper end, a sliding frame N mounted on said rod and provided with a forked lower end *s*, collars *t t'* on the armature shaft at opposite sides of said fork, a shaft M journaled in the upper end of arm C and journaled at its other end in a bearing *g* of the frame N, a pinion on the inner end of shaft M meshing with the toothed sector, and the transverse shaft R mounted in the frame N, geared at its upper end to shaft M and provided at its lower end with a friction disk or gear S between the two disks *e e'*, substantially as set forth.

3. The combination, with the toothed sector K, and the shaft M provided with the beveled collar O, of the pinion L mounted loosely on the shaft M, and furnished with the spring-pressed wedge *k* having the arm *l*, and the curved wedge P carried by the toothed sector, substantially as specified.

4. The combination with the armature shaft and its brush-carrying arm provided with a sector, and a releasing device near one end thereof, of a governor shaft operated therefrom and provided with a loose pinion, and a locking device connecting the said shaft and pinion; said locking device being in the path of the said releasing device to be released thereby and render the said pinion inactive, substantially as set forth.

5. The combination with the armature shaft provided with a governor, a parallel shaft driven from the governor and having a loose pinion and a locking device connecting the pinion with its shaft, of the brush carrying arm provided with a toothed sector meshing with said pinion and a pivoted spring pressed wedge at one end of said sector to engage said locking device and release it, substantially as set forth.

6. The combination with the armature shaft provided with a governor, a parallel shaft driven from the governor and having a loose pinion at one end, a beveled toothed disk, a spring *j* pressing the pinion and disk apart, and a spring pressed locking wedge *k* connecting the pinion and disk and having a projection *l*, of the brush carrying arm provided with a toothed sector meshing with said pinion and having a pivoted spring pressed wedge P to pass under the projection *l* and move the wedge outward, substantially as set forth.

491,880. OIL-CUP. WILLIAM F. ALTHOFF and JOHN H. STOKESBARY, Denver, Colo. Filed Apr. 13, 1892. Serial No. 429,059. (No model.)



Claim.—1. An oiler provided with a cup formed at one side at the center with an inlet opening, and a funnel arranged on the inner surface of the said side of the cup and leading with its small end into the said inlet opening, substantially as shown and described.

2. An oiler comprising a cup formed at one side at the center with an inlet opening, a funnel arranged on the inner surface of said side, and leading with its small end to the said inlet opening, an offset formed on the bottom of the said cup and provided with a bore, and a pipe engaging with one end the said bore extending through the cup and terminating at its other end opposite the said bore, substantially as shown and described.

491,881. SIDESADDLE. BENJAMIN P. BLOOD, Amsterdam, N. Y. Filed Aug. 13, 1892. Serial No. 443,006. (No model.)

Claim.—1. A side-saddle for horseback riding provided with a main-horn and, also, with a laterally and rearwardly projecting and curved brace, which is secured at a point in front of said main-horn and to the upper front part of the left skirt of said saddle for furnishing upward and outward resistance to the movement of the right leg of the rider below the knee, substantially as described.

2. A side-saddle for horseback riding provided with a main-horn, with a leap-horn, for preventing undue upward movement of the left



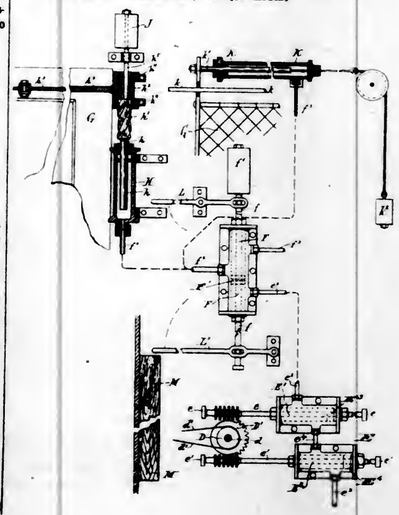
knee of the rider and, also, with a laterally and rearwardly projecting and curved brace, which is secured at a point in front of said main and leap horns and to the upper front part of the left skirt of said saddle for furnishing upward and outward resistance to the movement of the right leg of the rider below the knee, substantially as described.

3. A side-saddle for horseback riding provided with a rigid stirrup-hanger having an outwardly and forwardly curved support or socket projecting from its rear edge for receiving and supporting the upper portion of the calf of the left leg of the rider, substantially as described.

4. A side-saddle for horseback riding provided with a rigid stirrup hanger having a bifurcated lower end forming part of the stirrup and slipper, which are pivoted thereto, and with an outwardly and forwardly curved support or socket projecting from its rear edge for receiving and supporting the upper portion of the calf of the left leg of the rider, substantially as described.

5. A side-saddle for horseback riding provided with a main-horn, with a leap-horn, for preventing undue upward movement of the left knee of the rider, with a laterally and rearwardly projecting and curved brace, which is secured to the upper front part of the left skirt of said saddle for furnishing upward and outward resistance to the movement of the right leg of the rider below the knee, and with a rigid stirrup-hanger having an outwardly and forwardly curved support or socket projecting from its rear edge for receiving and supporting the upper portion of the calf of the left leg of the rider, substantially as described.

491,882. DEVICE FOR OPENING OR CLOSING ELEVATOR-DOORS. EDMOND M. T. BODDAM, Sydney, New South Wales. Filed July 2, 1892. Serial No. 438,741. (No model.)



Claim.—1. In a device for opening and closing elevator doors, the combination with a double valve comprising parallel connected cylinders having their pistons connected by a gear controlled from the valve of the elevator cylinder, of a single valve one for each floor and connected with one cylinder of the said double valve, a supply pipe for the motor fluid connected with the other cylinder and a hydraulic ram connected with the said single valve and adapted to open and close the door to the elevator shaft, substantially as shown and described.

2. In a device of the class described, a double acting valve comprising the parallel cylinders having a connecting pipe or passage between the outlet of one cylinder and the inlet of the other cylinder, pistons in said cylinders, a gear connecting said pistons and operated from the spindle of the admission valve for the pressure water to the elevator cylinder, substantially as shown and described.

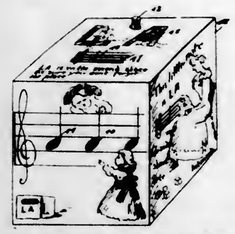
3. In a device of the class described, the combination with a double valve controlled from the spindle of the valve which admits pressure water to the lift or elevator cylinder, of a single valve connected with the said double valve and adapted to be actuated by a stop on the elevator carriage, and a hydraulic ram connected with the said single valve and controlling the movement of the doors of the elevator shaft, substantially as shown and described.

4. In a device of the class described, the combination with a stop on the elevator carriage, of a valve controlled by the said stop, a hydraulic ram connected with the said valve, means for connecting the said ram with the door to be opened, and a double valve connected with the said single valve and comprising two connected cylinders provided with pistons connected by a gear controlled from the spindle of the admission valve for the pressure water to the elevator cylinder, substantially as shown and described.

5. The combination, with the weighted door closing and opening ram, of a piston valve the cylinder of which is connected between its ends by a pipe f^3 with the ram cylinder, an exhaust in the valve cylinder above the said pipe, a piston in the valve cylinder having its weighted rod extending through both ends thereof, levers L L' connected with the respective ends of the piston rod for operation by a projection on the elevator car, and the double valve E, comprising the two cylinders E' E³ having a connecting pipe e^4, a pipe e^5 leading from the cylinder E' beyond the pipe e^4 to the valve cylinder F below its pipe f^3, the fluid inlet e^6 entering cylinder E³ at the opposite side of the pipe e^4, the pistons E² E⁴ having their rods *e e'* provided with teeth, and the gear D' meshing in said teeth operated from the elevator operating mechanism, substantially as set forth.

6. The combination, with the weighted ram for operating the door, the piston of which has a spiral portion A', exterior to the cylinder, of a sleeve having internal spiral threads corresponding with the portion A', bearings for the sleeve, and an arm projecting from the sleeve for connection with the door to be operated, substantially as set forth.

491,883. MUSICAL BLOCK. ANNETTE S. BOWEN and GOODRIDGE S. BOWEN, New York, N. Y. Filed May 27, 1892. Serial No. 434,590. (No model.)



Claim.—1. As an improved article of manufacture, a musical block, comprising a block having produced thereon the representation of a note and the position of the note upon a music staff, the said block being also provided with a device for producing the tone appertaining to the note represented, as and for the purpose specified.

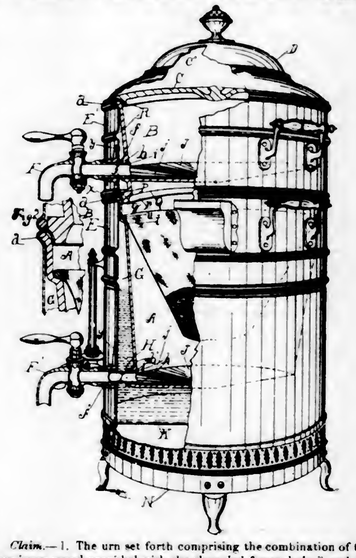
2. A musical block, comprising a rectangular block having a note of music and the position of the note upon a music staff produced thereon, together with the name of the note, the block being also provided with a device capable of producing the tone which the note produced upon the block indicates, as and for the purpose specified.

3. A musical block consisting of a hollow block having exteriorly produced thereon a note of music in its proper position upon a music staff, and the name of the note, the block being further provided with a device capable of producing a musical tone corresponding to that which the note represents, substantially as shown and described.

4. A musical block consisting of a hollow rectangular block having produced thereon a music staff, a note upon the staff in proper position, and the name of the note, the block being further provided with a tone-producing device capable of sounding the note shown upon the exterior of the block, the device being concealed within said block and exteriorly operated, as and for the purpose specified.

5. The combination with a hollow block having produced thereon a music staff, a note upon the staff and the name of the note, of a sounding bar in the block, a pivoted hammer adapted to engage the said bar, and a key rod connected to the hammer and projecting through the block, substantially as herein shown and described.

491,884. COFFEE-URN OR LIKE VESSEL. FRANK E. BROWNE, Los Angeles, Cal. Filed Apr. 5, 1892. Serial No. 427,798. (No model.)



Claim.—1. The urn set forth comprising the combination of the lower inner vessel provided with the threaded faucet hole *i*, and the outwardly projecting rim *a*; the bushing screwed into the faucet hole *i*; the casing bottom K having the downwardly projecting hoop; the lower casing wall, having its upper end expanded and formed over the rim of the lower inner vessel and having its lower end expanded and formed up over the hoop and against the bottom; the outer internally threaded faucet boss *f'* secured to the lower casing; the faucet F' screwed thereinto and provided with the connecting tube I inserted through the bushing and soldered thereto; the upper inner vessel provided at the top with the projecting rim and provided at the bottom with the downwardly projecting hoop having the outwardly projecting flange; the upper outer casing having its upper end expanded and formed over the top of the upper inner vessel and provided with the wire-receiving bead *x*, and the wire ring fitted in such bead and against such flange; the lower end of such upper casing being formed over the downwardly projecting loop of the upper inner vessel and said upper vessel being seated with its casing covered hoop within the mouth of the lower vessel and provided with a suitable cover.

2. The combination set forth of the lower inner vessel having the outwardly extending rim; its casing formed over such rim and fitted down upon the inner face of such rim; the upper inner vessel provided with the top rim projecting outward sidewise beyond the lower portion of its side-walls and also provided with the downwardly projecting hoop Q having the outwardly projecting flange *q*; the upper outer casing having its top expanded and formed over the rim of the upper inner vessel and having its bottom provided with the wire-receiving bead *x* and formed over the downwardly projecting hoop Q; and the wire inserted in such bead and fitted against the flange *q*; the same being seated within the mouth of the lower vessel and casing.

3. In an urn, the inner vessel provided with the laterally arranged discharge hole and having its bottom of a conical concave form and

provided with a gutter extending from the center of the concave bottom laterally to the discharge hole.

4. The combination of the casing; the malleable faucet boss soldered thereto and provided with a perforated top rivet-lug; two perforated side rivet-lugs made to conform to the casing and rivets securing the lugs to the casing and the faucet fixed into such faucet boss.

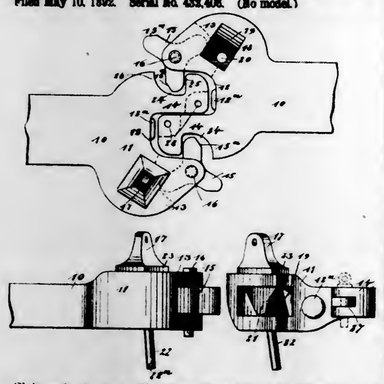
5. The combination of the inner vessel provided with the screw threaded faucet hole; the casing secured to such inner vessel and provided with the faucet boss; the faucet provided with the connecting tube and screwed into the faucet boss of the casing; a bushing screwed into such faucet hole; such connecting tube secured to the faucet and projecting through the bushing with its ends flush with the inner end thereof and secured thereto with solder.

6. The combination set forth of the inner vessel having a rim projecting outward sidewise beyond the lower portion of its side walls, and the outer sheet metal casing of smaller circumference than the outer edge of the rim of the inner vessel and expanded at its top and formed over the rim of the inner vessel and fitted down upon the inner face of such rim to embrace the rim.

7. The combination set forth of the casing wall expanded at the bottom to form the shoulder *e* and hoop *e'*; the bottom K provided with the downwardly projecting hoop *k* arranged to fit within the hoop formed by the expanded portion of the wall and to fit against the shoulder *e*, such expanded portion or hoop *e'* being formed up over the hoop *k* and against the bottom K pressing the bottom firmly against the shoulder *e* substantially as and for the purpose set forth.

8. In an urn the combination set forth of the inner vessel B having the top rim projecting outward beyond the lower portion of its side walls and having the downwardly projecting hoop Q provided with the outwardly projecting flange *q*; and the outer sheet metal casing of smaller circumference than the outer edge of the rim of the inner vessel and expanded at its top and formed over the rim of the inner vessel and folded down upon the inner face of such rim to embrace the rim and having the lower end of the casing fitted to the under face of the hoop.

491,885. CAR-COUPLING. WILLIAM P. CLARK, Elberton, Ga. Filed May 10, 1892. Serial No. 432,406. (No model.)

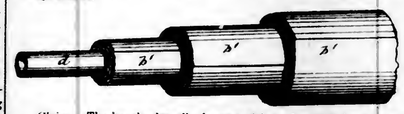


Claim.—1. A car coupling, comprising a draw head having a pair of forwardly extending arms arranged on its opposite sides, a revoluble knuckle journaled in the front end of one of the arms, a hook formed on the outer side of the opposite arm, and a locking pin held to fit in a recess of the head of the draw head and in the path of the revoluble knuckle, substantially as described.

2. A car coupling, comprising a draw head having forwardly extending arms, a cushion arranged in the crotch of the arms, a revoluble knuckle held to turn horizontally in one of the arms, a vertical recess produced in the draw head adjacent to the knuckle and having inclined walls, a locking pin shaped to fit the recess, and a hook produced on the outer side of the arm opposite the coupling arm, substantially as described.

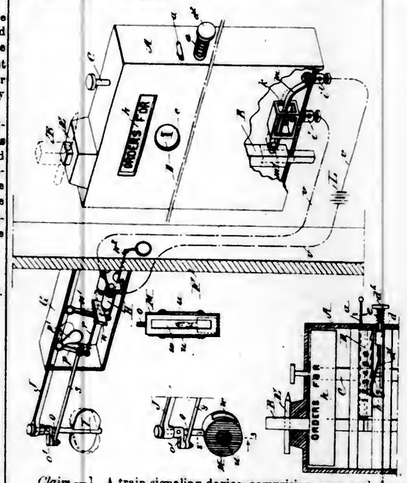
3. In a car-coupling, the combination with a draw head having a revoluble knuckle therein and a vertical recess having beveled walls and pin holes extending through its bottom, a recess being produced adjacent to the knuckle, of a locking pin shaped to fit the recess, the pin having an elongated or lower portion to enter the pin hole, and an overhanging top flange, substantially as described.

491,886. MATERIAL FOR COVERING PIPES, &c. JAMES L. COVEL, Naples, N. Y. Filed Oct. 15, 1892. Serial No. 448,931. (No specimens.)



Claim.—The herein described composition of matter for coating or preparing paper, consisting of wheat flour, pulverized alum, arsenic, red-lead, litharge, beef gall and water, combined essentially as herein set forth.

491,887. RAILWAY TRAIN ORDER AND SIGNALING DEVICE. LEONARD T. CRABTREE, New London, Wis. Filed Apr. 2, 1892. Serial No. 427,456. (No model.)



Claim.—1. A train signaling device, comprising a suspended rotatable cylindric shell, having parallel side walls, circular apertures therein opposite each other, glazed disks on the shell, indicating "danger" by their color and form and vertical glazed slots in the shell, located opposite each other and indicating "safety" by their color and form, substantially as described.

2. The combination with a train order annunciator provided with make and break device for an electric circuit, of a magnet connected with a battery and with the make and break device of the annunciator, a swinging armature, an oscillating signal, and means for connecting the signal with the armature and operating the said signal when the magnet becomes inert, substantially as described.

3. The combination, with the gravity bar of a train order annunciator made substantially as described, of a rotatable, pendent, visual signal, a supported magnet, a pendent armature, a make and break device for an electric circuit within the case of the annunciator, which is actuated to open said circuit by the fall of the gravity bar, and circuit wires connecting the magnet with a battery and with the make and break device, substantially as described.

4. In a train order annunciator and signaling device combined, having a signaling device held to "safety" by electricity, a make and break device for an electric circuit, in the case of the annunciator, comprising a plate spring on one binding post that penetrates the bottom of the case, a skeleton frame on an adjacent binding post and through which the spring projects toward a gravity bar of the annunciator, a gravity bar that slides vertically when released and by impinging a projection therefrom upon the end of the plate spring breaks its connection, and battery circuit wires coupled with the binding posts, substantially as described.

5. In a train signaling device, the combination, with a pendent, rotatably-supported visual signal adapted to indicate "safety" or "danger" by partial rotation, a supported magnet, a pendent armature, a pivoted swinging bar having a laterally projected weighty limb, a link rod connecting the armature with the swing bar, a rod

for manipulation of the armature toward the magnet, an arm on the signal-supporting shaft, and a connecting rod between said arm and the swinging bar, of a gravity bar in the annunciator case, having a lateral toe, a plate spring on the inner end of a binding post that penetrates the bottom of the case, a skeleton frame on another adjacent post similarly inserted, circuit wires between the posts and magnet, and a battery in the circuit, substantially as described.

6. The combination, with a bracket frame on a support, a magnet thereon, a pendent armature, means to manipulate and draw the armature toward the magnet, and a device to electrically energize the magnet when the signal is to be held to indicate "safety," of a train signal comprising a rotatable pendently sustained cylindric shell having opposite colored glass disks in its sides, and white glazed oblong vertical slits in the shell, a weighted swinging bar on the bracket-frame between the signal and armature, a link between the bar and armature, and a connecting rod between an arm on the shell-supporting shaft and the weighted swinging bar, substantially as described.

7. The combination with a magnet and a pendent armature, of a signal mounted to oscillate, a pivoted bar having a weighted member, and rods connecting the said bar with the shaft of the signal and with the armature, substantially as described.

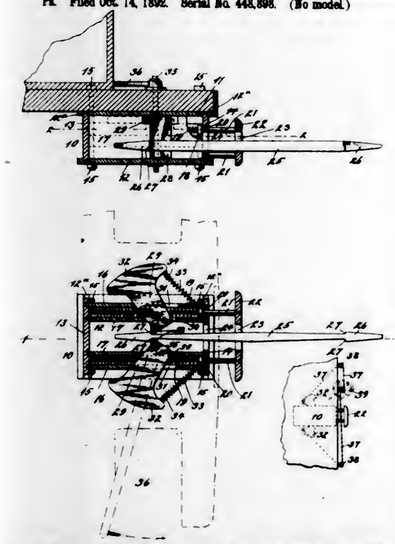
491,888. SAFETY ATTACHMENT FOR VEHICLE-THILLS. GEORGE DIPPOLD, Brooklyn, N. Y. Filed July 20, 1892. Serial No. 440,614. (No model.)



Claim.—1. In a vehicle, the combination with the shafts or means for hitching the horse to the vehicle, of the front and rear cross bars connected thereto to be moved toward the front and rear legs of the horse, respectively, and means for operating said bars, substantially as set forth.

2. In a vehicle, the combination, with the shafts of the front cross-bar or frame having spring-pressed arms or side pieces pivoted to the shafts, the rear spring-seated cross-bar, the lines or cables connected to said cross-bars and passed over pulleys, and a hand-lever connected to said lines, substantially as set forth.

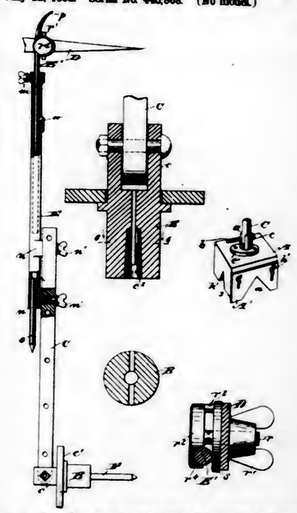
491,889. CAR-COUPLING. THORNTON E. W. FAY, Philadelphia, Pa. Filed Oct. 14, 1892. Serial No. 448,898. (No model.)



Claim.—1. A combined car coupling and bumper, comprising a box-like drawhead having a central coupling compartment with an open mouth, oppositely-arranged jaws held to swing in the middle compartment of the coupling, the jaws having outwardly-extending spring-pressed plates which move in slots in the sides of the drawhead, a draw-bar having an inclined head with shoulders which engage the locking jaws, compartments arranged in opposite sides of the drawhead, and a perforated bumper plate having rearwardly-extending spring-pressed bolts which slide in said compartments of the drawhead, substantially as described.

2. A car coupling, comprising a box-like drawhead having a central recess therein and compartments in its opposite sides, oppositely-arranged horizontally-swinging jaws arranged centrally in the coupling and adapted to engage a drawbar, spring-pressed plates secured to the jaws and extending outward through slots in the sides of the drawhead, the plates having enlarged heads at their outer ends, and a drawbar having an inclined head with shoulders at its inner ends to engage the locking jaws, substantially as described.

491,840. COMBINATION-TOOL. BENJAMIN F. FIELD, Elmira, N. Y. Filed July 22, 1892. Serial No. 440,868. (No model.)



Claim.—1. A surface gage, comprising a base block, a vertically-adjustable shoulder plate on said block, and calipers secured adjustably on the block, substantially as described.

2. The combination with the rectangular block A, having a central vertical aperture, and a cruciform recess in its lower face, the members of which intersect at said aperture, a level tube on the block; the sides of the block being provided with apertures *h*, of the calipers provided with a clamping screw to engage any one of said apertures, substantially as set forth.

3. In a combination tool, the rectangular block A having a central vertical aperture, a cruciform recess on its lower face the members of which intersect at said aperture, in combination with the horizontally swiveling piece B mounted in said central aperture and provided with a depending center F, and the standard hinged to the upper end of the piece B, substantially as set forth.

4. In a combination tool, the combination with the standard D, of the telescopic trammel bar E E' parallel therewith, upper and lower bolts passed through the standard into the bar E and permitting it to be raised and lowered, a calipers, and means for securing the calipers to the standard D or to the section E' of the said bar, substantially as set forth.

5. The combination with the standard D, of the trammel bar E adjustably secured thereto and provided at its ends with the extensible rod E' and point or nose piece *o*, the rod E' and piece *o* being separate and independent one of the other substantially as set forth.

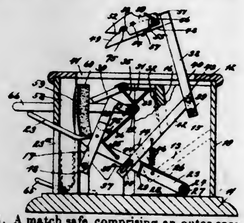
6. The combination, with a slotted swivel piece, a base block wherein said piece swivels, and a center point piece projected axially from the swivel piece, of a standard jointed to the swivel piece, an extensible trammel adjustably secured on the standard, and calipers removably attached with a swiveling clamp on the trammel, substantially as described.

7. The combination, with a standard, a hinge jointed piece at one end of the standard, and a center point piece axially projected from said hinge-jointed piece, of a longitudinally extensible and adjustable trammel bar, calipers on the trammel bar, having one leg pointed and the other leg curved near its outer end, and a clamping device adapted to permit the calipers to swivel or flex in any direction on the trammel bar, substantially as described.

8. A composite tool, comprising a base block transversely grooved on its lower face, a spirit level tube on the top face of the block and parallel with one edge thereof, a swivel joint piece loosely secured in a socket located centrally of the base-block, a standard hinged to the swivel piece by one end, an extensible trammel bar adjustably secured on the standard, calipers having a pointed and a curved leg, and a swivel clamp adapted to removably connect either leg of the calipers to the trammel bar, substantially as described.

9. The combination with the centrally apertured base, of the longitudinally split swivel piece B swiveled therein, the split in the swivel piece imparting a spring action thereto and causing it to expand against the walls of the base aperture and bind by friction and the post hinged to the upper end of said piece, substantially as set forth.

491,841. MATCH-SAFE AND CIGAR-CUTTER. GEORGE F. H. HICKS, Chicago, Ill. Filed Oct. 10, 1892. Serial No. 448,358. (No model.)



Claim.—1. A match safe, comprising an outer case, a match box arranged within the case, a swinging pick held to swing within the case and adapted to raise matches from the box, supports arranged beneath the pick and adapted to receive a match when dropped by the pick, a swinging carrier held to swing through a slot in the top of the case and adapted to engage and raise the match deposited by the pick, and a scratcher arranged within the case and in the path of the matches raised by the carrier, substantially as described.

2. A match safe, comprising an inclosing case, a match box arranged within the case and having an inclined bottom, a swinging pick pivoted within the case and adapted to enter the match box and lift a match therefrom, mechanism for pushing the match from the pick at the upward movement of the latter, a swinging carrier held to move through a slot in the case top and adapted to raise the match dropped by the pick, a scraper arranged in the path of the match raised by the carrier, and a handle adapted to simultaneously operate the pick and carrier, substantially as described.

3. A match safe, comprising an inclosing case having a slotted top, a match box arranged within the case and provided with an inclined bottom and a front opening, a swinging pick arranged to enter the opening in the box and having jaws to engage a match, push arms arranged above the box opening and adapted to push a match from the jaws, movable inclined guide arms adapted to extend above the box opening and prevent the return of a match, mechanism for moving the arms by the movement of the pick, receiving blocks arranged beneath the guide arms, a swinging carrier held to move through a slot in the case and adapted to pick a match from the receiving blocks, a scratcher arranged in the path of the match head raised by the carrier, and a handle adapted to simultaneously operate the carrier and pick, substantially as described.

4. In a match safe, the combination of the inclined match box having a front opening, the swinging pick having a bent free end with terminal jaws adapted to enter the opening and pick up a match, the push arms arranged in the path of the pick-raised match and adjacent to the jaws, a swinging plate or pawl arranged in front of and in the path of the pick, and guide arms carried by the pawl and adapted to swing in unison therewith so as to prevent the return of a match to the match box, substantially as described.

5. In a match safe, the combination of the match pick mechanism, mechanism for discharging the match, the spaced receiving blocks having trough-like upper portions adapted to receive the match from the discharging mechanism, and the swinging carrier adapted to move downward between the receiving blocks, the carrier having separable jaws adapted to clasp the match, substantially as described.

6. In a match safe, the combination of the match supporting blocks, mechanism for delivering the match into or upon the blocks, and a swinging carrier held to move downward between the blocks and upward above the match safe, the carrier having separable spring-pressed jaws with recesses to engage and hold the match, substantially as described.

7. In a match safe, the combination of the match case having a slotted top, the match box arranged within the case, the swinging pick adapted to enter the box and raise a match, mechanism for discharging the match from the pick, carrying mechanism adapted to swing through the slotted case top and engage the match discharged from the pick, a swinging arm held to support the carrier, a spring-pressed handle pivotally and operatively connected with the pick, and a connecting rod extending from the handle to the carrier-arm, substantially as described.

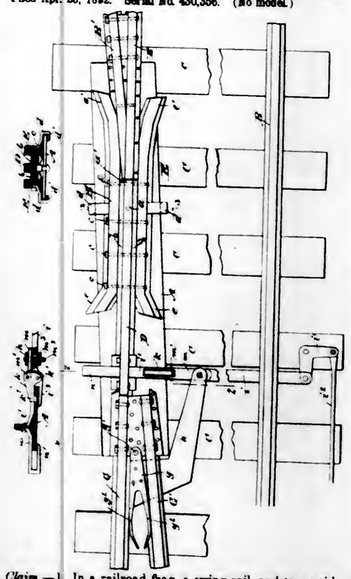
8. In a match safe, the combination of the case having a slotted top, the swinging carrier held to move through the top and provided with separable match-holding jaws, and the abutment secured within the case and adapted to press against the carrier jaws, substantially as described.

9. In a match safe, the combination of the slotted topped case, having a match receptacle therein and the picker in the case to raise one match at a time from the receptacle and drop it in the case, with the swinging carrier held to move through the slot and adapted to raise a match from where it was dropped by the picker and carry to the outside of the case, and the scraper having an inclined roughened face adapted to engage the match head, substantially as described.

10. The combination of the case having a slotted top, a swinging match carrier adapted to swing through the slot in the case top, and having a fixed jaw 48—49 and spring pressed jaws 50 at opposite sides thereof and provided with match receiving recesses 53 and the tilting spring-pressed scratcher adapted to engage a match head, substantially as described.

11. The combination of the main case, the match-carrying mechanism arranged therein and adapted to deliver a match from the case top, the inclined swinging scratcher held in the path of the match, and a handle produced on the scratcher and leading through a slot in the case, whereby to retract the scratcher out of the path of the match substantially as described.

491,842. RAILROAD-FROG. DAVID HORRIE, Kaukauna, Wis. Filed Apr. 23, 1892. Serial No. 430,356. (No model.)



Claim.—1. In a railroad frog, a swing rail, and two guide rails secured on the swing rail laterally and extending beyond one end of said swing rail, substantially as described.

2. In a railroad frog, a swing rail pivoted on a base plate, guide rails secured on the swing rail and projecting beyond one end thereof, and spacing blocks between the guide rails and swing rail, substantially as described.

3. In a railroad frog, a swing rail pivoted on a base plate near one end of said rail, and two guide rails outwardly bent at the ends and secured on spacing blocks which intervene between the guide rails and swing rail, said guide rails projecting beyond the end of the swing rail nearest to its pivot, substantially as described.

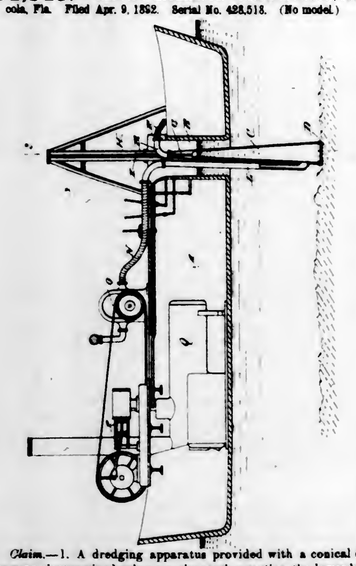
4. In a railroad frog, a swing rail pivoted on a base plate, guide rails secured one on each side of the swing rail, spacing blocks between the swing rail and guide rails, and hooked brace plates secured on the guide rails opposite the pivot of the swing rail, and engaging their hooked ends with side edges of the base plate, substantially as described.

5. In a railroad frog, a swing rail pivoted on a base plate near one end of said rail, guide rails having outwardly bent end portions and secured to the swing rail and to intervening spacing blocks on each side, the end portions of the guide rails projecting beyond the end of the swing rail nearest its pivot, and lying outside of converging ends of track rails in sequence with the swing rail, substantially as described.

6. The combination with a base plate, converging track rails thereon at its ends, and a swing rail pivoted near one of its ends, of a latching device adapted to lock the swing rail, and a spring block pivoted at one end of the base plate between two converged track rails, and a lateral arm on the spring block engaging the latching device, substantially as described.

7. The combination with a base plate, a swing rail pivoted near one end on the base plate, two guide rails bent outwardly at their ends and secured at the sides of the swing rail and projecting beyond its end nearest to the pivot bolt, spacing blocks between the swing rail and guide rails, and hooked brace plates secured on the guide rails opposite the swing rail pivot and hooking over side edges of the base plate, of a latching device for the end of the swing rail farthest from its pivot bolt, having a slide bar that actuates it, a spring block pivoted by one end between converging track rails at the secured end of the swing rail, and a lateral arm on the spring block pivoted at its outer end on the slide bar of the latching device, substantially as described.

491,843. DREDGING APPARATUS. JOSEPH R KAUBER, Pensacola, Fla. Filed Apr. 9, 1892. Serial No. 428,513. (No model.)



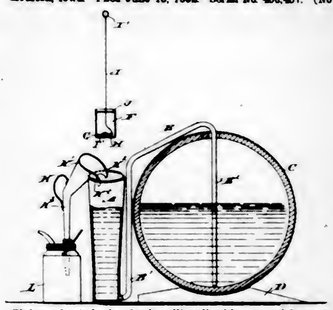
Claim.—1. A dredging apparatus provided with a conical discharge or ejector pipe having a reciprocating motion, the lower base end of the said pipe being immersed, while the pipe is at work, and the upper contracted end connected with the discharge, substantially as shown and described.

2. A dredging apparatus provided with a discharge pipe or ejector having a reciprocating motion and having its lower or base end larger than the upper end, which forms a discharge, and a blast pipe connected and moving with the said discharge or ejector pipe, the blast pipe being connected with a suitable source of air supply and discharging into the said discharge pipe at or near the base end thereof, substantially as shown and described.

3. A dredging apparatus provided with a conical discharge or ejector pipe having a reciprocating motion and having its lower or base end serrated and the upper end contacted, forming a discharge, substantially as shown and described.

4. In a dredging apparatus, the combination, with a conical discharge or ejector pipe having its base end serrated and provided at its contracted upper end with a discharge or outlet, of means, substantially as described, for imparting a reciprocating motion to the said ejector pipe to force the lower serrated base end into contact with the bed or bottom of the river or channel to be dredged, substantially as shown and described.

491,844. DEVICE FOR HANDLING LIQUIDS. STUART R. MACE, Moulton, Iowa. Filed June 13, 1892. Serial No. 436,467. (No model.)

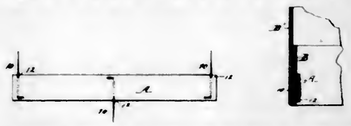


Claim.—1. A device for handling liquids, comprising a receiving vessel provided with a siphon adapted to pass into the supply vessel, and a dipper adapted to pass into the said vessel to act as a plunger therein for starting the siphon, and to withdraw a measured quantity of liquid from the said receiving vessel, substantially as shown and described.

2. A device for handling liquids, comprising a receiving vessel, and a dipper adapted to be passed into the said receiving vessel for withdrawing a quantity of liquid therefrom, a valve arranged in the bottom of the said dipper, a lever carrying the said valve, and a rod connected with the said lever and forming the handle for the said dipper, substantially as shown and described.

3. In a device for handling liquids, the combination with a receiving vessel containing the liquid, of a dipper adapted to be passed into the said receiving vessel to withdraw a measured quantity of liquid therefrom, and a funnel formed on its mouth with hooks adapted to engage the upper edge of the said receiving vessel, so as to permit of conveniently emptying the said dipper into the mouth of the funnel, substantially as shown and described.

491,845. TROUSERS-PROTECTOR. RICHARD T. MATHESON, Brooklyn, N. Y. Filed Mar. 17, 1892. Serial No. 425,390. (No model.)

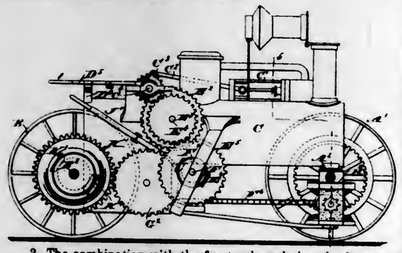


Claim.—A protector for pantaloons and other garments, consisting of a strip of material, and pins of a pliable material attached to the strip and extending beyond opposite edges thereof, the strip being provided with cuts in that portion of the margin over which the projecting ends of the pins extend, as and for the purpose set forth.

491,846. TRACTION-ENGINE. LOGAN M. MEDLER, Latham, Mo. Filed Apr. 14, 1892. Serial No. 429,140. (No model.)

Claim.—1. The combination with the main driving shaft having a small loose gear E and a larger loose gear E', and clutches for connecting either gear with the shaft, of the large and small connected

gear wheels E^3 E^3 meshing with gears E E' respectively, a transverse shaft F having a gear E^3 turning loosely thereon and meshing with gear E^3, bevel pinions mounted in the web of gear E^3 and meshing at their outer sides with a gear wheel F' secured to shaft F, and at their opposite sides meshing with a gear G' on the face of a pinion G turning loosely on shaft F, gearing connecting the pinion G with the rear traction wheels and gearing connecting the gear wheel F' with the front traction wheels, substantially as set forth.



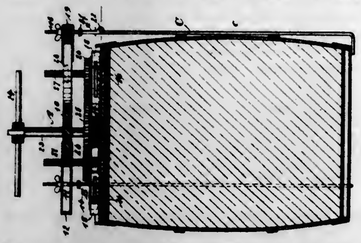
2. The combination with the front axle and the wheels turning on the ends thereof and having gear wheels A^3 A^4, of two short shafts I^2 I^3 below and parallel with the axes of the wheels and having pinions I^4 I^5 meshing with said wheels A^3 A^4 and provided at their inner ends with bevel gears I^4 I', a vertical shaft H' provided with an upper and a lower horizontal bevel wheel I^3 I^3 meshing respectively with wheels I^4 I', and provided on their adjacent faces with smaller bevel gears I I', a horizontally turning toothed wheel having bevel pinions H^3 H^4 in its web and meshing with the bevel gears I I' and gearing connecting the horizontal toothed wheel with the drive shaft, substantially as set forth.

3. In a traction engine, the combination with a main drive shaft, of short shafts extending transversely and mounted to rotate on the front axle, gearing for connecting the said short shafts with the front drive wheels, a compensating and driving gearing connected with the said short shafts for rotating the same, sprocket wheels and chain connected with the said compensating and driving gearing, and a transversely-extending shaft connected with one of the said sprocket wheels and connected with the main driving shaft, substantially as shown and described.

4. In a traction engine, the combination with a main drive shaft, of short shafts extending transversely and mounted to rotate on the front axle, gearing for connecting the said short shafts with the front drive wheels, a compensating and driving gearing connected with the said short shafts for rotating the same, sprocket wheels and a chain connected with the said compensating and driving gearing, a transversely-extending shaft connected with one of the said sprocket wheels and connected with the main driving shaft, and intermediate mechanism for connecting the said drive shaft with the last mentioned transverse shaft, substantially as shown and described.

5. In a traction engine, the combination with the rear axle shaft carrying the rear wheels, of bevel gear wheels secured on the said axle shaft, a gear wheel mounted to rotate loosely on the said axle shaft and provided in its web with pinions in mesh with the said bevel gear wheels, a gearing connected with the said large gear wheel rotating loosely on the said rear axle shaft, and a main driving shaft connected with the said gearing, substantially as shown and described.

491,847. BARREL-HEADING PRESS. BRADFORD S. MILES, Gray's Summit, Mo. Filed Sept. 24, 1892. Serial No. 446,806. (No model.)



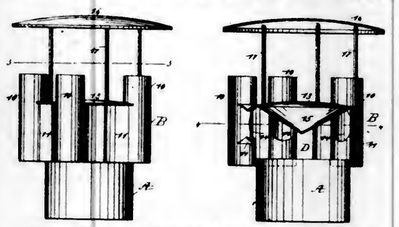
Claim.—1. In a barrel heading press, the combination with a body adapted to be secured to a barrel, of a follower below the body, screws carried by the follower and working in apertures in the body, a drive shaft, and means for operating the said screws from the drive shaft, substantially as described.

2. In a barrel heading press, the combination, with a follower, a body located above the follower, and clamping arms adjustably located upon the body, of a driving shaft loosely mounted in the body and having a swivel connection with the follower near its center, screw shafts having their lower ends swiveled in the follower and arranged around the drive shaft, the upper portions of the screw shafts engaging the threads in the body, interlocking gears carried by the screw shafts and the drive shaft, and a driving mechanism connected with the drive shaft, as and for the purpose set forth.

3. In a barrel heading press, the combination, with a substantially stellated follower and a substantially similarly shaped body, the follower having sundry of its arms adjustable, and clamping rods adjustably carried by the body and adapted for engagement with the barrel to be acted upon, of a drive shaft having free movement in the body and a swivel connection with the central portion of the follower, screw shafts engaging threads in the body and having their lower ends swiveled in the follower, the screw shafts being located over sundry of the arms of the follower, and gearing connecting the screw and the drive shafts, substantially as and for the purpose specified.

4. In a barrel heading press, the combination with the body of the press, of rods for securing the body to a barrel having their upper ends adjustably connected to the body and provided with inwardly extending feet on their lower ends, one of the said rods being made in sections hinged together, substantially as set forth.

491,848. CAP FOR CHIMNEYS, FLUES, &c. HERMAN MOELLER, Brooklyn, N. Y. Filed Dec. 13, 1892. Serial No. 455,007. (No model.)



Claim.—1. In a cap for chimneys, flues, &c., the combination, with the base tube and a series of off-take tubes secured to the exterior of the base tube and extending upwardly therefrom, of angular plates depressed at their center and connected at their central portions with the base tube and at their other ends with the off-take tubes, and a roof plate engaging with the upper portions of the off-take tubes and attached to the upper portions of the angular plates intermediate of said tubes, substantially as and for the purpose specified.

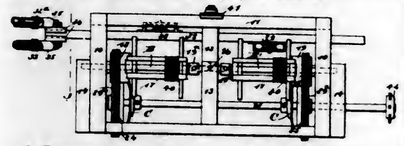
2. In a cap for chimneys, flues, &c., the combination, with a base tube, of off-take tubes arranged around the base tube and secured thereto, the off-take tubes extending upward above the base tube, a roof plate attached to the off-take tubes near their upper ends, and angular deflecting plates arranged between the off-take tubes, said angular deflecting plates being depressed inward at their centers and attached at their central portions to the base tubes, at their sides to the off-take tubes, and at their upper ends to the roof plate, as and for the purpose specified.

3. In a cap for chimneys, flues, &c., the combination, with a base tube, and off-take tubes secured to the base tube and projecting upwardly therefrom, the off-take tubes being arranged in a circular series, each of the tubes being provided at its inner side near the top with an opening, of a roof plate secured to the off-take tubes near their upper ends, a cone projected downward from the roof plate, and angular deflecting plates depressed at their central portions and attached at their centers to the base plate, at their sides to the off-take tubes, and at their upper ends to the roof plate, substantially as and for the purpose set forth.

491,849. FENCE-WIRE REEL. SYLVESTER MOORE, Audubon, Iowa. Filed Feb. 25, 1892. Serial No. 422,796. (No model.)

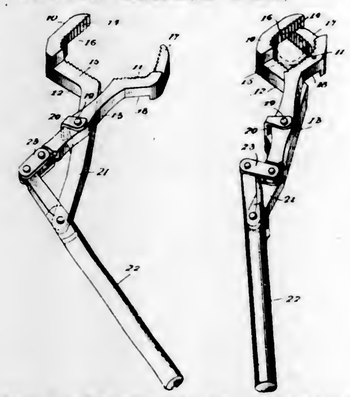
Claim.—1. In a fence wire reel, the combination, with a reel shaft and a reel mounted thereon, of a drive shaft, a driving wheel loosely mounted upon the drive shaft and connected with the reel shaft, and a clutch carried by the drive shaft and having a bearing upon the driving wheel, substantially as shown and described.

2. The combination, with a drive shaft, a driving pulley loosely mounted thereon, a clutch mechanism connected with the drive shaft and bearing upon the driving pulley, a reel shaft, a reel loosely mounted upon the same, and a driving connection between the reel shaft and the driving pulley, of a driven pulley fixed upon the reel shaft and having a recessed face receiving and clamping one end of the reel, and a conically formed sleeve mounted upon the reel shaft opposite the recess in the driven pulley, the conically-shaped end of the sleeve being capable of entering the head of the reel not engaged by the recessed driven pulley, as and for the purpose set forth.



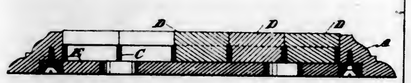
3. The combination, with reels, of a spooling bar located at one side of the reels, friction pulleys connected with one end of the spooling bar and independently and laterally adjustable thereon, intermediate guide pulleys located in front of the reels, one below and the other above the spooling bar, the intermediate guide pulleys being adapted to receive wire from the reels and conduct it to the outer adjustable friction pulleys, bearings removably holding the spooling bar and admitting of its lateral movement, and a shifting device connected with the spooling bar, substantially as set forth.

491,850. PIPE-WRENCH. GEORGE W. MORRILL, Alton, N. H. Filed June 6, 1892. Serial No. 435,702. (No model.)



Claim.—A wrench consisting of angular and toothed jaws having oppositely recessed faces to permit them to cross each other and provided with shanks of unequal length pivoted one upon the other, a handle pivoted between its ends to the end of the longer jaw shank, and a link pivoted to one end of the handle and to the end of the shorter jaw shank, substantially as herein shown and described.

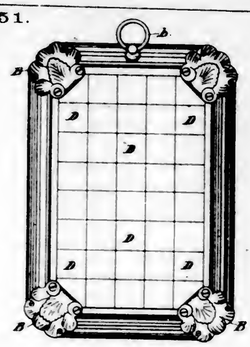
491,851. CORK MAT FOR BATH-ROOMS. ANDREW MORTON, New York, N. Y. Filed Aug. 13, 1892. Serial No. 442,974. (No model.)



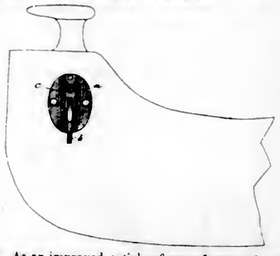
Claim.—1. In a cork mat, the combination with a border frame, metal corner pieces therefor, and a tessellated frame within the border frame, of a number of cork blocks fitted into the interstices of the tessellated frame, and a bottom board therefor, substantially as described.

2. In a cork mat, the combination with a border frame rabbeted on its lower inner edge, metal angle pieces for corners of the rabbeted edge, and a bottom board secured within the rabbet, of a tessellated frame within the border frame, and cork blocks fitted in the interstices of the tessellated frame and in contact with each other edgewise, substantially as described.

491,851.



491,852. SNAP-HOOK. ANTHONY R. MCDOWELL, Edna, Tex. Filed Apr. 11, 1892. Serial No. 428,677. (No model.)



Claim.—As an improved article of manufacture, the snap-hook for use in suspending articles as hereinbefore described, composed of the flat, or approximately flat, plate, *a*, having screw holes, the hook *b*, rigidly secured to the edge of the plate and curved backward over its surface, and the upwardly-bent plate spring *c*, secured to the edge of the plate, *a*, at a point opposite the hook and having a forked free end which embraces the shank of the hook, as shown and described.

491,853. APPARATUS FOR EXPANDING AND CONTRACTING HATS. PETER NOE, Mosbach, Germany. Filed Feb. 8, 1892. Serial No. 420,733. (No model.)



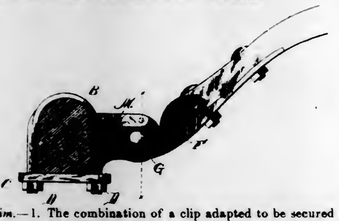
Claim.—1. In a device for regulating the size of hats, the combination of a core provided with a circular series of gradually increasing scale numbers arranged adjacent to the periphery of the core, a number of radial plates mounted on the core and provided at their outer ends with cross-plates and located adjacent to the scale numbers and each having a single mark corresponding to the adjacent scale number, arranged to register with the edge of the core and means for actuating the plates, substantially as described.

2. In a device for regulating the size of hats, the combination with a device adapted to be arranged in a hat and having a contractile periphery, of an elastic compressing band consisting of a spiral spring and a cylindrical band having a smooth inner face and arranged at the inner side of the spiral spring and adapted to be interposed between the spring and a hat to protect the latter, substantially as described.

3. In a device for regulating the size of hats, the combination with a device adapted to be arranged in a hat and having a contractile periphery, of an elastic compressing band consisting of a large spiral spring and small spiral springs arranged at the top and bottom of and interlaced with the coils of the large spiral spring, substantially as described.

4. In a device for regulating the size of hats, the combination with a device adapted to be arranged in a hat and having a contractile periphery, of an elastic compressing band consisting of a large spiral spring, small spiral springs arranged at the top and bottom of and interlaced with the coils of the large spiral spring and a cylindrical band having a smooth inner face and arranged at the inner side of the spiral springs, substantially as and for the purpose described.

491,854. THILL-SUPPORT. GEORGE W. POST, Fond du Lac, Wis. Filed July 27, 1892. Serial No. 441,400. (No model.)



Claim.—1. The combination of a clip adapted to be secured on a vehicle axle and provided on one face with two immovable parallel projecting plates, a thill iron having one end extending between and connected to the plates on the clip on the axle, a laterally projecting pin carried by one of said plates and adapted to enter a socket in the adjacent face of the thill iron, substantially as and for the purpose described.

2. The combination of a clip adapted to be secured on a vehicle axle and provided with two parallel forwardly projecting plates, a thill iron fitted between and connected to said plates and a spring pressed pin carried by one of the plates and adapted to enter a socket formed in one face of the thill iron, substantially as described, for the purpose specified.

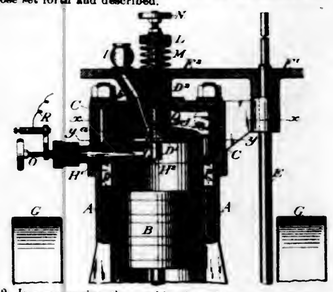
3. The combination of the parallel forwardly extending plates adapted to be firmly secured on a vehicle axle, a thill iron having its rear end fitted between and connected to the plates attached to the axle and a spring plate attached to one of said plates and provided with a laterally projecting pin adapted to take into a socket in the thill iron, substantially as and for the purpose described.

4. The combination of two parallel plates adapted to be attached to a vehicle axle, a thill iron having one end arranged between said fixed plates, a transverse bolt connecting the parallel fixed plates and the thill iron and a spring plate attached to one of said fixed plates and provided with a laterally projecting pin which is adapted to project through an aperture in the fixed plate and into a socket in the thill iron, substantially as described for the purpose specified.

5. The combination of two parallel plates adapted to be attached to a vehicle axle, a thill iron fitted between said fixed plates and provided in one face with a segmental groove and a socket or recess, a bolt connecting the parallel fixed plates and the thill iron and a spring plate attached to one of the fixed plates and provided with a laterally projecting pin which extends through an aperture in the fixed plate and into the segmental groove in the thill iron, substantially as and for the purpose described.

491,855. GAS-ENGINE. JOHN W. RAYMOND, San Francisco, Cal. Filed Jan. 13, 1892. Serial No. 417,905. (No model.)

Claim.—1. In a gas engine, a main distributing valve having a rotary movement, in combination with the engine shaft to which said valve is geared, a stem for actuating the valve, another stem projecting adjustably through the valve stem and having thereon an electrode for igniting the charge in the engine so that the distribution and ignition of the gases is performed by the same mechanism and in definite relation as to time or period in the manner and for the purpose set forth and described.



2. In a gas engine, the combination of a rotary main distributing valve, the main cylinder having at one end a combustion chamber within which said rotary valve is located, said valve being provided with a port coincident at certain periods of revolution with other ports for inlet and exhaust formed in the valve seat and communicating with a supply pipe or chamber and also with the atmosphere, a hollow valve stem connected to and supporting said valve and another stem projecting adjustably through said valve stem and having thereon an electrode for igniting the charge in the engine, substantially as described.

3. In a gas engine, the combination of a rotary distributing valve, a hollow valve stem for driving the same and another stem projecting through the valve stem and having on its inner end an electrode for igniting the charge in the engine said latter stem being adjustable so that the electrode may be adjusted, substantially as described.

4. In a gas engine, the combination of a rotary valve, a hollow valve stem for driving the same, a spring arranged upon said stem for the purpose of holding the valve to its seat, the engine shaft, gearing connecting said shaft with the hollow valve stem, and another stem located within the hollow valve stem and carrying on its inner end an electrode for the purpose of igniting the charge in the engine, substantially as described.

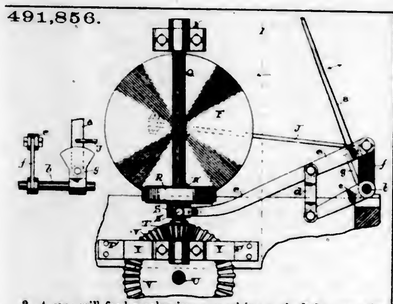
5. In a gas engine, the combination of a rotary valve, a hollow valve stem for supporting and driving the same, a spring on said stem for holding the valve to its seat, said valve being provided with a port coincident at certain periods of revolution with other ports for inlet and exhaust formed in the valve seat and communicating with a supply pipe or chamber and also with the atmosphere, the engine-shaft, a gearing connection between it and the hollow valve stem, and the electrode for igniting the charge in the engine which electrode is carried by a stem projecting adjustably through the valve stem, substantially as described.

6. In a gas engine, the combination of a rotary distributing valve with a port for distributing mixed air and gas and the products of combustion, said valve being geared with the engine shaft and moving in definite relation to the piston of the engine, a hollow valve stem for said valve, a rod passing through said valve stem and an electrode connected and revolving with the valve, substantially as described.

491,856. FEED MECHANISM FOR SAWMILLS. THOMAS J. REAMY, St. Louis, Mo. Filed Feb. 19, 1892. Serial No. 422,158. (No model.)

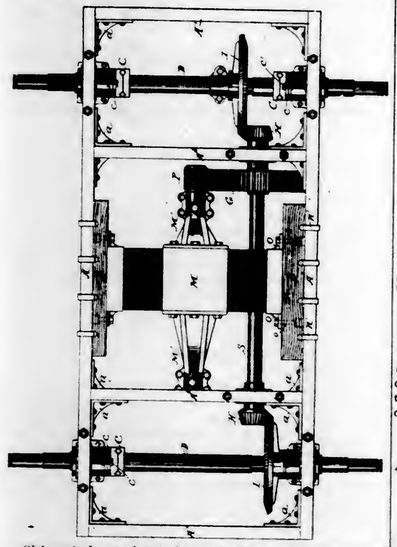
Claim.—1. A saw mill feed mechanism comprising a shaft for operating the carriage, a shaft carrying a longitudinally sliding friction wheel, an endwise moving shaft carrying a friction disk which engages the friction wheel, a rocking shaft, an operating lever pivotally connected with the said shaft to swing at right angles to its rotation, a lever having its inner end to move the friction wheel, a link connected with the rocking shaft at one end and its outer end connected to the outer end of the said friction wheel lever, an arm extending from and secured to the rocking shaft, a link connecting the free end of this arm and the friction wheel lever between its ends, a lever pivotally connected at one end and its opposite end connected with the operating lever, the said pivoted lever having its opposite end connected with the endwise moving shaft, all operating substantially as specified.

491,856.



2. A saw mill feed mechanism comprising a shaft for operating the carriage, a shaft carrying a longitudinally sliding friction wheel, an endwise moving shaft carrying a friction disk which engages the friction wheel, a rocking shaft, an operating lever pivotally connected with the rocking shaft to swing at right angles to its rotation, a lever *c*, having its inner end loosely connected with the sliding friction wheel and its outer end loosely supported to allow endwise movement thereof, an arm rigidly connected at one end with the rocking shaft and its opposite end loosely connected with the said lever *c*, and a connection between the pivoted operating lever and the endwise moving shaft, substantially as specified.

491,857. ELECTRIC LOCOMOTIVE. FRANK B. RAE, Detroit, Mich., assignor to the Detroit Electrical Works, same place. Filed Apr. 11, 1891. Serial No. 388,468. (No model.)



Claim.—1. In an electric locomotive the combination with a truck frame consisting of metallic side, end and cross pieces united together and provided with metallic angle pieces at the corners to form a rigid structure, of blocks of wood secured to the frame, an electro motor, the field magnets of which are provided with flanges by means of which the motor is attached to said blocks, and insulated from the frame, an armature shaft supported in bearings secured to the cross bars of the frame and provided with beveled pinions, and axles mounted on the side bars of the frame, and each provided with a beveled gear engaging with the beveled pinions of the armature, substantially as described.

2. In an electric locomotive, the combination with a metallic frame, of wooden blocks secured to the sides of the frame, an electric motor secured to the wooden blocks, an armature shaft mounted in insulated bearings in the cross pieces of the frame, axles mounted in the frame, and provided with beveled gear wheels, and beveled pinions mounted on the armature shaft and insulated therefrom and gearing directly with the beveled gears, substantially as described

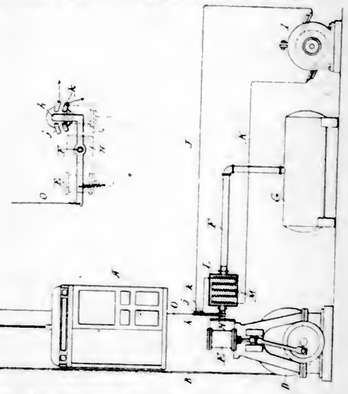
491,858. PROCESS OF MAKING SAFETY-PAPER. ALBERT SCHLUMBERGER, Paris, France. Filed Jan. 4, 1892. Serial No. 417,034. (Specimens.) Patented in France May 6, 1891, No. 213,285.

Claim.—1. In the art of making safety paper the process which consists in first dyeing the splash fibers, mixing them with paper-pulp, making paper from the mixture and finally acting upon the fibers in a portion of the paper by reagents which modify the dye in the splash-fibers, substantially as set forth.

2. In the art of making safety-paper, the process which consists in dyeing splash-fibers with indigo, then mixing them with paper pulp and making paper from the resulting mixture and then applying to portions of such paper a substance containing citric acid and alum, substantially as set forth.

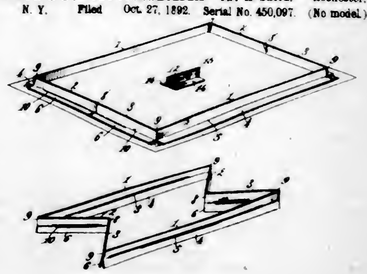
3. In the art of making safety-paper, the process which consists in dyeing splash-fibers with indigo, then mixing them with paper-pulp and making paper from the resulting mixture, then applying to a portion of the paper a solution of citric acid and alum to remove the dye from the splash-fibers and finally rinsing the paper, substantially as set forth.

491,859. HEATER FOR COMPRESSED-AIR ENGINES. RUDOLPH C. SMITH, Yonkers, assignor to the Otis Brothers & Company, New York, N. Y. Filed Aug. 28, 1891. Serial No. 403,981. (No model.)



Claim.—The combination with an elevator and an engine for operating it of a source of compressed air connected to operate the engine, an electric heater arranged to heat the compressed air and a controlling device for the engine valve connected to be operated from the elevator, the said valve controlling device controlling the electric circuit of the heater, substantially as described.

491,860. FLY-PAPER HOLDER. JAY H. SMITH. Rochester, N. Y. Filed Oct. 27, 1892. Serial No. 450,097. (No model.)



Claim.—1. As an improved article of manufacture, a holder for preserving a sheet of fly paper in a flat condition while the sticky field is exposed in use, consisting of substantially vertical end pieces and similar side pieces jointed to the extremities of the end pieces and also jointed intermediate their jointed ends to fold inward toward each other between the said end pieces and thus bring the latter together, substantially as and for the purposes described.

2. A fly paper holder, consisting of end pieces and side pieces having flanged lower edges and jointed together and also jointed to the end pieces, whereby the holder can be collapsed or folded into a substantially flat condition and subsequently extended or unfolded and by the said flanges caused to adhere to the border, edge or margin of the sticky field of the fly paper, substantially as described.

3. A fly-paper holder, consisting of end pieces and side pieces jointed to the end pieces and also jointed intermediate their ends to fold inward toward each other so that the end pieces are brought close together, the parts having lateral flanges at their lower edges to provide extended surfaces which can be caused to adhere to the adhesive border, edge or margin of the sticky field of the fly paper, for the purpose of securing the holder and holding the fly paper in a flat condition, substantially as described.

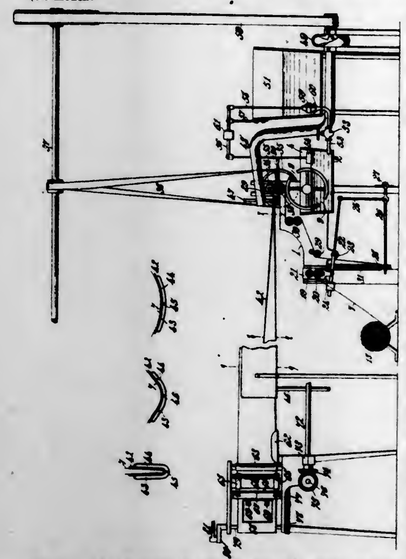
4. A fly paper holder, consisting of a flexible jointed frame collapsible into a substantially flat condition and provided at the lower edges with laterally projecting flanges jointed to said side and end pieces, substantially as described.

5. A fly paper holder, consisting of end pieces 1 and side pieces 2 jointed to the extremities of the end pieces and also jointed intermediate their ends to fold inward toward each other, said side pieces being provided with laterally projecting flanges 6 jointed thereto and adapted to be turned substantially into the plane of the side pieces for collapsing the holder into a flat condition, substantially as described.

6. A fly paper holder composed of the jointed, collapsible frame, and the center support composed of jointed strips having base flanges adapted to be applied to the sticky field of a sheet of fly paper, substantially as and for the purpose described.

491,861. MACHINE FOR THE MANUFACTURE OF FLY-PAPER.

JAY H. SMITH and MARK D. KNOWLTON, Rochester, N. Y.; said Knowlton assignor to said Smith. Filed Oct. 29, 1892. Serial No. 450,369. (No model.)



Claim.—1. In a machine for making sticky fly paper, the combination of a tank divided into two compartments for containing adhesive material, a shaft journaled on the tank, a pair of drums both mounted on said shaft in line with each other and arranged, respectively, in the two compartments, one drum serving to apply the sticky field to the paper at one side of the median line thereof and the other drum having annular ribs 13 and transverse ribs 14 to apply an adhesive border to the paper at the opposite side of the median line thereof and across the width of the same, and a folding device for folding the paper longitudinally, substantially as described.

2. In a machine for making sticky fly paper, the combination with a tank divided into two compartments for containing adhesive material, of a pair of drums arranged respectively in the two compartments, one drum serving to apply the sticky field to the paper at one side of the median line thereof and the other drum having annular ribs 13 and transverse ribs 14 to apply an adhesive border to the paper at the opposite side of the median line thereof and across the width of the same, substantially as described.

3. In a machine for making sticky fly paper, the combination with a tank for the sticky coating material, and a rotary drum mounted in said tank and adapted to apply the sticky coating to a continuous strip of paper, of a supply tank, a pipe leading from the bottom portion of one tank to the bottom portion of the other tank and having one end constructed with a valve seat and extended upward within the supply tank, a lever having suspended from one end a valve adapted to the valve seat of said connecting pipe to control the flow of sticky material from the supply tank and a float suspended from its other end to operate in the material contained in said coating tank, and an adjustable weight attached to said lever to control the reciprocal movements of said float and valve according to the required depth of material in the coating tank, substantially as described.

4. In a machine for making sticky fly paper, the combination with a rotary drum for applying sticky coating material to a continuous strip of paper, a reel for supporting the roll of paper, and feed rollers located intermediate said reel and rotary drum, of vertically movable yokes in which one of the upper feed rollers is journaled, weighted levers to which the lower ends of said yokes are pivotally attached, levers pivoted to the frame of the machine below the weighted levers and connected therewith by intermediate links, and a vertically movable sag roller normally supported in the slack of the moving paper strip and adapted to drop on to said lower levers and thereby through the link connection actuate the weighted levers to raise the yokes and attached upper feed roller to stop the feed when too rapid, substantially as described.

5. In a machine for making sticky fly paper, the combination with a reel for supporting a roll of paper, a rotary drum for applying sticky coating material to a moving strip of paper, and feed and guide rollers located intermediate said wheel and rotary drum, of an automatically controlled feed and tension mechanism for governing the slack of the paper, substantially as described.

6. In a machine for making sticky fly paper, the combination with two rigidly connected rotary drums one of which is adapted to apply coating material to a continuous strip of paper in the form of a series of sticky fields on one side of the longitudinal median line of said paper and the other drum adapted to apply a more sticky coating material to the other side of said median line in the form of a series of borders to register with said fields, of a roller located above said drums in position to coact therewith in coating said paper strip, and a perforating wheel located above said roller in contact with the coated paper strip to provide the same with a series of perforations in its medial line, substantially as described.

7. In a machine for making sticky fly paper, the combination with the coating mechanism, of a concaved cooling trough adapted to receive the coated strip of paper, said trough being gradually increased in depth and decreased in width from its receiving end to its exit end, substantially as described.

8. In a machine for making sticky fly paper, the combination with the coating mechanism, of a concaved cooling trough constructed with double walls to form a water jacket that is divided into two compartments by a longitudinal partition at its bottom, said trough being gradually increased in depth and decreased in width from its receiving end to its exit, substantially as described.

9. In a machine for making sticky fly paper, the combination with the coating mechanism, of a cooling trough constructed with double walls to form a water jacket and provided with an inlet at one end and an outlet at its other end, substantially as described.

10. In a machine for making sticky fly paper, the combination, with a cooling trough through which a continuous strip of coated and longitudinally perforated paper is passed from a coating and perforating mechanism, of creasing plates to fold the said strip of paper longitudinally in the line of its said perforations, substantially as described.

11. In a machine for making sticky fly paper, the combination with a cooling trough that is gradually increased in depth and decreased in width from its receiving end to its exit end, said trough adapted to receive a continuous strip of coated and longitudinally perforated paper from a coating and perforating mechanism, of creasing plates that receive and fold the paper in its line of perforations as it leaves the exit end of said trough, and vertical transfer rollers between which the folded strip of paper is passed to mat the opposite sides together and effect a mutual transfer of their respective coatings of sticky material, substantially as described.

12. In a machine for making sticky fly paper, the combination with the transfer rollers, of a pair of feed rollers adapted to receive the folded strip of paper from said transfer rollers and provided with enlarged ends to grasp said paper along its uncoated margins, stationary plates or cutters between which the folded strip of coated paper is passed from said feed rollers, and a rotary cut-off knife to sever said folded strip into proper lengths, substantially as described.

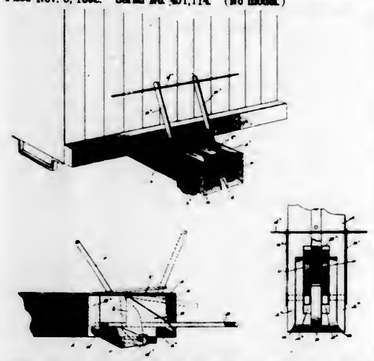
13. In a machine for making sticky fly paper, the combination with two rotary drums rigidly connected and adapted to rotate together for the purpose of applying sticky coating material to a continuous strip of paper on opposite sides of the median line thereof, so that when said paper is folded longitudinally the coatings applied by the respective drums will register with each other, of a folding mechanism, a feeding and cutting mechanism comprising two vertical rollers and a rotary cutter, and gearing for actuating said feeding and cutting mechanism from the rotary coating drums, whereby the continuous paper slip is severed into suitable lengths through the uncoated spaces or intervals between the coated surfaces, substantially as described.

14. In a machine for making sticky fly paper, the combination with a rotary coating drum having annular grooves at or near its ends and provided at intervals with flattened or reduced portions corresponding with the uncoated separating margins to be left on the coated paper strip between the several prints or sheets, said grooves being deepened at said flattened or reduced portions of the drum, of a scraper extended lengthwise of said drum, arms to which said scraper is attached by means of set screws that are adjustably engaged in the grooves of the drum whereby the scraper is adapted to control the thickness of the coating material on the drum, and springs bearing on said arms to hold the scraper in operative position, substantially as described.

15. In a machine for making sticky fly paper, the combination with a coating drum and a roller and perforating wheel arranged above said drum, of a vertically movable box or frame in which said roller and perforating wheel are supported and a lever attached to said box or frame for lifting the roller and perforating wheel away from the coating drum, substantially as described.

491,862. CAR-COUPLING.

JAMES W. STEELE, Elizabethtown, N. Y. Filed Nov. 5, 1892. Serial No. 451,114. (No model.)



Claim.—1. In a car coupler, the combination of the rectangular link having the rectangular projections at each end with the vertical rectangular slot in the drawhead designed to receive the link projections, substantially as described.

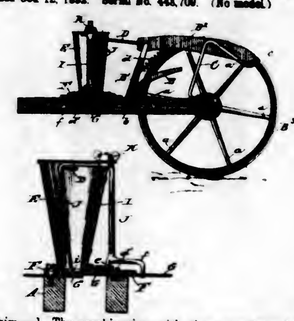
2. The combination of the drawhead A having sides A′ A′ and slots A^3 A^3, the pin B located centrally in the drawhead and having an inclined forward face and a vertical rear face, the flat horizontal spring C tensioned in contact with the upper end of the pin B and the rear slot E′, together with the link E having the projections *e e*, substantially as described.

3. The combination of the drawhead A, the pin B therein, having an inclined front face and a vertical rear face, the flat spring C resting adjustably on the upper end of the pin and the cams D D working in the slots A^3 A^3 and operative by suitable levers for the purpose of disengaging the link from the pin, substantially as described.

4. The combination of the drawhead A, pin B having an inclined front face and a vertical rear face, flat spring C resting upon the upper end of said pin, rectangular recess E′ in the rear end of the drawhead, a link E having the rectangular end projections *e e* which are designed to enter the recess E′, and the cams D D operating within the slots A^4 and having the end projections *d d*, substantially as described.

491,863. SEED-PLANTER.

GEORGE A. STILES, Spokane, Wash. Filed Oct. 12, 1892. Serial No. 448,709. (No model.)



Claim.—1. The combination with the actuating wheel having laterally projecting pins; of the rocking arms B B′, the spring pressed drag pawl B^3 with shoulder *c*, the tripping and guiding arm C, and seeding mechanism connected to and operated by said devices substantially as shown and described.

2. The combination with a seed box, of a rocking frame operating about a vertical axis and having at its lower end an arm outside the box and its other end bent down inside the box to form a stirrer, an oscillating feed plate, and means for operating it substantially as shown and described.

3. The combination of the seed box with standard I, the oscillating feed plate G with different sized seed cavities, the adjustable subjacent plate G′, the rocking frame J with arm *f* entering the feed plate and its opposite end bent down into the seed box to form a stirrer, the removable nut K, and means for operating the parts substantially as shown and described.

491,864. BREAST-STRAP.

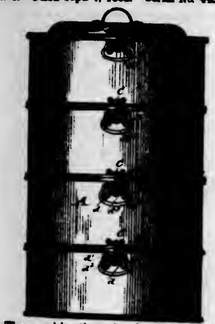
HIRAM D. STODDARD, Binghamton, N. Y. Filed Oct. 22, 1892. Serial No. 449,708. (No model.)



Claim.—1. A breast strap, comprising two separate bands or straps, each having a snap hook attached centrally thereto, the ends of said straps being perforated, and a wear iron having a central pin adapted to be passed through the perforations in said bands or straps, for connecting the latter together, substantially as described.

2. A breast strap, comprising two separate bands or straps, each having a snap hook attached centrally thereto, the ends of said straps being perforated, a wear iron, having a central pin adapted to be passed through the perforations in said bands or straps, for connecting the latter together, and a loop for each of said bands or straps, each of said loops engaging its strap contiguous to the snap hook and having projecting inward from one of its sides a pin received by a perforation in the strap, said pin being of no greater length than the thickness of the strap, substantially as described.

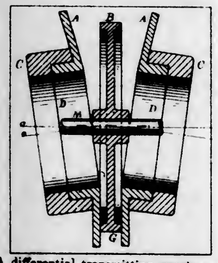
491,865. SECTIONAL COOKING-BOILER. CHARLES W. WYNN, Asheville, N. C. Filed Sept. 7, 1892. Serial No. 445,375. (No model.)



Claim.—1. The combination of a plurality of boiler sections, having telescopic connections at their lower end, said sections provided with swinging handles D at their upper end, said handles D having angle members d^2 at the upper ends, upwardly extending lifting fingers, pivotally connected at their lower ends in the free end of such angle members, all arranged substantially in the manner and for the purpose described.

2. As a new article of manufacture, a swinging handle for sectional boilers, formed with an angle member and an upwardly extending lifting finger pivotally connected at its lower end to the free end of the angle member all substantially as shown and described.

491,866. VARIABLE TRANSMITTING GEARING. HANS C. BEHR, San Francisco, Cal. Filed Apr. 21, 1892. Serial No. 430,028. (No model.)



Claim.—1. A differential transmitting gearing, consisting of a driven element having an axis, a pair of driven disks between which the driven element is located, said disks being provided with hollow journals supported loosely in standards, said journals having an internal diameter large enough to permit a lateral adjustment of the axis of the driven element to such an extent as the variation of relative speed may require, and the axes of the disks forming an angle with each other, all of said parts being arranged so that there may be a pressure between the disks and the rim of the driven element, at a point on one side of the axes, substantially as described.

2. A differential transmitting gearing, consisting in the combination of a wheel B, having an axis M, a pair of disks A A, between which the wheel B is located, said disks A A being provided with hollow journals D supported loosely in the standards or brackets C C, the axes of the disks A forming an angle with each other, said angular position being only sufficient to insure pressure at a point, as E, on one side of the axis and avoid contact at a point, as J, on the opposite side of the axis, said journals D having an internal diameter large enough to permit a lateral adjustment of the axis M, to such extent as the variations of relative speed may require, and the springs for the purpose of permitting varying degrees of pressure between the frictional driving surfaces, substantially as described.

491,867. ROLLER-BEARING. RICHARD L. BERRY and JAMES M. OLIVER, Orangeburg, S. C. Filed Oct. 20, 1892. Serial No. 449,436. (No model.)

Claim.—1. In an anti-friction bearing, the combination of a frame or casing having a central aperture from which extend recesses, blocks located within said recesses and provided with bearings for rollers, together with a casing having inclined surfaces which bear against the blocks, and rollers which bear upon the adjustable blocks substantially as shown, and for the purpose set forth.



2. In an anti-friction bearing, a frame or casing A having a central aperture from which extend recesses, movable blocks located within said recesses, said blocks having bearings on their inner ends for anti-friction rollers and beveled outer ends, together with the anti-friction rollers and a cover having an annular portion, on the inner side of which are formed inclined surfaces against which the inclined surfaces of the blocks bear, said cover being movable for the purpose set forth, and means for holding the cover against movement, substantially as shown.

491,868. LOCK. JAMES D. BOWLEY, Woodlawn, Ala. Filed Mar. 14, 1892. Serial No. 424,877. (No model.)



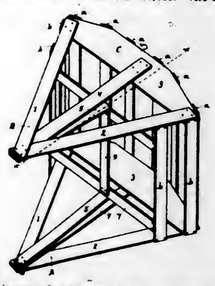
Claim.—1. In a lock, the combination with a case and latch bolt, of a key spindle located in the rear of the latch bolt, a notched tail piece upon the latch bolt, and a counter-weight upon the key spindle, substantially as and for the purpose specified.

2. In a lock, the combination with a latch bolt provided with a notched tail piece, of a key spindle provided with projections in operative relations with the notched tail piece of the latch bolt, the counter, weight upon the key spindle, and a key pin upon the outside end of the spindle, substantially as and for the purposes specified.

3. In a lock, the combination with a case and latch bolt provided with a notched tail piece, of a key-spindle in operative relations with the notched tail piece and provided with a lug thereon, a cut away portion on the inside of the spindle and a sliding locking plate for engagement with the cut away portion of the spindle for holding it against rotation, substantially as and for the purposes specified.

4. In a lock, the combination with a casing having a through opening therein, a revoluble key spindle in said opening of a notched circular plate on the head of the spindle, and a weighted key spindle having a correspondingly membered key wing to register with the notches in the plate and rotate the key spindle, substantially as specified.

491,869. CARRIAGE-TOP CRATE. BURRITT B. BREED, Cincinnati, Ohio. Filed Oct. 13, 1892. Serial No. 448,726. (No model.)

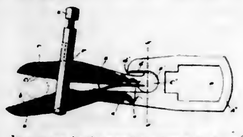


Claim.—1. A crate for shipping buggy tops, consisting of two V-shaped end sections A and B having lateral braces 1 and 2, and the skeleton box section C rigidly secured to the end sections and serving to receive and cover the stretched buggy top, while the V-shaped end sections form leg compartments for the bows, substantially as described.

2. A crate for shipping buggy tops, consisting of two V-shaped end sections A and B, having lateral braces 1 and 2, and the skeleton box section C rigidly secured to the skeleton end sections and serving to receive and cover the stretched buggy top, while the V-shaped end sections receive and cover the bows with the open space between said legs for nesting the crated tops together, substantially as described.

3. A crate for a buggy top composed of the V-shaped sections A, B, with the inclosing strips 4, 5, adapted to inclose the bows of the buggy top, in combination with the top skeleton compartment C with the supporting strips 6, 6 and 9, substantially as specified.

491,870. WRENCH. WILLIAM H. BROOKS, Trenton, N. J., assignor to the American Saw Company, same place. Filed Nov. 14, 1892. Serial No. 451,990. (No model.)



Claim.—1. In a wrench, the combination of the main shank having a fixed jaw and provided with a slot, a movable jaw having its inner end loosely entering said slot and seated therein with considerable play, a spring carried by the movable jaw and acting against the fixed jaw and a link connection between the two jaws, substantially as described.

2. In a wrench, the combination of the main shank, having an integral fixed jaw and provided with a slot having a V-shaped tongue thereon, a movable jaw having its inner end located within said slot and provided with a groove which engages said tongue, a spring between the two jaws and a link connection for holding the jaws together, substantially as specified.

3. The combination of the main handle A, having fixed jaw B, with serrated edge b, said handle having also the slot D with the rounded inner end D', the movable jaw C having the serrated edge c, and the rounded inner end C' seated loosely against the end D' there being a tongue and groove connection between said fixed and movable jaws, as shown and the link connection F for holding the two jaws together substantially as described.

4. The combination of the main shank A, having fixed jaw B and slot D, one edge of which has the V-shaped tongue d and the stop or lug d', the movable jaw C having the rounded end C' with a V-shaped groove a' engaging the tongue d, the spring E carried by the movable jaw, and the adjusting link F engaging the two jaws and provided with the screw G, substantially as described

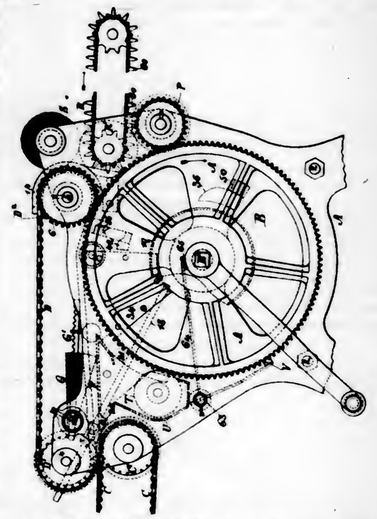
491,871. MACHINE FOR STRIPPING AND STEMMING TOBACCO-LEAVES. GEORGE W. CABLE, New York, N. Y., assignor to himself and J. Turner Morehead, Louisville, N. C. Filed Apr. 13, 1892. Serial No. 429,005. (No model.)

Claim.—1. The combination with a feeding belt and a revolving cylinder, of conveying bars, endless chains and pulleys for such conveying bars, a platform between the feeding belt and the cylinder and a tension brush acting in connection with the platform for applying the necessary detaining force to the tobacco leaves as they are drawn into the machine, substantially as set forth.

2. In a tobacco stripping machine, the cylinder B, in combination with the conveying bars, the endless chains and pulleys for the same, the pins projecting through the conveying bars and secondary bar to which the pins are attached, and means for moving the secondary bar and withdrawing the pins, the platform intervening between the feeding belt and the cylinder, a tension brush above the platform, a weight for applying the proper tension to the brush and an arm and cam for raising such brush as the conveying bars pass beneath the same, substantially as set forth.

3. In a tobacco stripping machine, the combination with the revolving cylinder for carrying the tobacco leaves through the machine, of a range of fingers projecting above the surface of the cylinder for holding up the thin portions of the leaves, a range of clamping hooks contiguous to such fingers and shafts for the same, pinions and a rack bar for giving a partial rotary motion to such clamping hooks to turn them over the stems and springs for applying pressure by the hooks upon the stems, substantially as set forth.

4. The combination in a machine for stemming tobacco, of a revolving cylinder for conveying the tobacco through the machine, a range of fingers projecting from the surface of such cylinder for holding up the thin parts of the leaves and allowing the stems to pass in between the fingers, a range of clamping hooks contiguous to the fingers and mechanism for partially rotating such hooks and for moving the same to clamp the stems and a knife for separating the advancing ends of the stems in front of the clamping hooks, substantially as set forth.



5. In a tobacco stemming machine the combination with the cylinder for carrying the leaves through the machine, of a range of fingers projecting from the cylinder, a bar within the cylinder for supporting such fingers, springs for drawing the fingers toward the cylinder, a range of clamping hooks adjacent to the fingers, shafts for such hooks, cross bars for supporting the shafts, pinions and a rack bar for partially rotating the shafts and hooks, stationary cams at the ends of the cylinder for moving the rack bar, springs for forcing the hooks toward the surface of the cylinder and latches for holding the cross bar and clamping hooks when the latter are raised from the surface of the cylinder, substantially as set forth.

6. The combination with the cylinder B, of the guide fingers projecting from the surface of the cylinder, a cross bar within the cylinder to which the guide fingers are connected, springs for moving the cross bar and drawing the guide fingers toward the surface of the cylinder, holding fingers for the cross bar and a bar and cam for sustaining and giving motion to the holding fingers, substantially as set forth.

7. The combination with the cylinder B, guide fingers projecting from its surface and a cross bar supporting such fingers, of clamping hooks adjacent to the fingers and mechanism substantially as specified for giving motion to the clamping hooks, a knife in front of the clamping hooks, knife stock and cams for giving motion to the knife and causing the same to cut the advancing ends of the stems, substantially as set forth.

8. The combination with the cylinder B and feeding belt, of the platform F pivoted to the frame of the machine and with the moving end adjacent to the cylinder, a cam for raising such platform, a tension brush over the platform and pivoted upon the frame of the machine, an arm and cam for moving the same, conveying bars, chains and pulleys for moving the conveying bars over the platform and in contact with the cylinder, guide fingers upon the cylinder, clamping hooks adjacent to the guide fingers and mechanism substantially as specified for giving motion to the same and a knife in front of the hooks for severing the stems adjacent to the clamping hooks, substantially as set forth.

9. The combination in a machine for stemming tobacco leaves, of a cylinder and fingers projecting from such cylinder and between which the stems pass, clamping hooks adjacent to the fingers and mechanism substantially as specified for giving motion to such hooks and causing them to hold the stems, a knife adjacent to the clamping hooks for severing the stems and a delivery belt with wipers acting to remove the leaves from the stems as such stems remain in contact with the cylinder, substantially as set forth.

10. In a machine for stemming tobacco, the combination with the

cylinder for carrying the leaves through the machine and hooks for holding the stems, of a delivery belt running adjacent to the surface of the cylinder and having ranges of wipers acting to raise and convey away the tobacco leaves, substantially as set forth.

11. In a machine for stemming tobacco leaves, the combination with the cylinder for conveying the leaves through the machine and hooks thereon for holding the stems, of an endless belt and ranges of wipers running contiguous to the surface of the cylinder for delivering the leaves from the machine, and a rotary brush between which and the belt the leaves pass as delivered, substantially as set forth.

12. The combination with the revolving cylinder in a machine for stemming tobacco leaves, of clamping hooks upon such cylinder, for holding the stems, a delivery belt running contiguous to the surface of the cylinder for removing the leaves from the stems and discharging such leaves and an elastic roller acting with the revolving cylinder for passing the stems away from the leaves, substantially as set forth.

13. In a tobacco stemming machine the combination with the revolving cylinder for conveying the tobacco through the machine, of guide fingers projecting from the surface of the cylinder, clamping hooks adjacent to the fingers and mechanism substantially as specified for moving the hooks and holding the stems, a delivery belt running adjacent to surface of the cylinder for removing the leaves from the stems and a water vessel and brush for cleaning the surfaces of the cylinder, clamping hooks and guide fingers, substantially as set forth.

491,872. SLIDING FRICTION-TONGS. CARLTON W. CANFIELD, Winthrop, Minn. Filed Oct. 19, 1892. Serial No. 449,385. (No model.)



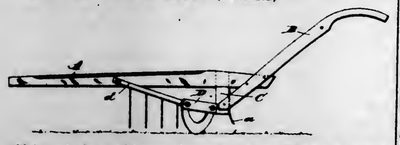
Claims.—1. The tool for the purpose herein specified, comprising the parallel jaws A, A′, having near their heads coincident semi-circular recesses or seats, the yoke at right angles to said jaws, and in which their heads are held, the jaw A being secured in said aperture loosely by an adjustable bolt or pivot, and the jaw A′ by means of bolts or pins above and below said yoke, and having a set screw provided with bearings in said yoke and engaging a seat therein, whereby it is adjustable toward and away from the jaw A, substantially as specified.

2. The herein described friction tongs, comprising the parallel jaws A, A′, adapted to contact with a pipe surface, the head piece or yoke B at right angles to said jaws, and having an aperture therein to receive the heads of said jaws, the jaw A being secured therein by a bolt or pivot passing through the jaw and the head piece, the jaw A′ having a screw bearing thereon to adjust it toward and away from the jaw A, and an adjusting screw, substantially as specified.

3. The friction tongs, comprising the parallel jaws A A′, having each a corresponding semi-circular serrated recess adapted for contact with a pipe surface, a head piece or yoke B at right angles to said jaws, and having therein a recess or aperture *b*, in which the heads of said jaws are adjustably held, one of said jaws being free to move in said yoke toward and away from the other, and a set screw engaging said movable jaw through said yoke, substantially as specified.

4. The herein described friction tongs, comprising the parallel jaws A, A′, having each a corresponding semi-circular recess therein, a groove *a′* in the wall of each said recess, a semi-circular die or grip for each jaw seated in said recess, and having a flange engaging said groove and removably secured therein, a head piece or yoke B at right angles to said jaw, said head piece or yoke having an aperture *b*, in which the heads of said jaws are loosely held, and a set-screw engaging one of said jaws through said yoke, substantially as specified.

491,878. CULTIVATOR. MATTHEW CASEY, Smithfield, N. C. Filed Aug. 31, 1892. Serial No. 444,652. (No model.)

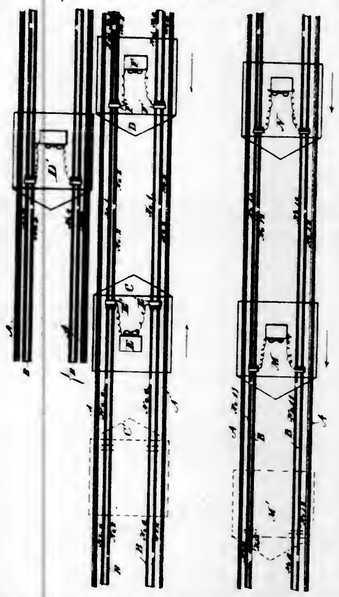


Claim.—1. In a cultivator, the combination of the main beam A carrying a short depending standard C, handles attached near the rear end of the beam and to the lower end of the standard, bars or beams carrying cultivator knives semi-annular in form, said bars being removably attached to the standard and provided at their outer ends with brace rods, substantially as shown, and for the purposes set forth.

2. In a cultivator for the purposes set forth, the combination of the main beam having a short depending standard and handles, of spring teeth attached to the standard so as to depend below the same, the lower ends of said teeth being rearwardly inclined, beams carrying cultivators attached to the forward portion of the standard so as to project laterally therefrom and locate the cultivators on opposite sides of the standard, bars or rods *d* attached to the outer ends of the cultivator beams and to the main beam, substantially as shown, and, for the purposes set forth.

3. The combination in a cultivator, of the main beam, short depending standard, and handles, rigidly secured to each other, substantially as shown, cultivator carrying bars or beams D′, brace bars extending from the ends of said cultivator beams to the main beam, the brace bars being provided with depending teeth, substantially as shown, and for the purpose set forth.

491,874. ELECTRIC SIGNAL. FRANK H. CLARKE, Springfield, Ohio, assignor of one-half to Alfred L. Clarke, same place. Filed Oct. 24, 1892. Serial No. 449,813. (No model.)



Claim.—1. In electric signals for railroads, the combination with a double set of electrical conductors located in parallel lines and overlapping each other in each set, and corresponding with each other, to form a double series of overlapping pairs of conductors to constitute overlapping blocks, and an audible signal, of generators producing alternating currents, carried by the trains, and electrical connections from each generator to each set of conductors, respectively, said signal being in the circuit so formed, whereby signals are sounded and a circuit is completed from one set to the other, when the generators of two trains are in electrical connection with the same block.

2. In electric signals for railroads, the combination with a pair of insulated electric conductors mounted at one side of the track, of another pair of said conductors at the other side, matching with the first pair and insulated therefrom, and so on successively, whereby a double series of overlapping blocks is formed, of generators producing an alternating current of electricity, carried by trains, and electrical connections and contacts between said generators and each double line of conductors, respectively, and an audible signal in each train, each in the circuit so formed.

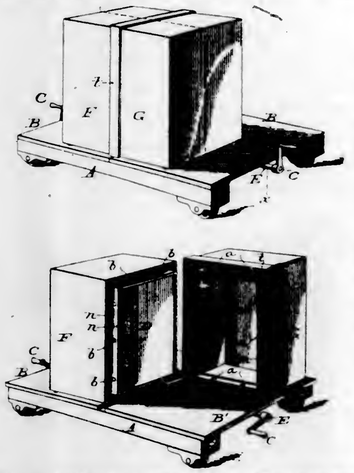
3. In electric signals for railroads, the combination with a double set of overlapping electric conductors forming blocks, of an auxiliary line of conductors forming a loop extending out into a side track, and means to electrically connect and disconnect such side track loop with the conductors of the main line.

4. In electric signals for railroads, the combination with overlapping electric conductors forming a double line at each side of the track and constituting blocks; of a double loop of electric conductors extending out along a side track, the ends of the loops being adjacent to each set of conductors on the main line, respectively, and an electric switch consisting of a movable plate for each set of the main-line conductors, and adapted to be brought into and out of electric engagement with the ends of the side track loops by the operation of the switch in setting the switch-rails for the side track and main line, respectively.

5. The hereindescribed system of automatic signaling, the same consisting of electrical generators carried by some part of trains, electrical connections and contact pieces proceeding from the respective generators, audible signals also carried by the trains and in the generator circuits, and electric conductors adjacent to the railway bed with which said contact pieces are in electrical engagement, such line conductors consisting of a double set of lengths or sections, the lengths or sections of one set overlapping those of the same set, and the lengths or sections of each set terminating opposite to the corresponding lengths or sections of the other set, whereby electrical communication may be established between a plurality of trains occupying at the same time corresponding lengths of the opposite sets and overlapping adjacent lengths.

6. The hereindescribed system of automatic signaling, the same consisting of alternating-current electrical generators carried by some part of trains, electrical connections and contact pieces proceeding from such generators, audible signals also carried by the trains and in the generator circuits, and electrical conductors adjacent to the road bed and composed of lengths or sections arranged in pairs at either side, the lengths or sections of one pair overlapping those of another pair, and the lengths or sections of the same pairs terminating opposite to one another, whereby an audible signal will be sounded in a plurality of trains moving in the same direction and occupying the same section of the respective sets.

491,875. SAFE. WILLIAM CORRY, Cincinnati, Ohio. Filed Oct. 17, 1892. Serial No. 449,082. (No model.)



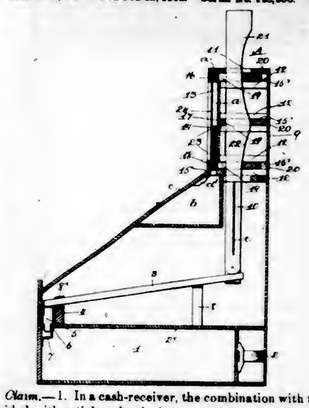
Claim.—1. A safe or vault composed two sections or parts, each provided on its face with a flange arranged to overlap or telescope upon the flange of the other section when brought together in a right line, with an automatic bolt work arranged to project its bolts through holes in the flanges of the respective sections, whereby the parts can be securely fastened together without rotating either of the parts, and without the use of any knob, spindle or bolt projecting through the walls to the exterior.

2. In combination with a safe or vault composed of two rectangular sections or parts, each part provided on its meeting face with one or more flanges and grooves arranged to fit into or with those of the other part when brought together in a right line, an automatic bolt work secured to or upon a door hinged within one of the parts in such relation to the overlapping flanges of the sections as to project its bolts through holes in the flanges of both sections, substantially as shown and described.

3. In combination with a safe composed of two sections or parts, a reciprocating platform carrying one of said sections, said platform being provided with guides to insure the accurate movement of the section in a right line, all mounted on a movable frame substantially as set forth.

4. The combination of a safe composed of two sections each provided with interlocking flanges on their meeting edges, a movable frame or support having a screw shaft mounted therein, with one or more movable platforms mounted on said frame and connected with said screw shaft, the whole being arranged to operate substantially as and for the purpose set forth.

491,876. CASH REGISTER AND TILL. ANDREW L. CRAWFORD, Columbus, Ga. Filed Oct. 12, 1892. Serial No. 448,630. (No model.)



Claim.—1. In a cash-receiver, the combination with the casing A provided with a ticket-slot in its upper and vertical portion, having transverse slots in the back wall thereof, slides in the slots arranged to move horizontally across and close the ticket-slot alternately, springs on the slides to hold them retracted a plunger-rod formed with cam-surfaces to engage and push the slides alternately across the ticket slot, and a spring to support the plunger-rod and throw it up, substantially as described.

2. A cash-receiver comprising the casing A, a cash-drawer in the lower portion of the casing, a spring to push the drawer open, a lever fulcrumed over the cash-drawer in the casing and provided with a catch on the end to engage and hold the cash-drawer locked, a spring to bear on the latch end of the lever, a ticket-slot in the upper portion of the casing having transverse slots therein, spring actuated slides in the transverse slots of the ticket-slot to close the same, a plunger-rod having cam-surfaces to engage the slides against the force of the springs, said plunger-rod being jointed to the long-arm of the lever over the cash-box, substantially as and for the purposes set forth.

491,877. AGRAFFE FOR PIANOS. PHILIP J. DUGGAN, Boston, Mass., assignor of one-half to Peter Krumschied, same place. Filed May 27, 1892. Serial No. 434,680. (No model.)

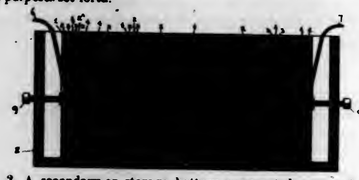


Claim.—In a piano forte, an agraffe having diamond shaped beveled edged string holes, substantially as and for the purpose set forth.

491,878. SECONDARY BATTERY. NATHAN H. EDGERTON, Philadelphia, Pa. Filed July 11, 1892. Serial No. 439,710. (No model.)

Claim.—1. A secondary or storage battery constructed, arranged and adapted to operate free of any characteristic surrounding electrolytic liquid, consisting of a series of independent frames unsusceptible to the action of electricity or electrolytic liquid, each provided with a metal plate, the plate in the respective end frames of the bat-

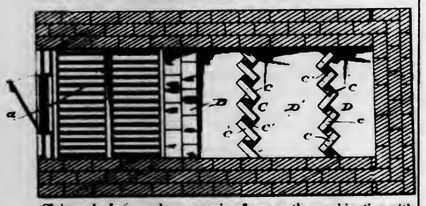
tery provided on one side with a layer of active material, and the respective intermediate plates provided as to both sides with a layer of active material, a moisture-absorbing agent of the character described, intermediate adjacent layers of active material of neighboring frames, the end metal plates in the series adapted to become of different polarity upon the passing of the charging current, and each intermediate plate adapted to become of different polarity as to its respective sides or surfaces upon the passing of the charging current, in successive order throughout the series to preserve polarity, and electrical connections with the respective end metal plates, as and for the purposes set forth.



2. A secondary or storage battery constructed, arranged and adapted to operate free of any characteristic surrounding electrolytic liquid, consisting of a series of independent non-conducting frames, each frame provided with a metal plate, the respective plates in the end frames of the battery provided on one side with a layer of active material, and the respective intermediate plates provided as to both sides with a layer of active material, a moisture-absorbing agent of the character described, intermediate adjacent layers of active material of neighboring frames, the metal plates in the respective end frames adapted to become of different polarity upon the passing of a charging current, and each intermediate metal plate similarly adapted to become of different polarity as to its respective sides or surfaces upon the passing of a charging current, in successive order throughout the series to preserve polarity, and electrical connections with the end plates only, as described and for the purposes set forth.

3. A secondary or storage battery constructed, arranged and adapted to operate free of any characteristic surrounding electrolytic liquid, consisting of a series of independent frames unsusceptible to the action of electricity or electrolytic liquid, each frame provided with a metal plate, the plate in the respective end frames of the battery provided on one side with a layer of active material and the respective intermediate plates provided as to both sides with a layer of active material, a moisture-absorbing agent of the character described, intermediate adjacent layers of active material of neighboring frames, the end metal plates in the series adapted to become of different polarity upon the passing of the charging current, and each intermediate metal plate similarly adapted to become of different polarity as to its respective sides or surfaces upon the passing of the charging current in successive order throughout the series to preserve polarity, electrical connections with the respective end metal plates only, and means for compactly holding said series of frames, as and for the purposes set forth.

491,879. SMOKE-CONSUMER. JOHN FERRIDAY, Logan City, Utah. Filed July 5, 1892. Serial No. 438,966. (No model.)



Claim.—1. In a smoke consuming furnace, the combination with a boiler, a grate chamber, and a bridge-wall, of two sets of checker-work situated in rear of the bridge-wall and spaced relatively to each other, thereby forming an intermediate chamber between said checker-work, the bricks of each set of checker-work being set in inclined positions to a right line drawn longitudinally through the furnace and the bricks of one set of checker-work being arranged in reverse positions to the corresponding horizontal layer of bricks in the other checker-work.

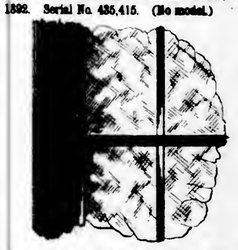
2. A smoke consuming furnace, as described, comprising the two sets of checker work arranged beneath the boiler and at a suitable distance apart to form the consuming chamber D', said checker-work consisting of bricks laid parallel in layers inclined at an angle to the boiler walls and spaced apart to form passages c', the bricks in each adjacent layer being inclined reversely with relation to each other, and the bricks of both sets of checker-work in the same horizontal plane being inclined reversely with relation to each other, substantially as described.

3. In a smoke consuming furnace, the combination with the grate and bridge wall, of the two vertical walls in rear of the bridge wall and spaced to form the intermediate chamber D', each of said vertical walls having transverse inclined smoke and flame passages c' which lie in reverse positions to the corresponding flame passages in the same horizontal line in the adjacent wall, and a steam pipe which discharges into the combustion chamber above the fire bed therein, substantially as described.

491,880. COMPOUND OF BLOWN OILS. WALTER D. FIELD, Milburn, N. J. Filed Oct. 18, 1892. Serial No. 449,286. (No specimens.)

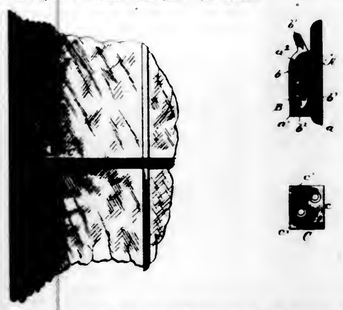
Claim.—A new composition of matter consisting of a blown non-drying glycyl ether of an unsaturated fatty acid in combination with pyroxyline or nitro-cellulose, substantially as described.

491,881. SASH-FASTENER. GEROLT GIBSON, St. Louis, Mo. Filed June 3, 1892. Serial No. 435,415. (No model.)



Claim.—In a sash lock, the combination of the open-sided closure or bracket, having means for its attachment to the window casing and provided, near its upper forward edge, with projecting opposite, apertured lugs, the latch hung, near its upper forward corner-edge, by a pivot bearing in said lugs, and having, at its upper corner edge, a stop or lug to engage the opposite edge of said bracket, and, in its forward edge, a transverse slot, and having, below this slot, a beveled forward edge, and the catch having means for its attachment to the upper sash and an inclined lateral lug to engage said slot, substantially as set forth.

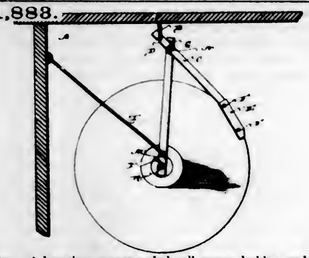
491,882. SASH-FASTENER. GEROLT GIBSON, St. Louis, Mo. Filed June 3, 1892. Serial No. 435,416. (No model.)



Claim.—In a sash lock, the combination of the bracket having the face plate at the front edge of its vertical base, and a lug, the dog or latch hung near its upper end, between said face-plate and lug and having a lower beveled end and an outwardly deflected upper end, and the catch having at its upper left hand corner a beveled stud, substantially as set forth.

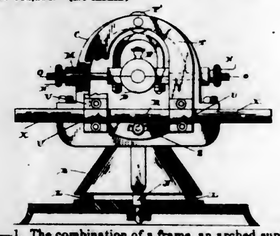
491,888. PAPER HOLDER AND CUTTER. EVANDER J. GILLESPIE, San José, Cal. Filed Aug. 16, 1892. Serial No. 443,195. (No model.)

491,883.



Claim.—A hanging or suspended roll paper holder and cutter, comprising two knife bearing arms, with slots at their upper ends by which they are easily attached to, or detached from, screw eyes or hooks secured to the under side of the table, desk, or counter, their lower ends joined by a knife, an inverted square stirrup, holding the roll in slots in its free ends, loosely pivoted between and to the knife bearing arms, securing the tension of the knife on the roll, a brace from the table to the lower ends of the stirrup, securing the roll firmly against the knife, all substantially as set forth.

491,884. SHAFT-HANGER FOR GRINDING AND POLISHING MACHINES. CHARLES HEATON, Philadelphia, Pa. Filed Aug. 16, 1890. Serial No. 362,251. (No model.)



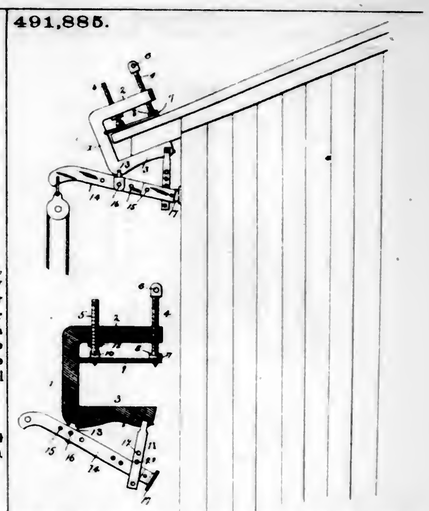
Claim.—1. The combination of a frame, an arched support C, an arched shaped hanger P pivoted in said support, a bearing supported by the hanger, a shaft journaled in said bearing and rod projecting from opposite sides of the bearing through the respective sides of the arched support, substantially as shown and described.

2. The combination of a frame, an arched support thereon, a hanger pivoted in said support, a bearing supported by the hanger, a shaft journaled in the hanger, rods projecting from opposite sides of the bearing and through the respective sides of the said support, and springs confined between the said support sides and the outer ends of the rods, substantially as shown and described.

3. The combination of a vertically yielding frame, arched support C having a slot in its inner upper end, an arch shaped hanger having a projection which is pivotally secured in the slot of the frame, a bearing supported by the said hanger, a shaft journaled in the bearing, rods projecting from opposite sides of the bearing and extending through openings in the respective sides of the arched support C, the said openings being enlarged at their outer ends, springs confined in the said enlarged portions of the openings and stops on the outer ends of the rods against which the said springs bear, substantially as shown and described.

4. The combination of a frame B, a shaft E journaled therein, a flanged collar G secured to the shaft, the flange of the same being formed with recesses G', a tubular shaft section adapted to fit over the first named shaft, a head secured to the end of the tubular shaft section and which fits within the said flanged collar, lateral projections on the periphery of said head and which extend into the recesses of the flanged collar, and springs between the adjacent sides of the said projections and the walls of the said recesses, substantially as shown and described.

491,885. DEVICE FOR SUSPENDING SCAFFOLDING. CARL HEIDEMANN, Hammond, Ind. Filed July 8, 1892. Serial No. 439,358. (No model.)



Claim.—In a device for suspending swinging ladders from the eaves or cornices of buildings, the combination of the bent plate, consisting of a central portion and two projecting arms, the intermediate movable plate, the screw bolts adapted to engage with said plate, the pivoted adjustable lever having a pivoted plate at one end, the depending arm pivoted to the lower arm of said bent plate and provided with a series of holes, and the pin adapted to pass through said holes and limit the upward movement of said lever, substantially as described.

491,886. STOCK-RACK. PHILANDER HEWITT, Cambria, Mich. Filed June 18, 1892. Serial No. 437,204. (No model.)



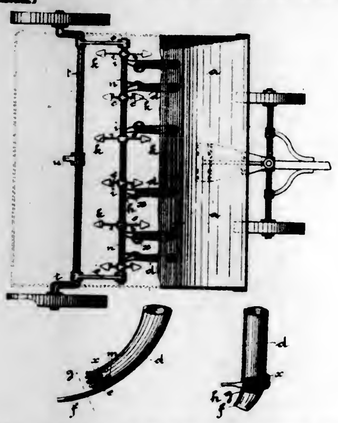
Claim.—1. In a stock rack, the combination with a wagon body, having the projecting bottom battens B, B, and the bracket castings G, G, secured to the end portions of said battens, said brackets having outer curved arms G' formed with elongated slots g, of the rack sides d, d, their standards E, having a hinge connection with the wagon body, the slotted plates H secured to said standards, and the brace arms I connecting said plates H and bracket castings G, said arms being detachable and capable of an oscillating and a vertical movement in the slots of said plate and casting, substantially as specified.

2. In a stock rack, the combination with the wagon body, the rack ends d', d', removably secured thereto, the sides d, d, hinged to said body, and means for connecting said sides and ends, of the corner brackets K adjustably secured to plates K' on the corner parts of said body, the meeting faces of said brackets and plates having serrations, said brackets having an arcuate slotted portion k, the slotted plates H on the corner standards of the rack sides, and the brace arms I adjustably engaging at its end portions the slots in said brackets and plates, substantially as specified.

3. In a stock rack, the combination with the bracket castings G, G, secured to the wagon body and having the outer curved portions G' formed with elongated slots g, having the outward offsets or shoulders g', and the rack sides hinged to said body, and having the slotted plates H secured thereto, of the arms I, I, having heads I' and I^2 loosely and detachably engaging the slots in said brackets and plates, substantially as specified.

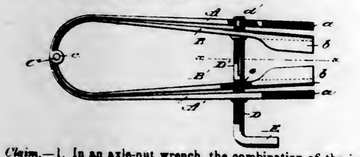
4. In a stock rack, the combination with the sides d, d, having a hinged connection with the wagon body, and the plates H secured to said sides, said plates having elongated slots h having enlarged portions h' at their lower ends, and the bracket castings G secured to the body, said brackets having slots g therein, formed with offsets g', of the brace arms I connecting said plates and castings, each of said arms at its upper end having a head I' formed with the shoulders i', i^2 detachably and adjustably engaging the slot h, and a similar head I^2 on the lower end of said arm detachably and adjustably engaging the slots g, substantially as specified.

491,887. POTATO-PLANTING MACHINE. GUSTAV HOFFMANN, Treuhdorf, Germany. Filed Sept. 23, 1892. Serial No. 446,709. (No model.)



Claim.—A potato planting machine having a horizontal shaft *a* with hole digger *k* thereon together with the feeding tubes *d* the hinged lid *g* which on being struck is momentarily opened whereupon the hook formed pins *x x* seated on the hinged lid *g* pass into the interior of the feeding tubes in order to prevent the falling of more than one seed potato at a time substantially in the manner and for the purposes hereinbefore described.

491,888. WRENCH. CHARLES H. HOMMEL, Sayville, N. Y. Filed Nov. 23, 1892. Serial No. 452,933. (No model.)



Claim.—1. In an axle-nut wrench, the combination of the jaws A and B and A′ and B′ connected to each other at their inner end, the outer pair of jaws being curved and corrugated to engage with the inner side of the hub-band, the inner jaws having angular outer ends which engage the nut, the jaws A′ and B being threaded to receive a bolt which passes through the other jaws, substantially as shown, and for the purpose set forth.

2. In a wrench, the combination, of the jaws A and A′ and B and B′, connected together to move in line with each other one jaw of each pair engaging oppositely threaded portions of a bolt, while the other jaw of each pair is held upon the bolt, said jaws being adapted to engage with the nut and hub-band at one end, and pivoted to each other at their other end, substantially as set forth.

3. In combination with the jaws A and A′ and B and B′, a bolt consisting of sections D and D′ expansibly connected to each other, each section having threaded portions which engage with threaded apertures in two of the jaws while the other jaws are located on the bolt substantially as shown, all of the jaws being hinged together at their rear ends, and a handle for turning both sections of the bolt in unison, for the purpose set forth.

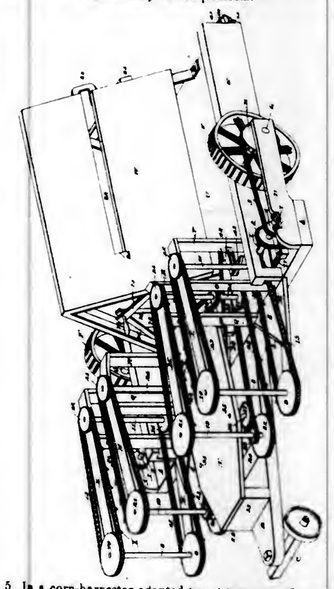
491,889. CORN-HARVESTER. PRESTON B. HUFF, Plattsville, assignor of one-half to Albert J. Cory, Tawawa, Ohio. Filed Apr. 19, 1892. Serial No. 429,781. (No model.)

Claim.—1. In a corn-harvester, a rear platform hinged at its front end, means for raising and lowering its rear end, and a shock-frame secured longitudinally and centrally on the platform.

2. In a corn-harvester, a rear platform hinged at its front end, means for raising and lowering its rear end, and a shock-frame secured on the platform, said shock-frame being wider at its base than at its top.

3. In a corn-harvester, a rear platform hinged at its front end, means for raising and lowering its rear end, and an A-shaped shock-frame secured on the platform.

4. In a corn-harvester, a rear platform hinged at its front end, means for raising and lowering its rear end, and an A-shaped shock-frame secured longitudinally on the platform.



5. In a corn-harvester adapted to cut two rows of corn at once, the combination, with a rear platform hinged at its front end and means for lowering and raising the rear end of said platform, of an A-shaped shock-frame secured longitudinally and centrally thereon, for the purposes stated.

6. In a corn-harvester, the combination, with a rear platform, hinged at its front end and means for raising and lowering its rear end, of an inclined shock-frame secured longitudinally thereon, cutters, and automatic mechanism for pushing the severed stalks away from the cutters and into a position to permit them to fall against said frame.

7. In a corn-harvester adapted to cut two rows of corn at once, the combination, with a rear platform, hinged at its front end and means for raising and lowering its rear end of an inclined shock-frame secured longitudinally thereon, cutters, automatic mechanism for pushing the severed stalks into a position to permit them to fall against said frame to be bound into a shock, and a shock-ejector.

8. In a corn-harvester adapted to cut two rows of corn at once, the combination, with a rear platform, hinged at its front end and means for raising and lowering its rear end of an inclined shock-frame secured longitudinally thereon, cutters, automatic mechanism for pushing the severed stalks into a position to permit them to fall against said frame to be bound into a shock, and an automatic shock-ejector.

9. In a corn-harvester adapted to cut two rows of corn at once, the combination, with a rear platform and a slotted inclined shock-frame secured longitudinally thereon, of a shock-ejector and means for reciprocating it, said ejector comprising a base, a slotted upright secured thereon, a shelf secured to the upper end of said upright, spring-pressed fingers pivoted on said shelf and adapted to extend through the slots in the shock-frame, and arms pivoted on a handle working in the slot in the upright.

10. In a corn-harvester adapted to cut two rows of corn at once, the combination, with a rear platform and a slotted inclined shock-frame secured longitudinally thereon, of a shock-ejector having spring-fingers opening outward in the slots in said frame and closed by contact with the front end of said slots and pivoted arms adapted to be thrown outward into the path of the shock and drawn within said frame, and means for reciprocating said ejector.

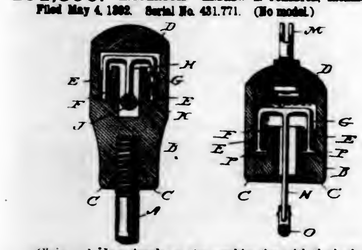
11. In a corn-harvester adapted to cut two rows of corn at once, the combination with a rear platform hinged at its front end and means for raising and lowering its rear end, of an inclined shock-frame secured longitudinally thereon, cutters, stalk-gathering mechanism operating parallel to the line of draft and forward of the cutters, packers, and a shock-ejector.

12. In a corn-harvester adapted to cut two rows of corn at once, the combination, with a rear platform hinged at its front end, means for raising and lowering the rear end of said platform, and an inclined shock-frame secured longitudinally on the platform, of a shock-ejector having a stud in its front end, a collar loosely mounted on said stud, a rack-bar loosely pivoted at one end to said collar and having teeth on opposite sides, two pinions, between which said bar is located, means for operating said pinions, and mechanism for shifting said bar into engagement with one or the other of the pinions.

13. In a gathering mechanism for corn-harvesters, the combination, with a sprocket-chain, of transversely-arranged gathering-teeth each of which is loosely attached to two joints of the links, substantially as described and for the purposes set forth.

14. In a gathering mechanism for corn-harvesters, the combination, with a sprocket-chain, of transversely-arranged gathering-teeth each of which is loosely attached to two joints of the links, the front face of each tooth, relative to the motion of the chain, standing at an obtuse angle to the chain and the rear face at a right angle to the chain.

491,890. INSULATOR. ANDREW L. JOHNSTON, Richmond, Va. Filed May 4, 1892. Serial No. 431,771. (No model.)



Claim.—1. In an insulator the combination with the body thereof provided with a well for the reception of a non-conducting liquid, of a wire-hanger suspended therein, said hanger having three legs, two of which fit in the well and the third of which carries the wire.

2. In an insulator the combination with the body thereof provided with a well for the reception of a non-conducting liquid, of a wire hanger or holder suspended therein, said hanger having three legs, two of which fit in the well, and the third of which is extended and carries the wire at its lower end.

3. In an insulator the combination with the body thereof terminating at its lower end in a sharply rounded edge from which the moisture can drip, provided with an interior well for the reception of a non-conducting liquid, of a wire hanger suspended therein and a cap to cover the same.

4. In an insulator the combination with the body thereof terminating at its lower end in a sharply rounded edge from which the moisture can drip, and provided with an interior well for the reception of a non-conducting liquid, of a wire hanger suspended therein, said hanger having three legs, two of which fit in the well and the third of which carries a wire, and the detachable cap to fit over the well and inclose the same.

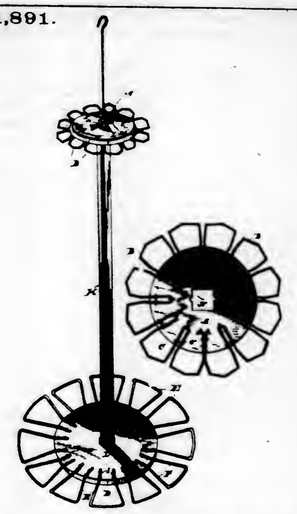
5. In an insulator the combination with the body thereof of a wire hanger suspended therein, said hanger having three legs, two of which fit in the body and the third of which carries the wire.

491,891. BROOM-RACK. WESLEY C. P. JONES, Rusk, Tex., assignor to Luther S. Hickman, Warrensburg, Mo. Filed Sept. 22, 1892. Serial No. 446,613. (No model.)

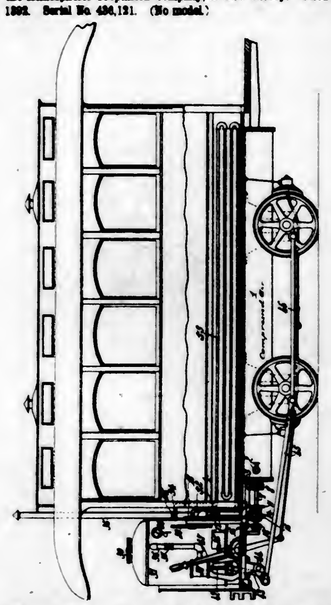
Claim.—1. In a broom rack or holder, the combination of the upper disk provided with handle-receiving loops, the lower disk provided with broom-receiving arms, and the connecting stem projecting at its ends through central openings or sockets in said disk and engaged above the upper disk by a key, and below the lower disk by horizontal staples which bear against the under surface of said lower disk, substantially as specified.

2. In a broom rack or holder, the combination of the upper disk provided with handle-receiving loops, the lower disk provided with radially-disposed broom-embracing arms, said arms being looped-shaped and having their extremities provided with points to engage sockets in the disk, staples to secure the arms of said loops to the disk, and the stem connecting said disks, substantially as specified.

491,891.



491,892. COMPRESSED-AIR MOTOR FOR PROPELLING WHEELED VEHICLES. JOSHUA KAMM, Philadelphia, Pa., assignor to the Atmospheric Propulsion Company, of New Jersey. Filed June 9, 1892. Serial No. 436,121. (No model.)



Claim.—1. The combination of two compressed-air reservoirs, an adjustable partition arranged in each of said reservoirs, screw shafts for adjusting said partitions each of said screw shafts being arranged to project from one end of a reservoir, gearing that connects the projecting ends of said shafts, driving devices for rotating either screw shaft, and a clutch mechanism for adjusting said driving devices in operative connection with one of said screw shafts and disconnecting

it from the other, whereby the partition in either compressed-air reservoir can be adjusted to maintain a uniform pressure in said reservoir, substantially as described.

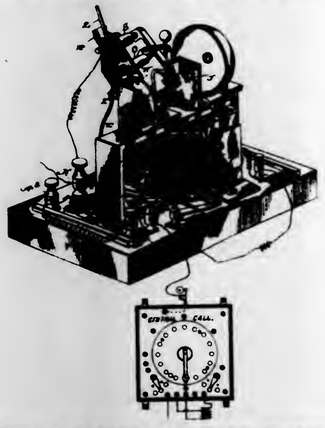
2. The combination of two compressed air reservoirs each having arranged therein an adjustable partition, adjusting mechanism adapted to be operatively connected with or disconnected from either partition whereby the position of either partition can be varied to maintain a uniform pressure in either reservoir, an expanding chamber, and valved pipes that connect the compressed air reservoirs with said expanding chamber, substantially as described.

3. The combination of two compressed air reservoirs each provided with an adjustable partition, mechanism for adjusting the partition in either reservoir to vary the air space therein for the purpose of maintaining a uniform pressure in said reservoir as the compressed air is withdrawn therefrom, an expanding chamber, valved pipes through which compressed air is conducted from either compressed air reservoir to said expanding chamber, and an air engine communicating with said expanding chamber through a pipe provided with a throttle valve, substantially as described.

4. The combination of a compressed air reservoir provided with an adjustable partition whereby the air space of said reservoir can be gradually diminished for the purpose of maintaining a uniform pressure in said reservoir as the compressed air is withdrawn therefrom, an expanding chamber, a valved pipe through which compressed air is conducted from said reservoir to the expanding chamber, an automatic pressure regulating valve or governor located in said pipe to automatically maintain the desired pressure in the expanding chamber, and an air engine supplied with air from said expanding chamber through a pipe provided with a throttle valve, substantially as described.

5. In a compressed air car motor, the combination of two compressed air reservoirs each provided with an adjustable partition, means for adjusting the partition in either reservoir to vary the air space therein for the purpose of maintaining a uniform pressure in said reservoir as the air is withdrawn therefrom, an expanding chamber, valved pipes through which compressed air is conducted from either reservoir to said expanding chamber, an air engine communicating with the expanding chamber through a pipe provided with a throttle valve, means for connecting said engine with the running gear of the car, and an air brake mechanism supplied with power from the expanding chamber, substantially as described.

491,898. TELEPHONE-CALL. JOHN H. KINSMAN, Bridgeport, Conn. Filed Jan. 20, 1892. Serial No. 418,703. (No model.)



Claim.—1. In an electrical signaling instrument, the combination with a rotatable disk provided with a stop, an electrical circuit provided with a signal and a spring contact, and a polarized relay, the armature of which engages with the stop in the disk and with the spring contact, substantially as set forth.

2. In an electrical signaling instrument, the combination with a rotatable disk, the periphery of which is slotted, an electrical circuit provided with a signal and with a spring contact, and a polarized relay, the armature of which is provided with an extension at one end for engaging with the spring and with an arm at the other end, said arm being provided with a projection for engaging with the periphery of the disk and entering the slot, substantially as set forth.

3. The "local call" composed of the polarized relay having arms to operate a toothed wheel, the toothed wheel connected with the disk, the disk having upon its surface a pin and upon its periphery a slot, the polarized relay having an arm with projections upon it, a lever Z having arms to be acted upon by the before mentioned pin and by the before mentioned arm with projections, the plate supporting the lever and the contact plate insulated from each other, the contact spring for connecting the bell with the local battery, the bell for connection with the local battery, the springs for holding in position the armatures of the polarized relays, the conductors for connecting the different parts to each other and to the main and local batteries, substantially as described.

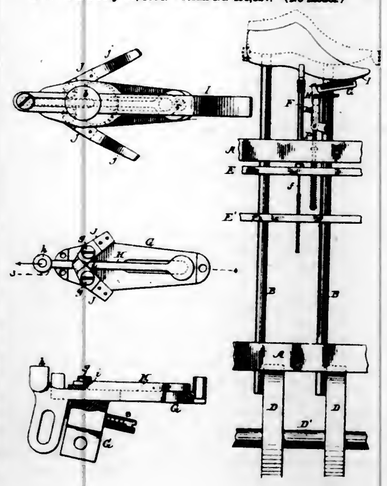
4. In an apparatus, as described, the combination of the slotted disk having a pin near its periphery projecting inward, with the lever Z, having three arms, a magnet, the armature of which is provided with the lever T, having two arms, one for throwing over the lever and the other for entering the slot in the wheel, and the contact surface against which one arm of lever T, rests at times, substantially as set forth.

5. The combination in an apparatus for "cutting out" or "cutting in" on a telephonic, telegraphic or other electrical line of one or more polarized relays, a toothed wheel revolved by means of the armature of one of said relays, a disk having a slot and a pin, a contact spring to close the circuit of a local battery, a lever to be thrown by the pin upon the disk, in one direction or by an arm actuated by the armature of a polarized relay in another direction when the current passes in a certain predetermined direction, said arm having upon it a projection for the purpose of entering the slot or slots upon the disk at a predetermined time, and a projection for the purpose of actuating the lever at a predetermined time, the whole actuated by an apparatus controlled by some other person than the person using the first mentioned apparatus.

6. The combination with the polarized relays and their armatures, of the toothed wheel, and peripherally slotted disk mounted upon the same shaft, the pawls, whereby a step by step movement is given to the toothed wheel, the arm having a projection operating in connection with the slotted disk, the three armed lever operated by a projection on the said arm the insulated contact plate, and the conductors, whereby a telephone may be placed in circuit, substantially as specified.

7. The combination with the polarized relays and their armatures, of the toothed wheel and peripherally slotted disk mounted upon the same shaft, the pawls whereby a step by step movement is given to the toothed wheel, the arm having a projection adapted to operate in connection with the slotted disk, the contact spring supporting one end of the armature carrying said arm, and the bell magnet and conductors arranged to operate substantially as specified.

491,894. LASTING-MACHINE. LEON LAKE, Hornellsville, N. Y., assignor to the Whiffen-Lake Lasting Machine Company, Hammonton, N. J. Filed July 27, 1891. Serial No. 400,827. (No model.)



Claim.—1. The combination in a lasting machine, of the last support, the lasting mechanism, a retractible insole holder having movable arms for engaging the insole, and connections substantially as described between the retractible insole holder and the lasting mechanism, substantially as specified.

2. The combination of the standard, the head, pivoted arms on said head, having spring fingers, a block adapted to slide in said head and acting on said arms to extend or retract them, substantially as set forth.

3. The combination of the standard, the head carried thereby, a block sliding in said head, a spring plate carried by said block, arms pivoted to the head, and having portions in the path of the block so that on the movement of said block the arms will be acted upon, substantially as and for the purpose set forth.

4. The combination of the standard, the head thereon, a sliding block adapted to said head, spring plates carried by said standard, arms pivoted to the head and acted upon by the block, and a set screw for adjusting the block in the head, substantially as and for the purpose set forth.

5. The combination in a lasting machine, of the last support, grippers for drawing the upper upon the last, a movable gripper plate, a standard, a head on said standard, arms pivoted to said head, a sliding block, a pivoted lever acting on said sliding block, and a rod connected to said lever and to the movable gripper plate whereby, on the depression of the said gripper plate the arms will be retracted, substantially as and for the purpose set forth.

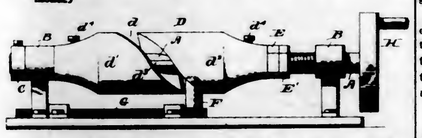
491,895. FLOW-COLTER CLAMP. GEORGE A. LAMBERT, Belfast, Me. Filed Oct. 13, 1892. Serial No. 448,737. (No model.)



Claim.—1. A clamp consisting of the combination of a base plate, an inclined clamping plate and an aperture through the base-plate in proximity to the clamping plate, through which a shank to be held may be passed, and means for securing the same upon a beam, for example, by tension exerted upon the base-plate, substantially as set forth.

2. In a colter clamp, the combination of a pair of clamp sections, each consisting of a base-plate and inclined clamping plate, an aperture through the base-plate and a shouldered recess in the clamping plate, a bolt-hole upon each end of the clamping-plate, and bolts and nuts for securing the parts together, substantially as and for the purpose specified.

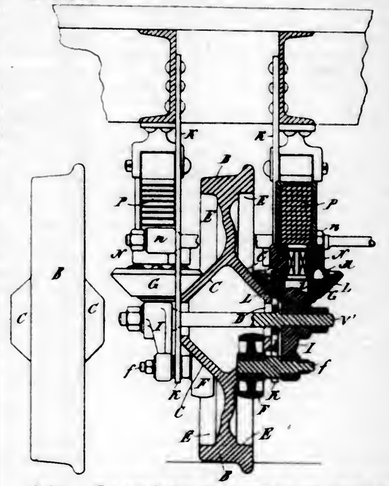
491,896. MECHANICAL MOVEMENT. RALPH DE R. LAYTON, St. Matthew's, S. C. Filed Sept. 13, 1892. Serial No. 445,796. (No model.)



Claim.—1. In a mechanical movement the combination of a bar to be reciprocated having a lateral projection F, a shaft mounted in bearings and having a threaded portion, a cam adjustably mounted upon the shaft so as to turn therewith and composed of sections which are independently adjustable, and adapted to bear against one of the said bearings, nuts E and E', mounted on the threaded portion of the shaft to adjust one of the said sections, means for securing the said sections on the said shaft, and the collar C adjustable on the shaft and adapted to bear on the opposite side of the bearing touched by the said cam, substantially as shown for the purpose described.

2. In a mechanical movement, the combination of a reciprocating bar having lateral projection F, bearings B, shaft A mounted in the said bearings and having a threaded portion, a cam mounted on the shaft and having one end touching a bearing B and composed of independently adjustable sections which are held on the shaft by feather and spline connection, nuts E E' for adjusting one of the cam sections on the shaft, means for holding the cam sections in the desired position and a collar C adjustable on the shaft and adapted to touch the opposite side of the bearing against which the said cam bears, substantially as set forth.

491,897. CAR-TRUCK. ALOYS M. LEUWATHER and EDUARD RIGGENBACH, Basle, Switzerland. Filed Nov. 3, 1892. Serial No. 450,896. (No model.)



Claim.—1. The combination with a car wheel, and conical hubs on both sides thereof, of conical disks one on each side of the wheel resting upon the said conical hubs, antifriction bearings between the truck and the conical disks, and means for retaining the wheel under the disks, substantially as described.

2. The combination with a car wheel, and conical hubs on both sides thereof, of conical disks one on each side of the wheel resting upon the said conical hubs, antifriction bearings between the truck and the conical disks, and rollers journaled on the truck to bear against the inner side of the rim of the wheel and retain the latter in position, substantially as described.

3. In combination with the wheel B, the brackets I carrying the guide-rollers F whose spindles *f* are guided in slots *k* at the ends of the brackets K.

4. In combination with wheel B the ball bearings N with frame *n*.

5. The combination, with a car wheel, and conical hubs on both sides thereof, of conical disks one on each side of the wheel resting upon the said conical hubs, ball bearings to the said disks, a frame *n* resting upon the ball bearings, brackets below the conical disks, and rollers journaled on the said brackets to retain the wheel in position, substantially as described.

6. The combination with a car wheel and conical hubs thereon, of conical disks, a frame *n* to which the said disks are secured by antifriction bearings, springs interposed between the frame and the truck, brackets carrying rollers F, and brackets K extending from the truck and having guide slots through which the spindles of the rollers F pass, substantially as and for the purposes described.

491,898. SPRING-HINGE AND CHECK. ROBERT E. LOWE, Brooklyn, N. Y. Filed Apr. 26, 1892. Serial No. 430,766. (No model.)



Claim.—1. The combination of the stationary and moving leaves connected by a tubular pintle which forms an integral part of the hinge, a reciprocating plunger or rod within said tubular pintle and the knuckles, and a spring arranged to be put under tension by said rod or plunger, substantially as and for the purpose described.

2. The combination of a fixed leaf having the rigid tubular pintle, the moving leaf with its knuckle fitted on said pintle, the rod or plunger operating within the pintle and knuckles and having projections arranged to ride on coacting inclines and guides of the moving

knuckle and pintle, and the spring, substantially as and for the purpose described

3. The combination of the fixed and movable leaves connected by a tubular pintle forming an inseparable part of the hinge, the vertical rod or plunger fitted within said pintle and the knuckles, the spring a dash-pot, and a valve mechanism movable with the plunger or rod and arranged to be opened to its fullest extent when the leaves are opened and to be closed on the return movement of the plunger or rod, a contracted escape orifice being provided for the working fluid to shift through ad the leaves come together under the recoil of the spring, as and for the purpose described.

4. In a combined spring hinge and check employing fixed and movable leaves, a rod and a spring, the combination therewith of a valve mechanism movable with said rod and having a perforated head, a spider, and an expansible valve-ring arranged to play freely between the disk and spider and having a tight frictional contact with the walls of the dash-pot, substantially as described.

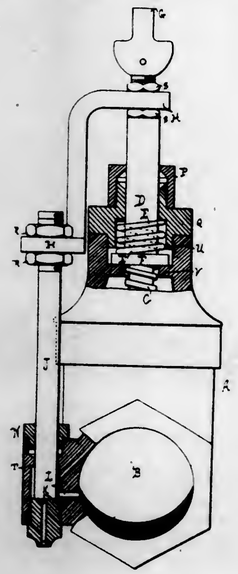
5. In a combined spring hinge and check, the combination with the fixed and movable leaves, a reciprocating rod, and a spring, of a dash-pot rigid with the lower knuckle of the hinge, the disk secured to the rod and having a slide-controlled port therein, an expansible valve ring fitted below the disk and having frictional contact with the dash tub, and means for limiting the play of the valve-ring relatively to the disk, substantially as and for the purpose described.

6. The combination of the fixed and moving leaves of a hinge connected by a tubular pintle forming an integral part of the hinge, the vertical rod within said pintle and the knuckles and connected to the moving-leaf knuckle to be moved vertically and axially thereby, and a spring arranged to be put under torsional and longitudinal tension by the movement of said plunger or rod, substantially as described.

7. The combination of the fixed and moving leaves connected by a pintle forming an inseparable part of the hinge, the moving knuckle being provided with the irregular slots having the lateral offsets at one end, the plunger or rod having projections which ride in said irregular grooves, and a spring, substantially as described.

8. The combination of a fixed leaf having the tubular pintle, the moving leaf with the spiral slots which have a quick ascent or pitch at the lower parts thereof and terminate at their upper ends in the lateral offsets, the rod or plunger within the pintle and the knuckles and having the projections which ride in the slots, and the spring, substantially as described.

491,899. VALVE. CHARLES D. LYNCH, Detroit, Mich. Filed May 6, 1892. Serial No. 432,061. (No model.)



Claim.—1. In a gate valve the combination with a valve stem capable of longitudinal motion, of a spring tending to hold said valve stem against longitudinal motion, a small valve having its shell connected with the shell of the main valve on the discharge side thereof, and a connection from the stem of the valve to the stem of the main valve, whereby the small valve is closed by the act of opening the main valve and vice versa, substantially as and for the purposes set forth.

2. In combination with the valve stem of a gate valve so arranged as to be capable to some extent of longitudinal motion, a drainage valve connected with the discharge side of the gate valve and having its valve stem connected with the valve stem of the gate valve, whereby the valve stem of the gate valve and the valve stem of the drainage valve move in opposite directions, substantially as shown and described.

491,900. ADVERTISING DEVICE. ALLAN G. MACDONELL, New York, N. Y. Filed Sept. 3, 1892. Serial No. 444,991. (No model.)



Claim.—1. The combination of a face-plate constructed of alternating opaque and transparent sections, a series of advertising wheels journaled behind this face-plate and provided with transparent panels containing the display matter, and an illuminating device arranged behind said wheels, substantially as described.

2. The combination of a face plate having alternating opaque and transparent sections, a shaft journaled behind the said face-plate and carrying a series of advertising wheels, springs for actuating said wheels independently of the shaft, and means for operating the shaft and intermittently releasing the wheels, substantially as described.

3. The combination of a face-plate having alternating opaque and transparent sections, a shaft journaled behind the face plate and carrying a series of advertising wheels, a spring securing each wheel to the shaft and serving to actuate it when released, pawls engaging the wheels and normally holding them against the action of the springs, and means for automatically disengaging the pawls at intervals, substantially as described.

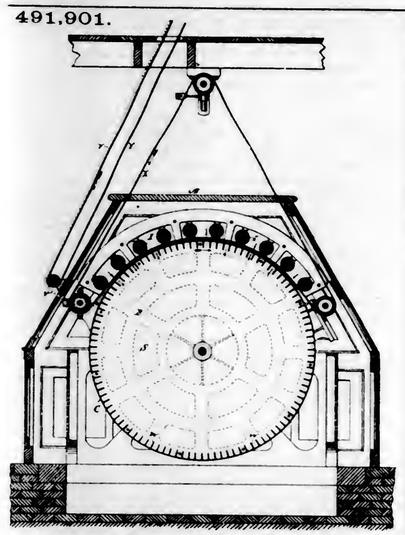
4. The combination of a casing provided with openings for the withdrawal of the panels and having a face-place constructed as described, a series of advertising wheels adapted to rotate behind the face-plate and carrying a series of radially movable transparent panels, and an illuminating device behind the panels, substantially as described.

491,901. FELTING-MACHINE. JOHN W. MILLET, Dolgeville, N. Y. Filed Oct. 15, 1892. Serial No. 449,000. (No model.)

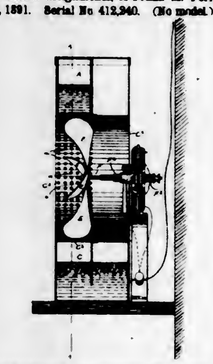
Brief.—The machine comprises a closed casing, within which is placed a revolving cylinder, having air-tight heads and a perforated shell and a series of longitudinally-reciprocating or shaker rollers partially surrounding the cylinder. A carrier-belt passes through the casing and between the cylinder and shaker-rollers. The material to be felted is drawn between the cylinder and belt. Steam is admitted into the casing, passes through the perforated shell into the cylinder, and flows out through an opening in one of the air-tight heads.

Claim.—The combination of a drum provided with air tight heads and a perforated shell, a series of reciprocating or shaker rollers around said shell, between which rollers and shell the material is felted, a casing surrounding the shell and shaker rollers, and a carrier belt passing through the casing and between the cylinder and shaker rollers, substantially as and for the purpose described.

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491,902. VAPORIZER. ABRAHAM R. MIRANDA, Boston, assignor, by direct and mesne assignments, to Frank M. Ferrin, Natick, Mass. Filed Nov. 17, 1891. Serial No. 412,240. (No model.)



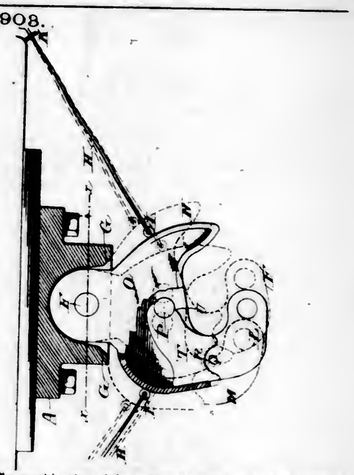
Claim.—In combination, a reservoir for liquid disinfectant, a chamber below said reservoir and having a horizontal open way, open at its opposite ends, and surrounded by a perforated wall, distributing pipes leading from said reservoir into said chamber and having their discharging ends along side of but away from said perforated wall, and a rotary fan located in said open way, all as described, for operation and purposes specified.

491,908. COUPLING FOR LOCOMOTIVES. THOMAS L. MCKEEN, New York, N. Y., assignor to Isaac G. Johnson & Co., same place. Filed Sept. 26, 1892. Serial No. 446,965. (No model.)

Claim.—1. The combination, in a tender-hook or coupler, of the chambered hook-body having a guard-arm and shank; the removable knuckle having convex shoulders seated in concave recesses in the hook-body; and the removable locking-pin: substantially as and for the purpose set forth.

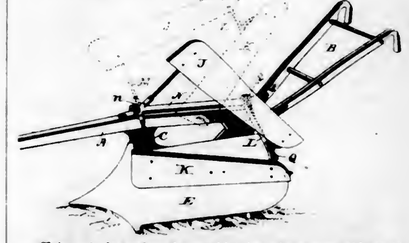
2. In a coupler for locomotive tenders, the combination of the socketed base-plate; the tender-hook fastened pivotally thereln; and the side-rods or adjusting-rods fastened movably in opposite sides of the hook and extending rearwardly to opposite sides of the tender; substantially as and for the purpose set forth.

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3. The combination of the socketed base plate having a central horizontal reinforcing web and beveled shoulders, the tender hook fastened pivotally therein and the adjusting rods fastened movably in opposite sides of the hook and extending rearwardly to opposite sides of the tender, substantially as described.

491,904. PLOW. NIMROD R. PUMPHREY, Moorefield, Ohio. Filed Apr. 20, 1892. Serial No. 429,949. (No model.)



Claim.—1. In a plow the combination with a reversible moldboard, of two auxiliary moldboards diverging at their forward ends and pivotally connected with the beam by means of arms, and adapted to tilt from side to side over the beam, and a locking mechanism to positively secure the auxiliary moldboards in an elevated position and lock the main and the auxiliary mold boards together in an operative position, substantially as set forth.

2. In a plow the combination with a reversible mold board, of two auxiliary mold boards diverging at their forward ends and pivotally connected with the beam by means of arms and adapted to touch the mold board proper about midway of its edges, and a locking mechanism to positively lock the auxiliary and the main mold boards together in an operative position, substantially as described.
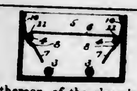
3. In a plow the combination with a reversible mold board, and auxiliary mold boards, each having a projection to extend through an opening in the mold board proper, of a locking bolt carried by the said mold board to engage with the aforesaid projection, and means for actuating the said locking bolt, substantially as set forth.

4. In a plow the combination with a reversible mold board, and a rock shaft journaled on the beam, of auxiliary mold boards detachably connected with the said rock shaft, substantially as and for the purpose set forth.

491,905. BILL-FILE. AUGUST GROETSUP, Richmond Hill, N. Y. Filed Oct. 19, 1892. Serial No. 449,286. (No model.)

Claim.—In a bill-file of the described type, the combination with the receptacle or drawer having longitudinal guide-rods and trans-

491,905.



verse partitions sliding thereon, of the clamping or fastening device consisting of a wire spanning the receptacle on a line with the upper guide-rods and twisted at both ends to form spring loops or eyes sliding on said rods, upwardly projecting spring-arms bearing against the inner sides of the receptacle, and downwardly projecting loops bent inwardly so as to overlap the back of the adjacent partition on both sides; substantially as and for the purpose shown and set forth.

491,906. GATE-BRACE. CHRISTIAN C. A. SIEKENBURY, Kingston, Tenn. Filed Dec. 8, 1890. Serial No. 373,945. (No model.)



Claim.—The combination with a wooden gate comprising horizontal rails and vertical bars, of an independent metal brace secured to the gate to prevent sagging and composed of the vertical bar 5 arranged at the inner end of the gate, the inclined bar 9 connected to the lower end of the bar 5 and extending therefrom to the top of the gate at the middle thereof, and the oppositely disposed inclined bar 12 extending from the middle of the bar 9 to the top of the bar 5 and connected to the same, substantially as described.

491,907. MUSIC-LEAF TURNER. MARTIN L. SMITH, Rivell, Iowa. Filed Apr. 21, 1892. Serial No. 430,045. (No model.)



Claim.—1. In a music leaf turner, substantially as described, the swinging leaf fingers in combination with the body panel having the receptacle X', and the hinged door adapted to close said receptacle; substantially as and for the purpose set forth.

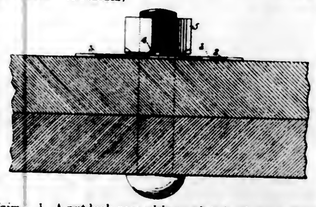
2. In a music leaf turner, substantially as described, the combination with a stationary rack-bar, a rotary shaft carrying a leaf finger, and a pinion fixedly mounted on said shaft and engaging the rack-bar; of an operating lever, and a link pivotally connected to the lever and to the rotary shaft; substantially as specified.

3. In a music leaf turner, substantially as described, the combination with the body panel having a ledge at or adjacent to its lower edge, and a slotted plate seated in said ledge and having ears upon its underside; of the spring arm having an angular branch at its lower end pivotally connected to the ears of the slotted plate; substantially as specified.

4. In a music leaf turner, substantially as described, the combination with the body panel having a ledge at or adjacent to its lower edge, and slotted plates seated in said ledge adjacent to the ends thereof and having ears upon its underside; of the stationary spring arm having an angular branch connected to the ledge of the body panel at the middle thereof, and the spring arms having angular branches at their lower ends pivotally connected to the ears of the slotted plates; substantially as specified.

5. In a music leaf turner, substantially as specified, the combination with a rotary shaft having an angular branch, and the circular disk or head of concavo-convex form in diametrical section connected to said branch and having a central aperture; of a leaf finger, the circular disk or head of concavo-convex form in diametrical section connected to the leaf finger and having a central aperture, and an inwardly-extending sleeve reduced at an intermediate point in its length, the bolt connecting the said heads or disks, and a coiled spring mounted on said bolt and bearing against the head thereof and the end of the reduced portion of the sleeve; substantially as specified.

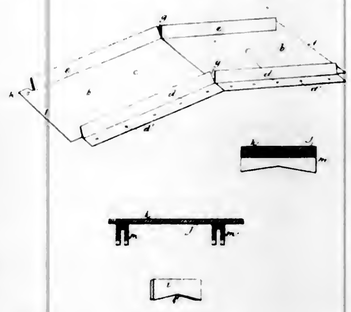
491,908. NUT-LOCK. CORNELIUS STARK, Pittsburg, Pa., assignor of one-half to Albert Stark, same place. Filed June 29, 1892. Serial No. 438,360. (No model.)



Claim.—1. A nut lock comprising a plate having a strip cut from the body thereof and bent into an outwardly convex curved spring, said spring being supported at one end, and a nut having a recess at each corner of its base; substantially as and for the purposes described.

2. A nut lock comprising a plate, having an outwardly convex spring struck up from the body thereof, depressed portions struck downwardly from the body of the plate to hold the same in place, and a nut having a series of recesses which the spring is arranged to enter; substantially as described.

491,909. CAR-ROOF. JAMES F. VERONEE and GEORGE MCINERNEY, Charleston, S. C. Filed July 22, 1892. Serial No. 440,922. (No model.)



Claim.—In a car roof, the combination with a series of roof sections each of which is formed with a closed ridge and a hollow ridge, and with side and end flanges, of a series of caps which span the engaged ridges, a series of transversely laid blocks having grooves which span the caps, a running board secured to the top of the blocks, and metallic strips connecting the ends of the board to the car

491,910. MECHANISM FOR CONVERTING MOTION. WILLIAM W. VIRTUE, Sydney, New South Wales. Filed Dec. 31, 1891. Serial No. 416,638. (No model.) Patented in New South Wales Feb. 2, 1891, No. 2,781; in New Zealand June 4, 1891, No. 5,096; in South Australia June 6, 1891, No. 1,822, and in England July 22, 1891, No. 12,743.



Claim.—1. A mechanical movement comprising a vibrating lever, a rotating body carrying a pin or spindle engaging with the lever, and arranged to impart thereto motion in the direction of vibration, and to move freely along the same laterally in the direction of the axis of vibration, substantially as described.

2. A mechanical movement comprising a vibrating lever, a body rotating about an axis which intersects the axis of vibration, a pin or spindle carried by the rotating body which engages with the lever so as to impart thereto motion in the direction of vibration, and to move freely along the same laterally in the direction of the axis of vibration, substantially as described.

3. The combination in a mechanical movement of a vibrating lever, a rotating body carrying a pin or spindle directed toward the intersection of the axes of rotation and vibration, and engaging with the lever so as to impart thereto motion in the direction of vibration, and to move freely along the same in the direction of the axis of vibration, substantially as described.

4. The combination in a mechanical movement of a vibrating lever provided at one end thereof with cheeks or jaws parallel with the axis of vibration, a rotating body carrying a pin or spindle directed toward the intersection of the axes of rotation and vibration, and engaging with the lever between the cheeks or jaws thereof, substantially as described.

5. The combination in a mechanical movement of a vibrating lever, a body rotating about an axis which intersects the axis of vibration, a pin or spindle one end of which is pivoted on an axis passing through the intersection of the axes of rotation and vibration, and the other end secured eccentrically on the rotating body, the pin or spindle engaging with the lever so as to impart thereto motion in the direction of vibration and to move freely along the same in the direction of the axis of vibration, substantially as described.

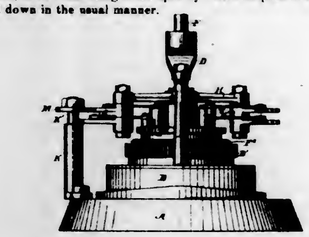
6. The combination in a mechanical movement of a vibrating lever provided at one end thereof with cheeks or jaws parallel with the axis of vibration, a rotating body carrying a pin or spindle, one end of which is pivoted on an axis passing through the intersection of the axes of rotation and vibration at right angles to them, and the other secured eccentrically on the rotating body, the pin or spindle engaging with the lever between the cheeks or jaws thereof, substantially as described.

7. The combination of a rotating disk or body, a pin overhung therefrom eccentrically, and a vibrating lever with cheeks or jaws, engaged by said overhung pin the parts being so arranged that the axis of rotation and axis of the overhung pin if produced would intersect one another in the axis of vibration, substantially as described.

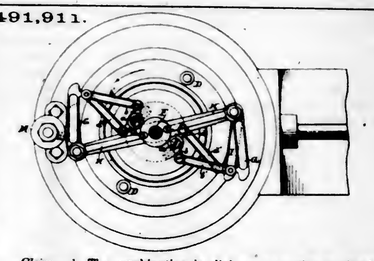
8. The combination with a rotating shaft and a vibratory lever, of an overhung pin rotating with said shaft and engaging said lever so as to impart motion thereto, said pin and shaft being arranged so that their axes if produced would intersect the axis of vibration, substantially as described.

491,911. DIAL-CAM-OPERATING DEVICE FOR KNITTING-MACHINES. LOUIS N. D. WILLIAMS, Philadelphia, Pa., assignor of one-half to Robert W. Scott, same place. Filed Nov. 2, 1892. Serial No. 450,771. (No model.)

Brief.—The dial-cam is turned in or out by a two-armed lever carried by its pivot-pin, the arms of the lever being connected by links to a pair of arms pivoted upon a bar carried by the rotating structure, these arms being acted upon by a disk adapted to be shifted up and down in the usual manner.



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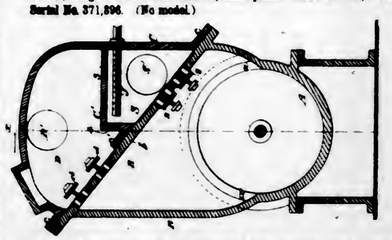
Claim.—1. The combination in dial cam operating mechanism for rib knitting machines, of the rotating structure having as one of its elements a dial cam disk, a cam operating lever rotating with the dial cam disk, a pair of arms pivoted to the rotating structure, and means for imparting the movement of one of said arms to the lever at a point on one side of the axis of the same, and for imparting the movement of the other arm to said lever on the opposite side of its axis, substantially as specified.

2. The combination of the rotating structure having as one of its elements a dial cam disk, the pivoted dial cam, a lever hung to the pivot pin of the same, a pair of arms pivoted to the rotating structure, and means for imparting the movement of one of said arms to the lever at a point on one side of the axis of the same, and for imparting the movement of the other arm to said lever on the opposite side of its axis, substantially as specified.

3. The combination in dial cam operating mechanism for rib knitting machines, of the rotating structure having as one of its elements a dial cam disk, the cam operating lever rotating with the dial cam disk, a pair of arms pivoted to the rotating structure and links connecting said arms respectively to the opposite projecting arms of the lever, substantially as specified.

4. The combination in dial cam operating mechanism for rib knitting machines, of the rotating structure having as one of its elements a dial cam disk, the cam operating lever rotating with the dial cam disk, upper and lower arms hung to the rotating structure, one of said arms comprising upper and lower portions, one shorter than the other, and means for transmitting the movements of said arms to the cam lever, substantially as specified.

491,912. VACUUM-PUMP. WILLIAM H. WORTHEN, Brooklyn, N. Y.; A. Virginia Worthen, administratrix of said William H. Worthen, deceased, assignor to Guild & Garrison, same place. Filed Nov. 19, 1890. Serial No. 371,896. (No model.)



Claim.—The combination of the air cylinder A, the divided water and air chest B, the inclined straight valve-plate *b*, captaining the seats for both suction and discharge valves, all of said parts being in one integral structure, and the removable cover C, containing a diaphragm by which it is divided into suction and discharge chambers S D, the said diaphragm and the margin of the said cover being faced to fit the straight inclined valve-plate, substantially as and for the purpose herein set forth.

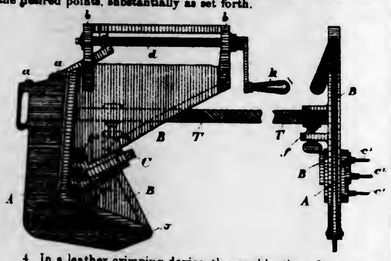
491,913. CRIMPING-MACHINE. JAKOB ZER, Eglosheim, Germany. Filed Oct. 10, 1892. Serial No. 448,365. (No model.)

Claim.—1. In a leather-crimping device, the combination of a crimping-frame with a crimping-stirrup pivoted thereto, a screw-spindle journaled in the crimping frame, and a link, connecting the screw-spindle with the crimping-stirrup, substantially as set forth.

2. In a leather-crimping device, the combination of a crimping-frame comprising two spring-sections with an angular crimping-stirrup wedge-shaped in cross-section, a screw-spindle, and a coupling-

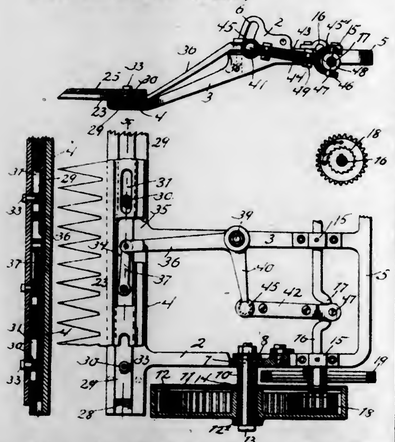
link connecting the screw-spindle with the crimping stirrup, substantially as set forth.

3. In a leather-crimping device, the combination of a crimping-frame, comprising two spring-sections, with a clamp, as C, embracing the two spring-sections and provided on one side with a number of set-screws, adapted to force the two sections together more or less, for the purpose of regulating the power of the crimping operation at the desired points, substantially as set forth.



4. In a leather crimping device, the combination of a crimping-frame, and a crimping-stirrup provided thereon, with a screw-spindle and a link threaded thereinto, the free end of the crimping-stirrup being provided with a series of ⊥ shaped notches to be engaged by the link, substantially as set forth.

491,914. LAWN-MOWER. BENJAMIN D. ADAMS, Minneapolis, Minn., assignor of one-half to James H. Howard, same place. Filed Mar. 7, 1892. Serial No. 424,000. (No model.)



Claim.—1. The combination in a lawn mower, of a rectangular frame the drive wheels adjustably secured thereon, internal gears in said drive wheels, a crank shaft revolubly secured upon the rear part of said frame, pinions upon the ends of said crank shaft to engage said internal gears, a balance wheel or wheels arranged upon said crank shaft, the forwardly and downwardly inclined part of the frame, the reciprocating cutter bar arranged thereon, a bell crank connected therewith, a connecting rod extending between said bell crank and the crank shaft, and the rear supporting roller substantially as described.

2. The combination in a lawn mower, of the rectangular frame having the intermediate portion 3, and the side parts provided with slots as described, the drive wheels, the bolts for securing the same to said frame, the bolts passing through said slots therein, a crank shaft arranged on said frame, pinions thereon to be operated by said drive wheels, the front bar of the frame, the ends thereof projecting in front of the drive wheels, the toothed plates 23 secured upon said front bar, the reciprocating bar slidable thereon, the crank shaft pivoted on the part 3 of the frame and having its lower end secured to said cutter bar, and a connecting rod extending between the crank shaft and the upper arm of the bell crank, substantially as described.

3. The combination in a lawn mower, of the rectangular frame having the slotted side pieces and the intermediate part 3, with the sleeves 10, the drive wheels journaled therson, the bolts for securing said sleeves and drive wheels upon the sides of the frame, said bolts being adjustable in the slots thereof, the disks 11 closing the inner sides of the drive wheels, said drive wheels provided with internal gears, ratchet pinions meshing therewith, a crank shaft extending across said frame and bearing said pinion, balance wheels thereon, the bell crank having the arms 36 and 40 and pivoted on the part 3, the ball end of the arm 40, the connecting rod 42 extending between the same and the crank shaft, the grooved forward bar of the frame, the slotted and toothed plate 23 fixed thereon, the strip arranged to operate in said groove and having lugs projecting through the slots of the plate 23, the cutter bar fixed upon said lugs, a link 37 connecting the same with the arm 36 of the bell crank and means for moving the machine forward, substantially as described.

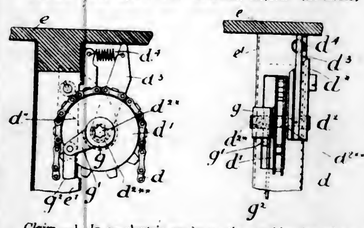
4. The combination in a mowing machine, of the rectangular frame having the extended forward bar 4, with a toothed plate 23 fixed thereon and slotted, a strip 29 arranged to move in a groove provided in the bar 4, and having lugs 30, the cutter bar 25 secured upon said lugs by bolts or screws 33, means for operating said cutter bar, and the teeth thereof being shorter than those of the plate 23, substantially as described

5. The combination in a mowing machine, of the driving-wheels provided with the internal gears, the integral rectangular frame having the intermediate part 3 and the downwardly extending forward portion, the cross bar 4 thereof, the crank-shaft arranged upon the rear part of said frame and having pinions meshing with said internal gears, the connecting rod or pitman, the bell-crank pivoted on said bar 3 and having the horizontal arm 40 connected with said pinion and the downwardly inclined arm 36, the toothed plate 23 secured upon the bar 4 and slotted, the bar 29 operating in the groove of said bar 4, the reciprocating cutter-bar 25 provided with the teeth and secured to the bar 29, said cutter-bar forming a complete closed top for the whole, and the lower end of the arm 36 being pivotally connected with the bar 29, substantially as described.

6. The combination with the driving-wheels, of the shields 11 for the inner sides thereof, said shields provided with the bearing sleeves whereon the said wheels are journaled the rectangular frame having the forward bar 4, the reciprocating cutter device arranged thereon, means for operating the same from said drive wheels, the bolts 7 and the rear roller 9 connected with said bolts and frame by the arms 8, substantially as described.

7. The combination with the driving wheels, of a rectangular frame, an operating shaft driven by said wheels, the bell-crank connected therewith, the forward grooved bar 4 of said frame, the strap 29 arranged in said groove and provided with lugs 30, the connecting bar 37 pivoted on one of said lugs and engaging the forward end of said bell-crank, the cutting teeth arranged upon the bar 4 and a cutter bar secured upon the upper ends of said lugs 30, substantially as described.

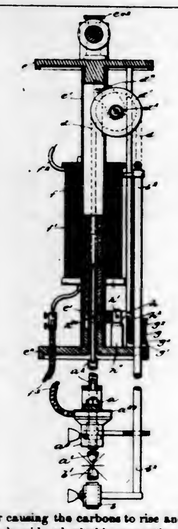
491,915. ELECTRIC-ARC LAMP. WILLIAM H. ACKSTER, London, England. Filed Sept. 9, 1892. Serial No. 445,474. (No model.)



Claim.—1. In an electric arc lamp, the combination of two carriers for the upper and lower carbons, connected through suitable rods or the like, by means of a flexible connection, a sprocket wheel or pulley loosely mounted upon its shaft over which the flexible connection passes, a spring for normally holding the sprocket wheel shaft in a given position, a collar upon the shaft located upon one side of the sprocket wheel, a screw thread upon the other end of the shaft, a nut loosely engaging the screw thread, a solenoid, an arm or projection from the nut and a link connecting the core of the solenoid with such arm, substantially as herein shown and described and for the purpose stated.

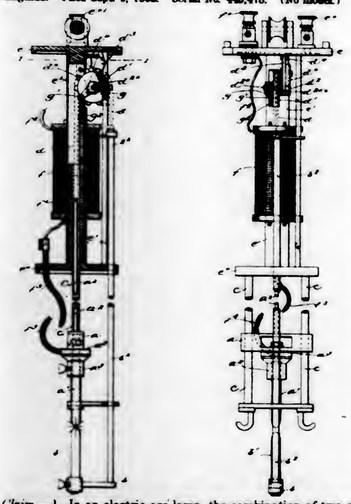
2. In an electric arc lamp, a regulating device consisting of a shaft, a wheel mounted loosely thereon, a spring or the like for normally retaining the shaft in a given position, a screw thread upon the shaft, a nut loosely engaging the screw thread and adapted to engage

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the wheel, means for causing the carbons to rise and fall by the rotation of the wheel, a solenoid and suitable connections from the core of the solenoid to the nut for causing the same to partially revolve with the rise or fall thereof, substantially as herein shown and described and for the purpose stated.

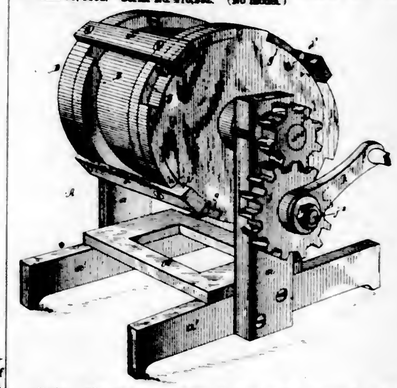
491,916. ELECTRIC-ARC LAMP. WILLIAM H. ACKSTER, London, England. Filed Sept. 9, 1892. Serial No. 445,475. (No model.)



Claim.—1. In an electric arc lamp, the combination of two carriers for the carbons supported by the lower ends of suitable rods suspended by means of a flexible connection passing over a pulley, a vertically movable box or case surrounding one of the rods and filled with spherical pellets and held in its normal position by a spring or weight, a loose disk or washer within the box, a solenoid and a stud or projection connected with the core of the solenoid and bearing upon the loose disk, substantially as herein shown and described and for the purpose stated.

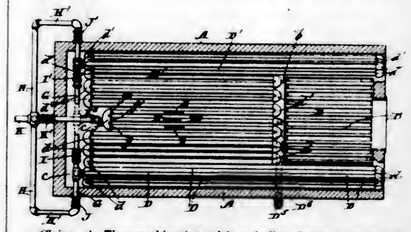
2. In an electric arc lamp, a regulating device consisting of a vertically movable box or case filled with spherical pellets and held in its normal position by a spring or weight, a rod passing therethrough and connected with one of the carbons, an apertured disk located within the box and a stud or projection bearing upon the disk and carried by some electrically controlled part of the lamp, substantially as herein shown and described and for the purpose stated.

491,917. CHURN. HORACE C. ALEXANDER, Bonham, Tex. Filed Jan. 16, 1892. Serial No. 418,202. (No model.)



Claim.—The churn consisting of the axially arranged cream vessel or receptacle and its dasher, the frame comprising an end disk or support, having a journal suitably supported upon a base-frame, and longitudinal peripheral bars secured at their rear ends to said end disk and having at their opposite ends inward facing cam-faced projections, the cover comprising a disk or plate provided with a central raised portion or base entering the open end of the cream receptacle, and with cam-surfaces or inclines and slots at the inner edges of said inclines, said cover or disk also having a journal suitably supported in position, substantially as set forth.

491,918. STEAM-GENERATING-BOILER FURNACE. REECE H. ALEXANDER, Fort Wayne, Ind. Filed Nov. 26, 1892. Serial No. 453,287. (No model.)



Claim.—1. The combination with a boiler, furnace walls and grate of the two series of pipes D D' connected in zig-zag manner the pipe D^3 coupling *f* and suitable connections between said pipes D, D' and a boiler, substantially as and for the purpose described.

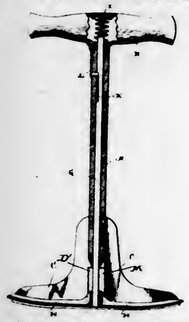
2. The combination with a boiler, furnace walls and grate, of the two series of pipes D D' arranged between the boiler and the grate and in relief from the furnace walls and connected in a zig-zag manner so that water circulates through them and heat passes around and between them, the pipes of the respective series of pipes having communication with each other and with the water space of a boiler by means of a pipe D^3, a coupling *f*, pipes D^4, D^4 and D^4 and with the steam space of a boiler by pipes G G' and G^3, the pipe G having check valves and blow off cocks and connected with a main blow off pipe, substantially as described.

3. The combination with the boiler, furnace walls, grate, pipes D D', suitable connections between the pipes D, D' and the boiler and the blow off pipe, of the perforated mud discharging pipe and its blow off cock, substantially as described.

4. The combination of the boiler, walls of the furnace, and the

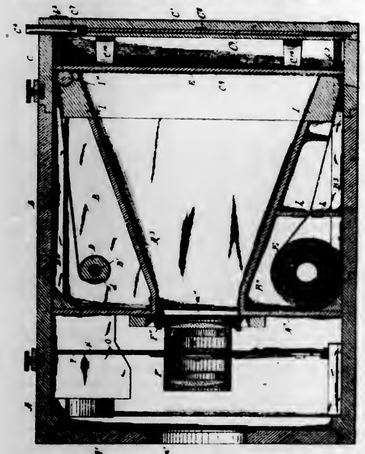
grate, of the two series of pipes D D' suitable connections between the boiler and the pipes D, D', a portion of the pipes of each series being extended from the rear of the boiler and terminated at the bridge wall, while the remaining portions of the two series of pipes D D' are extended substantially from end to end of the boiler, substantially as described

491,919. HOUSEHOLD IMPLEMENT. OLIVER AVERY, Groton, N. Y., assignor to Duncan McLachlan, same place, and J. W. Allen, Richford, N. Y. Filed Sept. 23, 1892. Serial No. 446,745. (No model.)



Claim.—A chopping implement comprising a hollow stem, cutting blades extending radially from the lower end thereof and separated to form a central recess, a rod passing between the blades and up into the stem, a spring within the stem for forcing the rod outward, a stop for limiting the outward movement thereof and angular cleaners secured to and extending radially from the lower end of the rod and between the cutting blades, substantially as described.

491,920. PHOTOGRAPHIC CAMERA. THOMAS H. BLAIR and FRED H. KELLEY, Boston, Mass., assignors to the Blair Camera Company, same place. Filed July 25, 1891. Serial No. 400,734. (No model.)



Claim.—1. A photographic camera, consisting of a front lens carrying section A having a diaphragm A" from which extends an exposing chamber A^1, the detachable middle section B surrounding the exposing chamber and containing a film chamber B" and a film winding roll D, a detachable rear section C containing a yielding film section C^2 and having a cover C' provided with a sight slot C^3, a gate C^4 for closing and opening the sight slot, and a removable film bed I interposed between the yielding cushion and the base of the exposing chamber, substantially as described.

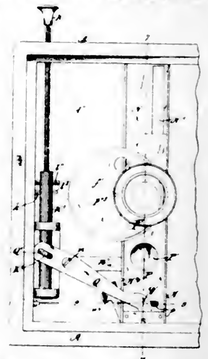
2. A photographic camera, consisting of a front lens carrying section A having a diaphragm A" from which extends an exposing chamber A^1, the detachable middle section B surrounding the exposing chamber and containing a film chamber B" and a film winding roll D, a detachable rear section C containing a yielding film cushion C^2 and having a cover C' provided with a sight slot C^3, a spring pressed gate C^4 for opening and closing the sight slot, a pivoted lever C^7 connected with the gate, a push button C^8 for actuating the lever to slide the gate, and a removable film bed I interposed between the yielding film cushion and the base of the exposing chamber, substantially as described.

3. The combination with a camera box or case having an exposing chamber A^1, and a detachable rear section C having a sight slot C^3, a gate C^4 and a yielding film cushion C^2, of a detachable film bed I interposed between the yielding film cushion and the rear end of the exposing chamber, substantially as described.

4. The combination with a camera box or case having an exposing chamber A^1, of a film bed I removably arranged against the rear end of the exposing chamber, and having the rounded edge I' and rotating roller I", a rear section C detachably fitted to the camera box or case and having a cover C' provided with a sight slot C^3, a gate C^4 for opening and closing the sight slot, a yielding film cushion C^2 located between the gate and the film bed, and springs C^{10} acting to force the film cushion toward the film bed, substantially as described.

5. The combination with a camera box or case having a film chamber B", a film winding roll D, and a film bed I, of a rear section C containing a spring-pressed film cushion C^2, a rear cover C' having a sight slot C^3, a gate C^4 for opening and closing the sight slot, a spring C^6 which holds the gate over the sight slot, a bell-crank lever C^7 pivoted to the rear cover and having a link connection C^9 with the gate, and a push button C^8 engaging the lever to move the gate away from the sight slot, substantially as described

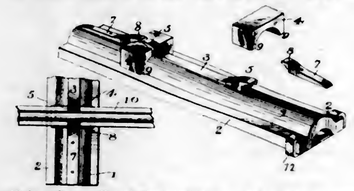
491,921. CAMERA SHUTTER. THOMAS H. BLAIR and FRED H. KELLEY, Boston, Mass., assignors to the Blair Camera Company, same place. Filed June 18, 1892. Serial No. 437,147. (No model.)



Claim.—1. In a camera shutter mechanism, the combination with a shutter guide, of an auxiliary and a main shutter superimposed on each other and slidable in the shutter guide, a spring for moving the main shutter in one direction, a pivoted flexible lever having a lateral pin loosely connected with the auxiliary shutter and detachably engaging the main shutter, a lengthwise movable spindle connected with the flexible lever for swinging the same, and a device arranged in the path of the flexible lever and acting directly thereupon to automatically release its lateral pin from the main shutter so that the latter can move under the influence of its spring, substantially as described.

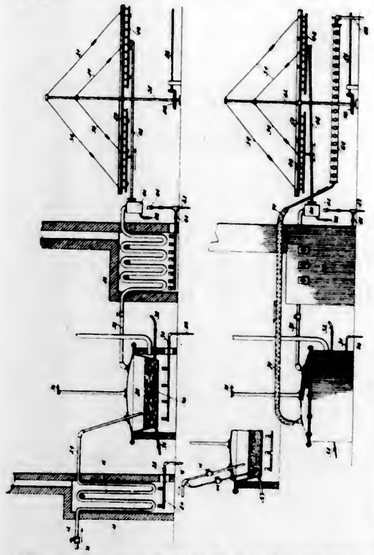
2. In a camera shutter mechanism, the combination with a shutter guide, of an auxiliary and a main shutter superimposed on each other and slidable in the shutter guide, a spring for moving the main shutter in one direction, a pivoted flexible lever having a lateral pin loosely connected with the auxiliary shutter and detachably engaging the main shutter, a diaphragm having a beveled edge located in the path of the flexible lever and acting directly thereupon to automatically release its lateral pin from the main shutter so that the latter can move under the influence of its spring, and a gate or stop pivoted to the shutter guide for limiting the sliding movement of the main shutter to effect time exposure, substantially as described.

491,922. METALLIC RAILWAY-TIE. THOMAS J. BRONSON and ALEXANDER ARMSTRONG, Jacksonville, Ill.; said Armstrong assignor to said Bronson. Filed July 15, 1892. Serial No. 440,086. (No model.)



Claim.—In a railroad, the combination with a metallic arched railway tie formed with horizontal flanges and also formed on its upper side with a rib or clip having its ends cut away forming shouldered recesses and curved or beveled lugs conforming to the contour of the base of a rail, and with inwardly projecting clips or ribs at its ends with similar recesses and lugs, of the saddle consisting of a rectangular metal block, recessed on its under side to conform to the shape of the tie and with its lower edges resting on the flanges of the tie, and the end clips embracing the flanges of the tie, substantially as described

491,923. MANUFACTURE OF LAMPBLACK. GODFREY L. CABOT, Cambridge, Mass. Filed Apr. 9, 1892. Serial No. 428,465. (No specimens.)



Claim.—1. The improvement in the art of making lampblack which consists in; superheating a mixture of inflammable gas and oil, and then burning the gaseous mixture while hot in a lampblack apparatus; substantially as described.

2. The improvement in the art of making lampblack which consists in: loading an inflammable gas with heavy hydrocarbons; then superheating the loaded gas, and then burning the gaseous mixtnre while still hot in a lampblack apparatus; substantially as described.

3. The improvement in the art of making lampblack which consists in: loading a hot inflammable gas with hot hydrocarbons boiling at high temperatures; then superheating the mixture, and then while still superheated, burning the same in a lampblack apparatus adapted for gas; substantially as described.

4. The improvement in the art of making lampblack which consists in; first heating an inflammable gas; then, in a closed vessel, bringing the hot gas into contact with petroleum heated to about its boiling point; then superheating the mixture of gas and vaporized petroleum; and then while still hot and gaseous, burning the same in a lampblack apparatus; substantially as described.

5. The improvement in the art of making lampblack which consists in; first heating an inflammable gas by radial heat from gas flames in a lampblack apparatus; then, in a closed vessel, bringing the hot gas into contact with petroleum heated to about its boiling point; then superheating the mixture of gas and petroleum, and then while still hot and gaseous, burning the same in a lampblack apparatus; substantially as described.

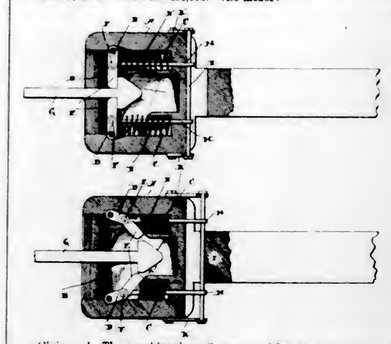
6. The improvement in the art of making lampblack which consists in; first heating an inflammable gas; then, in a closed vessel, bringing the hot gas into contact with petroleum heated to about its boiling point; then superheating the mixture of gas and vaporized petroleum by exposing it to the heated collecting plate of a lampblack apparatus; and then while still hot and gaseous burning the same in a lampblack apparatus; substantially as described.

7. The improvement in the art of making lampblack which consists in; first heating an inflammable gas by radiant heat from the flames in a lampblack apparatus; then mixing the hot gas with the vapor of hot petroleum; then superheating the mixture by directly conducted heat from the same flames; and then before the condensation of the vaporized hydrocarbons, burning the same in a lampblack apparatus; substantially as described.

8. The improvement in the art of making lampblack which consists in; first, heating an inflammable gas; then bringing it into contact with heavy petroleum compounds maintained at or near the boiling point and kept in a state of active agitation; then passing the diffused or suspended oil products and gas together through a superheater, and then burning the superheated mixture in a lampblack apparatus; substantially as described.

9. The improvement in the art of making lampblack which consists; in burning under a collecting plate, a number of contact flames, which are fed by natural gas loaded with crude petroleum at or above the boiling temperature of the constituents thereof; substantially as described

491,924. CAR-COUPLING. ISAAC DAVID, Harvard, Nebr. Filed Nov. 3, 1892. Serial No. 450,851. (No model.)



Claim.—1. The combination of a recessed head, latches pivoted in the opposite sides of the recess, jaws pivotally secured to the adjacent edges of the latches, a means for turning the latches rearward on their pivots, and a link, substantially as shown and described.

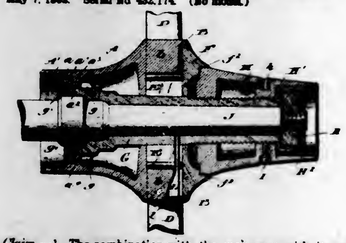
2. The combination of a recessed head, latches pivoted on opposite sides of the forward portion of the recess, jaws pivotally secured to the adjacent edges of the latches, rearwardly extending rods connected at their forward ends to the points of connection of the said latches and jaws, springs for holding the latches and jaws normally in a forwardly extending position, a means for drawing rearward the said rods, and a link, substantially as shown and described.

3. The combination of a recessed head, vertical latches pivoted on opposite sides of the recess, jaws pivotally secured to the adjacent edges of the latches, springs for holding the same in a forwardly extended position, rods extending rearward from the same, a horizontal rod extending through a transverse recess in the rear end of the draw head, a yoke pivoted at one end to the draw head and between the ends of which the said rod is secured, and a link substantially as shown and described.

4. The combination of a recessed draw head having depressions B, in its opposite sides and rearwardly extending recesses C, formed in its opposite walls, latches pivoted in the depressions B, jaws pivotally secured to the latches, rods extending from the pivotal point of

the jaws and latches rearward through the recesses C, coiled springs confined in said recesses and surrounding the rods and which bear against the meeting edges of the latches and jaws at their forward ends, a means for drawing rearward the said rods, and a link, substantially as shown and described.

491,925. **VEHICLE-HUB.** JOEL T. HART, Pleasant Hill, Mo. Filed May 7, 1892. Serial No. 432,174. (No model.)

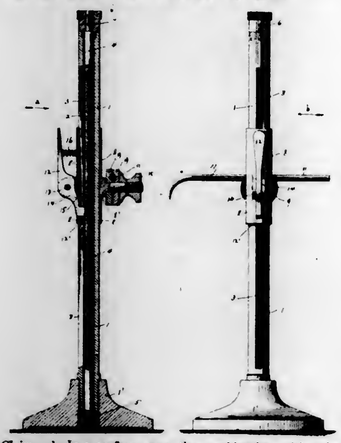


Claim.—1. The combination with the main part with its spoke sockets and wedge-shaped lugs with flanges, of the plate with flanges and notches, the axle box with radial ribs at one end and screw threads at the other and the nut engaging the threads of the axle box and holding the plate in place, as set forth.

2. The combination with the main part with its spoke sockets annular shoulder and interior flange and wedge shaped lugs with flanges, of the plate with flanges and notches, the axle box with radial ribs at one end and screw threads at the other, and the nut engaging the threads of the axle box and holding the plate in place, as set forth.

3. The combination with the main part with its spoke sockets and wedge-shaped lugs with flanges, of the plate with flange and notches, the axle box with threads at its outer end, the nut with threaded openings and wrench-hole and the set screw in the said nut engaging the axle box, substantially as specified.

491,926. **SURFACE-GAGE.** GEORGE H. HUTT, Worcester, Mass. Filed Sept. 26, 1892. Serial No. 446,926. (No model.)



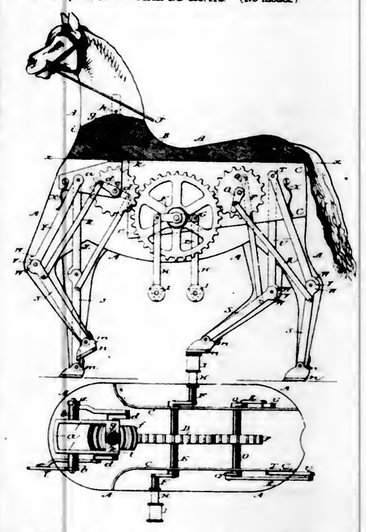
Claim.—1. In a surface gage, the combination, with a hollow post, one side of which is slotted longitudinally, of a rotatable screw threaded rod within said post, each end of which rod is provided with a shoulder and engages with the respective end of the post and prevents longitudinal movement of the rod, and a carriage upon the post provided with a pointer, and with a movable screw threaded contact piece for engaging with the rod, substantially as set forth.

2. In a surface gage, the combination with a hollow post, one side of which is slotted longitudinally, and the base is provided with a circular recess, of a rotatable screw threaded rod within the post of a less diameter than the bore of the hollow of the post, and having its lower end provided with a shoulder to fit the bore of the recess and also engage with the lower end of the post, a cap secured to the upper end of the rod the contacting surfaces of the cap and post being shouldered and fitting one within the other, and a carriage upon the post provided with a pointer, and with a screw threaded contact piece for engaging with the rod substantially as set forth.

3. In a surface gage, the combination, with a hollow post, one side of which is slotted longitudinally, of a rotatable screw threaded rod within the post provided with means for rotating it and preventing its longitudinal movement within the post, a carriage on the post, one side of which is provided with a clamp and the other side is provided with a spring actuated lever pivotally secured thereto longitudinally of the post, one end of which lever is provided with an inward projection which fits in the slot of the post and has teeth to engage with the screw threads of the rod, and a pointer in the clamp, substantially as set forth.

4. In a surface gage, the combination, with a hollow post, one side of which is slotted longitudinally, of a rotatable screw-threaded rod within the post provided with means for rotating it and preventing its longitudinal movement, a carriage on the post one side of which is provided with a screw-threaded stud and the other side is provided with ears, a clamp and a nut on the stud and a spring actuated lever pivotally secured between the ears, one end of which lever is provided with an inward projection which fits in the slot of the post and has teeth to engage with the screw threads of the rod, and a pointer in the clamp, substantially as set forth.

491,927. **MECHANICAL HORSE.** LEWIS A. RYOB, St. Paul, Minn. Filed Apr. 8, 1892. Serial No. 428,412. (No model.)



Claim.—1. In a mechanical horse the combination with the block B, and depeudent frames C, the driving gear D, shaft E, cranks F, and G, having stirrups like I, suspended from the pins of said cranks, the gears P, and *f*, meshing with said driving gear and having shaft and cranks for operating the legs of the horse, of the pitmen R, operated by said cranks, the leg bars S, and thigh-bars U, operated thereby, said thigh-bars being pivoted to the frame of the horse and joined to the leg bar S, by a stop joint and having the stop springs X, substantially as and for the purpose described.

2. In a mechanical horse the combination with the body-block B, and frames C, of the driving wheel D, driven wheels P, and *f*, cranks Q, pitmen R, and hind legs U, S, S, of the front legs, having stop joints at the knees. The hood *a*, to which the front legs are pivotally secured, the shaft *e*, secured in the wheel *f*, and having cranks *d*, and pitmen R, for operating the legs, said hood being secured to the swiveling neck and head piece i, of the horse by a round stem forming a swivel joint in the plank or block B, and having a collar *k*, for the block B, to rest upon, substantially as and for the purpose set forth.

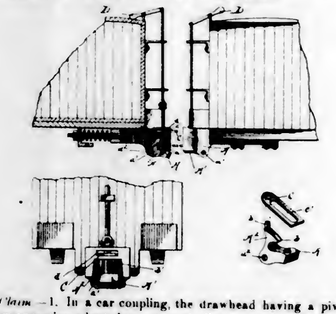
491,928. **ENVELOPE.** AMOS R. SPEAR, Devil's Lake, N. D. Filed Dec. 11, 1891. Renewed Nov. 2, 1892. Serial No. 450,780. (No model.)



Claim.—1. An envelope composed or two parts, one of which has its longitudinal edges overlapping those of the other, said latter part being bent to form a pocket which is fastened by said overlapping edges, both of said parts being provided with flaps which are designed to be folded down into said pocket, substantially as set forth.

2. The herein-described improved envelope, comprising the body composed of two-parts *a*, *a'*, the longitudinal edges of the latter overlapping those of the former, said part *a* being bent to form a pocket which is secured by said overlapping edges, and the corresponding flaps which are provided with a longitudinal score or crease parallel with the edge of said pocket, and with two diagonal scores or creases, substantially as set forth.

491,929. **CAR-COUPLING.** FRANCIS STENGER, Philadelphia, Pa. Filed Oct. 12, 1892. Serial No. 448,691. (No model.)



Claim.—1. In a car coupling, the drawhead having a pivoted bottom or section adapted to automatically support the coupling pin, and a slide or bar connected to, and adapted to actuate said bottom or section, as the coupling operation is effected, substantially as set forth.

2. In a car coupling, the drawhead having a pivoted bottom section, having means for automatically supporting the coupling pin elevated, in combination with a slide or bar connected to the inner end of said pivoted bottom-section and adapted to be engaged by an opposite car, substantially as set forth.

3. In a car coupling, the combination with a drawhead having a pivoted bottom or section provided at its inner end with a hooked portion, of a slide or bar connected to said inner end of the pivoted bottom-section and arranged in a chamber of the drawhead separate from the link-chamber thereof and adapted to be engaged by an approaching car drawhead, substantially as set forth.

4. In a car coupling, the combination with a drawhead having a pivoted bottom or section provided with an inner hook-ended portion having an upper beveled surface, of a slide or bar whose inner end is connected to a stud on said inner hooked end of said pivoted bottom or section, said slide or bar being arranged in a chamber of the drawhead and normally extending to about the forward edge of the latter, substantially as specified.

491,930. **ICE-CREAM FREEZER.** EVERT M. THOMPSON, Indianapolis, Ind. Filed Aug. 6, 1892. Serial No. 442,322. (No model.)



Claim.—1. The stand S, supporting horizontally the fixed tubular arm J which supports and upon which revolves the drum D composed of the cylindrical freezing-chamber A and freezing-mixture chamber B, in combination with the scraper C adapted to scrape from the inner surface of the freezing chamber A the frozen substance, so that it will fall by force of gravity into a receptacle within the area of the fixed tubular arm J, substantially as and for the purpose set forth.

2. The tubular arm J, having the scraper C pivoted eccentrically to it, the radius of the scraper C being less than the diameter of the tubular axle J, in combination with the freezing drum, D, substantially as set forth.

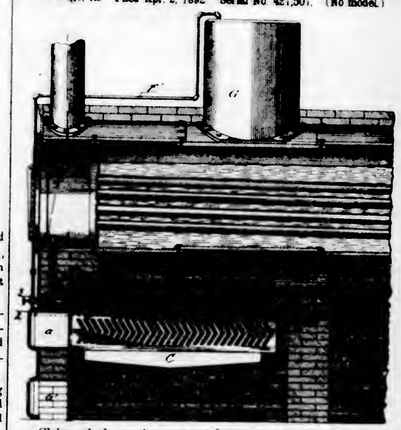
3. The tubular arm J, having the scraper C attached with its crank E exterior to the axle J, in combination with the freezing drum D, substantially as described.

4. The tubular arm J, the scraper C, pivoted to the axle J, the freezing drum D, and the scoop K, in combination with the stand S, substantially as described.

5. The stand S, the tubular arm J rigidly attached thereto, the scraper C adapted to scrape either the upper or lower inner surface of the freezing chamber of the drum D, revolving on the arm J in combination with the scoop K substantially as and for the purpose set forth.

6. The revoluble freezing drum D, composed of two concentric cylinders and two opposite heads drawn against the ends of the concentric cylinders by bolts adapted to also agitate the refrigerant within the annular space between the cylinders when the drum D revolves, in combination with the fixed horizontal arm J supported at one end by the stand S substantially as described.

491,931. **SMOKE-CONSUMING FURNACE.** CHARLES K. WALKER, Chicago, Ill. Filed Apr. 2, 1892. Serial No. 427,507. (No model.)



Claim.—1. In smoke consuming attachments for furnaces, the combination of a furnace, with a number of slotted bars E, having the openings e^3, and annular flanges or tubes e^4, around said openings, and placed as set forth, and the steam pipes F, having the nipples or jets H, adapted to discharge steam through the openings e^3, and tubes e^4, in the bars E, substantially as set forth.

2. In smoke consuming attachments for furnaces, the combination of a number of bars, having the angular slots *c*, the openings e^3, and annular flanges or tubes e^4, around said openings, and the flange *c'*, said bars being placed as set forth, and the steam pipes F, having the nipples or jets H, adapted to discharge steam through the openings e^3, and tubes e^4, in the bars E, substantially as described.

3. In smoke consuming attachments for furnaces, the combination of a furnace, with a number of slotted bars E, having the openings e^3, and annular flanges or tubes e^4, around said openings and the flange *c'*, said bars being placed as set forth, and the steam pipes F, having the nipples or jets H, having the bore *h'*, adapted to discharge steam through the openings e^3, and tubes e^4, in the bars E, substantially as described.

4. In smoke consuming attachments for furnaces, the combination of a furnace, with a number of slotted bars E, having the openings e^3, and annular flanges e^4, around said openings, and the flanges *c'*, said bars being placed as set forth, and the steam pipes F, having the nipples H, having the bore *h'*, adapted to discharge steam through

the openings e^2, and flanges or tubes e^3, in the bars E, the carbon or siphon pipes I, having the discharge pipes I', and elbows at their lower portions, and the nipples or injectors K, adapted to discharge steam through the pipes I', substantially as set forth.

5. In smoke consuming attachments for furnaces, the combination of a furnace, with a number of bars E, having angular and beveled slots, the openings e^2, and flanges e' said bars being placed as set forth, and the pipes F, having the nipples H, having the bore h', adapted to discharge steam through the openings e^2, in the bars E, the carbon or siphon pipes I, having the discharge pipes I', and elbows at their lower portions, and the nipples or injectors K, having the bore i^3, adapted to receive and discharge steam through the pipes I', all constructed, arranged and operating substantially as shown and for the purpose set forth.

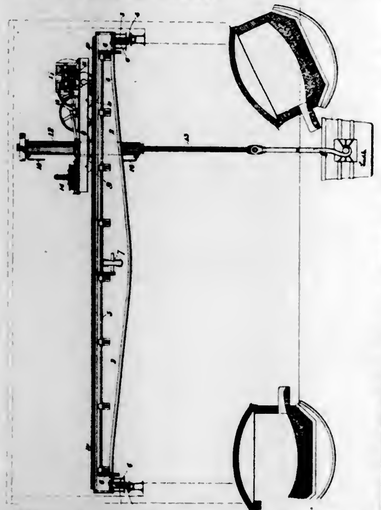
6. In smoke consuming attachments for furnaces, the combination of a furnace, with two or more bars E, having a series of beveled angular slots, the openings e^2, and annular flanges e^3, around said openings, and the flanges e', said bars being placed as set forth, and the steam pipes F, having the nipples or jets H, having the bores h', adapted to discharge steam through the openings e^2, and flanges or tubes e^3 around the openings e^2, in the bars E, substantially as set forth.

491,932. DENTAL FORCEPS. ALMA WHITLOCK, San Bernardino, assignor to Charles E. Blake, San Francisco, Cal. Filed Aug. 2, 1892. Serial No. 441,966. (No model.)



Claim.—A dental forceps having each of its beaks provided with two prongs, substantially as set forth.

491,933. CRANE. HENRY AIKEN, Pittsburg, Pa. Filed May 27, 1892. Serial No. 434,632. (No model.)

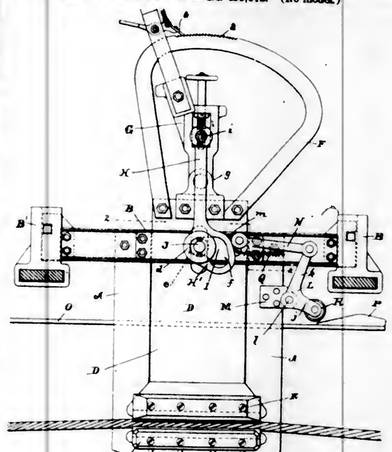


Claim.—1. In a crane, the combination with a jib or bridge, of a trolley mounted thereon, a lifting-motor comprising a cylinder and piston carried by the trolley, a pump carried by the trolley and adapted to operate the movable element of said lifting motor, and a motor carried by the trolley and adapted to work the pump; substantially as and for the purposes described.

2. In a crane, the combination, with a trolley, of a lifting-cylinder having a piston therein, and a pump set on the trolley, connected with the cylinder and adapted to force the water from one side of the piston to the other substantially as and for the purposes described.

3. In a crane, the combination, with a jib or bridge, of a trolley mounted thereon, a lifting-motor comprising a cylinder and piston carried by the trolley, a pump carried by the trolley and adapted to operate the movable element of said lifting-motor, and an electric motor carried by the trolley and adapted to work the pump substantially as and for the purposes described.

491,934. CABLE-GRIP. ARTHUR O. BARNDORFER and FRANK P. DAVIS, Baltimore, assignors of one-half to John E. Norwood, Sykesville, Md. Filed Dec. 20, 1892. Serial No. 456,812. (No model.)



Claim.—1. In a cable-grip, the combination of a member thereof having an opening with an angular extension; and a member having a part which engages said opening and may occupy the angular extension thereof to release the grip from the cable independently of the controlling member of the grip.

2. In a cable grip, the combination of a controlling lever; a link connecting said lever with one member of the grip and provided with an opening receiving a fulcrum on said grip-member,—said opening having an angular extension; and an automatic trip for moving the link to a position where the said fulcrum may occupy the said extension of the opening, for the purpose set forth.

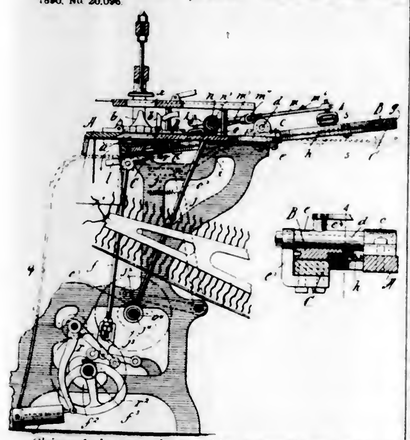
3. In a cable grip, the combination of a stationary member; a movable member; a controlling lever pivoted to the movable member; a link fulcrumed to said lever and to the stationary member and having an opening receiving one fulcrum and provided with an angular extension; and an automatic trip for moving the link to a position where the said fulcrum may occupy the angular extension of said opening, for the purpose described.

4. In a cable grip, the combination of a stationary member; a movable member; a controlling lever pivoted to the movable member; a link fulcrumed to said lever and to the stationary member and having an opening receiving the fulcrum on the stationary part and provided with an angular extension; and an automatic trip for moving the link to a position where the said fulcrum may occupy the angular extension of said opening, for the purpose described.

5. In a cable grip, the combination of a controlling lever; a link connecting said lever with one member of the grip and provided with an opening receiving a fulcrum on said grip-member,—said opening having an angular extension; an angle-trip-lever arranged to encounter a rise in the track; and a suitable connection between said lever and the link, whereby the latter may be moved to a position in which the said fulcrum may occupy the extension of the opening.

6. In a cable grip, the combination of a controlling lever; a pair of links connecting said lever and one member of the grip and each link having an opening which receives a fulcrum on said grip member, and is provided with an angular extension; angle-trip-levers carrying a roller between them arranged to encounter a rise in the track; and suitable connections between the said trip-levers and the links whereby the latter may be moved to a position where the fulcrum may occupy the extensions of the openings, for the purpose described.

491,935. ENVELOPE-MACHINE. JAMES BALL, Holyoke, Mass., assignor to the Holyoke Envelope Company, same place. Filed May 13, 1892. Serial No. 432,912. (No model.) Patented in England Dec. 9, 1890, No. 20,096.



Claim.—1. In an envelope machine, a movable ring, and means for imparting thereto an intermittent movement in combination with folders which co-operate with the ring, for the purposes set forth.

2. In an envelope machine, the combination with folding mechanism of a ring, a support on which the ring is mounted for a rotatable movement, which support has a tilting movement angularly to the plane of said rotation, means for imparting a periodical tilting movement to the ring support, and a means for imparting the rotational movement to the ring, substantially as and for the purposes set forth.

3. In an envelope machine, the combination with folders and a movable ring and means for imparting thereto an intermittent movement of a receptacle for liquid, having suitable discharge appliances, above the course of movement of the ring, and a wiper and means for automatically moving it, over the folding-impact surface of the ring, substantially as described.

4. In an envelope machine, the combination with a pair of stationary, horizontal, axially aligned bearings, of depending brackets engaging said bearings and having an annular support mounted thereon whereby said brackets and support have rocking movements, and a ring mounted for rotational movements on said annular support, means for imparting intermittently the rocking and rotational movements to the ring, and folders for co-operating with the ring, substantially as described.

5. In an envelope machine the combination with a rotatable ring, of a folder for coacting therewith, a lever arm pivotally mounted adjacent to the ring, a wiper carried by said arm and means for imparting swinging movements to the arm, substantially as described.

6. In an envelope machine the combination with folders and a movable ring of a pair of two-armed levers each intermediately pivotally mounted and each carrying at its end a wiper adapted to bear upon the folding surface of the ring a tie rod uniting arms of each of said levers and means for imparting swinging movements to one of said levers, substantially as described.

7. The combination with folders, and a ring mounted for intermittent rotational movements, and also a rocking movement and means for imparting said movements thereto, of an air-chamber located adjacent to the position of the tipped-down portion of the ring and having an opening, and an apparatus for forcing air into said chamber, substantially as and for the purposes set forth.

8. In an envelope machine the combination with folders and a movable ring, substantially as described, for presenting different surfaces thereof relative to the folders, an arm pivotally mounted adjacent the ring having a wiper, and provided with an angular extension, a shaft, and means for rotating it and said shaft having a crank member, and a connection between the latter and the said angular extension, substantially as described.

9. In an envelope machine, the combination with folders and a ring having ratchet-teeth and its edge grooved, of a support mounted for a tilting motion, and on which said ring is mounted for rotational movement, and angular members upon the said ring-support which engage the ring groove, and a pawl and means for imparting reciprocatory movements thereto and a means for effecting the rocking of said support, substantially as described.

10. In an envelope machine, the combination with folders, of a ratchet-provided ring and a support on which it is mounted for a rotational movement, a pawl adapted to engage the ratchet-teeth of said ring and a lever on which the pawl is pivotally mounted and a cam for imparting a reciprocatory movement to said lever, substantially as described.

11. In an envelope machine, the combination with folders of a ring and a support on which the ring is mounted for a rotational movement and which support is mounted for a rocking movement, for the purposes set forth, and a cam-operated thrust-rod connected to said support, substantially as described.

12. In an envelope machine, the combination with folders, of a ring, mounted for a rotational movement and a rocking movement, substantially as and for the purposes set forth, and an air-chamber located adjacent the position of the tipped-down portion of the ring under the folders, and having an opening directed toward said position, and a cam operated air pump and a conduit extending therefrom to said air chamber, substantially as described.

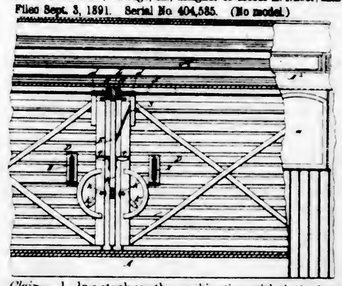
13. In an envelope machine, the combination with folders of the ratcheted rotatably mounted ring, a cam and lever operated by the cam, and a pawl pivotally mounted on said lever and having a weighted extension, and a retracting spring for the lever, as shown for the purpose set forth.

14. In an envelope machine, the combination with a table having folders mounted thereon and foot pieces secured to the table at opposite sides thereof and having the axially aligned studs and a sleeve surrounding each stud provided with a depending angular bracket having the ring support secured thereto, the ring mounted and constrained for rotational movement on said ring-support, and means for imparting rocking movements to the support and rotational movements to the ring, substantially as described.

15. In an envelope machine the combination with the table having the arc-formed recess, a, and a folding ring and support on which the same is mounted, which support is journaled for a rocking movement upon the table and all so arranged that a portion of the ring may be received or accommodated by said recess, and folders coacting with the ring, substantially as described.

16. In an envelope machine the combination with folders of the folding ring and a rocking support on which it is mounted for a rotational movement, a wiper, and arm, on which it is carried that is mounted to have a bodily movement in consonance with the rocking movement of the ring and to have a vibratory movement relative to the ring, and means for respectively imparting the rocking of the ring-support, the rotation of the ring, and the vibratory movement of the wiper carrying arm, substantially as described.

491,936. RAILWAY-CAR FOR TRANSPORTING HORSES. WILLIAM A. CASWELL, Chicago, Ill., assignor to Moses H. Naber, same place. Filed Sept. 3, 1891. Serial No. 404,585. (No model.)

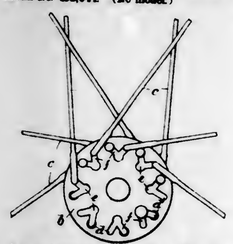


Claim.—1. In a stock car the combination, with the body thereof, of a series of transversely movable longitudinal partitions adapted to form the sides of longitudinal stalls, having an entrance or exit at each end, and a series of transverse end gates hinged and adapted to fold parallel with the side of the car, substantially as set forth.

2. The combination, with the body of the car, of a series of transversely movable longitudinal partitions adapted to form the sides of longitudinal stalls having an entrance or exit at each end, and a series of transverse end gates hinged and supported independently of the longitudinal partitions, substantially as set forth.

3. The combination with the body of a stock car, of a series of transversely movable longitudinal partitions adapted to form the sides of longitudinal stalls having an entrance or exit, at each end, a series of transverse hinged and folding end gates, and feed holders carried by said gates, substantially as set forth.

491,937. WHEEL-HUB. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, Boston, Mass. Filed Nov. 21, 1892. Serial No. 452,644. (No model.)

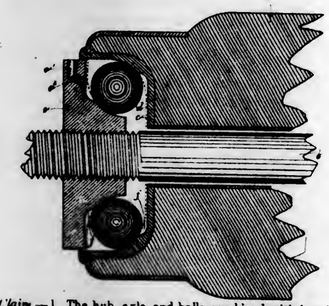


Claim.—1. In combination in a wheel a flanged hub, the spoke sockets with two or more of the outer row connected by a slot to an inner opening common to the several slots and larger in diameter than the outer sockets, all substantially as described.

2. In combination in a wheel a flanged hub, the flange having a series of spoke sockets two or more of the outer row united to an inner opening by a narrow slot, a spoke having the bent and headed inner end with a neck oblong in cross section and having its larger diameter greater than the width of the slot, all substantially as described.

3. In combination with the flange of a wheel, a series of spoke sockets two or more of the outer row being connected by narrower slots with a single one of an inner row of openings, a spoke having a bent and headed inner end adapted to be held within the spoke socket and a plug secured in each of the inner row of holes, all substantially as described.

491,938. BALL-BEARING. STERLING ELLIOTT, Newton, assignor to the Hickory Wheel Company, Watertown, Mass. Filed June 15, 1892. Serial No. 436,757. (No model.)



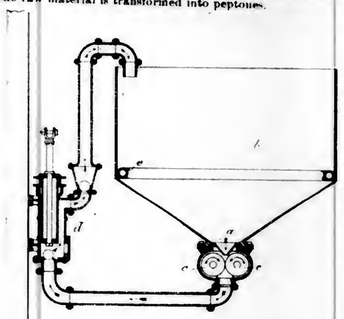
Claim.—1. The hub, axle, and balls, combined with bearings for said balls, composed of two parts, one of which is adjustable with relation to the other, each part having a curved bearing surface with each of which said balls contact at one point only, both of said annular bearing surfaces being cut away as at *f*, beginning at points where said balls cease to contact with said surfaces, as and for the purposes set forth.

2. The hub, axle and balls, combined with bearings for said balls, composed of two parts, one of which is adjustable with relation to the other, each part having an annular bearing surface curved transversely eccentric to the curvatures of the balls, that each of said balls may contact therewith only at one point, said annular bearing surfaces being cut away as at *f*, one at the outer, and the other at the inner side thereof, beginning at points where said balls cease to contact with said surfaces, as and for the purposes set forth.

491,939. PROCESS OF PRODUCING PURE CULTIVATED PRESSED YEAST. CHARLES A. HANSEN, Brooklyn, N. Y. Filed Feb. 12, 1892. Serial No. 421,296. (No specimens.)

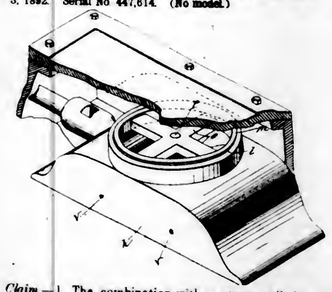
Claim.—1. In the process of producing pure cultivated pressed yeast, producing a mash by heating in water and at the same time and while heated disintegrating the legumes, root fruits and cereals by a mechanical crushing process, and then mixing the same with the crushed malt and malt germs previously mixed, and heating the mash to a mashing temperature substantially as described.

2. In the process of producing pure cultivated pressed yeast, producing a mash by heating in water and at the same time crushing the legumes, root-fruit and cereals, and mixing the same with the crushed malt and malt germs previously mixed, and heating the mash to a mashing temperature, then cooling the mash to a temperature favorable to the action of pepsin and mixing it thoroughly therewith and leaving it under the influence thereof, preferably under stirring and at a like temperature favorable to its action, and continuing such action until the albumin or as much as practicable thereof contained in the raw material is transformed into peptones.



3. In the process of producing pure cultivated pressed yeast, producing a mash by heating in water and at the same time crushing the legumes, root-fruits and cereals and mixing the same with the crushed malt and malt germs previously mixed, and heating the mash to a mashing temperature, then cooling the mash to a temperature favorable to the action of pepsin and mixing it thoroughly therewith and leaving it under the influence thereof, preferably under stirring, and at a like temperature favorable to its action and continuing such action until the albumin or as much as practicable thereof contained in the raw material is transformed into peptones, then separating the soluble matter, that is, the nourishing fluid from the insoluble matter, sterilizing the nourishing fluid and cooling it down to a fermenting temperature, and subsequently fermenting the same, and introducing sterilized air during the process of fermentation, and finally, separating, filtering and pressing the yeast thus procured substantially as described.

491,940. BALANCED SLIDE-VALVE. CHARLES O. HOOGEN, Massillon, Ohio, assignor to the Russell & Company, same place. Filed Oct. 3, 1892. Serial No. 447,614. (No model.)

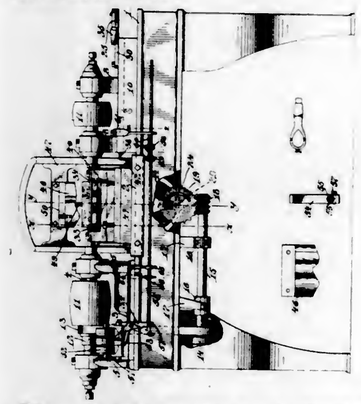


Claim.—1. The combination with a steam cylinder A, having ports *a, b, c*, of a slide valve B, having therein ports *f, j*, a central chamber *k*, a back *g*, having therein a circular aperture *l*, having about its peripheral edge and integral with the back, an upwardly projected rim or flange *m*, forming a cylinder portion, a ring *n* adapted to move vertically therein, the upper face of said ring adapted to slide on the under face *s* of the cap *l*, substantially as described and for the purpose set forth.

2. The combination with a steam cylinder A, having ports *a, b, c*, of a slide valve B, having therein ports *f, j*, a back *g*, having a circular aperture *l*, the area of which is less than the area of the ports *a, b, c*, whereby the pressure on the valve may be previously determined, said aperture having about its peripheral edge integral with the back, an upwardly projected rim or flange *m*, forming a cylinder portion, a ring *n*, adapted to the inner face of said rim, to move vertically therein, the upper face of said ring to slide on the lower face *s*, of the cap *l*, and the spring *r* to hold the ring *n*, against the face *s*, substantially as described and for the purpose set forth.

3. The combination with a steam cylinder of a slide valve B, having D portions *d* and connecting bar *e* integral therewith, and having therein ports *f*, a back *g*, to embrace and form about said portions ports *j*, said back having a circular aperture *l*, the area of which is less than the area of the ports *a, b, c*, said aperture having about its peripheral edge, an upwardly projected rim or flange *m*, integral with the back, forming a cylinder portion, a ring adapted for vertical adjustment in said rim, or cylinder portion, the upper face of said ring to slide on the under face *s*, of the cap *l*, and the spring *r*, supported by the bar *e*, and pin *q*, substantially as described and for the purpose set forth.

491,941. WOOD-TURNING LATHE. LYMAN L. HILL, Bridgeport, Conn., assignor to Henry C. Bradley, same place. Filed Aug. 27, 1891. Serial No. 403,882. (No model.)



Claim.—1. In a lathe, the combination with a movable headstock, of a swinging cutter holder, a shaft for operating said holder, a belt for driving said shaft, a swinging belt tightener, a crank lever connected with said tightener, a rod 55 loosely connected with the lever, an arm 61 secured to the movable head stock, and having an eye receiving the rod 55, and suitable intermediate connections whereby the rod is carried forward when the head stock is moved inward, substantially as described.

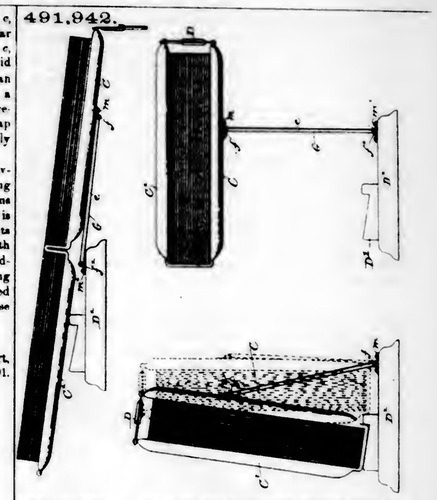
2. In a lathe, the combination with the movable and stationary head stocks, the centering rest and the cutters, of swinging tightener 51, bell crank lever 54 having an opening, rod 55 passing loosely through said opening and having a groove, a set screw engaging the lever and groove, movable guide 61 having an opening through which rod 55 passes and an opening 63, and a collar on rod 55 having a rod 60 adapted to engage opening 63 when the rod is oscillated.

3. In a lathe, the combination with the movable and stationary head stocks, the centering rest and the cutters, of stump 66, guide 61 having openings 62 and 63, the swinging tightener and the bell crank lever, rod 55 loosely connected to said lever and passing through opening 62 in the guide, collar 58 having a rod 60, and hand piece 64 upon the rod which is adapted to engage stump 66 to hold the parts in operative position and to oscillate rod 55 so that rod 60 will enter openings 63 when it is desired to stop the action of the cutters.

491,942. EASEL-ALBUM. WILLIAM A HOLMAN, Philadelphia, Pa., assignor to A. J. Holman & Co., same place. Filed Nov 14, 1892. Serial No. 451,992. (No model.)

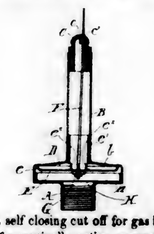
Claim.—An easel album consisting of a rigid brace frame, G, composed of stiff rod wire bent into rectangular shape to form sides *e*, and cross ends, *f, f''*, the said brace frame being hinged to a base, D, by

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hinge-joint-plates, *m'*, and to one side of the album through hinge joint plates, *m*, the said base being also provided with a rest, D^2, to support the back of the album, substantially as described

491,943. SELF-CLOSING CUT-OFF FOR GAS-BURNERS. CHARLES H. KERNEY, Milwaukee, Wis., assignor to the International Self Closing Gas Burner Company, same place. Filed Jan. 19, 1892. Serial No. 418,547. (No model.)



Claim.—1. In a self closing cut off for gas burners, the combination, with a valve, of a vertically acting expansible and contractible rod constructed by its expansion to effect the opening of said valve and by its contraction the closing thereof, substantially as set forth.

2. In a self closing cut off for gas burners, the combination of the burner proper, a valve located therein, and a vertically acting rod having rigid connections at opposite ends with the burner tip and with the valve, respectively, said rod adapted by expansion to open the valve, and by contraction to close the same, substantially as set forth.

3. In a self closing cut off for gas burners, the combination, of a gas burner provided with an interior valve seat, a valve located in said burner, and an expansible and contractible valve rod having connection with the valve and adapted to effect the opening and closing thereof and to allow for the excess of its contraction over that of the burner shell so as to properly seat the valve and hold the same yieldingly to its seat without undue strain, substantially as set forth.

4. In a self closing cut off for gas burners, the combination of a burner proper, provided with an interior valve seat, an expansible and contractible valve rod having rigid connection at its upper end with the burner tip, and a flexible valve secured rigidly to the lower end of the valve rod, and adapted, through its flexibility, to allow for the excess of the contraction of the rod over that of the burner shell, substantially as set forth.

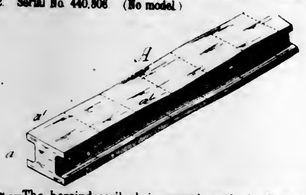
5. In a self closing cut off for gas burners, the combination, with a burner proper, of a valve located therein formed or provided with a projecting guide bearing and guided in the cylindrical inner wall of the burner tube, substantially as set forth.

6. In a self closing cut off for gas burners, the combination, of a valve casing having its upper end provided with a screw threaded aperture, a valve within the casing, a valve rod for operating the same, the upper end of said rod being threaded and passing through the threaded aperture of the burner to the exterior thereof, whereby the position of the valve may be regulated exteriorly of the upper end of the burner, substantially as set forth.

7. In a self closing cut off for gas burners, the combination of a valve casing, a valve therein provided with a screw threaded aperture, and a valve rod having a threaded end passing through the aperture, whereby the position of the valve may be regulated from the lower end of the burner, substantially as set forth.

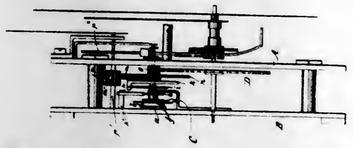
8. In a self closing cut off for gas burners, the combination, of a valve casing the upper end thereof provided with a screw threaded aperture, a valve within the casing also provided with a screw threaded aperture, and a valve stem having its opposite ends threaded, and passing through the threaded apertures of the burner and valve, respectively, substantially as set forth.

491,944. MANUFACTURE OF SHOVELS. JOSEPH KENNEDY, Lamar, administrator of the estate of Patrick W. Groom, deceased, assignor of one-half to Charles D. Moody, Webster Groves, Mo. Filed July 21, 1892. Serial No. 440,808. (No model.)



Claim.—The hereindescribed improved method of producing blanks for shovels and analogous tools having handle-straps integral with the body of the tool, the same consisting in making a bar grooved or channeled in its side edge or side edges, then cutting said bar transversely into blanks, then reducing said blanks and widening the solid portion of the blank as described, and then further reducing the blank and elongating both its solid and its grooved portions to form the desired shovel-blank.

491,945. SELF-WINDING ELECTRIC CLOCK. EMIL KLAHN, West Hoboken, N. J., assignor to Daniel G. Hood, New York, N. Y. Filed Feb. 17, 1892. Serial No. 421,891. (No model.)

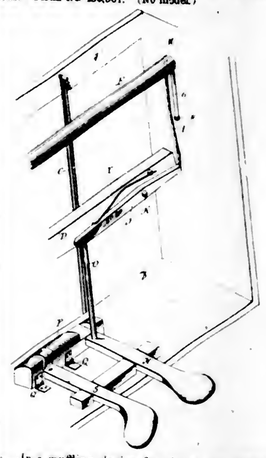


Claim.—1. In a self-winding clock the combination with a clock mechanism, of a winding roller connected therewith, the driving weight and cord, a counterbalancing weight and cord a shaft upon which said cords wind in opposite directions, an electric motor for revolving said shaft, and a vibrating lever carrying a contact arm adapted to make and break the current, to revolve or stop the shaft substantially as shown and described.

2. In a self-winding clock the combination of the winding roller carrying the driving weight by its cord, a secondary roller 7 carrying a counterweight in the same manner, rollers 8 and 9 to which the cords of the respective weights are fastened, a disk 11 of nonconducting material having a contact-piece 12 and rotating simultaneously with the said rollers 8 and 9, electro-magnets arranged around the said disk 11, and a switch arrangement by which the electric connection between the contact piece of the disk and the electro-magnets is established or broken, whereby the disk and the rollers 8 and 9 are rotated or stopped to wind the clock, substantially as set forth.

3. In a self-winding clock a driving weight and a counter-weight guided by the cords over corresponding rollers, in combination with a fulcrumed lever, having an upright arm arranged in such a manner, that by the falling of the respective weights the lever is swung and the said upright arm comes in contact with or is removed from a switch-pin, whereby the electric circuit, to set the winding mechanism in operation, is established or broken, substantially as set forth.

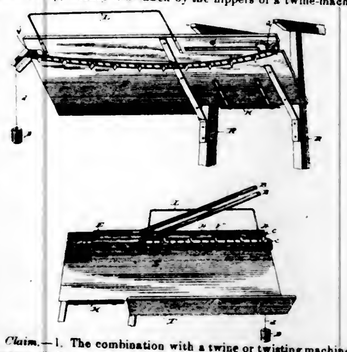
491,946. ATTACHMENT FOR PIANOS. JOHN R. LOMAS, West Haven, assignor to Bernard Shoninger, New Haven, Conn. Filed July 11, 1892. Serial No. 439,581. (No model.)



Claim.—In a muffling device for pianos, the combination with the wires and hammers thereof, of a bar constructed and arranged to be moved toward and away from the wires, a flexible flap attached to the said bar and adapted to pass between the hammers and the wires when the bar is moved toward the latter, a muffling-pedal pivoted between its ends, connections between the inner end of the said pedal and the said bar, whereby the bar is moved toward the wires when the outer end of the pedal is depressed, a releasing pedal also hung between its ends, and located adjacent to the said muffling-pedal, a pivotal latch-block located close to the inner ends of both of the said pedals, which normally abut against its outer face, and a spring for throwing the said block forward to bring its upper edge under the inner end of the muffling pedal when the outer end of the same is depressed, substantially as set forth, and whereby the depression of the outer end of the releasing pedal swings the latch-block backward against the force of the said spring, and clears its upper edge from the inner end of the muffling-pedal which then returns to place when the bar moves away from the wires.

491,947. AUTOMATIC FEEDER FOR TWINE-MACHINES. GEORGE A. LOWRY, Des Moines, Iowa, assignor, by mesne assignments, to the Warder Bushnell & Glessner Company, Springfield, Ohio, and the Walter A. Wood Mowing and Reaping Machine Company, Hoosick Falls, N. Y. Filed Dec. 22, 1890. Serial No. 375,524. (No model.)

Brief.—An endless chain provided with paddles feeds the grass against a stop, whence it is taken by the nippers of a twine-machine.



Claim.—1. The combination with a twine or twisting machine of an automatic feeder comprising a support for the material, an endless conveyer provided with paddles for feeding such material, and a stop arranged in the path of the material and adjacent to the twine machine proper; whereby piles of material are formed in a position to be acted upon by the mechanism on the twine machine; substantially as shown and described.

2. In an automatic feeder for the twine machine the combination of a platform provided with guide bars formed at one end into stops or abutments, confining bars hinged to such guide bars, an endless chain provided with paddles traveling between the guide bars and under the hinged confining bars; substantially as and for the purpose set forth.

3. In an automatic feeder for a twine machine the combination of a platform with a slot therethrough, and an abutment or stop thereon, of an endless conveyer provided with paddles having horizontal extensions which normally ride upon the platform and hold the paddles in position but pass through the slots at the end of the platform and allow the paddles to fall, substantially as and for the purpose set forth.

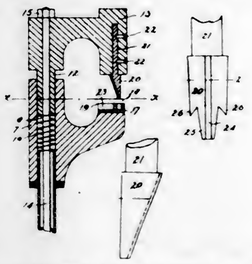
4. In an automatic feeder for a twine machine the combination of a platform an endless conveyer traversing the same, stops or abutments in the path of travel of the conveyer, and a weight connected to the latter so as to serve as a motor to move the same; substantially as and for the purpose set forth.

5. In an automatic feeder, a platform of considerable size, an endless conveyer provided with paddles, guide bars for the conveyer, vertical abutments or stops at one end, and confining bars hinged thereto, substantially as and for the purpose set forth.

6. In an automatic feeder, the combination of a platform provided with slots therethrough, guiding bars arranged thereon having abutments at one end, confining bars hinged thereto, and suitable means for securing the same at their free ends, a chain having pivoted paddles provided with horizontal projections, which normally ride upon the platform which latter holds the paddles in a perpendicular position, and devices for driving the chain, substantially as and for the purpose set forth.

7. In an automatic feeder for a twine machine the combination of a platform with guide bars having stops or abutments and a spring actuated clamping bar arranged at the lower side of such platform with an endless conveyer coacting with such parts; substantially as and for the purpose set forth.

491,948. DEVICE FOR REMOVING SHOE-BUTTONS. PETER H. NIELSEN, Denver, Colo. Filed Mar. 15, 1892. Serial No. 425,074. (No model.)



Claim.—1. A device for removing shoe buttons consisting of a standard provided with a stationary block having a die suitably fashioned to receive the button and the extremity of the cutter, and a spring supported movable block provided with a cutter normally supported above the die and provided with a reduced lower part and shouldered cutting edges lying on either side in a plane higher than the lowest point of the cutter and adapted to engage and cut the button fastening as the cutter is moved downward thereon, substantially as described.

2. In a device for removing shoe buttons the combination with a hollow standard secured to a suitable base, a stationary block rigidly secured thereto and provided with an opening which the upper part of the standard enters, the front part of the block being provided with a die having two recesses, one for the button and the other for the extremity of the cutter, a movable block provided with a shank entering the top of the opening in the stationary block and supported by a coil spring engaging the top of the standard, the movable block being provided with a cutter normally supported above the die, a pin passing up through the hollow standard and openings in both blocks and suitably secured to the movable block whereby the cutter is made to engage and sever the button fastening, substantially as described.

3. In a device for removing shoe buttons the combination of a stationary block having a suitable die and a movable spring supported block connected therewith and having a cutter provided with a reduced guide part and shouldered cutting edges lying on either side thereof and occupying a plane higher than the lowest point of the cutter, substantially as described.

4. In a device for removing shoe buttons the combination of a stationary die block having recesses for the buttons and for the extremity of the cutter and a movable spring actuated cutter block having a cutter provided with a longitudinal groove, a tapering lower extremity and shouldered lateral cutting edges located on either side of the tapering guide and in a plane higher than the lowest point of the cutter, substantially as described.

5. In a device for removing shoe buttons the combination with a die block and actuating mechanism of a vertically movable cutter having a rear longitudinal groove, a reduced lower part, and upper cutting edges, substantially as described.

6. In a device for removing shoe buttons the combination with a die block and actuating mechanism of a vertically movable cutter having a longitudinal groove and cutting edges located above its lower extremity, substantially as described.

491,949. STOVEPIPE-FASTENER. JESSE E. MILLS, Pontiac, Mich., assignor of two-thirds to Martin W. Bloomburg, same place. Filed July 14, 1892. Serial No. 439,982. (No model.)

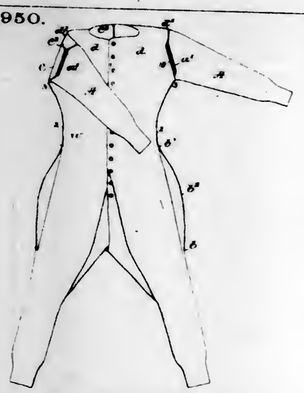
Claim.—The combination of the stove-pipe A, a strap *c* having one end, *c*, bent at an angle and adapted to engage in the chimney, a clamping piece, *a*, permanently secured to said pipe, and a clamping screw *b* engaged therein and adapted to clamp the strap, substantially as and for the purpose set forth.

491,950. COMBINATION KNITTED UNDERGARMENT. GERALDINE O'REILLY, Boston, Mass., assignor to John Holmes, same place. Filed Aug. 8, 1892. Serial No. 442,419. (Specimens.)

Claim.—1. A knitted combination garment, having its front longer than its back and carried over the shoulder and united to an inclined selvage edged part of the back at the back of the shoulder, substantially as described.

2. A knitted combination garment having its front and back provided each with a selvage edge, at the side of the arm scye combined with a sleeve having narrowed or inclined selvage edges *a'*, *a'*, secured to the front and back, substantially as described.

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491,951. PRINTING COLORS WITH ANILINE-BLACK. FRANK P. PEARSON, North Adams, Mass., assignor to the Arnold Print Works, same place. Filed Nov. 29, 1892. Serial No. 453,517. (No specimens.)

Claim.—1. The process of producing and fixing upon cotton materials, colored patterns in conjunction with aniline-black, which consists in padding the material with an aniline mixture which will produce an aniline black, then printing upon the material as desired with a color-resist composed of a coal-tar color, a mordant which has chemical affinity for such color and an aniline-black resist, then steaming or aging to develop and fix the colors, substantially as described.

2. The process of producing and fixing upon cotton materials colored patterns, in conjunction with aniline black, which consists in, first, padding the material with an aniline mixture which will produce aniline black; second, printing upon the goods as desired with a color resist, composed of an astringent fixing agent, coloring matter for which such agent has chemical affinity, and an aniline black resist; third, steaming or aging to develop and fix said colors, and finally, passing the material through a solution containing a salt of antimony or of tin, substantially as described

491,952. WEATHER-STRIP. WARREN H. PLYMPTON, Providence, R. I., assignor of one-half to Arthur H. Plympton, same place. Filed July 27, 1892. Serial No. 441,362. (No model.)



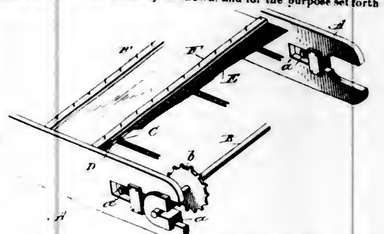
Claim.—1. An adjustable threshold weather-strip, consisting of two end sections each composed of two brackets to which a sheet-metal strip is secured to form the upper part and a sheet-metal strip is pivoted to form the lower part of the weather-strip, a central sheet-metal strip the upper and lower parts of which are bent over the edges of the fixed upper sheet-metal end strips, and a central sheet-metal strip, the upper and lower parts of which are bent over the hinged lower sheet-metal end strips, adapted to adjust the length of the weather-strips, as described.

2. In an adjustable threshold weather-strip, the combination with the brackets 5, the crimped sheet-metal strips 6, and the strips 8 pivoted to the brackets, of the central crimped sheet-metal strip 9 having the lips 9' bent over the edges of the strips 6, and the strips 10 having the lips 10' bent over the strips 7, as and for the purpose described

491,953. ENDLESS CARRIER-BELT. LEONARD X. PRESTON, Champion, Nebr., assignor of two-thirds to Oswald H. Wirsig, same place, and Alonzo Cunningham, Imperial, Nebr. Filed Aug. 31, 1892. Serial No. 444,683. (No model.)

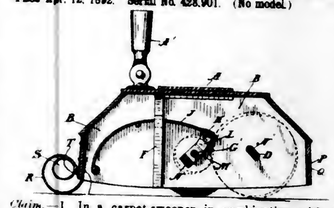
Claim.—1. In an endless carrier belt, the combination of a cross bar D having links rigidly secured thereto, the cross-bars of said links being located below the plane of the underside of the cross-bar D, an upper cross bar bolted to the cross-bar D so as to retain the belt between said cross-bars, substantially as shown, and for the purpose set forth.

2. In an endless apron or carrier, the combination of the links C having dovetailed recesses in their upper sides, a cross-bar D rigidly secured to said links, a sprocket-chain adapted to engage with the cross-bars of said links, an apron secured to the upper edge of the cross-bar D, substantially as shown, and for the purpose set forth



3. In an endless carrier, the combination of the links C rigidly attached to a cross-bar, D, a bar F having upwardly projecting pins, and bolts for securing the same to the cross-bar D, of a belt secured between the cross-bars D and F, and links constituting the links C and endless chain, said endless chain being adapted to pass over sprocket wheels which are mounted in adjustable bearings, substantially as shown

491,954. CARPET-SWEEPER. SILAS H. RAYMOND, Grand Rapids, Mich., assignor to T. Stewart White and Thomas Friant, same place. Filed Apr. 12, 1892. Serial No. 428,901. (No model.)



Claim.—1. In a carpet-sweeper, in combination with driving wheels, and a brush shaft having pulleys engaging said wheels, bearings for said wheels and shaft, supported in oppositely inclined slotted openings, and movable therein, substantially as described.

2. In a carpet-sweeper, driving wheels journaled on diagonally movable bearings, a brush shaft having pulleys engaging said driving wheels, diagonally movable bearings for said brush shaft, and springs attached to said brush shaft bearings, substantially as described.

3. In a carpet sweeper in combination with an outer case and an inner detachable frame, a depression in the inner surface of the case, a knob on the frame engaging said depression, a shoe attached to the opposite side of the frame, engaging the floor and supporting the structure and turned in an involute curve, and engaging a hook on the case, substantially as described.

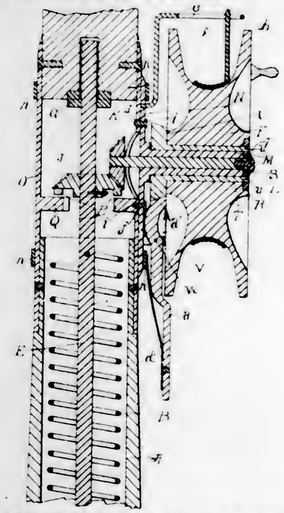
4. In a carpet sweeper, in combination with a case, and a removable frame therein, a shoe attached to the frame and extended rearward and upward in a substantially involute curve, and engaging a hook on said case, forming a combined shoe, handle, and catch, substantially as described.

5. In a carpet sweeper, a case, a detachable frame in said case, a rod passing through diagonal slotted openings in the frame, driving wheels on said rod and supporting one side of the device, a brush shaft having pulleys engaging said driving wheels, bearings for said shaft engaging and movable in diagonal slotted openings in said frame, springs attached to said bearings and to said frame, a shoe attached to said frame, said shoe curved rearwardly in a substantially involute curve supporting the rear of the device, and engaging a hook on the case, substantially as described.

491,955. FISHING-REEL. JOSEPH SUPER, Los Angeles, Cal. Filed July 1, 1892. Serial No. 398,152. (No model.)

Claim.—1. The combination set forth of a fishing rod having a hollow handle; a spring actuated driving wheel situated in such handle; a reel attaching plate arranged for attachment to the rod and provided with an outwardly projecting hollow journal sleeve; a reel journaled upon such journal sleeve; a reel actuating spindle journaled in such hollow journal sleeve and attached at its outer end to the reel and provided upon its inner end with a driven wheel arranged to engage the spring actuated driving wheel within the rod when the reel is attached to the rod, and a suitable stop arranged to engage the spring actuated driving wheel within the rod when the reel is disengaged therefrom.

2. In a fishing reel, the combination of the attaching plate arranged for attachment to a fishing rod, a suitably journaled reel attached to such plate and provided with the circular beveled edge friction wheel; a friction brake pivoted to the plate and provided with a beveled edge brake shoe arranged to engage such friction wheel, and a suitable handle for operating such brake



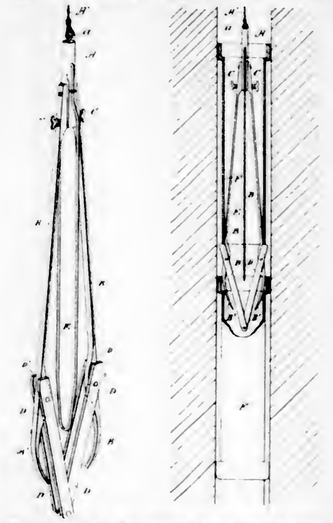
3. In a fishing rod and reel the combination of a rod provided with a hollow handle, an axially movable spring actuated driving shaft journaled to revolve in such handle; a driving wheel fixed to such shaft and provided with a projecting lug; means for moving the driving shaft axially to disengage the driving wheel from the driven wheel; a suitable lug fixed to the handle and arranged to engage the lug upon the driving wheel when the shaft is moved axially to disengage the driving wheel from the driven wheel; such driven wheel; a reel, and suitable intermediate means connecting the driven wheel and the reel

4. In a fishing rod of the class described the combination of the axially movable spring actuated driving shaft provided with the driving wheel, the reel, the driven wheel connected with the reel and arranged to engage the driving wheel to actuate the reel; suitable means for moving the driving shaft axially to disengage the driving wheel from the driven wheel, and a suitable stop fixed to the rod and arranged to engage the driving wheel to prevent its rotation when the shaft is moved axially to disengage such wheel from the driven wheel

5. In a fishing rod having a spring actuated driving wheel situated within the handle, the combination of a driven wheel mounted upon a spindle; a reel attached to such spindle and provided with a friction wheel; a brake arranged to engage such friction wheel and provided with a suitable handle, and suitable means for attaching the reel to the rod to place the driving and driven wheel in operative engagement with each other

6. In a fishing rod the combination of a hollow handle, having a closed lower end, a movable journal post passed through its lower closed end and arranged for axial movement; an axially movable spring actuated driving shaft having one end journaled in such journal post and its other end journaled through a suitable journal box fixed to the rod and arranged to allow axial movement of the shaft; suitable means arranged to prevent the shaft from withdrawing from its seat in the journal post; a driving wheel fixed to the driving shaft and arranged to normally engage a driven wheel to actuate a reel and provided with a lug arranged to engage a stop fixed to the handle of the rod when the shaft is moved axially to disengage the driving wheel from the driven wheel, and means for moving the journal post axially.

491,956. WELL-TILING COUPLER. WILLIAM A. SUMNER, Clay Center, Nebr., assignor of three-fourths to John C. Ward, George S. Ward, and Herman E. Stein. Filed Feb. 4, 1891. Renewed Aug. 13, 1892. Serial No. 442,970. (No model.)

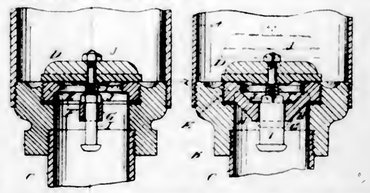


Claim.—1. A well tiling coupler, having movable lateral projections to support the tile, and spring arms attached to said projections and having lower curved portions extending down below and laterally beyond the same, for the purpose of detaching the coupler, substantially as and for the purpose set forth

2. The combination, in a well tiling coupler, of a pair of downwardly extending spring arms, curving inward at their lower ends with the V-shaped hinged bars coupled to the spring arms respectively, and having shoulders extending out beyond the spring arms, substantially as and for the purpose set forth.

3. The combination, in a well tiling coupler, of a head having a pair of adjustable spring arms extending downward, with inwardly curved ends, with the V-shaped hinged bars coupled to the spring bars, and having shoulders extending out beyond the spring bars, substantially as described, together with the transverse guide-rod for steadying the tile, as and for the purpose set forth

491,957. CHECK-VALVE. WILLIAM S. WELSH, Springfield, Ohio, assignor to the Mast, Foos & Company, same place. Filed July 29, 1892. Serial No. 441,627. (No model.)



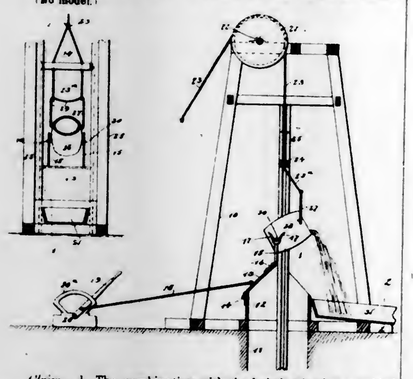
Claim.—1. As an improvement in check valves, the combination with a cylinder cap having an enlarged screw-threaded socket at the upper end of the inlet opening, of a threaded annulus matching said socket and of substantially the size of the inlet opening interiorly, and provided with a central guide with an angular slot, supported from the inner portion of said annulus, a valve proper mounted on said annulus, and a valve stem having an angular portion matching said guide at one end and secured to the valve proper at the other end, substantially as and for the purpose described.

2. As an improvement in check valves, the combination with a cylinder cap having an enlarged annular screw-threaded socket at

the upper end of the inlet opening, of a threaded annulus screwed into said opening and of substantially the size of the lift pipe, and provided with a slotted guide-portion centrally supported, of a valve proper, and a valve stem therefor consisting of an angular portion mounted in said slotted guide and having a head to limit its upward movement, a threaded upper end to receive the valve proper, a middle threaded enlarged portion, forming a shoulder for the valve proper, a nut on the upper end to secure the valve proper on said shoulder and a nut corresponding to the enlarged middle portion, to support said stem independently, substantially as and for the purpose described

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491,958. BUCKET-DUMPING APPARATUS. FRANK B. WINELAND, Breckenridge, Colo. Filed Apr. 29, 1892. Serial No. 431,193. (No model.)



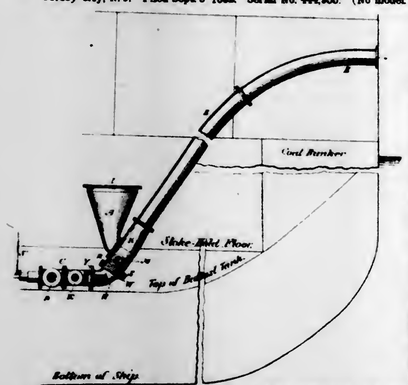
Claim.—1. The combination with the hoisting bucket provided below its bail with opposite trunnions 30, 30, of supporting arms having open bearings or forks into which the said trunnions may be seated to support the bucket when tilted, substantially as set forth.

2. The combination, with the vertically movable hoisting bucket having projecting trunnions thereon, of a swinging door arranged in the path of the bucket and provided with supporting arms adapted to engage the bucket trunnions, substantially as described.

3. The combination, with the vertical side posts and the cross-head held to slide between the posts, of a bucket suspended from the cross-head and provided with projecting trunnions, a swinging door arranged in the path of the bucket, and supporting arms carried by the door and adapted to engage the bucket trunnions, substantially as described

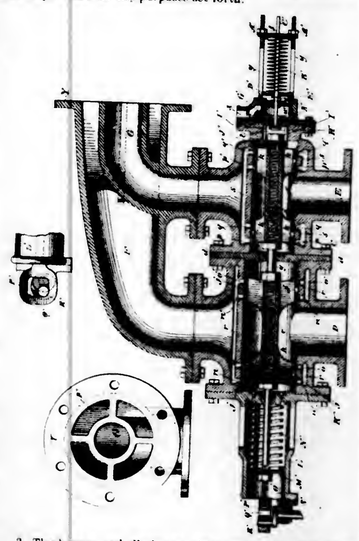
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491,959. ASH-EJECTOR FOR STEAMSHIPS. GEORGE CLARKE, Jersey City, N. J. Filed Sept. 3 1892. Serial No. 444,955. (No model.)



Claim.—1. The hopper and discharge pipe, combined with the inlet for water under pressure, the nozzle communicating therewith and leading to said discharge pipe, the inlet for water not under pressure, the nozzle communicating with said last named inlet and leading to said discharge pipe, and a valve intermediate said inlets and nozzles; substantially as set forth.

2. The discharge pipe and the hopper leading into the same, combined with the nozzle Q below said hopper, the smaller nozzle V within said nozzle Q, the air chamber surrounding the nozzle Q, the inlet for water under pressure communicating with the nozzle V, and the inlet for water not under pressure communicating with said nozzle Q; substantially as and for the purposes set forth.



3. The hopper and discharge pipe, combined with the inlet for water under pressure, the nozzle communicating therewith and leading to said discharge pipe, the inlet for water not under pressure, the nozzle communicating with said last named inlet and leading to said discharge pipe, and an air inlet leading to said discharge pipe, substantially as and for the purposes set forth.

4. The hopper and discharge pipe, combined with the inlet for water under pressure, the nozzle communicating therewith and leading to said discharge pipe, the inlet for water not under pressure, the nozzle communicating with said last named inlet and leading to said discharge pipe, an air inlet leading to said discharge pipe, and a valve intermediate said inlets and nozzles and subject to the pressure of the water from the pumps; substantially as and for the purposes set forth.

5. The hopper and discharge pipe, combined with the inlet for water under pressure leading to said pipe, the inlet for water not under pressure leading to said pipe, and the valve intermediate said pipe and said inlets and dependent on the pressure of the water from the pumps; substantially as and for the purposes set forth.

6. The hopper and discharge pipe, combined with the inlets for water under pressure and water not under pressure leading respectively to said pipe, the valve casing connected with said inlets with a separate compartment for each, the valve rod carrying valves in said compartments, the valve G' connected with said rod, the valve H' seated against said valve G', the spring acting on the valve H' and the spring acting on the valve G'; substantially as and for the purposes set forth.

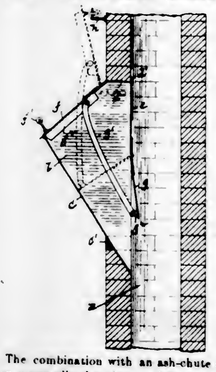
7. The hopper and discharge pipe, combined with the inlets for water under pressure and water not under pressure leading respectively to said pipe, the valve casing connected with said inlets with a separate compartment for each, the ports *n*, *o*, *n'*, *o'* *p*, *q*, *p'*, *q'*, and chambers *r*, *s*, in said compartments, the reciprocating valves having ports *j*, *k*, in said compartments, and means substantially as described for operating said valves *j*, *k*, by the action of the water under pressure; substantially as and for the purposes set forth.

8. The hopper and discharge pipe, combined with the inlets for water under pressure and water not under pressure leading respectively to said pipe, the valve casing connected with said inlets with a separate compartment for each, the valves in said compartments, and means substantially as described for resisting the opening of said valves except above a definite pressure of the water from the pumps; substantially as and for the purposes set forth.

9. The hopper and discharge pipe combined with the inlets for water under pressure and water not under pressure leading respectively to said pipe, the valve casing connected with said inlets with a separate compartment for each, the valve rod carrying valves in said compartments, the cylinders *t*, *u*, at the end of said casing, the valves G', H', in said cylinders, and the springs acting on said valves substantially as and for the purposes set forth

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491,960. CHUTE FOR ASHES. THOMAS CONNOR, Holyoke, Mass. Filed Mar. 30. 1892. Serial No. 427,067. (No model.)



Claim.—1. The combination with an ash-chute of an ash conductor projecting outwardly therefrom and forming a passage-way into the chute, said conductor having at its front side a swinging door or cover and at its rear side a swinging damper-plate, said door or cover and said damper-plate being positively connected with each other, whereby they are caused to swing in unison, substantially as and for the purpose described

2. The chute conductor herein described having the inclined front *c* provided with the angle-piece *c'*, top-piece *d*, door *f* hinged to said top-piece, back-piece *e*, and an open passage-way beneath said back-piece, substantially as set forth

3. The chute conductor herein described, having the door *f*, damper-plate *g*, strips *g'* pivotally connected at their opposite ends to said door and damper-plate respectively, and an open passage-way beneath said damper-plate, substantially as set forth.

491,961. PRINTING COLORS WITH ANILINE BLACK. GEORGE DONALD, North Adams, Mass., assignor to the Arnold Print Works, same place. Filed Jan. 16, 1893. Serial No. 458,526. (No specimens.)

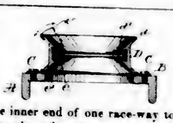
Claim.—1. The process of producing and fixing in cotton material, colored figures in conjunction with aniline black, which consists in, mordanting the material with an astringent solution and a metallic salt, and padding it with aniline black, by first applying one of said mordant ingredients, second, padding the material with an aniline black mixture containing the other of said mordant ingredients, third, printing upon the material in the desired figures, with an aniline-black resist containing a color for which said mordant has chemical affinity, and finally, steaming to develop and fix said colors, substantially as described

2. The process of producing and fixing in cotton materials colored figures in conjunction with aniline black, by means of a mordant composed of an astringent and a metallic salt, which consists in first, padding the material with an aniline black mixture containing one of said mordant ingredients, second, printing upon the material in the desired figures with an aniline black resist containing the other of said mordant ingredients, and a color for which said mordant has chemical affinity, and finally, steaming to develop and fix the colors, substantially as described

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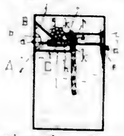
491,962. SPINNING-RING. EDES S. DRAPER, Hopedale, Mass., assignor to the Sawyer Spindle Company, same place. Filed Sept. 16, 1892. Serial No. 446,089. (No model.)

Claim.—A spinning ring provided at each end with inwardly inclined race-ways, the inner ends of the race-ways coming sufficiently



close to enable the inner end of one race-way to act as a stop for the traveler running on the other race-way and reduce its tendency to jump and wabble to the injury of the yarn, substantially as described.

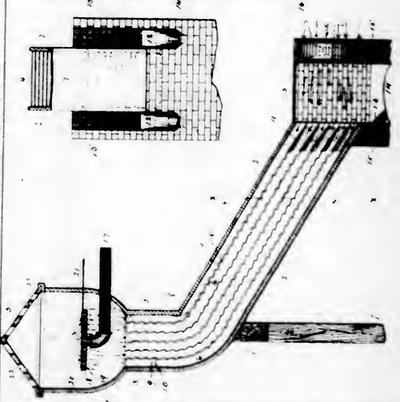
491,963. POCKET-LAMP. WILLIAM R. FEARN, Camden, N. J., assignor of one-half to David Jones, same place. Filed June 19, 1891. Serial No. 396,851. (No model.)



Claim.—In a pocket-lamp, the combination with a case, A, of a lid, B, divided by partition, *f*, a cartridge-hopper, *g*, formed in said partition a cartridge-cylinder, *h*, fitted to the bottom of said hopper and in communication therewith; a piston, *i*, and piston rod, *j*, and a curved lid-opening spring, *b*, the spring, piston, and rod being operated by the lid, and a scratcher on the case, substantially as described

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491,964. LIQUID-COOLER. WILLIAM J. FLETCHER, Minneapolis, Minn., assignor of one-half to Twin City Iron Works, same place. Filed Aug. 20, 1892. Serial No. 443,606. (No model.)



Claim.—1. In a liquid cooler, a casing, a series of connected vertical and inclined partitions having corrugated surfaces, means for supplying and distributing liquid at the head, means for accumulating it at the foot and means for passing an air-current through the compartments formed by the partitions.

2. In a liquid-cooler a casing having its lower portion at an angle to the upper portion, suitable partitions for conducting liquid through both portions, means for supplying liquid to the upper portion and means for causing an air-current to pass upward through the apparatus.

3. In a liquid cooler, a casing having upper and lower portions at angles to each other, means for supplying liquid to the upper portion, means for producing an air-current through both portions, and partitions for conducting the liquid through the apparatus, the same consisting of thin metal plates having suitable corrugations

4. In a liquid cooler, a casing having upper and lower portions, the latter being inclined from the former, means for supplying liquid at the head and for causing an air-current to enter at the foot of the casing, a series of partitions in the casing, and a corresponding series of suitable catch-basins at the foot thereof, for the purpose set forth.

5. In a liquid cooler, a series of communicating vertical and inclined liquid conductors having corrugated surfaces, a liquid supply-

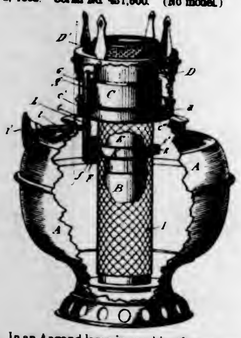
ing and distributing device at the head thereof, a separate and comparatively flat catch-basin for each conductor at the foot thereof, and means for causing an air-current to pass through the spaces between said conductors.

6. In a liquid-cooler, a casing having a vertical portion provided with a perforated hood, an inclined portion, suitable partitions in both portions, means for supplying and distributing liquid at the head, means for conducting it away laterally from the foot of the partitions, and a fan for producing an upward air-current through the apparatus, substantially as set forth.

7. In a liquid-cooler, the combination with the partitions forming the separate compartments, of catch-basins tapering from their mouths at the foot of the partitions to narrow edges beyond, for the purpose set forth.

8. In a liquid cooler, the combination with a casing and cooling compartments, of an induction pipe, a liquid distributer consisting of horizontal plates having coincident perforations, and means for partially rotating one of them to regulate the passage of liquid through the perforations, substantially as set forth.

491,965. ARGAND LAMP. WILLIAM C. HOMAN, Meriden, Conn. Filed May 2, 1892. Serial No. 431,600. (No model.)



Claim.—1. In an Argand lamp in combination an outer wick tube, an outturned flange at the lower end of said wick tube, an aperture in said flange and a wick adjusting device consisting of a sleeve and a drawbar, the arrangement of parts being such that said drawbar is capable of vertical movement through said aperture only when said wick tube is in its normal or locked position, substantially as described.

2. In an Argand lamp in combination a wick adjusting sleeve, a rack bar connected with said sleeve, said sleeve and said rack bar being wholly within said lamp, a pinion adapted to mesh with said rack bar, a shaft on said pinion passing out of said lamp and a stop or guide in said lamp adapted to bear against said rack bar and to maintain it in engagement with said pinion, substantially as described.

3. A rack bar consisting of a strip or blank of metal, provided with a central longitudinal line of perforations, folded longitudinally through said line of perforations, then folded in the opposite direction to, parallel with and on each side of said first named fold, substantially as described.

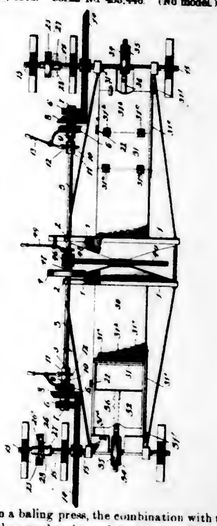
491,966. SASH-CORD FASTENER. SAMUEL JENKINSON, Rochester, assignor to the Vanderbilt Sash Balance Company, Canandaigua, N. Y. Original application filed Nov. 2, 1891. Serial No. 410,574. Divided and this application filed Aug. 11, 1892. Serial No. 442,752. (No model.)



Claim.—1. The fastener or attaching device for window tapes adapted to be inserted in an aperture in a sash, composed of the body portion having the upwardly extending flange or web near its outer end, and the downwardly extending flange or web near its inner end, substantially as described.

2. The fastener or attaching device for window tapes adapted to be inserted in an aperture in a sash, composed of a body portion having the loop at its outer end, the upwardly extending web or flange also near said end and the downwardly extending flange or web near its inner end, substantially as described.

491,967. BALING-PRESS. WILLIAM H. KENNER, Dundee, Tex. Filed May 18, 1892. Serial No. 433,446. (No model.)



Claim.—1. In a baling press, the combination with the press box, a reciprocating plunger therein, and a reciprocating packing block also therein; of a power shaft, two independent gears thereon and connected thereto by clutches, and independent connections substantially as described between one of the gears and the plunger, and the other gear and the packing block, whereby the plunger and block may be caused to move at will, as and for the purpose set forth.

2. In a baling press, the combination with the press box, a plunger therein, and means for moving it at will; of a packing block, a shaft having an eccentric, a pitman pivoted at one end to said block and having at its other end a band encircling said eccentric, a gear wheel on said shaft, and means for driving this gear at will and independently of the plunger, as and for the purpose set forth.

3. In a baling press, the combination with the press box, a plunger therein, a screw secured to the plunger, a power gear having a threaded hub through which the screw passes, and means for driving this gear in either direction at will; of a packing block, a shaft having an eccentric, a pitman pivoted at one end to said block and having at its other end a band encircling said eccentric, a gear wheel on said shaft, and means for driving this gear at will and independently of the plunger, as and for the purpose set forth.

4. In a baling press, the combination with a double press box, a power gear standing across its center and having an interiorly threaded hub, a screw through said hub, and plungers secured to the ends of said screw; of packing blocks in said box, transverse shafts across the ends of the box, eccentrics thereon, pitmen connecting the eccentrics with the packing blocks, the latter having dished outer faces to receive the eccentrics, gear wheels on these shafts, small gear pinions meshing with said three gears, and clutches substantially as described for independently connecting said small gears with the power shaft at will, as and for the purpose described.

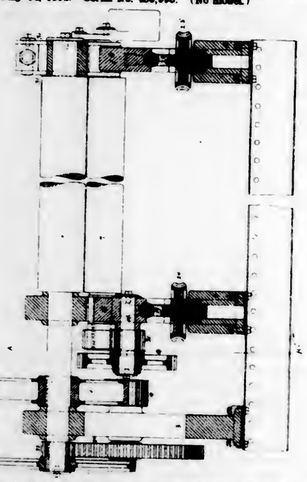
5. In a baling press, the combination with a double press box, a power gear standing across its center and having an interiorly threaded hub, a screw through said hub, and plungers secured to the ends of said screw; of packing blocks in said box, transverse shafts across the ends of the box, eccentrics thereon, pitmen connecting the eccentrics with the packing blocks, the latter having dished outer faces to receive the eccentrics, gear wheels on these shafts, small gear pinions meshing with said three gears, clutches substantially as described for independently connecting said small gears with the power shaft at will, an endless apron adapted to feed into either end of the press box, and connections between the rollers of this apron and said transverse shafts, as and for the purpose set forth.

6. In a baling press, the combination with a double press box, a power gear standing across its center and having an interiorly threaded hub, a screw through said hub, and plungers secured to the ends of said screw; of packing blocks in said box, transverse shafts across the ends of the box, eccentrics thereon, pitmen connecting the eccentrics with the packing blocks, the latter having dished outer faces to receive the eccentrics, gear wheels on these shafts, small gear pinions meshing with said three gears, clutches substantially as described for independently connecting said small gears with the power shaft at will, an endless apron adapted to feed into either end of the press box, loose pulleys on said transverse shafts, means for causing them to turn with said shafts or not at will, and belts connecting these pulleys with the rollers of said apron, one of these belts being crossed, as and for the purpose set forth.

7. In a baling press, the combination with a double press box, a power gear standing across its center and having an interiorly threaded hub, a screw through said hub, and plungers secured to the ends of said screws; of packing blocks in said box, transverse shafts across the ends of the box, eccentrics thereon, pitmen connecting the eccentrics with the packing blocks, gear wheels on these shafts, small gear pinions meshing with said three gears, clutches substantially as described for independently connecting said small gears with the power shaft at will, and another clutch for connecting said power gear with this shaft at will, as and for the purpose set forth.

8. In a baling press, the combination with the press box having two doors in its upper side, the press blocks in said box, two packing blocks, shafts standing across the ends of said box, connections for driving each of said packing blocks from its shaft, and means substantially as described for rotating the shafts in opposite directions and at will; of an endless apron located above said box and adapted to deliver into either of said doors, and connections between said shafts and the rollers of the apron for moving the latter in either direction at will, as and for the purpose set forth.

491,968. BENDING-ROLL. WILFRED LEWIS, Philadelphia, Pa., assignor to the William Sellers & Company, Incorporated, same place. Filed July 14, 1892. Serial No. 439,993. (No model.)



Claim.—1. In a plate bending machine, the main roll and an opposing roll or rolls, with a train of gearing which connects one with the other, in combination with a lost motion toothed clutch in this train, substantially as and for the purpose set forth.

2. In a plate bending machine, a vertically moving roll bearing block controlled transversely to the rolls, by the roll housing, in combination with a pin, each end of which is embraced and guided by the roll housing, and about which the bearing block can oscillate, while it is supported and guided in its vertical movement by the pin.

491,969. CAR-BRAKE HANDLE. CHARLES D. LYON, Lynn, assignor of one-half to Harry A. Fisher, Swampscott, Mass. Filed Oct. 24, 1892. Serial No. 449,868. (No model.)

Claim.—1. The self-contained clutch handle for car brakes, the same consisting of the screw-threaded hub provided with a shoulder, and above it a series of inclined faces and above it a bearing 5 for the handle, combined with a handle having an enlarged shell-like end to embrace the portion of the hub having the inclined faces down to the shoulder 2, and a series of cylindrical rolls interposed between the shell and hub, and a device to loosely connect the handle with the bearing 5 to operate, substantially as described.

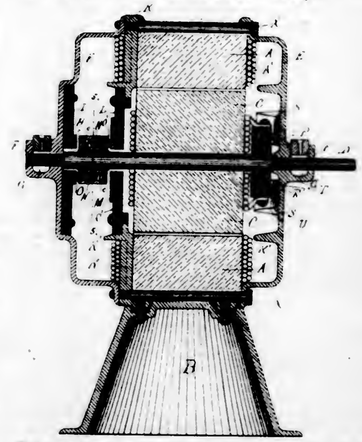


2. The self-contained clutch handle for car brakes, the same consisting of the screw-threaded hub provided with a shoulder and above it a series of inclined faces and above it a bearing 5 for the handle, combined with a handle having an enlarged shell-like end provided with a lining, as *f*, to embrace the portion of the hub having the inclined faces down to the shoulder 2, a series of cylindrical rolls interposed between the shell and hub, and a device to loosely connect the handle with the bearing 5 to operate, substantially as described.

3. The self-contained clutch handle for car brakes, the same consisting of the screw-threaded hub provided with a shoulder and above it a series of inclined faces and above it a bearing 5 for the handle, combined with a handle having an enlarged shell like end to embrace the portion of the hub having the inclined faces down to the shoulder 2, a series of cylindrical rolls interposed between the shell and hub, a device to loosely connect the handle with the bearing 5, said hub having a series of spring holders, and a series of springs to normally keep the said rollers into the contracted ends of the spaces between the hub and the interior of the shell, substantially as described.

4. The brake rod provided with a threaded upper end and having the feed ratchet, combined with the hub provided with a shoulder, and above it a series of inclined faces and above it a bearing 5 for the handle, and with a handle having an enlarged shell-like rod to embrace the portion of the hub having the inclined faces down to the shoulder 2, a series of cylindrical rolls interposed between the shell and hub, and a device to loosely connect the handle with the bearing 5, to operate, substantially as described.

491,970. ELECTRIC MOTOR. ALEXANDER W. MEETON, St. Louis, Mo. Filed June 15, 1891. Serial No. 396,348. (No model.)



Claim.—1. In an electric motor, the combination, with a field-magnet provided with a plurality of polar extensions and helices on

said polar extensions, of an armature, a stationary terminal contact-plate, a distribution plate, or plates, for commuting the energizing current to said helices, and a contact-making device, interposed between the contact plate and distribution plate: substantially as, and for the purposes described.

2. In an electric motor, the combination, with a field-magnet provided with a plurality of polar extensions and helices on said polar extensions, of an armature, a stationary terminal contact-plate, a stationary distribution plate, or plates, and a revoluble contact-making device interposed between the contact-plate and distribution plate: substantially as, and for the purposes described.

3. In an electric motor, the combination with a multi-polar field-magnet, helices on the polar-extensions thereof, a bi-polar armature, and a winding on said armature, of a commutator for directing the current to successively energize the polar-extensions of the field-magnet, and a commutator for reversing the direction of the energizing current through the armature winding, substantially as and for the purposes specified.

4. In an electric motor, the combination with a multi-polar field-magnet, the polar-extensions of which are oppositely placed, helices on the said polar-extensions, to opposite pairs of which the energizing current is simultaneously directed, always in the same direction, a bi-polar armature, and a winding on said armature for energizing and polarizing the same, of a commutator for directing the current to successively energize the polar-extension of the field-magnet and a commutator for reversing the direction of the current through the armature winding, substantially as and for the purposes specified.

5. In an electric motor, the combination, with a field-magnet, of a wound armature, a shaft therefor, a rectifying-plate, or plates, an insulation-block rigidly mounted on the armature shaft, yielding contact-making devices carried by said insulation-block adapted to make contact with said rectifying-plate, or plates, and electrical connections between the terminals of said armature winding and the contact-making devices: substantially as, and for the purposes described.

6. In an electric motor, the combination, with an armature and its shaft, of a segmental distribution-plate, a contact-plate, and means for establishing electrical connection between said contact-plate and said distribution-plate: substantially as, and for the purposes described.

7. In an electric motor, the combination, with an armature and its shaft, of a stationary segmental distribution-plate, a stationary contact plate, and means adapted to rotate with the armature shaft for establishing electrical connection between said contact and distribution plates: substantially as, and for the purposes described.

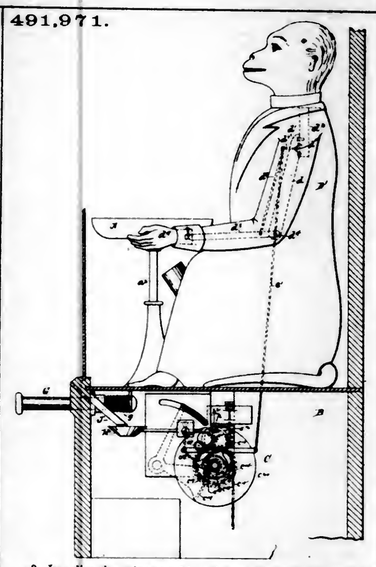
8. In a dynamo-machine, the combination with the herein described inclosing case, consisting in a split band, of the side clamping plates provided with the overlapping flange edges, through bolts by which the side clamping plates are secured together, and a base casting, between which and the body of the motor, the ends of the encircling band are included; substantially as and for the purposes described.

9. In an electric motor, a contact-making device rigidly secured to the armature shaft, a stationary contact-plate secured to the framing of the motor, and a stationary segmental distribution-plate secured to the framing of the motor, the said contact-making device being adapted, in the operation of the machine, to make circuit between the said contact-plate and the different sections of said distribution-plate, combined and operating substantially as described and for the purposes specified.

10. In an electric motor, a device for establishing electrical circuit from the exterior supply wires to the different field-magnet coils, consisting of an annular contact-plate secured to the framing of the machine, a segmental distribution-plate secured to the framing of the machine, to the several sections of which are secured, respectively, one end of the several field-magnet coils, and a contact-making device rigidly secured on the armature shaft, said device consisting of a supporting-block formed with two or more recesses into which are fitted spring-governed pins adapted, in the operation of the machine, to make contact, respectively, with the said contact-plates and the different sections of the said distribution-plate, combined and operating substantially in the manner described and for the purposes specified.

491,971. COIN-CONTROLLED DICE-THROWING MACHINE. PERCY G. WILLIAMS and ALFRED W. ROOVERS, Brooklyn, N. Y.; said Roovers assignor to said Williams. Filed Dec. 26, 1889. Serial No. 334,948. (No model.)

491,971.



Claim.—1. In a dice throwing machine, the combination of a tilting table and a dice box movable independently of the table from a point above to a point below the table, substantially as specified.

2. In a dice throwing machine, the combination of a tilting table, a rod movable up and down to tilt the table and return it to its normal position, and a cam for moving said rod up and down, substantially as specified.

3. In a dice throwing machine, the combination of a tilting table, a rod movable up and down to tilt the table and return it to its normal position, a swiveling connection between said rod and the table, and a cam for moving said rod up and down, substantially as specified.

4. In a dice throwing machine, the combination of a tilting table, a rod d, a rock shaft d^5 having arms d^6 d^7, a rod d^8 pivotally connected to the rod d, a rod d^9 extending between the arm d^7 and the rod d^8 and a rod c' connected to the arm d^6, substantially as specified.

5. In a dice throwing machine, the combination of a tilting table, a rod d, a rod d^8 pivotally connected to the rod d, a hand d^3 connected to the table and having a swiveling connection with the rod d^8, a rock shaft d^5 having arms d^6 d^7, a rod d^9 extending between the arm d^7 and the rod d^8 and a rod c' connected to the arm d^6, substantially as specified.

6. In a dice throwing machine, the combination of a tilting table, a rod d, a rock shaft d^5 having arms d^6 d^7, a rod d^8 pivotally connected to the rod d, a rod d^9 extending between the arm d^7 and the rod d^8, a rod c' connected to the arm d^6 and a cam for operating said rod c', substantially as specified.

7. In a dice throwing machine, the combination of a tilting table, a dice box, a rod serving to support the dice box and a cam for moving said rod up and down, substantially as specified.

8. In a dice throwing machine, the combination of a tilting table, a dice box, a rod serving to support the dice box, a cam for moving said rod up and down, a rock shaft journaled on said rod and forming a connection between said rod and dice box and a second cam for oscillating this rock shaft, substantially as specified.

9. In a dice throwing machine, the combination of a rod d^{10}, a rod d^{11} pivotally connected thereto, a rock shaft d^{12} having arms d^{14} and d^{15}, a rod d^{13} connecting the arm d^{15} with the rod d^{11} and a cam for operating the rock shaft d^{12}, substantially as specified.

10. In a dice throwing machine, the combination of rod d^{10}, rod d^{11} pivotally connected to the rod d^{10}, a rock shaft d^{12} having an arm d^{15}, rods d^{13} connecting the arm d^{15} with the rod d^{11}, a rock shaft d^{17} journaled on the rod d^{11}, a rock shaft d^{21} having an arm d^{20} and a rod d^{19} connecting the arm d^{20} with an arm extending from the rock shaft d^{17}, substantially as specified.

11. In a dice throwing machine, the combination of a figure representing a living creature, movable arms, a tilting table connected with one of the arms and a dice box connected to the other arm, substantially as specified.

12. In a dice throwing machine, the combination of a figure representing a living creature, movable arms, a tilting table connected with one of the arms, a dice box connected to the other arm, motor mechanism for operating the arms and a coin receptacle for controlling the motor mechanism, substantially as specified.

13. In a coin controlling machine, the combination of a motor mechanism comprising a main shaft, a drum connected to the shaft

to impart motion thereto in one direction but to run free vertically in the other direction, a motive agent connected with the drum, a segment lever for rotating the drum in the reverse direction to that in which it is rotated by the motive agent and a slider bar for operating the segment lever, substantially as specified.

491,972. COLORING-MATTER FROM LOGWOOD AND MODE OF PREPARING SAME. PETER T. AUSTEN, New Brunswick, N. J., assignor to William J. Matheson & Co., Limited, New York, N. Y. Filed Oct. 8, 1892. Serial No. 448,172. (No specimens.)

Claim.—1. In the art of making logwood extract, the improvement which consists in adding to logwood extract an alkaline nitrite in the presence of water and causing a reaction between the nitrite and the extract, substantially as described.

2. In the art of making logwood extract, the improvement which consists in adding to logwood extract an alkaline nitrite in the presence of water, causing a reaction between the nitrite and the extract and evaporating the product to dryness, substantially as described.

3. As a new article of manufacture, a coloring matter derived from logwood extract by the incorporation therewith of an alkaline nitrite, and characterized by the fact of its being a friable solid, soluble in cold and rapidly soluble in hot water, substantially as described.

DESIGNS.

22,210. RUG. ERNEST H. EBERETT, East Orange, N. J., assignor to John H. Bromley, Joseph H. Bromley, and Edward Bromley. Filed Dec. 1, 1892. Serial No. 453,794. Term of patent 3½ years.



Claim.—The design for a rug substantially as shown and set forth.

22,211. RUG. ERNEST H. EBERETT, East Orange, N. J., assignor to John H. Bromley, Joseph H. Bromley, and Edward Bromley. Filed Dec. 1, 1892. Serial No. 453,793. Term of patent 3½ years.

22,211.



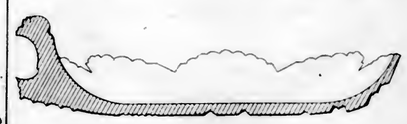
Claim.—The design for a rug substantially as shown and set forth.

22,212. SPOON. MARSHALL O. ROBERTS, Washington, D. C. Filed Jan. 5, 1893. Serial No. 457,405. Term of patent 7 years.

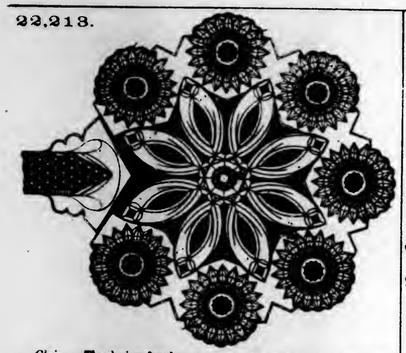


Claim.—The design for a spoon substantially as herein shown and described.

22,213. ORNAMENTATION OF GLASSWARE. WILLIAM C. ANDERSON, Toledo, Ohio, assignor to the Libby Glass Company, same place. Filed Nov. 19, 1892. Serial No. 452,589. Term of patent 3½ years.

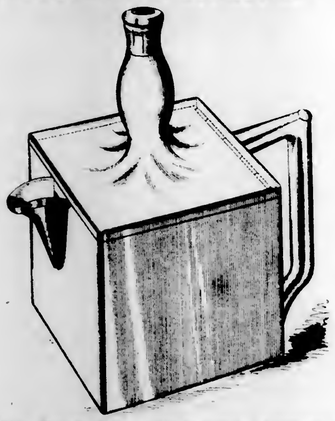


22,213.



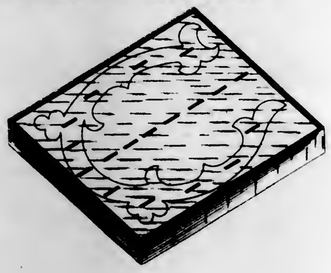
Claim.—The design for the ornamentation of glassware herein described and shown, the same consisting of the central stellated figure having substantially elliptical rays, each terminating in a single acute angle or point at its outer end, and the series of smaller stellated figures outside of said central figure, as set forth.

22,214. PITCHER. JEREMIAH G. DOMOGHUE, Philadelphia, Pa., assignor to the Ledig Manufacturing Company, of Pennsylvania. Filed Jan. 14, 1892. Serial No. 458,389. Term of patent 3½ years.



Claim.—The design for a pitcher substantially as described and shown.

22,215. TRAY. JOSEPH REES, New York, N. Y. Filed Dec. 29, 1892. Serial No. 456,707. Term of patent 3½ years.



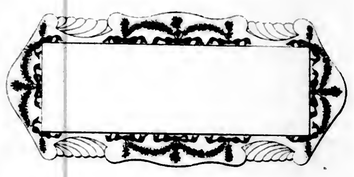
Claim.—The design for a tray or holder, substantially as shown and described.

22,216. COIN-HOLDER. JOHN LINES, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Nov. 21, 1892. Serial No. 452,731. Term of patent 7 years.



Claim.—The design for a pocket coin-holder as herein shown and described.

22,217. COFFIN-PLATE. OLIVER MCCARTHY, Meriden, Conn., assignor to the Meriden Britannia Company, same place. Filed Sept. 29, 1892. Serial No. 447,343. Term of patent 7 years.



Claim.—The design for coffin-plate as herein described and shown in the accompanying drawing.

22,218. ESCUTCHEON-PLATE. WILLIAM B. DITHAM, Stamford, Conn., assignor to The Yale & Towne Manufacturing Company, of Connecticut. Filed Dec. 21, 1892. Serial No. 455,947. Term of patent 7 years.

Claim.—The design for an escutcheon for a lock, substantially as herein described and shown.

22,219. TABLE. JOHN C. MILLER, Waterbury, Conn., assignor to the Matthews & Willard Manufacturing Company, same place. Filed Nov. 14, 1892. Serial No. 452,010. Term of patent 3½ years.



Claim.—The design for a table as herein described and illustrated in the accompanying drawing.

22,220. STOVE. ISAAC DE HAVEN, Allegheny, Pa. Filed Dec. 22, 1892. Serial No. 456,096. Term of patent 3½ years.

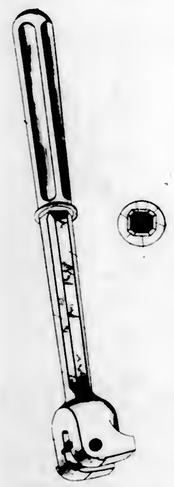


Claim.—1. The design for stoves substantially as herein shown and described.

2. In a design for a stove, the top, substantially as herein shown and described.

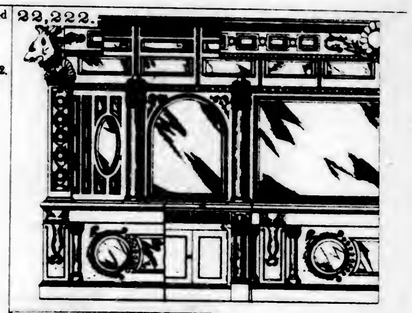
3. In a stove, the design for a blower substantially as herein shown and described.

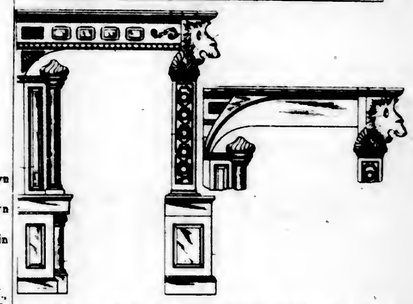
22,221. TOOL-HANDLE. WILLIAM P. ALGER, West Troy, N. Y., assignor of one-half to Charles C. Kelley, same place. Filed Aug. 29, 1892. Serial No. 444,456. Term of patent 7 years.



Claim.—The design for a tool handle herein shown and described.

22,222. SALOON FIXTURE. DAVID ROTHSCHILD, Cincinnati, Ohio. Filed Dec. 27, 1892. Serial No. 456,495. Term of patent 3½ years.





Claim.—A design for a saloon fixture substantially as herein shown and described.

22,223. SPOON. JOSEPH R. BIRMINGHAM and CHARLES GRANDJEAN, San Francisco, Cal. Filed Dec. 19, 1892. Serial No. 456,701. Term of patent 3½ years.



Claim.—The design for a spoon as herein shown and described.

22,224. FINGER-RING. JOSEPH BULOVA, New York, N. Y. Filed Dec. 31, 1892. Serial No. 456,943. Term of patent 7 years.



Claim.—The design for a finger ring, substantially as herein shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 14, 1893.

22,456. PICTORIAL STORY-BOOKS. THE RUSSELL PRINTING COMPANY, Cincinnati, Ohio. Filed Jan. 13, 1893.

VICTOR

Essential feature.—The word "VICTOR." Used since July 1, 1892.

22,457. PUBLICATIONS. ROBERT J. BUCHANAN, Pittsburg, Pa. Filed Jan. 9, 1893.

WHY NOT?

Essential feature.—The words "WHY NOT?" Used since September 15, 1891.

22,458. WHISKY. JAMES OLWELL & Co., New York, N. Y. Filed Jan. 17, 1893.

OLD KENTUCKY SPRINGS

Essential feature.—The words "OLD KENTUCKY SPRINGS." Used since February 8, 1890.

22,459. ROLLED WHEAT. PETTIJOHN CALIFORNIA BREAKFAST FOOD COMPANY, Minneapolis, Minn. Filed Dec. 23, 1892.

BREAKFAST FOOD

Essential feature.—The words "BREAKFAST FOOD." Used since October 28, 1890.

22,460. COFFEE AND ITS SUBSTITUTES. CHARLES A. LEPITOIS, Montreal, Canada. Filed Dec. 24, 1892.

CAFFAROMA

Essential feature.—The word "CAFFAROMA." Used since March 21, 1888.

22,461. DISINFECTANT. CHARLES A. SIMPSON, Saxonville, Mass. Filed Dec. 17, 1892.

PHOROL

Essential feature.—The word "PHOROL." Used since January 15, 1890.

22,462. TAPEWORM-MEDICINE IN CAPSULES. GEORGE E. THUM, Elizabeth, N. J. Filed Oct. 22, 1892.

THUM'S TAPE WORM CAPSULES

Essential feature.—The words "THUM'S TAPE WORM CAPSULES," inclosed in a rectangular border. Used since September, 1891.

22,463. PREPARATION FOR THE CURE OF VENEREAL DISEASES. MARTIN MARKENDORF, Louisville, Ky. Filed Oct. 24, 1892.



Essential feature.—The representation of a notched seal bearing the words "GOLDEN SEAL" behind which are two loops and ends of ribbon. Used since July 1, 1892.

22,464. CEMENT PLASTER. THE SALINA CEMENT PLASTER COMPANY, Salina and Dillon, Kans. Filed Jan. 7, 1893.

AGATITE

Essential feature.—The word "AGATITE." Used since December 26, 1892.

22,465. MEDICINAL MINERAL WATER. EUGENE L. JACQUES, Waterbury, Conn. Filed Jan. 10, 1893.

Althea

Essential feature.—The word "ALTHEA" in script with a paraph below it. Used since December 1, 1890.

22,466. CERTAIN CARBONATED BEVERAGES AND WATERS. EUGENE L. JACQUES, Waterbury, Conn. Filed Jan. 10, 1893.



Essential feature.—The representation of a nude figure of a boy seated upon a cake of ice and holding a bottle of registrant's goods. Used since April 30, 1891.

22,467. ARTIFICIAL FERTILIZERS. MARLINE MANUFACTURING COMPANY, Minneapolis, Minn. Filed Dec. 27, 1892.



Essential feature.—The words "MAGIC PLANT FOOD" and the representation of a fuchsia spray. Used since January 1, 1891.

22,468. TOILET SOAP. MEXICAN ROOT SOAP Co., Boston, Mass. Filed Oct. 31, 1892.



Essential feature.—The representation of a girl in a short frock with a sash at the waist, and a broad hat on her head, and with one foot on a spade, which she holds by the handle, as if in the act of digging. Used since January 1, 1892.

22,469. PLASTIC SOAP OR CLEANING COMPOUND. AMERICAN CHEMICAL COMPANY, Minneapolis, Minn. Filed May 19, 1892.

MAGICO

Essential feature.—The word "MAGICO." Used since April 1, 1892.

22,470. TOILET AND LAUNDRY SOAP. DUNWOODY BROS., Denver, Colo. Filed Nov. 22, 1892.

WATER WHITE

Essential feature.—The words "WATER WHITE" arranged in parallel horizontal lines with a single letter "W" as the initial letter of both words. Used since July 1, 1892.

22,471. SALVES, PILLS, VERMIFUGE, LINIMENT, AND COUGH BALM. AMOS H. GOTTSCHALL, Harrisburg, Pa. Filed Dec. 29, 1892.



Essential feature.—The representation of a woman sitting in a high back arm chair with a child by her side in a leaning posture. Used since May 30, 1891.

22,472. REMEDIES FOR NERVOUS DEBILITY AND OTHER NAMED DISEASES. WILLIAM GOWAN DOZIER, Pittsburg, Pa. Filed Dec. 28, 1892.



Essential feature.—The words "ACME VEGETABLE MAGNETIZED REMEDIES." Used since January, 1892.

22,473. SEWING-MACHINES AND ATTACHMENTS. PARSONS & BIRD, Buffalo, N. Y. Filed Dec. 19, 1892.

PREMIER

Essential feature.—The word "PREMIER." Used since September 20, 1892.

22,474. CASH-RECORDERS AND CASH-REGISTERS. AZEL CLARANCE HOUGH, South Butler, N. Y. Filed Jan. 14, 1893.

SECURITY

Essential feature.—The word "SECURITY." Used since October 1, 1892.

22,475. SHIRTS. DANIEL R. SILLSBY & Co., Lockport, N. Y. Filed Dec. 3, 1892.

EMPIRE STATE

Essential feature.—The words "EMPIRE STATE." Used since August 1, 1892.

22,476. OVERGAITERS AND LEGGINS. SACHS, ROSENWASSER & STERN. New York, N. Y. Filed Jan. 3, 1893.

IMPERIAL

Essential feature.—The word "IMPERIAL." Used since November 14, 1891.

22,477. LAXATIVE. WILLIAM P. STEVENS and JAMES E. DURHAM. Muncie, Ind. Filed Nov. 14, 1892.



Essential feature.—The representation of a prune with an attached leaf accompanied by the bust portraits of four persons each holding a bottle in hand. Used since September 1, 1892.

22,478. CERTAIN NAMED REMEDIES. TURNER-SHAKER MEDICINE CO., St. Louis, Mo., and Union Village, Ohio. Filed Dec. 28, 1892.



SHAKER

Essential feature.—The portrait and fac-simile signature of Dr. Louis Turner and the word "SHAKER." Used since January 1, 1872.

22,479. REMEDIES FOR NERVOUS DISORDERS AND ALL DISEASES OF THE BLOOD, LIVER, AND KIDNEYS. TURNER-SHAKER MEDICINE CO., St. Louis, Mo., and Union Village, Ohio. Filed Dec. 28, 1892.



NEUROGEN

Essential feature.—The portrait of Dr. Louis Turner and the words "SHAKER NEUROGEN." Used since January 1, 1872.

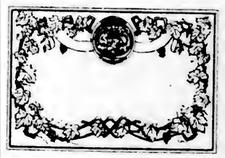
22,480. PREPARED AND REFINED BEEF FAT. MOSES ZIMMERMANN, New York, N. Y. Filed Jan. 18, 1893.

Essential feature.—The representation of a star. Used since February, 1892.

22,481. LAGER-BEER. JAMES EVERARD, New York, N. Y. Filed Oct. 6, 1892.

Essential feature.—A monogram composed of the letters "J E" and the figure of a red star underneath it. Used since September 1, 1891.

22,482. BRANDY. BROMBAULT & Co., Bordeaux, France. Filed Nov. 10, 1892.



Essential feature.—The representation of a medallion bearing a castellated shield having a lion rampant thereon, and a flowing ribbon below the same; above the shield is a griffin with extended wings from which ornamental scrolls depend and surround said shield, and from the ends of said flowing ribbon on either side is a border consisting of the representation of a grape vine and leaves. Used since January, 1885.

PHOTO-LITH. WASHINGTON, D.C. THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

O'SHAUGHNESSY *v.* VAN DEPOE'E.

Decided January 25, 1893.

INTERFERENCE—PRIORITY—RULES 114, 115, 116.

Where one of the parties to an interference failed to file his preliminary statement within the time limited, and the Examiner of Interferences decided the interference in favor of his opponent "in accordance with the provisions of Rules 114, 115, and 116," *Held* on appeal that as the appellant disclosed, but did not claim, the invention in controversy in application antedating his opponent's earliest claimed date, the Office must consider this in determining the question of priority.

APPEAL from Examiners-in-Chief.

ELECTRIC RAILWAY.

Application of Patrick F. O'Shaughnessy filed September 27, 1888, No. 286,542. Patent granted Charles J. Van Depoele July 23, 1889, No 407,749; application filed June 7, 1889.

Messrs. Dyer & Seely for O'Shaughnessy.
Mr. F. Jannus for Van Depoele.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority to Van Depoele upon the following interference issue:

* * * * *

The following is the decision of the Examiner of Interferences:

The day heretofore set for final hearing having passed, and O'Shaughnessy, the junior party, having failed to file a statement within the time allowed for that purpose, judgment of priority of invention is hereby rendered in favor of Charles J. Van Depoele, the senior party herein, in accordance with the provisions of Rules 114, 115, and 116.

The following is the decision of the Examiners-in-Chief:

O'Shaughnessy's application, although filed September 27, 1888, showed no invention to call for an interference with Van Depoele's application, filed about two months later, and this division of the latter went to patent July 23, 1889, as No. 407,749. On September 11, 1890, O'Shaughnessy, having failed to establish patentable novelty in any of his original claims, filed his present series of claims and demanded (October 8, 1890) an interference with Van Depoele's patent, which was afterward withdrawn and redemanded August 6, 1892. The Examiner accordingly declared the interference, and, strictly following Rule 116, laid down for his guidance, made O'Shaughnessy junior applicant with consequent burden of proof to overcome. O'Shaughnessy having failed to put in any preliminary statement, judgment was rendered upon the record in favor of Van Depoele in accordance with Rule 114. We find no error in the Examiner's action, the same being strictly rulable, and the same rules are binding upon our action until repealed. We have no choice but to affirm the Examiner's decision, and if appellant finds himself aggrieved he has the remedy of an appeal to the Commissioner of Patents in person, where the rule itself can be discussed and questioned with a view to a decision modifying Commissioner's decision in *Rennyson* v. *Merritt*, (58 O. G., 1415,) where the present Rule 116 was established.

The Examiner's decision awarding priority of invention to Van Depoele under the rules is affirmed.

No question is made but that O'Shaughnessy's application for patent filed September 27, 1888, discloses without claiming the improvement in controversy, and that Van Depoele neither by application for patent, by preliminary statement, nor by evidence has shown any conception of the invention in controversy dating back to September 27, 1888; but O'Shaughnessy filed no preliminary statement in this interference, relying, as he claims, upon Rule 114, which is as follows:

114. If the junior party to an interference, or if any party thereto other than the senior party, fail to file a statement, or if his statement fail to overcome the *prima facie* case made by the respective dates of application, judgment against such party may be rendered upon the record, and the interference will proceed between the remaining parties. Within the period fixed as a limit of appeal from such judgment said party may bring any of the motions permitted by the rules, provided he has not waived his right of appeal. The filing of such a motion, noticed for hearing within the limit of appeal, will operate to stay the running of the time so limited until the final determination of the motion.

The Examiner of Interferences bases his decision upon Rules 114, 115, and 116. Rule 114 has already been quoted. The following are Rules 115 and 116:

115. If a party to an interference fail to file a statement, testimony will not be received subsequently from him to prove that he made the invention at a date prior to his application.

116. In original proceedings in cases of interference the several parties will be presumed to have made the invention in the chronological order in which they claimed the same in their completed applications for patents clearly illustrating and describing the invention; and the burden of proof will rest upon the party who shall seek to establish a different state of facts.

The Examiners-in-Chief base their decision upon Rules 114 and 116, together with the decision in *Rennyson* v. *Merritt*, (58 O. G., 1415.)

Let attention be first given to *Rennyson* v. *Merritt*. That decision quotes Rule 116 and says:

It being held that Rennyson's claims in interference were not embraced in his original statement of invention or in any claim originally presented by him, he will be treated as the junior inventor.

The question thus decided was as to which of the parties should stand as plaintiff and which as defendant; no more than that; and "what was said is to be understood by reference to what is spoken of." (*Farm Machine Co.* v. *Commissioner*, 22 Blatchf., 32.)

The principal object of Rule 116 as it now exists is to determine the "burden of proof"—in other words, to determine the position of the parties as plaintiff and defendant.

In this case it makes O'Shaughnessy the plaintiff. What then? If the case had been such that the parties had proceeded to the taking of testimony, O'Shaughnessy could readily have proved the possession of the invention by him back to September 27, 1888, by offering his application of that date in evidence. But the case did not proceed to the taking of testimony because the Office, under Rule 114, proceeded to decide

the case upon the evidence already in its possession. If the Office in inspecting that evidence does not consider O'Shaughnessy's application, the Office thereby deprives him of all chance to prove his case. When looking at evidence in this way and for this purpose, the Office must act fairly, and it clearly is not fair to deprive O'Shaughnessy of the opportunity to prove his case and then refuse to consider the evidence which he had already placed in possession of the Office. So much for the spirit of the rules, and the letter thereof is in accordance with the spirit.

Rule 114 says that in a case like this "the respective dates of application" are to be considered. Obeying both the letter and the spirit of Rules 114, 115, and 116 the Office must consider O'Shaughnessy's application. To consider it is to make O'Shaughnessy the prior inventor.

The decision of the Examiners-in-Chief is reversed, and priority is awarded to O'Shaughnessy.

EX PARTE H. J. HEINZ CO.

Decided January 28, 1893.

1. REGISTRATION OF LABELS—"PRINTS" AND "LABELS."

Under section 3 of the act of June 18, 1874, relating to patents, trade-marks, and copyrights, "prints" as well as "Labels" are entitled to registration.

2. PURPOSE OF THE LABEL ACT.

The purpose of the so-called "Label act" was to relegate to the Patent Office all registry in the general nature of or akin to copyright of things which are mere adjuncts or appurtenances of articles of trade and to leave to the Librarian of Congress the registry of things whose value in exchange resides in themselves. In any case some spark of intellectual creation must be present. (See *Ex parte Palmer*, 50 O. G., 383.)

3. CONSTITUTIONALITY.

Until the Supreme Court distinctly says otherwise the Label law is, for the Patent Office, constitutional.

ON petition.

LABEL FOR PICKLES, ETC.

Application of H. J. Heinz Co. filed October 31, 1892.

Messrs. W. Bakewell & Sons for the applicant.

SIMONDS, *Commissioner:*

This is a petition taken from the decision of the Examiner of Trade-Marks denying registration as a print to a cardboard device shaped to the outline of a cucumber pickle, having a short stem and colored and shaded upon one face in representation of a pickle, except as to three round inset pictures in colors, each showing a laughing child holding a fat bottle. On the green ground is printed the word "Heinz's," and the three little pictures bear, respectively, the words "Preserves," "Celery Sauce," and "Ketchup" in inconspicuous fashion. It is an artistic novelty. It is not used as a Label, but is handed about as an advertisement. The Trade-Mark Examiner's reason for not admitting it to registry is thus expressed in his answer to the petition:

Applicant presents for registration a Label for pickles consisting of a card having the shape and color to represent a cucumber and having upon it three circular disks each bearing a fanciful picture. The Examiner has refused registration on the ground that the so called Label included such fanciful and arbitrary matter as constituted a Trade-Mark and can only be protected as such. From this objection petition is now taken. The Examiner has nothing to say in answer to the petition except to cite the present Commissioner's decision in *ex parte Palmer* (58 O. G., 383) and the line of decisions following it, and to remark that the thing presented does not seem to fall within the narrow margin marked out by the Commissioner as the limits of lawful Label registration.

The Examiner's decision is that the Office may only give registry for a print or Label to a thing which is "not a Trade-Mark," and that this device is not entitled to registry because it has arbitrary or fanciful features capable of sequestration as a Trade-Mark. The Examiner's decision is in accord with the practice of the Office down to this time, and yet if, on the facts shown in this case, applicant were to apply for registry of this device as a Trade-Mark the Office would at once and rightly reject the application, for the reason that it is not in use affixed to any article of trade. The latter position being a sound one, the former must be abandoned, for a thing cannot be both a Trade-Mark and not a Trade-Mark at one and the same time.

Another objection—though it does not seem to be raised on the record—remains to be considered. Registry for this device can be had only under section 3 of the act of Congress relating to patents, trade-marks, and copyrights, approved June 18, 1874, to wit:

Sec. 3 That in the construction of this act the words "engraving, cut, and print" shall be applied only to pictorial illustrations or works connected with the fine arts, and no prints or Labels designed to be used for any other articles of manufacture shall be entered under the copyright law, but may be registered in the Patent Office; and the Commissioner of Patents is hereby charged with the supervision and control of the entry or registry of such prints or Labels in conformity with the regulations provided by law as to copyrights of prints, except that there shall be paid for recording the title of any print or Label, not a Trade-Mark, six dollars, which shall cover the expense of furnishing a copy of the record, under the seal of the Commissioner of Patents, to the party entering the same.

This section of statute gives registry to "any print or Label not a Trade-Mark;" but the Office rules, after quoting this section, say:

The words "prints" and "Labels," as used in this act, so far as it relates to registration in the Patent Office, are construed as synonymous, and are defined as any device, picture, word or words, figure or figures (not a Trade-Mark) impressed or stamped directly upon the articles of manufacture, or upon a slip or piece of paper, or other material, to be attached in any manner to manufactured articles, or to bottles, boxes, and packages containing them, to indicate the contents of the package, the name of the manufacturer, or the place of manufacture, the quality of goods, directions for use, etc.

The rules give no reason for saying this. The statute specifies two things as entitled to registry. It specifies a "print" and it also specifies a "Label." The Office says in so many words by its rules that the statute only specifies one thing, and its settled practice says that thing is a Label, which this device is not. One can only conjecture why the Office rules and its practice have been made to say this. Whence came such a mode of construction? Certainly not from the courts of England or America acting on cognate questions. The English statute of monopolies, passed in A. D. 1624, left as subject-mattar for patents only a "manufacture;" but the British courts have made that one word as comprehensive in meaning as the "art, machine, manufacture, or composition of matter" of our statute. Our Constitution only authorizes Congress—

to promote the progress of *science and useful arts* by securing for limited times to authors and inventors the exclusive right to their respective *writings and discoveries;*

but under that authorization Congress has assumed to give the exclusive right for limited times for—

any book, map, chart, dramatic or musical composition, engraving, cut, or of a painting, drawing, chromo, statue, statuary, and of models or designs intended to be perfected as works of the fine arts,

and the courts have sustained them in so doing. But how does Hawthorne's "Scarlet Letter" promote the progress of science and the useful arts, and when did a statue come to be included among "writings or discoveries," and how does it "promote the progress of science and useful arts?" And yet with these examples before it the Patent Office says that two different words must be made to mean the same thing, although they are not so generally understood or defined. It is most in consonance with law and with common sense to give to words, in the absence of an overmastering reason to the contrary, their ordinary, usual, and commonly-accepted meaning.

It may then be reasonably assumed that "prints" as well as "Labels" are entitled to registry under the section of statute above quoted. Let the inquiry be made at this point what the probable purpose of the so-called "Label act" above quoted is. It is believed to be to relegate to the Patent Office all registry in the general nature of, or akin to, copyright of things which are mere adjuncts or appurtenances of articles of trade and to leave to the Librarian of Congress the registry of things whose value in exchange resides in themselves; but the standard of excellence required in order to entitle to registry at all was not changed. In any case some spark of intellectual creation must be present, a proposition discussed in *ex parte Palmer*, (50 O. G., 383.) The fact that the thing registered in the Patent Office is a mere adjunct of an article of trade does not prevent it from subserving the constitutional purpose. Literature (as distinguished from scientific writings) and fine arts (as distinguished from useful arts) seem to be accepted as within the constitutional purview, although it requires a liberal construction to bring it about that they "promote the progress of science and useful arts." Premising that the fine arts are within the constitutional purview, then if a lithograph upon the walls of a room is something which may "promote the progress of science and useful arts" it does not cease so to do by being affixed to a box of goods.

The objection is sometimes heard that the so-called "Label act" says that—

no prints or Labels designed to be used for any other articles of manufacture shall be entered under the copyright law.

What then? The Constitution does not say that the protection given shall be called "copyright," or "patent," or by any other specific name; and if the so-called "Label act" be warranted by the Constitution, and it be not a part of the copyright law, a practical consequence may be that no remedy is provided for infringement; but Congress may note the omission and supply it.

But matters may not be so bad as that. Until the Supreme Court says otherwise the Label law is, for the Patent Office, constitutional. The teachings of that Court in *Higgins* v. *Keuffel* (140 U. S., 428) tend to the inference that the Label law is a part of the copyright law. The clause in the Label law which says that—

no prints or Labels designed to be used for any other articles of manufacture shall be entered under the copyright law

must be read in the light of the fact that the copyright law then existed elsewhere in the statutes and that this phrase intended to make direct reference thereto. It is to be read remembering that it also says—

the Commissioner of Patents is hereby charged with the supervision and control of the entry or registry of such prints or Labels, *in conformity with the regulations provided by law as to copyright,*

which the courts may hold attaches the Label law to the copyright law, and in that case it will not be a matter of violence for the courts to also hold that the clause—

no prints or Labels designed to be used for any other articles of manufacture shall be entered under the copyright law

is commensurate in meaning with—

no prints or Labels designed to be used for any other articles of manufacture shall be entered *as provided in the copyright law;*

and if that be done the objection under discussion practically disappears.

Now does the device sought to be registered come fairly into the category of "prints * * * designed to be used for any other articles of manufacture?" If "prints," as distinguished from "Labels," are to be recognized at all under the so-called "Label law," and it is thought that the affirmative of that question has been reasonably demonstrated, then the device now sought to be registered seems to come fairly within the meaning of the word "print," and it is clear that it is one of those "mere adjuncts or appurtenances of articles of trade," the registry of which is relegated to the Patent Office by the so-called "Label law." That it possesses a sufficiency of novelty and intellectual creation has not been questioned.

The decision of the Examiner of Trade-Marks is reversed.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Eastern District of Michigan.

STEINER FIRE EXTINGUISHER COMPANY *v.* CITY OF ADRIAN.

Decided October 5, 1892.

1. PATENTS FOR INVENTIONS—ANTICIPATION—APPLICATION OF OLD DEVICE TO NEW USE—CHEMICAL FIRE-EXTINGUISHERS.

Letters Patent No. 147,422, issued February 10, 1874, to John H Steiner, cover, in claim 4, a chemical fire-engine consisting of a wheeled frame provided with a generator or extinguisher and with a hollow journaled reel, the latter having its journal connected permanently to the generator by a pipe and being provided with a hose coupled to it, so that the fluid may be forced through the hose while wound on the reel and the reel may be unwound to any desired length without kinking. *Held* that this claim is void because of anticipation by Patent No. 142,488, issued September 2, 1873, to O. R. Mason, for an apparatus for thawing ice from water and gas pipes, and by British Patent No. 100, granted January 12, 1865, to William Russ, for an improved apparatus for distributing liquid manure, and British Patent No 2,510, granted August 12, 1868, to Edward P. G. Headley, for an apparatus for watering streets, etc., and extinguishing fires,—since all these patents show the leading idea of a hollow journaled reel and hose connected thereto, and there was no invention in applying the same to a chemical fire-extinguisher by making the necessary connections with the other well-known elements of such a machine.

2. SAME—NEW RESULT.

The Steiner patent cannot be sustained on the ground that the journaled reel, the hose coiled thereon, and its connections, in the combination, promote the perfect neutralization of the carbonic acid by the alkali and diminish the liability to discharge any free acid which may have escaped from the generator, for the patentee did not invent the instrumentality by which this result is achieved, and his specifications contain no hint that he either sought or expected such a result.

Messrs. Parker & Burton and *Mr. George Lothrop* for the complainant.

Mr. John G. Elliott for the defendant.

SWAN, *J.*:

This is a suit in equity founded on the alleged infringement by defendant of the fourth claim of Letters Patent No. 147,442, granted to John H. Steiner, for an improvement in chemical fire-extinguishers.

The patent bears date February 10, 1874, and the application was filed January 5, 1874. The fourth claim of the patent is in these words:

4. A chemical fire-engine, consisting of a wheeled frame provided with a generator or extinguisher, and with a hollow journaled reel, N, the latter having its journal connected permanently to the generator by a pipe, M, and provided with a hose, O, coupled to it, as shown and described.

The patentee precedes the statements of the claims which he makes by the disclaimer:

I am aware that a hollow journaled reel, such as used by me in this engine, is not new, and, therefore, I lay no claim thereto, except in connection with the generator and the connecting-pipe, as shown.

The defense denies the originality of Steiner's improvement and the infringement charged and sets up twenty-six American patents of prior date to Steiner's as anticipations of the latter's patent, of which only three or four are insisted upon as material to the defense, and two British patents, neither of which is urged as embodying the improvement covered by Steiner's patent.

The American prior patents mainly relied upon by the defense are No. 102,431, to C. F. Pinkham, dated April 26, 1870, for a fire-annihilator; No. 131,414, to Stillson and Kley, for improvement in chemical fire-engines, dated September 17, 1872; No. 142,488, to O. R. Mason for thawing ice from water or gas pipes, patented September 2, 1873; No. 142,637, for improvement in fire-extinguishers, to F. Latta, patented September 9, 1873, on application filed January 6, 1873, and No. 146,386, to John Dillon for improvement in fire-extinguishers, issued January 13, 1874, on application filed December 1, 1873.

Upon the hearing there were offered in evidence, as showing the state of the art, British Letters Patent No. 100, granted to William Russ, dated January 12, 1865, for an improved apparatus for distributing liquid manure, and No. 2,510, granted to Edward P. G. Headley August 12, 1868, for an improved hydraulic apparatus for watering streets, roads, gardens, and other places, extinguishing fires, attaching to fire-engines, and other similar or analogous purposes.

The first apparatus for the use of carbonic-acid gas in the extinguishment of fires by a mingled stream of water and carbonic-acid gas was the invention of William A. Graham, who filed his application December 27, 1851, upon which, July 9, 1878, Letters Patent No. 205,492, to his administrator, were issued. This had for its object—

the extinguishing of fires in a more expeditious and effectual manner than has been attained by means heretofore used,

which it effected by the delivery of one stream impregnated with and projected by carbonic-acid gas generated substantially in the manner now in use, either from a fountain or generator—

mounted on wheels similar to those of common fire-engines or from a stationary tank through fixed pipes or tubes arranged through a building.

All subsequent machines using the combination of carbonic-acid gas and water for the extinguishment of fires are simply improvements, real or supposed, of Graham's invention. As this agency can only be used beneficially in the extinguishment of incipient fires, the desideratum in all apparatus of this kind is celerity and certainty, or, as put by Graham in his specifications—

In extinguishing fires, time is money; time is life.

Every later effort toward the improvement of Graham's invention has aimed to meet this need and secure the prompt and efficient discharge of the mixed fluid as the perfection of its use for the end designed.

Steiner's improvement is in that direction and is professedly by a combination of old elements, though the defense denies it even this merit, insisting that it is a mere aggregation of well-known contrivances.

Its patentability is further assailed on the ground that all its co-operating parts, even if it be held a combination of old elements, have been employed for like uses and their adaptation to the fire-extinguisher is not invention, but required only ordinary mechanical skill.

While it is elementary that a new and useful combination of old elements entitles its originator to the protection of the patent law equally as if all the elements of his device were entirely new, yet the doctrine is qualified by the indispensable condition that the combination must be the result of invention, which requires the conception and development into practical working form of a new means or device for performing a useful function or functions.

The conjunction of parts or mechanism for the production of the effect must be of the inventor's own devising.

He must conceive its construction as an original creation, not merely perceive the fitness of an existing contrivance to the required end.

It must be the product of the constructive, not merely of the perceptive, faculties of the mind.

This is simply stating in another form the settled rule of law that—

the application of a device to a new use is not invention.

It is no invention to use an old machine for a new purpose. The inventor of a machine is entitled to the benefit of all the uses to which it can be put, no matter whether he had conceived the idea of the use or not. The application of an old process or machine to a similar or analogous subject with no change in the manner of application and no result substantially distinct in its nature will not sustain a patent even if the new form of result has not before been contemplated. (*Penn. R. R. Co.* v. *Locomotive Truck Co.*, 27 O. G., 307; 110 U. S., 494; *Roberts* v. *Ryer*, 10 O. G., 204; 91 U. S., 150.)

There can be no doubt upon this record that the combination employed by Steiner insured greater celerity, certainty, and efficiency in the application of the fluid upon the fire by the pipe connection and coupling between the generator and the hollow journaled reel and thence into the hose wound upon the reel and permanently connected thereto and necessarily, therefore, with the generator and from the fact that the hose thus placed and connected permits the flow of the fluid simultaneously therewith and can be readily unreeled to any required length without liability to kinking, and thus by the turning of the way-cock the contents of the generator can be immediately discharged upon the fire at the will of the pipeman.

A striking proof of the utility of the combination is found in the fact that its main features have been largely adopted since its introduction in the Steiner machine.

The Adrian machine clearly uses the same means to the same ends as those employed in complainant's. The apparent differences produced by the position of the reel, its generators, and the coupling and pipe connections and the absence of a reel, case, or covering are formal, not substantial.

If, therefore, Steiner's improvement is a patentable device and has not been anticipated by prior inventions, the case made by the pleadings and proofs entitles complainant to the relief prayed.

We come now to that inquiry and the examination of the American prior patent.

There is nothing anticipatory of Steiner in the Pinkham patent.

Its scope is limited to a duplication of the generators and the use of an issue or discharge pipe common to both and connected to the generators by branch pipes furnished with stop-cocks by the use of which one generator can be refilled while the other is in use.

The reel or spool is used merely to carry the hose—

when not required for use.

In the Stillson and Kley machine the hose is wound upon a solid journaled reel and is permanently attached to the discharge-pipe leading to the generators. The discharge-pipe communicates with both tanks or generators through cocks so arranged that when one is open the other may be closed, thus permitting the successive use of the generators.

As compared with Steiner's the striking defect of the machine lies in the necessity of unreeling all the hose as a prerequisite to the discharge of the fluid.

While this difficulty is in part obviated by winding the hose on the reel simultaneously from each end, the machine is not capable of such facile and expeditious use as is Steiner's.

Indeed, the function of the reel in the Stillson and Kley engine seems to be only the carriage of the hose, not in any way to facilitate its manipulation by the pipeman or to adjust its length to the exigencies of the occasion.

The chief, if not the only, feature common to this and complainant's improvement is the permanent attachment of the hose to the discharge-pipe.

This machine does not suggest the advantages of Steiner's.

In Latta's machine the cylinder of the tank or generator is arranged and used—

as a drum or spool upon which the leading hose that proceeds from the extinguisher is reeled or wound.

The objection to this device is the liability of the opening from the generator into the discharge-pipe to be left by the unreeling of the hose above the water-line of the contents of the generator, the effect of which would be to permit the escape of the gas alone instead of using it as the force by which the fluid must be ejected.

In its present form it is regarded as unreliable and inferior to later devices, including Steiner's.

Dillon's fire-extinguisher is stationary and consists of a partially-tubular shaft hung in half-bearings and revolved by a crank. To the tubular end of the shaft is connected an ingress-pipe, which in its turn is attached to the water-supply in a dwelling or other building.

The hose is wire-lined, permitting the flow of water while coiled on the shaft, which is used as a reel.

The evidence in this record carries back the date of Steiner's invention to September, 1873, and therefore he was not anticipated by Dillon.

This renders unnecessary comparison of the latter's device with complainant's device.

The Pinkham, Stillson and Kley, Latta, and Dillon machines being thus eliminated from the inquiry, the effect of the Mason patent and those of Russ and Headley remains to be considered.

Mason applied for his patent May 10, 1873, four months before the earliest date which can be assigned to Steiner's alleged invention. His is a device for thawing ice from water or gas pipes, and in form and appearance is not unlike the reel and connections which Steiner employs. Examination of its parts reveals a still closer resemblance. His idea and mechanism were directed to thawing ice from water and gas pipes by means of a jet or stream of heated fluid injected against the frozen contents of the pipe.

To this end [his specifications say] the invention consists in combining a flexible pipe with a revolving reel or drum, the pipe being coiled upon the drum, the construction of parts being such that the heated fluid can be forced through said drum and any desired length of pipe.

The shaft of the reel, like Steiner's, is hollow a part of its length, and to this part one end of the flexible pipe coiled on the reel is connected, while the open end of the reel-shaft is connected by a pipe to a force-pump, which is used to force a hot stream through the pipe coiled on the reel, one end of which pipe is thrust into the frozen water or gas pipe.

As the thawing out progresses the stream of hot water can be made to follow up closely by unwinding the pipe C from the drum; thus the heat can be applied just where the work is to be done.

These specifications further state:

It is evident that a reservoir of steam might be connected with the open end of shaft *b*, and carried into the water or gas pipe in the same manner as I introduce water through the pipe.

The claim of that patent is:

The combination of the flexible pipe C with the reel or drum B, having the hollow shaft *b* and coupling *c*, through which the fluid is delivered to the pipe, substantially as described.

It is admitted that this patent shows two elements of Steiner's improvement—viz., the hollow journaled reel and the pipe permanently connecting with it.

It is also admitted that—

the wheeled frame provided with a generator or extinguisher * * * and provided with a hose

are old and had been combined before the issue of the Steiner patent, and that the nozzle with valve was an old and well-known device understood as an essential part of a hose when used for fire-extinguishing purposes.

The combination claimed as the patentable merit of Steiner's extinguisher is that of the hollow journaled reel with its connections to the generator and the connection of the hose to the outlet to the hollow journal, and that thereby—

in an organized machine of that class of fire-extinguishers he secured by such organism useful results never before attained.

While Steiner's device facilitates the manipulation of the hose and the certain and speedy discharge of the fluid, it is plain that the combination which produces these effects has its antetype in Mason's machine, which itself is at least of questionable originality, and that Steiner has merely found a new use for the very mechanism of Mason.

The latter's suggestion that—

a reservoir of steam might be connected with the open end of the reel-shaft

is indeed superfluous to prompt that idea.

Equally patent is the attachment of the combination to the fire-extinguisher.

The use of the hose-reel, the hose, nozzle, and connecting-pipe in combination being old, and—

the fact that water will flow through a hose wound on a reel, if the diameter of the reel is large enough and the curves or angles are not abrupt, is a matter of common knowledge which no one can appropriate to his own use to the exclusion of the public.

As is said in *Preston* v. *Manard* (34 O. G., 1507; 116 U. S., 664) and *a fortiori*, the known fact that water can be forced through a hose coiled on such a reel by the expulsive power of carbonic-acid gas left, in my judgment, no merit in Steiner's device but the application of the elements of this combination to the fire-extinguisher.

The results he obtained by its use are the same in character as those obtained by Mason and the British patentees, Russ and Headley.

The case strongly resembles those of *Consolidated Roller Company* v. *Walker*, (54 O. G., 1415; 138 U. S., 124, 132;) *Western Electric Company* v. *La Rue*, (55 O. G., 571; 139 U. S., 606;) *Blake* v. *San Francisco Truck Company*, (31 O. G., 880; 110 U. S., 490.) (See also *Pennsylvania R. R. Co.* v. *Locomotive Truck Co.*, 27 O. G., 207; 110 U. S., 490, and cases there cited.)

The argument is pressed that one effect of the hollow journaled reel, the hose coiled thereon, and its connections in combination is to promote the perfect neutralization of the carbonic acid by the alkali and diminish, if it does not fully prevent, the liability of the discharge of free acid which may have escaped from the generator; that by the agitation of the fluid by the reel and the retardation of its passage through the nozzle occasioned by the coiled hose the acid and alkali are more thoroughly mingled.

While this may be true, the fact remains that Steiner did not invent the instrumentality by which that result is effected; nor does he seem to have forecast or even suspected the effect.

His specifications are barren alike of statement and intimation from which it can be inferred that he either sought or expected that advantage from the combination.

Both on the ground, therefore, that this function of his device is not patentable because the means used to produce it are old and for the reason that the claim of the inventor cannot be expanded to include more than his application warrants this argument cannot avail.

But if wrong in the conclusion that there is practical identity in the Mason and Steiner devices the state of the art as shown by the apparatus covered by British Letters Patent to Russ, in 1865, and to Headley, in 1868, seems to be conclusive that the very arrangement of parts which Steiner claims was embodied in those machines, Headley's especially.

He says in his specifications:

Hydraulic apparatus for watering streets, etc., extinguishing fires, attaching to fire-engines, and other similar and analogous purposes.

Upon a suitable locomotive-frame to be propelled by hand or otherwise I mount a windlass or drum, the axis of which I make hollow. Upon this drum I wind any required length of flexible tube or pipe, one end of which I connect with the hollow axis of the drum upon which it is wound and the free end of which tube or pipe I fit with suitable connections for attaching it to hydrants or standards supplying water under pressure.

To the end or ends of the hollow axis or drum I attach suitable distributing media. The axis is fitted with a handle for winding the pipe, which runs off as the frame is moved or on again when required.

The mode of using the apparatus is as follows:

The free end of the flexible pipe being connected to the hydrant or standard, the frame, windlass, and coil of pipe are moved, as required, to a greater or less distance and distribute the water as the apparatus travels, no locomotive-tank or other water-container being necessary.

Russ's improved apparatus for distributing liquid manure is much like Headley's except in particulars necessary to apply it to the special use for which it is designed. Both these machines seem to me to anticipate all that is embodied in both Steiner's and Mason's and clearly to deprive both of any vestige of originality.

These patents do not appear to have been called to the attention of Judge Morris, as appears from the transcript of the record in the case of *Steiner Fire Extinguisher Company* v. *Holloway*.

The bill must be dismissed, with costs.

U. S. Circuit Court—Southern District of New York.

BERGNER *et al.* v. KAUFMANN *et al.*

Decided November 29, 1892

DESIGN PATENTS—PATENTABILITY—ALBUM-CASES.

Design Patent No. 20,347, issued November 25, 1890, to Frederick Bergner, for an album-case set upright on a base-board and having on its exterior an oval ornamental frame with an open center, is invalid, since the patentee invented neither the album-case nor the ornamental frame, but merely conceived the idea of placing the ornament on the case, and this conception is not patentable, for the statute only provides for patents on Designs for articles of manufacture and for ornaments to be placed upon or worked into such articles.

Mr. P. Preble for the appellants.

Mr. A. v. Briesen for the appellees.

WHEELER, *J.*:

This suit is brought upon Design Patent No. 20,347, dated November 25, 1890, for an album-case set on a base-board in an upright or nearly vertical position, having on its exterior an oval ornamental frame with an open center. The defendants put diamond-shaped mirrors with such ornamental borders on similar album-cases.

This style of album-case is not new. The patent therefore must be held to be for an ornament upon the case as an article of manufacture under the third clause of section 4929, Revised Statutes, providing for Design patents. Such ornamental frames were old and well and generally known. The orator, who is the patentee, testifies:

X-Q. 25. I make no claim to be the designer of this frame.

Besides this the defendants' mirror does not look like this frame and would not infringe the patent for this ornament.

The orator did not design an album-case proper, nor an ornament proper for an album-case; but he appears to have conceived the idea of placing such an ornament upon an album-case. The statute provides for patents upon designs for articles of manufacture and for patents upon ornaments to be placed upon or worked into such articles, but does not appear to provide for a patent for the mere placing an ornament on such articles.

This patent does not therefore appear to be valid or to be infringed.

Let a decree be entered dismissing the bill.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 62.—No. 8 TUESDAY, FEBRUARY 21, 1893. PRICE—$5 per year.

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Notice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 17, 1893.

On the 9th day of February, 1893, the President approved "An act to establish a Court of Appeals for the District of Columbia, and for other purposes," which contains the following:

Sec. 9. That the determination of appeals from the decision of the Commissioner of Patents, now vested in the general term of the Supreme Court of the District of Columbia, in pursuance of the provisions of section seven hundred and eighty of the Revised Statutes of the United States, relating to the District of Columbia, shall hereafter be and the same is hereby vested in the court of appeals created by this act; and in addition, any party aggrieved by the decision of the Commissioner of Patents in any interference case may appeal therefrom to said court of appeals.

Sec. 17. That all acts and parts of acts inconsistent herewith are hereby repealed.

W. E. SIMONDS,
Commissioner.

DISCLAIMER.

No. 248,544.—*Erastus Woodward*, of Somerville, Mass. IMPROVEMENT IN LASTING AND FASTENING MACHINES. Patent dated October 18, 1881. Disclaimer filed February 16, 1893, by the present assignee, *The Boston Lasting Machine Company*.

Enters its disclaimer to those parts of the claims in said specification which are in the following words, to wit:

"1. In an organized machine for lasting and tacking the uppers of boots and shoes, the combination of a jack and last adapted to be operated by a foot-treadle to present the work to the nozzle of an automatic fastening-driving device, and the automatic fastening-driving device whereby the last and jack are presented by the foot to the nozzle of the fastening-driving device, a tack or nail driven, and the jack and last automatically adapted to resume their original position upon the release of the treadle, substantially as described.

"5. In an organized machine for lasting the uppers of boots and shoes, the combination of a jack for holding and supporting the last and for presenting it and the work thereon to an automatic fastening-driving device, said fastening-driving device, means for stopping it, and an unweighted food-treadle for operating the jack, all arranged so that as the jack is lifted the stop-motion mechanism is operated, all substantially as and for the purposes described."

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which. Indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

ISSUE OF FEBRUARY 21, 1893.

Patents	407—No. 491,973 to No. 492,379,	inclusive.
Designs	14—No. 22,225 to No. 22,238,	inclusive.
Trade-Marks	23—No. 22,483 to No. 22,505,	inclusive.
Labels	None.	
Reissues	2—No. 11,308 to No. 11,309,	inclusive.
Total issue	446	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	3	....	Nevada	....	....
Arizona Territory	....	....	New Hampshire	1	....
Arkansas	4	....	New Jersey	9	1
California	10	....	New York	61	8
Colorado	10	....	North Carolina	3	....
Connecticut	12	....	North Dakota	....	....
Delaware	....	....	Ohio	35	....
District of Columbia	....	....	Oklahoma Territory	....	....
Florida	2	....	Oregon	2	....
Georgia	1	....	Pennsylvania	46	1
Idaho	2	....	Rhode Island	2	....
Illinois	28	4	South Carolina	....	....
Indian Territory	1	....	South Dakota	....	....
Indiana	12	....	Tennessee	2	....
Iowa	11	....	Texas	8	....
Kansas	11	....	Utah Territory	1	....
Kentucky	5	....	Vermont	....	....
Louisiana	4	....	Virginia	1	....
Maine	....	....	Washington	2	....
Maryland	7	1	West Virginia	1	....
Massachusetts	26	4	Wisconsin	13	1
Michigan	17	1	Wyoming	....	....
Minnesota	6	....	U. S. Army	....	....
Mississippi	1	....	U. S. Navy	....	....
Missouri	12	....			
Montana	5	....	Total to citizens of the United States	386	21
Nebraska	9	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Mexico	1	....
Austria-Hungary	1	....	Netherlands	....	....
Belgium	....	....	Newfoundland	....	....
Bermuda	....	....	New South Wales	....	....
Brazil	....	....	New Zealand	....	....
Canada	7	....	Norway	2	....
Chile, Republic of	....	....	Roumania	....	....
Cuba	....	....	Russia	....	....
Denmark	....	....	Scotland	1	....
Ecuador	....	....	South Australia	....	....
England	7	1	Spain	....	....
France	4	....	Sweden	2	....
Germany	8	1	Switzerland	....	....
India	....	....	Victoria	1	....
Ireland	....	....			
Italy	1	....	Total to citizens of foreign countries	35	2
Japan	....	....			

APPLICATIONS UNDER EXAMINATION.

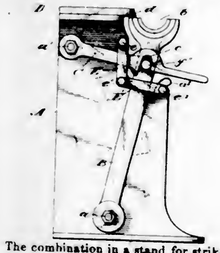
Condition at Close of Business February 14, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Jan. 23	Feb. 4	104
	Between one and two months in arrears.			
2	Farm Stock, Products, etc	Dec. 17	Feb. 8	184
13	Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 14	Feb. 7	235
8	Furniture, Toilet, Umbrellas and Canes, etc.	Dec. 15	Feb. 2	247
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Dec. 21	Jan. 28	200
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Dec. 16	Jan. 25	195
21	Textiles, etc	Dec. 17	Jan. 24	187
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Dec. 16	Jan. 21	169
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Dec. 16	Jan. 19	325
12	Mechanical Engineering, Stores-Service, etc.	Dec. 16	Jan. 17	246
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Dec. 16	Jan. 14	237
13	Metal-Working, Arms and Projectiles, etc.	Dec. 15	Jan. 14	205
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Dec. 29	Jan. 12	228
7	Harvesters, Games and Toys	Dec. 15	Jan. 7	512
10	Carriages and Wagons and Railway-Cars.	Dec. 15	Dec. 30	384
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 21	Dec. 20	214
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Dec. 15	Dec. 16	289
4	Civil Engineering, etc	Dec. 14	Dec. 14	356
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 15	Dec. 7	289
	Between two and three months in arrears.			
18	Steam-Engineering, etc	Nov. 25	Jan. 13	222
22	Fire-Arms, Navigation, Signals, etc.	Nov. 19	Jan. 13	260
24	Sewing-Machines and Apparel	Dec. 9	Jan. 11	142
9	Hydraulics, Fire-Extinguishers, etc.	Dec. 9	Dec. 17	386
19	Stoves and Furnaces	Dec. 1	Dec. 16	508
1	Tillage and Fences	Nov. 14	Dec. 15	252
17	Paper-Manufactures and Printing.	Nov. 14	Dec. 7	286
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 8	Dec. 2	325
	Between three and four months in arrears.			
23	Instruments of Precision, Acoustics, Optics, etc.	Nov. 4	Jan. 3	336
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Oct. 22	Jan. 3	363
	Between four and five months in arrears.			
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Oct. 1	Nov. 25	435
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Sept. 6	Jan. 21	361
	Between eight and nine months in arrears.			
26	Electricity, Generation, Distribution, etc.	June 8	Nov. 4	561
	Total number of applications awaiting action			9,248
	Under one month in arrears.			
	Designs	Feb. 4	Feb. 4	48
	Trade-Marks	Feb. 10	Feb. 11	28

PATENTS

GRANTED FEBRUARY 21, 1893.

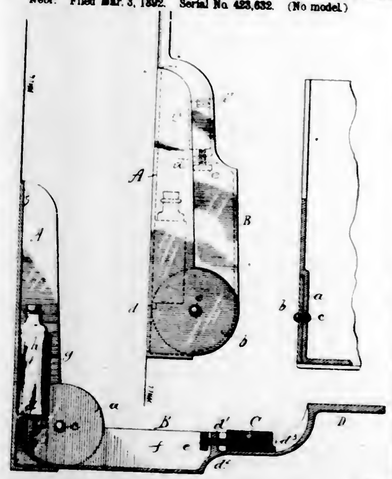
491,973. **APPARATUS FOR MOLDING PIPE-CORES.** LARS W. ANDERSON, Cincinnati, Ohio, assignor to the Addyston Pipe and Steel Company, same place. Filed Mar. 9, 1892. Serial No. 424,275. (No model.)



Claim.—1. The combination in a stand for striking up cores, of a finishing board, a pair of swinging arms carrying at their free ends bearings adapted to receive and support the core-bars and arms adapted to lock the supporting arms in position, substantially as and for the purpose specified.

2. The combination in a stand for striking up cores, of a finishing board, a pair of swinging arms carrying at their free ends bearings adapted to receive and support the core-bars and having their centers of gravity in advance of their pivotal points, and arms adapted to lock the supporting arms in position, substantially as and for the purpose specified.

491,974. **BLACKING OUTFIT.** AUGUSTUS C. BARLER, Fremont, Nebr. Filed Mar. 3, 1892. Serial No. 423,632. (No model.)



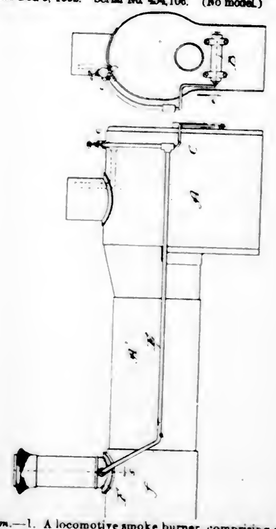
Claim.—1. A blacking outfit comprising two parts hinged together, each part having a receptacle formed therein, one having a shoulder therein adapted to form an abutment for the pivoted end of the other end to strike when the device is open whereby a secure support is formed therefor, and the extreme free end forming a foot rest adapted to fall approximately into alignment with the back of the device when the parts are closed, substantially as set forth.

2. The combination with a stationary section comprising back and sides, and hinged section comprising front and sides, the edges of the sides of the two sections adapted to come together when the device is closed, the front of the hinged section curved iuward at its lower end, and the other section having a shoulder which this curved end is adapted to strike when the device is opened, and a foot rest formed on the free end of the hinged section, substantially as set forth.

3. A blacking outfit comprising two members hinged together, one having two receptacles therein, one receptacle adapted to receive brushes and the other adapted to receive a blacking box, the latter receptacle having an adjustable device for removably securing the box in place, substantially as set forth.

4. A blacking outfit comprising two members hinged together, one member stationary and the other member having a receptacle formed therein adapted to receive blacking, brushes, this member also provided with a tread sufficiently raised from the receptacle so that a foot resting thereon will be above the articles contained in the receptacle substantially as set forth.

491,975. **SMOKE-BURNER.** JOSHUA B. BARNES, Springfield, Ill. Filed Dec. 5, 1892. Serial No. 454,106. (No model.)



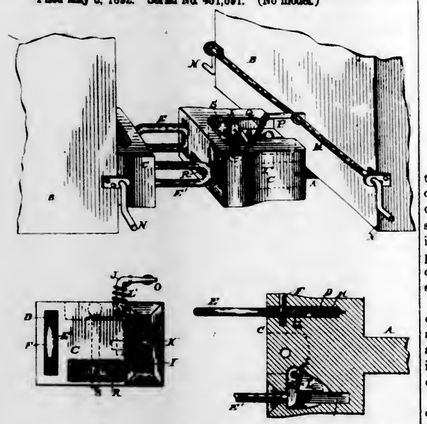
Claim.—1. A locomotive smoke burner, comprising a boiler having openings in the face of its fire box, a chamber secured thereto, a

steam passage in such chamber, injecting tuyeres arranged along such passage and projecting into the openings in the fire box, air passages adjacent to said tuyeres and communicating with such openings, air passages in the shell of said chamber; a steam supply pipe from said boiler provided with a valve leading to said steam passage, a smoke box, a stack saddle supported thereon, an annular chamber in said saddle, openings in said annular chamber at such angle that steam jets focus thereabove, a branch pipe of said steam supply pipe leading to said annular chamber, whereby as steam is admitted to said supply pipes, the two sets of steam jets will act simultaneously and conjointly, substantially as described.

2. A locomotive smoke burner, comprising a boiler, a chamber B secured thereto, a steam passage B′ therein, tuyeres *b* arranged along such passage, openings *b′* through the face of the fire box, ribs *b²* abutting against the fire box and dividing the interior of the chamber into independent compartments *c²*, elongated air passages D leading into said compartments, holes *d* adjacent to the tuyeres and entering into the openings *b′*, whereby as steam is admitted in the steam passage it will be injected into the fire box through the tuyeres and air thereby induced will pass through the openings and through the air compartments where it becomes heated, substantially as described.

3. In a locomotive smoke burner, the combination of a boiler, openings in the fire box thereof, a chamber B secured to the face of said boiler and containing a steam passage B′, injecting tuyeres arranged along said passage and projecting into such openings, air apertures D opening into the interior of said chamber, annular air inlets *d* entering the fire box, a smoke box, a stack saddle mounted thereon, an annular chamber arranged therein, openings *j* in said annular chamber J′, at such angle as to focus at a point thereabove, an inverted channel G mounted on said saddle and supporting at its top an upright funnel H, the sides of said funnel G being parallel to the direction or slant of the openings *j*, a steam supply pipe operated by a valve and dividing into two branches, one of such branches feeding said passage B′ and the other feeding the annular chamber J, substantially as described.

491,976. CAR-COUPLING. FRANK BENDER, Armourdale, Kans. Filed May 3, 1892. Serial No. 431,691. (No model.)



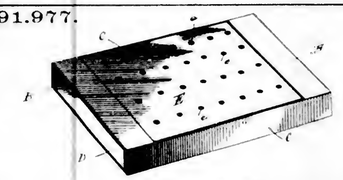
Claim.—1. In a car-coupler, the combination of a head, two slots therein, a link pivoted in one slot or opening having a counterpoise spring attached thereto, a swing-pin pivoted within the other slot or opening, a pin-operating arm journaled in the head, a means for actuating the same, substantially as described.

2. A car-coupler having a vertical slot therein, and a vertically hung link pivoted therein provided with a rear extension having a spring attached thereto and to the head, whereby the link is counterpoised upon its pivot so as to project horizontally.

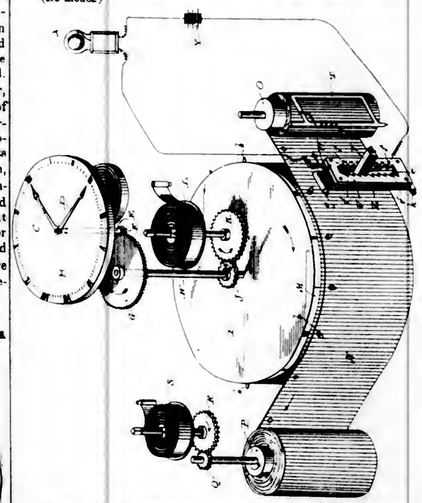
491,977. KNEADING AND COOLING BOARD. CALISTA BINGHAM, Padua, Ill. Filed Sept. 15, 1892. Serial No. 445,940. (No model.)

Claim.—The improved kneading and cooling board herein described, consisting of a hollow, flat casing, having one of its sides formed solid to constitute a kneading board and its other side perforated to receive the baked bread to cool the same, substantially as described.

491,977.



491,978. WORKMAN'S TIME-RECORDER. FRANK H. BOLTE, Milwaukee, Wis., assignor of two-thirds to Parker H. Sercombe and Thomas A. Donlevy, same place. Filed Aug. 6, 1892. Serial No. 442,307. (No model.)



Claim.—1. The combination of a clock, a drum having a rotation governed by the clock, a motor for the drum independent of the clock, a record-sheet propelled by the drum, a series of metallic guides on a line parallel to the axis of said drum in opposition to the record-sheet, an interposed ink-ribbon, metallic printing-keys for insertion in the guides against the ink-ribbon and said record-sheet, a contact plate in the path of the printing-keys, and an audible signal and source of electric generation in circuit with the guides and contact-plate, substantially as set forth.

2. The combination of a clock, a drum having a rotation governed by the clock, a motor for the drum independent of the clock, a record-sheet under propulsion by the drum and having contrasting alternate longitudinal divisions indicative of certain periods of time in a day of twenty-four hours, and suitable means for making entries on the record-sheet, substantially as set forth.

3. The combination of a clock, a drum having a rotation synchronous with the clock, a record-sheet propelled by the drum, a series of guides on a line parallel to the axis of said drum in opposition to the record-sheet, an interposed ink-ribbon, and keys for insertion in the guides, each key being in contrasting colors that index its ends, and having both the latter provided with a like arbitrary design one of which is supplemented by some arbitrary symbol, substantially as set forth.

4. The combination of a partly transparent casing, a clock having the dial and hands thereof exposed through a transparent portion of the casing, a pinion on the minute-hand arbor of the clock, a shaft carrying a drum and gear-wheel, which latter is in mesh with said pinion, a motor geared to said shaft independent of the clock, a record-sheet propelled by the motor and also exposed through a transparent portion of said casing, a series of guides in the aforesaid casing arranged on a line parallel to the drum-shaft, an ink-ribbon interposed between the guides and record-sheet, and printing keys corresponding to said guides, substantially as set forth.

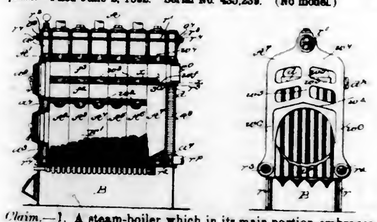
5. The combination of a partly transparent casing, a clock having the dial and hands thereof exposed through a transparent portion of the casing, a pinion on the minute-hand arbor of the clock, a shaft

carrying a drum and gear-wheel, which latter is in mesh with said pinion, an independent motor geared to said shaft, a roller, a record-sheet wound thereon to be unwound therefrom by the drum in view through a transparent portion of said casing, a tension device governing the unwind of the record-sheet, a take-up roller for the record-sheet, an independent motor geared to the take-up roller, a series of metallic guides in the aforesaid casing parallel to the drum shaft, an ink-ribbon and contact-plate interposed between the guides and said record-sheet, metallic printing keys for insertion in the guides, and an electric signal in circuit with said guides and contact-plate, substantially as set forth.

6. The combination of a clock, a record-sheet traveled synchronous with the clock, a series of metallic guides on a line transverse to the travel of the record-sheet, an interposed ink-ribbon, metallic printing keys for insertion in the guides against the ink-ribbon and said record-sheet a contact-plate in the paths of the keys, and an audible signal and source of electric generation in circuit with the guides and contact-plate, substantially as set forth.

7. The combination of a clock, a record-sheet traveled synchronous with the clock, a series of guides on a line transverse to the travel of the sheet, an interposed ink-ribbon, keys for insertion in the guides against the ink-ribbon and record-sheet, both ends of each key being provided with a printing device and suitable means for indexing the ends of each key, substantially as set forth.

491,979. SECTIONAL STEAM-BOILER. NATHANIEL A. BOYNTON, New York, N. Y., assignor to the Boynton Furnace Company, same place. Filed June 2, 1892. Serial No. 435,239. (No model.)



Claim.—1. A steam-boiler which in its main portion embraces a series of vertically-placed transversely-extending sections, each of which is composed essentially of a lower bifurcated portion which is closed at front and at rear except at its foot, which is open at front and at rear for open and direct communication with each contiguous section; and of an upper or flue portion which is integral with the lower bifurcated portion and which is mainly closed at front and at rear, but at its upper extremity which constitutes the steam-space of the section, is open at front and at rear, to form communication with the adjacent sections, and to form jointly with such sections a steam-dome which extends longitudinally of the boiler, from end to end thereof.

2. A steam-boiler which in its main portion, coincident with the fire-pot, embraces a series of vertically-placed, transversely-extending sections, each of which is composed of a lower bifurcated portion which bestrides the fuel-chamber, and an upper portion which is provided with a series of horizontal smoke-openings, the sections being closed at front and at rear, except at their lower extremities which are open at front and at rear for the direct movement of water from section to section, and at their upper extremity, above the upper smoke-openings, which is open at front and at rear to form with the remaining sections a continuous longitudinal steam-dome, which is common to and receives steam from all the sections of the boiler; substantially as set forth.

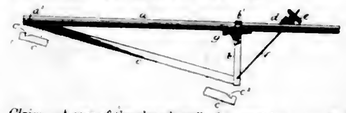
3. A sectional steam-boiler which behind the plane of the fuel-chamber is provided with a transversely-extending section, which in its lower portion has a transverse water-chamber, which in its mid-height portion is unobstructed, to constitute a rising-flue for the products of combustion; which directly above the midheight portion is provided with a transverse-water-chamber, or passage which constitutes a part of the lower portion of an upper horizonal smoke-passage; and which in its upper portion, above such upper smoke-passage has a space which is adapted to contain water and steam, and is open at front and at rear, to form in connection with the contiguous sections a continuous longitudinal steam-chamber or dome.

4. A sectional steam-boiler which embraces a series of vertically-placed transversely-extending sections each of which is composed of a single casting which in its lower portion is bifurcated to bestride the fuel-chamber, and each of which in its midheight and upper portions has a longitudinally-extending smoke-opening,—one or more; and a vertically-placed transversely-extending section directly behind the feed chamber which in its lower portion has a transversely-extending portion, which in its midheight portion is unobstructed, to permit upward movement of the volatile products of combustion,—and which in its upper portion has a smoke-opening, one or more, through which the products of combustion pass to an exit opening in the rear or closing section of the boiler;—the several sections being each closed at all points, except in their upper and lower extremities, which are open at front and at rear, to form in the lower portion of the boiler, a longitudinal water-passage, and to form in the upper portion of the boiler a longitudinally-extending steam-chamber; substantially as described.

5. A sectional steam-boiler which embraces a transverse rising-flue section, directly behind the fuel-chamber sections, such rising-flue section having at each side of its flue-space, a vertical water-column or chamber, and having also a horizontal water-passage at the lower extremity of the section, between the two columns; and a rear closing or covering section which at its lower extremity, at a point coincident with the horizontal passage of the rising-flue section, receives the return-pipe of the boiler.

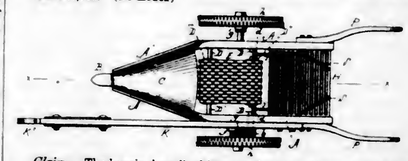
6. A steam-boiler which embraces a front or covering section which is provided with an unobstructed smoke-passage or rising-flue; a series of bifurcated sections, of uniform construction, each of which bestrides the fuel-chamber; a rising-flue section arranged directly behind the series of bestriding sections, and provided at its foot with a transversely-extending water-chamber or passage; and a rear closing or covering-section which is provided with a smoke-exit opening, and which receives the return-pipe of the steam-circuit.

491,980. PRUNING-SAW. FRANK P. BREWER, Angola, Ind. Filed Mar. 10, 1892. Serial No. 424,474. (No model.)



Claim.—A saw of the class described comprising a handle having a slot in one end and a pin, a standard having an eye for said handle and a wedge for retaining it in position, a slot in the outer end of the standard, a saw blade having hook shaped notches for engaging the ends of the handle and standard, a rod connected at one end to the standard and at its other end to the handle by a binding nut substantially as described.

491,981. POTATO-DIGGER. ALDEN R. BRYANT, Boston, Mass., assignor of one-half to Harres Wolf, same place. Filed Oct. 5, 1892. Serial No. 447,900. (No model.)



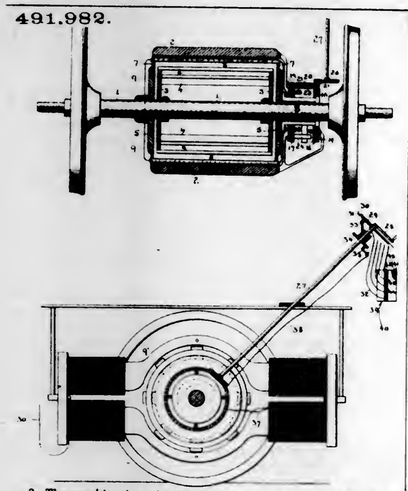
Claim.—The herein described improved potato-digger, consisting essentially of the frame A A′, plow B, trough C, endless apron E composed of numerous chains secured closely together so as to constitute practically an integral apron or belt, shafts D D′ supported in the sides A, said shaft D being provided with the cranks *d*, rolls D″ D‴ provided with sprockets for engagement with the endless apron, shafts *g g′* provided with the wheels *h h′*, gear-wheels *f b* on the shafts *g* D respectively, connecting rods J, vibrating grate H reciprocating in the ways F, shaft K, adjustable slotted plate L and wheel N, substantially as set forth.

491,982. ELECTRIC MOTOR AND CONTROLLING APPARATUS FOR CARS. JOHN V. CAPEK, New York, N. Y., assignor of one-half to Edward H. Johnson, same place. Filed Nov. 14, 1891. Serial No. 411,913. (No model.)

Claim.—1. The combination of a field-magnet, an armature in sections, one or more commutators for the armature, and circuit connections such that a section of the armature will be rotated by the effect of the field-magnet, and another section of the armature will be rotated by attraction of the first armature section, substantially as described.

2. The combination of a field-magnet, an armature shaft and an armature therefor, the armature being in sections, one section fast to the shaft, and one section free to rotate under the influence of the field-magnet, substantially as described.

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3. The combination of a field-magnet, an armature shaft and an armature therefor, the armature being in sections one section fast to the shaft, and with or without a magnetizing coil and one section free to rotate under the influence of the field-magnet, the sections being included or surrounded by a common armature winding, said winding being supported so as not to interfere with the independent rotation of the sections, substantially as described.

4. The combination of a field-magnet, an armature shaft and an armature therefor, the armature being in sections, one section fast to the shaft and with or without a magnetizing coil and one section free to rotate under the influence of the field-magnet, the sections being concentric and included or surrounded by a common armature winding, said winding being supported so as not to interfere with the independent rotation of the sections, substantially as described.

5. The combination of a field-magnet, an armature shaft, an armature therefor, the armature being in sections, one section fast to the shaft and one section free to rotate under the influence of the field-magnet, and an armature coil for each section, substantially as described.

6. The combination of a field-magnet, an armature shaft, an armature therefor, the armature being in sections, one section fast to the shaft and one section free to rotate under the influence of the field-magnet, and an armature coil for each section, the coils being connected to separate commutators, substantially as described.

7. The combination of a field-magnet, an armature shaft and an armature therefor, the armature being in sections, one section fast to the shaft and one section free to rotate under the influence of the field-magnet, each section having magnetic parts which attract similar parts on the other section, substantially as described.

8. The combination with a car and car-axle, of a motor having a field-magnet and an armature, the latter being in sections, one of which is connected to the axle and one of which is free to move independently thereof, substantially as described.

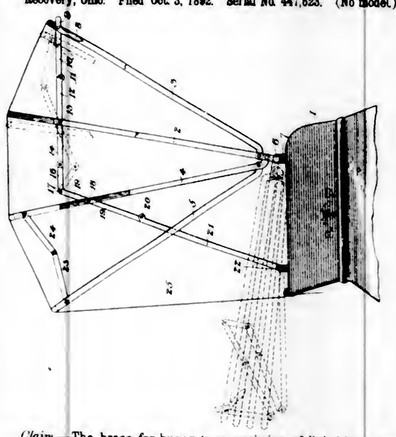
9. The combination with a car and car-axle, of a motor surrounding the axle and having a field-magnet and armature, the latter being in sections, one of which is connected to the axle and one of which is free to move independently thereof, substantially as described.

10. The combination with a car and car-axle, of a motor having a field-magnet and an armature, the latter being in sections, one of which is connected to the axle and one of which is free to move independently thereof, each section having magnetic parts which attract similar parts in the other section whereby the load is started gradually, substantially as described.

11. The combination of an armature made in sections independently rotatable, one fast to the shaft and one loose thereon of coils on said sections and means for connecting said coils to the same circuit, substantially as described.

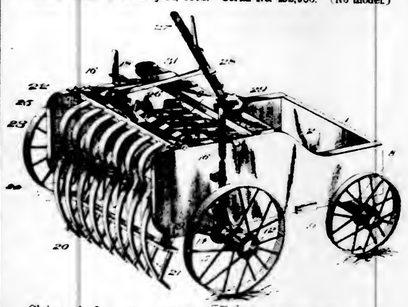
12. The combination of an armature made in sections independently rotatable, one fast to the shaft and one loose thereon of coils on said sections, means for connecting said coils to the same circuit, and means for throwing one of said coils out of circuit, substantially as described.

491,983. FOLDING BUGGY-TOP. THOMAS P. CHAMBERLIN, Fort Recovery, Ohio. Filed Oct. 3, 1892. Serial No. 447,623. (No model.)



Claim.—The brace for buggy tops consisting of link 10 having handle 8; links 12, 16, 19 and 21, and pivots 9, 11, 13, 14, 17, 20 and 22 substantially as and for the purposes described.

491,984. STONE-GATHERING MACHINE. CARSON J. CLARK, Leslie, Mich. Filed May 14, 1892. Serial No. 432,980. (No model.)



Claim.—1. In a stone gathering and loading machine, the combination of non-rotatable stationary guiding teeth, rigid rotatable conveying arms and a gathering rake, said parts being carried by a suitable framework, substantially as described.

2. In a stone gathering and loading machine, the combination of non-rotatable stationary guiding teeth, a series of rigid rotatable gathering arms, movable between said teeth a grate or screen in front of said guiding teeth, and a gathering rake in rear of said parts, substantially as described.

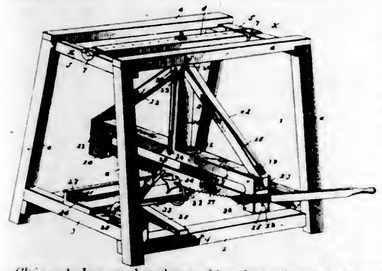
3. In a stone gathering and loading machine, the combination of a framework having a box or receptacle in the front portion thereof with an opening in rear of the same, a grate or screen supported at an angle over said opening, stationary guiding teeth in rear of said grate and arranged at an angle of inclination as set forth, a series of rotatable conveying arms moving between the said guiding teeth, and an adjustable gathering rake in rear of said guiding teeth and said arms, substantially as described.

4. In a stone gathering and loading machine, the combination of a series of stationary guiding teeth having their front portions arranged at an angle of inclination, and their rear parts curved downward and extended at a slight angle of inclination, a grate or screen arranged at an angle of inclination in front of the said guiding teeth, a series of conveying arms rotatably mounted and moving between said guiding teeth, and an adjustable gathering rake having elongated teeth, substantially as described.

5. In a stone gathering and loading machine, the combination of the guiding teeth, conveying arms, the gathering rake, and a grate or screen arranged at an angle of inclination in front of the guiding teeth and below the level of the same to provide a drop for removing the dirt from the stones gathered, substantially as described.

6. In a stone gathering and loading machine, the combination, of a body having an opening in the bottom thereof with a screen or grate arranged thereover at an angle of inclination, a strip in rear of said grate or screen having a metallic plate on the top portion thereof arranged at an angle of inclination, curved guiding teeth having their front ends secured to said metallic plate, a series of diametrically arranged conveying arms rotatably mounted to move between the said teeth, and a gathering rake with curved elongated teeth, substantially as described.

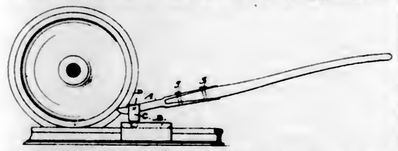
491,985. DRAG-SAW. JOHN S. CLAY, Farmington, and JAMES R. RUCKER, Bismarck, Mo. Filed Apr. 14, 1892. Serial No. 429,125. (No model.)



Claim.—1. In a wood sawing machine, the combination of a main frame, a swinging beam journaled thereon, a saw frame supported by said swinging beam and depending at right angles therefrom and consisting of an upright centrally located upon and connected to a lower cross beam, the latter having depending slotted blocks at the opposite ends thereof and recesses outside of said block, weights adjustably mounted in said recesses and having slots therein, a saw located under said cross beam and extending through the slotted blocks thereof at its opposite ends and secured in the slots of the weights, pulleys at opposite ends of the cross beam adjacent to the recesses thereof and also on said upright above said cross beam, and ropes or chains connected to said weights, passed over said pulleys and united and held against said upright, substantially as described.

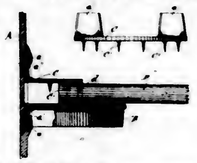
2. In a wood sawing machine, the combination of a main frame, a swinging beam journaled in the upper portion thereof, a saw frame depending from said swinging beam and arranged at right angles thereto and consisting of a vertically disposed upright centrally connected at its lower end to a cross beam and having slotted blocks depending from the ends of said cross beam, angle plates secured to the ends of said cross beam on opposite sides and projecting beyond the same to form recesses, one of said angle plates having a loop in connection therewith for the removable reception of the handle, slotted weights mounted between said angle plates in the recesses formed thereby, a saw having its ends passing through said slotted blocks and secured in said slotted weights, a cord connected to each of the weights and passing over pulleys located at the ends of the cross-bar and at the upper portions of the upright, said cords being united after passing over the pulleys of the said upright, a table for supporting the wood to be sawed terminating at the line of transverse movement of the saw, and a dog secured to said table and connected at one end with an operating lever and at its opposite end formed with a sweeping curve to which is secured a plate having downwardly projecting teeth, substantially as described.

491,986. PINCH-BAR. SETH D. COMBS and RAMOND A. FRAZER, Ione, Cal. Filed Sept. 12, 1892. Serial No. 445,729. (No model.)



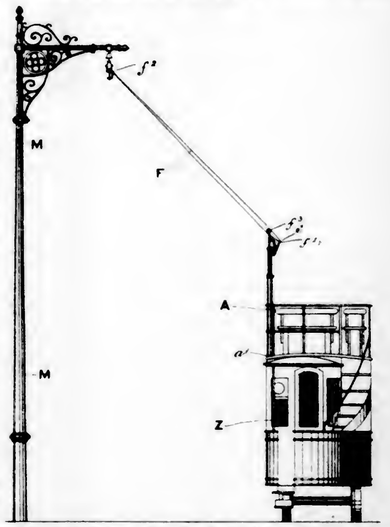
Claim.—The herein-described pinch-bar comprising the channeled shoe B, the lead sole E therein having a longitudinally rounded lower face E', the forked piece C having a reduced stem C* which passes through and is journaled in the top of the block and the body of the sole at a point slightly forward of the center of the rounded face of said sole, the bar A mounted on a transverse pivot in said forked piece, and a handle connected with said bar, as and for the purpose set forth.

491,987. CLOTHES-DRIER. RUBY Z. CURTIS, Minneapolis, Minn. Filed Nov. 30, 1891. Serial No. 413,481. (No model.)



Claim.—In a clothes drier, the combination with the clothes sticks of a bracket-like body and under and upper supporting heads, secured to said bracket for upholding said sticks, the said supporting heads being secured to said bracket by wedge shaped foot and foot-seat engagements, extending in opposite directions, whereby the heads will be securely held in position by the weight of the clothes sticks, substantially as described.

491,988. ELECTRIC-RAILWAY TROLLEY. ALFRED DICKINSON, Darlaston, England. Filed Feb. 9, 1892. Serial No. 420,863. (No model.) Patented in England Mar. 28, 1891, No. 5,461.



Claim.—1. A standard consisting of a fixed and longitudinally slotted lower part and an upper part moving up and down telescopically therein the said upper part being provided with a stud which slides in the slot of the said lower part and may be turned into lateral branches thereof, in combination with an arm attached at or near one end to the upper part of the said standard, springs connecting the said standard to the said arm and a trolley pivoted on the other end of the said arm substantially as and for the purpose set forth.

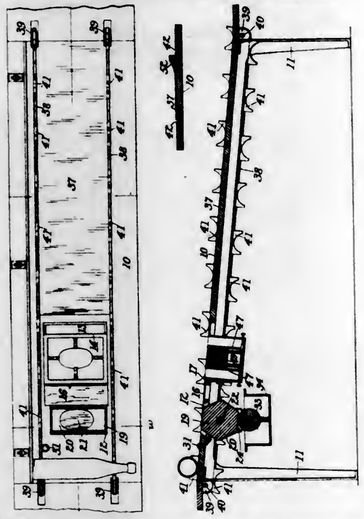
2. In combination with a telescopic standard vertically extensible for use an arm F pivoted to the upper part of the said standard, a bracket b^2 fixed to the said upper part of the standard, cross-bars f' and b^1, springs E connected at their opposite ends to the said rods and a trolley carried by the other end of the said arm substantially as set forth.

491,989. LABELING-MACHINE. AMALIA M. DOWALLY, New York, N. Y. Filed Mar. 4, 1892. Serial No. 423,705. (No model.)

Claim.—1. The combination, in a labeling machine, of a bed over

which the articles to be labeled may roll, a prismatic paste-roll, means to cause an intermittent rotation of said paste-roll a paste-trough, a feed roll rotating in said trough, and spring pressed bearings for said feed roll to maintain the same in contact with the paste-roll, substantially as shown and described.

2. The combination, in a labeling machine, of a bed over which the articles to be labeled may roll, a paste-roll, means for rotating said roll, an escapement to hold said roll against rotation and a trip for said escapement adapted to be actuated by the article to be labeled as it rolls over the bed, substantially as shown and described.



3. The combination, in a labeling machine, of a bed over which the articles to be labeled may roll, a paste-roll, a spring motor for driving said roll, an escapement wheel connected to said roll, a pallet therefor, and a trip controlling said pallet and adapted to be operated by the article to be labeled as it rolls over the bed, substantially as shown and described.

4. In a bottle labeling machine, the combination of a roll, a paste-pad secured thereto and conforming to the shape of the bottle neck, a paste-trough, and a feed-roll partially submerged in said trough and conformed to the shape of the paste-roll, substantially as shown and described.

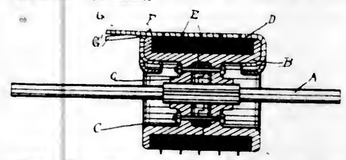
5. In a bottle labeling machine, the combination of a bed over which the bottle may roll, a paste-roll conformed to the shape of the bottle-neck, means for supplying paste to said roll, and a label-holder having a spring follower to support the labels and inclined to conform to the shape of the bottle neck, substantially as shown and described.

6. In a bottle labeling machine, the combination of a bed over which the bottle may roll, a paste roll having a raised portion to conform to the bottle neck, a label holder to support labels in a position to conform to the bottle neck, and a molding also shaped to conform to the bottle neck and secured to the bed below the label holder and in alignment therewith, substantially as shown and described.

7. In a bottle labeling machine, the combination of a bed over which the bottle may roll, a paste-roll, a paste-pad secured thereto having a portion adapted to apply paste to the body of the bottle and a raised portion adapted to apply paste to the neck of the bottle, and a label-holder having a spring follower to support labels for application to the body of the bottle and having a second spring follower to support labels for application to the neck of the bottle, substantially as shown and described.

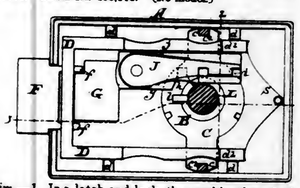
8. In a labeling machine, the combination of a bed over which the articles to be labeled may roll, a paste-applying device supported beneath an aperture in said bed and adapted to apply paste to the article as it rolls over the same, a label-holder supported in a second aperture in said bed and adapted to be moved toward or from the paste-applying device, and an apron having one end fixed to a cross-bar below said paste-applying device and having its other end weighted and passed over a guide carried by the label-holder, substantially as shown and described.

491,990. MULTIPOLAR-DYNAMO-ELECTRIC-MACHINE ARMATURE. GEORGE E. DORMAN, Chicago, Ill. Filed Jan. 4, 1892. Serial No. 416,947. (No model.)



Claim.—The combination of an armature core having circular rests at its ends with a series of coils substantially elliptical and placed upon the core parallel to the axis and having their ends bent over into such rests to be thus secured.

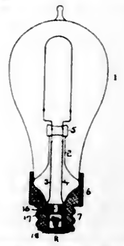
491,991. LOCK. WILLIAM DRETER, Cleveland, Ohio. Filed Dec. 30, 1891. Serial No. 416,613. (No model.)



Claim.—1. In a latch and lock, the combination of a latch mechanism consisting substantially of a yoke D, spring S, latch dog F having hooks *f f* engaging with the yoke; stop block G, having bifurcated arm *g*, pawl J pivoted onto the arm *g*; disks C, C, having arm, *c*, *c*, engaging with the yoke, and attached to tubular spindle adapted to operate substantially as described.

2. In a lock and latch the combination of tubular spindle B having knobs K K attached; inner spindle L, having lever *l* for operating the bolt and tumbler mechanism; and the sleeves M and springs *m*, located within the knobs and adapted to be operated by key W, for turning the inner spindle L for actuating the tumbler J and throwing the locking block G, substantially as described.

491,992. CUT-OUT FOR INCANDESCENT ELECTRIC LAMPS. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Nov. 12, 1891. Serial No. 411,686. (No model.)



Claim.—1. The combination with an incandescent electric lamp, of a cut-out device therefor, having a movable member situated in the path of entrance of air to the vacuum globe upon the destruction of the seal, substantially as set forth.

2. The combination with an incandescent electric lamp, of a passage open to the air at one point and closed by the seal through which the leading-in wires enter the vacuum chamber, and a cut-out device for the lamp having a movable member situated in said passage, substantially as set forth.

3. The combination with an incandescent electric lamp having a vacuum globe, an inner tube or wire support open to the air, and leading-in wires entering said vacuum globe and sealed in the end of said tube, of a cut-out for said lamp having a movable member situated in the path of entrance of air to said tube upon the destruction of the seal, substantially as set forth.

4. The combination with an incandescent electric lamp, of a chamber within the lamp, an air passage from the exterior of the lamp communicating with said chamber, a movable part within said chamber, and contact pieces in the path of said movable part, said

movable part being moved into contact with said contact pieces upon the entrance of air into the lamp chamber, to cut-out the lamp, substantially as set forth.

5. The combination with an incandescent electric lamp, of a chamber within the lamp, an air passage from the exterior of the lamp communicating with said chamber, a movable part within said chamber connected to one terminal of the lamp and normally held out of contact with the other terminal, said movable part being released by air entering the lamp chamber upon the seal being destroyed, to cut-out the lamp, substantially as set forth.

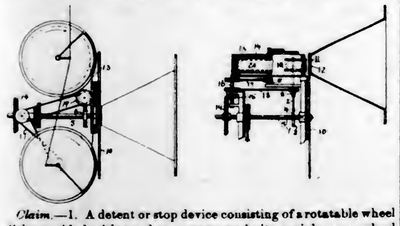
6. In a cut-out for incandescent electric lamps, the combination of a chamber formed in the base of the lamp, a stationary contact plate in said chamber connected to one terminal of the lamp, a movable contact plate in said chamber connected to said stationary contact plate and normally out of contact with the other terminal, an opening into said chamber from the exterior of the base of the lamp, and a passage leading from said chamber to the stem of the lamp, substantially as set forth.

7. In a cut-out for incandescent electric lamps, the combination of a cylinder placed in the base of the lamp and connected to one terminal, a passage formed in the base of the lamp communicating with said cylinder and the stem of the lamp, a contact plate forming the other terminal of the lamp situated in proximity to said cylinder, and having an opening therein, a piston in said cylinder normally held out of contact with said contact plate, said piston being released by the entrance of air into the lamp chamber to make contact with said contact plate, substantially as set forth.

8. In a cut-out for incandescent electric lamps, the combination of the cylinder 9, plate 10 secured therein, piston 12 supported from said plate by the hooked-stem 13, spring 14 between said plate and piston, openings in said cylinder and plate, a passage 17 in the base of the lamp communicating with the opening in said cylinder and the stem of the lamp, said cylinder being connected to the ring 7 which forms one terminal of the lamp, cap 8 forming the other terminal and having an opening cut therein, substantially as set forth.

9. In a cut-off for incandescent electric lamps, the combination of the cylinder 9, plate 10 secured therein, piston 12 supported from said plate by the hooked-stem 13, lug 18, spring 14 between said plate and piston, and bearing on said lug, openings in said cylinder and plate, a passage 17 in the base of the lamp communicating with the opening in said cylinder and the stem of the lamp, said cylinder being connected to the ring 7 which forms one terminal, of the lamp, cap 8 forming the other terminal and having an opening cut therein, substantially as set forth.

491,993. STOP DEVICE. THOMAS A. EDISON, Llewellyn Park, N. J. Original application filed Aug. 24, 1891, Serial No. 403,535. Divided and this application filed Apr. 11, 1892. Serial No. 428,614. (No model.)



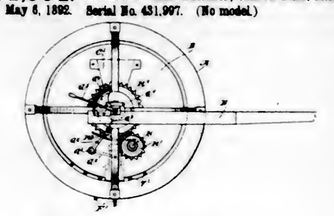
Claim.—1. A detent or stop device consisting of a rotatable wheel or disk provided with notches or passages in its periphery, a wheel in a plane at an angle with the first mentioned wheel and provided with teeth adapted to pass through the notches or passages in the first mentioned wheel, and means for driving both of said wheels, said means being distinct from said wheels themselves substantially as described.

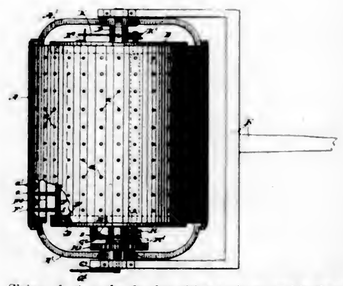
2. A detent or stop device consisting of a rotatable wheel or disk provided with notches in its periphery, laterally extending lips adjacent to the notches, and a wheel tending when the device is in use to turn in a plane at an angle with the first mentioned wheel and provided with teeth adapted to pass through the notches in the first mentioned wheel, substantially as described.

3. A detent or stop device consisting of a rotatable wheel provided with six notches in its periphery, and arranged at regular intervals, a second wheel tending when the device is in use to rotate in a plane at right-angles to the first mentioned wheel and provided with six teeth adapted to pass through the notches in the first mentioned wheel, and means for driving both wheels, said means being distinct from the wheels themselves, substantially as described.

4. A detent or stop device consisting of a rotatable wheel provided with notches in its periphery and arranged at regular intervals, a driving shaft for said wheel, a second wheel in a plane at an angle to the first and provided with teeth adapted to pass through the notches in it, driving means distinct from said first wheel for rotating said second wheel, and a yielding driving connection between said wheel and driving shaft, substantially as described.

491,994. SEEDER. OLAF ERICKSON, Cannon Falls, Minn. Filed May 6, 1892. Serial No. 431,997. (No model.)





Claim.—1. A seeder for depositing grain or seed in the ground, one or more kernels in a place, with uniform spacing, the same comprising a perforated drum, revoluble over the ground, and seeding fingers working through said perforations adapted to be set to permit the entrance of the kernels from the interior of the drum and force the same into the ground.

2. A seeder comprising a perforated drum revolubie over the ground, cam channel heads concentric with the drum, a frame carried by the drum and supporting the said heads in a fixed position relative to the movement of the drum, a series of plunger bars having their extremities working in the cam channels of the said heads and provided, each with a series of seeding fingers working through the perforations of the drum, whereby seed or grain supplied to the interior of the drum may be forced through the perforations of the same and into the ground, under the action of the said fingers.

3. The combination with the perforated drum having cells on its interior surface, the centers of which co-incide with the perforations of the drum, and seeding fingers working through the said perforations, under the movement of the drum, whereby kernels of grain supplied to the interior of the drum will be directed to the perforations by the cells and be forced through the same and into the ground by the said fingers, substantially as described.

4. The combination with the perforated drum, having cells on its interior surface, the centers of which co-incide with the perforations in the drum, of a frame journaled in the drum heads, the cam channel heads and the seed-box within the drum, supported by the said frame, a forced feed in the seed-box, the series of plunger bars working in the cam channels, and the radial plungers or seeding fingers carried by the said bars and working through the perforations of the said drum, substantially as described.

5. The combination with the perforated drum and the plunger bars having radial plungers or seeding fingers working through the said perforations of the drum, of the fixed cam channel heads provided with cam channels for operating said plungers, under the motion of the drum, and having adjustable sections for varying the depth of the plant and for throwing the plunger bars with their seeding fingers into and out of their seeding action.

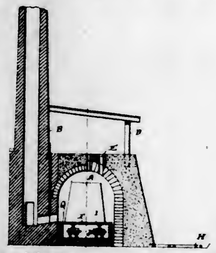
6. The combination with the perforated drum of the plunger bars with radial plungers working through said perforations, the cam channel heads having cam channels with adjustable sections, and connections for moving the said adjustable sections, to set the same in any desired position, substantially as described.

7. The combination with the perforated drum, the plunger bars with radial plungers working through the perforations, and the fixed

heads, of cam channels having fixed and adjustable sections located on the said heads, the adjustable sections consisting of pivoted overlapping flanges for the outer wall of the cam channel and a radially movable block seated in the head, provided with angular surfaces adapted to form the continuation of the inner wall of the cam channel, and provided with a laterally projecting flange adapted to support the overlapping parts of the said pivoted flange.

8. The combination with the cam channel heads having cam channels with adjustable sections, of the seed-box with a forced feed, and connections controllable from a common source for co-incidently throwing the adjustable sections of the cam channels into and out of their operative positions for the seeding action and for throwing the driving connections to the forced feed in and out of gear, substantially as described.

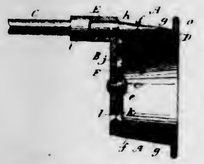
491,995. BRICK OR TILE KILN. LUIGI FALASCONI, Fermignano, Italy. Filed Dec. 6, 1892. Serial No. 454,348. (No model.) Patented in Italy Sept. 30, 1887, XLIII, 22,013, 348, and in England Apr. 20, 1891, No. 6,798.



Claim.—1. In a kiln, the combination with a gallery or tunnel, having an opening E, at an intermediate point in its length, and also having the channels Q, upon the inside of its side walls adapted to receive sand or the like; of a series of cars adapted to move in said gallery or tunnel and carry the material to be treated; the said cars being respectively provided with a platform comprising a series of transverse T-irons, bricks laid between said T-irons, the longitudinally arranged angle irons connected to the T-irons and adapted to engage the sand in the channels Q, of the gallery, and the longitudinally-arranged, vertically-disposed plates R, extending forwardly from the platform and adapted to serve in conjunction with the T-irons at the contiguous ends of two cars to form a receptacle for the reception of mortar, or the like, all substantially as and for the purpose set forth.

2. In a kiln, the combination with a gallery or tunnel and the tracks C, laid upon the floor thereof and arranged in pairs; of a car adapted to move in the gallery or tunnel, and consisting of the trucks comprising the frames, and the rollers mounted on shafts carried by the frames and respectively provided with a plurality of peripheral ribs or flanges, and the platform loosely mounted on the truck rollers and having the longitudinally arranged rails adapted to rest between the ribs or flanges of said rollers, substantially as and for purpose set forth.

491,996. PENCIL-SHARPENER. ALTON H. FABCHER, Brooklyn, N. Y. Filed May 23, 1892. Serial No. 433,976. (No model.)



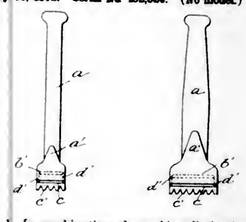
Claim.—1. In a pencil sharpener, a circular surface having two adjacent annular roughened faces respectively coarse and fine, in combination with a pencil-holder pivoted axially of said surface nearest to its coarse face and constructed to hold a pencil thereagainst with the point against the fine face and the body against the coarse one, said parts constructed to rotate the one around the other, whereby by such rotation the periphery of the pencil is cut, the point fine and the body coarse.

2. In a pencil sharpener, the disk D having handle *a*, circular roughened surface A, and metal portion *b*, in combination with the holder B having body portion F pivoted at *c* against said portion *b* of said disk, and having aperture *k* adapted to engage the pencil and hold the latter in position against said surface A.

3. A combined pencil sharpener and paper weight consisting of the disk D having flange *a* adapted to rest on the paper, and roughened surface A adapted to cut the pencil, in combination with holder B adapted to hold the pencil against said surface pivotally connected to said disk D, and having handle *i* adapted to permit the lifting of the disk when used as a paper weight.

4. A combined pencil sharpener and cigar cutter consisting of the disk D provided with a roughened surface A for cutting the pencil, and having a metal portion *b* constructed with knife-edged aperture *k*, in combination with pencil holder B adapted to hold the pencil in position over said surface A, pivoted to said portion *b* of said disk, and having knife-edged aperture *l* coinciding with said aperture *k* and adapted when a cigar tip is inserted through said apertures and said holder is moved relatively to said disk, to cut off said tip.

491,997. MASON'S TOOL. JAMES G. FAULDS, Glasgow, Scotland. Filed May 10, 1892. Serial No. 432,529. (No model.)

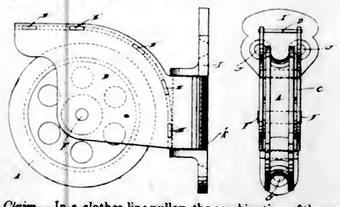


Claim.—1. In combination, the tool handle having a broadened lower end provided with a socket and end walls *d'* and the diamond shaped reversible tool having two cutting edges, said tool being cut away at its corner edges *e* on both sides, substantially as described.

2. In combination, the tool handle having a socket in its lower end the filling of yielding metal in said socket and the diamond shaped reversible tool adapted to said socket and to be held by contact with said metal and socket, substantially as described.

3. In combination, the tool handle having a socket in its lower end, the filling of yielding metal consisting of wire and the tool of diamond shape adapted to be driven into the said socket, substantially as described.

491,998. CLOTHES-LINE PULLEY. EDOUARD FAUTEUX, Montreal, Canada. Filed July 7, 1892. Serial No. 439,294. (No model.) Patented in Canada Dec. 27, 1890. No. 35,873.



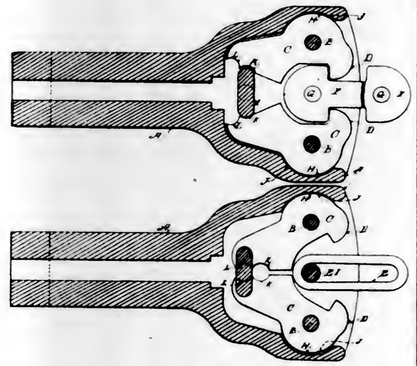
Claim.—In a clothes line pulley, the combination of the ordinary pulley A, with the wrought iron or steel hood B, composed of the two pieces C and D, and the bracket I, substantially as described and for the purposes set forth.

491,999. CAR-COUPLING. HARDIN G. FIELD, Denver, Colo. Filed May 14, 1892. Serial No. 432,963. (No model.)

Claim.—1. In a car-coupler the combination of a draw head having centrally located a rectangular slot arranged at right angles to the longitudinal axes of the draw head, and passing through the top into the link recession and extending, of reduced size through the bottom, a rectangular coupling pin vertically adjusted in said slot and having its lower end at the bottom of the link recess laterally reduced and its top end provided with a vertical clearance slot, the lever N, extending through said slot and resting on the adjusting pin U, and secured to, or forming part of a shaft extending across the end of the car and movably secured in bearings attached to the same the cams C, concentrically pivoted in the link recess to pins passing through the draw head having their outer ends curved toward the

central path of the link and ending in a semicircular recess adapted to receive and embrace the enlarged semicircular end of the special link F, the concentric portions of the cams and the recessions in the side of the draw head matching the same, and the notches in the cams arranged to partially embrace the different proportions of the coupling pin, a rectangular link F, having enlarged semicircular ends forming shoulders at right angles to length of link and pin holes in the ends of the same and the link adjusting pin U, arranged vertically through the top of the draw head and centrally over the end of the link, provided with a spring between its head and the top of the draw head and having an adjusting nut attached to its lower end all arranged as herein set forth and described.

2. In a car coupler the combination with a draw head, of the cams C pivotally attached in the link recess having extending jaws curving inward and ending in a central recess partly in both, and adapted to receive the enlarged semicircular end of the link F, the cams having concentric portions extending into recess formed in the sides of the draw head operating as bearings, and having notches K and L, in each at their inner ends, with a rectangular coupling pin vertically movable in the draw head by means of an operating lever passing through a slot in the top of the coupling pin and being attached to a movable shaft extending to both sides of the car, having the coupling



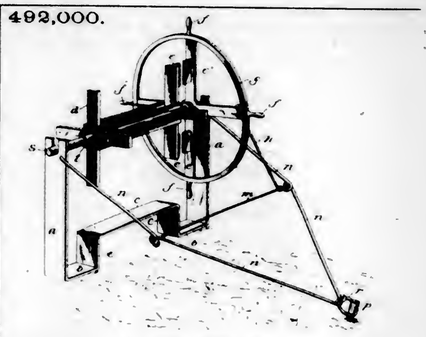
pin arranged to spread the inner ends of the cams by dropping between them thereby closing the outer jaws around the enlarged end of the link, and having the lower portion of the coupling pin laterally reduced to allow the ends of the cams to pass under the body of the coupling pin when the pin is raised and the link withdrawn, substantially as herein set forth.

3. The combination with the draw head, of a pin centrally located in the draw head and vertically movable in a suitable slot through the top thereof, having an expansive spring surrounding said pin and bearing between its head and the top of the draw head, and having the lower end of the pin provided with an adjustable nut, the spring operating to force the pin upward, and its nut against the top of the link recess, having the pin arranged to bear on top of the end of the coupling link, and a space made in the draw head under the end of the link, to allow the link to be pressed down by means of an operating lever bearing on top of the pin, and forming a part of or secured to a movable shaft provided with handles arranged at right angles to it and at each end, and having said shaft secured to the car and arranged to be operated from either side, all arranged substantially as, and for the purpose herein set forth and described.

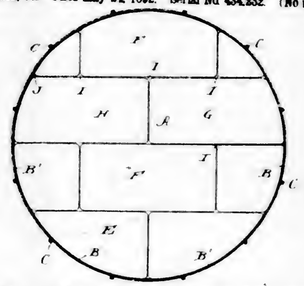
492,000. COMBINED REEL-SUPPORT AND WIRE-STRETCHER. THOMAS FITZSIMMONS, Grove Centre, Ky. Filed Mar. 8, 1892. Serial No. 424,160. (No model.)

Claim.—In a machine for reeling and stretching wire, a sill having a rectangular recess and upward extending arms adapted to form journal bearings, a shaft journaled in said arms, a spool movable on said shaft a collar and binding screw for adjusting said spool, a wheel with radial handles rigidly attached to said shaft, a clutch for connecting the wheel and spool, anchor rods extending from the arms to a support, a connecting ring and a brace attached to said anchor rods, substantially as described.

492,000.



492,001. CONSTRUCTION OF TANKS. WILLIAM FORGIE, Washington, Pa. Filed May 24, 1892. Serial No. 434,332. (No model.)



Claim.—1. In the construction of tanks, the vertical plates or sections flanged at their adjacent edges, the grooved bars having said flanges calked therein, and the peripheral grooved bars which receive the flanges on the lower edges of the sections or plates, as and for the purpose described.

2. In the construction of tanks, the combination of the flanged vertical plates of the shell, the flanged horizontal plates of the head or bottom, the peripheral grooved bars at the lower and outer edges of said plates or sections, the vertical grooved bars which receive the flanges on the vertical plates, and the angle plate between the peripheral and vertical grooved bars, substantially as described.

3. In the construction of tanks, the combination with the plates or sections, of the angle plates having the grooves which receive the flanges of three sections, said sections having their flanges calked in grooves or seats of the angle plates, as and for the purpose described.

4. In the construction of tanks, the angle plate having the diverging grooves intersecting with the ends of a straight groove, combined with sections having their flanges adapted to the diverging grooves and another section with its flange in the straight groove, said flanges being calked in the grooves of said angle plate, as and for the purpose described.

5. In the construction of tanks, the combination with the flanged sections, of the grooved angle-plate which receives the flanges at the corners of the sections, and the grooved bars united to said angle plate and receiving the flanges along the straight edges of the sections, said flanges being calked in the grooves of the angle plate and bars, as and for the purpose described.

6. In the construction of tanks, the angle plate having the grooves and the sockets in its corners, combined with the straight grooved bars fitted in the sockets of said angle plates and secured to the same by the interlocking teat or fin and notch, and the sections or plates secured at their corners in the angle plate and along their side edges in the grooved bars, as and for the purpose described.

7. In the construction of tanks, the vertical sections having the flanged side edges united by a vertical grooved bar, the bottom or head sections united by the angle plates and the grooved horizontal bars, the segmental peripheral bars which receive the lower and outer edges of the shell and bottom, and the peripheral angle plates receiving the grooved horizontal and peripheral bars, as and for the purpose described.

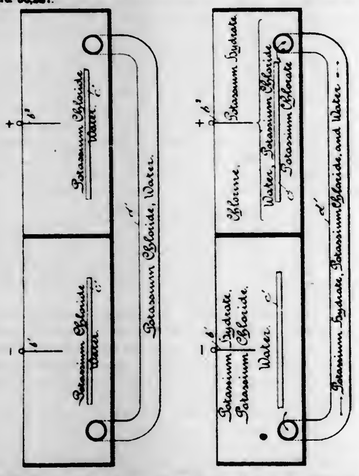
492,002. DEVICE FOR LOADING OR UNLOADING CATTLE. PHILIPPE FREDERICH, Langley, Kans. Filed June 17, 1892. Serial No. 437,062. (No model.)



Claim.—1. In a cattle driveway, the combination with a gangway having opposite side walls and provided with a central longitudinally-disposed groove extending from end to end of the gangway, of a partition supported for movement upon the gangway a plate secured to the bottom of the partition and extending into the groove, a winding mechanism located under the gangway, and a rope connected to the plate and mounted for movement in the said groove, said rope being passed over one end of the gangway and connected with the winding-mechanism, substantially as specified.

2. In a cattle driveway, the combination with the gangway having opposite side walls provided with tracks, said gangway provided with a central longitudinally-disposed recess or slot extending throughout the length thereof, of a partition provided at its corners with wheels for loosely engaging the tracks, a winding mechanism located under the gangway, and a rope connected to the partition and mounted for movement in the slot said rope being passed over the end of the gang-way and connected with the winding mechanism, substantially as specified.

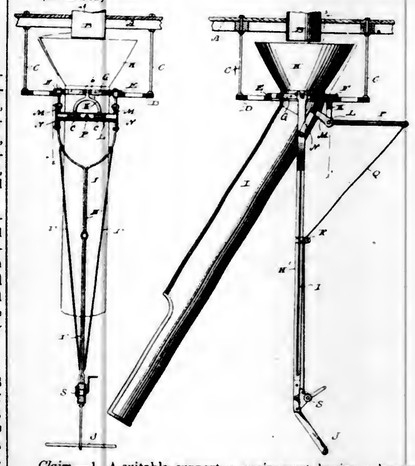
492,003. MANUFACTURE OF CHLORATES OF THE ALKALINE METALS AND METALS OF THE ALKALINE EARTHS. HENRY GALL, Hermes, (Oise,) and AMAURY DE VILLARDY DE MONTLAUR, Paris, France. Filed July 21, 1892. Serial No. 440,834. (No specimens.) Patented in France Sept. 23, 1886, No. 179,413; in England Mar. 29, 1887, No. 4,698; in Belgium Apr. 1, 1887, No. 76,940; in Italy Apr. 28, 1887, No. 21,474, and in Austria-Hungary Nov. 27, 1888, No. 29,962 and No. 36,227.



Claim.—1. The herein described process of producing chlorates of the alkaline metals and metals of the alkaline earths from the corresponding chlorides, which consists in electrolyzing an aqueous solution of the chloride in compartments separated by a porous partition to liberate acid radicals in the positive compartments and basic radicals in the negative compartment, subjecting the liquid to heat and continuously conveying the contents of the negative compartment into the positive compartment to form chlorates of the basic radicals, substantially as and for the purposes set forth.

2. The herein described improvement, which consists in employing an electrolyte containing in solution a chloride and passing a current through it between electrode compartments separated by a porous diaphragm, and depolarizing the electrode of the negative compartment by continuously conveying the contents of the negative compartment into the positive compartment, whereby the chlorine liberated in the latter is availed of in the nascent state, substantially as and for the purposes set forth.

492,004. GRAIN-SPOUT. FRANKLIN R. GIESLER, Milwaukee, Wis., assignor to the Galland-Henning Pneumatic Malting Drum Manufacturing Company, same place. Filed Nov. 18, 1892. Serial No. 452,404. (No model.)



Claim.—1. A suitable support, a grain-spout having a hopper like terminal universally jointed to the support, and a pivotally adjustable counter-balance for the spout, substantially as set forth.

2. A circular track, a ring loose on the same, another ring trunnioned within the first, a grain spout fast to the trunnioned ring, a depending frame having pivotal connection with the grain-spout, a yoke depending from said trunnioned ring, a rod having its bearings in the yoke, a lever and cranks fast on the rod, links connecting the cranks and depending frame, and suitable means for actuating the lever, substantially as set forth.

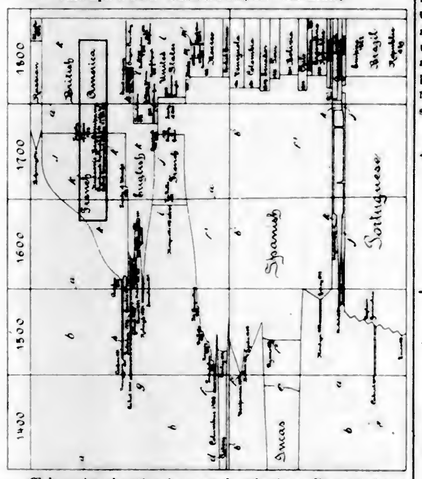
3. A circular track, a ring loose on the track, another ring trunnioned within the first, a grain-spout fast to the trunnioned ring, a depending frame having pivotal connection with the grain-spout, a yoke depending from the trunnioned ring, a rod having its bearings in the yoke, a lever and cranks fast on the rod, links connecting the cranks and depending frame, a windlass on said frame, and a flexible device connecting the lever and windlass, substantially as set forth.

4. A circular track, a ring loose thereon, another ring trunnioned within the first, a grain-spout fast to the trunnioned ring, a depending frame having pivotal connection with the grain-spout, a yoke depending from the trunnioned ring, a rod having its bearings in the yoke, a lever and cranks fast on the rods, links connecting the cranks and depending frame, a pulley on said frame, and a flexible device that connects with the lever and bears on the pulley, substantially as set forth.

5. A stationary support, a grain-spout universally jointed to the support, a depending frame pivotally connected to the spout, and a lever-mechanism that connects with the frame and has its fulcrum connected to said spout, substantially as set forth.

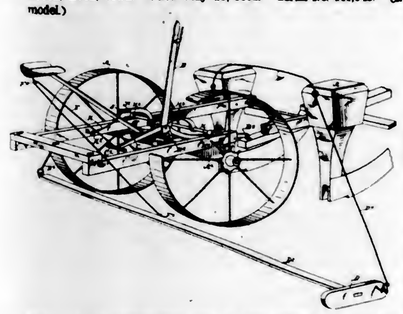
6. A stationary support, a grain-spout universally jointed to the support, a depending frame pivotally connected to the spout, a lever-mechanism that connects with said frame and has its fulcrum connected to said spout, a windlass on the frame, and a flexible device connecting the windlass and lever-mechanism, substantially as set forth.

492,005. EDUCATIONAL MAP. MANLY M. GILLAM, Philadelphia, Pa. Filed Apr. 7, 1891. Serial No. 388,052. (No model.)



Claim.—An educational map or chart having ordinates designating periods of time and clouded or obscured surfaces corresponding to prehistoric periods of time and to geographical location and extent, and abscissæ, as described representing early history, relative geographical position, discovery, the conflicting claims of nations without occupancy and territorial extent, and having sharply distinguishing or contrasting surfaces representing different countries, nations and governments of the entire world or parts thereof, substantially as and for the purposes set forth.

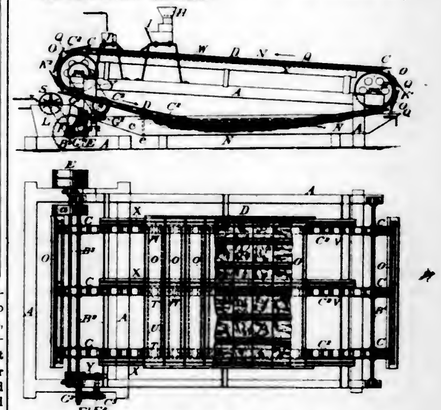
492,006. LAND-MARKER. GEORGE W. GOOCH and ELMER E. GOOCH, Avon, Iowa. Filed July 23, 1892. Serial No. 441,043. (No model.)



Claim.—1. In combination with a corn planter a marker having a pivotal connection with a rear central portion of its frame an arched track extended across the frame and secured to the rear of the seed containing boxes, a rope having its one end fixed to the marker and its remaining end having a sliding connection with the said track as set forth, a rock shaft mounted upon the machine frame in convenient proximity to the driver's or operator's seat, a lever secured to the rock shaft and extended rearwardly and upwardly therefrom, a rope secured to a stationary support extended upwardly through an elevated pulley and thence downwardly and attached to the arm of the marker, a rope secured to the end of the aforesaid lever and connected with the aforesaid rope, and means for manually operating the said rock shaft substantially as set forth and for the purposes stated.

2. In a corn planter the combination of the following elements, to wit: a marker attached thereto in such a manner as to be capable of being swung to either side thereof, a lever having a handle and treadle attached thereto, and fulcrumed to the axle as set forth, a segmental rack and detent attached to the lever for the purposes stated, means for elevating the runners of the machine by a manipulation of the said lever, a treadle extended rearwardly from the said lever, a rope attached to the treadle extended upwardly through an elevated support and thence downwardly and attached to the arm of the marker, a rock shaft mounted in the frame of the machine, a lever extended upwardly and rearwardly therefrom, a rope fixed to the said lever and having a pulley on its end which engages the upwardly extended portion of the aforesaid rope and the treadle mounted on the said rock shaft in convenient proximity to the driver's or operator's seat substantially in the manner set forth and for the purposes stated.

492,007. CONCENTRATING-MACHINE. FRANKLIN G. GOULD, Boston, Mass., and JOSEPH K. FIRTH, San Francisco, Cal. Filed Apr. 6, 1892. Serial No. 428,057. (No model.)



Claim.—1. In a machine for concentrating fine metallic particles, an endless apron, moving over wheels or drums, and guides and composed of hinged textile covered sections, that when in a straight line, or at the top of the machine, will present a continuous surface, impervious to water or the material treated thereon, substantially in the manner and for the purposes described.

2. In a machine for concentrating fine metallic particles, an endless apron, mounted on wheels or drums, and fixed guides, composed of hinged sections consisting of bars or slats, so joined as to form a continuous plane when the apron is in a straight line, the outer or working surfaces of the sections covered with canvas or other textile material, in the manner and for the purposes substantially as shown and described.

3. In a machine for concentrating fine metallic particles, an endless apron composed of hinged sections as herein described, their outer surfaces covered with canvas or other textile material, and provided with transverse ledges at their ends and intermediate points, so that when the apron is extended in a straight line, these ledges will form parallel channels in the line of the apron's movement, in the manner substantially and for the purposes specified.

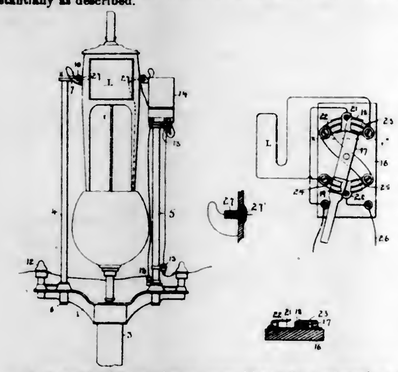
4. In a machine for concentrating fine metallic particles, an endless apron consisting of hinged sections, covered on their outer faces with canvas or other suitable textile material, provided with ledges or ribs to form parallel channels when the apron is extended and straight, these ledges or ribs and the textile covering, overlapping at the sides of the bars or slots, so as to form a close joint between them when the apron is in a straight line on its top or working side, in the manner substantially and for the purposes herein specified.

5. In a machine for concentrating fine metallic particles, an endless apron, composed of hinged sections, covered on their outer or working faces with canvas or other textile material, overlapping at their sides, to form an impervious surface when the apron is extended in a straight line, and attached on their inner faces to a flexible band or chain by means of hinged joints, so that they will pass over the drums or wheels in a position tangential thereto, substantially in the manner specified, and for the purposes set forth.

492,008. POLE-STANDARD FOR ARC LAMPS. FREDERICK D'A. GOULD, Schenectady, assignor to the Edison General Electric Company, New York, N. Y. Filed Apr. 15, 1892. Serial No. 429,276. (No model.)

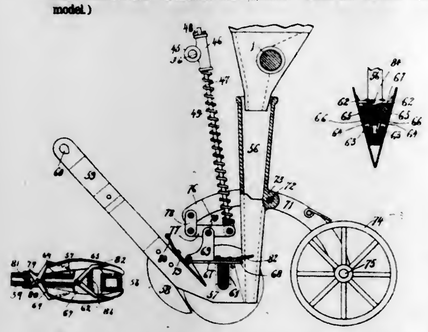
Claim.—1. A standard for arc lamps, having a base adapted to be secured to a support such as a pole, side rods, a cross-piece at the

upper ends of said rods and bent or deflected to allow the lamp to stand between the side rods but at the same time to extend above them, and means also at the upper ends of the side rods adapted to engage or hold supporting devices projecting from an arc lamp, substantially as described.



2. A standard for arc lamps, comprising a base adapted to be secured to a support, such as a pole, side-rods, a bent cross-piece at the upper ends of said rods, and trunnion bearings, also at the upper ends of the rods and adapted to support trunnions projecting from an arc lamp, substantially as described.

492,009. GRAIN-DRILL. ERNST K. GRAFUNDER, Horicon, Wis. Filed Mar. 3, 1892. Renewed Jan. 19, 1893. Serial No. 459,006. (No model.)



Claim.—1. In a grain-drill, the combination, of a pivoted covering wheel frame, a rocking lever, a link pivotally connecting one end of said lever with the forward end of the frame, and a vertically moving spring-cushioned rod having its lower extremity pivoted to the opposite end of the rocking lever, substantially as set forth.

2. In a grain drill, the combination of a rotatable and vertically adjustable shaft, a pivoted covering wheel frame, cutting disks, eyed lugs extending upwardly from the bearing frame of said cutting disks, a rocking lever turning upon a transverse pin having bearings in the eyes of the lugs, a link pivotally connecting one end of said lever with the forward end of the frame, a spring-cushioned rod having its lower end pivotally connected with the opposite end of the rocking lever, and its upper end passing through a tube attached to the shaft and provided with a transverse pin above said tube, and a frame having its rear end rigidly attached to the bearing frame of the disks and its forward end pivotally attached to the frame proper of the machine, substantially as set forth.

3. In a grain drill, the combination, with a toe having downwardly converging sides with ways or recesses therein, of cutting disks bearing against the sides of the toe and also converged downwardly, said disks provided with inwardly extending headed trunnions at right angles thereto, said trunnions journaled in the recesses or ways, substantially as set forth.

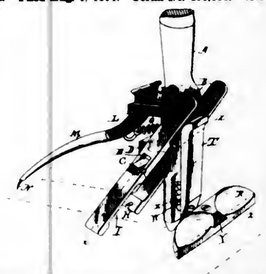
4. In a grain drill, the combination, of a toe having downwardly converging sides, provided with ways or recesses, cutting disks bearing against the sides of the toe and also converging downwardly, said disks provided with inwardly extending headed trunnions at right angles thereto, said trunnions journaled in the recesses or ways, and a removable plate covering the open ends of the ways, substantially as set forth.

5. In a grain drill, the combination, of a V-shaped toe having ways upon opposite sides thereof, the bordering edges of said ways being beveled, cutting disks arranged upon opposite sides of the toe and provided with inwardly extending headed trunnions having bearings in the ways, and blocks having beveled edges registering with the bevels of the ways and their lower ends semi-circularly recessed to fit the trunnions and also provided with shoulders bearing upon the headed portions of said trunnions, substantially as set forth.

6. In a grain drill, the combination, of a seed tube formed or provided at its lower end with a forwardly extending toe provided upon opposite sides with ways and having extending upwardly therefrom eyed lugs, cutting disks upon opposite sides of the toe provided with trunnions fitting the ways, a removable top plate having one end fitting beneath a lug formed upon the seed tube and its opposite end passing between the upwardly extending eyed lugs, a rocking lever journaled upon a transverse pin having bearings in the eyed lugs, a covering wheel frame, a link pivotally connecting said frame with one end of the rocking lever and a vertically movable spring-cushioned rod pivotally connected to the opposite end of the rocking lever, substantially as set forth.

7. In a grain drill, the combination, of cutters, scrapers consisting of pivoted arms provided with inwardly-extending pins or lugs, and a spring having its opposite ends engaging the lugs or pins and held in position thereby, said spring adapted to hold the operating ends of the arms yieldingly against the cutters, substantially as set forth.

492,010. FLOOR-CLAMP. ANDREW J. GREELEY, Hillsborough, Wis. Filed Aug. 6, 1891. Serial No. 401,833. (No model.)



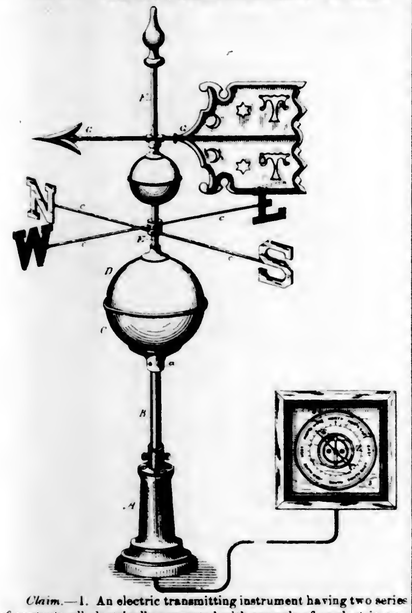
Claim.—1. In a floor clamp, the combination with the body having a perforated projection near its lower end, the sides of which are inclined toward each other, of a rod through the projection, the ends of which are rectangular in cross section, an arm on each end of the rod having a rectangular opening, the upper and lower walls of which opening are inclined from both sides, a bolt or retaining device through each end of the rod beyond each arm, the upper ends of the arms projecting above the inclined portion of the projection, and the opposite ends each being provided with an inwardly projecting stud or pin, a block on the lower end of the body, and a rearwardly projecting brace pivotally connected with the body above the projection, substantially as described.

2. In a floor clamp, the combination with the body, of the block R loosely connected with the lower end thereof and having a limited movement, the adjusting wedge I sliding between the body A and block R and operating on said block as specified, and the rearwardly projecting brace pivotally connected to the opposite side of the body; substantially as and for the purpose set forth.

3. In a floor clamp, the combination with the body, the lower end of which is slotted and provided with a lengthened dovetailed groove, a headed pin through the slot, a clamping block detachably secured to the end of the pin, a wedge between the body and the block, the lower end of which is slotted, and the rear face is provided with a dovetailed rib or projection to fit the groove, and a rearwardly projecting brace pivotally connected with the opposite side of the body, substantially as described.

4. In a floor clamp, the combination with the body, the lower end of which upon one side is provided with teeth or serrations, a block loosely connected with that side of the body, the upper and lower faces of which are cut away or recessed, a wedge between the body and the block, the inner face of which is provided with a projection, a rearwardly projecting brace pivotally connected with the opposite side of the body, and a spring one end of which is connected with the body and the opposite end is connected with the brace below it substantially as described.

492,011. ELECTRICAL INDICATOR. HENRY J. HAIGHT, New York, N. Y. Filed June 1, 1892. Serial No. 435,182. (No model.)



Claim.—1. An electric transmitting instrument having two series of contacts, all electrically connected with one pole of an electric generator, the contacts of one series alternating with those of the other series, the electric generator, and two electrodes co-operating respectively with said two series of contacts, said electrodes and contacts being movable relatively to each other whereby said electrodes are brought alternately into electric connection with said pole of the electric generator, in combination with a cut-out device or "commutator" having two sets or series of alternating electro conductive sections, said sets or series being insulated from each other, the several sections of one set or series being in electric connection with one of said electrodes, and the sections of the other set or series being in electric connection with the other electrode, a brush in electric communication with the opposite pole of the electric generator and co-operating with said alternating electro-conductive sections, said cut-out or "commutator" and brush having a movement relatively to each other, and mechanism controlled by the electric transmitting mechanism for moving said cut-out or "commutator" and brush relatively to each other, substantially as set forth.

2. The combination of an electric transmitting instrument, an electric receiving instrument controlled in its movements by said transmitter, and an automatic cut-out controlled in its movements by said receiver, said transmitter having two sets of alternating contacts all of which are in electrical communication with the electro-receptive provision of said receiver, said automatic cut-out having two sets of alternating electro-conductive sections each of which is in an independent circuit including one of the two sets of contacts of said transmitter, said automatic cut-out including a brush or equivalent contacting device co-operating with said electro-conductive sections one by one and in circuit with the electro-receptive provision of said receiver, and said transmitter including two independent and insulated electrodes each co-operating respectively with the contacts of one of said sets of contacts one by one, each of said electrodes being in circuit constantly with one of said sets of electro-conductive sections of the automatic cut-out, substantially as set forth.

3. The generator L, the contacts *g* and *h* in electric connection therewith, and the electrodes X and Y, in combination with sections 55, and 56, in electric connection with said electrodes X and Y, and brush 57, in electric connection with said generator L, substantially as set forth.

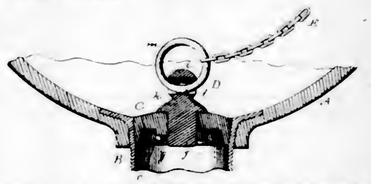
4. The transmitting disk H, capable of rotation in opposite directions, and having stud I, and two sets of alternating contacts *g*, and *h*, electric generator L, electrodes O, and R, on opposite sides of stud I, and electrodes X, and Y, co-operating with said contacts *g* and *h* respectively, in combination with shaft 17, magnets 7, and 8, intermediate mechanism between said magnet and said shaft for rotating said shaft in opposite directions, an electric generator L, electric conductors connecting both of said magnets with one pole thereof, conductor 1 between electrode O and magnet 7, conductor 2 between electrode R and magnet 8, the cut-out or commutator having two insulated series of alternating sections 55 and 56, conductor 3 between sections 55 and electrode X, conductor 4 between sections 56 and electrode Y, and brush 57 on shaft 17 and in electric connection with the opposite pole of said generator, substantially as set forth.

5. The transmitter H, having two sets of metallic pins *g* and *h* constituting electric contacts projecting therefrom, said pins being arranged in two rows, the pins in one row alternating in position with those in the other row, in combination with the two electrodes X and Y, co-operating respectively with said pins *g* and *h* said electrodes X Y being insulated from each other and included in independent circuits substantially as set forth.

6. In an electric indicating instrument, a driven rotary spindle or shaft, a pinion carried by and rotating with said spindle or shaft and having an independent rotation on its own axis, and two gears concentric with said spindle or shaft but free to rotate independently of said spindle or shaft, in combination with a ratchet wheel capable of movement on one direction only, said ratchet wheel being connected with one of said gears, a movable pawl co-operating with said ratchet wheel and constantly engaging therewith, a detent engaging said ratchet wheel to prevent backward rotation thereof, a second ratchet wheel capable of movement only in a direction opposite to that in which said first ratchet wheel moves, said second ratchet wheel being connected with the other of said gears, a second movable pawl co-operating with said second ratchet wheel and constantly engaging therewith, and a second detent engaging said second ratchet wheel to prevent any backward rotation thereof, substantially as set forth.

7. In an electric indicating instrument, the driven rotary index-carrying shaft or spindle, a collar fixed thereto so as to turn therewith, said collar having a radial stud, a bevel-pinion carried by and turning on said stud, and two bevel gears loosely turning on said shaft or spindle on opposite sides of said collar, said bevel-gears both meshing at all times with said bevel-pinion, in combination with two oppositely-toothed ratchet wheels secured fast to said bevel-gears respectively, the two swinging armature levers on opposite sides of said spindle or shaft having pawls which co-operate with said ratchets respectively, to drive the same, and which constantly engage with their respective ratchets, two detents engaging said ratchets respectively to prevent backward rotation thereof, and two electro-magnets which respectively control the movements of said armature levers, substantially as set forth.

492,012. PLUG OR STOPPER FOR LAVATORY APPARATUS. JAMES W. HALE, Newburyport, Mass. Filed June 14, 1892. Serial No. 436,677. (No model.)



Claim.—1. A compound lavatory plug or stopper which is adapted to close the outlet from the vessel with which it is used and to be entirely removed from said vessel, said plug or stopper comprising a main plug having a waterway therethrough, and an auxiliary plug controlling said waterway, substantially as set forth.

2. A compound lavatory plug or stopper which is adapted to close the outlet from the vessel with which it is used and to be entirely removed from said vessel, said plug or stopper comprising a main plug having a waterway therethrough, an auxiliary plug controlling said waterway and having the handling device, said auxiliary plug being separable from said main plug whereby it may be used independently as the plug or stopper of the lavatory vessel, and means for attaching said auxiliary plug to said main plug whereby said plugs both act conjointly as the plug or stopper of the lavatory vessel, substantially as set forth.

3. A compound lavatory plug or stopper which is adapted to close the outlet from the vessel with which it is used and to be en-

tirely removed from said vessel, said plug or stopper comprising a main plug and a separable auxiliary plug provided with the handling device, said main plug having a central passage therethrough constituting a waterway and a restricted outflow from the lavatory vessel, said auxiliary plug entering said passage and closing and controlling said restricted waterway, and reciprocal means of attachment carried by said main plug and auxiliary plug for fastening the same together, whereby both may act together to control the outlet from the lavatory vessel, substantially as set forth.

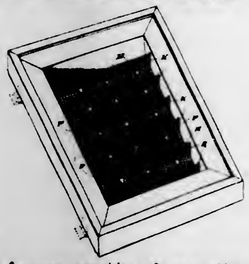
4. The main plug C, having water-passage *a* therethrough, slot *b* in the wall of said passageway, cam *c* on its underside adjacent to the periphery of passage *a* and on one side of said slot *b*, shoulder *d* on the opposite side of said slot *b*, and seat *e* on its upper face surrounding said passage *a*, in combination with the auxiliary plug D, having depending spindle *f* adapted to enter said passage *a*, stud *g* projecting from said spindle and adapted to enter said slot *b*, and seating flange *h* above said spindle *f* which seats against said seat *e*, substantially as set forth.

492,013. VEHICLE-TONGUE. WILLIAM A. HANNA, Henry, Ill. Filed July 25, 1892. Serial No. 441,206. (No model.)



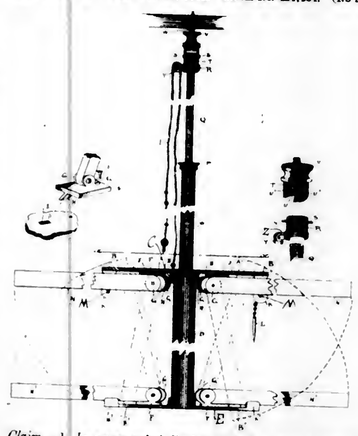
Claim.— In a vehicle tongue, the beam, A, tapering from its rear end to its forward end in the width thereof and having secured to its underside a tapering bar B to conform to the taper of the said beam A and tapering from its rear end to its forward end of the thickness thereof, and a strap D secured to the forward end of the beam A and bar B and having its perpendicular portion F abutting against the end of said bar B substantially in the manner and for the purposes set forth and described.

492,014. FLY-SCREEN. WILLIAM P. HELLINGS, Aurora, Nebr. Filed Sept. 30, 1891. Serial No. 407,334. (No model.)



Claim.—A fly-screen comprising a frame provided at the inner faces of its sides with horizontal kerfs, and a netting having a smooth outer face and presenting at that side the appearance of an ordinary screen and provided on its inner face with inwardly extending horizontal folds arranged in the kerfs and forming a series of horizontal flanges disposed over the entire inner face of the screen or netting to prevent the upper progress of a fly, said netting having exit openings beneath the folds and the sides of each fold being in contact with each other, to form a flat unbroken outer face substantially as described.

492,015. CLOTHES-DRIER. ELIAS F. HIMES and HARVEY V. GIBSON, Peoria, Ill. Filed Feb. 11, 1892. Serial No. 421,101. (No model.)



Claim.—1. In a suspended display or clothes rack, a tube D having secured at either end thereof an upper and a lower plate each of which are provided with a series of radial projections, the under side of each of the outer extremities of said upper plate having two ears formed therewith and provided with the pins L for the purposes set forth, and the upper sides of the outer extremities of the projections on lower plate being provided with raised lugs each of said projections of plate being provided with a pivoted arm for the purposes herein set forth and described.

2. In a suspended display or clothes rack, the tube D having secured on either end thereof an upper and a lower plate, said upper plate having a series of radial projections B made integral therewith and of the plate F having the ears G G cast therewith and pivotally supporting the arms N said plates F being secured to the plate A and said arms N being held in a horizontal position by the pins L and ears K K on the said projections B for the purposes herein set forth and described.

3. In a suspended display or clothes rack, the tube D, having secured on either end thereof an upper and a lower plate, said lower plate having a series of projections B' made integral therewith and of the plates F secured to the plate E, said plates F having ears G G made therewith, the said ears pivotally supporting the arms N' and said arms resting horizontally on the raised lugs K' for the purposes set forth and described.

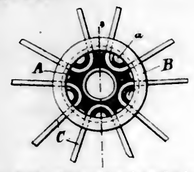
492,016. POTATO-DIGGER. ERNST A. HOFFMANN, Del Norte, Colo. Filed Sept. 8, 1892. Serial No. 445,343. (No model.)



Claim.—1. The combination with the beam and wheels and shovel, of the wheel on the axle and having inclined faces or steps, the screen, the lateral pivot-supporting arm, the longitudinal arm pivoted thereon and having one end connected with the screen and the other end acted upon by said faces, and the spring arm secured at one end to the opposite side of the beam and its other end flexibly connected with the pivoted arm, as and for the purpose specified.

2. The combination with the shovel, of a transversely-reciprocatory screen having an opening *o* at one side and supported by an arm extending from the shovel, and having a horizontal arm with vertical portion for connection with its agitating means as set forth.

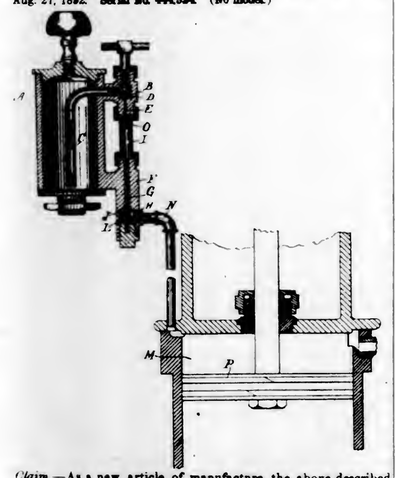
492,017. WHEEL. EUGENE L. HOWE, Cleveland, Ohio, assignor of one-third to I. Preston Rice, Chicago, Ill. Filed Aug. 9, 1892. Serial No. 442,586. (No model.)



Claim.—1. In wheels, the combination of a hub having lugs on its face adapted to be swaged outward, spokes having their inner ends bent around the lugs of the hub, and a ring surrounding the lugs clamping the spokes to the hub and fastened thereto by the overlapping ends of the lugs, substantially as described.

2. In wheels, the combination of a hub having lugs on its face adapted to be swaged or bent outward, spokes having their inner ends bent around the lugs of the hub, and a ring surrounding the lugs and having grooves on its inner face partially inclosing the spokes and clamped or fastened to the hub by the overlapping ends of the lugs, substantially as described.

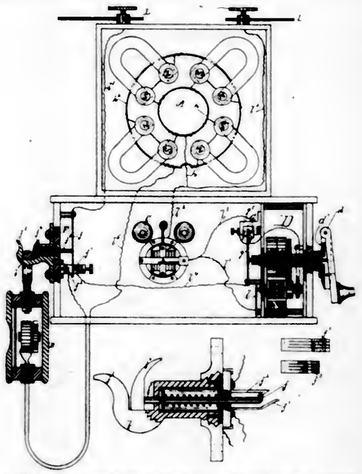
492,018. LUBRICATOR. ASA R. HOY, Indianapolis, Ind. Filed Aug. 27, 1892. Serial No. 444,334. (No model.)



Claim.—As a new article of manufacture, the above described lubricating device, consisting of the reservoir provided with branch B having duct E, tube C connecting said branch with the lower part of the reservoir, stop-valve D, arranged to close the entrance to duct E, branch F connected with the reservoir and provided with channel G, valve chamber H, valve J, and pipe N leading from said valve-chamber, all arranged substantially as and for the purpose set forth.

492,019. MAGNETO-TELEPHONE SWITCH. WILLIAM HOMANS, Cambridge, Mass., assignor to the American Magnetic Electric Company, Jersey City, N. J. Filed July 23, 1885. Serial No. 172,441. (No model.)

Claim.—1. In combination a magneto generator; a magneto-telephone; a signaling apparatus; a switch automatically controlled by the generator and consisting of one moving electrode between two fixed electrodes; a second switch automatically controlling the magneto telephone, and consisting of one moving electrode between two fixed electrodes; a conductor connecting the moving electrode of the generator-switch with that fixed electrode of the telephone switch which is normally in contact with the moving electrode of that switch; a conductor connecting that fixed electrode of the generator switch which is normally in contact with the moving electrode of that switch, with one terminal of the signaling apparatus; a conductor connecting the other fixed electrode of the generator switch with one terminal of the generator; a conductor connecting the other terminal of the generator with that terminal of the signaling apparatus connected with the generator switch; a conductor connecting that fixed electrode of the telephone switch normally out of contact with its moving electrode, with the telephone and through it to line; a conductor connecting the moving electrode of the telephone switch to line; and a conductor connecting the other terminal of the signaling apparatus to line; all substantially as described.



2. In a telephone system the combination substantially as and for the purpose set forth, of magneto telephones electro-magnetic signaling apparatus; magneto generators; moving electrodes *f* and *g* between fixed electrodes f', f^2 and g', g^2 respectively; means for maintaining electrodes *f* in contact with electrodes f' when the telephone is upon its support, and electrodes *g* in contact with electrodes g' when the magneto generator is not operating; means whereby the act of removing any telephone from its support causes its electrode *f* to leave its electrode f'' and make contact with its electrode f^2, and the operation of any generator causes its electrode *g* to leave its electrode g' and make contact with its electrode g^2; electrical connections between one terminal of each telephone and the line on one side; electrical connections between the electrodes *f* and the line on the other side; electrical connections between the other terminals of the telephones and electrodes f^2; electrical connections between electrodes f^2 and *g*; an electrical connection between one terminal of each signaling apparatus and the line; an electrical connection between the other terminal of each signaling apparatus and its electrode g' and also between this terminal and one terminal of the proper magneto generator; and an electrical connection between each electrode g^2 and the other terminal of its magneto generator.

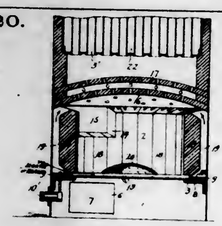
3. In a magneto generator, a hollow shaft geared to the armature shaft and provided with a hinged handle to rotate the hollow shaft, in combination with a rod movable endwise through the hollow shaft, and electrodes controlled by the rod, whereby the operation of the handle to set the generator in motion moves the rod endwise and connects the armature to line all substantially as and for the purpose set forth.

492,020. FURNACE. SAMUEL P. HUTCHINSON, Philadelphia, Pa. Filed July 23, 1891. Renewed June 13, 1892. Serial No. 436,483. (No model.)

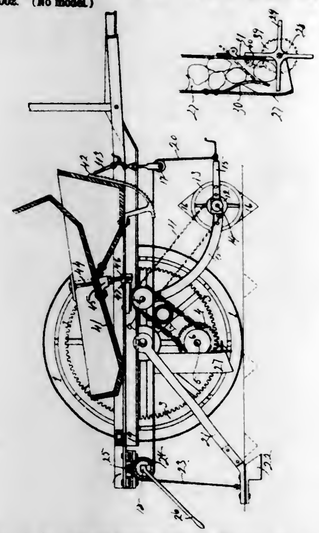
Claim.—1. In a furnace the shell 4, ash pit 1, grate 11, dome 20, staves 18, perforated grate bearing 3, and adjustable ring 9, in combination with the perforated tiles 16 and 17, arranged to operate substantially as set forth.

2. In a furnace the ash pit 1, provided with air tight fitting doors, and the perforated grate bearing 3, and tubular perforated grate 11, with perforated dome 20 in combination with the grooved staves 18 arranged to operate substantially as set forth.

492,020.



492,021. POTATO-PLANTER. OTTO ISLE, Chemnitz, Germany, and RICHARD ROTHE, Canton, Ohio. Filed July 5, 1892. Serial No. 439,002. (No model.)



Claim.—1. In a potato-planter, the combination of a suitable frame and bearing-wheels, and means for communicating rotary motion to the wheels 13 journaled to the free ends of the arms 15, a potato-hopper, located above the frame 19 potato-tubes such as 27, located below the potato-hopper and shovels 22, located to the rear of the potato-tubes 27, substantially as and for the purpose specified.

2. The combination of the bearing-wheels 1, the potato-hole piercing wheel 13, pivoted to the free end of the arm 15, the cords or chains 20 and 23, the shaft 18, the operating-lever 26, piercing blades 16 and the shovels 22, substantially as and for the purpose specified.

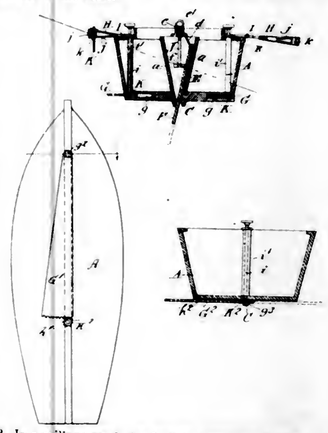
3. The combination of the hopper 41, located upon the top or upper side of the frame 19, and above the potato-tubes 27, a screw threaded shaft 44, the tooth-bar 42, located upon the forward part of the hopper 41, and the retaining catch 43, substantially as and for the purpose specified.

4. In a potato-planter, the combination of the tube 27, provided with the retaining spring 30, the shaft 28, journaled to the bottom or lower portion of the tube 27 the arms 29, the gravity-bar 31, the ratchet-wheel 39 the pitman 34, the ratchet-wheel 32, the arms 33, and the detent 37, substantially as and for the purpose specified.

492,022. SAILING VESSEL. NATHAN C. JESSUP, West Hampton Beach, N. Y. Filed Mar. 23, 1892. Serial No. 426,155. (No model.)

Claim.—1. In a sailing vessel, the hull constructed with a substantially horizontal recess at its outer side extending laterally in direction out of the perpendicular of the vessel, in combination with a board or plate pivotally mounted in said recess and constructed to be adjusted outwardly from said recess and laterally from the outside of the hull, and when so adjusted to present its face exteriorly of the hull to the water during sailing in a plane out of the perpendicular of the vessel and means, as the rack A and pinion K, for adjusting said board or plate.

2. In a sailing vessel, the hull in combination with a substantially horizontal board or plate pivotally connected to the outside thereof, extending laterally in a plane angular to the perpendicular of the vessel, and constructed to be adjusted on its pivotal connection outwardly and laterally from the outside of the hull, and when so adjusted to present its face to the water during sailing in the plane out of the perpendicular of the vessel.

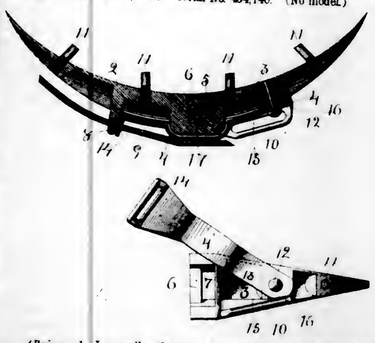


3. In a sailing vessel, the hull, in combination with a board or plate extending longitudinally thereof and laterally at substantially right angles to the perpendicular of the vessel, pivoted to the outside of said hull on a substantially vertical axis, and constructed to be adjusted on its pivotal connection laterally of and outwardly from the outside of said hull.

4. In a vessel, the combination with the hull A, constructed with a guideway at its outside, of a board or plate G arranged and operating in the latter, and constructed to be adjustable outwardly from said guideway and when so adjusted to project exteriorly of the hull in a lateral plane angular to the perpendicular of the vessel.

5. In a vessel the hull A having a longitudinal recess, *g*, at its outside extending laterally in a direction angular to the perpendicular of the vessel, in combination with a horizontal board or plate G, entering said recess, extending laterally in a plane angular to the perpendicular of the vessel, and adjustable outwardly therefrom outside of the hull, and means for so adjusting said board or plate.

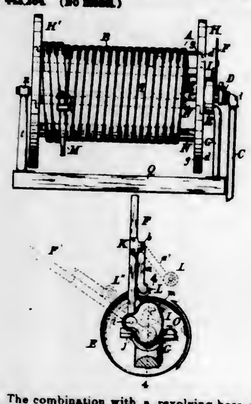
492,023. HORSE-COLLAR FASTENER. THEODORE KARGES, Blair, Nebr. Filed Dec. 5, 1892. Serial No. 454,140. (No model.)



Claim.—1. In a collar-fastener the combination of part 2 having the loop 8 and the hook consisting of the shank 17 and the upward-turned taper-point 5, with part 3 having a loop adapted to receive flush the hook 17, 5 and having the locking-plate 4 pivoted to its nether surface to swing forward off, and back-ward across the coupling of the parts, the free end having the downward projecting loop 14 agreeing with the loop 8 to receive the upper fold of the hame-strap substantially as shown and described.

2. In a collar-fastener the combination of parts 2 and 3 separably coupled together by an upturned hook projecting from the joint end of part 2 and fitted flush in a corresponding loop in the joint end of part 3, a locking-plate 4 pivoted to part 3 to swing across the coupling, the free end of the plate having the downward projecting loop 14, part 3 having the shoulder 15 to stop the plate across the joint, and part 2 having the loop 8 adjacent to and agreeing with the loop 14 to receive simultaneously the upper fold of the hame-strap substantially as shown and described.

492,024. HOSE-REEL. WILLIAM A. KIRBY, Auburn, assignor of one-half to William D. Baldwin, Yonkers, N. Y. Filed Aug. 5, 1892. Serial No. 442,264. (No model.)



Claim.—1. The combination with a revolving hose reel, of the valve D the valve operating arm, and the spiral cam E connected to the reel to revolve with it and having its inclined or spiral face arranged to engage the valve operating arm, substantially as described.

2 The combination with the revolving hose reel of the supply pipe and its valve, the spiral cam connected to the reel to revolve with it, and the lever connected to said valve and having a projection acted on by the inclined or spiral face of the cam for opening the valve, substantially as described.

3 The combination with the revolving hose reel and its supply pipe and valve, of the spiral cam connected to the reel to revolve with it, the lever connected to said valve, and an arm pivoted to said lever and carrying a roller acted upon by said cam for operating the valve, substantially as described.

4. The combination with the revolving hose reel, of the spiral cam rotating with said reel, the supply pipe, the straight-way valve pivoted eccentrically to said pipe, and a lever connected to said valve and having a movable portion arranged to be acted upon by said cam for opening the valve, substantially as described.

5. The combination with the mechanism of a hose-reel, of a revolving spiral cam, a valve having a movable portion, a lever arranged to be moved by the cam and pivoted eccentrically to the axis of the cam on the axis of the movable portion of the valve, substantially as described.

6 The combination with the mechanism of a hose-reel, of an axially arranged water-supply pipe, a spiral cam arranged to revolve about the pipe, a valve and an operating lever pivoted eccentrically to the axis of the cam and adapted to open the valve when the cam revolves, substantially as described.

7. The combination with a hose reel, of the axially arranged supply pipe, the straight-way valve having its movable part pivoted eccentrically to said pipe, the lever arm connected to said movable part, and the cam on the reel for operating said arm and valve, substantially as described.

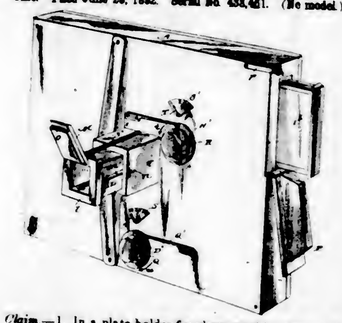
8. The combination with a hose-reel, of the head J, having circular flange r, provided with rib w, the pipe A, valve D, standard G and cap O, provided with a groove for the rib, substantially as described.

9. The combination with the mechanism of a hose-reel, of an axially arranged fixed supply pipe, a valve, a spiral cam arranged to revolve about the axis of the pipe, a valve-operating lever arranged to be moved by the cam, pivoted eccentrically to the axis of the cam, and provided with a movable projection or roller bearing on the cam but adapted to yield away therefrom during the reverse motion thereof, substantially as described.

10. The combination, with the mechanism of a hose-reel, of the reel-spider H, consisting of a suitable flanged hub and a series of sections, each comprising a spoke and a segment of the rim, substantially as described.

11. The combination, in a hose-reel, of the notched slats N N, and the spiders H H', each consisting of a series of spider-sections comprising a segment of the rim and a spoke, provided with projection *f* and spring *s*, substantially as described.

492,025. PHOTOGRAPHIC CAMERA. ANDREW KLAY, Bluffton, Ohio. Filed June 29, 1892. Serial No. 438,461. (No model.)



Claim.—1. In a plate holder for photographic cameras, the combination of a laterally movable carrier frame, a vertically movable bar arranged within said frame, a cross bar or slide firmly attached to said vertically movable bar, a plate holding frame provided with a groove which receives said cross bar or slide and a flat leaf spring arranged in said groove and bearing against said slide, substantially as and for the purpose described.

2. In a plate holder for photographic cameras, the combination of a plate holding frame adapted to be adjusted both vertically and laterally and a longitudinally movable focusing tube adapted to support the plate holding frame when it is adjusted out of line therewith, substantially as described.

3. In a plate holder for photographic cameras, the combination of a movable frame adapted to support a sensitized plate, a longitudinally movable focusing tube arranged in a suitable guide and adapted to support the plate holding frame when it is adjusted out of line therewith, and retracting springs attached at one end to said focusing tube and at the other end to the guide of the focusing tube, substantially as described.

4. In a plate holder for photographic cameras, the combination of a movable frame adapted to support a sensitized plate, a longitudinally movable focusing tube arranged in a suitable fixed guide and adapted to support the plate holding frame when said frame is adjusted out of line with said tube, a pin attached to the guide frame and extending into a groove in the tube and coiled springs attached at one end to the outer end of the tube and at their other ends to the fixed guide, substantially as described.

492,026. LETTER-BOX. FRED G. KOLLENBERG, Owensborough, Ky. Filed Apr. 30, 1892. Serial No. 430,969. (No model.)



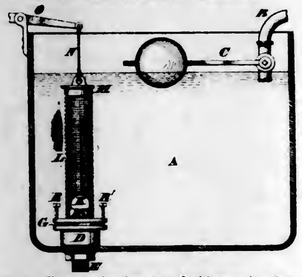
Claim.—1. The combination with a letter box, with a suitable receiving opening, of two independently communicating hinged doors, arranged one in front of the other, and opening in opposite directions, one of said doors adapted to be closed by gravity whereby the opening is secured when not in use, substantially as specified.

2. In a letter box, the combination with two independent receiving openings, each having independent pairs of doors, arranged in front of each other, of two independently arranged passage ways commu-

sicating with said openings and doors, and both of said passage ways leading to the box, substantially as and for the purposes specified.

3. In a letter box, the combination with two independent receiving openings, arranged one above the other, and each having two independently communicating inward and outward movable doors, oppositely arranged to each other, and the angular walls secured to the sides of the box, with counter walls secured to the back thereof, and a flange secured to the front wall of the box, whereby independent passage ways are formed for said openings, substantially as and for the purposes specified.

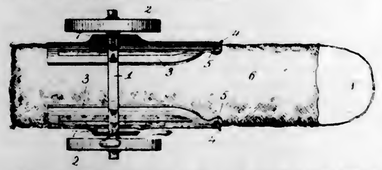
492,027. FLUSHING-TANK. LOUIS M. KROUSE, Cincinnati, Ohio. Filed Oct. 14, 1892. Serial No. 448,835. (No model.)



Claim.—1. The combination, in a flushing-tank, of an outlet, a main valve that closes the same, a hollow carrier to whose lower end said main-valve is applied, a water-tight seat at the upper end of said carrier, a buoyant secondary-valve, which is free to play up and down, but guarded against any material lateral play, and means for operating said carrier, the arrangement of these parts being such as to cause the secondary-valve to ascend when the main valve is lifted, and to descend and rest upon said water-tight seat when the tank is almost emptied, thereby stopping the entire flow, substantially as herein described.

2. The combination, in a flushing-tank, of the cylinder D, having an outlet E at bottom and seat F at top, the hollow valve-carrier H I, having the main valve G secured to its lower end and a water-tight seat J at its upper end, a buoyant secondary-valve K, that closes against this water-tight seat, a cage within which said secondary-valve plays, means for operating said hollow-carrier, and a guide which confines the latter to a proper path, so as to compel the main valve G to close said outlet E, all as herein described, and for the purpose stated.

492,028. COTTON-BAG CARRIER. ARCHIBALD F. LAIRD, Thornton, Tex., assignor of one-half to John M. Hill, same place. Filed July 2, 1892. Serial No. 438,822. (No model.)

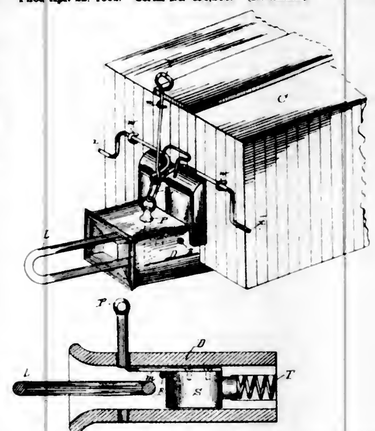


Claim.—1. The combination with a sack provided at its front end or mouth with a handle, of an axle, carrying wheels and longitudinal bars secured intermediate their ends to the axle and curved in cross-section to conform to the configuration of the sack when the latter is full, and means for securing the sack to the bars, substantially as described.

2. In a sack carrier, the combination with a bag or sack, of a downwardly bowed axle, carrying wheels, longitudinal supporting bars curved in cross-section secured to the axle and having lateral extensions and provided at their front ends with means for securing the bag or sack to them, substantially as described.

3. The combination with a sack or bag provided with eyes and having a handle at its mouth, of a bowed axle, carrying wheels, longitudinal supporting bars slightly curved in cross section and provided with lateral extensions and having openings, and snap hooks arranged at the front ends of the bars and securing the bag or sack to the latter, substantially as described.

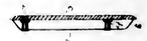
492,029. CAR-COUPLING. WILLIAM P. LAMP, Brownsville, Ill. Filed Apr. 22, 1892. Serial No. 430,306. (No model.)



Claim.—1. In a car coupling, the combination with the recessed drawhead, of the longitudinally movable slide S having secured to its upper side the forwardly projecting plate M, the cross-bar B secured transversely in the drawhead forward of the slide S, and beneath the projecting plate M, and the coiled spring T arranged in rear of said slide substantially as shown and described.

2. The combination with the coupling pin P of the link N and the looped horizontal lever X X and the vertical rod Y attached to loop of said lever X X as in and for the purposes herein and before described.

492,030. PENDULUM-BALL. ALMERON M. LANE, Meriden, Conn. Filed June 27, 1892. Serial No. 438,088. (No model.)



Claim.—The herein described pendulum ball consisting of the disk 5, the shouldered studs 4 secured therein and the beveled or dishing back or shell secured in place by said studs, substantially as described and for the purpose specified.

492,031. CLOCK-CASE SASH. ALMERON M. LANE, Meriden, Conn. Filed June 27, 1892. Serial No. 438,089. (No model.)



Claim.—1. The combination of the metal rim adapted to receive a glass, the glass seated therein, the beveled ring 11 on the back of the glass and the spring holding clasps, substantially as described and for the purpose specified.

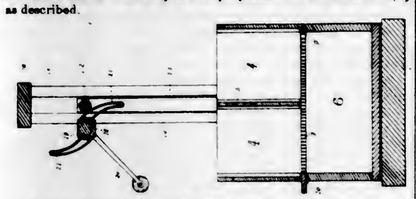
2. The combination of the metal rim adapted to receive a glass, the glass seated therein, the beveled ring on the back of said glass, the holding clasps connected with said beveled ring at their inner ends and interlocking devices for attaching and detaching the outer ends of said clasps to and from said rim, substantially as described and for the purpose specified.

3. The combination of the metal rim having locking shoulders and adapted to receive a glass, the glass seated on said rim, the beveled ring seated on the back of said glass and holding clasps intermediate said beveled ring and the locking shoulders of said rim, substantially as described and for the purpose specified.

492,032. DEVICE FOR GRADING BROOM-CORN STEMS. CLINTON R. LEE, Davenport, Iowa. Filed Mar. 17, 1892. Serial No. 425,278. (No model.)

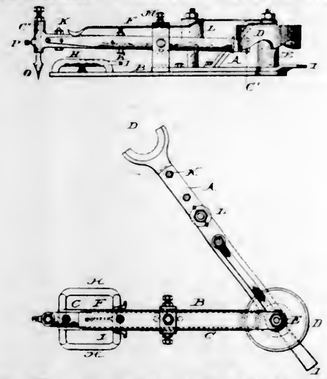
Claim.—1. In a device for grading broom-corn stems, the combination of a vessel, the upper portion divided into compartments, such upper and lower compartments separated by a suitable sieve

such device adapted to be elevated to a desired height and then dropped, so that the under portion of the vessel by such fall is brought in contact with a fixed body for the purposes stated and substantially as described.



2. In a device for grading broom-corn stems, the combination of a vessel, the upper portion divided into compartments, the lower portion arranged in compartments, such upper and lower compartments separated by a suitable sieve, the vertical guide bars attached to said vessel, the cylindrical cross-piece connecting such guide bars, the frame consisting of the base, the slotted vertical posts attached thereto, the cross bar connecting such slotted posts, the shaft journaled to said posts, the curved arms attached to said shaft and the crank handle attached to an end of such shaft, substantially as described.

492,033. STONE-DRESSING MACHINE. ERIK G. LIND and KARL P. GUSTAFSON, Nås-Station, Sweden. Filed May 25, 1892. Serial No. 434,372. (No model.) Patented in Sweden Jan. 14, 1892, No. 3,476.



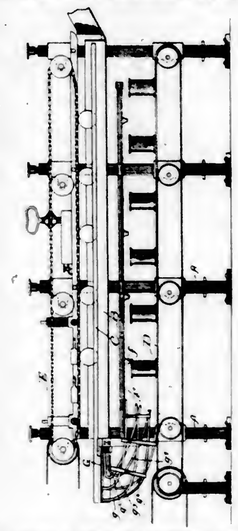
Claim.—The combination, in a stone dressing machine of the bar or face-plate B, provided with a handle H, an upright post or pintle E; the movable arm A, the pulleys D and D', the latter having a serrated under edge; the spring F, and the reciprocating lever C, provided at its free end with a socket for the insertion of the cutting tool O; substantially as and for the purpose herein shown and set forth.

492,034. CAN-SOLDERING MACHINE. ANDREW W. LIVINGSTON, San Francisco, Cal., assignor to Edwin Norton, Maywood, and Oliver W. Norton, Chicago, Ill. Filed Aug. 4, 1892. Serial No. 442,126. (No model.)

Claim.—1. In a soldering machine, the combination with a soldering track and a cooling belt or carrier below said track and extending parallel thereto, and means for propelling said cooling belt or carrier in the opposite direction to that of the cans on said soldering track of a curved or looped and spirally twisted track, having one branch, limb or end thereof uniting with and forming a continuation of the soldering track so as to receive the cans therefrom, and its other branch, limb or end uniting with or extending in the direction of the cooling belt or carrier, and operating to deliver the cans thereto in a vertical position without stopping the continuous forward or advancing movement of the cans, substantially as specified.

2. The combination with inclined soldering track C and cooling belt or carrier D, of a curved or looped and twisted track G uniting said soldering track and cooling belt or carrier by a curved and twisted path, so that the cans may pass continuously and uninterruptedly along the same, substantially as specified.

3. In a soldering machine, the combination with an inclined soldering track C, of a cooling belt or carrier D arranged below the soldering track and substantially parallel thereto, of a curved or looped and twisted connecting track G down and along which the cans may roll continuously from said track C and by which they are turned into a vertical position and delivered to said cooling belt or carrier and while the cans are under motion and in a direction substantially the same as that of said carrier, substantially as specified.



4. In a soldering machine, the combination with an inclined soldering track C, of a cooling belt or carrier D arranged below the soldering track and substantially parallel thereto, and a curved or looped and twisted connecting track G down and along which the cans may roll continuously from said track C and by which they are turned into a vertical position and delivered to said cooling belt or carrier and while the cans are under motion and in a direction substantially the same as that of said carrier, said curved or looped and twisted connecting track G consisting of a number of curved rods, substantially as shown and described.

5. In a soldering machine, the combination with an inclined soldering track C, of a cooling belt or carrier D arranged below the soldering track and substantially parallel thereto, of a curved or looped and twisted connecting track G down and along which the cans may roll continuously from said track C and by which they are turned into a vertical position and delivered to said cooling belt or carrier and while the cans are under motion and in a direction substantially the same as that of said carrier, the bottom of said track G at the lower limb or branch thereof being shorter than the sides thereof, substantially as specified.

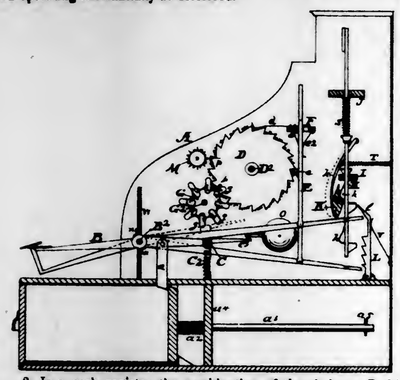
6. The combination with a soldering track C of a cooling belt or carrier D below the same, and a curved or looped and spirally twisted connecting device for delivering the cans from said track C to said carrier D and turning the same into a vertical position without stopping the forward movement or momentum of the cans, substantially as specified.

7. The combination with a soldering track C along which the cans move in one direction, of a cooling belt or carrier D along which the cans move in the opposite direction and while held in a vertical position, of a continuously curved or looped and spirally twisted connecting device between said soldering track and cooling carrier, whereby the motion of the cans is reversed in direction without stopping the same and the cans turned into a vertical position as required, substantially as specified.

492,035. CASH-REGISTER. TIMOTHY LOSH, Cleveland, Ohio. Filed May 16, 1892. Serial No. 433,220. (No model.)

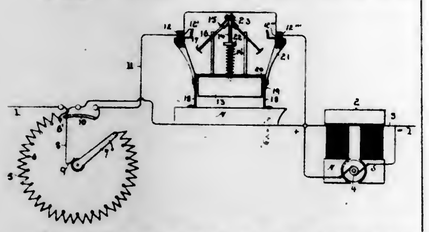
Claim.—1. In a cash register the combination of thumb levers B fulcrumed in the front wall of case A, frame C pivotally attached to same fulcrum, and lying over said thumb levers, spring C^9 connecting said frame with bottom of the case, latch bars *a* suspended from said frame C, drawer in the case below the thumb levers, rod a^5 attached to rear of the drawer and passing through partition a^4, and provided

with push spring e^2 between said partition and drawer, constructed and operating substantially as described.



2. In a cash register the combination of thumb levers B, fulcrumed in the front wall of case A, numbered teeth registering wheels D, loosely mounted to turn on cross-rod D^4, and arranged in pairs over each of said thumb levers, vertical bars E pivotally attached to said thumb levers, sliding in cross-bar F and having beveled lugs, e, engaging with No. 1 registry wheels; ratchet wheels G loosely mounted on cross rod G^3, one in front of each No. 2 registry wheel and having their teeth in mesh with teeth of said No. 2 registry wheels, and also provided with arms g reaching in between the No. 1 and 2 wheels' pins b on the No. 1 wheels for moving said ratchet wheels through the medium of said arms g and thereby turning the No. 2 wheel once in each revolution of the No. 1 wheels, substantially as and for the purpose set forth.

492,036. AUTOMATIC CIRCUIT-BREAKER FOR MOTORS. ROBERT T. LOZIER, New York, N. Y., assignor to the Edison General Electric Company, same place. Filed Apr. 4, 1892. Serial No. 427,607. (No model.)



Claim.—1. The combination of a motor, a circuit-breaker in the main motor circuit, means, such, for example, as a spring, tending to move the same to its open position, and an armature in operative relation to the field-magnet of the motor connected to said circuit-breaker so as to close the circuit when the armature is attracted, substantially as described.

2. The combination of a shunt motor, a circuit-breaker in the main motor circuit outside of the motor terminals, means, such, for example, as a spring, tending to move the same to its open position, and an armature, in operative relation to the field-magnet of the motor, connected to said circuit-breaker so as to close the circuit when the armature is attracted, substantially as described.

3. The combination of a motor, a rheostatic controlling switch therefor, said switch having considerable resistance in circuit when first moved to close the motor circuit, and being constructed to cut out resistance as the switch is moved forward, a contact connected to a circuit-breaker contact and through the same to one terminal of the motor, said first mentioned contact being connected to the line when the resistance is cut out, and a circuit-breaking device having a tendency to open but being held closed by the current when it is of normal strength, substantially as described.

4. The combination of a circuit, a rheostatic controlling switch, and a motor interposed in said circuit, a circuit-breaker exterior to the motor terminals and having a tendency to move to its open position, and an armature connected to said circuit-breaker and in position to be attracted by the field-magnet of the motor, substantially as described.

5. The combination of a circuit, a rheostatic controlling switch and a motor interposed in said circuit, said switch consisting of a series of contacts connected by resistances, one end of the resistance being connected to one terminal of the motor, a switch-arm to which the circuit is connected, adapted to move over said contacts, beginning at the end opposite to that connected to the motor terminal, a circuit-breaker held open when the motor is out of use, and an armature in proximity to the field-magnet connected to the circuit-breaker for holding the same, substantially as described.

6. The combination of a motor field-magnet pole, a guide thereon, an armature adapted to reciprocate therein, means for holding said armature away from the magnet when the circuit is open, pivoted circuit closing arms operatively connected to said armature, and contacts in the motor circuit adapted to be connected by movement of said pivoted arms, substantially as described.

7. The combination of the field-magnet pole, slotted standards 18 carrying a cross-piece and standards, the contacts carried by the latter standards, the reciprocating armature and its supporting rod, the rods 15 slotted at their adjacent ends and connected to the armature rod, and the contacts carried by said pivoted arms and adapted to connect the first mentioned contacts, substantially as described.

8. The combination of the movable armature, a rod projecting therefrom, two pivoted arms with slotted intersecting ends, a pin connecting the rod with the arms at their intersections, connecting plates carried by the arms, and contacts adapted to be connected thereby, substantially as described.

9. The combination of a motor, a circuit-breaker in the main motor circuit having several contacts, means tending to move the circuit-breaker to its open position, an armature attracted to its forward position when the current through the motor is of normal strength, and a circuit-closing device moved by said armature and connecting said several contacts, whereby the circuit is broken at several points, substantially as described.

492,037. BALING-PRESS. JAMES L. MADDEN, Lewisport, Ky. Filed Apr. 8, 1892. Serial No. 428,340. (No model.)



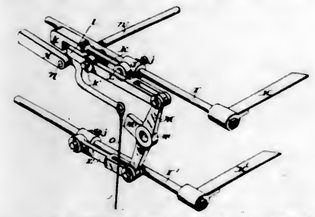
Claim.—1. In a baling-press, the combination with the baling chamber provided at its upper front end with a hopper, of a plunger-head fitting the baling-chamber and having an upwardly-disposed compressing-plate extending from the front upper corner into said hopper and means for reciprocating said head, substantially as specified.

2. In a baling-press, the combination with the hopper the beam secured to the same—a bracket or post secured to the end of the beam, a frame pivoted between the bracket and beam, and provided with an upwardly-disposed lug at its outer or free end, a plunger-head mounted in the baling-chamber, a plunger-rod pivoted at its rear end to the head, and at its front end loosely connected with the swinging arm or frame, the superimposed and fulcrumed sweep-bar, the under side of which is notched or recessed, and the spring-plates secured to the opposite ends of the bar and at opposite sides thereof, said plates extending over the recesses into the path of the pin of the plunger actuating-frame, and normally supported at some distance from the faces of the sweep, and a spring for retracting the plunger after its actuation by the sweep, substantially as specified.

3. In a baling-press, the combination with the baling chamber, the plunger-head, the pivoted plunger-rod, and the pivoted plunger-actuating-frame engaging the bifurcated end of the rod and provided upon its upper side with a bearing-pin having a roller, of a superimposed fulcrumed sweep, having a draft-bail and its under side provided with recesses, the inner walls of which are inclined or flared in opposite directions, and the spring metal wear-plates, secured at their outer ends, to the sweep and located upon the opposite sides and at the ends of the sweep, and having their free or inner ends normally supported some distance from the faces of the sweep and a coiled spring for retracting the plunger, substantially as specified.

492,038. JACQUARD HARNESS-EVENING MECHANISM FOR LOOMS. REUEL T. MARKER, Philadelphia, Pa., assignor to Schaum & Uhlinger, same place. Filed May 20, 1890. Serial No. 352,459. (No model.)

Brief.—The links connecting the upper griff-frame with the actuating levers are in two parts and hinged together. By unjointing the said links the upper griff-frame returns to its inner position and the harnesses raised by it drop to the plane in which the other harnesses are.



Claim.—1. In combination with a griff frame, a link K pivoted thereon, and the operating link and levers connected to said link K, all substantially as shown and described and so that by moving the link K the operating lever and link may move independently of the griff frame.

2. In combination with a griff frame, a link K pivoted thereon, a stop placed to hold the link K in its normal position substantially in line with the frame, an actuating lever M, and operating link, L, pivoted to link K and to the actuating lever M so that the line between the pivots of link L will pass below the pivotal connection of link K and the griff frame when said link K is in normal operative position.

3. In combination with a griff frame, a link K pivoted thereon, a stop placed to hold link K in its normal position substantially in line with the frame, an actuating lever M, a link L pivoted to link K and to the operating lever so that the line between its pivotal points will fall below the pivot of the link K on the frame, when said link is in normal operative position and a trip, as N, arranged to throw the end of the link K up as and for the purpose specified.

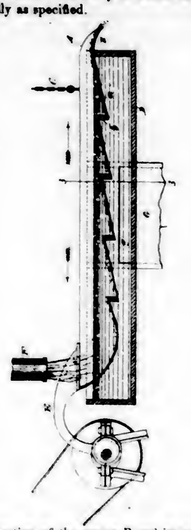
4. In combination with a griff frame, a link K pivoted thereon, a stop placed to hold link K in its normal position substantially in line with the frame, an actuating lever M, a link L pivoted to the link K intermediate of its ends and to the operating lever so that the line between its pivotal points will fall below the pivot of the connected link K on the frame when said link is in normal operative position and a pivoted trip lever N arranged to act on the projecting end of link K and throw it up as and for the purpose specified.

5. In combination with a griff frame, a link K pivoted thereon, an actuating lever, a link L pivoted to link K intermediate of its ends and to the operating lever, said link L having a projecting end l extending beneath the end k of link K and serving as a stop to hold said link in normal operative position, all substantially as and for the purpose specified.

492,039. PULP-SCREEN. EUGENE MEURER, Palmer Falls, N. Y. Filed Jan. 6, 1892. Serial No. 417,174. (No model.)

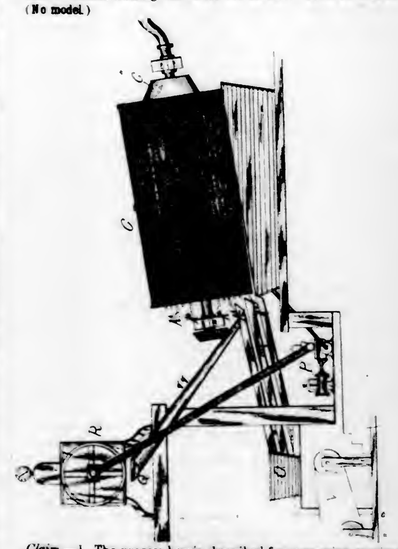
Claim.—1. The screen A, constructed with a saw-like bottom, and overflow discharge end the inclined portions a of the bottom ascending toward the discharge end of the screen and being perforated and separated by risers b, substantially as herein shown and described.

2. The combination of the screen B having saw-like bottom a b, and overflow discharge-end whose perforated part a ascends from the bottom of one section to the top of the next section, with the water tank D, and with means substantially as described for agitating said screen, substantially as specified.



3. The combination of the screen B and its saw-like bottom a b whose part a ascends from the bottom of one section to the top of the next section, with the tank D having overflow G, and with mechanism substantially as described for agitating said screen while submerged in said tank, all as specified.

492,040. PROCESS OF RECOVERING PRECIOUS METALS. WILLIAM P. MILLER, Redding, Cal. Filed Oct. 23, 1891. Serial No. 409,815. (No model.)



Claim.—1. The process herein described for recovering precious metals, consisting essentially in dividing or separating the slimes and sedimentary matter during the period when it is continuously flowing from the reduction works and is commingled with the waters from said works and before said matter has had an opportunity to deposit itself or settle, substantially as herein described.

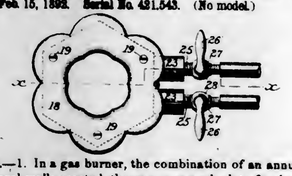
2. The process herein described for recovering precious metals, consisting in dividing or separating the slimes and sedimentary matter from the waters which contain them, while the whole pulp is continuously flowing; then washing the coarse material to free it of the slimes and sedimentary matter and muddy waters; then filtering said water and slimes and sedimentary matter, and then compressing and drying the filtrate, substantially as herein described.

3. The process herein described for recovering precious metals consisting essentially in dividing or separating the coarser material from the slimes and sedimentary matter without the aid of settling tanks and while the pulp is in an agitated condition, washing the coarser material to free it from the slimes, slums and muddy waters, collecting all the slimes, muddy waters and sedimentary material and forcing them through a filter press in which the slimes, mud and sedimentary material is compressed and dried in cakes and returning the filtered water to carry the coarser material and sands upon concentrators and from the works substantially as herein described.

4. The process herein described for recovering precious metals, consisting essentially in dividing or separating the coarser material from the slimes, sedimentary matter and muddy waters without the aid of settling tanks and while the whole pulp is in an agitated condition, introducing clear water to aid the washing of the coarser material to free it from the slimes, slums and muddy waters, collecting all the slimes, muddy waters and fine sedimentary matter and forcing them through a filter press in which they are compressed and dried in cake form, the filtered water returning to the tables at end of separator carrying the sands and coarser material upon concentrators, and finally from the works as worthless tailings, thus keeping up a continuous automatic operation, substantially as herein described and set forth.

492,041. GAS-BURNER. WILLIAM L. MITCHELL, New York, N. Y.

Filed Feb 15, 1892. Serial No. 421,543. (No model.)



Claim.—1. In a gas burner, the combination of an annular plate having lateral walls erected thereon, a second plate fixed upon said walls and forming therewith an annular mixing chamber, said second plate being perforated at intervals throughout its extent, and lateral walls and a top plate above said second plate forming an annular equalizing chamber coextensive with the mixing chamber, said equalizing chamber having a combustion orifice, whereby the gas is thoroughly mixed and uniformly distributed to all parts of the combustion orifice, substantially as shown and described.

2. In a gas burner, the combination of an outer annular chamber communicating with a combustion orifice, an inner annular chamber communicating with an independent orifice, said first named chamber having in its outer wall a port for the admission of air and gas, and a pipe passed through the said first named chamber and communicating with the inner chamber for the admission of air and gas thereto, whereby the inflowing currents of gas are directed against opposing convex walls and the gas is thereby distributed, substantially as shown and described.

3. In a gas burner, the combination of an annular plate having inner and outer walls and an intermediate wall forming two independent chambers, a plate fixed upon the upper edges of said walls and having two series of perforations communicating respectively with said chambers, inner and outer and intermediate walls erected upon said plate and forming two independent chambers corresponding to the first named chambers, and a top plate to cover said last named chamber, said last named chambers having independent combustion orifices, substantially as shown and described.

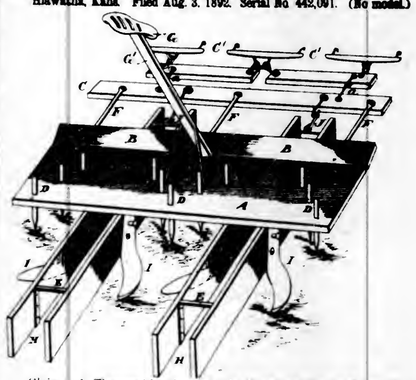
492,042. TRIP FOR AUTOMATIC RAILWAY-SWITCHES. JOSEPH L. MORRIS and JOHN P. NACE, Lawrence, Kans. Filed Feb. 19, 1892. Serial No. 422,073. (No model.)



Claim.—1. An automatic railway switch-mechanism, comprising a rock-shaft for operating a switch, a collar secured rigidly upon said rock-shaft and having a radial marginal recess or opening, a rock-arm or lever secured upon the rock-shaft and having a stud or lug to engage said recess or opening, a standard or bearing for the shaft and a pair of oppositely disposed horizontal leaf-springs secured to the standard or bearing and at their upper ends freely and separately engaging the lower sides of the rock-arm or lever at opposite sides thereof, so as to retain said lever in partly raised condition, substantially as set forth.

2. An automatic railway switch-mechanism, comprising a rock-shaft for operating a switch, a collar secured rigidly upon said rock-shaft and having a marginal radial recess or opening, a rock-arm or lever of skeleton and tapered form, secured upon the rock-shaft adjacent to the collar and having a lateral lug or stud to engage the recess or opening of the collar, a standard or bearing for the rock-shaft, of approximately L-form in cross-section, and a pair of oppositely disposed retaining-springs located at opposite sides of the rock-arm and secured at their lower ends to the said standard, and also freely and separately engaging at their upper ends, opposite sides of the rock-arm, so as to retain the same in partly raised condition; the springs extending first away from and then toward the rock-arm, substantially as set forth.

492,043. COMBINED PLOW AND HARROW. ELI D. MOSER, Hiawatha, Kans. Filed Aug. 3, 1892. Serial No. 442,091. (No model.)

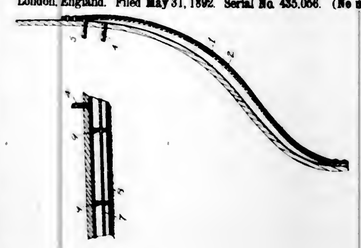


Claim.—1. The combination with the frame and the draft attachments, of the troughs disconnected from the frame and flexibly and detachably connected with the draft attachments and carrying the knives, as set forth.

2. The combination with the frame and the draft attachments, of the troughs disconnected from the frame and extended loosely thereunder and flexibly connected with the draft attachments and carrying knives, and the teeth in the frame between the troughs and upon each side thereof, as set forth.

3. The combination with the harrow frame and its teeth, of the plank C to which the eveners are detachably connected, the rods connecting said plank with the frame, the troughs disconnected from the frame and passed loosely thereunder and each consisting of two planks set on edge and held at the desired distance apart by right angled braces E, cutters secured to the planks of the troughs in the rear of the teeth of the harrow, and link connections J between the plank C and the troughs, all substantially as shown and described and for the purpose specified.

492,044. COVERING FOR SHIPS' BOTTOMS. FRANCIS D. MOTT, London, England. Filed May 31, 1892. Serial No. 435,056. (No model.)

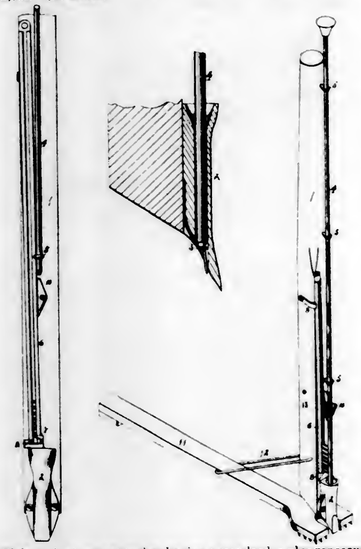


Claim.—1. The combination with a seagoing vessel, of a coat or integument formed of prepared indiarubber or other elastic material fixed along its edges and at other suitable parts to the sides and bottom of the vessel, leaving a space or interval between it and the outside of vessel which space is filled with air or gas regulated to a suitable pressure, substantially as and for the purposes described

2. The combination, with a coat or integument of indiarubber or other elastic material, fixed at suitable parts to the sides of the vessel and filled with compressed air or gas, of a second or outer coat or integument made of textile or other material and inclosing oil which can be regulated to permeate or exude through such second coat or integument more or less slowly, substantially as described and for the purposes specified.

3. The combination with the first coat or integument filled with compressed air or gas, of the outer coat or integument containing oil which can slowly exude, and provided with a plush like nap, on its exterior surface, lying in the direction of the stern of the vessel, substantially as described and for the purposes set forth.

492,045. COMBINED CARPET STRETCHER AND TACKER. EDWARD L. MCDIVITT, Belvidere, Ill. Filed Sept. 10, 1892. Serial No. 445,568. (No model.)



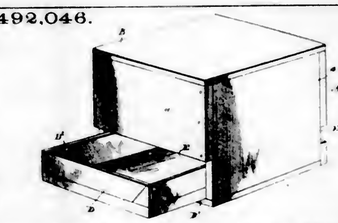
Claim.—1. A carpet tacker having a standard, a plunger secured thereto a socket at the lower end of said standard, a rack for holding the tacks, a spring for moving the rack in one direction and means operated by the plunger for moving it in the opposite direction.

2. A carpet tacker having a standard, a plunger secured thereto, a socket at the lower end of the standard, an escapement device at the lower end of the rack which is secured to the standard, a spring for moving the rack in one direction and an angle lever secured to the standard which is operated upon by the plunger, for moving the tack rack in the opposite direction.

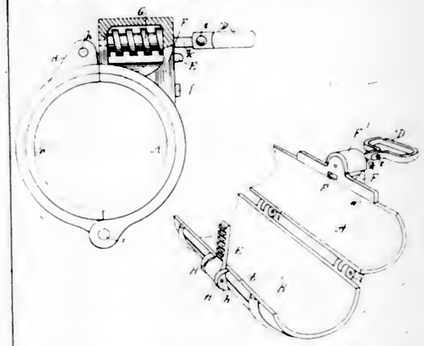
3. A combined carpet stretcher and tacker having a standard, a plunger secured thereto a socket at the lower end of said standard, a rack for holding the tacks, a spring for moving the rack in one direction and means operated upon by the plunger for moving it in the opposite direction and a stretcher having a link connection with the standard.

492,046. HEN'S NEST. JOSEPH L. MCKNIGHT, Ingraham, Ill., assignor of one-half to Henry F. McKnight, same place. Filed Mar. 16, 1892. Serial No. 425,134. (No model.)

Claim.—A hen's nest, consisting of a square box having a removable top cover and of a size to accommodate one hen only, battens or strips C secured against the sides of the box above the bottom of the same, a screen partition attached to the under sides of said battens or strips and to the sides of the box, and a removable drawer mounted in the bottom of the said box and having inwardly-sloping sides, the front and back walls or sides at the lower portion of the box being formed with slots or openings E extending across the box from one end to the other, and the front opening also forming means for inserting the drawer and withdrawing the same, the said openings extending slightly above the plane of the upper termination of the said drawer when the latter is closed for the purpose of ventilation, the said openings being increased in size by slightly withdrawing the drawer in order to increase the amount of ventilation, substantially as described.



492,047. HOSE-PATCH. JOHN D. OTIS and JAMES M. HARPER, Peoria, Ill.; said Otis assignor to said Harper. Filed May 19, 1892. Serial No. 433,522. (No model.)



Claim.—1. In a hose clamp, having two semi-cylindrical circles hinged together, the cogged tongue hinged to one of the sections, and the worm screw G, carried in a suitable frame work upon the other section, provided with suitable turning means and designed to operate connection with the cogged tongue, for the purpose of drawing the two sections together or expanding them, all substantially as described and set forth.

2. In a hose clamp, the combination, with the two semi-cylindrical sections hinged together, of the tongue hinged to one of the sections and having a cog formed upper face, the raised portion a', having the slot P, the worm screw G for engaging the cogged tongue E, journaled in raised portion a', and attached piece F, and having connected therewith the hand hold D, all substantially as described and set forth.

3. The combination in a hose clamp, of the following elements-sections A—B, hinged as at (i—i), the threaded tongue E, pivoted as at h, in ears H upon section B, the screw G, journaled in the frame work F, and provided with the extension or elongated journal h, to the end of which, is secured the hand hold D, as at (e) the frame work F, provided with the cap F', the ears (a'—b) with the ear (a'') perforated as at (p), all substantially as described and set forth.

492,048. FOLDING UMBRELLA. ELWOOD C. PHILLIPS, Chicago Ill., assignor of two-thirds to Albert J. Stone and Willis W. Cariand, same place. Filed Sept. 29, 1892. Serial No. 447,301. (No model.)

Claim.—In a folding umbrella the combination of an upper rib portion, with a lower rib portion adapted to slide therealong, an outwardly turned end on such lower portion, a slide on the upper portion, the end provided with a hole, the slide with a slot, and a stretcher secured by a pin passing through such hole and slot so as to cramp the two parts of the ribs together when the stretcher is moved, unless the stretcher be practically parallel.

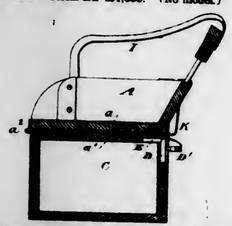
492,048.



3. In a nut lock, the combination of a bolt provided with a longitudinal bore and having the outer portion thereof threaded and provided with an opening communicating with the bore, a nut arranged on the bolt, a pawl arranged within the opening and adapted to engage the bolt, and a pin arranged within the bore and having a threaded portion screwing into the threaded portion of the bore, said pin being provided with a cam portion inclining inward in a direction opposite the direction of the threads and adapted to force the pawl outward, whereby any tendency of the pin to unscrew will force the pawl outward and cause the same to engage the nut more tightly, substantially as described.

4. The combination in a nut lock, of a bolt having a longitudinal bore provided with a threaded portion, and having an opening communicating with the bore, a pin having a polygonal head and arranged within the bore and provided with a cam portion and having a threaded portion arranged adjacent to the head and engaging the threaded portion of the bore, a nut arranged on the bolt, and a pawl arranged within the opening and adapted to be engaged by the cam portion of a pin, substantially as described.

492,049. WAGON ATTACHMENT. JOHN S. PIPER, Winters, Tex. Filed Nov. 8, 1892. Serial No. 451,336. (No model.)

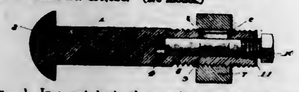


Claim.—1. A wagon or cart attachment consisting of a forwardly folding, double-bottomed seat, the subjacent endpieces B B, elliptic springs F F, and bars G G under the springs; whereby is formed a combined seat and table supported on springs and readily attachable to or detachable from the wagon as described.

2. The combination of the rigid bottom *a'*, rabbeted bars B B, and side-tenoned box C as shown and described.

3. The combination with the seat-arms I I of the vertical springs J J made fast thereto at the lower end as and for the purpose specified.

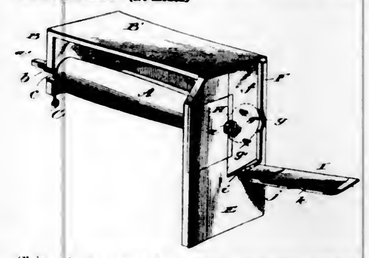
492,050. NUT-LOCK. EDWARD POOLE, Fordyce, Ark. Filed July 12, 1892. Serial No. 439,820. (No model.)



Claim.—1. In a nut lock, the combination of a bolt provided with a longitudinal bore and having an opening communicating with the bore, a nut arranged on the bolt, a pawl arranged in the opening of the bolt, and a pin arranged in the bore and having a cam portion arranged to engage the pawl to force the latter outward in engagement with the nut, substantially as described.

2. In a nut lock, the combination of a bolt having a longitudinal bore and provided with an opening communicating with the bore and disposed longitudinally of the bolt, a pawl arranged within the opening and having its outer edge oppositely beveled, a nut arranged on the bolt, and a pin arranged within the bore and provided with a recess forming an inclined portion or cam arranged opposite the opening and adapted to force the pawl outward, substantially as described.

492,051. MACHINE FOR FORMING WIRE ARTICLES. LOUIS H. PORTER, Rockdale, Tex. Filed Apr. 13, 1891. Renewed Dec. 9, 1892. Serial No. 454,580. (No model.)



Claim.—1. A machine for forming wire articles, consisting of a suitable frame, a revoluble shaft, removably held therein and a guide upon said shaft, near one end thereof substantially as and for the purpose described.

2. A machine for forming wire articles, consisting of a suitable frame having a beveled support for the coil of wire, a revoluble shaft having a bifurcated journal, and a hinged clamp at one end of the frame having beveled inner face substantially as and for the purpose specified.

3. In a machine for forming wire articles, the combination of a revoluble shaft having a bifurcated journal, a frame having projecting pins at one end, a beveled support at the same end, and a hinged clamp, substantially as and for the purpose described.

4. A machine for forming wire articles, consisting of a suitable frame and a revoluble shaft having a dove tail bifurcated journal, substantially as and for the purpose specified.

5. A machine for forming wire articles, consisting of a suitable frame, a revoluble shaft having its bearings therein, a guide on said shaft at the end thereof nearest the bifurcated journal, and a bifurcated journal upon one end of the shaft, substantially as and for the purpose set forth.

6. In a machine for forming wire articles, the combination of a suitable frame, a hinged clamp upon the frame, at the journal-end thereof and a journal upon the end of the shaft having a dove-tailed bifurcation, substantially as and for the purpose described.

7. In a machine for forming wire articles, the combination with a revoluble shaft having one of its journals bifurcated, of a suitable frame having a beveled support and a hinged clamp at the end of the frame having its interior face beveled parallel to the bevel of the support, substantially as and for the purpose set forth.

8. In a machine for forming wire articles, the combination with a revoluble shaft having a dove-tailed bifurcated journal, of a suitable frame having a beveled support for the wire article to be formed, pins projecting therefrom, and a hinged clamp at the end of the frame and closing against said beveled support, substantially as and for the purpose described.

9. In a machine for forming wire articles, consisting of a suitable frame having a wearing-plate, a beveled support at one end, pins projecting therefrom, a hinged clamp at the same end of the frame as the beveled support and having a beveled inner face, and a removable shaft having its bearings in the frame and having a bifurcated journal, substantially as and for the purpose set forth.

492,052. PROCESS OF MAKING BEER. CARL RACH, Chicago, Ill. Filed Feb. 5, 1892. Serial No. 420,897. (No specimens.)

Claim.—1. The process of manufacturing beer herein described which consists in concentrating wort derived from a mashing process without destroying the diastase, making a beer low in alcohol, and then mixing such concentrated wort and said beer in suitable proportions at about the time of racking off.

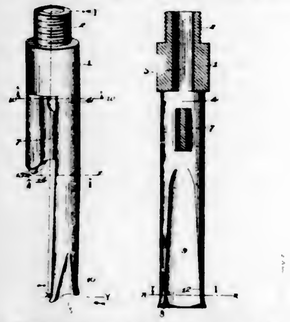
2. The process of manufacturing beer herein described which consists in concentrating wort derived from a mashing process without destroying the diastase, making a kraeusen beer, making a beer low in alcohol, adding the kraeusen beer to the said beer low in alcohol, and then adding to such mixture the concentrated wort still diastasic at about the time of racking off.

3. The process of manufacturing beer herein described which consists in concentrating wort still diastasic to a condition of dryness without destroying the diastase whereby it becomes a dry diastasic malt extract, making a beer low in alcohol, adding to such beer kraeusen beer, and then adding to such mixture a proper proportion of the said dry diastasic malt extract at about the time of racking off the beer.

4. The process of making beer herein described which consists in taking the stronger worts from a mash, concentrating them while still diastasic, taking the weaker worts from the same mash and making therefrom a beer low in alcohol, adding a kraeusen beer to the said beer, and then adding to the beer the aforesaid concentrated worts in suitable quantities at about the time of racking off.

5. The process of making beer herein described which consists in taking the richer worts derived from a mashing process and converting a portion thereof into kraeusen beer, and another portion into a concentrated diastasic wort, then taking the thinner worts derived from the same mashing process and making therefrom a beer low in alcohol, then mixing suitable quantities of such beer and kraeusen beer, then adding to the compound suitable quantities of the concentrated diastasic wort at about the time of racking off.

492,053. DRILLING-TOOL. HASKELL A. ROGERS and JOHN M. RUNYAN, Boone, Iowa. Filed Apr. 30, 1892. Serial No. 431,276. (No model.)

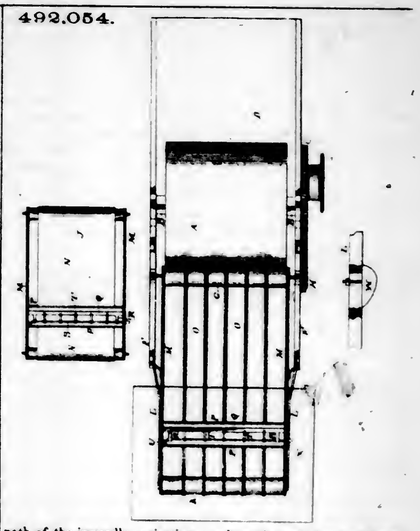


Claim.—A drilling tool comprising two extensions depending from a tubular head one of which is longer than the other and extends inward at its lower end from a vertical line, and the other shorter and forming a reaming attachment, and connected by a thin web at a right angle to each having opposite concave sides, an opening between the upper portion thereof and said head and in line with the tubular portion of said head, and the lower end thereof cut away on an upward curved bevel to expose the cutting portion of said reaming attachment, the inner side of the longer extension being concaved on its inner side nearly the whole length thereof and on its outer side adjacent to its lower end, substantially as described.

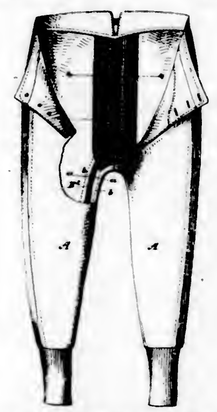
492,054. DELIVERY APPARATUS FOR PRINTING-PRESSES. SAM D. SANDEL, Austin, Tex., assignor of one-half to A. B. Miller, same place. Filed Sept. 9, 1892. Serial No. 445,411. (No model.)

Claim.—In a press, the combination of endless bands or chains, two cross rods secured to said bands, apron tapes secured at their opposite ends to said cross rods, an intermediate cross rod having journaled arms extending in a line with the apron, an oscillating rod hung in said arms having gripper fingers and provided with a crank and projecting inwardly beyond the endless bands, a press frame, brackets projecting outwardly therefrom, delivery rolls mounted on the frame and on said brackets, and cams similarly mounted so as to lie in the path of the inwardly projecting crank on the end of the oscillating cross rod.

492,054.



492,055. UNDERGARMENT. JEREMIAH A. SCHIVER, New York, N. Y. Filed Sept. 19, 1892. Serial No. 446,256. (No model.)



Claim.—1. As a new article of manufacture, an undergarment composed of inelastic body portion A and elastic insertion B, the elastic and inelastic portions being turned at their edges to form four hems, and united by the four rows of stitches *a* and *b*, passing through said hems and through said fabric, the said fabrics A and B overlapping between the rows *a* and *b* of stitches, substantially in the manner and for the purpose herein shown and described.

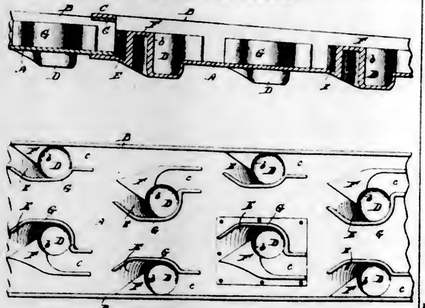
2. As a new article of manufacture an undergarment having the upright inner elastic insertion B, the horizontal elastic insertion B^2 and the upright outer inelastic divided strip A^3, said parts A^3 B and B^2 overlapping each other at the crotch and adapted to render the overlapped portion inelastic, substantially as and for the purpose herein shown and described.

492,056. METHOD OF PRODUCING DENTAL CEMENT. MAX ROSEN, San Francisco, Cal. Filed May 17, 1892. Serial No. 433,362. (No specimens.)

Claim.—The herein-described method of producing a dental cement, the same consisting in first dissolving metallic aluminum in glacial phosphoric acid to produce a phosphate of aluminum, next subjecting the oxide of zinc to white heat to reduce it to a gummy condition, next mixing the two together and subjecting the compound to heat, next cooling and then pulverizing the compound, next adding more of the gummy oxide and mixing the whole in a powdered condition, and finally when ready for use adding sufficient of the said phosphate of aluminum to reduce the whole to a plastic condition, all as and for the purpose set forth

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492,057. RIFFLE. FLAVEL SIMONSON, Milwaukee, Wis. Filed June 15, 1892. Serial No. 436,779. (No model.)



Claim.—1. A riffle comprising a suitable base having a cup-like depression therein and a valley that leads from the surface of the base to the bottom of said depression, substantially as set forth.

2. A riffle comprising a suitable base, a cup-like depression therein, a valley leading to the depression, and a bluff adjacent to said depression and valley, substantially as set forth.

3. A riffle comprising a suitable base, a cup-like depression therein, and a fence that partly encircles said depression, substantially as set forth.

4. A riffle comprising a suitable base, a cup-like depression therein, a valley leading to the depression, and a fence that partly surrounds said depression, substantially as set forth.

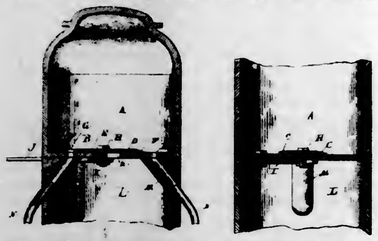
5. A riffle comprising a suitable base, a cup-like depression therein, a bluff adjacent to the depression, and a fence that partly surrounds said depression in opposition to the bluff, substantially as set forth.

6. A riffle comprising a suitable base, a cup-like depression therein, a valley leading to the depression, a bluff adjacent to said depression and valley, and a fence that partly surrounds the aforesaid depression in opposition to the bluff, substantially as set forth.

7. A riffle comprising a suitable base, a cup-like depression therein, a deep valley leading to the bottom of the depression, a bluff adjacent to said depression and valley, a fence partly surrounding the aforesaid depression in opposition to the bluff, and a shallow valley intercepting the deeper one, substantially as set forth.

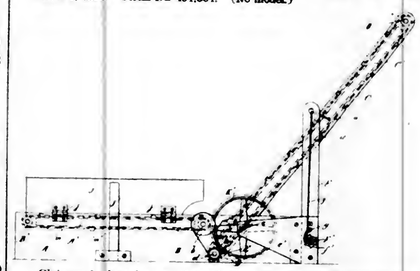
8. A sluice-box having the bottom thereof provided at intervals with cup and valley-like depressions, the greatest depth of each valley being at the bottom of an adjacent cup, substantially as set forth.

492,058. LOCOMOTIVE SAND-BOX. LORENZO T. SLAUGHTER, Roanoke, Va. Filed Aug. 18, 1892. Serial No. 443,446. (No model.)



Claim.—In a locomotive sand box, the combination of the sand receptacle having opposite escape openings or perforations in the bottom thereof and a slot intermediate of said openings, opposite stationary parallel guide strips secured to the bottom of said receptacle on each side of said perforations to inclose the same there-between, a sliding gate or valve reciprocating between said guide strips over said bottom escape openings or perforations and provided with opposite beveled cutting ends, a perforation in one end near the bevel, and a pin or bolt projecting through said intermediate slot, an operating slotted bell crank lever loosely engaging said pin or bolt to operate said gate or valve, a hollow heat-base aligning with the bottom of the sand receptacle and having opposite bored lugs registering with said bottom escape openings or perforations, and the opposite sand pipes fitting said bored lugs, substantially as set forth.

492,059. HAY-STACKER. WILLIE J. SMITH, Ellis, Mo. Filed Nov. 8, 1892. Serial No. 451,331. (No model.)



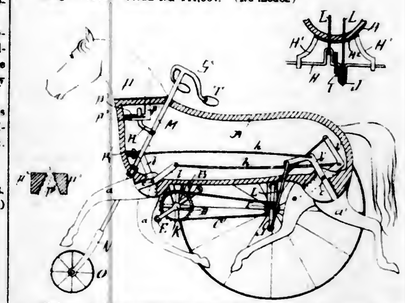
Claim.—1. In a hay-stacker, the combination with a conveyer, and an inclined platform leading up to it, of a bar journaled at the top of the said platform and provided with teeth, and a spring normally holding the said teeth raised and permitting them to be turned forward over the conveyer by the hay, substantially as set forth

2. In a hay-stacker, the combination, with a horizontally arranged conveyer, of a retaining-board hinged to the top of one of the side frames of the conveyer, and a spring normally holding the said board in a substantially vertical position, to keep the hay on the conveyer.

3. In a hay-stacker, the combination, with a conveyer, of a bar journaled at the top of one of the side frames and provided with teeth and a spring operating to hold the said teeth in their raised position, and a board hinged to the opposite side frame and provided with a spring operating to hold it in its raised position, whereby the hay is retained on the conveyer and distributed evenly over its surface, substantially as set forth

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492,060. TRICYCLE. WALDO V. SNYDER, Canton, Ohio. Filed Aug. 1, 1892. Serial No. 441,807. (No model.)



Claim.—1. The combination of the body A, having pivoted thereto the legs *a*, and *a'* provided with the arms *b*, and *b'*, the crank shaft H, provided with the oppositely timed cranks J, the pitmen L, the cross wires *h*, the sprocket wheels I and K, the drive chain C, the pedal shaft D, the adjustable bracket B, and the vertically adjustable arms F substantially as and for the purpose specified.

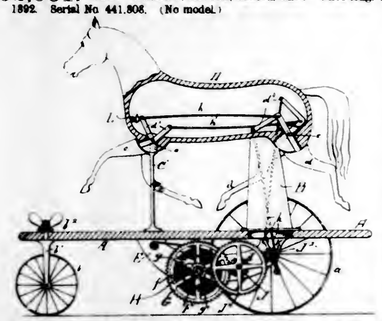
2. The combination of the body A, provided with pivoted legs, the rod M, provided with the yoke N, carrying the wheel O, the arm R, fixed to the rod M, the connecting rod or bar P', provided with the slot P^3, having a wider opening upon its wider side, and the pivoted head P, substantially as and for the purpose specified.

3. The combination of the body A, provided with the pivoted legs *a* and *a'*, provided with the arms *b*, and *b'*, the connecting wires

h, the crank shaft H, the pitmen L, and the studs R', substantially as and for the purpose specified.

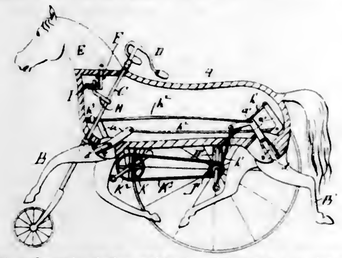
4. The combination of the adjustable bracket B, provided with the elongated slot *d*, and the recesses *g*, the vertically adjustable bars F, provided with a series of apertures *e*, and the clamping bolts *f*, substantially as and for the purpose set forth.

492,061. TOY. WALDO V. SNYDER, Canton, Ohio. Filed Aug. 1, 1892. Serial No. 441,808. (No model.)



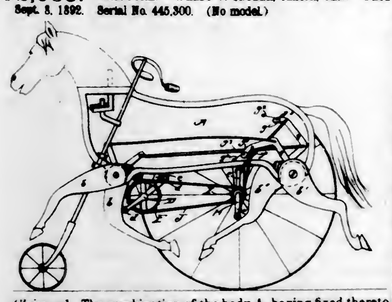
Claim.—The combination of the traveling platform A, having fixed thereto, the body D, the pivoted legs C, and means for communicating motion to the traveling platform A, and the legs *c*, and *d*, and the stud L, substantially as and for the purpose specified.

492,062. TRICYCLE. WALDO V. SNYDER, Canton, Ohio. Filed Aug. 15, 1892. Serial No. 443,120. (No model.)



Claim.—In a tricycle the combination of the body A, having pivotally attached thereto the rock-bars *a* and *a'*, provided with the side extensions *b*, the pivoted legs B and B', provided with the arms *c*, and the lugs *d*, all arranged substantially as and for the purpose specified.

492,063. TRICYCLE. WALDO V. SNYDER, Canton, Ohio. Filed Sept. 8, 1892. Serial No. 445,300. (No model.)



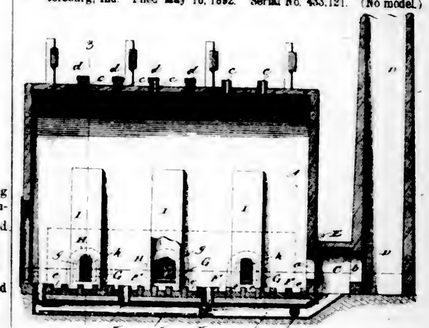
Claim.—1. The combination of the body A, having fixed thereto the pedal shaft D, provided with the pedals *d*, and the sprocket-wheel E, the drive chain J, the sprocket-wheel I, the compound crank-shaft H, the pitmen *f*, the arms *g*, provided with the inclined extensions *g'*, having pivotally attached thereto the weighted arms g^4, and the pins g^3, substantially as and for the purpose specified.

2. The combination of the body A, the center-bar B, provided with the side extensions *a*, the disks C, provided with the pins *c*, the legs *b* and *b'*, provided with the apertures *k'*, and means for communicating motion to the legs *b* and *b'*, substantially as and for the purpose specified.

3. The combination of the body A, the removable legs *b* and *b'* the disks C, provided with the arms *g*, and the weighted arms g^4, substantially as and for the purpose specified.

4. The combination of the body A, the piroted legs *b* and *b'* the arms *g*, having pivoted thereto the weighted arms g^4, the pins g^3, and the center bar B, provided with the side extensions *a*, substantially as and for the purpose specified.

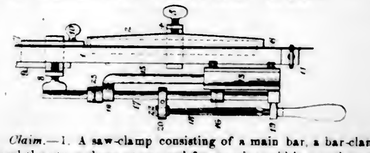
492,064. BRICK OR TILE KILN. ELWOOD F. STEPHENSON, Cartersburg, Ind. Filed May 16, 1892. Serial No. 433,121. (No model.)



Claim.—In a kiln, a floor formed of bricks set on edge and flatwise alternately across the floor to form transverse channels, as set forth

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492,065. FILE GAGE AND CLAMP. JOHN STORM, Kirksville, Mo. Filed Feb. 27, 1892. Serial No. 423,086. (No model.)



Claim.—1. A saw-clamp consisting of a main bar, a bar-clamp hinged thereto, a clamp at one end for securing said bar to the saw-guide, a clamp at the other for securing said bar to the frame of the machine, and a clamp for holding the saw-blade in place

2. The combination in a machine for filing and clamping the blades of saws of a filing device, consisting of a hand-rest adapted to be pivotally swung over the saw teeth, a filing frame pivoted thereto, and a shaft carrying a file reciprocating therein, and a clamping device consisting of a main bar having clamps for holding the saw-blade and for attaching said bar to the frame of a sawing machine

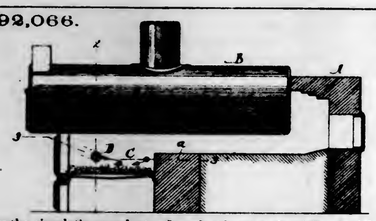
3. A filing device for saws, consisting of a hand-rest, a filing-frame pivoted thereto, a reciprocating shaft provided with a slot carried in bearings in the filing-frame, a file secured to said shaft, a collar carried upon the filing-frame, means for securing the collar to the frame whereby the former may be rotated on the latter, and a key or screw located on the collar and adapted to project within the slot

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492,066. FURNACE. CHARLES STRUPERT, Chicago, Ill., assignor of one-half to Carl Holstein, same place. Filed July 29, 1892. Serial No. 441,576. (No model.)

Claim.—The combination with the fire box of a furnace, of an air delivery pipe, and suitable means for forcing air through it, said air delivery pipe being located intermediate the front and bridge walls of the furnace and having its discharge end arranged with a rearward and downward inclination in such manner that a whirling movement is imparted to the products of combustion across the normal line of draft in one and the same general direction around the furnace, and at the same time the pressure of the forced air supply serves to de-

492,066.



press the circulating products of combustion thereby aiding to delay their escape, substantially as described.

492,067. BAND-CUTTER AND FEEDER. JOHN W. TRIPP, Sedalia, Mo., assignor of one-third to May B. Mason, Falls City, Nebr. Filed June 11, 1892. Serial No. 436,382. (No model.)

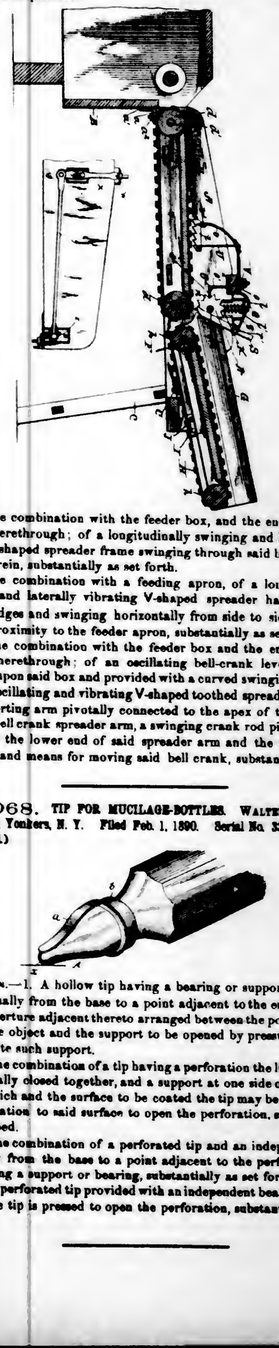


Claim.—1. In a feeder for thrashing machines, the combination with the main feeder box and endless apron passing therethrough from an intermediate point to one end; of a transverse shaft mounted within said box near the intermediate end of the apron, a V-shaped auxiliary feeder trough or box pivotally mounted at one end upon said shaft and provided at opposite bottom edges thereof with depending horizontally slotted adjustment plates, an endless belt passing through said auxiliary feeder box and over said shaft, an adjusting shaft passing through the slots of the plates and having its ends beyond the plates cranked and journaled in the sides of the main feeder box, a ratchet wheel mounted upon one end of the crank shaft, and an adjacent pawl engaging said ratchet wheel, substantially as set forth.

2. In a band cutter and feeder for thrashing machines, the main feeder box, the endless feeder apron passing through said box, an inclined auxiliary bundle or sheaf feeder box adjustably mounted in one end of the main feeder box and carrying an auxiliary apron, parallel vertically yielding force feed disks arranged above the adjacent ends of said endless and auxiliary aprons, and a fixed band knife suspended between said disks, substantially as set forth.

3. In a band cutter and feeder for thrashing machines, the combination with the main feeder and the auxiliary bundle or sheaf feeder delivering to one end of the same; of the vertically movable toothed feed disks arranged adjacent to each other and side by side to form an intermediate space, a yielding knife arm secured above said disks, and a knife blade secured in said knife arm and projecting in said intermediate space, substantially as set forth.

4. The combination with a feeder and feed devices; of a spring knife arm extending over the feeder and folded upon itself at one end, the arm and folded portion being recessed at one side, a slotted knife plate removably fitting in the fold and provided with a bolt arm, a knife blade inserted in the slot of the plate and registering in the recessed side, and a securing nut engaging said bolt arm to clamp the blade in said recessed side and prevent the same and the knife plate moving out of position.



5. The combination with the feeder box, and the endless apron passing therethrough; of a longitudinally swinging and laterally vibrating V-shaped spreader frame swinging through said box over the apron therein, substantially as set forth.

6. The combination with a feeding apron, of a longitudinally swinging and laterally vibrating V-shaped spreader having lower toothed edges and swinging horizontally from side to side over and in close proximity to the feeder apron, substantially as set forth.

7. The combination with the feeder box and the endless apron passing therethrough; of an oscillating bell-crank lever pivotally mounted upon said box and provided with a curved swinging spreader arm, an oscillating and vibrating V-shaped toothed spreader, a swinging supporting arm pivotally connected to the apex of the spreader and said bell crank spreader arm, a swinging crank rod pivotally connected to the lower end of said spreader arm and the ends of the spreader, and means for moving said bell crank, substantially as set forth.

492,068. TIP FOR MUCILAGE-BOTTLES. WALTER H. UNDERWOOD, Yonkers, N. Y. Filed Feb. 1, 1890. Serial No. 338,865. (No model.)

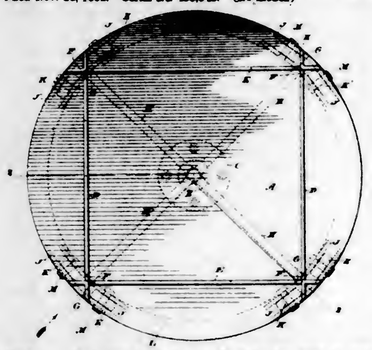
Claim.—1. A hollow tip having a bearing or support extending longitudinally from the base to a point adjacent to the end of the tip and an aperture adjacent thereto arranged between the point of pressure on the object and the support to be opened by pressure upon the tip opposite such support.

2. The combination of a tip having a perforation the lips of which are normally closed together, and a support at one side of the tip between which and the surface to be coated the tip may be compressed by application to said surface to open the perforation, substantially as described.

3. The combination of a perforated tip and an independent arm extending from the base to a point adjacent to the perforation and constituting a support or bearing, substantially as set forth.

4. A perforated tip provided with an independent bearing against which the tip is pressed to open the perforation, substantially as described.

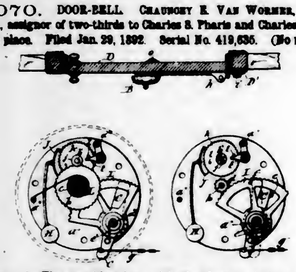
492,069. TURN-TABLE. GEORGE VAN WAGENEN, New York, N. Y. Filed Nov. 28, 1892. Serial No. 453,343. (No model.)



Claim.—1. In a turn-table the platform having upon its upper surface the pairs of track rails crossing each other, and upon its lower surface the pairs of flanges below the points at which the rails cross each other, the whole being a single casting, combined with the central pivot, the seat therefor, and the wheels mounted in said pairs of flanges; substantially as and for the purposes set forth.

2. In a turn-table, the platform having upon its upper surface the pairs of rails crossing each other, and upon its lower surface the radial ribs, the ribs below said rails, and flanges below the points at which said rails cross each other, the whole being a single casting, combined with the central pivot and the wheels mounted in said flanges; substantially as and for the purposes set forth.

492,070. DOOR-BELL. CHAUNCEY R. VAN WORMER, Syracuse, N. Y., assignor of two-thirds to Charles S. Pharis and Charles H. Knapp, same place. Filed Jan. 29, 1892. Serial No. 419,636. (No model.)



Claim.—1. The combination, with the door and door-casing, of a bell and spring-actuated bell-hammer attached to the inside of the door, a detent restraining the motion of the bell-hammer, a push-button extending through the door from the outside thereof and adapted to throw the detent out of its restraining position, mechanism for winding the aforesaid actuating spring, a sheave or guide attached to the door near the hinged edge thereof, and a chain or cord connected at one end to said winding-mechanism and passing with its opposite end between the door and sheave or guide and fastened to the adjacent door-casing substantially as set forth.

2. In combination with the bell, its hammer and spring-actuated shaft imparting motion to said hammer, a pinion fixed to said shaft, a quadrant engaging said pinion, a rock-arm movable independent to the quadrant, a lug projecting from the quadrant and in the path of the rock-arm, and a chain or rod connecting the rock-arm to the door-casing, substantially as described and shown.

492,071. BAG-FASTENER. JAY W. VAUGHAN, Baton Rapids, Mich. Filed Mar. 12, 1892. Serial No. 424,731. (No model.)



Claim.—A bag fastener consisting of a cord secured at one end to the neck of the bag and adapted to be coiled several times about the neck of said bag, the free end of said cord being then drawn taut whereby one of said coils is forced beneath the others which causes the coils to frictionally interlock and securely close the neck of the bag, substantially as set forth.

492,072. FEED-ROLLER. ALBERT M. VAUGHT, Portland, Ind. Filed Jan. 27, 1892. Serial No. 419,459. (No model.)



Claim.—1. In a feed roller, the combination of a shaft angular in cross section, a series of independent hubs having substantially rectangular central apertures therethrough and mounted upon said shaft, springs disposed in said apertures and engaging the shaft, and a series of independent rings mounted upon said hubs, all constructed, arranged and operating substantially as shown and described.

2. In a feed roller, the combination of a shaft angular in cross section, a series of independent circular hubs having substantially rectangular elongated apertures therethrough and mounted upon said shaft, springs disposed in said elongated openings, between said hubs and shaft, and a series of independent rings mounted upon said hubs and provided with anti-friction bearings, all constructed, arranged and operating substantially as shown and described.

3. In a feed roller, the combination of the shaft A, angular in cross section, the series of independent hubs C having the substantially rectangular elongated apertures D, and mounted upon the shaft, the springs H disposed in said apertures between the hubs and shaft, the series of independent rings B, mounted upon said hubs, anti-friction rollers E interposed between said rings and hubs and the side plates F having the elongated apertures G and secured to the hubs, all constructed, arranged and operating substantially as shown and described.

492,073. SCREEN. FREDERICK WAGNER, Omaha, Nebr. Filed May 11, 1892. Serial No. 432,675. (No model.)



Claim.—In a window or door screen, the combination with a frame A provided with the escape way C, the screen B of two directing strips extending from the escape way C to the side of said frame, the bent trap strip E, extending upward from the sides of the frame and provided with a central opening *e*, and an auxiliary screen F secured above said strips, said apron extending slightly upwardly and permitting an inlet extending the width of said screen, all substantially as and for the purpose set forth.

492,074. SHEET-METAL VESSEL. FRANCIS A. WALSH, Milwaukee, Wis. Filed Oct. 17, 1885. Serial No. 180,144. (No model.)

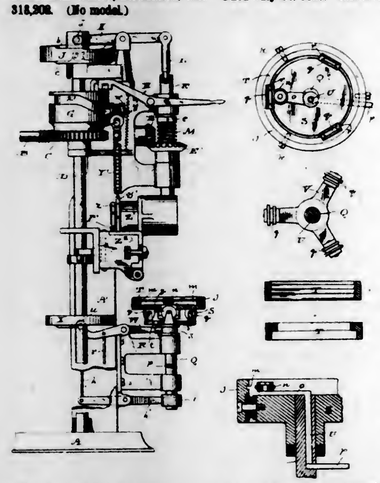


Claim.—1. The combination with a sheet metal breast, having an annular channel, one wall of which is provided with short beads, of a cover having a rim terminating in an angular flange, having its bearing in said annular channel, and provided with segmental locking lugs engaging with said beads, substantially as set forth.

2. In a sheet metal vessel, the combination of the body with a seamless breast secured thereto, said breast having a well through which the vessel is filled or emptied, and an annular channel, one side

of which is provided with short beads, and a cover having a rim terminating in an annular flange recessed to form segmental lugs channeled from the under side whereby they form inclined ribs adapted for engagement with the aforesaid short beads, substantially as set forth.

492,075. MACHINE FOR MAKING SHEET-METAL VESSELS. FRANCIS A. WALSH, Milwaukee, Wis. Filed July 22, 1889. Serial No. 318,302. (No model.)



Claim.—1. In a sheet-metal working machine, the combination of a chuck having a face for impingement against the rim of a sheet-metal body to be operated upon, a flange extended from the chuck-face to come approximately parallel to the sheet-metal body when the latter is positioned, a die on the inner side of the flange at such distance from said chuck-face as to oppose the wall of said sheet-metal body at a point beyond the inner side of a head that may be seamed thereto by a subsequent operation, a forming device corresponding to the die and carried with the chuck to come within the perimeter of the aforesaid sheet-metal body, and suitable means for causing an engagement of the die and forming device against the interposed metal, substantially as set forth.

2. In a sheet-metal working machine, the combination of a chuck having a face for impingement against the rim of a sheet-metal body to be operated upon, a flange extended from the chuck-face approximately parallel to the sheet-metal body when the latter is positioned, a die detachably connected to the inner side of the flange and arranged at such distance from said chuck-face as to oppose the wall of said sheet-metal body at a point beyond the inner side of a head that may be seamed thereto by a subsequent operation, a forming device corresponding to the die and carried with the chuck to come within the perimeter of the aforesaid sheet-metal body and suitable means for causing an engagement of the die and forming device against the interposed metal, substantially as set forth.

3. In a sheet-metal working machine, the combination of a chuck formed with a flange that extends approximately parallel to the axis and is provided on its inner side with a beading-groove, a pivotal arm eccentrically connected to the chuck-spindle and a beading-roller mounted on the arm to come in and out of engagement with said groove, substantially as set forth.

4. In a sheet-metal working machine, the combination of a chuck having a face for impingement against the rim of a sheet-metal body to be operated upon, a flange extended from the chuck-face to come approximately parallel to the sheet-metal body when the latter is positioned, a die on the inner side of the flange at such distance from said chuck-face as to oppose the wall of said sheet-metal body, at a point beyond the inner side of a head that may be seamed thereto by a subsequent operation, a pivotal arm carried with the chuck within the perimeter of the aforesaid sheet metal body, a forming device corresponding to the die and mounted on the arm, and suitable means for turning the arm on its pivot to cause an engagement of said die and forming device against interposed metal, substantially as set forth.

5. In a sheet-metal working machine, the combination of a chuck having a face for impingement against the rim of a sheet-metal body to be operated upon, a flange extended from the chuck-face to come approximately parallel to the sheet-metal body when the latter is positioned, a die on the inner side of the flange at such distance from said chuck face as to oppose the wall of said sheet-metal body at a point beyond the inner side of a head that may be seamed thereto by a subsequent operation, a journal eccentrically arranged in the chuck-spindle and provided with an arm at an approximate right angle to the axis of said chuck, a forming device corresponding to the die and carried on said arm of the journal, and suitable means for turning said journal in said spindle, substantially as set forth.

6. In a sheet-metal vessel making machine, the combination of driving and supporting chucks in opposition to each other, one of the chucks formed with a flange that extends therefrom approximately parallel to the axis and has the inner side thereof provided with a die, a forming device mounted within the perimeter of the flange at an approximate right angle to said axis, suitable mechanism for bringing the forming device in and out of engagement with said die against a chucked vessel, and curling rollers that register with openings in the flanged chuck and oppose the adjacent rim of said vessel, substantially as set forth.

7. In a machine for making sheet-metal vessels, a chuck having one or more openings therein, in combination with one or more curling rollers corresponding with the chuck openings, and suitable mechanism for sliding said rollers within said chuck-openings, substantially as set forth.

8. In a machine for making sheet-metal vessels, a revoluble chuck having openings therein, in combination with a spider slipped onto the chuck-spindle and rotated with the chuck, curling rollers journaled to the spider-arms to register with the chuck-openings, and suitable mechanism for sliding the spider on said chuck-spindle, substantially as set forth.

9. In a machine for making sheet-metal vessels, a chuck provided with openings, in combination with a rigid armed spider slipped onto the chuck-spindle and rotated with the chuck, curling rollers journaled to the spider-arms to register with the chuck-openings, and suitable mechanism for sliding the spider on said chuck-spindle, substantially as set forth.

10. In a machine for making sheet-metal vessels, the combination with driving and supporting chucks in opposition to each other, a revoluble shaft, a starting and stopping cam-wheel carried on the shaft, an auxiliary cam-wheel fast on said shaft and having two faces correspondingly timed, a lever connected to the spindle of the driving-chuck and opposed to one face of the latter cam-wheel, another lever opposed to the other face of said latter cam-wheel, and a rod connecting the latter lever with the spindle of the supporting chuck, substantially as set forth.

11. In a machine for making sheet-metal vessels, the combination with driving and supporting chucks in opposition to each other, a revoluble shaft a starting and stopping cam-wheel carried on the shaft, an auxiliary cam-wheel fast on said shaft and having two faces timed alike for a certain portion of their peripheries and differentially timed for the remainder of said peripheries, a lever connected to the spindle of the driving-chuck and opposed to one face of the latter cam-wheel, another lever opposed to the other face of said latter cam-wheel, and a rod connecting the latter lever with the spindle of the supporting-chuck, substantially as set forth.

12. In a machine for making sheet-metal vessels, the combination with the chucking mechanism, of a rock-shaft, a seaming device carried thereon, a lever flexibly connected to the rock-shaft, and a resistance connected to said rock-shaft in opposition to the lever, substantially as set forth.

13. In a machine for making sheet-metal vessels, the combination of a rock-shaft having a pivotal cam-actuated bearing, a seaming device carried by the rock-shaft, an actuating-mechanism flexibly connected to said rock-shaft, a resistance connected to the rock-shaft in opposition to the actuating mechanism, and a stop for limiting the return movement of said bearing, substantially as set forth.

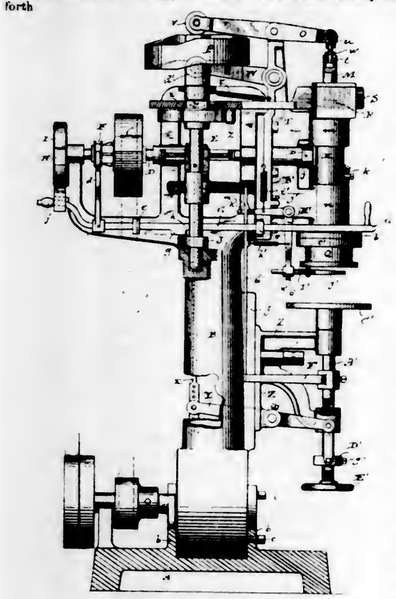
492,076. MACHINE FOR WORKING SHEET METAL. FRANCIS A. WALSH, Milwaukee, Wis. Filed Apr. 10, 1890. Serial No. 347,332. (No model.)

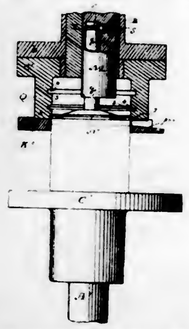
Claim.—1. In a machine for working sheet-metal, a hollow head having its inner wall configured to accord with an operation to be performed, a device arranged within the head and having normally the same axis as the latter, and suitable mechanism for establishing an eccentricity between said head and device, whereby they are brought into forcible contact against interposed material, substantially as set forth.

2. In a machine for working sheet-metal, a hollow head having its inner wall configured to accord with an operation to be performed, and an eccentrically oscillated pressure-device carried within the head and having normally the same axis as the latter, substantially as set forth.

3. In a machine for working sheet-metal, a hollow head having its inner wall configured to accord with an operation to be performed, a longitudinally reciprocating device carried within the head to exert pressure in one direction of its travel and having normally the same axis as the latter, and suitable mechanism for establishing an eccentricity between said head and device, substantially as set forth.

4. In a machine for working sheet-metal, a hollow head having its inner wall configured to accord with the operation to be performed, and a longitudinally reciprocating and laterally oscillating pressure device within the head in opposition to the metal, substantially as set forth





5. In a machine for working sheet-metal, a hollow head having its inner wall configured to accord with the operation to be performed, a pressure device arranged within the head normally on center therewith, suitable means for establishing eccentricity between said head and pressure device, and suitable mechanism for feeding the work to the machine, substantially as set forth.

6. In a machine for working sheet-metal, a hollow head having its inner wall configured to accord with a seaming-operation, a cover-supporting device carried with the head, a seaming-tool arranged within said head in opposition to the inner wall thereof, and suitable mechanism for engaging a vessel-body and supported cover and for bringing the parts thus engaged between said wall and seaming-tool, as well as for exerting lateral pressure between this wall and tool against interposed metal, substantially as set forth.

7. In a machine for working sheet-metal, a hollow head having its inner wall configured to accord with a double-seaming operation, a cover-supporting device carried with the head, a seaming-tool arranged within said head in opposition to the inner wall thereof, and suitable mechanism for engaging a vessel-body and supported cover and for bringing the parts thus engaged between said wall and seaming-tool, as well as for exerting intermittent lateral pressure between this wall and tool against interposed metal, substantially as set forth.

8. In a machine for working sheet-metal, a head having an inner wall configured to accord with the operation to be performed, a sleeve having an axis corresponding to that of the head and provided with an eccentric bore, a spindle arranged within the bore, a tool eccentrically connected to the spindle, and a mechanical-movement for effecting a rotary adjustment with relation to the head and tool, substantially as set forth.

9. In a machine for working sheet metal, a head having an inner wall configured to accord with the operation to be performed, a sleeve arranged with relation to the head and provided with an eccentric bore, a longitudinally adjustable spindle arranged within said bore, a tool eccentrically connected to the spindle, and a mechanical movement for effecting a rotary adjustment with relation to the head and tool, substantially as set forth.

10. In a machine for working sheet-metal, a head having an inner wall configured to accord with the operation to be performed, a rotary adjustable sleeve arranged with relation to the head and provided with an eccentric bore, a spindle arranged within said bore, a tool eccentrically connected to the spindle, and a mechanical-movement for effecting a rotary adjustment with relation to the head and tool, substantially as set forth.

11. In a machine for working sheet-metal, a head having an inner wall configured to accord with the operation to be performed, a sleeve having an axis corresponding to that of the head and provided with an eccentric bore, a spindle arranged within said bore, a tool having a shank detachably connected to the spindle eccentric to the axis of the latter and a mechanical-movement for effecting a rotary adjustment with relation to the head and tool, substantially as set forth.

12. In a machine for working sheet-metal, a head having an inner wall configured to accord with the operation to be performed, a sleeve having an axis corresponding to that of the head and provided with an eccentric bore, a spindle arranged within said bore and provided with an eccentric socket, a tool having its shank inserted in said socket, a retaining device connecting the shank and spindle, and a mechanical-movement for effecting a rotary adjustment with relation to the head and tool, substantially as set forth.

13. In a machine for working sheet-metal, a head having an inner wall configured to accord with the operation to be performed, a sleeve axially extended from the head, another sleeve arranged within the first and provided with an eccentric bore, a spindle arranged within said bore, a tool eccentrically connected to the spindle, and a mechanical-movement for effecting a rotary adjustment with relation to the head and tool, substantially as set forth.

14. In a machine for working sheet-metal, a seaming-mechanism, a feed-mechanism for vessel-bodies and covers, and an arm provided with a pivoted centering-finger opposed to the vessel-bodies beyond the point at which they leave the feed-mechanism, substantially as set forth.

15. In a machine for working sheet-metal, a seaming-mechanism, a feed-mechanism for vessel-bodies and covers, and an adjustable arm provided with a pivoted centering-finger opposed to the vessel bodies beyond the point at which they leave the feed-mechanism, substantially as set forth.

16. In a machine for working sheet-metal, a seaming-mechanism, a feed-mechanism for vessel-bodies and covers, and a lever-controlled arm provided with a centering and ejecting device opposed to the vessel-bodies beyond the point at which they leave the feed-mechanism, substantially as set forth.

17. In a machine for working sheet-metal, a seaming-mechanism, a feed-mechanism for vessel-bodies and covers, and a centering and ejecting device comprising a spring-controlled lever, an arm connected thereto, a finger pivoted to the arm in opposition to the vessel-bodies as they leave the machine; and suitable mechanism for actuating the lever at predetermined intervals, substantially as set forth.

18. In a machine for working sheet-metal, a hollow head having an inner wall provided with a succession of dies and faces, a tool arranged within the head and having normally the same axis as the latter, and suitable means for establishing an eccentricity between said head and tool and for exerting rotary pressure at the same time, substantially as set forth.

19. In a machine for working sheet metal, a hollow head having its inner wall configured to accord with an operation to be performed, a pressure-device arranged within the head and having normally the

same axis as the latter, a chuck opposed to said head, and suitable mechanism for establishing eccentricity between the head and pressure-device as well as for varying the distance between the chuck and aforesaid head at such intervals as the work may require, substantially as set forth.

20. In a machine for working sheet-metal, a hollow head having an inner wall configured to accord with successive stages of an operation to be performed, a laterally oscillating pressure-device arranged within the head and having normally the same axis as the latter, a chuck opposed to said head, and suitable mechanism for varying the distance between the chuck and aforesaid head at such intervals as the work may require, substantially as set forth

21. In a machine for working sheet-metal, a hollow head having its wall configured to accord with successive stages of an operation to be performed, a longitudinally reciprocative pressure-device arranged within the head and having the same axis as the latter, a chuck opposed to said head, and suitable mechanism for establishing an eccentricity between the head and pressure device as well as for varying the distance between the chuck and aforesaid head at such intervals as the work may require, substantially as set forth.

22. In a machine for working sheet-metal, a head having an inner wall configured to conform with successive stages of the operation to be performed, a longitudinally reciprocating and laterally oscillating pressure-device arranged within the head a chuck opposed to this head, and a mechanical movement for varying the distance between said head and chuck at such intervals as the work may require, substantially as set forth.

23. In a machine for working sheet-metal, a feeding-device that comprises inclined tracks for vessel-bodies and covers, shafts loose in bearings and provided with stops normally in the path of said bodies and covers, an arm on each shaft, a link connecting the arms, and a tripping-device for engagement with one of said arms, substantially as set forth.

24. In a machine for working sheet-metal, a feeding-device that comprises inclined tracks for vessel-bodies and covers, shafts loose in bearings and provided with stops normally arranged in the path of said bodies and covers, an arm on each shaft, a link connecting the arms, and a spring-controlled trip for engagement with one of said arms, substantially as set forth.

25. In a machine for working sheet-metal, a feeding-device for vessel bodies and covers that comprises a flanged plate having depending braces, another plate adjustably connected to the braces, still another plate connected to the flanges of the first parallel to the same, stops arranged to come in the path of the bodies and covers, and a timed-mechanism for withdrawing the stops, substantially as set forth.

26. In a machine for working sheet-metal, a shaft, a wheel fast thereon, a brake for the wheel, a sliding lever provided with means for releasing the brake, and a timed-mechanism for returning the lever to its normal position, substantially as set forth.

27. In a machine for working sheet-metal, a shaft provided with a pulley normally loose thereon, a wheel fast on the shaft, a clutch for the pulley, a brake for the wheel, a sliding lever provided with means for operating the clutch and releasing the brake, and a time-mechanism for returning the lever to its normal position, substantially as set forth.

28. In a machine for working sheet-metal, a hollow seaming-head having its inner wall provided with a beveled surface 1, face 2, dies 3 and 4 and face 5, a tool having normally the same axis as the head and arranged in opposition to said wall, and suitable mechanism for exerting movement and establishing eccentricity with relation to the head and tool at various intervals, substantially as set forth.

29. In a machine for working sheet-metal a hollow seaming-head having its inner wall provided with a beveled surface 1, face 2, dies 3 and 4, face 5 and recess 6, a flanged tool having normally the same axis as the head and arranged in opposition to said wall, and suitable mechanism for exerting movement and establishing eccentricity with relation to the tool and head at various intervals, substantially as set forth.

30. In a machine for working sheet-metal, a mechanism organized for a certain operation, a chuck opposed to said mechanism, a two faced cam-wheel, a lever-mechanism connected to the chuck and opposed to one face of the cam-wheel, and an ejector mechanism provided with a lever-arm opposed to the other face of said cam-wheel, substantially as set forth.

31. In a machine for working sheet-metal, a mechanism organized for a certain operation, a reciprocating chuck opposed to said mechanism, a feeding-device, a stop-mechanism for material on the feeding-device, and a trip for the stop-mechanism connected to the spindle of said chuck, substantially as set forth.

32. In a machine for working sheet-metal, a mechanism organized for a certain operation, a reciprocating chuck opposed to said mechanism, a lever-controlled arm provided with a centering and ejector-finger, a feeding-device, a stop-mechanism for material on the feeding-device, and trips for the lever-controlled arm and stop-mechanism connected to the spindle of said chuck, substantially as set forth.

33. In a machine for uniting and flanging combined straight wall sheet-metal bodies and countersunk covers, the combination of a support for such a body, the chuck provided with a lateral flange, and a surface having a plane parallel to the chuck-flange, but normally disengaged therefrom, suitable means for establishing the support, chuck and surface in such relative position that the three thicknesses of metal, due to the engagement of the body and cover, are interposed between said chuck and surface, and other suitable means for engaging the chuck-flange and surface against the united body and cover by a movement of said chuck at right angles to said vessel-body coincident with a rotation of at least one of the opposing devices relative to said axis, substantially as set forth.

34. In a machine for working sheet-metal, a cam-actuated lever, a tool-carrying spindle, a shackle pivotally connected to the lever, an adjusting-screw connecting the spindle and shackle, and a lock-nut on said screw, substantially as set forth.

35. In a machine for working sheet-metal, a head having a series of dies and faces arranged in successive order, a tool operating in conjunction with the head, and suitable means for successively bringing this tool in and out of engagement with said dies against interposed metal, whereby the latter is flanged, folded and compressed by a continuous operation in successive steps, according to the configuration of the opposing head, substantially as set forth.

36. In a machine for working sheet-metal, a series of dies and faces arranged in successive order, a tool operating in conjunction with the dies, and suitable means for successively bringing this tool in and out of engagement with said dies against interposed metal, as well as for ejecting the finished work, substantially as set forth.

37. In a machine for working sheet-metal, a hollow head provided with a device for retaining a cover therein prior to the engagement of the cover with a body, a chuck for the support of the body, a double seaming-mechanism within the head, and suitable means for causing an approach of the head and chuck toward each other whereby said cover and body are brought into engagement and subsequently seamed together, substantially as set forth.

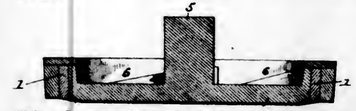
38. In a machine for working sheet-metal a chuck having a depth approximately equal to that of a counter-sunk vessel-cover, a turning-down surface for the cover-flange opposed to the wall of the chuck, a flanging-surface at an angle to the axis of said chuck, and suitable means for exerting pressure between the aforesaid chuck and surfaces, against the metal at successive intervals, substantially as set forth.

39. In a machine for working sheet-metal, a chuck having a depth approximately equal to that of a countersunk vessel-cover, a turning-down surface for the cover-flange opposed to the wall of the chuck, a flanging-surface at an angle to the axis of said chuck, a folding-surface succeeding the flanging surface, and suitable means for exerting pressure between the aforesaid chuck and surfaces against the metal at successive intervals, substantially as set forth.

40. In a machine for working sheet metal, a chuck having a depth approximately equal to that of a countersunk vessel-cover and provided with a flange approximately equal to the diameter of said cover, a turning-down surface for the cover-flange opposed to the wall of the chuck, a flanging surface at an angle to the axis of said chuck, a folding surface succeeding the flanging surface, and suitable means for exerting pressure between the aforesaid chuck and surfaces against the metal at successive intervals, substantially as set forth

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492,077. REVOLVING HEAD FOR SANDPAPERING-MACHINES. CLIFTON A. WEED, Racine, Wis. Filed May 13, 1892. Serial No. 432,893. (No model.)

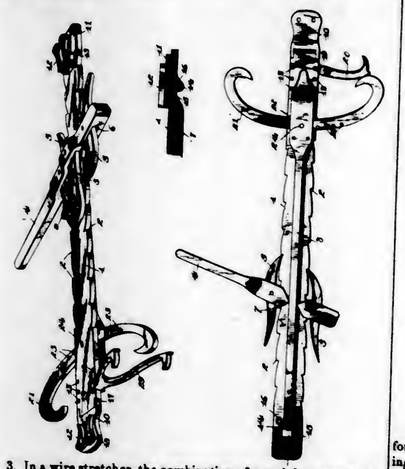


Claim.—In a paper holding head for sand papering machines the combination with the ring having an inwardly projecting flange and a series of inwardly projecting beveled lugs, of the clamping disk having a series of beveled flanges and peripheral slots or recesses, substantially as described.

492,078. WIRE-STRETCHER. TOLBERT WEBB, Larkin, Kans., assignor of one-half to D. S. Hencks & Son, same place. Filed Sept. 1892. Serial No. 445,181. (No model.)

Claim.—1. In a wire stretcher, the combination of a rack bar provided at opposite sides with teeth, an operating lever mounted on the rack bar and provided with pawls engaging the teeth, a clamp carried by the lever, a grapple adjustably connected to the rack bar, and a double cant hook arranged on the rack bar adjacent to the grapple, substantially as and for the purpose described.

2. In a wire stretcher, the combination of a rack bar having a transverse opening and having a series of perforations on each side, a grappling fork provided with a hook adapted to engage the perforations whereby the grappling fork is adjustably connected to the rack bar, a double cant hook provided with a series of perforations, and a pin securing the cant hook in the transverse opening, substantially as described.



3. In a wire stretcher, the combination of a rack bar provided at opposite sides with teeth and having at each side a series of perforations and provided with a transverse opening, an operating lever mounted on the rack bar and provided with pawls engaging its teeth, a clamp secured to the lever, a hinged clamp secured to the rack bar at the end adjacent to its perforations, a grappling fork provided with a hook adapted to engage the said perforations, a double cant hook arranged in the transverse opening and provided with perforations, and a pin securing the cant hook in its adjustment, substantially as described.

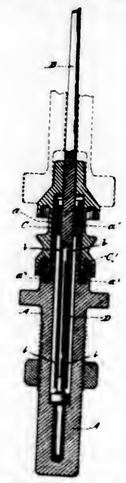
492,079. INCUBATOR. DAVID WHEAT, Kent, Ind. Filed May 18, 1892. Serial No. 433,461. (No model.)



Claim.—In an incubator having a heating and an incubating chamber, a metallic plate *a* arranged between said chambers and extending across the incubator, a lamp arranged in the heating chamber, the hangers *d* secured to the under side of the plate *a* and extending down close to the lamp in the heating chamber, and a sand pan D supported by said hangers directly over the lamp whereby the heat from said lamp may circulate above the pan and is diffused throughout the heating chamber, substantially as described.

492,080. SPINNING SPINDLE. THOMAS WEBSLEY, Todmorden, England. Filed Apr. 23, 1892. Serial No. 430,187. (No model.)

Claim.—1. In combination a spindle tubular at its lower end; a sleeve whirl; a supporting tube whose upper portion extends up into the sleeve of the whirl; and a post whose upper end forms in connection with the inner end of the bore the step or end bearing of the spindle and whose lower portion forms in connection with the mouth of the bore the bolster or side bearing of the spindle; all substantially as set forth.



2. A spindle, a supporting tube with the long middle sleeve a', forming an oil receptacle, and also with a short outer sleeve a^3, forming a drip cup for oil; in combination with a sleeve whirl surrounding but not revolving upon the middle sleeve a' and grooved at its lower end to receive the outer sleeve a^3, all substantially as set forth.

492,081. STEAM-SEPARATOR. ALLEN J. WRIGHT, Cleveland, Ohio. Filed Apr. 18, 1892. Serial No. 429,564. (No model.)



Claim.—1. A steam separator consisting essentially of a separating chamber with steam inlet and outlet thereto and having a water outlet at its lower part, a curved baffle plate of larger area than the steam inlet located in said chamber opposite the steam inlet and having a flanged upper portion to intercept and collect the water and a tubular lower portion to conduct away the water, substantially as described.

2. In a steam separator the combination with the separating chamber having steam inlet and outlet and a water outlet at its lower part, of the funnel-shaped baffle plate located in said chamber with its mouth opposite the steam inlet and terminating at its lower part in the water outlet, substantially as described.

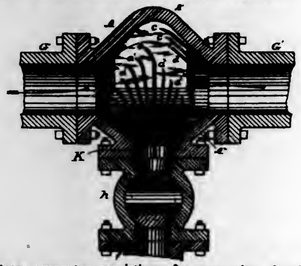
3. In a steam separator the combination of the separating chamber having steam inlet and outlet and a water outlet at its lower part, a curved baffle plate located in said chamber opposite the steam inlet and having its upper part flanged and its lower part contracted to a tube for carrying away the water, and a rib or ribs arranged in the exit side of said chamber and projecting forward toward the baffle-plate, substantially as described.

492,082. STEAM-SEPARATOR. ALLEN J. WRIGHT, Cleveland, Ohio. Filed Apr. 18, 1892. Serial No. 429,565. (No model.)

Claim.—1. A steam separator consisting of a separating chamber expanded above and having a water space at its lower part with a water outlet connected thereto, and a baffle plate located in said chamber and extending upward from the water space into the line of the steam current, and inclined thereto, and having an open space between its upper end and the top of the chamber, substantially as described.

2. A steam separator consisting of a separating chamber ex-

panded above and having a water space at its lower part below the steam inlet and exit line with a water outlet connected thereto, and a series of baffleplates located in said chamber and extending upward from the water space into the line of steam current and increasing progressively in height and having an open space between its upper end and the top of the chamber, substantially as described.



3. A steam separator consisting of a separating chamber expanded above and having a water space at its lower part with a water outlet connected thereto, and a series of baffle plates located in said chamber and extending from the water space upward into the line of the steam current at an angle therewith and having an open space between its upper end and the top of the chamber, substantially as described.

4. In a steam separator the combination of the separating chamber expanded at its upper part and having a water space at its lower part with a water outlet connected thereto, the baffleplates located in said chamber and extending upward from the water space into the line of the steam current, and the separating plate extending from near the top of said chamber to near the bottom of the water space, substantially as described.

5. In a steam separator the combination of the separating chamber expanded at its upper part and having a water space and outlet at its lower part, the baffle-plate extending from near the top of said chamber to near the bottom of the water space and separating said chamber into two divisions, and the shorter baffle plates arranged in two series, one each side of said separating plate, and extending upward from the water space toward and into the steam current and inclined at an angle thereto, substantially as described.

6. In a steam separator the combination of the separating chamber expanded at its upper part and having a water space and outlet at its lower part, the baffle plates extending upward from the water space into the line of steam current, and the separating plates arranged across the upper part of the exit side of the chamber and having a conducting channel extending downward to the water space, substantially as described.

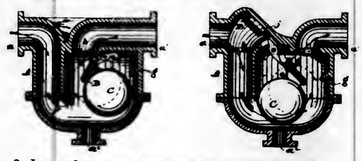
7. In a steam separator the combination of the separating chamber, the water chamber at its lower part with water outlet thereto, the baffleplates extending from the lower part of the separating chamber upward into the steam current at an angle thereto, the separating plate extending from near the top of the separating chamber to near the bottom of the water chamber, and the separating plates arranged across the upper part of the exit side of the separating chamber and having a conducting channel extending to the lower part of said chamber, substantially as described.

8. In a steam separator the combination of the separating chamber expanded at its upper part and having a water-space and outlet at its lower part, a baffle plate extending upward from the water space into the line of steam current, and the separating plates arranged across the upper part of the exit side of the chamber and having a conducting channel extending downward to the water space, and having an open space between its upper end and the top of the chamber, substantially as described.

9. A steam separator consisting of a separating chamber having a water space at its lower part and a water outlet connected thereto, and a baffleplate or plates located in said chamber and extending upward from the water space into the line of the steam current, and having an open space between its upper end and the top of the chamber, substantially as described.

492,083. SAFETY STEAM-SEPARATOR. ALLEN J. WRIGHT, Cleveland, Ohio. Filed Apr. 18, 1892. Serial No. 429,566. (No model.)

Claim.—1. A safety steam-separator consisting essentially of a separator-chamber having a water-space and water-outlet at its lower part and a steam-inlet and steam-outlet above the same, a partition or separating plate in said chamber to deflect the current of steam a valve or valves pivoted in said chamber and adapted to close the steam-passage, and a pendulous float connected substantially as shown to said valve and adapted to close the same by the rising of the water in said chamber, substantially as described.



2. In a safety steam separator the combination of a separating chamber having a water space and water outlet at its lower part and a steam inlet and steam outlet above the same, a valve pivoted in said chamber and adapted to close the steam inlet, and a float connected directly to said valve and adapted to operate the same by the rising of water in said chamber, substantially as described.

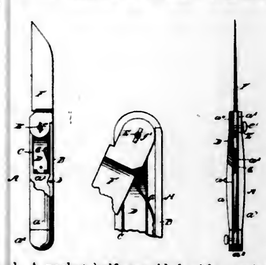
3. In a safety steam separator the combination of a separating chamber having a water space and water outlet at its lower part and a steam inlet and steam outlet above the same, a valve pivoted in said chamber and adapted to close the steam outlet, and a direct acting swinging float connected directly to said valve and adapted to close the same by the rising of water in said chamber, substantially as described.

4. In a safety steam separator the combination of a separating chamber having a water space and water outlet at its lower part and a steam inlet and steam outlet above the same, valves carried on the opposite ends of the same pivoted arm and adapted one to close the steam inlet and the other the steam outlet, and a float connected to said arm or valve and adapted to simultaneously close both valves by the rising of water in said chamber, substantially as described.

5. In a safety steam separator the combination of the separating chamber having a water space and water outlet at its lower part and a steam inlet and steam outlet above the same, a valve adapted to close the steam passage, a lever connected directly to said valve, and a swinging float connected to the lever and adapted to close the valve by means thereof when lifted by the water rising in said chamber, substantially as described.

6. The combination in a steam separator of the separating chamber having a valve adapted to close its steam passage, and a direct acting swinging float connected directly to said valve and adapted to close the same as the water rises in said chamber, substantially as set forth.

492,084. POCKET-KNIFE. HENRY M. BRIGHAM, Brooklyn, N. Y. Filed Mar. 4, 1892. Renewed Jan. 17, 1893. Serial No. 458,735. (No model.)



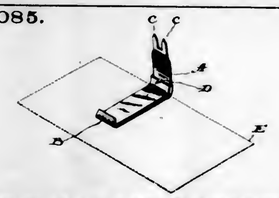
Claim.—1. A pocket knife provided with a spring, having an axle pin secured thereto extending through the blade and handle, a blade provided with recesses and a stud or studs secured to said spring or axle pin and adapted to operate in connection with said recesses substantially as described.

2. A knife provided with a spring having an axle pin secured thereto extending through the blade and handle, a blade provided with recesses, a stud or studs secured to said spring or axle pin and adapted to operate in connection with said recesses and a spring bearing against said blade and tending to throw such blade outward substantially as shown and described.

492,085. TAG. EDWIN C. BUCK and WILLIAM M. BARNES, Philadelphia, Pa., assignors to John J. Boyle, same place. Filed Nov. 14, 1891. Serial No. 411,841. (No model.)

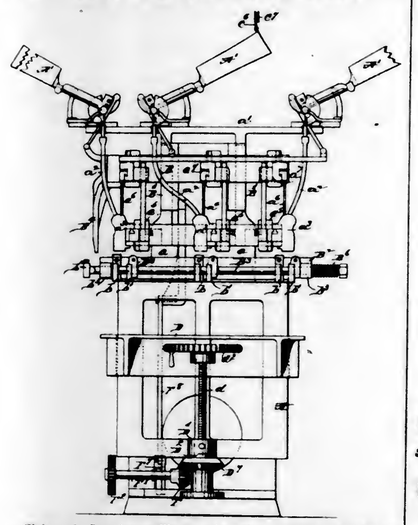
Claim.—As an improved article of manufacture, a tag, toothed at one end and bent or folded over at its other end so form a guard,

492,085.



said tag being provided with an intermediate tooth projecting therefrom and covered by a sleeve of cloth or similar material, substantially as described.

492,086. BOX-NAILING MACHINE. WILLIAM S. DOSS, Brooklyn, N. Y. Filed May 16, 1892. Serial No. 433,063. (No model.)



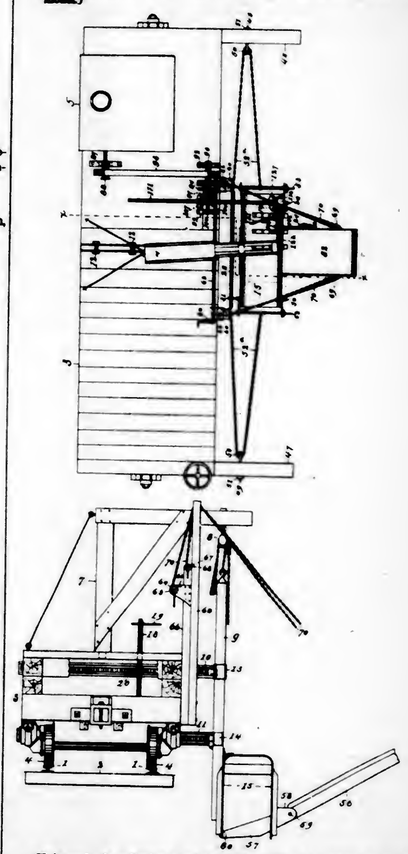
Claim.—1. In a box nailing machine the combination with a reciprocating cross-head and nailing mechanism, substantially such as described; of a table movable vertically on the machine frame a screw-thread rod depending from the table, a block engaging with the rod, a gear wheel on the block, a gear wheel meshing with the first-named gear, and a connection comprising a ratchet mechanism between the last named gear and the cross-head, whereby the table is moved by a movement of the cross-head, substantially as specified.

2. In a box nailing machine the combination with nailing mechanism, substantially such as described, and comprising a cross-head; of a vertically movable table, a rod extending downward from the table, a block on the lower portion of this rod, provided with a cam surface, a rotary block, having a series of cam surfaces of varying height, and connections between the rotary block and cross-head, whereby said block is rotated by a movement of the cross-head, substantially as specified.

3. In a box nailing machine the combination with a frame of a transverse bar on the frame; a series of arms extending outward from the bar and adjustable lengthwise of the bar; nail pockets adjustably arranged on the arms, a cross-head, arms extending outward from said cross-head and adjustable lengthwise thereon, push rods or hammers, adjustably arranged on said arms, a vertically adjustable table, and means substantially such as described for automatically adjusting the table, step by step, to accommodate the machine to the varying width or height of a box during the process of making the same, substantially as specified.

4. In a box nailing machine the combination with the main frame, the reciprocating cross head and the nailing mechanism, of the adjustable fixed clamping jaws *b*, the movable bar B^3, the jaws *b'* carried thereby, the spring for moving the bar in one direction and the cam carried by the cross-head for moving the bar in the opposite direction, substantially as specified.

492,087. DITCHING AND GRADING MACHINE. GEORGE W. DYE, Washington, Iowa. Filed Sept. 2, 1892. Serial No. 444,908. (No model.)



Claim.—1. In a ditching and grading machine in connection with a tram way car, of the combination of a shell, the plows and elevator attached thereto, the vertical beam attached to said shell, the jib crane secured to the car body, the chain block suitably attached to the jib crane and vertical beam, the horizontal rack bars supported in bearings in the car body, their outer ends connected to the vertical beams by the sleeves, the vertical shaft and pinions meshing with the cogs of the rack-bars, such shaft secured in bearings in the car body, the vertical posts attached to the car-body, and the chains connecting such posts with the elevator, substantially as described.

2. In a ditching and grading machine in connection with a tramway car, of the combination of a shell, the plows and elevator attached thereto, the vertical beam attached to said shell, the jib-crane secured to the car body, the chain block suitably attached to the jib-crane and vertical beam, the horizontal rack bars supported in bearings in the car body, their outer ends connected to the vertical beam by the sleeves, the vertical shaft and pinions meshing with the cogs of the rack bars, such shaft secured in bearings in the car body, the vertical posts attached to the car body, the chains connecting such posts with the elevator, the slotted draft beams attached to the car, the sheave and bolt secured thereto, the chain secured at one end to the plow supporting beam and passing around the sheave, its other end secured to the crank shaft attached to the said shell, the ratchet wheel attached to the crank-shaft and the ratchet operating therewith substantially as described.

3. In a ditching and grading machine attached to a tram-way car, in combination with the shell supported from the car body at its side,

of the plow supporting beam attached to the shell, the plows end to end, attached together by the strap, the plow points in opposite directions and in vertical line, the sleeves attached to the plows, and supported upon the plow supporting beam, and the stop collars attached to said beam substantially as described.

4. In a ditching and grading machine attached to a tram-way car, in combination with the shell supported from the car body at its side, of the plow supporting beam carrying the plows, the eye beams supporting the former beam through their eyes, the opposite ends of such eye beams pivoted to the opposite side of the shell so that the same may swing upon their respective pivots, the crank-shafts, ratchet and pawl suitably attached to said shell, and the chain connected with a respective crank-shaft and eye beam, substantially as described.

5. In a ditching and grading machine attached to a tram-way car, in combination with the shell supported from the car body at its side, of the plow supporting beam carrying the plows, said beam supported in eyes at one of the ends of each eye beam, the opposite end of each eye beam secured to the opposite side of the shell by a pin, its free end attached by a chain to a crank shaft, such crank shaft mounted in suitable bearings on the shell, each crank shaft carrying a ratchet wheel operated upon by a pawl attached to the shell, each end of the plow supporting beam provided with a short vertical bar extending in opposite directions, each bar attached to a threaded eye bolt and chain, each eye bolt passing through a suitable aperture in the opposite side of the shell and each threaded eye bolt provided with a suitable nut, substantially as described.

6. In a ditching and grading machine attached to a tram-way car, the combination of the inverted U shaped shell, the lower central portion of its sides cut out, such shell supported from the car body at its side, the elevator having its inner end extended through such cut out portion of said shell and attached thereto, its outer end supported from the car body, the plows adjacent to the inner end of said elevator attached to the plow supporting beam and such beam attached to said shell, substantially as described.

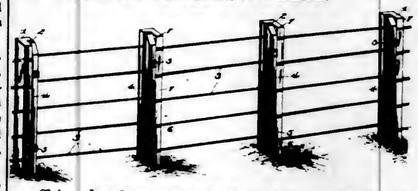
7. In a ditching and grading machine attached to a tram-way car provided with a motor, and a shelf suspended to the side of the car, constructed so as to be moved vertically and laterally and independently of said car, and such shell carrying an elevator and plows, of the combination of the self adjustable extension power shaft, the sleeves and bearings, the gearing, the drive pulley, the horizontal shaft in bearings attached to said shell, and the sprocket wheel and square jaw clutch upon said shaft, substantially as described.

8. In a ditching and grading machine attached to a tram-way car provided with a motor, and a shell suspended to the side of the car, constructed so as to be moved vertically and laterally, and independently of said car, such shell carrying plows and an elevator, of the combination of the self adjustable extension power shaft provided with a longitudinal groove, the sleeve provided with the interior longitudinal tongue, bevel gear wheel and collar, the pulley in bearings upon the frame, the gear wheel upon the pulley shaft, the shaft 95 mounted in suitable bearings in the frame, the gear wheel and the bevel gear wheel secured upon said shaft, the cone shaped termination of said shaft, the shaft 101 mounted in a suitable bearing upon the frame 99, the cross sleeve attached to said shaft provided with the counter sink depression in its exterior surface, the frame having one cross bar provided with a circular aperture and counter bore, the other cross bar provided with a boss, threaded aperture and set screw, the arm 122, the box 125, the horizontal shaft provided with the cap mounted in bearings upon said shell and also provided with the bevel gear wheel and the sprocket wheel, the bevel gear wheel rigidly secured upon said self adjustable extension power shaft and the collar 128, substantially as described.

9. In a ditching and grading machine attached to a tram way car provided with a motor, the combination of the inverted U shaped shell, the lower central portion of its sides cut out, such shell supported from said car, the elevator having its inner end extended through such cut out portion of said shell and attached thereto, its outer end supported by chains secured to said car, the plows supported by said shell, the self adjustable extension power shaft, the sleeve and bearings, the gearing, the drive pulley, the horizontal shaft in bearings attached to said shell, the sprocket wheel secured upon said shaft and the endless sprocket chain around said wheel and the drive sprocket wheel of said elevator, substantially as described.

10. In a ditching and grading machine attached to a tram-way car, the combination of the inverted U shaped shell, the lower central portion of its sides cut out, such shell supported from said car, the elevator consisting of the main frame and smaller frame, the inner end of the main frame attached to said shell its outer end supported by chains attached to said car, the smaller frame extended through the cut out portion of said shell, the loops 71 upon said frame, the pulleys 78, the crank shaft and ratchet 76, the pawl 77, the chains 79, the crank shaft and ratchet 73, the pawl 74 and the chains 75, substantially as described.

492,088. FENCE-POST. JURAL E. HODSON, Redwood Falls, Minn. Filed May 16, 1892. Serial No. 433,184. (No model.)

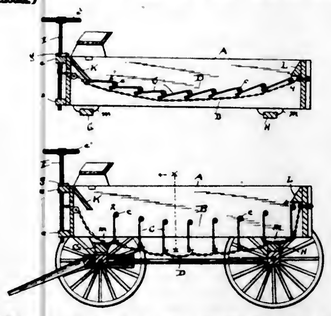


Claim.—In a fence, gate or the like, the combination of a post provided at one of its corners with an angular longitudinal recess forming a flange at the opposite side of the post, said post being provided in the flange with a series of wire receiving notches, a vertical clamping bar arranged longitudinally of the post and disposed opposite the recess and adapted to be drawn into the same to clamp fence wires and to increase their tension, and means for securing the clamping bar to the post, substantially as described.

492,089. PREPARING EXPLOSIVE COMPOUNDS. BERNHARD LEPSIUS, Grieshelm, Germany. Filed Sept. 29, 1892. Serial No. 447,318. (No specimens.)

Claim.—The process of forming explosive compounds in which the picric acid used for filling projectiles, &c., is put into a solid condition, which consists in heating together in a suitable mold a mixture of picric acid and an enveloping, explosive agent, such as trinitrotoluol, to a point above the fusing point of the latter and below that of the former, to avoid fusing the crystals of the acid, then cooling the mixture, thus cementing together the crystalline acid, substantially as described and for the purposes set forth.

492,090. WAGON-BODY. WILLIAM K. LONG and CHARLES H. HENRY, Cleveland, Ohio. Filed July 5, 1892. Serial No. 438,857. (No model.)



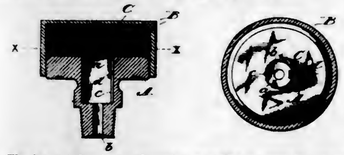
Claim.—1. A wagon body and a bottom for said body, consisting of a series of transverse slats pivoted in said body and the slats at the ends of the body pivoted higher than the slats at the middle thereof, in combination with a flexible connection and support for said slats, substantially as described.

2. The wagon body, a series of transverse slats or panels provided with spindles at their ends and upper edges pivoted in the sides of said body, a chain connected with the free or lower edges of said slats, and extending beneath the slats to form a support therefor, and means to tighten and loosen said chain, substantially as described.

3. In a wagon, a body having a transversely slatted bottom, said slats pivoted at their ends and overlapping beneath one another, the free edge of one slat coming beneath the pivot edge of the next slat, in combination with a chain connected with the slats at their free edges and fixed to the wagon body at one end and to a winding device at the other end, substantially as described.

492,091. LUBRICATOR. EDMUND H. LUNKEN, Cincinnati, Ohio, assignor to the Lunkenheimer Company, same place. Filed Nov. 16, 1892. Serial No. 452,128. (No model.)

Claim.—1. In a grease cup the combination of an attaching base with an aperture for the escape of the grease, an inverted cup fitted thereon and lowered by screw action, and a yielding detent interposed between said base and cup, for the purpose specified.



2. The base A having a threaded periphery, recess *a*, and outlet *b*, in combination with the interiorly threaded cup B carrying the spring C, whose lower end is provided with a detent entering the recess *a* and engaging notches or ribs therein, substantially as and for the purpose specified.

492,092. NON-HEAT-CONDUCTING COMPOSITION. RICHARD V. MATTHEWS, Ambler, Pa. Filed July 2a, 1892. Serial No. 440,652. (No specimens.)

Claim.—A non-heat-conducting composition composed of calcium carbonate, magnesium carbonate and asbestus, as above described.

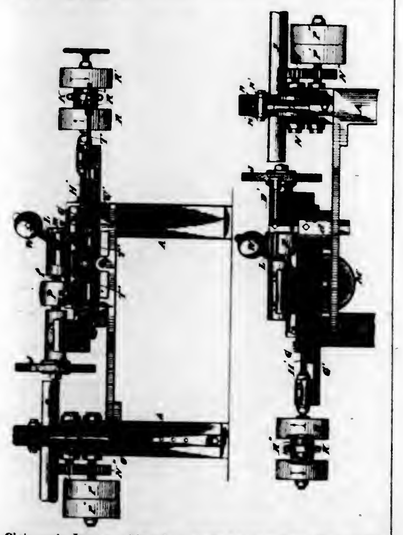
492,093. NON-HEAT-CONDUCTING COMPOSITION FOR COVERING BOILERS, &c. RICHARD V. MATTHEWS, Ambler, Pa. Filed Oct. 26, 1892. Serial No. 450,071. (No specimens.)

Claim.—A non-heat-conducting compound composed of carbonate magnesium, plaster paris, asbestus and wood pulp, as above described.

492,094. NON-HEAT CONDUCTING COMPOSITION FOR COATING BOILERS. RICHARD V. MATTHEWS, Ambler, Pa. Filed Oct. 26, 1892. Serial No. 450,072. (No specimens.)

Claim.—A non-heat-conducting compound composed of carbonate of magnesium, carbonate of calcium, asbestus and wood pulp, substantially as described.

492,095. MACHINE FOR GRINDING PULLEY-SHAFTS AND THEIR COUPLINGS. PHILIP MEDART, St. Louis, Mo., assignor of one-half to William Medart, same place. Filed June 20, 1892. Serial No. 437,374. (No model.)

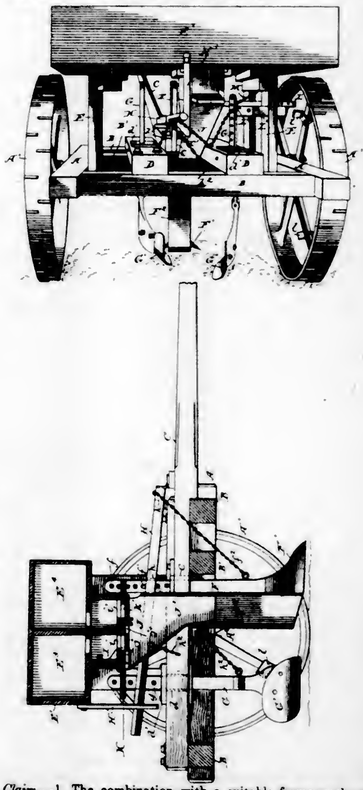


Claim.—1. In a machine for grinding pulley shafts, the combination of a series of supporting rollers arranged on the frame-work in a line with each other, and supporting the shaft to be ground, in combination with a grinding wheel journaled in a base plate movably connected to the frame-work, so as to move laterally with the shaft being ground, said shaft of said grinding wheel moving substantially in parallel lines with said shaft being ground, substantially as described and for the purposes set forth.

2. In a machine for grinding pulley shafts, the combination of a movable base plate; a grinding wheel mounted thereon; a shaft journaled to the frame work in a fixed box and provided at one end with a right and left pulley to run it in opposite directions, and with a screw at the other end working in a fixed nut in the movable base plate; a right and left ratchet interposed between said pulleys and adapted to move on said shaft laterally but not rotate thereon; a shifting rod connected with said ratchet at one end, and to the end of a weighted lever at the other end; a weighted lever movably connected to said shifting rod and rising between two fulcrums secured to a stationary base plate, and an adjustable stop adjustably secured to said movable base plate, coming in contact with said weighted lever as it moves; all combined and operating to automatically reverse the lateral movement of the grinding wheel on the frame work, for the purposes stated.

3. In a machine for grinding pulley shafts, the combination of a movable base plate mounted on a frame-work; a grinding wheel having a concave or cup-shaped grinding surface mounted on said movable base plate, with the grinding face in the same plane with the face of the coupling to be ground; and a series of sets of supporting rollers journaled in the frame-work in a line with each other, substantially as described, and for the purposes set forth.

492,096. PLANTER. ROBERT MURPHY, Canisteo, N. Y. Filed Aug. 10, 1892. Serial No. 442,687. (No model.)



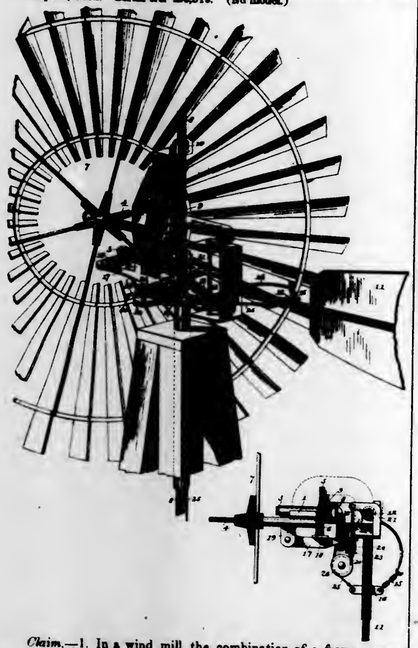
Claim.—1. The combination with a suitable frame-work, of a tongue attached thereto, and having its rear end slotted, slotted intermediate longitudinal pieces carried by the said frame, a perforated post passing through the slot in the said tongue, and having a furrow opener blade upon its base, a perforated post passing through

the slots in said intermediate pieces, each of the said last named posts having a hiller blade on the base thereof, a lever pivoted to the said tongue, and connected to the first named post, and chains connected to the last named uprights and the said lever, substantially as described.

2. In a wheeled planter, the combination with a feed box having a perforated base, of an apertured valve, moving below the said box, a tripping lever composed of two horizontally pivoted parts, one of which is connected with the said trip lever, an arc-shaped track adapted to raise the opposite end of the said lever, and lugs upon the wheel to strike the last named end of the trip lever, substantially as described.

3. The combination in a wheeled planter, of furrow opener and hiller blades, of a lever connected thereto and adapted to lift them from out the ground, a feed box having a perforated bottom, an apertured valve moving below the said bottom, a tripping lever composed of two horizontally pivoted parts, one of which is connected with the said tripping lever, lugs upon the wheel, adapted to strike the opposite portion of the tripping lever, and a connection between the last named portion of the tripping lever and the first named lever, whereby the end of the said tripping lever will be raised, upon raising the first named lever, substantially as described.

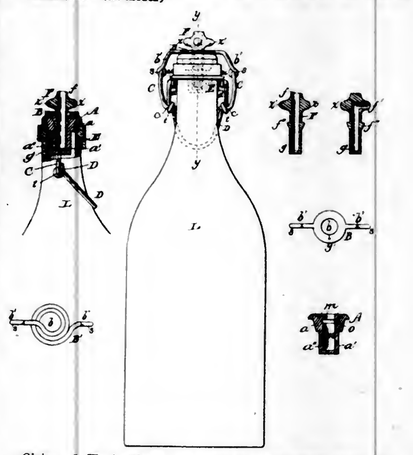
492,097. WINDMILL. HENRY R. MCCOSLIN, Litchfield, Ill. Filed Apr. 9, 1892. Serial No. 428,519. (No model.)



Claim.—1. In a wind mill, the combination of a frame, a vane hinged to the frame, a spiral spring mounted on the frame and provided with an arm terminating at its outer end in a hook, and a chain secured to the vane and adapted to have any one of its links engaged by the hook of the spring and regulating the tension of the latter, substantially as described.

2. In a wind mill, the combination of a frame, a shaft journaled in suitable bearings of the frame, a cog wheel mounted on the shaft, a vane hinged to the frame, a brake lever having one end fulcrumed on the frame and provided intermediate of its ends with a brake shoe to engage the cog wheel, an L-shaped arm rigidly secured to the vane and extending inward therefrom, a horizontal rod having its inner end pivotally connected to said arm and having its outer end threaded and provided with a nut and having intermediate of its ends a shoulder and loosely connected with the brake lever between its shoulder and its threaded portion, and a spiral spring disposed on the rod and located between the nut and the brake-lever, substantially as described

492,098. BOTTLE-STOPPER. BYRON F. MCINTYRE, East Orange, N. J., assignor to John A. Riley, same place. Filed Dec. 28, 1891. Serial No. 416,343. (No model.)

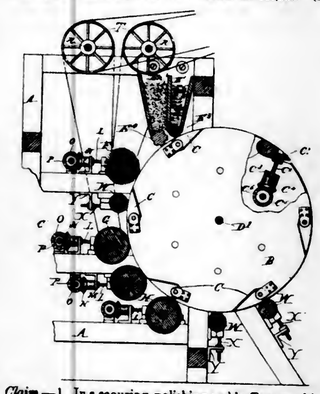


Claim.—1. The bottle stopper composed of an elastic rubber body *a*, and an elastic yielding tubular extension *a''*, having a longitudinal passage and a lateral opening in combination with a tubular tap inserted in the passage of the stopper and having a lateral opening adapted to register with the opening of said extension, substantially as described.

2. In a bottle stopper the elastic portion having a longitudinal passage and a lateral opening, in combination with a tubular tap having a closed lower end and a lateral opening, and also having an annular bead or flange arranged to press into the inner wall of the passage in the elastic stopper, substantially as described.

3. The elastic portion of the stopper having a longitudinal passage and the tubular tap fitted in said passage, in combination with a cap having lateral ears or wires as *b'*, and the yoke wires, C, connecting with wires, *b'*, by means of pivotal eyes, substantially as described.

492,099. COMBINED SCOURING, POLISHING, AND BUFFING MACHINE. NELS NELSON, Chicago, Ill., assignor to Gustav Dittmann, same place. Filed Sept. 29, 1892. Serial No. 447,309. (No model.)



Claim.—1. In a scouring, polishing and buffing machine the combination of a drum driven at slow speed, with a series of rollers about the same and each independent driven at relatively high speed, and a series of clamps whereby metallic plates may be secured to the surface of such drum the rollers rotating in a direction opposite to the drum.

2. In a scouring, polishing and buffing machine the combination of a drum with means for securing metallic plates on the surface thereof,

polishing rollers, and a two-part receptacle for liquid and powder, and rollers at the bottom of each and in frictional contact with the drum.

3. In a scouring, polishing and buffing machine the combination of a drum with means for securing metallic plates on the surface thereof, polishing rollers, and a two-part receptacle for liquid and powder, and rollers at the bottom of each and in frictional contact with the drum, and the fluid roller being cylindrical and the powder roller being grooved.

4. In a scouring, polishing and buffing machine the combination of a drum with a series of clamps for securing metallic plates thereon, and a series of rollers about the same and each independently driven at a relatively higher speed than the drum, the first roller a brush roller, the second an emery roller, and the third buffing cloth rollers the rollers rotating in a direction opposite to the drum.

5. In a scouring, polishing and buffing machine the combination of a drum with a series of clamps for securing metallic plates thereon, and a series of rollers about the same and each independently driven at a relatively higher speed than the drum, and a series of friction rollers about the drum, all of said rollers being adjustable to and from the drum the rollers rotating in a direction opposite to the drum.

6. The combination of a drum with a series of transverse clamping strips, screw rods connected therewith and a shaft and gears, so that by the turning of said shaft the clamping strips may be raised or lowered.

7. The combination of a drum with a series of rollers to engage therewith, a series of clamps on the drum to hold the metallic plates and carry them beneath the rollers, screw rods associated with the boxes, by which such rollers are supported, and pinions and a transverse shaft and crank whereby such rollers may be reciprocated to or from the drum.

492,100. PRESSURE-REGULATOR. CRAVEN R. ORD, Ontario, Canada. Filed Oct. 20, 1891. Renewed Jan. 7, 1893. Serial No. 457,649. (No model.) Patented in England Dec. 2, 1890, No. 19,675.



Claim.—1. The combination with a cylinder open at one end, a differential piston valve therein, the differential areas of which are exposed to motive fluid of different pressures, and means whereby motive fluid of greater pressure is admitted into the closed end of the cylinder and the motive fluid of less pressure therein; of a valve controlling said admission, and an actuating device for said controlling valve acted upon in one direction by a variable fluid pressure and in the other by a predetermined governing force.

2. The combination with a cylinder open at one end, a piston therein, and a valve having motion with and independently of the piston, said valve having a less area than the piston, the differential areas of valve and piston being exposed to motive fluid of different pressure, and means for admitting motive fluid of greater pressure into the closed end of the cylinder and the motive fluid of less pressure therein, of a valve controlling said admission, and an actuating device for said controlling valve acted upon in one direction by a variable fluid pressure and in the other by a predetermined governing force, for the purpose set forth.

3. The combination with a cylinder open at one end, a piston therein, and a valve having motion with and independently of the piston, said valve having a less area than the piston, the differential areas of the valve and piston being exposed to motive fluid of different pressure, a controlling device, as a spring, acting upon the valve and piston to move the same in opposite directions, and means for admitting motive fluid of greater pressure into the closed end of the cylinder and the motive fluid of less pressure therein; of a valve controlling said admission and an actuating device for said controlling valve acted upon in one direction by a variable fluid pressure and in the other by a predetermined governing force, for the purpose set forth.

4. The combination with a cylinder, a differential piston valve therein having its smaller cross sectional area constantly exposed to the pressure of the motive fluid, an inlet for the motive fluid to the cylinder and to the greater area of the piston, and an outlet from said cylinder; of a valve controlling the inlet, an auxiliary valve controlling the outlet, and an actuating device for the said valves acted upon in one direction by a variable fluid pressure and in the other direction by a predetermined governing force, for the purposes set forth.

5. The combination with a fluid duct divided by a partition into inlet and outlet ducts, a valve port in said partition, a cylinder opening into the outlet duct, a differential piston valve working in said cylinder and having its smaller area constantly exposed to the pressure of the fluid, said piston valve controlling the passage of the fluid through the valve port, and fluid passages leading from the inlet and outlet ducts to the cylinder and to the larger area of the piston; of a valve controlling the flow of fluid through said passages, a pressure chamber and an actuating device for said valves therein acted upon in one direction by a variable fluid pressure and in the other direction by a predetermined governing force, for the purposes set forth.

6. The combination with a fluid duct divided by a partition into inlet and outlet ducts, a valve port in said partition, a cylinder opening into the outlet duct, a piston therein controlled by the pressure of the fluid in the inlet duct, and a valve working in and acted upon by the piston and controlling the passage of the fluid from the inlet to the outlet duct; of a controlling device controlling the pressure of the fluid on one end of the piston and acted upon in one direction by a variable pressure and in the other by a predetermined controlling force, for the purposes set forth.

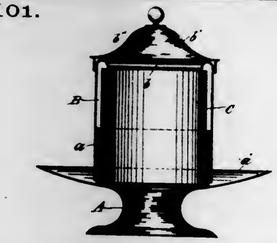
7. A valve casing having inlet and outlet openings and a partition between them provided with a valve port, a piston cylinder in said casing opening into the outlet, a piston working in said cylinder acted upon in one direction by the motive fluid at the inlet side of the valve port, a valve of less cross sectional area than that of the piston controlling the fluid passing from said inlet side to the outlet side of said port and acted upon in one direction by the piston, and a predetermined controlling force acting upon the valve and its actuating piston in antagonism to the motive fluid, in combination with a controlling valve governed by the pressure of the fluid forced and governing the action of the motive fluid from the inlet side of the valve port upon the piston, for the purposes set forth.

8. The combination with the main valve casing having inlet and outlet branches divided by a partition in which is formed a valve port, a cylinder in said casing, the piston, P, in said cylinder, the main valve, V, in the piston, the spring, S, interposed between said valve and piston, a valve chamber, a controlling valve therein having a stem the upper portion of which is tubular, having longitudinal channels formed in the periphery of its lower portion, said channels communicating with said tubular portion and said stem working in a cylinder having a valve seat for said controlling valve, a passage leading from said valve cylinder to the upper end of the piston cylinder, a like passage leading from the inlet of the valve casing to the chamber of the controlling valve and an exhaust passage leading from the cylinder of said controlling valve to the [illegible] branch of the said main valve casing; of a controlling device acting upon in one direction by a variable pressure and in the other by a predetermined governing force, and an auxiliary piston actuated by said controlling device in one direction and in the other by a predetermined controlling force, said auxiliary piston controlling the exhaust passage and the controlling valve, for the purposes set forth.

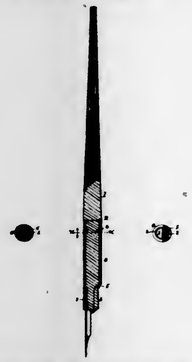
492,101. CAN-RECEPTACLE. FRED H. PAGE, New York, N. Y. Filed June 4, 1891. Serial No. 395,168. (No model.)

Claim.—A receptacle for cans or other vessels, consisting of the base A provided with the rim *a* for the reception of the can or vessel and with the saucer flange *a'*, the external case B fitting over the said rim and having its upper portion turned inward as represented, and the cover *b* for the case B, the whole constructed and combined substantially as described.

492,101.



492,102. PENHOLDER. GEORGE PELLINGER, Akron, Ohio, assignor to the Goodrich Hard Rubber Company, same place. Filed Aug. 29, 1892. Serial No. 444,386. (No model.)



Claim.—In a pen holder, the combination with the stem and its cylindrical portion having a groove, and the sleeve arranged to fit said cylindrical portion and having an internal groove opposite the groove of said stem, of the cut ring adapted to enter and rest in said grooves, as set forth.

492,108. APPARATUS FOR SHIPPING OR UNSHIPPING CABLE-CAR GRIPPERS. JOHN H. PENDLETON, Brooklyn, and CORNELIUS TIERS, New York, N. Y. Filed June 21, 1892. Serial No. 437,512. (No model.)

Claim.—1. A hydraulic jack for raising and lowering the grippers of cable cars, provided with a cradle for supporting and carrying the said grippers, and a valve for controlling the said jack, substantially as, and for the purposes, set forth.

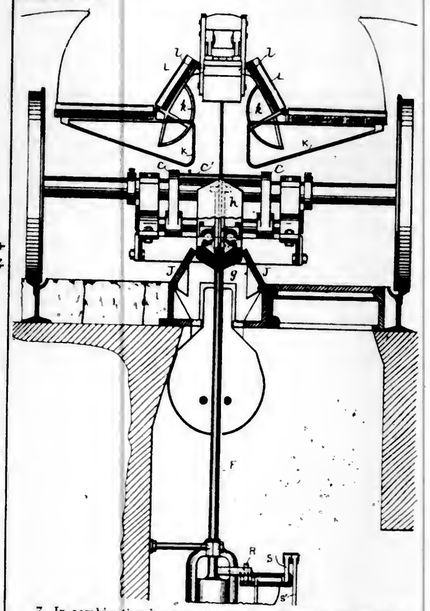
2. A hydraulic jack for raising and lowering the grippers of cable cars, provided with a cradle for supporting and carrying the said grippers, trap-doors in the road bed automatically opened and closed by the said cradle, and valves for controlling the said jack, substantially as, and for the purposes, set forth.

3. A hydraulic jack for raising and lowering the grippers of cable cars, provided with a cradle for supporting and carrying the said grippers, the said cradle being provided with deflecting faces for enabling it to rise and fall without interference with the cable or cables, and valves for controlling the said jack, substantially as, and for the purposes, set forth.

4. A hydraulic jack for raising and lowering the grippers of cable cars provided with a cradle for supporting and carrying the said grippers, the said cradle being provided with deflecting faces for enabling it to rise and fall without interference with the cable or cables, valves for controlling the said jack, and one or more gripper cars provided with trap-doors in the flooring thereof, and constructed to be opened by the rise of the said grippers and to catch under and thereby retain the said grippers when raised, substantially as, and for the purposes, set forth.

5. A cable car provided with trap-doors in the flooring for permitting the rise of the cable gripper, and guides K upon the car body for guiding the movement of the gripper, substantially as, and for the purposes, set forth.

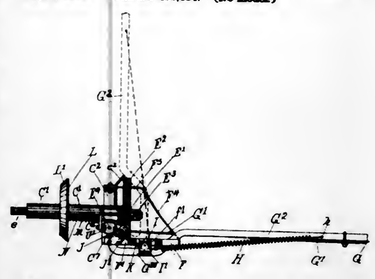
6. In a cable car, a gripper detachable therefrom and trap-doors L for permitting the rise of said gripper, and constructed to catch upon and thereby retain the said gripper, substantially as, and for the purposes, set forth.



7. In combination in an apparatus for shipping and unshipping the grippers of cable cars, a cradle for the said grippers, and mechanism for raising and lowering the said cradle, substantially as, and for the purposes, set forth.

8. In combination in an apparatus for shipping and unshipping the grippers of cable cars, a raising and lowering mechanism placed beneath the track, and means for supporting the said grippers upon the said raising and lowering mechanism, whereby they may be removed from, and placed in operative positions upon the said cars, substantially as, and for the purposes, set forth.

492,104. WINDMILL. THOMAS O. PERRY, Chicago, Ill. Filed May 7, 1892. Serial No. 432,131. (No model.)



Claim.—1. In a windmill, in combination with a vertically pivoted turn-table, and the horizontally journaled wheel thereon, the tail vane vertically pivoted to the turn-table and provided with stops to limit its horizontal swing between a position at right angles and a position parallel to the wheel shaft: and a tail spring strained directly between a point on the tail remote from its vertical pivot, and a point on the turn-table which is outside of the angle between the two extreme positions of the tail, and on the opposite side from the wheel of a vertical plane through the tail pivot at right angles to the wheel shaft: substantially as set forth.

2. In a windmill, in combination with a vertically pivoted turn-table and a horizontally journaled wheel thereon, the tail vane vertically pivoted to the turn-table and provided with stops to limit its horizontal swing between a position at right angles and a position parallel to the wheel shaft; a tail spring connected to the tail at a point remote from its pivot, and the guide on the turn-table outside of the angle between the two extreme positions of the tail and on the opposite side from the wheel of a vertical plane through the tail pivot at right angles to the wheel shaft; and connections from the spring passing over such guide and adapted to be secured and released at will; whereby the spring may at will be strained and secured under tension or left slack between its connection on the tail and such guide: substantially as set forth.

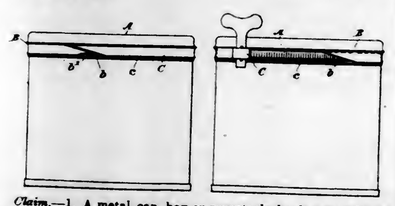
3. In a windmill, in combination with a vertically pivoted turn-table and the horizontally journaled wheel thereon, the tail vane vertically pivoted to the turn-table and provided with stops to limit its horizontal swing between a position at right angles and a position parallel to the wheel shaft; an extensible tail spring attached to the tail at a point remote from its pivot, and a flexible connection from the opposite end of the spring passing over a guide on the turn-table located outside the angle between the extreme positions of the tail and on the opposite side from the wheel of a vertical plane through the tail pivot at right angles to the wheel, and thence over suitable guides vertically; and suitable means for fixing the lower end of the vertically extending portion, whereby the spring may be stretched to any desired tension and secured, and when so stretched, operate as if attached to the first-mentioned guide: substantially as set forth.

4. In a windmill, in combination with the vertically pivoted turn-table and the horizontally journaled wheel thereon, the tail vane vertically pivoted to the turn-table and adapted to swing horizontally between a position at right angles and a position parallel to the wheel shaft; a friction brake supported on the turn-table; a spring reacting between the turn-table and brake, tending to force the latter against the wheel; a link extending from the brake to the tail and connected to the latter at a point situated relatively to the tail pivot, so that the movement of the tail toward a position parallel with the wheel shaft withdraws the brake from the wheel and puts the spring under tension: substantially as set forth.

5. In a windmill, in combination with a vertically pivoted turn-table and the horizontally journaled wheel thereon; the tail vertically pivoted to the turn-table and provided with a stop to limit its horizontal swing in one direction at a position approximately parallel to the wheel; a friction brake supported on the turn-table, and a spring reacting between the turn-table and such brake, tending to force the latter against the wheel; a link connecting the brake to the tail at a point on the latter such that the movement of the tail toward a position parallel with the wheel, permits the brake to move toward the wheel, the connections of the link being sufficiently loose to permit the tail to reach its said stop after the brake is seated on the wheel: substantially as set forth.

6. In a windmill, in combination with the vertically pivoted turn-table and the horizontally journaled wheel thereon; the tail vane vertically pivoted to the turn-table and adapted to swing toward a position approximately parallel with the [illegible]; a spring connected to the tail and to the turn-table ar[illegible]ading, when under tension, to hold the tail toward a position parallel with the wheel shaft; connections from said spring whereby it may be put under tension and released at will; and a supplemental spring N, reacting between the turn-table and suitable connection from the tail tending to swing the latter toward a position parallel with the wheel; whereby, when the first spring is released, the second tends to set the wheel and tail parallel: substantially as set forth.

492,105. CAN. WILLIAM PRATT, Montreal, Canada. Filed Feb. 23, 1892. Serial No. 422,532. (No model.) Patented in Canada Mar. 7, 1892, No. 38,494.



Claim.—1. A metal can, box or receptacle having upon its perimeter varying weakening lines running one into the other for the purpose set forth.

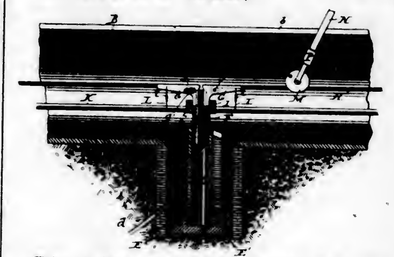
2. In a metal can, box or receptacle of the class described, a cover having a removable or semi-detached strip and tongue portion forming a part of its perimeter and formed by varying weakening lines running one into the other and the whole made from one piece of sheet metal.

3. In a metal can box or receptacle of the class described, a cover having a removable or semi-detached strip and tongue portion formed by a weakening line and a slit running into same, and the whole made from one piece of sheet metal.

4. A metal can, box, or receptacle having upon its perimeter a single horizontal main weakening line and a branch weakening line at an angle to the main line for the purpose set forth.

5. A metal can, box or receptacle the cover rim of which has a single main weakening bead around its perimeter about midway of its depth and a branch bead from said main bead to the edge of the rim, for the purpose set forth.

492,106. CONDUIT RAILWAY. FRANK B. RAE, Detroit, Mich., assignor to the Detroit Electrical Works, same place. Filed Apr. 11, 1891. Serial No. 388,469. (No model.)



Claim.—1. In an underground conduit system for electric railways, the combination with a conduit having a series of well holes in its bottom, of insulated supports mounted in the well holes and extending upward into the conduit, and sections of the trolley wires having their ends connected to said supports, substantially as described.

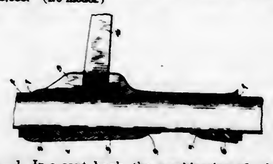
2. In an underground conduit system for electric railways, the combination with the well holes, of supports embedded in insulating material therein, and extending into the conduit, a trolley wire in sections, the ends of the two adjacent sections being attached to the supports in the well holes, substantially as described.

3. In an underground conduit system for electric railways, the combination with the well holes and supports therein, of wooden blocks or plugs connected to said supports, trolley wire supports mounted on the block, and a collar, and insulating material between the collar and supports for the trolley wire, substantially as described.

4. In an underground conduit system for electric railways, the combination with the well holes, and insulated supports mounted therein, of the trolley wire sections having the ends of two adjacent sections connected to a support, a main feeding conductor in the conduit and fusible connections between the main feeding conductor and the trolley wire sections, substantially as described.

5. The combination with a slotted conduit having trolley wire sections mounted upon insulated supports therein, of a car having a bracket extending from the frame, a trolley arm pivotally mounted on the bracket, a detachable trolley wheel bearing on the trolley wire sections, the trolley arm being provided with an extension sliding over a rod and a spring on the rod bearing against the extension, substantially as described.

492,107. CANT-HOOK. DAVID W. REED, Bearden, Ark., assignor of one-half to John G. Reed, same place. Filed Aug. 13, 1892. Serial No. 443,083. (No model.)

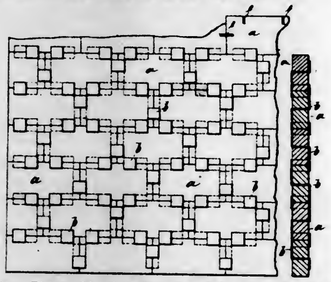


Claim.—1. In a cant hook, the combination of a handle and a sleeve pivotally carrying a cant-hook proper, said sleeve having the opening therethrough at the upper and lower ends thereof increased in diameter, and wedges removably inserted in said enlarged upper and lower ends and arranged longitudinally of the handle, substantially as described.

2. In a cant-hook, the combination of a handle and a sleeve piv-

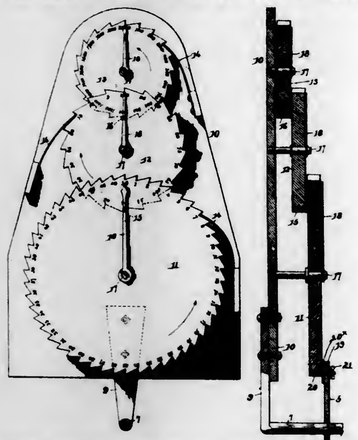
otally carrying a cant hook proper, said sleeve having the opening therethrough at the upper and lower ends thereof increased in diameter for the purpose of receiving wedges and having an opening in the body thereof to expose the inner ends of the wedges so that the said wedges may be readily loosened, substantially as described.

492,108. CEILING OR WALL. ERNST REHS, Düsseldorf, Germany. Filed July 11, 1892. Serial No. 439,686. (No model.)



Claim.—The combination of a series of plates placed side by side and slotted at their edges with metallic strips passing through the slots of adjoining plates and upset against opposite faces of the plates, substantially as specified.

492,109. SHEAF-REGISTER FOR HARVESTERS. JACOB P. ROHN, Easton, Pa. Filed July 19, 1892. Serial No. 440,505. (No model.)



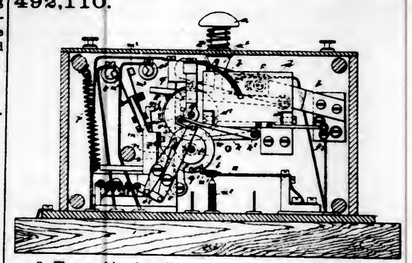
Claim.—In a device of the character set forth, the combination of a swinging arm provided with a slot and having an adjustable pin mounted in said slot, a nut engaging one side of said pin, and a washer on the opposite side or end thereof, and a series of wheels overlapping each other and formed with teeth adapted to be engaged by pins carried by a portion thereof, the said wheels being arranged in direct vertical alignment and the units or lowermost wheel being operated by said pin adjustably carried by the said swinging arm, substantially as described.

492,110. AUTOMATIC INDIVIDUAL TELEPHONE-CALL APPARATUS. JOSEPH SACK, Berlin, Germany. Filed Sept. 18, 1891. Serial No. 406,062. (No model.)

Claim.—1. The combination of lever *m*, with the pins *o*, *o'*, disks *A*, having nose *K'*, and lever *q*, with which the lever *m*, is adapted to make contact, substantially as specified.

2. The combination of key *a*, having plug *a'*, with lever *q*, adapted to be depressed by the plug, pawl *q'*, adapted to engage the lever and with contact spring *b*, contacts *c'*, *c*, and segment *g*, substantially as specified.

492,110.

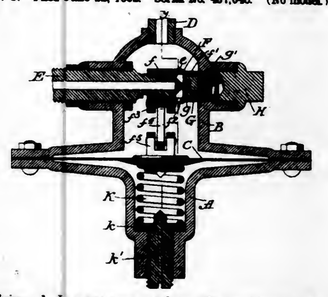


3. The combination of spring *u*, with screw pin u^3, disk *l*, having pin *z*, and nose *P*, and with lever *m*, spring *m'*, and contact *o*, substantially as specified.

4. The combination of lever *q* with shaft *l'* having nose n^3, disk *l* having tooth *P*, lever *m* having nose *n* and projection m^4 and with pawl *q'* having nose *n'*, substantially as specified.

5. The combination of segment *g*, having nose *g'*, with shaft *l'*, disk *l*, having nose *l'*, levers *s*, *v*, *w*, pin v^3, notched disk *k*, lever *k*, having nose *k'*, and pawl k^4, and with an escapement adapted to be engaged by the pawl, substantially as specified.

492,111. PRESSURE-REGULATOR. JOSEPH SCHEIMER, Brooklyn, N. Y. Filed June 23, 1892. Serial No. 437,640. (No model.)



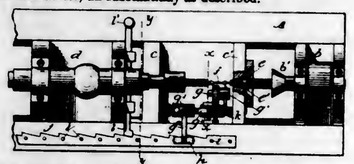
Claim.—1. In a pressure regulator, the combination of a casing having oppositely located openings, a valve nozzle having an exterior thread and passing through one of said openings, an internally threaded sleeve engaging thread of said nozzle and arranged in the other of said openings, a flexible diaphragm secured in said casing, connections between said sleeve and diaphragm, and a valve seat carried in said sleeve; substantially as described.

2. In a pressure regulator, the combination of a casing having oppositely located openings, a valve nozzle having an exterior thread and passing through one of said openings, an internally threaded sleeve engaging the thread of said nozzle and arranged in the other of said openings, a flexible diaphragm secured in said casing, connections between said sleeve and diaphragm, and a valve plug screw-threaded within said sleeve; substantially as described.

3. In a pressure regulator, the combination of a casing having oppositely located openings, a valve nozzle having an exterior thread and passing through one of said openings, an internally threaded sleeve engaging the thread of said nozzle and arranged in the other of said openings, a flexible diaphragm secured in said casing, connections between said sleeve and diaphragm, a valve seat carried in said sleeve, a valve plug screw threaded within said sleeve, a jam nut engaging the same, and a plug as H; substantially as described.

492,112. WOOD-TURNING LATHE. JOHN SCOTT, Willimantic, assignor to the Willimantic Linen Company, Hartford, Conn. Filed Aug. 2, 1886. Serial No. 209,819. (No model.)

Claim.—1. In a turning lathe, in combination with the head and tail stocks, a tool carriage movable lengthwise of the lathe spindles and bearing a rock shaft upon which a cutter arm is supported, the swinging cutter arm supported on the said shaft and bearing an adjustable cutter, a spring connected to the said cutter arm and operating to normally thrust the latter outward from the work, a block supported on the rock shaft and having a former extending outward from the shaft, and a projecting arm bearing an adjusting screw the end of which thrusts against a projecting part on the cutter arm, the said adjusting screw and a series of pins arranged in the path of movement of the former, all substantially as described.

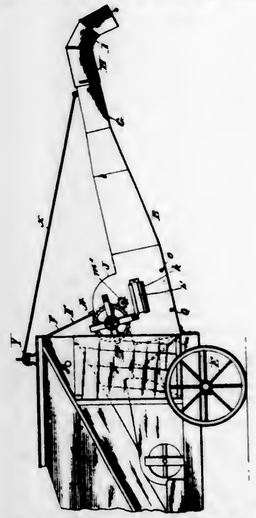


2. In a turning lathe, in combination with the head and tail stocks, the tool carriage movable lengthwise of the lathe spindles, a series of guide pins secured to the lathe frame and arranged along it in the path of movement of the former supported on the said tool carriage, a swinging cutter arm borne on the tool carriage and supporting an adjustable cutter, the block supported on the rock shaft that supports the cutter arm and adjustably connected to the said cutter arm, and a former borne on an arm that projects from the said block all substantially as described.

3. In a turning lathe in combination with the head and tail stocks, the tool carriage movable in line with the lathe spindles, the rocking cutter arm bearing a cutting tool on the end next the work, a former block connected to the said cutter arm and bearing on a projecting arm a former overlying a series of pins, the said pins secured to the frame of the lathe and the lathe spindle having the spring seated center, all substantially as described.

4. In a turning lathe, in combination with the head and tail stocks, a carriage movable lengthwise of the lathe spindles, a roughing knife borne on one end of the carriage, and a swinging cutter arm bearing on the outer end an adjustable cutter and adjustably connected with a former supported on the outer end of an arm borne on the rock shaft that supports the cutter arm and the pins arranged in the path of movement of the former, all substantially as described.

492,113. STRAW-STACKER. AUGUST H. SEEBECK, North Redwood, Minn. Filed May 3, 1892. Serial No. 431,699. (No model.)

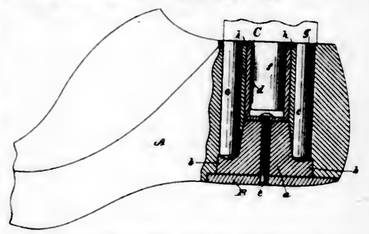


Claim.—1. In a straw carrier, the combination of a tubular inclosed elevating spout hinged at its lower end to a thrashing machine, and having a blast fan and a drop door hinged at the lower end of said spout and adapted to drop at an incline within the thrasher to direct the straw, &c., into the spout, substantially as set forth.

2. In a straw carrier, the combination with a tubular spout, the fan casing located in the lower end of said spout and discharging into the same, and the fan; of a reciprocating and vibrating ribbed feeder pan arranged directly under the fan casing within said spout and working beyond the discharge of said fan casing, substantially as set forth.

3. In a straw carrier, a tubular inclined spout arranged under the delivering end of the thrasher, a fan located in the lower end of said spout, a rotating crank shaft journaled in the sides of said spout in front of the fan and below the same, a larger swinging crank shaft journaled in the sides of said spout below and in rear of said fan and a reciprocating and vibrating feeder pan having transverse angular ribs and depending brackets near each end thereof loosely connected with said rotating and swinging crank shafts respectively, substantially as set forth.

492,114. LAST. HERBERT R. SILLIMAN, Rochester, N. Y. Filed May 16, 1892. Serial No. 433,160. (No model.)



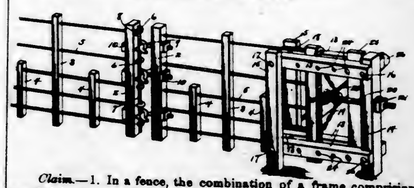
Claim.—1. A last having a heel-plate in combination with a flat thimble or spindle-socket, and posts on either side thereof, said thimble and posts being supported by the heel plate, and the thimble placed in the last with its greatest diameter longitudinal to the last, substantially as shown and described.

2. A last having a heel-plate, in combination with a block or base-piece resting upon the heel-plate, a thimble resting upon said block or base-piece, and posts at the sides of the thimble resting upon said base-piece, the thimble, base-piece and heel-plate being connected by a fastening rivet and the thimble having a flange at its upper end, substantially as and for the purpose specified.

3. A last having a heel-plate and a block or base-piece within the last independent of the heel-plate and resting thereon, in combination with a thimble resting upon the block or base-piece, and posts at opposite sides of the thimble having their lower ends abutting against imperforate ledges or seats formed at the sides of the base-piece midway between its upper surface and the heel-plate, with their upper ends even with the upper end of the thimble and, with the latter, adapted to support a stress of compression, substantially as shown and described.

4. A last having a heel-plate, in combination with a flat thimble or spindle-socket, and posts on either side thereof, said thimble and posts being supported by the heel-plate, and the thimble placed in the last with its greatest diameter longitudinal to the last, the upper ends of the thimble or spindle-socket and the posts being even and level with the comb of the last, substantially as shown and described.

492,115. FENCE. JOSEPH C. SIMMONS, Martinsville, Ohio. Filed Oct. 17, 1892. Serial No. 449,067. (No model.)

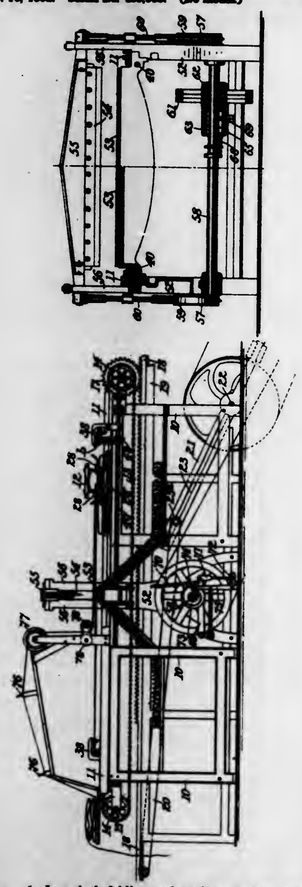


Claim.—1. In a fence, the combination of a frame comprising parallel horizontal bars, uprights supporting the inner ends of the horizontal bars, spacing blocks interposed between the inner ends of the horizontal bars, and an end post having a central opening and supporting the outer ends of the horizontal bars, a fence panel having one end arranged in the frame, a chain having its ends secured to the fence panel, and an adjusting screw connected at its head with the chain and passing through the opening of the end post and provided with a nut, substantially as described.

2. In a fence, the combination of a frame comprising horizontal parallel bars arranged in pairs and each provided with a series of perforations, uprights supporting the inner ends of the bars, a fence

post supporting the outer ends of the horizontal bars and provided with a central opening, a panel having one end arranged in the frame, a chain having its ends connected with the panel, an adjusting screw passing through the opening of the end post and provided at its outer end with a nut and connected near its head with a chain, a spring interposed between the head of the screw and the chain, and the adjustable board arranged in the space between the end post and the panel, substantially as described.

492,116. CLOTH-FOLDING MACHINE. ROSWELL T. SMITH, Haskon, N. H., assignor to Charles H. Parsons, Brooklyn, N. Y. Filed Mar. 16, 1892. Serial No. 425,092. (No model.)



Claim.—1. In a cloth-folding and cutting machine, the combination with a cutter having a vertical stroke and its bed and supports for said cutter, of ways within said supports, a cloth-folding frame, and means to reciprocate said frame on said ways between the cutter and its bed, substantially as shown and described.

2. In a cloth-folding machine, the combination of a reciprocating, cloth-folding frame, means to vary the length of the reciprocations of said frame, clamps to co-operate with said frame and hold the folds, means to cause each clamp to release the previous fold as a new one is presented, and means to adjust the positions of said clamps, substantially as shown and described.

3. In a cloth-folding machine, the combination with a cloth-folding frame and means to reciprocate said frame, of a stationary clamp to receive and hold the fold, and means to open said clamp to release a previous fold as the frame approaches, substantially as shown and described.

4. In a cloth-folding machine, the combination with stationary clamps adapted to receive and hold the folds of cloth, of a cloth-folding frame and means to reciprocate it between said clamps, said frame consisting of end pieces and two plates loosely connected to said end pieces and normally in the plane of the said clamps, and means to elevate the foremost plate above the clamp as the frame approaches the same, substantially as shown and described.

5. In a cloth-folding machine, the combination with stationary clamps adapted to receive and hold the folds of cloth and cam fingers supported above said clamps, of a cloth-folding frame and means to reciprocate it between said clamps, said frame consisting of end pieces, two plates loosely connected to said end pieces and normally in the plane of said clamp, and upwardly inclined shoes to co-operate with said cam fingers and elevate the foremost plate as the frame approaches the clamp, substantially as shown and described.

6. In a cloth-folding machine, the combination with stationary clamps adapted to receive and hold the folds of cloth, of a cloth-folding frame and means to reciprocate it between said clamps, said frame consisting of end pieces and two plates loosely connected to said end pieces and normally in the plane of said clamps, means to elevate the foremost plate as the frame approaches the clamps, and levers supported by the end pieces with their ends overlying the plates, whereby as one plate is elevated the other is pressed down, substantially as shown and described.

7. In a cloth-folding machine, the combination with a cloth-folding frame and means to reciprocate it, of a clamp to co-operate with said frame and having a movable jaw, a cam-dog connected to said jaw, and a dog carried with said frame and adapted to co-operate with said cam dog to open the clamp and having a recess to receive said cam dog and allow the clamp to close, substantially as shown and described.

8. In a cloth-folding machine, the combination with a cloth-folding frame and means to reciprocate it, of a clamp to co-operate with said frame and having a movable jaw, a pivoted cam dog carried by said jaw, a dog carried with said frame and adapted to co-operate with said cam dog to open said clamp and having a recess to receive said cam dog and allow the clamp to close, substantially as shown and described.

9. In a cloth-folding machine, the combination with a cloth-folding frame, of means to reciprocate the same, the said means consisting of a crank, a link or pitman, a rack, a pinion and shaft driven by said rack, sprocket-wheels on said shaft, chains driven by said wheels and connected to said frame, and carrying wheels for said chains, substantially as shown and described.

10. In a cloth-folding machine, the combination with a cutter having a vertical stroke upon its bed and a cloth-folding frame reciprocating over the bed of the cutter, of means to reciprocate said frame, said means consisting of a crank, a link or pitman, a rack, a pinion and shaft driven by said rack, sprocket-wheels on said shaft, chains driven by said wheels and connected to said frame, and carrying wheels for said chains, substantially as shown and described.

11. In a cloth-folding machine, the combination with a reciprocating cloth-folding frame and stationary clamps to receive and hold each successive fold until a new one is presented, of means to reciprocate said frame, said means consisting of a crank, a link or pitman, a rack, a pinion and shaft driven by said rack, sprocket-wheels on said shaft, chains driven by said wheels and connected to said frame, and carrying wheels for said chains, substantially as shown and described.

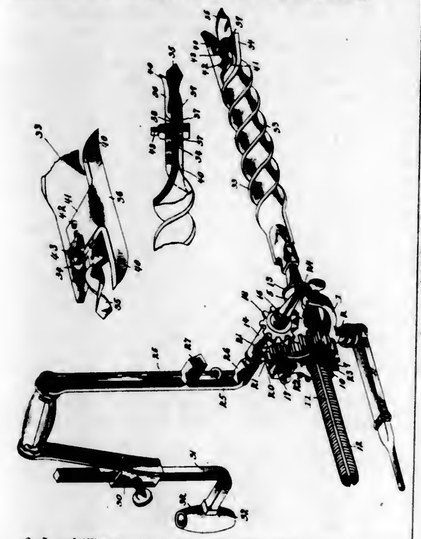
492,117. WELL-BAILER. HERBERT G. SMITH, Claysville, Pa. Filed Oct. 1, 1892. Serial No. 447,525. (No model.)



Claim.—In a bailer, a tube having side openings near its top, a guide secured to the tube near its upper end, a foot-piece having a valve-seat and an extension provided with a circumferential recess, packing adapted to fill the recess and frictionally hold the foot-piece in the lower end of the tube, a piston provided with a packed central opening, a pair of piston-rods passing through the guide and united at their upper ends, a downward-opening valve, and a valve-stem passing through the packed central opening in the piston and provided with a head at its upper end, substantially as described and for the purpose set forth.

492,118. DRILLING-MACHINE. JOHN T. SNYDER, Lusserne, Pa. Filed Sept. 21, 1892. Serial No. 446,458. (No model.)

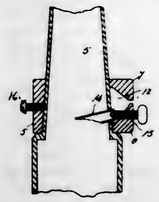
Claim.—1. In a drilling machine, the combination of a yoke provided at the ends of its arms with threaded openings, the screws arranged in the threaded openings and having smooth inner portions forming journals, the main bearing having bearing openings in its sides receiving the journals a cog-wheel having a hub arranged in one end of the bearing and provided with interior ribs, an interiorly threaded sleeve provided at opposite sides with openings registering with those of the bearing and receiving the ends of the screws, and a feed-bar engaging the threaded sleeve and provided with grooves to receive the ribs of the cog-wheel, substantially as described.



2. In a drilling machine, the combination of the yoke, the screws arranged in the ends of the yoke and having smooth journal portions at their inner ends, the bearing provided at opposite sides of the bearing recesses to receive the smooth portions of the screws and provided at its top with the supplemental transverse bearing, a drive shaft arranged in the transverse bearing, a stub shaft, a cog-wheel arranged at one end of the main bearing and provided with interior ribs and having a hub located in the latter and provided with an exterior annular flange, an interiorly threaded sleeve arranged in the other end of the main bearing and provided at opposite sides with openings and registering with those of the main bearing and receiving the screws, the drive pinion mounted on the drive shaft, a double pinion mounted on the stub shaft and meshing with the drive pinion and cog-wheel, the feed bar engaging the threaded sleeve and provided with grooves to receive the ribs of the cog wheel, and a securing plate having openings receiving the stub shaft and the feed bar and securing the cog wheel in the bearing substantially as described.

3. In a drilling machine, the combination with an auger provided at its outer end with a recess, a center twist bit having a shank arranged on the end of the auger and provided with a shoulder engaging said recess, a double ended side cutter having a central shank provided with a series of perforations, whereby the cutter may be adjusted outward, said cutter being reversible to bring either end in operation and a bolt passing through said shanks and securing the parts together, substantially as described.

492,119. SPRAYING DEVICE FOR FIRE-HOSE NOZZLES. JOHN STEELE, Denver, Colo. Filed May 13, 1892. Serial No. 432,905. (No model.)



Claim.—1. A spraying attachment for fire hose nozzles consisting of a slotted clasp or clamp and an open ended tube attached to the nozzle and projecting into the path of the current of water while passing therethrough, the opposite extremity being directed toward the slot in the clasp, substantially as described.

2. In an attachment for fire hose nozzles, the combination of an open ended outlet tube and a slotted clamp connected with the nozzle, said clasp being recessed beneath the slot to form a suitable chamber communicating with the outer extremity of the tube, substantially as described.

3. In an attachment for fire hose nozzles the combination of a slotted clasp and an open ended tube projecting into the nozzle, the clasp being recessed to form a chamber between the slot and the tube and into which the water passes from the tube before issuing from the slot, substantially as described.

4. The combination of a nozzle provided with an auxiliary outlet tube and an adjustable two-part clasp covering the outer extremity of said tube, the parts of the clasp being interiorly recessed to form a suitable chamber and sufficiently separated to form an issuing slot forming the outlet for the chamber, the tube being the inlet thereto, substantially as described.

5. The combination with a nozzle provided with an auxiliary outlet tube, a slotted clasp having a chamber lying between the tube and the slot and an adjustable valve for controlling the issue of water from the tube to the chamber, substantially as described.

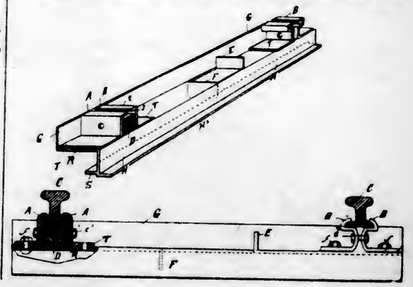
492,120. GARDEN-HOE PLOW. CHARLES C. STOCKARD, Sr., Columbus, Miss. Filed Apr. 28, 1892. Serial No. 431,081. (No model.)



Claim.—1. A hand implement for use in gardening and trucking, the same consisting in the double-pointed, reversible blade 5, having the concaved arrow-head shaped part 2, and the part 4 formed with the straight shear blade 10 and the curved edge 9, and the connecting strips 8, all formed integrally out of a single piece of sheet metal, substantially as described.

2. A hand implement for use in gardening and trucking, the same consisting of the double-pointed, reversible blade 5, having the concaved arrow-head shaped part 2, and the part 4 formed with the straight shear blade 10 and the curved edge 9, the whole being formed integrally out of a single piece of sheet metal with the connecting strip 8 between the blades, and having a handle as 1 suitably connected thereto, substantially as described.

492,121. METALLIC RAILWAY-TIE. AMBROSE W. STRAUB, Philadelphia, Pa. Filed Sept. 22, 1891. Serial No. 406,471. (No model.)



Claim.—1. A metallic railway tie having a bed plate, a longitudinal flange turned up at one side of said bed plate, and a similar flange turned down at the other side only of said bed plate, substantially as described.

2. A metallic railway tie having a bed plate, a longitudinal flange turned up at one side of said bed plate, a similar flange turned down at the other side only of said bed plate, and a transverse support for the rails secured to said tie, substantially as described.

3. A metallic railway tie provided with a bed plate, a longitudinal flange turned up at one side of said bed plate, a similar flange turned down at the opposite side only of said bed plate, in combination with an elastic transverse support for the rails, bolts or rivets for securing said rail support to the bed plate and bolts for holding said flexible rail supports firmly together and in engagement with said rail.

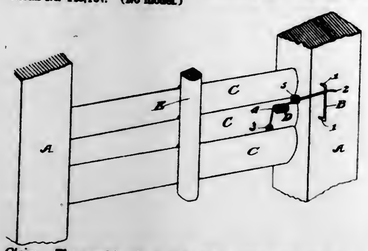
4. In a metallic railway tie provided with one upward and one downward extending longitudinal flange only, in combination with two (2) elastic S shaped supports for the rails, with a bolt to hold the supports firmly together and whereby the same means which support the rails also clamp and hold the said rails against movement in any direction.

5. A metallic railway tie provided with a base or bed plate, an upward extending longitudinal flange or anchor secured to the one side only of said bed plate, a downward extending longitudinal flange or anchor secured to the opposite side of said bed plate, and an upward extending transverse flange or anchor secured to said bed plate, whereby lateral movement is rendered less liable and the entire tie is held firmly in the ballast.

6. A metallic railway tie provided with a base or bed plate, an upward extending longitudinal flange or anchor, secured to said bed plate at the one side thereof only, a downward extending longitudinal flange or anchor secured to said bed plate at the opposite side thereof, an upward extending transverse flange or anchor secured to said bed plate and a downward extending transverse flange or anchor secured to said bed plate, whereby lateral movement is rendered less liable and the entire tie is held firmly in the ballast.

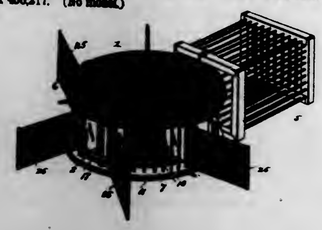
7. A metallic railway tie provided with a base or bed plate, an upward extending longitudinal flange or anchor, a downward extending longitudinal flange or anchor, and a horizontal extending longitudinal plate secured to said downward extending flange, as and for the purpose specified.

492,122. BLIND-STOP. LAWRENCE C. THORSEN, Rock Falls, assignor of one-half to John V. Emmett, Sterling, Ill. Filed Oct. 17, 1892. Serial No. 449,167. (No model.)



Claim.—The combination of the stile A provided with staple B, slat C journaled in said stile, vertical rod E and spring D seated at one end on said slat, and provided intermediately with two coils, in different planes, and with a free end 2 adapted to be projected under and bear against said staple B; substantially as shown, and for the purpose described.

492,123. FISH-TRAP. WYATTE H. TIBBLEY, Homer, La., assignor of one-half to Henry H. McKee, same place. Filed Oct. 28, 1892. Serial No. 450,217. (No model.)

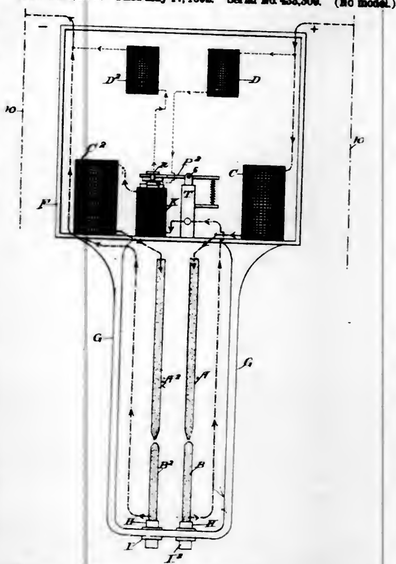


Claim.—1. The combination of a trap having entrance openings and an exit opening and comprising upper and lower frames, a top and a bottom secured to the frames, vertical rods forming the sides of the trap and secured to the frames, a cage arranged at the exit opening and hingedly connected to the bottom of the trap and detachably secured to the top thereof, the hinged doors adapted to swing vertically and extending inward from the entrance openings and outward from the exit openings and projecting into the cage, spiral springs connecting the doors and the inwardly extending triangular plates arranged at the sides of the doors at the entrance openings, substantially as described.

2. The combination of a trap having entrance openings and comprising upper and lower frames, a top and a bottom secured to the frame, and the rods forming the sides of the trap, inwardly extending hinged doors adapted to swing vertically, springs connecting the doors, plates extending inward at the sides of the doors, and a bait receptacle comprising upper and lower blocks forming the top and bottom, vertical wires secured to the blocks and forming the sides of the receptacle, and a centrally disposed spindle wire passing through the blocks, and secured to the top and bottom of the trap, substantially as described.

3. The combination of a trap having entrance openings and comprising upper and lower frames, a top and bottom secured to the frame, and the vertical rods arranged at intervals and forming the sides of the trap and having their ends secured to the frame, the vertically swinging upper and lower inclined doors, springs connecting the doors, the inwardly extending triangular plates arranged at opposite sides of the doors and forming passages and the angularly disposed wings extending from the trap at the entrance openings, substantially as described.

492,124. DUPLEX ELECTRIC-ARC LAMP. BARTON R. WARD, New York, N. Y. Filed May 17, 1892. Serial No. 433,309. (No model.)



Claim.—1. A multiple carbon lamp having two or more independent regulating mechanisms and corresponding, simultaneously burning pairs of carbons, two or more corresponding feed controlling magnet systems in continuous operative connection with the electric circuit, and a frame common to said pairs of carbons and magnet systems, as and for the purpose described.

2. A double or multiple carbon lamp having a frame F, G, G, two or more sets of carbons burning simultaneously in series with one another, with the lower carbons both supported in the cross piece of the side rods G, G, two or more corresponding independently operating regulating mechanisms for said carbons, and two or more corresponding feed controlling magnet systems in continuous operative connection with the electric circuit and mounted in the frame F, as and for the purpose described.

3. In a double carbon lamp, the combination, substantially as described, with the two simultaneously burning pairs of carbons and the two corresponding sets of main and derived circuit regulating magnets in continued operative connection with the circuit, of switch devices by which the operative connection of each derived circuit magnet in the lamp is normally maintained, and a magnet in the main circuit with the two pairs of carbons for holding the two sets of contacts of said switch devices normally closed.

4. The combination with constant potential mains, of an electric arc lamp having the voltage of the mains subdivided in a number of pairs of simultaneously but independently fed and adjusted pairs of carbons run in series with one another, and corresponding in number to the voltage or potential, the lower carbons of said pairs being mounted in a cross bar of the side rods of the lamp and insulated from one another on said cross bar, as and for the purpose described.

492,125. SPECTACLE EYE-SHIELD. JOHN D. WARREN, South Framingham, assignor of one-half to Edward G. Stevens, Clinton, Mass. Original application filed Apr. 16, 1892, Serial No. 429,434. Divided and this application filed Sept. 19, 1892. Serial No. 446,241. (No model.)



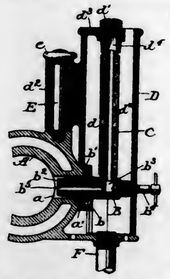
Claim.—1. An eye-shield made of mica, having a transparent or translucent protecting coating or film, substantially as described.

2. An eye-shield made of mica, having a transparent or translucent coating or film, and a die held by said film, substantially as described.

3. An eye-shield made of mica being coated on both sides with a dye, and a coating or film of impervious material over said dye, substantially as described.

4. The eye-shield consisting of the metallic frame A having the fingers B, the mica and cushions, said fingers being bent as at *b* to hold the mica, and then bent as shown to hold the cushions, substantially as described.

492,126. IGNITOR FOR GAS-ENGINES. CARL W. WEBB, Brooklyn, N. Y. Filed Nov. 27, 1891. Serial No. 413,206. (No model.)



Claim.—1. In an incandescent ignitor for gas-engines, the combination with the cylinder and the incandescent tube, of an independent tube communicating with said cylinder and having a lateral seat for the incandescent tube, a jacket surrounding said incandescent tube and a valve-rod screw-threaded into the outer end of said independent tube and adapted to close its bore between its inner end and the seat for the incandescent tube whereby the latter may be removed and replaced without permitting the escape of gas from the cylinder, substantially as shown and described.

2. In an incandescent ignitor for gas-engines, the combination with the cylinder, the incandescent tube and a seat for one end of said tube, of a longitudinally divided jacket to surround said tube, one part of said jacket being fixed and having a seat for the other end of the tube and the other part of said jacket being removable, substantially as shown and described.

3. In an incandescent ignitor for gas-engines, the combination with the cylinder and the incandescent tube, of a fixed arm having its end in line with said tube, and a chambered screw carried by said arm and forming a seat for the outer end of said tube, substantially as shown and described.

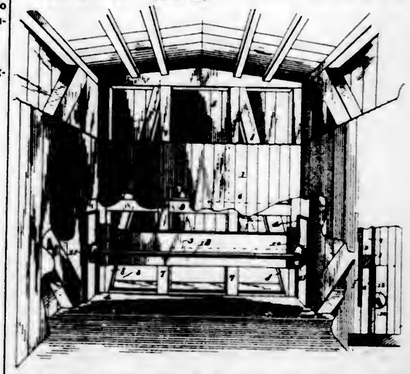
492,127. CIGAR-CASE. GEORGE WESTACOTT, Leon, Kans. Filed June 20, 1892. Serial No. 437,301. (No model.)



Claim.—1. In a device of the character set forth, the pair of doors, elongated L-shaped torsion springs having the ends bent at right angles to form spurs or points and connected at one end of their branches to said doors and extending around the adjacent corners of the same and having the ends of their remaining branches attached to the opposite ends of the casing, said springs being disposed at oblique angles to the plane of the doors, and a catch for holding the doors closed, substantially as described.

2. In a device of the character set forth, the combination of a casing having a pair of spring-actuated doors provided with beveled lugs on the inner edges thereof adjacent to the engaging ends of the same, and a spring-catch attached at its inner end to the said casing and having a loop formed at the outer end thereof, that is adapted to simultaneously and automatically engage the said lugs to lock the doors closed and also to be disengaged from the said doors to permit the latter to spring open, substantially as described.

492,128. GRAIN-CAR. ALONZO L. WHITCOMB, Great Bend, Kans., assignor of one-half to H. Elmer Dean, same place. Filed Sept. 26, 1892. Serial No. 446,904. (No model.)



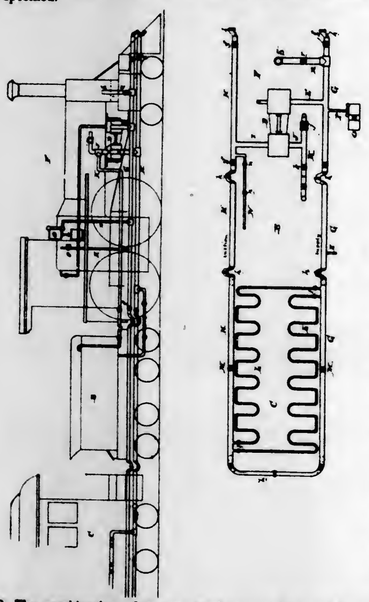
Claim.—The combination with a car provided at its end with an opening at the bottom and having uprights and braces 7 and 8 and provided with an inner lining and having the outer siding, the vertical ways arranged at the sides of the car, the vertically sliding door arranged to close the opening and having its ends sliding in the ways and designed to be located between the siding and the lining, gearing for raising and lowering the door, and a pawl and ratchet for securing the door in its adjustment, substantially as described.

492,129. HEATING APPARATUS FOR RAILWAYS. NAPOLEON W. WILLIAMS, Philadelphia, Pa. Filed Aug. 23, 1886. Serial No. 170,531. (No model.)

Claim.—1. The combination of one car truck or vehicle provided with steam supply and vacuum creating devices, supply and suction pipes the former connecting with the steam supply and the latter with the vacuum creating devices, with another vehicle, car or truck provided with steam heating coils or radiators, and supply and suction pipes connecting with said heating coils and communicating with the steam supply and suction creating devices whereby low pressure steam is caused to circulate through the system of pipes receiving its motive

force from a vehicle other than that to be heated and flexible coupling devices to connect respectively the supply and suction pipes on the two vehicles substantially as and for the purpose specified.

2. The combination of one or more cars, trucks or vehicles provided with steam supply and vacuum creating devices supply and suction pipes the former connecting with the steam supply and the latter with the vacuum creating devices with another vehicle car or truck provided with steam heating coils or radiators and supply and suction pipes connecting with said heating coils and communicating with the steam supply and suction creating devices by disconnectible couplings, those on the rear end of the rear car being coupled together to unite the supply and suction pipes whereby low pressure steam is caused to circulate through the system of pipes receiving its motive force from a vehicle other than that to be heated substantially as and for the purpose specified.



3. The combination of one car truck or vehicle provided with steam supply and vacuum creating devices supply and suction pipes the former connecting with the steam supply and the latter with the vacuum creating devices with another vehicle car or truck provided with steam heating coils or radiators, and supply and suction pipes connecting with said heating coils and communicating with the steam supply and suction creating devices and supplied with suitable valves to control the quantity of steam required to pass through the heating coils, whereby low pressure steam is caused to circulate through the system of pipes receiving its motive force from a vehicle other than that to be heated substantially as and for the purpose specified.

4. A car or vehicle provided with heating or radiating steam pipes or coils, steam supply and suction pipes communicating respectively with the ends of said heating coils; the ends of said steam supply and suction pipes being provided with coupling devices whereby they may be coupled with corresponding pipes on another car or vehicle substantially as and for the purpose specified.

5. A car or vehicle on wheels, having steam heating pipes or coils, a steam supply pipe, and a suction pipe communicating respectively with the ends of said heating pipes or coils and in which the ends of said supply and suction pipes terminate at the extremities of the car or vehicle, and flexible couplings on the ends of each of the pipes adapted to couple with each other or with similar couplings on another similarly equipped car or vehicle.

6. The combination of a car, a steam supply pipe and a suction pipe extending longitudinally on the car and terminating in each end in couplings for connection with similar pipes on other cars or locomotive, heating coils connecting between the said supply and suction pipes and arranged within the car in multiple, valves in said supply and suction pipes for controlling the passage of steam therein, a locomotive, a steam pipe leading from the locomotive to the supply pipe of the car, a valve in said steam pipe to control the supply of steam to the car, a vacuum creating pump operated by steam from the locomotive, and a suction pipe leading from the suction pipe of the car to suction port of the pump.

7. A locomotive combined with a vacuum creating pump supported on the locomotive and provided with a coupling for adjustment to a steam pipe on a car, said supply connecting with the exhaust of the locomotive, and a suction pipe also carried by the locomotive having its rear end provided with a coupling for connection with a corresponding suction pipe on a car and having its other or forward end connected with the suction of the vacuum pump, and a steam pipe leading from the boiler of the locomotive to the vacuum creating pump and provided with a controlling valve.

8. A locomotive provided with a vacuum creating pump or its equivalent steam supply and suction pipes provided on one or both ends with couplings the suction pipe communicating with said vacuum pump and the steam supply pipe communicating with a steam source and a pipe connecting the discharge port of the suction creating pump with the boiler whereby the condensed water is forced into the boiler substantially as and for the purpose specified.

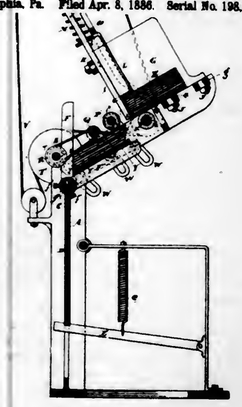
9. A locomotive provided with a vacuum creating pump or its equivalent, steam supply and suction pipes provided on one or both ends with couplings the suction pipe communicating with said vacuum pump and the steam supply pipe communicating with a steam source and a pipe connecting the discharge port of the suction creating pump with the boiler whereby the condensed water is forced into the boiler and a cold water supply pipe connecting with the suction pipe substantially as and for the purpose specified.

10. A locomotive provided with a vacuum creating pump or its equivalent steam supply and suction pipes provided on one or both ends with couplings the suction pipe communicating with said vacuum pump and the steam supply pipe communicating with a steam source and a pipe connecting the discharge port of the suction creating pump with the boiler whereby the condensed water is forced into the boiler and a pipe connecting with the feed pipe and the cold water supply substantially as and for the purpose specified.

11. A traveling vehicle on wheels having a compartment for passengers, steam heating pipes or coils in said vehicle, a steam supply pipe for said heating pipes or coils, a source of steam supply, a suction pipe from the return end of the coils or heating pipes, and a vacuum creating device for creating a vacuum in the suction pipe and heating pipes or coils for circulating the steam below atmospheric pressure, the said vacuum creating device, source of steam supply, and supply, suction and heating pipes being carried by and moving with the said vehicle on wheels.

12. A car or vehicle having a steam vacuum creating pump or its equivalent steam supply and suction pipes having couplings on one or both ends, the supply pipe being connected with the exhaust of the engine and the suction pipe being connected with the vacuum creating cylinder in combination with a vehicle or car provided with heating or radiating steam pipes or coils, steam supply and suction pipes communicating respectively with the ends of said heating coils, the ends of said steam supply and suction pipes being provided with coupling devices whereby they may be coupled with corresponding pipes on another car or vehicle, substantially as and for the purpose specified.

492,130. CARD-STACKING MACHINE. CHARLES A. WRIGHT, Philadelphia, Pa. Filed Apr. 8, 1886. Serial No. 198,234. (No model.)



Claim.—1. In a card stacking machine the combination of a feeding device substantially as set forth for feeding the cards in succession, with a movable receiving table or frame having guides to receive and support said cards, and cause them to automatically arrange themselves one above the other in an oblique stack substantially as and for the purpose specified.

2. In a card stacking machine the combination of a feeding device substantially as set forth for feeding the cards in succession, with a movable receiving table or frame having adjustable guides to receive and support said cards and cause them to automatically arrange themselves one above the other in an oblique stack substantially as and for the purpose specified.

3. In a card stacking machine the combination of a feeding device substantially as set forth for feeding the cards in succession with a movable receiving table or frame having guides to receive and support said cards and cause them to automatically arrange themselves one above the other in an oblique stack movable pressure parts to press upon the cards as they are stacked and depress the receiving frame, and springs, or their equivalent to raise said frame and cause it to press the cards against the said bands rollers or their equivalent substantially as and for the purpose specified.

4. The combination of a hopper, a roller to feed the cards from under said hopper one at a time a receiving table or frame adapted to receive the cards and rearrange them one upon the other in an oblique stack, and suitable guides to insure the requisite angle to the oblique stack substantially as and for the purpose specified.

5. The combination of a hopper, a roller to feed the cards from under said hopper one at a time a receiving table or frame adapted to receive the cards and rearrange them one upon the other in an oblique stack, and suitable adjustable guides to insure the requisite angle to the oblique stack substantially as and for the purpose specified.

6. The combination of a hopper, a roller to feed the cards from under said hopper one at a time a receiving table or frame adapted to receive the cards and rearrange them one upon the other in an oblique stack and suitable guides to insure the requisite angle to the oblique stack and means substantially as set forth to press said cards down upon the receiving frame substantially as and for the purpose specified.

7. In a card stacking machine the combination of a feeding device substantially as set forth for feeding the cards in succession with a receiving table or frame having guides to receive and support said cards and cause them to automatically arrange themselves one above the other in an oblique stack and pressure bands arranged to press upon the upper and forward edge of the cards whereby they are compacted upon the receiving frame substantially as and for the purpose specified.

8. In a card stacking machine the combination of a feeding device substantially as set forth for feeding the cards in succession with a movable receiving table or frame having guides to receive and support said cards and cause them to automatically arrange themselves one above the other in an oblique stack pressure bands arranged to press upon the upper and forward edge of the cards whereby they are compacted upon the receiving frame and springs to force the frame and its cards up against the said bands substantially as and for the purpose specified.

9. In a machine for stacking beveled edged cards preparatory to gilding, the combination of feeding devices substantially as described to feed the cards one at a time, a receiving support adjacent to the feeding devices to receive the cards therefrom and a guide arranged obliquely with reference to the receiving support to cause the stacked cards upon said support to assume an oblique position thereon.

10. The combination of the hopper feeding roller *k*, cross head C and adjustable guides F F' substantially as and for the purpose specified.

11. The combination of the hopper feeding roller *k*, cross head C and guides F F' a spring to raise said cross head shafts R and Q and bands S substantially as and for the purpose specified.

12. The combination of the hopper feeding roller *k* cross head C and guides F F' a spring to raise said cross head rollers *p* shafts R and Q and bands S substantially as and for the purpose specified.

13. The combination of the hopper feeding roller *k* cross head C and guides F F' a spring to raise said cross head and feeding rollers *p* substantially as and for the purpose specified.

14. The combination of the hopper feeding roller *k*, cross head C and guides F F' a spring to raise said cross head shafts R and Q and bands S and lateral guide G' substantially as and for the purpose specified.

15. The combination of the hopper feeding roller *k*, cross head C and guides F F' a spring to raise said cross head and feeding rollers *p* and lateral guide G' substantially as and for the purpose specified.

16. The combination of a hopper a feeding roller at the base of the hopper, a guide under which the cards are fed, a spring presser for forcing the cards down upon the roller and a receiving and stacking table or frame upon which the cards are fed substantially as and for the purpose specified.

17. The combination of a hopper a feeding roller at the base of the hopper, a guide under which the cards are fed, a spring presser for forcing the cards down upon the roller a lock for holding said presser clear of the cards and a receiving and stacking table or frame upon which the cards are fed substantially as and for the purpose specified.

18. The combination of a hopper a feeding roller at the base of the hopper, a guide under which the cards are fed, a spring presser for forcing the cards down upon the roller a lock for holding said presser clear of the cards and a lever to raise the cards from the feeding roller to prevent feeding and a receiving and stacking table or frame upon which the cards are fed substantially as and for the purpose specified.

19. The combination of a hopper a feeding roller at the base of the hopper, a guide under which the cards are fed, a spring presser for forcing the cards down upon the roller and a lever to raise the cards from the feeding roller to prevent feeding and a receiving and stacking frame upon which the cards are fed substantially as and for the purpose specified.

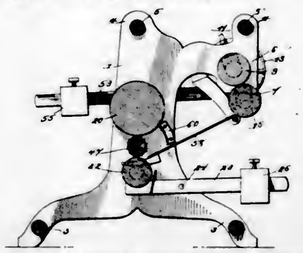
20. The combination of a stationary frame having guides for supporting and permitting the movement of the cards, with stacking table or frame having the guides F F' made relatively adjustable substantially as and for the purpose specified.

492,181. SUSPENDER-END CAST-OFF. GEORGE E ADAMS, New Britain, Conn., assignor to the Traut & Hine Manufacturing Company, same place. Filed Nov. 19, 1892. Serial No. 452,576. (No model.)



Claim.—In a cast-off for suspender ends, the combination with the flat tubular body portion C, provided with means for attachment to a suspender end and having the internal circular recess *D'* struck out from its front wall, of the cast-off portion B having the circular projection E struck out from the body thereof for co-operation with the circular recess in the front of the tubular portion, the upper end of the cast-off portion being reduced to permit of a lateral swinging or swiveling movement and bent back on itself to form the short spring tongue F for co-operation with the rear wall of the tubular portion, whereby the circular projection E is held in the circular recess *D'*; substantially as described.

492,182. COTTON-PRESS. WILLIAM T. BENNORTTE, Temple, assignor of one-half to Warren A. Patterson, Lampasas, Tex. Filed Aug. 6, 1892. Serial No. 442,353. (No model.)



Claim.—1. In a press of the class described, the combination with opposite side standards having bearing-openings, pressing and baling rolls journaled in the openings, and bearing-openings located in the standards between the rolls, of means for forcing the rolls toward each other, cotton feed-devices, a short shaft journaled in one of the intermediate bearing-openings and having its inner end provided with a radiating pin, a threaded bolt mounted in the opposite bearing and provided at its inner end with a bearing-lug, means for driving the short shaft, and a core-roll having its outer surface roughened and provided with opposite heads, one of which forms a socket having a notch for the reception of the inner end of the short shaft and its pin, and the other of which has a lug for engaging the bearing-cavity of the bolt, substantially as specified.

2. In a press of the class described, the combination with the opposite side standards having pairs of transversely-opposite elongated slots forming bearings, an upper and a lower roll having trunnions mounted in the bearings, cotton feed devices located in rear of said rolls, an intermediate table, means for yieldingly pressing the rolls together, an intermediate removable core-roll, means for revolving the upper and lower rolls, and for revolving and gradually increasing the speed of the core-roll, substantially as specified.

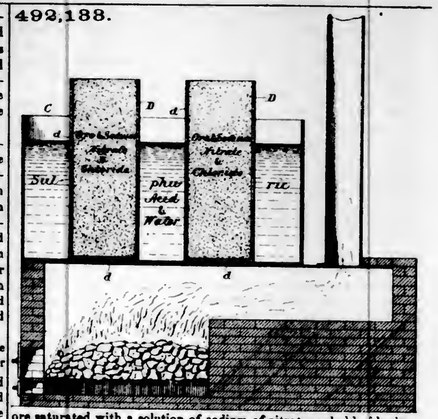
3. In a press of the class described, the combination with the opposite side standards, the pair of rear feed-rolls, means for driving the same and communicating motion from one to the other, a large friction-disk on one of said rolls, and a pair of yielding rolls located in the front of the standards, of a removable core-roll located between the front rolls, means for yieldingly pressing the front rolls thereagainst, bearing-shafts for the core roll, a pinion on one of said shafts, a longitudinal shaft, bearings for the same, a sleeve splined on the longitudinal shaft and provided at its inner end with an annular collar, a friction pulley at the rear end of the sleeve contacting with the friction-disk, a pivoted bell-crank lever having its rear end forked to engage the groove of the sleeve and its front end loosely connected with a journal of one of the front rolls, substantially as specified.

4. In a press of the class described, the combination with the side standards, the rear guide-rolls, means for driving the same and for transmitting motion from one to the other, of a friction-disk carried by one of the rolls, a pair of front yieldingly-mounted baling and pressing rolls, a shaft supported at the side of the standard, a sleeve mounted non-rotatably for sliding on the shaft, a friction pulley mounted on the upper end of the sleeve, connecting devices between the sleeve and the front roll, whereby an upward movement of the roll causes a movement of the sleeve, a core-roll between the front rolls, and means for driving the same, substantially as specified.

5. In a press of the class described, the combination with the opposite standards, the pair of loosely journaled feed-rolls geared together, means for operating the same, a friction-disk carried by one of said rolls, bearings located at the opposite sides of the disk and in front thereof, one of said bearings being elongated, a shaft journaled in the bearings, a follower-block mounted on the shaft, a bolt bearing on the block, a sleeve mounted on the shaft, a pulley carried by the sleeve and contacting with the disk, of a pair of front rolls, an intermediate core-roll, and devices located between one of the front rolls and sleeve whereby a movement of said roll will serve to draw the sleeve toward the front, substantially as specified.

6. In a press of the class described, the combination with the opposite standards, the tie-bolts for securing the same, the pairs of bearing-openings near the rear upper edge of the standard inclined with relation to each other, the two rolls having their journals located in the bearings, a follower-block located in the upper bearings, binding-bolts passed through the standards and bearing on the blocks, gear-wheels mounted on corresponding ends of the rolls and engaging each other, and a pulley mounted on one end of one roll and a friction-disk on the opposite end of the companion roll, of the front elongated bearings, the upper and lower rolls journaled therein, the front and rear diagonally-opposite bearing lugs, the shaft journaled therein and provided at its lower end with a beveled gear, the sliding sleeve splined upon the shaft, the friction pulley at the upper end of the sleeve, the stud projecting from the standard, the bell-cranked lever mounted on the stud and engaging the sleeve, links connected to the opposite end of the bell-crank lever and to the roll, pivoted levers fulcrumed on the standard, arranged above and below each other and the front rolls and bearing upon the journals thereof, weights upon the rear ends of the lower levers, and front ends of the upper levers, bearing-openings between the front rolls, an adjustable bearing-bolt in one of the openings, a short shaft in the other, a roughened core-roll supported thereby, and a beveled gear mounted on the outer end of the short shaft and engaging the beveled gear of the inclined shaft, substantially as specified.

492,188. PROCESS OF RECOVERING GOLD. JOHN BLAIR, Arctura, Canada, assignor to L. C. Dillman, Frank Wilson, and D. G. Eaton, Spokane, Wash. Filed July 19, 1892. Serial No. 440,498. (No model.)

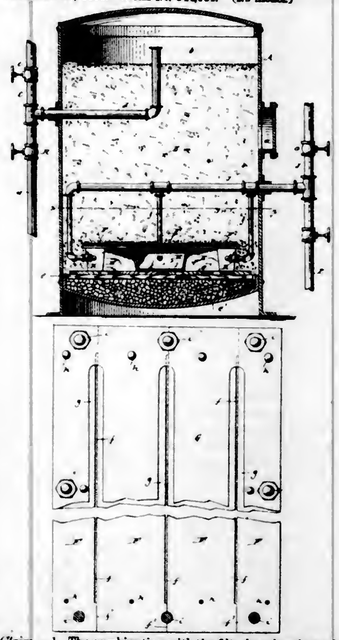


Claim.—1. A method for separating gold from its ores, which consists in heating successive portions of ore saturated with a solution of sodium nitrate and chloride in a solution of sulphuric acid, and washing the soluble salts formed in each portion back into the acid solution, substantially as set forth.

2. A method for separating gold from its ores which consists in introducing successive portions of ore saturated in a solution of sodium nitrate and chloride and within a perforate vessel, into a vat containing a hot solution of sulphuric acid, and after each introduction of the jars into the vat, washing the soluble salts within said jars back into the solution within the vat, substantially as set forth.

3. A method for separating gold from its ores which consists in first separating magnetic ores from the gold ore, and then heating the ore saturated with a solution of sodium of nitrate and chloride, in a solution of sulphuric acid, substantially as set forth.

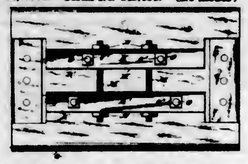
492,134. FILTER. FRANCIS A. BUNNELL, Syracuse, N. Y., assignor to Christopher C. Bradley and Mary R. Bunnell, same place. Filed Mar. 22, 1890. Serial No. 344,981. (No model.)



Claim.—1. The combination with the filtering chamber, of a filter diaphragm composed of thin strips of metal arranged side by side and having their adjacent edges slightly separated, whereby narrow and shallow slits are formed between the strips for the passage of the filtered liquid, and a supporting plate having slots which are of greater width than said slits and arranged in line therewith, substantially as set forth.

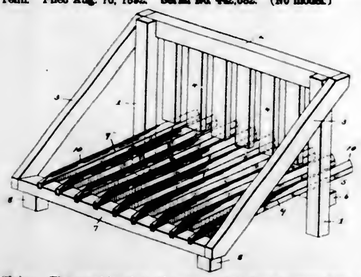
2. The combination with the shell containing the filtering material and provided with a concave bottom, of water inlet and outlet pipes, water receiving chambers connected with said outlet pipe, and a horizontal grating or support resting on a gravel bed in the concave bottom of said shell and supporting said water chambers, substantially as set forth.

492,135. BED-BOTTOM. ALEXANDER A. CAMERON, Cobbville, Ga. Filed Sept. 12, 1892. Serial No. 445,656. (No model.)



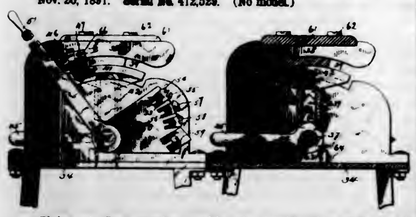
Claim.—In a bed-bottom, the combination of a rectangular frame consisting of end and side bars, webbing stretched transversely over the frame and exteading at its side edges beneath the same, and a tension-device comprising relatively adjustable twin-bars or members K K', engaging the adjacent side edges of the webbing beneath the frame, and adjusting bolts N engaging horizontally aligned apertures in said bars or members, each bar or member of this tension-device comprising upper and lower separable sections *k k'*, provided respectively with a tongue and a corresponding groove, and vertical securing bolts O engaging registering apertures in the sections, the side edges of the webbing being carried over the bars or members, down their inner or adjacent surfaces, and between the separable sections thereof, substantially as specified.

492,136. FLOOD-FENCE. JOHN J. CAMPBELL, Gleeson Station, Tenn. Filed Aug. 10, 1892. Serial No. 442,682. (No model.)



Claim.—The combination of a supporting frame comprising opposite posts 1, the cross-bar 2 connecting the upper ends of the posts, the opposite short posts 8, the horizontal supporting bars 6 and 7 secured to the posts 1 and 8 and disposed transversely of the frame, and the inclined braces 3 extending from the short posts to the tops of the posts 1 and arranged at the ends of the supporting bar 7, the series of depending independently hinged gate-bars suspended from the cross-bar 2 and the series of inclined longitudinally disposed bars 9 mounted on the supporting bars 6 and 7 and having their front ends beveled, substantially as described.

492,137. CROZING-MACHINE. HENRY CAMPBELL, Baltimore, Md., assignor to the Campbell Barrel Machine Company, same place. Filed Nov. 20, 1891. Serial No. 412,529. (No model.)



Claim.—1. In a crozing machine the combination of the heads having rests or supports for the convex faces of the ends of the stave, a longitudinal shaft mounted in bearings in said heads and having mounted thereon suitable crozing cutters, guides on said heads extending in a direction from the shaft bearings toward said rests, slides adapted to reciprocate in said guides, toward and from the rests, clamps carried by the guides and adapted to engage the concave side of the stave, and means for operating said slides and shaft, substantially as set forth.

2. In a crozing machine the combination of the heads having rests or supports for the ends of the stave, a longitudinal shaft mounted in bearings in said heads and carrying suitable crozing cutters, guides on the heads extending in a direction from the shaft bearings toward said rests, slides movable in said guides toward and from said rests, convex clamps pivotally mounted on the slides and means for actuating said slides and shaft, substantially as set forth.

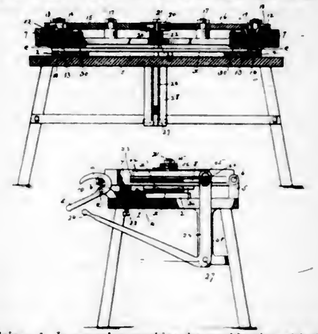
3. In a crozing machine the combination of heads or plates having rests to prevent the outward movement of the stave, and laterally open spaces for the ends of the stave between the head and rests, stops for the rear edge of the stave, a shaft having crozing cutters operating parallel with said heads, and adjusting devices for said stops, substantially as set forth.

4. The combination of the shaft carrying crozing cutters, clamps for the stave, and an oscillating part concentric with said shaft and adapted to operate said clamps, substantially as set forth.

5. The combination of the shaft carrying crozing cutters, clamps for the stave, and an oscillating part concentric with said shaft and adapted to operate said clamps and bearings for supporting said oscillating part independently of the shaft, substantially as set forth.

6. In a crozing machine the combination of heads or plates having rests to prevent the outward movement of the stave, stops of relatively soft material for the rear edge of the stave, at each end thereof and crozing cutters operating parallel with said heads and in line with said stop substantially as set forth.

492,138. STAVE-CROZING MACHINE. HENRY CAMPBELL, Baltimore, Md., assignor to the Campbell Barrel Machine Company, same place. Filed Oct. 26, 1891. Serial No. 409,869. (No model.)



Claim.—1. In a crozing machine the combination with the crozing devices, and a support for the same whereby they may be brought into proper position to operate upon the staves of a presser for flattening the stave, carried by said support and movable in a direction perpendicular to the surface of the stave independently of the crozing devices substantially as set forth.

2. The combination of a crozing tool, a guide for the same movable toward and from the stave to clamp and release the latter, a presser carried by the guide and adapted to flatten the stave, and a stop 33 in line with said guide for arresting it when in proper position relative to the outer or bottom face of the stave substantially as set forth.

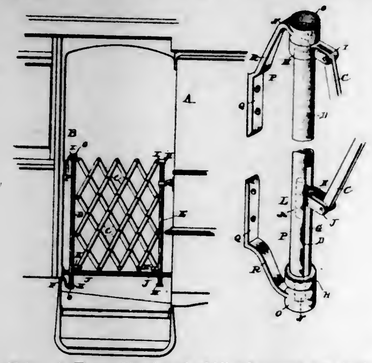
3. The combination of a crozing tool, a guide for the same, a presser carried by said guide, and means such as springs for permitting the motion of the guide toward the presser, substantially as set forth.

4. The combination of the guides 7, the connecting frame 8, the crozing tools in said guides, the levers 15, 16, connected with said tools the slide 22, connected with said levers the guide 23, and the lever 24, and means for depressing the guides 7, substantially as set forth.

5. In a crozing machine, the combination with the crozing devices, of a stave compressing guide carrying the crozing tool and having a yielding presser 30, substantially as set forth.

6. The combination with the hinged frame having guides, and crozing tools mounted in the latter, one for each end of the stave, of a lever 24 situated between said guides and connected with and adapted to operate both of said tools, substantially as set forth.

492,189. FOLDING GATE FOR CAR-PLATFORMS. HENRY COSSMAN, Chester, Pa. Filed Oct. 28, 1892. Serial No. 450,263. (No model.)



Claim.—1. The combination of a folding lazy-tong gate having vertical end posts, caps or castings secured to the ends of said posts, the upper caps being provided with extended ears or lugs pivotally connected with the upper end corners of the panel, vertically movable guides arranged to work inside of said vertical end posts and loosely connected to the lower end corners of the gate panel, pivot studs on the caps of the pivot or inner end post, and relatively reversed bearing brackets comprising flat securing plates, and off-standing arms terminating at their outer ends in bearing sockets which receive said pivot studs, substantially as set forth.

2. The combination in a folding lazy-tong gate; of the tubular end posts having longitudinally disposed slots in their lower ends, caps secured to the upper ends of said posts and having pivot lugs or ears, guide castings sliding in the slots of said posts, and the folding bars connected at their corners to the upper caps and said castings respectively, substantially as set forth.

3. The combination in a swinging lazy-tong gate; of the tubular end posts having longitudinally disposed slots, T-shaped guide castings moving in said slots and the posts, and the folding bars connected fixedly to the upper ends of the posts and with said sliding castings at their lower corners, substantially as set forth.

4. The combination in a folding gate for car platforms, of the duplicate pivotal supports for the gate, the tubular slotted end posts, T-shaped guide castings moving in the posts and the slots thereof and provided with parallel ears or lugs, the folding bars pivotally connected at their upper corners to the upper ends of the posts and at their lower corners between the ears or lugs of said castings, a securing eye or link, and a hook pivotally connected to the outer end post and adapted to engage said eye or link, substantially as set forth.

492,140. BOLT-THREADING MACHINE. JEROME W. COOK, Springfield, Ohio, administrator of Frank S. Cook, deceased, assignor to the Capital Manufacturing Company, Chicago, Ill. Filed Sept. 18, 1891. Serial No. 406,085. (No model.)

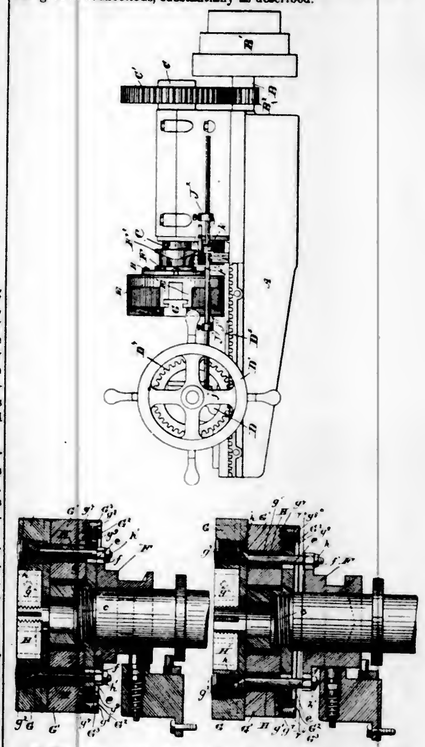
Claim.—1. In a bolt threading machine, the combination with a head or chuck, die carriers movably mounted in said head or chuck, adjusting blocks also movably mounted in said head or chuck, the faces of the die carriers and adjusting blocks being in contact, but movable with respect to each other, means for engaging them together, and adjusting mechanism for adjusting them toward or from the center to fit the diameter of the bolt to be threaded, substantially as described.

2. In a bolt threading machine the combination with the die carriers and adjusting blocks, of keys extending through the adjusting blocks and into recesses in the die carriers, said keys provided with angular ends which engage beveled recesses in the die carriers, means for causing the keys to move longitudinally to open and close the dies and adjusting mechanism for moving each die carrier and its adjusting block toward or from the center to fit the diameter of the bolt to be threaded, substantially as described.

3. The combination of the head or chuck the adjusting blocks, the die carriers engaged to the adjusting blocks by keys passing through the adjusting blocks and into the die carriers, and an adjusting ring engaging each of the adjusting blocks and adapted to move the latter toward or from the center, substantially as described.

4. The combination of the head or chuck, the adjusting blocks, the die carriers engaged to the adjusting blocks by keys having angular heads which engage beveled recesses in the carriers, and an adjusting ring engaging each of the adjusting blocks and adapted to move the latter toward or from the center, substantially as described.

5. The combination of the chuck or head, the die carriers and adjusting blocks, said die carriers and adjusting blocks being in contact with each other and both of them engaged to the head by tongue and groove connections, substantially as described.



6. The combination with the head or chuck provided with slots in its outstanding flange of the adjusting blocks each provided with a tenon or projection which enters and slides in the slot in the head, and the operating key H passing through said projection, substantially as described.

7. The combination with the head or chuck, the sliding ring or collar F having slots f' and the die carriers of the keys for holding the parts together, said keys provided with heads which enter and slide in the slots f', substantially as described.

8. In a bolt threading machine the combination with the bolt carriage having pivoted jaws which engage the bolt of a movable rack-bar carried by the carriage, adapted when moved to engage the jaws and close them, and a pinion engaging said rack-bar and adapted to first move the rack-bar to engage the jaws and then move the carriage through the medium of the rack-bar, substantially as described.

9. In a bolt threading machine the combination of the bolt carriage having vertical pivoted jaws with depending ends, a rack-bar having a beveled end to enter between and spread said depending ends thereby closing the upper ends, and a pinion adapted to engage the rack-bar and move it, substantially as described.

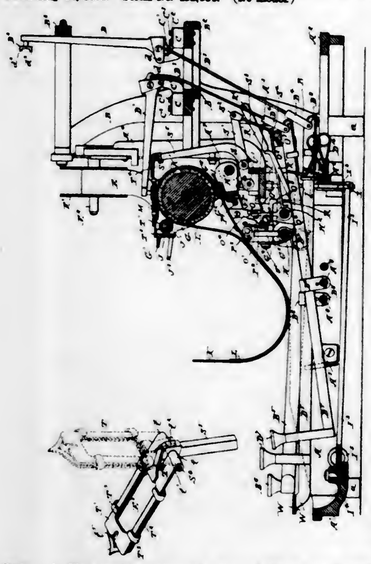
10. The combination with the bolt carriage having pivoted jaws, a movable rack-bar on the carriage to engage said jaws and close them, and a pinion to actuate the rack-bar, of a stop on the frame of the machine adapted to engage the carriage and hold it until the jaws have been closed, said stop released by the movement of the rack-bar substantially as described.

11. The combination with the bolt carriage having pivoted jaws, a movable rack-bar on the carriage to engage the jaws and close them, and a pinion to actuate the rack-bar of a stop on the frame of the machine adapted to engage and hold the carriage until released said stop made adjustable, substantially as described.

12. The combination with the carriage the jaws, and stop-bar P having the beveled portion p' of the rack-bar N^3 beveled as at n—n', substantially as described.

13. The combination of the split nut each half provided with a pin or projection, the pivoted plate having eccentric slots in which the pins enter, the pin for engaging the plate in its abnormal position, the beveled projection on the frame adapted to engage the beveled portion on the pin and the spring to return the plate to its normal position, substantially as described.

492,141. TYPE-WRITING MACHINE. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, Boston, Mass. Filed May 14, 1892. Serial No. 432,900. (No model.)



Claim.—1. The combination with the carriage, of a vibrating rack, a fixed catch upon the carriage, a hinge piece P^3, journaled in the base of the carriage and carrying a movable catch pivoted to said hinge piece, a trip lever arranged to raise the movable catch, a shaft mounted in the carriage and carrying the trip lever, and a thumb lever arranged to rock the shaft, substantially as described.

2. The combination in a typewriting machine, with a shifting frame and a series of type levers carried by said frame, of a carriage, feeding devices for the carriage including a movable catch and a fixed stop therefor, a movable stop arranged to be interposed between the catch and the fixed stop and a universal bar connected to the shifting frame and movable into and out of engagement with the movable stop, substantially as described.

3. The combination in a typewriting machine, of a vibrating rack, a carriage, fixed and movable catches upon the carriage arranged to alternately engage the rack, a fixed stop upon the carriage for the movable catch, a secondary movable stop upon the carriage adapted to be interposed between the fixed stop and the movable catch, a universal bar resting upon the key levers and connected to a shifting frame whereby it may be shifted into and out of engagement with the movable stop, substantially as described.

4. In a typewriting machine the combination with the carriage having upper and lower rails G', G^3, united by end pieces G, the rail G^3, being curved at its end to form a cam U^2, of a bell attached to the main frame, a shaft journaled in the main frame and carrying a striker for the bell, and an adjustable spring trip U^4, mounted upon the shaft and arranged to be engaged by the cam U^2, upon the carriage, substantially as described.

5. The combination in a typewriting machine with the carriage and the platen mounted in the carriage, of a pressure roller journaled in the ends of the carriage, springs for pressing said roller against the platen, and a lever pivoted to each end of the carriage for raising said roller from the platen, said levers being united by a bail extending along the front of the carriage, substantially as described.

6. The combination in a typewriting machine with the carriage, the platen, the pressure roller, and springs for pressing said roller against the platen, of a bail extending along the front of the carriage and levers at each end of the carriage, said levers being united by the bail and provided with seats J^5, at their inner ends, whereby said pressure roller may be lifted from the platen and sustained its raised position, substantially as described.

7. The combination with the carriage and the platen mounted upon the carriage and provided with a ratchet wheel, of the holding pawl F^6, and its thumb lever F^8, extending in front of the carriage and the moving pawl having its thumb lever located adjacent to the thumb lever of the holding pawl, substantially as described.

8. The combination in a typewriting machine with a carriage and a revolving platen mounted in the carriage, of ribbon spools, a reciprocating ribbon guide above the platen, a rock shaft having an arm extending upward behind the platen to which the ribbon guide is pivoted, and an index carried by said ribbon guide to indicate the printing point, substantially as described.

9. The combination in a typewriting machine with the carriage and the revolving platen, of the rock shaft beneath the platen, a universal bar resting upon the keys and connected to an arm of the rock shaft, a second arm extending up back of the platen and a reciprocating ribbon guide pivoted to said second arm and arranged to carry the ribbon to and from the printing point, substantially as described.

10. In a typewriting machine the combination with the rock shaft and its arm S^3, having the stop surfaces t', t^3, of the ribbon guide having a spring arranged to engage said stop surfaces whereby the guide may be held in operative relation to the platen or turned up, substantially as described.

11. In a typewriting machine the combination with a vibrating arm, of a ribbon guide connected to said arm, said guide being adjustable relatively to the arm, whereby the ribbon may be carried over the printing point a greater or less proportion of its width as desired, substantially as described.

12. In a typewriting machine the combination with the rock shaft and its arm S^3, of the ribbon guide consisting of two plates, one of said plates being pivoted to the arm and the other plate being adjustably connected to the first, whereby the relation of the ribbon to the printing point may be adjusted, substantially as described.

13. The combination with a type bar and a type bar supporting beam, of a type bar bracket C, having an arm to which the type bar is pivoted and an elongated slot, and a clamping plate and two screws for holding said bracket adjustably upon the supporting beam, substantially as described.

14. In a typewriting machine the combination with a type bar and a key lever, of the connecting rod D^3, the swivel D^4, and a spring detent for holding the swivel in connection with the key lever, substantially as described.

15. In a typewriter the key lever notched at its inner end and provided with the spring detent D^4, in combination with the connecting rod and the swivel having a pin adapted to be retained in the notch of the key lever by the detent, substantially as described.

16. In a typewriting machine the combination with the main frame and a fulcrum rod, of a key lever having a fulcrum bracket adapted to rest upon the rod and a catch hinged to the bracket and arranged to embrace the rod, substantially as described.

492,142. ELLIPSOGRAPH. HENRY R. CORKHILL, Jr., Rochester, N. Y. Filed Mar. 26, 1892. Serial No. 426,569. (Model.)

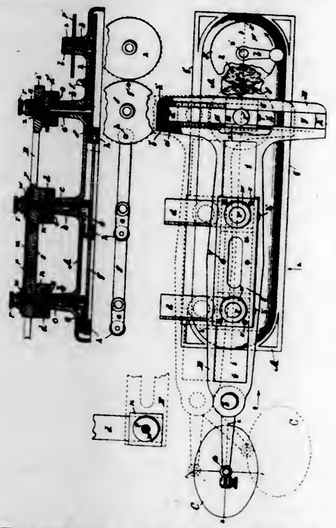
Claim.—1. An ellipsograph formed with a base piece, a pair of revolving crank-arms held by said base piece, a holding bar mounted upon said crank-arms, and a tracing arm held by said crank-arms and provided with a tracing point overhanging said base piece, in combination with a third crank-arm held by said base piece in position to bear against said tracing arm and adapted to move it longitudinally in the holding bar, substantially as shown and described.

2. An ellipsograph having a tracing arm carrying a tracing point, and a holding bar or holder formed with rests to receive the tracing arm, in combination with revolving crank-arms for carrying the holding-bar around, and a revolving crank-arm adapted to act alternately in opposite directions upon the tracing arm to reciprocate the latter longitudinally in its bearings in the holding-bar, the tracing arm being formed in two parts and united by a swivel joint and a fastener for the parts, substantially as and for the purpose specified.

3. An ellipsograph having a tracing arm formed with a longitudinal slot, and a transverse slot separate from, and at right angles with, each other, in combination with a revolving holder for the tracing arm, occupying the longitudinal slot, crank-arms for operating the holding-bar, and a crank-arm with crank-pin in the transverse

slot, and an operating crank to turn the crank-arms, substantially as described.

4. An ellipsograph having, in combination, a tracing arm, a revolving holder for the tracing-arm, revolving crank-arms for carrying the holding-bar, adjustable crank-pins on the crank-arms, and clamping screws for the crank-pins, the crank-arms being provided with scales of equal parts for setting the crank pins, substantially as shown and described.



5. The combination in an ellipsograph of a tracing arm, a revolving holding-bar for the tracing-arm, revolving crank-arms for carrying the holding-bar, adjustable crank-pins on the crank-arms, and clamping screws for the crank-pins, each of said crank-arms being provided with a scale of equal parts, alternated with each other, substantially as and for the purpose set forth.

6. An ellipsograph having a tracing arm, in combination with a holder for the tracing arm, a pair of revolving crank-arms for carrying the holding-bar, and a crank-arm to move the tracing-arm longitudinally, adjustable crank-pins on the several crank-arms and clamping screws for said crank-pins, and stops on said crank-arms to limit the motion of the crank-pins upon the crank-arms, substantially as and for the purpose specified.

7. The combination in an ellipsograph, of a tracing arm, a revolving holder for the tracing arm, a series of crank-arms to operate the tracing arm, an operating-crank to revolve the crank-arms, a disk or dial associated with the operating crank, and a pointer for the dial attached to the operating crank, substantially as shown and described.

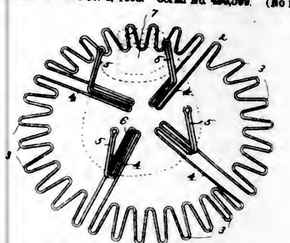
8. In combination with the tracing arm of an ellipsograph, a revolving holder for the tracing arm, a series of crank-arms for operating the tracing arm, an actuator for the crank-arms, and a detent to hold the crank-arms in position, substantially as shown and for the purpose specified.

9. An ellipsograph having a hollow base formed with a series of vertical standards projecting therefrom, in combination with vertical shafts in said standards, cranks secured to the shafts within the base, a connecting rod joining said cranks, crank-arms secured to the shafts above the standards, and a tracing arm held and operated by the crank-arms, and means to revolve the shafts, substantially as shown and described.

10. An ellipsograph having a tracing arm and a holder for the tracing arm, in combination with a pair of revolving crank-arms for carrying the holder for the tracing arm, a crank-arm to move the tracing arm longitudinally, a crank-pin on said last named crank-arm, and a sliding block on the crank-pin to press the tracing arm, the latter being formed with a groove or race and the sliding block having a tongue to enter said groove, as and for the purpose specified.

11. The combination in an ellipsograph of a tracing arm, a revolving holder for the tracing arm, a series of crank-arms for operating the tracing arm, an adjustable crank-pin for each crank-arm, and clamp-screws for the crank-pins, the latter being formed with lips turned under projecting parts of the respective crank-arms, substantially as shown.

492,148. HOLDER FOR INK-BOTTLES. DANIEL R. CORLEY, Abilene, Tex. Filed Nov. 1, 1892. Serial No. 450,569. (No model.)

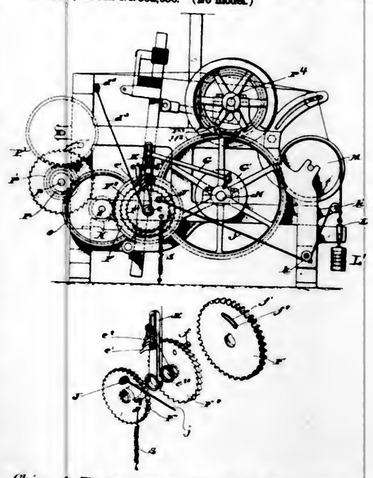


Claim.—1. A wire bottle-holder consisting of a horizontal base, upwardly extended, integral clamping-arms, and connecting devices for securing the parts together, substantially as described.

2. A bottle-holder consisting of a single wire bent to form a circular base, radial arms, and upwardly extending clamping-arms, in combination with connecting wires, substantially as described.

3. A bottle-holder consisting of a single wire bent to form a circular serpentine base; radial horizontal arms equidistant from one another, and upwardly extending clamps, substantially as described.

492,144. LOOM. GEORGE S. COX, Philadelphia, Pa. Filed May 21, 1890. Serial No. 352,636. (No model.)



Claim.—1. The combination of a sand roller, a warp beam, a tension device on said warp beam, a driving shaft operatively connected to the sand roller and to the tension device and mechanism whereby the tension device may be released from the warp beam in advance of the movement of the sand roller.

2. In combination, a lifting rod, means substantially as described to operate said rod, ratchet wheels as F', F³, pawls adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and the pawls, a cam shaft and intermediate connection between said cam shaft and the pawls, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device of the warp beam to release said tension device, a sand roller and intermediate connection between the sand roller and the ratchet wheel F³ to operate said sand roller.

3. In combination, a lifting rod, means substantially as described to operate said rod, ratchet wheels as F', F³, a lever as E, pawls connected to said lever and adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and pawls, a cam shaft, a link at the end of said lever E, and a crank connecting said cam shaft and the link of the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and said tension device to release said tension device, a gear wheel, as F, having a slot, a projection upon the ratchet wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connection between the sand roller and the gear wheel F to operate said sand roller.

apd pawls, a cam shaft and intermediate connection between said cam shaft and the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device of the warp beam to release said tension device, a sand roller and intermediate connection between the sand roller and the ratchet wheel F³ to operate said sand roller.

4. In combination, a lifting rod, means substantially as described to operate said rod, ratchet wheels, as F', F³, a lever as E, pawls connected to said lever and adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and pawls, a cam shaft, a link at the end of said lever E, a crank connecting said cam shaft and the link of the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device for the warp beam to release the tension device, a sand roller, and intermediate connection between the sand roller and the ratchet wheel F³ to operate said sand roller.

5. In combination, a lifting rod, means substantially as described to operate said rod, ratchet wheels as F', F³, pawls adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and the pawls, a cam shaft, intermediate mechanism between said cam shaft and the pawls, a warp beam, a tension device operating on said warp beam intermediate mechanism substantially as described between the ratchet wheel F' and said tension device to release said tension device, a gear wheel as F, having a slot, a projection upon the ratchet wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connection between the sand roller and the gear wheel F.

6. In combination, a lifting rod, means substantially as described to operate said rod, ratchet wheels as F', F³, a lever as E, pawls connected to said lever and adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and pawls, a cam shaft and intermediate connection between said cam shaft and the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device of the warp beam to release said tension device, a gear wheel as F, having a slot, a projection upon the ratchet wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connections between the sand roller and the gear wheel F; to operate said sand roller.

7. In combination, a lifting rod, means substantially as described to operate said rod, ratchet wheels, as F', F³, a lever as E, pawls connected to said lever and adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and pawls, a cam shaft, a link at the end of said lever E, and a crank connecting said cam shaft and the link of the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and said tension device to release said tension device, a gear wheel, as F, having a slot, a projection upon the ratchet wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connection between the sand roller and the ratchet wheel F³ to operate said sand roller.

8. In combination, a pattern chain, a lifting rod, means substantially as described to operate said rod, ratchet wheels as F', F³, a lever as E, pawls connected to said lever and adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and pawls, a cam shaft and intermediate connection between said cam shaft and the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and said tension device to release said tension device, a gear wheel as F, having a slot, a projection upon the ratchet wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connections between the sand roller and the ratchet wheel F³ to operate said sand roller.

9. In combination, a pattern chain, a lifting rod, means substantially as described to operate said rod, ratchet wheels as F', F³, a lever as E, pawls connected to said lever and adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and pawls, a cam shaft, a link at the end of said lever E, and a crank connecting said cam shaft and the link of the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device to release said tension device, a gear wheel as F having a slot, a projection upon the ratchet wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connection between the sand roller and the gear wheel F, to operate said sand roller.

10. In combination, a pattern chain, a lifting rod, means substantially as described to operate said rod, ratchet wheels as F', F³, pawls adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and the pawls, a cam shaft and intermediate connection between said cam shaft and the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device to release said tension device, a gear wheel as F, having a slot, a projection upon the ratchet wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connection between the sand roller and the gear wheel F, to operate said sand roller.

11. In combination, a pattern chain, a lifting rod, means substantially as described to operate said rod, ratchet wheels as F', F³, a lever as E, pawls connected to said lever and adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and pawls, a cam shaft and intermediate connections between said cam shaft and the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device to release said tension device for the warp beam, a gear wheel as F, having a slot wheel, a projection upon the ratchet wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connection between the sand roller and the gear wheel F, to operate said sand roller

12. In combination, a pattern chain, a lifting rod, means substantially as described to operate said rod, ratchet wheels, as F', F³, a lever as E, pawls connected to said lever and adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and pawls, a cam shaft, a link at the end of said lever E, and a crank connecting said cam shaft and the link of the lever E, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device to release said tension device for the warp beam, a gear wheel as F having a slot, a projection upon the ratchet wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connection between the sand roller and the gear wheel F, to operate said sand roller.

13. In combination, a pattern chain, a lifting rod, means substantially as described to operate said rod, ratchet wheels as F', F³, pawls adapted to rest in said ratchet wheels, a flexible connection substantially as described between said lifting rod and the pawls, a cam shaft and intermediate connection between said cam shaft and the pawls, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device to release said tension device and intermediate connection between the sand roller and the ratchet wheel F³, to operate said sand roller.

14. In combination, a pattern chain, a lifting rod, a shoe upon said lifting rod, a ring or similar device surrounding said rod, means substantially as described to operate said rod, a string or chain attached to said ring, rollers attached to the breast beam of the machine over which said string passes, ratchet wheels F' and F³, a lever pivoted upon the shaft of said ratchet wheel, a roller on the shaft around which said string or chain passes, a roller upon said lever around which said chain passes, pawls attached to said lever to which said string or chain is connected, said pawls being adapted to rest in said ratchet wheels, a cam shaft, a link connected with the end of said lever E, a crank connecting said cam shaft and the link, a warp beam, a tension device for said warp beam, intermediate mechanism substantially as described between the ratchet wheel F' and the tension device to release said tension device of the warp beam, a gear wheel as F, having a slot, a projection upon the ratchet-wheel F³ adapted to rest in said slot in the gear wheel F, a sand roller, and intermediate connection between the sand roller and the gear wheel F, to operate said sand roller.

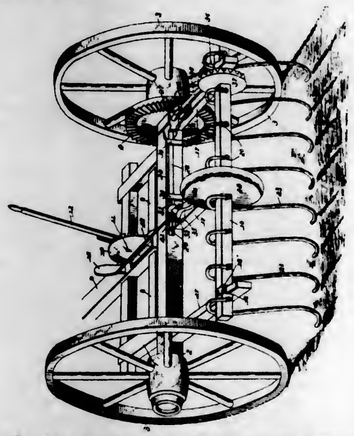
15. In combination a sand roller a warp beam, a tension device for said warp beam, ratchet gears operatively connected to said roller, pawls engaging with said ratchet wheels, a shaft adapted to operate said pawls, controlling mechanism and intermediate mechanism between the gearing and the tension devices of said warp beam, substantially as specified.

492,145. HORSE HAY-RAKE. JOHN H. COX, Howard, Kans. Filed July 16, 1892. Serial No. 440,341. (No model.)

Claim.—1. In a horse hay rake, the combination with the framework, axle, ground-wheels, and master-gear secured to one of the latter, of a series of rearwardly-disposed bars having bearings at their rear ends, a tooth-carrying rake-head journaled in the bearings, a gear on the rake-head, a shaft journaled and capable of oscillation upon one of the bars and provided at its front and rear ends with pinions adapted to engage the gear of the rake-head and the master-gear, a sliding-bar mounted for reciprocation in a recess formed in the axle and provided at its oster end with a bearing for the front end of said shaft, a bell-crank lever pivoted on one of the bars and having one branch loosely connected with the inner end of the sliding bar, a sliding-rod mounted on the central bar and having its front end pivotally connected to the remaining end of the bell-crank, a pin extending from said rod, a pivoted foot-lever connected with the rod, a cam-disk provided at one side with an annular groove having the upper and lower

offsets 46 and 47 and engaging the pin, said disk being mounted upon the rake-bar or head, substantially as specified.

2. The combination with the rake-bar having front and rear staples, the former being elongated, and the studs located below the latter, of a spring-tooth having its terminals passed through the staples and its rear terminals bent to form eyes for engaging the studs, substantially as specified.



3 In a horse hay-rake, the combination with the framework, axle, ground-wheels and master-gear, of a rear rotatable rake-head having rake-teeth, means for transmitting motion from the master-gear to the rake-head, a disk mounted on the rake-head and having in its face the groove 45, and at the inner edge thereof the shoulder 46 beveled at one side and the locking recess 47, the bar 40 mounted for sliding on the frame and having a pin 50 engaging the groove, and a lever for operating such sliding-bar, substantially as specified.

492,146. VEHICLE-AXLE BOX. PIERRE DAMBREAU, Montreal, Canada. Filed Sept. 9, 1892. Serial No. 445,462. (No model.)

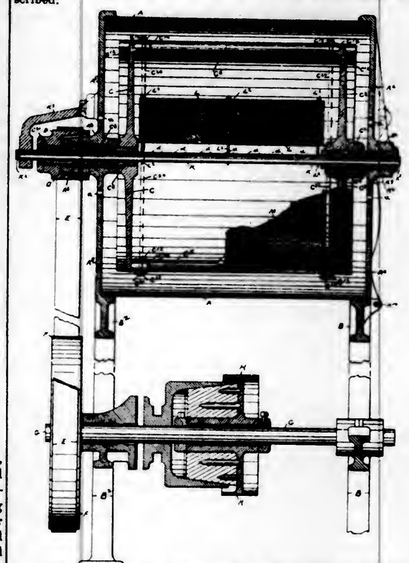


Claim.—In an axle skein, the combination, with the axle provided with the screwthreaded portion *c*, of the nut M, the washers X and Y one on each side of the said nut, the nut R engaging with the screwthreaded portion *c* and provided with a key for securing it in position, the skein screwed onto the nut M and having a shoulder *a'* adapted to bear against the end of the said key, and a hollow cap secured to the free end of the skein and inclosing the end of the axle bearing, substantially as and for the purpose set forth.

492,147. MACHINE FOR DRYING MATRICES. GEORGE A. DAVIS, Waltham, assignor to himself, Charles H. Taylor and George W. Williams, Boston, and Willis R. Chase, Somerville, Mass. Filed Nov. 1, 1890. Serial No. 370,053. (No model.)

Claim.—1. In a machine for drying a type-form matrix, &c., the combination of a closed and stationary shell or casing adapted for admission and escape of air, &c., substantially as described, a whirl located and journaled and rotating within said shell, means connected to a journal of and adapted to rotate said whirl, a stationary pipe extending axially and lengthwise of said whirl and to the outer side of said shell and having lateral openings along its length, a reticulated basket of arc shape in transverse section and adapted at its inner side to receive said matrix and to be held on said whirl and means to hold said matrix on and to permit it to be removed from said whirl, substantially as and for the purpose and operation described.

2. In a machine for drying a type-form matrix, &c, the combination of a closed and stationary shell or casing adapted for admission and escape of air, &c., substantially as described, a whirl located and journaled and rotating within said shell, means connected to a journal of and adapted to rotate said whirl, a stationary pipe extending axially and lengthwise of said whirl and to the outer side of said shell and having lateral openings along its length, a reticulated basket of arc shape in transverse section, and adapted at its inner side to receive said matrix and to be held on said whirl, and a stationary reticulated feader held on and located between said perforated pipe and said basket, substantially as and for the purposes and operation described.



3. In a machine for drying a type-form matrix, &c., the combination of a closed and stationary shell or casing, adapted for admission and escape of air, &c., substantially as described, a whirl located and journaled and rotating within said shell and composed of radial arms, and of tubes joining and held on said radial arms and each having a longitudinal slotted way leading into it, a reticulated basket adapted to contain the matrix, &c.; and to extend between and to be entered endwise into and along and at its edges to lie within said ways and the tubes and an intermediate rod encircling the outer side of and held on said tubes, substantially as described, for the purposes specified.

4. In a machine for drying a type-form matrix, &c., the combination of a closed and stationary shell or casing, adapted for admission and escape of air, &c., substantially as described, a whirl located, journaled and rotating within said shell and composed of radial arms and of tubes joining and held on said radial arms and each having a longitudinal slotted way leading thereinto, and a reticulated basket adapted to contain the matrix, &c, and to extend between and to be entered endwise into and along and at its edges to lie within said ways and the tubes, substantially as described, for the purposes specified.

5. In a machine for drying a type-form matrix, &c., the combination of a closed and stationary shell adapted for admission and escape of air, &c., substantially as described, a whirl located, journaled and rotating within said shell and composed of radial arms, and of tubes joining and held on said radial arms and each having a longitudinal slotted way leading thereinto, an intermediate rod encircling the outer side of and held on said tubes, a reticulated basket adapted to contain the matrix, &c., and to extend between and to be entered endwise into and along and at its edges to lie within said ways and the tubes, and a rod lengthwise of and held on the outer side of said basket and adapted to bear on said encircling rod of said whirl tubes, substantially as described, for the purposes specified.

492,148. STEAM-BOILER FURNACE. BARTON H. DEAN, Pueblo, Colo. Filed July 13, 1892. Serial No. 439,906. (No model.)

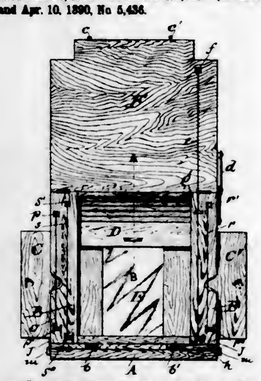
Claim.—The combination of a steam boiler furnace having its opposite inner vertical sides flared from the grate line to a point opposite the sides and above the center of the boiler therebetween, to form enlarged or widened side spaces for the side circulation of heat the entire length of the boiler, a series of supporting arches resting on the bottom of the furnace, and a series of flue walls arranged in

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separated pairs on said arches from the bridge wall to the rear end of the boiler so as to leave heat spaces therebetween, each of said flue walls comprising courses of brick disposed in the same direction and filling the space between their supports and the boiler and the widened heat circulating spaces at opposite sides of the boiler, said bricks being out of contact with the boiler to allow a draft space thereunder and so arranged as to form fine openings or perforations in each wall, the flue openings or perforations of one wall being out of line with the perforations of the wall immediately adjacent thereto, substantially as set forth.

492,149. PHOTOGRAPH-EXHIBITOR. JOHN DEWS, London, England. Filed June 30, 1892. Serial No. 438,561. (No model.) Patented in England Apr. 10, 1890, No. 5,436.



Claim.—1. In combination, the base, the frame B hinged thereto, at its lower end and having a view opening, a series of shutters carried on the hinged frame for regulating the size of the view opening and the reflecting means, in rear of the hinged frame substantially as described.

2. In combination, the base, the frame B hinged thereto at its lower end and having a view opening the means extending from the base to the frame for adjustably holding the said frame, and the reflecting means in rear of the frame, consisting of the sections pivotally connected to each other, the lower section being pivoted to the base and the means for adjusting said sections, substantially as described.

3. In combination, the base, the frame B hinged thereto at its lower end and having a view opening, the reflecting means in rear thereof and the operating means therefor, consisting of the cords and pulleys, said cords extending from the rear, reflecting means to the front of the hinged frame substantially as described.

4. In combination, the base, the frame, hinged at its lower end thereto the means for adjustably holding the same, extending therefrom to the base the reflecting means in rear of the frame and the frame H intermediate of the reflectors and the frame B, said frame H having glasses *j*, substantially as described.

5. In combination, the base A, the frame B hinged thereto at its lower end, the means for holding the frame B, extending therefrom the base the shutters C C, carried on the hinged frame the said frame having a groove *a* and the flexible shutters D arranged in the said groove, substantially as described.

6. In combination, the base, the frame B pivotally carried thereby, the means for holding the frame adjustably extending therefrom to the base, the reflecting means in rear of the frame and the shade F pivoted at the upper edge of the hinged frame with means for adjusting the same, said shade having adjustable slides G G', substantially as described.

7. The apparatus herein described and shown consisting of a base or case A, with a frame B hinged thereto having a glass E and horizontal sliding shutters C, C', and vertical compound shutter D, sliding within grooves *a* with shade F, hinged to the upper surface of B, with jointed stay *d* and shade F' hinged to F, and carrying slides G, G', the frame H, hinged to B and carrying glasses *j* and adjusted by a screw clamp *k*, the pieces *a a' a''* hinged together and capable of folding within A, the stay or legs J engaging with racks *m* for retaining the elevation of B, the cords *e, o, r, s*, and by the milled headed reels *A, p' s''* and *p''*, substantially as described.

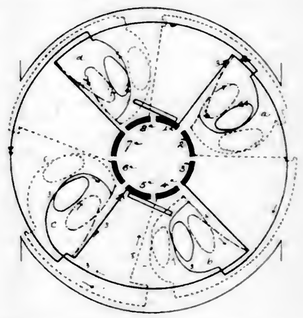
492,150. PROCESS OF COATING CONDUCTORS FOR INCANDESCENT LAMPS. THOMAS A. EDISON, Menlo Park, N. J., assignor to the Edison Electric Light Company, New York, N. Y. Filed Oct. 26, 1882. Serial No. 75,204. (No specimens.)



Claim.—1. The process of coating a flexible carbon filament designed for the incandescing conductor of an electric lamp, with insulating material, consisting in heating said filament while in a mass of such material, thereby fusing a layer of such material to said filament, substantially as set forth.

2 The process of coating a flexible carbon filament, designed for the incandescing conductor of an electric lamp, with insulating material consisting in embedding such conductor in an insulating oxide or compound in a suitable receptacle, exhausting air therefrom, and finally passing a current through said filament sufficient to fuse a coating of such oxide onto the filament, substantially as set forth.

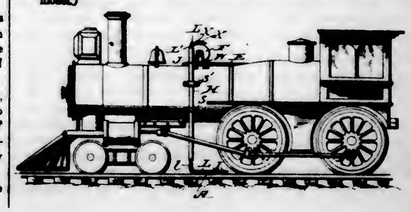
492,151. DYNAMO-ELECTRIC MACHINE. WALLACE R. FREEMAN, Long Island City, assignor to Lawrence M. Closs, New York, N. Y. Filed July 8, 1892. Serial No. 439,310. (No model.)



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Claim.—An armature for dynamo electric machines, consisting of a core wound longitudinally with wire in sections of three layers each, the inner layers being wound in one direction and the outer layers in an opposite direction, the intermediate layers and the inner and outer layers having their wires connected as described, and the intermediate and outer layers having extended terminals adapted to be connected to the commutator segments, substantially as specified.

492,152. AUTOMATIC RAILWAY-TRAIN ARRESTER. JAMES PETHERBER, Hanover, Pa. Filed June 8, 1892. Serial No. 436,005. (No model.)



Claim.—1. In an automatic railway train arrester, the combination with the locomotive of a rotatable bearing located thereon, a lever suitably journaled upon the locomotive and having its upper end in engagement with the bearing and its lower end in proximity to the track, and a rod connecting with the bearing and with the air-brake mechanism, whereby when the lever is actuated by suitable mechanism upon the road-bed, the air-brakes will be operated to retard the locomotive.

2. In an automatic railway train arrester, the combination with the locomotive of a wheel journaled upon the upper portion of the boiler, a lever rotatably journaled upon the boiler and having its upper end in engagement with the wheel and its lower end bent outward to occupy a position normally beyond the track, a rod connecting the wheel with the air-brake mechanism of the locomotive and suitable mechanism upon the road-bed for engaging the lower portion of the lever whereby to force it inward and thus rotate the wheel and operate the air-brake mechanism in unison.

3. In an automatic railway train arrester, the combination with the boiler of a wheel journaled thereon, a vertical tubular socket held in position on the boiler, a lever journaled within the socket and having its upper end bent inward to engage with the wheel and its lower end bent outward to occupy a position normally beyond the track, a rod connecting the said wheel with the air-brake mechanism, and suitable mechanism upon the road-bed for engaging the lower end of the lever to cause it to turn and thus operate the air-brake mechanism.

4. In an automatic railway train arrester, the combination with the boiler of a wheel journaled thereon, a vertical tubular socket held in position on the boiler, a lever journaled within the socket and having its upper end bent inward to engage with the wheel and its lower end bent outward to occupy a position normally beyond the track, a rod connecting the said wheel with the air-brake mechanism, suitable mechanism upon the road-bed for engaging the lower end of the lever to cause it to turn and thus operate the air-brake mechanism, and a spring upon the lever for returning it to its normal position after having operated the brake mechanism.

5. In an automatic railway train arrester, the combination with a locomotive of a wheel journaled thereon, a tubular vertical socket supported on the boiler, a lever journaled in the socket, having its upper end bent inward to engage the upper portion of the wheel, and its lower end bent outward to occupy a position beyond the track, and a rod connecting with the lower side of the wheel and with the air-brake mechanism.

6. In an automatic railway train arrester the combination with the air-brake lever, of a supplemental lever in engagement therewith, a rotatable bearing on the locomotive, a rod connecting the bearing and the supplemental lever, and a rotatable lever in engagement with the bearing and arranged at its lower end to engage a suitable obstruction upon the road-bed whereby to turn the latter lever and thus operate the supplemental lever.

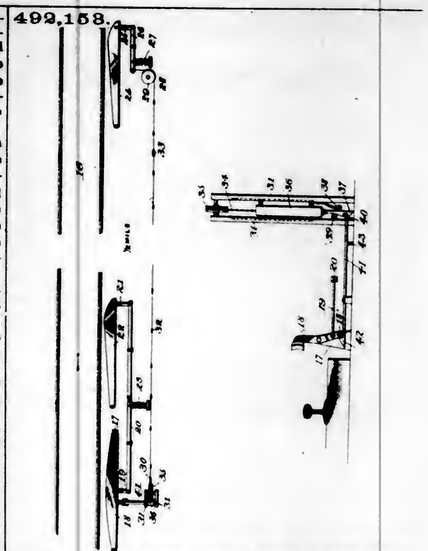
7. In an automatic railway train arrester the combination with the boiler of a wheel journaled thereon, a vertical tubular socket held in position on the boiler, a lever journaled within the socket and having its upper end bent inward to engage with the wheel and its lower end bent outward to occupy a position normally beyond the track, a rod connecting the said wheel with the air-brake mechanism, suitable mechanism upon the road-bed for engaging the lower end of the lever to cause it to turn and thus operate the air-brake mechanism, a spring upon the lever for returning it to its normal position after having operated the brake mechanism and a spring connecting with the wheel to cause it to resume its normal position after the lever has performed its function.

492,158. AUTOMATIC RAILWAY-TRAIN ARRESTER. JESSE FRYSINGER, Hanover, Pa. Filed Aug. 2, 1892. Serial No. 441,955. (No model.)

Claim.—1. In an automatic railway train arrester, the combination, with the track arranged in block-system style, of a contact-bar arranged in parallel relation to the track near one end of the block and adapted to rock at right angles to the track, a contact-plate pivoted adjacent to the other end of the block, an intermediate pivoted contact-plate connected by interposed mechanism with the contact-bar, a lever carrying a detent located in the path of movement of the lower end of the said bar, a catch, and a distance-wire connecting the end contact-plate with the catch whereby to actuate the catch to release the detent or to lock the lever into engagement with the contact-bar.

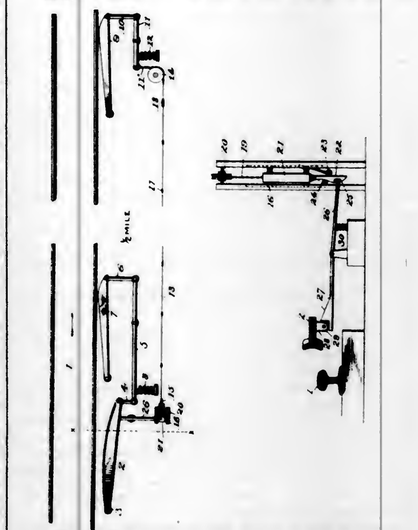
2. In an automatic railway train arrester, the combination, with the track arranged in block-system style, of a contact-bar journaled at both ends in parallel relation to the track near one end of the block and adapted to rock at right angles to the track, a contact-plate pivoted adjacent to the other end of the block, an intermediate pivoted contact-plate connected by interposed mechanism with the contact

492,158.



bar, a lever carrying a detent located in the path of movement of the lower end of the said bar, a catch, and a distance-wire connecting the end contact-plate with the catch whereby to actuate the catch to release the detent or to lock the lever into engagement with the contact-bar.

492,154. AUTOMATIC RAILWAY-TRAIN ARRESTER. JESSE FRYSINGER, Hanover, Pa. Filed Aug. 12, 1892. Serial No. 442,882. (No model.)



Claim.—1. In an automatic railway train arrester, the combination with the track arranged in block-system style, of a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, an intermediate contact-plate connected by interposed mechanism with the contact-bar, a lever carrying a detent located in the path of travel of the said bar, a catch and

a distance-wire connecting the end contact-plate and the catch, whereby to actuate the catch to release the detent, or to lock the lever into engagement with the contact-bar.

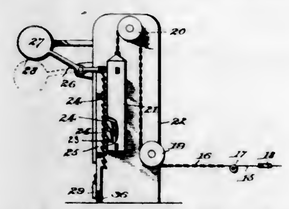
2. In an automatic railway train arrester, the combination, with the track arranged in block-system style, of a contact-bar and a series of contact-plates pivoted to swing in a plane parallel with the roadbed, interposed spring-pressed mechanism connecting one of the contact-plates with the contact-bar, a spring-pressed lever carrying a detent arranged in the path of travel of the said bar, a weight carrying a catch designed to engage the free end of the lever, and a distance-wire connecting with the end contact-plate and with the weight.

3. In an automatic railway train arrester, the combination with the track arranged in block-system style, of a swinging contact-bar and a series of swinging contact-plates, arranged adjacent to the track, a pivoted spring-pressed lever located adjacent to the bar, links connecting the ends of the lever respectively with the free ends of the contact-bar and one of the contact-plates; a spring-pressed lever carrying a detent arranged in the path of travel of the said bar, a post supporting a vertically moving weight carrying a swinging-catch at its lower end and designed to engage the said lever, and a distance-wire connecting with the end contact-plate and actuating the weight.

4. In an automatic railway train arrester, the combination, with the track arranged in block system style, of a swinging contact-bar and a series of swinging contact-plates arranged adjacent to the track, a pivoted spring-pressed lever located adjacent to the bar, links connecting the ends of the lever respectively with the free ends of the contact-bar and one of the plates, a spring-pressed lever arranged approximately at right angles to the track and carrying at one end, a wedge-shaped detent arranged in the path of travel of the said bar, a post supporting a vertically movable weight carrying a swinging spring-pressed catch at its lower end designed to engage the free end of the said lever, a bell-crank lever on the post, a flexible connection uniting the bell-crank lever and the weight, and a distance-wire connecting with the end contact-plate and actuating the catch to engage the spring-pressed lever.

5. In an automatic railway train arrester, the combination, with the track arranged in block-system style, of a swinging contact-bar and a series of swinging contact-plates arranged adjacent to the track, a pivoted spring-pressed lever located adjacent to the bar, mechanism connecting the ends of the lever respectively with the free ends of the contact-bar and one of the contact-plates, a spring-pressed lever carrying at one end a detent arranged in the path of travel of the said bar, a post supporting a vertically movable weight carrying a swinging-catch spring-pressed, having one of its faces substantially cam-shaped and provided with a recess designed to engage the free end of the lever, and a distance-wire connecting with the end contact-plate and actuating the weight.

492,155. AUTOMATIC RAILWAY-TRAIN ARRESTER. JESSE FRYSINGER, Hanover, Pa. Filed Aug. 30, 1892. Serial No. 444,581. (No model.)



Claim.—1. In an automatic railway train arrester, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate, in combination with an indicator, and an automatically actuated compensating-mechanism connecting with the contact-bar and with the distance-wire to indicate variations in the length of the said wire.

2. In an automatic railway train arrester, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate, in combination with a vertically movable rack-bar, and a weight connecting with the distance-wire and carrying a series of pawls arranged out of time with relation to the teeth of the rack-bar and normally in engagement therewith, whereby to take up any slack in order to keep the said wire at practically uniform tension.

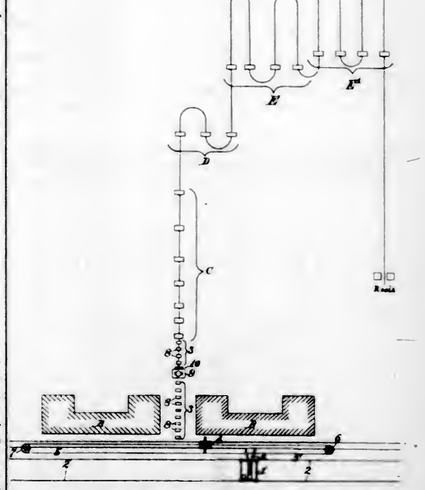
3. In an automatic railway train arrester, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate, in combination with ratchet and pawl mechanism connecting with the distance-wire to take up any slack in order to keep the said wire at practically uniform tension, and an indicator actuated by the said mechanism to indicate undue tension upon the wire.

4. In an automatic railway train arrester, a track arranged in block-system style, a contact bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate in combination with a lever for engaging the contact-bar, a vertically movable rack-bar carrying a detent adapted to engage the free end of the lever, a vertically movable weight carrying pawls adapted to engage the said bar, and a flexible connection uniting the said weight and the distance wire.

5. In an automatic railway train arrester, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate in combination with a lever for engaging the contact-bar, a vertically movable rack-bar carrying at one end a detent adapted to engage the said lever, a signal connecting with the other end of the bar, a vertically movable weight carrying a series of pawls arranged out of time with relation to each other and adapted to engage the teeth in the bar, and a flexible connection uniting the said weight and the distance-wire.

6. In an automatic railway train arrester, a track arranged in block-system style, a contact-bar pivoted adjacent to one end of the block, a contact-plate pivoted adjacent to the other end of the block, and a distance-wire connecting with the contact-plate, in combination with a lever for engaging the contact-bar, a vertically-movable rack-bar carrying at one end a detent adapted to engage the said lever, a pin for throwing the detent out of engagement with the lever, a signal connecting with the other end of the bar, a vertically movable weight carrying a series of pawls arranged out of time with relation to each other and adapted to engage the teeth in the bar, and a flexible connection uniting the said weight and the distance-wire.

492,156. ROLLING-MILL PLANT. WILLIAM GARRETT, Joliet, Ill. Filed Aug. 1, 1890. Renewed Oct. 11, 1892. Serial No. 448,513. (No model.)



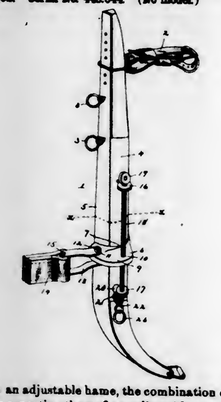
Claim.—1. In a rolling mill plant, the combination of one or more furnaces, a charging and drawing apparatus, a reducing train, a feed table for carrying the bloom to the reducing train, a shearing mechanism and a stop, said shearing mechanism and stop being arranged at suitable points along the line of the feed table, substantially as set forth.

2. In a rolling mill plant, the combination of a heating furnace, a reducing train, mechanism for transferring a bloom from the heating furnace to the reducing train, and shear mechanism to divide said

bloom in two or more sections, during its passage from the heating furnace to the reducing train, substantially as set forth.

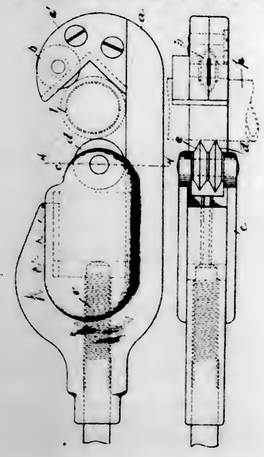
3. In a rolling mill plant, the combination of one or more furnaces, a feed table, a car for transferring the bloom from the furnace to the feed table, a charging and drawing apparatus for charging the blooms into the furnace and placing them on the car, a shearing mechanism and a stop arranged along the line of the feed table, and a reducing train, substantially as set forth.

492,157. HAME. WILLIS H. HANNIGAN, Manistique, Mich. Filed July 14, 1892. Serial No. 440,044. (No model.)



Claim.—In an adjustable hame, the combination of a metal binding surrounding a portion thereof, an adjustable metallic clip bearing directly upon said metal binding and having a slot extending vertically therethrough conforming in outline to a portion of the contour of the hame, the rear portion of said clip being provided with a right-angular flange and the front central part of the same having an outwardly-projecting horizontally-disposed enlargement with a screw-threaded opening therein extending vertically therethrough, and a bolt-opening at the end of said clip opposite to that on which the said flange is formed, eyes arranged above and below the said clip, a screw-rod swiveled in said eyes and extending through the screw-threaded opening in said clip for the purpose of adjusting the latter, and a yoke or clevis pivotally connected to said clip for the purpose of attaching the tug strap or trace, substantially as described.

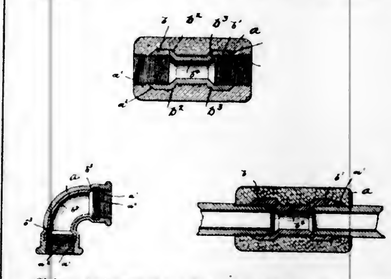
492,158. TOOL FOR CUTTING LEAD-LINED IRON PIPE. GEORGE W. HARRINGTON, Wakefield, Mass., assignor of one-half to D. H. Darling, same place. Filed Apr. 8, 1892. Serial No. 428,308. (No model.)



Claim.—1. As an improvement in means for severing lengths of lead lined iron pipe into sections, the combination of a stock or holder having a rotary cutter arranged to act on one side of the periphery of the pipe, a slide adapted to move upon said holder and provided with a rotary cutter arranged to act on the opposite side of the periphery of the pipe, and means for adjusting said slide and its cutter toward and from the other cutter, one of said cutters having a plurality of cutting edges arranged to act on the pipe at opposite sides of the cut made by the other cutter, whereby the section of pipe acted on by the cutters is subdivided or broken up into fragments, as set forth.

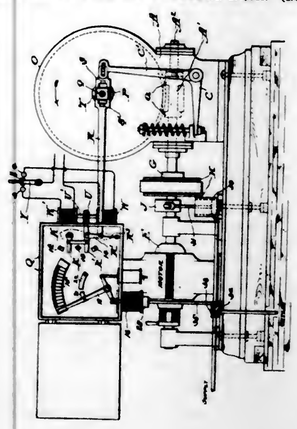
2. As an improvement in means for severing lengths of lead lined iron pipe into sections, the combination of a stock or holder having a rotary cutter arranged to act on one side of the periphery of the pipe, a slide adapted to move upon said holder and provided with a rotary cutter arranged to act on the opposite side of the periphery of the pipe, and means for adjusting said slide and its cutter toward and from the other cutter, one of said cutters having a single cutting edge and the other two cutting edges of different diameters arranged to act on the pipe at opposite sides of the point where the single cutter acts, the variation between the diameters of the two cutting edges of one cutter facilitating the operation of breaking up the section of pipe severed by the conjoint action of the cutters, as set forth.

492,159. PIPE COUPLING OR FITTING. GEORGE W. HARRINGTON, Wakefield, Mass. Filed Apr. 8, 1892. Serial No. 428,309. (No model.)



Claim.—An improved coupling or fitting for lined pipe, comprising a hard metal shell internally screw-threaded and having two internal enlargements, a lead lining or bushing formed within said shell and screw-threaded at its ends to form lead continuations of the screw threads at the ends of the coupling, the intermediate portion of said shell and lining projecting inwardly and forming shoulders against which the ends of the pipe sections abut, substantially as set forth.

492,160. ELECTRIC ELEVATOR. FRANK E. HERDMAN, Indianapolis, Ind. Filed Mar. 8, 1892. Serial No. 424,140. (No model.)



Claim.—1. In combination with an electric motor, an electric motor controlling switch, a brake wheel, a brake upon said wheel, a cylinder, a piston in said cylinder, a supply pipe to said cylinder, a valve on said pipe and intermediate connection between said valve and the switch and intermediate connection between said piston and the brake.

2. In combination with an electric motor, a source of current supply, a resistance interposed between armature of said motor and source of current supply, a lever carrying a brush and adapted to travel over said resistance, an electric motor controlling switch, a cylinder a piston in said cylinder a supply pipe to said cylinder, a valve on said pipe, and intermediate connection between said switch and said valve, and intermediate connection between said piston and the said lever.

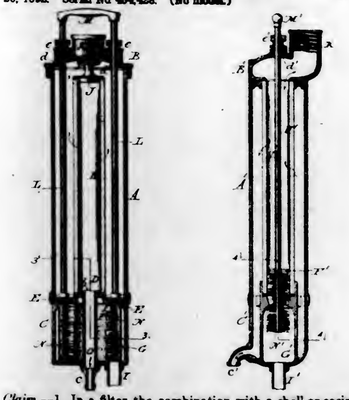
3. In combination with an electric motor, a source of current supply, a solenoid, an electric motor controlling switch, electrical connection between said source of current supply and said switch and electrical connection between said switch and said solenoid, a brake wheel, a brake upon said wheel, a cylinder a piston, in said cylinder connection between said piston and said brake, a supply pipe for said cylinder, a valve on said pipe, and connection between said valve and the solenoid core.

4. In combination with an electric motor, a source of current supply, a resistance interposed between said source of current supply and the armature of motor, a lever carrying a brush and adapted to travel over said resistance, a solenoid, an electric motor controlling switch, electric connection between said switch and the solenoid, a cylinder a piston in said cylinder, connection between said piston and said lever, a supply pipe for said cylinder, a valve on said pipe, and connection between said valve and the solenoid core.

5. In combination with an electric motor, a source of current supply, resistances interposed between said motor and the source of current supply, a lever carrying a brush and adapted to travel over said resistance, an electric motor controlling switch, a brake wheel, a brake on said wheel a cylinder, a piston in said cylinder, connection between said piston and brake and between said piston and lever, a supply pipe for said cylinder, a valve on said pipe and connection between said valve and said switch.

6. In combination with an electric motor, a source of current supply, a solenoid, an electric motor controlling switch, electrical connection between said switch and solenoid, resistances interposed between the source of current supply and the armature of the motor, a lever carrying a brush and adapted to travel over said resistances, a brake wheel, a brake on said wheel, a cylinder, a piston in said cylinder, connection between said piston and said brake, and connection between said piston and said lever, a supply pipe for said cylinder, a valve on said pipe, and connection between said valve and the solenoid core.

492,161. FILTER. JOEL R. HILL, Germanton, N. C. Filed May 26, 1892. Serial No. 434,428. (No model.)



Claim.—1. In a filter, the combination with a shell or casing, of a filtering medium therein, a cleaning device for the filtering medium, and a chamber outside of the filtering chamber into which the cleaner may be moved.

2. In a filter, the combination with a shell or casing divided into two compartments or chambers by a filtering medium, a cleaning device for the latter, and a third chamber into which the cleaning device is placed after the cleaning has been effected.

3. In a filter, the combination with a shell or casing, of a filtering medium therein, a cleaning device, a chamber into which the cleaner may be moved, and a valve for closing the cleaner-chamber and separating it from the filtering chamber.

4. In a filter, the combination with the shell or casing, of a filtering material therein, a cleaning device, a chamber into which the cleaner may be moved, and a valve carried by the cleaner to close the said chamber when the cleaning has been effected.

5. In a filter, the combination with a shell or casing, of a filtering medium therein, a cleaner, a chamber into which the cleaner is placed after the cleaning has been effected, a valve for closing said chamber, and an outlet or waste pipe for the said chamber.

6. In a filter, the combination with a shell or casing, of a filtering medium, a chamber at the base of the latter, a reciprocating cleaner adapted to move over the face of the filtering medium, and, when not in use, to move into the said chamber, and a valve for separating or cutting off the cleaner-chamber, held to its seat by the pressure of the water within the filtering chamber.

7. A filter comprising the following elements, to wit: a shell or casing, a filtering medium, a cleaner for the latter, adapted to work within that portion of the filter and against that face of the filtering medium which receives the unfiltered water, a chamber separate and distinct from the chamber which receives the unfiltered water, adapted to receive the cleaner when not in use, and means for connecting and disconnecting the said cleaner-chamber with the chamber that receives the unfiltered water.

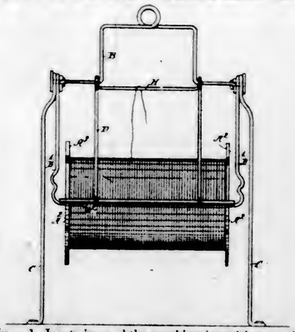
8. In combination with a shell or casing, and the upright filtering medium therein, the cleaner provided with the actuating handle and the downwardly-seating valve, and the cleaner-chamber at the lower end of the shell or casing, provided with a valve seat and an outlet.

9. In combination with the main body or shell, the filtering tube, the cap provided with a foot piece to bear upon the upper end of the tube; the bottom cap, a foot to support the lower end of the tube, a valve seat at the lower end of the tube, and the cleaner provided with the brushes and valve, and with the actuating handle.

10. In combination with the shell or casing, the filtering tube therein, a water inlet, a filtered-water outlet from the tube, a chamber at the lower end of the shell or casing, a valve seat at the upper end of the chamber, and a ring-like valve provided with actuating rods and with cleaners.

11. In combination with the shell or casing A, provided with the cap B at its upper end, and the cap C at its lower end, a filtering tube H within the shell or casing, a disk D supporting the lower end of the tube, a foot J supporting the upper end of the tube, a pipe H carried by the cap C and serving to support the disk D, a valve seat formed by the disk D and the inclined walls E of the lower cap C, a ring-shaped valve F provided with actuating rods L and with cleaners N; a water inlet K, and a discharge pipe I, all substantially as shown and described.

492,162. TWINE REEL AND HOLDER. JOHN R. HOLMES, New York, N. Y. Filed Apr. 15, 1891. Serial No. 389,001. (No model.)



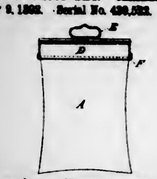
Claim.—1. In a twine reel the combination with a spool provided with a series of radial projections located upon the same, of a self acting brake provided with extensions constructed and arranged to engage with the said radial projections of the spool and operated by the cord whereby upon pulling the line the brake may be raised from the spool.

2. In a twine reel the combination with a spool A provided with a series of radial projections, and with cushions G, of a supporting frame B, and of a self acting brake D, constructed and arranged to

engage with the said radial projections of the reel and to be operated by the cord.

3. In a twine reel the combination with a spool A, provided with a series of radial projections and with cushions G, of a supporting frame B, a self acting brake D, to engage the said radial projections and to be operated by the cord, and of an inclosing shifting stand C constructed and arranged to support the whole.

492,168. MOTH-PROOF BAG. CHARLES A. IVES, Minneapolis, Minn. Filed July 9, 1892. Serial No. 439,522. (No model.)



Claim.—1. In a moth proof bag, the combination of a sack, one or more stiffening strips at its mouth, and a closing device, consisting of a rod, and a trough, upon the exterior of which the rod is secured, and having an open space between the trough and the rod, substantially as shown and described.

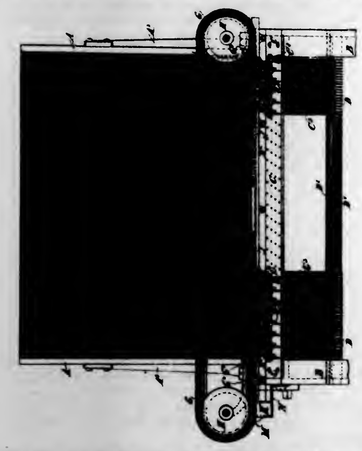
2. In a moth proof bag, the combination of a sack having its mouth stiffened and a closing device consisting of a rod and a trough upon the exterior of which the rod is secured, said trough opening away from such rod and having an open space between the trough and the rod, substantially as shown and described.

3. In a moth proof bag, the combination of a sack, with a flap and one or more strips of stiff material at its mouth, a closing device, provided with means for suspending the same, a rod attached to the lower edge of said device, with an open space between the two, and a groove opening upward when the device is suspended, substantially as shown and described.

4. A device for closing and suspending a moth proof bag, provided with a longitudinal groove therein, a longitudinal rod secured at its ends upon the exterior of said device with an open space between the two, and means for suspending the whole, substantially as set forth.

5. A device for closing and suspending a moth proof bag, having a rod secured at its ends to the lower edge of such device, an open space between the two, a longitudinal groove opening upward when the device is suspended, and means for suspending the same, substantially as shown and described.

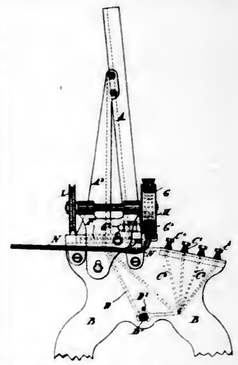
492,164. MACHINERY FOR SETTING TYPE. JOSHUA A. KAY, Balwyn, Victoria, assignor of one-half to Robert Alexander Vaughan Rae, same place. Filed Mar. 24, 1892. Serial No. 426,318. (No model.)



Claim.—1. In machinery for setting type, the combination with a plurality of type ejectors, of a race for receiving the ejected type, and an endless band brush traveling over said race for conveying the type to the end thereof, substantially as described.

2. A type setting machine comprising a band brush G, a race J and a throat K at the end of said race, substantially as described.

3. A type setting machine comprising a race having edge flanges and a band brush traveling between said flanges substantially as described.

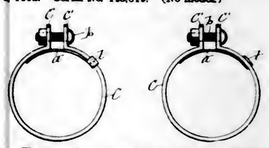


4. A type setting machine comprising the combination with a race having flanges narrowing at one end to a throat, of a band brush traveling between said flanges, whereby the type are pushed down into said throat by the resiliency of the bristles composing the brush, substantially as described.

5. In a type setting machine comprising a race, a band brush traveling along said race, and a plurality of type ejectors arranged to eject the type transversely to the line of motion of the brush, substantially as described.

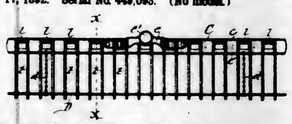
6. The combination with a plurality of type ejectors of a strip containing notches each having one corner rounded off, a race to receive the type, and means for conveying the type to the end of the race, substantially as described.

492,165. HOSE-CLAMP. JOHN NASE, Syracuse, N. Y., assignor to the Syracuse Specialty Manufacturing Company, same place. Filed Oct. 14, 1892. Serial No. 448,819. (No model.)



Claim.—The combination with the hose clamp-band, of a guard plate formed separately from said band and with tongues embracing the edges of the band, substantially as set forth.

492,166. LAWN-RAKE. JOHN NASE, Syracuse, N. Y., assignor to the Syracuse Specialty Manufacturing Company, same place. Filed Oct. 17, 1892. Serial No. 449,093. (No model.)

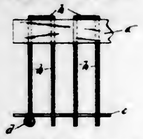


Claim.—1. The combination of a rake-head composed of metal and formed with a perforated horizontally projecting longitudinal rib on its bottom edge, and with clinching lips on its top portion, and teeth formed in pairs, each pair being formed in one piece of wire bent with its central portion at right angles to the end portions, said end portions passing through the perforation of the rib, and the central portion of the wire being embraced by one of the aforesaid clinching lips as set forth and shown.

2. The combination of a rake-head formed in one piece of a band of sheet metal braced by longitudinal flanges projecting toward one and the same side at the top and bottom edges of the band and provided with clinching lips at its top portion, and with perforations in its bottom flange, and teeth formed in pairs of a wire having its central portion bent at right angles to the end portions, said end portions passing through the aforesaid perforations, and the central portion resting against the top flange, and embraced by the clinching lip, substantially as described and shown.

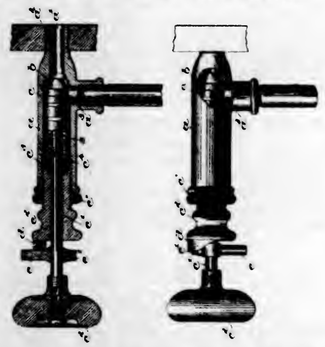
3. The combination with the rake-head, rake-teeth and cleaning bar, of chains suspending said cleaning bar from the rake-head and carrying the same near the free ends of the teeth solely by gravity of the bar, as set forth.

492,167. LAWN-RAKE. JOHN NASE, Syracuse, N. Y., assignor to the Syracuse Specialty Manufacturing Company, same place. Filed Oct. 22, 1892. Serial No. 449,636. (No model.)



Claim.—A rake-head provided with a cleaning bar and with barriers formed on the lower ends of the teeth to support the cleaning bar in its normal position, as set forth.

492,168. RELIEF-VALVE. WILLIAM P. PHILLIPS, Somerville, Mass. Filed June 6, 1892. Serial No. 435,619. (No model.)

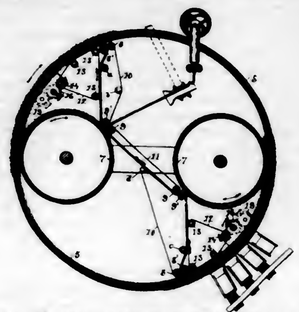


Claim.—1. A valve case containing a valve seat, and a valve therefor provided with a spindle, combined with a plug in one end of the valve case and through which said spindle passes, a spring to seat the valve, a cam flange on the plug, and an arm adjustable longitudinally on the valve stem, partial rotation of the valve stem and arm acting to move the arm onto the cam surface of the flange to thereby lift the valve from its seat against the action of the spring, the distance through which the valve is lifted being varied by longitudinal adjustment of the arm on the valve stem, substantially as described.

2. A valve case containing a valve seat, and a valve therefor provided with a spindle, combined with a plug in one end of the valve case and through which the said spindle passes, a spring to seat the valve, an annular cam flange having a flat top, formed on the plug, and an arm extended laterally from the valve stem, rotation of the valve stem and arm causing the latter to ride up the inclined cam surface to the flat top thereof, to lift the valve from its seat, the flat top of the cam flange acting alone to retain the valve in its unseated position, substantially as described.

3. A valve case containing a valve seat, and a valve therefor provided with a spindle, combined with a plug in one end of the valve case and through which the said spindle passes, a spring to seat the valve, an annular cam flange on the plug, an arm on the valve stem, a screw to retain the same in adjusted position, rotation of the valve stem causing the arm to ride up on the cam surface to lift the valve from its seat, the hub of the arm and the adjusting screw moving within the flange when the arm is turned toward the side of the plug opposite the cam flange, substantially as described.

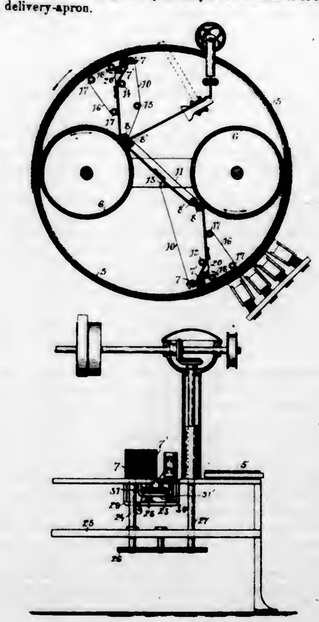
492,169. WOOL-COMBING MACHINE. JOHN SHARPE and THOMAS SHARPE, Thornton, R. I. Filed Dec. 22, 1891. Serial No. 415,851. (No model.)



Claim.—The combination with the small circles 7—7, the larger circle 5, a circular rack 6 carried by said larger circle, the draw-off rolls 8—8' and 9'—9' and aprons 10—10 carried thereby, of the aprons 12—12, the rolls 13—13 and 14 supporting the same, a gear 15 on the lower journaled end of the roll 14, the bracket 17, a shaft adjustably secured in a slot 18 thereof, a gear 16 carried by said shaft, a vertical shaft journaled in a bearing in the bracket 17, a drive-gear 19 mounted on the lower end of said last-mentioned shaft, and a gear 20 secured to the upper end of said shaft and intermeshing with the circular rack of the wool-comb circle.

492,170. WOOL-COMBING MACHINE. JOHN SHARPE and THOMAS SHARPE, Thornton, R. I. Filed May 31, 1892. Serial No. 434,677. (No model.)

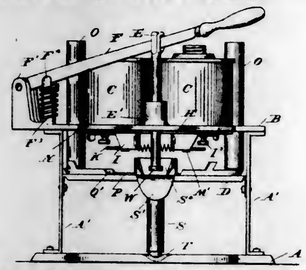
Brief.—The invention includes the usual delivery and guide aprons and drawing-off rolls of a circular wool-combing machine, the particular features of the present case being that only the delivery-apron passes between the fluted drawing-off rollers, the guide-apron rolls being driven from one of the drawing-off rolls, and means being provided whereby the guide-apron may be driven faster or slower than the delivery-apron.



Claim.—1. The combination with the large and small combs, the drawing-off rolls and delivery-aprons of a wool-combing machine carried thereby, of drive-rolls vertically journaled adjacent to the large circle and separated from the draw-off rolls, guide-belts driven by said rolls, guide-rolls for distending the same, and adjustable means intermediate the draw-off rolls and the drive-rolls whereby the latter are driven, as described.

2. The combination with the larger comb-circle 5, and the smaller circles 6—6 rotatable within the larger circle, the draw-off rolls 7 and 7′ vertically journaled near the inner circumference of the larger circle, the rolls 7—7 being rotatable by suitable mechanism, the draw-off rolls 8 and 8′ vertically journaled adjacent to the circumference of the small circles, gears 9 on the shafts of the rolls 7′—7′, and delivery-aprons carried by the rolls 7 and 8 and distended by the rolls 12 and 13, and 14 and 15, of the guide-aprons 16 supported on the rolls 17 and 18, a gear 19 provided on the lower portion of the roll 18, a gear 20 intermeshing with said gear and removably secured to the upper end of the shaft 21 suitably journaled, and a gear 23 secured to the lower end of said shaft and intermeshing with the gear 9, as described.

492,171. CARTRIDGE-FILLER. LEWIS R. SMITH, Portland, Mich. Filed June 6, 1892. Serial No. 435,720. (No model.)



Claim.—1. In a cartridge loading machine the combination of the magazines at opposite sides thereof, a plate pivoted below the same, charge receptacles thereon having apertures adapted to connect alternately with each of the magazines horizontally movable valves for the bottom of the receptacles adapted to be alternately opened to discharge the contents of said receptacles, and a spring uniting the valves substantially as described.

2. In a cartridge loading machine, the combination of the frame, a magazine supporting table, the magazine thereon, a plate pivoted below said table, charge receptacles formed at opposite sides of said plates having apertures adapted to communicate with the apertures through the table, valves for the bottom of said charge receptacles, a spring connecting said valves and acting with its tension to hold them normally closed and a stop in the path of said valves adapted to alternately open the same when the table is rocked, substantially as described.

3. In a cartridge loading machine, the combination with a table, the magazines, the charger plate, the charge receptacles thereon, the valves K for the bottom of said receptacles, the arms K′ secured to said valves and pivoted on a common pivot at the rear of the machine, the spring L connecting said arms and the stop M between said arms extending on both sides of the center, substantially as described.

4. In a cartridge loading machine, the combination with the frame, the magazines, the charger plate, the charge receptacles thereon, a horizontally adjustable side wall for such charger plate, and spring actuated cut off plates for the receptacle, substantially as described.

5. In a cartridge loading machine, the combination with a frame and magazines, of an oscillating charger plate pivoted below the magazines, charger receptacles on the plates at opposite sides thereof formed with a horizontally movable side wall, and movable cut-off plates slidingly secured below the receptacles, substantially as described.

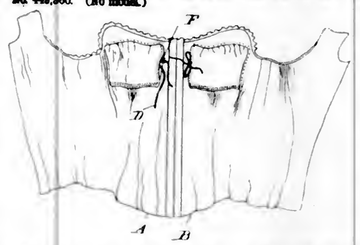
6. In a cartridge loading machine, the combination with a frame and magazines supported thereon, of an oscillating charger plate common to both magazines and spring actuated cut-offs for the charger plate, substantially as described.

7. In a cartridge loading machine, the combination with the frame, a wad rammer, of a shell holder consisting of a cylinder, a hooked plate at its forward edge, and a rearwardly extending hopper on one side only forming a counter weight and a cross-bar on the frame with which said hook is adapted to engage, substantially as described.

8. In a cartridge loading machine the combination with the magazine supporting table, the magazine thereon, the charger plate pivoted to the under side of said table, the charge receptacles secured to the under side of said plate, valves for the lower end of said receptacles, means for reciprocating the charger plate, a shell holder pivoted in the frame beneath said charger plate and a hopper at the upper end of said shell holder, substantially as described.

9. In a cartridge loading machine, the combination with the shell holder, the magazines and mechanism for delivering the charge from the magazine to the shell holder, of a wad receptacle, an oscillating plate beneath said receptacle, a cut off Q on said plate and a guide way Q′ extending to the front of the machine, substantially as described.

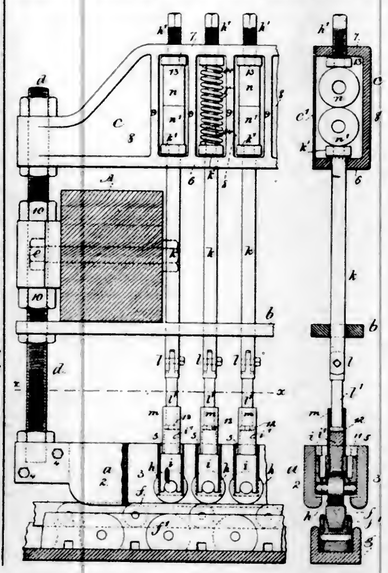
492,172. CORSET. EMMET L. SMITH, Jackson, Mich., assignor to the Reliance Corset Company, same place. Filed Oct. 19, 1892. Serial No. 449,360. (No model.)



Claim.—In a corset, the combination with the breast section, of an interior lining therefor, separated therefrom forming a pocket with an opening at the edge of the corset section, drawing strings arranged across the interior of the breast section and a loop at the edge of the corset section through which one of the strings passes, and about which the ends are adapted to be tied, substantially as described.

492,173. MACHINE FOR CLEANING VEGETABLE FIBER. TIMOTEO VILLAMOR, Merida, Mexico. Filed July 11, 1892. Serial No. 439,685. (No model.)

Brief.—The invention relates to the gripping devices for the carrying-chains employed in machines similar to that shown in patents to Villamor, No. 362,683, May 10, 1887, and No. 399,802, March 19, 1889.



Claim.—1. In a machine for cleaning vegetable fiber, the combination with the feeding chains and pressure rollers, their rods and springs, of the two part frame *a* between which are the pressure rollers, guides for said rods and supports for the said springs, substantially as set forth.

2. In a machine for cleaning vegetable fiber, the combination with the main supporting frames A A′, of the frames *a*, *b*, *c*, the end tie rods *d*, *d*′ connecting the frames *a*, *b*, *c*, near their respective ends, the plates connected to the frames A A′ and having bosses *e* through which the tie rods pass, and the securing nuts 10, substantially as set forth.

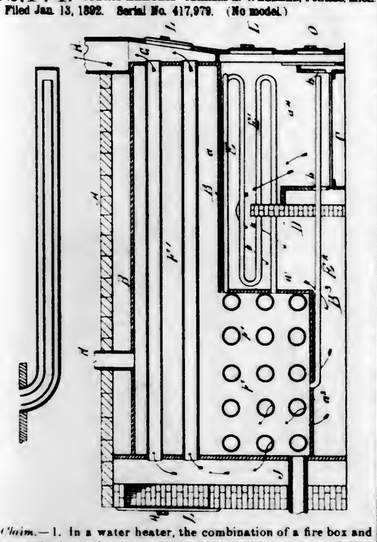
3. In a machine for cleaning vegetable fiber, the combination with the chains *f f*′ and main supporting frames, of the frames *a b c*, the rollers *h* and their boxes *i* vertically movable in slide ways in the frame *a*, the rods *k* passing through the frames *b* and *c* and bearing upon the boxes, the springs in pockets in the frame *c* and bearing upon the upper ends of the rods *k*, and separable joints at the lower ends of the rods *k* and connecting with the boxes *i* whereby the parts can be separated for cleaning, substantially as set forth.

4. In a machine for cleaning vegetable fiber, the combination with the chains *f f*′ and the frame *a* having slide ways, of the rollers *h*, their boxes *i* moving vertically in said slide ways, rods *i*′ screwed into said boxes, the rods *k* and *l* connected by hinged joints *l*, movable sleeves *m* surrounding the rods *l* and *i*′ and connecting the same, substantially as set forth.

5. The combination with the rollers *h*, boxes *i*, rods *i*′ and rods *k*, of the rods *l* connected vertically by hinged joints *l*, heads 12 upon the lower ends of the rods *l*, the sleeves *m* movable along the rods *l* and over the heads 12 and adapted to pass over the rods *l* whereby said sleeves are retained upon said rods when the parts are separated for cleaning, substantially as set forth.

6. In a machine for cleaning vegetable fiber, the combination with the frames *a* and *b* and spring actuated roller mechanism, of the frame *c* having an upper member 7 and lower member 6, a web 8 connecting said members, and cross webs 9 forming pockets for the springs of the roller mechanism, and a plate *c*′ secured to said frame and closing the openings to said pockets, substantially as set forth.

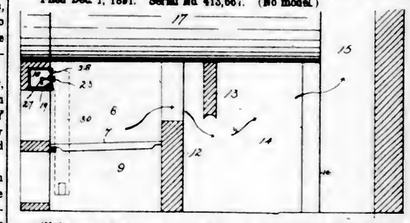
492,174. STEAM-HEATER. CHARLES E. WAKEMAN, Pontiac, Mich. Filed Jan. 13, 1892. Serial No. 417,979. (No model.)



Claim.—1. In a water heater, the combination of a fire box and its accessories located at one end of said heater, a transverse bridge wall located transversely to and in the line of the draft, separated from said fire box at its lower portion, the upper portion of said fire box being extended to and joining said bridge wall and having a space between the upper portion of said bridge wall and the lower shell of the heater, a transverse chamber on the opposite side of said bridge wall and between it and a dependent water leg, said chamber communicating with a side chamber adjacent to and upon one side of said water leg, transverse flues through said water leg to a chamber upon the opposite side thereof, a communicating chamber, and return flues longitudinally through the shell, substantially as specified.

2. In a water heater, the combination of a fire box and accessories located at one end thereof, a bridge wall located in the line of draft and transversely thereto, the lower portion of which is separated from said fire box by an internal space and having a smoke channel between the upper portion of said bridge wall and the shell of the heater, a transverse chamber upon the opposite side of said bridge wall and between it, and a dependent-water leg attached to said heater, water tubes communicating with said water leg and forming nestings in and around said fire box, traversing the chamber upon the opposite side of said bridge wall and the said bridge wall, communicating flues transversely through said water leg with the side chambers, one of which communicates with the chamber adjacent to said bridge wall, and the other of which communicates with a chamber at the ends of said water heater opposite the fire-box, and with return flues through said water heater, substantially as described.

492,175. AUTOMATIC FURNACE. FRED WILD, Denver, Colo. Filed Dec. 1, 1891. Serial No. 413,667. (No model.)



Claim.—1. A furnace provided with a receptacle or chamber 18 formed across the front end thereof and having air flues or ducts 30 leading thereto from the ash pit or from beneath the grate and provided with two sets of openings communicating with the fire box whereby the furnace has an indirect supply of air from beneath the grate, that is to say, through flues 30 and chamber 18 as well as a direct supply through the grate, in combination with a steam pipe leading from the boiler and extending into receptacle 18, one or more blowers connected with the steam pipe and protruding through one set of openings, the other set of openings being regulated to correspond with the grate surface and the capacity of the stack, substantially as described.

2. In a furnace the combination with the box or receptacle placed or formed across the front end of the fire box, provided with air flues or ducts leading from beneath the grate and two sets of openings 22 and 29 communicating with the fire box, a steam pipe leading from the boiler into receptacle 18 and provided with one or more blowers located at openings 22 and corresponding in number with said openings, funnel-shaped mouths surrounding said openings and extending into the fire box, the area of the openings 29 being regulated to correspond with the grate surface and the capacity or draft of the stack, substantially as and for the purposes set forth.

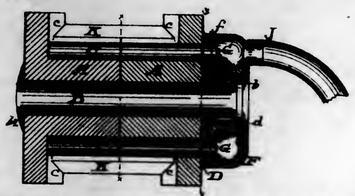
3. The combination in a furnace of a box, receptacle or chamber formed or located across the front end of the furnace and provided with air flues or ducts leading thereto from the ash-pit and one or more openings 22 and 29 communicating with the fire box, a steam pipe leading from the boiler into box 18 and provided with blowers corresponding in number with openings 22 and located at said openings, said blowers consisting of a cylindrical shell screwed into the pipe and provided with an adjustable plug located therein, the number or area of openings 29 being regulated according to the requirements of the furnace, substantially as described.

4. The combination in a furnace of a box or receptacle formed or located across the front end thereof and provided with air ducts or flues leading thereto from the ash-pit or from any suitable point beneath the grate and provided with openings 22 communicating with the fire box, a steam pipe 27 leading from the boiler and having blowers located at said openings, another pipe connected with pipe 27 and adapted to carry the water of condensation to box 18, substantially as and for the purpose set forth.

5. The combination in a furnace of a box or receptacle 18 located across the front end thereof and provided with air ducts or flues leading thereto from the ash pit or from any suitable point beneath the grate, said box being provided with two sets of openings communicating with the fire box, a steam pipe leading from the boiler and extending into receptacle 18, one or more blowers connected with the steam pipe and protruding through one set of openings, the other set of openings being regulated to correspond with the grate surface and the capacity of the stack, and a depending arch lying between

the side walls of the furnace in the combustion chamber and in the rear of the space communicating with the fire box above the bridge wall, substantially as described.

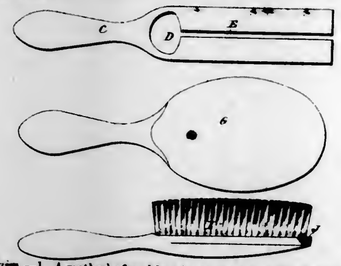
492,176. COMMUTATOR FOR DYNAMOS OR MOTORS. JOSEPH A. WILLIAMS, Cleveland, Ohio. Filed May 2, 1892. Serial No. 431,597. (No model.)



Claim.—1. In a commutator for dynamos and motors the chambered and slotted body A, perforated disk D, annular chamber F, commutator bars K and means for supplying air blast to the chambers in combination as and for the purpose set forth.

2. In a commutator for dynamos and motors, the divided, chambered and slotted body A, having annular flanges, segmental bars K having beads or ribs *k* fitted to rest in the grooves in the surface of the body between the slots *c c*, and having beveled ends held in bevel grooves in the body flanges; perforated disk D having neck *d*; sleeve bolt B and nut b^3, binding the body segmental bars and disk together, and the annular chamber F, all constructed to operate as and for the purpose set forth.

492,177. METHOD OF MAKING METAL MOUNTS FOR BRUSHES, &c. ADRIAN WOLFF, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Nov. 21, 1892. Serial No. 452,700. (No specimens.)



Claim.—1. A method of making sheet-metal mounts for brushes, hand-mirrors and kindred articles, consisting in first forming a tubular sheet-metal shell closed at one end, then reducing the closed end of the shell and developing it to form a handle, then forming an opening in the shell at the inner end of the handle, and slitting the shell from the center of the said opening to its outer end, then opening out and flattening the said outer end of the shell, and then developing the said flattened end of the shell to adapt it to receive a brush or other article, substantially as set forth.

2. A method of making sheet-metal mounts for brushes, hand-mirrors and kindred articles, consisting in first forming a tubular sheet-metal shell closed at one end, then reducing the closed end of the shell and developing it to form a handle, then forming an opening in the shell at the inner end of the handle, and slitting the shell from the center of the opening to its outer end, then opening out and flattening the said outer end of the shell, then trimming said flattened end of the shell into oval form, then drawing up the edge of the said oval flattened portion to form a rim or flange within which the brush or other object is placed, substantially as set forth.

492,178. COIN AND SLOT MACHINE. CHARLES P. YOUSE, York, Pa. Filed Nov. 1, 1892. Serial No. 450,654. (No model.)

Claim.—1. The combination of a casing, a coin slot therein, a movable part below said slot, said movable part being also provided with a coin slot, another movable part below the last named part and provided with a notch or slot for the coin to rest in, ejecting means connected to one of the parts, and means for holding said movable parts in their normal positions, and an inclined guide support for one of the movable parts, whereby when a coin is inserted and one of the parts is moved both parts will move in unison to a pre-determined point as and for the purpose described.

2. The combination of a casing having an upwardly inclined exhibiting chamber rounded at its upper end, an upwardly-inclined ejecting tube extending up into the exhibiting chamber and terminating near its upper end, a series of scattering pins on the surface of the exhibiting chamber and a series of pockets at its lower end, directing guides *k'* on each side of the chamber, and spring-actuated mechanism for ejecting the articles employed, substantially as described.

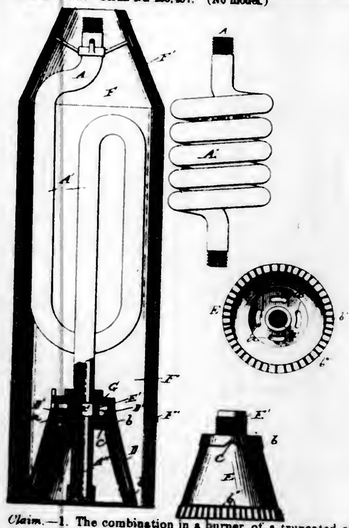


3. The combination of a casing having a coin slot, a movable slotted part mounted below this slot, one of the walls of this slot being adjustable, an ejecting device below said movable part and an inclined guide for said ejector, substantially as described.

4. The combination of a casing having a coin-slot, a slotted movable lever below this slot, a slotted sliding ejector block below the slot in said part, a lateral ejecting lug carried by said ejecting block, an inclined slotted tube in which said ejecting lug works, and means for spring actuating said lever and block, substantially as described.

5. The combination of a casing having an inclined surface, pockets at its lower end, a gate closing the lower ends of the pockets, an inclined trough leading into the tube, substantially as described.

492,179. BURNER FOR LIGHTING OR HEATING WITH NATURAL OR ARTIFICIAL GAS. GEORGE W. ZEIGLER, Anderson, Ind. Filed Feb. 29, 1892. Serial No. 423,437. (No model.)



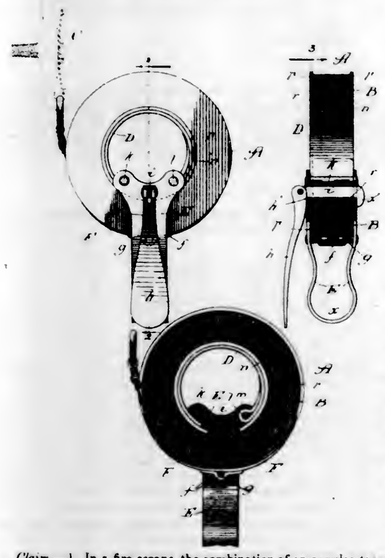
Claim.—1. The combination in a burner, of a truncated cone E having formed on it, at its upper and lower edges, exterior annular flanges *b b'*, the latter flange being provided with a series of vertical grooves, a supply-pipe connected to said cone and communicating by lateral passages with the annular chamber between the flanges, an outer truncated cone D fitted down over the inner cone and having its interior surface bearing closely against the flanges on the inner cone, so as to make a tight joint therewith and form a chamber between the two cones and the flanges, and means for tightly clamping the outer cone down on the inner cone, substantially as described.

2. The combination of an inner truncated cone provided with exterior flanges, beveled correspondingly with the interior surface of the outer cone, the lower one of these flanges being provided with numerous vertical slits or grooves a supply pipe, connected by passages to the chamber between the cones, an outer truncated cone fitted down over the inner cone and having its beveled interior surface bearing on the flanges on the inner cone and forming a gas-tight joint therewith, the outer cone being provided with an inwardly-extending shoulder bearing on the top of the inner cone, and means for clamping the two cones tightly together, one within the other substantially as described.

3. The combination of a supply pipe, an inner truncated cone provided with a neck E' projecting from its upper end into which the supply pipe is secured, said cone being also provided with exterior flanges B. B', and lateral gas passages *c* in its top these passages leading to the space between the cones, an open ended outer cone fitted down over the flanges of the inner cone, and provided with an inwardly-extending flange D' bearing on the upper end of the inner cone and a nut threaded and screwed on the neck of the inner cone and bearing on the top of the outer cone, substantially as described.

4. The combination of a supply pipe, a hollow truncated cone screwed thereto and provided with openings *a* in its top, an outer cone fitted down over the inner cone and a nut G screwed down on the cones and provided with lugs G' on its under side to permit the passage of air under the nut, substantially as described.

492,180. FIRE-ESCAPE. ISAAC H. ATHEY, Chicago, Ill., assignor of two-thirds to W. W. Simpson and Henry J. Sievers, same place. Filed May 20, 1892. Serial No. 433,691. (No model.)



Claim.—1. In a fire-escape, the combination of an annular tape-reel provided with means of attachment to the body of the user, and a self-acting brake for the reel in the annulus thereof and regulable by the weight of the attached body, substantially as described.

2. In a fire-escape, the combination of an annular tape-reel provided with means of attachment to the body of the user, and a self-acting brake for the reel, in the annulus thereof and regulable by the weight of the attached body, and provided with a supplementary hand-brake, substantially as described.

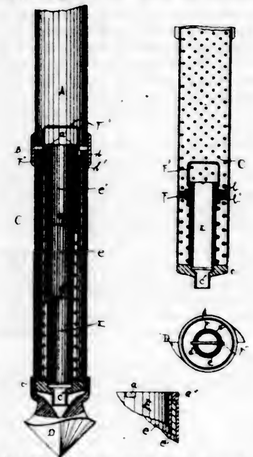
3. In a fire-escape, the combination of an annular reel for the suspension-tape, an expansion-ring in the annulus of the reel and a hanger co-operating, under the strain of the suspended weight, with the expansion-ring to brake the reel, substantially as described.

4. In a fire-escape, the combination of an annular reel for the suspension-tape, an expansion-ring in the annulus of the reel, and a hanger fastened to one end of the expansion-ring and loosely bearing against the adjacent end thereof, substantially as and for the purpose set forth.

5. In a fire-escape, the combination of an annular reel carrying the suspension-tape, an expansion-ring in the annulus of the reel, a hanger suspended on one end of the expansion-ring and loosely bearing against the adjacent end thereof and fulcrumed at the periphery of the reel, and a spring extending from the hanger-fulcrum along the perimeter of the reel, substantially as and for the purpose set forth.

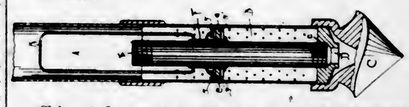
6. A fire-escape comprising, in combination, an annular reel A carrying a tape B, a washer a and a split ring D inside the annulus of the reel, a hanger E suspended on one end of the ring and loosely bearing against the adjacent end thereof, said hanger being fulcrumed at the periphery of the reel, a spring F extending from the hanger fulcrum along the perimeter of the reel, and a supplemental hand-lever brake on the hanger, substantially as and for the purpose set forth.

492,181. SPECIAL POINT FOR TUBULAR WELLS. FRANK A. BARRETT, Newman Grove, Nebr. Filed Aug. 26, 1892. Serial No. 444,334. (No model.)



Claim.—In a special point for tubular wells, the combination with the stand pipe A provided with the perforated special tube C threaded at each end, of the hollow augur head D secured to said tube C, provided with a threaded cap seat, the nozzle cap *c* within said threaded seat provided with a central threaded escape way, the telescoping valve tubes E, *e*, *e'*, the lower tube E threading within the escape way of the cap *c* and provided with a notch e^3 adapted to accommodate the lug *a* of the tube *e*, the tube *e* being provided with a notch at its upper end adapted to hold the lug *a'* of the tube *e'*, so that when said tubes are telescoped or closed, they lock one within the other, the tube *e'* being provided with the collars *b*, *b'*, securing the washer F, adapted to snugly work within the tube C, and the bail F' secured to the tube *e'* to operate said sections, all substantially as and for the purpose set forth.

492,182. STAND-POINT FOR TUBULAR WELLS. FRANK A. BARRETT, Newman Grove, Nebr. Filed Oct. 17, 1892. Serial No. 449,163. (No model.)

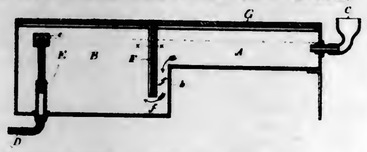


Claim.—1. In a stand point for tubular wells, the combination with a hollow auger, of a nozzle within said auger, a stand pipe within said nozzle, provided with a right and left handed thread a sectional washer working upon said stand pipe, comprising a collar, provided with an extending bail, and a sectional washer hinged to said collar, and a screen pipe surrounding said stand pipe, and secured to said auger, and a supply tube, all substantially as and for the purpose set forth.

2. In a stand point for tubular wells, the combination with the auger C, of the nozzle D, the threaded tube E within said nozzle, the screen pipe B connected to the supply pipe A and the auger C, and an adjustable washer, comprising the collar F having the bail K the stop arms *k*, and the sectional washers *e*, held to said collar by means

of the plates g, g', the latter being provided with the lug e', and held between the ears k' of the collar F, all arranged substantially as and for the purpose set forth.

492,183. MILK-COOLER. JOHN H. BECK and EDWARD R. REILLY, Peru, Ind. Filed June 1, 1892. Serial No. 435,147. (No model.)



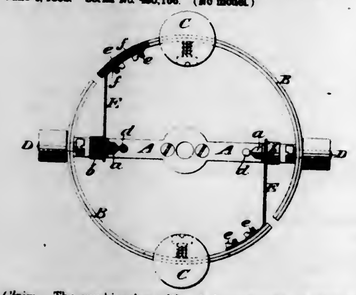
Claim.—1. A creamery or milk-cooling vat having a water-inlet and a water-overflow, in combination with a removable partition having a normal operative position between said inlet and overflow where it extends entirely across the vat and to near the bottom thereof so that water flowing from the inlet to the overflow must first pass below said partition, and provisions for maintaining said partition normally in its operative position but permitting its withdrawal when desired, substantially as set forth.

2. A creamery or milk-cooling vat having a shallow portion A, and a deep portion B, a water inlet entering the shallow portion, and a water overflow leading from said deep portion, in combination with a removable partition F, extending across the deep portion B, of the vat close to the meeting line of the two portions A and B, said partition permitting the passage of water beneath it, substantially as set forth.

3. A creamery or milk-cooling vat having a water inlet and a removable overflow pipe constituting the water outlet, in combination with a removable transverse partition extending across said vat between said water inlet and said overflow and reaching to near the bottom of the vat so that water passing from the water inlet to the water overflow must pass below said partition, substantially as set forth.

4. A closed creamery or milk-cooling vat having a uniform water-level therein, and having the water-inlet C and water-overflow E which communicate with said vat below the water-level, in combination with a partition F extending across the vat between said inlet and overflow to form the milk-cooling compartments A, B, said partition permitting the flow of water beneath it from the inlet to the overflow but closing communication above the water level between the two portions of the vat, substantially as set forth.

492,184. COMPENSATION-BALANCE FOR TIMEPIECES. JOHN BLISS, Brooklyn, assignor to John Bliss & Co., New York, N. Y. Filed June 1, 1892. Serial No. 435,166. (No model.)



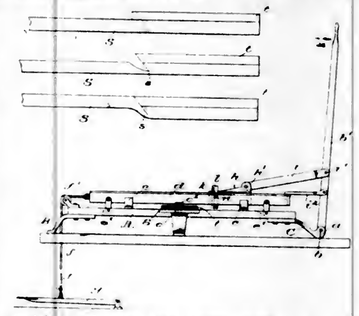
Claim.—The combination with a balance having a divided laminated rim, of a weight, a spring by which said weight is attached to the said rim and forced toward the axis of the balance, and a pin carried by one of the arms of the balance to sustain said weight against the force of the said spring, substantially as and for the purpose herein set forth.

492,185. SOLE-SLOTTING MACHINE. WINSLOW P. BRADFORD, Haverhill, Mass. Filed Aug. 13, 1892. Serial No. 442,990. (No model.)

Claim.—1. A bed, a clamping frame and parallel supporting links pivotally connected thereto, and to the bed and guides for said frame combined with a cutter carrier adapted to slide on said frame, its cutter, an operating lever, connections between it and said frame and cutter carrier, and means to move the clamping frame toward the bed, and parallel thereto substantially as described.

2. A bed, a clamping frame pivotally connected thereto, and guides for said frame, combined with a cutter carrier supported by and longitudinally movable on said frame, a cutter vertically adjustable on said carrier, a gage movable at right angles to the path of movement of the cutter, a support therefor, and actuating mechanism for said cutter carrier and clamping frame, substantially as described.

3. A bed, a clamping frame, and a cutter carrier, combined with a cutter having a straight and a curved blade, means to adjust one blade with relation to the other, and to adjustably attach said cutter to the cutter carrier, and mechanism to actuate the clamping frame and cutter carrier, substantially as described.



4. A bed, a clamping frame, guides therefor, and a treadle to move the frame in one direction, combined with a cutter carrier movable on said frame, its cutter, an operating lever, a connecting link between it and the cutter carrier, and a hooked link pivoted to said lever and engaging the frame, to move the latter in the opposite direction, substantially as described.

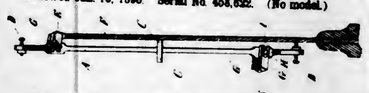
492,186. SHOE. WINSLOW P. BRADFORD, Haverhill, Mass. Filed Nov. 11, 1892. Serial No. 451,596. (No model.)



Claim.—1. A spring-heel shoe, composed of an upper, a sole having inclined cross walls 2, 3, of different height, the heel end of the sole being depressed below the level of the inner end of the shank with the wall 3 abutted against the wall 2, and a lift intermediate the heel end of the sole and the heel end of the upper, the beveled inner edge of the lift being abutted against or supported by the longer incline 2 of the sole, the part of the sole between the longer inclined wall 2 and the outer side of the sole standing in an inclined position,—keeping the inner end of the shank well elevated, and presenting a flat tread surface for the heel, substantially as shown and described.

2. As an improved article of manufacture, an outer sole having at its inner side a transverse acute-angled notch in the line of the inner end of the shank, the walls of said notch being of different height and inclined from the toe end toward the heel end of the sole, the heel end of the sole being depressed to bring its inner side below the outer side of the sole at the inner end of the shank, the wall 2 abutting against part of the wall 3 and leaving a portion of the wall 3 in inclined position to receive a lift against it, substantially as described.

492,187. SAW-TOOTH GAGE. JAMES F. BROWER, Rodney, Mich., assignor of one-half to Frank Barry, same place. Filed Oct. 30, 1891. Renewed Jan. 16, 1893. Serial No. 458,632. (No model.)



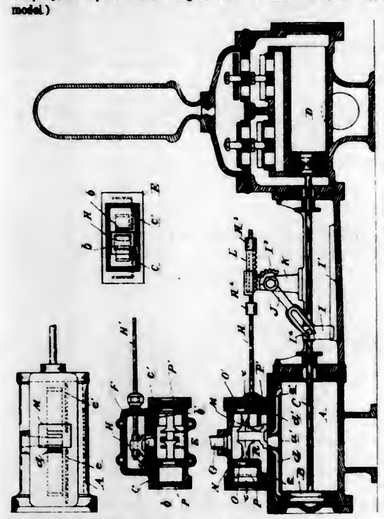
Claim.—1. A saw tooth gage consisting of a frame having a central cross bar formed with oppositely projecting pins on its outer ends the frame having inclined angular extensions on its opposite ends, oppositely arranged set screws in the ends of the extensions of the frame and adjustable gage blocks on the extensions extending out at right angles and formed with recesses corresponding substantially with the contour of the saw teeth, substantially as described.

2. A saw tooth gage consisting of a frame provided with independently adjustable gage blocks at its ends, extending out laterally therefrom and set screws in the ends of the frame, substantially as described.

3. A saw tooth gage consisting of a frame provided with adjustable gage blocks at its ends offset to extend across the edge of the saw, substantially as described.

4. A saw tooth gage consisting of a frame, having gage blocks on its ends formed of two members independently adjustable in relation to each other and to the frame and formed with beveled inner faces arranged to engage with the teeth of the saw, substantially as described.

492,188. VALVE FOR DIRECT-ACTING ENGINES. FRANK A. BURNHAM, Battle Creek, Mich., assignor to the Union Manufacturing Company, same place. Filed July 5, 1892. Serial No. 438,970. (No model.)



Claim.—1. In a direct acting engine, the combination with the main cylinder, piston and piston rod therein, of a main slide valve provided with valve moving pistons moving in steam chambers in the valve chest, an auxiliary slide valve mechanically operated by connection with a moving part of the engine, suitable ports controlled by said auxiliary valve for admitting and exhausting steam into and from the steam chambers of the valve moving pistons through the main portion of the movement of said pistons, suitable ports controlled by the main valve for admitting and exhausting steam into and from the main cylinder during the main portion of the stroke of the piston, preadmission ports leading directly from the auxiliary valve chest and directly controlled by the auxiliary valve to admit steam into the steam chamber, of the valve moving pistons for the initiatory movement of said main valve and preadmission ports leading directly from the main valve chest and directly controlled by the main valve for admitting steam into the cylinder for the initiatory movement of the main piston, substantially as described.

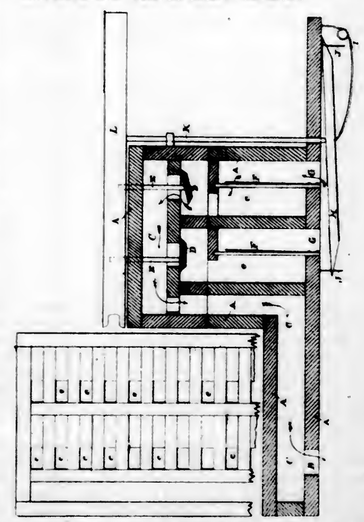
2 In a direct acting engine, the combination with the main cylinder, piston and piston rod thereof, of a main slide valve provided with valve moving pistons moving in steam chambers in opposite ends of the valve chest, an auxiliary slide valve mechanically operated by connection with the main piston rod, suitable ports controlled by said auxiliary valve for admitting and exhausting steam into and from the steam chambers, of the valve moving pistons through the main portion only, of the movement of said pistons, suitable ports controlled by the main valve for admitting and exhausting steam into and from the main cylinder during the main portion only, of the stroke of the piston, preadmission ports directly controlled by the auxiliary valve to admit steam into the steam chambers, of the valve moving pistons for initiating the movement of the main valve and preadmission ports directly controlled by the main valve for admitting steam into the cylinder for initiating the stroke of the piston, said preadmission ports admitting steam in small volume only and having no connection with the exhaust cavity of the valves by which they are respectively controlled, substantially as described.

3. In a direct acting engine, the combination with the main cylinder, piston and piston rod of the main slide valve M provided with valve moving pistons O, O', the valve chest E inclosing said valve having cylindrical steam chambers P P' in which said valve moving pistons travel, the ports d d' controlled by said main valve to admit exhaust steam into and from the cylinder and adapted to be closed by the main piston near the ends of its stroke, the preadmission ports e e' controlled by a flat portion of the face of the main slide valve and leading into the extreme ends of the cylinder and the auxiliary valve H arranged to control the admission and exhaust of steam into and from the steam chambers of the valve moving pistons, substantially as described.

4. In a direct acting engine, the combination with the main cylinder, piston and piston rod, of the steam actuated main slide valve M provided with valve moving pistons in steam chambers of the valve chest, the mechanically moved auxiliary valve H controlling the admission of steam into said steam chambers, the ports b b' for admitting and exhausting steam into and from said steam chambers and adapted to be closed by the valve moving pistons in said chambers near the end of their stroke and the preadmission ports c c' leading into the extreme ends of the steam chambers of the valve moving pistons and adapted to be closed by the auxiliary valve without being connected into the exhaust cavity thereof, substantially as described.

5. In a direct acting engine, the combination with the main cylinder, piston and piston rod thereof, of the steam actuated main slide valve controlling the admission of steam into the main cylinder and provided with valve moving pistons in steam chambers of the valve chest, the auxiliary valve controlling the admission of steam into the steam chambers of the valve moving pistons, the oscillating lever J operated by the movement of the main piston rod and provided with the circular rack, the reciprocating rack bar engaging with said circular rack, and the valve rod of the auxiliary valve slidingly engaging with said rack bar and having collars adapted to be engaged by said rack bar, substantially as described.

492,189. REED-ORGAN. JAMES P. CAULFIELD, Baltimore, Md. Filed Oct. 28, 1892. Serial No. 450,239. (No model.)



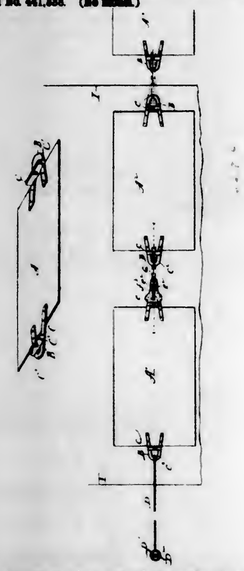
Claim.—1. The combination with the air-chest of reed-boards F placed vertically therein; stop-valves inside the chest and dividing the air-channels between the reeds and the bellows, thus shutting the air off from the reeds; pins resting upon the said stop-valves and adapted to press open the same; reed-valves placed on the under side of the air-chest and closing the valve to the reed-cells on the outside; keys and pitman-rods adapted to press down the said reed-valves; all the said parts being constructed and arranged to operate substantially as and for the purpose specified.

2. The combination with the chest of the vertical reed-boards provided with a separate tube or cell for each reed, and having their inductive openings in the under side of the chest; reed-valves closing these inductive openings on the outside; keys and pitman-rods adapted to open the said reed-valves; stop-valves inside the chest, adapted to admit or shut off the air from the various sets of reeds; all of these parts being constructed and arranged to operate substantially as and for the purpose specified.

3. In a reed organ the combination of the vertical reeds F, reed cells which have at their lower ends, air-inlets or openings G, accessible on the outside, and pallets or valves H on the under and exterior side and closing the said inlets or openings on the outside, as and for the purpose set forth.

4. In a reed organ, the combination of the vertical reeds F; reed-cells which have at their lower ends air-inlets or openings G, accessible on the outside, pallets or valves H on the under and exterior side, to close the said reed-cell openings; air-chest channels C above and on the upper side of the reed-cells; and reeds, and stop-valves D inside the chest and above the upper end of the reeds, as shown and described.

492,190. COUPLING DEVICE FOR TRAYS FOR ANNEALING-FURNACES. JAMES M. CHATFIELD, Thomaston, Conn. Filed Aug. 1, 1892. Serial No. 441,838. (No model.)



Claim.—1. A tray or other portable annealing-furnace instrumentality, having at one end an eye, constructed with a vertically grooved cross-piece, in combination with a trip member to engage with the grooved cross-piece of the said eye substantially as set forth.

2. A tray or other portable annealing-furnace instrumentality, having at one end an eye, constructed with a vertically grooved cross-piece; in combination with a trip-coupler having a movable trip-member, and means attached thereto for operating the same, substantially as set forth.

3. A trip-coupler comprising a slotted plate, a chain, attached to one end thereof, a lever-hook pivoted to the said plate and having an upwardly extending operating-arm, a downwardly-extending curved jaw, and a bearing-arm, and a chain or other tripping connection, connected with the said operating-arm, in combination with a portable annealing-furnace instrumentality having an eye adapted to be engaged by the said lever-hook, and constructed with a vertically grooved cross piece substantially as set forth.

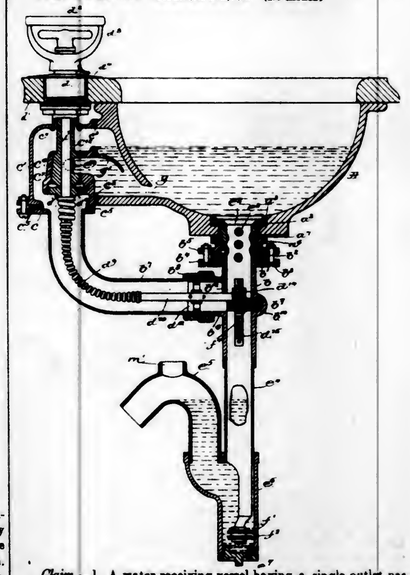
492,191. DRAIN-PIPE. ALONZO W. CRAM, Haverhill, Mass. Filed July 6, 1892. Serial No. 439,113. (No model.)

Claim.—1. The combination of a pipe section having an opening, a cover therefor, a yoke secured over the cover which is formed with a cross slot or recess and an intersecting vertical recess, a screw threaded nut adapted to be inserted in the cross slot, and a screw adapted to be adjusted through the said nut and vertical recess in the yoke for the purpose of clamping the cover in position, substantially as shown and described.



2. The combination of a pipe section provided with an opening, a flange surrounding the opening, a cover having an upwardly recessed flange which fits over the first named flange, lugs projecting from the pipe section on opposite sides of the opening, a yoke having intarned ends which engage the said lugs, the yoke being formed with intersecting vertical and cross recesses, a screw threaded nut adapted to be inserted in the cross recess, and a set screw adapted to be adjusted therein through the said vertical recess, substantially as shown and described.

492,192. WASHBOWL. ALLEN P. CROQUE, New York, N. Y. Filed June 28, 1887. Serial No. 242,708. (No model.)



Claim.—1. A water-receiving vessel having a single outlet passage for the escape of waste-water and sediment, an auxiliary chamber, a water supply duct connecting said chamber to said vessel, a water supply valve communicating with said vessel through said chamber and said duct, a dam in said chamber communicating with said outlet passage and automatically diverting the flow of water from the said chamber into the said outlet passage whenever the water attains a predetermined height in said vessel, the said outlet passage and the water supplying devices being separated one from the other, and the discharge orifice of the said supply duct being located upon a different level from that of the receiving aperture of the said outlet passage, so that the waste-water and sediment are wholly excluded from the water-supplying devices, substantially as described.

2. In a lavatory apparatus, a vessel or receptacle having a water outlet, an auxiliary chamber communicating with the bottom of the said vessel, an over-flow pipe connecting said chamber with the said outlet passage, a valve casing in said chamber provided with water inlet and outlet passages, a valve in said casing to control the said inlet and outlet passages, a tube or pipe adapted to be inserted into the outlet passage of the said vessel and provided with a port or opening near its upper end, a rack on said tube, combined with a pinion to engage the rack on the said tube and with means, substantially as described, to operate the said pinion, as and for the purpose specified.

3. A vessel or receptacle having an outlet passage, an auxiliary chamber communicating with the bottom of the said vessel, an over-flow pipe connecting said chamber with the said outlet passage, a valve casing in said chamber provided with water inlet and outlet passages, a valve in said casing to control the said inlet and outlet passages, a tube or pipe adapted to be inserted into the outlet passage of the said vessel, and provided with a port or opening near its upper end, and with a sealing device near the lower extremity of said tube, a rack on said tube, combined with a pinion to engage the rack on the said tube, and with means, substantially as described, to operate the said pinion, as and for the purpose specified.

4. A vessel or receptacle having its outlet passage controlled by a movable discharge pipe e, an auxiliary chamber communicating with the said vessel, a valve casing having hot and cold water inlets and an outlet passage, a hollow valve to control said passages, and having a hollow stem extended above the top of the said vessel, a handle to operate said valve, combined with a spindle d^9 extended through the hollow valve and stem and operatively connected with the discharge pipe, as and for the purpose specified.

5. In a lavatory apparatus, a vessel A, an outlet pipe therefor, a pipe section b communicating with said outlet passage and having an enlargement to form a passage as b^{10}, an auxiliary chamber and an overflow pipe connecting said auxiliary chamber with the said outlet passage, a discharge pipe e normally communicating with the passage b^{10}, and a rack d^{15}, combined with a pinion to engage said rack, and with means substantially as described extended through the overflow pipe and auxiliary chamber to operate said pinion to raise and lower the discharge pipe, substantially as specified.

6. In a lavatory apparatus, a vessel or receptacle having a water outlet, a removable discharge pipe as e, adapted to be inserted into said outlet and closed at its upper end to close the outlet to the said vessel, a port or opening e^3 below the closed end in substantially close proximity thereto, combined with a pipe communicating with the outlet passage of the vessel, and with a discharge pipe elevating mechanism extended through said pipe, substantially as and for the purpose specified.

7. In a lavatory apparatus, a vessel or receptacle having an outlet passage, a removable discharge tube as e, adapted to be inserted in the outlet passage, and closed at its upper end to form a plug for the outlet passage, and a sealing device connected to the lower end of the said tube to seal or close the outlet passage below the basin, substantially as described.

8. In a lavatory apparatus, a water outlet, a pipe section b having an enlargement to form a passage b^{10} constituting a continuation of the water outlet, a discharge pipe e provided with a port e^3 near its upper end and with a port f^4 normally communicating with the passage b^{10}, and a rack d^{15}, combined with a pinion to engage said rack, a handle located at the top of the said apparatus, and with means substantially as described, to operatively connect the said handle and pinion, as and for the purpose specified.

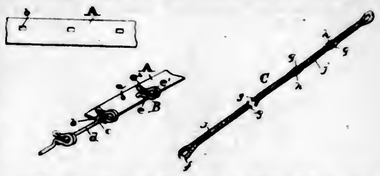
9. In a lavatory apparatus a vessel or receptacle provided with a water outlet, an auxiliary chamber communicating with the said apparatus, below the top or surface and constituting an inlet for the said vessel and an over-flow pipe connecting the said chamber with the water outlet of the apparatus, combined with a valve casing located in said chamber and having hot and cold water inlet and outlet passages, and provided with a dam, and with a valve to control said passages, substantially as described.

10. A vessel or receptacle having a discharge pipe connected thereto, an auxiliary chamber communicating with the bottom of the said vessel and with the said discharge pipe, a valve casing in said chamber provided with water inlet and outlet passages, a valve in said casing to control the said inlet and outlet passages, a tube or pipe having a port or opening, a rack on said tube, combined with a pinion to engage the rack, and with means to operate the said pinion, whereby the said tube may be placed in communication with the overflow of the said auxiliary chamber, substantially as described.

11. In a lavatory apparatus, a vessel or receptacle provided with a water outlet, an auxiliary chamber communicating with the said apparatus below the top or surface and constituting an inlet for the said vessel, and an over-flow pipe connecting the said chamber with the water outlet of the apparatus, combined with a valve casing located in the said chamber and having a water inlet and outlet orifice, a valve in said casing to control said orifices, and a dam in said chamber to prevent the water in the apparatus from reaching above a predetermined height, substantially as described.

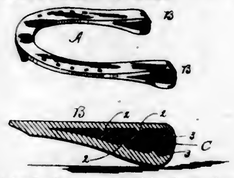
12. A vessel or receptacle having its outlet passage controlled by a movable pipe, an auxiliary chamber communicating with the said vessel, a valve casing having a water inlet and outlet passage, a hollow valve stem extended above the top of the said vessel, a handle to operate said valve, combined with a spindle extended through the hollow stem and valve and connected to the said movable pipe, substantially as described.

492,193. FASTENING DEVICE. JAMES M. CREWS, Arlington, Texas. Filed Sept. 23, 1892. Serial No. 446,712. (No model.)



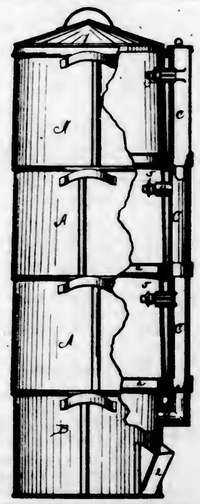
Claim.—A fastening device consisting of a pair of stay-plates or strips having means of attachment and provided near their confronting edges each with a series of holes; a single wire for each plate and comprising straight portions fitting against the back-side of the plate, and prongs extending through the openings in the plate and formed into hooks on the front side of the plate with shanks which fit flat against the said front-side of the plate; and a connecting string to fasten on the end-hooks and pass through the other hooks.

492,194. HEEL-CALK. JAMES DOLAN, Geneseo, N. Y. Filed June 13, 1892. Serial No. 436,453. (No model.)



Claim.—A heel-calk as a new article of manufacture, having its rear end slotted laterally, barbs upon the inner faces thereof, and elastic material interposed in said slotway.

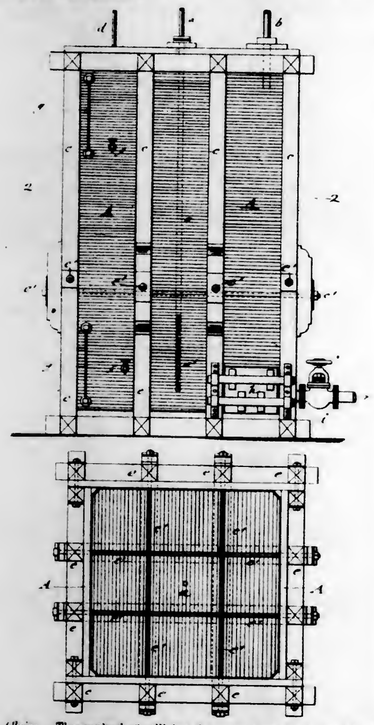
492,195. STEAM-COOKER. ELLSWORTH P. DOTY, Weedsport, N. Y. Filed July 15, 1892. Serial No. 440,145. (No model.)



Claim.—A steam cooker comprising a base, cooking chambers mounted thereon and provided with perforated false bottoms, a steam pipe leading from said base constructed in sections, steam arms leading

from said pipes to each chamber, comprising a cap and flange adapted to enter the inlet arm —4— and wires secured thereto adapted to engage frictionally with said arms, as set forth.

492,196. PROCESS OF REGAINING SULPHUROUS ACID. Vigo Drewsen, Christiania, Norway, assignor to himself, Hartwig Backe-Wilg, and Carl Backe-Wilg, same place. Filed Jan. 21, 1891. Serial No. 378,610. (No specimens.)



Claim.—The method of utilizing the waste gases discharged from the digester in the process of making sulphite pulp which consists in forcing said gases in a hot state into a new charge of cooking liquor at or near the bottom thereof and causing said gases to percolate through said liquor in direct contact therewith, the sulphurous acid contained in said gases being absorbed by said liquor, whereby the temperature and strength of the cooking liquor is increased, substantially as described.

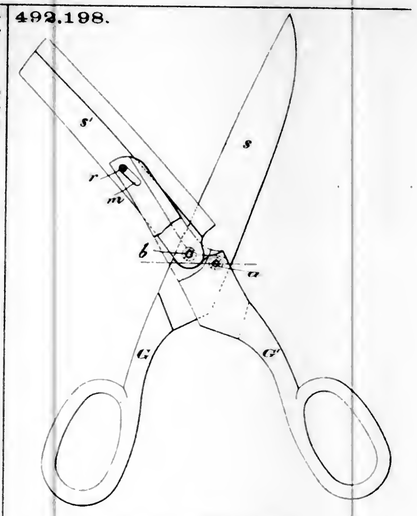
492,197. METHOD OF SECURING ASPHALTIC MASTIC. Ludwig Haarmann, Recherhausen, Germany. Filed Dec. 16, 1891. Serial No. 415,270. (No specimens.)

Claim.—The method of securing asphalt mastic to surfaces, which consists in applying a solution of a bituminous substance to the surface, and applying the mastic after the evaporation of the solvent, substantially as described.

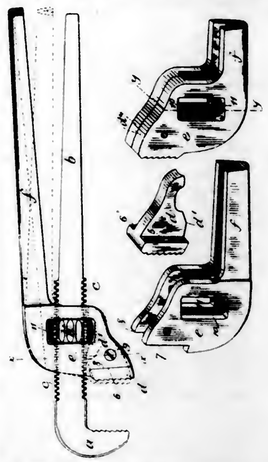
492,198. SHEARS. Carl Hahann, Rehbeck, Germany. Filed June 24, 1891. Serial No. 397,294. (No model.)

Claim.—The combination in a pair of shears or scissors of a handle provided with a fixed blade, a second handle pivoted to the fixed blade and having a prolongation beyond its pivotal point, a second blade pivoted to the first named blade and having a sliding connection with the prolongation of the second handle, the pivot of the second blade and that of the second handle being arranged side by side and approximately at the same distance from the points of the blades when the latter are closed, substantially as herein described.

492,198.



492,199. PIPE TONGS AND WRENCH. Henry Hammond, Ballston, N. Y. Filed Aug. 29, 1892. Serial No. 444,365. (No model.)



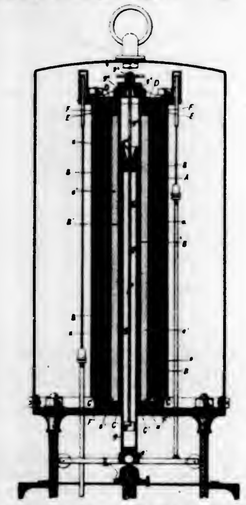
Claim.—1. The combination with the projecting stationary jaw and its handle bar having segmental screw threads, of a nut around such screw threads, a yoke frame passing around the handle bar and having openings to loosely receive the nut and a jaw upon the yoke frame and at one side of the handle bar, such yoke frame and jaw being adjustable toward and from the stationary jaw by the nut and on which nut the yoke frame and jaw rock substantially as specified.

2. In a pipe tongs and wrench the combination with a stationary jaw and handle having segment screw threads, of a rocking handle formed in one piece with a yoke frame through which passes the stationary handle, and a movable jaw piece fitted within and against the edges of the yoke frame, and a pin for holding the parts together, and an adjustable nut A, substantially as set forth.

3. The combination with the stationary jaw, its handle having segmental screw threads upon its opposite edges and a nut around the screw threads, of a yoke frame having openings to receive the nut and a jaw having an inner curved face rocking against the handle of the stationary jaw, substantially as specified.

4. The combination with the stationary jaw and handle having segment screw threads and a nut around the screw threads, of a yoke frame having openings to receive the nut and provided with notched faces 7 and 8, the jaw *d*, within the yoke frame and having shoulders 5, 6, resting upon the faces 7, 8, and the pin 9, through the yoke frame and jaw, substantially as set forth.

492,200. ELECTRIC-ARC LAMP. Henry Harper, London, England, assignor to himself, John Tryon, and Thomas George Poole, same place. Filed July 10, 1891. Serial No. 399,107. (No model.) Patented in England Aug. 24, 1889. No. 13,389.



Claim.—1. In an electric arc lamp, the combination with a magnetic tubular core G, an upper carbon H, and a holder for the upper carbon in the end of the tubular core, of a compound solenoid, comprising an outer coil in the lamp circuit and an inner coil in a shunt circuit to the lamp circuit, a stationary piston in the tubular core, and a cushion charge submerging the piston, substantially as and for the purposes set forth.

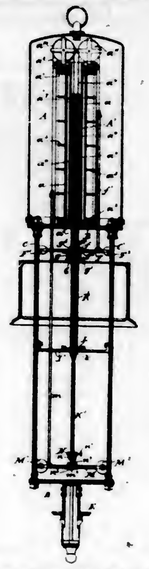
2. In an electric arc lamp, the combination with a tubular magnetic dashpot, an upper carbon, and a holder for the upper carbon in the end of the tubular dashpot, of a solenoid surrounding the dashpot, a stationary piston arranged within the dashpot, and a cushion charge submerging the piston, substantially as and for the purposes set forth.

3. In an electric arc lamp, the combination with the solenoid, of the movable iron core thereof bearing the upper carbon and having a tubular bore adapted to receive a cushion charge and a perforated plug placed in its mouth the stationary piston arranged in the bore, the stem of the piston passing through the perforation in the plug, the bearing plate situated over the upper opening of the solenoid, and the cap by which the stem of the piston is supported, substantially as and for the purposes set forth.

4. In an electric arc lamp, the combination with a solenoid comprising an outer coil of low resistance in the lamp circuit and an inner coil of high resistance in a shunt circuit to the lamp circuit, of the movable iron core thereof bearing the upper carbon, having a tubular bore adapted to receive a cushion charge and furnished with a perforated plug placed at its mouth, the stationary piston arranged in the bore, the stem of the piston passing through the perforation in the plug, the bearing plate situated over the upper opening of the solenoid, and the cap by which the stem of the piston is supported, substantially as and for the purposes set forth.

492,201. ELECTRIC-ARC LAMP. Henry Harper, London, England, assignor to himself, John Tryon, and Thomas George Poole, same place. Filed July 10, 1891. Serial No. 399,108. (No model.) Patented in England Nov. 2, 1889, No. 17,436.

492,201.



Claim.—1. In an electric arc lamp, the combination with the solenoid, of the core thereof bearing the upper carbon, said core composed of insulated iron wires massed together and inclosed in a non-magnetic tube, and the holder of the upper carbon, connected to said core substantially as and for the purposes set forth.

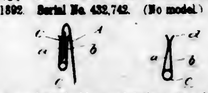
2. In an electric arc lamp, the combination with the solenoid, of the solid core thereof, bearing the upper carbon, said core composed of insulated iron wires inclosed in a non-magnetic tube, substantially as and for the purposes set forth.

3. In an electric arc lamp, the combination with the holder G and screw g^3, secured therein, said screw provided with a ball-shaped head, of the cross-piece P, secured to the solenoid core and provided with a recess corresponding in form to the head of the screw g^3, whereby the parts are assembled in an adjustable and elastic manner.

4. The combination with the holder N and pin n^2, having a conical body and a ball-shaped head n^3, of the cross piece M, having a boss m^3, provided with a recess corresponding in form to that of the pin n^2, the set screws m^4, arranged with their tips bearing against the conical sides of said pin, and the cap m^4, substantially as set forth.

5. In an electric arc lamp, the combination with the solenoid, of the core thereof, composed of a split tube a^3, of non-magnetic material, closed at the ends with plugs and containing a mass of iron wires, a^4, each covered with insulating material, and the holder for the upper carbon, secured to the lower end of said core.

492,202. TIE-HOLDER. Floyd Heavener, Helena, Mont. Filed May 12, 1892. Serial No. 432,742. (No model.)

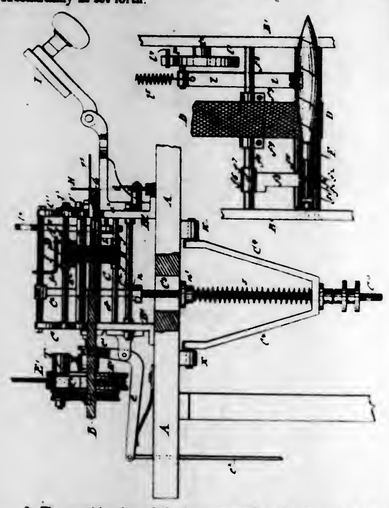


Claim.—A necktie holder, consisting of a single piece of metal having two substantially V-shaped jaws touching at one point only, formed with outwardly extending flanges at their upper ends and bent centrally to form a circular spring coil, substantially as described.

492,203. CIGAR-WRAPPING MACHINE. Gustav Henne, Long Island City, N. Y. Filed Mar. 4, 1892. Serial No. 423,734. (No model.)

Claim.—1. The combination, with a tip-forming device, formed of a lower stationary section and an upper adjustable section, of an oscillating slitting-table arranged at right-angles to the axis of the tip-forming device, a yielding plate extending around the lower tip forming block and a pivoted and spring-actuated trimming-knife

which corresponds to the shape of the stationary tip-forming section, so as to produce the required shape of the tip-end of the wrapper, substantially as set forth.



2. The combination of the lower head-forming block, having a straight outer edge at right-angles to its axis and a semi-circular extension, a yielding bracket-plate extending around the lower tip-forming block a pivoted and spring actuated trimming knife which corresponds to the shape of the stationary tip forming section, and an oscillating-blade for slitting the tip-end of the wrapper, substantially as set forth.

3. The combination, of the lower tip-forming block having a straight outer edge at right-angles to the axis of the same and a semi-circular extension, a yielding bracket-plate extending around the lower tip-forming block, a pivoted and spring-actuated trimming-knife, which trimming-knife is adapted to remove the surplus stock from the tip-end of the wrapper preparatory to wrapping the tip-end of the bunch, and an oscillating blade for slitting the top of the wrapper, substantially as set forth.

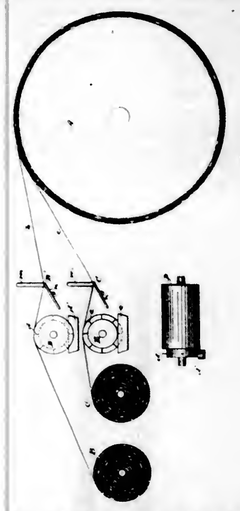
4. The combination, with a lower stationary bunch-holder and an upper oscillating bunch-holder, said holders having bunch-holding rollers and guide-rollers, of an endless apron passing between the bunch-holders and over said rollers, driving and tension-rollers for said apron, and a bunch-ejecting device operated by the oscillating bunch-holder, substantially as set forth.

5. The combination, with a lower stationary bunch-holder, an upper oscillating bunch-holder, said bunch-holders having bunch-holding rollers and guide-rollers, and an ejecting-device composed of an arm having a beat outer end and arranged in an annular recess of one of the bunch-holding rollers, an eccentric cam to which the rear-end of the arm is pivoted, a curved arm attached to a transverse rod of the oscillating bunch-holder, the lower end of said arm engaging a shoulder or projection on said cam and a spring attached to the ejecting arm and a fixed point of the supporting-frame, substantially as set forth.

492,204. APPARATUS FOR MAKING BUNDLES OF TOILET PAPER. OLIVER H. HINES, Chicago, Ill. Original application filed Jan. 23, 1892, Serial No. 419,020. Divided and this application filed Mar. 26, 1892. Serial No. 426,585. (No model.)

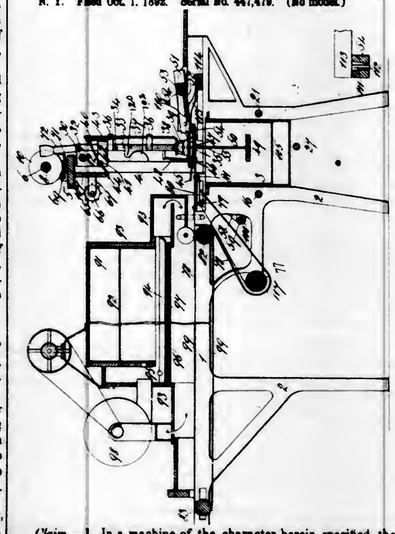
Claim.—1. In an apparatus for winding separate strips of paper together for the purpose specified, the combination with the winding drum of supports for the separate rolls or strips having their axis in planes substantially parallel with the plane in which the axis of the winding drum is located and arranged to guide the strips onto the winding drum with their edges overlapping; substantially as described.

2. In an apparatus for winding separate strips of paper together, the combination with the winding drum, of means substantially as described for holding the rolls for the separate strips with the plane of the end of one roll intersecting the other roll whereby the paper is wound with the edges of the separate strips overlapping said rolls and drum being arranged with their axes in substantially parallel planes whereby the paper is wound squarely on the drum, substantially as described.



3. In an apparatus for winding separate strips of paper together, the combination with the winding drum, and paper roll supports, arranged in substantially parallel planes of the tension devices through which the paper passes located in substantially the same plane whereby the overlapping strips may be acted upon; substantially as described.

492,205. MACHINE FOR COATING CONFECTIONERY. DANIEL M. HOLMES, Arlington, N. J., assignor to John R. Van Derver, New York, N. Y. Filed Oct. 1, 1892. Serial No. 447,479. (No model.)



Claim.—1. In a machine of the character herein specified, the combination with the drop dipping mechanism, of a jarring device for removing surplus coating material from the drops, substantially as shown and described.

2. A machine for coating confectionery, in which is comprised a coating tank, a vertically movable drop supporting and dipping device; a drop feeding and delivering device, and means for automatically reciprocating the dipping and the feeding and delivering devices, substantially as shown and described.

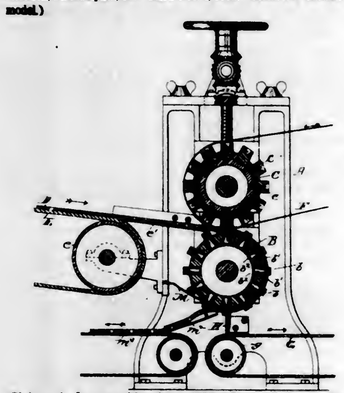
3. In a machine of the character herein specified, the combination with the drop supporting, holding, and feeding mechanism, of a vertically movable support over which the coated goods pass to the paper whereon they are deposited, substantially as shown and described.

4. In a machine of the character herein specified, the combination with the dipping mechanism and coating tank, of a flat, vertically movable stirring device mounted beneath the dipping mechanism, substantially as shown and described.

5. In a machine of the character herein specified, the combination with the dipping mechanism, of a drop moving device, and means whereby said device is caused to move alternately partially, and then entirely over the drop support, substantially as shown and described.

6. In a machine of the character herein specified, the combination with the main frame, of a paper reel supported therein within a chamber; connections between said chamber and an ice box; an ice box located above the main frame; a carrying belt located beneath said ice box; means for moving said belt, and a circulating fan adapted and arranged to cause a continuous circulation through the ice box and over the carrying belt, the whole combined and arranged, substantially as shown and described.

492,206. MACHINE FOR MOLDING OVAL OR OTHER SHAPES FROM PLASTIC MATERIAL. MARSHALL E. HUSTER and JOSEPH O. CLARK, Boston, Mass., assignors, by mesne assignments, to J. Henry Mitchell, Philadelphia, Pa. Filed Feb. 4, 1892. Serial No. 420,388. (No model.)



Claim.—1. In a machine for molding shapes from plastic material the combination of two cylinders adapted to be rotated in unison, one of which carries female dies in any desired form or arrangement, and the other of which carries male dies of the arrangement of the female dies, and the band F arranged between the cylinder for conjoint action with the dies, substantially as and for the purposes described.

2. In a machine for molding plastic shapes the combination of a male die and a female die movable in relation to each other and an elastic or flexible band or strip of material arranged between the two dies and forced into the cavity of one die with the material by the other die, and upon the separation of the dies removed from said first named die to eject the formed shape therefrom, substantially as described.

3. In a machine for making shapes of formative material, the combination of a male die and a female die, with a flexible or yielding band adapted and arranged to form the bottom of the female die, the concavity of said bottom varying in accordance with the thickness of the material forced therein by the male die, substantially as described.

4. The combination in a machine for molding shapes from plastic material, of a cylinder carrying male dies, a cylinder carrying female dies which rotate in unison and engage with the male dies, a flexible or elastic band F a material carrying band E, and a table e' between the band and the converging point of the dies, as and for the purposes described.

5. In a machine of the character herein specified, the combination of a cylinder B, having grooves m therein, the male die being supported by said cylinder; the carrying band G, the strippers H and scrapers M arranged to enter the grooves m, substantially as shown and described.

6. The combination in a machine of the character specified of the cylinder B, the male dies b' supported thereby, and a stripper having a stripping plate, the stripping edge of which is shaped to the configuration of the edge of the shaped article which is brought in contact therewith by the male die as and for the purposes described.

7. The combination in a machine of the character specified of the cylinder B, having dies and grooves m the cylinder C having dies to engage with those of the cylinder B and the scrapers M to enter the grooves m of the cylinder B, as and for the purposes described.

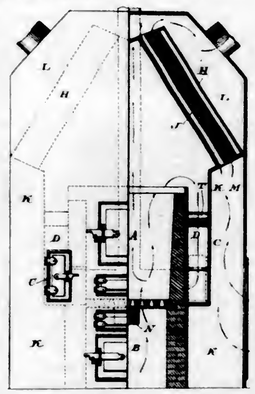
8. A die having a conical spindle in combination with a holder for said die provided with a cavity in which the die may be turned in either direction, and centrally secured by running metal about the conical spindle, as and for the purposes specified.

9. A female die, provided with a vent hole at or near its bottom, a flexible or elastic band over the mouth of the female die, and a male die adapted to enter the female die, the whole combined and arranged to operate, substantially as shown and described.

10. The combination of a die cylinder carrying male sections of dies, a cylinder carrying female sections of dies to engage the male sections as they are rotated, and the band F, running between the two cylinders, the said cylinders being so arranged that the said band acts as an ejector and carrier, as and for the purposes described.

11. In an organized machine for molding shapes from plastic material, the combination of the male die cylinder B, and male dies mounted thereon, the female die cylinder C, the female die c mounted thereon, and rotated in unison with the male dies, the carrying band E, and the table e', the scrapers M, the return belt m^3, the male die strippers H, the form carrying belt G, and the ejector band F, as and for the purposes described.

492,207. HEATER. WILLIAM J. JACKSON, Philadelphia, Pa. Filed Mar. 29, 1892. Serial No. 426,875. (No model.)



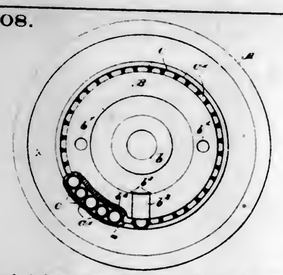
Claim.—1. A furnace having a combustion chamber, a casing rising from the exterior of the sides of said chamber forming depending flues, perforated horizontal plates in said flues, and an exit flue in communication with said depending flues below said plates, said parts being combined substantially as described.

2. A furnace having a combustion chamber, a casing rising from the exterior of the sides of said chamber, forming depending flues, a converging roof for said chamber supported on said casing, converging flues secured on said roof and exterior casing, forming chambers above and below said roof, said parts being combined substantially as described.

3. A furnace having a combustion chamber with a rear air chamber, a casing rising from the exterior side of said combustion chamber forming depending flues communicating with said combustion chamber, an exterior casing forming chambers outside of said flues, and tubes connected with the inner walls of the flues and the first mentioned casing, and communicating with the said air and exterior chambers, said parts being combined substantially as described.

492,208. PURCHASE-BLOCK SHEAVE. JOHN C. KEMPS, Lowell, Mass. Filed June 3, 1891. Serial No. 394,662. (Model.)

492,208.

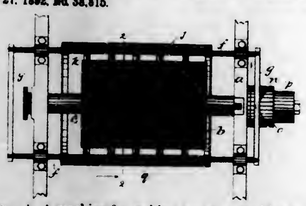


Claim.—1. A sheave comprising an annular rim having an internal groove, a peripherally-grooved hub, anti friction rollers interposed between the rim and hub and having bearings in said grooves, said hub being provided with an opening for the introduction of the rollers, and a dove-tailed slide to close said opening.

2. A sheave comprising a peripherally grooved hub, an annular rim having an internal groove, anti-friction rolls of varying diameters interposed between the rim and hub, and having bearings in said grooves, said hub being provided with an opening for the introduction of the rollers, and a dove-tailed slide to close the opening, substantially as set forth.

3. A sheave comprising an integrally constructed annular rim having an internal roller-groove having its sides standing at right angles to its base, an integrally constructed hub having a peripheral roller-groove having its sides standing at right angles to its base, said two roller-grooves constituting, unitedly, a bearing-roll chamber, anti-friction rollers placed in said chamber between the rim and the hub, said hub being provided with an opening for the introduction of said rollers, and a dove-tailed slide to close said opening, substantially as set forth.

492,209. PAPER-MAKING MACHINE. AMASA M. KIDDER, Chelmsford, Mass., assignor of one-half to Amasa Howard, same place. Filed Mar. 12, 1892. Serial No. 424,676. (No model.) Patented in Canada Apr. 27, 1892. No. 38,815.



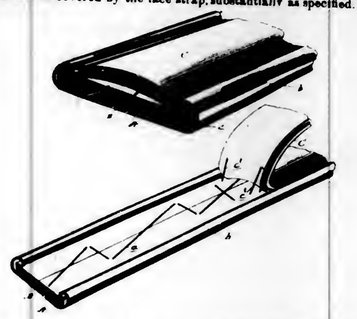
Claim.—1. A machine for making paper, comprising in its construction a cylinder, a vibratory frame or support, and flat agitating blades extending in a line parallel with the movement of the cylinder connected with said frame, and located in proximity with the cylinder, as described.

2. A machine for making paper, comprising in its construction a cylinder, a vibratory frame or support, and a series of agitating devices divided centrally on a line parallel with the axis of the cylinder and hinged together, the agitating device being connected to the said frame and arranged in proximity to the cylinder, as described.

3. A machine for making paper, comprising in its construction a cylinder, a vibratory frame or support, and agitating devices connected with said frame and located in proximity with the cylinder, the said agitating devices having the form of thin, flat blades extending in a line parallel with the motion of the cylinder, and provided on their outer edges with flanges, as described.

492,210. HARNESS. FREDDIE C. KIMBALL, Cleveland, Ohio, assignor to Helen Elma Kimball and Annie Irene Whitney, same place. Filed June 2, 1892. Serial No. 435,344. (No model.)

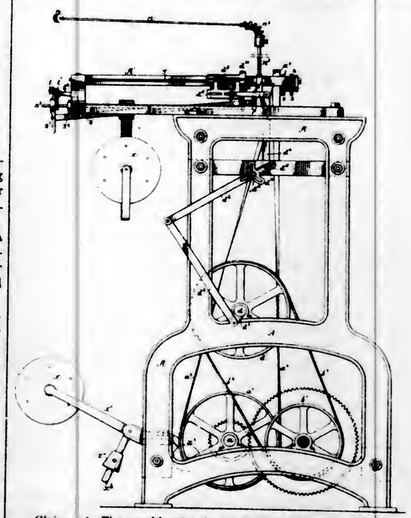
Claim.—1. A breast collar or other part of a harness, substantially as specified, consisting essentially of the burr or foundation pieces, a face strap covering one side of the burr or foundation pieces and having its edges rolled at *b*, and resting upon the opposite side of the burr or foundation pieces, the stitches *c*, connecting the edges of the face strap to the burr or foundation pieces and arranged so as to be covered and protected by the rolls *b*, stitches connecting the contiguous edges of the burr or foundation pieces, and an outer layer or strap connected to the burr or foundation pieces above on the opposite side to that covered by the face strap, substantially as specified.



2. A breast collar or other part of a harness, substantially as described, comprising the face strap, the burr or foundation pieces connected to the face strap and having their contiguous edges connected together, an outer layer or strap having its longitudinal edges slitted, and stitches taking through the inner wall of the slits and into the burr or foundation pieces, substantially as pecified.

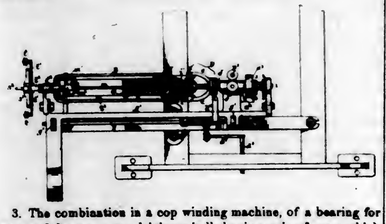
492,211. TWISTING AND COP-WINDING MACHINE. CHARLES C. KLEIS, Abington, Pa. Filed Apr. 20, 1892. Serial No. 429,880. (No model.)

Brief.—The improvement includes a flier and spindle independently rotatable and mounted in a pivoted frame, a traverse-guide mounted concentrically with said pivoted frame, spring-fingers on the spindle for engaging the nose of the cop, a pivoted skewer for supporting the cop, a cone forming the base of the cop sliding on the skewer, a reel, a reel-holder, a device for equalizing the tension of the threads, means for stopping the machine when a thread breaks, means for breaking the thread when the cop is full, thus stopping the machine, and means for varying the length of the stroke of the traverse-guide and for determining its position at the limits of its movement.



Claim.—1. The combination in a twisting and cop winding machine, of a rotating flier having a portion providing a continuous bearing for the nose of the cop, with a cop driving spindle, and means for independently rotating said flier and spindle, substantially as specified.

2. The combination in a twisting and cop winding machine, of a rotating flier having a portion providing a continuous bearing for the nose of the cop, with a spindle for driving the cop, a traverse guide rotating with the flier, and means for independently driving the flier and spindle and for reciprocating the traverse guide, substantially as specified.



3. The combination in a cop winding machine, of a bearing for the nose of the cop, a cop driving spindle having spring fingers which engage directly with the cop at the nose of the same, and means for rotating said spindle, substantially as specified.

4. The combination in a cop winding machine, of a bearing for the nose of the cop, a non-reciprocating spindle engaging with the cop at the nose of the same, a skewer which supports that portion of the cop which projects beyond the spindle, and means for rotating said spindle, substantially as specified.

5. The combination in a cop winding machine, of a bearing for the nose of the cop, a spindle for driving said cop, a pivoted skewer for supporting the cop as it is wound, and means for rotating the said spindle, said skewer having no positive driving connection with the spindle, substantially as specified.

6 The combination in a cop winding machine, of a bearing for the nose of the cop, a cop driving spindle having a recess in the end thereof, a pivoted skewer for supporting the cop as it is wound, and means for rotating the spindle, said skewer having at one end a bearing in the end of the cop driving spindle, but being adjustable longitudinally so as to cause the end of the same to enter or leave the recess in the end of the spindle, substantially as specified.

7. The combination in a cop winding machine, of a bearing for the nose of the cop, a pivoted frame carrying a cam collar and having a cam for engagement therewith, a cop driving spindle having a recessed end, a skewer adapted at one end to said recess, and at its opposite end to the cam collar, and means for rotating the cop driving spindle, substantially as specified.

8. The combination in a cop winding machine, of a bearing for the nose of the cop, a spindle for driving the cop, a skewer for supporting the cop, means for rotating the spindle, a cone mounted so as to slide longitudinally on said skewer, and a frictional retarder for said cone, substantially as specified.

9. The combination in a cop winding machine, of a bearing for the nose of the cop, a spindle for driving the cop, means for rotating said spindle, a skewer for supporting the cop, a cone free to slide longitudinally on said skewer, and a spring friction device carried by the cone and bearing on the skewer, for retarding the movement of said cone on the skewer, substantially as specified.

10. The combination in a cop winding machine, of a bearing for the nose of the cop, a spindle for driving the cop, a swinging frame carrying said bearing and spindle, a driving pulley on said spindle, a driving belt for said pulley, a rack and pawl for holding said swinging frame in position to cause the pulley to remain in driving engagement with its belt, and means for releasing the pawl, substantially as specified.

11. The combination in a stop motion device for winding frames, of the driving mechanism, arresting devices therefor, a swinging frame having an opening therein, a rod having a projection for entering said opening, means for reciprocating said rod, thread guide levers having portions adapted to project in front of the opening, and means for transmitting the movement of the swinging frame to said arresting devices of the machine, substantially as specified.

12. The combination in a cop winding machine, of a bearing for the nose of the cop, a spindle for driving the cop, means for rotating said spindle, a swinging frame carrying said cop spindle and bearing, a traverse guide and reciprocating mechanism for said traverse guide pivoted concentrically with the swinging frame, substantially as specified.

13. The combination of the swinging frame carrying the winding devices, the traverse guide and reciprocating mechanism therefor comprising a frame engaging with the traverse guide and pivoted concentrically with the swinging frame, a slide engaging said pivoted frame, and means for reciprocating said slide, substantially as specified.

14. The combination in a cop winding machine, of stop motion devices operative on the breaking of the yarn, a bearing for the nose of the cop, a spindle for driving the cop, means for rotating said spindle, and a slide movable in advance of the cop and having a projection for engaging the yarn so as to insure the stoppage of the machine when the full length of the cop has been wound, substantially as specified.

15. The within described equalizing device for twisting and winding machines, the same consisting of a lever having arms projecting oppositely from the pivot point, one of said arms having a guide for one of the strands, and the other arm a guide for the other strand, in combination with a torsion spring tending to maintain said lever in mid position, substantially as specified.

16. The within described hank reel holder consisting of a lever having three arms, one carrying the reel, the second projecting substantially in line with the first and having a fixed counterbalance weight, and the third projecting substantially at right angles to the first and second and having an adjustable counterbalance weight, substantially as specified.

17. The within described equalizing device for twisting and cop winding machines, the same consisting of a lever having arms projecting oppositely from the pivot point, one of said arms having a guide for one of the strands, and the other arm a guide for the other strand, in combination with a fixed support, an arm carrying the lever, and a coiled spring carrying said arm and mounted upon the fixed support so as to constitute an elastic connection between said support and the arm, substantially as specified.

18. The combination of the twisting and winding devices with the equalizing lever having opposite arms, one of which has a guide for one of the strands, and the other a guide for the other strand, an arm carrying said lever, and a coiled spring serving both to lift said arm and exert torsional strain thereon, substantially as specified.

19. The combination of the skewer having a collar thereon, with the swinging head having a cam collar mounted thereon and recessed to form a bearing for the end of the skewer, said cam collar having a flange, which, by engagement with the collar on the skewer, serves to confine the latter longitudinally to the cam collar, substantially as specified.

20. The combination of the traverse guide with the rock shaft having an arm connected to said traverse guide, a second arm fixed to the rock shaft and having a segmental slot, a third arm slotted longitudinally for the reception of the shaft, and a bolt adapted to said slots and serving to secure the slotted arms together, substantially as specified.

21. The within described reel consisting of opposite heads each having a number of plies disposed so as to cross the grain and a series of connecting rods having right and left threaded ends adapted to correspondingly threaded openings in the heads, said series of rods forming a skeleton body for the reel, substantially as specified

22 The within described reel consisting of opposite heads each having a number of plies disposed so as to cross the grain, a series of connecting rods having right and left threaded ends adapted to correspondingly threaded openings in the heads, said rods being disposed so as to form a skeleton body for the reel, and a central bushing for each head in the form of an eyelet, substantially as specified.

23. The combination in a combined twisting and cop winding machine, of a rotating flier having a rigid portion providing a bearing for the nose of the cop, a driving spindle, and means for independently rotating said flier and spindle, the cop being free to yield longitudinally as successive layers of yarn are wound thereon, substantially as specified.

492,212. MAGAZINE-GUN. OLE H. J KRAG and ERIK JORGENSEN, Kongsberg, Norway. Filed June 17, 1892. Serial No. 437,097. (Model.)

Claim.—1. In a breech loading magazine gun, the combination with the magazine having its feed opening on one side of the gun, a gate for closing the opening hinged to the magazine so as to swing downwardly, said gate being provided with a lug, 13, a feed lever arranged within the magazine, a vertical pivot for said lever one end of which projects out of the magazine, said outwardly projecting end being provided with a radial arm, of the convex leaf spring, 11, having bearing on said radial arm and on the hinge knuckle of the gate, substantially as and for the purpose set forth.

2. In a breech loading magazine gun, the combination with the magazine provided with two hinge knuckles, 16^a, one of said knuckles being provided with a pin hole at right angles to its axis, and the gate, 5, provided with a hinge knuckle, 4^b, of the hinge pintle, 6, one end of which is semi-cylindrical and provided with the locking notch, 17, and the elastic plate, 19 at the other end of said pintle, substantially as and for the purpose set forth.

3. In a breech loading magazine gun, the barrel, receiver, and a magazine open on opposite sides of said receiver, said parts being

formed integral, the side wall, 2, and a gate for closing said opening, said side wall and gate being detachably secured to the magazine, for the purposes set forth.

4. In a breech loading magazine gun, the combination with the magazine having its feed opening on one side of the gun, a gate for said opening arranged to swing downwardly, and a feed lever in engagement with the gate and having its pivot proximate to said feed opening on one side thereof; of a spring adapted to actuate the feed lever to move the same into the magazine, said spring located outside of the magazine, for the purpose set forth.



5. In a breech loading magazine gun, the combination with the receiver, the breech bolt provided at its forward end with the locking lugs 35 and 36, and the locking sleeve, 27, having a forwardly projecting arm, 31, undercut or recessed at 45, and an extractor carrier provided with a lug fitting into said recess, and with a dovetailed longitudinal groove, of an extractor consisting of a more or less elastic plate fitted in the groove of the carrier and having an extractor hook at one end and a curved arm projecting laterally therefrom near the hook end, said lug, 36, engaging said curved arm when a partial rotation is imparted to the breech bolt in a given direction, substantially as and for the purpose set forth.

6. In a breech loading gun, the combination with the receiver provided with two guide faces, *d*, and *c*, extending nearly the full length of the receiver, and with a lateral slot, *r'*, of which the guide face, *c*, forms one of the walls, said slot being contracted at its rear end; of the breech bolt having lugs, 35 and 36 at its forward end, said lug, 35, having bearing on the guide face, *d*, and said lug, 36, having bearing on the guide face or wall, *c*, when moving along the wider portion of the slot, *r'*, and on both walls of said slot when moving along the narrower portion thereof, for the purpose set forth.

7. In a breech loading gun, the combination with the receiver and the trigger provided with an angular arm projecting into the receiver near its rear end, of the breech bolt provided at its forward end with a radial lug engaging said angular arm on the trigger when said bolt has reached the limit of its rearward motion whereby said bolt may be removed from the receiver by pulling the trigger rearwardly, substantially as set forth.

8. In a breech loading magazine gun, the combination with the receiver, the breech bolt and the locking sleeve, 27 having forwardly projecting arm, 31, recessed at 46, of the extractor carrier consisting of a plate, 43, concavo-convex in cross-section, provided at its rear end with a lug, 45, fitting loosely into recess, 46, and with a longitudinal dove-tailed groove, an extractor consisting of a plate, 47, having a portion thereof attenuated to give it elasticity, the body of said plate being loosely fitted in the dove-tailed groove of the carrier, and an extractor hook at the end of the attenuated portion of the extractor, and a locking device to lock the extractor and carrier against endwise motion independently of said breech bolt when the latter is moved back into the receiver, substantially as and for the purpose set forth.

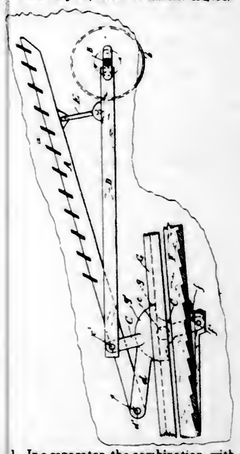
9. In a breech loading magazine gun, the combination with the receiver having guide bearings, *d*, and *c*, and breech bolt having at its forward end two lugs, 35, and 36, guided by said bearings when the bolt is positioned for rectilinear motion, of the trigger, T, and an angular arm or lever, 63, the vertical branch of which projects into the receiver in the path of the lug, 36, when the breech bolt is pulled rearwardly to limit the motion of said bolt, said trigger being adapted to actuate the angle lever for the purpose of withdrawing its vertical arm from the path of the lug, for the purpose set forth.

10. In a breech loading gun, the combination with the receiver, of the breech bolt and the extractor connected therewith, said bolt provided at its forward end with a substantially circular abutment, 50, for the butt of the cartridge, said abutment being recessed to accommodate the extractor hook and provided with an inclined or cam face acting on said hook to lift the same when a partial rotation is imparted to the bolt in one direction, for the purpose set forth.

11. In a breech loading gun, the combination with the magazine having its feed opening on one side of the gun, a gate for said opening arranged to swing downwardly, a feed lever pivoted within the magazine, and a single spring acting on the gate and feed lever to hold said gate yieldingly when open or shut, and force the feed lever into the magazine when the said gate is shut, for the purposes set forth.

12. In a breech loading gun, the combination with the magazine having its feed opening on one side of the gun, a gate for said opening, and a pivoted feed lever in engagement with the gate and having its pivot proximate to said feed opening on one side thereof; of a single spring acting on the gate and feed lever to hold the said gate yieldingly when open or shut, and force the feed lever into the magazine simultaneously with the closing of the gate, for the purpose set forth.

492,213. GRAIN-SEPARATOR. FRANK F. LANDIS, Waynesborough, Pa. Filed May 23, 1892. Serial No. 434,735. (No model.)



Claim.—1. In a separator, the combination, with a straw-shaker, of a crank-shaft at the rear end of the shaker, the connecting-rods operated by the crank-shaft, the levers pivoted to the case and to the said connecting-rods and provided with upwardly and forwardly-projecting arms pivotally supporting the front end of the shaker, and the links pivotally connecting the rear end of the said shaker with the said connecting-rods, substantially as set forth.

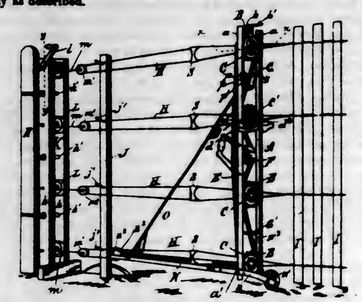
2. In a separator, the combination, with the levers pivoted to the case and adapted to reciprocate the straw shaker and the grain pan, of the ledges secured to the case for guiding the grain into the grain pan and provided with slots for the said levers to pass through, and the sectors arranged concentric with the lever pivots and adapted to fill the said slots, substantially as set forth.

492,214. WIRE-FENCE MACHINE. JOHN LANE and CORNELIUS LANE, Holly, Mich. Filed June 20, 1892. Serial No. 437,282. (No model.)

Claim.—1. In a carrying frame for two or more wire twisting devices, the combination with the vertical side pieces, of transverse bars carrying adjustable beater plates, and adjustable toothed plates, both adjustably secured to the transverse bar by a single bolt and nut, substantially as described and for the purpose set forth.

2. In a carrying frame for wire twisting devices, the combination of vertical side pieces with the reversible wire riding guide arm constructed of two sides, each of which is pivotally engaged at will to the upper or lower end of the side pieces, an adjustable ground wheel

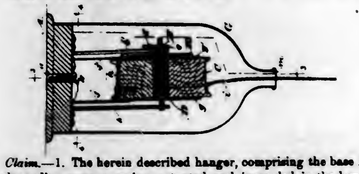
removably secured to the extended end of one side of said guide arm, an adjustable brace engaging the end of said double guide arm and the carrying frame, and a revoluble washer located in the cross piece uniting the wire riding ends of the sides of the guide arm, substantially as described.



3. In a tension device for a fence machine, the combination of a frame, bearings located upon the inside thereof and opposite to each other, a tension spool located upon an axis extending through both of said frames and supported thereby, the flanges of said spool engaging in the bearing plates, and adjustable bolts engaging the frame whereby the frame can be brought to bear upon the end surfaces of the spools, and means for turning said spools, substantially as described.

4. In a tension device for a fence machine, the combination of a frame, bearings located upon the inside thereof and opposite to each other, a tension spool located upon an axis extending through both of said frames and supported thereby, the flanges of said spool engaging in the bearing plates, adjustable bolts engaging the frame whereby the frame can be brought to bear upon the end surfaces of the spools, means for turning said spools, and a tension wire adapted to be connected to the fence wire, substantially as described.

492,215. HANGER FOR ELECTRIC INCANDESCENT LAMPS. SAMUEL G. LARKINS, Blair, Nebr. Filed Feb. 17, 1892. Renewed Dec. 17, 1892. Serial No. 455,548. (No model.)



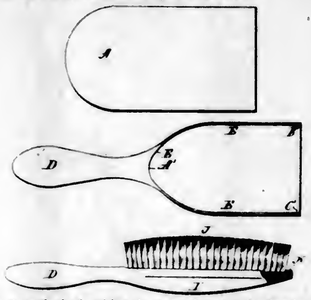
Claim.—1. The herein described hanger, comprising the base A, two depending arms, a spring actuated reel journaled in the lower ends of said arms and having a pawl and ratchet connection therewith, rings *g g'* on the opposite ends of the reel and connections with the lamp suspending cord, two springs *j j'*, between the lower ends of which the reel revolves with its rings in contact therewith, a notched ring on one end of the reel, and a spring friction pawl engaging the said ring to hold the reel frictionally but release it when the lamp suspension cord is operated, substantially as described.

2. The herein described hanger, consisting in the base A, having depending arms *b b'*, shaft B mounted in lower ends of said arms, a pawl and ratchet mechanism connecting one arm and said shaft, the reel C on the shaft, the torsional helical spring D connected at its ends to the shaft and reel respectively, rings *g g'* secured to the ends of the reel, the peripherally notched ring E offset from one end of the reel, the springs *j j'* depending from the base and contacting with the rings *g g'*, the spring friction pawl engaging the notched ring, and the electric connections for the springs *j j'*, substantially as set forth.

492,216. METHOD OF MAKING SHEET-METAL MOUNTS FOR BRUSHES, &c. JOHN LEWIS, Waterbury, Conn., assignor to the Scovill Manufacturing Company, same place. Filed Nov. 21, 1892. Serial No. 452,676. (No model.)

Claim.—1. A method of making sheet-metal mounts for brushes and kindred articles, consisting in first forming a tubular shell or blank, closed at one end, then reducing the closed end of the shell and developing it to form a handle, then cutting, opening out, and flattening and developing the other end of the blank to adapt it to receive a brush or other object, substantially as described.

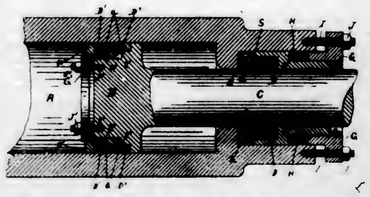
2. A method of making sheet-metal mounts for brushes and so forth, consisting in first forming a tubular shell, closed at one end, then reducing the closed end of the shell and developing it to form a handle, and flattening the same after filling it with some substance to prevent it from caving in, and cutting, opening out and flattening and developing the other end of the blank to adapt it to receive a brush or other object, substantially as described.



3. A method of making sheet-metal mounts for brushes and so forth, consisting in first forming a tubular shell, closed at one end, then reducing the closed end of the shell and developing it to form a handle, then cutting away the other end of the shell longitudinally to remove a large segment of it, then opening out, flattening and trimming the said end, and then drawing up the edge of the said trimmed portion of the shell to form a rim or flange, the edge of which is afterward turned inward to hold a brush or other object placed within it, in place, substantially as described.

4. A method of making sheet-metal mounts for brushes and kindred articles, consisting in first forming a tubular shell or blank, closed at one end, then reducing the closed end of the shell to partially form the handle, then spinning the said partially formed handle to further develop it, then cutting away the other end of the said shell longitudinally to remove a large segment of it, then opening out, flattening and trimming the said end, then drawing up the edges of the said trimmed portion of the shell to form a rim or flange, the edge of which is afterward turned inward to hold the brush or other object placed within it in place, and imparting a concavo-convex form to the metal inclosed by the said rim or flange to increase the capacity of the said end of the mount, and give it an ornamental form, substantially as described.

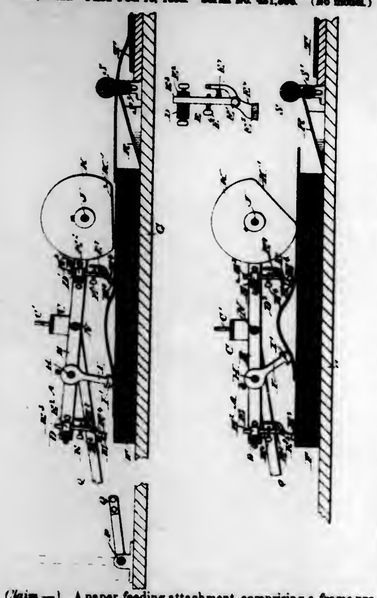
492,217. HYDRAULIC PACKING. HENRIK V. LOSS, Philadelphia, Pa. Filed May 10, 1892. Serial No. 432,421. (No model.)



Claim.—1. The combination in a hydraulic packing of a packing ring of impermeable elastic material, having substantially a wedge-shaped cross section, and a backing ring having substantially a wedge-shaped cross section and provided with grooves or water ways so located that water from the cylinder may pass through them to the side or sides of the packing ring, which are opposite to its sliding surface.

2. The combination in a hydraulic packing of a cylinder and piston or piston rod, a packing ring having substantially a wedge-shaped cross section, a backing ring having substantially a wedge-shaped cross section, water ways between said backing and packing rings, one end of which communicates with the interior of the cylinder, a sleeve butting against the wedge-shaped packing, a gland, and a packing between said sleeve and gland, all substantially as set forth.

492,218. PAPER-FEEDING ATTACHMENT. NICHOLAS LEE, Topeka, Kans. Filed Feb. 16, 1892. Serial No. 421,892. (No model.)



Claim.—1. A paper feeding attachment, comprising a frame provided with front and rear legs adapted to rest on the paper, a pivoted support for said frame cam arms mounted to revolve on the said frame between the said legs, and cams mounted to revolve on the said frame in front of the front legs, substantially as shown and described.

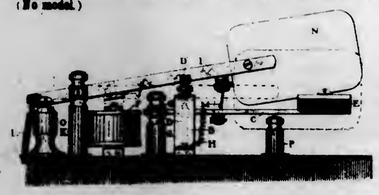
2. In a paper feeding-attachment, the combination, with a frame provided with legs resting on the paper, a pivoted support for the frame of cam arms mounted to swing and journaled on the said frame, the said cam arms being adapted to engage the paper to lift the said legs off the same, substantially as shown and described.

3. A paper feeding attachment, provided with a frame having pivoted front and rear legs adapted to rest on the paper, a pivotal support for such frame and cam arms mounted to swing in the said frame between the front and rear legs, substantially as shown and described.

4. A paper feeding attachment, provided with a frame having pivoted front and rear legs adapted to rest on the paper, a pivoted support for said frame, cam arms mounted to swing in the said frame between the front and rear legs, and disk cams having flat surfaces and mounted to turn in the said frame in front of the front legs, substantially as shown and described.

5. A paper feeding attachment, provided with a frame having yielding front and rear legs adapted to rest on the paper, arms mounted to swing in the said frame between the front and rear legs, disk cams having flat surfaces and mounted to turn in the said frame in front of the front legs, and an auxiliary pivoted frame pivotally connected with the said main frame and adapted for use in raising the said frame and its attachments bodily off the paper, substantially as shown and described.

492,219. LIGHTNING CONDUCTOR AND ARRESTER. ADELVIN R. LYMAN, Cleveland, Ohio. Filed Oct. 22, 1892. Serial No. 450,044. (No model.)

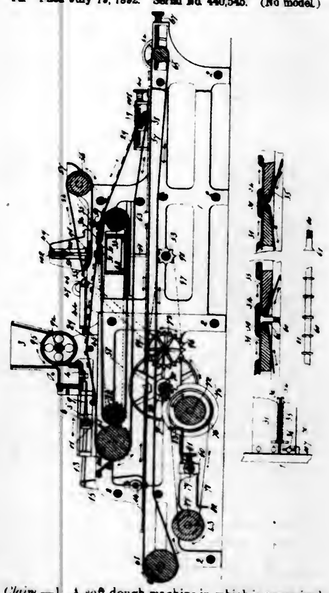


Claim.—1. In a lightning conductor and arrester, the vibrating arms C and C' mounted on suitable posts and having electrically conducting terminals, normally separated by adjusting screws situated back of the pivotal connections of said arms, in combination with the lever I having non-combustible, insulating material in its free terminal, an armature, and the insulating levers M, M connecting said lever I with the arms C and C', and an electro magnet and spring for actuating the lever I whereby the terminals of said arms C and C' are widely separated or drawn near together, in the manner substantially as and for the purpose set forth.

2. In a lightning conductor and arrester, an electro magnet and the vibrating arms C and C' having separate electrically conducting terminals and the insulating levers M, M, in the circuit between a line and ground wire, in combination with the lever I having an insulating, non-combustible substance attached to its free terminal, an armature, the spring L, and connected to the insulating levers M, M, said lever I being attracted by said electro magnet when charged, thereby separating the conducting terminals of said arms C and C' sufficiently to destroy an electrical arc formed between said terminals, in the manner substantially as and for the purpose set forth.

3. A lightning conductor and arrester consisting of an electro magnet connected to the ground wire and the post B', said post supporting the vibrating arm C', the vibrating arm C supported by the post B in electrical connection with the line wire, said arms C and C' having electrically conducting terminals, the posts G, G and adjusting screws G', G', the lever I carried on the trunnions K', K' and provided with an armature, the spring L and the insulating levers M, M connecting said lever I with the arms C and C', in the manner substantially as and for the purpose set forth.

492,220. CAKE-MACHINE. JAMES H. MITCHELL, Philadelphia, Pa. Filed July 19, 1892. Serial No. 440,545. (No model.)



Claim.—1. A soft dough machine in which is comprised a dough press provided with escape nozzles; a wire cutting device having a trip; a preliminary carrier for receiving the cakes; a stamping device; mechanism for applying granulated material to the cakes, and for stripping the cakes from the preliminary carrier, and a main pan carrier toward which the preliminary carrier converges; the whole combined and arranged to operate, substantially as shown and described.

2. In a machine of the character herein specified, a wire cutter consisting of a series of fingers secured to an oscillating shaft and bearing a wire; a gear wheel frictionally mounted upon said shaft; a stationary rack with which said gear engages, and means for imparting a reciprocating movement to the cutter, substantially as shown and described.

3. In a machine of the character herein specified, the combination with a dough press, of a wire cutter, a preliminary carrier, and a pan carrier, substantially as shown and described.

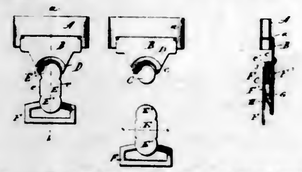
4. In a machine of the character herein specified, a stamping device beneath which an endless dust covered carrier passes, in combination with a carrier therebeneath; a fixed support beneath said carrier, and means for imparting a uniform movement to the carriers, substantially as shown and described.

5. In a machine of the character herein specified, a dough press; wire cutter; preliminary carrier; stamping device, and pan carrier, the whole combined and arranged to operate, substantially as shown and described.

492,221. EXTRACTING GOLD FROM ITS ORES. CARL MOLDENHAUER, Frankfort-on-the-Main, Germany. Original application filed Feb. 20, 1892, Serial No. 422,294. Divided and this application filed Sept. 7, 1892. Serial No. 445,261. (No specimens.) Patented in Italy Feb. 27, 1892, XVI, 31,214, and LXI, 250.

Claim.—The process of extracting gold from its ores consisting in subjecting the ores to the dissolving action of cyanide of potassium in the presence of ferricyanide of potassium, substantially as herein described.

492,222. FASTENING DEVICE FOR SUSPENDERS. JAMES F. MOLLOY, New Haven, Conn. Filed Dec. 23, 1892. Serial No. 456,169. (No model.)



Claim.—1. The combination, in a fastening device for suspenders, with a member or part having a circular projection or stud, of a spring-hook having a jaw adapted at its outer end to fit over the said stud or projection, and to turn thereon, and a cast-off which receives the stud between its two members and extends under the said jaw, substantially as described.

2. The combination, in a fastening device for suspenders, with a member or part having a circular projection or stud, of a spring-hook having a jaw constructed at its outer end with an inwardly projecting segmental flange, conforming in curvature to the curvature of the said stud or projection, and a cast-off having two fingers constructed to extend under the said jaw, and receiving the said stud or projection between them, substantially as described.

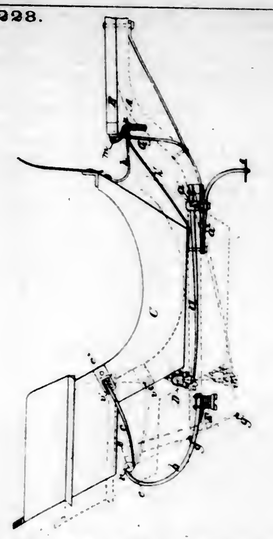
3. The combination, in a fastening device for suspenders, of a member or part having a circular projection or stud, and a segmental rib located concentric with and above the same, with a narrow groove or channel between them; of a spring-hook having a jaw constructed at its outer end to fit over the said stud or projection, and a cast-off having two fingers constructed to extend under the said jaw, and receiving the said stud or projection between them, substantially as described, and whereby the said rib prevents the garment from being caught on the jaw of the spring-hook.

4. The combination in a fastening device for suspenders, of a part or member constructed with a circular stud or projection set inward back of its face; of a spring-hook having a jaw constructed at its inner end to fit over the said stud or projection, and to turn thereon, and a cast-off having two fingers constructed to extend under the said jaw, and receiving said stud or projection between them, the outer face of the finger piece and member or part being flush, substantially as described.

492,228. TWO-WHEELED VEHICLE. EVERETT F. MOSES, Trumansburg, N. Y. Filed Dec. 13, 1890. Renewed Feb. 24, 1892. Serial No. 422,794. (No model.)

Claim.—1. In a two wheeled vehicle, the combination with the axle and thills securely attached thereto, of a body having the axis about which it is adapted to rock endwise relatively to the thills located near the axle and, restrained to move up and down with said body relatively to the gear, a yielding arm securely attached to the gear and extending to a point directly or obliquely above said axis about which the body rocks, means for connecting said arm with the body, substantially as described.

492,228.



2. In a two wheeled vehicle, the combination of a body adapted to rock endwise relatively to the thills about an axis near the axle which axis is restrained to move up and down with said body, of two arms, one securely attached to the gear and extending to a point directly or obliquely above said axis about which the body rocks, the other extending from the body to the free end of said first arm, substantially as and for the purpose described.

3. In a two wheeled vehicle, the combination with a body hinged about an axis parallel to and near the axle by hinges connected to the gear by nearly horizontal arms, of arms securely fastened to the gear and extending to a point directly or obliquely above the axis of said hinges, means of connecting said latter arms with the body, substantially as described.

4. In a two wheeled vehicle, the combination with the axle, the thills attached thereto, one or more cross bars connecting the thills, of a nearly horizontal arm hinged to the body near the axle, extending forward and securely attached to the gear, and an arm attached to the body above the hinge of said first arm, and extending backward therefrom and means for connecting said latter arm with the gear, substantially as described.

5. In a two wheeled vehicle, the combination with the axle and body, of a torsion spring extending transversely across the body and securely attached thereto, arms securely attached to and extending backward from said torsion rod on either side of the body, arms securely attached to the axle and extending backward and upward and having their free ends connected pivotally to the free ends of the arms extending from said torsion rod, substantially as described.

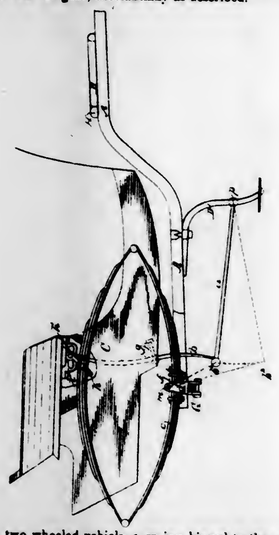
6. The combination with the body of the vehicle, of two substantially parallel torsion bars arranged transversely of and within the body, said rods being securely clamped together the one having its ends securely attached to the body and the other provided with arms extending backward on either side of the body and pivotally attached to the gear, substantially as described.

7. In a two wheeled vehicle, the combination with the axle, thills securely attached thereto and a body, of a nearly horizontal arm extending nearly longitudinally of the vehicle, having one end securely attached to the gear and extending from said point of attachment, toward the axle and securely attached to the body near the same, said arm restraining the axis about which the body rocks, to move up and down with the body, a yielding arm having its lower end securely attached to the gear and extending to a point directly or obliquely above the axis about which the body rocks, means for connecting said yielding arm with the body, substantially as described.

492,224. TWO-WHEELED VEHICLE. EVERETT F. MOSES, Trumansburg, N. Y. Filed Aug. 3, 1891. Renewed Nov. 26, 1892. Serial No. 453,213. (No model.)

Claim.—1. In a two wheeled vehicle, the combination with the

axle thills, attached thereto, and a body adapted to rock endwise about an axis near the axle, of an arm attached to said body and extending downward to a point directly or obliquely below said axis about which the body rocks, a brace connecting said downwardly extending arm with the gear, substantially as described.



2. In a two wheeled vehicle, a spring hinged to the gear and supporting the body in combination with an arm attached to the body and extending to a point directly or obliquely below said hinged connection of the spring and a brace connecting said arm with the gear, substantially as described.

3. In a vehicle, the combination with the body and gear of an arm securely attached to the body and extending downward therefrom, two arms securely attached to the gear and extending downward therefrom, a horizontal trussed brace connecting said arms extending from the body and gear, substantially as described.

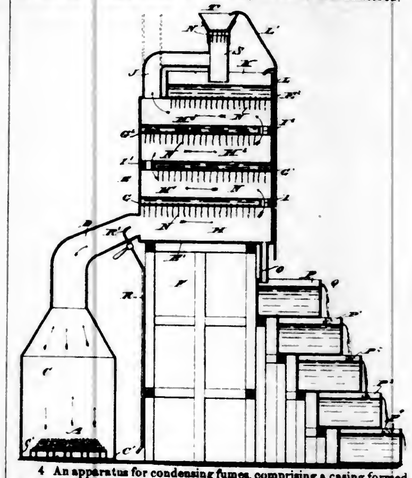
4. In a vehicle, the combination of an arm securely attached to the body and extending from a point near the seat to a point below the body, the lower end of said arm being connected to the gear by a brace and the upper end adjustably connected to a bracket securely attached to the body, substantially as described.

492,225. APPARATUS FOR CONDENSING FUMES. FREDERICK MUELLER, Butte City, Mont. Filed Mar. 2, 1892. Serial No. 423,502. (No model.)

Claim.—1. An apparatus for condensing fumes, comprising a casing having a series of compartments one above the other and communicating with each other, each compartment having its floor perforated and provided with cords or ropes passing through said perforations and depending into the compartment next below, the lower compartment being provided with an inlet and the upper one with an outlet, substantially as and for the purpose set forth.

2. An apparatus for condensing fumes, comprising a casing formed with a series of horizontally extending partitions forming compartments located one above the other, the lowermost compartment being connected with the fume inlet a series of cords or ropes held in each of the partitions and arranged to permit the liquid contained in one compartment to percolate through the said cords or ropes into the next compartment below, the liquid finally dripping from the cords or ropes, and short pipes held in each of the said partitions to connect the several compartments with each other, substantially as shown and described.

3. An apparatus for condensing fumes, comprising a casing formed with a series of horizontally extending partitions forming compartments located one above the other, the lowermost compartment being connected with the fume inlet, a series of cords or ropes held in each of the partitions and arranged to permit the liquid contained in one compartment to percolate through the said cords or ropes into the next compartment below, the liquid finally dripping from the cords or ropes, short pipes held in each of the said partitions to connect the several compartments with each other, a reservoir located above the said casing and discharging through cords or ropes into the uppermost compartment, substantially as shown and described.

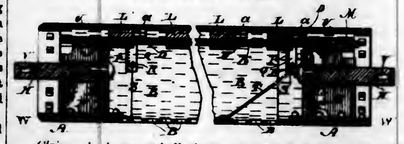


4. An apparatus for condensing fumes, comprising a casing formed with a series of horizontally extending partitions forming compartments located one above the other, the lowermost compartment being connected with the fume inlet, a series of cords or ropes held in each of the partitions and arranged to permit the liquid contained in one compartment to percolate through the said cords or ropes into the next compartment below, the liquid finally dripping from the cords or ropes, short pipes held in each of the said partitions to connect the several compartments with each other, a reservoir located above the said casing and discharging through cords or ropes into the uppermost compartment, and a series of receptacles for containing precipitating substances in particles and one connected with the other by an overflow, the uppermost receptacle being connected with the lowermost compartment in the said casing, substantially as shown and described.

5. An apparatus for condensing fumes, comprising a casing formed with a series of horizontally extending partitions forming compartments located one above the other, the lowermost compartment being connected with the fume inlet, a series of cords or ropes held in each of the partitions and arranged to permit the liquid contained in one compartment to percolate through the said cords or ropes into the next compartment below, the liquid finally dripping from the cords or ropes, short pipes held in each of the said partitions to connect the several compartments with each other, a reservoir located above the said casing and discharging into the fume inlet flue at the point of the entrance of the latter into the lowermost compartment of the casing, substantially as shown and described.

6. An apparatus for condensing fumes, provided with a casing having partitions each formed with perforations, and ropes or cords held in the said perforations, substantially as shown and described.

492,226. CORE-SPINDLE. JOHN MCADAMS, Camden, N. J. Filed Sept. 14, 1891. Serial No. 405,680. (No model.)



Claim.—1. A core spindle having a split shell, blocks with inclined faces secured to the inner face of said shell, standards secured with said shell, a rod with wedges secured thereto and movable in boxes on said standards, and angle plates on opposite sides of said split shell and provided with adjustable brace rods, said parts being combined substantially as described.

2. A core spindle having a split shell with recessed wall at edges of the split, means for expanding said shell, means for regulating said expansion, and a cover for said slit said parts being combined substantially as described.

3. A core spindle having a split shell with edges cut away or recessed on their outer face, means for expanding said shell, and a cover for closing the slit, resting in said recessed portion, substantially as described.

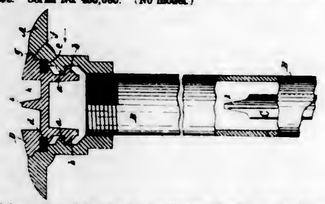
4. A core spindle having a split shell, means substantially as described for expanding said shell angle irons secured to the inner face of said shell on opposite sides of said split, a rod with screw-threaded ends passing loosely through said angle irons and nuts on said screw-threaded ends bearing against said angle irons, said parts being combined substantially as described.

5. A core spindle having a split shell, means substantially as described for expanding said shell and spring plates secured to said shell for closing said split, substantially as described.

6. A core spindle consisting of a split shell with blocks having inclined faces secured to the inner face thereof on opposite sides of said split, standards having flanges in said shell, a rod mounted in bosses on said standards, wedges secured to said rod and adapted to bear against said inclined faces of the blocks, means for operating said rod, means for regulating the width of expansion of said split, and spring plates secured between the standards and the shell for closing said split, said parts being combined substantially as described

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492,227. CURB-BOX COVER. DANIEL O'NEIL, Rochester, N. Y., assignor of two-fifths to Howe & Bennett, same place. Filed June 6, 1892. Serial No. 435,685. (No model.)



Claim.—A curb box cover consisting of an annular, internally shouldered bed piece adapted to be secured to the top of the pipe, said bed piece being provided with two internal, spiral segmental ribs, diametrically opposite each other, each having its lower end abruptly inclined downward, and having its upper surface substantially horizontal, and its lower surface inclined downward, and a cylindrical plug adapted to fit within the bed piece, and having shoulders to engage with the shoulders of the bed piece, and also with two projecting bosses diametrically opposite each other to engage with the spiral ribs of the bed piece, the upper face of each of said bosses being flat to engage with its respective rib, to secure to the plug in the bed piece, and the lower face being beveled or inclined to engage with the inclined end of the rib and raise the plug out of the bed piece, substantially as set forth.

492,228. RAILWAY-CROSSING. JOHN R. PFLAUM, Louisville, Ky. Filed Mar. 2, 1892. Serial No. 423,547. (No model.)



Claim.—1. In a railway crossing the combination with a plurality of ties, of the metallic plate resting thereon, the rail chair secured upon the plate and the main and cross rails secured in the chair, substantially as shown and described.

2. The combination with the rail chair formed in two sections, and slotted transversely as described, of the solid main rail resting in the transverse slot, the crossing rails, and the supporting plate secured between the sections of the rail chair substantially as shown and described.

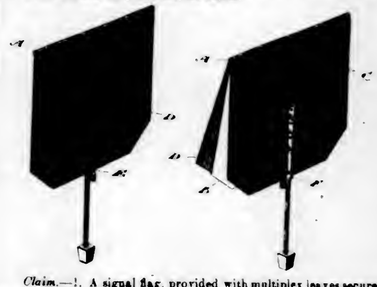
3. In a rail road crossing the combination with the main and cross rails, of the sectional rail chair slotted transversely and provided with longitudinal grooves having inclined lower faces, and a rail supporting plate secured between the sections beneath the cross rails, resting in the grooves and having a beveled lower face substantially as and for the purpose described.

4. The combination with the main rail of the crossing rails, the sectional rail chair, the bearing plate arranged between the said sections beneath the bases of the main and crossing rails, and the depending flange formed upon the said plate, and the bolts for securing the sections, rails, and plate in proper position substantially as shown and described.

5. In a rail road crossing, the combination with a rail chair slotted transversely to support the main rail, of the main rail supported therein, the crossing rails arranged within the rail chair, the supports within the chair adapted to hold the cross rails in proper horizontal position said cross rails being adapted to contact with the main rail within the chair substantially as shown and described.

6. The combination with the main rail notched at its head and base, of the sectional rails adapted to contact with the main rail and fit the said notches, the sectional rail chair slotted transversely, the bearing plate arranged within the chair and the bolts for securing the rails and plate within the chair substantially as shown and described.

492,229. RAILWAY SIGNAL-FLAG. EDWARD S. PIPER, Toronto, Canada. Filed Apr. 6, 1892. Serial No. 428,103. (No model.) Patented in Canada May 11, 1892, No. 38,919.

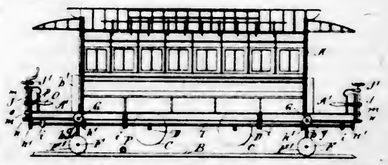


Claim.—1. A signal flag, provided with multiplex leaves secured to the same staff and opening and closing like the leaves of a book, substantially as described.

2. An improved signal flag, consisting of a series of two or more leaves, all hinged to the same spindle and on the same plane, whereby one will hide the color of the other, and a fastening, E, to hold the leaves in the position desired, substantially as described

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492,230. SUPPLEMENTARY TRUCK FOR STREET-CARS. BENNETT PRICE, Brooklyn, N. Y. Filed Oct. 24, 1892. Serial No. 449,841. (No model.)



Claim.—1. The combination with a car, of supplementary trucks located below the ends of the car, and adapted for vertical adjustment with screws and geared shafts, substantially as described.

2. The combination with a car, of supplementary trucks located one below each end of the car body, and adapted for a simultaneous vertical adjustment by connecting devices on the car platforms, substantially as described.

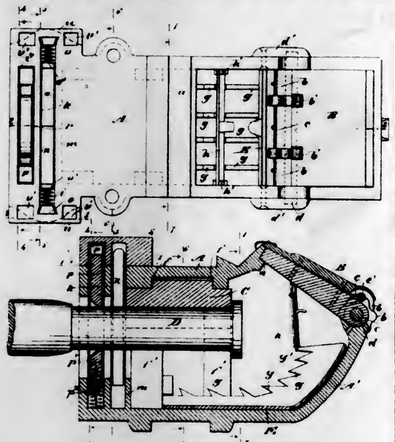
3. The combination with a car body, its main axles and wheels thereon, of supplementary trucks each having an axle and two track wheels, located on the car below and nearer the platforms than the main wheels, and upright screws, bevel geared shafts and ratchet-rigging for vertically adjusting the supplementary wheels and axles, substantially as described.

4. The combination with a car body having a platform at each end, main axles, and track wheels on said axles, of supplementary trucks one at each end of the car below the body and platforms, each comprising a supplementary axle, track wheels thereon, screw rods depending from hubbed and bevel toothed wheels rotatably supported

on the car below its ends, and devices on the platforms, in geared connection with the toothed wheels, and adapted to rotate said wheels by manipulation from either platform, substantially as described.

5. The combination with a car body having platforms at the ends, rotatable main axles below said body, and main track wheels on each axle, of supplementary trucks each comprising an axle, track wheels thereon, depending screw rods having journal boxes on their lower ends engaged by the truck axles, rotatable bevel toothed wheels on the screw rods, guide boxes on the car body above the screw rods, guide nuts on the rods within said boxes, a transverse rotatable shaft for each pair of screw rods, a rotatable main shaft longitudinally extended beneath the car body, bevel gearing on the cross shafts engaging bevel gearing on the main shaft, bevel pinions on the ends of the cross shafts, in mesh with the bevel toothed wheels, a rotatable upright shaft on each platform having geared connection with the ends of the main shaft, and a ratchet lever device on each upright shaft, substantially as shown and described.

492,231. CAR-AXLE BOX. WILLIAM RADER and EDWIN HUNTER, Allentown, Pa. Filed May 16, 1892. Serial No. 433,118. (No model.)



Claim.—1. The combination, with an axle box apertured at its forward end, of a hinged lid on said aperture, a detent disk *b'* having a scalloped periphery and a spring device adapted to snap into the scallops and hold the lid closed or at different points of open adjustment, substantially as described.

2. The combination, with an axle box apertured at its forward end, and a lid jointed to the box over said aperture, of a pintle loosely held in the joint scrolls, and cap plates secured to the sides of the axle box over the ends of the pintle, substantially as described.

3. The combination, with an axle box apertured at its forward end, a hinged lid for said aperture, the pintle of said hinge being held in the joint scrolls by caps at its ends, of scalloped disks held at the inner end walls of the joint scrolls, a keeper spring secured to the lid, and a core rod in said spring adapted to interlock with the scalloped edges of the disks, substantially as described.

4. The combination with an axle box apertured at its forward end, of a sponge holder shoe held within the axle box, parallel ribs on said shoe, and inwardly extending teeth formed on said ribs, substantially as described.

5. The combination with an axle box apertured at its forward end and curved upwardly at its front, of a forwardly and upwardly curved sponge holder shoe held in the box, upwardly and forwardly extending ribs on said shoe, and rearwardly extending teeth on said ribs, substantially as described.

6. The combination with an axle box, a bearing shell within said box and engaging its top wall, and an axle journal inserted in the shell, of a sponge holding shoe below and in front of the journal, longitudinally extending spaced ribs on the shoe, and serrations on each rib, substantially as described.

7. The combination with an axle box apertured at its front, a lid on said aperture, and a sponge holding shoe in said box, having longitudinally extending spaced ribs thereon, and series of serrations on said ribs, of a vertically supported removable slide gate adapted to rest above the front of the sponge holder shoe, substantially as described.

8. The combination with the axle box apertured in its rear wall and provided with two vertical recesses open at their upper ends, of the vertically sliding spring pressed plates *p p'* in one recess and provided in their adjacent faces with semicircular recesses, the horizontally sliding spring pressed plates *n n* in the other recess and having their adjacent edges semicircularly recessed and the cap closing the upper ends of the two recesses, substantially as set forth.

9. The combination with the axle box, its dust guard recess, the projections *u* on the upper edge of the body at the ends of the said recesses and pockets *v'* alongside of the projections *u*, of the cap *s* provided with depending bowed springs *v*, the ends of which enter said pockets, and knobs or projections v^3 on the lower ends of the springs engaging shoulders in the wall of said pockets, substantially as set forth.

10. The combination with an axle box apertured at its forward and rear ends, a lid on the front aperture, a shell within the box, and a sponge holder shoe in the box, having toothed, spaced longitudinal ribs, of vertically supported slide plates semi-circularly recessed on their meeting edges to form a circular opening, a spring device bearing laterally on each plate, and spring pressed slide gates adjacent to the rear wall of the axle box, also semi-circularly recessed at their meeting edges, and which gates separate on a horizontal line, substantially as described.

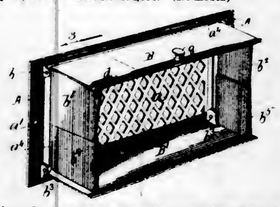
492,232. FLOOD-FENCE. GEORGE W. RAMBURG, Van Cleevsville, W. Va. Filed June 11, 1892. Serial No. 436,309. (No model.)



Claim.—1. A flood fence comprising in combination, a line of posts, independent fence sections formed of stiles and loosely connected rails, flexible connections between the lower end of one of the stiles and the lower end of its adjacent post, and hooks on the posts for temporarily securing the sections in place, substantially as described and operating in the manner set forth.

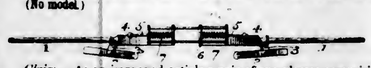
2. A flood fence comprising in combination, a line of posts, independent fence sections formed of stiles having eyes thereon, and rails loosely connected with said eyes, flexible connections between the lower end of one of the stiles and the lower end of the adjacent post, and revoluble hooks on the posts having handles thereon, and operating to temporarily secure the sections in place, substantially as described and operating in the manner set forth.

492,233. HOT-AIR REGISTER. JOHN H REESE, Austin, Ill. Filed May 23, 1892. Serial No. 434,088. (No model.)



Claim.—In a register of the character described, the combination with a base-plate, having an open face and adapted to be seated in the inclosing wall of a compartment, of a cover or front, consisting of an upper and lower part having joining ends and forming an open box-projection, whereby the heated air is discharged into the room away from the wall and the heat shut off when such projection is closed, substantially as set forth.

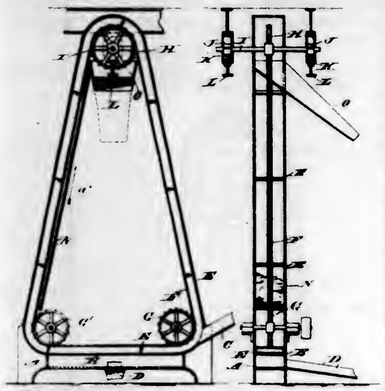
492,234. EYEGLASSES. STEPHEN RICHARD, Jr., and WILLIS N. BLANCHARD, Southbridge, Mass. Filed Nov 4, 1892. Serial No. 450,968. (No model.)



Claim.—As an improved article a pair of eye-glasses comprising the rims, the lenses, the lugs, the nose pieces secured thereto, the curved upwardly extending arms, the headed pins secured thereto, the rectangular frame through which said pins pass, and the coiled springs embracing said pins, substantially as described

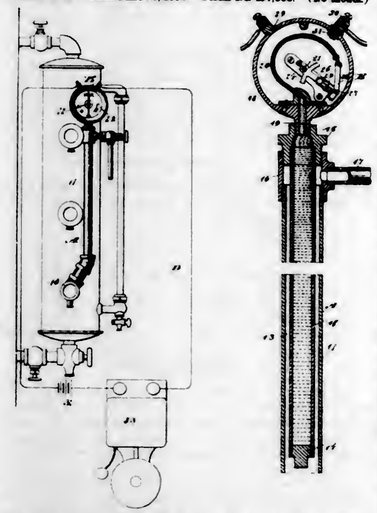
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492,235. SUGAR-CANE-JUICE STRAINER AND ELEVATOR. JOHN C. RILEY, New Orleans, La. Filed Sept. 3, 1892. Serial No. 445,318. (No model.)



Claim.—The combination with a casing, and a perforated horizontal plate upon which the juice is run from the cane mill, of scrapers moving over the said plate to scrape and carry off any trash or bagasse deposited thereon, an endless chain carrying the said scrapers, wheels arranged in triangular relation and over which the chain passes, coverings forming a passageway through which the scrapers travel, and a chute located adjacent to the upper wheel and into which the said scrapers deliver the refuse, substantially as shown and described.

492,236. LOW-WATER INDICATOR FOR BOILERS. WILLIAM H. RODGERS, Bay Side, N. Y., assignor of one-half to A. O. Lartkins, Portsmouth, N. H. Filed June 24, 1892. Serial No. 437,896. (No model.)

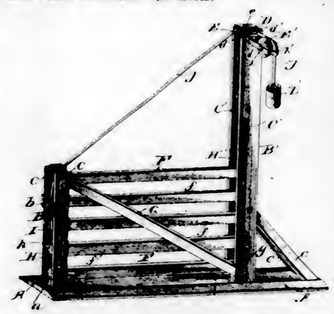


Claim.—1. In a device of the character described, the combination, with a bent and flattened tube, of a tube connected and having communication therewith, an expansible liquid contained in the bent tube and in its connected tube, an outer or casing tube surrounding the liquid-holding tube, and having a connection affording free communication with the water space of the boiler and adapted to admit steam when the water falls to or below the level of said connection, an alarm device, and an electrical connection between the alarm device and the flattened tube, as and for the purpose specified.

2. In an indicator for boilers, the combination, with a body section comprising a tube adapted to contain an expansible liquid, a casing tube adapted to surround the liquid-containing tube, and forming an annular chamber between the two tubes, said chamber having a connection affording free communication with the water space of the boiler and adapted to admit steam when the water falls to or below the level of said connection; and a flattened and bent tube in direct communication with the interior of the liquid-holding tube, of a casing surrounding the bent tube, a dial carried by the casing, a pointer adapted to travel over the dial and connected with the bent tube, an alarm device, and an electrical connection between the alarm device and the casing, the circuit being opened or closed by the bent tube engaging with or disengaging from an insulated contact point on the casing, as and for the purpose set forth.

3. In an alarm device for boilers, the combination, with the body portion comprising a tube adapted to contain an expansible liquid, a body tube of larger diameter surrounding the liquid-containing tube, and having a connection affording free communication with the water space of the boiler and adapted to admit steam when the water level falls to or below the level of said connection and a bent tube in direct communication with the liquid containing tube, of a casing surrounding the bent tube and provided with a dial, a rotating pinion and post located within the casing, a pointer carried by the post over the dial, a rack operating the pinion, and a lever connection between the rack and one end of the bent tube, as and for the purpose set forth.

492,237. GATE. CHARLES H. RUSSELL, Ennis, Tex. Filed Oct. 1, 1892. Serial No. 447,511. (No model.)



Claim.—1. The combination, with a vertically movable gate hinged at its rear lower end, of a weighted cord for aiding the operation of opening the gate, suitable guides and pulleys for said cord, a spring tension latch on the forward end of the gate adapted to engage a stationary retaining plate on the gate post, said latch comprising a spring loop made in one piece of metal and secured at the upper front end of the gate, and a retaining plate on the gate post to compress the spring latch when the gate is closed, substantially in the manner set forth.

2. The combination with a hinged vertically movable gate, of a weighted cord attached to the gate in such manner as to aid the operation of opening the same, suitable guides and pulleys for the said cord, a spring tension latch made in the form of a loop out of a single piece of metal, on the forward end of the gate adapted to be compressed by engagement with a stationary retaining plate, a retaining plate on the front gate post to compress the said spring against its tension when the gate is closed, and an extensible retracting spring attached to the sill of the frame work and to the bottom bar of the gate and normally tending to hold the gate down, substantially in the manner set forth.

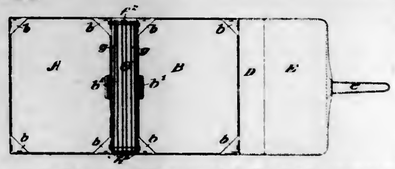
492,238. PORTABLE BINDER FOR SHEET-MUSIC, &c. JULIA SAMSON, Salt Lake City, Utah. Filed Dec. 22, 1891. Serial No. 415,908. (No model.)

Claim.—1. In a binder for sheet music and the like, a back, retainers secured to said back, the retainers at that portion designed to hold the sheets having a downward bend toward the said back: substantially as described.

2. In a binder for sheet music and the like, a back, retainers secured at one end to said back, and hooks projecting from said back of a number equal to the number of retainers adapted to secure the free end of said retainers: substantially as described.

3. In a binder for sheet music and the like, a back, plates secured to said back, one of said plates having retainers permanently secured

to it and the other of said plates being provided with projecting hooks equal in number to the number of retainers, said hooks being adapted to secure the free ends of the retainers; substantially as described.



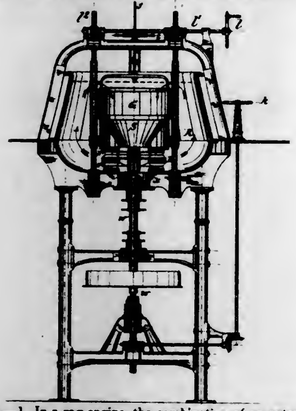
4. In a binder for sheet music and the like, a back, retainers secured at one end thereto, and bars of a number equal to the number of retainers projecting from said back, each of said bars being provided with a hook; substantially as described.

5. In a binder for sheet music and the like, a back, plates secured to said back, one of said plates having retainers permanently secured to it and the other of said plates being provided with bars of a number equal to the number of retainers, each of said bars being provided with a hook: substantially as described.

6. In a binder for sheet music and the like, a back, sides secured to said back, flexible retainers also secured to said back, and clamps secured to said sides; substantially as described.

7. A binder for sheet music comprising the sides A, B, ends C, D, flap E, provided with strap *e*, one of said sides provided with outside pockets, the strip *f*, secured to back C, by means of prongs *f'*, bridge *f²*, retainers *g*, hinged thereon and provided with enlarged ends *g²*, the strip *h*, provided with prongs *h²* and hooks *h'*, the tabs *b*, on the inside of sides A, and B, and the clamps *b'*, as and for the purposes set forth.

492,239. RAG-ENGINE. HERMANN SCHULTE, Vienna, Austria-Hungary. Filed Nov. 10, 1891. Serial No. 411,466. (No model.) Patented in Germany Sept. 20, 1888, No. 47,241; in England Sept. 22, 1888, No. 13,741; in France Sept. 24, 1888, No. 193,165; in Austria-Hungary Jan. 24, 1889, No. 39 and No. 81, and in Italy Mar. 31, 1891, XXV, 29,063.



Claim.—1. In a rag engine, the combination of an outer casing R with an inner casing S entirely within the outer casing, capable of vertical adjustment and adapted to receive the material from the outer casing, substantially as and for the purposes set forth.

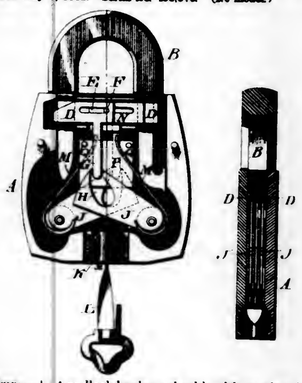
2. In a rag engine, the combination of an outer casing R and a disintegrator with an inner casing S tapering on its inner surface downward in the direction of the disintegrator, the top of the inner casing being lower than the top of the outer casing, whereby the material circulates from the inner casing through the disintegrator through the outer casing and back into the inner casing, all substantially as set forth.

3. In a rag engine, the combination of an outer casing R with an inner casing S having an adjustable top within the outer casing, all substantially as and for the purposes set forth.

4. In a rag engine the combination of an outer casing provided with a fixed grinding surface N^3, with a casing S within the outer casing and provided with a grinding surface N' capable of vertical adjustment, and a rotary grinding wheel L between the grinding surfaces N^3 and N', also capable of vertical adjustment, all substantially as and for the purposes set forth.

5. In a rag engine, the combination of two fixed grinding blocks N', N^3 provided with spaces *e*, with a rotary grinding wheel L placed between the said blocks, all substantially as and for the purposes set forth.

492,240. PADLOCK. FREDERICK W. SCHULTZE, Philadelphia, Pa. Filed July 5, 1892. Serial No. 438,870. (No model.)

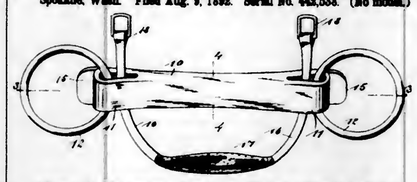


Claim.—1. A padlock having a shackle with openings in its limbs, spring-pressed tumblers, and sliding dogs, which are adapted to engage in said openings, and provided with stems engaged by said tumblers, said parts being combined substantially as described.

2. A padlock having a shackle, tumblers pivoted to the casing, and provided with slots, stems which enter said slots and are adapted to be engaged by the opposite walls thereof, and dogs carried by said stems, said parts being combined substantially as described, whereby said dogs are movable in opposite directions into and from the limbs of the shackle, as stated.

3. A padlock having dogs adapted to enter the limbs of the shackle thereof, and pivoted tumblers having slots the walls of which are adapted to engage in opposite directions, with stems on said dogs, and springs which are connected with the tumblers and adapted to be engaged by the limbs of the shackle, whereby the dogs are moved into locking engagement with, and disengagement from the legs of the shackle, substantially as described.

492,241. BRIDLE-BIT. ROBERT SEARS and LOUIEN B. LINDSEY, Spokane, Wash. Filed Aug. 9, 1892. Serial No. 442,533. (No model.)

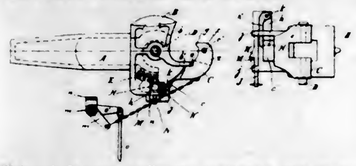


Claim.—1. The combination with a bridle bit having end loops or slots, at the ends of its mouth piece of a chin strap adapted to extend beneath the chin of a horse and having its end portions projecting up through the bit loops to render freely therein and adapted to connect at their upper ends with a check rein, substantially as shown and described.

2. The combination with the bridle bit having end slot or loops, of a chin strap adapted to extend beneath the chin of a horse and having a central pad to fit against the chin, the strap being held to move freely in the loops and having its ends adapted for attachment to a check rein, substantially as shown and described.

3. The combination with a bridle bit having end loops or slots which receive the rein rings, of a chin strap having its end portions extending up through and rendering freely within the loops and inside of the rings, and an over draw check, secured to the upper ends of the said chin strap substantially as shown and described.

492,242. CAR-COUPLING. SAMUEL SHEPARDSON, La Grange, Iowa. Filed Dec. 27, 1892. Serial No. 456,340. (No model.)

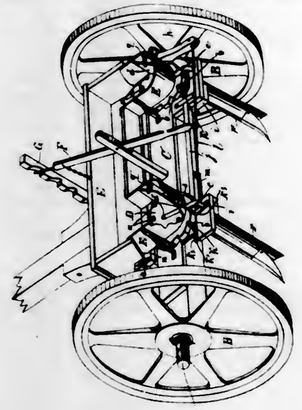


Claim.—1. In a car coupling, the combination, with the drawhead socket, and the spring-pressed hook pivoted horizontally therein and provided with the projection *c'*, of the locking-pin sliding vertically in the socket behind the said projection and provided with a head and a guide, and the automatic catch pivoted to the head of the locking pin, whereby the said pin is supported when the said catch rests on the projection *c'*, substantially as set forth.

2. In a car coupling, the combination, with the pin for locking the coupling hook, said pin being provided with a guide and an automatic supporting-catch normally resting on a projection on the coupling hook, of a chain passing under a projection on the said guide and secured to the coupling hook, and means for pulling the chain, whereby the chain is straightened and caused to lift the locking-pin before pulling back the coupling hook, substantially as set forth.

3 In a car coupling, the combination, with the drawhead socket, and the spring-pressed coupling hook provided with the projection *c'*, of the locking-pin provided with a guide and a projection N on the guide, an automatic catch pivoted to the head of the locking-pin and adapted to rest on the projection *c'*, a pivoted arm and means for operating it, and a chain pivoted to the said arm, passing under the projection N and attached to the coupling hook, whereby the locking-pin is raised from behind the projection *c'* and the coupling hook is drawn back, substantially as set forth.

492,243. POTATO CUTTER AND PLANTER. JACOB J. SIMON, McDonaldsville, Ohio. Filed Nov. 7, 1892. Serial No. 451,276. (No model.)

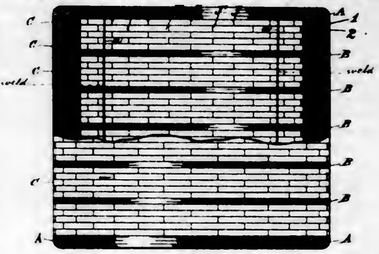


Claim.—1. The combination with the carrying wheels B and the axle A of the support *n*, the hopper E, hinged thereto, the lever F, rack G, perforated disks D, having peripheral notches *b*, cutters *c*, and means for rotating said disks substantially as described and for the purpose set forth.

2. The combination in a potato cutter and planter of the carrying wheels B, and axle A, of the described adjustable hopper, having circular ended rearward projections, and a partition *d*, of the rotatable disk D, having apertures *a* and peripheral notches *b*, of the cutter *c*, spring *r*, and roller *s*, and means for actuating said disks, substantially as described and for the purpose set forth.

3. The combination with the supporting axle of the hinged adjustable hopper E, having rearward projections, the end portions of which are circular in form and divided by the partition *d* of the spring *r*, having a pending portion on which is supported a roller *s*, the apertured disks having peripheral notches *b*, the cutter *c*, secured over said disks, the bar *j*, having pawls *k* to engage the notches *b*, spring k^2 to rotate the pawl about the spindle *k'*, a link *l* connecting the bar to the actuating lever *h* and the cam wheel *c*, substantially as described and for the purpose set forth.

492,244. METHOD OF CONSTRUCTING ARMATURE-CORES FOR ELECTRIC MOTORS OR DYNAMOS. ALBERT W. SMITH, San Francisco, Cal. Filed Feb. 20, 1892. Serial No. 422,262. (No specimens.)



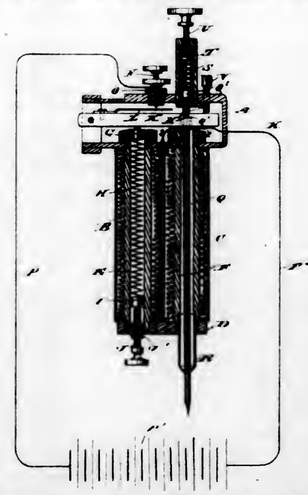
Claim.—1. The process of making magnetic cores, which consists in building up the same of plates or parts, and surface welding the same together at the points or paths of least magnetic flow or cutting, as set forth.

2. The process of making magnetic cores, which consists in building up the same of plates or parts, and surface welding the same together at the points or paths of least magnetic flow or cutting by means of the electric arc, as set forth.

3. The process of making armature cores, which consists in building up the same of plates or parts, and continuous end and intermediate rings, and surface welding the same together at equidistant points on the inner periphery, by means of the electric arc, as set forth.

4. The method of making toothed armature cores, which consists in building up the same of toothed plates or parts, and continuous end and intermediate rings of a diameter corresponding with the bottom of the teeth and surface welding the same together by means of the electric arc, as set forth.

492,245. MAGNETIC TOOL. JACOB F. STANDIFORD, Muscogee, Ind. Ter. Filed July 14, 1892. Serial No. 440,056. (No model.)



Claim.—1. The combination with the magnets and the casing, of the vibrating armature extending across the upper ends of the magnets and having a vertical transverse aperture through it in line with

the hollow core of one magnet, a spring throwing the armature away from the magnets, a tool holder extending loosely through the aperture in the armature and hollow core and provided with a transverse pin or projection crossing the upper end of the armature, a spring against the action of which the armature raises the tool-holder, the battery circuit, and means for closing the circuit when the armature lever rises, substantially as set forth.

2. A magnetic tool, comprising the frame A, connected magnets B C, mounted on said frame and having hollow cores, the soft iron piece connecting the lower ends of the magnets, the vibrating lever pivoted in the frame and having a transverse aperture in line with one hollow core, a spring L on the upper side of the armature lever, a spring in the other hollow core pressing the armature lever upwardly, a tool holder extending loosely down through the said aperture and hollow core and having a pin crossing the upper end of the aperture, a spring pressing on the upper end of the tool holder to project it when released by the armature lever, a binding post having a contact point in the path of the spring L and the battery circuit connected with said post and with the two magnet coils, substantially as set forth.

492,246. DRAFT-REGULATOR FOR LOCOMOTIVE SMOKE-STACKS. FREDERICK STRATTEN, Salisbury, Md., assignor of one-half to Willard Thomson, Wilmington, Del. Filed Dec. 9, 1892. Serial No. 454,648. (No model.)



Claim.—1. The combination with a smoke-box, an exhaust nozzle therein, and a smoke-stack, of a tapered nozzle situated in the lower part of the smoke-stack, with its large open end in position to receive from the smoke-box and exhaust nozzle and with its contracted discharge end projected up into the smoke-stack, substantially as and for the purpose described.

2. The combination with a smoke-box and a smoke-stack, of a tapered nozzle situated within the lower part of said smoke-stack and provided with a series of internal spiral flanges, substantially as and for the purpose described.

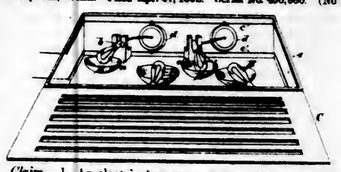
3. The combination with a smoke chamber and a smoke stack, of a tapered nozzle situated in the lower part of the smoke stack to receive from the smoke chamber and constructed in sections adapted to be expanded or contracted, and means for moving either section independently of the other, substantially as and for the purpose described.

4. The combination with a smoke chamber and a smoke-stack, of a tapered sectional nozzle situated in the lower part of the smoke stack to receive directly from the smoke chamber and having its members or sections pivoted for independent adjustment, and means, substantially as described, for moving either section of the nozzle independently of the other section, as set forth.

5. The combination with a smoke chamber and a smoke stack, of a tapered nozzle situated in the lower part of the smoke stack to receive directly from the smoke chamber and comprising the pivoted sections provided at their contiguous edges with the lap joints, and one of the sections having means for moving the same toward or from the other section, substantially as and for the purpose described.

6. A tapered nozzle, substantially such as described, consisting of the sections having the lap joints along their contiguous edges, a sleeve rigid with one of the sections and provided with a handle, and a pivotal shaft passing through the sleeve and having one end rigid with the other section and its outer end provided with an operating crank, as and for the purpose described.

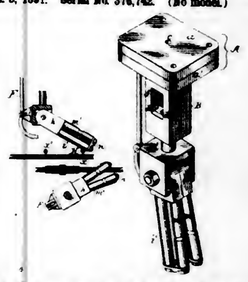
492,247. ELECTRICAL FOOT-WARMER. WILLIAM E. ULMER, Hoquiam, Wash. Filed Apr. 27, 1892. Serial No. 430,880. (No model.)



Claim.—1. An electric foot warmer, comprising a box provided with a hinged cover having openings therein, slotted standards projecting from the bottom of the box, electric lamps held in the said slotted standards, and electric wires leading from the box, substantially as set forth.

2. An electric foot warmer, consisting of a box provided with a cover having openings therein, slotted standards projecting from the bottom of the box, electric lamps held in the said slotted standards, reflectors under the lamps, cut outs held in the box and connected with the lamps, and electric wires leading from the box and with which the cut outs are connected, substantially as herein shown and described.

492,248. CABLE-GRIPPER. JAMES WALSH, Jr., Philadelphia, Pa. Filed Jan. 5, 1891. Serial No. 376,742. (No model.)

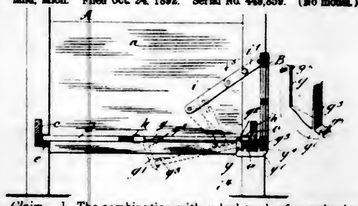


Claim.—1. The combination of the grip shank having beveled head, with the hanger composed of two plates secured together and to the frame of the car, the lower plate being recessed for the reception of said beveled head, and the upper plate confining said head in the recess, substantially as specified.

2. The grip head having gripping rollers, and in advance of the same, independent contact bars for striking the cross bar or cable to automatically release the grip, substantially as specified.

3. The combination of the grip shank, the gripping rollers, and the swinging grip head located at one side of the cable, but pivoted so as to carry one of its gripping rollers across the cable when raised, substantially as specified.

492,249. ATTACHMENT FOR BEDS. ARIE C. WIERENGA, Zeeland, Mich. Filed Oct. 24, 1892. Serial No. 449,859. (No model.)



Claim.—1. The combination with a bedstead, of angular hangers having a pivoted and sliding connection with the slats of the bedstead, and a frame secured to the hangers, whereby provision is made for swinging the frame under the bedstead when not in use, substantially as specified.

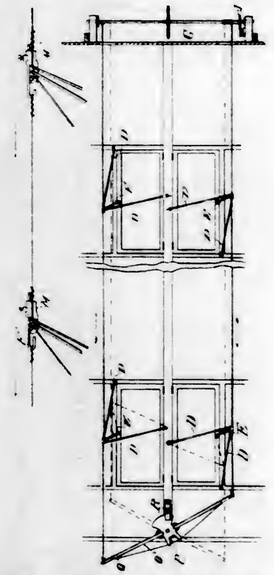
2. The combination with a bedstead, of angular hangers, one member of which has a pivoted and sliding connection with the slats of the bedstead, a frame secured to the other members of the hangers, and means for securing the frame in an upright position at the side of the bedstead or in a nearly horizontal position under the bedstead, substantially as described.

3. The combination with a bedstead having slotted slats, of hangers having a sliding and rocking engagement with the slotted slats, a frame secured to the hangers, and braces secured to the head and foot board and adapted to engage the frame to hold it in an upright position, substantially as described.

4. In a side guard for open bedsteads, the combination with the bedstead frame, and slotted bottom slats thereon, of an elongated frame, hangers attached at one side edge of the frame and in sliding and rocking engagement with the slotted slats, folding braces pivoted on the head-board and foot-board of the bedstead, and adapted to detachably interlock with studs on the ends of the movable frame, and a turn button on the bed rail adapted to support one edge of said movable frame, substantially as described.

5. A guard for bedsteads comprising an elongated frame, L-shaped hangers secured to the frame and provided with a cross pin in one member for their connection with slotted slats of a bedstead, and hinged braces adapted to be secured to the head and foot board of a bedstead and to engage the frame to hold it in an upright position, substantially as described.

492,250. TRANSOM-LIFTER. ELMER E. WOLF, Springfield, Ohio. Filed Sept. 17, 1892. Serial No. 446,230. (No model.)



Claim.—1. The combination with a main line or rod formed in sections, one end of a section being bent in the form of a loop and the adjacent end of the next section lapping by said loop, of a coupling collar adapted to slip over said overlapping ends and having a socket to receive the end of the loop of one section and close the loop, and a clamping set screw in said collar to screw the said overlapping ends therein.

2. The combination with a swinging sash and a supporting frame work, of a pair of inclined rods meeting at a common point, and adapted to oscillate or swing about their points of support, and an inclined connecting rod between said sash and said meeting point.

3. The combination with a series of swinging sashes, of an operating mechanism for each sash consisting of a set of operating rods inclined toward each other and pivotally mounted adjacent to each sash and a connection from the sash to said operating rods, and a main line connecting each of said operating mechanisms to operate the series simultaneously.

4. The combination with a series of swinging sashes, of a pair of operating rods adjacent to each sash and meeting at a common point and adapted to oscillate about their points of support, a connecting rod from each meeting point to the adjacent sash, a main line adjustable in length between two sashes, another line acting in the reverse direction and adapted to serve as a return line, and means to operate said main and return line simultaneously, whereby a uniform and simultaneous action of said sashes is secured.

5. The combination with a series of sashes, of a rigid main line or rod adjacent to said series, operating rods meeting at a common point and pivotally mounted at their outer ends, thereby constituting a triangle and bracing the main line with which they are engaged, and a connecting rod from each sash to said main line, whereby a positive thrust or pull is exerted on said sash according to the direction in which said line is operated, and means to operate said line in both directions.

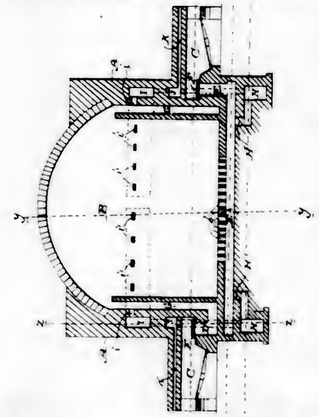
6. The combination with a series of sashes, of a main line running along adjacent to said series, a pair of operating rods operatively connected at a common point to said main line, and pivoted at their other ends to adapt them to oscillate, an inclined rod connecting each sash with said main line and acting to raise and lower the sash, a windlass at one end of the main line, a double-armed lever supporting the other end by one arm, and a return wire connecting the other arm of said lever with said windlass, for the purpose described.

7. The combination with a double series of sashes, of a main line running down one series and back by the other adjacent series, a windlass at one end and a self adjusting lever at the other end of said double series, whereby the main line will travel in opposite direction in each series, and a triangular arrangement of rods operatively connecting each sash to the main line for the purpose described.

8. The combination with the meeting ends of rod sections forming a main line, one end being bent in the form of a loop, of a coupling-collar sliding over said ends and having a projection extending into the loop, and provided with a set screw to clamp the said rods in position.

9. The herein described self-adjusting lever, the same consisting of a plate pivoted on a central axis as a fulcrum, arms pivoted on transverse axes to said plate, and stays for said arms, substantially as shown and described.

492,251. BRICK-KILN. PETER L. YOUSCHE, Oakland, Cal. Filed May 16, 1892. Serial No. 433,213. (No model.)



Claim.—1. In a brick kiln having openings in its chamber floor, the series of alternating heat flues E^2 and hot air passages H^2 extending under and communicating with said openings, substantially as herein described.

2. In a brick kiln having openings in its chamber floor and side furnaces, the heat flues E in the throat of said furnaces, the divergent flues E' with which flues E communicate and the series of horizontal parallel flues E^2 communicating with said flues E' and passing under the chamber floor and communicating with its openings, substantially as herein described.

3. In a brick kiln having openings in its chamber floor and side furnaces, the heat flues E in the throat of said furnaces, the divergent flues E' with which flues E communicate and the series of horizontal parallel flues E^2 communicating with said flues E' and passing under the chamber floor and communicating with its openings, in combination with the series of horizontal parallel hot air passages H^2 alternating with flues E^2 and communicating with the openings in the chamber floor, substantially as herein described.

4. In a brick kiln having openings in its chamber floor and side

furnaces, the heat flues E in the throat of said furnaces, the divergent flues E' with which flues E communicate and the series of horizontal parallel flues E^2 communicating with said flues E' and passing under the chamber floor and communicating with its openings, in combination with the series of horizontal parallel hot air passages H^3 alternating with flues E^2 and communicating with the openings in the chamber floor, the passages H' communicating with said passages H^3, and the draft passages H communicating with the passages H' and having a damper controlled communication with the stack, substantially as herein described.

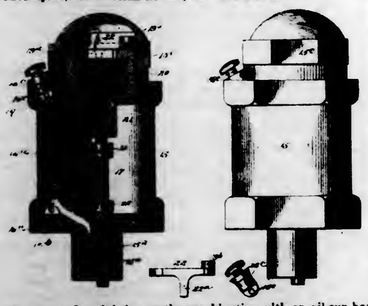
5. In a brick kiln having openings in its chamber floor and side furnaces, the heat flues E in the throat of said furnaces, the divergent flues E' with which flues E communicate, and the series of horizontal parallel flues E^2 communicating with said flues E' and passing under the chamber floor and communicating with its openings, in combination with the series of horizontal parallel hot air passages H^3 alternating with flues E^2 and communicating with the openings in the chamber floor, the passages H' communicating with said passages H^3, and the draft passages H communicating with the passages H', and having a damper controlled communication with the stack, the passages K in the furnace walls opening to the exterior air, the hot air passages J with which the passages K communicate, and the damper controlled passage L connecting passages J and H, substantially as herein described.

6. In a brick kiln having side furnaces and a chamber with inleading furnace flues and outleading draft passages, the hot air passages K in the furnace walls opening to the exterior air, the hot air passages J communicating therewith, and damper controlled passages connecting passages J with the draft passages of the kiln chamber, substantially as herein described.

7. In a brick kiln having a chamber with openings in its floor and side furnaces, the combination of the separate flues D and E in the furnace throats, and dampers to control them separately, the interior pockets G with which flues D communicate, said pockets entering the upper portion of the kiln chamber, the series of flues E^2 under the chamber floor and communicating with its openings, said flues communicating with the flues E of the furnaces, the series of passages H^3 alternating with flues E^2 and communicating with the openings in the chamber floor, the draft passages H communicating with the stack and with the series of passages H^2, and the draft passages I communicating with the stack and with the pockets G, substantially as herein described.

8. In a brick kiln having a chamber with openings in its floor and side furnaces, the combination of the separate flues D and E in the furnace throats, and dampers to control them separately, the interior pockets G with which flues D communicate, said pockets entering the upper portion of the kiln chamber, the series of flues E^2 under the chamber floor and communicating with its openings, said flues communicating with the flues E of the furnaces, the series of passages H^3 alternating with flues E^2 and communicating with the openings in the chamber floor, the draft passages H communicating with the stack and with the series of passages H^2, and the draft passages I communicating with the stack and with the pockets G, the hot air passages K in the furnace walls opening into the exterior air, the hot air passages J with which they communicate, and the damper controlled passages L and M separately connecting the passages J with the draft passages H and I respectively, substantially as herein described.

492,252. LUBRICATOR. JOHN U. ZURLINDEN, Billings, Mont.
Filed Apr. 6, 1892. Serial No. 427,972. (No model.)



Claim.—1. In a lubricator the combination with an oil cup having a main and an auxiliary passage, said auxiliary passage having an opening produced therein, the screw plug, the spring and plug connected with said spring for closing the mouth of the auxiliary passage, substantially as shown and described.

2. The combination with an oil cup having a feed passage, of the reciprocating plunger arranged therein—the plug, the vertically adjustable tubular guide arranged in said plug and the cap adapted to cover the said parts substantially as shown and described.

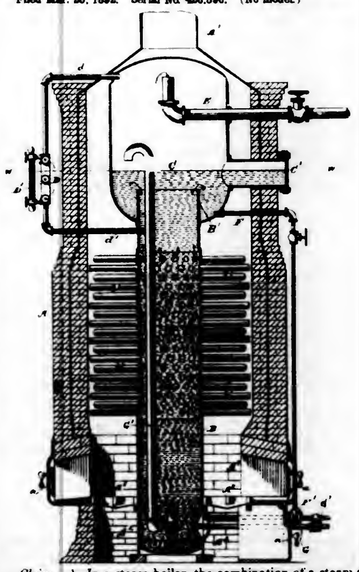
3. The combination with an oil cup having a feed passage, of the reciprocating plunger arranged therein, the plug having side recesses for the introduction of oil, the adjustable tubular guide arranged in the plug and adapted to receive the plunger, and a suitable cover all arranged substantially as shown and described.

4. The combination with an oil cup having a free passage, of a plunger arranged therein the plug, the regulating nut arranged therein, and the tubular guide passing through the nut and plug substantially as shown and described.

5. The combination with the cup and plunger, of the plug, the adjusting nut arranged therein, the tubular guide, and the locking device attached to the plug and adapted to lock the adjusting nut substantially as shown and described.

6. The combination with the cup and plunger of the plug having side recesses, a vertical passage, and a horizontal openiug, the adjusting nut having notches, the externally threaded tubular guide, and the lever carrying a locking pawl all arranged substantially as shown and described.

492,258. STEAM-BOILER. CHARLES P. ADAMS, Cleveland, Ohio.
Filed Mar. 25, 1892. Serial No. 426,396. (No model.)



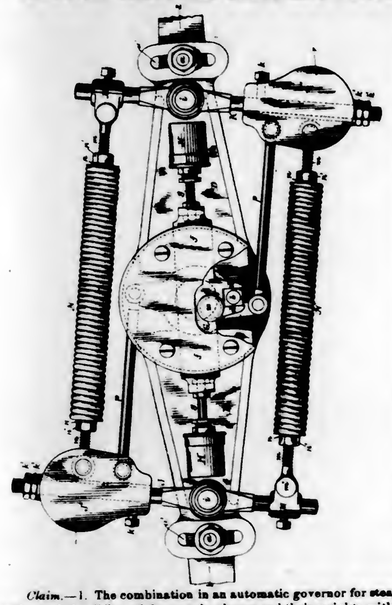
Claim.—1. In a steam boiler, the combination of a steam dome, a stand pipe of less diameter than said dome and having an extension projecting through the bottom of said dome a distance above said bottom, and a feed water pipe having its discharge opening in said dome and outside of said extension, substantially as set forth.

2. In a steam boiler, the combination of a steam dome, a stand pipe of less diameter than said dome and having an extension through the bottom of said dome and projecting a distance above said bottom, and a feed water pipe having its discharge opening above the water level in the steam dome and outside of the circumferance of the stand pipe extension, substantially as set forth.

3. In a steam boiler, the combination of a steam dome, and a stand pipe of less diameter than said dome and having an extension projecting through the bottom of said dome and a distance above said dome, said extension forming a space in the dome for catching sediment, substantially as set forth.

4. In a steam boiler, the combination of a steam dome, a stand pipe of less diameter than said dome and having an extension projecting through the bottom of said dome and a distance above said bottom, a blow-off pipe in the bottom of the stand pipe, a feed water pipe entering through the bottom of the stand pipe and having a cock connection with said blow-off pipe, and a vertical pipe of larger diameter than the feed water pipe, forming a continuation of the latter, and formed with a downwardly curved discharge end above the water level in the steam dome and outside of the circumference of the stand pipe extension, substantially as set forth.

492,254. GOVERNOR FOR STEAM-ENGINES. ROBERT ALLISON, Port Carbon, Pa. Filed Oct. 4, 1892. Serial No. 447,783. (No model.)



Claim.—1. The combination in an automatic governor for steam engines, of the differential governing levers and their weights, with a pair of springs each acting upon one arm of one lever and upon the opposite arm of the other lever, substantially as specified.

2. The combination in an automatic governor for steam engines, or the differential governing levers each having an adjustable weight on one arm and an adjustable sleeve on the other arm, and a pair of springs each connected at one end to the weight of one lever and at the other end to the adjustable sleeve of the other lever, substantially as specified.

3. The combination in an automatic governor for steam engines, of the rotating governor shaft, an adjuster lever free to turn on the axis of said shaft, an adjuster slide guided transversely across the end of the shaft and carrying the wrist pin for the valve rod, and a sliding connection between the adjuster lever and slide, whereby rocking movement of the lever is caused to move the slide to and fro, substantially as specified.

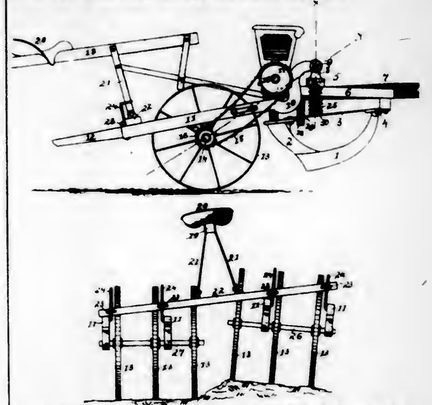
4. The combination of the rotating shaft, the adjuster lever, the adjuster slide engaging therewith and having a wrist pin for the valve rod, and pistons connected to said adjuster slide and adapted to cylinders rotating with the governor and filled with liquid so as to serve as retarders for the slide, substantially as specified.

5. The combination of the governor shaft and its wheel or disk, a plate mounted on said wheel or disk and adjustable around the axis of rotation of the same, an adjuster lever likewise movable around said axis of rotation, an adjuster slide engaging with said lever and carrying the wrist pin of the valve operating rod, and spring controlled weights hung to the plate and connected to said adjuster lever, substantially as specified.

492,255. PRESS-DRILL. JOHN L. ASHURST, Havana, assignor to Lewis B. Ashurst, Kilbourne, Ill. Filed June 27, 1892. Serial No. 438,094. (No model.)

Claim.—1. A seed planter comprising a front planting frame and a rear carrying frame, the two frames being hinged together at or near the center of weight of the front frame, and such hinge constituting the sole lifting and carrying connection for such front frame, substantially as set forth.

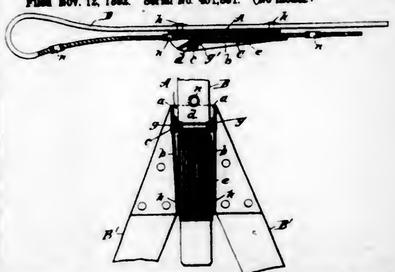
2. In seed planters, the combination of a front frame provided with furrow openers, planting mechanism and a tongue, a rear wheel frame adapted to temporarily carry the front frame, and a connection between the shaft of the wheel frame and the planting mechanism of the front frame adapted to impart motion from the shaft to the planting mechanism, the two frames being hinged together at or near the center of weight of the front frame and approximately in line with the power transmitting connection and the front frame being carried by the rear frame solely through such hinged connection.



3. In press drills having the press frame composed of two or more independently acting sections, a seat supporting bar laid loosely across the different wheel frames and held in position by vertical guides.

4. In drills, the combination of a runner frame, runners pivotally connected at their forward ends to the frame and having grain depositing boots at their rear ends, brace bars extending forward from the boots, and springs on the brace bars bearing against the runner frame.

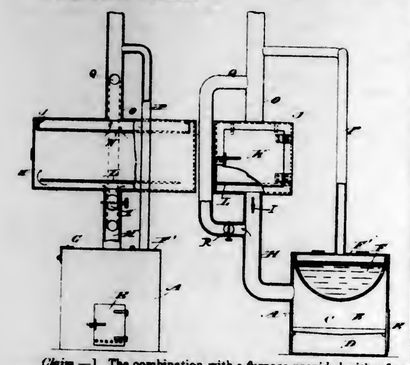
492,256. BUCKLE. GEORGE M. AYLSWORTH, Collingwood, Canada. Filed Nov. 12, 1892. Serial No. 451,831. (No model.)



Claim.—1. A buckle consisting in the plate A having means for securing it to a harness and formed with integral longitudinal side flanges *b b*, a pivot *c* connecting the rear ends of the flanges a tongue extending longitudinally between the said flanges, pivoting on said pivot and having a stud projecting from its inner face at its outer end into an aperture formed in the plate, and a spring bearing on the upper side of the tongue at its pivoted end, substantially as set forth.

2. As an improved article of manufacture a buckle consisting in the base plate having integral longitudinal flanges *b b* and provided with attaching apertures and a stud receiving aperture, a tongue pivoted at its inner end between said flanges and provided at its free end on its inner face with a projection or stud to enter the aperture therefor in the plate and the tongue operating spring coiled on the tongue pivot at opposite sides of the tongue as shown at *g g* with its ends engaging the flanges *b b* and its cross piece *f* bearing on the outer face of the tongue, substantially as set forth.

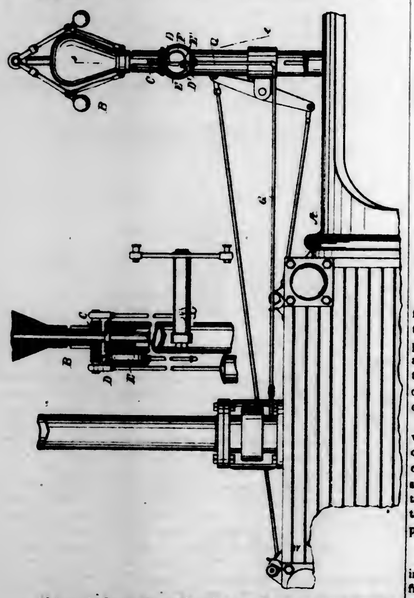
492,257. COOKING AND SMOKING APPARATUS. JOHN S BAKER and CHARLES B BAKER, Newberg, Oreg. Filed Mar. 29, 1892. Serial No. 426,893. (No model.)



Claim.—1. The combination with a furnace provided with a flue having a damper, of a casing into which the flue of the furnace discharges provided with a door, a false bottom, hooks or bars suspended from the top, and an outlet flue, and a pipe connected with the flue of the furnace and the flue of the casing and provided with a damper, substantially as herein shown and described.

2. A combined cooking and smoking apparatus, comprising a furnace, a kettle supported in the furnace, a casing with which the flue of the furnace communicates provided with an outlet flue projecting from its top, a pipe connected with the flue of the furnace and the flue of the casing, and a pipe leading from the kettle to the flue of the casing, substantially as herein shown and described.

492,258. SAFETY-STOP FOR ENGINE-GOVERNORS. JAMES BARCLAY, Sioux City, Iowa. Filed Dec. 2, 1892. Serial No. 453,800. (No model.)



Claim.—1. In an automatic safety stop for engine governors, the combination with a governor, of means controlled by the motive agent for supporting the governor when the motive agent is cut off, substantially as set forth.

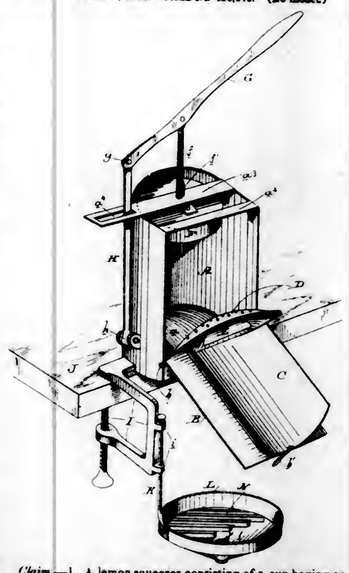
2. In an automatic safety stop for engine governors, the combination with a governor, of a support for the governor when the motive agent is cut off, said support being controlled by the motive agent and adapted to be moved from under the governor while the engine is running, substantially as described.

3. An automatic safety stop for engine governors, provided with a stop lever controlled by the motive agent of the engine, and adapted to support the governor when the motive agent is shut off, substantially as shown and described.

4. An automatic safety stop for engine governors, comprising a lever adapted to support the governor in a normal position, and a spring tube connected with the said lever and connected with the steam supply for the engine, substantially as shown and described.

5. An automatic safety stop for engine governors, comprising a lever adapted to support the governor in a normal position, a link connected with an extension of the said lever, a spring tube closed at one end and connected at this closed end with the said link, and a pipe connected with the said tube and also connected with the steam supply, substantially as shown and described.

492,259. LEMON-SQUEEZER. CHARLES W. BARRETT, Lemoore, Cal. Filed Oct. 26, 1892. Serial No. 450,075. (No model.)



Claim.—1. A lemon squeezer consisting of a cup having an open front, a horizontally pivoted vertically swinging front plate adapted to close and open said front, a strainer secured to said swinging front plate and adapted by the movement of said plate to be thrown into and out of the cup whereby the lemon is received, is held in position to be squeezed, and is discharged after being squeezed, and a vertically moving plunger operating within said cup, substantially as herein described.

2. A lemon squeezer consisting of a cup having an open front, a vertically swinging front plate adapted to open and close said front, a catch on the top of said front plate adapted to engage the top of the cup to lock it in position and to release it, a strainer carried by said swinging front plate and adapted by its movements to be thrown into the cup to hold a lemon and to be thrown outwardly to discharge the squeezed lemon, and receive a fresh one, and a vertically moving plunger operating within said cup, substantially as herein described.

3. A lemon squeezer consisting of a cup having an open front, an inclined drain bottom and a discharge spout, a vertically swinging front plate hinged horizontally to the base of the cup and adapted to open and close the open front thereof, a strainer secured to said front plate and adapted by its movement to be thrown into and out of the cup, and a plunger operating within the cup, substantially as herein described.

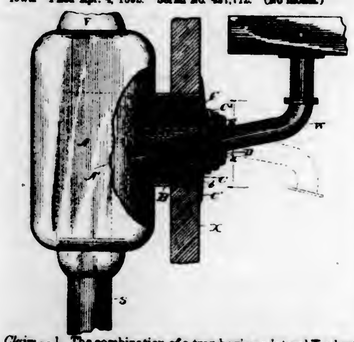
4. A lemon squeezer consisting of a cup having an open front, a horizontally pivoted vertically swinging front plate fitted to said open front and adapted to open and close it, a strainer carried by said swinging front plate whereby it is thrown into and out of the cup, a knife carried by the strainer and a vertically moving plunger operating in the cup, substantially as herein described.

5. A lemon squeezer consisting of a cup having a curved back and separated straight sides leaving an open front, a horizontally pivoted vertically swinging front plate fitted to the open front of the cup, a curved plate carried on the inner surface of said front plate and adapted to complete the circular chamber of the cup, a strainer carried by said front plate and adapted to be moved into and out of the cup and a vertically movable plunger operating in the cup, substantially as herein described.

6. A lemon squeezer consisting of a cup having an open front, a horizontally pivoted vertically moving front plate fitted to and adapted to open and close said front, a strainer carried by said front plate and adapted by its movement to be moved into and out of the cup, a plunger within the cup and having a stem, a lever pivoted to the upper end of said stem, and a vibrating fulcrum link to which said lever is secured, substantially as herein described.

7. A lemon squeezer consisting of the open front cup, the swinging front plate pivoted thereto, the strainer carried by said front plate, the vertically movable plunger operating within the cup, the clamp bracket by which said cup is carried, the axially movable hanger secured to said bracket, the tumbler support carried by said hanger and having a draining bottom, and a drain platform within said support above its bottom, substantially as herein described.

492,260. PLUMBER'S TRAP. NICHOLAS BARRY, Jr., Muscatine, Iowa. Filed Apr. 4, 1892. Serial No. 427,712. (No model.)



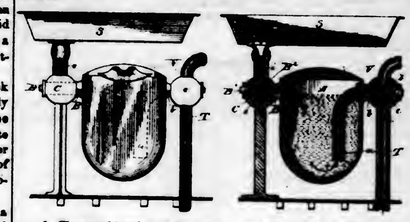
Claim.—1. The combination of a trap having a lateral T adapted to extend through a wall or partition and thereby support the trap and screw threaded interiorly, and a cap closing the end of said T having a central opening, with an adjustable inlet pipe entering through said opening and a packing ring and packing surrounding said pipe and screwing into the cap and an outlet pipe from the trap communicating with the interior thereof above the end of said inlet pipe, substantially as described.

2. The combination of the trap, the vent and sewer pipes communicating therewith, the waste pipe entering said trap through an opening in its side below the upper end of the sewer pipe, the removable cap closing said opening and surrounding the waste pipe, and the packing ring and packing, forming a tight joint between the opening in said cap and the waste pipe but allowing the free adjustment of the latter without loosening the packing, substantially as specified.

3. The herein described trap consisting of a body A having a lateral T B screw threaded interiorly, the screw cap C having a rib c and flange C', the packing E, the packing ring D, in combination with the waste pipe entering the T, and sewer pipe communicating with the interior of the trap above the waste pipe, all constructed and arranged to operate substantially as described.

492,261. GREASE-TRAP. NICHOLAS BARRY, Jr., and PATRICK J. BARRY, Muscatine, Iowa. Filed May 2, 1892. Serial No. 431,570. (No model.)

Claim.—1. The combination with the waste and sewer pipes of the tilting trap connected with both pipes, and cleansed by tilting the sewer pipe connected to the upper end of trap but communicating with the interior thereof near the bottom, substantially as described.



2. The combination of the waste and sewer pipes, a tilting trap interposed between the same and communicating therewith having an internal depending pipe forming the communication with the sewer pipe, and provided with a cleansing out opening substantially as described by which the contents are removed by tilting the trap, substantially as described.

3. The combination of the waste and sewer pipes with the tilting trap swung between the same and adapted to close communication between the pipes when it is tilted, to empty it, substantially as specified.

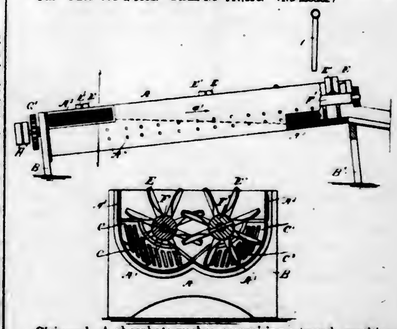
4. The combination of the tilting trap having a pair of hollow trunnions an internal depending pipe connected at its upper end with one trunnion, and a cleansing out opening closed by a removable plate with the waste and sewer pipes respectively communicating with said trunnions substantially as described.

5. The combination of the waste and sewer pipes, the boxes connected thereto, the tilting trap suspended between said boxes by hollow trunnions, said trunnions establishing communication between the pipes through the trap when the latter is in a vertical position, and closing communication between the pipes when the trap is raised to a horizontal position, substantially as and for the purpose described.

6. The combination of the tilting trap having hollow trunnions, a lipped opening in its top, a removable plate closing said opening, an interior depending pipe connected to one trunnion, and the waste and sewer pipes communicating with the respective trunnions, substantially as specified.

7. The combination with the waste pipe, the box connected thereto the sewer and vent pipes, the box between the same; with the tilting water seal trap having hollow trunnions journaled in said boxes and establishing communication between the sewer and waste pipes when the trap is vertical, the removable cover in the top of said trap, and the removable pieces closing the ends of said trunnions, substantially as described.

492,262. PHOSPHATE-WASHER. WILLIAM A. BEATY, Plant City Fla. Filed Oct. 4, 1892. Serial No. 447,890. (No model.)



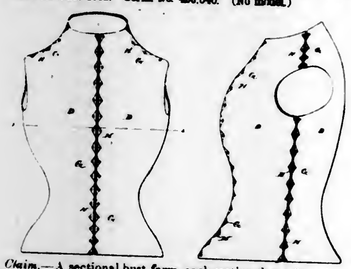
Claim.—1. A phosphate washer, comprising a trough, partitions arranged on opposite sides of the said trough and forming alternately-arranged pockets, and agitating arms passing through the said pockets to move the material forward, substantially as shown and described.

2. A phosphate washer, comprising a trough made of two segmental sections, partitions arranged in the sections and forming alternating pockets, and revolvable shafts carrying spirally arranged agitating arms passing through the said pockets, substantially as shown and described.

3. A phosphate washer, comprising a trough made of two segmental sections, partitions arranged in the sections and forming alternating pockets, and revolvable shafts carrying spirally arranged agitating arms passing through the said pockets, and means, substantially as described, for rotating the said shafts to move the agitating arms toward each other, as set forth.

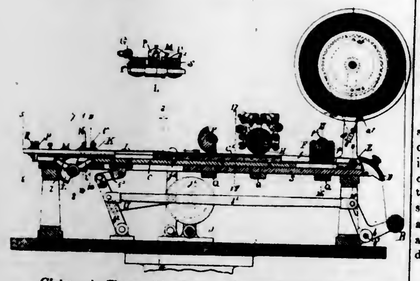
4. A phosphate washer, comprising a trough formed of two longitudinally-extending perforated segmental sections, perforated partitions arranged in the sections and forming alternating pockets, revolable shafts journaled in the ends of the said trough, and agitating arms set spirally on the said shafts and passing through the said pockets, substantially as shown and described.

492,263. BUST-FORM. PAULINA BETTINGEN, New York, N. Y. Filed Mar. 23, 1892. Serial No. 426,040. (No model.)



Claim.—A sectional bust form, each section thereof consisting of a base of rigid material, a soft outer covering and an elastic or yielding filling material, said materials being secured together at the edges of the sections and each edge of each section being provided with means for detachably connecting the adjacent sections to each other, substantially as herein specified.

492,264. MACHINE FOR MANUFACTURING TUBES OF CIGARETTE-PAPER. PAUL V. M. BLAGNE, Paris, France. Filed Mar. 5, 1891. Serial No. 383,938. (No model.) Patented in France Aug. 16, 1890, No. 207,858.



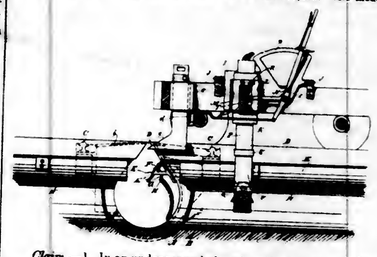
Claim.—1. The machine for manufacturing tubes of cigarette paper comprising a bobbin holder A for the continuous paper, a feeding device B, a gumming device E, a clamping device F serving to gauffer the paper, a reciprocating table, a printing sector, a sheath I and a ring K for forming the tube, a cylinder H and a rod M, and cutting device R for cutting it into lengths, as and for the purpose described.

2. In a machine for making tubes of cigarette paper, the combination of the bobbin holder A and an adjustable spring brake a^{4}-a^{7}, with a carriage C, a feeding device B, lever b^{2} actuated by a crank-shaft and connected to both the table and the feeding device, a guide D and an eccentric clamping device F, all substantially as and for the purposes set forth.

3. In a machine for making paper tubes for cigarettes, the combination of a movable carriage C, a hollow mandrel I and a ring K, with a rod M and gripper N, substantially as set forth.

4. In a machine for making cigarette tubes, the combination of the engraved sector L and inking rollers l^{2}, with the rod M, and bridge-piece P, substantially as set forth.

492,265. CONDUIT ELECTRIC RAILWAY. FRED W. BRANS, Oakland, Cal. Filed May 16, 1892. Serial No. 433,215. (No model.)



Claim.—1. In an underground electric railway, the combination of the underground conduit having the slot on top through which communication is made between the car and the conductor within the conduit, an A-shaped roof made of non-conducting material and secured to the conduit frames at one side, and out of line with the slot, and a second interior non-conducting strip secured thereto with intervening non-conducting plates, hangers projecting from the interior strip having a conducting wire attached thereto beneath the overhanging edges of the projecting channel, substantially as herein described.

2. In an electric railway, the combination of the underground conduit slotted at the top, the A-shaped insulated roof secured to one side of the conduit out of the vertical plane of the slot, a second insulating strip secured within the first and separated therefrom by insulating plates, a conductor extending beneath the overhanging sides of the protecting roof having hangers by which it is supported secured to the inner non-conducting strip, a trolley carrying shank attached to the car extending down through the slot into the conduit having the lower end curved upon itself, a conducting wire passing through the interior of said shank and insulated therefrom, an insulated trolley wheel mounted upon the lower up-turned end of the shank and adapted to travel in contact with the conducting wire, said trolley wheel being connected with the conductor which passes through the trolley shank, substantially as herein described

3. A trolley shank consisting of hollow sections the ends of which are fitted into connecting couplings insulated and out of contact with each other, a conducting wire passing through said hollow sections and independently insulated therefrom, a trolley wheel mounted upon the up-turned lower end of the trolley shank by means of a supporting petticoat which is insulated from the shank, and insulated passages through which the shank wire passes to connect with the trolley wheel and remain out of contact with the shank, substantially as herein described.

4. In an electric railway, the combination of the underground slotted conduit, the insulated protecting roof within which the main conducting wire is supported, a sectional trolley shank carrying the insulated contact-wheel upon its up-turned lower end, an insulated conducting wire passing through the interior of the trolley shank to the mechanism upon the car, a case or guide through which the trolley shank passes having elastic connection whereby the shank is allowed a vertical movement to accommodate itself to movements of the car, and a guide upon the car within which the whole device is raised or depressed, substantially as herein described.

5. In an electric railway, the combination of the underground slotted conduit tube with the insulated and protected conducting wire, the hollow insulated trolley shank carrying the contact wheel upon its up turned lower end with insulation therefrom, a conducting wire extending through said shank connecting with the trolley wheel and the mechanism upon the car and insulated from the shank, a rocking frame pivoted upon the car having a guide channel within which the trolley shank moves vertically, a lever connected with the trolley shank adapted to raise or depress it to make or break contact with the conducting wire, the oscillations of the supporting frame compensating for the vibrations of the car and relieving the trolley shank and trolley, substantially as herein described.

6. In an electric railway, the combination of the underground slotted conduit having the insulated protecting roof and the insulated conducting wire supported beneath its overhanging sides, a hollow trolley shank carrying a trolley wheel upon its upturned lower end to form a contact with the conducting wire, an insulated conducting wire within the trolley shank connecting the wheel with the mechanism upon the car, the vertical guide within which the trolley shank has vertical motion, a removable door or side to allow the trolley shank to be disengaged therefrom, and corresponding removable plates at intervals in the track whereby the trolley and its shank may be removed bodily from the conduit, substantially as herein described.

7. In an electric railway, the combination of the underground slotted conduit with the protected conducting wire, the trolley shank adjustably mounted upon the car extending down through the slot into the conduit having a trolley wheel supported upon its upturned lower end to form contact with the conducting wire within the conduit, and the means for clearing the slot in front of the trolley shank, consisting of the vertically movable wedge-shaped strip supported from the car independently of the trolley shank and adapted to enter the slot in front of the trolley shank when the car is moved, substantially as herein described.

492,266. FLEXIBLE SHAFT FOR DENTAL ENGINES. ARTHUR W. BROWNE, Prince's Bay, N. Y., assignor to the S. S. White Dental Manufacturing Company, Philadelphia, Pa. Filed Apr. 26, 1892. Serial No. 430,700. (No model.)



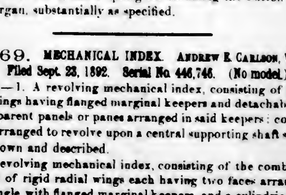
Claim—1. The combination, with the flexible shaft, of the tubular end guards each having rigid connection at one end with an end of the shaft and at and adjacent to its opposite end loosely enveloping the shaft, substantially as and for the purpose set forth.

2. The combination with the flexible shaft consisting of coils soldered together at their ends, of the end connection (C or D) rigidly connected with the shaft end, and the tubular guard having rigid connection at one end with said end connection and the shaft end, and at and adjacent to its opposite end loosely enveloping the shaft, substantially as set forth.

492,267. ROTARY VALVE. FRED W. BRUCK, Mayport, Fla. Filed Sept. 13, 1892. Serial No. 445,732. (No model.)

Claim.—1. In a valve mechanism for engines impelled by steam or other gas under pressure, the combination, with a cylinder and piston reciprocating therein, of a steam-chest, a rotary valve rotating in said steam-chest and having annular ports near the periphery thereof, the exhaust being divided by radial ribs into a plurality of pockets, a hand-operated reversing-valve pivoted beneath the rotary valve and constituting a valve seat therefor, the said reversing-valve having double sets of ports sloping as shown, and the said valve being cut away between the said ports, whereby the steam is admitted between the said ports beneath the rotary valve, tending to balance the same, and a valve-seat beneath the said reversing valve attached to or integral with the said cylinder, the said valve seat having one set of steam and exhaust ports therein opening into the cylinder, substantially as described.

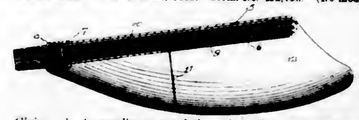
2. In a valve mechanism for engines impelled by steam or other gas under pressure, the combination, with a cylinder and a piston reciprocating therein, of a steam chest, a rotary valve rotating in said steam chest and having annular ports near the periphery thereof, a reversing valve pivoted beneath the rotary valve and constituting a valve seat therefor, the said reversing valve having double sets of ports sloping as shown, and a valve seat beneath the said reversing valve, the said valve seat having one set of steam and exhaust ports therein opening into the cylinder, and registering with said sloping ports in the reversing valve, substantially as described.



3. In a steam-engine, the combination, with a steam-chest and a cylinder, a reversing valve having two sets of double ports sloping as shown, and a valve seat attached to or integral with the said cylinder and having two ports adapted to register with either set of said double ports in the reversing valve, substantially as described, of a rotary valve having two open annular ports therein, the one exterior to and concentric with the other, and two closed annular exhaust ports therein, the one interior to and concentric with the other, substantially as and for the purposes described.

4. In a steam engine, the combination with a shaft, of a plurality of piston rods connected to and driving the same, a plurality of single-acting cylinders whose pistons are connected to said piston rods, the said cylinders having one end open to the exhaust and the other open alternately to steam and the exhaust, a hand-operated reversing valve having ports sloping as shown and forming a valve seat for the rotary valve, a valve seat attached to or integral with each of said cylinders and having two ports to each cylinder adapted to register with the ports in the reversing valve, and a rotary valve having double sets of steam and exhaust ports corresponding to the number of said cylinders, and interior radially the one to the other, substantially as described.

492,268. VETERINARY APPLIANCE. WILLIAMSON BRYDEN, Boston, Mass. Filed Nov. 22, 1892. Serial No. 452,798. (No model.)



Claim.—1. An appliance consisting of an elevated reservoir for containing liquid, a receptacle for a male organ, a tube connecting the reservoir and receptacle, and an automatically operated valve to admit the liquid to the shield and organ, substantially as specified.

2. An appliance consisting of a reservoir for containing liquid, adapted to be secured to the body of an animal, a receptacle for a male organ, a flexible tube connecting the reservoir and receptacle, and a valve operated by the action of the animal, substantially as specified.

3. An appliance consisting of a reservoir for containing liquid, a receptacle for a male organ, a tube connecting the reservoir and receptacle, a valve in said tube, a button in the receptacle and connected with the valve, and a spring for thrusting the button toward the male organ, substantially as specified.

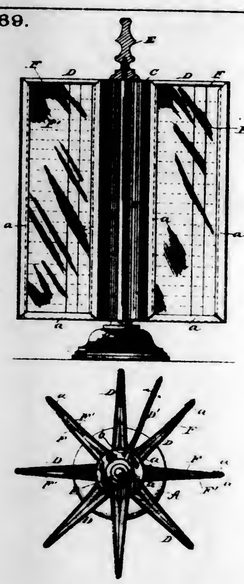
492,269. MECHANICAL INDEX. ANDREW E. CARLSON, Wallace, Idaho. Filed Sept. 23, 1892. Serial No. 446,746. (No model.)

Claim.—1. A revolving mechanical index, consisting of a series of radial wings having flanged marginal keepers and detachable cards with transparent panels or panes arranged in said keepers; combined with and arranged to revolve upon a central supporting shaft substantially as shown and described.

2. A revolving mechanical index, consisting of the combination of a series of rigid radial wings each having two faces arranged at an acute angle with flanged marginal keepers, and a cylindrical body or center; detachable cards and transparent panes arranged within the keepers; and a central supporting shaft substantially as shown and described.

3. A revolving mechanical index consisting of a series of rigid radial wings having card receiving spaces on each of its faces, and a series of alternating pivoted and swinging wings with card spaces arranged between the rigid wings, and a central supporting stand substantially as shown and described.

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bolting cylinder and the drum, and having their ends directly supported by the spiders.

2. In a bolting reel, the combination of a bolting cylinder, a central shaft, a drum within the bolting cylinder, and elevators between the bolting cylinder and the drum, said elevators having journals seated in the spiders, whereby they are enabled to rock or tip.

3. In a bolting reel, the combination of a bolting cylinder, a central shaft, a smooth drum within the bolting cylinder, spiders carried by the shaft, and tipping elevators located between the bolting cylinder and the drum and journaled in the spiders, substantially as and for the purpose explained.

4. In a bolting reel, the combination of a bolting cylinder, a central shaft, a drum within the bolting cylinder, spiders carried by the shaft, bars connecting the spiders and provided with studs or posts, cloth hoops or rings secured to said steds, and elevators extending lengthwise of the reel between the bolting cylinder and the drum and having their ends directly supported by the spiders.

5. In a bolting reel, the combination of a bolting cylinder, a drum within the cylinder, a central shaft, spiders carried by the shaft, rods connecting the spiders and provided with studs, cloth-hoops secured to said studs, and elevators having journals seated in the spiders.

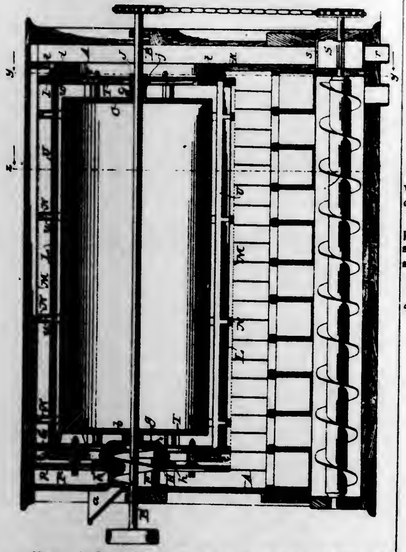
6. In combination with a bolting cylinder, a drum within the cylinder, a central shaft, and spiders carried by the shaft, bars connecting the spiders, cloth rings carried by the bars, and elevators journaled in the spiders and adapted to swing outward against the cloth rings and inward toward the drum.

7. In a bolting reel, the combination of a bolting cylinder, a drum within the cylinder, a central shaft, spiders T T, carried by said shaft, and elevators L having journals *o* seated in said spiders.

8. In a bolting reel, the combination of a bolting cylinder, a drum within the cylinder, a central shaft, spiders T T, carried by said shaft, and elevators L having journals *o* seated in the spiders, one of said spiders being capable of adjustment about the shaft to cause the elevators to stand oblique to or parallel with the axis of the shaft as required.

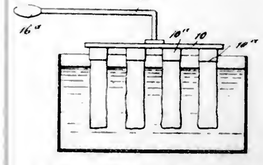
9. In a bolting reel, the combination of a bolting cylinder, a drum within the cylinder, a central shaft, spiders carried by said shaft, bars U connecting said spiders, and elevators L having journals *o* seated in the spiders.

492,270. FLOUR-BOLT. MYRON W. CLARK, Parma, Mich., assignor, by mesne assignments, of one-half to the Edward P. Allis & Company, Milwaukee, Wis. Original application filed Nov. 18, 1886, Serial No. 219,319. Divided and this application filed Nov. 25, 1892. Serial No. 453,075. (No model.)



Claim.—1. In a bolting reel, the combination of a bolting cylinder, a central shaft, a drum within the cylinder, spiders carried by the shaft, and elevators extending lengthwise of the reel between the

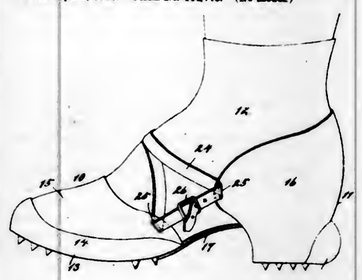
492,271. COOKING UTENSIL. TOMAS J. CLEMENT, New Orleans, La. Filed Aug. 8, 1892. Serial No. 442,429. (No model.)



Claim.—1. A cooking utensil, comprising a flat body provided with a handle projecting from its upper side and with a series of fingers depending from its lower side, substantially as described.

2. The herein described cooking utensil, consisting of the flat body portion 10, provided with the handle 16 16ª projecting from its upper side, and with detachable fingers depending from its lower side, substantially as specified.

492,272. ICE-CREEPER. JAMES F. COMFORT, Kendall Creek, Pa. Filed Sept. 1, 1892. Serial No. 444,775. (No model.)

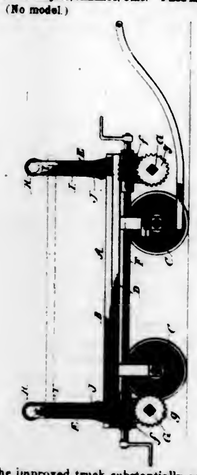


Claim.—1. The herein described coasting sandal, consisting of the toe piece 10 formed of the flexible upper 15, the bottom 13 provided with the flange 14 and spurs 27, the heel piece 11 having its upper portion shaped to fit upon the heel portion of a shoe and provided with the shank 17 adjustably secured to the toe piece, the spurs 27 on its bottom, and the rearwardly projecting blade 23, and the strap 24 for securing the said pieces to the foot of the wearer, substantially as described.

2. In a coasting sandal, the combination with a toe piece provided with a longitudinal slot and sockets, of a heel piece provided with a shank having a recess therein, and a key carried by the shank and having a cross piece on its inner end, substantially as and for the purpose set forth.

3. A coasting sandal, comprising a toe and heel piece adjustably connected together and provided with means for securing them to the foot of the wearer, the heel piece being provided with a rearwardly projecting vertical blade, substantially as set forth.

492,273. TRUCK. JOHN CORNELIUS, Oakland, Md., assignor of one-half to Raymond S. Kayler, Alliance, Ohio. Filed May 11, 1892. Serial No. 432,698. (No model.)



Claim.—1. The improved truck substantially as described comprising the carriage, the corner uprights thereon, the end rollers journaled in and extended between the end uprights, the platform, the drums, the cables extending thence over the end rollers and connected with the platform and operating mechanism for turning the drums substantially as set forth.

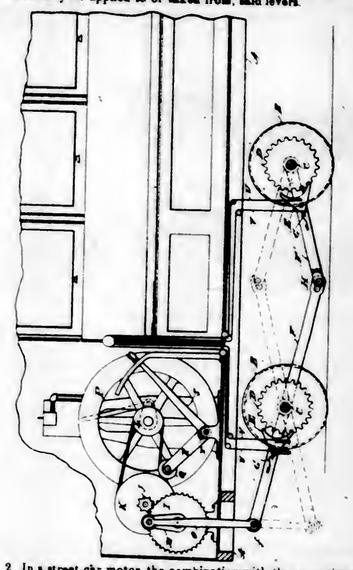
2. In a truck substantially as described the combination of the carriage, the vertically movable platform, the separate drums journaled to the carriage near its opposite ends, connections between said drums and the platform and a drive shaft geared with both said drums and arranged and adapted to simultaneously and similarly turn said drums in the operation of the device substantially as set forth.

3. The improved truck herein described consisting of the carriage, the vertically movable platform, the separate drums arranged near the opposite ends of the carriage connections between said drums and the platform, worm wheels upon said drums, and the drive shaft arranged at right angles to the drums and provided with worms meshing with the wheels of the drums whereby to operate the same substantially as set forth.

4. In a baggage truck substantially as described the combination with the carriage, the movable platform the drums arranged transversely of and at the end of the carriage, and connections between said drums and the platform, of the drive shaft, arranged longitudinally of the carriage, journaled thereto and extended beyond the ends thereof, and gearing between said drive shaft and both end drums whereby the shaft may operate the drum substantially as described

492,274. STREET-CAR MOTOR. JAMES A. CURRIE, Springfield, Ohio. Filed June 10, 1892. Serial No. 436,305. (No model.)

Claim.—1. A street car motor, the combination with the car axles, levers fulcrumed thereon, and means to engage said levers with said axles to effect the rotation thereof, of a driving wheel and means to rotate it to store up energy, and operative switch connections between said driving wheel and said levers, whereby the energy of the fly wheel may be applied to or taken from, said levers.



2. In a street car motor, the combination with the car axles and toothed wheels mounted thereon, of levers fulcrumed on said axles, and interconnected double-armed pawls carried by said levers and adapted to engage with said toothed wheels in both directions, to effect a forward and backward movement of the car, and means to operate said levers.

3. In a street car motor, the combination with the car axles and toothed wheels mounted thereon, levers fulcrumed on said axles, the end of the forward lever being connected to the end of the rear lever, double-armed pawls carried by said levers and acting alternately on said toothed wheels respectively, to drive them forward, reversing means to effect the engagement of the other ends of the pawls to drive the wheels backward, and means to operate said forward lever.

4. In a street car motor, the combination with the car axles and toothed wheels mounted thereon, of levers fulcrumed on said axles, pawls carried by said levers and adapted to engage with said wheels and effect the rotation thereof, a driving pulley and driven pulley, a belt loosely connecting said pulleys, a tightening device to tighten said belt, and crank and intergearing mechanism between said driven pulley and said levers, to effect the operation thereof.

5. In a street car motor, the combination with a fly wheel and means to rotate it and store up energy, of a driving pulley connected therewith, a driven pulley and a belt loosely connecting said pulleys in normal position, and a tightening pulley, an arm supporting said pulley, a trip lever and a spring connecting said lever with said arm for the purpose described.

6. In a street car motor, the combination with a fly wheel and means to rotate it and thus store up momentum, of a driven pulley and a loose belt thereon operated through said fly wheel, a roller-bearing tightening arm, a trip lever, a spring connection between said lever and arm to act yieldingly on said belt, rotating axles and supporting car wheels, and interconnecting mechanism between said axles and said driven pulley, whereby the starting of the car will be assisted by the transferred momentum of the fly wheel, and the shock of starting avoided by the spring action of the tightening arm.

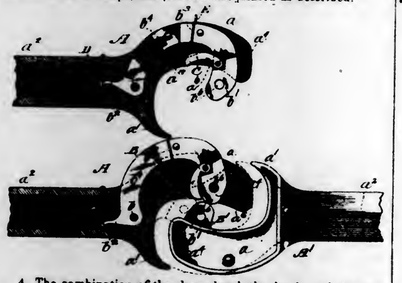
492,275. CAR-COUPLING. LEVI DAVIS, Jr., Alton, Ill. Filed Apr. 21, 1892. Serial No. 430,137. (No model.)

Claim.—1. In a car coupling of the vertical-plane type, the combination of the draw head and the coupling hook, said hook being jointed between its point and its pivot, for the purpose described.

2. In a car coupling of the vertical plane type the combination

of the draw head and the coupling hook said hook being jointed, and its point-portion adapted to bear against an outlying portion of the draw head, for the purpose described.

3. In a car coupling of the vertical plane type, the combination of the draw head and the coupling hook, said draw head having the part, *a*, chambered and extended as described and said hook being of the semi circular shape, and pivoted and jointed as described.



4. The combination of the draw head, the hook, and the stop, said draw head being chambered, said hook being pivoted to said draw head, and said stop being pivoted to said hook, and said draw head having a shoulder to effect the adjustment of said stop, substantially as described.

5. In a car coupling of the vertical plane type, a coupling hook having an adjustable stop, substantially as and for the purpose described.

6. The combination of the draw head and the coupling hook, said draw head being chambered as described and having the rib, a^4, extending between the top and bottom of the draw head to support the outer portion of the draw head, substantially as described.

492,276. CAR-DOOR. ABRAM S. DEBRA, Nolton, Ark. Filed Jan. 26, 1892. Serial No. 419,194. (No model.)



Claim.—1. The combination with a car having an opening, of a gate mounted to travel on the inside of the car, a door mounted to travel on the outside of the car and having a sliding connection with the gate, and means for operating said outer door from the inside of the car, substantially as described.

2. The combination with a car having an opening, of a gate mounted to travel on the inside of the car, a door mounted to travel on the outside of the car, and having a sliding connection with the gate, and means for locking the door to the gate and the gate to the side of the car, substantially as described.

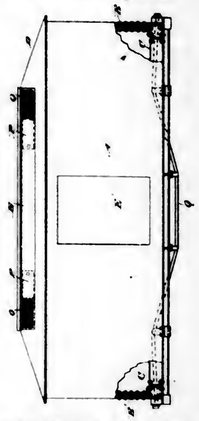
3. A car provided with sides having openings, a gate mounted to travel on the inner surface of each side to open and close the inside of the said openings, a door made of sheet metal and mounted to travel on the outer surface of each side to open and close the outside of the said openings, and a pin projecting from the said door and passing through a longitudinal slot in the said gate, as set forth.

4. A car provided with sides having openings, a gate mounted to travel on the inner surface of each side to open and close the inside of the said openings, a door made of sheet metal and mounted to travel on the outer surface of each side to open and close the outside of the said openings, a pin projecting from the said door and passing through a longitudinal slot in the said gate, and means, substantially as described, for locking the said pin to the said gate, as set forth.

492,277. CAR. ABRAM S. DEBRA, Nolton, Ark. Original application filed Jan. 26, 1892, Serial No. 419,194. Divided and this application filed May 23, 1892. Serial No. 433,954. (No model.)

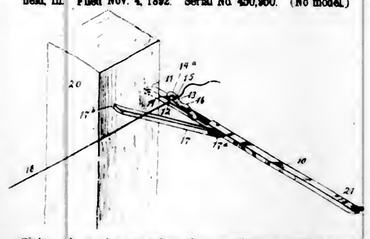
Claim.—1. A car having its sides, ends, roof, and floor formed of metal, the sides and ends having double walls spaced apart, the said walls being connected together and the space between them filled with mortar, substantially as described.

2. A car comprising sides and ends, each made of an outer metallic covering, a lining, rivets connecting the lining with the covering, and mortar filled in between the covering and lining, a sheet metal floor, and a sheet metal top riveted to the coverings of the sides and ends, substantially as shown and described.



3. A car comprising sides and ends, each made of an outer metallic covering, a lining, rivets connecting the lining with the covering, mortar filled in between the covering and lining, a sheet metal floor, a sheet metal top riveted to the coverings of the sides and ends, and ventilating openings arranged in the said top and adapted to be closed by gates, substantially as shown and described.

492,278. FENCE-WIRE STRETCHER. FRANKLIN DURR, Pittsfield, Ill. Filed Nov. 4, 1892. Serial No. 450,960. (No model.)



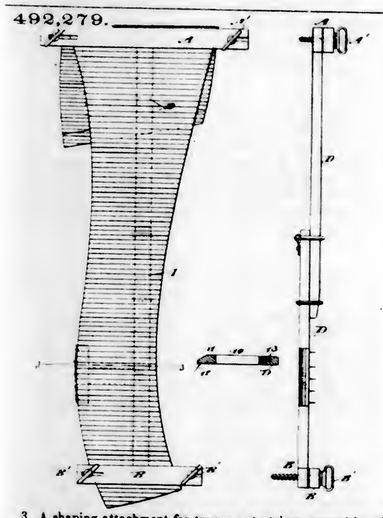
Claim.—In a wire stretcher, the combination with a lever furcated at one end and rounded at the corner behind the toes of said end, and having a recurved shoulder on the side of the lever near the furcated end, of a locking limb pivoted on the lever, having an outwardly rounded shoulder on the end nearest the shoulder of the lever, and a guard flange on said limb over the rounded shoulder, and a laterally vibratable brace bar pivoted at one end on the lever and pointed at its free end, substantially as described.

492,279. TROUSERS STRETCHER AND SHAPER. HENRY F. FEATHERSTONE, West New Brighton, N. Y. Filed Oct. 26, 1892. Serial No. 450,006. (No model.)

Claim.—1. A trousers stretcher comprising the bar provided at its ends with transverse clamps movable toward and from each other to stretch the trousers longitudinally and a shaper extending transversely from the rear edge of the bar above its lower clamp and provided with a curved or rounded outer edge, substantially as set forth.

2. A trousers stretcher and shaper comprising a longitudinally adjustable bar having transverse clamps at its ends, and a transverse arm 10 projecting from the bar between its ends and having a head 11 on its outer end; the said head being curved longitudinally on its outer edge, substantially as set forth.

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3. A shaping attachment for trousers stretchers comprising the arm 10 having a box loop 14 at its inner end, a catch or fastening on said loop and the head 11 on the outer end of the arm and having a longitudinally curved outer edge provided with pins or teeth, substantially as set forth.

4. A trousers stretcher comprising the bar having transverse clamps on its opposite ends, a transverse arm having a slide embracing the bar and provided with a catch or fastening for securing it to the bar at any desired point and a shaper head on the outer end of the arm and having a curved and toothed outer edge, substantially as set forth.

492,280. WHEEL. GEORGE P. FISHER, Bucyrus, Ohio. Filed June 11, 1892. Serial No. 436,406. (No model.)



Claim.—1. A rim cushion for wheels composed of a series of hollow balls and a tube fitted thereon and provided with an internal circumferential groove or channel as set forth.

2. A wheel tire or rim comprising a series of hollow balls, and a tube fitted closely thereon, and provided internally with passages connecting the spaces between the balls whereby air may pass the balls to fill the spaces between the same substantially as set forth.

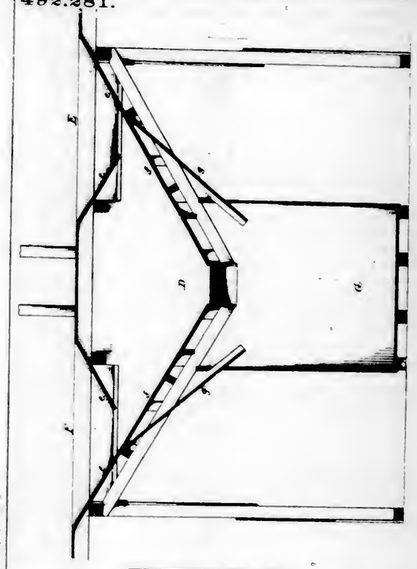
3. A wheel tire or rim consisting of the tube provided with the internal circumferential groove, and the balls fitted closely within the tube all substantially as set forth.

4. A wheel tire or rim comprising an annular tube having at its inner side an internal circumferential groove and provided with the hollow balls fitted in the said tube substantially as set forth.

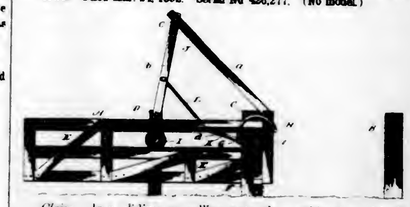
492,281. COAL-CHUTE. JOHN FORMAN, Pottstown, Pa. Filed Sept. 17, 1891. Serial No. 405,948. (No model.)

Claim.—An apparatus comprising the tracks *a*, *b*, a main chute having an opening beneath the tracks *a*, a supplemental chute on each side of such main chute and communicating at one end with said main chute, and at the opposite end with openings beneath the tracks *b*, screens in each of said chutes, a guide board under each of said screens, and a bin, as G, to which each of said guide boards extends and into which the screenings are discharged, substantially as specified.

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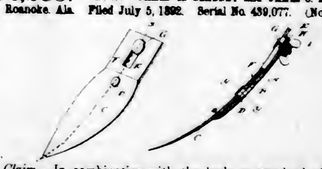
492,282. SLIDING GATE. ANDREW C. FREEHOUR, Cedar Rapids, Iowa. Filed Mar. 24, 1892. Serial No. 426,277. (No model.)



Claim.—In a sliding or rolling gate, the combination with the gate, and its supporting posts provided with friction wheels; of the hinged or jointed lever the longer arm of which is movably connected to the top of the gate at its forward end while its shorter arm is connected to the internal post, the length of said lever being just equal to the length of the gate so as to rest snugly upon the upper edge of said gate when the latter is closed; the operating rod supported at a suitable height and terminating at its ends with cranks or handles; the adjustable crank carried by said rod, and a connecting rod attached at its upper end to the shorter arm of the lever and having its lower end movably connected to the crank, substantially as shown and for the purpose described

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492,283. PLOW. JAMES R. GLADNEY and JAMES C. MAYFIELD, Roanoke, Ala. Filed July 5, 1892. Serial No. 439,077. (No model.)



Claim.—In combination with the body or standard of a plow provided with a T-shaped slot B, and bolt hole H, the plow point C formed with a square rivet hole near the top, the compound rivet D, slotted plate E, and securing bolt and nut G, I, substantially as and for the purpose set forth.

492,284. EXTENSION-TABLE. JULIUS S. GRAAFF and IDAH M. HARRADEN, Portland, Oreg. Filed June 28, 1892. Serial No. 438,296. (No model.)

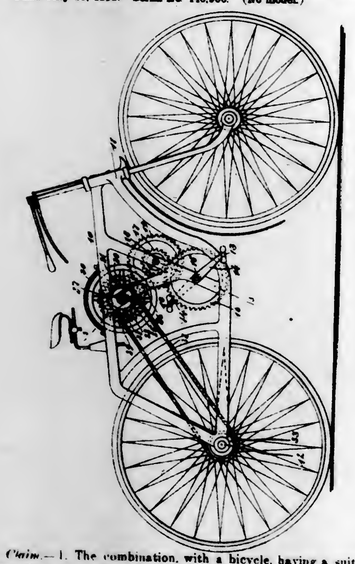


Claim.—1. An extension table, comprising the central box open at its upper end and forming a central support, the end portions movable toward and from the box and having supporting legs, a single series of flexibly connected leaves secured at their ends to the adjacent edges of said end portions and depending between their ends within the said box, the faces of such leaves being thus opposite and contiguous and braces projecting horizontally from opposite sides of the box under the lower sides of the said end portions to support them and the folding leaves, substantially as set forth.

2. In an extension table, the combination of the open topped box, the rigid portion of the table having supporting legs, the hinged leaves held to slide in and out of the box and having a hinge connection with the rigid part of the table, the slotted braces secured to the box and extending beneath the leaves, and a screw mechanism for fastening the table top to the braces, substantially as described.

3. An extension table, comprising the two rigid top portions, a series of flexibly connected leaves hinged at their ends to the said two top portions, an intermediate box into which the series of leaves extend between the rigid top portions, and angle braces at opposite sides of the box the horizontal members of which project under the two rigid top portions and are adjustably connected therewith, substantially as set forth.

492,285. BICYCLE-GEAR. EMIL GUNDLACH, New York, N. Y. Filed July 23, 1892. Serial No. 440,966. (No model.)

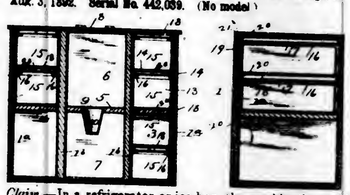


Claim.—1. The combination, with a bicycle, having a suitable frame, of a crank-shaft journaled in the frame, a counter-shaft geared to the crank shaft, a gear which is laterally adjustable on the counter-shaft, a third shaft which is geared with one of the bicycle wheels and adjustable toward and from the counter-shaft, and a cone, or stepped, gear mounted on such third shaft, substantially as described.

2. The combination, with a bicycle, having a frame with parallel side pieces, of a pedal-operated crank-shaft journaled in the frame, a counter-shaft journaled parallel with such crank shaft and geared therewith, a gear which is laterally adjustable on the counter-shaft, a third shaft arranged parallel with the latter and adjustable toward and from the same, a cone gear mounted on such third shaft, a fly wheel carried by the latter, and an operative driving connection between the third shaft and one of the bicycle wheels, substantially as described.

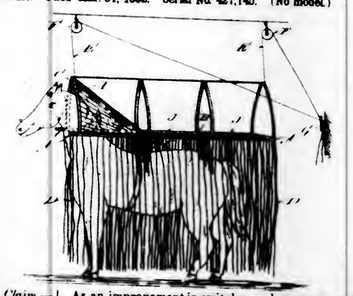
3. In a bicycle, the combination, with a frame journaled on the bicycle wheels and provided with parallel slots in its opposite sides, of a pedal-operated crank-shaft journaled in the frame, a counter-shaft similarly journaled in the frame and geared with said crank-shaft, a gear which is laterally adjustable on such counter-shaft, a third shaft having its ends journaled in slides which move in the slots of the frame, clamping devices for securing said slides in position, a cone gear mounted on the third shaft, and an operative gear-connection between such adjustable shaft and one of the bicycle wheels, substantially as described.

492,286. REFRIGERATOR. MARY M. HARRIS, Chicago, Ill. Filed Aug. 3, 1892. Serial No. 442,039. (No model.)



Claim.—In a refrigerator or ice box, the combination with the outer casing having hinged doors at its front and top, and provided with ventilating openings of the ventilating chamber, the food compartments having openings near their upper ends communicating with said chamber, the horizontal flanges, the removable perforated plates, the food drawer or receptacles, and the vertical and horizontal partitions forming central upper and lower chambers, substantially as described.

492,287. FLY-SWITCHER FOR HORSES. CLARK HAYNER, Troy, Ohio. Filed Mar. 31, 1892. Serial No. 427,145. (No model.)



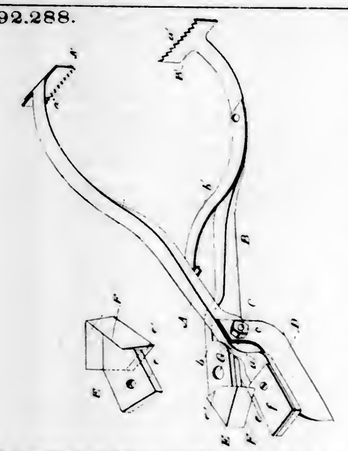
Claim.—1. As an improvement in switchers, a horse-operated fly switcher, consisting of a rigid rectangular screened frame, cords pendent from the outside of said frame inclosing the horse, a hoop spanning the frame from side to side at one end thereof, and a screen from said hoop backward to form a hood-like extension, a cross strap in said hood adapted to be engaged by the neck of the horse, and adjustable swinging supports for said frame to allow the oscillation of the frame and the switching of the cords by the movement of the horse's neck.

2. A horse-operated fly switcher, consisting of a swinging adjustable screened frame having a hood-like extension for the neck of the horse, cords pendent from the sides and cross bars of said frame, ropes adjustably supporting said frame, a cross strap at one end near the horse's neck and an elastic connection adapted to be connected with the body of the horse, whereby the frame and cords may be moved with every movement of the neck or body of the horse.

492,288. VETERINARY SURGICAL INSTRUMENT. FRANK J. HEGART, Challis, Idaho. Filed Sept. 3, 1892. Serial No. 444,970. (No model.)

Claim.—1. A combined tool in the general shape of a pair of nippers, comprising a branding device attached to the upper ends of the shanks, and gripping surfaces attached to the lower ends thereof, substantially as described.

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2. A combined tool in the general shape of a pair of nippers, the upper end of one shank being provided with a cutting die, the upper end of the other shank forming a surface against which the die bears in completiug the operation of branding, and gripping surfaces attached to the lower ends of said shanks; substantially as described.

3. A combined tool in the general shape of a pair of nippers, the upper ends of the shanks of which form a branding instrument, a knife connected to and moving with one of said upper ends, and gripping surfaces attached to the lower ends of the shanks; substantially as described.

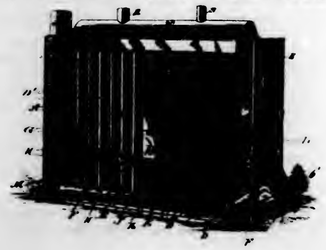
4. A combined tool in the general shape of a pair of nippers, the upper ends of the shanks of which form a branding instrument, a knife upon one of said upper ends, said knife being secured to the bolt through the shanks, and gripping surfaces attached to the lower ends of said shanks; substantially as described.

5. A combined tool in the general shape of a pair of nippers, the lower ends of the shanks of which are provided with gripping surfaces, the upper end of one of said shanks having a flattened surface, and a die comprising a plate provided with cutting edges, said plate being secured upon said flattened surface; substantially as described.

6. A combined tool in the general shape of a pair of nippers, the lower ends of the shanks of which are provided with gripping surfaces, the upper end of one of said shanks forming a flattened surface, and a die comprising a plate provided with cutting edges and a shoulder, said plate being fastened upon said flattened surface, and said shoulder bearing against the end of the flattened surface; substantially as described.

7. A combined tool in the general shape of a pair of nippers, the lower ends of the shanks of which are provided with gripping surfaces, the upper end of one of said shanks forming a flattened surface provided with a depression, and a die comprising a plate provided with cutting edges and a shoulder, said shoulder having a projection formed thereon, the plate being fastened upon the flattened surface, and the projection upon the shoulder engaging with the depression in said flattened surface; substantially as described.

492,289. HOT-WATER BOILER. MICHEAL E. HERBERT, St. Joseph, Mo. Filed June 16, 1892. Serial No. 437,007. (No model.)



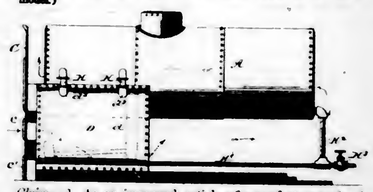
Claim.—1. A hot water boiler, comprising a casing an upper chamber forming the top, longitudinal circulating pipes, vertical tubes connecting the circulating pipes and the upper chamber, a hollow bridge wall, tubes connecting the upper end thereof with the upper chamber, the grate, and the feed opening at the upper front edge and the smoke exit at the lower rear edge of the casing all substantially as and for the purpose described.

2. In a hot water boiler, the combination with the casing having a feed opening in the upper end of the front and a smoke exit at its lower end of the rear wall, a water leg disposed centrally of the body, a partition wall extending from the bottom thereof to the bottom of the boiler, longitudinal circulating pipes disposed at the bottom, a hollow chamber forming the top of the boiler, vertical tubes connecting such top and circulating pipes, and tubes connecting the upper and lower ends of the water leg with the upper chamber and the circulating pipes, all substantially as and for purpose described.

3. In a hot water boiler, the combination with the casing formed with a fuel feed at its front end and a smoke exit at the lower edge of its rear wall, the hollow chamber C the circulating pipes E, the tubes D D' connecting the pipes E and the chamber C, the hollow bridge wall J, the grate, said bridge wall communicating with the chamber C and pipes E, the drop tubes, the transverse headers and the partition wall K, all substantially as shown and described.

4. In a hot water heater, the combination with the casing, the fire chamber and a series of vertical and horizontal circulating tubes, of the water chamber C closing the upper end of the hester and communicating with the vertical circulating tubes, said chamber having a longitudinally arranged upward extension or dome portion N, substantially as and for the purpose described.

492,290. FIRE-BOX FOR STEAM-BOILERS. MICHEAL E. HERBERT, St. Joseph, Mo. Filed Mar. 31, 1892. Serial No. 427,288. (No model.)



Claim.—1. As an improved article of manufacture, a fire box composed of side water legs closed at their top, bottom and ends, a supporting water leg connecting the rear ends of the side water leg said supporting legs being closed at the top and bottom and concaved at the top, the water drum connecting the forward ends of the side water legs near the bottom of the same, and the tubular grate bars connecting the drum and supporting leg, said fire box being adapted to dispense with the fire brick lining and support the forward end of boiler substantially as shown and described.

2. The combination with the boiler of a front having the feed and ash pit doors, and a fire box independent of the boiler and front and composed of the side legs, the supporting water leg connecting the rear ends of side legs and the water drum connecting the forward ends of the side legs, said drum being arranged between the feed and ash pit doors, substantially as shown and described.

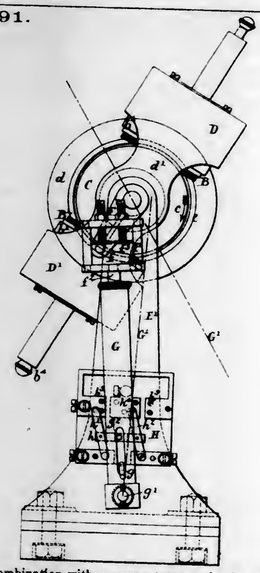
3. The combination with a boiler of a front having the feed and ash pit doors and a fire box independent of the boiler and front composed of the side water legs, the supporting water leg connecting the rear ends of the side legs, the water drum connecting the forward ends of the side legs, said drum being arranged between the doors, and the tubular grate bars connecting the drum and boiler end of the supporting leg, substantially as shown and described.

492,291. COMMUTATING APPARATUS FOR DYNAMO ELECTRIC MACHINES. EDWARD J. HOUSTON and WILLIAM WHITE, London, England. Filed Mar. 26, 1892. Serial No. 426,635. (No model.)

Claim.—1. A commutator brush, consisting of layers of wire gauze, a sliding box in which said layers of wire gauze are arranged, a spring acting to advance the box, a pressure plate bearing against the said layers, and a screw acting on the pressure plate, substantially as described.

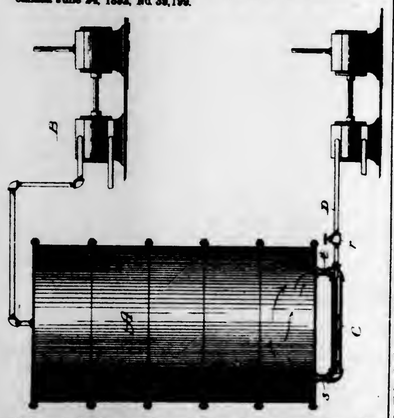
2. The combination with a suitable support, and a commutator, of a rotatable frame carrying commutator brushes and having a crank pin, a rod adapted to engage with a governor and having a yoke adjustably connected with the crank pin, and a spring acting to press the rod downward, substantially as described.

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3. The combination with a commutator, and a brush carrying frame having a crank pin, of a pivoted tube, a rod located in the tube and having a yoke connected with the crank pin, and a spring arranged in the tube and acting to press the rod downward, substantially as described.

492,292. MANUFACTURE OF BEER. AUGUST HUMMEL, Chicago, Ill., assignor to Charles C. Puffer, Rochester, N. Y. Filed Dec. 1, 1891. Serial No. 413,672. (No specimens.) Patented in England Mar. 5, 1892. No. 4,658; in Belgium Mar. 11, 1892, No. 96,743; in Cape of Good Hope May 31, 1892, No. 246; in France June 20, 1892, No. 220,059, and in Canada June 24, 1892, No. 39,199.



Claim.—1. In the manufacture of beer by bottom or lower fermentation, the process of conducting the main fermentation under a partial or approximate vacuum, which consists in confining the wort pitched with yeast in a closed vessel, abstracting from above the liquid atmospheric air and the gaseous products of fermentation as they accumulate, and maintaining the wort during the progress of fermentation, at a temperature not exceeding 60° Fahrenheit substantially as described.

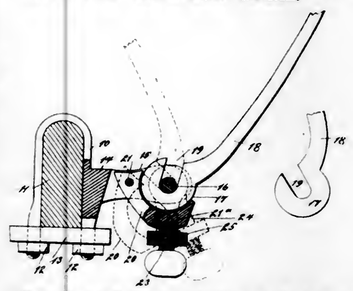
2. In the manufacture of beer by bottom or lower fermentation the process of conducting the main fermentation and subsequently aging or ripening the product under a partial or approximate vacuum, which consists in confining the wort pitched with yeast in a closed vessel, abstracting from above the liquid atmospheric air and the gaseous products of fermentation as they accumulate, maintaining the wort at a temperature not exceeding 60° Fahrenheit during the progress of fermentation until the main fermentation is completed, and then in the same vessel continuing the abstraction of gaseous products of fermentation and atmospheric air, if any, at the reduced temperatures in the liquid requisite for aging and ripening the beer, substantially as described.

3. In the manufacture of beer by bottom or lower fermentation, the process of conducting the main fermentation under a partial or approximate vacuum, which consists in confining the wort pitched with yeast in a closed vessel, abstracting from above the liquid atmospheric air and the gaseous products of fermentation as they accumulate, maintaining the wort at a temperature not exceeding 60° Fahrenheit and introducing atmospheric air into the body of the wort during the progress of fermentation, substantially as described.

4. In the manufacture of beer by bottom or lower fermentation the process of conducting the fermentation under a partial or approximate vacuum, which consists in confining the beer charged with yeast remaining from the main fermentation in a closed vessel, abstracting atmospheric air, if any, and the gaseous products of fermentation as they accumulate above the liquid, maintaining the liquid at a temperature not exceeding 60° Fahrenheit and introducing into the liquid during the progress of fermentation atmospheric air, substantially as described.

5. In the manufacture of beer by bottom or lower fermentation the process of conducting the main fermentation which consists in confining the wort, pitched with yeast in a closed vessel abstracting in whole or in part the atmospheric air and gaseous products of fermentation from the upper part of the vessel maintaining the fermenting wort at a temperature not exceeding 60° Fahrenheit, and introducing atmospheric air into the lower part of the vessel and into the sedimentary matter thereby increasing fermentation and producing a circulation of the wort under the impulse of the introduced air, substantially in the manner and for the purpose described.

492,293. THILL-COUPLING. ANDREW HUMMER, Maria Stein, Ohio. Filed Nov. 4, 1892. Serial No. 450,932. (No model.)

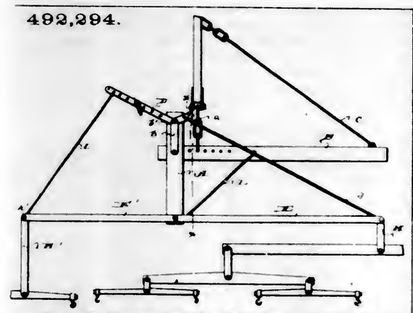


Claim.—1. A thill coupling, comprising an axle clip having forwardly extending arms, a transverse pin extending between the arms, a thill iron having a slotted knuckle to fit upon the pin, a swinging locking plate pivoted at its rear end behind the coupling pin and extending downwardly and forwardly beneath the knuckle, a bail supported upon the said transverse pin and adapted to swing beneath the locking plate, and a fastening device to secure the bail to the locking plate and the locking plate to the knuckle, substantially as described.

2. A thill coupling, comprising an axle clip having forwardly extending arms, a coupling pin held in the forward ends of the arms, a thill iron having a terminal knuckle to fit the coupling pin, and slotted across its upper side a swinging locking plate pivoted at its rear end between the arms behind the coupling pin and extending downwardly and forwardly beneath and against the thill iron knuckle, a bail suspended from the said coupling pin and adapted to swing beneath the locking plate, and a fastening screw extending upward through the bail and impinging on the locking plate, substantially as described.

492,294. DRAFT-EQUALIZER. HENRY A. IRONS and HERBERT P. HILL, Greeley, Colo. Filed Aug. 29, 1892. Serial No. 444,422. (No model.)

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Claim.—The herein described draft equalizer, comprising the main support block A, the side draft bar B connected at its inner end to said block A, the draft rod or chain connection between the outer portions of said bar B, and the plow or other device to which the equalizer is attached, said bar also having a draft connection with the plow or other device, the angular evener pivoted at its angle to the rear portion of said block A, the lateral truss rods or bars pivoted to the forward portion of said block A, the draft rods I and J connecting respectively the outer portions of said truss rods or bars with the arms of said evener, the side draft connection between the forward portion of the block A, and the side draft bar B, and the double tree and single tree attachments connected to said lateral truss rods or bars, substantially as specified.

492,295. INCANDESCENT GAS-LAMP. JOEL G. JACKSON, Minneapolis, Minn., and ADDISON L. DANIELS, Marion, Iowa. Filed Feb. 24, 1892. Serial No. 422,612. (No model.)



Claim.—1. In a gas lamp, the air mixer, comprising a gas supply pipe, an outer chamber screwed to the pipe and having inlet ports at the top, an inner chamber arranged within the outer chamber and connected therewith, the inner chamber embracing the gas supply pipe, and a regulating cap arranged above the outer chamber and adapted to close the air ports, substantially as described.

2. In a gas lamp, the air mixer, comprising a gas supply pipe, an outer chamber secured to the pipe and having air inlet ports at the top, an inner chamber arranged within the ports and embracing the gas supply pipe, said inner chamber having an opening around the pipe, an exit tube opening from the inner chamber, and a regulating cap screwed upon the tube and adapted to close the ports of the air chamber, substantially as described.

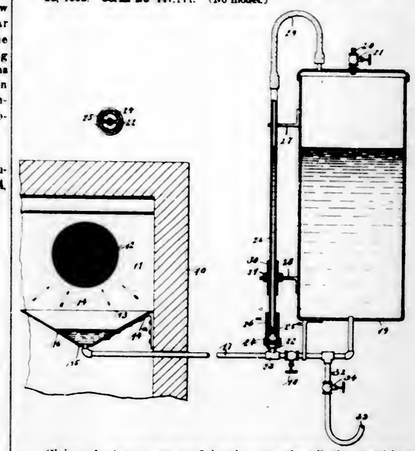
3. In a gas lamp, the air mixer, comprising a gas supply pipe having a conoidal discharge nozzle, and an outer chamber mounted upon the pipe and having air inlet ports at the top, an inner chamber arranged within the pipe, and embracing the discharge nozzle, said inner chamber having an opening around the nozzle, an exit tube opening from the inner chamber, and a regulating cap threaded upon the tube and adapted to close the air ports, substantially as described.

4. In a gas lamp, the combination with a supply pipe provided with conical discharge nozzle having a regulating valve, of a chamber surrounding the nozzle, and provided with air inlets closed by a valve, and a mixing chamber projecting into the first named chamber and into which the nozzle projects, substantially as described.

5. In a gas lamp, the combination with a supply pipe provided with a conical nozzle, of an air mixer into which the nozzle projects, provided with inlet openings adapted to be closed by a valve, a reservoir adapted to contain resisting material, above the mixer and in communication therewith, and a burner above the said reservoir, substantially as described.

6. In a gas lamp, the combination with the burner, and chimney holder, of a vertical rod having an outward bend at the burner top and secured to the chimney holder, an inwardly extending ring secured to the top of the rod, a mantle suspended from the ring, and a cover of non-conducting material for the said rod, substantially as described.

492,296. APPARATUS FOR MOISTENING THE AIR IN HOT-AIR FURNACES. JOSEPH A. JEFFERY, Shell Lake, Wis. Filed Sept. 28, 1892. Serial No. 447,171. (No model.)



Claim.—1. An apparatus of the character described, comprising an evaporating pan arranged in the hot air chamber or flues of a furnace, a water tank arranged outside the furnace, a valve controlled pipe leading from the tank to the pan, an open-topped cup arranged upon the pan supply pipe, a tube extending from the cup and connected with the top of the tank, and a valve-controlled waste pipe connected with the tank and adapted to regulate the air pressure therein, substantially as described.

2. An apparatus of the character described, comprising an evaporating pan arranged in the hot air chamber or flues of a furnace, an air tight water tank arranged outside the furnace, a valve-controlled pipe leading from the bottom of the tank to the evaporating pan, a valve controlled pipe connected with the tank bottom and opening into the outer air, an open-topped cup connected with the air supply pipe and arranged upon the same, and a vertically adjustable tube arranged parallel with the tank, the lower end of the tube extending into the cup and the upper end having connection with the tank top, substantially as described.

3. The combination, with the evaporating pan, the water tank and the pipe leading from the tank to the pan, of the cup secured upon and connected to the water pipe, the bridge or disk secured within the cup, the open-topped tube held within the cup above the disk, and the vertically adjustable tube, the lower end of the tube extending into the open-topped tube and adapted to impinge upon the disk in the cup and the upper end of the vertically adjustable tube being connected with the tank top, substantially as described.

4. In an apparatus of the character described, the combination with the evaporating pan, the water tank and the water pipe leading from the tank to the pan, of the open-topped cup secured to and connected with the water pipe, the transparent tube arranged parallel with the tank and having its lower end reduced and extended into

the cup, a suitable connection between the top of the tube and the top of the tank, and a screw mechanism for adjusting the tube vertically, substantially as described.

492,297. HAT-HANGER. FREDERICK L. JOHNSON, Wallingford, Conn. Filed Apr. 1, 1892. Serial No. 427,361. (No model.)



Claim.—1. A hat hanger comprising a clasp which is adapted to be arranged in an approximately vertical position, the open end being down and an elbow shaped latch pivoted at the elbow to a member of the clasp, and having one arm projected into the space between the members of the clasp, and having the other arm pendent, substantially as described for the purpose specified.

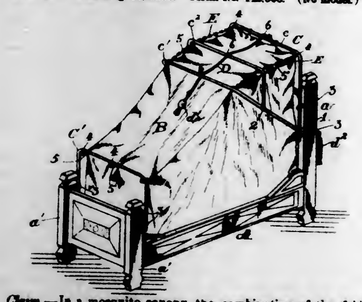
2. A hat hanger comprising a spring clasp, which is adapted to be arranged in an approximately vertical position, the open end being down and an elbow shaped latch pivoted at the elbow to a member of the clasp and constructed to have one portion extend normally across the space between the members of the clasp, and having its other end pendent, substantially as described for the purpose specified.

3. A hat hanger comprising a clasp which is adapted to be arranged in an approximately vertical position, the open end being down, and having a rear brace portion, and an elbow shaped latch pivoted at the elbow to a member of the clasp, and having one arm projected into the space between the members of the clasp, and having the other arm pendent, substantially as described and for the purpose specified.

4. A hat hanger comprising a clasp which is adapted to be arranged in an approximately vertical position, the open end being down and having a brace portion C projected from the rear member of the clasp, said clasp and brace being made of wire, the ends of the wire extending across the space between the wires of a member of the clasp and forming a cross bar, and an elbow shaped lever mounted on the said cross bar, substantially as set forth.

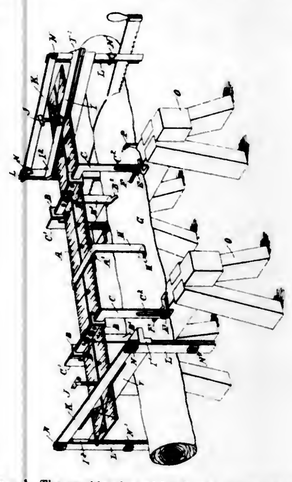
5. A hat hanger comprising a clasp which is adapted to be arranged in an approximately vertical position, the open end being down and having a brace portion C projected from the rear member of the clasp, said clasp and brace being made of wire, the ends of the wire extending across the space between the wires of a member of the clasp and forming a cross bar, an elbow shaped latch also formed of wire, mounted on the said cross bar, and a sleeve placed on the said cross bar to protect the ends of the wire and hold the parts of the latch properly spaced, substantially as specified.

492,298. MOSQUITO-CANOPY. WILLIAM H. JOHNSON, Shreveport, La. Filed Aug. 12, 1892. Serial No. 442,868. (No model.)



Claim.—In a mosquito canopy, the combination of the folding frame C having the fixed bow *c* attached to the inside of the head posts of the bed, the bow c' pivoted to said bow *c* and the intermediate bow c^2 pivoted to the said bow c' said bows being each provided with hollow elbows 13 and clamp screws 14, for adjusting said bows to bedsteads or rooms of different sizes, chains E attached to said elbows and connecting said bows; the frame C attached to the foot of the bed, the bar B suspended beneath said frames C and C by means of hooks and rings, and the cord D leading toward the foot of the bed and toward one side of the head thereof for opening and closing said folding frame C, substantially as and for the purposes described.

492,299. SAW-GUIDE. HENRY L. JOHNSTON and JOHN E. SANDBERG, Butte City, Mont. Filed Aug. 27, 1892. Serial No. 444,282. (No model.)



Claim.—1. The combination with a frame to cross the upper side of a log and means for supporting the frame from the log, of a vertically sliding gravity guiding-frame having depending members to straddle the log and provided with saw guiding spaces through which the saw is adapted to be reciprocated, substantially as set forth.

2. The combination with an elongated plate or support having means for supporting it longitudinally above the upper side of a log, of a transverse frame pivoted centrally upon said plate and adjustable thereon longitudinally thereof and at any desired angle thereto, and a vertically sliding gravity saw-guiding frame; the depending guiding arms of which straddle the log being sawed and are supported upon the back of the saw, substantially as set forth.

3. In a saw guide, the combination with a graduated plate, provided with depending supporting devices to engage a log and support the plate longitudinally thereabove; of a frame held adjustably on the said plate, and a second frame mounted to slide vertically and loosely in the said first-named frame, the said second frame straddling the log and riding on the back of the saw blade, substantially as shown and described.

4. In a saw guide, the combination with a plate and means for supporting the same above the log and from the log, of a frame held adjustably on the said plate and provided with vertical guideways, and a second frame fitted to slide loosely in the said guideways and loosely straddling the saw blade, substantially as shown and described.

5. In a saw guide, the combination with a plate and means for supporting the same above the log and from the log, of a frame held adjustably on the said plate and provided with vertical guideways, a second frame fitted to slide loosely in the said guideways and loosely straddling the saw blade, and means, substantially as shown and described, for supporting the said second frame on top of the said saw blade, substantially as shown and described.

6. In a saw guide, the combination with a plate made of two sections hinged together and provided on its top with a graduation, and a saw guiding mechanism carried by said plate of supports for carrying the said plate, each support comprising a U-shaped arm having openings in its ends, and L-shaped arms engaging the said apertured ends and bolted together above the plate, the vertical legs of the said L-shaped arms carrying adjustable screw rods for fastening the legs to the log to be sawed, substantially as shown and described.

492,300. MILK-HEATER. JOHAN L. JÖNSSON and TAVE BERG, Stockholm, Sweden, assignors to the Aktiebolaget Separator, same place. Filed Sept. 21, 1891. Serial No. 406,317. (No model.)



Claim.—1. The combination with an outer hollow heating vessel forming an inclosure adapted to hold a body of heated liquid, of an inner hollow heating vessel forming a similar and separate inclosure and separated from said outer vessel by a narrow flow space which receives the liquid to be heated at one end and discharges it at the other, substantially as set forth.

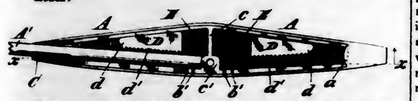
2. The combination with the outer hollow heating vessel having a raised central portion and a raised marginal portion, of an inner hollow heating vessel arranged in the depression between the raised central and marginal portions of the outer vessel, the inner vessel being separated from the outer vessel by a narrow flow space, substantially as set forth.

3. The combination with the outer hollow heating vessel having a raised marginal portion and a raised central portion on its inner bottom, of an inner hollow heating vessel arranged in the depression between the raised central and marginal portions of the outer vessel and separated from the outer vessel by a narrow flow space and having its inner wall surrounding said cone or projection forming part of the inclosure of said flow space, and an elevated feed pipe connected with said inner wall of said inner vessel, substantially as set forth.

4. The combination with the inner hollow vessel, of the outer hollow vessel provided with a projection which extends above the inner vessel, and a discharge tray and pipe arranged above the inner vessel and below the projection of the outer vessel, substantially as set forth.

5. The combination with the outer and inner hollow heating vessels, separated by a narrow flow space, of supply pipes for the heating medium connected with said vessels, a connecting pipe whereby both vessels are placed in communication, a discharge pipe connected with one of said vessels and through which the spent heating medium escapes, and a feed pipe which opens into the flow space between said vessels, substantially as set forth

492,301. COUPLING FOR TROLLEY-WIRES. WILLIAM H. KNOCKSLEY, Covington, Ky. Filed Dec. 10, 1892. Serial No. 454,795. (No model.)



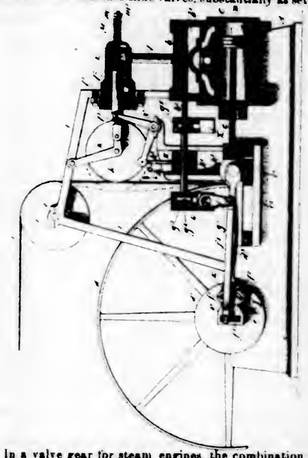
Claim.—1. In a wire or rod coupling or connector, a box having an inner triangular chamber or receptacle, an inlet opening or orifice at one end, and an abutment wall at the other, a toothed wedge or claw within said chamber, and a yielding support or spring for said wedge, constructed, arranged, and adapted to operate in connection with the end of a wire or rod, substantially as herein set forth.

2. In a wire or rod coupling or connector, a double pointed or tapered box or frame having a triangular chamber or receptacle at either side a central partition or abutment wall, an inlet opening or orifice at either end, a side opening or openings for both said chambers, a lid or plate covering said side openings, and wedges or claws suitably mounted within said chambers, substantially as and for the purpose herein set forth.

492,302. VALVE-GEAR. DANIEL F. LEPLEY, Berlin, Pa. Filed Jan. 15, 1892. Serial No. 418,142. (No model.)

Claim.—1. In a valve gearing for engines, the combination with the engine slide valves and the driving crank wheels, of a crank pin plate or arm keyed to the crank pins, a cam plate pivotally mounted on said arm and provided with a working slot in one end, and a connecting rod or pitman working in said slot and connected with the slide valves, substantially as set forth.

2. In a valve gear for steam engines, the combination with the engine slide valves and the driving crank wheels, of a crank pin plate or arm keyed to the crank pins of said wheels and provided with a coupling pin or stud, a cam plate pivoted on said coupling pin or stud and provided at one end with a radial adjusting slot and at the other end with a straight working slot, and a connecting rod or pitman provided at one end with a pivoted crankbolt working in said straight slot and connected with said slide valves, substantially as set forth.



3. In a valve gear for steam engines, the combination with the slide valve stems and the driving crank wheels, of a crank pin plate or arm having a coupling pin or stud, a cam plate pivoted on said stud and provided at one end with a radial adjusting slot and at the other end with a straight working slot, a stud bolt engaging the crank pins and said radial slots, rock shafts connected with said valve stems, and a connecting rod or pitman provided at one end with a pivoted crank bolt working in said straight slot and connected with said rock shafts, substantially as set forth.

4. A valve gear for steam engines, the combination with the slide valve stems having guides heads and the driving crank wheels, of a radially adjustable cam plate connected with the crank pins of said wheels, rock shafts having guide heads, a connecting bar working in said guide heads, and a connecting rod or pitman connected with said cam plates and said rock shafts, substantially as set forth.

5. In a valve gear for steam engines, the combination with the driving crank wheels, of the slide valve stems having vertical block guide heads provided with traveling grooves or slots, an oscillating rock shaft provided with upwardly extending block guide heads having similar working grooves or slots, an adjustable support and guide, a connecting bar passing through said support and guide and provided at each end with sliding blocks working in the valve stem and rock shaft heads, and a connecting rod or pitman connected with said rock shaft and said driving crank wheels substantially as set forth.

6. In a valve gear for steam engines, the combination with the driving crank wheels, of the slide valve stems having grooved guide heads, rock shafts having upwardly extending guide heads, a connecting rod or pitman connected with said crank wheels and said rock shafts, a horizontal connecting bar working in said guide heads, and means for adjusting the position of said connecting bar by the steam pressure or the load upon the engine, substantially as set forth.

7. In a valve gear for steam engines, the combination with the driving crank wheels, of the slide valve stems having guide heads, rock shafts having guide heads, a connecting rod or pitman connected with said crank wheels and said rock shafts, vertically grooved guide standards, a sliding support and bearing block working in said grooved standards, a connecting bar working through said sliding blocks and at each end in the valve stem and rock shaft heads, and means for governing said sliding bearing and supporting blocks by the belt tension or steam pressure, substantially as set forth.

8. In a valve gear, for steam engines, the combination with the driving crank wheels, of the slide valve stems having guide heads, adjacent rock shafts having similar guide heads, a connecting rod or pitman connected with said crank wheels and said rock shafts, ver-

tically grooved guide standards, a sliding support and bearing block working in said grooved standards, connecting bars working through said sliding blocks and at each end in the valve stems and rock shaft heads, oscillating bell cranks journaled upon said standards and connected with said sliding blocks, and means for oscillating or governing said bell cranks by the driving belt tension and steam pressure, substantially as set forth.

9. In a valve gear for steam engines, the combination with the main driving belt, the driving crank wheels and slide valve stems, of valve motions connected with said crank wheels, a vertically adjustable connecting bar connecting said valve motions with the valve stems, a supporting frame, a swinging governor wheel or pulley suspended from said frame and normally bearing against the driving belt, a pressure cylinder, and a regulating plunger working in said cylinder and connected with said governor wheel or pulley and said connecting bars, substantially as set forth.

10. In a valve gear for steam engines, the combination with the main driving belt, the driving crank wheels, and slide valve stems, of a valve motion connected with said crank wheels, a vertically adjustable connecting bar connecting said valve motions with the valve stems, a supporting frame, a swinging governor wheel or pulley suspended from said frame and in contact with the driving belt, a pressure cylinder, a spring-actuated or regulated plunger working in said cylinder and connected with said governor pulley, and rocking bell cranks connected with said plunger and said adjustable connecting bars, substantially as set forth.

11. In a valve gear for steam engines, the combination with the main driving belt and slide valves, of a valve motions connected with said valves and provided with a vertically adjustable regulating connecting bar, a supporting frame, a guide wheel journaled in said frame and receiving the driving belt, a swinging governor wheel suspended from said frame and in contact with the driving belt below said guide wheel, a pressure cylinder suspended from said frame and connected with the opposite valve chambers, a spring regulated plunger working in said cylinder and connected with said swinging governor pulley, rocking bell cranks connected with said plunger, and supporting links connected with said bell crank and said vertically adjustable bars, substantially as set forth.

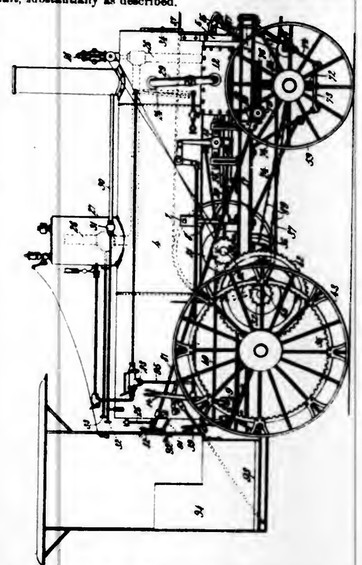
12. In a valve gear for steam engines, the combination with the main driving belt and slide valves, of the valve motions connected with said valves and provided with vertically adjustable valve regulating connecting bars, a sliding bearing and adjusting blocks receiving said connecting bars, a supporting frame, a guide wheel journaled in said frame and receiving the driving belt thereover, a swinging governor wheel suspended from said frame and in contact with the driving belt below said guide wheel, a pressure cylinder suspended from said frame and connected with the opposite valve chambers, a spring regulated plunger working in said cylinder and connected with said governor pulley, rocking bell crank connected with said plunger, and supporting links connected with said bell cranks and said sliding blocks, substantially as set forth.

492,308. TRACTION-ENGINE. GEORGE D. LOWRY, Wheeling, Mo. Filed Oct. 13, 1892. Serial No. 448,743. (No model.)

Claim.—1. In a traction engine, the combination of a frame composed of parallel channel bar irons having their forward portions converged at a point between the traction wheels and steering wheels to afford room for operating said steering wheels and having the rear portions of said channel bar irons dropped down to support the engineer's platform, cross-bars, straps or braces connecting said channel bar irons, an engine supported on the forward portion of said frame and having a crank shaft provided at one end with a belt pulley and at its other end with a spur pinion, means for shifting said pinion, a countershaft mounted on the frame and having pinions at each end geared with the traction wheels, differential or compensating gearing supported on the countershaft and comprising a spur gear with which the pinion on the engine shaft is adapted to be directly engaged, and a boiler supported above and independent of the engine on standards carried by the machine frame, substantially as described.

2. In a traction engine, the combination with the traction wheels having internal gears, and a frame composed of channel bar irons and provided with bearings or boxes for the axle of the traction wheels, of an engine having a crank shaft provided with a belt pulley at one end and having a spur pinion mounted on its other end, a countershaft supported in bearings or boxes carried by the frame, spur pinions mounted on the opposite ends of said countershaft and meshing with the internal gears of the traction wheels, and differential or compensating gearing mounted on the countershaft and comprising a spur gear with which the pinion on the engine crank shaft is adapted to be engaged, substantially as described.

3. In a traction engine, the combination with the traction wheels having internal gears, and an engine having a crank provided with a belt pulley at one end and having a spur pinion mounted on its other end, of a countershaft intermediate the said traction wheels and engine crank shaft, a spur pinion rigidly mounted on one end of said countershaft to mesh with the internal gear of one of the traction wheels, a spur pinion loosely mounted on the other end of said countershaft to mesh with the internal gear of the other traction wheel, said loosely mounted pinion being provided on one side with a disk having a series of recesses, a bevel gear loosely mounted on the countershaft and provided with a series of recesses registering with the recesses in said disk, springs located in said recesses, a bevel gear rigidly mounted on the countershaft, a spur gear loosely mounted on the hub of said rigidly mounted bevel gear and meshing with the pinion on the engine crank shaft, and a series of bevel pinions carried by said spur gear and meshing with the bevel gears on the countershaft, substantially as described.



4. In a traction engine, the combination with the traction wheels and the engine crank shaft having a spur pinion on one end, of a countershaft geared with the traction wheels, and a differential or compensating gearing mounted on said countershaft and comprising a spur gear meshed with the pinion on the engine crank shaft and springs located in recessed portions of the differential gearing, substantially as described.

5. In a traction engine, the combination of a frame composed of channel bar irons, a boiler supported on standards carried by said frame, braces depending from the forward portion of said frame, a bed or plate supported by said braces below the forward axle, a vertical screw spindle having its lower end stepped in said plate and its upper end journaled in a cross-bar of the frame, means for rotating said screw spindle, a box suspended in the central slotted portion of the forward axle and provided in its opposite sides with vertical recesses, an elongated nut or internally threaded sleeve located in said box surrounding the screw spindle and provided with a collar having check lugs engaged in the recesses of the box, a spring located in the box and surrounding the sleeve below its collar, and a ring cover for said box, substantially as described.

6. In a traction engine, the combination of a forward vertically slotted or divided axle, a frame having braces depending from its forward portion, a bed or plate supported by said braces, a vertical screw spindle stepped in said plate and having its upper end journaled in a cross bar of the frame, an oscillatory box suspended in the slotted portion of the axle and provided with internal vertical grooves or recesses, an elongated nut or internally threaded sleeve located in said box, surrounding the screw spindle and provided with a collar having check lugs engaged in the recesses of the box, a spring located in the box below the collar of the sleeve, a worm wheel secured to the screw spindle, a worm shaft, and bevel gearing for actuating said worm shaft from the rear end of the machine, substantially as described.

7. In a traction engine, the combination of a frame composed of parallel longitudinally arranged channel bar irons connected by cross bars or braces and having their forward ends contracted or converging, traction wheels secured to an axle journaled in bearings or boxes on the rear portion of said frame, a vertically slotted forward axle provided with steering wheels, braces depending from the forward portion of the frame a bed or plate supported by said braces below the forward axle, a vertical screw spindle stepped in said plate and having its upper end journaled in a cross bar of the frame, a nut or threaded sleeve for said spindle said sleeve having a collar provided with check lugs, a box surrounding said sleeve and provided with recesses to engage the said check lugs, a set screw to clamp the sleeve and box, means for rotating the screw spindle, and a boiler and an engine supported on the frame independently of each other, substantially as described.

8. In a traction engine, the combination with a frame and an engine supported on the forward portion of the frame, of a boiler supported above the engine on standards carried by said frame, and a governor located on the forward end of the boiler and controlling a valve in the steam pipe leading to the steam chest, whereby the supply of steam is controlled close to the cylinder and a multiplicity of angles avoided in the steam pipe, substantially as described.

9. In a traction engine, the combination of a frame composed of parallel longitudinally arranged channel bar irons connected by crossbars or braces and having their forward ends converged and their rear ends curved or dropped downward, a platform or cab supported on the rear ends of said bars or channel irons, water tanks located on said platform, an engine supported on the forward portion of the frame and having a crank shaft provided with a spur pinion geared directly to the spur wheel of differential gearing mounted on a countershaft that is carried by the frame and geared with the traction wheels, a boiler supported above the engine on standards carried by the frame, and leveling mechanism supported by braces and a bed plate depending from the forward portion of the frame below the axle of the steering wheels, substantially as described.

492,304. GUN-CASE. CHARLES H. MARKLE, St. Louis, Mo., assignor to the Simmons Hardware Company, same place. Filed July 18, 1892. Serial No. 440,531. (No model.)



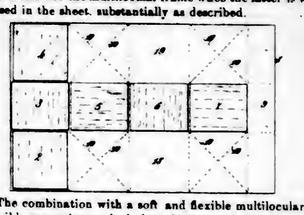
Claim.—1. The combination of a vertical shaft, a lower disk, secured to the shaft, having grooves in its upper face adapted to receive the butts of long guns, an intermediate disk, secured to the shaft, having grooves in its upper face adapted to receive the butts of short guns, and an upper disk secured to the shaft, having an inner series of holes adapted to receive the barrels of the short guns, and an outer series of holes adapted to receive the barrels of the long guns; substantially as described.

2. The combination of a vertical shaft, a lower disk adjustably secured to the shaft, having radial grooves in its upper face adapted to receive the butts of long guns, an intermediate disk, adjustably secured to the shaft, having radial grooves in its upper face adapted to receive the butts of the short guns, and an upper disk secured adjustably to the shaft, having an inner series of holes adapted to receive the barrels of the short guns, and an outer series of holes adapted to receive the barrels of the long guns, substantially as described.

492,305. BOTTLE PACKAGE OR PACKING-BOX. ALFRED H. MERER, Chatham, N. Y. Filed May 24, 1892. Serial No. 434,179. (No model.)

Claim.—1. A folding bottle package or packing box, consisting of a multilocular frame, and a wrapping or inclosing sheet having packing wall-sections secured thereto and constituting walls for all the sides of the multilocular frame when the latter is wrapped or inclosed in the sheet, substantially as described.

2. A folding bottle package or packing box, consisting of a multilocular frame, and a wrapping or inclosing sheet having cushioned wall sections cemented thereto and arranged to constitute walls for the several sides of the multilocular frame when the latter is wrapped or inclosed in the sheet, substantially as described.



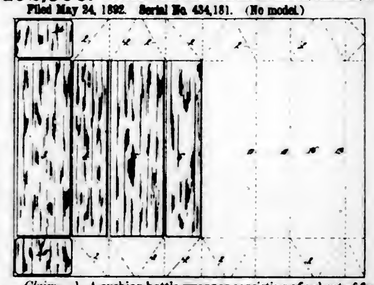
3. The combination with a soft and flexible multilocular frame, of a flexible wrapping or inclosing sheet provided with separated packing wall sections located in two rows or sets at right angles to each other to constitute walls for the several sides of the frame and close the outermost cells thereof when said frame is wrapped or inclosed in the flexible sheet, substantially as described.

4. The combination with a multilocular frame composed of interlocking stripe of flexible and elastic material, of a flexible wrapping or inclosing sheet having a row or set of soft flexible packing wall-sections extending along one edge or end portion and another row or set of similar packing wall sections along the median line of the sheet and terminating at a distance from the opposite edge or end thereof, said frame being adapted to be wrapped or inclosed in the sheet so that the soft flexible packing wall-sections thereon constitute walls for the several sides of the multilocular frame and close the outermost cells thereof, substantially as described.

5. The combination with a multilocular frame composed of soft flexible material, of a wrapping or inclosing sheet having a row or set of soft flexible packing wall sections along one edge or end portion and another row or set of like sections extending at right angles thereto, said wrapping or inclosing sheet having folded creases or lines and adapted to fold in against opposite wall-sections when the sheet is wrapped round the multilocular frame, substantially as described.

6. The combination with a multilocular frame, of a wrapping or inclosing sheet having two rows or sets of packing wall sections extending at right angles to each other to constitute walls for the several sides of the multilocular frame, when the latter is wrapped or inclosed in the sheet, said sheet having attached thereto at one edge or end a flap portion 9 and creased portions 10 at opposite sides of one of the rows or sets of wall-sections, substantially as described.

492,306. BOTTLE-WRAPPER. ALFRED H. MERER, Chatham, N. Y. Filed May 24, 1892. Serial No. 434,181. (No model.)



Claim.—1. A cushion bottle wrapper consisting of a sheet of flexible material, a series of packing sections of a length less than the width of the sheet and cemented throughout their extent thereto, each packing section being composed of two sheets of suitable material containing between them a series of flexible strips separated to provide intervening air spaces, and flexible cover and wall sections arranged at two corners of the flexible sheet, substantially as and for the purposes described.

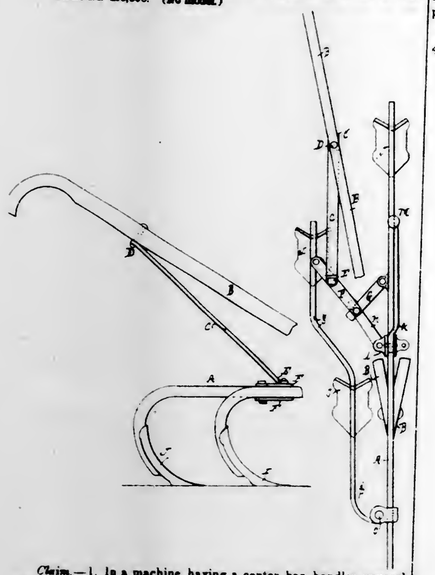
2. A cushion bottle wrapper composed of a sheet of paper or other flexible material, a series of imperforate packing sections cemented thereto and each composed of two layers or sheets of felt paper containing between them a series of parallel strips of felt paper separated

from each other to constitute air cushion spaces, said wrapper being flexible and elastic and possessing a soft and sponge-like nature, substantially as described.

3. A cushion bottle wrapper composed of a sheet of paper or other flexible material, a series of imperforate packing sections cemented thereto and each composed of two layers or sheets of felt paper containing between them a series of parallel strips of felt paper separated from each other to constitute intervening air cushion spaces, and cover and bottom packing sections arranged at two corners of the sheet and each composed of two layers or sheets of felt paper containing between them a series of parallel strips of felt paper separated to constitute intervening air spaces, substantially as described.

4. A cushion bottle wrapper composed of a sheet of paper or other flexible material having creased portions at opposite longitudinal margins, a series of packing sections cemented to the sheet between the creased margins and each composed of two layers or sheets of felt paper containing between them a series of strips of felt paper separated to constitute intervening air spaces, and packing cover and bottom sections arranged at two corners of the sheet in alignment with the creased margins and composed of soft and elastic material having a sponge-like nature, substantially as described.

492,307. CULTIVATOR. ELIJAH A. OVERSHIRE, Lansing, Mich., assignor to the E. Bement & Sons, of Michigan. Filed Mar. 29, 1892. Serial No. 426,898. (No model.)



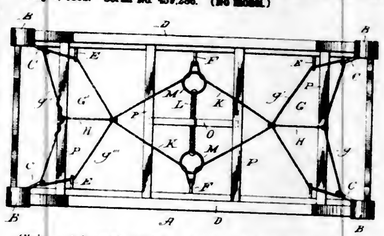
Claim.—1. In a machine having a center bar, handles secured thereto, and a side bar pivoted to the center bar and provided with means for moving said side bar, a rigid diagonal brace pivoted at one end to the handle, and at the other end to the side bar spreading mechanism, substantially as shown and described.

2. The combination with a center bar, handles secured thereto, a side bar pivoted to the center bar, and toggle joint mechanism connecting the center bar with the side bar for spreading the latter, of a rigid diagonal brace pivoted at its upper end to the handle and at its lower end to the toggle joint spreading mechanism, for bracing the toggle joint mechanism, substantially as and for the purposes described.

3. The combination with the center bar A, handles B secured thereto, side bars S pivoted to said center bar, toggle joint F, G, clip L and link H, of the brace C, pivoted at one end to handle B and at the other end to toggle joint arm F, substantially as shown and described.

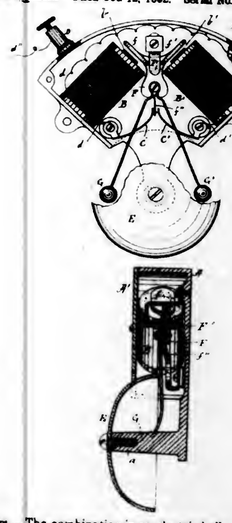
4. The combination of the center bar A, side bar S pivoted thereto, toggle joint F, G, connecting said center and side bar, a handle secured to said center bar, and a diagonal brace pivoted at one end to said handle and at the other end to said toggle joint, substantially as shown and described.

492,308. BED-BRACE. DAVID P. POOL, Georgetown, Tex. Filed July 7, 1892. Serial No. 439,286. (No model.)



Claim.—A brace for bedsteads comprising end-loops G G' adapted to engage hooks at the ends of the bedstead, fixed draw-wires H H' connecting the outer and inner sides of said end-loops, an intermediate or tension-loop K connected at its side angles to the side rails of the bedstead and at its end angles to the inner sides of the end-loops and the single tightening-link L having duplicate rings M, fitting to slide upon the side angles of the intermediate loop, and provided with a transverse twisting-bar, O, all arranged substantially as and for the purpose specified.

492,309. ELECTRIC-BELL ALARM. GUSTAF L. REENSTIERNA, Boston, Mass. Filed Oct. 12, 1892. Serial No. 448,644. (No model.)



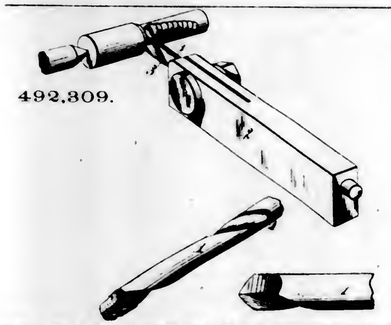
Claim.—The combination in an electric bell alarm, of the electro magnets B and B' arranged substantially at right angles to each other, an angular armature lever F pivoted between the electro magnets and provided with angularly arranged armatures *f* and *f'* extending in different directions and lying opposite the cores of the magnets, a hammer or striker connected with the armature lever below its pivot, spring electrodes C C, located below the armature lever and having free extremities, an electrode *f''* extending between the free extremities of the spring electrodes, and suitable electrical connections, substantially as and for the purpose described.

492,310. SURFACE-CUTTING TOOL. JAMES H. STEER, Canton, assignor of one-half to James W. Cole, Columbus, Ohio. Filed Apr. 21, 1892. Serial No. 430,043. (No model.)

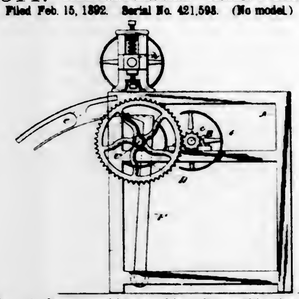
Claim.—1. A metal cutting tool provided with a single spiral groove terminating at one end in a cutting edge, said tool having a beveled clearance surface 9 for permitting lateral passage or movement of the cuttings, substantially as described.

2. A lathe turning or metal cutting tool having a single spiral groove 3 and provided at one extremity with oppositely beveled portions 7 and 8, a spiral cutting edge 12, and a longitudinally beveled upper clearance surface 9 for permitting lateral passage or movement of the turnings, substantially as described.

492,309.



492,311. STARCHING-MACHINE. CHARLES F. STONE, Chicago, Ill. Filed Feb. 15, 1892. Serial No. 421,598. (No model.)



Claim.—1. In a starching machine, the combination with the drive roller, and the starching roller corrugated at an angle to its plane of rotation journaled loosely in its bearings and arranged above the same, of the starching bed working between said rollers and having a range of movement beyond both of the same, whereby the relative position of the corrugations of the rod on the bed is changed and the bed is thrown out of operative position; substantially as described.

2. In a starching machine, the combination with the starching roller having a spirally corrugated surface, of the reciprocating starching bed having a range of movement beyond the roller, whereby the relative position of the corrugations and bed is changed; substantially as described.

3. In a starching machine, the combination with the corrugated starching roller, of a corrugated starching bed having the corrugations running at an angle to the corrugations in the roller; said roller and bed having a bodily reciprocation with relation to each other substantially as described.

4. In a starching machine, the combination with the corrugated starching roller, of an elastic corrugated starching bed having the corrugations running at an angle to the corrugations in the roller said roller and bed having a bodily reciprocation with relation to each other: substantially as described.

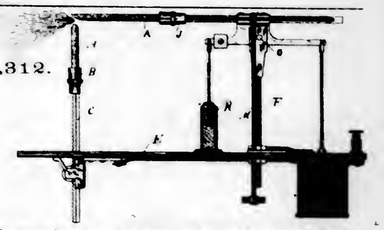
5. In a starching machine, the combination with the starching roll having surface corrugations running at an angle to its axis, of an elastic starching bed having surface corrugations parallel with the axis of the roller: substantially as described.

6. In a starching machine, the combination with the corrugated starching roller and bed, of the elastic pad on the bed corrugated transversely and having the raised margins closing the ends of the corrugations: substantially as described.

492,312. ELECTRIC-ARC LAMP. JOHN THOMPSON, New York, N. Y. Filed May 17, 1892. Serial No. 433,333. (No model.)

Claim.—1. In an arc lamp, a carbon holder and means for moving it longitudinally, combined with another carbon holder and its supporting rod or rack, a lever carrying said rod or rack and means for moving said carbon holder substantially parallel to said lever to feed the carbon forward, as specified.

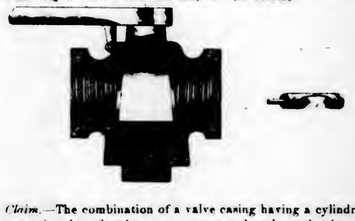
492,312.



2. In an arc lamp, a carbon holder and means for moving it longitudinally, combined with another carbon holder and its supporting rod or rack, said carbon holders extending at an angle to each other, a lever carrying said rod or rack and adapted to move the latter laterally, means for moving the carbon holder longitudinally, and a regulator connected with said lever for moving the latter to regulate the arc, substantially as specified.

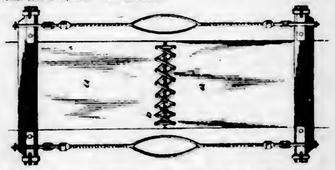
3. In an arc lamp a carbon holder and means for moving it longitudinally, combined with another carbon holder, its supporting rod or rack and means for moving the latter to feed a carbon, a lever extending substantially horizontal, said rod or rack being supported by and guided on said lever, a support and pivot for said lever, and a regulator for actuating said lever to move the carbon holder laterally to regulate the arc, substantially as described.

492,313. VALVE-LOCK. GEORGE M. TOWER, Fitchburg, Mass. Filed July 26, 1892. Serial No. 441,275. (No model.)



Claim.—The combination of a valve casing having a cylindrical transverse bearing chamber, open at one end and opening into the plug bearing of the casing near its upper end, a stop pin projecting inwardly into said bearing chamber near its closed end, the valve plug arranged within the casing and having near its upper end a rounded or concaved locking notch adapted to be aligned with and form a part of said bearing chamber when open, an oscillating cylindrical locking tumbler mounted for rotation in said transverse bearing chamber, and provided with a concaved recess in one side adapted to form a continuation of the plug bearing in the casing when the tumbler is turned in one direction, and also forming an opposite rounded locking portion adapted to register with the rounded locking notch in the valve plug when the tumbler is turned in the opposite direction, a semi-circular limiting slot near one end adapted to receive said inwardly projecting stop pin, and a squared key end, a perforated cap receiving said squared key end and closing the open end of the transverse bearing chamber, and a key adapted to engage said squared key end, substantially as set forth.

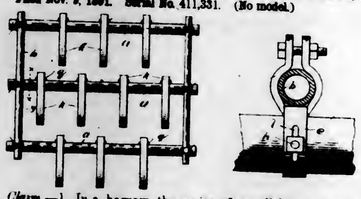
492,314. BELT-TIGHTENER. JOHN L. ULSH, Wabash, Ind., assignor of one-half to William P. Jones, same place. Filed May 19, 1892. Serial No. 433,624. (No model.)



Claim.—1. The tightener consisting of the clamps, each composed of two jaws pivoted or joined to open and close and having forwardly extending arms provided with links, and the threaded rods having the nuts provided with hooks to receive said links, and operate substantially as described.

2. In combination the jaws provided with the clevises and screws to clamp the jaws together, the rods secured to the jaws and loosely united at their rear ends to form hinges for the jaws and having the forward extensions provided with loose links, and the tightening rods provided with nuts to which said links are detachably secured.

492,315. HARROW. ESTINGER E. WHIPPLE, St. John's, Mich.
Filed Nov. 9, 1891. Serial No. 411,331. (No model.)



Claim.—1. In a harrow, the series of parallel transverse pipe tooth beams, the parallel coupling beams extending over and crossing the tooth beams, the harrow teeth secured to said tooth beams, and the double clips detachably clamping said beams together at the crossing points, each clip composed of two split rings one above the other, and a clamping bolt for each ring, as described.

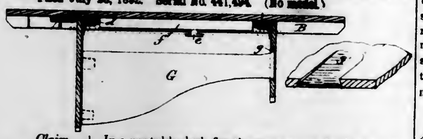
2. The harrow composed of crossing coupling and tooth beams, and the integral double clips detachably binding the same together, each clip composed of two expansible rings relatively rigid and split, respectively, at their upper and lower sides, and a clamping bolt for each ring to bind it on its respective beams, substantially as and for the purposes described.

3. In a harrow, the combination of the crossing tooth and coupling beams, harrow teeth, and the double clips detachably clamping said beams together, each clip composed of a split ring having separated ends, a bolt to draw the same to tightly clamp a coupling beam, and the lower ring and a bolt passed through the same and a toothed beam, substantially as described.

4. In a harrow, the combination of the crossing tooth and coupling beams, harrow teeth, and the double clips securing said beams together at their crossing points, each clip consisting of an upper ring provided with a clamping bolt, and a lower ring rigid with the upper ring and a bolt passed through a tooth and said ring, substantially as described.

5. A harrow comprising the crossing tooth and clamping beams, harrow teeth, and the double clips securing said beams together, each clip being secured at its upper end to a coupling beam and having a lower ring embracing a tooth beam provided with slotted sides, and a bolt passed through the tooth beam, and said slots, so that the tooth beam can be rocked and clamped in the desired adjustment, substantially as described.

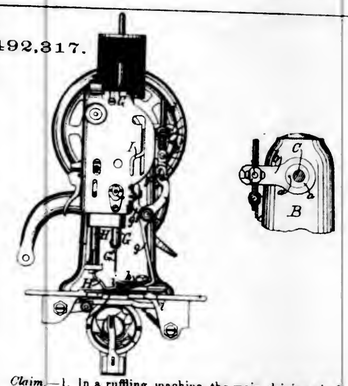
492,316. PORTABLE DESK. OLIVER H. WHITE, Fremont, Nebr.
Filed July 28, 1892. Serial No. 441,494. (No model.)



Claim.—1. In a portable desk for the purpose set forth, the combination of a top, transverse strips secured to the ends thereof, horizontal strips secured to the underside, a central divided strip carrying a button, and supports E and F of different widths hinged to the longitudinal strips, the button carried by the transverse strip being adapted to engage with both of said supports, substantially as shown, and for the purpose set forth.

2. As an improved article of manufacture, a portable desk constructed substantially as shown and provided with hinged supports, said supports being of different widths, one of the supports carrying a swinging arm which is adapted to engage with the opposite support to hold it at substantially right angles with the top, said supports being cut away centrally, a cross-bar carrying a button which is adapted to pass through the cut away portions and engage the supports, the top of the desk having an aperture to form a grasping portion, substantially as set forth.

492,317. RUFFLING ATTACHMENT FOR SEWING-MACHINES. LEMAN G. WISE, Spherville, assignor to Richardson, Howe & Lovejoy, Boston, Mass. Filed Mar. 5, 1892. Serial No. 423,882. (No model.)



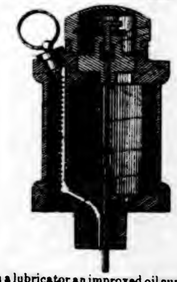
Claim.—1. In a ruffling machine, the main driving shaft C the eccentric *a* mounted thereon, the link *b* mounted upon said eccentric and operated thereby, the rock shaft *e* having bearings on the machine, the rod *d* mounted upon said rock shaft adjustably and pivotally attached to said link so as to rock said rock shaft by the rotation of the main driving shaft, the crank *f* on the rock shaft, the ruffling-blade-carrying lever *g* fulcrumed to the machine and operated by the crank *f*, and the ruffling blade *h* mounted upon the lever *g* all combined in the manner described and for the purpose set forth.

2. In a ruffling machine, a ruffling blade, a rock shaft, mechanism connecting the blade with the rock shaft, and a rod on the rock shaft, combined with an eccentric on the driving shaft driven thereby, and a link operated toward and from the driving shaft by the eccentric, to operate the ruffling blade, pivotally connected to the rod on the rock shaft, the pivotal connection between the link and rod being adjustable on the link toward and from the driving shaft, whereby the position of the ruffle formed and the position of the stitch in relation to the edge of the ruffle are adjusted, for the purpose set forth.

3. In a ruffling machine, a ruffling blade, a rock shaft, mechanism connecting the ruffling blade with the rock shaft and a rod on the rock shaft, combined with an eccentric on the driving shaft driven thereby, and a link operated toward and from the driving shaft by the eccentric to operate the ruffling blade, pivotally connected to the rod on the rock shaft, the pivotal connection between the link and rod being capable of two adjustments, one upon the rod toward and from the rock shaft whereby the size of the ruffle formed is adjusted, and the other upon the link toward and from the driving shaft whereby the position of the ruffle, and the stitches in relation to the edge of the ruffle are adjusted, for the purpose set forth.

4. In a ruffling machine, the combination, with an upper ruffling blade, a rock shaft on the machine, connecting mechanism between said ruffling blade and shaft, a rod on the rock shaft, a block on said rod, an eccentric on the driving shaft and driven thereby and a link mounted on said eccentric, of a sleeve adjustable within a slot on said link and pivotally connecting said link with said rod whereby the position of the upper ruffling blade is adjustable in relation to the needle bar of the machine, for the purpose set forth.

492,318. OIL-CUP. JOHN U. ZURLINDEN, Billings, Mont. Filed Oct. 29, 1890. Serial No. 369,760. (No model.)



Claim.—1. In a lubricator an improved oil cup having an auxiliary oil feed passage passing through the side and shanks of the same, said passage having an opening intermediate its ends and a removable plug for closing the same, substantially as shown and described.

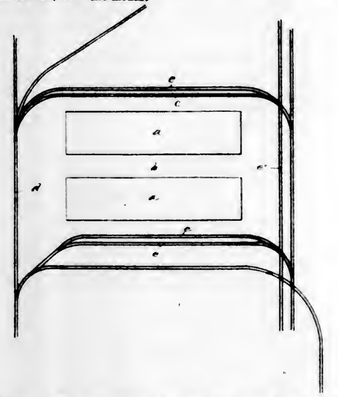
2. The combination with an oil cup having an auxiliary passage which is provided with an opening intermediate its ends, of a removable plug inserted in said opening and a spring actuated plug adapted to fit the upper end of the passage, substantially as shown and described.

3. The combination with an oil cup having an auxiliary oil feed passage which is provided with an opening intermediate its ends, of a removable plug inserted in said opening, a plug adapted to fit the upper end of the passage and a spring arranged in the passage and connecting the plugs, substantially as shown and described.

4. The combination with an oil cup having a passage in its shank, of a reversible reciprocating plunger rod arranged in said passage, said rod being reduced for one half its length and the valve disks arranged upon said rod, substantially as shown and described.

5. The combination with the oil cup having a passage in its shank, the reversible reciprocating plunger rod, arranged in said passage and provided with valve disks, the partition having a tubular guide and the regulator screw all arranged substantially as shown and described.

492,319. SYSTEM OF TRACKS FOR TRANSFERRING COTTON-BALES. WILL W. HIRON, Montgomery, Ala. Filed June 6, 1892. Serial No. 435,771. (No model.)



Claim.—1. In combination, the warehouses, the four main line tracks passing in proximity thereto, and the two branch line tracks connected with all of the main line tracks and passing along the outer sides of the warehouses and provided with the relief tracks.

2. The combination of two parallel warehouses, a gangway between said warehouses, railroad tracks extending parallel with the outer sides of said warehouses for the purpose mentioned, each of such tracks having a relief track as set forth, parallel therewith and of the same length as or greater length than the warehouses, as shown.

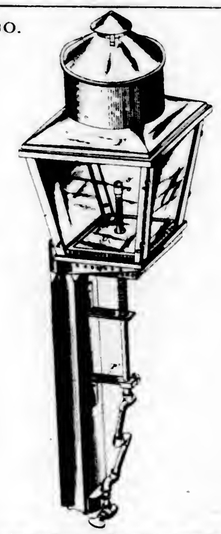
3. In combination, warehouses, railroad tracks on opposite ends of the warehouses, a branch track connecting said railroad tracks and located close to and parallel with one side of one of the warehouses, said branch track having a relief track parallel therewith and of the same or greater length than the warehouses, substantially as described.

492,320. STREET-LAMP. CHARLES W. BODKIN, Celina, Ohio, assignor of one-half to George H. Houser, same place. Filed Aug. 20, 1892. Serial No. 443,624. (No model.)

Claim.—1. In a street lamp, the combination with the frame, of a vertical chimney extending downwardly below the roof of the frame, and provided with vent perforations, and the removable cap fitting in the upper end of the chimney and provided with a conical cover and a subjacent, inverted conical deflector, having a peripheral air-passage, substantially as specified.

2. In a street lamp, the combination with the frame, having a vertical ventilating chimney provided at its top with a peripheral series of perforations, of a removable cap fitting in the upper end of the chimney and consisting of a conical cover, having a depending perforated flange to fit in the chimney, and an inverted conical deflecting plate provided with a peripheral air-passage, substantially as specified.

3. In combination with a street lamp, the removable hollow floor or bottom, having perforate walls, and an imperforate guard-plate arranged above the floor or bottom, substantially as specified.



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4. In combination with a street lamp, the perforated floor or bottom fitting against a perforated off-set in the frame of the lamp, and an imperforate guard-plate carried by said floor or bottom and engaging a horizontal flange above the plane of the perforations in the off-set, substantially as specified.

5. In combination with a street lamp, the double floor or bottom provided with perforations and fitting against a perforated off-set in the frame of the lamp, and an imperforate guard plate arranged above the plane of the perforations in said off-set, substantially as specified.

6. In combination with a street lamp, having a fixed frame the relatively depressed floor or bottom, provided with a vertical spring-pressed operating rod, to normally hold the floor or bottom in its operating position, substantially as specified.

7. In a street lamp, the combination with a fixed frame, of a depressible, spring-actuated bottom or floor, a vertical tubular operating rod connected to said floor or bottom and extended above the same and provided with a burner-tip, and a flexible coupling connecting the lower end of the operating rod with the line pipe, substantially as specified.

8. In a street lamp, the combination with a fixed frame, of a depressible, spring-actuated floor or bottom, a tubular operating rod connected to said floor or bottom and extending through and above the plane thereof, and the flexible coupling R comprising jointed sections of pipe to connect the lower end of the tubular rod to the line pipe, substantially as specified

492,321. HANGING LAMP. JOSEPH R. BOHNER, Ansonia, Conn., assignor to Wallace & Sons, same place. Filed Apr. 2, 1892. Serial No. 427,564. (No model.)

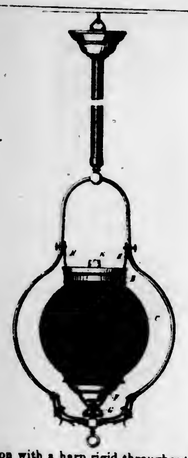
Claim.—1. In combination with a harp, of pendulum or hanging arms secured at their upper ends to the harp, and adapted to permit of a shade connected to their lower ends, moving in and out of the harp and to prevent it from swinging sidewise or laterally into contact with said harp, substantially as and for the purposes herein before set forth.

2. In combination with a lamp harp, of rigid or inflexible pendulum or hanging arms as herein before described, pivotally attached at their upper ends to said harp and secured at their lower ends to a shade supporting ring substantially as described.

3. In combination with a lamp harp, rigid from the fount support to a point above the shade ring connections, of stiff or inflexible pendulum shade ring supporting arms attached at their upper ends to the harp and connected at their lower ends to the shade ring, as set forth.

4. In combination with a harp, rigid from the fount to a point above the shade ring connections, of shade ring supporting arms secured at their upper ends to the harp and at their lower ends to the shade ring as set forth.

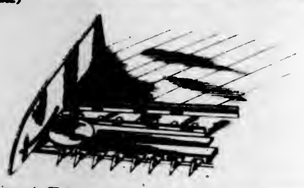
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5. In combination with a harp rigid throughout to the point of attachment to the ceiling, of suspending shade ring arms, whose upper ends are pivotally attached to the harp and lower ends connected with the shade supporting ring, as set forth.

6. In combination with a harp rigid throughout to the point of attachment to the ceiling, of rigid or inflexible hanging arms pivotally attached at their upper ends to the harp and secured at their lower ends to shade attachments, substantially as and for the purposes herein before set forth.

492,322. ENDLESS SICKLE FOR REAPERS. THEODORE H. BROWN, Viroqua, Wis. Filed Feb. 26, 1892. Serial No. 422,893. (No model.)



Claim.—1. The cutting apparatus for harvesters comprising an endless belt or band having a longitudinal row or series of perforations therein, means for carrying said belt, and a series of cutters having projections adapted to engage the perforations in the belt, and means for securing said cutters to the belt, substantially as set forth.

2. The cutting apparatus for harvesters, comprising an endless belt or band having a series of perforations and means for carrying the same, and a series of cutters secured to said belt at their forward ends and having projections engaging the perforations in said belt, substantially as set forth.

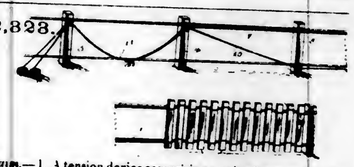
3. The cutting apparatus for harvesters comprising the endless band or belt and means for carrying the same said band or belt having the knives or cutters, each having an upturned portion or flange secured to said belt and equidistant, about, of said flange and its opposite edge, a projection adapted to be connected to said band or belt, substantially as specified.

4. The cutting apparatus for harvesters, comprising the endless steel band or belt and its carrying pulleys and cutters or knives each having a projection and a flange, the former entering an aperture in said band or belt and the latter having bolt connection therewith, substantially as set forth.

5. The cutting apparatus for harvesters, comprising an endless belt or band, and means for carrying the same, and a series of cutters each having a flange secured to said belt the flanges on alternate cutters being arranged at top and bottom respectively.

492,323. APPARATUS FOR WIRING WOOD FENCES. JAMES L. BUTLER, Huntley, N. C., assignor of two-thirds to George R. Butler and Samuel A. Howard, same place. Filed Sept. 30, 1892. Serial No. 447,390. (No model.)

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Claim.—1. A tension device comprising a pair of supporting posts, upper and lower pulleys arranged on the same, a lower tension wire passing under the lower pulley and over the upper pulleys and designed to form a continuation of a twisting wire, an upper tension wire passing over the upper pulleys and designed to form a continuation of an upper twisting wire, and weights suspended from the wires between the posts and loosely connected with the same, whereby the proper tension may be preserved without requiring a break in a wire, substantially as described.

2. A tension device comprising the supporting posts 3, 4 and 5, the lower pulley 16 arranged near the bottom of the post 3, the upper pulleys 12 and 13 mounted respectively on the posts 4 and 5 near the upper ends of the same, a lower tension wire passing under the lower pulley and over the upper pulleys, the upper tension wire passing over the upper pulleys, said tension wires being designed to form continuations of the twisting wires, and weights suspended from the tension wires and arranged between the posts 4 and 5, substantially as described.

492,324. RELOADER FOR CARTRIDGES. GEORGE W. CHAMBERS and BENJAMIN F. GRUVER, Bitter Water, Cal. Filed Jan. 18, 1892. Renewed Dec. 22, 1892. Serial No. 455,965. (No model.)



Claim.—1. The herein-described improved cartridge reloader, comprising the box or casing, the hoppers located at the upper portion thereof, the charge-plate located beneath said hoppers and having holes or openings therein, the guide-loop projecting from said charge-plate, the operating lever projected through and engaging said guide-loop, the spring-held plunger, the lever bearing thereon, the chute leading from beneath said charge-plate, and the cartridge holder, substantially as set forth.

2. The herein-described improved cartridge reloader, comprising the box or casing, the hoppers located at the upper portion thereof, the slides or cut-offs working in the lower ends of said hoppers, the circular charge-plate mounted beneath said hoppers and having holes or openings therein, the guide-loop adjustably secured to said charge-plate, the chute leading from beneath said charge-plate, the main operating lever connected to the pivot rod of said charge-plate and projected through said guide-loop, the spring-held plunger having a roller in its upper end, the second lever bearing thereon the shelf having guides for the wads, and the cartridge shell holder, substantially as set forth.

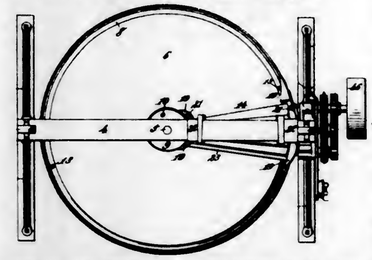
3. The combination with the box or casing, having a drawer, a shelf having an opening and guide-ribs for the wads, and the chute leading to said opening, of the hoppers and movable charge-plate, the plunger located over said opening, means for operating said plunger and charge-plate, and the cartridge shell holder located between said drawer and shelf and composed of two parts yieldingly connected together, substantially as set forth.

4. The combination in a cartridge reloader, of a box or casing having a drawer and an upper hole or opening, a holder composed of two parts, one of which is pivoted and has a cut-away portion in

which the other part fits, the yielding connection between said parts, the spring normally retaining said holder closed, and a finger pull attached to one of said parts of the holder, substantially as set forth.

5. The herein-described improved cartridge reloader consisting of the box or casing having a drawer and a hole or opening, a shelf provided with an opening and guide ribs converging thereto, a board or partition having holes or openings, a chute leading therefrom to said opening in said shelf, the hoppers secured to the top of said box and having slides or cut-offs, the circular charge-plate having holes or openings, the guide-loop projecting from said charge plate, the main operating lever extended through said guide-loop, the spring-held plunger having a roller, the bracket for said plunger, the second lever bearing on said roller, the holder composed of two parts yieldingly connected together, one of said parts being pivoted, the spring bearing against said holder and normally retaining the same closed, and the finger pull extending from one of said parts of the holder, substantially as set forth.

492,325. BUTTER-WORKER. PEARSON EMBREE, West Chester, Pa. Filed July 9, 1892. Serial No. 439,508. (No model.)

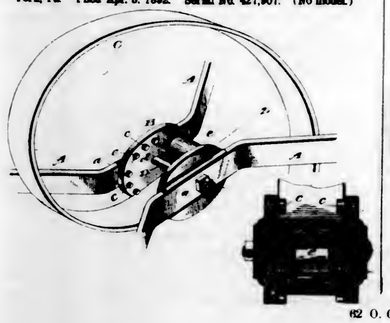


Claim.—1. The combination with the rotary table for supporting and carrying the butter to be worked, of the fluted conical roller having its shaft supported at its outer end in a vertically movable bearing, gearing connecting said table and roller and comprising chain wheels and a chain belt, and a sprocket-wheel belt-tightener engaged with said chain belt, substantially as described.

2. The combination of the rotary table for supporting and carrying the butter to be worked, the circular rack or gear secured to the under side of said table and provided with an annular horizontally projecting flange, a horizontal driving shaft having a spur gear meshing with said rack and provided with an anti-friction disk or roller of greater diameter than said gear and mounted on the outer side thereof in bearing contact with the annular flange on the outside of said circular rack, and a fluted conical roller arranged above the rotary table and having its shaft geared with the driving shaft of said table, substantially as described.

3. The combination with the rotary table for supporting and carrying the butter to be worked, the butter-working roller arranged above the table, and gearing connecting said table and roller, of a vertically adjustable shifting lever, a band pulley mounted on said shifting lever, and a gear carried by said band pulley and adapted to be engaged with the gearing that connects said rotary table and roller, substantially as described.

492,326. HOLDER FOR HARROW-TEETH. ARTHUR B. FARQUHAR, York, Pa. Filed Apr. 5, 1892. Serial No. 427,907. (No model.)



Claim.—The combination with the harrow frame of the cheek plates B having on their interior opposite faces each a lug *b* near one end, a series of projections *c* near the other end, and a bolt hole *d* intermediate of these points, the tooth having a hub or eye to engage said lugs *b*, and adjustable and extending between the selected ones of the oppositely arranged projections *c*, and the bolt passing through the frame and the bolt holes *d* of the cheek plates, and acting to draw and hold all of the parts firmly together as herein shown and described.

492,327. THILL-COUPLING. RICHARD FAWCETT, Salem, Ohio, assignor to William H. Clark, same place. Filed Nov. 19, 1891. Renewed Jan. 12, 1893. Serial No. 458,166. (No model.)

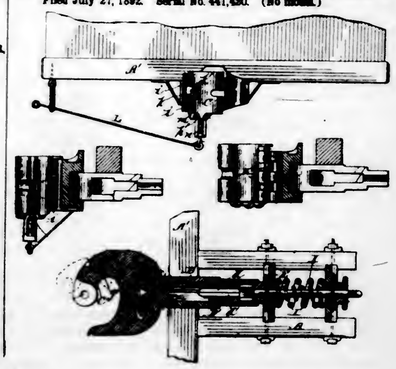


Claim.—1. In a thill coupling, the combination with a clip having projecting lugs or jaws provided with eyes, the eye of one lug being larger than the eye of the opposite lug, a coupling pin having an enlarged head, said head being seated in the enlarged eye and provided with a transverse groove in its outer end, of a locking bar mounted in a bearing parallel to the coupling pin and having one end bent at right angles and adapted to engage the groove in the head of the coupling pin and a spring controlling the longitudinal movement of the locking bar and normally holding its bent end in engagement with the coupling pin, substantially as shown and described.

2. In a thill coupling, the combination with a clip having projecting lugs or jaws provided with eyes, the eye of one lug being larger than the eye in the opposite lug, a thill iron having an eye, an adjustable washer arranged between the thill iron and lug having the enlarged eye, of a coupling pin having an enlarged head, said head being seated in the enlarged eye and adapted to engage the adjustable washer, a spring controlled locking bar mounted in a bearing in the clip and adapted to engage the enlarged head of the coupling pin and hold said pin in a locked position and cause the inner end of the head to engage the adjustable washer to effect an automatic adjustment of said washer, substantially as shown and described.

3. In a thill-coupling the combination with a clip having projecting lugs or jaws, having eyes, the eye of one lug being larger than the eye of the opposite lug, a casting D secured between said lugs and having a curved outer face, a recess E in one side of said casting, a sleeve or bearing H, passing through the clip and casting having an enlarged end provided with a longitudinal slot A, an adjustable washer G mounted on the sleeve or bearing H within the recess E, and a coupling pin C, having an enlarged head *c*, provided with a transverse groove c^4, of a locking bar mounted in the sleeve or bearing H and having a bent end i, and the spring K controlling the locking pin and holding the bent end of the same normally in engagement, with the head of the coupling pin, substantially as shown and described.

492,328. CAR-COUPLING. JAMES B. GRADGER, Franklin, N. Y. Filed July 27, 1892. Serial No. 441,420. (No model.)



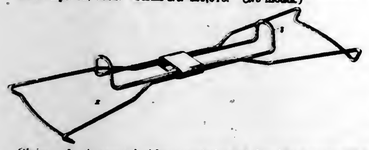
Claim.—1. The combination of the head, with the swinging and sliding coupling jaw, the said head and jaw being formed with notches and interlocking teeth, and the jaw with notches and interlocking teeth, and connected by a pivot pin and arranged to swing horizontally on said pin and slide up and down on the same substantially as described.

2. The combination with the notched and toothed head, and notched and toothed swinging and sliding coupling jaw, of the pivot pin and the lever frame piece provided with the locking pin, substantially as described.

3. The combination of the coupling head, divided shank provided with guides and connected to the head by knuckle joints and the tail pin having T-head, and suitable supporting irons, substantially as described.

4. The combination of the divided shank, the head having notches and interlocking teeth, the horizontally swinging and vertically sliding coupling jaw having notches and interlocking teeth, and the vertical pivot pin, substantially as and for the purpose described.

492,329. COVER-HOLDER. MARTHA A. GREEN, Montclair, Colo. Filed Apr. 19, 1892. Serial No. 429,818. (No model.)



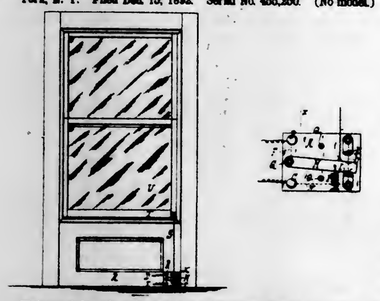
Claim.—1. A cover holder consisting of the similar sections sliding longitudinally upon each other and provided at their opposite ends with clamping jaws or portions adapted to fit over a cover and engage the sides of the vessel, and the sleeve securing the sections together, substantially as described.

2. A cover holder consisting of similar sections each constructed of a single piece of wire or similar material and provided at their opposite ends with clamping jaws or portions, and the sleeve surrounding the sides of the sections and enabling the latter to be adjusted longitudinally, substantially as described.

3. A cover holder comprising the two similar sections each constructed of a single piece of wire or similar material and provided at their opposite ends with clamping jaws or portions and converging from the clamping portions, and provided with parallel portions, and the sleeve surrounding the parallel portions, substantially as described.

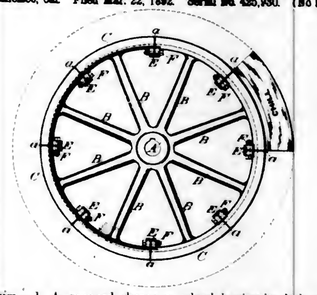
4. A cover holder comprising the two similar sections, each constructed of a single piece of wire or similar material and provided at their opposite ends with clamping jaws composed of the transverse bars and the inclined portions 7, said sections converging from the jaws and provided with parallel portions 10 and having their ends bent upward and forming handles, and the sleeve surrounding the parallel portions and securing the sections together, substantially as described.

492,330. ELECTRIC BURGLAR-ALARM. JULIUS KAESLER, New York, N. Y. Filed Dec. 15, 1892. Serial No. 455,260. (No model.)



Claim.—A burglar alarm for windows and doors, consisting of a flat base plate A provided with opposite contacts I and K, a swinging lever H pivoted at one end, movable in a plane parallel with the base plate and having its opposite end portion located between and adapted to make connection with the contacts on the base plate, a spring acting on the lever to move it in one direction, and a flexible thread S connected with the lever and adapted to be engaged with a window or door for sustaining the lever free from connection with the contacts on the base plate until said thread is tightened, or loosened or ruptured, substantially as described.

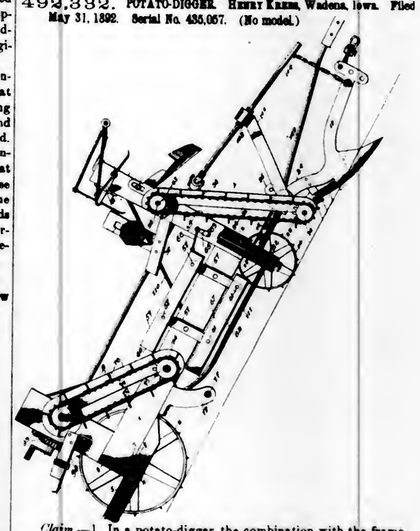
492,331. ROPE SHEAVE OR WHEEL. JAMES W. KERR, San Francisco, Cal. Filed Mar. 22, 1892. Serial No. 425,930. (No model.)



Claim.—1. A grooved sheave or wheel having its hub, spokes and rim formed integrally or in one piece and its rim chilled and severed radially between the spokes so as to permit contraction thereof, substantially as described.

2. A grooved sheave or wheel having its hub, spokes and rim formed in one piece and its rim chilled and severed radially between the spokes so as to permit contraction thereof, and lugs formed on the rim with bolts passed through the same to reinforce the rim to prevent flexure under heavy strain, substantially as described.

492,332. POTATO-DIGGER. HENRY KREBS, Wadena, Iowa. Filed May 31, 1892. Serial No. 435,057. (No model.)



Claim.—1. In a potato-digger, the combination with the framework, of the shovel located at the front end thereof, an elevator leading from the shovel, a spout below the elevator, a top-separating device located above and between the spout and elevator, a trough leading from the separating device to the side of the machine, a clod-crusher located in rear of the top-separator, a screen located in rear of the clod-crusher, and an endless carrier located in rear of the screen, substantially as specified.

2. In a potato-digger, the combination with the framework, the shovel located at the front end thereof, the standards rising from the front end of the frame, the spout extending rearwardly from the standards, of an elevator leading from the shovel to the spout, slotted standards mounted on the spout and provided with lateral flanges having perforations, boxes mounted in the slots, pins passed through the perforations and into the boxes, a shaft journaled in the boxes and provided with a roller, and delivery-devices leading from the spout, substantially as specified.

3. In a potato-digger, the combination with the framework, of a shovel at the front end of the same, an upper and lower screen mounted in the framework in rear of the shovel, and provided at their rear ends with discharges which are out of vertical alignment, the upper screen being provided with perforations larger than those of the lower screen and both screens being inclined, an elevator leading from the discharge in each screen and an elevator leading from the shovel to and above the front end of the upper screen, substantially as specified.

4. In a potato-digger, the combination with the framework and the shovel, the latter being located at the front end of the framework, of a pair of posts rising from the framework in rear of the shovel, an elevator leading from the shovel to a point between the posts, potato-delivering mechanism in rear of the elevator, an inverted U-shaped rigid frame mounted on the post, a crank shaft journaled in the posts above the upper end of the elevator, means for giving motion to the shaft, a series of pickers pivotally connected with the cranks of the shaft, connecting-rods between the upper ends of the pickers and the rigid U-shaped frame, and an inclined laterally-disposed discharge chute leading from the pickers, substantially as specified.

5. In a potato-digger, the combination with the framework, the front axle, and the bifurcated arms extending from the latter, of the shovel having rearwardly and forwardly-extending arms or beams, terminating in vertically-perforated heads, the heads of the rear arms taking between the bifurcations of the arms of the axle and adjustably connected thereto by bolts, a shackle adjustably connected by a bolt to the front arms, said shackle being provided with a transverse perforated draft-plate and a D adjustably mounted in the perforations of the plate, substantially as specified.

6. In a potato-digger, the combination with the framework, the front axle, the shovel having front and rearwardly extending beams, the latter being pivotally connected to the framework, of a bearing-bracket extending from the framework, a winding-shaft journaled in the bracket, a chain connected to the winding-shaft and to the front arms or beams of the shovel, a longitudinal shaft journaled in the framework, a gimbal-joint connection between the front end of the same and the rear end of the winding-shaft, means for locking the longitudinal shaft, and a crank for operating the same, substantially as specified.

7. In a potato-digger, the combination with the framework, the rear standard, the potato-harvesting mechanism, and an elevator terminating between the standards and leading from such mechanism, of an inclined plate, located in rear of the elevator between the standards, a pair of pivoted L-shaped flanges mounted on the plate and combining to form a spout, slots formed in the plate concentric with the pivots, and adjusting-bolts passed through the flanges and slots, substantially as specified.

492,333. SCREEN FOR PHOTOMECHANICAL PRINTING. LOUIS R. LEVY and MAX LEVY, Philadelphia, Pa.; said Louis R. Levy assignor to Max Levy. Filed Apr. 13, 1891. Serial No. 388,787. (No model.)



Claim.—1. A grating or screen for the purpose set forth, consisting of a glass plate having parallel linear depressions or furrows etched therein, the base or lower portion of said linear depressions or furrows being filled with an opaque paste to form lines, the portion of the linear depressions or furrows above the lines being filled with a medium having the same index of refraction as the glass, for the purpose set forth.

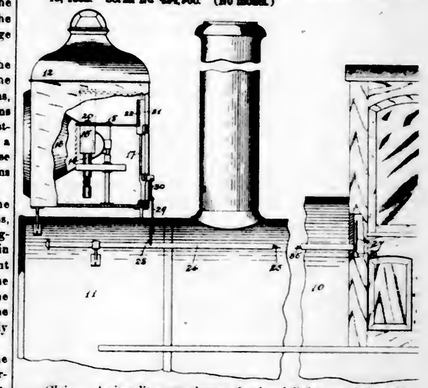
2. A grating or screen for the purpose set forth, consisting of two plates of glass each having parallel furrows, linear depressions or lines etched into one of its surfaces, the base portion of said furrows, linear depressions or lines being filled with opaque material, the lined glasses being cemented to each other, so that the lines will cross, by a substance having substantially the same index of refraction as the glass.

3. As an improved article of manufacture a grating or screen for photographic purposes in the production of half-tone plates, consisting of a plate of glass having parallel furrows, linear depressions or lines etched in one of the surfaces thereof, said furrows, linear depressions or lines being partially filled with an opaque material to form lines, the upper portion of said furrows, linear depressions or lines above the lines being filled with a covering of Canadian balsam, for the purpose set forth.

4. A grating or screen for photographic purposes in the production of half-tone plates, consisting of two plates of glass one having fine furrows linear depressions or lines in its surface, said furrows linear depressions or lines containing an opaque substance, the glass plates being cemented to each other to form one refracting medium with a ruling or network in its center, substantially as shown.

5. A grating or screen for photographic purposes in the production of half-tone plates, consisting of two plates of polished glass each having furrows linear depressions or lines etched into their faces, said furrows linear depressions or lines being partially filled with an opaque substance, the remaining portion of the furrows, linear depressions or lines being filled with Canada balsam, said plates being connected to each other so that the lined portions are adjacent to each other, for the purpose set forth.

492,334. SIGNAL ATTACHMENT FOR LOCOMOTIVE HEAD-LIGHTS. BENJAMIN H. MCCAIN, Des Moines, Iowa, assignor of two-thirds to James M. Pierce and Cicero Coomer, same place. Filed Mar. 15, 1892. Serial No. 424,960. (No model.)



Claim.—A signaling attachment for head lights consisting of a lamp a plurality of transluscent globes differing in color, a tubular and vertical supporting post positioned in the rear of the lamp, a vertical actuating rod disposed within the tubular post, which rod is adapted to be reciprocated vertically by connected mechanism leading to the engine cab, and is provided with a plurality of arms corresponding in number to the number of globes and each arm bearing one of the globes and which arms are adapted to be swung laterally by connections leading to said cab to bring any one of said globes vertically over the lamp, a seat formed on the upper end of the tubular post to hold the globes above the lamp and slots in said post which permit the lowering of the desired globe over the said lamp.

492,335. PHOTOGRAPHIC OBJECTIVE. ALBERT R. PARVIN, Philadelphia, Pa., assignor to Katie V. Parvin, same place. Filed Sept. 3, 1892. Serial No. 444,962. (No model.)



Claim.—1. A photographic objective comprising a tube provided with a compound convergent front lens and a single divergent rear lens, the construction being such that great depth of focus is obtained and enlargement of the image of a distant object insured in its transfer onto a sensitized film or plate, substantially as described.

2. A photographic objective comprising a non-extensible tube provided with a compound front lens and a single rear lens of different radii with respect to each other, substantially as and for the purposes described.

3. A photographic objective comprising a non-extensible tube provided with a detachable diaphragm or slide, a compound front lens of certain radii and a single rear lens of different radii, substantially as and for the purposes described.

4. A photographic objective comprising a non-extensible tube

provided with a removable perforated slide or diaphragm, a compound convergent front lens and a single divergent rear lens of different radii in respect to the faces or surfaces and of different focal length, whereby great magnification or enlargement of the image of a distant object is insured with characteristic sharpness of detail, substantially as described.

5. A photographic objective comprising a non-extensible tube provided with a detachable perforated slide or diaphragm, a single convexo-concave rear lens of certain radii as to inside and outside faces or surfaces and a compound front lens of certain radii as to inside and outside faces or surfaces, substantially as and for the purposes described.

6. A photographic objective comprising a non-extensible tube provided with a compound front convergent lens and a single divergent lens respectively of different focal length, substantially as and for the purposes set forth.

7. A photographic objective comprising a non-extensible tube with a detachable perforated diaphragm, a compound front lens and a periscopic rear lens, substantially as and for the purposes described.

8. A photographic objective comprising a non-extensible tube provided with a compound front lens of certain radii and a single rear lens of certain radii and the length of the tube being proportional to the diameters of the respective lenses, substantially as and for the purposes described.

9. A photographic objective comprising a non-extensible tube provided with a compound concavo-convex convergent front lens, and a single convexo-concave divergent rear lens, substantially as and for the purposes set forth.

10. A photographic objective comprising a non-extensible tube having a compound front convex-concavo lens and a single periscopic rear lens, the arrangement being such that great depth of focus is obtained and the transfer of the image of distant objects embraced within the field to a sensitized film or plate is insured with great magnification and with characteristic sharpness of detail, substantially as described.

492,386. PENCIL-SHARPENER. WILLIAM G. PRIOR, Waterbury, Conn. Filed Aug. 6, 1892. Serial No. 442,356. (No model.)

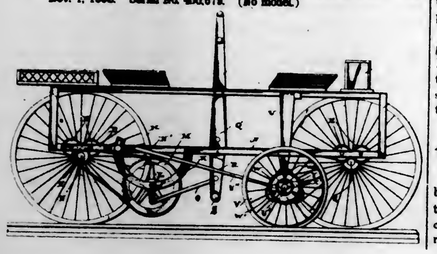


Claim.—1. The rotary hollow grinder, the inner surface of its rim serving for grinding off the lead points of pencils, in combination with a conical sharpener for cutting away the wood of pencils, and with a frame having a conical holder which revolves in the shaft of the grinder, whereby the wood of the pencil can be first cut to the proper shape, and then the lead can be ground to the desired shape, substantially as described.

2. The rotary hollow grinder, the inner surface of its rim serving for grinding off the lead of pencils, in combination with the conical sharpener for cutting off the wood of pencils, a conical pencil holder and the pencil inserted into the holder, and a bracket frame to which both the sharpener E and the conical holder are applied; whereby the pencil can be used as a crank arm and made to move around inside the hollow emery wheel, substantially as described.

3. The combination of the rotary hollow rotary grinder having a shaft, the bracket frame forming bearings for the shaft which allow the shaft to rise and descend, the spring, the conical sharpener for cutting away the wood, and the device for supporting the pencil during the pointing of its lead; whereby the emery grinder and its shaft can adjust themselves to the size of the lead of the pencils, substantially as described.

492,387. HAND-CAR. WILLIAM RANDOLPH, Ashton, Nebr. Filed Nov. 1, 1892. Serial No. 450,679. (No model.)



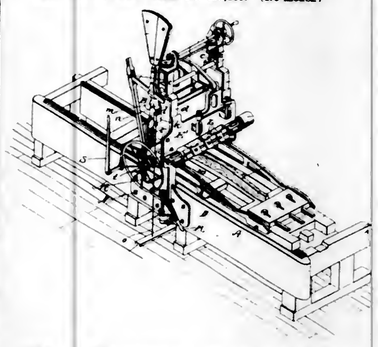
Claim.—1. In a hand car the combination of a rectangular frame having separated sides, friction rollers journaled to the lower edges of said sides, drive wheels having projecting shafts upon which the said rollers bear, a means for operating the said wheels which run on one track, and an off wheel for the other track which is suitably connected to said frame, substantially as shown and described.

2. In a hand car, the combination of a frame having separated sides, brackets D, secured to the lower portions thereof, friction rollers journaled between the said brackets and the sides, two drive wheels running on a single track which have projecting shafts upon which the said rollers bear, a means for imparting motion to one of said wheels, and an off wheel for the other track which is suitably connected to the frame, substantially as shown and described.

3. In a hand car, the combination of a frame, wheels journaled in succession therein, a means for actuating the same, an arm extending outward from the frame carrying a spindle, plates through which the said spindle extends and which form the center of a wheel for balancing the frame, friction rollers journaled between the said plates and which bear on the said spindle, and a means for confining the said wheel on the spindle, substantially as shown and described.

4. In a hand car, the combination of a frame, wheels journaled in succession therein which tread the same track, a means for setting in motion the said wheels, an arm extending outward from the frame carrying a spindle, a wheel mounted thereon, circular plates forming the center of the wheel, friction rollers journaled between the said plates and which bear on the spindle, a washer adapted to fit over said spindle and into a depression formed in the face of the outer plate, and a pin extending through the spindle for holding the washer in place, substantially as shown and described.

492,388. PLANER FOR PLOW-BEAMS. GEORGE W. REAM, Canton, Ohio, assignor to the Bucher & Gibbs Plow Company, same place. Filed June 27, 1892. Serial No. 438,185. (No model.)



Claim.—1. The combination with bed D, table C, and upright frame B, of the cross heads E and E', cutter heads F and F', journaled to said cross head, rock shaft *d* walking beam G, the ends of which have a link connection with the cross head, a weight K, and means for rocking said beam and weight to raise and lower the cutter heads, substantially as described and for the purpose set forth.

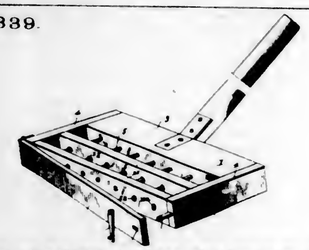
2. The combination with the bed D, table C, and upright frame B of a hand wheel having a geared engagement with a rack having a link connection with a rock shaft supporting a walking beam, the two ends of which have a link connection with cross heads E and E' which support cutter heads F and F' guides D, and the weight K, by which the cutters are held to the guide, substantially as described and for the purpose set forth.

3. The combination in a planing machine for plow beams, of a guide pattern to conform to the desired form of beam, the cutter heads F and F', a working beam to which the cutter heads are suspended, the weight K to hold the cutter heads to the pattern, the swinging segment *n* locking bolt *l* and pedal L, substantially as described and for the purpose set forth.

492,389. MOP. JOHN T. SATTERWHITE, Five Points, Ala. Filed Aug. 10, 1892. Serial No. 442,712. (No model.)

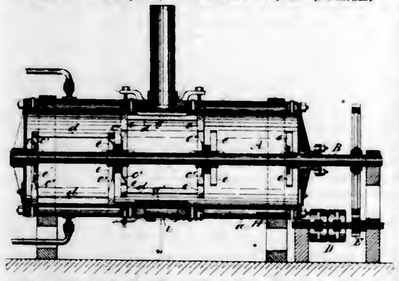
Claim.—In a mop, the combination of a transverse solid head or block 3, and a handle rigidly secured thereto, the series of horizontally-disposed pointed rods or spikes secured rigidly to the said head or block, side-bars 4 secured to the said head or block, the series of removable tension-bars provided with aligned perforations to receive

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the spikes or rods, said tension-bars being guided between the side-bars and held against longitudinal displacement thereby, and the clamping-bar 6 hinged at one end to the front end of one of the side-bars and provided with a lock or catch at the opposite end to removably engage a corresponding device at the front end of the opposite side-bar and operating in a horizontal plane, the said mop being adapted to removably receive mopping material that is strung on the said rods or spikes and held firmly in position by the tension-bars interposed between the same and the front clamping-bar, substantially as described.

492,340. DRIER. THEODORE SMITH and HENRY SMITH, Jersey City, N. J. Filed Apr. 23, 1892. Serial No. 430,312. (No model.)



Claim.—1. In a drier, the combination with a cylinder provided with a steam jacket and a longitudinal stirrer shaft rotatively mounted in said cylinder, of a stirrer mounted on said shaft, said stirrer being made up of sections having three blades each and divided by planes transversely of the shaft, the blades on the respective sections being arranged in different radial planes and adapted thereby to be brought into operation successively when the stirrer is rotated, substantially as set forth.

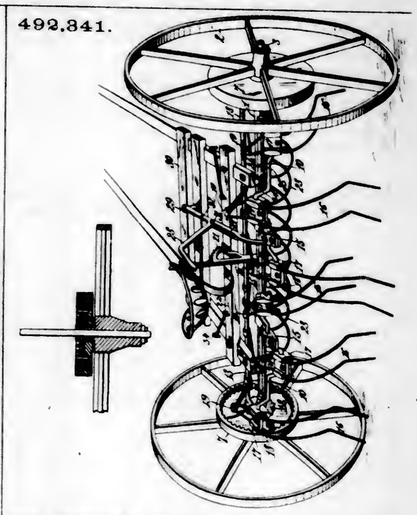
2. In a drier, the combination with a cylinder provided with a steam jacket and a stirrer shaft rotatively mounted in and extending longitudinally through said cylinder, of a stirrer fixed on said shaft, said stirrer being made up of sections, each of which comprises two three-armed spiders, and three stirring blades fixed to the arms of the spiders and arranged parallel to the shaft, the said stirrer sections being set on the shaft with the several stirring blades in different radial planes, whereby they come into play in regular order or succession, as the stirrer rotates, as set forth.

492,341. COMBINED HAY RAKE AND TEDDER. JAMES M. SPANGLER, Canton, Ohio. Filed Mar. 10, 1892. Serial No. 424,473. (No model.)

Claim.—1. The combination with an axle and traveling wheels loosely mounted thereon, of a hub 4 having an extension 5, a ratchet wheel mounted on the end of said extension, a propelling wheel 7, loosely mounted on the extension 5, detents 11, engaging the said ratchet wheel, a tedder shaft 10, and a pinion 9, secured to said tedder shaft and engaging the propelling wheel 7, substantially as described.

2. The combination with an axle and traveling wheels loosely mounted thereon, of a hub 4, having an extension 5, a ratchet wheel mounted on the end of said extension, a propelling wheel 7 having internal teeth loosely mounted on the extension 5, between the driving wheels and the ratchet wheel, detents 11, secured to the propelling wheel 7, and engaging the ratchet wheel, a tedder shaft 10, and a pinion 9, secured to said tedder shaft and engaging the propelling

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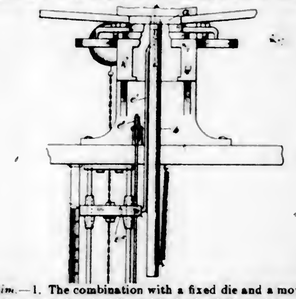


wheel 7, substantially as described.

3. The combination with an axle provided with traveling wheels, a hub 4 having an extension 5, a ratchet wheel mounted on the end of said extension, a propelling wheel 7, loosely mounted on the extension 5, detents 11 engaging said ratchet wheel, of a tedder shaft 10, a pinion 9 secured to said tedder shaft and engaging the propelling wheel 7, clamps 17, journaled on said tedder shaft, tedder forks passing through said clamps, a bar 13 attached to the axle, and links pivotally connected at one end with the bar 13 and at the other end with the rear ends of the forks 16, substantially as described.

4. In a combined hay rake and tedder, the combination of the axle 1, having loosely mounted thereon the traveling wheels 2, the hubs 4, provided with the extensions 5, the ratchet-wheel 7, fixed to the extension 5, the pinions 9, fixed to the shafts 10, the detents 11, the rod 24, having fixed thereto the rake teeth 23, the tedder forks 16, the clamps 17, links 19 journaled to the tedder shaft 10, and the operating levers 20, and 28, substantially as and for the purpose specified.

492,342. BLANK-CUTTING MACHINE. TRADDEUS F. TYLER, Lynn, Mass. Filed May 23, 1892. Serial No. 434,057. (No model.)



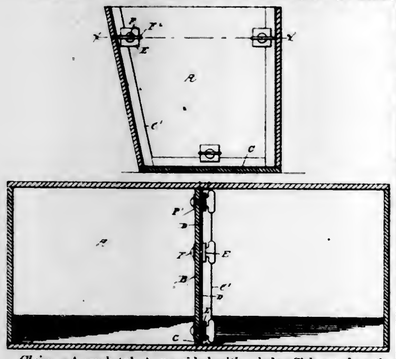
Claim.—1. The combination with a fixed die and a movable die, of a blank receptacle coinciding with the fixed die, and means for detachably connecting said receptacle with the fixed die, said means consisting of a seat to receive the upper end of the receptacle, and a yielding support for its lower end as set forth.

2. The combination with fixed die and a movable die of a blank receptacle having an opening in one side and coinciding with the fixed die and detachably connected therewith, a follower movable in said receptacle, said follower being supported on a rod having a bent portion extending through said opening, and a yielding support for said rod as set forth.

3. The combination with a fixed die and a movable die of a blank receptacle coinciding with the fixed die, a follower movable in said receptacle, a pointer movable with said follower, and a removable graduated plate co-operating with said pointer, as set forth.

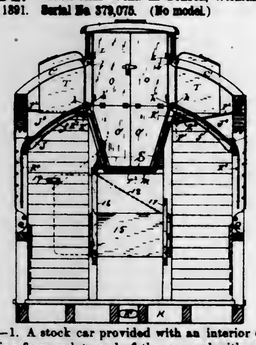
4. The combination of a fixed die and a movable die, of a blank receptacle coinciding with the fixed die, a follower movable in said receptacle, and a signal operated by said follower, said signal having a flexible connection with one end of a lever, the other end of which has a pivoted toe-piece located in the path of movement of a projection from the follower, as set forth.

492,343. WASHTUB. JOSE G. BADIA, New York, N. Y. Filed July 18, 1891. Renewed May 4, 1892. Serial No. 431,766. (No model.)



Claim.—A wash tub A, provided with a ledge C', located on the inner sides and bottom thereof, in combination with a partition B, the side edges whereof are adapted and arranged to loosely fit and to be engaged with the said ledge C'; and with an intermediate packing D; of the clamping devices consisting of the bolts F, washers F', adjustable nut F^3, and clamp plate E, whereby the partition, packing and ledge may be rigidly held together in a side bearing relation—the tight joint thus made being maintained whether the partition shrinks or swells—and whereby the parts may also be disengaged at will.

492,344. STOCK-CAR. JOHN M. BURTON, Wichita, Kans. Filed Jan. 26, 1891. Serial No. 379,075. (No model.)



Claim.—1. A stock car provided with an interior elevated runway extending from end to end of the car, and with a central deck extending above the roof proper thereof and forming the upper portion of said run-way, said deck being provided with side windows above said roof proper for illuminating said run-way, substantially as set forth.

2. A stock car having feed racks on opposite sides beneath the roof proper, an elevated run-way extending from end to end of the car and depending below said feed racks into the stock chamber and a central deck extending above the roof proper, and forming the upper portion of said run-way, said deck being provided with windows above said roof proper for illuminating said run-way, and said run-way having side openings into said feed racks, and side openings into the stock chamber.

3. A stock car having feed racks on opposite sides beneath the roof, and a central run-way extending longitudinally of the car between said feed racks, said run-way depending below said feed racks into the stock chamber and having side openings directly into said feed racks, and side openings directly into the stock chamber, substantially as set forth.

4. A stock car provided with a series of depending yokes connected with the roof of the car and extending into the stock chamber thereof, said yokes supporting a run-board at their bases, and forming a longitudinal run-way.

5. In the stock car described, the combination with the carlings of the side rack frame bars, fixed at their upper ends to the carlings and at their lower ends to the side walls of the car, the feed rack bars arranged to conform to the lower portion of said frame bars, and supported at their upper ends by means of said frame bars through the agency of longitudinally extended pipes supported by said bars, and at their lower ends by the side walls of the car, and the run-way yokes secured to and depending from said frame bars, substantially as set forth.

6. A stock car having extended fixed platforms at its opposite ends, an elevated interior run-board having fixed end extensions projecting beyond the end sheathings of the car over said platforms, a roof and side walls inclosing and connecting said platforms and run-board extensions, and yielding frames at opposite ends of said car serving as extensions of said side walls and as connections between cars.

7. A stock car having extended fixed platforms at its opposite ends, an elevated interior run-board having fixed end extensions projecting beyond the end sheathings of the car over said platforms, a roof and double side-walls inclosing and connecting said platforms and run-board extensions, yielding frames at opposite ends of said car sliding in the spaces between the double walls and serving as extension of said walls and as connections between cars, and springs for forcing said frames outward.

8. A stock car having an elevated run-way extending longitudinally through the car and projecting beyond the end sheathings thereof, a central deck extending above the roof proper and forming the upper portion of said run-way, said deck being provided with side windows above said roof proper for illuminating said run-way, end platforms, side walls inclosing and connecting said platforms and extended run-way, and yielding frames at opposite ends of the car serving as extensions of said side walls and adapted to serve as connections between cars.

9. In a stock car, the combination of an elevated water tank, a tilting watering trough, a pipe connecting said tank with said trough, a valve for controlling the supply of water through said pipe to said trough, mechanism for tilting said trough, a valve-actuating mechanism connected with said valve and an air cylinder provided with a piston connected with said trough-tilting and valve actuating mechanisms for operating them simultaneously to tilt said trough into position and supply water thereto, or to turn the trough out of position and shut off the water.

10. In a stock car, the combination of an elevated water tank, pivoted watering troughs disposed on opposite sides of the car, pipes connecting said tank with said troughs, valves for controlling the supply of water to said troughs through said pipes, mechanism for tilting said troughs into and out of position, mechanism for operating said valves, air-cylinders provided with pistons connected with the trough-tilting and valve-operating mechanisms, and means for supplying air to said air-cylinders.

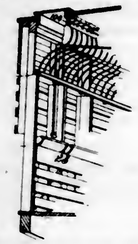
11. A stock train composed of a locomotive and two or more cars, each car being provided with an elevated water tank, pivoted watering troughs disposed on opposite sides of the car, pipes connecting said tank with said troughs, valves for controlling the flow of water from said tank to said troughs, mechanism for tilting said troughs into and out of position, valve-actuating mechanism connected with said valves, air cylinders provided with pistons connected with said trough-tilting and valve-actuating mechanisms, air pipes for supplying air to said air cylinders, flexible couplings connecting said air pipes between the cars and locomotive, and an air compressing apparatus on the locomotive connected with said air pipes, whereby the troughs throughout the train may by turned into position, and water supplied thereto or water shut off and said troughs tilted out of position by the action of the locomotive engineer.

492,345. STOCK-CAR. JOHN M. BURTON, Wichita, Kans. Filed Feb. 12, 1892. Serial No. 421,292. (No model.)

Claim.—1. The combination with the frame of a stock car, of a hay-rack, the inner side of which is of ogee form, being convex in its upper portion and concave in its lower portion, substantially as set forth

2. The combination of a stock-car frame whereof the side posts are provided with off-sets, an upper hayrack-rail attached to the carlings, a lower hayrack-rail resting on said off-sets flush with the inner faces of said post, and ogee bars spanning the space between said rails and forming the inner side of a hayrack which is convex in its upper portion and concave in its lower portion, substantially as set forth.

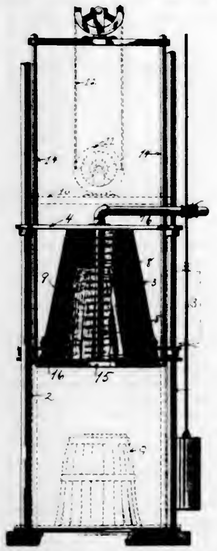
492,345.



3. In a stock car, the combination with the frame thereof, of an upper rail supported by the carlings and provided with a longitudinal groove, a lower rail provided with sockets and vertical curved bars supported in said rails and provided at their upper ends with lateral studs which rest in said groove and serve to lock the bars in position, substantially as set forth.

4. In a stock car the combination with the frame thereof of a hayrack comprising a grooved rail, a socketed rail, and curved bars supported in said rails and provided with lateral end studs engaging the grooved rail, substantially as set forth.

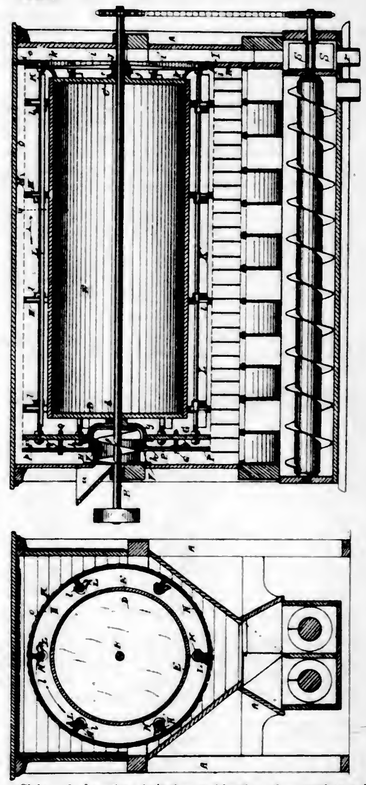
492,346. APPARATUS FOR STEAMING CASKS. JAMES M. CHAMBERS, St. Louis, Mo., assignor to the Chambers Patent Barrel Heater Company, same place. Filed May 20, 1892. Serial No. 433,711. (No model.)



Claim.—1. In an apparatus of the character described, a stationary steaming chamber, a vertically movable platform, a steam conduction pipe, means for raising and lowering said platform, an annular groove formed in the upper surface of said platform, all combined and operating substantially in the manner and for the purposes specified

2. In an apparatus for steaming casks, the combination with a stationary steaming chamber, a vertically movable platform for supporting the cask and raising it into the interior of the steaming chamber, and the means for raising and lowering the platform, of a steam conduction pipe protruding through the upper end of the steaming chamber and extending downwardly through the length of the same, said pipe being perforated throughout that portion of its length inside the steaming chamber and being closed at its lower end, and means for controlling the flow of steam therethrough, substantially as described.

492,347. FLOUR-BOLT. MYRON W. CLARK, Parma, Mich., assignor, by mesne assignments, of one-half to the Edward P. Allis & Company, Milwaukee, Wis. Filed Nov. 18, 1886. Serial No. 219,319. (No model.)



Claim.—1. In a flour bolt the combination of a rotating reel, a drum within the reel, a series of elevators carried by the reel, and movable relatively thereto, for the purpose of discharging material upon the drum substantially as set forth.

2. In a flour bolt, the combination of a rotating reel, a drum within the reel, a series of spirally adjustable elevators carried by the reel, substantially as set forth.

3. In a flour bolt, the combination of a rotating reel, a drum within a reel, and a series of elevators pivoted to the frame of the reel, and projecting toward the drum substantially as set forth.

4. In a flour bolt, a reel having two heads separately adjustable around the reel shaft, stay rods connecting with the reel heads, and elevators mounted on the stay rods, substantially as set forth.

5. In a flour bolt, the combination with the reel and the drum, of a series of elevators, and means substantially as described connecting the elevators with the reel, whereby, as the reel rotates, the edges of the elevators are moved away from the bolt cloth to permit material to pass between the elevators and the bolt cloth on the downward-moving side of the bolt, substantially as set forth.

6. The combination in a flour bolt, of a rotating reel, a smooth drum within the reel, and a series of intermediate tipping elevators.

7. The combination in a flour bolt, of a rotating reel, a smooth drum within the reel, and a series of intermediate elevators; the reel

and the drum being connected and moving as one.

8. In a flour bolt, the combination of a rotating reel, a smooth drum within the reel, and a series of spirally adjustable tipping elevators carried by the reel, substantially as set forth.

9. In a flour bolt, the combination of a rotating reel, a smooth drum within the reel, and a series of elevators pivoted to the frame of the reel and projecting toward the drum, substantially as set forth.

10. In a flour bolt, the combination of a bolting reel, and a smooth internal drum, a series of elevators, and means substantially as described, connecting the elevators with the reel, whereby as the reel rotates, the edges of the elevators are moved away from the cloth on the downward side of the bolt to permit material to pass between the elevators and the bolt cloth on the downward-moving side of the bolt, substantially as set forth.

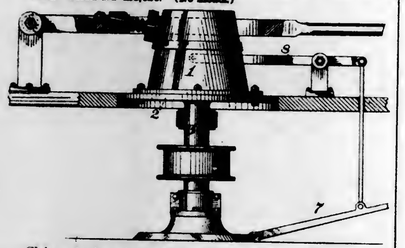
11. In a flour bolt, the combination of a rotatable reel, a drum within the reel, a series of elevators between the drum and reel, and swinging carriers for said elevators, provided with stops to limit their oscillation and the consequent movement of the elevators.

12. In a flour bolt, the combination of a rotatable reel, a drum within the reel, and a series of elevators between the reel and drum, adapted to be adjusted to and from lines parallel with the axis of the reel.

13. In a bolting reel, the combination of an external bolting cylinder, an internal drum, and tipping elevators between the bolting cylinder and the drum.

14. In a bolting reel, the combination of an external bolting cylinder, a smooth imperforate internal drum, and elevators between the reel and drum, said elevators being set away from the drum.

492,348. MANUFACTURE OF HOOPS. EDWARD J. COCHRAN, Pittsburg, Pa., assignor to William Garrett, Joliet, Ill. Filed Apr. 11, 1892. Serial No. 428,630. (No model.)

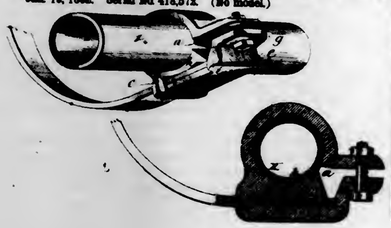


Claim.—1. As an improvement in the art of manufacturing hoops the method herein described, which consists in uniting the ends of a strip of metal, thereby forming a hoop of less diameter than desired in the finished article, and bringing the hoop to the desired size by stretching the metal thereof beyond its elastic limit, substantially as set forth.

2. As an improvement in the art of beveling hoops the method herein described, which consists in subjecting one edge of a hoop to a greater elongation or extension than the opposite edge, such stretching or elongation being sufficient to effect a set of the metal along the enlarged edge, substantially as set forth.

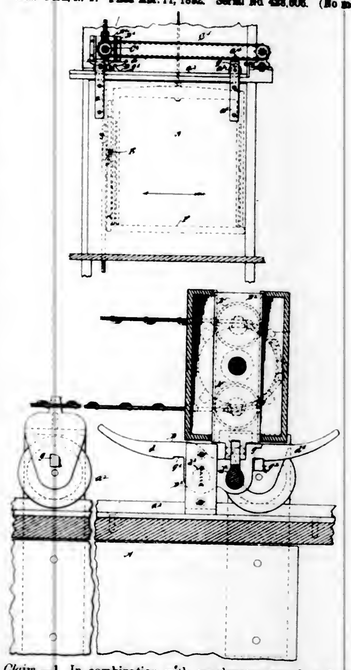
3. As an improvement in the art of manufacturing hoops, the method herein described which consists in stretching the metal of a hoop beyond its elastic limit, one edge being subjected to a greater elongation than the opposite edge and thereby beveling the hoop, substantially as set forth.

492,349. HOLDER FOR SPRING HARROW-TEETH. HENRY W. EBERHART, York, Pa., assignor to A. R. Parquhar, same place. Filed Jan. 19, 1892. Serial No. 418,572. (No model.)



Claim.—A holder for spring harrow teeth; consisting of the split clamping ring, the clamping plate fast at one end to the ring and having between it and the ring a socket to receive the end of a tooth, and means for drawing together the free end of the clamp plate and the opposite free end of the clamping ring, whereby at one and the same operation the tooth may be clamped to its holder and the holder itself may be clamped or closed upon its support, substantially as and for the purposes hereinbefore set forth.

492,350. ELEVATOR-GUARD. ABRAHAM ELLIOTT, Rochester, assignor to the Excelsior Elevator Guard and Hatch Cover Company, New York, N. Y. Filed Apr. 11, 1892. Serial No. 428,606. (No model.)



Claim.—1. In combination with an elevator guard or door, a vertical rotary shaft, clutch sections rigidly mounted thereon, clutch sections movable longitudinally on the shaft and constructed to engage with the first named clutch sections, connections between said clutch sections and the guard or door, and a lever, having the oppositely extending arms alternately engaged by the guard or door to disengage clutch sections, substantially as specified.

2. In combination with an elevator guard or door and a car, a vertical rotary shaft, clutch sections rigidly mounted thereon, clutch sections movable longitudinally on the shaft, a frame carrying the movable clutch sections, connections between said frame and the car whereby clutch sections are moved into engagement, a sprocket mechanism between the guard or door and clutch mechanism whereby the guard or door is operated, and a lever, having oppositely extending arms alternately engaged by the guard or door to disengage clutch sections, substantially as specified.

3. In combination with an elevator car and elevator shaft and a guard or door therefor, the vertical rotary shaft, clutch sections rigidly mounted thereon, clutch sections movable longitudinally on the shaft, a gear wheel on each of the movable clutch sections, a gear wheel meshing with the first named gear wheels, a chain operated by the last named gear wheel and having a connection with the guard or door, a lever, having the oppositely extending arms alternately engaged by the guard or door to disengage clutch sections, and a cam on the elevator operating to move clutch sections into engagement, substantially as specified.

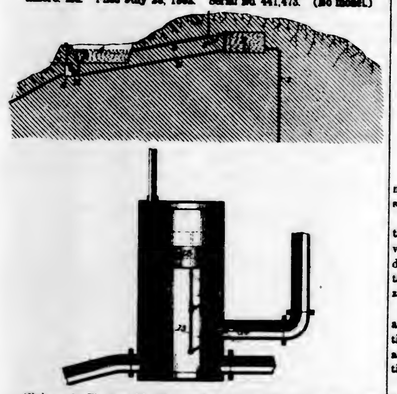
4. In an elevator shaft guard or door actuating mechanism, the

combination with a vertical rotary shaft, of a sprocket mechanism engaging the guard or door, clutch mechanism on the shaft operating the sprocket mechanism, a vertically movable frame carrying portions of the clutch mechanism, a cam carried by an elevator car, a push bar operated by the cam, a bell crank lever, and a link connection between the bell crank lever and the frame carrying the clutch mechanism, the said link comprising two sections and a cushion providing a yielding connection between the two sections, substantially as specified.

5. The combination with the elevator shaft guard or door, of the vertical rotary shaft, clutch mechanism substantially such as described, a sprocket mechanism between the clutch mechanism and guard or door, the lever D having the oppositely extending arms, and tappets carried by the guard or door for operating the lever to disengage clutch sections, substantially as specified.

6. In combination with the guard or door, the vertical rotary shaft and clutch mechanism, substantially such as described, of the sprocket mechanism engaging with the guard or door, tappets carried by the guard or door and the lever having the oppositely extending arms provided with the cam surfaces and having the notches with which the tappets may interlock, substantially as specified.

492,351. SYSTEM OF WATER-SUPPLY. CLAYTON R. EMIG, Baltimore, Md. Filed July 23, 1892. Serial No. 441,473. (No model.)



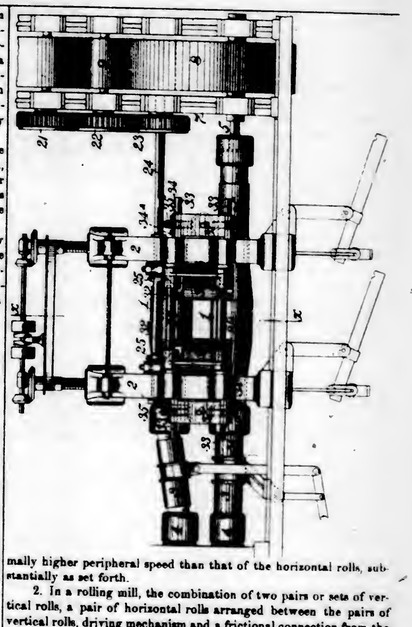
Claim.—1. The combination with a source of water supply, of a protected cold water storage reservoir, a surplus storage reservoir receiving the overflow from the cold water reservoir, a main connected to the cold water reservoir, a passage between the surplus storage reservoir and the main, and a valve controlled by a float in the cold water supply arranged to open said passage when the direct supply from the cold water reservoir is insufficient, substantially as described.

2. The combination with a source of water supply, of a tank 17 having a transverse partition 20 and a stand pipe extending upward from said partition, the portion below the partition being protected from heat and constituting a cold water storage reservoir and the other portion constituting a surplus storage reservoir, a supply main connected to the cold water reservoir and a valve controlled by a float in the cold water reservoir for putting the supply main in communication with the surplus storage reservoir when the cold water supply runs low, substantially as described.

3. The combination with a source of water supply, a tank 17 located partly under ground and having a transverse partition 20, a stand pipe extending upward from said partition, a check valve 22 and an automatically operated valve 11 at the bottom of the stand pipe and a main 3 communicating with the space below the partition, said space constituting a cold water reservoir while the space above the partition constitutes a storage reservoir, substantially as described.

492,352. ROLLING-MILL. FRANCIS I. FREEMAN, Pittsburg, Pa., assignor to the Totten & Hogg Iron and Steel Foundry Company, same place. Filed Apr. 23, 1892. Serial No. 430,212. (No model.)

Claim.—1. In a rolling mill the combination of a pair of horizontal rolls, a pair of vertical rolls, driving mechanism and a frictional connection for transmitting motion from the driving mechanism to the vertical rolls and constructed to drive the vertical rolls at a normally higher peripheral speed than that of the horizontal rolls, substantially as set forth.

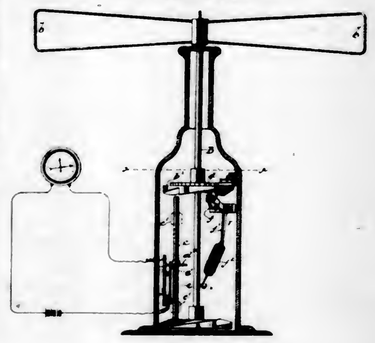


2. In a rolling mill, the combination of two pairs or sets of vertical rolls, a pair of horizontal rolls arranged between the pairs of vertical rolls, driving mechanism and a frictional connection from the driving mechanism to the vertical rolls, and adapted to drive the vertical rolls at a normally higher peripheral speed than that of the horizontal rolls, substantially as set forth.

3. In a rolling mill, the combination of a pair of horizontal rolls, a pair of vertical rolls and a frictional mechanism connecting the vertical and horizontal rolls, and constructed to drive the vertical rolls at a normally higher speed than that of the horizontal rolls, substantially as set forth.

4. In a rolling mill, the combination of two pairs of vertical rolls, a pair of horizontal rolls arranged between the pairs of vertical rolls and frictional mechanism connecting the vertical and horizontal rolls and constructed to drive both pairs of vertical rolls at the same peripheral speed, which is normally higher than that of the horizontal rolls, substantially as set forth.

492,353. REGISTERING-TURNSTILE. CLARENCE P. GOTT, New York, N. Y., assignor to himself and John C. Hays, same place. Filed Apr. 8, 1892. Serial No. 428,331. (No model.)



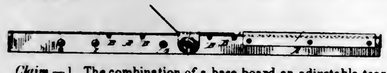
Claim.—1. In a turnstile, the combination of the main rotary shaft, two wheels thereon with ratchet teeth on their opposite faces and a rod or bolt reciprocating between the ratchets and actuated by one of them for the purpose set forth.

2. In a turnstile, the combination of the main rotary shaft, two wheels thereon with ratchet teeth on their opposite faces, and a rod or bolt reciprocating between the ratchets and actuated by one of them, the shoulders of the ratchets on the two wheels being located in alternate radial planes for the purpose set forth.

3. In a turnstile, the combination of the main rotary shaft, two ratchet wheels thereon, a rod or bolt reciprocating between the ratchets and actuated by one of them and a brake retarding the movement of the shaft for the purpose set forth.

4. In a turnstile, the combination of the main rotary shaft, two ratchet wheels thereon, a rod or bolt reciprocating between the ratchets and actuated by one of them and an electric circuit closer operated by the rod substantially as described.

492,354. FILM MEASURING AND CUTTING DEVICE. FREDERICK J. HARRISON, Brooklyn, assignor to the E. & H. T. Anthony & Company, New York, N. Y. Filed Oct. 8, 1892. Serial No. 448,373. (No model.)



Claim.—1. The combination of a base board an adjustable tearing piece and means upon the board to hold the tearing piece in defined positions, substantially as set forth.

2. The combination of a base board, an adjustable tearing piece and means upon the board to hold the tearing piece in defined positions, and a guide or guides to aid in determining the position of the paper, substantially as set forth.

3. The combination of a base board, an adjustable tearing piece and means upon it to hold the tearing piece in defined positions, and grooves across the base board which coincide in position with that of the edge of the tearing piece, substantially as set forth.

4. The combination of a base board, an adjustable tearing piece and means upon the board to hold the tearing piece in defined positions, and a yielding cloth like layer of material upon the face of the base board, substantially as set forth.

5. The combination of a base board, an adjustable tearing piece, means upon the board to hold the tearing piece in defined positions, a yielding cloth like layer of material upon the face of the base board, and grooves across the surface of the board and guides to aid in determining the location of the film, substantially as set forth.

492,355. MAGNETIC CORE FOR ARMATURES. THOMAS H. HICKS, Detroit, Mich. Filed Oct. 6, 1892. Serial No. 448,096. (No model.)



Claim.—1. The combination with an armature shaft, of an armature core constructed of cast metal and provided with outstanding collars at its ends, said core wound with magnetic wire, substantially as described.

2. The combination with an armature shaft, of an armature core cast thereupon and provided with outstanding collars at its ends, said core wound with magnetic wire, substantially as described.

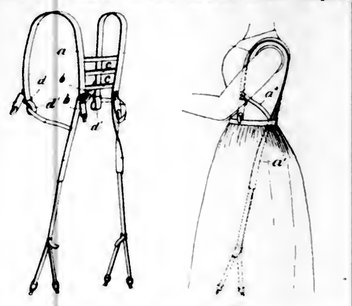
3. The combination with an armature shaft, of an armature core constructed of cast metal and provided with outstanding collars at its ends, said core wound with magnetic wire, said collars provided with pins to hold said wire, substantially as described.

4. The combination with an armature shaft, of an armature core constructed of cast metal and provided with outstanding collars at its ends, said core wound with magnetic wire, said collars constructed with sockets to receive pins F, substantially as described.

5. The combination with an armature shaft, of an armature core constructed of cast metal and provided with outstanding collars at its ends, and a winding of magnetic wire, said core turned up before the application of said wire thereupon, substantially as described.

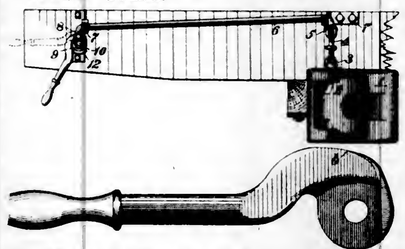
6. The combination with a shaft, of an armature core constructed of cast metal and provided with outstanding collars C C, and rusted iron wire E wound upon said core, substantially as described.

492,356. GARMENT-SUPPORTER. FLORENCE E. HOLT, Stoneham, Mass. Filed Nov. 30, 1892. Serial No. 453,614. (No model.)



Claim.—The improved garment-supporter hereinbefore described, comprising in its construction the straps *a a* formed to bear on the shoulders and back and connected by the transverse back straps *c*, the extensions *a' a'* extending diagonally downward from the rear ends of the straps *a a* and provided with stocking-supporters at their lower ends, the under-arm straps a^3 a^3 extending diagonally backward and downward from the forward ends of the straps *a* and attached to the extensions *a'*, and the skirt-supporting straps *b b b b* depending from the front and rear portions of the straps *a a* and provided at their lower ends with garment-engaging devices, as set forth.

492,357. CAR-COUPLING. WILLIAM KELSO, Pittsburg, Pa., assignor to William McConway, same place. Filed Dec. 1, 1892. Serial No. 453,721. (No model.)



Claim.—1. In an unlocking device for car couplers, the combination of a shaft provided at one end with an arm and having its opposite end connected to the locking device of the coupler, and an eccentric for raising the arm and thereby rotate the shaft to unlock the coupler, substantially as set forth.

2. In an unlocking device for car couplers, the combination of a shaft provided at one end with an arm and having its opposite end connected to the locking device of the coupler and an eccentric for raising said arm, said eccentric being constructed to bear upon the arm near its outer end in all positions thereof, substantially as set forth.

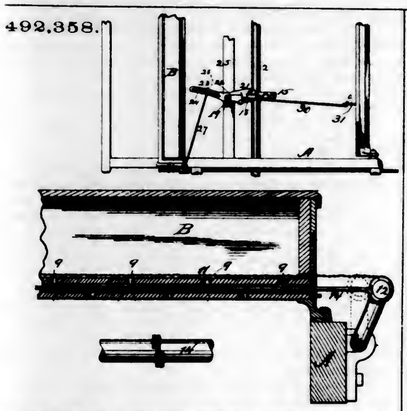
3. In an unlocking device for car couplers, the combination of a shaft provided at one end with an arm and having its opposite end connected to the locking device of the coupler and an eccentric for raising the arm and thereby rotate the shaft to unlock the coupler, the edge of the eccentric being inclined or beveled so as to provide a flat bearing for the arm, substantially as set forth.

4. In an unlocking device for car-couplers, the combination of a shaft provided at one end with an arm and having its opposite end connected to the locking device of the coupler, a loosely mounted eccentric for raising the arm, and a shoe forming a bearing for the eccentric and operative in connection with the arm on the shaft to hold the eccentric as against accidental displacement, substantially as set forth.

492,358. SEEDER. EDWIN D. MEAD, Phelps, N. Y., assignor to the Crown Manufacturing Company, of New York. Filed Sept. 12, 1892. Serial No. 445,600. (No model.)

Claim.—1. In a seeder, the combination with a rotating cam, of a vibrator consisting of a pivoted body, an arm having a friction roller, a swinging jaw having a friction roller, said rollers engaging

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with said cam, and a dog pivoted upon said vibrator locking said jaw in its engagement, and means to shift the dog and jaw out of such engagement.

2. A vibrator pivotally mounted, a cam engaging with one end of it, a dog pivoted upon said vibrator and locking it in such engagement, a gage scale upon its other end, a vibrating rod connected adjustably to the vibrator, and to a crank shaft, a crank-shaft, a stirrer and a feed rod connected thereto, and a perforated seed hopper receiving said stirrer and having a seed trough, perforated, and in which the feed rod reciprocates.

3. In a seeder a vibratory and rigid feed rod comprising a rod enlarged at intervals and having the intervening portions of normal size, in combination with the seed trough having its bottom perforated at intervals, and a feed box above it, having its bottom perforated in alternation with the perforations in said trough.

4. In a seeder, the combination with the rotating cam, of a pivotally mounted vibrator having an arm and a swinging jaw pivotally mounted on said arm, and rollers on said arm and jaw, detachably engaging with the faces of said cam.

5. In a seeder, the combination with the rotating cam, of a pivotally mounted vibrator having an arm and a swinging jaw pivotally mounted on one end, and a combined feed gage and scale upon the other end, and rollers upon said arm and jaw, detachably engaging with the faces of said cam.

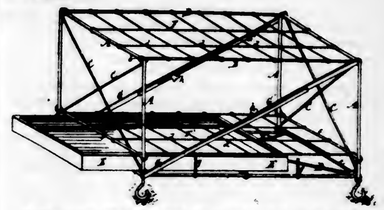
6. The combination with the pivotally mounted vibrator body having a feed gage and scale on one end, and an arm carrying a roller on the other end, of a jaw pivotally mounted upon said body and adapted to swing toward or away from said arm and provided with a roller.

7. The combination with the pivotally mounted vibrator body having a feed gage and scale on one end, and arm carrying a roller upon the other end, and a jaw pivoted upon said body and adapted to swing toward or away from said arm and provided with a roller, and a dog pivoted upon said jaw and detachably engaging with a shoulder upon said body.

8. The combination with the rotating cam, of a pivotally mounted vibrator having a combined feed gage and scale on one end, an arm on the other end, a jaw pivoted upon said body and adapted to swing thereon, rollers upon said arm and jaw, detachably engaging with said cam, and a dog pivoted upon said jaw and detachably engaging with a shoulder upon said vibrator body.

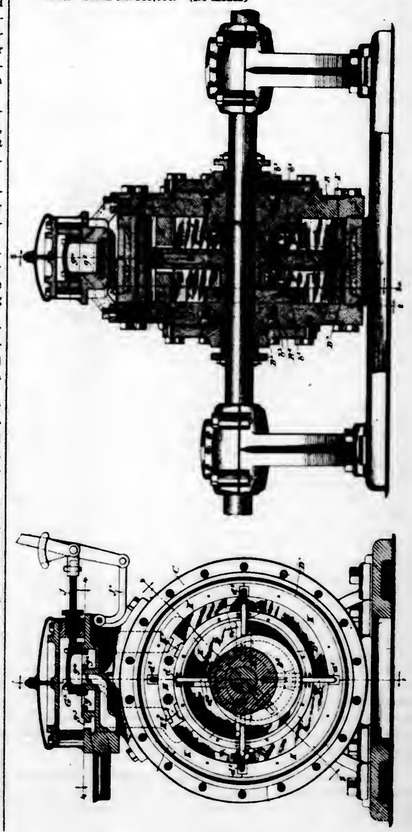
9. In a seeder, a vibratory and rigid free rod, comprising a rod enlarged at intervals, and having the intervening portions of normal size, in combination with a seed trough having its bottom perforated at intervals between which perforations said enlargements traverse.

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2. In a wire umbrella stand, the combination of the end pieces A A, the side wires B B' jointed thereto, the whole forming a frame which can be collapsed, the braces G G', each consisting of two bars provided with a set screw, said braces connected with the opposite end pieces A A respectively at top and bottom, a support in the bottom of the stand, a drip pan E fitted removably on said support, and two sets of cross wires F F', one at the top and the other at the bottom forming cells for supporting umbrellas above the drip pan, as herein shown and described.

492,360. ROTARY ENGINE. FREDERICK MEYER, JOSEPH S. KIEBEL, and ALEXANDER GRANT, Chicago, Ill., assignors to the Duplex Rotary Engine Company, same place. Filed Nov. 29, 1889. Renewed Mar. 16, 1891. Serial No. 385,166. (No model.)



492,359. UMBRELLA-STAND. HERMAN C. MERKER, Rochester, N. Y., assignor of one-half to Salter Brothers, same place. Filed May 6, 1891. Serial No. 391,800. (No model.)

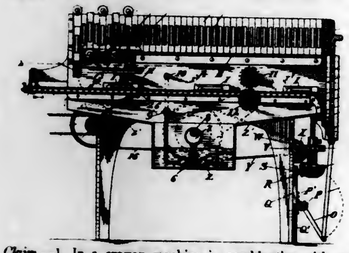
Claim.—1. In a wire umbrella stand, the combination, with the jointed frame, consisting of the end pieces A A, and side wires B B', of a support in the bottom of the stand, a drip pan E fitted removably on said support, and two sets of cross wires F F', one at the top and the other at the bottom, forming cells for supporting umbrellas above the drip pan, as shown and described and for the purpose specified.

Claim.—1. The duplex rotary engine described, consisting essentially of a stationary shell supporting fixed blocks from its opposite sides and also supporting interior cams, an axial, rotatable shaft, a disk mounted on said shaft, peripherally and laterally inclosed within the shell, and provided with separate, circular steam chambers, having independent inlet and exhaust ports and containing the fixed blocks, and sliding pistons operated by the cams, whereby said pistons are retracted to pass the fixed blocks and are advanced after passing the same, substantially as described.

2. The combination, with a stationary shell and a revoluble shaft concentric with said shell, of a circular disk concentrically mounted on said shaft within the shell and provided with concentric flanges, with an intermediate annular steam groove, and with radial piston slots extending into the outer flange, a stationary abutment supported by one side of the shell between the flanges of the disk, a fixed cam provided with an eccentric circular groove, and radially sliding pistons engaging said eccentric circular groove and adapted to be projected across the steam groove in the piston slots in the outer flange of the disk all constructed and arranged substantially as described, and shown.

3. The combination, with a stationary shell and revoluble shaft concentric with said shell, of a circular disk mounted on said shaft within the shell and provided with concentric flanges, with an intermediate annular steam groove, and with radial piston slots extending into the outer flange, a stationary abutment supported by one side of the shell between the flange of the disk, a fixed cam provided with an eccentric circular groove, and radially sliding pistons, adapted to be projected across the steam groove into the piston slots in the outer flange of the disk, and having pivoted shoes of an equal width throughout their length, said width being equal to the width of the groove, and having a curvature corresponding with that of the groove, so as to fill and fit the same all constructed and arranged substantially as described and shown.

492,361. MACHINE FOR MAKING SCHOOL-CRAYONS. LUTHER V. MOULTON, Grand Rapids, Mich., assignor to Fredrick R. Luce, Eugene Boise, and James R. Shelly, same place. Filed Sept. 12, 1892. Serial No. 445,683. (No model.)



Claim.—1. In a crayon machine in combination with vertical walls and a bed between the same, and molds adapted to move upon said bed, a ram sliding in loops attached to said walls, springs engaging said ram to move it back, and vertical shafts having cams engaging said ram to move it forward, and mechanism to rotate said shafts, substantially as described.

2. In combination with a bed plate and side walls and molds adapted to move upon said bed, vertical shafts having cams and sprocket wheels, and mechanism to rotate said shafts, a ram operated by said cams and engaging said molds at each stroke, chains beneath said bed moved by said sprocket wheels and adapted to move said molds from one of said bed to the other, and mechanism for placing a mold between said ram and the series of molds on the bed, substantially as described.

3 In combination with a bed and side walls, and a series of molds adapted to move over said bed and between said walls, vertical shafts having upper and lower cams and sprocket wheels, and mechanism to rotate said shafts, a ram operated by said upper cams, chains moved by said sprocket wheels and passing beneath said bed and along the inner surface of said walls, lugs on said chains, curved guides on said walls, near said sprocket wheels, a bar moving in vertical ways near said guides and engaging said molds, and pivoted levers connected to said bar and operated by said lower cams, substantially as described.

4. In a machine having a series of detached molds moving in succession over a fixed bed, chains moving beneath said bed, opposing lugs on said chains, curved guides and pockets near the end of said bed and a vertically movable bar adjacent to the same, engaging said molds, and mechanism to operate said bar, substantially as described.

5. The combination of side walls, and a bed shorter than said walls and between the same, and molds moving over said bed, and between said walls, having cogs, or reduced projections at each end, rolls arranged alternately above and below said molds, and projecting within the plane of the same, and strips on said walls engaging said projections on said molds, substantially as described.

6. In combination with a bed and side walls, and molds moving over said bed and between said walls and sprocket chains traversing the inner surface of said walls beneath said bed, arms pivoted to said walls and a bar pivoted to the movable ends of said arms, and a counterbalancing spring attached to said arms, substantially as described.

7. In combination with a series of molds and mechanism to move the same in series over a bed plate, sprocket chains to carry said molds from one end to the other of the series, lugs arranged in opposite pairs on said chains, and a drag pivoted above said chains at one side, and engaging said molds at the other side, substantially as described.

8. In combination with a series of molds, and mechanism to carry said molds in succession from one end of the series to the other, mechanism for cleaning said molds in transit, consisting of perforated pipes at each side of the path of said molds, and mechanism for forcing liquid into said pipes, and brushes at each side of and engaging said molds, substantially as described.

9. In combination with sprocket chains, and a series of molds supported and carried by said chains, a tank beneath the same a pump connected to said tank, perforated pipes above and below the path of said molds and connected to said pump, rotative brushes above and below the path of said molds and contacting the same, and mechanism for operating said pump and brushes, substantially as described.

10. In combination parallel sprocket chains, and molds carried by said chains, a fixed brush engaging said molds and brushes to clean the same, substantially as described.

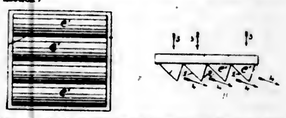
11. In combination with a fixed bed and detached molds to move over the same, a reciprocating ram at one end of said bed, movable chains beneath said bed, having opposing lugs engaging said molds, curved guides and pockets to receive said molds, a vertically reciprocating bar beneath said ram engaging and lifting said molds, perforated pipes and brushes above and below the path of said molds, a tank and pump connected with said pipes and mechanism for operating said ram, chains, reciprocating bar and pump, substantially as described.

492,362. PROCESS OF MAKING COLORED PICTURES ON TEXTILE FABRICS. ALOIS OPHOVEN, Paderborn, assignor to Charles Henry Samuel Schultz, Berlin, Germany. Filed Apr. 7, 1892. Serial No. 428,387. (No specimens.)

Claim.—1. The process of making colored pictures on textile fabrics, consisting in first photographing or printing a picture on a piece of textile fabric, next applying pastel or other suitable colors corresponding to the designs on the reverse side of the fabric and rubbing the same into the said fabric, and then mounting it upon a reflecting background or base substantially as described.

2. A picture formed on textile fabric having its colors rubbed in on the reverse side, and a reflecting background or base applied thereto, substantially as described.

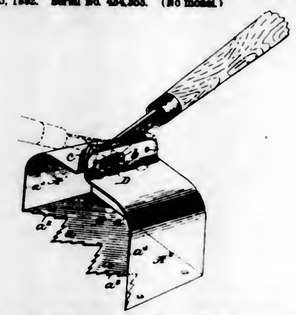
492,363. SKYLIGHT. JAMES G. PERRYGOICK, Boston, assignor to Clara G. Garland, Lowell, Mass. Filed Feb. 23, 1892. Serial No. 422,568. (No model.)



Claim.—1. A glass tile one side of which has a plane surface and the opposite side having a series of ribs or projections each forming an obtuse scalene triangle in cross section, one side of which projects at an angle of about forty-five degrees and the other side at an angle of about one hundred and five degrees from the plane of the top surface and a small plane surface extending entirely around the tile substantially as set forth.

2. A combined metal and glass tile consisting of a metal frame divided into a number of sections connected by rabbeted beads each section being fitted with a lens, plane on one side and on its opposite side having a series of ribs or projections each forming an obtuse scalene triangle in cross section, one side of which projects at an angle of about forty-five degrees and the other side at an angle of about one hundred and five degrees from the plane of the top surface substantially as and for the purposes set forth.

492,364. GARDEN-TOOL. MARION POWERS, Lexington, Ind. Filed May 25, 1892. Serial No. 434,353. (No model.)



Claim.—1. A garden tool comprising a main horizontal reversible blade having a straight cutting edge and a serrated-toothed edge and provided with vertically disposed side blades each having front and rear cutting edges; said side blades having their free ends turned inwardly and terminating centrally above the main blade in perforated plates or flanges, extending parallel with the side blades a reversible handle and means for adjustably securing the handle to said flanges, substantially as described.

2. A garden tool comprising a main horizontal reversible blade provided with vertically disposed side wings or blades each having front and rear cutting edges; said side blades having inturned portions, which terminate centrally of the main blade in upturned perforated plates or flanges which extend parallel with said side blades, together with the reversible handle having the shank with enlarged head provided with a series of perforations therein, to receive the fastening bolts for reversibly and adjustably securing said shank to said flanges, substantially as described.

3. A garden tool comprising a main horizontal blade having front and rear cutting edges, one edge being straight and the other provided with serrated teeth or cutters; said blade having side wings or blades formed with vertically disposed front and rear cutting edges and with inturned portions which terminate in upturned perforated plates or flanges for the attachment of a handle, together with a reversible handle and means for adjustably securing the latter to said flanges, substantially as described.

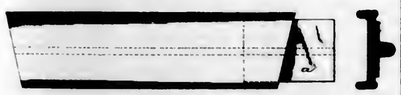
4. In a garden tool the reversible blade provided with front and rear cutting edges, one edge being straight and the other toothed; said teeth having serrated cutting edges, substantially as described.

5. A garden implement comprising a main horizontal blade, and side wings or blades arranged at right angles to the former, each blade having a front and rear cutting edge; the side blades being provided with right-angled portions extending inwardly parallel with the horizontal blade and having cutting edges, and terminating in upturned plates or flanges with perforations therein, to receive the fastening bolts of the operating handle or other support, substantially as described.

6. In combination with the implement having the horizontally and vertically disposed blades and perforated flanges formed integral therewith, the reversible handle having the shank with enlarged head provided with a series of perforations therein, and the swiveled spring pressed pin adapted to be thrown into engagement with the perforations in either position of the handle, substantially as described.

7. A garden tool comprising a steel plate bent so as to form a main horizontal blade and two side or vertically disposed blades, one of the latter being narrower than the other, and both narrower than the main blade; said side blades being provided with right-angled portions extending inwardly parallel with the main blade and thence upwardly so as to form plates or flanges for attachment to a supporting bar or handle, substantially as described.

492,365. STEEL RAIL FOR USE ON COMMON ROADS. GEORGE M. RAMSEY, Clokey, Pa. Filed July 7, 1892. Serial No. 439,303. (No model.)



Claim.—1. The improved rail herein described, or its equivalent, consisting of a flat plate, ribbed substantially as set forth, and cut oblique at its ends, for the purpose of effecting curves as set forth.

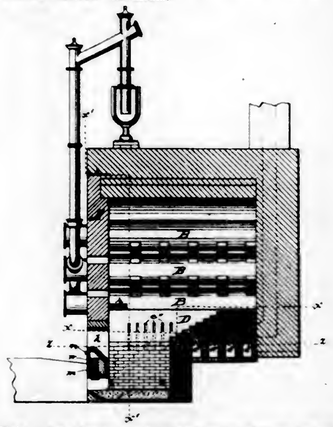
2. The coupling plate *a* made and applied substantially as herein set forth.

492,366. GENERATOR. FRANKLIN M. REED, Anderson, Ind., assignor of one-half to Edward Shaw, same place. Filed Sept. 30, 1892. Serial No. 447,410. (No model.)



Claim.—The hydro-carbon generator herein described, comprising an integral elongated hollow casting, having an interior longitudinal partition forming therein two chambers one above the other, said chambers being connected at their inner ends to form a continuous passage, a projecting surrounding flange on that end of said casting where are the mouths of said chambers said chambers being contracted into circular form where they enter said end, and formed with a thread, a cap removably secured to said flange and covering said end, an oil-supply pipe leading through said cap and screwed in the mouth of one of said chambers, and a gas-discharge pipe similarly connected with the other of said chambers, substantially as specified.

492,367. GAS-FURNACE. JOHN H. TUFTS, Syracuse, N. Y., assignor of one-half to Austin C. Wood, same place. Filed Apr. 1, 1892. Serial No. 427,325. (No model.)



Claim.—A gas furnace comprising a combined water and ash-pan beneath the fire pot, the water tank *w* forming the front vertical wall of the fire-chamber, and the inclined bottom of the feed-door opening or way, having a combined overflow and steam pipe located therein, over and discharging onto the pan beneath; substantially as described.

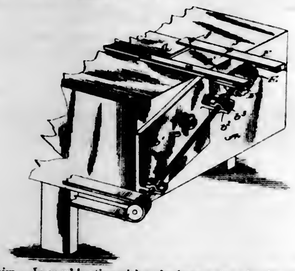
492,368. SOLID COLORING-MATTER FROM FUSTIC AND PROCESS OF PREPARING SAME. PETER T. AUSTEN, New Brunswick, N. J., assignor to the William J. Matheson & Company, Limited, New York, N. Y. Filed Jan. 10, 1893. Serial No. 457,981. (No specimens.)

Claim.—1. The process of producing an extract of fustic, which consists in adding to fustic extract an alkaline nitrite in the presence of water and causing a reaction between the nitrite and the extract, substantially as described.

2. The process of producing an extract of fustic, which consists in adding to fustic extract an alkaline nitrite in the presence of water, causing a reaction between the nitrite and the extract and evaporating the product to dryness, substantially as described.

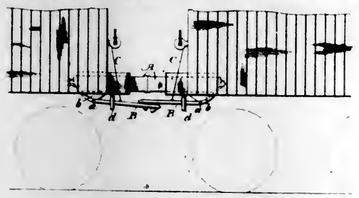
3. As a new article of manufacture, a coloring matter derived from extract of fustic by incorporation therewith of an alkaline nitrite and characterized by the properties of being a friable solid soluble in hot or cold water, as described.

492,369. SHEATHING-LATH ATTACHMENT FOR PLANING-MACHINES. THEODORE H. BROWN, Viroqua, Wis., assignor to the United States Sheathing Lath Company, same place. Filed Feb. 27, 1892. Serial No. 423,053. (No model.)



Claim.—In combination with a planing machine having adjustably fixed to the top the projecting guides and supports F, for the board to be planed, the inclined metal plate B, directly and adjustably fixed to the end of the machine by means of slots *b*, in said plate and screw bolts *b'*, and having brackets *b*³, one at the lower and the other at the upper end thereof, provided with suitable keepers and carrying therein saw shaft at an incline, the saws on said shaft adapted to operate on the board passing between the guides on the top of the machine.

492,370. CAR-COUPLING. THEODORE H. BROWN, Viroqua, Wis., assignor of one-half to Henry Casson, same place. Filed Nov. 15, 1892. Serial No. 452,025. (No model.)





Claim.—A car coupling combining interlocking or engaging levers or arms having upon their undersides, at the forward ends pendent hooks or projections, and in their upper sides, at the same ends, forwardly flared guide grooves extended rearwardly into slots, the slot of one lever or arm receiving the hook or projection on the other lever or arm, to effect the coupling operation, substantially as set forth.

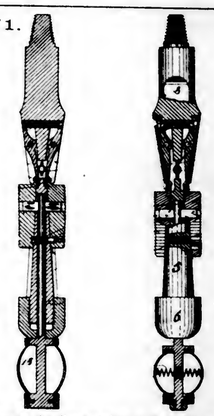
492,371. CASING-SPEAR. PATRICK H. MACK, Bradford, Pa., assignor to the Oil Well Supply Company, same place. Filed Apr. 23, 1892. Serial No. 430,433. (No model.)

Claim.—1. In a casing spear, the combination of the body formed with the mandrel, the longitudinally movable and expansible slips surrounding the mandrel, and the pair of locking dogs mounted in the body above the slips and adapted to engage them and a spring connected with the dogs for holding them out of engagement when the slips are released, substantially as and for the purpose set forth.

2. In a casing-spear, the combination of the body, formed with the mandrel, the longitudinally movable and laterally expansible slips surrounding the mandrel, the pair of spring-pressed dogs mounted on the body above the slips and normally out of engagement with the slips; said slips having an extension adapted to enter between and engage the dogs, substantially in the manner and for the purpose set forth.

3. In a casing-spear, the combination of the body, formed with the mandrel, the expansible slips surrounding said mandrel whereby upward movement of the mandrel within the slips causes them to grip the tube, and the self-releasing means for preventing the relative

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movement between the slips and the mandrel when the tool is lowered, consisting of the notched extension on the mandrel and the pair of dogs mounted in a recess in the body and adapted by their respective ends to engage the slips, and springs for forcing them out of engagement when released from the slips, a recess being extended as shown to receive the ends of the dogs whereby the slips move up around them for the purpose explained.

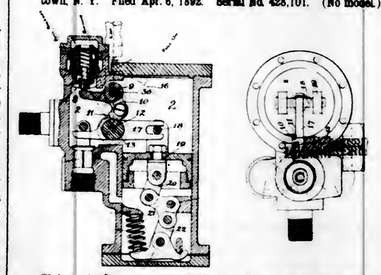
4. In a casing-spear, the combination of the body formed with the mandrel, the surrounding expansible slips on the mandrel, the beveled upper portion of the body having a recess, the automatically releasing and retaining dogs, mounted in said recess, and the plates for covering the dogs, substantially as and for the purpose set forth.

5. In a casing-spear, the combination of the body formed with the mandrel, the expansible slips surrounding the mandrel, the automatic releasing and retaining dogs for engagement with the slips as explained, and the spreading-pin located between the dogs for forcing them apart in the manner and for the purpose set forth.

6. In a casing-spear, the combination of the body formed with the mandrel, the slips mounted upon the mandrel, the supplemental grip consisting of the pair of disks, and the curved springs having their ends secured loosely in the respective disks and a rod projecting from the supplemental grip upward through the body and connected with the slips by means of the cross-key; said body or mandrel being formed with an elongated slot in which the key works, substantially as and for the purpose set forth.

7. In a casing-spear, the combination of the body formed with a mandrel and having the slips mounted upon the mandrel, and supplemental grip device adapted for frictional contact with the wall of the casing and having working connection with the slips; said supplemental grip consisting of the spherically or cylindrically formed compressible parts, with the interposed spring for forcing the parts asunder constructed in substantially the manner specified

492,372. FLUID-PRESSURE VALVE. HARRY G. MANNING, Watertown, N. Y. Filed Apr. 6, 1892. Serial No. 428,101. (No model.)

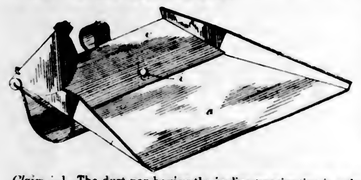


Claim.—1. In an engineer's brake-valve a main feed valve between the main reservoir and the train-pipe composed of a casing containing a running position feed valve 7 controlling an opening from

the interior of the casing through the main valve 3 to the train-pipe, and an excess pressure valve 5 controlling an opening from the main reservoir to the interior of said casing and a spring of predetermined tension to hold said excess pressure valve to its seat, combined with suitable means for opening the running position feed valve 7 with a slight motion and opening the main feed valve 3 with a further motion, substantially as set forth.

2. The combination in an engineer's valve for fluid pressure brakes of a main feed valve 3, controlling an opening between the main reservoir and the train pipe, containing within itself an excess pressure valve 5 and a running position feed valve 7; an exhaust valve 27, located between the train pipe and the atmosphere, and means for operating either the feed valves or the exhaust valve by opposite motions of the same handle.

492,373. DUST-PAN. MARY R. MINOR, Colfax, Ind. Filed Apr. 20, 1892. Serial No. 429,899. (No model.)



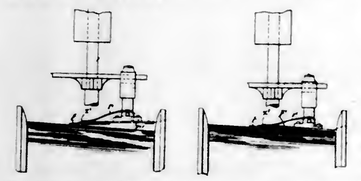
Claim.—1. The dust pan having the incline terminating in a dust receptacle provided with an open end, the vertically swinging door to close said end, a stop to limit the upward swing of said door, a guide for the door and a projection to limit the downward movement of the door.

2. The dust pan having the front incline, the rear dust receptacle, having the lid and an open discharge end, the stiffening wire forming the hinge for said lid and passing across the ends of the receptacle and rigidly secured at its ends, the door pivoted on said wire and guided by the same to close the open end of the receptacle.

3. The herein described dust pan having the front incline, the transverse rear semi-cylindrical trough having one end closed permanently, the handle extending up from the rear edge of said trough, the trough cover hinged at its rear edge to the rear edge of the cover so that it can swing back against said handle and prevent dust flying over the pan when in use, and the vertically swinging pivoted slide closing said open end of the trough, substantially as described.

4. The dust pan consisting of the incline, the trough at the upper end thereof having an open end, the vertically swinging slide at one end pivoted to the rear edge of said trough to close or open said end, a guide for said slide between which and the end of the trough the slide moves, substantially as described.

492,374. PAPER-FEEDER. HENRY E. SNYDER, Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y. Filed Apr. 4, 1892. Serial No. 427,639. (No model.)



Claim.—1. In a paper feeder, the combination with a table for holding a pile of paper, of a lifter movable downward against the pile and upward to deliver the lifted sheet, consisting of a plate standing normally in a plane inclined relatively to the top of the pile, so that in descending it strikes the pile of paper first at one edge, and mounted to oscillate to bring it into parallel contact with the paper, whereby in ascending it lifts one edge of the sheet in advance.

2. In a paper feeder, the combination with a table for holding a pile of paper, of a lifter and its carrier movable downward against the pile and upward to deliver the lifted sheet, the lifter consisting of a plate jointed relatively to its carrier and standing normally in a plane inclined relatively to the top of the pile, whereby on descending it strikes the paper obliquely exerting a rubbing action against it, and in ascending it lifts one edge of the sheet in advance.

3. In a paper feeder, the combination with a table for holding a pile of paper, of a lifter and its carrier movable downward against the pile and upward to deliver the lifted sheet, the lifter consisting of a plate jointed relatively to its carrier and having a spring acting to press downward its following edge, and a stop for limiting its depression arranged to cause the plate to stand normally in a plane inclined relatively to the top of the pile, whereby on descending it strikes the paper obliquely, its following edge first encountering it and the plate rocking against the yielding tension of said spring until its advancing edge encounters the paper, thereby exerting a backwardly rubbing action against the top sheet of the pile tending to disengage it from the sheets beneath.

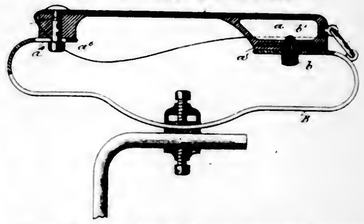
4. In a paper feeder, the combination with a table for holding a pile of paper, of a lifter and its carrier movable downward against the pile and upward to deliver the lifted sheet, the lifter consisting of a plate jointed relatively to its carrier and standing normally in a plane inclined relatively to the top of the pile, so that in descending its following edge shall first encounter the paper, and formed at this edge with a tail projection *l* adapted to indent the pile and thereby facilitate the separation of the top sheet from those beneath.

5. In a paper feeder, the combination of a traveling lifter and its carrier, means for applying paste to said lifter, and the lifter constructed to oscillate relatively to its carrier and normally inclined relatively to the top of the pile, whereby on descending it strikes the paper obliquely and exerts a rubbing action against it, whereby the adhesion of the top sheet of paper to its pasted surface is facilitated.

6. In a paper feeder, the combination with a table for holding a pile of paper, mounted on an incline so that the top sheet of the pile shall be presented at an inclination, of a lifter and its carrier movable downward against the pile, the lifter consisting of a plate jointed to its carrier standing normally in a plane out of parallel with the top of the pile, with its advancing edge adapted to encounter the lowermost side of the inclined top of the pile, whereby in advancing its following edge first encounters the pile and the plate executes a tilting movement to bring it into parallel contact with the top sheet.

7. In a paper feeder, the combination with a carrier G, of a lifter F consisting of a tilting plate pivoted to a cross-bar *p'*, a spring reacting against this cross-bar and pressing downward against one side of the plate, and a vertically yielding connection between the cross-bar and the carrier.

492,375. BICYCLE-SADDLE. WILLIAM STEERS, Boston, Mass. Filed Mar. 30, 1892. Serial No. 427,004. (No model.)



Claim.—The herein described bicycle saddle consisting essentially of a saddle S, formed of rubber having one or more thicknesses of canvas or other suitable material inserted between the upper and lower layers of the rubber forming the seat, said saddle provided with an air chamber *a*, with its self-closing air inlet valve *b* and *b'*, retaining brace a^1 and eyelets a^2, and bolt a^3, adapted to move in a slot a^4, in frame B, said bolt having a portion with square surfaces a^5, and kept in position by the nut a^6, all constructed and adapted to operate substantially as described and for the purpose set forth.

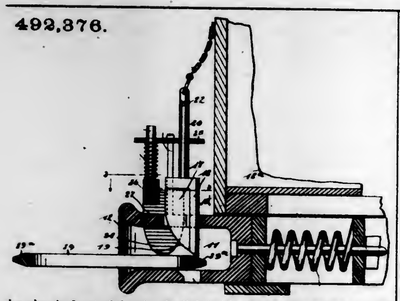
492,376. CAR-COUPLING. JAMES B. BAUM and OSCAR P. SERRAGHOR, Durango, Colo. Filed Apr. 19, 1892. Serial No. 429,698. (No model.)

Claim.—1. The combination with the drawbar and the vertically movable coupling pin, of a spring-pressed link holder held in the drawbar in front of the pin, the link holder having depending side pieces to press upon the sides of the link, substantially as described.

2. The combination with the drawbar, of the vertically movable coupling pin having an inclined front side, and the spring-pressed link holder held in front of the pin and having parallel side pieces to engage the sides of the link, substantially as described.

3. The combination with the drawbar having recesses in its upper and lower walls, of the inclined pin having a back flange to engage the lower recess wall, and a spring-pressed link holder held in the

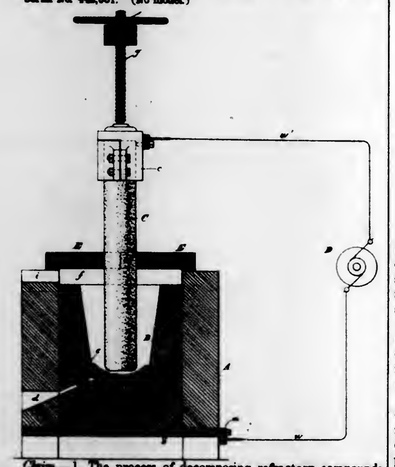
492,376.



drawbar in front of the pin, the link holder having depending parallel side pieces to press upon the sides of the link, substantially as described.

4. The combination with the drawbar having a suitable coupling pin, of the guide plate held above the drawbar and the link holder having depending side pieces with rounded lower ends, these side pieces being held to move in the drawbar in the path of the link, and an upwardly extending shank held to move in the guide plate, substantially as described.

492,377. ELECTRIC REDUCTION OF REFRACTORY METALLIC COMPOUNDS. THOMAS L. WILLSON, Leaksville, N. C. Filed Aug. 9, 1892. Serial No. 442,601. (No model.)



Claim.—1. The process of decomposing refractory compounds which consists in subjecting the compounds, while commingled with subdivided carbon in sufficient proportion to prevent the formation of a bath of fused compound, to the continued heat of an electric arc between separated electrodes, one (at least) of which is arranged close above the material immediately under treatment, so that the arc is close above such material, whereby during the operation the fluctuations in the resistance of the arc which would be due to the presence and ebullition of such bath are avoided.

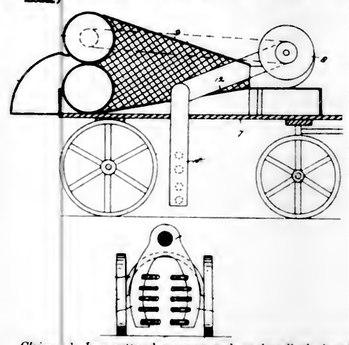
2. The process of deoxidizing refractory metallic compounds which consists in subjecting the compound, while commingled with subdivided carbon in sufficient proportion to prevent the formation of a bath of fused compound, to the continued heat of an electric arc between separated electrodes one above the other, such arc being close to the material immediately under treatment, whereby during the operation the fluctuations in the resistance of the arc which would be due to the presence and ebullition of such bath are avoided.

3. The process of reducing refractory metallic compounds which consists in subjecting the compound, while commingled with subdivided carbon in sufficient proportion to prevent the formation of a bath of fused compound, to the continued heat of an electric arc produced by passing a current in approximately vertical direction between separated electrodes, so that the arc is maintained close above the material immediately under treatment whereby during the reduction the fluctuations in the resistance of the arc which would be due to the presence and ebullition of such bath are avoided.

4. The process of reducing alumina which consists in subjecting it, while commingled with subdivided carbon in sufficient proportion to prevent the formation of a bath of fused alumina, to the continued heat of an electric arc between separated electrodes one above the other, so that the arc is maintained close above the material immediately under treatment whereby during the reduction the fluctuations in the resistance of the arc which would be due to the presence of such bath are avoided.

5. The process of reducing a refractory metallic compound which consists in commingling therewith a sufficient proportion of finely subdivided carbon as described, feeding the mixture into an electric arc, maintained between vertically separated electrodes, and maintaining it subject to the continued heat of such arc, and so that the arc is maintained close above the material immediately under treatment whereby the formation of a bath of the fused compound is avoided.

492,378. COTTON-PICKER. HARRY H. CALL and AUGUSTUS A. CLOUGH, Denver, Colo. Filed July 25, 1892. Serial No. 441,214. (No model.)

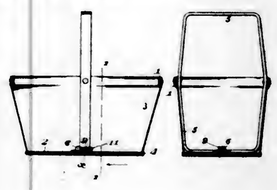


Claim.—1. In a cotton harvester, such as described, the combination with a vehicle and suction inducing mechanism mounted thereon, a depending tube or conduit provided with laterally projecting arms adapted to penetrate the bush, said arms being provided with mouths or induction passages for the reception of the staple; substantially as described.

2. The combination with a suitable vehicle and suction inducing mechanism supported thereon, of a depending forked tube, the limbs of which embrace the plant on either side, each depending arm being provided with a series of laterally projecting arms having mouths to receive the staples; substantially as described.

3. The combination with a suitable vehicle carrying suction inducing mechanism, of a depending forked tube connected with said mechanism, the limbs of the tube embracing the plants on either side, each depending limb being provided with a series of lateral arms projecting into the bush or plant, said lateral arms being provided with mouths to receive the staples, and retaining claws located upon the interior diverging walls of said mouths; substantially as described.

492,379. FOLDING BASKET. CHARLES C. BOERTON, Baltimore, assignor to John G. Rouse, Bel Air, Md. Filed Sept. 10, 1892. Serial No. 445,517. (No model.)



Claim.—1. In a collapsible basket, the combination with a rigid hoop and a bottom plate united by a flexible siding, of a continuous elliptical bail or handle centrally pivoted at each side to said hoop, each end of which is adapted to engage with the bottom plate substantially as set forth.

2. In a collapsible basket the combination with a rigid hoop and an imperforate bottom plate united by a flexible siding, of a continuous elliptical bail or handle centrally pivoted at each side to said hoop, each end of which is adapted to engage with the bottom plate and a retaining device for locking said bail to said bottom plate, substantially as set forth.

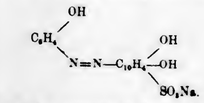
3. In a collapsible basket, the combination with a rigid hoop and a bottom plate united by a flexible siding, of a continuous elliptical bail or handle, centrally pivoted to said hoop at each side, each end of which is adapted to engage with the bottom plate an abutment centrally arranged on said bottom plate, and a dog, pivoted to said abutment and having a depending jaw, said dog and abutment lying in the path of the lower end of the handle when the same is turned on its pivot, substantially as set forth.

4. In a collapsible basket, the combination with a rigid hoop and a bottom plate united by a flexible siding, of a continuous elliptical bail or handle centrally pivoted at each side to said hoop, each end of which is adapted to engage with the bottom plate, a casing centrally mounted on said bottom plate and forming an abutment for the lower end of the handle, and a dog pivoted in said casing and having a depending jaw arranged in the path of the lower end of the handle when turned on its pivot, substantially as set forth.

REISSUES.

11,808. VIOLET AZO DYE. MORITZ ULRICH, Elberfeld, Germany, assignor to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Oct. 5, 1892. Serial No. 447,969. Patented in France Apr. 9, 1891, No. 212,648, and in Italy Apr. 27, 1891, XXV, 29,631. Original No. 476,336, dated June 7, 1892.

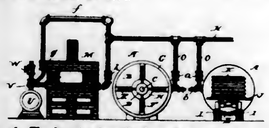
Claim.—1. The process of making a new azo dye-stuff of the formula:



by combining the diazo compound of paramido-phenol with the sodium salt of dihydroxynaphthaline monosulpho-acid.

2. As a new manufacture, the azo coloring-matter which forms a dark brown powder soluble in water, especially hot water, with bluish-red color, from which bluish-red flakes separate on the addition of acids, soluble in alkalies with yellowish-red color, soluble in concentrated sulphuric acid with reddish-blue color, this solution assuming first, when mixed with a small quantity of cold water, a yellowish-brown color, then yellowish-brown flakes are separated, and on further dilution the whole is dissolved to a clear bluish-red solution, and which dyes wool in acid baths a clear violet.

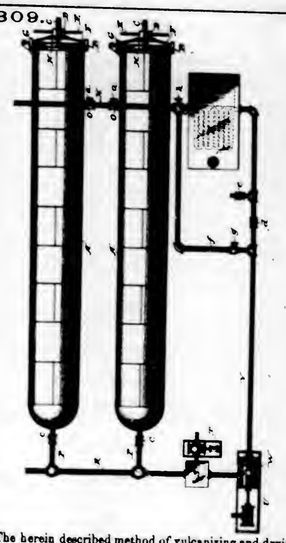
11,809. METHOD OF VULCANIZING AND DRYING WOOD. CHARLES HOWARD, New York, N. Y. Filed Jan. 9, 1893. Serial No. 457,838. Patented in England Dec. 29, 1891, No. 22,692; in France Dec. 29, 1891, No. 218,361, and in Canada Feb. 6, 1892, No. 38,238. Original No. 465,975, dated Dec. 29, 1891.



Claim.—1. The herein described method of vulcanizing wood, which consists essentially, in inclosing the wood to be treated in a chamber while cold, creating a vacuum within said chamber, and thereafter applying heat to the wood while in said chamber and vacuum and while the vacuum is maintained, substantially as set forth.

2. The herein described method of vulcanizing and drying wood, which consists essentially, in closing the wood to be treated in a chamber, creating a vacuum within said chamber, applying heat to the wood while said vacuum is maintained, and circulating the air and carrying the vapor through said chamber and the vacuum producing mechanism, substantially as set forth.

11,809.



3. The herein described method of vulcanizing and drying wood, which consists in first inclosing the wood in a cold condition in a chamber, then drawing the moisture of the external layers of the wood to the surface by the action of a vacuum, heating said chamber, then admitting heated air to the chamber and then removing the external water and vulcanizing the wood and contained sap by a continuous circulation of the dry heated air through the chamber under a vacuum, the absorbed water being removed from the air by condensation, substantially as set forth.

DESIGNS.

22,225. BUCKLE-FRONT. CHARLES R. HARRIS, Williamsport, Pa. Filed Dec. 10, 1892. Serial No 454,787 Term of patent 7 years.



Claim.— The design for a buckle front herein shown and described

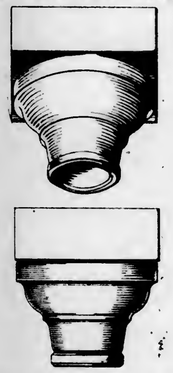
22,226. DESIGN FOR A BADGE. HENRY F. G. PUCHS, Jersey City, N. J. Filed Dec. 17, 1892. Serial No. 455,537. Term of patent 7 years.

22,226.



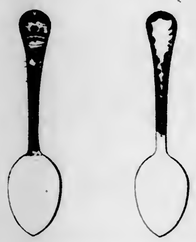
Claim.—The design for a badge substantially as shown and described.

22,227. GLOBE-HOLDER. EDWARD J. MCEVOY, New York, N. Y. Filed Jan. 3, 1893. Serial No. 457,143. Term of patent 14 years.



Claim.—The design for a globe holder, substantially as herein shown and described.

22,228. SPOON. GEORGE B. KELLEY, Rockford, Ill., assignor to the Jewelers Crown Guild. Filed Jan. 24, 1893. Serial No. 459,602. Term of patent 7 years.



Claim.—The design for spoons, &c., as herein shown and described.

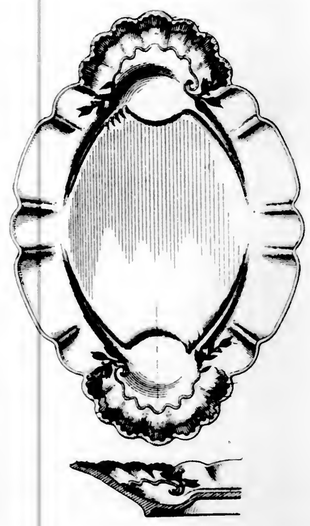
22,229. SPOON. FREDERICK F. HOBE, Colorado Springs, Colo. Filed Dec. 24, 1892. Serial No. 456,881. Term of patent 3½ years.

22,229.



Claim.—The design for a spoon substantially as herein shown and described.

22,230. DISH. CHARLES E. HAVILAND, Limoges, France. Filed Jan. 13, 1893. Serial No. 458,301. Term of patent 14 years.

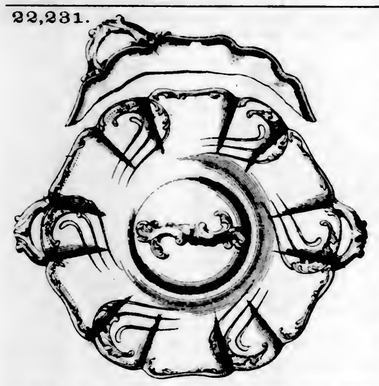


Claim.—The design for a dish or other article, substantially as shown and described.

22,231. COVER-DISH. CHARLES E. HAVILAND, Limoges, France. Filed Jan. 13, 1893. Serial No. 458,300. Term of patent 14 years.



22,231.



Claim.—The design for a cover dish or other article, substantially as shown and described.

22,232. TOY SAVINGS-BANK. HENRY DILLINGHAM, Chelsea, Mass. Filed Oct. 28, 1892. Serial No. 450,287. Term of patent 3½ years.



Claim.—The design for a toy savings-bank, substantially as shown and described.

22,233. PLUSH FABRIC. JOHN SCHOFIELD, Holyoke, Mass., assignor to the Chadwick Plush Company, same place. Filed Jan. 13, 1893. Serial No. 458,284. Term of patent 3½ years.



Claim.—The design for a plush fabric as herein described and shown.

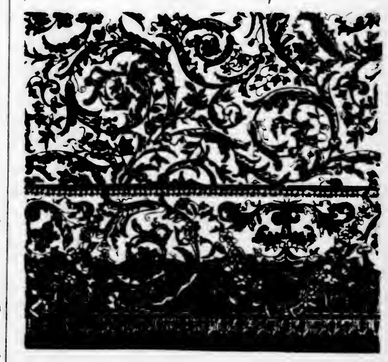
22,234. WOVEN FABRIC. WILLIAM T. SMITH, Philadelphia, Pa. Filed Jan. 26, 1893. Serial No. 459,892. Term of patent 3½ years.

22,234.



Claim.—The design for a woven fabric, as shown in the accompanying drawing.

22,235. CARPET. WILLIAM M. DAINTREY, New York, N. Y., assignor to the Bigelow Carpet Company, same place. Filed Dec. 9, 1892. Serial No. 454,667. Term of patent 3½ years.



Claim.—1. In the design for a carpet the body A, substantially as shown and described.

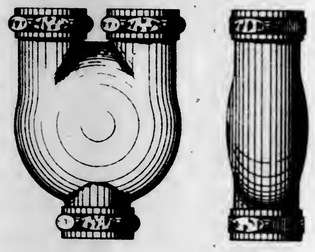
2. In the design for a carpet the border B, substantially as shown and described.

22,236. BAIL-EAR. WILLIAM C. WINFIELD, Warren, Ohio, assignor to the Winfield Manufacturing Company, same place. Filed Jan. 3, 1893. Serial No. 457,167. Term of patent 7 years.



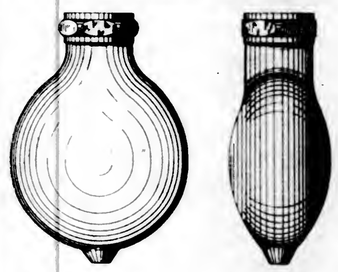
Claim.—The design for a bail ear as herein shown and described.

22,487. SINK-TRAP. WILLIAM H. GRAHAM, St. Louis, Mo. Filed Jan. 26, 1893. Serial No. 460,172. Term of patent 3½ years.



Claim.—The design for a trap herein shown and described.

22,488. SINK-TRAP. WILLIAM H. GRAHAM, St. Louis, Mo. Filed Jan. 26, 1893. Serial No. 460,171. Term of patent 3½ years.



Claim.—The design for a trap herein shown and described.

TRADE-MARKS

REGISTERED FEBRUARY 21, 1893.

22,483. HATS AND CAPS. THE H. M. SILVERMAN COMPANY, New York, N. Y. Filed Jan. 6, 1893.



Essential feature.—The representation of a band bearing the word "WHITE" and surmounted by a spread eagle. Used since November 15, 1892.

22,484. GLOVES. J. & M. LESSER, New York, N. Y. Filed Dec. 20, 1892.



Essential feature.—The representation of a phœnix with raised beak and extended wings arising from or resting upon burning fagots. Used since February, 1892.

22,485. STAYS OR CORSETS. RUH, KORB APPLETON, New York, N. Y. Filed Dec. 23, 1892.



Essential feature.—The word "EMPIRE," and the letter "A" inclosing a conventional representation of a fleur de lis. Used since November 1, 1892.

22,486. UNDERGARMENTS. A. H. LOEB & CO., New York, N. Y. Filed Nov. 10, 1892.



Essential feature.—The representation of a landscape with the figure of a lion in the foreground and inclosed by two circular concentric lines, which are surrounded by a heavy circular line and a lighter line concentric and adjacent thereto. Used since November 1, 1888.

22,487. KNITTED UNDERGARMENTS. A. H. LOEB & CO., New York, N. Y. Filed Nov. 15, 1892.



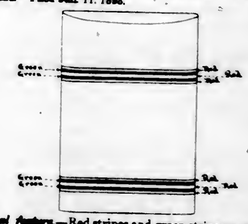
Essential feature.—The representation of an annular band having an outer shaded border and inclosing the representation of a lion standing between two palms, with mountains in the distance. Used since November 1, 1888.

22,488. UNDERWEAR. WILHELM BENGER SOHNE, Stuttgart, Germany. Filed Jan. 25, 1893.



Essential feature.—The representation of an anchor inclosed in a heart shaped outline and surmounted by the word "COLUMBIA." Used since August 1, 1892.

22,489. BURLAP BAGS. THE JOHN C. GRAFFLIN COMPANY, Baltimore, Md. Filed Jan. 11, 1893.



Essential feature.—Red stripes and green stripes, arranged parallel to each other; five in number, and the colors alternating. Used since February, 1891.

22,490. WATERPROOF PAPERS. F. W. BIRD & SON, Walpole, Mass. Filed Jan. 14, 1893.

RED ROPE

Essential feature.—The words "RED ROPE." Used since January 1, 1887.

22,491. SUSPENSORIES. CHAMBERS, BRO. & CO., Detroit, Mich. Filed Jan. 14, 1893.

VRS

Essential feature.—The letters "V. R. S." Used since April 1, 1891.

22,492. MEDICATED COUGH-DROPS. NOEL W. STILES, Boston, Mass. Filed Dec. 21, 1892.



Essential feature.—The representation of a branch of a cherry tree bearing five cherries, and the words "STILES PHOSPHO COUGH CHERRIES." Used since October, 1892.

22,493. CERTAIN NAMED CHEMICAL SUBSTANCES AND MIXTURES. LEE & SHEPP, Boston, Mass. Filed Dec. 27, 1892.

CHEMICAL FLOWER GARDEN

Essential feature.—The words "CHEMICAL FLOWER GARDEN." Used since December 15, 1892.

22,494. COMPOUND FOR POLISHING METAL. AMANDA LOUISA JAGGAR. Wellesley, Mass. Filed Jan. 9, 1893.



Essential feature.—The letters "A L J" monogrammatically arranged. Used since February, 1892.

22,495. WOOD-PRESERVATIVE. MICA ROOFING CO., New York, N. Y. Filed Dec. 3, 1892.

CREOSOTINE

Essential feature.—The word "CREOSOTINE." Used since December 1, 1892.

22,496. TOILET SOAP. SHARRS & GORDON, New York, N. Y. Filed Jan. 17, 1893.

IMPERIAL

Essential feature.—The word "IMPERIAL." Used since December 1, 1892.

22,497. CANNED FRUITS AND VEGETABLES. HOOPESTON CANNING CO., Hoopeston, Ill. Filed Oct. 27, 1892.

DIADEM

Essential feature.—The word "DIADEM." Used since 1891.

22,498. ALE. CHRISTIAN FEIGENSPAN, (a corporation,) Newark, N. J. Filed Jan. 17, 1893.



Essential feature.—A monogram composed of the letters "C" and "F" on a triangular field. Used since October 1, 1889.

22,499. LAGER-BEER. HESS & GAMLER BREWING COMPANY, Chicago, Ill. Filed Jan. 6, 1893.



Essential feature.—The representation of a sheaf of grain, bound with a hop vine and placed upright, in connection with the monograms of the letters "H G" and "B C." Used since July 1, 1892.

22,500. LAGER-BEER. R. TOSETTI BREWING COMPANY, Chicago, Ill. Filed Jan. 6, 1893.



Essential feature.—The representation of a figure resembling the letter "T," and formed of a malt shovel, placed upright, with a pair of outstretched wings attached to its handle, and the representation of a beer keg superposed midway upon said handle. Used since November 15, 1892.

22,501. FERMENTED AND SPIRITUOUS LIQUORS. BROCKBANK & MELLOR, Liverpool, England. Filed Jan. 24, 1893.

BLARNEY STONE

Essential feature.—The words "BLARNEY STONE." Used since March, 1885.

22,502. WHISKIES. JAMES OLWELL & Co., New York, N. Y. Filed Jan. 17, 1893.

GLENWOOD

Essential feature.—The word "GLENWOOD." Used since February 1, 1889.

22,503. COAL. NEWELL COAL COMPANY, Peoria, Ill. Filed Jan. 9, 1893.

STAR

Essential feature.—The word "STAR." Used since April 1, 1891.

22,504. TUBS, PAILS, BUCKETS, KEELERS, MEASURES, AND KANAKINS. MAUS BROS., Milwaukee, Wis. Filed Jan. 21, 1893.

CABLE

Essential feature.—The word "CABLE." Used since November 2, 1891.

22,505. CURRYCOMBS. HOLGATE BROS. COMPANY, Kane, Pa. Filed Jan. 26, 1893.

HUMANE

Essential feature.—The word "HUMANE." Used since March, 1892.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

EX PARTE GROSS.

Decided November 25, 1892.

ANTICIPATION—KEY-FASTENER.

"A key-fastener made of a single piece of light wire and provided with a bent hook and adapted to take over the knob-spindle and a flattened unyielding shank adapted to or inserted through the bow of the key," etc., *Held* anticipated by a key-fastener consisting of a piece of round wire bent to siphon shape, the short leg hooked over the knob shaft, and the long leg projecting down through the key's eye.

APPEAL from Examiners-in-Chief.

KEY-FASTENER.

Application of Elam A. Gross filed September 8, 1891, No. 405,085.

Messrs. C. A. Snow & Co. for the applicant.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief denying patentable novelty to the construction covered by the following claim:

A key-fastener made of a single piece of light wire and provided with a bent hook and adapted to take over the knob-spindle and a flattened unyielding shank adapted to be inserted through the bow of the key and fill the entire space therein and have the edges thereof in line with the disposition of said hook end and at right angles to the disposition of the keyhole and contacting with the edges of the bow, so that a tendency to turn the key is withstood without bending or yielding on the part of the shank, substantially as set forth.

One of the references is a patent to H. S. Wilcox for lock-fasteners, No. 43,147, dated June 14, 1864. Wilcox uses a piece of round wire bent into the shape of a siphon with one short leg and one long one. The short leg is hooked over the knob-shaft and the long leg projects downward through the eye of the key. Flatten this long leg so that the flattened part lies in the same plane with the two bent legs and applicant's improvement is produced. This flattening of the leg brings about two advantages, in that it strengthens the long leg against a twisting action applied to the key, and also in that it prevents the key from being rotated to the degree which was possible before; but neither of these improvements is of a non-obvious nature, either in the means used or the result attained. The object is obvious and the means used are obvious.

The decision of the Examiners-in-Chief is affirmed.

EX PARTE WALTER.

Decided December 17, 1892.

DESIGN PATENT.

In an application for Design patent the question whether its utility warrants the granting of the patent is a question of merit and not subject-matter for interlocutory appeal.

ON petition.

DESIGN FOR AN ENVELOPE FOR TICKETS.

Application of Maurice C. Walter filed July 5, 1892, No. 439,081.

Mr. George M. Lockwood for the applicant.

SIMONDS, *Commissioner:*

This is a petition requesting that the Examiner in charge of the application, which is for a patent for a Design, be advised as follows:

1. That under section 4929, Revised Statutes, it is not necessary that a Design be described with reference to both shape and ornamentation.
2. That applicant has sufficiently described his Design with reference to both shape and ornamentation, and that further description of the same be not insisted upon.
3. That if applicant is the first to place the described ornamentation upon the enlarged flap of an envelope for a utilitarian purpose the resulting Design is a new and original one.

The appeal is an interlocutory appeal. It will be observed that the third of these requests reaches to the merits of the application. The record shows the applicant prosecuting his application to a final rejection upon the merits, knowing meanwhile the objections as to form and arguing with reference to them. It is now too late to have these questions of form reviewed upon an interlocutory appeal.

The petition is denied.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

WEATHERHEAD *et al. v.* COUPE *et al.*

Decided January 16, 1893.

PATENT—INFRINGEMENT—HIDE STRETCHING MACHINES.

Letters Patent No. 213,332, to William Coupe, March 18, 1879, for an improvement in hide-stretching machines, discussed as to claims 1 and 3 and *Held* not infringed in the present case. [Reversing *Coupe et al.* v. *Weatherhead et al.*, 16 Fed. Rep., 673.]

APPEAL from the Circuit Court of the United States for the District of Rhode Island.

Mr. Causten Brown and *Mr. W. B. Vincent* for the appellants.

Mr. W. H. Thurston for the appellees.

Mr. Justice BLATCHFORD delivered the opinion of the Court.

This is a suit in equity, brought January 11, 1881, in the Circuit Court of the United States for the District of Rhode Island, by William Coupe and Edwin A. Burgess against George Weatherhead, John E. Thompson, and William G. Evans, copartners as Weatherhead, Thompson & Co., for the alleged infringement of Letters Patent of the United States No. 213,323, granted March 18, 1879, on an application filed January 24, 1879, to the said William Coupe, for an improvement in hide-stretching machines. The bill of complaint alleges that the defendants, from July 17, 1879, have made, used, and sold hide-stretching machines containing the invention described in the patent. The answer sets up in defense want of novelty and non-infringement. A replication was filed, proofs were taken, and the case was brought to a hearing before the court, held by Judge Lowell, then circuit judge, and Judge Colt, then district judge; and on the 20th of April, 1883, the opinion of the court (16 Fed. Rep., 673) was delivered by Judge Lowell, sustaining the patent, and holding that the first and third claims of it had been infringed.

On the 1st of May, 1883, an interlocutory decree for an injunction and account was entered. The master filed his report on January 7, 1888, exceptions were filed to it by the defendants, and they made a motion to dismiss the bill. The master found that the amount of gains and profits to be accounted for by the defendants was $15,412.82. The court, held by Judge Colt, filed its opinion on the motion and the exceptions November 15, 1888. (37 Fed. Rep., 16.) It overruled the motion and the exceptions, and on May 6, 1889, entered a decree in favor of the plaintiffs for $15,412.82, with interest from February 1, 1888, and the costs of the suit. The defendants have appealed to this Court. The only question contested here is that of infringement.

The specification of the patent is as follows:

The invention hereinafter described relates generally to an improved method of stretching and reducing to a uniform thickness the hides of animals previous to said hides being manufactured into dressed leather, or what is known as "rawhide;" and it particularly relates to a combination of mechanism which, accompanied by certain hand manipulation, will accomplish the desired result of stretching and reducing the hides as above mentioned.

As is well known, all hides vary considerably in thickness at different points, and when taken from the liquor-vats in which they have been immersed to remove the hair, &c., they are found to be soft, flabby, wrinkled, and fulled. Owing, therefore, to this condition of the hides, it is necessary, before they are dressed and finished for the market, that they be stretched throughout to remove the wrinkles and fullness, and also to reduce those parts which are thicker than other portions, so that, as far as possible, the hides shall be uniform in thickness.

My invention consists in a combination of mechanical devices which are capable of producing, in connection with hand manipulation, the desirable results of thoroughly stretching the hides, and rendering them of even thickness in all parts, the said devices comprising, in the main, a friction table or beam, over which the hides are dragged, a stretcher bar of suitable form for stretching the hides transversely, and a slowly-revolving roller, to which the edge of each hide is secured, and around which it is wound after being drawn over the table or beam and the stretcher-bar.

Referring to the drawings, Figure 1 represents a front elevation of my improved machine. Fig. 2 shows the same in central vertical transverse section, and Fig. 3 represents the stretcher-bar in perspective.

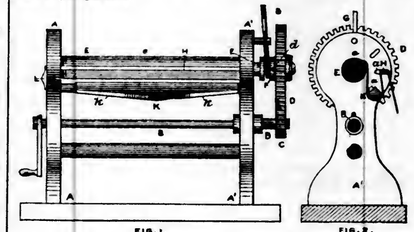


FIG. 1.

FIG. 2.

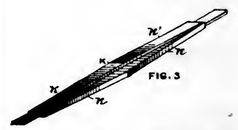


FIG. 3

As particularly shown in Fig. 1 of the drawings, my improved machine consists of the following devices: A pair of standards, as at A A', in which is mounted a shaft, as at B, to which power is applied. Upon one end of this shaft is a pinion, as at C, arranged to mesh with a gear, as at D, loosely mounted on one end of a roller, as at E. The inner side of this gear D is provided with a clutch face or pin, as at *d*, for engagement with a clutch, as at F, splined [spliced?] to the roller E, and furnished with a shipping handle, as at G, so arranged as to be convenient of access to the operating attendant. The remaining parts of the machine consist of a narrow table or breast-beam, as at H, which is mounted in mortises, as at *a*, in the standards A A', and a stretcher-bar, as at K, likewise mounted in mortises, as at *a'*, and having its two working faces doubly inclined, as at *k k'*, Fig. 3. Both the breast beam H and stretcher-bar K are so arranged as to be easily inserted in their respective mortises, where they are confined in proper longitudinal position by the standard A' at one end, and a button, as at L, at the other end. The said beam and bar are capable also of lateral movement, to enable them to be moved backward to give room for a larger hide being wound upon the rollers, and also to facilitate the entire removal from the machine after the hide has been stretched and is to be removed to give place for another.

The methods of treating the hides and the operation of the mechanism above described are substantially as follows: A hide, as it comes from the vat, wrinkled and fulled, and with its various parts of unequal thickness, is placed over the table or breast-beam H, and one of its ends carried under the stretcher-bar K, and secured to the roller E by the clamp *e*, the other end hanging free in front of the machine, as shown in Fig. 2. The operator now connects the roller E to the continuously-revolving gear D by means of the handle G and clutch F, and the roller E slowly revolves, winding the hide around its surface, and drawing the said hide over the friction table or beam H, and around the stretcher-bar K.

When any part of the hide whose thickness should be reduced, or whose wrinkled or fulled-up portion is to be smoothed out, passes over the table or beam H, the operator, who stands in front of said beam, applies pressure by hand to the proper portions, thereby increasing the friction between the under surface of the hide and the surface of the bar H, and causing the onward movement of such portions of the hide to be retarded. The portions thus pressed upon, therefore, are more severely stretched than other parts of the hide, and by proper manipulation by the attendant its thickness is rendered uniform, and it passes to the stretching-bar K in a smooth condition, having been longitudinally stretched upon the beam H.

In passing over the bar K the hide is transversely stretched by the doubly-inclined sides *k k'*, from which it passes onward to the roller E, winding about the said roller uniformly and smoothly. The machine is now stopped, the hide removed, another secured to the roller E, and the operations above described are repeated.

From the foregoing description my improved machine will be readily understood; and it will be seen that my improvement in the method of stretching hides results from the combination of the mechanical agencies mentioned, coupled with the manipulation of the hide as it passes over the friction table or beam, at which time it is smoothed from wrinkles and reduced to a uniform thickness.

The patent has three claims, in these words:

1. The combination of a friction table or beam, over which the hide is drawn, a stretcher, substantially as described, and a revolving roller, to which the hide is secured and around which it is wound as the hide is drawn over the friction beam and stretcher, substantially as set forth.

2. The combination of a revolving roller, to which the hide is secured and around which it is wound, a laterally-yielding stretcher, and a laterally-yielding friction table or beam, substantially as described.

3. The improvement in the method of stretching hides, which consists in dragging the hide over a stretcher, and also over a friction table or beam, by means of a revolving roller, to which the hide is secured, as described, whereby as the hide is passed over the table or beam the thicker portions of the hide are detained or made to lag by pressure applied to such thicker portions, to increase at such points the friction between the hide and the table, substantially as specified.

The master states correctly, in his report, that Coupe, being engaged in the manufacture of rawhide leather, was experimenting on methods of stretching it, and finally perfected the method and invented the machine for which he obtained the patent: that the defendant Weatherhead, contemplating for the first time the manufacture of rawhide leather in the fall of 1879, desiring to have a stretching machine, and hearing that Coupe had invented one, and having seen Coupe's patent, applied to him, on January 5, 1880, for a license to use it or for the sale of one of the machines; that Weatherhead, not being able to effect that object, got up a machine of his own, which Coupe notified him was an infringement on the patent; and that, the defendants persisting in using their machine, notwithstanding such notice, the present suit was begun.

Judge Lowell, in his opinion, says that rawhide leather is a hide which has been stripped of its hair, and softened, and brought to a state in which it is very soft, flabby, and much wrinkled, but has not been tanned. He then proceeds:

The specification describes a table or beam, over which the hide is to pass, and which is breast high, in order that the workmen may conveniently use it; then the hide passes over a bar or stretcher, which is somewhat arched or crowned, in order to stretch the hide transversely; it then goes to a roller, to which it is clamped and over which it is slowly wound.

The workman accelerates or retards the passage of the hide by lifting it up or pressing it down, and in this way the thicker parts secure a greater longitudinal pull from the roller than do the thinner parts, and the bar, by its shape, tends to stretch the hide laterally as it passes from the table to the roller. The table and the bar have a lateral yield or adjustment to accommodate hides of different sizes.

The first claim is for the combination of the table, the stretcher, and the roller; the second for the lateral yield in the table and stretcher; the third for "the improvement in the method of stretching hides, which consists in dragging the hide over a stretcher, and also over a friction table or beam, by means of a revolving roller, to which the hide is secured, as described, whereby, as the hide is passed over the table or beam, the thicker portions of the hide are detained or made to lag by pressure applied to such thicker portions, to increase at such points the friction between the hide and the table, substantially as specified."

There was a machine for stretching leather for belts well known to the patentee and to some others in the trade, which was made by modifying a splitting machine. Mr. Coupe did not, in fact, make his improvement upon this stretcher, but it is much more like his machine than anything else which preceded it.

This old machine was used upon hard-tanned leather to adapt it to be made into belts for machinery, for which purpose it must be stretched with great power, eighteen or twenty thousand pounds to the square inch, in order to take out of it all possibility of further stretching. This was done by passing the leather through a trough which was brought up against the stretcher-bar with the force we have mentioned. Since the plaintiffs' method and machine have become known, Mr. Davis, an accomplished worker in leather, has tried with some success an enlarged copy of the old belt-leather stretcher, to do the work of the plaintiffs' machine. He is obliged to use a greater number of men or boys to tend the machine and prevent the pressure from ruining the hide, which, of itself, tends to prove that the machines are not alike; and we have no doubt that, if the plaintiffs' devices are considered an improvement upon this old machine, they embody a patentable improvement. They omit the means for producing the pressure, and add a table not useful in the old machine, but which, in the new machine, enables the workmen to exert sufficient pressure.

The defendants at one time used a machine which closely resembles that of the plaintiffs. At present they have one which works with a trough and bar, like the old belt-stretcher, with the addition of a table over which the leather passes, and which enables the workmen to spread out and manipulate the hide; upon the edge of this table is a piece of metal with grooves spreading outward, and these grooves have a tendency to stretch the hide laterally, or at least to prevent it from wrinkling; that is, to keep it to its lateral stretch, which seems to be much the same thing. The slot and bar are so placed in relation to each other that a hide is not squeezed between them, as in the old belt-stretcher; but, in the legitimate attempt to avoid infringement of the plaintiffs' invention, which the defendants intended to copy as far as they lawfully might, because they had failed to come to terms with the plaintiffs for a license, they now put into the trough a piece of board, supported at either end upon blocks, about one-third the width of the trough. The operation of the machine as thus modified is known only to the defendants themselves, and Mr. Weatherhead testifies that it exerts a pressure upon the hide, how great in pounds we do not know. We understand him to say that, by passing the hide through the machine several times, all parts come sooner or later under the board, and thus substantially all the stretching is done by its aid.

Infringement of the plaintiffs' first claim is not escaped by the use of this piece of board, for, although it causes the defendants' machine to approach more nearly the old belt-stretcher, still the operation must remain to some extent at least like that of the patent. The manipulation with the table and grooves must enable the operator to use all the elements of the first claim upon two-thirds of the width of the hide each time it passes through the machine, and it depends altogether on the thickness and stability of the board whether the whole operation is or is not copied. The very presence of this removable board is evidence that the old machine is not satisfactory for the new use.

The argument that a machine must be automatic in order to be patentable is not sound. A piano is not automatic, nor is any tool or implement intended for use by hand; but improvements in any such tool used in an art or industry are patentable.

In the second claim the combination is limited to a laterally yielding stretcher and a laterally yielding friction table or beam; as one bar, however, in the defendants' machine is fixed and the other has a motion up and down, we find no infringement of this claim.

The third claim appears to be for the exclusive right of using the machine referred to in the first claim, and, as the defendants have used such a machine, they have infringed the third claim, and we do not at present see how it could be infringed otherwise than by infringing the first claim.

In the testimony and the proceedings before the master, the consideration of the case seems to have gone solely upon the machine which Judge Lowell in his opinion states was used by the defendants "at present," and that machine is the only one considered by the defendants in their brief and their oral argument. The report of the master is based upon the use by the defendants of "their machine" for stretching hides, from January, 1880, to April, 1883, and he speaks, in his report, of but a single machine, and calls it "their infringing machine." The $15,412.82, reported by the master as gains and profits, is made up of three items, viz: $3,669.72 as the saving in the cost of stretching and manipulating the hides; $4,403.66 for the increased area of hide secured; and $7,339.44 as the increased value of the hides by reason of their improved condition. But the master makes no distinction as to how much of each of those items was due to the machine used at one time by the defendants, which, Judge Lowell states in his opinion, closely resembled that of the plaintiffs, and how much to the machine which the defendants used subsequently.

The plaintiffs contend that the defendants at first built and used a machine as near like a Coupe machine as possible, constructing it with two bars, one of which was bent or curved: that that machine was commenced in December, 1879, and completed in January, 1880; that in the latter month, on application by the defendants, Coupe declined to sell them one of his machines, and they then proceeded to complete their machine; that after August, 1880, the defendants informed Coupe that they had reconstructed their machine so as to take it outside of his patent; that Coupe, on examining it, notified the defendants that it was still an infringement: that they again reconstructed it; and that, as so reconstructed, it is the machine which they continue to use. It is claimed that that machine is an infringement of claim 1; that the use of it is an infringement of claim 3; and that it is the machine of which Judge Lowell speaks in his opinion as the machine used "at present" by the defendants.

On the whole case, we think the inquiry must be confined to that machine; and we are of opinion that

claims 1 and 3, rightly construed, do not appear to have been infringed, and that the decree of the circuit court must be reversed.

The machine spoken of by Judge Lowell, in his opinion, as one well known to Coupe, and to some others in the trade, prior to the making of the invention by Coupe, was known in the art as the "dog" machine. In that machine, there were two dogs or clamps, corrugated on their inner side so as to hold the leather against slipping. The hide being grasped at two opposite parts of its edge by the two dogs, the latter were then pulled apart and the hide was stretched in the line between the two parts to which the dogs were clamped. The machine was then thrown out of gear, the dogs were taken off from the hide and applied to it in another place, and the process was so continued until the hide was considered to be sufficiently stretched.

The difficulty with that apparatus was that by it the stretch which it gave to one place it took out of another, and consequently the hide was not thoroughly stretched, being stretched always lengthwise but not crosswise, and contracting toward the center line of pull between the dogs. Thus, when the hide was grasped at two other extreme points and pulled, the stretch first given was taken out again.

In the operation of the machine of the Coupe patent, the hide is stretched longitudinally and transversely at the same time, instead of, as in the "dog" machine, stretching it first in one direction, across the hide, and then, by a subsequent operation, stretching it in another direction, transversely to the first direction. This transverse stretching in the Coupe machine is produced by the doubly inclined working faces *k k'* of the stretcher-bar K. The stretcher-bar K being highest in the center, because its sides or working faces are doubly inclined, causes that part of the hide which passes over its highest point to make a longer circuit in passing from the table or breast-beam H to the roller E than do the other parts, and thereby that part is stretched somewhat more than the other parts, and the hide has a tendency to spread laterally toward the ends of the stretcher-bar where there is a shorter line of passage, and thereby it is stretched transversely to the longitudinal line of movement of the hide toward the roller E. This tendency is assisted by the use of the hands of the operator in pressing downward upon the hide. Thus the hide has a lateral stretch given to it simultaneously with its longitudinal stretch, while it is drawn through the machine by the roller E. The pull of that roller against the resisting pressure of the hands of the operator gives the longitudinal stretching, and the same pull gives the transverse stretching, owing to the joint action of the pressure of the operator's hands and the form of the stretcher-bar K, with its doubly inclined working faces.

According to the specification of the patent, a single passage of a hide through the machine is supposed to give it sufficient stretching transversely as well as longitudinally; for the specification, after describing both stretchers, says:

> The machine is now stopped, the hide removed, another secured to the roller E, and the operations above described are repeated.

In the old "dog" machine, the hide was stretched first in one direction and then taken out and grasped at another place, and stretched in a direction transverse to the first. The transverse stretching in the Coupe machine has the effect to preserve the result of the longitudinal stretching, and to stretch the hide completely in a single passage of it through the machine.

The first claim of the patent is for the combination of a friction table or beam, over which the hide is drawn, a stretcher, substantially as described, and a revolving roller, to which the hide is secured, and around which it is wound as it is drawn over the friction beam and stretcher. This is a claim to mechanism.

The third claim is a claim to an improvement in the method of stretching hides, which consists in dragging the hide over a stretcher and also over a friction table or beam, by means of a revolving roller to which the hide is secured, as described, whereby, as the hide is passed over the table or beam, the thicker portions of the hide are detained or made to lag, by pressure applied to such thicker portions to increase at such points the friction between the hide and the table. The "pressure" mentioned in the third claim is the pressure applied by the hands of the operator to the hide as it passes over the friction table or beam.

It was correctly held by the circuit court, that the third claim is for the exclusive right of using the machine referred to in the first claim, and that it cannot be infringed otherwise than by infringing the first claim. If the defendants have used the combination of mechanism covered by the first claim, they have infringed it, and have also thereby used the method covered by the third claim.

Although the third claim is not confined to a passage of the hide through the machine only once, where such single passage does not produce a perfect result, it is manifest from the specification that the use of the combination covered by the first claim is intended and expected to produce complete longitudinal and transverse stretching simultaneously, by a single passage through the machine. Such stretching action, transverse as well as longitudinal, may not be, in a given instance, sufficiently severe, and a second application of the machine to the same hide may be required; but in both cases, the transverse stretching will take place simultaneously with the longitudinal stretching. The defendants do not so use their machine.

In the first claim of the patent, the stretcher-bar K is interposed between the friction table or beam H and the revolving roller E. Therefore, to infringe the first or the third claim, there must be used a stretcher bar substantially such as described in the specification, of such form as will give a transverse stretch to the hide simultaneously with the giving of the longitudinal stretch.

In the defendants' machine, there is no stretcher-bar K or its equivalent, for transverse stretching, and the transverse stretching is not done simultaneously with the longitudinal stretching. On the contrary, in the defendants' method, the hide is grasped at two opposite portions of its edge and stretched on that line.

It is then taken out, grasped between two other opposite portions of its edge, and stretched on that line transversely to the first line. It is thus stretched by the consecutive method operated by the old "dog" machine. That method is excluded by the Coupe specification.

In the defendants' machine, the line of tension runs in different directions at different times. Strains in it are imparted successively and not simultaneously.

The theory of the Coupe specification is that, unless the hide is stretched transversely while it is stretched longitudinally, the stretch put into it when it is stretched in one direction will be wholly or partially taken out when it is stretched in another direction.

It is contended, however, that in the use of the defendants' machine, a transverse stretching is produced simultaneously, and by a device substantially like the doubly inclined stretcher-bar K of the patent. It is for the plaintiffs to establish that the defendants use substantially the doubly inclined stretcher-bar K. The mere smoothing out of wrinkles, and the stretching of the body of the leather so as to reduce it permanently to an equal thickness throughout, are two separate and distinct things. The operation of the doubly inclined stretcher-bar K is not that of merely smoothing out wrinkles in the hide. The circuit court seemed to be of the opinion that the outward spreading grooves on the edge of the table in the defendants' machine had a tendency—

> to stretch the hide laterally, or at least to prevent it from wrinkling, that is, to keep it to its lateral stretch, which seems to be much the same thing.

The machine of the defendants has divergent grooves or serrations formed on the surface of the friction table. We are of opinion that it is not a sound conclusion that the corrugations on the friction beam in the defendants' machine perform the office of Coupe's stretcher-bar K, interposed between the friction beam and the roller H. While it is true that the corrugations prevent the hide from wrinkling, yet, as there is not in the defendants' machine any lateral stretch, it is not true that such corrugations keep the hide to its lateral stretch. There is no lateral stretch which is kept from going back by such corrugations. Any office of the corrugations to keep a lateral stretch from going back would be unnecessary in the defendants' machine, because the hide is to be taken out and re-attached at new points, and stretched longitudinally in the very direction in which the previous transverse stretching, if it existed, would have been performed.

It is shown by the evidence that the hide does not, in the defendants' machine, enter the grooves or serrations to any appreciable extent; that they are not deep enough to have any such effect; that there is no indication on the upper surface of the hide that its lower surface enters into the serrations; that there is no indication that the under surface of the hide is not supported by a smooth bar or table; and that this is shown by the fact that the upper surface of the hide appears smooth where it lies over the grooves or serrations. It is not shown by the evidence for the plaintiffs that the grooves are not too shallow to have any effect in giving lateral movement to the hide, or that the hide would not show on the upper surface whether the under surface was engaged in the grooves, or that there was any appearance on the upper surface indicating any such engagement.

Irrespectively of this, the combination of the first claim of the patent is one in which the stretcher-bar is interposed between the friction table or beam and the roller. In the defendants' machine, the organization is different.

We are of opinion that the first claim is not infringed, because the defendants do not have the stretcher-bar K, or any substitute for it, performing the same operation. They get their transverse stretch by taking out the hide and grasping it at new points, and stretching it between those points. The corrugations only keep the hide from wrinkling, an operation which the patent says is performed before the stretcher-bar acts upon the hide. It does not appear that, as the defendants' machine is used, there is any lateral stretching of the hide simultaneously with its longitudinal stretching. The corrugations are not combined with the friction beam and the roller, as the convex stretcher-bar of the patent is; for that is interposed between the friction beam and the roller, and the description in the specification is that the hide, after being longitudinally stretched on the friction beam, passes to and is stretched transversely by the stretcher-bar; whereas, in the defendants' machine, the corrugations are integral with the friction beam. It would not be practicable to make the convex stretcher-bar of the patent integral with the friction beam. The specification describes the stretcher-bar as having a lateral movement relatively to the friction beam; and this excludes the idea of the stretcher-bar being integral with the friction beam.

The defendants do not stretch the hide longitudinally and transversely at the same time, but only stretch it longitudinally in different successive directions across the hide.

The third claim is not infringed, because the described method of operation of the combination of the first claim is not performed by the defendants.

The decree of the circuit court is reversed, and the case is remanded to that court with a direction to dismiss the bill, with costs.

U. S. Circuit Court—Southern District of New York.

PERRIN *et al. v.* MANHATTAN RAILWAY COMPANY. PERRIN *et al. v.* METROPOLITAN ELEVATED RAILWAY COMPANY. PERRIN *et al. v.* NEW YORK ELEVATED RAILROAD COMPANY.

1. DOCTRINE, UT RES MAGIS VALEAT QUAM PEREAT—WHEN THE CONSTRUCTION OF A CLAIM WILL NOT BE LIMITED IN ORDER TO SAVE IT.

The second claim of Letters Patent No. 50,518, granted to Henry H. Trenor, for improvements in the running-gear for railroad-cars and other vehicles, dated October 17, 1865, which is as follows—"2. The method of coupling the cars or vehicles of a train of two or more cars or vehicles by means of connecting-links attached to the pivots or king-bolts of the trucks, substantially as herein shown and set forth"—cannot by any reasonable construction be limited to a method of coupling cars or vehicles having four-wheeled trucks, and upon the broad construction given to the second claim of the patent it was *Held* void for want of novelty.

2. SCOPE OF PATENT—WEIGHT OF DRAWINGS IN DETERMINING.

While the drawings only illustrate the invention in its application to railroad-cars and to railroad-cars having each two four-wheeled trucks, from the language of the specification it is apparent that the invention was designed to be applied to a series of vehicles of kinds that are not provided with four-wheeled trucks, but are usually provided with two-wheeled trucks.

3. SAME.

The terms of the claim are coextensive with the description of the patent. They are not narrowed by any letters of reference to the drawings. The drawings are therefore illustrative and explanatory, but not definitive, and are only to be treated as part of the description of the thing patented.

Mr. Edward N. Dickerson for the complainants.
Mr. Benjamin F. Lee for the defendants.

WALLACE, *J.*:

The second claim of the patent in suit, No. 50,518, (granted October 17, 1865, to Henry H. Trenor,) the only claim now in controversy, cannot by any reasonable construction be limited to a method of coupling cars or vehicles having four-wheeled trucks.

The specification states as follows:

The danger and difficulty attending the running of railroad-cars on railroads, or of a series of vehicles on common roads, whether propelled by traction-engine or otherwise, consist in the curves or sinuosities of the roads. On railroads the cars are deviated from the straight line by friction of the wheels on the sides of the rails, which is directly proportionate to the pressure and speed, and inversely to the radius of the curve, so that to adapt the wheels to the curve of the rail much power is absorbed, while the strain on the rails and the liability of running off the track are proportionately increased. To obviate this is the object of my invention, and it consists in a method of adapting all the axles or trucks of the train of cars or vehicles to the curves or direction taken by the leading axle or truck. This I have accomplished by combining with axles or trucks of vehicles, of whatever description, when pivoted so as to have a center of motion, a system of connection or coupling whereby the movement of the one is necessarily transmitted to the others.

In the drawings, Figure 1 represents an elevation of a train composed of two four-wheel-truck cars placed on a curve of a railroad. Fig. 2 is a plan view of the same.

The specification then deals with the invention of the first claim, and thereafter proceeds as follows:

In addition to this mode of connecting the trucks by a directing link or links I use a system of coupling of the cars, not by the platform, as heretofore practiced, but by the trucks, whereby liability of the body of the vehicle or car being thrown off the trucks is obviated. In Figs. 1 and 2 I have shown the cars to be connected by means of a coupling-link, *m*, attached to the pivot of the truck. The form of the link may be modified, according to the judgment of the engineer. This invention is applied to railroad-cars as well as to other vehicles—for instance, to emigration-trains moved by traction-engines or otherwise. Many modifications may be applied without departure from my invention.

The language quoted gives the entire specification so far as it relates to the present claim.

The claim is as follows:

2. The method of coupling the cars or vehicles of a train of two or more cars or vehicles by means of connecting-links attached to the pivots or king-bolts of the trucks, substantially as herein shown and set forth.

The drawings only illustrate the invention in its application to railroad-cars and to railroad-cars having each two four-wheeled trucks; but from the language of the specification it is apparent that the invention is designed to be applied to a series of vehicles on common roads without rails, propelled by traction-engines or otherwise, as well as to cars moving upon a railroad-track. A traction-engine is a well-known device for pulling common vehicles over common roads. Such vehicles are not provided with four-wheeled trucks, but are usually provided with two-wheeled trucks. Two-wheeled trucks are also frequently employed on railroad-cars. This sufficiently appears by the French patent to Gerstner, of July 27, 1829; the French patent to Arnoux, of March 3, 1851; the English patent to Clark and Motley, of 1849, and the English patent to Deville, of December 13, 1838.

The terms of the claim are coextensive with the description of the patent. Whenever two vehicles are coupled by attaching to the pivots or king-bolts of their trucks, whether two-wheeled trucks or four-wheeled, a connecting-link substantially like that described in the specification, the invention of the claim is appropriated. Its terms are not narrowed by any letters of reference to the drawings. The drawings are therefore illustrative and explanatory, but not definitive, and are only to be treated as part of the description of the thing patented.

If the patent could be restricted to one for the coupling of railroad-cars, the argument that the trucks of the claim mean four-wheeled trucks would be persuasive, in view of the consideration that except with such trucks the coupling devices would not adapt all the trucks to the curve or direction taken by the leading truck; but this cannot be done without eliminating the statement in the specification that the invention is to be applied to other vehicles as well as railroad-cars.

Giving the claim its correct construction, the novelty of the invention is negatived by the patent to Deville, before referred to. That patent shows two carriages in which the two-wheeled truck of one is coupled to the two-wheeled truck of the other by means of a rigid rod attached to the king-bolts of the trucks. The rod is essentially the connecting-link of the patent in suit and, like the latter, is capable of being disconnected in the middle. While the method of coupling shown by this patent might not be of any value when used upon railroad-cars without the guiding attachment of four bearing-wheels, that attachment would be manifestly a mere excrescence except when the vehicles are to be used on railway-tracks, and no invention would be involved in discarding it. This conclusion renders it unnecessary to consider any of the other defenses which have been relied upon by the defendant.

The bill is dismissed, with costs.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 62.—No. 9. TUESDAY, FEBRUARY 28, 1893. PRICE—$5 per year.

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Attorneys.

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE SECRETARY,
Washington, D. C., February 20, 1893.

SIR: The Secretary of the Interior has ordered that J. H. Robertson, of Fayette, Mo., be not recognized after this date as agent or attorney in the prosecution of any claim or other matter before this Department or any Bureau thereof.

Very respectfully,

E. M. DAWSON,
Chief Clerk.

The Commissioner of Patents.

Copies of Decisions Furnished.

Hereafter an uncertified copy of every decision or action by any tribunal in this Office will be furnished by such tribunal to the interested party or parties without charge.

Price of Printed Copies of Patents.

Attention is called to the fact that under date of May 14, 1891, the price of uncertified printed copies of patents was fixed at the *uniform price of ten cents each*, whether purchased singly or in quantities.

DISCLAIMER.

217,907.—*James S. Shannon*, Chicago, Ill. IMPROVEMENT IN TEMPORARY BINDERS. Patent granted July 29, 1879. Disclaimer filed February 23, 1893, by the present assignee, *The Office Specialty Manufacturing Company*, of Rochester, N. Y.

Enters its disclaimer to the whole of the first claim of said patent, which is in the following words, to wit:

"1. In combination with the fixed wire B and the base A, the arched vibrating wire C, having a positive rotary movement in the axis of its vertical portion, whereby its free end may be swung into contact with or away from the free end of the fixed wire, substantially as described."

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of February 28, 1893.

Patents	398—No. 492,380 to No. 492,771, inclusive.
Designs	12—No. 22,239 to No. 22,250, inclusive.
Trade-Marks	73—No. 22,506 to No. 22,578, inclusive.
Labels	None.
Reissues	2—No. 11,310 to No. 11,311, inclusive.
Total issue	479

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	....	Nevada	....	1
Arizona Territory	1	....	New Hampshire	3	....
Arkansas	1	....	New Jersey	29	1
California	11	2	New York	61	27
Colorado	2	....	North Carolina	1	1
Connecticut	17	....	North Dakota	....	....
Delaware	....	....	Ohio	27	11
District of Columbia	4	....	Oklahoma Territ'y	1	....
Florida	....	....	Oregon	1	....
Georgia	3	....	Pennsylvania	52	7
Idaho	....	....	Rhode Island	5	....
Illinois	29	7	South Carolina	....	....
Indian Territory	....	....	South Dakota	....	....
Indiana	12	....	Tennessee	3	....
Iowa	5	....	Texas	5	....
Kansas	7	....	Utah Territory	1	....
Kentucky	8	....	Vermont	1	1
Louisiana	2	....	Virginia	3	1
Maine	3	....	Washington	....	....
Maryland	6	1	West Virginia	....	....
Massachusetts	23	7	Wisconsin	8	1
Michigan	6	1	Wyoming	....	....
Minnesota	3	....	U. S. Army	....	....
Mississippi	2	....	U. S. Navy	....	....
Missouri	21	....			
Montana	....	....	Total to citizens of the United States	373	69
Nebraska	5	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Mexico	....	....
Austria-Hungary	....	....	Netherlands	....	....
Belgium	....	....	Newfoundland	....	....
Bermuda	....	....	New South Wales	....	....
Brazil	....	....	New Zealand	....	....
Canada	5	....	Norway	....	....
Ceylon	....	....	Roumania	....	....
Chile, Republic of	....	....	Russia	....	....
Cuba	....	....	Scotland	2	2
Denmark	....	....	South Australia	....	....
Ecuador	....	....	Spain	....	....
England	15	1	Sweden	....	....
France	1	..	Switzerland	....	....
Germany	7	1	Victoria	....	....
India	....	....			
Italy	1	....	Total to citizens of foreign countries	31	4
Japan	....	....			

APPLICATIONS UNDER EXAMINATION.

Condition at Close of Business February 21, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Jan. 28	Feb. 13	80
	Between one and two months in arrears.			
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Dec. 27	Feb. 17	153
8	Furniture, Toilet, Umbrellas and Canes, etc.	Dec. 22	Feb. 13	243
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 21	Feb. 7	234
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Dec. 22	Feb. 4	222
21	Textiles, etc.	Dec. 24	Jan. 28	192
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Dec. 22	Jan. 28	325
7	Harvesters, Games and Toys	Dec. 22	Jan. 23	502
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Dec. 23	Jan. 21	246
12	Mechanical Engineering, Stove-Service, etc.	Dec. 27	Jan. 17	252
10	Carriages and Wagons and Railway-Cars.	Dec. 21	Jan. 17	397
13	Metals-Working, Arms and Projectiles, etc.	Dec. 22	Jan. 16	183
24	Sewing-Machines and Apparel	Dec. 27	Jan. 12	125
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Dec. 27	Jan. 12	254
9	Hydraulics, Fire-Extinguishers, etc.	Dec. 22	Jan. 5	411
4	Civil Engineering, etc.	Dec. 21	Dec. 27	370
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 23	Dec. 22	259
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Dec. 22	Dec. 21	300
	Between two and three months in arrears.			
2	Farm Stock, Products, etc	Dec. 20	Feb. 16	191
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Dec. 20	Feb. 2	303
22	Fire-Arms, Navigation, Signals, etc.	Dec. 2	Jan. 23	236
18	Steam-Engineering, etc.	Dec. 14	Jan. 17	224
28	Instruments of Precision, Acoustics, Optics, etc.	Nov. 25	Jan. 6	322
19	Stoves and Furnaces	Dec. 5	Dec. 27	435
26	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 19	Dec. 17	356
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 15	Dec. 7	335
	Between three and four months in arrears.			
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Oct. 22	Jan. 3	383
17	Paper-Manufactures and Printing.	Nov. 17	Dec. 30	275
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Oct. 24	Dec. 23	407
1	Tillage and Fences	Nov. 14	Dec. 15	290
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Sept. 14	Jan. 24	387
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	June 27	Nov. 4	556
	Total number of applications awaiting action			9,397
	Under one month in arrears.			
	Designs	Feb. 13	Feb. 13	41
	Trade-Marks	Feb. 16	Feb. 20	24

PATENTS

GRANTED FEBRUARY 28, 1893.

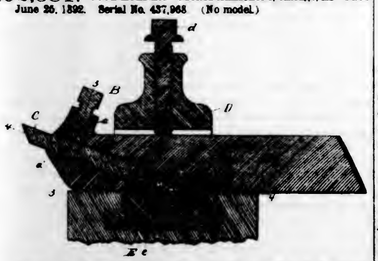
492,380. SUCKER-ROD CLAMP OR WRENCH. CYRUS S. ANNER, Harmony, assignor of one-fourth to William J. Steel, Zelienople, Pa. Filed Apr. 19, 1892. Serial No. 429,779. (No model.)



Claim.—1. In a lifting clamp or wrench, a forked yoke, a hook shaped clamp pivotally mounted in said yoke and provided with a squared recess near one end a longitudinal recess in one side thereof, and locking projections at the ends of said recess, a removable face plate seated in said recess and having end notches engaging said projections and adapted to form one side of said squared recess, a locking latch pivoted in said block and working in said squared recess and a latch lever connected to said latch, substantially as set forth.

2. In a lifting clamp or wrench, the combination with the forked yoke; of the swinging clamp block pivotally mounted at its ends in said yoke and provided with a hook at one end forming a squared clamping recess, said hook having an outer bifurcation, face plates removably seated in one side of said squared recess, a latch pivoted in said bifurcation and provided at one end with a tongue, adapted to be projected from the inner end of the bifurcation and the hook across said squared recess to inclose the same, said latch also having a projecting stud at the other end, and an operating lever provided with a head eccentrically mounted upon one of the journals of the clamp block and having a curved slot engaging said projecting stud, substantially as set forth.

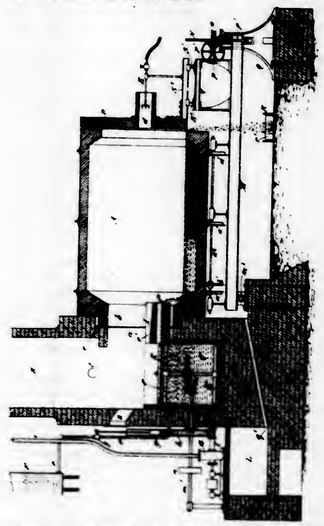
492,381. TOOL-HOLDER. GEORGE ARMSTRONG, Chicago, Ill. Filed June 26, 1892. Serial No. 437,968. (No model.)



Claim.—1. A tool-holder or stock having a tool socket extending from one of its ends diagonally through its body at an angle of approximately twenty degrees to the longitudinal line thereof, and opening through the under side of the stock, said socket being rectangular in cross-section and having its lower side centrally longitudinally grooved, and being provided with a stop shoulder near its inner end whereby the tool is prevented from projecting beyond the bottom of the stock, substantially as described.

2. A tool-holder having a rectangular socket whose lower side is centrally longitudinally grooved, substantially as described.

492,382. APPARATUS FOR RECOVERING ALKALI. HENRY BLACKMAN, New York, N. Y. Filed Mar. 31, 1891. Renewed July 26, 1892. Serial No. 441,334. (No model.)



Claim.—1. A calcining furnace consisting of a calcining chamber and an upright stack, a tank at the base of said stack for receiving the solution to be calcined, a pump for drawing off the solution from said tank, and a pipe leading from the outlet of said pump and discharging into said stack, whereby the liquid is circulated in said tank, and repeatedly showered down the stack and returned into said tank preparatory to being discharged into the calcining chamber.

2. In a calcining furnace, the combination of an upright stack, a concentrating tank built into the base of the stack, a revolving calcining chamber having an outlet opening communicating with the base of the stack, and the base of the stack formed with an arm projecting into the calcining chamber, and with an outlet passage from said tank through said arm for delivering the concentrated solution from said tank into the calcining chamber.

3. In a calcining furnace, the combination of an upright stack, a concentrating tank built into the base of the stack, a revolving calcining chamber having an outlet opening communicating with the base of the stack, and the base of the stack formed with an arm pro-

jecting into the calcining chamber, and with an outlet passage from said tank through said arm for delivering the concentrated solution from said tank into the calcining chamber, and said arm formed with a

492,388. PLANTER. DAVID J. BOWERS, Cadillac, Mich. Filed Aug. 25, 1892. Serial No. 444,065. (No model.)

9. The combination with a seeder frame having the opposite pairs

492,385

jecting into the calcining chamber, and with an outlet passage from said tank through said arm for delivering the concentrated solution from said tank into the calcining chamber, and said arm formed with a depression or channel on its upper side through which the solution may flow in case of the stoppage of said passage, and whereby the overflow of the solution into the joint or space between the revolving chamber and the stack is prevented.

4. In a calcining furnace, the combination with the calcining chamber and stack of a concentrating tank built within the base of the stack, an outlet therefrom to the calcining chamber, a standpipe exterior to the furnace and communicating with said tank, a supply tank and pipe extending therefrom to said concentrating tank, a valve in said pipe, and a float in said standpipe for automatically operating said valve and thereby controlling the height of liquid in the concentrating tank.

5. In a calcining furnace, the combination of a calcining chamber and stack, a concentrating tank within the furnace, an agitator within said tank, a pump for drawing off the solution from said tank, and a pipe leading from the outlet of said pump and discharging the solution into the stack, whereby the solution in said tank is agitated and is repeatedly circulated from said tank and streamed down the stack.

6. In a calcining furnace, the combination of a calcining chamber and stack, a concentrating tank within the furnace, an upright shaft carrying stirring arms within said tank, a driving shaft passing laterally through said tank, and bevel gears within the tank for communicating motion from said driving shaft to said stirrer shaft, whereby the material in said tank may be effectively agitated and commingled.

7. In a calcining furnace, the combination with an upright stack and means for showering the solution to be concentrated down through said stack, of a separator for recovering any particles which might otherwise be carried out through the top of the stack, consisting of a deflecting plate mounted above the top of the stack, a collecting chamber arranged to inclose the upper end of the stack and receive any particles disengaged by said plate, and means for washing down any material collected by said chamber, consisting of a pipe for conveying liquid thereinto, and an opening from the bottom of said chamber into the stack, whereby the liquid directed into said chamber washes the recovered particles through said opening and down the stack.

8. The combination of a stationary stack, a horizontal furnace comprising as part thereof a revolving calcining chamber having its receiving end communicating with said stack, and arranged to discharge the calcined material from its opposite end, a tilting framework for supporting said furnace and tilting it to varying angles, pivoted adjacent to the receiving end of said chamber, and mechanism for raising or lowering said framework to raise or lower the discharge end of said chamber at will.

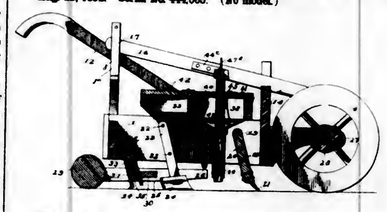
9. The combination of a stationary stack, a horizontal furnace comprising a revolving calcining chamber having its receiving end communicating with said stack, and means at its opposite or discharge end for partially closing it and for supplying ignited fuel to it, a tilting framework for supporting said furnace and tilting it to varying angles, pivoted adjacent to the receiving end of said chamber, and mechanism for raising or lowering said framework to raise or lower the discharge end of said chamber at will.

10. The combination of a stationary stack, a horizontal furnace comprising a revolving calcining chamber having its receiving end communicating with said stack, and a stationary shield or initial combustion chamber at its opposite or discharge end for partially closing it and having an opening for supplying ignited fuel to it, the supporting wheels and shafts of said rotary chamber, a support for said stationary shield or chamber, a tilting framework for supporting said furnace, on which said wheels and shafts and said support are mounted, and mechanism for raising or lowering said framework to tilt it to different angles at will.

11. The combination of a stationary stack, a horizontal furnace comprising a revolving calcining chamber having its receiving end communicating with said stack, and a stationary shield or initial combustion chamber at its opposite or discharge end for partially closing it and having an opening for supplying fuel to it, the supporting wheels and shafts of said rotary chamber, a support for said stationary shield or chamber, constructed with slideways to admit of the adjustment of the shield or chamber toward or from the discharge end of the rotary chamber, a tilting framework for supporting said furnace, on which said wheels and shafts and said support are mounted, and mechanism for tilting said framework to different angles at will.

12. The combination with a revolving calcining chamber and its shield or initial combustion chamber, a tilting platform supporting them, and a lifting mechanism therefor consisting of upright screws to which the ends of the longitudinal beams of the platform are connected, worm-wheels having threaded hubs engaging said screws, and a transverse shaft having worms meshing with said worm-wheels.

492,888. PLANTER. DAVID J. BOWERS, Cadillac, Mich. Filed Aug. 25, 1892. Serial No. 444,065. (No model.)



Claim.—1. In a seeder, the combination with the framework thereof, of a hopper having an opening in its bottom, a bottomless seed discharge-tube having a perforation in its side and mounted in the opening, and means for reciprocating the tube, so that its opening is elevated above and lowered below said bottom, substantially as specified.

2. In a seeder, the combination with a hopper having a hole in its bottom, and a bottomless tube depending from the same, of an internal sliding bottomless tube having a seed-opening, in its side and means for reciprocating said sliding tube, so that its opening is elevated above and lowered into the depending tube substantially as specified.

3. In a seeder, the combination with a hopper having a hole in its bottom, and a stationary tube depending therefrom, of a cover for the hopper having a perforation in line with the hole, a reciprocating slotted tube mounted in the perforation of the cover and in the hole in the bottom, means for reciprocating the tube, a flat spring secured to the cover, and a lug over the perforation of the tube and adapted to ride against the spring, substantially as specified.

4. In a seeder, the combination with the hopper having an opening in its bottom, of a slotted seed-tube mounted for sliding in the opening, means for operating the tube, an internal adjustable tube therein having a cutoff for the perforation, and means for operating cutoff-tube and seed tube, substantially as specified.

5. In a seeder, the combination with the framework, the ground-wheel located at the front end of the same and provided with trip-pins, and the standard located in rear of the ground-wheel, of an intermediate hopper, the bottom of which is provided with a depending tube, a reciprocating seed-tube having an opening mounted in the depending tube, and a lever pivoted to the standard and at its front free end lying in the path of the trip-pins of the wheel and between its ends pivoted to the upper end of the reciprocating seed-tube, substantially as specified.

6. In a seeder, the combination with the opposite side-bars, the back standard frame having the upwardly-disposed standard-frame a stud, the front standard having the guide-slot, the perforated wheel, and the adjusting-pins, the wheel being journaled in front of the front standard, the lever removably pivoted upon the stud, mounted in the guide-slot, and at its front end extending into the path of the pins, of the intermediate box subdivided to form a hopper, having an opening in its bottom provided with a discharge-tube, a lever supporting standard upon the hopper, a reciprocating tube mounted in the discharge-tube and extending through an opening in the cover of the hopper and terminating at its upper end in a head pivotally connected with the lever, a standard depending from the frame in line between the wheel and tube, a furrow-opening shovel secured to the standard, and furrow-closing shovels located at opposite sides and in rear of the tube, substantially as specified.

7. In a seeder, the combination with the frame, the hopper, the discharge mechanism, the furrow-opening shovel located in front of and below the hopper, and the covering shovels located in rear of and below the hopper, of the opposite side-bars 25 loosely connected at 26 to the side bars of the frame and provided at their rear ends with bearings 27, the roller 29 having the axle 28 taking into the bearings, the notched cross-bar 30, the rung 31 adjacent thereto, said bar and rung connecting the bars 25, the rung 32 connecting the frame-bars, and the standard 33 depending from the rung 32 and having its lower end bifurcated to embrace the rung 31, the front bifurcation of said standard resting in the notch of the bar 30, and the pin 35 connecting the bifurcations below the rung 31, substantially as specified.

8. The combination with a seeder frame provided at opposite sides with pairs of eyes, of a marker comprising opposite side-bars terminating at their rear or inner ends in hooks for removably engaging either pair of eyes, a beam mounted for sliding between the bars and provided with a longitudinal slot, straps embracing the bars and beam, a clamping-bolt passed through the slot of the beam and the straps and provided with a nut, and a marking-wheel journaled on the outer end of the beam, substantially as specified.

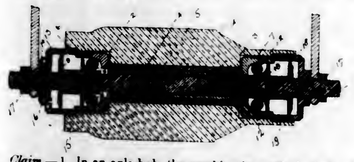
9. The combination with a seeder frame having the opposite pairs of eyes, of the marker frame comprising the opposite side-bars terminating in hooks for removably engaging the eyes, the wheel supported at the outer end of the bars, opposite handles secured to the frame, and loose hooks mounted on the bars and adapted, when the marker frame is elevated, to engage the adjacent handle, substantially as specified.

10. In a planter, the combination with the framework, the hopper having the upper and lower openings, of the slotted seed-tube mounted for reciprocation in the openings, means for reciprocating said tube, and a cutoff adjustably mounted in a slot of said tube, substantially as specified.

11. In a planter, the combination with the framework and hopper having the upper and lower openings, of the reciprocating slotted seed-tube mounted therein and provided at its upper end with a U-shaped yoke, means for reciprocating the tube, an inner threaded tube mounted in the seed-tube, a ring threaded thereon above the seed-tube, and a set-screw mounted in the yoke and bearing on the ring, substantially as specified.

12. In a planter, the combination with the framework, the wheel at the front end of the same having clip-pins, the standard at the rear end of the framework, the lever pivoted to the standard and extending into the path of the pins, of the hopper mounted on the framework below the lever and having upper and lower perforations, the lower one of which terminates in a discharge-tube, a reciprocating slotted seed-tube mounted in the hopper and discharge-tube and provided at its upper end above the hopper with a U-shaped yoke, a set-screw mounted in the yoke, a plate pivoted to the opposite side of the yoke and secured to the lever, an inner tube mounted in the seed-tube, a slide at the lower end of the same adapted to cover the slot therein, threads at the upper end thereof, a ring upon the threads and bearing on the yoke and adapted to be borne upon by the set-screw, substantially as specified.

492,384. BOX FOR VEHICLE-WHEELS. CHARLES H. BROWN, HENRY W. METER, and HENRY SCHLEWETH, Dayton, Ohio, assignors to the S. H. Brown & Company, same place. Filed Nov. 17, 1892. Serial No. 452,354. (No model.)



Claim.—1. In an axle hub, the combination with the hub, of an inner and outer sleeve with flanges, said flanges having conical-shaped interiors; the sleeves adapted to fit one in the other, a stationary two-part dust proof cap at the inner end, and a one part rotatable dust-proof cap at the outer end of the hub, said dust proof caps adapted to inclose the flanged ends of the sleeves, substantially as herein described.

2. The combination with a vehicle hub, of sleeves 4, and 5, with flanges 6, and 7, and the dust proof cap consisting of parts 13, and 14, substantially as herein shown and described.

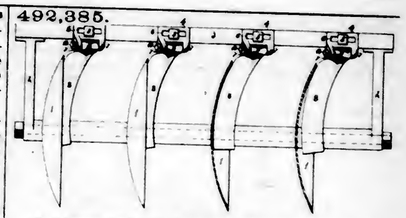
3. The combination with a vehicle hub, of sleeves 4 and 5, having flanges 6, and 7, the inner end dust proof cap, composed of parts 13, and 14, and the outer end dust proof cap, composed of a single part, substantially as herein described.

4. In a vehicle hub, the combination with the hub, of a boxing consisting of an inner and outer sleeve, one adapted to inclose the other, and thereby bring their ends on a true horizontal plane with each other, said sleeves having flanges against which abuts a dust proof cap composed of parts 13 and 14, and the dust proof cap 18, substantially as herein described.

5. In a vehicle hub, the combination with the hub, of sleeves 25, and 26, with flanges having conical shaped interiors, and the sleeve 23, and the dust proof caps 34, and 35, adapted to inclose the flanged ends of said sleeves, 25, and 26, substantially as herein described.

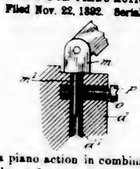
492,385. SCRAPER FOR DISK HARROWS. ALBERT EVINSTON, Rochelle, Ill. Filed Aug. 29, 1892. Serial No. 444,375. (No model.)

Claim.—1. A harrow composed of a series of disks, and a scraper for each disk, the scrapers located on the concave side of the disk and having a swinging movement independent of the others, said scrapers held from the disks by action of gravity and brought into scraping contact with the disks by the accumulation of dirt on the concave side thereof.



2. A harrow composed of a series of disks, scrapers for the disks, each scraper having a swinging movement independent of the others, said scrapers held from the disks by action of gravity and brought into scraping contact with the disks by the accumulation of dirt on the concave side thereof the axis upon which the scrapers are supported standing at an angle to the lengthwise axis of the disk.

492,386. FLANGE FOR PIANO-ACTIONS. HENRY P. CHAPMAN, Ivoryton, Conn. Filed Nov. 22, 1892. Serial No. 452,827. (No model.)

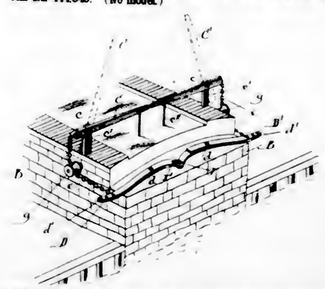


Claim.—1. In a piano action in combination with the hammer-rail the butt pivoted to a flange or mount and the adjustable flange whereby the plane of travel of the hammer may be adjusted with reference to the rail, all substantially as described.

2. In a piano action in combination with the hammer rail and the hammer operating parts, a hammer attached to the rail and the mount or flange comprising a head piece with a shank adapted to fit a socket in the rail, the perforated bushing extending into the rail transversely of the shank socket, perforated for the passage of the shank and supporting a clamp screw, all substantially as described.

3. In a piano action in combination with the rail the hammer pivotally connected to the rail and the hammer operating mechanism as described, a flange or mount adjustably secured in a socket in the rail and means for securing the flange all substantially as described.

492,387. BRIDGE-GATE. THEODORE F. COWLES, Chicago, Ill., assignor to Nathan S. Leppert, same place. Filed Aug. 29, 1892. Serial No. 444,345. (No model.)

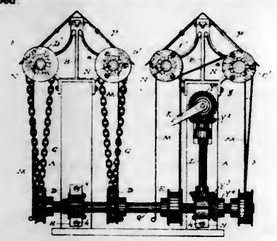


Claim.—The combination with the pivoted guard bars C and C' of the pivoted and horizontally movable levers D and D', the inner ends of said levers being connected together and extending outwardly in position to be operated by the swinging bridge, and forming a double incline, and connections uniting the outer ends of said levers to the ends of the pivoted guard bars C and C', substantially as described.

492,388. UNDRIED-BRICK PROTECTOR. ANDREW C. CONFARY, Fort Wayne, Ind. Filed Oct. 10, 1892. Serial No. 448,308. (No model.)

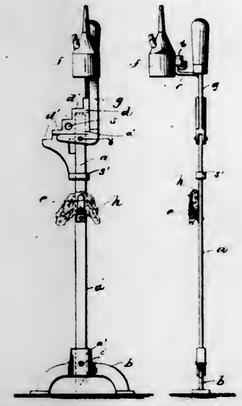
Claim.—1. In a brick protecting device, the combination of the standards A having the supporting brackets B mounted thereon adapted to support the curtain shafts N and the roof P, with the rev-

oluble shafts N mounted in suitable bearings in said brackets, and carrying upon one end thereof suitable chains or sprocket wheels adapted to be operated by the chain G, and operating handle K adapted to turn the shafts N, a longitudinal plate or T rail R adapted to connect said brackets and adjustably secured therein, a roof support O adapted for adjustment on the plate or rail R, a roof P secured to said support, O, and the water proof curtains M mounted upon the shafts N and adapted for vertical adjustment thereon, all substantially as set forth and described.



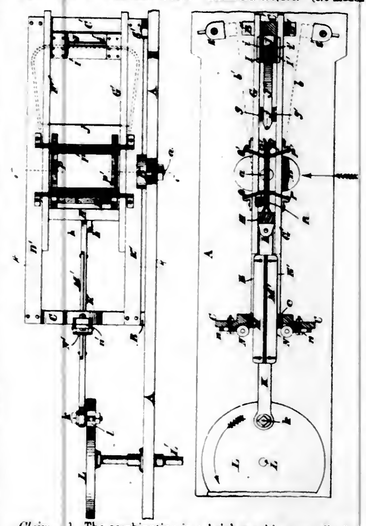
2. The combination in an undried brick protector, of the posts or standards A, the brackets B rigidly mounted upon said standards, and provided with the antifriction rollers *a*, for the bearing of the shafts N, a T rail or other suitable connecting plate adapted for securing the roof support O and the roof P, the adjustable support or bracket O, the roof P, and the longitudinal shaft N revoluble in suitable bearing in the brackets B, and adapted to properly secure the protecting curtains M, with the line shaft Q, provided with suitable bearings H on the standard A and having the sprocket wheels D, the cable wheels E, or their equivalent, and the gear wheel Y⁴ rigidly mounted thereon, the vertical operating shaft L properly mounted on the standard A, having upon its lower extremity the gear wheel Y³ adapted for engagement with the gear wheel Y⁴, and having upon its upper extremity the gear wheel Y² adapted for engagement with the gear wheel Y′, the counter shaft J properly mounted upon the standard A and provided with a gear wheel Y′ and an operating handle K, and the wheels C′ and D′ rigidly mounted upon the shafts N and adapted to be rotated by the cables F and the link chains G, all substantially as described.

492,389. WAGON-JACK. JOHN A. COREY, Hope Valley, R. I. Filed June 15, 1892. Serial No. 436,775. (No model.)



Claim.—In a wagon jack, the combination of a standard consisting of a straight, flat bar of metal, an arched foot piece having a mortise therein to receive the lower end of said bar, and a hole passing transversely through said mortise and agreeing with holes made in said bar, a slidable head having notches made on its upper side and having mortises made in its upper and lower parts to receive said bar, with a forked knee-lever pivoted to the bar and having its forked end arranged to work against the under side of the upper part of the head on both sides of the standard, and rest upon the lower cap bar when bearing the weight of the axle and wagon, substantially as herein set forth.

492,390. BRICK-MACHINE CUT-OFF. JONATHAN CREAGER, Cincinnati, Ohio. Filed June 4, 1892. Serial No. 435,476. (No model.)



Claim.—1. The combination in a brick-machine cut-off, of a laterally vibrating frame a reciprocating carrier applied thereto, which carrier is provided with a cutter, and a clay entrance at the center of vibration of said frame, substantially as herein described.

2. The combination in a brick-machine cut-off, of a laterally vibrating frame, a reciprocating carrier applied thereto provided with a cutter, and a device that operates both the frame and carrier, and a clay entrance at the center of vibration of said frame, substantially as herein described.

3. The combination, in a brick-machine cut-off, of a laterally vibrating frame, a reciprocating carrier applied thereto and provided with a cutter, a revolving driver and a pitman connection that operates said frame and carrier, and a clay entrance at the center of vibration of said frame, substantially as herein described.

4. The combination, in a brick-machine cut-off, of a laterally vibrating frame, a reciprocating carrier applied thereto and provided with a cutter, a revolving driver and a pitman connection that operates said frame and carrier, said pitman being furnished with laterally-shiftable devices that regulate the swing of said frame, which frame has a clay entrance at its center of vibration, substantially as herein described.

5. The combination in a brick-machine cut-off, of a laterally vibrating frame, a reciprocating carrier fitted therein and provided with a detachable bow to which the cutter is secured, and a clay entrance at the center of vibration of said frame, substantially as herein described.

6. The combination in a brick-machine cut-off, of a laterally vibrating frame, a reciprocating carrier fitted therein and provided with a detachable bow to which the cutter is secured, a pair of upper and lower guides between which said cutter travels, and a clay entrance at the center of vibration of said frame, substantially as herein described.

7. The combination, in a brick-machine cut-off, of the laterally vibrating frame C C′ D D′ E E′, provided with two pairs of guides *o*, *o*′, *p*, *p*′, the reciprocating carrier F F″, G G′ H I I′, fitted within said frame, a bow J′, applied to said carrier and furnished with a cutter *j*, a pitman K, coupled to said carrier, and a revolving driver L, that operates said pitman, as herein described.

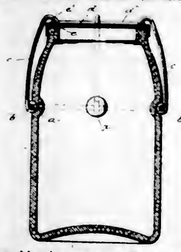
8. The combination in a brick-machine cut-off, of a laterally vibrating frame provided with two pairs of plates O O′, and P, P′, to which the guides *o*, *o*′, and *p*, *p*′, are applied, for the purpose described.

9. The combination, in a brick-machine cut off, of a reciprocating carrier provided with vertical grooves *i i*′, and a bow J′, having a cutter *j*, and a backing plate J, which latter fits within said grooves, for the purpose described.

10. The combination, in a brick-machine cut-off, of a laterally vibrating frame, a carrier reciprocating therein, a pitman that operates said frame and carrier, and a pair of rollers against which said pitman acts, in the manner described, and for the purpose stated.

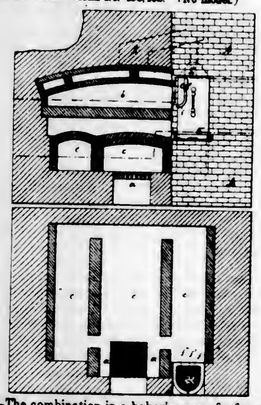
11. The combination, in a brick-machine cut-off, of a laterally-vibrating frame, a cutter reciprocating therein, and a clay entrance at the center of vibration of said frame, substantially as herein described.

492,391. JAR-FASTENER. CHARLES C. DILTS, Plainfield, N. J. Filed Nov. 5, 1891. Serial No. 411,010. (No model.)



Claim.—The combination, substantially as set forth, of the jar or can, the lid, a wire secured circumferentially to the jar, and spring clips hinged or turning upon said wire, and adapted to snap over the edge of the lid, to secure it in place.

492,392. BAKER'S OVEN. FRITZ DUBBROF, New York, N. Y. Filed Oct. 31, 1892. Serial No. 450,462. (No model.)

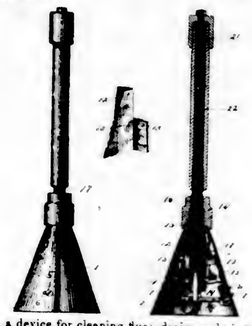


Claim.—The combination in a baker's oven of a fire chamber, a series of communicating flues, a chamber connected with one of the flues, a boiler placed in the chamber, and with a damper between the flue and the chamber, substantially as specified.

492,393. DEVICE FOR CLEANING FLUES, DRAINS, OR PIPES. WILLIAM DUFLON, Leavenworth, Kans. Filed Apr. 12, 1892. Serial No. 428,982. (No model.)

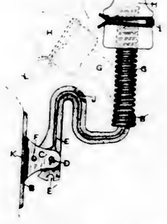
Claims.—1. A flue or pipe cleaner, comprising a cone shaped body-portion, an expansion device hinged at one side to the inner side of the cone, and also having radially arranged rollers in its periphery engaging the inner wall of the cone shaped body portion, and a rod extending longitudinally and centrally through the cone shaped head, and longitudinally adjustable therein, and connected at its lower end to the expansion device to actuate the same, substantially as described.

2. In a flue or pipe cleaner, the combination of a cone-shaped body-portion with a pipe exteriorly threaded at its lower end, and extending longitudinally and centrally of said cone-shaped body-portion, and a number of longitudinally arranged braces 12 secured to the inner side of the cone-shaped body-portion, and extending radially inward and bearing against the outer side of the pipe, and a nut 19 and washer 18 engaging the lower threaded end of the pipe, and bearing against the lower end of the radially arranged braces 12, substantially as set forth.



3. In a device for cleaning flues, drains and pipes, the combination of an expansible, conical shaped scraper, provided with a slot in one side, said slot being closed by a strip fastened to one side of said slot, the other side of said strip being held by a screw running through a slot in said cone, said cone shaped scraper being held in a head, which head is screwed on a coupling pipe, triangular shaped braces adapted to be screwed to the inner side of said cone and bear against the coupling pipe, a handle screwed to the upper end of said coupling pipe, and having a screw threaded cap, and an expansion device, consisting of a tre-foil shaped plate, hinged to the inner side of the conical scraper and carrying wheels or rollers, and a rod running the entire length of the device, said expansion device capable of being operated by the movements of the cap, all substantially as described, in the manner set forth, and for the purposes stated.

492,394. INSULATOR-BRACKET. WILLIAM N. EICHBERG, Chicago, Ill. Filed Nov. 28, 1892. Serial No. 453,321. (No model.)



Claim.—1. An electric insulator holder comprising a bracket and means for attaching said bracket to some object, said bracket arm having a spring attached thereto, and an electric insulator attached to said spring, said insulator adapted to support wire electric conductors by being connected to said bracket by means of said spring for the purpose stated.

2. An insulator holder comprising a base B, adapted to be attached to a support, a bracket arm E adjustably attached to said base, and a spring having one end attached to said bracket, the other end of said spring having an electric insulator attached thereto, said insulator adapted to support wire electric conductors, the several parts serving in combination for the purpose described.

3. An insulator holder comprising a stationary base, a bracket arm adjustably attached to said base, substantially as described, said bracket arm having one end of a spring attached thereto, to the other end of which spring an electric insulator is attached, arms J and J′ projecting from bracket arm E, said arms J and J′ disposed longitudinally substantially parallel with the electric conductor attached to said insulator, said arms serving for the purpose stated.

4. The hereinbefore described insulator holder having a bracket arm E of substantially an S shape, said bracket having laterally projecting arms J and J′ serving in combination with the described S shape of said bracket arm, for the purpose substantially as described.

492,395. TENSION DEVICE FOR LOOM-SHUTTLES. JOHN B. FARRANT and JOSEPH HORNER, Paterson, N. J. Filed May 2, 1892. Serial No. 431,869. (No model.)



Claim.—A tension device for shuttles consisting of a single piece of wire having a double twisted shank *f*, tension loops *e* integral with said shank and depending at right angles therefrom, a coiled sleeve *g*, integral with the shank and adapted to slip over the pin *c* of the shuttle, and a looped arm *h* integral with the sleeve *g* and band *i*, engaging the said arm *h* and the pins *k*, in the shuttle body, substantially as described.

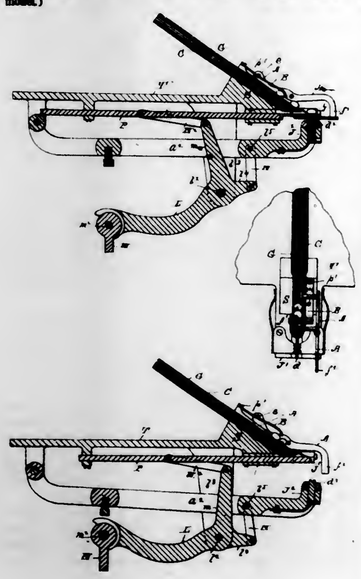
492,396. GARMENT-SUPPORTER. ANNA W. FRIER, Pawnee City, Nebr. Filed Oct. 11, 1892. Serial No. 448,596. (No model.)



Claim.—1. In a garment supporter, the combination of a body-portion or main frame having reversely-arranged keepers on opposite sides thereof, and a pair of pins located on opposite sides of the said body-portion or main frame and having their points extending in opposite directions, said keepers being formed with openings between the same and outwardly-bent engaging hooks that are situated inward from the opposite sides of the said body-portion or main frame, substantially as described.

2. The herein described garment support, the same consisting of a base provided on its opposite faces and at its opposite edges with keepers, those keepers on one face being oppositely disposed with relation to those on the opposite face, and pairs of pins secured to those ends of the base opposite or unoccupied by the keepers and adapted at their free ends to engage the same, substantially as described.

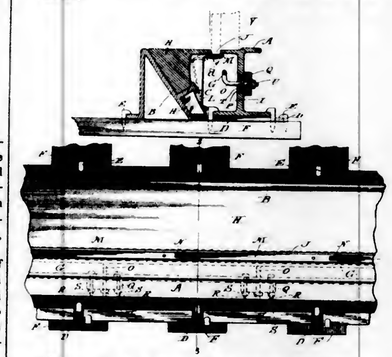
492,397. MACHINE FOR SETTING BUTTONS. ALBERT W. HAM, Lansingburg, N. Y. Filed July 21, 1892. Serial No. 440,759. (No model.)



Claim.—1. The combination with an inclined button chute, provided with a button slot in its upper face; of a setting jaw having a slot to connect with said chute slot; an under jaw with a setting die; a spring stop arranged over the lower end of said chute slot; and a lever pivoted between its ends to the machine stock with its inner end arranged to engage with said spring stop, and the outer end of said lever to extend downwardly at one side of and below said upper jaw, constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

2. The combination with the inclined button chute C, made with the slot G, and spring-stop B, of the upper jaw J', made with the slot *d*; the under jaw J^2, and plunger P, operated by the bell-crank lever L, and the lever A, pivoted between its ends and arranged to be operated substantially in the manner as and for the purposes set forth.

492,398. CLOSED ELECTRIC CONDUIT FOR RAILWAYS. ADOLPH HEBER, Chicago, Ill. Filed May 31, 1892. Serial No. 434,949. (No model.)



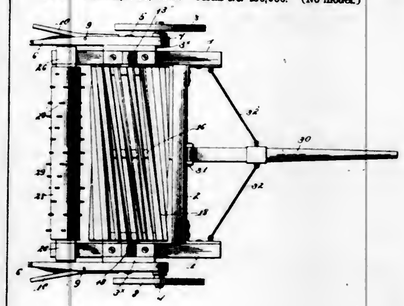
Claim.—1. In an electric railway conduit, the combination of the rail A, forming one side and part of the roof of such conduit, with the adjustable casting B and the casting H forming the other side and the remainder of the roof or top of such conduit, substantially as described.

2. In an electric railway conduit the combination of the rail A, forming one side of such conduit, the adjustable casting B, the casting H, the slot closer M and the springs L, substantially as described.

3. In an electric railway, the combination of the wheel V, the forks W, the rods X, the cross-arm Y, the arms or brackets Z, and the springs c from said cross-arm Y to said bracket Z, substantially as described.

4. In an electric railway conduit, the combination of the track rail A forming one side and part of the top or roof of such conduit, and provided with the openings P, the non-conducting blocks Q secured to the rail over said openings, the conductor-supports O secured in the blocks Q and extending through the openings P, and the conductor G carried by the supports O, substantially as described.

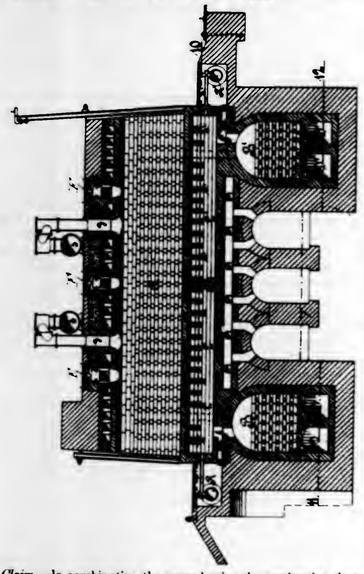
492,399. CLOD-PULVERIZER. GEORGE D. HELDEBRANT, Piqua, Kans. Filed Apr. 28, 1892. Serial No. 430,988. (No model.)



Claim.—1. In a clod pulverizer, the combination with the framework, of a cutting cylinder mounted therein and comprising an axial shaft, perpendicular heads secured centrally to said shaft, strips arranged in inclined or spiral positions between and secured to the heads, and continuous flat blades secured to said strips, perpendicular to their outer surfaces and extending between the heads spirally, substantially as specified.

2. In a clod pulverizer, the combination with a supporting framework, and a cutting-cylinder mounted in the forward end thereof, of a hollow roller, mounted in said framework in rear of the cutting-cylinder, and provided upon its surface with spirally-arranged teeth which are curved rearwardly toward their outer or free ends, substantially as specified.

492,400. COKE-OVEN. GUSTAV HOFFMANN, Gottesberg, Germany. Filed May 13, 1892. Serial No. 432,909. (No model.)



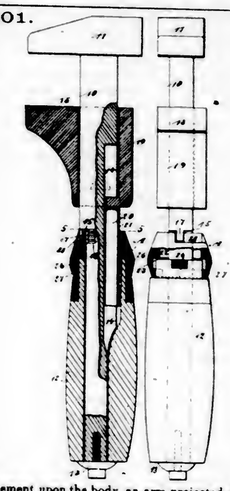
Claim.—In combination the ovens having the combustion chambers under the same, and the shafts *b'* extending about them, the canals *c* at the top of said shafts, the regenerators B, B' with air passages leading thereto, the gas coodnits F leading from the ovens and the ports *o* connecting the same with the canals *c* and the passages *h h'*, leading directly from the regenerators to the canals *c* and past the combustion chambers, substantially as described.

492,401. WRENCH. WILLIAM H. KALTENBACH, Middlesborough, Ky. Filed June 10, 1892. Serial No. 436,196. (No model.)

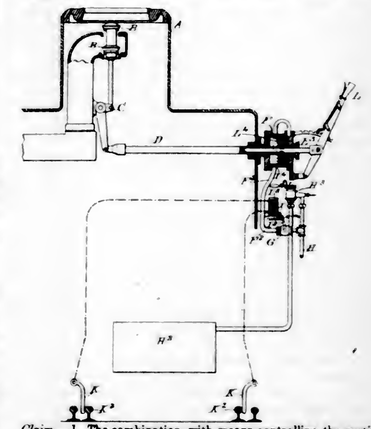
Claim.—1. In a wrench, the combination, with a body bar provided with a groove in one side, a handle receiving the lower end of the body bar, a shoulder projected outward from the side opposite that in which the groove is formed, the shoulder being provided with a downwardly-extending finger, and the body below the shoulder with an exterior thread, of a socket shaped as a lower jaw and having free sliding movement upon the body, an arm attached to the socket and fitted to slide in the groove of the body bar, the exterior surface of the arm being cylindrical and threaded, and a locking nut or sleeve held to turn upon the handle, having a slide way for the reception of the body finger, and having its interior approximately oval in shape, the sides being threaded, as and for the purpose set forth.

2. In a wrench, the combination, with a body bar having an essentially U shaped groove produced longitudinally in one edge, the body being practically rectangular in cross-section, the said body being provided with an extension upon one side, forming a shoulder, and a finger projected downward from the shoulder, the body being further provided with a threaded exterior cylindrical surface immediately below the shoulder, of a socket carrying a lower jaw, the socket having free movement upon the body, an arm projected downward from the socket, essentially U-shaped in cross section and fitted to slide in the body groove, the outer surface of the arm being cylindrical or threaded, a nut or sleeve having a removable and swivel connection with the upper end of the handle, and having its interior shaped more or less oblong, the side walls being threaded, and the sleeve or nut being further provided with an exterior slide-way receiving the finger from the body shoulder, as and for the purpose specified.

492,401.



492,402. ELECTRIC TRAIN-CONTROLLING APPARATUS. FRANK E. KIRKHAM, Plainfield, N. J. Filed Feb. 24, 1892. Serial No. 422,631. (No model.)



Claim.—1. The combination with means controlling the motive power of the vehicle, of a brake system, a brake controlling device, a plunger operated by fluid pressure and connected with the motive power controlling device, and an electro-magnet the armature of which is mounted upon the vehicle in direct mechanical connection with means for controlling the application of the brakes and for simultaneously applying power to the plunger or piston, so as, at the same time, to shut off the motive power.

2. The combination, substantially as described, with a railway vehicle, of a hand lever and a motor device both having connection with a motive power controller and capable of operation independently of one another, a brake controlling device, and a governing elec-

tro-magnet the armature of which is carried by the vehicle and governs the action of said motor device and brake controlling device while the circuit of the magnet is formed over the contact bars or rails upon the road bed.

3. The combination of a hand lever or other manual device and a plunger, both connected with the throttle or other means for controlling the motive power and capable of manipulation independently of one another, as described, of a brake system or apparatus having a controlling device which controls also the passage to said plunger, and a governing electro-magnet whose armature is carried by the vehicle in direct mechanical connection with said brake controller.

4. The combination, substantially as described, in an apparatus for controlling the movement of railway vehicles, of a motive power controller, a piston motor connected therewith which in moving from one extreme position to the other shuts off the motive power, and in moving in the reverse direction from one extreme to the other places the motive power controller in position to put the motive power full on, a brake cock or lever, a magnet or magnets for said devices, means controlled by said magnet or magnets for causing the piston to move by pressure in one direction to shut off the motive power and to apply the brakes, devices on the road-bed for breaking and establishing the circuit of said magnet, and means upon the train independent of said magnet and its controlling devices for moving the piston of said motor to the opposite extreme position where the motive power would be on.

5. In an apparatus for controlling the movement of railway trains, the combination with the throttle valve on the locomotive, of a manual air brake controller, an independent automatic air brake controller mechanism adapted to apply the brakes independently of the manual brake controller, a fluid motor connected to the throttle valve, an electro-magnet or magnets on the locomotive for bringing said automatic air brake mechanism and fluid motor into operation at the same time, and means upon the road bed for controlling the action of said magnets, as and for the purpose described.

6. The combination, in an apparatus for controlling the movement of railway trains, of a throttle valve, a fluid piston motor therefor and brake controlling mechanism upon the locomotive, an electro-magnet or magnets in a circuit upon the locomotive for simultaneously bringing said brake mechanism into operation, and opening a valve connected to the piston motor, devices upon the road bed for energizing said magnets, a relay magnet controlling the circuit to said devices and connected to the rails of a section of track, and a charging battery or other generator of electricity connected to said section, as and for the purpose described.

7. The combination in an apparatus for controlling the movement of railway vehicles, of a vehicle having a brake controlling device and a device controlling the motive power and capable of operation independently of the hand lever or other manual device, an electro-magnet or magnets for bringing the same into operation together, a circuit for said magnets on the vehicle, devices on the road bed of a section of track, an electro-magnet connected to or with the rails of another section of track, and relay devices governed by said magnet for controlling the connections to the devices on the road bed of the first named section.

8. The combination, substantially as described, of a throttle valve or other power controller, a brake system having a controlling cock, a plunger operating upon the throttle, an electro-magnet governing said controlling cock, and a connection between the piston of the plunger and a source of air, gas, or other pressure, passing through said cock.

9. The combination with a hand lever or other manual controlling device and a plunger both operating upon motive power controlling mechanism and adapted to be operated independently of one another, of a brake system or apparatus having a manual controller, and an independent brake controlling mechanism, and an electro-magnet the armature of which controls the brake mechanism.

10. The combination, substantially as described, with the throttle valve having a manual controlling device, of a plunger operating upon the motive power controller independent of the manual device, a brake system or apparatus having a manually operated valve, and an automatic valve adapted to be operated independently of one another, and an electro-magnet for controlling the action of the automatic valve and the passages connected to the cylinder of the plunger with a source of air, gas steam or other fluid under pressure.

11. The combination with a hand lever or other manual controlling device and a plunger both operating upon the motive power controlling mechanism and adapted to be operated independently of one another, of a brake system or apparatus having a manual controller, and an independent brake controlling mechanism, and an electro-magnet the armature of which controls the brake mechanism and the plunger operating on the motive power controller, as and for the purpose described.

12. The combination, substantially as described, with a throttle valve or other motive power controller, of a plunger or piston, a connection therefrom to the brake system or apparatus, and a port or valve controlled by the movement of said plunger for the purpose of putting on the brakes when the plunger or piston has moved to a predetermined extent to shut off the motive power.

13. The combination, substantially as described, with the plunger or piston L^4, operating on the motive power controller, of the connection F^4, from the cylinder of said piston to the brake system, a valve in said connection, and a port I^4, controlled by the piston and opened by said piston when it moves to throw off the motive power.

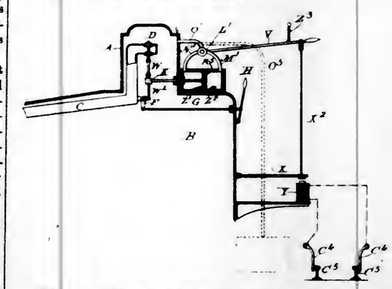
14. The combination, substantially as described, with the train brake pipe H, and the air reservoir H^3, of a manual valve H^2, and a magnetically controlled valve G, both connected to the train pipe, a plunger or piston L^4, also connected with the train pipe through said valve G, and a motive power controller actuated by said plunger or piston.

15. The combination, substantially as described, with an air brake apparatus and an automatic valve for applying the brakes in case of emergency, of a regulable vent or exhaust opening under the control of the engineer and adapted to be set or adjusted to determine the power or suddenness with which the brakes should be applied throughout the brake system.

16. The combination, substantially as described, with the plunger F, connected to a motive power controller, of a port or valve controlled by said plunger and governing the pressure in the brake system, and a regulable cock or valve in said connections for determining the rapidity with which the brakes shall be applied.

17. The combination, substantially as described, with a railway vehicle, of means for controlling the motive power driving the same, a brake system, a manual brake controller, an independent automatic brake controller adapted to apply the brakes independently of the manual brake controller, and a governing electro-magnet or magnets controlled from the road bed for governing the said motive power controller and the automatic brake controller in the manner described to bring them both into operation at the same time.

492,403. MEANS FOR OPERATING THROTTLE-VALVES OF STEAM-ENGINES. FRANK H. KINSMAN, Plainfield, N. J. Filed Feb. 24, 1892. Serial No. 422,632. (No model.)



Claim.—1. In an apparatus for controlling the movement of vehicles, the combination of a throttle valve or similar power controller for the driving power of the vehicle, a piston or plunger operating on the throttle, a valve controlling the pressure upon said piston or plunger, an electro-magnet having an armature governing the position of said valve whereby through the action of the magnet the driving or propelling power may be shut off, means upon the road-bed controlling the condition of the magnet when the vehicle is to be brought to rest, and independent means upon the vehicle for restoring the plunger to normal position, as and for the purpose described.

2. In an apparatus for controlling the movement of vehicles, the combination, substantially as described, with a throttle valve or similar power controlling device on the locomotive, a piston or plunger connected with said throttle through suitable mechanism, and adapted to close the throttle when moved in one direction, a valve adapted to control the pressure upon said plunger to cause it to close the throttle, an electro-magnet on the locomotive having an armature for governing the movement of said valve, and devices upon the road-bed for automatically changing the condition of the magnet so as to cause the said valve to operate and make the throttle close when the locomotive passes over said devices.

3. In an apparatus for controlling the movement of vehicles, the combination with the engine for a locomotive or other vehicle, of a throttle valve in the steam pipe leading to the operating cylinders, the

piston or plunger working in a cylinder having connections to a source of air, steam or other pressure supply, an electro-magnet on the vehicle or locomotive for governing the pressure upon said piston to close the throttle, contact arms carried by the vehicle and connected to said electro-magnet, and contact bars on the road bed for closing the circuit of the generator which actuates the magnet, and manual devices upon the locomotive for restoring the plunger to normal position after the locomotive has passed said contact bars.

4. In an apparatus for controlling the movement of vehicles, the combination substantially as described, with the throttle valve for the engine of the locomotive or other vehicle, of a piston or plunger and a hand lever suitably connected with the throttle or other power controller and capable of operation independently of one another, connections from a suitable source of pressure supply whereby direct pressure may be applied to move the plunger positively in both directions, and a valve having suitable ports and connections whereby the pressure and exhaust of both pressure spaces may be governed.

5. In an apparatus for controlling the movement of vehicles, the combination with the throttle valve for the propelling steam engine, of a plunger or piston, a spring acting on the plunger in a direction to open the throttle, a manual actuating device also connected with the throttle and capable of operation or of remaining at rest independently of the plunger, and a valve for controlling the pressure and exhaust in the cylinder and placed in the connections from the steam or other pressure space to the cylinder.

6. In an apparatus for controlling the movement of vehicles, the combination with the throttle valve for a locomotive, of a plunger actuated by steam or air pressure, a valve controlling the pressure, a spring or other power operating on the valve in a direction to cause the throttle to be closed, an electro-magnet having an armature which normally detains the valve from movement, and means upon the road-bed for automatically changing the condition of the magnet to operate the throttle on the occurrence of danger conditions.

7. The combination, substantially as described, of a motive power controller on a railway vehicle, a piston or plunger connected with said controller and serving to move the same in a direction to cut off the power, a source of pressure acting on the plunger, an electro-magnet for controlling said valve, said magnet having an armature borne upon the vehicle, means upon the road bed for controlling the circuit of said magnet, and devices upon the locomotive independent of those upon the road-bed for restoring the piston or plunger to normal position or position where the power will be applied.

8. The combination with a motive power controller on a railway vehicle, of a piston or plunger connected to said controller, a source of fluid pressure acting on the plunger, a governing cock or valve for governing the pressure, an electro-magnet having its armature borne by the vehicle, and a detent or lock for the valve governed by said armature.

9. The combination with the motive power controlling device and a plunger for operating the same to throw off the motive power, of a manual controlling device actuated independently thereof, an electro-magnet, the armature of which is carried by the locomotive or vehicle, and devices actuated or controlled by said armature whereby said plunger may be operated to shut off the motive power.

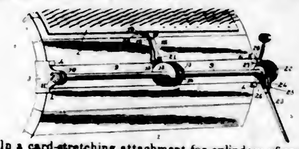
10. The combination with a motive power controller, of a plunger or piston acting on the same in a direction to cut off the motive power from the engine, a manual actuating device having a slip joint and clutch connection with said plunger and controller, and an electro-magnet having an armature connected with controlling devices whereby the plunger may be brought into operation independently of the manual actuating device.

492,404. DEVICE FOR HOLDING AND STRETCHING CARD-CLOTHING WHILE BEING ATTACHED TO CARDING-CYLINDERS. HENRY C. KITCHING, Licking, Mo. Filed Nov. 7, 1892. Serial No. 451,215. (No model.)

Claim.—1. In a card-stretching attachment for cylinders of carding-machines, the combination with opposite standards provided with clamping-devices for embracing and clamping the inner and outer surfaces of the cylinder and provided near their outer ends with bearings, of a shaft journaled in the bearings, a pulley splined to slide upon the shaft, and rotate therewith means for rotating said shaft, a card-clamping device, and a flexible connection between the pulley and clamping-device, substantially as specified.

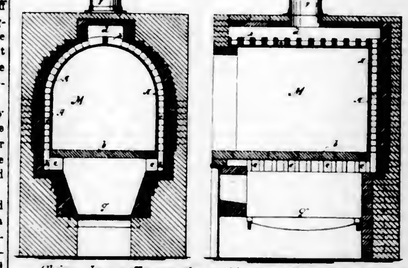
2. In a card-stretching attachment for cylinders of carding-machines, the combination with opposite cylinder-clamping-standards, the shaft journaled loosely therein, and means for rotating the shaft, of a pulley splined upon the shaft, a card-clamping device, a flexible strap secured to the clamping-device, a lug on the periphery of the pulley, and an eye on the strap for removably engaging the lug, substantially as specified.

3. In a card-stretching attachment for cylinders of carding-machines, the combination with the opposite standards and means for securing them to the opposite edges of the cylinder, the shaft terminating therein, means for rotating the shaft, and the pulley splined thereon, of the flexible strap connected to the pulley and the pliers connected to the strap and terminating at its outer ends in a pair of card-clamping jaws which are downwardly curved to the lower jaw being provided with a lip 20 extending under the clamping edge of the upper jaw, substantially as specified.



4. In a card-stretching attachment for cylinders of carding-machines, the combination with the standards having the upper and lower lugs, the latter provided with threaded openings having clamping screws and above the same provided with bearing-openings, the shaft journaled in the openings and provided with a longitudinal groove, and the pulley splined upon the shaft, of the flexible strap connected to the pulley, the card-clamping pliers connected to the strap, the ratchet-wheel on the shaft, the lever loosely connected with the shaft at one side of the ratchet-wheel, the pawl for engaging the wheel pivoted to the lever, a stop for the lever, a bracket at the opposite side of the shaft projecting from one of the standards, and a weighted pawl pivoted intermediate its ends to said bracket and engaging the teeth of the ratchet-wheel and above its pivot curved to one side of its fulcrum or pivot-point, substantially as specified.

492,405. ENAMELING-FURNACE. GEORGE F. KREISCHER, New York, N. Y. Filed June 23, 1892. Serial No. 437,733. (No model.)



Claim.—In a muffle-oven the combination with the bottom-tiles *b* of the side-walls of the muffle made of hollow brick, each provided with two square openings and having the center partition double the size of an end-partition as and for the purposes herein shown and set forth.

492,406. SKIRT-SUPPORTER. JOHN E. LEAVITT, Boston, Mass. Filed Nov. 19, 1892. Serial No. 452,676. (No model.)

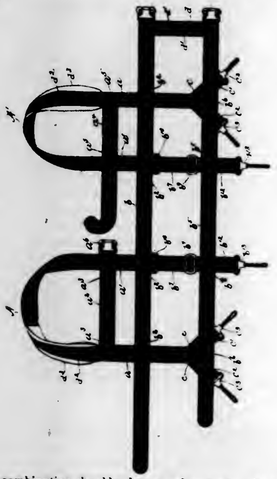
Claim.—1. In a combination shoulder brace and supporter, the combination of the following instrumentalities viz:—two shoulder braces, a bust supporting band firmly secured against movement to the said shoulder braces and constructed to pass under the bust of the wearer, a waist band also secured to the shoulder braces, elastics b^7 forming part of the shoulder braces and means for attachment to the back of the garment, substantially as described.

2. In a combination shoulder brace and supporter, the combination of the following instrumentalities, viz:—two shoulder braces, a bust supporting band firmly secured against movement to the said shoulder braces, a waist band also secured to the shoulder braces, and elastics b^7 forming part of the shoulder braces means for attachment to the back of the garment, and a cross strap *d* connecting the bust supporting band and the waist band, substantially as described.

3. In a combination shoulder brace and supporter, the combination of the following instrumentalities, viz:—two shoulder braces, a bust supporting band firmly secured against movement to the said shoulder braces, a waist band also secured to the shoulder braces, and elastics b^7 forming part of the shoulder braces means for attachment to the back of the garment, and straps d^7 d^8 secured to the front straps of the shoulder braces above the waist band, substantially as described.

4. In a combination shoulder brace and supporter, the combination of the following instrumentalities, viz:—two shoulder braces, each

consisting of front and back straps, a bust supporting band firmly secured against movement to the front straps of the shoulder braces and constructed to pass under the bust of the wearer, pads secured to the inner side of the front straps above the bust supporting band, a waist band also firmly secured to the shoulder braces against movement, elastics forming part of the back straps of the shoulder braces, and means for attachment to the back of the garment, substantially as described.



5. In a combination shoulder brace and supporter, the combination of the following instrumentalities, viz:—two shoulder braces A A′ consisting of front and back straps a a', an arm strap a^3 firmly secured to the straps a a' of the braces A, an arm strap a^4 firmly secured to the straps a a' of the brace A′ and adapted to be adjustably secured to the arm strap a^3, a bust supporting band b firmly secured to the front and back straps of the shoulder braces, elastics b^1 secured to the bust supporting band, and devices to attach a skirt or other garment to the back and front straps of the shoulder braces, substantially as described.

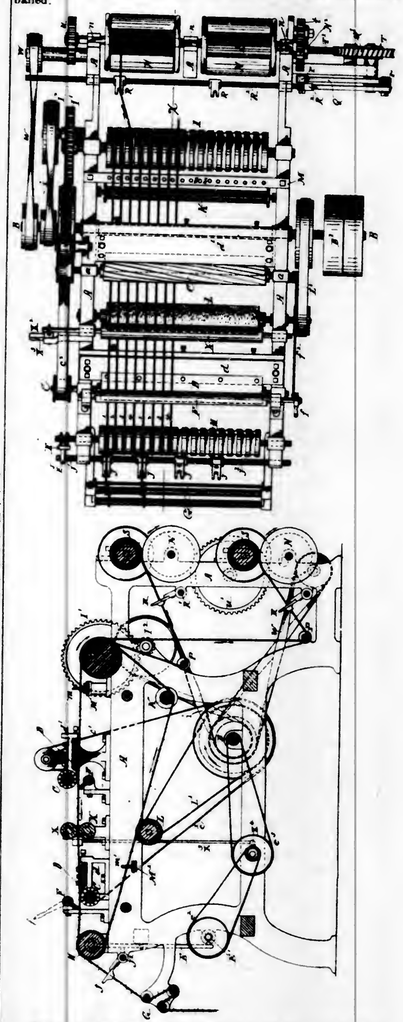
492,407. SAW-TOOTH. GEORGE W. MALLETTE, Trenton, N. J. Filed July 18, 1892. Serial No. 440,431. (No model.)



Claim.—In a saw, teeth having their points rounded from front to back and with parallel edges formed by a V groove extending from front to back along the outer edges of the teeth and having their sides perpendicular for a short distance below the edges in combination with, and arranged to cut in advance of and somewhat wider than chisel pointed teeth, substantially as shown and described.

492,408. MECHANISM FOR SHEARING CORDS OR TWINE. EDWIN T. MARBLE and EDWIN H. MARBLE, Worcester, Mass. Filed June 2, 1892. Serial No. 435,267. (No model.)

Brief.—The twine is led over a reciprocating grooved roll, past a shearing device, between two reciprocating rub-rolls, past another shearing device, and is then returned to the beginning and the process repeated. A brush acts on the twine during its return travel. After passing four or five times through the machine the twine is balled.



Claim.—1. A machine for shearing cord or twine, comprising, in combination substantially as described, an endwise reciprocating delivering roll and a draft-roll arranged for presenting a series of cords or twines by longitudinal advancement directly from one of said rolls to the other, a transversely disposed ledger-blade and shearing revolver located intermediate to said rolls, guides that direct the return of the individual cords or twine from the draft-roll to the front of the delivery-roll, a brush acting on the twine surface during its return travel, and guides that separately direct the strands for re-passing, at adjacent positions, again to the same shearing devices for additional shearing action continuously and simultaneously effected by one or more successive re-passes, as set forth.

2. A mechanism for shearing and balling twine, comprising shearing devices consisting of a transversely disposed ledger-blade and shearing-revolver, the delivering-roll, draft-roll, and guide-roll adapted for passing and repassing the twine by longitudinal advancement through a series of shearing operations, vibrating appliances that roll or move the twine laterally right and left to present different parts of its surface to the shears, a spooler or balling mechanism arranged for winding the strands of twine into finished balls for the market, and guides that conduct the twine from the shear to said balling mechanism by continuous operation immediately and as fast as it is finished and delivered by the shears, substantially as set forth.

3. The combination, with shearing mechanism consisting of a transversely disposed ledger-blade, shearing-revolver and guiding rest, of the endwise movable delivering-roll at the front of said shear, and the draft-roll at the rear of said shear each circumferentially grooved or adapted for carrying in separated order a series of cords or twine and advancing the same through said shears, directing guides for the individual cords at the front of said draft-rolls, and means for imparting endwise motion to said delivering-roll substantially as set forth.

4. The combination, substantially as described, of the tension-bars, the guide-fingers, the circumferentially grooved delivering-roll and a circumferentially grooved draft-roll adapted for straightening and longitudinally advancing a series of cords or twine, and a plurality of shearing mechanisms each comprising a ledger-blade and a shearing-revolver, and adjustable rest bar oppositely disposed adjacent to the plane of the twine between said rolls and successively operating upon the twine as it passes from one roll to the other, and means substantially as described for vibrating or imparting endwise reciprocative movement to said delivering roll, for the purpose set forth.

5. The combination, of the tension-bars, the guide fingers, the grooved delivering roll, the shearing cutters and rest, the grooved draft-roll, the pin-guide in front of said draft-roll, the return guide-roll and the pin-guide-bar beneath the shearing cutters near the front of the machine, all substantially as and for the purposes set forth.

6. The combination, of the grooved delivering roll and draft-roll, a plurality of sets of shearing appliances, each comprising a revolver and ledger-blade, located adjacent to but slightly away from the direct line or plane between said rolls, and disposed respectively above and below the same, a pivotally supported presser-bar arranged in front of each set of cutters and adapted by its swinging action to deflect or relieve the twine to or from the shearing contact, and the handle-lever and connections for operating said presser-bars as described, for the purpose set forth.

7. In a twine-shearing machine, the combination, substantially as described, of the grooved delivering roll, the grooved draft-roll, the shearing cutters intermediate of said rolls, the return guide roll disposed below said draft-roll, the revoluble brush disposed between said guide-roll and delivering roll, the guides J and P and pin-guides m m', for the purpose set forth.

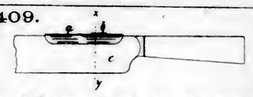
8. The combination, with the shearing appliances, circumferentially grooved delivering-roll from which the twine passes to the shearing blades, and the tension bars by which the twine is led to said roll; of guiding fingers between said tension bars and roll, the support bar for said guide fingers and vibrator cam and lever, and means substantially as described connected with the roll axle and support bar for simultaneously imparting to said delivering-roll and guide-finger-support endwise movement of proportional extent to accord to the relative positions of said guide fingers and delivering-roll from said tension-bars, as set forth.

9. In a twine-shearing machine, the combination with a ledger-blade, a shearing revolver and a twine-guiding rest, of a set of revoluble endwise movable rub-rolls disposed adjacent to said twine-guiding rest, for rolling the twine laterally as it is advanced to the said shearing revolver, substantially as described, and an operating connection that imparts endwise reciprocating action to said rolls, for the purpose set forth.

10. The combination, substantially as described, of the endwise vibrating delivery-roll, the draft-roll, and a plurality of sets of shearing appliances each composed of a ledger-blade, a shearing-revolver and a guiding rest, disposed between said delivery-roll and draft-roll, a pair of revoluble endwise movable rub-rolls disposed between said sets of shearing appliances, and the operating connections for imparting opposite endwise movement to said rolls, for the purpose set forth.

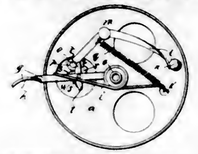
492,409. KNIFE. JOHN MAY, London, England. Filed Nov. 19, 1892. Serial No. 452,482. (No model.) Patented in England Jan. 14, 1892. No. 787.

492,409.



Claim.—In finger guards for knives a clip e provided with a cushion b and rubber bearing surfaces d in combination with the back of the knife, substantially as described.

492,410. ALARM-BELL. ABNER P. MERRILL, Fall River, Mass., assignor, by direct and mesne assignments, to himself and Charles A. Hicks, same place, and Walter J. Harrison and Eben L. Harrison, Boston, Mass. Filed Apr. 25, 1892. Serial No. 430,543. (No model.)



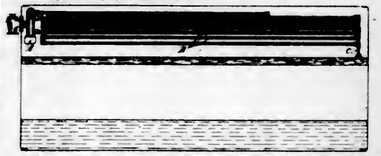
Claim.—1. In an alarm bell, a base, a gong, a clapper provided with a spring, and the finger lever separate therefrom and provided with a spring, and the tripping mechanism pivoted on said lever to engage and swing the clapper and suddenly release the same, as and for the purposes set forth.

2. An alarm bell provided with the clapper and the finger lever, said lever having a swing cam provided with a point and edges arranged to engage a portion of said clapper and throw the same over the point, as and for the purposes set forth.

3. In an alarm bell, a swing spring clapper having a projection, the finger lever having a spring and a swinging cam having edges on its opposite sides leading to a point so that when said projection strikes and moves up either of said edges it will be thrown over the point and thereby cause the clapper to sound the bell, substantially as described.

4. In combination, a base having a post, a gong on said base, an angle clapper having a spring and a lateral stud carrying a roller, the finger lever at its inner end mounted on said post and provided with a spring, the lever being formed so that it can swing over said stud and provided with the swinging tripping cam having the inclined bearing edges, to engage said roller and throw the same over the meeting point, and the stops against which said stud strikes when dropping from said cam.

492,411. FEED-WATER HEATER. ADAM MILLER, London, England. Filed July 20, 1891. Serial No. 400,163. (No model.) Patented in England May 1, 1891, No. 7,530.

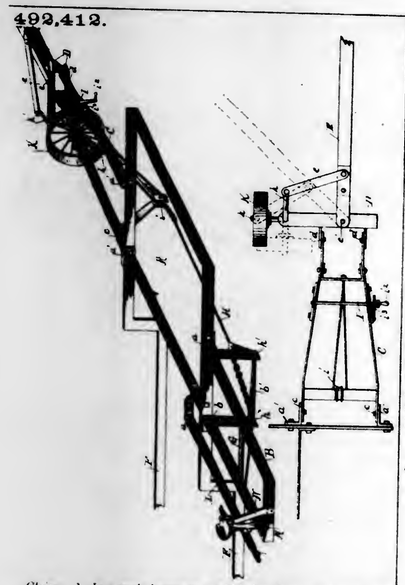


Claim.—1. For heating feed water for a steam boiler,—pipes placed in the upper part of the steam space of the boiler, and comprising a primary pipe, receiving the water from the external supply pipe, and a plurality of secondary pipes, connected to, but smaller than the primary pipe, and separating the water into small streams; the said pipes being sufficiently large to be only partly filled, or occupied with water, and partly occupied by steam, substantially as herein set forth.

2. For heating feed water for a steam boiler,—a system of pipes placed in the steam space of the boiler, and comprising a primary pipe, receiving the water from the external supply pipe, a plurality of secondary smaller pipes, connected to the primary pipe, and separating the water into small streams, the said primary and secondary smaller pipes being in the upper part of the steam space, and the secondary pipes being horizontal or nearly so; and downwardly directed draining pipes at the ends of the secondary pipes, all the said pipes being sufficiently large to be only partly filled or occupied with the water, and partly occupied by steam, substantially as herein set forth.

492,412. HARVESTER. MELVIN S. MESSLER, Chicago, Ill. Filed May 31, 1892. Serial No. 436,047. (No model.)

492,412.



Claims.—1. In a grain harvester and binder the combination with a main or binder-table frame A, of a drive-wheel-frame B, behind said main frame and a forward or guide-wheel frame C, in front of the frame A, said frames being jointed together so as to admit of vertical flexure, and a cable or chain connecting the rearward and forward frames and passing under a downwardly projecting bracket substantially as described.

2. In combination with a grain harvester frame comprising three sections jointed together, of a cable connecting the forward and rearward sections and adapted when shortened to raise the adjacent ends of said sections, mechanism for varying the length of the cable between the points of its attachment, and a locking lever fixed to one section of the frame and adapted to engage a rack upon an adjacent section, substantially as described.

3. In a harvester the combination with a jointed frame and mechanism for changing the elevation of the central portion of such frame of a main or drive wheel located at the rear of said frame, a guide-wheel at the front of said frame, the axle of the guide wheel being carried by a vertical spindle having a crank arm *k*, and a link connecting the crank arm with the harvester tongue, the point of attachment of the link to the tongue being at greater distance from the pivotal point of the tongue than the length of the crank arm *k*, substantially as described.

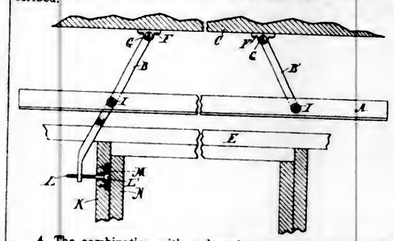
4. In combination with a harvester having its drive wheel at the rear of the binder table, a guide-wheel located at the front of the machine, the axle of the wheel being carried by a vertical spindle journaled in the machine frame, a crank arm attached to said spindle, and a link connecting the crank arm with the tongue of the machine, the link being pivotally attached to the tongue at a distance from the pivotal point of the tongue exceeding the length of the crank arm, substantially as described.

492,418. ADJUSTABLE TRACK FOR SLIDING DOORS. EDWARD Y. MOORE, Milwaukee, Wis. Filed May 14, 1892. Serial No. 432,999. (No model.)

Claim.—1. A door hanger track, pivoted to and suspended on pendent swinging arms arranged at oblique angles to a perpendicular, in reverse directions substantially as described.

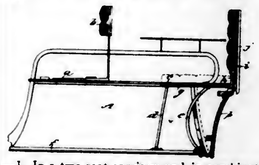
2. The combination of a door hanger track with swinging arms on which the track is pivoted and suspended, which arms are pivoted to and pendent from the door frame at oblique angles to a perpendicular, and means substantially as described for adjusting one of the arms toward or from the perpendicular, substantially as described.

3. The combination with a hanger track, of swinging arms pivoted to a fixed support on which arms the track is suspended, which arms are arranged at oblique angles reversely to a perpendicular and a revolvable screw threaded bolt secured against movement endwise and turning into the extension of one of the arms whereby the arm may be adjusted toward or from a perpendicular, substantially as described.



4. The combination with a door hanger track, of suspending arms, pivoted at their upper extremities and capable of swinging in their vertical plane boxes above the arms secured to a fixed support, in which boxes the suspending arms are pivoted, bolts fixed in and projecting laterally from the arms, which bolts enter the boxes and serve as pivots for the arms and sound-obviating packing in the form of bushing in the boxes about the bolts whereby the track is sound-insulated from its support, substantially as described.

492,414. CARRIAGE-SEAT. OSGOOD MORRILL and HARLAN P. WELLS, Amesbury, Mass. Filed Sept. 29, 1892. Serial No. 447,229. (No model.)

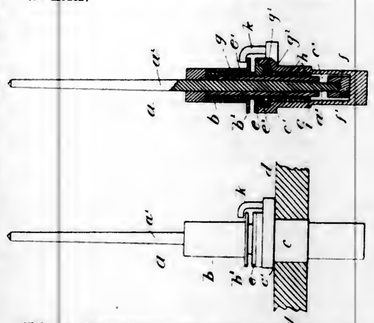


Claim.—1. In a two seat carriage and in combination with the rear seat, deck panel, and tailboard, the hinge formed near the rear surface of the tailboard, said hinge consisting of plate *k* and ears *l* inserted from the inside of the tailboard with a passage to said ears for pivotal iron *m* from said inside, substantially as specified.

2. A rear seat, a tailboard, and a deck panel arranged to serve when raised as the back of said rear seat; said back panel being hinged to the tailboard near its outer surface by a hinge inserted from the inside, and all so arranged that by actuating the deck panel all the parts may be thereby moved into the desired position, substantially as specified.

3. The iron *g* formed with ears to receive the jumping irons *d*, *e*, and secured to the underside of seat *c*, and extended above said seat by its angle *h* secured to iron *i*, substantially as specified.

492,415. SPINDLE FOR SPINNING-MACHINES. WALTER G. MORRISON, Willimantic, Conn. Filed Oct. 22, 1892. Serial No. 449,628. (No model.)



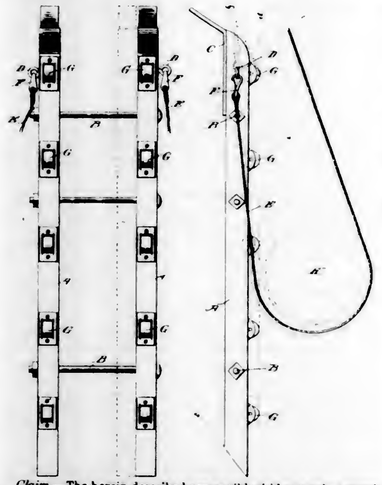
Claim.—1. In combination with a base piece containing an oil cup and adapted to be mounted in a spindle-rail, a cap secured to the upper part of said base piece, a flanged bolster bearing tube with the flange held below the cap, a spiral spring located within the base piece and thrusting upward against a shoulder on the bolster bearing tube, and a live spindle extending and supported within the said tube, and having a separate step bearing within the cup, all substantially as described.

2. In combination with a base piece containing an oil cup and adapted to be mounted in a spindle-rail, a cap with an upward extending tubular neck removably secured to the upper part of the said base piece, a bolster bearing tube with the flange located below the cap, a spiral spring located within the cup and thrusting upward against a shoulder on the bolster bearing tube, and a live spindle extending within the bolster bearing tube and having a step bearing within the cup, all substantially as described.

3. In combination with a base piece containing an oil cup and adapted to be mounted in a spindle-rail, a cap removably secured to the upper part of said base piece, a flanged bolster bearing tube with its flange held below the cap, a spiral spring located within the cup below the bolster bearing tube and thrusting upward against a shoulder thereon, and a live spindle extending through the bolster bearing with its end supported in a movable block containing the step bearing, all substantially as described.

4. In combination with a spindle rail, an oil cup adapted to be loosely mounted in the rail, a live spindle extending through a bolster bearing tube and with its support formed in a step bearing, a movable step bearing for the spindle located within the cup, the flanged bolster bearing tube mounted on a yielding cushion, and the yielding cushion located within the base piece, all substantially as described.

492,416. CONVERTIBLE SKID OR TRUCK. MAURICE MUHONWELLER, St. Louis, Mo. Filed Sept. 10, 1892. Serial No. 445,545. (No model.)

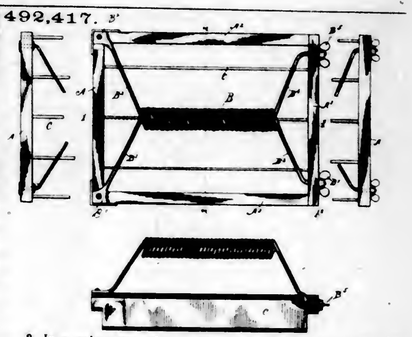


Claim.—The herein-described convertible skid or truck, comprising laterally adjustable side rails, tie bolts for adjusting the rails laterally, rollers arranged along the length of the rails, angle pieces at the ends of the rails, said rails being rounded at the ends having the angle pieces, a set of rollers in the rails near their rounded portions, eyes arranged on the outside of the rails, and hauling ropes detachably secured in the eyes, substantially as described.

492,417. CAKE-CUTTER. WILSON-BELLA P. MCALISTER, Richmond, Ky. Filed Sept. 3, 1892. Serial No. 444,940. (No model.)

Claim.—1. A cake-cutter, comprising longitudinal side bars, an end bar rigidly connecting the side bars at one end thereof, and a removable end bar, connecting the opposite ends of the side bars, a handle connected rigidly at one end to the frame, and having longitudinally extending and threaded end portions at the opposite end, passing through the removable end bar, and retaining nuts engaging the projecting ends of said longitudinally extending portions of the handle, substantially as described.

492,417. B'



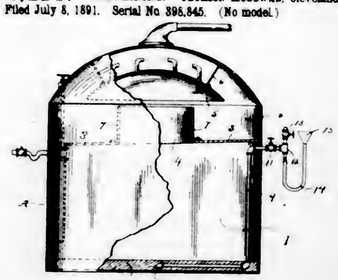
2. In a cake-cutter, the combination of a frame, consisting of side bars, connected together rigidly at one end by an end bar having mortises therein, and at their opposite ends by a removable end bar, having mortises therein similar, and longitudinally opposite to the mortises of the rigidly connected bar, with a number of longitudinally arranged blades, connecting the end bars of the frame, and having reduced ends adapted to engage the mortises of the end bars of the frame, substantially as described.

492,418. BUTTON. CHARLES T. MCCLINTOCK, Oil City, Pa. Filed Mar. 25, 1892. Serial No. 426,422. (No model.)



Claim.—A button or stud having a shoe consisting of two arms hinged to a central rigid stud, and also to a hollow, elastic, bifurcated stud sliding on the rigid stud; with two disks having divergent edges placed one behind the other to form the front part of the button, and fast respectively to each stud; substantially as shown and described

492,419. STILL-LINING. THOMSON MCGOWAN, Cleveland, Ohio. Filed July 8, 1891. Serial No. 398,845. (No model.)



Claim.—1. An inside lining or covering for stills consisting of an absorbent and practically non-inflammable and indestructible material, substantially as set forth.

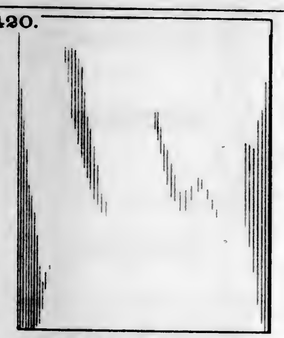
2. An inside lining or covering for stills consisting of mineral wool impregnated or saturated with plumbate of soda, substantially as set forth.

3. The combination with a still having an inside lining of absorbent and practically non-inflammable and indestructible material of means for introducing an agent such as oxygen and base simultaneously through said material, substantially as set forth.

492,420. SHEET-PACKING. THOMSON MCGOWAN, Cleveland, Ohio. Filed May 9, 1892. Serial No. 432,969. (Specimens.)

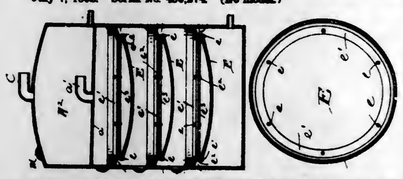
Claim.—A packing impervious to such liquids as oil and sulphuric acid, the same comprising a disk or sheet of paper, cloth, or equivalent absorbent material saturated with a substance obtained by satu-

492,420.



rating glycerine with a basic oxide that will chemically unite with the glycerine, substantially as, and for the purpose set forth.

492,421. STILL FOR THE DISTILLATION AND PURIFICATION OF HYDROCARBONS. THOMSON McGOWAN, Cleveland, Ohio. Filed July 7, 1892. Serial No. 439,274. (No model.)



Claim.—1. In a still for the distillation and purification of hydrocarbons, the combination with a still body or shell, of shelf or diaphragm for supporting purifying material, circuitous passages formed for the distillates to pass through, said passages covered or constructed in such a manner that particles dropping from above them are prevented from dropping through them, substantially as set forth.

2. In a still for the distillation and purification of hydrocarbons, the combination with the still body or shell, of shelves or diaphragms located one above another and provided with openings or passages covered or constructed in such a manner that particles dropping from above them are prevented from dropping through them, substantially as set forth.

3. The combination with a still body or shell, of shelves or diaphragms having openings constructed to admit of an upward passage of material but to prevent a vertical downward passage therethrough, substantially as set forth.

4. The combination with a still body or shell, of shelf or diaphragm located transversely of the still, and flange overlapping the edges of the shelf or diaphragm and slightly removed therefrom whereby a lateral opening is formed beneath the flange, substantially as set forth.

492,422. BATTERY-JAR. JAMES F. MCLAUGHLIN, Philadelphia, Pa. Filed June 2, 1890. Serial No. 353,929. (No model.)



Claim.—1. A battery jar, consisting of a wooden body, a water-tight, acid-proof, insulated lining for the same, and metallic corner pieces for the wooden body, substantially as described.

2. A battery jar, having a wooden body and metallic corner pieces for the said body, constituting terminals for the battery electrodes, substantially as described.

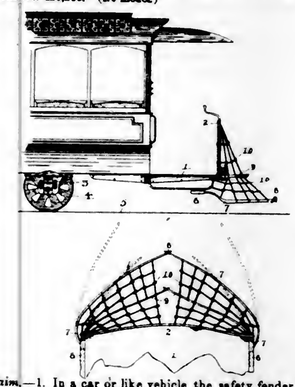
3. A battery jar, consisting of a wooden body, a water-tight, acid-proof lining for the same, and electrode supports composed of ribs formed integral with the said lining, substantially as described.

4. A battery jar, consisting of a wooden body having interior longitudinal grooves and a water-tight, acid-proof lining for the same, provided with locking ribs entering said grooves, substantially as described.

5. A battery jar, consisting of a wooden body having interior longitudinal grooves, and a water-tight, acid-proof lining for the same provided with locking ribs entering said grooves, and other ribs on said lining and forming electrode-supports, substantially as described.

6. A secondary battery, consisting of a jar of wood lined with acid-proof material and provided with exterior metallic corner pieces, and electrodes connected with two of these corner pieces, substantially as described.

492,423. CAR-FENDER. JOHN NAGELE, Clarendon, Ark., assignor of one-half to Middleton J. Manning, same place. Filed Mar. 24, 1892. Serial No. 426,289. (No model.)



Claim.—1. In a car or like vehicle the safety fender consisting of springs secured rigidly to the car on each side thereof and connected vertically by a net and having their outer ends connected to each other by catches adapted to be automatically disengaged by exterior pressure on either spring; substantially as set forth.

2. In a car or like vehicle the safety fender consisting of two pair of springs secured rigidly to the car on each side thereof and having their outer ends connected by catches adapted to be automatically disengaged by exterior pressure on either side, corresponding springs of the said pairs being connected to each other and to the guard rail of the platform by a flexible net; substantially as set forth.

3. In a car fender the combination of the lower springs secured to the car steps on each side of the car, the upper spring secured to the platform, both pairs being detachably connected at their outer ends, and a net connecting said springs to each other and to the step and guard rail; substantially as set forth.

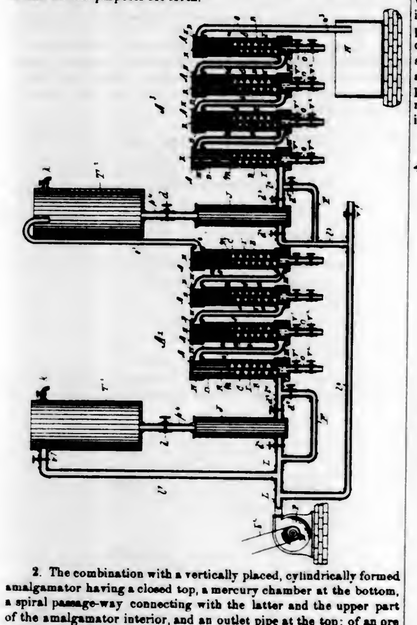
492,424. RAILWAY SURFACE CATTLE-GUARD. WILLIAM C. NUHN, Toronto, Canada, assignor to the Consolidated Railway Equipment Company of Toronto, Limited. Filed May 27, 1892. Serial No. 434,565. (No model.)



Claim.—As an improved cattle guard, a series of bars connected together, located above the ties and supported upon a properly located pivot, in combination with a spring or springs arranged to support one end of the guard, substantially as and for the purpose specified.

492,425. AMALGAMATOR. CHARLES C. ORMSBY, Waterford, N. Y. Filed Aug. 27, 1891. Serial No. 403,893. (No model.)

Claim.—1. The combination with an amalgamator, of a mercury charging chamber connecting with the amalgamator interior by means of a pipe leading from the top of said charging chamber to the amalgamator interior; and a pipe connecting the bottom of said charging chamber with the amalgamator interior, valves on each of said pipes and a funnel and valve arranged at the top of said charging chamber, constructed and arranged to be operated substantially in the manner as and for the purposes set forth.



2. The combination with a vertically placed, cylindrically formed amalgamator having a closed top, a mercury chamber at the bottom, a spiral passage-way connecting with the latter and the upper part of the amalgamator interior, and an outlet pipe at the top; of an ore tank having a charging cylinder arranged beneath said tank and connected to the latter by a vertically placed pipe having a valve thereon; a pipe having a valve thereon and connecting the bottom of said charging cylinder with the said mercury chamber; and a pipe connecting with the bottom of said charging cylinder, adapted to deliver water under pressure thereto, substantially in the manner as and for the purposes set forth

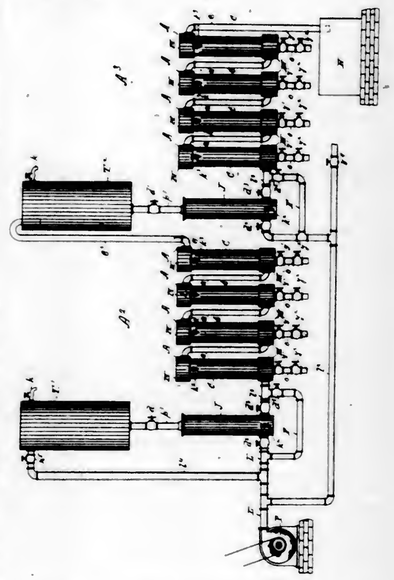
3. The combination with a vertically placed cylindrical amalgamator, having a closed top, a mercury chamber at the bottom, a spiral passage-way connecting with the latter and the upper part of the amalgamator interior, and outlet pipe at the top, and an inlet pipe connecting with said mercury chamber; said inlet pipe adapted to deliver water under pressure to said amalgamator commingled with ore, substantially in the manner as and for the purposes set forth.

4. A series of cylindrical amalgamators, each made with a closed top; a mercury chamber at the bottom; a spiral passage-way connecting with the latter, and the upper part of the amalgamator interior; an inlet pipe connecting with the mercury chamber of the first one of the series, said pipe being arranged to deliver powdered ore and water thereto under pressure; a pipe connecting with the top of each amalgamator of the series and the bottom of the next adjacent one of the latter, and a pipe connecting with the top of the last amalgamator of the series, and with a receiving tank, constructed and arranged to operate substantially in the manner as and for the purposes set forth.

5. A series of cylindrical amalgamators, each made with a closed top; a mercury chamber at the bottom; a spiral passage way connecting with the latter, and the upper part of the amalgamator interior; an inlet pipe connecting with the mercury chamber of the first amalgamator of the series; an ore tank connecting with said inlet pipe adapted to deliver ore thereto, with said inlet pipe adapted to deliver ore and water under pressure into the mercury chamber of the first amalgamator of the series; a pipe connecting the top of each amalgamator with the bottom of the next adjacent one of the series, and a pipe connecting the top of the last one of the series with a receiving tank, constructed and arranged to operate substantially in the manner as and for the purposes set forth.

6. A series of cylindrical amalgamators, each made with a closed top; a mercury chamber at the bottom; a spiral passage connecting with the latter and the upper part of the amalgamator interior; an ore tank having an ore charging cylinder beneath connecting by a vertical pipe with said tank; a valve on said pipe; an inlet pipe provided with a valve and connecting with the bottom of said ore charging cylinder, said pipe being adapted to deliver water thereto under pressure; a pipe provided with a valve connecting the ore charging cylinder with the mercury chamber of the first amalgamator of the series; and a pipe connecting the top of each amalgamator of the series with the bottom of the next adjacent one of the latter: and a pipe connecting the top of the last amalgamator of the series with a receiving tank, constructed and arranged to be operated substantially in the manner as and for the purposes set forth.

492,426. PROCESS OF AMALGAMATING ORES. CHARLES C. ORMSBY, Waterford, N. Y. Filed Aug. 27, 1891. Serial No. 403,894. (No specimens.)

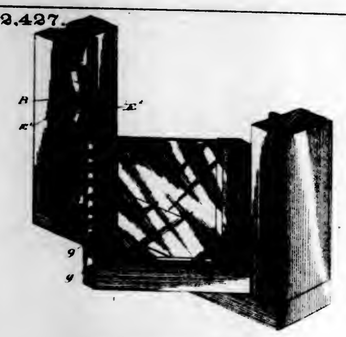


Claim.—The process herein described for amalgamating auriferous ores and consisting in forcing them mixed with water in a pulpy state under pressure up through a column of mercury contained in an amalgamating cylinder, which column of mercury is greater in cross-measurement than the entering current of ore and water; then discharging the ore into a receiving tank and allowing it to rest from six to twenty four hours for the mercury to act upon amalgamated portions of the gangue, and then in a pulpy state to be again passed through the amalgamating cylinder under pressure as before, substantially in the manner set forth.

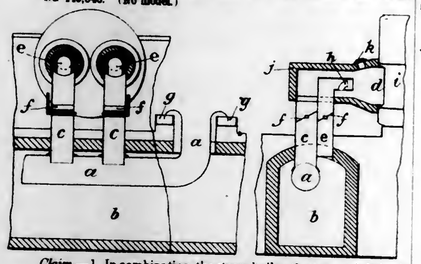
492,427. SASH-FASTENER. WILLIAM L. PENNEY, Perryville, Ky. Filed Nov. 22, 1892. Serial No. 452,804. (No model.)

Claim.—As an improved article of manufacture, the herein described sash lock, the same comprising a block having an internal chamber open at one of its ends, a sliding latch loosely seated within said chamber, said latch having at one of its ends an enlarged portion provided with a vertical slot, and its opposite end consisting of a shank of smaller diameter than said head, and adapted to be passed through an opening in the outer end of the block, a spring within the chamber in the block in the rear of an enlarged portion of the latch, and the latch actuating mechanism, consisting of the wire E, adapted to be seated in a horizontal recess in the window frame, the ends of the wire being bent, to form the handle E' and the arm E², respectively, substantially as described.

492,427.



492,428. AIR-HEATING DEVICE FOR FURNACES. RICHARD POTTER, Ardsley, near Barnsley, England. Filed Oct. 15, 1892. Serial No. 449,040. (No model.)

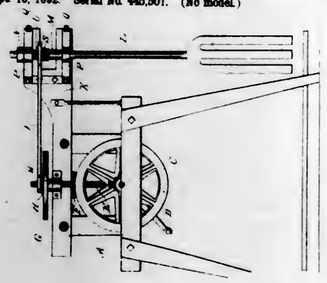


Claim.—1. In combination, the steam boiler, the gas conduit, leading thereto, the air flue extending through said conduit to the steam boiler and out through the side of the conduit to the open air, the said tube having its edges at its inlet end curved back and the water seal *g*, on the gas conduit into which said edge extends, substantially as described.

2. In combination, the steam boiler, the gas conduit extending across one end of the boiler, the air flue, *a*, extending through the gas conduit and the branch pipes *c*, *e*, extending respectively from the air flue and gas conduit and at right angles thereto each of said branch pipes having a valve and having their discharge openings arranged to discharge the air and gas to the boiler, substantially as described.

3. In combination, the steam boiler, the combustion chamber fitted to the fire tube thereof, the gas conduit the tube *e*, leading therefrom to the combustion chamber and centrally of the latter the air flue *a*, extending through the gas conduit, the tube *c*, extending therefrom to the combustion chamber and the jet tube *A*, arranged centrally of the gas tube and opening into the combustion chamber laterally of the gas tube, substantially as described.

492,429. CHURN-POWER. THOMAS J. PRICE, Monroe, N. C. Filed Sept. 10, 1892. Serial No. 445,501. (No model.)



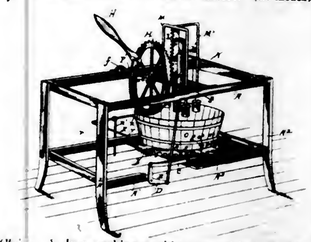
Claim.—1. In a churn-power, a vertically-mounted sleeve provided with a thumb-screw, a crank-arm attached to said sleeve, and a dasher-staff fitted in the sleeve and engaged by the thumb-screw, in combination with a vertical shaft, a disk carried by the shaft, a pitman connecting said disk and crank-arm, and means to operate the shaft, substantially as specified.

2. In a churn-power, a sleeve mounted in vertically-aligned bearings and held in place by hinged bars as described, such sleeve being provided with a crank-arm and a thumb-screw, a dasher-staff detachably fitted in said sleeve, and means for operating the sleeve, substantially as specified.

3. In a churn-power, the combination of a supporting-arm provided with vertically-aligned half-bearings, hinged bars connected to said arm having corresponding half-bearings, retaining-springs to engage the free ends of said bars, a sleeve mounted in the bearings and carrying a crank-arm, a dasher-staff fitted in the sleeve, a horizontal fly-wheel or disk provided with perforations, a crank-pin engaging one of such perforations, a pitman connecting said crank-arm and crank-pin, and means to operate the fly-wheel or disk, substantially as specified.

4. In combination with a supporting-frame, a bar K provided with vertically-aligned half-bearings, hinged bars P provided with co-acting half-bearings, means to lock such bars in their operative positions, a sleeve fitted in said bearings and provided with a collar to engage the upper bearing, a dasher-staff fitted in the sleeve, and means to operate the latter, substantially as specified.

492,430. WASHING-MACHINE. WILLIAM B. REED, East Lynne, Mo. Filed Sept. 17, 1892. Serial No. 446,139. (No model.)



Claim.—1. In a washing machine, comprising a double rectangular frame-work, supported upon legs, and an intermittently rotating table or wheel supported upon the lower frame, a rock-shaft, journaled transversely of the upper frame, and having a segmental rack-bar or mutilated gear wheel mounted thereon, and a vertically erected guide plate, having inwardly extending flanges parallel with the body-portion of the plate and extending vertically for the entire length of said plate, and a vertically arranged rack-bar having transverse flanges at its rear side, engaging the guide passage of the guide plate, and a series of rods bowed and secured at their upper ends to the rack-bar and flange at the rear side thereof, and a vertically arranged cylindrical pounding cup secured at the lower end of each rod, substantially as described.

2. In a washing machine, comprising a rotary table, the combination of the rocking-bar secured in bearings diametrically of and upon the rotary table, and having its opposite ends bent to form hooks, and rods arranged parallel with and upon opposite sides of the rocking-bar, with a tub, provided with parallel channel bars on its under side adapted to engage the rods upon the rotary table, and projections on its opposite sides adapted to be engaged by the hooked ends of the rocking-bar, substantially as set forth.

3. A washing machine, comprising the rotary table pivotally supported upon the frame, two parallel guide rods secured to the top of the table, and two corresponding channel bars secured to the bottom of the tub to rest and slide upon said guide rods, substantially as described.

4. A washing machine, comprising the frame, the rotary table having parallel guide rods upon its upper side, a tub having corresponding channel bars upon its bottom and a track formed of two parallel bars supported to project from the frame in line with the guide rods to receive and support the tub thereon substantially as described.

492,431. HEATING ATTACHMENT. WILLIAM RENYSON, Norristown, Pa. Filed June 2, 1892. Serial No. 435,332. (No model.)

Claim.—1. In a heating and lighting device the combination of an open-ended cylinder constructed of translucent material (such as mica) and provided with a metal binding *a''* around its upper and lower edges, a cap constructed of similar material and detachably secured over the upper end of the cylinder so as to bear upon the upper binding strap, substantially as described.

2. In a heating and lighting attachment the combination of a cylinder *a* open at both ends and constructed of vertical sections of mica secured together at their vertical and horizontal edges, a cap *b* constructed of radial sections of mica secured together at their longitudinal edges, and means, substantially as described, for removably clamping said cap upon the upper end of the cylinder, substantially as described.

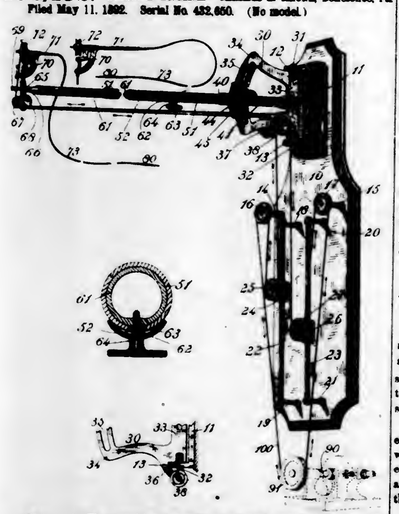


3. The combination of a vertical open-ended cylinder, a cap secured over the same, and a series of pliable strips *b''* secured to the cap and extending down and bent under the lower edge of the cylinder whereby the parts are detachably secured together, substantially as described.

4. The combination of a translucent cylinder, a translucent cap secured thereon a disk or plate *c* secured over the lower end of the cylinder, this plate being provided with a central opening and being made longer than the cylinder whereby the device may be applied to globes of different sizes substantially as described.

5. The combination of a cylinder, a cap detachably secured over the upper end of the same, a plate *c* made longer than the cylinder and provided with a central opening and small slips, and pliable strips *b''* secured to the interior of the cap and extending down through the cylinder and the slits in the plate, and having their ends bent up against the plate, whereby the parts are made readily detachable, substantially as described.

492,432. DENTAL ENGINE. CHARLES E. RESOR, Bellefonte, Pa. Filed May 11, 1892. Serial No. 432,660. (No model.)



Claim.—1. The combination of a swiveled bracket, an engine arm pivoted to said bracket to swing in a plane at an angle to the plane of movement of said bracket, an automatic spring clamp which holds said engine arm in adjusted position on said bracket and permits it to swing freely thereon at the will of the operator, an engine head supported by said arm, a tool chuck in operative connection with said engine head, and means for operating said engine head.

2. The combination of a swiveled bracket provided with a slot, an arm pivoted to said bracket to swing in a plane at an angle to the plane of movement thereof, a semi-elliptic spring in contact with said bracket and a stud connected with said spring and extending through said slot and through said arm.

3. The combination of a swiveled bracket, an engine arm pivoted to said bracket to swing in a plane at an angle to the plane of movement of said bracket, and an automatic spring clamp which holds said arm in adjusted position on said bracket and permits it to swing freely thereon at the will of the operator, said clamp consisting of a semi-elliptic spring provided with a frictional contact face, and a clamping stud passing through said members.

4. The combination of a swiveled bracket provided with a slot, an arm pivoted to said bracket to swing in a plane at an angle to the plane of movement thereof, a semi-elliptic spring in contact with said bracket and provided with guide studs engaging said slot, and a clamping stud extending through said spring and arm and through the slot of said bracket.

5. The combination of a swiveled bracket provided with an arc-shaped slotted bar, an arm pivoted to said bracket to swing in a plane at an angle to the plane of movement thereof, and provided with a recess engaging said arc-shaped bar, and a clamping device for holding said arm in adjusted position on the arc-shaped bar.

6. The combination of an adjustable arm, an engine head supported thereon, a tool chuck in operative connection with said head, pulleys on said arm, a driving shaft provided with a pulley, pulleys disposed on fixed studs between said driving pulley and adjustable arm, two movable tension pulleys disposed between said fixed pulleys and said driving shaft, and a driving belt passing over said pulleys.

7. The combination of an extensible arm, and an engine head supported thereon, a tool chuck in operative connection with said head, pulleys on said arm, a driving shaft provided with a pulley, pulleys disposed on fixed studs between said driving pulley and extensible arm, two movable tension pulleys disposed between said fixed pulleys and said driving shaft, and a driving belt passing over said pulleys.

8. The combination of an adjustable arm, an engine head supported thereon, a tool chuck in operative connection with said engine head, a driving shaft provided with a pulley, pulleys on said adjustable arm, pulleys on fixed studs disposed between said arm and said driving pulleys, two vertical guide rods, two slides disposed on said guide rods and provided with pulleys, and a driving belt passing over said pulleys.

9. The combination of a swiveled bracket, an engine arm pivoted to said bracket and provided with a dependent arm, an engine head supported on said engine arm, and means for operating said engine head, said means including pulleys disposed on said dependent arm in line with the axis of said swiveled bracket.

10. The combination of a pivoted arm, an engine head supported thereby, a tool chuck in operative connection with said engine head, and means for operating said engine head, said pivoted arm comprising two telescoping sections and a spring clamp connecting said sections and consisting of a bow spring and an adjusting screw passing through said spring and through a slot in one of said sections and threaded into the other section.

11. The combination of a bracket, an engine arm, an automatic spring clamp uniting them with a yielding tension, whereby said engine arm is held in adjusted position on said bracket and permitted to swing freely thereon at the will of the operator an engine head supported by said arm, a tool chuck in operative connection with said engine head, and means for operating said engine head.

492,433. DENTAL ENGINE. CHARLES E. RESOR, Bellefonte, Pa. Filed Oct. 15, 1892. Serial No. 449,017. (No model.)

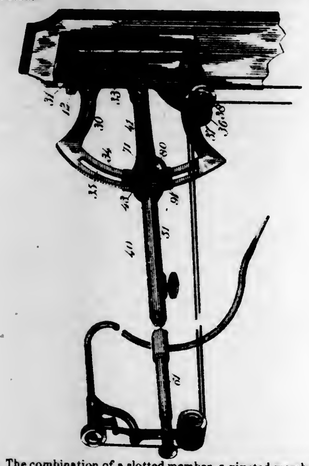
Claim.—1. The combination of two members one of which is movable on the other, and a connecting device therefor consisting of a clamping plate provided with a stud, a spring disposed between said clamping plate and one of said members, a spring disposed between one of said members and the other, and a thumb-nut on said stud for adjusting the tension of said spring.

2. The combination of a bracket having a slotted arm, a pivoted engine arm movable on said slotted arm, a clamping plate provided with a stud passing through said slotted arm, a spring between said engine arm and said slotted arm, a spring between said clamping plate and said slotted arm, a thumb-nut on said stud, and a spring between the thumb-nut and the engine-arm, substantially as set forth.

3. The combination of a bracket having a slotted arm, a pivoted engine arm movable on said slotted arm and provided with a transverse recess through which said slotted arm passes, a clamping plate provided with a recess on its inner face and with a stud which passes through said slotted arm, bow-springs disposed in said recesses and

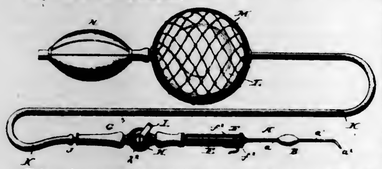
bearing on opposite sides of said slotted arm, and a fastening device on said stud, substantially as set forth.

4. The combination of a bracket having a slotted arm, a pivoted arm movable on said slotted arm and provided with a transverse recess and with a stud hole on one side of said recess, a clamping plate provided with a central stud passing through said arm, and with a locking stud entering said stud-hole, springs on opposite sides of said arm, engaged by said clamping plate and by said arm, and a nut on said central stud.



5. The combination of a slotted member, a pivoted member movable thereon, and provided with a transverse recess in one face and with a circular recess on the opposite face, a clamping plate provided with a stud passing through said arm and recesses, springs in said recesses and bearing against said slotted arm, a nut on said stud provided with a circular recess at its inner end, and a spiral spring disposed around said stud in said circular recesses.

492,434. DENTAL APPARATUS. ALVAH S. RICHMOND, New York, N. Y., assignor to John S. Huyler, same place. Filed Dec. 15, 1892. Serial No. 455,276. (No model.)



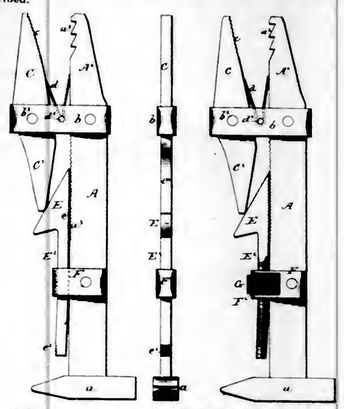
Claim.—1. A portable dental instrument of the class described, comprising a force bulb, a resistance chamber, a tube connected to the latter, a handle provided with a regulating valve, the cylinders detachably connected, the detachable tube for the cylinder, and the sectional delivery tube connected to the heater, substantially as described.

2. In a portable dental instrument of the class described, the combination of the inner and outer cylinders, to one of which is connected an air pressure device and valve, and to the other of which is connected a delivery tube, the cylinders being united by a beveled bayonet coupling device, substantially as described.

3. In a dental apparatus of the class described, the combination with the outer cylinder and the inner cylinder, of a gas tight coupling for the cylinders, and a removable medicament holding tube arranged to fit the inner cylinder, substantially as described.

492,485. PIPE-WRENCH. SILAS R. RITTENHOUSE, Liberty Mills, Ind. Filed July 6, 1892. Serial No. 439,004. (No model.)

Claim.—1. In combination with a handle having serrations and a jaw formed thereon and a strap *b* rigidly secured thereto, the jaw C pivoted to said strap, a secondary strap F rigidly attached to the handle, a wedge provided with serrations on one side and a tail guided through the strap F and alongside of the handle substantially as described.



2. In combination with a handle having a jaw formed thereon and a strap *b* rigidly secured thereto, the jaw C pivoted to said strap, a spring pivoted to said strap *b* and having its ends between and bearing against the two jaws, and a wedge having one end of its sides parallel with the handle and the other side diverging therefrom with a tail guided alongside of the handle substantially as described.

492,486. HUB-PROTECTOR. EDGAR F. RYDER, Providence, R. I., assignor to the Atlantic Manufacturing Company, same place. Filed Apr. 21, 1892. Serial No. 430,074. (No model.)

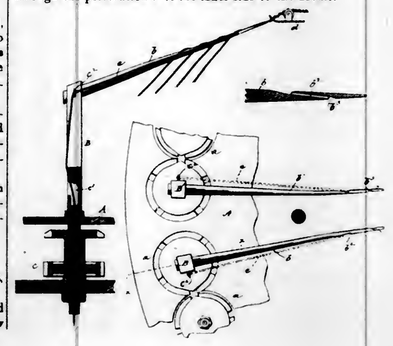


Claim.—1. The combination of the elastic tube *a*, and the closed end *c*, adapted to be held by air-suction upon the hub of a wheel, substantially as specified.

2. The combination of the tubular portion *a*, the closed end *c*, the flange *b* and the lip *d*, all made of an elastic material in one piece, and the metallic disk *e*, substantially as and for the purpose specified.

492,487. BRAIDING-MACHINE. JOSEPH W. SCHLOSS, New York, N. Y. Filed May 25, 1892. Serial No. 434,306. (No model.)

Brief.—The cord forming the raised edge of the braid is led through the guide c^3, along the outer side of the needle, and then through the perforation b^3 to the inner side of the needle.



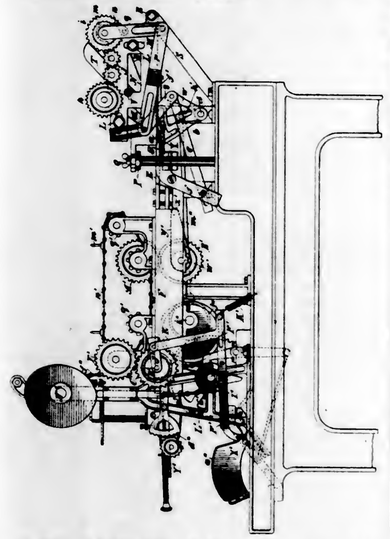
Claim.—1. In a braiding machine, the combination with the race plate, the carriers and the braid guide, of a needle supported from the center of a terminal circle of the race plate extending at its tip into proximity to the braid guide, said needle provided near its tip with a perforation adapted for the passage of an edge or purling cord substantially as described.

2. In a braiding machine, the combination with the race plate, the carriers and the braid guide, of a needle supported from the center of a terminal circle of the race plate extending at its tip into proximity to the braid guide, said needle provided near its tip with a diagonal perforation adapted for the passage of an edge or purling cord substantially as described.

3. In a braiding machine, the combination with the race plate, the carriers and the braid guide of two needles supported from the centers of the terminal circles of the race plate converging at their tips in proximity to the braid guide, said needles provided near their tips with perforations adapted for the passage of edge or purling cords substantially as described.

4. In a braiding machine, the combination of the race plate, the carriers and the braid guide, of a needle supported from the center of a terminal circle of the race plate, extending at its tip into proximity to the braid guide said needle provided near its tip with a perforation adapted for the passage of an edge or purling cord and guides located on the outer side of the needle for conducting the cord free of the body threads substantially as described.

492,438. CIGAR-BUNCHING MACHINE. HENRY SCHMIDT, AUGUST MERZBACH, and CHARLES J. WERNER, New York, N. Y. Filed June 28, 1892. Serial No. 438,274. (No model.)



Claim.—1. The feed trough for filler tobacco, the receiver and the reciprocating plunger in line therewith, combined with the endless feed belts A, B, leading to said receiver, and mechanism for imparting intermittent motion to said belts; substantially as set forth.

2. The feed trough, the receiver, and the reciprocating plunger in line therewith, combined with the rollers C, D, the endless feed belts thereon leading to said receiver, and the hinged frame N carrying said rollers and belts; substantially as and for the purposes set forth.

3. The feed trough, the receiver, and the plunger in line therewith, combined with the endless feed belts A, B, leading to said receiver, the adjustable plates T between said belts, and mechanism for imparting an intermittent motion to said belts; substantially as set forth.

4. The feed trough, the receiver and the plunger in line therewith, combined with the rollers C, D, the endless traveling belts A, B, leading to said receiver, the adjustable tension rolls H, I, and the hinged frame N carrying said rollers, belts and rolls; substantially as set forth.

5. The feed trough, the receiver, and the plunger in line therewith, combined with the endless feed belts leading to said receiver, mechanism for imparting to said belts an intermittent motion, and the laterally reciprocating pushers *a'*, *b'*, above said plunger; substantially as and for the purpose set forth.

6. The feed trough, the receiver, and the plunger in line therewith, combined with the endless feed belts leading to said receiver, mechanism for imparting to said belts an intermittent motion, the pushers *a'*, *b'* over said plunger, the rods *c'* for said pushers, the spring side arms *f'* connected with said rods, and the rocking arms *h'* acting on said arms; substantially as set forth.

7. The trough for the mass of filler tobacco, the top of said trough having the longitudinal slots *j'*, combined with the endless chains *n'* having fingers *m'* to enter said slots, and the sprocket wheels carrying said chains, the upper of said wheels being set outward from the lower wheels and the chains extending at an angle between the upper and lower wheels at the ends of said trough; substantially as set forth.

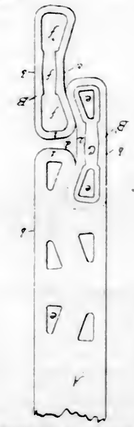
8. The feed trough, the receiver and the plunger in line therewith, combined with the endless chains carrying fingers to move the tobacco in said trough to bunch forming mechanism; substantially as set forth.

9. The feed trough, the receiver, and the plunger in line therewith, combined with the endless belt *y'*, located in the bottom of said trough and the endless chains *n'*, carrying fingers to move the tobacco in said trough to bunch forming mechanism; substantially as set forth.

10. The feed trough for filler tobacco, and mechanism for rolling the bunch combined with the reciprocating knife for severing the charges for the bunches, and the combined yielding presser and stripper O' carried by said knife, the said presser and stripper being composed of the horizontal portion P' and vertical portion Q', the latter being against the face of the knife but allowed a movement free of the knife; substantially as and for the purposes set forth.

11. The feed trough for filler tobacco, the reciprocating knife for severing the charges thereof for the bunches, and bunch rolling mechanism, combined with the oscillating funnel moving between said knife and said bunch rolling mechanism, the hinged leaf *d''*, and the spring exerting an upward tension against said leaf and causing it to follow the said funnel, substantially as and for the purposes set forth.

492,439. CHAIN AND THE MANUFACTURE THEREOF. ALFRED SHEDLOCK, Jersey City, N. J. Filed June 7, 1892. Serial No. 435,913. (No model.)



Claim.—1. The herein described method of cutting and forming sheet-metal chain-link blanks, having like ends with eyes therein, from a sheet or strip of metal, which consists in cutting two lines or series of blanks from the strip, the outer edge of each blank in each series being straight, or substantially so, and the inner or adjacent edges of the blanks each inclined or curved from each end toward the middle portion thereof, and the adjoining ends of blanks in one series lying opposite the middle portion of a blank in the opposite series, and then bending the distorted blanks thus produced edgewise into the desired symmetrical shape, substantially as set forth.

2. The herein described method of cutting sheet metal chain-link blanks having like ends with eyes therein, of two sizes from a sheet or strip of metal, which consists in cutting large blanks from the strip and smaller blanks from the interior or central portions of the larger blanks, and then pressing the sides of the larger blanks inwardly or toward each other to give the blanks the desired symmetrical shape.

3. The herein described method of cutting and forming two sizes of sheet metal chain-link blanks, having like ends with eyes therein, from a sheet or strip of metal, which consists in cutting large blanks from the strip and smaller blanks from the interior or central portions of the larger blanks and then compressing the larger blanks edgewise to bring the inner edges of their middle portions together, substantially as set forth.

4. The herein described method of cutting and forming sheet-metal chain-link blanks, having like ends with eyes therein, from a sheet or strip of metal, which consists in cutting two parallel lines or series of large blanks from the strip, the outer edge of each blank in each series being straight or substantially so, and the inner adjacent edges of said blanks being each inclined or curved from each end toward the middle portion thereof, and the adjoining ends of blanks in one series lying opposite the middle portion of a blank in the opposite series, and cutting correspondingly shaped smaller blanks from the interior or central portions of the larger blanks, substantially as set forth.

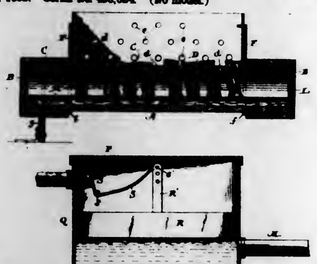
5. The herein described method of cutting and forming sheet metal chain-link blanks, having like ends with eyes therein, from a sheet or strip of metal, which consists in cutting two parallel lines or series of large blanks from the strip, the outer edge of each blank in each series being straight or substantially so, and the inner adjacent edges of said blanks being each inclined or curved from each end toward the middle portion thereof, and the adjoining ends of blanks in one series lying opposite the middle portion of a blank in the opposite series and cutting correspondingly shaped smaller blanks from the interior or central portions of the larger blanks, and then compressing and bending the larger links edgewise, and bending the smaller links edgewise into the desired symmetrical shape, substantially as set forth.

6. A sheet metal chain link blank having its central or interior portion cut out from end to end, and its middle portion compressed edgewise to bring its inner edges together or substantially so, the inner edges of the end portions being left open or separated to form the eyes.

7. A sheet metal chain link having an opening extending from end to end, and its middle portions brought together and folded to form the loop, the inner edges of the end portions being left open or separated to form the eyes.

8. A sheet metal chain composed of interlocked solid links each having an opening extending from end to end, and its middle portions brought together and folded to form the loop, the inner edges of the end portions being left open or separated to form the eyes.

492,440. FLUID-FUEL BURNER. NEWTON J. SKAGGS, Montgomery, Ala., assignor of one-half to John C. Lee, same place. Filed June 26, 1892. Serial No. 438,094. (No model.)



Claim.—1. In a fluid fuel burner, a horizontal burner-tube A closed at its ends and provided in its upper side with series of alternately arranged openings D, fitted with wicks, and vents *d* connected by a continuous groove C in the outer surface of the tube, substantially as described.

2. In a fluid fuel burner, a horizontal burner-tube having its ends closed by screw-caps and provided in its upper side with series of alternately arranged openings D and vents *d*, a horizontal perforated plate H disposed longitudinally in the burner-tube, and wicks of asbestos arranged in the openings D and bearing at their lower ends upon said perforated plate, substantially as described.

3. In combination with a horizontal burner tube fitted with wicks arranged in openings in the upper side of said tube, of a chimney E provided with loops F having rings to embrace the tube, whereby the chimney may be arranged in a vertical position or inclined, substantially as described.

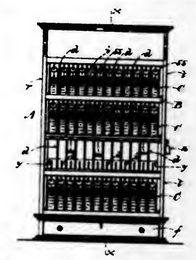
4. In combination with a horizontal burner-tube fitted with wicks, of a perforated chimney fulcrumed upon the tube and capable of angular adjustment thereon, substantially as described.

5. In a fluid fuel burner, the combination with a burner-tube fitted with wicks, of a support G having a vertical plate, a saddle *g* to receive the burner-tube, and a set-screw fitting in a slot in the saddle and engaging the plate to lock the saddle in the desired position, substantially as described.

6. In a fluid fuel burner, the combination with the supply pipe of the receiver, the valve carried by an angle lever mounted in said receiver, and the float arranged horizontally in the receiver and provided with a vertical arm provided with perforations to be engaged by a lateral pin on the free arm of the angle lever, substantially as specified.

7. In a fluid fuel burner, the combination with the tubular burner provided with a perforated chimney, as described, of the snuffing-cap adapted to fit over said chimney and provided with an apron to cover the perforations in the same, substantially as specified.

492,441. APPARATUS FOR HOLDING CHECKS. ALBERT N. SOUTHWICK, Boston, Mass. Filed June 6, 1892. Serial No. 435,643. (No model.)



Claim.—1. The case, A, provided with the slotted shelves *b*, a receptacle in its base and a slot opening in said receptacle in combination with the wires *i*, pivoted to said shelves, the lock-bars, B, for receiving the free ends of said wires, the hinged side-piece *t*, and lock for securing said bars, substantially as described.

2. In a sales check apparatus, the combination of the case provided with shelves, partitions on said shelves, slots in the outer edges of the shelves, wires pivoted on the shelves, the free ends of said wires projecting into the slots of the shelf above, and L-shaped locking-bars adapted to lock the wires on the shelves, said bars covering the outer edges of the shelves and the slots in the same.

3. In a sales check apparatus, the combination of the case provided with shelves, partitions on said shelves, slots in the outer edges of the shelves, wires pivoted on the shelves, the free ends of said wires projecting into the slots of the shelf above, and L-shaped bars adapted to lock the wires on the shelves, said bars covering the outer edges of the shelves and the slots in the same, and said bars being provided with pins on the ends fitting into slots in the sides of the casing.

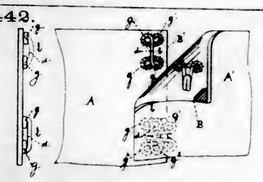
4. In a sales check apparatus, the combination of the case provided with shelves having beads at or near the middle thereof, slots in the outer edges of the shelves, wires pivoted on the shelves, the free ends of said wires projecting into the slots of the shelf above, and L-shaped bars for locking the wires in position, said wires being adapted to rest on the beads when unlocked.

5. In a sales check apparatus, the combination of the case, one side of which is hinged, shelves on said case, wires pivoted on said shelves, slots in the outer edges of the shelves into which the free ends of the wires project, L-shaped locking bars provided with slots adapted to cover the free ends of the wires, the vertical portion of said bars covering the outer edge of the shelves, and pins on the ends of said locking bars adapted to rest in slots in the sides of said casing.

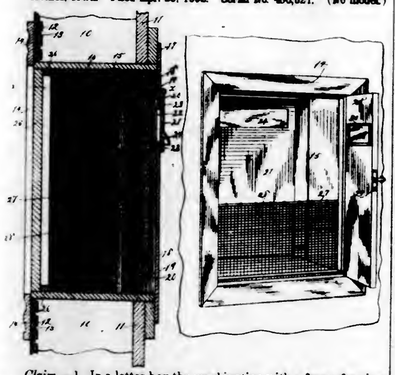
492,442. EYE FOR HOOKS AND EYES. JESSIE M. STEWART, Camden, N. J. Filed Sept. 18, 1891. Serial No. 406,278. (No model.)

Claim.—An eye for engaging hooks in garment fasteners formed of one continuous piece of wire, forming a centrally disposed elevated engaging bar and two securing loops at each end and provided in pairs, one loop of each pair being disposed on each side of the engaging bar, substantially as shown and described.

492,442.



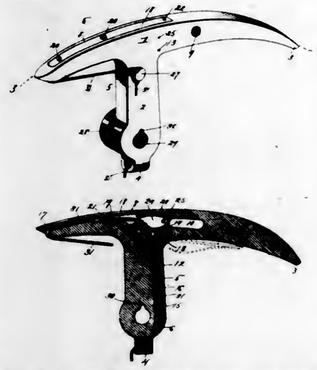
492,443. HOUSE-DOOR LETTER-BOX. ALLEN H. STEWART, Des Moines, Iowa. Filed Apr. 25, 1892. Serial No. 430,621. (No model.)



Claim.—1. In a letter box the combination with a frame forming the sides and ends of said box, of a face plate forming the front of said box, flanges formed on and projecting from the rear of said face plate, and slots in said flanges, through which slots bolts are adapted to be passed to secure said face plate to the said frame, whereby the said box is adapted for walls of varying thicknesses.

2. A letter box comprising a containing receptacle for the mail, means of ingress to said receptacle, means of egress from said receptacle, and a screen located within said receptacle and partially closing the egress opening therefrom.

492,444. TENSION-NEEDLE FOR HARVESTER-BINDERS. THOS. A. STRODE, Johnstown, Mo. Filed Feb. 16, 1892. Serial No. 421,764. (No model.)



Claim.—1. A needle for binding mechanisms, comprising body-portion provided with a shank, a longitudinally extending groove in said body-portion, and a spring-pressed clamp pivoted within said groove to give elastic yielding tension to the twine as it comes from the spool, and serving to prevent the unthreading of the needle when the twine is severed, substantially as set forth.

2. A needle for binding-mechanisms comprising a shank having a longitudinal groove in the rear side thereof, a hinge plate covering said groove and having its side margins to frictionally engage the sides of said groove and a tension spring carried by the plate and extending into the grooves so as to press upon the twine in said groove, substantially as set forth.

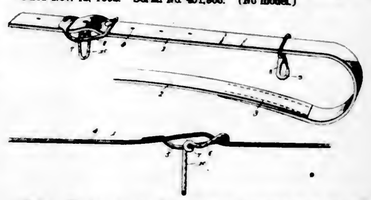
3. A needle for binding-mechanisms comprising a body-portion provided with a longitudinal groove, a serrated catch or dog, pivoted within the groove and arranged to come into contact with the twine in the groove, and a plate closing said groove and having a spring to press upon the stop or dog, substantially as set forth.

4. A needle for binding mechanisms, comprising a body-portion provided with a shank, and a screw or stud secured to the side of the needle and adapted to hold one end of the thread and deliver it to the cord-holder, substantially as described.

5. In a needle for grain binders, the body portion provided with a shank, a longitudinal groove formed on one side of the shank, a longitudinal groove formed in the body portion, a channel connecting said grooves, and a loop formed upon the lower end of the shank to conduct and shield the twine in its passage from the lower end of the shank to the point of the needle, in combination with a tension spring to cover the shank groove and serrated catch or dog, acted upon by the spring plate covering the groove in the body portion, substantially as described.

6. In a needle for grain binders, comprising a body portion provided with a shank, a longitudinal groove formed in the rear side of the shank, a longitudinal groove formed in the body portion, a channel connecting said grooves, and a loop formed upon the lower end of the shank, and a groove connecting the shank groove and the loop, and a channel communicating with the forward end of the body groove and extending through the forward end of the needle, substantially as set forth.

492,445. HITCHING-STRAP. FRANK SWEETLAND, Angola, N. Y. Filed Nov. 12, 1892. Serial No. 451,803. (No model.)



Claim.—The herein described improved hitching strap, the same consisting of a strap adapted to form the noose and provided with a continuation to form the hitching-strap a stop located between the ends of the strap, perforations in the free end of the strap, a buckle mounted on the free end of the strap and adjustable by reason of said perforations, a depending-loop connected with the cross-bar of the buckle, and a snap-hook mounted loosely on the noose-portion of the strap between the buckle and stop, substantially as specified.

492,446. RAILWAY TIE AND CHAIR. GEORGE TARRANT, Brandon, N. Y., assignor of one-half to Patrick A. Ducey, Detroit, Mich. Filed Mar. 31, 1892. Serial No. 427,276. (No model.)

Claim.—1. The combination of a railway tie having an upper flange, and a cushioned chair located at opposite sides of and engaging said flange, substantially as described.

2. The combination of a tie having flanges as set forth, and recesses in said flanges at opposite ends thereof, and cushioned chairs rotatably located in said recesses, substantially as described.

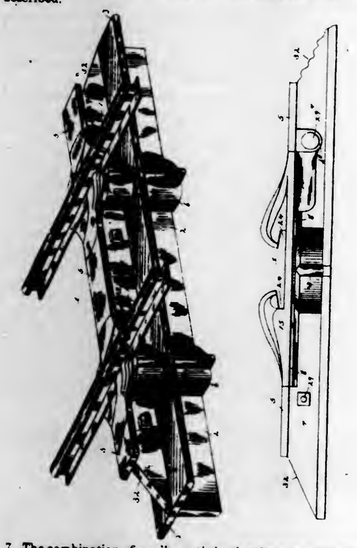
3. The combination of a railway tie having barrels located at opposite ends thereof and flanges connecting with said barrels, a yielding device located in said barrels, a chair engaging each of said barrels and having a head on the inner side thereof bearing against said yielding device and also provided with flanges adjacent to said head having ears with eyes therein, and heads on the top portions of the same provided with recesses, and means for securing the said parts together, substantially as described.

4. The combination of a railway tie having a flange with elongated openings therein, and a cushioned chair having ears projecting from opposite ends thereof with eyes therein adapted to be relatively arranged with elongated openings for the reception of a suitable fastening device, substantially as described.

5. A railway chair, having lower reversely arranged flanges and

ears and upper reversely arranged heads with recesses therein and a diagonal seat extending between the same, substantially as described.

6. A railway chair, having a lower centrally located head and oppositely disposed flanges with a circular space or way between said head and flanges, and ears projecting from opposite ends thereof, and heads on the upper side of said chair having recesses therein, and a diagonally disposed seat extending between the same, substantially as described.



7. The combination of a railway tie having flanges vertically and horizontally disposed and recesses at opposite ends with barrels centrally located therein, a portion of the flanges having elongated openings therein, a yielding device located in each of said barrels, chairs having centrally located heads on the under sides thereof fitting in said barrels and bearing on the yielding devices therein, the said heads being also formed with reversely situated flanges on the under sides of the same and upper reversely situated heads having recesses and an intersecting diagonally arranged seat, and means for fastening said chair to the tie, substantially as described.

492,447. CURTAIN-FIXTURE. JOHN VILLARD, Wolfe City, Tex. Filed May 14, 1892. Serial No. 433,029. (No model.)

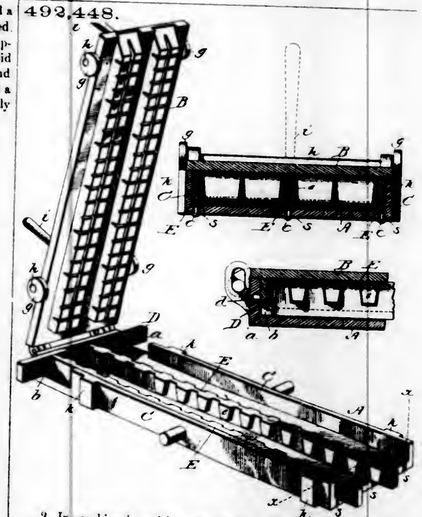


Claim.—The combination with brackets stationed on the sides of a window frame, two rods extending parallel with each other between these brackets said rods forming guides, and blocks recessed and fitted to these guide rods and adapted to slide up and down thereon said blocks constructed to receive and form bearings for the ends of a curtain shade roller, of ratchet toothed bars depending from the blocks between the guide rods and extending through the lower bracket a catch in the bracket, and a spring cushion for forcing the teeth normally into contact with the catch, substantially as set forth.

492,448. STEREOTYPE-CASTING APPARATUS. FERDINAND J. WENDELL, Fort Wayne, Ind. Filed Dec. 7, 1891. Serial No. 414,215. (No model.)

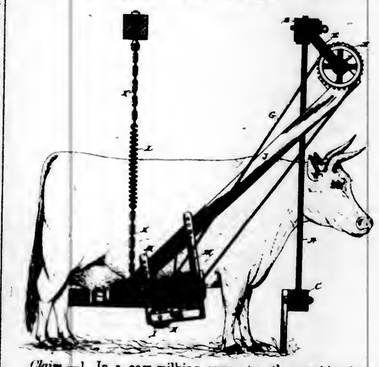
Claim.—1. In a casting apparatus, the box A having holes in its rear wall and slots *s* at its front end, the transverse gage bar D provided with pins *d* adapted to fit said holes,—the bar D also having holes or slots *a*, the longitudinal gage bar E having pin *b* to engage slots *a*, projections on bar E constructed to hold the casting against the bottom of the box, headed pin *c* on the front end of the bar E to fit in slots *s*, the head of said pin adapted to engage the under side of the bottom of the box, and the cored cover, substantially as shown and described.

492,448.



2. In combination with a casting box constructed to receive and hold a gage bar and having a lid provided with a core substantially as described, a gage bar having on its vertical side V-shaped projections protruding into the space between the bar and the core with their apexes downward for the purpose of holding the casting down upon the matrix while the core is being removed, the said bar being capable, when released from its fastenings in the box, of removal directly out of its place in the casting vertically or in a plane at right angles to the bottom of the box as set forth.

492,449. COW-MILKER. JOHN WESTGARTH, Lily Lake, Ill. Filed Dec. 2, 1890. Serial No. 373,298. (No model.)



Claim.—1. In a cow milking apparatus, the combination with the milking jaws, comprising a relatively fixed and movable jaw, of means for causing said jaws to have a joint and simultaneous vertical movement, and for causing said movable jaw to have an independent but simultaneous horizontal movement, substantially as and for the purpose described.

2. In a cow milking apparatus, the combination with the milking jaws, comprising a relatively fixed and pivoted jaw, of means for causing said jaws to have a joint and simultaneous vertical movement, and for causing said pivoted jaw to have an independent but simultaneous horizontal movement substantially as described.

3. In a cow milking apparatus, the combination with the milking jaws, comprising a fixed jaw, a movable jaw, pivoted above its center of height, and a spring for swinging said movable jaw on its pivot, so as to cause the upper edge thereof to normally stand nearer the fixed jaw, of means for causing said jaws to have a joint and simultaneous vertical movement, and for causing said movable jaw to have an independent but simultaneous horizontal movement, substantially as described.

4. In a cow milking apparatus, the combination with a milking jaw, comprising a fixed and a movable jaw, of means for imparting to said jaws a joint and simultaneous vertical movement, and for imparting to said movable jaw an independent simultaneous horizontal movement, and means for adjusting said fixed and movable jaws relative to each other, substantially as described.

5. In a cow milking apparatus, the combination with a supporting frame, milking jaws laterally and longitudinally adjustable therein, and means for operating said jaws, of an adjustable or yielding support for said frame, and means for adjusting said frame horizontally and vertically upon said support, substantially as described.

6. In a cow milking apparatus, the combination with a pivoted bar, a jaw fixedly secured thereto, a sliding bar carried by the first mentioned bar, and a jaw pivotally secured thereto opposing the first mentioned jaw, of means for imparting to said bars a joint and simultaneous vertical movement, and to the sliding bar an independent but simultaneous horizontal movement, substantially as described.

7. In a cow milking apparatus, the combination with a pivoted bar, a jaw fixedly secured thereto, a sliding bar carried by the pivoted bar, a jaw pivotally secured to said bar opposing the fixed jaw, and a spring for swinging said movable jaw on its pivot, of means for imparting to said bars a joint and simultaneous vertical movement, and to the sliding bar, an independent but simultaneous horizontal movement, substantially as described.

8. In a cow milking apparatus, the combination with an adjustable pivoted bar, a jaw fixedly secured thereto, an adjustable sliding bar carried by said pivoted bar, and a jaw pivotally secured to said sliding bar, opposing the fixed jaw, of means for imparting to said bars a joint and simultaneous vertical movement and to said sliding bar an independent but simultaneous horizontal movement, substantially as described.

9. In a cow milking apparatus, the combination with a longitudinally adjustable, pivoted bar, a jaw rigidly secured thereto, a longitudinally adjustable sliding bar carried by said pivoted bar and a jaw pivotally secured to said sliding bar, opposing the fixed jaw, of laterally adjustable supports for said bars and means for imparting to said bars a joint and simultaneous vertical movement, and to said sliding bar, an independent but simultaneous horizontal movement substantially as described.

10. In a cow milking apparatus, the combination with a pivoted bar, a jaw fixedly secured thereto, a sliding bar carried by the pivoted bar, and a jaw pivotally secured to said sliding bar, opposing the fixed jaw, of a power shaft, a cam thereon, a stirrup depending from the pivoted bar engaging and actuated by said cam, and a connection between said shaft and the sliding bar for operating the same, substantially as described.

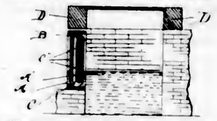
11. In a cow milking apparatus, the combination with a pivoted bar, a jaw fixedly secured thereto, a sliding bar carried by the pivoted bar, and a jaw pivotally secured to said sliding bar, opposing the fixed jaw, of a power shaft, a cam thereon, a stirrup depending from the pivoted bar engaging and actuated by said cam, a horizontally reciprocating bar connected with and actuated by said shaft, and a link connecting said reciprocating bar with the slide bar, substantially as described.

12. In a cow milking apparatus, the combination with a pivoted bar, a jaw fixedly secured thereto, a sliding bar carried by the pivoted bar and a jaw pivotally secured to said sliding bar, opposing the fixed jaw, of a power shaft, a cam thereon, a stirrup depending from the pivoted bar engaging and actuated by said cam, a reciprocating bar, an eccentric and rod connection between the ends of said bar and the shaft, and a link connecting said bar with the slide bar, substantially as described.

13. In a cow milking apparatus, the combination with a pivoted bar, a jaw fixedly secured thereto, a sliding bar carried by the pivoted bar, a jaw pivotally secured to said sliding bar, opposing the fixed jaw, and a spring for normally elevating said bars, of a power shaft, a cam thereon, a stirrup depending from the pivoted bar engaging and actuated by said cam to overcome the elevating spring, a reciprocating bar, an eccentric and rod connection between the ends of said bar and shaft and a link pivotally secured at one end to said bar, and having a slotted connection at its opposite end with the slide bar, substantially as described.

14. In a cow milking apparatus, the combination with the milking jaws, means for operating the same, and a supporting frame therefor, of an adjustable or yielding support for said frame, means for adjusting said frame horizontally and vertically upon the support, and a breast bar attached to said frame for limiting the upward movement of said support, substantially as and for the purpose described.

492,450. SEWER-GUARD. SAMUEL T. WILLIAMS of Thos. Baltimore, Md. Filed May 14, 1892. Serial No. 432,961. (No model.)



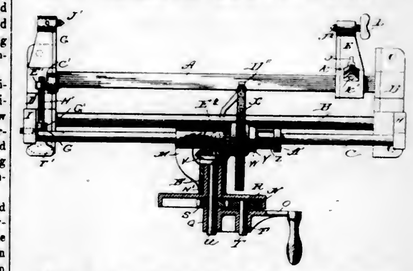
Claim.—1. The combination in a sewer guard, of a frame secured in the sewer opening, with a series of bars across said opening and mounted in said frame, and rotary sleeves mounted upon said bars and provided with blades or wings adapted to be turned by the flow of the water, substantially as and for the purpose set forth.

2. The combination in a sewer guard of a frame mounted in the sewer opening, with rotary devices located in said opening and mounted in said frame and adapted to be revolved automatically by the water flowing into the sewer, substantially as and for the purpose set forth.

3. A sewer guard consisting of a series of rotary devices located in the opening to the sewer and adapted to be revolved automatically by the water flowing therein, substantially as and for the purpose set forth.

4. The combination in a sewer guard, of a frame mounted in the sewer opening, and a series of fluted rollers adapted to be rotated by the water in a plane substantially parallel to the direction of the said flow, substantially as described.

492,451. GRINDING APPARATUS. FRANK D. WINKLEY, Madison, Wis. Filed Jan. 18, 1892. Serial No. 418,412. (No model.)



Claim.—1. In combination in a grinding apparatus, the supporting frame including a shaft *c*, a grinding wheel supported directly on the said shaft and adjustable along the same at right angles to its plane of rotation and the driving mechanism connected with the grinding wheel, said mechanism also being carried directly by and adjustable on the said shaft, substantially as described.

2. In combination the frame having the bearings for the work, the shaft forming part of the frame and adjustable toward and from the said bearings, the grinding wheel carried directly by and adjustable longitudinally of the said shaft, and the driving mechanism also carried and adjustable along the grinding wheel shaft, the said wheel and driving mechanism being adjustable with their carrying shaft toward and from the work, substantially as described.

3. In combination the supporting frame comprising a fixed and a swinging portion, the means on the fixed portion for holding the work to be operated on the adjustable connection between the fixed and swinging portions to adjust the wheel accurately in relation to the work, and the additional rapidly operating means for throwing the grinding wheel to and from working position substantially as described.

4. In combination the supporting frame comprising the fixed and swinging portions, the grinding wheel carried by the swinging portion the screw H' extending between the fixed and swinging portions and the eccentric on one portion of the frame to which the screw is connected and the means for operating said eccentric.

5. In combination the supporting frame, the grinding wheel with operating mechanism adjustable thereon at right angles to its plane of rotation the journal bearings on the frame for receiving and holding the knife reel and a rest D' for the knife blades adjustable with the grinding wheel and its operating mechanism said rest being supported from the carrying shaft of the grinding wheel and having its end extended across the face of the said wheel, substantially as described.

6. In combination, the frame comprising the cross bar A, the adjustable bracket carried thereby and having a bearing. The grinding wheel, the bearing on the frame, and the clamping means for the

work adapted to be held by said bearings and having depending portions, to bear on the bar A, substantially as described.

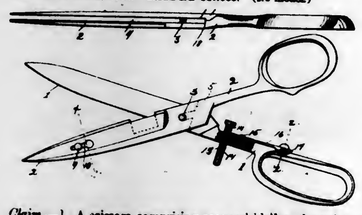
7. In combination the supporting frame comprising a fixed portion having journal bearings to receive the work, and the swinging portion consisting of the shaft C and the arms H, I on the shaft B the bracket carried by the shaft C the grinding wheel and the gearing carried by and movable with said bracket and the arm E depending from the bracket and bearing upon the shaft B, the said bracket, grinding wheel and gearing being adjustable longitudinally of the swinging frame and the means for adjusting the swinging frame substantially as described.

8. In combination the supporting frame, the grinding wheel and the bracket M adjustable longitudinally of the frame, the internal gear N the shaft U therefor having a pinion V thereon, the pinion W between the same and the grinding wheel, the gear S on the shaft U the crank arm O and the gear R carried thereby and meshing with the internal gear and the gears respectively substantially as described.

9. In combination the fixed portion of the supporting frame having the journal bearings, the swinging portion carrying the grinding wheel, the means for adjusting the swinging frame and the rest D' adjustable with the grinding wheel and independent thereof substantially as described.

10. In combination the supporting frame comprising the bar A angular in cross section the bracket E adjustable thereon and carrying the bearing J^3 the bearing J' on the frame, the shaft C and the grinding wheel with its driving mechanism adjustable longitudinally thereon substantially as described.

492,452. BUTTONHOLE-CUTTER. ALFRED M. WRIGHT, McPall, Mo. Filed Oct. 3, 1892. Serial No. 447,605. (No model.)

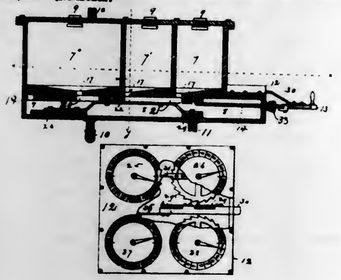


Claim.—1. A scissors, comprising recessed blades adapted to receive an adjustable auxiliary blade provided with a slot or recess in its cutting edge, and a bifurcated rear end, and a lag headed pin near its pointed end, as fully set forth and described.

2. A scissors, comprising recessed blades proper adapted to receive adjustable auxiliary blades, provided with a notched adjusting pin, a spring secured to the shank of the scissors, its front end engaging the notches in the pin thereof, as fully set forth and described.

3. A scissors, having its two blades recessed at their inner sides, and a notched auxiliary blade having a bifurcated rear end adapted to engage the recess of one of said blades, and an auxiliary blade having an ordinary front cutting surface and having a bifurcated rear end, adapted to engage the recessed inner face of the other blade, and a slot in the outer ends of the scissors blades, and a lag headed pin carried by the auxiliary blades and adapted to engage the slots in the scissors blades, substantially as set forth.

492,453. MEASURING AND REGISTERING APPARATUS. WILLIAM C. YOUNG, Fort Wayne, Ind. Filed July 13, 1892. Serial No. 439,294. (No model.)



Claim.—1. In a measuring and registering apparatus for liquids, the combination of a case provided with two main compartments placed vertically over each other, the upper compartment subdivided into two or more chambers provided with orifices connecting with a lower compartment, the first chamber of the lower compartment having with the first chamber a combined capacity of one unit of measure, and the other chambers having a capacity of one or more units of measure: an entrance pipe connected with a source of supply placed above the apparatus and connected with the lower compartment: an exit or discharge pipe connected with the lower compartment and adapted to permit the discharge of all the fluid entering the said compartment: valves placed in the lower compartment adapted to open and close the orifices to said chambers and the entrance and discharge pipes as required, connected and held in place by a spring bar: a handle provided with a rod entering the lower compartment and adapted to operate said valves: a series of serrated wheels arranged within a box attached to said case, provided with pinions extending through the top of the box and having pointers mounted on their outer ends: spring catches corresponding in number to the number of said chambers and adapted to operate a like number of serrated wheels separately: a rod or bar attached to said spring catches and also to said handle operating said valves: projections attached to each serrated wheel operated by said spring catches and adapted to operate other serrated wheels at each revolution: dial plates placed upon the top of said box and underneath said pointers, sub-divided and numbered to register the movements of the wheels in combination with the pointers.

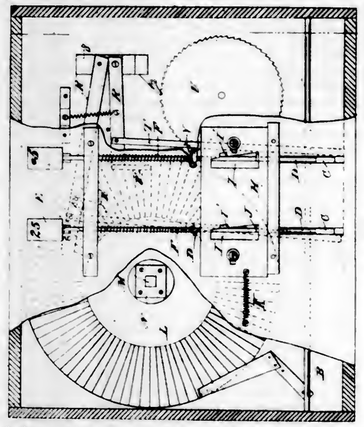
2. In a measuring and registering apparatus for liquids, the combination of a case provided with two main compartments placed vertically over each other, the upper compartment subdivided into two or more chambers provided with orifices connecting with a lower compartment, the first chamber and the lower compartment having a combined capacity of one unit of measure, and the other chamber or chambers having a capacity of one or more units of measure: an entrance pipe connected with a source of supply placed above the apparatus and connected with the lower compartment: an exit or discharge pipe connected with the lower compartment and adapted to permit the discharge of all the fluid entering the said compartment: valves placed in the lower compartment adapted to open and close the orifices to said chambers and means to operate the valves.

3. In a measuring and registering apparatus for liquids, the combination of a measuring device adapted to measure one or more units of measure: the combination of a series of serrated wheels arranged within a box attached to the measuring device and provided with pinions extending through the top of the box and having pointers mounted on their outer ends: spring catches corresponding in number to the number of units of measure of the measuring device and adapted to operate a like number of the serrated wheels separately: a rod or bar attached to said spring catches and also to the handle operating the measuring device: dial plates placed upon the top of said box and underneath said pointers, sub divided to register the movements of the wheels in combination with the pointers.

4. In a measuring and registering apparatus for liquids, the combination of a case provided with two main compartments placed vertically over each other, the upper compartment subdivided into two or more chambers provided with orifices connecting with a lower compartment, the first chamber and the lower compartment having a combined capacity of one unit of measure, and the other chamber or chambers having a capacity of one or more units of measure: an entrance pipe connected with a source of supply placed above the apparatus and connected with the lower compartment: an exit or discharge pipe connected with the lower compartment and adapted to permit the discharge of all the fluid entering the said compartment: valves placed in the lower compartment adapted to open and close the orifices to said chambers and means to operate the valves: the combination of a series of serrated wheels arranged within a box attached to the measuring device and provided with pinions extending through the top of the box and having pointers mounted on their outer ends: spring catches corresponding in number to the number of units of measure of the measuring device and adapted to operate a like number of the serrated wheels separately: a rod or bar attached to said spring catches and also to the handle operating the measuring device: dial plates placed upon the top of said box and underneath said pointers, subdivided to register the movements of the wheels in combination with the pointers.

492,454. CASH REGISTER AND INDICATOR. JOHN H. AUFDENBERG, Dayton, Ohio, assignor, by direct and mesne assignments, to the Columbia Cash Register Company, Miamisburg, Ohio. Filed Apr. 1, 1892. Serial No. 427,403. (No model.)

Claim.—1. In a cash register and indicator, the combination with a casing, of a rotatable disk mounted therein, having radially extending ratchet teeth, catches engaging with said teeth at different distances from the center, keys mounted in said case, variably slit pitman connections between said keys and said catches, to operate the latter different distances according to their distance from the center of the disk, and corresponding with the numbers represented by said keys.



2. In a cash register and indicator, the combination with a casing and a primary wheel, having ratchet teeth radially formed on the side face thereof, lever catches engaging with said teeth at different distances from the center, keys mounted in said casing and variably connected to said lever catches, according to the numbers on said keys, and the distance from the center of the disk, and a secondary wheel operatively connected to said primary wheel, adapted to carry the register to a higher figure.

3. In a cash register and indicator, the combination with a casing, of a disk mounted therein provided with ratchet teeth tapering toward the center, lever catches adapted to engage with said teeth at various distances from the center, and keys operatively connected to said lever catches, to rotate said disk.

4. In a cash register and indicator, the combination with a casing and series of lever keys, and a cross bar on which said keys are fulcrumed, of a round-end pawl, also fulcrumed on said bar, and having a cross portion extending along adjacent to said keys to be operated by any key and thus actuate said pawl, a spring-actuated movable ratchet plate also adjacent to said keys, and an anti friction roller on said plate engaged by said pawl, to hold the plate away from the keys.

5. In a cash register and indicator, the combination with a casing, of a wheel having ratchet teeth, levers engaging with said teeth, a stepped support for said levers to prevent their interfering with each other, and means to operate them.

6. In a cash register and indicator, the combination with a casing, keys mounted therein and a money box in said casing, of a movable cover for said box, consisting of a plurality of overlapping pieces, a spring to open said cover by sliding the pieces one beneath the other, and a trip mechanism to maintain it closed till operated by the action of one of said keys, the trip mechanism being located adjacent to said keys to allow of said independent tripping by any key.

7. In a cash register and indicator, the combination with a casing, and rows of lever keys fulcrumed therein, and a cross bar adjacent to said keys, of trip mechanism actuated through said cross bar and key, a money box within said casing, a slidable cover consisting of a plurality of slotted overlapping pieces mounted in inclined guides in said casing, and provided with pins engaging with the slots, to limit the movement of the overlapping pieces, and means to effect the automatic opening of the cover when the trip mechanism is actuated by said keys.

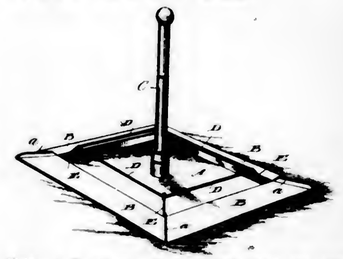
8. In a cash register and indicator, the combination with a casing having a money box, of a sliding cover therefor, constituted by a plurality of overlapping pieces, a trip mechanism to hold the covers closed and a spring to effect the opening thereof.

9. In a cash register, the hereindescribed ratchet disk, the same consisting of a rotatable disk, having radially formed ratchet teeth on the side face thereof, extending outward from the axis of said disk, whereby a long tooth adapted for ratchet connection at a greater or less distance from the center, is provided, substantially as shown and described.

10. In a cash register, the hereindescribed rotatable piece, the same consisting of a disk or wheel, having on its side face, outwardly extending teeth or projections uniformly disposed at the same distance from the center for each portion of every corresponding tooth or projection, and operating connections adapted to engage with said teeth or projections at different distances from the axis of rotation, for the purpose described.

11. In a cash register, the combination with a series of keys, and a ratchet-faced disk substantially as shown and described, of a series of variably connected operating pieces between said keys and said disk, whereby each key will operate the same distance at its outer end, a horizontally sliding piece mounted adjacent to the outer ends of said keys and having a series of openings, one side being inclined to the vertical and ending with a sharp shoulder at the top, a corresponding series of indicator posts connected to the outer ends of said keys, and having cam lugs projecting horizontally into the corresponding openings in said sliding piece, and rounded or beveled on the lower side of each lug, whereby each post and cam lug will be raised the same distance vertically, and the rounded or beveled lug thereon will engage with the inclined face and sharp shoulder of the said matching opening in the sliding piece, substantially as and for the purpose described.

492,455. DUST-PAN. DANIEL K. BARNHART, Gaines, Pa. Filed May 24, 1892. Serial No. 434,187. (No model.)



Claim.—1. The dust-pan described consisting of a body portion, inclined flanges from the sides thereof, fins at the angles at the junction of the said flanges, a central vertical handle, and a guard within the body parallel with the inner edges of the flanges and between the same and the center of the body, as set forth.

2. The dust-pan described consisting of the rectangular body portion with central vertical handle, and inclined aprons at the four sides, a fin at each corner on the said aprons, inwardly inclined rods from the corners of the body portion, and a guard supported in said rods parallel with the edges of the body portion and between the aprons and the center of the said body portion, substantially as shown and specified.

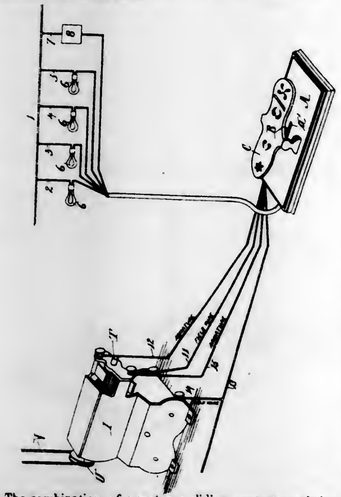
492,456. SWITCH FOR OPERATING SHUNT-WOUND ELECTRIC MOTORS. FREDERICK H BERRY, Milwaukee, Wis. Filed Mar. 3, 1892. Serial No. 423,639. (No model.)

Claim.—1. The combination, of a motor, a movable contact consisting of plates separated from each other by insulating material, contacting surfaces which one plate of the sliding contact is adapted to engage, one or more of said surfaces electrically connected with a source of supply and the other consisting of two branches separately connected to the field and the armature of the motor, a contacting surface which the other plate of the sliding contact is adapted to engage, said surface electrically connected with the opposite pole of the armature, and a contacting surface permanently engaged by this last named plate of the sliding contact, said contacting surface connected with the opposite pole of the field and main feed line, substantially as set forth.

2. The combination of a motor, a sliding contact consisting of plates separated from each other by insulating material, a series of nonmovable contacts adapted to be successively engaged by one plate of the sliding contact, wires connecting said nonmovable contacts with a source of supply, separate nonmovable contacts connected, respectively, with the field and armature of the motor, said contacts also engaged by the same plate of the sliding contact, a nonmovable contact connected with the opposite pole of the armature and adapted to be engaged by the other plate of the sliding contact, and a nonmovable contact surface permanently engaged by this last

named plate, said contacting surface connected with the opposite pole of the field and main feed line, substantially as set forth.

3. The combination, of a motor, a sliding contact consisting of plates separated from each other by insulating material, a series of nonmovable contacts adapted to be successively engaged by one plate of the sliding contact, wires connecting said nonmovable contacts with a source of supply, a plurality of the wires having resistance mediums in their circuits, and one of said wires having a fusible plug in its circuit, separate nonmovable contacts connecting, respectively, with the field and the armature of the motor, said contacts also engaged by the same plate of the sliding contact, a nonmovable contact connected with the opposite pole of the armature and adapted to be engaged by the other plate of the sliding contact, a nonmovable contacting surface permanently engaged by this last named plate, said contacting surface connected with the opposite pole of the field and main feed line, substantially as set forth.



4. The combination, of a motor, a sliding contact consisting of plates separated from each other by insulating material, a series of nonmovable contacts adapted to be successively engaged by one plate of the sliding contact, wires connecting said contacts with a source of supply, a plurality of said wires having resistance mediums in their circuits, and one of the wires having a fusible or safety plug in its circuit, separate nonmovable contacts connecting respectively, with the field and the armature of the motor, said contacts also engaged by the same plate of the sliding contact, a nonmovable contact connected with the opposite pole of the armature and adapted to be engaged by the other plate of the sliding contact, and a nonmovable contacting surface permanently engaged by this last named plate, said contact surface connected with the opposite pole of the field and main feed line, substantially as set forth.

5. The combination, of a motor, a movable contact consisting of two plates separated from each other by insulating material, one of said plates provided with a notch, contact surfaces which one or more plate is adapted to engage, one of said surfaces connected with the source of supply, and the other consisting of two members leading separately to the field and the armature of the motor, a contact surface which the other plate of the sliding contact is adapted to engage, said surface connecting with the opposite pole of the armature, and a contact strip permanently engaged by this last plate and connected with the feed line and provided with an upturned end adapted to engage the notch and hold the sliding contact in a normal inoperative position, substantially as set forth.

6. The combination, of a motor, a movable contact consisting of plates separated from each other by insulating material, contact surfaces upon opposite sides of said plate connected together by wires, one or more of said surfaces, upon one side, connected with a source of supply and the other consisting of two members leading separately to the field and the armature of the motor, opposite contact surfaces which the other plate of the sliding contact is adapted to engage, one of said contacts upon one side being electrically connected with the opposite pole of the armature, and a contacting surface permanently engaged by this last named plate of the sliding contact, said surface connected with the opposite pole of the field and main feed line, substantially as set forth.

7. The combination, of a motor, contact surfaces connected with a source of supply, a contact leading to one pole of the field of the motor, contacts leading to the poles of the armature, a short circuit between the poles of the armature, and a movable contact consisting of two plates insulated from each other, one of said plates constructed to engage the contacts leading to the source of supply and to also engage the contact leading to the field and one of the armature contacts, and the other plate having permanent connection with the opposite pole of the field and constructed to engage the other contact of the armature, the short circuit being established when this sliding contact is out of engagement with the armature contacts but in engagement with the field contacts, and the motor thus converted into a dynamo, substantially as set forth.

8. The combination, of a motor, a plurality of opposite contact surfaces connected together, those on one side connected with a source of supply, opposite contact surfaces consisting of two members, one of which connected with one pole of the field of the motor, and the other with one pole of the armature, opposite contact surfaces, one of which connected with the opposite pole of the armature, a wire connecting the lower armature contact upon one side with the opposite upper contact, a wire connecting the upper contact upon one side with the opposite lower contact, contacts upon one side, one of which connected with the upper armature contact upon the corresponding side and the other with the lower contact, and a movable contact composed of separate plates insulated from each other, one of said plates constructed to engage the contacts connected with the source of supply and also with the contacts leading to one pole of the field and one pole of the armature, and the other plate permanently connected with the opposite pole of the field, and adapted to engage the opposite pole of the armature, the insulating strip between the plates also carrying a contact adapted to engage the short circuit contacts upon one side, when contact is simultaneously made with the contact leading to the field of the motor, whereby a short circuit is formed and to break connection with said armature contacts when the sliding plate engages a plurality of the contacts leading to the source of supply, substantially as set forth.

9. The combination, of a resistance device consisting of a number of resistance coils, a switch comprising two sections insulated from each other, said resistance coils feeding upon one section, a shunt wound motor, one pole, respectively, of the field and armature thereof feeding from the plate of the switch which receives the feed of the resistance coil, and each of the remaining poles, of the field and armature respectively in circuit with the other plate, substantially as set forth.

10. The combination, of a motor, a plurality of opposite contacts connected together, those upon one side leading to a source of supply, contacts upon opposite sides also connected together, and one of said contacts leading to the field of the motor, contacts upon opposite sides consisting of two members each leading to the armature poles, the lower member upon one side connected with the upper member upon the other by a wire, and the upper contact upon one side connected with the lower contact upon the opposite by a second wire, and a movable contact consisting of two plates insulated from each other, one of said plates having a permanent connection with the opposite pole of the field, substantially as set forth.

492,457. ELECTRIC-RAILWAY BLOCK SYSTEM. FRANCIS O. BLACKWELL, Boston, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Feb. 15, 1892. Serial No. 421,507. (No model.)

Claim.—1. The combination of a sectional power supply conductor, with a feeding conductor or conductors, circuit controllers normally preserving the power supply conductor sections in circuit with the feeding conductor, and means brought into and kept in action during the presence of a car or train on any given section for cutting out of circuit the preceding section, as set forth.

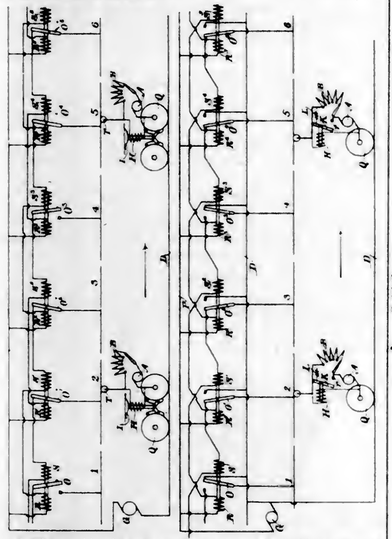
2. The combination of a power supply conductor divided into insulated sections, with electro-magnetically actuated circuit controllers normally preserving such power conductor sections in circuit with the source of electric supply, and a circuit closed by the presence of a train on any given section for shifting the controller of the preceding section and cutting such section temporarily out of circuit.

3. The combination of a power supply conductor divided into insulated sections, with circuit controllers normally preserving such power conductor sections in circuit with the source of supply, an electro-magnet arranged to open the circuit of a preceding section when energized and a circuit for energizing such magnet automatically closed by the presence of a train on an advance section.

4. The combination of a power supply conductor divided into

insulated sections, circuit controllers normally preserving such power conductor sections in circuit with the source of supply, and electro-magnets for shifting such circuit controllers into open and closed positions, and coupled up in circuit so that by a presence of a train on any given section the circuit on the immediately preceding section is opened, and the circuit of the second preceding section closed, as set forth.

5. The combination of a supply conductor divided into insulated sections, with switches normally preserving such sections in circuit with the source of supply, and electro-magnets for shifting such switches each comprising an opening and a closing coil, the opening coil of a given magnet being included in circuit with the preceding section immediately in advance, and the closing coil in circuit with the next section in advance, as set forth.



6. The combination of a supply conductor divided into insulated sections, with switches adapted to connect such sections with either pole of the source of supply, and electro-magnets controlled by the presence of a train on a given section for breaking the normal connection of a succeeding section with the generator and temporarily coupling it to the return conductor, as set forth.

7. The combination of a block electric railway system, having a sectional supply conductor, in which any given section is temporarily cut out of circuit while a train is present on a succeeding section, with means for automatically braking or stopping a train traveling over such railway responsive to, or thrown into action upon, the cessation of the motive current driving the car.

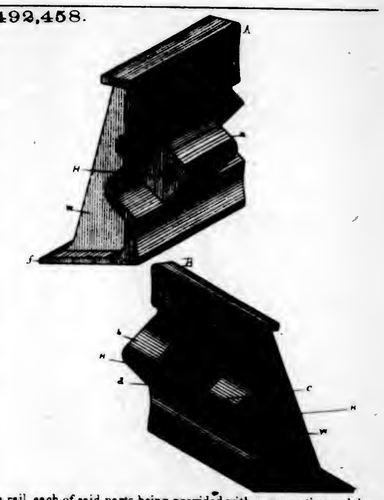
8. The combination of a block electric railway system in which a section of conductor in the rear of the car or train is kept open circuited, as described, with a speed arresting device for a train traveling over such railway, and means controlled by the motive current for maintaining such device out of action while current is supplied to the section occupied by the train, but for automatically applying the said device should the supply of motive current cease, as described.

492,458. INTERLOCKING RAIL-CHAIR. WILLIAM M. BROWN, Johnstown, Pa., assignor to the Johnson Steel Street Rail Company, of Kentucky. Filed Feb. 15, 1888. Serial No. 264,125. (No model.)



Claim.—As a new article of manufacture a two-part rail-chair provided with interlocking lugs below the rail-seat and a key or bolt passing through said lugs for clamping the two parts of the chair to

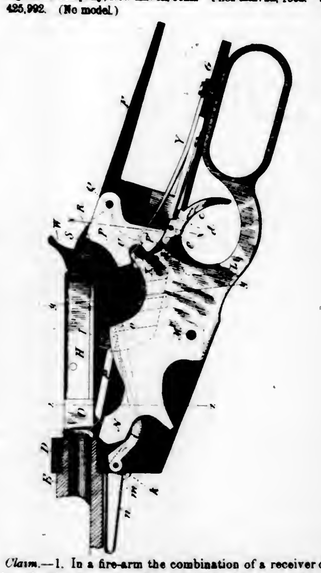
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the rail, each of said parts being provided with a supporting-web below said lugs and with a base-flange below said webs for securing the structure to a cross-tie

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492,459. MAGAZINE-FIREARM. JOHN M. BROWNING and MATTHEW S. BROWNING, Ogden, Utah, assignors to the Winchester Repeating Arms Company, New Haven, Conn. Filed Mar. 22, 1892. Serial No. 425,992. (No model.)



Claim.—1. In a fire-arm the combination of a receiver carrying the barrel at its forward end, a longitudinal reciprocating breech-piece, the receiver constructed with a recess below the breech-piece adapted to receive a pack of cartridges, mechanism substantially such as described to impart reciprocating movement to said breech-piece, the breech-piece being adapted to engage the uppermost cartridge of the pack, and in its forward movement to transfer that cartridge from the holder to the barrel, a follower *i*, hung in the receiver forward

of the recess, and extending rearward below the cartridges of the pack, a lever *l*, hung upon the same pivot as the follower, and extending forward through the follower, a finger *p*, hung at the rear end of the follower, and at the rear of the rear end of said lever, so that the rear end of said lever is adapted to bear upon the under side of said finger, with a spring operating upon said lever, having a tendency to raise the said lever, finger, and follower, substantially as and for the purpose described.



2. In a fire-arm adapted to be loaded at the breech, and provided with a longitudinally reciprocating breech-piece, with mechanism for imparting reciprocating movement thereto, the combination therewith of a dog hung in the receiver at the rear of the breech-piece, and so as to swing downward and backward in opening; the said dog in its upward position being adapted to bear against the end of the closed breech-piece; the said dog constructed with a recess from its forward side rearward; a hammer hung in the receiver upon a pivot, forward of the said dog, the hammer being adapted to work through the said recess in the dog, and turn upon its own pivot independent of the dog, substantially as described.

3. In a fire-arm, the combination of a receiver carrying a barrel at its forward end and opening at its rear into the receiver, a longitudinally reciprocating breech-piece, a lever hung in the receiver below the breech-piece, the said lever constructed with a finger forward of its pivot, the breech-piece constructed with a recess with which said finger is adapted to engage, and a dog hung in the receiver at the rear of the breech-piece and so as to swing in a vertical plane, the nose of the dog adapted to engage the rear end of the breech-piece when in its closed position, the said lever constructed with a second finger adapted to engage said dog to impart to it said swinging movement, substantially as described, and whereby the first part of the opening movement of the said lever will disengage the dog from the breech-piece and before the first finger of the lever engages the breech-piece, and in the closing movement of the breech-piece the said lever engages the dog after its finger has ceased to act upon the breech-piece, and so as to turn the said dog into engagement with the breech-piece after it is closed, substantially as described.

4. In a fire-arm, the combination of a longitudinally reciprocating breech-piece, a dog hung in the receiver at the rear of the breech-piece, and so as to swing in a vertical plane, the nose of the dog adapted to engage the breech-piece when in a closed position, mechanism substantially such as described to impart the locking and unlocking movement to said dog, a hammer hung in the receiver and so as to swing in a plane parallel with the plane of the dog, a sear hung in the receiver below the dog, and adapted to engage the hammer in the cocked position, the sear constructed with a projection *e*, and the dog constructed with a bearing surface F' adapted to bear upon said projection *e* of the sear when the dog is in the unlocked position, but to escape therefrom as the dog is brought into its locking position, substantially as and for the purpose described.

492,460. NAILLESS HORSESHOE. CHARLES W. CRANNELL, Oberlin, Kans., assignor of one-half to D. E. Grobe, same place. Filed May 17, 1892. Serial No. 433,336. (No model.)

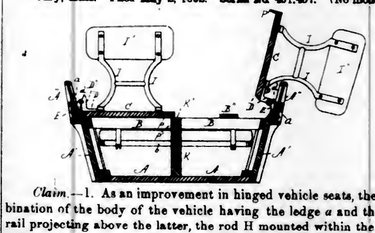


Claim.—1. In a nailless horse shoe, the combination with the shoe having at its toe portion and at each intermediate side portion a clip-lug or hook F, of the semi-oval concave clip plates, one for each of said lugs and having each a central downward projection formed with a transverse slot therein designed to engage one of said lugs, substantially as specified.

2. In a nailless horse shoe, the combination with the shoe having the dove-tailed seats or recesses therein, the clip lugs arranged to slide and lock in said recesses or seats, and the hooks or projections on said clip lugs, of the clip plates concaved to fit the hoof, and having openings in their lower portions whereby they are adapted for detachable connection with said hooks or projections, substantially as specified.

3. The herein described clip attachment for nailless horse shoes, comprising the concaved clip plates C having transverse openings or slots in their lower portions, and the clip lugs of dove-tailed form for engagement with the shoe, and provided each with a hook arranged to engage said opening or slot, substantially as specified.

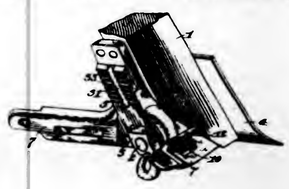
492,461. CARRIAGE. JOHN CURRIER and FREDERICK ELLIS, Amesbury, Mass. Filed May 2, 1892. Serial No. 431,457. (No model.)



Claim.—1. As an improvement in hinged vehicle seats, the combination of the body of the vehicle having the ledge *a* and the side rail projecting above the latter, the rod H mounted within the body of the vehicle and at a point below the plane of the side rail, the seat normally resting below said hinge-rod; and the angle brackets or hinges D D' projecting upwardly from the seat and pivotally connected at their upper ends with the rod H, the hinges being provided with a projection or stop, *d*, at their pivots adapted to engage the ledge *a*, whereby the seat occupies a low position below the pivot of its hinge and below the side rail and is adapted to swing upwardly and outwardly resting upon the ledge *a* and projecting over the side rail, substantially as and for the purpose set forth.

2. As an improvement in hinged vehicle seats, the combination, with the vehicle body having the upwardly-projecting side rail, substantially as set forth, of a seat provided with upwardly-projecting hinges, as at D', having their upper ends pivotally mounted at a point within the plane of the side rail and below the top plane of the latter, and provided with the inwardly-curved back-supports, as at I, whereby the seat normally occupies a low position below the top plane of the side rail and is adapted to swing upwardly and outwardly over the side rail: substantially as and for the purpose set forth.

492,462. COMBINATION HEEL-SWEEP PLOW. JOHN R. DEAN, Purley, Tex. Filed Nov. 3, 1892. Serial No. 450,560. (No model.)



Claim.—1. The combination of a plow foot and a block secured thereto, said block being cut away on its front face, and corrugated on its rear face and provided with a central slot longitudinal thereof, substantially as described.

2. The combination of a land-side, a holder therefor, provided with a terminal bolt-hole, said land-side having a recessed groove therein, a square-headed bolt sliding in said groove, and a nut for securing said bolt in position, substantially as described.

3. The combination of a land-side, a holder therefor, provided with a terminal bolt-hole, said land-side having a recessed groove therein, a square-headed bolt sliding in said groove, a nut for securing said bolt in position, and a disk or washer having a cut away part to enter said recess, substantially as described.

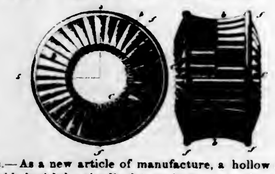
4. The combination, with a plow frame, of a block secured thereto, said block having a side extension, provided with a longitudinal slot and a rib parallel with said slot, and a sweep adapted to be secured to said extension and rest upon the rib, substantially as shown and described.

5. The combination, with a plow frame, and shovel, of a block having an extension, a sweep attached to the extension, a plate connecting the block proper and extension, and a mold board attached to said plate, substantially as shown and described.

6. The combination, with a plow frame, of a block secured thereto slotted longitudinally, of a right angled land-side holder adjustably connected to the rear side of the block, said holder being vertically and laterally adjustable, and a land-side attached to the lower end of the holder, and adjustable thereon, substantially as shown and described.

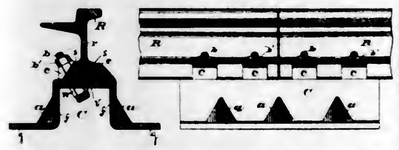
7. The combination, with a plow frame, of a block secured thereto and provided with an extension having a longitudinal slot and parallel rib, a sweep attached to said extension, and a plate connecting the block proper and extension, said plate being adapted to have a sweep or mold board attached thereto, substantially as shown and described.

492,468. HOLLOW SHEET-METAL WARE. WILLIAM EDGE, Brooklyn, N. Y. Filed Apr. 7, 1892. Serial No. 428,132. (No model.)



Claim.—As a new article of manufacture, a hollow sheet metal body, provided with longitudinal tapering corrugations said corrugations extending from end to end, and said metal body being narrowed at both ends to a diameter less than that of the center, and also provided with one or more transverse ribs or beads *f*, substantially as described and set forth.

492,464. RAILROAD-RAIL AND CHAIR. HENRY C. EVANS, Brooklyn, N. Y., assignor to the Johnson Company, Johnstown, Pa. Filed Sept. 30, 1891. Serial No. 407,234. (No model.)



Claim.—1. The combination with a railroad rail having a vertical web and lower flanges forming an A-base, of a chair having its upper surface shaped so as to fit between said flanges and extend over one side of said base.

2. The combination of a railroad-rail having an A-base; a chair having its upper surface shaped so as to form a seat for said base and extend over one side of the same; and a bolt passing through the other side of said base and the upper surface of the chair.

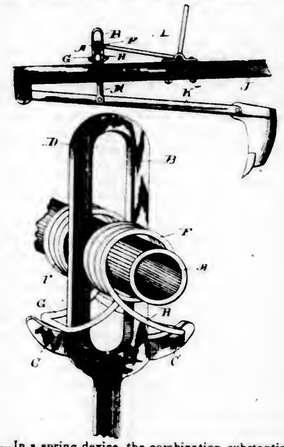
3. A rail-chair having on its upper surface a projection, as *v*, and a side lug or lugs.

4. A rail-chair provided on its upper surface with a recessed projection, as *v*, and a side lug or lugs.

5. In combination with a railroad-rail having downwardly and outwardly extending base-flanges, a chair having a projection fitting between said flanges and provided with a side-lug or lugs.

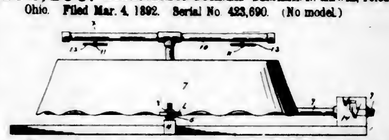
6. The combination with a railroad-rail having a vertical web and downwardly and outwardly extending base-flanges, at the bottom of said web of a chair having a recessed projection fitting said flanges, and fastening devices for securing said rail and chair together.

492,465. SPRING DEVICE FOR GRAIN-DRILLS. JOHN M. FRENCH, Liberty, Ind., assignor to the Columbia Drill Company, same place. Filed Nov. 16, 1892. Serial No. 453,232. (No model.)



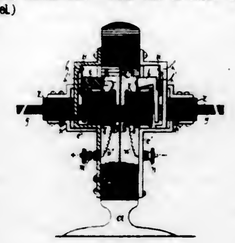
Claim.—In a spring device, the combination, substantially as set forth, of a slotted yoke provided with opposite projections, a cylindrical bar engaging the slot of said yoke, and a spring formed of two coils disposed upon the cylindrical bar on opposite sides of the yoke and joined by loops projecting from the coils and engaging the projections of the yoke.

492,466. HYDROCARBON-BURNER. BENJAMIN N. HAWES, Toledo, Ohio. Filed Mar. 4, 1892. Serial No. 423,690. (No model.)



Claim.—In a hydro-carbon burner, the combination with a bottom pan, having deflectors provided with oppositely disposed channels, the standards arranged at the side of the pan, a mixing chamber independent of the pan and vertically adjustable upon the standards, said chamber having openings in the top in vertical alignment with the deflectors on the pan, the vaporizing pipe arranged in the chamber, one end projecting through the top, a burner pipe arranged upon said projecting end, jet nozzles tapped into the burner pipe directly over the openings in the top of the chamber, and the vertically adjustable plates mounted upon the nozzles to protect the flame as described.

492,467. LONG-DISTANCE ELECTRIC TELEPHONY. CHARLES M. HAYNES, Omaha, Nebr. Filed Jan. 12, 1892. Serial No. 417,845. (No model.)



Claim.—1. In a telephone repeater, the combination with a suitable standard, of a diaphragm held within said standard, electro magnets adjustably secured to said standard and upon opposite sides of said diaphragm, and two insulated tension springs, secured upon opposite sides to said diaphragm, and having their free ends working against suitable set screws, all substantially as and for the purpose set forth.

2. In a telephone repeater, the combination with a supporting standard, of a diaphragm secured within said standard and provided upon each side with an insulated arm secured at one point to said diaphragm, said arms being provided with a metallic electrode upon the free end, a recurved tension spring secured to each of said arms, and provided with an electrode in combination with said metallic electrode, and means for regulating the tension of said recurved springs, all substantially as and for the purpose set forth.

3. In a telephone repeater, the combination with a supporting standard of a diaphragm secured within said standard and provided centrally and upon each side with an insulated arm secured at one point to said diaphragm, said arms extending in like direction and provided with a metallic electrode upon the free end, a recurved adjustable tension spring secured to each of said arms, a supporting bracket secured to said frame, one upon each side, and positioned in front of said metallic electrode and provided with a set screw, a stub spring secured to each of said brackets upon the rear, and provided with an L shaped tension lever, one stem of said lever working against said set screws, a diaphragm spring secured to the free end of each of said levers, and provided with a recessed carbon electrode adapted to hold the free recurved end of said bow spring, so as to bring said carbon and metallic electrodes into juxtaposition, each set of electrodes being within a separate electric circuit, and an induction coil within each of said circuits, all arranged to operate substantially as and for the purpose set forth.

4. In a duplex telephone repeater, the combination of a supporting standard, a diaphragm secured within said standard provided upon each side with an arm of non-conducting material, said arms extending slightly outward and secured at one end centrally within said diaphragm, said arms extending in like direction, and provided with a metallic electrode upon the free end, a recurved bow spring secured to each of said non-conducting arms, a supporting bracket secured to said frame one upon each side and positioned in front of said metallic electrodes and provided with a set screw, a stub spring secured to each of said brackets upon the rear, and provided with an L shaped tension lever, one stem of said lever working against said set screws, a diaphragm spring secured to the free end of each of said levers, and provided with a recessed carbon electrode adapted to hold the free recurved end of said bow spring, so as to bring said carbon and metallic electrodes into juxtaposition, each set of electrodes being within a separate electric circuit, and two adjustable and insulated electromagnets one within each of said circuits and positioned centrally within the field of said diaphragm, one upon each side, and secured by means of suitable brackets, all arranged to operate substantially as and for the purpose set forth.

5. In a duplex telephone repeater, the combination of a supporting standard, a diaphragm secured within said standard provided upon each side with an arm of non-conducting material, said arms extending slightly outward and secured at one end centrally within said diaphragm, said arms extending in like direction and provided with a metallic electrode upon the free end, a recurved bow spring secured to each of said non-conducting arms, a supporting bracket secured to said frame one upon each side, and positioned in front of said metallic electrodes and provided with a set screw, a stub spring secured to each of said brackets upon the rear, and provided with an L shaped tension lever, one stem of said lever working against said set screws, a diaphragm spring secured to the free end of each of said levers, and provided with a recessed carbon electrode adapted to hold the free recurved end of said bow spring, so as to bring said carbon and metallic electrodes into juxtaposition, each set of electrodes being within a separate electric circuit, two adjustable and insulated electro magnets one within each of said circuits and positioned centrally within the field of said diaphragm, one upon each side, and an auxiliary induction coil within each of said circuits all arranged to operate substantially as and for the purpose set forth.

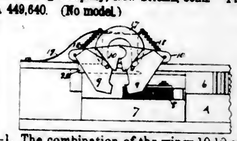
6. In a telephone repeater, the combination of the following instrumentalities, to wit: the standard A, diaphragm C, the brackets c, c', c', c', supporting the cylindrical holders E, E, and the electro magnets F, F, adjustably held within the holder E, each magnet being within a separate circuit, all substantially as and for the purpose set forth.

7. In a telephone repeater, the combination of the following instrumentalities, to wit: the standard A, provided centrally with the diaphragm C, the non-conducting arms C', C', secured to said diaphragm and provided with the outwardly extending electrode D, and the recurved metallic tension spring D', the brackets H, H, provided in the rear with the shoulder h, giving support to the stub spring h', the levers i secured to the springs k', the lower end working against the set screw H', the diaphragm springs K secured to said levers, and provided with the carbon electrodes k adapted to hold the free end of the spring D' and work against said electrode D, each set of electrodes being within a separate electric circuit, all substantially as and for the purpose set forth.

8. In a duplex telephone repeater, the combination of the following instrumentalities, to wit: the standard A, diaphragm C, the arms C', C', secured to said diaphragm and provided with the metallic electrodes D, D, and the recurved tension springs D', D', the bars c, c, c', c' supporting the cylindrical holders E, E, said holders adjustably securing the electro magnets F, F, the brackets H, H, provided with the shoulders h, h, supporting the stub springs h', h', to which are secured the L shaped levers i, i, working at their lower ends against the set screws H', H', the diaphragm springs K, K, provided with the carbon electrodes k, k, securing the free end of the tension springs D', D', and working upon the electrodes D, D, and the auxiliary induction coils F', F', each set of electrodes being within a separate electric circuit, to transmit and repeat the electric undulations, substantially as and for the purpose set forth.

9. In a telephone repeater, the combination with a supporting standard, of a diaphragm within the field of two or more electro magnets within separate circuits, an insulated arm secured at one point to said diaphragm and an adjustable tension spring secured to said arms, to counterbalance the attraction of said electro magnets, all substantially as and for the purpose set forth.

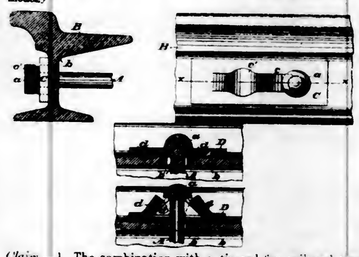
492,468. ATTACHMENT FOR MACHINES FOR ROLLING SCREW-THREADS. HORACE K. JONES, Hartford, assignor to the Russell & Erwin Manufacturing Company, New Britain, Conn. Filed Oct. 22, 1892. Serial No. 449,640. (No model.)



Claim.—1. The combination of the wings 10 10 carrying holding blades, the shoulders 14 mounted on said wings, the swinging blocks 17 having the lower part of its free ends adapted to engage said shoulders for closing and holding said wings, the springs 18 for opening said wings when released and the wedge 20 mounted on one of the reciprocating carriages for raising said swinging block and then releasing it, substantially as described and for the purpose specified.

2. The combination of the wings 10 10 carrying holding blades, the shoulder 14 on said wings, the swinging block 17 having the lower part of its free end adapted to engage said shoulders for closing and holding said wings, devices for opening said wings when said shoulders are released, and the wedge 20 mounted on a reciprocating carriage for lifting and releasing said swinging block, substantially as described and for the purpose specified.

492,469. TIE-ROD FOR RAILROAD-TRACKS. ARTHUR J. MOXHAM, Johnstown, Pa. Filed Feb. 2, 1892. Serial No. 420,089. (No model.)



Claim.—1. The combination with a tie-rod for railroad tracks, of a washer provided with means for locking the same to said rod by closing the washer upon the rod.

2. The combination with a tie-rod for railroad tracks, of a washer provided with a locking tongue or tongues adapted to be closed upon said rod.

3. The combination with a tie-rod for railroad tracks having a head on its end, of a washer provided with a locking tongue or tongues fitting under said head and adapted to be closed upon said rod.

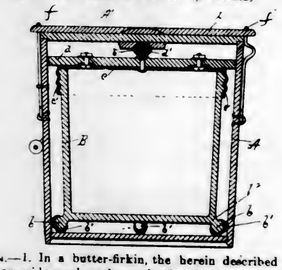
4. The combination of two parallel girder-rails; a tie-rod passing through the webs of said rails; and a washer for said tie-rod provided with a locking tongue or tongues adapted to be closed upon said rod.

5. The combination of two parallel girder-rails and a tie-rod passing through the webs of said rails; one end of said rod being fitted to a hole in the web of one of said rails and the other end being held in place by a washer having a locking tongue or tongues.

6. A washer for a railway tie-rod provided with a stamped-up tongue or tongues, for locking the body of said rod.

7. A tie-rod, for railways, having a head at each of its ends, said rod being provided with a locking washer for one or both of its heads adapted to be closed upon the body of said rod.

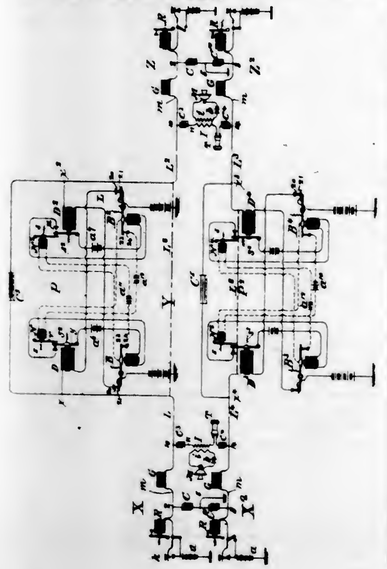
492,470. BUTTER-FIRKIN. FREDERICK S. OSGOOD, Toledo, Ohio. Filed Aug. 1, 1892. Serial No. 441,790. (No model.)



Claim.—1. In a butter-firkin, the herein described vessel, (B) knobs (b) on said vessel, necks or shanks (b^3) connecting said vessel and said knobs, and elastic coverings clasping said knobs, substantially as shown and described for the purpose specified.

2. A butter-firkin comprising in its construction an outer vessel, an inner vessel, having knobs b connected therewith by necks or shanks b^3 detachable lids on each of said vessels, and elastic cushions clamping said knobs interposed between said two vessels, substantially as shown and described, for the purpose specified.

492,471. SYSTEM OF COMBINED TELEPHONY AND TELEGRAPHY. FRANK A. PICKERNELL, Newark, N. J., assignor to the American Telephone and Telegraph Company, of New York. Filed Apr. 29, 1892. Serial No. 431,217. (No model.)



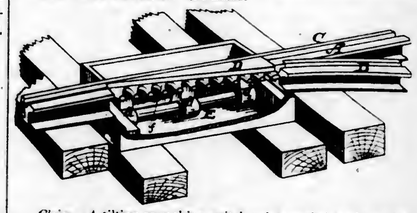
Claim.—1. The combination substantially as hereinbefore described, with the two conductors of a double wire telephone circuit extending between two terminal stations through an intermediate station, the said conductors being divided at the said intermediate station into two sections constituting independent earth completed telegraphic circuits, of a telegraphic repeater located at said intermediate station between and connected with the two sections of the divided conductor, whereby each is enabled to operate the other, and means for maintaining the continuity of the telephonic circuit through said intermediate station.

2. A metallic or double conductor telephone circuit having each of its component conductors centrally divided, and organized to severally constitute the line conductors of independent earth completed telegraphic circuits, combined with a repeater for each such independent telegraphic circuit located at the point of division, and connected with the two divided sections whereby each may repeat its signals into and over the other, and with means for maintaining the continuity of the telephone circuit around said repeater.

3. The combination with a metallic or double conductor telephone circuit extended between two terminal stations through an intermediate station, the said conductors being respectively divided at the said intermediate station into two sections constituting independent earth completed telegraphic circuits, of a telegraphic repeater located at the point of division between and connected with the said two sections of the divided conductor, and a condenser looped or bridged round the said repeater and shunting the same for voice currents, substantially as described.

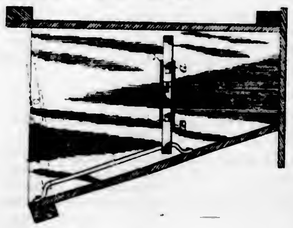
4. In combination with a system of simultaneous telephonic and telegraphic transmission over the same conductors comprising two line conductors extending between terminal stations through an intermediate station, the said two lines being connected at their ends to form a double line telephonic circuit, and severally constituting centrally divided line conductors of independent earth completed telegraphic circuits; a Milliken repeater interposed at the said intermediate station between the two divisions of each of the said telegraphic line conductors, and having in the circuit of each division a receiving electromagnet of high inductance; and a condenser looping or shunting the said repeater, and having its plates electrically connected with the conductors of the two divisions of each line respectively; substantially as described.

492,472. TRAMWAY-SWITCH. JOSEPH Y. PORTER, Cleveland, Ohio, assignor to James W. Morrison, Detroit, Mich. Filed Sept. 24, 1891. Serial No. 406,767. (No model.)



Claim.—A tilting or rocking switch point consisting of a wedge shaped or tapering point provided with notched flanges at the sides integral therewith, and having a web or legs, and supported by trunnions in a box or casing set in the line of the track rails, said point bearing against the rails at either side to which it may be tilted, and having spaces at the open side for the passage of dirt and water substantially as described.

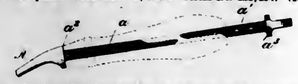
492,473. MANGER. JOHN M. REID, Jacksonville, Ill. Filed Aug. 26, 1892. Serial No. 444,196. (No model.)



Claim.—1. The combination with the feed trough, of a guard frame held loosely therein and composed of side bars and transverse bars connecting said side bars, said transverse bars consisting of two members each provided at its inner end with a hook engaging the opposite member.

2. The combination with the feed trough, of a guard frame held loosely therein and composed of combined end and side bars, extensible transverse bars extending between the same, and links adjustably secured to the extremities of the end and side bars and connecting the same.

492,474. MEANS FOR UNITING TOOLS TO HANDLES, &c. DAVID SHIELDS, Erie, Pa., assignor to the Griswold Manufacturing Company, same place. Filed Mar. 18, 1892. Serial No. 425,427. (No model.)

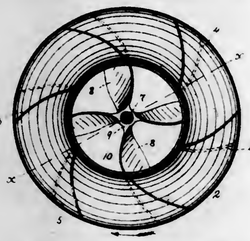


Claim.—1. A tool or implement of metal having a divided shank, the adjacent, rigid ends of which overlap and are cut away on adjacent sides to conform to the diameter of the shank, said overlapping portions being provided with interlocking teeth, in combination with a socketed handle of resilient material which will yield to permit the teeth to pass by each other and then, by its resiliency, force the teeth into engagement, substantially as described.

2. The combination with a socketed handle of resilient material, of a bit or tool having a divided shank, the rigid ends or extensions of which are cut away, on adjacent faces, to overlap in said handle and have interlocking teeth, forced into engagement by the resilient action of the handle material, substantially as described.

3. The combination of the socketed bar or handle of resilient material and a tool or bit having a divided shank the rigid, overlapping ends of which are cut away to conform to the diameter of the shank and have interlocking teeth on their flat, adjacent faces, shoulders to engage the handle, and, means for preventing relative rotation of the shank and handle, substantially as described.

492,475. MIXING APPARATUS. RICHARD SMITH, Sherbrooke, Canada. Filed Feb. 18, 1892. Serial No. 421,980. (No model.)



Claim.—1. In an agitator the combination with a rotary shaft, and a series of helical surfaced arms affixed thereupon, of a single imperforate annular plate mounted upon the outer extremities of said arms, and a series of tangential blades secured to the under side of said plate and extending from the inner edge of said plate outwardly, substantially as and for purposes specified.

2. In combination with a rotary shaft and a conical deflector as a step for said shaft, a concave annular plate, a series of blades attached to the under side, a series of ribs upon the upper sides thereof, and a series of arms composed of warped surfaces, which interconnect said plate with a central hub, substantially as explained.

3. In combination with a stationary conical deflector, a revoluble shaft, and a series of helical arms attached thereto, a circumscribing annular plate of varying curvature in cross-section, and the tangential blades and ribs attached thereto which co-operate with the deflector, substantially as described.

492,476. TOY. AMANDA J. SOBOLEWSKI, Denver, Colo. Filed Apr. 25, 1892. Serial No. 430,645. (No model.)

Claim.—In a game apparatus, the combination of a ring of wood or other suitable material provided with a series of pins on its upper surface, with a smaller ring provided with a ball encircled by the same, and an elastic connection between the two rings, substantially as specified.

492,476.



492,477. CARRIAGE. JABEZ SPOFFORD, Jr., Amesbury, Mass. Filed Nov. 26, 1892. Serial No. 453,190. (No model.)



Claim.—1. In a two-seated carriage, a front seat divided longitudinally with the carriage body each half seat thus produced having rigidly secured to it a movable section of a side panel, carrying irons for each half-seat pivotally secured at their ends to said seats and the carriage-body, and tracks or guides for said half-seats, whereby they when moved forward to afford access to the rear seat, move in a curved line and dip their forward edges downward tilting their rear upper edges forward thus providing greater space at that elevation for passage, substantially as set forth.

2. In a two-seated carriage, the combination with a front movable seat having attached to it a movable section of a side panel, of an inclined track with its forward end the highest, said front seat being adapted to slide forward on said track until its front edge extends beyond it and dips or drops below the level of the forward end of the track, substantially as described.

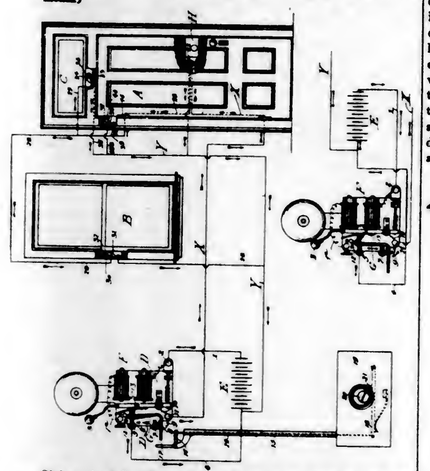
3. In a two-seated carriage, the combination with a front movable half-seat, as A, having attached to it a movable section of a side panel, of the support or partition C surmounted by an inclined track, as D, situated under the inner edge of the seat, and an inclined slotted guide, as K, supported by the carriage-body situated at the outer edge of the seat, said track and slotted guide having their forward ends the higher, substantially as set forth.

4. In a two-seated carriage, the combination of the front movable half-seats A having attached to them movable sections of the side panels, the central longitudinally supported inclined double track D provided with the ribs or tracks D″ on the upper surface and the grooves D′ on its sides, and the slides H straddling the said ribs D″ and provided with horizontal projections H″ extending into the said grooves, said slides being pivotally connected with said seats, substantially as described.

5. In a two-seated carriage, the combination of the front movable half-seats A having attached to them movable sections of the side panels, the grooved slides E secured to the under sides of said seats near their forward edges, the plates F secured to the under sides of said seats near their rear edges and provided with the ears F′ and pivots *f*, the slides H H′ H″ pivotally secured to said ears, and the inclined double track D D′ D″, substantially as set forth

6. In a two-seated carriage, the combination of the front movable half-seats A having attached to them movable sections of the side panels, the grooved slides E secured to the under sides of said seats near their forward edges, the plates F secured to the under sides of said seats near their rear edges and provided with the ears F′ and pivots *f*, the slides H H′ H″ pivotally secured to said ears, the inclined double track D D′ D″, the inclined slotted guides K secured to the inner sides of the movable panels B, and the engaging pins L extending into the slots from the carriage-body, substantially as described.

492,478. ELECTRIC BURGLAR-ALARM. CHARLES F. A. STURTS, San Francisco, Cal. Filed Sept. 30, 1891. Serial No. 407,267. (No model.)



Claim.—1. A burglar alarm consisting of an alarm in a bell circuit, and an external circuit including a door lock and one or more places of admission such as a window, the circuit being normally open at such window, and closed at such lock when the door is locked, whereby the closing of the circuit at the window will throw in the bell circuit and sound a continuous alarm, substantially as set forth.

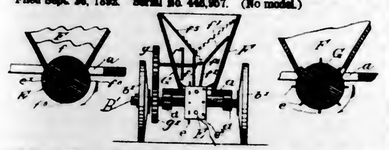
2. An electrical burgar alarm consisting of an alarm in a normally open bell circuit, an external circuit which includes the lock of a door, at which point it is closed by the locking of the door, such circuit also including one or more windows or like means of ingress, and circuit closers at such window, normally out of contact but adapted to make contact when the window is opened, all constructed and arranged so that, when the door is locked, the opening of the window will complete the external circuit, throw in the independent bell circuit, and cause a continuous alarm, substantially as set forth.

3. In an electrical burglar alarm the combination of a magnet and battery, an armature carrying a bell striker, an electrical circuit including said parts, a pivoted trigger normally in engagement with the armature, and an external open circuit including one or more windows or similar means of entrance, all constructed and arranged so that the closing of the external circuit will cause the release of said trigger, the closing of the bell circuit, and the sounding of a continuous alarm, substantially as set forth.

4. The combination of the bell operated by an electro magnet in a bell circuit, the trigger G normally in engagement with the armature of the magnet, the contact points 6 and 8, the bell crank 16, rod 14, tube 15, case 19, and lever 18 in said case adapted to be operated from the outside by a key, substantially as and for the purposes set forth.

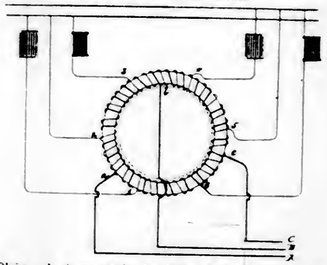
5. In a burglar alarm, and in combination, a bell circuit including a magnet a battery and a bell, a door lock inclosed in a metal case, a plate 42 insulated from said case by a perforated strip, and electrical connections from said magnet and battery respectively to said plate 42 and said metal case, substantially as and for the purposes set forth.

492,479. SEED-PLANTER. JOHN W. TOGGLE, Sheltonville, Ga. Filed Sept. 26, 1892. Serial No. 446,957. (No model.)



Claim.—The combination in a seed-planter, of the U-shaped frame the beam secured thereto carrying a standard, a furrow-opener thereon, standards secured to the back end of the frame, curved blades thereon, a shaft journaled on the under side of said frame, ground wheels thereon, a drum secured on and revolving with said shaft, a circumferentially extending row of spikes set in said drum near one end, a row of recesses near the other end and a row of larger recesses intermediately arranged, a hopper seated on the frame over the said drum, partitions *f* and *f*′ therein, the former being higher than the latter, said partitions dividing the hopper into three compartments each registering at its bottom with one of the rows of delivery devices, a leaf hinged to the upper edge of the partition *f* and extending to the top of the hopper, a leaf hinged to the upper edge of the partition *f*′ of just sufficient length to overlap the aforesaid leaf, and an agitator mounted in the compartment correlative to the spikes in the drum, and revolved by gear connection with the shaft, all combined arranged and operating substantially as and for the purpose specified.

492,480. TRANSFORMER AND MEANS FOR DEVELOPING ROTARY MAGNETIC FIELDS. CHARLES S. BRADLEY, Avon, N. Y. Filed Mar. 17, 1892. Serial No. 425,534. (No model.)



Claim.—1. A magnetic circuit supplied at a plurality of points from a simple alternating current circuit through a condenser, a non-inductive conductor and a reaction coil respectively to develop a difference of phase and produce rotation of magnetic poles.

2. A magnetic circuit provided with a closed coil winding tapped at six points and connected through a condenser, a non-inductive conductor and a reaction coil with a simple alternating current circuit to develop a difference of phase and develop a rotation of magnetic poles.

3. A transformer for converting a simple alternating current into polyphase currents having its primary winding connected at a plurality of points with said simple alternating current circuit through a condenser, a non-inductive conductor and a resistance coil respectively to develop a difference of phase in current entering at said points, whereby a rotation of magnetism may be developed and having its secondary winding connected with consumption circuits.

4. A transformer for converting a simple alternating current into polyphase currents having its primary windings connected to said circuit through a reaction coil and a condenser at points displaced so as to develop a rotation of magnetism and provided with a secondary winding tapped at a plurality of points for connection with consumption circuits.

5. A transformer for converting a simple alternating current into polyphase currents having a closed coil primary winding tapped at six equi-distant points and connected through a condenser, a non-inductive wire and a reaction coil with a simple alternating current circuit, and provided with a secondary winding tapped to discharge into a polyphase consumption circuit.

492,481. NAILLESS HORSESHOE. CHARLES W. CRAWHELL, Oberlin, Kans., assignor of one-half to D. E. Grobe, same place. Filed May 16, 1892. Serial No. 433,175. (No model.)

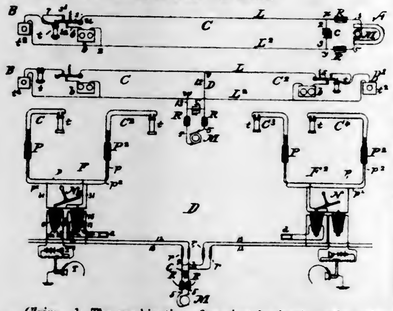


Claim.—1. In a nailless horse shoe, the combination with the shoe having the seats therein, of the clips having a detachable connection with said shoe, said clips comprising the broad concave body portion, arranged to fit neatly against the hoof, and the central projecting horizontal or tongue portion, adapted to engage the seats in

the shoe, said body portion having a slot therein to receive the fastening strap, the fastening straps secured at one end in said slots, said straps running along the hoof to the central forward portion thereof, and a draw plate for engaging and securing said straps substantially as specified.

2. In a horse shoe, the combination with a horse shoe, and the clips rigidly but detachably secured thereto, of the straps connected to said clips, said straps running along the hoof to the central forward portion thereof and terminating in ends having lugs or projections thereon, and a draw plate having a thread on its under surface arranged to take projections on said ends, substantially as specified.

492,482. SIGNALING APPARATUS AND CIRCUIT. EDWARD J. HALL, MORRIS, and FRANK A. PICKERELL, Newark, N. J., assignors to the American Telephone and Telegraph Company, of New York. Filed Oct. 13, 1892. Serial No. 448,766. (No model.)



Claim.—1. The combination of an electric circuit; and a polarized bell and magneto telephone included therein; with an alternating current call generator graduated to produce electrical currents adapted to operate said bell, but to which the said telephone is irresponsive.

2. In an electric circuit, the combination substantially as hereinbefore described, of a polarized electromagnetic bell; and a magneto telephone; with an alternating current call generator; and graduating devices therefor, consisting of a condenser shunting the said generator, and an electro-magnetic resistance included in the circuit between each pole of the generator and the condenser.

3. A telephone circuit extending between two terminal stations through an intermediate or central station; a receiving telephone and a call bell connected with said circuit at the said terminal stations; combined with an alternating current call generator connected with said circuit at the intermediate station; and graduating devices therefor, comprising a condenser constituting an electro-static shunt for the said generator, and an electro-magnetic resistance or retardation coil interposed between each terminal of said generator and the condenser, whereby the currents developed by said generator are enabled to operate said bell without the production of disturbing sounds in the said telephone, substantially as described.

4. The combination substantially as hereinbefore described, of an electric circuit; a polarized electro magnetic bell: and a magneto telephone included therein; with a magneto electric generator, and graduating devices therefor comprising a converter or induction coil having its secondary connected with the said electric circuit, and its primary included in a closed circuit with said generator; a condenser bridging or shunting the said secondary; and an electromagnetic resistance included in circuit between the terminals of said secondary, and the terminals of said condenser bridge, substantially as described.

5. The combination with a series of telephone circuits, and call sending keys therefor; of a common call generator having conductors extending in pairs to said call keys; and a retardation coil in each of the said generator conductors for preventing the passage of telephonic currents between circuits simultaneously connected with any two pairs of the said conductors, substantially as described.

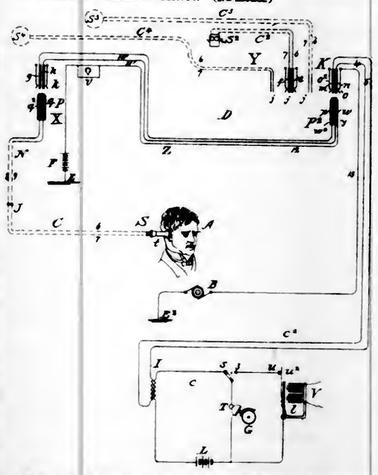
6. The combination with a series of telephone circuits; and call sending keys therefor; of a common magneto call generator; a series of pairs of conductors extending from the poles thereof to said call keys; and an inductive resistance or retardation coil constructed to offer a relatively low apparent resistance to call currents, and a relatively high apparent resistance to voice currents, included in each of the said generator conductors; substantially as described.

7. The combination with a series of telephone circuits, and call sending keys therefor; of an electric call generator common to the series, having conductors extending to said call keys; and means as indicated for preventing the passage of telephone currents through their respective call keys, generator conductors, and common portions of the said generator circuit, between any two telephone circuits over which calls are simultaneously being sent.

8. The combination of a series of telephone main circuits converging to a central station; switchboard connecting cords at said station for uniting any two circuits; call sending keys one for each connecting cord included in circuit therewith; a common magneto electric call generator having conductors extending in pairs to the said keys, and adapted to be thereby connected with the connecting cord circuit; and an electromagnetic or retardation coil included in the circuit of each of the said paired conductors, the said coils being so constructed as to offer a relatively low inductive resistance to call currents, and a relatively high inductive resistance to voice currents, substantially as and for the purposes specified.

9. The combination of a series of telephone circuits, each extending from a substation to a central station; a telephone and call bell at each substation; switchboard conducting cords at the central station for uniting any two circuits; call keys one for each cord, connected in circuit therewith; a magneto call generator common to the series of circuits, having branch conductors in pairs extending from its terminals to said call keys; main conductors connecting the generator terminals respectively with their several branches; a condenser shunting generator; a retardation coil in each main between the generator terminal and the condenser; and an auxiliary retardation coil in each branch conductor; substantially as described and for the purposes specified.

492,483. BUSY-SIGNAL FOR TELEPHONE-CIRCUITS. EDWARD J. HALL, Morris, and FRANK A. PICKERELL, Newark, N. J., assignors to the American Telephone and Telegraph Company, of New York. Filed Oct. 13, 1892. Serial No. 448,767. (No model.)



Claim.—1. In combination with a main telephone circuit extending from a terminal station through an intermediate station to a switchboard at which are located the connection devices of other main circuits; an audible signal receiving instrument at said terminal station; a visual signal receiving instrument at said intermediate station; and a compound busy signal transmitter at said switchboard, adapted to simultaneously operate the said visual and audible signal instruments; and thereby to indicate at both terminal and intermediate stations that a given main circuit at the said switchboard with which connection may be desired, is in use, substantially as described.

2. In combination with a main telephone circuit extending from a terminal station through an intermediate station or connection to a switchboard at which other main circuits are represented by connection devices; a telephone apparatus included therein at said terminal station; an independent circuit associated with said main circuit and extending from the said intermediate station to the said switchboard; and a visual signal indicator at said intermediate station responding to changes of current in said independent circuit; a compound signal transmitter at said switchboard, connected with both of the said circuits, and comprising an automatic arbitrary signal or articulating transmitting appliance in the main circuit adapted to produce vocal or other sounds in the telephone apparatus connected therewith, and an automatic intermittent vibrator or circuit breaker in the independent circuit, adapted to produce a fluttering action of the said visual indicator included therein, whereby a preconcerted signal may automatically be sent to both intermediate and terminal stations simultaneously, substantially as described.

3. In combination with a main telephone circuit extending from a terminal station through an intermediate station or connection to a switchboard at which other main circuits are represented by springjacks; a telephone included therein at said terminal station; an independent circuit extending in association with said main circuit between said intermediate station and switchboard; and a visual signal indicator at said intermediate station in said circuit adapted to respond to changes of current occurring therein; a compound transmitter at said switchboard connected with both of the said circuits, and comprising a telephonic transmitter, and an articulating phonograph therefor, in the main circuit whereby articulate signals may be sent to the terminal station and there reproduced in the said telephone; and an automatic vibrator or intermittent circuit breaker in the independent circuit, adapted to make and break the same and thereby operate the indicator at said intermediate station, substantially as described.

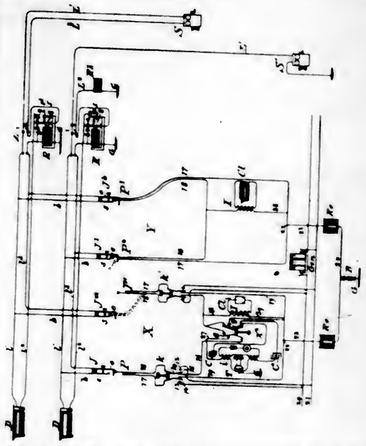
4. The combination in a switchboard, of a connecting plug constituting the movable terminal of two independent circuits containing signal receiving instruments; a compound springjack adapted to receive the said plug, and containing the fixed terminals of continuations of the said circuits; and an automatic signal transmitting device in each of the said continuation circuits, each adapted to be automatically brought into operation by the insertion of said plug into the said springjack, and thereupon to actuate the signal device in its own circuit; substantially as described herein.

5. The combination of a series of switchboard connections at a central station; a series of circuits each extending from a receiving telephone at a substation to one of the said central switchboard connections; an auxiliary switchboard connection, constituting the terminal of a loop or continuation circuit containing a telephone transmitter; a phonograph organized to report occupied circuits associated with said transmitter, and adapted to operate the same; and means as indicated for uniting the switchboard connections when unoccupied with one another, or, if the desired connection be already in use, with the said auxiliary connection whereby a verbal announcement of such busy condition may automatically be made in the said receiving telephone; substantially as described.

6. The combination of a continuation branch or loop circuit including a telephone transmitter, and provided with a phonograph associated with the said transmitter, and adapted for the operation thereof; a similar continuation circuit including an intermittent circuit breaker, or current varying device; and a spring jack or equivalent switchboard connection, containing the terminals of both of the said continuation circuits, substantially as described.

7. The combination with a series of main-circuits including each a receiving telephone and having switch board terminal connections, of an auxiliary circuit, a transmitting telephone therein, a phonograph associated with said transmitting telephone and adapted to operate the same, and connecting appliances for uniting said auxiliary circuit at will with any of said main circuits, substantially as described.

492,484. TELEPHONE CENTRAL-STATION CIRCUIT. JAMES L. MCGUARRIN, Boston, Mass., assignor to the American Bell Telephone Company, same place. Filed Sept. 8, 1892. Serial No. 445,315. (No model.)



Claim.—1. In a metallic circuit multiple switchboard system, a pair of wires forming the signaling circuit from a substation, one side or wire of which branches to the line springs of each jack in the series, one at each section of the switchboard, and terminates at one side of the line annunciator; the other side or second wire of the said pair being normally connected by means of the armature of a relay upon its back stroke to the other side of said line annunciator; and a third wire branching first, to the frames or test rings of each line-jack in the series, and second to a normally open contact, adapted to be closed by said relay armature upon its forward stroke, and third through the high resistance helix of said relay to ground.

2. In a metallic circuit multiple switchboard system, a pair of wires forming the signaling circuit from a substation, one side or wire of which branches to the line springs of each jack in the series, one at each section of the switchboard, and terminates at one side of the line annunciator; the other side or second wire of the said pair being normally connected by means of the armature of a relay upon its back stroke to the other side of said line annunciator; and a third wire branching, first to the frames or test rings of each line jack in the series, and second to a normally open contact, adapted to be closed by said relay armature upon its forward stroke, and third through the high resistance helix of said relay to ground.

3. In a metallic circuit multiple switchboard system, a high resistance induction coil bridged in between the tip and sleeve sides of the connecting cords of the operator's keyboard apparatus, the secondary wire of the said coil forming a closed circuit and including a polarized clearing out annunciator.

4. In a metallic circuit multiple switchboard system, two or more pairs of wires forming the signaling circuits from two or more substations, one side or wire of each pair branching to the line springs of each jack in the series one at each section of the switchboard and terminating at one side of the line annunciator; the second wire of each of the said pairs being normally connected by means of the armature of a relay, upon its back stroke, to the other side of said line annunciator; and a third wire branching, first to the frames or test rings of each line jack in the said wires, and second to a normally open contact adapted to be closed by said relay armature upon its forward stroke, and third through the high resistance helix of said relay to ground; combined with the connecting plugs and cords of an operator's keyboard apparatus, each pair of plugs having a high resistance induction coil bridged in between the tip and sleeve sides of said cords, the secondary of the said coil including in a closed circuit a polarized clearing out annunciator, and a branch to ground legged to the sleeve side of the cords, including a resistance and battery, as set forth.

5. In a metallic circuit multiple switchboard system, two or more pairs of wires forming the signaling circuits from two or more substations, one side or wire of each pair branching to the line springs of each jack in the series, one at each section of the switchboard, and terminating at one side of the line annunciator; the second wire of each of the said pairs being normally connected by means of the armature of a relay upon its back stroke, to the other side of said line annunciator; and a third wire branching first to the frames or test rings of each line jack in the series, and second, to a normally open contact adapted to be closed by said relay armature upon its forward stroke, and third, through the high resistance helices of said relay to ground; combined with the testing and connecting plugs and cords of the operator's keyboard apparatus, whereby a testing circuit is made within the central station, as set forth.

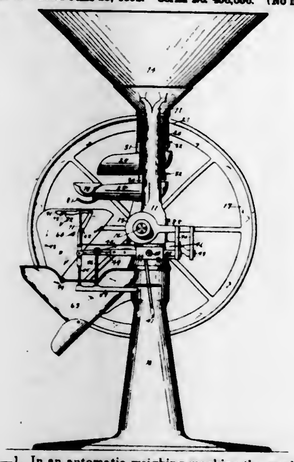
6. In a metallic circuit multiple switchboard system, two or more pairs of wires forming the signaling circuits from two or more substations, one side or wire of each pair branching to the line springs of each jack in the series one at each section of the switchboard, and terminating at one side of the line annunciator; the second wire of each of the said pairs being normally connected by means of the armature of a relay, upon its back stroke, to the other side of said line annunciator; and a third wire branching first to the frames or test rings of each line jack in the said series, and second to a normally open contact, adapted to be closed by said relay armature upon its forward stroke, and third through the high resistance helices of said relay to ground; combined with the testing and connecting plugs and cords of an operator's keyboard apparatus whereby a testing

circuit is made from ground, central station battery, resistance and the sleeve side of the test plug of a connected pair, over the said third wire through the tip side of the testing plug and through the listening telephone to ground.

7. In a metallic circuit multiple switchboard system, a pair of wires forming the signaling circuit from a substation and passing through the several sections of the switchboard,—one of said wires branching to the line springs of the jacks upon said sections, both of said wires terminating in opposite sides of a line annunciator; a third wire having branches to the test rings of each of the said jacks and a ground at its outer end, provided also near said end with a normally open contact and including the high resistance helices of a relay or circuit changer; combined with means for operating the said relay or circuit changer to change the said signaling circuit to a talking circuit, consisting of the operator's answering and connecting plugs and cords having legged to the sleeve side thereof a grounded wire which includes a resistance and battery.

492,485. AUTOMATIC WEIGHING AND PACKING MACHINE.

JOHN A. OSTENBERG, Des Moines, Iowa, assignor to F. M. Gilbert, Walpole, N. H. Filed June 25, 1892. Serial No. 438,096. (No model.)



Claim.—1. In an automatic weighing machine the combination of the following elements, a suitable supporting base, a frame adapted to contain and support the operative mechanism, a containing hopper mounted in the top of the said frame, two discharge pipes leading from the said hopper, a dumping scoop adapted to receive the discharge from one of the said discharge pipes and a weighing and dumping receptacle adapted to receive the discharge from the said scoop and the remaining discharge spout, substantially for the purposes stated.

2. In an automatic weighing machine, the combination of the following elements, a containing hopper mounted in the top of the machine frame, a pipe leading therefrom, a vibrating discharge spout at the bottom of the said pipe in communication therewith, a metal band encircling the said pipe and having its forward edge project downwardly into the said vibrating spout, to control the flow from the pipe to the spout, and the means shown and described for connecting it therewith.

3. In an automatic weighing machine the combination of the following elements, a rock shaft having a forked end, a discharge spout pivoted in said forked end, an angle piece fixed to the bottom of the discharge spout and extending downwardly therefrom, a lug formed on or fixed to the top of said rock shaft a set screw extended through said lug longitudinally of the spout and adapted to engage the said angle piece so that the incline of the spout may be adjusted by a manipulation of said set screw.

4. In an automatic weighing machine the combination of a containing hopper, a pipe leading therefrom, the vibrating spout as set forth, the guide for regulating the flow from the pipe to the spout as set forth, and the means for adjusting the incline of the spout, substantially as shown and described.

5. In an automatic weighing machine the combination of a rock shaft extended vertically in the machine frame, a discharge spout mounted at its upper end in position to receive the flow from a containing hopper, a wheel having an irregular periphery arranged to be rotated adjacent to the said rock shaft, an arm fixed to said rock shaft and yielding pressure devices normally holding said arm in engagement with the said wheel for the purposes stated.

6. In an automatic weighing machine the combination of a rock shaft extended vertically in the machine frame, a discharge spout mounted in its upper end in position to receive the flow from a containing hopper, a wave wheel having regular concave surfaces formed on its periphery an arm fixed to the said rock shaft, and yielding pressure devices normally holding said arm in engagement with the said wheel, for the purposes stated.

7. In an automatic weighing machine, the following elements in combination:—a containing hopper, the pipes having the adjustable guides thereon, leading from said hopper, as set forth, the vibrating discharge spouts mounted on the vertical rock shafts and having the means for providing for their vertical adjustment as shown and described, a wheel having an irregular periphery arranged to rotate adjacent to said rock shaft, and an arm fixed to each rock shaft and yielding pressure devices normally holding the said arms in engagement with said wheel.

8. In an automatic weighing machine the combination of the following elements:—a containing hopper, the pipes having the adjustable guides thereon, leading from said hopper, as set forth, the vibrating discharge spouts mounted on the vertical rockshafts and having the means for adjusting their incline as shown and described, a wave wheel, having regular concave surfaces on its periphery rotatably mounted between the said rock shafts, an arm fixed to each rock-shaft and extended into proximity to the said wave wheel in the same horizontal plane, and yielding pressure devices applied to the outer one of the said arms to cause the arms to follow the contour of the said wheel and vibrate the discharge spouts substantially as set forth.

9. In an automatic weighing machine the following elements in combination:—a containing hopper, the pipes having the adjustable guides thereon, leading from the said hopper, as set forth, the vibrating discharge spouts mounted on the vertical rock shafts and having the means for adjusting their incline as shown and described, a wave wheel mounted between the said rock shafts, an arm fixed to each rock shaft and extended into proximity to the said wave wheel, the one outside of the other, yielding pressure devices connected with the inner arm to normally hold it out of engagement with the wave wheel, a lever fulcrumed to the frame, a spring, attached to the upper end of the lever and to the outer one of the aforesaid arms and means for holding the lever in a position to bring the said arms into engagement with the wave wheel or to allow the arms to be disengaged from the wave wheel substantially as set forth.

10. In an automatic weighing machine the following elements in combination, a main weighing beam having a scale bar and poise constructed and arranged substantially as set forth, an auxiliary weighing beam mounted in the outer end of said main weighing beam and provided with a suitable scale bar and poise, a dumping receptacle mounted in the outer end of the auxiliary weighing beam substantially as set forth, two spouts normally discharging into the said dumping receptacle and means whereby one of them is cut off upon the overbalancing of the main weighing receptacle for the purposes stated.

11. In an automatic weighing machine the following elements in combination:—a main weighing beam, an auxiliary weighing beam mounted on the outer end of said main scale beam, a weighing and dumping receptacle mounted on the outer end of the auxiliary weighing beam, a dumping scoop normally in position for discharging into the said weighing and dumping receptacle, means whereby the dumping scoop is automatically placed in a position for containing substances placed therein, when the main weighing beam is overbalanced, and means whereby the weighing and dumping receptacle is automatically dumped when the auxiliary weighing beam is overbalanced, substantially in the manner set forth.

12. In an automatic weighing machine an automatic dumping scoop comprising a rock shaft mounted in the machine frame, a suitable scoop fixed to its outer end, a bell crank lever secured to its inner end, a forked rod pivotally attached to the said bell crank lever and having ratchet teeth formed on its inner surfaces as set forth, a rotating shaft having ratchet teeth formed therein means for automatically bringing the ratchet teeth on the fork into engagement with the ratchet teeth on the shaft for the purposes stated, and means for restricting the movement of the scoop substantially as shown and described.

13. In an automatic weighing machine an automatic dumping scoop, comprising the following elements, a rock shaft having a scoop fixed to its one end and a bell crank lever fixed to the other, the fork having the ratchet teeth formed thereon as set forth, pivotally connected with the said bell crank lever a spring connected with the other end of said lever and normally expending its force in a downward direction thereupon, a rotatable shaft having ratchet teeth formed thereon as set forth adapted to engage the ratchet teeth formed on the said fork a rod connected with the fork to bring either end thereof into engagement with the said shaft, means for automatically operating the said rod and a cushioned fork to restrict the movement of the scoop all substantially in the manner set forth and for the purposes stated.

14. In an automatic weighing machine the following elements in combination:—two discharge spouts leading from a containing hopper a dumping scoop adapted to receive the discharge from one of the said spouts, a main weighing beam, an auxiliary weighing beam mounted thereon, a weighing and dumping receptacle mounted upon the said auxiliary weighing beam, means whereby the said dumping scoop may be automatically placed in a position to receive the discharge when the main weighing beam is overbalanced, means for automatically dumping the weighing and dumping receptacle when the auxiliary weighing beam is overbalanced, and means for automatically dumping the aforesaid dump scoop after the weighing and dumping receptacle has been dumped and the receptacle is in position for receiving substances from the said dumping scoop.

15. In an automatic weighing machine the following elements in combination;—two discharge spouts leading from a containing hopper an automatic dumping scoop constructed substantially as set forth and adapted to receive the discharge from one of the said discharge spouts, a main and auxiliary weighing beam constructed and arranged substantially as set forth, a weighing and dumping receptacle mounted on the auxiliary weighing beam in the manner set forth, and means for dumping the said receptacle when its weight overbalances the auxiliary weighing beam.

16. In an automatic weighing machine the following elements in combination, a weighing and dumping receptacle having two compartments formed by a longitudinal partition, and mounted upon a weighing beam in such a manner as to be capable of being dumped in either direction, means for limiting the movement of the weighing and dumping receptacle, two pins projecting outwardly from one side of the receptacle, a trigger having a horizontal arm provided with a notch adapted to admit either of the said pins when the receptacle is dumped in the proper direction, a lever pivoted to the aforesaid weighing beam in the rear of the pivotal point thereof, a connecting rod attached to the aforesaid trigger and the said lever and means for automatically inclining the said lever forward when it is elevated by reason of the weighing receptacle being lowered to thereby release the weighing and dumping receptacle.

17. In an automatic weighing machine the following elements in combination, a weighing and dumping receptacle having two compartments formed by a longitudinal partition, and mounted upon a weighing beam, substantially in the manner set forth, the means shown and described for limiting the movement of the said receptacle, the pins projecting therefrom for the purposes stated, the trigger having the elongated slot in its horizontal arm as set forth, a rotatable wheel having an annular groove in its periphery for the purposes stated, and the lever and connecting link to actuate the trigger all arranged and combined substantially in the manner set forth for the purposes stated.

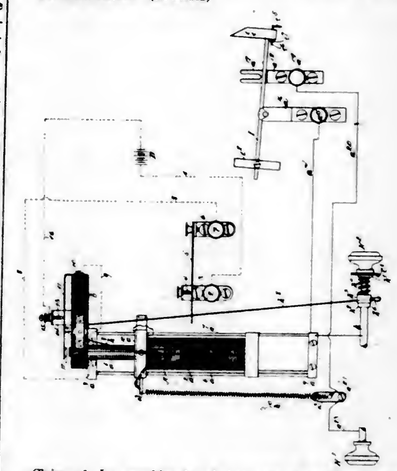
18. The combination in an automatic weighing machine of the following elements, to wit: the main and auxiliary weighing beams having the weighing and dumping receptacle mounted thereon, as set forth, the auxiliary dumping scoop arranged to be operated by the main weighing beam substantially as set forth, and the automatic trip device arranged to be operated by the auxiliary weighing beam substantially as set forth, and means for providing a continuous flow into the auxiliary dumping scoop and into the weighing and dumping receptacle.

19. In an automatic weighing and packing machine, the combination of the following elements;—a suitable base and supporting frame, a containing hopper supported by said frame, a main weighing beam and an auxiliary weighing beam mounted thereon, a weighing and dumping receptacle having two longitudinally extending compartments and mounted upon the auxiliary weighing beam in such a manner as to be capable of being dumped in either direction, an auxiliary dumping scoop arranged to be automatically operated by the main weighing beam, and to discharge into the weighing and dumping receptacle until the main weighing beam is overbalanced, two discharge spouts of different capacities leading from the aforesaid hopper, the larger one discharging into the auxiliary dumping scoop and the smaller one into the weighing and dumping receptacle, means for vibrating the said discharge spouts mechanism actuated by the auxiliary weighing beam for dumping the weighing and dumping receptacle and a collecting and discharge spout adapted to direct the weighed substances into packages, and means for operating the machine.

20. In an automatic weighing and packing machine the combination of the following elements: the base frame and containing hopper substantially as set forth, the main and auxiliary weighing beams having the weighing and dumping receptacle mounted therein, as set forth, the auxiliary dumping scoop adapted to be actuated by the main weighing beam substantially as set forth the discharge spouts leading from the hopper and having the mechanism for vibrating them as set forth, the trip-device to release the weighing and dumping receptacle actuated by the auxiliary weighing beam, as set forth, the collecting and discharge spout to direct the weighed substances into packages and means for operating the machine, all arranged and combined substantially in the manner set forth for the purposes stated.

492,486. COIN-CONTROLLED MACHINE FOR ADMINISTERING ELECTRICITY.

WILLIAM R. POPE, New York, N. Y., assignor to the National Electric Machine Company, same place. Filed Aug. 13, 1892. Serial No. 443,064. (No model.)



Claim.—1. In a machine for administering electricity, the combination of an induction coil having a fixed section and a movable section, a handle outside the case of the machine, an arm having yielding connection with said handle, a strap connected with the arm, a pulley around which the strap extends and a connection between the strap and the movable section of the induction coil, substantially as specified.

2. In a machine for administering electricity, the combination of an induction coil having a fixed section and a movable section, a handle outside of the case of the machine, a shaft extending from said handle to the inside of the case a collar fixed to said shaft, a collar constructed to interlock with the fixed collar and loosely mounted on said shaft, a spring for holding the loose collar in engagement with the fixed collar, an arm extending from the loose collar, a strap connected with the arm, a pulley around which the strap extends and a connection between the strap and the movable section of the induction coil, substantially as specified.

3. In a machine for administering electricity, the combination of a case, a support consisting of a board or similarly shaped part extending upwardly within the center of the case, an induction coil arranged at one side of the support, a coin lever arranged on the other side of the support and provided with a coin receptacle having an adjustable bottom, a rack on the movable section of the induction coil and means for operating the movable section of the induction coil, substantially as specified.

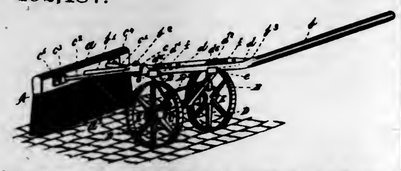
4. In a machine for administering electricity, the combination of an induction coil having a movable section, a movable handle, a primary circuit including the primary of the induction coil and closed and opened by the movable handle, a secondary circuit including the secondary of the induction coil, contact pieces in said secondary circuit controlled by the secondary of the induction coil, a coin lever for establishing or disestablishing a short circuit or shunt in the secondary circuit and means for operating the movable section of the induction coil, substantially as specified.

492,487. STREET-SWEEPER.

PATRICK REARDON, Paterson, N. J., assignor of one-half to Michael Murphy, same place. Filed Feb. 15, 1893. Serial No. 421,554. (No model.)

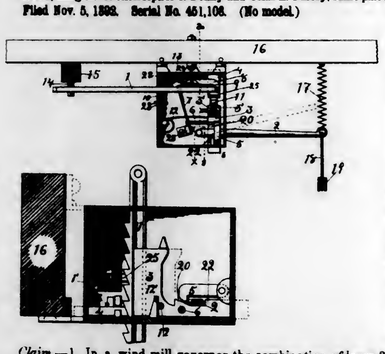
Claim.—In a street cleaning device the broom A having a broom head —*a*— provided with a hole to receive the end of the pole *b*, a pole

492,487.



b, the clip *c* provided with the side braces C' C² the bracket B secured to the axle C, the bracket B being provided with projecting lips *d d* formed to embrace the side of the pole of handle —*b*—, rubber cushion washers —*e e*— inserted between the brace arms B B and the pole or handle —*b*— and the wheels D D secured to axle C, the pole *b* being provided with two series of holes —*f*—*f*— to permit the pole to be secured to the bracket arm B B at different parts as desired, all constructed substantially as shown and described and for the purposes specified.

492,488. WINDMILL-GOVERNOR. THOMAS L. REGESTER, Blair, Nebr., assignor to Christopher C. Denny and Osias A. Farley, same place. Filed Nov. 5, 1892. Serial No. 451,108. (No model.)



Claim.—1. In a wind mill governor the combination of lever 2 pivoted at one end actuated by the weight of a float to bear against the shoulder 22 on the reciprocating guide-block 3 carrying the ratchet-bar 11 and actuated against the weight of the float by the spring 12 with the lever 1 pivoted between its ends, having the pawl 8 at one end set to engage the ratchet-bar the opposite end connected with the pump-rod, the ratchet-bar 11 connected with the wind-mill gear, and the detent 4 set to engage the ratchet-bar 11 substantially as shown and described.

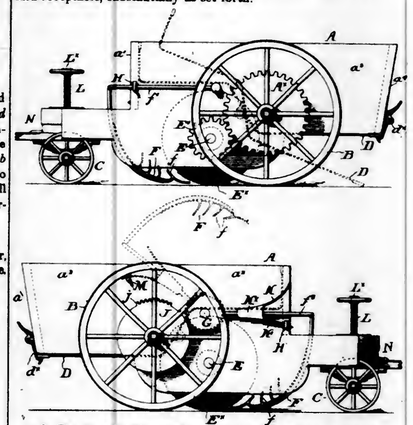
2. In a wind mill governor the combination of the reciprocating guide-block 3 carrying the ratchet-bar 11 connected with the windmill-gear, and having the inclined topped tooth 20, and the shoulder 22, the lever 2 pivoted at one end across the guide-block between the tooth and the shoulder, actuated toward the tooth by the spring 17, and toward the shoulder by the weight of a float, the hook 5 set to engage the tooth 20, with the lever 1 pivoted between its ends, having the pawl 8 at one end set to engage the ratchet-bar 11, the opposite end connected with the pump rod, and the detent 4 set to engage the ratchet-bar substantially as shown and described.

3. In a wind mill governor the combination of the reciprocating guide-block 3 carrying the ratchet-bar 11 connected with the mill gear, and having the inclined topped tooth 20 the shoulder 22 and the arm 6, the lever 2 pivoted at one end across the guide-block between the tooth and shoulder, impelled toward the tooth by the spring 17, and toward the shoulder by the weight of a float, with the lever 1 pivoted between its ends having the pawl 8 at one end set to engage the ratchet-bar 11, the opposite end normally falling on a pin projecting from the pump rod, the detent 4 set to engage the ratchet-bar, the bell-crank lever 7 one arm set to engage the arm 6, the other arm loosely connected to lever 1 adjacent to the end having the pawl 8 substantially as shown and described.

492,489. STREET-SWEEPER. FRANCIS C. WILLIAMS, Philadelphia, Pa. Filed May 7, 1892. Serial No. 432,223. (No model.)

Claim.—1. In combination, a traveling support, a containing receptacle, a brush, and means for operating said brush, a carrier, and means for elevating said carrier above the receptacle, substantially as set forth.

2. In combination, a traveling support, a containing receptacle, a brush, and means for operating said brush, a carrier, and means for automatically elevating said carrier at predetermined intervals above said receptacle, substantially as set forth.



3. The combination, to form a street sweeper, of a traveling support, a containing receptacle, a revolving brush, a carrier, arms by which said carrier is pivotally connected to the machine, and gearing adapted to occasion the elevation of the carrier, substantially as set forth.

4. The combination, to form a street sweeper, of a traveling support, a containing receptacle, a revolving brush, a carrier, arms by which said carrier is pivotally connected to the machine, gearing adapted to occasion the elevation of said carrier, and a stop or stud in position to be encountered by the carrier in its throw, substantially as set forth.

5. The combination, to form a street sweeping machine, of a containing receptacle, road wheels, a brush, a carrier, arms by which said carrier is pivotally connected to the machine, and mechanism operated from the road wheels adapted to occasion the elevation of the said carrier, substantially as set forth.

6. In a street sweeping machine, in combination, a traveling support, a containing receptacle, road wheels, a brush, and a carrier, provided with a series of pockets and adapted to be automatically elevated at regular intervals, substantially as set forth.

7. In combination, in a street sweeping machine, a containing receptacle, road wheels, a revolving brush, a carrier pivotally secured to the machine, and provided with a toothed wheel, and a toothed wheel rotating with the road wheels and adapted to mesh with the toothed wheel first mentioned, substantially as set forth.

8. In combination, in a street sweeping machine, a containing receptacle, road wheels, a brush, a carrier pivotally secured to the machine, and provided with a wheel having teeth upon a portion of its periphery,—and a wheel having teeth upon a portion of its periphery, rotating with the road wheels, and adapted to intermittently engage with the first named toothed wheel, substantially as set forth.

9. In combination, in a street sweeping machine, a receptacle, a carrier provided with arms pivotally connected to the machine, keepers adapted to support said carrier normally in position in adjacency to the ground, a brush, and means for operating the brush, substantially as set forth.

10. In combination, in a street sweeping machine, a receptacle, a reciprocating carrier, provided with arms pivotally secured to the machine, springs adapted to cushion the throw of the carrier, a gear wheel rigidly secured to one of said arms and provided with a blank peripheral space, and a gear wheel adapted to be driven by the road wheels, provided with a blank peripheral space, and adapted to encounter the gear wheel first mentioned, substantially as set forth.

492,490. AUTOMATIC WAGON-BRAKE. CHARLES A. BROWN, Lakeville, Minn. Filed Mar. 22, 1892. Serial No. 426,060. (No model.)

Claim.—1. In a device of the class described, the combination with the band provided with peripheral inclined grooves or sockets, of the balls arranged loosely in said sockets, the loose bearing band surrounding the same and adapted to be clutched thereon by said balls when moved partly out of the sockets, and the strap brake surrounding and adapted to engage said loose band, substantially as described.

2. In a device of the class described, the combination with the fixed band provided with peripheral inclined grooves or sockets, of the balls arranged loosely in said sockets, the loose band surrounding the same and adapted to make contact with said balls when the same are advanced partly out of the sockets, the strap brake encircling said loose band, and means for automatically clutching the same thereon, substantially as described.



3. In a device of the class described, the combination with a wagon wheel and its hub, of the band loosely surrounding the hub, the brake encircling the said band, and the ratchet connection between said band and the hub, whereby they are clutched together with the wheel moving in one direction, but disengaged with the opposite rotation of the wheel, substantially as described.

4. In a device of the class described, the combination with the hub band, of the band loosely inclosing the same, the flanges holding said loose band from lateral displacement, the ratchet connection between the said bands, the strap brake encircling said loose band, and means for automatically applying the same, substantially as described.

5. In an automatic wagon brake, the combination with the wagon wheel, of the strap brake surrounding the hub of the same, the connection between said brake and the neck yoke for applying the brake to the wheel with the backward thrust of the neck yoke upon the tongue of the wagon, and means for automatically disengaging said brake from said wheel with the backward rotation of the wheel, substantially as described.

6. In a device of the class described, the combination with the wagon wheel and its strap brake, of means interposed between said brake and wheel, whereby the wheel when moving in one direction is retarded by the brake as applied, but is free to turn in the opposite direction, substantially as described.

7. The combination of a wheel, a strap brake, means for automatically applying the brake as the wheel automatically moves forward, and means interposed between the brake and wheel for disengaging the same as the wheel turns in the opposite direction, substantially as described.

8. The combination with a wheel, of a strap brake therefor, a bearing for said brake independent of said wheel, and means for locking said bearing to said wheel, operated automatically by the forward movement of the wheel, and disengaged by its turning in the opposite direction, substantially as described.

9. The combination of the wheel, the brake, its rotatable friction bearing independent of said wheel, and the clutch interposed between said wheel and bearing adapted to be automatically operated by the forward movement of the wheel, and released by its backward movement, substantially as described.

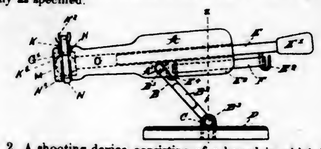
10. The combination of the wagon wheel, the independent brake bearing, and the interposed clutch mechanism operated by said wheel when rotating in one direction, and released by its rotation in the opposite direction, substantially as described.

11. The combination of the wheel, the independent rotatable brake bearing, and the interposed clutch automatically operative as the wheel rotates in one direction, and inoperative as it rotates in the opposite direction, substantially as described.

12. The combination of the wagon wheel, the independent brake bearing, its brake, automatic means for applying said brake either by the forward thrust of the wagon upon the team or the backward thrust by the team upon the wagon, and a clutch mechanism interposed between said wagon wheel and brake bearing, operative only with the forward movement of the wheel, substantially as described.

492,491. DEVICE FOR SHOOTING MARBLES. ROBERT J. CHIPMAN, Paterson, N. J., assignor of one-half to John F. KEY, same place. Filed July 11, 1892. Serial No. 439,585. (No model.)

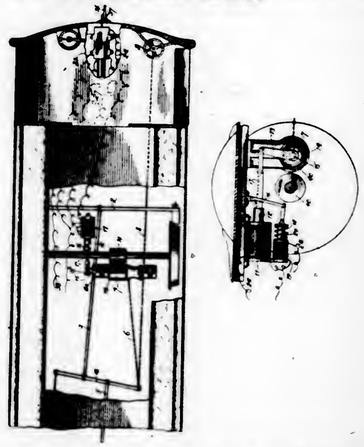
Claim.—1. A shooting device consisting of a hollow tube or barrel within which a rod or plunger is located and moves freely operated by the hand and having a returning tension imparted by an elastic band or spring. The barrel or tube being adjustably mounted on a stand by a reciprocating link and having an enlarged part of the bore formed to receive a marble or spherical object intended for a missile the same being held by the pressure of a pin formed concave on its end and kept in position by a rubber elastic band which surrounds the muzzle of the tube on its outer surface and is held in a suitably formed crutch located in the upper part of the pin, substantially as specified.



2. A shooting device consisting of a barrel in which is loosely located a rod controlled by a spring, and which can be adjusted vertically or horizontally by a movable supporting link which is pivoted on its upper end to the barrel or tube and at its lower end to a stand or plate. The tube having a suitably enlarged part of its bore formed to receive a marble or other missile or projectile held in position by a pin suitably formed at its end and controlled by a rubber tension spring substantially as specified.

3. A shooting device or toy gun operated by springs acting upon a loose rod working or reciprocating with in a suitably formed barrel and operated also by the hand for the purpose of discharging spherical objects at a mark wherein the aim is adjusted by a suitably formed link pivoted upon the barrel or tube and the base or stand, the backward or forward motion of the barrel or tube causing the tube to raise or lower horizontally or may be raised or depressed at the mouth or breech pivotally at the same time, a device holding the spherical missile from falling out of the muzzle when the muzzle is depressed or following the discharging rod when the breech is depressed substantially as specified.

492,492. ELECTRIC CAR-BRAKE. WENDELL C. FLETCHER, St. Louis, Mo., assignor to Herman P. Willard, trustee, Chicago, Ill. Filed Apr. 15, 1892. Serial No. 429,261. (No model.)



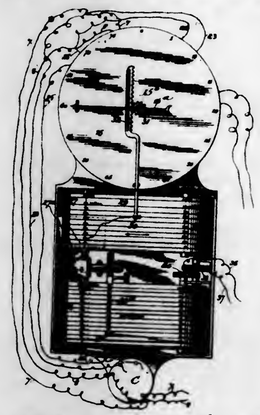
Claim.—1. The combination with a car brake of an electro magnet whereby said brake is applied; a device for controlling the flow of current through said electro-magnet; a retaining device by which the brake is held when applied; a second electro-magnet by which said retaining device is released; a circuit controlling said second electro-magnet; and devices connected to the circuit controller for the first electro-magnet adapted to render the second electro-magnet inoperative when the controller is moved to apply the brake and to bring said second electro-magnet into operation when the controller is moved to release the brake, substantially as described.

2. The combination with a car brake of an electro-magnet whereby said brake is applied; a device for controlling the flow of current

through said electro-magnet; a retaining device by which the brake is held when applied; a second electro-magnet by which said retaining device is released, said magnet coils being connected in series; a short circuit extending around the coils of said second electro-magnet and devices connected to the circuit controller for the first electro-magnet adapted to complete said short circuit when the controller is moved to apply the brake and to break said circuit when it is moved to release the brake, substantially as described.

3. The combination with a car brake of an electro magnet whereby said brake is applied; a device controlling the flow of current through the coils of said magnet, said device consisting of a bar 29 adapted to complete the circuit through said magnet; a series of resistance coils R arranged to be successively cut out of said circuit as the bar is moved forward; a pawl and ratchet by which said brake is held when applied; a second electro magnet by which said pawl and ratchet may be released, the coils of the second electro-magnet being connected in series with the coils of the first; a short circuit extending around the coils of said second electro-magnet; an arm 28 connected to said bar 29 but insulated therefrom; a slide 30 provided with a slot into which said arm extends; said slide having an insulating block upon one side of the slot and said arm and slide being connected to the two parts of said short circuit, all combined substantially as and for the purpose set forth.

492,498. AUTOMATIC SPEED INDICATOR AND RECORDER. WENDELL C. FLETCHER, St. Louis, Mo., assignor to Norman P. Willard, trustee, Chicago, Ill. Filed Apr. 29, 1892. Serial No. 431,200. (No model.)



Claim.—1. The combination, in a speed indicator, of a dynamo whose speed is proportional to the speed to be indicated; means for maintaining a constant current from said dynamo; and speed indicating devices connected to the said regulating means, substantially as described.

2. The combination, in a speed indicator, of a shunt wound dynamo whose speed is proportioned to that which is to be measured; means for varying the resistance through the field coils of said dynamo; a regulator for governing the current from said dynamo by altering the resistance through said field coil; an indicator whose movements correspond to those of the regulator switch; and a dial or scale over which said indicator moves graduated to show the speed to be measured, substantially as described.

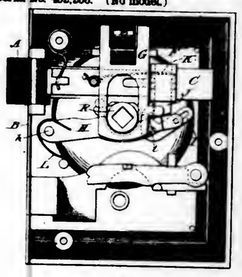
3. The combination, in a speed indicator, of a shunt wound dynamo whose speed of revolution is proportioned to the speed to be measured; a variable resistance in circuit with the field coils of said dynamo; a switch by which said resistances may be varied; means for operating said switch consisting of a motor actuated by said dynamo; a vibrating arm actuated by said motor and carrying a pivoted pawl; a toothed wheel in proximity to said pawl; and magnets adapted to bring said pawl into action and move said wheel in one direction or the other as the current in said dynamo is increased or diminished; and a pointer operated by said wheel and which moves over a dial graduated to show the speed to be measured, substantially as described.

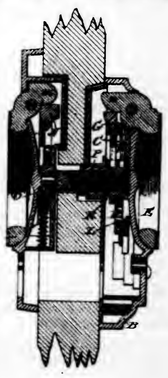
4. The combination, in a speed indicator, of a shunt wound dynamo 2; a motor N; resistances R in series with the field coils of the dynamo; a switch arm 14 by which a greater or less resistance may be interposed in the field magnet circuit; a vibrating arm 9 having its pivot concentric with the toothed wheel 11 and having a pawl 10 in proximity to said toothed wheel; magnets 12 and 13 adapted to put said pawl into action to drive the wheel 11 in one direction or the other as one magnet or the other is energized; a current regulator C adapted to send a current through the magnet 12 or 13 accordingly as the current through the dynamo is increased or diminished; and an indicator connected to said wheel 11 and co-acting with a dial or scale graduated to show the speed to be measured, substantially as described.

5. The combination, in a speed indicator and recorder of a shunt wound dynamo whose speed of revolution is proportioned to the speed to be measured; a variable resistance in series with the field coils of said dynamo; a switch governing said variable resistance and connected to a regulator by which the current from said dynamo is made constant; and speed indicating and recording devices connected to said switch, said recording devices consisting of a marking point corresponding in its movements to the movements of said switch and traversing a surface driven by clock-work and having graduations in one direction to show the time and in the other direction to show the speed, substantially as described.

6. The combination, in a speed indicating and recording instrument of a shunt wound dynamo driven by the shaft whose speed is to be recorded and provided with means for regulating the current from said dynamo; and speed indicating devices connected to said regulating means whereby the position of the switch governing said regulating means, will be made to indicate the speed at which said dynamo and the shaft from which it is driven, is revolving; and means for recording both the rate of speed and the total revolutions of said shaft; said means consisting of a drum and a marking point actuated by clock-work; and a second marking point and drum actuated by the dynamo, the marking point actuated by the dynamo co-operating with the drum actuated by the clock-work, and the marking point actuated by the clock-work co-operating with the drum actuated by the dynamo, the speed of the latter drum being governed by the speed of the shaft to be measured and the position of the marking point actuated by the dynamo being determined by the current regulating appliances of said dynamo, substantially as described.

492,494. LATCH AND LOCK. JAMES A. GIBBS, Chicago, Ill., assignor to the Adams & Westlake Company, same place. Filed Nov. 17, 1892. Serial No. 452,253. (No model.)





Claim.—1. The combination, in a door latch, of a handle pivoted to the latch casing and normally depressed so as to lie in proximity to said casing; a latch-operating slide, as C, within the casing; and connections between said slide and handle, whereby the raising of the handle retracts the slide, substantially as described.

2. The combination, in a door latch, of a handle pivoted to the casing thereof and having an inwardly projecting lug; a slide as G operated by said lug when the handle is raised; a latch operating slide as C; and connections between said two slides, consisting of an arm H and a bell-crank lever I connected together; and a projection upon said slide C with which said bell-crank lever I engages, substantially as described.

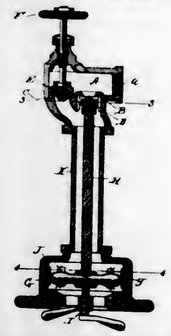
3. The combination, in a door latch, of a handle pivoted to the casing thereof and having an inwardly projecting lug; a slide as G operated by said lug when the handle is raised; a latch-operating slide, as C; and connections between said two slides consisting of an arm H and a bell-crank lever I connected together; a tripping piece as J upon said slide C with which said lever I engages, and over which the end of said lever I may pass, substantially as set forth.

4. The combination, in a door latch, of a latch operating slide, as C; a tripping piece J fitted to a transverse slot therein; a bell-crank lever I engaging said tripping piece; and means for operating said bell-crank lever; the position and arrangement of said tripping piece and bell-crank lever being such that the tripping piece releases itself from the lever when the limit of movement of the latter is approached, substantially as described.

5. The combination, in a door latch, of a latch-operating slide C; a bell-crank lever I engaging a projection thereon; an arm H connected to and operating said bell crank lever; a handle pivoted on the opposite side of the door from said latch and having an inwardly projecting lug; a slide operated by said lug and having a stud engaging with a forked piece; a spindle upon which said forked piece may rotate and a follower operated by said spindle and engaging with said arm H, all combined substantially as and for the purpose described.

6. The combination, in a door latch, of a latch operating slide C; a bell-crank lever I engaging a projection thereon; an arm H connected to and operating said bell-crank lever; a handle pivoted on the opposite side of the door from said latch and having an inwardly projecting lug; a slide operated by said lug and having a stud engaging with a forked piece; a spindle upon which said forked piece may rotate and a follower operated by said spindle and engaging with said arm H; a handle pivoted upon the latch-casing; a slide within said casing operated by said handle and also engaging with said arm H, whereby the latch can be operated by the handle on either side of the door independently of the other, substantially as described.

492,495. STEAM-TRAP. ROBERT H. GOLD, Chicago, Ill. Filed Oct. 15, 1892. Serial No. 448,962. (No model.)



Claim.—1. The combination, in a steam trap, for heating apparatus of an automatically operated valve located within the space to be heated, an expansion device situated outside the space to be heated, and a rod connecting said expansion device with the valve, substantially as described.

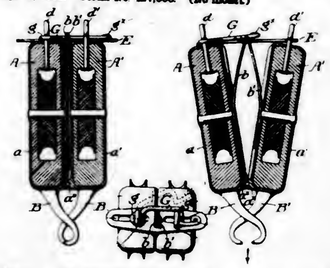
2. The combination in a steam trap for heating apparatus of an automatically operated valve located within the space to be heated; an expansion device situated wholly outside the space to be heated; and connections between said valve and expansion device, substantially as described.

3. The combination in a steam trap, of a valve body containing two valve seats; a hand operated valve fitted to one seat; an automatically operated valve fitted to the other seat; and an expansion device contained in a chamber communicating with both valve orifices, substantially as described.

4. The combination in a steam trap for heating apparatus of a valve body adapted to be attached to the heating pipes and containing a valve opening, to which is fitted a valve; a discharge tube connected to said valve-body and adapted to extend from within the space to be heated to the outside air; a casing attached to the outer end of said tube; an expansion device contained in the chamber within said casing; but wholly without the space to be heated and connections between said expansion device and said valve, substantially as described.

5. The combination in a steam trap for heating apparatus of a valve body adapted to be attached to the heating pipes and containing a pair of valve openings to which respectively are fitted an automatic and a hand-operated valve, a discharge tube connected to said valve body and adapted to extend from within the space to be heated to the outside air, a casing attached to the outer end of said tube, an expansion device contained in the said casing but wholly without the space to be heated, and a rod connecting said expansion device with the automatic valve, substantially as described.

492,496. TACKLE-BLOCK. HILARY C. JOHNSON, Media, Pa. Filed Apr. 5, 1892. Serial No. 427,808. (No model.)



Claim.—1. In combination, two pulley blocks connected side by side by a hinge situated at their lower ends, two prongs or jaws depending one from each of said blocks, a spring bearing against and tending to separate said blocks, eye bolts mounted one in each of said blocks, a slotted plate in the slots of which said eye bolts are entered, and a hook mounted upon one of the blocks and adapted to engage with an eye or other device mounted upon the other block, substantially as set forth.

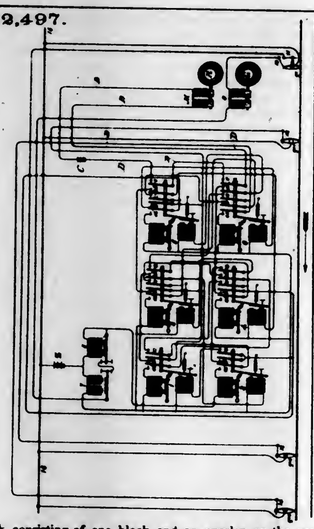
2. In combination, two pulley blocks each respectively circumscribed vertically by a metal band or strap, and hingedly connected side by side by a pivot passing through suitably apertured lugs formed in said bands at the lower ends of the blocks, a spring bearing against both blocks and tending to separate them, eye bolts mounted one in each of the said blocks, a plate embodying recesses or slots in which said eye bolts are entered, and a hook mounted upon one of the blocks and adapted to engage with an eye bolt or other device mounted upon the other block, substantially as set forth.

492,497. ELECTRIC SIGNALING APPARATUS. WILLIAM H. KENYON, New York, N. Y., assignor to the Hall Signal Company, of Maine. Filed June 3, 1892. Serial No. 435,963. (No model.)

Claim.—1. In a permissive block signal system, the combination with a signaling circuit operating or controlling the operation of a precautionary signal guarding a block or given section of track, and with a series of branch circuits and a corresponding series of multiple circuit instruments controlling such branch circuits,—arranged to be operated in succession in one direction by trains successively entering the block, and to be operated in reverse succession and direction by said trains on their subsequently successively leaving the block, so that the last train of a permitted number shall clear said precautionary signal previously set to danger by the preceding trains,—of a supplementary or local circuit controlled by one of said multiple circuit instruments, and an extra or absolute signal operated by or through said local circuit in such manner that the absolute signal will always be at danger when the permitted number of trains are on the block or guarded section, but will clear directly such permitted number is reduced by one train leaving the section,—substantially as and for the purposes set forth.

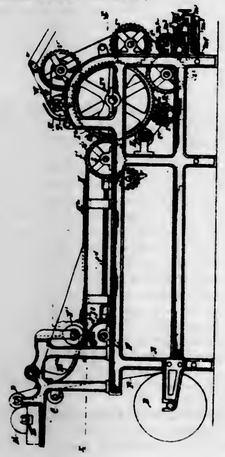
2. In a permissive block signal system applied to overlapping blocks, the combination with a signaling circuit operating or controlling the operation of a precautionary signal guarding a given section

492,497.

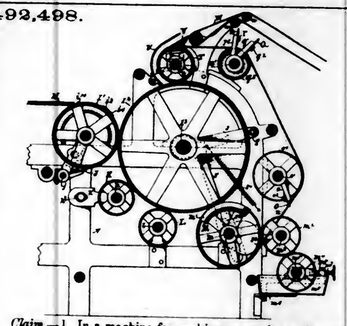


of track consisting of one block and an overlap on the next succeeding block,—and with a series of double sets of branch circuits and a series of double sets of multiple circuit instruments controlling said branch circuits,—arranged to be operated in succession in one direction by trains entering the overlap and leaving the overlap in succession, and to be operated in reverse succession and direction by said trains on their subsequently and one after another entering the overlap of the next succeeding block, and on their leaving the same,—of a supplementary or local circuit controlled by one set of said double sets of multiple circuit instruments, and an extra or absolute signal operated by or through said supplementary or local circuit, in such manner that the absolute signal will always be at danger when the permitted number of trains are on the block and overlap, but will clear directly such permitted number is reduced by one train leaving the overlap or guarded section, substantially as and for the purposes set forth.

492,498. PAPER-BAG MACHINE. WILLIAM LIDDELL, Brooklyn, N. Y., assignor to Wells A. Bingham, Moorefield, N. J. Filed Mar. 16, 1892. Serial No. 425,009. (No model.)



492,498.



Claim.—1. In a machine for making paper bags, the combination of a folder for causing the folding of a strip of paper laterally, a cutter for making an incision in the paper, cylinders wholly independent of the cutter for separating the ends of bag blanks and folding devices arranged around one of said cylinders, substantially as specified.

2. In a machine for making paper bags, the combination of a folder for causing the folding of a strip of paper laterally, a cutter for making an incision in the paper, cylinders wholly independent of the cutter for separating the ends of bag blanks, one of said cylinders having co-acting belts for holding the bag blank flat and the other having needles for engaging one side of the bag blanks, and folding devices arranged around one of said cylinders, substantially as specified.

492,499. WATER-TUBE BOILER. HARRY H. LINDEMUTH, Harrisburg, Pa. Filed Apr. 25, 1892. Serial No. 430,532. (No model.)



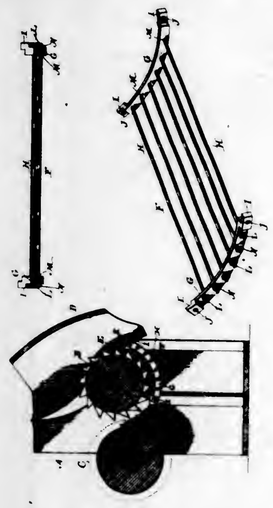
Claim.—1. In a boiler, the combination with the outer casing of the inner casing having a top crown sheet provided with downturned ends, and the opposite side walls having their upper squared edges lapping said down-turned ends of the crown sheet, a parallel series of separate and independent anchoring bars or plates arranged above the top crown sheet of the inner casing and having opposite downturned ends restly directly upon the upper squared edges of said side walls, and integral longitudinally disposed vertical attachment ribs extending from end to end thereof, spacing blocks interposed between said anchoring bars and said crown sheet to provide a water circulation, and opposite pairs of bracing plates securely riveted to both sides of said vertical ribs and the top of the outer casing of the boiler, substantially as set forth.

2. In a boiler the combination with the water jacket, inclosing the fire chamber, of the front and rear tube receiving and baffle plates arranged directly back of the fire box and intermediate of such point and the back end of the jacket, one of said plates being provided with an angle or beveled upper end, and an inspection door loosely connected to the crown sheet of the jacket and normally resting against said angled end, for the purposes set forth.

3. In a boiler, the combination with the inclosing casing and the fire box, of the ash pit wall or plate having sockets, a metallic bridge wall plate located directly back of the fire box and provided with depending securing lugs removably fitting into said sockets, and a series of forwardly extending parallel flanges forming separate and independent brick cells adapted to removably receive the bricks, substantially as set forth.

4. In a boiler, the combination with the water jacket and the water tubes connecting the opposite heads of said jacket, of a short blast tube or opening extending through one of the heads of said jacket above or in a line with said tubes, and an inclosing cap fitted over the outer end of said tube and provided with spring arms clamping in the same, substantially as set forth.

492,500. GIN-SAW GUARD. THOMAS F. MARLOW, Carrollton, Ga., assignor of one-half to Robert Hounwurth, same place. Filed Oct. 15, 1892. Serial No. 448,973. (No model.)



Claim.—1. A longitudinally adjustable gin saw guard or fender adapted for removable attachment to gins of various widths, substantially as set forth.

2. A gin saw guard or fender comprising opposite curved end bars adapted to be removably secured to the sides of a gin frame under the saws, and the parallel rods adjustably connected at their ends to said bars to adapt the guard or fender to gins of various widths, substantially as set forth.

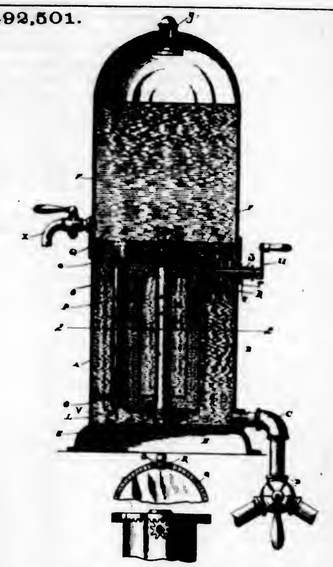
3. A gin saw guard or fender comprising opposite curved end bars, having offstanding securing lugs or shoulders adapted to be secured to the sides of a gin frame under the saws, and a series of perforations between the lugs, a series of parallel rods having threaded ends projecting through the perforations in said bars, and adjusting nuts engaging the threaded ends of said rods outside of the bars so as to adapt the fender or guard to gins of various widths, substantially as set forth.

492,501. PRESSURE WATER-FILTER. LEWIS W. MORRSO, Bloomington, Ill. Filed May 24, 1892. Serial No. 434,139. (No model.)

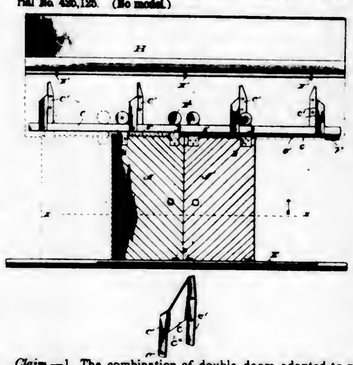
Claim.—1. In a pressure filter, the combination with a receiving reservoir, a super-imposed reservoir for filtered water, and a perforated pipe arranged axially in the receiving reservoir communicating with the upper reservoir and provided with a check valve, of a rotatable porous cylinder, mounted axially upon said pipe, a vertically-disposed brush arranged to impinge against the sides of said cylinder, impact springs to hold the brush in contact with the surface of the cylinder, and means to operate the cylinder, when desired, to remove accumulations from its walls, substantially as specified.

2. In a pressure filter, the combination of the upper and lower reservoirs, the rotatable perforated pipe mounted axially in the lower reservoir and communicating at its upper end with the upper reservoir, the check-valve in the upper end of said pipe to prevent back-flow through the latter, a porous cylinder secured to and carried by said pipe, a spring-pressed brush impinging against the outer walls of the cylinder, means to rotate the cylinder, a supply pipe entering the lower reservoir, and a vent or air valve Y at the top of the upper reservoir, substantially as specified.

492,501.



492,502. SLIDING DOOR. JOHN S. MCANARNEY, Chandler, assignor of one-half to T. C. Hough, Oklahoma, Okla. Filed Mar. 16, 1892. Serial No. 425,125. (No model.)



Claim.—1. The combination of double doors adapted to move simultaneously to and from each other, and having hangers connected to the upper ends of the same and carrying rollers therein, a track on which said rollers are movably mounted, other hangers connecting said track with a support and having oppositely-disposed and reversely-extending flanges, and a bifurcation between the lower ends of said flanges, and a single rope, cable, or chain having one end thereof attached to the innermost hanger on one door and the other end thereof attached to the rearmost hanger on the other door, substantially as described.

2. The combination of double doors adapted to move simultaneously to and from each other and having hangers connected to the upper ends thereof, a track on which said hangers are movable, other hangers secured to a support and holding said track in proper position and formed with a web having flanges on opposite edges thereof bent at an angle thereto and extending in reverse directions, and also provided with a bifurcation between the lower ends of said flanges, a pulley attached to the lower side of one end of said track, and a single rope, cable, or chain having one end thereof attached to the innermost hanger on one door, passed around said pulley, and the

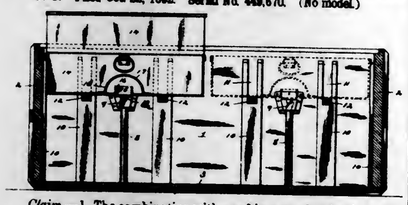
other end thereof connected to the rearmost hanger on the other door, substantially as described.

3. The combination of double doors adapted to move simultaneously to and from each other and supported by hangers, a track on which said hangers have movement, other hangers connecting said track with a support and having oppositely-disposed and reversely-extending flanges and a bifurcation between the lower ends of said flanges, a pulley secured to the under side of one end of said track, guides on the under side of said track, and a single rope, cable, or chain having one end thereof attached to the innermost hanger of one door, passed through said guides and around said pulley, and the opposite end thereof connected to the rearmost hanger of the other door, substantially as described.

4. The combination with the track, of hangers having oppositely-disposed and reversely-extending flanges with a bifurcation between the lower ends thereof adapted to embrace and be secured to the portions of the track, substantially as described.

5. The track-hanger as herein described, consisting of the web having flanges on opposite edges thereof, bent at an angle thereto, and extending in reverse directions and having a bifurcation between the lower ends thereof, substantially as described.

492,503. REFRIGERATOR-BOX. GARRET F. SICKLES, Cohoskie, N. Y. Filed Oct. 22, 1892. Serial No. 449,670. (No model.)



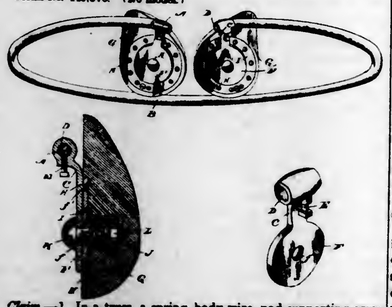
Claim.—1. The combination with a refrigerator-box having rests, of a pair of removable ice-pans mounted thereon and adapted to slide, and of a combined size adapting them to completely occupy the upper portion of the box, substantially as specified

2. The combination with a refrigerator-box and a series of vertical cleats secured to the inner side thereof, of a series of transverse rest-bars mounted on the cleats, and a pair of independent ice-pans seated on the rest-bars and provided with cold-air openings in their bottoms, substantially as specified.

3. The combination with a refrigerator-box having solid end and side walls, and a perforated bottom, of drip-tubes secured to one of the side walls and extending through the bottom, cleats on the under side of the bottom for elevating the same, rests secured within the box, and independent ice-pans mounted on the rests and having drip-openings communicating with the upper ends of the tubes, substantially as specified.

4. The combination with a refrigerator-box, of a series of vertical cleats secured to the inner side thereof, and arranged in pairs, said cleats having their upper ends bifurcated, rest-bars removably mounted in the bifurcations and ice-pans seated removably on the rest-bars, substantially as specified.

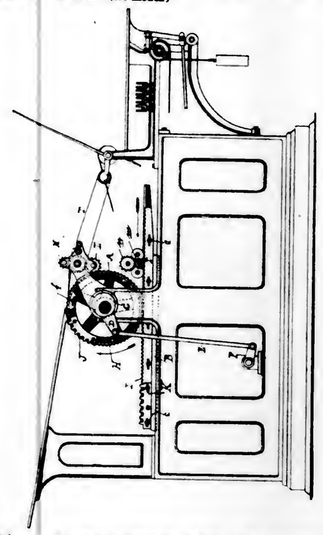
492,504. TRUSS. JOHN T. WATSON, Polo, Ill. Filed Oct. 19, 1892. Serial No. 449,370. (No model.)



Claim.—1. In a truss, a spring body-wire, pad supporting arms mounted for radial adjustment on the ends of said wire and having a locking stud, axially adjustable pads pivoted to said arms and having a circular series of locking perforations adapted to engage said locking studs, and springs arranged inside of said pads to normally hold the same flat against said pad arms, substantially as set forth.

2. In a truss, a flexible body-wire having opposite free ends, pad supporting arms having tubular sockets loosely engaging the free ends of the wire, circular plates at their other ends, perforations in said plates, and locking-studs upon their inner faces, set screws holding the arms in any adjusted position on the free ends of the wire, the pads having circular recesses in their rear faces, pad plates seated in the pads over the recesses therein and provided with a circular series of adjustment perforations, clamping screws passing through the circular plates of the supporting arms into the recess of the pads, nuts on the inner ends of said screws, and springs mounted on the screws between said nuts and the inner faces of the pad plates, substantially as set forth.

492,505. REGISTERING DEVICE FOR PRINTING-PRESSES. HENRY A. W. WOOD, New York, N. Y., assignor to the Campbell Printing Press and Manufacturing Company, same place. Filed Feb 8, 1892. Serial No. 420,782. (No model.)



Claim.—1. In a multi-revolution cylinder press, the combination of the impression cylinder, the reciprocating bed, registering gearing connected to turn with said impression cylinder, a co-operating registering rack on the bed, means for connecting this registering mechanism so that the same will be in mesh as the bed makes its forward or printing movement, and so that the same will be inoperative as the bed makes its retrograde movement, gearing for continuously rotating the impression cylinder in the same direction, and a starting mechanism adapted to positively start the cylinder and bed in register, for the purpose described.

2. In a multi revolution cylinder printing press, the combination of the impression cylinder, the reciprocating bed, means for raising and lowering said impression cylinder, means for continuously revolving the impression cylinder, registering gearing connected to turn with the impression cylinder, a co-operating rack on the bed, the mesh or the depth of the teeth of these instrumentalities being less than the vertical movement of said cylinder, whereby the same will be in mesh as the bed makes its forward or printing movement, and so that the same will be inoperative as the bed makes its retrograde movement, and means independent of this registering mechanism for positively starting the cylinder and bed in register, for the purpose described.

3. In a multi-revolution cylinder press, the combination of the impression cylinder and reciprocating bed, means for raising and lowering said impression cylinder, circumferential gearing on the impression cylinder, a co-operating rack on the bed, the mesh or the depth of the teeth of these instrumentalities being less than the vertical movement of the said impression cylinder, and a starting segment and rack secured to said cylinder and bed respectively, for the purpose described.

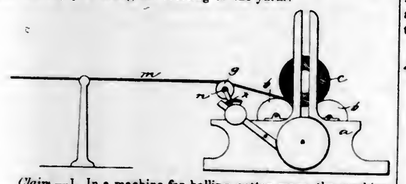
4. In a multi-revolution cylinder press, the combination of the impression cylinder and reciprocating bed, means for raising and lowering said impression cylinder, registering gearing on the impression cylinder, a co-operating rack on the bed, the mesh or the depth of the teeth of these instrumentalities being less than the vertical movement of the said impression cylinder, a starter segment secured to said gearing on the impression cylinder, and a starter rack secured to the register rack on the bed, for the purpose described.

5. In a multi-revolution cylinder press, the combination of the impression cylinder and reciprocating bed, means for raising and lowering said impression cylinder, registering gearing on the impression cylinder, a co-operating rack on the bed, the mesh or the depth of the teeth of these instrumentalities being less than the vertical movement of the impression cylinder, one of these instrumentalities being adjustable, a starter segment secured to the registering gearing carried by the cylinder, and a starter rack secured to the registering rack carried by the bed, for the purpose described.

6. In a multi-revolution cylinder press, the combination of the impression cylinder and reciprocating bed, means for raising and lowering said impression cylinder, registering gearing on the impression cylinder, a co-operating rack on the bed, both this gearing and rack being adjustable, the mesh or the depth of the teeth of these instrumentalities being less than the vertical movement of said impression cylinder, and a starter segment and rack secured to the registering mechanism, for the purpose described.

492,506. MACHINE FOR BALLING COTTON-WARPS. GEORGE A. AYER, New Bedford, Mass. Filed Mar. 30, 1892. Serial No. 427,190. (No model.)

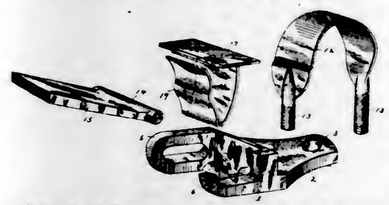
Brief.—The warp-chain passes over a grooved wheel, which is fixed to the traverse motion. The wheel is mounted in a yoke, which is adjustable to and from the ball; so that the angle at which the warp is presented to the ball may be varied as the ball increases in size, thereby preventing the crossing of the yarns.



Claim.—1. In a machine for balling cotton warp, the combination, with the traverse-mechanism, of a yoke adjustably connected with the said mechanism and adapted to be moved to and fro in a plane at right angles to the horizontal axis of the spool on which the warp is wound, a peripherally grooved wheel carried by the yoke, and means for holding the yoke at any desired angle with relation to the spool, substantially as described.

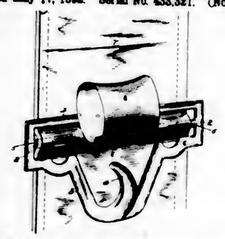
2. In a machine for balling cotton warp, the combination with the sleeve of the traverse-mechanism of a rigid vertical quadrant having a curved slot in its upper portion, a yoke pivotally secured to the quadrant and carrying a peripherally grooved wheel, and a clamping bolt working in the said slot and engaging the yoke whereby to hold it at any desired adjustment, substantially as described.

492,507. THILL-COUPLING. GEORGE W. RADEMER, Milford, Ind. Filed Mar. 24, 1892. Serial No. 426,282. (No model.)



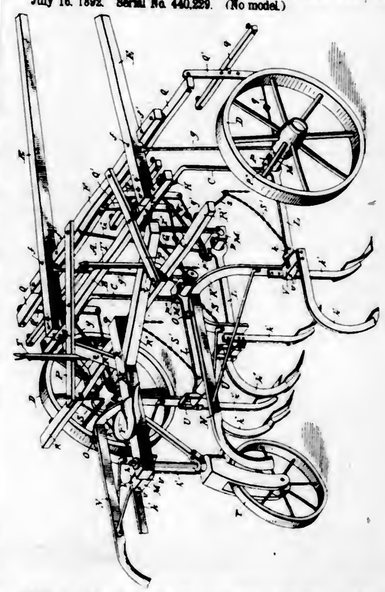
Claim.—In a thill-coupling, the combination of the main attaching plate or iron having a rearward flat extension or tie-plate 2 with a rear elongated opening 3 therein and forwardly-projecting lugs or ears, a vertical transversely disposed web between the lugs or ears and extending above the extension or tie-plate and having a projection at the base thereof, the same being perforated and enlarged at opposite sides to form a seat, a shaft-iron engaging said lugs or ears, a spring located between the lugs and bearing on the head of the iron, and a yielding adjustable clip having a front and a rear leg, the rear leg normally depending below the front leg and loosely extending through the elongated opening 3 of the aforesaid extension to compensate for vertical adjustment, and the front leg extending through the perforation in the projection located at the base of the web and having the front portion of the clip body entering said seat and bearing on the same, substantially as described.

492,508. TRACE-CARRIER. KENNEDY C. BULLARD, Milledgeville, Ga. Filed May 17, 1892. Serial No. 433,321. (No model.)



Claim.—The herein described combined chain-tree support and plow-rein guide, consisting of a buckle-frame adjustably mounted on a back-band and comprising an upper bar and a lower chain engaging hook, and a rein guide integrally formed and parallel with the center of said upper bar and extending partially above and below the same and outward over the upper front portion of the buckle, said guide being in the form of an elongated sleeve with opposite flared ends and a central contracted portion to form a support and an unobstructing guide for the rein passing therethrough, substantially as described.

492,509. CULTIVATOR. APPLETON R. DAVIS, Valley, Nebr. Filed July 16, 1892. Serial No. 440,229. (No model.)



Claim.—1. In a cultivator, the combination with the main-frame, of the shovel-frames, swivel-blocks carried by the main-frame, and connecting bars pivoted at their opposite ends to the shovel-frames and said swivel-blocks, substantially as specified.

2. In a cultivator, the combination with the main-frame having a cross-beam, as described, of the laterally adjustable hangers secured

to said cross-beam, swivel-blocks mounted upon spindles at the lower extremities of said hangers, and shovel-frames connected by pivoted connecting-bars with said swivel-blocks, substantially as specified.

3. In a cultivator, the combination with the main-frame, of the shovel-frames, secured by pivotal connecting-bars to the main frame, and comprising the arches having off-sets *k*, and the laterally adjustable blocks V secured to said off-sets and carrying the shovel-stocks, substantially as specified.

4. In a cultivator, the combination with the main-frame, the loop-shaped hangers C depending therefrom and carrying the supporting wheels, and swivel blocks M mounted upon spindles at the free ends of said hangers, of the arched shovel-frames arranged in rear of said hangers, and adapted to be aligned therewith, and the pivoted connecting bars L attached at their opposite ends to the shovel-frames and the said swivel-blocks, substantially as specified.

5. In a cultivator, the combination with the main-frame, of the twin opposite shovel-frames, the swivel-blocks mounted upon the main-frame, the connecting bars to connect the shovel-frames to said swivel-blocks, and the riding-attachment arranged between the shovel frames and provided with a seat the shovel-frames being provided with stirrups, U U, to receive the feet of the occupant of said seat, substantially as specified.

6. In a cultivator, the combination with the main-frame having spindles, *d d* and *d' d'*, the swivel-blocks, and the shovel-frames connected by connecting bars with said swivel-blocks, of the whiffle-trees, pivoted near their outer ends to the main-frame, the vertical draft-bars connected at their upper ends to the extremities of said whiffle-trees and connected at their lower ends to the said spindles by the links, *g g*, and the single trees connected to intermediate points of said draft-bars, substantially as specified.

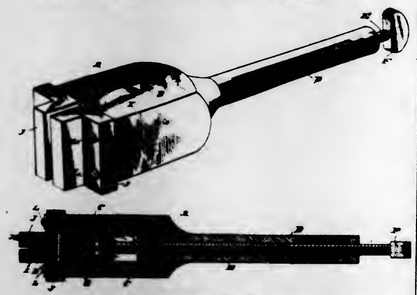
492,510. SHOE FOR CYCLE-WHEELS. HERBERT GREGORY, New York, N. Y. Filed Oct. 26, 1892. Serial No. 450,006. (No model.)



Claim.—1. A belt composed of canvas or similar substance, having short spikes embedded between the layers of said belt, and said belt arranged to be laced to the tire of a wheel, in combination with the tire and felly of a wheel, substantially as and for the purpose set forth.

2. In a flexible ice shoe or belt, arranged to inclose a bicycle tire, the combination of the flexible belt with the short spikes, said spikes embedded between the layers of said belt and arranged to prevent the wheel from slipping all substantially as set forth.

492,511. BAND-SAW GUIDE. HENRY F. W. HORN, Antigo, Wis. Filed Aug. 23, 1892. Serial No. 443,874. (No model.)



Claim.—In a band-saw guide, the combination of a hollow interiorly threaded stem terminating at one end in an integral guide head, said guide head being provided with a vertical slot in its outer end and opposite interior guide grooves formed in opposite inner faces of said slot, a U-shaped bearing yoke mounted to slide in said interior grooves, an adjusting screw engaging the interior threads of said stem and projecting beyond the ends of the same, said screw being swiveled to the U-shaped sliding yoke at its inner end, a thumb piece removably attached to the outer end of said screw, a roller journaled in said U-shaped yoke and working in said vertical slot, said roller being adjustable with the yoke and recessed laterally adjustable flanged guide plates adjustably secured to the outer ends of said guide head and embracing the outer ends of the bearing yoke and the opposite sides of said roller, substantially as set forth.

492,512. LIGHTNING-ROD BALL. EDWARD K. HUM, Pittsburg, Pa. Filed Sept. 24, 1892. Serial No. 446,743. (No model.)



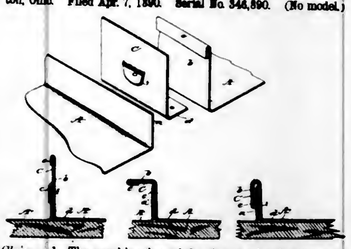
Claim.—1. The combination of a hollow glass lightning rod ball, a tube to be inserted therein provided with a spherically curved flange at one end and a screw connection at the other, and a locking cap having a spherically curved flange at one end and a screw connection at the other end adapted to be locked to said tube, substantially as described and shown.

2. The combination of a hollow glass lightning rod ball, a tube to be inserted therein, provided with a flange at one end and a screw connection at the other, and a locking cap having a flange at one end and a screw connection at the other, adapted to be locked to said tube, substantially as described and shown.

3. The combination of a hollow glass lightning rod ball, a tube to be inserted therein, provided with a flange at one end and a female screw thread at the other, and a locking cap having a flange at one end and a spur at or near the other end to be locked in said female thread, substantially as described and shown.

4. A hollow glass lightning rod ball of true spherical shape, and a tube in two pieces to be inserted in said ball and locked together and having flanges bearing against the exterior of said ball, substantially as described and shown.

492,513. SHEET-METAL ROOFING. ALVIN C. KANNEBERG, Canton, Ohio. Filed Apr. 7, 1890. Serial No. 346,890. (No model.)



Claim.—1. The combination of the sheets A having flanges *a* and *b*, the latter provided with the hem *c*, the anchor C, having a tongue *c* formed from and integral at its top portion with said anchor, the downwardly projected free end to embrace the flange *a*, substantially as described and for the purpose set forth.

2. The combination of the sheets A, having flanges *a* and *b*, the anchor C having a tongue formed therefrom and integral therewith at its top, and the flange *b*, and anchor C folded over the flange *a*, and the tongue *c*, indented into the flange *a* substantially as described and for the purpose set forth.

492,514. GARMENT-SHAPER. JOHN B. LEAVITT, Boston, assignor of one-half to Clinton A. Patten, Somerville, Mass. Filed Oct. 6, 1892. Serial No. 447,995. (No model.)

Claim.—1. The combination with a garment of the class described having a crease or bend therein, of a shaper adapted to permanently retain said crease or bend and comprising a pliable metal strip secured to the garment about the bend or crease, substantially as described.

492,514.



2. The combination with a garment of the class described having a crease or bend therein, of a shaper adapted to retain said crease or bend and comprising a pliable metal strip bent to conform to the said crease and a fibrous strip secured to the inner side of the garment about the bend or crease and serving to secure the metal strip to the trousers, substantially as described.

3. The combination with a garment of the class described having a crease or bend therein, of a shaper adapted to retain said crease or bend and comprising a pliable metal strip, and a fibrous strip having slits through which the metal strip is inserted and secured to the garment about the bend or crease, substantially as described.

492,515. ADHESIVE PASTE. HENRY LOBDELL, West Troy, N. Y. Filed Aug. 12, 1892. Serial No. 442,897. (No specimens.)

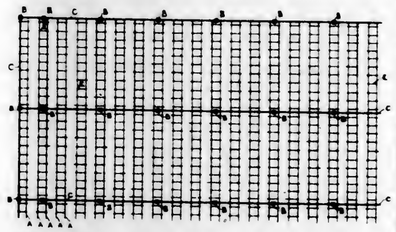
Claim.—1. An adhesive paste consisting of a viscid or mucilaginous adhesive element cooked in water and intermixed with raw flour, substantially as described.

2. An adhesive paste consisting of cooked and uncooked wheat flour, uniformly intermixed, substantially as described.

3. An evaporated soluble paste consisting of cooked and uncooked flour uniformly intermixed, substantially as described.

4. The process of making an adhesive paste which consists in cooking a mixture of flour and water, partially cooling the mixture, then intermixing therewith raw or uncooked flour, and evaporating the product to dryness at a low temperature, substantially as described.

492,516. CONTRIVANCE FOR TRAINING GROWING HOP-PLANTS. JAMES A. PARTRIDGE, Tunbury, England. Filed July 16, 1892. Serial No. 440,257. (No model.) Patented in England June 12, 1889, No. 9,673.

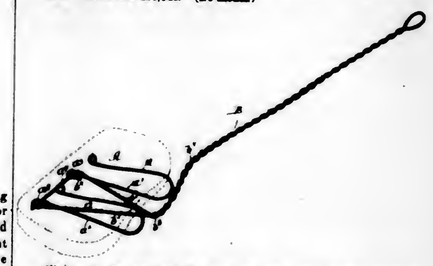


Claim.—1. In combination, the supporting posts, the wires A, arranged in pairs and suitably supported from said posts, the cross wires E resting on the wires A, the continuous string looped about the wires A, and extending about fastening devices in the ground, the said string serving also to bind the ends of the cross wires to the wires A, which cross wires in turn serve to hold the string at regular intervals along the wires A, substantially as described.

2. In combination, the supporting posts, the wires A, arranged in pairs and suitably supported from said posts, the continuous string looped about the wires A, and extending under hooked pegs F, in the ground, and the means arranged at regular intervals along the wires A, for holding the string by engaging the same, substantially as described.

3. In combination, the pairs of wires A, the means for holding the same, the means for holding the continuous string to the ground, the said string being connected with one wire extending thence to the ground and up to the other wire and thence horizontally across to the first wire and in the same plane with the wires, the said wires being provided at regular intervals with means for engaging and holding the loops of the string against displacement along the wires, substantially as described.

492,517. TOASTER. HARRY BUTNER, Chicago, Ill. Filed Feb. 20, 1892. Serial No. 422,146. (No model.)



Claim.—1. In a toaster, the combination with a loosely pivoted spring holder, of a handle having a portion adapted to be grasped by the hand, and a second portion adapted to furnish a support for the pivoted holder arranged at a sufficient angle to the first to enable said holder to be held flat over the fire when the hand is considerably above the same, and suitable stops to support the holder in two positions.

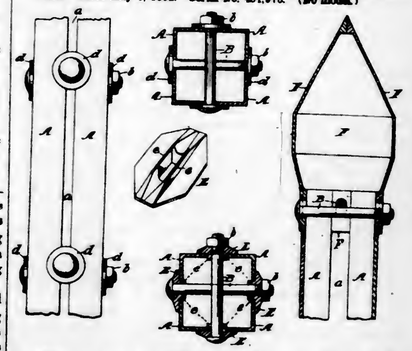
2. The combination with the bent handle, of a spring holder loosely pivoted to the end thereof and open toward said end and upon both sides, whereby the extension of the bread in these three directions is unobstructed, said holder extending backward toward the body of the handle from the pivotal point and being provided with suitable stops, whereby it may drop by its own gravity into a proper relative position to the handle when inverted.

3. The combination with a bent wire handle, of a wire holder pivoted at one end thereof and extending backward from said end to form two hooks open in a direction toward the end of the handle, and suitable stops to limit the swing of the holder; substantially as described.

4. The combination with a bent handle, B, of twisted wires separating at one end into a fork, *b'*, of a holder, A, comprising two spring hooks, *a*, *a'*, pivoted upon and open toward the ends of the fork, *b'*; substantially as described.

5. The combination with a bent handle, B, formed of twisted wires, separated at one end to form a fork, *b'*, provided with hooks, b^3, of a holder, A, made of wire bent to form a cross piece, a^4, eyes, a^3, and hooks, *a'*, *a*; substantially as described.

492,518. METALLIC COLUMN. WILLIAM C. GHOLSON, Cincinnati, Ohio. Filed May 6, 1892. Serial No. 431,978. (No model.)



Claim.—1. As a new article of manufacture, a rectangular metallic column consisting of four strips of angle-iron connected together by means of stay-bolts passed transversely through the spaces inter-

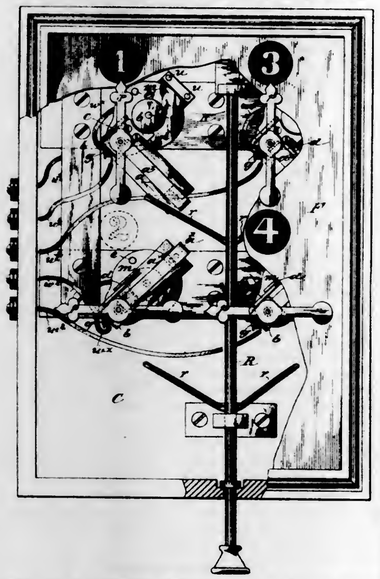
vening between adjacent edges of said angle-irons, substantially as set forth.

2. A metallic column consisting of strips of angle-iron secured together in a compact form by means of stay bolts, nuts and spacing washers, a portion of said washers engaging between adjacent edges of said angle-irons, the bolts passing through said washers, substantially as set forth.

3. In combination with the angle-irons A and stay-bolts B, the washer E, the latter having the internal spacing-ribs e against which the edges of said angle-irons impinge, substantially as set forth.

4. A metallic column consisting of strips of angle-iron connected together by stay-bolts as set forth, the top of said column being provided with cap-plates, said plates being connected thereto by the same stay-bolts which retain the top portion of the angle-irons in place, as set forth.

492,519. ELECTRICAL ANNUNCIATOR. JOHN R. HARD, New York, N. Y. Filed Oct. 8, 1892. Serial No. 448,225. (No model.)



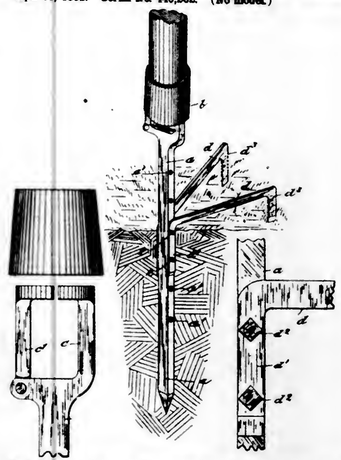
Claim.—1. In an indicator for an annunciator, the combination with an electro-magnet and a spindle mounted to rock in bearings with its axis substantially parallel with the axis of the magnet, of the armature spring, secured at one end to said spindle and extending radially therefrom and secured at its other extremity to the armature, and a stop-pin arranged to take under a part of the armature between the points where the spring is attached respectively to the armature and the spindle, substantially as set forth.

2. In an indicator for an annunciator, the combination with an electro-magnet and a spindle mounted to rock in bearings with its axis substantially parallel with the axis of the magnet, of the armature spring, secured at one extremity to said spindle and extending radially therefrom, and at its outer extremity secured to the outer end of the armature, the said armature having its free end arranged adjacent to said spindle, and a stop-pin arranged to take under some part of the armature near its free end, whereby, when the armature is attracted by the magnet, it will be freed from said pin, as set forth.

3. In an indicator for an annunciator, the combination with an electro-magnet M, and a spindle, *s*, mounted to rock in bearings with its axis substantially parallel with the axis of the magnet, an armature, *a*, arranged before the pole of the magnet, a leaf spring $a^{\times}$, secured at one end to said spindle and projecting radially therefrom substantially parallel to the armature, and at its other end to that end of the armature which is farthest from the spindle, whereby the free end of the armature is adjacent to the point where the spring is secured to the spindle, and a stop-pin, *c*, arranged to take under some part of the armature near its free end and support it, normally as set forth.

4. The combination with an annunciator casing, the circuit wires w', and w^3, and the branched slide rod R, electrically connected with the circuit wire w', of the indicator, comprising a horizontally arranged magnet M, having one of its terminals, *w*, electrically connected with the wire w', and its other terminal connected with the wire w^3, at a binding post *g*, the said binding post, the spindle *s*, the bearing bracket, the armature and its spring all electrically connected with said binding post, the branch on the slide rod being arranged in position to contact electrically with the armature when it falls, whereby the magnet M is shunted, as set forth.

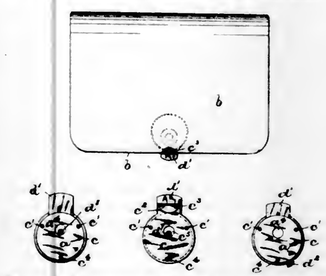
492,520. STAKE-SHOE. CHARLES HEDGES, Box, England. Filed Sept. 19, 1892. Serial No. 446,262. (No model.)



Claim.—1. A stake holder comprising in combination a spike *a*, a clamp on the head thereof said clamp consisting of a fixed member *c* and a hinged member c'; a ring *b*, and two or more arms projecting from said spike and adapted to be fixed radially thereto nearer or farther from the point thereof for the purpose set forth.

2. A stake holder comprising in combination a straight spike *a* having a series of holes a' therein, and two or more arms *d* having plates d' with holes d^3 corresponding in distance to the holes a', together with bolts *e* and nuts whereby the arms may be fixed nearer to or farther from the point of the spike for the purpose set forth.

492,521. POCKETBOOK-FASTENING. JOHN R. ORTNER, Newark, N. J. Filed Apr. 19, 1892. Serial No. 429,752. (No model.)



Claim.—1. In combination, with the flap of a pocket-book a lock consisting of two plates adapted to be arranged on the under side of the flap, and one of said plates having a hook c^4 made to embrace the edge of said flap, an intermediate lock-plate *d* provided with a finger-piece extending out from beneath the edge of the pocket-book flap and a locking tooth or lip normally projecting above an opening in each of said plates, and a catch, adapted to lock with said tooth or lip, consisting essentially of a plate *f'* and a cup-shaped catch-piece

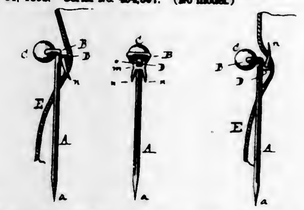
having an opening or hole in the bottom, substantially as and for the purposes set forth.

2. A pocket book lock consisting of a face-plate *a* having a marginal rim a', and slots or openings in said rim, a back-plate *c* secured to said face-plate, an intermediate lock-plate *d*, provided with a finger-piece d', a guiding tongue d^3, stops d^4, and a locking tooth or lip on said plate *d*, a spring *e*, and a catch-piece adapted to lock with said tooth or lip, consisting essentially of a plate f' and a cup-shaped catch-piece having an opening or hole in the bottom thereof, substantially as and for the purposes set forth.

3. A pocket-book lock consisting of a face-plate *a* having a marginal rim a', and a back-plate *c*, said plates being secured together by means of rivets or pins c', a hook-portion c^4 on said plate *c*, and a pin c^4 extending through said plates *a* and *c* for attaching them to the edge of the flap of a pocket-book as set forth, a depressible finger-piece secured on an intermediately arranged lock-plate having a locking tooth or lip thereon, in combination, with a locking catch adapted to engage with said tooth or lip, substantially as and for the purposes set forth.

4. A pocket-book lock consisting of a face-plate *a* having a marginal rim a', and a back-plate *c*, said plates being secured together by means of rivets or pins c', a hook-portion c^4 on said plate *c*, and a pin c^4 extending through said plates *a* and *c* for attaching them to the edge of the flap of a pocket-book as set forth, a depressible finger-piece secured on an intermediately arranged lock-plate having a locking tooth or lip thereon, in combination, with a locking catch provided with a catch-piece f^3 adapted to engage said tooth or lip, said lock-plate having a guiding tongue d^3 and stops d^4, and a spring *e* arranged to cause said finger-piece to be forced from the slot in the rim a' of the face-plate, and to cause the normal projection of said locking tooth or lip above the lower edge of an opening a^4 in said face-plate, substantially as and for the purposes set forth.

492,522. SCARF-PIN. BARTON A. BALLOU, Providence R. I. Filed May 31, 1892. Serial No. 434,897. (No model.)



Claim.—1. In a scarf pin, the combination of the pin A, having the block D, whose upper outer corner *m* is squared and a prong hinged upon said block and provided with a friction-locking surface adapted to pass over said corner of the block, substantially as shown and for the purpose specified.

2. The improved safety scarf pin herein described, consisting of a pin, a prong hinged to the pin and movable by the thrust of the pin in the scarf, said prong being adapted, when extended downward, to enter the scarf and to turn therein automatically so as to extend in an upward direction, substantially as and for the purpose specified.

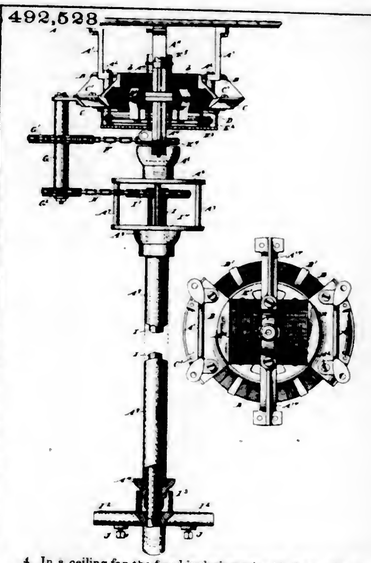
492,523. CEILING-FAN. FRANKLIN H. BEEBE, Newark, N. J. Filed Oct. 24, 1891. Serial No. 409,675. (No model.)

Claim.—1. In a ceiling fan the supporting frame A' A^3, the electric motor, the upright rapidly revolving shaft E and sprocket wheel E^4, in combination with fan shaft I and sprocket wheel I' mounted below the motor shaft and with the separate shaft G and sprocket wheels G', G^3, and chains F and H, the several sprocket wheels being so proportioned relatively to each other as to reduce the velocity and increase the force transmitted to the fan shaft, as herein specified.

2. In a ceiling fan having an electric-motor on an upright shaft allowed to rotate at a high velocity, a fan mounted on a shaft below and an intermediate shaft with pitch chains and sprocket wheels having dove-tail recesses, the elastic cushions K of dove-tail form fitted in the said recesses, all combined and arranged for joint operation substantially as herein specified.

3. In combination with a ceiling fan having a motor revolving at a high velocity on an upright axis, the fixed supporting pin A^{13} having a collar A^{12} and centered in the upper end of the upright shaft of the motor, and with a cap E^5, carried in the said motor shaft and matching over said collar, the cap E^5 being formed into a cup above the collar adapted to supply oil for lubrication, all substantially as herein specified.

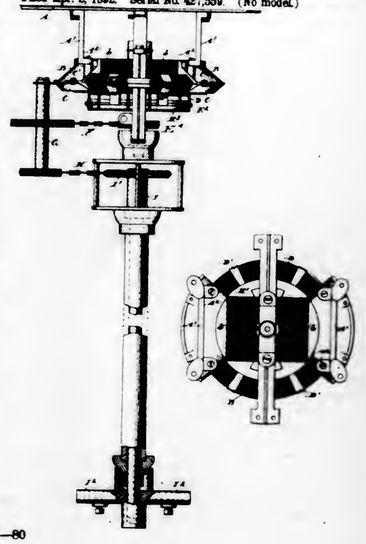
492,528.



4. In a ceiling fan the fixed inclosing tube A^1, the top bearing A^8 and bottom bearing A^{10} in combination with the shaft I arms I^2 and provisions for connecting suitable fan-blades thereto and with the oil-cup I^3 the latter performing the double function of catching the drip and lubricating the said bottom bearing, all substantially as herein specified.

5. The ceiling fan mechanism described, having the shaft I, oil cup I^3 arms I^2 top bearing A^8, fixed tube A^9 and bottom bearing A^{10}, in combination with the revolving armature D fixed on a separate shaft, and connecting mechanism and framing, arranged for joint operation as herein specified.

492,524. ELECTRIC MOTOR. FRANKLIN H. BEEBE, Newark, N. J. Filed Apr. 2, 1892. Serial No. 427,559. (No model.)

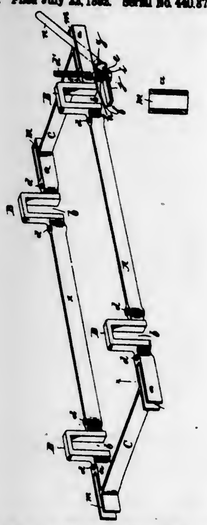


Claim.—1. In an electric motor, a revolving armature having a core of triangular cross-section made with each layer containing one less wire than the layer preceding, in combination with wires wound thereon constituting an armature of triangular cross-section with rounded angles, and with a field-magnet B, C, matching closely thereto with a sufficient annular opening to allow the armature to be mechanically connected to its shaft, as herein specified.

2. In an electric motor having a revolving armature D, the field magnet B, C, matching closely to such armature and nearly embracing it in cross section, in combination therewith, and with arms D' traversing in a sufficient annular opening and connecting it with a spider E' and with commutator-bars and connections, as herein specified.

3. The revolving armature D, of triangular cross-section, field magnet B, C, having cavities adapted to match closely to such armature, and connections from the armature through a sufficient annular opening to a spider-frame or supporting wheel E', which also carries the commutator-bars E^2, all arranged for joint operation as herein specified.

492,525. AXLE-BOX FRAME FOR CAR-TRUCKS. JOHN A. BRILL, Philadelphia, Pa. Filed July 23, 1892. Serial No. 440,879. (No model.)



Claim.—1. An axle box frame made into a single homogeneous piece of metal, and comprising longitudinal members, axle-box housings or saddles having their bearing surfaces within the plane of the web of the longitudinal members, and a transverse member or members, the union of the longitudinal members being made at or near their ends, substantially as described.

2. An axle box frame formed into a single homogeneous piece of metal having housings for the axle boxes formed integral with the longitudinal members, which are intermitted about the housings, the tops of the housings lying above the plane of the longitudinal members, the housings being open between said intermitted portions, and a lateral member or members formed integral with the said longitudinal members, substantially as described.

3. An axle box frame formed into a single homogeneous piece of metal having longitudinal members, the lateral members uniting the longitudinals at or near the ends thereof without the use of a central bolster or transom; the ends of the longitudinal member being bifurcated, substantially as described.

4. An axle box frame formed of one piece of metal, having housings for the axle boxes formed integral with and extending above the longitudinal members, which are intermitted about the housings and a lateral member or members formed integral with the said longitudinal members, the ends of the longitudinal members being bifurcated, substantially as described.

5. An axle box frame having side beams, said side beams having extended ends formed in one solid piece and bifurcated, the bifurcated ends being transversely united substantially as described.

6. An axle box frame having side beams, said side beams being formed of one solid piece, having integral housings, the side beams being intermitted about the housings and having bifurcated extended ends, substantially as described.

7. An axle box frame formed of one homogeneous piece of metal, having integral axle box housings between its ends, the frame being intermitted about the housings which extend above the frame, and integral lateral members extending between said ends, substantially as described.

8. An axle box frame, having side beams, housings on said side beams, and lateral members uniting the side beams between the ends and the housings, said side beams, housings, and lateral members being formed into one single homogeneous piece of metal, substantially as described.

9. An axle box frame, having side beams, housings on the side beams, the side beams extending past the housings, and lateral members uniting the side beams between the ends and the housings, the extensions of the side beams being bifurcated, substantially as described.

10. An axle box frame, having side beams and cross uniting members all made into one single homogeneous piece of metal, the side beams having housings between its ends integral therewith, said beams being bifurcated, said housings being between the bifurcated ends of the side beams substantially as described.

11. An axle box frame, having side beams and cross uniting members all made into one single homogeneous piece of metal, the side beams having bifurcated ends between which the cross uniting members extend, substantially as described.

12. An axle box frame, having side beams and a cross uniting member or members all made into one single homogeneous piece of metal, the side beams having integral housings between its ends, and spring post apertures adjacent to said housings, substantially as described.

13. An axle box frame in which the side beams, cross uniting members, and axle box housings are formed of one piece of metal, the side beams being intermitted about the housings which form openings or axle box bearing surfaces between the intermitted ends of the side beams, substantially as described.

14. An axle box frame having side beams, housings on the side beams, the said side beams extending past the housings, and lateral members uniting the side beams between the ends and the housings, the side beams, housings, and lateral members being formed of one piece of metal, substantially as described.

15. An axle box frame having side beams, housings on the side beams, the side beams extending past the housings, spring post apertures in the side beams adjacent to the housings, lateral members uniting the side beams between the ends and the housings, the side beams, housings, and lateral members being formed of one piece of metal, substantially as described.

16. An axle box frame having side beams intermitted at certain points between its ends, within the intermitted portions of which lie axle box housings or yokes, the side beams extending past the housings, and lateral members uniting the side beams between the ends and the housings, the side beams, housings, and lateral members being formed of one piece of metal, substantially as described.

17. The axle box frame having the side beams A, and housings B, spring post apertures *d* adjacent to said housings, the side beams being enlarged about said apertures to form supports for superposed springs, substantially as described.

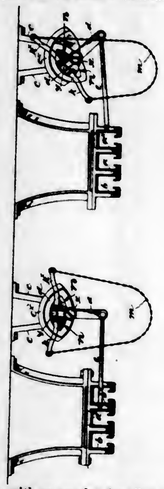
18. The axle box frame having the side beams A, and a cross uniting member or members lying in the same general plane, axle box housings or yokes on the side beams, the bearing surfaces of which extend beyond said plane, either above or below, the side beams being intermitted about said housings, all of which are formed into a single homogeneous piece of metal, substantially as described.

19. The axle box frame having the side beams A, the housings B extending above the side beams, which are there intermitted, the open yoke of the housings being between the intermitted ends of the side beams, spring post apertures *d* adjacent the housings, and cross uniting members, all in one homogeneous piece of metal, substantially as described.

492,526. MULTIPLE SWITCH FOR OVERHEAD TROLLEY-LINES. WILLIAM H. BRODIE, New York, N. Y. Filed Sept. 29, 1892. Serial No. 447,279. (No model.)

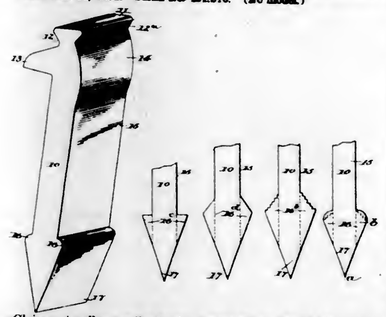
Claim.—1. As a means for shifting a switch-rail in an overhead track, the combination with a fixed bracket, having in it bolt sockets a switch lever fulcrumed on said bracket, one arm of said lever being coupled to the switch rail and the other provided with a spring bolt adapted to engage the respective sockets in the bracket, an operating or bolt withdrawing lever fulcrumed on the switch lever and coupled to said bolt, and means connecting with said operating lever for first withdrawing the bolt and then shifting the switch rail, as set forth.

2. As a means for shifting the switch rail in an overhead track, the combination with a fixed bracket having in it bolt-sockets j, j^x, of a switch lever, *d*, fulcrumed on said bracket and having one arm coupled to the switch rail and the other provided with locking bolts g, g^x, adapted to engage the sockets in the bracket as described and lock the switch rail in the positions set forth, the operating levers k and k^x, pivotally fulcrumed on the lever *d*, and coupled to the respective bolts for withdrawing the same, and means substantially as described for operating said levers k and k^x, substantially as set forth.



3. The combination with an overhead trolley track, comprising the line *a*, the two side tracks *b* and b^x, and the movable switch rail a^x, arranged as shown, of the bracket *c*, provided with bolt-sockets, the switch lever *d*, fulcrumed thereon and having its pendent arm coupled to the switch rail by a link, the said link, two spring bolts, *g* and g^x, mounted in the upper end of lever *d*, and adapted to engage the sockets in the bracket under the conditions set forth, the operating levers k and k^x, fulcrumed on the upper part of lever *d* and coupled to the respective bolts *g* and g^x, and the pendent connector *m*, connecting said operating levers, substantially as set forth.

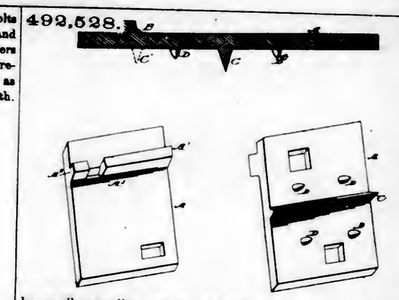
492,527. RAILWAY-SPIKE. JAMES CRUDGWARD, Brooklyn, N. Y. Filed Feb. 11, 1892. Serial No. 421,216. (No model.)



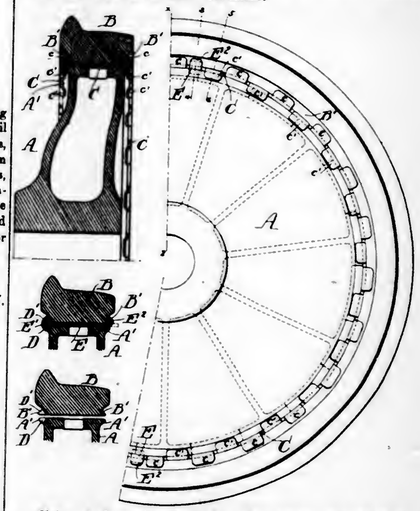
Claim.—A railway spike having a smooth straight body, and enlargements formed on the sides of the body above the point of the spike, said enlargements being alike in form, the upper faces of said enlargements meeting the sides of the body at an obtuse angle and their sides merging into the point of the spike, and the upper faces of said enlargements being formed with a series of steps, substantially as shown and described.

492,528. WEAR-PLATE. JAMES CRUDGWARD, Brooklyn, N. Y. Filed Feb. 16, 1892. Serial No. 421,780. (No model.)

Claim.—A wear plate for railways, formed on its upper face at one end with aligning transverse ribs, one longer than the other, the longer rib extending from one side edge of the plate partially across the width of the plate and the shorter rib extending to the other side edge of the plate a recess intervening said ribs and having a spike aperture in its base, a fillet located at the point of junction of the inner faces of said ribs and the upper face of the plate a transverse V-shaped flange formed on the under face of said plate, and series of spurs depending from said plate at either side of said flange, substantially as shown and described.



492,529. CAR-WHEEL. JOHN W. CLOUD, Chicago, Ill. Filed Dec. 6, 1892. Serial No. 454,211. (No model.)



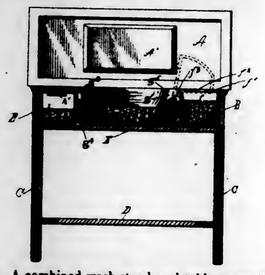
Claim.—1. In combination with a wheel center a tire and an intervening strip, a key E having a head E' adapted to fit in registering recesses formed in the edges of the wheel center and tire.

2. In combination with a wheel center a tire and an intervening strip, a key E having a head E' adapted to fit in registering recesses formed in the edges of the wheel center and tire and an end E^2 adapted to extend through to the opposite side of the wheel and by which the key is secured in place.

3. The combination with a wheel center, a tire and intervening strips C adapted to secure the center and tire together as described, keys E, passing between the center and tire and between the ends of strips C, said keys having heads E' adapted to fit in registering recesses formed in the edges of the center and rim.

4. The combination with a wheel center, a tire and intervening strips C adapted to secure the center and tire together as described, keys E passing between the center and tire and between the ends of strips C, said keys having heads E' adapted to fit in registering recesses formed in the edges of the center and tire, and having their opposite ends bent over to lock the key in place.

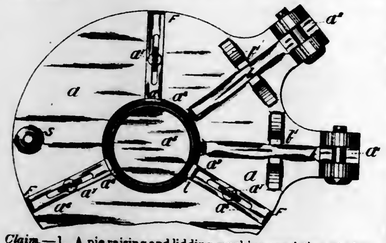
492,530. COMBINED WASH-STAND AND TABLE. CHARLES M. FISCH, Toledo, Ohio. Filed July 16, 1892. Serial No. 440,222. (No model.)



Claim.—1. A combined wash-stand and table, comprising in its construction a table, a lid pivotally attached thereto, a wash-basin, ewer and slop-jar arranged in the same horizontal plane within the drawer-space of said table, pivots on said ewer, adjacent to the wash-basin, whereby the ewer may be tilted to empty into the wash-basin, and pivots on said wash-basin, adjacent to the slop-jar, whereby the wash-basin may be tilted to empty into the slop-jar, all substantially as shown and described for the purpose specified.

2. In a combined wash-stand and table, a wash-basin pivoted therein, near the rim thereof, and having in its rim an indentation to receive the mouth or spout of a ewer, pivoted adjacent thereto, and a mouth or spout, near the pivot therein, by which said basin may be emptied into a basin adjacent thereto; substantially as shown and described, for the purpose specified.

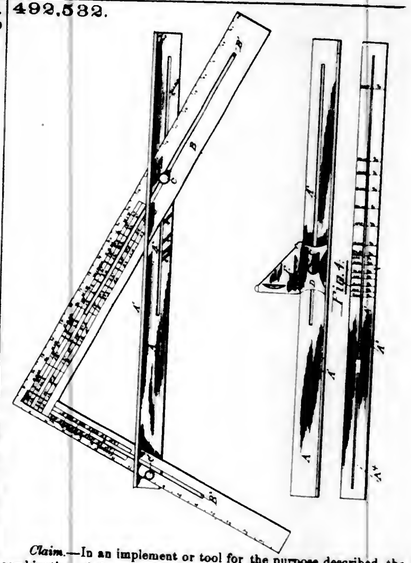
492,531. PIE RAISING AND LIDDING MACHINE. WILLIAM R. GAUDER, Jarrow, England. Filed Nov. 14, 1892. Serial No. 451,886. (No model.)



Claim.—1. A pie raising and lidding machine consisting of a baseplate containing radially arranged grooves and slotted plates adapted to be secured therein in certain desired positions by thumb screws or clamps the inner ends of the slotted plates being flanged up in order to abut against the molding tins and hold them in position in combination with a gas heated plunger or molding lever and a lidding lever the said plunger and lidding levers being pivoted in lugs formed on an extension of the baseplate and adapted to descend and ascend radially toward and from the molding tins by means of handles or extensions formed on the levers the several parts being arranged and adapted to operate substantially as and for the purposes hereinbefore described.

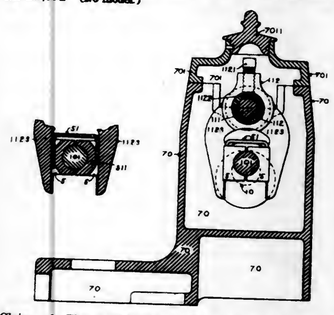
2. A pie raising and lidding machine consisting of a baseplate containing radially arranged grooves and slotted plates adapted to be secured therein in certain desired positions by thumb screws or clamps the inner ends of the slotted plates being flanged up in order to abut against the molding tins and hold them in position, in combination with a gas heated plunger or molding lever and a lidding lever the said plunger and lidding levers being pivoted in lugs formed on an extension of the baseplate and adapted to descend and ascend radially toward and from the molding tins by means of handles or extensions formed on the levers, the lidder lever having a boss formed on it to which the lidder itself is adapted to be secured, the several parts being arranged and adapted to operate substantially as and for the purposes hereinbefore described.

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Claim.—In an implement or tool for the purpose described, the combination of the graduated square B, having the slots B', and B², in its branches, the gage bar A, comprising the body having the slot A³, and the flanges A' graduated upon their outer side and extending laterally from one edge of the body and having the slots A², and A⁴, designed to receive the branches of the square, the set screw C', pivotally connecting the gage bar to one branch of the square and the set screw C, taking through the slot B', of the square and the slot A³, of the gage bar and adapted to adjustably fix the square and gage bar with respect to each other, substantially as specified.

492,533. ACTUATING MECHANISM FOR DOFFER-COMBS OF CARDING-ENGINES. CHARLES L. HILDRETH, Lowell, Mass., assignor to the Lowell Machine Shop, same place. Filed Dec. 2, 1892. Serial No. 453,874. (No model.)

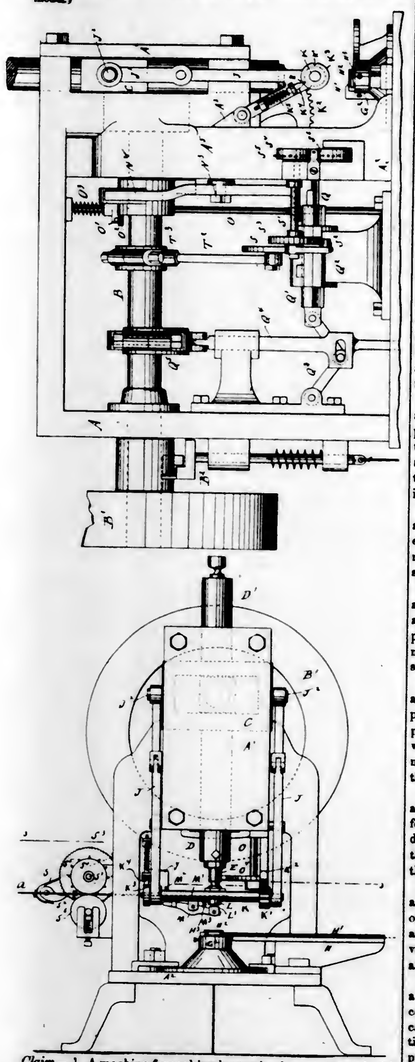


Claim.—1. The combination with an actuating crank-shaft, a split-bearing applied to the wrist thereof, and an oscillator within the jaws of which the split-bearing slides, of a spring-clasp whereby the halves of the split-bearing are held in position on the said wrist while the parts are being assembled, substantially as described.

2. The combination with an actuating crank-shaft, a split-bearing applied to the wrist thereof and having the outer lateral surfaces of its halves formed with grooves, and an oscillator within the jaws of which the split-bearing slides, of the U-shaped spring-clasp having its arms fitted to the said grooves and the hooked free end of one of the said arms entered into a hole in one of the said halves, substantially as described.

492,532. COMBINATION-TOOL. WILLIAM C. GILMER, Stockton, Cal., assignor of one-half to Lincoln Manning, same place. Filed June 7, 1892. Serial No. 436,857. (No model.)

492,534. MACHINE FOR MAKING BUTTON-BACKS. GEORGE W. LIEB, Newark, N. J. Filed Aug. 11, 1892. Serial No. 442,743. (No model.)



Claim.— 1. A machine for making button backs, constructed with a reciprocating punch for punching out blanks, a swinging shaft suspended from said punch, a cog-wheel on said shaft and a fixed segmental rack engaging said cog-wheel for the purpose of rotating the shaft, substantially as set forth.

2. A machine for making button backs, constructed with a reciprocating punch, a rocking and swinging shaft suspended from said punch, a rack and cog-wheel for rotating said shaft and a spring pawl piece for locking the shaft in different positions, substantially as set forth.

3. In a machine for making button backs, the combination, with a reciprocating punch, of a swinging and rotating shaft operated from said punch, a transverse sleeve held in said shaft and a punch in said sleeve, substantially as set forth.

4. In a machine for making button backs, the combination, with a reciprocating punch, of a swinging and rocking shaft suspended from said reciprocating punch, a transverse sleeve in said shaft, a punch in said sleeve, a lever pivoted on the shaft and pivotally connected with said punch and means for operating said lever and the punch when the shaft swings against a fixed frame of the machine, substantially as set forth.

5. In a machine for making button backs, the combination, with a reciprocating punch, of a swinging and rocking shaft suspended from the punch, a transverse sleeve in said shaft, a punch in said sleeve, a lever pivoted on the shaft and pivotally connected with said punch in the sleeve and a pin projecting from the opposite end of said lever to the rocking shaft, which pin is adapted to strike against a lug on the frame of the machine, substantially as set forth.

6. In a machine for making button backs, the combination, with a tubular punch, of a movable punch rod in the same a cross-piece connected with the movable punch rod and adapted to strike against a head of the machine frame and a swinging and rocking shaft having a transverse sleeve for receiving the punched blank, substantially as set forth.

7. In a machine for making button backs, the combination, with a reciprocating tubular punch, of a movable punch rod in the same, a cross-piece on said sliding punch adapted to strike against a head, of the machine frame, a swinging and rocking shaft operated from the holder of the reciprocating punch and a sleeve in said rocking shaft adapted to receive the blank punched out of the metal by the above mentioned tubular punch, substantially as set forth.

8. In a machine for making button backs, the combination, with a reciprocating punch, of levers pivoted to the machine frame and pivotally connected with the punch, a segmental rack projecting from the machine frame, a rocking shaft mounted in said pivoted levers, a ratchet-wheel on said rocking shaft engaging the rack projecting from the machine frame and a blank receiving sleeve mounted in said rocking and swinging shaft, substantially as set forth.

9. In a machine for making button backs, the combination, with a punch and blank conveyer, of a reciprocating wire cutter, and apertured spring in front of the same and a vertically movable pin mounted to pass in between the end of the wire-cutter and the said spring, substantially as set forth.

10. In a machine for making button backs, the combination, with a punch and a conveyer for conducting the blank from the punch, of a wire-feeding device, a reciprocating wire-cutter, a reciprocating pin adapted to pass in front of the wire cutting device and laterally movable jaws for bending the wire around said pin, substantially as set forth.

11. In a machine for making button backs, the combination, with a reciprocating punch, of a conveyer for receiving the blank from the punch, a wire feeding device, a reciprocating wire cutter, a movable pin in front of the wire cutter, laterally movable jaws in front of the wire cutter for shaping the wire around the pin to form an eye and means for spreading the shanks of the eye after they have been passed through an aperture in the blank, substantially as set forth.

12. In a machine for making button backs, the combination, with a reciprocating punch, of a swinging and rocking shaft having a sleeve for receiving a punched blank, a punch in said sleeve a wire feeding device, a reciprocating wire-cutting device, a movable pin in front of the wire cutter and laterally movable jaws for bending the wire around the pin, substantially as set forth.

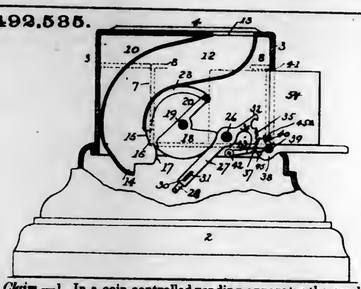
13. In a machine for making button backs, the combination, with a punch and a blank conveyer for receiving the blank from the punch, of a wire-feeding device, a wire guide, a sliding anvil having a groove and notch in its end, laterally reciprocating jaws in front of the anvil and an apertured spring held in front of said anvil, substantially as set forth.

14. In a machine for making button backs, the combination, with a driving shaft, of a punch operated from the driving shaft, a blank conveyer operated from the driving shaft, a longitudinally reciprocating wire-cutting device operated from the driving shaft and a vertically movable pin also operated from the driving shaft, around which pin the wire can be bent to form an eye, substantially as set forth.

15. In a machine for making button backs, the combination, with a driving shaft, of a punch operated from the driving shaft, a blank conveyer operated from the punch, a wire feeding device operated from the driving shaft, a longitudinally reciprocating wire-cutting device operated from the driving shaft, a vertically movable pin also operated from the driving shaft, around which pin the wire can be bent to form an eye, and laterally movable jaws also operated from the driving shaft and serving to bend and shape the wire around said pin, substantially as set forth.

492,535. COIN-CONTROLLED APPARATUS. MARTIN SLOSSE, New York, N. Y. Filed Nov. 13, 1892. Serial No. 451,770. (No model.)

492,585.



Claim.—1. In a coin-controlled vending apparatus the combination with a casing, of a coin-chute or conveyer having a recess or cut away portion at its lower end, a curved bearing adapted to permit of the return of the detent and a spring actuated detent to catch and hold a coin, and prevent the operation of the apparatus, substantially as described.

2. In a coin-controlled vending apparatus, the combination with the casing, of an open ended conveyer or chute, a curved cam portion at its lower end having a recess forming a shoulder and a curved shoulder or bearing the latter adapted to permit of the return of the detent and a spring actuated detent, substantially as described.

3. In a coin-controlled vending apparatus, the combination with a casing having an opening therein for the passage of an article, and the conveyer chute cut away at its lower end forming a shoulder, of the oscillating cam, the lever carrying a spring actuated detent, and a cogged arm, and the swinging door having a cogged hub, engaging therewith, substantially as described.

4. In a coin controlled vending apparatus the combination with a casing having an opening therein for the passage of an article, and a chute or conveyer having shoulders at its lower end, of the oscillating cam, a pivoted lever having a spring actuated detent, a hook and a cogged arm, and the swinging door adapted to open and close said opening, having a cogged hub, and a shoulder with which said hook engages, substantially as described.

5. In a coin controlled vending apparatus, the combination with the casing having an opening therein for the exit of an article, a feeding carriage and a chute or conveyer having shoulders at its lower end, of the oscillating cam, the pivoted lever having a spring actuated detent and a cogged arm, the swinging door having a cogged hub, the pins or studs carried by said hub, the shaft having an arm with which said studs engage and a pivoted dog adapted to engage with one of the articles in the casing, substantially as described.

6. In a coin-controlled vending apparatus, the combination with the receptacle, having an opening therein for the exit of an article, a feeding carriage and a chute or conveyer having shoulders at its lower end of the oscillating cam, the pivoted lever provided with a spring actuated detent, a hook and a cogged arm, the swinging door having a cogged hub provided with studs or pins, and the shaft having an arm and a pointed dog, substantially as described.

7. In a coin-controlled vending apparatus, the combination with the receptacle or receiver having an opening for the exit of an article, and a chute or conveyer having shoulders at its lower end, the oscillating cam having an arm provided with an inwardly extending stud or pin, the pivoted lever having a spring actuated detent and the swinging door, substantially as described.

8. In a coin-controlled vending apparatus, the combination with a receptacle o. receiver having an opening for the exit of an article, a feeding carriage and a conveyer chute having shoulders at its lower end, of the oscillating cam having an arm provided with an inwardly extending stud or pin, the pivoted lever provided with a spring actuated detent, and with a hook and a cogged arm, and the swinging door having a cogged hub formed with a shoulder with which said hook engages substantially as described.

9. In a coin-controlled vending apparatus the combination with the receptacle or receiver having an opening for the exit of an article, a feeding carriage and a chute or conveyer having shoulders at its lower end, of the oscillating cam having an arm provided with an inwardly extending pin or stud, the pivoted lever provided with a spring actuated detent, a hook and a cogged arm, the swinging door having a cogged hub formed with a shoulder and provided with pins or studs, the shaft having an arm adapted to engage with said pins or studs and a pointed dog, substantially as described.

10. In a coin-controlled vending apparatus the combination with the base, the receptacle having a slotted bottom, an opening near one end for the exit of an article, a vertical partition provided with a curved or segmental slot, removable top or cover, a feeding carriage having a lug projecting through the slot in said bottom and means substantially as described connected with said lug for feeding the goods, of the chute or conveyer having shoulders at its lower end, the oscillating cam provided with a crank, and a pin or stud projecting through the slot in the partition, the pivoted lever, the spring-actuated lever and the swinging door constructed and operated substantially as specified.

11. A conveyer-chute for a coin-controlled vending apparatus having a curved shoulder or bearing 14 at its lower end, the curved portion 17, the cut-away portion 15, and the shoulder 16, substantially as and for the purpose specified.

12. In a coin-controlled vending apparatus, an automatically operated door when open adapted to serve as a receptacle for the articles vended and automatic means for opening and closing said door.

13. In a coin controlled vending apparatus, a door when opened adapted to serve as a receptacle for the article vended, mechanical means for opening and closing said door, and means for expelling said article.

14. In a coin-controlled vending apparatus, the combination with a door, of means for automatically forcing the article vended upon the door, when the latter has been opened.

15. In a coin-controlled vending apparatus, the combination with a mechanically operated door, of means for forcing the article vended upon the door after the latter has been opened.

16. In a coin controlled vending apparatus, the combination of a magazine horizontally arranged extending from front to rear, means for carrying the articles to be vended to the front, an opening lateral to the magazine through which the articles are vended, a door to close such opening, and mechanical means for opening and closing such door.

17. In a coin controlled vending apparatus, the combination of a magazine horizontally arranged extending from front to rear, means for carrying the articles to be vended to the front, an opening lateral to the magazine, a door to close such opening, a coin chute, and coin controlled mechanism for locking and releasing such door.

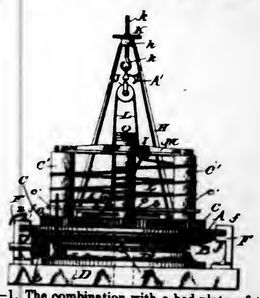
18. In a coin controlled vending apparatus, the combination of a horizontally arranged magazine extending from front to rear, an opening perpendicular to the plane of such magazine, a door to close such opening, a coin chute, and coin controlled mechanism for locking and releasing such door.

19. In a coin controlled vending apparatus, the combination of a magazine to contain the articles to be vended extending from front to rear having a lateral opening therein, a slot in said magazine near said opening, and a mechanism operating through the slot to project the articles to be vended from said magazine.

20. In a coin controlled vending apparatus, the combination of a magazine having an opening therein for the exit of the articles vended, a slot in said magazine near said opening, a casing having an opening therein, and a mechanism operating through the slot to project the articles vended through the opening in said casing.

21. In a coin controlled vending apparatus, the combination of a magazine extending from front to rear, an opening lateral to said magazine, manually operated mechanism situated in front of said magazine to project the articles to be vended through said opening, a door to close said opening, a coin chute, and coin controlled mechanism for locking and releasing said door.

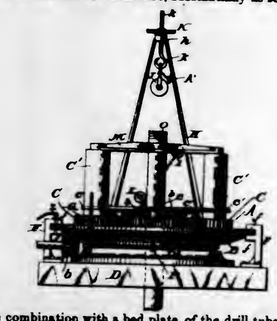
492,586. APPARATUS FOR BORING ARTESIAN WELLS. FRANK O. BROWN, Dallas, Tex. Filed Apr. 6, 1892. Serial No. 428,099. (No model.)



Claim.—1. The combination with a bed plate, of the drill tube or casing, drums mounted on said bed plate on opposite sides of said drill tube, means for driving said drums, and means for rotating said tube from said drums, substantially as set forth.

2. The combination with a bed plate, of the drill tube or casing, drums mounted on said bed plate on opposite sides of said drill tube, means for driving said drums, a wire rope or chain passing about said drums and the drill tube and means for taking up and giving slack in said rope, substantially as set forth.

3. The combination with a bed plate, of the drill tube or casing, drums mounted on said bed plate on opposite sides of said drill tube, means for driving said drums, and an endless wire rope passing about both of said drums and the drill tube, substantially as set forth.



4. The combination with a bed plate, of the drill tube or casing, drums mounted on said bed plate on opposite sides of said drill tube, a sheave mounted on said bed plate, means for driving said drums, a wire rope passing about said drums and the drill tube, and about said sheave, means for varying the position of said sheave for giving or taking up slack, and a stop device for preventing back rotation of said tube, substantially as set forth.

5. The combination with a bed plate, of an annular gear wheel journaled thereon, means for rotating said gear wheel, the drill tube or casing arranged within said gear, drums mounted on said bed plate on opposite sides of said tube means for driving said drums from said gear wheel and means for driving said drill tube from said drums, substantially as set forth.

6. The combination with a bed plate, of an annular gear wheel journaled thereon, means for rotating said gear wheel, the drill tube or casing arranged within the gear, drums mounted on the bed plate on opposite sides of said drill tube, means for driving said drums from said gear wheel, an endless wire rope passing about said drums and the drill tube and means for taking up and giving slack in said rope, substantially as set forth.

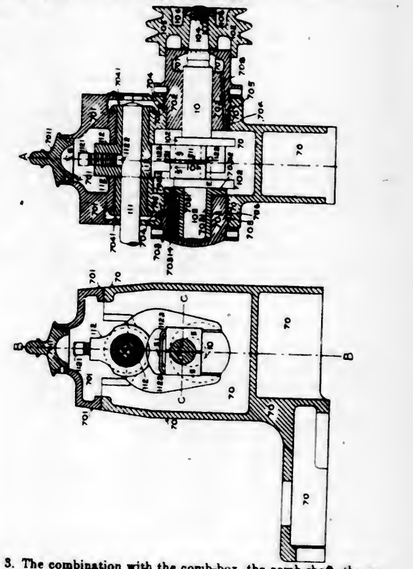
7. The combination with a bed plate, of an annular gear wheel journaled thereon, means for rotating said gear wheel, the drill tube arranged within said gear, a table loosely mounted on said gear, means for locking said table fast to the bed plate, drums arranged on opposite sides of said table, means for driving said drums from said gear wheel, and means for driving said tube from said drums, substantially as set forth.

8. The combination with a bed plate, of an annular gear wheel journaled thereon, means for rotating said gear wheel, the drill tube arranged within said gear, a table loosely mounted on said gear, means for locking said table fast to said gear wheel, drums arranged on opposite sides of said table and means for driving said tube from said drums, substantially as set forth.

492,587. ACTUATING MECHANISM FOR DOFFER-COMBS OF CARDING-ENGINES. WILLIAM P. CANNING, Lowell, Mass., assignor to the Lowell Machine Shop, same place. Filed Dec. 30, 1892. Serial No. 456,771. (No model.)

Claim.—1. The combination with the comb-box, the comb-shaft, the oscillator having arms formed with angular contact-surfaces, the bearing moving between the said jaws and also formed with angular contact-surfaces, and the crank-shaft having a wrist on which the bearing is fitted, with an annular thrust-bearing resting in contact with a circumferential enlargement on the crank-shaft, a bearing-piece for one journal of the crank-shaft, and adjusting devices contained within the said bearing-piece, acting upon the annular thrust-bearing, and serving to move the crank-shaft endwise to take up wear, substantially as described.

2. The combination with the comb-box, the comb-shaft, the oscillator having arms formed with angular contact-surfaces, the bearing moving between the said jaws, and also formed with angular contact-surfaces, and the crank-shaft having a wrist on which the bearing is fitted, with an annular thrust-bearing resting in contact with a circumferential enlargement on the crank-shaft, a bearing-piece for one journal of the crank-shaft having a closed outer end, and adjusting devices contained within the said bearing-piece, acting upon the annular thrust-bearing, and serving to move the crank-shaft endwise to take up wear, substantially as described.



3. The combination with the comb-box, the comb-shaft, the oscillator having arms formed with angular contact-surfaces, the bearing moving between the said jaws and also formed with angular contact-surfaces, and the crank-shaft having a wrist on which the bearing is fitted, with a bearing-piece for one journal of the crank-shaft, a bushing within the said bearing-piece resting at one end in contact with a circumferential enlargement on the crank-shaft, and adjusting devices for said bushing contained within the bearing-piece, serving to move the crank-shaft endwise to take up wear, substantially as described.

4. The combination with the comb box, the comb-shaft, the oscillator having arms formed with angular contact-surfaces, the bearing moving between the said jaws and also formed with angular contact-surfaces, and the crank-shaft having a wrist on which the bearing is fitted, with a bearing-piece for one journal of the crank-shaft, a bushing within the said bearing-piece resting at one end in contact with a circumferential enlargement on the crank-shaft, and an adjusting screw contained in a hole in the bearing-piece, acting to move the bushing, and serving to move the crank-shaft endwise to take up wear, substantially as described.

5. The combination with the comb-box, the comb-shaft, the oscillator having arms formed with angular contact-surfaces, the bearing moving between the said jaws, and also formed with angular contact surfaces, and the crank-shaft having a wrist on which the bearing is fitted, with a bearing-piece for one journal of the crank-shaft, a bushing within the said bearing piece, resting at one end in contact with a circumferential enlargement on the crank-shaft, and formed with a collar, a pin connected with the said collar and fitted to a hole in the bearing-piece, and an adjusting-screw also fitted to the said hole, substantially as described.

6. The combination with the crank-shaft having an annular enlargement, of a bearing-piece for one journal of the said shaft, a bushing within the said bearing-piece, resting at one end in contact with the circumferential enlargement, and formed with a collar, a pin connected with the said collar and fitted to a hole in the bearing-piece, and an adjusting screw also fitted to the said hole, substantially as described.

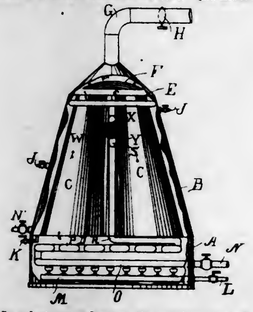
7. The combination with the comb-shaft, the oscillator, and the crank-shaft, of the comb-box having bearings for the oscillator, and also having the oil-chambers at the ends of such bearings, and the ports 704, 704, leading from such oil-chambers, and the bearing-pieces fitted in holes in the sides of the comb-box, and having the ports 706, the parts being formed to produce the annular chambers 706, 705, into which the ports 704, 704 and 706, 706 open, substantially as described.

8. The combination with the comb-shaft, the oscillator, and the crank-shaft, of the comb-box having bearings for the oscillator, oil-

chambers at the ends of such bearings, the ports 704, 704 leading from such oil-chambers, and openings in the side walls thereof screw-threaded in their outer portions and of reduced diameter in their inner portions, and the bearing pieces fitted in the said holes, having screw-threaded portions to fit the threaded portions of such holes and plain inner portions of reduced diameter to fit the inner portions of the holes, and also formed with the ports 706, 706, the spaces between the shoulders on the bearing-pieces and the shoulders on the interiors of the holes forming annular oil-chambers 705, 705 into which the ports 704, 704 and 706, 706, open, substantially as described.

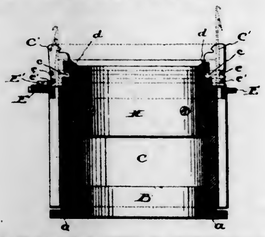
9. The bearing piece having the bushing and provided with means for adjusting the said bushing longitudinally therein, and also with means for preventing the said bushing from rotating, combined with the comb-box in which the said bearing piece is mounted, and the crank shaft having an annular enlargement against the side of which the end of the bushing bears, substantially as described.

492,538. HOT-WATER HEATER. HENRY R. CLARKE, Chicago, Ill. Filed June 9, 1892. Serial No. 436,088. (No model.)



Claim.—In a hot water heater, the combination of an inclosing jacket or case with hot water coils in the base thereof and disposed at right angles to each other, an inleading pipe opening into such coil, a vertical central pipe leading up from such pipe, a gas pipe and jets beneath the water pipes to heat the water in same, a series of conical shaped heating pipes open above and below, a heat discharge pipe open from the top of the case, a series of perforated pipes entirely surrounding each conical pipe at its upper end and connected with a water pipe so as to sprinkle the water about such conical pipes at their upper ends, a chamber about and containing such conical pipes, into which the water pipes run and a draw pipe from such chamber; all substantially as shown and described.

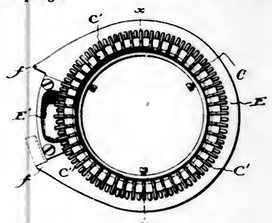
492,539. KNITTING-MACHINE. WILLIAM DIEBEL, Philadelphia, Pa., assignor to Frederick Buckhalter and Victor Driesbach. Filed Aug. 26, 1891. Serial No. 403,663. (No model.)



Claim.—1. In a knitting machine, in combination, a needle cylinder, sinkers provided with pivot points, a spring adapted to force the lower ends of said sinkers inward, and a cam one portion of which is constructed and adapted to resist the action of the spring and another portion constructed and adapted to allow the action of the spring.

2. In a knitting machine, in combination, a needle cylinder, sinkers provided with pivot points, a spring adapted a force the lower end of said sinker inward, and a cam E, provided with a depressed portion E'.

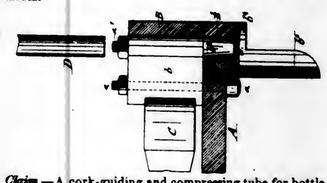
3. In a knitting machine, in combination, a needle cylinder, sinkers provided with pivot points, springs, as *e*, *e'*, resting against said sinkers, and a cam one portion of which is constructed and adapted to resist the action of spring *e'*, and the other portion adapted to allow the action of spring *e'*.



4. In a knitting machine, a needle cylinder, sinkers provided with pivot points and a spring as *e'* which encircles all the sinkers.

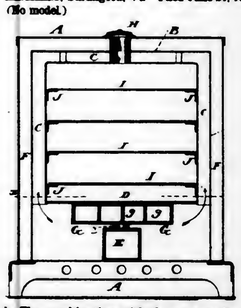
5. In a knitting machine, a needle cylinder, sinkers provided with pivot points and springs as *e e'*, which encircle all of said sinkers substantially as described.

492,540. COMPRESSOR FOR BOTTLE-CORKING MACHINES. EDWARD ERBOLD, New York, N. Y. Filed Apr. 10, 1891. Renewed Jan. 12, 1892. Again renewed Aug. 4, 1892. Serial No. 442,122. (No model.)



Claim.—A cork-guiding and compressing tube for bottle-corking machines, composed of an upper portion having a tapering recess opening at the rear part and rounded off at its opposite end, bolts for attaching the upper portion to the supporting table, a detachable lower portion provided with laterally-extending perforated ears, a conically-tapering opening in line with the rounded-off end of the recess of the upper portion, an outwardly-flaring part at the lower end of said opening and a downwardly-extending segmental flange or bottle-rest, and screw-bolts for attaching the ears of the lower portion to the upper portion, substantially as set forth.

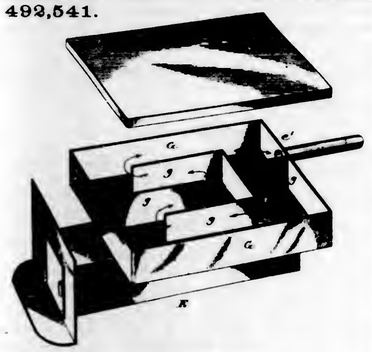
492,541. PORTABLE BAKING-OVEN. CHARLES M. FITCH and ALLAN R. KINGSLAND, Burlington, Vt. Filed June 21, 1892. Serial No. 437,502. (No model.)



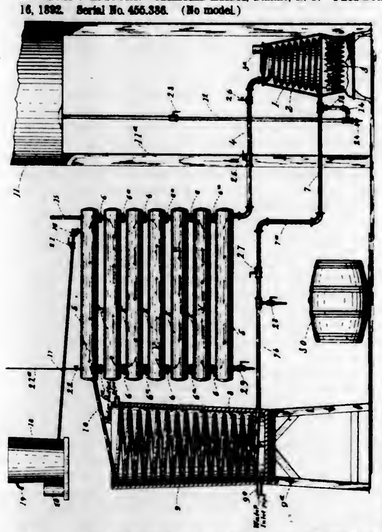
Claim.—1. The combination with the oven casing, and an interior firebox under the shelves and deflector, of the box G, provided with a winding flue *g* connected by pipe *e* with the top of said firebox and with the smoke pipe *e'* as shown and described.

2. The combination with the casing, of the flue C open at bottom, passing up both sides of the oven, extending over the top of oven and communicating at front and rear of its horizontal portion with the inside of oven; whereby the hot air may circulate freely in the oven as described.

492,541.



492,542. METHOD OF AND APPARATUS FOR PURIFYING AND SOFTENING LIQUORS. CHRISTIAN HEINTZ, Buffalo, N. Y. Filed Dec. 16, 1892. Serial No. 456,336. (No model.)



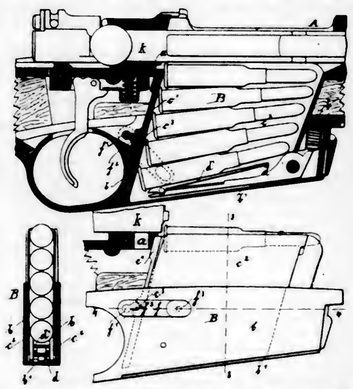
Claim.—1. The herein described process of aging and purifying liquors without loss of proof or liquor, consisting in filling a system of heating pipes, liquor tanks, and condensing pipes with liquor until it runs up into a vapor condensing vessel, then hermetically closing said pipes and tanks against the escape of any of the liquor or vapor, then applying a strong heat of 220° or more, to the heating pipes and a cooling medium to the condensing pipes, thereby causing the liquor to be greatly heated in one portion of the apparatus and rapidly cooled in another portion, and to circulate with great rapidity under great pressure without loss of liquor or proof, substantially as described.

2. In an apparatus for aging and purifying liquors, the combination with a supply tank a feed pipe a heating coil, a series of connected liquor tanks, a pipe of less diameter than said tanks, provided with a stop and outlet cock, connected with the upper portion of the heating coil and exteinding to and connecting with the lower ons of the series of connected liquor tanks a condensing coil, a pipe extending from the upper liquor tank to and connecting with the upper end of the condensing coil, a water tank for holding the condensing coil, a pipe provided with an outlet and shut off cock, extending from the lower end of the condensing coil to the lower end of the heating coil, and a suitable heating device, substantially as and for the purposes described.

3. In an apparatus for aging and purifying liquors the combination of a tank a feed pipe a heating coil inclosed within a suitable heating device, a series of liquor tanks, a pipe of less diameter than said tanks provided with a stop cock and extending from the upper portion of the heating coil to and communicating with the series a condensing coil, a pipe extending from the upper liquor tank and communicating with the upper end of the condensing coil, a water tank for holding the condensing coil, a pipe provided with an outlet and shut off cock extending from the lower end of the condensing coil, a vapor condenser and a pipe connected and communicating with the upper liquor tank and extending to and connected with the vapor condenser the whole combined for joint operation substantially as and for the purposes described.

4 In an apparatus for aging liquors, the combination with a supply tank a feed pipe provided with a stop cock of a heating coil inclosed in a suitable heating device, a pipe provided with a stop cock a series of connected liquor tanks, a pipe provided with an outlet and a stop cock, a condensing coil located in a water tank and having its upper end connected with the upper liquor tank, an air cock connected with said liquor tank a vapor condenser located upon a level with the feed reservoir or tank and a pipe extending from the top of said tank to and communicating with the vapor condenser, substantially as and for the purposes described.

492,543. SHIFTABLE MAGAZINE FOR BOLT-GUNS. PAUL MAUSER, Oberndorf, Germany, assignor to the Waffenfabrik Mauser, same place. Filed Aug. 20, 1892. Serial No. 443,566. (No model.)

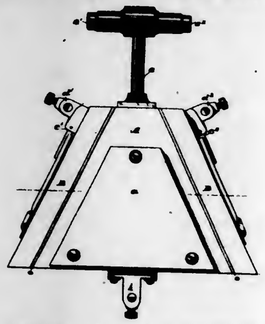


Claim.—1. In a breech-loading magazine gun, the bolt, in combination with a magazine adjacent thereto for delivering cartridges under the action of the bolt, this magazine constructed with a lid *b* closing its lower end, and a lining *c* constructed to retain the cartridges within the magazine above said lid, said lining being movable independently of said magazine and its lid while the latter is closed into and out of position relatively to said bolt, whereby when said lining is in one position the cartridges can be engaged by said bolt and when said lining is displaced it will withdraw the cartridges from the action of said bolt, whereupon the gun can then be used as a single loader, and means for moving said magazine.

2. In a breech loading magazine gun, the bolt and breech case, and a magazine carried by said case, constructed with a stationary casing, in combination with a lining inclosed in said casing, constructed to embrace and carry the cartridges, movable toward and from said bolt within and independently of said casing while the magazine is closed, and constructed when in one position to present the top cartridge to the action of the bolt and when displaced to remove it from such action, substantially as and for the purpose set forth.

3. In a breech-loading magazine gun, the bolt and the breech case constructed with a cartridge rest, in combination with a magazine box situated beneath the cartridge rest and consisting of a lining *c* constructed to contain the cartridges, and having a lining back, as *c'*, and a shifting lever, as *f*, constructed to engage with said lining back and when shifted to move the lining up and down, whereby the cartridges contained in the latter can be raised or lowered to bring the uppermost cartridge into or out of reach of the bolt, substantially as and for the purpose set forth.

492,544. LIGHTNING-ARRESTER. CHARLES F. SCOTT, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed July 30, 1892. Serial No. 441,570. (No model.)



Claim.—1. The combination with an inclosing box, of one or more electrodes projecting into the box, one or more contact-plates within the box against which said electrodes normally rest, and lightning discharge plates between which are intermediate air-gaps placed within the box and respectively connected with said plates, substantially as described.

2. The combination with an inclosing box or chamber of an electrode projecting through the side of the box into the chamber, a contact plate against which said electrode normally rests, discharge-plates leaving intermediate air-gap, and a flexible arm supporting said contact-plate, substantially as described.

3. In a lightning arrester the combination of an inclosing chamber, movable electrodes, contact-plates with which said movable electrodes are normally in electrical connection within said chamber, and flexible supports for said contact-plates, substantially as described.

4. In a lightning arrester, the combination with an inclosing chamber, of one or more movable electrodes, contact-plates with which said electrode or electrodes are normally in contact and away from which they are thrown by the expansion of the air within the chamber, and a normally interrupted ground circuit, substantially as described.

5. In a lightning arrester, the combination of a chamber, electrodes within the chamber through which the lightning discharges pass, said electrodes being thrown away from each other by the expansion of the air within said chamber contact plates against which said electrodes normally rest, and a normally open ground circuit leading from said plates, substantially as described.

6. In a lightning arrester, the combination within a closed chamber, of discharge-plates placed within the chamber, a non-conducting support therefor secured to the case and perforated converging side walls of non-conducting material, and curved arms or electrodes pivoted to the upper ends of said side walls, and projecting through the perforations therein, substantially as described.

7. In a lightning arrester, the combination with pivoted arms, constituting electrodes, of an inclosing chamber within which said electrodes terminate, a contact-plate therefor, a stop against which said electrodes strike when thrown away from said contact-plate, and a flexible support for the contact-plate, substantially as described.

8. In a lightning arrester, the combination with a metal frame formed with open sides, of converging marble sides covering said openings and having perforations, substantially as described.

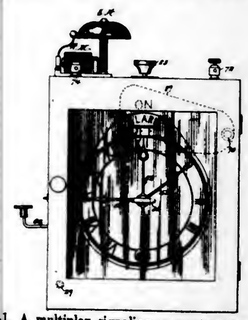
9. In a lightning arrester, the combination of normally separated lightning discharge plates, movable electrodes, contact-plates against which said electrodes normally rest, and flexible arms supporting said contact plates.

10. In a lightning arrester, the combination of normally separated lightning discharge plates, movable electrodes, contact-plates against which said electrodes normally rest, and flexible arms supporting said contact plates and electrically connecting same with the lightning discharge-plates.

11. In a lightning arrester, the combination of normally separated lightning discharge plates, movable electrodes, contact-plates against which said electrodes normally rest, flexible arms supporting said contact plates and electrically connecting the same with the lightning discharge-plates, a marble support for said lightning discharge-plates, and a case inclosing the same, to the back of which said marble support is secured.

12. In a lightning arrester, the combination of an inclosing box or chamber, a movable electrode terminating within the chamber, a contact-plate therefor, an earth discharge-plate and an air-gap intervening between said plates.

492,545. ELECTRIC SIGNALING APPARATUS. WESLEY TRAFFORD, New York, N. Y. Filed Oct. 17, 1891. Serial No. 408,963. (No model.)



Claim.—1. A multiplex signaling apparatus consisting of sub-station alarm apparatuses, the time indicators whereof are moved by electric impulses controlled by a rotating switch operated by a central clock, and the alarm devices whereof are actuated by an electric current through a single main line wire the time of the passage of which current through said main line wire is controlled by a governor switch that is rotated by said clock, substantially as described.

2. A multiplex signaling apparatus consisting of sub-station alarm apparatuses, the time indicators whereof are moved by electric impulses controlled by a rotating switch operated by a central clock, and the alarm devices whereof are actuated by an electric current, through a single main line wire the duration of which current in the main line wire is controlled by a governor switch that is rotated by said clock, substantially as described.

3. A multiplex signaling apparatus consisting of sub-station alarm apparatuses, the time indicators whereof are moved by electric impulses controlled by a rotating switch operated by a central clock, and the alarm devices whereof are actuated by an electric current through a single main line wire, the passage of which current through each sub-station apparatus to produce the alarm is determined by a switch board, a switch arm set thereon at a point indicating the desired time of alarm, and a switch arm brought to a coinciding position thereon by the movement of the hour hand, substantially as described.

4. A signaling apparatus the alarm of which is operated by an electric current, the passage of which current is controlled by a switch board having a multiplicity of contact plates corresponding to the time positions at which an alarm may be made, a switch arm co-operating therewith and capable of being set in contact with the plate that is in a position indicating the desired time of alarm, and a rotating switch arm that is brought into contact with said plate by the turning of the hour hand of the clock, substantially as described.

5. The combination with a main line alarm circuit wire or conductor A, C, its battery A, B, and an alarm bell S. A. and its operating magnet A, M connected with said main line alarm circuit, of an auxiliary-circuit magnet C, M, and circuit closer C, C operated thereby, and a circuit controlling switch device operated by the movements of the time indicating hand, substantially as described.

6. The combination with the switch board having a multiplicity of contact plates corresponding with the time positions at which an alarm contact may be made, and a switch arm adjustable thereon by the alarm pointer shaft, in a position corresponding with the desired time of alarm, of a switch arm moved over the switch board by the hour hand, whereby an alarm operating electric circuit is established, substantially as described.

7. The combination with a main line alarm circuit wire or conductor A, C, and an alarm bell S, A and its operating magnet A, M connected therewith, of the switchboard having a multiplicity of contact plates corresponding with the time positions at which an alarm contact may be made, a switch arm moved to a fixed position by turning the alarm pointer shaft, a co-operating switch arm rotatively carried over the switchboard by the step by step movements of the hour hand, of an auxiliary-circuit magnet C, M and auxiliary circuit closer C, C, substantially as described.

8. The combination with a main line alarm circuit wire or conductor and an alarm bell and its operating magnet connected therewith, a circuit controlling switch operated by the movements of the time indicating hand, an auxiliary-circuit magnet and circuit closer operated thereby, of a cut out C, O in the main line alarm circuit wire whose conducting contact is made by the rotative adjustment of the alarm pointer and automatically broken by the rotative return of the alarm pointer to its normal position, substantially as described.

9. The combination with the alarm magnet and alarm signal, of the switch board, switch arm moved by the hour hand, switch arm adjusted by the alarm pointer shaft, circuit magnet, circuit closer, cut out and rotating governor switch of the central station clock, operating to control the alarm current substantially as described.

10. The combination with the switch arm and the alarm pointer shaft by which it is adjusted, and the spring attached to said shaft, of the detent by which said switch arm and alarm pointer are arrested and released for restoration to their normal positions, substantially as described.

11. The combination with the switch board, switch arm moved thereon by the hour hand, switch arm adjusted thereon by the alarm pointer shaft and the shaft impelling spring, of the circuit magnet, circuit closer, a detent securing the adjustment of said alarm pointer shaft, and a releasing mechanism operated by the circuit magnet whereby when the alarm is started, the alarm pointer and its switch arm are restored to their normal positions, substantially as described.

12. The combination with the alarm pointer shaft and the alarm controlling switch, of an indicator 89 and intermediate connecting devices whereby the rotative movement of said shaft, which sets the switch into the operative position, is transmitted to and trips said indicator from its normal position and the reverse movement of said shaft operates through said intermediate connecting devices to return said indicator to its normal position, substantially as described.

13. The combination with a main alarm circuit wire, an alarm signal and its operating magnet, a switch controlled as to the time of its operation by means of alarm setting devices and operated by the movement of the hour hand accomplished by an independent time circuit, and a shaft 93 rocked in one direction to a fixed position by the alarm setting devices and in the other when the alarm is tripped, of an electric lamp, its independent electric circuit line and a switch therein operated by the movements of said rock shaft 93, substantially as described.

14. A signaling system, comprising a central station clock, a single main line electric alarm circuit, and a multiplicity of sub-station alarm apparatus the circuit through which is controlled by said clock, substantially as described.

15. In a signaling apparatus the combination with an alarm signal and operating electro magnet, of an adjusting switch for controlling the current for energizing said magnet and an automatically operating cut out for suspending the passage of the current when the switch is set on the neutral or unit point, substantially as described.

16. A signaling system, comprising a central station clock, a single main line electric alarm circuit and a multiplicity of sub-station alarm apparatuses each of which has short connections with the main line and a switching device operated by said clock for controlling the circuit, substantially as described.

17. The combination with a multiplicity of electric time signal apparatuses disposed in the various rooms of a building and each provided with an electric signal bell and a battery wire connected therewith, of separate circuit wires connecting each signal bell with the room wire of an annunciator, and wires connecting each of the annunciator line wires with a bank of switch buttons, whereby each signal bell may be independently rung from a central station, substantially as described.

492,546. COMBINED COPY-HOLDER AND FOLIO-INDICATOR FOR TYPE-WRITERS. HENRY J. WELCH, Carthage, N. Y. Filed Oct. 3, 1892. Serial No. 447,647. (No model.)

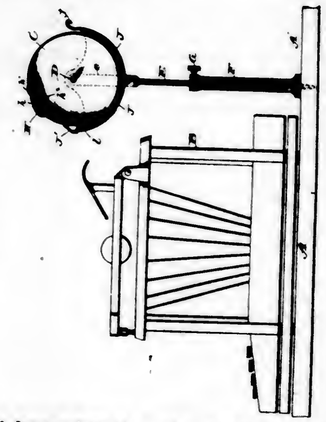
Claim.—1. In a copy-holder for type-writing machines, a rotatable copy-holder or cylinder, having its surface provided with lines or marks to indicate the folios, substantially as and for the purpose described.

2. In a copy-holder for type-writing machines, in combination, a rotatable copy-holding cylinder having its surface provided with folio indicating marks, a semi-circular trough beneath the cylinder and serving as a guide for the paper, and means, as the clamp H, for securing the paper to the cylinder, substantially as specified.

3. In combination, the type-writing machine stand, the upright F pivotally attached to the stand, the standard E adjustable within said upright, the copy-holding cylinder journaled upon a shaft carried by said standard and having its surface provided with folio indicating marks, the clamp upon the cylinder, the trough beneath the cylinder having its front edge straight, and its rear edge turned as described, all substantially as and for the purpose described.

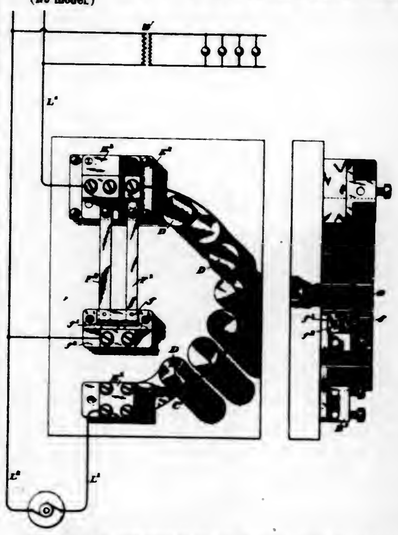
4. In combination with a rotatable cylinder, having its surface provided with marks or lines to indicate the folios a line gage comprising a straight plate or bar yieldingly resting upon the cylinder, substantially as described.

5. In combination with a rotatable cylinder, having its surface provided with marks or lines to indicate the folios a line gage comprising a plate or bar standing at an incline relative to the cylinder, substantially as described.



6. In a copy-holder, in combination with a rotatable cylinder, the spring pressed clamping-plate and the thumb-piece connected on the interior of the cylinder with the plate, substantially as shown and described.

492,547. THERMOSTATIC FUSE DEVICE. ALEXANDER WURTS, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Jan. 14, 1892. Serial No. 418,063. (No model.)



Claim.—1. The combination of two or more electrodes of non-arcing metal and a fusible strip connected in shunt upon and placed in close proximity to said electrodes.

2. The combination with a series of electrodes of zinc or antimony or amalgam or other non-arcing metal presenting to each other diverging faces, and a fusible strip laid against the same, substantially as described.

3. The combination with a series of electrodes of a fusible strip

laid against the same and a thermostatic circuit closing device connected in series with the fusible strip.

4. The combination with a series of electrodes presenting curved faces to each other and composed of arc-preventing metal, of a fusible strip bridging the successive electrodes, substantially as described.

5. The combination with a circuit-closing device and a fuse connected in series therewith, of a series of electrodes insulated from each other against which said fuse is placed, substantially as described.

6. The combination with a series of cylindrical electrodes arranged in a curved line, of a fusible strip bent around the same, a thermostatic device connected in series with the same, and a shunt-circuit having its terminals connected with the respective terminals of the said thermostatic device, substantially as described.

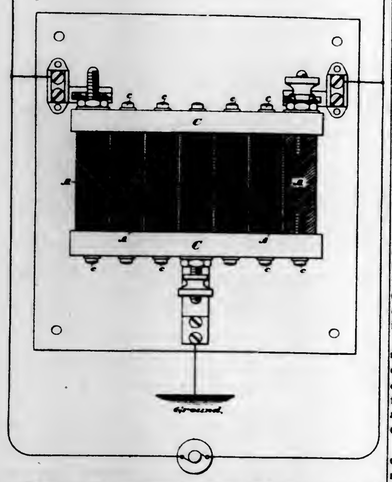
7. The combination with the armature of an electric generator, of a fusible strip connected with one terminal of the armature, two contact-plates, one connected with the remote terminal of the fusible strip and the other connected with the other terminal of the armature and an automatic circuit-closing device for short-circuiting the armature through said fusible strip.

8. The combination with the armature of an electric generator, of a fusible strip connected with one terminal of the armature, two contact-plates, one connected with the remote terminal of the fusible strip and the other connected with the other terminal of the armature, an automatic circuit-closing device for short-circuiting the armature through said fusible strip, and an automatic arc rupturing device consisting of non-arcing electrodes arranged in proximity to said fusible strip.

9. The combination of a source of electric currents, an electric fuse included in said circuit adapted to carry the full normal current in said circuit for an indefinite period, a local circuit and means for supplying said local circuit with heavy currents, and a circuit controlling device actuated by an abnormal increase of the current flowing from said source through the fuse, to complete the connections of said local circuit through the fuse.

10. A source of electric current and a fusible strip in the main circuit thereof adapted to carry the full normal current in said circuit for an indefinite period, in combination with a normally open short-circuit through said source of current, and a device in the main circuit adapted to close said short-circuit on the passage of an abnormal current.

492,548. LIGHTNING-ARRESTER. ALEXANDER WURTS, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Mar. 12, 1892. Serial No. 424,656. (No model.)



Claim.—1. A lightning arrester consisting of adjacent electrodes of non-arcing metal having their surfaces milled, corrugated or knurled and presenting numerous points to each other, substantially as described.

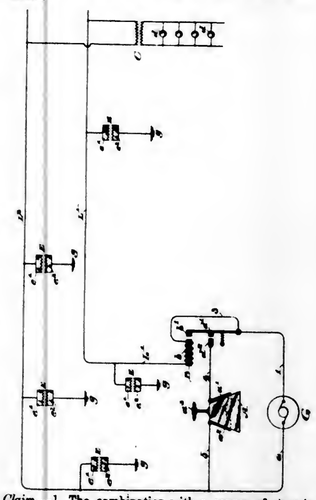
2. In a lightning arrester, the combination of cylindrical electrodes having rough, corrugated or knurled surfaces presented to each other, said electrodes being composed of non-arcing metal such as zinc or antimony or their equivalent.

3. In a lightning arrester, electrodes cylindrical in form having their sides adjacent to each other and having their surfaces studded with numerous points and means for turning one or more of said cylindrical electrodes upon their axes for presenting fresh surfaces, substantially as described.

4. In a lightning arrester, confronting electrodes presenting to each other curved surfaces studded with numerous closely assembled points.

5. In a lightning arrester confronting cylindrical electrodes provided with numerous closely assembled points and presenting their convex surfaces to each other.

492,549. LIGHTNING-ARRESTER. ALEXANDER WURTS, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Aug. 29, 1892. Serial No. 444,400. (No model.)



Claim.—1. The combination with a source of electric currents and its circuits, of lightning arresters or discharge points distributed throughout a portion or all of the circuit, and an automatic circuit closing and interrupting device for short-circuiting the source and interrupting the short-circuit thus formed, substantially as described.

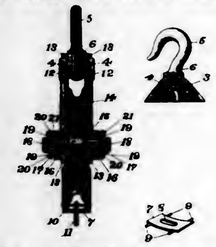
2. The combination with an electric generator and its circuit, of lightning arresters for relieving the circuit of lightning charges, and an automatic circuit interrupting device for interrupting the arcs of any or all of the lightning discharge devices.

3. In a system of electrical distribution, the combination with a source of electric currents, main line lightning arresters therefor, a normally opened shunt circuit around said source, automatically operating devices for closing said circuit upon the flow of an abnormal current, and an automatic circuit-interrupting device in said short circuit operated by the flow of abnormal currents therethrough to interrupt said short-circuit.

4. In a system of electrical distribution the combination with a source of electric currents and its circuits of lightning arresters located at intervals throughout the circuit, a normally opened short-circuit for the machine, means for closing the short-circuit upon the flow of an abnormal current through any of the lightning arresters and automatically interrupting said short-circuit by reason of the flow of current therethrough, substantially as described.

5. The combination with a source of electric currents and its circuit, of a system of lightning arresters for said circuit, an electro-magnetic circuit closer included in said circuit and responding to currents of abnormal strength, a short-circuit closed by the operation of said circuit-closer, and an automatic circuit interrupting device located in said short-circuit responding to currents of abnormal strength therethrough.

492,550. HOISTING-BLOCK. THOMAS B. FERRALL, Bridgeport, Conn., assignor of two-thirds to Andrew Krouse and George Krouse, same place. Filed Sept. 7, 1892. Serial No. 445,295. (No model.)

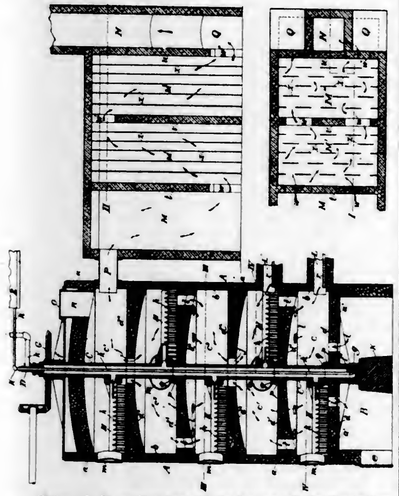


Claim.—1. In a hoisting-block, the combination of the cheek-plates having formed therewith the hollow interiorly threaded hub, the journal boxes formed and exteriorly threaded to fit within said hubs, the latter having wrench holds and perforated flanges as described, and the sheave-shaft having journals which extend within said boxes, whereby the latter may be adjusted circumferentially to afford new bearing surfaces, substantially as shown and described.

2. The combination of the cheek-plates having the hubs and mortises integral therewith, the hook head having lateral tenons which conform to said mortises, and the metal strap around said mortises and hubs and constituting a strengthening yoke, substantially as set forth.

3. The combination of the bottom-tie having centrally disposed elongated slot and provided with rivets projecting therefrom, the guy-rivet pin, the guy-ring around said pin and extending outwardly through said slot, and the cheek-plates, substantially as set forth.

492,551. FURNACE FOR ROASTING, CALCINING, AND OXIDIZING METALS AND THEIR COMPOUNDS. HERMAN FRASCH, Cleveland, Ohio, assignor to the Solar Refining Company, of Ohio. Filed Oct. 22, 1889. Serial No. 327,536. (No model.)



Claim.—1. In combination with the furnace cylinder divided into a number of chambers by horizontal partitions, a hollow vertical shaft provided in the several chambers with hollow arms having depending stirring fingers integral with said arms, which latter are bolted or similarly fastened to the said shaft at different points along its length and having each its cavity in communication with the interior of said shaft, and means for circulating water through said shaft, substantially as described.

2. In combination with a furnace, a chamber or series of chambers communicating with the outlet for products of combustion and other fumes and provided with narrow vertically disposed baffle plates forming slotted partitions across said chambers with the slots in one partition opposite the solid parts in the adjacent partitions, substantially as described.

3. In combination with a furnace, two chambers one having its inlet at the bottom and its outlet at the top and the other the inlet at the top and the outlet at the bottom, and each provided with narrow vertically disposed baffle plates forming slotted partitions across the chamber, said chambers being in communication with said furnace through the outlet for the fumes therefrom, substantially as described.

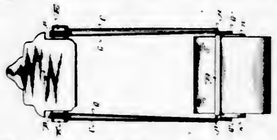
4. In a furnace for oxidizing molten lead or analogous purpose, a tank or vessel for holding the molten lead, and a revolving skimmer placed centrally therein, and constructed substantially as described for discharging therefrom the scum or partially oxidized metal; substantially as described.

5. A tank or vessel for holding molten lead, provided with means for heating the same, in combination with a vertical shaft passing through the said tank or vessel, and the rotary skimmer mounted on said shaft, said skimmer and said tank or vessel being arranged to effect the removal of the oxide or scum from the molten lead and the discharge of the same from said tank or vessel while the molten lead is retained in the said tank or vessel, substantially as described.

6. In a furnace for oxidizing molten lead and analogous purposes, divided by horizontal partitions into a series of stories forming oxidizing chambers, communicating with each other for the passage downward of the material undergoing oxidation and upward of an oxidizing atmosphere and furnished with means for agitating the material, and causing it to pass downward as described, and a fire chamber or chambers for heating the furnace, a tank for holding molten lead or other oxidizable metal, arranged above said oxidizing chambers and a revolving skimmer therein arranged continuously to remove the oxide or scum from the metal and discharge it into oxidizing chambers; substantially as described.

7. In combination with a series of oxidizing chambers communicating with each other and provided with stirrers therein, a tank for holding molten metal provided with a mechanical skimmer arranged therein to discharge the scum or oxide from the said tank or vessel while the molten metal is retained therein, and a fire chamber or chambers for heating the said oxidizing chambers and tank, said tank being arranged with its discharge in communication with the said oxidizing chambers so that the said oxide or scum passes therefrom into the said oxidizing chambers, substantially as described.

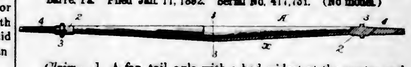
492,552. ROLL-PAPER HOLDER AND CUTTER. EVANDER J. GILLESPIE, San José, Cal. Filed May 14, 1892. Serial No. 433,069. (No model.)



Claim.—1. A roll paper holder and cutter, comprising a continuous piece of wire bent to form a horizontal, knife-bearing portion, knife-bearing arms at substantially right angles to said horizontal portion, roll-bearing arms connected to the upper ends of the knife-bearing arms by spring coils, a knife or cutter carried by said horizontal portion, and a suitable bracket or support having journal portions engaged by said coils, substantially as specified.

2. A roll paper holder and cutter, comprising a continuous piece of wire so bent and coiled as to form a knife-bearing portion, knife-bearing arms, and roll-bearing arms, each pair of said knife-bearing and roll-bearing arms being united at their upper ends by a spring coil, whereby tension is given to the knife in its downward pressure on the roll, the lower portions of said roll-bearing arms passing between and beyond the said knife-bearing arms, a connecting yoke supporting said coils, and a knife or cutter carried by said horizontal portion, substantially as specified.

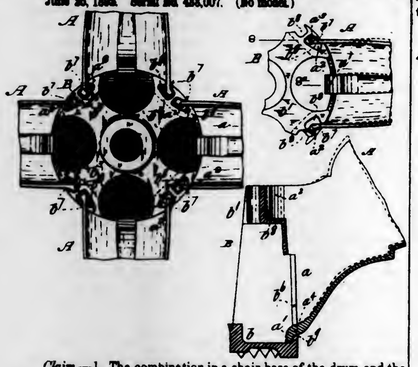
492,553. CHANNELED AXLE BAR AND BLANK. ORLANDO C. HALL, Auburn, N. Y., assignor to the Sheldon Axle Company, Wilkes-Barré, Pa. Filed Jan. 11, 1892. Serial No. 417,731. (No model.)



Claim.—1. A fan tail axle with a bed widest at the center and provided with a groove along its length and with journals and collars in one piece with the bed, substantially as described.

2. An axle bar or blank having a longitudinal channel collars and rectangular sections 2, adjacent to the collars, substantially as described.

492,554. CHAIR-BASE. BERNHT R. KOCHS, St. Louis, Mo. Filed June 25, 1892. Serial No. 438,007. (No model.)



Claim.—1. The combination in a chair-base of the drum and the legs, said drum has sets of openings, b^6 and b^7 b^7, in its side, and recesses opposite the openings b^7 b^7, and the legs each having the lugs a' and a^3, a^3, whereby the legs can be adjusted by turning them in the openings b^6, and then fastened by filling the unoccupied portions of said recesses with cast metal, substantially as described.

2. The combination in a chair-base of the drum, the legs, and the filling, said drum having in its side sets of openings, b^6, and b^7, b^7, said legs having the lugs a' and a^3, a^3, which engage respectively in said drum-openings b^6 and b^7 b^7, and said filling interlocking said leg-lugs a^3, a^3, substantially as described.

3. The herein described hollow chair-base drum having its heads perforated at b^6, b^6, and its side cut away at b^6, b^6, and slit at b^7, b^7, and provided with the recesses b^6, b^6, substantially as and for the purpose set forth.

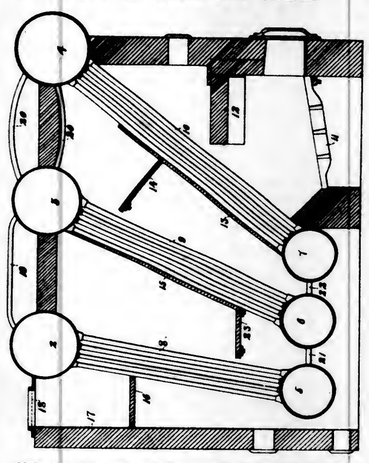
492,555. PENHOLDER. GEORGE MCILWAIN, Englewood, Ill. Filed Sept. 21, 1892. Serial No. 446,455. (No model.)



Claim.—1. In a pen holder of the character described, the stem having the annular groove and a packing in said groove substantially as described.

2. In a pen holder of the character described, the stem having the groove, a packing in said groove and a pin inserted crosswise the sleeve, forming a stop and adapted to play between the shoulders of the stem substantially as described.

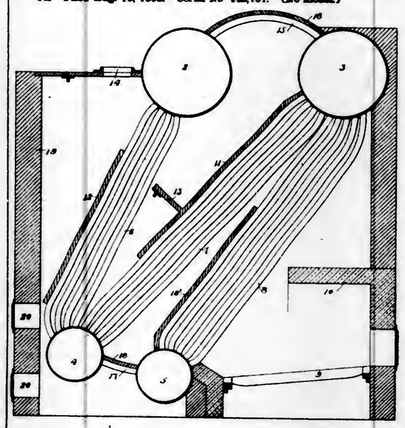
492,556. WATER-TUBE BOILER. JAMES PIERPOINT, Pittsburg, Pa. Filed Mar. 21, 1892. Serial No. 425,713. (No model.)



Claim.—1. A water-tube boiler, comprising three steam and water drums connecting by sets of tubes with three mud-drums located beneath the same, and deflecting partition walls located in the rear of the two front sets of tubes; substantially as and for the purposes described.

2. A water-tube boiler, comprising three connecting steam and water drums, three connecting mud-drums beneath the same, sets of tubes connecting the steam and the mud-drums, and deflecting walls having angular extensions and located in the rear of the two front sets of upright tubes; substantially as and for the purposes described.

492,557. WATER-TUBE BOILER. JAMES PIERPOINT, Pittsburg, Pa. Filed Aug. 10, 1892. Serial No. 442,701. (No model.)



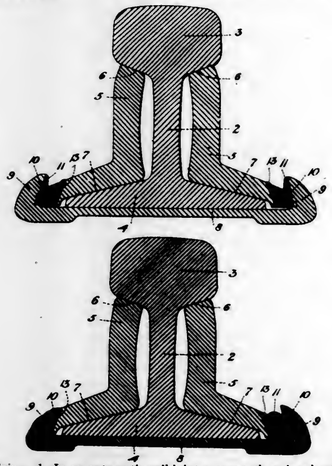
Claim.—1. A water-tube boiler, comprising two steam and water drums, and two mud-drums, one of said steam and water-drums being in front of and connecting with both mud-drums; substantially as and for the purposes described.

2. A water-tube boiler, comprising two steam and water drums, two mud-drums, two sets of tubes inclined in the same direction connecting one steam and water drum to the mud-drums, and a third set connecting the other steam and water drum to one of the mud-drums; substantially as and for the purposes described.

3. A water-tube boiler, comprising two connecting steam and water-drums, two connecting mud-drums, two sets of tubes connecting one steam and water drum to the mud-drums, and a third set connecting the other steam and water drum to one of the mud-drums; substantially as and for the purposes described.

4. A water-tube boiler, comprising two connecting steam and water drums, two connecting mud-drums, two sets of tubes connecting one steam and water-drum to the mud-drums a third set connecting the other steam and water drum to one of the mud-drums, and baffle-walls behind the two rear sets of tubes; substantially as and for the purposes described.

492,558. AUTOMATIC LOCK-JOINT FOR RAILWAY-RAILS. JOHN L. POPE, Cleveland, Ohio. Filed Dec. 31, 1891. Serial No. 416,726. (No model.)



Claim.—1. An automatic rail-joint, a connecting piece having heads or projections upon the outer sides of the fish or angle plates and a self-locking key located between the projection and the plate, and having bearings along its edges converging downwardly and outwardly; substantially as and for the purposes described.

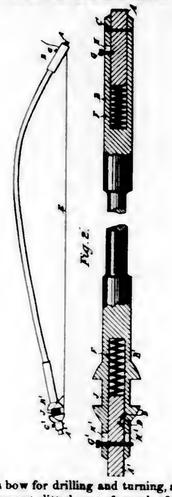
2. In an automatic rail-joint, a connecting piece extending beneath the rail and having projections upon the outer sides of the fish or angle plates, and a self tightening key arranged to be inserted from above between the projection and the plate; substantially as and for the purposes described.

3. In an automatic rail-joint, a connecting piece extending beneath the rail and having projections upon the outer sides of the fish or angle plates, and a self-tightening key arranged to be inserted from above between the projection and fish or angle plate, the inner surface of the projection being at an acute angle to the plane of the chair, and a face upon the fish or angle plates extending at an obtuse angle to the plane of the chair; substantially as and for the purposes described.

4. In an automatic rail-joint, a connecting piece extending beneath the rail and having projections, provided with an inner face extending at an acute angle to the connecting piece, upon the outer sides of the fish or angle plates, a bearing face upon the plate at an obtuse angle to the plane of the connecting piece, and a key seated between said faces; substantially as and for the purposes described.

5. In an automatic rail-joint, the combination with the angle plates having bearings upon the head and foot of the rails, of a connecting piece having heads or projections upon the outer sides of the plates, a locking recess between the projection and angle plate whose sides converge downwardly and outwardly at differing angles, and a self-locking key in said recess; substantially as and for the purposes described.

492,559. BOW FOR USE IN DRILLING AND TURNING. ISAAC READ, Eastbourne, England. Filed Feb. 20, 1892. Serial No. 422,319. (No model.) Patented in England July 23, 1890, No. 11,546; in France Oct. 24, 1890, No. 208,083, and in Switzerland Nov. 4, 1890, No. 2,904.

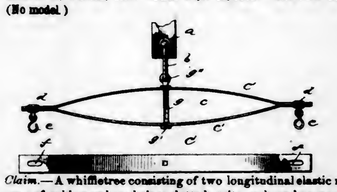


Claim.—1. In a bow for drilling and turning, a fastener end consisting of the tubular part slitted or perforated, of the solid part sliding therein and also slitted or perforated, of a spring and of a stud to limit the motion of the solid part: for securing and readily altering the length of the hair gut or other filament employed for the bow substantially as described and shown in the accompanying drawings.

2. In a bow for drilling and turning, a fastener end consisting of a slitted tubular part B' provided with a groove J to hold the surplus filament and with means for holding the end of the filament, of a slitted solid part, A', of a spring F and a stud G' to limit the movement of the solid part A: for securing, holding and readily altering the length of the hair gut or other filament employed for the bow substantially as described and shown in the accompanying drawings.

3. In a bow for drilling and turning, a part B' at one end provided with a groove J for holding the surplus filament, with an oblique hole K passing through one flange from the bottom of the groove J to outside the part B' for holding the end of the filament, and with a slit in the other flange for guiding the filament into the gripping mechanism, substantially as described and shown in the accompanying drawings.

492,560. WHIFFLETREE. JAMES A. SCARBOROUGH and CARROLL BARDWELL, Wesson, Miss. Filed Sept. 10, 1892. Serial No. 445,509. (No model.)



Claim.—A whiffletree consisting of two longitudinal elastic members, one of said members being slotted at its ends and secured directly to the ends of the other member so as to have a limited longitudinal movement, said members being sprung away and free from each other from said end fastenings throughout the remainder of their length, a bolt secured to the forward member in the middle thereof and passing rearwardly through the rear member and adapted to be secured at its rear end to a vehicle, and trace-hooks secured to the ends of the whiffletree, substantially as described.

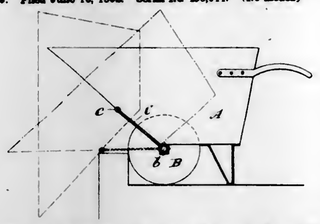
492,561. HAIR-CURLER. MARY V. SHIDELL, Washington, D. C. Filed Apr. 4, 1892. Serial No. 427,714. (No model.)



Claim.—1. A hair curling device consisting of two plates hinged together at one side, one of the plates being concavo-convex and both plates have elongated slots therein, those in one plate arranged at right angles to those in the other, and a spring for forcing the plates together.

2. In a hair curling device the combination with a flat lower plate having elongated slots therein, of a concave upper plate having elongated slots therein arranged at right angles to the slots in the lower plate and a spring for forcing the plates together, substantially as described.

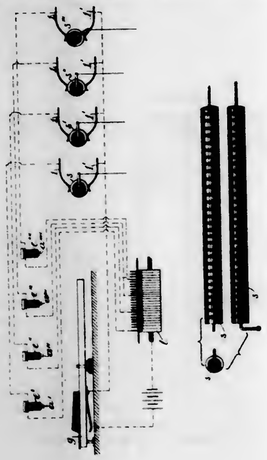
492,562. DUMP-WAGON. MARTIN L. SHENDERLING, Jersey City, N. J. Filed June 16, 1892. Serial No. 436,911. (No model.)



Claim.—1. A dumping vehicle comprising a body, a swinging link connecting the body with its support the body being free to tilt rearwardly away from its normal support upon a support independent of the vehicle, substantially as set forth.

2. A dumping vehicle comprising a body, swinging links connecting the rear end of the body with its support, said links being sufficiently long to permit the body to swing into engagement with the ground or a support independent of the vehicle, the said body being free to swing away from its normal support on the ground or other support independent of the vehicle, substantially as set forth.

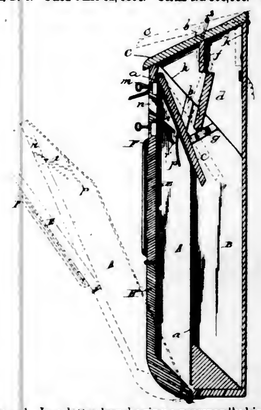
492,563. KEYED MUSICAL INSTRUMENT ACTUATED BY ELECTRICITY. PARIS R. STROUD, London, England. Filed June 17, 1892. Serial No. 437,053. (No model.)



Claim.—1. In a keyed musical instrument in which electro-magnets are used for setting or sustaining the sounding bodies in vibration, the combination therewith of two or more kinds of sounding bodies for producing different qualities of sound (corresponding to stops in the organ), such sounding bodies being brought into relation with each other by axially-moving switches placed under the command of the player, and embraced by elastic contact pieces situate within the circuits of their respective electro-magnets, as set forth.

2. In a keyed musical instrument in which electro-magnets are used for setting or sustaining the sounding bodies in vibration, the combination therewith of axially-moving switches, embraced by elastic contact pieces, situate within the circuits of their respective electro-magnets, and electrically connected with the circuits of the lower or upper octave, the fifth, or other harmonic division of the scale, as set forth, and serving to produce octaves or harmonics of the notes sounded by the depression of the keys of the manual.

492,564. HOUSE-DOOR LETTER-BOX. ALBERT SMITH, Washington, D. C. Filed June 12, 1891. Serial No. 396,006. (No model.)



Claim.—1. In a letter box, having a rearwardly hinged lid opening outwardly, a rack *c*, pivoted within the upper forward portion of the said box, a link connecting the said rack and lid, a piece *f*, rigidly secured to the under surface of the said lid, and a rack having its upper end pivoted to the lower edge of the said piece *f*, and having its lower end normally bearing upon the said first named rack, substantially as described.

2. In a letter box, having an apertured front and rear and side walls, the said side walls being vertically divided and having their front portion connected by a vertical transverse sheet metal partition, the said partition having an outwardly inclined outer end and forming with the front wall a collection compartment and with the rear wall a delivery compartment, the said partition and front wall and forward portion of the sides being secured together and hinged to the bottom of the delivery compartment, the tongues projecting inwardly from the aperture in the front, the said partition having tongues cut therefrom and bent forward opposite the said aperture, and a cover for the said delivery compartment, substantially as described.

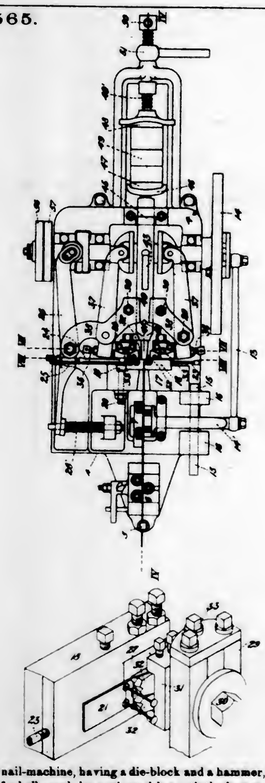
3. In a letter box, having a hinged lid opening outwardly, of a rack *c*, pivoted within the upper interior portion of the said box, a link connecting the said rack and lid, and a rack *d*, having its upper end pivotally hung from the said lid and its lower end free to swing, substantially as described.

4. In a letter box, having a hinged lid opening outwardly, of a rack *c*, pivoted within the upper interior portion of the said box, a link connecting the said rack and lid, a spring retaining the said rack in a raised position, and a rack *d*, having its upper end pivotally hung from the said lid and its lower end free to swing, substantially as described.

492,565. WIRE-NAIL MACHINE. JOHN STEVENSON, Jr., New Castle, Pa. Filed July 20, 1891. Serial No. 400,055. (No model.)

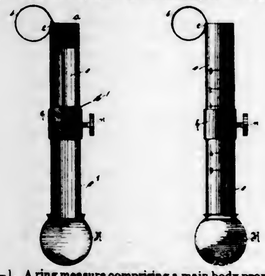
Claim.—1. A cutting mechanism for wire-nail machines, comprising a cutter-head, a recessed cutter-block adjustably fastened thereto, a series of cutters located in the recess of the cutter-block, and set-screws bearing against one side of the uppermost cutter and holding the series in position; substantially as and for the purposes described.

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2. In a nail-machine, having a die-block and a hammer, an ejector consisting of a bell-crank-lever pivoted beneath the hammer, a spring attached to the lower arm of said lever, and a forwardly-extending lip upon the upper arm, said lip being in the path of motion of the hammer; substantially as described.

492,566. RING-MEASURE. JOHANNES WICHELMANN, Bremen, Germany. Filed Oct. 20, 1892. Serial No. 449,440. (No model.)



Claim.—1. A ring measure comprising a main body provided with a graduated scale, a ribbon of elastic material, having one end secured to said body and a movable part connected with the other end of said ribbon and adapted to move adjacent to said scale, substantially as described.

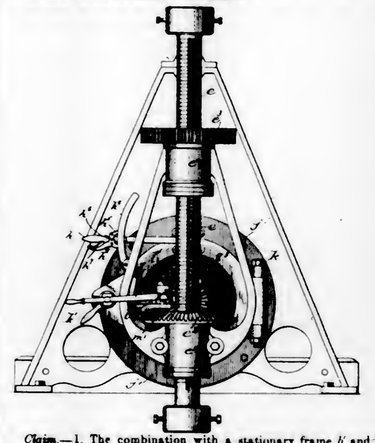
2. A ring measure comprising a tubular body provided with a graduated scale, an elastic flexible ribbon, having one end secured to said tubular body, a sleeve sliding upon said tubular body and connected with the other end of said ribbon, substantially as described.

3. A ring measure comprising a tubular body provided with a graduated scale, a steel spring ribbon having one end secured to said tubular body and connected with the other end of said ribbon and a set screw for securing said sleeve rigidly with respect to said tubular body, substantially as described.

4. A ring measure comprising a tubular body provided on its exterior with a graduated scale, a steel spring ribbon having one end secured to said tubular body, a sliding block engaging the interior and a sliding sleeve engaging the exterior of said tubular body and a set screw extending through a slot in said tubular body and connecting the said sleeve, said block and the other end of said ribbon together, substantially as described.

5. A ring measure comprising a tubular body provided with a graduated scale, a steel spring ribbon having one end secured to the said tubular body, a sliding sleeve engaging said tubular body, and secured to the other end of the said ribbon, and a guide secured to the tubular body, adjacent to the point of engagement of the end of said ribbon therewith, substantially as described.

492,567. DRILLING-MACHINE. SAMUEL A. WORCESTER, Leadville, and WILLIAM A. MORGAN, Green Mountain Falls, Colo. Filed Aug. 29, 1892. Serial No. 444,468. (No model.)



Claim.—1. The combination with a stationary frame *b'* and a drive-shaft journaled therein, a friction disk *d* secured on the drive-shaft, and a pinion secured on the end of the shaft, of a swinging-frame mounted on the stationary frame, a drill screw carried by the swinging-frame, a feed-nut mounted on the swinging-frame and provided with a gear-wheel, a driving-wheel journaled on the frame and provided with a gear-wheel meshing with the pinion on the drive-shaft, a counter-shaft *g* journaled in this swinging-frame and carrying a gear meshing with the gear on the feed-nut, a friction-wheel carried by the counter-shaft and bearing on the face of the disk on the main-shaft, and means for positively adjusting this latter friction-wheel on the face of the main-disk, as and for the purpose herein described.

2. The combination of a frame, a main driving-shaft, a friction-disk and a pinion secured on the main-shaft, a drill-screw, a driving-wheel and a feed-nut engaging the screw and supported in the frame said driving wheel and feed-nut each carrying a gear-wheel, a vertically movable counter-shaft journaled in the frame at right angles to the main-shaft and carrying a pinion at its upper end which engages the gear on the feed-nut, a friction disk on the lower end of the counter-shaft, bearing against the face of the main-disk, and means for positively adjusting and holding the counter-shaft, as and for the purpose described.

3. The combination of a frame, a driving-shaft, carrying a driving pinion and a friction-disk, a feed-nut and a driving-wheel, a drill-screw supported thereby, a vertically-movable counter-shaft journaled in the frame parallel with the screw and carrying a pinion meshing with a gear on the feed-nut, a friction-disk secured on the lower end of the counter-shaft and bearing on the main-disk, a non-rotatable plate (as at A^5) embracing the counter-shaft, nuts holding this plate

endwise in place, a lever engaging a projection on this plate, and means for positively holding the lever in its adjusted position, substantially as described.

4. The combination of a segment, a pivoted lever, and means carried by the lever for gripping the segment, said means consisting of two dogs h^3 h^3 pivoted on the lever and projecting out therefrom in opposite directions and having their outer ends bearing on the adjacent edge of the segment, one of the dogs being provided with an inwardly projecting lug engaging and working in a recess in the inwardly-projecting end of the other dog, a spring for keeping the dogs against the segment, and a handle for operating them, substantially as described.

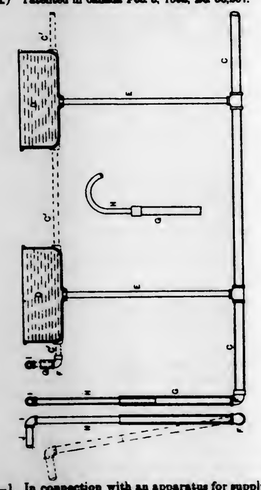
5. The combination of a frame, a drive shaft carrying a loose pinion on its outer end, a friction-clutch carried by the shaft and adapted to frictionally engage the pinion, a longitudinally movable rod for operating the clutch, a drill screw, a driving-wheel and a feed-nut for operating the drill-screw, the feed-nut and driving-wheel carrying gears, means for variably driving the feed-nut, a brake supported in close proximity to the gear on the driving-wheel and a lever for simultaneously applying the brake and operating the clutch-releasing rod, whereby the screw may be run back without rotating it, substantially as described.

6. The combination of a frame, a driving-shaft carrying a loose driving pinion *e*, a clutch carried by the shaft for engaging said pinion, a movable rod for operating the clutch, a drill-screw, a feed-nut and a driving-wheel for operating the screw, said driving-wheel being provided with a gear meshing with the driving-pinion, means for driving the feed nut a brake *m* mounted in close proximity to the gear on the driving-wheel and normally held away from the same, a lever *l* pivoted on the frame and provided with two arms or extensions, one engaging the clutch-rod and the other the brake *m*, as and for the purpose described.

7. The combination of a shaft, a loose gear thereon, a part c' carried by the gear, a part c^2 screwed on the projecting end of said part c', so as to be adjustable thereon, both said parts being interiorly beveled, an expansible friction-ring c^3 inclosed between the said parts and the shaft, and means for expanding said friction ring, substantially as described.

8. In a drilling-machine, the combination of a frame, a driving-shaft, a bushing d' removably secured thereon and externally threaded, a friction disk screwed on the bushing, a nut d^3 screwed up against the friction-disk, a drill-screw and means for driving it, and means driven from the friction disk for feeding the screw, substantially as described.

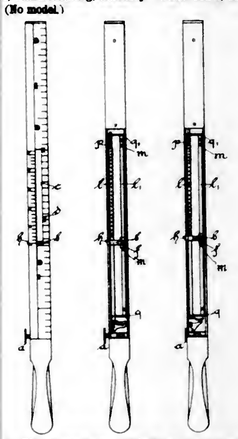
492,568. APPARATUS FOR SUPPLYING WATER TO ANIMALS. JOHN ALLEN, Lowville, N. Y. Filed May 5, 1892. Serial No. 431,874. (No model.) Patented in Canada Feb. 3, 1892, No. 38,907.



Claim.—1. In connection with an apparatus for supplying water for animals consisting of a supply reservoir from which extends a main conveying pipe (C) to which are connected the branch pipes (E) with their individual founts D, of an overflow and regulating device consisting of the threaded elbow F turning upon the main pipe (C) said elbow carrying a vertical pipe the upper end of which is provided with the bent tube (or an elbow) J and I—the whole being so arranged as to allow of partial rotation upon the main pipe (G).

2. In an apparatus for watering animals governing and controlling the flow of water through the same, by a regulating device consisting of the elbow F, pipe G, the latter carrying upon its upper end the bent tube (or elbow) I and J, so arranged as to allow of a partial rotation upon the main pipe C at the elbow F.

492,569. SCALE-MEASURE. FELIX BOAS, Potsdam, and SAMUEL WEINMANN, Charlottenburg, Germany. Filed Oct. 6, 1892. Serial No. 448,050. (No model.)



Claim.—1. The combination with the measure provided with an indicating scale, of a sliding indicator having a pointer adjacent to said scale, said indicator being provided with a pawl, a reciprocating toothed rod, a finger piece adapted to reciprocate said toothed rod, said toothed rod engaging said pawl positively and moving it, when the rod is moved in one direction and passing over said click when moved in the opposite direction, substantially as described.

2. The combination with a measure provided with an indicating scale, of a sliding indicator having a pointer adjacent to said scale, said indicator being provided with a beveled pawl, the reciprocating toothed rod for engaging said pawl positively when moved in one direction and sliding over said pawl when moved in the other direction, and a finger piece for moving said rod, whereby said indicator will be moved once for each reciprocation of said rod, substantially as described.

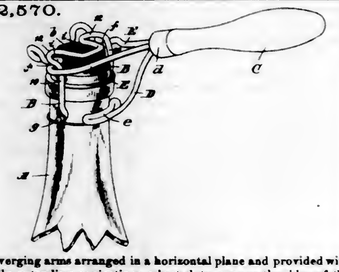
3. The combination with the measure provided with an indicating scale, of a guide rod, an indicator mounted to slide therein and carrying a pointer adjacent to said scale, the indicator having a pivoted pawl, a reciprocating toothed rod for engaging said pawl positively when moved in one direction and sliding over said pawl when moved in the opposite direction, and a finger piece for moving said toothed rod, said pawl being provided with an operating lever for removing it from engagement with the toothed rod, substantially as described.

4. The combination with a measure provided with an indicator scale, of a guide rod, an indicator mounted to slide thereon and having a pointer adjacent to said scale, said indicator having a pivoted beveled pawl, a reciprocating toothed rod engaging said pawl positively when moved in one direction and sliding over said click when moved in the opposite direction, a finger piece for moving said toothed rod in one direction and a spring for moving said rod in the opposite direction and a device for disengaging said pawl from said toothed rod to permit the indicator to be moved independently thereof, substantially as described.

492,570. BOTTLE-OPENING IMPLEMENT. GEORGE M. CASEY, Hingham, Mass. Filed July 20, 1892. Serial No. 440,645. (No model.)

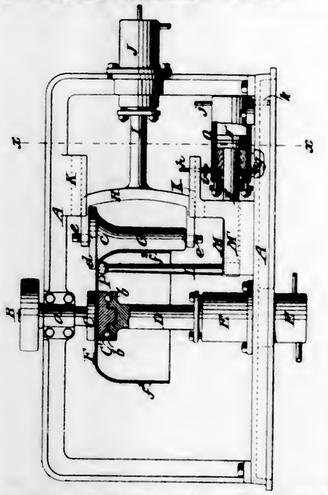
Claim.—The herein-described implement for opening bottles provided with pivoted bail-shaped wire cork-fastenings, consisting of a stock or handle provided with a downwardly extending arm or brace having its outer end shaped to fit against the neck of the bottle, and

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two diverging arms arranged in a horizontal plane and provided with inwardly extending projections adapted to engage the sides of the pivoted bail of the wire cork-fastening, and having at their outer ends inwardly projecting points or prongs adapted to enter and hold the cork to prevent the same from flying when forced out of the bottle, substantially as set forth.

492,571. MACHINERY FOR THE MANUFACTURE OF HOLLOW BODIES FROM METAL DISKS. THOMAS R. CLATWORTHY, Waterbury, Conn. Filed May 3, 1892. Serial No. 431,614. (No model.)

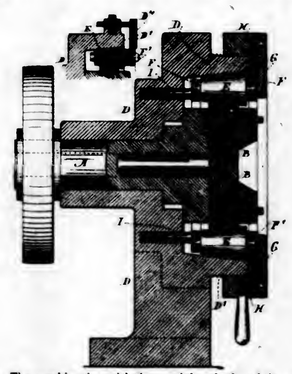


Claim.—In a machine for the manufacture of hollow objects or bodies from disks of metal, the combination of a rotary shaft and disk holding clamp, a flanged roller for operating on one side of the disk, an anvil arranged opposite the flange of the first mentioned roller for supporting the other side of the disk, a carriage for said roller, means of moving said carriage toward and from said shaft and clamp, a carriage for said anvil movable toward and from said shaft and clamp, a hydraulic cylinder containing a piston connected with the last mentioned carriage to produce a yielding resistance of the anvil to the movement of said roller and a valve or cock in said cylinder for producing a regulated escape of water therefrom and controlling said yielding resistance, substantially as herein set forth.

492,572. WIRE-SWAGING MACHINE. WILLIAM H. DAYTON, Torrington, Conn., assignor to the Excelsior Needle Company, same place. Filed May 23, 1892. Serial No. 433,966. (No model.)

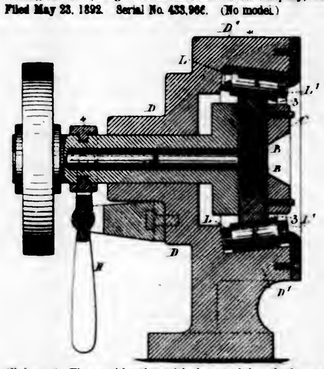
Claim.—1. The combination with the revolving shaft and the swaging dies carried by the same, of a group of tapering rolls, a shell within which such rolls are supported and mechanism for adjusting the tapering rolls endwise and in their relation to the swaging dies, substantially as set forth.

2. The combination with the revolving shaft and the swaging dies carried by the same, of a group of tapering rolls, a shell surrounding the rolls having a slightly conical interior surface, a ring for supporting the axes of the tapering rolls, and screw mechanism for adjusting the ring and rolls in relation to the swaging dies, substantially as set forth.



3. The combination with the revolving shaft and the swaging dies carried by the same, of a group of tapering rolls, a shell within which such rolls are supported and mechanism for adjusting the action of the tapering rolls in their relation to the swaging dies by an endwise movement, substantially as set forth.

492,573. WIRE-SWAGING MACHINE. WILLIAM H. DAYTON, Torrington, Conn., assignor to the Excelsior Needle Company, same place. Filed May 23, 1892. Serial No. 433,966. (No model.)



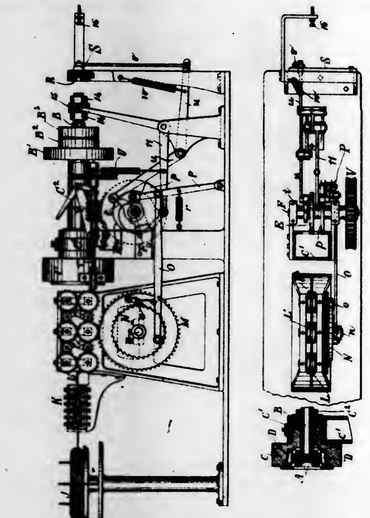
Claim.—1. The combination with the revolving shaft and the dies carried by the same, of a head and mechanism contained within the head having inclined surfaces to act upon the outer ends of the swaging dies, and mechanism for moving the revolving shaft endwise in relation to the head, so as to vary the position of the swaging dies in relation to the inclined surfaces acting upon such dies during the swaging operation, substantially as set forth.

2. A head having a projecting flange or shell and a group of rolls around within the shell, the inner surfaces of which are inclined to each other, in combination with a revolving shaft passing through the head, swaging dies carried by the shaft and acted upon by the inclined surfaces of the rolls within the shell, and mechanism for moving the revolving shaft and dies endwise to vary the position of the swaging dies in relation to the surfaces acting upon the same, substantially as set forth.

492,574. MACHINE FOR SWAGING RODS. WILLIAM H. DAYTON, Torrington, Conn., assignor to the Excelsior Needle Company, same place. Filed July 18, 1892. Serial No. 440,303. (No model.)

Claim.—1. The combination with the swaging dies and the mechanism for revolving and acting upon the same, of a wire straighten-

ing device, feed rollers for supplying the wire to the swaging dies, and automatic intermittent mechanism for acting upon the feed, and a cutting mechanism brought into action while the feed is out of action, substantially as set forth.



2. The combination in a swaging machine, of swaging dies, a revolving shaft carrying the same, rollers for acting upon the swaging dies, adjusting mechanism acting endwise of the revolving shaft for varying the opening and closing of the swaging dies, a straightening mechanism for acting upon the wire as it passes from a reel, feeding rolls in pairs geared together, between which the straightened wire passes, automatic mechanism for moving the feeding rolls, the same acting intermittently, and a cutter, a stop for the end of the wire and mechanism for acting upon the cutter to sever the finished article during the time that the feed movement is arrested, substantially as set forth.

3. The combination with the swaging dies and the mechanism for revolving and acting upon the same, of a wire straightening device, feed rollers for supplying the wire to the swaging dies, and automatic mechanism for acting upon the feed and a cutting mechanism brought into action while the feed is out of action, substantially as set forth.

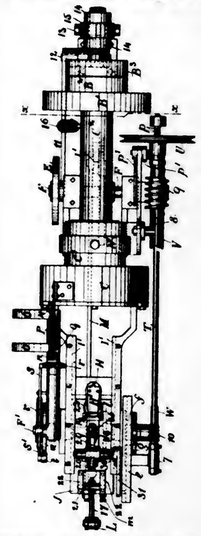
4. The combination in a swaging machine, of swaging dies, a revolving shaft carrying the same, rollers for acting upon the swaging dies, adjusting mechanism acting endwise of the revolving shaft for varying the opening and closing of the swaging dies, a straightening mechanism for acting upon the wire as it passes from a reel, feeding rolls in pairs geared together, between which the straightened wire passes, automatic mechanism for moving the feeding rolls, and a cutter, a stop for the end of the wire and mechanism for acting upon the cutter to sever the finished article during the time that the feed movement is arrested, substantially as set forth.

492,575. MACHINE FOR SWAGING RODS, &c. WILLIAM H. DAYTON, Torrington, Conn., assignor to the Excelsior Needle Company, same place. Filed July 15, 1892. Serial No. 440,304. (No model.)

Claim.—1. The combination with the swaging dies and the pinchers for grasping the wire blank to be swaged, of a revolving shaft and automatic mechanism therewith connected for moving the pinchers and the wire endwise between the dies, and automatic mechanism receiving motion from the revolving shaft for varying the point to which the dies are closed upon the article, so as to automatically regulate the swaging action and the diameter of the article in different parts of its lengths, substantially as specified.

2. The combination with revolving swaging dies, of a magazine for holding the blanks or wires to be swaged, a rock shaft and sector and a finger for receiving and transferring the blank from the magazine, and pinchers for receiving the blank from the sector, mechanism substantially as specified for giving motion to the pinchers and to the sector, a back stop for determining the backward movement of the pinchers, and a cam for withdrawing the back stop automatically, substantially as set forth.

3. The combination with the pinchers and the mechanism for actuating the same, of a bed carrying the pinchers, a lever, connecting rod, spring and cam for moving the bed and the pinchers endwise, a back stop and adjusting screw for determining the position of the bed at the back movement, and a cam for automatically withdrawing the back stop at the proper time for allowing the spring to move the bed and pinchers, substantially as set forth.



4. The combination with the revolving shaft and swaging dies and rollers and a shell containing said rollers, of pinchers and the mechanism for actuating the same, a bed carrying the pinchers, a lever, connecting rod, spring and cam for moving the bed and the pinchers endwise, a back stop and adjusting screw for determining the position of the bed at the back movement, and a cam for automatically withdrawing the back stop at the proper time for allowing the spring to move the bed and pinchers, substantially as set forth.

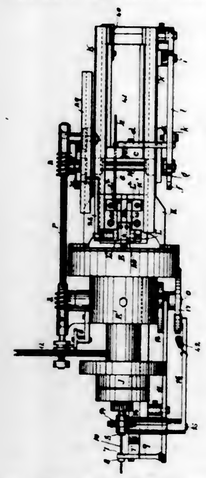
5. The combination in a swaging machine of dies and means for revolving the same and for pressing the swaging dies toward each other, means for regulating the point to which the swaging dies are closed, a magazine for holding the wires or blanks to be swaged, pinchers and mechanism for opening and closing the same, and a sector, rock shaft, and finger for transferring the wire or blank from the magazine to the pinchers, substantially as set forth.

6. The combination with the revolving shaft and swaging dies, of a surrounding shell and an intermediate range of rollers, the surfaces of the rollers being slightly inclined, and mechanism substantially as specified for giving to the revolving shaft an endwise movement to regulate the swaging action of the dies, a magazine for holding the blanks to be acted upon, pinchers for holding the blank while being swaged, and mechanism, for moving such pinchers and the blank endwise between the dies, and a rock shaft and sector for transferring the wires or blanks one at a time from the magazine to the pinchers, substantially as set forth.

7. The combination with the swaging dies and revolving shaft carrying the same, of a counter-shaft, driving pulley and clutch, worm pinions upon the counter-shaft, gears and cross shafts driven by such worm pinions, cams on the aforesaid shafts, levers and connections for giving an end motion to the revolving shaft and swaging dies, a sliding bed, pinchers carried by the same, a toggle and wedge for closing the pinchers, a lever and connections to the sliding bed for moving the same endwise by the action of one of the cams, a slotted bar raised and lowered by one of the cams for acting upon the toggle links and pinchers, and a back stop for regulating the movement of the sliding bed, one of the cams controlling the said back stop, substantially as set forth.

8. The combination with the swaging dies and revolving shaft carrying the same, of a counter-shaft, driving pulley and clutch, worm pinions upon the counter-shaft, gears and cross shafts driven by such worm pinions, cams on the aforesaid shafts, levers and connections for giving an end motion to the revolving shaft and swaging dies, a sliding bed, pinchers carried by the same, a toggle and wedge for closing the pinchers, a lever and connections to the sliding bed for moving the same endwise by the action of one of the cams, a slotted bar raised and lowered by one of the cams for acting upon the toggle links and pinchers, a back stop for regulating the movement of the sliding bed, one of the cams controlling the said back stop, a rock shaft and sector and a magazine for holding the wires or blanks and gearing, and a lever acted upon by one of the said cams for carrying the wire or blank from the magazine to the holding pinchers, substantially as set forth.

492,576. MACHINE FOR SWAGING WIRE, &c. WILLIAM H. DAYTON, Torrington, Conn., assignor to the Excelsior Needle Company, same place. Filed Sept. 21, 1892. Serial No. 446,373. (No model.)



Claim.—1. The combination with the swaging mechanism of pinchers for grasping the article to be swaged, mechanism for giving motion to the pinchers to draw the article through between the swaging dies and a holding clamp for holding the article operated upon and mechanism for opening the pinchers and returning them to take a fresh hold for drawing through another length substantially as set forth.

2. The combination in a swaging machine, of dies for effecting the swaging, mechanism for actuating such dies, pinchers for holding the article to be acted upon, mechanism for opening and closing the pinchers and moving them longitudinally for drawing the article to be swaged through between the dies, substantially as set forth.

3. The combination with rotary swaging dies and mechanism for opening and closing the same, of pinchers for grasping the article to be acted upon, and mechanism for moving the pinchers and drawing the article along between the swaging dies, a clamp for holding the article when the pinchers are opened, and a cutter and mechanism for actuating the same to separate the swaged article from the wire or stock, substantially as set forth.

4. The combination in a swaging machine, of swaging dies, rotary mechanism for actuating such dies, a moving wedge or backing for varying the closing of the dies, pinchers and mechanism for opening and closing the same and for moving the pinchers longitudinally for drawing the article to be swaged along between the dies, a clamp for holding the material when the pinchers are opened, and a cutter for separating the swaged article, substantially as set forth.

5. The combination with swaging dies, of pinchers, mechanism for opening and closing the same and for moving them longitudinally and carrying the article longitudinally between the swaging dies, a cutter for separating the swaged article and a connection between the cutter and the pinchers, whereby the cutter is brought into position by the movement of the pinchers, substantially as set forth.

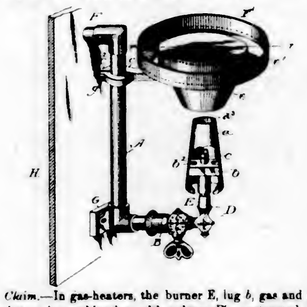
6. The combination in a machine for swaging wire spokes, of revolving swaging dies and mechanism for moving and regulating the action of said dies, pinchers and mechanism for opening and closing the same, a cam and variable lever mechanism for regulating the longitudinal movement given to the pinchers and varying the length of the spoke, substantially as set forth.

7. The combination with the swaging mechanism and mechanism for grasping the wire, of a revolving cam, adjustable lever mechanism intervening between the cam and the pinchers for varying the length of the article swaged, mechanism for opening the swaging dies and an adjustable toe for moving the pinchers and wire the desired distance between one swaging operation and the next, substantially as set forth.

8. The combination with the swaging mechanism, of the revolving shaft through which the wire to be swaged passes and which shaft carries the swaging mechanism, pinchers and means for opening and closing the same to grasp or relieve the wire, a cam and intervening connections to the pinchers for giving motion to such pinchers to move the wire between the swaging dies, a cutter plate and cutter movably supported upon the machine and a variable connection between the cutter plate and the pinchers for determining the position of the cutter, and mechanism for giving motion to the cutter, substantially as set forth.

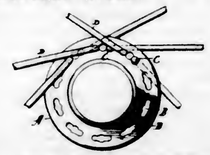
9. The combination with the swaging mechanism, of the revolving shaft through which the wire to be swaged passes and which shaft carries the swaging mechanism, pinchers and means for opening and closing the same to grasp or relieve the wire, a cam and intervening connections to the pinchers for giving motion to such pinchers to move the wire between the swaging dies, a cutter plate and cutter movably supported upon the machine and a variable connection between the cutter plate and the pinchers for determining the position of the cutter, mechanism for giving motion to the cutter, and a clamp for holding the wire during the return movement of the pinchers, substantially as set forth.

492,577. GAS-HEATER. DAVID DEYEDALE, Cleveland, Ohio. Filed Jan. 14, 1891. Serial No. 377,785. (No model.)



Claim.—In gas-heaters, the burner E, lug *b*, gas and air mixing chamber *a*, in combination with a drum F, constructed of a lower portion *e*, funnel-shaped, and adapted to receive and protect a flame from said chamber, of an upper portion *f*, perforated at *t*, and adapted to deflect a flame from said chamber, and to support an article to be heated, and of an outward extending L-shaped flange *s* and *e'*, perforated and adapted to guide the escaping heat from said drum, and to rest on the rim of an annular opening, and to support said drum in suitable conjunction with said gas and air mixing chamber, substantially as set forth.

492,578. VEHICLE-WHEEL. REMMON C. FAY, Ilion, N. Y., assignor to the Remington Arms Company, same place. Filed Nov. 21, 1892. Serial No. 452,689. (No model.)

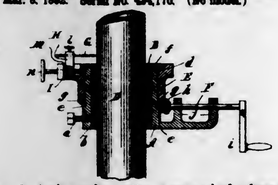


Claim.—1. A vehicle-wheel of the suspension type, having spokes, the inner ends whereof are bent and headed, and a flanged wheel-hub,

the flanges whereof are each constructed with a circular series of slots arranged lengthwise with respect to their edges, and endwise with respect to each other, and adapted to receive the headed ends of the spokes which are thus detachably connected with the hub, substantially as set forth.

2. A vehicle-wheel of the suspension type, having spokes, the inner ends whereof are bent and headed, and a flanged wheel-hub, the flanges whereof are each constructed with a circular series of double-ended centrally enlarged slots arranged lengthwise with respect to their edges, and endwise with respect to each other, to receive the said ends of the spokes which are thus detachably connected with the hub, substantially as set forth.

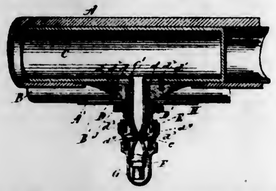
492,579. PIPE-CUTTER. DAVID W. FRENCH, Union Hill, N. J. Filed Mar. 8, 1892. Serial No. 424,170. (No model.)



Claim.—1. A pipe or bar cutter, composed of a frame cast in a single piece of metal with a central bore to receive a pipe, a cutter-carrier made in a single piece of metal with a bore to receive said frame and revolubly carried thereby, a plate or ring *f*, carried by the frame to retain the cutter carrier thereon, a cutter connected with said cutter carrier, and means substantially as described for rotating said cutter carrier, substantially as described.

2. A pipe cutter, composed of a frame having a circular part *d* a cutter-carrier mounted on the part *d*, an off-set *e* on said frame, a detachable ring or plate *f*, on the end of the frame, a cutter on the cutter-carrier, and a means substantially as described for turning said cutter-carrier, substantially as specified.

492,580. PNEUMATIC TIRE. CHARLES E. HADLEY, Chicopee, Mass., assignor to the Overman Wheel Company, Hartford, Conn. Filed Oct. 31, 1892. Serial No. 450,518. (No model.)



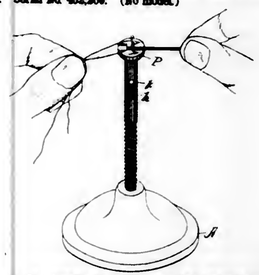
Claim.—1. The combination with a pneumatic tire having an inflation tube, of one or more spring-recovered compressors located adjacent thereto, and means for forcing the said compressor or compressors against the tube for closing it, substantially as described.

2. The combination with a pneumatic tire having an inflation tube, of one or more spring-recovered compressors located adjacent thereto, and a compression-collar for engaging with the free ends of the said compressor or compressors for contracting the tube to close it, substantially as described.

3. The combination with a wheel-rim, of a pneumatic tire having an inflation tube extending through an opening in the said rim, and externally threaded sleeve connected with the rim in position to have the inflation tube of the tire extend through and project from it, one or more springs located within the said sleeve and extending longitudinally therewith, and constructed at their free ends to engage with the said tube, and a compression-collar mounted upon the outer end of the said sleeve, and constructed to engage with the said ends of the springs for drawing the same upon the tube to close it, substantially as described.

4. The combination with a rim constructed with a port or doorway, of a flexible jacket attached to the said rim, and having an opening aligned with the said port, a removable inner air-tube adapted to be introduced into and withdrawn from the said jacket through the said port and opening, and having an inflation tube arranged laterally to one of its ends; a coupling-plate adapted to be connected with the rim and jacket, located in the openings of the same, and provided with an externally threaded sleeve through which the inflation tube passes, and from which the said tube projects; one or more compressors located within the said sleeve, and constructed at their outer ends to engage with the inflation tube, a plate and a nut mounted on the said sleeve for closing the opening in the rim, a compression collar mounted on the outer end of the sleeve, and constructed to engage with the outer ends of the compressor or compressors for forcing the same inward against the tube, a cap attached to the said collar to inclose the outer end of the tube, and a nipple secured to the end of the tube for the attachment of the apparatus of inflation, substantially as described.

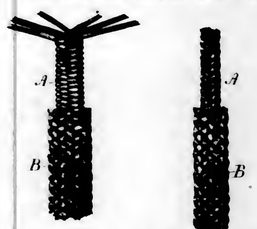
492,581. NEEDLE-THREADER. ROBERT L. HASTINGS, Waltham, Mass., assignor of one-half to Henry O. Stearns, same place. Filed May 7, 1892. Serial No. 432,209. (No model.)



Claim.—1. In a needle-threader, an upright spindle having a hook attached to its upper end, in combination with a sleeve sliding longitudinally upon said spindle, a needle rest supported on the upper end of said sleeve having a groove for guiding the needle, an aperture in said groove for the passage of said hook, a shoulder at one end of said groove for regulating the position of the eye of the needle relative to said aperture, and a spring for holding said needle rest normally above the hook; substantially as described.

2. In a needle-threader, an upright spindle provided with a pin upon the body thereof and having a hook attached to its upper end, in combination with a sleeve sliding longitudinally upon said spindle and having a slot on its side to engage said pin, a needle rest supported on the upper end of said sleeve having a groove for guiding the needle, an aperture in said groove for the passage of said hook, a shoulder at one end of said groove for regulating the position of the eye of a needle relative to said aperture, and a spring for holding said needle rest normally above the hook; substantially as described.

492,582. CORD FOR SASHES, &c. EDWARD MAYNARD, Brooklyn, N. Y. Filed Oct. 25, 1892. Serial No. 449,970. (No specimens.)

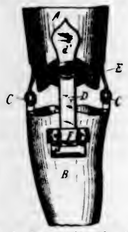


Claim.—As a new article of manufacture, a rope having a braided core and a tubular braided body or covering to the core, the cords composing the braided core being laid more nearly at a right angle to the axis of the rope than are the cords of the tubular covering, so that the tension upon the respective cords of the core and of the covering is substantially the same, substantially as set forth.

492,588. ARTIFICIAL-LEG ATTACHMENT. REES H. MCDUFFIE, Cincinnati, Ohio. Filed Nov. 25, 1892. Serial No. 452,997. (No model.)

Claim.—1. The combination substantially as hereinbefore set forth, of the thigh section, the leg section hinged thereto, the guide clip secured to the leg section, the check strap adapted to slide through said guide clip and having a cross head below said clip, and an articulated joint below the thigh section.

2. The herein before described attachment for artificial legs consisting of the strap D having its upper end adapted for attachment to the thigh section, its lower end formed into a cross head and a metallic clip for attachment to the lower leg section for the purpose set forth.



3. A check strap for the knee joint of artificial legs, consisting of a shaft portion D having cross head *d'* and the link E coupling the upper and lower sections of said strap, in combination with the clip or slide adapted for attachment to the leg section, substantially as shown and described.

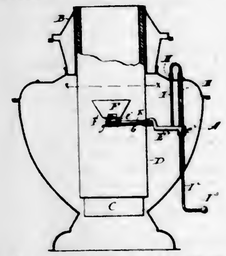
4. The combination as herein before set forth, of the thigh section and leg section, the hinges uniting said sections, the check strap secured to the thigh section and extending down in rear of the leg section, and having at its lower end, the cross head, the metal plate within, the removable washer over the cross head, and the clip or keeper F secured to the leg section over the strap and above the cross head, for the purpose set forth.

492,584. BRUSH. CHARLES W. PARKS, Lansingburg, N. Y. Filed Dec. 14, 1891. Serial No. 415,001. (No model.)



Claim.—In a brush, the combination with a knot of bristles, and a knot-inclosing band having a plurality of transverse grooves; of a handle-support; a plurality of lugs on the handle-support severally secured in the band-grooves; and a handle integral with the handle-support, substantially as described.

492,585. WICK-CARRIER FOR CENTRAL-DRAFT LAMPS. WILLIAM A. PENDFIELD, Meriden, Conn., assignor to the Bradley & Hubbard Manufacturing Company, same place. Filed Aug. 1, 1892. Serial No. 441,843. (No model.)



Claim.—1. In a central-draft lamp, the combination with the fount and the draft-tube thereof, of a guide-tube mounted in the fount and projecting through the same at its upper and lower ends; and a wick-carrier comprising a frame constructed with a central, outwardly projecting arm terminating in a sleeve which slides up and down over the said guide-tube, and thus steadies the wick-lift, two spring-actuated jaws pivoted to the said frame at points thereon opposite each other, and each provided with an outwardly projecting tripping-arm, and a bowed draw-bar having its short leg attached to the said arm of the frame at a point between the sleeve and the body thereof, and having its long leg passed through the said guide-tube in which it has bearing and plays up and down, substantially as set forth.

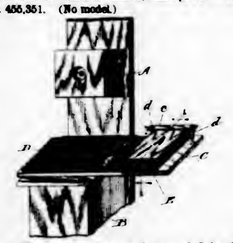
2. In a central-draft lamp, the combination with the fount and the draft tube thereof, of a guide-tube mounted in the fount and projecting through the same at its upper and lower ends; and a wick-carrier comprising a semi-circular frame having a bearing at each of its ends, and constructed with a central, outwardly projecting arm terminating in a sleeve, two jaws respectively mounted on said bearings, to turn in a vertical plane, and each provided with an outwardly projecting tripping-arm, a semi-circular spring applied in tension to the frame, and having its ends engaged with the jaws, for turning them inward, and a bowed draw-bar having its short leg attached to the said arm of the frame, and its long leg passed downward through the guide-tube which passes through the sleeve of the said arm, substantially as set forth.

492,586. UMBRELLA-RUNNER. BENJAMIN F. PORTER, Manchester, N. H. Filed Nov. 11, 1892. Serial No. 451,653. (No model.)



Claim.—An umbrella runner comprising in its construction a rock rod or bar *e* having bearings in the runner and having its ends bent to form latches *f*, as described, a spring for holding the latches pressed against the staff, and a thumb piece A connected with the rock rod for moving it against the stress or tension of the spring, the said latches being adapted to engage pins or catches on the staff, as set forth.

492,587. TELEPHONE-TABLET. JOHN R. PRUYN, Chicago, Ill., assignor of one-half to Charles J. Miller, same place. Filed Dec. 16, 1892. Serial No. 455,351. (No model.)



Claim.—1. The combination of the board C, having the writing surface D, with the adjustable plates F, and H, secured to its lower surface, substantially as shown and described and for the purpose set forth.

2. The combination of the board C, having the writing surface D, and a tablet of paper E, secured to its upper surface, with the adjustable plates F, and H, secured to its lower surface, substantially as and for the purpose set forth.

3. The combination of the board C, having the slate D, secured to its upper surface and the cleats *a*, and *a'*, to its lower surface, with the plate *c*, and securing rods *d*, having their lower portions screw-threaded, the thumb screws *e*, to engage said bolts and adapted to draw the plate down on the tablet E, the plate F, having the flange F', and slots *h*, and thumb-screws *f*, to engage said plate, the plate H, having the slot h^3, and flange h^4, and thumb-screw *g*, substantially as and for the purpose set forth.

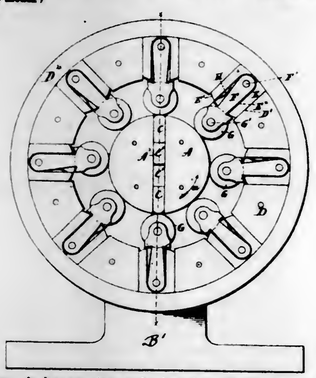
492,588. PROCESS OF MANUFACTURING TIN-PLATE. FRANKLIN RUDOLPH, Chicago, Ill. Filed June 23, 1892. Serial No. 437,683. (No specimens.)

Claim.—1. The process of manufacturing tin plate having one surface uncoated with tin, which consists in placing flatwise together two sheets of the sheet-iron to be tinned, thereby causing the metal sheets mutually to shield each other against access to their opposing surfaces of the molten tin, and subjecting the said sheets together to the tin-coating operation, substantially as described.

2. The process of manufacturing tin plate having one surface uncoated with tin, which consists in placing flatwise together two sheets of the metal to be tinned and sealing the edges, thereby causing the metal sheets to be shielded against access to their opposing surfaces

of the molten tin, and subjecting the said sheets together to the tin-coating operation, substantially as described.

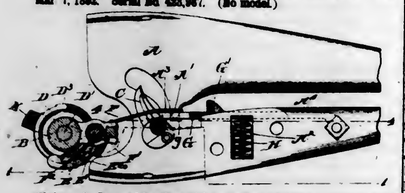
492,589. MACHINE FOR SWAGING NEEDLE-BLANKS. IRA T. SMITH, Mount Carmel, Conn. Filed Aug. 1, 1892. Serial No. 441,535. (No model.)



Claim.—1. In a swaging mechanism, the combination with a circular die-head having a slot extending diametrically across its face, of two movable die-blocks located in the said slot, and respectively extending to the periphery of the said head, two dies respectively mounted in the inner ends of the said blocks, an anvil-head arranged concentric with the said die-head, a circular series of inwardly-projecting anvils having rounded inner faces, opposite in curvature from the curvature of the die head, mounted in the anvil head, pivotal carriers for the respective anvils, rollers mounted in the respective carriers so as to travel upon the curved faces of the anvils, and springs engaging with the respective carriers to normally hold the rollers out of line with the centers of the curved inner faces of the anvils, one of the said heads being rotatable, substantially as described, and whereby the dies are given a sharp quick blow, owing to the described curvature of the working faces of the anvils.

2. In a swaging mechanism, the combination with a circular die-head having a slot extending diametrically across its face, of two movable die-blocks located in the said slot, and respectively extending to the periphery of the head, two dies respectively mounted in the inner ends of the said blocks, an anvil-head arranged concentric with the die-head, a circular series of inwardly projecting anvils mounted in the said head and having their inner ends rounded opposite to the curvature of the die head, and their opposite faces longitudinally grooved, pivotal carriers for the respective anvils, having two arms fitting into the grooves thereof, rollers mounted in the inner ends of the arms of the respective carriers, so as to bear upon the curved faces of the anvils to which the carriers are pivoted by the outer ends of their arms, and springs engaging with the respective carriers to normally hold the rollers out of line with the centers of the curved inner faces of the anvils, one of the said heads being rotatable, substantially as set forth, and whereby the dies are given a sharp quick blow, owing to the described curvature of the working faces of the anvils.

492,590. GRAIN-BINDER. ANDREW STARK, Chicago, Ill. Filed Mar 7, 1892. Serial No. 423,967. (No model.)



Claim.—1. In combination with a revolving holder, a clamp which saddles the holder flange, having one wing rigid with the holder bearing and the other wing hinged at a line fixed with respect to the rigid wing; substantially as set forth.

2. In combination with a revolving holder, a clamp which saddles the holder flange having both of its wings inflexible and one of them fixed with respect to the axis of the holder's rotation, and the other hinged at a line fixed with respect to the first wing; and a spring which tends to hold the hinged wing toward the flange; substantially as set forth.

3. In combination a rotary holder having an upstanding flange to engage the cord, and a clamp which saddles such flange and has one of its wings hinged at a line fixed with respect to the other, the axis of the hinge being parallel with the axis of rotation of the holder: substantially as set forth.

4. In combination with the holder having the upstanding flange to engage the cord, the saddle clamp having the outer wing pivoted to the holder bearing at the end of said saddle wing at which the cord enters the saddle substantially in line with the point at which the cord is first grasped between the holder flange and the saddle wing; and a spring which tends elastically to hold the remote end of the saddle wing toward the holder flange; substantially as set forth.

5. In combination with the holder having the upstanding flange to engage the cord; the clamping saddle comprising the outer wing provided with a spindle which forms its pivot, and bearings B^1 B^2 for said spindle, said frame being formed with a recess between said bearings, and the helical spring adapted to be lodged in said recess and to admit the spindle through it, one end of said spring being stopped against the frame, and the other engaged with said saddle wing: substantially as set forth.

6. In combination with the holder having the upstanding flange to engage the cord; a clamping saddle comprising an outer wing provided with a spindle which forms its pivot; bearings for the spindle formed in the frame, and a recess between said bearings; a spring lodged in said recess and around the spindle, and stopped against the frame at one end; the saddle wing having the notched flange F^2 extending upward past the lower of said bearings, and affording lodgment for the other end of the spring; substantially as set forth.

7. In combination with the holder having the upstanding flange to engage the cord, a saddle clamp for the same having the inner wing rigid with the holder spindle bearing, and the outer wing comprising the horizontal flange which overhangs the holder flange, and having a spindle adapted to be inserted upward into bearings formed adjacent to the holder spindle bearing; whereby the holder flange retains the outer saddle wing in place; substantially as set forth.

8. In combination with the breast-plate having the slot for the needle, and the finger A′ projecting from one side of the slot; the latch G extending alongside the path of the needle to the finger and provided with a nose G′ grainward from the finger; and a spring tending to hold the latch yieldingly toward the plane of the needle with its nose protruding into the path of the latter and its grainward portion barring the slot, whereby the advance of the needle, bringing it into engagement with said nose, causes it to force the latch aside and away from the point of the finger to open the slot past the latter: substantially as set forth.

9. In combination with the breast-plate having the slot for the needle and the finger A′ projecting from one side of the slot; the latch G extending alongside the path of the needle to the finger and provided with a nose G′ grainward from the finger; and a recess opposite the finger to receive the end thereof; and a spring tending to hold the latch yieldingly toward the plane of the needle with its nose protruding into the path of the latter, and the point of the finger entered in said recess; whereby the advance of the needle bringing it into engagement with said nose, causes it to force the latch aside and away from the point of the finger to open the slot past the latter, substantially as set forth.

10. In combination with the breast-plate having the slot for the needle and the finger A′ projecting into the slot from one side thereof, the latch G, pivoted to the breast plate and extending alongside the path of the needle past the end of the finger and notched at its extremity, and having the edge of the slot beyond the finger engaged in said notch; whereby that end of the latch is supported by the breast-plate; said latch having the nose G′, adapted to be engaged as described, by the needle, and being provided with a spring tending to hold the latch toward the point of the finger; substantially as set forth.

11. In combination, substantially as set forth, the breast-plate having the needle slot provided with the deflected portion extending around the finger A′, the latch G, pivoted to the breast-plate, extending alongside the stubbleward portion of the slot, and across the deflected portion to the point of the finger, and provided with the nose G′, projecting into the slot grainward of the finger and adapted to be encountered by the advancing needle; the breast-plate having the hollow boss open at the end abutting on the needle slot, and the spring lodged in said boss and stopped against the other end thereof and reacting at the open end upon the latch to force it yieldingly toward the plane of the needle; substantially as set forth.

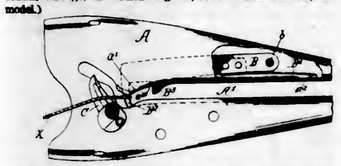
12. In combination with the breast-plate having the needle slot provided with a deflected portion near the knotter-bill to guide the cord toward the axis of the bill: a latch connected to the breast-plate and extending across the deflected portion of the slot to the end of the cord-guiding slope of the edge of said deflected portion and constituting a gate to close the slot at that point, said latch having a projection extending into the path of the needle and adapted to be encountered thereby as the needle advances to push the latch aside and open the slot; and a spring reacting against the latch to hold it yieldingly in closed position; substantially as set forth.

13. In combination with a breast-plate having a cord slot extending past the axis of the knotter, a movable obstruction in the slot normally closing it against the passage of the cord near the point where it is drawn over the bill by the recession of the needle; and a reciprocating needle arranged and adapted to move the obstructing latch or gate and retain it in such position as to open the slot for the passage of the cord while the knotter is revolved, substantially as set forth.

14. The combination, substantially as shown, of a cord holder disk having segmental upstanding flanges, each adapted to receive and carry the holder and needle cords together; a saddle clamp cooperating with said disk to hold the cords; and a knife attached to and revolving with said holder disk, arranged and adapted to cut both of the cords between said disk and the knotter-bill at each knotting operation.

15. In a grain binder, a knotter-bill with its pinion and delay surface adapted to give the knotter one revolution in tying the knot; a double segment crown cord holder disk with its pinion and delay surface adapted to give the disk a half revolution during each knotting operation, and bring it to rest with the spaces between the segments in position to receive the needle and holder cords together; a saddle cord holder clamp with one flange fixed and the other adapted to yield to the pressure of the cord; and a knife opposite each segmental flange revolving with the holder disk outside of the saddle clamp; all arranged and combined, substantially as set forth.

492,591. CORD-KNOTTER FOR GRAIN-BINDERS. ANDREW STARK, Chicago, Ill. Filed Aug. 20, 1892. Serial No. 443,632. (No model.)



Claim.—1. In a knotter for grain binders, the knotter-bill, the needle, and the breast-plate having the cord slot, in combination with a movable arm having a cord stop which normally extends across the slot between the knotter-bill and the bundle space, said arm having also a protrusion into the path of the needle, and thereby adapted to be actuated by the needle to withdraw the stop from across the slot, and thereby open a path for the cord past the knotter-bill: substantially as set forth.

2. In a knotter for grain binders, in combination with the knotter-bill, the needle and the breast-plate having the cord slot; a movable arm having a projection which normally bars the cord slot between the knotter-bill and the bundle and constitutes a cord stop; said arm having a protrusion into the path of the needle in position to be encountered and held aside by the latter at the end of its advancing movement, said arm being provided with a spring to restore it to normal position when the needle recedes from contact with it: substantially as set forth.

3. In a knotter for grain binders, in combination with the knotter-bill, the needle, and the breast-plate having the cord slot; an arm pivoted to the breast-plate on the side opposite the knotter-bill axis and having a projection which normally extends across the slot near the knotter-bill and constitutes a cord stop; and a spring which tends to hold said arm with said stop barring the slot, said arm having a protrusion into the path of the needle in position to be encountered and held aside by the latter at the outer limit of its movement, to withdraw the cord stop projection and open a passage for the cord past the bill: substantially as set forth.

4. In a cord knotter for grain binders, in combination with the knotter-bill, the needle and the breast-plate having the cord slot, the edge of which, on the side opposite the plane of the knotter-bill axis, is deflected toward that plane to guide the cord laid by the receding needle toward the knotter bill shaft; an arm pivoted to the breast-plate on the side of the slot opposite the knotter-bill axis, and having a finger projecting toward the opposite side of the slot and emerging past the edge of the slot from which it protrudes at the crest of said oblique deflection of that edge, and having a protrusion into the path of the needle, whereby it is adapted to be actuated by the needle when said projection is encountered and withdrawn to open the slot for the cord: substantially as set forth.

5. In a knotter for grain binders, in combination with the knotter-bill, the needle and the breast-plate having the cord slot; an arm movable with respect to the breast-plate having a projection which normally bars the cord slot and constitutes a stop for the cord, and having a protrusion into the path of the needle in a position to be encountered and held aside by the latter to withdraw the stop projection, said projection being so proportioned to the stop projection that the latter is not wholly withdrawn behind the edge of the cord slot from which it protrudes: substantially as set forth.

492,592. DETECTING APPARATUS FOR COIN-ACTUATED BOXES. GEORGE A. TAUBENSCHMIDT, Washington, D. C., assignor of one-half to Edwin S. Clarkson, same place. Filed Dec 6, 1892. Serial No. 454,366. (No model.)



Claim.—1. The combination with an opera glass, of an alarm mechanism attached thereto and an electrically controlled releasing device for said alarm mechanism, substantially as described.

2. The combination with a coin controlled receptacle of an opera glass; an audible signal on said glass; means to operate said signal, and a connection between the signal and receptacle for normally holding the signal out of operation.

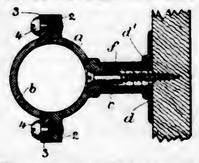
3. The combination with a receptacle, of an opera glass an audible signal attached to said glass and a connection between the glass and receptacle whereby said signal is operated only when said connection is broken.

4. The combination with an opera glass, of a magnet and an alarm mechanism attached to said glass, said magnet adapted to control said alarm mechanism and a circuit in said magnet said circuit being connected to a support for said glass whereby the alarm mechanism is operated by the breaking of the circuit.

5. The combination with an opera glass of a magnet, an alarm mechanism attached to said glass, and controlled by said magnet, a pawl operating as a detent for the alarm mechanism, an electric circuit in said magnet, said circuit being connected to a support for said glass.

6. The combination with an opera glass of an audible signal, a magnet a winding drum connected to said magnet, an escapement mechanism and circuit wires connected to said magnet, said wires forming a guard to connect said glasses to a stationary object.

492,598. PIPE-SUPPORT. GEORGE TAYLOR, Jersey City, N. J. Filed Oct. 7, 1892. Serial No. 448,127. (No model.)



Claim.—1. The combination with the two part ring clip adapted to surround and grip a pipe and an attaching screw, of a back plate and a ferrule between the back plate and the ring clip, the screw passing through the ferrule and plate, substantially as set forth.

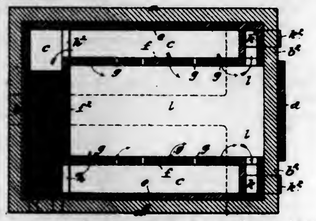
2. The combination with the two part ring clip and a perforated stud a' on one part of the clip, of an attaching screw passing through the stud a', a back plate d adapted to be secured in place and having a rib d', a ferrule e adapted to be received over the stud a' and within the rib d' and through which the attaching screw passes, substantially as set forth.

3. The combination with the two part ring clip a b and the perforated stud a' on one part thereof, of a back plate d adapted to be secured in place and provided with a rib d', the attaching screw c, a ferrule f composed of a series of rings setting against each other, fitting over the stud a' and received against the rib d' and through which the attaching screw c passes, substantially as set forth.

4. The combination with the back plate, the ferrule and an attach-

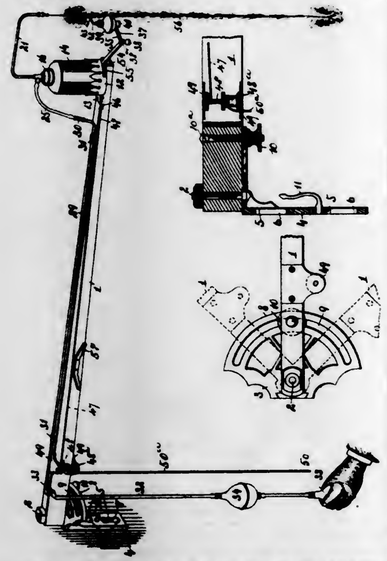
ing screw, of a support for a pipe having a stud a' and through which the attaching screw passes in securing the parts, substantially as set forth.

492,594. ANNEALING-FURNACE. GEORGE TOMKINSON, Tipton, England, assignor to Tomkinson & Mills, same place. Filed July 22, 1892. Serial No. 440,987. (No model.) Patented in England Mar. 26, 1889. No. 5,133.



Claim.—An annealing furnace having two walls at each side and at one end, forming an inner and an outer chamber with a free space around three sides of the inner chamber, the inner side walls being perforated in combination with a fire-place between the walls at the aforesaid end, and outlet passages leading from the lower part of the inner chamber at the end opposite the fire place, all substantially as and for the purposes set forth.

492,595. FIRE COMMUNICATOR OR DISPLAY DEVICE. GEORGE T. WARR, Pleasant Hill, Mo. Filed Mar. 26, 1892. Serial No. 426,564. (No model.)



Claim.—1. The combination of the bracket, the long horizontal arm supported on the bracket having flanges 13, 54, the cup 12 located between the flanges, the reservoir 14 supported in the cup, the tube 21 extending from the reservoir an air tube connected with the reservoir and supported by the arm and an air pumping device connected with the air tube; substantially as described.

2. The combination of a supporting arm, a reservoir 14, the discharge tube 21 extending from the reservoir, an air tube connected with the reservoir, a pumping device connected with the air tube, a pivoted arm and extension and a lamp supported on the extension, substantially as described.

3. The combination of a reservoir 14; means for supporting the same; means for conveying air into said reservoir, a tube for discharging the liquid from the reservoir; an adjustable arm a lamp; said lamp being supported on the adjustable arm; a cord in connection with said arm for moving the burner of said lamp into contact with the fluid discharged from said reservoir, and a spring for returning said arm and lamp back to their normal position; substantially as described and for the purpose set forth.

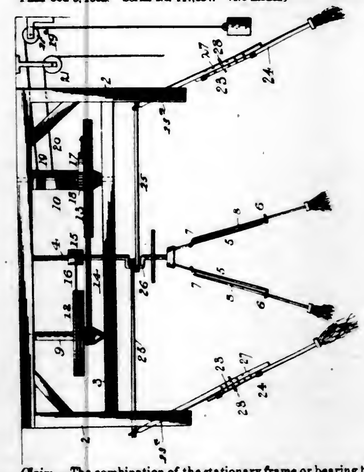
4. The combination of a reservoir 14, having a discharge tube 21; means for forcing air into said reservoir; a pivoted arm 35, having an extension 37; a thumb-screw 38, for adjusting said extension; a lamp 39, secured to said extension, a link 44; a cord 47, for moving said arm; to throw said lamp in contact with the fluid discharged from the tube leading from said reservoir, and a spring for throwing said arm 35, and the lamp supported thereon, to one side and out of contact with the stream shooting from said reservoir; substantially as described and for the purpose set forth.

5. The combination of a reservoir 14; a discharge tube leading therefrom; a plug 16, connected with said reservoir, and forming a tight connection with said discharge tube; said plug having an air space 28; a tube 24, connected therewith, and having a central opening; a pipe 25, connected with said tube, and means for forcing air through said pipe 25, into said reservoir; substantially as set forth.

6. The combination of a pivoted arm 1; a reservoir 14, supported thereon having a discharge tube 21; an air tube secured along said arm and connected with said reservoir, and bulbs 33, 34, on said air tube by which air is forced through the latter; substantially as and for the purpose set forth.

7. The combination of the pivoted arm 1; a reservoir 14, supported thereby; a discharge tube 21; an air tube leading into said reservoir; a pivoted arm supported by the arm 1; a lamp on said pivoted arm; a cord connected with the arm which supports the lamp; said cord extending around the pulley 48, for operating said lamp supporting arm; substantially as and for the purpose set forth.

492,596. ROTARY FLY-FAN. MARSHALL V. FITE WATER, Cross Anchor, Tenn., assignor of one-half to Marion W. Gass, same place. Filed Oct. 3, 1892. Serial No. 447,697. (No model.)

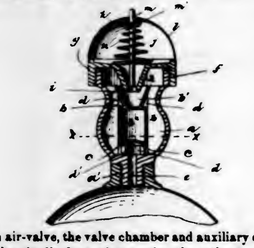


Claim.—The combination of the stationary frame or bearing having depending arms at each end, the depending rotary shaft provided with a crank and with diverging extensible arms or brush-holders at its lower end, the described mechanism for revolving said shaft, the extensible arms or brush-holders pivoted in the depending end-pieces of the frame, and the pitman connecting the free upper ends of said extensible brush-holders with the crank of the central rotary shaft, substantially as and for the purpose herein shown and described.

492,597. AIR-VALVE. FRANK K. WAY, Dayton, Ohio, assignor to the Pasteur-Chamberland Filter Company, same place. Filed June 28, 1889. Serial No. 315,946. (No model.)

Claim.—1. The combination with an inverted, truncated, cone shaped valve of flexible material, located in a valve chamber having a central opening extending into said chamber, supporting seats, and the lateral openings connected to said central opening, of an inverted truncated valve seat having an opening therein, substantially as specified.

2. In an air-valve, the valve chamber and the auxiliary chamber arranged above the same, a longitudinal opening connecting said chambers through an inverted, truncated, cone shaped valve seat, a flexible valve adapted to fit on said seat, and a valve support in said valve chamber, substantially as specified



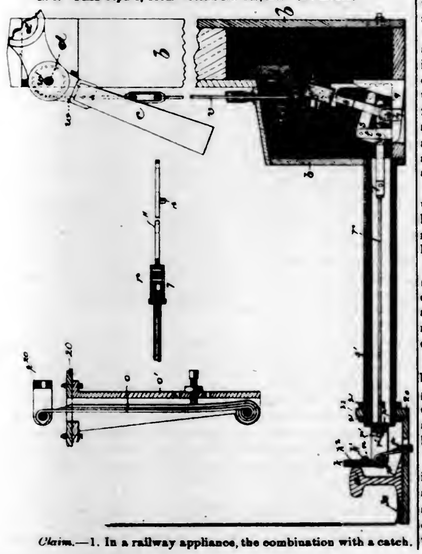
3. In an air-valve, the valve chamber and auxiliary chamber connected by a longitudinal opening passing through a truncated, cone shaped valve seat, a flexible valve adapted to fit over said seat in said valve chamber, and a push rod extending through said auxiliary chamber and said valve seat, substantially as specified.

4. The combination with an inverted cone-shaped valve formed of rubber with an air-chamber integral therewith, and a corresponding valve-seat with which said valve is adapted to engage, of a push-rod extending through said valve-seat to disengage said valve, substantially as specified.

5. The combination with the valve chamber having the lower valve support and the lateral openings therein, an inverted, truncated, cone shaped valve adapted, normally, to rest on said support, a cap forming the top of said valve chamber provided with an inverted, cone shaped valve seat with a central opening therein, an auxiliary chamber above said cap connected to said opening, an outlet opening to said auxiliary chamber, a push rod in said auxiliary chamber passing into said valve seat, and a spring adapted to return said push rod to its normal position when depressed, substantially as specified.

6. The combination with a valve chamber having a valve seat therein, of a valve adapted to rise against said seat, said valve being constructed of rubber and formed with an air chamber below said valve substantially as specified.

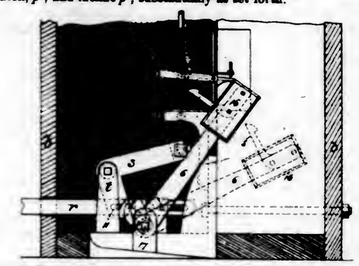
492,598. RAILWAY APPLIANCE. JAMES WAYLAND, Newark, N. J. Filed Sept. 9, 1892. Serial No. 445,495. (No model.)



Claim.—1. In a railway appliance, the combination with a catch, p^3, of a tread-lever having the anticlinal catch projection, k', substantially as set forth.

2. In a railway appliance, the combination with a catch, p^3, of a wedge like tread lever having a co-operating catch substantially as set forth.

3. In combination with the rail, a tread, k, having incline n, and catch, k', a plunger for holding the parts to be affected on the passing of a train in normal position, said plunger having a co-operating catch, p^3, and incline p^5, substantially as set forth.



4. In a railway appliance, the combination with a spring controlled plunger having a catch for holding a tread in its depressed position, of said tread having an incline to engage said plunger and a co-operating catch, substantially as and for the purpose set forth.

5. In a railway appliance, the combination with a spring controlled, horizontally-movable plunger having an inclined bearing, of a tread engaging said bearing and adapted to force said plunger horizontally and hold it in its abnormal position substantially as set forth.

6. The combination with a tread and catch, k', having incline, k^3, of a plunger for holding the appliances in normal position and having a co-operating catch substantially as set forth.

7. In combination with a tread having incline or wedge n, and catch k', a plunger, p, having co-operating catch p^3 with incline p^5, substantially as and for the purposes set forth.

8. The combination with a tread-lever arranged parallel with the rail and having a wedge or lateral incline to throw a plunger laterally from the track, of said plunger having a spring for pressing the plunger against said incline and raising said tread, substantially as set forth.

9. In combination with the rail, a plunger for holding appliances in normal relation to the track or rail, a spring holding said plunger in such relation, a tread, k, and a wedge, pressing said plunger against the power of the spring to release said appliances, substantially as and for the purposes set forth.

10. In combination with the rail, a tread provided with a catch, a plunger having a co-operating catch, a spring holding said catches in engagement, an independently movable rod r, crank or lever s, and connections u, a weighted lever 6, having a catch 5, and a bearing 13, to engage a co-operating bearing on the rod r, a co-operating catch for holding the weight in its elevated position means for operating said co-operating catch upon the passage of the train from the block and allowing said weight to fall and throw the rod r longitudinally against the power of the spring and release said catches on the tread and plunger, substantially as set forth.

11. In combination with the railway rail, a tread k, a spring actuated plunger movable laterally under the power of the tread and having a hollow bearing at its outer extremity and an independently movable rod connecting with parts or appliances to be operated and having a head, r', in said hollow bearing, substantially as set forth.

12. In combination with the rail and bracket, p^2, a plunger, consisting of a vertical portion, p', horizontal portion, p^3, having a helical spring, o, thereon and a hollow bearing at the outer end thereof, and a headed rod arranged in said hollow bearing and having a movement with said horizontal portion and another movement independent thereof, substantially as set forth.

13. In combination with the rail and tread k, a pivoted plunger portion adapted to be moved laterally by the tread, a horizontal plunger portion engaging said pivoted plunger portion at one end and engaging an independently movable rod, r, at the other and having a spring thereon, and said rod r, connecting with the appliances to be operated, substantially as set forth.

14. In combination, the tread k, having a catch k', a plunger having a catch p^3, a spring, o, an independently movable rod r, also movable with said plunger, an electro magnet controlled by the train, an armature catch a weight free to gravitate when released from said catch, the said weight controlling a hammer, the blow of which throws the rod, r, and plunger p, against the spring, o, to release the

catches k', p^3, and means for throwing the tread upward when released, substantially as set forth.

15. In combination with a tread and plunger, each having catches co-operating to hold the tread down after the passage of the train, a spring for elevating the tread upon the release of the catches and means for releasing the catches from engagement, substantially as set forth.

16. In a railway appliance, the combination with a rail, a bracket, l, having vertical part, l^3, and bolt, m, and a tread lever fulcrumed on said bolt and having a wedge like or inclined bearing and catch, of a spring actuated plunger adapted to be engaged by the inclined bearing of the lever and forced horisontally to an abnormal position substantially as set forth.

17. In combination with the rail and tread lever, a bracket consisting of a plate, l', extending under the flange of the rail, a vertical portion, l^3, at one side of said flange, having a projection l^4, bearing on the top of said flange and having bearings for the fulcrumal bolt m, said bolt, m, and a headed bolt, l^5, co-operating with the projection, l^4, in holding the plate l', up to the bottom of the flange, substantially as set forth.

18. In combination with the rail, a, and tread lever k, a bracket consisting of the horizontal part l', vertical part l^3, having bearing m, for the lever and projection l^4, for the top of the rail flange and a brace or backing, l^5, for a headed bolt, l^5, and said bolt, substantially as set forth.

19. In combination with the pivoted plunger portion, p', having a tread bearing, and bearing for a horisontal plunger portion, said horizontal plunger portion, of tubular form and an independently movable rod r, and a spring o, substantially as set forth.

20. In combination with the rail and tread, a vertical plunger portion having a bearing tongue p^4, a tubular horizontal portion having a spring, o, and nuts, p^5, thereon and receiving said tongue at one end and a rod, r, at the other and said rod connecting with the appliances to be operated and movable independent of the said horizontal plunger portion, substantially as set forth.

21. In combination with the rail, tread, and spring actuated plunger, a rod, r, movable horizontally independent of the plunger and made in sections adjustable one in relation to the other, substantially as and for the purposes set forth.

22. The combination with the rail, plunger, tread and independently movable rod, r, extending to the base of standard or post b, and connecting with devices or appliances to be operated on the passing of a train, of a tube inclosing and protecting said rod and extending to said post, substantially as set forth.

23. The combination with the rail, bracket, 20, secured to said rail, a tread, plunger and rod r, connecting with the appliances to be operated, of a tube having bearings on said bracket and inclosing and protecting said rod, substantially as set forth.

24. In combination with the rail and bracket 20, a tread and spring actuated plunger, a rod movable independent of said plunger and also having a movement with said plunger, and a threaded tube supported at one end by said bracket and held thereto by nuts 21, inclosing said rod and extending to and supported at its opposite end by the standard, b said standard and appliances operated by said rod, substantially as set forth.

25. In combination with a tread and plunger, a rod, r, movable with and independent of the plunger, a pulley or crank connected with said rod the connection between said rod and crank or pulley admitting of an independent movement, and a hammer or weight for producing a movement of said rod, substantially as set forth.

26. In combination with the rail, tread k, plunger, spring o, crank s, and appliances operated thereby, a rod r, having slot 11, and pin 8, connecting with the crank, and also having a bearing 12, a lever 6, having weight 16, and bearing 13, to engage the bearing 12, a catch for said weight and means for releasing the catch when the train passes from the block substantially as set forth.

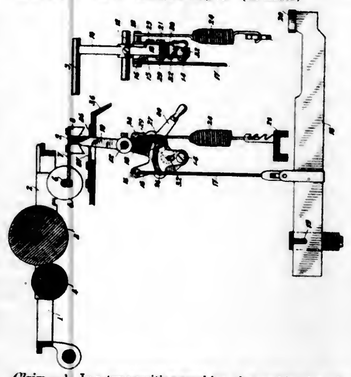
27. In a railway appliance, the combination with a treadle having an inclined bearing and a catch, of a plunger controlled by a spring and adapted to be caught by said catch and held in caught engagement by said spring and a releasing apparatus adapted to disengage the said catches and an electro-magnet and armature and connections adapted to be controlled by the passing train and actuate said releasing apparatus to cause the same to overcome the action of the spring and release said catches, substantially as set forth.

28. In a railway appliance, the combination with catching means for holding the appliance parts in abnormal positions, of a hammer like releasing device controlled by electro-magnetical devices adapted to be operated upon by the passing train, the catching means being released by the impact or blow of said hammer like part or device when acted on by the passing of the train into connection with the electro-magnetical devices, substantially as set forth.

29. In a railway appliance, the combination with a circuit closing device operable by a passing vehicle, an electro-magnet embraced in the electric circuit common to said circuit-closing device, of a weight or hammer adapted to receive, store up and deliver force for releasing a catch or detent and said catch or detent adapted to be brought to its caught or detaining position by the wheel of the vehicle substantially as set forth.

30. In a railway signaling apparatus, the combination with two distinct recipients of power o, 16, and means for transmitting power thereto from a passing train, means connecting said recipients whereby when one of said recipients is released the power stored therein will be transmitted to the second recipient to release the latter and admit the application of the power stored therein to effect a signaling and catches or holding means for holding said recipients in abnormal positions temporarily, substantially as set forth.

492,599. TYPE-WRITING MACHINE. George B. Weed, New York, N. Y., assignor to the Wyckoff, Seamans & Benedict, same place. Filed Sept. 26, 1892. Serial No. 446,876. (No model.)



Claim.—1. In a type-writing machine, the combination of a shifting platen-carrier, a vibratory shift rod, a spring-actuated lever, and a lever connected thereto to be moved thereby and also connected to the finger-key in substantially the manner and for the purposes set forth.

2. In a type-writing machine, the combination of a shifting platen carrier, a vibratory shift-rod, a lever, a spring applied thereto at one side of the axis of vibration of the shift rod, a second lever connected to the first mentioned lever so as to be moved thereby, a connecting rod applied to the second mentioned lever on the opposite side of the axis of vibration of the shift rod, and means for moving upon said connecting-rod.

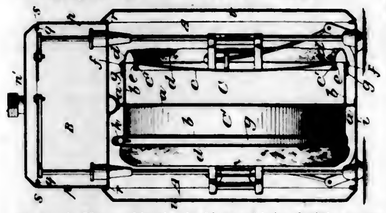
3. In a type-writing machine, the combination of a shifting platen-carrier, a vibratory shift rod, a lever, a spring applied thereto on one side of the axis of vibration of the shift rod, a second lever, a finger-key connected to said second lever on the opposite side of the axis of vibration of said shift rod, and connecting devices between said levers, whereby, when the first mentioned lever is moved to the opposite side of the axis of vibration of the shift rod, the second mentioned lever is simultaneously moved in the reverse direction.

4. In a type-writing machine, the combination of a shifting platen carrier, a vibratory shift rod, a lever provided with a handle, an arm, and a projection, a spring connected to said lever on one side of the axis of vibration of the shift-rod, a second lever provided with a slot for engagement of the projection of said first mentioned lever and connected to a key-lever on the opposite side of the axis of vibration of said shift rod, whereby when said handle portion is vibrated the said levers are caused to cross each other, substantially as and for the purposes set forth.

5. In a type writing machine, the combination of a platen-carrier, a vibratory shift rod mounted on a pair of levers, one of which is provided with a downward extension, a lever pivoted to said extension and provided with a slot, a handle portion, an arm, and a projection, and having a slot to embrace a stop on said extension, a spring connected at one end to the stud, and at its other end to a fixed portion of the machine, a second lever pivoted to said extension and provided with a stud and an opening for the reception of said projection, and having a slot embracing a stop on said extension, a rod attached to the stud of said second lever at its upper end and connected at its lower end to a key-lever.

6. In a platen shifting mechanism, having a spring and a finger mechanism, a pair of connected switch-levers, one lever being connected to the spring, and the other to the finger mechanism, the arrangement being such that the switch-lever connected to the spring may, when shifted, operate in turn to shift the switch-lever connected to the finger-mechanism in substantially the manner and for the purposes set forth.

492,600. GAS-METER. Samuel Williams, New York, assignor to himself, and Walter Henry Crump and Thomas Martin, Brooklyn, N. Y. Filed Apr. 26, 1892. Serial No. 430,679. (No model.)

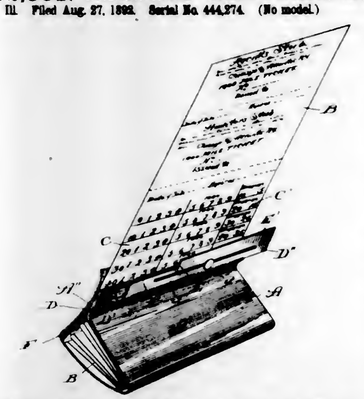


Claim.—1. The combination in the movable head of the measuring chamber of a gas meter, of a metal disk having an inwardly turned marginal flange c', an annular flexible diaphragm having its inner margin drawn over the said flange, and a clamping band e surrounding said inner margin and flange, substantially as herein set forth.

2. In the measuring chamber of a gas meter, the combination of a fixed outer rim, of a movable head consisting of a metal disk and an attached flexible annular diaphragm the outer margin of which overlaps said rim, a clamping band which is open at one point in its circumference and a spring applied to said clamping band for the purpose of tightening it upon said diaphragm and outer rim but permitting its removal therefrom, substantially as herein set forth.

3. The combination in the meter case of one piece comprising the bottom i, the opposite sides $j\ j$ and $k\ k$, of the main casing A and gallery B and the flanges $l\ l$ of said sides, and one other piece comprising the desk or table-top o, the sides $p\ p$ of the gallery and the flanges $q\ q$ of said sides, the edges of the said table-top being soldered between the sides $j\ j\ k\ k$ of the main casing and gallery, substantially as herein set forth.

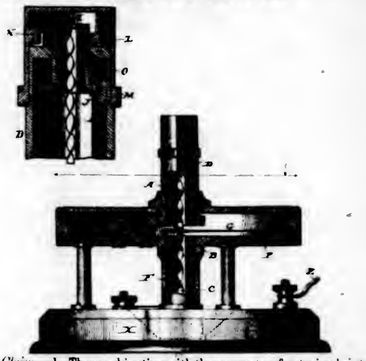
492,601. RAILROAD-TICKET. Benjamin B. Anderson, Chicago, Ill. Filed Aug. 27, 1892. Serial No. 444,274. (No model.)



Claim.—1. In a railroad ticket, the combination of a case or cover comprising a back and two flaps, and a strip folded within such cover, whereby when the edges of the flaps are brought together a guiding slot will be formed between them through which the tickets may be drawn and a chamber formed within the cover within which the strip may unfold as it is drawn out, substantially as described.

2. In a railroad ticket, the combination of a case, or cover, a strip folded within said cover,—the former constructed so that when the edges of the cover are brought together a guiding slot will be formed between them through which the ticket or strip may be drawn and a chamber will be formed within the cover within which the strip may be unfolded as it is drawn out, and an adjustable cutter secured to the cover by means of which the ticket may be separated as it is drawn from the cover, substantially as described.

492,602. HEAT-MEASURING DEVICE. William E. Ayrton and John Perry, London, England; said Ayrton assignor to Charles Edward Holland, same place. Filed Mar. 7, 1892. Serial No. 424,044. (No model.) Patented in England Feb. 23, 1889, No. 3,213.



Claim.—1. The combination with the supports, of a strained right and left twisted strip, and a pointer connected therewith, substantially as described.

2. The combination with the supports, of a strained right and left twisted strip secured at both ends to the supports and held under tension, a pointer secured to the strip at its central portion, and a dial arranged in juxtaposition to the pointer substantially as specified.

3. The combination with the supports mounted in a tubular casing, of a twisted strip, part of which has a right hand twist, and part a left hand twist fixed in said supports and held under tension, and a pointer secured to the strip between the right and left hand twist, substantially as specified.

4. The combination with the tubular case arranged to compensate for changes of temperature, and supports mounted in the case, a strained right and left twisted strip secured in said supports under tension, and a pointer connected therewith, substantially as described.

5. The combination with the portion D of the tubular casing of means for fastening the end A of the twisted strip consisting of the slotted screw piece J projection K movable cap M projection N slotted nut L and spring O substantially as specified

6. The combination with the portion F of the tubular casing of the insulated metallic block H to which the end C of the twisted strip and the wire Z are fastened substantially as specified.

7. The combination with the twisted strip and its index finger of a tubular casing covering in the strip and a circular casing covering the index finger in all its movements and containing the graduated scale plate.

8. The combination with the twisted strip A B C of an extra resistance R' for the purpose of enabling the strip to be used as a high reading voltmeter.

9. The combination with twisted strip A B C of a conductor or resistance R'' connected in parallel with the strip so that a portion of the current passes through each thus enabling the strip to be employed as a high reading ammeter.

10. The combination with the twisted strip A B C of a transformer Q S substantially as described for measuring alternating currents.

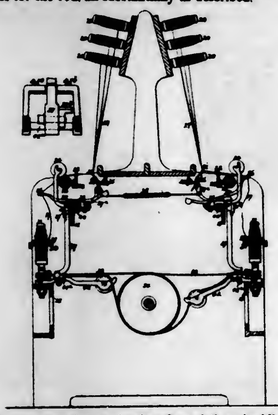
492,608. STOP-MOTION FOR TWISTING, DOUBLING, WINDING, OR ANALOGOUS MACHINES. John Boyd and Thomas A. Boyd, Glasgow, Scotland. Filed Nov. 3, 1891. Serial No. 410,811. (No model.) Patented in England Dec. 23, 1888, No. 18,990.

Claim.—1. The combination of the weighted lever 42 and vertical rod 37 of a stop motion mechanism for twisting, doubling, winding and analogous machines, with the rail and spindle socket and a bracket having a fulcrum for the weighted lever and guides for the said vertical rod, all substantially as described.

2. In a stop-motion mechanism for twisting, doubling, winding and analogous machines, the combination of the weighted lever 42 and vertical rod 37 carrying a gripping piece, with the rail and spindle socket and a bracket having a fulcrum for the weighted lever and band grips and guides for the rod, substantially as described.

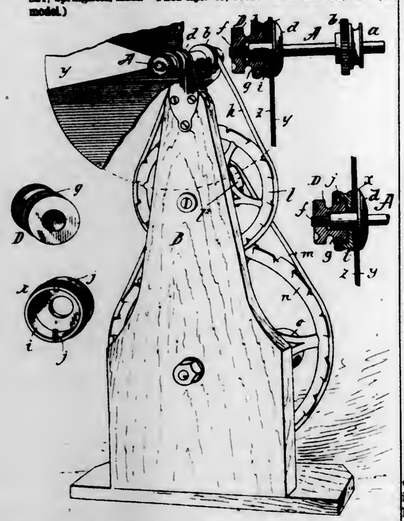
3. In a stop motion mechanism for twisting, doubling, winding and analogous machines, the combination of the weighted lever and vertical rod 37, the rail and spindle socket with a bracket separate from the socket but clamped between the latter and the rail and car-

rying a pivoted catch for the spindle, a pivot for the weighted lever and guides for the rod, all substantially as described.



4. In a stop motion mechanism for twisting, doubling, winding and analogous machines, the combination of the vertical catch rod 37 having a gab-shaped bottom, with a weighted lever having an adjustable screw pin 42ª with a transversely rounded head adapted to said gab-shaped bottom, substantially as described.

492,604. COLOR-DISK ROTATING MECHANISM. MILTON BRADLEY, Springfield, Mass. Filed Apr. 25, 1892. Serial No. 430,473. (No model.)



Claim.—1. In a color disk rotating machine, the rotating spindle supported in suitable journal boxes, means for rotating said spindle, a shoulder on the spindle against which the perforated disk bears, and a clamping nut engaging a thread on the spindle outside the clamping disk from said shoulder, and an interposed ring, connected to the nut to move axially but not rotatively therewith, all combined substantially as described.

2. In a color disk rotating machine, the rotative spindle supported in suitable bearings and power gear for driving the same, a knurled disk on the spindle for engagement of the hand, a shoulder on the spindle and the perforated disk resting against said shoulder, and the set nut engaging a thread on the spindle outside said disk, having an interposed ring connected to the nut by pins entering an annular groove in the nut, all combined substantially as described.

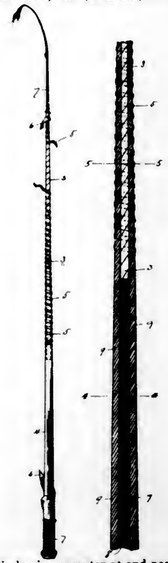
3. The rotating shaft supported in suitable bearings and having a pulley thereon, a shoulder on said shaft and the disk sectors resting against said shoulder, the set nut having screw engagement with the shaft outside the sector, and a ring connected to said nut to partake of its longitudinal but not of its rotative movement, all combined substantially as described.

492,605. PUZZLE. GEORGE T. BRADLEY and MILTON H. BRADLEY, New Haven, Conn. Filed Sept. 21, 1892. Serial No. 446,364. (No model.)



Claim.—The herein described puzzle, consisting of a tube closed at both ends, the interior of the tube exposed to view through its surface, combined with one or more balls within said tube, the said balls so much less in diameter than the internal diameter of the tube as to permit the free movement of the balls longitudinally within the tube, and one or more smaller balls arranged within the said tube, the said larger balls constructed with a cavity opening to the surface of the ball, the said opening slightly larger than the smaller balls, and the said cavities adapted to receive the smaller balls through said opening, substantially as described.

492,606. WHIP. HENRY J. BUSH, Westfield, Mass. Filed Nov. 18, 1889. Serial No. 330,778. (No model.)

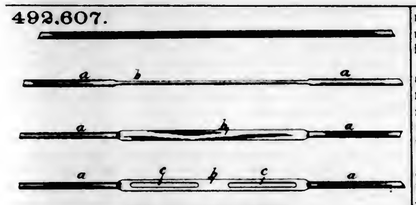


Claim.—A whip having a center at and near its handle portion of rattan, a center above said rattan center of twisted raw-hide, sidings and chink-pieces of rattan secured around said centers, a metallic binding-strip, substantially as described, wound spirally outside of said sidings and pieces above said rattan center in a direction reverse to the twist of said center, and a suitable lining and outer covering, substantially as set forth.

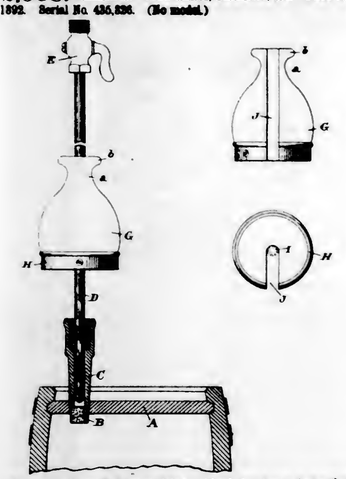
492,607. METHOD OF FORMING BUTTON-HOOKS. GEORGE HAVELL, Newark, N. J. Filed Mar. 4, 1892. Serial No. 423,725. (No specimens.)

Claim.—The method of making button hooks, which consists in flattening a wire for a suitable space, punching a slot having parallel sides in such flattened portion, then expanding the slot into suitable shape to form the eye, and finally rounding the inside of the eye, substantially as set forth.

492,607.



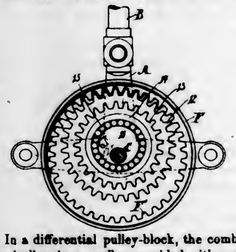
492,608. MALLET. JOHN KRATS, Baltimore, Md. Filed June 7, 1892. Serial No. 436,236. (No model.)



Claim.—1. A mallet comprising a block having a bore through its center and a radial slot extending from said bore to the outside of said block and the length of the same.

2. A mallet device for driving bung-bushings into beer-kegs, having in combination a bung-bushing; a drawing-off tube fitted to the said bung-bushing; and a mallet having a central bore to receive the said tube and reciprocate thereon and strike the bung-bushing.

492,609. DIFFERENTIAL PULLEY-BLOCK. EDWARD Y. MOORE, Milwaukee, Wis. Filed Oct. 27, 1892. Serial No. 450,150. (No model.)



Claim.—1. In a differential pulley-block, the combination with an axle, of an encircling loose pulley provided with gear, a toothed wheel mounted on the axle meshing with the pulley-gear for transmitting motion to and from the pulley, an interposed free friction bearing ring and means for locking the ring against independent rotation in one direction, substantially as described.

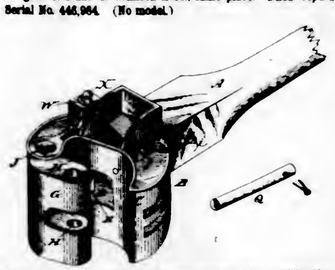
2. In a differential pulley-block, the combination with an axle, an eccentric rigid on the axle, and a double gear wheel mounted and revoluble thereon adapted for transmitting motion to a loose pulley, of a free friction bearing ring within the double wheel, and rollers interposed between the ring, and eccentric, as set forth.

3. In a differential pulley-block, the combination with an axle, an eccentric rigid on the axle, and a double gear-wheel mounted and revoluble thereon, of a free bearing ring within the double wheel, rollers interposed between the ring and eccentric, and means for locking the ring to the eccentric against rotation thereon in one direction.

4. In a differential pulley-block, the combination with an axle, an eccentric rigid on the axle and a double gear-wheel mounted and revoluble thereon, of a free bearing ring within the double wheel, rollers interposed between the ring and eccentric, and a pawl provided with a spring arranged to engage a roller, and block the rotation in one direction of the ring on the eccentric.

5. In a differential pulley-block, the combination with an axle, of an encircling loose pulley, a gear wheel for transmitting motion between the axle and the pulley, a free friction bearing ring interposed between the gear wheel and the axle, rollers on which the ring revolves about the axle, and means for locking the ring to the axle against rotation thereon in one direction, as described.

492,610. CAR-COUPLING. THOMAS L. MCKEEN, New York, N. Y., assignor to Isaac G. Johnson & Co., same place. Filed Sept. 26, 1892. Serial No. 446,964. (No model.)



Claim.—1. In a "twin-jaw" car-coupler, the combination of the recessed drawhead, the pivoted knuckle having a shouldered recess at its inner end, and the hinged latch shaped at its free end to fit into and interlock with the shouldered recess in the knuckle, substantially as and for the purpose set forth.

2. In a "twin-jaw" car-coupler, the combination of the recessed drawhead having an opening in the bottom of its recess, and the pivoted knuckle provided with a shouldered locking recess at its inner end, having an aperture coinciding with the opening in the bottom of the drawhead recess when the knuckle is closed or locked; substantially as and for the purpose set forth.

3. In a "twin-jaw" car coupler, the combination of the recessed drawhead, the pivoted knuckle having a shouldered locking recess at its inner end, and the latch hinged loosely at one end upon a pin so as to give it free play in the direction of its length, and having a nose or offset at its free end adapted to fit into and interlock with the shouldered recess in the knuckle; substantially as and for the purpose set forth.

4. In a "twin-jaw" car-coupler, the combination of the recessed drawhead having beveled projection *c*, the pivoted and recessed knuckle, the hinged latch working loosely on its hinge-pin, and the lifting-plate having a projecting nose impinging against the underside of the projection *c*; substantially as and for the purpose shown and set forth.

5. In a "twin-jaw" car-coupler, the combination of the recessed drawhead provided with the housing V having apertures W and *j*, the pivoted knuckle having a shouldered locking recess at its inner end, the hinged latch having projection *g*, the lifting plate or rod hinged to the free end of the latch and passing up through the top aperture W, and the link *h* and chain *i* fastened in the latch projection *g* and inserted through the aperture *j* in the housing, substantially as and for the purpose set forth.

492,611. ALARM FOR WATCHES. JOHN W. HUNAMAKER, Chicago, Ill., assignor of one-fourth to Harvey L. Hopkins, same place. Filed Jan. 26, 1892. Serial No. 419,282. (No model.)

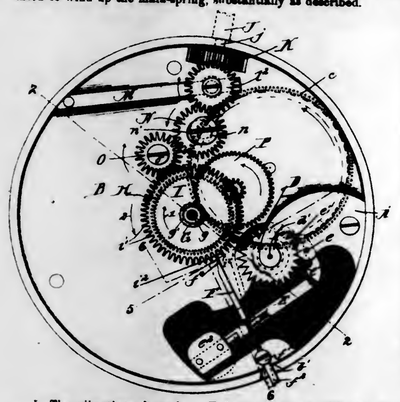
Claim.—1. The escapement wheel D, in combination with the winding-gear *e'*, connected to one end of the main spring, the hammer lever E provided with pallets *e'*, and the stop lever F arranged to engage with the hammer lever and thereby act as a stop to both the alarm and the winding-gear, substantially as described.

2. The escapement wheel D, in combination with the winding-gear *e'* engaging with the pinion on the arbor of the former, the vibrating alarm lever E provided with pallets *e'* adapted to engage with the teeth of the escapement, the stop lever F adapted to engage with the alarm lever, and the trip gear I mounted on the journal of the

hour-wheel and provided with a long tooth i^3 adapted to engage with the said stop lever to trip the same, substantially as described.

3. The winding-gear d', in combination with the escapement wheel D arranged to be driven by said winding-gear, the pivoted alarm lever E, provided with pallets engaging with the said escapement wheel and with stop lugs e^3, the stop lever F provided with shoulder f^3 adapted to engage with one or the other of said stop lugs to hold the alarm and winding-gear in a state of rest, substantially as described.

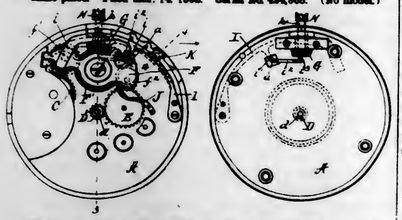
4. The winding-gear d', in combination with the escapement wheel D, the arbor d^2 of said escapement mounted at its lower end in a slot d^5 and provided with a pinion d^3 engaging with the winding-gear, and a spring D' adapted to hold the arbor up to cause said engagement, but yielding to permit disengagement when the winding-gear is rotated to wind up the main-spring, substantially as described.



5. The vibrating alarm lever E, in combination with the stop lever F arranged to engage the former and hold it at rest, the trip wheel I provided with gear-teeth i' and a long tooth i^3 adapted to engage the inner end of said stop lever, the pinion O arranged to engage with said trip wheel, the idle pinion N mounted on its journal by an enlarged opening to permit lateral movement thereon, the driving pinion i^5 engaging with said idler N, and the stem gear K engaging with said driving pinion, whereby, when turned in one direction, the idler is moved into engagement with the pinion O to set the trip gear and turned in the other direction the idler is moved away from and out of engagement with said gear, substantially as described.

6. The escapement-wheel D, in combination with the alarm lever E provided with pallets engaging therewith, the winding-gear d' provided with a dead space or blind tooth e^3, and the pinion d^3 fixed on the arbor of the escapement-wheel and engaging with the said winding gear, substantially as described.

492,612. STEM WINDING AND SETTING WATCH. JOHN W. HUBBAKER, Chicago, Ill., assignor of one-fourth to Harvey L. Hopkins, same place. Filed Mar. 14, 1892. Serial No. 424,863. (No model.)

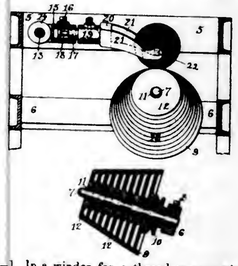


Claim.—1. In a winding and hand setting mechanism for watches, a vibrating yoke F, in combination with the pinions f', f^3, mounted on its respective ends, the gear F', the tubular pinion G, the sliding stem H, the inner end of which moves in said tubular gear, and the spring I fixed at one end and connected at its free end to the outer end of the yoke and provided with an arm i bent inward and downward through the front plate and having at its extremity a toe i^3 projecting into the central opening of the pinion A just in front of the inner end of the stem, substantially as described.

2. In a winding and hand setting mechanism for watches, the vibrating yoke F, in combination with the pinions f', f^3 mounted at its opposite ends, the springs I fixed at one end to the front plate and connected at the other to the yoke, and a cam K arranged just outside of the spring and adapted to be turned to force the latter inward and retain it in such position when the movement is detached, substantially as described.

492,613. WINDING-MACHINE. WILLIAM C. PIERCE, Providence, R. I. Filed July 27, 1892. Serial No. 441,378. (No model.)

Brief.—The driving-drum is composed of a series of disks, the base-disk being positively rotated and the other disks being rotated by frictional contact with the base-disk. The bobbin-frame is provided with a shank having a reduced portion which fits in a socket and is held by a set-screw, whereby the frame can both rotate and reciprocate.



Claim.—1. In a winder for a thread or yarn-winding machine, the combination with a shaft or pin, and a positively-driven base journaled thereon, of a series of independently-rotatable disks also journaled on said shaft, the outer surfaces of the disks and base being tapered to form a truncated cone, as described.

2. In a winding-machine having a suitable quill or bobbin support, the combination with the inclined-pin 7 secured in the rail 6, a base-disk 9, adapted to be positively driven, journaled on said pin, and a tubular-bearing 11 extending from the central portion of the disk and surrounding said pin, of a number of disk-sections 12 independently rotatable on said tubular bearing and having their lower surfaces more or less cut away, the outer edge surfaces of the disks and base being tapered so that when placed in position a truncated cone will be formed, as described.

3. In a thread or yarn winding machine having a suitable winder, the combination therewith of a quill or bobbin support, consisting of a frame in which the quill or bobbin may be rotatably secured, a supporting-member secured to said frame, and a rocking-bearing in a socket of which the end of the member is free to automatically rotate and reciprocate, as described.

4. The combination with a cone-winder suitably supported and consisting of the base-disk 9, having the pulley 10 and the tubular-bearing 11, the inclined-pin 7, on which said bearing is rotatable and a series of independently-rotatable disks 12—12, of a quill or bobbin frame 20 adapted to carry a quill or bobbin, a member 17, having the reduced portion 18, rigidly secured to said frame, a shaft 13 and the sleeve 14 journaled on the shaft 13 and having the socket 15 adapted to receive the reduced portion of the member 17, and a set-screw for securing the same, as and for the purpose described.

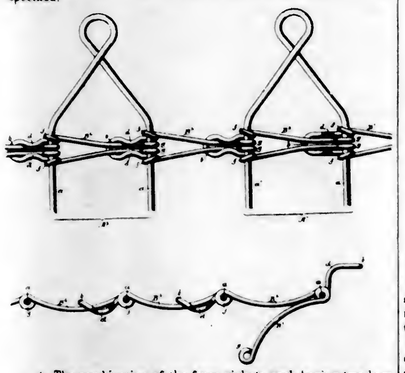
5. In a winding-machine, the combination with a winder, of a quill or bobbin frame 20 adapted to carry a quill or bobbin, a member 17 having the reduced portion 18 said member being adjustably secured to said frame, the shaft 13 and the sleeve 14 journaled thereon and having the socket 15 adapted to receive the reduced portion of the member 17, said member 17 being free to move back and forth in the member 15 and a set-screw for limiting the reciprocation of said member, as described.

492,614. FOLDING FENCE. WILLIAM PURLING, Roanoke, Va., assignor of one-half to John Bird, same place. Filed Nov. 11, 1892. Serial No. 451,659. (No model.)

Claim.—1. The combination of the pickets of the fence each having two bars with links having eyes for the reception of the bars of the pickets, each link also having a projecting portion for engagement with part of an adjoining link, whereby the successive links may be locked together, substantially as specified.

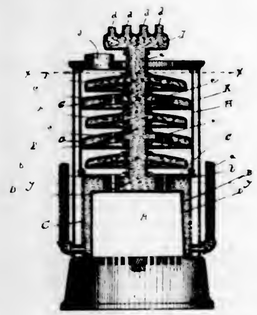
2. The combination of the pickets of the fence each having two bars, with links having eyes for the reception of the bars of the pickets, each link also having a projecting portion looped so as to overlap and engage with a portion of an adjoining link, substantially as specified.

3. The within described link for a wire fence, the same consisting of a piece of wire having a loop at or about the center, each run of the wire beyond said loop having a reverse loop, an eye adjacent to said loop and another eye at the outer end, substantially as specified.



4. The combination of the fence pickets, each having two bars, with connecting links, each consisting of a wire bent to form a central loop, each run of the wire having adjacent to said central loop, another loop in a reverse direction, and also having two eyes formed upon it at a distance apart, said eyes receiving the bars of a picket or of adjoining pickets, substantially as specified.

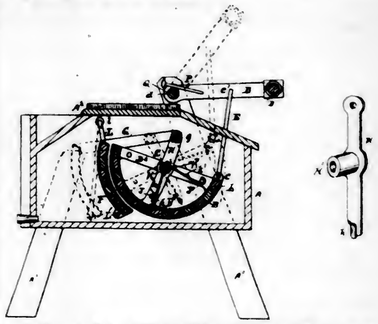
492,615. WATER-HEATER. HOWARD RUNDLETT, South New Market, N. H., and FREDERICK A. HOYT, Melrose, Mass., assignors to the Swampscot Machine Company, South New Market, N. H. Filed Apr. 18, 1892. Serial No. 429,674. (No model.)



Claim.—1. A water heater having a central or approximately central water column communicating with the transverse water chamber over the fire pot, a series of transverse water sections connected with said water column, every alternate one extending to the walls of the heater, and the remaining ones not extending to said walls, those extending to the walls having a smoke passage or passages through them, and the water chamber over the fire pot also having a smoke passage or passages through it, all as set forth.

2. In a water heater, the combination of a continuous water chamber surrounding the walls and top of the fire pot, and provided with a smoke passage or passages, a central or approximately central water column communicating with the transverse portion of said water chamber over the fire pot, a series of transverse water sections connected with said water column, every alternate one extending to the walls of the heater and having a smoke passage or passages through them, and the remaining sections not extending to said walls, all as set forth.

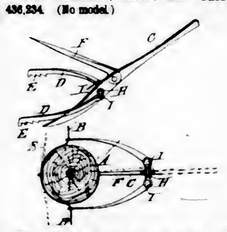
492,616. WASHING-MACHINE. PHILIP VOLLMAR, Chatham, Canada. Filed Oct. 24, 1892. Serial No. 449,794. (No model.) Patented in Canada Oct. 26, 1890, No. 35,287.



Claim.—1. The combination with a tub, of an oscillatory rubber, a movable bumper, oscillatory arms connecting said bumper with said rubber, and springs exerting their tension upon said arms, substantially as and in the manner described.

2. In combination, a tub, an oscillatory rubber B, a bumper F, oscillatory arms having a jointed connection with said bumper and with said rubber, and a spring exerting its tension upon said rubber and arms, whereby when the tension of the spring is overcome, the rubber may oscillate independent of the bumper, substantially as described.

492,617. IMPLEMENT FOR TIGHTENING FENCE-WIRE STRANDS. JOHN WHITTAKER, McCook, Nebr. Filed June 10, 1892. Serial No. 436,334. (No model.)



Claim.—1. The implement herein described comprising the lever, the swinging arms connected thereto and provided with toothed ends, and the holding prong having a hinged connection with said lever, substantially as and for the purposes described.

2. The implement herein described comprising the lever, the toothed arms hinged to the bolt pivotally connected with the lever, and the holding prong having a hinged connection with the lever, substantially as and for the purposes described.

3. The implement herein described comprising the lever, having laterally swinging toothed arms pivotally connected with the lever, substantially as and for the purposes described.

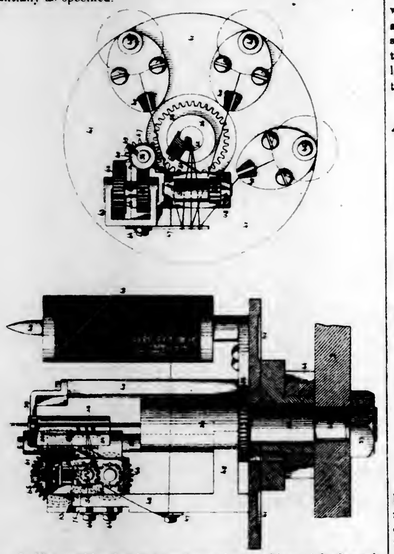
4. The implement herein described, comprising a lever, and two arms connected with the lever to swing to and from each other and from the lever and provided with hook ends, the connection of the lever to the arms being at a distance from the lower end of the lever; whereby said arms are adapted to lie on opposite sides of a fence post and engage a fence strand on opposite sides of the post, substantially as and for the purposes described.

492,618. CORD-COVERING MACHINE. THOMAS ADAMS, Philadelphia, Pa., assignor to the Hensel-Colladay Company, same place. Filed July 6, 1891. Serial No. 398,536. (No model.)

Brief.—The spool from which the core-strand is taken is mounted in a rotating flier, so that a twist is put in the core intermediate the flier and a tension-roll. The covering-strands pass through adjustable feeding-rolls, through a spreader guide, then to a condenser-guide and over the edge of the bar which guides the core strand, and then are laid around the core-strand.

Claim.—1. The combination in a cord covering machine, of draft mechanism for the core strand, a bar serving as a bearing for said

strand and presenting an edge adjacent thereto, feed rolls for the covering strands so located in respect to said bar that the strands are caused to pass around the edge of the bar before reaching the core, and gearing whereby the draft mechanism, the bearing bar and feed rolls are rotated positively and in consonance with each other, substantially as specified.



2. The combination in a cord covering machine, of draft mechanism for the core strand, a bar serving as a bearing for said core strand and presenting an edge adjacent thereto, a series of independent guides one for each of the covering strands whereby said strands will be separated before passing over the edge of the bar in order to reach the core, and means for causing the bar to effect the wrapping of the covering strands around the core strand, substantially as specified.

3. The combination in a cord covering machine, of draft mechanism for the core strand, a bar serving as a bearing for said core strand and presenting an edge adjacent thereto, a series of independent guides one for each of the covering strands, a condenser guide for bringing said strands together before they pass over the edge of the bar in order to reach the core, and means for causing the bar to effect the wrapping of the covering strands around the core strand, substantially as specified.

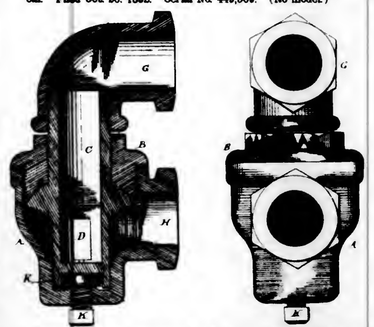
4. The combination in a cord covering machine, of draft mechanism for the core strand, a bar serving as a bearing for said core strand and presenting an edge adjacent thereto, a series of guides for separating the covering strands, a condenser guide comprising parts adjustable from and toward each other, and serving to bring the covering strands together before they pass over the edge of the bar in order to reach the core, and means for causing the bar to effect the wrapping of the covering strands around the core strand, substantially as specified.

5. The combination in a cord covering machine, of draft mechanism for the core strand, a bar serving as a bearing for said core strand and presenting an edge adjacent thereto, rotating mechanism for the bar, feed rolls for the covering strands so located in respect to said bar that the strands are caused to pass around the edge of the bar before reaching the core, combined spur and worm gearing for rotating said feed rolls, a frame carrying one of said spur wheels and the worm wheel, and means for adjusting said frame so that the spur wheel may be of any desired diameter in order to vary the speed of the feed rolls, substantially as specified.

6. The combination in a cord covering machine, of draft mechanism for the core strand, a bar serving as a bearing for said core strand and presenting an edge adjacent thereto, feed rolls for the covering strands, a disk upon which said bar and feed rolls are mounted, rotating mechanism for said disk, and gearing for operating said rolls, said gearing comprising a vertical shaft mounted upon the disk and rotating both around its own axis and around the axis of the disk, a pinion on said shaft, a fixed central pinion meshing therewith, and gearing having as elements a worm and worm wheel through the medium of which the rotating movement of said shaft is transmitted to the feed rolls, substantially as specified.

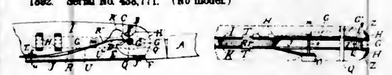
7. The combination in a cord covering machine, of covering devices, draft mechanism for the core strand, a tension drum around which said strand is coiled before it reaches the covering devices, and a rotating flier carrying the spool from which the core strand is drawn, said parts being located as described, whereby the core strand is twisted between the flier and the tension drum but passes from the latter to the covering devices and draft mechanism without further twist, substantially as specified.

492,619. SWING-JOINT. CLARENCE W. BAILEY, San Francisco, Cal. Filed Oct. 20, 1892. Serial No. 449,509. (No model.)



Claim.—The combination of an exterior casing having a journal bearing at one end, a screw cap at the other provided with an interior ball joint seat and an axial bearing therethrough, and a pipe opening entering the casing at one side, with an interior hollow revolving sleeve seated in the journal bearings in the casing and the screw cap provided with an exterior annular ball joint midway therof, radial openings in the sleeve below the ball joint and an axial internal bore open at the top and closed at the bottom, and an adjusting set screw in the bottom of the casing for adjusting said sleeve.

492,620. POCKET-KNIFE. CLYDE C. BALSTON, Brooklyn, N. Y., assignor to Frederick William Barker, Dunellen, N. J. Filed July 2, 1892. Serial No. 438,771. (No model.)



Claim.—1. In an automatic knife blade having projections near its heel, combined with springs arranged to bear consecutively upon said projections as the blade turns to exert a continuous pressure upon the blade as it turns, substantially as and for the purpose set forth.

2. In an automatic knife a blade having extensions B C and recess B′ combined with springs formed at their ends to operate consecutively upon said extensions on the blade, the extension B resting upon one of said springs when the blade is closed, substantially as and for the purpose set forth.

3. In an automatic knife the combination of a blade having projections B C with the springs R U arranged to press upon said projections consecutively as the blade turns, and a stop to pass under a projection on the blade when the blade is closed, to hold it in the latter position, substantially as shown and described.

4. In an automatic knife the combination of a blade having a projection C with two springs, one of the said springs bearing against the blade to partly open it and spring the projection C into position to be acted upon by the other spring, the latter spring being placed in position to act on the projection C to fully open the blade, substantially as shown and described.

5. The combination in a knife of a blade having projections B C E and recesses B′ D, with a spring formed with side lugs or projections to enter recesses in the inner sides of the knife handle said spring being arranged to operate and exert a constant pressure upon said blade in any and all positions of the latter substantially as described.

6. In an automatic knife a handle having recesses T T′ combined with the springs R U bearing the side lugs or extensions r u that are adapted to enter said recesses whereby the springs are held in the handle, substantially as shown and described.

7. In an automatic knife a blade having an indenture on one side of the pivot and an extension on the opposite side thereof combined with a lock piece attached to the handle and adapted to pass through its side into the indenture in the blade when the latter is open to serve as a lock, and fitting upon the extension on the blade when the latter is closed to serve as a catch to hold the blade shut, combined with a spring to operate on said extension on the blade to open the latter, substantially as described.

8. In an automatic knife the side or body plates I K, the push springs L L′ integral therewith and cut therefrom, and the lock recesses or slots H′ H² in said plates, combined with the locking piece to enter said recesses and to be operated by said springs, and a blade to be held by the locking piece substantially as set forth.

9. In an automatic knife the side or body plates I K, the push springs L L′ integral therewith and cut therefrom and the locking recesses or slots H′ H² cut therein and the fastening devices N M also cut therefrom, combined with a locking piece held by said fastening devices and with a blade, substantially as set forth.

10. In an automatic knife the side or body plates I K the push springs L L′ integral therewith and cut therefrom, the lock recesses or slots H′ H² stamped therein, and the projections or shields Z Z′ Y′ Y″ integral with the side plates, substantially as shown and described.

11. In an automatic knife the combination of the side plates I K with a back J, the said sides and back being formed in one piece, the back J terminating with the tongues J′ J″, said tongues being doubled back on the dotted lines *i i* to stiffen them and fitting against the shoulders *z y*, *w x* of the recesses I′ I″ K″ L″, substantially as described.

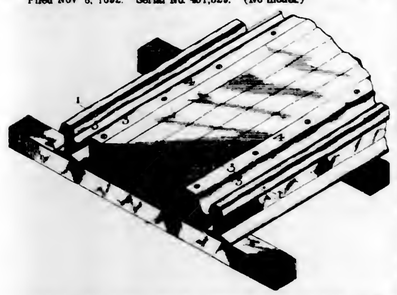
12. In an automatic knife the combination of the side plates I K with the back J all formed in one piece, the back J terminating with the tongues J′ J″ doubled back upon themselves on the dotted lines *i i* and fitting against the shoulders *z y w x* of the recesses I′ I″ K″, L″, the said side plates having a push spring L L′ cut therefrom and made integral therewith, substantially as described.

13. In an automatic knife the combination of the side plates I K with the back J the said sides and back formed in one piece, the back J terminating with the tongues J′ J″ doubled back upon themselves at the dotted lines *i i* and fitting against the shoulders *z y*, *w x* of the recesses I′ I″ K″ L″ together with the lock recesses H′ H″, the lock piece fastening device H M formed in one piece with the sides and the aperture *m*, substantially as described.

14. In an automatic knife the combination of the side plates I K with the back J the said back and sides formed in one piece and terminating with the tongues J′ J″ doubled back upon themselves at the dotted lines *i i* and fitted against the shoulders *z y*, *w x*, and the recesses I′ I″ K″ L″ the said back being split for a distance at one end on the dotted lines *j k* to form the spring K′ to serve as a back lock, and a blade having a notch to receive the enlarged part of the said spring whereby the blade is locked in the open position substantially as described.

15. In an automatic knife the combination of a blade and a locking device therein with a push spring cut from the material of the handle, a push button attached to the spring and a pin extending from the spring across the handle to operate the locking device, substantially as described.

492,621. HORSE-HOOF GUARD. WARREN BROWN, Eaton, Me. Filed Nov 8, 1892. Serial No. 451,329. (No model.)



Claim.—In a railway street crossing, the combination with the rails and the intermediate planks or boards, of the horizontal guard plates having flanges secured to said planks and concavo-convex portions adapted to abut against the underside of the rail caps, substantially as and for the purpose described.

492,622. EYEGLASSES. JOSEPH H. K. DE CELLES and GEORGE W. WELLS, Southbridge, Mass., assignors to the American Optical Company, same place. Filed Sept. 26, 1892. Serial No. 446,893. (No model.)



Claim.—1. In eyeglasses, the combination with the bridge side arms, secured at their lower ends to the posts of the eyeglasses, and provided with holes or perforations in their upper ends, in which are loosely supported the two rods forming the bridge or connection between the lenses, of said rods, on which the bridge side arms are free to move, with their ends rigidly connected, and a spiral spring or springs supported on one of said rods between the ends thereof, and the ends of the bridge side arms, for the purpose stated, substantially as set forth.

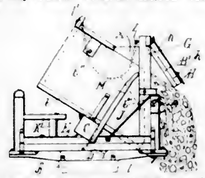
2. In eyeglasses, the combination with the bridge side arms, secured at their lower ends to the posts, and provided with holes or perforations in their upper ends, of two rods forming the bridge or connection between the lenses, with their ends rigidly connected, and loosely supported in the holes in the bridge side arms, so as to move longitudinally therein, and one or more spiral springs supported on one of said rods for moving toward each other the bridge side arms, and the lenses, substantially as set forth.

3. In eyeglasses, the combination with the bridge side arms, secured at their lower ends to the posts, and provided with holes or perforations in their upper ends, of two rods forming the bridge or connection between the lenses, made of one piece of wire, and loosely supported in the bridge side arms, so as to move longitudinally therein, and one or more spiral springs supported on one of said rods, for moving toward each other the bridge side arms and the lenses, substantially as set forth.

4. In eyeglasses, the combination with the bridge side arms, secured at their lower ends to the posts, and provided with holes or perforations in their upper ends, of two rods forming the bridge or connection between the lenses, made of one piece of wire, said wire loosely supported in the holes in the bridge side arms, and adapted to be moved longitudinally therein, independently of said side arms, and one or more springs supported on one of said rods, and interposed between the ends of the rods and the ends of the bridge side arms, for the purpose stated, substantially as set forth.

5. In eyeglasses, the combination with the bridge side arms, of two rods forming the bridge between the lenses and loosely supported in said bridge side arms, so as to have a longitudinal motion therein, independent of the lenses, and a spiral spring or springs supported on one of said rods, substantially as set forth.

492,623. DUMPING-WAGON. DANIEL F. DONEGAN, Los Angeles, Cal. Filed May 4, 1892. Serial No. 431,844. (No model.)



Claim.—A dump wagon comprising the combination of the running gears; a frame rigidly fixed to the bolsters of such running gears and comprising an upper and a lower longitudinally arranged girder beam; a swinging side wall hinged to the upper girder and provided with latches adapted to engage catches arranged upon the lower girder when such side wall is closed; such catches; a tilting bed comprising a floor and a side wall secured together and mounted upon such running gears and pivoted to tilt toward such swinging side wall, and means for securing the tilting bed to the lower girder.

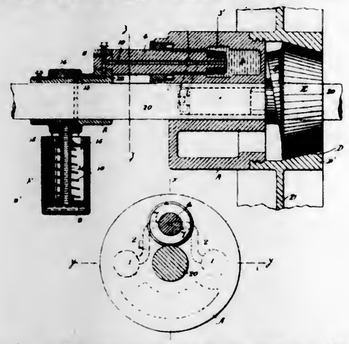
492,624. FURNITURE-CASTER. CLARENCE A. FELLOWS, Three Rivers, Mich. Filed Aug. 4, 1892. Serial No. 442,093. (No model.)



Claim.—1. In a caster, the combination of the outer casing having an inward extending flange at its lower edge, of a ball of greater diameter than the opening within said flange, the inner casing, a socket at the top of the inner casing, sockets at the lower edge of the casing, bearing balls in said sockets and lugs on the outer casing engaging projections on the inner casing for detachably securing the inner casing within the outer casing, substantially as described.

2. In a caster, the combination with the outer casing H having an inward extending flange I and the lugs J, of the ball C, the inner casing K having at its lower edge the ring L and the notches formed in said ring corresponding to the lug J, and sockets for the balls E and C, substantially as described

492,625. CLUTCH. JAMES FRASER, London, England. Filed May 31, 1892. Serial No. 434,963. (No model.)



Claim.—1. The combination, with the two halves of a friction clutch, of a face cam carried by one half of the clutch, two communicating cylinders carried by the other half of the clutch, the plungers, and means for propelling the said plungers against the said cam, whereby the two halves of the clutch are placed in contact and the said plungers are reciprocated until both halves of the clutch rotate with the same velocity.

2. The combination, with the cone and the face cam carried by it, of the hub having a conical socket, two communicating cylinders carried by the said hub, the plungers, and means for propelling the said plungers against the said cam, whereby the said cone is pressed against the said socket and the said plungers are reciprocated until the cone and socket revolve with equal velocity.

3. The combination, with the two halves of a friction clutch, of a face cam carried by one half of the clutch, three communicating cylinders carried by the other half of the clutch, two plungers adapted to engage with the said cam and a plunger adapted to be moved to propel the aforesaid plungers, and thereby to gradually connect the halves of the clutch, substantially as set forth.

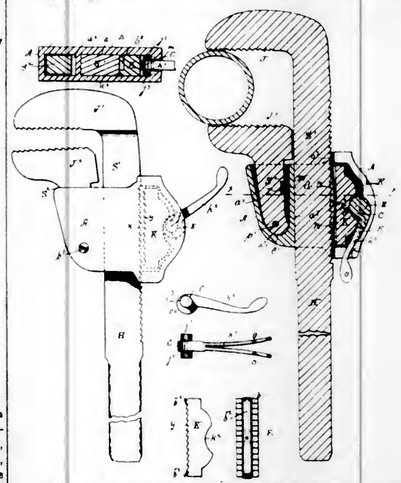
4. The combination, with the two halves of a friction clutch, of a face cam carried by one half of the clutch, three communicating cylinders carried by the other half of the clutch, two plungers adapted to engage with the said cam, a plunger adapted to be moved to propel the aforesaid plungers, and a reservoir provided with a spring-pressed piston and connected with the said cylinders, whereby the said cylinders are supplied with fluid under pressure, substantially as set forth.

5. The combination, with the cylinder 3 provided with the chamber 3 , and the plunger working in the said cylinder and adapted to be moved to connect the halves of the clutch and provided with the hole 10: of a sleeve mounted on the clutch shaft and secured to the said plunger and provided with the passage 12 and groove 13 connected with the said hole 10, a collar journaled on the said sleeve, an oil reservoir provided with a hollow stem secured to the said collar and connected to the groove 13, and a spring-pressed piston sliding in the said reservoir and adapted to force the oil into the cylinder 3, substantially as set forth.

6. In a clutch mechanism, the combination, with the two halves of a friction clutch, of cylinders carried by one half of the said clutch, plungers sliding in the said cylinders and operating to place the halves of the clutch in contact, a cylindrical oil-reservoir supported by the clutch shaft and provided with a perforated head and a hollow stem having an external recess 9', and a spring-pressed piston sliding on the said stem and in the said reservoir and adapted to supply the clutch operating cylinders with oil, substantially as set forth.

7. The combination, with the two halves of a friction clutch, of hydraulic clutch-operating-devices adapted to be moved by hand to place the halves of the clutch in contact, and an operating device—such as a cam—carried by one half of the clutch and operating to produce an additional movement of the said hydraulic devices, whereby the halves of the clutch are automatically pressed together and are gradually caused to revolve at the same speed

492,626. HAND-WRENCH. FRED B. IDE, Troy, assignor to Nathan D. Ide, Corinth, N. Y. Filed Nov. 10, 1892. Serial No. 451,490. (No model.)



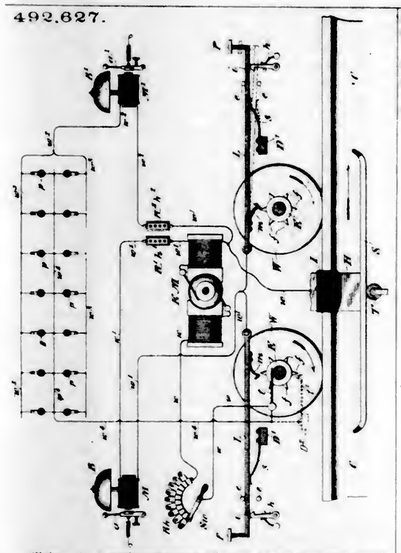
Claim.—1. In a wrench, the combination with a stock made with a socket, a slide-way, and key-piece recess having a slot at its outer side, of an outer jaw having a shank that is hinged at its inner end to the stock within the socket; an outer jaw provided with a shank made with a serrated face on its side next adjacent to said recess, and arranged in said slide-way; a key-piece constructed with a serrated inner face and having therein a slot and spring, and made with a rounded bearing surface on its outer face, and arranged within said stock recess; a roller cam constructed to journal in the inner face of said key-piece at each side of its slot, and to bear on the top of said key-piece; and a lever made with spring arms connected to said cam roller, and constructed to latch into said slot and to be operated substantially in the manner as and for the purposes set forth.

2. The combination, with the stock A, having the socket a^3, slide-way a^2, and slotted key-piece recess R, of the jaw J', made with the shank S', serrated at n, and arranged in said slide-way; the jaw J^3, made with the shank S^3, hinged at p' to the stock within said socket and having the spring d, arranged between the side of said socket and said shank S^3; the key-piece K, made with the serrated face y, slot b', spring b^3, and curved recess k^3; the cam roller C, having short shafts j^3, adapted to turn in bearing surfaces E, made in the inner faces of the recess slot at each side thereof, and to bear upon the tip of said key-piece; and the lever h^3, connected to said cam roller, and at its outer end having formed arms O, O, adapted to latch into said slot, substantially in the manner as and for the purposes set forth.

3. In a wrench the combination with a stock having a socket, slotted key-piece recess, and slide-way, substantially as described; of an outer jaw having a shank arranged in said slide-way, and thereat made with a serrated face; a key-piece having a serrated face constructed to engage with a serrated face of said shank and having a spring arranged in a slot made on its serrated face; a cam roller arranged between said key-piece and the inner wall of the key-piece recess, said roller having a lever adapted to latch into said key-piece and constructed to be operated substantially in the manner as and for the purposes set forth.

492,627. APPARATUS FOR ELECTRICALLY-PROPELLED CARS. CHARLES J. KINTNER, New York, N. Y., assignor of one-third to Gustav Stahl, Philadelphia, Pa. Filed July 30, 1892. Serial No. 441,681. (No model.)

492,627.



Claim.—1. A stationary source of current supply, a current main operatively connected therewith, a moving vehicle provided with a movable contact operatively connected with the current main and a propelling electric motor carried by the vehicle, an electro-magnetic alarm device having circuit connections with the moving contact and a circuit making and breaking device consisting of a pivoted lever carrying a contacting spring normally out of contact with a circuit breaker E operatively connected to one of the axles of the vehicle with a locking device for locking the lever in operative relation with the circuit breaker E and circuit connections between the motor and the electro-magnetic alarm apparatus with the other pole of the generator, substantially as described.

2. An electrically propelled vehicle carrying an electro-magnetic alarm device having circuit connections with a circuit interrupter operatively connected to one of the axles of the vehicle, in combination with means for bringing said circuit interrupter into operative relation with the alarm and additional means for locking the interrupter permanently in the latter position, substantially as described.

3. An electrically propelled vehicle carrying an electro-magnetic alarm operatively connected with circuit interrupting devices having circuit connections with and through one or more of the wheels of the vehicle, in combination with locking mechanism located at opposite ends of the vehicle for locking the circuit connecting devices in their operative position according as the vehicle is moving in either direction.

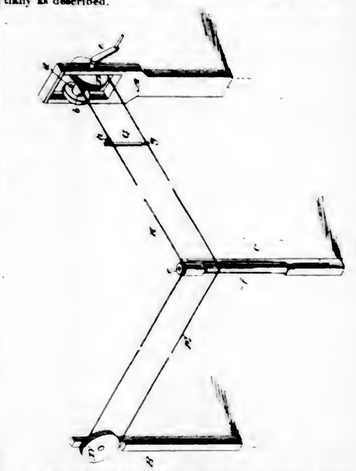
4. An electrically propelled vehicle carrying an electro-magnetic alarm device having circuit connections through a circuit interrupter carried by the axle of the vehicle to earth and additional circuit connections to a main or lead through a trolley shoe or conductor also carried by the vehicle, in combination with a locking device adapted to maintain the operative parts of the circuit interrupter in operative relation with each other, whereby the magnetic alarm will act continuously while the vehicle moves when the operative parts of the circuit interrupter are in their locked position, substantially as described.

5. An electrically propelled vehicle carrying two electro-magnetic alarm devices, one of which has circuit connections with a circuit interrupter operatively connected to one of the axles of the vehicle and a locking device for maintaining it in operative condition, while the other is provided with circuit connections running to push buttons located at different points on the inside of the vehicle, substantially as described.

492,628. CLOTHES-LINE HOLDING AND OPERATING DEVICE. JAMES J. KIRNAN, Petersburg, Ind. Filed July 26, 1892. Serial No. 441,296. (No model.)

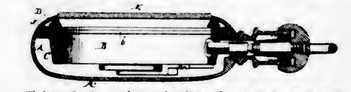
Claim.—1. The combination with the terminal posts, of the pulleys mounted thereon, the inner or operating pulley having an attached or connected drum provided with a hook or fastening to engage the line when it is to be wound on the drum substantially as set forth.

2 In clothes-line holding and operating devices of the character described, the combination of the terminal post A, the operating pulley D with its attached drum b having a hook d, the terminal post B with its pulley D', and the central post C with its pulley e, essentially as described.



3 The combination with the vertically arranged terminal pulleys and the endless line, of an intermediate post or support provided with an upper horizontal pulley for the upper run of the line and a vertical elongated roller therebelow and around which the lower run of the line passes, substantially as set forth

492,629. WATCHCASE. FRITZ MINK, Philadelphia, Pa., assignor to the Keystone Watch Case Company, same place. Filed Dec. 19, 1889. Serial No. 334,344. (No model.)



Claim.—1. A watch case having a flange or support for a movement, a watch movement supported thereby, said case having a screw threaded rim of metal projecting above the movement on the face side thereof when supported by said flange, and a screw threaded adjustable clamping ring, adapted for attachment to said screw threaded rim of the case to clamp the movement upon the support or flange, having its screw threaded surface unobstructed for a depth greater than the depth of the rim of metal projecting above the face of the movement when supported by the flange.

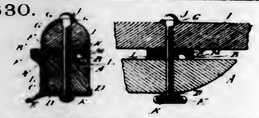
2. A watch case provided with a flange or support for a movement, and having an annular screw threaded portion adjacent to the face side of the case, in combination with a watch movement supported by said flange, and an adjustable clamping ring adjustably attached to said case having its surface which is attached to said case provided with screw threads for said attachment and unobstructed for a depth greater than the depth of the annular screw threaded portion of the case to which it is attached.

3 A watch case provided with an adjustable flange or support for a movement, and having an annular screw threaded portion adjacent to the face side of the case, in combination with a watch movement supported by said flange, and an adjustable clamping ring adjustably attached to said case having its surface which is attached to said case provided with screw threads for said attachment and unobstructed for a depth greater than the depth of the annular screw threaded portion of the case to which it is attached

492,630. WHIFFLETREE-CLIP. WILLIAM M. MYERS, Cosby, Mo. Filed Sept. 24, 1891. Serial No. 407,078. (No model.)

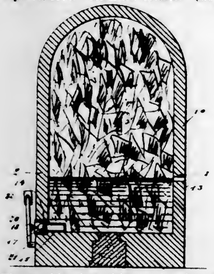
Claim.—The herein shown and described whiffletree clip com-

492,630.



posed of the upper bearing plate having depending collar L and annular projection M, stud H, lip F', and having the curved arm G, the lower bearing plate having central opening to receive the collar L, annular projection N to fit snugly within the annular space formed between the collar L and the projection M, the hook B' to embrace the lip F', the plates L and D, the projection D', and having the loop E at the angle of the two plates C and D, and a bolt to pass through the arm G, collar L and plate D to secure the parts together substantially as set forth.

492,631. DISINFECTING DEVICE. JOHN PICKERING, New York, N. Y. Filed Apr. 15, 1892. Serial No. 429,305. (No model.)



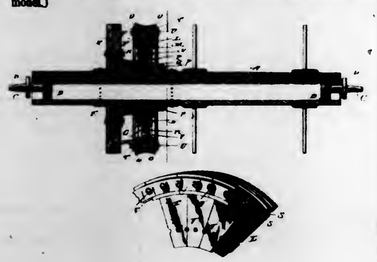
Claim.—1. The combination with a tank, of a vessel containing a soluble disinfectant and provided at or near its bottom with an opening controlled by a float-operated valve, said vessel being supported in the tank with its opening below the water level of said tank, whereby provision is made for allowing the water from the tank to flow into the vessel to dissolve the disinfectant while the tank is being filled, and the dissolved disinfectant permitted to flow out of the vessel into the tank when the said tank is being emptied, as set forth.

2. The combination with a tank, of a vessel containing a soluble disinfectant supported upon the bottom of the tank and provided with a vent a short distance from its bottom and with an opening at its bottom, said opening being controlled by a float operated valve, substantially as and for the purpose set forth.

3. A disinfecting device, comprising a flask having a vent in one side and a pipe near the bottom, the pipe having a reduced and perforated inner end which extends into the flask, a valve held in the pipe and having an outwardly extending stem, and a swinging float frame hinged beneath the pipe and adapted to come in contact with the valve stem, substantially as described.

4. A disinfecting device comprising a flat bottom flask having a stopper-closed opening therein, a vent in one side, a pipe near its lower end, a valve held to close the pipe and having an outwardly extending stem, and a swinging float frame pivoted below the pipe and adapted to engage the outer end of the valve stem, substantially as described

492,632. FRICTION-PULLEY FOR SAND-REELS. WILLIAM RICHARDS, Mayburg, Pa. Filed Mar. 10, 1892. Serial No. 424,391. (No model.)



Claim.—A pulley, consisting of a hub, the radial sections M arranged to break joints with each other, a series of segmental plates O arranged on opposite sides of the radial sections M and to break joints with each other and with said radial sections, the rings T attached to the faces of the plates O, within the periphery of the pulley, by bolts which extend through the segmental plates and radial sections, and a detachable flange arranged to bear against the radial sections between the hub and the ring T, substantially as described

492,633. ELECTRIC-LIGHTING SYSTEM. ROBERT W. ROLLINS, Hartford, Conn. Filed Aug. 16, 1892. Serial No. 443,191. (No model.)

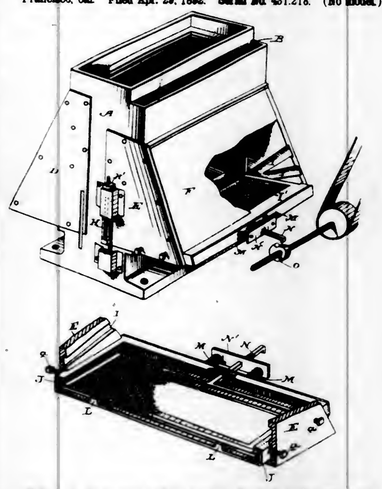


Claim.—1. A system of electrical distribution, consisting or two or more independent working circuits, with translating devices placed thereon in series, each circuit having an independent source of electrical energy and cut-out devices adapted for open circuiting any working circuit when its respective source of energy is inactive and having means for causing the electrical energy belonging to any particular circuit to automatically close such circuit, substantially as and for the purposes set forth.

2. A system of electrical distribution, consisting of two or more dynamo-electric machines placed upon independent working circuits, the current in each circuit uniting in a single conductor and passing through said conductor in the same direction with cut-out devices placed in each independent circuit adapted for preventing the dynamo-electric machine belonging to each independent circuit from changing its polarity or having its polarity changed by the action of the other sources of electrical energy, substantially as and for the purposes set forth.

3. In a system of electrical distribution, consisting of independent working circuits which unite in a single conductor, worked by separate dynamo-electric machines, the combination of cut-out devices adapted for short circuiting, each dynamo, while it is inactive, and at the same time breaking its working circuit, said cut-out having means for automatically breaking the short circuit around each machine, and at the same time closing its working circuit as soon as such dynamo begins to generate a current, substantially as and for the purposes set forth.

492,634. ORE-CRUSHING MORTAR. ADOLPH SCHULENBURG, San Francisco, Cal. Filed Apr. 29, 1892. Serial No. 431,218. (No model.)



Claim.—1. In an ore crushing mortar, the main body with the receiving channel and feed spouts, the removable end plate extension D, E, bolted to the body, plates F by which the discharge fronts are

closed, outwardly inclined screens supported between the end plate extensions, in combination with the vertically adjustable amalgamated splash board G extending between the ends of the mortar exterior to the stamps, and interior to and independent of the inner ends of the inclined screens, substantially as herein described.

2. In an ore crushing mortar, the main body having openings at front and rear through which the ore is thrown outwardly to the screens, in combination with an amalgamated board G having projections extending through vertical slots in the ends of the mortar, and near the front lower edge of the discharge opening, and adjusting screws H connecting with said projections whereby the plate may be raised or depressed, substantially as herein described.

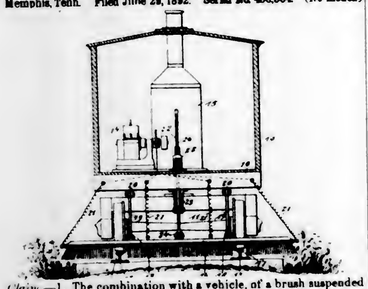
3. The supplemental frames J fixed between the projecting plates D, E, upon the ends of the mortar, screens fitted in said supplemental frames and movable by jar or oscillation, substantially as herein described.

4. In a mortar, the main body having the projecting end plates D, E, supplemental screen frames J fixed between said plates and having the projecting lugs L, along the inner edge, a screen fitted to slide within the supplemental frame and strike against said lugs with a percussive movement, springs pressing against the outer edge of the screen to force it inwardly, a rod or extension connected with the outer edge of the screen frame, and a cam O whereby it is drawn outwardly against the pressure of the springs and suddenly released so that the springs act to force it against the lugs or stops L with a percussive movement, substantially as herein described.

5. An ore crushing mortar having the plates D, E, extending from the ends, supplemental frames J fixed between said projecting plates, a screen movable in said supplemental frame so as to have a percussive action, and a perforated or slotted amalgamating plate P supported above the screen adapted to receive the ore from the battery and afterward deliver it through the openings upon the screen, substantially as herein described.

6. An ore crushing mortar having the extension plates D, E, with screens, amalgamating plates and splash boards as shown, stamp stems with tappets R, and cams S upon a cam shaft by the rotation of which the stamps are alternately raised and released, in combination with a supplemental cam U fixed to the shaft, and a disk T with arms which are engaged by the cam U to rotate the stamp before it is raised, substantially as herein described.

492,635. VEGETATION-EXTERMINATOR. ALBERT A SHARP, Memphis, Tenn. Filed June 29, 1892. Serial No. 438,384. (No model.)



Claim.—1. The combination with a vehicle, of a brush suspended from the vehicle and adapted to contact with adjacent vegetation, and electrical connections whereby a current of electricity may be sent through the brush, substantially as described.

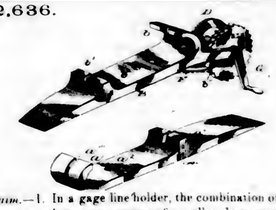
2. The combination with a vehicle, of a brush suspended from the vehicle and adapted to contact with adjacent vegetation, a lever mechanism for raising the brush, and electrical connections whereby a current of electricity may be sent through the brush, substantially as described.

3. The combination with the vehicle, of a vertically adjustable brush suspended therefrom and adapted to contact with adjacent vegetation, and electrical connections between the brush and a source of electricity, substantially as described.

4. The combination with the vehicle, of a brush suspended from the vehicle and adapted to contact with adjacent vegetation, a lever mechanism for adjusting the brush vertically, an electric generator carried by the vehicle, and electrical connections between the generator and the brush, substantially as described.

492,636. GAGE-LINE HOLDER. ANDREW S. SNYDER, Homestead, Pa. Filed Aug. 18, 1892. Serial No. 443,490. (No model.)

492,636.



Claim.—1. In a gage line holder, the combination of two plates each constructed to span a corner of a wall and except at each of its ends to be out of contact therewith, a means upon one of said plates to which an end of the guide line is fastened, and a winding means upon the other of said plates for drawing said line taut.

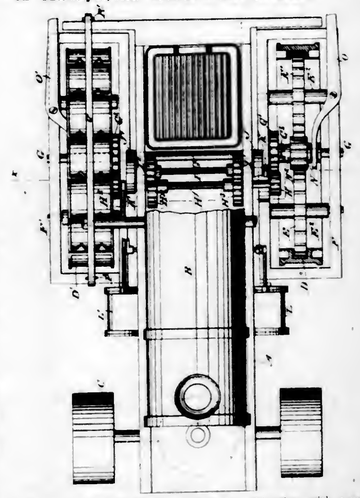
2. In a gage line holder, the combination of two plates, each having a flange at one end and a lug at its opposite end which engage the sides of a wall at an angle to each other and hold the intermediate part of the plate away from said wall, said lugs being constructed to permit the passage therethrough of the guide line, means upon one of said plates for tightening the line, and means on said intermediate portion of the other plate to which an end of the line is secured, substantially as described, whereby the guide line will be held out of contact with the mortar joint of the wall.

3. The combination with the plate A having the flange a, lug a', and post a'', with the plate B also having a lug and a flange, the guide line secured at one end to said post, and extending through openings in said flanges and lugs, and a tightening means for said guide line mounted upon said plate B, substantially as shown and described.

4. The combination with the plate B, having flange b, lug b', and arms b'', with the drum journaled in said arms, a ratchet beside said drum, a pawl engaging said ratchet, the guide line engaging said drum, and extending through openings in said flange and lug, and means to which the other end of said guide line is secured.

5. The combination with the plate A, having the flange a, lug a', and post a'', with the plate B, having a flange b, lug b', and arms b'', a drum journaled in said arms, a ratchet mounted beside said drum, a pawl engaging said ratchet, the guide line engaging said drum at one end, and extending through openings in said flanges and lugs to said post, and means for rotating said drum.

492,637. TRACTION ENGINE. CHARLES H. STRATTON, Brandt, Pa. Filed July 25, 1892. Serial No. 441,169. (No model.)



Claim.—1. In a traction engine, the combination, with a main frame supporting the boiler and motive power, of separate and independent endless tracks arranged at the sides of the said main frame and adapted to travel on the ground, and a pair of round wheels for

each track adapted to be driven from the motive power on the said main frame, the said wheels engaging the said endless tracks to impart a traveling motion to the latter, so as to propel the machine, substantially as shown and described.

2. In a traction engine, the combination, with a main frame carrying the boiler and motive power, of a shaft journaled in the said main frame and adapted to be rotated by the motive power on the main frame, auxiliary frames loosely pivoted on the said shaft, gear wheels journaled in the said auxiliary frames and adapted to be driven from the said shaft, and endless tracks passing over the said gear wheels and adapted to receive a traveling motion from the latter, substantially as shown and described.

3. In a traction engine, the combination, with a main frame supporting the boiler and motive power, of a shaft journaled in the said main frame and adapted to be rotated from the said motive power, auxiliary frames fulcrumed on the said shaft on either side of the main frame, gear wheels journaled in the said main frame, endless tracks adapted to travel on the ground and engaged by the said gear wheels, and pinions mounted to rotate loosely on the said shaft and in mesh with the said track gear wheels, the said pinions being adapted to be thrown into and out of gear with suitable mechanism on the said shaft, substantially as shown and described.

4. In a traction engine, the combination, with a main frame supporting the motive power, of two auxiliary frames journaled on the sides of the said main frame, endless tracks mounted to travel in the said auxiliary frames and adapted to receive a traveling motion from the motive power on the main frame, and means, substantially as described, for raising or lowering the front ends of the said auxiliary frames, substantially as shown and described.

5. In a traction engine, the combination, with a main frame supporting the motive power, of two auxiliary frames journaled on the sides of the said main frame, endless tracks mounted to travel in the said auxiliary frames and adapted to receive a traveling motion from the motive power on the main frame, means substantially as described, for raising or lowering the front ends of the said auxiliary frames, and steering or guide wheels mounted on an axle pivotally connected with the front end of the said main frame, substantially as shown and described.

6. In a traction engine, the combination, with a main frame supporting the motive power, of two auxiliary frames journaled on the sides of the said main frame, endless tracks mounted to travel in the said auxiliary frames and adapted to receive a traveling motion from the motive power on the main frame, means, substantially as described, for raising or lowering the front ends of the said auxiliary frames, steering or guide wheels mounted on an axle pivotally connected with the front end of the said main frame, and means, substantially as described, for connecting the said endless tracks with the motive power or disconnecting them from the same, substantially as shown and described.

492,638. PATTERN FOR RAILWAY-FROGS. SIMON H. STUPAKOFF, Pittsburg, Pa., assignor of one-half to Edward H. Goodman, same place. Filed July 26, 1892. Serial No. 441,257. (No model.)



Claim.—1. A pattern for railway frogs having two or more of its arms angularly adjustable with relation to the other arms, whereby one pattern is adapted to be used in the manufacture of frogs having different angular arrangement of arms, substantially as set forth.

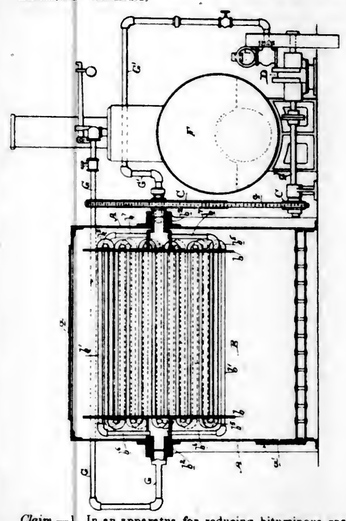
2. A pattern for railway frogs having two or more of its arms pivoted around a common center, thereby permitting of the adjustment of the pattern for the manufacture of frogs having different angular arrangement of arms, substantially as set forth.

3. In a railway frog pattern, the combination of a series of two or more arms angularly adjustable with relation to each other and removable blocks for filling the spaces between the arms, substantially as set forth.

4. In a railway frog pattern, the combination of a series of two or more arms angularly adjustable with relation to each other, said arms being provided with suitable ribs along portions of their outer edges, and removable and interchangeable rib pieces for filling the spaces between adjacent ends of the ribs on the arms, substantially as set forth.

5. A railway frog pattern having two or more of its arms angularly adjustable with relation to its other arms, in combination with removable and interchangeable plates for the formation of fish plates or rail supports on the frog, substantially as set forth.

492,639. APPARATUS FOR REDUCING BITUMINOUS ROCK. EDWIN R. THOMASON, San Francisco, Cal. Filed July 21, 1892. Serial No. 440,794. (No model.)



Claim.—1. In an apparatus for reducing bituminous rock and other asphaltum compounds, the combination of an exterior shell or casing, a rotating reel for receiving the material mounted within said casing, and consisting of end heads and an annular series of tubes connecting said head, and steam connections with said tubes for supplying steam thereto, substantially as herein described.

2. In an apparatus for reducing bituminous rock and other asphaltum compounds by the application of heat thereto, the combination of an outer casing or shell having a feed door and a discharge, a rotating reel mounted within said casing or shell and having end heads and an annular series of separated tubes connecting said heads, and steam pipes connecting them with the tubes and supplying them with steam, substantially as herein described.

3. An apparatus for reducing bituminous rock and other asphaltum compounds, consisting of an outer shell or casing, a rotating reel for receiving the material, mounted in said shell or casing and consisting of end heads and an annular series of separated tubes connecting said heads, and steam connections with said tubes for passing steam through them, substantially as herein described.

4. An apparatus for reducing bituminous rock and other asphaltum compounds, consisting of an outer casing or shell, a rotating reel for the material, mounted within said casing or shell and consisting of end heads, and an annular series of separated tubes extending between and joining said heads, said tubes being connected at alternate ends to form one or more continuous passages, and steam connections with said passages whereby a circulation of steam is maintained through them, substantially as herein described.

5. An apparatus for reducing bituminous rock and other asphaltum compounds, consisting of a casing or shell a rotating reel mounted therein to receive the material, said reel consisting of end heads and an annular series of separated tubes connecting said heads, a boiler, the steam pipe from the boiler for supplying said tubes with steam, an engine and connections for rotating the reel, and the steam pipe from the reel tubes for leading the steam to the engine, substantially as herein described.

492,640. WASHER-CUTTER AND CARRIAGE-TOOL. THOMAS THOMPSON, New London, Wis. Filed Mar. 9, 1892. Serial No. 424,309. (No model.)



Claim.—1. The combination, with the body of the tool, of an interiorly threaded ferrule secured to one end thereof, a plug having a longitudinal bore and a central projecting post with a transverse slot therein, said plug being adapted to screw into the ferrule, and elbow cutters having their shanks adapted to enter the bore of the plug and the slot of the post, substantially as described.

2. The combination, with the body of the tool, the threaded ferrule thereon, the plug secured in the ferrule, and cutters carried by said plug, of a cover applied to the ferrule, substantially as shown and described

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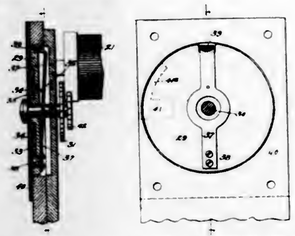
492,641. LABEL. HALSEY J. TIBBALS, Philadelphia, Pa. Filed Apr. 4, 1892. Serial No. 427,631. (No model.)



Claim.—1. A label of non-transparent material having advertisements on both sides thereof, and adapted to be secured to the side of a bottle, in combination with said bottle, the latter being formed of transparent material, substantially as described.

2. A transparent bottle having secured thereto a label with advertising matter on the back thereof, the material of the label being of a nature that the matter of one side may not be apparent at the other side, substantially as described.

492,642. REGISTERING DEVICE FOR PHOTOGRAPHIC CAMERAS. PAUL TOURNACHON, Paris, France. Filed May 21, 1891. Serial No. 393,529. (No model.)



Claim.—1. The combination with an apertured and notched units disk, and an apertured tens disk, said disks being independently mounted, of a plate covering the disks and provided with a window for viewing the figures on the disks, and a spring secured to one of the disks and provided with a pin adapted to enter the apertures of the said disks and with a projection to enter the notch of the units disk and the window of the plate, substantially as described.

2. The combination with an apertured notched and recessed units disk, and an apertured tens disk in the recess of the units disk, said disks being independently mounted, of a plate covering the disks and provided with a window for viewing the figures on the disk and with a recess at one side of the window, and a spring secured to the units disk and provided with a pin adapted to enter the apertures of the said disks and with a bent upper end to enter the notch of the units disk and the window of the covering plate, substantially as described.

3. In a registering device for photographic cameras, the combination with a rotatable cylinder over which a film is adapted to pass, of a shaft, means for operating the shaft from the cylinder, a units disk and tens disk mounted independently on the shaft, a plate covering the disks and provided with a window for viewing the figures on the said disk, and a spring secured to one of the disks and provided with a pin for entering registering apertures in the said disk and with a bent end for entering the window of the covering plate, substantially as and for the purpose set forth.

4. In a registering device for photographic cameras, the combination with a rotatable cylinder over which a film is adapted to pass provided with a pin projecting from one end thereof, of a shaft provided with a star wheel with which the pin of the cylinder engages, apertured units and tens disks mounted independently upon the said shaft, the units disk being notched, a plate covering the disks and provided with a window for viewing the figures on the disks and with a recess at one side of the window, and a spring secured to the units disk and provided with a pin adapted to enter the apertures of the disks and with a bent end adapted to enter the notch of the units disk and the window of the said plate, substantially as herein shown and described.

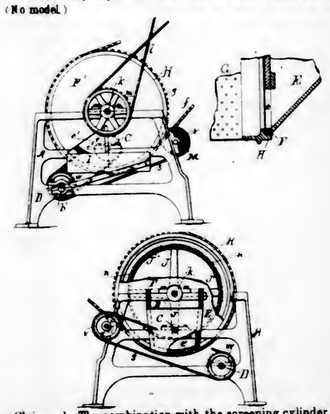
492,643. WATERPROOF SUIT. OTTO VAN OOSTRUM, Portland, Oreg. Filed Sept. 29, 1892. Serial No. 447,276. (No model.)



Claim.—1. In a waterproof suit, the trousers *f f*, the boots B B whose legs are covered by the trousers and hermetically attached thereto, and straps secured to the trousers and passing under the boots, as shown and described.

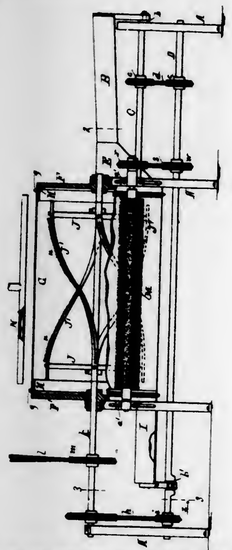
2. The water-proof suit, composed of the coat or body garment A, having the opening at the top and fastening flaps *b c* for closing the same, the sleeves *d* having elastic bands at the wrists, the trouser portion *f f*, and boots B B, hermetically attached to the trousers, all as shown and described.

492,644. MACHINE FOR CLEANING CURRANTS, &c. WILLIAM VICKERS, Jersey City, N. J. Filed Oct. 31, 1892. Serial No. 450,488. (No model.)



Claim.—1. The combination with the screening cylinder of a vibrating screen B, a chute leading from the said screen B and delivering into said cylinder, a vibrating screen I at the outlet end of the cylinder, a shaft D extending longitudinally of said screens and cylinder, a crank and pitman connecting said shaft near one end with the screen I and a counter shaft geared to the shaft D and having an

eccentric or crank connected with the screen B, substantially as shown and described.



2. A fruit cleaning apparatus consisting in the frame or support A, the circular stationary heads F F' secured thereto, the shaft K journaled in said heads and in said frame, the cylinder G having toothed end bands H rotating on the said heads, the spirally arranged brushes or agitators on the shaft K within the cylinder and means for rotating said shaft in a direction opposite to that of the cylinder, of the oscillating screen B, chute E leading therefrom and discharging into the cylinder, the oscillating screen I at the discharge end of the cylinder, the longitudinally extending shaft D geared to the shaft K, and having a crank connected with screen I and the counter shaft C geared to shaft D and provided with a crank or eccentric connected with screen B, substantially as shown and described.

3. In a machine for cleaning currants and other small fruits, the combination, with the revolving screen cylinder and its reversely revolving interior spiral agitator or brush, of a shaking, preparatory cleaning sieve at the feed end of said cylinder, and a finishing shaking and cleaning sieve at the rear or delivery end thereof, substantially as specified.

492,645. ELECTRIC RAILWAY-SIGNAL. HOWARD ST. C. WAIT, New York, N. Y. Filed Aug. 11, 1891. Serial No. 402,316. (No model.)

Claim.—1. The combination of the inclined table having in its surface channels or guides representing a railway track, with balls thereon independently movable in said channels or guides, to represent the movement of trains, and magnetic escapements arranged at intervals on said miniature track to control the movements of the balls.

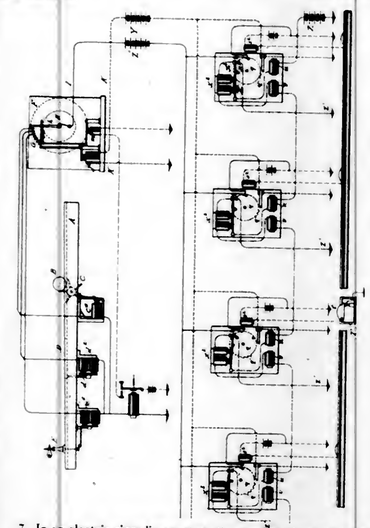
2. In combination with the inclined table and the balls thereon, the revolving wheel with arms, the actuating pawl, the magnet and spring to operate the same, and the stop-arm c^3, to arrest the rotation of the wheel.

3. In a railway signaling and indicating apparatus the combination of a miniature representation of the track and switches to be signaled, movable devices thereon to represent trains, escapements on the miniature track to control the movements of said devices, and electric connections between the railway track and the signaling apparatus to control the switches and escapements of the latter by the movements of the switches and trains of the former.

4. The signaling apparatus comprising a miniature track and switch, movable devices thereon to represent trains, magnetic escapements arranged at intervals on said miniature track to control said movable devices, a double armature connected with the switch, double magnets acting on said armature, and electric connections for energizing said magnets to move the switch in either direction.

5. In a railway signal, an indicator consisting of a miniature representation of a section of track, and containing a series of movable devices to represent the position of the trains and switches, electro-magnets to control the respective devices, an electric conductor, an intermediate multiple switch to connect said conductor with the respective magnets of the indicator, and a series of signal boxes each adapted to transmit a distinctive number of impulses, and electrically connected with the signal to set the same in different positions.

6. In a railway signal system, an indicator provided with movable devices to represent the positions of the trains and switches magnetic escapements arranged at intervals, and electro-magnets for operating the escapements to control the movements of said movable devices, in combination with a series of signal boxes each intended to operate a corresponding magnet in the indicator, and an intermediate multiple switch mechanism controlled by the signal boxes and acting to establish communication with the corresponding magnets of the indicator.



7. In an electric signaling system, the combination of a series of signal boxes adapted to be operated by the switches and trains, and each transmitting a distinctive number of impulses, a multiple switch connected by a conductor with said signal boxes to be set in different positions by their action, and an indicator having movable devices to represent the trains and switches, and electro-magnets to operate said devices connected with the movable switch, and a signal circuit connected with the boxes and acting to transmit a signal impulse thence through the multiple switch to the appropriate magnets of the indicator: whereby the operation of a signal box is caused, first, to set the switch and establish electrical communication with the appropriate indicator magnet, and thereafter to transmit a signal impulse to said magnet, thereby causing the indicator to show the movement of the train or switch by which the signal box was actuated.

8. In a multiple signal switch, the series of contacts G, the rotary conducting-arm, its returning spring, the ratchet wheel J, the two pawls engaging said wheel, the magnets connected with and operating the respective pawls, and the spring-actuated arm N, adapted to lock the pawls automatically out of engagement and to be in turn disengaged by the backward rotation of the wheel.

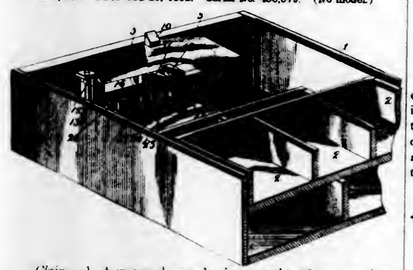
9. In combination with a circular series of contacts, the rotary conducting arm, its returning spring, the wheel J, the two pawls and their magnets for turning the wheel forward and releasing the same that it may return under the influence of the spring, the conductor communicating with arm h, and the connection from said conductor to the armature of magnet m^3, whereby the release of the wheel is caused to interrupt the circuit.

10. In a railway signal system, the signal box having the spring actuated signaling-wheel q, in combination with the escapement wheel and pallet geared thereto, the armature levers U and V, arranged to stand normally one in and the other out of the path of the pallet arm, and the two electro-magnets for reversing the position of said arms.

11. In a signal apparatus, the combination of an electrically operated multiple switch, a signal wheel, a circuit connecting said wheel and switch, an impulse magnet in said circuit and connections for setting the switch, a signaling or indicating mechanism, a second circuit leading to the signaling mechanism through the switch, a magnet and connections for operating the signal, and circuit closing devices adapted to be operated by the signal wheel after the switch is set.

12. The combination, with the spring-actuated signal wheel, the time escapement connected therewith, the two non-interference magnets and their armature levers to control the escapement, the switch X, connecting alternately with the ground connection and the line circuit, a pin in the gear train to lift said switch from the ground connection and the electro-magnet x^2, to hold the switch in its lifted position.

492,646. ELECTRIC-ALARM MONEY-DRAWER. WILLIAM J. WALKER, St. Louis, assignor of one-half to Alexander L. Bedford, Savannah, Mo. Filed Oct. 29, 1892. Serial No. 450,379. (No model.)



Claim.—1. A money drawer having a series of contacts interrupted by a space, a handle for said drawer, a contact on said handle co-operating with said contacts and space, a lock for the drawer, and suitable means for operating said lock when the handle is brought opposite the space between the contacts, substantially as set forth.

2. A money drawer comprising an electric circuit, a sliding handle located on the front wall of the drawer, a slotted spring plate guiding said handle and connected with one end of the circuit, contact plates connected with the other end of the circuit, and means for connecting said handle with the contact plates for completing said circuit, substantially as described.

3. In a money drawer, a sliding handle, a slotted spring plate, a connecting rod moving in the slot of said plate, and connected to said handle, insulating material between said rod and handle, a disk attached to the forward end of said rod, and contact-plates co-operating with said disk, substantially as described.

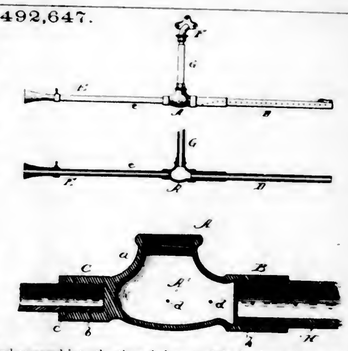
4. In a money drawer, a sliding handle, an insulating strip secured to the front wall thereof, contact plates removably secured on said strip with a suitable space between two of said plates to present an insulated surface, a conducting plate in contact with said contact plates, and connected with one end or wire of the circuit, and a contact on the handle co-operating with said contact plates, substantially as described.

5. In a money drawer, a sliding handle provided with a suitable index, a number plate co-operating with said index, a beveled arm at the rear of said handle, a beveled strip co-operating with said arm, guides for said strip, a rod attached to said strip and a beveled latch at the end of said rod, a lug on the drawer limiting the movement of said strip, a coiled spring below the latch, and a second lug limiting the movement of said spring, substantially as described.

6. A money drawer comprising a sliding handle, a slotted spring plate connected with one end of the circuit, an electric circuit, a connecting rod moving in the slot of the spring plate and connected to said handle, insulating material between said rod and handle, a disk attached to the forward end of said rod, an insulating strip attached to the front wall of said drawer, contact plates removably secured thereon with a suitable space between two of said plates to present an insulated surface, a conducting plate in contact with the bottoms of said contact plates and connected with the other end of the circuit, substantially as described.

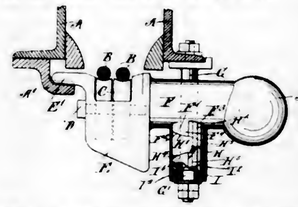
492,647. LEACH-SPRINKLER. CHESTER F. WELLS, Binghamton, N. Y. Filed May 11, 1892. Serial No. 432,643. (No model.)

Claim.—In a suspended leach sprinkler, the combination with a fixed bracket, and a depending tube fastened to said bracket, of the hub having its vertical arm or limb fastened to said depending tube and provided with the horizontal arm which is internally screw-threaded at its inner end and plain or smooth beyond said threaded portion, a perforated reinforcement sleeve having its inner threaded



end screwed into the threaded part of the horizontal arm and bearing against the interior smooth or plain part thereof, a perforated distributing pipe fixed at its inner end in said reinforcement sleeve and communicating with the chamber of the hub, and a counterbalanced arm fastened to said hub opposite to the distributing pipe, as and for the purpose described.

492,648. CABLE-SUPPORT. GUSTAVE P. WERR, Brooklyn, N. Y. Filed Sept. 30, 1892. Serial No. 447,386. (No model.)



Claim.—1. A cable support comprising an arm mounted to turn and adapted to support the cable, a hub held on the said arm and formed with inclines, a sleeve mounted to turn and adapted to be engaged by the inclines on the said hub, and a fixed collar adapted to be engaged by the said sleeve to hold the latter in position when the arm swings in one direction and to permit the sleeve to turn when the arm swings in an opposite direction, substantially as shown and described.

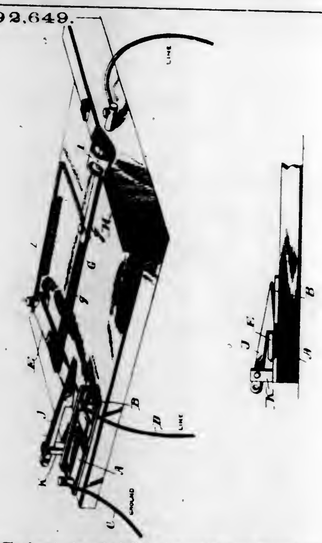
2. A cable support comprising a fixed pivot, an arm mounted to turn on the said pivot and adapted to support the cable, a hub formed on the said arm concentric to the said pivot and provided with inclines and a straight edge, a sleeve mounted to turn on the said pivot and formed at its upper end with inclines adapted to be engaged by the hub inclines, and also provided with a straight edge adapted to be engaged by the straight edge of the hub, substantially as shown and described.

3. A cable support comprising a fixed pivot, an arm mounted to turn on the said pivot and adapted to support the cable, a hub formed on the said arm concentric to the said pivot and provided with inclines and a straight edge, a sleeve mounted to turn on the said pivot and formed at its upper end with inclines adapted to be engaged by the hub inclines, and also provided with a straight edge adapted to be engaged by the straight edge of the hub, and a collar fixed on the lower end of the said pivot and provided with inclines adapted to be engaged by inclines on the lower end of the said sleeve and also provided with a straight edge adapted to be engaged by a like edge on the lower end of the sleeve, substantially as shown and described.

492,649. LIGHTNING-ARRESTER. THOMAS W. WHEATLEY, Wilkes-Barré, Pa. Filed Nov. 14, 1892. Serial No. 451,968. (No model.)

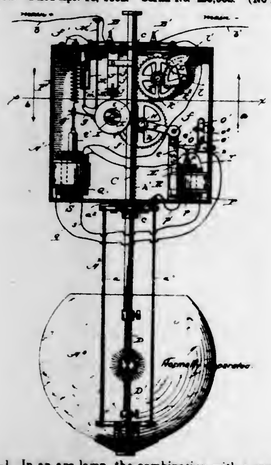
Claim.—1. In a lightning arrester the combination with a switch lever included in the main circuit, of an explosion chamber operatively connected with the said switch lever and likewise included in the main circuit and adapted to receive an explosive which is ignited on the passage of an abnormal charge of electric fluid to change the relative position of said switch lever and ground the line wire, substantially as set forth.

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2. The herein described lightning arrester comprising two contact plates A and B, the former being connected with the ground wire, and the latter included in the main circuit a switch lever pivoted at one end and adapted to have its free end make electrical connection with the plates A and B, a rod G connected with the switch lever and provided with an explosion chamber which is adapted to lie against a suitable stop, and a latch for holding the switch lever in proper position after being actuated by the explosive in the said explosive chamber, substantially as and for the purpose set forth.

492,650. ELECTRIC-ARC LAMP. WILLIAM P. WIRMANN, Allegheny, Pa. Filed Apr. 18, 1892. Serial No. 429,602. (No model.)



Claim.—1. In an arc lamp, the combination with a carbon carrier, and a feed mechanism supported by a movable frame, of a starting coil in a starting branch and having its core connected with said movable frame, an automatic cut-out in circuit with said coil, and the independent shunt coils included in a shunt circuit and arranged relatively to the starting and cut-out coils to control the same, substantially as and for the purpose described.

2. In an arc lamp, the combination with a carbon carrier and a movable frame carrying the feed mechanism for said carrier, of an automatic cut-out embracing a movable contact having a core connected thereto and adapted to be moved by a cut-out coil, a starting coil in circuit with the cut-out and having its core connected to the movable frame, and the shunt coils connected in series with each other, substantially as described.

3. In a low resistance arc lamp, the combination with a carrier, of a movable frame having the feed-mechanism, an escapement on said frame connected to the feed mechanism a detent in the path of the escapement to hold the latter and feed mechanism at rest, a starting coil having its core connected to said frame to depress the same, a spring to elevate said frame, an automatic cut-out mechanism in circuit with the starting coil, and the shunt coils, substantially as described.

4. In an arc lamp, the combination with a carbon-carrier having a rack, and means for feeding and controlling the same, of a pivoted balanced counterpoise geared directly with the rack of said carbon-carrier, substantially as described, for the purpose specified.

5. In a low resistance arc lamp, the combination with a carbon carrier, of a swinging frame having the feed-mechanism and an escapement controlling the same, an elevating spring, a detent in engagement with said escapement, the starting coil having an interior shunt coil and a core, the latter being connected to the swinging frame, a cut-out embracing a movable contact connected to the starting coil, and a shunt coil around the cut-out coil and connected in series with the shunt coil within the starting coil, substantially as described.

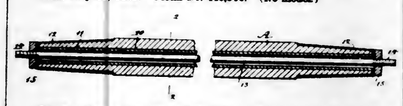
6. In an arc lamp, a counterpoise for the carbon carrier comprising a shaft adapted to be geared to said carrier, and an overbalanced segment pivoted to gear with the shaft, substantially as described.

7. In an arc lamp, the speed arresting escapement for the feed-mechanism and carbon-carrier, comprising a revoluble drum provided with the interior radial walls, each having a transverse port, and a slide or gate adapted to vary the size of said ports, the radial walls in the drum forming a series of compartments in which the working fluid is contained, as and for the purpose described.

8. In an arc lamp, the combination with a carrier and a feed mechanism therefor, of a starting coil having its core adapted to release the feed mechanism, a cut-out connected to the starting coil and its spring-controlled contact connected to the movable core of said cut-out coil, and the shunt coils arranged within and without the starting and cut-out coils respectively, and connected in series with each other, substantially as described.

9. In an arc lamp, the combination with a carbon-carrier, a swinging frame, and feed mechanism carried by the frame and connected with the carbon-carrier, of a revoluble drum connected with the feed-mechanism and having on its exterior a series of radial projections and with its interior divided into compartments by radial walls having valved ports, and a detent fixed on the lamp frame in the path of the radial projections on the drum, substantially as described.

492,651. VEHICLE-AXLE. JOHN D. WILSON, Belle Plaine, Iowa. Filed July 19, 1892. Serial No. 440,506. (No model.)

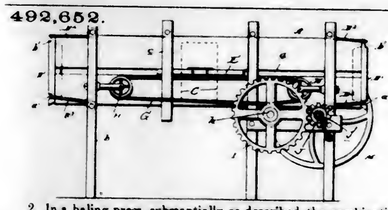


Claim.—In an axle, the combination, with a wooden body having its ends shaped for entrance into the hub of a wheel and provided with skeins, said wooden body being provided with a longitudinal bore extending centrally through it from end to end, of a metal tube immovably held in the bore of the body of the axle, a rod extending through the tube and beyond the ends thereof, the extremities of the said rod being threaded, and nuts located upon the threaded portions of the rod, having bearing against the outer extremities of the skeins, substantially as shown and described, whereby the wooden axle is strengthened against strain brought upon it in any direction.

492,652. HAY-PRESS. WASHINGTON H. YOUNG, Indianapolis, Ind. Filed Sept. 26, 1892. Serial No. 446,874. (No model.)

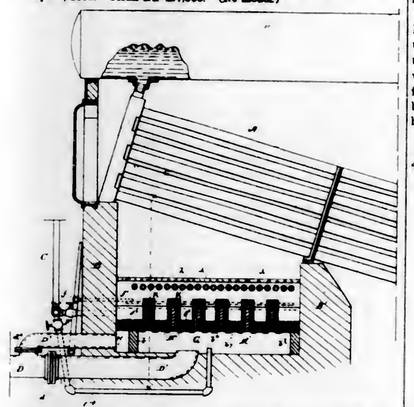
Claim.—1. In a baling press, substantially as described, the combination with the main frame or casing having the open ends; of the flanged head blocks B', having the groove *a'*, in their outer sides adjacent to their lower edges and also having their upper edges recessed on their outer sides at *b'*, and the lower and upper bails B^2, pivotally connected to the frame or casing and adapted to engage the grooves *a'*, and the recessed edges *b'*, of the head blocks, substantially as set forth.

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2. In a baling press, substantially as described, the combination with the main frame or casing having the feed opening midway its length, and the slots or ways *a*, in its side walls, and also having the open ends, the head blocks for normally closing the open ends of the frame or casing, and the follower adapted to slide within the frame or casing and having the runners E, of the shaft *A*, the windlasses mounted on said shaft, the pulleys H, the cables connected directly to the runners of the follower and taking over the pulleys H, and around the windlasses, the drive shaft, the fly wheel fixed on said shaft, and gearing intermediate the drive shaft and the shaft *A*, substantially as and for the purpose set forth.

492,653. FURNACE. JOHN B. ARCHER, Washington, D. C. Filed Apr. 1, 1892. Serial No. 427,363. (No model.)

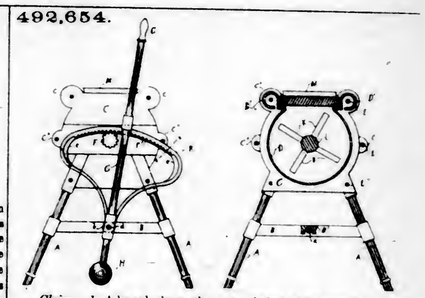


Claim.—1. In a gas furnace, the combination with inclosing walls of fire-proof material, of an air chamber with means of controlling the admission of air thereunto; a combustion chamber adjacent to the said air chamber; a perforated metal plate separating the said air chamber and combustion chamber; a plurality of refractory tuyeres over the perforations in said plate and extending into the combustion chamber: a second air chamber with means of controlling the admission of air thereunto, said chamber having lateral passages running along the sides of the combustion chamber; a plurality of tuyeres projecting into the said combustion chamber and connecting said lateral passages with said chamber, and a pipe or pipes for the gas entering said combustion chamber near said plate, substantially as described.

2. In a gas furnace, the combination with inclosing walls of fire-proof material, of an air chamber with means of controlling the admission of air thereunto; a combustion chamber adjacent to the said air chamber; a perforated metal plate separating the said air chamber and combustion chamber; a plurality of refractory tuyeres over the perforations in said plate and extending into said combustion chamber; means for supplying the gas to said combustion chamber a second air chamber with means of controlling the admission of air thereto, said chamber having lateral passages running along the sides of the combustion chamber; and a plurality of tuyeres projecting into said combustion chamber and connecting said lateral passages with said chamber, substantially as described.

492,654. CHURN. HENRY C. ATKINSON, Louisville, Ky., assignor to the Donaldson Manufacturing Company, same place. Filed Oct. 8, 1892. Serial No. 448,209. (No model.)

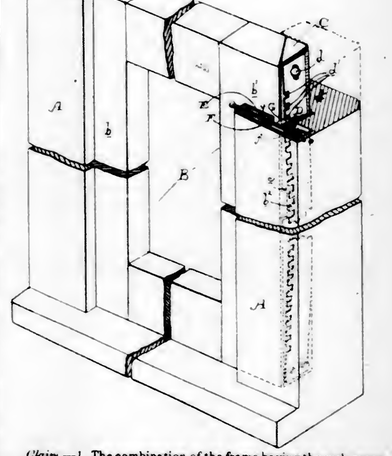
492,654.



Claim.—1. A knock-down churn consisting of the wood supporting frame composed of the parts —A—B—B'— and the tie-rod —*a*—, the sheet-metal shell —D—, and pieces —C— therefor tie-rods —E—E'—E''— connecting the end pieces and shell together, the horizontal shaft —L— and dasher arms —K— within said shell, the pinion —F— on said shaft, the lever —G—, the segment rack —F'— on said lever meshing with the pinion —F— and the counterbalance weight —H— on the lower end of said lever —G—, all in combination substantially as specified.

2. A knock down churn consisting of the sheet metal shell —D— wood end supports and end pieces therefor, suitable tie rods for uniting the several parts, a vibratory lever —G— pivoted on the tie rod —*a*— outside the collar —*b*—, the bracket —R— carried by said vibratory lever —G—, the segment rack —F'— and the feather —*e*— forming the upper portion of said bracket —R—, and the counter balance weight —H— upon the lower end of said lever —G— all combined and operating substantially as specified.

492,655. WINDOW FRAME AND SASH. SAMUEL H. BASS, Oakland, Cal. Filed Aug. 26, 1892. Serial No. 444,206. (No model.)



Claim.—1. The combination of the frame having the sash grooves the outer stop of one of which is beveled on its inner surface, the sash having the back surface of one of its stiles beveled an independent bar seated in the other sash groove and having a beveled inner surface fitting against the beveled stile of the sash, a spring pressing behind said bar to hold it against the sash and to press the sash closely to its seat, said spring provided with a series of notches and a push rod with a catch to engage said notches substantially as herein described.

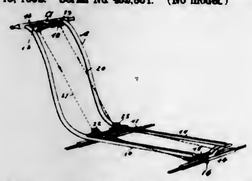
2. The combination of the frame having the sash grooves the outer stop of one of which is beveled on its inner surface, the sash having the back surface of one of its stiles beveled, an independent

bar seated in the other sash groove and having a beveled inner surface fitting against the beveled stile of the sash, said bar being engaged with the sash to move vertically therewith and laterally independent thereof and a spring pressing behind said bar to hold it against the sash and to press the sash closely against its seat, substantially as herein described.

3. In a window frame and sash having the beveled bearing surfaces as described, the combination of the independent beveled bar C having a notch, the block on the sash stile fitting said notch whereby the bar moves vertically with the sash and the latter may move sidewise independently, and the spring secured to and bearing back of the bar, substantially as herein described.

4. In a window frame and sash having the beveled bearing surfaces as described, the combination of the movable beveled bar C, the pressure spring behind it having the notches and the spring-controlled push rod with catch in the window frame for engaging the notches of the spring, substantially as herein described.

492,656. CHILD'S CARRIAGE. GEORGE B. BENT, Englewood, N. J. Filed May 13, 1892. Serial No. 432,861. (No model.)

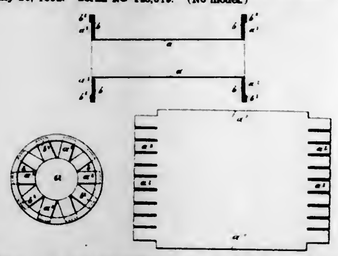


Claim.—1. In the running gear of a child's carriage, the combination, with the side bars and the handle bar, of a forward axle pivotally connected with the side bars, a lever pivotally connected with the handle bar, a spring exerting pressure upon the lever and normally maintaining it in a horizontal position, and chains or cables connecting the ends of the lever with the forward axle, the attachment to the axle being made at each side of its center, substantially as shown and described.

2. In a child's carriage, the combination, with the handle bar of the running gear and the forward axle pivotally connected with the running gear, of a lever pivotally connected at its center with the handle bar, the outer face of the lever being beveled from its center outward in opposite directions, a spring bearing against the beveled surfaces of the lever, and a chain or cable connection between the ends of the lever and the forward axle, as and for the purpose set forth.

3. In a child's carriage, the combination, with the handle bar of the running gear and a forward axle pivotally connected with the running gear, of a spring-pressed lever pivotally connected at its center with the handle bar, the surface of the lever facing the handle bar being beveled outward in opposite directions from the center, a chain or cable connection between the ends of the lever and the forward axle, the connection being made with the latter at each side of its center, and guide devices over which the chains or cables pass and located between the lever and the forward pivoted axle, and tension devices carried by the chains, as and for the purpose set forth.

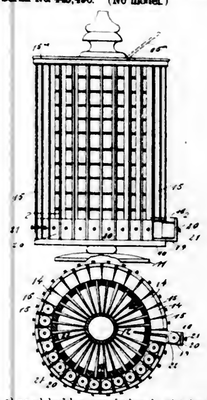
492,657. STAMPED OR FOLDED METAL SHEET SPOOL FOR WINDING THREAD. CARL RÖHRINGER, Offenburg, Germany. Filed July 20, 1892. Serial No. 440,619. (No model.)



Claim.—1. A bobbin consisting of a tubular body with toothed end flanges formed integral with the body and turned at right angles thereto and heads composed of washer disks having their edges turned over said flanges as set forth.

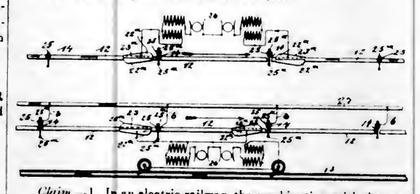
2. The bobbin herein described consisting of a lap seamed tubular body with end flanges composed of teeth turned outward at right angles to the body and heads composed of washer disks mounted on the body inside the tooth flanges and having their edges turned over said tooth flanges, as set forth.

492,658. THREAD-CASE. SAMUEL H. BOONE, Douglas, Canada, assignor to himself and William Albert West, same place. Filed Sept. 10, 1892. Serial No. 445,490. (No model.)



Claim.—A thread holder consisting in the base provided with a post 11*, and the case 10 comprising the horizontal top and bottom plates, the concentric tubular columns 12, 13 connecting said plates, the lower end of the column 12 receiving the pivot post 11*, a series of radial partitions 15 secured between the exterior of the column 13 and inner faces of the top and bottom plates and provided near their outer edges with vertical grooves 17, the glass panels 16 engaging said grooves and forming the fronts of the single series of spool cells 14, lids 15* for the upper ends of said cells, and the drawers 18 each formed of an oblong bottom plate 19 resting on the bottom of the case, a front plate 20, and a vertical rib 22 separated at its outer vertical edge from the plate 20 by a spool receiving space 23 of a depth and width to receive a single spool vertically; the rib 22 crossing the lower end of the cell when the drawer is pulled out, substantially as set forth.

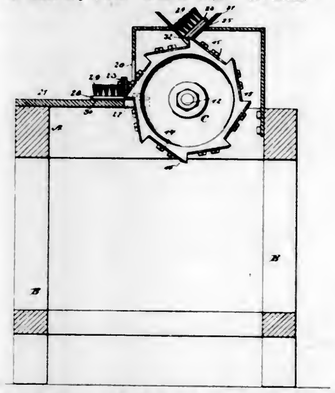
492,659. ELECTRIC RAILWAY. MICHELANGELO CATTORI, Rome, Italy. Filed July 23, 1892. Serial No. 440,975. (No model.) Patented in Italy Dec. 21, 1891, No. 30,954; in Belgium Mar. 26, 1892, No. 98,987, and in England Mar. 29, 1892, No. 6,119.



Claim.—1. In an electric railway, the combination, with the conductor arranged in sections and the switch boxes 15 arranged at junctions of said sections and having a contact 18, of the circuit breaker 19, which is pivoted and hangs in a vertical plane so as to swing transversely of the line of travel of the cars, the said circuit breaker having an upper contact arm, 20, and divergent arms, 21, on its lower end, the sliding contact, 23, having opposite and outwardly curved wings, 22, and adapted to be carried by the car so as to pass between said divergent arms, as shown and described.

2. In an electric railway, the combination, with the conductor constructed in a series of sections, of a circuit making and breaking switch arranged between each of the sections and having depending diverging arms, and a sliding contact held to slide on the sections, the contact having oppositely extending blades to engage the switch arms and open and close the switch, the blades being wider at one end than at the other, but having when united a constant distance between their outer edges, substantially as described.

492,660. MACHINE FOR SHAPING BRUSH BLOCKS OR BACKS. JOHN COOK, Trenton, N. J., assignor of one-half to David R. Brown, same place. Filed May 7, 1892. Serial No. 432,207. (No model.)



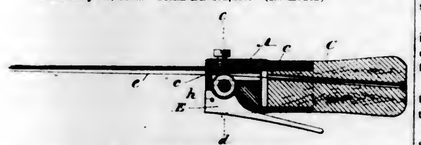
Claim.—1. In a machine for shaping articles, wherein a rotary cutter head of disk-like contour is employed, the combination with a horizontal supporting frame, a table 21 therefor, constructed with a single open space between them, and with connecting cross bars 10, journals 11 supported in said cross bars, a driving shaft 12 supported in said journals and projecting beyond the same, and on which the cutter head is mounted; and a housing 19 practically inclosing the cutter head and provided with an opening 20 registering with the slotted opening 22 in the table, into which the knife edge of the cutter head may pass in its rotation; substantially as described.

2. In a machine for shaping articles, the combination with a rotating cutter head of disk-like contour, the head having its periphery formed in a series of inclined planes, knives located upon the inclined surfaces of the head, of a housing essentially covering the head and provided with an opening through which the knives pass as the head is rotated, a vertical guide or gage 23 located in front of the opening, with means for adjusting the same vertically, whereby the block or the bristles in the block, presented to the cutter head, may be made to serve as formers or patterns for the veneer or the block, as the case may be, substantially as specified.

3. In a machine for shaping articles, the combination with a rotary cutter head of disk-like contour having its periphery formed with a series of inclined planes, and knives secured upon its inclined surfaces, of a table located in front of the head and having an opening in which the head rotates, a housing practically inclosing the head and provided with an opening registering with that in the table, a vertically adjustable side guide 26 adapted to the form of the shape to be cut and located in front of the cutter head, and a slotted yoke-like frame 27 supporting the said guide 26, substantially as described.

4. In a machine for shaping articles, the combination with a cutter head of essentially disk-like shape, having its periphery formed in a series of inclined planes and provided with knives secured upon its inclined surfaces, of a table located in front of the head and having an opening in which the head revolves, a housing practically inclosing the head and provided with an opening registering with that in the table, an angular hopper-shaped guide 31 projecting through the housing 19 in the path of the knives of the cutter head, the said guide being provided with an opening 32 for the passage of the cutters, substantially as described.

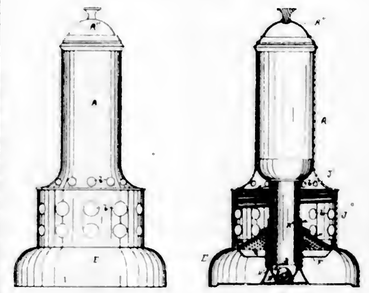
492,661. HANDLE FOR BRUSH-MAKING MACHINES. JOHN COOK, Trenton, N. J., assignor of one-half to David R. Brown, same place. Filed May 10, 1892. Serial No. 432,403. (No model.)



Claim.—1. In a needle holding handle for operating wire thread, the combination with semi-cylindrical clamping sections, and means for mounting and conveniently grasping the same when in use, of a peripherally grooved pulley journaled in one of said sections, which is bored out longitudinally to admit the passage of the wire, a pressure brake mounted on the opposite section and having a face adapted to fit the groove and shoulders on the periphery of said pulley, and means for actuating said pressure brake by manual pressure applied from the exterior of the section in which it is mounted substantially as described.

2. A needle handle for brush making machines constructed in semi-cylindrical sections, each of them laterally and longitudinally recessed respectively, as described, a peripherally grooved rotating pulley journaled in said recesses respectively, a longitudinal wire passage or opening the length of the handle and contiguous to the said rotating pulley, and a lever fulcrumed at its extreme end in one of said sections, and adapted to act as a pressure brake on the periphery of the pulley; substantially as described.

492,662. DISINFECTING APPARATUS. FRANK S. COON, Louisville, Ky., assignor to Alphonse Bourlier and Emile Bourlier, same place. Filed June 8, 1892. Serial No. 436,603. (No model.)



Claim.—1. In a disinfecting-apparatus, a liquid receptacle a deflecting shoulder projecting centrally therein a perforated metallic frustum shaped wick support resting on said shoulder, a wick of felt above said metallic support, a central opening through both said wick and its support, and a supplemental wick projecting downwardly therefrom into the liquid cup adapted to draw the liquid by capillary attraction to said upper wick, all combined substantially as specified.

2. In a disinfecting-apparatus, a liquid reservoir, terminating in a contracted lower section, a valve and valve seat therein, a liquid cup surrounding the lower portion of said contracted section, a deflecting flange at the upper side of said cup, a frustum shaped wick held by said deflecting flange, and a perforated cage surrounding said wick and rising to a convenient height above the same to support the liquid reservoir, all combined substantially as specified

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492,663. BRICK OR TILE CUTTER. JAMES CORNELIUS and EDMUND R. COLLINS, Brooklyn, N. Y. Filed Mar. 19, 1892. Serial No. 425,607. (No model.)

Claim.—1. In a machine of the character described, a clay cutter comprising parallel cutters held to reciprocate in the direction of their length, and arranged to move transversely through a body of clay, substantially as described.

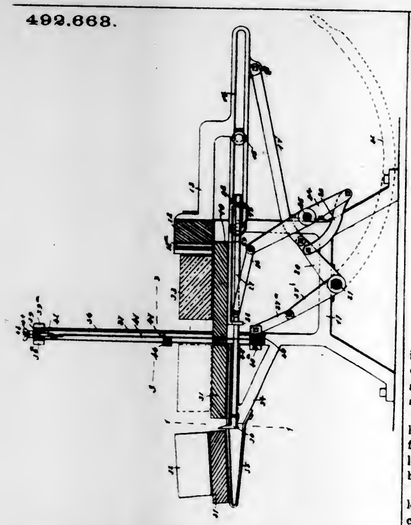
2. In a machine of the character described, the combination with the cutting table adapted to carry a body of clay, of a series of cutters held to reciprocate in the direction of their length and arranged at an angle to the clay body so as to be forced through and sever the same, substantially as described.

3. The combination, with the cutting table having means for moving a block of clay thereon, of a vertically movable frame held to reciprocate adjacent to the table, and parallel cutters carried by the frame and arranged in the path of the clay, substantially as specified.

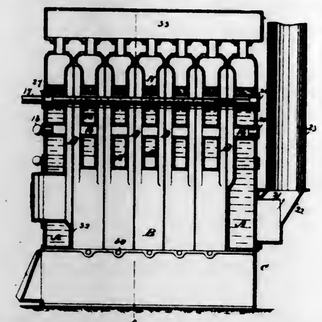
4. In a machine of the character described, the combination with the reciprocating frame carrying cutters of a rigid guide for the cutters, substantially as described.

5. The combination with the reciprocating frame carrying parallel cutters, of a stationary perforated guide bar extending transversely across the frame and having the cutters made to pass through it, substantially as described.

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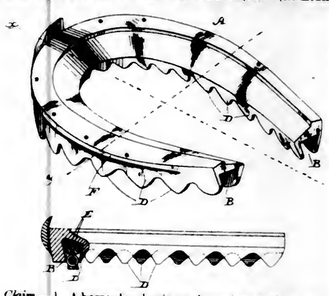
492,664. BOILER. HARRY A. B. DIETRICH, South Bethlehem, Pa. Filed Sept. 9, 1892. Serial No. 445,434. (No model.)



Claim.—1. In a boiler, the combination, with a series of sections capable of being connected and disconnected, each section complete in itself, the sections being hollowed to form water chambers and provided with depressions in their side faces, which depressions form, when arranged oppositely, vertical combustion chambers, D, that communicate directly with the fire-pot; ribs located around the margins of the sides of the sections and extending upward near their centers, said sections being further provided with a section of a fire pot located between the inner ribs, sections of smoke flues located between the inner and outer ribs, and a series of aligned tubes extending transversely through from face to face, placing the depressed portions of the side faces in communication, one set of said tubes being adapted to receive apertured pipes through which air may be introduced or forced, substantially as set forth.

2. In a boiler, the combination, with the vertical, hollow, water-holding sections having depressions *a* and *a'*, which, when arranged oppositely, form vertical combustion chambers D, that communicate with the fire-pot, said sections having a series of horizontal, transverse and aligned tubes, of the perforated air-inlet tube 17, inserted in said aligned tubes and made of considerably smaller diameter, and the bushings 27, applied as shown and described.

492,665. ROPE-TREAD HORSESHOE. THOMAS DOYLE, San Francisco, Cal. Filed Oct. 24, 1892. Serial No. 449,843. (No model.)



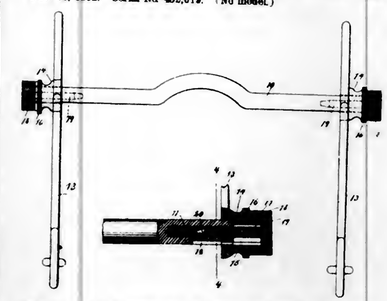
Claim.—1. A horse shoe having a channel made from end to end in its lower surface, the edges of said channel formed with lugs, the outer ones alternately with the inner ones, and a filling of rope fitted and secured in said channel by beading down said lugs, substantially as herein described.

2. A horse shoe having a channel made from end to end in its lower surface, the edges of said channel being formed with teeth, a filling of rope fitted and secured in said channel by turning down the lugs, and a marginal ledge having nail holes therein, substantially as herein described.

3. A horse shoe having a channel made from end to end in its lower surface, a filling of rope in two or more layers secured in said channel, and calks having apertures in their inner ends through which the outer layer is run, while the inner layer forms an elastic cushion for the calks, substantially as set forth.

4. A horse shoe having a channel made from end to end in its lower surface, a filling of rope in two or more layers secured in the channel, and calks secured to the outer layer and projecting therefrom, while the inner layer forms an elastic support for the calks, substantially as herein described.

492,666. BRIDLE-BIT. JAMES R. DRISCOLL, St. Paul, Minn. Filed Nov. 21, 1892. Serial No. 452,619. (No model.)



Claim.—1. A bit comprising the cross bar having longitudinal threaded openings in its ends, cheek pieces having sleeves sliding toward and from each other on the ends of the bar and held against rotation thereon, and screws 19 entering the threaded openings in the cross bar and having caps on their outer ends receiving the outer ends of the said sleeves and holding the sleeves in their adjusted positions, substantially as set forth.

2. A bit comprising the cross bar having longitudinal threaded openings in its ends and longitudinal external grooves at its ends, the cheek pieces provided with sleeves sliding on the ends of the cross bar and provided with internal splines engaging said grooves and with externally threaded outer ends, and screw threaded caps fitting said threaded ends and provided with screws 19 entering said threaded apertures, substantially as set forth.

492,667. TIRE-TIGHTENER. MICHAEL J. FITZGERALD, Arivaipa, Ariz. Filed Nov. 7, 1892. Serial No. 451,161. (No model.)

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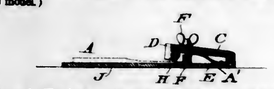


Claim.—1. A tire tightener, comprising angle plates in a recess between opposing felly ends, toggle bars bearing endwise on the angle plates and also on a central screw, and a nut for the screw adapted to press on the bar ends and spread the plates and fellies, substantially as described.

2. A tire tightener, comprising angle plates in a recess between opposing felly ends, a cap-plate for said recess, a clamping screw-bolt passing through the tire and said recess, a thimble nut on the inner end of said bolt, and toggle bars adapted to engage the angles of the plates with one end and be pressed upon by the thimble nut at their other ends, substantially as described.

3. In a tire tightener, the combination, with two adjoining fellies of a wheel, having recesses in their ends, a tire embracing the fellies, a cap-plate adapted to conform to the inner surface of the fellies and cover the recesses and perforated centrally and at its ends, and screw bolts loose in the end perforations in the cap-plate and fast in the fellies, of angle plates oppositely located in the recesses in the fellies at their adjacent ends, a clamping screw passing through the tire, fellies and cap-plate, a thimble nut on the threaded end of the clamping bolt and passing through the central aperture in the cap-plate, and oppositely inclined toggle-bars pressing at one end on the angle plates and pressed on at their other ends by the thimble nut, substantially as described.

492,668. TRIMMER FOR REEDS FOR MUSICAL INSTRUMENTS. ADAM FLAGE, Philadelphia, Pa. Filed Feb. 23, 1892. Serial No. 422,377. (No model.)



Claim.—1. The bed A, the gage H rising from the same, the extension A' of said bed, the arm C hinged to said extension, the blade D connected with said arm, the advancing screw F passing through said arm into said bed, and the returning spring E bearing against said arm, the said extension forming the handle of the implement, substantially as described.

2. A bed, an arm hinged thereto, a blade secured to said arm, a gage on said bed, and an advancing screw and a returning spring connected with said bed and arm, said screw passing through the free end of said arm close to the blade thereon, said parts being combined substantially as described.

3. The bed A, the gage H rising therefrom, the extension A' of the bed beyond said gage, the arm C hinged to said extension, the blade D connected with the free end of the arm adjacent to the gage, and the screw F passing through the arm into the extension near said free end of the arm, said parts being combined substantially as described.

492,669. PENCIL-SHARPENER. JONAS R. FOSTER, Stoneham, assignor to R. Irving Smith, Waltham, Mass. Filed June 20, 1892. Serial No. 437,349. (No model.)



Claim.—1. In a pencil sharpener, the body *a*, having a pencil receiving socket, and cut away exteriorly and having an opening at the bottom of said cut away portion communicating with said pencil receiving socket, combined with the blade *b*, and a self-adjusting clamp therefor, having a blade receiving guideway, and an overlapping portion for the top of the blade; substantially as described.

2. In a pencil sharpener, the body *a*, having a pencil receiving socket, and cut away exteriorly and having an opening at the bottom of said cut away portion communicating with said pencil receiving socket, combined with the blade *b*, and the self adjusting clamp therefor, having a blade receiving guide-way against which the back and end of the blade abut, and the overlapping portion for the top of said blade, substantially as described.

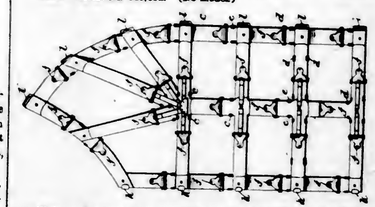
3. In a pencil sharpener, the body *a*, having a pencil receiving socket, and cut away exteriorly and having an opening at the bottom of said cut away portion communicating with said pencil receiving socket, combined with a blade *b*, and a self adjusting clamp therefor having a blade receiving guide-way against which the back and end of the blade abut and the overlapping portion for the top of said blade, the extreme edge of which overlaps the beveled portion of said blade, substantially as described.

4. In a pencil sharpener, the body *a*, having a pencil receiving socket, and cut away exteriorly and having an opening at the bottom of said cut away portion communicating with said pencil receiving socket, combined with a blade *b*, a self adjusting clamp therefor, composed of the plates *c*, *d*; the former presenting a guide against which the back and end of the blade abut, and the latter overlapping the top of said blade to hold it in the guide-way, substantially as described.

5. In a pencil sharpener, the body *a*, having a pencil receiving socket, and cut away exteriorly and having an opening at the bottom of said cut away portion communicating with said pencil receiving socket, combined with the blade *b*, and self-adjusting clamp therefor, composed of the plates *c*, *d*, the former presenting a guide against which the back and end of said blade abut, and the latter overlapping said blade and having a downwardly turned edge to draw said blade into its guide, substantially as described.

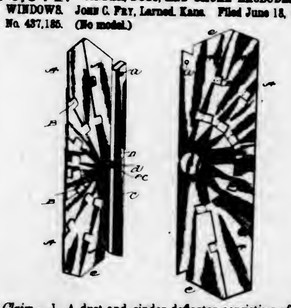
6. In a pencil sharpener, the body *a*, having a pencil receiving socket, and cut away exteriorly and having an opening at the bottom of said cut away portion communicating with said pencil receiving socket, combined with a blade, and a self-adjusting clamp therefor, composed of the plates *c*, *d*, the former having a guide against which the back and end of the blade abut and made thinner than said blade, and the latter overlapping the top of said blade to hold it in the guide-way, substantially as described.

492,670. ADJUSTABLE PATTERN FOR DRAFTING GARMENTS. LOUIS D. FRESOT and JULES F. EYBOULET, Newark, N. J. Filed Oct. 7, 1892. Serial No. 448,132. (No model.)



Claim.—A pattern for drafting garments consisting of a number of connected adjustable members, each of which is provided with two superposed flat elastic blades *a* and *b*, the blade *a* having lugs *d* at one end bent over and embracing the edges of blade *b*, and ears *e* extending at right angles by the sides of and beyond the blade *b*, a cross rod *e'* mounted in said lugs; the blade *b* having lugs *c* to embrace blade *a* and a pin *h* on same blade, the cam lever *f* pivoted on said cross-rod *e'*, and the elastic strap *g* connecting said cross rod and pin *h* all as shown and described.

492,671. CINDER, DUST, AND SMOKE EXCLUDER FOR CAR-WINDOWS. JOHN C. FRY, Larned, Kans. Filed June 18, 1892. Serial No. 437,185. (No model.)



Claim.—1. A dust and cinder deflector consisting of triangular plates pivoted together at their smaller ends, one edge of each of said

plates being provided with one or more tongues which engage the edge of the adjacent plate when unfolded for use, substantially as described.

2. In a dust and cinder deflector, the combination of triangular plates pivoted together at their smaller ends, one edge of each of said plates being provided with one or more tongues adapted to

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3. A cigar provided with an internal tube of combustible material longitudinally placed therein, said tube extending from the lighting end of the cigar nearly to its closed end, and said tube being provided at its rear end with the flaring flange E, substantially as set

fixed to a base plate intermediate sliding strips working in grooves alternating with the fixed strips normal and key alphabets carried on the fixed strips, a double index on each alternate sliding strip having gaps at opposite sides out of alignment with each other a double

plates being provided with one or more tongues which engage the edge of the adjacent plate when unfolded for use, substantially as described.

2. In a dust and cinder deflector, the combination of triangular plates pivoted together at their smaller ends, one edge of each of said plates being provided with one or more tongues adapted to engage the edge of the adjacent plate, and strips secured to the inner edges of each of the outermost plates, substantially as described and for the purpose specified.

3. In a dust and cinder deflector, the combination of the plates A, pivoted together at their smaller ends and provided with tongues B, of the strip C rigidly secured to the outer edge of one of the plates A and the strip D pivoted at its outer end to the other plate A, substantially as described and for the purpose specified.

4. In a dust and cinder deflector, the combination of the plates A, pivoted together at their smaller ends and provided with tongues, of the strip C rigidly secured to the outer edge of one of the plates A and provided at its inner end with a mortise *c*, and the strip D pivoted at its outer end to the other plate and provided at its inner end with a tenon *d*, substantially as described and for the purpose specified.

492,672. NUT-LOCK. GEROLT GIBSON, St. Louis, Mo. Filed Sept. 29, 1892. Serial No. 447,315. (No model.)

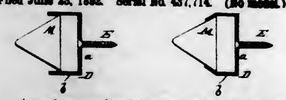


Claim.—1. In a nut-lock, the combination, with a nut whose base is provided with a series of notches or ratchets, of a longitudinally grooved bolt, and a locking washer or plate having a tongue engaging the groove of said bolt, and a spring stop or detent, the point of connection of said stop with its spring and the spring, itself, being outside of the base of the nut, substantially as and for the purpose set forth.

2. In a nut-lock, the combination, with a nut whose base is provided with a series of notches or ratchets, of a locking plate or washer having a radial or transverse slot, and a radial or transverse spring-detent or stop standing above, and in alignment with, said slot, the point of connection of the stop with its spring, and the spring, itself, being outside of the base of the nut, substantially as and for the purpose set forth.

3. In a nut-lock, the locking-plate or washer, having a detent or stop standing transversely to the axis of the bolt and adapted to engage a notched or ratchet-faced nut, and having its integral spring constituting a segment of the washer and curved or inclined outward or upward along the outer edge of said washer, out of alignment or engagement with said nut, substantially as set forth.

492,673. WALL-PROTECTOR. CHARLES GUMBURG, New Orleans, La. Filed June 23, 1892. Serial No. 437,714. (No model.)

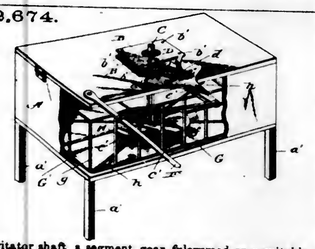


Claim.—As an improved article of manufacture, the protector described, consisting essentially of the socket plate of rectangular configuration formed from a cruci-form blank of sheet metal and comprising the bottom wall, the side walls bent at right angles to the bottom wall and having their outer free portions inclined inwardly or toward each other and provided with the beveled edges *d*, the cushion having a cubic base and an outer pyramidal portion; the former being seated within the side walls of the socket and the latter resting with the outer, inwardly inclined portions of the said side walls; and the screw carried by the socket plate, all substantially as and for the purpose set forth.

492,674. WASHING-MACHINE. WILLIAM R. HAMILTON, Indiana, Pa. Filed Dec. 3, 1891. Serial No. 413,796. (No model.)

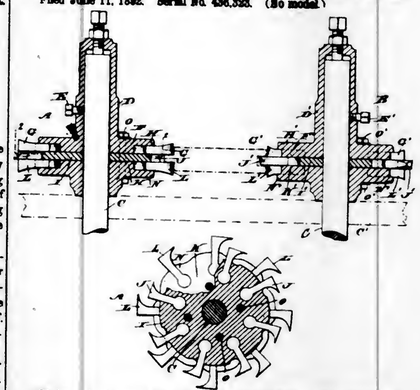
Claim.—In a washing machine, the combination of a suds box provided with a hinged lid, a removable tray fitted within the suds box, parallel bearing plates mounted on the hinged lid and provided with central aligned apertures, a gear wheel arranged between the bearing plates and provided with a central polygonal passage, an agitator shaft fitted in the passage in the gear wheel and having its lower end bifurcated, an agitator attached to the lower bifurcated end of

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the agitator shaft, a segment gear fulcrumed on a suitable support and meshing with the teeth of the gear wheel on the agitator shaft, an operating lever, and a link connecting said lever with an arm attached to the segment, substantially as described.

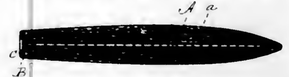
492,675. ROTARY STOCK-CUTTER. ISAIAH HARDER, Burke, Tex. Filed June 11, 1892. Serial No. 436,523. (No model.)



Claim.—1. A rotary stock cutter comprising a hub adapted to be secured to a spindle, a disk formed on the said hub and provided with a flange, a set of cutters seated in the said disk and abutting against the said flange, a middle disk placed on the said first named disk and containing a set of cutters arranged alternately with the cutters of the said first named disk, and a third disk fitting onto the middle or second disk and also provided with a flange or sets of cutters substantially as shown and described.

2. A rotary stock cutter comprising a hub adapted to be secured to a spindle, a disk formed on the said hub and provided with a flange, a set of cutters seated in the said disk and abutting against the said flange, a middle disk placed on the said first named disk and containing a set of cutters arranged alternately with the cutters of the said first named disk and a third disk fitting onto the middle or second disk and also provided with a flange or sets of cutters and bolts for fastening the several disks together, as set forth.

492,676. CIGAR. LUTHER M. HARRIS, Somerville, Mass. Filed Nov. 23, 1892. Serial No. 452,802. (No model.)

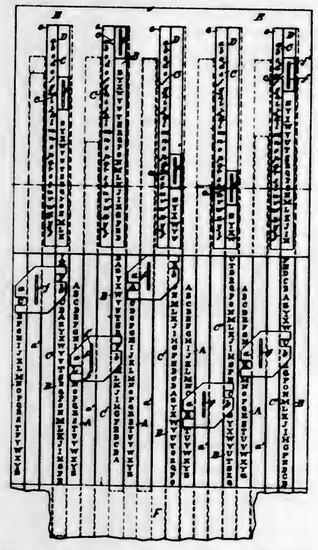


Claim.—1. A cigar provided with an internal tube of combustible material longitudinally placed therein, said tube being provided with perforations in its walls and extending from the lighting end of the cigar nearly to its closed end, substantially as described.

2. A cigar provided with an internal tube of combustible material, longitudinally placed therein, said tube extending from the lighting end of the cigar nearly to its closed end and provided at its front end with a flange as B overlapping the lighting end of the cigar and smeared with a substance ignitible by friction, substantially as described.

3. A cigar provided with an internal tube of combustible material longitudinally placed therein, said tube extending from the lighting end of the cigar nearly to its closed end, and said tube being provided at its rear end with the flaring flange E, substantially as set forth.

492,677. CRYPTOGRAPHIC INSTRUMENT. RICHARD HARTH, Croydon, England. Filed Sept. 30, 1892. Serial No. 447,267. (No model.)



Claim.—1. A cryptograph, or instrument for translating communications into or out of cipher, consisting essentially of the combination of a fixed normal alphabet strip, a movable cipher alphabet strip parallel with and moving in proximity to the normal alphabet and provided with an index, a double movable index working over both of said alphabets, and another fixed or key alphabet parallel to but not alongside of the normal and cipher alphabets, and with regard to which key alphabet and to the normal alphabet the movable cipher alphabet is adjustable by means of the index carried by said movable alphabet strip, substantially as specified.

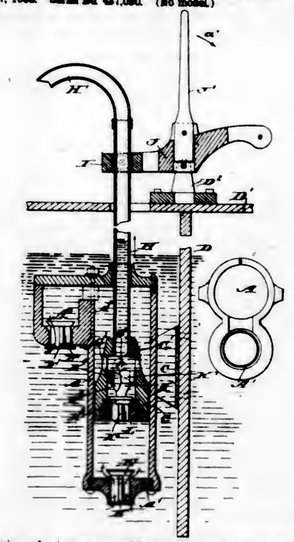
2. A cryptograph, or instrument for translating communications into or out of cipher, consisting essentially of the combination of a fixed normal alphabet strip, a movable cipher alphabet strip parallel therewith and working in proximity thereto and provided with an index, a double movable index working over both of said alphabets, and another fixed or key alphabet parallel to but not alongside of the normal and cipher alphabets, to which key alphabet and to the normal alphabet the cipher alphabet is adjustable by means of the index carried by the movable cipher alphabet strip, substantially as specified, the key index and key alphabet being visible at an aperture in the instrument frame removed from the normal and cipher alphabets directly used in translating, so as to avoid confusion therewith, as described.

3. A cryptograph constructed of a combination of two or more elements, each element consisting of the combination of a fixed normal alphabet strip, a movable cipher alphabet strip parallel therewith and working in proximity thereto and provided with an index, a double movable index working over both of said alphabets, and another fixed key alphabet parallel to but not alongside of the normal cipher alphabets to which key alphabet and to the normal alphabet the movable cipher alphabet is adjustable by means of the index carried by the movable cipher alphabet strip, substantially as described.

4. The herein described instrument constructed of parallel strips fixed to a base plate, intermediate sliding strips working in grooves alternating with the fixed strips, normal and key alphabets carried on the fixed strips, a double index on each alternate sliding strip, a double cipher alphabet on the remaining sliding strips, and an index on each of said cipher alphabet strips as specified.

5. The herein described instrument constructed of parallel strips fixed to a base plate intermediate sliding strips working in grooves alternating with the fixed strips normal and key alphabets carried on the fixed strips, a double index on each alternate sliding strip having gaps at opposite sides out of alignment with each other, a double cipher alphabet on the remaining sliding strips, and an index on each of said cipher alphabet strips as specified.

492,678. PUMP. ELIJAH B. HILL, New Albany, Miss. Filed June 17, 1892. Serial No. 437,080. (No model.)



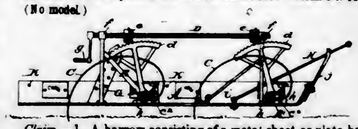
Claim.—1. A pump provided with a main piston made hollow and formed at its bottom with a valve seat and at its upper reduced end with inlet openings, and a piston valve fitted to slide in the said hollow piston and formed with a valve adapted to be seated on the said seat in the main piston, the said piston valve being also provided with a piston adapted to close the inlet openings in the reduced end of the main piston substantially as shown and described.

2. In a pump, the combination with an oscillating cylinder provided in its ends with suction valves opening upwardly, a main hollow piston fitted to slide in the said cylinder and provided in its bottom with a valve seat and in its upper reduced end with inlet openings, a hollow piston rod connected with the reduced end of the said main piston and forming a discharge pipe, and a piston valve fitted to slide in the said main hollow piston and provided with a valve adapted to be seated on the seat in the said main piston, and also provided with a piston adapted to close the inlet openings in the upper reduced end of the said main piston, substantially as shown and described.

492,679. PROCESS OF CONVERTING MALLEABLE IRON INTO STEEL. ANTHONY J. HINDERMEYER, Philadelphia, Pa., assignor to Mary A. Hunter and Maria W. Hunter, same place. Filed June 15, 1892. Serial No. 436,512. (No specimens.)

Claim.—A composition of matter consisting of plumbago, salt and sulphuric acid, substantially as and for the purpose set forth.

492,680. HARROW. WILBER W. HINKLE, Hood's Mills, and IRA H. GAITHER, Cockeysville, Md. Filed Oct. 12, 1892. Serial No. 448,716. (No model.)



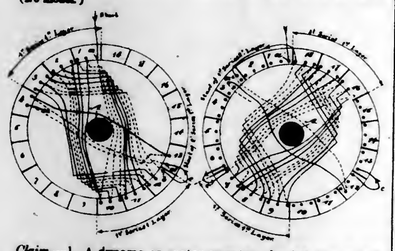
Claim.—1. A harrow consisting of a metal sheet or plate having slots in the same, and a series of curved teeth protruding through the

slots, and rock shafts attached to said teeth and adapted to raise and lower the same through the slots and bearings A, arranged between the teeth to steady the shafts, substantially as shown and described.

2. The combination with the main frame plate, of rock shafts bearing curved teeth and having arms with toothed segments, and a shaft arranged at right angles to the rock shafts and provided with worm gears meshing with said toothed segments substantially as shown and described.

3. The combination in a harrow, of the frame plate; the rock shafts bearing teeth, and having hollow ends; and a gudgeon bearing fixed to the frame plate and entering the hollow ends of the rock shafts, substantially as and for the purpose described.

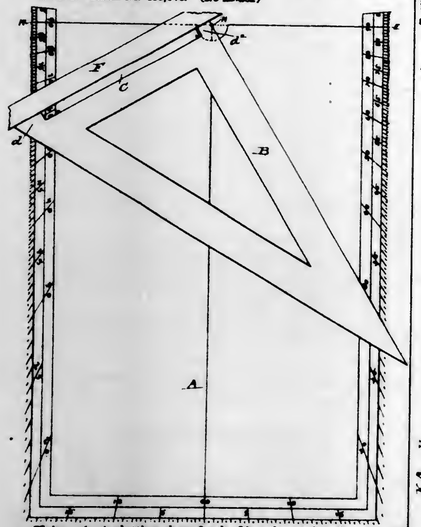
492,681. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. GUSTAV HOARE, Newark, N. J. Filed Mar. 24, 1892. Serial No. 426,378. (No model.)



Claim.—1. A dynamo or motor armature, having two or more layers of conductor, and having the coils of the superposed layers arranged with a regular angular advance over the coils in the layer beneath, the two parts of the active portion of each convolution being arranged diametrically opposite each other, substantially as specified.

2. In an armature for electric machines, the combination, with the armature heads, of driving and spacing pins inserted in the heads and extended laterally over the body of the armature core, and a band surrounding the armature and clamping the driving pins in place, substantially as specified.

492,682. PLOTTER. DANIEL C. HUDSON, Berlin, Md. Filed Dec. 1, 1891. Serial No. 413,676. (No model.)

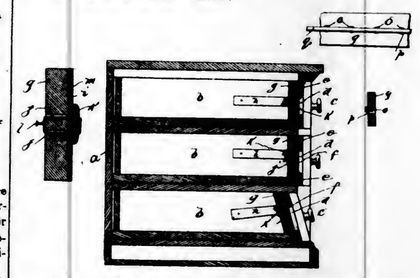


Claim.—1. A plotting chart for drafting the angles of surveyors' field notes, and other like purposes, having its sides and lower end divided into degrees and parts of degrees, indicating angles of a circle, a space inclosed by said sides and end of such dimensions as to contain a draft or plot of the work to be made within said space, and a point N, at the center of the upper or north end, whereby, with the aid of a triangle and ruler, all required angles may be transferred to and drawn from any point within the said inclosed space and with a radius greater than the entire field covered by the work, substantially as described.

2. In combination with a rectangular chart or protractor having graduated sides and end, a center-pin, and a triangle, one edge of which triangle is formed with a notch to engage with said center-pin, substantially as described.

3. In combination with a chart or protractor of a rectangular shape, having graduated sides and end, a center pin, and a triangle having a cut out portion on one side, with projections at opposite ends of said cut-out portion, substantially as and for the purpose described.

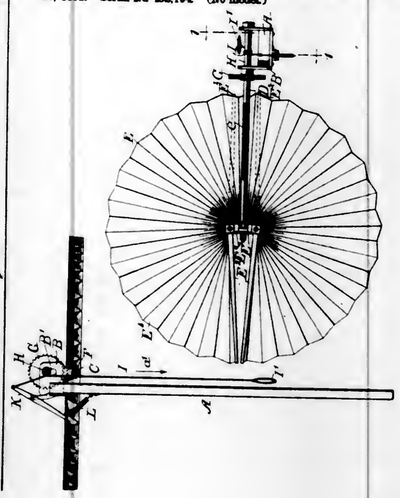
492,683. BUTTON-CABINET. ADNA R. INGALLS, Wheaton, Kans. Filed Feb. 9, 1891. Renewed Dec. 26, 1891. Again renewed July 23, 1892. Serial No. 441,066. (Model.)



Claim.—1. In a cabinet, the combination of a drawer having an opening in its head, a glass panel inserted therein, a removable button carrying and displaying panel behind said glass panel provided with aperture for button fastenings, and means for locking said removable panel, such as set forth.

2. In a cabinet, the combination of a drawer with a button display panel or head having the longitudinal series of transverse apertures to receive the button fastenings, and the beveled strip secured in the rear face of said panel or head and extending transversely across and dividing the inner end of each aperture, as set forth.

492,684. FAN. JAMES H. IRVING, Jersey City, N. J. Filed Nov. 16, 1892. Serial No. 452,194. (No model.)



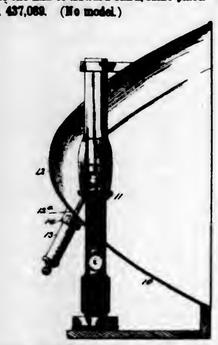
Claim.—1. A folding fan comprising the cross arm E' provided at its ends with the pivoted arms E² having squared portions at their pivoted ends, a spring bearing on said squared portions and holding the arms open or closed and the fan leaf F² secured to the arm E' and arms E², substantially as set forth.

2. A hand fan comprising a handle, a fan shaft journaled transversely in the outer end thereof, a cross arm on the outer end of the shaft provided with swinging arms at its ends in the plane of the shaft, the folding circular leaf secured to the said cross and swinging arms, a drive shaft journaled in bearings on the handle, gearing for connecting said two shafts and an operating mechanism for the drive shaft, substantially as set forth.

3. A fan consisting in the handle provided with a transverse fan shaft carrying the fan leaf at its outer end and provided with a pinion at its inner end, a drive shaft movable toward and from the fan shaft and having a pinion to mesh with that on the fan shaft, a spring normally holding the drive shaft away from the fan shaft and disconnecting their pinions, and a cord for rotating the drive shaft and at the same time drawing it toward the fan shaft to throw said pinions into mesh, substantially as set forth.

4. The combination with the fan shaft and its pinion, of the drive shaft movable toward and from the fan shaft and having a pinion to engage with the pinion thereof, a spring pressed lever and an operating cord wound about the drive shaft and connected with one end of the spring pressed lever, substantially as set forth.

492,685. LAMP-LIGHTER. RICHARD H. JOLLY, Bucyrus, Ohio, assignor of one-half to Edward Clark, same place. Filed June 17, 1892. Serial No. 437,069. (No model.)



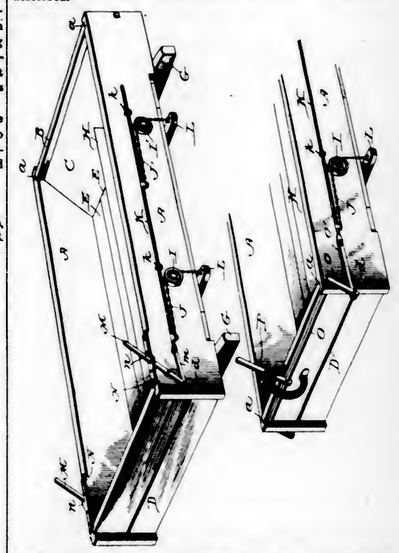
Claim.—1. The combination with the reflector and lamp, said reflector having an opening in its rear portion, of a threaded collar arranged upon the rear side of the reflector and surrounding the opening, a tube passed through the opening and screwed into the collar, the inner end of said tube being reduced and provided with a thin friction ring, a match carrying plunger arranged within the tube, a spring surrounding the same, and a detachable cap arranged upon the lower end of the tube to confine the spring and plunger, substantially as shown and described.

2. The combination with a locomotive cab and head light case, of the lamp and reflector, said reflector having an opening in the rear portion of the same, a tube secured therein, a spring match carrying plunger arranged in the tube and provided with a knob at its lower end, a detachable cap upon the end of tube, a latch plate pivoted to one side of head light case and provided with a notch to receive and hold the plunger and a cord attached to said plate and extending into the locomotive cab substantially as described.

492,686. DUMPING-WAGON. WILLIAM H. KAUFFMAN, Columbus, Ohio. Filed May 19, 1892. Serial No. 433,607. (No model.)

Claim.—1. The combination with a wagon body having its bed composed of a series of slats or boards which are pivotally supported at one edge and adapted to swing downward at their outer edge, of cross bars located near the ends of said swinging slats or boards, pulleys on the sides of the wagon body above the ends of said cross bars, draw bars mounted in keepers on each side of the wagon to guide them in their longitudinal movements, chains passing over the said pulleys and connected at their lower ends with the opposite ends of the said cross bars, and having their upper portions extending approximately parallel with the said draw bars with which they are connected, and means for actuating the said draw bars, substantially as and for the purpose set forth.

2. The combination with a wagon body having its bed composed of a series of slats or boards which are pivotally supported at one edge and adapted to swing downward at their outer edge, of cross bars located near the ends of said swinging slats or boards, pulleys on the sides of the wagon body above the ends of the said cross bars, draw bars mounted in keepers on each side of the wagon to guide them in their longitudinal movements, chains passing over the said pulleys and connected at their lower ends with the opposite ends of the said cross bars, and having their upper portions extending approximately parallel with the said draw bars with which they are connected, a rock bar journaled to the wagon body, cranks at the ends of the rock bar, links connecting the cranks with the draw bars and a lever for rocking the said bar in its bearings, substantially as described.



3. A dumping wagon body having inclined end portions, and having a central longitudinal beam, a double inclined housing placed over said central beam, slats or boards arranged in pairs on the opposite sides of the said beam and pivoted, respectively, to the said beam and the side boards of the wagon body, cross bars located near the ends of said pivoted slats or boards to support the same in a closed position, pulleys on the sides of the wagon body above the ends of the said cross bars, draw bars mounted in keepers on each side of the wagon to guide them in their longitudinal movements, chains passing over the said pulleys and connected at their lower ends with the opposite ends of the said cross bars, and having their upper portions extending approximately parallel with the said draw bars with which they are connected, and means for actuating the said draw bars, substantially as described for the purpose specified.

492,687. DEVICE FOR LOCKING AND OPERATING DREDGING-SPUDS. FRANK H. KING and GEORGE W. KING, Marion, Ohio. Filed Apr. 23, 1892. Serial No. 430,388. (No model.)

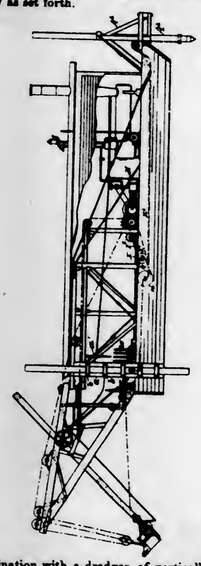
Claim.—1. A spud lock consisting of a rock shaft, an arm carried by said rock shaft, a bar connected with said rock shaft a rack bar carried by the spud, with which said bar is adapted to engage, and weight or equivalent means for automatically throwing the bar into engagement with the rock bar, substantially as set forth.

2. The combination with a spud and a rack bar carried thereby, of brackets carried by the frame work which carries the spud, a rock shaft carried by said brackets, a bar connected with said rock shaft and adapted to engage the rack bar and a weighted arm carried by said rock shaft, substantially as set forth.

3. The combination with suitable framework, a spud located therein and adapted to slide, and a rack bar secured to said spud, of brackets secured to the framework and provided with elongated slots, a rock-shaft mounted in said brackets, an arm carried by said rock-shaft, and a bar connected with said rock shaft and mounted in the

elongated slots in the brackets, said bar being adapted to engage said rack bar, substantially as set forth.

4. The combination with suitable framework, a spud located therein and adapted to slide, and a rack bar secured to said spud, of brackets having elongated slots, secured to the framework, a rock shaft mounted in said brackets, an arm or lever carried by said rock shaft, arms or links projecting from said rock shaft and provided with elongated slots, and a bar mounted in the elongated slots in the brackets and connected in the elongated slots in the arms or links secured to the rock shaft, said bar being adapted to engage the rack bar, substantially as set forth.

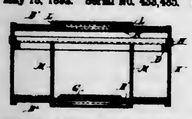


5. The combination with a dredger, of vertically sliding spuds carried thereby, rack bars secured to said spuds, brackets secured to the framework which carries the spuds, rock shafts mounted in said brackets, a weighted arm or lever carried by said rock shaft, a bar or dog connected with each rock shaft and adapted to engage the rack bars on the spuds, cords or ropes, connected to said weighted arms or levers and pulleys for supporting said cords or ropes, substantially as and for the purpose set forth.

6. The combination with a spud, of a rack bar secured thereto, of a weighted lock adapted to normally engage said rack bar, substantially as set forth.

7. The combination with a spud, of a rack bar, the notches of said rack bar being larger at their ends next to the spud, and a lock adapted to engage said notches, substantially as set forth.

492,688. LIFE-PRESERVING TRUNK. PAUL KERNERL, Leipsic, Germany. Filed May 18, 1892. Serial No. 433,485. (No model.)

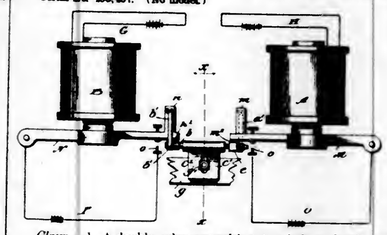


Claim.—1. A combined life preserver and trunk consisting of a shell, openings in the upper and lower faces of the shell, and collapsible tubing secured to the edge of one of said openings and arranged to extend through the shell and be secured to the edge of the opposite opening, in the manner and for the purpose set forth.

2. A combined life preserver and trunk consisting of a shell, openings in the upper and lower faces of the shell, collapsible tubing secured to the edge of one of said openings and arranged to extend through the trunk and be secured to the edge of the opposite opening, and covers for closing said openings, in the manner and for the purpose set forth.

3. The combination in a combined trunk and life preserver, consisting of a hollow shell provided with a man-hole through the body portion thereof, covers for closing said man-hole, flanged rings secured to the upper and lower edges of the man-hole, and flexible tubing adapted to engage said rings, whereby the same is kept in extended position, substantially as described.

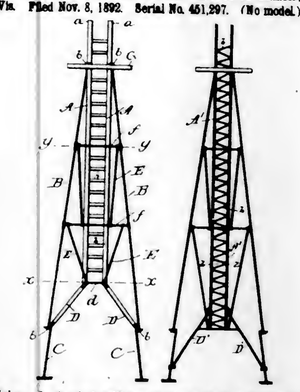
492,689. RELAY. JACOB W. LATTIG, Easton, Pa., assignor to the National Switch and Signal Company, same place. Filed Nov. 28, 1892. Serial No. 453,407. (No model.)



Claim.—1. A double relay comprising two independently energized electro magnets, and armature levers therefor, and a separate and independent locking mechanism for each armature lever operated from and controlled by the other armature lever, the arrangement being such that whenever and so long as either lever is in action that locking mechanism only which is operated from and controlled by it, will be operated substantially as and for the purposes hereinbefore set forth.

2. Two independently energized electro magnets and armature levers therefor, in combination with two weighted rock shafts each having a detent to engage one lever, and a tappet to be operated on by the other lever, for the purpose of throwing the detent into the path of the lever which it is intended to engage, substantially as hereinbefore set forth.

492,690. WINDMILL-TOWER. MYRON R. MARTIN, Brooklyn, Wis. Filed Nov. 8, 1892. Serial No. 451,297. (No model.)



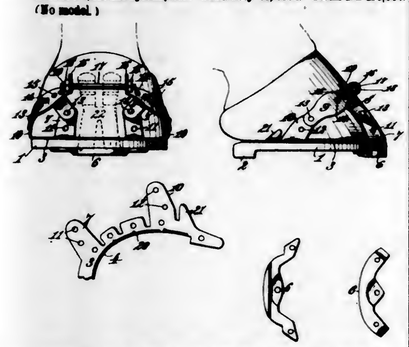
Claim.—1. A wind mill tower comprising the vertical parallel posts, inclined posts connected with the anchor posts and supporting said vertical posts, and suitable brace rods connected with the vertical posts for holding them rigidly in a vertical position, substantially as described.

2. A wind mill tower comprising a pair of vertical posts, inclined base posts connected with the anchor posts and supporting said vertical posts, brace rods extending from the anchor posts to the upper ends of the vertical posts, and intermediate bracing, substantially as described.

3. A wind mill tower comprising a pair of vertical posts, inclined base posts connected with the anchor posts and supporting the vertical posts, brace rods extending from the anchor posts to the upper ends of the vertical posts with intermediate bracing, and cross rods extending between the vertical posts adapted to form a ladder, substantially as described.

4. In combination the anchor posts, the inclined base posts secured thereto, a pair of vertical posts mounted on said inclined posts, brace rods extending from the anchor posts to the upper ends of the vertical posts, and a series of zigzag brace rods extending between the vertical posts, substantially as described.

492,691. FASTENING FOR NAILLESS HORSESHOES. DANIEL L. MAYOW, Mount Sylvan, Tex. Filed July 13, 1892. Serial No. 439,917. (No model.)



Claim.—1. In a nailless horseshoe, the combination, of the shoe-plate 3 having the front wings 7 and side wings 10 formed on said plate, the links 8 pivotally attached to the front wings, the half-bands 9 pivotally attached to the side wings and adjustably connected to said links, and the clamping bolt 17 and nuts 18 connecting the opposite half-bands, substantially as described.

2. In a nailless horseshoe, the combination, of the shoe-plate 3 having integral therewith the front wings 7 and side wings 10, the half-bands 9 pivotally and adjustably attached to the side wings and provided with lugs 16, the links 8 pivotally and adjustably attached to the front wings and adjustably connected to the half-bands, and the clamping bolt 17 and nuts 18 adjustably connecting the lugs on the opposite half-bands, substantially as described.

3. In a nailless horseshoe, the combination, of the shoe-plate 3 having integral therewith the rear curved flange 4, the front wings 7 and side wings 10, the toe-plate 5, the half-bands 9 pivotally attached to the side wings, the links 8 pivotally attached to the front wings and adjustably connected to the half-bands, and a clamping bolt 17 that adjustably connects said half-bands, substantially as described.

4. In a nailless horseshoe, the combination of the shoe plate 3 having the rear upwardly curved flange 4 provided with a notched edge 20, the front wings 7 and side wings 10 integral with said shoe-plate, the half-bands 9 pivotally attached to the side wings, the links 8 pivotally attached to the front wings and adjustably connected to said half-bands, and the clamping bolt 17 that adjustably connects said half-bands, substantially as described.

5. In a nailless horseshoe, the combination of the shoe-plate having integral therewith the front wings 7, side wings 10, and side lugs or jaws 21, the half-bands 9 pivotally attached to the side wings, the links 8 pivotally attached to the front wings and adjustably connected to said half-bands, and the clamping bolt 17 connecting with opposite half-bands, substantially as described.

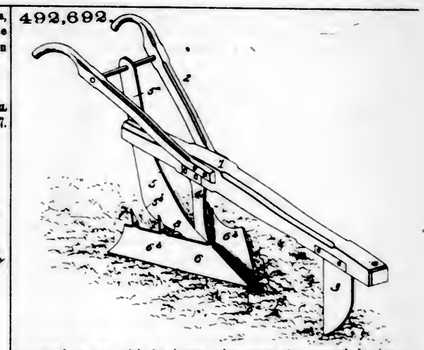
6. In a nailless horseshoe, the combination, of the shoe 1, the shoe-plate 3 provided with front wings 7 and side wings 10, the half-bands 9 pivotally attached to the side wings, the links 8 pivotally attached to the front wings and adjustably connected to the half-bands, the clamping bolt 17 connecting the opposite half-bands, and the front-brace 22 secured to the toe of the shoe and extended upward and against said clamping bolt, substantially as described.

7. In a nailless horseshoe, the combination, of the shoe 1, flanged shoe-plate 3 having the front wings 7 and side wings 10, the toe-plate 5, the toe-bar 6, the pivoted links 8 attached to the front wings, the pivoted half-bands 9 attached to the side wings and adjustably connected to said links, the clamping bolt 17 connecting said half bands, and the front brace 22, substantially as described.

492,692. CULTIVATOR. REUBEN MILLER, Sergeant Bluffs, Iowa. Filed Sept. 8, 1890. Renewed Oct. 31, 1892. Serial No. 450,441. (No model.)

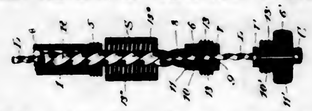
Claim.—In a cultivator plow, the combination with a beam and standard and a colter having a draw-cut, of a brace or rudder plate

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arranged to run with its lower edge upon the ground, having a widened center and a sharp angle between its vertical and horizontal ends forming a pivotal point or fulcrum for guiding the plow, the cross-brace beneath the rudder plate, and the scraper having the points or small moldboards, substantially as shown and described.

492,693. TOOL-DRIVER. THOMAS F. MCLOUGHLIN, Leavenworth, Kans. Filed Mar. 11, 1892. Serial No. 424,555. (No model.)



Claim.—1. In a tool driver, the combination with a screw having at its lower end a reduced and smooth extension, a head at the lower end of said extension, a tool-point connected with said head, and a handle having a nut moving on the screw said nut having exterior threads; of a washer mounted loosely on the extension against the lower end of the screw, a collar swiveled on the extension between the washer and head, exterior threads on said collar, and a sleeve having interior threads adapted to engage the exterior threads on the nut and collar, substantially as described.

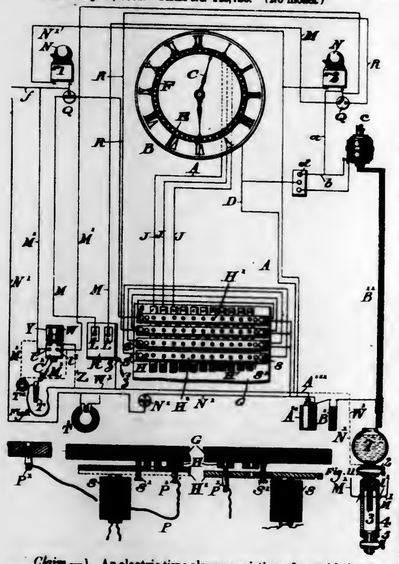
2. In a tool driver, the combination with a collar provided with a head having a nut, means for turning said parts in one direction, a screw passing into said parts and threaded so as to be turned by the nut in the opposite direction when the collar is moved down thereon, a smooth extension on said screw, and a tool-point carried by its lower end; of a second collar turning loosely on said extension, a detachable and swivel connection between said collars, and a knob fast on said second collar, all as and for the purpose set forth.

3. In a tool driver, the combination with a hollow handle, a nut in its lower end, a right screw passing through said nut and itself having a nut, a collar swiveled on this screw, a left screw passing through the latter nut, a second collar swiveled on this left screw and having a knob, and a tool-point attached to the left screw; of a sleeve, and means substantially as described, for detachably connecting the sleeve with the two collars and the nut on the handle, as and for the purpose set forth.

4. In a tool driver, the combination with a hollow handle having a swiveled button near its upper end, a nut in its lower end having interior and exterior threads, a right screw passing through said nut and having a nut in its lower end, a left screw passing through this nut and into the right screw, and a tool-point attached to the left screw; of a collar swiveled on each screw at its lower end and having exterior threads, and an internally threaded sleeve adapted to engage the threads on said collars and the handle-nut, all as and for the purpose set forth.

5. In a tool driver, the combination, with a hollow handle, a right screw therein, a left screw taking into the right, and means for moving either screw longitudinally and axially; of a chuck comprising a body secured to the lower end of the left screw and bifurcated at its lower end, two jaws, pivoted in the bifurcation, the exterior of said body being annularly grooved near its upper end and provided with a series of cavities at various distances from said end, a sleeve surrounding said body, a spring-actuated pin in the sleeve and passing inwardly through the same, and means for withdrawing said pin partially, as and for the purpose set forth.

492,694. ELECTRIC ALARM FOR HOTELS. JOHN McMURROW, Jr., Philadelphia, Pa., assignor of one-fourth to Charles S. Hirst, same place. Filed July 21, 1892. Serial No. 440,726. (No model.)



Claim.—1. An electric time alarm consisting of movable insulated strips with openings therein and magnets at the ends thereof, and a time piece having pins with which the hands are adapted to contact, wires connecting the time piece and strips, and pegs connected with wires, substantially as described.

2. In an electric alarm, an electric circuit with a time piece therein, an insulating ring with metallic pins adapted to be contacted with by a hand of said time piece, insulated strips with wires connecting them with said metallic pins, strips movable over said first mentioned strips, magnets for operating said movable strips, plates with wires leading to alarms, and wires with pins for connecting said strips and plates, said parts being combined substantially as described.

3. In an electric alarm, an electric circuit with a time piece therein, an insulating ring with contact pins thereon, insulated strips with wires connecting them with said contact pins, metallic plates, wires with pins for connecting said strips and plates, a wire leading to a switch and an alarm from each of said plates, and a lamp or burner electrically connected with said bell, said parts being combined substantially as described.

4. In an electric alarm, an electric circuit with a time piece therein, an insulating ring with metallic pins adapted to be contacted with by the hour hand of said time piece, insulated strips with wires connecting them with said pins, a board having pins in electrical communication with alarms, a swinging lid having spring fingers adapted to contact with said last mentioned pins, and wires connecting said spring fingers with said electric circuits, said parts being combined substantially as described.

5. An electric time alarm consisting of a series of insulated strips having one or more openings therein, a time piece having insulated pins with which one of its hands is adapted to contact at intervals of time, wires connecting said strips and said pins, an electric battery, a wire connecting said battery and time piece, insulated metallic plates, wires with means adapted to connect said strips and plates, alarms with wires connected to said plates, wires with magnets, means to connect said magnet wires and the said alarm wires, and movable strips with openings and extending across said insulated strips, said parts being combined substantially as described.

6. An electric alarm consisting of an electric battery, a time piece with wire connected to said battery, insulated pins F adapted to be in contact at intervals with one of the hands of said time piece, insulated strips H connected by wires with said pins, insulated plates L, wires P, P, with means to connect each of them to said insulated plates L and strips H, alarms N with wires connected to said plates L, means substantially as described for electrically connecting said insulated plates, and a wire with a switch $N^{\times}$ connecting said means with the wire connecting the battery and the time piece, said parts combined substantially as and for the purpose set forth.

7. An electric alarm consisting of an electric battery, a time piece with wire connected to said battery, insulated pins adapted to be in contact at intervals of time with one of the hands of said time piece, insulated strips H with wire connection with said pins, insulated plates L, alarms with wires connected to said plates, means for electrically connecting said insulated plates, a wire with means P', P', for connecting said plates to any one of said strips, and a wire connected with said plates and adapted to be connected with the wire which connects the battery and the time piece, said parts being combined substantially as described.

8. In an electric alarm, insulated strips, a strip movable to and from said strips and adapted to carry a pin forming an electric connection with said strip, an electric circuit with a magnet adjacent to said movable strip, a switch and a wire leading to said magnet and connected by the operation of said switch with said circuit, said parts being combined substantially as described.

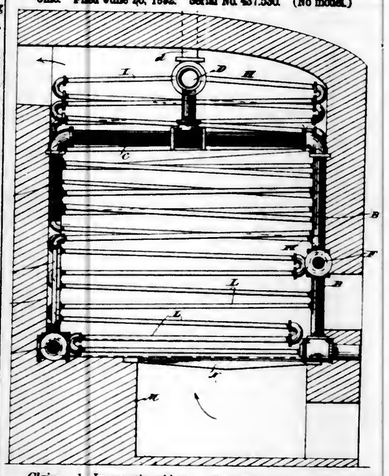
9. An electric alarm consisting of an electric circuit, a time piece having its hand in said circuit, contact points for one of said hands, a series of strips connected with said points, insulated plates with wires leading to alarms, wires from said alarms to magnets, strips movable on pins and operated by said magnets, and means substantially as described for connecting said plates and movable strips, said parts being combined substantially as described.

10. An electric alarm consisting of an electric circuit with a time piece having its hands therein, an insulated ring with contact points with which one of the hands is adapted to engage at intervals, a series of strips with connected wires leading from said contact points, magnets for attaching one set of said strips, insulated plates with wires leading to alarms and means for detachably connecting said strips and plates, said parts being combined substantially as described.

11. In an electric alarm, a wire with a magnet, a wire from said magnet to the alarm, the armature *g*, the break piece *h*, the wire *j*, the uprights K, the screw K', and the ring *l*, the carbon of an incandescent lamp, the screw *m*, plate *m'*, and the wire *n*, the key *p* and the spring *q*, said parts being combined substantially as described.

12. In an electric alarm, a magnet having its poles returned to a common location, electric wires leading to and from the magnet, said poles being slightly permanently magnetized, armature break pieces in contact with the armature after the current has ceased flowing through the magnet, the wire *j*, the uprights *k*, the screw *k'*, the ring *l*, a lamp with a carbon, the screw *m*, the plate *m'*, and the wire *n* said parts being combined substantially as described.

492,695. HOT-WATER HEATER. HARVEY T. HYE, Cleveland, Ohio. Filed June 20, 1892. Serial No. 437,590. (No model.)



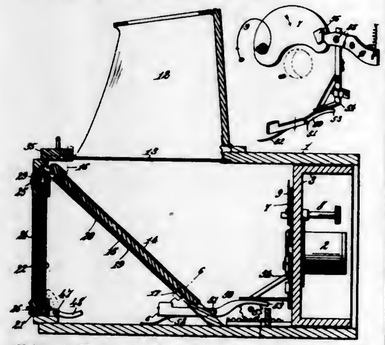
Claim.—1. In a sectional heater, the combination of vertical inlet pipes B and B', forming the corner supports to the heater, transverse headers F and G connecting the vertical pipes across the heater, pipes C connecting the vertical pipes longitudinally, a transverse header D supported upon the pipes C by means of vertical sections E, and a double series of pipe bends secured at their upper extremities to the header D, and at their lower extremities the one to the header F, and the other terminating in vertical pipes forming the rear wall of the fire-box and secured to the header G, substantially as and in the manner set forth.

2. In a water heater, of sectional pipe constructions a fire-box provided with vertical corner posts consisting of inlet pipes B and B', transverse header pipes F and G, in combination with a double system of bent pipes communicating with the said headers F and G and common header D, the lower portion of the system of pipes communicating with header F being vertical and forming the rear wall of fire-box substantially as and for the purpose described.

3. In a sectional hot water heater the combination of vertical corner inlet pipes, B and B', transverse headers F and G and D and longitudinal pipes C connecting the inlet pipes, circulating pipe P connecting headers F and G, circulating pipe bends connecting header D with headers F and G, the pipes connecting header D and headers F forming the rear wall of the fire-box, and auxiliary circulating pipe L located at either side of fire-box substantially as described.

4. In a hot water heater the combination of vertical inlet pipes B, B', transverse headers D, F and G, connecting said pipes, circulating flues connecting the headers F and G, with the header D, and a system of circulating fines on either side of the heater and fire box connecting the header D, with one of the lower extremities of the inlet pipes, substantially as described.

492,696. PHOTOGRAPHIC CAMERA. ENOCH W. PERRY, Jr., New York, N. Y., assignor of one-half to Emil Kipper, Adams, Mass. Filed July 7, 1892. Serial No. 439,273. (No model.)



Claim.—1. The combination with a photographic camera box, of a hinged door arranged at the rear end of the box approximately at right angles to the axis of the lens tube and adapted to swing downward to its open position for exposing a plate or film, a locking mechanism for holding the door closed while it stands approximately at right angles to the lens tube for shielding the plate or film from exposure, a spring acting to throw the door downward to its open position when the door locking mechanism is unlocked, a swinging mirror frame pivoted in the box, movable independent of any movement of the camera shutter, and having devices to operate upon and unlock the door locking mechanism when said mirror frame is swung in one direction, and means operated from the exterior of the box for swinging the mirror frame, substantially as described.

2. The combination with a photographic camera box or case, of a hinged door arranged at the rear end portion of the camera box or case and adapted to swing open to expose a plate or film, a locking mechanism for holding the door closed to shield the plate or film from exposure, and a swinging mirror frame pivoted in the box or case and having an arm or projection at its pivoted end portion which operates to unlock the locking mechanism when said mirror frame is swung in one direction, substantially as described.

3. The combination with a photographic camera box or case, of a hinged door arranged at the rear end portion of the camera box or case and adapted to swing open to expose a plate or film, a locking mechanism for holding the door closed to shield the plate or film from exposure, a swinging mirror frame pivoted in the box or case and having an arm or projection which operates to unlock the locking mechanism when said mirror frame is swung in one direction, and an independent door closing device operated from the exterior of the camera box and engaging the door to close the latter against the tension of its spring after an exposure has been made, substantially as described.

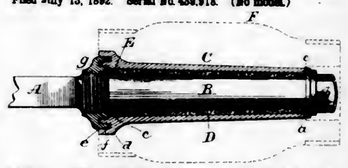
4. The combination with a photographic camera box or case, of a hinged door arranged at the rear end portion of the camera box or case and adapted to swing open to expose a plate or film, a locking mechanism for holding the door closed to shield the plate or film from exposure, a swinging mirror frame pivoted in the box or case and having an arm or projection at its pivoted end portion which operates to unlock the locking mechanism when said mirror frame is swung in one direction, a spring acting on the door to throw it to its open position when the locking mechanism is unlocked by the arm or projection of the mirror frame, and a finger piece located at the exterior of the box or case for swinging the mirror frame, substantially as described.

5. The combination with a photographic camera box or case, of a hinged door arranged at the rear end portion of the camera box or case and adapted to swing open to expose a plate or film, a locking mechanism for holding the door closed to shield the plate or film from exposure, a swinging mirror frame pivoted in the box or case and having devices which operate to unlock the door when said mirror frame is swung in one direction, a spring for throwing the door open when the locking mechanism is unlocked, means operated at the exterior of the box or case for swinging the mirror frame, a shutter, and a shutter detaining mechanism operated by the hinged door when the latter is thrown open by the power of its spring, substantially as described.

6. The combination with a photographic camera box, of a hinged door arranged at the rear end of the box approximately at right angles to the axis of the lens tube and adapted to swing downward to its open position to expose a plate or film, a locking mechanism for holding the door closed while it stands approximately at right angles to the lens tube to shield the plate or film from exposure, a spring acting to throw the door open when the locking mechanism is unlocked, a swinging mirror frame pivoted in the box and having an arm or projection at its pivoted end portion which operates to unlock the door-locking mechanism when the said mirror frame is swung in one direction, and an independent door closing device composed of a rock shaft located in the box and having an arm which acts to raise and close the door against the tension of its spring after an exposure has been made, substantially as described.

7. The combination with a photographic camera box or case, of a hinged door arranged at the rear end of the box or case approximately at right angles to the axis of the lens tube and adapted to swing open to expose a plate or film, a locking mechanism for holding the door when closed, a movable mirror frame having an arm or projection which operates to unlock the locking mechanism when said mirror frame is moved in one direction, a spring acting on the door to throw it to its open position when the locking mechanism is unlocked by the action of the mirror frame, and an independent door closing device operated from the exterior of the camera box and engaging the door to close the latter against the tension of its spring after an exposure has been made, substantially as described.

492,697. AXLE-LUBRICATOR. JOHN T. RICHARDS, Gardiner, Me. Filed July 13, 1892. Serial No. 439,918. (No model.)



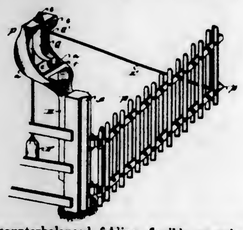
Claim.—1. The combination with an axle box having an inwardly projecting perforated flange at its outer end adapted to bear on the skein or axle and permit some of the lubricating material to find its way outward, of an imperforate nut adapted to screw on the outer end of the axle or skein and close the perforations in the flange, substantially as set forth.

2. An axle box having an inwardly projecting ring or flange at each end adapted to bear upon the axle or skein and form a chamber for lubricating material between the inner wall of the box and the axle or skein, said flanges or rings having perforations therein for the discharge of lubricating material, substantially as set forth.

492,698. FARM-GATE. JOSEPH M. RICHARDSON, Indianapolis, Ind. Filed Oct. 10, 1892. Serial No. 448,411. (No model.)

Claim.—1. The combination with a folding, flexible or swinging gate, and its counterbalancing weight, of the head or bearing for the flexible connection between said gate and weight, said head or bearing having its arms united at their lower portions, the united portion of

said arms forming an elongated downward extension, and means for adjustably securing said extension to the hinge post of the gate, whereby said head may be adjusted to the proper height above said post without reference to the height of the latter, substantially as specified.



2. In a counterbalanced, folding, flexible, or swinging gate, a head or bearing for the flexible connection between said gate and its counterbalancing weight, said head or bearing comprising the frame or casting, the bracket swiveled in said frame or casting and carrying a pulley, and a wheel or roller in the lower end of said bracket traveling on a transverse portion of said plate or bracket, and a downwardly-extended arm of said frame or casting, having means whereby it may be secured to a hinge post in different adjustments, substantially as specified.

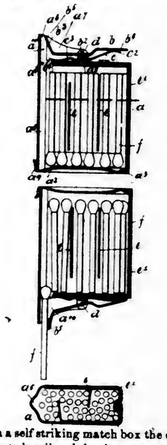
3. The herein described head or bearing for gates, of the character hereinbefore described, said head or bearing comprising a frame or casting, a bracket swiveled in said frame or casting, a pulley carried by said bracket, a wheel or roller journaled in the lower portions of said bracket, a bearing plate upon which said wheel or roller is designed to travel upon the rotation of said bracket, and means for connecting said frame or casting to a gate post, substantially as specified.

492,699. DOUBLE-ACTING FORCE-PUMP. EDMUND A. VAUGHAN, Cambridge, Ill. Filed Jan. 27, 1892. Serial No. 419,444. (No model.)



Claim.—In a double acting pump, the combination of a vertically reciprocating cylinder made of a continuous single piece of metal and having at its ends removable heads carrying automatic valves, said cylinder being cut away at one side to form a single side opening and thickened at the upper and lower edges of said single side opening to form stop-flanges, the stationary double hollow plunger comprising a central T-coupling, and opposite connecting pipes connected at their inner ends to said T-coupling and carrying at their other ends valved plunger heads closely fitting the inner bore of the reciprocating cylinder, said T-coupling being provided with opposite flattened strike-faces adapted to be struck by the strike flanges of the cylinder, and a stationary discharge pipe coupling connected to the T-coupling of the plunger, substantially as set forth.

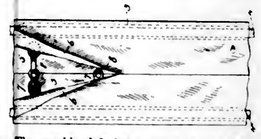
492,700. MATCH-BOX. FRED WALLIS, Birmingham, England. Filed Apr. 5, 1892. Serial No. 428,356. (No model.) Patented in England Sept. 24, 1891. No. 16,315.



Claim.—1. In a self striking match box the combination with the box *a*, and the pivoted striker *b*, having an upturned serrated end b^4, of the intercepting plate or spring *c*, by which the matches are suspended, after partial extraction and prior to ignition, and by which detached heads are prevented from returning to the box, substantially as described.

2. In a self striking match box the combination with the box *a*, of the bent plate *c* having the lips *c*, *c*, extending into the box and forming semi-partitions therein, substantially as described.

492,701. FASTENING ATTACHMENT FOR DRESS-WAISTS. DELL R. WASSON, Versailles, Ky. Filed Nov. 8, 1892. Serial No. 451,376. (No model.)



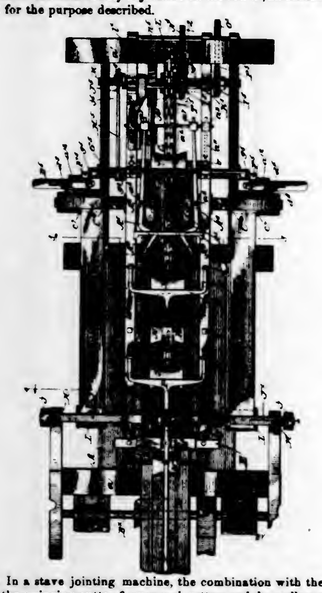
Claim.—The combined facing, stay-casing and fastening attachment for dress-waists and similar garments, consisting of two strips of fabric each provided with a double front flap, a double rear flap which in one strip is wider than the front flap, and a longitudinal pocket or casing formed between a single front and rear thickness of the strip which extends beyond the outer edges of the double front and rear flaps, said casings being adapted for reception of a stay, and a series of fastening devices secured to one double flap of each strip and adapted to be engaged with the corresponding series of fastening devices secured to a double flap of the opposite strip, said fastening devices on each strip being covered by and concealed between the said front and rear flaps, substantially as shown and described.

492,702. STAVE TRIMMING AND JOINTING MACHINE. WILLIAM J. WRIGHT, Cooperstown, Pa. Filed June 2, 1892. Serial No. 436,332. (No model.)

Claim.—1. In a stave trimming and jointing machine, the combination with the main frame and the transverse yoke j^x formed with bearings *j* at its outer ends, and the boxes and bearings $j'j^3$ supported on the side beams a^x of the main frame, of the hollow shafts J' mounted in the bearings $j'j^3$, the shafts J longitudinally movable in and held to turn with the hollow shafts J', the saws I mounted on the inner ends of the shafts J, lever mechanism for simultaneously adjusting the saw shafts J inward or outward and means for rotating the shafts J' all substantially as shown and for the purpose described.

2. In a stave jointing machine, in combination the endless carrier, the cutter frames and cutters, held to be rocked laterally to such carrier, bilge forming devices connected therewith, spreader arms connected with the cutter frames, projected in advance thereof to be engaged by the passing stave, such arms having adjustable fulcrums on the main frame at the rear of the cutter frames, all arranged substantially as shown whereby the front contact faces of the arms can be adjusted to set the cutters to cut a greater or less bilge, by adjusting the fulcrums of such arms to or from the cutters as and for the purpose described.

3. In a stave jointing machine the combination with the main frame, the endless carrier and the laterally swinging cutter frames, of the spreader arms A^4, pivotally connected near their front ends to the cutter frames, such front ends having contact faces adapted to be engaged by the passing stave, the longitudinally arranged guide rods a^{11} on the main frame the transverse rod a^6 adjustably held thereon, and the slide blocks a^7 longitudinally adjustable on the rear ends of the arms A^4 and transversely adjustable on the rod a^6, all substantially as and for the purpose described.



4. In a stave jointing machine, the combination with the main frame, the swinging cutter frames and cutters and the endless carrier passing between such cutter frames, bilge forming devices, including rocker head blocks and plungers operating therein, link arms, on the cutter frames pivotally connected with the plunger rods, intermittently operated gear devices, including reciprocating arms connected to the swinging head blocks, and lock cams for holding the plungers to their adjusted position all arranged to be automatically and successively operated by the moving stave, and whereby the movement of the cutter frames will set the plungers to determine the bilge movement of such cutter frames whereby such movement is rendered continuous during the passage of the stave between the cutters as set forth.

5. In a stave jointing machine, the combination with the swinging cutter frames, the rotary cutters mounted therein and mechanism for carrying the billet between such cutters, of bilge formers arranged to be set to their initial position by the lateral or swinging movement of the cutter frames, devices for holding such formers to their adjusted position, and intermittent gear mechanism arranged to be set in operation by the passing stave and adapted to impart a reciprocating motion to the formers whereby to move the cutter frames on a proper bilge curve as and for the purpose described.

6. In a stave jointing machine of the class described, the combination with the swinging cutter frames and the rotary cutters mounted therein, of a bilge forming device, comprising tubular rocker frames pivoted on the main frame, plunger rods movable therein, link arms pivotally connected to such rods and to the swinging cutter, frames whereby to move such plungers, as the cutter frames are swung on their pivotal axis, means for holding the tubular frames to their normal position, and locking devices, adapted to lock the plunger rods from movement when the tubular frames are rocked substantially as and for the purpose described.

7. In a stave jointing machine of the class described, the combination with the laterally swinging cutter frames and the revolving cutters mounted therein, of the tubular head blocks D^2, slotted on their upper and lower faces, the plunger rods D^4, operating therein the link arms d^9 pivotally connecting the plungers and the swinging cutter frames, the cams W pivoted on the head blocks D^2, adapted to be out of contact with the plungers when the head blocks are in their normal positions, and to engage the said plungers when such blocks are swung on their pivots, and means for rocking such head blocks, all substantially as and for the purpose described.

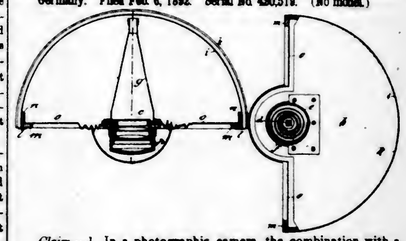
8. In a stave jointing machine of the class described the combination with the laterally swinging cutter frames and the revolving cutters mounted therein, the swinging tubular head blocks pivoted to the sides of the main frame, the plunger rods longitudinally movable thereon, the pivoted link connections d^9 and the cam devices W^4 for engaging the plunger rods, of the drive shaft M, the shaft n^2 geared therewith, provided with a gear N^2, the rotary shaft K^2 a swinging gear connection M^6 mounted thereon, the rock shaft G^2 connected with the shaft K^2 and operated thereby, the crank arms g^4, on said shaft G^2 the rods F^6 connecting such crank arms and the head blocks, and mechanism connected to the swinging gear connection M^6 adapted to be engaged by the passing stave whereby to gear the shafts K^2 and n^2 together during the operation of cutting all substantially as and for the purpose described.

9. In a stave jointing machine of the class described the combination with the main frame A, the drive wheels L L' the endless carrier, mounted thereon, the laterally swinging cutter carrying frames, the bilge former head blocks pivotally mounted for a rocking movement on the main frame connected with the cutter frames, the shafts G^2, formed with slotted crank arms g^4 g^5, the rods F^6 adjustably secured at their upper ends in said slotted cranks g^4, their lower ends pivotally connected with the rocking head blocks and mechanism for imparting a rocking motion to the shaft G^2 during the operation of forming the bilge cut on the billet, all substantially as and for the purpose described.

10. In a stave jointing machine substantially as described, the combination with the cutter, and the bilge forming mechanism, including the head blocks adapted to be set to their initial point of operation by the passing billet, and the shaft n^2 geared with one of the drive shafts of the machine, of the shaft K^2 provided with a gear L^2, the swinging frame M^6 held on the shaft K^2, carrying an idler m^2, the lifting arm S^2 hung in the path of the moving billet in advance of the cutters the rod T^5 connecting the frame M^6 and the arm S^2 and formed with a rearward extension t^4, and connections betweeen the shaft K^2 and the head blocks for imparting a rocking motion thereto all as and for the purpose described.

11. In a stave jointing machine substantially as described the combination with the shaft K^2, the drive shaft n^2, the swinging gear carrying frame M^2 and the pivotal lifter arm S^2 of the rod T^5 pivotally connected with the arm S^2 at its front end, a block U^5 pivotally connected to the swinging frame M^2, such rod T^5 having a yielding connection in the block U^5 at its rear end as and for the purpose described.

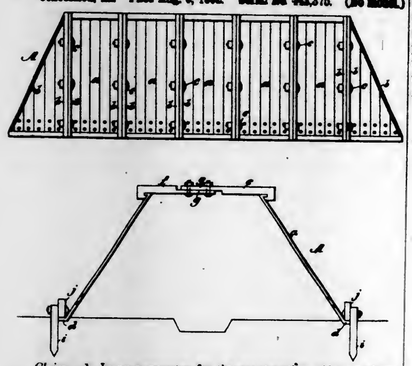
492,703. PHOTOGRAPHIC CAMERA. JOSEF ZIEK, Sohlingenfeld, Germany. Filed Feb. 6, 1892. Serial No. 420,519. (No model.)



Claim.—1. In a photographic camera, the combination with a casing, a shaft adapted to rotate therein, and an objective adapted to rotate with said shaft, of a braking device, a series of grooved pulleys of varying diameters mounted on the rotating shaft, and a cord or chain connecting said braking device with the series of grooved pulleys, substantially as described.

2. In a photographic camera, the combination of a rotary shaft, an objective adapted to rotate with said shaft, a funnel extending rearward from said objective and increasing in height and decreasing in width from front to rear, the pillars *m* provided with inwardly extended flanges *n* to automatically close the end of said funnel in its extreme positions and the cloth *o* secured to said pillars and flanges, substantially as described.

492,704. LEVEE AND DAM STRUCTURE. GEORGE P. ANDERTON, Concession, La. Filed Aug. 6, 1892. Serial No. 442,375. (No model.)



Claim.—1. In an apparatus for the construction of levees, dams and other similar structures, a boxing comprising crown or top pieces adjustable to and from each other, substantially as described.

2. In an apparatus for the construction of levees dams and other similar structures, a boxing composed of a series of sections secured together and a plurality of crown or top pieces adjustable to and from each other.

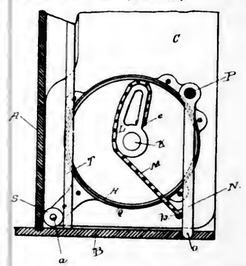
3. In an apparatus for the construction of levees, dams and other similar structures, the combination of a boxing composed of a series of sections secured together, a plurality of crown or top pieces for said boxing adjustable to and from each other, and a series of stakes and chocks for securing said boxing to the ground, substantially as described.

492,705. CURTAIN-FIXTURE. JOHN L. BAKER, Baltimore, Md. Filed Mar. 31, 1892. Serial No. 427,347. (No model.)



Claim.—In a curtain fixture, the combination of a frame, the independent guide rods extending from opposite sides of the frame to the middle thereof and having their inner adjacent ends overlapping and terminating short of their outer ends and extended vertically to the top of the frame at opposite sides of the middle thereof to form hangers and threaded and provided with nuts, said guide rods having their outer ends threaded and provided with nuts and secured to the sides of the frame, the rings arranged on the guide rods the two curtains secured to the rings, the single pulleys located adjacent to the inner ends of the guide rods and at the outer end of one of the guide rods, the pair of pulleys located at the opposite side of the frame, and the doubled curtain cord extending around the single pulley at one side of a frame and having its ends depending from the pairs of pulleys at the opposite side of the frame and having the curtains attached to its sides at opposite sides of the frame, each side of the curtain cord having its portion to which its curtain is attached arranged in the rings thereof, substantially as described.

492,706. FOLDING BED. DAVID H. BREWNER, Grand Rapids, Mich., assignor of one-half to David W. Kendall, same place. Filed Dec. 9, 1891. Serial No. 414,533. (No model.)



Claim.—1. The combination with an upright case, and the pivoted side rail of a folding bed, of a shaft K having a lever or eccentric L, a coiled spring connected with the side rail and with the shaft, and placed under increased tension as the side rail is lowered and a chain or cord M attached to the lever or eccentric and connected with the case, substantially as described.

2. The combination with an upright case, and the pivoted side rail of a folding bed, of a shaft K, a coiled spring connected with the side rail and the shaft, and placed under increased tension as the side rail is lowered, and a cord or chain connected at one end with the shaft and at the opposite end with the upright case, substantially as described.

3. The combination with an upright case, and the pivoted side rail of a folding bed, of a cap H having teeth J at its periphery, a dog I carried by the side rail and engaging the teeth of the cap, a shaft K, a coiled spring connected with the shaft and the cap, and a chain or cord M connected at one end with the shaft and at the opposite end with the upright case, substantially as described.

4. The combination with an upright case, and the side rail of a folding bed, of a shaft K having a lever or eccentric L, a cap H having peripheral teeth J, a dog I carried by the side rail and engaging the teeth of the cap, a coiled spring connected with the cap and the shaft, and a chain or cord M attached at one end to the lever or eccentric and connected at its opposite end with the upright case, substantially as described.

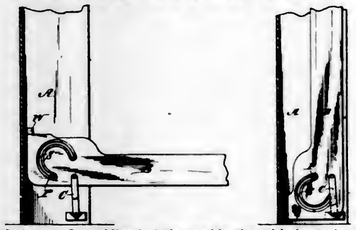
5. The combination with an upright case, and the side rail of a folding bed, of a shaft K having a lever or eccentric L, a coiled spring connected with the shaft and with the side rail, a supporting lever or arm N pivotally connected at its upper end with the side rail and at its lower end to the base of the upright case, and a flexible connection M between the said supporting lever or arm and the lever or eccentric, substantially as described.

6. The combination with an upright case having a track or way T, and the side rail C having a guide pulley S movable in the track or way, of a shaft K having a lever or eccentric L, a coiled spring connected with the side rail and with the shaft, a supporting lever or arm N pivotally connected at its upper end with the side rail and at its lower end to the base of the upright case, and a flexible connection M between the said supporting lever or arm and the lever or eccentric, substantially as described.

7. In a folding bed, the combination of a coiled spring, a side rail to which said spring is attached, a shaft, a lever or eccentric rigidly attached to said shaft, a supporting lever pivoted at its lower end to the case and at its upper end to the side rail, a flexible connection between said eccentric or lever and the lower part of the supporting lever or arm, substantially as described.

8. The combination of an upright case A, a side rail C, a shaft K having a lever or eccentric L and a yoke or block F, a cap H having a pin G, a coiled spring connected with the yoke or block and with the pin, a supporting lever or arm N pivotally connected at its upper end with the side rail and at its lower end to the base of the upright case, and a flexible connection M attached at one end to the lever or eccentric and at its opposite end to the said supporting lever or arm, substantially as described.

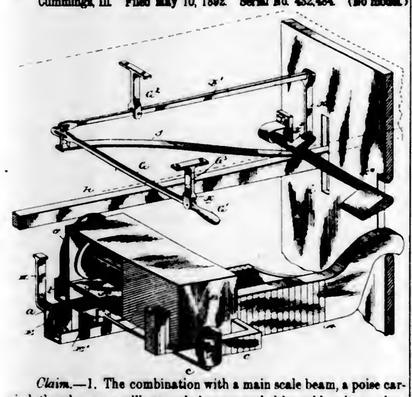
492,707. FOLDING BED. DAVID H. BREWNER, Grand Rapids, Mich. Filed Jan. 6, 1892. Serial No. 417,900. (No model.)



Claim.—1. In a folding bed, the combination with the stationary case, the pivoted supporting arm, and the side rail of a bed section, pivoted to the supporting arm, of a metallic pin or stud on the case, and a guide arranged on the rail and provided with an approximately semi-circular groove into which the stud or pin projects so that when the pivoted bed section is raised the walls of the groove operate on the pin or stud to force the inner end of the pivoted bed section in a perpendicular plane, substantially as described.

2. In a folding bed, the combination with a stationary case having a laterally projecting pin or stud, the pivoted supporting arm, and the side rail of a folding bed section pivoted to the supporting arm, of a metallic guide plate or casting secured to the side rail and formed with an approximately semi-circular groove into which the pin or stud projects so that as the pivoted bed section is raised the walls of the semi-circular groove operate on the pin or stud to force the inner end of the bed section in a perpendicular plane, substantially as described.

492,708. RECORDING WEIGHING-SCALE. CHARLES M. BRUFF, Cummings, Ill. Filed May 10, 1892. Serial No. 432,484. (No model.)



Claim.—1. The combination with a main scale beam, a poise carried thereby, an auxiliary scale beam carried by said poise, and an auxiliary poise carried by said auxiliary scale beam, of a receptacle containing type adapted to register with the graduations on the main scale beam, and a receptacle containing type corresponding with the registrations on the auxiliary scale beam, a tape and means for pressing said type against the tape to register the weight of a body, substantially as set forth.

2. The combination with a scale beam, of a poise thereon, a tape carried by said poise, type arranged beneath said poise and adapted to register with the graduations on the scale beam and means for pressing said types against the tape, substantially as set forth.

3. The combination with a scale beam, of a poise thereon, a tape carried by said poise, a type receptacle carried by the scale beam and disposed beneath said poise, movable type in said receptacle adapted to register with the graduations on the scale beam and means for pressing said type against the tape, substantially as set forth.

4. The combination with a scale beam, of a poise thereon, a tape carried by said poise, a type receptacle carried by the scale beam and disposed beneath said poise, movable type consisting of needle points, in said receptacle and adapted to register with the graduations on the scale beam and means for forcing said type up against the tape and cause them to puncture said tape in the form of figures which they respectively represent, substantially as set forth.

5. The combination with a scale beam, of a poise thereon, a tape carried by said poise, a type receptacle carried by the scale beam and disposed beneath said poise, movable type in said receptacle adapted to register with the graduations on the scale beam, a lever adapted to engage said type at one end and means for depressing the other end of said lever, substantially as set forth.

6. The combination with a horizontal scale beam and a poise, of a receptacle carried by said beam and containing movable type, a tape, a lever adapted at one end to engage said type, a bar adapted to engage the other end of said lever to press the type into contact with said tape, and a lever for depressing said bar, substantially as set forth.

7. The combination with a scale beam and a poise, of a receptacle containing type, a tape, a lever adapted at one end to engage said type, a bar adapted to engage the other end of said lever to press the type into contact with said tape, a bracket carried by said bar, and a pivoted lever attached at one end to said bracket, substantially as and for the purpose set forth.

8. The combination with a scale beam, of a poise thereon, a tape carried by said poise, a type receptacle carried by the scale beam and disposed beneath the poise, type in said receptacle, an arm projecting from the poise, a lever pivotally supported by said arm, a stop to limit the movement of said lever, and means for depressing one end of said lever to cause its other end to strike the type and force them against the tape, substantially as set forth.

9. The combination with a scale beam and a poise, of a receptacle, type in said receptacle and provided in their bottoms with recesses, a pivoted lever having a knife edge at one end adapted to enter the recesses in the type, and means for operating said lever to press the type against the tape, substantially as set forth.

10. The combination with a scale beam and a scale beam guard, and a poise, of a receptacle containing type, a tape, a lever adapted to engage said type to press them against the tape, a bar adapted to engage said lever, a bracket connected to said bar, a pivoted lever connected at one end to said bracket, a lever pivoted between its ends and connected to said pivoted lever and the bracket, and a bar or rod extending from the lever pivoted between its ends, to an arm on the scale beam guard, substantially as set forth.

11. The combination with a scale beam and a poise, of receptacles containing type, means for engaging said type to press them against the tape, rolls, a tape passing over said rolls, a wheel carried by the shaft of each roll, and arms carried by said wheels, and means for engaging said arms to rotate the rolls and move the tape, substantially as set forth.

12. The combination with a scale beam and poise, of rolls carried by said poise, a tape carried by said rolls, type located beneath said tape, means for pressing said type against the tape, a wheel carried by each of said rolls, lugs or projections on one face of said wheel, arms hinged to said lugs or projections, means for engaging said arms to turn the rolls and move the tape, and a guard adapted to cause the hinged arms not in position to be engaged to be turned back, substantially as described.

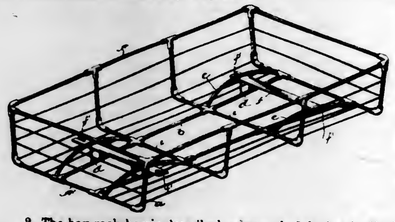
13. The combination with a scale beam and a poise, and a scale beam guard, of tape rolls carried by said poise, a wheel carried by the shaft of one of said rolls, arms carried by said wheel, receptacles located under the poise and carrying type, a pivoted lever adapted to engage said type to press them against the tape, and means for closing the scale guard, engaging the arms on the wheel secured to the roll shaft to move the tape, and operating said lever to press the type against the tape, at a single operation, substantially as set forth.

14. The combination with a scale beam and a poise, of a receptacle carried by the main scale beam, type in said receptacle arranged coincident with the registrations on the main scale beam, an auxiliary scale beam carried by the main poise, an auxiliary poise carried by the auxiliary scale beam, a receptacle carried by the auxiliary poise, type arranged in said auxiliary receptacle inversely to the graduations on the auxiliary scale beam, a tape and means for pressing the type in both receptacles simultaneously against the tape, substantially as set forth.

492,709. HAY-RACK. WILLIAM H. CAPELLEN and HENRY A. CRABTREE, Lake Park, Iowa. Filed July 23, 1892. Serial No. 441,042. (No model.)

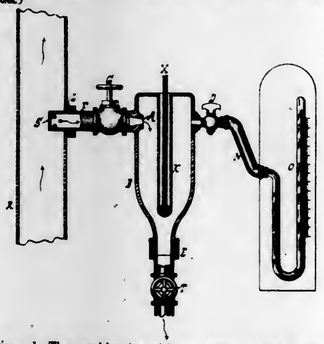
Claim.—1. The hay rack herein described composed of the longitudinal and transverse gas-pipe-like pieces coupled at their junction, the longitudinal central braces, the central transverse braces, the transverse plates on the central braces near their ends, and the bowed side

braces on the couplings of the central longitudinal braces and resting on the said plates, substantially as specified.



2. The hay rack herein described, composed of the longitudinal and transverse gas-pipe-like pieces coupled at their junction and having their ends curved, the longitudinal and transverse braces, the transverse plates on the central braces near the ends, having notched ends, and the bowed braces on the couplings of the central longitudinal braces and resting on the said plates, substantially as specified.

492,710. STEAM-CALORIMETER. ROLLA C. CARPENTER, Ithaca, N. Y., assignor to Schaeffer & Budenberg, New York, N. Y., and Buckau-Magdeburg, Germany. Filed Nov. 10, 1892. Serial No. 451,580. (No model.)



Claim.—1. The combination with the vessel or body B provided with a thermometer and a pressure gage, of an entering pipe leading into the vessel and provided with a mouth or nozzle made convergent at the place of entry into the vessel, substantially as described.

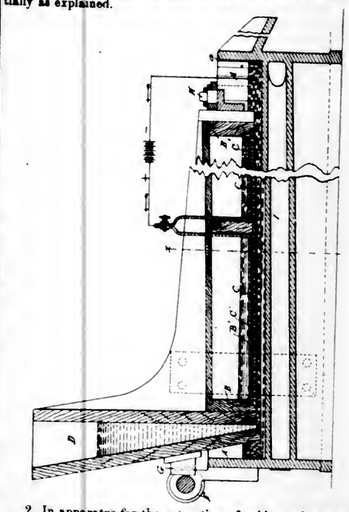
2. The combination with the vessel or body B having a closed top and an opening bottom and provided with a thermometer and a pressure gage, of an entering pipe formed or secured on the vessel and provided with a mouth or nozzle made convergent at the place of entry into the vessel, substantially as described.

3. The combination with the vessel or body B provided with a pressure gage and with a thermometer cup or holder fixed to said vessel, of an entering pipe fixed to the vessel and provided with a mouth or nozzle made convergent at the place of entry into the vessel, substantially as described.

4. The combination with the vessel or body B provided with a thermometer cup and with a manometer and manometer cock, of an entering pipe leading into the vessel and provided with a mouth or nozzle made convergent at the place of entry into the vessel, substantially as described.

492,711. ORE-AMALGAMATOR. JOHN R. CHASTER, Shawlands, assignor to the Regent Gold Extracting Company, Limited, Glasgow, Scotland. Filed Jan. 16, 1892. Serial No. 418,332. (No model.) Patented in England Jan. 8, 1890, No. 316; in Victoria Dec. 30, 1890, No. 8,388; in New South Wales Jan. 2, 1891, No. 2,714; in Queensland Jan. 2, 1891, No. 1,235; in Cape Colony Jan. 23, 1891, No. 165; in South Australia Feb. 14, 1891, No. 1,355; in New Zealand Mar. 4, 1891, No. 4,879, and in Transvaal Apr. 9, 1891, No. 237.

Claim.—1. In apparatus for the extraction of gold or other metals from ore the combination of a bath of mercury forming a cathode with a superposed anode having an area nearly as large as the area of the surface of the mercury, said cathode being separated from the anode by a porous diaphragm whereby an electrical current may be made to pass between the anode and the whole surface of the mercury through the ore as it moves along the surface of the mercury, substantially as explained.

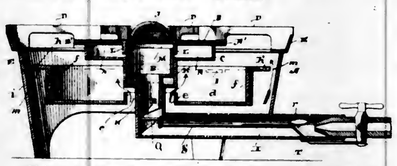


2. In apparatus for the extraction of gold or other metals from ore by amalgamation aided by electricity the combination of a bath of mercury forming a cathode with a superposed anode, porous diaphragm and chute, and an oscillatory framework carrying the anode, porous diaphragm and chute, substantially as explained.

3. In apparatus for extracting gold or other metals from ore, a trough containing a bath of mercury forming a cathode, a chute for delivering ore and water thereinto, and an upwardly inclined perforated partition carrying the anode and porous diaphragm leading from the lower end of the chute, whereby pressure greater than atmospheric pressure at the lower end of the chute, where the ore first comes in contact with the mercury is obtained, substantially as explained.

4. In apparatus for the extraction of gold or other metals from ore electrically, a trough for containing a bath of mercury which constitutes the cathode, a framework in the trough having a perforated bottom, a porous diaphragm secured to the bottom, and an anode supported by said framework, substantially as explained.

492,712. GAS-STOVE. HERBERT CLAYTON, New York, N. Y. Filed Mar. 3, 1892. Serial No. 423,665. (No model.)



Claim.—1. A gas stove comprising a base, a burner having two chambers, one for feeding a small burner and one for feeding a large burner, a supply pipe, a cock therein, a valve for closing the opening to the large chamber, and an operating connection between the valve and the cock, whereby when the cock is turned the valve is simultaneously operated, substantially as specified.

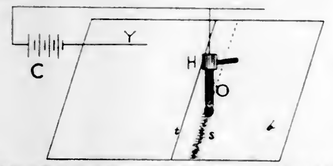
2. A gas burner having a large and a small burner, the small burner being at the center, an annular flange depending below and inclosing the inlet to the small burner, a chamber surrounding the flange for feeding the large burner, a supply pipe having a vertical portion, a tube which fits within the vertical portion of the supply pipe and the said flange, and a means for operating the said tube, whereby it forms a valve as described, substantially as set forth.

3. A gas burner having a small central burner, and a large surrounding burner, a circular flange depending and surrounding the inlet to the small burner, a supply pipe having a vertical portion, a tube which fits with the said vertical portion of the supply pipe and the said flange, a bell crank lever pivoted below the tube, one end of the lever supporting the tube, an operating rod connected to the opposite end of the lever, and a means for operating the said rod, and thereby the said tube for admitting and cutting off gas to and from the large chamber, substantially as specified.

4. A gas burner having a large and a small burner, the small burner being at the center, a flange depending and surrounding the inlet to the said small burner, a supply pipe having a vertical portion and a horizontal portion, a tube fitting within the vertical portion of the pipe and the said flange for the purpose described, air inlets in the horizontal portion of the supply pipe, a means for raising and lowering the said tube, a rod connected with and operating this means and extending through the horizontal portion of the supply pipe and outside thereof to be operated, a cock to which it is secured and operated, and a plate secured to the said rod outside of the said air opening, whereby when the rod is operated to admit gas to the large burner the air opening is opened, substantially as specified.

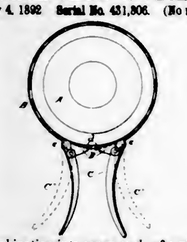
5. A gas stove comprising a base, a supply pipe having a vertical and a horizontal portion, a burner secured to the upper end of the pipe and having radiating arms with openings at its edges, and a pan withiu the base provided with a central opening of greater diameter than the supply pipe to feed air up between the said arms and having an annular upwardly extending flange, the diameter of the pan being less than the interior diameter of the base, whereby air is fed to the outside of the flame, substantially as and for the purpose set forth.

492,713. WELDING METALS ELECTRICALLY. CHARLES L. COFFIN, Detroit, Mich. Filed Oct. 29, 1892. Serial No. 450,349. (No specimens.)



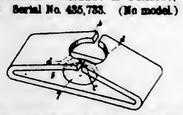
Claim.—The herein described mode of heating metal electrically for welding, consisting in subjecting said metal to the action of a voltaic arc at a short distance from the proposed seam, whereby the metal is not changed by the action of the arc at the line of weld.

492,714. FRUIT-CAN WRENCH. JOHN H. DEAN, Grand Rapids, Mich. Filed May 4, 1892. Serial No. 431,806. (No model.)



Claim.—The combination in a can wrench, of a wire body, levers pivotally connected with the ends of said body in direct line therewith at some distance back from the inner end of the levers, right angle projections upon the inner ends of the levers in line with the body and formed to fit upon the periphery of the can cover, and notches C' in the levers to prevent them from falling out of position substantially as, and for the purpose set forth.

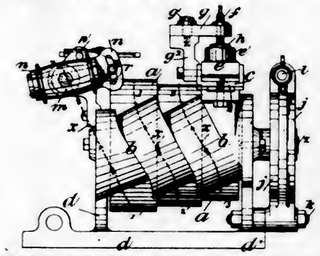
492,715. NUT-LOCK. MICHAEL R. DEMPSEY, Cincinnati, Ohio. Filed June 6, 1892. Serial No. 435,783. (No model.)



Claim.—A nut lock, consisting of the washer base pierced with a bolt orifice 7 and having the ends turned up to form spring limbs *a* extending upwardly and toward each other, said limbs having their free ends cut away to form semi-circular recesses to inclose yet clear the bolt and the opposite corners turned up to form the sharp edges *b* to engage the face of the nut, substantially as described.

492,716. FILLET-CARD MOUNTING MACHINE. JOSEPH S. DRODSFIELD, Oldham, England. Filed Dec. 10, 1891. Serial No. 414,615. (No model.)

Brief.—The machine includes a stepped cone around which the fillet is passed, a shunting-plate for guiding the fillet, a tension device, and a tension indicating device.

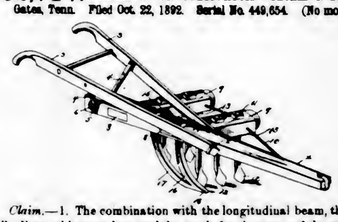


Claim.—1. In a fillet-card mounting machine, the combination of the cone *a*, composed of surfaces of varying diameters, the shunting plate *b*, arranged at one side of said cone; the pressure trough *c*, above the smallest portion of said cone; and the adjustable pulley adjacent to the largest portion of said cone, substantially as described.

2. In a fillet-card mounting machine, the combination of the cone *a*, composed of two or more surfaces of varying diameters; a shunting plate *b*, at one side of said cone *a*; a pressure trough *c*, adjacent to the smallest section of said cone; the adjustable pulley *m*, adjacent to the largest section of said cone, and means in connection with said pulley for indicating the amount of pressure thereon.

3. In a fillet-card mounting machine, the combination of the cone *a*, composed of surfaces of varying diameters; the shunting plate *b*, at one side thereof; the pressure trough *c*, adjacent to the smallest section of said cone; the pulley *m*, adjacent to the largest section of said cone, and adjustably mounted on a plate *p'*; the stock *p*, of said plate *p'*, mounted in bearings *q*, *q*; a spiral spring *s*, surrounding said stock between said bearings *q*, *q*; a rack *t*, secured to said plate *p'*, and engaging with a sector *u*, mounted on the main frame of the machine, and carrying an indicating arm *g*, moving over an index *w*, substantially as set forth.

492,717. HARROW OR CULTIVATOR. THOMAS C. DURHAM, Gates, Tenn. Filed Oct. 22, 1892. Serial No. 449,654. (No model.)

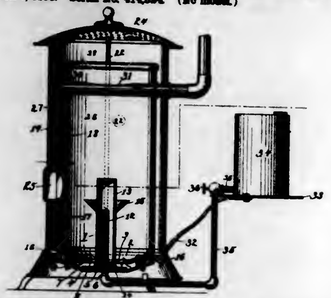


Claim.—1. The combination with the longitudinal beam, the laterally disposed harrow bars and the teeth for the same, of the steadying runner comprising the front and rear branches depending from the beam, and forwardly curved under the same, where they are united in advance of the front branch forming a foot, whose point is reduced, substantially as specified.

2. The combination with the beam, the pair of diagonally disposed bars extending therefrom, and provided with teeth of the steadying runner, comprising front and rear branches, forwardly curved in line with and under the beam, and having their lower ends united in advance of the front branch, forming a foot, whose upper side is reduced to constitute a point, substantially as specified.

3. In combination with the longitudinal beam, the laterally-disposed harrow bars and the teeth for the same, the steadying runner 15 secured to the beam on a line with the harrow bars and extending forwardly and terminating in a foot, said runner having its foot depending below the plane of the teeth of the harrow bars, for the purpose set forth.

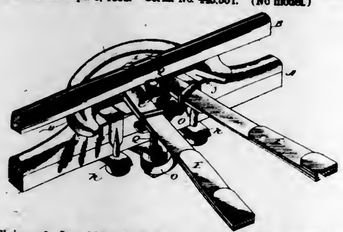
492,718. OIL-STOVE. EVAN A. EDWARDS, Toledo, Ohio. Filed Dec. 7, 1891. Serial No. 414,294. (No model.)



Claim.—1. An oil burner comprising an upper apertured plate, a lower parallel plate spaced from the upper plate, and having the central feed pipe projecting upward through the upper plate, and a vaporizing dome surrounding the projecting end of the feed pipe, substantially as and for the purpose set forth.

2. In an oil burner the combination of the upper apertured plate; the lower plate supported parallel with the upper plate with a space between the plates, and having the central boss, the upwardly projecting feed pipe and the oil receptacle surrounding said boss and feed pipe; and the vaporizing dome surrounding said projecting feed pipe and resting on the boss, all substantially as and for the purpose set forth.

492,719. FIFTH-WHEEL COUPLING FOR VEHICLES. JAMES J. FETZER, Columbiana, assignor to the Herbrand Company, Fremont, Ohio. Filed Sept. 8, 1892. Serial No. 445,331. (No model.)



Claim.—1. In a fifth-wheel, the combination with a bottom-plate, of a top-plate having a recess or seat beneath the bolster for the end of the spring or reach, a brace adapted to support and secure the spring or reach at a point back of the end which rests on the top-plate, and a king-bolt connecting the plates.

2. In a running-gear for vehicles, the combination of an axle, head-block, body springs or reach, bottom-plate, top-plate having depressions therein beneath the head block to receive the ends of said springs or reach, and a king-bolt connecting the plates.

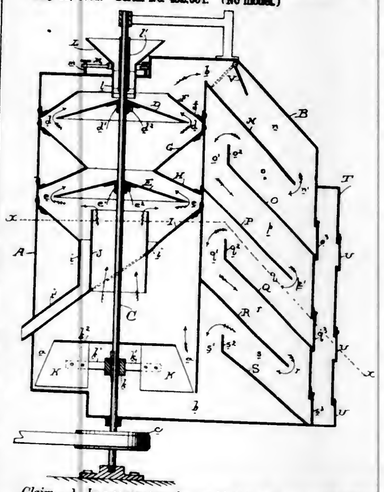
3. In a running-gear for vehicles, an axle, head-block, body springs, bottom-plate, and a top-plate having transverse depressions therein beneath the head block to receive the ends of said springs, and rearwardly extending spring supporting arms contiguous therewith; in combination with a king-bolt connecting the plates in rear of the axle.

4. In a running-gear for vehicles, an axle, head block, body-springs, bottom-plate, and a top-plate having transverse depressions to receive the ends of the springs and rearwardly extending tapering arms for supporting and facilitating vibrations of said springs; in combination with a king-bolt connecting the plates in rear of the axle.

5. In a running-gear for vehicles, an axle, head-block, bottom-plate, axle-plate, top-plate pivoted upon the bottom-plate in rear of the axle and provided with spring or reach-arms; in combination with an interlocking brace extending from said arms and pivoted beneath the axle-plate at a point in rear of the axle, and a king-bolt piercing said top-plate, bottom-plate, axle-plate and brace.

6. In a running-gear for vehicles, an axle, head-block, bottom-plate bearing a rearwardly extending upturned apertured pivot, an axle-plate having a similar downwardly turned pivot, and a top-plate having a rearwardly projecting recessed boss receiving the bottom-plate-pivot and diverging spring or reach irons; in combination with an interlocking brace extending from said arms and terminating in a recessed perforated boss receiving the axle-plate-pivot, and a king-bolt piercing said plates and brace.

492,720. SEPARATOR. JOHN FRYE, West Berkeley, Cal. Filed May 11, 1892. Serial No. 432,631. (No model.)



Claim.—1. In a separator, the combination of a rotating conical disk upon which the material is fed, a drive shaft upon which the disk is secured, a conical hood contiguous to the disk extending over and partially inclosing said disk but separated from the latter to form a surrounding air space, and a fan below the disk for directing an air current through said space between the disk and hood, substantially as herein described.

2. In a separator, the combination of a rotating conical disk upon which the material is fed, an overlying annular hood forming a passage between itself and said disk, and means for directing an air current through said passage, said hood being provided with openings through which particles carried up by the air current may pass back into the same, substantially as herein described.

3. In a separator, the combination of a casing, a rotating shaft therein, a conical disk upon said shaft leaving a space between its edge and the casing, an annular hood overlying said space and contiguous to and partially inclosing said disk but separated therefrom to form a surrounding air space and a fan mounted upon the rotating shaft within the casing below the disk, for directing an air current through said space and between the disk and hood, substantially as herein described.

4. In a separator, the combination of a casing, a rotating shaft therein, a conical disk mounted on said shaft and leaving a space between its rim and the casing, an annular hood overlying said space and disk and having the holes *f* made in it over the space, and a fan for directing an air current through said space and between the disk and hood, substantially as herein described.

5. In a separator, the combination of a casing, a rotating shaft therein, the separated conical disks D and E on said shaft leaving the annular spaces *d* and *e* around their edges, the annular hoods F and H overlying said disks and spaces, a hopper for delivering the material upon the center of disk D, the funnel G between the disks for receiving the material from disk D and delivering it to the center of disk E, the funnel I with the discharge spout below the disk E and a fan for directing an air current through the spaces *e* and *d* and between the disks and their respective hoods, substantially as herein described.

6. In a separator, the combination of a casing, a rotating shaft therein, the separated conical disks D and E on said shaft leaving the annular spaces *d* and *e* around their edges, the annular hoods F and H overlying said disks and spaces, a hopper for delivering the material upon the center of disk D, the funnel G between the disks for receiving the material from disk D and delivering it to the center of disk E, the funnel I with its inclined annular neck and discharge spout, the cylinder J within said neck, and a fan on the shaft in the bottom of the casing for directing an air current through cylinder J, through the spaces *e* and *d* and between the disks and their respective hoods, substantially as herein described.

7. In a separator, the combination of a casing having the rotating shaft, and the hopper in its top, the conical disks on said shaft having encircling spaces, the annular hoods overlying said disks and spaces, the intervening funnel G and discharge funnel I, the cylinder J, and the fan on the shaft in the lower end of the casing, said fan having vertical blades K with inclined outer edges and a cover plate l^2, substantially as herein described.

8. In a separator, the combination of casing A and box B having communicating ends, a fan in the casing for creating a continuous air current through casing and box, separating passages in the casing in which through the action of the air the lighter particles are carried off into box B, and communicating passages in said box wherein by the action of the air the lighter particles are separated according to their specific gravities, substantially as herein described.

9. In a separator, the casing A, the rotating shaft therein with conical disk forming an encircling space, an annular hood overlying said disk and space and a fan in the bottom of the casing for directing an air current through said space and between the disk and its hood, in combination with the box B communicating with the casing above and below the fan therein whereby a continuous air current is created through casing and box, and the vertical series of inclined passages in said box adjacent passages communicating at opposite ends, substantially as herein described.

10. In a separator, the casing A having separating devices and a fan whereby the lighter are separated from the heavier particles of the material passing through the casing, in combination with the box B communicating with the casing above and below the fan therein whereby a continuous air current is created through casing and box, and the vertical series of inclined passages in said box adjacent passages communicating at opposite ends, substantially as herein described.

11. In a separator, a box through which passes an air current, said box having a series of inclined passages, adjacent passages communicating at opposite ends, alternate passages being contracted at their upper communicating openings, substantially as herein described.

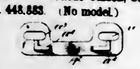
12. A separator consisting of the casing A and box B communicating at each end, the rotating shaft in the casing having the conical disks with encircling spaces, the annular hoods overlying said spaces and disks, the hopper for delivering the material on the center of the uppermost disk, the funnel G for delivering the material to the center of the next disk, the discharge funnel I with inclined annular neck and discharge spout, the cylinder J in said funnel, the fan on the shaft in the lower portion of casing A, the vertical series of inclined passages in box B, adjacent passages communicating at opposite ends, alternate passages being contracted at their upper communicating openings and having valved outlets at their lower ends, substantially as herein described

492,721. CORN-THINNER. CARROLL GARNETT, Front Royal, Va. Filed June 7, 1892. Serial No. 435,918. (No model.)



Claim.—In a device of the character set forth, the combination of a bar or support having a grip at the upper rear side thereof and a lower tapered end, an arm or lever pivotally mounted in the lower portion of said bar or support and extending from opposite sides of the same, a yoke in connection with the front end of said arm or lever, supporting an elastic tube adapted to be turned, an elastic strip secured to said bar or support, and an operating rod adjustably secured to the opposite end of said arm or lever and having a handle on the upper end thereof, substantially as described.

492,722. NUT-LOCK. GEROLT GIBSON, St. Louis, Mo. Filed Oct. 14, 1892. Serial No. 448,883. (No model.)



Claim.—1. In a nut lock, the combination with a nut whose base is provided with a series of notches or ratchets of a locking plate or washer having a spring detent or stop, the point of connection of said stop or detent with its spring, and the spring itself, being outside of the base of the nut, substantially as and for the purpose set forth.

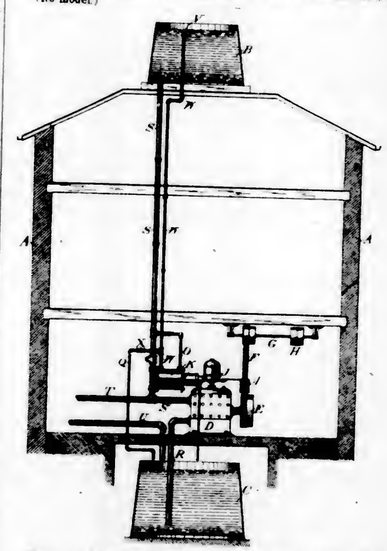
2. In a nut lock, the combination, with a series of nuts whose bases are provided with notches or ratchets, of a washer having a series or plurality of bolt-openings and a series of spring-detents or pawls, the points of connection of said detents or pawls with their springs and the springs themselves, being outside of the bases of the nuts, substantially as and for the purpose set forth.

3. In a nut-lock, the combination, with a series of nuts whose bases are provided with notches or ratchets, of a washer having a series or plurality of bolt openings and a series of detents or pawls, each consisting of a spring arm, the arm proper being at right angles to the spring, and the points of connection of the arms with the springs, and the springs themselves, being outside of the bases of the nuts, substantially as set forth.

4. In a nut-lock, the combination, with a plurality of nuts whose bases are provided with notches or ratchets, of a washer having a plurality of bolt-openings and a plurality of pawls or detents, each consisting of a spring-arm, the arm proper, being at right angles to the spring, and relatively conformed to said bolt-opening and adapted to engage the notches or ratchets of said nuts, the points of connection of said arms with their springs and the springs themselves, being outside of the bases of the nuts substantially as specified.

5. In a nut-lock, the combination, with a plurality of nuts whose bases are provided with notches or ratchets, of a washer having a series of differently relatively arranged bolt-openings and a series of spring-pawls or detents relatively conformed to said bolt-openings and adapted to engage the notches or ratchets of said nuts, the points of connection of the detents or pawls with their springs and the springs themselves, being outside of the bases of the nuts, substantially as specified

492,728. APPARATUS FOR CONTROLLING PUMPS. COPEAN I. HALL, San Francisco, Cal. Filed July 11, 1892. Serial No. 439,631. (No model.)



Claim.—1. In a pump controlling apparatus as herein described, a hydraulic differential cylinder having joined piston heads of different diameters and areas connected with an elevated supply vessel or tank, and a pumping apparatus, whereby the chamber between the piston heads will sustain continually a pressure due to the head, and a chamber outside the larger piston head subjected to a variable pressure by overflow from the supply vessel, and thus a reciprocating movement of the hydraulic piston head, such as is required to start and stop the pump, secured, substantially in the manner described.

2. In a pump controlling apparatus, a supply pump and an elevated supply vessel or tank, a differential cylinder fitted with differential pistons, means for shifting a belt or switch connected with the differential hydraulic piston and to the pump gearing for starting and stopping the pump, whereby, by means of a static or uniform pressure, the piston is moved in one direction, and by the pressure from overflow water is moved in the other direction, and the pump thus caused to operate automatically, substantially as and for the purpose described

3. In a pump controlling apparatus, an elevated supply vessel or tank, a supply pump, a cylinder fitted with two piston heads of different diameters and so arranged and connected that the differences of their areas when exposed to a constant pressure between the heads will cause an inward movement of the piston rod and engage or start the pump, and when the larger piston head is exposed to an equal pressure on each side will move outward and disengage the pump, a pipe connecting the hydraulic cylinder with the overhead supply vessel provided with an expanded overflow inlet, substantially as and for the purpose described

4. In a pump controlling apparatus as herein described, a supply pump and overhead supply tank, means for shifting a belt or switch of the pump gearing, a differential hydraulic cylinder having differential piston heads connected with the shifting means, a pipe extending from one end of a hydraulic cylinder to the bottom of the supply tank, and a pipe connection extending from the other end of said cylinder to the highest water level in the said tank and having connection also with a waste pipe having an adjustable valve or cock, whereby the hydraulic cylinder is caused to move in one direction when the elevated vessel is not full and in the other direction when said vessel is full, thus starting and stopping the supply pump, substantially as described.

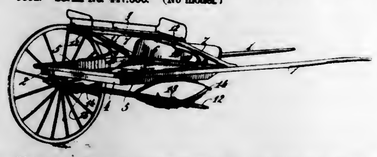
492,724. PLOW. CONRAD HARTRELL, St. Joseph, Mo. Filed June 18, 1892. Serial No. 437,195. (No model.)



Claim.—1. In a plow, the combined reversible landside, undercutting share, and colter, consisting of an integral piece in the form of two truncated triangles joined to each other at their bases and at right angles to each other, the edges of said piece being sharpened to form cutters with the exception of the truncated portions, said piece being perfectly symmetrical in form, whereby it may be reversed, substantially as specified.

2. In a plow, the combination with the broad flat share, and the moldboard having a broad transverse forward portion, and a narrow concaved rear portion, gradually decreasing in width from its upper edge, of the combined landside, colter, and undercutting share, said landside being abbreviated in length, of symmetrical angular truncated form, and reversible, substantially as specified.

492,725. SULKY. JOHN W. HOLLIDAY, Paris, Ky. Filed Oct. 5, 1892. Serial No. 447,880. (No model.)



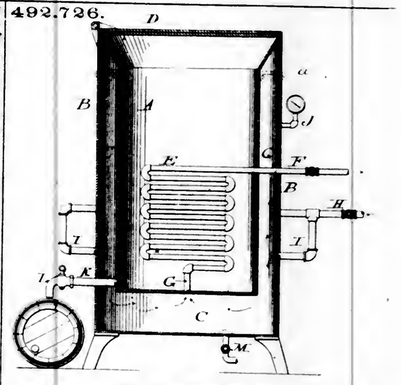
Claim.—1. A break cart, consisting of a wheeled axle having attached springs to the upper sides of which the shafts are rigidly secured, the inclined seat carrying bars having their forward ends secured to the shafts, and a spring bent intermediate its extremities to form two arms 10 and 11 and interposed between each seat bar and a shaft, one arm of each spring being secured directly to the under side of a seat bar and the other arm secured directly to the upper side of a shaft, substantially as described.

2. A break cart, consisting of a wheeled axle having attached elliptic springs to the upper sides of which the shafts are rigidly secured, a pair of inclined seat arms secured at their forward ends to the shafts, and a pair of springs each bent intermediate its extremities to form two arms 10 and 11 one of which is secured to the rear end of a seat arm and the other secured to a shaft, substantially as described.

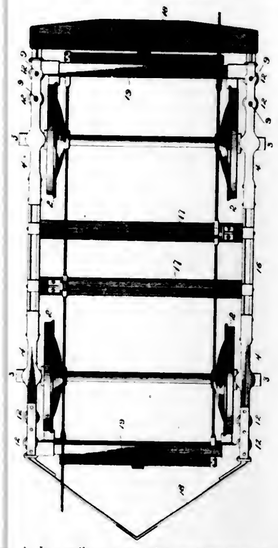
492,726. HEATER. ALEXANDER JACK, Evansville, Ind. Filed Feb. 19, 1892. Serial No. 422,114. (No model.)

Claim.—In combination with vessel A closed at its lower end; the vessel B surrounding but set away from the vessel A, to form a steam space C; a coil E within the vessel A and communicating at one end with the steam space and having its opposite end carried outside the vessels to afford an escape for the steam; a cover; and an outlet pipe K for the vessel A

492,726.



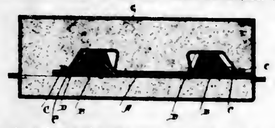
492,727. CAR-TRUCK. PETER M. KLING, St. Louis, Mo. Filed Nov. 9, 1892. Serial No. 451,465. (No model.)



Claim.—1. In a railway truck, the combination of four castings, one for each corner of the frame, and distance plates connecting the castings, each of said castings being formed with an opening to receive the axle-box, and each having an inward extension 7, to which one end of said distance plate is secured, and each having an outward extension 8, cast with an opening to receive the car body springs, and which are perforated to receive the car body supporting posts, substantially as set forth.

2. In a railway truck frame, the combination of four castings, one for each corner of the frame, distance plates connecting the castings, posts secured to the car-body, springs surrounding said posts, rings secured to the posts and against which the upper ends of the springs bear, each of said castings having an opening to receive the axle box, having a spring seat over said opening, having an inward extension to which said distance plates are secured, and having perforated, open, outer extensions through which said body posts pass, and which receive said body springs and rings, substantially as and for the purpose set forth.

492,728. PATTERN FOR MOLDING DOVETAILS. EDMUND KUHN, New Albany, Ind. Filed Sept. 29, 1892. Serial No. 447,299. (No model.)

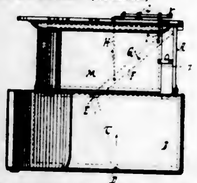


Claim.—1. A dove-tail mold pattern, consisting of a base portion having cleats, steady pins at the outer sides thereof, and shells placed over the cleats with their outer edges between the cleats and the said pins.

2. A dove-tail mold pattern, consisting of a base portion having cleats with inclined outer edges, shells placed over the cleats, and springs between the cleats and the shells.

3. A dove-tail mold pattern, consisting of a base portion having cleats with inclined outer sides, steady pins at the outer edges of the cleats, shells with inclined outer edges placed between the cleats and the pins, and springs secured to the inner sides of the shells.

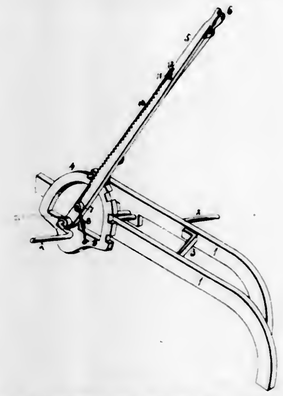
492,729. SOFA-BED. JACOB LEWIN, New York, N. Y. Filed Aug. 11, 1892. Serial No. 442,742. (No model.)



Claim.—1. The combination with a stationary frame and a sliding frame of a lever for actuating the sliding frame and a rising and falling bottom for the stationary frame said rising and falling bottom being provided with a movable head rest and a cord connected to the stationary frame and to the movable head rest for automatically raising the latter as the bottom is elevated, substantially as described.

2. The combination with a stationary frame provided with a rising and falling bottom of a sliding frame, a lever fulcrumed on the back of the stationary frame, a second lever fulcrumed at the lower part of the stationary frame, cords or connections extending from the first to the second lever and a link or connection for connecting the second lever to the sliding frame, substantially as described.

492,730. COMPENSATING LEVER, &c. HJALMAR LINDSTRÖM, Moline, Ill. Filed Oct. 24, 1892. Serial No. 449,884. (No model.)



Claim.—1. In a compensating lever, the combination of a pivoted lever, a roller having a connection therewith near its pivot, a spring having a connection with the lever near its free end and its other end having a flexible connection with a stationary support, said flexible connection passing over the roller.

2. In a compensating lever, the combination of a pivoted lever, a toothed segment, a detent for the lever, a roller having a connection with the lever near its pivot, a spring having a connection with the lever near its free end and its other end having a flexible connection with a stationary support, said flexible connection passing over the roller.

492,731. BUTTONHOLE-FACING. MARCUS W. LOWLESKY, London, England. Filed Mar. 17, 1892. Serial No. 425,293. (No model.) Patented in England Feb. 2, 1892, No. 2,048.

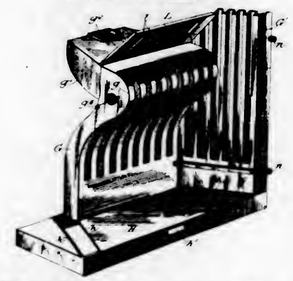


Claim.—1. As an article of manufacture, a button-hole facing made with a slit or button-hole therein and formed of a piece of material more tightly worked at the center than at the edges and having an outer or front part and an inner or back part united by a neck, the said inner or back part being adapted to be passed through the button-hole of the garment or other article on which the facing is to be used, and to be spread out at the inner side thereof, substantially as described.

2. As an article of manufacture, a button-hole facing formed of crochet-work more tightly worked at the center than at the edges and with a slit or button-hole and having front and back parts united by a neck, the said back part being adapted to be passed through the button hole or slit in the garment or other article to which the facing is to be applied, and to be spread out at the inner side thereof, substantially as described.

492,732. HEATER FOR FIREPLACES, &c. ALBERT E LYTLE, Chicago, Ill., assignor to Simeon D. Ovitt, same place. Filed Feb. 29, 1892. Renewed Jan. 26, 1893. Serial No. 459,930. (No model.)





Claim.—1. In heaters for fire-places and the like, the combination of the corrugated back G, and corrugated side or jamb walls G', having their lower ends open, and united with openings h, in the top of the base H, with the hollow base H, having the passages for the

admission of air, and the hot air flue connected to the opening g^3, substantially as described.

2. In heaters for fire-places and the like, the combination of the corrugated back G, having the opening g^3, and the side-walls G', having the openings g^4, said back and side walls having their lower ends open, and united with openings h, in the top of the base H, with the hollow base H, having air passages and the opening h^3, provided with a cover h^4, and the water receptacle I, placed and adapted to discharge steam or moisture within the hollow of the base, and the hot air flue, connected to the opening g^3, of the back, substantially as set forth.

3. In heaters for fire-places and the like, the combination of the vertically corrugated back G, having the enlargement g, opening g^3, and the vertically corrugated side-walls G', having the openings g^4, said back and side walls having their lower ends open, and united with openings h, in the top of the base H, with the hollow base H, having the passages h^3, h^4, for cold air, and the opening h^5, provided with a cover h^6, and the water receptacle I, placed and adapted to discharge steam or moisture within the hollow of the base, and the opening m, for the discharge of ashes, having the cover m', and the hot air flue connected to the opening g^3, in the back, substantially as described..

4. In heaters for fire-places and the like, the combination of the vertically corrugated back G, having the enlargement g, and the hot air chamber g', opening g^3, and the vertically corrugated side-walls G', having the openings g^4, said back and side walls having their lower ends open, and united with openings h, in the top of the base H, with the hollow base H, having the air passages h^3, h^4, and the opening h^5, provided with a cover h^6, and the water receptacle I, placed and adapted to discharge steam or moisture within the hollow of the base, and the opening m, for the discharge of ashes, having the cover m', and the hot-air flue F, having the inlet F', provided with damper a, the doors N, secured to the front of the side-walls, substantially as described.

5. In heaters for fire-places and the like, the combination of the vertically corrugated back G, having the enlargement or forward curve g, hot-air chamber g', and the opening g^3, and the vertically corrugated side-walls G', having the openings g^4, and ledges or brackets o, said back and side walls having their lower ends open and united with openings h, in the top of the base H, with the hollow base H, having the air passages h^3, h^4, and the opening h^5, provided with a cover h^6, and the water receptacle I, placed and adapted to discharge steam or moisture within the hollow of the base, and the hot-air flue F, connected to the opening g^3, and having the inlet F', provided with damper a, the doors N, having the transparent panels, and secured to the front of the side-walls, substantially as described.

492,733. CHUCK AND DRILL. HERMAN MEISTER, New York, N. Y. Filed Nov. 2, 1891. Serial No. 410,632. (No model.)



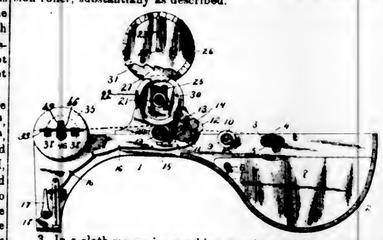
Claim.—1. A drill chuck having a tapering body and a longitudinal slot therein with a notched groove terminating in the wall near the end, jointly with a flat bodied drill having a rib with gains therein, substantially as set forth.

2. A drill composed of a flattened body, rectangular in cross section, having a rib with cross gains therein, as shown, in combination with a slotted chuck, having a groove centrally provided with cross gains at regular intervals, substantially as set forth.

492,734. CLOTH-MEASURING MACHINE. JAQUELIN M. MEREDITH, Jr., Norfolk, Va. Filed Apr. 23, 1892. Serial No. 430,358. (No model.)

Claim.—1. In a cloth measuring machine, the combination of means for supporting a bolt or roll of cloth or other fabric while being unwound, a reel on which the fabric is to be rolled, a smoothing roller, a tension roller journaled in pivoted supporting arms adjacent to the smoothing roller, cords attached to said arms, levers connected with said cords to actuate the tension roller and draw it toward the smoothing roller, a guide roller intermediate the smoothing roller and reel, and an automatic measuring mechanism supported above said guide roller, substantially as described.

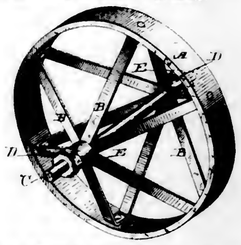
2. In a cloth measuring machine, the combination of a smoothing roller, two pivotally supported and depending arms connected by a brace bar, a tension roller journaled in said arms and adapted to have bearing contact with the smoothing roller, cords attached to said arms, and levers connected with said cords to actuate the tension roller, substantially as described.



3. In a cloth measuring machine, a reel comprising a rotary head having recesses in which are pivoted the ends of two pivotally attached reel bars and a recess to receive one end of a removable reel bar, a rotary head having parallel grooves to receive the opposite ends of said reel bars, and a crank attached to one of said rotary heads, substantially as described.

4. In a cloth measuring machine, a reel comprising two rotary heads one of which is provided with a crank, two reel bars pivotally connected at one end to the inner face of one of said rotary heads and having their opposite ends adapted to engage parallel grooves in the inner face of the other rotary head, and a removable reel bar having one end adapted to engage a recess in the inner face of one of said heads and its other end adapted to engage a groove in the inner face of the other head, said reel bars being adapted and arranged to clamp between them a board on which the goods are to be rolled, substantially as described.

492,735. VEHICLE-WHEEL. JOHN OPDALE, Duluth, Minn. Filed May 31, 1892. Serial No. 435,007. (No model.)



Claim.—An improved vehicle wheel, consisting of a flat rim A, spokes B, riveted thereto, and made of flat metal, the ends of said spokes, being bent inwardly, and tapered both in width and thickness, for the purposes mentioned; the hollow hubs, D, D, inclined on their interior, and surrounding said bent ends of the spokes; the screw-threaded axle C; and the nuts E, E, on said axle for engaging with said hubs, substantially as set forth.

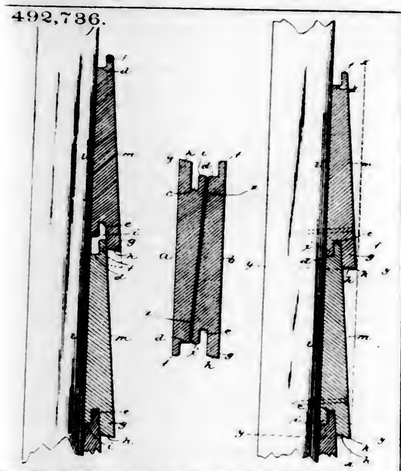
492,736. MATCHED LUMBER. JOHN H. SHOLL, Findlay, Ohio. Filed May 23, 1892. Serial No. 434,060. (No model.)

Claim.—1. The method of constructing matched lumber of a single piece of material which consists in shaping the edges of the stock to form co-extensive projections f and g, the steps d and the grooves e and then severing the stock in a plane inclined to the faces of the stock so as to remove portions of the steps d at each edge and to form thereof flanges i constituting the inner walls of the grooves e, substantially as herein shown and described.

2. The herein described method of constructing matched lumber of a single piece of stock which consists in molding the edges to form on each, the tongue f, the lap g, the step d, and the groove e, and then severing said stock at x in a plane inclined to the faces of the stock so as to remove portions of the steps d and form the flanges i in the same pieces with the laps g, but of shorter length than said laps, substantially as and for the purpose specified.

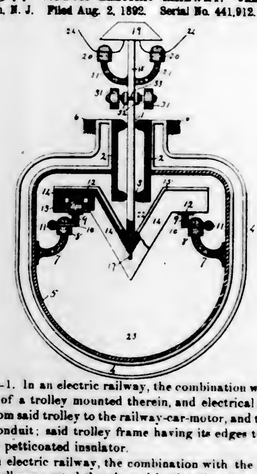
3. The herein described matched lumber formed with a tongue f on one edge and on the other edge the groove e, whose inner wall is

492,736.



formed by the flange i and whose outer wall is formed by the lap g of greater length than the flange i and having the edge h at an acute angle to the outer face of said lap and forming therewith the dripping edge k, substantially as explained.

492,737. CONDUIT ELECTRIC RAILWAY. JAMES H. BATES, Hoboken, N. J. Filed Aug. 2, 1892. Serial No. 441,912. (No model.)



Claim.—1. In an electric railway, the combination with the slotted conduit, of a trolley mounted therein, and electrical connections extending from said trolley to the railway-car-motor, and to the feeder within the conduit; said trolley frame having its edges turned down to make it a petticoated insulator.

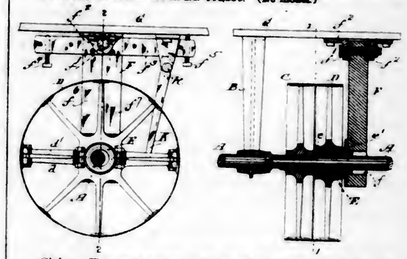
2. In an electric railway, the combination with the slotted conduit; of a trolley mounted therein and having the edges of its frame extended or turned downward; wheels supporting the trolley frame and located wholly inside the down-turned edges; and electrical connections extending from the trolley to the car-motor and to the feeder.

3. In an electric railway, the combination with the slotted conduit; of a trolley mounted therein and provided with an arm extending up through the slot, electrical connections extending from the trolley to the car-motor and to the feeder within the conduit; and the cap 19 carried by the arm.

4. In an electric railway, the combination with the slotted conduit, of a trolley mounted therein and provided with a gutter in line with the slot, an arm projecting from the gutter up through the slot, electrical connections passing through the arm from the trolley to the car-motor; a cap 19 at the upper end of the arm; and an electrical connection between the trolley and the feeder in the conduit,—all electrical connections of the trolley except the wheels being insulated.

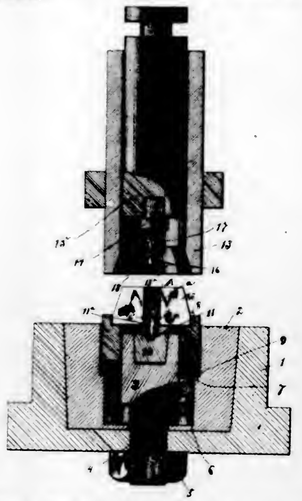
5. In an electric railway, the combination with the slotted conduit; of an electric conductor or feeder therein; a contact bar; a trolley; wheels supporting said trolley frame upon the bars, and set inward away from the down-turned edges of the frame; and insulated electrical connections between the trolley wheels and the car-motor

492,738. BELT-HOLDER. CONSTANT BAUMGARTEN, St. Louis, Mo. Filed Aug. 26, 1892. Serial No. 444,230. (No model.)



Claim.—The combination of the shaft, the pulley, the belt-holder, the belt-holder bearing, the adjustable hanger, and the cam-lever, said bearing and bearing support encircling loosely said shaft, and said belt holder being loose upon said bearing, substantially as described.

492,739. APPARATUS FOR FORMING WATCH-CASE PENDANTS. CHARLES W. BUTTS, Sag Harbor, N. Y., assignor to the Fahys Watch Case Company, of New York. Filed Mar. 19, 1892. Serial No. 425,585. (No model.)



Claim.—1. The process of forming a watch case pendant having ears for the bow, consisting in forming a blank longer than the pendant is to be, and then crushing down that portion of the blank that is in line with the part to form the ears and causing that portion of the blank to flow to form the ears and replace the metal that is forced out to form the ears, substantially as set forth.

2. The process of forming a watch case pendant, which consists in forming a blank of greater length than the pendant is intended to have, and then crushing down the blank to form the pendant foot and at the same operation crushing down that portion of the blank that is in line with the part to form the ears and causing that portion of the blank to flow to form the ears and replace the metal that is forced out to form the ears, substantially as set forth.

3. The pendant forming machine comprising in combination, a lower die having a matrix to form the lower half of the pendant foot, the upper or half-dies, having a coinciding similar matrix for the other half of the foot and supported normally above and separated

from said lower die, said upper dies clamping the blank to press it longitudinally while the foot is being made and a suitable punch arranged and adapted to operate, substantially as set forth.

4. In a pendant forming machine the combination of the lower pad or die 10 having matrix 11, the spring supported upper or half dies 12 having a recess to receive a bead or projection on the blank to be operated upon and the punch 13 having a movement independent of the upper dies, substantially as set forth.

5. In a pendant forming machine the combination of the lower dies 10, the spring supported upper or half die 12, and the variable stop 9 therefor.

6. The combination of the die containing cup 2, having shoulder 7, the stud 3, fixed thereon, the pad or lower die 10, supported on stud 3, the receiver 8, upper or half dies 12 carried by said receiver, and the spring 6 whereon said receiver is supported substantially as set forth.

7. The combination of the dies 12 having matrices 11^b for the bow ears, and a suitable punch constructed with shoulders in line only with that portion of the blank that is to have ears to longitudinally crush in the metal of a pendant inserted in said dies and cause the metal thereof that is in line only with said matrices to flow into said matrices, substantially as set forth.

8. The combination of the lower die 10 having matrix 11, the spring-supported upper or half dies 12 having matrices 11^a and 11^b, and being superposed over the lower and the punch 14 having the narrow lower end and suitably shouldered to longitudinally crush the edge of a pendant inserted in said dies 12 substantially as set forth.

9. The combination of the lower die 10, the spring supported tapering upper or half dies 12 superposed over the lower die said dies having matrices 11, 11^a, 11^b and the two part punch of which the outer punch 13 has flaring seat 13^a and the inner punch 14 is adapted to enter said upper dies and is suitably shouldered substantially as set forth.

10. The punch 14 having narrow lower end 16 and shoulders 18 on two sides only of the punch at a part which is of greater diameter than said narrow lower end substantially as set forth.

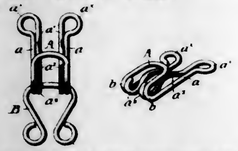
492,740. GUN-CLIP FOR BICYCLES. JAMES S. COPELAND, Hartford, Conn., assignor to the Pope Manufacturing Company, Boston, Mass. Filed Nov. 17, 1892. Serial No. 452,237. (No model.)



Claim.—1. In combination with the frame of a bicycle or like vehicle a gun clip secured to said frame provided with two holding jaws, one of said jaws pivoted to the frame of the clip and the swinging lever having a cam end adapted to thrust against the swinging jaw, all substantially as described.

2. In combination with the frame of a bicycle or like vehicle the removable gun clips one having a spring actuated yielding jaw and the other comprising the two holding jaws one of which is movable, the adjustable bearing block borne in a socket in the movable jaw, and the lever pivoted to the frame of the clip and having a cam end adapted to encounter the bearing block on the swinging jaw, all substantially as described.

492,741. GARMENT-HOOK. FRANK E. DE LONG, Philadelphia, Pa., assignor to Richardson & De Long Brothers, same place. Filed Dec. 19, 1892. Serial No. 455,576. (No model.)



Claim.—A hook formed of a single piece of wire bent to form a shank composed of two side bars, a bill continuous of said side bars through the intervention of eye-engaging bends, thread eyes likewise continuous of said side-bars, and two spring-tongues formed with "humps" or bellied portions, lying substantially in the plane of and between the side-bars of the shank, and provided with loops correspondent to the eye-engaging bends formed in said side-bars in the region where the latter are bent upwardly or returned upon themselves to form the bill, substantially as set forth.

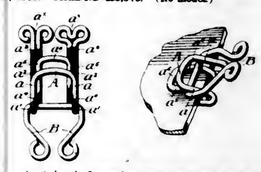
492,742. GARMENT-HOOK. FRANK E. DE LONG, Philadelphia, Pa., assignor to Richardson & De Long Brothers, same place. Filed Dec. 19, 1892. Serial No. 456,577. (No model.)



Claim.—1. A hook formed of a single piece of wire bent to form a bill, a shank, and thread-eyes, and provided between the lateral members of the shank and bill with two spring-tongues generally correspondent to the form and disposition of said members, but in the region of the bill formed with downwardly-projecting "humps" or bellied portions which face the shank, substantially as set forth.

2. A hook formed of a single piece of wire bent to form a bill, a shank, and thread-eyes, and provided between the lateral members of the shank and bill with two spring-tongues generally correspondent to the form and disposition of said members, but in the region of the bill formed with downwardly-projecting "humps" or bellied portions which face the shank, and provided with return bends or folds, substantially as set forth.

492,743. GARMENT-HOOK. FRANK E. DE LONG, Philadelphia, Pa., assignor to Richardson & De Long Brothers, same place. Filed Dec. 19, 1892. Serial No. 456,578. (No model.)



Claim.—1. A hook formed, substantially as set forth, of a single piece of wire bent to form a bill a shank and means for attachment to a garment, and a member continuous of said wire, lying between the shank and bill, and forming a keeper for the eye and a guard for the fabric, substantially as set forth.

2. A hook provided with a member constituting a fabric-guard, a portion of which member is extended from the region of the eye engaging bends in the direction of the apex of the bill and in a plane intermediate of the planes occupied by the shank and bill members and below the path traversed by the eye, substantially as and for the purposes set forth.

3. A hook provided with a member constituting a fabric guard, a portion of which is extended from the region of the eye-engaging bends in the direction of the apex of the bill in a plane intermediate of the planes occupied by the shank and bill members and below the path traversed by the eye, and which is bellied toward the bill, substantially as and for the purposes set forth.

4. A hook provided with a member constituting a combined fabric-guard and spring-keeper, a portion of which member is extended from the region of the eye-engaging bends in the direction of the apex of the bill and in a plane intermediate of the planes occupied by the shank and bill members and below the path traversed by the eye, and which is extended beyond the apex of the bill, substantially as and for the purposes set forth.

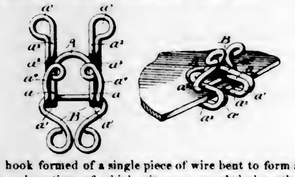
5. A hook provided with a member constituting a combined fabric-guard and spring-keeper, which extends in the form of bars along the shank, which embodies return bends in the vicinity of the eye-engaging bends, and which is extended in a plane intermediate of the planes of the shank and bill and is bellied outward toward said bill, substantially as set forth.

492,744. GARMENT-HOOK. FRANK E. DE LONG, Philadelphia, Pa., assignor to Richardson & De Long Brothers, same place. Filed Dec. 19, 1892. Serial No. 456,579. (No model.)

Claim.—1. A hook formed, substantially as set forth, of a single piece of wire bent to form a bill, a shank, thread-eyes, and the oppositely-disposed outwardly-bellied inwardly-compressible spring-guard-bars hereinbefore described.

2. A hook formed of a single piece of wire bent to form a shank and a bill, and a portion of which is extended from the region of the eye-engaging bends along the bill and is bellied laterally away from said bill, substantially as set forth.

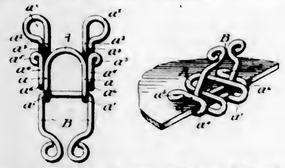
3. A hook formed of a single piece of wire bent to form a shank and a bill, and a portion of which is extended from the region of the eye-engaging bends along the bill and is bellied laterally away from said bill on each side thereof, substantially as set forth



4. A hook formed of a single piece of wire bent to form a shank and a bill, and portions of which wire are extended along the shank to the region of the eye-engaging bends, are curved upward in the vicinity of said bends, are extended along the bill, and are bellied laterally outward one on each side of said bill, substantially as set forth.

5. A hook formed of a single piece of wire bent to form a shank and a bill, and portions of which wire are extended along the shank to the region of the eye-engaging bends, are curved upward in the vicinity of said bends, are extended along the bill, are bellied laterally outward one on each side of said bill, and are formed with return bends, substantially as set forth.

492,745. GARMENT-HOOK. FRANK E. DE LONG, Philadelphia, Pa., assignor to Richardson & De Long Brothers, same place. Filed Dec. 19, 1892. Serial No. 455,580. (No model.)



Claim.—1. A hook formed, substantially as set forth, of a single piece of wire bent to form a bill, a shank, thread-eyes, and the oppositely-disposed, outwardly-expansible eye-detaining spring-keepers hereinbefore described.

2. A hook for garments, having the usual bill, shank, and thread-eyes, and having the wire forming the eye extended substantially parallel with and adjacent to the bill, and its outer portion curved and adapted to be deflected away from the bill, substantially as and for the purposes set forth.

3. A hook provided with two members structurally independent of the bill but existing in close proximity to the respective sides of it, curved at their outer portions to diverge from the bill, and free to be deflected away from it, substantially as and for the purposes set forth.

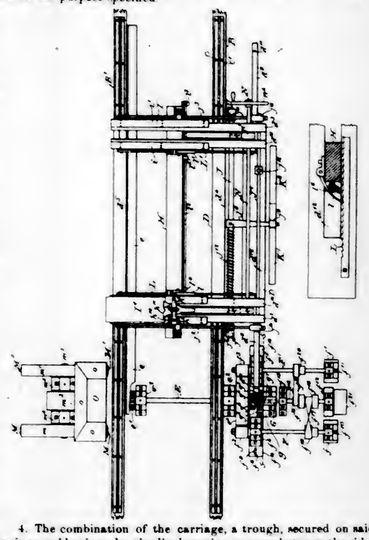
4. A hook formed of a piece of wire bent to form a shank and bill, portions of which wire extend along the shank, at a point between the eye-engaging bends and the bill apex are curved upward and extended along the outside of the bill, and at their outer portions are bent away therefrom, substantially as and for the purposes set forth.

492,746. WOOD-SAWING MACHINE. WILLIAM D. HOPKINS, Gofistown, assignor of one-half to Henry W. Hopkins, Wilton, N. H. Filed Aug. 6, 1891. Serial No. 401,851. (No model.)

Claim.—1. The combination of the carriage, the feed-bar, adapted to slide thereon, dogs, fixed on said feed-bar, a rock-shaft, provided with arms, racks, pivoted to said arms and engaging said dogs, another shaft, journaled on said carriage, wheels, fast on said last-named shaft, and straps or flexible connections, each attached at one end to said feed-bar and at the other end to one of said wheels, as and for the purpose specified.

2. The combination of the carriage, the feed-bar, adapted to slide thereon, dogs, fixed on said feed-bar, a rock-shaft, provided with arms, racks, pivoted to said arms and engaging said dogs, a cam-shaft, provided with cams and adapted to be turned to press said cams against said racks and throw said racks out of engagement with said dogs, another shaft, journaled on said carriage, wheels, fast on said last-named shaft, and straps or flexible connections, each attached at one end to said feed-bar and at the other end to one of said wheels, as and for the purpose specified.

3. The combination of the carriage, the feed-bar, adapted to slide thereon, dogs, fixed on said feed-bar, a rock-shaft, provided with arms, feed-racks, pivoted to said arms and engaging said dogs, a cam shaft, provided with cams and adapted to be turned to press said cams against said feed-racks and throw said feed-racks out of engagement with said dogs, retaining racks, fast on said carriage, dogs, pivoted on said feed-bar and engaging said retaining-racks, a releasing-shaft, having radial arms and adapted to be turned to disengage said dogs from said retaining-racks, another shaft, journaled on said carriage, wheels, fast on said last-named shaft, and straps or flexible connections, each attached at one end to said feed-bar and at the other end to one of said wheels, as and for the purpose specified.



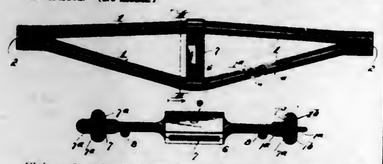
4. The combination of the carriage, a trough, secured on said carriage and having a longitudinal opening or space between the sides thereof, at the bottom thereof, a feed-bar, adapted to slide on said carriage below said trough, and dogs, secured to said feed-bar, and arranged within said trough, as and for the purpose specified.

5. The combination of the carriage, a trough, secured on said carriage and having a longitudinal opening or space between the sides thereof, at the bottom thereof, a feed-bar, adapted to slide on said carriage below said trough, a dog-post, secured to said feed-bar between the sides of said trough and provided with a slot, dogs, adjustable on said post, one of said dogs being movable in said slot, a screw, to draw said last named dog toward the other of said dogs, to seize and hold a log arranged in said trough, as and for the purpose specified.

6. The combination of the carriage, a trough, secured on said carriage and having a longitudinal opening or space between the sides thereof, at the bottom thereof, a feed-bar, adapted to slide on said carriage below said trough, a dog-post, secured to said feed-bar between the sides of said trough and provided with a slot, dogs, adjustable on said post, one of said dogs being movable in said slot, a screw, to draw said last-named dog toward the other of said dogs, to seize and hold a log arranged in said trough, said screw being provided with a crank or handle, and a fork or holder, adapted to engage said crank or handle, to prevent the movement of said screw, as and for the purpose specified.

7. The combination of two saws, arranged to cut in opposite directions in the same plane, a feed-carriage, having a reciprocating movement past said saws in a direction parallel with the cutting-plane of said saws, a feed-bar, adapted to slide on said carriage, dogs, fixed on said feed-bar, a rock-shaft, journaled in said carriage and provided with arms, racks, pivoted to said arms and engaging said dogs, and stationary inclines, each adapted, in the movement of said carriage, to raise another arm, with which said rock-shaft is provided, and thereby to move said racks and feed-bar after each movement of said carriage past said saws in either direction, as and for the purpose specified.

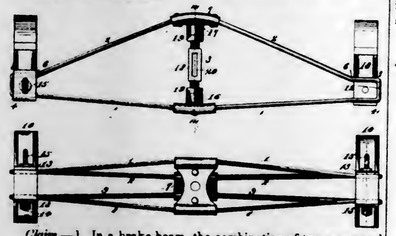
492,747. BRAKE-BEAM. CHARLES K. PICKLER, St. Louis, Mo., assignor to Dennis F. Slattery, same place. Filed Dec. 5, 1892. Serial No. 454,172. (No model.)



Claim.—1. A brake-beam having horizontal flanges or ribs 1^a, and vertical flanges or ribs 1^b, and a brake shoe head fitted onto said beam, and held thereon by a suitable key; substantially as set forth.

2. A brake-beam having horizontal flanges 1^a, and vertical flanges 1^b, and a brace composed of two members 12, each formed in sections bolted together, and a slotted barrel 11 held in the members 12 and adapted to receive the brake-beam, substantially as set forth.

492,748. BRAKE-BEAM. CHARLES K. PICKLER, St. Louis, Mo., assignor to Dennis Paul Slattery, same place. Filed Dec. 5, 1892. Serial No. 454,173. (No model.)



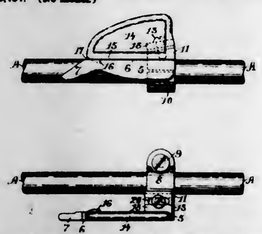
Claim.—1. In a brake-beam, the combination of two upper and two lower chords or rods, a stretcher and brake heads, substantially as and for the purpose set forth.

2. In a brake beam, the combination of the upper and lower chords or rods, a stretcher, and brake shoe heads grooved to receive the chords and held thereto by disks and bolts, the latter having eyes or perforated heads 15, substantially as and for the purpose set forth.

3. In a brake beam, the combination of the upper and lower chords, 1, 2, 8, 9, a stretcher consisting of brackets 16 and 17, and a swivel 18 and brake-shoe heads secured to the ends of the chords, substantially as and for the purpose set forth.

4. In a brake beam the combination of the upper and lower rods or chords, 1, 2, 8, 9, bent at 4, 5, 6 and 7, brake-shoe heads grooved to receive the chords and held thereon by the ends of the chords, and the bends 6 and by means of washers or disks 13, and bolts 14 and a stretcher composed of brackets 16 and 17, and a perforated swivel 18 threaded into the brackets and provided with jam nuts, substantially as and for the purpose set forth.

492,749. GUIDE. JOHN R. PEREZ, Whitinsville, Mass., assignor to the Whitin Machine Works, same place. Filed Oct. 24, 1892. Serial No. 449,757. (No model.)



Claim.—The combination with the member 5, the arm 8, the clamp 10, the transversed inclined-bearing 11 formed in part with the arm 8, the rib 12 on said bearing and a vertical threaded socket, of the grooved-extension 18, the member 14 carried by the extension and having a portion depending below the extension, and the screw 13 adapted to secure the extension 18 to the bearing 11, as described.

492,750. COMPOSITION FOR JOURNAL-BEARINGS. JOHN T. RICHARDS, Gardiner, Me. Filed July 21, 1892. Serial No. 440,795. (No specimens.)

Claim.—1. The herein-described composition of matter for bearings &c., comprising plumbago, white lead, litharge, a fibrous substance, and a binding or cementing substance consisting of a drying-oil in about the proportions substantially as specified.

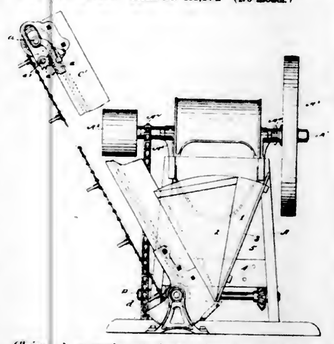
2. A composition of matter for bearings &c., comprising plumbago, white-lead, litharge, asbestus, and linseed oil, in about the proportions substantially as specified.

3. A composition of matter for bearings &c., comprising plumbago, white lead, litharge, and a fibrous substance in substantially the proportions named, and a binding or cementing substance consisting of resin or gum-copal dissolved or digested in linseed oil, substantially as described.

4. A composition of matter for bearings &c., comprising plumbago, white lead, litharge, asbestus, and a binding or cementing substance consisting of resin or gum-copal dissolved or digested in linseed oil, all combined in about the proportions substantially as specified.

5. A molded or hardened composition for bearings &c., the same comprising plumbago, white lead, litharge, and asbestus, substantially in the proportions named, and a binding or cementing substance, substantially as set forth.

492,751. CARRIER ATTACHMENT. ELMORE W. ROSS, Springfield, Ohio; Mary F. Ross executrix of said Elmore W. Ross, deceased. Filed Sept. 16, 1891. Serial No. 405,874. (No model.)



Claim.—1. A carrier attachment pivoted at its receiving end, in combination with a boot connected with said end and an expanding and contracting hopper for said boot, substantially as described.

2. A carrier attachment, having side plates provided with sleeve pivots journaled in the carrier supporting brackets, in combination with said brackets and with a carrier actuating shaft passing through said brackets and journaled in said sleeves, substantially as described.

3. In a carrier attachment, the endless chains carrying the flights and the sprocket wheels for driving said chains, in combination with the curved guards covering and protecting said wheels, substantially as described.

4. The combination with the carrier and the endless chains and sprocket wheels thereof of the carrier boot provided with the curved or semi-annular flanges, covering and protecting the carrier actuating sprocket wheels, substantially as described.

5. A carrier frame or trough having its bottom provided with recesses for the endless chain sprocket wheels on the carrier shaft in combination with a boot or pocket having a curved or semi-annular flange covering and protecting said sprocket wheels and the openings in the carrier bottom, substantially as described.

6. The combination with the endless carrying chain and the shaft and sprocket therefor, of a carrier frame or trough having recesses in the bottom thereof for said sprocket wheels projecting flanges or shields partially surrounding the sprocket wheels and chain thereon and the openings in the carrier bottom, said flanges being in shape a part circle with one end extended at a tangent from said circle, substantially as described.

7. The combination with the carrier frame or trough adjustable to the desired elevation, of the endless carrying belt therein and the

shaft and wheels for said belt, side plates having bearings for said shaft and protecting guards or shields for said wheels and belt, and made adjustable with the carrier frame, substantially as described.

8. The carrier boot sides provided with sleeve bearings for the carrier actuating shaft and with the curved flanges for covering and protecting the carrying chain and sprocket wheels on said shaft, substantially as described.

9. A carrier attachment frame made in the form of a trough and pivoted at its receiving end in combination with the boot and an expansible hopper for said boot connected to its receiving end, wherein the material is deposited beyond and below the level of the carrier bottom and the endless carrying belt passing through said boot and trough, substantially as described.

10. A carrier frame having parallel sides and the bottom forming a trough, pivoted and adjustable about its front or lower carrier shaft as a center, and the endless carrying belt thereon, in combination with the boot or receptacle located at the receiving end, and an expansible hopper for said boot adjustable with said frame, substantially as described.

11. An endless carrier frame adjustable on its pivoted end to the desired angle of elevation and provided with a receptacle or boot partially surrounding the receiving end, said boot being adapted to receive the material independently of the carrier bottom, in combination with an expansible hopper for discharging the material into said boot, substantially as described.

12. A carrier frame or trough in combination with an endless carrying chain and buckets, the boot or receptacle partially surrounding the receiving end of the carrier, the boot sides being provided with circular flanges covering and protecting the carrier chain and the sprocket wheels for said chain, the transverse connecting piece 13 and flooring connecting said boot sides and forming therewith the receptacle or boot and permitting the passage through it of the carrying chain and buckets for moving the material therein, substantially as described.

13. An endless carrier frame or trough in combination with a receptacle or boot provided with side plates having curved projecting flanges to protect the gearing and drive chains and the transverse piece 13 and flooring connecting said side plates, substantially as described.

14. An endless carrier frame or trough provided with a pocket or receptacle at the receiving end formed by the curved extension of the bottom board of said trough, the inclosing side plates and the flooring connecting said plates arranged to permit the passage of the endless carrying belt through said receptacle, between said flooring and curved extension, substantially as described.

15. A carrier attachment adapted to be pivoted about the lower carrier shaft of a machine delivering thereto, as a center and located transversely of the machine frame in combination with a counter-shaft for driving said carrier attachment, journaled transversely of the machine frame, the actuating front carrier shaft geared directly to said counter shaft at one side of the center, in width, of the frame of the machine frame and upon the same side of the center as the delivery end of the carrier attachment, substantially as described.

16. The pivoted carrier the actuating shaft of which is located at one side of the center of discharge of the machine delivering thereto and on the same side thereof as the discharge end of the carrier, in combination with the boot connected with the pivoted end of said carrier, and the expansible hopper delivering thereto, substantially as described.

17. A carrier boot having side plates provided with sleeve pivots, curved flanges for protecting the carrier sprocket wheels and a concave bottom, in combination with a stiffening board 13, forming an extension of said bottom and bolts connecting the side plates, substantially as described.

18. The combination with the carrier and the boot connected with the receiving end thereof, of the curved or semi-cylindrical guard 10, connected with the bottom board, substantially as and for the purpose described.

19. A carrier boot having a concave bottom, the side plates thereof provided with the sprocket wheel guards 7, in combination with the semi-cylindrical guard 10, connected to the carrier bottom board and the receiving hopper, substantially as described.

20. A carrier boot connected to and in combination with the receiving end of a pivoted carrier and the hopper connected therewith provided with the sliding or collapsible side, the adjustable transverse end board (3) and the fixed side plate or piece under the discharge spout of the machine delivering thereto, substantially as described.

21. A carrier attachment adapted to deliver at either side or straight away from the machine delivering thereto, and pivoted concentric with its actuating shaft in combination with a boot connected with said pivoted end and an adjustable or collapsible hopper connected with said boot, substantially as described.

22. The carrier chain links provided with stirrups or lateral extensions having two upright parallel flanges integral therewith, in combination with the flight inserted edgewise between said flanges and the through bolt or rivet uniting said flanges and flight, substantially as described.

23. The carrier chain links provided with stirrups or lateral extensions having upright parallel flanges in combination with the wide flight inserted edgewise between the said flanges, the bolt or rivet connecting said flanges through the bucket and the bolt or rivet extending through said flight, edgewise thereof, and through the stirrup, substantially as described.

24. The combination with the carrier bucket of the flanged supporting stirrup on the chain link, the flanged washer on the outer edge of said flight, and the bolt or rivet passing through the flight edgewise thereof and connecting said stirrup, bucket and washer, substantially as described.

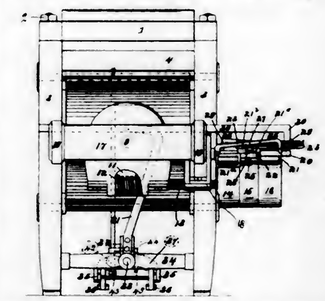
25. The carrier buckets in combination with the carrier chain links provided with stirrups or lateral extensions having upright parallel flanges and a through bolt for clamping the inner edges of said flights; of flanged washers clamping said flights at their outer edge and a bolt or rivet extending through said stirrup, bucket and washer, substantially as described.

26. The combination with the carrier flights of the carrier belt or chain, having flanged seats for receiving said flights flanged washers overlapping the edges of the flights to prevent the splitting thereof and the rivets or bolts uniting said flanged washers, bucket and carrier belt, substantially as described.

27. The combination with the carrier chains, of the flights E cut away at their ends, adjacent to said chains, the flanged stirrups for receiving said ends and the flanged caps and through bolts for uniting the flight to said stirrups, substantially as described.

28. A carrier attachment provided with a boot or receptacle adjacent to the front or receiving end, in combination with an adjustable hopper adapted to discharge the material into said boot, the lower end of the transverse hopper board resting loosely against said boot and being held in working relation thereby when said hopper is adjusted, substantially as described.

492,752. BELT-SHIFTER. CARL SCHRAUBSTADTER, Jr., and CHARLES R. SCHILLING, St. Louis, Mo., assignors, by direct and mesne assignments, to the Western Engravers' Supply Company, same place. Filed Apr. 20, 1892. Serial No. 429,951. (No model.)



Claim.—1. In a shipper for power machinery, the combination of fingers 21, 21^a, a bar 20, a pin 25, a spring 24, and a pusher 28, substantially as described.

2. In a shipper for power machinery, the combination of a bar 20, fingers 21, 21^a, having projections 22, pivoted levers 26 having ends adapted to engage with said projections, and a pusher 28 of suitable shape to release said levers.

3. In a shipping device for power machinery, the combination of the pusher 28, and a bar 20, the fingers 21, 21^a, having projections 22, and pivoted levers 26, having ends 29 to engage with said projections, and having lug 27 to engage with said pusher 28, substantially as described.

4. In a shipping device for power machinery, the combination of the bar 20, the fingers 21, 21^a, pins 22, levers 26, pin 25, and spring 24, substantially as described.

5. In a shipping device for power machinery, the combination of the bar 20, a pin 25, the fingers 21, 21^a, spring 24, pusher 28, arm 30, rod 31, and rock shaft 33, substantially as described.

6. In a shipping device for power machinery, the combination of the bar 20, the fingers 21, 21^a, pusher 28, rock-shaft 33, arm 37, and treadles 36, together with suitable connecting mechanism

7. In a shipping device for power machinery, an adjustable rod 39, having a nut 43, a plate 44 having tail piece 45, which is fixed in its relation with the other parts and rock-shaft 33 having an arm 42 through which the rod is passed.

8. In a shipping device for power machinery, the combination of a rod 39, connected with a moving part of a machine, having a nut 43, an arm 42, rock-shaft 33, lever 31 arm 30 pusher 28 a bar 20 and the fingers 21, 21^a, substantially as described.

9. In a shipper for power machinery, the combination of a bar 20, a belt finger having a projection 22, a pivoted lever 26 having the end adapted to engage with said projection, and a pusher 28 of suitable shape to release said lever.

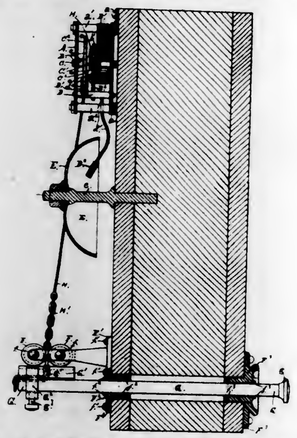
10. In a shipping device for power machinery, the combination of a pusher 28, a bar 20, belt finger having a projection 22, and a pivoted lever 26 having an end 29 to engage with said projection and having a lug 27 to engage with said pusher; substantially as described.

11. In a shipping device for power machinery, the combination of a bar 20, a belt finger, spring 24, pusher 28, arm 30, rod 31, and rock shaft 33; substantially as described.

12. In a shipping device, the combination of a bar 20, a belt finger, pusher 28, rock shaft 33, arm 37 arm 30, lever 31, and treadle 36, together with suitable connecting mechanism.

13. In a shipping device, the combination of a bar 20 having a pin 25, belt finger, spring 24, and pusher 28: substantially as set forth.

492,758. DEVICE FOR OPERATING DOOR-BELLS. HARRY C. SUTTON, Lancaster, Pa., assignor to Louis Wernberg, Brooklyn, N. Y. Filed Apr. 7, 1891. Serial No. 388,041. (No model.)

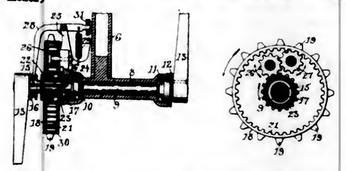


Claim.—1. In a device for operating a door alarm or call-bell, the guide plate secured to the inner face of a wall or door jamb, said plate having a guide orifice surrounded by projecting walls, a perpendicular arm having a jaw projecting inward secured to the plate, two pulleys pivoted between the arms of said jaw, and a vertical orifice between the peripheries of said pulleys, and, the guide plate having a guide orifice surrounded by projecting walls secured to the outer face of the wall or door-jamb; substantially as described and for the purpose set forth.

2. In a device for operating a door alarm or call-bell, an operating rod extending through and some distance beyond the inner and outer faces of a wall or door jamb, a push or pull button secured to the outer end of the rod, and a short groove in the upper face of its rear ends; a clamp-block placed on the upper face of the rear end of said rod, the block having a vertical orifice through the center, a longitudinal groove in the upper face, and a groove from the orifice to the rear end in the lower face, a yoke embracing the rear end of the rod, the upper ends of its arms secured to the block and a set or clamp-screw in the cross piece below, substantially as described and for the purpose set forth.

3. The combination in a device for operating a door alarm or call bell, with the guide plate F^3, having the guide orifice formed by the walls f^3, secured to the outer face of the wall or door-jamb; the plate F', having the guide orifice F^4 formed by the walls f^4, secured to the inner face of said wall or door-jamb; the jaw projecting perpendicularly from and secured to the plate F': the pulleys F and F^1 pivoted between the arms of the jaw; the vertical orifice between the peripheries of the pulleys; the rod G in the guide orifices of the plates F^3 and F^4, having at its outer end the push or pull button g and in the upper face of its inner end a short groove; the clamp-block G', having the vertical central orifice g', the longitudinal groove in its upper face and the groove from the orifice g' to the rear end in its under face, resting on the inner end of the rod G; and, the yoke G^2, embracing the rod G, having the upper ends of its arms secured to the block G' and the clamp screw g^2 in the cross piece below; of a chain H' having an end secured to the rod G by means of the clamp-block G' the yoke G^2 and the clamp-screw g^2 as shown, the chain H' passed through the groove-orifice between the pulleys F and F^1, having its other end secured to an end of the wire or cord H, having its other end pivoted to the outer end of the arm or lever b' of the alarm mechanism, substantially as described and for the purpose set forth.

492,754. VELOCIPEDE. STEPHEN WATERMAN and CHARLES H. LUTHER, Jr., Providence, R. I., assignors to themselves, and Kenneth Lee, New York, N. Y. Filed Aug. 24, 1892. Serial No. 443,974. (No model.)

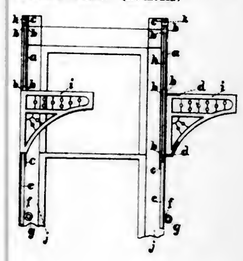


Claim.—1. In a velocipede, the combination with the crank-shaft, a sprocket-drum loosely journaled thereon having an internal circumferential-gear and carrying a drive-chain, of a central gear having a clutch cavity also loosely journaled on the crank-shaft, intermediate pinions suitably journaled and adapted to convey the movement of the central-gear to the internal-gear of the drum, and a longitudinally movable clutch for connecting the central-gear and the crank-shaft.

2. In a velocipede, the combination with a crank-shaft a sprocket-drum, loosely mounted thereon, having a central clutch cavity and an internal gear, and means for conveying motion of the drum to a drive-wheel, of a gear independently rotatable on said shaft, and having a central clutch cavity means for conveying motion from the gear to the internal gear of the sprocket-drum, a clutch contained between the central-gear and the sprocket-drum, and means for operating the same to alternately connect the sprocket-drum and the central-gear to the crank-shaft.

3. The combination with a sleeve 8 suitably supported and having the member 24 furnished with the arm 25, the crank-shaft 9 journaled in said sleeve and having a longitudinal-groove 14, a slide 15 movable in said groove, the grooved-pulley 16 secured to the outer end of said slide, the double friction-clutch 17 secured to the inner end of the slide, the sprocket-drum 18, having the internal-gear 21 and a central friction-cavity, independently rotatable on the crank-shaft, and a lever engaging in the groove of the pulley 16 and adapted to move the same longitudinally of the shaft, of the central-gear 23 having a friction-cavity and also loosely journaled on the crank-shaft, the pinion 26 journaled on a shaft secured to the member 24 and engaging with the central-gear, the pinion 27 also journaled on a shaft secured to the member 24 and engaging with the pinion 26 and with the internal-gear 21 of the sprocket drum, and a suitable disk for closing the open side of the drum, as and for the purpose described.

492,755. APPLIANCE FOR HANGING AND ADJUSTING WINDOW-CURTAINS. VIRGINIA C. RALTSELL, Madison, Wis. Filed May 24, 1892. Serial No. 434,219. (No model.)



Claim.—1. An adjustable support for a curtain consisting of a vertical rod, brackets thereon carrying the curtain cornice, and a tube containing the rod and having a slot throughout its length and lateral switch slots receiving the brackets; all said parts combined substantially as set forth.

2. The combination of a vertical rod holding brackets which carry a curtain cornice, and a case affixed to the window casing, forming a combined track and bearing for the rod, and having an opening for the vertical rod and series of inverted L shaped openings for lateral and vertical movements of the brackets substantially as and for the purposes set forth.

3. The combination of a vertical rod a supporting bracket thereon, and a standard having an opening for the rod and bracket and a series of openings coursing laterally thence downwardly receiving and locking the brackets substantially as described.

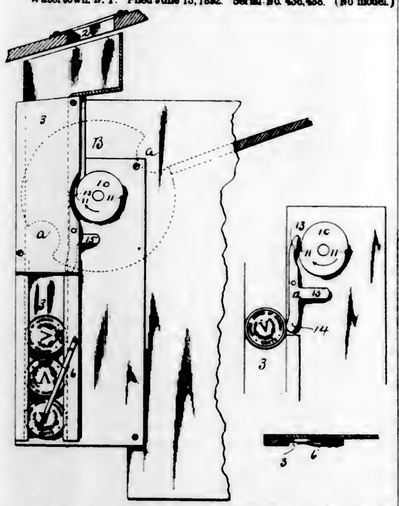
4. In combination the cylindrical carriage the brackets thereon, and the case partially inclosing the carriage and having series of slots coursing laterally and thence downwardly which at times receive and lock the brackets.

5. In combination with a vertical rod carrying brackets which support a drapery window curtain, a guide for the rod attached to the casing and having a front and lateral-vertical slots traversed by the brackets substantially as and for the purposes set forth.

6. In combination with a vertical rod having a bracket attached to the cornice of a window curtain a guide inclosing the rod having for the bracket a slot in front and slots extending therefrom first laterally and then vertically whereby the curtain may be swung and locked either in front of or away from the window.

7. In combination a vertical rod carrying a bracket which supports a window curtain cornice a guide attached to the casing, for the rod and bracket, having for the bracket a vertical opening in front and slots extending therefrom either way first laterally, and then downward whereby the curtain may be swung and locked upon the window or upon the wall adjacent.

492,756. COIN-CONTROLLED VENDING-MACHINE. WILLIS BENNETT, Parish, assignor to Charles H. Sprague and James L. Newton, Watertown, N. Y. Filed June 13, 1892. Serial No. 436,438. (No model.)



Claim.—1. A coin vending machine comprising a casing, a delivery cylinder mounted thereon and provided with pockets, and means to rotate it, and a ratchet wheel upon one end thereof, in combination with a counterbalanced pawl normally in engagement with said ratchet, and having an arm normally projecting into the coin chute, and with which the coin engages in its transit through the chute to depress said arm and release said pawl from said ratchet, a coin chute, an opening through the side thereof and through the casing, through which the coin can be inspected, and means to detain the coin for inspection.

2. A coin vending machine comprising a casing, a delivery cylinder mounted therein and provided with pockets, and means to rotate it and a ratchet wheel upon one end thereof, in combination with a counterbalance pawl normally in engagement with said ratchet, and having an arm projecting into the coin chute, and with which the coin engages in its transit through the chute to depress said arm and release said pawl from said ratchet, a coin chute, an opening through the side thereof and through the casing, through which the coin can be inspected, and means to detain the coin for inspection, and a plate above said cylinder having an edge contiguous thereto, substantially as described, for the purposes set forth.

492,757. RHEOSTAT-PLATE. CHARLES E. CARPENTER, Bridgeport, Conn., assignor to the Carpenter Enamel Rheostat Company, same place. Filed Oct. 27, 1892. Serial No. 450,122. (No model.)



Claim.—1. A resistance, or rheostat, consisting of a base plate having thickened edges, a coating of enamel baked on the surface thereof, and resistance coils embedded in said enamel, substantially as and for the purpose described.

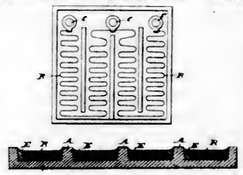
2. In a resistance, or rheostat, a support plate having thickened edges and a flange around said edges, in combination with a coating of enamel, upon the surface of said support plate, substantially as and for the purpose described.

3. In a rheostat in which the resistance is embedded in enamel, or its equivalent, a supporting plate which is thicker at the edges than at the center, substantially as described.

4. A resistance or rheostat having a base plate provided with a rim or flange at the edges of the plate and an insulating material confined by said flange, substantially as described.

5. A resistance or rheostat having a base plate provided with a rim or flange at its edges and coating of enamel insulating the conductor buried therein said enamel being confined by the rim or flange, substantially as described.

492,758. RHEOSTAT-PLATE. CHARLES E. CARPENTER, Bridgeport, Conn., assignor to the Carpenter Enamel Rheostat Company, same place. Filed Oct. 27, 1892. Serial No. 450,123. (No model.)



Claim.—1 A resistance, or rheostat, consisting of a base plate provided with ribs or projections, a layer of enamel between said ribs or projections and a conductor buried in said enamel, substantially as described.

2. A resistance, or rheostat, having the conductor embedded in enamel which is affixed to a base plate having ribs or projections for extending the surface to which the enamel adheres, substantially as described.

3. In a resistance, or rheostat, having the conductor embedded in insulating material a base-plate having projections forming an extended surface for the adhesion of the insulating material, substantially as described.

4. In a resistance plate having a support which is covered by an insulating enamel, said enamel being divided into sections, substantially as described.

492,759. INKING MECHANISM FOR PRINTING-MACHINES. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed Nov. 2, 1891. Serial No. 410,635. (No model.)

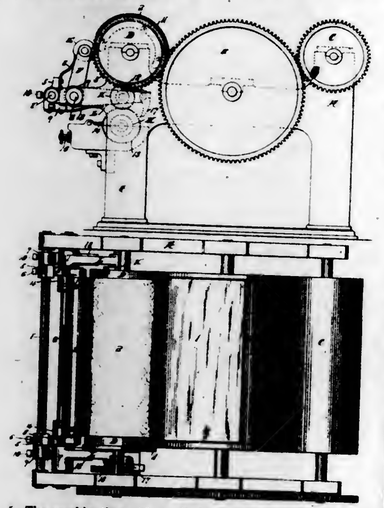
Claim.—1. The combination with a cylinder having a segmental inking surface and an independent segmental distributing surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, and a roll engaging both the inking and distributing surfaces, substantially as described.

2. The combination with a cylinder having a segmental inking surface and an independent segmental distributing surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both

the inking and distributing surfaces, and means for supplying ink to the distributing surface, substantially as described.

3. The combination with a cylinder having independent segmental inking and distributing surfaces, the distributing surface being of less height than the inking surface, of a spring pressed roll engaging both the inking and distributing surfaces, and a roll engaging and supplying ink to the distributing surface, substantially as described.

4. The combination with a cylinder having independent segmental inking and distributing surfaces, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, a roll engaging and supplying ink to the distributing surface, and means for moving said roll out of position to engage the inking surface, substantially as described.



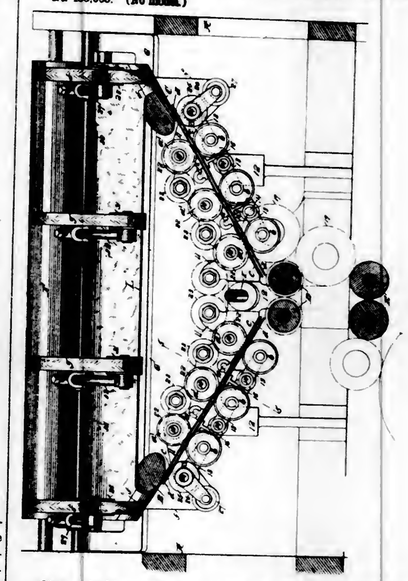
5. The combination with a cylinder having independent segmental inking and distributing surfaces and having a projection opposite the inking surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, and a roll engaging and supplying ink to the distributing surface and moved out of engagement with the inking surface by engagement with the projection on the cylinder, substantially as described.

6. The combination with a cylinder having independent segmental inking and distributing surfaces, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, an ink supply, a vibrating transfer roll engaging and supplying ink to the distributing surface, and means for moving the roll out of engagement with the inking surface and into contact with the ink supply, substantially as described.

7. The combination with a cylinder having independent segmental inking and distributing surfaces and a projection opposite the inking surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, an ink supply, and a vibrating transfer roll engaging and supplying ink to the distributing surface but moved out of position to engage the inking surface by the projection on the cylinder, said transfer roll having a projection adapted to be engaged by the projection on the cylinder for moving the transfer roll into contact with the ink supply, substantially as described.

8. The combination with a cylinder having independent segmental inking and distributing surfaces and a projection opposite the inking surface, of ink receiving devices, said cylinder and ink receiving devices being constructed and arranged so that the ink receiving devices engage the inking surface but not the distributing surface, a roll engaging both the inking and distributing surfaces, a fountain and fountain roll having a ratchet, spring pressed pivoted arms carrying a pawl adapted to engage the ratchet on the depression of the arms, a transfer roll carried by said arms and engaging the distributing surface but moved out of contact with the inking surface by said projection on the cylinder, said transfer roll being provided with a projection adapted to be engaged by the projection on the cylinder at certain revolutions of the transfer roll, whereby the arms are depressed to carry the transfer roll into contact with the fountain roll and to rotate the latter, substantially as described.

492,760. FOLDING MECHANISM. LUTHER C. CROWELL, Brooklyn, assignor to Robert Hoe, Stephen D. Tucker, Theodore H. Mead, and Charles W. Carpenter, New York, N. Y. Filed May 20, 1892. Serial No. 433,685. (No model.)



Claim.—1. In a longitudinal folder, the combination with converging internal guides, of feeding rollers on the opposite sides of the folder converging from the internal guides, means coacting with said rollers to form feeding devices and means for advanciug the leading end of the sheet over the guides to the feeding rollers, substantially as described.

2. In a longitudinal folder, the combination with converging internal guides, of feeding rollers on the opposite sides of the folder converging from the internal guides, means co-acting with said rollers to form feeding devices guides for directing the leading end of the sheet between the successive rollers, and means for advancing the leading end of the sheet over the converging guides to the feeding rollers, substantially as described.

3. In a longitudinal folder, the combination with converging internal guides, of feeding rollers on the opposite sides of the folder converging from the internal guides, rollers co-acting therewith to advance the sheet, and means for advancing the leading end of the sheet over the guides to the feeding rollers, substantially as described.

4. In a longitudinal folder, the combination with converging internal guides, of feeding rollers on the opposite sides of the folder converging from the internal guides, frictionally driven rollers co-acting with said feeding rollers to advance the sheet, and means for advancing the leading end of the sheet over the guides to the feeding rollers, substantially as described.

5. In a longitudinal folder, the combination with converging internal guides and a fold laying device, of feeding rollers on the opposite sides of the folder converging from the internal guides to the fold laying device, means coacting with said rollers to form feeding devices and means for advancing the leading end of the sheet over the guides to the feeding rollers, substantially as described.

6. In a longitudinal folder, the combination with converging internal guides, of feeding rollers on the opposite sides of the folder converging from the internal guides, means co-acting with said rollers to form feeding devices and marginal tapes advancing the leading end of the sheet over the guides to the feeding rollers, substantially as described.

7. In a longitudinal folder, the combination with converging internal guides B, C, of interior and exterior feeding rollers *a*, *b* on the opposite sides of the folder, means for driving said rollers, external guides *d* and means for advancing the sheet over the guides B, C to the rollers, substantially as described.

8. The combination with converging internal guides B, C, of interior and exterior feeding rollers *a*, *b* on the opposite sides of the folder, means for driving one series of said rollers positively, external guides *d* and means for advancing the sheet over the guides B, C to the rollers, substantially as described.

9. The combination with converging internal guides B, C, of interior and exterior feeding rollers *a*, *b*, on the opposite sides of the folder, means for driving said rollers, internal and external guides *c*, *d* and means for advancing the sheet over the guides B, C to the rollers, substantially as described.

10. The combination with converging internal guides B, C, of interior feeding rollers *a*, *a'* and exterior rollers *b* adjustable into position to co-act with either of said rollers *a*, *a'*, substantially as described.

11. The combination with converging internal guides B, C, of shafts 10 carrying interior feeding rollers *a*, *a'*, means for driving said shafts, studs 14, and exterior rollers *b* adjustable on said studs to coact with either of said rollers *a*, *a'*, substantially as described.

12. The combination with converging internal guides B, C, of shafts 10 carrying rollers *a*, means for driving said shafts, studs 14, and rollers *b* carried by arms 13 adjustable on said studs to vary the feeding pressure, substantially as described.

13. The combination with converging internal guides B, C, of interior and exterior feeding rollers *a*, *b*, and marginal tapes *f* bending the sheet about the guides B, C and advancing the leading end of the sheet to the feeding rollers, substantially as described.

14. The combination with converging internal guides B, C, of interior and exterior feeding rollers *a*, *b*, top plate L, marginal tapes *f* extending over the guides B, C, and central tapes *g* co-acting with said plate L, substantially as described.

492,761. CASH REGISTER AND INDICATOR. WILLIAM F. E. DESANT, New York, N. Y., assignor to the Desant Electric Company, same place. Filed Apr. 25, 1892. Serial No. 430,611. (No model.)

Claim.—1. A cash register having an indicator for indicating the amount of each purchase to the purchaser, a power impelled registering mechanism for registering the same, in combination with a single operating arm or lever adapted to set the indicator and to simultaneously revive the source of power each time a purchase is registered, and mechanical connections between the operating arm and the power impelled mechanism whereby the mechanism may be operated an indefinite number of times and allowed to register the summation of the purchases at a given or normal speed substantially as described.

2. A cash register having indicating and power impelled registering devices, a single operating arm or lever geared to both and adapted to simultaneously set the indicator and wind up the source of power, and mechanical connections between the operating arm and the power impelled registering mechanism whereby the apparatus may be operated an indefinite number of times and allowed to make a summation of the registration of the purchases thereafter substantially as described.

3. A cash register provided with power impelled registering mechanism, an indicator, a series of indicating stops, an operating arm or lever adapted to simultaneously set the indicator and restore or bring into action the source of power, and mechanical connections between the operating arm or lever and the power impelled registering mechanism whereby the source of power may be continuously replenished as the operating arm is successively actuated and the registering mechanism allowed to complete a summation of the registration after all of the purchases have been made substantially as described.

4. A cash register provided with an indicator for indicating to the purchaser the amount of each purchase; a single operating handle or lever connected thereto with indicating stops for limiting the movement of said lever, in combination with one or more electromagnetic registering devices operatively connected to power impelled mechanism controlled by the same handle, substantially as described.

5. A cash register having an indicator for indicating to each purchaser the amount of his purchase, a power impelled mechanism geared to registering mechanism and a single operating handle or lever, in combination with a series of indicator stops for limiting the throw of the lever, substantially as described.

6. A cash register provided with a single indicator for temporarily displaying the amount of each purchase and two or more independent registers operatively connected at will to a single operating lever and adapted to make each a registration of a different class of purchases, in combination with mechanical connections between the indicator and each register whereby it may indicate for any one of the registers as desired, substantially as described.

7. A cash register having two or more independent registering devices; an indicator common to all of said registers but adapted to indicate for one at a time only, and an operating handle or lever in combination with indicating stops for limiting the throw or movement of said handle, substantially as described.

8. A cash register having a single indicator for displaying to each purchaser the amount of his purchase, in combination with two or more electro-magnetic registering devices operatively controlled by the same means which controls the movement of the indicator, substantially as described.

9. A cash register having an indicator adapted to display the amount of each purchase during the interval of time between succeeding purchases in combination with an electro-magnetic registering device and power impelled circuit breaking mechanism operatively connected to a single operating lever which sets the indicator and simultaneously replenishes the source of power, said indicator being also provided with mechanism for releasing and restoring it to normal position after each purchase, substantially as described.

10. A cash register having an indicator adapted to display the amounts of purchases during intervals of time between succeeding purchases, in combination with two or more independent electro magnetic registering devices each adapted to make a registration of an independent class of purchases and intermediate mechanical and electrical connections whereby the indicator answers for either register at will, substantially as described.

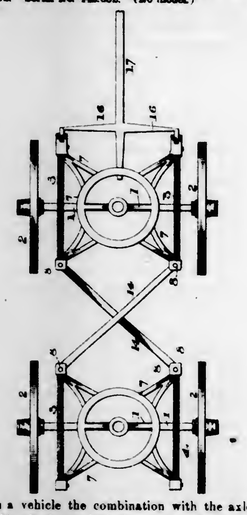
11. A cash register provided with positively impelled registering mechanism and indicating mechanism for indicating to the purchaser the amount of his purchase, in combination with a cash drawer and intermediate gearing and mechanical connections between said registering and indicating mechanism and the cash drawer, whereby successive purchases may be indicated, the cash drawer released and locked and the registering mechanism continuously re-wound at each purchase and left to run continuously after a series of purchases until the total registration is effected, substantially as described.

12. A cash register provided with positively impelled registering mechanism in combination with indicating mechanism for indicating to the purchaser the amount of his purchase, and intermediate gearing whereby successive purchases may be indicated and the registering mechanism continuously rewound at each purchase and left to run continuously after a series of purchases until the total registration is effected, substantially as described.

13. A cash register provided with positively impelled registering mechanism and indicating mechanism for indicating to the purchaser the amount of his purchase, and intermediate gearing whereby successive purchases may be indicated and the registering mechanism continuously re-wound at each purchase and left to run continuously after a series of purchases until the total registration is effected, in combination with a supplemental register adapted to register amounts

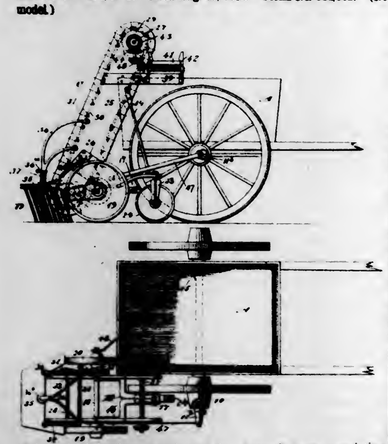
smaller than the smallest amount indicated on the main register and having operative connections with the main register, whereby when the summation of the amounts on the supplemental register equals the smallest amount indicated on the main register such additional amount will be registered on said main register, substantially as described.

492,762. **RUNNING-GEAR FOR VEHICLES.** ALPHEUS FAY, Cincinnati, Ohio, assignor to Charles C. Beakirt, Joseph H. Curley, and Edward Geis, same place, and Julius Prousnitzer, Nashville, Tenn. Filed Aug. 3, 1892. Serial No. 442,052. (No model.)



Claim.—In a vehicle the combination with the axles and the reach, of the fifth wheels to which the wagon body is connected, the arms secured to said fifth wheels having clips formed with vertical and horizontal lugs, the diagonal bars secured to said horizontal lugs, and the side bars or springs secured to the axles and pivoted to the vertical lugs, substantially as described.

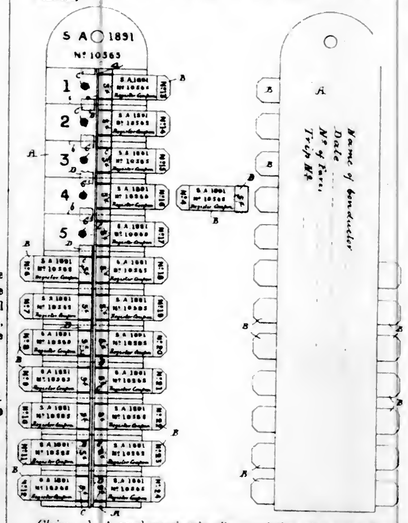
492,763. **LOADING ATTACHMENT FOR CARTS.** GUSTAV C. HAAG, New York, N. Y. Filed Aug. 25, 1892. Serial No. 444,062. (No model.)



Claim.—1. A loading attachment for carts, the same consisting of a frame supported by wheels, an elevator held in an upright position by the frame, a conveyer located near the upper end of the elevator and standing at an angle thereto, a driving connection between the conveyer and the elevator, the driving connection between one of the supporting wheels of the frame and the elevator, and a brush located near the bottom of the elevator, the said brush being U-shaped and spring-controlled and capable of limited vertical movement, substantially as shown and described.

2. In a loading attachment for carts and like vehicles, the combination, with the axle of the vehicle, and a cap adapted to be screwed upon one outer end of the axle, of a loading attachment adapted for removable attachment to a cart, the same consisting of a body frame, wheels supporting the same, an elevator held in an upright position by the frame, a conveyer supported by the elevator transversely thereof and adapted to extend over the cart body, a driving connection between the elevator and the conveyer, a driving connection between the conveyer and the supporting wheels of the device, a spring-controlled brush located back of the elevator and supported thereby, said brush being capable of limited vertical movement, and connecting rods, one uniting the supporting frame of the device with the axle of the vehicle, and the other connecting the frame with the cap upon the axle, substantially as and for the purpose set forth.

492,764. **CONDUCTOR'S REGISTERING TRIP-SLIP.** HOSEA W. LIBBEY, Boston, Mass. Filed Apr. 13, 1891. Serial No. 388,697. (No model.)



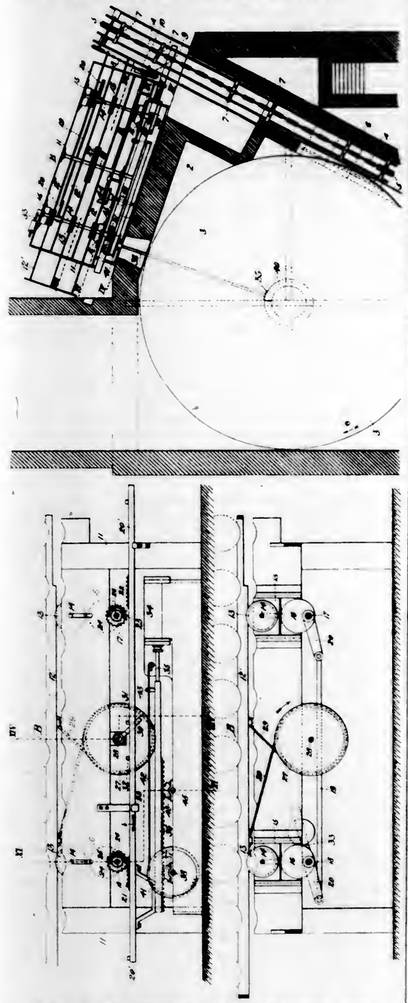
Claim.—1. A conductor's trip slip, consisting of a strip of suitable material, a number of coupons, detachably secured to the surface thereof, adjacent to each other, said coupons being arranged substantially edge to edge upon the strip, separate from each other, whereby they may be detached from the strip independently of each other, and a piece of fulminating material interposed between each coupon and the strip, substantially as set forth.

2. A conductor's trip slip consisting of a strip of card board or other suitable material and a number of coupons detachably connected thereto the ends of said coupons projecting beyond the edges of said strip substantially as set forth.

3. A conductor's trip slip consisting of a strip of card board or other suitable material having a suitable sign and number at its upper end consecutive numbers on its face, coupons attached to said strip and covering said consecutive numbers and bearing a similar number and also a sign and number corresponding to that at the head of the strip substantially as set forth.

4. A conductor's trip slip consisting of a strip of material the face of which is provided with consecutive numbers, coupons secured thereto, a piece of fulminating material interposed between each coupon and the strip, and a strip of thin material secured to the inner ends of the coupons and to the strip, substantially as set forth.

492,765. **WINDOW-GLASS LEER.** JOHN H. LUBBERS, Jeannette, Pa. Filed June 6, 1891. Serial No. 395,169. (No model.)



Claim.—1. The combination with a glass-flattening oven, of a conveyer terminating therein and arranged to carry the glass cylinders to the flattening table, a feed-table adjacent to the outer end of the conveyer, and a cooling leer leading from the flattening-oven; substantially as and for the purposes described.

2. The combination with a glass-flattening oven, of an exposed conveyer terminating therein and arranged to carry the glass cylinders to the flattening-table, a feed-table adjacent to the outer end of said conveyer and arranged to deliver the cylinders thereto, and a driving motor arranged to actuate both the feed-table and conveyer; substantially as and for the purposes described.

3. The combination with a glass-flattening oven containing a flattening wheel, of an exposed conveyer terminating therein and arranged to carry the glass cylinders to the flattening-wheel, a feed-table adjacent to the outer end of said conveyer and arranged to deliver the cylinders thereto, and a driving-motor arranged to actuate the flattening-wheel, feed-table, and conveyer, substantially as and for the purposes described.

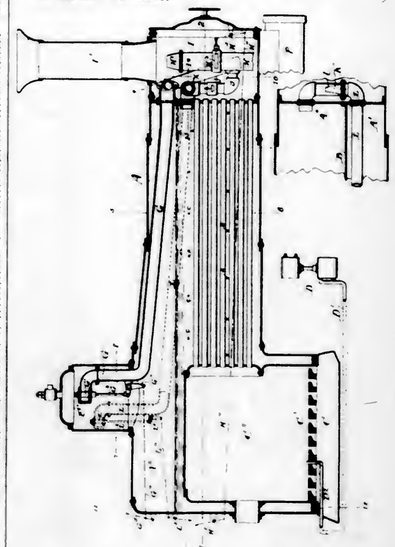
4. The combination with a glass-flattening oven, of an exposed conveyer terminating therein and arranged to carry the glass cylinders to the flattening-table, and a feed-table comprising a support for the glass, and vertically and longitudinally-movable bars arranged to project over the conveyer: substantially as and for the purposes described.

5. In a glass feed-table, the combination with a support for the glass, of a vertically and longitudinally-movable set of bars, gearing for reciprocating the bars vertically, a pulley having a flexible connection by which the bars are moved longitudinally, means for rotating the pulley and a rack-bar arranged to actuate the gearing before the pulley is revolved: substantially as and for the purposes described.

6. In a glass feed-table, the combination with a support for the glass, of a vertically and longitudinally-movable set of bars, cams for moving the bars, vertically pinions connected to the cam-shafts by a pawl and ratchet mechanism, a rack-bar arranged to engage the pinions, and a pulley having flexible connections arranged to move the movable bars longitudinally: substantially as and for the purposes described.

7. In a glass-feed-table, the combination with a support for the glass, of a vertically and longitudinally movable set of bars, having rests thereon, a pulley having a flexible cord connection arranged to move the bars longitudinally, and mechanism arranged to vertically reciprocate the bars: substantially as and for the purposes described.

492,766. **STEAM-BOILER.** DOMINICK A. REAGAN, FRANK D. SAUPP, and AUGUSTINE A. HIBER, Altoona, Pa., assignors to themselves, John Z. Kinch, and Oliver H. Ormsby, same place. Filed Apr. 19, 1892. Serial No. 429,755. (No model.)



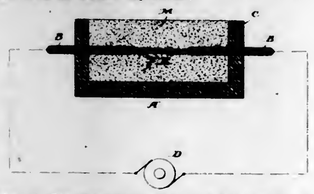
Claim.—1. The combination of two boilers containing steam at different pressure, a steam conduit leading from the low pressure boiler to an engine, an exhaust conduit having an escape controlled by a valve and a connection J K leading to the low pressure boiler from a point below said valve, and a steam conduit leading into the connection K from the high pressure boiler and forming an ejector as described.

2. The combination of high and low pressure boilers arranged as described so that the low pressure boiler receives steam in part from the high pressure boiler, and water pipes O connecting the bottoms of the two boilers, so as to effect a vertical circulation therein, substantially as specified.

3. A boiler shell A divided into high and low pressure divisions A' and A^2, an engine, a steam conduit leading from the low pressure division to the engine, an exhaust and a connection therefrom to the

low pressure boiler and a steam conduit leading from the high pressure boiler to said connection and forming an ejector therewith to force the exhaust steam in against the boiler pressure.

492,767. PRODUCTION OF ARTIFICIAL CRYSTALLINE CARBONACEOUS MATERIALS. EDWARD G. ACHESON, Monongahela City, Pa., assignor to the Carborundum Company, same place. Filed May 10, 1892. Serial No. 432,632. (Specimens.)



Claim.—1. The within described product being silicide of carbon SiC.

2. The within described crystalline product containing a compound of silicon and carbon and being characterized by great hardness, refractability and infusibility.

3. The within described crystalline compound containing silicide of carbon SiC, and being characterized by its great hardness, refractability and infusibility.

4. The within described process of making a hard and refractive compound of carbon and silicon which consists in subjecting materials containing carbon and silica, free or combined to the action of an electric current.

5. The within described process of making a hard and refractive compound of carbon and silicon, which consists in subjecting materials containing carbon, silica, free or combined and a suitable flux to the action of an electric current.

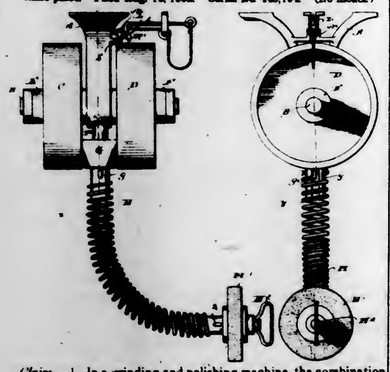
6. The within described process of making a hard and refractive compound of carbon and silicon which consists in subjecting materials containing carbon, silica, free or combined, a suitable flux and a core of conducting material to the action of an electric current.

7. The within described process of making a hard and refractive compound of carbon and silicon, which consists in subjecting materials containing carbon, silica, free or combined, and a metallic chloride to the action of an electric current.

8. The within described process of making a hard and refractive compound of carbon and silicon, which consists in subjecting materials containing carbon, silica, free or combined and a chloride of an alkali metal to the action of an electric current.

9. The within described process of making a hard and refractive compound of carbon and silicon, which consists in subjecting materials containing carbon, silica, free or combined, a chloride of an alkali metal and a core of conducting material to the action of an electric current.

492,768. POLISHING AND GRINDING MACHINE. HENRY GERSENDORF, Schenectady, N. Y., assignor of one-half to E. E. Kriegsman, same place. Filed Aug. 16, 1892. Serial No. 443,194. (No model.)



Claim.—1. In a grinding and polishing machine, the combination with the oppositely driven pulleys and their support, of the cone pulley driven thereby, the coil spring affixed to said cone pulley, and the grinding or polishing wheel affixed to said spring and rotated thereby substantially as described.

2. In a grinding and polishing machine, the combination with the oppositely driven pulleys and their support, of the cone pulley driven by said pulleys, the coil spring affixed to said cone pulley, the grinding and polishing wheel affixed to said spring, and the device for throwing said cone pulley into and out of gear, substantially as specified.

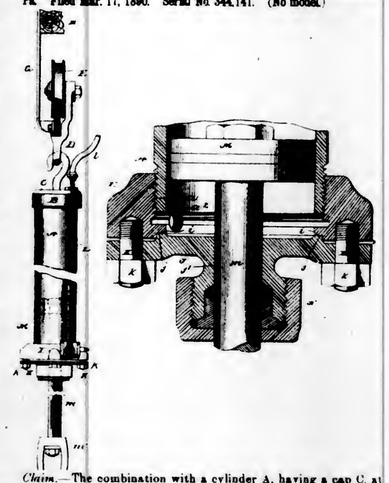
3. A grinding and polishing machine, comprising essentially a pair of oppositely driven pulleys, their support, a cone pulley driven by said pullays, a grinding and polishing wheel, and a flexible rotating connection between said cone pulley and wheel, substantially as specified.

4. In a grinding and polishing machine, the combination with the hanger, the shafting carried thereby, and the oppositely driven pulleys on said shafting, of the cone pulley embraced and driven by said pulleys, a spring coil affixed to said cone pulley, and transmitting the motion of the latter to the polishing and grinding device, the guide for said cone pulley, the rod attached thereto, and the forking shifting lever engaging said rod, substantially as specified.

5. In a grinding and polishing machine, the combination with a wheel or pulley, and its driving mechanism, of a coil spring affixed to said wheel or pulley, and a grinding and polishing wheel affixed to said spring and driven thereby, substantially as specified.

6. In a grinding and polishihing machine, the combination with the shifting lever L and the cord affixed at one end thereto, of the lever R fulcrumed below the fulcrum of the lever L, a nose or catch on said lever, designed to have engagement with a similar nose or catch on the lever L, said lever L having one end of said cord fastened thereto, substantially as specified.

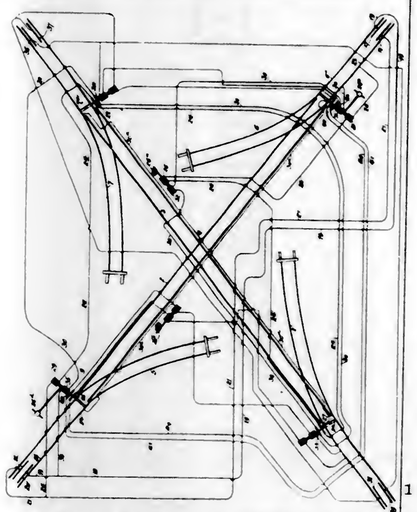
492,769. CYLINDER FOR POWER-HOISTS. WILLIS E. HALL, Altoona, assignor to himself and Morris W. Rudderow, Philadelphia, Pa. Filed Mar. 17, 1890. Serial No. 344,141. (No model.)



Claim.—The combination with a cylinder A, having a cap C, at one end and threads *a* upon the exterior of the lower end of the ring I, threaded internally and screwed upon the threaded end of the cylinder said ring having an inlet aperture a^3, and an annular seat *i* the end plate or cap J, having an annular boss *j* which fits in the seat *i* and a depending collar provided with a stuffing box, the piston head M, the piston rod *m*, the bolts K and the pipe L, all constructed, arranged and adapted to operate substantially as shown and described.

492,770. RAILROAD-CROSSING. WENDELL C. FLETCHER, St. Louis, Mo., assignor to Norman P. Willard, trustee, Chicago, Ill. Filed May 27, 1892. Serial No. 434,859. (No model.)

Claim.—1. The combination in a railway crossing protective apparatus of side tracks at the approaches to the crossings; switch rails adapted to connect with the side track or the main line; electric motors operating said switch rails; electric circuits controlling said motors; circuit breakers connected to and operated by said switch rails, the circuit breakers interrupting the action of the circuits controlling one crossing line being connected to the switch rails of the other crossing line; and means for completing the circuits controlling the switches of each line when a train approaches, substantially as described.



2. The combination with a railway crossing of side tracks at the approaches to said crossing; switches normally set to lead from the main lines to the side tracks; electric motors connected to and operating said switches; electric circuits controlling each pair of switches belonging to each main line; contacts upon the train for completing the electric circuits controlling the switches of its line; and stationary contacts upon the sides of approach and recession so arranged that the same setting of the moving contacts that throws the switches in one direction on the approach of a train to the first contacts thrown the switches in the opposite direction as the train reaches the second stationary contacts, substantially as described.

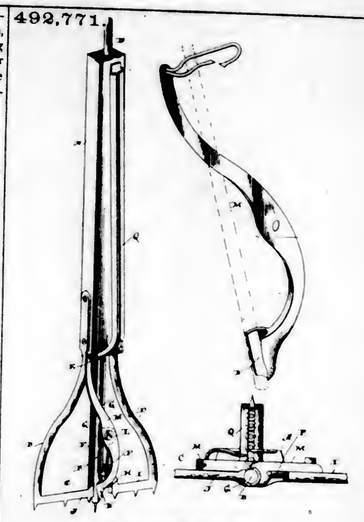
3. The combination with two or more lines of railway which cross each other of a separate set of electric circuits for each main line; means for breaking each set of circuits operated by the passage of a train on the crossing lines; means for completing said circuits carried by the locomotive or train; and safe guards at the approaches of the crossing normally obstructing entrance to said crossing but operated by the closure of said circuits to clear the approach to said crossing, substantially as described.

4. The combination with a railway crossing of safeguards for said crossing normally obstructing the approach to said crossing; electric circuits controlling said safeguards; means adapted to close said circuits and clear the approach to said crossing; and means adapted to break said circuits by the setting of safeguards to permit passage across said railway line, substantially as described.

492,771. CARPET STRETCHER AND TACKER. JESSE A. STEPHENS, Muncie, Ind., assignor of two-thirds to George N. Higman and Michael E. Vandercook, same place. Filed Mar. 30, 1892. Serial No. 427,128. (No model.)

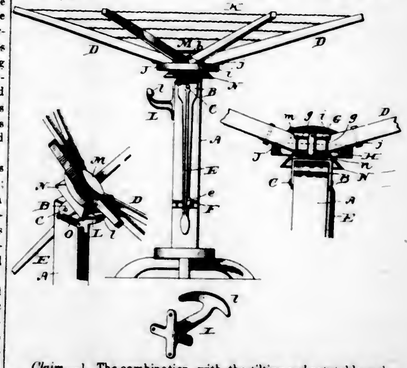
Claim.—A combined carpet stretcher and tacker comprising a handle, a stretcher head secured at the lower end thereof and having a longitudinal trough for feeding the tacks, a magazine tube communicating with the upper end of the trough, a lever pivoted between its ends and extending diagonally across the said feeding trough, its upper end at one side of the trough and carrying a feeding device which extends across the lower end of the magazine tube, its lower end being at the opposite side of the said feeding trough and forming therewith a jaw, and a hammer rod moving in the said trough to engage the lower end of the said lever for operating it, substantially, as specified.

492,771.



REISSUES.

11,310. CLOTHES-DRIER. JOHN MCKINNON, Colfax, Wash. Filed Jan. 18, 1893. Serial No. 459,306. Original No. 477,439, dated June 21, 1892.

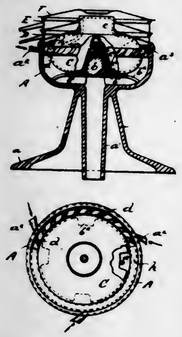


Claim.—1. The combination, with the tilting and rotatable reel, of a ring or band secured to and projected vertically downward from and at right angles to the plane of the said reel, and a combined rest and brake secured to the reel support and having its outer portions extended laterally and conformed to the circumference of the said band, substantially as and for the purpose described.

2. The combination, with a tilting and rotatable reel and a combined rest and brake, of a counterbalancing spring, substantially as and for the purpose described.

3. In a clothes line reel, the combination, with a post, a ⊓-iron set astraddle the end of the post and pivotally connected therewith and having a journal projected vertically therefrom, a lever connected with the said ⊓-iron, and a ratchet plate to engage with the said lever, of a cap and washer on the said journal, the reel adapted to rotate on the said journal, and a deflector held at the center of the reel, substantially in the manner shown, for the purpose described.

11,811. CENTRIFUGAL SEPARATOR. PHILIP M. SHARPLES, West Chester, Pa., and DAVID T. SHARPLES, Elgin, Ill. Filed July 30, 1892. Serial No. 441,891. Original No. 442,461, dated Dec. 9, 1890. Patented in England June 25, 1890, No. 9,886; in Germany Aug. 24, 1890, No. 62,886; in France Aug. 30, 1890, No. 207,951; in Belgium Jan. 9, 1891, No. 96,864; in New South Wales Feb. 12, 1891, No. 2,799; in Victoria May 28, 1891, No. 2,799; in Canada Oct. 21, 1891, No. 37,647, and in Sweden Feb. 21, 1893, No. 3,491.



Claim.—1. The improvement in the process of creaming milk by centrifugal force which consists in simultaneously changing the temperature of the rotating compound liquid to facilitate the separation of the constituent parts, substantially as set forth.

2. The improvement in the process of creaming milk by centrifugal force which consists simultaneously in increasing the temperature of the portion of the liquid in the rotating separator vessel which is farthest from the center of rotation, substantially as and for the purpose set forth.

3. The improvement in the process of creaming milk by centrifugal force which consists in heating the wall of the separator vessel during its operation whereby the heavier outer portion of the liquid is made warmer than the lighter inner portion, substantially as and for the purpose set forth.

4. In a centrifugal machine a separator vessel suspended upon a fixed bearing located substantially in the perpendicular passing through the center of gravity of the loaded vessel, in combination with means for applying rotating power directly to said vessel, substantially as set forth.

5. In a centrifugal machine a rotary separator vessel pivotally suspended substantially as described, in combination with a nozzle or nozzles located at the periphery of the vessel and adapted to apply a jet as of steam thereto, whereby said vessel is directly rotated and the jet utilized to affect the temperature of the rotating liquid, substantially as and for the purpose set forth.

6. In a centrifugal machine a separator vessel suspended at the center of gravity of the loaded vessel upon a fixed bearing, in combination with means for applying rotating power at the periphery of said vessel, substantially as set forth.

7. In a centrifugal machine the combination with the casing provided with an exhaust outlet or outlets and with the receptacles supported thereon, of a separator vessel suspended within said casing and provided with a series of peripheral projections located above said exhaust outlet and arranged at an angle to the axial plane, substantially as described, and a nozzle arranged to direct a jet (as of steam) against said projections, substantially as set forth.

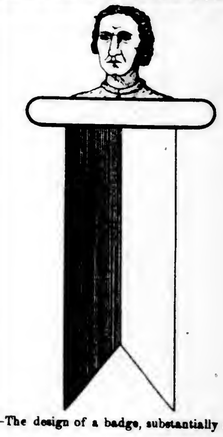
8. In a centrifugal machine a separator vessel suspended upon a fixed bearing in combination with means for applying rotating power to the periphery of said vessel upon the same horizontal plane as the center of suspension, substantially as set forth.

9. In a centrifugal separator the combination with a suspended rotary vessel operated directly by steam, substantially as described of a casing provided with a central exhaust outlet as a', an intermediate perforate plate forming an exhaust chamber b^3, and a central support, as b, substantially as set forth.

10. In a centrifugal machine the combination with a suspended separator vessel and a steam nozzle located at the periphery thereof substantially as described of a casing provided with an exhaust outlet below said vessel, liquid receptacles supported on said casing above said nozzle and a partition as A between said nozzle and receptacles, substantially as set forth.

DESIGNS.

22,289. BADGE. LOUIS OUDENSLYR, Baltimore, Md. Filed Dec. 15, 1892. Serial No. 455,309. Term of patent 3½ years.



Claim.—The design of a badge, substantially as described and shown.

22,240. MEDAL. CHARLES F. NAEGELE, New York, N. Y. Filed Jan. 11, 1893. Serial No. 458,090. Term of patent 7 years.



Claim.—The design for medals &c. consisting of an antique head in the central portion and three approximately equidistant vessels, and wavy lines in the surrounding portions, substantially as shown and described.

22,241. MEDAL. JOSEPH A. YOUPT, Ladoda, Mo. Filed Nov. 26, 1892. Serial No. 453,279. Term of patent 3½ years.



Claim.—The design for a medal herein shown and described.

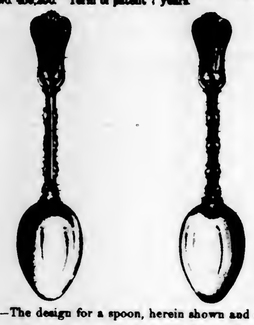
22,242. SPOON. LOUIS BUNZEN, Chicago, Ill. Filed Dec. 1, 1892. Serial No. 453,785. Term of patent 3½ years.

22,242.



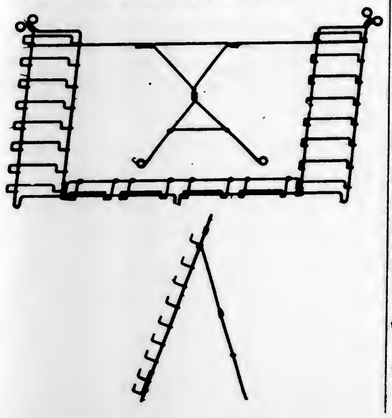
Claim.—The design for a spoon, substantially as shown and described.

22,243. SPOON. CHARLES OSBORNE, New York, N. Y., assignor to the Whiting Manufacturing Company, same place. Filed Jan. 21, 1893. Serial No. 459,250. Term of patent 7 years.



Claim.—The design for a spoon, herein shown and described.

22,244. EASEL. ANDREW J. PARLIN, Newport, Ky. Filed Jan. 9, 1893. Serial No. 457,840. Term of patent 3½ years.



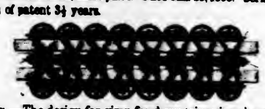
Claim.—The design for an easel, substantially as herein shown and described.

22,245. GIMP. HARRY HOOK, Philadelphia, Pa., assignor to Partridge & Richardson, same place. Filed Jan. 25, 1893. Serial No. 459,739. Term of patent 3½ years.



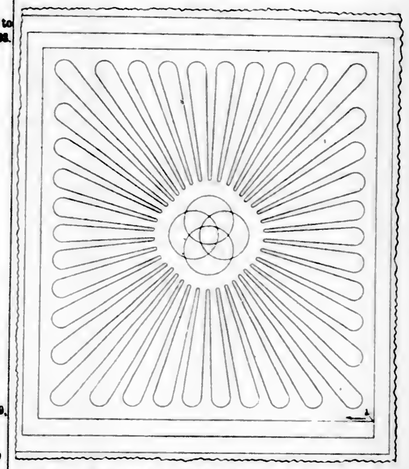
Claim.—The design for gimp for dress trimmings herein described and illustrated.

22,246. GIMP. HARRY HOOK, Philadelphia, Pa., assignor to Partridge & Richardson, same place. Filed Jan. 25, 1893. Serial No. 459,741. Term of patent 3½ years.



Claim.—The design for gimp for dress trimmings herein described and illustrated.

22,247. PATTERN FOR QUILTING. ALBERT C. DIEHL, Philadelphia, Pa. Filed Nov. 22, 1892. Serial No. 452,855. Term of patent 7 years.



Claim.—The design for a pattern for quilting, as herein described and shown.

22,248. DRESSMAKER'S SQUARE. JENNIE R. FLESHER, New York, N. Y. Filed Jan. 3, 1893. Serial No. 457,164. Term of patent 14 years.



Claim.—The design for a dressmaker's drafting square, substantially as shown and described.

22,249. MUSIC-RACK. GEORGE PORTEOUS, Guelph, Canada, assignor to James W. Lyon, same place. Filed Jan. 9, 1893. Serial No. 457,839. Term of patent 7 years.

22,549.



Claim.—The design for a music-rack, substantially as herein shown and described.

22,550. CURTAIN-POLE. LESLIE R. HARSHA, Chicago, Ill., assignor to the L. R. Harsha Manufacturing Company. Filed Jan. 6, 1893. Serial No. 457,553. Term of patent 3½ years.

22,550.

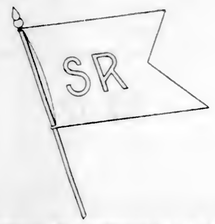


Claim.—The design for a curtain pole herein shown and described.

TRADE-MARKS

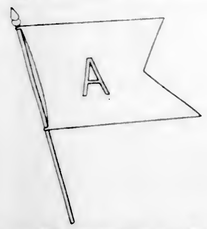
REGISTERED FEBRUARY 28, 1893.

22,506. WATCHES. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed Jan. 23, 1893.



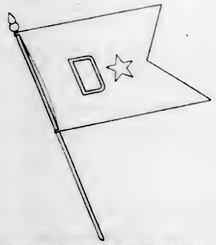
Essential feature.—The representation of a flag having its free end V-shaped and the letters "S R." Used since January 1, 1892.

22,507. WATCHES. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed Jan. 23, 1893.



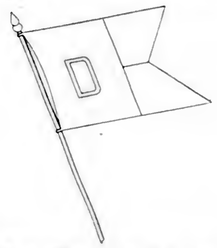
Essential feature.—The representation of a flag having its free end V-shaped and the letter "A." Used since January 1, 1892.

22,508. WATCHES. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed Jan. 23, 1893.



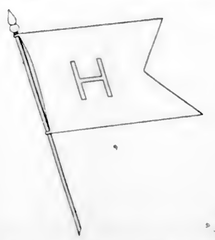
Essential feature.—The representation of a flag having its free end V-shaped and the letter "D," and the representation of a star. Used since January 1, 1892.

22,509. WATCHES. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed Jan. 23, 1893.



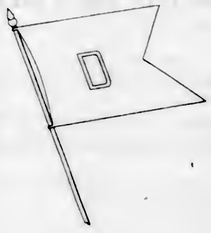
Essential feature.—The representation of a flag having its free end V shaped, and a vertical line with a horizontal line extending to the end of the flag, and the letter "D." Used since January 1, 1892.

22,510. WATCHES. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed Jan. 23, 1893.



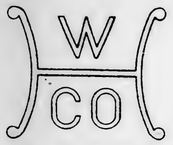
Essential feature.—The representation of a flag having its free end V-shaped, and the letter "H." Used since January 1, 1892.

22,511. WATCHES. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed Jan. 23, 1893.



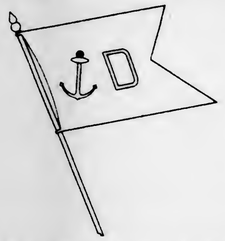
Essential feature.—The representation of a flag having its free end V-shaped and the letter "D." Used since January 1, 1892.

22,512. WATCHES. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed Jan. 23, 1893.



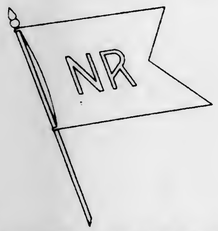
Essential feature.—A monogram comprising the letters "H, W, C. O." Used since January 1, 1890.

22,513. WATCHES. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed Jan. 23, 1893.



Essential feature.—The representation of a flag having its free end V-shaped, and an anchor, and the letter "D." Used since January 1, 1892.

22,514. WATCHES. HAMPDEN WATCH COMPANY, Canton, Ohio. Filed Jan. 23, 1893.



Essential feature.—The representation of a flag having its free end V-shaped and the letters "N R." Used since January 1, 1892.

22,515. PENS OF ALL KINDS. THE PENS OF WILLIAM MITCHELL, Birmingham and London, England. Filed Dec. 14, 1892.

WILLIAM MITCHELL

Essential feature.—The name "WILLIAM MITCHELL." Used since August 13, 1838.

22,516. WATERPROOF PAPER. F. W. BIRD & SON, Walpole, Mass. Filed Jan. 14, 1893.



Essential feature.—A band of blue color at the ends of each roll of paper. Used since January 1, 1887.

22,517. WIND, STRING, AND OTHER MUSICAL INSTRUMENTS AND TRIMMINGS THEREFOR. JAMES W. PEPPER, Philadelphia, Pa. Filed Feb. 4, 1893.

PREMIER

Essential feature.—The word "PREMIER." Used since November 27, 1891.

22,518. WRAPPING-PAPER, PAPER BOXES, AND PAPER BAGS. W. A. BINGHAM & COMPANY, New York, N. Y. Filed Jan. 26, 1893.



Essential feature.—The letter "B" inclosed by a diamond shaped figure whose sides are formed of a heavy outer border and an inner lighter line. Used since January 1, 1893.

22,519. CORSETS. GAGE-DOWNS COMPANY, Chicago, Ill. Filed Jan. 9, 1893.

G-D

Essential feature.—The letters and hyphen "G-D." Used since December, 1891.

22,520. UNDERWEAR. WILHELM BENGER SOHNE, Stuttgart, Germany. Filed Jan. 25, 1893.



Essential feature.—The representation of an anchor suspended within a double heart-shaped outline, surmounted by the word "COLUMBIA," the double heart shaped outline bearing the words "BENGOR-UNDERWEAR MANUFACTURERS." Used since August 1, 1892.

22,521. COATS, PANTALOONS, AND VESTS FOR MEN AND BOYS. WARREN B. SMITH, New York, N. Y. Filed Jan. 3, 1893.



Essential feature.—A figure formed by the boundary lines of two equilateral triangles overlapping each other, the angles of one triangle projecting opposite the sides of the other. Used since January 1, 1892.

22,522. BOOTS AND SHOES. ISAAC PROUTY & Co., Spencer and Boston, Mass. Filed Dec. 19, 1892.

Giraffe

Essential feature.—The word "GIRAFFE." Used since September 29, 1892.

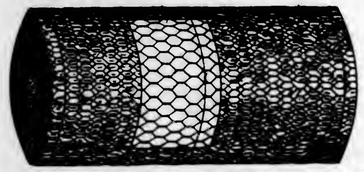
22,523. LEATHER STAYS FOR BOOTS AND SHOES. WILLIAM A. NEELY, Lynn, Mass. Filed Jan. 13, 1893.

22,523. NEELY



Essential feature.—The representation of a sewing machine and the word "NEELY." Used since January 2, 1893.

22,524. WIRE-NETTING AND WIRE-CLOTH. CLINTON WIRE CLOTH COMPANY, Clinton, Mass. Filed Dec. 10, 1892.



Essential feature.—A blue quadrilateral figure showing through the meshes of the fabric. Used since May, 1884.

22,525. COMMERCIAL WHALEBONE. NEW ENGLAND WHALEBONE MANUFACTURING CO., New York, N. Y. Filed Jan. 23, 1893.

PARAGON

Essential feature.—The word "PARAGON." Used since January 18, 1893.

22,526. PLUG-TOBACCO. W. W. WOOD & Co., Winston, N. C. Filed Nov. 17, 1892.



Essential feature.—An outer raised frame or border inclosing a depressed solid central field. Used since June 1, 1892.

22,527. MINERAL-SPRING WATER. HENRY K. WAMPOLE & Co., Philadelphia, Pa. Filed Dec. 16, 1892.

POLSKO

Essential feature.—The word "POLSKO." Used since November 1, 1892.

22,528. WINES AND CORDIALS. JOHN PH. STRAUB, Chicago, Ill. Filed Jan. 23, 1893.

Black Diamond

Essential feature.—The words "BLACK DIAMOND." Used since December 1, 1892.

22,529. WHISKY. BOSHER BROS. & Co., Lynchburg, Va. Filed Jan. 17, 1893.



Essential feature.—The representation of a bee. Used since July, 1886.

22,530. WHISKY. JOHN GILLON & Co., Leith, Scotland. Filed Jan. 9, 1893.



Essential feature.—The words, numerals, and letters "KING WILLIAM IV. V. O. P." Used since October 20, 1892.

22,531. WHISKY. MITCHELL BROTHERS, LIMITED, Glasgow, Scotland. Filed Jan. 21, 1893.

HEATHER DEW

Essential feature.—The words "HEATHER DEW." Used since August 26, 1879.

22,532. EFFERVESCING FRUIT SALTS. GRANT DRUG CO., Brooklyn, N. Y. Filed Dec. 7, 1892.

BROMO-VICHY

Essential feature.—The compound word "BROMO-VICHY." Used since November 1, 1891.

22,533. MEDICATED BEVERAGE CONTAINING WILD CHERRY. PATRICK MILFORD HARNEY, Chicago, Ill. Filed Oct. 28, 1892.



Essential feature.—The words "ROYAL" and "WILD CHERRY PHOSPHATE" and the representation of a crown. Used since June, 1892.

22,534. FLOUR. GEORGE T. CHESTER, Buffalo, N. Y. Filed Jan. 16, 1893.

WHEAT BERRY

Essential feature.—The words "WHEAT BERRY." Used since 1886.

22,535. WHEAT-FLOUR. DAISY ROLLER MILL COMPANY, Milwaukee and Superior, Wis. Filed Oct. 17, 1892.

WISKOTA

Essential feature.—The word "WISKOTA." Used since September 27, 1892.

22,536. MILK, CREAM, BUTTER, AND CHEESE. NEW YORK CONDENSED MILK COMPANY, New York, N. Y. Filed Feb. 1, 1893.

PEERLESS

Essential feature.—The word "PEERLESS." Used since January 24, 1893.

22,537. SUBSTITUTE FOR LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Jan. 18, 1893.



Essential feature.—The words "FOWLER BROS NEUTRALINE." Used since January 2, 1893.

22,538. WHOLE, CUT, AND BONELESS FISH. LYNDE HOUSE CO., San Francisco, Cal. Filed Jan. 18, 1893.

NUCLEUS

Essential feature.—The word "NUCLEUS." Used since May 10, 1892.

22,539. PEPSIN, PANCREATIN, AND RENNET AND THEIR COMPOUNDS. SWIFT & COMPANY, Chicago, Ill. Filed Jan. 24, 1893.

SILVER SCALE

Essential feature.—The words "SILVER SCALE." Used since January 1, 1893.

22,540. EXTRACT OR COLORING MATERIAL FOR FOOD. WAVERLY MANUFACTURING CO., Boston, Mass. Filed June 27, 1892.

YOLKALINE

Essential feature.—The word "YOLKALINE." Used since April 1, 1888.

22,541. COSMETICS. THOMAS HENRY BATES, Fresno, Cal. Filed Nov. 25, 1892.



Essential feature.—The representation of the head and shoulders of a young lady wearing elbow sleeves and holding a ball in her right hand. Used since July 2, 1891.

22,542. DENTIFRICE. THE S. S. WHITE DENTAL MANUFACTURING COMPANY, Philadelphia, Pa., New York and Brooklyn, N. Y., Boston, Mass., Chicago, Ill., and Atlanta, Ga. Filed Feb. 2, 1893.

SAVONOLA

Essential feature.—The word "SAVONOLA." Used since December 15, 1892.

22,548. EYEBROW-PENCIL. ELLA M. GAILLARD, New York, N. Y. Filed Jan. 26, 1893.

Beauideal

Essential feature.—The word "BEAUIDEAL." Used since December, 1892.

22,544. TOOTH-POWDER. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

OPALINE

Essential feature.—The word "OPALINE." Used since November 1, 1892.

22,545. SOAP POWDER. PETER NEBBIAN, Brooklyn, N. Y. Filed Jan. 26, 1893.

1492

Essential feature.—The figures "1492." Used since November 10, 1891.

22,546. SOAP, PERFUMERY, AND TOILET PREPARATIONS. COLGATE & Co., New York, N. Y. Filed Jan. 31, 1893.

CASHMERE BOUQUET

Essential feature.—The words "CASHMERE BOUQUET." Used since 1869.

22,547. SOAP, PERFUMERY, AND TOILET PREPARATIONS. COLGATE & Co., New York, N. Y. Filed Jan. 31, 1893.

CASHMERE

Essential feature.—The word "CASHMERE." Used since 1869.

22,548. SOAP, PERFUMERY, AND TOILET PREPARATIONS. COLGATE & Co., New York, N. Y. Filed Jan. 31, 1893.

CAPRICE

Essential feature.—The word "CAPRICE." Used since November 11 1883.

22,549. LAUNDRY AND TOILET SOAP. RICE & ROBINSON SOAP COMPANY, Titusville, Pa. Filed Jan. 28, 1893.



Essential feature.—A representation of the so-called Drake oil well. Used since January 9, 1893.

22,550. LAUNDRY AND TOILET SOAP. RICE & ROBINSON SOAP COMPANY, Titusville, Pa. Filed Jan. 28, 1893.



Essential feature.—The word "PETROLENE." Used since January 9, 1893.

22,551. CARBOLIC SOAP. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

Essential feature.—The words "RAPID" and "OIL." Used since October, 1889.

22,566. MEDICAL TONIC. JOHN P. GILBERT, New York, N. Y. Filed Dec. 2, 1892.

Vital Vim
Compromise Stimulant.

Essential feature.—The words "VITAL VIM COMPROMISE STIMULANT." Used since February 8, 1892.

22,567. TONICS, BITTERS, LINIMENTS, AND SIRUPS. J. W. JAMES & Co., East Brady, Pa. Filed Nov. 23, 1892.



Essential feature.—The portrait of Dr. James and the firm name of "J. W. JAMES & Co." Used since October 15, 1892.

22,568. ANTIPYRETIC ANODYNE IN POWDERED FORM. JOHN W. NEWBERRY, Springfield, Ill. Filed July 30, 1892.

ANTIDOLOR

Essential feature.—The word "ANTIDOLOR" in the form of a curve. Used since January, 1892.

22,569. REMEDY FOR DISEASES OF THE KIDNEYS. TABOR MEDICAL COMPANY, Reno, Nev. Filed Jan. 24, 1893.



Essential feature.—A monogram composed of the letters and abbreviation "M T Co." Used since January 1, 1893.

22,570. PILLS FOR SICK AND NERVOUS HEADACHES. EDWIN T. LEACH, Taunton, Mass. Filed Jan. 13, 1893.

CAFFODYNE

Essential feature.—The word "CAFFODYNE." Used since January 1, 1891.

22,571. CATHARTICS. ALLAIRE, WOODWARD & COMPANY, Peoria, Ill. Filed Nov. 2, 1892.



Essential feature.—The words "SYRUP LAXATANS." Used since July 1, 1892.

22,572. CATHARTIC PILLS. CLARENCE B. RIKER, New York, N. Y. Filed Jan. 16, 1893.



Essential feature.—The words "DR. ROSS' LIFE PILLS" and the representation of a woman in a reclining position with a young child by her side. Used since November 15, 1891.

22,573. PREPARATION FOR THE CURE OF COLIC IN HORSES. DILBERT B. PRALL, Saginaw, Mich. Filed Dec. 27, 1892.

PRALL'S



HORSE COLIC CAPSULES.

Essential feature.—The representation of a man holding a horse's mouth open and administering a capsule on the end of a stick and the words "PRALL'S HORSE COLIC CAPSULES." Used since September 1, 1892.

22,574. CERTAIN NAMED RECEPTACLE FOR DISINFECTING COMPOUNDS. EXCELSIOR DISINFECTOR CO., Baltimore, Md. Filed Oct. 13, 1892.

EXCELSIOR

Essential feature.—The word "EXCELSIOR." Used since September, 1891.

22,575. OIL-FILTERS. FRANK A. NUSBAUM, Columbus, Ohio. Filed Jan. 16, 1893.



Essential feature.—The representation of a bottle, so shaded as to represent its contents as consisting of a dark substance above a lighter substance. Used since December 15, 1892.

22,576. FOLDING BEDS. THE STANDARD FOLDING BED COMPANY, New York, N. Y. Filed Jan. 17, 1893.

STANDARD

Essential feature.—The word "STANDARD." Used since September 1, 1885.

22,577. INCANDESCENT LAMPS, DYNAMOS, AND ELECTRIC FIXTURES. JAMES W. PACKARD and WILLIAM D. PACKARD, Warren, Ohio. Filed Dec. 28, 1892.

Packard

Essential feature.—The word "PACKARD." Used since September 1, 1890.

22,578. STOVES AND HEATERS AND PARTS OF THE SAME. THE READING STOVE WORKS, OBR, PAINTER & COMPANY, Reading, Pa. Filed Jan. 11, 1893.

SUNSHINE

Essential feature.—The word "SUNSHINE." Used since 1876.

THE NORRIS PETERS CO., PHOTO-LITHO., WASHINGTON, D. C.

22,551.

ORIENTAL

Essential feature.—The word "ORIENTAL." Used since October 1, 1892.

22,552. LIQUID GLUE. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

CHAMPION

Essential feature.—The word "CHAMPION." Used since October 15, 1892.

22,553. MUCILAGE. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

OXFORD

Essential feature.—The word "OXFORD." Used since May 1, 1892.

22,554. CERTAIN NAMED PRODUCTS OF THE CONIFERÆ. ROBOZ & PRINDLE, New York, N. Y. Filed Nov. 29, 1892.

Pinoline

Essential feature.—The word "PINOLINE." Used since August 1, 1892.

22,555. POLISHING PREPARATION FOR SILK HATS. FREDERIC M. BLANC, New York, N. Y. Filed Dec. 13, 1892.

MOULIN ROUGE BRILLIANT

Essential feature.—The words "MOULIN ROUGE BRILLIANT." Used since November 23, 1892.

22,556. SHOE BLACKING AND DRESSING. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

RELIANCE

Essential feature.—The word "RELIANCE." Used since May 1, 1892.

22,557. GLASS-CLEANING PREPARATIONS. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

CRYSTAL

Essential feature.—The word "CRYSTAL." Used since November 26, 1892.

22,558. POLISH FOR SILVER AND LIKE WARES. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

ALBINE

Essential feature.—The word "ALBINE." Used since October 15, 1892.

22,559. METAL POLISH. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

CLARION

Essential feature.—The word "CLARION." Used since October 15, 1892.

22,560. STOVE-POLISH. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

IMPERIAL

Essential feature.—The word "IMPERIAL." Used since May 1, 1892.

22,561. PLASTER-OF-PARIS. J. B. KING & CO., New York, N. Y. Filed Jan. 18, 1893.



Essential feature.—The representation of a crown or ecclesiastical cap. Used since January 1, 1893.

22,562. CALCIMINE. WILLIAM A. HALL, Bellows Falls, Vt. Filed Jan. 25, 1893.

INDURINE

Essential feature.—The word "INDURINE." Used since June, 1892.

22,563. JAPANS AND VARNISHES. HERBERTS & DAY, Newark, N. J. Filed Jan. 18, 1893.



Essential feature.—The representation of a star. Used since May 1, 1863.

22,564. OIL FOR HARNESS AND LEATHER. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

ARMOR

Essential feature.—The word "ARMOR." Used since October 15, 1892.

22,565. LUBRICATING-OILS. ALLEN, BRADLEY & CO., Boston, Mass. Filed Jan. 19, 1893.

RAPID OIL.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Western District of Pennsylvania.

SIEMENS *et al. v.* CHAMBERS & M'KEE GLASS COMPANY.

Decided August 11, 1892.

1. PATENT—INFRINGEMENT—GLASS-MELTING FURNACE.
   Letters Patent No. 261,054, to Charles William Siemens, assignee of Frederick Siemens, July 11, 1882, for a glass-melting furnace, covering "a tank for the continuous melting of glass, having gas and air ports and of the depth herein described for the purpose of forming below the upper fluid portion of the metal a layer of metal in a semi-fluid or partially solid condition, as and for the purpose described," *Held* invalid in view of the state of the art at the time of the grant.
2. SAME—ANTICIPATION—NEW PURPOSE—NO ANSWER TO.
   The patent is anticipated by Belgian patent to C. W. Siemens, granted in 1877, which shows a furnace meeting every requirement of this patent, and it is no answer to this anticipation that the Belgian patentee "may not have fully comprehended the possibilities of the furnace." (Citing *Blake* v. *San Francisco*, 113 U. S., 679, and *Burt* v. *Ewory*, 133 U. S., 358.)
3. INFRINGEMENT—BURDEN OF PROOF.
   The burden of proving an infringement rests on complainant, and it is not enough to show that defendant's furnace ought theoretically to perform the functions covered by the patent sued upon; but the facts must be shown.

Messrs. Kerr & Curtis and *Mr. George H. Christy* for the complainants.

Mr. James I. Kay and *Mr. Francis L. Chambers* for the defendant.

BUFFINGTON, *J.*:

This suit is brought by George H. Benjamin in the names of Frederick Siemens, of Dresden, Germany, and Alexander Siemens and others, executors and trustees of Sir William Siemens, late of Westminster, England, against the Chambers & M'Kee Glass Company, of Jeannette. It is for an alleged infringement of patent-right in defendant using what are known as "deep-tank" furnaces. The questions to be passed upon are of grave importance, involving, as they do, the right to use for continuous glass-melting any tank of a depth of more than eighteen inches. In view of its far-reaching results, the case deserves and has had at the hands of the court a patient hearing of the able and interesting arguments and a laborious examination of the testimony and questions raised.

A brief resumé of glass-melting will lead to a more intelligent understanding of the controversy. Formerly glass was melted in pots about thirty-nine inches deep. They were expensive to construct and subject to frequent breakages caused by the variations in temperature between the melting and working processes. They were charged with batch, or materials for making glass, placed in furnaces, and subjected to great heat, the batch renewed as the melting went on until they were filled with molten glass, when they were allowed to cool and the glass grew stiff enough to work. This intermittent process resulted in great loss of time, fuel, and material. There are four processes in glass-making: first, melting; second, clarifying or fining; third, planing, and, fourth, working out.

The tending of inventive minds for the last thirty years to overcome these difficulties has been toward tank-furnaces. By means of them pots have been dispensed with and a continuous method of working reached, the batch being constantly fed at one end and worked out at the other. In large measure they have revolutionized the glass business. These tanks hold great beds of glass. Some of them are one hundred and twenty feet long by twenty feet wide and of varying depths—from two to six feet. Large bricks or blocks placed at some distance apart and between which the molten glass can run form their bottoms. They are placed on pillars or arches, thus forming a cave through which a cool circulation of air passes, and the molten glass is thus chilled and prevented from escaping through the crevices between the blocks. By means of an energetic circulation through this cave what is called a "chilled layer" may be formed on the upper side of the blocks, which preserves the bricks from heat of the mass and the cutting action of the glass in its movement or flux.

In this progress the Siemens brothers bear a distinguished part. They first applied the regenerative gas-furnace to glass-melting, and the cave principle was their work. These important features and many others were the results of their inventive genius, were all patented, and presumably they have derived from them the financial returns which their importance demanded. These steps were all prior to 1879.

On November 22, 1879, there was granted to C. W. Siemens an English patent, No. 4,763. Based on this patent, an American patent, No. 261,054, dated July 11, 1882, was granted to Charles William Siemens, assignee of Frederick Siemens, for a glass-melting furnace. It is important to note what was asked for and what granted. The claims were:

1. A regenerative gas-furnace having a tank of sufficient depth for the purposes described.
2. The process of melting glass in a regenerative tank-furnace, which consists in forming below the upper fluid portion of the metal a layer of metal in a semi-fluid or partially-solid condition, as and for the purpose described.

The claim for the process of melting was not al-

lowed. A substituted claim for a tank was allowed, as follows:

A tank for the continuous melting of glass, having gas and air ports, and of the depth herein described, for the purpose of forming below the upper fluid portion of the metal a layer of metal in a semi fluid or partially-solid condition, as and for the purposes described.

The Examiners-in-Chief, on appeal in this patent, say:

The applicant states that "by increasing the depth of the tank to a sufficient degree while maintaining an active circulation of air beneath the metal under treatment is maintained quite fluid to a depth of about eighteen inches," leaving it to be inferred that the tank should be considerably deeper than this; but just how much is not stated. This vagueness is the defect of the whole application, for the first claim turns on "the depth herein described" for its distinctiveness, and might be regarded as specific were the instructions and disclosures specific. * * * We believe that an improvement lies somewhere in what applicant has done; but we do not find it so clearly and distinctively disclosed as to be "distinguished from what was old," as the statute requires prior to patentability. It is possible that the first claim can be made good by more specific instructions in the specifications. The second claim would seem, with our present light, to be merely for the employment of these somewhat-deeper tanks in the old way—a matter not involving any novelty of process.

We are of opinion that the elements lacking in the original claims were not supplied by the substituted one, and that it is also open to the same objections. Assuming, however, for the present the validity of the patent, we turn to the alleged infringement for which this suit is brought.

The argument of complainants' counsel is that up to that time continuous tanks had been a failure and that the Messrs. Siemens then discovered and gave to the world in the patent in suit the principle of "vertical fining," which has turned failure into success. It is a curious fact that the claim of this patent, which is alleged to have revolutionized the glass business, is not being pushed by the Messrs. Siemens, although they are of ample means to do so, but is enforced for his own benefit by Mr. Benjamin, who has acquired their rights

The contention of Mr. Benjamin, who is also the principal witness and expert for complainant, is that from the time Messrs. Siemens turned their attention to glass-melting until 1879 they acted on the theory that the fining of glass took place on the surface; that the object had been to subject the glass to the heat bath at the surface; to that end they made the tanks broad and shallow—say from a foot to eighteen inches deep; that about 1879 they found this was wrong; that the fining or reactions of the particles took place in the descent from the higher to the lower levels and not at the surface. This new discovery he calls "vertical fining," and says that it was then for the first time learned that depth was a function, and a necessary one, in perfect fining, and that to fine perfectly (in continuous working) a deep tank must be used; that in deep tanks a depth of eighteen inches of fluid glass could be had in which this vertical fining would take place; that below this the movement of the particles ceased and there was then formed on the bottom blocks of the tank a layer of glass in a semi-fluid or partially-solid condition, which served as a covering to protect the bottom from the moving of the glass and the detaching of portions of the blocks by which glass was spoiled in shallower tanks; that this discovery of vertical fining made the continuous tank a success by turning it into a deep tank and using depth as a function in fining.

The claim allowed is for—

a tank for the continuous melting of glass, having gas and air ports, and of the depth herein described, [viz., over eighteen inches,] for the purpose of forming below the upper fluid portion of the metal a layer of metal in a semi fluid or partially-solid condition, as and for the purposes described.

This is not a primary patent. Even so far as the Messrs. Siemens are concerned it is the last of some seventeen patents on continuous glass-melting furnaces, and it merely purports to—

consist in certain modifications in the details of the construction of such furnaces and novel methods of working the same.

The semi-fluid layer was not new in 1879 in tank-furnaces. In fact, this is admitted by Mr. Benjamin, who says:

One of the most radical improvements made in the tank-furnace was the substitution by Charles William Siemens of a cooling-cave for the air channels under the bottom of the tank, whereby the ventilation was greatly improved. By the use of this improvement and by the effective cooling of the sides of the tanks they succeeded in forming a lining of glass upon the sides and bottom, which protected the tank against the injurious action of the heat and glass-making materials.

It will be noted that the function of the semi-fluid layer was well understood to be a protection against the injurious action of the glass-making materials as well as against the heat. How generally the semi-fluid layer was recognized as a fact, how its functions of protecting the bottom and sides of the tank from the two dangerous elements—viz., heat and the cutting action of the glass upon them—and that it was recognized not as "an immobile or quiescent fluid," but as chilled enough to stand against the side as well as on the bottom of the tank, will be seen by examining Niles Granger's patent, (1872,) No. 80,623; C. W. Siemens's English patent, (1868,) No 1,172; Leuffgen's American patent, (1870,) No. 103,208; C. W. Siemens's French patent, (1876,) No. 110,125, (in this a fluid layer of six inches is shown;) C. W. Siemens's Italian patent, (1877,) and "The Glass Maker's Hand Book," (complainants' exhibit.)

In fining glass Mr. Benjamin assumes there are two theories: surface fining, which he says was the accepted theory before 1879; the other, vertical fining, which he states was first disclosed by the patent in suit. The differences between them he states as follows:

Assuming that prior to the date of complainants' patent it was believed that glass fined on the surface became plane glass and sank, under this theory the depth of the tank is unimportant, because all the chemical actions take place on the surface. On the other hand, to carry out the theory of the vertical fining of the glass, the question of the depth of the tank is all important, because such a depth must be given to the tank as will permit the fining to take place in a vertical direction without the fluid metal being brought into contact with the bottom blocks.

The facts and allegations thus stated fairly represent the complainants' contention in this case. He contends that prior to 1879 surface fining (*i. e.*, that glass fined on the surface became planed glass and sank) was the accepted theory; that by the patent vertical fining was set forth—viz., "that such a depth must be given to the tank as will permit the fining to take place in a vertical direction"—in other words, that depth is a necessary function in fining. In both these propositions we are satisfied there is error. The accepted theory in 1879 was not that the glass was wholly fined on the surface; nor does the patent of 1879 set forth the theory of vertical fining as now claimed by Mr. Benjamin—viz., that depth is a necessary function in fining.

The truth lies in neither extreme. The gravital action of the particles, that the fined glass sought the low-

est zones, and that there were ascending and descending currents of glass in different stages of fining were facts well known before the patent in suit. Indeed, it was upon these facts that the whole system of continuous tanks was based, as is shown by complainants' exhibit, in which Professor Silliman, in discussing, in 1884, before the American Institute of Mining Engineers, the Siemens patent, including the one in suit, says:

The fundamental idea upon which all the Siemens glass patents are based is found in the cardinal fact, before overlooked or not availed of, that in the melting or fining of glass there is an important difference of density in the product in the successive stages of the process, the fine glass being denser and falling by gravity to the bottom of the pot, while the less-refined glass floats on the surface of the denser glass, bearing with it the "scum" or "stone," so called, imperfectly-melted material, and impurities fatal to the beauty and homogeneity of the finished product. The Siemens brothers, with characteristic sagacity, have seized on this fact and have developed out of it an entirely new system of glass-furnace and glass-manufacture, as described in their patents.

In the Italian patent, C. W. Siemens, (1877,) this vertical movement of the glass and the fining during those movements is clearly shown:

The composition melts gradually in the compartment A under the influence of the heat developed at the surface of the bath. Then in proportion as the glass melts and is refined it gains the bottom of the tank. * * * As the heating takes place by the reverberation of the heat upon the surface of the bath, while the bottom is energetically cooled in a constant manner, when a molecule of glass is refined at the surface of the bath, and has consequently acquired a greater density, it gains the bottom of the tank and is replaced at the surface by a molecule of greater density. There results from these vertical movements, combined with the general advance movement of the glass from the charging-door to the gathering ports a "pugging," so to speak, of the glass mass, which imparts to it homogeneousness and augments its fineness and its quality.

What this "pugging" which "results from these vertical movements," "which imparts to the glass homogenousness and augments its fineness and its quality" is, unless it is vertical fining under the name of "pugging," we cannot understand. Unless it is this, then some process other than the four accepted ones of melting, fining, planing, and gathering has been overlooked in glass-making. The same phenomena and the uses made thereof are also shown in C. W. and Frederick Siemens's patent, (1872,) No. 127,806, and C. W. Siemens's English patent, (1872,) No. 2,152.

It will be observed that if depth is a necessary function in fining and that fining necessarily takes place below the surface the patent in suit admits that it was then known that fining occurred elsewhere than at the surface, for it says—

glass melting tanks have hitherto been constructed under the belief that the fining operation of the material takes place mostly at the surface.

A fair construction of this statement is that it was also known that part of the fining operation was not at the surface and that it was recognized as a continuous operation, a "pugging," so to speak, as Mr. Siemens had four years before stated in his Italian patent. In the patent in suit Mr. Siemens does not claim depth as a necessary function in fining, as the theory of Mr. Benjamin now is. He admits that the fining may take place horizontally, so to speak, and that the reactions actually did take place—

in the upper portion of the currents traveling toward the working holes.

In the deep tank he says it has been found not only possible but advantageous to reduce the extent of surface heat for the reason that "in this case" (that is, in deep tanks) "the reactions occur during their descent," virtually admitting that if depth were not given the reactions would take place "in the upper portions of the current traveling toward the working holes." A fair construction of this patent shows that as Mr. Siemens then understood the art fining could take place both at the surface and underneath it, both in the horizontal and vertical movement of the particles. We are also of opinion that his object in providing the semi-fluid layer had no connection with the vertical fining of the glass, but with the gravital action of the particles. Thus he speaks—page 2, line 33, of patent—of "the reactions of the particles." So, also, in line 48. These manifestly refer to the fining process; but at line 56 he begins a new paragraph and turns to what complainant says is a different thing (namely, gravital action) and to a new subject, (namely, white as distinguished from dark glass,) and says:

In the fusion of window or other white glass there is a continuous descending and ascending movement of the particles [complainants' gravital action] throughout the mass as is proved by the wearing away of the bottoms of shallow tanks. The advantage to be obtained from increasing the depth of the tanks will be the formation of a layer of chilled glass on the bottom, at which point the movement of particles (gravital action) ceases, whereby the bottom blocks will be protected from wear, the presence of stone in the glass avoided, and a larger proportion of first quality of glass be produced.

From this it will be seen that the semi-fluid layer was to be where "the movement of the particles ceases" (*i. e.*, gravital action) and had no references to the reactions of the particles (*i. e.*, vertical fining) and that the semi-fluid layer was, first, for the protection of the bottom blocks from wear; second, the presence of stone in the glass avoided, and, third, the production of a larger proportion of first-quality glass, three points all of which had been previously protected from gravital action by the fluid layer, and both gravital action and the semi-fluid layer are confessedly old. It seems incredible that if Mr. Siemens had in his mind when this patent was granted the elaborate theory of vertical fining as now explained he should have made but casual allusions to it; that he should make no claim that by a failure to provide against it damage was done to the tank, but, on the contrary, should specially refer to the damage done by what is now called "gravital action" and claim the fluid layer as a protection or feature connected with it alone.

But leaving for the present the examination of the semi-fluid layer in general, it will be seen that even in continuous tanks of over eighteen inches deep the forming of a semi-fluid layer was not new in 1879. In two patents the use of a tank above that depth and the fluid layer are shown. C. W. Siemens, in 1877, took out a Belgian patent for improvements in glass-melting furnaces. The law of that country provides, Article 5:

The drawings shall be traced in ink and to a metrical scale. They must represent as nearly as possible the article to be invented by plans and sections and elevations, etc.

It will be noted that this requirement is not for a drawing to "the metric scale," as contended for by the complainants' counsel, but to "a metrical scale." This means a scale "pertaining to measurement"—in other words, a scale for measuring from which the article to be invented may be reproduced in actual size by enlarging the drawing in proportion to the scale

given. In pursuance of the provisions of the act we find on the drawing the French words "Echelle 1-32;" in English, "Scale 1-32." This means the drawing is one thirty-second the size of the object invented. Applying this measurement to the plan, we find the distance from the top of the sill of the charging-door to the top of the bottom blocks of the melting-tank to be at least twenty-four inches. Applying the same scale, we find the communication between the melting and working tank to be over four inches above the bed of the tank, thus leaving some four inches for the semi-fluid layer and twenty inches for the fluid glass above.

This furnace meets every requirement of the patent in suit: first, a tank for the continuous melting of glass with gas and air ports; second, it is over eighteen inches in depth, the requirement of the patent in suit; third, it provides for a cave and system of ventilation and consequently the semi-fluid layer; fourth, it recognizes the vertical movement of the glass. It does not limit itself as to dimensions, stating—

the number of ports upon which depend the dimensions of the tank may vary from three to fifteen and upward.

It is clear that a tank-furnace constructed from the plan on the scale designated would perform all the functions claimed in the patent in suit and be an infringement upon it. Such being the case, the patent in suit should not have issued five years later. That Mr. Siemens may not have fully comprehended the possibilities of the furnace which he thus patented is no answer. This is clearly within the line of *Blake* v. *San Francisco*, (31 O. G., 380; 113 U. S., 679,) that—

the application of an old process or machine to a similar or analogous subject, with no change in the manner of application and no result substantially distinct in its nature, will not sustain a patent, even if the new form of result has not been heretofore contemplated.

And of *Burt* v. *Evory*, (50 O. G., 1294; 133 U. S., 358:)

But a mere carrying forward or a new or more extended application of the original thought, a change only in form, proportion, or degree, the substitution of equivalents doing substantially the same thing in the same way by substantially the same means, with better results, is not such an invention as will sustain a patent.

The patent of Niles Granger, No. 80,623, (1868,) is also to be noted. It may be said this is a pot-furnace; but it is a pot, or rather two pots, worked as a tank continuously, and is in substance and fact a continuous deep tank-furnace, and the patent in suit claims to cover—

pots operated as tanks which are always kept full or nearly full of metal.

Granger's device was an ordinary melting pot, thirty-nine inches deep, used as a fining chamber. At the lower end of one side was a chamber leading to a smaller pot or working vessel. Save in its being used in a regenerative furnace, the Granger patent embodied and anticipated the functions of the patent in suit. It is, in the words of the patent in suit, "a pot operated as a tank which is always kept full or nearly full of metal." It makes use of the semi-fluid layer, by Granger called "a glaze," and also of the gravital action of the glass.

There is much learning and discussion in this case on the subject of vertical fining. From the evidence and admitted facts we conclude that the "vertical fining," so called is nothing more or less than the vertical finding by each particle of its natural relative position by reason of its increased specific gravity caused by the expulsion of gases from such particles by the influence of the heat. In other words, heat at the surface, aided by the storage heat in the mass itself, causes fusion. Gas is liberated as an effect of heat. Its gradual expulsion, for it is manifestly not catalytic, causes a gradual increase of specific gravity. The particle thus freed or in process of freeing itself of gas, and with increased and increasing specific gravity, will sink and sink until it finds a level of particles of specific gravity equal to its own—in other words, its natural relative position. This place may be near the bottom or near the top of the mass. In thus finding its natural relative place it has displaced some other particle of less specific gravity, and it, in its turn, is driven upward. The less-refined particles are thus driven to the surface, where, under the influence of heat, additional fusion takes place, gas is expelled, and the vertical fining again begins. When thoroughly fined and the gases driven out, not by descent, but by fusion caused by heat, and it has gained its natural relative place. (*i. e.*, with other particles of thoroughly-fined glass,) no other particle will displace it, for it has reached the maximum specific gravity, and it will remain quiescent until drawn toward the working end of the tank to fill the place of refined particles there withdrawn. Such seems to us, from the evidence, to be the process as now understood. To say otherwise is to say that descent is a necessary function in fining—is, in effect, to say that heat does not refine and that fining can only take place in deep vessels, when the fact that fining does take place in a shallow current is a fact proven by the evidence, and that it takes place in a shallow vessel is a fact admitted by the patent in suit. From the evidence we cannot find as a fact that vertical fining, as explained by the complainants, does take place. Unless such vertical fining is a fact (not a mere theory, but a practical proven fact) this patent must fail. This measure and burden of proof the complainants have failed to meet. They have given us their theory of vertical fining from the facts; but they have not proven to our satisfaction that vertical fining, as they explain it, is an actual existing fact.

Assuming, however, that the patent in suit must be sustained, the further question arises: Has the defendant infringed? The patent in suit was granted on the theory that the fluid depth of glass was about eighteen inches and that beneath this was formed a chilled layer of glass, not a layer of "immobile or quiescent glass," as now contended. Thus in line 64, page 2, of patent the applicant says:

The advantage to be obtained from increasing the depth of these tanks will be the formation of a layer of chilled glass on the surface of the bottom.

That this was the theory at that time is also shown by the file-wrapper in the case. In the argument and correspondence for the allowance of the patent Mr. Siemens's counsel (and we must assume he correctly stated the scientific views of his client and after full consultation with him, as the granting of the patent was delayed and strenuously contested by the Patent Office authorities) refers to the glass "forming below the upper fluid portion of the metal layer in a partially-solid condition," and in speaking of the depth of the old tank says:

It follows that the depth of such tanks could not exceed about

eighteen inches, or, as is shown in the new application, the bottom would be covered with a layer of chilled metal.

These quotations are simply made to show the idea then held that to eighteen inches the glass was fluid and beneath that the chilled layer necessarily formed. Presumably Mr. Siemens was not then familiar with tanks of five and six feet deep, for none had been built. He was familiar with a fluid depth of limited thickness on the top and with the energetic and active cooling by the cave below, by which the chilled layer was formed. With an immense body of molten glass in a tank of six feet and the storage heat retained by it he was not, so far as the evidence shows, familiar. Upon this theory of a fluid depth of eighteen inches and the chilled layer as a necessary sequence he sought a patent for tank and process. Use, the crucial test of theories, has proven its fallacy. The building of tank-furnaces five and six feet deep and the consequent effects of the vast storage heat therein have proved that the chilled layer as contemplated by Mr. Siemens in 1879 does not, in fact, exist in them, and that its then contemplated functions are not used in such tanks. In fact, the practical use of such tanks has shown more radical change from the accepted theory of deep-tank melting in 1879 than the supposed theory at that time did from the prior state of the art. To grant a patent now upon the functions performed by a tank of six feet would be to grant it for an improvement simply in degree and would be manifestly wrong; to grant one in 1879 upon less radical changes and upon theoretical statements, some of which experience has disproved, was more so.

Upon the complainants rest the burden of proof. They must show that the defendant's furnaces perform the functions of theirs. It will not suffice to say that theoretically they should. It will not do to say that "glass in a state of rest" or "immobile fluid glass" corresponds to the chilled layer, which was the theory in 1879.

It now appears that by the use of deep tanks and the storage heat in the vast sea of glass a fluid depth of five feet may be maintained; that the gravital action of the glass does not extend that low, and that consequently the energetic chilling which was before necessary to form the chilled layer, and thus prevent the destructive effects of the gravital motion of the glass on the bottom of the tank, is restricted to simply keeping the glass chilled between the bottom blocks, and this is the only chilling absolutely necessary. Then, too, the weight of the testimony, whatever the facts may be, is that the gravital action of the glass does not extend beyond more than about five inches. It will thus be seen that the function of the chilled layer, which was supposed in 1879 to form below the fluid depth of eighteen inches, is not needed or used in the deep tanks of the present day. Moore, the manager of defendant's works, shows that the glass was fluid in its tanks to the bottom; that he has tested it frequently; that it has sprung leaks six or eight times; that the glass has melted between the blocks; that with an iron bar he has felt the joints between the bottom blocks. The same facts are conceded to be sworn to by James A. Chambers. Gustave Somville has worked a forty-eight inch tank at Charleroi, a seventy-two inch tank at Bessage, and a forty-eight inch at Cohansey, N. J., and says the glass is fluid to the bottom in them all. He has put down a bar to push back bits of iron that have fallen in the tank; that sometimes the bar catches in a joint between the bottom blocks. Lemaire, a builder of large experience, has built twelve tank-furnaces of six feet in depth. He proves he made a hole in tank at a depth of five feet and the fluid glass ran out; that twice through accident he saw the glass run out at three feet; that he has tested by a bar and finds the glass fluid to the bottom at a depth of five feet. From tests and experiments he finds the glass fluid at five feet. It is of importance on this question of the depth of fluidity to notice his testimony in regard to the depth of the furnaces. He says they build the furnace six feet deep to use the heat more:

I think above six feet the glass is no longer liquid, and we build tanks six feet deep to accumulate the heat, while it is well known that window-glass transmits the heat to a depth of six feet and the accumulated heat remains in the glass, and we have through that economy of fuel.

A fact which was also noted by Mr. Siemens in the patent in suit:

By this construction the reduced surface of the tank was exposed to flame accompanied with additional economy of fuel, owing to the diminished surface for loss of heat by conduction.

He says the vertical movement of the glass is not more than four inches; that below that is a quiescent body of glass; that he has observed where they have had a body of bad glass and have changed the batch they had a change in quality, and calculating what had been worked out he found the moving body worked out was but five inches thick. The Glassboro tanks are continuous deep tanks, though worked intermittently on account of the limited number of blowers employed. No. 1 was twelve inches deep in the melting-compartment and eighteen in the working out, and No. 2 was thirty-six inches in melting and twenty-four in the working. Ferrari, the manager, says they are both fluid; that he has drilled holes through the side and once through the bottom, and both times the tank ran empty. The openings between the tanks were five inches square, thus showing in No. 2 a fluid depth of thirty-one inches; that No. 2 was made deeper simply for capacity, and that depth had no function in changing the quality of the glass. The glass was substantially of the same quality in both, though the melting-chamber of the old was twelve inches as against thirty-six in the new, thus showing that the fining can be as complete at twelve as at thirty-six inches. Substantially the same facts are proven by John P. Whitney, proprietor of the works, with the additional fact that in his tank No. 3 a boot-leg is employed with openings at bottom one inch deep and the shape of a caret. This shows a clear fluid depth of twenty-four inches. Testimony in contradiction of some of these points has been produced by the complainants. The very most that could be argued for it is that it balances the proofs of the defendant; but this will not do. Infringement is alleged. To merely meet the proofs of the defendant is to leave the question in the balance, and that is to decide against the complainant. The burden of proof being on the complainants, we are of the opinion the weight of the evidence is against them and in favor of the defendant.

Our conclusions, briefly stated, are:

First. The fluid layer and its function in a continuously-worked deep tank were known before this patent was granted.

Second. At that time the gravital action of glass and the reactions taking place during such movements were known, and no hitherto unknown and now known movement, action, or process in the melting of glass was disclosed in the patent in suit.

Third. That contention of complainant that depth is a necessary function in the fining of glass is not established by the weight of the evidence.

Fourth. That it is not shown that in defendant's tanks the functions of forming "below the upper fluid portion of the metal a layer of metal in a semi-fluid or partially-solid condition," as claimed in the patent, is used. The weight of the evidence is to the contrary.

Fifth. In view of the state of the art at the date of this patent, the claim granted was not then patentable, and the Letters Patent No. 261,054 are invalid.

Sixth. That the burden of proof of infringement is on the complainants, and this they have failed to meet, and the bill must be dismissed at their cost.

Judge Acheson concurs.

U. S. Circuit Court—District of Massachusetts.

THUM *et al. v.* ANDREWS *et al.*

Decided December 28, 1892.

PATENT—INFRINGEMENT—FLY-PAPER.

Letters Patent No. 278,294, May 22, 1883, to Otto Thum, and claim 3 of Letters Patent No. 305,118, September 16, 1884, to Otto Thum, for fly-paper, sustained and *Held* infringed.

Mr. Thomas J. Johnston and *Mr. Chauncey Smith* for the complainants.

Mr. John McC. Perkins for the defendants.

CARPENTER, *J.*:

This is a bill in equity to enjoin an alleged infringement of Letters Patent No. 278,294, issued May 22, 1883, to Otto Thum, and of the third claim of Letters Patent No. 305,118, issued September 16, 1884, to said Otto Thum. The claims alleged to be infringed are as follows, respectively:

A sheet of fly-paper partially covered with a sticky composition, the latter being surrounded with a band or margin of less but still slightly adhesive material.

3 As a new article of manufacture, the fly-paper with adhesive faces placed together, so as to be packed without folding, and adapted to be separated when ready for use, substantially as described.

The subject of this invention is a sheet of paper covered with a sticky and semi-fluid substance, in which the fly, being entangled by his feet, is hopelessly detained and finally dies. The objection to the use of this paper as it was first prepared was that the sticky substance flowed over the edge of the paper and injured surrounding articles, and also when packed for transportation or sale caused the sheets to adhere to each other, so that they could not be easily and conveniently separated for use. The device adopted by this inventor was to surround the sticky substance by a margin of comparatively firm and only slightly adhesive substance, a resinous compound being preferred. As thus prepared two sheets may be placed together with the sticky surfaces in opposition and the adhesive margins of the two will together form a dam which will hold in place the sticky substance, which is the effective part of the device. This appears to be a useful invention, as the evidence discloses that paper so made is largely sold and has to a great extent displaced the less convenient article formerly in use.

The respondents do not deny that they infringe. They defend the suit, first, on the ground that part of the evidence taken for the complainants should not be read because it was taken in Washington, in the District of Columbia, and they allege that the 67th Equity Rule and sections 863 and 864 of the Revised Statutes do not authorize the taking of testimony at any place outside the circuit in which the action is pending. The respondents have filed no brief, and they have not argued this point further than to state it as above recited. I have examined the rule and the statute and am unable to see anything therein which can so limit the right to take testimony, and I am therefore constrained to hold, for the purposes of this case, that the testimony may be read.

The respondents further contend that the patent shows no patentable invention in view of the methods long in use in the preparation of medicinal plasters. It appears that as early as 1849 the following directions were given for the preparation of such plasters:

If the material of which the plaster is composed be sufficiently adhesive to insure its remaining fixed to the part of the body to which it is applied, it is spread, without any previous preparation of the leather, to within about half an inch of the edge, leaving a margin of this width of uncovered leather; but plasters possessing little or no adhesiveness ought to be surrounded by an adhesive margin, and in such case the margin must be prepared before spreading the plaster. There are two methods of preparing the adhesive margin: The adhesive plaster may be either spread entirely over the leather to the very edge or it may be merely applied around the edge of the leather, so as to form a border of about an inch in width.

It does not seem to me that plasters so prepared would suggest the device of Thum, or that fly-paper prepared according to these directions would answer the purpose of the patented article. Margins or borders of course are old; but they serve many functions, and it must be held to be similarity of function no less than similarity of form which constitutes a double use. The adhesive margin of the plaster has no effect to confine the substance of the plaster. If the adhesive substance be "spread entirely over the leather," it is evident that no such result follows, and even if it be "merely applied around the edge of the leather" the descriptions do not suggest that they should be of sufficient thickness to confine the plaster. In short, the margin of the plaster was intended and adapted to fasten the plaster to the surface of the body, and not in any degree to confine or retain the medicated substance of the plaster. Such a border does not suggest the border here patented.

The respondents further contend that sticky fly-paper precisely similar to that described in the patent was made and sold by William P. Clough and John W. F. Willson and was sold by Merrill S Noyes more than two years before either of these patents was issued or applied for, and they support this allegation by the testimony of several witnesses. But the witnesses testify loosely and entirely from recollection, and notably do not produce any samples of the article said to have been sold, but identify it only by their description. The witnesses Clough and Willson testify that they sold the fly-paper such as is described in the patent to certain wholesale druggists in Boston, whom they name; but competent representatives of all but one of these houses entirely contradict this statement. One of these druggists, Mr. Albert C. Smith, does indeed testify when first questioned that he bought the article in question from Willson in the year 1878; but on further reflection he so modified his testimony that it is not possible to infer from it that the sale took place earlier than the year 1884. The evidence in support of this last contention of the respondents is thus very far from that which is required to support such a claim. I therefore conclude that the complainants are entitled to a decree.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 62.—No. 10. TUESDAY, MARCH 7, 1893. PRICE—$5 per year.

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The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Indexes to Patents on Electricity.

Indexes to patents relating to electricity, covering the period of time from July 1, 1882, to June 30, 1890, have been issued, and are for sale. These indexes, arranged alphabetically, numerically, and by classes, comprise the following volumes, the prices of which are given below:

Vol. 1. Index to patents relating to electricity granted by the United States prior to June 30, 1881, with an appendix, July 1, 1881, to June 30, 1882. One volume, 250 pages. In paper covers, $3; bound, $5.

Vol. 2. Appendix No. 2, July 1, 1882, to June 30, 1883. One volume, 50 pages. In paper covers, $1.50.

Vol. 3. Appendix No. 3, July 1, 1883, to June 30, 1884. One volume, 60 pages. In paper covers, $1.50.

Vol. 4. Appendix No. 4, July 1, 1884, to June 30, 1885. One volume, 60 pages. In paper covers, $1.50.

Vol. 5. Appendix No. 5, July 1, 1885, to June 30, 1886. One volume, 54 pages In paper covers, $1.50.

Vol. 6. Appendix No. 6, July 1, 1886, to June 30, 1887. One volume, 52 pages. In paper covers, $1.50.

Vol. 7. Appendix No. 7, July 1, 1887, to June 30, 1888. One volume, 68 pages. In paper covers, $1.50.

Vol. 8. Appendix No. 8, July 1, 1888, to June 30, 1889. One volume, 72 pages. In paper covers, $1.50.

Vol. 9. Appendix No. 9, July 1, 1889, to June 30, 1890. One volume, 84 pages. In paper covers, $1.50.

Vol. 10. Appendix No. 10, July 1, 1890, to June 30, 1891. One volume, 98 pages. In paper covers, $1.50.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Publishers' Catalogues.

This Office would be pleased to receive from manufacturers and publishers such catalogues, circulars, price-lists, or other advertisements relating to the sciences and mechanical arts as are published by them for gratuitous distribution; but notice is hereby given such manufacturers or dealers who feel disposed to send their publications that not less than three copies should be forwarded in order that the subjects may be properly indexed, classified, and subclassified in the Scientific Library for convenient and ready reference.

LABELS.

6,546.—Title: "HEINZ'S PRESERVES, CELERY SAUCE, AND KETCHUPS."—*H. J. Heinz Co.*, Pittsburg, Pa. Application filed October 31, 1892.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Issue of March 7, 1893.

Patents	464	No. 492,772 to No. 493,235, inclusive.
Designs	27	No. 22,251 to No. 22,277, inclusive.
Trade-Marks	48	No. 22,579 to No. 22,626, inclusive.
Label	1	No. 6,546.
Reissue	1	No. 11,312.
Total issue	541	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	1	1	Nevada	1	.....
Arizona Territory	1	.....	New Hampshire	2	.....
Arkansas	3	.....	New Jersey	13	2
California	15	1	New York	58	16
Colorado	6	.....	North Carolina	1	.....
Connecticut	14	1	North Dakota	.....	.....
Delaware	.....	.....	Ohio	44	6
District of Columbia	3	1	Oklahoma Territ'y	.....	.....
Florida	.....	.....	Oregon	3	.....
Georgia	7	.....	Pennsylvania	53	3
Idaho	.....	.....	Rhode Island	2	.....
Illinois	39	1	South Carolina	1	.....
Indian Territory	.....	.....	South Dakota	3	.....
Indiana	6	1	Tennessee	2	1
Iowa	7	.....	Texas	7	1
Kansas	7	.....	Utah Territory	1	.....
Kentucky	5	.....	Vermont	2	1
Louisiana	2	.....	Virginia	4	1
Maine	3	1	Washington	4	.....
Maryland	8	.....	West Virginia	2	.....
Massachusetts	35	5	Wisconsin	17	.....
Michigan	18	2	Wyoming	.....	.....
Minnesota	9	.....	U. S. Army	.....	.....
Mississippi	1	.....	U. S. Navy	1	.....
Missouri	32	1			
Montana	2	.....	Total to citizens of the United States	442	46
Nebraska	7	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Mexico	.....	.....
Austria-Hungary	2	.....	Netherlands	.....	.....
Belgium	.....	.....	Newfoundland	.....	.....
Bermuda	.....	.....	New South Wales	2	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	8	.....	Norway	1	.....
Chile, Republic of	.....	.....	Roumania	.....	.....
Cuba	.....	.....	Russia	.....	.....
Denmark	.....	.....	Scotland	3	1
Ecuador	.....	.....	South Australia	.....	.....
England	14	2	Spain	1	.....
France	4	.....	Sweden	1	.....
Germany	9	.....	Switzerland	2	.....
Hawaii	1	.....	Victoria	1	.....
Ireland	.....	.....			
Italy	.....	.....	Total to citizens of foreign countries	49	3
Japan	.....	.....			

APPLICATIONS UNDER EXAMINATION.

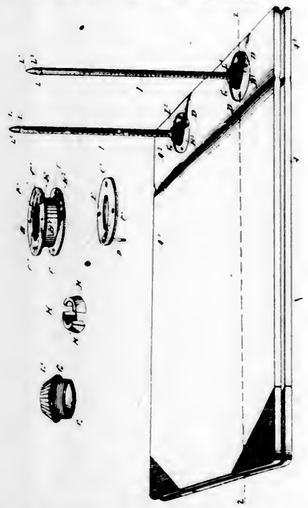
Condition at Close of Business February 28, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Feb. 3	Feb. 13	70
	Between one and two months in arrears.			
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Dec. 29	Feb. 25	151
2	Farm Stock, Products, etc	Jan. 3	Feb. 23	225
8	Furniture, Toilet, Umbrellas and Canes, etc.	Jan. 3	Feb. 18	257
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Dec. 28	Feb. 14	261
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Dec. 28	Feb. 9	215
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Dec. 29	Feb. 2	218
12	Mechanical Engineering, Stores-Service, etc.	Jan. 4	Jan. 31	255
13	Metal-Working, Arms and Projectiles, etc.	Dec. 30	Jan. 31	202
21	Textiles, etc	Dec. 28	Jan. 31	189
24	Sewing-Machines and Apparel	Jan. 3	Jan. 25	147
7	Harvesters, Games and Toys	Dec. 29	Jan. 25	544
18	Steam-Engineering, etc	Jan. 4	Jan. 17	322
10	Carriages and Wagons and Railway-Cars.	Dec. 31	Jan. 17	399
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Jan. 4	Jan. 12	288
4	Civil Engineering, etc	Jan. 3	Jan. 3	356
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Dec. 29	Jan. 3	303
	Between two and three months in arrears.			
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Dec. 27	Feb. 3	324
22	Fire-Arms, Navigation, Signals, etc.	Dec. 7	Jan. 23	240
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Dec. 23	Jan. 21	261
23	Instruments of Precision, Acoustics, Optics, etc.	Nov. 29	Jan. 13	328
9	Hydraulics, Fire-Extinguishers, etc.	Dec. 27	Jan. 5	378
19	Stoves and Furnaces	Dec. 5	Dec. 30	515
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 27	Dec. 28	253
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Dec. 27	Dec. 19	370
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 15	Dec. 7	352
	Between three and four months in arrears.			
17	Paper-Manufactures and Printing.	Nov. 26	Jan. 14	272
1	Tillage and Fences	Nov. 14	Jan. 4	314
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Nov. 3	Jan. 3	369
	Between four and five months in arrears.			
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Oct. 24	Dec. 23	416
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Sept. 15	Jan. 28	382
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	July 2	Nov. 4	577
	Total number of applications awaiting action			9,653
	Under one month in arrears.			
	Designs	Feb. 23	Feb. 23	50
	Trade-Marks	Feb. 23	Feb. 27	36

PATENTS

GRANTED MARCH 7, 1893.

492,772. **TRANSFER-BINDER.** JESSE E. ANES, Boston, Mass. Filed Oct. 24, 1892. Serial No. 449,732. (No model.)



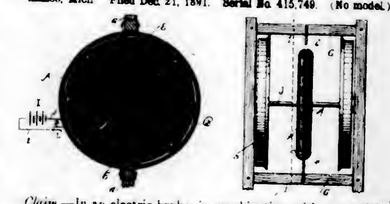
Claim.—1. In a binder adapted to temporarily or permanently hold memoranda, the flexibly attached flap provided with apertures to receive an internally threaded socket piece, the said socket piece integrally provided with the over-lapping pierced flange, and the separable flange thereof identically pierced to unite said socket piece to said flap when these devices are organized in the manner and for the purpose specified.

2. In a transfer binder, the socket piece provided with a fixed and a separable flange adapted to detachably unite the former to the latter, the combination therewith of an externally threaded button provided with a conical chamber, an orifice thereto for admission of a spindle and sleeve, and a corrugated exterior to facilitate its manual adjustment, for the purpose specified.

3. In a transfer or other binder, the hereinbefore described socket piece and the threaded and chambered button, in combination therewith two or more clutches provided with semicircular interior walls to embrace the spindle sleeve, and conical exterior surfaces to engage with the walls of said button chamber, when the cover flaps are to be secured to the spindle sleeves, substantially in the manner set forth.

4. In an organized binder for mercantile uses, the hinged flaps A^1, A^2, the former provided with apertures sustaining the hereinbefore described locking devices comprising the screw-threaded socket B, with its attached and detached flanges, the conical chambered button G, therein supported, the duple clutches H, operating within and by said button chamber G', the spindle sleeves I, against which said clutches are confined, the spindles J, and described means for the retention of said sleeves thereon, all designed, arranged and adapted to co-act in conjunction with the covers A and A', comprising in the assemblage of said parts my improved binder as herein specified.

492,773. **ELECTRO-MAGNETIC BRAKE.** ANDREW D. AYRES, Kalamazoo, Mich. Filed Dec. 21, 1891. Serial No. 415,749. (No model.)



Claim.—In an electric brake, in combination with a revolving element, a series of electromagnets and a series of incasing armatures, one of said series being firmly fixed to the revolving element, and the other series to an independent support, with means of energizing the series of magnets, whereby on the application of the current the revolving element is interrupted.

492,774. **CLOTHES-POUNDER.** WILLIAM G. BEAVER, Hillsborough, Tex., assignor of two-thirds to Taylor Evans and John C. Garrison, same place. Filed Dec. 8, 1892. Serial No. 454,476. (No model.)

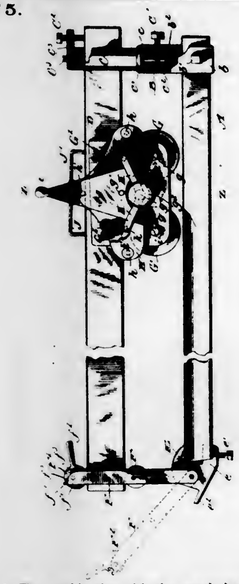


Claim.—1. A clothes pounder, comprising a stem, a rigid inverted bowl arranged at the lower end of the stem, a rigid cap secured to the upper end of the stem, and an intermediate sliding cone mounted on the stem and arranged between the bowl and the cap and adapted to close the latter to form an upper chamber, substantially as described.

2. A clothes pounder, comprising a stem, adapted to receive a handle, an inverted cylindrical bowl arranged at the lower end of the stem and rigidly connected therewith, a rigid cap having a conical upper portion and a cylindrical lower portion and arranged at the top of the stem, and a sliding cone mounted on the stem between the bowl and the cap, substantially as described

492,775. **MANDREL ATTACHMENT.** LEE W. BOSLEY, Gainesville, Tex. Filed Apr. 19, 1892. Serial No. 429,701. (No model.)

492,775.



Claim.—1. The combination with the mandrel and bar, of the pivoted bars and the cam and eccentric carried thereby and constructed to engage the main bar, and means for connecting the mandrel and bar at the end opposite said pivoted bars as set forth.

2. The combination with the mandrel and bar, of the clamp to engage the mandrel, the bars pivoted to the clamp, and the cam and eccentric carried by the bars and constructed to engage the main bar and means for connecting the mandrel and bar at the end opposite said pivoted bars, as set forth.

3 The combination with the mandrel and bar, of the clamp at one end carried by a swiveled head and having jaws, means at the other end connecting the mandrel and bar, and means for vertical adjustment of the bar, as set forth.

4. The combination with the mandrel and bar and the swiveled head with its clamp plate and adjusting means, of the clamp at the other end with its cam and eccentric constructed to engage the main bar, as set forth.

5. The combination with the mandrel and bar with its swiveled head and adjustable clamp at one end, of the adjustable clamp with its pivoted bars at the other end and the cam and eccentric carried by the said bars and adapted to embrace the main bar upon opposite faces, as set forth.

6. The combination with the mandrel and bar, and means at each end connecting the mandrel and bar, of the groover slidingly arranged on the bar and comprising a tilting frame, as set forth.

7. The combination with the mandrel and bar and its attaching means, of the groover frame slidingly arranged on the said bar and comprising a tilting frame and rocking arms for tilting the frame, as set forth.

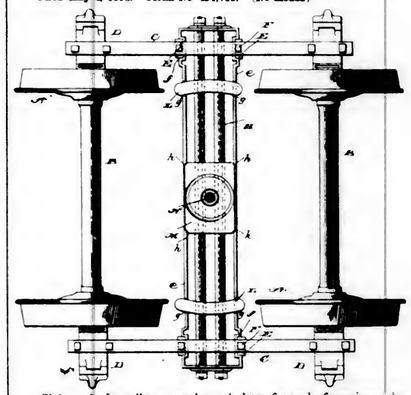
8. The combination with the mandrel and bar, and the latter's attaching means, of the groover frame, the tilting plates thereon, the spring arms with their pins and the rocking tilting arms, as set forth.

9. The combination with the mandrel and the bar and its attaching means, of the groover slidingly arranged upon said bar, the tilting plates having holes, the rollers, the tilting frame with its spring arms, and the spring arms engaged thereby and carrying pins substantially as and for the purpose specified.

10. The groover consisting of the parallel plates, the wheels journaled therein, the plates embracing said plates, and pivoted on the same pivots, the tilting frame with its bifurcations and alternately-arranged arms carried thereby, and the spring arms with their pins constructed and arranged to co-operate with a mandrel and a bar carried thereby, as set forth.

11. The combination with a mandrel and its bar, of the groover wheels and the plates carrying the same, the tilting frame with its lower sides bifurcated and serving as spring pawls, the spring arms actuated thereby and carrying pins, and the roller at the top of the frame to travel upon the top of said bar, as set forth.

492,776. CAR-TRUCK. WILLIAM F. BRADLEY, Owosso, Mich. Filed May 4, 1892. Serial No. 431,785. (No model.)



Claim.—1. In railway trucks, a bolster formed of continuously corrugated metal whereby the bolster presents a folded appearance in cross section, said corrugations extending approximately parallel with each other in the direction of the length of the bolster.

2. In railway trucks, the bolster formed of a single piece of metal bent to form a continuous corrugation and having its side edges bent vertically to form the side walls of the bolster.

3. In railway trucks, a bolster formed of metal, and having vertical sides joined by a series of connected and continuous corrugations whereby the bolster presents a folded appearance in cross section.

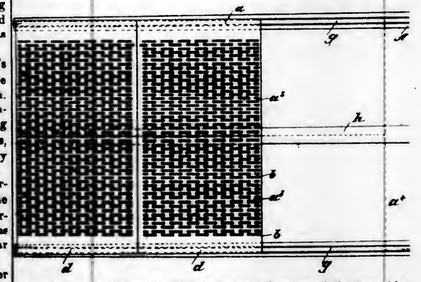
4. In railway trucks, a metallic bolster having vertical side flanges joined by a transverse series of continuous corrugations running in approximately parallel planes in the direction of the length of the bolster, said side flanges being recessed to receive the columns.

5. In railway trucks a bolster having corrugations extending in the direction of its length and having recesses formed in its upper surface for the reception of the side bearing plates L, substantially as herein described.

6. In railway trucks, a bolster having corrugations extending in the direction of its length, and having a recess formed at the center of its upper surface for the reception of the center bearing, substantially as and for the purpose described.

7. In railway trucks, a metallic bolster having vertical side flanges joined by a transverse series of continuous corrugations extending in approximately parallel planes in the direction of the length of the bolster, said side flanges being recessed at the center of their inner walls to receive the center bearing, substantially as herein described.

492,777. FLOOR FOR STABLES, &c. ARCHIBALD BUCHANAN, Jr., Ayr, Scotland. Filed May 19, 1892. Serial No. 433,544. (No model.)

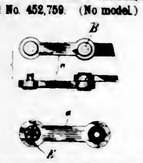


Claim.—1. In combination in a stable flooring of the two side girders, the central girder A and the gratings hinged to the side girders and having their free ends resting on the central girder, substantially as described.

2. In combination in a stable flooring of a series of gratings, each having the rounded portion *d* along one edge, and the supporting girder having a groove extending along its upper edge to receive the said rounded portions, substantially as described.

3. In combination in a stable flooring, the series of gratings, the girder for supporting the same, the pivoted connection between the gratings and the girders, said girders being grooved to receive the edge of the gratings and tapered vertically from front to rear, substantially as described.

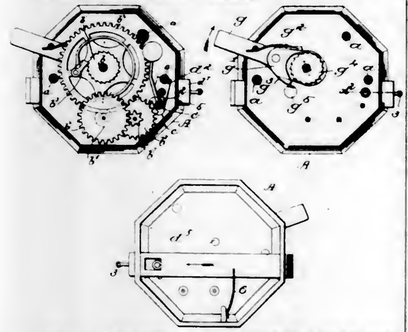
492,778. GEARING. WILLIAM I. BOWKER, La Grange, Ill. Filed Nov. 22, 1892. Serial No. 452,759. (No model.)



Claim.—1. The combination of a driving chain provided with links alternating from side to side of the chain, and driving and driven sprocket wheels provided with receiving sprockets alternating from side to side and adapted to engage the chain on opposite sides in alternating series, substantially as described.

2 The combination of a driving chain provided with links beveled inwardly at their ends and alternating from side to side of the chain, and driving and driven sprocket wheels provided with beveled sprockets adapted to engage the chain on opposite sides in alternating series, substantially as described

492,779. BELL. NAHUM J. BUSBY, Maplewood, Mass. Filed Dec. 16, 1891. Serial No. 415,214. (No model.)



Claim.—1. The driving train, and its escapement wheel and pallet, combined with the longitudinally movable slide co-operating with the locking device for the train, a spring to normally retain said device in operative position, said movable slide engaging and actuating the locking device longitudinally against the action of said spring to release the train, substantially as described.

2. The driving train, a normally operative locking device therefor, a winding ratchet and a rocking winding lever or pawl-carrier having a pawl pivoted thereon to engage said ratchet when the lever is moved forward, combined with a releasing device in the path of movement of, and to disengage the pawl from the ratchet when the said lever or pawl-carrier is moved backwardly, substantially as described.

3. In a bell, its striking mechanism, the driving train therefor, and the normally operative locking device for said train, combined with a movable slide engaging with and to move said locking device into inoperative position to release the train, the operating cord or wire for said slide, and an adjustable take-up between said slide and cord, substantially as described.

492,780. FABRIC-TURFING MACHINE. MURDICK CAMERON, Minneapolis, Minn., assignor of one-half to Angus McDonald, same place. Filed July 5, 1892. Serial No. 438,923. (No model.)

492,780.



Claim.—1. A fabric turfing machine comprising the support adapted to rest upon and be moved over the fabric, the reversely reciprocating arms carrying one the needle and the other the loop-holder, and provided each with an enlargement or presser foot and means for reciprocating the arms constructed to throw the presser feet below said support against the back of the fabric for alternately limiting the depth of the loop and holding the fabric to prevent the withdrawal of the loop, substantially as described.

2. In a fabric turfing machine, the combination with the needle and the loop-holder, of the reversely reciprocating arms carrying the same and having an advancing step-by-step motion with respect to each other, and an oscillating lever and links connecting said arms to said lever at points below and on opposite sides of its fulcrum, whereby one of said points will be moving in the vicinity of its dead center, while the other is moving at a point remote from its dead center, and one of said arms will be held in its lower position, while the other is raised and again lowered, substantially as and for the purpose set forth.

3. In a fabric turfing machine, the combination with a suitable support, of the slides G, the needle D, the loop-holder E, the reversely reciprocating arms F, carrying one the needle and the other the loop-holder, the springs F^4 interposed between the slides and the arms, a resistance block as M M' engageable with the cam surface *f* on the needle carrying arm, and an adjustable stop, as M^3 M^3, arranged and operating substantially as and for the purpose set forth.

4. In a fabric turfing machine, the combination with a supporting frame having vertical guides, of slides reciprocating in said guides, vibrating arms pivoted to the slides, and carrying respectively a needle and a loop holder, and springs interposed between the slides and the arms, substantially as described.

5. The combination with a suitable support, of the vertically movable slides G, the reciprocating arms F, carrying one the needle and the other the loop-holder, having their upper ends pivoted to said slides, the springs F^4 tending to throw said arms forward on the support and an adjustable stop, as M^3 M^3, for variably limiting the advance or feed movement of the needle, the cam surface *f*, on the needle bearing arm and the resistance block M M', operating substantially as described.

6. The combination with the support C C', having the central passage C^3, of the needle D, the loop-holder E, the arms F, carrying one the needle and the other the loop-holder, the slides G to which said arms are pivoted, the springs F^4 the slot and studs F^6, the cam surface *f* on the needle bearing arm, the resistance block M M', the oscillating lever K K' and the links H, and the stops M^3 M^3, operating substantially as and for the purpose set forth.

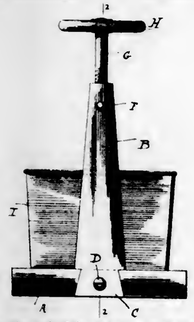
7. A fabric turfing machine, comprising a frame or support provided with an expanded base, C, adapted to ride upon the fabric and be self-supporting when the fabric is in a horizontal position, having an enlarged central passage C^3, and the vertical standard C', rising from the base and located slightly to one side of its longitudinal center, so as to expose the passage C^3, and the reversely reciprocating arms, carrying one the needle, and the other the loop-holder, and provided each with an enlargement or presser foot, adapted to work through the said passage, in alternate order, for the purposes set forth, whereby the said machine is self-supporting on the horizontal fabric, the slack will be taken up, the loop will be held, and the work may be seen through the said passage, substantially as described.

492,781. MEAT-PRESS. FRANKLIN A. CLARK, Worcester, Mass., assignor to himself and George A Sanders, same place. Filed Oct. 18, 1892. Serial No. 449,223. (No model.)

Claim.—1. The combination in a device of the character described of the base A, the uprights B, B', having suitable dove-tails C, C', fitting in the base A, the bracket E having journals F fitted in the uprights B, B', the screw G, tapped in said bracket E, and having a hand-wheel H, and the platen J, with which the end of said screw is adapted to engage, substantially as described.

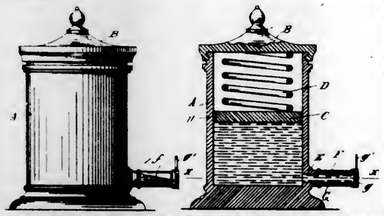
2. The combination in a device of the character described, of the framing, a bracket as E, journaled in said framing, a screw tapped in said framing, and a pan as I, adapted to be slid into the machine, a platen as J, adapted to fit into said pan, said screw G being adapted

492,781.



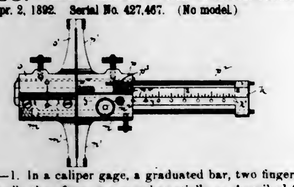
to be turned so that the end of the same can engage the platen J, and whereby said pan I can be removed by simply loosening the screw G, and turning the bracket E, substantially as described.

492,782. VALVE FOR MUSTARD-POTS. PETER L. R. C. CLAASSEN, Berlin, Germany. Filed Apr. 8, 1892. Serial No. 428,400. (No model.)



Claim.—In combination the mustard pot having a lateral sleeve perforated on its lower side, the perforated hollow valve extending longitudinally of the sleeve, the lever secured to the end of the valve extending transversely thereof on each side, and having one arm notched in line with the outer periphery of the sleeve, the means for holding the hollow valve against longitudinal movement within the sleeve, consisting of the wire *f*, secured to the outer periphery of the sleeve, toward its rear end and extending thence to the forward end and engaging the notch in the laterally projecting arm of the lever, the said wire serving also as a spring to hold the openings in the valve and sleeve out of line with each other, substantially as described.

492,783. BEAM-CALIPERS. JUSTIN E. CLOUGH, Tolland, Conn. Filed Apr. 2, 1892. Serial No. 427,467. (No model.)



Claim.—1. In a caliper gage, a graduated bar, two fingers projecting laterally therefrom, means substantially as described for securing any desired degree of separation between said fingers, a stop device substantially as described adjustably secured upon said bar, and stop devices upon one of said fingers adapted to engage the device on the bar to limit the amount of movement of said finger from an adjusted position to a distance corresponding to the combined width of said fingers at their outer end, combined and operating substantially as described.

2. In a caliper gage, a graduated bar, two sliding heads mounted upon said bar each of which heads carries a calipering finger, means substantially as described for securing each of said heads in any desired position upon the bar, and stop devices substantially as described for positively limiting the movement of one of said heads from any position of adjustment, to a distance corresponding to the combined width of said fingers at their outer end, combined and operating substantially as set forth.

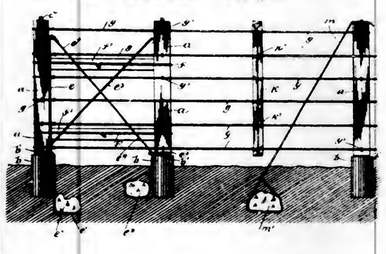
3. In a caliper gage, a graduated bar, two heads adjustably mounted upon said bar each of which carries a calipering finger, a rod adapted to be rigidly secured to one of said heads, said rod passing loosely through a bore in the other of said heads and having an enlarged end located within a counterbore in the latter head, said counterbore being of such length that the limit of movement of the end of the rod therein will correspond with the combined width of said fingers at their outer end, combined and operating substantially as set forth.

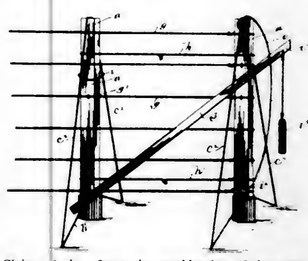
4. In a caliper gage, graduated bar *g*, heads *e* and *f* adjustably secured upon said bar and carrying the fingers *e'* *f'* respectively, micrometer screw e^3 engaging threaded hubs on the bar and head *e* respectively, rod *h* passing through said heads and having its enlarged end retained within a counterbored recess in head *e*, and set-screw f^3 for rigidly connecting head *f* to said rod, combined and operating substantially as set forth.

5. In a caliper gage, the combination with graduated bar *g* of heads *e f* adjustably secured to said bar and carrying the fingers *e' f'*, and micrometer screw e^3 having the threaded portion 1 engaging threaded hub g' on the bar, and threaded portion 2 of a different pitch engaging threaded hub e^4 on head *e*, said screw having its head provided with peripheral graduations, substantially as set forth.

6. In a caliper gage, the combination with graduated bar *g*, of the heads *e f* adjustably secured upon said bar and carrying the fingers *e' f'*, said head *e* being bored longitudinally and having a counterbore the outer end of which is closed by screw e^5, and rod *h* passing through the bore in said head and having an enlarged end which is confined within said counterbore, and means for rigidly connecting said rod to head *f*, substantially as and for the purpose set forth.

492,784. FENCE. WILLIAM COMMEANS, Lily Chapel, Ohio. Filed Nov. 25, 1892. Serial No. 453,115. (No model.)

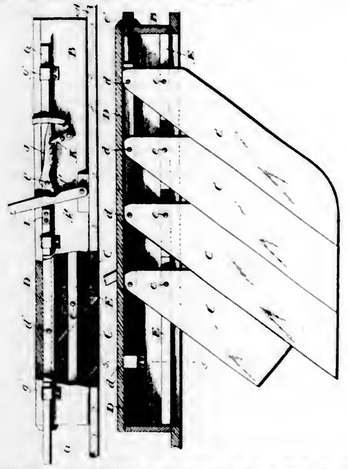




Claim.—1. In a fence, the combination of the posts and horizontal fence wires connecting the same, supporting wires *l'* upon which said fence posts rest, said supporting wires being suspended above the ground and the ends of said wires being anchored, by stones *c'* beneath the ground surface, and anchor wires c^2 passing as described over the tops of said posts and also engaging with said ground stones *c'* substantially as and for the purpose set forth.

2. In a fence, the combination of the posts, horizontal wires *g* connecting said posts, supporting-wires *l'* upon which said posts rest, the central or supporting portions of said wires being elevated from the ground and the ends of said wires being anchored beneath the surface of the ground, a strengthening bar *c* on the inner side of one of said fence posts, the lower end of said bar entering and being anchored as described beneath the ground surface, and crossed braces c^2 connecting as described said strengthening bar and the next succeeding post, substantially as and for the purpose specified.

492,785. CENTER-BOARD. JOEL COUCH, Clayton, N. Y. Filed Aug. 9, 1892. Serial No. 442,627. (No model.)



Claim.—1. In a folding center-board, having a series of blades pivotally attached near one end to two rods or bars parallel with each other, one of which is extended through the center-board box to operate said blades with the other ends of the blades free, substantially as shown and described.

2. A folding center board of the character described having a series of blades, free at one end and the other end pivoted independently of each other and means for operating the same substantially as shown and described.

3. A folding center board having a series of independently pivoted blades, free at one end, and at their pivoted end attached to two parallel bars having a series of steps, to which are pivoted said blades, and means for operating same, substantially as shown and described.

4. In a folding center board with a series of blades pivotally attached to two parallel bars having a series of steps, one bar being beveled to wedge against the side of box, and the loop *d*, on the box and guiding one of said bars and bar extended for operating said device, substantially as shown and described.

5. In a folding center board, as described having one of the actuating bars extended, a secondary bar or rod parallel with the first mentioned bar, and to which is attached a lever, which is pivoted to bear against a fulcrum bar on said bar G, substantially midway the length of the box substantially as shown and described.

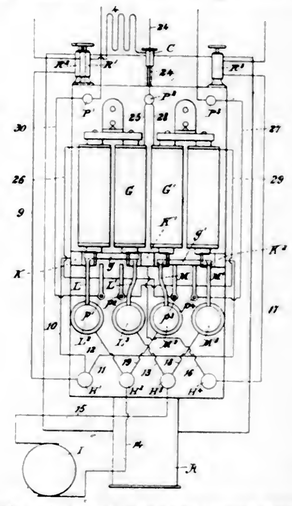
6. In combination with a rod and a pivoted lever for operating a folding center board an automatically operating ratchet, having one end arranged to be engaged by said lever to regulate the throw of center-board, substantially as shown and described.

492,786. AUTOMATIC ELECTRIC SWITCH. ANDREW M. COYLE, Baltimore, Md., assignor to the Standard Screw Elevator Manufacturing Company, same place. Filed Feb. 18, 1892. Serial No. 422,027. (No model.)

Claim.—1. The combination of an electric circuit, a series of resistances having their terminals connected to fixed contact-plates, a solenoid having a series of independent coils also connected to contact plates, a spring or brush permanently connected in said circuit and carried by the core of said solenoid so as to make contact successively with the terminal plates of said resistances and coils, cutting them out one by one, substantially as described.

2. The combination of an electric circuit, a series of resistances having their terminals connected with fixed contact plates, a solenoid having several independent coils connected in series with said resistances, and having also a coil connected in a separate circuit, and a contact spring or brush carried by the core of said solenoid, and adapted when the core is attracted to make contact successively with said contact plates thereby cutting out said resistances and also the coils of the solenoid connected therewith, substantially as described.

3. The combination of an electric circuit, an electro-motor therein, a series of resistances, a solenoid whose core when attracted thereby, cuts out said resistances, a pair of switch magnets in separate branches of a secondary circuit, including one coil of said solenoid, and switch-levers, one controlled by each of said magnets, for making, breaking or reversing the connections of said motor with the main circuit, substantially as described.



4. The combination of the main electric circuit, an electro motor adapted for connection therein, a series of resistances, a solenoid for switching out said resistances *seriatim* when the circuit is closed through said motor, a pair of switch magnets in separate branches of a secondary circuit, switches controlled by said magnets for making, breaking and reversing the connections of said motor with the main circuit, the circuit of each magnet having contacts which are broken when the armature of the companion magnet is attracted, substantially as and for the purpose set forth.

5. The combination with an electric circuit and with switch mechanism for opening and closing the same, of a solenoid having several independent coils, a core carrying a spring contact or brush connected in said circuit, a series of resistance coils including one or more of the solenoid coils, and terminal plates with which said resistances are connected, said plates being arranged in the path of the spring contact or brush carried by the core, whereby the resistances are switched in and out of circuit, substantially as described.

492,787. SAWMILL. CHARLES E. CRAWFORD, Moscos, Miss., assignor of one-half to Samuel Williamson, same place. Filed June 20, 1892. Serial No. 437,398. (No model.)

Claim.—1. In a saw mill, the combination of a carriage, ropes, cables or chains connected thereto, a drum with which said ropes, cables or chains engage, a ratchet wheel in connection with one part of said drum, a pulley in connection with the opposite part of the drum, a reciprocating saw frame, an operating shaft, a disk or wheel in connection with said operating shaft, a lever adjustably connected with said disk or wheel and to the said saw frame, a belt in connection with the driving shaft and with the pulley on one side of the drum, a belt tightener engaging said belt, and a pawl engaging said ratchet wheel and operated by the movements of said saw frame, substantially as described.

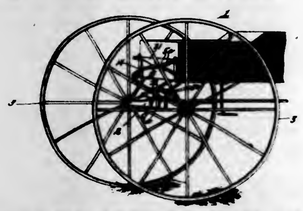
2. In a saw mill, the combination of a carriage, a drive shaft having pulleys in connection therewith, a disk or wheel in connection with one of said pulleys, a lever adjustably connected at one end to said disk or wheel, a vertically reciprocating saw frame carrying a saw blade, and to which the opposite end of the said lever is attached, a lever connected to said saw frame, and having a pawl hinged thereto, a shaft extending under the carriage carrying a drum and a ratchet wheel on one end adapted to be engaged by said pawl, and a pulley on the opposite end of the same, a belt running from said latter pulley to one of the pulleys connected to the drive shaft and traveling between guides, a plunger mounted between said guides and having a roller depending therefrom to engage said belt, and a lever carrying said plunger and roller, the said carriage having ropes, cables or chains connected to opposite ends thereof and engaging said drum, substantially as described.

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3. In a saw mill, the combination of a carriage, a reciprocating saw frame, the drive shaft having pulleys in connection therewith, a shaft extending under said carriage and having a drum thereon, and a ratchet wheel on one end and pulley at the opposite end, a rope, cable or chain connected to opposite ends of the carriage and passing over rollers and engaging said drum, a belt passing over the latter pulley and connected with one of the pulleys of the drive shaft, a belt tightener engaging said belt, and a lever connected to the saw frame, and having a pawl hinged thereto, substantially as described.

492,788. VEHICLE-SPRING. JAMES N. EASTWOOD, Kansas City, Mo. Filed Nov. 13, 1892. Serial No. 451,744. (No model.)



Claim.—1. A spring adjustment block, comprising a body-portion or plate, and ears extending from said body-portion or plate and a friction roller, journaled between said ears, substantially as described.

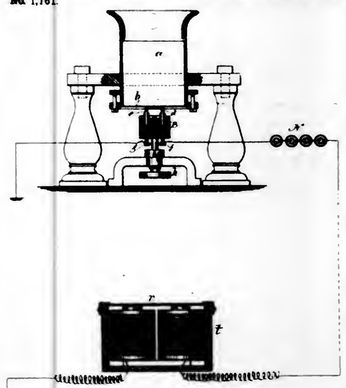
2. An adjustment block, comprising a body-portion or plate, parallel ears extending from said body-portion or plate, aligned openings in said parallel ears, a sleeve journaled in said openings, and a friction roller journaled on said sleeve and between said ears, substantially as described.

3. An adjustment block, comprising a body-portion or plate concaved or segmental at its under side, parallel ears projecting from the inner side of said body-portion, and a friction roller journaled between said ears, substantially as described.

4. An adjustment block and bar, comprising a bar or block having a recess therein, and parallel walls at each side of said recess, having aligned openings there through, and a block, having a body portion or plate, a pair of parallel walls projecting from its inner side, having aligned openings there through, a sleeve supported at each end in said openings, having one end of its passage squared, a friction roller journaled loosely upon the sleeve between the side walls, and a bolt squared near the head and passing through the side walls of the bar and the sleeve carried by the block, and a retaining nut engaging the projecting end of the bolt, substantially as described.

5. A spring adjustment block and bar, comprising a bar having a segmental recess 23 therein, and vertical walls 5ª upon each side of said recess, and a block pivoted in said recess and between said walls so that said block shall be practically hid from view, in its normal position, substantially as set forth.

492,789. SPEAKING-TELEGRAPH. THOMAS A. EDISON, Menlo Park, N. J., assignor to The Western Union Telegraph Company, New York, N. Y. Filed Sept. 5, 1877. Patented in England July 30, 1877, No. 2,909; in Canada Oct. 20, 1877, No. 3,026; in France Dec. 19, 1877, No. 121,667; in Belgium Jan. 11, 1878, No. 43,964; in Austria-Hungary Jan. 15, 1878; in Italy Jan. 19, 1878, No. 9,791; in Germany Jan. 23, 1878, No. 14,306; in Spain May 6, 1878, and in Russia Feb. 15/27, 1882, No. 1,161.



Claim.—1. The combination with a diaphragm which is set in motion by the human voice or other sound of two electrodes, which are insulated except at or near their ends and an intermediate fluid for the purpose set forth.

2. In a telegraphic instrument operated by sound employing a conducting fluid as a part of the circuit, the combination with the diaphragm of an electrode immersed in said liquid and insulated except at its extreme end, substantially as described.

3. The combination with a diaphragm set in motion by the human voice or other sound of several pairs of electrodes insulated, except at or near their end and an intermediate fluid conductor for the purpose set forth

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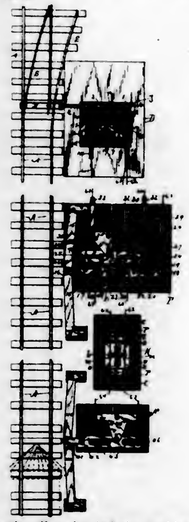
492,790. AUTOMATIC RAILROAD-SWITCH. GEORGE N. KIMBLE and GEORGE W. DE GRAFF, Crete, Ill. Filed Apr. 29, 1892. Serial No. 431,100. (No model.)

Claim.—1. In an automatic rail road switch the combination with the main and switch rails, the connecting bar B, connecting rod *r*, spring 2 oscillating plate 1, shaft 9, bell crank 7, sliding bolt 6, link 14 levers 3 and 4, stops 12 and 13, switch stand T, having the notch X, and lock hasp Y, semaphore *m*, and jointed lever V, substantially as and for the purpose set forth.

2. In an automatic rail road switch the combination with the main and switch rails, the connecting bar B, connecting rod *r*, spring 2, oscillating plate 1, shaft 9, semaphore *m*, bell crank 7, sliding bolt 6, link 14, levers, 3 and 4, stops 12 and 13, switch stand T, jointed lever V, toggle bars 15, link 17, slide 18, having the hooks 19, 50, and 51, and slots 20, slide 25, having slots 26 and 27, and hook 49, bell crank 31, springs 30 35 and 71, lever 29, spring bolt 24 links 10, 11, 32 and 33, and cables, 60 61, and 62 all arranged to operate substantially as and for the purpose set forth.

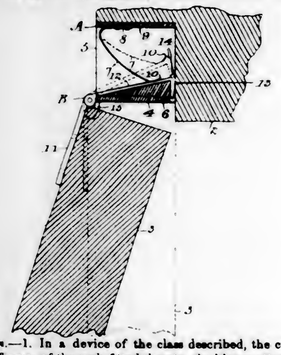
3. In an automatic rail road switch, the combination with the main and switch tracks, the connecting bar B, connecting rod *r*, spring, 2, oscillating plate 1, shaft 9, having the jointed lever V, semaphore *m*, bell crank 7, sliding bolt 6, link 14, levers 3 and 4, stops 12 and 13, switch stand T toggle bars 15, link 17, slide 18, having hooks 19, 50, and 51, and slots 20, slide 25, having slots 26 and 27, and hook 49 bell crank 31, springs 30, 35 and 71, lever 29 spring bolt 24, links 10, 11, 32 and 33, cables 60, 61, and 62. toggle bars 40, link, 41, slide 42 having slots 43, double bell crank 45, weighted cables 63, and 64

lever 23 and hook 22 all arranged to operate substantially as and for the purpose set forth.



4. In an automatic rail road switch the combination of the toggle bars 15, slide 18 having the hooks 19, 50, and 51, slide 25 having hook 49, links 17 and 34, hook 22, springs 30, 35, and 71, bell crank 31, and spring bolt 24, all arranged to operate substantially as and for the purpose set forth.

492,791. COMBINED HINGE AND HANGER FOR STORM-SASHES. FRANK W. FARRAR, St. Paul, Minn. Filed Apr. 12, 1892. Serial No. 428,771. (No model.)



Claim.—1. In a device of the class described, the combination with the frame, of the sash fitted thereto, the hinges attached to said sash, and devices on said frame for automatically engaging said hinges when the sash is placed in said frame, substantially as described.

2. The combination with the window frame and sash, of the hinges having one flap secured to said sash, the devices upon said frame adapted to receive the other flaps of said hinges when the sash is placed in the frame, and to automatically secure said flaps therein so as to hold said sash in place and to serve as a support therefor, substantially as described.

3. A hinge and hanger, comprising in combination a hinge having one flap secured in the removable part, devices upon the fixed part to receive the other flaps of said hinges, and to automatically engage the same so as to support the removable part, substantially as described.

4. A hinge and hanger, comprising in combination the hinge having one flap secured to the sash, the box rigidly secured to the frame adapted to receive the other flap of the hinge, and the spring catch engaging and holding said flap in said box against a limited strain, substantially as described.

5. In a device of the class described, the hinge and hanger comprising in combination, the box secured to the frame, the hinge attached to the sash, the hinge flap adapted to enter said box as the sash is placed in position, the spring catch engaging said flap and holding the same in said box against a limited strain, and the rigid stop adapted to be engaged by said flap under the tension of said spring catch when the sash is turned outward on said hinge, substantially as described.

6. The combination with the frame and the sash fitted thereto, of the box secured to said frame, the hinge secured to said sash, the flap on said hinge adapted to enter said box when the sash is placed in position, means for automatically securing said flap in said box against a limited strain when the sash is in a vertical position, and means for automatically securing said flap to a fixed support when the sash is turned outward upon said hinge, substantially as described.

7. In a device of the class described, the combination with the frame, and the sash fitted thereto, of the hinges upon said sash, the devices upon said frame adapted to receive the free flaps of said hinges when the sash is placed in vertical position in the frame, and to automatically engage and hold the same against a limited strain, and also adapted to automatically lock said flaps firmly in place when said sash is swung outward on said hinges, substantially as described.

8. In a device of the class described, the combination with the frame and the sash fitted thereto, of the boxes rigidly secured to said frame, the butts each having one flap secured to said sash and the other flaps in position to enter said boxes when the sash is placed vertically in the frame, spring controlled devices for automatically engaging said flaps and holding them in said boxes against a limited strain, and means for automatically engaging said flaps and locking them in said boxes when the sash is turned outward on said hinges, substantially as described.

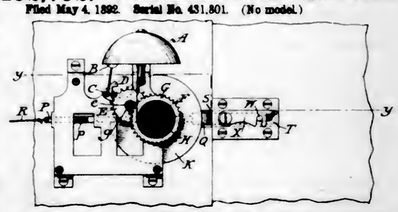
9. In a device of the class described, the combination with the frame and the sash fitted thereto, of the boxes fitted to said frame, the butts each having one flap secured to said sash and the other flap adapted to enter a box when the sash is in place in the frame, the spring catch automatically engaging said flap and securing the same in said box, against a limited strain while the sash is in the frame, and the fixed stop automatically locking said flap in said box when said sash is swung outward on its hinges, substantially as described.

10. The combination with the frame and the sash fitted thereto of the boxes secured to said frame, the hinges secured to said sash, having their free flaps adapted to enter said boxes, the spring catches in said boxes adapted to engage said flaps, the hooks upon said flaps, and the stops in said boxes adapted to be engaged by said hooks when the sash is turned on its hinges, substantially as described.

11. In a device of the class described, the combination with the frame and the sash, of the hinges, each having one flap secured to said sash, the stops adapted to engage the other flaps and limiting the closing movement of the hinges, the spring controlled catches adapted to engage the free flaps when the sash is placed in the frame, and to yield to a predetermined strain, the hooks upon said flaps, and the fixed stops adapted to be engaged by said hooks when the sash is turned outward on the hinges, substantially as described.

12. In a device of the class described, the combination with the frame and sash, of the boxes rigidly secured to said frame, the hinges upon said sash adapted to fit into said boxes, spring controlled means for automatically locking the same in said boxes so as to support said sash in an open position, means for disengaging said hinges from said locking devices operated by the closing of said sash, and automatic means engaging said hinges and securing them in said boxes against a limited strain with the sash in closed position, substantially as described.

492,792. BURGLAR-ALARM. JACOB GANZFRIED, New York, N. Y. Filed May 4, 1892. Serial No. 431,801. (No model.)



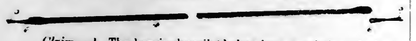
Claim.—1. The combination of a bell, a vibrating hammer, a toothed wheel for operating said hammer, a motor, a winding shaft driven through a ratchet and pawl from said motor, gearing intermediate said shaft and said toothed wheel, a stop-disk loose on said shaft

and having a pawl and ratchet connection therewith, said stop disk having a single tooth on its periphery, and a movable stop to engage said disk and adapted to be operated by a door or window, substantially as shown and described.

2. The combination of a bell, a vibrating hammer, a motor train operating said hammer, a stop-disk having a single-tooth on its periphery, a sliding stop-rod, a finger carried thereby, a sliding bolt carried by the door or window to be protected, and a latch to retain said bolt in its operative or inoperative position, substantially as shown and described

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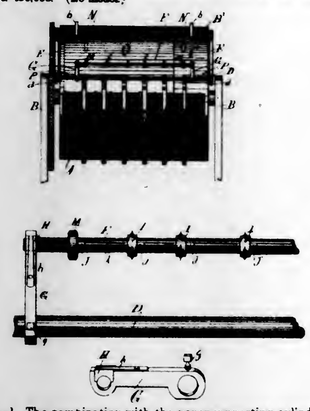
492,793. SHOE-LACE. CHARLES GOLDTHWAIT, Weymouth, Mass. Filed Oct. 14, 1892. Serial No. 448,879. (No model.)



Claim.—1. The herein-described shoe-lace, consisting of a body-portion formed wholly of soft pliable material and terminating in lacing-studs engaging flexible loops and tags connected with the loops, substantially as specified.

2. The herein-described shoe-lace, the same consisting of the body-portion formed wholly of soft pliable material and the removable tags formed of short pieces of wire bent to form loops for engaging those of the lace, and having their terminals meeting to form entering points, the loops of the lace being adapted to removably engage the lacing-studs of shoes, substantially as specified.

492,794. PERFORATING ATTACHMENT FOR PRINTING-PRESSES. GEORGE C. B. GRAHAM, Memphis, Tenn. Filed Apr. 26, 1892. Serial No. 430,688. (No model.)



Claim.—1. The combination with the paper supporting cylinder provided with lifters, of the rotary shaft carrying perforating and lifting disks, and supports yieldingly carrying the shaft and by which it is connected with the press, substantially as set forth.

2. The perforating attachment for presses, having the shaft provided with perforating and lifting disks and arms by which said shaft is yieldingly supported and by which it is adapted to be secured to a press and to be rocked about an axis parallel with that of the impression cylinder of the press, substantially as set forth.

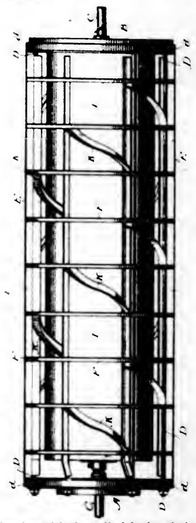
3. The combination of the shaft, the arms by which it is attached to a press and yieldingly supported, perforating disks, lifting disks, and means by which to adjustably secure said disks upon the shaft, substantially as set forth.

4. The combination with a press provided with the paper supporting cylinder and fender bar, of the rotary shaft, adjustably secured perforating disks on the shaft, supports by which said shaft is connected with and adapted to be rocked about the fender bar into operative and inoperative position, and means by which to secure said supports in their adjusted position, substantially as set forth.

492,795. FLOUR-BOLT. WILLIAM D. GRAY, Milwaukee, Wis., assignor to the Edward P. Allis Company, of Wisconsin. Filed Nov. 23, 1891. Serial No. 412,838. (No model.)

Claim.—1. The combination substantially as described of a horizontal bolting reel, interior longitudinal lifting buckets or blades carried thereby parallel to the axis and separated from the bolting cloth, and spirally arranged blades between the buckets, also separated from the bolting cloth.

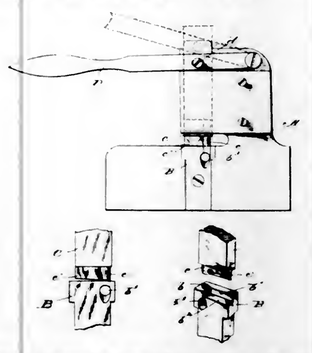
2. A horizontal cylindrical bolting reel and an internal drum, in combination with interior lifting buckets or blades carried by the said reel and arranged in planes radial to the axis thereof and with open spaces between the said parts, and spiral blades between the lifting buckets also separated from the drum and bolting-cloth, substantially as shown and described.



3. In combination with the cylindrical reel, the internal obliquely arranged blades K, separated from the bolting cloth, the distance between them varying at different points in the length of the blades.

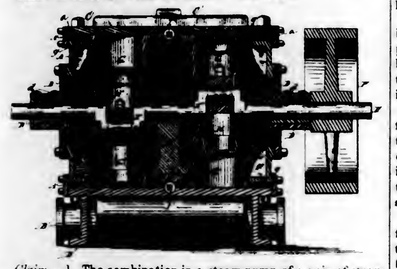
4. In combination with a reel and internal lifting blades or buckets extending lengthwise thereof, intermediate obliquely arranged blades of angular cross-section separated at their outer edges from the bolting surface.

492,796. BUTTON-HOLE-CUTTER. JAMES G. GREENE, Elizabeth, N. J., assignor to The Singer Manufacturing Company of New Jersey. Filed Oct. 7, 1892. Serial No. 448,134. (No model.)



Claim.—A button hole cutting device consisting of the combination with a suitable frame, of the block B fixed to said frame and provided with an opening or recess *b* of the shape of the eyelet portion of the button-hole to be cut, said block being cut away forward of said opening or recess to form the vertical shoulder *b'* the upper corner of which serves as a cutting edge, and the sliding member C vertically movable in said frame and having a solid punch portion *c* adapted to closely fit and enter within the said opening *b*, and having also a knife cutting portion extending forward from and integral with the said punch portion *c*.

492,797. STEAM-PUMP. LEWIS W. HARDY, Chicago, Ill., assignor of two-thirds to Henry Bickel and Julius A. Ward, Cedar Rapids, Iowa. Filed Jan. 21, 1892. Serial No. 418,848. (No model.)



Claim.—1. The combination in a steam pump of a pair of steam cylinders and a pair of water cylinders opposite thereto; a pair of pistons reciprocating in said cylinders and connected with the cranks of a crank-shaft; a shell having bearings at the side for said crank-shaft and terminal bearings for said cylinder, the said cylinders having terminal flanges, and the bearings therefor being provided with steam-ports and water-ports respectively, whereby, by the reciprocating action of the cylinders, and the gyratory action of the pistons, the said steam and water ports are alternately opened and closed, substantially as described.

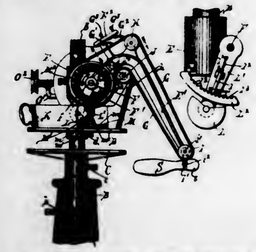
2. In a steam pump substantially as described, the combination of the flanged cylinders G G and G' G', the shell A having internal flanges *a a* bearing on the inner side of the flanges *g g* and the head C and base D having plane faces forming a bearing for the outer faces of the flanged portion of said cylinders.

3. In a steam pump, the combination of the flanged cylinders substantially as described, the shell having internal flanges to bear on the inner side of the flanges of the cylinders, the head or base having a plane surface to bear on the outer face of said flanges, wedges mounted between the shell and the head and base, and means substantially as described for adjusting the same, for the purpose set forth.

4. In a steam pump, the combination of flanged cylinders substantially as described, a shell having internal flanges upon which the flanges of the cylinders bear, a head and base having a plane inner surface forming the outer bearing for the cylinder flanges and adjustable with respect to the shell, and the external plates A' adapted to close the space between the head or base and the shell.

5. In a steam pump substantially as described, the combination of the piston H having a seat therein for boxes *h h'*, the wedge I'' with means for adjusting the same, bearing upon the half-box *h'* and the L shaped plate J with its outer face bearing upon the internal face of the cylinder G substantially as and for the purpose set forth.

492,798. BOLE-INKING MACHINE. CHARLES B. HATFIELD, Utica, N. Y., assignor to the Stanley Manufacturing Company, Boston, Mass. Filed Mar. 29, 1892. Serial No. 426,934. (No model.)



Claim.—1. In an inking machine, the combination of an endless belt having an ink applying face, a projecting rib or shoulder extending outwardly from said face, and an ink feeder for supplying the ink to the belt, substantially as and for the purpose specified.

2. The herein described ink applying device for shoe edges and similar articles, the same consisting of an endless belt having an inking face, and a projecting shoulder extending outwardly from one edge of said face, substantially as and for the purpose set forth.

3. In a shoe inking machine, the combination of an endless inking belt having an inking face for applying the ink to the shoe, a projecting rib or shoulder extending outwardly from one side of said belt, and a support arranged at the other side of the belt for supporting the shoe during the application of the ink, substantially as and for the purpose set forth.

4. In a shoe inking machine, the combination of an endless inking belt having an inking face for applying the ink to the shoe, a projecting rib or shoulder extending outwardly from one side of said belt, a support arranged at the other side of the belt for supporting the shoe during the application of the ink, and an adjustably mounted ink feeding roller bearing against said belt, substantially as specified.

5. In a shoe inking machine, the combination of a supporting frame; of an endless inking belt for engaging the shoe and applying the ink directly thereto, a shoe support consisting of an arm having one extremity hinged to the frame and the other movably mounted in proximity to said belt for supporting the shoe during the application of the ink, and an ink feeder for supplying the ink to the belt, substantially as described.

6. In a shoe inking machine, the combination of a supporting frame; of an endless inking belt having an inking face for applying the ink to the shoe, a projecting rib or shoulder extending outwardly from one side of said belt, and a support consisting of an arm having one extremity hinged to the frame and the other arranged normally at the opposite side of the belt for supporting the shoe during the application of the ink, substantially as and for the purpose described.

7. In a shoe inking machine, the combination of an endless inking belt for engaging the shoe and applying the ink directly thereto, an ink feeder for supplying the ink to the belt, an adjustable support for said ink feeder, a catch for holding said support in its adjusted position, and a spring bearing against said catch, substantially as and for the purpose herein set forth.

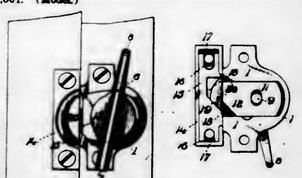
8. In a shoe inking machine, the combination of a bearing, a shaft journaled in the bearing, a drum on said shaft, an applying roller, and an inking belt movable over said drum and roller; of a revoluble disk mounted on said shaft for rotating the same, and an anti friction roller bearing against the face of said disk for preventing lengthwise movement of the shaft, substantially as and for the purpose described.

9. In a shoe inking machine, the combination of a bearing, a shaft journaled in the bearing, a drum on said shaft, an applying roller, and an inking belt movable over said drum and roller: of a revoluble disk mounted on said shaft for rotating the same, and an actuating wheel movable toward and away from said disk for frictionally engaging and rotating the same, substantially as set forth.

10. In a shoe inking machine, the combination of a bearing, a shaft journaled in the bearing, a drum on said shaft, an applying roller, and an inking belt movable over said drum and roller: of a revoluble disk mounted on said shaft for rotating the same, an actuating wheel movable toward and away from the revoluble disk and adapted to bear thereagainst, a movable support for said disk, and a cam for forcing said wheel against the disk, substantially as and for the purpose set forth.

11. In a shoe inking machine, the combination of a bearing, a shaft journaled in the bearing, a drum on said shaft, an applying roller, and an inking belt movable over said drum and roller: of a revoluble disk mounted on said shaft for rotating the same, a main driving shaft extending crosswise of said disk, and an actuating wheel movable lengthwise on said shaft for revolving the disk, and a cam for forcing said wheel against the disk, substantially as and for the purpose specified.

492,799. FASTENER FOR THE MEETING-RAILS OF SASHES. JOSEPH C. HAUSER, New Haven, Conn. Filed June 22, 1892. Serial No. 437,561. (Model.)



Claim.—1. The base plate having the central opening of the outline described, in combination with the lever having two pins depending through said opening and forming alternately a pivotal point for the lever, and a sliding bolt connected to and movable by one of the pins.

2. The base plate, having the central opening whose edges comprise two opposed curved edges with stops between them, in combination with the lever having two depending pins one bearing against one curve and the other against the opposite curve, and the sliding bolt seated in the base plate and having operative connection with one of said pins, substantially as specified.

3. The combination in a sash fastener with the base plate having the swinging lever and the sliding bolt, of a housing adapted for attachment to the rear sash and an adjustable locking plate contained and movable within the housing, substantially as specified.

4. The combination with the housing for attachment to the rear sash, of the locking plate 15 adjustably arranged within said housing and provided with means of engagement therewith, whereby the fastening screws secure the two parts together and to the sash rail.

5. In a sash fastener, the combination with the base plate, of the swinging hook-ended lever, and the oblique nosed sliding bolt beneath said lever and operated thereby, and the member for the rear sash comprising a curved-faced locking lug for engagement by the hook, and an oblique sided bolt recess beneath said lug, the whole arranged substantially as and for the purpose specified.

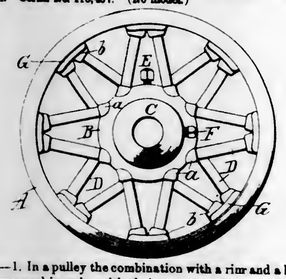
6. The housing for the rear sash having screw holes and a serrated interior surface, in combination with the locking plate having a correspondingly serrated surface, having also openings corresponding to the screw holes, said plate adapted to fit within the housing, substantially as specified.

492,800. TYPE-WRITING MACHINE. ELMER B. HILLS, Dixon, Ill. Filed Nov. 25, 1892. Serial No. 453,068. (No model.)



Claim.—In a typewriter, the combination of a movable type B, provided with an opening C, and a needle D, suitably seated on the frame of the machine in position to enter said opening at the limit of the out stroke of said type: substantially as shown, and for the purpose described.

492,801. PULLEY. PHILIP H. HOLMES, Gardiner, Me. Filed Dec. 29, 1891. Serial No. 416,437. (No model.)



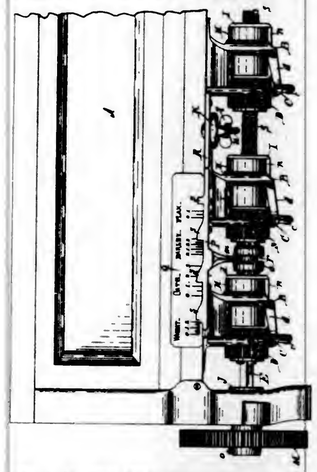
Claim.—1. In a pulley the combination with a rim and a hub ring, of spokes arranged in pairs with their outer ends resting in seats in the rim, the said spokes of each pair diverging inwardly and engaging the hub ring tangentially and on planes transverse to the axis of the hub as shown, and a hub removably secured within the ring, substantially as set forth.

2. In a pulley, the combination, with a rim and a hub, of two independent rings removably secured to the hub, and spokes resting at their outer ends in seats in the rim, and at their inner ends in seats in the rings, substantially as set forth.

3. The combination, with a compressed fiber rim, plates secured to the inner face thereof, a hub, and independent rings removably secured to the hub, of spokes resting at their outer ends in seats in the plates, and at their inner ends in seats in the rings, substantially as set forth.

4. The combination, with a compressed fiber rim and plates secured to the inner face thereof, each plate having two spoke seats therein, of a hub, independent rings removably secured to the hub, each ring having seats for the ends of spokes, and spokes secured at their ends in the seats in the plates and in the rings, substantially as set forth.

492,802. SEEDING-DRILL. WILL. F. HOTT, Dowagiac, Mich. Filed June 24, 1891. Serial No. 397,338. (Model.)



Claim.—1. In a force feeding mechanism, the combination of the two-part seed-cup, the revoluble disk, the fluted seed-wheel having the rectangular opening, the hollow cylinder equal in diameter to the diameter of the fluted seed-wheel through its peripheral ribs and having the reduced annular bearing fitting within one end of the fluted wheel, the collar having the rectangular opening and the annular flange fitting into one end of the cylinder and supporting the same, the square, rotative and longitudinally movable shaft passing through the cylinder, and through the rectangular opening in the seed-wheel and collar, whereby the two latter are fixed upon said shaft and adapted to revolve therewith, substantially as specified.

2. In combination with the seed-cup, the revoluble disk, the fluted seed-wheel, having the rectangular opening, the hollow non-rotative cylinder equal in diameter to the diameter of the fluted wheel through its peripheral ribs, and having the reduced annular end fitting within the seed-wheel and the longitudinal rib on the enlarged periphery thereof, the collar having the rectangular opening and annular flange *h* that enters the bore of the cylinder and is journaled therein, the square, longitudinally movable and rotative shaft passing through said parts, and means for fixing said seed-wheel, cylinder and collar together on said shaft, so that said wheel and collar will revolve therewith and all of said parts travel in unison with the shaft as it is moved endwise, substantially as set forth.

3. In a seeding machine, the combination of a pair of seed-cups, the shaft passing through said cups and adapted to slide longitudinally, the cylinder, and seed-wheel journaled thereon, mounted on said shaft within each of said cups, the coiled spring encircling said shaft, one end of said spring bearing against the seed-wheel of one cup and the opposite end against the cylinder of the adjacent cup, whereby the seeding mechanism in said cups is held in yielding contact, and maintained the proper distance apart upon said shaft.

4. In a grain drill, the combination of the hopper frame having the journal bearing L, the annular sleeve extending through said bearing and adapted to revolve therein, said sleeve having a rectangular opening therethrough and an annular flange on its inner end that bears against the inner vertical face of said bearing, the gear-wheel fixed on the outer end of said sleeve, the hub of which bears against the outer vertical face of said bearing, whereby said sleeve is held from longitudinal play, the square revoluble shaft entering the rectangular opening in said sleeve and adapted to have longitudinal movement therein.

492,808. PACKING-VESSEL. HENRY C. HUNTER, Alameda, Cal. Filed Sept. 8, 1891. Serial No. 405,079. (No model.)



Claim.—In combination with the top of a packing can or other vessel, a tongue struck up from the metal of the top in combination with a cap having a flange adapted to pass under the tongue and to cover the hole formed in the top underneath the tongue, all substantially as described.

492,804. METHOD OF PACKING. HENRY C. HUNTER, Alameda, Cal. Filed Sept. 8, 1891. Serial No. 405,080. (No model.)



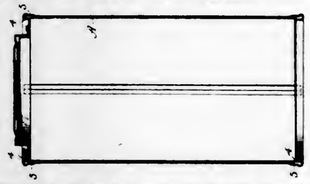
Claim.—The hereinbefore described method of putting up goods in packages, the same consisting in first making the labeled flat body blank, second in forming it into a body and connecting the edges, third in attaching the bottom, fourth, in filling the package, and finally attaching a head.

492,805. SIDE-SEAMING STRIP FOR CANS. HENRY C. HUNTER, Alameda, Cal. Filed Sept. 27, 1892. Serial No. 447,002. (No model.)



Claim.—A side seaming strip of sheet metal, for uniting the edges of can body blanks, the same consisting of a hollow bead like head, a web *b*, formed by the sheet metal sides brought together on the line of the web, and the flanges *c*, *c*, substantially at right angles to the web, as set forth.

492,806. PACKING-VESSEL. HENRY C. HUNTER, Alameda, Cal. Filed Jan. 17, 1893. Serial No. 458,705. (No model.)



Claim.—1. A packing can, consisting of a body composed of a sheet of paper board or fibrous material having a side seam formed by a metallic strip clamping the abutting edges of said body, and metallic heads permanently fixed to the said body, substantially as described.

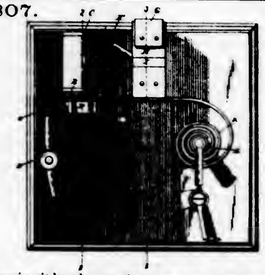
2. A packing can, consisting of a body of paper board, or like fibrous material, having a labeled finishing surface and permanently attached metallic ends, the flanges of which overlap the said finished label surface, substantially as and for the purpose explained.

3. A packing can, consisting of a body of paper board or like fibrous or vegetable material, a side seaming strip which clamps and unites the edges of the body, and extends the entire length, and permanently attached ends, engaging with the side seaming strip, substantially as described.

492,807. AUTOMATIC CIRCUIT-BREAKER. DELOS IRISH and JOHN G. WILLIAMS, Salt Lake City, Utah; said Williams assignor to said Irish. Filed Sept. 14, 1892. Serial No. 445,904. (No model.)

Claim.—1. In a circuit-breaker, the combination of an electro magnet arranged in the working circuit, a weighted drop armature arranged at one end of the magnet, a stationary contact arranged in the magnet circuit, and a movable spring supported contact adapted to be held normally out of contact with the stationary contact and controlled by said drop armature, substantially as set forth.

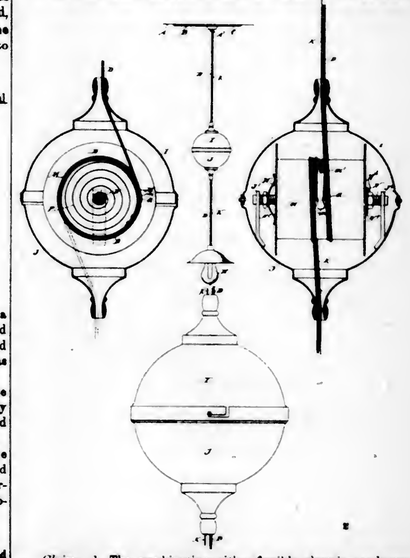
492,807.



2. In a circuit breaker, an electro magnet, a weighted drop armature arranged at one end of the magnet, a stationary contact block, and a movable spring supported contact block adapted to be held in engagement with the stationary block by said drop armature, substantially as set forth.

3. In a circuit breaker, the combination of the base board, the electro magnet adjustably secured to said base board and arranged in the working circuit, a weighted drop armature pivoted at one end to said base board adjacent to one end of the magnet, a stationary bracket arm adjustably secured to the base board adjacent to the magnet, the stationary concaved contact carbon secured to the outer end of the bracket arm, a spring post secured to the base board, a coiled spring secured to the outer end of said post and provided with a spring arm terminating in an insulated end adapted to be engaged by said drop armature, a concaved contact carbon secured to said spring arm, a stop pin arranged adjacent to the spring arm to limit the same, and wires leading from the magnet to the stationary bracket arm and from the coiled spring to the line of use, substantially as set forth.

492,808. ADJUSTABLE LAMP-HANGER. NICHOLAS JENKINS, Waterbury, Conn. Filed Apr. 19, 1890. Serial No. 348,749. (No model.)

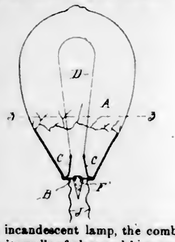


Claim.—1. The combination with a flexible electric conductor, and a tension cord of somewhat less length than said conductor or so as to take the tension therefrom, of a spring actuated windlass provided with holding means for said conductor and said tension cord, said means comprising a spring catch adapted to clamp the said conductor and thus to restrain its shifting and the consequent tendency to alter the relative lengths of the conductor and cord on one side of said windlass, which alteration might subject said conductor to tension, substantially as described.

2. The combination with the windlass, case, cord, and suspended device, of a constantly operating spring brake tending to restrain the windlass against movement in either direction, and a spring for actuating the windlass of a force greater than can be resisted by said spring brake, so that on relieving the windlass of the weight of said suspended device the spring will rotate the windlass against the resistance of said brake, which will afterward co-operate with said spring to uphold the said suspended device, substantially as described.

3. The combination with the two part case, of the standards fastened to one of said parts, the arbor with squared ends engaging corresponding openings in said standards, the nuts on said arbor, the windlass loose on said arbor, and the brake spring interposed between one of said nuts and the end of said windlass, substantially as described.

492,809. INCANDESCENT LAMP. JOHN VON DER KAMMER, Chicago, Ill. Filed Jan. 23, 1893. Serial No. 459,444. (No model.)



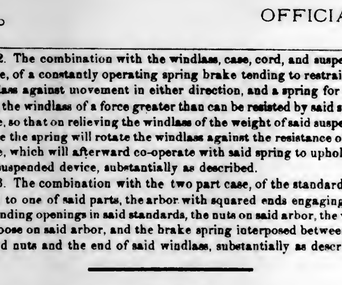
Claim.—1. In an incandescent lamp, the combination of a receiver or globe having its walls of glass and base composed partly of glass and partly of metal, with an exhaust and charging tube passing through such metal base and opening into the receiver.

2. In an incandescent lamp, the combination of a filament and conductors with a receiver or bulb, whose walls are composed in part of glass and part of metal, the glass portions fused upon the metal substantially at right angle thereto and upon the outer surface only of the metal part.

3. In an incandescent lamp the combination of a substantially flat metallic base composed of two portions in the same plane connected by a bridge of glass or the like to form a flat continuous base with a glass portion rising from about the edge of said base fused upon the edge and outer surface only of such base and forming therewith a receiver or globe, with a filament supported upon such metallic base and conductors leading to or through such metallic base.

4. In an incandescent lamp, the combination of a receiver made partly of glass and partly of sheets of metal, said sheets at the base of the lamp, a carbon filament within the receiver, conductors leading the current to the sheets in the base of the lamp and upwardly bent portions of the metal sheets to each of which one end of the filament is secured.

492,810. SHEARS AND SCISSORS SHARPENER. ALEXANDER KING, Painesville, and FRANK F. KING, Cleveland, Ohio. Filed June 30, 1892. Serial No. 438,541. (No model.)



Claim.—1. The combination with a block grooved or recessed on one face to receive a file, of a blade holder spanning the groove or recess, said holder comprising a rigid member and a spring adapted to hold the blade to be sharpened against the rigid member when drawn through it, substantially as set forth.

2. The combination with a block, A, recessed at the top, *a*, with the recess extending lengthwise of the block and open at the ends, and adapted to receive a file, of a blade-holder secured to the aforesaid block and comprising a rigid member, B', and a spring, as at B², integral with said rigid member and adapted to hold the blade to be sharpened against said rigid member of the blade-holder, substantially as set forth.

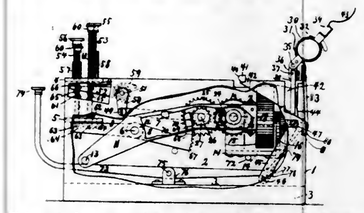
492,811. WIRE-CONNECTOR. WILLIAM S. KIMBERR, Bellevue, Ky. Filed Sept. 9, 1892. Serial No. 445,416. (No model.)



Claim.—1. The combination, in a coupling for wires &c., of a tube having converging ends, and a set of bodily-detachable keys whose outer edges are tapered and their inner edges provided with teeth, for the purpose described.

2. The combination, in a coupling for wires &c., of the tube A, screw threaded at *a*, the sleeve B, screw threaded at *b* and having a bore C communicating with the flaring socket E, and the bodily-detachable keys F, F', whose outer edges taper at *f*. *f*. and their inner have teeth *f'*. *f'*. for the purpose described.

492,812. TYPE-WRITING MACHINE. NATHAN H. LAMB, Verdon, S. D. Filed July 12, 1892. Serial No. 439,832. (No model.)

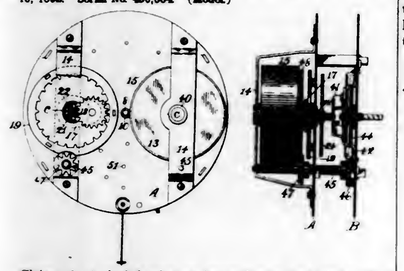


Claim.—1. In a type writer and mounted in a suitable frame, the combination of the type wheel 18, having raised letters, numerals and characters arranged upon it, with the tilting frame 11—14, carrying the type wheel journaled in or upon its rear portion where it can reach the paper to be printed on, and having horizontal bars as 7, and 13, for key operated levers as 8, to act against in tilting the frame so as to throw the type wheel against the paper, and also to press down upon the spacing lever 73,; said spacing lever being pivoted near its middle and having its front end provided with a key as 74, for extra spacing and its rear end pivotally connected with a spacing mechanism for moving the paper sidewise, either by the operation of the spacing key 74, or by the regular writing keys 60; means for holding the paper in position to the wheel and means for turning and returning the type-wheel 18, substantially as shown and described and for the purpose specified.

2. In a typewriter, the combination of the typewheel 18, having one circular row or line of capital letters near or at the center of its face and upon one side of the line of capital letters one line of small letters and at the other side a line containing numerals and characters used in printing or writing; the tilting frame 11, 14, brackets 15, 16, shaft 17, retraction spring 28, miter gears 19, 20, shaft 21, gear wheels 24, 25, long pinion 27, segmental shaped toothed levers 8, keys 60, pivoted to said levers 8, the springs 65, the guiding and stopping strips 4, and 5, the tilting frame 11, 14, the shaft 6, on which said tilting frame is fulcrumed, the cross bar 7, and 13, the key 74, levers 73, bracket 76, pivot 75, rod 79, bell crank lever 80, rod 83, and spacing dog 88, operated thereby, with the keys 55, 56, lever 52, spring 59, rock shaft 51, cranks or arms 50, rods 48, swinging arms 45, the guide board or strip 38, secured thereto, guide blocks 36, guiding in a groove as 37, and extending partly down at the back of the strip 38, so as to carry a rack as 89, for the spacing dog 88, to engage with and move the blocks 36, the shaft 35, rigidly secured in said blocks 36, the swinging frame 33, 34, pivotally secured at the ends of shaft 35, the brackets 42, carried by the guide 38, the bar 41, carried by said brackets, the hook 39, for engaging with said bar 41, the handle 43, for manipulating said hook and frame 33, 34, the roller 30, and means for holding the paper in positiou upon said roller. Substantially as shown and described and for the purpose set forth.

3. In a typewriter, the combination with the typewheel 18, brackets 15, 16, shaft 17, retraction spring 28, miter or bevel gears 19, 20, shaft 21, gear wheels 24, 25, shaft 26, and long pinion 27, with the levers 8, having segmental shaped ends provided with larger and smaller numbers of teeth according to the predetermined part of a revolution each lever is to give to the pinion 27, when the operator swings each lever into gear with the pinion, for turning the desired letter of the typewheel into position for printing on the paper and means for operating said levers 8, substantially as and for the purpose set forth.

492,813. CLOCK. ALBERON M. LAMB, Meriden, Conn. Filed June 15, 1892. Serial No. 436,584. (Model.)



Claim.—1. A clock having an internal rack and planet wheel and the pointer carrying center shaft mounted eccentrically to said rack, substantially as described and for the purpose specified.

2. The combination with an internal rack and planet wheel with the shaft 21 concentric with said rack, the pinion 22 driven by said planet wheel and made fast on said shaft 21, the wheel 24 also made fast on said shaft 21 and the rest of the train driven by said wheel 24, substantially as described and for the purpose specified.

3. The combination of a main spring, the spring hub having the inner end of said main spring secured thereto, the planet wheel also carried by said hub, the internal rack, the pinion 22 concentric with said rack, the main spring barrel mounted to rotate on said hub and having the outer end of said spring secured to it, and means for turning said spring barrel to wind up the spring, whereby the power transmitted through said planet wheel is not withdrawn during the winding operation as specified.

4. The combination of the main spring hub having a hollow tenon at one end for its pivotal bearing, a spring barrel fitted to rotate on said hub and having a hollow hub for the pivotal bearing of one side of said barrel and that end of said main spring hub which is opposite said hollow tenon, an internal rack, a planet wheel mounted on said hub, a main shaft journaled in the hollow tenon of said hub, a pinion on said shaft engaging said planet wheel and the remainder of a train driven by said main shaft, substantially as described and for the purpose specified.

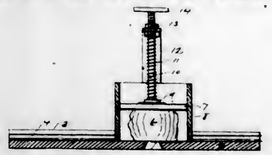
5. A clock having an internal rack and planet wheel with their driving mechanism, a driven train on the front side of said wheel leading therefrom to the last wheel of said train and the pawl and ratchet of its winding devices on the opposite or back side of said planet wheel substantially as described and for the purpose specified.

6. A clock having an internal rack, planet wheel, main spring arbor and main spring at the rear, a winding arbor at the front separate from said main spring arbor and connecting devices between said winding and main spring arbors, substantially as described and for the purpose specified.

7. A clock having an internal rack, planet wheel, main spring and winding wheel at the rear; a winding arbor and wheel mounted in the front plate and a pinion shaft and pinions connecting said front and rear winding wheels, substantially as described and for the purpose specified.

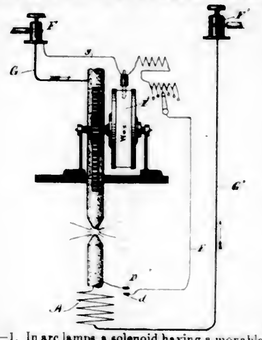
8. A clock having the attachable and detachable bridge 14 secured to the rear of its rear movement plate, the main spring hub, planet wheel, and main spring mounted between said bridge and plate, the pinion 22 with one end of its shaft mounted in said hub and the remainder of the train mounted in front of said rear plate, substantially as described and for the purpose specified.

492,814. CABBAGE-CUTTER. ELIZABETH S. LAUGHLIN, Pittsburg, Pa. Filed Mar. 21, 1892. Serial No. 425,816. (No model.)



Claim.—In a cabbage cutter, the combination with the cutting-board 1, provided with the hinged portion 5, having the cutting blade 2, and the upwardly extending sides 3, provided with the longitudinal grooves 4, in the inner opposing faces thereof, of the sliding-box 8, having the bearing 19, the bent bar 12, hinged to the bearing 19, the pressure block 7, the central shaft 10, seated in the bent-bar 12, and encircled by a spiral spring between the pressure block and the bent bar, the stop-nut 13 on a threaded portion of the shaft 10, between the handle portion 14, and the bent bar 12, and the hook-rod 15 connecting the pressure-block 7, with the bent bar 12, substantially as specified.

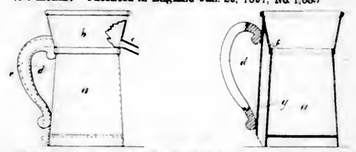
492,815. ELECTRIC-ARC LAMP. CARL K. MACFADDEN, Chicago, Ill. Filed Aug. 12, 1892. Serial No. 442,888. (No model.)



Claim.—1. In arc lamps, a solenoid having a movable core in line with and concentric with the lower carbon, and a dash pot whose piston is attached directly to the movable core of the solenoid, and concentric with the carbon and core, substantially as described.

2. In arc lamps, the combination of an arc drawing magnet, and a shunt circuit around the arc adapted to be opened and closed by the movement of the core of the arc drawing magnet simultaneously and correspondingly to the opening and closing of the arc, substantially as described.

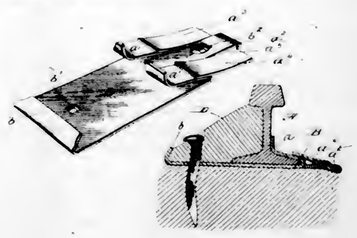
492,816. MUG FOR MEASURING BEER. DONALD A. S. MACKINTOSH, Glasgow, Scotland. Filed Aug. 29, 1891. Serial No. 404,164. (No model.) Patented in England Jan. 29, 1891, No. 1,635.



Claim.—1. A vessel for liquids and an over flow tube therefor on the outside of the vessel extending to the bottom thereof and having its end formed inclined, substantially as described.

2. A vessel for liquids, consisting of a vessel proper, a handle and an over flow tube extending through the handle, substantially as described.

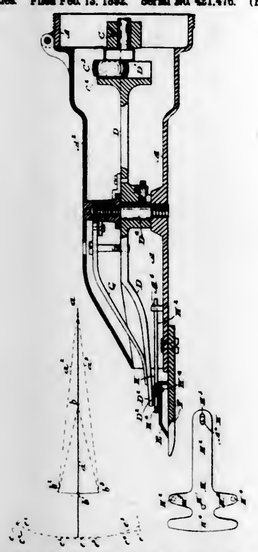
492,817. BRACE AND TIE-PLATE FOR RAILWAY-RAILS. CHARLES B. MACNEAL, Philadelphia, Pa. Filed Dec. 6, 1892. Serial No. 454,235. (No model.)



Claims.—1. The combination in a tie plate and brace for railway rails, of the tie plate made from a single piece of sheet metal, having two bent up portions, adapted to bear against the flange of a rail, and a central longer portion of T shaped form, the outer portion thereof adapted to be folded underneath the inner portion, arms of the T shaped portion adapted to bear upon the bent up portions, a bent up lip at the other end of the plate, a brace piece, situated between the lip and the rail, and spike holes in the brace piece and plate for securing the same in position, substantially as described and set forth.

2. The combination in a tie plate and brace for railway rails, of a tie plate consisting of a single piece of sheet metal having two parts of its inner portion bent up to fit over the flange of a rail and a central part intervening the two parts having its end T shaped adapted to be bent down and folded back upon itself and furnished with a spike hole to secure it to the tie, the cross section of the T adjusted to bear upon the two bent up portions, a bent up lip at the outer end of the plate, a brace piece situated between the lip and the rail, and spike holes in the brace piece and plate for securing the same in position, substantially as described and set forth.

492,818. ANIMAL-SHEARS. ALFRED MELCHIOR, Sydney, New South Wales. Filed Feb. 13, 1892. Serial No. 421,476. (No model.)



Claim.—1. In a shearing device, the combination of the main comb oscillating main lever, the cutter pivotally connected therewith, and carried thereby to turn in relation to the main comb and the controlling connection for oscillating the cutter on its pivotal connection in addition to the oscillation of the main lever, as the main lever oscillates, substantially as described.

2. In a shearing device, the combination of the vibrating main lever, the cutter, the supplemental lever H attached thereto and forming a tail piece of said cutter, the loose pivotal connection for the said supplemental lever at its rear end, and the pivotal connection between the lever H and the main lever, substantially as described.

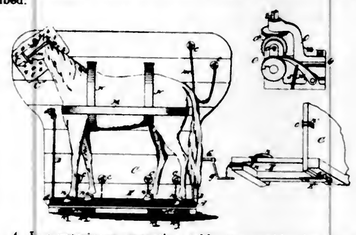
3. In combination in a shearing device, the cutter, the lever H rigidly secured thereto and having a cross head H^3 extending forward over the teeth of the cutter to press thereon and the pintles H^4 connecting it with the cutter, the loose pivotal connections at the rear of the lever comprising the pins A^2 and the pivot D^2 between the forward part of said lever and the main lever, substantially as described.

492,819. VETERINARY OPERATING-TABLE. JOHN C. MILLER, Cedar Rapids, Iowa. Filed Apr. 18, 1892. Serial No. 429,518. (No model.)

Claim.—1. In a veterinary operating table, the combination of a tilting table and a platform substantially at right angles thereto removably attached at one side, for the purpose set forth.

2. The combination of a tilting table, a platform removably attached to it at one side, and means substantially as described for fastening the animal to said table and platform.

3. The combination of the tilting table C, having holes c c therein and provided with stirrups *e*, and the platform E having hook-plates E′, and hook-rods and connections D D *d d* holes in the bottom and sides for fastening-chains and chain-holders *n*″, substantially as described.



4. In a veterinary operating table, the combination of a table having a slot therein for the passage of a girth, a girth secured by one end to the said table, the body thereof passing through said slot, and having holes in the free end to engage with the studs of the windlass, and the herein described girth-reel, consisting essentially in a windlass having buttons or studs thereon, a ratchet and pawl to hold the takeup of the windlass, gearing connected with the windlass and a crank connection therewith.

5. In a veterinary operating table, the combination of a supporting frame having pivot-bearings on opposite sides thereof, a table having pivot-holes coinciding with said bearings, and a removable pivot, whereby the table may be pivoted on one side or the other of said frame.

6. In a veterinary operating table, the combination of a supporting frame having pivot-bearings on opposite sides thereof, a table having bearings coinciding with those of the frame, and separable with respect thereto, and means substantially as described connecting with the middle of said table, whereby it may be tilted in either direction.

7. In a veterinary operating table, the combination of a supporting frame, a table pivoted thereto by separable joints at both sides of the frame, a screw F pivotally connected therewith, a geared nut I mounted in a pivoted yoke H, a pinion J meshing therewith, and a crank-shaft G *g*, substantially as and for the purpose set forth.

8. The combination of the supporting frame A, pivot-ring A′ secured thereto, turn table B having pivot-ring B′ secured thereto, and revoluble on the ring A′, an operating table pivotally connected with the turn-table, and a tilting device for the same, mounted central to the rings, substantially as described.

492,820. GLASS-TANK FURNACE. WILLIAM F. MODERS, Streator, Ill. Filed May 26, 1892. Serial No. 434,412. (No model.)



Claim.—1. In a glass tank furnace, the combination with the tank side walls, and supplemental supporting wall parallel to and distantly placed therefrom, of tiles spanning the tops of said walls, skew back blocks supported on the tiles forming port openings, and from which blocks the roof is sprung, a roof, and inclined port blocks on the tiles in the port openings for directing the products of combustion into the tank chamber, substantially as and for the purposes described.

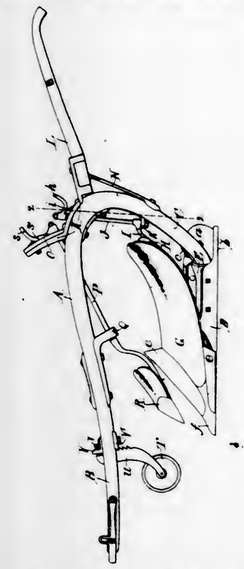
2. In a glass tank furnace, the combination with tank side walls and supplemental supporting walls parallel thereto and distantly placed therefrom of regenerator walls in juxtaposition to said supplemental supporting walls forming flues, therebetween tiles spanning the tank side walls and supplemental supporting walls, skew back blocks forming port openings over the tank side walls and regenerative furnaces near the upper end of the regenerator walls substantially as described.

3. In a glass tank furnace, the combination with the tank side walls, of skew back blocks forming tapering ports, port blocks formed with opposite downwardly inclined faces forming the bottom of the port, and gas and air flues leading thereto, whereby the air is directed downwardly into the tank chamber, and the gas striking the advance inclined face of the port block is directed upwardly where it meets the air, thereby causing combustion to take place before it reaches the tank chamber, substantially as described.

4. In a glass tank furnace, the combination with a tank side wall, of a supplemental supporting wall, parallel to and distinctly-placed therefrom a regenerative furnace, the wall of which forms a gas flue therebetween and the supplemental supporting wall, tiles spanning the tank side walls and the supplemental supporting wall, skew back blocks on said tiles forming tapering ports, and port blocks inclined from about their middle downwardly in opposite directions, whereby the air from the regenerative furnace is deflected downwardly by the skew back blocks, and the gas deflected upwardly by coming in contact with the advance face of the port blocks, substantially as described.

5. In a glass tank furnace, the combination with the tank side walls, of skew back blocks supported thereon and forming induction ports with downwardly inclined roofs, an inport block in the bottom of said port formed with an apex and downwardly inclined faces extending from said apex, a deflector wall projecting into the port, the under surface of which is inclined upwardly to conform to the inclination of one of the faces of the inport block, and individual air and gas flues leading to said port, substantially as described.

492,821. REVERSIBLE PLOW. MARTIN MYERS, Mundy, Mich. Filed June 6, 1892. Serial No. 435,628. (No model.)



Claim.—1. In a plow, the combination of the beam, the hanger depending therefrom, the jointer shaft fulcrumed in said hanger and carrying the duplex jointer on the lower end thereof, the circularly adjustable plate mounted on the beam and having the upper end of the jointer shaft journaled therein, whereby said plate may be adjusted in the arc of a circle to raise or lower the jointer to regulate the depth of furrow, the shifting lever attached to the upper end of said shaft, and adapted to engage a lug on the adjustable plate to lock said lever when shifted, substantially as specified.

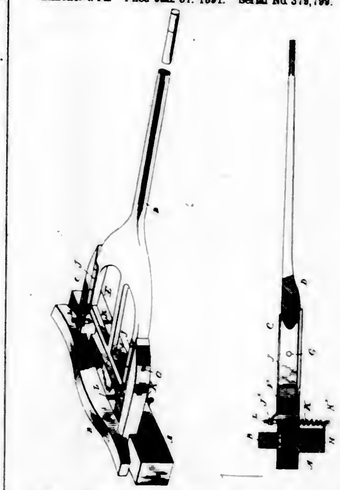
2. In a plow, the combination of the beam and standard, the horizontal journal on the lower end of said standard, the saddle having the right angled landsides formed on the base thereof and carrying on its forward end the plow point, shares and mold board, the two part journal-box secured to said saddle for the reception of the journal on the standard, the lug projecting from the standard that is engaged by the over-hanging flange on the upper half of the journal box whereby the journal is held from disengagement therewith.

3. In a plow, the combination of the duplex beam and standard, the V-shaped saddle having the duplex landsides formed thereon and carrying the duplex point, share and mold-board, said saddle journaled on the standard, the vertical shaft journaled in the beam and carrying a swinging arm that engages with the mold-board, and means for swinging said arm to shift the plow, substantially as specified.

4. The combination of the beam and standard, the saddle carrying the point, share and mold-board, the latter having a way in the under face thereof, said saddle journaled on the standard, the vertical shaft carrying the operating lever at its upper end and having a swinging arm at its lower end that engages in the way in the mold-board, substantially as specified.

5. In a plow, the combination of the divided beam and standard, the duplex point, share and mold-board journaled on said standard, the plate K mounted on the beam the handles attached to said plate, the jointer and its shaft, said shaft passing between the sides of said beam and having its upper end journaled in said plate, the vertical shaft also passing between the sides of the beam and journaled in said plate, said shaft carrying a swinging arm having engagement with the mold-board: and means for actuating said shaft, substantially as specified.

492,822. TONGUE-SUPPORT FOR VEHICLES. JOHNSON MCGLINN, Emlenton, Pa. Filed Jan. 31, 1891. Serial No. 379,799. (No model.)



Claim.—In a device of the character set forth, the combination of a tongue formed with reach bars at the rear portion thereof at the outer and central portions of the same, whose rear ends are connected by a cross bar, an axle beam having hounds projecting therefrom, the outer reach bars of the tongue being pivotally attached to said hounds, plates secured to the under side of the axle beam projecting forward and formed with eyes, elongated plates or bars attached to the upper portions of the outer reach bars and having rear upturned ends with openings therein, adjusting bolts or screws mounted in said rear upturned ends of the plates, bars secured to the reach bars, and springs attached to the lower portion of said adjusting bolts or screws and to the eyes of the plates projecting forward from the axle beam, the said springs being located in line with the ends of each of the outer reach bars of the tongue and of single spiral form, substantially as described.

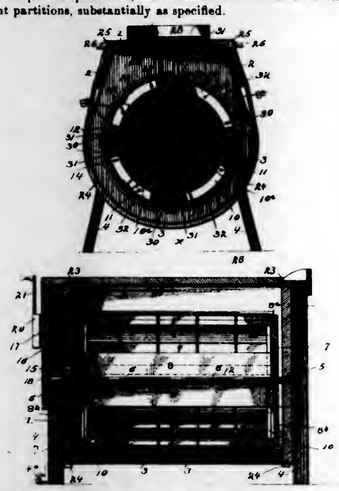
492,823. WASHING-MACHINE. WILLIAM H. MCILVOSS, Culbertson, Nebr. Filed Apr. 15, 1891. Serial No. 389,064. (No model.)

Claim.—1. In a washing machine, the combination with the suds box, of a rotatable internal cylinder, consisting of a rotatable shaft, having opposite heads, radial perforated partitions connecting the heads, frames pivoted between the partitions and means for locking each frame against one of said partitions, and mechanism for rotating the cylinder, substantially as specified.

2. The combination with the suds box, of the rotatable shaft journaled therein, and terminating beyond the box in a gear, heads mounted on the shaft within the box and radiating partitions connecting the same at intervals, frames pivoted between each pair of radiating partitions, and like the partitions being perforated, curved latches pivoted at one side of each frame, a bar connecting the outer ends of the latches and serving to weight the same, pins moving in

slots in the opposite ends of the latches, and serving to limit the movement of the latches, a shaft located above the cylinder a pinion on the same for engaging the gear of the cylinder, and a crank for operating said shaft, substantially as specified.

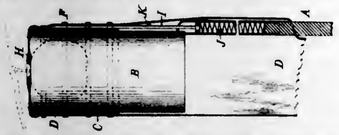
3. In a washing machine, the combination with a suds box, of a rotatable cylinder having permanent radial partitions and intermediate radial pivoted partitions, and means to lock the latter to the permanent partitions, substantially as specified.



4. The combination with the suds box, of the opposite heads and their shaft, the series of fixed partitions connecting the heads, and the series of pivoted partitions arranged between the fixed partitions and having perforations and a series of hooks secured to the heads between the partitions and adapted to engage the perforations of the pivoted partitions, substantially as specified.

5. The combination with the suds box, and the inner cylinder comprising opposite cylindrical heads notched at intervals, of the series of frames for connecting the heads, consisting of opposite cross bars and curved resilient connecting wires, adapted to be straightened to engage the cross bars with the notches, substantially as specified.

492,824. FRUIT-GATHERER. AARON R. MCLEAN, Rochester, N. Y., assignor to Charles L. Yates, same place. Filed Aug. 17, 1892. Serial No. 443,307. (No model.)



Claim.—1. The herein-described fruit-gatherer, comprising a handle carrying a suitable support, a tube arranged to slide on said support, and having attached to its outer surface a flexible tube having a distensible mouth, substantially as described.

2. The combination, with the handle A, of the supporting tube B, the sliding tube C, and the flexible tube D, having a distensible mouth surrounded by the elastic ring H, substantially as described.

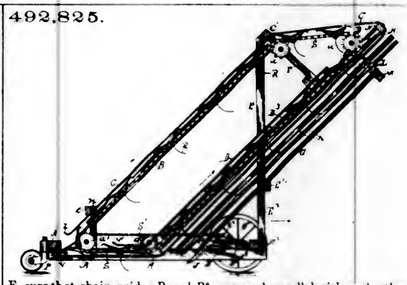
3. The combination, of the handle A and supporting tube B, of the sliding tube C, rod 1 and spring J, and the flexible tube D, having a distensible mouth surrounded by the elastic ring H, substantially as described.

4. The combination, with the supporting ring B, of the sliding tube C, the flexible tube D, having a distensible mouth surrounded by the elastic ring H, and attached to the tube C by the elastic bands F, substantially as described.

492,825. HAY RAKE AND LOADER. HORACE MCPHERSON, Creta, Ill. Filed July 16, 1892. Serial No. 440,277. (No model.)

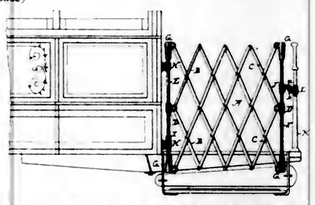
Claim.—In a hay rake and loader the combination of the bed frame A. A'. A^3., posts E^2. F. and n cross beams e E'. e', and N., braces

492,825.



E, sprocket chain guides B and B^3 arranged parallel with each other and in an oblique position, sprocket chains S for traveling in said guides, rakes comprising the parts R R' R^3 R^4 journaled at either end on inwardly projecting studs of said chains, guard bar C arranged to engage the cross arms R^3 of the rakes in their downward passage, guard bar D arranged to engage said cross arms in their upward passage, sprocket wheels a, a', and a^3, for carrying said endless chains and their rakes, sprocket wheels a^5 respectively connected with the sprocket wheels a' by a shaft journaled in a box between said wheels, guide bars H for preventing material from passing up between the rakes, side bars K, bed bars G for conducting material upward to the discharge end of the machine, stirrup or arm V for engaging the rear ends of cross arms R^4 of the rakes and conducting the opposite ends of said arms under guard bar D, axle shaft B^3 having the traveling wheels O journaled thereon and having gear wheel S^5 secured thereon, shaft B' having gear wheel S^6 secured thereon and geared with wheel S^5, and having sprocket wheel c^3 secured thereon, sprocket chains S' and S^3 for connecting sprocket wheels c^4 with sprocket wheels a^5, and the caster wheel P for supporting the rear end of the machine all arranged to operate substantially as and for the purpose set forth.

492,826. CAR-GATE. GEORGE W. NAYLOR and NICHOLAS W. FOLEY, Jersey City, N. J. Filed Nov. 21, 1892. Serial No. 452,658. (No model.)



Claim.—1. The lazy-tong gate having at its ends the converging levers B, B, and C, C, combined with the rods E, F, secured to the said converging levers, and the caps G connected with the longer levers of the gate and adapted to slide on the said rods; substantially as set forth.

2. The lazy-tong gate combined with the end rods E, F, the gate being pivotally secured at its horizontal center to said rods, and at its corners provided with connections adapting the upper and lower edges of the gate to reciprocate while the gate is sustained at its horizontal center; substantially as and for the purposes set forth.

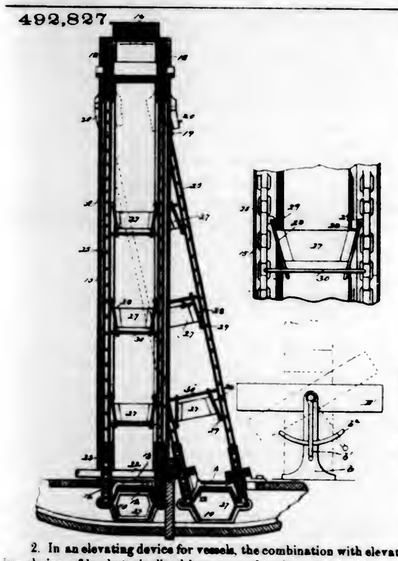
3. The gate having at its end the sleeve J and the lug a on said sleeve, combined with the lug b having the socket d to receive said lug a, the surfaces of said lugs being rounded, substantially as and for the purposes set forth.

4. The lazy-tong gate having at its ends the rods E, F, combined with the sleeves B securing the gate at opposite ends, the sleeves H receiving the rod E, and the sliding hollow caps G on the ends of the rods E, F, and connected with the levers at the corners of the gate substantially as and for the purposes set forth.

492,827. DEVICE FOR UNLOADING VESSELS. SIVERT B NILSEN, Duluth, Minn. Filed Jan. 30, 1890. Renewed Apr. 14, 1892. Serial No. 429,141. (No model.)

Claim.—1. In an elevating device for vessels, the combination with elevating chains, of buckets pivotally connected at their upper ends to said chains, and their lower ends having a limited free movement, and cross links for guiding the lower ends of said buckets, substantially as set forth.

492,827.

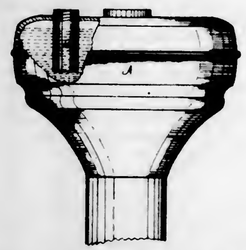


2. In an elevating device for vessels, the combination with elevating chains, of buckets, inclined bars secured to the ends of said buckets and pivotally connected at their upper ends to said chains, and their lower ends having a limited free movement and transverse to the chains substantially as set forth.

3. In an elevating device for vessels, the combination with elevating chains, of buckets provided with a bar attached to the outer face of each at each side, extending above and below the body of the bucket, a lug projected from the chain belts, in which lugs the upper ends of the said bars are pivoted, and a link connecting the opposed links of the chain belts beneath the bucket, said link being adapted to receive the lower ends of the bucket bars, substantially as shown and described, whereby the buckets may be carried downward in an inclined position, and right themselves when the belt is carried vertically downward from such inclined position, as and for the purpose specified.

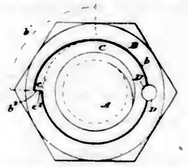
4. The combination with a vessel having a discharge chute, of a receiving trough having open ends and located in proximity to said chute, posts b between which said trough is pivotally mounted, a crank-handle centrally secured to said trough, and a curved bar attached to one of said posts and with which said crank handle has frictional contact, substantially as set forth.

492,828. LAMP-FILLER. LUCIAN R. OAKES, Bloomington, Ind. Filed Apr. 23, 1892. Serial No. 430,434. (No model.)



Claim.—The combination of the lamp bowl A. and the combined filling and sight tube B having its interior surface polished so as to reflect the material within said tube substantially as and for the purpose set forth.

492,829. MEANS FOR LOCKING NUTS ON BOLTS. THOMAS C. PALMER, Melbourne, Victoria. Filed Jan. 7, 1892. Serial No. 417,906. (No model.) Patented in Victoria Oct. 24, 1890, No. 3,300; in New South Wales Oct. 27, 1890, No. 2,570, and in New Zealand Nov. 7, 1890, No. 4,689.



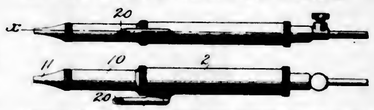
Claim.—1. A nut lock consisting of a threaded nut B and a divided ring C, a shouldered connection between the nut and ring, and an eccentric bearing between opposing faces of the parts to cause locking action on reverse movement, said shoulder being at the end of the eccentric portion, substantially as described.

2. A nut lock consisting of a ring C formed with a projection c' and a shoulder c^3, in combination with a screw threaded nut having a recess b to which the ring is fitted, said recess being cam shaped and terminating in a shoulder b^3, substantially as described.

3. A nut lock consisting of a ring C formed with a cam shaped projection on its outer edge, a nut bearing a cam shaped recess to receive the outer edge of the ring, recesses D in the ring and the wall of the recess in the nut adapted to align with each other to form a pocket for the insertion of a pin, to allow the unscrewing of both ring and nut, and the pin, substantially as described.

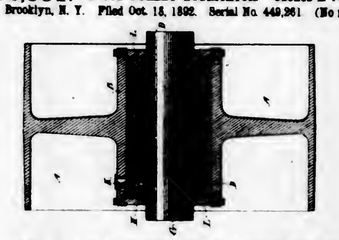
4. A nut lock consisting of a nut having a cam shaped recess and a split ring having overlapping ends, one of the ends having a cam shaped portion c' adapted to fit inside of the recess in the nut, substantially as described.

492,830. DENTAL PLUGGER. ARTHUR E. PECK, Minneapolis, Minn. Filed June 6, 1892. Serial No. 435,591. (No model.)



Claim.—The combination in a dental plugger, of the barrel, the hammer, means for operating the latter, the plugger device to be operated by said hammer and the laterally and longitudinally projecting pipe having the beveled end 20 said pipe arranged to be grasped between the thumb and finger of the hand, and the opening therein in position to be closed by the end of the forefinger, substantially as described.

492,831. LOOSE-PULLEY LUBRICATOR. GEORGE L. PERKINS, Brooklyn, N. Y. Filed Oct. 18, 1892. Serial No. 449,261. (No model.)



Claim.—1. A pulley bushing consisting of a spiral band surrounding a shaft, a cavity being formed between the band and shaft for the purpose described, the exterior surface of the spiral band forming a bearing surface for the pulley hub substantially as described.

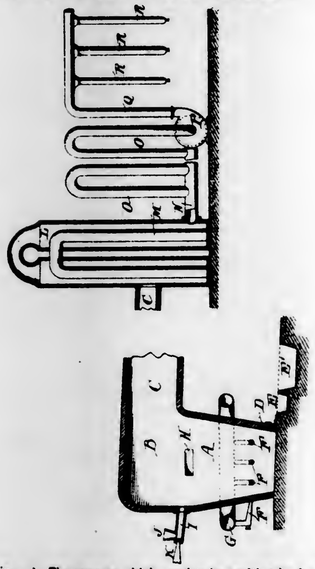
2. A loose pulley bushing consisting of a spiral band interposed between the pulley hub and the shaft and secured to the shaft, a cavity being formed between the spiral band and the shaft, the exterior surface of the said spiral band forming a bearing surface for the pulley, substantially as described.

3. The combination of the shaft G, hub B and skeleton-bushing D interposed between said shaft and hub and having its periphery formed of right and left hand thread grooves, said bushing being separated at its middle from the shaft G and carried by its ends on the shaft, all substantially as and for the purpose set forth.

4. A pulley bushing consisting of bands D D spirally wound from the center of the bushing to form right and left thread grooves, said bands being secured together by the longitudinal cross-pieces E E, the exterior surface of the bushing forming the bearing surface for the pulley, and the end pieces F F, all arranged substantially as and for the purpose described.

492,832. PROCESS OF MAKING SUBLIMATED LEAD PIGMENT.

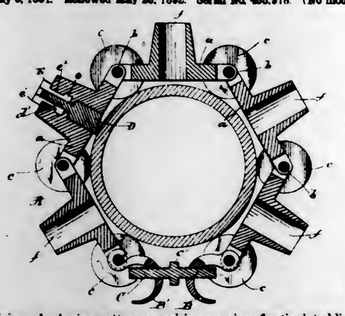
CARL V. PETRASCH, Joplin, Mo., assignor to Oliver H. Picher, same place. Filed June 13, 1892. Serial No. 436,473. (No specimens.)



Claim.—1. The process which consists in smelting lead ores and other lead bearing compounds in a low cupola furnace, injecting pulverized galena into the upper part of said furnace and screening the resultant fumes to form pigment.

2. The process which consists in smelting lead ores and other lead bearing compounds in a low cupola furnace, injecting pulverized galena in admixture with air into the upper part of said furnace and screening the resultant fumes to form pigment.

492,833. PIPE-CUTTER. JAMES PORTER, Greenfield, Mass. Filed May 6, 1891. Renewed May 23, 1892. Serial No. 433,978. (No model.)

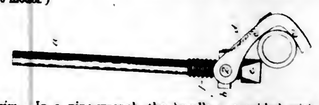


Claim.—1. A pipe cutter comprising a series of articulated links provided with sockets to receive a hand-piece and an adjustable cutter, the disks journaled on the pivots of said links, and means for connecting the end links together, substantially as described.

2. A pipe cutter comprising a series of articulated links, the pivots connecting said links, the outwardly projecting sockets, the adjustable cutter, the inverted C-shaped plate connected with one of the end links, the approximately S-shaped plate adapted to be connected with the pivot of the other end link, the right and left handed screw engaging with said plates, and the disks journaled on the pivots of said links, substantially as described.

3. A pipe cutter comprising a series of articulated links, the trucks journaled on the pivots of said links, the adjustable cutter passing through one of said links, and means for connecting the end links together and rotating the same, substantially as described.

492,834. PIPE-WRENCH. GEORGE W. PORTER, Parkersburg, W. Va. Filed Nov. 9, 1891. Renewed Jan. 17, 1893. Serial No. 458,737. (No model.)



Claim.—In a pipe-wrench, the handle *a* provided with screw-threads at its lower portion and formed with a square-faced head *c* at the end, an adjustable cross-piece *b* on the threaded portion of the handle having journals on its ends, a gripping jaw hung on said journals, said jaw having its arms parallel to each other and their outer portion bent down and connected by an integral bridge-piece, and a T-shaped spring having the stem secured to the cross-piece on the handle and the arms bearing on the arms of the pivoted-jaw, all arranged and combined to operate substantially as specified.

492,835. CLOTHES-FASTENER FOR WIRE CLOTHES-LINES. KENNIS F. RICE and JAMES P. DOSS, Eureka Springs, Ark. Filed Oct. 10, 1892. Serial No. 448,375. (No model.)



Claim.—1. A clothes holder for clothes lines formed from a single piece of wire bent into a central coil or eye adapted to engage the line, and arms bent back and crossing each other in the plane of the coil substantially as and for the purpose described.

2. A clothes holder formed from a single piece of wire having a central coil or eye, arms extending from the ends of the coil, bent back to cross each other along the coil and their free ends bent to form holding clamps substantially as and for the purpose set forth.

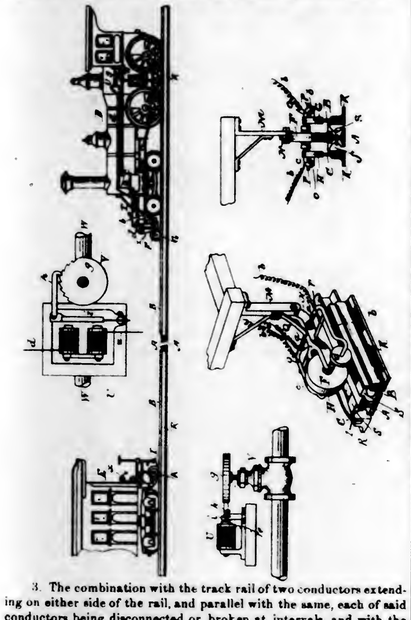
492,836. TREATMENT OF SOLE-LEATHER. FREDERICK RIEGERT, St. Joseph, Mo. Filed Jan. 15, 1892. Serial No. 418,188. (No specimens.)

Claim.—The process described of rendering sole and harness leather, pliable and water-proof, consisting first in subjecting the leather to a hot bath of bees wax, and essence or spirits of turpentine, benzine or the like, then removing the saturated leather from the bath and subjecting it to a pounding or pressing action so as to close the pores of the leather and render it more pliable and durable, substantially as specified.

492,837. APPARATUS FOR AUTOMATICALLY STOPPING RAILWAY-TRAINS. EDWARD W. ROBINSON, Boston, assignor of one-half to E. R. Welch, Cambridge, Mass. Filed July 13, 1891. Serial No. 399,290. (No model.)

Claim.—1. The combination with the two track rails, of two pairs of conductors, all of which are parallel with each other and with said rails, one pair of said conductors being adjacent to one rail, and the other pair of conductors being adjacent to the other rail, and each of said conductors being disconnected or broken at intervals, with the breaks of one conductor alternating with or between the breaks of the other conductors of the same pair, and with the distances between the breaks of the conductors of one pair greater than the distances between the breaks of the other pair, and none of said broken conductors being connected with each other or with either rail, nor having normally any electric connection with each other or either rail, all as and for the purposes set forth.

2. The improved means whereby an electric circuit may be completed from one locomotive or train to another on the same track, for operating mechanism on either locomotive or train, consisting of an electric generator and a set of traveling contacts attached to one locomotive or train, two contacts being connected with one pole of the generator, and the other contact connected with the other pole of the generator, a set of contacts attached to the other locomotive or train and connected together by a conductor, but having no connection with any electric generator on the same locomotive or train,—a continuous road conductor on which two corresponding contacts of the two trains are adapted to ride, and two broken road conductors, with the breaks of one alternating with the breaks of the other, on which the remaining contacts of the two trains are adapted to ride, all as set forth.



3. The combination with the track rail of two conductors extending on either side of the rail, and parallel with the same, each of said conductors being disconnected or broken at intervals, and with the breaks of one conductor alternating with the breaks of the other conductor, and said broken conductors having normally no electric connection with each other, and cross-pieces of conducting material extending between the rail and broken conductors without normally connecting the same, all as and for the purposes set forth.

4. In combination with a hanger suspended from the car or locomotive, of the arm N pivoted to said hanger, trolley F, yoke O extending through said arm and insulated from the same, trolleys G H, bar P secured to the arm N and extending under the yoke O, all as and for the purposes set forth.

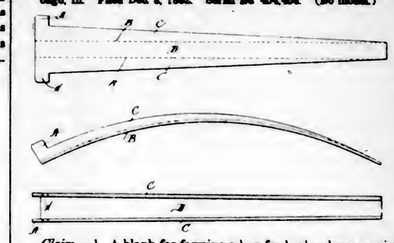
492,838. EARMARK. JAMES A. ROGERS, Glencoe, Nebr. Filed June 18, 1892. Serial No. 437,181. (No model.)



Claim.—1. In an ear-mark, the combination of a plate or disk adapted to lie flat against the ear, a perforated plate, secured to the center of the first plate and at right angles to it, and a rivet secured to the bottom of the first plate, said rivet adapted to secure the mark to the ear of an animal, substantially as and for the purpose described.

2. In an ear-mark, the combination of a hollow stem, a flange or plate upon the stem, a perforated plate at right angles to the flange or plate, and a washer perforated centrally, to receive the end of said stem, substantially as described.

492,839. KEY FOR BRAKE-SHOES. WILLIAM D. SARGENT, Chicago, Ill. Filed Dec. 8, 1892. Serial No. 454,456. (No model.)



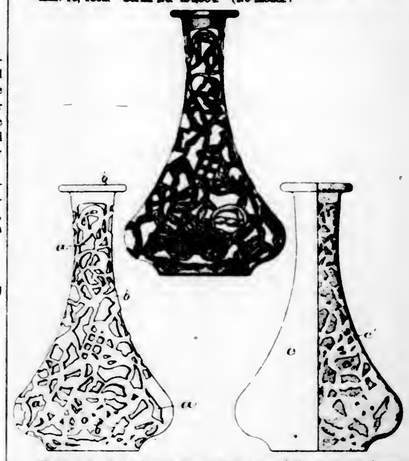
Claim.—1. A blank for forming a key for brake-shoes consisting of sheet metal tapering from end to end and provided at the wider end thereof with extensions to form the head of the key, said blank at its narrower end having a width substantially equal to the point of the finished key, substantially as described.

2. A key for brake-shoes composed of sheet metal bent to form a body portion with wedge shaped sides extending laterally from each side of the body portion, said sides being provided with extensions forming the head of the key, substantially as described.

3. A key for brake-shoes consisting of sheet metal bent laterally and longitudinally, the sides of the key tapering from the point to the head of the same and being provided with lateral extensions at the wider end thereof, forming a head for the finished key, substantially as described.

4. A key for brake-shoes consisting wholly of sheet metal bent and curved laterally and longitudinally having the tapering body portion D, the wedge shaped sides C, C, extending from the point to the head of the key, and the lateral extensions A, A forming the head of the key, substantially as described.

492,840. METHOD OF PRODUCING RAISED METALLIC DESIGNS ON BOTTLES, VASES, OR SIMILARLY-SHAPED ARTICLES AND MEANS THEREFOR. JOHN H. SCHARLING, Newark, N. J. Filed Mar. 10, 1892. Serial No. 424,384. (No model.)



Claim.—1. A flexible etching pattern, consisting of a continuous piece of rubber, or other analogous material, formed of a shape similar to the contour of a bottle, vase, or other similar article, having a design pierced in outline therein, said pattern being adapted to be stretched over a similarly shaped article, whereby the exposed surfaces of said article may be etched, substantially as and for the purposes set forth.

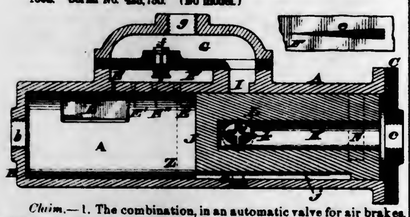
2. The method herein described, of producing designs on articles of ware such as a bottle, vase, or other similarly shaped article provided with an outer covering of metal, drawing over the same a flexible cover of rubber or other analogous material, consisting of a continuous piece, formed in shape similar to the contour of the bottle, vase, or other similarly shaped article, having a design pierced in outline therein, and removing or etching the metallic surfaces ex-

posed through the openings in the flexible covering, until the surface of the article underneath is exposed, and finally removing the said flexible covering, substantially as and for the purposes set forth.

3. The herein described process, for producing raised metal designs on articles of glass, or other ware, which consists as follows, to wit:—first, covering a bottle, vase, or other similarly shaped article, with a thin coating of metal by means of the electro plating process; second, painting a design thereon with a resist paint; third, etching the exposed parts of the metal surface; fourth, covering the article with rubber and vulcanizing the same upon its surface, and forming raised portions on the inner surfaces of the rubber covering thus formed; fifth, removing said vulcanized etching pattern from the article used as a former; and finally, reversing the rubber covering to bring its inner surfaces on the outside and cutting away the raised portions thereon, substantially as and for the purposes set forth.

4. The herein described process, for producing raised metal designs on articles of glass, or other ware, which consists as follows, to wit:—first, covering a bottle, vase, or other similarly shaped article with a thin coating of metal by means of the electro-plating process; second, painting a design thereon with a resist paint; third, etching the exposed parts of the metal surface; fourth, covering the article with rubber and vulcanizing the same upon its surface, and forming raised portions on the inner surfaces of the rubber covering thus formed; fifth, removing said vulcanized etching pattern from the article used as a former; sixth, reversing the rubber covering to bring its inner surfaces on the outside and cutting away the raised portions thereon, seventh, drawing said continuous rubber etching pattern upon another metal covered and similarly shaped bottle, vase, or other like article; eighth, removing or partially removing the exposed metallic surfaces by etching or sand-blast; and finally, removing the etching pattern, all substantially as and for the purposes set forth.

492,841. AUTOMATIC VALVE FOR AIR-BRAKES. JOHN D. P. SCHLEICH, Nashville, Tenn., assignor of one-half to George Mathews, Cincinnati, and William W. Peabody, Madisonville, Ohio. Filed Mar. 4, 1892. Serial No. 423,736. (No model.)



Claim.—1. The combination, in an automatic valve for air brakes, of the cylinder A, having an exhaust outlet *a*, auxiliary-reservoir connection *b*, train-pipe connection *c*, side passage D, port E, closed chamber F, into which said port leads, secondary check-valve *f*, serving the only outlet from said chamber, and a chest G into which said valve opens, said chest being provided with a brake-cylinder connection *g* and having a passage I that communicates with a groove N of a reciprocating piston J traversing said cylinder, said piston being provided with a longitudinal bore K, open at one end, but closed at its other end and having a branch passage *k* furnished with a main check-valve L, all as herein described.

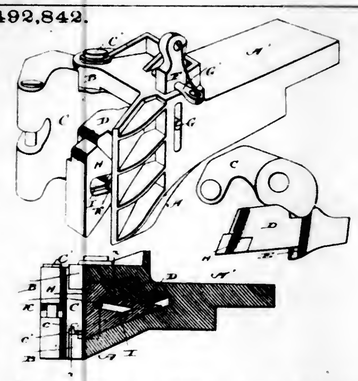
2. In an automatic valve for air brakes, a cylinder having a train-pipe connection at one end, an auxiliary-reservoir connection at its other end, and traversed by a reciprocating piston adapted to open communication between said connections, a port leading from said cylinder to a closed chamber, a check valve applied to this chamber and serving as its only outlet, and a chest within which said valve opens, the chest being provided with a brake-cylinder connection and a passage into the valve cylinder, for the purpose described.

492,842. CAR-COUPLING. HENRY SCHREYER, Toledo, Ohio. Filed Sept. 16, 1892. Serial No. 446,097. (No model.)

Claim.—1. In a car coupler, the combination of a drawhead, a movable jaw pivotally connected to the drawhead, a retaining block arranged in the drawhead and engaging with the rear end of the movable jaw, an adjusting plate carried by the retaining block, and a vertically movable slide adapted to hold said block firmly in place, substantially as described.

2. In a car-coupler, the combination of a drawhead, a movable jaw, a retaining block engaging with the rear end of the movable jaw and provided on one face with an integral lug, a vertically moving locking slide and an adjusting plate carried by the retaining block and adapted to move the same to bring the lug thereon in rear of the locking slide, substantially as described.

492,842.

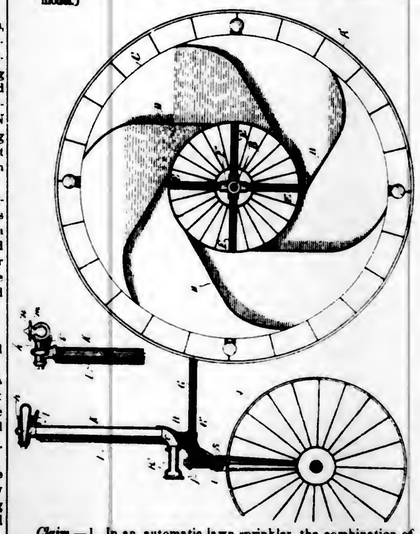


3. In a car coupler, the combination of a drawhead, a movable jaw, a retaining block engaging with the rear end of the movable jaw and provided on one face with an integral lug, a plate carried by said block and adapted to move the same rearwardly and upwardly and a vertically movable locking slide provided with a stud or pin which works in a vertical slot in the side of the drawhead, substantially as described.

4. In a car coupler, the combination of a drawhead provided with an inclined bottom, a movable jaw, a retaining block arranged within the drawhead and engaging with the rear end of the movable jaw, a vertically movable locking slide and an adjusting plate connected to the retaining block by a pin and slot connection and adapted to move said block in the drawhead to bring a lug thereon in rear of the locking slide, substantially as described.

5. In a car coupler, the combination with a drawhead and movable jaw, of a retaining block engaging with the rear end of the movable jaw, a locking slide and a longitudinally movable adjusting plate adapted to move the retaining block rearwardly and upwardly by means of coacting inclines arranged between said block and plate, substantially as described.

492,843. LAWN TRAVERSER AND SPRINKLER. HERMAN SCHWEIN, Detroit, Mich. Filed Nov. 2, 1891. Serial No. 410,677. (No model.)



Claim.—1. In an automatic lawn sprinkler, the combination of the transporting wheels, the revoluble cylinder having water-buckets

therein mounted between said wheels, the tube connected with the water supply, adapted to throw a jet of water into the buckets of said cylinder, substantially as set forth.

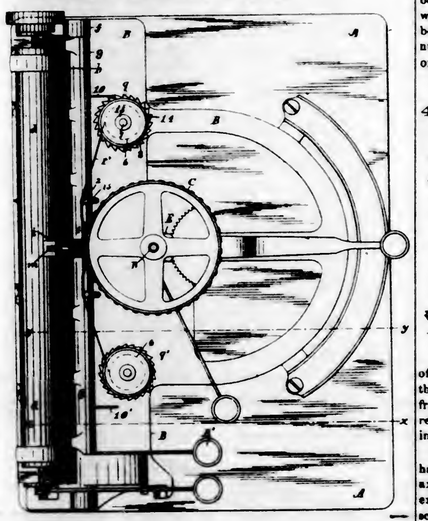
2. In a lawn traversing and sprinkling device, the combination of the transporting wheels, the revoluble cylinder having water-buckets therein mounted between said wheels, the clutch adapted to connect said cylinder with the transporting wheels, the tube connected with the water supply and adapted to throw a jet of water in to the buckets of the cylinder, as set forth.

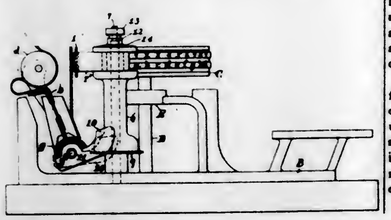
3. In a lawn traverser and sprinkler, the combination of the transporting wheels. The revoluble cylinder provided with water buckets said cylinder mounted between and having means of engagement with the transporting wheels, the stand-pipe also mounted on said wheels and carrying a sprinkler, the tube attached to said pipe and adapted to throw a jet of water into the buckets of the cylinder.

4. In a lawn traverser and sprinkler, the combination of the transporting wheels, and axle, the revoluble bucket carrying cylinder mounted on the axle between said wheels and adapted to slide horizontally on said axle and having means of engagement with, and disengagement from, the transporting wheels. The stand-pipe carrying a nozzle or sprinkler and a jet throwing tube, and having means for attaching a hose thereto, substantially as specified.

5. In a lawn traverser and sprinkler, the combination of the frame mounted on transporting wheels, the axle connecting the rear wheels, the bucket carrying cylinder or reel rotatively mounted on said axle between said wheels, and having means of engagement therewith and disengagement therefrom, the stand-pipe mounted on the forward portion of the frame having a swiveled nozzle at its upper end, the tube extending rearwardly from said stand pipe and adapted to throw a jet of water into the buckets of said cylinder or reel, substantially as set forth.

492,844. TYPE-WRITING MACHINE. CARL J. A. SJOBERG, Brooklyn, assignor to the Garvin Machine Company, New York, N. Y. Filed Sept. 2, 1892. Serial No. 444,922. (No model.)





Claim.—1. In a typewriter having a platen and rocker frame mounted upon a shaft *g'* for vibrating the platen to and from a type wheel, the combination, with a ribbon spool mounted adjacent to the rocker frame, of a ratchet wheel adjacent to the shaft *g'* and an elastic pawl mounted upon the shaft *g'* and vibrated positively with the rocker frame to actuate the ratchet wheel, substantially as herein set forth.

2. In a typewriter having a platen and rocker frame mounted upon a shaft *g'* for vibrating the platen to and from a type wheel, the combination, with spools mounted adjacent to the rocking frame, of a ribbon extended between the spools, ratchet wheels upon the spools adjacent to the shaft *g'*, and two elastic pawls mounted adjustably upon the shaft *g'* and actuated by the rocker frame to operate the ratchet wheels alternately, as set forth.

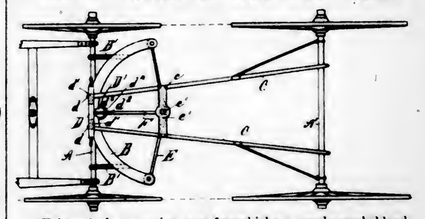
3. In a typewriter having a platen and rocker frame mounted upon a shaft *g'* for vibrating the platen to and from a type wheel, the combination, with ribbon spools mounted adjacent to the rocker frame and provided with ratchet wheels, of a sleeve adjustable upon the shaft *g'* and provided with pawls to engage the spools alternately as the sleeve is shifted longitudinally, as set forth.

4. In a typewriting machine, the combination, with a fixed stud 7 having the ribbon spool 6 mounted thereon and provided with the shoulder 12 above the top of the spool, of the tension disk 14 applied to the stud below the shoulder, and the nut 13 provided with recess to engage the shoulder and operated to compress the disk in a fixed degree, as set forth.

5. In a typewriter having a platen and rocker frame mounted upon a shaft *g'* for vibrating the platen to and from a type wheel, the combination, with the ribbon spools mounted at opposite sides of the type wheel and provided with ratchet wheels as set forth, of the ribbon guide 1 mounted upon the posts and provided with the slots 4 and the aperture 5, the ribbon threaded through the slots as described, the sleeve 11 adjustable upon the shaft *g'* and the pawls 10, 10' adjustable with the sleeve and vibrated with the rocker frame, the whole arranged and operated substantially as set forth.

6. In a typewriter, the combination, with the stud 7 fixed to the bed plate, of the spool 6 fitted to turn upon the stud and formed of wood as set forth, and provided with the flanges 8 to retain the ribbon in place, a tension spring pressed upon the top of the spool by a nut, and a metallic ratchet wheel attached to the spool by the pins or screws 3, substantially as herein set forth.

492,845. RUNNING-GEAR FOR VEHICLES. LORING M. SMITH, Romeo, Mich. Filed Feb. 26, 1892. Serial No. 422,873. (No model.)



Claim.—1. In a running gear for vehicles, a reach coupled back of the front axle and having a forward extension adapted to support the body over the front axle, a circle-plate and frame attached to the front axle, said circle-plate having an indentation in the center of its rearward concaved side, a spring actuated roller adapted to engage in said indentation when the axle is in its normal position.

2. The combination of a reach coupled back of the front axle and having a forward extension for supporting the body over the front axle, a circle-plate on said axle, and a spring actuated bearing on said extension of said reach, engaging said circle-plate, substantially as described.

3. The combination of a reach coupled back of the front axle and having a forward extension for supporting the body over the front axle, a circle-plate on said axle, the head block on said extension, and a bearing between said head block and the side of the circle-plate adapted to engage in a detent therein, and a draft rod connecting said coupling and said axle, substantially as described.

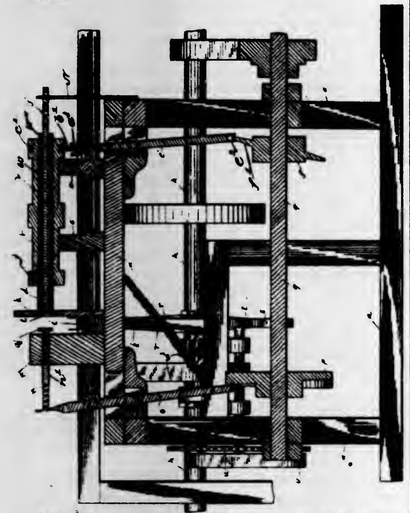
4. The combination of a reach having its coupling between the front and rear axles, a circle-plate on the front axle having a detent on its concave side, a spring actuated bearing attached to a head block upon the forward extension of the reach and adapted to engage in said detent, and a frame connecting the ends of the circle-plate having at the coupling point a slotted opening, a king-pin connecting the reach and the frame through said slotted opening, and a draft rod connecting said bar with the front axle, substantially as described.

5. The combination of a front axle with a circle plate rigidly at-

tached thereto and having a detent upon its concave side, a reach and a spring actuated bearing attached to said reach and adapted to be engaged and disengaged with said detent, substantially as described.

6. The combination of a reach having its coupling between the front and rear axles, a circle-plate on the front axle having a detent on its concave side, a spring actuated bearing to engage in said detent, a frame connecting the ends of the circle-plate and having at the coupling point a slotted opening, a king-pin connecting the reach and the frame through said slotted opening, substantially as described.

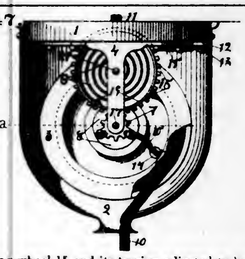
492,846. CORK CUTTING AND FACING MACHINE. JOHN A. SNYDER, Pittsburg, Pa. Filed Jan. 7, 1891. Serial No. 377,085. (No model.)



Claim.—The combination with a frame, of a longitudinally movable hollow shaft rotatably mounted thereon, a hollow cutter mounted in said shaft, a female die plate mounted on the frame and having its opening aligned with said cutter, a rod arranged in the hollow of said shaft and having its forward end projecting beyond said cutter therein, whereby the cork wood may be held in place between said rod and the die plate, a bearing on the frame aligned with and in the rear of said shaft, the rear end of said rod in the shaft projecting therefrom and being adapted for sliding engagement with said bearing and having a stop beyond said bearing, whereby such movement is limited, a spring arranged in the hollow of said shaft and connected at its forward end to said rod, the rear end of said spring being connected to the rear end of the hollow shaft, a rod longitudinally movable in the frame and aligned with the hollow shaft, the end of said rod having a head arranged in front of the opening in the die plate opposite the cutter, a retracting spring for said rod, a cork chute arranged on the frame with its mouth below the opening in the die plate and between said die plate and the headed end of said rod, and means for imparting longitudinal movement to said rod and longitudinal and rotary movement to said shaft, substantially as set forth

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492,847. BALANCED ELECTRIC-DROP-LIGHT HANGER. TRUMAN B. STEVENS, Blair, assignor of one-half to W. J. C. Putnam Cramer, Omaha, Nebr. Filed June 21, 1892. Serial No. 437,476. (No model.)



Claim.—In a balanced electric drop light hanger the combination of the metal hangers 4 and 5 depending from the wooden ceiling plate 1, the wooden spool 3 provided with the metal studs 16 and 17 journaled in the hangers, the cog-wheel 15 set to engage the cog-wheel 7 on the shaft-stud 17, the hangers connected with an electric circuit, the duplex pliable conducting line 10 consisting of lines 10′ and 10″ and adapted to wind on the spool, its free end electrically connected with an electric lamp, the opposite end inserted through the aperture 20 near the flange of the spool, line 10″ electrically connected with the stud 16, line 10′ inserted through the aperture 14 and electrically connected with the stud 17, the coil spring 6 set to actuate the cog-wheel 15 and its tension adjusted to balance the depending line and lamp at any elevation or depression of the lamp substantially as shown and described.

492,848. RAILWAY-RAIL JOINT. SOLOMON F. STEVER, Fairfield, Iowa. Filed Jan. 11, 1892. Serial No. 417,715. (No model.)

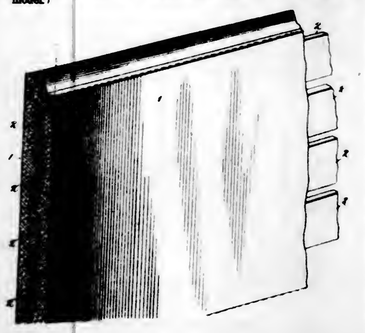


Claim.—1. An angle-bar adapted to fit into the hollow at the side of two railway-rails placed end to end, and a jaw of less length than the angle-bar integral with the same, forming a substantially-central reinforcement thereto and to be at the place of juncture of the two rails when the device is in use, the jaw being adapted to inclose the flanges of the two rails at their ends on one side and also bear directly against and sustain the under sides of the rails at the joint, substantially as described.

2. An angle-bar adapted to fit into the hollow at the side of two railway-rails placed end to end, and a jaw integral with the angle-bar and extending downward and outward from the same, the jaw being of less length than the angle-bar and placed at about the center thereof to be at the point of juncture of the two rails, forming a reinforcement, and having openings for the reception of bolts, substantially as set forth.

3. An angle-bar adapted to fit into the hollow at the side of two railway-rails placed end to end, and a jaw integral with and of less length than the angle-bar, forming a substantially central reinforcement thereto, the jaw being provided with bolt-holes and having a tapering opening of a length greater than the width of the flange of a rail, and being adapted to inclose the flange and bear directly against and sustain the under sides of the two rails, substantially as described.

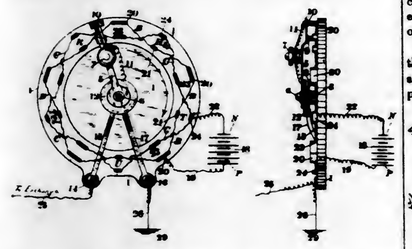
492,849. COMPOSITE BOARD OR STRIP FOR WALLS, &c. EMIL STRIPPGEN, St. Louis, Mo. Filed Dec. 3, 1892. Serial No. 453,929. (No model.)



Claim.—1. A wall strip or board consisting of strips the alternate ones of which are arranged at an angle to the adjacent strips, said strips embedded in a body of composition composed of saw dust and plaster of paris, in proportions substantially as specified.

2. A wall strip or board composed of wooden strips each alternate strip being arranged at an angle to its adjacent strip to break joints, the said strips bound together with a composition consisting of a mixture of saw dust and plaster of paris in substantially the proportions specified, the longitudinal edges of the lath being suitably tongued and grooved, substantially as set forth.

492,850. COMBINED INDICATING ELECTRIC SWITCH AND CURRENT REVERSER. ALBON B. STROWGER and WALTER S. STROWGER, Chicago, Ill., assignors to the Strowger Automatic Telephone Exchange, same place. Filed Feb. 19, 1892. Serial No. 422,154. (No model.)



Claim.—1. A combined indicator switch and current reverser consisting of an indicator, a series of pairs of contact heads, the heads of each pair being adapted to be connected with the opposite holes of a battery, and a switch movable over said heads and adapted to be brought into contact therewith and provided with means for reversing the current, substantially as set forth.

2. A combined indicator switch and current reverser consisting of a dial, an annularly series of pairs of contact heads secured thereto, the heads of each pair being adapted to be connected with the heads of the other pairs and with the opposite poles of a battery, and a switch pivotally secured at the center of said dial and series of heads, and provided with means for reversing the current, substantially as set forth.

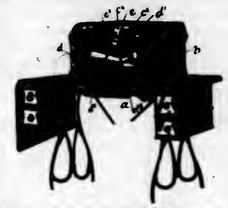
3. A combined indicator switch and current reverser consisting of a dial, two rows of contact heads arranged in pairs, the heads of each pair being adapted to be connected with the heads of the other pairs and with the opposite poles of a battery, the polarity of the heads of each row alternating with each other, and a switch movable over said heads and adapted to be brought into electrical connection therewith, whereby a current may be passed in either direction through the heads and their connections, substantially as set forth.

4. In a combined indicator switch and current reverser, the combination with an electrical battery, a series of pairs of contact heads secured thereto and arranged in two circles around the dial, the heads of each pair being connected with the opposite poles of the battery, and the polarity of the heads of each row alternating with each other, two wires second to the dial, one of which is a ground wire, and the other one is a working wire, a switch pivotally secured at the center of the rows of heads provided with two insulated contact points, each of which connects with the central portion of the dial, and an electrical connection between each of the contact points of the switch and each of the wires secured to the dial, substantially as set forth.

5. The combination with an automatic electrical exchange provided with a series of magnets of one polarity, of a switch connected therewith, said switch being provided with contact heads electrically connected in pairs, an arm for engaging said heads, a magnet electrically connected with said arms of a different polarity from the other magnets, and means for passing different currents through said magnets and switch, substantially as set forth.

6. The combination with an automatic electrical exchange provided with a series of magnets of one polarity, of a switch connected therewith having contact heads electrically connected in pairs, an arm for engaging with said heads a magnet electrically connected with said arm of a different polarity from the other magnets, and a current reverser for passing different currents through said magnets and switch, said reverser having as many reverse contact points as there are pairs of heads upon the switch, substantially as set forth.

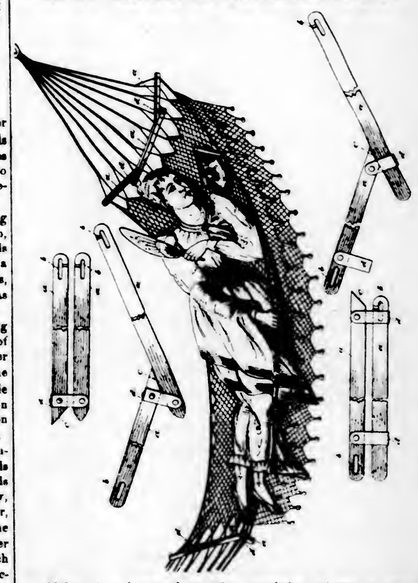
492,851. HOLDER FOR SEWING-MACHINE COVERS. WILLIAM R. TOWNS, Columbus, Ohio. Filed Dec. 5, 1892. Serial No. 454,157. (No model.)



Claim.—1. A holder for sewing machine covers consisting essentially of a flexible band having attached thereto at each end spring clamps formed of resilient metal with a central coil and hook-shaped ends which lie in a plane substantially at right-angles with the plane of the coil, substantially as specified.

2. In a holder for sewing machine covers, the combination with the flexible band *c*, clamps *d* having coils *d*′ between the arms *d*², hook-shaped ends *d*³ and elastic coverings *d*⁴, substantially as and for the purpose specified.

492,852. HAMMOCK-STRETCHER. VINCENT P. TRAVERS, New York, N. Y. Filed Oct. 28, 1892. Serial No. 450,246. (No model.)



Claim.—1. A hammock-stretcher consisting of two or more straight sections *a* meeting at an angle to each other and provided with fastening means *b*, said sections *a* being pivotally connected one to the other by unions *d*, substantially as and for the purpose set forth.

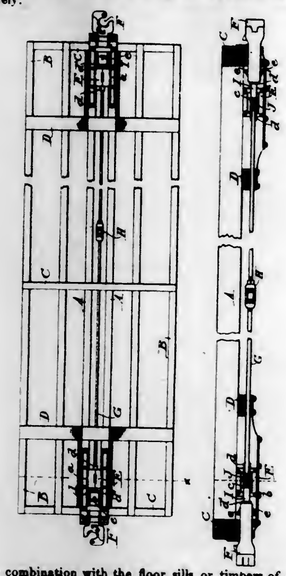
2. A hammock-stretcher consisting of straight sections *a a a*, the two outer sections having beveled inner ends that are adapted to rest on top of the central section, in combination with unions *d d* that reversibly and pivotally connect the end sections with the central section, substantially as herein shown and described.

492,853. DRAW-BAR. GROSES D. WADLEY, Savannah, Ga. Filed Nov. 28, 1892. Serial No. 453,090. (No model.)

Claim.—1. In combination with the sills or timbers of a car, two boxes rigidly secured thereto, one near each end of the car; a draw rod extending from one box to the other and through both boxes; draw heads secured to said draw rod, one at each end, springs contained within the boxes, one in each; and collars fast upon the draw

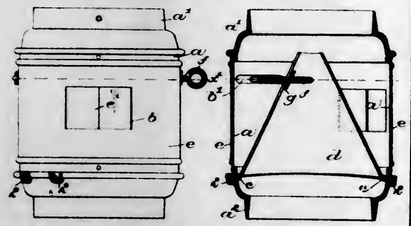
rods, one within each box, and arranged to bear upon the outer end of the spring in said box, all substantially as described and shown.

2. In combination with sills or timbers A A, boxes E E, rigidly secured to said timbers, a spring J within each box, a draw rod G extending through the boxes E and made in two parts, a turn buckle H, connecting the parts of the draw rod, sleeves I, one secured upon each section of the draw rod and each provided within the box with a collar *c*; and springs; one within each box, encircling the draw rod and bearing at their opposite ends against the collars and the boxes respectively.



3. In combination with the floor sills or timbers of a car, two boxes rigidly secured to said timbers, one near each end of the car, springs within the boxes, and a two part draw rod extending from end to end of the car and provided with draw heads at its ends, an intermediate turn buckle connection, and collars to bear against the outer ends of the springs, all substantially as shown and described; whereby the force for moving the car both for pushing and pulling is applied so that the whole length instead of one end of the car bears the strain.

492,854. PIPE-SECTION DAMPER. ARTHUR W. WALKER, Malden, Mass. Filed Aug. 23, 1892. Serial No. 443,879. (No model.)



Claim.—1. In a pipe section damper, a stationary body, an external movable shell on said body, and a stationary end-piece attached to said body, said end-piece having bearings, combined with semi-cones journaled in said bearings and operatively connected with the said external movable shell, substantially as described.

2. The combination, substantially as described, of the stationary body *a*, externally surrounding movable shell *c*, stationary end-piece having bearings 2 and fixed to the body, semi-cones journaled in said bearings and a transverse rod *f* fixed to the movable shell and engaging the semi-cones substantially as described.

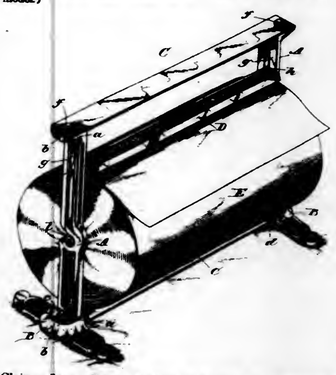
3. The body *a*, slotted as described at *b'* and having a cold air inlet, end pieces a', a^3, connected thereto, the piece a^3 having bearings; and notched semi cones having journals entering said bearings and having a movement only in said bearings; combined with an exterior damper shell *c* having a cold air inlet, and a rod carried by said ring and extended diametrically across the same through the notches in the semi cones and the slots in the said body, to operate, substantially as described.

492,855. HOSE-CLAMP. FRANK T. WHIDAW, Syracuse, N. Y., assignor to Warren S. Purington and James R. Casterlin, same place. Filed Dec. 9, 1891. Serial No. 414,473. (No model.)



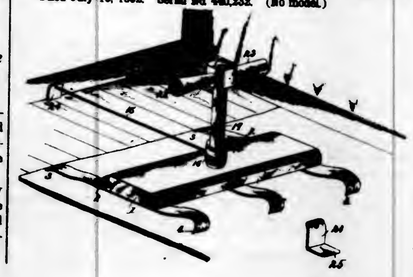
Claim.—A hose clamp, comprising a wire, bent to form a looped body, and eyes at its extreme ends formed by coiling the wire, the sides of said body diverging from the eyes toward each other, and adapted to be wrapped clear around the hose, one end being passed through the body in wrapping it about the hose, said eyes being bent outward, substantially parallel to each other, and a bolt inserted through said eyes and means for securing it, as set forth.

492,856. ROLL-PAPER HOLDER AND CUTTER. EDWARD H. WESTON, Dayton, Ohio. Filed Oct. 31, 1892. Serial No. 450,517. (No model.)



Claim.—In a roll paper holder and cutter, the combination with standards provided with short upper and lower slotted arms, feet to receive the standards, and segmental grooves in the lower surface of the feet, and upper surface of the standards, with half-oval braces extending between the standards and single bolts at top and bottom to connect all the parts together, substantially as shown and described.

492,857. CARPET-STRETCHER. ELIJA WILCOX, Ashley, Mich. Filed July 16, 1892. Serial No. 440,232. (No model.)



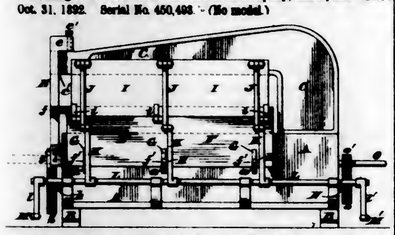
Claim.—1. In a carpet-stretcher, the combination with a claw-bar having an opening, and bored tangentially with relation to the same, a cylindrical windlass mounted in the opening and provided above the claw-bar with teeth, a fixed pawl driven in the bore and extending into the opening for engaging the teeth, a cord or rope secured to the windlass, and an anchor connected to the free end of the rope, of a handle removably mounted in the windlass and having its upper end provided with a transverse head forming a handle and hammer for driving the anchor, substantially as specified.

2. In a carpet-stretcher, the combination with a claw-bar having an opening, and bored tangentially with relation to the same, a cylindrical windlass mounted in the opening and provided with teeth, a pawl located in the bore and extending into the opening for engaging the teeth, a cord or rope secured to the windlass, and an anchor connected to the free end of the rope, of a handle removably mounted in the windlass and having its upper end provided with a transverse head and handle combined, one end of which is enlarged to form a hammer-head and the other slotted to form an anchor-engaging claw, substantially as specified.

3. In a carpet-stretcher, the combination with the claw-bar having the cylindrical opening, the bore, the pawl therein, of the cylindrical windlass mounted in the opening and having its lower end provided with an annular shoulder bearing against the under side of the bar and above the same provided with ratchet-teeth, a plate secured to the under side of the bar and passing under and forming a bearing for the lower end of the windlass, an anchoring device, a flexible connection between the same and windlass, and means for rotating the windlass, substantially as specified.

4. In a carpet-stretcher, the combination with the claw-bar having the cylindrical opening, the windlass journaled in the opening, the L-shaped anchor having a driving-point, a flexible rope between the same and windlass, an angular mortise in the upper end of the windlass, of a handle terminating at its lower end in a tenon angular in cross-section and removably fitting the mortise, and a transverse head at the upper end of the handle, one end of which is enlarged to form a hammer-head and the opposite end of which is kerfed at an angle to the length of the handle and adapted to engage with the L-shaped anchor above its driving-point, substantially as specified.

492,858. METAL-BENDING MACHINE. JACOB RAUH, Cincinnati, Ohio, assignor to the Victor Safe and Lock Company, same place. Filed Oct. 31, 1892. Serial No. 450,493. (No model.)



Claim.—1. The combination, in a metal-bending machine, of a stationary base, an immovable arm rigidly secured at one end to said base and having its other end coupled thereto by a shiftable tie-rod, a folding plate that bends the metal upwardly, and means for operating said plate, substantially as herein described.

2. The combination, in a metal-bending machine, of a stationary base, an immovable arm rigidly secured at one end to said base and having its other end coupled thereto by a shiftable tie-rod, a vertically-adjustable table applied to said base, devices for raising and lowering said table, a folding plate coupled to the latter and means for operating said plate, substantially as herein described.

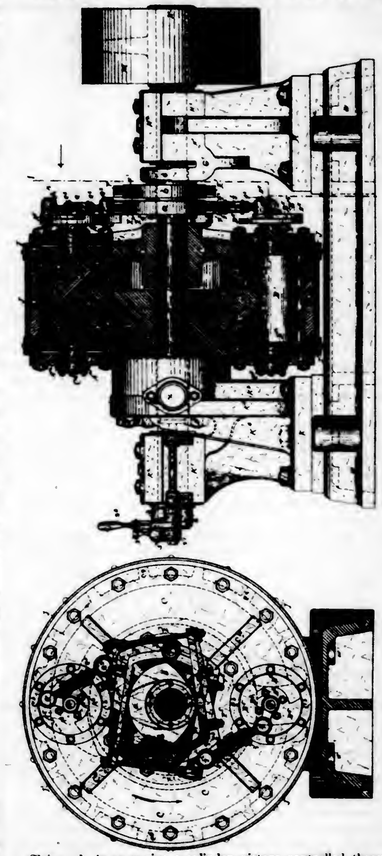
3. A metal-bending machine, including a base, a vertically-adjustable table applied to it, a folding plate coupled to said table, and a set of cams carried by a common shaft and adapted to elevate said table, in the manner described.

4. The combination, in a metal-bending machine, of a vertically-adjustable table, wedges upon which said table rests, and cams that operate said wedges, in the manner described.

5. The combination, in a metal-bending machine, of a stationary base, an arm rigidly secured to it at one end, and a swinging tie-rod that couples the other end of said arm to said base, for the purpose herein described.

6. The combination, in a metal-bending machine, of the stationary base A, an arm C rigidly secured at one end to said base, and having a notch *c'* at its other end, and the tie-rod E, pivoted to said base, the upper end of said rod being adapted to enter said notch, and having a lug *e*, that rests upon said arm, for the purpose described.

492,859. ROTATING-CYLINDER ENGINE. SAMUEL G. BROWN, Savannah, Ga. Filed July 30, 1891. Serial No. 401,208. (No model.)



Claim.—1. In an engine a cylinder, pistons controlled through links by a double cam whose peripheries are constructed of concentric inner and outer curves, and eccentric curves tangentially to the inner concentric curves intersecting the outer concentric curves, and whose alternate faces taken in conjunction form a true cam, in combination with a link operated by said cam, substantially as set forth.

2. In a rotating cylinder engine a rotating cylinder, pistons controlled through links by a double cam whose peripheries are constructed to the curves a', a^2, a^3, a^4 and b' b^2 b^3 b^4 and respectively control the opposite arms of the links, producing in said links consecutively a rest lasting through substantially half the revolution, and through the balance a throw, a rest and a throw, thereby operating the pistons at the required intervals, substantially as set forth.

3. In a rotating cylinder engine, a rotating cylinder, pistons controlled through the link by a double cam *a* and *b* constructed to the curves a', a^2, a^3, a^4 and b', b^2, b^3, and b^4, controlling respectively the links by their respective arms E and F and E' and F', thereby operating the pistons at the required intervals, substantially as set forth.

4. In an engine, a cylinder, pistons controlled through a link having arms secured to a hub, said arms being located on opposite sides of the cross center line of the hub, in combination with a cam for operating said link, substantially as set forth.

5. In an engine, a cylinder, pistons controlled through a link having arms secured to a hub by flanged ribs, said link arms being located on opposite sides of the cross-center line of the hub, in combination with a cam controlling said link, substantially as set forth.

6. In an engine, a cylinder, pistons controlled through a link hav-

ing arms secured to a hub, said arms being located on opposite sides of said hub and having their outer ends connected by suitable means, in combination with a cam for controlling said link, substantially as set forth.

7. In an engine, a cylinder, pistons controlled through a link having arms secured to a hub, said arms being located on opposite sides of the cross-center line of said hub, and a lug at the outer end of one arm directly under the lug of the other arm, and a connection extending between said lugs substantially parallel to the cross-center line, and a cam controlling said link, substantially as set forth.

8. In an engine a rotating cylinder, pistons controlled by a crank and link operated by a cam, and a connecting rod joining said crank and link, said link being operated with a lug to which one end of the said connecting rod is attached.

9. In an engine, a rotating cylinder, pistons controlled by a crank and link operated by a cam, a connecting rod joining said crank and link, said connecting rod being adjusted by means of right and left screws and lock nuts, substantially as set forth.

10. A rotating cylinder engine having a rotating cylinder, pistons oscillating therein, said cylinder being formed by inner and outer rings and connecting heads between said rings, forming thereby an annular cavity, the inner ring having packing flanges around a groove in which is located a flanged abutment disk secured to a stationary stand, substantially as set forth.

11. A rotating cylinder engine having a rotating cylinder, pistons oscillating therein, said cylinder being formed by inner and outer rings and connecting heads between said rings, forming thereby an annular cavity, the inner ring having packing flanges around a groove in which is located an abutment disk secured to a journal box of the engine, substantially as set forth.

12. In a rotating cylinder engine a rotating cylinder, provided with movable heads, oscillating pistons, crank disks operated from the driving shaft by a cam and link, and packing disks on the piston shafts between the movable heads and crank disks, and suitable packing between the packing disks and the movable heads, substantially as set forth.

13. A rotating cylinder engine having a rotating cylinder, pistons controlled by a counterbalance, crank, disk and link operated by a cam, and a connecting rod joining said crank and link, for the purpose set forth.

14. A rotating cylinder engine having a rotating cylinder, pistons oscillating therein, said cylinder being formed by inner and outer rings and connecting heads between said rings, forming thereby an annular cavity, the inner ring having packing flanges around a groove in which is located an abutment disk provided with steam and exhaust ports, and an annular flange, and abutments extending into said cavity, and secured to said abutment disk, substantially as set forth.

15. A rotating cylinder engine having a rotating cylinder, pistons oscillating therein, said cylinder being formed by inner and outer rings and connecting heads between said rings, forming thereby an annular cavity the inner ring having packing flanges around a groove in which is located an abutment disk, said abutment disk being provided with a steam chest and valves controlling the admission of steam from the chest to the cylinder, substantially as set forth.

16. A rotating cylinder engine having a rotating cylinder, pistons oscillating therein, said cylinder being formed by inner and outer rings and connecting heads between said rings, forming thereby an annular cavity, the inner ring having a groove in which is located an abutment disk provided with a steam chest, and valves controlling the admission of steam from the chest of the cylinder, said valves having a central opening through which steam passes to the cylinder, substantially as set forth.

17. A rotating cylinder engine having a rotating cylinder, pistons oscillating therein, said cylinder being formed by inner and outer rings and connecting heads between said rings, forming thereby an annular cavity, the inner ring having a groove in which is located an abutment disk provided with a steam chest, and valves controlling the admission of steam from the chest to the cylinder, said valves having a central opening and lips on each side of the central opening, and flanges connecting said lips, said flanges having a cavity for the reception of a rocker shaft, for the purpose set forth.

18. A rotating cylinder engine having rotating cylinder forming annular cavities by inner and outer rings, and outer disks, said cylinders having seats for oscillating pistons, said seats being formed by the enlargement of said cylinders and having heads provided with journals to receive the shafts of the pistons, and packing strips located in said piston seats, and having openings through them for admitting steam to both sides so as to balance them, substantially as set forth.

19. In a rotating cylinder engine a rotating cylinder formed by inner and outer rings and outer disks, said cylinder having seats for oscillating pistons, said seats being formed by the enlargement of said cylinders, and having heads provided with journals to receive the shafts of the piston, and packing strips having openings through them for the passage of steam, and located in said piston seats, and keys for holding said packing strips in place, substantially as set forth.

20. A rotating cylinder engine having rotating cylinder forming annular cavities by inner and outer rings and outer disks, said cylinders having seats for oscillating pistons, said seats being formed by the enlargement of said cylinders and having heads provided with journals to receive the shafts of the pistons, and packing strips located in said piston seats, and having cavities for allowing the ring of the piston disk to pack against the piston seats, substantially as set forth.

21. A rotating cylinder engine having rotating cylinder provided with seats for oscillating pistons, said pistons constructed of two disks, and wings connecting said disks, the wings having beveled edges, substantially as set forth.

22. A rotating cylinder engine having rotating cylinder provided with seats for oscillating pistons, said pistons constructed of two disks and wings one of which connects said disks one edge of said wing having a cavity provided with packing stripe, substantially as set forth.

23. A rotating cylinder engine having rotating cylinder provided with seats for oscillating pistons, said pistons constructed of two disks and inner and outer wings, said outer wing connecting said disks, the inner wing provided with a cavity and packing strips in said cavity, substantially as set forth.

24. A rotating cylinder engine having rotating cylinders provided with seats for oscillating pistons, said pistons constructed of two disks and inner and outer wings, said outer wing connecting said disks, and inner wing provided with a cavity and packing strips in said cavity, and openings in said disks to admit steam pressure to both sides so as to balance the piston endwise, for the purpose set forth.

25. In an engine a cylinder, pistons controlled through a link operated by a double cam, said cam being constructed of cam-shaped disks, the alternate faces of the peripheries of said disks taken in conjunction form true cams, substantially as set forth.

26. In a rotating cylinder engine, a cylinder, pistons controlled through a link having arms secured to a hub, said arms being located on opposite sides of the cross-center line of the hub, and being provided with adjustable wearing strips, in combination with a cam, substantially as set forth.

27. In a rotating cylinder engine a cylinder, pistons controlled through a link controlled by a cam, said cam being constructed of cam shaped disks, the alternate faces of the peripheries of said disks taken in conjunction form true cams, said cams being provided with adjustable wearing strips, substantially as set forth.

28. In a rotary engine a rotating cylinder having removable heads, oscillating pistons, crank disks operated from the driving shaft by cam and link, an adjustable connecting rod between said link and crank disk, and packing disks around the piston shafts between the removable heads and the crank disks, said packing disks being provided with adjusting screws, substantially as set forth.

29. A rotating cylinder engine having rotating cylinder, oscillating pistons, and abutment, said abutment being provided with packing strips having openings through them for admitting steam to both sides so as to balance them, substantially as set forth.

30. A rotating cylinder engine having rotating cylinder, oscillating pistons and abutments, said abutments being provided with packing strips having keys for holding said packing strips in place, substantially as set forth.

31. In a machine, a shaft, a link attached thereto and operated by a double cam, said cam being constructed of cam-shaped disks, the alternate faces of the peripheries of said disks taken in conjunction forming true cams, and means for driving said shaft, substantially as set forth.

32. In an engine a rotating cylinder, pistons controlled by links pivoted on and revolving with said cylinder, said link being operated by a double cam, substantially as set forth.

33. In an engine, a rotating cylinder, pistons controlled by links, said link being operated by a double cam secured to a pillow block, substantially as set forth.

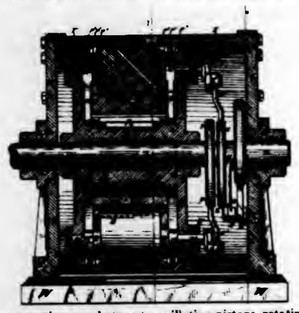
492,860. ROTATING-CYLINDER ENGINE. SAMUEL G. BROSIUS, Savannah, Ga. Filed Jan. 20, 1892. Serial No. 418,721. (No model.)

Claim.—1. In an engine, an abutment, oscillating pistons, a rotating cylinder having an inner cylinder ring and heads provided with piston chambers, said heads connected by the inner ring and having piston chambers which, taken in conjunction form the recesses in which the pistons operate, substantially as set forth and described.

2. In an engine, an abutment, oscillating pistons, a rotating cylinder having a rotating cylinder ring, and connected heads and piston chambers in said heads and connecting cylinder, which, taken together form recesses in which said pistons operate, substantially as set forth and described.

3. In an engine, an abutment, oscillating pistons, a rotating cylinder having a rotating cylinder ring and heads and piston chambers in the heads and connecting cylinder ring in which said pistons operate, said pistons being provided with arms having hubs provided with journal shafts mounted in said heads, substantially as set forth and described.

4. In an engine, an abutment, oscillating pistons, a rotating cylinder having a rotating cylinder ring and heads and piston chambers in the heads and connecting ring in which said pistons operate, said pistons having arms provided with shafts by which they are held in place and operated, substantially as set forth and described.



5. In an engine, an abutment, oscillating pistons, rotating cylinder with a rotating cylinder ring and connected heads and piston chambers forming recesses in which said pistons operate, said piston chambers being formed by webs in the said heads and overlapping tongues in said connecting cylinder ring, substantially as set forth and described.

6. In an engine, an abutment, oscillating pistons, rotating cylinder with a rotating cylinder ring and connected-heads and forming recesses in which said pistons operate, said recesses being formed by webs in the said heads and overlapping tongues in said connecting cylinder ring, said rotating cylinder being constructed of two parts securely held together, substantially as set forth and described.

7. In an engine, an abutment, oscillating pistons, a rotating cylinder having an outer stationary cylinder ring, and an inner rotating cylinder ring, heads having piston chambers and connected by the inner cylinder ring which is also provided with piston chambers which taken in conjunction form the recesses in which the pistons operate, said abutment being attached to said outer stationary ring, substantially as set forth and described.

8. In an engine, an abutment, a rotating cylinder provided with an inner cylinder and heads carrying oscillating pistons, and provided on said heads with a packing ring having an annular flange toward the steam space, thereby packing said heads against the outer casing and against the edges of the oscillating pistons, substantially as set forth.

9. In an engine, a rotating cylinder, an abutment, oscillating pistons mounted in shafts in journals mounted in the heads of said cylinder, said shafts being provided with a crank controlled by working and driving compound eccentrics, substantially as set forth and described.

10. In an engine, an abutment, a rotating cylinder, oscillating pistons operated by a compound eccentric consisting of a driving eccentric operated by the driving shaft, working eccentrics, a rocker arm operated by said driving eccentric controlling a connecting rod operating said working eccentrics, thereby producing an intermittent motion, substantially as set forth and described.

11. In an engine, an abutment, rotating cylinder and pistons controlled by working and driving eccentrics in passing the abutment, and in taking position to receive the steam pressure, substantially as set forth, and described.

12. In an engine, an abutment, pistons and a rotating cylinder provided with piston chambers in which the pistons move in passing the said abutment, in combination with a compound eccentric consisting of working and driving eccentrics, said eccentrics controlling the said pistons in passing the said abutment and in taking position to receive said steam pressure.

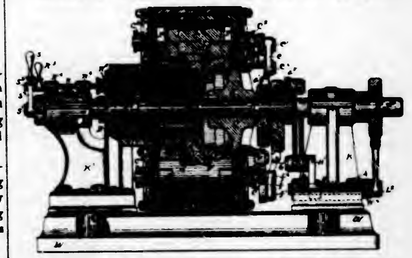
13. In an engine, a driving shaft, an abutment, a rotating cylinder, an oscillating piston operated by a compound eccentric consisting of a driving eccentric operated by the driving shaft, and working eccentrics, connections between the said driving and working eccentrics, one of said working eccentrics having a slot through which the connection between the driving eccentric and the other working eccentric is arranged and operates, substantially as described.

14. In an engine, a shaft, an abutment, a rotating cylinder, oscillating pistons operated by a compound eccentric consisting of a driving eccentric having means for driving it, and working eccentrics mounted on said shaft and oscillating thereon, connections between said working and driving eccentrics whereby the said working eccentrics are controlled by the said driving eccentric, and a variable motion is produced, substantially as described.

15. In an engine, a shaft, an abutment and rotating cylinder, oscillating piston operated by a compound eccentric, consisting of a driving eccentric having means for operating it, and working eccentrics mounted on said shaft and oscillating thereon, connections between said driving and working eccentric, one of said working eccentrics having a slot through which the connection between the driving eccentric and the other working eccentric is arranged and operates, substantially as described.

16. In an engine, in combination, an abutment, a rotating cylinder, a driving shaft, a driving eccentric operated by said shaft, working eccentrics, connecting rods and a rocker shaft provided with arms, pistons controlled by said working eccentrics, the said driving eccentric controlling through the said rocker shaft, arms and connecting rods, the operations of said working eccentrics and thereby regulating the operations of the pistons, substantially as described.

492,861. ROTATING-CYLINDER ENGINE. SAMUEL G. BROSIUS, Savannah, Ga. Filed Dec. 1, 1892. Serial No. 453,768. (No model.)



Claim.—1. In an engine, an abutment, oscillating pistons and a rotating cylinder having tongues forming piston chambers in the inner periphery of the cylinder into which said pistons move in passing said abutment, substantially as described and set forth.

2. In an engine, an abutment, oscillating pistons provided with recesses and a rotating cylinder having tongues forming piston chambers in the inner periphery of the cylinder into which said pistons move in passing said abutment; said tongues having ribs adapted to move freely through the said recesses of the pistons without contact, substantially as described and set forth.

3. In an engine, an abutment provided with packing strips having lugs, oscillating pistons provided with recesses and a rotating cylinder having tongues forming piston chambers in the inner periphery of the cylinder into which said pistons move in passing said abutment, said tongues having ribs over which the recesses of said pistons move freely without contact, said ribs narrowing the opening of said piston chambers, thereby shortening the lugs of said packing strips, substantially as described and set forth.

4. In an engine, an abutment, provided with packing strips, pistons and a rotating cylinder having tongues forming piston chambers in the inner periphery of the cylinder into which said pistons move in passing said abutments, said packing strips being provided with lugs which span the openings of said piston chambers in passing the same, substantially as described and set forth.

5. In an engine, an abutment, provided with packing strips, pistons and a rotating cylinder having tongues forming piston chambers in the inner periphery of the cylinder into which said pistons move in passing said abutments, said packing strips being provided with lugs which span the openings of said piston chambers in passing the same, and provided with holes through which the steam passes to keep said strips in contact with the inner periphery of said cylinder, substantially as described and set forth.

6. In an engine, a rotating cylinder, pistons, and an abutment provided with inner, end and outer packing strips, said end packing strips having lugs securely attached to them and bearing against the inside edges of said inner and outer packing strips, thereby preventing the ends of said packing strips from protruding by the packing surfaces, but allowing the inner and outer packing strips to separate, substantially as described and set forth.

7. In an engine, an abutment, oscillating pistons, a rotating cylinder having piston chambers into which said pistons move, said abutment having packing strips which span the opening of the said piston chambers in passing the same, in combination with a driving shaft, a

driving eccentric operated by said shaft and working eccentrics controlling said oscillating pistons, and connections between the said driving and working eccentrics, substantially as described.

8. In an engine, a rotating cylinder having pistons, chambers into which said pistons move, an abutment provided with packing strips having lugs which span the openings of the said piston chambers in passing the same and having holes through which the steam passes to keep said strips in contact with the inner periphery of said cylinder, substantially as and for the purpose described.

9. In an engine in combination, an abutment, pistons, a rotating cylinder having tongues forming piston chambers in the outer cylinder ring into which said pistons move, said cylinder having its said outer cylinder ring divided at the internal limit of the piston chambers and securely bolted together, substantially as described and set forth.

10. In an engine, having a rotating cylinder, an abutment, pistons, an abutment disk provided with a steam chest having an oscillating valve, provided with separate steam and exhaust chambers running parallel to the axis of the valve and steam and exhaust ports; from same leading into corresponding passages in the said abutment disk and adapted to be reversed, substantially as described and set forth.

11. In an engine, having a rotating cylinder, an abutment, pistons, an abutment disk provided with a steam chest and having an oscillating valve controlled by a double crank which is operated by a connecting rod hook, for the purpose set forth, substantially as described and set forth.

12. In an engine, having a rotating cylinder, an abutment, pistons, a cut-off valve, provided with a crank having a wrist pin operated by a connecting rod hook which has a slide provided with a projecting handle, and holding said hook normally in position on said wrist pin, substantially as described and set forth.

13. In an engine, a rotating cylinder, an abutment, a cut-off valve in combination with pistons controlled by crank levers operated by working and driving eccentrics, substantially as described and set forth.

14. In an engine, a rotating cylinder having an abutment, pistons provided with cranks in combination with a toggle-joint, operated by driving and working eccentrics, substantially as described and set forth.

15. In an engine, in combination with a rotating cylinder, a pillow block, an abutment, pistons controlled by working and driving eccentrics, located on opposite sides of the pillow block and connected by a rocker shaft, substantially as described and set forth.

16. In an engine, in combination with a rotating cylinder, a pillow block, an abutment, piston controlled by a toggle joint operated by working and driving eccentrics, located on opposite sides of the pillow block and connected by a rocker shaft, substantially as described and set forth.

17. In an engine, an abutment, oscillating pistons and a rotating cylinder formed by inner and outer cylinder rings and heads and having tongues forming piston chambers in the outer cylinder ring into which said pistons move in passing said abutment and piston chambers in the inner cylinder ring in which the edges of said pistons are adapted to rest when said pistons are under pressure and driving said cylinder.

18. In an engine an abutment, oscillating pistons and a rotating cylinder formed by inner and outer rings and having tongues forming piston chambers in the inner periphery of the outer ring of the said cylinder, into which chambers the said pistons move in passing said abutment, substantially as described.

19. In an engine in combination, an abutment, a rotating cylinder, a driving shaft, a driving eccentric operated by said shaft, working eccentrics one of which oscillates on said driving shaft and has mounted upon its sleeve the other working eccentric, which oscillate thereon pistons controlled by said working eccentrics and connections between the driving eccentric and the working eccentrics whereby the said driving eccentric controls the operations of the working eccentrics and regulates the operations of the pistons, substantially as described.

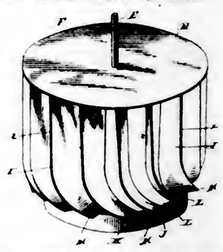
20. In an engine an abutment, oscillating pistons, a rotating cylinder having inner and outer cylinder rings and connected heads, and having tongues forming piston chambers in the inner periphery of the said cylinder, said pistons being mounted in said heads and moving in said piston chambers in passing said abutment, substantially as set forth.

21. In an engine an abutment, an abutment disk, oscillating pistons, packings and a rotating cylinder formed by inner and outer cylinder rings and provided with piston chambers in the outer ring formed by tongues and into which chambers the said pistons move, said packings fitting around the face of the said abutment disk during the oscillations of the pistons, substantially as described.

22. In an engine, a rotating cylinder provided with piston chambers, pistons which move therein, an abutment mounted on an abutment disk, cranks, levers, toggle joint, and working and driving eccentrics, said pistons being operated by said eccentrics through said cranks, levers and toggle joint, substantially as set forth.

23. In an engine, a central abutment disk, an abutment mounted thereon, oscillating pistons and a rotating cylinder having tongues forming piston chambers in said cylinder into which said pistons move in passing said abutment, substantially as described and set forth.

492,862. WATER-WHEEL. CHARLES A. CHASE, Moro, Ma. Filed June 14, 1892. Serial No. 436,688. (No model.)



Claim.—In a water wheel, the casing having a flat closed top, a flat bottom having a circular bottom opening and a spirally disposed rim connecting said top and bottom, the shaft and the horizontal water wheel mounted upon said shaft within the casing, said wheel comprising a central core or hub, a flat top plate H, projecting beyond the periphery of said core or hub, a series of water buckets arranged upon said hub tangentially to the shaft and having straight vertical portions inclining toward the casing rim from the projecting flat top plate which the upper ends meet, to a point near the bottom of the hub, and at such point provided with tapered rearwardly and outwardly curved portions having narrowed projecting discharging tongues extending into said bottom opening, and laterally projecting portions M, over-lapping the bottom of the casing to form an auxiliary discharge back into the casing, and a lower ring band encircling said projecting tongues at their juncture with the lateral projections M, and working within the circular bottom opening of the casing, so as to separate the two bottom discharges of the buckets and also form a bearing collar for the wheel, substantially as set forth.

492,863. AUTOMATIC SLIDING OR ROLLING GATE. JOHN T. CRIM, Eureka Springs, Ark. Filed Jan. 9, 1893. Serial No. 457,902. (No model.)



Claim.—1. In an automatic sliding gate the crank lever E in combination with the rock shaft and its connecting rod and the oscillating lever H pivotally connected with the gate substantially as described

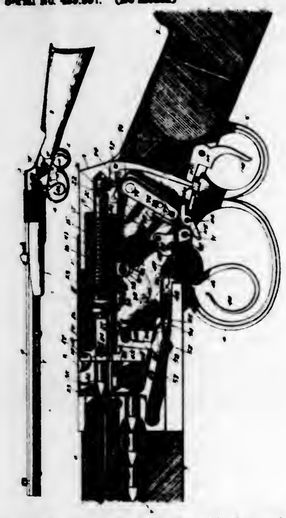
2. In an automatic sliding gate, the horizontally oscillating crank lever pivoted to the foot of the gate post, in combination with the pivoted oscillating lever H, provided with the stirrup loop engaging the crank lever, and pivotally connected with the gate, and the rock-shaft, or its equivalent, and connecting rod arranged substantially as and for the purpose set forth.

3. In an automatic sliding gate, the horizontally oscillating crank lever provided with one short and three long arms and pivoted by its short arm to the gate post, in combination with the lever H having the stirrup loop engaging one arm of the crank shaft, and pivoted to the horizontal rod F at one end, its opposite end being pivotally connected with the gate, substantially as described.

4. In an automatic sliding gate, the combination with the horizontally pivoted crank lever provided with one short and three long arms, the latter having vertically projecting pins on their ends, of the pivoted lever H, having the stirrup loop adapted to engage with the pin on one of the arms of the crank lever, the pitman bar I, the rock shaft and its connecting rod engaging the crank lever, all constructed substantially as and for the purpose set forth.

5. In an automatic sliding gate, the combination with the horizontally oscillating crank lever pivoted to the gate post and the pivoted lever H having the stirrup loop *k*, and pivotally connected with the gate, of the rock shaft, the rod L connecting the rock shaft with the crank lever, the pivoted lever N and the rod M connecting it with the crank lever, substantially as and for the purpose described.

492,864. MAGAZINE-GUN. ROBERT DIEDRICH, Weston, W. Va., assignor of one-half to Adolph Greenstein, same place. Filed July 12, 1892. Serial No. 439,897. (No model.)



Claim.—1. In a gun, the combination with the receiver, having ways, of a reciprocating bolt mounted in the ways, a plunger mounted in the bolt, means for operating the plunger, a finger-lever, a locking-block pivoted at its front end to the bolt and adapted to be swung up in rear of the same, and connections between the locking block and finger lever, substantially as specified.

2. In a gun, the combination with a receiver having ways, a hollow bolt, a plunger mounted therein, means for operating the plunger, a finger-lever, a locking-block pivoted at its front end to the bolt and having its rear end inclined and adapted to be swung up in rear of the bolt, and connections between the rear end of the finger-lever and the block, substantially as specified.

3. In a gun the combination with the receiver having ways, of a hollow bolt mounted therein and adapted to reciprocate, a lug depending from the bolt and having an elongated slot, a plunger mounted in the bolt, means for operating the plunger, a bell-crank finger-lever, a locking-block adapted to swing in rear of the bolt, a pin passed loosely through the front end of the block and elongated slot of the lug, and a link connecting the rear branch of the finger-lever with the block, substantially as specified.

4. In a gun the combination with the receiver having ways, of the hollow bolt mounted therein and terminating at its front end in a firing-pin, a plunger mounted for reciprocation in the bolt, means for operating the plunger, a bell-cranked finger-lever pivoted in the receiver, a locking-block loosely connected at its front end to the bolt and adapted at its rear end to be swung in rear of the bolt, a link pivoted to the block at the rear end thereof and pivotally connected at its rear end to the receiver, and the link pivotally connected to the locking-block and to the inner branch of the bell-cranked finger-lever, substantially as specified.

5. In a gun the combination with the receiver having ways, of a hollow bolt mounted therein and terminating at its front end in a firing-pin, a plunger mounted in the bolt, means for operating the plunger, a bell-cranked finger-lever located below the bolt, a locking-block pivoted at its front end to swing in rear of the bolt, a link pivotally connected at its rear end to the receiver and at its front end to the rear end of the block, which latter has a link pivotally connected at its upper end to the block and at its lower end to the inner branch of the bell-crank, a spring pivotally secured at its front end in the receiver, and a link pivotally connected to the rear end of the spring and eccentrically connected with the trigger, substantially as specified.

6. In a gun the combination with the receiver having ways, a hollow bolt mounted in the ways and terminating at its front end in a firing-pin, a plunger mounted for reciprocation in the bolt, and means for actuating the plunger, a lug depending from the under side of the bolt and having an elongated slot terminating in a finger, of a bell-crank lever, a locking block loosely connected with the slot and adapted at its rear end to take in rear of the bolt, a link connecting the inner end of the bell-cranked finger-lever with the block and provided with an inclined shoulder near its upper end, a bell-cranked lever pivoted above the finger-lever and having one branch extended in the paths of the shoulder of the link and the finger of the lug, and a carrier-block mounted in advance of the finger-lever and loosely engaged by the remaining arm of the bell-crank, substantially as specified.

7. In a gun the combination with the magazine, barrel, and receiver, the latter having ways, of a hollow bolt terminating at its front end in a firing pin mounted in the ways, a plunger mounted in the bolt, means for actuating the same means for locking the bolt against retraction, a bell-cranked lever pivoted in the receiver and adapted to be actuated in one direction by the bolt and in the opposite direction by the finger-lever, a carrier block loosely connected with the forward branch of the lever and adapted to reciprocate between the magazine, and barrel, an arm pivoted in the rear of the magazine, and having its forward end spring-pressed in the path of the cartridges, and means for depressing the arm at each forward reciprocation of the bolt, substantially as specified.

8. In a gun the combination with the magazine, barrel and receiver, the latter having ways, of a reciprocating bolt mounted in the ways, a lug on the under side of the same, vertical ways formed in the receiver, an arm pivoted in rear of the magazine, a spring for elevating the same into the path of the cartridges, a pin mounted in the vertical ways above the arm and resting on the latter and arranged in the path of the lug of the bolt, and means for reciprocating the bolt, substantially as specified.

9. In a gun the combination with the receiver, magazine, and barrel, of a carrier block mounted for vertical reciprocation between the latter two, a bell-crank lever pivoted in the receiver and loosely connected at its front end to the carrier block, means for striking and vibrating the remaining branch of the bell-crank lever, which lever is provided between its branches with a convex surface and a spring secured in the receiver and terminating between the branches of the bell-crank in a beveled head adapted to slide over the convexed surface and to opposite sides of the pivot of the bell-crank, substantially as specified.

10. In a gun the combination with the receiver having ways, the hollow reciprocating bolt mounted therein and terminating in a firing pin, the plunger mounted in the bolt, means for actuating the plunger, a lug depending from the bolt and having an elongated slot, a locking block having an opening loosely engaging the slot and adapted to swing up in rear of the bolt and having its rear end provided with a shoulder, a link pivoted to the receiver and at its front end pivoted to the locking block and provided with a transverse pin, a locking lever pivoted at its lower end to the side of the receiver and having its upper end provided at its front side with a shoulder for engaging that of the locking-block, and an inclined way engaging the pin of the link, and a spring for normally pressing the lever rearward, substantially as specified.

11. In a gun the combination with the receiver having ways, the bolt mounted in the ways having a rear bore and closed front end from which extends a rigid firing-pin, the plunger mounted in the bolt and terminating at its front end in a head, a spring interposed between the head and rear end of the bolt, a shoulder on the plunger in rear of the bolt, a sear pivoted at its front end and provided between its ends with a shoulder engaging that of the bolt, a spring for normally elevating the sear and an arm depending from the rear free end of the sear and pivoted thereto, a trigger loosely connected to the arm, and means for reciprocating the bolt and plunger to the rear and the bolt to the front, substantially as specified.

12. In a gun the combination with the receiver having opposite ways, a plunger and firing bolt terminating in a pin mounted in the ways, the plunger being provided with a notch, of means for locking the firing bolt in an advanced position, a sear pivoted at its front end and provided in rear thereof with a shoulder for engaging the notch, a spring for supporting the shoulder in the path of the notch, an arm depending from the sear and provided at its lower end and at opposite sides with shoulders, a trigger arranged in rear of the arm and of bell crank shape and adapted at its front end to engage the rear shoulder of the arm, a trigger arranged in advance of the arm, intermediate devices between the last mentioned trigger and arm whereby said trigger may actuate the arm, means for shifting the arm so as to

be actuated by either trigger, and connecting devices between the hollow bolt and front trigger, substantially as specified.

13. In a gun the combination with the receiver, a reciprocating firing bolt, a lug depending from the bolt and moving therewith, a bell crank trigger, a swinging locking block adapted to take in rear of the bolt, a link having a shoulder, of a carrier block, a bell cranked lever having one branch engaging the same and at its rear branch extending into the path of and adapted to be struck at opposite sides by the lug of the firing bolt and shoulder of the link during the movements of the two, substantially as specified.

14. In a gun the combination with the receiver having opposite ways, a reciprocating firing bolt mounted therein and provided with a depending lug, a trigger, a swinging locking block arranged between the trigger and bolt, a link provided at its upper end with a forwardly-disposed shoulder, a carrier block, a bell-crank lever for operating the same, the rear branch of the bell-crank being provided with a laterally bent portion extending into the path of and adapted to be struck alternately by the lug of the bolt and shoulder of the link, said bell crank being provided between its branches with a convexed eccentric surface, of a spring lever secured to the receiver and terminating at its rear end in a head having a beveled face lying upon the eccentrically-curved portion of the bell-crank lever and adapted to operate at opposite sides of the fulcrum of the latter, substantially as specified.

15. In a gun the combination with the receiver having ways in its upper side and provided between the same with an opening, of a reciprocating bolt located below the ways in lower ways formed in the receiver and terminating at its front end in a firing-pin, a plate mounted for reciprocation in the upper ways and adapted to cover the opening and provided upon its under side with a concaved lug, an extractor arm secured to the firing pin and terminating at its front end in a hook and provided above the same with a convexed lug engaging the concavity of the depending lug of the plate, an extractor arm at the under side of the firing-pin, the same being plain, means for reciprocating the bolt, a vertical reciprocating carrier-block, and means for elevating the same at a retraction of the firing bolt, substantially as specified.

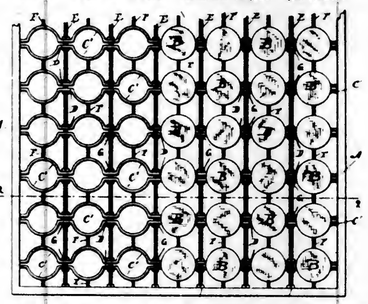
16. In a magazine gun the combination with the magazine and receiver, of a reciprocating firing-bolt provided upon its under side with a lug, vertical ways formed upon the inner side of the receiver, a reciprocating pin mounted in the ways, an upwardly-pressed lever pivoted in the receiver in rear of the magazine and provided upon its upper side with a shoulder normally extending into the line of cartridges at the rear end of the magazine and adapted to be depressed by the downward movement of said pin, substantially as specified.

17. In a magazine gun the combination with the magazine, the receiver having ways, the firing bolt provided with a lug and mounted in the ways, of an arm pivoted in the receiver and provided upon its upper side with a shoulder extending into the path of the cartridges in the magazine, intermediate vertical blocks forming ways located upon the side of the receiver between the arm and bolt, one of said blocks being provided with a lug, and a pin mounted for reciprocation between the blocks and recessed at one edge to embrace the lug and at its lower end resting upon the arm, substantially as specified.

18. In a gun the combination with the receiver having ways, the hollow bolt mounted therein and terminating at its front end in a firing pin, a spring-pressed plunger located in the bolt and provided at its rear end with a notch, the pivoted sear having a shoulder for engaging the notch, a spring for supporting the sear, an arm pivotally connected at its upper end to and depending from the rear end of the sear, said arm being provided at opposite sides with shoulders, a bell-crank trigger pivoted in rear of the arm and adapted to engage the same, a button pivoted in front of the arm and adapted at its rear end to engage the front shoulder of the arm, a bell crank trigger in advance of the button and adapted to strike the front end of the same when drawn to the rear, a spring for said trigger, of a pivoted shifting lever located under the receiver and having one end engaging the lower end of the arm and adapted to swing the same so that its shoulders will engage either the rear trigger or the rear end of the button, and means for locking the lever in either of the positions mentioned, substantially as specified.

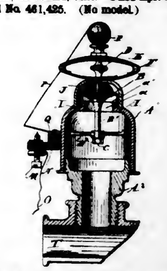
19. In a gun the combination with the receiver having ways, the hollow bolt mounted therein and terminating at its front end in a firing-pin, a spring-pressed plunger located in the bolt and provided at its rear end with a notch, the pivoted sear having a shoulder for engaging the notch, a spring for supporting the sear, an arm pivotally connected at its upper end to and depending from the rear end of the sear, said arm being provided at opposite sides with shoulders, a bell-crank trigger pivoted in rear of the arm and adapted to engage the same, a button pivoted in front of the arm and adapted at its rear end to engage the front shoulder of the arm, a bell-crank trigger in advance of the button and adapted to strike the front end of the same when drawn to the rear, a spring for said trigger, of a pivoted shifting lever one end of which engages loosely with the arm, a socket formed in the lever and provided with a spring-detent and a series of three indentations adapted to be engaged by the detent whereby the shifting lever may be thrown to either side for bringing the arm into engagement with the button or bell-crank trigger or to a point between the same where no engagement is effected, substantially as specified.

492,865. ILLUMINATING-TILE. HENRY HAUSTEIN, San Francisco, Cal. Filed Jan. 7, 1892. Serial No. 417,833. (No model.)



Claim.—In illuminating tiles the combination of the lenses with bars arranged in pairs and adapted to receive the said lenses at intervals, an exterior frame to which the said bars are attached and screw-threaded rods E and nuts G for clamping the said bars on the said lenses substantially as set forth.

492,866. AUTOMATIC ELECTRIC SPRINKLER AND ALARM. CHARLES S. HURD Cleveland, Ohio. Filed Apr. 13, 1892. Renewed Feb. 3, 1893. Serial No. 461,425. (No model.)



Claim.—1. In an automatic sprinkler, a chamber A perforated at *a* and provided with a curved deflector B, centrally located, a stud D projecting from the deflector and divided in two portions connected by a fusible solder, a bell and elastic packing over the reflector and perforation, and spring E and nut G on the stud, substantially as described.

2. In an automatic sprinkler, a chamber A perforated at top at *a* and provided with circular deflector B centrally supported above the said perforation and directing flange, *a*, a stud D extending vertically above the deflector, and secured thereto, the said stud being separated in two portions connected by fusible solder, a nut G upon the extremity of the stud and bell H covering the deflector and perforation in chamber and seated on packing on said chamber, with packing between said bell and deflector, and a spring E between the nut and bell, substantially as described.

3. In combination with an automatic sprinkler, substantially as described, means for signaling the vicinity of a fire consisting in the ball P secured by fusible metal solder to the stud D and the screw and spring terminals L and M of an electric circuit, the spring L being connected with the ball P by means of a chain or cord, as and for the purpose set forth.

4. In combination with an automatic sprinkler substantially as described means for signaling the vicinity of a fire consisting in the ball P secured by fusible metal solder to the stud D divided at *d*, screw and spring terminals L and M of an electric circuit adapted to co-operate with the signal W and battery *x* on the fall of the ball P, substantially as described.

492,867. COTTON-CHOPPER. FRANK S. HYDE, Sulphur Springs, Tex. Filed Dec. 29, 1892. Serial No. 456,727. (No model.)

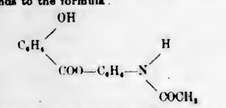


Claim.—In a cotton-chopper, the combination of pivoted arms carrying suitable cutters, arms pivoted to the frame of the machine and also to the upper ends of the cutter-arms, grooves upon the forward ends of the main-arms, a spring located between the same, and an eccentric disk connected to a rotary shaft and having a guide-flange upon its periphery to engage with the groove upon the ends of the main-arms, substantially as and for the purpose described.

492,868. SALICYLIC-ACID COMPOUND. HERMANN JABSSEN, Elberfeld, Germany, assignor to the Farbenfabriken, vormals Fr. Bayer & Co., same place. Filed Feb. 1, 1892. Serial No. 419,966. (Specimens.) Patented in France July 11, 1891, No. 214,810

Claim.—1. The process of producing the antiseptic and antineuralgic compound herein described, which consists in reacting upon paranitrophenol in the presence of dehydrating agents substantially as described, with salicylic acid, reducing the nitro phenylester of salicylic acid thus obtained, and treating the formed amido phenylester of salicylic acid with acetic acid anhydride, or acetyl chloride in such quantity as is necessary for replacing one hydrogen atom of the amido group by the acetyl group.

2. As a new product the compound as hereinbefore described which corresponds to the formula



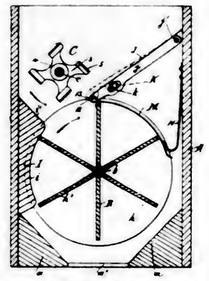
and which crystallizes out of alcohol or benzine in small white brilliant scales melting at 187° centigrade; is almost insoluble in cold water; by alcohol and benzine it is dissolved with great ease these solvents being most suitable for crystallising the same; substantially as described.

492,869. ROTATING GRAIN-METER. ABRAHAM B. LANDIS, Waynesborough, Pa. Filed July 5, 1892. Serial No. 439,035. (No model.)

Claim.—1. In a grain meter, the combination, with a measuring vessel, of a packer provided with arms and longitudinal bars secured to the arms substantially as shown, and driving mechanism operating to revolve the packer continuously in the grain and to cause it to pack the grain into the said vessel.

2. In a grain meter, the combination, with an intermittently revolving measuring-wheel, of a continuously revolving packer operating to increase the normal density of the grain in the measuring-wheel, a driving shaft, a spring connecting the packer to the said shaft, and automatic clutch mechanism and driving devices connecting the said packer and measuring-wheel so that they revolve simultaneously as long as the increased density of the grain in the measuring-wheel is sustained.

3. In a grain meter, the combination, with the end disks of the measuring wheel provided with ribs and projecting points, of the plates arranged between the said ribs, a driving shaft provided with screwthreaded ends, and hubs screwed on the said ends and operating to press the said plates onto the said points, substantially as set forth.



4. In a grain meter, the combination, with the end disks of the measuring wheel, and the radial plates secured between the said disks, of the driving shaft provided with screw-threaded ends, and the hubs screwed on the said ends and provided with cones engaging with seats in the said disks, whereby the measuring wheel is held true and is secured upon the said shaft.

5. In a grain meter, the combination, with a measuring wheel, of a strickle consisting of a curved plate arranged circumferentially of the wheel, adjusting devices for varying the position of the front end of the plate, and a spring operating to press the rear end of the plate against the measuring wheel, thereby preventing the grain from being prematurely discharged from the wheel.

6. In a grain meter, the combination, with a measuring wheel provided with chambers, of a packer for pressing the grain into the chambers, and a strickle adapted to even the compressed grain, whereby the said wheel is caused to discharge the same amount of grain at each revolution.

7. In a grain meter, the combination, with a measuring wheel, of the inclined arms pivoted at their upper ends above the said wheel, the guide plate secured to the said arms, the strickle hinged to the lower ends of the said arms, and a spring adapted to press the strickle against the measuring wheel, substantially as set forth.

8. In a grain meter, the combination, with a measuring wheel, of the inclined arms pivoted at their upper ends above the said wheel, the guide plate secured to the said arms, the crankshaft provided with cranks engaging with the said arms, and the adjustable spring-pressed strickle hinged to the lower ends of the said arms, substantially as and for the purpose set forth.

9. In a grain meter, the combination, with the pinion for driving the measuring wheel said pinion being provided with a clutch jaw, of the driving shaft, the packer mounted on the driving shaft and provided with an inclined-face cam, a projection on the said shaft for the said cam to press against, a sprung connecting the packer to its shaft, and a sleeve splined to the said shaft and provided with a clutch jaw, whereby the said pinion is revolved by the packer shaft when the resistance to the packer causes it to move longitudinally on its shaft and to couple the said clutch jaws, substantially as set forth.

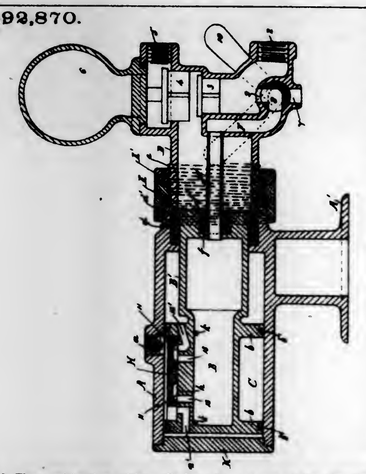
10. In a grain meter, the combination, with the pinion for driving the measuring wheel, said pinion being provided with a cone and a clutch jaw, the driving shaft, the packer operatively connected to the said shaft, and the sleeve splined to the said shaft and provided with a clutch jaw, of a sliding rod supported by the casing and provided with a wedge-shaped end bearing against the said cone, whereby the said clutch jaws may be coupled for the purpose of emptying the meter, substantially as set forth

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492,870. PUMPING-ENGINE. ABRAHAM B. LANDIS, Waynesborough, Pa. Filed Sept. 10, 1892. Serial No. 445,552. (No model.)

Claim.—1. The combination, with a cylinder, of two pistons sliding therein, a central exhaust chamber carried by the said pistons and forming an annular steam chest between the pistons and having steam and exhaust ports connecting the said steam chest with the ends of the cylinder and with the said exhaust chamber respectively, and a slide valve reciprocating with the said pistons and adapted to be slid independent of the pistons, substantially as set forth.

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2. The combination, with a cylinder, of two pistons sliding therein, a combined exhaust chamber and steam chest carried by the said pistons and provided with steam and exhaust ports connecting the said steam chest with the ends of the cylinder and with the said exhaust chamber respectively, a slide valve arranged in the said steam chest, two auxiliary cylinders carried by the main pistons and provided with steam and exhaust passages, and two auxiliary pistons operatively connected with the said slide valve, whereby the slide valve is reversed at the ends of the strokes of the main pistons, substantially as set forth.

3. The combination, with a cylinder, of two pistons sliding therein, a combined exhaust chamber and steam chest carried by the said pistons and provided with the steam ports 12' and exhaust ports 13, a slide valve arranged in the steam chest and provided with the exhaust cavities 11 and a projecting arm, two auxiliary cylinders carried by the main pistons and provided with the steam inlet holes *i*, the holes 16 at the ends of the cylinders and the exhaust holes *k* connecting the holes 16 with the exhaust chamber, and two auxiliary pistons engaging loosely with the said arm and provided with a central stem having ends 14 provided with grooves 15, said ends being adapted to slide in the said holes 16 and to strike the ends of the main cylinder, substantially as set forth.

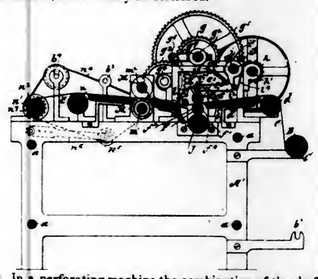
4. The combination, with a cylinder having a steam inlet at substantially the middle of its length, of a reciprocating exhaust chamber having a piston at each end and an annular steam chest between the said pistons and surrounding the said exhaust chamber, the said steam chest being constantly in communication with the said steam inlet, a valve carried in the said steam chest and operating to distribute the steam to the ends of the cylinder and to the said exhaust chamber, and a stationary exhaust pipe projecting centrally within the said exhaust chamber, substantially as set forth.

5. The combination, with a cylinder, of a chamber for exhaust steam reciprocating in the cylinder, a water chamber secured to the said cylinder, and an exhaust pipe connected with the said water chamber and projecting centrally of the cylinder within the said reciprocating exhaust chamber, substantially as set forth.

6. The combination, with a cylinder, of a chamber for exhaust steam reciprocating in the cylinder, a water chamber secured to the said cylinder, an exhaust passage in the water chamber, an exhaust pipe connected to the said passage and projecting centrally of the cylinder and within the said reciprocating exhaust chamber, and a valve arranged in the said exhaust passage and adapted to discharge the exhaust steam into the water or into the atmosphere, substantially as set forth.

492,871. PERFORATING AND CUTTING MACHINE. WILLIAM LIDDELL, Brooklyn, N. Y. Filed June 13, 1892. Serial No. 436,614. (No model.)

Claim.—1. The combination in a perforating machine of a pair of longitudinally slotted rollers mounted to turn in unison and between which paper to be peforated is fed, the slot of one of the said rollers having a bar, containing a row of punches, fitted to slide therein transversely of the roller, and the slot of the other roller having a die plate secured therein and provided with holes to receive the said punches when in alignment therewith, springs arranged to actuate the slide bar in one direction to disengage the punches from the holes of the die plate after use, rollers journaled in the arms of a rock shaft and normally sustained in a position to be rocked against the said slide bar to operate the punches, and other rollers arranged for rocking the last mentioned rollers, journaled in arms of a rotary shaft, and having comparatively a much greater circumferential velocity around the latter than that of the roller carrying the punches, around its axis of motion, substantially as described.

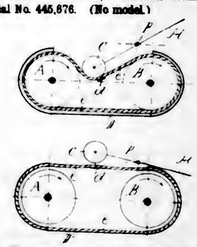


2. In a perforating machine the combination of the shaft g^4 having radially adjustable arms g^7 carrying rollers g^6, the rock shaft i having arms i^3 carrying rollers i', the roller E containing a sliding bar having a row of punches secured thereto and operated by the rollers g^6 through the rollers i' the roller F containing a die plate provided with holes to receive the said punches and opening into a slot extending through the same, the gear wheels g g' secured to the shaft g^4 and respectively operating the rollers E and F through the gear wheels e' and f' g^5, and the main driving shaft h' imparting motion to the shaft g^4 through the wheel g^5 and pinion h substantially as described.

3. In a perforating machine as described the roller E having a slide bar e^3 containing a row of punches e^5 fitted to slide in a slot therein the bar e^3 having end extensions e^4 inclosed by collars secured to the roller and acted on by coil springs arranged in sockets formed in the roller whereby one edge of the bar e^3 is held normally to coincide with the circumference of the roller and its punches held within the circumference thereof substantially as described.

4. In combination the feed rollers E F, one having a slide bar containing a row of punches arranged to enter a row of holes in a die plate secured within the other roller when in alignment with the holes, mechanism as described for rotating the feed rollers and operating the punches into and out of engagement with the holes of the die plate, a roller support as J for the roller F, pairs of rotary cutting disks adjustably secured to shafts arranged one above the other, a take-up roller detachably connected to the shaft of a driving pulley and provided with means for clamping thereto tubes on which paper may be wound and an adjustable tension device for regulating the strain on the paper while being wound on the take-up roller substantially as described.

492,872. ENGAGING OR DISENGAGING GEAR FOR MACHINE-BELTS. WILHELM MAYBACH, Cannstadt, Germany. Filed Sept. 12, 1892. Serial No. 445,676. (No model.)



Claim.—1. The combination, with a driving and a driven pulley, a belt placed on the same, and a pivoted roller adapted to throw the belt and pulleys into gear, of a rest connected to the roller and adapted to support the greater portion of the belt, when the same is disengaged, for the purpose set forth.

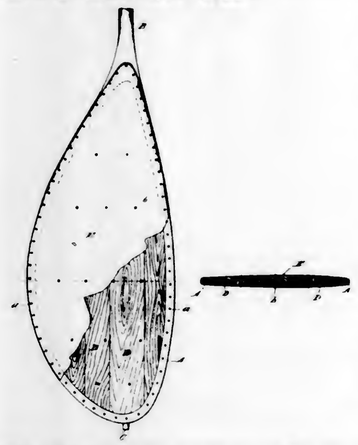
2. The combination, with the driving pulley A, the driven pulley B, the belt *c*, and the tension roller C pivoted by means of the handle H, of the rest *d*, adapted to be displaced together with the roller C, and the casing D, substantially as and for the purpose described.

3. The combination, with the driving-pulley A, the driven pulley B, the belt *c*, and the tension-roller C pivoted by means of the handle H, of the rest *d*, adapted to be displaced together with the roller C, the casing D and the stationary rest D', substantially as and for the purpose described.

4. In an engaging and disengaging gear for change-belts or ropes, the combination, with the driving pulleys A' A'', the driven pulleys B' B'', the belts *c'* *c''*, the levers *i'* *i''*, and tension-rollers C' C'', of springs tending to press the rollers on the belts, connecting-rods *k'* *k''*, the cranks *g'* and *g''*, forming an angle with each other, the shaft G, handle H, and means for locking the same in its middle position, for the purpose set forth.

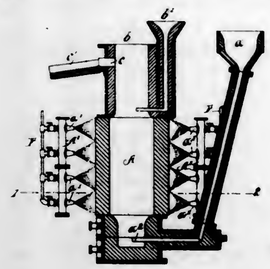
5. In an engaging and disengaging gear for change-belts or ropes, the combination, with the driving pulleys A' A'', the driven pulleys B' B'', the belts *c'* *c''*, the levers *i'* *i''*, and tension-rollers C' C'', of the springs *m'* *m''*, connecting-rods *k'* *k''*, the cranks *g'* and *g''*, forming an angle with each other, the shaft G, handle H, the disk *m* having cam *n*, and the sprig *o* having recess *o'*, substantially as and for the purpose described.

492,873. RUDDER. ALEXANDER McDOUGALL, Duluth, Minn. Filed Sept. 17, 1891. Serial No. 406,012. (No model.)



Claim.—An improved rudder, consisting of a metallic continuous frame A, planks D, continuous throughout, arranged vertically within said frame and an outer metallic covering E, on each side of the planks D, and riveted thereto and to the continuous frame, substantially as described.

492,874. CASTING HARD-METAL OR CHILLED ROLLS. HERMANN KRUSCH, Senbach, Austria-Hungary, and BERNHARD PREU, Goerlitz, Germany. Filed Feb. 19, 1891. Serial No. 382,126. (No model.) Patented in Belgium June 10, 1890, No. 90,851; in Switzerland Aug. 1, 1890, No. 2,590, and in Austria-Hungary Oct. 11, 1890, No. 28,492 and No. 50,000.



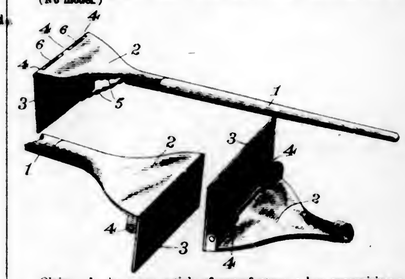
Claim.—1. The mode of casting rolls, which consists in causing the molten metal to flow into the mold at or near both ends and through said mold in one and the same direction, substantially as and for the purpose set forth.

2. The mode of casting rolls, which consists in causing the molten metal to flow tangentially into the mold at or near both ends and through said mold in one and the same direction, substantially as set forth.

3. The mode of casting rolls, which consists in causing the molten metal to flow into the mold at or near both ends and through said mold in one and the same direction, and cooling the metal by projecting atomized water or water in the form of mist onto the mold, substantially as and for the purpose set forth.

4. A mold for casting rolls having a lower and an upper in-gate arranged so as to cause the metal to flow tangentially into the mold, in combination with a spill gate at the upper end of the mold, substantially as and for the purpose set forth.

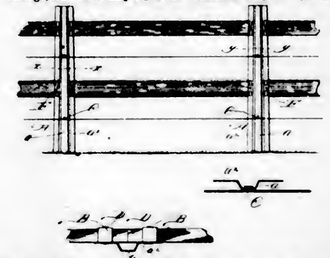
492,875. FOLDING HOE FOR REMOVING ASHES. FREDERICK A. RICE, Bridgeport, Conn. Filed May 5, 1892. Serial No. 431,904. (No model.)



Claim.—1. As a new article of manufacture, a hoe comprising a body portion, a blade hinged thereto and adapted to fold inwardly, and means for limiting the outward swing of said blade to a vertical position, substantially as set forth.

2. The combination with the body of a hoe, of the blade hinged thereto and secured as against any outward swing beyond a plane at right angles to said body, said blade being capable of folding inwardly, substantially as shown and described.

492,876. FENCE. FREDERICK P. ROSBACK and HENRY F. BAND, Chicago, Ill. Filed May 24, 1892. Serial No. 434,200. (No model.)

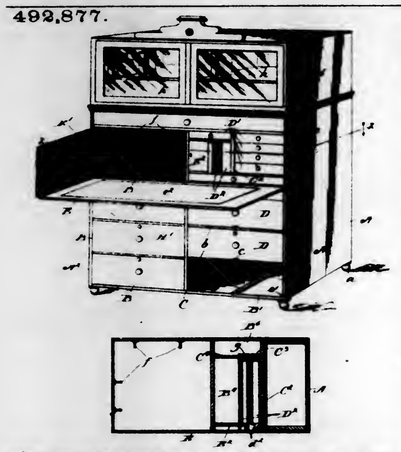


Claim.—A sheet-metal post formed with a corrugation along its longitudinal middle line, flange edge portions, clips along its corrugation, and clips along its flange edge portions, substantially as set forth.

492,877. COMBINED WRITING-DESK, BUREAU, AND BOOK AND DRESSING CASE. NEAL P. SMULE, Butte City, Mont. Filed Aug. 19, 1892. Serial No. 443,490. (No model.)

Claim.—As an improved article of manufacture a combined writing-desk, bureau, book and dressing-case, consisting of the main frame or casing A, having the lid E, hinged horizontally to its front portion, the vertical partition C, centrally located in the frame and dividing the same into compartments B, and B', the compartment B', being provided with a number of drawers D, in its lower portion, and drawers D', D², and a secret recess B², in its upper part, said

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secret recess being located at the rear of the drawers D^3, and compartment B^4, and closed by means of a sliding panel C^4, all constructed, arranged and operating substantially as shown and for the purpose set forth.

492,878. BOX OR CANISTER. JOHN H. SIEBER, Henderson, Ky. Filed Oct. 3, 1892. Serial No. 447,715. (No model.)



Claim.— The combination of a casing, a box contained therein hinged to the lower front edge of both casing and box, said box having a separable front, whereby either said front or the entire box may be swung outwardly upon the hinge.

492,879. GRAIN-CONVEYER. JOHN B. STOKER, New York, N. Y. Filed Aug. 26, 1891. Serial No. 403,759. (No model.)

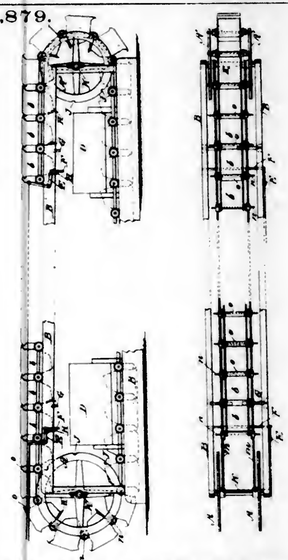


Claim.—1. A machine for conveying grain which consists of rails inclined downward in the direction and along the path of conveyance, and arranged between two pulleys, buckets suitably united and having lips, and doors provided with flanges, and so arranged that when each door is closed there will be some space between the lower edge of the bucket and the door; said buckets adapted to ride on said rails and around said pulleys, and means of opening and shutting said doors automatically at certain points along said inclined rails, substantially as described.

2. In an automatic machine for conveying grain the combination of rails inclined downward in the direction and along the path of conveyance and arranged between two pulleys, and buckets suitably united and having lips, and doors provided with flanges, and so arranged that when each door is closed there will be some space between the lower edge of the bucket and the door, said buckets being adapted to ride on said rails and around said pulleys, with crossbar and traveler, adapted to open and shut said doors respectively, substantially as described.

3. A machine for conveying grain which consists of rails inclined

492,879.



downward in the direction and along the path of conveyance and arranged between two pulleys having vertical axes, buckets suitably united and provided with overlapping lips, so as to form substantially a trough, and with doors having flanges and so arranged that when each door is closed there will be some space between the lower edge of the bucket and the door, said buckets being adapted to ride on said rails and around said pulleys, and means of opening and shutting said doors automatically, at certain points in the course of said buckets, substantially as described.

492,880. BELTING. ELDORAS TODD, Clavering, Canada. Filed Aug. 15, 1892. Serial No. 443,100. (No model.)

Claim.— A power transmitter consisting of a metallic belt comprising a multiple number of metallic sheets arranged one above the other, a series of slots formed in the lower most and intermediate sheets, rivets passing through said slots, each of said rivets having an enlarged head to enter a counter sunk hole in the lower most sheet, the opposite end of the said rivet secured to the upper most sheet, the opposite meeting ends of each sheet fastened together to form a continuous belt, substantially as described.

492,881. LEADING-PIECE FOR OVERHEAD ELECTRIC RAILWAYS. HENRY D. WIRTON, Wellesley, Mass., assignor to the Hersey Manufacturing Company, of Portland, Me., and of Boston, Mass. Filed June 20, 1892. Serial No. 437,391. (No model.)



Claim.—1. The combination in a trolley guiding device of the character set forth, of one or more independent leading pieces adapted for attachment to the wires of overhead electric railway lines, and a plate adapted to be secured to said overhead lines, forming a guide for a trolley wheel whereby a change of direction may be given to the trolley from one wire to another, substantially as described.

2. The combination in a trolley guiding device of the character set forth, of one or more independent leading pieces adapted for attachment to the wires of overhead electric railway lines, and a plate adapted to be secured to said overhead lines and provided with de-

pending sides or studs, forming a guide for a trolley wheel whereby a change of direction may be given to the trolley from one wire to another, substantially as described.

3. The combination in a trolley guiding device of the character set forth, of one or more independent leading pieces adapted for attachment to the wires of overhead electric railway lines, and a plate adapted for attachment to said overhead lines, provided with depending sides forming a guide for a trolley wheel whereby a change of direction may be given to the trolley from one wire to another, substantially as described.

4. The combination in a trolley guiding device of the character set forth, of one or more independent leading pieces adapted for attachment to the wires of an overhead electric line, and a plate adapted for attachment to said overhead line, provided with a central stud, forming a guide for a trolley wheel whereby a change of direction may be given to the trolley from one wire to another, substantially as described.

5. The combination in a trolley guiding device of the character set forth, of one or more independent leading pieces adapted for attachment to the wires of overhead electric railway lines, and a plate provided with clamps for attaching it to the overhead line, and provided with depending sides or studs, forming a guide for a trolley wheel whereby a change of direction may be given to the trolley from one wire to another, substantially as described.

6. The combination in a trolley guiding device of the character set forth, of one or more leading pieces provided with clamps for securing the same to overhead electric railway lines, and a plate provided with depending sides or studs forming a guide for a trolley wheel whereby a change of direction may be given to the trolley from one wire to another, substantially as described.

7. The combination in a trolley guiding device of the character set forth, of one or more independent leading pieces provided with clamps for attaching the same to the wires of overhead electric railway lines, and a plate provided with clamps for securing it to said lines, and having depending sides or studs forming a guide for a trolley wheel whereby a change of direction may be given to the trolley from one wire to another, substantially as described.

8. The combination in a trolley guiding device of the character set forth, of one or more leading pieces provided with clamps for attaching the same to overhead electric lines, and a depression at one end, and a plate adapted to fit into said depression to prevent the leading pieces from turning or crowding forward, and provided with depending sides or studs forming a guide for a trolley wheel whereby a change of direction may be given to the trolley from one wire to another, or from one wire by another, substantially as described.

9. The combination in a trolley guiding device of the character set forth, of one or more independent leading pieces of tapering form and provided with clamps for securing the same to overhead electric railway lines, and provided with a depression at one end, a plate adapted to fit into said depression and provided with clamps for securing it to said overhead lines and having depending sides or studs forming a guide for a trolley wheel whereby a change of direction may be given to the wheel from one wire to another or from one wire by another, substantially as described.

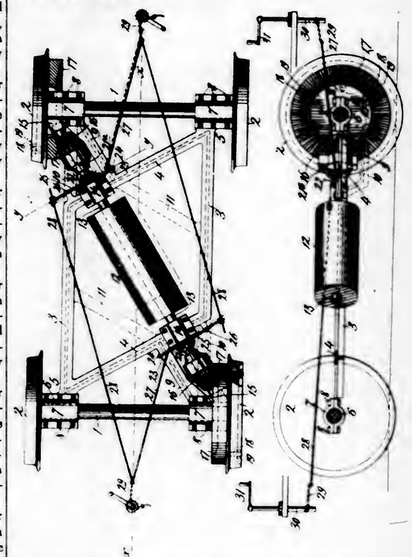
10. The combination in a trolley guiding device of the character set forth, of one or more leading pieces composed of wedge-shaped ribs provided with a slotted stud to receive a trolley wire, and a yoke adapted to clamp the trolley wire and fit over said stud, and a threaded nut formed to fit the slotted stud so as to clamp the said leading pieces to the trolley wire, and a flattened depression at one end, and a plate adapted to fit said depression to prevent the leading pieces from turning on the wire and to prevent their crowding forward, said plate being provided with depending sides forming a guide for a trolley wheel, and having clamps for securing it to the trolley wires, the whole forming a built up switch, frog or crossing capable of transformation and forming a guide for a trolley wheel whereby its direction may be changed from one wire to another, or from one wire by another, substantially as described.

492,882. STREET-CAR. JOHN O. ADSIT, Hornellsville, N. Y., and CHARLES H. WICKHAM, Tioga, Pa. Filed May 14, 1892. Serial No. 433,014. (No model.)

Claim.—1. The combination with the frame connecting the two axles, of the electric-motor shaft extending diagonally across the frame, said shaft throughout its length being rigid and supported rigidly in the same horizontal plane with the car wheel axles and having gears meshing with gears through which motion is transmitted to the car wheel, substantially as and for the purposes described.

2. The combination with the car wheel axles, of the electric-motor shaft arranged diagonally to the car wheel axles said shaft throughout its length being rigid and supported rigidly in the same horizontal plane with the car-wheel axles, and gears on said shaft meshing with other gears through which motion is transmitted to the car wheels whereby power is applied from said motor shaft simultaneously to the front and rear wheels at diagonally opposite points through single reduction gears and said gears on the shaft are held by the rigid shaft at the same point against the gears with which they mesh, substantially as and for the purposes described.

3. The combination with the car wheel axles, of the frame connected rigidly with the car axles at diagonally opposite points, the electric motor supporting shaft extending diagonally across said frame and rigidly supported in the same horizontal plane with the car axles, and the gears carried by said shaft and meshing with other gears transmitting motion to the car wheels, substantially as and for the purposes described.



4. The combination with the car wheel axles, of the electric-motor carrying shaft extending diagonally to the length of the car wheel axles and supported rigidly in the same horizontal plane with said axles, and gears carried by said rigid shaft and meshing with other gears for transmitting motion to the car wheel, substantially as and for the purposes described.

5. The combination with the car axles, of the motor-shaft supported between the axles and lying diagonally to the length thereof, gears for transmitting motion from said shaft to the car wheels, and means for throwing said gears into and out of operation while permitting the motor shaft to revolve, substantially as and for the purposes described.

6. The combination with the car axles and wheels, of the motor shaft supported between the axles diagonally to the length thereof and provided with gears meshing directly with gears connected to the car wheel, substantially as and for the purposes described.

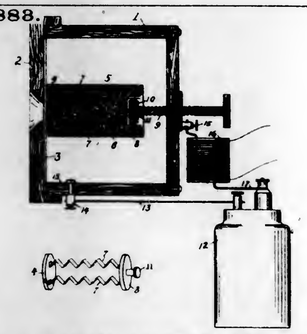
7. The combination with the car axles and the motor-shaft supported between the axles and provided with gears, of gears for the motor-shaft gears to mesh with to transmit motion to the car wheels, said gears being formed in sections to permit sections of the gears to be removed without removing the whole gear, substantially as and for the purposes described.

8. The axle connecting frame comprising the parallel sides two of which run diagonally to the others, and boxes connected to said frame for attaching the same to the car axles, substantially as and for the purposes described.

9. The axle connecting frame comprising the parallel sides two of which run diagonally to the others, arms or members extending laterally from said frame, and boxes connected to said frame and to said laterally extending members for attaching the frame to car axles, substantially as and for the purposes described.

492,883. TELEPHONE-TRANSMITTER. CHARLES T. BLOOMER, New York, N. Y. Filed Dec. 14, 1892. Serial No. 456,139. (No model.)

492,883.



Claim.—1. In a telephone transmitter the combination of a vibrating diaphragm and a variable resistance connected therewith and included in the circuit, which resistance consists of a mass of powdered carbon with one or more strips or ribbons embedded therein, substantially as described.

2. In a telephone transmitter the combination of a vibrating diaphragm and variable resistance connected therewith and included in the circuit, which resistance consists of a mass of powdered carbon with one or more strips or ribbons of conducting material embedded therein, substantially as described.

3. In a telephone transmitter the combination of a vibrating diaphragm and a variable resistance connected therewith and included in the circuit, which resistance consists of a mass of powdered carbon with one or more strips or ribbons creased or folded to form plaits embedded therein, substantially as described.

4. In a telephone transmitter the combination of a vibrating diaphragm and a variable resistance connected therewith and included in the circuit, which resistance consists of a mass of powdered carbon with one or more strips or ribbons of conducting material creased or folded to form plaits embedded therein, substantially as described.

5. In a telephone transmitter the combination of a vibrating diaphragm and a variable resistance connected therewith and included in the circuit, which resistance consists of a mass of powdered carbon with one or more strips or ribbons of carbon creased or folded to form plaits embedded therein, substantially as described.

6. In a telephone transmitter the combination of a vibrating diaphragm, a plate attached thereto, an elastic tube fitted on and attached to the plate and filled with powdered carbon, a plate fitted into the other end of the tube and one or more strips or ribbons connecting the plates and embedded in the carbon, substantially as described.

7. In a telephone transmitter the combination of a vibrating diaphragm, a plate attached thereto, an elastic tube fitted on and attached to the plate and filled with powdered carbon, a plate fitted into the other end of the tube and one or more strips or ribbons of conducting material connecting the plates and embedded in the carbon, substantially as described.

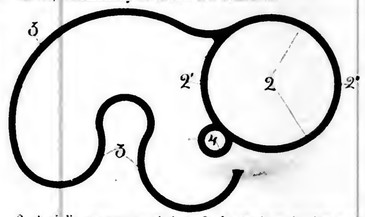
8. In a telephone transmitter the combination of a vibrating diaphragm, a plate attached thereto, an elastic tube fitted on and attached to the plate and filled with powdered carbon, a plate fitted into the other end of the tube and one or more strips or ribbons creased or folded to form plaits connecting the plates and embedded in the carbon, substantially as described.

9. In a telephone transmitter the combination of a vibrating diaphragm, a plate attached thereto, an elastic tube fitted on and attached to the plate and filled with powdered carbon, fitted into the other end of the tube and one or more strips or ribbons of conducting material creased or folded to form plaits connecting the plates embedded in the carbon, substantially as described.

10. In a telephone transmitter the combination of a vibrating diaphragm, a plate attached thereto, an elastic tube fitted on and attached to the plate and filled with powdered carbon, a plate fitted into the other end of the tube and one or more strips or ribbons creased or folded to form plaits connecting the plates and embedded in the carbon, substantially as described.

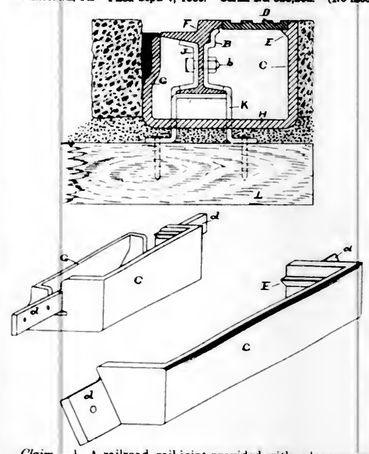
492,884. VIOLIN-SUPPORT. JAMES F. BOYER, Blair, Nebr. Filed Nov. 21, 1892. Serial No. 452,716. (No model.)

Claim.—1. A violin support consisting of the loop 2 made of any pliable line, and having the smaller integral loop 4 and the branch 3 the portion of the loop 2 between the branch 3 and the loop 4 being nearly equal to the distance across the back of a violin between the bow-curves, substantially as shown and described.



2. A violin support consisting of a larger loop, having a smaller integral loop, and a branch with a free end, all made of any pliable line, substantially as shown and described.

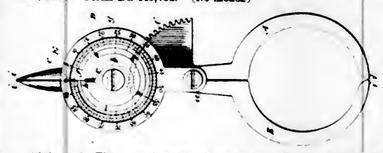
492,885. JOINT-BOX FOR THE JOINTS OF STREET-RAILWAYS. ELMER O. EVANS, Cincinnati, Ohio, assignor to the Johnson Company, Johnstown, Pa. Filed Sept. 7, 1889. Serial No. 323,292. (No model.)



Claim.—1. A railroad rail-joint provided with a box or casing, adapted for access thereto, and inclosing both sides of said joint, substantially as set forth.

2. A railroad rail-joint provided with a box or casing, adapted for access thereto, and secured to the webs of the rails, substantially as set forth.

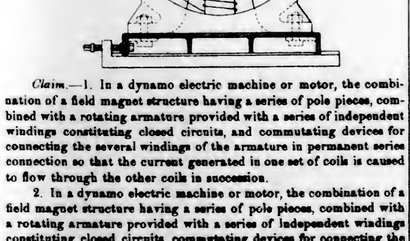
492,886. MEASURING-INSTRUMENT. HERMANN GORRY, Liverpool, England, assignor of one-half to Isaac Beck, same place. Filed Oct. 24, 1892. Serial No. 449,752. (No model.)



Claim.—1. The combination of two pivoted sections A, B, indicating devices D, E and means substantially as described for operating said indicating devices whereby an indication of the distance between the arms is had of said instrument and the angle formed by said arms, substantially as set forth.

2. The combination of two pivoted sections A, B, stationary dial D, movable dial E carried by one of said sections and means substantially as described for moving said dial E, when the sections are opened or closed, whereby the distance between the arms of the instrument and the angle formed by said arms are indicated, substantially as set forth.

3. The combination of two sections A, B, sector-rack C mounted on one of said sections, pinion *b* engaged by said rack C and rotary indicator E carried on the other section and operated by the rack, substantially as described.



4. In a measuring instrument, composed of sections A, B, that are pivoted together, the combination of said sections with the rack C carried by one of said sections and with the pinion *b*, rotary dial E and annular fixed dial D carried by the other section, the dial E having a circumferential scale *f* and pointer *h*, and the dial D having scale *g* and pointer *e*, all arranged to measure the angle between and the distance apart of the sections A B when opened, as specified.

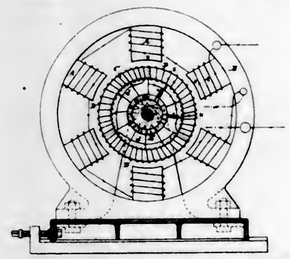
492,887. BICYCLE-WHISTLE. FRED J. HALL, Wallingford, Conn. Filed July 16, 1892. Serial No. 440,270. (No model.)



Claim.—1. In a whistle of the character described the combination with a mouth-piece of a barrel provided with a longitudinal partition extending somewhat above the upper edge thereof substantially as and for the purpose set forth.

2. In a whistle of the character described, the combination with a mouth-piece of a barrel provided with a longitudinal partition extending somewhat above the upper edge thereof, and a stop, or filling in one of the compartments formed in said barrel by said partition substantially as and for the purpose set forth.

492,888. DYNAMO-ELECTRIC MACHINE AND MOTOR. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Oct. 29, 1892. Serial No. 450,530. (No model.)



Claim.—1. In a dynamo electric machine or motor, the combination of a field magnet structure having a series of pole pieces, combined with a rotating armature provided with a series of independent windings constituting closed circuits, and commutating devices for connecting the several windings of the armature in permanent series connection so that the current generated in one set of coils is caused to flow through the other coils in succession.

2. In a dynamo electric machine or motor, the combination of a field magnet structure having a series of pole pieces, combined with a rotating armature provided with a series of independent windings constituting closed circuits, commutating devices for connecting the several windings of the armature in permanent series connection so that the current generated in one set of coils is caused to flow through the other coils in succession, and electric circuits connecting the windings of the pole pieces in series with the armature.

3. In a dynamo electric machine or motor, the combination of a field magnet structure having a series of pole pieces, combined with a rotating armature provided with a series of independent windings constituting closed circuits, commutating devices for connecting the several windings of the armature in permanent series connection so that the current generated in one set of coils is caused to flow through the other coils in succession, electric circuits connecting the winding of the pole pieces in series with the armature independently of the field coils.

4. In a dynamo electric machine or motor, the combination of a field magnet structure having a series of poles, with a rotating armature consisting of a core provided with a series of independent coils arranged upon said core in succession and forming closed circuits, a separate commutator connecting with each of the coils similarly to a Gramme ring, and brushes and connecting circuits for connecting the several windings in series with each other through the commutators.

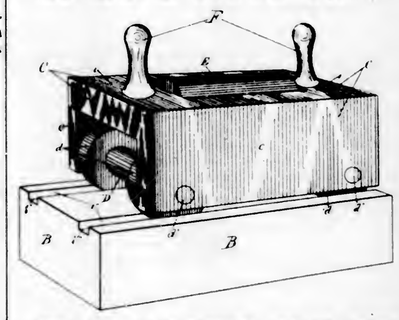
5. In a dynamo electric machine or motor, the combination of a field magnet structure having a series of poles, with a rotating armature consisting of a core provided with a series of independent coils arranged upon said core in succession and forming closed circuits, a separate commutator connecting with each of the coils similarly to a Gramme ring, brushes and connecting circuits for connecting the several windings in series with each other through the commutators, coils upon the field magnet poles, and a switch to reverse the current in the armature coils independent of the field magnet coils.

6. In a dynamo electric machine or motor, the combination of a series of pole pieces of alternate polarity arranged in a circle, a rotating armature having independent closed wire coils connected to separate commutators arranged upon the same side of the armature, a series of brushes for said commutators, and connecting circuits for coupling the brushes of the several commutators in series.

7. A Gramme ring for a dynamo electric machine or motor consisting of a core having two or more sets of coils wound upon it and each closed upon itself, a separate commutating device for each set of coils consisting of a commutator having its sections connecting with several places upon the independent coils, and brushes for the several commutators connected in series.

8. In a Gramme ring for a dynamo electric machine or motor, the combination of a core, with a series of independent coils wound upon the core and arranged end to end and forming separate closed circuits, and commutating devices carried with the armature for the several coils and so arranged as to produce therein poles of opposite polarity at stated intervals about the core.

492,889. ARM AND WRIST REST. REBECCA KIRK, Stratford, Canada. Filed Oct. 5, 1892. Serial No. 447,962. (No model.)



Claim.—1. An arm rest comprising a guide rail, a carriage mounted upon said guide rail consisting of a frame, wheels mounted in said frame and adapted to run upon said guide rail, and a top to said frame for the arm to rest upon, substantially as and for the purpose set forth.

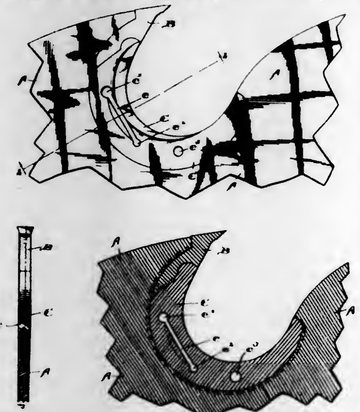
2. In an arm rest the combination of a guide rail a carriage mounted upon said guide rail, said carriage comprising a frame work, two wheels mounted in said frame work and adapted to run upon said guide rail, a roller mounted in the top of said frame work to support and allow of the movement of the arm, substantially as and for the purpose described.

3. In an arm rest the combination of a guide rail a carriage mounted upon said guide rail, said carriage comprising a frame work, two wheels mounted in said frame work and adapted to run upon said guide rail, a roller mounted in the top of said frame work to support and allow of the movement of the arm, and a stop located

at either end of said roller to prevent the arm moving off said roller, substantially as and for the purpose set forth.

4. In an arm rest the combination of a guide rail provided with two parallel grooves, a tongue between said grooves, a carriage comprising a frame work, grooved wheels mounted in said frame work, the flanges of which travel in the grooves of the guide rail, a top to said frame, a roller mounted in said top adapted to support the arm and a pin located at either end of said roller to prevent the arm slipping off said roller, substantially as and for the purpose described.

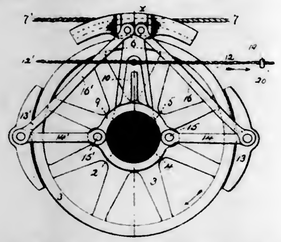
492,890. SAW. ANDREW KRIEGER, Indianapolis, Ind. Filed July 14, 1892. Serial No. 440,060. (No model.)



Claim.—1. A holder for insertible saw teeth having a slot extending longitudinally thereof the wall whereof is beveled or inclined, whereby obstructions are prevented from accumulating, or are easily discharged when they do accumulate, substantially as set forth.

2. In a holder for insertible saw teeth, a slot partially dividing the holder, the side wall whereof is formed with an edge at a central point from which the metal is gradually beveled back to the sides of the holder, substantially as set forth.

492,891. CAR-BRAKE. NATHANIEL LOMBARD, Boston, Mass., assignor of one-half to Henry A. Clark, same place. Filed Jan. 3, 1893. Serial No. 456,968. (No model.)



Claim.—1. The combination with a revoluble axle, and a disk affixed upon the same, of non-revoluble levers independently operated by the brake-rods, friction shoes attached to said levers, rocking arms with chains to brake-levers, and positive means to unite the friction shoes with the rocking arms, substantially as specified.

2. In brake-mechanism, a revoluble axle, a sleeve disk rigid thereupon, and pivoted rocking shoes to co-operate with said disk, combined with a pair of rocking arms furnished with hubs loosely upon said sleeve, a pair of levers with collars loosely upon said hubs, rods which unite the friction shoes to said levers, and positive means to interconnect the shoes with the arms, as likewise means to join the arms with the brake-levers, substantially as explained.

3. In a car-brake the combination with a rocking lever, a pivoted rod attached to said lever, and frictional shoes at the extremity of said rod, of a revoluble axle, a disk affixed thereto, and an operating brake-rod connected with the lever, whereby rocking of the lever through the agency of the rod causes the friction shoe to bear against the disk, substantially as and for the purposes set forth.

492,892. EGG-SEPARATOR. JOHN M. LUCAS, Cadiz, Ohio. Filed May 26, 1892. Serial No. 434,463. (No model.)



Claim.—1. An egg-separator comprising a settling-chamber and a guard open at its top and projected from and surrounding the said settling-chamber and having a discharge-slot in its side between the settling chamber and guard, substantially as shown and described.

2. An egg-separator having a settling-chamber in its bottom, a slot in its side, and having an annular offset or flange at the top of the said chamber, substantially as and for the purpose specified.

3. An egg-separator having a semi-spherical settling-chamber in its bottom and having a discharge-slot in its side, and having an annular flange between the said chamber and slot, substantially as described, for the purpose set forth.

4. In an egg-separator, a settling-chamber, means for attaching the separator to a receptacle, means for separating the white from the yelk of the egg and means for depositing the separated parts into suitable receptacles without detaching the separator from the vessel, substantially as described.

5. In an egg-separator the cup A having the side slot *a* and an aperture in its lower part, said cup being adapted to fit within the cylinder H, in combination with said cylinder, the tilting-bottom *n*, and lever *m* adapted to open and close the aperture in the lower part of the settling-chamber, the chute B for conveying the yelk to a suitable receptacle and the attaching clamp *d*, substantially as described and for the purpose specified.

6. In an egg-separator the cup A having a settling-chamber C adapted to hold the yelk of an egg and having a downward opening and means for normally closing the same, and a slot *a* in its side to separate the white from the yelk, a chute *d'* leading from the separating slot and adapted to convey the white of the egg to a suitable receptacle, in combination with the cylinder H having the longitudinal and transverse groove *e* in its upper edge, the pin *f* engaging said groove, the cylinder H being provided with a chute B and the attaching clamp *d*, substantially as described.

7. In an egg-separator, the combination of a cup A having a settling-chamber C, said chamber opening downwardly, a side slot *a* and a chute *d'* leading from said slot, in combination with the tilting bottom *n* and lever *m*, substantially as described.

8. In an egg-separator, a cup provided with an open bottom and means for closing the same and a slotted side with a co-operating chute, in combination with a suitable support and attaching device, substantially as and for the purpose set forth.

9. In an egg-separator, an open bottomed cup provided with a slot in its side and a pin or projection and means for closing the open bottom, in combination with a cylinder having a longitudinal slot terminating with a transverse extension, substantially as and for the purpose specified.

10. In an egg-separator the combination of a cup with an open bottom and slotted side, and means for closing the opening in the bottom, with a cylinder and chute, substantially as and for the purpose set forth.

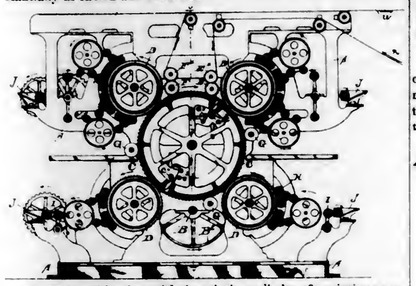
492,893. PRINTING-PRESS. SAMUEL J. MURRAY, Indianapolis, Ind., assignor to the National Card Company, same place. Filed Jan. 7, 1892. Serial No. 417,261. (No model.)

Claim.—1. The combination, with a cylinder of a printing press, of collars secured on the shaft thereof alongside the bearings, and notches in said shaft, and set screws in said collars adapted to engage with the opposite sides of said notches, whereby said shaft may be moved endwise, by loosening one and tightening the other.

2. The combination, with the impression cylinder of a printing press, of a set of rolls through which the paper passes before reaching said impression cylinder, geared to run at a slightly less peripheral speed than said cylinder, whereby the paper is retarded and held taut as it passes onto said cylinder before being printed, substantially as set forth.

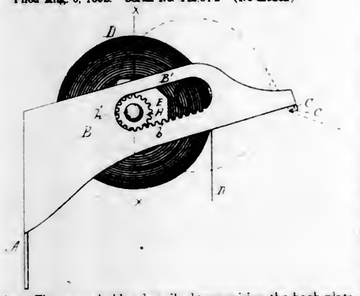
3. The combination, with the impression cylinder of a printing press, of a set of rolls arranged near to and driven from said cylinder and thus adapted to directly receive the paper as it comes from said cylinder after being printed, which said rolls are geared to run at a slightly greater peripheral speed than said cylinder, whereby said paper is pulled taut after it leaves said cylinder, after being printed, substantially as set forth.

4. The combination, in a printing press, of a central impression cylinder, several printing cylinders equally disposed about said impression cylinder, and skeleton rolls (as G and F) disposed about said impression cylinder, following the printing cylinders, whereby the printed paper is held closely against said impression cylinder after each impression until ready for final delivery from the machine, substantially as shown and described.



5. The combination, with the printing cylinder of a printing press, of ink rolls arranged radially about said printing cylinder, the bearings whereof are slotted and secured by bolts passing through said slots and entering the frame-work at points in a line concentric to said cylinder, thus permitting a circumferential adjustment of said ink rolls without varying their pressure upon said printing cylinder, substantially as set forth.

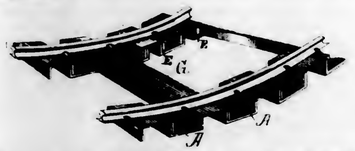
492,894. TOILET-PAPER HOLDER. GEORGE W. REED, Derby, Vt. Filed Aug. 6, 1892. Serial No. 442,314. (No model.)



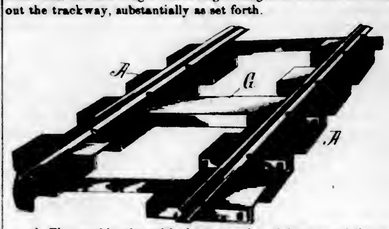
Claim.—The paper-holder described, comprising the back-plate, arms provided with upwardly inclined slots B' having teeth cut in their lower edges, serrated front plate C, and core provided rigidly with gear wheels H lying in said slots and engaging the teeth *b* therein, substantially as set forth

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492,895. RAILWAY-TIE. HERMAN V. SLUTZ, Alta, and THEOPHILUS SLUTZ, Storm Lake, Iowa. Filed Feb. 15, 1892. Serial No. 421,597. (No model.)

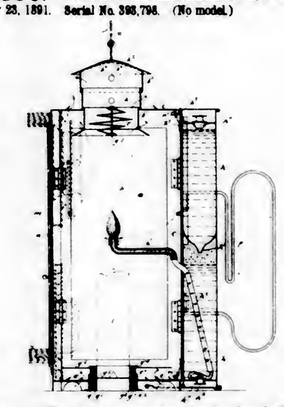


Claim.—1. A railway tie composed of a series of short metal ties, each tie consisting of a plate having flanged sides, the plates being arranged as shown so that the flanges of one overlap the adjacent flanges of the two adjacent ties, and continuous ties the latter having flanged sides and extending from one rail to the other and supporting both rails, the said longer ties being arranged at intervals throughout the trackway, substantially as set forth.



2. The combination with the two series of short metal ties each consisting of a plate having flanged sides, the flanges of each alternate tie overlapping the adjacent flanges of the two adjacent ties, of the wedges secured between the flanges for forming a curve, substantially as set forth.

492,896. LANTERN. ANDREAS SÖRNER, Berlin, Germany. Filed May 23, 1891. Serial No. 393,798. (No model.)



Claim.—1. The folding lantern described having the front *a*, sides *b b'*, back *c*, bottom *e*, and top *i*, hinged together and adapted to be extended to form a capacious lantern or to be folded to stow in a small space, in combination with a perforated telescopic chimney *k*, *k'*, *k²*, mounted in the top and adapted to fold into the interior of the structure for packing, as herein specified.

2. The folding lantern described, having a front *a*, sides *b*, *b'*, back *c*, bottom *e* and top *i*, hinged together and adapted to be extended to form a capacious lantern or to be folded to stow in a small space, in combination with a perforated chimney *k*, *k'*, *k²* adapted to fold into the interior of the structure for packing and with the freely revolving scroll *l*, mounted in the chimney, the cap *k³* and non-conducting lining *k⁴*, and with the bail *o*, above the cap so that the hand grasping the bail is protected from the heat of the flame, substantially as herein specified.

3. The folding lantern described, having a front *a*, sides *b b'*, back *c*, bottom *e*, and top *i*, hinged together and adapted to be extended to form a capacious lantern or to be folded to stow in a small space, in combination with the telescopic candle-stick *g*, having a broad plate *g⁴*, adapted to serve as an air-deflector, as herein specified.

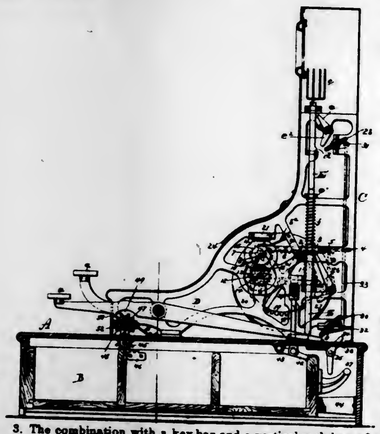
4. In a folding lantern having a front *a*, sides *b b'*, back *c*, bottom *e*, and top *i*, hinged together and adapted to be extended to form a capacious lantern or to be folded to stow in a small space, and the detachable lamp *h*, having a reservoir for combustible fluid in the upper portion, in combination with each other and with means as the plug *h⁴* for regulating the induction of air to let down such supply to maintain the level of the oil in the lower portion, as herein specified.

492,897. CASH REGISTER AND INDICATOR. HENRY G. WALTER and CHARLES F. WALTER, Scranton, Pa. Filed Apr. 26, 1892. Serial No. 430,714. (No model.)

Claim.—1. In a cash register, the combination with a key-bar, of sliding rack-bars located and arranged to move in planes at an an-

gis to each other, a rotary toothed or corrugated device with which the teeth of the bars are adapted to engage to communicate motion from one sliding rack-bar to the other, and registering wheel adapted to be operated by one of the bars, substantially as set forth.

2. In a cash register, the combination with a key bar and a vertical rack bar, of a horizontal rack bar having a sliding pivotal connection at one end, a rotary toothed or corrugated device with which the bars engage for transmitting motion from the vertical to the horizontal rack bar, a registering wheel and means for transmitting motion from the horizontal rack bar to said registering wheel, substantially as set forth.



3. The combination with a key bar and a vertical rack bar, of a grooved cylinder with which said vertical rack bar is adapted to mesh, a horizontal rack bar adapted to receive motion from said grooved cylinder, a shaft, a ratchet wheel carried by said shaft and adapted to receive motion in one direction from said horizontal rack bar, and a registering wheel carried by said shaft, substantially as set forth.

4. The combination with a key bar and a vertical rack bar, of a grooved cylinder with which said vertical rack bar is adapted to mesh, a horizontal rack bar having a sliding pivotal connection and adapted to mesh with said grooved cylinder, a shaft, a ratchet wheel carried by said shaft and adapted to receive motion from the horizontal rack bar, a spring for maintaining said horizontal rack bar in mesh with the grooved cylinder and ratchet wheel, and a registering wheel carried by said shaft, substantially as set forth.

5. In a cash register, the combination with a key bar and a vertical sliding rack bar, of a grooved cylinder adapted to mesh with said rack bar, a horizontal rack bar adapted to receive motion from said grooved cylinder, ratchet teeth on said horizontal rack bar, a shaft, a ratchet wheel carried by said shaft and adapted to receive motion in one direction from the ratchet teeth of the horizontal rack bar, a spring for maintaining the horizontal rack bar in engagement with the grooved cylinder and ratchet wheel, means for preventing the retrograda movement of the ratchet wheel, and a registering wheel carried by said shaft, substantially as set forth.

6. In a cash register, the combination with a key bar and a vertical rack bar, of a grooved cylinder, a horizontal rack bar adapted to receive motion from said grooved cylinder, a shaft, a ratchet wheel carried by said shaft and adapted to receive motion from the horizontal rack bar, a registering wheel also carried by said shaft, a pinion also carried by said shaft and gearing meshing with said pinion, whereby the aggregate amount of money indicated by one registering wheel of a series will be transferred to the next adjacent registering wheel, substantially as set forth.

7. In a cash indicator and register, the combination with a key bar and a vertical bar adapted to be elevated thereby and registering mechanism adapted to be actuated by said vertical bar, of ratchet teeth on one face of said vertical bar, a pivoted dog adapted to engage said teeth, and an arm depending from said pivoted dog and adapted to be struck by the key bar to release the vertical bar, substantially as set forth.

8. In a cash indicator and register, the combination with a key bar, a vertical bar adapted to be elevated thereby, and registering mechanism adapted to be actuated by said vertical bar, of ratchet teeth on one face of said vertical bar, a pivoted dog adapted to engage said teeth, an arm depending from said pivoted dog and adapted to be struck by the key bar to release the vertical bar, and a spring adapted to return said vertical bar, substantially as set forth.

9. In a cash indicator, the combination with a key bar, a vertical bar adapted to be raised thereby, and a target bar normally resting on said vertical bar and carrying a target, of a dog or bar adapted to maintain the target bar elevated, an arm depending from said dog or bar, a revoluble bar in proximity to said arm, a revoluble bar mounted in proximity to the end of the key bar and adapted to be struck thereby, crank arms carried by said revoluble bars and pitmen connecting the crank arms of said revoluble bars, whereby, when a key is depressed said revoluble bars will be turned and the upper revoluble bar made to strike the arm depending from the said dog or bar and release the elevated target bar, substantially as set forth.

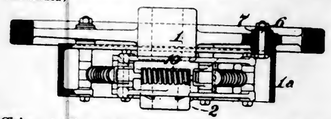
10. In a cash indicator the combination with a target bar, a key bar, and a vertical bar interposed between the key bar and target bar, of a dog adapted to maintain the target bar elevated, an arm depending from the dog, a revoluble bar located in proximity to the said arm, a revoluble bar located in proximity to the key bar and adapted to be struck thereby, gearing connecting said revoluble bars whereby the engagement of the key bar with the lower revoluble bar will operate to turn the upper revoluble bar to release the target bar, a pivoted lever, a drawer and an arm carried by the drawer and adapted to strike the pivoted lever and cause it to return the lower revoluble bar to its normal position, substantially as set forth.

11. In a cash indicator and register, the combination with the keys thereof and the drawer, of an oscillatory bar, a pinion carried thereby, a pinion located below the pinion carried by the oscillatory bar, and a toothed plate carried by the drawer and adapted to operate said pinions to turn the oscillatory bar to lock the keys, substantially as set forth.

12. In a cash register and indicator, the combination with the keys thereof and the drawer, of an oscillatory bar, a pinion carried thereby, a pinion located below the pinion carried by the oscillatory bar, a toothed plate carried by the drawer and adapted to mesh with the last mentioned pinion, and a spring adapted to receive the free edge of the oscillatory bar and maintain it in a proper normal position, substantially as set forth.

13. In a cash indicator and register, the combination with the key bars thereof and a drawer, of an oscillatory bar, a pinion carried by said oscillatory bar, a pinion located beneath the pinion carried by the oscillatory bar, a toothed plate carried by the drawer and adapted to engage the lower pinion, a spring adapted to receive the free edge of the oscillatory bar and maintain it in proper normal position, and projections on the under edge of the key bars, against which said oscillatory bar is adapted to abut when the drawer is opened, substantially set forth.

492,898. SHAFT-COUPLING. HENRY H. WESTINGHOUSE and WILLIAM A. BOLE, Pittsburg, Pa. Filed June 30, 1892. Serial No. 438,637. (No model.)



Claim.—1. The combination, in a shaft coupling, of two coupling heads, fixed upon independent shaft sections and wholly disengaged one from the other so as to have a free range of relative lateral movement, and a series of tangentially disposed springs, each coupled at one end to one head and at its opposite end to the other, and being located in an annular space between the coupling heads which is of greater transverse dimensions than the diameter of the springs, so as to have the capacity of lateral movement with either or both coupling heads, substantially as set forth.

2. The combination, in a shaft coupling, of two coupling heads, fixed upon independent shaft sections and wholly disengaged one from the other, so as to have a free range of lateral movement, a series of coupling pins fitted in each head, and a series of tangentially disposed springs, each coupled at one end to a coupling pin of one head and at its opposite end to a coupling pin of the other, and being located in an annular space between the coupling heads which is of greater transverse dimensions than the diameter of the springs, so as to have the capacity of lateral movement with either or both coupling heads, substantially as set forth.

3. The combination, in a shaft coupling, of two coupling heads, each adapted to be fixed upon a shaft section, and a series of springs connecting said heads, one to the other, each point of spring attachment upon either head being coupled, in opposite directions, respectively, to two points on the other, substantially as set forth.

4. The combination, in a shaft coupling, of two coupling heads, each adapted to be fixed upon a shaft section, a series of coupling pins fitted in each head, the pins of one head being alternated in position, relatively to those of the other, and a series of springs connecting a coupling pin of one head with the two adjacent coupling pins of the other head, substantially as set forth.

5. The combination, in a shaft coupling, of two coupling heads, each adapted to be secured upon a shaft section, one of said heads being divided into two sections, an insulating medium interposed between said sections at their point of connection, a series of coupling pins fitted in one of said sections, a series of coupling pins fitted in the other head, and a series of springs, each coupled at one end to a coupling pin of one head and at its opposite end to a coupling pin of the other, substantially as set forth.

492,899. WINDOW-CLEANER. MARGARET J. BECKER, Cohoes, N. Y. Filed Oct. 12, 1892. Serial No. 448,634. (No model.)



Claim.—1. The combination in a window washer and drier of the heads H, H', with washer and drier attached, connecting rods G, G', and springs S, substantially as described.

2. In a window washer and drier, the bar A pivotally connected to the bar B, and means for preventing the parts from separating or rotating in combination with the washer and drier and connecting mechanism.

3. In a window washer and drier, parts A, B, pivotally connected and handle C with roller E loosely mounted between the handle and bar B, in combination with the washer and drier and connecting mechanism.

492,900. TELESCOPING CUP. FRANK H. CLIFFORD, St. Louis, Mo. Filed Aug. 14, 1891. Serial No. 402,633. (No model.)

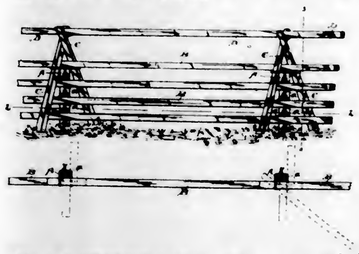


Claim.—1. In a telescoping cup, the cover *b* attached to the upper cup section, and a handle *c*, the free end of which forms a spring catch, in combination with a catch *e* formed on the hinge, substantially as described.

2. In a telescoping cup the hinged cover *b*, with handle *c*, having a threaded aperture, in combination with the base having the threaded projection or bolt substantially as described and for the purpose specified.

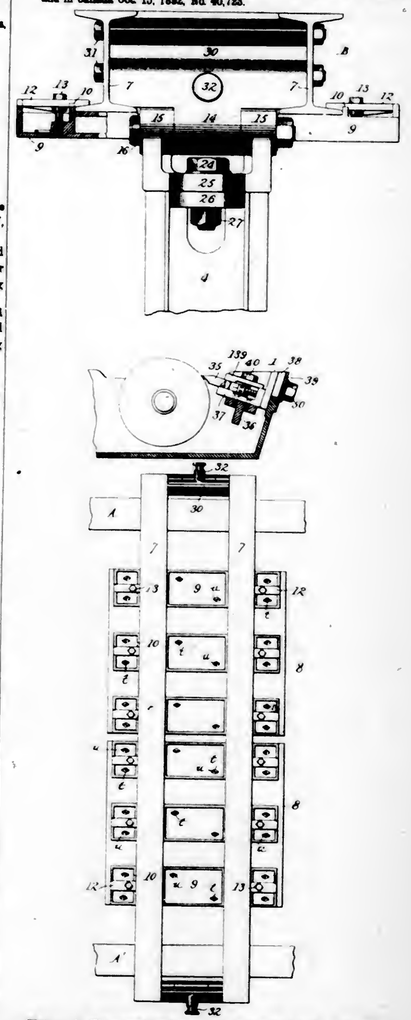
3. In a telescoping cup the cover *b* having a perforation *g* and the hinge *d* having a catch *e* that registers with said perforation in combination with the inclosing wall of the telescoped cup substantially as described and for the purpose specified.

492,901. FENCE. CYRUS CRABBS, Delphos, Ohio. Filed July 30, 1892. Serial No. 441,649. (No model.)



Claim.—The combination, in a fence, of the posts A, and the rails B secured to said posts all on the same side by means of wire loops or bands *a* passing around a rail of one panel, thence around a post, and then around a rail of the next panel, said second rail being inserted at an angle to the general direction of the line of fence and then forced into line with said direction, said rails having tapered ends and arranged continuously on one side of said posts and being thus capable of arrangement in line in substantially the same horizontal plane, giving the effect of a continuous rail, all substantially as shown and described.

492,902. OIL-CLOTH-PRINTING MACHINE. GEORGE F. EBERHARDT, Philadelphia, Pa., assignor to Dieneit & Eisenhardt, same place. Filed June 1, 1891. Serial No. 394,736. (No model.) Patented in England Feb. 6, 1892, No. 2,316; in Belgium May 31, 1892, No. 99,630, and in Canada Oct. 15, 1892, No. 40,723.



Claim.—1. The combination with the cross heads extending across the machine, and printing blocks, of carriers connected with said blocks and each guided to slide upon the underside of the cross-

head, and retaining devices for connecting each carrier detachably to the cross-head, substantially as set forth.

2. The combination with the cross-head, printing block sections, a series of carriers adapted to be connected to said sections and provided with guides for determining accurately the position of each carrier upon the cross-head, and means for securing each carrier detachably to the underside of the cross-head, substantially as set forth.

3. The combination with the cross-head, of printing block-sections, and carriers therefor, each in the form of a plate having guide ribs 10, and clamps for connecting the carriers detachably with the cross-head, substantially as set forth.

4. The combination with the cross-head of an oil-cloth printing machine of printing blocks in sections adapted to be brought together and separated and means for securing said sections after adjustment, substantially as described.

5. The combination with the cross-head of an oil-cloth printing machine of printing block-sections longitudinally adjustable on the cross-head, and means for securing the sections after adjustment, substantially as set forth.

6. The combination with a cross-head consisting of parallel I-beams having the lower faces and outer edges accurately planed, of printing block sections, and a series of carriers therefor, each consisting of a plate having guide ribs 10, fitted accurately to the said outer edges and provided with clamps 12, substantially as set forth.

7. The combination with the ink trough and inking roller of a doctor, means for detachably supporting the doctor within the trough, adjustable bearings at the rear edge of the doctor, and clamps for securing the doctor in position upon said supporting means, substantially as set forth.

8. The combination of the carrier, the trough having bearings for detachably supporting the carrier, the doctor seated upon the carrier, and a series of bearings adjustable on said carrier and arranged to define the position of the doctor thereon, the construction being such that the carrier and doctor may be removed and replaced without changing their relative position, substantially as described.

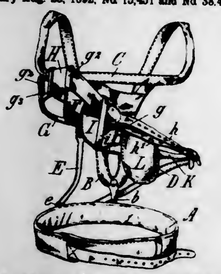
9. The combination of the carrier, the trough having bearings detachably supporting the carrier, the doctor movably seated on the carrier, adjusting screws between the carrier and the doctor, and constituting bearings for the heel of the latter, and means for clamping the doctor to the carrier, substantially as described.

10. The combination with the inking roller and the ink trough having notches at the side constituting bearings, of a carrier provided with projections fitting said notches, retaining devices for the projections, a doctor detachably seated on the carrier, and adjusting screws at the heel of the doctor, substantially as described.

11. The combination with the inking roller and the ink trough provided with notches at the side, of a carrier consisting of a bar and brackets secured thereto, said brackets having projections fitting the notches, retaining screws, a doctor seated on the brackets, and clamps for the doctor, substantially as described.

12. The combination with the inking roller and the ink trough therefor, provided with notches in the side wall, of a carrier consisting of an angle bar and two or more brackets secured thereto, said brackets having rear projections fitting said notches, securing bolts, a doctor seated on the brackets, detachable clamps, and adjusting screws between the heel of the doctor and said brackets, substantially as described.

492,903. APPARATUS FOR CURING SPINAL CURVATURE. GOTTLIEB GERLITZ, Graz, Austria-Hungary. Filed Nov. 21, 1892. Serial No. 452,717. (No model.) Patented in Belgium May 25, 1892, No. 99,869; in Italy June 30, 1892, XXVI, 31,761, and LXII, 312, and in Austria-Hungary Aug. 23, 1892, No. 15,451 and No. 38,441.



Claim.—1. An apparatus for treating curvatures of the spine, comprising a pelvis belt, a forked revoluble back brace, a pressure bow, an elastic strap or belt connected with the pressure bow and back brace, a chest pad on said belt, an elastic lever connected with the pelvis and elastic belts and extending around the body upwardly toward the chest, and a spring bar extending from the pelvis belt upwardly to or near the shoulder blade, said bar provided at its upper end with a pad, substantially as and for the purpose set forth.

2. An apparatus for treating curvatures of the spine, comprising a pelvis belt, a forked revoluble back brace, a pressure bow, an elastic strap or belt connected with the pressure bow and back brace, a chest pad on said belt, an elastic lever connected with the pelvis and elastic belts and extending around the body upwardly toward the chest, a spring bar extending from the pelvis belt upwardly to or near the shoulder blade, said bar provided at its upper end with a pad, and a suitable supporting strap secured to the upper end of the arms of the back brace and having branches adapted to be passed under the arms over the shoulders and secured to the back brace, substantially as and for the purpose set forth.

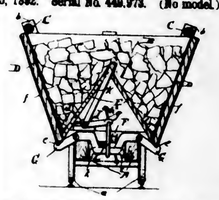
3. In an apparatus of the class described, the combination with the pelvis belt, and forked back brace revoluble on the belt, of a regulating device for regulating the freedom of revolution of the brace, for the purpose set forth.

4. In an apparatus of the class described, the combination with the pelvis belt and the spring bar E, of a pressure regulating device for regulating the pressure exerted by the said bar, for the purpose set forth.

5. In an apparatus of the class described, the combination with the pelvis belt and back brace B, of an arm hinged to one of the branches of the back brace, and a pad, L, connected with said arm, for the purpose set forth.

6. In an apparatus of the class described, the combination with the pelvis belt, the back brace B, and the inclined lever, D, of the bow G hinged to one of the branches of the back brace and provided at its outer end with pillars, g^3 projecting vertically therefrom, said pillars provided with retaining loops and an elastic belt connecting said back brace with lever D, and passing through the loops of bow G, substantially as and for the purpose set forth.

492,904. DUMPING-CAR. ERNST A. KAUFMAN, Canton, Ohio. Filed Oct. 25, 1892. Serial No. 449,973. (No model.)



Claim.—1. The combination of the truck A, provided with suitable traveling-wheels such as *a*, the end-pieces or frames B, provided with the bars *b*, or their equivalents, the rods C the pivoted sides D, provided with bars or straps *f*, extending past and beyond the bottom or lower edges of the sides D, the cross-bars F, the pivoted dogs G, provided with the hooks *e*, the locking-bars L, and means for operating the dogs and locking bars substantially as and for the purpose specified.

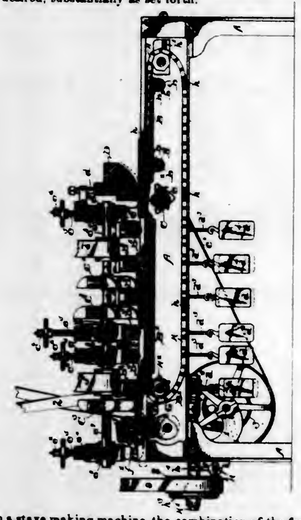
2. The combination of a car-body provided with pivoted sides and the inverted V-shaped partition E, the shaft I, provided with the arms *g*, the links H, pivotally attached to the arms *g*, the dogs G, provided with hooked outer ends, the locking-bars L, the rock-bars A and A^3, and the operating handle A^2, substantially as and for the purpose specified.

3. The combination of a car body provided with a suitable truck and traveling-wheels, the pivoted sides D, the dogs G, provided with hooked outer ends, and the downwardly extending arms *k*, the locking arms L, and means for operating the dogs and locking-bars, substantially as and for the purpose specified.

492,905. STAVE-MAKING MACHINE. WILLIAM L. KELLOGG, Indianapolis, Ind. Filed June 28, 1892. Serial No. 438,280. (No model.)

Claim.—1. In a stave making machine, the combination of the frame, the feeding belt, the cutter head or heads for dressing the top of the stave to its proper thickness being mounted upon one adjustable shaft, and that for hollowing out the portions between its ends being mounted upon another adjustable shaft, both of said shafts being arranged longitudinally of the machine whereby said cutter heads operate transversely of the blocks and may be independently adjusted, substantially as set forth.

2. In a stave making machine, the combination of the frame, the bed plates, the feeding mechanism, the cutter head located beneath the bed plate for forming the back of the stave, a series of cutter heads arranged on longitudinal shafts above the bed plate for forming the inside of said stave, and an adjustable roller at the forward end of said bed plate for receiving said stave, and suitable means for raising and depressing said roller during the passing of the stave thereover as desired, substantially as set forth.



3. In a stave making machine, the combination of the frame, the bed plate, the feeding mechanism, the cutter heads, the roller located at the front end of the bed plate mounted to be vertically adjusted, a shaft located beneath said roller, and cams mounted on said shaft and adapted to bear against portions of the shaft of said roller, and suitable gearing for driving the same, whereby said roller is raised and lowered to guide said stave-block in proper relation to the cutter-head, substantially as set forth.

4. In a stave making machine, the combination of the frame, the bed plates, the feeding mechanism, the cutter heads, and the vertically adjustable roller located at the front end of said bed-plate substantially in line therewith when in its lowest position, the weighted roller mounted above said other roller, and adapted to rest upon the top side of the stave-block, said weighted roller being hinged and adapted to move therewith, said rollers being connected by suitable gearing, whereby they are adapted to feed the stave-block out of the machine, substantially as set forth.

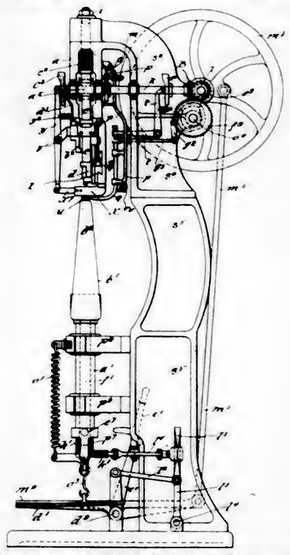
5. In a stave making machine the combination of the frame, the bed-plates, the cutter-heads, the adjustable roller E located in front of the bed-plates, mechanism for raising and lowering said roller, and the feed belt H for feeding the stave-blocks through the machine provided with cross-bars *k* which are so spaced throughout the length of said belt that the mechanism for raising and lowering the roll E will complete one operation while said belt is moving a distance equal to the length of the space between said bars, substantially as set forth.

6. In a stave making machine, the combination with the frame, the bed-plates, the cutter-heads, the feeding belt provided with cross bars for pushing the stave-blocks along, the roller E located in front of the bed-plate and mounted to be vertically adjusted, and the cams G located beneath said roller and bearing against portions thereof, whereby it is supported and adjusted, said cams being geared to make one revolution while the feed belt is advancing a distance equal to the length of the space between the cross-bars, substantially as set forth.

492,906. PEGGING-MACHINE. RUDOLPH LEY, Arnstadt, Germany. Filed June 29, 1889. Serial No. 316,120. (No model.) Patented in Germany Oct. 22, 1885, No. 34,280, and in England June 7, 1889, No. 9,460.

Claim.—1. In a pegging-machine: the rotary shaft (*k*) having arms (a^6 a^6) and the cam disk (c^6) mounted thereon, the hammer (*c*) provided with notches and gliding twice up and down during one rotation of shaft (*k*), the sliding guide plate (*z*) having awl-and hammer-slide-blocks (*e* and *d*), both having projections adapted to take into said notches, the two brackets (d^8) and lever connecting cam disk (c^6) and slide-plates (*z*), in the manner specified.

2. In a pegging-machine: the rotary shaft (*k*) having eccentric (*m*) and eccentric disk (*r*) mounted thereon, eccentric (*m*) operating transporter (*u*) horizontally by slit lever (*o*) with roller (R) and lever (*p*) with adjustable roller (R'), disk (*r*) operating transporter (*u*) vertically by lever (*t*) and rod (*q*), the latter being held and guided by lever (*p*), substantially as described.

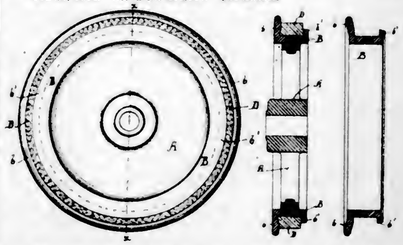


3. The combination of the shafts (*k*, *l* and o^4), geared by wheels (B B') and (c^6 f^6), wheel (B) driving shaft (*k*) with eccentrics (*r*) and (*m*), wheel (f') having cam (f^6) operating lever (g^2) with rod (g^3), the latter moving lever (*p*) with rod (*q*) and transporter (*u*) forward and backward, substantially as described.

4. The combination of hollow shaft (*a'*), being vertically displaceable as well as rotatable in a horizontal plane and carrying horn (*b'*) with cutter (n^2) and intermediate gearing for operating the latter, the hollow shaft (*a'*) holding shaft (f'') with pinion (*h'*), operated by toothed sector (*k*) and acting on the intermediate gearing within horn (*b'*), substantially as described.

5. The combination of hollow shaft (*a'*) and inner shaft (f''), supported by strap (p^7) and springs (*o'*), with rod (o^4) and pedal (d^7), strap (p^7) having pin (e^7), a lever (*e'*) being provided on shaft (d^8) and catching pin (e^7) in its lower position, substantially as described.

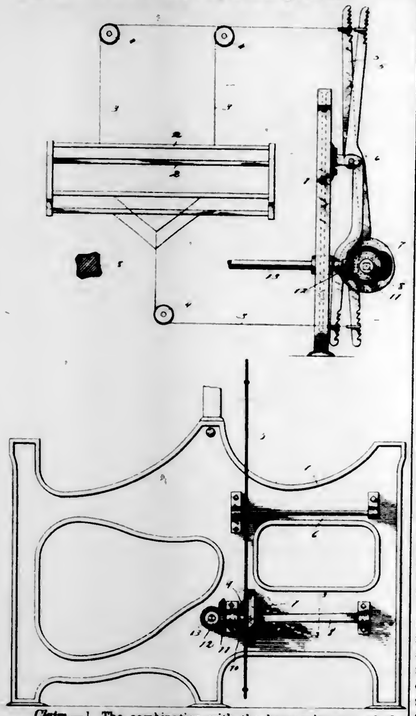
492,907. CAR-WHEEL. HOSEA W. LIBBEY, Boston, Mass. Filed Oct. 27, 1891. Serial No. 409,987. (No model.)



Claim.—A car wheel having a body and an independent tire said tire being of metal rolled with a dovetail groove in its periphery, and a ring of india rubber of corresponding form inserted in said groove one of the walls *b* of the groove projecting beyond the face of the rubber ring substantially as set forth.

492,908. SHEDDING MECHANISM FOR LOOMS. OTTO W. SCHAUM, Philadelphia, Pa. Filed Dec. 17, 1892. Serial No. 455,441. (No model.)

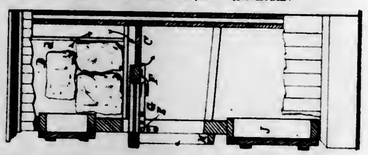
Brief.—The cam-shaft has a spiral bearing for the cams, to thereby move the warp-threads successively in forming the shed.



Claim.—1. The combination with the harness-levers, and the harness-cams for actuating the said levers, of a shedding cam-shaft having the cam-seating portion thereof formed with a spiral twist around the longitudinal axis of the shaft to occasion a lead in the operation of the cams, substantially as described.

2. The combination with the harness-levers, and the harness-cams for actuating the said levers having angularly formed holes or eyes, of the cam-shaft having the cam-seating portion thereof made polygonal and with a spiral twist around the longitudinal axis of the shaft to occasion a lead in the operation of the cams, substantially as described.

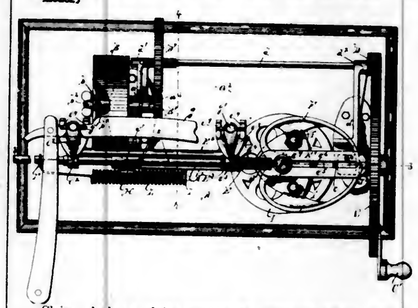
492,909. REFRIGERATOR. JOHN A. WATTS, New York, N. Y. Filed May 25, 1892. Serial No. 434,311. (No model.)



Claim.—1. In combination with a refrigerator, a door therefor, hooks F secured to the rear face of the said door, studs or pivots E secured to the said refrigerator and arranged to engage the said hooks when the door is being opened and closed and to be disengaged therefrom when the door is opened and pushed back, and a shelf C within the said refrigerator, against which the said door may be pushed, substantially as, and for the purposes, set forth.

2. In combination with a refrigerator door for the provision chamber and like uses, consisting of an adjustable door jamb projecting from the face of the structure, a pair of cleats upon either side of the jamb projecting beyond the face thereof, a door constructed to be closed against the face of the said jamb and between the said cleats, hinges for the said door, and a latch for pressing the door against the face of the said jamb, substantially as, and for the purposes, set forth.

492,910. MACHINE FOR EDGING RAZORS, &c. NELSON ALLGIRAR, Syracuse, N. Y. Filed Jan. 18, 1892. Serial No. 418,568. (No model.)



Claim.—1. In an edging machine for razors and similar articles, the combination of a revoluble grinding wheel, a carriage movable rectilinearly across the face of the grinding wheel, and provided with a pair of separated heads for alternately supporting the razor and presenting its opposite sides to the grinding wheel, and clamps movable in said heads for securing the razor or similar article to the carriage, substantially as and for the purpose set forth.

2. In an edging machine for razors and similar articles, the combination of a revoluble grinding wheel, a carriage movable across the face of the grinding wheel, clamps for securing the razor or similar article to the carriage, and an endless heart shaped cam for moving the carriage transversely across the face of the grinding wheel, substantially as and for the purpose described.

3. In an edging machine for razors and similar articles, the combination of a revoluble grinding wheel, a carriage movable across the face of the grinding wheel, a hinged carriage section movable toward and away from the grinding wheel, and provided with a pair of separated heads for alternately supporting the razor and presenting its opposite sides to the grinding wheel, and clamps movable in said heads for securing the razor to said hinged carriage section, substantially as and for the purpose specified.

4. In an edging machine for razors and similar articles, the combination of a revoluble grinding wheel and gearing for driving the grinding wheel; of a carriage movable rectilinearly across the face of the grinding wheel, clamps for securing the razor to the carriage, a heart shaped cam for moving the carriage rectilinearly, and connecting gearing between said cam and grinding wheel, whereby both operate simultaneously, substantially as and for the purpose specified.

5. In an edging machine for razors and similar articles, the combination of a revoluble grinding wheel, a carriage movable rectilinearly across the face of the grinding wheel, a hinged carriage section movable toward and away from the grinding wheel, anti friction rollers upon the carriage, and a revoluble cam for engaging said rollers and operating the carriage, substantially as and for the purpose described.

6. In an edging machine for razors and similar articles, the combination of a revoluble grinding wheel, a carriage movable rectilinearly across the face of the grinding wheel, an anti friction roller on the carriage connected, substantially as described, to the carriage, a revoluble cam for engaging said roller and operating the carriage, and a spring for retracting the carriage, substantially as and for the purpose specified.

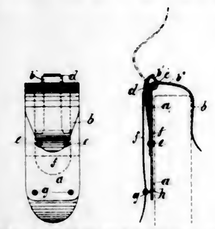
7. In an edging machine for razors and similar articles, the combination of a revoluble grinding wheel, a carriage movable rectilinearly across the face of the grinding wheel, a guide in proximity to the carriage, a lug connected, substantially as described, to the carriage and a revoluble cam for forcing the carriage backward and forward, substantially as and for the purpose specified.

8. In an edging machine for razors and similar articles, the combination of a revolable grinding wheel, a carriage movable rectilinearly across the face of the grinding wheel, a guide in proximity to the carriage, a lug connected, substantially as described, to the carriage, a revoluble cam for forcing the carriage backward and forward, and a spring for retracting said carriage, substantially as described.

9. In an edging machine for razors and similar articles, the combination of a revoluble grinding wheel, a carriage movable rectilinearly across the face of the grinding wheel, a guide in proximity to the carriage, a lug on the carriage movable in said guide, a hinged carriage section movable toward and away from the grinding wheel, a clamp for securing the razor to said carriage, and a revoluble cam for moving the carriage, substantially as and for the purpose set forth.

10. In a machine for edging razors and similar articles, the combination with a frame, a movable grinder journaled on the frame, a carriage movable across the face of the grinder, a hinged carriage section movable toward and away from the grinder, a stop for preventing the backward movement of the grinder, a movable clamp for securing the razor to said carriage, a revoluble cam for moving the carriage, and connected gearing between the movable grinder and cam, substantially as and for the purpose set forth.

492,911. PROTECTOR FOR POCKETBOOKS. JOHN A. S. BOHLIN, Stockholm, Sweden. Filed Nov. 8, 1892. Serial No. 451,253. (No model.)



Claim.—A safety attachment for pocket-books and the like, consisting of a plate, a curved wing hinged to the upper end of said plate and provided with a lug, a spring on said plate bearing against said lug, an approximately U-shaped holding spring attached to the plate and provided near its free end with prongs, which spring serves for holding the plate in the edge of the pocket, substantially as set forth.

492,912. POSTAGE-STAMP. GEORGE M. BRIGHT, Abingdon, Va. Filed Sept. 14, 1892. Serial No. 445,839. (No model.)



Claim.—1. A divisible postage-stamp of prescribed valuation, shape and design, divisible and separable into two independent substamps of independent design, each equal in value to one half of the whole or unit stamp, as set forth.

2. A divisible unit stamp for revenue purposes of approved material, shape, design and valuation centrally divisible by spaced perforations into two independent sub-stamps, each sub-stamp being equal in valuation to one half the valuation of the unit stamp, said unit stamp having a valuation mark, symbol or figure so arranged that a fragment of said mark, symbol or figure will remain on each division or sub-stamp when the unit stamp is divided, as set forth.

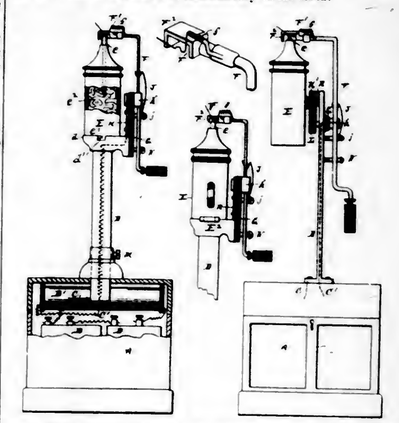
3. A divisible postage stamp comprising a sheet of paper of prescribed size provided with an approved design, and rendered centrally divisible into two equal portions by a series of spaced perforations, and a valuation mark or figure upon said sheet intermediate the two portions, so that when the unit stamp is divided a fragment of said valuation mark or figure will be on each portion, substantially as specified.

492,913. ELECTRIC LAMP-LIGHTER. JOSEPHUS C. CHAMBERS, Detroit, Mich. Filed Nov. 21, 1892. Serial No. 452,621. (No model.)

Claim.—1. In an electrical lamp-lighter, the combination, with a lamp, the burner of which is formed into or provided with an electrode, an extinguisher formed into or provided with the opposite electrode, and means for establishing and breaking the electrical connection between said electrodes substantially as set forth.

2. In an electrical lamp-lighter, the combination, with a lamp, the burner of which is formed into or provided with an electrode an extinguisher movable adjacent to the burner and provided with the other electrode, and means for establishing and breaking electrical connection between said electrodes substantially as set forth.

3. In an electrical lamp-lighter, the combination, with a lamp, the burner of which is formed into or provided with an electrode, an extinguishing cap movable back and forth over said burner and provided with the other electrode at the rear whereby the movement of the cap in one direction ignites the light and the movement of it in the opposite direction extinguishes it, substantially as set forth.



4. In an electrical lamp-lighter, the combination with a lamp, the burner of which is formed into or provided with an electrode, an extinguishing cap, and an electrode, secured at the rear thereof, said last mentioned electrode comprising a wire, the portion intermediate its ends being coiled to increase its resiliency substantially as set forth.

5. In an electrical lamp-lighter, the combination, with a lamp, the burner of which is formed into or provided with an electrode, an arm pivotally secured adjacent to the lamp, one end of which is provided with an extinguisher, and an electrode, and means for automatically returning the arm to extinguish the light, substantially as set forth.

6. In an electrical lamp-lighter, the combination, with a lamp, the burner of which is formed into or provided with an electrode, an arm pivotally secured adjacent to the lamp and provided with the other electrode, and means for simultaneously moving said lamp and the arm in opposite directions whereby the two electrodes are caused to engage with each other, substantially as set forth.

7. In an electric lamp-lighter, a metallic supporting standard, a metal lamp, a metal arm insulated from the standard and lamp, and led into proximity to the lamp, an electric circuit through the arm, lamp and standard, having its poles adjacent thereto, said lamp and arm the one made movable in relation to the other, to make and break said circuit at said poles the circuit being normally open, substantially as described.

8. In an electric lamp-lighter, a lamp, a standard to support the lamp, a support for said standard, an arm led into proximity to the lamp, an electric circuit having its electrodes in proximity to the adjacent portions of the lamp and arm, said lamp and arm the one made movable in relation to the other, to close and break the circuit, said circuit being normally open, and said standard being adjustable in said support, substantially as described.

9. In an electric lamp-lighter, the combination of a lamp, a support therefor, an arm led into proximity to the lamp, an electric circuit having its electrodes at the adjacent portions of the lamp and arm, said lamp and arm the one made movable with relation to the other to close and break said circuit at said electrodes, said arm at its extremity adjacent to the lamp provided with an insulated cap and extinguisher, substantially as described.

10. In an electric lamp-lighter, a lamp, a support therefor, an arm led into proximity to the lamp, provided with an extinguisher an electric circuit having its electrodes at the adjacent portions of the arm and lamp, said arm and lamp the one movable in relation to the other to close said circuit to ignite the lamp, and self retracting to extinguish the lamp, said circuit being normally open, substantially as described.

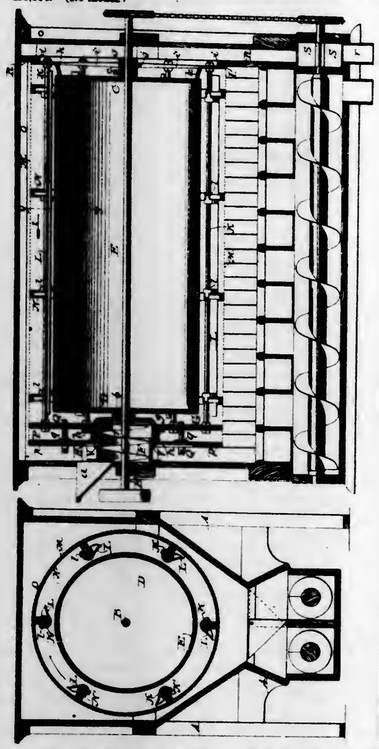
11. In an electric lamp-lighter, a lamp, a support therefor, an arm led into proximity to the lamp, provided with an extinguisher an elec-

tric battery, an electric circuit leading from said battery having its electrodes at the adjacent extremities of said lamp and arm, an induction coil in said circuit, said lamp and arm the one made movable with relation to the other, to close the circuit and ignite the lamp, and also to extinguish the same, said circuit being normally open, substantially as described.

12. In an electric lamp-lighter, the combination of a lamp, a support therefor, an arm overhanging the lamp tube, an electric circuit in electrical connection with the lamp, and with said arm, a metallic bar H connecting said arm with the circuit and insulated from the standard and lamp, said lamp and arm the one made movable with relation to the other, to close the circuit and ignite the lamp, substantially as described

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492,914. FLOUR-BOLT. MYRON W. CLARK, Parma, Mich., assignor, by mesne assignments, of one-half to the Edward P. Allis Company, Milwaukee, Wis. Original application filed Nov. 18, 1886, Serial No. 219,319. Divided and this application filed Jan. 24, 1893. Serial No. 459,560. (No model.)



Claim.—1. In a flour bolt, the combination of a rotatable bolting reel, an imperforate drum within the reel, and a series of intermediate elevators carried by the reel for the purpose of discharging material upon the drum,—the edges of the elevators being separated from the cloth of the reel.

2. In a flour bolt, the combination of a rotatable bolting reel, an imperforate drum within the reel and a series of elevators between the reel and drum, the edges of the elevators being set away from the cloth of the reel and also from the surface of the drum.

3. In a flour bolt, the combination of a rotatable bolting reel, an imperforate drum within the reel, and a series of elevators carried by the reel, between the reel and the drum, the edges of the elevators being set away from the cloth of the reel and also from the surface of the drum.

4. In a flour bolt, the combination of a rotatable bolting reel, a smooth drum within the reel, and a series of elevators between the reel and drum, the edges of the elevators being set away from the bolting cloth and from the drum.

5. In a flour bolt, the combination of an external bolting reel, an internal drum, and tipping elevators between the bolting reel and the drum, and separated at their edges from both.

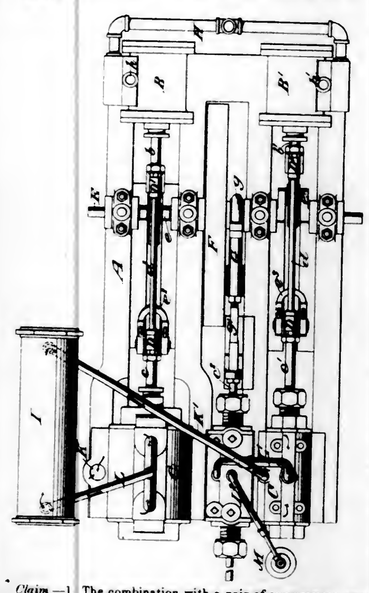
6. In a flour bolt, the combination of an external bolting reel, a smooth internal drum, and a series of tipping elevators between the reel and the drum, the edges of the elevators being set away both from the reel and from the drum.

7. In a flour bolt, the combination of an external bolting reel, an internal drum, and a series of tipping elevators between the reel and the drum, the edges of the elevators being set away from the reel.

8. In a flour bolt, the combination of an external bolting reel, a smooth internal drum, and a series of tipping elevators between the reel and the drum, the elevators being set away from the reel.

9. In a flour bolt, the combination of a rotatable bolting reel, an imperforate drum within the reel, and a series of elevators carried by the reel, between the reel and the drum, the edges of the elevators being set away from the cloth of the reel.

492,915. TRIPLE COMPOUND AIR OR GAS COMPRESSOR. JAMES CLAYTON, Brooklyn, N. Y. Filed Sept. 22, 1892. Serial No. 446,532. (No model.)

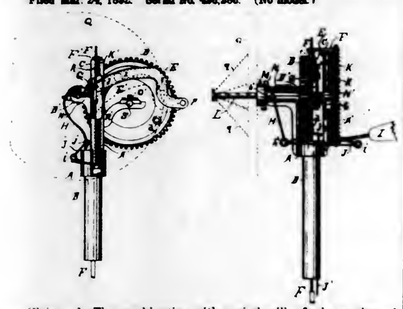


Claim.—1. The combination with a pair of compressors, one arranged to take its supply of fluid from the other and means for operating said compressors directly from a motor, of a shaft driven by said motor and a third compressor driven from said shaft and in communication with the second of the aforesaid compressors to receive its supply of fluid therefrom, substantially as set forth.

2. The combination with a pair of compressors having their piston rods yoked to the piston rods of the motors, of a shaft extending through the yokes and provided with cranks connected with the ends of the yokes to drive it, a third compressor having its piston rod connected with said crank shaft, and the pipes connecting the several compressors with one another and with the supply and final reservoir, whereby the second and third compressors receive their supply of fluid from the first and second of the compressors respectively, substantially as set forth.

3. The combination with the two compressors having their piston rods yoked directly to their motors and the crank shaft connected to said yokes, of a third compressor connected with said crank shaft intermediate of said yokes and the connections between the several compressors, substantially as set forth.

492,916. WINDMILL. LEWIS R. DENTON, Grand Rapids, Mich. Filed Mar. 24, 1892. Serial No. 426,286. (No model.)

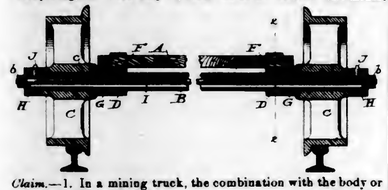


Claim.—1. The combination with a wind mill, of a lever pivoted to one end to the frame, and connected at the other end with the pitman, and anti-friction rollers for operating the same, substantially as specified.

2. The combination with a back-geared wind-mill of a lever provided with an open groove on one surface and pivoted at one end to the mill frame, the other end connected with the pitman of the mill, and anti-friction rollers for operating the same, substantially as, and for the purpose set forth.

3. The combination with a wind mill of a lever for operating the pitman, anti-friction rollers for operating the lever and a brake arranged to act upon the hub of the wind wheel simultaneously with the manipulation of the vane by the rope J; with bearings for both ends of all shafts, substantially as, and for the purpose set forth.

492,917. RUNNING-GEAR FOR MINING-CARS. JOHN GOWLAND, Philipsburg, Pa. Filed May 17, 1892. Serial No. 433,278. (No model.)



Claim.—1. In a mining truck, the combination with the body or frame, of the wheels and axles, and the continuous straps D D secured to the under side of the body or frame, and each embracing two axles, substantially as shown.

2. In a mining truck, the combination with the body or frame, of the plate F applied thereto, the hollow axle, the bolt *a* passing through the plate and into the axle, and a retaining means for the axle.

3. In a mining truck, the combination with the body or frame, of the plate F applied thereto, the hollow axle, the bolt *a* having an enlarged head to enter a hole in the axle, and riveted or headed down at its opposite end above the plate, and a retaining means for the axle.

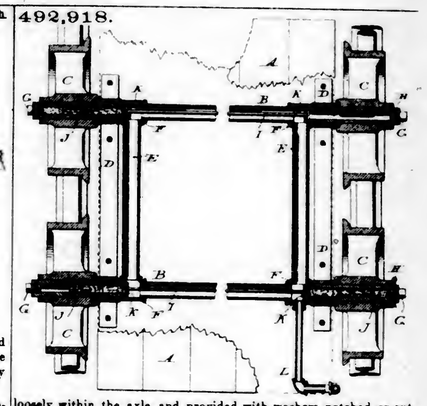
4. In combination with the hollow axle, collars thereon, wheels mounted upon the axle outside the collars, the caps closing the ends of the axle, the bolt passing through the axle and holding the caps in place, and an oil inlet in the caps.

5. In combination with the hollow axle, collars thereon, wheels mounted on the axle outside the collars, the caps closing the ends of the axle, the bolt passing through the axle and holding the caps in place, an oil inlet in the caps, and a screw plug for closing said inlet.

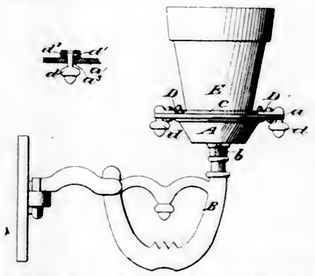
492,918. RUNNING-GEAR FOR MINING-CARS, LUMBER-TRUCKS, &c. JOHN GOWLAND, Philipsburg, Pa. Filed May 17, 1892. Serial No. 433,279. (No model.)

Claim.—1. In running gear for mining cars and like vehicles, the combination with two hollow axles, of the hollow connecting bars or tubes,—rigidly united thereto so as to form a rigid unyielding frame for the body of the car,—and a filling tube L adapted to supply lubricant to the members of the frame all substantially as shown and described.

2. In combination with the hollow lubricating axle closed at its ends and provided with lateral ports or openings, a rod mounted loosely within the axle, and provided with washers notched or cut away on their edges, and the body J of absorbent material between said washers and the closed ends of the axle.



492,919. DEVICE FOR SUPPORTING FLOWER-POTS. WILMER D. GRIDLEY, Brooklyn, N. Y. Filed July 1, 1892. Serial No. 438,650. (No model.)



Claim.—1. The combination with a pot having a hole in its bottom and a supporting base for the pot, of a fastening device extending from the supporting base through the hole in the bottom of the pot for locking the pot to the base, the area of a cross section of the fastening where it passes through the hole being less than the area of the hole, substantially as set forth.

2. The combination with the pot having a hole in its bottom and a supporting base for the pot, of a stud or bolt secured to the supporting base and adapted to extend through the hole in the bottom of the pot, the said stud or bolt being of lesser diameter than the hole in the bottom of the pot and provided with an enlarged head, and a key adapted to be inserted between the head of the bolt or stud and the bottom of the pot, substantially as set forth.

3. The combination with the pot provided with a hole in its bottom, a supporting base and a stud or bolt secured to the base and adapted to project through a hole in the bottom of the pot, of a key adapted to engage the stud or bolt within the pot, the said key being provided with a depending lug or prong adapted to rest between the stud and the wall of the hole in the bottom of the pot to prevent the displacement of the key, substantially as set forth.

4. In combination, a supporting base, a ring or flange adapted to seat on the base, means for securing the ring or flange to the base and a fastening device secured to the ring or flange for securing the said ring or flange removably to the bottom of a flower pot, substantially as set forth.

5. In combination, a flower pot provided with a flange at its bottom, a supporting base for the flower pot and a latch provided with a gravity catch adapted to engage the flange at the bottom of the flower pot to lock it to the base, substantially as set forth.

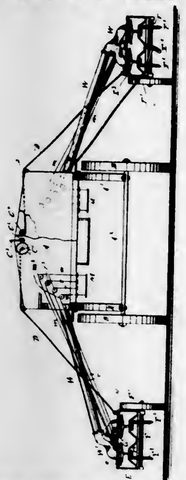
6. In combination, the ring or flange, means for securing it to the bottom of a flower pot, a supporting base adapted to receive the said ring or flange, a swinging latch pivotally secured to the support-

ing base and adapted to engage the ring or flange and a gravity catch hinged to the swinging latch and adapted to engage a stop on the rim of the supporting base, substantially as set forth.

7. The combination with the supporting base, a ring or flange, a latch and a catch for locking the latch, the said supporting base being provided with a lug in proximity to the ring seat and opposite the latch for acting in conjunction with the latch to secure the ring in position, substantially as set forth.

8. The combination with the rim of the supporting base, a latch pivotally secured thereto and provided with a part socket, of a catch hinged within the part socket in the latch and locked in position between the latch and the rim by the pivotal connection of the catch, substantially as set forth.

492,920. SEED-PLANTER. JOHN HARRISON, New York, N. Y. Filed Oct. 24, 1892. Serial No. 449,740. (No model.)



Claim.—1. A seed planter, constructed with a seed box, frames connected by pivoted braces with the sides of the seed box, pulleys and ropes for raising and lowering said frames, seed distributers in the frames, a wheel on each frame and gearing for operating the seed distributers, substantially as set forth.

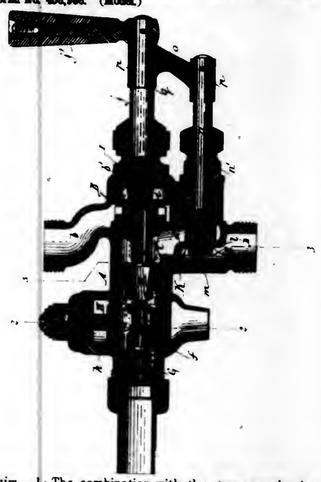
2. In a seed planter, the combination with a seed box of frames connected by pivoted braces with the seed box, seed distributers in each frame, a chute extending from the seed box to each frame, a wheel on each frame, gearing operated from said wheels for operating the seed distributers, slides for closing the openings through which the seed passes to the distributers and cords extending from said slides to a driver's seat behind the seed box, for operating said gates, substantially as set forth.

3. In a seed planter, the combination with a seed box mounted on wheels, of a frame connected with the seed box by pivoted braces, a driving wheel on each frame, a seed distributer in each frame, gearing for rotating the seed distributers from the driving wheels, a chute for conveying seeds from the seed box to the seed distributers, a gate for each chute, cords for operating said gate from the seed box, a latch for locking said gate in place and a cord for operating said latch from the seed box, substantially as set forth.

4. In a seed-planter, the combination, with a seed-box, of a frame suspended from the side of the same, a rotating seed-distributing plate having radial projections, gearing for rotating said seed-distributing plate and its shaft, a pivoted vibrating plate above said seed-distributing plate, which vibrating plate is operated from the shaft of the seed-distributing plate, a sliding gate for closing an opening through which the seeds pass, a latch for locking said gate to the seed box and pulleys over which said cords are guided, substantially as set forth.

5. In a seed-planter, the combination, with a seed-box, of a frame held at the side of the same, a rotating shaft in said frame, gearing for rotating said shaft, a seed-distributing plate fixed on the shaft, a vibrating plate above the shaft, a vibrating plate above the seed-distributing plate, and operated from the shaft of said seed-distributing plate, a latch for locking said plate in place, an adjustable slide carrying said latch and cords extending from said gate and said latch to the seed box and pulleys over which said cords are guided, substantially as set forth.

492,921. INJECTOR. THOMAS J. HART, Buffalo, N. Y., assignor to the Sherwood Manufacturing Company, same place. Filed Jan. 3, 1893. Serial No. 456,986. (Model.)

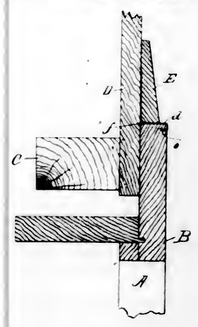


Claim.—1. The combination with the steam nozzle, the steam valve provided with a screw threaded stem capable of rotative and longitudinal movement, the water chamber, the water inlet pipe and the diaphragm arranged between the water inlet pipe and the water chamber and provided with a water passage, of a water inlet valve adapted to close said passage and provided with a stem capable of longitudinal movement, and a yoke secured to the stem of the water valve and provided with a sleeve in which the stem of the steam valve turns and which is held against longitudinal movement on said stem, substantially as set forth.

2. The combination with the steam nozzle, the steam valve and the water chamber provided with a water inlet passage, of a water inlet valve provided with an extension which obstructs the water passage during the initial portion of the opening movement of the water valve, and connecting mechanism whereby both valves are operated simultaneously, substantially as set forth.

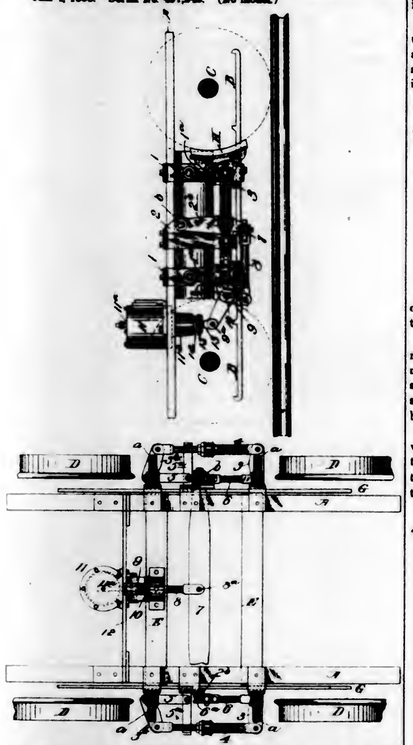
3. The combination with the steam nozzle and the steam valve, of a water chamber provided with a water inlet passage, a water valve provided with a cylindrical plug projecting into said passage, and connecting mechanism whereby both valves are operated simultaneously, substantially as set forth.

492,922. WINDOW-CAP. NATHAN HATCH, Boston, Mass. Filed May 2, 1892. Serial No. 431,471. (No model.)



Claim.—The boarding, D, and the cap-piece, B, provided in its outer face adjacent its upper edge with the longitudinally arranged vertically inclined groove *b*, in combination with the metallic sheet *d*, having an edge inserted in said inclined groove, the body of said sheet being bent upward over the edge and horizontally over the top of said cap; thence again vertically against the face of the boarding; and the clap-board, E, secured to the boarding in engagement with said sheet, substantially as set forth.

492,923. TRUCK-BRAKE. CHARLES C. HEGHAM, St. Louis, Mo., assignor to the Westinghouse Air Brake Company, Pittsburg, Pa. Filed Jan. 4, 1893. Serial No. 457,943. (No model.)



Claim.—1. In a truck brake, the combination of two brake systems, one for each side of the truck, each of said systems embracing a floating lever, a dead lever, and connecting rod; and an interposed operating bar which connects the two systems, and by means of which the braking power is simultaneously applied to both systems: substantially as and for the purposes specified.

2. In a truck brake, the combination of two systems, one for each side of the truck, each system composed of one live lever and one dead lever one of which is anchored at one end, an interposed connecting rod, and a push rod; and an interposed operating bar suspended by hangers to which the push bars of the respective systems are connected; substantially as and for the purposes specified.

3. In a truck brake, the combination of levers 3, 3ª one of which is a floating lever and the other anchored, an adjustable connecting rod 4, and an adjustable push-rod 6; substantially as and for the purposes specified.

4. In a truck brake, the combination of levers 3, 3ª one of which is a floating lever and the other anchored, a connecting rod 4, a push rod 6, and an anchor lug 5ª which extends beneath and forms a safety support for the connecting rod 4; substantially as and for the purposes specified.

492,924. CASTER-WHEEL. HORRIS LAUGHMAN, London, England, assignor to the Standard Caster and Wheel Company, of West Virginia. Filed Apr. 9, 1892. Serial No. 428,439. (No model.)



Claim.—1. A roller or wheel formed of two pieces of metal, each stamped up to form an end and a portion of the tread of the roller or wheel, and having their edges united, by soldering, brazing or welding, substantially as described.

2. A roller or wheel formed of two pieces of metal, each stamped up to form an end and a portion of the tread of the roller or wheel, and a flange about the spindle opening forming a bearing for the spindle, and having their edges united by soldering, brazing or welding, substantially as described.

492,925. COVER FOR BOOKS. CHARLES L'ENFANT, New York, N. Y. Filed Oct. 3, 1892. Serial No. 447,995. (No model.)

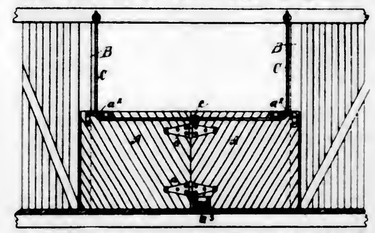


Claim.—1. A flexible cover for Bibles and other books, composed of a main-body having inwardly-bent sides and rounded-off corners that overlap the sides, substantially as set forth.

2. A flexible cover for Bibles and other books, composed of a main-portion or body having inwardly-bent sides and segmental corner-pieces separated from said sides by means of tapering recesses, said corners being bent inwardly, so as to overlap the inwardly-bent sides, and a lining extending over the inner edges of the inwardly-bent sides and corner-pieces, substantially as set forth.

3. A blank for flexible covers for books, which blank is provided with two tapering recesses at each corner, and a corner piece between said recesses, which corner-piece is connected for a short distance at its inner corner with the main body of the blank, substantially as set forth.

492,926. GRAIN-DOOR FOR CARS. WILLIAM F. LYON, Detroit, Mich. Filed Feb. 12, 1892. Serial No. 421,282. (No model.)



Claim.—1. A grain door, consisting of sections A, A, hinged together, in combination with the rods C, C, pivoted at a point of junction to correspond with the pivoting of the sections of the door, the lugs *a'*, *a'*, adapted to engage the corresponding lugs in the jambs of the door frame, and means for rigidly holding the said sections firmly together when said door is closed and the lugs *a'*, *a'*, are in engagement with the jamb, substantially as described.

2. A grain car door, consisting of sections A, A, in combination with rods C C, said rods being pivoted together at the center of the door, loops whereby said rods engage with the upper edge of said door and by means of which said door is adapted to slide upon said rods to the top of the car while partially folded, substantially as described.

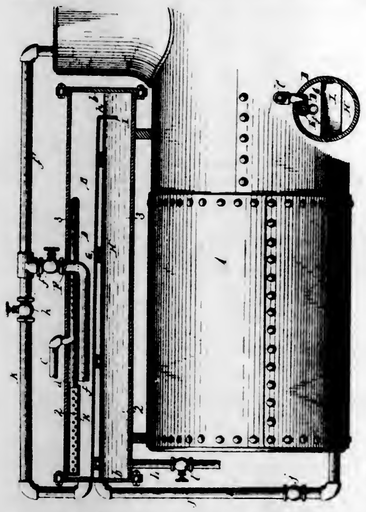
3. A grain car door, consisting of sections A, A, in combination with rods C, C, said rods being pivoted together at the center of the door, loops whereby said rods engage with the upper edge of said door and by means of which said door is adapted to slide upon said rods to the top of the car while partially folded, and means whereby said door and rods may be swung up and retained under the roof of the car, substantially as described.

4. In combination with a car, a door constructed of two sections hinged together and adapted to open outwardly, means for retaining said sections rigidly in position and in engagement with the door jambs, said door being supported by a hanging frame pivoted at the top of the car, said frame being adapted at its lower engagement with the door, to fold with the door, substantially as described.

492,927. **PAPER-BOARD.** ROBERT R. MCEWAN, JESSIE L. MCEWAN, and RICHARD W. MCEWAN, Whippany, N. J. Filed July 2, 1892. Serial No. 438,752. (Specimens.)

Claim.—As a new article of manufacture, a paper-board formed from printed newspaper or the like, ground to a pulp and having the permanent particles of the printers' ink minutely subdivided and uniformly distributed throughout the body of the board, whereby a smooth and even tint is imparted to the board.

492,928. **FEED-WATER HEATER AND PURIFIER.** FRANK C. PERRW, Buffalo, N. Y. Filed Oct. 29, 1892. Serial No. 450,317. (No model.)

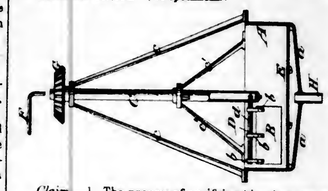


Claim.—1. In a feed water heater and purifier, the combination with an imperforate heating drum or chamber having an imperforate longitudinal diaphragm which divides the same into an upper heating compartment and a lower settling chamber communicating with said heating compartment, of a feed water supply pipe entering said heating compartment and terminating near the rear portion thereof, a steam supply pipe also entering said chamber and extending rearwardly toward the mouth of the feed water supply pipe, whereby the flow of the feed water toward the settling chamber is retarded, and a delivery pipe connected with the settling chamber, substantially as set forth.

2. The combination with the imperforate heating drum or chamber having a water supply pipe, and a longitudinal partition extending rearwardly from the front end of the drum and dividing the same into an upper heating compartment and a lower settling chamber, of an independent cleaner pipe connected with the front portion of said heating compartment adjacent to the upper side of said partition, and a sediment blow-off pipe connected with the rear end of said settling chamber, substantially as set forth.

3. The combination with the imperforate heating chamber having a feed water inlet and a steam supply pipe provided with a stop cock, of a longitudinal diaphragm dividing said chamber into an upper heating compartment and a lower settling chamber communicating with said heating compartment, a cleaner pipe leading from said steam supply pipe to the rear portion of said heating compartment and provided with a stop cock, and a blow-off pipe connected with the bottom of the settling chamber, substantially as set forth.

492,929. **MANUFACTURE OF SODA.** KARL J. SUNDSTROM, Brooklyn, assignor to Church & Co., New York, N. Y. Filed July 29, 1892. Serial No. 441,601. (No specimens.)



Claim.—1. The process of purifying bicarbonate mud, consisting in passing water in a finely divided spray through the mud and thereby removing the sodium chloride, substantially as set forth.

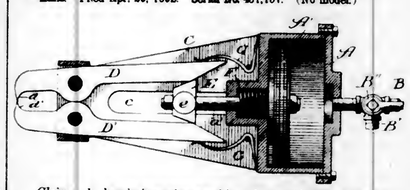
2. The process of purifying bicarbonate mud, consisting in first treating the mud with a solvent of the ammonia combinations and subsequently passing water in a finely divided spray through the mud to remove the sodium chloride, substantially as set forth.

492,930. **SEWING-MACHINE SHUTTLE.** CHARLES E. WILKINSON, New Haven, Conn. Filed June 24, 1891. Serial No. 397,314. (No model.)



Claim.—A sewing machine shuttle provided with means for securing a cop of thread thereto, and having and presenting an especially prepared retaining surface in position to engage the side of the cop of thread from its extreme outer edge toward the center to prevent the collapsing of the cop, substantially as set forth.

492,931. **BOLT-CUTTING MACHINE.** ARCHIE M. BAIRD, Topeka, Kans. Filed Apr. 29, 1892. Serial No. 431,137. (No model.)



Claim.—1. In a bolt cutting machine, the combination of a frame, a cylinder adjacent thereto, levers pivoted in the framework and provided with cutting jaws at their outer ends, a piston in the cylinder, and means whereby the movement of this piston in one direction forces together the cutting jaws, substantially as described.

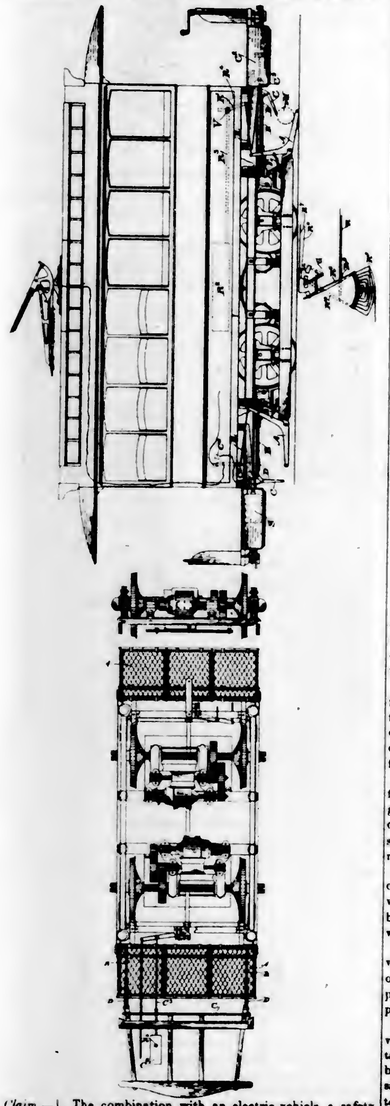
2. In a bolt cutting machine, the combination of a frame, a cylinder adjacent thereto, levers pivoted in the frame and provided with cutting jaws at their outer ends, a piston traveling in the cylinder, a rod connected to the piston and extending out of the cylinder, a cross head secured to such rod engaging with the levers and means for admitting fluid to the cylinder, whereby the piston is moved to rock the jaws together and sever the bolt, substantially as described.

3. In a bolt cutting machine, the combination of a frame, a cylinder secured thereto, levers pivoted in such frame and provided with cutting jaws at their outer ends, a piston moving in the cylinder and carrying a piston rod which extends out of the cylinder, a beveled cross head attached to such rod, means for admitting fluid to one side of the piston to force forward the cross head to rock the jaws and cut off the bolt, and springs for restoring the parts to their normal position when the pressure on the piston is released, substantially as described.

4. In a bolt cutting machine, the combination of a slotted frame, levers pivoted therein and provided with cutting jaws on their outer ends, a cross head engaging with the levers and provided with lugs engaging with the slots in the frame, and means for moving the cross head in both directions, substantially as described.

5. In a bolt cutting machine the combination of a frame, a cylinder secured thereto, levers pivoted in the frame and provided with acting jaws, a piston in the cylinder and a piston rod extending out of the cylinder and connected to the levers whereby as the piston moves back and forth the cutting jaws will be rocked together and separated, substantially as described.

492,932. **SAFETY-GUARD FOR CARS.** NORMAN C. RASSETT, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Sept. 23, 1890. Serial No. 365,853. (No model.)

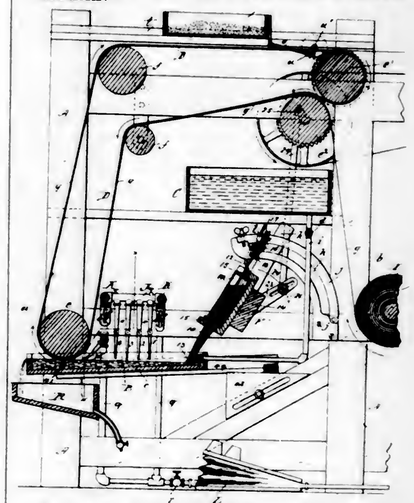


Claim.—1. The combination with an electric vehicle, a safety guard supported by the same and adapted to be lowered into position so as to pick up an obstruction on the road, of a circuit breaker in the motor circuit operated by said safety guard.

2. The combination with an electric vehicle of a safety guard pivoted thereto, a device adapted to be struck by an obstruction on the road and connected with the safety guard so as to lower the same in order to pick up the obstruction, and a circuit breaker in the motor circuit operated by said guard or curtain so as to break the circuit when the obstruction is encountered.

3. The combination with an electric vehicle of a safety guard and a motor reversing switch connected therewith whereby the motor is automatically reversed when an obstruction is encountered.

492,933. **METHOD OF AND APPARATUS FOR MARBLING OR COLORING PAPER, &c.** CHARLES H. BELLAMY, South Hadley Falls, Mass. Filed June 9, 1890. Renewed Aug. 18, 1892. Serial No. 443,367. (No model.)



Claim.—1. The improved method of coloring paper, &c. which consists in floating the colors on a liquid support, imparting a travel to the paper to be marbled, giving it a bent course of movement and causing the portions of the paper which successively pass said bend to impinge upon the floated color, for the purpose set forth.

2. The improved method of marbling paper which consists in floating the colors on a liquid support and imparting to said color a forward movement, imparting a travel to the paper, giving it a bent course of movement and causing the portions of the paper which successively pass said bend to impinge upon the forwardly moving color, for the purpose set forth.

3. The improved method of marbling paper which consists in floating the several colors on a liquid support, effecting a commingling of the colors, imparting a travel to the paper, giving it a bent course of movement, and causing the portions of the paper which successively pass said bend to impinge upon the floated and commingled color for the purpose set forth.

4. In the process of marbling paper, the improved method of securing the distribution of the colors, which consists in depositing the various colors upon the surface of a suitable color-supporting liquid body, and in then directing currents of air against the floating colors whereby their deposition may be modified.

5. In an apparatus for marbling paper, the combination with a vat B, having a forwardly and downwardly inclining bottom, and an outlet opening at its forward side, the roll *e*, and one or more other paper-supporting and guiding rolls, substantially as and for the purpose described.

6. In an apparatus for marbling paper, the combination with a vat B, provided at its forward end with an egress opening, of a supply tank for holding a liquid suitable for constituting a color-supporting body, an outlet pipe leading from said tank into the rear portion of said vat B, a horizontal roller *e* having its under surface in proximity to the liquid level in said vat B, and other suitable supporting and guide-rolls for paper, substantially as and for the purpose described.

7. In an apparatus for marbling paper, the combination, with a vat for containing a color supporting liquid, of a series of color-holding receptacles having orifices in their lower extremities for the emission of color therefrom, a carrier for said color-holders mounted to have a

rocking motion whereby the orifices of the holders carried thereby may be swung upon and away from the surface of the liquid in the vat, substantially as described.

8. In an apparatus for marbling paper, the combination, with the vat for holding a color-supporting liquid, of a series of color-holding receptacles having orifices in their lower ends, a holder-bar F, suitably journaled for a rocking motion on a horizontal axis and provided with an arm, 23, a rotatable crank, 25, and a pitman-rod 24, connecting said crank and arm, substantially as described.

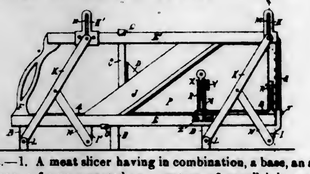
9. In an apparatus for marbling paper, the combination with one or more color-holders, each having its lower extremity of nozzle form and provided with the rod, 12, extending longitudinally from near the nozzle orifice upwardly beyond the top of the color-holder, and said holder being mounted for a rocking motion on a horizontal axis, a bearing surface with which a part of, or extension from said rod, 12, engages which is angular or eccentric to said horizontal axis, substantially as described.

10. In a machine for marbling paper, the combination with a vat for holding a color-supporting liquid, the holder-bar F, journaled for oscillation substantially as described and supporting a series of color-holders having their lower extremities formed by nozzles and having the rods 12, extending longitudinally of said holders from near the nozzle orifices thereof upwardly, cheek-plates J, at either side of the machine, provided with the slots, k, eccentric as described, the bar l, having by its extremities an engagement with said slots and with which bar said rods 12, are engaged, means for imparting an oscillation to said holder-bar F, rigid extensions of said holder-bar F, having ways therein extending radially from the axis of oscillation, and in which ways portions of said bar l, have a sliding engagement, substantially as and for the purpose described.

11. In an apparatus for marbling paper, the combination with the color-holders having the rods 12, provided with the screw-threaded upper portions and said holders mounted on the rocking carrier F, of the bar l, mounted for movements as described, and with which said rods are engaged, and the adjusting nuts for said rods, substantially as set forth.

12. In an apparatus for marbling paper, the combination with a vat for holding the color-supporting liquid normally supported with its bottom in an inclined position and adapted for a tilting movement, and having a liquid outlet at its forward end, of means acting in relation to said vat whereby the inclination thereof may be varied, substantially as described.

492,934. MEAT-SLICER. ROBERT S. CARR, Hamilton, Ohio. Filed Dec. 24, 1892. Serial No. 456,211. (No model.)



Claim.—1. A meat slicer having in combination, a base, an abutment thereon, a frame mounted on a system of parallel levers and adapted to be reciprocated thereon in a line parallel to the base, and a knife secured to the frame at a shearing angle to the abutment.

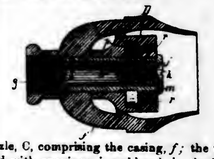
2. A meat slicer having in combination, a horizontal base mounted on feet, a vertical transverse abutment thereon, a frame, a knife secured thereto at a shearing angle to the edge of the abutment, and a system of parallel levers engaging with the frame and the feet whereby the frame may be reciprocated in a direction parallel to the base.

3. In a meat slicer, the combination with a frame mounted on parallel levers and provided with a knife set at a shearing angle, of a yoke adjustably pivoted to the frame, a gage axially pivoted to the yoke, a handle secured to the gage at a right angle, a standard adjustably secured to the frame and provided with a slot in the form of an arc, and means adjustable in the slot and adapted to secure the handle to the standard.

4. In a meat slicer the combination with a frame provided with a knife, and adapted to be reciprocated in a straight line parallel to the base, of a gage, a yoke pivoted thereto and to the frame, a standard secured to the frame, and a handle fastened to the gage and adjustably secured to the standard.

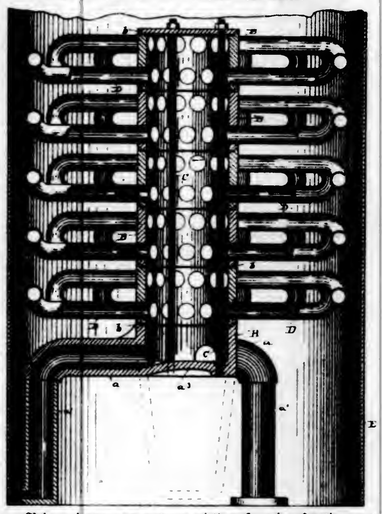
492,935. BOILER-TUBE CLEANER. ARTHUR W. CHESTERTON, Boston, Mass. Filed May 23, 1892. Serial No. 434,062. (No model.)

Claim.—1. In a boiler tube cleaner, a nozzle comprising a casing; a tube in the supply thereof provided with steam openings; a loose head on said tube provided with a groove registering with said openings and inclined ports leading from the groove through the wall of said head whereby steam may be delivered to the discharge of said casing and a rotary movement imparted to said head.



2. The nozzle, C, comprising the casing, *f*; the tube, *A*, secured therein provided with openings, *i*, and head, *j*; the head, D, having the groove, *p*, and inclined ports, *r*, said head being mounted to rotate on the tube, substantially as described.

492,936. STEAM-BOILER. GEORGE A. CRANE, Cleveland, Ohio. Filed Apr. 14, 1892. Serial No. 429,120. (No model.)



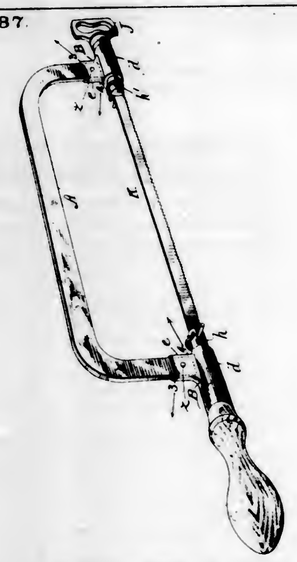
Claim.—A steam generator consisting of a series of sections seated one upon the other, each section having two concentric rows of holes, the holes in one row being out of line vertically with the holes of the other row, and expanding tubes having one end secured in the upper and one end in the lower row of holes of the same section of the boiler and out of line vertically, thereby throwing said tube at an angle to a horizontal plane, substantially as described.

492,937. HACK-SAW. LEONARD L. DAVIS, Springfield, Mass. Filed Mar. 31, 1892. Serial No. 427,199. (No model.)

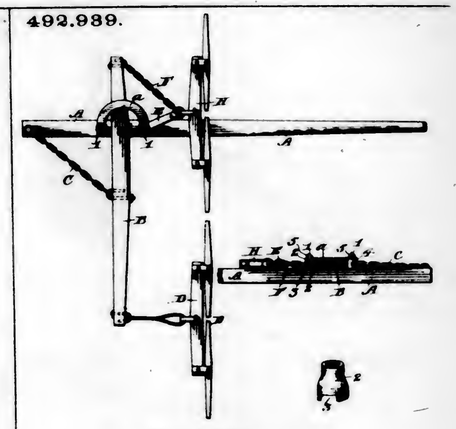


Claim.—In a hack-saw, a connection, B, to which the end of the saw-frame is secured, consisting of a hollow sleeve, *d*, having thereon between its extremities, a hollow, laterally extending post, *e*, having a passage therethrough inclosed on all sides from its outward extremity to the interior of said sleeve, to receive the end of the saw-frame, said post being integral with said sleeve, combined with said frame and one or more transverse pins passing through said post and frame-end, substantially as set forth.

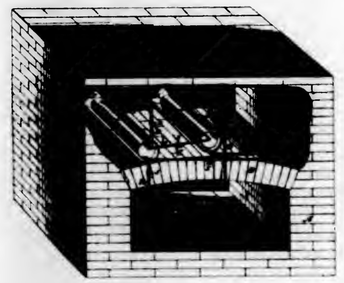
492,937.



492,939.



492,988. BAKING-OVEN. FRANK EBERHART, New York, N. Y. Filed June 11, 1892. Serial No. 436,409. (No model.)



Claim.—1. In a baker's oven the receptacles built in the masonry or sand for holding a generating boiler or boilers, which can be removed without disturbing said masonry; in combination with their contained cylinders for the heating of water or the production of steam as set forth.

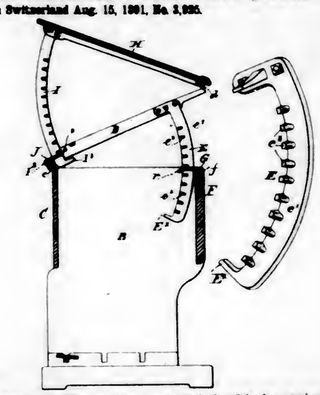
2. The boiler or boilers, in combination with their receptacles in the walls or crown of an oven, the gas-burners, steam and water pipes and safety valve substantially as specified.

492,939. DRAFT-EQUALIZER. WILLIAM LEWIS, Sauk Centre, Minn. Filed Nov. 8, 1892. Serial No. 451,344. (No model.)

Claim.—In a draft equalizer, the combination with a tongue, of a bracket, bolts securing the said brackets to the upper surface of the tongue; a collar surrounding one of the said bolts between the bracket and the tongue and having a recess in the bottom thereof, an evener bar connected with the said tongue and passing between the said bracket and tongue, a double tree connected to each end of the said evener bar, and a link having its forward end secured to one of the double trees and its rear end extending through the recess in the collar and being engaged by the bolt in the tongue, the said link being shorter than the connection between the double trees and the draft bar, substantially as described.

492,989.

492,940. SCHOOL-DESK. ARNAND MAUDUAIN, Geneva, Switzerland. Filed Mar. 19, 1892. Serial No. 425,581. (No model.) Patented in Switzerland Aug. 15, 1891, No. 3,925.



Claim.—1. The combination in a desk with the stationary portion or legs, of the frame D hinged at one edge to the stationary portion, the top H hinged at the opposite edge of the frame D, the segmental racks I rigidly connected at their upper ends to the under side of the top H, and a hinged automatic plate pawl J engaging the rack teeth, the segmental racks E rigidly connected at their upper end to the frame D, and a hinged automatic plate pawl G engaging the rack teeth, substantially as specified.

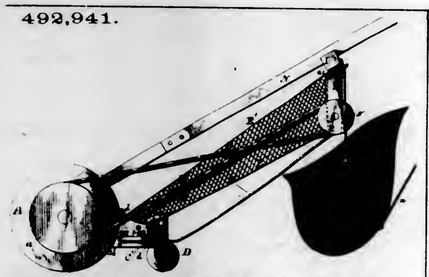
2. The combination in a desk with the stationary portion or legs, of the frame D hinged at one edge to the stationary portion, the top H hinged at the opposite edge of the frame D, the segmental racks I rigidly connected at their upper ends to the under side of the top H, and having inwardly projecting teeth, the hinged automatic plate pawl J engaging said rack teeth, the segmental racks E rigidly connected at their upper ends to the frame D and having inwardly projecting teeth, and a hinged automatic plate pawl G engaging said rack teeth, substantially as specified.

492,941. LAWN-MOWER. ABNER R. MILLER, Palmyra, N. J. Filed June 10, 1891. Renewed Aug. 23, 1892. Serial No. 443,861. (No model.)

Claim.—1. In a lawn mower the two ground rollers each having a pulley and belt in combination with the pulleys on the upper roller supplied with ratchets and pawls—substantially as and for the purpose described.

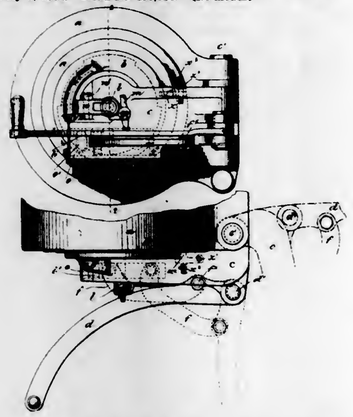
2. In a lawn mower, the combination of the ground rollers, A, having pulleys, *a*, the belts, B, pulleys, F, having attached thereto

492,941.



ratchet wheels, G, and pawls, H, the roller, J, supplied with points, *j*, the endless grass carrier, E, protected by side guards, E', the small pulley, C, and receptacle, M, substantially as described.

492,942. BREECH-LOADING ORDNANCE. ANDREW NOBLE and GEORGE HENDERSON, Newcastle-upon-Tyne, England, assignors to the Sir W. G. Armstrong, Mitchell & Company, Limited, same place. Filed July 5, 1892. Serial No. 439,090. (No model.)



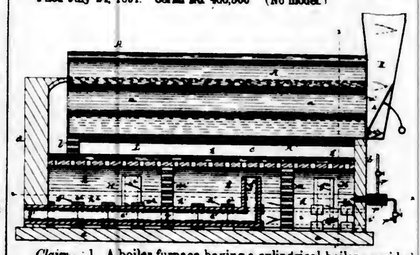
Claim.—1. The combination of the gun, the breech piece locked in the gun by a divided screw-thread a carrier arm hinged at one end to the gun and at its other end pivotally connected with the breech piece, a handle pivotally connected at one end with the carrier-arm, a link (*f*) pivotally connected with the handle at one end, a sliding block *e*, to which the other end of the link is pivotally connected and which is carried by a carrier-arm and adapted to move in a recess therein, and a pin *b'* on the breech block, extending into an elongated hole *e'* in the block *e*.

2. The combination of the gun, a mounting in which it is free to slide, the breech piece locked in the gun by a divided screw-thread, a carrier-arm on which the breech piece is pivoted and which is pivoted at one end to the gun, a lever arm connected to the carrier-arm, a link connecting the lever arm to the breech piece, an arc of teeth connected with said arm, a rack bar connected with the gun to move back with it during recoil before the breech is opened, and a catch for holding the rack in its retracted position.

3. The combination of the gun, a mounting in which it is free to slide, the breech piece locked in the gun by a divided screw-thread, a carrier-arm on which the breech piece is pivoted, and which is pivoted at one end to the gun, a lever arm connected to the carrier arm, a link connecting this lever arm to the breech piece, an arc of teeth connected with said arm, a rack bar connected with the gun to move back with it during recoil before the breech is opened, a catch for holding the rack in its retracted position, means for moving the gun forward after recoil, and means for moving the rack forward after the catch is released.

4. The combination of the gun, a breech piece locked in the gun by a divided screw-thread, a swinging carrier on which the breech piece is pivoted, the forked lever *n* pivoted on the carrier, a flange or incline b^3, on the breech piece with which the forked lever engages, and a sliding spring-actuated firing pin with which the fork of the lever *n* engages.

492,943. BOILER-FURNACE. SAMUEL T. OWENS, Pittsburg, Pa. Filed July 24, 1891. Serial No. 400,566. (No model.)



Claim.—1. A boiler furnace having a cylindrical boiler provided with return flues or passages and having below the same and above the fire chamber a cylindrical perforated arch and one or more transverse perforated walls extending across the fire chamber so dividing the space below the arch into compartments, each forming a combustion chamber substantially as and for the purposes set forth.

2. A boiler or like furnace, having a longitudinal perforated arch extending under the boiler and above the fire chamber, transverse perforated walls extending across the fire chamber and dividing it into compartments, each forming a combustion chamber and air entrances communicating with the said compartments, substantially as and for the purposes set forth.

3. A boiler or like furnace having a longitudinal perforated arch extending under the boiler and above the fire chamber, transverse perforated walls extending across the fire chamber and dividing it into compartments, and having vertical air tubes extending up within said compartments and opening only at points near the top of the compartments, substantially as and for the purposes set forth.

4. A boiler or like furnace having a series of longitudinal air heating flues extending along the base thereof, and exposed to the heat of the fire chamber and having vertical tubes rising therefrom within the fire chamber at different points in the length thereof and opening near the top of the same, substantially as and for the purposes set forth.

5. A boiler or like furnace having longitudinal air heating flues leading from the rear of the furnace to a point near the forward end thereof and opening into the same, and longitudinal flues leading from the forward end of the furnace toward the rear thereof and opening into the same, substantially as and for the purposes set forth.

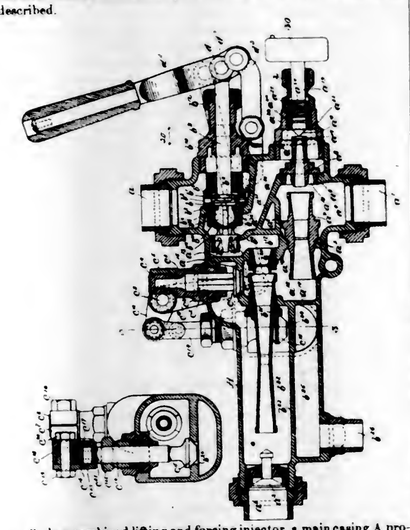
6. A boiler or like furnace having a fire chamber under the boiler communicating with the entrance end of the boiler flues or tubes, and having a damper at the discharge end of said flues or tubes and adapted to be closed so as to control the flow of the heated products through the same, substantially as and for the purposes set forth.

7. A boiler or like furnace having a fire chamber under the boiler communicating with the entrance end of the boiler flues or tubes, and having a damper at the discharge end of said flues or tubes controlling the flow of the heated products through the same, said damper being hinged or pivoted below the flue, and adapted to be raised toward or against the same, substantially as and for the purposes set forth.

492,944. INSPIRATOR. WILLIAM R. PARE, Taunton, and BELVIN T. WILLISTON, Somerville, assignors to the Hancock Inspirator Company, Boston, Mass. Filed Nov. 3, 1892. Serial No. 450,854. (Model.)

Claim.—1. In a combined lifting and forcing injector, a main casing provided with a chamber intermediate of the steam and water inlets and the overflow chamber of the forcer, and into which the lifter discharges, and from which the forcer is supplied with water, an overflow port from said intermediate chamber to the overflow chamber, of the forcer and an automatically operating valve controlling said port and located on the outside thereof, the said valve and its seat being located above the inlet end of the forcer combining tube, whereby the forcer combining tube will be flooded with water in starting the apparatus, substantially as described and shown.

2. In an injector provided with a lifter and forcer, in which the lifter delivers water to the forcer, a port opening from the passage or chamber into which the lifter discharges into the overflow chamber, of the forcer a valve which automatically opens and closes said port and is located on the outside of said chamber, a steam admission valve and a final overflow valve, and devices connecting them with an operating lever, whereby the final overflow valve shall be gradually closed as the steam admission valve is opened, and the overflow from the lifter shall be automatically controlled, substantially as shown and described.



3. In a combined lifting and forcing injector, a main casing A provided with the steam inlet *a* and water inlet *a'* and outlet a^2, partitions a^3, a^6, a^7, within the casing forming a chamber a^4 communicating with the water inlet, partitions a^{14}, a^{15}, a^{13}, forming the chamber a^{12}, partitions a^{27}, a^{26}, forming the lifter steam inlet passage a^{24}, the partitions b^{15} forming with the partition a^{13} the forcer steam inlet passage b^{17}, the partition b^{23} forming with the casing A the overflow chamber b^{22} and the final overflow passage b^{24}, the valve b^{16} controlling admission of steam to the passage b^{17}, the valve *b* and the auxiliary valve b^4 controlling admission of steam to the passage a^{24}, the lifter steam jet tube communicating with the passage a^{24} and with the chamber a^4, the lifter-combining tube extended through the partition a^3 and having its inlet end in the chamber a^4 and its outlet end in the chamber a^{12}, the forcer steam jet tube extended through the partition a^{13} and connecting the forcer steam inlet passage b^{17} with the chamber a^{12}, the forcer combining tube extended through the partition a^{14} and having its inlet end in the chamber a^{12} and its outlet or discharge end extended into the overflow chamber b^{22}, an overflow port *c* for the chamber a^{12}, a valve *c'* controlling said port located outside the chamber a^{12} and having its stem extended into a sleeve c^3, a final overflow port b^{24} in the partition b^{23}, a valve to control said final overflow port, an operating lever connected to the steam valves, and mechanism connecting the final overflow valve with the said lever, substantially as described.

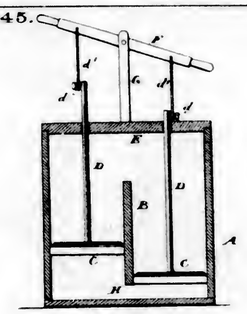
4. In a combined lifting and forcing injector, a main casing, a sleeve c^3 detachably secured to said casing, an automatically operated valve *c'* having its stem c^3 extended into said sleeve, a final overflow valve c^{16} having its stem extended through the main casing, a collar or ring, mounted on the said sleeve and provided with ears c^7, c^8, a pin or rod extended through said ears, an elbow lever mounted on said pin, arms c^{16}, c^{17}, pivotally secured to one arm of the said elbow lever, hubs c^{21}, c^{22}, on the inner side of the said arms extended into sockets in the stem of the final overflow valve, and a pin c^{23} secured to one of the said arms, and extended through the hole in the valve stem of the final overflow valve and into a hole or socket in the hub on the other of said arms, substantially as described.

5. In an injector, a piston valve for the admission of steam provided with notches or serrations, as b^{15}, substantially as and for the purpose described.

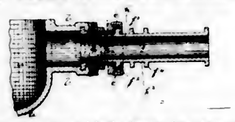
492,945. CHURN. JAMES PRESLEY, Harrisburg, Oreg. Filed Sept. 22, 1892. Serial No. 446,560. (No model.)

Claim.—The churnbody A having a partition B with openings above and below it, in combination with the solid dashers C C working fluid-tight, dasher-rods D having at the upper ends the side studs *d* to prevent the dashers from going above or below said partition and a lever F connected with said studs by equal pivoted rods at an equal distance from the fulcrum of the lever as shown and described

492,945.

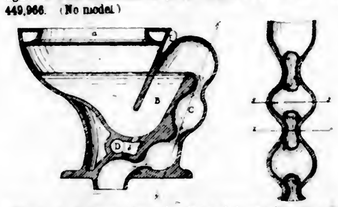


492,946. COUPLING FOR WATER-CLOSETS. JAMES J. RICKETTS, Pittsburg, Pa. Filed Mar. 26, 1892. Serial No. 426,555. (No model.)



Claim.—In combination with the horn of a water closet or like bowl, a rubber or like flexible connection having the part thereof extending out to the horn provided with a series of flanges extending around the same, and a collar or nut adapted to engage with said flanges according to the adjustment of the connection, substantially as and for the purposes set forth

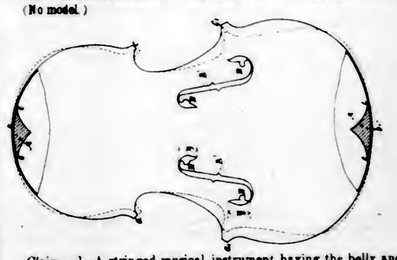
492,947. WATER-CLOSET. WILLIAM SMITH, Trenton, N. J., assignor to Dale & Davis, same place. Filed Oct. 25, 1892. Serial No. 449,966. (No model.)



Claim.—1. A water closet, having a siphon exit passage of varying diameters and of equal discharge area throughout its length; substantially as shown and described.

2. A water closet having a siphon exit passage of relatively long and short diameters, the long diameter of one section of the passage being transverse to the long diameters of the contiguous sections of the passage; substantially as shown and described.

492,948. STRINGED MUSICAL INSTRUMENT. ALFRED STELLNER, Wiesbaden, Germany. Filed Sept. 3, 1891. Serial No. 404,599. (No model.)

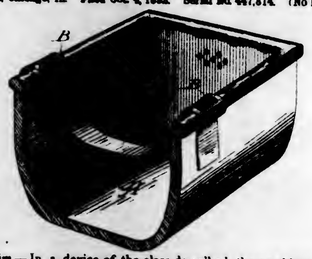


Claim.—1. A stringed musical instrument having the belly and back of elliptic shape at the ends in combination with posts A, having parabolic sides, substantially as specified.

2. A stringed musical instrument having belly and back of elliptic shape at the ends and having the sides D, of parabolic shape, substantially as specified.

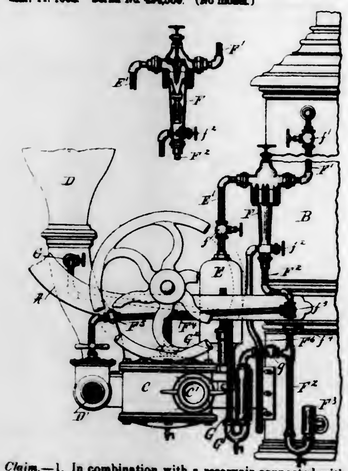
3. A stringed musical instrument having belly and back of elliptic shape at the ends and having elongated sound holes B', B, substantially as specified.

492,949. ATTACHMENT FOR BATH-TUBS. THEODORE R. TREMBER, Chicago, Ill. Filed Oct. 4, 1892. Serial No. 447,814. (No model.)



Claim.—In a device of the class described, the combination of slotted hooks adapted to fit over and engage with the edges of the tub, and a band passing through the slots in such hooks adapted to support the user, such band being drawn back and forth through the hooks to adjust the same at any desired height, substantially as described.

492,950. STEAM-PUMP. WILLIAM WATKINS, Chicago, Ill. Filed Mar. 11, 1892. Serial No. 424,509. (No model.)



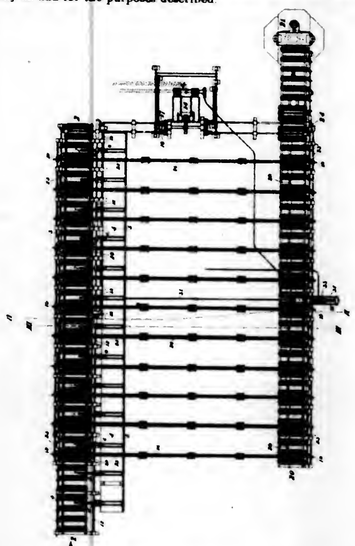
Claim.—1. In combination with a reservoir connected with the inlet of the pump cylinder, and also with the suction pipe, of a steam pump, a steam injector connected with the reservoir above the connection of the latter with the pump cylinder and arranged to draw from said reservoir.

2. In a steam pumping engine, the combination, with the pump cylinder and the boiler, of a reservoir connected with the suction side of the said cylinder and with the suction pipe, and an injector suitably connected with the reservoir and the boiler to take water from the reservoir and to deliver it to the boiler.

492,951. APPARATUS FOR STRAIGHTENING METAL PLATES. HENRY AIKEN, Pittsburg, Pa. Filed June 13, 1892. Serial No. 436,451. (No model.)

Claim.—1. In apparatus for manufacturing metal plates, the combination with a straightening bed provided with transverse gaps, a conveying-table, and transfer chains extending in the gaps of the bed, mechanism for driving the chain, and mechanism for moving the same vertically to engage and deposit the plates; substantially as and for the purposes described.

2. In apparatus for manufacturing metal plates, the combination of two parallel conveying-tables, an intermediate straightening press, and transfer chains extending between the tables and across the press, and adapted to shift the plates from the first table to the press, and from the press to the second table, mechanism for moving the chains to transfer the plates, and mechanism for lifting the chains; substantially as and for the purposes described.



3. In apparatus for manufacturing metal plates, the combination of conveying tables, leading from the rolls and to the shears respectively, a transverse transfer device, and an interposed straightening-press; substantially as and for the purposes described.

4. In apparatus for manufacturing metal plates, the combination with a straightening-press having a bed adapted to receive a metal plate, and heads movable to straighten the plate, of a conveying-table leading up to the straightening-press, transfer mechanism leading across the conveying-table and press, and mechanism for moving the same vertically; substantially as and for the purposes described.

5. In apparatus for manufacturing metal plates, the combination with a straightening-press having a bed adapted to receive a metal plate, and heads movable to straighten the plate, of a conveying-table leading up to the straightening-press, and transfer mechanism consisting of endless conveyer chains; extending across the press-bed substantially as and for the purposes described.

6. In apparatus for manufacturing metal plates, the combination of a straightening bed having transverse gaps, a feed-table, comprising driven rollers, adjacent thereto, endless conveying chains extending through the gaps and between the rollers, guides for the chains, and mechanism for lifting the guides; substantially as and for the purposes described.

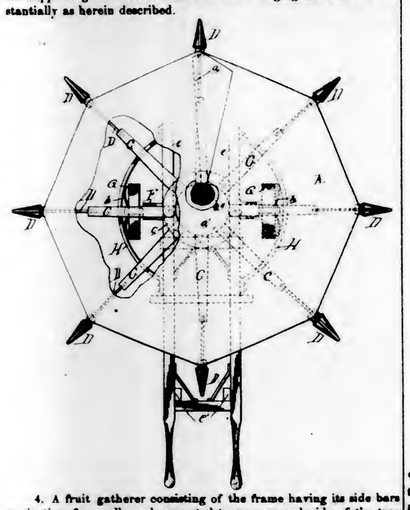
7. A straightening-press bed, having vertical gaps, and transfer mechanism adapted to move in the gaps above and below the surface of the bed; substantially as and for the purposes described.

492,952. FRUIT-GATHERER. SAMUEL R. BALL, Winters, Cal. Filed Aug. 12, 1892. Serial No. 442,936. (No model.)

Claim.—1. In a fruit gatherer and in combination with the collapsible and expansible receiver with its swinging supporting arms and sectional or divided hub, the wheeled frame upon which said hub is carried, said frame having forwardly projecting side bars separated to pass on each side of the tree trunk, substantially as herein described.

2. In a fruit gatherer and in combination with the collapsible and expansible receiver with its swinging supporting arms, the wheeled frame having forwardly projecting side bars separated to pass on each side of the tree trunk, and the sectional or divided hub to which the supporting arms are pivoted, said hub being composed of a central section fast on the wheeled frame and end sections pivoted to said central section, substantially as herein described.

3. In a fruit gatherer and in combination with the collapsible and expansible receiver with its swinging supporting arms and sectional or divided hub, the wheeled frame upon which said hub is carried, said frame having forwardly projecting side bars separated to pass on each side of the tree trunk, and the guides secured to said side bars for supporting the receiver arms in their swinging movements, substantially as herein described.



4. A fruit gatherer consisting of the frame having its side bars projecting forwardly and separated to pass on each side of the tree trunk, said frame having wheels at its forward portion and handles at its back portion, the divided hub composed of a central section fast on the frame and end sections pivoted to said central section, the radial arms pivoted in said hub, the collapsible and expansible receiver secured to said arms and the side guides of the frame on which said arms rest when the receiver is expanded, substantially as herein described.

492,953. CAR-LAMP. EMILE BOSSCH, San Francisco, Cal. Filed May 4, 1891. Serial No. 391,560. (No model.)

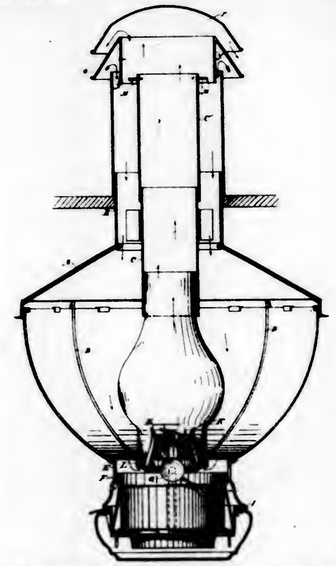
Claim.—1. In a lamp fixture, the chamber for the oil reservoir, consisting of an upper section in which the said reservoir is confined and supported, said reservoir having its upper portion adapted to make an air tight joint with the inner wall of the chamber, and its inner portion extending below the bottom plane of the section, and a movable lower section inclosing the projecting portion of the reservoir and attachable to the upper section, substantially as herein described.

2. In a lamp fixture, the upper section into which the upper part of the oil reservoir is inserted from below, said upper part of the reservoir forming an air tight joint with the inner wall of the section, and said section having a slot for the wick raising shaft opening through its lower end, in combination with the movable lower section inclosing the upper section and covering and concealing the lower portion of said slot, substantially as herein described.

3. In a lamp fixture the sectional chamber the upper section of which receives and forms an air tight joint with the upper portion of the oil reservoir, said upper section having an outwardly projecting flange and downwardly extending rim, and a lower section hinged at one side to its upper section and provided at its opposite side with a catch adapted to engage said upper section, substantially as herein described.

4. In a lamp or lantern, a chamber having air inlets, an oil fount and burner removably fitted to said chamber from below and having its upper part adapted to make a tight joint with the inner wall of the chamber above the air inlets, substantially as herein described.

5. In a lamp or lantern, a chamber having a vertical slot in one side, an oil fount and burner removably fitted to said chamber from below, and having its upper part adapted to make a tight joint within the chamber above the slot and air apertures thereof, substantially as herein described.



6. In a lamp or lantern, the extension chimney tube, the exterior concentric tube B, the ring N between the upper ends of the two tubes, in combination with the flange O and the cap P, substantially as herein described.

7. In a car lamp or lantern, the globe or body, the burner and chimney, the concentric tubes B and C with air inlets and discharge openings within the chimney top, the tubes B and C made in telescopic sections whereby the two may be fitted to any thickness of roof through which they pass, without changing the relative position of the ends of the tubes to each other, substantially as herein described.

8. In a chimney top of the lamp or lantern, the inwardly extending flange O with an open space between its inner edge and the upper end of chimney extension C, the air supply inlets and the air exhaust outlets separated only by said flange O, covered by the cap P, the concentric tubes, the air channel or conduits, the chimney or globe the burner and oil reservoir, substantially as herein described.

9. In a lamp or lantern, the globe having the reflector on top, and the concentric upwardly extending tubes with the exit dome, air inlet openings and equalizing ring, a chamber supported from the lower end of the globe having the vertical cylindrical joint ring at the top, the removable oil reservoir having a corresponding vertical cylindrical flange meeting said ring making an air tight joint therewith, means for locking the lamp reservoir in place, and a slot on the side of the lamp body through which the wick raising shaft passes, substantially as herein described.

10. In a lamp fixture, the globe or body, the oil reservoir beneath with a joint to prevent the admission of air into the globe from that point, the concentric tubes extending upward through the car roof, one of said tubes serving as an air inlet and the other as an air outlet, the chimney top having a deflector and cap exterior to the roof and inclosing said inlets and outlets, substantially as herein described.

11. In a car lamp, the globe, the concentric tubes extending upwardly, the air inlet openings between the tube B and the flange O, the exit openings through which the products of combustion pass from the inner tube, the equalizing ring N between the upper ends of the inner and outer tubes, the lamp chamber supported from the lower part of the globe, the oil reservoir having the burner and chimney fixed to the top and a vertical joint, ring or flange whereby the oil reservoir fits the lamp chamber with an air tight joint, devices for locking the reservoir into the chamber from below, and a hinged or removable drip cup fitting the lower part of the chamber below the reservoir and having an annular space or passage between its upper edge and the

chamber for admission of air to circulate around the reservoir, substantially as herein described.

mission of air into the casing at that point, substantially as herein described.

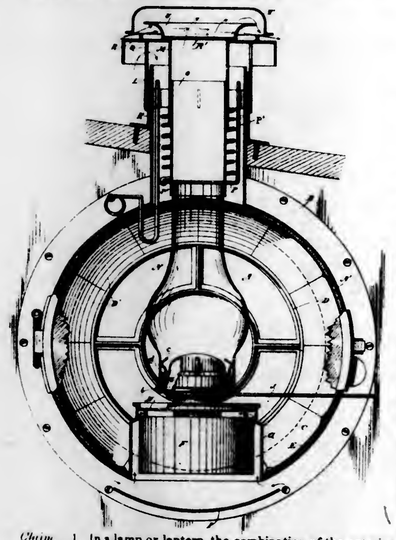
6. In a lamp or lantern, the metal chimney extension having a

H, abutting against the lower end of the last named runner to hold said runners in place when in use, substantially as described.

to swing in said opening and beneath the discharge faucet, substantially as herein described.

chamber for admission of air to circulate around the reservoir, substantially as herein described.

492,954. CAR-LAMP. EMILE BOSSON, San Francisco, Cal. Filed Apr. 6, 1892. Serial No. 428,052. (No model.)



Claim. 1. In a lamp or lantern, the combination of the exterior casing having an open bottom to admit air and having a flange entering the main chamber, and a lamp or lantern having an oil fount or reservoir located within said open bottom and forming an air tight seat upon said flange, said fount or reservoir being of smaller diameter than the interior of the casing whereby a free circulation of air is provided around the fount or reservoir cut off from the interior of the main chamber.

2. In a lamp or lantern, the combination of a main casing having a chamber G at its lower portion extending into the main chamber and open at both ends, and a lamp or lantern having a reservoir or oil fount provided with a flange adapted to close the upper end of the chamber G to prevent the admission of air into the main chamber, said reservoir or fount adapted to be wholly confined within the chamber G and having a diameter less than the chamber, whereby the air entering said chamber G circulates around the fount or reservoir to keep the same cool, but is prevented from entering the main chamber.

3. In a lamp or lantern having a chamber G extending upwardly from its lower portion into the main chamber, and with its upper and lower ends open, a lamp or lantern having a fount or reservoir confined within the said chamber and closing the upper end thereof against the admission of air to the main chamber, and a plate or disk below the open lower end of the chamber to cover said open bottom and conceal the fount or reservoir, said plate or disk having openings for the admission of air to the chamber G and said fount or reservoir having a diameter less than that of the chamber to permit the free circulation of air about it, substantially as herein described.

4. In a lamp or lantern, the oil reservoir having a supplemental disk or plate supported a short distance above the top, a chamber within which the oil reservoir is wholly confined and supported with openings at the base to supply cool air from outside to circulate around the reservoir and in the space above the top between it and the plate, said plate having a flange fitting properly around the upper opening of the chamber containing the reservoir, and making a tight joint and preventing the admission of air into the main chamber, substantially as herein described.

5. In a car reflector lamp, the outer glass, the flange to fit around the hole on the outside of the wood-work having a rim to enter said hole, in combination with a corresponding rim projecting from the lamp casing, both rims telescoping until fitting the various thicknesses of wood or wall of car between the inner flange of the lamp casing and said outer flange, and making a joint to prevent the admission of air into the casing at that point, substantially as herein described.

6. In a lamp or lantern, the metal chimney extension having a cross wire to rest upon the upper edge of the glass chimney, said extension being movable upward to admit the glass chimney and downward so that it rests upon and forms a continuation of a chimney when the fount and burner are in place, substantially as herein described.

7. In a lamp or lantern, a vertically movable extension chimney having a bar across the lower end against which the upper end of the chimney rests, and upon which it turns when the glass chimney is being introduced and placed upon the burner, the guides maintaining the bar in the same position at all times and preventing the extension from falling down, substantially as herein described.

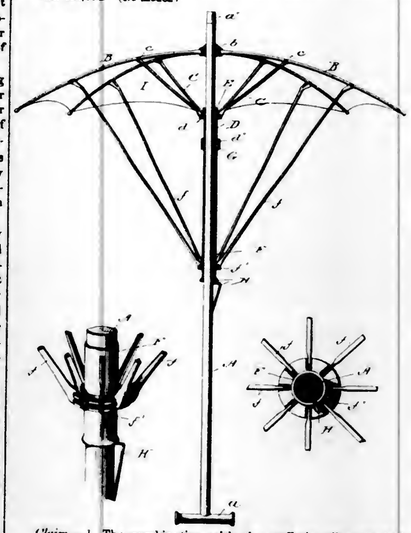
8. In a lamp or lantern, a vertically movable extension to the glass chimney, an exterior cylindrical tube within which said extension is guided, a spiral spring surrounding it and normally pressing it downwardly, and a transverse bar in the lower part on which the spring presses to force the extension down after the chimney is inserted or removed, and which acts also to retain the chimney in place upon the burner, substantially as herein described.

9. In a lamp or lantern, the vertical movable extension to the glass chimney, the cross bar P having its ends extended to form the slotted guides, and one of said guides being also extended through the side of the lamp or lantern casing to form a handle by which the extension is moved, substantially as herein described.

10. A lamp or lantern chimney top provided with a bar across the opening of the flange at the point regulating and stopping the upper end of the exhaust tube within the chimney top when placed over the concentric tubes of the lamp body, substantially as herein described.

11. In a lamp or lantern chimney top, the deflector consisting of the flat flange, the outwardly curved collar around the opening on the upper surface of said flange, in combination with the cap leaving an air passage between it and the collar and another opening between it and the flange at their largest diameter, allowing the wind to enter on one side as far as the curved collar, whence it is deflected around and out on the opposite side, drawing along with it the heated air from the exhaust tube, substantially as herein described.

492,955. FIRE-ESCAPE. JOHN W. L. BROWN, Marietta, assignor of one-half to Frank S. Roach, Athens, Ohio. Filed Nov. 16, 1892. Serial No. 452,184. (No model.)



Claim.—1. The combination with the staff, the ribs attached thereto, braces secured at their outer ends to said ribs and at their inner ends to a runner sleeved upon said staff, the supplemental braces secured to the same set of ribs near the outer ends of said ribs and pivoted to an independent runner also sleeved upon said staff, both runners being adapted to move in the same direction and the spring H, abutting against the lower end of the last named runner to hold said runners in place when in use, substantially as described.

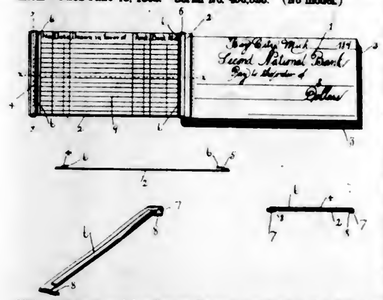
2. The combination with the staff, the ribs attached thereto, braces secured at their outer ends to said ribs and at their inner ends to a runner sleeved upon said staff, the supplemental braces secured to the same set of ribs near the outer ends of said ribs and pivoted to an independent runner also sleeved upon said staff, the spring H, to hold said runners in place when in use, and the ferrule E, securely fastened to said staff, substantially as described.

3. The combination with the staff, ribs attached thereto, braces secured to said ribs, and to a runner sleeved on said staff, the supplemental braces secured to said ribs and to an independent runner on said staff, the spring H, the ferrule E, the said runners being of sufficient length so that they will come in contact, when in use, having the ends that will come in contact bossed to prevent telescoping, substantially as described.

4. The combination with the staff, ribs attached thereto, and to runners sleeved upon said staff, supplemental braces attached to said ribs and to an independent runner also sleeved upon said staff of sufficient length to contact with the runner D when in use, the spring H, the ferrule E, both runners being adapted to move in the same direction and having their contiguous ends bossed, substantially as described.

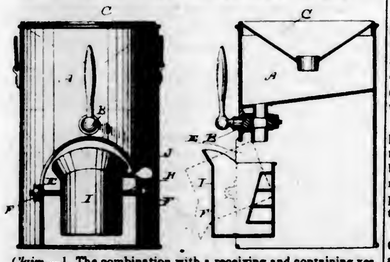
5. The combination with the ordinary umbrella staff and frame, of the ferrule against which the top of the runner of the open umbrella abuts, the supplemental brace, and a long supplemental runner, the T hand cross bar and the spring, said braces attached at the outer ends of said ribs and the lower end of said supplemental runners, whereby the tendency when in use of the cover to reverse itself and of the main ribs to buckle is reduced to a minimum, substantially as described.

492,956. BANK-CHECK BOOK. CHARLES M. BUMP, Bay City, Mich. Filed June 13, 1893. Serial No. 436,523. (No model.)



Claim.—A new article of manufacture, consisting of a series of blank checks bound in book form, provided with a cover and having the metal strips 4 and 5 extending transversely across the inner surface of said cover and around the same with their ends secured to the outer surface thereof, the said strips being provided with raised flanges 6 for holding the edges of a removable memorandum sheet, substantially as described.

492,957. MEASURING-VESSEL. EDWARD L. DETRICK, Susanville, Cal. Filed Sept. 14, 1892. Serial No. 445,896. (No model.)



Claim.—1. The combination with a receiving and containing vessel of a faucet discharge vertically into a chamber in line beneath the receiver, an opening made in the side of this chamber, a measuring vessel having fulcrum shafts projecting from its sides journaled so as to swing in said opening and beneath the discharge faucet, substantially as herein described.

2. The combination with a liquid receiving and containing vessel having a chamber beneath it with an opening formed in one side thereof, of a measuring vessel having horizontal fulcrum shafts projecting from its opposite sides in front of a vertical central line and above its horizontal center, journal-boxes upon each side of the opening in which said shafts are supported and turn, an arm or handle fixed to the upper part of the measure to serve as a stop, and by which to turn the measure about its axis, and a faucet fitted into the receiver adapted to discharge directly into the measuring vessel, substantially as herein described.

3. The combination with a receiving and containing vessel and discharge faucet of an open chamber beneath said vessel having an opening in one side with journal boxes upon opposite sides of the opening, a measuring vessel having shafts projecting from its sides above and in front of its center and supported in the journal-boxes, a handle and stop secured to the upper portion of the measure and indicating plates projecting horizontally into the interior of the measure from the side thereof, substantially as herein described.

492,958. BALL-BEARING. WILLIAM B. DOUGLAS, Phœnix, R. I. Filed Apr. 20, 1892. Serial No. 429,978. (No model.)



Claim.—1. In a ball bearing, a shell having a screw-thread made in each end, in combination with two independent pairs of rings having grooves made in their contiguous faces, and the outer ring of each pair having a screw-thread made to fit into the screw-thread made in the end of the shell, and a series of balls in said grooves having rolling contact with the shaft substantially as set forth.

2. A shell for ball bearings having a central chamber around the shaft, in combination with a ring permanently located at each end of said chamber and having grooves in their outer surfaces, a ring placed outside of each of the first-mentioned rings, and having screw-threads made on their outer surfaces fitting into threads made in the ends of the shell and grooves made in the inner surfaces, of said outside rings, and a series of balls substantially as described.

3. A ball bearing comprising a shell having a central chamber around the shaft, a ring permanently located at each end of said chamber and having grooves in their outer surfaces, a ring placed outside of each of the first mentioned rings and having screw-threads made on their outer surfaces fitting into threads made in the ends of the shell and grooves made in the inner surfaces of the outside rings, a loose ring outside of each pair of said rings, each loose ring having a groove in its inner face, said grooves being undercut on one side, a beveled washer fitted in a recess in each ring to form the overhanging edge of the groove, and balls in said grooves, substantially as set forth.

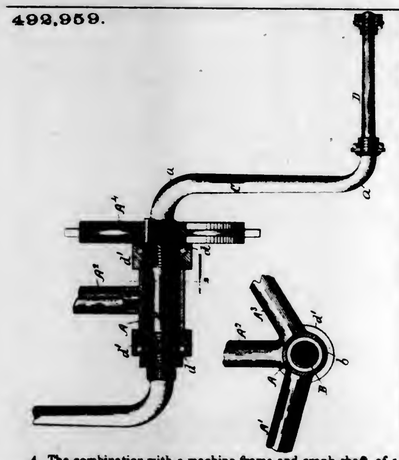
492,959. VELOCIPEDE. WILLIAM H. FAUBER, Chicago, assignor of one-half to Henry W. Horton, Wellington, Ill. Filed July 18, 1892. Serial No. 440,382. (No model.)

Claim.—1. The combination with a machine frame and crank-shaft, of a transverse supporting sleeve attached to the frame and provided with a lateral opening for the insertion and removal of the shaft, and bearings for the shaft located at opposite ends of said sleeve, each of said bearings comprising a stationary annular part which is separately and detachably secured to one of the sleeve-ends, substantially as described.

2. The combination with a machine frame, of a transverse supporting sleeve attached to the frame, a crank shaft and crank arms made in one piece or integral with each other, said supporting sleeve being provided with a lateral opening to allow the insertion and removal of the shaft, and a bearing for the shaft comprising an annular part which is adjustable endwise relatively to the shaft and is secured to the said sleeve or tube by a screw joint, substantially as described.

3. The combination with a machine frame and crank shaft of a transverse supporting sleeve attached to the frame and provided with a lateral opening for the insertion and removal of the shaft, and an anti-friction roller bearing for the shaft of which the stationary annular part or member is secured to the end of the sleeve, substantially as described.

492,959.



4. The combination with a machine frame and crank shaft, of a transverse supporting sleeve attached to the frame and provided with a lateral opening for the insertion and removal of the shaft, and an anti-friction roller bearing for the shaft of which the stationary annular part or member is secured to the end of the sleeve by means of a screw-threaded joint, substantially as described.

5. The combination with a machine frame and crank-shaft, of a supporting sleeve attached to the frame and provided with a lateral opening for the insertion and removal of the shaft, and anti-friction roller bearings, of which the stationary members have screw-threaded connection with the ends of the sleeve and the removable members are attached to and have longitudinal adjustment upon the shaft, substantially as described.

6. The combination with a machine frame and crank shaft, of a supporting sleeve attached to the frame and provided with a lateral opening for the insertion and removal of the shaft, anti-friction roller bearings, of which the stationary members have screw-threaded connection with the ends of the sleeve and the movable members are attached to and have longitudinal adjustment upon the shaft, and a segmental filling piece also provided with screw-threads at its ends to engage said stationary parts or members of the bearings, substantially as described.

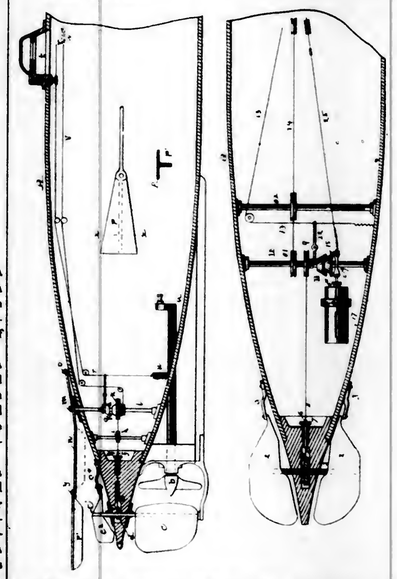
7. The combination with a machine frame, of a crank-shaft and crank-arm made integral with each other, and a bearing for the shaft comprising an annular part or member surrounding the shaft, those parts of the shaft and crank-arm exterior to the bearing being made in all parts smaller in size than the diameter of the shaft at the point where the said annular part or member of the bearing engages the same, whereby the latter may be removed over the crank-arm, substantially as described.

8. The combination with a machine frame, of a crank shaft and crank arms made integral with each other, a transverse supporting sleeve attached to the frame and provided with a lateral opening for the insertion and removal of the shaft and anti-friction roller bearings of which the stationary annular parts or members are attached to the ends of the said sleeve, those parts of the shaft and crank arms exterior to the bearings being made in all parts smaller in size than the diameter of the central openings of the annular parts or members of the bearing, whereby the latter may be removed over the crank arms, substantially as described.

9. The combination with a machine frame, of a crank shaft, crank arms and pedal shafts made integral with each other, a supporting sleeve for the crank shaft attached to the frame and provided with a lateral opening for the insertion and removal of the crank shaft, and anti-friction roller bearings for the shaft of which the stationary annular parts are attached to the ends of said sleeve, the parts of said crank arms and pedal shafts exterior to the bearings being made of less diameter than the inner diameter of the annular parts or bearings whereby the latter may be removed endwise from the shaft, substantially as described.

10. The combination with a machine frame, of a crank shaft, crank arms and pedal shafts made integral with each other, a supporting sleeve for the crank shaft attached to the frame and provided with a lateral opening for the insertion and removal of the crank shaft, and anti-friction roller bearings for the shaft of which the stationary annular parts are attached to the ends of said sleeve, the said crank arms and pedal shafts being made of less diameter than the inner diameter of the annular parts or bearings whereby the latter may be removed endwise from the shaft, and a sprocket wheel attached to the shaft the central opening of which is greater in diameter than the parts of the shaft and crank arms exterior thereto, substantially as described.

492,960. STEERING APPARATUS FOR SUBMARINE VESSELS. JOHN P. HOLLAND, Newark, N. J. Filed May 23, 1892. Serial No. 433,969. (No model.)



Claim.—1. In combination with the rudder of a submarine boat, a floating drag connected with the rudder controlling wheel, substantially as described.

2. In combination with the rudder controlling wheel shaft of a submarine boat, a lever outside the boat attached to said shaft, and a floating drag on said lever, as described.

3. The rudder, steering wheel, and connections as described, the lever outside the boat connected to the shaft of said wheel, and the automatic floating drag pivoted to said lever, as set forth.

4. In combination with the rudder controlling wheel and its shaft, an automatic floating drag connected to said shaft, and a clutch on the shaft whereby the drag may be thrown into or out of gear with the rudder.

5. The combination with an automatic steering gear controlled by a drag outside the vessel and connected to the rudder of a submarine boat, of a hand-steering apparatus, also connected to said rudder, substantially as described.

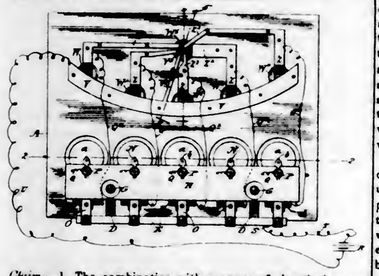
6. In combination with a hand controlled apparatus connected to the diving rudder of a submarine boat, of an automatic apparatus operated by the pressure of the water connected to the same rudder, substantially as described.

7. In combination with the inclosing casing, the diaphragm, the rod connected thereto, and its counterpoise spring, of the automatic mechanism described for controlling the diving rudders, and a tension regulator connected to said spring, as set forth.

8. In a submarine boat, the combination with an automatic device having an inclosed diaphragm substantially as described for controlling the diving rudders, of an indicator connected to the rudder controlling mechanism as described to indicate the oscillation of the rudder controlling diaphragm, as set forth.

9. In combination with the rudder of a submarine boat, a loosely pivoted link or guard attached to the end of said rudder and to the boat, whereby the rudder is permitted to oscillate but obstructions are prevented from catching on the rudder.

492,961. GAME APPARATUS. SIDNEY H. JOHNSON, Chicago, Ill., assignor to the Marion Manufacturing Company, same place. Filed Apr. 19, 1892. Serial No. 430,731. (No model.)



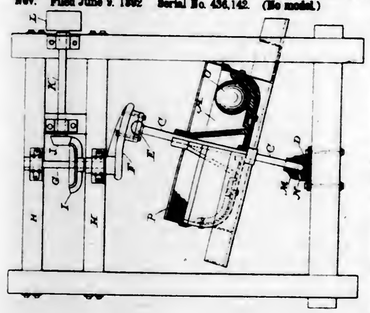
Claim.—1. The combination with a source of electrical energy and the board A; of springs secured to said board and connected to said source of electrical energy, push buttons mounted upon said springs respectively, a common contact plate connected to said source of electrical energy and arranged to be impinged by said springs, and an individual circuit closer, said springs and common contact plate having extensions or springs leading to a common center under said individual circuit closer and adapted to be impinged thereby, substantially as set forth.

2. In a game apparatus, the combination with a source of electrical energy and a series of electric buzzers connected with said source of electrical energy; of a corresponding series of buttons or circuit closers connected respectively with said buzzers, a common contact plate connected to said source of energy and being arranged to be impinged by said circuit closers, an individual button or circuit closer, and contact springs or extensions leading from the respective circuit closers of said series of circuit closers and from said common contact plate and being arranged to be impinged by said individual circuit closer, substantially as set forth.

3. The combination of the board A having series of sockets X formed in the under side thereof, a series of push buttons arranged in said sockets respectively, springs secured to the under side of said board and being bent upwardly into said sockets and supporting said push buttons, a common contact plate secured to the under side of said board and underlying said springs so as to be impinged thereby, the socket X^3 formed in the under side of said board, the individual circuit closer or push button W^4, arranged in said socket X^3, extensions or contact plates leading from said springs and from said common contact plate and underlying said circuit closer W^4, and a source of electrical energy connected with said springs respectively and with said common contact plate, substantially as set forth.

4. In a game apparatus, the combination of the board A; a frame secured to the under side of said board and consisting of the horizontal bars B, E, and H, and the arms D, F, connecting said bars together, the magnets secured to said bar B and magnetically insulated therefrom, the armatures secured to said bar E, dice supporting disks carried by said armatures, the contact points P mounted in said bar H and a source of electrical energy connected to said bar E and to one terminal of each helix of the magnets, substantially as set forth.

492,962. GRINDING-PAN. JAMES H. KINKEAD, Virginia City, Nev. Filed June 9, 1892. Serial No. 436,142. (No model.)



Claim.—1. An ore crushing device consisting of a pan with balls adapted to roll around the interior, a shaft extending upward through the center of the pan and secured thereto, a step in which the lower end of the shaft is retained, a vertical shaft in line above the step and above the upper side of the pan, means whereby said shaft is caused to rotate, a crank fixed to said shaft, a box fixed to the outer end of the crank adapted to form with the upper end of the pan shaft a ball and socket joint, a hub fixed around the bottom of the shaft having serrated radial teeth upon its lower surface, and a correspondingly serrated hub fixed around the step in which the lower end of the shaft turns whereby the two serrated surfaces engage each other and prevent the pan from rotating about its shaft while allowing it to revolve, substantially as herein described.

2. A crushing and grinding device consisting of a pan having dies fixed around the inner curved angle, and balls adapted to roll upon said dies, a shaft passing through the center of the pan supported in a step at the bottom with toothed or serrated hubs whereby the shaft and pan are prevented from rotating about their own axis, a vertical crank shaft in line above the step, a crank fixed to the lower end, a box into which the upper end of the pan shaft extends forming a ball and socket joint, means whereby the vertical shaft is rotated so as to cause the pan to revolve in an eccentric orbit around its step, screens fixed around the upper periphery of the pan for the discharge of the pulverized ore, and a circular sluice situated below the pan adapted to receive the discharge therefrom, substantially as herein described.

492,963. TOY. WARREN H. LAMSON, Bridgeport, Conn. Filed July 16, 1892. Serial No. 440,246. (No model.)



Claim.—A toy consisting of a case having within it an effigy 5 adapted to be raised by a spring and a plate 6 fixed to the top of the case and having a central opening through which effigy 5 may be projected by the spring, said plate serving as a stop to prevent effigy 5 from being detached from the case, and an effigy 8 having a plate adapted to fit the opening in plate 6 and hold effigy 5 within the case, and a ball carried by an elastic cord by which effigy 8 may be displaced so that effigy 5 may be raised above the case.

492,964. MACHINE FOR CUTTING INTO STRIPS AND REELING OR WINDING PAPER. FRANCIS MEISEL, Boston, Mass. Filed May 21, 1892. Serial No. 433,921. (No model.)

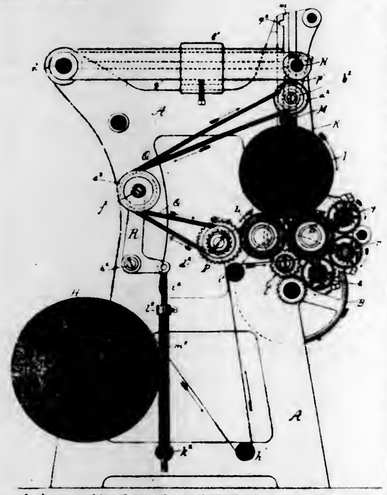
Claim.—1. In a machine for cutting and winding paper &c., the feed cylinder E provided with a series of removable cutters, combined with a sliding center pin adapted to enter a recess in one end of said cylinder to support the same, a screw adapted to hold the center pin in place, said screw being provided with a handle, and being mounted in a laterally swinging arm i, whereby it may be moved to one side to permit the center pin to be withdrawn to release the end of the feed cylinder E when its cutters are to be removed or adjusted, substantially as set forth.

2. In a machine for cutting and winding paper &c., the two friction winding cylinders E, L, revolving in the same direction and adapted to support the roll of cut material being reeled up, combined with a pressure roll adapted to bear on the said roll of cut material, and mechanism for rotating said pressure roll, substantially as set forth.

3. In a machine for cutting and winding paper &c., the two friction winding cylinders E, L, revolving in the same direction, the cylinder L having a greater surface velocity than the cylinder E, and said cylinders being adapted to support the roll of cut material being reeled up, combined with a pressure roll adapted to bear on the said roll of cut material, and mechanism for rotating said pressure roll with a greater surface velocity than that of the winding cylinder L, substantially as set forth.

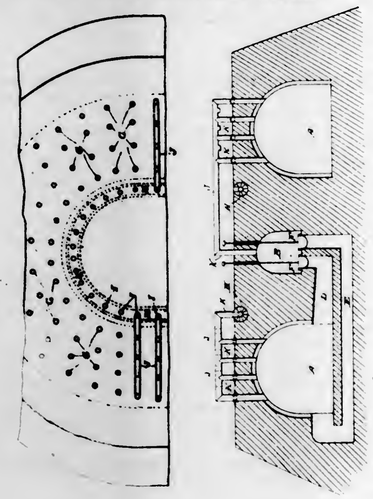
4. In a machine for cutting and winding paper &c., the combina-

tion, with the two friction winding cylinders E, L, revolving in the same direction, of the pressure roll M mounted in arms p', p', connected with and forming a portion of a movable frame, the latter provided with weights and mechanism for rotating the pressure roll M, substantially as described.



5. In a machine for cutting and winding paper &c., the combination of the friction winding cylinders E, L, revolving in the same direction, the pressure roll M mounted in a movable weighted frame and provided with a pinion w', the gear a^9 meshing with said pinion and provided with a pulley b^9, the gear P provided with a pulley d^9, the belt Q connecting the pulleys b^9, d^9, and passing over independent pulleys e^9, f^9, mounted on a lever or arm provided with a spring tightening device for maintaining a constant tension on the belt, Q, all constructed to operate substantially in the manner and for the purpose set forth.

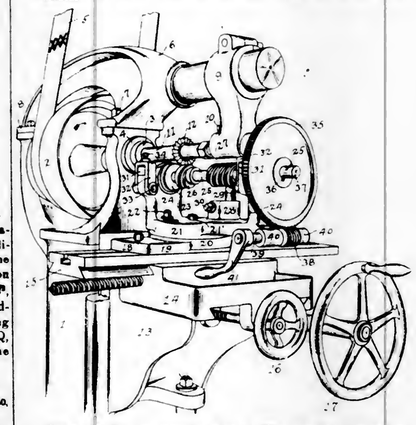
492,965. CONTINUOUS BRICK-KILN. JAMES O. NEIL, Sacramento, Cal. Filed Mar. 16, 1892. Serial No. 425,182. (No model.)



Claim.—1. In a continuous kiln, the successive independent burning chambers, a smoke flue and chimney common to all the chambers, passages D and E connecting the interior and exterior sides of each chamber with the flue, and dampers in said passages, a continuous passage H extending around the inner periphery of the kiln, with openings in the top and intermediate dampers, and horizontal pipes, adapted to connect at one end with the fire holes in the top of the kiln and having vertical branches K, K', connecting with the passage H and the smoke flue respectively, substantially as herein described.

2. In a continuous kiln, the successive independent burning chambers, vertical openings in the tops of said chambers, a smoke flue common to all the chambers, and independent adjustable pipes by which communication is made between the chambers and the smoke flue, and draw off cocks situated between the vertical branches of said pipes, whereby the water is discharged from each section without passing into the subsequent vertical passages, substantially as herein described

492,966. MACHINE FOR CUTTING WORMS FOR GEARING. GEORGE H. NUTT, Worcester, Mass., assignor to the Knowles Loom Works, same place. Filed July 22, 1892. Serial No. 440,881. (No model.)



Claim.—1. The combination with a milling machine, a cutter arbor and cutter supported thereon, of a supplemental attachment for holding, adjusting, and feeding the worm blank, consisting of a frame supported and adapted to be revolved on a base secured to the cross slide of the milling machine, said frame carrying an arbor on which is mounted the pattern worm, and the worm blank to be cut, and a guide pin for the pattern worm, and mechanism for feeding the blank against the cutter, substantially as set forth.

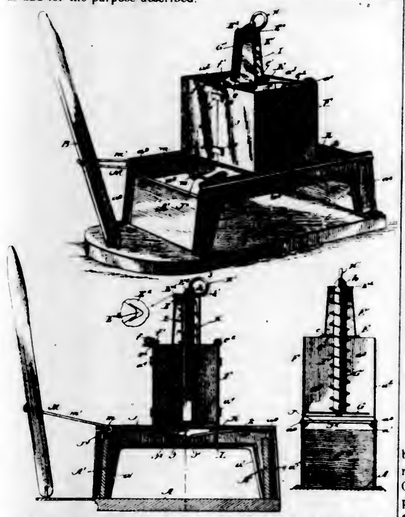
2. The combination with a milling machine, a cutter arbor, and cutter supported thereon, of a supplemental attachment for holding, adjusting, and feeding the worm blank, consisting of a frame supported and adapted to be revolved on a base secured to the cross slide of the milling machine, said frame provided with hinged caps and yokes, and carrying an arbor on which is mounted the pattern worm, and the worm blank to be cut, and a guide pin for the pattern worm, and gearing for feeding the blank against the cutter, substantially as set forth.

492,967. VEGETABLE-CUTTER. JAMES S. PATTEN, Baltimore, Md. Filed May 17, 1892. Serial No. 433,374. (No model.)

Claim.—1. A vegetable cutter comprising a main frame, a vertically projected box or holder a reciprocating slicer knife operating in the bottom thereof, a spring actuated follower operating therein, formed with a vertical member, a cross bar on the box forming a guide for such member, and a lifting device loosely connected to such vertical member, constructed to act as a stop to limit the downward movement of such follower and as a lock to hold it to its elevated position substantially as described

2. A vegetable cutter, in combination, a main frame having an open bottom box or holder a cutter blade held to be reciprocated under the box, a spring depressed follower in such box, having a vertical member, a supplemental cross frame forming a guide for such member hinged at one side to the top of the box, and having a lock catch at its opposite side engaging the box, and a lifting device operating to elevate the follower and its vertical member, whereby such follower when elevated can be swung back with the hinged frame when it is released substantially as and for the purpose described.

3. In a vegetable slicer, in combination a vegetable box or holder having an open bottom, the follower operating therein, the reciprocating knife operating under the box, and the side frames formed of sheet metal and having corrugated or fluted strengthening ribs, one of such ribs being formed near the upper edge of each side frame whereby to form guide ways for the reciprocating knife substantially as and for the purpose described.



4. In a vegetable slicer substantially as described, a side blank formed of sheet metal and comprising the main or guide portion a, the leg portions a' having side extensions a^3 disconnected from the main portion a such extensions having locking members, all substantially as shown and described.

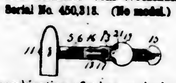
5. A main frame for vegetable slicing machines, formed in two sections, each section comprising a main or body portion formed with supporting legs, an upwardly extending rigid member, having opposite members bent inward at right angles to the rigid body, one of such members having projecting lock flanges and the other locking apertures, arranged substantially as shown, whereby the two sections are adapted to be locked together, and the holder or box formed thereby as and for the purposes described.

6. In a vegetable cutter the combination with the main frame the reciprocating cutter and the box or holder formed with vertically projected apertured ears at one side and a locking lug at the opposite side, of a cross frame hinged at one end to the apertured ears its opposite end formed with an apertured lock member adapted to engage the lock lug on the box, a spring released follower operating in such box having a vertical stem supported on and guided in said cross frame, and means for elevating the follower and for swinging the frame back substantially as shown and described.

7. In a vegetable slicer, a reciprocating cutter comprising a main plate, formed with a transverse knife or discharge opening, downward extending integral portions having upper inclined guide ways, on the under face of the plate at each end of the knife opening, the knife, secured at one end to the plate, its free end projected over such opening and a transverse wedge member fitting between the free end of the knife and the aforesaid guide ways, all substantially as and for the purpose described.

8. In combination the main frame the open bottom vegetable box and the pivoted operating lever arranged substantially as shown, of the reciprocating knife frame held on the main frame under the vegetable box, formed with inwardly projecting lugs at its front end and a connecting yoke secured to the operating lever its inner ends formed of spring arms having eyes adapted to fit over the aforesaid projecting lugs when pressed inward substantially as and for the purpose described.

492,968. CUFF-HOLDER. JOHN V. PILCHER, Louisville, Ky. Filed Oct. 29, 1892. Serial No. 450,318. (No model.)



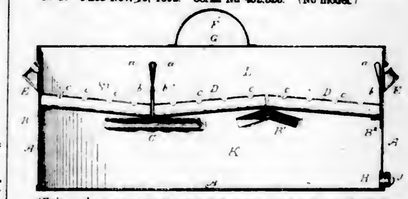
Claim.—The combination of a bar or body having at one end means for attachment to a sleeve and provided with stops at intervals in its length; a carriage fitted to slide upon the body and provided with a spring to engage the said stops; and a button connected with the carriage by a neck, the main portion of the button head being bent over from the neck, and a lip cut from the neck remaining unbent and extending beyond the neck as a portion of and in a plane with the button head, substantially as described.

492,969. FLOUR COMPOUND. WILLIAM F. PUTNAM, Wellington, Ohio. Filed Apr. 9 1892. Serial No. 428,552. (No specimens.)

Claim.—1. A flour compound consisting of winter wheat flour, spring wheat flour and corn flour, substantially as set forth.

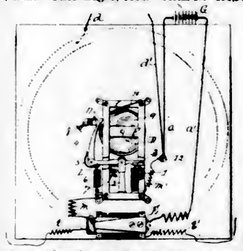
2. A flour compound consisting of the following ingredients in substantially the following proportions, viz.—winter wheat flour, eighty-five per cent.; spring wheat flour, ten per cent, and white corn flour, five per cent.

492,970. OYSTER-STEAMER. WILLIAM A. RANAGE, Auburn, N. Y. Filed Nov. 19, 1892. Serial No. 452,523. (No model.)



Claim.—In an oyster steamer a steam or water space K, at the bottom, provided with the aperture H; an oyster steaming space L, near the top thereof; the supports B, and B', B', and the supports C, C, and B^3, arranged respectively interiorly in different horizontal planes; the corrugated pans D, D, D, provided with holes c, c, c, &c., end pieces b, and handle pieces a, and resting on the said supports in an inclined position; the whole substantially constructed and combined for joint operation in the manner and for the purpose herein described and specified.

492,971. ELECTRIC PROGRAM-CLOCK. ANDREW J. REAMS, Wichita, Kans. Filed Aug. 3, 1891. Serial No. 401,599. (No model.)



Claim.—1. An electric program clock and annunciator comprising, a case, a face dial, a perforated metallic face ring, a local battery, an electric announcing bell, a relay, an electro-magnet, an armature arranged to be attracted by said magnet, a lever arranged supporting said armature, a pawl connected with and adapted to be operated with the lever, a retractile spring arranged connecting the lever and adapted to actuate the lever and pawl when said electro magnet becomes demagnetized and releases the armature, an arbor bearing a ratchet wheel arranged to be engaged and actuated by the pawl, and also bearing a hand having a metallic brush adapted to engage with pins or plugs set in the perforations of the face ring, with electric conductors for connecting said parts in the manner set forth in combination with the main line conductors and battery thereof, and the transmitting mechanism of a clock, substantially as and for the purpose specified.

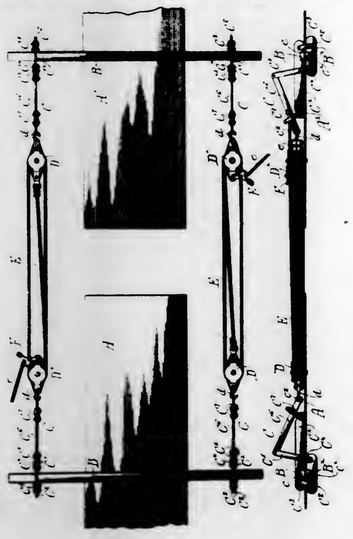
2. The combination with the clock provided with the transmitting mechanism, and with the main line conductors and battery thereof arranged connecting said clock mechanism and adapted to have the circuit intermittently made and broken by said clock mechanism, of the electric program clock and annunciator comprising a face dial, a metallic ring adjacent the dial, an arbor carrying a face hand having a brush or equivalent device for engaging with plugs or projections of said face ring, and a ratchet wheel in the rear of said dial, a pawl and lever mechanism for actuating the ratchet wheel and hand, a retractile spring, an electro magnet and armature for actuating the lever, and pawl; a local battery, an electrical bell; a relay for making and breaking the local circuit, and electrical conductors for connecting said parts in the manner and for the purpose substantially as set forth.

3. In the electric program clock and annunciator described, the combination of the main lines and battery thereof: the relay connected in parallel with said main lines; the electro-magnet electrically connected with the relay; the frame supporting the electro-magnet; the lever pivotally supported by the frame and carrying at one end the magnet armature, and at its opposite end the pawl, held upright to its work, by a spring; the ratchet wheel carried on the hand arbor, supported by the frame, and adapted to be engaged by the pawl; and the retractile spring arranged and connecting the lever, substantially as and for the purpose set forth.

4. In the electric program clock and annunciator described, the combination with the main line and battery thereof,; the relay connected in parallel with said main lines; the electromagnet electrically connected with the relay; the lever carrying the magnet armature at one end, and the pawl at its opposite end; the retractile spring connected to hold down the spring; the ratchet wheel carried on the hand arbor, and adapted to be engaged and actuated by the pawl; the face indicating hand carrying a brush; the face ring arranged adjacent the path of said hand brush, and having studs or lugs adapted to be engaged by said brush during its circuit; and of the electric announcing bell electrically connected with said face ring, and with the electro-magnet, substantially as and for the purpose set forth.

5. The combination with the main line circuit, and local circuit, of a clock for periodically making and breaking said main line circuit, a relay in said main line circuit for making and breaking said local circuit, electro-magnetic operating mechanism in the local circuit for moving an indicating hand, a branch in the local circuit, one or more projections forming one terminal of said branch circuit, a brush carried by the indicating hand forming the other terminal, and a suitable annunciator in the branch circuit, operated upon the contact of the brush with one of the projections, substantially as specified.

492,972. BELT-TIGHTENER. JOSEPH S. SEELEY, Fremont, Nebr. Filed Apr. 28, 1891. Serial No. 390,868. (No model.)



Claim.—1. A belt tightener comprising clamp bars adapted to engage the belt, and clamping devices acting on said bars, consisting of movable parallel bars C' C², links connecting said bars, a lever arm attached to one of said links, and means connected with the outer end of said lever arm for drawing or forcing together the clamp bars and for drawing together the ends of the belt, substantially as described.

2. The combination with the clamp bars B B', of a clamping device consisting of parallel bars C' C², links connecting said bars, a lever arm C⁴ connected with one of said links, a bar C⁵ connected with the outer end of said lever arm, and a link C⁶ connected with the bar C' and engaging the bar C⁵, substantially as described.

3. The combination with the clamp bars B, B', of a clamping device consisting of parallel bars C', C², having notches within which the clamp bars are secured, links connecting said bars, a lever arm C⁴ connected with one of said links, a bar, C⁵, connected with the outer end of said lever arm and a link, C⁶, connected with the bar, C', and engaging the bar C⁵ substantially as described.

4. A belt tightener comprising clamp bars arranged in pairs, those of a pair being movable toward and from each other, clamping devices engaging the bars and operating to give the bars their clamping movement, pulley blocks attached to said clamping devices, ropes passing through said pulley blocks, and a rope clamp upon one of the pulley blocks for holding the rope, substantially as described.

5. A belt tightener comprising clamp bars for engaging the belt, clamping devices for forcing together said bars, consisting of two parallel clamp-bars C' C², links connecting the same, a lever arm attached to one of said links, a bar C⁵ attached to said lever arm, a link C⁶ connected with the bar C' and engaging the said bar C⁵, pulley blocks connected with the ends of the bar C⁵, ropes passing through said pulley blocks, and a rope clamp attached to one of each pair of said pulley blocks, substantially as described.

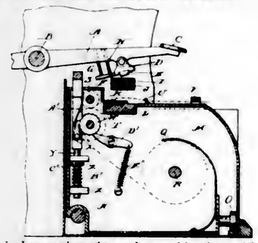
492,973. COMBINED INHALER AND SPIROMETER. WILLIAM A SHEPARD, Elgin, Ill. Filed Dec. 8, 1890. Serial No. 373,896. (No model.)

Claim.—1. In a combined inhaler and spirometer, the combination of an exhaling tube connected with the spirometer, an inhaling tube connected with the inhaler, a single tubular mouthpiece with which both of said tubes are connected, said mouthpiece being provided with an inlet passage connected with the inhaling tube and with an outlet passage connected with the exhaling tube, an inwardly opening check valve located in said inlet passage of the mouthpiece and an outwardly opening check valve located in the exit opening of said mouthpiece, whereby the single mouthpiece may be used for both the inhaler and spirometer, substantially as described.

2. A spirometer comprising an expansible receiver for exhaled air, an exhaling tube provided with a check valve, and a valve located in said receiver, substantially as described.

3. A spirometer comprising an expansible receiver for exhaled air, an exhaling tube provided with a check valve, and an inwardly opening spring valve located in the said receiver and provided with a projecting finger-piece, substantially as described.

492,974. CASH-REGISTER. FRANK A. L. SUECKNER, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Nov 26, 1892. Serial No. 453,234. (No model.)



Claim.—1. In a cash register, the combination, with a series of operating keys representing different values, type numbers representing corresponding values actuated by the respective keys, and an impression platen co-operating with the type numbers, of a ticket-holder mounted to move transversely across the machine adjacent to the printing line and containing a roll of paper strip adapted, to be led from the holder between the impression platen and types and severed into detached tickets, and means actuated by the operating keys for automatically advancing the paper strip, substantially as and for the purpose described.

2. In a cash register, the combination, with a series of operating keys representing different values, type numbers representing corresponding values actuated by the respective keys, and an impression platen co-operating with the type-numbers, of a ticket-holder mounted to move transversely across the machine adjacent to the printing line and containing a roll of paper strip adapted to be led from the holder between the types and platen and severed into detached tickets, a pair of feed-rollers mounted in the holder and between which the paper strip is passed, and a pawl and ratchet mechanism intermediate said rollers and the operating keys, for turning said rollers to advance the paper strip, substantially as and for the purpose described.

3. In a cash register, the combination, with a series of operating keys representing different values, type numbers representing corresponding values actuated by the respective keys, and an impression platen co-operating with the type-numbers, of a ticket-holder mounted to move transversely across the machine adjacent to the printing line and containing a roll of paper strip adapted to be led from the holder between the types and platen and severed into detached tickets, a pair of feed-rollers journaled in the holder and between which the paper strip is passed, a ratchet fast upon one of said rollers, a vertically-guided rod mounted in the holder and adapted to be depressed by the operations of the keys, a resetting spring for said rod, and a pawl carried by the rod and co-operating with the ratchet upon the feed-roller, substantially as and for the purpose described.

4. In a cash register, the combination, with the operating keys A, the types E carried thereby, the inking ribbon I, and platen K, of the laterally-movable ticket-holder M provided with the tearing edge V, the feed-rollers S T journaled in the holder, the ratchet W fast upon the roller T, the vertically sliding rod Y mounted in the holder and provided with a horizontally-extended upper end adapted to be engaged by the keys A when the latter are depressed, the resetting spring B' for the rod, the pawl X carried by the rod and co-operating with the ratchet W, and the holding pawl D' for said ratchet, the holder containing the roll of paper strip Q mounted upon the shaft R and led between the rollers S T, over the platen K and beneath the tearing edge V, substantially as and for the purpose described.

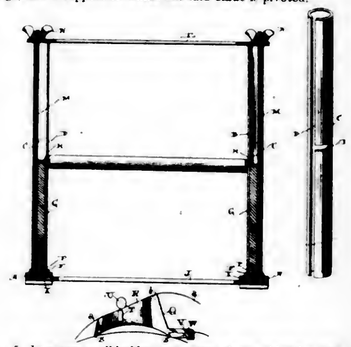
492,975. KNOCKDOWN PAPER-ROLL HOLDER AND CUTTER. NELSON R. STREETER, Groton, N. Y. Filed Jan. 25, 1892. Serial No. 419,218. (No model.)

Claim.—1. A paper roll holder comprising hollow standards having vertical slots at their inner sides which extend from end to end, vertical plugs within the standards and resting upon the base for supporting a paper roll shaft, transverse slots communicating with the vertical slots above the upper ends of the plugs, a tie bar for the upper ends of the standards, and clamping bolts which pass through the base, the standards and the tie bar, substantially as described.

2. A paper roll holder comprising hollow standards having means for supporting a paper roll shaft, a base having sockets provided with inwardly extending projections at one side, the lower ends of the standards having slots to receive the said projections, a tie bar for the upper ends of the standards and clamping bolts which pass through the base, standards and the tie bar, substantially as shown.

3. A paper roll holder, comprising a supporting frame, a paper roll journaled therein, a cutter, a paper raiser or blade supported in front of the cutting edge of the cutter and resting upon the paper roll a support for the said blade, substantially as specified.

4. In a paper roll holder and cutter, the combination with a cutter bar having a cutting edge, of a paper raising blade pivoted and having its free end engaging the paper roll in front of the said cutting edge, and a support to which the said blade is pivoted.



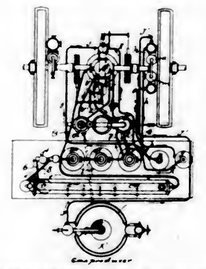
5. In a paper roll holder, and cutter, the combination with a cutter, of a short paper raising blade supported at one end of the paper roll and engaging therewith in front of the cutter, as and for the purpose described.

6. A cutter for paper roll holders having a paper raising blade connected thereto, and engaging the paper roll in front of the said cutter, as and for the purpose specified.

7. A cutter for paper roll holders having a short paper raising blade connected thereto at one end and extending inward and engaging the paper roll in front of the cutter, for the purpose described.

8. A cutter for paper roll holders having a forward extension at one end, and a paper raising blade pivoted thereto, the free end of the blade extending inward and resting upon the paper roll in front of the cutter, as and for the purpose set forth.

492,976. METHOD OR PROCESS OF PRODUCING MOTIVE POWER. CHARLES TELLIER, Paris, France. Filed May 22, 1889. Serial No 311,722. (No specimens.) Patented in France Oct. 30, 1888, No. 193,809.

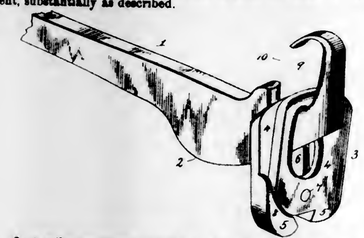


Claim.—The herein described method of producing motive power by means of a source of initial heat, the quantity of which is determined by the combustion in closed chambers of a given quantity of fuel, by causing to act simultaneously—First. The pressure resulting from the ignition of combustible gases: Second. The elastic force of water steam superheated by the escape of the said gases: Third. The elastic force of ammoniacal vapor produced by the condensation of the said water steam, these pressures being exerted upon pistons which are connected to produce a unitary result as hereinbefore described.

492,977. SPIKE-EXTRACTOR. ELI ANDERSON, Carpentersville, Ind., assignor of one-half to Titus Hinson, same place. Filed May 19, 1892. Serial No. 433,585. (No model.)

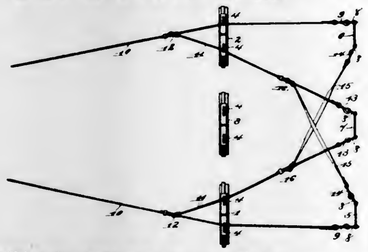
Claim.—1. A spike extractor comprising a lever, and a clamp composed of two plates arranged face to face and pivoted together at their lower ends and provided thereat with jaws and having their

inner faces enlarged at 8 at opposite sides, said plates being provided above the jaws with registering tapered openings gradually decreasing in width toward the top whereby when the lever is at the bottom of the openings the plates will be free to move to permit an adjustment, substantially as described.



2. A spike extractor comprising a lever having a heel and provided with an approximately J-shaped extension forming an opening and a mouth at the back of the same, and a clamp composed of two plates pivoted together and provided at their lower ends with laterally enlarged jaws, and having tapered registering slots located above the pivotal point substantially as described.

492,978. REIN ATTACHMENT. BENJAMIN F. BURLL, Duff, Nebr. Filed Oct. 31, 1892. Serial No. 450,540. (No model.)



Claim.—In a device of the character set forth, the combination of the main reins having supplemental reins attached thereto, a pair of outer bits to the outer ends of which said main reins are connected, an inner bit to the opposite sides of which the free ends of said supplemental reins are secured, and crossed straps attached at their rear ends to the said supplemental reins and at their outer ends to the inner ends of said outer bits, substantially as described.

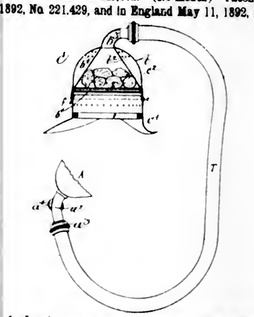
492,979. VAPORIZER. JOHN F. CHASE, Augusta, assignor to himself and William H. Stevens, Portland, Me. Filed Sept. 28, 1892. Serial No. 447,097. (No model.)



Claim.—1. A vaporizer for condensing apparatus, consisting of a cylindrical vessel A having a concaved top, an inlet therein, an outlet pipe at the bottom, a shallow steam generating vessel, a pipe leading vertically therefrom and through the said cylindrical vessel, a basin or pan surrounding the upper part of said pipe within the vessel A and a discharge pipe leading from said pan, substantially as described.

2. In a vaporizer for condensing apparatus, the combination with a vessel having a concave top, and a steam pipe extending centrally through said vessel, of a basin or pan surrounding said pipe within the vessel, and a discharge pipe leading from said pan to the exterior of the vessel, substantially as described.

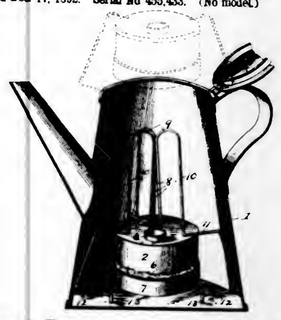
492,980. RESPIRATOR. FRANÇOIS COQUT, Lyons, France. Filed Aug. 15, 1892. Serial No. 443,092. (No model.) Patented in France May 4, 1892, No. 221,429, and in England May 11, 1892, No. 8,955.



Claim.—1. In air respirating apparatus;—the combination of a mask A, a flexible pipe T thereto, and a helmet consisting in its upper part of a casing b with holes b' a conical partition b^3, a bottom b^4 with perforated screen g the whole forming an air filter for the purposes described.

2. The combination of a mask A, valve a' therein pipes a^3 and a^4 for purpose described flexible pipe T, and a helmet C consisting of an upper part (C^2 forming a casing b with holes b', a conical partition b^3, a bottom b^4 with perforated screen g and a lower part C' hinged to the upper part and connected thereto by a catch, the whole substantially as and for the purpose set forth.

492,981. COFFEE-STRAINER. ROBERT N. HARRIS, Hickory, N. C. Filed Dec. 17, 1892. Serial No. 455,433. (No model.)

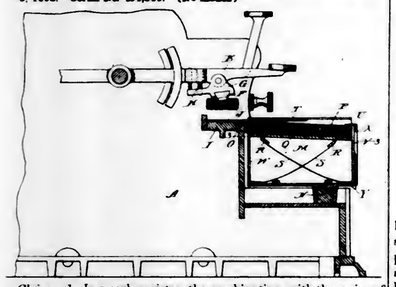


Claim.—1. The herein described attachment consisting of a receptacle or cup having a closed top and side and open bottom, a straining covering removably applied to the bottom of said cup, a tube extending through the closed top at one side thereof and depending into the receptacle or cup, and supplied with a removable straining covering over the lower end thereof, and supporting arms attached to the said receptacle or cup, substantially as described.

2. The herein described attachment, consisting of a receptacle or cup having straining devices in connection therewith and adapted to contain ground coffee or analogous material, and a series of arms secured to the central part of the top of said receptacle or cup and rising vertically therefrom, the said arms being continued downward divergently over and free from the said receptacle or cup and provided with feet at their lower ends below the bottom of the said receptacle or cup to support the latter, substantially as described.

3. The herein described attachment, consisting of a receptacle or cup having straining devices in connection therewith and adapted to contain ground coffee or other material, and a series of spring-arms secured to and rising vertically from the center of the top portion of said receptacle or cup and continued downwardly and divergently over and free from the said receptacle or cup and having an angular bend and a lower shoulder formed in each to provide frictional contact with the inner side of the vessel in which it is mounted, the inner portions of the said lower shoulders having depending feet to support the device on the bottom of the containing vessel, substantially as described.

492,982. CASH-REGISTER. ROBERT T. HOUK, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Nov. 8, 1892. Serial No. 451,369. (No model.)



Claim.—1. In a cash register, the combination, with the series of operating keys representing different values, the type numbers representing corresponding values actuated by the respective keys, and the impression plate or platen co-operating with the type numbers, of a ticket holder mounted to move transversely across the machine adjacent to the front ends of the keys and adapted to have the tickets carried by it projected from it beneath the types of the respective keys, substantially as and for the purpose described.

2. In a cash register, the combination, with the series of operating keys representing different values, the type numbers carried thereby and representing corresponding values, the impression plate or platen co-operating with the type numbers, of the ticket holder mounted upon guides to slide transversely across the machine adjacent to the front ends of the operating keys and adapted to have its contained tickets projected rearward from it beneath the types of the different keys and then withdrawn from it after the printing has been effected, substantially as described.

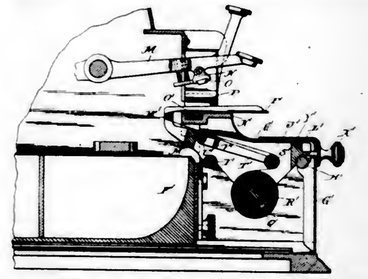
3. The combination, with the operating keys, types and platen, of the herein described ticket holder mounted to move transversely across the machine adjacent to the front ends of the keys and consisting of the box M containing the spring-supported plate Q upon which the supply of tickets rests and having the top flanges T overlapping the edges of the tickets and the clip U holding down their front ends and provided with transverse openings between the upper edges of its front and rear walls and the top flanges T, to permit the projection of the tickets from the rear end of the box into position to be printed and their subsequent withdrawal from the front end of the box, substantially as described.

4. The combination, with the operating keys E, types F, inking ribbon J, and platen I, of the ticket holder M mounted upon the guide rib N and provided with the flange O resting upon the frame plate at the forward edge of the platen I, the springs S S secured within the holder, the plate Q supported by said springs, the top flanges T overlapping the edges of the tickets, and the removable front wall V supported in the guides X and provided with the clip U for holding down the front ends of the tickets and the spring catch Y for maintaining it in position, substantially as described.

492,983. CASH-REGISTER. ROBERT T. HOUK, Dayton, Ohio, assignor to the National Cash Register Company, same place. Filed Dec. 12, 1892. Serial No. 454,848. (No model.)

Claim.—1. In a cash register, the combination, with a series of operating keys representing different values, type-numbers representing corresponding values actuated by the respective keys, and an impression platen co-operating with the type-numbers, of a ticket-holder mounted to move transversely across the machine adjacent to the front ends of the keys and containing a roll of paper strip adapted to be drawn from the holder over the impression platen and severed into separate checks, substantially as and for the purpose described.

2. In a cash register, the combination, with a series of operating keys representing different values, type-numbers representing corresponding values carried by the respective keys, and an impression platen co operating with the type-numbers, of a ticket-holder mounted upon guides to move transversely across the machine adjacent to the front ends of the operating keys and containing a supply of paper strip adapted to be drawn from the holder over the impression platen and torn off to form detached checks, substantially as and for the purpose described.



3. In a cash register, the combination, with a series of operating keys representing different values, type numbers representing corresponding values carried by the respective keys, a fixed impression platen extending transversely across the machine beneath the types, and an inking ribbon led between the types and platen, of a ticket-holder mounted upon guides to move transversely across the machine adjacent to the front ends of the operating keys and containing a supply of paper strip adapted to be drawn from the latter over the fixed impression platen and beneath the types, and torn off to form detached checks, substantially as and for the purpose described.

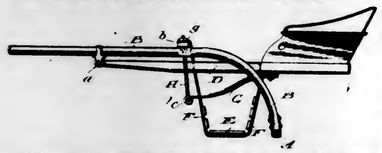
4. In a cash register, the combination, with a series of operating keys representing different values, type-numbers representing corresponding values actuated by the respective keys, and an impression platen co-operating with the type-numbers, of a forwardly and backwardly sliding money-drawer, and a ticket-holder mounted to slide laterally upon the front side of the money-drawer and containing a roll of paper strip adapted to be led from the holder over the impression platen and severed into separate checks, substantially as and for the purpose described.

5. In a cash register, the combination, with the operating keys M carrying the type-numbers O, and the inking ribbon P led beneath the same, of the forwardly and backwardly sliding money-drawer F', the housing G' carried upon the front side of the drawer, the platen O' co-operating with the types O, and the ticket-holder mounted to move laterally upon guides H' I' within the housing G' and carrying the roll of paper-strip Q' adapted to be led over the platen O' and torn into separate checks, substantially as and for the purpose described.

6. In a cash register, the combination of the operating keys M, the types O carried thereby, the inking ribbon P led beneath the same, the forwardly and backwardly movable money-drawer F', the housing G' secured to the front side of the drawer, the platen O' carried by said housing and co-operating with the types O, and the ticket-holder adapted to move laterally within the housing G' upon guides H' I' and composed of the side-plates J' K' connected by suitable cross-pieces, as L' M', and extended rearwardly and upwardly and forwardly over the platen O' and connected at their forward ends by the plates P', said holder containing the roll of paper strip Q' led rearward over a guide W' and thence forward over the platen O' and between the plates P', and the handle X', secured to the holder and extending through a transverse slot in the front wall of the housing G', substantially as and for the purpose described.

7. In a cash register, the combination of the operating keys M, the types O carried thereby, the inking ribbon P led beneath the same, the forwardly and backwardly sliding money-drawer F', the housing G' detachably secured to the front side of said drawer, the platen O' embedded in the top plate N' of said housing and extending beneath the row of types O, the ticket holder mounted to slide laterally within the housing G' upon the guide rods H' I' and consisting of the two side-plates J' K' connected by the cross pieces L' M' and extended rearwardly and upwardly and forwardly over the platen O' and connected at their upper forward ends by plates P', and the handle X' secured to the ticket-holder and extending through a transverse slot in the front wall of the housing G' and carrying the pointer Y' co-operating with an index upon the upper face of the housing G', said holder containing the roll of paper strip Q' led upward and rearward over a guide-roller W', and thence forward over the platen O' and between the plates P', substantially as and for the purpose described.

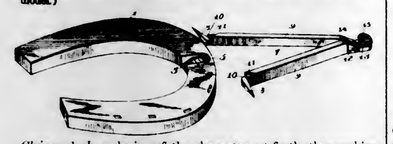
492,984. TWO-WHEELED VEHICLE. JOHN F. KETTER, Ironton, Ohio. Filed Nov. 26, 1892. Serial No. 453,268. (No model.)



Claim.—1. The combination with the axle and shafts, of a vehicle body having longitudinal bars pivotally connected with the shafts, hangers vertically adjustably supported from the cross-bar of the shafts and forming guides for the said bars, and springs connected at one end to the body and at the other end pivotally connected with the hangers, substantially as specified.

2. The combination with the axle and shafts, of a vehicle body having bars pivotally connected with the shafts, hangers adjustably connected with the cross-bar of the shafts, pins held in the lower ends of said hangers, and springs pivotally supported at their forward ends on said pins and at their rear ends secured to the under side of the body substantially in vertical line with the axle, as and for the purpose specified.

492,985. HOOF-SPREADER. JUDGE W. LINK and ALBERT E. WILCOX, Sinclairville, N. Y. Filed Aug. 11, 1892. Serial No. 442,760. (No model.)



Claim.—1. In a device of the character set forth, the combination of a shoe having a slot in the inner front part of the toe portion thereof, and a Y-shaped spreader having spikes or spurs on the spread ends thereof extending laterally outward at right angles thereto and provided with a front straight arm adapted to be removably fitted to said slot of the shoe, substantially as described.

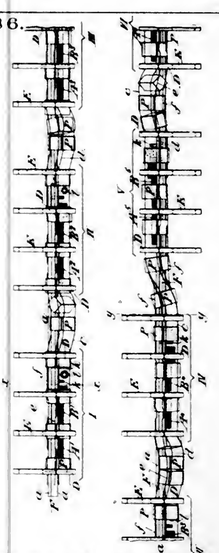
2. In a device of the character set forth, the combination of a shoe having a slot in the front part thereof with a rear beveled bottom wall extending upward to a horizontal shoulder and terminating in a front vertical recess, and a Y-shaped spreader having a straight arm with an under recess and bevel and a depending lug to removably fit said slot of the shoe, said spreader having spikes or spurs on the rear of the legs thereof, substantially as described.

3. In a device of the character set forth, the combination of a shoe having a slot in the upper side of the toe portion thereof, and a spreader having a front straight arm to engage said slot and spurs or spikes at the rear ends of divergent legs thereof, and shoulders formed at the points from which said spurs or spikes extend to abut against the inner edges of the heel portions of said shoe and to reduce the dimension of said spurs or spikes, substantially as described.

492,986. SOLDERING APPARATUS. HERMAN MILLER, New York, N. Y. Filed Nov. 12, 1892. Serial No. 451,792. (No model.)

Claim.—1. In a soldering apparatus the combination of a series of solder-containing vessels, a track upon which cans may be moved along and an endless belt or chain and pushers thereon for moving the cans along the said track; the said track comprising a series of elevated and depressed portions to effect the dipping of the cans into and the raising of them above the said vessels, stops for effecting the turning over of the cans sidewise by the said movement, and elevated portions behind said stops for lifting and temporarily holding the cans out of range of the pushers, substantially as and for the purpose herein set forth.

2. In a soldering apparatus the combination of a series of solder-containing vessels, a track upon which cans may be moved along and an endless belt or chain and pushers thereon for moving the cans along the said track; the said track comprising a series of elevated and depressed portions for effecting the dipping of the cans into and the raising of them above the said vessels by the said movement, stops for effecting the turning over of the cans sidewise by said movement, elevated portions behind said stops for lifting and temporarily holding the cans out of range of the pushers, and curved portions for effecting the tilting of the cans endwise transversely to the track by the said movement, substantially as and for the purpose herein set forth.

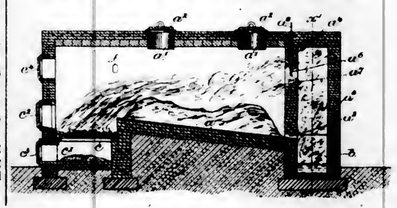


3. The combination in a can soldering apparatus of two series of solder-containing vessels arranged one series in advance of the other in lines on opposite sides of a central line, a track which runs the whole length of the said two series of vessels and upon which the cans to be soldered are supported, and an endless belt or chain and attached pushers running in said central line for pushing the cans along said track, the said track comprising a first series of elevated and depressed portions to produce the dipping of a can into and the raising of it from the solder vessels of the first series while it is inclined in one direction transversely to the track, projections for turning over the cans sidewise while so inclined, spiral portions for tilting the cans endwise to give them an opposite inclination transversely to the track, and a second series of elevated and depressed portions and stops to produce the dipping of the can into and the raising of it from the solder vessels of the second series and turning it over sidewise while at such opposite inclination, all substantially as herein set forth.

4. In a soldering apparatus the combination of a series of solder vessels, a track upon which cans may be moved, and an endless belt or chain and pushers thereon for moving cans along said track, the base of said track being formed of channel-iron the channel of which forms a guide for said belt or chain, substantially as herein described.

5. In a soldering apparatus the combination of a series of solder-containing vessels, a track upon which cans may be moved over and within said vessels, two rotary shafts with brushes and pulleys thereon arranged opposite each other and in advance of each solder-containing vessel, a horizontal driving shaft arranged substantially parallel with the general direction of the track, two pulleys on said shaft and belts from said pulleys to the pulleys on said two brush shafts, substantially as herein described.

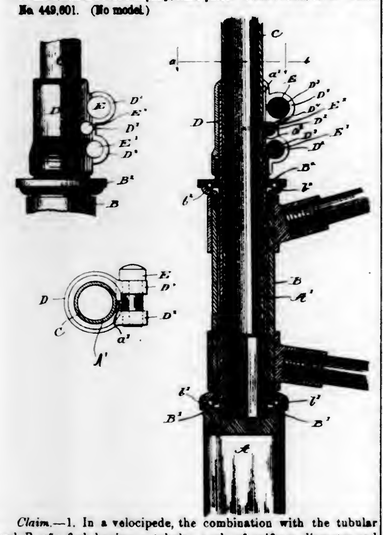
492,987. CREMATING-FURNACE. EDWARD C. MORSE, Manchester, N. H. Filed Apr. 18, 1892. Serial No. 429,600. (No model.)



Claim.—1. In a cremating furnace, an inclined table to receive the substance to be consumed, combined with a fire grate located adjacent to one end of said table, and a receptacle for liquid drained off by the table located at the opposite end thereof but separated therefrom by a wall perforated for the passage of said liquid, a flue in said wall for the escape of the products of combustion from the furnace proper, and deflecting walls to deflect the said products down toward the surface of the liquid in the receptacle, substantially as described.

2. In a cremating furnace, an inclined table to receive the substance to be consumed, combined with a fire grate located adjacent to one end of said table, and a receptacle for liquid drained off by the table located at the opposite end thereof but separated therefrom by a wall perforated for the passage of said liquid, a flue in said wall for the escape of the products of combustion from the furnace proper, deflecting walls to deflect the said products down toward the surface of the liquid in the receptacle, and an independent fire grate to carry a fire to consume the products of combustion after the same have passed through said receptacle, substantially as described.

492,988. VELOCIPEDE. CHARLES F. PEASE, Chicago, Ill., assignor to the Ames & Frost Company, same place. Filed Oct. 22, 1892. Serial No. 449,601. (No model.)

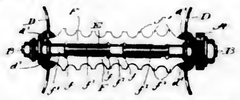


Claim.—1. In a velocipede, the combination with the tubular head, B, of a fork having a tubular neck of uniform diameter and smooth exterior, a collar, B^3, having a smooth interior and surrounding said neck above said head, B, and exteriorly threaded, a clamping-strap surrounding said neck and said collar and threaded to the latter and keyed to the former, and a bolt for tightening said strap, substantially as described.

2. In a velocipede, the combination with the tubular head, B, of a fork having a tubular neck of uniform diameter and smooth exterior and slotted at its upper end, a collar, B^3, having a smooth interior and surrounding said neck above said head, B, and exteriorly threaded, a handle-bar stem extending into said neck, a clamping-strap surrounding said neck and said collar and threaded to the latter and keyed to the former and a bolt for tightening the lower portion of said clamping-strap and a bolt for tightening the upper portion of said strap, substantially as described.

3. In a velocipede, the combination with the tubular head, B, of a fork having a tubular neck of uniform diameter and smooth exterior and slotted at its upper end, a collar, B^3, having a smooth interior and surrounding said neck above said head, B, and exteriorly threaded, a handle-bar stem extending into said neck, a clamping-strap surrounding said neck and said collar and contracted at the top to extend over the upper end of said neck into contact with the handle-bar stem and threaded to the latter and keyed to the former, and a bolt for tightening the lower portion of said clamping-strap and a bolt for tightening the upper portion of said strap, substantially as described.

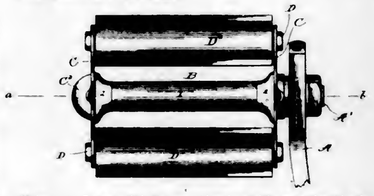
492,989. PEDAL. CHARLES F. PEASE, Chicago, Ill., assignor to the Ames & Frost Company, same place. Filed Oct. 22, 1892. Serial No. 449,602. (No model.)



Claim.—1. A pedal having a hub, C, end-pieces, D, D, bolts, E, E, plates, F, F, having toothed edges and slotted transversely along the longitudinal axis and having the metal between the slots so formed and between the outer-most of said slots and the ends of said plates extending alternately to opposite sides of said bolts, and said plates, F, being suitably secured against rotation with reference to the pedal, substantially as described.

2. In a pedal, the combination of the hub, C, end-pieces, D, D, provided with notches, *d*, bolts, E, E, extending through said end-pieces parallel to said hub and at opposite sides to the latter, plates, F, having toothed edges and projections, *d'*, extending from said notch, *d*, and slotted transversely along the longitudinal axis, and the metal between the slots so formed and between the outer-most of said slots to the ends of said plates, F, extending alternately to opposite sides of said bolts, substantially as described.

492,990. VELOCIPEDE-PEDAL. CHARLES F. PEASE, Chicago, Ill., assignor to the Ames & Frost Company, same place. Filed Oct. 22, 1892. Serial No. 449,603. (No model.)



Claim.—1. In a pedal, the combination with an axle, A', of a hollow hub, B, surrounding said axle, a nut surrounding the free end of said axle, a dome, C^3, surrounding said nut and the free end of said axle and resting against a suitable annular seat on said hub, and an end-plate surrounding said dome and binding the latter to said seat, substantially as shown and described.

2. In a pedal, the combination of the axle, A', of a hollow hub surrounding said axle, an adjusting nut surrounding the free end of said axle, an annular seat on the free end of said hub, a dome surrounding the free end of said axle and said nut and having an expanded base resting upon said seat, an end-plate surrounding said dome and resting against said expanded base, substantially as shown and described.

3. In a pedal, the combination with the axle, A', and a hub consisting of a tubular part, 1, and end-pieces, 2, of a nut, A^3, a dome, C^3, having an expanded base, end-plate, C, extending over said dome and resting against said base, end-plate, C', located at the end of the pedal to which the pedal arms is to be attached, and suitable connections as bolts, D, extending from the end-plate, C', to the end-plate, C, substantially as shown and described.

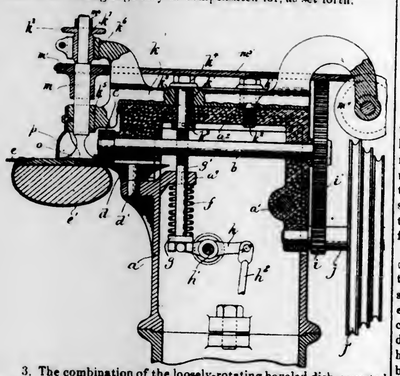
4. In a pedal, the combination with the axle, A^3, and a hub consisting of a tubular part, 1, and end-pieces, 2, having oblique faces, *b'*, of balls, B', a nut, A^3, a dome, C^3, having an expanded base, end plate, C, extending over said dome and resting against said base, end-plate, C', located at the end of the pedal to which the pedal arm is to be attached, and suitable connections as bolts, D, extending from the end-plate, C', to the end-plate, C, substantially as shown and described.

492,991. INSEAM-TRIMMING MACHINE. CHARLES P. PERKINS, Brockton, Mass. Filed Dec. 15, 1892. Serial No. 455,290. (No model.)

Claim.—1. The combination of the loosely-rotating welt-supporting disk, a feed-roll located over said disk, means for rotating the feed-roll, a rotary disk knife mounted on a shaft substantially at right angles with the axis of the feed-roll, means for rotating said shaft, and means for adjusting the shaft and cutter laterally to compensate for wear of the cutter, as set forth.

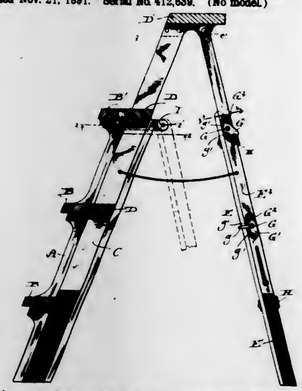
2. The combination of the loosely-rotating welt-supporting disk, a feed-roll located over said disk and provided with a groove or recess in its outer end, means for rotating the feed-roll, a rotary disk knife having its axis substantially at right angles with the axis of the

feed-roll and arranged to project into the groove or recess in the end of the feed-roll, means for supporting and rotating the said knife, and means for adjusting the knife toward and from the feed-roll whereby wear of its cutting edge may be compensated for, as set forth.



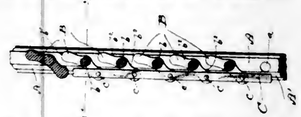
3. The combination of the loosely-rotating beveled disk mounted on a fixed support, the feed-roll located over said disk, a pivoted frame supporting the shaft of said roll, a spring acting on said frame to press the feed-roll yieldingly toward the disk and permitting a yielding movement of the feed-roll, means for raising the feed-roll, a supplemental frame adjustably secured to the said pivoted frame, a cutter-shaft journaled in bearings in said supplemental frame and arranged substantially at right angles with the feed-roll shaft, means for rotating said cutter-shaft, and a disk knife or cutter affixed to said shaft and arranged to act on the projecting edges above the inseam at a point opposite the outer end of the feed-roll, the adjustability of the said supplemental frame enabling the knife to be adjusted toward and from the end of the feed-roll, as set forth.

492,992. EXTENSION STEP-LADDER. PETER POERTNER, Milwaukee, Wis., assignor of one-half to Emil C. Poertner, same place. Filed Nov. 21, 1891. Serial No. 412,639. (No model.)



Claim.—An improved step-ladder comprising side rails formed from two or more sections each provided with steps and slidingly engaged with each other, legs or braces also formed from a like number of sections and slidingly engaged with each other, a sliding bar secured to the upper step of the lower section and provided with projections adapted for engagement with the steps of the other section, transverse bars secured at intervals to the lower sections of said legs, and one or more transverse rods revolubly supported in the upper sections of said legs and carrying detents adapted for engagement with said transverse bars to lock said legs in their adjusted positions, substantially as described.

492,993. WINDOW-BLIND. GEORGE POPPERT, Milwaukee, Wis. Filed June 27, 1892. Serial No. 438,152. (No model.)



Claim.—1. A window blind, comprising vertical stiles, transversely arranged slats generally concavo-convex in cross section and having pivotal engagement with said stiles and each provided with rounded upper and lower edges, and with parallel longitudinal channels or depressions upon its convex side, at opposite sides of the center thereof, and a rod having pivotal connections with the ends of said slats at the side of the blind, and adapted to be operated longitudinally to give a rotary movement to said slats, substantially as set forth.

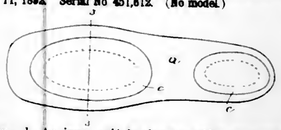
2. A window blind, comprising vertically disposed stiles, a series of transversely arranged slats generally concavo-convex in cross section and having pivotal engagements at their opposite ends with said stiles, each of said slats being provided with rounded upper and lower edges and with parallel, longitudinal channels or depressions upon its convex side, at opposite sides of the axial line of the slat, a vertically disposed channel or groove in the edge of one of the stiles, and a rod having pivotal connections with the ends of the slats and adapted to be operated longitudinally to produce a rotary movement of said slats to open and close the same and arranged to lie within said vertical channel or groove in the stile when moved into a position to close the slats, substantially as set forth.

3. A window blind comprising vertical stiles, transversely arranged slats generally concavo convex in cross section and pivotally engaged therewith each of said slats being provided with rounded upper and lower edges and with parallel longitudinal channels or depressions upon its convex side, at opposite sides of the axial line of the slat, and a rod connected with the ends of said slats at the side of the blind and adapted to be moved longitudinally to rotate the same, the construction being such that the slats may be closed snugly together without the said rod coming into engagement with the pivotal connections between the slats and the stiles so as to limit the rotary movement of said slats, substantially as set forth.

4. A window blind comprising a pair of vertical stiles and transversely arranged slats of generally concavo convex form in cross section, each of said slats being provided with rounded upper and lower edges, and upon its convex side, provided with two parallel longitudinal channels or depressions upon opposite sides of the axial line of the slat, for the reception of the rounded edges of the next adjacent slats, substantially as set forth.

5. The hereindescribed blind slat, constructed of substantially concavo-convex form in cross section and provided with rounded upper and lower edges and with two parallel longitudinal channels or depressions located upon, its convex side, at opposite sides of the axial line of the slat, substantially as set forth.

492,994. INNER SOLE. HORACE A. SAWYER, Lynn, Mass. Filed Nov. 11, 1892. Serial No. 451,612. (No model.)

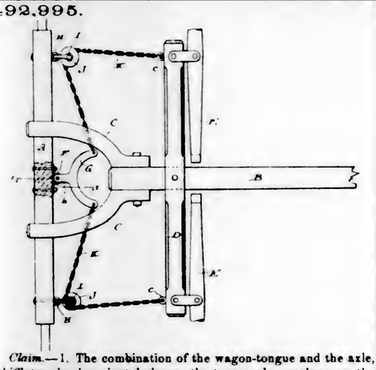


Claim.—1. An inner sole having an orifice surrounded by the marginal portion of the sole and provided with an elastic or compressible cushion, which is thicker than the sole and is inserted in said orifice, said cushion normally projecting above the marginal portion of the sole on its inner face, and constituting a yielding support for the foot, as set forth.

2. An inner sole having an orifice surrounded by the marginal portion of the sole, an elastic or compressible cushion of greater thickness than the sole, inserted in said orifice, and a flexible covering-piece extending across the upper surface of the cushion and secured at its margin to the sole, said flexible covering piece being supported above the sole by the cushion, and adapted to rise and fall with the cushion, as set forth.

492,995. DRAFT-EVENER. LEVI W. SMITH, Milwaukee, Wis., assignor of two thirds to Joseph Feldmeyer and Casmir A. Lyon, same place. Filed Apr. 11, 1892. Serial No. 428,661. (No model.)

492,995.

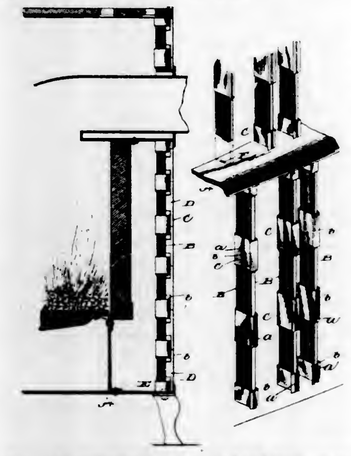


Claim.—1. The combination of the wagon-tongue and the axle, a whiffletree having pivotal play on the tongue, sheaves hung on the axle adjacent to its ends, a plate pivoted to said axle midway of the sheaves, and flexible devices that work on the sheaves and detachably connect said plate and whiffletree, substantially as set forth.

2. The combination of the wagon-tongue and axle, a whiffletree having pivotal play on the tongue, sheaves hung on the axle adjacent to its ends, a clevis rigid on said axle midway of the sheaves, a plate pivotally connected to the clevis, and flexible devices that work on the sheaves and detachably connect the said plate and whiffletree, substantially as set forth.

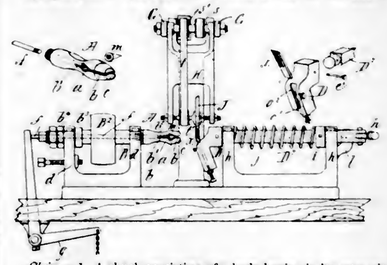
3. The combination of the axle having sheaves hung thereon and provided with a clevis that is arranged midway of the sheaves and has a rearward extension provided with clip-openings the rear ones of which are in the form of slots, clips connecting the clevis-extension and axle, a plate pivotally connected to the clevis, a whiffletree, and flexible devices that work on the sheaves and connect said plate and whiffletree, substantially as set forth.

492,996. TILE-FASTENER. ANDERS M. STRUNDLIN, Woodbridge, N. J., assignor of one-half to Robert W. Lyle, New York, N. Y. Filed Sept. 26, 1892. Serial No. 446,916. (No model.)



Claim.—The improvement in the art of facing stoves with tiles, which consists in providing a series of rods about the same, a spring clip on said rods having a dove tail projecting portion, and having grooves formed in the back of the tiles corresponding to the dove tail portions of the clip, substantially as described.

492,997. MACHINE FOR CUTTING BUTTONS. HOMER W. TERRY, Springfield, Mass. Filed Apr. 19, 1892. Serial No. 429,718. (No model.)



Claim.—1. A chuck consisting of a body having in its extremity a longitudinal slot which forms jaws at each side thereof, a forwardly tapering recess within the body intermediate of the length of and in communication with said slot, and said body also having the longitudinal passage through it leading to said recess, and a spindle longitudinally movable in said passage and having at its extremity, which is within said recess, an enlarged forwardly tapered member adapted for impingement on the inclined walls of said tapering recess and means for effecting the endwise movements of the spindle, substantially as and for the purposes set forth.

2. A chuck consisting of a body having the lateral recess *a* intermediate of its length, and the longitudinally extended jaw forming slots *b' b* at the rear, and forward of the said recess, and the receiving depression in the end of the jaws, and the body having its thickness reduced at either side of the slot *b'* for the purpose specified, and having the longitudinal passage, the spindle and the conical head therefor, substantially as described.

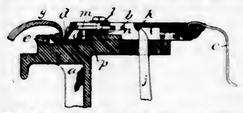
3. In a button cutting machine the combination with a chuck mounted for rotation in a fixed position, a tool, a holder, and bar mounted for sliding movements for presenting the tool into working proximity to the chuck, and retiring it therefrom, a support vertically over the retired position of the tool, a depending frame pivotally hung on said support, and having a grinding wheel journaled at its lower end, whereby the frame may have a swinging movement to carry the wheel horizontally and transversely of the line of movement of the tool to working contact therewith and retirement therefrom, substantially as described.

4. In a button cutting machine the combination with a tool and holder, the one mounted for movement horizontally toward and away from the other of a grinding wheel and a support on which the same is mounted which is vertically adjustable and also movable horizontally and transversely to the aforesaid horizontal line of movement of said working parts of the machine, substantially as and for the purpose set forth.

5. The combination with a tool holder of a standard F having bracket *p* and vertically adjustable screw *p'*, of the bar pivotally mounted on and horizontally extended from an upper portion of the standard, the frame pivotally hung on said bar, and the grinding wheel rotatably mounted on the frame and means for securing its rotation, substantially as described.

6. The tool-holder having within its face a shallow channel or tool socket which has its one edge wall at right angles to the inner face of the socket and the other edge wall undercut, in combination with the tool one edge of which is beveled and the other right angled, and the retaining screw having its inner end at right angles to its axis, the screw being passed obliquely through the right angled edge wall to bearing on the adjacent corner of the tool whereby the tool is held against the undercut edge wall and also against outward displacement, essentially as shown.

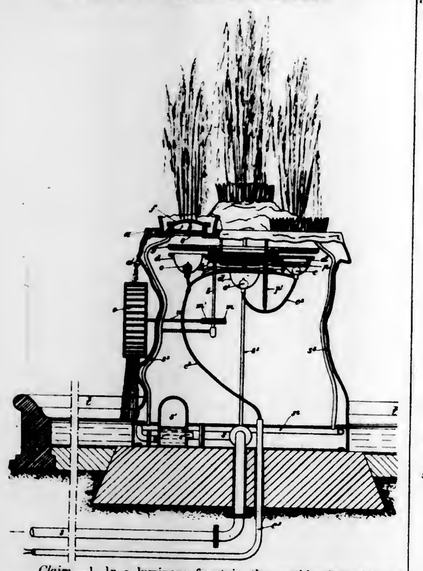
492,998. WEFT STOP-MOTION FOR LOOMS. THOMAS THACKER, Fall River, Mass. Filed Aug. 8, 1892. Serial No. 442,413. (No model.)



Claim.—The frame or support, a slide-bar extensibly adjustable on the said support and provided with an adjustable angular part or stop to limit its forward movement, and a weft-fork pivoted upon the slide-bar, as set forth.

492,999. LUMINOUS FOUNTAIN. GUSTAVE TROUVÉ, Paris, France.

Filed Sept. 14, 1892. Serial No. 445,860. (No model.)



Claim.—1. In a luminous fountain, the combination with the transparent water jet chambers, of the revolving annular frames carrying colored glass arranged to rotate the one above the other beneath said chambers the actuating mechanism of said frames driven by the water overflowing from the fountain basin and the lamp or lamps and reflectors arranged beneath the colored glass frames so as to project the light upward through the same and through the transparent jet chambers, the whole being set in operation by turning on the water supply and being self contained within the pedestal requiring no special foundation, substantially as specified.

2. In a luminous fountain, the combination of the transparent water jet chambers having a glass bottom and perforated glass top or rose and a lateral connection with the water supply pipe, perforated basin *a* adapted to receive said water jet chambers and means substantially as described for transmitting luminous rays through said water jet chambers, as and for the purposes specified.

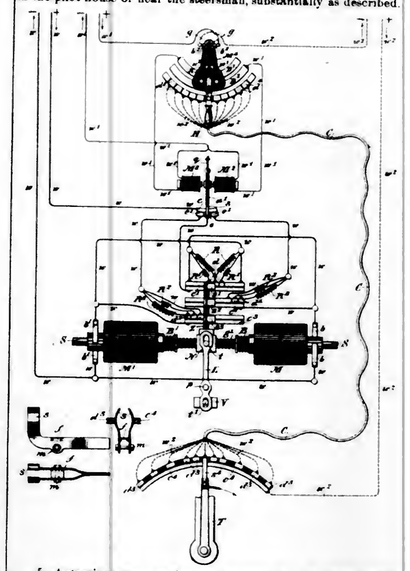
493,000. ELECTRIC STEERING-GEAR. LEWIS S. VAN DUZER, U. S. Navy, assignor of one-half to Newton R. Mason, U. S. Navy. Filed Nov 26, 1892. Serial No. 453,201. (No model.)

Claim.—1. Mechanism for controlling the movements of the tiller of a vessel consisting of an electro-motive device for regulating the application of power thereto in combination with electro-magnetic switching mechanism for regulating the direction of such motion and an electro-magnetic cut out device having electrical connections with the tiller for regulating the movements of the switching mechanism, substantially as described.

2. Mechanism for controlling the movements of the tiller of a vessel consisting of a source of electrical energy, an electro-motive device in circuit therewith and operatively connected to mechanism adapted to move the tiller, electro-magnetic switching mechanism for regulating the direction of the movement of the tiller and a steering handle or lever having electrical connections with the switching mechanism whereby the tiller may be moved in opposite directions at will, substantially as described.

3. Steering gear for a vessel having an electro-motive device for regulating the power applied to the tiller, a switch for regulating the direction of motion of such applied power and an automatic cut out for disconnecting the electro-motive device when the tiller reaches the desired position, substantially as described.

4. Steering gear for a vessel consisting of two electric motors operatively connected to mechanism adapted to move the tiller, in combination with an electro-magnetic switch having independent circuit connections with each motor and a steering handle or lever located in the pilot house or near the steersman, substantially as described.



5. A steering apparatus for vessels consisting of an electrical generator, an electro-motive device in circuit therewith and operatively connected to mechanism adapted to move the tiller, an electro-magnetic switch having circuit connections with the generator and the electro-motive device and a steering lever having circuit connections with the switch the tiller and an automatic electro-magnetic cut-out, substantially as described.

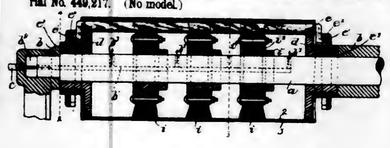
6. A steering apparatus for vessels having an electro-motive device for regulating the application of power to the tiller, a switch for regulating the direction of the applied power and a steering handle or lever having circuit connections with the switch for regulating its movement, substantially as described.

7. Steering mechanism for a vessel consisting of two electric motors having their armature shafts connected and provided with a screw carrying a nut operatively connected to a source of power for controlling the movements of the tiller and to an arm carrying switching devices for directing the current supply to the motors at will; an electro-magnetic switching apparatus having circuit connections with a switching or steering lever located near the steersman, substantially as described.

8. An electrically controlled steering apparatus having electrical circuits and circuit connections with a steering lever or handle, located near the steersman and including an electro-magnetic cut out and circuit making and breaking devices controlled by the tiller, whereby it, the tiller, is maintained always in a fixed position corresponding to that of the steering lever or handle, substantially as described.

9. An electrically controlled steering gear consisting of an electro-motive device connected with a generator of electricity and a source of power for moving the tiller, with a steering handle or lever and an electro-magnetic switch having circuit connections with the generator the electro-motive device and the steering handle or lever, substantially as described.

493,001. BUFFING-ROLL. HAROLD A. WEBSTER, Haverhill, assignor to George H. P. Flagg, Boston, Mass. Filed Oct. 18, 1892. Serial No. 449,217. (No model.)



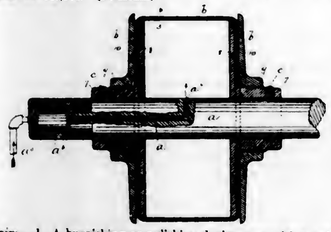
Claim.—1. A buffing roll, comprising a rotary shaft having an air passage, heads or collars affixed to said shaft, and a yielding or flexible cylindrical covering affixed to said heads and provided with an abrasive coating, said heads and flexible covering inclosing an air space communicating with air passage in the shaft, combined with means whereby air under pressure may be admitted into said passage to press outwardly and yieldingly support the flexible covering, as set forth.

2. A buffing roll comprising a rotary shaft having an air passage, heads or collars affixed to said shaft, a yielding cylindrical covering affixed to said heads, said covering and heads constituting an air chamber communicating with the passage in the shaft, and one or more yielding supports affixed to the shaft within said chamber, as set forth.

3. A buffing roll comprising a rotary shaft having an air passage, heads or collars affixed to said shaft, an inner flexible covering permanently attached to said head, and means for detachably securing an abrasive covering to said inner covering, as set forth.

4. A buffing roll comprising a rotary shaft, heads or collars affixed thereto and provided with notches, a flexible covering affixed to said heads and entering said notches, a wedge-shaped bar formed to enter said notches as a means for detachably securing an abrasive covering, and rotatable cams engaged with the ends of said bar, as set forth.

493,002. BUFFING-WHEEL. HAROLD A. WEBSTER, Haverhill, assignor to George H. P. Flagg, Boston, Mass. Filed Oct. 18, 1892. Serial No. 449,218. (No model.)



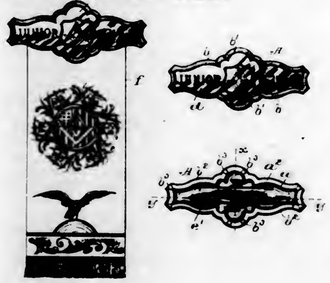
Claim.—1. A burnishing or polishing device, comprising a shaft having an air passage, and a wheel affixed to said shaft, said wheel being composed of rigid sides and a flexible periphery, the whole inclosing an air chamber which communicates with the air passage of the shaft, so that the flexible periphery may be pressed outwardly and yieldingly supported by air pressure in said chamber, and means for continuously maintaining pressure in said chamber, as set forth.

2. A burnishing or polishing device comprising a shaft having an air passage, rigid holders affixed to said shaft, and a flexible periphery secured to said holders, one or both of said holders being adjustable on the shaft to vary the shape of said periphery, as set forth.

3. A burnishing or polishing device composed of a shaft having an air passage, two part holders attached to said shaft, and a flexible periphery clamped at its marginal portions between the parts of said holders, as set forth.

4. A burnishing or polishing device composed of a shaft having an air passage, holders attached to said shaft and each composed of an inner and an outer jaw, and a flexible periphery composed of an inner sheet permanently attached to the inner jaws and an outer sheet clamped between said jaws, as set forth.

493,003. BADGE. BENJAMIN S. WHITEHEAD, Newark, N. J. Filed Sept. 21, 1892. Serial No. 446,424. (No model.)



Claim.—1. A badge, comprising therein, an open frame, a suitable backing or back-plate secured in said open frame, said backing or back-plate bearing an inscription, design or emblem, and a transverse medium arranged between said backing and the frame, and a pin secured on said back-plate for attaching the badge to a garment, substantially as and for the purposes set forth.

2. A badge comprising therein, a metallic back-plate, an open frame secured to the face of said back-plate, a piece of silk, satin, paper, or other like material bearing an inscription, design, or emblem, arranged between said frame and the back-plate, and a piece of transparent material arranged to cover said silk, satin or paper, and a pin secured on said back-plate for attaching the badge to a garment, substantially as and for the purposes set forth.

3. A badge comprising therein, a metallic back-plate, an open frame provided with a rim b^3 adapted to embrace the surrounding edge of the back-plate, means on said rim b^3 for securing the frame to the back-plate, a piece of silk, satin, paper or other like material bearing an inscription, design or emblem arranged between said frame and the back-plate, and a piece of transparent material arranged to cover said silk, satin, or paper, substantially as and for the purposes set forth.

4. A badge comprising therein, a metallic back-plate *a* formed with a raised portion a' and a flat rim a^3, an open frame *b* provided with a rim b^3 adapted to embrace the surrounding edge of the back-plate, tongues or lips b^4 on said rim b^3 for securing the frame to the back-plate, a piece of silk, satin, paper or other like material, bearing an inscription, design, or emblem, arranged between said frame and the back-plate, and a piece of transparent flexible material arranged to cover said silk, satin, or paper, substantially as and for the purposes set forth.

5. A badge, comprising therein, an open frame, a suitable backing or back-plate, said backing or back-plate bearing an inscription, design or emblem, and a transparent medium arranged between said backing and the frame, a pin secured on said backing or back-plate for attaching the badge to a garment, and a pin or bar c' adapted to receive a ribbon or pendant, substantially as and for the purposes set forth.

6. The improved badge herein described, combining therein a ribbon or pendant having a suitable inscription, design or emblem thereon, and a badge-piece separable therefrom, comprising therein an open frame, a suitable backing or back-plate secured in said open frame, said backing or back-plate being provided with an inscription, design or emblem, a transparent medium arranged between said backing and the frame, a pin or bar on said backing or back-plate adapted to receive said ribbon or pendant, and a pin or other device to admit the badge being secured to a garment, substantially as and for the purposes set forth.

7. A badge comprising thereiu, a back-plate *a* having a flat rim a^3, an open frame *b* provided with a rim b^3 adapted to embrace the surrounding edge of the back-plate, means on said rim b^3 for securing said frame in position on said flat rim a^3, a piece of silk, satin, paper or other like material, bearing an inscription, design or emblem, arranged between said frame and the back-plate, a piece of transparent material arranged to cover said silk, satin or paper, and a pin secured on said back-plate for attaching the badge to a garment, substantially as and for the purposes set forth.

8. A badge comprising therein, a back-plate *a* having a flat rim a^3, an open frame *b* provided with a rim b^3 adapted to embrace the surrounding edge of the back-plate, means on said rim b^3 for securing said frame in position on said flat rim a^3, a piece of silk, satin, paper or other like material, bearing an inscription, design or emblem, arranged between said frame and the back-plate, a piece of transparent material arranged to cover said silk—satin or paper, a pin secured on said back-plate for attaching the badge to a garment, and a pin or bar c' on said back-plate, adapted to receive a ribbon or pendant, all of said parts being arranged, substantially as and for the purposes set forth.

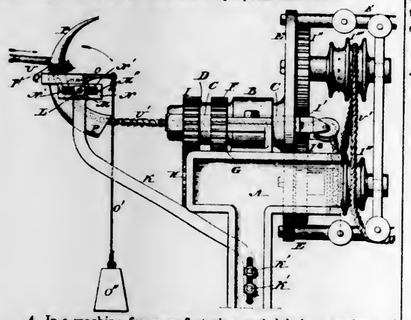
493,004. MACHINE FOR TWISTING AND CURLING HAIR. PETER WOLL, Jr., Philadelphia, Pa. Filed July 8, 1891. Serial No. 398,771. (No model.)

Claim.—1. In a machine for manufacturing curled hair, the combination of the curler-brake and the curler, the former being set immediately before the latter, and the latter being provided with a capstan 1^{cc}, by changing the speed of the revolution of which the degree of spiralization of the curl can be changed, substantially as described.

2. In a machine for manufacturing curled hair, a tension and brake and a rocking bar the former being set on said bar and the latter set on a support and provided with depressor O and weight O^w; so arranged that the gasket may be fed to the brake, and a curling machine, the said brake being set in front of the latter and adapted to feed the gasket to it in the conversion of the latter into a curl, all arranged and operating substantially as described.

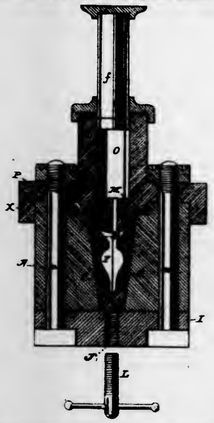
3. In a machine for manufacturing curled hair, a tension and

curling brake for the twisted gasket, a bar J, blocks M M carried in boxes N N arranged substantially as shown which latter are provided with springs N' N', to permit the bar J to give to tension upon the brake and to return it to place when the tension is relieved, and a curling machine; the said brake being set in front of the latter, whereby the twisted gasket may be fed to the brake and thence to the curling machine, substantially as and for the purposes described.



4. In a machine for manufacturing curled hair, a tension and curling brake for the twisted gasket, bar J, sliding blocks M M and boxes N N arranged substantially as described to permit the bar J to give to tension, and a curling machine the said brake being set in front of the latter, whereby the twisted gasket may be fed to the brake and thence to the curling machine, substantially as described.

493,005. MEANS FOR FORMING AND ORNAMENTING SHEET-METAL ARTICLES. BERNARD M. ASELL and WILLIE OSTRANDER, New York, N. Y. Filed June 28, 1892. Serial No. 438,252. (No model.)



Claim.—1. The exterior casing, and the sectional die therein, combined with the removable head having the downwardly and inwardly inclined surfaces adapted to bear upon the downwardly and inwardly inclined flange forming a part of the blank, the packing having the downwardly and inwardly turned lip carried by said head and engaging said flange, and a source of pressure leading through said head to said blank; substantially as set forth.

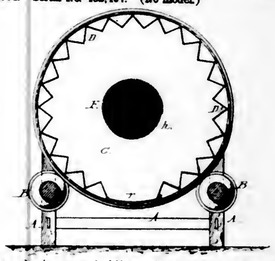
2. The exterior casing and the incloseed die, said casing and die having inclined mouths B, E, respectively, combined with the removable head having the downwardly and inwardly inclined surfaces to enter said mouths B, E, and engage the flange on the blank, and the opening through said head for the pressure; substantially as set forth.

3. The exterior casing, and the die carried thereby, combined with the head, plate and cylinder integral with each other and secured on said casing, said head having the downwardly and inwardly inclined surfaces entering the die and engaging the inclined flange on the blank; substantially as set forth.

4. The exterior casing, and the die carried thereby, combined with the head, plate and cylinder integral with each other and secured on said casing, said head having the downwardly and inwardly inclined surfaces entering the die and carrying the downwardly and inwardly inclined packing lip to engage the flange on the blank; substantially as and for the purposes set forth.

5. The exterior casing, and the die seated therein, combined with the head, plate and cylinder secured to the upper end of said casing, the base-plate secured to the lower end of said casing, and the ejector screw in said base-plate; substantially as set forth.

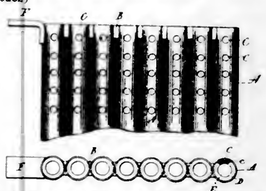
493,006. CHURN. EPHRAIM ALPAUGH, Galt, Canada. Filed Aug. 13, 1891. Serial No. 402,497. (No model.)



Claim.—1. A cream-holding cylinder, supported as described, formed of two disk heads one with a gauze covered opening, as described and a cylindrical band partly corrugated and partly plain, as at *r*, connecting said heads, as and for the purpose specified.

2. The combination with the cream holding cylinder, of the expansible plate, a sieve or netting, secured within said plate and to it, barbed plates secured to said expansible plate and bearing against the outer face of the cream holding cylinder, and the device for holding the expanded plate consisting of bar *k*, stud *x* and having slot *b*, as and for the purpose specified.

493,007. SECONDARY-BATTERY ELECTRODE. ISAAC H. BARTHOLOMEW, Northford, Conn. Filed May 31, 1892. Serial No. 434,843. (No model.)



Claim.—1. A secondary battery electrode, composed of a group of lead tubes, inwardly upset from their outer surfaces to form inwardly projecting retaining points or burrs, and tubular linings of active material, for the respective tubes in which they are held in place by the said burrs or retaining points of the same, each tube having when completed a central circular opening extending throughout its length substantially as set forth.

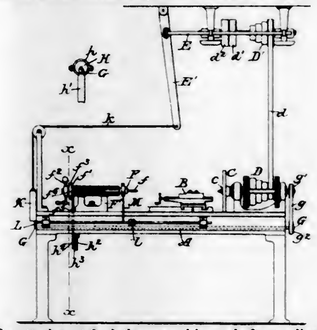
2. A secondary battery electrode composed of a group of lead tubes inwardly upset and pierced from their outer surfaces to form inwardly projecting retaining points or burrs, and tubular linings of active material for the respective tubes in which they are held by the said burrs or retaining points, each tube having when completed a central circular opening extending throughout its length substantially as set forth.

493,008. LATHE ATTACHMENT. CHARLES B. BEARDSLEY, New York, N. Y. Filed July 12, 1892. Serial No. 439,791. (No model.)

Claim.—1. The combination with a lathe-bed having ways, and a head-stock, of a tail-stock adjustable on said ways, a back-spindle carried by said tail-stock, a rotatable nut for advancing said spindle, gearing for rotating said nut and adjustable with the tail-stock, and means as described for driving said gearing from the head-stock, substantially as shown and described.

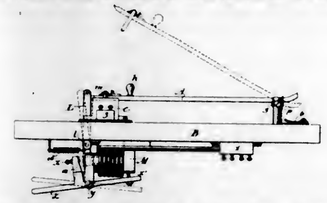
2. The combination with a lathe-bed having ways, and a head-stock, of a tail-stock adjustable on said ways, a back spindle carried by said tail-stock, a rotatable nut for advancing said spindle, gearing for rotating said nut and adjustable with the tail stock, means for

driving said gearing, a belt-shipper, means for operating the same, a detent therefor and means between said spindle and said detent to withdraw the latter, substantially as shown and described.



3. An attachment for lathes comprising a shaft extending longitudinally of the lathe-bed, an eccentric splined thereon, a bracket adjustable upon the lathe-bed, a lever pivoted on said bracket, a connecting rod between said eccentric and lever, a pawl-carrying rod connected to said lever, and a toothed wheel driven by said pawl carrying rod and adapted to advance the back spindle of the lathe, substantially as shown and described.

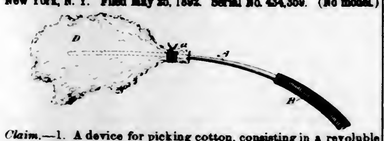
493,009. AUTOMATIC SWITCH. CHARLES H. BEDELL, Swarthmore, Pa., assignor to the Electro-Dynamic Company of Philadelphia, of Pennsylvania. Filed June 25, 1892. Serial No. 437,930. (No model.)



Claim.—1. The combination of an electric circuit, circuit breaking points in said circuit; a lever having circuit closing points in position to complete said circuits, a holding lever having at its free end a roller arranged in position to engage the free end of the circuit breaking lever, an electro magnet in the protected circuit, and an armature therefor in position to trip or move the holding lever and thus release the circuit closing lever upon an increase in the strength of current in the protected circuit; substantially as described.

2. The combination of an electric circuit, circuit breaking points in said circuit, a spring retracted lever having circuit closing points in position to complete said circuit, a spring controlled holding lever carrying at its free end a wheel or roller in position to engage the free end of the first named lever, an electro magnet in the protected circuit, and a normally retracted armature therefor in position to trip or move the second named lever and thus release the first named lever upon a predetermined increase in the strength of current in the protected circuit, substantially as described.

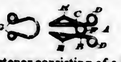
493,010. COTTON-HARVESTING DEVICE. GERARD BEEKMAN, New York, N. Y. Filed May 25, 1892. Serial No. 434,359. (No model.)



Claim.—1. A device for picking cotton, consisting in a revoluble mass of cotton or other fiber of similar structural character, and suitable mechanism for rotating the mass upon its own axis; the fibers of the said mass being exposed in their native or non-woven state, and adapted to engage with and extract the growing cotton, substantially as described.

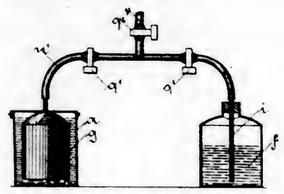
2. The combination in a cotton picking device, of a mass of cotton or other fiber of similar structural character in its native or non-woven state, and a rotary supporting stem extending into the center of the mass and secured thereto, forming a core substantially as and for the purposes described.

493,011. GARMENT-HOOK. FRANCIS E. BENNETT, Philadelphia, Pa. Filed Oct. 24, 1891. Serial No. 409,664. (No model.)



Claim.—A garment fastener consisting of a hook and an eye, said hook being composed of a single piece of wire having securing eyes at its ends, a double shank and hook proper with a coiled end and having bulging portions at or about the center of its sides, forming swells extending beyond the sides of the shank, and said eye being of less width than the normal width of the hook at the swells, substantially as and for the purpose set forth.

493,012. ASPIRATOR AND AIR-INJECTOR. WARNERUS BORCHERS, Munich, Germany. Filed Oct. 7, 1892. Serial No. 448,125. (No model.)



Claim.—1. An apparatus for suction of matter whether gaseous, such as air, gas or vapor, liquid, or solid suitable to be extracted by such apparatus, the same comprising an inner flask *g* with tube *r* connected by flexible tube *s* with a suction-nozzle, and an outer vessel *a* intended to serve as a water bath for the flask *g* to be heated to expel the air from said flask and to evaporate a liquid therein which upon subsequent cooling and condensation provides a vacuum in said flask for the purpose of suction as described.

2. The combination of the aforesaid apparatus of a second flask *f* connected to the flask *g* by a pipe whereby the air or gases expelled from flask *g* enter the flask *f* to provide pressure upon liquid therein to act as an injection-spray or the like as described.

493,018. COMBINATION OPEN AND CLOSED CAR. JOHN A. BRILL and GEORGE M. BRILL, Philadelphia, Pa. Filed June 30, 1892. Serial No. 438,510. (No model.)

Claim.—1. The combination with a car body having an opening extending between the platforms thereof, and a side section adapted to be detachably secured to the car to completely close said opening, substantially as described.

2. The combination, with a car body having an open side, of a side section, co-extensive with said open side, adapted to be detachably secured to the car to completely close said side, substantially as described.

3. The combination in a car having an opening extending between the platforms thereof, stanchions extending between the top and bottom of said opening, and a detachable side section adapted to entirely close said opening, substantially as described.

4. The combination, with a car body having an open side, of stanchions extending between the top and bottom of said opening and a side section co-extensive with said open side, adapted to be detachably secured to the car and to the stanchions on the inner side of the stanchions to close said opening, substantially as described.

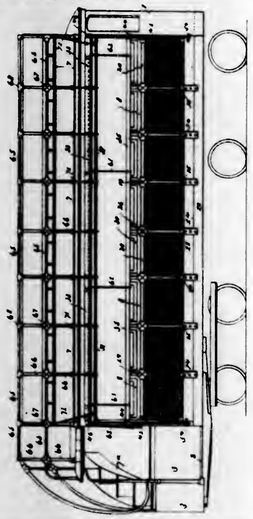
5. The combination in a car having an opening in the side thereof extending between the platforms, and a detachably secured side section completely closing said opening, said side section containing windows and panel work, substantially as described.

6. The combination, with a car body having an open side, of a side section containing the windows and panel work for said side, co-extensive with said open side, adapted to be detachably secured to the car to completely close said side, substantially as described.

7. The combination with a car having an opening in its side extending between the platforms at both ends thereof, and above the line of the seats within the car, and a detachable side section adapted to be secured to the side of the car to close said opening, which side sec-

tion is made to simulate a permanent side of a car, substantially as described.

8. In a car having an open side, a rail secured adjacent to the lower edge, and cross bars adjacent to the upper edge, and a side section adapted to engage the rail, and to be detachably secured to the cross-bars, substantially as described.



9. In a car having an open side, stanchions extending between the top and bottom of said opening, cross bars secured to the stanchions adjacent to the top, and a rail located adjacent to the lower edge of said opening, and a side section adapted to engage the rail and be detachably secured to the cross bars, substantially as described.

10. In a car having an open side, a rail secured adjacent to the lower edge, and cross bars adjacent to the upper edge, and a side section having a rabbeted edge for engaging the rail, and detachably secured to the cross bars, substantially as described.

11. In a car having an open side, stanchions extending between the top and bottom of said opening, cross bars secured to the stanchions adjacent to the top, and a rail located adjacent to the lower edge of said opening, and a side section having a rabbeted edge for engaging the rail and detachably secured to the cross bars, substantially as described.

12. The combination with an open sided car of an independent side section and means for detachably securing said section to the car side to close said opening, substantially as described.

13. The combination with a car body having an opening in its side, of a side section, coextensive with said opening, and means for detachably securing the side section to the side from within the car, substantially as described.

14. The combination with an open sided car, of an independent side section, and means for detachably securing said section to the car side to close said opening, said means being located adjacent to the top and bottom of said side section, substantially as described.

15. The combination with an open sided car, of an independent side section, and means for detachably securing said section to the car side to close said opening, said means being located intermediate of the top and bottom of said section, substantially as described.

16. The combination of the winged brackets 17, cross bars 22 secured to wings of the brackets, a rail 21 secured to the longitudinal plank 11, and the independent side section 8 having the rabbet 24 for engagement with the rail, and means for securing the side section to the cross-bars, substantially as described.

17. The combination of the stanchions 10, cross bars 22 detachably supported by the stanchions, a rail 21 secured to the longitudinal plank 11, and the independent side section 8 having the rabbet 24 for engagement with the rail, and means for securing the side section to the cross bars, substantially as described.

18. The combination with the stanchion 10, rail 21 and cross bars 22, of the independent side section adapted to engage the rail, a bolt or staple for securing the side section to the stanchion, and screws or bolts for securing it to the cross bars, substantially as described.

19. The combination with an open sided car, of the side section 8 having integral windows 30, and means for detachably securing said section to the car side to close the opening therein, substantially as described.

20. The combination with an open sided car, of the side section 8 having integral windows 30 and panels 31*, and means for detachably securing said section to the car side to close the opening therein, substantially as described.

21. The letter or face board 32 of a car having the brackets 34 secured thereto, and an inclined drip board 33 secured to said brackets, substantially as described.

22. The combination of the roof railing, obliquely disposed braces secured thereto and supported at their lower ends outside of said railing, substantially as described.

23. The combination of the roof railing, a drip board extending out beyond the side of the car, and braces secured to the drip board and to the railing, substantially as described.

24. The combination of the roof railing, a drip-board extending out beyond the side of the car, and braces for the railing obliquely disposed between the railing and drip-board, substantially as described.

25. The combination with the uprights 66 and longitudinals 65, of the inclined drip-board 33 secured to the car below the railing by the brackets 34, and a brace 71 extending between the uprights and drip board, substantially as described.

26. A car having an open side between its ends, and a curtain continuous with the opening adapted to be raised or lowered uniformly throughout to open or close said opening, substantially as described.

27. A car having an open side between its ends, and a curtain continuous with the opening, and a drip board secured to the car above the curtain and covering it, substantially as described.

28. The combination, in a car, of a rail on the upper platform thereof, a drip board at the side of the car, brackets supporting said drip board and braces extending between the rail and the drip board, substantially as described.

29. A car having an open side between its ends, side stanchions, a curtain without the stanchions for temporarily closing said opening, and a side section detachably secured within the stanchions for permanently closing said opening, both curtain and section being co-extensive with said open side of the car, substantially as described.

30. The combination of the curtain 35 attached to the car at one end and to the curtain pole 39 at the other, the hubs 40 on the pole, the upright side posts 45, collars 44 adapted to move on the posts, and spindles 43 extending from the collars and upon which the pole and hubs revolve, substantially as described.

31. The combination of the upper and lower curtain side post brackets 46, 54, the bracket 46 having an extended socket, with the side posts 45, adapted to engage both sockets, and shorter than the maximum distance between the supporting and engaging points therefor, substantially as described.

32. The combination of the upper and lower recessed brackets, and the side posts 45 shorter than the distance between the recesses and thereby detachable from the brackets, substantially as described.

33. The combination with the curtain pole 39, side posts 45, collars 44 engaging the side posts and curtain pole, a series of ropes 61 secured to the car by the studs 60 and passing round the curtain pole and the main rope 62 to which each of the ropes 61 is secured, and pulleys 59 supporting the rope 62, substantially as described.

34. The combination with the car having the series of hooks or grommets 36, a curtain 35 the upper edge of which is apertured to pass over the hooks, and a tie rope or bar 37 rove through the hooks outside of the curtain, substantially as described.

35. The curtain side post bracket having a socket for the curtain post and an eye for the curtain rope, substantially as described.

36. The combination of a car body, a curtain attached to the side thereof at a plurality of points, and unitary means for securing or loosening at one operation all the points of attachment, substantially as described.

37. The combination with a car body having its side open the whole length thereof and provided with longitudinal seats, of a side section co-extensive with said open side, adapted to be detachably secured to the car to completely close said side, and an aisle between the side and seats, substantially as described.

38. The combination, in a car, of a curtain adapted to be rolled to the top of the car, and detachable side guide posts for said curtain, substantially as described.

39. The combination, in a car, with a curtain, of a roller therefor, and side posts detachably supported by brackets, substantially as described.

40. The combination, in a car, of a curtain, a curtain pole upon which said curtain is rolled, and side guide posts, with which the ends of the pole engage, substantially as described.

41. The combination, with a car body having an open side of a curtain secured thereto co-extensive with said opening, and means for raising the lower part of said curtain, while the upper part remains stationary, substantially as described.

42. The combination, in a car, of the longitudinal plank 11, stanchion 10 secured thereto, handrails 20, and foot fender detachably secured between said plank, stanchions, and handrails, substantially as described.

43. The combination of the upper and lower sills, the stanchions secured thereto, the handrails, and the elbows for uniting the stanchions and handrails, substantially as described.

44. The combination, in a car, of the upper and lower sills, stanchions secured thereto, handrails, elbows for uniting the stanchions and handrails, and foot fenders secured between the stanchions and handrails, substantially as described.

45. The combination, in a car, of the upper and lower sills, stanchions secured thereto, handrails, and an independent side section adapted to be detachably secured within the stanchions and handrails, substantially as described.

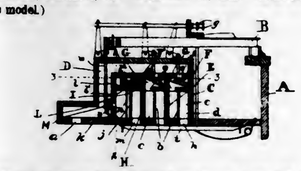
46. The bracket 19 having an upper flange adapted to be secured on the under surface of the sill 9, the socket 16 for securing the stanchion, and the depending wing 18 for supporting the cross bars, substantially as described.

47. The combination with the side section 8, of the four-way elbow 19, having a central screw threaded aperture for securing said elbow to said section, substantially as described.

48. The combination of the lower sill 12, the truss-plank 11, and the stanchion 10 having bed-plates 13 bolted to said sill and truss plank, substantially as described.

49. The combination of uprights, sleeves sliding thereon provided with spindles or gudgeons projecting at right angles to the uprights, and a shaft or cylinder provided with hubs rotating on said spindles, substantially as described.

493,014. SOLO ATTACHMENT FOR REED-ORGANS. JAMES P. CAULFIELD, Baltimore, Md. Filed Nov. 16, 1892. Serial No. 452,143. (No model.)



Claim.—1. In a reed-organ, the combination with the primary reed-channels; reeds therein; pallets for said channels; and keys controlling said pallets; of auxiliary reeds and channels therefor said channels arranged to be opened also by said pallets; and channels which connect said auxiliary reed-channels through valved-openings, whereby when a number of keys are depressed only one of the auxiliary-reeds sounds; substantially in the manner described.

2. In a reed-organ, the combination with the primary reed-channels; reeds therein; pallets for said channels; and keys controlling said pallets; of auxiliary reeds and channels therefor said channels arranged to be opened also by said pallets; and diagonal channels each of which connects two adjacent auxiliary-reed-channels through openings one of which is valved, whereby when a number of keys are depressed only one of the auxiliary reeds sounds substantially as described.

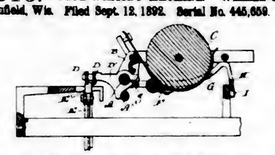
3. In a reed-organ, the combination with the primary reed-channels; reeds therein; pallets for said channels; and keys controlling said pallets; of auxiliary reeds and channels therefor said channels arranged to be opened also by said pallets; channels connecting the said auxiliary reed-channels through suitable openings; valves over said openings and standing normally open; and rod-connections between said valves and the main valves respectively, substantially as and for the purpose described.

4. In a reed-organ, the combination with the primary reed-channels; reeds therein; pallets for said channels; and keys controlling said pallets; of auxiliary reeds and channels therefor said channels arranged to be opened also by said pallets; and having openings through which they may communicate with the main bellows-channel; a stop-valve over said openings; and channels connecting said auxiliary reed-channels through valved openings, whereby when a number of keys are depressed only one of the auxiliary-reeds sounds.

5. In a reed-organ, the combination with the primary reed-channels; reeds therein; pallets for said channels; and keys controlling said pallets; of auxiliary reeds and channels therefor said channels arranged to be opened also by said pallets; and having openings through which they may communicate with the main bellows-channel; a stop-valve over said openings; channels connecting the treble auxiliary reed-channels through valved openings; channels connecting the auxiliary bass-reed channels through valved-openings; a partition between said two sets of connecting channels; and stop-valves controlling the communication between said connecting channels and the main bellows-channel.

6. In a reed organ, the combination with the primary reeds; channels therefor; pallets closing said channels; and keys controlling said pallets; of auxiliary-reeds and channels for the same which are also closed by the said pallets; and valves connected with said pallets and controlling communication between the auxiliary-reed channels whereby when a number of keys are depressed only one of the auxiliary-reeds sounds.

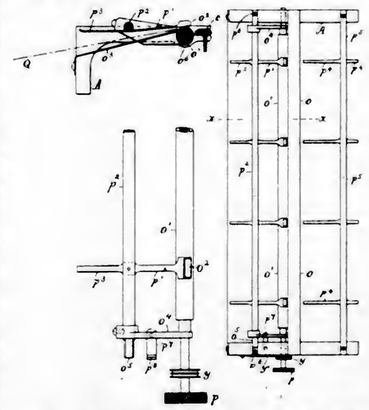
493,015. TYPE-WRITING MACHINE. WILLIAM CLARK, North Greenfield, Wis. Filed Sept. 12, 1892. Serial No. 445,669. (No model.)



Claim.—1. The combination with the frame, track and carriage of a type writing machine, of a vibratory frame, carried by the carriage and provided with one or more rack bars, a pawl arranged to engage with the teeth of said bars, a graduated scale of measurements secured to the under side of the carriage, arms secured to said vibratory frame and extending forward beyond the carriage and carrying a second graduated scale having markings identical with those of the first mentioned scale, and an index finger or pointer secured to the machine frame adjacent to the line of movement of the latter scale, substantially as set forth.

2. The combination with the frame, track and carriage of a type writing machine, of a pawl, a vibratory frame carried by the carriage and provided with one or more rack bars adapted to normally rest in engagement with said pawl, a graduated scale of measurements secured to the underside of the carriage, arms secured to the vibratory frame and extending forwardly beyond the carriage and carrying at their forward ends a second graduated scale having markings identical with those of the first mentioned scale, an index finger or pointer upon the machine frame adjacent to the line of movement of the latter scale, and a thumb piece upon one of the arms for vibrating said arms so as to move the rack bars carried by the vibratory frame, out of operative engagement with the pawl, substantially as set forth.

493,016. TYPE-WRITING MACHINE. JOSEPH M. CRARY, Jersey City, N. J. Filed Aug. 15, 1892. Serial No. 443,114. (No model.)



Claim.—1. In a typewriter, the combination, with a platen for supporting the paper, of a carriage supporting the type mechanism movably, feed mechanism for shifting the type mechanism step by step upon the carriage, and means for shifting the paper and carriage a half step or space in relation to one another, as set forth.

2. In a typewriter, the combination, with a stand carrying a strip platen and a paper feeding roller, of type mechanism movable longitudinally step by step over the platen, means for moving the feed roller

one half a space longitudinally with the paper, and a stop for determining such movement, substantially as herein set forth.

3. In a typewriter, the combination, with a platen for supporting the paper, of a carriage supporting the type mechanism movably, feed mechanism for shifting the type mechanism step by step upon the carriage, means for shifting the paper and the carriage a half step or space in relation to one another, and means for locking the carriage in its adjusted position, as set forth.

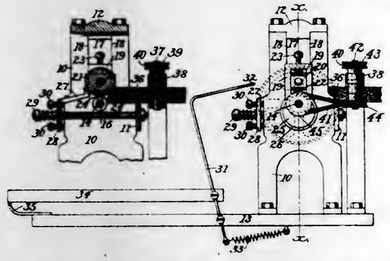
4. In a typewriter, the combination, with a stand carrying a strip platen and a paper feeding roller, of type mechanism movable longitudinally step by step over the platen, a frame *m* movable longitudinally with the feed roller, stops to limit the movement of the frame, the wedge p^3 fixed upon the stand, and the spring wedge p^3 fixed to the movable frame, the whole arranged and operated substantially as set forth.

5. In a typewriter, the combination, with a stand carrying a strip platen and a paper feeding roller, of type mechanism movable longitudinally step by step over the platen, the guide bar p^3 movable longitudinally upon the stand, the arms o^4 secured thereto and embracing shoulders upon the feed roller, the wedge p^4 upon the stand, the spring wedge p^3 upon the frame, and the knob *p* adapted to rotate the feed roller and to shift it longitudinally, substantially as set forth.

6. In a typewriter, the combination, of the stand A, with the strip platen *o*, the feed roller *o'* the bar p^2 carrying the spring rollers o^2, the paper guides p^5 projected from such bar, and the bar p^4 secured at the opposite side of the platen and provided with the paper guides p^4, the whole arranged and operated substantially as set forth.

493,017. FUR-PLUCKING MACHINE. ISIDOR DRESDNER, Brooklyn, N. Y. Filed Sept. 22, 1892. Serial No. 446,581. (No model.)

Brief.—The machine comprises a continuously-driven roller 16, with one or two blades 24 on its circumference, and a roller 21 cooperating therewith, the roller 21 being journaled in bearings that are reciprocated vertically by means of the eccentrics 25 on the shaft of the roller 16. A brush 36 keeps the two rollers free from clinging hairs.



Claim.—1. In a fur-plucking machine, the combination of a bladed roller, a second roller to co-operate with said first named roller, means to rotate one of said rollers, and means to reciprocate one of said rollers toward and from the other, substantially as shown and described.

2. In a fur-plucking machine, the combination of a bladed roller, means to rotate it, eccentrics carried by the shaft of said roller, a roller to co-operate with said bladed roller, and sliding boxes for said co-operating roller adapted to be reciprocated by said eccentrics, substantially as shown and described.

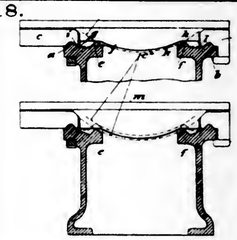
3. In a fur-plucking machine, the combination of a pelt-supporting device, a continuously rotating roller, a co-operating roller mounted in movable bearings, means to reciprocate said roller bodily, and a comb interposed between the pelt-supporting device and the bite of said rolls, substantially as shown and described.

4. In a fur-plucking machine, the combination of a bladed roller, a second roller to co-operate with said first named roller, means to rotate one of said rollers, means to reciprocate one of said rollers toward and from the other, and a brush to free said rollers from the clinging hairs, substantially as shown and described.

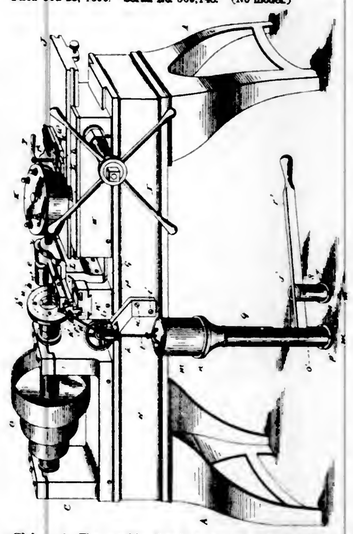
493,018. TURNING-LATHE. HENRY DREES, Cincinnati, Ohio. Filed Apr. 6, 1892. Serial No. 428,022. (No model.)

Claim.—In lathe shears having the inner V shaped ways which support the head-stock and tail-stock, located below the outside ways, which support the carriage; said ways being connected by an inclined portion of the shear frame, substantially as set forth.

493,018.



493,019. TURRET-LATHE. HUGH DRYSDALE, Cleveland, Ohio. Filed Oct. 23, 1890. Serial No. 369,148. (No model.)



Claim.—1. The combination in a turret-lathe of a slide-carriage *d*, supported transversely of the machine bed, a turret tool-body L, a movable tool-block *f*, suitable cutting knives n^3, n^3, adjusting screw *n'*, lateral projecting stud e^3, and antifriction roller *e*, with a cam-disk *b*, on the lathe spindle actuating said carriage in one direction, and a weight *m*, and connections tending to move said carriage in the opposite direction, and to hold the same in contact with the cam-face substantially as described, whereby when the lathe spindle is rotated said carriage and tools are moved crosswise of the lathe-bed.

2. In a turret-lathe having a slide-carriage *d*, supported transversely of the machine bed, a turret tool-body L, a cam-disk *b*, on the lathe-spindle actuating said carriage in one direction, and a weight *m*, and connections tending to move said carriage in the opposite direction, in combination with a weight-stand *q*, having a hollow upright piece *o'*, a table *n*, and a foot-lever *r'*, fulcrumed and supporting said stand substantially as described, whereby when the lever is pushed down by the foot, the stand is raised lifting the weight to be coupled or uncoupled from the slide-carriage.

493,020. CHIN-REST FOR VIOLINS. GEORGE H. EAMES, South Framingham, Mass. Filed Nov. 17, 1892. Serial No. 452,343. (No model.)

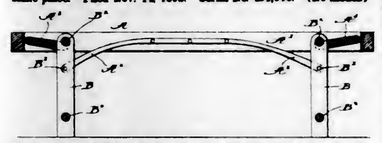
Claim.—The chin-rest for violins and the like, consisting of the combination of the rest *a*, and its support or holder, comprising the upper and lower part, movable one with relation to the other, the upper part having a lip *a'*, a downwardly extended post or shank portion *b*, with a vertical groove *b'*, upon the inside, and corresponding vertical rib b^3, upon the outside, and the internally screw threaded projection b^2, and the lower part having the lip *c*, and an upwardly

493,020.



extended post or shank portion *c'*, with a vertical groove upon its inner side, to receive the rib b^3, and with folded edges to embrace the edges of the upper part, and the screw *d*, passing up through the lip *c*, and entering or passing through the projection b^2, all substantially as described.

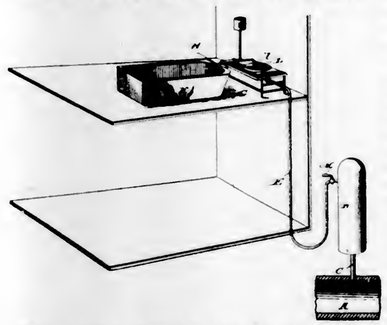
493,021. FOLDING LEG FOR FURNITURE. ORRIN G. FRASER, Kenosha, Wis., assignor to the North Western Wire Mattress Company same place. Filed Nov. 14, 1892. Serial No. 451,916. (No model.)



Claim.—1. In folding furniture, the combination with the body of a piece of furniture, provided with opposite ways, A^4, having upward extensions, a^3, of a pair of legs having at their upper ends projections, B^3, extending into engagement with said ways, and spring-braces hinged to said legs and secured to said body in such manner as to draw upward on said legs whereby the projections, B^3, are held in engagement with the extensions, a^3, when the legs are in the vertical position.

2. In folding furniture, the combination with the body of a piece of furniture provided with substantially parallel side pieces, A', having channeled ways, A^4, terminating at one end in the upward extension, a^3, of legs located between said side pieces and having at their upper ends lateral projections, B^4, extending into said ways, and brace springs hinged by one end to said legs and secured rigidly by the other end to the body of the piece of furniture, and arranged to be under tension to draw upward on said legs, substantially as described.

493,022. PORTABLE WATER-HEATER. CHARLES GALLE, St. Louis, Mo. Filed Aug. 6, 1892. Serial No. 442,346. (No model.)



Claim.—A heater consisting of a single flat coil adapted to be connected at its outer end to any suitable source of liquid supply, and a hood or cover placed over the coil and provided in its top with an opening or aperture through which the inner discharge end of the coil passes whereby said discharge end serves as a standard to hold the hood or cover in place on the coil, substantially as shown and described.

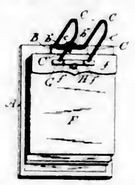
493,023. PROCESS OF OBTAINING CHLORATES OF THE ALKALIES OR OF THE ALKALINE EARTH METALS BY ELECTROLYSIS. WILLIAM T. GIBBS and STANISLAUS P. FRANCHOT, Buckingham, Canada. Filed Aug. 29, 1892. Serial No. 444,437. (No specimens.)

Claim.—1. A process of obtaining chlorate of an alkali or alkaline earth metal by electrolysis, consisting in subjecting a solution of its chloride to the action of an electric current in a cell having an oxide of copper cathode until about one half of the chloride in said solution is decomposed and converted into chlorate, drawing off the solution into crystallizing tanks and allowing it to cool and crystallize, then drawing off the remaining liquor, making up its strength with fresh chloride and returning it into the cell, removing the cathode from the cell, washing, drying reoxidizing and replacing it, substantially as set forth.

2. As part of a process for the manufacture of chlorate of one of the alkalies or alkaline earth metals by electrolysis, the subjecting of a solution of chloride of said alkali metal to the action of an electric current in a cell having a cathode composed of an oxide which readily yields up its oxygen in the presence of nascent hydrogen, substantially as set forth.

3. A process of manufacturing chlorate of potassium by electrolysis, consisting in subjecting a solution of chloride of potassium to the action of an electric current in a cell having an oxide of copper cathode until about one half of the potassium chloride in said solution is decomposed and converted into potassium chlorate, drawing off the solution into crystalling tanks and allowing it to cool and crystallise, removing the cathode from the cell, washing, drying, reoxidizing and replacing it, drawing off the remaining liquor from the crystallising tank, making up its strength with fresh chloride and returning it into the cell to repeat the process, substantially as set forth.

493,024. LETTER OR BILL FILE. WILLIAM O. GOTTWALS, Ottawa, Canada. Filed June 15, 1892. Serial No. 436,760. (No model.) Patented in Canada Apr. 9, 1892, No. 38,687.



Claim.—1. In a letter and bill file, the combination of a backing A, a metallic base B secured to said backing, a pair of arched transfer wires C made in one piece and secured rigidly to said base in an upwardly inclined position, a pair of straight receiving wires C secured movably to said base, the points *c* of said wires meeting and being beveled and grooved and tongued, a bit D secured to the wire C', a flat spring E secured to the underside of said base and provided with quirked end bearing on said bit D, a compressor cover F having plate *f* eyes f^2 and studs f^3 a plate G having transverse slots g^2 adapted to engage the studs f^3 and the eccentric H pivotally secured to the plate *f* and bearing on the plate G, substantially as set forth.

2. In a metallic base of a letter and bill file, the combination of a rim or flange *b*, transverse grooves *b'* with a perforation b^3 in one of them, a wire C bent to form a central transverse portion having a quirk *c* and two upright inclined portions terminating in arched ends, said transverse portion fitting in one of the grooves *b'* and said quirk adapted to be tightly driven in the perforation b^3, a wire C having a central transverse portion adapted to fit and turn in the other groove *b'* and having two upright straight ends meeting the ends of the arched wire, a bit D secured to the central portion of the wire C and a spring E secured to said base and having a quirked end bearing on the bit D, substantially as set forth.

3. In a letter and bill file, the combination with a base having a groove *b'* of a wire C bent to form a central transverse portion adapted to fit and turn in said groove, a bit or lever D on said transverse portion, a spring E secured to said base and having a quirked end bearing on said bit, substantially as set forth.

4. In a letter and bill file, the combination of a compressor cover F having a metallic plate *f* with eyes f^2 and studs f^3, a plate G having transverse slots g^2 adapted to be slidingly engaged by said studs, and an eccentric H pivoted to the plate *f* and bearing on the edge of the plate G, substantially as set forth.

5. In a letter and bill file, the combination of a base having two transverse grooves some distance apart, a pair of wires each bent to form a transverse central portion adapted to fit in one of said grooves one adapted to be rigidly secured and the other to oscillate or turn, each wire having outwardly projecting portions, and the ends of one arched to meet the straight ends of the other, the transverse portion of the movable wire fitted with a bit D and a spring E secured to said base and having its free end bearing on said bit, substantially as set forth.

493,025. ARMATURE FOR ELECTRIC MOTORS. ROBERT H. HAMBLER, Dayton, Ohio. Filed Aug. 15, 1892. Serial No. 443,182. (No model.)



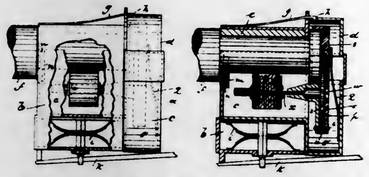
Claim.—1. An armature core, having its magnetic material forming an annular band or ring, leaving an interior cylindrical cavity running the entire length of the armature, in combination with coils placed upon the core, in such a way, that the said interior cavity will be occupied and approximately filled by the flanks of the coils, said coils passing into and out of said cavity at the same end of the armature.

2. An armature core having its magnetic material forming an annular band or ring, leaving an interior cavity running the entire length of the armature, with coils placed upon the core in such a way that the said interior cavity will be occupied and approximately filled by the flanks of the coils; said coils passing into, and out of said cavity, at the same end of the armature, in combination with a supporting piece or spider, placed midway between the two ends of the armature core, substantially, as described.

3. An armature core having its magnetic material forming an annular band or ring, leaving an interior cylindrical cavity, running the entire length of the armature, with coils placed upon the core in such a way that the said interior cavity will be occupied and approximately filled by the flanks of the coils, said coils passing into and out of, said cavity at the same end of the armature, with a supporting spider, placed mid-way between the two ends of the armature core, substantially as described, thus forming a channel around the outside of the armature, in combination with a binding cord or wire, contained in said channel holding the coils to the core.

4. An armature core, having its magnetic material forming an annular band or ring, leaving an interior cylindrical cavity running the entire length of the armature, with coils placed upon the core in such a way that the said interior cavity, will be occupied and approximately filled by the flanks, of the coils, said coils passing into and out of, said cavity at the same end of the armature in combination with binding cords, wires or tapes, passing through the interior cavity in a direction approximately parallel to the shaft, said cords, binding and fastening the coils to the core, and holding said coils with-in the interior cavity.

493,026. CAR-AXLE BOX. HENRY HAVELL, Newark, N. J., assignor to Alexander Devoe, same place. Filed July 21, 1892. Serial No. 440,767. (No model.)



Claim.—1. A car axle box consisting of a chamber, provided at or near its top with the bearing for the axle, a removable oil chamber, arranged in said chamber, springs holding said oil chamber in normal position, means for controlling and operating said springs, a top arranged on said oil chamber and provided with a recess, and a hooked end spring secured to the axle chamber and adapted to engage the said recess of the top, all said parts substantially as described and for the purposes set forth.

2. A car axle box consisting of a chamber, provided at or near its top with the bearing for the axle, a removable oil chamber, arranged in said chamber and provided with an extension or projecting chamber, springs controlling said oil-chamber, a top or cover arranged on said oil chamber, means for securely fastening said top to the oil—and axle chamber, a lubricating wheel arranged in the oil chamber and means for transmitting the motion from the axle to said lubricating wheel, all said parts substantially as described and for the purposes set forth.

3. In a car axle box, the combination with the box and axle, of a pin secured eccentrically to the end of said axle, an oil chamber removably arranged in said box, a lubricating wheel arranged in said oil chamber and provided with a toothed wheel, said toothed wheel being adapted to engage said pin and means for holding all said parts together, substantially as described and set forth.

4. In a car axle box, the combination with the axle and box, of a lubricating wheel arranged in said box, a spindle carrying said wheel, a toothed wheel arranged on said spindle, and a pin secured eccentrically to the end of the axle, and adapted to engage the teeth of said wheel, thus transmitting the motion of the axle to the lubricating wheel, all said parts substantially as described.

5. In a car axle box, the combination with the axle and box, of a spindle arranged in said box, a disk secured to said spindle and provided with a series of pins, a lubricating wheel secured to said pins and provided at the opposite end with a disk, a sleeve secured to or made integral with said disk and adapted to slide on said spindle, said sleeve being provided with a series of grooves or recesses, a cap secured to the extending end of the spindle and provided with corresponding projections, adapted to engage the recesses of the sleeve, and means for transmitting the motion from the axle to the said spindle and lubricating wheel, all said parts being arranged and adapted to operate substantially as described and for the purposes set forth.

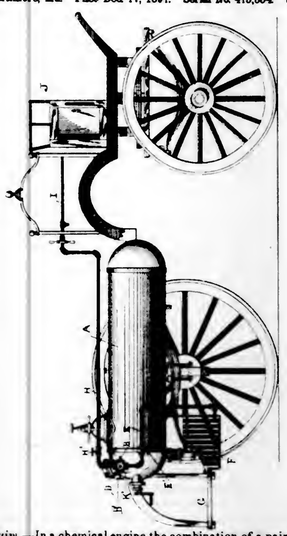
493,027. METHOD OF MAKING PIANO OR ORGAN KEYBOARDS. SAMUEL J. HODGSON, New Haven, Conn. Filed Dec. 5, 1892. Serial No. 454,058. (No model.)



Claim.—1. A method of making key-boards, consisting in securing two key-boards together, back and back, then applying successive coats of a finishing composition to them, and drying each coat separately, then separating and finishing them, substantially as described.

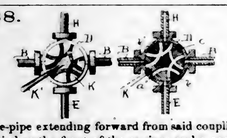
2. A method of making key boards, consisting in securing two boards together, back to back by bibulous material saturated with a soluble adherent, then applying successive coats of a finishing composition to them, and drying each coat separately, and then separating and finishing the boards, substantially as described.

493,028. CHEMICAL FIRE-ENGINE. CHARLES T. HOLLOWAY, Baltimore, Md. Filed Dec. 17, 1891. Serial No. 415,354. (No model.)

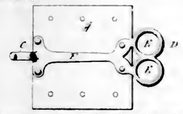


Claim.—In a chemical engine the combination of a pair of tanks; a pipe leading out of the rear end of each; a coupling between said pipes; a rear discharge-pipe extending downward from said coupling to connect with the hose carried at the rear end of the engine; a front discharge-pipe extending forward from said coupling to connect with hose carried at the front of the engine; and a cock or valve in said coupling having passages so arranged that communication may be had between any two adjacent pipes, between two pairs of adjacent pipes, or between any three pipes, substantially in the manner described.

493,028.



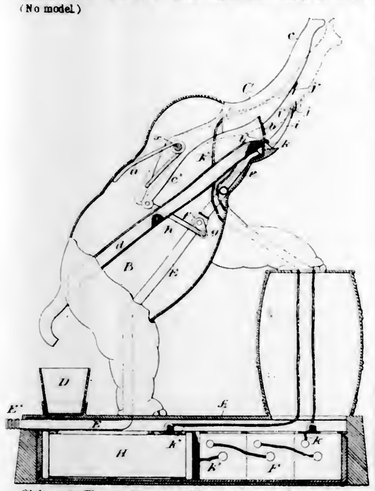
493,029. CURRYCOMB. GEORGE M. HUBBARD, New Haven, Conn., assignor to W. & E. T. Fitch, same place. Filed Aug. 15, 1892. Serial No. 443,085. (No model.)



Claim.—1. In a curry-comb of the class described, the combination therewith of a thumb-grasp C, upon one edge, and a loop D, upon the opposite edge, the said loop extending from the back of the comb, obliquely outward, and so as to project beyond the edge of the comb, the said loop being adapted for the insertion of the fingers, and so as to form a guard therefor and a knocker for clearing the comb, substantially as and for the purpose described.

2. In a curry-comb of the class described, the bar F, extending across the back, and secured thereto, the bar terminating at one end in a thumb-grasp C, and at the other end in a loop projecting beyond the edge of the comb, and inclined outwardly, the said loop being adapted for the insertion of the fingers, and so as to form a guard therefor and a knocker for clearing the comb, substantially as and for the purpose described.

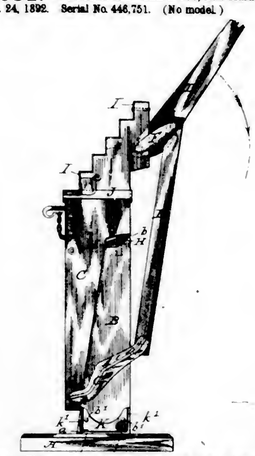
493,030. COMBINED CIGAR-CUTTER AND ELECTRIC LIGHTER. ABEL HUOT, New York, N. Y. Filed June 22, 1892. Serial No. 437,579 (No model.)



Claim.—1. The combination with a cigar cutter having an operating handle to actuate one of the cutter blades, of a gas-supply pipe provided with a cut off, intermediate mechanism between the handle and gas cut off whereby the former actuates the latter, a burner connected with said gas pipe, and an electric circuit having one of its terminals at said burner and the other carried by the operating handle and in position to make and break contact with the other terminal when the handle is operated, substantially as set forth.

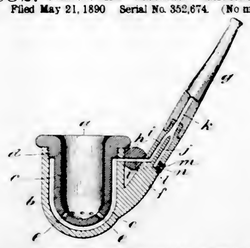
2. The combination with a cigar cutter having an operating handle to actuate one of the cutter blades, of a gas-supply pipe provided with a cut-off, intermediate mechanism between the handle and gas cut-off, whereby the former actuates the latter, two burner tips connected with branches of the gas pipe, and an electric circuit having branch terminals at the respective burners, and a two-armed terminal carried by the operating arm and in position to make and break contacts with the terminals at the burners when the handle is operated, as set forth.

493,031. WAGON-JACK. SAM S. JOY, New Market, N. H. Filed Sept. 24, 1892. Serial No. 446,751. (No model.)



Claim.—The combination with a step-piece having a series of notches or steps, of a metallic facing for said steps formed in two parts, one portion extending over all but the lower step, and having at its lower end a narrow horizontal flange, and the other comprising a collar or band extending around said step-piece and provided with a cap for the said lower step resting upon the said horizontal flange of the other portion of step-facing.

493,032. TOBACCO-PIPE. FREDERICK J. KALDENBERG, Tarrytown, N. Y. Filed May 21, 1890. Serial No. 352,674. (No model.)



Claim.—1. A tobacco-pipe, comprising a bowl and stem, said stem having a smoke-passage in it which connects with the bowl and an air-passage in it which connects at one end with the said smoke-passage and at the other end with an air-inlet in the side of the stem, which is provided with means for regulating the influx of air thereat, as set forth.

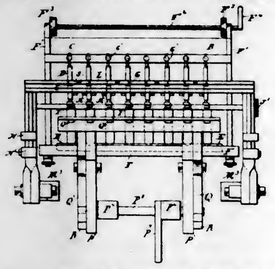
2. A tobacco-pipe, comprising an outer bowl, and an inner receptacle of less size than the hollow in the bowl, whereby an intermediate smoke-chamber is formed which extends up to the top of the outer bowl at the sides thereof, an upwardly inclined stem on the outer bowl, a supplementary stem or projection in the angle between the upper part of the bowl and said stem, said pipe having a continuous smoke-passage in said projection and stem which leads from the upper part of the said intermediate chamber to the mouthpiece of the stem, substantially as set forth.

493,033. BURNISHING-MACHINE. GEORGE B. KELLEY, Rockford, Ill. Filed July 11, 1892. Serial No. 439,588. (No model.)

two-armed lever, one of the said rows of burnishers being attached to the corresponding arms of the yokes, and the other to the uppermost arms of the said two-armed levers which are pivoted to the yokes; means for reciprocating the yokes, two cams arranged for en-

Claim.—A rigidly combined bolster and step bearing for a spinning spindle mounted on the universal pivot joint herein described, the said combined bearing having a cylindrical casing, a, and a cup, b, in the annular space for the passage of air between said casings and containing an annular expansion chamber d, a holder F, for compressed

493,033. BURNISHING-MACHINE. GEORGE B. KELLEY, Rockford, Ill. Filed July 11, 1892. Serial No. 439,553. (No model.)



Claim.—1. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two rows of handle-burnishers respectively arranged to have a series of knives so held introduced between them, two rows of blade-burnishers correspondingly arranged, and means for reciprocating the said burnishers, substantially as set forth, and whereby the opposite sides of all of the knives are simultaneously burnished.

2. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two rows of handle-burnishers arranged to have a series of knives so held introduced between them, two correspondingly arranged rows of blade-burnishers, two correspondingly arranged rows of eye-brow burnishers, and means for reciprocating the said burnishers, substantially as set forth, whereby the opposite sides of the knives are simultaneously burnished.

3. In a machine for burnishing knives, the combination with the frame thereof, of a series of holders for receiving corresponding ends of the knives, a movable holder adapted to receive the opposite ends of all of the knives, means for operating the holder last mentioned, handle and blade burnishers, and means for reciprocating the same, substantially as set forth, and whereby both sides of all of the knives are simultaneously burnished.

4. In a machine for burnishing knives, the combination with the frame thereof, of a series of independent holders for receiving the extremities of the handle-ends of a series of knives, a grooved holder for receiving the extremities of the blades of all of the knives, rods attached to the ends of the said grooved holder, and to a shaft, cams mounted on the said shaft, and a manual for rotating the said shaft whereby the grooved holder is raised and lowered by the said cams; blade and handle-burnishers, and means for reciprocating the same in contact with the knives substantially as set forth.

5. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two rows of handle-burnishers respectively arranged to have a series of knives located between them, two pairs of vertically arranged arms for supporting the said burnishers, and means for reciprocating said arms, substantially as set forth.

6. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two rows of eye-brow burnishers arranged to have the knives introduced between them, and mounted in parallel shafts geared together at one end by pinions, and means for rotating the said shafts for imparting a rocking movement to the said burnishers, substantially as set forth.

7. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two rows of handle-burnishers, arranged to have a series of knives introduced between then, two rows of correspondingly arranged eye-brow burnishers, two pairs of hinged arms carrying the said handle and eye-brow burnishers, and means for reciprocating the said arms, substantially as set forth.

8. In a machine for burnishing knives, the combination with the frame thereof, or holders for holding a series of knives by their extremities, two rows of burnishers arranged to have a series of knives introduced between them, two pairs of hinged arms carrying the said rows of burnishers, means for reciprocating the said arms, a locking lever for each pair of arms, whereby they are locked with the burnishers in their operative positions, and a guard for each pair of arms, whereby their undue separation when unlocked is prevented, substantially as described.

9. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two rows of blade-burnishers arranged for the introduction of a series of knives between them, two yokes each provided with a two-armed lever, one of the said rows of burnishers being attached to the corresponding arms of the yokes, and the other to the uppermost arms of the said two-armed levers which are pivoted to the yokes; means for reciprocating the yokes, two cams arranged for engagement with the lower arms of the said two-armed levers respectively, and means for rotating the said cams, whereby the row of burnishers carried by the upper arms of the said levers is held in position for operation or allowed to drop away from the other row of burnishers, substantially as set forth.

10. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two rows of handle-burnishers arranged for the introduction of the series of knives between them, two pairs of hinged arms for carrying the said burnishers, two rows of blade-burnishers arranged for the introduction of the knives between them, two yokes each having a pivotal two-armed lever, for carrying the respective rows of blade-burnishers, means for locking the hinged arms in their operative positions and allowing them to fall apart, means for operating the two armed levers of the yokes, whereby the row of burnishers carried by the said levers is swung toward and away from the corresponding row of burnishers, and means for reciprocating the said hinged arms and yokes, substantially as set forth.

11. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, and pivotal, spring-actuated, handle-edge burnishers arranged in pairs between the knives, substantially as set forth.

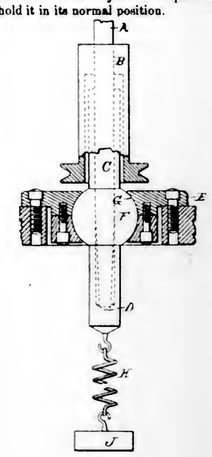
12. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two rows of burnishers arranged for the introduction of a series of knives between them, two boxes in which the said burnishers are mounted, and springs applied to the boxes and engaging with the burnishers for forcing them inward to do their work, substantially as set forth.

13. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two rows of handle-burnishers, two pairs of hinged arms for carrying the same, two rows of blade-burnishers, two yokes for carrying the same, two oscillating levers respectively connected with the pairs of hinged arms for reciprocating the same, and two oscillating levers respectively connected with the yokes for oscillating the same, substantially as set forth.

14. In a machine for burnishing knives, the combination with the frame thereof, of holders for holding a series of knives by their extremities, two parallel rows of handle-burnishers, two transversely chambered boxes for the same, two pairs of hinged arms to which the said boxes are attached, two parallel rows of blade-burnishers, two transversely chambered boxes in which the same are mounted, two yokes to which the boxes last mentioned are secured, and means for reciprocating the said hinged arms and yokes, substantially as set forth.

493,034. SPINNING-SPINDLE SUPPORT. HENRY D. KLOTS, New York, N. Y. Filed July 23, 1892. Serial No. 441,029. (No model.)

Brief.—To overcome the vibration due to an unbalanced load the bearing is mounted on a universal joint and is provided with a spring which tends to hold it in its normal position.



Claim.—A rigidly combined bolster and step bearing for a spinning spindle mounted on the universal pivot joint herein described, the said combined bearing being held in a normal position by a spring, but free to move in every direction from the said normal position against the tension of said spring and confined in said movements to area of circles all circumscribed about the one fixed center of said universal pivot joint, as hereinbefore set forth.

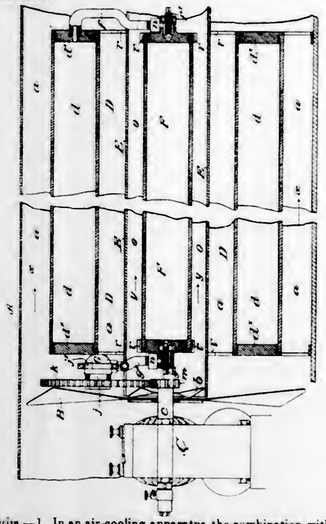
493,035. SASH-FASTENER. CHARLES KNAPP, St. Louis, Mo. Filed Oct. 6, 1892. Serial No. 447,987. (No model.)



Claim.—1. In combination with the fixed plate, a rounded extension 8 formed thereon, a right angular arm, a tubular projection 9 formed on the said arm and adapted to receive said rounded projection, lugs 4 formed on the said plate, a latch 6 passing through an opening 5 formed in the plate and pivotally attached to said lugs, a coiled spring encircling the tubular projection 9, one arm of which bears against one of said lugs 4, and the opposite arm removably attached to the depending extension 12 of said arm 10, and a bolt one end of which is removably attached to said depending extension, substantially as set forth.

2. A combined sash lift and lock having a right-angular arm, a bolt operated by the same a hook formed on the depending extension of said arm, a tubular projection also formed on said arm and a coiled spring encircling the said tubular projection one arm of which is adapted to be received by the hook carried by the angular arm, substantially as set forth.

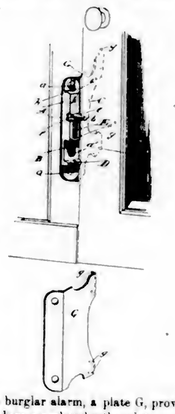
493,036. AIR CIRCULATING AND COOLING DEVICE. ROBERT LESLIE, New York, N. Y. Filed Apr. 23, 1892. Serial No. 430,315. (No model.)



Claim.—1. In an air-cooling apparatus, the combination with an outer tubular casing A, an inner tubular casing E, a tubular receptacle D, arranged in the annular space between said casings and containing an expansion chamber *d*, a tubular holder F, for compressed gases, arranged within the inner casing E, and connected at one end with the chamber *d*, a compression pump, G, connected on the induction side with chamber *d*, and on the eduction side with the holder F, a motor for operating said pump, and means substantially as described for causing a current of air to flow through said casing and about the receptacle D, as set forth.

2. In an air-cooling device, the combination with an exterior casing A, and an interior casing E, of a tubular receptacle arranged in the annular space for the passage of air between said casings and containing an annular expansion chamber *d*, a holder F, for compressed gases, arranged within the inner casing E, and connected with the chamber *d* at one end, a compression pump connected on the induction side with the chamber *d*, and on the eduction side with the holder F, and a motor for operating said pump.

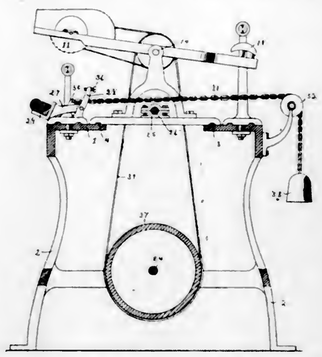
493,037. BURGLAR-ALARM. THOMAS H. LOVELL and GEORGE BUCKINGHAM, Cleveland, Ohio. Filed July 22, 1892. Serial No. 440,942. (No model.)



Claim.—1. In a burglar alarm, a plate G, provided with a bent over extremity and lugs *g g* whereby the plate may be secured between a door and its frame, in combination with a metallic case A inclosing a spring actuated hammer B, provided with a pin *b* the said case being secured to the bent over portion of the plate G, in such a position as to cause the pin to be struck and the hammer released when the door is opened, substantially as set forth.

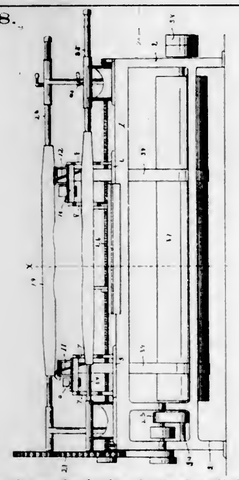
2. In a burglar alarm the combination of the case A provided with a striking platform and detonating cap or cartridge, a spring actuated hammer B within the case provided with a pin *b*, with a bent plate G, secured rigidly to said case A and provided with lugs *b b* and adapted to be retained by pressure between the edge of the door and case in such a position that the edge of the door will strike the pin and release the hammer when the door is opened, as and in the manner set forth.

493,038. MACHINE FOR TURNING WOODEN AXLES. CHARLES F. MILBURN and GEORGE E. BYKIT, Toledo, and JOHN C. CRABBS, Auburndale, Ohio. Filed July 18, 1890. Serial No. 359,144. (No model.)



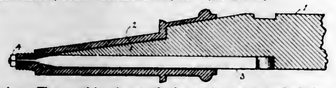
Claim.—In a lathe for turning wagon axles, the combination, with a screw-shaft and mechanism for revolving the same, of the former

493,038.



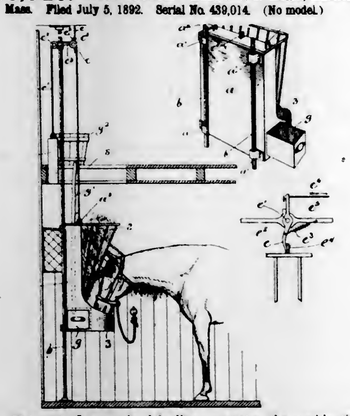
of the contour of a completed axle and a plurality of independent cutter-heads, each carrying a wabble-saw and a tracer for engaging the said former, one of the said heads being located at or near the center, whereby when the shaft is revolved one of the saws will cut from the center to the end of the axle while the other is cutting from the end to the center, thus completing an axle in one operation.

493,039. WAGON-AXLE. CHARLES F. MILBURN, Toledo, Ohio. Filed June 27, 1892. Serial No. 438,082. (No model.)



Claim.—The combination with the wagon axle and skein, of a short narrow truss bar, threaded at the outer end and provided with an eye at its inner end, said truss bar being seated in a groove in the underside of the angle and extending through the skein, the nut upon the outer end and the bolt for securing the inner end to the axle.

493,040. FEED-TROUGH. MARTIN V. B. MORSE, Marblehead, Mass. Filed July 5, 1892. Serial No. 439,014. (No model.)



Claim.—1. In an animal-feeding apparatus, the combination of a vertically sliding fodder-holder, a detent which automatically engages the holder and holds it in an elevated position, and an operating device connected with, and extending from the detent to a distant point, so that the detent may be displaced and caused to release the holder by force exerted at a point remote from the apparatus, as set forth.

2. In an animal-feeding apparatus, the combination of a vertically movable fodder-holder, a fixed vertical guide on which said holder is movable, a counterbalancing weight connected with said holder, a detent which automatically engages the holder and holds it in an elevated position, and an operating device connected with, and extending from the detent to a distant point, whereby said detent may be displaced to release the holder, as set forth.

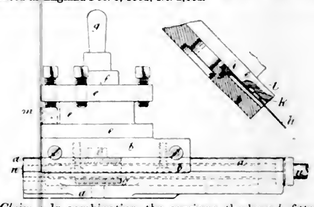
3. In an animal-feeding apparatus, the combination of a vertically sliding fodder-holder provided with a tank, means for detachably securing the holder and tank in an elevated position, and a water receptacle connected with said tank by a flexible pipe, said water receptacle being so located that the delivery end of the flexible pipe is above the receiving end when the fodder holder is raised, and below the receiving end when the fodder holder is lowered, as set forth.

4. In an animal-feeding apparatus, the combination of a vertically movable carriage, fixed guides on which said carriage is movable, elevated pulleys at the upper portions of the guides, cords connected with the carriage and passing upwardly therefrom over the pulley, counterbalancing weights connected with the cords, an elevated detent adapted to engage the carriage in its highest position, and an operating device for displacing the detent to release the carriage, as and for the purposes set forth.

5. In combination, a vertically movable carriage, a water receptacle supported by the carriage, a reservoir, a flexible connection between the reservoir and the water receptacle; counterbalancing weights connected with the carriage and a detent adapted to engage the carriage in its highest position, substantially as described.

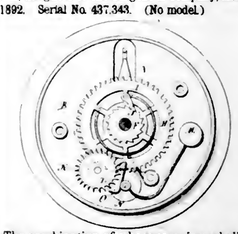
6. The improved service carriage having in combination the main supporting frame *a*, reticulated partition 2 dividing the rear portion of the frame into a hay chamber, a grain chamber 3 formed by the lower portion of the frame, and a sliding tank *g*, all as and for the purposes set forth.

493,041. TOOL-REST FOR LATHES. ALFRED MUIR, Manchester, England. Filed Mar. 17, 1892. Serial No. 425,294. (No model.) Patented in England Feb. 3, 1892, No. 2,082.



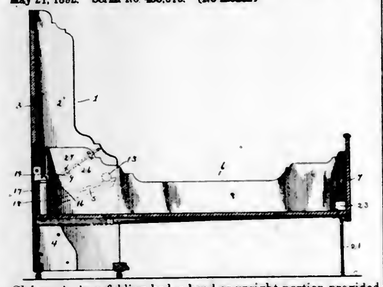
Claim.—In combination, the carriage, the base *b*, fitted thereto and having a central opening, a flanged nut *c*, secured in said opening and extending above the base, the rest *e*, having a central opening adapted to the upper projecting part of the nut *c*, and seats about its sides for the tools, the collar *f*, at the upper end of the opening in the rest the clamping screw *g*, passing through the said collar and into the nut *c* and the spring arm stop between the rest and base, substantially as described.

493,042. BELL. ALBERT A. PAGE and WILLIAM E. SPARKS, New Haven, Conn., assignors to the Sargent & Company, same place. Filed June 20, 1892. Serial No. 437,343. (No model.)



Claim.—The combination of a base carrying a bell, a clock-work composed of a main-spring and mechanism for imparting vibration to the hammer-arbor, an arbor of the said mechanism constructed with an angular shaped collar, a lever arranged to swing in a plane parallel with the axis of said arbor, and constructed with a slot corresponding to said angular collar, a spring the tendency of which is to throw the said slotted lever into engagement with the said collar of the shaft and yieldingly hold it in such connection, the lever being adapted to be turned upon its fulcrum out of engagement with said arbor, substantially as and for the purpose described.

493,043. FOLDING BED. ROBERT PIPER, Toledo, Ohio. Filed May 21, 1892. Serial No. 433,816. (No model.)

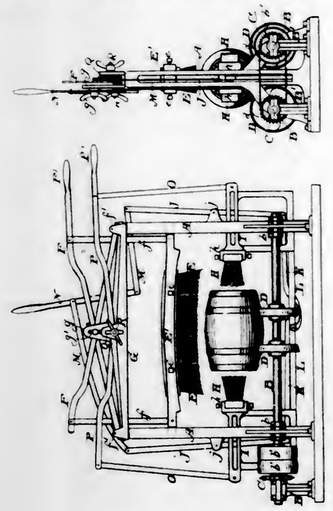


Claim.—1. In a folding bed, a head or upright portion provided with a substantially vertically curved track, and a rearward and downwardly inclined supporting track, in combination with bed having traveler and supporting wheels abutting against and running on the traveler and supporting tracks, respectively.

2. In a folding bed, a head or upright portion provided with a substantially vertically traveler track and a supporting track inclined downwardly toward the rear, a bed having traveler and supporting wheels abutting against and running on the traveler and supporting tracks respectively, in combination with pockets for weights on the head of the bed said weights having a fastening device to secure them in the pockets.

3. In a folding bed, a head or upright portion provided with traveling and supporting tracks, a bed having traveler and supporting wheels, and a locking mechanism for one of the supporting wheels comprising a sliding rod formed with a curved catch upon the inner end adapted to frictionally engage with the wheel when the rod is lowered, or to be withdrawn by the vertical movement of the rod.

493,044. BARREL-WASHER. JOSEPH SCHMIDT, Cleveland, Ohio. Filed Apr. 28, 1892. Serial No. 431,067. (No model.)



Claim.—1. In a barrel scrubbing machine the combination with standards A A and crosshead G of brush holder F having its ends adjustably supported in the guides in standards A A, links *f f* connecting it with levers F F, having their ends fulcrumed at *f*, *f*, at the ends of the crosshead G, and their middle parts adjustably held in slotted arm *g* on the crosshead by a clamp bolt and nut *g'*, substantially as described and for the purpose set forth.

2. In a barrel scrubbing machine the combination with the supporting standards A A of the end brush holding frames I I, adjustably coupled together by the lapping bars L L, levers J J, fulcrumed at *j j* to the standards, their lower ends connected by links K K with the bars L L, and their upper ends connected by links M M with handle lever N fulcrumed to the cross head G, and adapted for adjusting the end brushes H H, as and for the purpose specified.

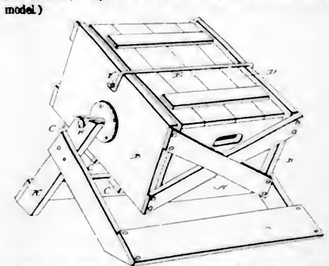
3. In a barrel scrubbing machine the combination with the end brush frames I I, of the links O O, connecting them with levers P P, adjustably fulcrumed to the cross head G, for elevating and adjusting the end brushes H H to different levels, as and for the purpose specified.

493,045. SIGN. CHARLES SCHWARTZ, Brooklyn, N. Y. Filed Sept. 23, 1892. Serial No. 446,693. (No model.)



Claim.—The combination of a background having embossed letters and an embossed frame and flaps, with a flexible sheet secured to the background by the embossed flaps, substantially as specified.

493,046. DEVICE FOR SHAKING CRATED BOTTLES. PERRY H. SHUMWAY, Corry, Pa. Filed Oct. 15, 1892. Serial No. 449,018. (No model.)



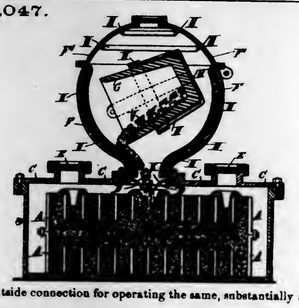
Claim.—An apparatus for shaking crated bottles consisting of a supporting frame, a revoluble frame, composed of parallel side pieces which are connected at their ends and lower edges and each of which is provided with a laterally projecting trunnion adapted to fit in bearings formed in the supporting frame, said frame being adapted to receive a bottle holding crate, and a removable cover adapted to be fitted between the parallel sides of the revoluble frame and operate to hold a bottle receiving crate in position therein, substantially as and for the purpose described.

493,047. APPARATUS FOR CASTING METALS. WILLIAM S. SIMPSON, London, England. Filed Sept. 15, 1892. Serial No. 445,992. (No model.) Patented in England July 20, 1892, No. 13,298; in France July 25, 1892, No. 209,991; in Germany July 26, 1892, No. 13,702, and in Belgium July 28, 1892, No. 76,207.

Claim.—1. In combination, the mold chamber, the subsidiary chamber above the same, the fusible diaphragm between the chambers normally separating the same, the independent suction pipe connections to the two chambers whereby each may be exhausted of air and gases independently of the other and the tilting ladle arranged in the subsidiary chamber, substantially as described.

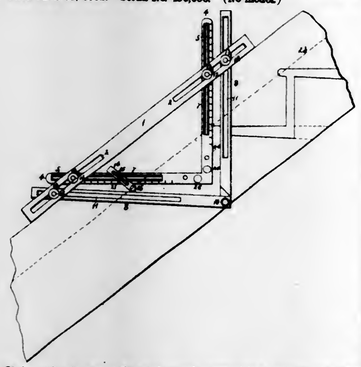
2. In combination, the mold chamber, the subsidiary chamber, communicating therewith, the suction pipe connections, the tilting ladle in the subsidiary chamber with means for operating the same extending through an air tight bearing to the outside, and the vertically reciprocating stirrer extending into the tilting ladle and hav-

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ing an outside connection for operating the same, substantially as described.

493,048. PITCH-BOARD. CYRENUS G. VAN ALSTINE, Rockford, Ill. Filed June 13, 1892. Serial No. 436,630. (No model.)



Claim.—1. A square for stair work comprising a rigid right angle bar, an angled-bar adjustable at its angle and a cross bar for holding the right angle bars in position.

2. A square for stair work comprising a rigid right angled bar, an angled bar adjustable at its angle and a cross bar for holding the right angled bars in position, said cross bar provided with slots arranged at right angles to each other.

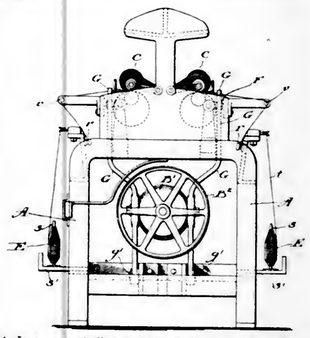
493,049. CONE-WINDING MACHINE. ISAAC WALKER, Philadelphia, Pa. Filed Apr. 13, 1892. Serial No. 428,963. (No model.)

Brief.—A series of cones is provided on each side of the machine, both series being driven by means of pulleys and bands from the same central shaft. On this shaft is fixed a cam which operates two levers, each of which connects with a thread-guide rod.

Claim.—1. In a cone winding machine a main frame, a single combined cam and pulley shaft properly longitudinally journaled in said frame, cam and pulleys secured to said shaft, two series of cones and drums provided in the proper part of said frame on either side thereof, said cones and drums being independently journaled to said frame, longitudinal thread guide rod for each series of cones, said thread guide rods adapted to reciprocate horizontally in suitable bearings attached to the machine, upright cam rods pivotally secured at the lower end to the frame of the machine one for each thread guide rod and linked or jointed at the upper end to said horizontal thread guide rod, said cam rods connected with and operated by said cam provided on the main shaft of the machine, eyes or guides provided upon said thread guide rod for the passage of the thread, thread supporting devices and means for connecting and operating the various parts substantially as described.

2. In a cone winding machine a main frame, a main central cam shaft, cam or cams provided thereon for operating thread guide rods said thread guide rods mounted in suitable bearings longitudinally and a connecting cam rod on each side of the machine pivoted at its lower end and operated by the said cam provided on the main shaft to reciprocate said thread guide rods, two or more series of drums and cones independently journaled to the frame of the machine, each cone being mounted above its respective drum and frictionally operated thereby, each of said drums provided with a pulley, pulleys provided on the main shaft for operating said drums, thread supports and guides and means for actuating the device, substantially as described.

3. In a cone winding machine provided with two or more series of winding cones a single centrally located longitudinal cam shaft journaled in the frame of the machine and pulleys provided thereon in numbers according to the number of cones; a circumferentially grooved cam provided upon said main cam shaft, upright cam rods pivoted to the frame of the machine, one on each side connected with and operated by said cams horizontally disposed reciprocating thread-guide-rods mounted in the frame of the machine and attached to said upright cam rod and operated thereby, guides provided upon said thread-guide-rod and supports and tension device for regulating the feed of the thread, frictional drums journaled to the frame of the machine beneath each respective cone for frictionally operating the same and pulleys provided upon said drums for connecting with the pulleys upon the main shaft, and bearings and mechanism substantially as described.



4. In a cone winding machine having two series of cones, a centrally disposed longitudinal main cam shaft said shaft carrying the cam, the main driving pulleys and the cone-actuating pulleys, horizontal reciprocating thread-guide-rods provided in bearings in the frame of the machine one for each series of cones, upright cam-rods pivoted to the frame of the machine connected with one of said thread-guide-rods and operated by the cam provided upon the main shaft, thread supports and guides, substantially as described.

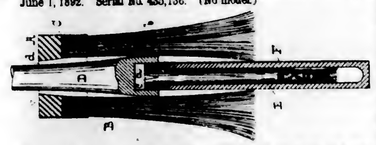
5. In a cone winding machine a frame, A, centrally located, longitudinal cam shaft, B, journaled in said frame, said shaft provided with the cam, B', two series of winding cones and drums independently journaled to said frame, pulleys, *p*, provided upon said main cam shaft one to each drum of each series for operating the same through the medium of cords or belts, horizontally disposed reciprocating thread-guide-rod, R, one to each series of cones, upright cam rod, G, linked or pivoted to said horizontal rod, R, and pivoted at its lower end to the frame of the machine, said cam, B', provided on said shaft, B, engaging with the pivoted upright cam rod, G, for reciprocating the rod, R, thread guides provided upon the rod, R, tension device and thread supports, and means for operating the machine, substantially as described.

6. In a cone winding machine, frame, A, centrally journaled cam shaft, B, two series of cones, C, and drums, D, each independently journaled to the said frame, said cones, C, frictionally adjusted upon and operated by said drums, D, pulleys, *p*, provided upon the main cam shaft, B, pulleys, *d*, provided on each drum, D, horizontally disposed reciprocating thread-guide-rod, R provided in bearings to the frame, upright cam rod, G, connecting therewith and pivoted to the frame of the machine at its lower end, cam, B, irregularly grooved upon its outer circumference and provided upon the main shaft, B, connected with and operating the upright cam-shaft, G, for reciprocating the thread guide rod, R, thread guides provided upon and carried by the rod, R, one to each cone for guiding the thread thereon, vertical spindles, *s*, for supporting the thread spools or cops, E, and pulleys and bearings for regulating the tension of the feed of the thread to the cones and mechanism for operating the device substantially as described.

7. In combination with a cone winding machine its actuating mechanism and operative parts, a double acting cam provided on the

shaft with the driving pulleys, said cam constructed to operate two upright cam rods pivoted to the frame of the machine at one end and connected at the other end each respectively with a thread guide rod in the manner and for the purpose substantially as set forth.

493,050. BRUSH. ALEXANDER C. WRIGHT, Baltimore, Md. Filed June 1, 1892. Serial No. 435,136. (No model.)

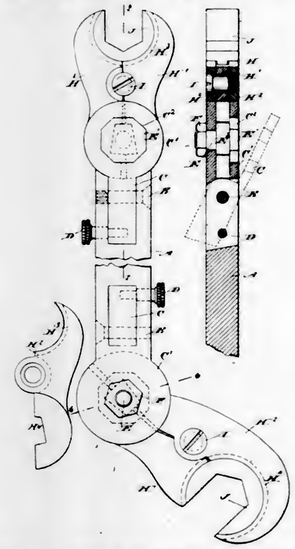


Claim.—1. In a paint brush of the description set forth, the handle provided with a cylindrical cavity and the center tuft with a soft metal thimble which is inserted in the said cavity and expanded or "upset" therein, substantially as specified.

2. In a paint brush of the description set forth, the handle provided with a metal ferrule which projects beyond the end of the wood thereby forming a cylindrical cavity, and the center tuft with a soft metal thimble which is inserted and expanded in the said cavity, substantially as specified.

3. In a paint brush of the description set forth, the wood handle having an internally threaded ferrule screwed thereon which projects beyond the end of the wood, whereby a cylindrical cavity is produced, and the center tuft with a soft metal thimble which is driven into the said cavity and expanded therein substantially as specified.

493,051. WRENCH. WALFRID A. ABERG, New Westminster, Canada, assignor to himself and Henry F. Heimerle, same place. Filed May 16, 1892. Serial No. 433,232. (No model.)



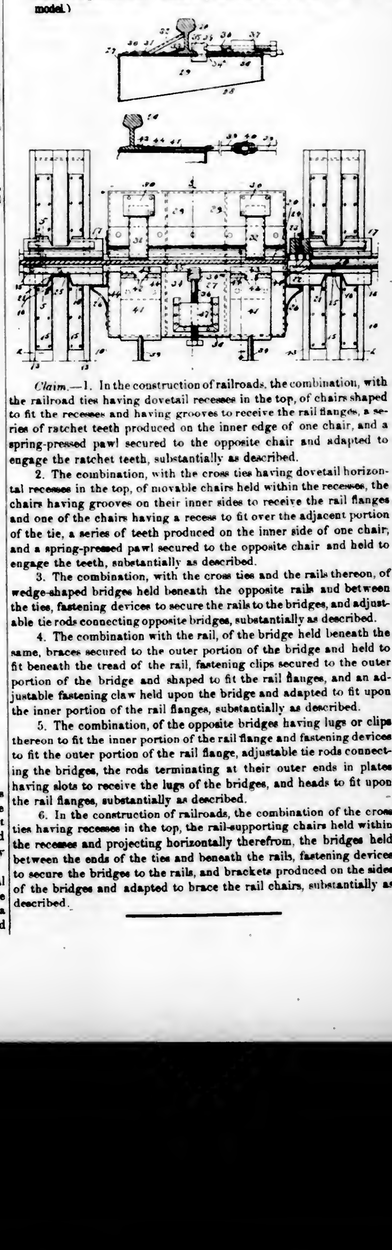
Claim.—1. A wrench having a swinging head provided at its axis with a polygonal head and a locking arm pivoted to the handle to swing outwardly from the side of the handle in a plane at right angles to that of the wrench head and engaging said polygonal head to lock it and the wrench head in any desired position, substantially as set forth.

2. A wrench provided with a swinging head having a polygonal head at its axis, an outwardly swinging locking arm pivoted to the handle at right angles to the axis of the wrench head and having a polygonal opening at one end to receive the said polygonal head and lock it, and means for locking the swinging arm in place, substantially as set forth.

3. A wrench, comprising a head formed of two members pivoted together at the middle portions of their inner edges, formed with an open socket between the inner edges of their outer ends and diverging at their inner edges below their pivot, registering polygonal recesses in said diverging edges, a jaw seated in said socket, and a handle provided with an adjustable pivot bolt having a polygonal offset fitting in the said recesses, substantially as set forth.

4. A wrench, comprising a handle provided with a laterally swinging locking arm having a polygonal opening; a pivot bolt having a polygonal head fitting said opening and a polygonal offset at the inner side of the said head, and a wrench head formed of two members pivoted together between their ends and recessed on their inner diverging ends below the pivot to fit said offset and having a grooved open socket between their outer ends, and an externally ribbed jaw held removably in said socket, substantially as set forth.

493,052. CONSTRUCTION OF RAILROADS. ELIPHALET L. ARNOLD, Georgetown, Tex. Filed July 11, 1892. Serial No. 439,571. (No model.)



Claim.—1. In the construction of railroads, the combination, with the railroad ties having dovetail recesses in the top, of chairs shaped to fit the recesses and having grooves to receive the rail flanges, a series of ratchet teeth produced on the inner edge of one chair, and a spring-pressed pawl secured to the opposite chair and adapted to engage the ratchet teeth, substantially as described.

2. The combination, with the cross ties having dovetail horizontal recesses in the top, of movable chairs held within the recesses, the chairs having grooves on their inner sides to receive the rail flanges and one of the chairs having a recess to fit over the adjacent portion of the tie, a series of teeth produced on the inner side of one chair, and a spring-pressed pawl secured to the opposite chair and held to engage the teeth, substantially as described.

3. The combination, with the cross ties and the rails thereon, of wedge-shaped bridges held beneath the opposite rails and between the ties, fastening devices to secure the rails to the bridges, and adjustable tie rods connecting opposite bridges, substantially as described.

4. The combination with the rail, of the bridge held beneath the same, braces secured to the outer portion of the bridge and held to fit beneath the tread of the rail, fastening clips secured to the outer portion of the bridge and shaped to fit the rail flanges, and an adjustable fastening claw held upon the bridge and adapted to fit upon the inner portion of the rail flanges, substantially as described.

5. The combination, of the opposite bridges having lugs or clips thereon to fit the inner portion of the rail flange and fastening devices to fit the outer portion of the rail flange, adjustable tie rods connecting the bridges, the rods terminating at their outer ends in plates having slots to receive the lugs of the bridges, and heads to fit upon the rail flanges, substantially as described.

6. In the construction of railroads, the combination of the cross ties having recesses in the top, the rail-supporting chairs held within the recesses and projecting horizontally therefrom, the bridges held between the ends of the ties and beneath the rails, fastening devices to secure the bridges to the rails, and brackets produced on the sides of the bridges and adapted to brace the rail chairs, substantially as described.

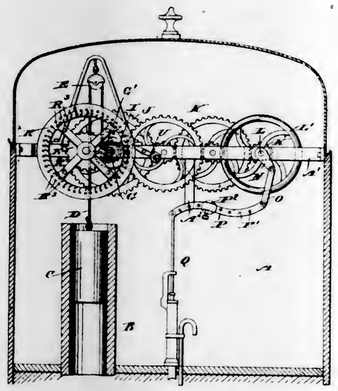
493,053. WEIGHT-MOTOR. JOHN G. BALL, Chesterville, Ohio. Filed June 3, 1892. Serial No. 435,366. (No model.)

493,054.

bars 1, having their rear ends beveled, with the cap piece 6, having an overhanging air deflecting flange 7, and the bottom supporting bar 4, substantially as set forth.

with the warp beam, a pinion in the said train of gear wheels and adapted to be thrown in or out of mesh therewith, and a lever carrying the said pinion, substantially as shown and described.

493,053. WEIGHT-MOTOR. JOHN G. BALL, Chesterville, Ohio. Filed June 3, 1892. Serial No. 435,366. (No model.)



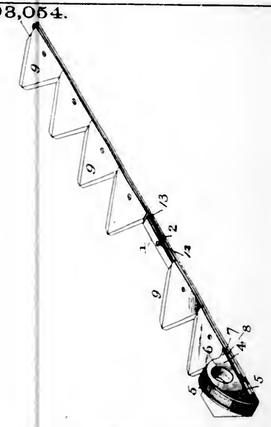
Claim.—1. The combination, with train of operating gearing, of a time wheel rotated therefrom, and a latch or detent to engage and stop the wheel and thus cause the gearing to cease operation at the end of any predetermined length of time, substantially as set forth.

2. A motor comprising a drum, a rope adapted to be wound thereon, a weight held on the said rope, a ratchet wheel carried by the said drum, a gear wheel mounted to rotate loosely on the shaft of the said drum and carrying a spring-pressed pawl engaging the said ratchet wheel, a train of gear wheels connected with the said drum shaft gear wheel, a crank arm held on the shaft of the said train of gear wheels, a lever connected at one end with the machinery to be driven and at its other end connected by a pitman with the said crank arm, a time wheel held on the said drum shaft and adapted to carry an adjustable pin, and a latch or detent mounted to move in or out of the path of the said pin, substantially as shown and described.

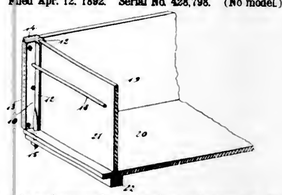
3. A motor comprising a drum, a rope adapted to be wound thereon, a weight held on the said rope, a ratchet wheel carried by the said drum, a gear wheel mounted to rotate loosely on the shaft of the said drum and carrying a spring-pressed pawl engaging the said ratchet wheel, a train of gear wheels connected with the said drum shaft gear wheel, a crank arm held on the shaft of the said train of gear wheels, a lever connected at one end with the machinery to be driven and at its other end connected by a pitman with the said crank arm, a time wheel held on the said drum shaft and adapted to carry an adjustable pin, a latch or detent mounted to move in or out of the path of the said pin, and a second pin for holding the said lever in place, substantially as shown and described.

4. The combination, with the train of operating gearing, of the time wheel rotated therefrom and having an adjustable pin on its rim, and a latch or detent movable into and out of the path of said pin, to lock the time wheel and the gearing and prevent further rotation substantially as set forth.

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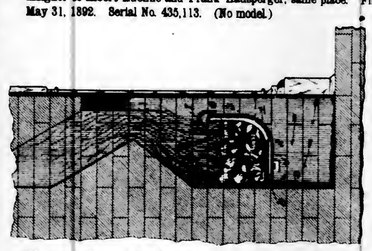


493,055. WAGON-BOX STRAP. GODFREY W. BAUDER, Sheldon, Iowa. Filed Apr. 12, 1892. Serial No. 428,798. (No model.)



Claim.—As an improved article of manufacture, the wagon-box strap composed of a body 10, having the longitudinal parallel ribs, 12, on its inner side and near one edge, the longitudinal end flange, 13, and horizontal top flange, 14, both projecting on the side opposite the said ribs, and a foot portion adapted for securing the device to a wagon box, all the parts being formed in one piece, as shown and described.

493,056. FIRE-GRATE. CHARLES W. BEEHLER, St. Louis, Mo., assignor to Albert Kuehne and Frank Hausperger, same place. Filed May 31, 1892. Serial No. 435,113. (No model.)



Claim.—1. In a tubular fire grate, the combination of the hollow grate bars 1, composed of horizontal portion 2, and vertical portion 3, with the cap piece 6, having an overhanging air deflecting flange 7, substantially as set forth.

2. In a tubular fire grate, the combination of the hollow grate bars 1, with the cap piece 6, having an overhanging air deflecting flange 7, and the bottom supporting bar 4, having a series of recesses 5, to receive the grate bars, substantially as set forth.

3. In a tubular fire grate, the combination of the hollow grate bars 1, with the cap piece 6, having an overhanging or deflecting flange 7, the bottom supporting bar 4, and the corrugated back wall 9, substantially as set forth.

4. In a tubular fire grate, the combination of the hollow grate

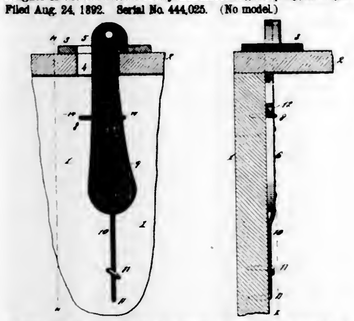
493,054. MOWING-MACHINE CUTTER-BAR. ISAAC F. BARNFORD, Milwaukee, Wis., assignor of one-half to Adolph Docter, same place. Filed Oct. 3, 1892. Serial No. 447,650. (No model.)



Claim.—The combination with a cutter-bar having a horizontal rectangular groove, a series of screw-threaded apertures, a lug near its outer end, and the blades having apertures therein, and rectangular ribs upon their undersides, of the curved block having an eye, the extension, the cut-away portion and the flanges forming a groove to receive the bent over end of the cutter-bar, substantially as described.

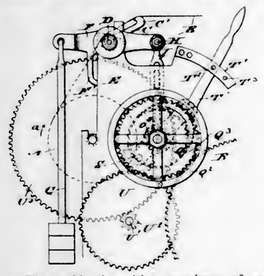
bars 1, having their rear ends beveled, with the cap piece 6, having an overhanging air deflecting flange 7, and the bottom supporting bar 4, substantially as set forth.

493,057. BOX-FASTENER. CHARLES W. BEEHLER, St. Louis, Mo., assignor to the American Novelty Manufacturing Company, same place. Filed Aug. 24, 1892. Serial No. 444,025. (No model.)



Claim.—The combination of a hook adapted to engage a plate secured to the lid of the box, and a spring; said hook being supported by said spring and being formed with a groove in its lower end to receive the spring; substantially as and for the purpose set forth.

493,058. LET-OFF MECHANISM FOR LOOMS. JEREMIAH C. BILL, Willimantic, Conn. Filed Apr. 21, 1892. Serial No. 430,042. (No model.)

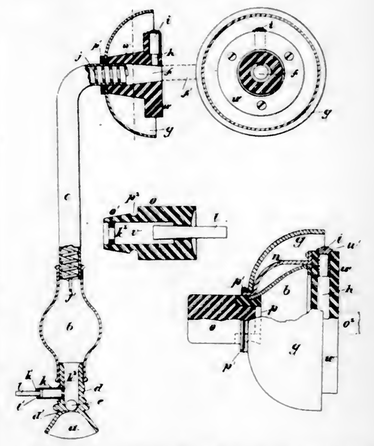


Claim.—1. The combination with a warp beam, of a continuous rotary friction disk, a second friction disk mounted to slide on its shaft, and provided with a gear wheel on its hub, gearing between the warp beam and the gear wheel of the sliding friction disk, a pivoted arm over which the warp threads pass, forwardly and rearwardly projecting arms secured to one of the pivots of the first named arm, a weight carried by the rear arm, a pivoted lever, a rod connecting the lever with the forwardly projecting arm, and a sliding connection between the said lever and the sliding friction disk, substantially as described.

2. In a let-off mechanism for looms, the combination with a pivoted and counterbalanced arm over which the warp threads pass, of a lever connected with the said weighted arm, a pin mounted to slide and engaged by the said lever, a plate engaged by the said pin, a friction wheel adapted to be pressed on by the said plate and connected with the warp beam, a second friction disk having a continuous rotary motion adapted to be engaged by the first named friction disk, a train of gear wheels connecting the said first-named friction disk with the warp beam, and a pinion in the said train of gear wheels and adapted to be thrown in or out of mesh therewith, substantially as shown and described.

3. In a let-off mechanism for looms, the combination with a pivoted and counterbalanced arm over which the warp threads pass, of a lever connected with the said weighted arm, a pin mounted to slide and engaged by the said lever, a plate engaged by the said pin, a friction wheel adapted to be pressed on by the said plate and connected with the warp beam, a second friction disk having a continuous rotary motion adapted to be engaged by the first named friction disk, a train of gear wheels connecting the said first named friction disk with the warp beam, a pinion in the said train of gear wheels and adapted to be thrown in or out of mesh therewith, and a lever carrying the said pinion, substantially as shown and described.

493,059. SPEAKING-TUBE APPARATUS. JOHN W. BLACK, Glasgow, Scotland. Filed Apr. 28, 1891. Serial No. 390,823. (No model.) Patented in England Apr. 11, 1891, No. 6,195.



Claim.—1. In a pneumatic signaling or speaking tube apparatus, a collapsible rubber chamber *b* having its mouthpiece of soft rubber made in one piece therewith, in combination with a rim or valve seat inserted in said mouthpiece and held therein by engagement with the walls of the mouth-piece, and a valve working therein, substantially as and for the purposes set forth.

2. In a pneumatic or speaking tube apparatus, the combination with the tube, of the hollow conoidal collapsible compressing chamber, and a detachable two part push button inserted in said chamber and having the portion lying within the chamber expanded to bear against the inside face of the chamber, said collapsible chamber being adapted to be used as a speaking mouth piece when one part of said push button is detached, substantially as and for the purposes set forth.

3. A press button made in two parts *o*, *p*, the part *o* fitting removably into the part *p*, which latter is secured into the collapsible chamber, substantially as and for the purpose set forth.

4. In apparatus of the class set forth a press button (*o*) made hollow and having an indicator (*l*) working therein substantially as hereinbefore set forth with reference to Fig. 7 of the drawings annexed.

5. In a pneumatic signaling or speaking tube apparatus, the combination with the socket piece having the channel *b'*, of the piston fitting in said channel, the spring arranged with a portion in front of said chamber and piston to be struck and vibrated by said piston when projected and the index or disk connected with said spring, and actuated when the spring is struck by said piston substantially as and for the purposes set forth.

493,060. WINDMILL. CHARLES R. BOWMAN, San Angelo, Tex. Filed Aug. 22, 1892. Serial No. 443,755. (No model.)

Claim.—1. A wind wheel consisting of a hub, a rim, blades held in said hub and rim each alternate blade being substantially L-shaped in cross section each alternate intermediate blade being practically flat and arranged at an angle to the L shaped blades and a ring holding the inner ends of the main portions of the blades, as set forth.

2. The combination with the standards and the horizontal frame work thereon, of the wind wheels journaled one near each end of said frame work, sprocket wheels on the shafts of the wheels, the crank disk mounted on the standards and having sprocket wheel on its shaft, the horizontal sprocket chain running over all of said sprocket-wheels, the pump rod, and connections between the same and the disk, the tail vane and the spring connected at one end to the tail vane and at the other to the frame work, substantially as shown and described.

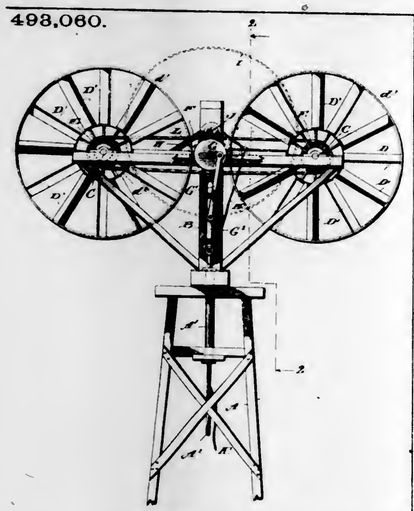
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cut away to provide two angular faces 6 and 7, and said face 7 being located in the same plane with the rear wall 3 of said notch or open slot, and a pointer or pin secured to said body piece and located le-

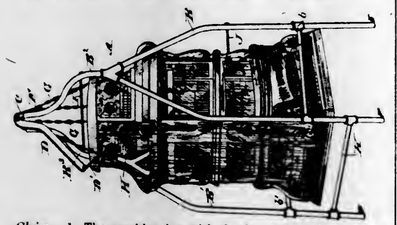
front cross bar of the main frame, the seat mounted thereon, the laterally movable plow lever M for adjusting it and the drive mechanism for operating the dropping devices, geared with the large drive wheel,

anism in connection therewith adjacent to the cutting mechanism, for stopping the travel of the boards on said frames, said parts being combined substantially as described.

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493,061. LIFTING DEVICE. WILLIS L. BROWN, Lake Geneva Wis. Filed July 12, 1892. Serial No. 439,787. (No model.)



Claim.—1. The combination with the frame formed of two sets of legs, a cross piece, K, pivotally connecting the lower ends of two leg members and permitting the sets of legs to be folded together, arms projecting upwardly and inwardly from the upper ends of the sets of legs, a cross piece pivotally connecting the upper ends of said arms, and means for locking the arms when unfolded, of a lever fulcrumed on the latter cross piece and provided with depending lifting hooks, substantially as set forth.

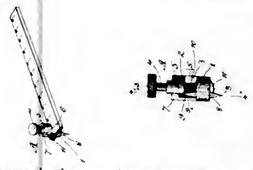
2. A lifting apparatus, comprising a frame formed of sets of legs B, B', having a connecting cross piece K, permitting them to fold together, arms B^3 at the upper ends of the legs, cross piece C on the upper ends of the arms, and the locking rods I, J, the lifting lever D having depending hooks F F' at one end, and a locking hook at its opposite end, and the chains suspended from the said hooks and provided at their lower ends with hooked plates to engage the article to be lifted, substantially as set forth.

493,062. TRAMMEL-POINT. DEMAT BRUSO, Avondale, Ill. Filed Aug. 23, 1892. Serial No. 443,913. (No model.)

Claim.—1. A trammel-point comprising a body piece having a notch or open slot in the side thereof, a set screw having its end located to pass into said notch or open slot, and a pointer or pin secured to said body piece and having its point or tip located in alignment with the rear wall of said notch or open slot.

2. A trammel-point comprising a body piece having a notch or open slot in the side thereof, a set screw passing through the overhanging portion 5 formed by said notch or slot, a straight plane face 6 upon said overhanging portion 5 and a pointer or pin secured to said body piece and located in alignment with said face 6.

3. A trammel-point comprising a body piece having a notch or open slot in the side thereof, a set screw 4 in the overhanging portion 5 formed by said notch or open slot, said overhanging portion 5 being cut away to provide two angular faces 6 and 7, and said face 7 being located in the same plane with the rear wall 3 of said notch or open slot, and a pointer or pin secured to said body piece and located beneath and in alignment within the juncture of the said angular faces 6 and 7.

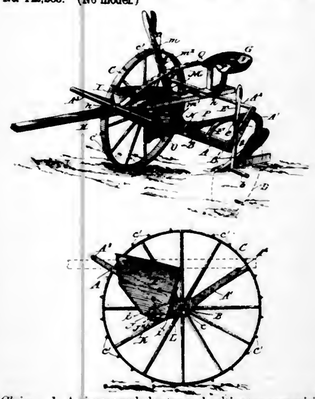


4. A trammel-point comprising a body piece provided with devices for attaching the same to a bar or other instrument, and a pointer or pin located within a slot in said body piece and carried by a spring arm or piece 9 secured to said body piece, and devices for moving said pointer or pin within said slot against its spring tension.

5. A trammel-point comprising a body piece provided with devices for attaching the same to a rod or analogous instrument, a pointer or pin 8 located within a slot 10 in said body piece and carried by a spring piece or arm 9 secured to said body piece, and an adjusting screw provided with a tapered end 12 located within a screw-threaded opening adjacent to the slot 10 and adapted to engage the said pointer or pin 8.

6. A trammel-point comprising a body piece having an open slot in one side thereof, and provided with devices for attaching the same to a rod or analogous instrument, a pointer or pin 8 located within a slot 10 and carried by a spring piece or arm 9 secured to said body piece, said slot 10 being located parallel with the rear wall of the notch or open slot in the side of said body piece, and devices for moving said pointer or pin 8 within the slot against the tension of the spring piece or arm 9.

493,063. COMBINED PLANTER AND CULTIVATOR. JOHN B. BURKE and JOHN F. BADGER, Quitman, Ga. Filed Aug. 5, 1892. Serial No. 442,285. (No model.)

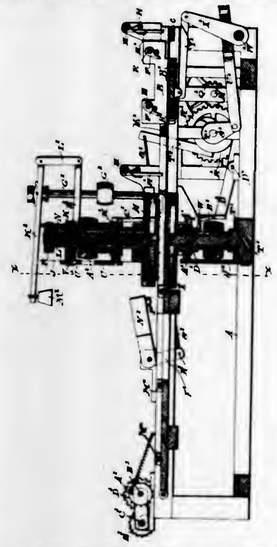


Claim.—1. An improved planter and cultivator comprising a main frame, a drive axle loosely mounted in the rear end thereof, the drive wheels loosely journaled on such axle, seed dropping devices mounted on the main frame, a tongue beam laterally adjustable on the axle and main frame, a plow lever laterally adjustable on the axle a plow pivotally supported on the lower end of such lever, the arched restraining bar on the tongue beam, a detent on the plow lever adapted to engage such bar, and mechanism driven by the drive wheel for operating the seed dropping devices, all substantially as and for the purposes described.

2. In a planter and cultivator, the combination with the main frame formed of the side bars A A the angular uprights A^3 and the cross-bars A^2, and the seed box mounted thereon, dropping devices mounted therein, of the axle B loosely mounted in the rear ends of the bars A, said axle having a crank member B', a wheel mounted on such crank end, a large drive wheel on the opposite end of such axle, a rack bar on the main frame, a lever on the crank axle, adapted to engage such bar, the tongue beam, laterally movable on the axle and front cross bar of the main frame, the seat mounted thereon, the laterally movable plow lever M for adjusting it and the drive mechanism for operating the dropping devices, geared with the large drive wheel, substantially as and for the purpose described.

3. In a planter and cultivator essentially as described, a main supporting frame, the seed dropping devices mounted thereon, in combination with a drive axle, loosely mounted in such frame, said axle having a crank member at one end, a wheel journaled on such crank member, a larger wheel journaled on the opposite end of such axle, a rack bar on the main frame and a spring lever on the crank axle adapted to engage said rack bar all substantially as and for the purpose described.

493,064. BARREL-HEAD-CUTTING MACHINE. JAMES A. CAMPBELL, New Orleans, La., assignor of one-half to John M. Lockhart, same place. Filed June 9, 1891. Serial No. 396,641. (No model.)



Claim.—1. A barrel head cutting machine having a frame, a movable feeding table thereon, a clamping head, upper and lower circular cutting heads, mechanism for stopping the board operated on, and mechanism independent of said feeding and operating mechanism for withdrawing the board from beneath said cutting mechanism, said parts being combined substantially as described.

2. A barrel head cutting machine having a frame, a feeding table movable thereon and provided with spring dogs having pawls pivoted thereon, clamping disks, upper and lower rotary heads with cutters, mechanism substantially as described for automatically stopping the board when in proper position between the cutter heads, and mechanism independent of said feeding and stopping mechanism for advancing the board from the frame when the last cut thereof is made, said parts being combined substantially as described.

3. A frame, board feeding mechanism mounted thereon, rising and falling cutting mechanism and boring mechanism mounted in said frame, mechanism for stopping the board fed to the cutting mechanism when in proper position and mechanism substantially as described connected with said frame and operated independent of the feeding mechanism for automatically removing the board from the frame when the last cut has been made thereon said boring mechanism operating to produce an opening engaged by said stopping mechanism, said parts being combined substantially as described.

4. A frame, feeding mechanism mounted thereon, cutting mechanism on said frame, boring mechanism, a stop on the frame in the rear of the boring mechanism for automatically checking the advance of the board at regular intervals, to the cutting mechanism, and adapted to engage the opening in the board made by said boring mechanism, said parts being combined substantially as described.

5. A frame, board-feeding mechanism thereon, adjustable rotary cutting mechanism located both above and below the plane of the feeding mechanism, and in rear thereof, stopping and boring mechanism in connection therewith adjacent to the cutting mechanism, for stopping the travel of the boards on said frames, said parts being combined substantially as described.

6. A frame, feeding mechanism thereon, rotary cutting mechanism on opposite sides of said feeding mechanism, boring mechanism and a stop adapted to engage the opening made by said boring mechanism, and mechanism substantially as described independent of the feeding mechanism for removing the boards fed from said frame, said parts being combined substantially as described.

7. A frame with uprights having cross bars, a hollow shaft journaled in said bars and provided at its end with a cutter head, a stem rising and falling in said collar having a clamping head at one end, weighted pivoted levers secured to said shaft and stem, a bar pivotally connected to said levers, the pivotal connection with the upper or stem lever being in a slot in said bar, a driving shaft and mechanism connected with said driving shaft and the lower or shaft lever for raising the same, said parts being combined substantially as described.

8. A frame, a rotatable hollow shaft having suitable bearings and provided with a cutter head, a weighted lever connected with said shaft, a stem in said shaft having a clamping head, a weighted lever connected with said stem, a bar slotted at its upper end and connected with said weighted levers, a vertical shaft carrying a boring tool and having a weighted lever connected therewith and bearing on said bar, a driving shaft and mechanism connected with said driving shaft and shaft lever for raising the latter and a stop adapted to engage the hole made by the boring tool, said parts being combined substantially as described.

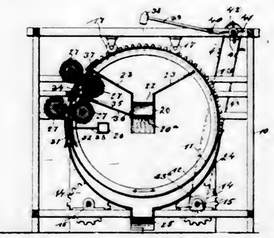
9. In a barrel head cutting machine, a frame with a movable feeding table thereon, said table having cross bars with pivoted dogs provided with spring pawls having upper and lower teeth, substantially as and for the purpose set forth.

10. A frame with a rotary shaft journaled therein, a feeding table movable thereon, a rock shaft journaled in said frame and having rigid arms pivotally connected with said table, a crank arm connected with said rotary shaft, a pitman pivoted to said crank arm and having a spring connection with a rigid arm on said rock shaft, said parts being combined substantially as described.

11. A frame, a feeding table movable thereon and having shafts with dogs thereon and rollers below said shafts, a rotary shaft, rotary cutting mechanism, a rotary boring shaft, a stop adapted to engage an opening made by the operation of said boring shaft weighted levers on said cutting and boring mechanisms, mechanisms connected with said rotary shaft for reciprocating said table, and mechanism substantially as described connected with said cutting mechanism for raising the same from the board operated on, said parts being combined substantially as described.

12. A frame with cross bars having pivoted dogs thereon, a feeding table movable on said frame and having cross bars with rollers below the same, spring dogs on said cross bars of the table with pivoted pawls having upper and lower teeth, said parts being combined substantially as described.

493,065. GRAIN-SCOURER. ARCHIBALD P. CAMPBELL, Portage la Prairie, Canada. Filed May 16, 1892. Serial No. 433,135. (No model.)

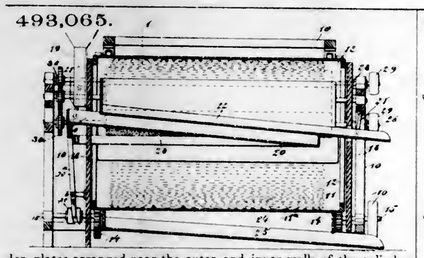


Claim.—1. A grain scourer, comprising a revoluble perforated cylinder, the perforations being adapted to receive the grain, means for delivering grain into the cylinder and for removing the same, and revoluble brushes held to impinge on opposite sides of the cylinder shell, substantially as described.

2. A grain scourer, comprising a revoluble perforated cylinder, the perforations being slightly larger on the inner side of the cylinder than on the outside, suitable means for delivering grain to the cylinder and removing it from the same, and brushes held to impinge on both sides of the cylinder walls, substantially as described.

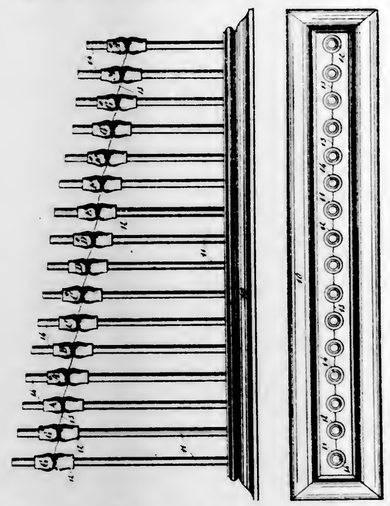
3. A grain scourer, comprising a revoluble perforated cylinder, mechanism for delivering grain into and removing it from the cylin-

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der, plates arranged near the outer and inner walls of the cylinder, and revolving brushes arranged adjacent to the plates and adapted to impinge upon the cylinder, substantially as described.

493,066. RUB-FLUTE. BALILLA CARPIGIANI, Philadelphia, Pa. Filed Dec. 19, 1892. Serial No. 455,627. (No model.)



Claim.—1. A rub flute, comprising a supporting base, a plurality of rods mounted thereon, and detachable sections arranged at the upper ends of the rods, substantially as described.

2. A rub flute, comprising a supporting base, a plurality of rods mounted thereon and terminating at their upper ends in sockets, and detachable sections adapted to rest in the sockets, substantially as described.

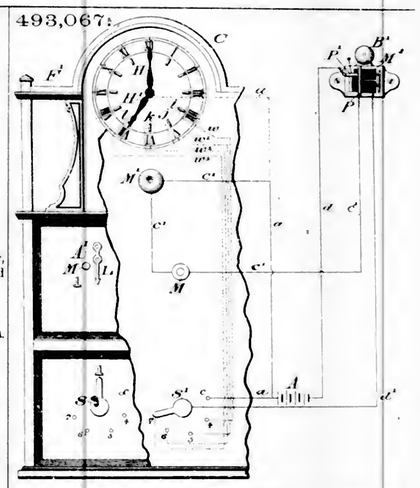
3. A rub flute, comprising a base, a plurality of parallel rods of varying lengths mounted thereon and provided with sockets at their upper ends, and detachable sections adapted to fit in the sockets, substantially as described.

4. A rub flute, comprising a supporting base, a plurality of rods extending upward from the base, sockets formed on the upper ends of the rods, detachable sections arranged to fit in the sockets, and a brace connecting the several sockets, substantially as described.

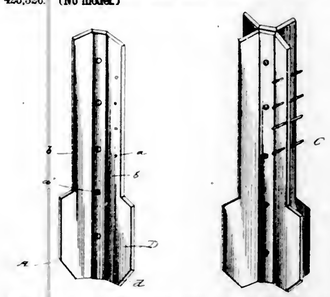
493,067. HOTEL TIME-ANNUNCIATOR. FRANKLIN S. CARTER, Burlington, N. J. Filed Aug. 15, 1892. Serial No. 443,080. (No model.)

Claim.—In a hotel guest call, the combination of an electrical circuit, including a call bell located in a guest's room, a circuit-closing arm attached to the hour hand shaft of a time mechanism, a series of short sections of conductors, each normally open at two points under the control of the contact arm, and a rotary switch respectively, with a return call circuit normally open in the guest's room and including a battery, an annunciator, an annunciator bell at the office and a point or stud for closing the circuit to its respective bell at any time, substantially as described.

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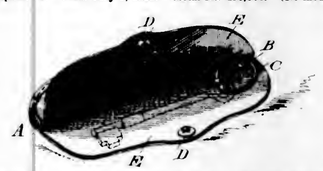


493,068. POST. JAMES W. CARVER, Pawlet, Vt., assignor of one-half to Daniel W. Bromley, same place. Filed Mar. 2, 1892. Serial No. 423,526. (No model.)



Claim.—The fence post herein described made of sheet metal and consisting of the two sections, each section having a central rib abutting and secured together, by rivets extending along almost the entire length of the ribs, wings arranged at an incline to the central ribs having the shouldered portions forming an enlarged base and having the upper and the lower inclined corners *d* to enable the posts to easily enter the ground, and one of the wings having a series of openings near its edge, and wires or bars passing through said openings to serve as fastening means for the fence wires.

493,069. KEY-POUCH. JOHN CASEY and MURRAY S. CHISM, Philadelphia, Pa. Filed July 5, 1892. Serial No. 438,861. (No model.)

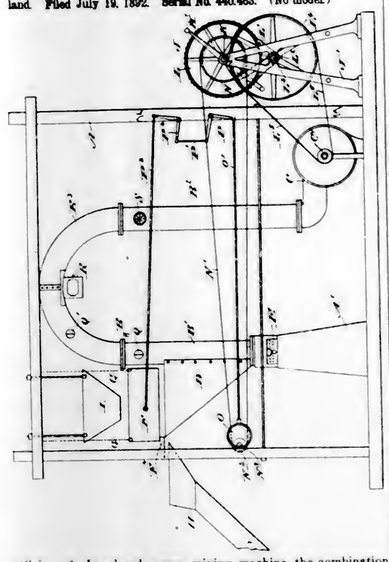


Claim.—1. A key pouch consisting of flaps open on their sides and connected at one end, and having a fastening device, the connected end having between the flaps thereof, a separating post, which also sustains a key ring, and is attached to the flaps by a rivet which passes through said post and is secured to the flaps substantially as described.

2. A key pouch formed of flaps open on their sides and connected

at one end, a fastening device and a post which is located between the flaps at the connected end thereof, and separates the same and is rigidly connected with said flaps, by means of a rivet which passes through said post and is attached to said flaps said parts being combined substantially as described.

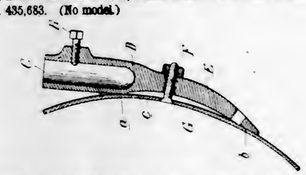
493,070. CONCENTRATOR. JOSEPH A. COOMBS, London, England. Filed July 19, 1892. Serial No. 440,463. (No model.)



Claim.—1. In a hand power mining machine, the combination with an inverted U-shaped tube, of an exhaust fan connected with one end of the said tube, a hopper connected with one side of the other leg of the tube, an agitating screen arranged over the said hopper and discharging into the same, a drawer arranged in the tube below the said hopper and having a perforated front through which air is admitted to produce eddies in the main current and to collect the valuable metal, and a box arranged in the under side of the middle portion of the said tube to collect and retain flour gold as set forth.

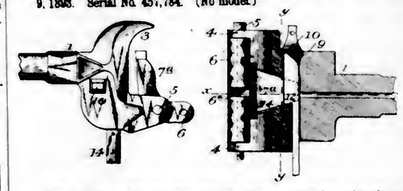
2. The improved concentrator, composed of the bent tube having the perforated front drawer E and the box R, arranged as specified, the agitating screen F, and exhaust fan C, the driving gear, and rods, levers and belts connecting the same with the screen and fan, as shown and described.

493,071. HARROW. GEORGE C. CRANE, Stony Creek, assignor of one-half to R. G. Barnes, Ypsilanti, Mich. Filed June 6, 1892. Serial No. 435,683. (No model.)



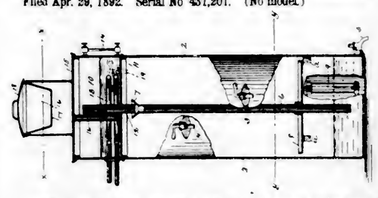
Claim.—In a harrow tooth, the combination with a tooth having a cylindrical lower end, of a blade holder having a cylindrical socket formed in its upper end, a curved lower end of a diameter less than the socketed portion thereby forming a shoulder, a blade on the holder, a binding bolt passing centrally through the blade and holder and a set screw at the socket for adjustably securing the cylindrical portion of the tooth in place, substantially as described.

493,072. CAR-COUPLING. WALTER W. CULBREATH, Sellers, assignor of one-half to Charles S. McCall, Bennettsville, S. C. Filed Jan. 9, 1893. Serial No. 457,784. (No model.)



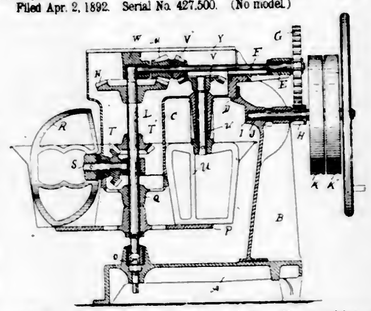
Claim.—In a twin-jaw car coupler, the combination with the recessed draw-head formed with a rigid jaw, and the pivoted jaw provided with an inwardly extending tail-piece, of the horizontally movable slide, and the vertically movable gravity-latch, cut-away at its lower end, all being constructed and operated, substantially as described.

493,073. OIL-FILTER. ALBERT C. DARRAGH, Allegheny, Pa. Filed Apr. 29, 1892. Serial No. 431,201. (No model.)



Claim.—An oil filter having a heating chamber at the top, said chamber having an inlet pipe extending nearly to the bottom of said chamber and an outlet pipe extending from near the top of said chamber through the bottom thereof; a cooling chamber at the bottom of said filter and a pipe connecting said cooling chamber with the outlet pipe of the heating chamber.

493,074. DOUGH-KNEADER. LOUIS DURAND, New York, N. Y. Filed Apr. 2, 1892. Serial No. 427,500. (No model.)



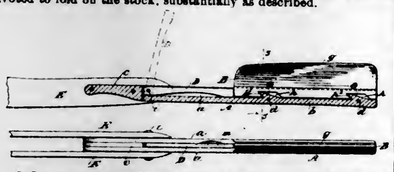
Claim.—The combination, in a dough kneading machine, substantially as hereinbefore described, of the bed plate A, the standard B rising therefrom and at one side thereof and provided with a journal bearing J, a shaft I having gearing H, a casing C having journal bearing E, a shaft F having gear wheel G, vertical shaft L, a kneading pan with a beater and stirrer arranged therein and bevel gearing T, T', M, N, V, V' all arranged substantially as and for the purposes set forth.

493,075. RAZOR. CARL R. EVERTZ, Brooklyn, N. Y. Filed Sept. 17, 1892. Serial No. 446,206. (No model.)

Claim.—1. In a razor, the combination with a grooved stock, a blade fitting the stock groove, hooks on the blade which interlock with projections on the base of the stock groove when slid forwardly in said groove, and a plain lever dog pivoted in the stock groove and adapted to impinge its free end on the rear edge of the blade when said blade is fully inserted, substantially as described.

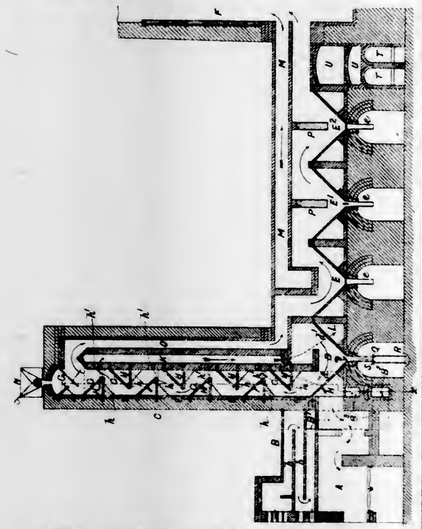
2. In a razor, the combination with a longitudinally grooved

stock, hooked tongues on the base of the stock groove and forwardly projected, and a razor blade having hooks formed on one edge that mate the tongues in the stock groove and adapted to interlock therewith when the blade is slid in the stock groove from the rear forwardly, of a lever dog pivoted by one end in the stock groove behind the blade and pressed by the spring back of the stock, and a handle pivoted to fold on the stock, substantially as described.



3. In a razor, the combination with a stock composed of two sides, a spacing strip between said sides adapted to form a spring back for the stock, hooked tongues on said strip that point forwardly on the stock, and a spacing strip at the heel of the stock all secured together to produce a longitudinal groove in the stock, of a razor blade fitted in the stock groove, hooks on the blade produced by spaced notches formed in the back edge of the blade and adapted to interlock with the tongues on the spring back strip of the stock when slid forwardly in the stock groove, a lever dog pivoted to fold in the stock groove at the rear of the blade and be fully embedded therein, its free end abutting upon the blade's rear end when said dog is in folded adjustment, and a folding handle pivoted on the stock, substantially as described

493,076. FURNACE FOR THE TREATMENT OF REFRACTORY ORES. CHARLES J. FAUVEL, London, England. Filed Apr. 25, 1892. Serial No. 430,497. (No model.)



Claim.—1. In a furnace for the treatment of refractory ores, an oxidizing tower or shaft having a series of inclined shelves projecting within the shaft alternately from opposite sides thereof, in combination with horizontal transverse flues formed beneath such shelves and connected with each other in zig zag order by vertical end flues, the lower end of the series being connected with a furnace adjacent to the tower so as to receive the furnace gases therefrom, whereby the shelves will be heated by the furnace gases passing through the said horizontal flues, substantially as specified.

2. In a furnace for the treatment of refractory ores, an oxidizing tower or shaft having a series of inclined shelves projecting within the shaft alternately from opposite sides thereof, in combination with horizontal transverse flues formed beneath such shelves and connected with each other in zig zag order by vertical end flues, the lower end of the series being connected with a furnace adjacent to the tower, so as to receive the furnace gases therefrom and at top to a down flue leading beneath the settling chamber at the foot of the tower and thence to the chimney, substantially as specified.

3. In a furnace for the treatment of refractory ores, an oxidizing tower or shaft provided with a series of inclined shelves projecting within the shaft alternately from opposite sides thereof and with transverse flues formed beneath said shelves connected together in zig zag order by end flues and connected with a furnace so as to receive the furnace gases therefrom, in combination with an air heater situated above but having no communication with the furnace and connected with the lower end of the shaft or tower so as to supply a current of heated air thereto which flowing upward through the shaft or tower meets the stream of falling ore passing over the shelves, as described.

4. In a furnace for the treatment of refractory ores, an oxidizing tower or shaft provided with alternating inclined shelves having flues beneath them connected together in zig zag order and connected with a furnace so as to receive the furnace gases therefrom, an air heater above the furnace connected with and for supplying hot air to the interior of the tower and a hopper shaped settling chamber at the foot of the tower for receiving the particles of ore after being subjected to the oxidizing action of the air current, the inclined sides of the said settling chamber having transverse flues beneath them through which the furnace gases pass on their way to and from the shelf flues of the tower, substantially as specified.

5. In a furnace for the treatment of refractory ores, comprising an oxidizing tower or shaft having a series of internally-projecting alternating inclined shelves heated by flues beneath coupled in zig zag order and connected with a furnace as described, and an air heater for supplying an upwardly flowing current of hot air to the interior of the tower or shaft, the combination with the receiving and settling hopper at the foot of the tower, of a vertical spout arranged to be sealed by dipping into running water and containing perforated jet pipes at which jets of cold water are projected across said spout so as to meet and quench the freely-falling stream of ore particles, substantially as specified.

6. In a furnace for the treatment of refractory ores, comprising an oxidizing tower or shaft having a series of internally-projecting alternating inclined shelves heated by flues beneath coupled in zig zag order and connected with a furnace as described, the interior of the tower or shaft being connected at bottom with an air heater as described, for supplying an upwardly flowing current of hot air through said tower, the combination with said tower, of a series of settling chambers for intercepting particles carried over by the air current, the chambers being connected on the one hand with the upper end of the tower or shaft by a down flue and on the other hand with the chimney, as described.

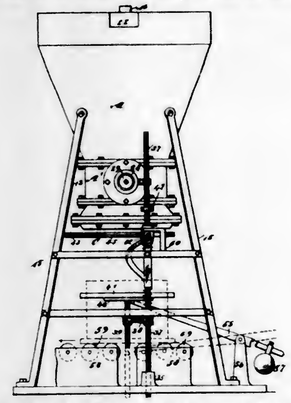
7. In a furnace for the treatment of refractory ores comprising an oxidizing tower or shaft having a series of internally-projecting alternating inclined shelves heated by flues beneath connected in zig zag order and connected with a furnace as described, the interior of the tower or shaft being connected at bottom with an air heater, as described for supplying an upwardly flowing current of hot air through said tower, the combination with said tower, of a series of settling and condensing chambers for intercepting the particles carried over by the air current, said chambers being connected on the one hand with a down flue leading from the top of the tower or shaft and on the other hand with the chimney, and containing hanging water bridges or tanks through which cold water may circulate for providing cold surfaces within the chambers for condensing the fumes, substantially as specified.

8. A furnace for the treating of refractory ores, comprising a tower having internally-projecting alternating inclined shelves with flues beneath them connected together in zig zag order and connected with a furnace as described, and having a down flue for the furnace gases connected with the uppermost shelf flue and a down flue for the oxidizing current and fumes, the down flue for the furnace gases being situated between the oxidizing shaft and the down flue for the oxidizing current and fumes so as to avoid loss of heat, substantially as specified.

493,077. TILE MACHINE AND CUTTER. JOHN FERNALD, Wellington, Ill. Filed June 25, 1892. Serial No. 437,943. (No model.)

Claim.—1. In a tile or similar mill, the combination, with a hopper and a grating constituting a partition therein, of a shaft held to turn in the hopper and likewise in the grating, arms carried by the shaft and radiating therefrom, the lower edges of which arms engage with the upper face of the grating, a smooth and flanged section at the periphery of the grating, and curved fingers attached to the arms, one end of which travels upon the smooth surface, being adapted to carry stones and the like to an opening formed in the hopper, as and for the purpose specified.

2. In a mill for making tiles or like articles, the combination, with a hopper, a grating constituting a horizontal partition in said hopper, and a flange formed above the periphery of the grating, of a shaft held to turn in the hopper and grating, arms carried by the shaft and extending radially therefrom, the side faces of the arms being beveled or inclined, and curved fingers attached to the arms, the said fingers being adapted to travel upon the flange in direction of an opening formed in the hopper, substantially as and for the purpose set forth.



3. In a tile mill or like machine, the combination, with a mud drum provided with an opening therein at its side, a grating forming a horizontal partition in the drum, a shaft turning in the drum and passing through the casing, and arms radiating from the shaft over and in engagement with the upper surface of the grating, said arms having inclined sides, a flange formed over the periphery of the grating, and curved fingers attached at one end of the arms, the opposite ends of the fingers being adapted to travel upon the grating, of pug blades attached to the shaft beneath the grating, spiral conveyer blades secured to the shaft below the pug blades, a delivery disk also carried by the shaft and located beneath the conveyer blades, a delivery chamber located beneath the delivery disk, and a shaper contained in the said chamber, as and for the purpose set forth.

4. In a tile mill or like machine, the combination, with the delivery section of the mill, of a shaft capable of end movement, an arm attached to the shaft and carrying a table adapted to receive a pallet, a cutter, spring-supported and loosely mounted upon the shaft, said cutter consisting essentially of a U-shaped frame and a cutting wire, a collar secured to the shaft above the cutter, an arm projected from the cutter at its pivot point and provided with a friction roller, a cam comprising one spiral and one straight track, united at their ends and adapted to receive the friction roller of the cutter, and a weighted lever having a bearing against the table, as and for the purpose set forth.

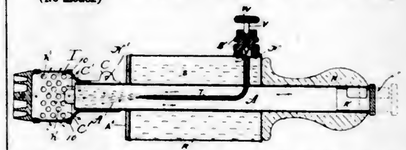
5. The combination, with the delivery section of a tile mill, of a cutter located beneath the same, comprising an essentially U-shaped arm and a wire connecting the ends thereof, a pivotal support maintaining the cutter, an arm projected from the pivot of the cutter and carrying a friction roller, and a cam adapted to receive the friction roller, comprising two oppositely-curved and spirally shaped tracks converging at their upper and lower ends, as and for the purpose specified.

6. The combination, with the delivery section of a tile mill, of a cutter located beneath the same, comprising an essentially U-shaped arm and a wire connecting the ends thereof, a pivotal support maintaining the cutter, an arm projected from the pivot of the cutter and carrying a friction roller, and a cam adapted to receive the friction roller, comprising two oppositely-curved and spirally-shaped tracks converging at their upper and lower ends and provided with spring-controlled gates at their junctions, as and for the purpose specified.

7. In a tile mill, or a mill of similar character, a receiving chamber the base of which is provided with a hub and a spirally arranged cam, the chamber being also provided with an outlet and a shaper located within the outlet, a stellated plunger held to revolve in the chamber over the base, the arms of the plunger being provided with recesses or slots to receive the cam, as and for the purpose specified.

8. In a tile mill, or like machine, the combination, with the pug mechanism, of a delivery chamber the base of which is provided with a hub and a spirally-arranged cam, the sides of the chamber being provided with an outlet and a shaper located therein, and a stellated plunger held to turn in the chamber upon the hub of its base, the arms of the plunger being tangential to its hub and provided with openings or slots to receive the cam, as and for the purpose specified.

493,078. AUTO-CALORIFIC BRANDING-TOOL. JAMES S. FITZMAURICE, Sydney, New South Wales, assignor to the Electric Brand Company, Limited, same place. Filed Apr. 29, 1892. Serial No. 431,216. (No model.)

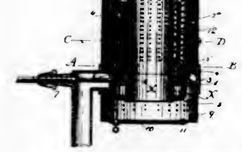


Claim.—1. In combination the tube (A) the reservoir connected therewith, the jet tube within the tube (A) the brand, the perforated cap secured to said brand, said cap having its end adjacent to the reservoir open, and the means for holding the cap to the tube (A) consisting of the arms C, substantially as described.

2. In combination the reservoir, the central tube extending through the same and projecting at the ends thereof, the brand at the end of said tube, the jet tube extending longitudinally of the central tube and laterally through the same at one end to near the top of the reservoir, and a valve for regulating the supply of gas, substantially as described.

3. In combination the brand, the tube A T, carrying the same, at one end the reservoir extending concentrically around the tube, the said tube projecting at its other end, the jet tube extending longitudinally of the tube A and laterally through the wall thereof, to near the top of the reservoir, the valve extending through the wall of the reservoir to control the flow of gas through the said tube, and the means for regulating the inlet of the air at the projecting end of the tube, substantially as described.

493,079. VAPOR-BURNER. ANTOINE GATEAU, Chicago, Ill. Filed July 15, 1892. Serial No. 440,157. (No model.)



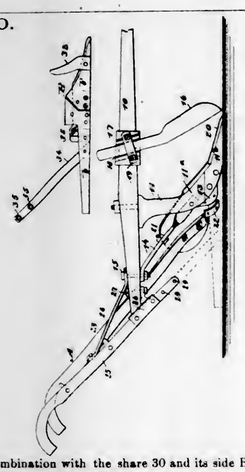
Claim.—1. In a vapor burner, the combination with the annular vaporizing cup 1 having a central opening for the admission of air, of the central perforated tube 2 fitting upon the inner wall of said cup, an annular spreader secured to the upper end of said tube, a deflector situated opposite the open end of said tube and above the spreader, the perforated tube 12 surrounding the tube 2, the perforated tube 2^a surrounding the tube 12 and fitting upon the outer wall of the annular cup, the non-perforated tube 4 surrounding the tube 2^a, the upper ends of said tubes 4 and 2^a being secured together, the annular ring 3, upon which the tube 4 rests, radial braces connecting the ring 3 and annular cup, and the perforated tube 9 secured to the under side of the ring 3, substantially as set forth.

2. The combination with a vapor burner, of the perforated cap 9 fitted over the bottom thereof, the bottom of said cap being provided with a central opening, and a closure 10 pivoted to the bottom of the cap and adapted to close said opening, substantially as set forth.

493,080. PLOW. CHARLES H. GERRARD, Xenia, Ill. Filed July 8, 1892. Serial No. 439,351. (No model.)

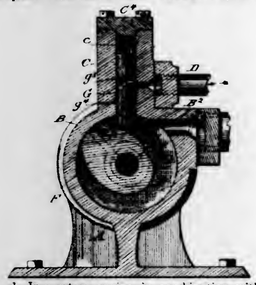
Claim.—1. In a plow the combination with the beam, and its handles; the land side handle extending below the beam and provided with apertures 29, the brace 28 extending from handle 25 to the beam, the brace 14 below the beam and the bolt 15 connecting both braces to the beam, of the standard 11, having a recess 12 in the outer face of its lower end, whereby either of the two shares may be used, substantially as set forth.

493,080.



2. The combination with the share 30 and its side B formed in two sections *b b'* having a plate 31 bolted to them and securing them together, of the brace 32 connecting the share 30 and the section *b* and the upwardly and rearwardly inclined brace 34 secured at its lower end to the section *b* and having two apertures 35 at its upper end to register with similar apertures 29 of a handle extension, substantially as set forth.

493,081. ROTARY ENGINE. ALEXIS P. GILLET, Kearney, Nebr., assignor of two-thirds to George W. Whitaker and James D. Whitaker, same place. Filed June 23, 1892. Serial No. 437,781. (No model.)

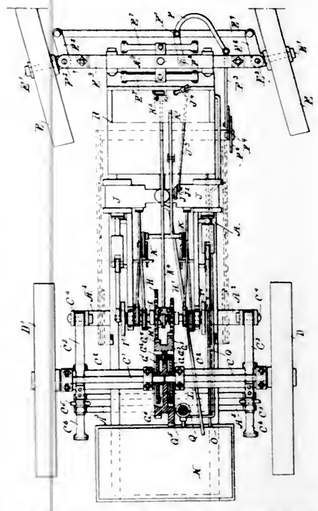


Claim.—1. In a rotary engine, in combination with the piston chamber having an exhaust port, the eccentric piston mounted therein, a slide abutment pocket communicating with the piston chamber, and having a steam inlet, a slide valve movable in said pocket, having a transverse steam port, and steam way in one face extended to near the bottom, said port adapted to form the inlet for feeding live steam to the piston chamber, and movable out of register when the piston has made a partial rotation, such valve having a steam slit adapted to register with the steam inlet when such valve is moved up to cut off communication between the piston chamber and abutment pocket, all substantially as and for the purpose described.

2. The combination with the cylinder B having an exhaust and a valve abutment, pocket, provided with a steam inlet, and the eccentric piston mounted in the cylinder, of the slide abutment G, having a smooth side engaging the inlet face of the abutment pocket, a grooved channel on the opposite side extending from the top to near the bottom, whereby a cutoff ledge g' is formed, a feed opening g^4 adapted to be brought into register with the steam inlet when the valve is lowered to open up communication between the pocket and cylinder, and a slit g^4 adapted to be moved into register with such steam inlet when such valve is moved to close off communication between the pocket and cylinder, all substantially as and for the purposes described.

3. In a rotary engine, in combination, the piston chamber having an exhaust port, the shaft, the eccentric piston on such shaft, said chamber having an abutment pocket, a steam inlet to such pocket, and a slide valve in such pocket having two apertures, said valve apertures steam inlet and piston arranged relatively, whereby one of such apertures will be moved in register with the steam inlet, and a live steam initial pressure applied to such piston, said valve then moved to close off live steam to carry the piston by steam expansion, and to relieve such valve from down pressure and then moved to bring the other aperture to register with the inlet, whereby to admit live steam to cushion the valve all substantially as and for the purpose described.

493,082. ROAD-WAGON. CLARENCE GILLETT, Gloversville, N. Y. Filed Nov. 22, 1892. Serial No. 452,794. (No model.)



Claim.—1. A road wagon, comprising a bed plate, independent revoluble rear axles, rear drive wheels secured on the said rear axles, front steering wheels, front axles on which revolve the said front wheels, and a yieldingly mounted frame carrying the said front axles, substantially as shown and described.

2. In a road wagon, the combination with the vertical guide ways at the forward end of the wagon, of a transverse spring-supported frame mounted in said guide ways, and the short horizontally turning axles journaled in the ends of the said frame, wheels mounted on said axles, and means for simultaneously turning said axles, substantially as set forth.

3. In a road wagon, the combination with the vertical guide ways at the front end of the wagon and the vertically yielding spring supported transverse frame working in said guides, of the vertical shafts mounted in said frame and carrying short axles on which the steering wheel turns, the springs encircling said shafts above said axle and on which springs the ends of the transverse frame rest, substantially as set forth.

4. The combination with the vertical guide ways at the front of the wagon, elliptical springs E' supported at their upper sections intermediate of the said guideways, and a vertically movable transverse frame working in said guide ways and connected to the lower members of said springs by a transverse bolt E^5, of the short horizontally swinging axles mounted in the outer ends of the said frame and carrying the steering wheels, substantially as set forth.

5. In a road wagon, the combination with a spring, and a bolt secured thereon, of a frame hung on the said bolt, shafts mounted to turn in the said frame, axles projecting from the said shafts and carrying the steering wheels, springs pressing on the said shafts, and a lever and link mechanism under the control of the operator and adapted to turn the said shafts, substantially as shown and described.

6. In a road wagon, the combination with rear axles carrying the rear drive wheels, of a compensating gearing connected with the said axles, and differential gear wheels adapted to be thrown in gear with the said compensating gearing to rotate the said axle at a high or low rate of speed, substantially as shown and described.

7. The combination with the springs C^3 secured at C^4 to the sides of the wagon, of the transverse frame C^2 resting on the free ends of said springs and carrying the bearings for rear or drive wheel axles, the links C^5 depending from the said springs, the elliptical springs C^6 secured by their upper leaves to the sides of the wagon and having their lower leaves secured to the lower ends of said links, substantially as set forth.

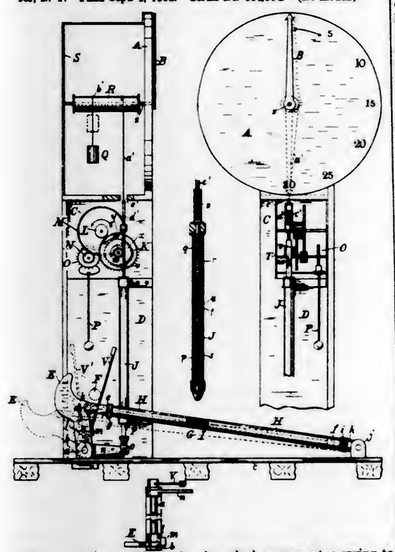
8. In a road wagon, the combination with a bed plate, of springs supported thereon, links connected with the said springs, spring plates supported from the said bed plate and connected at their free ends with the said links, and a frame attached to the said spring plates and carrying the bearings for the rear axles, substantially as shown and described.

9. A road wagon comprising a bed plate, rear axles carrying the rear drive wheels and journaled on the said bed plate, a compensating gearing connected with the said rear axles, a differential gearing for driving the said compensating gearing at a high or low rate of speed, and engines carrying on their main driving shaft the said differential gear wheels, substantially as shown and described.

10. A road wagon comprising a bed plate, rear axles carrying the rear drive wheels and journaled on the said bed plate, a compensating gearing connected with the said rear axles, a differential gearing for driving the said compensating gearing at a high or low rate of speed, engines carrying on their main driving shaft the said differential gear wheels, and a reversing mechanism for the said engines to cause the main driving shaft to run forward or backward, substantially as shown and described.

11. A road wagon, comprising a bed plate supporting a wagon body, front steering wheels, rear driving wheels, a gearing connected with the axles of the said rear driving wheels, engines for actuating the said gearing, a boiler carried on the bed plate and generating steam for the said engines, a water tank for supplying the said boiler with water, and containing a coil of pipe connected with the exhaust of the said engines, and an oil tank connected with the said boiler to furnish the necessary fuel for the same, substantially as shown and described.

493,083. RAILWAY TIME-SIGNAL. ARGUS C. GORDON, Rochester, N. Y. Filed Sept. 1, 1892. Serial No. 444,804. (No model.)



Claim.—1. In a railway signal, a clock movement, a spring to operate it, a spring adapted to be compressed by a passing train and an intermediate spring stronger than the first named and adapted to act against it and to act with that compressed by the train whereby said intermediate spring co-operates with the train and compresses the clock spring, substantially as set forth.

2. In a railway signal, a movable device such as lever E in the path of the train and a spring such as *s* normally acting to aid the train in moving said device, substantially as set forth.

3. In a railway signal, a clock having a motor to run it a definite period, a clock starting device independent of the clock adapted to be operated by the passing of a train at any moment between the beginning and end of said period, consisting of a rock shaft having an arm V and an arm E the latter being arranged in the path of a moving train, substantially as set forth.

4. The combination, in a railway signal, of the movable pointer B, the clock-movement C, arranged to regulate the pointer and actuated by a spring, a second stronger as *s* spring acting in opposition to the first, and mechanism operated by a passing train whereby the second spring is released to compress the first to actuate the clock-movement during its expansion, said second spring normally cooperating with the train to diminish the shock of its impact substantially as described.

5. The combination, in a railway-signal, of the movable pointer B, the clock-movement C arranged to move the pointer and operated by the spring *r*, the stronger spring *s*, acting in opposition to the spring *r*, and a movable arm E arranged to be moved by a projection on a passing train, and provided with a spring G acting in opposition to the spring *s*, substantially as described.

6. The combination, in a railway-signal, of the movable pointer B, the clock-movement C, the spring *r* for actuating the clock-movement, rack *v*, pinion *w*, and ratchet *x y*, and mechanism arranged to be operated by a passing train and adapted to compress the spring, said spring being connected and adapted to actuate the clock movement substantially as set forth.

7. The combination, in a railway-signal, of a movable pointer regulated by a spring actuated clock-movement, the arm E, arranged to be moved by a projection on a passing train and provided with spring G, the rock-shaft *a*, having arms *l* and *n*, and the spring *s*, arranged to act in opposition to the spring which actuates the clock movement, substantially as described.

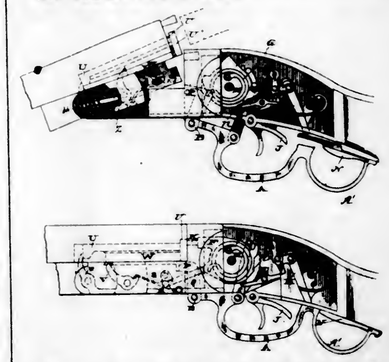
8. The combination, with a movable railway signal, of the pivoted lever E, having inclined surface *k*, and the spring G, substantially as described.

9. The combination, with a movable railway signal, of the pivoted lever E, having inclined surface *k*, the spring G and tube H, substantially as described.

10. The combination, with a movable railway-signal, of the pivoted lever E, having inclined surface *k*, the spring G, tube H, rod I, having follower *f*, and air-valve i, substantially as described.

11. The combination, in a railway-signal, of a movable pointer, a clock-movement operated by a spring arranged to be compressed by a passing train, the lever E, spring G, rock-shaft *a*, and arm V, arranged to start the clock-movement, substantially as described.

493,084. BREECH-LOADING SHOTGUN. CHARLES F. HACKER, Parsons, Kans., assignor of five-eighths to James A. Scott, Muscogee, Ind. Ter., and Ben Bogy and Frank Shapleigh, St. Louis, Mo. Filed Oct. 22, 1891. Serial No. 409,542. (No model.)



Claim.—1. The combination with the triggers of the gun, and the dogs E', of an independent locking mechanism consisting of the rocking bar L arranged vertically over the dog, the longitudinally moving push bar M connected to the rocking bar at the top, the spring O for holding this bar down, and a rear loop A' with a press plate N pivoted to the same and arranged to operate against the end of the push bar substantially as shown and described.

2. In a gun lock, the combination with an annular hammer, a stationary hub or cylinder arranged within the hammer, and a coil spring arranged within the cylinder substantially as shown and described.

3. The combination of the annular hammer F with notch *n* and projection D, the cylinder G arranged within the hammer and carrying the main spring, the trigger guard A pivoted at its forward end and having a freely swinging cocking bar C attached thereto and adapted to engage the projections D on the hammer substantially as shown and described.

4. The combination with the barrels having locking lug; of the trigger guard A having locking hook P at its forward end adapted to secure the barrels by directly engaging its lug, the circular hammer F, and cocking bar C pivoted to the guard and arranged to cock the hammers by the same movement that unlocks the gun substantially as shown and described.

5. The combination with the gun barrels having independent ejectors, of a separate spring mechanism for throwing out the ejectors, and push pins connected with the spring mechanism and operated upon by the hammers to put the springs under tension to independently throw out the shells substantially as shown and described.

6. The combination of the hammers F with projections *p*, the push pins Q arranged to bear thereagainst, the tumblers Y with pins R receiving the pressure of the push pins, the springs S bearing against the pins R, and the catches V bearing against the forward end of the springs S and adapted to operate upon the ejectors substantially as shown and described.

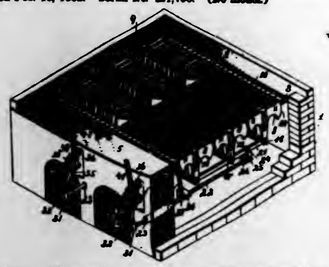
7. The ejectors U' having shanks or bars W made fast to the same, and a slide bar U arranged beside the shank of the ejector but disconnected from it, and a catch or abutment for operating against the bar W by the act of opening the gun, and an independent ejecting mechanism arranged to act upon the ejector shanks W substantially as shown and described.

8. The combination with the fore-end; of two hook shaped locking bars *a a* pivoted to lock by coming together in the middle of the fore-end, and a longitudinally moving slide plate *c c* with wedge shaped end and inclined slots connected to the ends of the locking bars by pins working in the slots and adapted to operate the locking bars substantially as shown and described.

9. The combination, in the fore-end, of the two hook shaped locking bars *a a*, the slide *c c* with wedge shaped ends and inclined slots connected to the ends of the locking bars by pins working in the slots, the lever *e e* having a projection *f f* bearing against the slide, and a spring bolt *g g* arranged on the fore-end and bearing against the opposite side of the projection *f f* substantially as and for the purpose described.

10. The combination with the fore-end, and the barrel lug having recesses Z in its sides; of a spring bolt *h h* arranged in the metal of the stock and having one end bearing against the fore-end and the other end adapted to be projected into or withdrawn from the recess Z to act as a stop for the gun barrels when the gun is simply broken, and to permit the parts to be disconnected when the fore-end is removed substantially as shown and described.

493,085. ROCKING GRATE. LESTER HALL, Kansas City, Kans. Filed Feb. 16, 1892. Serial No. 421,733. (No model.)



Claim.—1. The combination of a series of independent fixed bars extending the full length of the grate surfaces; a series of rocking grates placed intermediate of said fixed bars and rods extending therethrough and through the fixed bars by which they are pivoted thereto, said rocking grates having downwardly extending legs, and rods for connecting the same; substantially as and for the purpose set forth.

2. The combination of a series of independent fixed bars extending the full length of the grate surfaces; a series of rocking grates placed intermediate of said bars, downwardly extending legs on said rocking grates; rods extending through the fixed bars and through the rocking grates; rods for connecting the legs of each series to each other, and bars through which said rods pass for connecting the series; substantially as and for the purpose set forth.

3. The combination of the independent fixed bars 2 extending the full length of the grate surfaces, the rocking grates 8, placed intermediate of the same, and rods by which they are pivoted thereto, and lugs 44, on said bars 2, intermediate of the rods for guiding said rocking grates; substantially as and for the purpose set forth.

4. The combination of the fixed bars 2, a series of rocking grates, the individual members forming one of a series of said grates, being connected by rods 19; rods 13 by which the rocking grates are pivoted to the fixed bars, bars 21 for connecting the series, and a rod 22, connected with one of said bars 21, for oscillating the same in order to rock said grates; substantially as and for the purpose set forth.

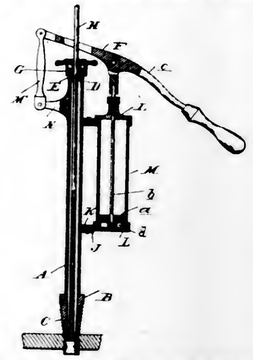
5. The combination of the fixed bars 2, rocking bars or grates 8, placed intermediate of the same and pivoted thereto; rods 19, and bars 21 connecting said grates, rods 27, and 28, forming a brace, and connecting bars 21, with the rod 22, and means for oscillating said bars; substantially as set forth.

6. The combination of a series of rocking grates suitably pivoted; bars 21, connected with the same; a rod 22 secured to clevis 25; a rod 27, connecting rod 22, with clevis 25, of the adjoining bar 21, an angling brace rod 28, connecting the inner clevis 25, with the rod 22, by means of a clamp 30; and means for oscillating the rod 22; substantially as and for the purpose set forth.

7. The combination of the independent fixed grate-bars 2 having spaces 7 between them extending the whole length thereof, the series of rocking bars 8 having T-heads normally occupying the spaces, and pendent lugs 17, the rods 13 passed through the T-heads of each series and through the fixed grate-bars by which the rocking bars are pivoted, the rods 19 by which the lugs of each series are connected, the horizontal bar 21 connecting the series of rocking bars, the operating rod 22 and the clevis 25 by which the horizontal bar and the operating bar are connected; substantially as described.

8. The combination; with the operating rod 22; of the bracket 36, provided with an extension 37 having an elongated opening 38, enlargement 39, and flanges 40, the lever 33 pivoted to the bracket, the clevis 31 by which the lower end of the lever is connected with the operating rod, and the removable lever 41 having an enlarged lower end 42 provided with an opening 43 fitting the upper end of the lever; substantially as described.

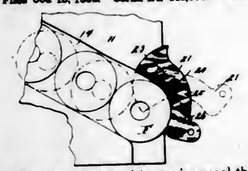
493,086. BEER TAP AND PUMP. NICOLAS HARDER, Detroit, Mich. Filed Oct. 3, 1892. Serial No. 447,698. (No model.)



Claim.—1. In a beer tap and pump, the combination of a tubular standard, of a screw threaded foot, the stuffing box at its upper end, a discharge pipe in said standard engaging through the stuffing box, a valve in said discharge pipe, a pump support on one side and having its discharge pipe connected therewith, a lever for operating the pump secured to the standard and a valve controlled connection between the pump and the standard, substantially as described.

2. In a beer tap and pump, the combination of a tubular standard having a screw threaded foot, the stuffing box at its upper end, a discharge pipe in said standard slidingly engaging through the stuffing box, an air pump secured to one side of the standard, a lever *e* for operating the pump extending across the top of the standard, the bracket N on the opposite side of the standard on which said lever is fulcrumed and a connection between the discharge pipe of the pump and the standard, substantially as described.

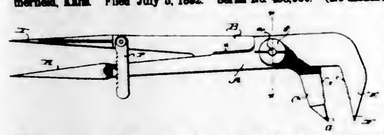
493,087. SPOOL-THREAD CABINET. JAMES W. HAYDEN, Lewisport, Ky. Filed Oct. 15, 1892. Serial No. 448,950. (No model.)



Claim.—1. In a cabinet adapted to receive spool thread or like articles, a cell provided with a passage or slide-way produced in opposite sides, the said passages or slide-ways being in transverse registry, a dog pivoted on the upper side and at the exit end of the cell opposite the slide-ways or passages, whereby its longer arm hangs normally in the path of the spools, the said dog being provided with a curved inner surface and a convexed upper one, a connection between the lever and dog, and a means, substantially as shown and described, for manipulating the lever, all combined as and for the purpose set forth.

2. In a cabinet for the reception of spool thread, and like articles, the combination, with a case, rows or clusters of cells contained in the case, each cell being provided in opposite faces with a slide or passage way extending from top to bottom, and troughs located between the rows of cells and passing the outlet end of the passage or slide-ways of each cell, of dogs spring-controlled and pivoted at the outlet end of each cell opposite the slide or passage ways thereof, the said dogs being provided with cylindrical upper ends and concaved inner surfaces, levers fulcrumed upon supports within the case, a connection between each lever and the lower end of the dog, and means, substantially as shown and described, for operating the levers from the exterior of the cabinet, as and for the purpose set forth.

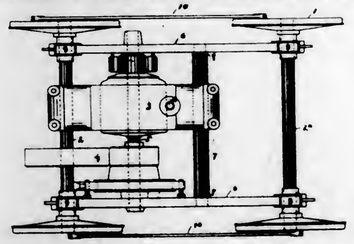
493,088. COMBINATION-TOOL. FREDERICK W. HEINER, Summerfield, Kans. Filed July 5, 1892. Serial No. 438,906. (No model.)



Claim.—1. A combination tool, comprising the members A and B, having an adjustable, pivotal connection, the jaws C, E, on said members, the beveled portions F and G on the extremities of said jaws, the handle portions of said members having the ream and screw driver formed thereon, and constructed to serve as a pair of compasses and as a pair of shears, substantially as specified.

2. In a combination tool, the combination with the member B, having a series of circular perforations *b* therein, connected to each other by slots, and the jaw A having a single angular perforation *d*, boss *d'*, and the spring coiled around said boss, of the pivot bolt engaging the perforation *d*, and arranged to engage any one of the perforations *b*, said pivot bolt having the partially circular bearing portion, the angular engaging portion, and the threaded extremity, and the screw and cap nut on said threaded portion and inclosing the boss and spring, said members having the jaws C, E, the saw set J, the claw and double shank screw driver F, the counter-sink G, the ream H, and screw driver I, said ream and screw driver being adapted for use as compass points, substantially as specified.

493,089. TRUCK FOR ELECTRIC LOCOMOTIVES. JOHN C. HENRY, New York, N. Y. Filed Dec. 18, 1891. Serial No. 415,496. (No model.)



Claim.—1. The combination with the car wheels and axles of the truck-frame, the motor supported thereon and the shouldered cross-bar forming part of said frame and spreading the side-bars thereof against the wheel hubs.

2. The combination, in an electric motor truck, of the wheels and axles, and a motor having spring support between its frame and one of the car axles, and bearing on its field magnet a king pin for the car-body, the car body being supported directly on the field magnet intermediate of its ends whereby the field magnet itself forms a supporting arch or beam for the car body.

3. The combination with the wheels and axles, of the side-bars 6 journaled on axle 2, and spring-supported from axle 2', the cross-bar 7 and the motor whose armature is journaled in said side-bars, and mechanically coupled to the axle 2 and whose field-magnets are supported on the axle 2 and said cross-bar and bearing a king-pin adapted to form a pivot for the car-body.

4. The combination with the wheels and axles of an electric motor truck, of a frame spring-supported on one axle, and having non-yielding bearing on the other axle and a motor hung at one end on said frame and at the other end hung directly on the axle of the truck on which said frame has non-yielding bearing, substantially as set forth.

493,090. PROCESS OF MANUFACTURING STEEL. ALFRED R. HUFF, Pittsburg, Pa. Filed Feb. 1, 1892. Serial No. 419,879. (No specimens.)

Claim.—1. In the manufacture of steel, the method which consists in refining the metal, then at or near the end of the refining operation adding to it a deoxidizing agent, and recarburizing the refined metal under treatment by the addition and thorough admixture of a definite proportion of solid free carbon proper to raise the carbon content of the steel to a predetermined point; substantially as and for the purposes described.

2. In the manufacture of steel, the method which consists in refining the metal, adding to it a deoxidizing agent, and recarburizing the refined metal under treatment by the addition and rabbling into it of a definite proportion of solid free carbon proper to raise the carbon content of the steel to a predetermined point; substantially as and for the purposes described.

3. In the manufacture of steel, the method which consists in refining the metal, adding to it a deoxidizing agent, and recarburizing the refined metal under treatment by the addition and rabbling into it while still on the hearth or converter a definite proportion of solid free carbon proper to raise the carbon content of the steel to a predetermined point; substantially as and for the purposes described.

4. In the manufacture of steel, the method which consists in refining the metal, adding to it a deoxidizing agent, and recarburizing the refined metal under treatment by the addition and rabbling into it carbon in the form of sticks in definite proportion; substantially as and for the purposes described.

493,091. STEAM COOKING APPARATUS. ANDREW J. IDEN, Milwaukee, Wis. Filed Nov. 25, 1892. Serial No. 453,100. (No model.)

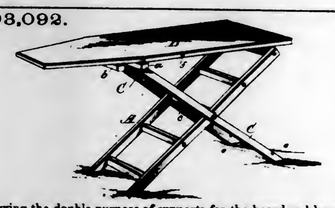


Claim.—In a steam cooking apparatus, a plurality of detachable food receptacles, each provided with a tubular section to form when together a passage for the steam, in combination with a water receptacle for the generation of steam, an independent condensing plate removably supported within the water receptacle, and a condensing chamber upon the upper side of the plate communicating with the water receptacle above and below the plate, substantially as and for the purpose set forth.

493,092. COMBINED STEP-LADDER AND IRONING-BOARD. ANDREW J. IDEN, Milwaukee, Wis. Filed Nov. 25, 1892. Serial No. 453,101. (No model.)

Claim.—A step-ladder and ironing board pivoted or hinged together at their ends, a plurality of notched cleats connected to the under side of the board to make provision for the adjustment of height of the board, independent supports pivoted to the sides of the ladder

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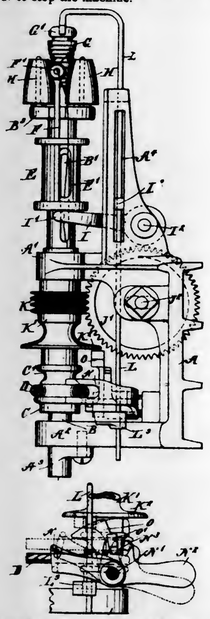


and serving the double purpose of supports for the board and braces for the ladder when brought into use, and means for holding the ends of the supports in engagement with the board when acting as braces, substantially as and for the purpose set forth.

493,093. QUILL-WINDER. CORRY JOHNS, Long Island City, N. Y.

Filed Oct. 4, 1892. Serial No. 447,791. (Model.)

Brief.—As the thread accumulates the quill rises in the cones H, raising the rod L, the lug L^3 on the latter operating the brake-arm O to contact with the flange K^3. The brake-arm by its lug O′ operates the belt-shipper N to stop the machine.

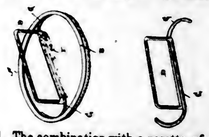


Claim.—1. A quill winder, comprising a frame, a hollow slotted spindle journaled thereon and provided with a disk and a fast and loose pulley below the disk, a traveler actuated from the spindle and provided with a slot and a thread guide, a vertically movable rod actuated by the rise of the quill, and having an arm or projection on its lower end, a pivoted brake arm below the disk and in the upward path of said arm or projection, a belt shifter loosely engaged by the said pivoted brake arm and shifted thereby, substantially as set forth.

2. A quill winder comprising a revolubie spindle, and cones supported on the head of the said spindle to actuate the quill set on the spindle between the cones, a rod engaging the upper end of the said quill to hold the latter in position, the said rod being mounted to slide and provided with an arm at its lower end, a belt shifter to move the actuating belt from the fast pulley of the spindle onto the loose pulley at the time the quill is filled, and a separate and independent brake arm adapted to be actuated by the arm on said rod to make frictional contact with a disk on the said spindle, and in turn acting on the belt shifter to cause it to shift the belt, substantially as shown and described.

493,094. HARNESS-ROSETTE. LORENZO D. JONES, Kenosha, Wis.

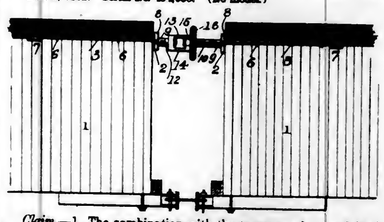
Filed Oct. 31, 1892. Serial No. 450,550. (No model.)



Claim.—1. The combination with a rosette, of a wire loop therefor having its base portion lapped and the ends thereof extending in opposite directions to opposite sides of the rosette and secured thereto, substantially as specified.

2. The combination with a rosette having an in-turned edge, of a wire loop therefor having its base portion lapped and the ends thereof extending in opposite directions and extended under the in-turned edge of the rosette.

493,095. CAR-COUPLING. HENRY K. KNOX, Vevay, Ind. Filed Dec. 9, 1892. Serial No. 454,635. (No model.)



Claim.—1. The combination with the transverse bars and horizontal rods connected together forming a frame, and secured to a railroad car near its top, of a coupling connected to said bars, substantially as described.

2. In a coupling for connecting cars together at or near their tops, the combination with the transverse bars and connecting rods, of the lugs secured to said bars, the screw-threaded pin pivoted to one of said lugs, the headed pin pivoted to the other lug, the slidable and rotatable block carried by said headed pin, and the hand-wheel, having a screw-threaded aperture with which the screw-threaded pin is adapted to engage, substantially a described.

3. The combination with the horizontal rods, the transverse bars provided with staples, the diagonal hooked rods engaging with said staples, the screw-threaded rods 20 and 23, and the right and left-handed screw-threaded swivel 21, with which the rods 20 and 23 engage, substantially as described.

493,096. COFFIN-FASTENER. LOUIS G. KRIEGEL, St. Louis, Mo.

Filed June 22, 1892. Serial No. 437,599. (No model.)



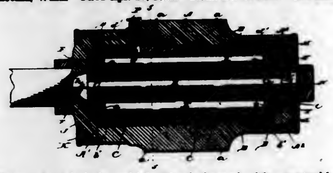
Claim.—1. The combination in a lid fastening, of a headed stud projecting upward from the body 1 and a nut working in a screw threaded socket of the lid and having an axial bore for the passage of the stud and a latch engaging beneath the head of the stud, substantially as set forth.

2. The combination in a lid fastening, of the body 1 having headed studs and the lid having tubular nuts screw-threaded in the lid and through which the studs pass and a latch on the nut engaging beneath the head of the stud, for the purpose set forth.

3. The combination, in a lid fastening, of a body 1 having a headed stud projecting from its upper rim, a nut working in the lid 3 with axial bores for the passage of the stud, an arm on the nut adapted for use in turning the nut and a latch pivoted to the arm and adapted to engage beneath the head of the stud, substantially as set forth.

4. The combination, in a lid fastening, of the body 1, the gasket 3, the headed screw stud having a collar adapted to bear on the gasket, a nut working in a screw threaded socket of the lid and having an axial bore adapted for the passage of the stud and a latch upon the nut engaging beneath the head of the stud, substantially as set forth.

493,097. HUB FOR VEHICLE-WHEELS. LOUIS C. LARADY, Tacoma, Wash. Filed Apr. 23, 1892. Serial No. 430,345. (No model.)



Claim.—1. A hub for vehicle wheels formed with a central bore therethrough, a friction thimble secured in the bore of the hub and formed with a bore of circular cross-section, bearing blocks formed with bearing grooves in their inner faces and secured to the ends of said hub, friction rollers supported in the bore of said friction thimble and having their journal ends journaled in the grooves in the inner faces of the bearing blocks, and suitable caps supported on the axle which passes through said hub, substantially as set forth.

2. In combination with a hub for vehicle wheels, the bearing blocks secured to the ends of the hub, the friction rollers journaled in said bearing blocks inside of the hub, an axle passing through the hub and bearing against said friction rollers, caps squared on said axle, washers between said caps and bearing blocks, and a retaining nut screwed onto the outer end of the axle against the outer cap, substantially as set forth.

3. In combination with a hub for vehicle wheels, the radial lugs formed on the ends of the hub, the bearing blocks provided with bearing grooves in their inner faces and formed with radial recesses in their peripheries which engage over the radial lugs on the hubs, screws for securing said heads to the ends of the hubs, friction rollers supported in the hubs and having journal ends bearing in the grooves in the inner faces of the bearing blocks, an axle passing through said hub and bearing against the friction rollers, and suitable caps carried by the axle, and a retaining nut, substantially as set forth.

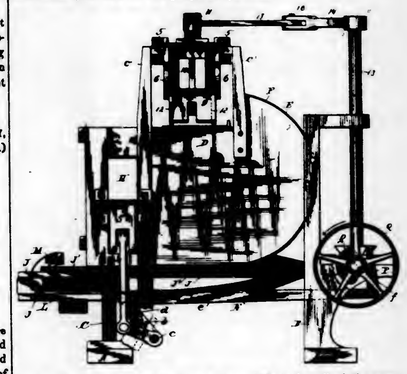
4. In combination with a hub, a friction thimble secured in said hub, heads secured to the ends of the hub, friction rollers journaled in said heads, an axle passing through said hub, caps carried by said axle, an oil passage through the hub and friction thimble, and oil passages through the caps, substantially as set forth.

493,098. BRICK-MOLD-SANDING MACHINE. WILLIAM LAMB, Aberdeen, S. D. Filed Apr. 23, 1892. Serial No. 430,343. (No model.)

Claim.—1. In a mold sanding machine, substantially as described, the combination with the sanding chamber having the concave wall, and a suitable means for feeding molds continuously to the lower edge of said wall; of the swinging leaves U, and W, carried by rock shafts journaled in the side walls of the sanding chamber, the bail M′, journaled in the side walls of the sanding chamber between the shafts of the leaves U, and W, the drive shaft, mechanism intermediate the drive shaft and the shafts of the leaves U, and W, adapted to swing said leaves simultaneously, mechanism intermediate the drive shaft and the shaft of the bail M′, adapted to swing said bail alternately with respect to the leaves U, and W, and a suitable means for removing a mold from the leaf W, when the same has assumed a horizontal position; substantially as and for the purpose set forth.

2. In a mold sanding machine, substantially as described, the combination with a sanding chamber, the swinging leaves U, and W, journaled in the side walls of said chamber, a suitable means for feeding the sanded molds to the leaf U, and a suitable means for actuating the leaves U, and W; of the swinging bail journaled in the side walls of the sanding chamber intermediate the leaves U, and W, and a suitable means for actuating said bail alternately with respect to the leaves U, and W; substantially as and for the purpose set forth.

3. In a mold sanding machine, the combination with the sanding chamber, the stacking frame, with molds arranged therein one upon the other, and having the feeding wings pivoted at a suitable elevation in its ends, of the carrier frame, the tracks arranged below said sanding chamber with sliding blocks thereon, the mold engaging trigger pivotally mounted in the carrier frame, and having its lower end weighted, and suitable means for reciprocating the carrier frame, substantially as and for the purposes specified.



4. In a mold sanding machine, substantially as described, the combination with the sanding chamber, the stacking frame, the slide bars or tracks extending from the sanding chamber beneath the stacking frame, and the carrier-frame mounted on the slide bars or tracks and having a trigger adapted to engage the lower mold in the stacking frame; of the feed wings pivotally mounted in the ends of the stacking frame, the drive shaft, mechanism intermediate the drive shaft and the carrier-frame adapted to reciprocate the latter, and mechanism intermediate the drive shaft and the feeding wings adapted to swing said wings inwardly during the rearward stroke of the carrier-frame, and allow said wings to assume a perpendicular position during the forward stroke of said frame; substantially as and for the purpose set forth.

5. In a mold sanding machine, substantially as described, the combination with the sanding chamber, the stacking frame and the slide bars or tracks extending from the sanding chamber beneath the stacking frame; of the carrier-frame mounted on the slide bars or tracks and carrying a trigger adapted to engage the molds in the stacking frame, a suitable means for reciprocating the carrier frame, and the rearwardly-extending, gravitating keeper arms a^3, adapted to engage the molds and prevent a backward movement thereof; all substantially as specified.

6. The combination with the main frame, the transverse concave wall F, and the stacking chamber, of the gravitating keeper arms pivotally connected at their front ends to the main frame and extending forwardly of the wall F, said arms being notched or shouldered at or adjacent to their forward ends thereby engaging the molds and preventing a rearward movement thereof, substantially as specified.

7. In a mold sanding machine, the combination with a sanding chamber, and a suitable means for supporting the molds after the same have been sanded; of the carriage body 4, mounted on tracks above the sanding chamber, and having a vertically-disposed, longitudinal slot, the arms 6, connected to and extending forwardly from said body, the shoe pivotally mounted in said arms, the arm connected to the shoe and taking through the slot in the carriage body, a weight mounted upon the upper end of said arm, and a suitable means for reciprocating the carriage; substantially as and for the purpose set forth.

8. In a mold sanding machine, the combination with a sanding chamber, and a suitable means for supporting the molds after the same have been sanded; of the carriage body 4, mounted on tracks above the sanding chamber, and having a vertically-disposed, longitudinal slot, the arms 6, connected to and extending forwardly from said body, the shoe pivotally mounted in said arms, the arm connected to the shoe and taking through the slot in the carriage body, a weight mounted upon the upper end of said arm, the gravitating fingers 12, pivotally connected to the arms 6, and extending above and below the same, a suitable means for limiting the rearward movement of the upper ends of said fingers, and a suitable means for reciprocating the carriage; substantially as specified.

9. In a mold sanding machine, substantially as described, the combination with the sanding chamber having the concave wall F; of the brushes V^4, mounted at the forward edge of the concave wall adjacent

to the side walls of the chamber; substantially as and for the purpose specified.

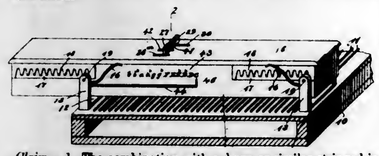
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the center of the car, a shifting bar engaging said pin, and a switch-

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to the side walls of the chamber; substantially as and for the purpose specified.

498,099. ATTACHMENT FOR MUSICAL INSTRUMENTS. WILLIAM LEUBER, Milwaukee, Wis. Filed Sept. 17, 1892. Serial No. 446,195. (No model.)



Claim.—1. The combination with a harp or similar stringed instrument, of a sliding and yieldingly supported bar above the strings, said bar being provided with dampers on its under side for contacting with the strings of the instrument, substantially as described.

2. The combination with a stringed instrument of the character described, of a sliding and yieldingly supported bar above the strings of the instrument, a plurality of spaced dampers carried by the bar and adapted to contact with the strings, and mechanism for shifting the relative positions of the dampers, substantially as described.

3. The combination with a stringed instrument of the character described, of a sliding and yieldingly supported bar above the strings of the instrument, a plurality of dampers produced on the bar and adapted to contact with a portion of the strings, movable slides arranged on the bar and provided with spaced dampers to contact with the strings, and mechanism for moving the slides, substantially as described.

4. The combination with a stringed instrument of the character described, of parallel arms extending outward from the instrument on opposite sides of the strings, a spring-repressed sliding bar held to move between said arms, toothed racks carried by the bar, the teeth being spaced to correspond with the distance between the instrument strings, pins on the arms held to engage the teeth of the racks, and a plurality of dampers carried by the bar and adapted to strike the strings of the instrument, substantially as described.

5. The combination with a stringed instrument of the character described, of a slide bar held to move across the strings of the instrument and adapted to be pushed to and from the strings, toothed racks produced on the bar, and the teeth of the racks being spaced to correspond with the distance between the instrument strings, fixed pins held adjacent to the bar and adapted to engage the rack teeth, a plurality of spaced dampers rigidly secured to the bar and adapted to engage the instrument strings, longitudinally movable slides arranged on opposite sides of the fixed dampers, the slides being also provided with dampers to engage the strings, and a lever mechanism for moving the slides, substantially as described.

6. The combination of the stringed instrument, the movable bar held to slide across the strings and carrying dampers to engage said strings, spring-repressed dampers held normally out of contact with the strings and to rest in recesses in the bar, a slide held to move in the bar and adapted to press the dampers into contact with the strings, and notches produced in the slide and adapted to register with the shanks of the dampers so as to permit the dampers to rise out of contact with the strings, substantially as described.

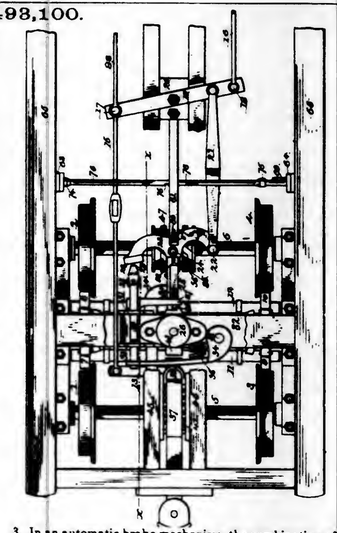
7. The combination with a stringed instrument of the character described, of parallel arms arranged on opposite sides of the strings of the instrument, a flanged bar held to slide between the arms and across the instrument strings, springs carried by the arms and held to engage the flange of the bar and hold the bar out of contact with the strings, adjustable dampers carried by the bar and held to engage the strings of the instrument when the bar is pressed, guides to direct the dampers upon the strings, a table of keys produced upon the bar, and an indicator secured to one of the arms and arranged to indicate on the table the key to be played, substantially as described.

498,100. AUTOMATIC CAR-BRAKE. EDWIN W. LOCK, Meadville, Pa. Filed Nov. 11, 1891. Serial No. 411,587. (No model.)

Claim.—1. In an automatic brake mechanism, the combination of a draw bar mounted upon a portion of the framing whose vertical position varies with the weight of the car, and a variable stop to limit the movement of the bar, said stop being rigidly secured to a fixed portion of the framing, substantially as described.

2. In an automatic brake mechanism the combination of the draw bar, a push bar, and an intermediate pivoted lever, all mounted on a portion of the framing whose vertical position varies with the weight of the car, and a variable stop interposed between the lever and the push bar, said stop being rigidly secured to a fixed portion of the framing, substantially as described.

498,100.



3. In an automatic brake mechanism, the combination of a draw bar and push bar mounted on a portion of the framing whose vertical position varies with the weight of the car, and an intermediate wedge-shaped stop block, said block being rigidly secured to a fixed portion of the framing with its wide part uppermost, substantially as described.

4. In combination the draw bar, the lever pivoted to the floor frame, the spring for normally retracting the lever, the wedge shaped stop for said bar, and the brake mechanism operated by the movement of the pivoted spring pressed lever as set forth.

5. In combination with the ordinary brakes of a car and their operating mechanism comprising a bar pivoted centrally below the floor frame a pivoted carriage, a lever centrally pivoted to the end of said carriage, a push bar for operating said lever, a pivoted lever for operating said push bar, a variable stop for said pivoted lever, and the draw bar operating upon said lever, as set forth.

6. The combination with a draw bar having a recessed rear end, of a spring seated in said recess, and a loose yoke connected with the draw bar and bearing against the spring, substantially as described.

7. In combination the draw bar, its spring pressed yoke, the spring returned lever in the path of said yoke and brake operating mechanism connected to said lever as set forth.

8. In combination the drawbar, the spring returned bar pivoted to the car, an arm connected to its free end, and switching mechanism operated by the movement of said arm, as set forth.

9. In combination the draw bar, the spring therein, the pin through the spring and the end of the draw-bar, and the yoke encircling the end of the drawbar and having a bearing, inside the draw bar, upon the end of the spring as set forth.

10. In combination the draw bar, the lever pivoted to the cross beam of the floor frame, in the path of the draw bar, the spring for normally holding it in contact with the draw bar and the wedge stop secured to the truck with its head upward as set forth.

11. In combination the carriage pivoted to the truck, the lever pivoted to the end of the carriage and having a bearing face at one end thereof and the push bar with head thereon to engage with said head, the face and head being of a width to permit lateral and vertical movement while preserving contact as set forth.

12. In combination the switching cylinder having annular grooves of unequal depth, the switch pin engaging said grooves, and the trip pin arranged to hold the pin within, but out of contact with the bottom of, the deeper grooves, as set forth.

13. The switching cylinder provided with sets of two annular grooves each and switch grooves connecting the annular grooves, one annular groove of each set being deeper than the other as and for the purpose set forth.

14. In combination the carriage, pivoted to the truck, the pivoted bar connected at its center therewith, a switch pin mounted at the pivotal point, a cross pin in the switch pin and projecting toward

the center of the car, a shifting bar engaging said pin, and a switching or shifting rod for moving the shifting bar laterally as set forth.

15. In combination with the floor frame of a car a shifting bar pivoted at the center thereof, and a rod for laterally moving said shifting bar, said bar being mounted in brackets depending from the side beams of the floor frame and having a central cranked portion to support and adjust the shifting bar, as set forth.

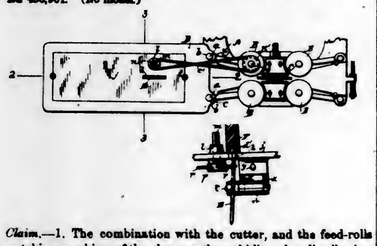
16. In combination the pivoted shifting bar, the laterally movable and rotatable switching rod mounted below the floor frame and having the central cranked portion and short splines, and the brackets depending from the floor frame and having round holes to receive the switching rod and side notches to receive the splines, as set forth.

17. In combination the carriage pivoted to the truck, the lever centrally pivoted thereto, the vertically movable switch pin at the center thereof having cross pin the trip lever pivoted to the carriage having horizontal arm to engage the cross pin, and an upright at the opposite end, the push bar, and the horizontal arm thereto to engage the upright on the trip bar as set forth.

18. In combination the push bar, the carriage and the switch-pin, of a trip bar pivoted to the carriage and engaging the switch pin at one end and the push bar at the other, whereby the withdrawal of the push bar causes the partial elevation of the switch pin as set forth.

19. In a car brake mechanism a cam grooved cylinder, a switch pin to engage its grooves, a trip bar, and the push bar, the trip bar and push bar operating to partially elevate the switch pin, substantially as set forth.

498,101. GLUING ATTACHMENT FOR MATCHING-MACHINES. BENJAMIN G. LUTHER, Worcester, Mass. Filed Apr. 27, 1892. Serial No. 430,901. (No model.)



Claim.—1. The combination with the cutter, and the feed-rolls of a matching-machine, of the glue-pot, the wabbling glue-distributing wheel, and means for rotating the said wheel, substantially as described.

2. The combination with the cover *j*, provided with the slot *k*, the shaft *m*, provided with the radial arms *r*, and means for driving the said shaft, of the glue-distributing wheel E, provided with the openings *q* adapted to receive the arms *r*, the pivoted bearing block *v*, adjusting screw *y*, and the spring *z*, substantially as described.

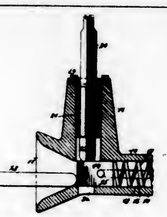
3. The combination with the cutter, and the feed rolls of a matching machine, of the glue pot, the slotted cover, the glue distributing wheel, the bearing block pivoted to the cover, and means for adjusting the height of the bearing block, substantially as described.

4. The combination with the cutter, and the feed rolls of a matching machine, of the glue pot, and the glue distributing wheel adapted to apply the glue in alternate patches, first on one side of the groove in the board, and then on the other side, and means for rotating the said wheel, substantially as described.

498,102. CAR-COUPLING. GEORGE W. MAHAN, Cold Spring Harbor, N. Y. Filed Jan. 3, 1893. Serial No. 457,094. (No model.)

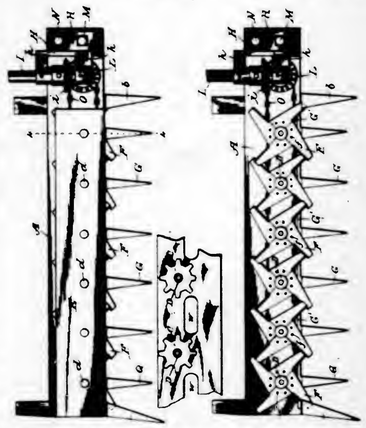


Claim.—A car coupling comprising the draw head 10, having a vertical tubular casing 18 a bottom aperture 24 in line with the bore of the casing, the opposite side slots 16, the vertically movable pin having a central enlarged portion 21 working in the said casing and removable through the upper end thereof; the lower reduced end of



the pin registering with the aperture 24, the apertured removable top plate 19 on the upper end of casing 18 and through which the reduced upper end of the pin passes, the block 14 having pins 15 working in said slots and a spring behind the block, substantially as set forth.

498,103. ROTARY-SICKLE CUTTER-BAR. JOHN S. MATHEWS, Pendleton, Oreg. Filed May 2, 1892. Serial No. 431,556. (No model.)



Claim.—1. The combination of the plate having an upturned beveled flange on its front edge, the guard fingers, the sprockets mounted on said plate, the knives attached to said sprockets and adapted to overreach said flange, the sprocket chain and mechanism for driving the same, and the guard fingers having beveled guide fingers G', substantially as described.

2. The combination of a cutter bar, a series of revoluble wheels journaled thereon, and a set of interchangeable triangular knives F sharpened on one edge independently and removably secured to one end of each wheel, and means for revolving the wheels, substantially as described.

3. The combination of the cutter bar composed of two plates separated by sleeves and united by bolts passing through the sleeves; with sprocket wheels journaled on said sleeves and having removable interchangeable knives independently secured to their hubs, and the sprocket chain and gearing for driving said wheels, substantially as described.

4. The combination of the cutter bar and sprocket wheels thereon carrying cutters; with the bracket H adjustably bolted to the end of said bar to enable the tension of the chain to be regulated; the shaft K, gear L, and sprocket *c*, chain O and shaft I and gear *i*, substantially as and for the purpose specified.

5. The combination of the plate A having upturned flange *a* with the fingers G having extensions *g*, under the plate and bolted thereto and lateral extensions G' overlying the flange *a*, substantially as described.

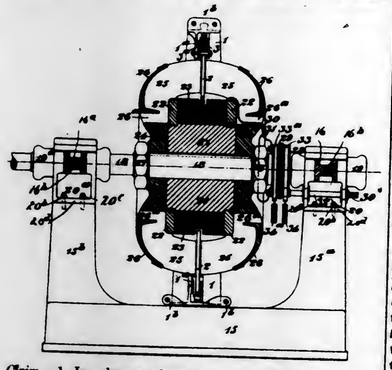
6. The combination of the plate A having upturned flange *a* with the fingers G having extensions *g*, under the plate and bolted thereto, and lateral extensions G' overlying the flange *a*; with the wheels journaled on the bar in rear of the flange, and the cutters carried by said wheels adapted to project beyond and over said flange and extension, and means for revolving said wheels, substantially as described.

7. The combination of the bar, the revoluble wheels thereon carrying interchangeable and independently removable cutter knives, and the guard fingers in front of the wheels having lateral extensions, and rear extensions underlying, and, secured to the bar by the same bolts that the wheels are journaled on, substantially as and for the purpose set forth.

8. The combination of the cutter bar having slots A′ and a′ in its end, the bracket H and plate J bolted thereto, the shaft K journaled in said bracket and plate, and the bevel gearing for driving said shaft, substantially as described.

9. The combination of the cutter bar having slots A′ and a′ in its end, the bracket H and plate J bolted thereto, the shaft K journaled in said bracket and plate, and the gearing for driving said shaft; with the sprocket wheels journaled on the bar, the cutters carried thereby, and the sprocket chain for driving said wheels from shaft K, all constructed and arranged to operate substantially as described.

493,104. DYNAMO-ELECTRIC MACHINE. WILLIAM M. MORDEY, London, England. Filed Apr. 28, 1891. Serial No. 390,861. (No model.)



Claim.—1. In a dynamo electric machine of the type herein referred to, a laterally detachable armature coil, such as 2, a pair of plates between which the outer end only of said coil is clamped, and bolts extending through said plates and coil, projecting laterally from one side thereof, and adapted to be secured to an armature supporting frame, substantially as herein described for the purpose specified.

2. In a dynamo electric machine of the type herein referred to, an armature comprising a supporting frame, a series of laterally detachable coils, plates between which said coils are clamped at their outer ends only, and horizontal bolts connecting said plates and coils and having extensions adapted to be secured to said frame, some of said plates being formed with holes for the passage of the ends of the corresponding coil, substantially as herein described.

3. In a dynamo electric machine, an armature comprising a supporting frame and a series of laterally detachable and radially adjustable armature coils secured near their outer ends to said frame, substantially as herein described.

4. In a dynamo electric machine, an armature comprising a supporting frame having an inwardly projecting flange, a series of armature coils laterally attached to and radially adjustable on said flange, and a series of screws arranged between said frame and the outer ends of said coils, and each adapted to adjust the radial position of the corresponding coil, substantially as herein described.

5. In a dynamo electric machine, an armature comprising a stationary non-magnetic supporting ring having an inwardly projecting flange, a series of armature coils, a series of plates arranged in pairs between each of which one of said armature coils is clamped, one of the plates of each pair being formed with holes for the passage of the ends of the corresponding coil, and the other being formed with outwardly extending projections, bolts extending laterally from said coils and whereby said coils are clamped at their outer ends between said plates and secured to the side of said flange, and a series of adjusting screws each having its shank extending through a screw threaded hole in said ring, and its head engaged with said projections substantially as herein described for the purpose specified.

6. In a dynamo electric machine, the combination of a rotary field magnet having a single winding and two series of radial curved polar extensions 25 of unlike polarity, and a stationary armature comprising a non-magnetic supporting frame having an inwardly projecting flange, and a series of coils attached by their outer ends to one side of said flange and extending into the space between the series of polar extensions substantially as herein described.

7. In a dynamo electric machine the combination of a rotary field magnet having two series of magnetic poles and a stationary armature comprising a non-magnetic supporting ring, a series of armature coils, and plates arranged in pairs between each of which one of said coils is clamped near its outer end one of the plates of each pair being formed with holes for the passage of the ends of the corresponding coil substantially as herein described.

8. In a dynamo electric machine, the combination of a rotary field magnet having two series of magnetic poles, a non-magnetic supporting frame, and an annular series of laterally detachable and radially adjustable armature coils secured near their outer ends to said frame and extending between the two series of magnetic poles substantially as herein described.

9. In a dynamo electric machine, the combination of a rotary field magnet, and a stationary armature comprising coils connected in series, one of said coils having its ends in connection with two insulated terminals, substantially as herein described for the purpose specified.

10. In a dynamo electric machine, the combination of a stationary armature comprising an annular series of coils, and a rotary field magnet having a single winding, said magnet comprising a central portion or core extending axially through said armature and dished end portions 24 each formed with a series of curved polar extensions 25, the air spaces between each series of which are closed at the outer sides for part of their length by a web or shielding piece 26 having a number of lateral openings therein, substantially as herein described for the purpose specified.

11. In a dynamo electric machine, an armature comprising an annular series of coils divided into two or more independent groups that are arranged in the same vertical plane, but are separated from each other in the circular direction to an extent less than the angular width of one or more of said coils substantially as herein described for the purpose specified.

12. A multiple phase dynamo electric machine comprising a rotary field magnet having a single winding and two series of magnetic poles and a stationary armature comprising coils secured at their outer ends to an annular non-magnetic support and arranged in two or more independent groups located in the same vertical plane between the two series of magnetic poles, the groups of coils being separated from each other in a circular direction to an angular extent less than the angular width of one or more of said coils substantially as herein described for the purpose specified.

493,105. AWNING. JULES MORKIN, Norfolk, Va. Filed Oct. 24, 1892. Serial No. 449,780. (No model.)



Claim.—1. The herein described awning, comprising a series of pivoted metallic sections or strips, arranged side by side transversely of the pavement, said sections or strips consisting each of a raised horizontal portion E, and a depressed or trough portion E′, each of said portions being of corresponding form in cross section, but inverted in their relation to each other, said sections or strips being arranged to overlap their vertical flanges when the awning is closed, substantially as specified.

2. In an awning, the combination with the frame or support, and the series of parallel pivoted strips or sections having each a raised and a depressed or trough portion, said strips being arranged transversely of the pavement and having flanges which overlap each other when the awning is closed, of a bar G extending transversely of the awning and loosely connected to each of said strips or sections, the ropes connected to said bar at opposite sides of its central portion, the pulleys or blocks for said ropes, the arm L′ of the frame serving as a stop, and the hood, substantially as specified.

3. The herein described awning, comprising a supporting frame, a series of strips pivoted in said frame, and arranged side by side in transverse relation to the pavement, said strips being inclined from their upper ends downward, and consisting each of a raised portion E, and a depressed portion E′ forming a trough, the raised portion of one section being arranged to partially overlap the trough portion of the adjacent section, a bar extending transversely of said sections and

loosely connected to each, the ropes connected to said bar at opposite sides of its central portion, and the pulleys or blocks for said ropes, substantially as specified.

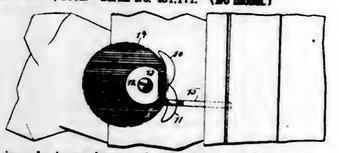
493,106. METHOD OF PRODUCING WHITE LEAD. NORMAN K. MORRIS and JOHN W. BAILEY, Denver, Colo. Filed Jan. 3, 1893. Serial No. 457,141. (No specimens.)



Claim.—1. The hereinbefore described improvement in the method of producing white lead, which consists in forming lead fiber into independent masses, coherent but not substantially compressed, and exposing said masses to the action of acetic acid, carbonic acid and aqueous vapor, substantially as set forth.

2. The hereinbefore described improvement in the method of producing white lead, which consists in forming lead fiber into independent masses, coherent but not substantially compressed, charging said masses with dilute acetic acid by dipping, and exposing the charged masses to the action of carbonic acid and aqueous vapor, substantially as set forth.

493,107. SASH-FASTENER. ROBERT D. MURPHY, Baltimore, Md. Filed Nov. 7, 1892. Serial No. 451,171. (No model.)

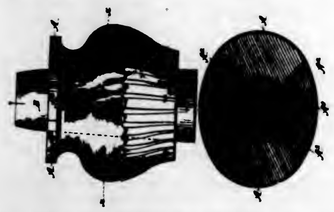


Claim.—1. As an improved article of manufacture, a window fastener and lock, the same consisting of a disk eccentrically pivoted, and hooks held in frictional engagement with the disk, as and for the purpose specified.

2. As an improved article of manufacture, a window fastener and lock, the same consisting of a disk having a roughened exterior and eccentrically pivoted, and oppositely projecting twin hooks the shank of which is pivoted correspondingly to the disk, substantially as and for the purpose set forth.

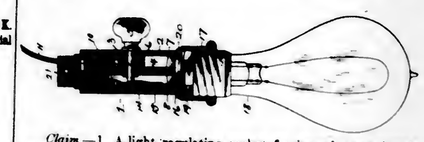
3. In a window lock and fastener, a fastening device consisting of an elastic disk, such as rubber, eccentrically pivoted, and a locking device consisting of a stiff plate shaped to form twin hooks and a common shank, the shank being pivoted by the same pivot pin pivoting the disk, as and for the purpose specified.

493,108. MANUFACTURE OF OVAL OR OBLONG SHELLS FOR PLATED WARE, &c. WILLIAM MCAULAND, Taunton, Mass., assignor to the Reed & Barton Corporation, same place. Filed Oct. 3, 1892. Serial No. 447,746. (No model.)



Claim.—The method herein described of forming seamless oval or oblong shells of ductile or plastic material, which consists in first making a round seamless shell, and then expanding it to an oval or oblong shape by introducing successively sectional former blocks of different size and shape, and expanding these blocks progressively by a tapering plug forced centrally through the same, the larger end sections being first inserted expanded and retained, and the smaller side sections being successively added substantially as shown and described.

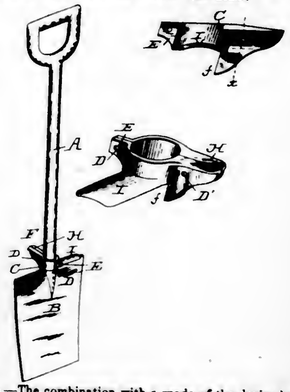
493,109. INCANDESCENT-LAMP SOCKET. JAMES F. MCLAUGHLIN, Philadelphia, Pa. Filed Sept. 13, 1892. Serial No. 445,785. (No model.)



Claim.—1. A light regulating socket for incandescent electric lamps, having an incomplete carbon ring housed within the socket, and provided with an insulating portion projecting beyond the periphery of the ring, and a brush bearing upon the carbon ring in the path of the insulating block, substantially as described.

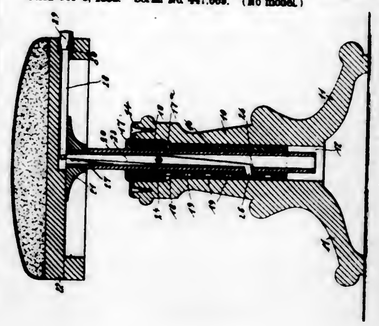
2. A light regulating socket for incandescent electric lamps, having a rotatable member housed within the socket and carrying an incomplete carbon ring provided with an insulating portion projecting beyond the periphery of the ring; a stationary brush bearing upon the ring in the path of the insulating block, and stops for arresting the movement of the rotatable member when the brush bears on the insulating portion, substantially as described.

493,110. SPADE ATTACHMENT. GEORGE H. ORTHWEIN, Broken Sword, Ohio, assignor of one-half to Jeremiah F. Orthwein, same place. Filed Oct. 3, 1892. Serial No. 447,670. (No model.)



Claim.—The combination with a spade of the device herein described, cast in two parts, and comprising, when placed together, the socket, C, ears, E, brackets, F, having downward extensions, *f*, and top flanges forming the bearing, H, and laterally projecting plate, I, adapted to overlap the spade blade on one side; substantially as and for the purpose herein shown and described.

493,111. PIANO-STOOL. CHARLES O. PARSONS, Milwaukee, Wis. Filed Oct 3, 1892. Serial No. 447,669. (No model.)



Claim.—1. A piano stool comprising the vertically bored pillar or support provided with a freely revoluble sleeve 16, within its bore, said sleeve being provided with a flange around its upper end, and a longitudinal internal groove intersected by transverse recesses or apertures, a seat having a hollow vertical shaft extending down into said sleeve and provided with a latch the nose or locking end of which normally engages one of said recesses or apertures and when retracted therefrom engages the said longitudinal groove to prevent the shaft from turning within said sleeve and means for operating said latch, substantially as set forth.

2. A piano stool comprising a hollow pillar, a bushing held in the top of the pillar bore, a sleeve arranged longitudinally in the bore and bushing, the sleeve having a top flange to engage the bushing, a laterally extending pin held to turn beneath the lower edge of the bushing, and a vertical row of notches, a hollow shaft extending longitudinally through the sleeve and having a seat at its upper end, a spring pressed latch arranged within the shaft and having a bent end extending through a hole in the shaft and adapted to engage the holes in the sleeve, and a push rod held to slide beneath the seat of the stool, the inner end of the rod being connected with the upper end of the latch, substantially as shown and described.

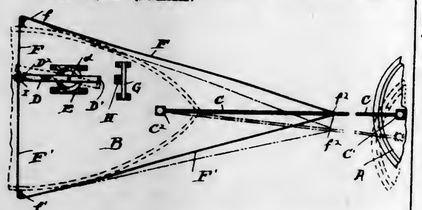
498,112. DOOR-CHECK. JAMES S. PATTEN, Baltimore, Md., assignor to himself and Morton Schaeffer, same place. Filed Oct. 10, 1892. Serial No. 448,466. (No model.)



Claim.—1. A door check comprising a securing plate having a horizontally projecting arm, an elastic disk eccentrically pivoted on such arm and having a flattened contact portion extended to each side of the axis of such disk, whereby stop faces at opposite sides of such pivot are provided when such contact portion is turned to engage the floor, substantially as and for the purposes described.

2. In a door check, in combination, the plate A, having a projecting arm *a*, the elastic disk B approximately crescent shape, whereby opposite stops or contact portions *b b'*, are formed, said disks pivoted on such arm *a* centrally of and above the stops *b b'*, all arranged substantially as shown and for the purposes described.

498,118. APPARATUS FOR INDICATING THE POSITION OF TOWS. ANDREW PETERSON, Cleveland, Ohio. Filed Oct. 1, 1892. Serial No. 447,508. (No model.)

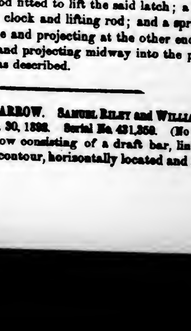


Claim.—1. The combination with a tow rope or tow line, of an indicator located on the vessel and operatively connected with the tow line said indicator having a lantern or light thereon and a frame also located on the vessel in proximity to the indicator, said frame provided with a light or lantern, substantially as set forth.

2. The combination with a tow-rope or tow-line, of a horizontally swinging indicator mounted on and extending lengthwise of the boat or vessel being towed, ropes or lines connecting said indicator with the tow-line substantially as indicated, guiding-devices for said connecting-ropes or lines, a frame or object, located directly forward of the indicator, the latter having an upwardly-extending arm or member adapted to range with said frame or object when said boat or vessel and tow-line are directly in line, substantially as and for the purpose set forth.

3. The combination with a tow-rope or tow-line, of a horizontally-swinging indicator mounted on and extending lengthwise of the boat or vessel being towed, ropes or lines connecting said indicator with the tow-line, substantially as indicated, guiding devices for said connecting-ropes or lines, an upright frame or object, located directly forward of the indicator, a light or lantern supported by said frame or object, and a light or lantern supported by the indicator and adapted to range with the light or lantern on the frame or object aforesaid when said boat or vessel and tow-line are directly in line, substantially as and for the purpose set forth.

498,114. ATTACHING BAIL-EARS TO SHEET-METAL CANS OR PAILS. HARRY T. PORTER and JOSEPH HAAS, Philadelphia, Pa., assignors to Isaac Porter and Harry T. Porter, same place. Filed Feb. 29, 1892. Serial No. 423,227. (No model.)



Claim.—1. A sheet metal can or pail having a bail ear hung upon and supported against downward movement by engagement with the body thereof, and confined thereto by a bent-portion of said can or pail, substantially as specified.

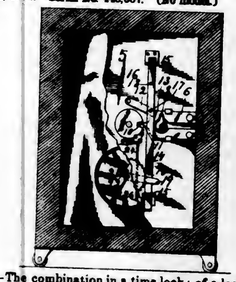
2. A sheet metal can or pail having in the body a recess at or near the top, and a bail ear seated in said recess and confined thereto by a bent portion of the said can or pail, substantially as specified.

3. A sheet metal can or pail having in the body at or near the top a recess with cupped or dished portion, and a bail ear seated in said recess and confined thereto by a bent portion of the said can or pail, substantially as specified.

4. A sheet metal can or pail having notches in the upper edge of its body, and a bail ear having undercut projecting lugs adapted to said notches and retained therein by a bent portion of the can or pail top, substantially as specified.

5. A sheet metal can or pail having a top with rim or flange soldered to the body, and a bail ear confined to said rim or flange of the can top, and soldered to the body therewith, substantially as specified.

493,115. TIME-LOCK. NAPOLEON B. REED, Lincoln, Kans. Filed July 21, 1892. Serial No. 440,807. (No model.)

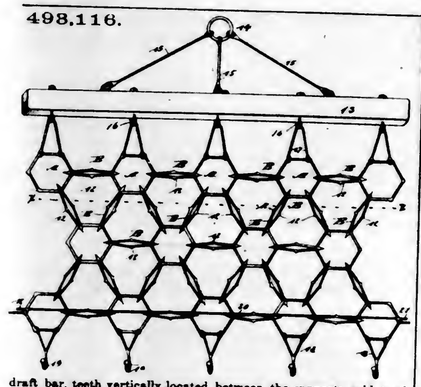


Claim.—The combination in a time lock; of a locking bolt fitted to slide in a frame; a latch to engage and stop the bolt; a clock upon the said frame; a rod fitted to lift the said latch; a lever communicating between the clock and lifting rod; and a spring rod fixed at one end to the frame and projecting at the other end into the path of the clock hand, and projecting midway into the path of the said lever, substantially as described.

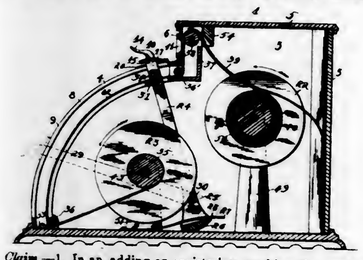
493,116. HARROW. SAMUEL RILEY and WILLIAM BYARS, Huron, Kans. Filed Apr. 30, 1892. Serial No. 431,252. (No model.)

Claim.—A harrow consisting of a draft bar, link-like supports polygonal in general contour, horizontally located and attached to the draft bar, teeth vertically located between the supports, said teeth being of link shape of rectangular contour and provided with spurs at the corners, the supports passing through the teeth, the teeth being arranged between the supports, one row parallel with the draft bar and the next diagonally with respect to said bar, and a tension bar resting upon the supports, the outer face of the bar being bifurcated, the members of the bifurcated portions receiving between them the outer edges of the outer supports of the harrow as and for the purpose specified.

498,116.



498,117. ADDING OR REGISTERING MACHINE. WILLIAM A. RITCHIE, St. Louis, Mo., assignor of one-half to Edward F. Marits, Sr., same place. Filed July 13, 1892. Serial No. 439,955. (No model.)



Claim.—1. In an adding or registering machine, the combination, with a casing provided with a graduated face plate, and a graduated indicating tape movable in said casing, of an operating lever provided with a pointer, and means carried by said lever for automatically feeding said tape when the lever is operated; substantially as and for the purpose set forth.

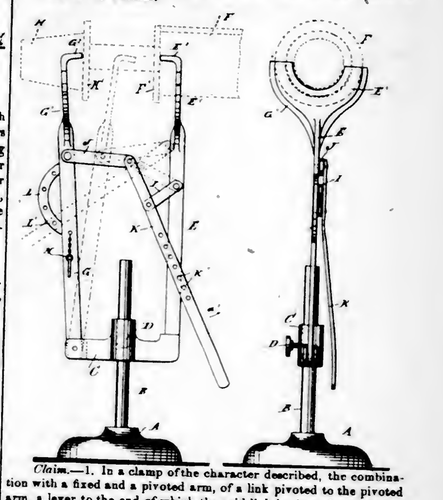
2. In an adding or registering machine, the combination, with a casing provided with a slotted, graduated face plate, and a graduated indicating tape movable in said casing, of an operating lever provided with a pointer, a cam journaled on said lever and provided with a handle, said cam automatically binding on the tape when the handle is depressed; substantially as and for the purpose set forth.

3. An adding or registering machine constructed with a gripping attachment, consisting of a rocking-frame 24 pivotally mounted near its lower end in standards 25, and having its lower end 26 weighted to facilitate the action of a spring 27 in contact with said lower cross-piece 26, the top cross-piece 32 of said frame 24 having an upwardly projecting plate 31 traveling in a guide 29, said plate 31 having its outer surface rounded to conform with the circular outline of the guide 29, projections 33 engaging the outer sides of said guide 29, and having eccentrically pivoted therein, a cam 34 with a projection 19 onto which is screwed a handle 14, by means of which said gripping attachment is manipulated and the gripping of said tape being caused by the pressure upon the handle 14 which is imparted to the cam 34 by reason of its connection with said handle 14 and the eccentric portion of said cam 34 clamping the tape 12 between its surface and the rounded surface of the plate 31 traveling in the guide 29, substantially as set forth.

4. An adding or registering machine constructed with a gripping attachment manipulated directly by a handle 14 having a spring 17 formed with a pointer 16 and a traveler 20 secured between the base of said handle 14 and the track 9 of the face-plate 4 and adapted to throw the handle up and consequently keep the eccentric portion of the cam 34 out of contact with the tape 12, substantially as set forth.

5. An adding or registering machine having a vibrating frame 24, with a weighted lower cross piece 26, said frame 24 pivoted in standards 25, a guide 29 of the shape of a quadrant of a circle with the pivotal point 30 of said frame 24 as the center of its radius and a plate 31 formed with the upper cross-piece 32 of said rocking frame 34 traveling in said guide 29 in the plane of its radius, and guide 29 forming a surface guide for the passing of the tape 12 over same, substantially as set forth.

498,118. CLAMP. WALTER H. ROBINSON, St. Paul, Minn., assignor to Robinson & Taylor, same place. Filed Aug. 24, 1892. Serial No. 443,963. (No model.)



Claim.—1. In a clamp of the character described, the combination with a fixed and a pivoted arm, of a link pivoted to the pivoted arm, a lever to the end of which the said link is pivoted, a link pivoted to the fixed arm and to the lever, and means for locking the said lever in position, substantially as described.

2. In a clamp of the class described, the combination, with a base and a post set thereon, of a bracket held adjustably on the said post, a fixed arm carried by the said bracket, a second arm pivoted on the said bracket, and a mechanism for connecting the said pivoted arm with the fixed arm to move the former toward and from the said fixed arm, substantially as shown and described.

3. In a clamp, of the class described, the combination with a base provided with a post, a bracket held vertically adjustable thereon, an arm secured on the said bracket and provided with a fork, a second arm pivoted on the said bracket and also provided at its free end with a fork, links pivotally connected with the said arms, and a lever pivoted to the said links, substantially as shown and described.

4. In a clamp, of the class described, the combination with a base provided with a post, a bracket held vertically adjustable thereon, an arm secured on the said bracket and provided with a fork, a second arm pivoted on the said bracket and also provided at its free end with a fork, links pivotally connected with the said arms, a lever pivoted to the said links, and a locking mechanism for fastening the said lever in position, as set forth.

493,119. LATHE-CENTER. WILLIAM C. ROE, Honolulu, Hawaii. Filed Apr. 19, 1892. Serial No. 429,733. (No model.)



Claim.—1. In a lathe center, the combination with an inner fixed center, of an outer conical center on the fixed center, and a nut on the inner center and engaging the outer center to connect the two together, substantially as described.

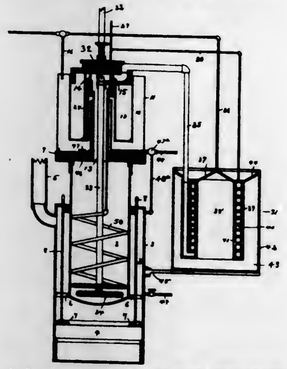
2. In a lathe center, the combination with an inner tapered center provided with a shoulder bearing and a conical point, of an outer center on the inner center and provided with inner and outer bearings, and a nut on the inner center and engaging the outer center, substantially as described.

3. In a lathe center, the combination of an inner center provided with the longitudinal lubricating passage I, recessed cell B' and groove I' and an outer center provided with the bearings F G, substantially as herein shown and described.

4. A lathe center provided with a fixed or dead center having a tapered stem bearing part, and having a cone-shaped shoulder bearing on the rear end of said stem bearing, and a conical angled center point on front end of said stem and adapted to engage the outer center: and provided with two grooves, one on the top side of stem, the other one on the under side of stem, the groove on top side of stem connecting with the hole behind the base of the front conical face and leading to the axial point at front end of said conical face, the two grooves extending longitudinally along the stem, from directly behind the base of the front conical angled center face and rearwardly, and through the rear cone-shaped shoulder-bearing, substantially as shown and described.

5. In a lathe center, the combination with a fixed or dead center having a pointed part, of an outer center made cone-shaped and formed with bearings adapted to engage the said pointed part, gibe fitted to slide on the sides of the said outer cone-shaped center, and a nut held on the said fixed or dead center and adapted to screw into the base of said outer center, substantially as shown and described.

498,120. REFRIGERATING APPARATUS. JOSEPH SCHEUERBRAND, Toledo, Ohio, assignor, by direct and mesne assignments, of seven-eighths to John W. Hahn, same place, and E. R. Perry, Indianapolis, Ind. Filed Nov. 7, 1890. Serial No. 370,677. (No model.)



Claim.—1. In an apparatus for the manufacture of ice and for refrigerating purposes, a still, a jacket or shell surrounding the same and forming an annular chamber, a furnace beneath the same, and a movable closure for opening or closing the annular chamber.

2. In an ice machine, the combination with the water tank, of an annular vessel arranged therein, said vessel being provided with a tortuous passage to receive a cooling medium, and a perforated annular trough arranged in the top of the water tank and adapted to spray the water as it passes into said tank.

3. In an ice machine the combination with the still, of a water tank arranged above the same, an annular gas receiver, arranged within the water receptacle, pipes communicating centrally with the still and receiver, and pipes for carrying off the gas from the receiver.

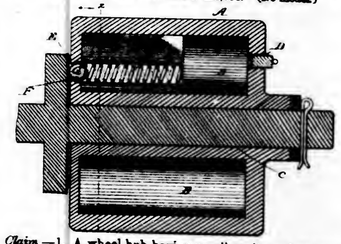
4. The combination with a still, of a pipe extending centrally therefrom, a rotary valve arranged at the head of said pipe, an annular receiver surrounding said pipe, a water tank in which the receiver is located and the necessary pipes for conducting the gas from the receiver.

5. In an ice machine, the combination with a still having a pipe arranged therein, perforated at its lower portion, and adapted to lead cold ammonia from the place of refrigeration to the still, a pipe extending from the upper end of still, a gas receiver surrounding this pipe, a water receptacle surrounding the gas receiver, a pipe leading from the gas receiver, an annular receptacle to which this pipe leads, and a water tank surrounding the annular receptacle, and adapted to receive the water to be cooled.

6. In an ice machine the combination with the still of a water tank arranged above the same an annular chamber surrounding the still a water pipe connecting the water tank and annular chamber, an annular gas receiver arranged in the water tank, a central pipe communicating with the still and gas receiver, the valve, and pipes connected therewith for conducting the gas away.

7. In an ice machine the combination with the still of a water tank an annular gas receiver, a central pipe connecting the still and receiver, the valve, and the coiled pipe 50 communicating with the receiver and extending into the still for the purpose of cooling the same.

498,121. AXLE-LUBRICATOR. JOHN W. SCHOAF, McKeesport, Pa. Filed May 5, 1892. Serial No. 431,963. (No model.)



Claim.—1. A wheel hub having an oil cavity and provided with an outlet opening therefrom and with a valve controlling and normally seated to close said opening and provided with a projection or portion arranged for engagement by a contact surface, whereby said valve may be moved by such engagement off its seat to permit the discharging of oil through the outlet opening substantially as and for the purposes set forth.

2. A wheel hub having an oil cavity or reservoir provided at the end of the hub with an outlet opening a valve controlling said opening and normally seated to close the same, combined with a contact surface at the end of the hub and arranged and adapted to move said valve off its seat to permit the escape of oil, substantially as set forth.

3. A wheel hub having an oil cavity and provided with an outlet opening therefrom and a perforated tube in said cavity surrounding the outlet opening and the spring pressed valve normally seated to close said opening and provided with a projecting portion for engagement by a contact surface whereby the valve may be moved from its seat to permit the escape of oil, substantially as set forth.

4. A wheel hub having an oil cavity and provided with an outlet opening leading therefrom and a valve controlling said opening, a perforated tube and a stop plate extending from said tube within said oil cavity to the outer wall of the oil cavity, substantially as and for the purposes set forth.

5. The combination with the wheel hub having an oil cavity and provided with an outlet opening leading therefrom, of the perforated tube surrounding said opening and projecting into the oil cavity, the valve fitted in said tube and arranged to close the outlet opening and having a portion projecting beyond the latter for engagement by the contact surface and the spring for actuating said valve, such spring being also fitted in the perforated tube, substantially as set forth.

6. In a wheel, the combination of the hub having the oil cavity B and the outlet opening F leading therefrom, the perforated tube or cylinder I, in said cavity and surrounding the outlet opening the ball valve G and sprisg H and the stop plate J extending from said tube to the wall of the oil cavity, substantially as set forth.

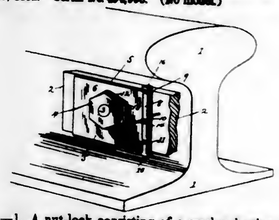
7. In a wheel substantially as described, the combination of the hub having cavity B and outlet F, the perforated tube or cylinder projected from said outlet into the oil cavity and the stop plate J, extended inward from the outer wall of the oil cavity, substantially as set forth.

8. The hub oiler substantially as described, having its hub provided with an oil cavity having an outlet opening, the perforated tube I in said cavity, the ball valve in said tube, the spring for actuating said valve and the stop plate J extended inward from the wall of the oil cavity, substantially as set forth.

9. In an oiler substantially as described, a hub having an oil cavity and provided with an outlet or discharge from said cavity opening out of the inner end of the hub, and a valve normally seated to close said outlet and having a projecting portion for engagement by a contact surface, in combination with a contact surface arranged at the end of the hub and adapted to move the valve inward when engaged thereby all substantially as and for the purposes set forth.

10. A hub having an oil cavity, an oil discharge opening and a plate arranged in the oil cavity extended longitudinally in the direction of the axis of the hub and projected inward from the outer wall of the cavity approximately to the line of the oil discharge opening substantially as set forth.

498,122. NUT-LOCK. JOHN W. SCHOAF, McKeesport, Pa. Filed Dec. 13, 1892. Serial No. 454,993. (No model.)

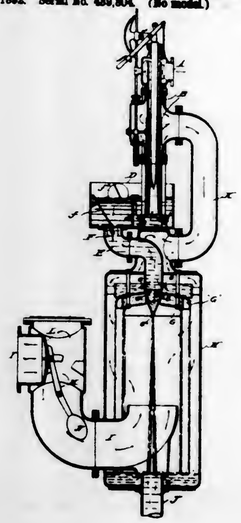


Claim.—1. A nut-lock consisting of a washer having a tubular socket provided with a plurality of transverse slots or notches, a nut-grip having an angularly-extending arm adapted to engage with either of the notches in said socket, and a pin removably seated within said socket and gripping said arm therein, substantially as and for the purpose set forth.

2. A nut-lock consisting of a washer having its end recurved to constitute a tubular socket, said socket having transversely along its length a series slots, a nut-grip adapted to fit and be turned upon the nut and having an angularly-extending arm provided with one or more curved portions and adapted to engage and rest within the notched portion of said socket, and a pin or bolt removably seated within said socket and adapted to frictionally engage with the curved portions of the arm of the nut-grip seated within said socket, substantially as and for the purpose set forth.

3. A nut-lock consisting of a nut-grip having an outwardly-extending arm and adapted to grip and tighten the nut, a washer having a tubular bolt-receiving socket having transverse open slots or notches adapted to receive the arm of the nut-grip in its adjusted position, and a bolt removably seated within said socket and adapted to grip the arm of the nut-grip therein and permit of the ready adjustment of the position of said arm within said socket, substantially as and for the purpose set forth.

498,123. CONDENSER. LOUIS SCHUTTE, Philadelphia, Pa. Filed July 13, 1892. Serial No. 439,804. (No model.)



Claim.—1. In a condensing apparatus the combination of an induction pipe or passage, a spraying chamber having a vapor inlet, and an exhaust pipe or passage leading from the spraying chamber and communicating with the induction pipe.

2. In a condensing apparatus the combination of an induction pipe or passage adapted to be connected with a water supply, a spraying chamber connected with the induction pipe to receive water therefrom, and having a vapor inlet, and an exhause pipe or passage leading from the spraying chamber and communicating with the induction pipe.

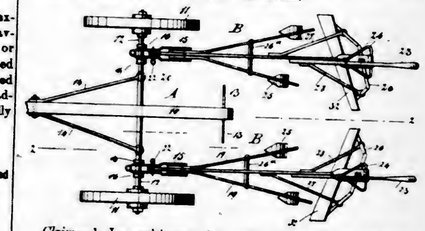
3. In a condensing apparatus the combination of an induction pipe or passage, a spraying chamber having a vapor inlet, a tank or reservoir into which the indnction pipe projects and discharges, and which in turn discharges into the spraying chamber, and an exhaust pipe or passage leading from the spraying chamber and communicating with the induction pipe.

4. In a condensing apparatus the combination of an induction pipe or passage, a spraying chamber having a vapor inlet, a tank or reservoir into which the induction pipe projects and discharges, an outlet passage leading from said tank to the spraying chamber, a float valve controlling said passage, and an exhaust pipe or passage leading from the spraying chamber and communicating with the induction pipe.

5. In a condensing apparatus the combination of the induction pipe, the spraying chamber connected therewith, and having an inlet passage near the bottom and an outlet at the top, a water supply opening into the chamber, means for spreading or spraying the water and a suction pipe leading from the spraying chamber to the induction pipe.

6. In a condensing apparatus, the combination of the induction pipe, the spraying chamber connected therewith, a water supply opening into the spraying chamber, means for spreading or spraying the water within the chamber, and the suction pipe connecting the spraying chamber with the induction pipe.

498,124. CULTIVATOR. BLUFORD T. SCOTT, Milford, Ill. Filed Nov. 12, 1892. Serial No. 451,827. (No model.)

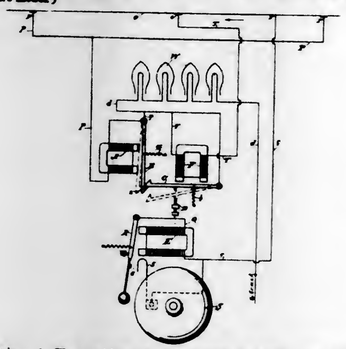


Claim.—1. In a cultivator, the combination, with an axle, and beams arranged in groups of three pivotally and adjustably connected with the axle, the said beams comprising a long central beam and shorter outer beams, of cultivator blades attached to the outer beams, and a gopher blade adapted to cover the track of the cultivator blades, the gopher blade having an adjustable connection with the central or longer beam, as and for the purpose specified.

2. In a cultivator, the combination, with an axle, clevis arms pivotally attached to the axle, and beams arranged in connected groups of three adjustably located in the clevis arms, each group of beams comprising a central long beam and two outer shorter beams, of cultivator blades attached to the outer beams, yoke-like shanks having a swivel connection with the rear ends of the central beams, gopher blades carried by the said shanks, the said gopher blades crossing the path of the cultivator blades, and adjusting bars connecting the shanks with the central beam, as and for the purpose set forth.

3. In a cultivator, the combination, with a bow or yoke axle, supporting wheels loosely mounted thereon, a pole carried by the central upper portion of the axle, and clevis arms pivoted upon the axle, one at each side of its center, of beams arranged in connected sets of three adjustably connected with the clevis arms, each set comprising a central beam and two outer beams of less length spaced from the center beam, cultivator blades secured to the outer beams of the sets, yoke-like shanks having a swivel attachment to the outer end of the central beam, a gopher blade carried by each of the shanks, the gopher blades crossing the path of the cultivator blades, and adjustable, removable and interchangeable bars connected with the members of the shanks and also with opposite sides of the central beam of the sets of beams, as set forth.

498,125. ELECTRIC-RAILROAD DANGER SIGNAL AND BELL. PAUL SEILER, San Francisco, Cal. Filed July 13, 1892. Serial No. 439,892. (No model.)
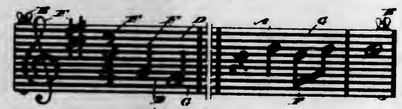


Claim.—1. The combination with an electric railway and the conducting trolley wire thereof, of a danger signal and a mechanism by which said signal is electrically actuated comprising magnets A, F and E with their armatures and connecting wires, and contact making devices by which the current is diverted from the main conducting wire to actuate the magnets, whereby the signal mechanism is first set into operation and afterward caused to cease by the passage of the trolley of a passing car over the contact making devices, substantially as herein described.

2. An electric danger signal consisting of lights and audible signal, the magnets A and F with armatures B and C arranged with relation to the magnets and each other as shown, a magnet E and bell sounding mechanism actuated thereby, wires connected with said magnets and with the conducting trolley wire of an electric railway, and contact making devices whereby the signal mechanism is first set into operation and afterward caused to cease by the passage of the trolley of a passing car over the contact making devices, substantially as herein described.

3. A trolley wire, the suspension piece to which the trolley wire is fixed, a stud extending vertically upward from said suspension piece, an insulated guide within which the stud is movable, and an elastic arm with which the stud is brought into contact by the passage of the trolley beneath the suspension piece, and wires leading from said arm to the signal mechanism which is actuated thereby, substantially as herein described.

4. An electric signal apparatus consisting of the magnets A, F and E with their armatures and connecting wires, the lamps W situated in the circuit between the magnets and the conducting trolley wire of an electric railway, contact making devices by which the current is diverted from the main conducting wire to actuate the magnets, connected mechanism and signal devices when the arm passes a certain point, and again actuated when the arm passes another point to cut off the signal, substantially as herein described.

498,126. MUSIC-BOARD. HARRY & SHARPE Seattle, Wash. Filed Aug. 9, 1892. Serial No. 442,551. (No model.)

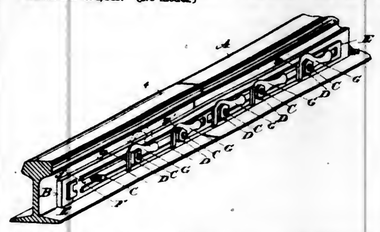


Claim.—1. A music board comprising a series of connected bars provided with notation lines, and music characters each provided with a rearwardly extending lug adapted to be inserted between two adjacent bars to hold the character in the proper position relative to the notation lines, substantially as shown and described.

2. A music board comprising a series of bars located one above the other, bolts for holding the bars together, and springs for pressing the bars apart to form spaces between two adjacent bars, substantially as shown and described.

3. A music board comprising a series of bars located one above the other, bolts for holding the bars together, springs for pressing the bars apart to form spaces between two adjacent bars, and music characters each provided on its rear with a lug adapted to be inserted between adjacent bars, substantially as shown and described.

498,127. NUT-LOCK. SAMUEL J. STEVENS, Springfield, Ohio, assignor of one-half to David S. Trimmer, same place. Filed Dec. 6, 1892. Serial No. 454,445. (No model.)

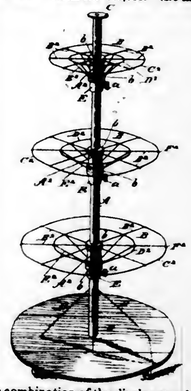


Claim.—1. In a nut lock, the combination with a supporting bar having longitudinal recesses or grooves forming overhanging lips, of a locking plate having a double-tongued projection adapted to enter said grooves or recesses and engage therewith by rotating the plate, and having also a hook portion to engage with the bar and maintain the plate in locking position.

2. In a nut lock, the combination with a supporting bar having longitudinal slots to admit the fastening bolts, and recessed along the edges of the slots, of a spring locking plate having a double-tongued projection at one end adapted to enter the slots and engage with the recesses by turning into locking engagement with the adjacent nut, and a hook portion forming a lip adapted to snap over the said bar after such rotation and maintain the plate in locking position.

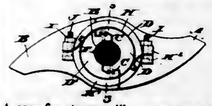
3. In a nut lock, the herein described locking plate, the same consisting of a resilient piece adapted to engage with a nut, and having a double tongued projection on one end, and a hook portion forming a lip, the resiliency of the plate admitting of the lateral engagement of the lip portion, substantially as shown and described.

498,128. DISPLAY-STAND. WILLIAM R. STOW, Newborn, Ga. Filed July 15, 1892. Serial No. 440,055. (No model.)



Claim.—The combination of the display stand with central standard, rotary display wheels and cap C at its upper end, the canopy D^4 with cap B^4 secured to the cap C of the standard, ring A^4 secured to the bottom of the canopy, and the cords E^4 fastened to the cap B^4 and extended thence down through pulley on the ring A^4 and thence up and over pulleys to a handle as described.

498,129. CAM FOR STAMP-MILLS. GEORGE A. THOMPSON, Tombstone, Ariz. Filed June 29, 1892. Serial No. 438,364. (No model.)



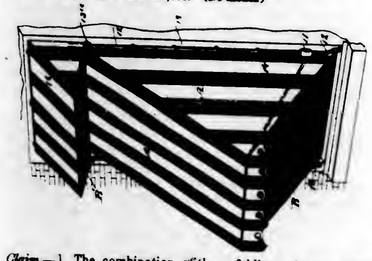
Claim.—1. A cam for stamp mills, comprising two interlocking toothed sections each provided with a hub portion, and a sectional band engaging the hub portions and provided with lugs for the reception of bolts, substantially as described.

2. A cam for stamp mills, comprising two interlocking sections each provided with a hub portion, screws passing through the hub portions of the sections, for engagement with the shafts and a sectional band surrounding the said hub portions, substantially as described.

3. A cam for stamp mills, comprising two sections provided with hub portions, the sections being fitted one onto the other by an irregularly shaped and toothed joint, screws passing through the hub portions and adapted to engage the shaft, and a sectional band surrounding the hub portions and provided with apertured lugs for the reception of bolts, substantially as described.

4. A device of the class described, comprising cam sections formed with hub sections and adapted to be united by an irregular joint, a band encircling the hub sections to lock the cam sections in place, the said band being made in sections, bolts engaging lugs on the said band sections to fasten the latter together, and split keys for locking the nuts of the said bolts in position, as set forth.

498,130. AWNING. RODOLPH D. THORNTON, Brooklyn, N. Y. Filed May 3, 1892. Serial No. 431,633. (No model.)



Claim.—1. The combination with a folding window awning closed at its sides and open at its bottom, and provided with the [shaped rod 10 to which its lower edges are secured and vertical guide rods with which the ends of the rod 10 have sliding connection, of a screen B secured at its side and outer edges to the corresponding edges of the awning to swing upwardly therewith and having a rod or bar 22 along its free inner or lower edge to rest on the window sill and catches for said rod or bar, substantially as set forth.

2. A combined awning and screen comprising the usual folding awning A having supporting and guide rods 10, 12, and operating cords 18, 19, a hood 15 above the awning, a screen B' closing the lower open end of the hood, a screen B closing the lower open end of the awning and movable inwardly and upwardly therewith; the side and outer edges of said screen being secured to the corresponding edges of the screen B, a rod or bar 22 on the free inner or lower edge of screen B to rest on the window sill and catches to engage the rod, substantially as set forth.

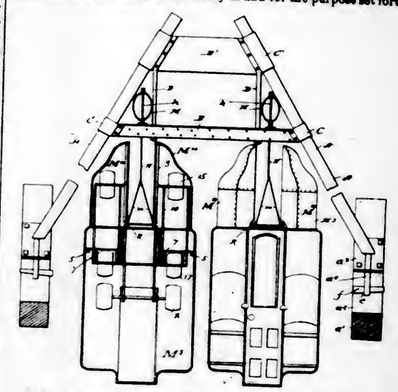
498,131. SHUTTLE-ACTUATING MECHANISM FOR SEWING-MACHINES. HARRIET R. TRACY, New Brighton, N. Y. Filed Aug. 5, 1892. Serial No. 442,213. (No model.)



Claim.—A sewing machine, comprising a revoluble loop-taker, a driving-shaft, a frame mounted on the driving-shaft, pins sliding in the frame, a stationary cam adjacent to the shaft, a hub mounted on the shaft and turning therewith, and bell-crank levers each pivoted at its angle to the hub, each bell-crank lever bearing, at one end, against the cam and having a sliding connection, at its other end, with a sliding pin, whereby free movement of the sliding pins is secured, substantially as described.

498,132. ELEVATED RAILWAY. JOHN G. D. TUCKER, Perrysville, Ohio. Filed May 14, 1891. Serial No. 392,789. (No model.)

Claim.—1. In an elevated railway, substantially as described, the combination with the standards or struts arranged in pairs, and the beams connecting the standards or struts of each pair; of the girders M, resting upon and secured to the beams of each pair, and serving to connect the pairs of standards or struts, the said girders respectively comprising the sections *g*, and the section *h*, connected as described, the track rails, and the hangers N, connected to the girders and depending therefrom in an oblique direction, and pitched alternately in opposite directions so as to intersect each other, the said hangers N, respectively comprising two strips which diverge below the point of intersection, substantially as and for the purpose set forth.



2. In an elevated railway, substantially as described, the combination with the upwardly converging standards or struts, arranged in pairs as set forth, the beams B, connecting the standards or struts of each pair, the thimbles connecting said beams to the standards or struts, the interposed plate B', the thimbles connecting the same and the standards or struts, and the straps D, connecting the beam B, and plate B', of the girders, the track rails, and the hangers for suspending the track rails from the girders, substantially as and for the purpose set forth.

3. In an elevated railway the combination with the girders and a suitable means for supporting the same; the said girders comprising the concavo, convex sections *g*, and the flat section *h*, suitably connected together; of the track rails and the haugers connected to the girders and adapted to hang the tracks therefrom, the said hangers being pitched alternately in opposite directions so as to intercept each other and respectively comprising two strips connected at the point of intersection and diverging downwardly therefrom, as and for the purpose set forth.

4. In an elevated railway, substantially as described, the combination with the girders, and the hangers connected to the girders and depending obliquely therefrom; the said hangers being pitched alternately in opposite directions so as to intercept each other and respectively comprising two strips connected at the point of intersection and diverging downwardly therefrom, of the track rails, the thimbles arranged between the diverging strips of the hangers, and the bolts connecting the track rails, the hangers strips, and the thimbles, substantially as specified.

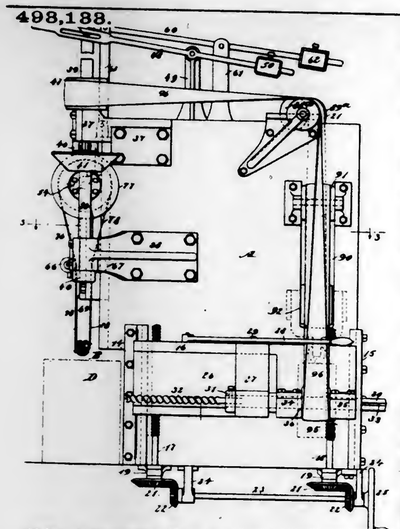
5. In an elevated railway, substantially as described, the combination with the track rails suspended as described, and having the parallel longitudinally disposed and the upper and lower treads; of a car having upwardly extending projections resting on either side of the rails and the upper and lower traveling wheels carried by the car and adapted to engage the rails, substantially as specified.

6. In an elevated railway, substantially as described, the combination with the suspended track rails having the upper and lower treads provided with curved surfaces, of a car having the projections M^{10}, and the upper and lower traveling wheels carried by the car and having concave peripheries adapted to engage the rails, substantially as specified.

7. In an elevated railway, substantially as specified, the combination with the suspended track-rails; of the car having the projections M^{10}, the bars 5, connected to the side walls of the projections, the spring 7, connected to and depending from the side bars, the truck frames connected to the springs and the upper and lower traveling wheels journaled in bearings carried by the truck frames and adapted to engage the track rails, substantially as specified.

498,133. TIMBER-MORTISING MACHINE. CHARLES F. TURNER, Johnstown, Pa. Filed Feb. 24, 1892. Serial No. 422,807. (No model.)

498,133.



Claim.—1. In a machine for producing mortises, the combination, with a block or head vertically adjustable, and an adjusting shaft having connection with the block or head, of a boring block having lateral movement upon the vertically adjustable block or head, boxes secured to the block or head, a shaft journaled in the adjustable block and the bearing boxes, the said shaft being provided with a longitudinal groove or channel and a head to receive a boring tool, a pulley mounted upon the shaft between the boxes and provided with a spline fitted to the groove in the shaft, and a lever fulcrumed upon the block or head and connected with the adjustable bearing block, as and for the purpose set forth.

2. In a machine for producing mortises, the combination, with a shaft adjustable to and from an object and fitted with a head adapted to receive a cutting tool, of a cross head having vertical movement and provided with a foot, a shaft journaled in said foot, a drive shaft carried by the cross head, a belt connection between the drive shaft and the shaft in the foot, and mortise cutters attached to the shaft in the foot, as and for the purpose set forth.

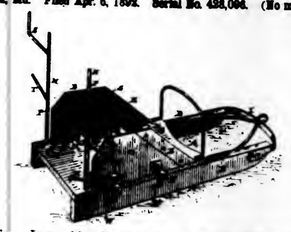
3. In a machine for producing mortises, the combination with a shaft capable of adjustment to and from a given object and fitted with a head at one end to receive a boring tool, and a lever controlling the movement of the shaft, of a cross head capable of vertical movement and having a foot journaled at its lower end, a shaft journaled in the foot of the cross-head, a drive shaft journaled upon the cross-head, a belt connection between the drive shaft and the shaft in the foot, a driving connection between the drive shaft and the boring shaft, and cutters secured one at each end of the shaft in the foot, as and for the purpose specified.

498,134. BLACKBOARD AND DESK. SAMUEL H. UTTER, Pittsburg, Pa. Filed July 27, 1892. Serial No. 441,417. (No model.)



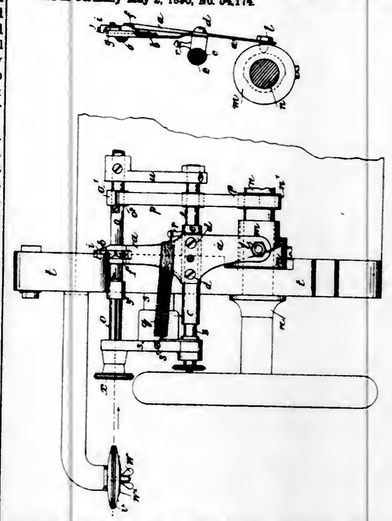
Claim.—In a blackboard, the upright side pieces, the horizontal bar C secured to the side pieces, the divided fixed rings E each having an inwardly extending arm *e* fixed to the bar C and having its free end overlapping the body of the ring, and the removable tablet D provided with the apertures in which the rings are fitted, for the purpose described, substantially as set forth.

493,135. CORN-CUTTER. THEODORE S. VALENTINE, Sr., Cumberland, Md. Filed Apr. 6, 1892. Serial No. 428,096. (No model.)



Claim.—In combination with a corn cutting machine consisting of the drag A. wings B G. bearing knives E E. the swinging racks H H each composed of a stem P. prongs S. T and O the stem P of each rack being pivoted to said drag A one upon each side upon the rear end as and for the purpose set forth.

493,136. FEED MECHANISM FOR CARD-SETTING MACHINES. WILLIAM WALTON, Denton, England. Filed Nov. 21, 1892. Serial No. 452,699. (No model.) Patented in England July 15, 1889, No. 11,312; in Belgium Apr. 26, 1890, No. 90,336; in France Apr. 26, 1890, No. 205,307, and in Germany May 2, 1890, No. 54,174.

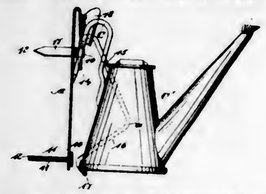


Claim.—1. A traveling feeding clip arranged to slide upon the feed spindle of a card-setting machine and having the following essential features in combination; a feed lever with a spring plate secured thereto and carrying a fixed adjustable jaw, a stop piece fixed adjustably upon said jaw, and a movable jaw actuated by the tilting movement of the feed lever whereby said jaws close over and embrace loosely one section of the bi-sectional card wire and feed the wire forward by pressure against the shoulder of the next section, substantially as herein set forth.

2. In combination, the feed lever with a plate secured thereto and carrying a fixed jaw *g*, the movable jaw *f*, the adjustable stop for varying the relation between the jaws, the feed spindle *e* upon which the feed lever is mounted, the driving shaft, and the tappet *m* on the said shaft for operating the feed lever, substantially as described.

3. In combination, the spindle *e*, the feed lever mounted thereon to have tilting and sliding movement, the gripping jaws at the end of the lever arranged to be opened and closed by the tilting movement of the lever, and the means for tilting the lever on the spindle and for sliding the same length wise of said spindle, substantially as described.

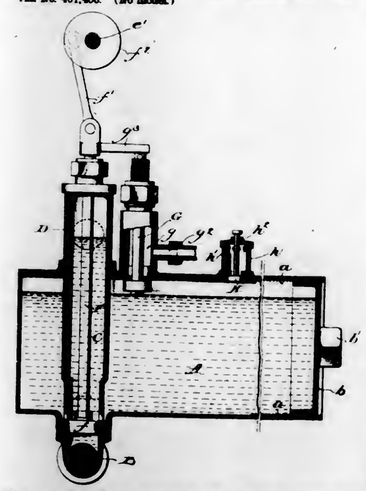
493,137. BRACKET FOR MINERS' LAMPS. JULIUS R. WATTS, Springfield, Ill. Filed Aug. 2, 1892. Serial No. 441,936. (No model.)



Claim.—1. A bracket for miners' lamps, comprising a back plate, a socket 18 on the upper portion thereof and the supporting yoke B secured at its upper ends at opposite sides of the socket, projecting downwardly and outwardly therefrom to the point *a* to embrace the sides of a lamp and thence downwardly and inwardly to the cross piece 17, which cross piece forms the support for the inner portion of the lamp bottom, substantially as set forth.

2. A lamp bracket, comprising a back plate A provided with socket 18 having a slot 19 fastenings extending through the plate at opposite sides of the socket and provided with sockets 10 on their outer ends and shank sections 11 to pass through the hat, a lower fastening also extending through the plate, the supporting yoke B having hooked upper ends engaging the sockets 10 and side arms 15 projecting downwardly and outwardly therefrom to the point *a* and then downwardly and inwardly as at 16 to the cross bar 17, substantially as set forth.

493,138. LIQUID MEASURING AND DELIVERING APPARATUS. ALBERT T. WILKIN, Philadelphia, Pa., assignor of one-half to Daniel Dever, same place. Filed Mar. 10, 1892. Renewed Feb. 7, 1893. Serial No. 461,400. (No model.)



Claim.—1. In a liquid measuring and delivering apparatus, in combination, a source of liquid supply, a reservoir, a pipe, an inlet from said pipe to said reservoir, connection between said pipe and the source of liquid supply, a discharge pipe, an outlet from said reservoir to said discharge pipe, an air inlet to said reservoir adapted to receive air under pressure, means substantially as described to open the inlet to said reservoir and close the outlet and vice versa, and means substantially as described to open the air inlet when the discharge is open, and close the same when the discharge is closed.

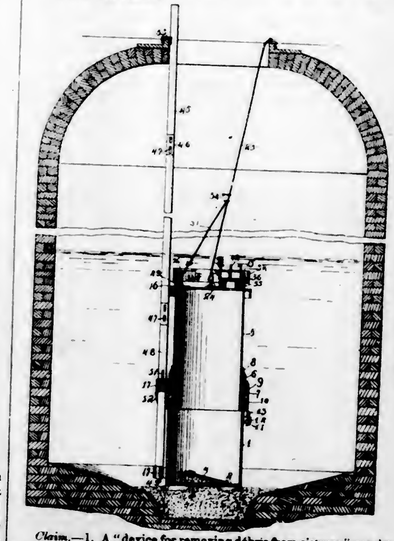
2. In a liquid measuring and delivering apparatus, the combination of the source of liquid supply, a reservoir, a connecting pipe from the source of supply to the liquid reservoir, a pipe from the reservoir to the delivering point, a valve adapted to open one pipe and close the other, a piston adapted to operate said valve, a valve, guides in which said valve works, a pipe admitting air under pressure to said guides, an arm connected to said piston rod, the valve stem of said valve being in line of movement of said arm, and means substantially as described to move said piston rod.

3. In a liquid measuring and delivering apparatus, in combination, a source of liquid supply, a reservoir, a pipe, inlet from said pipe to said reservoir, connection between said pipe and the source of liquid supply, connection between said pipe and the discharge, a piston in said pipe, a piston rod connected to said piston, a link to one end of which said piston rod is connected, a disk to the periphery of which the other end of said link is connected, a shaft to which said disk is connected, a handle on the end of said shaft, a cam having a raised portion and a pin connected to said handle.

4. In a liquid measuring and delivering apparatus, in combination, a source of liquid supply, a reservoir, a pipe, inlet from said pipe to said reservoir, connection between said pipe and the reservoir, a pipe, as D, entering into said pipe, a pipe, as E, in which said pipe D terminates, and an outlet from said pipe D, a piston in said pipe, a piston rod connected to said piston, a link to one end of which said piston rod is connected, a disk to the periphery of which the other end of said link is connected, a shaft to which said disk is connected, said shaft being in said pipe E, and a handle to the end of said shaft.

5. In a liquid measuring and delivering apparatus, in combination, a source of liquid supply, a reservoir, a pipe, an inlet from said pipe to said reservoir, connection between said pipe and the source of liquid supply, connection between said pipe and the discharge, a piston in said pipe, a piston-rod connected to said piston, a valve on the top of said reservoir, guides in which said valve works, a pipe admitting air under pressure to said guides, an arm connected to said piston-rod, the valve-stem of said valve being in line of movement of said arm, a piston-rod connected to said piston, a link to one end of which said piston-rod is connected, a disk to the periphery of which the other end of said link is connected, a shaft to which said disk is connected, and a handle on the end of said shaft.

493,139. DEVICE FOR REMOVING DÉBRIS FROM CISTERNS. GEORGE D. WILSON, St. Louis, Mo. Filed Dec. 26, 1891. Serial No. 416,147. (No model.)



Claim.—1. A "device for removing débris from cisterns" consisting of telescoping chambers, a valve carried by the stationary chamber and adapted to be brought in contact with the sediment contained in the cistern, clips secured to the side of the said device, and adapted to embrace a suitable pole upon which the said device is raised and

lowered, and a rope or cord attached to the movable chamber for withdrawing the same, substantially as set forth.

2. A "device for removing débris from cisterns" consisting of a stationary chamber such as 1, a chamber 5 adapted to move within the said stationary chamber, an opening formed in the bottom of the said stationary chamber, a valve placed over the said opening, an operating rope such as 25 secured to the movable chamber for operating the same, and a releasing device for allowing the said movable chamber to be released when the said device is properly placed upon the sediment contained in the cistern, substantially as set forth.

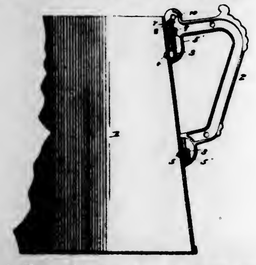
3. A "device for removing débris from cisterns" consisting of telescoping chambers, a valve such as 4 placed in the lower end or bottom of the stationary chamber, a collar such as 6 encircling the movable chamber,—rubber or other packing such as 8 interposed between said collar and collar 7, suitable locking devices for securing said collars to said stationary chamber, staples secured to the top of the movable chamber, a spring arm such as 27 secured to the collar 7, the upper end of which is adapted to come in engagement with one of the staples, a plate 29 encircling one of the guide rods, and also adapted to engage the upper end of the said spring arm, a triangular shaped plate such as 30 adapted to be interposed between the said plate and the said staple, an operating rope such as 25 secured to the top of the said movable chamber and having a suitable branch the end of which is adapted to be attached to the said triangular shaped plate for disengaging the movable chamber, substantially as set forth.

4. A "device for removing débris from cisterns" consisting of telescoping chambers, a valve such as 4 placed in the bottom of the stationary chamber, an opening formed in the top of the movable chamber, a cap such as 36 adapted to cover the said opening, a lever such as 39 adapted to be brought in contact with the top of the said cap, a rod such as 42 secured to the top of the said chamber 5, a ring such as 43 adapted to be passed over said lever and rod, an operating rope such as 25 secured to the top of the said movable chamber and provided with a branch 31, the end of which is adapted to be attached to the said ring 22 for releasing the cap and allowing the air to escape that is contained within the device, substantially as set forth.

5. A "device for removing débris from cisterns" consisting of telescoping chambers, one of which is provided with a suitable valve for allowing the sediment to pass into said chambers, clips secured to the said chambers, a pole such as 45 provided with rounded portions such 49 and 50 for allowing the said pole to be turned within the said clip projections such as 51 and 52 secured to the said pole and adapted to be brought in contact with the upper one of said clips for depressing the said chambers upon the sediment contained in the cistern, and an operating rope such as 25 secured to the top of the movable chamber 5 for raising and lowering the said device upon the said pole, substantially as set forth.

6. A "device for removing débris from cisterns" having telescoping chambers, clips secured to the same, a pole such as 45 adapted to be embraced by the said clips, an operating rope such as 25 secured to the movable chamber for raising and lowering the said device upon said pole, substantially as set forth.

493,140. ATTACHMENT OF HANDLES TO VESSELS. CHRISTIAN J. ZEITINGER, Zeitonia, assignor to the St. Louis Stamping Company, St. Louis, Mo. Filed Mar. 12, 1890. Serial No. 343,671. (No model.)



Claim.—1. The combination of a body having T-heads secured thereto, with a handle provided with T-slots engaging the T-heads of the receptacle, and a locking device engaging a portion of the handle and one of the T-heads.

2. In a coffee-pot or other vessel the means of attaching the handle to the body which consists in a pair of rigidly connected hollow bosses carried by the handle and provided with T-slots presented in the same direction, a pair of corresponding T-heads rigidly secured to the vessel and a locking device engaging the T-heads and part of the handle for preventing relative movement between the handle and body when the heads are engaged in the slots.

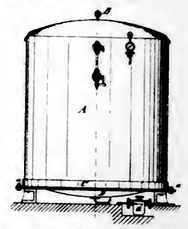
3. The herein described means for securing handles to vessels the same consisting of a pair of T-heads located upon the vessel, socket bosses having T-slots located upon the handle and a removable key or locking device engaging the handle and one of the T-heads, substantially as set forth.

4. The combination of a body carrying suitable T-heads, a handle having socket bosses and a channel communicating with one socket, and a locking device located in one socket, bearing on one of the heads and engaging the handle, substantially as described.

5. A handle for coffee-pots or similar articles formed with hollow bosses provided each with a T-slot, one of said bosses having a channeled lug, the channel in said lug being in continuation of the slot in said boss, substantially as and for the purpose described.

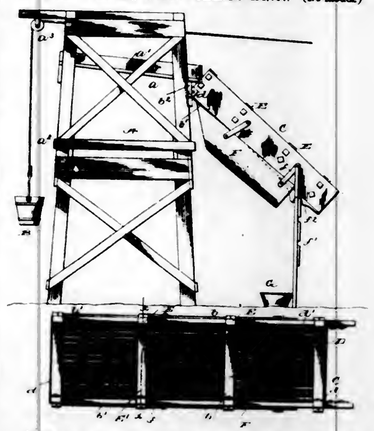
6. The combination of the body having the T-heads the handle having the corresponding sockets and the channel, and the screw secured to the handle located in said channel and adapted to impinge on the T-head as and for the purpose set forth.

493,141. APPARATUS FOR MANUFACTURING ARTIFICIAL STONE. FRIEDRICH ZERNIKOW, Oderberg, Germany. Filed Oct. 10, 1891. Serial No. 408,335. (No model.)



Claim.—In an apparatus for the production of artificial stone the combination with a closed chamber containing molds or boxes so placed together that they offer each other mutual support to withstand the bulging strain produced by the expansion of the contents in slaking, of the circular rings F, J, and stay bolts *d*, *d*, substantially as described.

493,142. SIFTER OR SEPARATOR. CASPER ZIMMERMAN, Denver, Colo. Filed May 3, 1892. Serial No 431,707. (No model.)



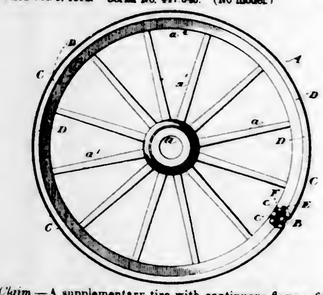
Claim.—1. As an improvement in mining machines, the sifter or separator herein-described having a series of spaced-apart bars provided with metallic plates on their sides, spacing blocks located between said bars, and upper and lower plates extending across said bars and holding said blocks as set forth.

2. As an improvement in mining machines, the sifter or separator

herein-described, having a series of bars of approximate Y-shape, said bars being provided with metallic plates on their sides, and the upper and lower plates attached to said sifter or separator and supporting said series of bars as set forth.

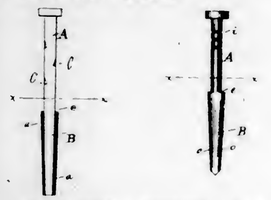
3. As an improvement in mining machines, the sifter or separator herein-described comprising the parallel side-boards, the series of bars between said side-boards, the spacing blocks located between said bars, and the upper and lower U-shape plates supporting said bars and blocks and having their vertical ends secured to said side-boards, and the trough beneath said sifter or separator to which it is connected, substantially as set forth.

493,143. WAGON-TIRE. CASPER ZIMMERMAN, Sioux Falls, S. D. Filed Oct. 3, 1892. Serial No. 447,643. (No model.)



Claim.—A supplementary tire with continuous flanges fitting on each side of the felly around its whole circumference and with bifurcated ends also fitting on each side of the felly, said ends being drawn together by the screws to make them fit tightly about the felly as described.

493,144. NAIL. JOSEPH R. ADLER, New York, N. Y. Filed June 11, 1892. Serial No. 436,342. (No model.)



Claim.—1. As a new article of manufacture, a nail having the lower portion of its shank enlarged laterally, forming a section having upper flat lateral shoulders, *e*, from which shoulders said enlargement tapers downwardly to a common point each side of the enlarged portion being wedge shaped in cross section, substantially as described.

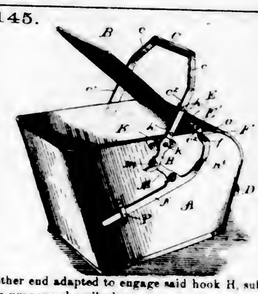
2. As a new article of manufacture the herein described nail having the lower portion B of its shank extended laterally in wedge shape and provided with tapering cutting edges *a* shoulders *e* and a series of incuts C in the shank between the head of the nail and the shoulders *e* of the wedge shaped portion, substantially as shown and described.

493,145. COVERED BUCKET OR OTHER VESSEL. EMERSON AMES, Washington, D. C., assignor of one-half to Howard Emerson Ames, same place. Filed June 2, 1892. Serial No. 435,269. (No model.)

Claim.—1. In a covered vessel, the combination with a hinged lid capable of moving vertically about said hinge, of a crank or projection rigidly connected to said hinged lid, a bail pivoted to the sides of the vessel and having a projecting arm at the end of one of the sides of said bail; a sliding bar pivoted to said crank, and a rod connecting said sliding bar and said projecting arm, substantially as and for the purpose described.

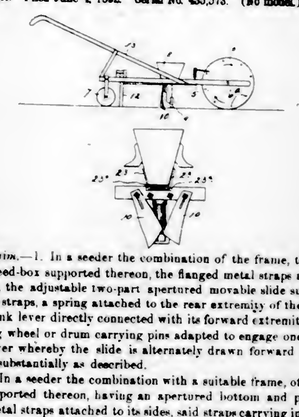
2. In a device of the character described, the combination with the vessel A and lid B hinged thereto, of the crank F rigidly connected to said hinged lid, and having crank pin *f*; the sliding bar N connected to said crank pin *f*; the bail C having sloping sides *c*, the hook H rigidly connected to or integral with one side of said bail, and the connecting rod M pivoted at one end to the said bar N and having a lug

493,145.



m at the other end adapted to engage said hook H, substantially as and for the purposes described.

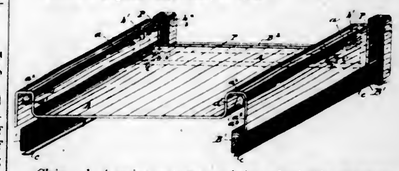
493,146. GARDEN-SEED DRILL. HARRIET BENDER, Denver, Colo. Filed June 4, 1892. Serial No. 435,573. (No model.)



Claim.—1. In a seeder the combination of the frame, the apertured seed-box supported thereon, the flanged metal straps attached thereto, the adjustable two-part apertured movable slide supported by said straps, a spring attached to the rear extremity of the slide, a bell crank lever directly connected with its forward extremity, and a rotating wheel or drum carrying pins adapted to engage one arm of said lever whereby the slide is alternately drawn forward and released, substantially as described.

2. In a seeder the combination with a suitable frame, of a seed-box supported thereon, having an apertured bottom and provided with metal straps attached to its sides, said straps carrying interiorly projecting flanges extending below the bottom of the box, a slide consisting of two apertured plates adjustably connected and slidingly supported by the flanged straps, and actuating mechanism for the slides consisting of a bell crank lever fulcrumed on the frame in front of the seed box and having one arm directly connected with one extremity of the slide, a rotating wheel or drum having pins engaging the other arm of the lever and giving the slide its forward movement, and a spring attached to the slide in the rear of the box and imparting the reverse movement, substantially as described.

493,147. WOVEN-WIRE MATTRESS. EDWARD R. BILLINGTON, Liverpool, England. Filed Nov. 8, 1889. Serial No. 329,646. (No model.) Patented in England June 8, 1889, No. 9,546.



Claim.—1. A spring mattress consisting of suitable end-pieces, longitudinal side-bars and a sheet of metallic, elastic material having its longitudinal side portions extended upwardly, turned outwardly and overhanging the side-bars as elastic cushions guarding the side-bars, substantially as described.

2. A spring mattress consisting of suitable end pieces longitudinal side bars and a sheet of metallic, elastic material having at each side portion the upwardly projecting part *a'*, the lateral top part *a²*

and the pendent part a^3 forming a hollow cushion, substantially as described.

3. A spring mattress consisting of suitable end pieces longitudinal side bars, a sheet of metallic, elastic material comprising a horizontal bottom portion and opposite, upwardly projecting side edges, and adjusting devices for longitudinally stretching, adjusting the tension of and holding under tension the said upwardly projecting side portions and the bottom portion of the elastic sheet, substantially as described.

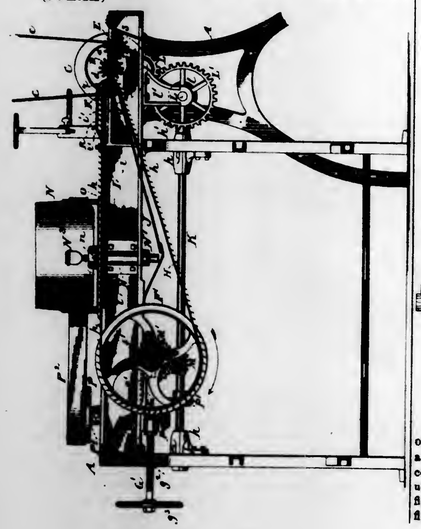
4. A spring mattress consisting of end-pieces, longitudinal side bars, the transverse former-bars located at the ends of the side-bars, supported thereby and having at each end an upwardly projecting portion and a spring sheet of metallic elastic material having a bottom portion, vertically extending side portions and outwardly projecting parts suspended above the side-bars and overlying and secured to the upwardly projecting portions of the former bars, substantially as described.

5. A bedstead, cot, or crib mattress consisting of metallic elastic supporting material, held at its ends to the end plates B^3 connected together and kept apart by bars B', said elastic supporting material consisting of a horizontal bottom portion, upright sides a', and outwardly extending portions a^3, overhanging and elevated above said side bars B', said bottom, sides, and outward extensions being made of a continuous piece of said metallic elastic material, substantially as described.

6. The herein described improvement in and connected with infants' and children's cot or crib mattresses, consisting of a metallic elastic supporting material A, comprising a bottom, upright sides a', and cushion portions a^3, a^4, stretched between and held by head and foot boards B^3 connected together and kept apart by side bars B' and lower bar B^4, and said elastic metallic material being fixed to said head and foot boards by "former" bars B, between which and said head and foot boards the ends of said material are disposed and gripped, substantially as set forth with reference to the drawings.

7. In a mattress of the kind herein specified, the combination of an end bar B, having upwardly projecting ends b', a metallic elastic supporting material A held by and resting upon said bar and projecting ends, a plurality of adjustment bolts i, some of which are connected with said bar B, and one to each of said projecting ends b' and adapted to serve as means by which said end bar and projecting ends may be adjusted and the stretch or tension on said metallic elastic supporting material regulated, and a suitable end bar B^3, having uprights b^3, for supporting said bolts or bedstead frame, substantially as set forth.

493,148. MACHINE FOR DRESSING AND FEEDING TOBACCO. HENRY BOHLS, San Francisco, Cal., assignor to the Bohls Cigarette Machine Company, Richmond, Va. Filed Sept. 1, 1892. Serial No. 444,817. (No model.)



Claim.—1. In a machine for dressing tobacco, the combination with a rotating feed drum and a picker belt forming a movable portion of the bottom for said drum, of a picker roller whose teeth mesh with those of the picker belt, substantially as described.

2. In a machine for dressing tobacco, a rotating feed drum, combined with a bottom, one portion of which is fixed and the other movable to convey tobacco from the drum, substantially as described.

3. In a machine for dressing tobacco, a movable picker belt, and a fixed plate abutting against the edge of the belt, combined with a feed drum mounted to revolve immediately above the feed belt and fixed plate, substantially as described.

4. In a machine for dressing tobacco, a movable picker belt, combined with a feed drum having inner radial arms at its lower end, said drum being mounted to revolve immediately above the feed belt in a direction opposite to that of the travel of said feed belt, and suitable means to impart movement to the several parts, substantially as described.

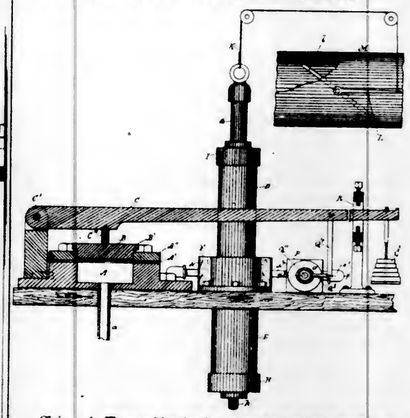
5. In a machine for dressing tobacco, a feed drum, and a picker belt movable beneath said drum to take tobacco therefrom, combined with a picker roller whose teeth mesh with those of the picker belt, and a guard plate supported immediately over the picker belt and having curved teeth at its end between which those of the picker belt pass, at or near the point where the teeth of the picker belt and picker roller mesh with each other, substantially as described.

6. In a machine for dressing tobacco, a movable picker belt and a guard plate supported immediately above said belt, and having its rear end curved upward for the purpose specified, combined with a feed hopper revolving over said belt, and a picker roller whose teeth mesh with those of the belt, substantially as described.

7. In a machine for dressing tobacco, a movable picker belt and a fixed segmental plate whose chord abuts against the edge of the picker belt, combined with a feed drum mounted to revolve above the belt and fixed plate, a guard plate supported immediately above the picker belt in advance of the drum, a first picker roller whose teeth mesh with those of the picker belt, a second picker roller whose teeth mesh with those of the first picker roller, and suitable gearing to impart varying rates of speed to the drum, the picker belt and first and second picker rollers, substantially as and for the purpose specified.

8. In a machine for dressing tobacco, the combination with a picker belt and the pulleys over which said belt travels, of a supporting plate for the upper half of said belt between the pulleys, said plate having a discharge opening immediately in the rear of the forward pulley, through which extraneous matter is carried by the movement of the belt, and an inclined plate below said supporting plate on which said extraneous matter is received, substantially as described.

493,149. DAMPER-REGULATOR. FRANK L. T. CARLMAN, Salem, Mass. Filed July 8, 1892. Serial No. 439,375. (No model.)



Claim.—1. The combination in an automatic damper regulator, of a damper motor composed of a pair of pistons of unequal diameters arranged in independent cylinders upon a single piston rod which is connected with the damper, a fluid conducting pipe for delivering fluid under pressure into the cylinders, a valve for controlling the flow of fluid through the conducting pipe and having a passage by which fluid under pressure is conveyed to the lower cylinder and an exhaust port by which the fluid is permitted to flow from said lower cylinder, a pressure lever operated by pressure in the boiler, and a connection between the pressure lever and the valve, substantially as and for the purposes described.

2. The combination in an automatic damper regulator, of a damper motor composed of a pair of pistons of unequal diameters arranged in independent cylinders upon a single piston rod connected with the damper, a fluid conducting pipe for delivering fluid under pressure into the cylinders, a rotary valve having a passage by which fluid under pressure is conveyed to the lower cylinder and an exhaust port by which the fluid is permitted to flow from said lower cylinder, a pressure lever operated by the pressure in the boiler, and a connection between the pressure lever and the valve by which the latter is turned by the movement of the lever, substantially as described.

3. The combination in an automatic damper regulator, of a damper motor composed of a pair of pistons of unequal diameters arranged in independent cylinders upon a single piston rod connected with the damper, a fluid conducting pipe adapted to deliver fluid under pressure into the cylinders and provided with a valve seat having opposite ports p, p', a rotary valve fitting said valve seat and provided with a passage q, q' by which fluid under pressure is conveyed to the lower cylinder and an exhaust port q^4 by which fluid is permitted to flow from said lower cylinder, a pressure lever operated by the pressure in the boiler, and a rod connection between the pressure lever and the rotary valve by which the latter is rotated by the movement of the lever, substantially as described.

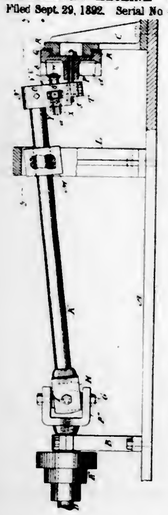
493,150. TOBACCO-PIPE. FREDERICK O. CHORLEY, Reading, England. Filed Jan. 15, 1892. Serial No. 418,206. (No model.) Patented in England Mar. 1, 1890, No. 3,309, and in Germany May 31, 1890, No. 54,589.



Claim.—1. In a tobacco pipe, the combination of the bowl c, having perforation f, and the stem b, having outlet g, with a mouthpiece a, capable of turning in the stem, provided with hole e, adapted to register either with perforation f or outlet g substantially as described and shown and for the purposes specified.

2. In a tobacco pipe, the combination with a bowl c, having a perforation f, and a stem b having an outlet g, of a mouthpiece a, provided with hole e adapted to register either with perforations f or outlet g and a tube h, substantially as described and illustrated in the accompanying drawing and for the purposes specified.

493,151. METAL-SHAPING MACHINE. CHARLES A. COLLORD, New York, N. Y. Filed Sept. 29, 1892. Serial No. 447,254. (No model.)



Claim.—1. The combination with an oscillating and rotating shaft, of an arm or carrier supported by the shaft and a movable pivot or support for the arm substantially as described.

2. The combination with an oscillating and rotating shaft of an arm or carrier supported by the shaft a pivot or support for the arm and a movable holder or slide for the pivot said arm or carrier being adapted to carry a shaper or tool and said slide being adapted to carry a blank for the action of the tool substantially as described.

3. The combination with an oscillating and rotating shaft of an arm or carrier supported by the shaft, a shaper or tool adjustably mounted on the carrier and a movable pivot or support for the carrier substantially as described.

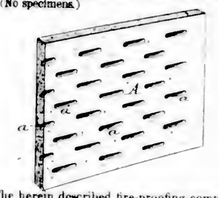
4. The combination with an oscillating and rotating shaft adapted to support an article to be shaped of a movable pivotal tool or shaper made to engage said article substantially as described.

5. The combination with an oscillating and rotating shaft adapted to support an article to be shaped of a movable pivot or support for the article, part of said pivot or support being made in form of a tool or shaper substantially as described.

6. The combination with an oscillating and rotating shaft adapted to support an article to be shaped, of a pivot or support being made in form of a tool or shaper and a movable bearing in which the tool is feathered substantially as described.

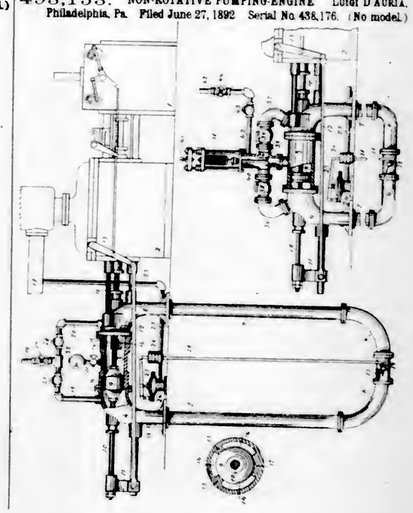
7. The combination with an oscillating and rotating shaft of a counterweight or balance for the shaft an arm or carrier supported by the shaft and a movable pivot or support for the arm substantially as described.

493,152. FIREPROOFING COMPOSITION FOR WALL-COVERINGS. FRANK S. CULVER, Washington, D. C., assignor, by direct and mesne assignments, of two-thirds to Carroll B. Hoffman, Baltimore, Md., and Newton H. Culver, Detroit, Mich. Filed Feb. 25, 1892. Serial No. 422,725. (No specimens.)



Claim.—The herein described fire-proofing composition, consisting of asbestus fiber, clay, plaster of paris, Acme cement, and a binding fiber, in substantially the proportions stated.

493,153. NON-ROTATIVE PUMPING-ENGINE. LUIGI D'AURIA, Philadelphia, Pa. Filed June 27, 1892. Serial No. 438,176. (No model.)



Claim.—1. The combination in a pumping engine of an additional reciprocating mass, with means substantially as described whereby said mass is allowed at the end of the stroke to continue in motion and expend its surplus energy in overcoming frictional resistance, thus saving the engine and pump from shocks which would otherwise be caused by said energy.

2. In a pumping engine, in combination with an additional reciprocating weight consisting of a liquid reciprocated by a piston connected with the engine and adjusted in a cylindrical chamber forming part of a closed system of pipes filled with said liquid, means whereby when said piston reaches the end of its stroke said liquid is allowed to circulate and expend its residual energy in overcoming its frictional resistance, for the purpose set forth.

3. In a pumping engine, in combination with an additional reciprocating weight consisting of a liquid reciprocated by a piston connected with the engine and adjusted in a cylindrical chamber forming part of a closed system of pipes filled with said liquid, an automatic feeding device whereby said system of pipes is kept filled with liquid against losses caused by leakage.

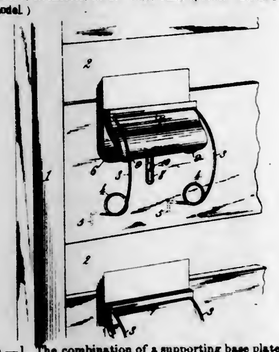
4. In a pumping engine, in combination with an additional reciprocating weight consisting of a liquid reciprocated by a piston connected with the engine and adjusted in a cylindrical chamber forming part of a closed system of pipes filled with said liquid, provided with means whereby when said piston reaches the end of its stroke said liquid is allowed to circulate and expend its residual energy in overcoming its frictional resistance, an automatic feeding device whereby said system of pipes is kept filled with liquid against losses caused by leakage.

5. In a pumping engine, in combination with an additional reciprocating weight consisting of a liquid reciprocated by a piston connected with the engine and adjusted in a cylindrical chamber forming part of a closed system of pipes filled with said liquid, a throttle valve placed in said system of pipes and connected with a safety device actuated by the pressure in the delivery main in such manner that when said pressure diminishes said valve is made to throttle more or less the liquid in said system of pipes, substantially as and for the purpose set forth.

6. In a pumping engine, in combiuation with an additional reciprocating weight consisting of a liquid reciprocated by a piston connected with the engine and adjusted in a cylindrical chamber forming part of a closed system of pipes filled with said liquid, provided with means whereby when said piston reaches the end of its stroke said liquid is allowed to circulate and expend its residual energy in overcoming its frictional resistance, a throttle valve placed in said system of pipes and connected with a safety device actuated by the pressure in the delivery main in such manner that when said pressure diminishes said valve is made to throttle more or less the liquid in said system of pipes, substantially as and for the purpose set forth.

7. In a pumping engine, in combination with an additional reciprocating weight consisting of a liquid set in motion by a piston reciprocating with the engine and adjusted in a cylindrical chamber forming part of a closed system of pipes filled with said liquid, an air vessel provided with means whereby the quantity of air in said vessel can be regulated, as and for the purpose set forth.

493,154. SPRING-HOLDER FOR DRUGGISTS' LABELS. ARTHUR C DEMPSEY, Rochester, N. Y. Filed June 4, 1892. Serial No. 435,522. (No model.)



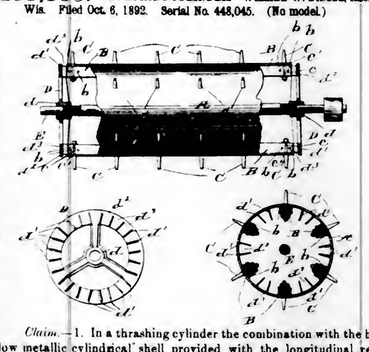
Claim.—1. The combination of a supporting base plate having a horizontal groove or finger recess, with a spring pressed yoke frame secured to the base plate and arched toward its free extremity for accommodating and retaining a folded package of paper or labels so that their upper edges are opposite the groove or finger recess in the supporting base plate, substantially as described.

2. The combination with a supporting base plate, of a spring pressed yoke frame secured to the base plate and having its free extremity adapted to retain a folded package of paper or labels, and a vertically adjustable bracket for sustaining the folded package of paper or labels, substantially as described.

3. The combination with a supporting base plate, of a spring pressed yoke frame secured to the base plate and arched toward its free extremity for accommodating and retaining a folded package of paper or labels, and a vertically adjustable bracket having a semicircular support on which the folded part of the package rests, substantially as described.

4. The combination of a supporting base plate having a horizontal groove or finger recess, a spring pressed yoke frame secured to the base plate and having its free extremity adapted to retain a folded package of paper or labels so that their upper edges are opposite the groove or finger recess in the supporting base plate, and a vertically adjustable bracket mounted on the base plate and having a semi-circular support on which the folded portion of the package rests, substantially as described.

493,155. THRASHING-CYLINDER. WILLIAM W. DINGES, Racine, Wis. Filed Oct. 6, 1892. Serial No. 448,045. (No model.)



Claim.—1. In a thrashing cylinder the combination with the hollow metallic cylindrical shell provided with the longitudinal reinforcing staves and thrashing teeth engaging said shell and staves, of the supporting shaft, the heads for engaging the ends of said shell each having sockets for engaging said staves and portions for engaging the inner face and end of said shell, and devices for drawing said heads into said shell whereby the engagement of said staves with the sockets of the heads will prevent the heads from rotating while being drawn in, substantially as described.

2. In a thrashing cylinder the combination with the hollow metallic cylindrical shell provided with the reinforcing staves and thrashing teeth, of the supporting shaft provided with oppositely screw threaded portions and the heads provided with oppositely screw threaded apertures to engage the threaded portions of said shaft, and having sockets to engage said staves, portions to engage the inner face of said shell and flanges to engage the end of the shell, the engagement of said heads with the shell and shaft forming the sole connection between said parts, substantially as described.

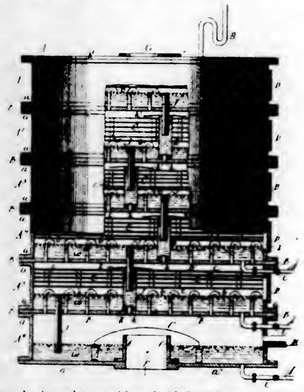
3. In a thrashing cylinder the combination with the wrought iron hollow cylindrical shell provided with thrashing teeth, of a supporting shaft provided with oppositely screw threaded portions, a pair of heads having oppositely screw threaded central apertures to engage said shaft, and having portions to engage the inner face and end of said shell, whereby the continued revolution of said shaft will tend to draw the heads more tightly into the ends of said shell, substantially as described.

4. A thrashing cylinder comprising a hollow cylinder shell provided interiorly with the longitudinal staves and thrashing teeth secured to said shell and staves the cylinder heads having portions adapted to fit within said shell provided with sockets for engaging the ends of said staves, said heads having portions engaging said staves between them and the shell for preventing the outward movement of the staves and shell and the supporting shaft engaging said heads, substantially as described.

5. In a thrashing cylinder the combination with the hollow cylindrical shell of the longitudinal staves secured thereto, the teeth engaging the said shell and staves, devices for engaging said staves and

holding them against outward radial movement, and a supporting shaft secured to revolve with said shell, substantially as described.

493,156. APPARATUS FOR WASHING AND SCRUBBING GAS. JOHN H. FITZGERALD, Houston, Tex. Filed Nov. 26, 1892. Serial No. 453,217. (No model.)



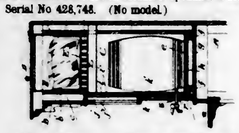
Claim.—1. A washer-scrubber divided by horizontal partitions into compartments, one above another, each of said partitions being provided with numerous return-bend pipes, the short portions of which have perforated heads arranged to dip into a body of liquor supported on the partition plate, substantially as described

2. In a washer-scrubber, the horizontal partition plates separating it into compartments one above another and each provided with numerous return-bend pipes having perforated heads dipping into the liquor as described, in combination with a series of perforated plates or screens arranged in the compartments above said return-bend pipes, substantially as described.

3. In a washer-scrubber, a series of superposed compartments or chambers containing perforated plates, in combination with liquid transfer or overflow devices, consisting of a pipe and a seal cup having at its upper end a distributing flange extending over the perforated plates, and means for passing gas from chamber to chamber through said plates, substantially as described.

4. In a washer-scrubber, the horizontal partition plates provided with return-bend pipes having perforated heads, in combination with perforated plates above said pipes and liquid transfer pipes provided with means for distributing liquid over the tops of the perforated plates, substantially as described.

493,157. REFRIGERATOR FOR BARRELED LIQUORS ON TAP. GEORGE GARDINER and CHARLES H. MILLIS, Spokane, Wash. Filed Apr. 11, 1892. Serial No. 428,748. (No model.)



Claim.—1. In a refrigerator, substantially as described, the combination of the cold air chamber C, having a series of doors in its front wall, the ice box or chamber B, arranged above the cold air chamber, the open work strips F, separating the cold air chamber and the ice chamber or box, the ice vessel or pan mounted upon the strips F, and having its bottom wall inclined upwardly from its middle to its ends, the drainage pipe leading from the middle of said vessel or pan, the dead air space *h*, formed beneath the cold air chamber, the dead air space *d*, formed at the back of said cold air chamber, and the dead air spaces *c*, *c*, formed at the front and back of the ice box or chamber, substantially as and for the purpose set forth.

2. In a refrigerator, substantially as described, a door for a cold air chamber or the like, comprising an inner section *i*, having a hole at or adjacent to the lower end, an upper outer section *j*, a lower, outer section *k*, adapted to slide between the sections *i*, *j*, and having a recess in its lower end and a curvilinear notch in the upper wall of said recess and the device H, adapted to take into the recess of the slidable section *k*, and having a curvilinear notch in its upper end adapted in conjunction with the notch in the upper wall of the recess in the section *k*, to receive the spigot of a beer keg or the like, substantially as and for the purpose set forth.

3. In a refrigerator, substantially as described, the combination with a cold air chamber or the like, of a door comprising the frame section *n*, having the tongues X, on the inner sides of its upright side bars, the inner sash *i*, fixedly connected to the section *n*, and having a glass *i'*, and an opening in its lower end, the upper outer sash *j*, also fixedly connected to the frame section *n*, and having the glass *j'*, the lower outer slidable sash *k*, carrying the glass *k'*, and having grooves to engage the tongues *x*, of the frame section and also having a recess in its lower end provided with beveled side walls and a curvilinear notch in the upper wall of said recess, and the device H, having the beveled sides and adapted to take into the recess of the slidable sash *k*, and provided with a notch in its upper end, substantially as and for the purpose set forth.

493,158. CLEANSING WOOL. AIME GEORGE, Puteaux, France. Filed May 19, 1891. Serial No. 393,356. (No specimens.) Patented in France Oct. 31, 1890, No. 209,236; in Germany Nov. 11, 1890, No. 58,232; in Belgium Apr. 2, 1891, No. 94,382; in Austria-Hungary Sept. 26, 1891, and in England Apr. 17, 1891, No. 6,663.



Claim.—1. The process of cleansing raw or prepared wool which consists in exposing the same to the action of carbonic acid gas (under atmospheric or other pressure) in the presence of a suitable solvent of the fatty impurities of the wool, and finally in washing the wool with water.

2. The process of cleansing raw or prepared wool which consists in exposing the same to the action of carbonic acid gas (under atmospheric or other pressure), and afterward in subjecting it to the action of a suitable solvent of the fatty impurities of the wool, and finally in washing the wool with water.

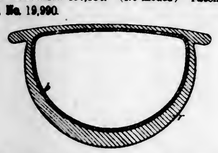
493,159. SASH-FASTENER. GEROLT GIBSON, St. Louis, Mo. Filed Oct. 17, 1892. Serial No. 449,085. (No model.)



Claim.—1. A window sash lock combining a bracket carrying a latch or dog having its upper end or arm provided with a shoulder or projection, a second bracket carrying a stud or catch having engagement with said latch, and a detent engaging said shoulder, substantially as described.

2. In a sash lock, the combination of two pivots, a detent or prop, and a latch or dog, the detent or prop being hung upon one of said pivots and the latch or dog hung upon the other pivot, the latch having an arm provided with a shoulder or notch, which, when the latch is in its locked position, extends within the circle or radius of the prop, whereby the swinging of the prop around into engagement with the notch or shoulder will hold the latch unlocked, one of said pivots being attached to the movable sash and the other to the immovable window frame, so that the opening of the sash will separate the pivots, thus disengaging the prop from the notched latch-arm, allowing both the latch and the prop to fall back to their original positions, substantially as specified.

493,160. RUBBER TIRE. WILLIAM GOLDING, Manchester, England, assignor to Charles Mackintosh & Co., Limited, same place. Filed Oct. 6, 1891. Serial No. 407,831. (No model.) Patented in England Dec. 8, 1890, No. 19,990.



Claim.—1. The combination with a metallic wheel rim having lateral recesses formed by reflexing the edges, of an inflatable tire having corresponding lateral flanges which are detachably inserted into such recesses, and are secured therein by the pressure of the contained compressed air when the tire is inflated substantially as hereinbefore set forth.

2. The herein described method or series of processes for constructing or building up the said inflatable tire with lateral projections or flanges upon it, first by shaping the tire on the mandrel, secondly by folding down the sides or edges, and thirdly by tightly inclosing both mandrel and tire within a three part mold during vulcanization, substantially as set forth.

3. The combination of a pneumatic tire having an outer elastic casing with flanges and an inner inflatable tube, with a hollow metal rim of a wheel approximately elliptical in cross section and with two lateral recesses in which the flanges of the outer casing are inserted and held, substantially as hereinbefore set forth.

493,161. CANDLE-HOLDER FOR CHRISTMAS-TREES. WILLIAM GRAU, Philadelphia, Pa. Filed July 2, 1892. Serial No. 438,775. (No model.)



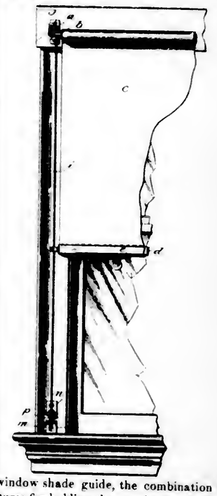
Claim.—1. The combination of the frame A, a hooked portion A' thereof having spurs to engage with the trunk of the tree, a bracket arm pivoted to the frame, and pointed at its opposite end, with a candle receptacle at the outer end of the frame, substantially as described.

2. The combination of the frame A, having a hooked end A', spurs a, a' on said hooked end, a bracket arm B pivoted to the frame, an extension A^2 adapted to slide upon the main frame A, with a candle receptacle carried by the extension, substantially as described.

493,162. SHADE-GUIDE. ALFRED M. HASWELL, Chicago, Ill. Filed Nov. 23, 1892. Serial No. 452,930. (No model.)

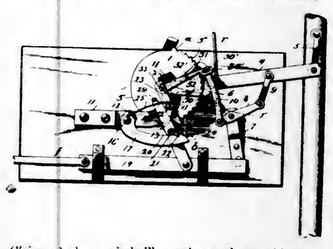
Claim.—1. In a window-shade guide, the combination with a bracket consisting of a single piece of plate metal bent over to form two vertical arms one of which is provided with a screw-hole and the other of which has a lip with laterally separated perforations, a shade, a clasp at the end of its stick having a laterally elongated opening, and a double guide wire depending from said bracket and passing loosely through said opening; of a tightener comprising two L-shaped members, the uppermost sliding upon and the lowermost secured to the window-frame, and an adjusting screw connecting said members, the front end of the upper member being reduced to form a narrow neck and having a laterally elongated head outside said neck, the side arms of said head forming acute angles with the side edges of said front end and the face of the head having a notch at its center, the guide wires being woven into and connected with said head substantially as and for the purpose set forth.

2. In a window-shade guide, the combination with the guide wire, the tightener therefor, and the shade having a clasp at the end of its stick loosely embracing said wire; of a bracket consisting of a single piece of plate metal and comprising a flat foot with a screw-hole therethrough, the metal being bent over forward at the upper edge of said foot and carried down in front of said foot in two side tangs separated farther than the width of the screw-head, and the lip between said tangs being bent forward above said screw-hole and provided with a perforation for the reception of said guide wire, all as and for the purpose set forth.



3. In a window shade guide, the combination with two guide wires, and fixtures for holding them under tension, in a plane at right angles to that of the shade and along its vertical edge; of a clasp consisting of two members, the first embracing and being secured to the end of the stick, and the second member being of spring metal, secured to the end of the first member, and having laterally extending integral spring arms curved into a horizontal oval in the ends of which the two wires normally slide, the extremity of one arm having an outward offset which rests upon the extremity of the other arm so that the interior of the oval shall be smooth, as and for the purpose set forth.

493,163. WINDMILL-REGULATOR. HENRY J. HAUFF, Magnolia, Iowa. Filed Nov. 10, 1892. Serial No. 451,540. (No model.)



Claim.—1. In a windmill regulator, the combination with a toothed drum connected with the regulator wire, a swinging lever pivotally connected with the pump rod, and a pawl thereon adapted to engage the teeth of the drum; of a rock-lever, a link connecting one end of the rock-lever with said swinging lever a long pawl pivoted to the other end of said rock-lever and also standing adjacent said teeth, a tank, a float therein, and connections substantially as described between this float and the tips of the pawls, as and for the purpose set forth.

2. In a windmill regulator, the combination with a toothed drum connected with the regulator wire, a lever moved by the pump-rod, a pawl pivoted to this lever and having a lug near its tip, a long pawl also having a lug near its tip, and means for moving the long pawl simultaneously with and oppositely to the movements of the short pawl; of a trigger, rods pivoted thereto and having slotted eyes in their outer ends loosely engaging said lugs, a float in the tank, and connections substantially as described between the float and the trigger, as and for the purpose set forth.

3. In a windmill regulator, the combination with a toothed drum

connected with the regulator wire, a lever moved by the pump-rod, a pawl pivoted to this lever and having a lug near its tip, a rock-lever connected at one end with said lever, and a long pawl pivoted to the other end of the rock-lever and also having a lug near its tip; of two rods each having a slotted eye engaging one of said lugs a float in the tank, and connections substantially as described between the float and the rods, as and for the purpose set forth.

4. In a windmill regulator, the combination with a toothed drum connected with the regulator wire, a lever moved by the pump-rod, a pawl on said lever having a lug near its tip, and a retaining pawl for said drum; of a centrally-pivoted trigger, a rod pivoted to the upper end thereof and having a slotted eye engaging the lug on said pawl, a spring normally turning the trigger to engage the pawl with the teeth, a float in the tank, an arm connected with said float for turning the trigger against the force of said spring when the float falls, and means substantially as described for holding the trigger in turned position and for releasing it when the float rises, as and for the purpose set forth.

5. In a windmill regulator, the combination with a toothed drum connected with the regulator wire, a lever moved by the pump-rod, a pawl on the lever having a lug near its tip, a long pawl also having a lug near its tip, and connections between the lever and long pawl for moving the latter simultaneously with and oppositely to the movements of the pawl on the lever; of a centrally-pivoted trigger, rods pivoted to the upper end thereof and having slotted eyes loosely engaging said lugs, a spring normally turning the trigger to draw on said rods, a trip adapted to hold said trigger against movement by its spring, a pivoted arm having a heel adapted to turn the trigger to one position and a stud adapted to disengage the trip from the trigger and allow the latter to move to the other position, a float in the tank, and connections between the float and arm, as and for the purpose set forth.

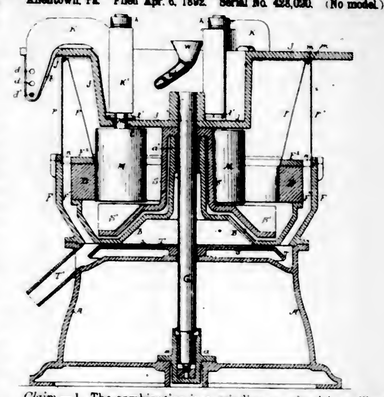
6. In a windmill regulator, the combination with a toothed drum connected with the regulator wire, a retaining pawl therefor, a lever moved by the pump-rod and carrying a pawl, lugs on said pawls, and rods connected with said lugs; of a trigger mounted on a pivot and having a sharpened lower end, its upper end being connected with said rods, an arm also mounted on said pivot and having a heel engaging the trigger, a float in the tank connected with said arm, a spring-actuated trip having a notch adapted to engage the lower end of the trigger when the latter has been moved by said heel, a spring bearing the trigger against such movement, and a stud in the arm for depressing said trip, substantially for the purpose and in the manner described.

7. In a wind mill regulator, the combination with a toothed drum connected with the regulator wire, a lever moved by the pump rod, a pawl on said lever engaging the teeth of the drum, and a rod connected to said pawl; of a pivoted trigger connected with said rod, a trip mounted between its ends on a pivot, its upper arm being turned out and provided with an eye and its lower arm having a notch adapted to engage the lower end of said trigger, a spring coiled on the trigger-pivot with one end engaging said eye and the other end engaging the trigger, a float in the tank, and connections from said float, substantially as described, for moving said trip and trigger against the force of said spring, as and for the purpose set forth.

8. In a wind mill regulator, the combination of a stub-shaft mounted in a bracket, a toothed drum journaled on said shaft and connected with the regulator wire, a pawl moved by the pump rod, and a rod connected to said pawl; with a pin in said bracket, a trigger pivoted thereon and connected at its upper end with said rod, its lower end being sharpened, an arm also pivoted on said pin and having an outturned heel engaging behind the upper end of the trigger, a slide connected with the float in the tank, the arm being pivoted to said slide, a trip pivoted on said bracket and having a notch adapted to engage the lower end of the trigger and also having a cam-shaped upper edge, a stud in the arm over said cam-face, and a spring coiled on said pin with one arm bearing the trigger against said heel and the other arm bearing the trip against said stud, as and for the purpose set forth.

9. In a windmill regulator, the combination with a toothed drum part of whose periphery is plain, an arm connected with said drum, a regulator wire leading from said arm to the wind wheel, two pawls adapted to engage said teeth or the plain edge of the drum, and means for reciprocating said pawls simultaneously and oppositely by the movements of the pump-rod; of a spring-actuated trigger connected with said pawls and normally engaging them with said teeth, a spring-actuated trip having a notch adapted to hold said trigger out of its normal position, and an arm connected with and operated by the float in the tank, the opposite movements of said arm alternately bearing the trip and the trigger against the forces of their respective springs, as and for the purpose set forth.

493,164. GRINDING OR PULVERIZING MILL. JOSEPH HUNT, Allentown, Pa. Filed Apr. 6, 1892. Serial No. 428,090. (No model.)



Claim.—1. The combination in a grinding or pulverizing mill, of the grinding ring, a series of rolls in contact with the inner face of said ring, a rotating roll carrier located above the grinding ring, and having a central vertical portion with radial recesses or pockets therein and hangers for the shafts of the grinding rolls, said hangers being pivoted to said carrier and adapted to the pockets therein, so as to have a driving contact with the walls of said pockets, substantially as specified.

2. The combination in a grinding or pulverizing mill, of the grinding ring, a series of rolls in contact therewith, a dust-proof casing for the said grinding ring and rolls and a rotating roll-carrying structure having roll bearings wholly outside of the casing of said dust-proof mill, whereby dust is prevented from gaining access to said bearings, substantially as specified.

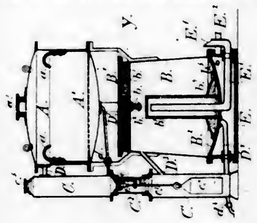
3. The combination of the grinding ring, the grinding rolls running in contact with the inner face of the same, and hangers for said rolls pivoted at points outward beyond the axial line of the rolls, whereby the latter normally swing into contact with the ring, substantially as specified.

4. The combination of the grinding ring, the series of rolls in contact with the inner face of said ring, a rotating roll carrier located above the ring, an internal perforated and external imperforate screen mounted above the grinding ring and a packing ring carried by said screen structure and bearing against the roll carrier, so as to form a dust-proof joint therewith, substantially as specified.

5. The combination of the grinding ring, the grinding rolls, the screen above the ring, and a rotating roll carrier having projecting pockets which serve as vanes to direct a current of air through the screen, substantially as specified.

6. The combination in a grinding or pulverizing mill, of the grinding ring, the grinding rolls rotating in contact with the inner face of said ring, the pivoted hangers for the shafts of the rolls, and a roll carrier having on its outer portion depending arms in which are mounted the pivot pins for the roll shaft hangers, substantially as specified.

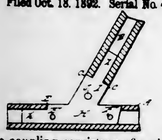
493,165. APPARATUS FOR CARBURETING AIR. PAUL H. IRGENS, Christiania, Norway. Filed Mar. 19, 1892. Serial No. 425,633. (No model.) Patented in Norway Aug. 19, 1891, No. 2,211; in England Oct. 3, 1891, No. 11,132; in France Nov. 11, 1891, No. 214,962; in Germany Mar. 14, 1892, No. 61,352, and in Sweden Nov. 10, 1892, No. 4,061.



Claim.—1. In apparatus for carbureting air the combination with a liquid reservoir A, and a vapor generating reservoir B, of auxiliary reservoirs C, and C', communicating respectively with the liquid reservoir and the vapor generating reservoir, and communicating also with each other, valve mechanism located in one of said auxiliary reservoirs, a cap b^2 resting upon the bottom of the vapor generating reservoir and opening beneath the surface of the liquid in said reservoir, an air inlet pipe entering said reservoir and discharging into said cap, a carbureted air outlet pipe and a filter connected with said vapor generating reservoir, substantially as described.

2. In an apparatus for carbureting air, the combination with a liquid reservoir, a vapor generating reservoir, and auxiliary reservoirs C and C', communicating with said liquid reservoir, vapor generating reservoir and with each other, of a perforated bottom arranged in the liquid reservoir, a combined cover and safety valve fitting the top of the vapor generating reservoir, an air inlet pipe and a carbureted air outlet pipe, substantially as described.

493,166. COUPLING FOR TUBULAR FRAMES. JAMES S. JOHNSON, Almont, Mich. Filed Oct. 18, 1892. Serial No. 449,280. (No model.)

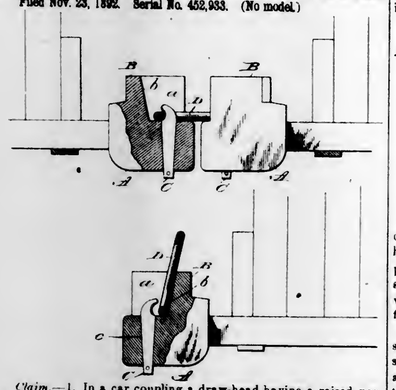


Claim.—1. A pipe coupling consisting of a pipe slotted through one wall, another pipe slotted at its end, and a sheet metal coupling adapted to fit in the slots of the two pipes, substantially as shown and described.

2. The combination of a pipe A having a slot E therein, the pipe B having the slot C therein, and the sheet metal coupliog H, I, having the extensions *h i*, substantially as shown and described.

3. A pipe coupling A having therein a slot C, pipe B having therein a slot C, and having its ends formed to fit the upper portion of pipe A, and a sheet metal coupling H I provided with the extensions *h i* and with the rivets J F, substantially as shown and described.

493,167. CAR-COUPLING. BERTON A. KEELER, Russell, Ark. Filed Nov. 23, 1892. Serial No. 452,933. (No model.)



Claim.—1. In a car coupling a draw-head having a raised portion with an open end and top and an inclined rear wall, of a removable pin having an upwardly projecting portion carried by the draw-head with which the link is adapted to engage, said upwardly projecting portion of the pin having a curved front edge and a convex rear edge, substantially as shown, and for the purpose set forth.

2. In a car coupling, a draw-head A having a raised portion B formed integral therewith, said raised portion having a recess with vertical side walls and an inclined rear wall, a tapered aperture *c* adapted to receive a tapered pin having a head shaped substantially as shown, said pin being locked in the aperture in the drawhead, for the purpose set forth.

3. In a car coupling, a draw-head having at its front end upwardly projecting side walls *a a* and an inclined rear wall *b*, a tapered aperture extending from the bottom of the recess formed by the walls *a a* and *b* through the draw-head, a pin C adapted to be secured in said aperture so that the head thereof will lie within said recess, and a coupling link substantially as shown.

493,168. PLOW. EDOUARD A. KOCH, Waterloo, La. Filed May 15, 1889. Serial No. 310,919. (No model.)



Claim.—1. In combination with a plow having a cleft, a cutting-blade or share provided with a colter at an angle thereto and integral therewith, substantially as described.

2. A cutting-blade for a plow or cultivator having a flange at its front end designed to engage a cleft and a base or cutting portion extending beneath the plow, the flange being at an angle to the cutting-portion substantially as described.

3. A cutting-blade for a plow or cultivator having a flange arranged at an angle to the base or cutting portion at its front end designed to engage a cleft the base or cutting portion extending beneath the mold-board and beyond the edge thereof, substantially as described.

4. A plow having a landside provided near its front end with a recess and near its rear end with a lug or projection in combination with a shoe having a toe engaging the recess in the landside and a recess for reception of the lug, substantially as described.

5. A plow having a landside provided near its front end with an inclined recess and near its rear end with a lug or projection in combination with a shoe having a toe engaging the recess in the landside and a recess for reception of the lug thereof, substantially as described.

6. A plow having a landside provided with a recess near its front end and a lug or projection near its rear end in combination with a shoe having a toe engaging said recess in the landside and a recess for reception of the lug thereof and a screw in the landside having its end swiveled in the shoe, substantially as described.

493,169. EYEGLASSES. ADOLPHUS J. LANDRY, Somerville, Mass. Filed Dec. 19, 1892. Serial No. 455,692. (No model.)



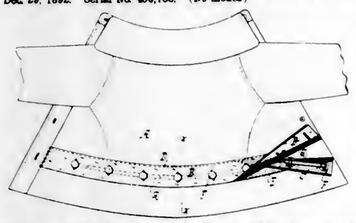
Claim.—1. In eyeglasses, the combination, with the lens-post, a connecting device for the lenses, and the fastening screw, the latter having a polygonal head, of a locking-plate secured to an adjacent portion of the eyeglass and having an aperture or slot shaped to fit said screw head; said locking plate being placed thereover to prevent the screw from turning or becoming loose, substantially as set forth.

2. In eyeglasses, the combination, with the lens-post, the bow-spring, and the screw for securing said spring to the lens-post, said screw having a polygonal head, of the locking-plate *f* secured to an adjacent portion of the eyeglass and having a slot or aperture shaped to fit said screw head and adapted to be placed thereover after the screw has been turned into place, substantially as and for the purpose specified.

3. In eyeglasses, the combination, with the lens-post, the bow-spring, the nose-guard, and the screw for securing said spring and nose-guard to the lens-post, said screw having a polygonal head, of the locking plate *f* secured to an adjacent portion of the eyeglass and having a slot or aperture *g* shaped to fit said screw-head and adapted to be placed thereover after the screw has been turned into place, substantially as and for the purpose specified.

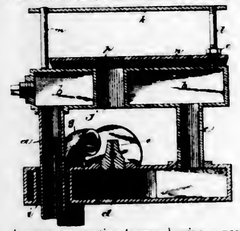
4. In eyeglasses, the combination, with the lens-post, a connecting device for the lenses, and a fastening screw *b*, the latter having a polygonal head, of a locking plate provided with lateral arms or projections 20 adapted to be bent around an adjacent portion of the eyeglass, and having an aperture or slot shaped to fit said screw head, said locking plate being placed thereover to prevent the screw from turning or becoming loose, substantially as described.

493,170. SHIRT-WAIST. HERMAN L. LEVY, Brooklyn, N. Y. Filed Dec. 29, 1892. Serial No. 456,700. (No model.)



Claim.—A jacket or shirt waist having two waist bands provided with a series of corresponding button holes and each band respectively attached continuously along an edge located oppositely to the attached edge of the other band but having the other edge detached from the body, substantially as described.

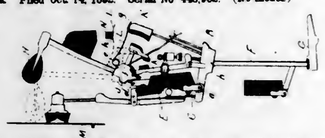
493,171. VAPOR-GENERATING BURNER. GEORGE LITTLEFIELD, Burlington, Wis. Filed Feb. 8, 1892. Serial No. 420,678. (No model.)



Claim.—1. A vapor-generating burner having a vapor-generating chamber, a burner-jet, an arrester and spreader located above the vapor-generating chamber and adapted to arrest and spread or deflect the ascending heat and flame horizontally and cause the heat to strike downwardly against the top of the chamber, and a movable shield adapted to be moved when desired between the top of the chamber and the arrester and spreader, substantially as and for the purposes set forth.

2. A vapor-generating burner provided with a vapor-generating chamber having a draft-hole *j*, a burner-jet located beneath said draft-hole, an arrester and spreader located above the vapor-generating chamber and adapted to spread or deflect the flame horizontally and cause the heat to strike downwardly against the top of the chamber, and a movable shield adapted to be moved when desired between the top of the chamber and the arrester and spreader, and formed with a draft-hole *p*, substantially as and for the purposes set forth.

493,172. PIANOFORTE-ACTION. HORATIO N. MOORE, Savannah, Ga. Filed Oct. 14, 1892. Serial No. 448,902. (No model.)



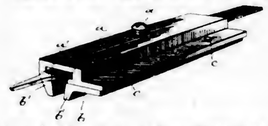
Claim.—1. In a piano forte action, in combination, the hammer butt, back catch, and a spring secured to the hammer butt and arranged to bear upon the back catch in the operation of the action.

2. In a piano forte action, in combination, the hammer butt, a spring attached thereto, and a rail or stop against which the free end of the spring abuts in operation of the action.

493,173. WHITE LEAD. NORMAN K. MORRIS and JOHN W. BAILEY, Denver, Colo. Filed Jan. 28, 1893. Serial No. 460,118. (No specimens.)

Claim.—As a new composition of matter, a white lead consisting of lead carbonate and hydrated lead oxide, in a naturally comminuted condition, and having its particles inherently commingled with a volatile oil of the petroleum type, substantially as set forth.

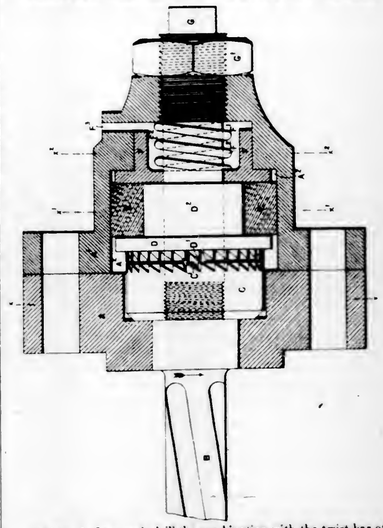
493,174. SKATE-SHARPENER. HARRY MCCLURE, Hawarden, Iowa. Filed Apr. 2, 1892. Serial No. 427,515. (No model.)



Claim.—1. In a skate sharpener the combination of a box or case *a* having its ends open and a central longitudinal slot, extending the full length of its underside this slot forming the integral inwardly-extending supporting-lips *a' a'*, means for clamping the file down upon the lips *a'* so as to cover the longitudinal slot, and the depending guiding flanges *b' b'* arranged on opposite sides of the slot, and means for adjustably securing one of these flanges to the box, substantially as described.

2. The combination of a long casing *a* open at both ends and provided with a slot in its under side, said slot forming the inwardly-extending supporting-lips *a'*, means for clamping a file down on said lips, an integral guiding-flange *b'* extending the full length of the casing, along one edge of the slot, an adjustable plate *b* secured to the underside of the casing and extending its full length and provided along its inner edge with a depending guiding-flange *b'*, similar to and parallel with the integral flange, said guiding-flanges being beveled downwardly and inwardly on their adjacent faces, and screws *c* adjustably connecting the adjustable plate to the casing, one of these screws being secured near each end of the casing, substantially as described.

493,175. ROCK-DRILLING MACHINE. JAMES MCCULLOCH, Minas Riotinto, Spain. Filed June 20, 1892. Serial No. 437,319. (No model.)



Claim.—1. In a rock drill the combination with the twist-bar of a toothed gear fixed on the said bar, another toothed gear adapted to engage therewith and to slide but not rotate in the drill casing a spring adapted to move the sliding gear in one direction and a thoroughfare forming a communication between one end of the cylinder and one side of the sliding gear to allow the working fluid to act upon and move the said sliding gear against the pressure of the spring for the purpose of controlling the twist bar, substantially as set forth.

2. In a rock-drill the combination with the twist-bar of a toothed

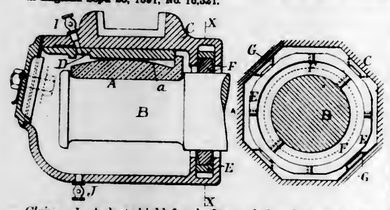
gear fixed on the said bar, another toothed gear adapted to slide but not rotate in the drill casing and means comprising two thoroughfares one of which forms a communication between the back of the sliding gear and one end of the cylinder and the other of which forms a communication between the front of the said gear and the other end of the cylinder, whereby the said sliding gear is automatically actuated by the fluid pressure in the cylinder and brought into engagement with and disengaged from the gear fixed on the twist bar to control the twist bar, substantially as set forth.

3. In a rock drill, the combination with the twist-bar of a toothed gear fixed on said twist bar and another toothed gear adapted to engage therewith and to slide but not rotate in the drill casing, and a rubber bearing for supporting the said sliding gear, substantially as described for the purpose specified.

4. In a rock drill, the combination with the twist-bar of a toothed gear fixed on the said twist-bar another toothed gear adapted to engage therewith and to slide but not rotate in the drill casing and a rod adjustably fixed to the casing and abutting against the end of the twist bar, substantially as described for the purpose specified.

5. In a rock-drill the combination with the twist-bar, of a toothed gear fixed on the said twist-bar, another toothed gear adapted to engage therewith and to slide but not rotate in the drill casing and a thoroughfare leading from the cylinder to the front of the said sliding gear whereby the pressure of the fluid in the cylinder is utilized to automatically disengage the said gears when the drill is giving its blow for the purpose specified.

493,176. AXLE-BEARING. RATHBE I. MCLAREN, London, England. Filed Dec. 8, 1892. Serial No. 454,519. (No model.) Patented in England Sept. 26, 1891, No. 16,321.



Claim.—1. A dust shield for shaft or axle bearings consisting of a ring fitting round the shaft or axle and having its outer periphery formed with a convex spherical surface on which fits a corresponding concave spherical surface on a surrounding divided ring that is pressed against the inner ring by springs, substantially as described.

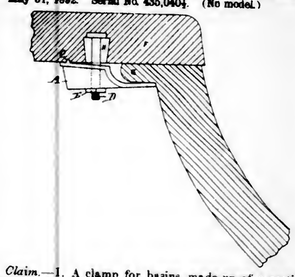
2. In a dust shield, the combination of a divided ring F adapted to fit closely round the shaft or axle B and having its outer periphery formed with a convex spherical surface, a second divided ring E formed with an inner concave spherical surface fitting the spherical surface of the ring F, and springs G adapted to press the outer ring E in close contact with the inner ring F, substantially as described.

493,177. LETTER-BOX. FRANK H. MCMANIGAL, St. Paul, Minn. Filed July 11, 1892. Serial No. 439,702. (No model.)



Claim.—A combined hitching post and mail receptacle, consisting of a hollow post divided horizontally into upper and lower compartments each having an opening from the outside of the post, the partition between said compartments having an opening therethrough, an upright guard at one side of said opening, and doors or slides for closing said apertures from the outside, substantially as and for the purpose herein specified.

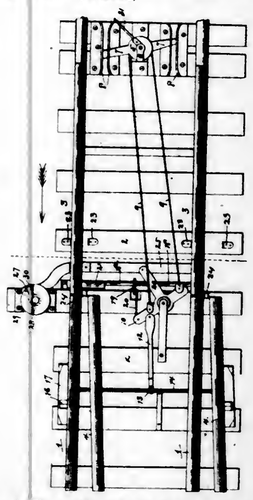
493,178. BASIN-CLAMP. JOHN M. MCVEY, Lima, Ohio. Filed May 31, 1892. Serial No. 435,040. (No model.)



Claim.—1. A clamp for basins, made up of a casting having a projecting portion carrying at one end a nib C, the upper portion of the casting being inclined as shown, a slot B having inclined side walls, a securing bolt D secured to the slab and provided with a retaining nut which engages with the underside of the casting, substantially as shown, and for the purpose set forth.

2. As an improved article of manufacture, a basin clamp made up of a single casting having projections which are adapted to engage with the flange of the basin, vertical walls forming a slot with inclined sides, and a nib C formed on the part which contacts with the slab, substantially as shown.

493,179. RAILROAD-SWITCH. RICHARD NASH, Ellensburg, Wash., assignor of one-half to Edward Nash, same place. Filed Nov. 30, 1891. Serial No. 413,542. (No model.)

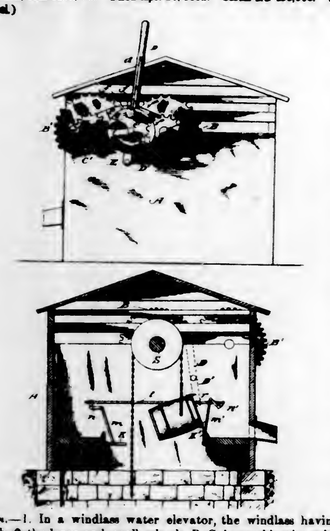


Claim.—1. The combination with the main rails, the siding rails and the pivoted rails, of the hub having the outwardly extending arms the ends of which project through slots in the guides secured to the cross ties, the spring arm for limiting the movement of the arms and hub, the cables connecting the arms with the oscillating cross head, the transverse bar having cranks at each end connected with lugs projecting above the siding and main rails in close proximity thereto,

a crank on said bar, connected with the cross head, a rod connected with the free end of the pivoted rails and with a signal target and a bar connecting said rod with the cross head, substantially as described.

2. The combination with the main rails, the switch rails and the pivoted rails, of the hub having the outwardly extending arms, the ends of which project through slots in the guides secured to the cross ties, the spring arm for limiting the movement of said arms and hub, the cables connecting the arms with an oscillating cross head, a transverse bar having cranks at each end connected with lugs projecting above the siding and main rails in close proximity thereto, a crank on said bar connected with the cross head, a transverse bar having ribs and a crank connected with the cross head, the lugs at each side of the pivoted rails forming stops therefor and the lugs at the junction of the pivoted and main and siding rails for holding the pivoted rails against said stops, substantially as described.

493,180. WINDLASS WATER-ELEVATOR. WASHINGTON B. PARRISH, Oral Oaks, Va. Filed Apr. 26, 1892. Serial No. 430,666. (No model.)



Claim.—1. In a windlass water elevator, the windlass having upon its shaft the large and small wheels B, C, in combination with the wheels B' and C', and the interposed lever carrying the disk E and shift-wheel *e*, adapted to mesh with both of the wheels C, C', and alternately with each, substantially as described.

2. In a windlass water elevator the trip-bails K, K', bell cranks *n*, *n'*, the connecting rod *t*, and the shift-lever D connecting mechanism, whereby the buckets alternately co-operate to reverse the movement of the windlass, substantially as described.

493,181. DEVICE FOR DRESSING AND FEEDING TOBACCO. WILLIAM J. PAYNE, Richmond, Va., assignor to the Bohls Cigarette Machine Company, same place. Filed Sept. 8, 1891. Serial No. 405,115. (No model.)

Claim.—1. In a machine for dressing and feeding tobacco, the combination of an endless feed belt, a plain presser roller, first and second picker rollers, and a pin presser roller whose pins mesh with those of the first picker roller, substantially as set forth.

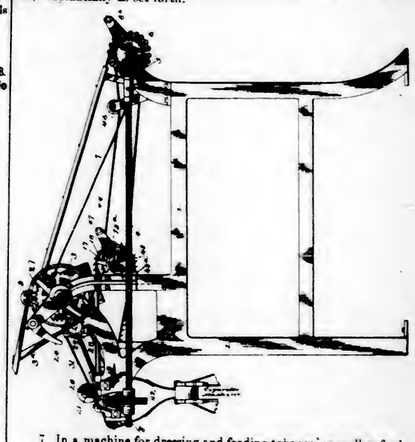
2. In a machine for dressing and feeding tobacco, the combination with an endless feed belt given a slow movement, of a plain presser roller, first and second picker rollers revolving at high speed and a pin presser roller whose pins mesh with those of the first picker roller, substantially as set forth.

3. In a machine for dressing and feeding tobacco, the combination with an endless feed belt, of a plain presser roller, first and second picker rollers, a pin presser roller whose pins mesh with those of the first picker roller, and a rotary clearer or stripper, substantially as set forth.

4. In a machine for dressing and feeding tobacco, the combination of an endless feed belt given a slow movement, a plain presser roller, first and second picker rollers revolving at high speed, a pin presser roller whose pins mesh with those of the first picker roller, and an upper rotary clearer or stripper having pins meshing with those of the second picker roller, and running at a velocity higher than that of said rollers, substantially as set forth.

5. In a machine for dressing and feeding tobacco, the combination with an endless feed belt, a plain presser roller and picker rollers, of an endless picker belt and a picker roller therefor, substantially as set forth.

6. In a machine for dressing and feeding tobacco, an endless feed belt, a plain presser roller, picker rollers and a rotary clearer or stripper therefor, combined with an endless picker belt and a picker therefor, substantially as set forth.



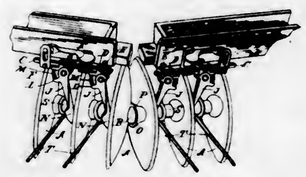
7. In a machine for dressing and feeding tobacco, an endless feed belt given a slow movement, a plain presser roller, a pin presser roller, picker rollers and a rotary clearer or stripper, said rollers and clearer or stripper having velocities as described, combined with an endless belt, substantially as set forth.

8. In a machine for dressing and feeding tobacco, the combination of an endless picker belt given a slow movement, a plain presser roller and a picker roller, the latter revolving at high speed and meshing with the pins of the picker belt, substantially as set forth.

9. In a machine for dressing and feeding tobacco, the combination of an endless picker belt given a slow movement, a plain presser roller and a picker roller, the latter revolving at high speed and meshing with the picker belt, combined with a rotary clearer or stripper moving at a speed higher than that of said picker roller, substantially as set forth.

10. In a machine for dressing and feeding tobacco, an endless feed belt, a plain presser roller, first and second picker rollers revolving at high speed, a pin presser roller whose pins mesh with those of the first picker roller and a rotary clearer or stripper meshing with the second roller and revolving at still greater velocity, combined with a picker belt given a movement substantially uniform with that of the feed belt, a lower plain presser roller, a lower picker roller whose pins mesh with the picker belt, and which revolves at a speed higher than that of said belt, and a rotary clearer or stripper meshing with said picker roller and revolving at a speed higher than that of said roller, substantially as set forth.

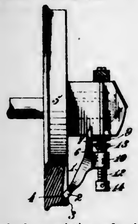
493,182. DISK HARROW. JAMES F. PLATT, Sterling, Ill. Filed July 18, 1892. Serial No. 440,389. (No model.)



Claim.—1. In a disk harrow, the combination of a transverse bar C, box D adjustably seated thereon, and provided with lateral extension F, and ear K, the scraper J pivotally attached to ear K, and provided with a cutting blade N and lateral extension L, the spring M interposed between said extensions, and the disk A; substantially as shown, and for the purpose described.

2. In a disk harrow, the combination of the projection O, seated centrally on the inner end of one of said disk-gangs, and provided with a cup-like opening P extended horizontally toward the center of the opposite disk-gang, and a substantially semi-spherical boss R formed centrally on the inner end of said opposing disk-gang, and of a less diameter than the width of the said opening P, and a less altitude than the depth of said opening; substantially as shown, and for the purpose described.

493,183. SCREW-JACK. WILLIAM QUINN, Tyler, Tex. Filed Dec. 20, 1892. Serial No. 455,795. (No model.)



Claim.—1. A screw-jack, consisting of a jack frame having a foot-piece at its lower end to rest against the shoulder of a car-wheel, a bifurcated upper end for engaging a journal box and a lateral projection or enlargement provided with a screw threaded orifice, and a jack-screw engaging said orifice and provided at its upper end with a head and at its lower end with means by which it may be rotated for lifting a journal box and its superincumbent weight, substantially as and for the purpose described.

2. A screw-jack, consisting of a jack-arm or frame having a foot-piece at its lower end, inclined portions at its upper end which are provided with jaws arranged substantially parallel and a lateral projection or enlargement formed with a screw-threaded passage, and a screw-jack engaging the said screw-threaded orifice and provided at its upper end with a loosely journaled head and at its lower end with means for the rotation of the screw, substantially as described.

493,184. SLED. MILO M. RUSSELL, New Richmond, Wis. Filed Feb. 6, 1892. Serial No. 420,513. (No model.)



Claim.—1. The combination with the runners and knees fixed thereto, of a collar or clip C, reversibly secured upon each knee and the beam arranged across said sled and adapted to engage said collar in either of its two positions, whereby, as may be desired, a high or low sled may be had, substantially as set forth.

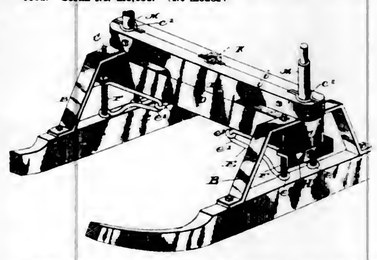
2. A sled provided with a knee and having a reversible beam and a reversible collar secured to said knee, whereby the beam may be elevated or lowered relatively to the knee for making a high or a low sled, substantially as set forth.

3. In a sled, the combination with the knee, of a rotatable beam having a head and a groove at each end, one side of said head being cut away and a clip for securing the beam to the knee, the ends of which clip engage with the knee and the middle portion of which is at a distance from the knee substantially equal to the diameter of the grooved portion of the beam, whereby the beam must be partially rotated upon its axis to be locked to the knee, substantially as set forth.

4. A sled, the beam of which has an eccentric head and a groove inside said head at each end, the knee, the top or upper portion of which is straight and is adapted to engage said groove, and the collar C, secured to said knee and having a loop to receive said eccentric head, whereby the end of said beam may be locked to said knee, substantially as set forth.

5. In a sled, the combination with the knee and the beam, of the reversible clip C, comprising the two U-shaped loops united at their ends by the cross pieces *c'*, as set forth.

493,185. SLED. MILO M. RUSSELL, Augusta, Wis. Filed Mar. 3, 1892. Serial No. 423,652. (No model.)



Claim.—1. The combination with the runners of a sled, of a false beam comprising brackets secured to said runners and a tie-rod, and a sled beam on said rod and brackets, substantially as set forth.

2. The combination with the runners of a sleigh and the raves mounted thereon, of the false beam comprising the brackets and the tie rod connecting the same, the springs arranged under said false beam, and the sled beam arranged between said false beam and the apex of the raves, substantially as and for the purposes set forth.

3. The combination with the runners of a sled and the raves and pins thereon, of the braces mounted or secured on said pins, and the tie rod extending between said runners and supported on said braces, substantially as set forth.

4. The combination with the runners of a sled and the raves and pins thereon, of the braces mounted on said pins, the tie rod extending between said runners and supported on said braces, and the springs on said pins, of the sled beam supported on said tie bar and held in place by the raves and pins, substantially as set forth.

5. The combination with the runners of a sled and the raves and pins thereon, of the braces mounted on said pins, the tie rod extending between said runners and supported on said braces and the springs on said pins, of the sled beam supported on said tie bar and held in place by the raves and pins and bearing the king bolt of the sled, and the bolster, composed of two halves or sections, bolted together and provided with a socket for said king bolt, substantially as and for the purpose set forth.

6. The combination with the sled, of a bolster made up of two sections secured together in the same horizontal plane, each of said sections having a semi-circular recess in its inner face, which recesses in the respective sections co-incide and form a socket for the reception of the king bolt, substantially as set forth.

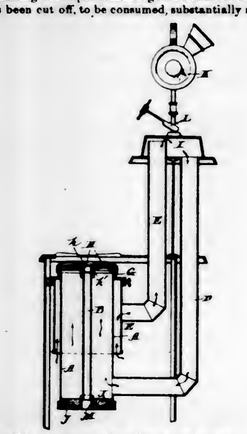
7. The combination with the sled, of a bolster made up of two sections secured together in the same horizontal plane, each of said sections having three semi-circular recesses in its inner face, one at each end and one substantially at the center of the section, which recesses in the respective sections co-incide and form sockets at the ends of the bolster for the reception of the standards and at substantially the center of the bolster for the reception of the king bolt, substantially as set forth.

8. In a sled, the combination with the runners, of two pins or bolts C, in each runner, a spring on each of said pins, and a beam resting on the upper ends of said springs between the pins, substantially as set forth.

9. The combination with the runners and the raves fixed thereon and the pins or bolts passing between said runners and raves, of the false beam, substantially as described and the sled beam supported thereon and held in place by said rods, substantially as and for the purposes set forth.

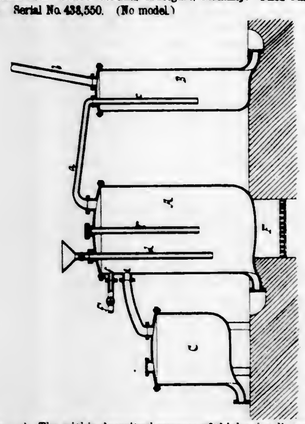
493,186. GASOLINE-BURNER ATTACHMENT. ANNIE SAYERS, Chicago, Ill. Filed Oct. 19, 1892. Serial No. 449,411. (No model.)

Claim.—1. In combination with the burner of a gasoline stove having a central draft passage and a surrounding vapor passage and an auxiliary burner at the lower end of the draft passage, a cut off applied to the vapor passage, which cut-off when closed separates the draft passage from the vapor passage and prevents the escape of gas at the top of the burner after the flame from the main burner has gone out, and at the same time permits a free circulation of the air in the draft passage to support combustion at the auxiliary burner, thereby permitting the vapor remaining in the burner after the supply of vapor has been cut off, to be consumed, substantially as described.



2. A cut-off for that type of gasoline stoves having a central draft passage and a surrounding vapor passage and an auxiliary burner at the lower end of the draft passage, said cut-off comprising in its construction a cap or cover conforming to the shape of the top of the burner and provided with a central, open-ended tube, which, when the cut-off is applied to the burner, fits snugly the draft passage and separates said passage from the vapor passage near the top of the burner, thereby preventing the escape of gas from the vapor passage, and at the same time permitting a free circulation of air through the draft passage for the purpose of supporting combustion at the auxiliary burner at the lower end of said passage, substantially as described.

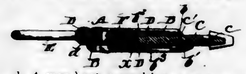
493,187. PROCESS OF AND APPARATUS FOR THICKENING LINSEED-OIL. EUGEN SCHAAL, Stuttgart, Germany. Filed June 30, 1892. Serial No. 438,550. (No model.)



Claim.—1. The within described process of thickening linseed oil which consists in heating the oil to a temperature of 320°-345° centigrade, maintaining a current of an indifferent fluid over the surface of the heated oil, introducing fresh oil into the lower portion of the heated mass and permitting the thickened oil to flow off from the top, substantially as described.

2. The combination with the kettle A and its feed pipe *d*, extending down to the lower portion of the kettle of a tube *f'* leading into the kettle, a goose-neck *a*, a condenser B connected to the goose-neck, an escape pipe *b* leading from the condenser, an overflow pipe *e* leading from the kettle A, and a vessel C connected with the pipe *e*, substantially as described.

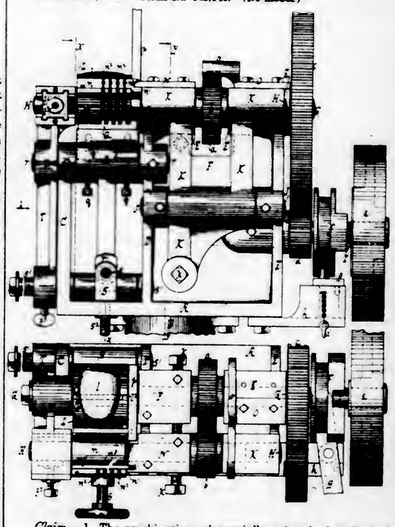
493,188. HARNESS-SNAP. FREDERIC R. SCOFIELD, Penfield, Pa. Filed Nov. 30, 1892. Serial No. 453,585. (No model.)



Claim.—1. A snap hook comprising a tongue receiving member and a tongue member, the receiving member having rigid side jaws and a spring top and bottom portion and an overhanging retaining shoulder portion, and a tongue member having an underhanging retaining shoulder, substantially as described.

2. A snap hook comprising a tongue member C formed with an underhanging shoulder C' and a beveled end *x*, in combination with a receiving member B having the underhanging shoulder *b'*, and the spring B having two branches one longer than the other and forming top and bottom portions of the member B and both acting to keep the tongue in engagement with the receiving member, substantially as described.

493,189. SKIVING-MACHINE. JACOB R. SCOTT, New York, N. Y. Filed Oct. 6, 1892. Serial No. 448,049. (No model.)



Claim.—1. The combination substantially as herein described of the knife Q, the die roller L and its shaft G mounted in fixed bearings the feed roller M and its shaft H mounted in adjustable bearings and the movable bracket T provided with a fixed bearing for the shaft G and with an adjustable bearing for the shaft H.

2. The combination substantially as herein described of the knife Q, the die roller L and its shaft G mounted in fixed bearings, the feed roller M and its shaft H mounted in adjustable bearings and means for locking said bearings in the required position.

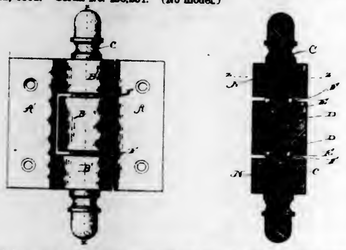
3. The combination substantially as herein described of the die roller L mounted on a rotary shaft G, the feed roller M mounted on a rotary shaft H, the knife head R mounted on the shaft *r*, the knife Q secured to the knife head, the toothed segment *r'* extending from the knife head, the swinging lever S, the worm screw *s*, mounted in this lever and engaging the toothed segment *r'* and the screw *i* ing on the lever S.

4. The combination substantially as herein described of the knife, the die roller, the feed roller provided with circular grooves, the guard *n* extending over the feed roller, the scrapers n^2 suspended from the guard and the set screws n^3 for adjusting the scrapers.

5. The combination substantially as herein described of the knife, the feed roller, the die roller the die *l* and means substantially as described for laterally adjusting said die.

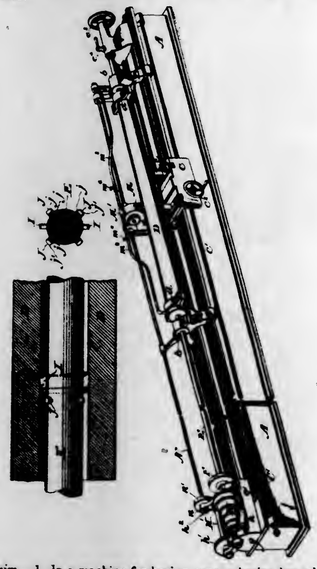
6. The combination substantially as herein described of the knife, the feed roller, the die roller provided with a groove m^2 the end gage m provided with a shank to engage the groove m^2 and the set screw m^3 for securing the end gage in the required position.

498,190. HINGE. FRANK J. SMITH, Muskegon, Mich. Filed Apr. 22, 1892. Serial No. 430,251. (No model.)



Claim.—In a hinge the combination with a wing section having a bearing block with central depressions and circular grooves surrounding the same: of a wing section having interiorly threaded sleeves straddling the bearing block, adjustable bolts passing through said sleeves and having tapering ends to connect with said depressions, friction balls seated in the grooves and bearing against the tapered ends of the bolts, and means as described for connecting said bolts and sleeves together, substantially as and for the purposes specified.

493,191. MACHINE FOR FINISHING BORES OF LARGE GUN-TUBES OR CANNON. MORRIS F. SMITH, Philadelphia, Pa., assignor of one-half to the William Cramp & Sons Ship and Engine Building Company, of Pennsylvania. Filed Mar. 12, 1892. Serial No. 424,709. (No model.)



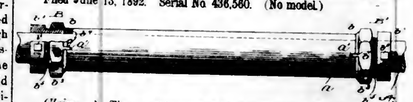
Claim.—1. In a machine for boring guns, a boring bar adapted to pass through the bore of the gun tube, and a cutting device carried by the bar, combined with a series of supports carried by the boring bar in rear of cutter, and adapted to engage the surface of the bore, for the purpose specified.

2. In a machine for boring guns, a boring bar adapted to pass through the bore of the gun and a cutting device carried by the boring bar, combined with a series of supports carried by the boring bar in rear of the cutter, said supports being adjustable to engage the surface of the bore at each successive cut, substantially as described.

3. In a machine for boring guns, a boring bar adapted to pass through the bore of the gun and a cutting device rigidly attached to the said bar, combined with a bushing mounted on the boring bar in rear of the cutter and secured thereto by a frangible device, said bushing being adapted to engage the surface of the bore substantially as described.

4. In a machine for boring guns, a main frame, a table movable on the frame and adapted to support the gun, combined with a boring bar passing through the bore of the gun and supported at each end of the main frame, a cutting device carried by the boring bar, a pump supported on the table, an oil reservoir, suitable pipe connections between the pump, the reservoir and the bore of the gun, a rotating shaft supported on the main frame parallel with the boring bar, said shaft being provided with a spline way, a gear mounted on said shaft and provided with a spline to enter said spline way, a gear on the pump engaging the gear on the shaft, suitable devices to move the gear on the shaft longitudinally thereof with the table, suitable means to rotate the shaft, and suitable means to rotate the boring bar and move the table, substantially as described.

493,192. CORE-DRIVER. GEORGE W. STEWART, Ticonderoga, N. Y. Filed June 13, 1892. Serial No. 436,560. (No model.)



Claim.—1. The combination with a rotary shaft, of a core or shell thereon, and driver-locks secured on said shaft and having movable parts provided with projections designed to engage said core and cause it to revolve with said shaft, as set forth.

2. The combination with a rotary shaft, of a core or shell thereon having slots in its ends, and driver-locks secured on said shaft and having, each, a movable part provided with a lug or projection designed to fit in the adjacent one of said slots, as set forth.

3. The combination with a rotary shaft, of a core or shell thereon having slots in its ends, and driver-locks composed each of two parts, one of which is held rigid to said shaft and the other is adjustable and provided with a lug or projection designed to enter the adjacent one of said slots, as set forth.

4. The combination with a rotary shaft, of a core or shell thereon having slots in its ends, and driver-locks composed each of two parts connected by screw-threads, one of said locks having a right-hand thread and the other a left-hand thread, said locks being provided with lugs or projections designed to project into said slots, as set forth.

5. The combination with a rotary shaft, of a core or shell thereon having slots, and driver-locks consisting each of two parts, one of said parts being held rigid to said shaft and provided with an externally threaded portion, and the other part having a cylindrical portion, a lug or projection and a nut-like end having an internal screw-thread, substantially as set forth, the threaded-connection between the parts of the two driver-locks being opposed to each other.

493,193. PROCESS OF ROASTING SULPHUR-BEARING ORES. CHARLES W. STICKNEY, Butte, Mont. Filed Mar. 17, 1892. Serial No. 425,240. (No specimens.)

Claim.—1. The process of roasting ores and recovering their sulphur in solid form, by roasting one portion by means of steam whereby sulphureted hydrogen is generated and roasting another portion by means of air whereby sulphurous acid gas is generated, and mingling these gases in contact with a solution of the sulphate of a heavy metal substantially as described.

2. The process of roasting ores and recovering their sulphur in solid form by roasting one portion by means of steam and mechanical agitation, and roasting another portion by means of air and mechanical agitation and bringing the resulting gases into contact with each other and with a solution of a sulphate substantially as described.

3. The process of roasting ores and recovering their sulphur in solid form by roasting one portion by means of steam and mechanical agitation, and roasting another portion by means of air and bringing the resulting gases into contact with each other and with a solution of a sulphate, substantially as described.

493,194. BATH-TUB. HERMAN C. STIFEL, St. Louis, Mo., and FRANCIS J. TORRANCE and OSCAR F. GRANT, Allegheny, Pa. Filed Aug. 31, 1892. Serial No. 444,651. (No model.)

498,194.

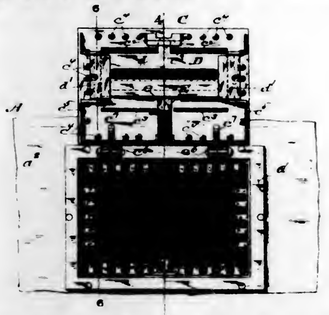


Claim.—1. The combination with a bath tub, of a hollow metallic rim, connected to the water supply, perforated around its under and inner side and having a depending lip or flange embracing the edge of the tub.

2. The combination with a bath tub, of a hollow metallic rim, beaded or flanged on its under side to conform to the flange of the tub and embrace the same, perforated through its inner flange or bead, and connected to the water supply, substantially as described.

3. The combination with a bath tub, of a hollow sheet metal rim resting on the edge of the tub and constituting the finishing molding of the tub, said hollow rim being flanged to embrace the rim of the tub body and being perforated at intervals and connected to the water supply, substantially as described.

493,195. BALLOT-BOX. LOUIS BROCKSTROH, St. Louis, Mo., assignor to the Geo. D. Barnard & Company, same place. Filed Aug. 1, 1892. Serial No. 441,811. (No model.)

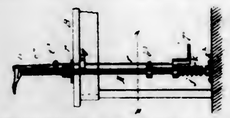


Claim.—1. A ballot box having a passage leading through its shell into its interior for the purpose of introducing the ballots, said passage being adapted to be closed by means of a slide movable upon the inner side of said shell, and securable in its closed position by means of a dog moving into the plane of said slide, said slide having a projection extending through said shell to enable it to be moved from the outer side of said shell substantially as described.

2. The hereindescribed ballot box having the doorway and door, said door being perforated for the introduction of the ballots, and having upon its inner side the adjustable perforated slide, and the spring dog, said slide having a projection extending through said door to enable said slide to be moved from the outer side of said door for the purpose of closing the ballots-perforation in the door, and said door having a lock substantially as described.

3. The hereindescribed ballot-box, having the body, the door frame, and the door, said door frame and door each being provided with a series of projections, which, when said door closes, interlock, substantially as described.

493,196. RELASTING-MACHINE. GEORGE W. THOMPSON, Lynn, Mass. Filed Oct. 17, 1891. Renewed Jan. 26, 1893. Serial No. 459,939. (No model.)



Claim.—1. The combination with a shoe horn H, having a flexible shank A^4 of the part A the treadle T, adjustable connecting rod r and chain c^4, connected and operating substantially as and for the purpose set forth.

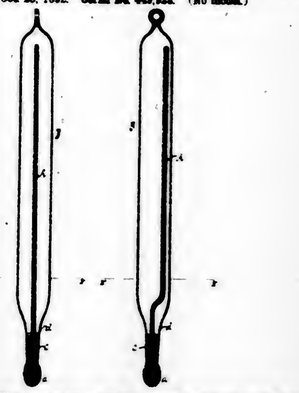
2. The shoe horn H having a flexible shank A^4 for the purpose described, in combination with the parts the post A, chain c^4, swivel f^4, adjustable rod r adjustably secured to the treadle T, all operating substantially as and for the purpose specified.

3. In combination with the post A of a relasting device, the treadle T adjustably supported by a spring j and adjustably connected to a shoe horn H, provided with a flexible shank, A^4, for the purpose described, substantially as and for the purpose set forth.

4. In combination with a relasting device composed of the shoe horn H with its flexible shank A^4, chain c^4, swivel f^4, adjustable rod r, adjustably secured to the treadle T, the adjustable toe support D, substantially as and for the purpose hereinbefore set forth.

5. The combination of the shoe-horn H with the rod r adjustably connected to the treadle T, the treadle T supported by the spring j, said spring having means of adjustment between the point of suspension of the same and the post A, all operating as and for the purpose hereinbefore specified.

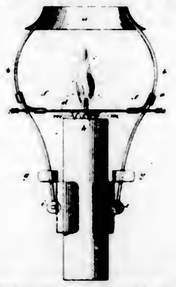
498,197. THERMOMETER. CHARLES J. TAGLIABUE, Brooklyn, N. Y. Filed Oct. 25, 1892. Serial No. 449,924. (No model.)



Claim.—1. The combination with a thermometer having a bulb a of an envelope or float melted or fused to the bulb, a ballast weight independent of the contents of the bulb and secured immediately above the latter and a stopper for holding the ballast in place, substantially as described.

2. The combination with a thermometer and its bulb of a float secured to the thermometer and a ballast weight independent of the contents of the bulb and secured in proximity thereto, substantially as described.

493,198. SHADE-HOLDER FOR CANDLES. WALTER R. WEARN, Brooklyn, N. Y., assignor of one-half to George H. Miller, same place. Filed Sept. 27, 1892. Serial No. 447,016. (No model.)



Claim.—1. A shade holder consisting of the side arms b, b, capable of movement toward or from each other and supporting the shade ring at their upper ends combined with a supporting bar carried by said arms and resting on the candle, and the sheet metal guides c, c

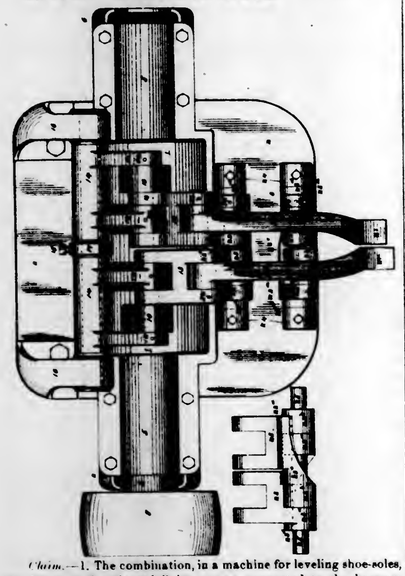
secured to the lower ends of said arms and being angular in cross section; substantially as and for the purposes set forth.

2. The shade holder having side arms capable of movement toward or from each other, and a support to rest upon the candle, combined with pivotally mounted guides *e* angular in cross section and provided with the guides *g*; substantially as set forth.

3. The shade holder having side arms, combined with the transverse supporting bar *d* having the central opening *j* and slots *e*; substantially as set forth.

4. The shade holder having the side arms *b* carrying sleeves *f*, combined with the transverse bar *d* secured in said sleeves and having the central opening *j* and downwardly depending teeth *m*; substantially as set forth.

493,199. SOLE-HAMMERING MACHINE. STILLMAN A. WEST, St. Louis, Mo., assignor of one-half to Fred L. Clark, same place. Filed Dec. 24, 1891. Serial No. 416,096. (No model.)



Claim.—1. The combination, in a machine for leveling shoe-soles, of a hammer, the pivoted links or arms connected to the hammer shank and forming guides therefor, the toggle 12, 13 connected at one end to the hammer shank, a crank and a crank arm 10 connected to the central joint of the toggle, substantially as set forth.

2. The combination, in a machine for leveling shoe soles, of the two hammers having simultaneous but opposite reciprocation the toggles connected at one end to the hammers and at the other to stationary bearings and a compound crank shaft having crank arms connected to the central joint of the toggles, substantially as set forth.

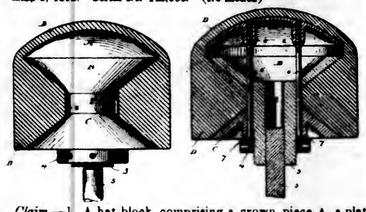
3. The combination, in a machine for leveling shoe-soles, of the two hammers, working side by side, the pivoted links or arms connected to the hammer shanks, the toggles connected to the hammer shanks, crank arms centrally connected to the toggles, and a crank shaft having cranks at right angles with each other, substantially as set forth.

4. The combination, in a machine for leveling shoe-soles of the two hammers having simultaneous reciprocation in opposite directions, thus balancing each other, toggles connected to the hammers pivoted links or arms, crank-arms 10 centrally connected to the toggles and strapped to cranks 9 upon a single shaft and balance blocks 26 on the shaft, all substantially as set forth.

5. The combination in a sole-leveling machine, with two guide-arms 23, pivoted on a single arbor: of the inner bearings 23^a and 23^b of each guide-arm respectively located beyond said bearing of the other guide-arm, in direction of the other guide arm, substantially as set forth.

6. The combination of the support the standards, the hammer having a shank, the links pivoted to the support and to the shank, the toggle pivoted to the standards and to the shank, the shaft having a crank, and the upright crank-arm mounted loosely on the crank and pivoted to the central pivot of the toggle: substantially as described.

493,200. EXPANSIBLE HAT-BLOCK. CHARLES C. WIDMER, Danbury, Conn., assignor of one-half to John McCann, same place. Filed Aug. 3, 1892. Serial No. 442,008. (No model.)

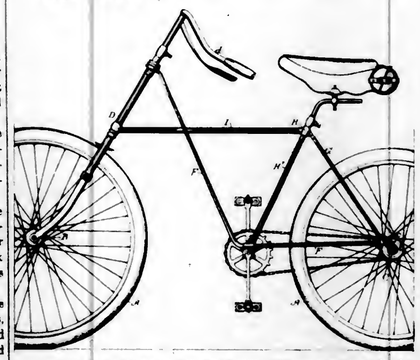


Claim.—1. A hat block comprising a crown piece A, a plate B inclined downward and inward on its underside and having a hub, a plate C inclined upward and inward to correspond with plate B and adapted to slide freely over the hub, a rubber body molded internally to correspond with the crown piece and plates B and C and externally to conform to the shape of a hat, and suitable means for raising plate C and the crown piece relatively to plate B so as to expand the block within the hat.

2. A hat block consisting of a crown piece A having threaded hubs on its underside, a plate B whose underside tapers downward and inward and which is provided with a threaded hub, a plate C whose upper side tapers inward and upward, rods 6 passing freely through plates B and C and threaded at their upper ends to engage the hubs on the crown piece, a molded rubber body corresponding in outline to the shape of a hat and fitting plates B and C and the crown piece, a nut 4 engaging the thread on the hub and adapted to move plate C with the rods and the crown piece upward, whereby the body is expanded causing it to fit the hat.

3. The combination with the crown piece having threaded hubs 2, plate B having threaded hub 3, and plate C having an internal opening to permit it to slide over the hub, of rubber body D corresponding externally with the shape of a hat and fitting plates B and C and the crown piece, rods 6 engaging hubs 2 by which the crown piece may be adjusted relatively to the plates, and a nut engaging hub 3 whereby plate C and the rods and crown piece may be raised to expand the body within the hat.

493,201. CYCLE. JOHN G. XANDER, Reading, Pa., assignor of one-half to James C. Reber, same place. Filed Sept. 14, 1892. Serial No. 445,888. (No model.)



Claim.—1. The combination in a bicycle of the supporting wheels, the seat standard, the steering head, steering bar extending through said head, bars or tubes extending from the seat post bracket to the rear axle, a bar or tube, as I, extending from the seat post bracket to the lower end of the steering head, and bars or tubes extending from the rear axle through the crank axle bracket to the upper end of said steering head and disconnected from the said bar I, substantially as specified.

2. The combination in a bicycle of the supporting wheels, the seat standard, steering head, steering bar extending through said head, a bar I extending from the lower portion of said steering head to the seat post bracket, bars G extending from said seat post direct to the rear axle and side bars F extending from the rear axle through the crank axle bracket to the upper portion of the said steering head and situated one on either side of said bar or tube I, but disconnected therefrom, substantially as specified.

3. The combination in a bicycle of the supporting wheels, the frame, the crank axle bracket, crank shaft and driving cranks carried thereby, a sprocket wheel mounted on said driving shaft, a sprocket wheel mounted on the rear axle of the machine, a link belt connecting said sprocket wheels, cranked arms carrying said rear axle and devices for adjusting and rigidly securing said cranked arms to the frame of the machine, substantially as specified.

4. The combination in a chain adjustment for bicycles of the serrated clamping faces carried by the frame, cranked adjusting blocks *c* having serrated clamping faces, adjusting nuts, securing said cranked blocks to the frame and bearings for the rear axle carried by said cranked blocks, substantially as specified.

5. The combination of the frame of the machine, the rear axle, cranked blocks *c* carrying said rear axle, serrated faces on said cranked blocks and on the frame, a pivot pin *f* carried by each of said cranked blocks and adjusting nuts adapted to said pivot pins, substantially as specified.

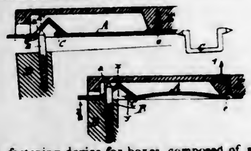
493,202. SHOE-LACE FASTENING. DYER H. ABNEY, Kansas City, Mo., assignor of one-third to George W. Rose, same place. Filed Apr. 12, 1892. Serial No. 428,763. (No model.)



Claim.—1. A clasp for shoes, other articles of wear, &c., comprising a closed body-portion or base, a stem or shank projecting outwardly from said body-portion, a head or stud carried at the outer end of said stem or shank, and a pair of parallel spring-arms extending wholly outside of and laterally from and beyond the body-portion, at one side thereof, and in substantially the same plane as the body-portion, and having divergent outer ends operating as guides, and a number of flexible attaching-arms projecting inwardly from the body-portion, substantially as set forth.

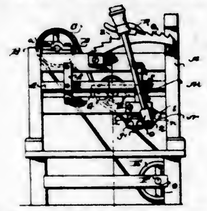
2. A clasp for shoes, or other articles of wear, &c., comprising a closed body portion or base, formed of similar adjacent leaves, a pair of parallel spring arms integral with and extending wholly outside of and laterally from and beyond the body-portion, at one end thereof curving upwardly and outwardly to conform exteriorly one with the other and in substantially the same plane as the body portion, and having divergent outer ends serving as guides, a stud passing centrally through the body-portion at the side of the union of the inner ends of the spring arms with the side of the body portion, and a number of inwardly extending and flexible attaching arms, projecting from the body portion, substantially as described.

493,203. BOX-FASTENER. MASSIMILIANO BADONI, Geneva, Switzerland, assignor to Aloys Revilliod de Murait, same place. Filed June 20, 1892. Serial No. 437,412. (No model.)



Claim.—A fastening device for boxes, composed of a pin and a spring blade rigidly attached at one end and having a finger piece or lifter at the other end, and a V shaped bend adjacent to the finger piece, there being a mortise through one part of the bend to receive the stationary pin, whereby the edges of the metal at the mortise engage the pin for holding the lid in position, or such edges are released when the finger piece is lifted, substantially as set forth.

493,204. BELT-TIGHTENER FOR COTTON-GINS. WILLIAM G. BOSKWITZ, Prattville, Ala., assignor to the Daniel Pratt Gin Company, same place. Filed Oct. 1, 1892. Serial No. 447,498. (No model.)



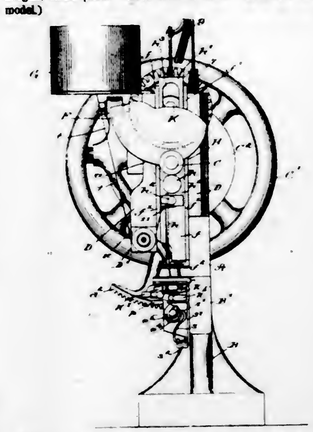
Claim.—1. In a belt tightener for cotton gins, the combination of the driving belt, of the pulley arranged to be carried into contact with said belt, the adjustable frame carrying said pulley, the slotted plate affixed to said frame, the rock-bar or shaft, the arm or crank thereof engaging the slot of said plate, and the operating lever affixed to said bar or shaft, substantially as specified.

2. The combination of a loose driving belt, of a tightener pulley, a horizontally adjustable frame carrying said pulley, a rock-bar or shaft, a connection between said bar or shaft and the frame for adjusting the latter, the brackets having a series of bearings for said bar or shaft, and the operating lever affixed to said bar or shaft, and its rack and detent, substantially as specified.

3. The combination with the supporting frame, the tightener pulley, its slidable frame, the rock-bar or shaft operating said frame, and the operating lever, of the bearing brackets having each a plurality of bearings, the bushing, the toothed and slotted sector plate integral with one of said bushings, the lever socket having a toothed face engaging said sector, and the securing screw, substantially as specified.

4. The herein described belt-tightening and loosening device, comprising an idler pulley, an adjustable frame carrying said pulley and working in guides in the supporting frame, the rock-bar or shaft having an operating connection with said adjustable frame, an operating lever affixed to said bar or shaft, and means for effecting the adjustment of the bar or shaft, and of the lever, substantially as specified.

493,205. KNOT-TYING MACHINE. WILLIAM H. BORDEN, Lawrence, Mass., assignor of two-thirds to Henry F. Murray and James A. Brogan, same place. Filed Nov. 7, 1892. Serial No. 451,902. (No model.)



Claim.—1 A knot-tying machine containing the following instrumentalities, viz:—an eye-pointed cord-carrying needle to penetrate the material; a work support; a knotter located below the material and co-operating with said needle, and a cast-off to remove the main portion of the knot from the knotter, combined with a reversing or twisting device between the knotter and work support to engage and cross the two sides of the loop of cord held by the knotter intermediate it and the material prior to the formation of every alternate knot.

and actuating mechanism for the needle, knotter and reversing or twisting device, substantially as described.

2. A knot-tying machine containing the following instrumentalities, viz:—a cord-carrying eye-pointed needle, a knotter located below and to co-operate with said needle, and a cast-off, combined with a reversing or twisting device to engage and cross the two sides of the loop at times while it is held by the knotter, and a cutting mechanism to sever the cord after the formation of every second knot, substantially as described.

3. A knot-tying machine, containing the following instrumentalities, viz:—a cord-carrying needle, and a knotter located below and co-operating with said needle, combined with fixed and movable blades having their cutting edges in a vertical plane parallel to and located at one side of the needle path, a reciprocating hook adapted to engage the cord and draw tant a portion of the same to one side and from the needle and between the cutting edges of the blades to be severed thereby, and blade actuating mechanism, substantially as described.

4. In a knot-tying machine, a cord-carrying needle, a knotter co-operating with said needle, and a cast-off, combined with a fixed blade having an extension beyond its cutting edge, a pivotally supported co-operating blade held against the fixed blade and its extension in a yielding manner, the cutting edges of said knives being in a plane parallel to the needle path, an independent hook reciprocable at right angles to said blades and adapted to pass between and beyond them when their edges are separated to engage the cord and draw a portion thereof positively between said blades to be severed thereby, and a cam surface to co-operate with and actuate the movable blade, substantially as described.

5. In a knot-tying machine, a fixed cutting blade, a pivoted lever, and a movable blade attached thereto in a yielding manner and adapted to move over the fixed blade combined with a fixed and a movable support on opposite sides of the blade to hold the cord between them to be severed thereby, and a cam surface to actuate the pivoted lever carrying the movable blade, substantially as described.

6. In a knot-tying machine, a cord-carrying needle; a knotter located at right angles thereto and co-operating therewith; cutting blades; and a device to draw off from the needle a length of cord sufficient for the next knot and to draw the cord intermediate the needle and knotter tightly between said blades; combined with a movable fork having a normally closed latch, means to reciprocate said fork to engage the free end of the cord between the material and the knotter and tighten every second knot, and mechanism to open said latch to release the cord, substantially as described.

7. In a knot tying machine, a knotter provided with a loop-taker, a loop-detainer adjacent thereto and inclined toward it, an extended hub, to the inner end of which said loop-taker and loop-detainer are rigidly secured side by side, and a rearwardly curved loop-turner behind the loop-taker, combined with a knotter shaft, and means to oscillate the same, substantially as described.

8. In a knot tying machine, an oscillating knotter comprising a loop-taker, a loop-detainer, and a loop turner having a curved portion, and an extended hub provided with a spical groove, combined with a cast-off engaged and actuated by said grooved hub to remove the knot from the knotter, substantially as described.

9. In a knot-tying machine, a main shaft, a cam C⁸ thereon, a toothed sector lever actuated thereby, a knotter shaft, a gear thereon to engage said toothed sector lever, whereby the knotter shaft is oscillated by said lever, a presser, a needle-bar guided thereby, and operative connections between them and said main shaft, combined with a cam shaft geared to said main shaft, knot twisting or reversing plates and cutting devices, and connections between them and said cam shaft, to operate substantially as described.

10. In a knot-tying machine, fixed and movable cutting blades, a recessed slide bar having a cam surface to actuate the movable blade, a knot twisting or reversing device comprising pivoted plates, a stud on one to engage a forked portion in the other, and a slide-bar guided by said recessed bar to actuate the reversing or twisting device, combined with means to reciprocate said slide-bars independently, substantially as described.

493,206. STOP-MOTION FOR SPOOLERS. GEORGE P. BOSWORTH, Pawtucket, R. I., assignor to Boston & Burnham, same place. Filed Oct. 10, 1891. Serial No. 408,386. (No model.)

Brief.—The spool-supporting plate carries on its outer flange a friction-spring G, which upon the breaking of a thread is engaged by the stopping-latch H to gradually stop the spool.

Claim.—1. The combination with the spindle and the grooved spool supporting plate of the friction spring partly surrounding the supporting plate in its groove, the engaging latch and means for actuating the latch when the thread breaks, substantially as described.

2. The combination with the spindle, the grooved spool supporting plate, and the friction spring partly surrounding the supporting

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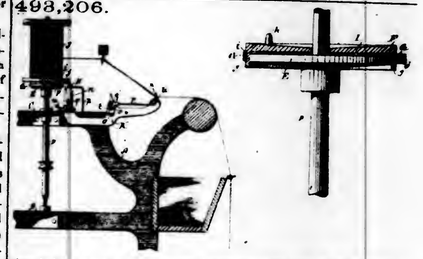
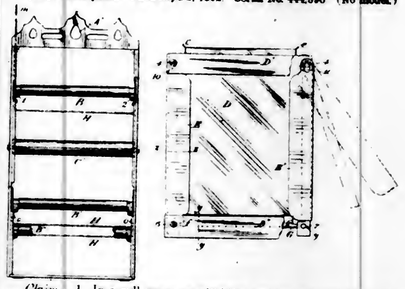


plate in its groove, of the attached frame provided with the slot adapted to receive the hook eyes of the drop wires, the engaging latch, the latch operating lever, and the drop wires adapted for engagement with the latch operating lever, and provided with hook-eyes adapted to pass through the said slot of the frame, substantially as described.

493,207. AUTOGRAPHIC REGISTER. JOSIAH K. BOYER and HENRY DIXON, Dayton, Ohio, assignors to the National Candy Mold Company, same place. Filed Sept. 2, 1892. Serial No. 444,890. (No model.)



Claim.—1. In a roll paper manifolding tablet, the combination with the frame provided with a semi-circular off-set at the upper portion, terminating as at *c'* and forming the upper terminal of the transverse opening *c*, the roller C forming the lower terminal of said opening, the tablet D, with guides *e* and *f*, and the herein described means of securing the paper on the tablet, substantially as set forth.

2. In a manifolding tablet, the combination of the casing with the semi circular upper portion, paper rolls journaled in the lower and upper portion of said casing, the roller C to facilitate the carriage of the paper from the lower rollers as the leading ends are drawn through the transverse opening *c* the tablet D upon which said paper is secured, the interlying carbon sheets secured by the clamps E, E' and F, and the transverse rod G to facilitate the withdrawal of the paper from the tablet, substantially as herein described.

3. In a roll-paper manifolding tablet, the combination with the inclined tablet D, with guides at the upper and lower corners thereof, and the transverse clamps D' and D'', and side clamps E, and E' with oblong slots in the upper ends thereof, and the clamp F, all attached to the tablet, substantially as herein described.

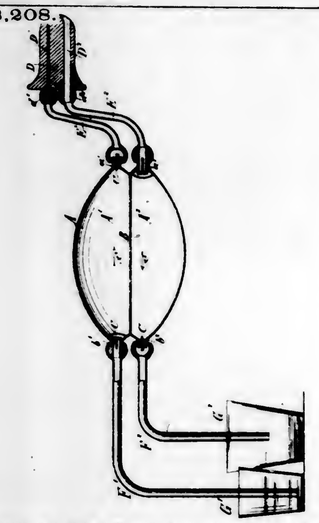
4. In a roll-paper manifolding tablet, the combination with the inclined metal tablet D, and the transverse and side clamps, by means of which the carbon sheets are maintained in a fixed position, of the horizontal guide G, and the anti-friction roller C, as herein described.

493,208. VAGINAL SYRINGE. ARTHUR B CRUICKSHANK, San Francisco, Cal., assignor of one-half to Kampfe Brothers, New York, N. Y. Filed Oct. 3, 1892. Serial No. 447,693. (No model.)

Claim.—1. The combination, with a compressible bulb having two compartments, of a nozzle having two bores, each of which is connected by a tube with one of the compartments of the bulb, and two tubes connected with the opposite ends of the compartments of the bulb, substantially as set forth.

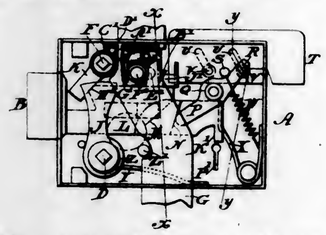
2. In a vaginal syringe, the combination, with a compressible bulb having two compartments, a valve at the end of each compartment the valves of one compartment opening in one direction and the valves of the other compartment opening in the opposite direction, a nozzle having two bores, which bores are connected at one end of said bulb with the two compartments of the bulb and tubes connected

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at the opposite end of the bulb with the two compartments, substantially as set forth.

493,209. COIN-CONTROLLED LOCK. WILLIAM EGLIN, Philadelphia, Pa., assignor of one-half to John L. Hill, same place. Filed Sept. 24, 1892. Serial No. 446,759. (No model.)



Claim.—1. A coin-controlled lock having a casing, a bolt with a recess, a chute having an inclined portion, a knob with a lever adapted to operate, in connection with a coin in said bolt recess, said bolt, a collar on the spindle of said knob and a stop or pin secured to the casing, said parts being combined substantially as described.

2. A coin-controlled lock having a casing, a bolt with a recess in one side, a chute having an intermediate inclined portion, a knob with lever for operating, in connection with a coin, said bolt, a collar on the spindle of said knob, a stop on said casing, and a second knob with a lever adapted to contact with and operate said bolt, said parts being combined substantially as described.

3. In a coin-controlled lock, a casing, a bolt with a recess, a chute having an inclined portion, a knob with a lever for operating, in connection with a coin, said bolt, a lever operated by contact with said bolt, an indicator movable in guides on the casing, and a dog for holding the said indicator in position, said parts being combined substantially as described.

4. In a coin-controlled lock, a casing, a bolt, a lever operated by the contact and movement of said bolt, an indicator adapted to be raised by the movement of said lever, a sliding dog with a shoulder for sustaining said indicator, and a spindle with a hub having a nose thereon for actuating said dog, said parts being combined substantially as described.

5. In a coin-controlled lock, a casing, a sliding bolt, a lever contacted with and controlled by the movement of said bolt, an indicator having a pin contacted with by an arm of said lever, pins secured to the casing and fitting in oblique slots in the indicator for guiding the latter in its movements, and a spring-controlled dog having a shoulder to sustain said indicator, said parts being combined substantially as described.

6. In a coin controlled lock, a casing, a bolt with a recess therein, mechanism, in connection with a coin, for operating said bolt and discharging an inserted coin, an indicator, mechanism intermediate of said bolt and indicator for operating the latter, a sliding dog for sustaining said indicator, and means for operating said dog so as to release said indicator, said parts being combined substantially as described.

7. In a coin-controlled lock, a casing, a chute in said casing, a sliding bolt with a shoulder thereon, a lever with an arm engaged by said shoulder, an indicator plate having oblique slots therein, a pin on said plate adapted to be engaged by an arm on said lever, a finger on said plate adapted to enter said chute, and a sliding dog with a shoulder for sustaining said indicator, said parts being combined substantially as described.

8. A coin-controlled lock having an indicating plate, a dog for holding the same in operative position, a chute for directing a coin into the lock so as to engage the bolt thereof, and a finger on said plate adapted to be projected into said chute to prevent the improper descent of a subsequently introduced coin, substantially as described.

9. A coin-controlled lock having a bolt, a spindle, and means on said spindle for operating the bolt by the action of a coin directed into the casing and adapted to be pressed against the bolt, an indicating plate adapted to be moved by the action of said bolt, means for holding said plate in operative position, and a supplemental knob spindle for releasing said plate from within the room to which the lock is attached, whereby said plate returns to its normal position, the parts named being combined substantially as described.

10. A coin-controlled lock having an indicating plate substantially as and for the purpose set forth, a movable dog for holding said plate in operative position and a supplemental knob spindle adapted to engage said dog and release the same from the plate, whereby the latter is permitted to return to its normal position, as set forth.

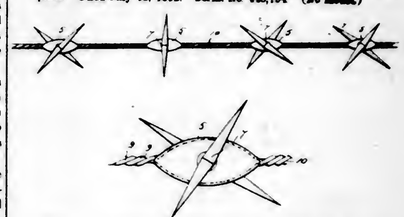
11. A coin-controlled lock having a bolt with a recess in one side thereof, a chute having vertical upper and lower ends, and an inclined intermediate portion, through which latter said bolt operates, a collar and a pin below said vertical upper end for sustaining the inserted coin in said bolt recess, and a lever for operating said bolt in connection with said coin for discharging the latter, said parts being combined substantially as described.

12. A coin-controlled lock having a bolt, a chute for directing a coin to said bolt, an arm on the knob of the lock between which and a part of the bolt the coin is adapted to be seated, and a shoulder on the bolt adapted to be engaged by a key, said parts being combined substantially as described.

13. A coin-controlled lock having a bolt adapted to be operated by knobs or handles on opposite sides of the casing, a chute for directing coin to the bolt, means on one of the knobs for pressing the coin against the bolt, and a shoulder on the bolt for the engagement of a key, said parts being combined substantially as described

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493,210. BARBED WIRE. DANIEL C. FUNCHEON, Valverde, Colo., assignor of two-thirds to George Funcheon and Charles E. Olsen, same place. Filed July 15, 1892. Serial No. 440,184. (No model.)



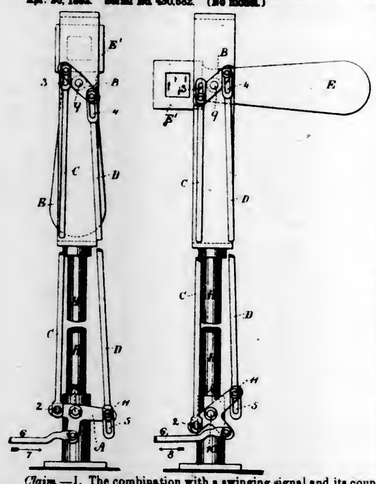
Claim.—1. A barbed fence wire composed of small buttons or blocks suitably supported upon the wire strands and carrying rotating barbs, the extremities of which are bent to form an angle with the axes substantially as described

2. In a barbed fence wire the combination with the wire strands, of apertured buttons or blocks supported thereon and carrying rotating barbs the axes of which are located in the apertures of the buttons, and their extremities bent to form an angle with the axes substantially as described.

3. In a barbed fence wire the combination with the wire strands of the apertured holder provided with the peripheral groove engaged by the strands which are twisted to secure the barb holder in place, and rotating barbs having their axes engaging the apertures in the

barb holders and their extremities bent to form the desired angle with the axes, substantially as described.

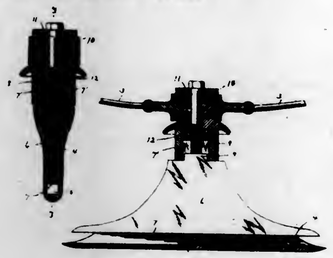
493,211. SIGNAL FOR RAILWAYS. CORNELIUS M. HAVEY, New York, N. Y., assignor to himself and Robert Black, same place. Filed Apr. 26, 1892. Serial No. 430,682. (No model.)



Claim.—1. The combination with a swinging signal and its counterweight and an actuating rod connecting to a rail bar, switch or switch stand, of the lever B upon the axis of the semaphore, the bell crank lever A to one arm of which the actuating rod is connected and the rod C connected to lever A, and having a slot at its connection with the lever B and the rod D having slots at the connections to both the lever A and lever B, the parts being arranged substantially as specified, so that the semaphore is turned in one direction by the weight of the rod D and is allowed to turn in the opposite direction after the rod D has been lifted, substantially as set forth.

2. The combination with the post H and semaphore E, of the axis 9, the counterweight E', the lever B permanently connected to the axis, the bell crank lever A and actuating rod therewith connected, the rod C connected to the short arm of the lever A and slotted at its upper end for the joint pin of the lever B, the rod D slotted at both ends and receiving the joint pin of the lever B and the joint pin at the longer arm of the lever A, the parts being arranged substantially as specified, so that the rod C gives a slight positive movement to start the semaphore in one direction when relieved from the weight of the rod D, the counterpoise continuing the movement and the rod D turns the semaphore in the other direction when allowed to hang thereon, the starting of the semaphore being insured by the action of the rod C, substantially as set forth.

493,212. TROLLEY-WIRE SUPPORT. FRANK E. HEAD, Toledo, Ohio, assignor of one-half to Elmer E. Kuney, same place. Filed June 13, 1892. Serial No. 436,469. (No model.)



Claim.—1. The combination with the U-shaped hanger, of a clamping piece arranged therein, and a collar or nut screwed upon the hanger and adapted to hold the clamping piece upon the wire.

2. The combination with a U shaped hanger, of a clamping piece arranged therein, an adjusting collar or nut, an insulator block, and a bolt connecting the said block and adjusting collar or nut.

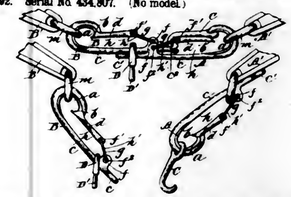
3. The combination with a U shaped hanger, of a clamping piece arranged therein, and provided with a lug, an adjusting collar adapted to hold the piece down into the hanger, said collar being screwed upon the upper ends of said hanger, an insulator block located upon the collar, and a bolt connecting said parts, said bolts passing through the collar and bearing upon the lug of the clamping piece.

493,213. NUT-LOCK. JOHN C. HERMAN, St. Louis, Mo. Filed Aug. 4, 1892. Serial No. 442,179. (No model.)



Claim.—A nut lock X-shape in cross section having its ends chamfered forming two separate biting edges on each end, the said blank being bent in the shape of a spiral coil so that the biting edges are in planes outside of the planes of the corresponding side edges of the opposite end, substantially as set forth.

493,214. HAME-FASTENING. WILLIAM H. JOHNSON, Delhi, N. Y., assignor of one-half to Gurden E. Maxwell, same place. Filed May 28, 1892. Serial No. 434,807. (No model.)



Claim.—1. A hame fastener, comprising jointed parts adapted to be connected to one another and to the hames, one portion of said fastener being constructed with a scroll slot, a retaining shoulder, a bracket and an entrance passage, and beyond said bracket with a lever handle, substantially as described.

2. The hame fastener comprising the portions A and B, each formed with a scroll-curved hooking end *a*, and an oblong slot *b* having an entrance passage *g* for the insertion and withdrawal of the connections of the hames, the portion A also having a stop shoulder *h* and a flattened handle latching end *c'*; and a latching slide D formed with an oblong passage for the reception of the flattened latching end *c'*, and provided with a weighted handle *D'*, said slide being applied on the branch *c* of the portion B, substantially as described.

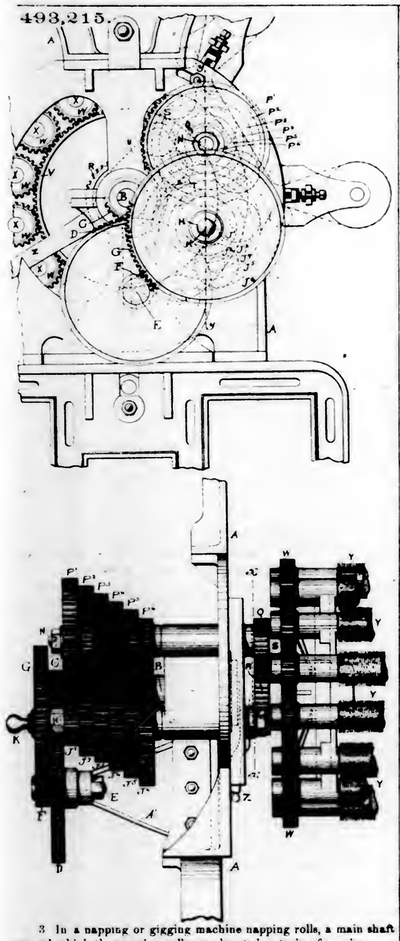
493,215. CLOTH-NAPPING MACHINE. WILLIAM T. LEECH and GEORGE HIMELSPARK, Philadelphia, Pa., assignors, by mesne assignments, to the American Napping Machine Company, of Maine. Filed Mar. 17, 1892. Serial No. 425,262. (No model.)

Brief.—The machine includes a series of napping-rolls rotating about a central point and each roll also rotating about its own center. Means are provided whereby the speed of the napping rolls is varied as desired, and also means for reversing the direction of motion of the rolls.

Claim.—1. In a napping or gigging machine, napping rolls, a main shaft having a train of gearing connected therewith, a number of gear wheels of different diameters loosely mounted on a shaft in said train, means for keying either of said loose gear wheels on said shaft, a shaft having wheels meshing with said gear wheels and a train of gearing connecting said shaft with the napping rolls, said parts being combined substantially as described.

2. In a napping or gigging machine napping rolls, a main shaft with a train of gearing connected therewith, a train of gearing connected with the napping rolls and a pivotal frame carrying two meshing pinions adapted to receive motion from said first mentioned train and impart the same in either of two opposite directions according to the position of said frame, said parts being combined substantially as described.

493,215.

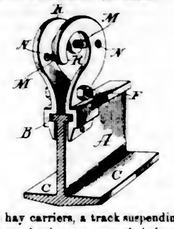


3. In a napping or gigging machine napping rolls, a main shaft around which the napping rolls are located, a train of gearing connected with said main shaft, a train of gearing connected with the napping rolls, mechanism in said train for imparting different speeds to a pinion on a shaft thereof, and mechanism connecting said trains of gearing for reversing the motion of direction of the rolls, said parts being combined substantially as described.

4. In a napping or gigging machine, a main driving shaft with a gear wheel thereon, napping rolls connected by gearing with said gear wheel on the main shaft, a rotary pinion and a pivoted frame carrying two meshing pinions adapted to engage with said rotary pinion and the gear wheel on the main shaft so as to convey motion to the said napping rolls in reverse directions, said parts being combined substantially as described.

5. In a napping or gigging machine, a frame, napping rolls, a shaft with a series of cog wheels of different sizes loosely mounted thereon, means substantially as described for securing either one of said wheels to said shaft, a shaft with a series of cog wheels secured thereon, and meshing with said first mentioned series, a pinion on the last mentioned shaft, and mechanism substantially as described adapted to gear with said pinion for driving the rolls in either of opposite directions, said parts being combined substantially as described.

493,216. HAY-CARRIER TRACK. WILLIAM LOUDEN, Fairfield, Iowa, assignor to the Louden Machinery Company, same place. Filed Dec. 1, 1890. Serial No. 373,250. (No model.)



Claim.—1. In hay carriers, a track suspending device consisting of two separable parts having means at their lower ends to embrace the edge of a track rail, and at their other ends means to catch over an extraneous supporting device the said parts being arranged side by side, and means for holding the two parts together, substantially as set forth.

2. A track suspending device consisting of two parts having flanges at their lower ends for embracing the flanges of the rail, and provided with reversely placed hook connections at their upper ends arranged side by side and means for holding the two parts together, substantially as set forth.

3. The rail having flanges for the wheels of the carrier, and a flange or bead at its upper edge in combination with a two part hanger, each part having suspending means at one end, a projection and a recess, and means for securing the two parts of the hanger together.

4. The rail having flanges C C and the flange or bead B, in combination with a two part hanger, each part being provided with a recess and a projection the projection on each part adapted to enter the recess in the other part, and means for securing the two parts of the hanger together, substantially as set forth.

5. The rail A having the flanges C C and flange or bead B in combination with the parts D D comprising the hanger and adapted to hold the rail, the parts D D being provided with hooks which are reversely placed together side by side, substantially as set forth

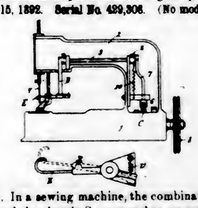
6. A track suspending device consisting of two parts having flanges at their lower ends adapted to fit under the flanges of the rail, extensions O resting against said web, a suspending loop at the upper ends of the parts and means for holding the two parts together.

7. In a hay carrier, the combination with an inverted T-rail, of a suspending device consisting of two separable parts having means at their upper ends to embrace the upper edge of the rail leaving the side flanges free for the passage of the carrier, a loop at their other ends for attachment to an overhead support, and means for locking the two parts of the suspending device together, substantially as set forth.

8. A track suspending device consisting of two separable parts constructed at one end to embrace the edge of a track rail and at the other end to form a loop, the two parts being arranged side by side and means for holding the two parts together.

9. The rail A having the flanges C, C, and flange or bead B in combination with the pieces D D comprising the hanger and having hooks R and corresponding projections M and recesses N and being adapted to hold the rail A substantially as shown and described.

493,217. SEWING-MACHINE. LOUIS L. MILLER, Newport, Ky., assignor to the Ross Moyer Manufacturing Company, Cincinnati, Ohio. Filed Apr. 15, 1892. Serial No. 429,306. (No model.)

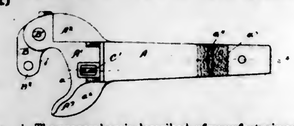


Claim.—1. In a sewing machine, the combination with the open eye needle 4, and the shuttle S arranged to operate below the table and goods, of the rock shaft 9 arranged above the table and provided with the crank arm D, the vibratory thread pulling hook E carried by said arm and having its forward end sloping, and a cam mechanism connected with said rock shaft for operating said arm and hook

in time movements with the open eye needle, whereby said hook is caused to move forward to engage with only one side or thread of the loop when the needle is elevated and backward to draw the thread from the spool through the goods and eye of the needle to form the slack for the succeeding shuttle loop, as specified.

2. In a sewing machine, the combination with the open eye needle 4, and the shuttle 6, of the rock shaft 9 provided with the crank arm D, the vibratory thread pulling hook E mounted upon the forward side of said arm and provided with the retractile spring 12 for cushioning the pull of said hook, and a cam mechanism connected with the rock shaft substantially as described, for operating said arm and hook in time movements with the open eye needle, whereby the said hook is caused to move forward to engage only one side or thread of the loop when the needle is elevated and backward to draw the thread from the spool through the goods and eye of the needle to form the slack for the succeeding shuttle loop below the goods, substantially as specified.

493,218. ART OF MANUFACTURING CAR-COUPLINGS. JAMES MURRAY, Maywood, Ill. Filed Jan. 5, 1891. Serial No. 376,790. (No model.)



Claim.—1. The process herein described, of manufacturing strong, ductile, or non-fragile, tough, hard, steel car-couplers of accurate and uniform shape, without forging, annealing or dressing, consisting in casting the same of molten steel in an iron or metal mold, substantially as specified.

2. The within-described interlocking hook car-coupler made of a single metal composed of an outer layer of specially tough, hard, close-grained steel, and an inner body of softer, tough, coarser-grained steel made integral with the outer layer; whereby there is produced a coupler capable of resisting excessive bunting blows without defacement, as well as pulling, crushing and bending strains, substantially as specified.

493,219. TIME STOCK-FEEDER. DANIEL MCGUREN, Toledo, Ohio, assignor to George Miller, Jr., same place. Filed Mar. 23, 1892. Serial No. 426,090. (No model.)



Claim.—1. The combination with the feed box, having a valve at its lower end, of a rod and link connected therewith within the feed box, a bell crank lever pivoted to the rear of the feed box and connected at its lower end with the upper end of valve rod, a rope attached to the upper end of bell crank lever, a weight at one end of rope, a hook at the other end and the tripping arm of a clock mechanism.

2. The combination with the feed box, valve, rod and bell crank lever, of the rope and weight the hook at the opposite end of rope, the combined guide and stop staple for said rope and hook, the tripping arm and stop block for holding the tripping arm and other parts in their normal position.

493,220. FABRIC. JOHN F. PALMER, Riverside, assignor to the Palmer Pneumatic Tire Company, Chicago, Ill. Filed Nov. 17, 1892. Serial No. 452,339. (No specimens.)

Claim.—1. A fabric made of elastic and impervious material, such as rubber, having embedded within the surface threads substantially out of contact with each other, as described.

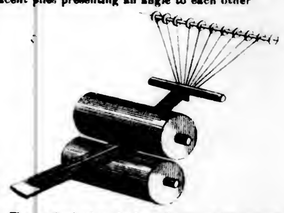
2. A fabric made of elastic and impervious material, having embedded and vulcanized therein substantially parallel fibrous threads, as described.

3. A fabric made of vulcanized elastic and impervious material having embedded and vulcanized therein, substantially parallel, fibrous and non-extensible threads, as described.

4. A fabric made of rubber or analogous elastic and impervious material, having embedded in each surface threads substantially out of contact with each other, as described.

5. A fabric made of two or more plies of rubber, each having embedded therein parallel fibrous threads, the threads in one ply being out of contact with and presenting an angle to the threads of the other.

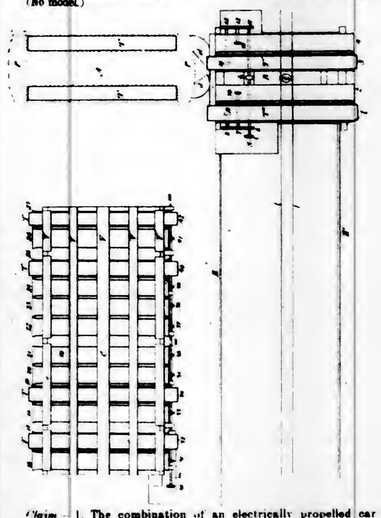
6. A fabric made of two or more plies of rubber, each ply having embedded and vulcanized therein substantially non-extensible parallel fibrous threads, out of intimate contact with each other, the threads in adjacent plies presenting an angle to each other.



7. The method of producing a fabric, which consists in calendering rubber, and in the act of calendaring feeding thereto and embedding therein substantially parallel and non-extensible threads of flexible material, such as linen, applying together two such sheets in such manner that the threads of one are kept out of contact with the threads of the other by interposed rubber, and thereupon vulcanizing the product, substantially as described.

8. The method of producing a fabric, which consists in calendering rubber, and during the act of calendering feeding thereto and embedding therein substantially parallel fibrous threads, applying one such sheet to another in such manner that the threads of one present an angle to the threads of the other and are kept out of contact therewith by interposed rubber, and thereupon vulcanizing, substantially as described.

493,221. APPARATUS FOR TRANSFERRING SECONDARY BATTERIES. MATHIAS PFATHONER, Philadelphia, Pa., assignor to the Accumulator Company, same place. Filed July 22, 1892. Serial No. 440,918. (No model.)



Claim.—1. The combination of an electrically propelled car secondary batteries carried thereby and one or more trays or troughs for the batteries each having a cogged strip attached to the bottom thereof a transfer truck having a series of cogged wheels arranged to mesh with the racks on said trays, said cogs being arranged in parallel planes; a source of power to produce the rotation of said cogs, and intermediate cogs or wheels so arranged that alternate cogs

engaging with the tray racks rotate in opposite directions; a track for the transfer truck, and a charging table to receive the trays or troughs of battery arranged at substantially the same level as the transfer truck whereby the batteries may be removed from the car to the transfer truck or from the transfer truck to the charging table, substantially as described.

2. The combination of an electrically propelled car; secondary batteries carried thereby; seats for passengers arranged parallel with respect to each other and longitudinally of the car; a trough or tray located under each seat and extending from one end of the car to the other in which the batteries are placed; a transfer truck having a breadth or gage substantially equal to the length of said troughs or trays, and means for drawing the trough or tray from the car to the truck and from the truck to the car consisting of cogged strips one for each trough or tray, and a series of cogged wheels located on the transfer truck arranged in parallel planes; a source of power for rotating said cogged wheels and connections between said source of power and said wheels whereby the two alternate cogged wheels are rotated in one direction and two other alternate cogged wheels rotated in the opposite direction, substantially as described.

3. The combination of an electrically propelled car; secondary batteries carried thereby; seats for passengers arranged parallel with respect to each other and longitudinally of the car; a trough or tray located under each seat and extending from one end of the car to the other in which the batteries are placed; a transfer truck having a breadth or gage substantially equal to the length of said troughs or trays; a series of parallel guides or ways arranged crosswise of said transfer truck, means for drawing the troughs or trays from the car to the truck and from the truck to the car consisting of a motor driven shaft extending from one end of the car to the other; two short shafts arranged adjacent and parallel thereto carrying cogged wheels meshing with the cogged wheels on the first named shaft and carrying cogged wheels or pinions located under two alternate tracks or ways and two parallel shafts carrying cogged wheels meshing with the last named cogged wheels respectively, said last named shafts carrying cogged wheels or pinions located under the two other alternate tracks or ways, substantially as as described.

4. The combination of an electrically propelled car or vehicle; trays or troughs containing secondary batteries located thereon; a transfer truck; an electric motor having its armature shaft mechanically connected with the wheel or axle thereof; a series of cogged wheels also driven by said motor and meshing with cogged racks on said troughs or trays; a line of rails upon which the transfer truck travels, and a charging table having a series of parallel guides or ways to receive the troughs or trays, substantially as described.

5. The combination of an electrically propelled car or vehicle; troughs or trays containing secondary batteries located thereon cogged racks attached to the trough or trays; a charging table having a series of parallel guides or ways to receive the troughs or trays; a series of cogged wheels one for each track or way in position to engage with the rack on a trough or tray, and means for disengaging any trough or tray from its cogged wheel, substantially as described.

6. The combination of an electrically propelled car or vehicle; troughs or trays containing secondary batteries located thereon cogged racks attached to the troughs or trays; a charging table having a series of parallel guides or ways to receive the troughs or trays; a series of cogged wheels one for each track or way in position to engage with the rack on a trough or tray, and means for disengaging any trough or tray from its cogged wheel, consisting of a series of independently moving cam wheels one for each track or way, arranged and operated substantially as described.

7. The combination of an electrically propelled car or vehicle; troughs or trays located thereon containing cells of secondary battery compactly arranged; a cogged rack firmly connected to each trough or tray; a transfer truck and a line of rails upon which said transfer truck travels; an electric motor on the transfer truck by which it is propelled; parallel guides or ways upon the transfer truck to receive secondary battery trays; a series of motor driven cogged wheels one for each track or way in position to engage with the cogged rack upon a trough or tray; a charging table; a series of parallel tracks or ways located thereon to receive the troughs or trays; a series of motor driven cogged wheels one for each track or way, each in position to engage with a rack upon its trough or tray, all arranged and operated substantially as described.

8. The combination of a charging table composed of a frame or structure having a series of parallel tracks or ways, and a cogged wheel for each pair of tracks; a series of troughs or trays, each containing a series of cells of secondary battery sliding or moving upon the said tracks or ways; a cogged rack attached to each such trough or tray in position to engage with a cogged wheel; an electrically propelled vehicle, and one or more troughs or trays located on said vehicle each containing a series of cells of secondary battery; a transfer car or truck having a series of tracks or ways located thereon; a cogged wheel for each such track or way, in position to engage with the cogged strip attached to a trough or tray; a track upon which the said transfer truck moves situated at right angles to the electrically propelled vehicle and to the ways or tracks upon the transfer table, and means substantially as described for rotating the wheels on the transfer truck in engagement with the rack upon the troughs or trays to transfer the troughs from the car to the transfer truck and from the transfer truck to the charging table, and means substantially as described for rotating the cogged wheels connected with the transfer table in engagement with the racks upon the troughs or trays whereby the said troughs may be transferred from the charging table to the transfer truck, substantially as described.

9. The combination of a charging table composed of a series of parallel tracks or ways diverging or flaring at their entering end; a cogged wheel for each pair of tracks; a series of troughs or trays each containing a series of cells of secondary battery arranged to slide or move upon said tracks or ways; a cogged rack attached to each such trough or tray; an electrically propelled vehicle upon which is located one or more troughs or trays each containing a series of cells of secondary battery; a transfer truck having a series of tracks or ways flaring or diverging at their entering end to receive said trays; a cogged wheel for each such track or way in position to engage with the cogged strip attached to the trays; a railway track upon which said transfer truck moves situated at right angles to the electrically propelled vehicle and to the ways or tracks upon the transfer table; means for rotating the wheels on the transfer truck in engagement with the rack upon the troughs or trays carried by the electrically propelled vehicle to move said trays from the vehicle to the transfer truck and from the transfer truck to the charging table; and means for rotating the cogged wheels upon the charging table to move the trays from the charging table to the transfer truck substantially as described.

10. The combination of a charging table having a series of tracks; a cogged wheel adjacent to each track; an electrically propelled vehicle having one or more tracks or ways to receive the trays of secondary battery, said vehicle being situated in the vicinity; a transfer truck carrying a series of parallel tracks or ways; a cogged wheel adjacent to each track, and a railway track extending from the vehicle to the charging table, upon which the transfer truck travels, said track being at substantially right angles with respect to the tracks or ways upon the electrically propelled vehicle and upon the charging table, so that said transfer truck when adjacent to the electrically propelled vehicle will present the tracks or ways upon its surface in substantially the same plane with the tracks or ways upon the said vehicle, and when adjacent to the charging table will present the tracks or ways upon its surface in substantially the same plane with the tracks or ways upon the surface of the charging table; a series of troughs or trays each having a cogged rack attached thereto in position to engage with the cogged wheels upon the charging table and upon the transfer truck, and means for rotating said cogged wheels substantially as described to transfer the said trays from the charging table to the transfer truck and from the transfer truck to the car and vice versa, substantially as described.

11. In a charging table a series of parallel tracks or ways and a series of troughs or trays each containing a number of cells of secondary battery; a cogged rack attached to each trough or tray; cogged wheels located on the charging table in position to engage with said racks; means substantially as described for rotating said wheels to move the troughs or trays and a suitable device for disengaging the rack on any trough from its cogged wheel, substantially as described.

12. In a charging table a series of parallel tracks or ways and a series of troughs or trays each containing a number of cells of secondary battery; a cogged rack attached to each trough or tray; cogged wheels located on the charging table in position to engage with said racks; means substantially as described for rotating said wheels in engagement with the racks to move the troughs or trays, and a series of cam wheels, one for each track, each operating to disengage its rack and cogged wheel substantially as described.

493,222. WIRE-NAIL MACHINE. EDWARD B. ROTH and GEORGE R. BERTRAM, St. Louis, Mo., assignors, by mesne assignments, to the P. & B. Nail Machine Company, same place. Filed Aug. 20, 1892. Serial No. 443,616. (No model.)

Claim.—1. In a wire nail machine, a feeder consisting of a spring pressed holder, and a movable bit having two or more sharp edges on one end, substantially as and for the purpose set forth.

2. In a wire nail machine, a feeder consisting of a spring pressed holder and a reversible bit having two or more sharp edges on each end; substantially as, and for the purpose set forth.

3. In a wire nail machine, a feeder consisting of a spring pressed holder and a bit having one or more wide, sharp edges, and means for adjusting said feeder vertically, substantially as and for the purpose set forth.

4. In a wire nail machine, a feeder consisting of a spring pressed

holder and a bit secured to the holder, and having two or more sharp edges and means for vertically adjusting the holder so as to utilize the entire surface of the edges; substantially as, and for the purpose set

consisting of said drawer's signature partly upon and across both the paster and the body of the back of the check.

2. A paper of the character described, having both a photograph

thence back to a suitable revolving drum located upon the platform, substantially as described.

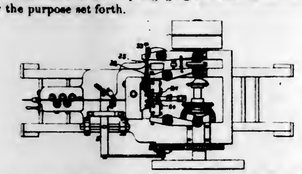
cating motion from the motor to the shaft, substantially as described

8. The combination with a hollow stationary mast, having a lug

holder and a bit secured to the holder, and having two or more sharp edges and means for vertically adjusting the holder so as to utilize the entire surface of the edges; substantially as and for the purpose set forth.

5. In a wire nail machine, a feeder consisting of a spring pressed holder and a bit removably held in the holder; said holder being arranged to be moved vertically, and said bit having two or more sharp edges on each end; substantially as and for the purpose set forth.

6. In a wire nail machine, a feeder consisting of the combination of a spring pressed holder, a bit secured to the holder and having two or more sharp edges and means for vertically adjusting the holder, consisting of a pin upon which the holder is pivoted, a sleeve upon which the holder is mounted, and upon which it is held from vertical movement, and a threaded cap engaging said sleeve, substantially as and for the purpose set forth.



7. In a wire nail machine, a feeder consisting of a spring pressed holder, means for vertically adjusting the holder, and a bit having a cylindrical body portion fitting in said holder, and in which it is adapted to be reversed, and having non-circular ends forming sharp edges 11, substantially as, and for the purpose set forth.

8. In a wire nail machine, a feeder consisting of a holder, a bit secured in the holder and which has a wide nipping edge, means for adjusting the feeder so as to utilized substantially the entire working edge, and a spring with means for regulating its tension, and which serves to hold the bit to its work, substantially as and for the purpose set forth.

9. In a wire nail machine, a feeder consisting of a holder, a bit secured to the holder, means for adjusting the holder vertically, a spring and a set screw located between the spring and the holder, substantially as and for the purpose set forth.

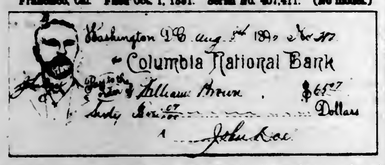
10. In a wire nail machine, in combination with a hammer for forming the heads of the nails, a kicker consisting of a head pivoted to the knife carriers and a finger adjustably held in said head, and which is adapted to be struck by the hammer, and moved on its pivot; substantially as and for the purpose set forth.

11. In a wire nail machine, the combination of a movable jaw, a pivoted lever for moving the jaw, a rigid bar or pin fitting at one end in a recess formed in the jaw, a set screw passing through said lever, and centered in the other end of said rod or bar, and a spring rod adjustably connecting said jaw to said lever; substantially as and for the purpose set forth.

12. In a wire nail machine, the combination of a hammer for forming the heads on the nails, and means for imparting forward movement to said hammer, consisting of a spring plate, a head to which the spring plate is secured, and which is pivoted to a support, and a rod connecting an extension on the head to a fixed object; substantially as and for the purpose set forth.

13. In a wire nail machine, the combination of a hammer for forming the heads on the nails, and means for forcing the hammer forward, consisting of a metallic spring plate, a wood plate beneath the metal plate, a head to which said plates are secured, and which is pivoted to a support, an extension on said plate, and a rod securing said extension to a fixed object: substantially as and for the purpose set forth.

493,223. CHECK, DRAFT, OR THE LIKE. JOHN F. SCHAFER, San Francisco, Cal. Filed Oct. 1, 1891. Serial No. 407,411. (No model.)



Claim.—1. A check, draft, or the like, having a photograph and facsimile signature of the drawer on its face, a photograph and facsimile signature of the drawee or owner printed upon a paster and affixed to the back of the check by an adhesive, an identification of said photograph and signature upon said adhesive paster by the drawer, consisting of said drawer's signature partly upon and across both the paster and the body of the back of the check.

2. A paper of the character described, having both a photograph of the person and a photograph of his signature thereon to prevent counterfeiting, substantially as described.

493,224. SLEEVE FOR KNITTED GARMENTS. ROBERT W. SCOTT, Philadelphia, Pa., assignor of one-half to Louis N. D. Williams, same place. Filed Dec. 5, 1892. Serial No. 454,065. (No model.)

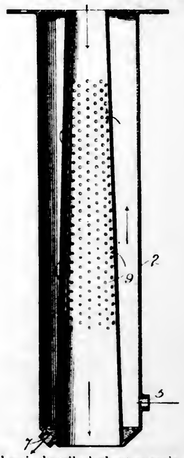


Claim.—1. The within described sleeve for knitted garments, said sleeve consisting of a knitted tube cut in the rear half at the arm hole end so as to form a depending tapered gusset in one piece with the front of the tube and having a filling piece inserted at the back, said filling piece being united to the front edge of the gusset and to the cut edge at the back of the sleeve tube, substantially as specified.

2. The within described sleeve for knitted garments, said sleeve consisting of a knitted tube having a diagonal cut in the rear half of the tube at the arm hole end so as to form a depending tapered gusset in one piece with the front of the sleeve tube and having a triangular filling piece inserted at the rear, the lower diagonal edge of said filling piece being united to the diagonal front edge of the gusset, and the upper diagonal edge of the filling piece being united to the diagonal cut edge at the rear of the sleeve tube, substantially as specified

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493,225. WHEAT-STEAMER. HENRY B. SHARP, Minneapolis, Minn., assignor to the Pettijohn California Breakfast Food Company, same place. Filed May 6, 1892. Serial No. 432,089. (No model.)

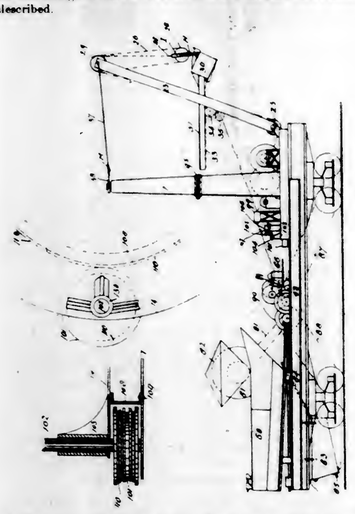


Claim.—The herein described wheat or grain steamer consisting of a suitable casing provided with inlet and outlet pipes, and a perforated tube extending through said casing, said tube being of greater diameter at one end than at the other for the purpose specified.

493,226. DREDGE. ERASTUS S. BENNETT, Denver, Colo., assignor to the Bennett Amalgamator Manufacturing Company, same place. Filed Jan. 28, 1890. Renewed Sept. 29, 1891. Again renewed Oct. 3, 1892. Serial No. 447,632. (No model.)

Claim.—1. In a dredge, a hollow mast so securely anchored at the base as to require no other support, a pulley 42 revolving in a block 41, supported and pivoted at the top of the mast in a vertical position, a suitable boom, a chain or cable having one extremity secured to the top of the boom, passing thence over the pulley 42, down through the mast, under a suitable guide pulley at its base and thence back to a suitable revolving drum located upon the platform, substantially as described.

2. In a dredge the combination with a stationary mast so securely anchored at the base as to require no other support, a boom having its upper extremity secured to the top of the mast by a chain or cable, its lower extremity being hinged to the rotating platform, a main stationary platform 53 having its main girders connected with the mechanism for securing the base of the mast, and an amalgamating tank mounted upon the platform 53, thus securing from the action of the dredge a jarring vibratory movement aiding and facilitating the gravitation and amalgamation of the mineral within the tank, substantially as described.



3 The combination with a stationary mast so securely anchored at the base as to require no other support, of a rotating platform surrounding the mast, a main stationary platform 53 having its main girders connected with the foundation of the mast, a boom and a bucket, the boom being suitably connected at one extremity to the rotating platform, an amalgamating tank mounted upon the platform 53, and a suitable hopper into which the material to be treated is discharged from the bucket and whence it passes through a suitable separator to the amalgamating tank where by means of the jarring, vibratory movement imparted by the action of the dredge, the settling and amalgamation of the mineral is aided and facilitated, substantially as described.

4. The combination of a stationary mast so securely anchored at the base as to require no other support, a rotating platform surrounding the mast, a main stationary platform 53 having its main girders connected with the foundation of the mast, a boom suitably connected with the mast and the rotating platform a bucket suitably connected with the boom, an amalgamating tank mounted upon the platform 53, into which the material to be treated is discharged through the medium of a hopper 62 located above the tank, and a quick silver tank located beneath the amalgamating tank and connected therewith by a suitable discharge pipe, the entire machinery being operated and controlled by suitable electric motors, substantially as described.

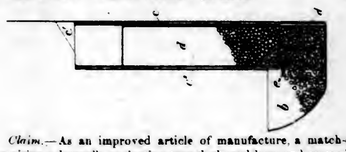
5 In a dredge a boom provided with pulleys A and B pivoted within its frame, located intermediately between its extremities and adapted to engage the cable and guide the same to one side of the bucket handle, substantially as described.

6. In a dredge the combination with the rotating platform of a spool underneath said platform, a shaft to which said spool is secured, said shaft extending through the platform, a track 108 secured beneath the rotating platform, a cable wound around the spool and secured to said track and suitable means of communicating motion to the shaft and thence to the platform, substantially as described.

7. In a dredge the combination with the rotating platform of a motor mounted thereon, a shaft extending through and journaled within said platform, a spool rigidly secured to the shaft and suspended beneath the platform, a stationary track 108, a cable wound around the spool and secured to the track and means for communicating motion from the motor to the shaft, substantially as described.

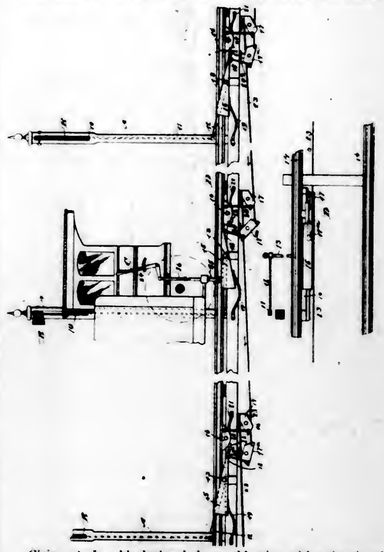
8. The combination with a hollow stationary mast, having a lug projecting into the interior thereof, and a horisontal extension 44 above its top, of a vertical block pivoted between the said lug and extension, a pulley carried in the said block, a pivoted swinging boom, and a cable connected to the said boom and passing over the said pulley, as described.

493,227. MATCH-SAFE. FRANK BOARDMAN, Bennett, Pa. Filed June 23, 1890. Serial No. 356,393. (No model.)



Claim.—As an improved article of manufacture, a match-safe comprising a laterally projecting trough-shaped base and an upright portion communicating one with the other through an opening substantially co-extensive with the width and height of the trough and adapted to receive and support a sliding-cover match-box, which when opened at that end then resting in the trough will feed its contents of matches by gravity into the trough through the opening, substantially as described.

493,228. BLOCK-SIGNAL FOR RAILWAYS. FRANK B. BURT, New York, N. Y. Filed May 17, 1892. Serial No. 433,372. (No model.)



Claim.—1. In a block signal, the combination, with a signal and a rock shaft journaled between the rails of the track and adapted to raise and to lower the signal, of a setting lever, spring-pressed at one end and fixed upon the rock shaft, a lock lever adapted for engagement with the free end of the setting lever, one end of the lock lever being spring-controlled, rocker arms or bars fulcrumed one beneath the lock lever and the other beneath the setting lever and having link connections therewith, the said rocker arms having a wire or chain connection, the rocker arm actuated by the setting lever in one block being connected with the rocker arm actuated by the lock lever connected with the next block, substantially as shown and described.

2. In a block signal, the combination, with a rock shaft, a signal and a connection between the rock shaft and the signal, whereby the latter may be raised or lowered, of a setting lever secured upon the rock shaft and spring-controlled at one end, the lever being somewhat

wedge shaped in general contour and a spring pressing upon its wider

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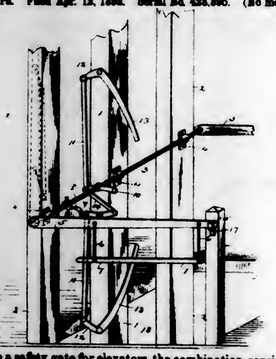
said flanges beveled in opposite directions at the top and bottom from

493,234.

wedge shaped in general contour and a spring pressing upon its wider end, a lock lever adapted to be engaged by the narrower end of the setting lever, the lock lever being spring-controlled at one end and essentially semi-circular in general contour, rocker arms, one having link connection with the setting lever and the other having a link connection with the lock lever, and a wire or chain connection between the rear end of the rocker arm in one block actuated by the setting lever, and the rear end of the rocker arm in the next rear block actuated by the lock lever of that block, substantially as and for the purpose specified.

3. In a block signal, the combination, with two blocks, each of which is provided with a signal, a rock shaft connected with each signal, and a spring-controlled setting lever attached to the rock shaft and beveled at its free end, of a mechanism located in each block, each of said mechanisms consisting of a lock lever centrally pivoted in rear of the free end of the setting lever, one end of the lock lever being spring controlled and the other end being guided by a stop device and one end of the setting lever being also spring-controlled, rocker arms located respectively beneath the spring-controlled end of the lock lever and the free end of the setting lever, and a chain or wire connection between the rear end of the rocker arm in one block actuated by the setting lever and the rear end of the rocker arm in the next rear block, the latter rocker arm being actuated by the lock lever of the rear block, substantially as and for the purpose specified.

498,229. SAFETY-GATE FOR ELEVATORS. PETER E. CRYDER, Pittsburg, Pa. Filed Apr. 13, 1892. Serial No. 428,895. (No model.)



Claim.—In a safety gate for elevators, the combination consisting of the shaft 3 arranged in bearings attached to the guide posts, an arm or gate attached to the said shaft, the lever 10 attached to the shaft 3, the lever 9, pivoted to the central guide post, and connected to the lever 10 by means of a bar 14, the bent levers 12—13 pivoted to the said post above and below the shaft 3, and connected to the short levers 9—10, by means of bars 11, and a counter weight 8 attached to the shaft 3, all arranged and combined for service substantially as and for the purpose described.

498,230. DOOR-HINGE. HERBERT M. LOCKE, Washington, D. C. Filed Sept. 30, 1892. Serial No. 447,331. (No model.)



Claim.—The combination of the hollow base *a*, provided with circular track *d*, and grooves *f*, in the bottom of said track; cap *g*, having circular track *h*, concentric with track *d*; balls *e*, working in said tracks; and bolt *c*, uniting the upper and lower parts of said hinge, all substantially as shown and described, and for the purposes set forth.

498,231. CHUCK. ALFRED HOBB, Manchester, England. Filed June 8, 1892. Serial No. 435,884. (No model.)

Claim.—1. The combination of a screw-threaded spindle-bearing, a tapering split holding-bushing having a screw-thread of a pitch different from that on the bearing, and a differential screw engaging said threads, substantially as described.



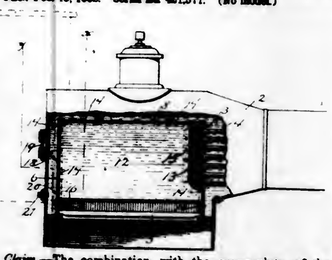
2. The combination of a screw-threaded spindle-bearing, a tapering split holding bushing having one or more longitudinal grooves and a screw-thread of a pitch different from that on the bearing, and a differential screw engaging said threads, substantially as described.

3. The combination of a spindle having a tapering socket and a screw-thread, a tapering split holding bushing, and a threaded collar or nut engaging said screw-threads and also engaging with said bushing, whereby the same may be moved longitudinally, substantially as described.

4. The combination of a spindle having a tapering socket, a tapering split holding bushing having a screw-thread, and a threaded collar or nut engaging said screw-threads, and also engaging with said spindle whereby the bushing may be moved longitudinally, substantially as described.

5. The combination of a spindle having a tapering socket, a split tapering holding bushing, differential screw-threads on said parts and a differential screw nut or collar to engage said parts, whereby the bushing may be moved longitudinally, substantially as and for the purpose described.

498,232. LOCOMOTIVE-BOILER. JOHN T. MCLELLAN, Truro, Canada, assignor of one-half to Horace W. Chalfant, Minneapolis, Minn. Filed Feb. 15, 1892. Serial No. 421,571. (No model.)



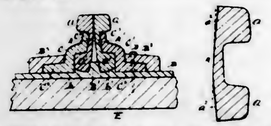
Claim.—The combination, with the crown-plate, of the sides thereof, the boiler-shell surrounding the same, the grate, water legs being formed at the sides of the crown plate and the shell and extending down to the grate, the flue-sheet and the fines, the intermediate water leg terminating above the grate and formed of a separate plate, the transverse part 13 thereof, an opening 15 being formed between said plate and the flue-sheet, and perforations 14 in the crown-plate and in the end wall or flue-sheet of the fire box, substantially as described.

498,288. CONTINUOUS RAIL. ALLEN RAMLEY, Ypsilanti, Mich. Filed Apr. 26, 1892. Serial No. 430,462. (No model.)

Claim.—1. A continuous T-rail formed of two rails located side by side, each constructed with outwardly extended flanges having their faces opposite said flanges located adjacent one to the other at the top and spread at their base, said rails breaking joint and having in combination therewith clamping devices to hold said rails firmly together, substantially as described.

2. A continuous rail formed of two rails located side by side, constructed with laterally extended flanges having their faces opposite

said flanges beveled in opposite directions at the top and bottom from the upper and lower edges of the rail inward toward the middle thereof, and clamping devices to hold said rails firmly together, substantially as described.



3. A continuous rail formed of two like reversible rails located side by side, each constructed with outwardly extended flanges at the top and bottom thereof and breaking joints at their extremities, said rails spread apart at their base and held in close juxtaposition at the top, and clamping devices to firmly engage said rails, substantially as described.

4. A continuous rail having in combination two like rails located side by side and formed with lateral flanges at the top and base thereof, chairs each constructed with clamping arms turned inward toward the rail, and clamping wedges having a wedged engagement with the clamping arms of the chair and with the lower flange and adjacent body of the rail, substantially as described.

5. A continuous rail formed of two like rails located side by side, having in combination therewith supporting chairs each constructed with seats for said rails, with a flange separating the rails at their base, and with clamping arms, and clamping wedges having a wedging engagement with the clamping arms and adjacent portions of the rails, substantially as described.

6. A continuous rail having in combination two like rails located side by side constructed with lateral flanges at top and bottom, chairs supporting said rails each formed with clamping arms, and wedges engaging the clamping arms and rails, each of said wedges constructed with a lateral flange at the base and an upwardly projected flange at the upper side, the lateral flange thereof having a wedging engagement under the adjacent clamping arm, and the upper flange extending along the body of the rail under the upper flange thereof, the intermediate portion of the wedge having a wedging engagement between the lower flange of the adjacent rail and the adjacent edge of the corresponding clamping arm of the chair, substantially as described.

7. A rail A constructed with flanges *a a'* extending laterally from one side thereof at the top and bottom, the opposite side of said rail beveled from the upper and lower edges of the rail toward the middle thereof, substantially as described.

498,234. MOTOR-TRUCK. JOHN A. BRILL and WALTER S. ADAMS, Philadelphia, Pa.; said Adams assignor to said Brill. Filed Aug. 2, 1892. Serial No. 441,964. (No model.)

Claim.—1. The combination of a car body and car truck, connections for pivotally uniting the car and truck located over the side frames thereof, and pivotal connections on the end of the truck frame uniting the car body and truck, substantially as described.

2. The combination of a truck having side bearings comprising stationary and movable elements for frictional contact, the bearings being secured to the truck frame, and a car body having segmental rub plates adapted to engage the side bearings, by means of which the car and truck are pivotally united, substantially as described.

3. The combination of a truck and a car body, the truck having a pivot plate secured at the end thereof, with devices on the car body for engagement with said pivot plate, such combined devices forming a pivotal connection between the car body and truck, enabling the car to be drawn by the truck, or the truck by the car, substantially as described.

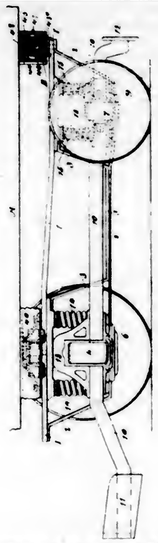
4. The combination with a car and truck, of devices for securing a pivotal or swiveling union of the car and truck, said devices permitting the propelling of the car or truck to be accomplished from the end of the truck, said devices being adapted to move in the arc of a circle generated from the pivotal center of the truck, substantially as described.

5. The combination with a car and truck, of devices for securing a swiveling or pivotal union of the car and truck, such devices being movable, one in relation to the other, and secured to the truck and car without the wheel base of the truck, substantially as described.

6. A truck having an upper chord or frame, and devices for drawing a car secured to a transverse member of the upper chord at one end, said drawing devices being adapted to move transversely of the car, substantially as described.

7. The combination of a car and truck, of devices for securing a pivotal connection of the car and truck, such union being made at the sides and end of the truck, substantially as described.

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8. The combination in a car and truck, of devices for pivotally uniting the car and truck disposed about and away from the pivotal center, and additional means for securing the truck and car together for propulsion of the same, substantially as described.

9. The combination in a car and truck, of devices for pivotally uniting the car and truck secured to the truck and car over the sides of the truck, and devices for securing the truck and car together for propulsion located over the end of the truck, said devices having a relative movement in the arc of a circle, substantially as described.

10. The combination in a car and truck, of devices for pivotally uniting the car and truck disposed about and away from the pivotal center thereof, and devices uniting the car and truck for propulsion situated on the end thereof and outside of the wheel base, substantially as described.

11. The combination in a car and truck pivotally connected, and additional devices which unite the car and truck together for propulsion, the union of said additional devices between the car and truck being made transversely of the truck and to one side of the pivotal center, substantially as described.

12. The combination, with a car and truck, of drawing devices between the car and truck, located over the end of the truck, the car and truck elements of said devices having a movement, one in relation to the other, substantially as described.

13. The combination, with a car and truck, of pivotal devices between the car and truck comprising a bearing secured to the truck and a segmental rub plate affixed to the car and having a depending side engaging the truck bearing on the outside thereof, substantially as described.

14. The combination, with a car and truck, of drawing devices between the car and truck comprising a segmental bearing, and a superposed segmental rub plate adapted to engage the bearing on both sides, said devices being located over the end of the truck frame, substantially as described.

15. The combination, with a car and truck, of pivotal devices between the car and truck comprising a bearing having a roller therein, and a segmental angle iron secured to the car, the depending side or angle of which is adapted to engage the roller, substantially as described.

16. The combination, with a car and truck, of drawing devices between the car and truck comprising a roller, and a segmental channel beam, the roller engaging the channel beam between the depending sides or angles thereof, said devices being located over the end of the truck, substantially as described.

17. A truck having separate or unconnected pivot plates supported on the side frame over the axle of one set of wheels, and another pivot plate on the end of the truck opposing said axle, substantially as described

18. The combination of a car and truck, of devices for securing a pivotal or swiveling union of the car and truck comprising three bearing points on the truck and car, which are disposed about the pivotal center and generated therefrom and which permit the car to move bodily about the said pivotal center, substantially as described.

19. The truck having the separate and unconnected pivot plates disposed so as to precipitate the major portion of the truck supported weight of the car upon the axle at one end, and swiveling devices for drawing the truck at the other end, substantially as described.

20. A truck having three swiveling points of connection with a car body, two of which lie in the same arc generated from the pivotal center, the other point being adapted to move in a greater arc, substantially as described.

21. The combination, with a car and a truck, of drawing devices between the car and truck comprising a roller, a friction plate above the roller, a channel beam superposed above the friction plate and in contact therewith, the depending sides of the channel beam engaging said roller, said devices being located over the end of the truck, substantially as described.

22. The combination, with a car and a truck, of pivotal devices between the car and truck comprising a bearing having a roller, a friction plate on the bearing, a segmental channel beam having depending sides superposed over the bearing, a friction plate secured to the channel beam engaging the lower friction plate, the sides of the channel beam being adapted to bear against the roller, substantially as described.

23. The combination, with a car and truck, of pivotal devices between the car and truck comprising a segmental channel beam secured to the car and having depending sides, a friction plate within the sides and on the channel beam, and a bearing secured to the truck having a roller and superposed friction plate, and an oil well in said bearing, the two friction plates and the roller and channel beam being adapted to engage each other, substantially as described.

24. The combination, with a car and truck, of pivotal devices between the car and truck comprising a bearing secured to the truck, having a friction plate, and a segmental angle iron secured to the car having a friction plate, the friction plates being superposed, and the side of the angle iron being adapted to engage the truck bearing, substantially as described.

25. The combination, with a car and truck, of pivotal devices between the car and truck comprising a bearing secured to the truck having a roller and a friction plate, a segmental angle iron secured to the car having a friction plate, the friction plates being superposed, the angle iron being adapted to engage the roller, substantially as described.

26. The combination, with a car and truck, of pivotal devices between the car and truck comprising a bearing on the truck having a roller, a friction plate and an oil well adjacent to the friction plate, and an angle iron secured to the car having a friction plate both plates being superposed, the roller and angle iron being adapted to engage each other, substantially as described.

27. The combination, with a car and truck, of separate or unconnected pivot plates between the car and truck, located directly over the side frames of the truck and to one side of the wheel base center thereof, substantially as described.

28. The combination, with a car and truck, of separate or unconnected pivot plates between the car and truck, located directly over the side frames of the truck and over the axle of one set of the wheels, substantially as described.

29. A truck without a transversely extending center bearing bolster, having separate or unconnected pivot plates supported on the side frames to one side of the wheel base center, substantially as described.

30. A truck without a transversely extending center bearing bolster, having separate or unconnected pivot plates supported on the side frames over the axle of one set of wheels, substantially as described.

31. The combination, with a car and truck, of separate or unconnected pivot plates between the car and truck, supported upon the side frames and end frame of the truck, substantially as described.

32. The combination, with a car and truck, of separate and unconnected pivot plates between the car and truck, located over the axle of one set of wheels, and over the end of the truck, substantially as described.

33. The combination, with a car and truck, of separate and unconnected pivot plates between the car and truck, located over the axle of one set of wheels, and over the end of the truck without the wheel base thereof, substantially as described.

34. The combination, with a car and truck, the truck having large and small wheels, and separate and unconnected pivotal devices between the car and truck located over the axle of the large wheels, substantially as described.

35. The combination, with a car and truck, the truck having large and small wheels, pivotal devices between the car and truck located over the axle of the large wheel, and an end bearing between the car and truck over the small wheel end of the truck, substantially as described.

36. The combination, with a car and truck, the truck having large and small wheels, pivotal devices between the car and truck located to one side of the wheel base center of the truck, and drawing devices having pivotal connection with the car and truck at the small wheel end of the truck, substantially as described.

37. The combination, with a car and truck, the truck having large and small wheels, pivotal devices between the car and truck located to one side of the wheel base center of the truck, and drawing devices having pivotal connection with the car and truck located without the wheel base of the truck, substantially as described.

38. The combination, with a car and truck, the truck having large and small wheels, pivotal devices between the car and truck located over the axle of the large wheels, and drawing devices having pivotal connection with the car and truck located at the small wheel end of the truck, substantially as described.

39. The combination, with a car and truck, the truck having large and small wheels, pivotal devices between the car and truck located over the axle of the large wheels, and drawing devices having pivotal connection with the car and truck located without the wheel base of the truck, substantially as described.

40. The combination, in a car and truck, of a truck having rotatable instrumentalities secured on the top frame thereof, and segmental plates secured to the car body having depending sides adapted to engage the rotatable instrumentalities on the truck, substantially as described.

41. The combination, in a car and truck, of a truck having bearing instrumentalities secured on the top frame thereof, and segmental plates secured to the car having depending sides adapted to engage the bearing instrumentalities, substantially as described.

42. The combination, in a car and truck, of a truck having bearings secured on the top frame thereof, said bearing having a friction plate, and segmental plates secured to the car having depending sides adapted to engage the bearing, and a friction plate on the segmental plate adapted to engage the bearing friction plate substantially as described.

43. The combination, in a car and truck, of a truck having bearings secured on the top frame thereof, said bearing having a friction plate and a contained oil reservoir combined with the friction plate, and segmental plates having depending sides secured to the car and adapted to engage the bearing, and a friction plate on the car element in engagement with the bearing friction plate, substantially as described.

44. The casting B, having the central web 16, extensions 17, oil wells 32 between the extensions and central web, and an apertured friction plate 20 in the central web, the apertures of which align with the wells, substantially as described.

45. The casting B, having the superposed friction plate 20, apertures in said plate adjacent to its ends, and independent oil wells 32, aligning with said apertures, substantially as described.

46. The combination, with the casting B having the roller 24, of the angle iron 40, having the depending angle 42 adapted to engage the roller, substantially as described.

47. The casting B, having the extensions 17, bolt holes 18 therein and a depending flange 23, combined with the upper chord 1, the said flange embracing the upper chord, substantially as described.

48. The casting B, having the central web 16, and extensions 17, the oil wells 32 adjacent to the web and on both sides thereof, and apertures 34 leading from without the casting to the said wells, substantially as described.

49. The casting B, having a superposed friction plate 20 with transverse slots adjacent to the ends thereof, and an oil supply and wick leading to said slots, substantially as described.

50. The casting B, having a superposed friction plate 20 with transverse slots 35 adjacent to the ends thereof, the independent oil wells 32 with openings aligning with the slots, and a wick 37 in each well extending through said slots, substantially as described.

51. The casting B, having a superposed friction plate 20 with transverse slots 35 and slot extensions 36 adjacent to the ends thereof, the independent oil wells 32 with openings aligning with the slots, and a wick 37 having the recesses 38 in each well, the recesses engaging the slot extensions, substantially as described.

52. The combination, with the casting B having the rotatively supported roller 24 and the superposed friction plate 20, of the independently supported angle iron having the depending web 42, the roller and friction plate being adapted to engage the angle iron, substantially as described.

53. The combination, with the casting B having the rotatively supported roller 24 and the bearing friction plate 20, of the independently supported angle iron having the depending web 42 and attached rub friction plate 43, the friction plates web and roller being engaged, substantially as described.

54. The combination, with the casting B having the roller 24 and bearing friction plate 20, of the superposed rub plate 40, segmental in form, and adapted to engage the roller and friction plate, substantially as described.

55. The combination, with the casting B having the roller 24 and bearing friction plate 20, of the superposed rub plate 40 having the rub friction plate 43, the rub plate being segmental in form, the friction plates, roller and rub plate being engaged, substantially as described.

56. The combination, with the casting B having the roller 24, oil wells 32, and bearing friction plate, apertures in the said rub plate aligning with the oil wells, a conductor leading to the friction plate, of the superposed rub plate 40 segmental in form having the rub friction plate 43, the friction plates, roller and rub plate being engaged, substantially as described.

57. The combination, in a car and truck, of the truck bearing, the car rub plate, and the added bolster 48 between the car and rub plate, substantially as described.

58. The combination, with a truck bearing having a roller, of an independently supported rub plate having depending webs and segmental in form adapted to engage the roller between the webs, substantially as described.

59. The combination, with a truck bearing having a roller and superposed friction plate, of an independently supported rub plate having depending webs and segmental in form adapted to engage the roller and friction plate between the webs, substantially as described.

60. The combination, with a truck bearing having a friction plate, of an independently supported rub plate segmental in form and having depending webs adapted to engage the truck bearing and friction plate, substantially as described.

61. The combination, with a truck bearing having a roller and a bearing friction plate, of an independently supported rub plate segmental in form, having depending webs and an affixed rub friction plate, the friction plates, webs and roller engaging, substantially as described.

62. The combination, with a truck bearing having an apertured friction plate and an oil supply with a conductor leading to said friction plate, of an independently supported rub plate segmental in form, and having depending webs adapted to engage the friction plate and truck bearing between the webs, substantially as described.

63. The combination, with a truck bearing, of a vertically disposed spindle rotatively supported in the bearing, a roller rotatively supported about the spindle, and an independently supported rub plate having a depending web segmental in form adapted to engage the roller, substantially as described.

64. The combination, with a truck bearing, of a spindle and roller in the bearing, both being capable of independent movement, and an independently supported rub plate segmental in form and having a depending web adapted to engage the roller, substantially as described.

65. The combination, with a truck bearing, of a spindle and roller in the bearing, both being capable of independent movement, and an independently supported rub plate segmental in form and having depending webs adapted to embrace the roller, substantially as described.

66. The combination of the upper chord 1, of the casting B having the aperture 21, of the spindle 26 extending between the casting and chord and through the aperture, and the roller 24 on said spindle, substantially as described.

67. The combination of the upper chord 1, of the casting B having the aperture 21, of the spindle 26 extending between the casting and chord and through the aperture, and the roller 24 on said spindle resting on the upper chord, substantially as described.

68. The combination of the casting 49, having the ways 54, and the roller 56 on said ways, with the friction plate 66 suitably supported, substantially as described.

69. The combination of the casting 49, having the ways 54, and the roller 56 on said ways, with the superposed plate 59 having the segmental friction plate 66 in contact with the said roller, substantially as described.

70. The combination with the casting 49 having the segmental bearing surface 58, of the superposed plate 59, having the bracket 61, and a roller 62 journaled in said bracket adapted to bear on the said bearing surface, substantially as described.

71. The combination with the casting 49 having the ways 54, roller 56 on said ways, and the segmental bearing surface 58, of the superposed plate 59 having the bracket 61 and journaled roller 62 therein, and the friction plate 66, the roller 62 bearing against the said segmental surface, and the friction plate bearing on the roller 56, substantially as described.

72. The combination with the casting 49 having the segmental bearing surfaces 58, 58ª, of the superposed plate 59, having the brackets 61, 61ª, and rollers 62, 62ª journaled therein and adapted to bear on the said bearing surfaces, substantially as described.

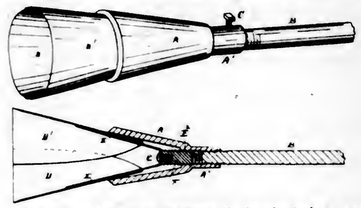
73. The combination with the casting 49 having the ways 54, roller 56 on said ways, and the segmental bearing surfaces 58, 58ª, of the superposed plate 59 having the brackets 61, 61ª, with the rollers 62, 62ª journaled therein, and the friction plate 66, the rollers 62, 62ª bearing against the said segmental surfaces, and the friction plate bearing on the roller 56, substantially as described.

74. The plate 59 having the downwardly extending brackets 61 61ª, the bolts 63, 63ª passing through said brackets, and the cross bar 68, uniting said bolts, substantially as described.

75. The combination with the castings B having the apertured lug 17, of the truck frame having spring posts, and an upper chord, said posts passing through the said lugs and having nuts on the end for holding said castings down on the chord, substantially as described

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493,235. PLUE-SCRAPER. CHARLES E. DAVEY, Detroit, Mich. Filed Oct. 24, 1892. Serial No. 449,801. (No model.)



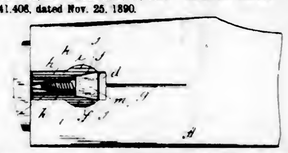
Claim.—1. A flue scraper consisting of a tapering body A, tapering spring actuated blades D, D', having their smaller ends projecting into said body, a stem F engaged with the inner ends of said blades and having a screw threaded connection within the smaller end of said body, and a handle B separate from said stem, having a direct screw threaded engagement in the smaller end of said body, substantially as described.

2. A flue scraper consisting of a tapering body A, tapering spring actuated blades D, D', having their smaller ends projecting into said body, a stem F engaged with the smaller ends of said blades and having a screw threaded connection within the smaller end of said body; a handle B separate from said stem having a direct screw threaded engagement in the smaller end of said body, and means to hold said handle in fixed engagement with said body, whereby the body may be turned upon said stem by said handle to advance and retract said body upon said blades by the rotation of said handle, and thereby contract and expand said blades, substantially as described.

3. A flue scraper having in combination, a hollow tapering body A, tapering blades D, D', arc-shaped in cross section, having their smaller ends projecting within said body, a stem F having a screw-threaded engagement within the smaller end of said body, spring arms E, E' engaging said blades upon said stem, a handle B directly engaged with said body, and means to hold the body and handle in a fixed engagement the one with the other, whereby the body may be advanced and retracted upon said blades by the rotation of said handle and thereby contract and expand said blades, substantially as and for the purpose described.

REISSUES.

11,312. AX-HELVE. HIRAM HALL, Jr., South Thomaston, assignor, by direct and mesne assignments, to the Hall Manufacturing Company, Rockland, Me. Filed Nov. 22, 1892. Serial No. 452,860. Original No. 441,408, dated Nov. 25, 1890.



Claim.—1. In an ax-helve, the combination, of a chamber formed in the outer end thereof, having curved grooves in its side walls, a saw-kerf extending inwardly from the bottom of said chamber, wedges having bosses adapted to enter said grooves and inclined inner faces provided with vertical grooves for receiving a screw, a beveled nut disposed in said chamber, and a screw provided with an approximately oval or button shaped head and working said nut, substantially as described.

2. In an ax-helve, the helve A, provided with the chamber *d*, having the grooves *f*, in its walls, the saw-kerf *g*, the wedges *h*, provided with the grooves *k*, and bosses *i*, the nut *m*, and the screw B, work-

22,253. SPOON. LOUIS SUESER, Chicago, Ill. Filed Jan. 3, 1893. Serial No. 457,170. Term of patent 3½ years.

22,256.

Claim.—The design for a badge, substantially as shown

2. In an ax-helve, the helve A, provided with the chamber *d*, having the grooves *f*, in its walls, the saw-kerf *g*, the wedges *h*, provided with the grooves *k*, and bosses *i*, the nut *m*, and the screw B, working in said nut and provided with the curved head *p*, combined and arranged to operate, substantially as set forth.

3. In an ax-helve provided with a chamber in its head having a saw-kerf extending longitudinally from the bottom thereof, the combination of two edges adapted to be inserted in said chamber and provided with the inclined working-faces and vertical grooves, with a screw having an oval-shaped head and a nut on said screw provided with inclined faces adapted to engage said wedges, substantially as described.

4. A helve having a chambered head, combined with wedges fitted to the walls of said chamber, and with a nut and screw, the said nut being arranged to bear upon the said wedges, and the screw being arranged to force the said nut upon the wedge faces, substantially as described.

5. A helve having a chambered head with grooves in the walls of said chamber combined with wedges having bosses fitted to said grooves, a nut arranged to bear upon said wedges, and to press them outward and a screw arranged to force said nut upon the wedge faces substantially as described.

6. A helve having a chambered head combined with wedges, having grooves and bosses fitted to the walls of said chamber, said chamber having grooves for the bosses, and with a nut and screw for spreading said wedge, all substantially as described.

DESIGNS.

22,251. SPOON. JOHN W. MAILLOT, North Attleborough, Mass., assignor to Frank M. Whiting & Co., same place. Filed Jan. 28, 1893. Serial No. 460,166. Term of patent 3½ years.



Claim.—The design for a spoon herein shown and described.

22,252. HANDLE FOR SPOONS. HENRY A. WHEELAN, Philadelphia, Pa. Filed Jan. 4, 1893. Serial No. 457,286. Term of patent 14 years.



Claim.—A design for a handle of spoons &c. substantially as herein shown and described.

22,253. SPOON. LOUIS BURGER, Chicago, Ill. Filed Jan. 3, 1893. Serial No. 457,170. Term of patent 3½ years.



Claim.—The design for the handle of a souvenir spoon &c. substantially as herein shown and described.

22,254. SPOON. LOUIS BURGER, Chicago, Ill. Filed Jan. 3, 1893. Serial No. 457,172. Term of patent 3½ years.



Claim.—The design for the handle of a souvenir spoon &c., substantially as shown and described.

22,255. SPOON. LOUIS BURGER, Chicago, Ill. Filed Jan. 3, 1893. Serial No. 457,171. Term of patent 3½ years.



Claim.—The design for the handle of a souvenir spoon &c., substantially as shown and described.

22,256. SPOON. LOUIS BURGER, Chicago, Ill. Filed Jan. 3, 1893. Serial No. 457,173. Term of patent 3½ years.

22,256.



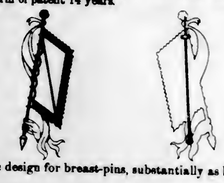
Claim.—The design for the handle of souvenir spoons, &c. substantially as herein shown and described.

22,257. SPOON. LOUIS BURGER, Chicago, Ill. Filed Jan. 3, 1893. Serial No. 457,174. Term of patent 3½ years.



Claim.—The design for a spoon, substantially as shown and described.

22,258. BREASTPIN. HUGH R. HOUSTON, Philadelphia, Pa., assignor to James R. Caldwell & Co., same place. Filed Jan. 21, 1893. Serial No. 459,254. Term of patent 14 years.



Claim.—The design for breast-pins, substantially as herein shown and described.

22,259. BADGE. GEORGE R. SMITH, Chicago, Ill., assignor to J. M. Kelly, trustee, Pittsburg, Pa. Filed Nov. 17, 1892. Serial No. 452,345. Term of patent 14 years.



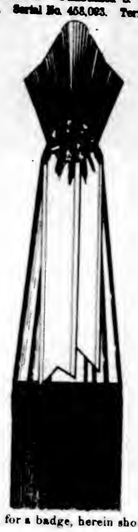
Claim.—The design for a badge consisting in the representation of a belt, a horse shoe, and the initial letter, substantially as shown and described.

22,260. BADGE. THEODORE EVEN, Chicago, Ill., assignor to Harold Dyrenforth, same place. Filed Oct. 28, 1892. Serial No. 450,284. Term of patent 14 years.



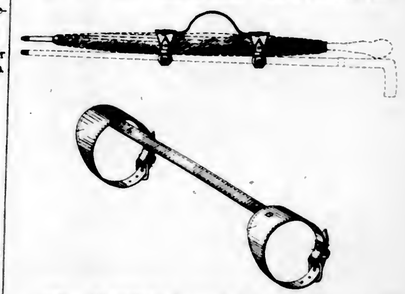
Claim.—The design for a badge substantially as shown and described.

22,261. ARM-BADGE. FREDERICK S. PINKHAM, Everett, Mass. Filed Jan. 11, 1893. Serial No. 458,093. Term of patent 14 years.



Claim.—The design for a badge, herein shown and described.

22,262. UMBRELLA-CARRIER. PHILIP HILL, Philadelphia, Pa. Filed Jan. 14, 1893. Serial No. 458,388. Term of patent 3½ years.



Claim.—The design for an umbrella and cane carrier, as shown and described.

22,263. FONT OF PRINTING-TYPE. GUSTAVE F. SCHROEDER, Mill Valley, assignor to V. J. A. Rey, San Francisco, Cal. Filed Jan. 16, 1893. Serial No. 458,619. Term of patent 7 years.

ABCDEFGHIJKLMNO
PQRSTUVWXYZ&
abcdefghijklmnopqrst
uvwxyz
$1234567890

Claim.—The design for a font of type, substantially as herein described and shown.

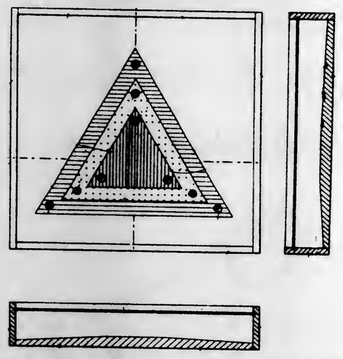
22,264. PENHOLDER. DENT L. LYDICK, Quaker City, Ohio. Filed Feb. 6, 1893. Serial No. 461,266. Term of patent 7 years.

22,264.



Claim.—The design for a pen holder and paper cutter substantially as herein shown and described.

22,265. PUZZLE-BOARD. CALEB K. LEEDY, Mount Vernon, Ohio. Filed Nov. 14, 1892. Serial No. 452,005. Term of patent 7 years.



Claim.—The design for a puzzle board, substantially as herein described and shown.

22,266. GIMP. HARRY HOOK, Philadelphia, Pa., assignor to Partridge & Richardson, same place. Filed Jan. 25, 1893. Serial No. 459,740. Term of patent 3½ years.



Claim.—The design for gimp dress trimmings herein described and illustrated.

22,267. GIMP. CARL LIEBENTHAL, New York, N. Y. Filed Feb. 6, 1893. Serial No. 461,269. Term of patent 7 years.



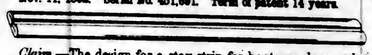
Claim.—The design for a gimp, herein before shown and described.

22,268. BRAID. LOUIS KLEINHAMS, New York, N. Y., assignor to the Sutro Bros. Braid Company, same place. Filed Jan. 21, 1893. Serial No. 459,253. Term of patent 14 years.



Claim.—The design for a braid, as herein shown and described.

22,269. STAY-STRIP. WILLIAM A. NEELY, Lynn, Mass. Filed Nov. 11, 1892. Serial No. 451,691. Term of patent 14 years.



Claim.—The design for a stay strip for boots or shoes, substantially as herein shown and described.

22,270. CAN. MARSHALL J. KINNEY, Astoria, Oreg. Filed Jan. 10, 1893. Serial No. 457,943. Term of patent 7 years.



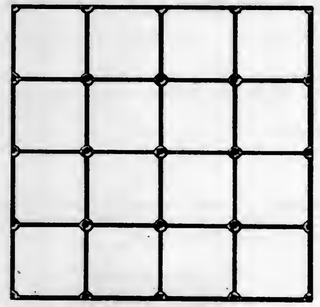
Claim.—The design for a can herein shown and described.

22,271. CURTAIN-POLE. BENJAMIN H. RUTTON, Toledo, Ohio, assignor to the Toledo Moulding Company, same place. Filed Feb. 10, 1893. Serial No. 461,833. Term of patent 7 years.



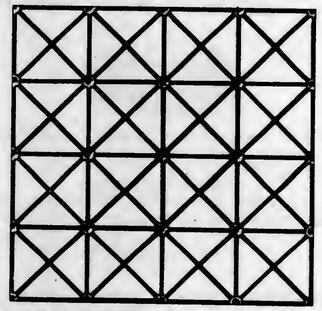
Claim.—The design for a curtain pole, substantially as shown and described.

22,272. CEILING-PLATE. WILLIAM S. GRAFTON, Steubenville, Ohio, and EDWIN C. EWING and ALEXANDER GLASS, Wheeling, W. Va., assignors to the Wheeling Corrugating Company, Wheeling, W. Va. Filed Feb. 4, 1893. Serial No. 461,218. Term of patent 14 years.



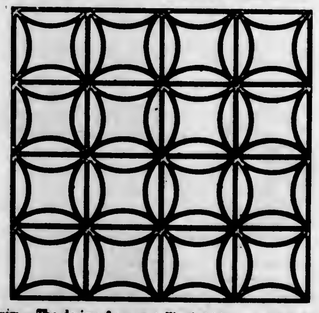
Claim.—The design for a metallic finishing plate herein shown and described.

22,273. CEILING-PLATE. WILLIAM S. GRAFTON, Steubenville, Ohio, and EDWIN C. EWING and ALEXANDER GLASS, Wheeling, W. Va., assignors to the Wheeling Corrugating Company, Wheeling, W. Va. Filed Feb. 4, 1893. Serial No. 461,219. Term of patent 14 years.



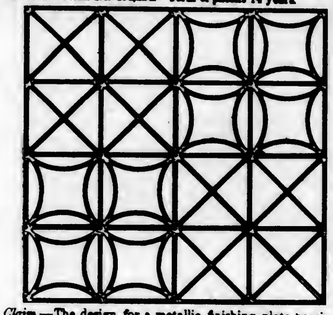
Claim.—The design for a metallic finishing plate herein shown and described.

22,274. CEILING-PLATE. WILLIAM S. GRAFTON, Steubenville, Ohio, and EDWIN C. EWING and ALEXANDER GLASS, Wheeling, W. Va., assignors to the Wheeling Corrugating Company, Wheeling, W. Va. Filed Feb. 4, 1893. Serial No. 461,220. Term of patent 14 years.



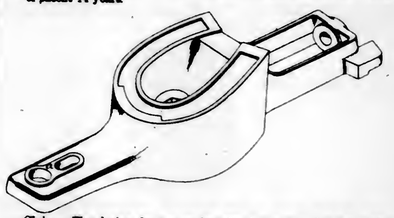
Claim.—The design for a metallic finishing plate herein shown and described.

22,275. CEILING-PLATE. WILLIAM S. GRAFTON, Steubenville, Ohio, and EDWIN C. EWING and ALEXANDER GLASS, Wheeling, W. Va., assignors to the Wheeling Corrugating Company, Wheeling, W. Va. Filed Feb. 4, 1893. Serial No. 461,221. Term of patent 14 years.



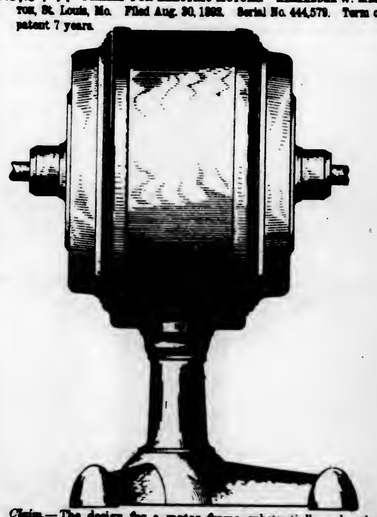
Claim.—The design for a metallic finishing plate herein shown and described.

22,276. CROSS-BAR FOR ICE-CREAM FREEZERS. CHARLES W. PACKER, Philadelphia, Pa. Filed Feb. 6, 1893. Serial No. 461,270. Term of patent 14 years.



Claim.—The design for a crossbar for ice cream freezers, substantially as described and as shown in the accompanying drawing.

22,277. FRAME FOR ELECTRIC MOTORS. ALEXANDER W. MEYER, St. Louis, Mo. Filed Aug. 20, 1892. Serial No. 444,579. Term of patent 7 years.



Claim.—The design for a motor frame, substantially as herein shown and described.

TRADE-MARKS

REGISTERED MARCH 7, 1893.

22,579. PRINTED PUBLICATIONS. JUDGE PUBLISHING COMPANY OF NEW YORK, New York, N. Y. Filed Jan. 31, 1893.

Judge

Essential feature.—The word "JUDGE." Used since October 29, 1881.

22,580. PLAYING-CARDS. THE UNITED STATES PRINTING COMPANY, Cincinnati, Ohio. Filed Feb. 6, 1893.



Essential feature.—A parallelogram within which is the representation of a safety-bicycle in outline. At each corner of the parallelogram is the representation of a wheel with three extended wings, and a floral design diagonally placed. Used since November 19, 1892.

22,581. PLAYING-CARDS. THE UNITED STATES PRINTING COMPANY, Cincinnati, Ohio. Filed Feb. 6, 1893.



Essential feature.—A parallelogram within which is the representation of a wheel in outline with three extended wings attached to the hub, and an outline bicycle. On each side of the parallelogram is the representation of a floral design. Used since February 15, 1892.

22,582. PLAYING-CARDS. THE UNITED STATES PRINTING COMPANY, Cincinnati, Ohio. Filed Feb. 6, 1893.



Essential feature.—A parallelogram within which is the representation of an erect safety-bicycle within a framing of leaves and branches, resembling those of the oak, the upper and lower halves of the parallelogram being duplicates. Used since September 1, 1892.

22,583. WRITING FLUIDS AND INKS. CHARLES EDWIN OGDEN, London, England. Filed Feb. 7, 1893.



Essential feature.—The representation of a segmental label bearing the words, "ARNOLD'S CHEMICAL WRITING FLUID." Used since October, 1892.

22,584. WRITING FLUIDS AND INKS. CHARLES EDWIN OGDEN, London, England. Filed Feb. 7, 1893.



Essential feature.—The representation of a segmental label bearing the words, "ARNOLD'S JET BLACK WRITING INK." Used since October, 1892.

22,585. DRUM HEADS, STRINGS, AND MATERIALS. EMIL BOULANGER, St. Louis, Mo. Filed Feb. 6, 1893.

Duplex

Essential feature.—The word "DUPLEX." Used since June, 1883.

22,586. SKIRT-HOLDERS. SMITH-BREWER NOVELTY COMPANY, Detroit, Mich. Filed Jan. 31, 1893.

LENOX

Essential feature.—The word "LENOX." Used since August 6, 1892.

22,587. BOOTS AND SHOES FOR MEN, BOYS, AND YOUTHS. HANAN & SON, New York, N. Y. Filed Feb. 9, 1893.



Hanan&Son

Essential feature.—The representation of an ideal female head, of heroic type and with the hair blown about the face by the wind, placed within the horns of a crescent, or young moon, and the words "HANAN & SON." Used since January 1, 1883.

22,588. UNDERWEAR MADE OF A KNIT FABRIC HAVING A SMOOTH FACE AND A PLUSH BACK. ISIDORE JARON, New York, N. Y. Filed Jan. 26, 1893.

WOOL FLEECE KNIT.

Essential feature.—The words "WOOL FLEECE KNIT." Used since February 1, 1886.

22,589. FURS. A. JACOBSON & BRO., New York, N. Y. Filed Jan. 3, 1893.



Essential feature.—The representation of a head resembling that of a fox, inclosed by a diamond-shaped border. Used since July 1, 1891.

22,590. COTTON-BALE TIES. WILLIAM CLARK'S SON & CO., Pittsburg, Pa. Filed Feb. 6, 1893.

DELTA

Essential feature.—The word "DELTA." Used since September, 1877.

22,591. CHOCOLATES AND OTHER BONBONS. THE WALTER M. LOWNEY COMPANY, Boston, Mass. Filed Feb. 11, 1893.



Essential feature.—The representation of a circular building having an overhanging roof surmounted by a dome, said roof being supported by pillars. Used since January 30, 1893.

22,592. CHEWING-GUM. NEWTON RAYE and HENRY C. ENOS, Cleveland, Ohio. Filed Feb. 6, 1893.



Essential feature.—The words "YOUNG AMERICANS' CIGARETTES." Used since January 1, 1893.

22,593. PLUG-TOBACCO. J. J. HICKOX & CO., Richmond, Va. Filed Jan. 23, 1893.



Essential feature.—A metallic tag bearing on the face thereof the word "FIG." Used since April, 1892.

22,594. SARDINES. SIMON G. STEVENS, Brooklin, Me. Filed Aug. 2, 1892.

CHAVET

Essential feature.—The word "CHAVET." Used since April 1, 1883.

22,595. HAMS, BACON, SMOKED MEATS, AND SHOULDERS. JERSEY CITY PACKING CO., Jersey City, N. J. Filed Feb. 14, 1891.



Essential feature.—An elliptical figure inclosing the representation of a spread eagle perched upon a ribbon-like band with a circular disk for a background, at the left of which appears an irregular square-shaped shield bearing printed matter. Used since October 1, 1889.

22,596. COMPRESSED YEAST. DISTILLING AND CATTLE FEEDING COMPANY, Peoria, Ill. Filed Jan. 13, 1893.



Essential feature.—The word "FERMENTUM," inclosed by a diamond shaped figure. Used since January 1, 1877.

22,597. PICKLED AND PRESERVED FRUITS AND VEGETABLES. HATTIE B. MILLS, New York, N. Y. Filed Jan. 19, 1893.

GRANDMA'S

Essential feature.—The word "GRANDMA'S." Used since December 1, 1892.

22,598. ROASTED COFFEE. T. H. MESSENGER & CO., New York, N. Y. Filed Feb. 11, 1893.



Essential feature.—The words "CHOICEST ANTILLES" arranged in a horizontal line, the word "JAVA" arranged in a vertical line, crossing the horizontal line, and a surrounding diamond shaped border. Used since September 1, 1890.

22,599. CONDENSED COFFEE. CONDENSED COFFEE COMPANY, Jersey City, N. J., and New York, N. Y. Filed Jan. 19, 1893.

MARIJOVA

Essential feature.—The word "MARIJOVA." Used since August 1, 1892.

22,600. COFFEE. T. H. MARTINEAU & Co., New York, N. Y. Filed Feb. 11, 1893.

C.M.L

Essential feature.—The letters "C. M. L." surrounded by a broken ellipse. Used since January 1, 1892.

22,601. SUBSTITUTE FOR COFFEE. JOHN MONTGOMERIE, Partick, Scotland. Filed Nov. 11, 1892.

CENILO

Essential feature.—The word "CENILO." Used since August 3, 1892.

22,602. GINGER ALE, SODA AND MINERAL WATERS, AND DRAFT AND BOTTLED BEER. JOHN W. WAYNICK, Bristol, Tenn. Filed Jan. 18, 1893.

Corona

Essential feature.—The representation of a terrestrial globe encircled by a crown and the words "WAYNICK" and "CORONA." Used since July 1, 1892.

22,603. EXTRACTS OF MALT. THE TROMMER EXTRACT OF MALT COMPANY, Fremont, Ohio. Filed Feb. 2, 1893.

TROMMER

Essential feature.—The word "TROMMER." Used since 1869.

22,604. BOTTLED LAGER-BEER. BRADLEIGH & WOERZ, New York, N. Y. Filed Jan. 26, 1893.

IMPERIAL

Essential feature.—The word "IMPERIAL." Used since January 15, 1888.

22,605. DRAFT LAGER-BEER. BRADLEIGH & WOERZ, New York, N. Y. Filed Jan. 26, 1893.

IMPERIAL

Essential feature.—The word "IMPERIAL." Used since January 15, 1888.

22,606. CALIFORNIA WINES AND LIQUORS. CALIFORNIA VINTAGE COMPANY, New York, N. Y. Filed Feb. 6, 1893.

Essential feature.—The word "CALVICO." Used since December, 1888.

22,607. CELERY TEA FOR MEDICINAL PURPOSES. PERCY C. MELROSE, Columbus Ohio. Filed Jan. 16, 1893.



Essential feature.—The representation of a tea-pot with the word "CELERY" printed in a cloud of steam issuing from the spout of said tea-pot. Used since January 2, 1893.

22,608. QUININE TONIC. WEEKS & POTTER COMPANY, Boston, Mass. Filed Jan. 11, 1893.

QUINONA.

Essential feature.—The word "QUINONA." Used since December, 1892.

22,609. PREPARATION FOR DISGUISING THE BITTER OR DISAGREEABLE TASTE OF MEDICINE. ELI LILLY & COMPANY, Indianapolis, Ind. Filed Jan. 24, 1893.

YERBAZIN

Essential feature.—The word "YERBAZIN." Used since June, 1888.

22,610. DROPSY CURE. SMITH & BAILEY, Belton, Tex. Filed Dec. 13, 1892.



Essential feature.—The representation of a five-pointed star and the letters of the name "SMITH" arranged between the points of the star. Used since October 10, 1892.

22,611. REMEDIES FOR PULMONARY DISEASES. THEOPHILUS SMITH & Son, Ipswich, Mass. Filed Feb. 6, 1893.

Bonn's

Essential feature.—The word "BONN'S." Used since 1865.

22,612. REMEDY FOR CERTAIN HARMD DISEASES. FRANCES M. CRESWELL, Washington, D. C. Filed Nov. 26, 1892.

BROMO-PEPSIN

Essential feature.—The word "BROMO-PEPSIN." Used since June, 1885.

22,613. TONIC AND PILLS. JOSEPH S. DODGE, Lincoln, Vt. Filed Feb. 3, 1893.

PINK CHEEKS.

Essential feature.—The words "PINK CHEEKS." Used since January 1, 1893.

22,614. PILLS. CHARLES WRIGHT, Detroit, Mich. Filed Feb. 4, 1893.

MESMIN'S

Essential feature.—The word "MESMIN'S." Used since March 1, 1892.

22,615. LINIMENT. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

OMNIA

Essential feature.—The word "OMNIA." Used since January 26, 1893.

22,616. SALVE OR OINTMENT FOR THE SKIN. FREDERICK J. LOCKWOOD, Bridgeport, Conn. Filed Feb. 4, 1893.



Essential feature.—The representation of a pot or box having fumes issuing therefrom, and the lid thereof thrown open, together with figures of "Brownies" or lilliputs dispersed about. Used since December 1, 1892.

22,617. CERTAIN ELECTRICAL INSTRUMENT EMPLOYED IN THE TREATMENT OF DISEASE. ELECTROLIBRATION COMPANY, Birmingham, Ala. Filed Feb. 3, 1893.

POISE

Essential feature.—The word "POISE." Used since October 15, 1892.

22,618. SOAP IN CHIPS AND BARS. H. KOHNSTAMM & Co., New York, N. Y. Filed Jan. 12, 1893.

NONPAREIL

Essential feature.—The word "NONPAREIL." Used since October 4, 1876.

22,619. BLEACHING FLUID. H. KOHNSTAMM & Co., New York, N. Y. Filed Jan. 12, 1893.

ELECTRONA

Essential feature.—The word "ELECTRONA." Used since September 8, 1892.

22,620. FURNITURE-POLISH. FRANK F. FLOHRER, Philadelphia, Pa. Filed Jan. 21, 1893.

PERFECTION

Essential feature.—The word "PERFECTION." Used since December 15, 1891.

22,621. LUBRICATING-OILS. SEYMOUR R. HEYMANN, New York, N. Y. Filed Dec. 9, 1892.

A VALVULA

Essential feature.—The word "VALVULA," the capital letter "A" above the same, and a plain circle inclosing the word and letter. Used since January 21, 1892.

22,622. STOVE POLISH OR BLACKING. MOSES BROS., Canton, Mass. Filed Feb. 1, 1893.



Essential feature.—The word "SUN." Used since 1865.

22,623. ELECTRICAL INSULATORS. ROBERT MUSSELL, LEWIS W. KIDDLEY, and FRANKLIN BROOKS, New York, N. Y. Filed Feb. 11, 1893.

MICANITE

Essential feature.—The word "MICANITE." Used since December 15, 1892.

22,624. TYPE-WRITERS AND PARTS THEREOF. DOMESTIC SEWING MACHINE COMPANY, New York, N. Y. Filed Dec. 5, 1892.

DOMESTIC

Essential feature.—The word "DOMESTIC." Used since October, 1892.

22,625. VAPOR-ENGINES. UNION GAS ENGINE COMPANY, San Francisco, Cal. Filed Dec. 16, 1892.

REGAN

Essential feature.—The word. "REGAN." Used since October, 1889.

22,626. IRON MANGERS. FRANK O. WORTHLEY, Boston, Mass. Filed Jan. 31, 1893.

SLOW-FEED

Essential feature.—The compound word, "SLOW-FEED." Used since January, 1891.

PHOTO-LITH. THE NORRIS PETERS CO. WASHINGTON D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

COMMISSIONER'S DECISIONS.

BRUNGGER *v.* SMITH.

Decided September 13, 1892.

1. INTERFERENCE—EVIDENCE.

Certain evidence introduced by a party to an interference to fix his time of conception and to identify his invention as that called for by the interference issue, examined, and *Held* insufficient for the latter purpose.

2. REDUCTION TO PRACTICE—REASONABLE DILIGENCE—WHAT IS NOT.

Where a party to an interference claimed to have had a conception of the invention in controversy on or about April 1, 1887, and to have made various sketches and disclosures of it between that date and March 7, 1889, when he filed an application for patent, and where it appears that he took no other step toward developing the invention during that interval, although he knew the great value of the invention, was an experienced inventor, and meanwhile filed at least two other applications for patents, *Held* his delay to either actually or constructively reduce to practice in this interval was not the exercise of reasonable diligence.

APPEAL from Examiners-in-Chief.

ART OF DIGESTING PAPER-PULP.

Applications Nos. 349,621, 349,622, and 349,623 of Hermann Brungger filed April 26, 1890; application No. 302,277 of Sidney Smith filed March 7, 1889.

Messrs. Philipp, Munson & Phelps for Brungger.
Mr. R. A. Sprague for Smith.

SIMONDS, *Commissioner:*

This is an appeal taken by Smith from the decision of the Board of Examiners-in-Chief awarding priority of invention to Brungger upon the following interference issues:

* * * * * * *

The decision of the Examiner of Interferences was in favor of Brungger. The decision of the Board is also in his favor, with one of the Examiners-in-Chief dissenting.

Brungger is a foreigner. He (joined with another applicant by mistake) filed an application in this Office November 1, 1888, disclosing the improvement in controversy, and a French patent issued for his invention November 30, 1888.

Smith claims to have had a conception of the invention on or about the 1st day of April, 1887, and to have made various sketches and disclosures of it between that date and the 7th of March, 1889, when he filed his application in controversy; but he took no other step toward developing the invention during that interval. The Examiner of Interferences and the three members of the Board agree in the finding that Smith had the conception and made the disclosures substantially as claimed; but all, with the exception of the dissenting Examiner-in-Chief, find that he was not duly diligent in reducing to practice.

Smith's claim to have had the conception of the invention and to have made a disclosure thereof prior to the filing of Brungger's application of November 1, 1888, rests on certain testimony which it is proper to examine somewhat in detail.

Edward R. Tinker is one of the witnesses whose testimony is relied upon by Smith in this record, and the following is question 7 put to Tinker, with the objection thereto:

Q. 7. Did Sidney Smith ever explain to you the features of a bisulphite digester for making wood into paper-pulp by means of an acid liquor and heat, said heat being applied to the outside of the digester, while the acid liquor and wood are on the inside, the process forming an insoluble lining on the inside of the digester by a deposit of lime from the decomposition of the acid liquor?
(Objected to as incompetent and leading.)

The objection that the question is leading is sustained. With this question and its answer eliminated from the record Tinker gives no testimony that assists Smith materially.

Another witness relied upon by Smith in this regard is William J. Covill. The following is question 6 put to Covill, with the objection thereto:

Q. 6. Can you fix the time of that conversation or other conversations that you had with Sidney Smith wherein he explained to you the process of lining digesters by the action of a sulphite liquor, as stated in your last answer?
(Same objection as to Q. 3.)

Neither counsel nor witness had mentioned "sulphite liquor" at the time this question was put, and the objection that the question is suggestive and leading is sustained. With this question and answer eliminated from the record Covill's testimony does not materially assist Smith.

Edward Howard is another witness relied upon by Smith in this regard. The following is question 3 put to Howard, with the objection thereto:

Q. 3. Did Sidney Smith ever explain or disclose to you a design of a wood-pulp digester to be heated by the direct products of combustion, together with a process of lining the interior surface of the same, and, if so, please give the date or dates of such explanation or explanations, disclosure or disclosures, the language as near as you can remember used by him in describing said digester and process of lining, and the circumstances connected therewith which enabled you to fix the date or dates?
(Objected to as incompetent and grossly leading and suggestive.)

The objection is sustained. With this question and answer out of the record Howard's testimony does not assist Smith materially.

George S. Barnum is another witness relied upon by Smith in this regard. The following are question 10 and redirect question 1 put to Barnum, with their answers:

Q. 10. How did you understand that the lining was to be formed on the inner surface of the boiler?

A. I understood that the stuff or the acid that was in the digester created a lining on the inside of it by transmitting heat to the outer surface of the digester.

R.-D. Q. 1. In your cross-examination, in answer to question 56, you testified that you could not detail the salient points of the subject-matters involved in this interference. Can you state in general terms what kind of acid liquor Mr. Smith proposed to use in his new digester? State as near as you can what you understood from Sidney Smith at the time he first explained his said invention to you.

A. I understood that the liquor that he was going to use in his digesters was the same that is now used in dissolving the wood pulp that they put in the digesters.

These answers do not bring out the essential points of the improvement, and aside from these questions and answers Barnum's testimony does not materially assist Smith.

John M. Crocker is another witness relied upon by Smith in this regard. The following are question 4, cross-interrogatory 23, cross-interrogatory 36, and cross-interrogatory 40 put to this witness, with their answers:

Q. 4 Did Sidney Smith ever disclose or explain to you a design of a wood-pulp digester with a method of lining the interior surface thereof, and, if so, please state when, where, and under what circumstances he made such disclosure or explanation, and, as near as you can remember, the language used in describing the same?

A. He described a wood-pulp digester to me in May, 1887, when he was being treated by me at my office in Cambridge. As I remember, his process differed from the ordinary process by applying the heat to the outside of the shell of the digester, by which he claimed that a deposit of mono-sulphite of calcium was deposited as an insoluble coating upon the interior of the shell. He told me that the usual process was by heating the liquor on the inside, and that his method differed from the ordinary method by applying the heat externally.

Cross-Int. 23. Have you read any papers or had read to you any papers relating to any of the matters you have testified about?

A. I have.

Cross-Int. 36 Now, what did he have you read that for?

A. To refresh my mind in relation to this process.

Cross-Int. 40. Your recollection was a little dim about the first description at this time, wasn't it, and wasn't as fresh as after you had read the paper?

A. Well, no; it wasn't as fresh as after I read the paper.

The specific mention of "mono-sulphite of calcium" so early in the history of the improvement (answer to question 4) strikes one with surprise, and the fact that the witness is a physician possessing, presumably, a knowledge of chemistry, coupled with the fact that he had just read a paper describing the improvement in controversy, creates the suspicion that he unconsciously imports his later knowledge into the early disclosure.

In addition to these witnesses Smith produces certain sketches and descriptions of the digesters made by him in 1887, of which Smith Exhibit No. 3, dated October 31, 1887, is a favorable type. It shows heat exteriorly applied to the digesting-vessel, and within a circle denoting the digester are the words "No lead nor tile lining;" but these sketches do not bring out the essential points of the improvement in controversy with certainty. To say that the digester was to have no lead or tile lining was not to say what the lining was to be.

The foregoing is a resumé of the important part of the testimony for Smith as regards conception and disclosure prior to the filing of Brungger's application of November 1, 1888. On the other hand, there are certain facts which militate against a finding that Smith possessed an effective conception of the improvement in controversy until after the date last mentioned. Smith puts his conception as the result of thought and mental processes; but such thinking was opposed to past experience, and Brungger's improvement was as a matter of fact an accidental discovery. Again, Smith had a son Clarence, a chemist educated at Harvard College and the Boston School of Technology, who went abroad in September, 1888, at the behest of other parties for the express purpose of investigating digesters in Europe. Naturally this son would have been the person of all others to whom Smith would have communicated the improvement; but he does not appear as a witness. Again, Smith was a party to the following contract:

This agreement made this day between Henry L. Carter, of the city of Philadelphia, State of Pennsylvania, and Sydney Smith, Frederick W. Smith, and Clarence W. Smith, all of the city of Boston, State of Massachusetts, parties of the first part, and the Susquehanna Water Power and Paper Company, situated in Harford county, in the State of Maryland, and the York Haven Paper Company, situated in York county, State of Pennsylvania, parties of the second part, witnesseth:

That the said parties of the first part, having made a certain agreement between themselves, which they do by these presents ratify and confirm, to wit: that such knowledge as they now possess or may hereafter acquire which is or may be valuable in the manufacture of pulp or paper, either or both, by the "sulphite process," so called, or by any kindred process or processes by whatever name designated; and further that all mechanical devices valuable either as secrets or inventions, either patented or otherwise, which are or can be applied to the business aforesaid, shall be considered their common property, and are to be used and owned for their sole benefit and profit, share and share alike, except as hereinafter otherwise provided.

For and in consideration of the sum of one dollar and other valuable considerations paid by the parties of the second part to the parties of the first part, it is further agreed that the parties of the second part shall have the right and privilege to avail themselves, respectively, at any future time of all the knowledge possessed by the parties of the first part in reference to the manufacture of pulp or paper by the sulphite process or any kindred process or processes, and shall have the privilege of using any mechanical devices, either patented or otherwise, which are or can be applied to the business aforesaid and which may be known to or possessed by the parties of the first part; and they, the parties of the second part, may make additions to their respective plants by erecting any building or buildings on the premises now owned by them at York Haven, and near Conowingo, for the purpose of utilizing and putting into practice the devices, secrets, knowledge, appliances, inventions, etc., possessed by the parties of the first part as previously herein mentioned. It is further agreed that the parties of the first part or any person or persons whom they may designate shall at all times have the privilege of entering the premises of the parties of the second part without any restraint to inspect their plants and works, the object of this being that the said parties of the first part may avail themselves of any and all useful information for their own advantage and profit; and the parties of the second part do hereby further agree to reveal and disclose to the parties of the first part all secrets, devices, knowledge, appliances, or inventions relative to the sulphite or any other kindred process of which they may be possessed, in like manner as is provided above for similar revelations and disclosures by the party of the first part to the party of the second part.

It is further agreed that the party of the second part shall forfeit their rights and privileges as above specified should they neglect commencing operations looking to the developing of the sulphite or other kindred process or processes within eighteen months from this date.

This contract calls, practically, for a communication by Smith to the other parties to the contract of this improvement in controversy; but there does not appear to have been any such communication.

Still again, Smith is an experienced inventor and patentee, and made at least two other applications for patents between April 1, 1887, and the date of the filing of his application in controversy, with no adequate explanation of why he did not meanwhile apply for a patent for this improvement.

Still again, Smith, as a maker of boiler-settings, was in constant contact all this time with manufacturers of paper-pulp from wood. He knew the great value of the improvement. The market stood ready to his hand, and he knew it, but made no sign.

Yet again, at the time that Smith filed the application for patent in controversy he had never tried this improvement in actual practice; but in that application he specified details of procedure which could only be known by actual use and trial.

The son Clarence went abroad in September, 1888, under the following contract:

This agreement, made this day between the Susquehanna Water Power and Paper Company, of Harford county, State of Maryland, and the York Haven Paper Company, of York county, State of Pennsylvania, parties of the first part, and Clarence W. Smith, of the city of Boston, State of Massachusetts, party of the second part, witnesseth:

That the parties of the first part, desiring the services of the party of the second part, hereby agree to employ him for one year from this date at a salary of fifteen hundred dollars per annum; to send him to Europe, defraying all the expenses of the trip, furnish him with suitable apartments and his board at York Haven, Pennsylvania; equip a suitable room or rooms with chemical and mechanical apparatus suitable for the investigation of any and all processes for the manufacture of pulp or paper, or both; but in no case at any time shall the party of the second part be required to remain at York Haven or elsewhere to the prejudice of his health, and no change of his location for such cause shall change his rights or emoluments as made and provided for in this instrument.

The party of the second part agrees to use his best efforts and devote his energies in serving the parties of the first part and their interest with the view of developing the sulphite or any kindred process or processes, so that they may adopt and make full use of his researches, discoveries, inventions, or patents, as is specified in a certain written agreement bearing even date with this, between the aforesaid companies and H. L. Carter, Sydney Smith, Frederick W. Smith, and Clarence W. Smith. In view of the moderate salary above mentioned the party of the second part will not be required by the parties of the first part to devote all his time to them; and, further, they agree hereby to defray all his expenses while serving their interests.

While abroad with Henry L. Carter, Clarence W. Smith saw Brungger's apparatus and process in regular and daily use. He returned to this country in December, 1888, and meanwhile had written letters to his father, which are not in evidence.

The present trier's finding upon the point now under consideration is that Smith had and disclosed to others before Brungger made the application of November 1, 1888, the idea of giving digesters a continuous coat to effectively resist the acid liquor used therein, and the means to be used which he had in mind and which he disclosed *may* have been those comprehended by the terms of the interference issue; but that identity is not proved with satisfactory certainty. Even receiving and giving full effect to the testimony rejected as evoked by leading questions, known facts militate so strongly against the possession of an effective conception of the improvement by Smith at the time in question as to warrant a well-grounded suspicion that the witnesses unconsciously supply the link to connect the original general idea with the later specific accomplishment. And when Smith received from his son Clarence, as he unquestionably must have done, the details of Brungger's digester, they doubtless seemed to him simply the practical carrying out of his own ideas, of which he had the right to avail himself. But if it be conceded that Smith had a conception of the improvement in controversy in April, 1887, his delay to either actually or constructively reduce to practice until he applied for a patent, March 7, 1889, was not, under the circumstances, the exercise of reasonable diligence.

The decision of the Examiners-in-Chief is affirmed.

BRUNGGER *v.* SMITH.

Decided February 8, 1893.

1. TESTIMONY—WEIGHT AND CONSTRUCTION OF.

Testimony must be construed with reference to "the ordinary laws that govern human conduct." (Quoting and discussing *Atlantic Works* v. *Brady*, 107 U. S., 192, and *The Telephone Cases*, 126 U. S., 1.)

2. ABANDONMENT—TWO YEARS' LIMITATION REFERS TO COMPLETED INVENTION.

The two years within which the law requires an inventor to act if he would save his invention from abandonment relate to a *completed* invention and have no reference to the conception and maturing of the invention.

MOTION for rehearing.

ART OF DIGESTING PAPER-PULP.

Applications of Hermann Brungger filed April 26, 1890, Nos. 349,622 and 349,623; application of Sidney Smith filed March 7, 1889.

Messrs. Philipp, Munson & Phelps for Brungger.
Mr. R. A. Sprague for Smith.

SIMONDS, *Commissioner:*

This is a motion for a rehearing of the above-entitled case, wherein decision was rendered September 13, 1892.

It was not questioned that Brungger, who was a foreigner, made a sufficient disclosure of the improvement in controversy in this country in November, 1888. Aside from the question of abandonment, hereinafter considered, the important question is whether Smith sufficiently proves a knowledge by him of the invention in controversy previous to the disclosure which Brungger made in November, 1888. As was said in the former decision—

there are certain facts which militate against a finding that Smith possessed an effective conception of the improvement in controversy until after the date last mentioned.

These are:

First. Smith puts his conception as the result of thought and mental processes; but such thinking was opposed to past experience, and Brungger's improvement was, as a matter of fact, an accidental discovery.

All past experience had taught that bisulphite liquor would immediately attack the iron shell of the digester-vessel upon coming in contact therewith, and there was nothing in this experience to lead a man to suspect that he could make that very bisulphite liquor furnish a good and effective lining for the digester-vessel. Smith says that the thing was taught by the common deposition of lime in a tea-kettle. Not at all. Water—such as housewives use in tea-kettles - is not the same thing as the bisulphite liquor.

Second. Smith had a son Clarence, a chemist, educated at Harvard College and the Boston School of Technology, who went abroad in September, 1888, at the behest of other parties for the express purpose of investigating digesters in Europe. Naturally this son would have been the person of all others to whom Smith would have communicated the improvement; but he does not appear as a witness.

Moreover, it was Smith's duty to have communicated the improvement in controversy to his son, if he had himself possessed it, under the contract, a part of which is soon to be quoted.

Third. Smith was a party to a contract, a part of which is as follows:

"This agreement made this day between Henry L. Carter of the city of Philadelphia, State of Pennsylvania, and Sydney Smith, Frederick W. Smith, and Clarence W. Smith, all of the city of Boston, State of Massachusetts, parties of the first part, and the Susquehanna Water Power and Paper Company, situated in Harford county, in the State of Maryland, and the York Haven Paper Company, situated in York county, State of Pennsylvania, parties of the second part, witnesseth:

"That the said parties of the first part, having made a certain agreement between themselves, which they do by these presents ratify and confirm, to wit: that such knowledge as they now possess or may hereafter acquire which is or may be valuable in the manufacture of pulp or paper, either or both, by the "sulphite process," so called, or by any kindred process or processes by whatever name designated; and further that all mechanical devices valuable either as secrets or inventions, either patented or otherwise, which are or can be applied to the business aforesaid, shall be considered their common property, and are to be used and owned for their sole benefit and profit, share and share alike, except as is hereinafter otherwise provided."

Under that contract it was Smith's duty to communicate the improvement in controversy, if he had possessed it, to Henry L. Carter and the others named; but he did not, and he naturally would have done so, because at the time the contract was executed there was evidently a friendly relation between all the parties; but Smith did not communicate it. Carter says he did not. Smith says he did. But Carter, when he saw Brungger's invention abroad, quickly contracted to pay $5,000 for a license for a ten-ton plant—a thing he would never in reason have done if under the contract quoted he was personally entitled to own a fourth part of the whole thing.

Fourth. Smith is an experienced inventor and patentee, and made at least two other applications for patents between April 1, 1887, and the date of the filing of his application in controversy, with no adequate explanation of why he did not meanwhile apply for a patent for this improvement.

Fifth. Smith, as a maker of bolier-settings, was in constant contact all this time with manufacturers of paper-pulp from wood He knew the great value of the improvement. The market stood ready to his hand, and he knew it, but made no sign.

It is urged that the expense of building a digesting apparatus to practically use this improvement was too great for Smith to undertake. It is easily to be seen that for an expense not exceeding one hundred dollars a practical experiment could have been tried which would have demonstrated whether or not the improvement would work.

Sixth. At the time that Smith filed the application for patent in controversy he had never tried this improvement in actual practice; but in that application he specified details of procedure which could only be known by actual use and trial.

This is a fact that shows that Smith appropriated as a part of his application details which had been worked out by somebody else.

Smith points to the testimony of Edward R. Tinker, William J. Covill, Edward Howard, George S. Barnum, and John M. Crocker, and incidentally to that of some other witnesses, and claims that their testimony, taken with that of Smith himself, sufficiently proves his case. A considerable part of the testimony of these witnesses was duly objected to when taken as leading. The objection was repeated at the first hearing of the case. As to the more important parts of that testimony, the objection was sustained, and no good reason is seen for varying the decision formerly made upon that point. But suppose the entirety of the testimony offered in Smith's behalf be received without diminution. It is still insufficient to overcome the case which Smith's actions make against him.

Of a contention similar to that now made by Smith the Supreme Court once said:

> His whole conduct for months, as well as his total silence on the subject of any prior invention made by himself, in all his intercourse with his associates in the contract, with the Government officers in charge, and with the superintendents and owners of the foundry where the "Wiggins Ferry" was fitted up, is the strongest possible proof that no such invention as he claims had been projected by him. The witnesses who speak of his conversations and sketches in December, 1865, and early in 1866, as communicated to them with the utmost freedom, with no apparent object so far as they were concerned, must either be mistaken as to the time or as to the devices described. Interested as he is in the result of the suit, his own testimony cannot be allowed to prevail against a course of conduct so utterly at variance with it. It may be true; but we cannot give it effect against what he himself did, and did not do, without disregarding the ordinary laws that govern human conduct. (*Atlantic Works* v. *Brady*, 23 O. G., 1330; 107 U. S., 192.)

In a later celebrated case where a hundred witnesses (more or less) were produced to show that Daniel Drawbaugh had done a certain thing, the Supreme Court said:

We have not overlooked the depositions that have been taken in such large numbers to show that Drawbaugh was successful with "F," "B," "C," "I," and "A" before "D" and "E" were made. They have been studied with care, and if they contained all the testimony in the case it would be more difficult to reach the conclusion that Drawbaugh's claim was not sustained; but in our opinion their effect has been completely overcome by the conduct of Drawbaugh, about which there is no dispute, from the time of his visit to the Centennial until he was put forward by the promotors of the People's Company, nearly four years afterward, to contest the claims of Bell. He was silent so far as the general public were concerned, when if he had really done what these witnesses now think he did he would most certainly have spoken. There is hardly a single act of his connected with his present claim, from the time he heard, before going to Philadelphia, that some one else had invented a telephone which was on exhibition at the Centennial, that is not entirely inconsistent with the idea even then of a complete discovery or invention by himself which could be put to any practical use.

* * * * * * *

We do not doubt that Drawbaugh may have conceived the idea that speech could be transmitted to a distance by means of electricity and that he was experimenting upon that subject; but to hold that he had discovered the art of doing it before Bell did would be to construe testimony without regard to "the ordinary laws that govern human conduct." (*Atlantic Works* v. *Brady*, 24 O. G., 1330; 107 U. S., 192, 203.) Without pursuing the subject further we decide that the Drawbaugh defense has not been made out. (*Telephone Cases*, 43 O. G., 377,; 126 U. S., 1.)

Since the time when the memory of man runneth not to the contrary the world has agreed that "actions speak louder than words." In these two cases just cited the greatest Court in the world has agreed to the same proposition. Its soundness is not open to dispute. It is a proposition applicable to this case.

It is not a question as to whether Smith or his witnesses have told willful falsehoods. Their truthful intent is not doubted. It is a question simply of the weight of evidence, remembering always the capacity of the human being for error and mistakes. As was said in substance in the former decision, it is found that Smith did have the idea in his mind of lining digesting-vessels with a continuous coating in the general nature of an enamel, and that he disclosed that idea to other persons; but his idea was of a result which he desired and not of means which he had invented. When his son Clarence came back from Europe and told him of Brungger's invention, Smith, so far as his own mental processes were concerned, recognized in that simply his own invention, and to that extent he was self-deceived. His witnesses are unable to discriminate between Smith's early communication to them of a desired result and his later communication to them of the means by which that result was attained.

At the argument on the motion for rehearing Smith contended with earnestness that certain experiments he was permitted to make at Wilmington after the return of the parties from Europe showed that all the parties were acquiescing in Smith's claim to the improvement in controversy. Not at all. The testimony shows that the Wilmington experiment was for the purpose of determining whether Smith's plan of using fire on the exterior of a digester-vessel was superior in practice to Brungger's method of using steam in that relation, and that particular question is not involved in this controversy.

As to abandonment, Smith earnestly contends that the law positively allowed him two full years from the conception of the invention wherein to mature it. It is well settled that the two years in question pertain to a *completed* invention.

The motion for rehearing is denied.

EX PARTE RILEY.

Decided February 20, 1893.

REHEARING.

Motion for rehearing in matter of protests of Riley v. Barnard denied in view of certain evidence herein quoted.

MOTION for rehearing in the matter of the protest of Prof. C. V. Riley against the issuance of patents to William S. Barnard for an improvement in emulsions and method of making the same and in fluid distributers.

SIMONDS, *Commissioner:*

This is a motion for a rehearing in the matter of the protest of Prof. C. V. Riley against the issuance of two patents to William S. Barnard, (now deceased and represented by Mrs. Mary N. Barnard, his widow and administratrix,) one for emulsion and method of making the same and the other for a fluid-distributer, the former decisions wherein were rendered June 2, 1892, (59 O. G., 1919, and 59 O. G., 1921.) The protests in both cases are here considered together.

BARNARD'S RESERVATION OF HIS INVENTIONS.

The following letter from Riley to Barnard is produced, omitting its postscript:

DEPARTMENT OF THE INTERIOR,
OFFICE OF THE U. S. ENTOMOLOGICAL COMMISSION,
Washington, D. C., May 25, 1881.

Dear Prof. Barnard;

I have your favor of the 23d inst. There will be no difficulty, in my judgment, in getting a patent in your own name for any device you perfect and choose to patent, notwithstanding you do so in pursuance of work for the commission. The question of pay by the Government may complicate the matter, though this may be arranged. I want you to have all credit for improvement and should wish you to receive whatever personal benefit you can therefor.

In regard to matters here, I feel quite confident now that Dr. Loring has been appointed. Comstock cannot remain, however much he may try to. However, he will endeavor to get some other position here rather than go back to Ithaca under present unfavorable circumstances. I shall without much doubt, therefore, be able to give you employment after July 1st, and will be able before very long to give yon definite decision.

Yours, sincerely,

C. V. RILEY.

CONCERNING FLUID-DISTRIBUTER.

The following is presented as having appeared in the *New York Tribune* of Thursday, April 20, 1882, Riley now denying that he gave the credit of inventing the fluid-distributer to Barnard, as stated therein:

THE ACADEMY OF SCIENCES.

The Enemy of the Cotton-Grower — Paper Read by Professor Riley on the Cotton-Worm and Methods of Destroying It — Other Papers Read at the Second Day's Meeting.

[By Telegram to the Tribune.]

WASHINGTON, D C., *April* 19.—Among the papers read before the National Academy of Sciences to-day was one by Prof. C. V. Riley, Entomologist of the Department of Agriculture, on some discussions that enhance the value of cotton and orange crops. Professor Riley said that in a paper read before the Academy in 1879 it had been shown by the most careful computation that the annual loss from the cotton-worm averaged $15,000,000 from the close of the war to that time, and consequently any effort to protect the plant from its ravages was well worthy of consideration from a natural point of view.

"At that time," he said, "the chief and only satisfactory remedy against the depredations of the insect was an application of some form of arsenic and particularly of paris-green thrown broadcast over them by more or less imperfect dusting or sprinkling contrivances. * * * As a cheaper substitute for paris-green, arsenical refuse from the manufacture of any aniline dyes, which had at that time been not fully tested, has proved on the whole very satisfactory and reduces the first cost of material from an average of fifty cents to an average of five cents per acre, even used according to the old methods. I have also discovered that pyretrum, perfectly harmless to the higher animals and plants, may be more or less successfully used for this purpose, simply mixed in water at the ratio of about one pound to about one hundred gallons of water. * * * The greatest advance, however, has been made in improved appliances. I could not begin to enumerate the various contrivances, whether for powdering or sprawing, whether by horse-power or by hand, that have been perfected and are now being illustrated and described in a final report already ordered by Congress. By the adoption of an entirely new atomizing principle, conceived by one of my assistants, Prof. W. S. Barnard—viz., the rotating or cyclone principle—we are able to throw a spray of any extent desired from the ground upward onto the under surface of the leaves by a minimum of power made automatic, if need be. With this cyclone-nozzle attached in multiple to a wagon and worked with a small force-pump one barrel of poisoned liquid will go thrice as far as by the old methods and will suffice for four to seven acres, according to the size of the cotton and the height from the ground the spray must be forced. In short, at a first cost for material of one cent per acre two men with a team and a wagon can destroy all the worms on from eight to sixteen acres rows of cotton as fast as the team can walk."

CONCERNING EMULSION.

In the fourth report of the United States Entomological Commission on the cotton-worm, together with a chapter on the boll-worm, by Charles V. Riley, Ph. D., issued from the Government Printing Office in 1885, the following appears on page 156:

The above-mentioned methods of applying kerosene are of little or no value in our warfare against the cotton-worm; but an important step toward a practical solution of this difficult question was made in the summer of 1880. Professor Barnard while in the field at Selma, Ala., suggested the use of milk as a medium to facilitate the mixing of kerosene and water. First it was found that the oil mixes much more readily with the milk than with water. If a small quantity of the oil is stirred up in a much larger quantity of milk, the oil particles will remain much longer suspended in the milk than in water, thus permitting a practical application of the mixture. It was further found that even a large proportion of the kerosene could be mixed with milk by violently shaking up the closed vessel containing the mixture. Thus one part of kerosene to two parts of milk would unite after several minutes' shaking to form a kind of emulsion, in which the two ingredients did not separate until after many hours, and which then could always be restored by shaking to its apparently homogeneous condition.

There are many affidavits submitted *pro* and *con* concerning other matters; but it is sufficient for the present purpose to decide the motion for the rehearing upon the evidence hereinbefore quoted.

The rehearing is denied.

SLATTERY v. SHALLENBERGER.

Decided March 1, 1893.

REDUCTION TO PRACTICE—REASONABLE DILIGENCE.

An interval of a year and a half after conception of an invention, during which the inventor practically gave up work on his improvement, *Held* to negative reasonable diligence.

APPEAL from Examiners-in-Chief.

ELECTRIC METER.

Application of Marmaduke M. M. Slattery filed February 4, 1889, No. 298,605, (Emma L. Slattery, administratrix;) patent granted Oliver B Shallenberger August 14, 1888, No. 388,003.

Mr. R. S. Taylor for Slattery.

Messrs. Pope, Edgecomb & Terry and *Mr. H. S. MacKaye* for Shallenberger.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority of invention to Shallenberger upon the following interference issue:

* * * * * * * *

Shallenberger conceived the invention in controversy in the latter part of April, 1888. He reduced it to practice in May, 1888. He applied for his patent June 6, 1888, and began its commercial development in July, 1888.

The state of facts is one which makes it proper to apply to Slattery with full force the settled doctrine of the law that in order to overcome a patent granted one who claims to be a prior inventor must prove his case beyond reasonable doubt. Slattery claims a con-

ception of the improvement in controversy in September, 1886, and a reduction to practice soon afterward. That he did not reduce to practice at this time is evident from the difficulty he had in making a practical device when, in 1888, he undertook to do so. There is a fair though perhaps not a conclusive degree of evidence offered in Slattery's behalf that he did have a conception of the improvement in controversy in 1886, and for the purposes of the present decision let that be assumed. After what he did in the fall of 1886 he did not again take up the matter practically until the summer of 1888, and meanwhile his need of such a device was rather urgent at times. But did he use diligence meanwhile? Diligence is—

constant and earnest effort to accomplish what is undertaken; constancy in the performance of duty or the conduct of business; persistent exertion of body or mind; industry; assiduity.—*Century Dictionary.*

The evidence on this point does not establish abandonment on the part of Slattery; but it does tend to show that for a year and a half he gave up efforts to practically embody the improvement, because he found it easier, pleasanter, and more profitable to do something else. Reasonable diligence is not proved with satisfactory conclusiveness.

The decision of the Examiners-in-Chief is affirmed

WHEATON *v.* KENDALL.

Decided March 1, 1893.

DISCLOSURE TO ATTORNEY—SUGGESTION BY EMPLOYÉ.

The disclosure by an inventor to his attorney entitles the inventor to the benefit of the rule laid down in *Agawam Co.* v. *Jordan* (7 Wallace, 583) in a subsequent interference between the parties, the issue of which is the disclosed invention.

APPEAL from the Examiners-in-Chief.

CAN-HEADING MACHINE.

Application of M. A. Wheaton filed July 28, 1891, No. 400,990; Patent No. 450,624, granted April 21, 1891, to C. B. Kendall.

Messrs. Dewey & Co. and *Mr. T. Walter Fowler* for Wheaton.

Mr. N. A. Acker and *Mr. R. W. Bishop* for Kendall.

SIMONDS, *Commissioner:*

This is an appeal from the decision of the Examiners-in-Chief awarding priority to Kendall upon the following interference issue:

* * * * * * *

Wheaton is an attorney-at-law. Kendall was a stockholder in and manager of the Automatic Can Company, of San Francisco. That company operated under the patents of Kendall and Angell, and was sued for alleged infringement of the can-making patents of another party. It was in this relation that Kendall and Wheaton first met. Kendall was in consultation with Wheaton about this infringement, real or alleged, from time to time. Wheaton produced his embodiment of the improvement in controversy while this state of facts continued. The relation of Wheaton and Kendall meanwhile was virtually that of attorney and client.

Before Kendall and Wheaton came together Kendall had disclosed to others and illustrated by movements of his hands and fingers the central idea of the improvement in controversy. Kendall's idea at this time was very crude and elementary; but it was enough of an idea when disclosed to the inventive mind of another to enable that other to perfect and embody it. Wheaton had that inventive mind. Kendall says that he made the disclosure to Wheaton. Wheaton says that he did not. It is found as a fact that Kendall was possessed of this crude idea at the time. The relation between Kendall and Wheaton and the questions they discussed were such as to make it probable that Kendall did make the disclosure. Kendall has a patent, while Wheaton is an applicant for patent. It is therefore found that Kendall did make the disclosure, although it is perfectly evident that Wheaton does not think that he is indebted to Kendall even for the first crude suggestion. Wheaton made many features of invention of his own in perfecting and adapting and developing Kendall's crude idea. It is a case which might well be settled upon the basis of a joint invention. But Wheaton did not reject Kendall's crude idea; he built upon it.

In view of the relation of attorney and client existing between Kendall and Wheaton, the former is equitably entitled to the benefit of the following principle laid down by the Supreme Court:

Where a person has discovered an improved principle in a machine, manufacture, or composition of matter, and employs other persons to assist him in carrying out that principle, and they, in the course of experiments arising from that employment, make valuable discoveries ancillary to the plan and preconceived design of the employer, such suggested improvements are in general to be regarded as the property of the party who discovered the original improved principle, and may be embodied in his patent as a part of his invention. (*Agawam Co.* v. *Jordan*, 7 Wallace, 583.)

The decision of the Board of Examiners-in-Chief is affirmed.

EX PARTE DAVIS.

Decided October 7, 1892.

PRACTICE—AFFIDAVIT REQUIRED BY RULE 94, PARAGRAPH 2.

The affidavit required by paragraph 2 of Rule 94 must identify the invention in controversy and state that affiant made it before the patentee's application was filed; but it does not call for a statement of facts showing date of invention. The right to call for such a showing is discretionary with the Office. [Citing Ries *v.* Thomson, 57 O. G., 1598.]

ON petition.

SHAFT-TUG.

Application of William H. Davis filed March 10, 1892, No. 424,421.

Messrs Hopkins & Atkins for the applicant.

FROTHINGHAM, *Assistant Commissioner:*

This is a petition taken from the action of the Examiner in requiring applicant to furnish a statement of facts showing the date of his invention, for the purpose of interference, under section 2 of Rule 94.

Upon examination it appears that the affidavit sets forth in substance that applicant invented the subject-matter disclosed in an accompanying sketch on or about the 6th day of January, 1890; that on or about the 1st day of August, 1890, he disclosed such invention to others, and that the said sketch represents his invention as originally made and disclosed to others. A sketch and a brief description thereof accompany the affidavit. The Examiner holds that the affidavit is insufficient in view of certain decisions cited in his answer to the present petition.

It appears that the patent with which an interference is sought was granted April 21, 1891, on an application filed February 12, 1891.

In the case of *Ries* v. *Thomson* (57 O. G., 1598) the present Commissioner stated, while commenting upon paragraph 2 of Rule 94, as follows:

This paragraph 2 as it now reads does not call for the showing of facts that is called for by Rule 75. This paragraph 2 means that the affidavit shall identify the invention in controversy and state that affiant made it before the patentee's application was filed, reserving to the Office always the right to call for a showing of facts at its discretion. This affidavit is a matter wholly between the Office and the applicant, and is not open to examination or question by a third party.

Upon examination of the present case there do not appear to be any extraordinary circumstances such as would warrant the Office in calling for a statement of facts showing the date of the invention. It follows, therefore, under the doctrine as announced in the case above cited, that the affidavit is sufficient for the purposes of interference under section 2 of Rule 94.

The decision of the Examiner is overruled.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

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Notice.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 10, 1893.

The attention of attorneys and inventors filing applications for patents is called to the following paragraphs from Rule 51, (4,) Rules of Practice:

Drawings should be made with the fewest lines possible consistent with clearness. * * * Shading (except on sectional views) should be used *only* on concave and convex surfaces, where it should be used sparingly, and may even there be dispensed with if the drawing is otherwise well executed.

The prohibition is not absolute; but drawings will be rejected which, in the opinion of the Office, have such surface shading as makes them objectionable for reproduction in the GAZETTE by photolithography.

W. E. SIMONDS,
Commissioner.

Construction of Statutes Relating to the Registration of "Prints" and "Labels."—Amended.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., February 9, 1893.

In the publication of this Office entitled "United States Statutes Concerning the Protection and Registration of Trade-Marks and Labels, with the Rules of the Patent Office Relating Thereto, Edition of January 4, 1892," the following matter on page 17 is hereby canceled:

The words "prints" and "labels," as used in this act, so far as it relates to registration in the Patent Office, are construed as synonymous, and are defined as any device, picture, word or words, figure, or figures (not a trade-mark) impressed or stamped directly upon the articles of manufacture, or upon a slip or piece of paper or other material to be attached in any manner to manufactured articles, or to bottles, boxes, and packages containing them, to indicate the contents of the package, the name of the manufacturer, or the place of manufacture, the quality of goods, directions for use, etc.

By the words "articles of manufacture" (to which such print or label is applicable by this act) is meant all vendible commodities produced by hand, machinery, or art.

But no such print or label can be registered unless it properly belongs to an article of commerce, and be as above defined; nor can the same be registered as such print or label when it amounts to a lawful trade-mark, or when its use in connection with the article to which it is applied is arbitrary or fanciful.

And the following is substituted therefor:

These sections of statute (referring to sections 3, 4, and 5 of the act of Congress relating to patents, trade-marks, and copyrights, approved June 18, 1874, 18 Statutes at Large, p. 78) are construed as authorizing the registry of "prints" and "labels." A label is a device or representation borne by an article of manufacture or vendible commodity. A print is a device or representation not borne by an article of manufacture or vendible commodity, but in some fashion pertaining thereto—such, for instance, as a pictorial advertisement thereof. A label cannot be registered if it bear a device capable of sequestration as a trade-mark until after such device is registered as a trade-mark. Both labels and prints in order to be entitled to registry, must be intellectual productions in the degree required by the copyright law.

The note on page 19 is canceled.

W. E. SIMONDS,
Commissioner.

World's Columbian Exposition.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of March 14, 1893.

Patents	391	No. 493,236 to No. 493,626, inclusive.
Designs	22	No. 22,278 to No. 22,299, inclusive.
Trade-Marks	38	No. 22,627 to No. 22,664, inclusive.
Labels	None.	
Reissue	1	No. 11,313.
Total issue	452	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	2	....	Nevada	....	....
Arizona Territory	....	....	New Hampshire	....	....
Arkansas	3	....	New Jersey	17	1
California	14	1	New York	62	9
Colorado	5	....	North Carolina	1	....
Connecticut	14	2	North Dakota	....	....
Delaware	3	....	Ohio	25	3
District of Columbia	4	....	Oklahoma Territ'y	....	....
Florida	....	....	Oregon	3	....
Georgia	1	....	Pennsylvania	32	4
Idaho	....	....	Rhode Island	1	1
Illinois	39	4	South Carolina	....	....
Indian Territory	1	....	South Dakota	....	....
Indiana	14	2	Tennessee	3	....
Iowa	15	2	Texas	5	....
Kansas	4	....	Utah Territory	1	....
Kentucky	2	....	Vermont	5	....
Louisiana	2	....	Virginia	3	....
Maine	2	1	Washington	2	....
Maryland	4	2	West Virginia	2	1
Massachusetts	30	1	Wisconsin	12	2
Michigan	13	....	Wyoming	1	....
Minnesota	7	....	U. S. Army	....	....
Mississippi	1	....	U. S. Navy	....	....
Missouri	14	1	Total to citizens of the United States	380	37
Montana	1	....			
Nebraska	9	....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	....	....	Mexico	1	....
Austria-Hungary	1	....	Netherlands	....	....
Belgium	....	....	Newfoundland	....	....
Bermuda	....	....	New South Wales	....	....
Brazil	....	....	New Zealand	....	....
Canada	3	1	Norway	....	....
Ceylon	....	....	Roumania	....	....
Chile, Republic of	....	....	Russia	....	....
Cuba	....	....	Scotland	....	....
Denmark	....	....	South Australia	....	....
Ecuador	....	....	Spain	....	....
England	9	....	Sweden	2	....
France	4	....	Switzerland	4	....
Germany	9	....	Victoria	....	....
India	....	....	Total to citizens of foreign countries	33	1
Italy	....	....			
Japan	....	....			

APPLICATIONS UNDER EXAMINATION.

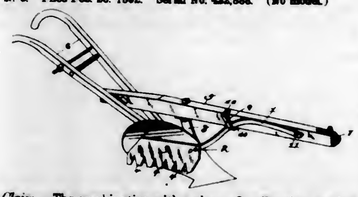
Condition at Close of Business March 7, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Feb. 11	Feb. 25	79
	Between one and two months in arrears.			
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Jan. 9	Mar. 3	143
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Jan. 9	Feb. 27	235
8	Furniture, Toilet, Umbrellas and Canes, etc.	Jan. 12	Feb. 24	249
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Jan. 7	Feb. 20	251
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Jan. 7	Feb. 3	351
7	Harvesters, Games and Toys	Jan. 8	Feb. 1	563
13	Metal-Working, Arms and Projectiles, etc.	Jan. 10	Jan. 31	205
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Jan. 16	Jan. 21	307
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Jan. 9	Jan. 21	286
10	Carriages and Wagons and Railway-Cars.	Jan. 7	Jan. 21	401
4	Civil Engineering, etc.	Jan. 9	Jan. 9	350
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 7	Jan. 5	403
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Jan. 9	Jan. 3	298
	Between two and three months in arrears.			
2	Farm Stock, Products, etc	Jan. 3	Feb. 24	239
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone-Working, etc.	Dec. 29	Feb. 7	222
12	Mechanical Engineering, Store-Service, etc.	Jan. 5	Feb. 1	228
21	Textiles, etc.	Jan. 3	Jan. 31	195
24	Sewing-Machines and Apparel	Jan. 3	Jan. 25	132
18	Steam-Engineering, etc.	Jan. 5	Jan. 23	233
22	Fire-Arms, Navigation, Signals, etc.	Dec. 13	Jan. 23	260
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc.	Dec. 27	Jan. 9	251
19	Stoves and Furnaces	Dec. 14	Dec. 31	523
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Jan. 4	Dec. 29	381
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 15	Dec. 7	379
	Between three and four months in arrears.			
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Nov. 8	Feb. 6	364
23	Instruments of Precision, Acoustics, Optics, etc.	Dec. 1	Jan. 24	332
17	Paper-Manufactures and Printing.	Nov. 26	Jan. 14	305
1	Tillage and Fences	Nov. 14	Jan. 4	297
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Nov. 18	Jan. 3	434
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Sept. 16	Jan. 28	397
	Between eight and nine months in arrears.			
26	Electricity, Generation, Distribution, etc.	July 2	Nov. 4	584
	Total number of applications awaiting action			9,877
	Under one month in arrears.			
	Designs	Feb. 23	Feb. 25	104
	Trade-Marks	Feb. 27	Feb. 20	64

PATENTS

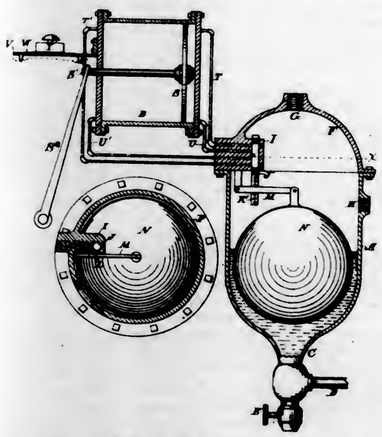
GRANTED MARCH 14, 1893.

493,236. FENDER FOR PLOWS. MARSHALL I. ADAMS, Elroy, N. C. Filed Feb. 26, 1892. Serial No. 422,883. (No model.)



Claim.—The combination with a plow, of a vibrating arm loosely pivoted at its front end to the plow-beam, means to limit the vertical and prevent lateral vibration of said arm, and an apron depending from the rear end of the arm, between the plow-shovel and the hill, provided with a rearwardly and downwardly beveled front edge and having at its lower edge downwardly tapered teeth, terminating abruptly at their lower ends to ride upon the surface of the soil, such teeth being separated by intervening, upwardly-tapered notches or openings which terminate at or near the center of the height of the apron and through which the earth, being pulverized by the teeth, is sifted to and upon the hill, substantially as specified.

493,237. AUTOMATIC BOILER-FEEDER. FRANK M. ASHLEY, Brooklyn, N. Y. Filed Jan. 13, 1891. Serial No. 377,614. (No model.)



Claim.—1. In a boiler feeder, the combination of a water column having a portion of its casing thickened or enlarged and projecting into the interior of the water column, in which projection are steam passages opening at one end in the inner surface of the casing and at the other end in the outer surface of the casing, and a valve way opening at both ends within the column and intersecting the steam passages, with a grooved cylindrical valve sliding in the valve-way, a float, and operative connections between the valve and the float, substantially as described.

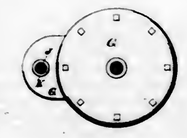
2. In a boiler feeder, the combination of a water column having a portion of its casing thickened or enlarged and projecting into the interior of the water column, in which projection are steam passages opening at one end in the inner surface of the casing and at the other end in the outer surface of the casing, a valve way opening at both ends within the column, and intersecting the steam passages, and other steam passages opening at one end in the valve way and at the other end in the outer surface of the casing, with a float and a grooved cylindrical valve sliding in the valve way and arranged to rise and fall with the float, substantially as described.

3. In a boiler feeder, the combination of a water column having a portion of its casing thickened or enlarged and projecting into the interior of the water column, in which projection are steam passages opening at one end in the inner surface of the casing and at the other end in the outer surface of the casing, and a valve way opening at both ends within the column and intersecting the steam passages, with a grooved cylindrical valve sliding in the valve way, a float, operative connections between the boiler and the float, a steam cylinder having steam connections with the valve block of the water column, and a signaling device arranged to be operated by the piston head of said cylinder, substantially as described.

4. In a boiler feeder, the combination of a water column, steam passages through the casing thereof, a valve way intersecting said passages, a float, a lever actuated thereby, and a valve having a stem provided with a series of holes for the adjustment of the point of application of said lever to said stem, substantially as described.

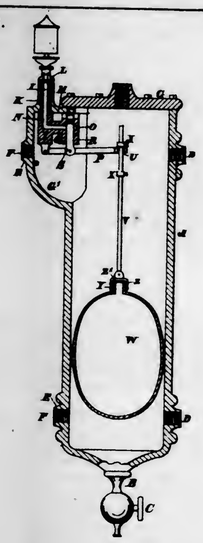
5. In a boiler feeder, the combination with a steam cylinder, of a casing, a valve block therein, ports through said block connected to the opposite chambers of said cylinder, a passage connecting said ports, and a cock controlling said passage, whereby the chambers of said cylinder may be simultaneously exhausted, substantially as described.

493,238. SAFETY WATER COLUMN. FRANK M. ASHLEY, Brooklyn, N. Y. Filed Oct. 17, 1891. Serial No. 409,064. (No model.)

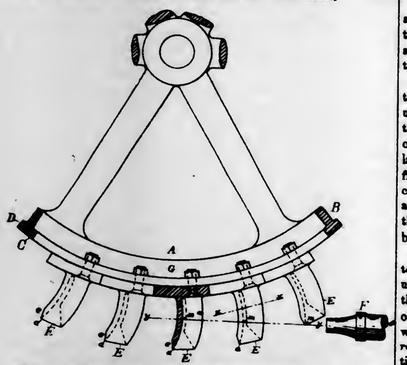


Claim.—In a safety water column, the combination of a shell or cylinder, a stem sliding in an aperture of the casing of said cylinder, said stem being provided with a steam passage leading to the alarm device, a valve in said steam passage, a lever operating said valve, and a float connected with said lever, all the parts being attached to said stem whereby the same are bodily removable, said stem having a screw-threaded extension projecting outside the shell, with an alarm arranged to be screwed upon said extension and hold the stem in position, substantially as described.

493,238.



493,239. WATER-WHEEL. SENECA L. BERRY, San Francisco, Cal. Filed May 14, 1892. Serial No. 433,013. (No model.)

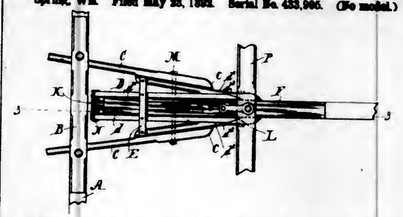


Claim.—1. In a water wheel driven by impinging jets, a series of buckets attached to the rim, double curved in their transverse section and also curved in the plane of rotation, as herein described, so as to present, in that plane, a convex face, normal to the impinging water, when the buckets are in the plane of the stream, in the manner substantially and for the purposes described.

2. In a water wheel driven by an impinging jet, or jets of water, a series of buckets attached thereto, formed with a double curve in their transverse section, curved also in the plane of rotation, to present curved or convex faces normal to the impinging water in that plane, the outer ends of the buckets open in the form of a trough, in the manner and for the purposes substantially as described.

3. In a water wheel driven by an impinging jet or jets, a series of buckets attached to its rim, the buckets having a double curve in their transverse section, and a backward curve in the plane of rotation, as herein described; the outer ends of the buckets open in the form of a trough, and the extreme end of the bottom and sides beveled to an edge so as to cut the jet transverse to its course, without disturbing the stream in entering, in the manner substantially, and for the purposes described.

493,240. SPRING-DRAFT DEVICE. FERDINAND J. BLAHER, Cold Spring, Wis. Filed May 23, 1892. Serial No. 433,905. (No model.)



Claim.—1. In a spring pole for vehicles, the combination, of a frame, a casing longitudinally movable therein, provided upon opposite sides with elongated slots, a spring encircled rod within the casing, the rear end thereof passing through the rear closed end of said casing, tubular portions upon opposite ends of the rod, bolts passing through said tubular portions, the bolt at the forward end also passing through the elongated slots of the casing and entering the frame, and the bolt at the rear end passing into eyes at the corresponding end of the frame, and a whiffletree pivoted to the box or casing, substantially as set forth.

2. In a spring pole for vehicles, the combination, of a frame, a tongue box or casing between the side pieces of the frame, and provided upon opposite sides with elongated slots, transverse strips connecting the upper and lower edges of the side pieces of the frame and forming a guide-way for the box or casing, a spring encircled rod within the casing, the rear end thereof passing through the rear closed end of said casing, tubular portions upon opposite ends of the rod, bolts passing through said tubular portions, the bolt at the forward end also passing through the elongated slots and entering the frame, and the bolt at the rear end passing into eyes at the corresponding end of the frame, and a whiffletree pivoted to the box or casing, substantially as set forth.

3. In a spring pole for vehicles, the combination, of a medially and horizontally pivoted frame, a casing turning upon the pivot of the frame and longitudinally movable in the frame, and a spring against which the casing acts when said casing is drawn forward by the attached team, substantially as set forth.

4. In a spring pole for vehicles, the combination of a frame, a tongue box or casing interposed between the frame, and provided upon opposite sides with elongated slots, a spring encircled rod within the casing, the rear end thereof passing through the rear closed end of said casing, tubular portions upon opposite ends of the rod, collars or sleeves within the tubular portions extending laterally therefrom to contact with the sides of the frame, bolts passing through these collars or sleeves, the front bolt also passing through the elongated slots and entering the frame, and the ends of the rear bolt entering eyes at the corresponding end of the frame, and a whiffletree pivoted to the box or casing, substantially as set forth.

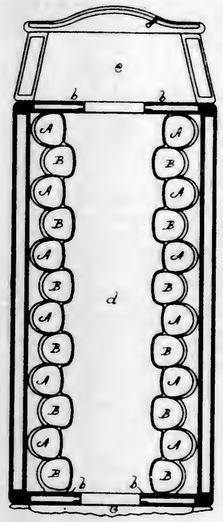
5. In a spring pole for vehicles, the combination, of a frame, a tongue box or casing interposed between the frame and provided upon opposite sides with elongated slots, a spring encircled rod within the casing, the rear end thereof passing through the rear closed end of said casing, a tabular portion upon the forward end of the rod within the casing, a similar tube adjustable upon the rear end of the rod exterior of the casing, and bolts passing through said tubular portions, the bolt at the forward end passing through the elongated slots of the casing and entering the frame, and the bolt at the rear end also passing into eyes in the frame, and a whiffletree pivoted to the box or casing, substantially as set forth.

6. In a spring pole for vehicles, the combination, of axle hounds, a frame therebetween, a tongue box or casing interposed between the side pieces of the frame, and provided upon opposite sides with elongated slots, a rod within the casing having its rear end passing through the rear closed end of the casing, and provided at opposite ends with tubular portions, and medially with plates having a tube interposed therebetween, a spring interposed between the forward tubular portion and one of the medial plates, a second spring interposed between the other plate and the rear closed end of the box, a bolt passing through the tubular portion at the forward end of the rod, through the elongated slots at that point, and having its ends entering the frame, a bolt passing through the tubular portion upon the rear end of the rod exterior of the casing and having its ends entering the frame, a central pivot bolt passing through the medial tubular portion, through the elongated slots corresponding thereto and having its ends passing through the frame and hounds, and a whiffletree pivoted to the box or casing, substantially as set forth.

493,241. PINK DYE. REINHARD BOEDEKER, Höchst, Germany, assignor to the Farbwerks, vormals Meister, Lucius & Brüning, same place. Filed Aug. 3, 1891. Renewed Dec. 20, 1892. Serial No. 456,705. (Specimens.)

Claim.—As a new article of manufacture, coloring matter, the alkali salt of a sulphonic acid, derived from fluorescein chloride and mesidine and having the formula $C_{29}H_{30}O_5N_2S_{O_3}$ alk', a light red powder, easily soluble in hot and cold water, difficultly soluble in alcohol, giving vivid red color, mineral acids precipitating from its aqueous solution, the sulphonic acid in the form of red flakes, as set forth.

493,242. STREET-CAR. GILMAN B. BOLTON, Waverly, assignor of one-half to Fred H. Henry, Wakefield, Mass. Filed Nov. 15, 1892. Serial No. 452,062. (No model.)



Claim.—1. A row of individual seats in a car, arranged as described and consisting of alternate seats situated near the car wall or side and alternating seats situated somewhat in advance of said wall seats, whereby additional seating space is made available, substantially as set forth.

2. A row of individual seats in a car, each seat having substantially convex or curved sides, said seats being situated alternately rearward toward the wall or side of the car, and forward toward the aisle or center, whereby additional seating space is made available, substantially as described.

3. A row of individual seats in a car, arranged as described and consisting of seats situated not on a straight line but alternately rearward and forward, whereby additional seating space is made available, substantially as set forth.

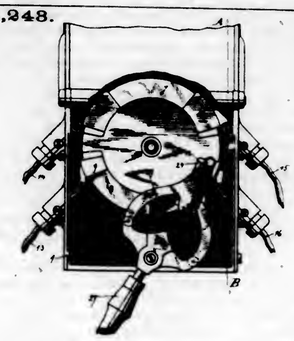
4. A row of individual seats in a car, arranged as described and consisting of seats situated not on a straight line but alternately rearward and forward, and each seat being broader at its broadest portion than the space between its two adjoining seats at their broadest portions, substantially as described.

493,243. ELECTRIC SWITCH. WILLIAM F. DOBBERT, Utica, N. Y., assignor to the Utica Electrical Manufacturing and Supply Company, same place. Filed Feb. 17, 1892. Serial No. 421,886. (No model.)

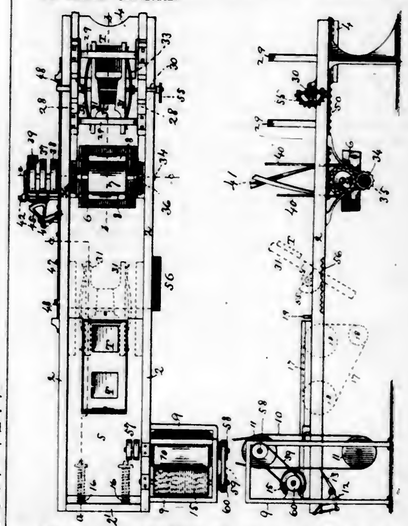
Claim.—1. The combination of a switch disk, an operating lever having cam faces within an opening in the lever, a pin from the disk, projecting into opening of the lever and a spring connecting the lever and disk, substantially as set forth.

2. The combination of a pair of movable disks, carrying conductors, a spring independent of the conductor between the disks operating to separate them, and a stationary conductor having opposing stationary faces between which the movable conductors are held substantially as set forth.

493,248.



493,244. APPARATUS FOR ORNAMENTING ARCHITECTURAL TILES. ISAAC BROOME, New Brighton, Pa. Filed Apr. 4, 1892. Serial No. 427,747. (No model.)



Claim.—1. The combination of a vertical lever, fulcrumed between its ends; a horizontal rod, pivoted at one of its ends to the lower end of the vertical lever; a short arm, pivoted by one of its ends to the opposite end of the horizontal rod; a shaft, journaled at right angles to the aforesaid lever and rod, and rigidly attached to said rod; a trip, rigidly attached to said shaft and forming an obtuse angle with the aforesaid arm; a tension spring, connected to the vertical lever near its lower end, and suitable supports for said lever, shaft and spring; all substantially in the manner described, whereby the aforesaid trip is quickly and forcibly thrown into a relatively vertical position, and projected above an arranged and constant horizontal plane, whenever the vertical lever is struck upon its inner side or face, and restored to its normal position, below said horisontal plane, by the pull of the said spring upon the vertical lever, whenever the pressure upon said lever is withdrawn.

2. In the carriage of a tile decorating machine, the combination of the side pieces forming the base thereof, the elevated girders rigidly connecting said side pieces, the shaft journaled in and through the side pieces, the grippers splined upon said shaft and having obliqued inner faces, the adjustable wedge between said grippers, and the springs, keyed upon said shaft and having each a bearing upon the outer face of its proximate grip; all substantially as and for the purposes described.

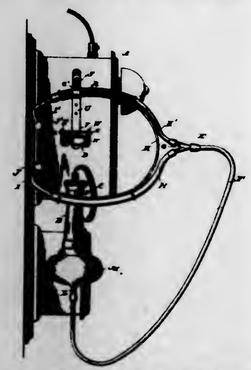
3. The combination, in a tile decorating machine, of the tile car-

riage consisting of the side pieces, elevated girders, journaled shaft, grippers, adjustable wedge, and pressure springs, and having, also, a sector gear keyed upon one of the ends of the aforesaid shaft, with a rack, supported upon the bed of such a machine and meshing with said sector gear; all substantially in the manner described, for the purpose of imparting a half turn to the aforesaid shaft and grippers, whereby the tile conveyed by said carriage is shifted from the rear to the front of the carriage and its under face brought upward.

4. The combination, in a tile decorating machine, of the tile carriage consisting of the side pieces, elevated girders, journaled shaft, grippers, adjustable wedge and pressure springs and having also a rack upon the under face of one of the side pieces of the carriage, with a gear wheel, meshing with said rack and journaled in the bed of such a machine, and rotated by a suitable motor; all substantially in the manner described, for the purpose of moving said carriage along the bed of the machine.

5. In a machine for decorating tiles, wherein the tiles are fed to a gripping carriage, which conveys and holds them during the process of liquid decoration and then delivers them to a receiver, the combination of the flexibly faced decorating roller, journaled in the bed of the machine and having a gear upon its shaft; one or more spreading rollers, journaled in the bed of the machine and having their faces in contact with that of the decorating roller; the carriage, having the bottom-side pieces and the girders rigidly connecting said side pieces; the shaft, journaled in the side pieces of the carriage; the grippers, splined upon said shaft and having the inner faces obliqued; the adjustable wedge fitted between the inner faces of the grippers; the springs, attached to the carriage shaft and having each a bearing upon the outer face of the adjacent gripper; the sector gear keyed to said shaft; the rack, supported from the machine bed and meshing with said sector gear; the rack on one of the bottom pieces of the carriage; the gear wheel, journaled in the machine bed, on the shaft of the aforesaid decorating roller, and meshing with said rack; the shaft, journaled in the machine bed and having a ratchet wheel meshing with the gear on the shaft of the decorating roller; the lever-operated trip, journaled in the bed of the machine near the feed end thereof; the fixed stop, projected above the plane of the machine bed near the delivery end thereof, and means to rotate in either direction the shaft heretofore mentioned as in gear with the shaft of the decorating roller; the whole constructed and arranged substantially as described, for the purpose of automatically taking up, transporting and releasing architectural tiles, from, along, and upon the surface of a machine bed or platform, and ornamenting their proper faces with decorating liquid.

493,245. EAR ATTACHMENT FOR TELEPHONES. GEORGE McC. BROWN, Nashville, Tenn., assignor of one-half to Edward James Cahill, La Salle, Ill. Filed June 23, 1892. Serial No. 437,737. (No model.)



Claim.—1. In a telephone attachment, the combination with a receiver, of a flexible extensible ear-piece having diverging spring-actuated ear-tubes merging into a main branch connected to the receiver, and a coupling for connecting the receiver to the ear-tube consisting of a hollow rubber bulb contracted around the mouth of the receiver and attached also to the ear-tube, substantially as described.

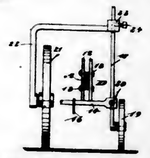
2. In a telephone attachment, the combination with a bifurcated extensible ear piece having a main flexible tube or branch, of a telephone receiver, and a non-resonant flexible coupling between the tube and said receiver, substantially as described.

3. In a telephone attachment, the combination with a receiver and an extensible flexible bifurcated audiphone acoustically connected thereto, of a rubber bulb coupling the said audiphone and receiver together, substantially as described.

4. In a telephone attachment, the combination with a main branch of a flexible bifurcated ear-piece, of a coupling tube fitting in the end of said main branch and provided with a protruding neck of reduced diameter at its other end, a rubber bulb secured around said neck and also around the mouth of the receiver, and the receiver, substantially as described.

5. In a telephone attachment, the combination of an ear tube of a bifurcated flexible receiver provided with a protective wrapping designed to slide between the bearing surfaces of a spring-actuated support for said tube, and said spring actuated support, for the purpose set forth.

493,246. PLOW. AGUSTIN M. CHAVES, Mexico, Mexico. Filed Mar. 25, 1892. Serial No. 426,363. (No model.) Patented in France July 6, 1891, No. 214,662.

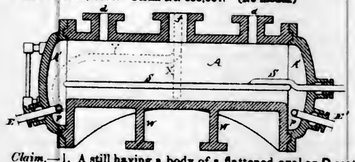


Claim.—1. The combination, with a plow beam, of a stirrup comprising a shank adjustably located upon the beam, and a head adapted to receive a traction hook or clevis, of a carriage connected with the plow beam through the medium of the stirrup, as and for the purpose specified.

2. The combination, with a plow beam, of a stirrup essentially T-shaped in general contour, adjustable upon the beam and provided with a series of apertures in its horizontal member and an opening at one end of the same, the apertures being adapted for the reception of a traction hook or clevis, and a carriage consisting of a bar passed through an opening in the horizontal member of the stirrup, a fastening device connecting the bar with the stirrup, and a wheel carried by the lower end of the bar, as and for the purpose specified.

3. The combination, with the plow beam, of a stirrup essentially T-shaped in general contour and adjustably attached to the beam, the said stirrup being provided with an opening near one end in its horizontal member, and a carriage consisting of a bar carried vertically upward through an opening in the horizontal member of the stirrup, a fastening device connecting the stirrup and the bar, a wheel carried by the lower end of the bar, a second angular bar having removable connection with the bar connected with the stirrup, and a larger wheel carried by the angular bar, the wheels being located one at each side of the beam, as and for the purpose set forth.

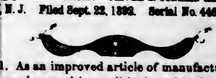
493,247. STILL. NATHAN W. CONDICT, Jr., Jersey City, N. J. Filed June 11, 1890. Serial No. 355,007. (No model.)



Claim.—1. A still having a body of a flattened oval or D-section but with circular end flanges and having circular heads fitted to the flanges, substantially as and for the purpose set forth.

2. A still having a body of flattened oval or D-section with circular end flanges and bulged circular heads forming pockets at the ends of the still below the bottom level of the body of the still.

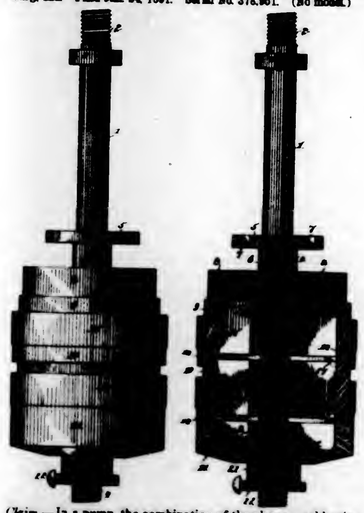
493,248. HAT-STAND. OLIVER S. CONKLIN and HEBA F. CONKLIN, Undercliff, N. J. Filed Sept. 22, 1892. Serial No. 446,575. (No model.)



Claim.—1. As an improved article of manufacture, a support for the purpose named comprising a disk-shaped body-portion provided with a peripheral oblique groove, and a flexible annular band, fitted at one edge in said groove and standing obliquely outward toward its free edge, whereby it extends vertically above the highest point of the disk and laterally beyond the periphery of the same, the free edge of the band being adapted to yield either horizontally or vertically to the pressure of supported articles, substantially as described.

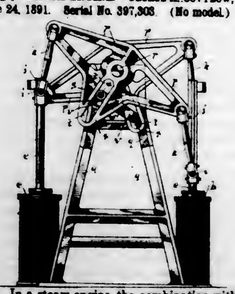
2. As an improved article of manufacture, a support for the purpose named, comprising a disk shaped body-portion provided with a peripheral outstanding rim or flange of flexible material whose free edge projects vertically above the plane of the body-portion and laterally beyond the periphery thereof and is capable of yielding vertically and horizontally to the pressure of the supported article, substantially as specified.

493,249. PLUNGER FOR PUMPS. AUGUST D. COOK, Lawrenceburg, Ind. Filed Jan. 24, 1891. Serial No. 378,951. (No model.)



Claim.—In a pump, the combination of the plunger rod having a continuously threaded portion, a series of plunger disks arranged on said rod and provided with a series of aligning fluid-passage walls and integral depending bifurcated lugs extended below said walls and embracing the upper edges of the walls below, the upper of said disks having a threaded opening to engage the threaded plunger rod, and an annular beveled socket or recess at the upper end of said threaded opening, packing between said disks, an integrally flanged screw sleeve embracing the plunger rod and having a beveled lower end registering inside of the socket or recess of the upper disk, and a vertically movable valve disk working on said screw sleeve between its flange and the upper disk, substantially as set forth.

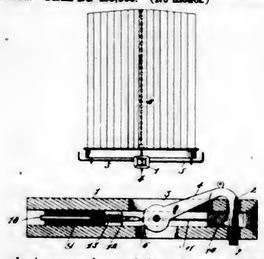
493,250. STEAM-ENGINE. GEORGE A. COVYNOW, Bay City, Mich. Filed June 24, 1891. Serial No. 397,303. (No model.)



Claim.—1. In a steam engine, the combination with the walking eam having a central pivotal bearing and a centrally located transerse slot, of the cylinders, pistons working in said cylinders, connecting rods pivotally connected to the opposite ends of said walking beam, and the shaft located transversely with the said walking beam and provided with a crank having its wrist located within, and arranged for sliding in the said transverse slot, substantially as set forth.

2. In a steam engine the combination with the walking beams arranged parallel with each other and supported by central pivotal bearings, and each beam provided with a centrally located transverse slot *t*, of the steam cylinders *a*, *b*, *c*, and *d*, each having its connecting rod pivotally secured to one end of the said walking beams, and a shaft *w*, provided with cranks *v*, extending in opposite directions from the shaft and having wrists *u*, located within the said slots *t*, substantially as set forth.

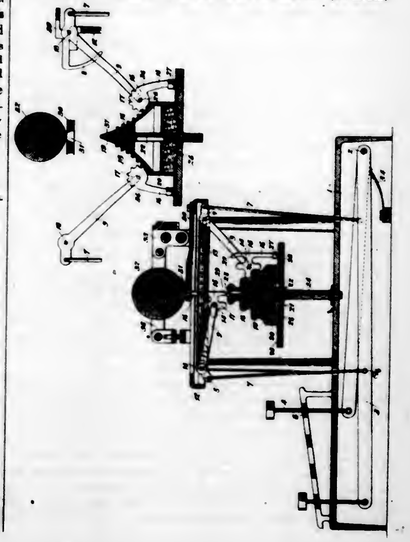
493,251. CAR-COUPLING. FRANCIS M. COX, Haynes, Ark. Filed Dec. 2, 1892. Serial No. 453,809. (No model.)



Claim.—1. A car coupler consisting of a drawhead having a pivoted hook the rear end of which is circular and provided with suitable ratchets, a suitable pawl engaging said ratchets a sliding block connected with said pawl and adapted to disengage the pawl from the ratchets, substantially as shown and described.

2. A car coupler consisting of a drawhead having a pivoted hook, the rear end of said hook being circular and provided with a set of ratchets, a pawl adapted to engage the said ratchets, a sliding block in the front part of the drawhead and connected with the said pawl, a spring holding said pawl against the said ratchets, and the elongated spring bearings in the sides of the drawhead, adapted to hold the pivot rod of the said hook, substantially as shown and described.

493,252. TYPE-WRITING MACHINE. ALEXANDER DAVIDSON, Bridgeport, Conn., assignor to the Yost Writing Machine Company, New York, N. Y. Filed Nov. 28, 1892. Serial No. 453,314. (No model.)



Claim.—1. In a type writing machine, the combination with a rack or series of fulcrum rings, of a type-carrier adapted to mesh a circuit closing wheel having a detent controlled by the said magnet, a local circuit including a time stamp controlled by the said wheel

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493,254. TYPE-WRITING MACHINE. AMOS DENSMORE, New York, N. Y. Filed July 13, 1892. Serial No. 439,901. (No model.)

downward flue and accelerate its movement, substantially as and for the purpose specified.

Claim.—1. In a type writing machine, the combination with a rack or series of fulcrum rings, of a type-carrier adapted to mesh therewith, and means for moving said carrier.

2. In a type writing machine, the combination with a rack or series of fulcrum rings, of an actuating lever, and a type-carrier pivoted to said lever and provided with a series of teeth.

3. In a type writing machine, the combination with a rack formed of a series of superposed rings of varying diameter, of an actuating lever, and a type-carrier pivoted to said lever and provided with a series of teeth to engage said rack.

4. In a type writing machine, the combination with a rack or series of fulcrum rings, of an actuating lever, and a creeping type-carrier.

5. In a type writing machine, the combination of an actuating lever, a type-carrier pivoted to said lever, and a centrally-arranged support adapted to afford a series of fulcrums or pivotal points for said carrier.

6. In a type writing machine, the combination with a central support having a series of fulcrum rings of varying diameter, the smallest one being at the top, of a toothed type-carrier adapted to successively engage said rings, and means for lifting said type-carrier.

7. In a type writing machine, the combination of a platen, a type-carrier, an inking-pad, a series of fulcrum rings, a toothed type-carrier, and an actuating lever.

8. In a type writing machine, the combination with a platen and an ink-pad, of a swinging type-carrier provided with teeth, and a rack for independently turning said carrier during its swinging movement.

9. In a type writing machine, the combination with a platen and an ink-pad, of a swinging type-carrier provided with teeth, and a series of fixed fulcrums or pivotal points for independently turning said carrier in order that its type may be turned on leaving the ink-pad and thus presented perpendicularly to the platen.

10. In a type writing machine, the combination with a platen, of a type-guide, an inking-pad, a series of fulcrum rings, an actuating lever, a toothed type-carrier pivoted thereto, and means for insuring engagement between said carrier and said rings during the return movement of the type-carrier.

11. In a type writing machine, the combination of a platen, a type-guide, an inking-pad, a central support having a series of fulcrum rings and a central depression, an actuating lever, and a pivoted type-carrier adapted to gear with said fulcrum rings and provided with a tooth to enter said depression.

12. In a type writing machine, the combination of a platen, an actuating lever, a type-carrier pivoted thereto and having its type arranged to stand normally in a substantially vertical position with its face downward, a substantially horizontal inking-pad on which the type-face normally rests, and means for turning said carrier about its pivot during the vibration of said lever for the purpose of inverting the type and causing it to move vertically upward immediately before the time of impression.

13. In a type writing machine, the combination of a fulcrum support having an ink-chamber, an ink-pad, a creeping type-carrier, and means for actuating the same.

14. In a type writing machine, the combination of a fulcrum support having an ink-chamber, an ink-pad, a bed or holder therefor to which said fulcrum support is adjustably and removably connected, an actuating lever, and a type carrier geared to the said fulcrum support and pivoted to said actuating lever.

493,253. SIGNALING-TELEGRAPH. WILLIAM R. DRENNOW, Boston, Mass. Filed Nov. 14, 1892. Serial No. 451,450. (No model.)

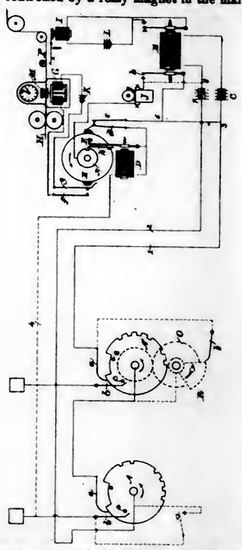
Claim.—1. In a signaling telegraph the combination with the main line, of a second circuit extending to the central station, a time stamp included in said circuit and means for momentarily operating the said circuit at the signal box whenever it is pulled.

2. In a signaling telegraph the combination with a registering apparatus at the central station, of one or more signal boxes for transmitting signals to be recorded by the said register, a second circuit extending from the signal boxes to the central station, a time stamp included in the said circuit adapted to print on the register strip the time at which a signal is received, and means at each signal box for operating the said circuit whenever a signal is sent in.

3. In a signaling telegraph the combination with the main line, including one or more signal boxes, of receiving apparatus at the central station, a second circuit extending from the signal box to the said station, a magnet at the station included in said second circuit, a circuit closing wheel having a detent controlled by the said magnet, and a local circuit including a time stamp controlled by the said wheel.

4. In a signaling telegraph the combination with the main line including one or more signal boxes, of receiving apparatus at the central station, a second circuit extending from the signal boxes to the said station, a magnet at the station included in said second circuit, a circuit closing wheel having a detent controlled by the said magnet, a local circuit including a time stamp controlled by the said wheel, and a circuit breaker included in the said second circuit, and also controlled by the said wheel after its release by the action of the said magnet.

5. In a signaling telegraph the combination of the main line including one or more signal boxes, receiving apparatus at the central station, a second circuit extending from the signal boxes to the said station, a time stamp controlled by the said second circuit, a circuit breaker in said circuit controlled by a magnet therein, and a circuit around the said circuit breaker containing an emergency bell, the latter circuit being controlled by a relay magnet in the main line.



6. In a signal apparatus the combination with the main line including one or more signal boxes, receiving apparatus at the central station, a second circuit including a time stamp at the said station, but remaining normally open and a circuit closing device at each signal box for momentarily closing the said second circuit.

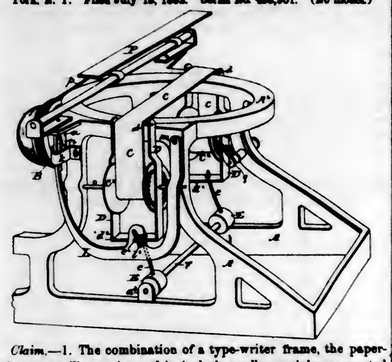
7. In a signaling telegraph the combination with receiving apparatus at the central station, of one or more boxes on the main line, a second circuit connecting said boxes with the central station, means at the boxes for successively operating the second circuit and separate receiving devices at the central station responding respectively to the successive operations of the said circuit.

8. In a signaling telegraph the combination with receiving apparatus at the central station of one or more signaling boxes on the main line, a second circuit connecting said boxes with the central station, means at the boxes for successively and momentarily operating said second circuit, separate receiving devices at the central station responding respectively to the successive operations of the said second circuit, one of said receiving devices being normally included in the circuit, and a circuit changer for subsequently bringing the other device into the circuit.

9. In a signaling telegraph the combination with receiving apparatus at the central station of one or more signal boxes on the main line, a second circuit connecting said boxes with the central station, means for successively and momentarily operating the said second circuit at the boxes, and a time stamp and special signaling device at the central station responding respectively to the successive closures of the said second circuit.

10. In a signaling telegraph the combination with receiving apparatus at the central station of one or more signal boxes on the main line, an adjustable short-circuiting device at the signal box, a second circuit connecting the signal boxes with the central station, means at the box for successively and momentarily operating the said circuit, and separate receiving devices at the central station adapted to be included in the said second circuit, one of the said receiving devices having its circuit controlled by a magnet in the main line.

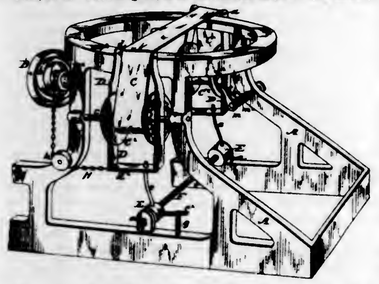
493,254. TYPE-WRITING MACHINE. AMOS DENMORE, New York, N. Y. Filed July 13, 1892. Serial No. 439,901. (No model.)



Claim.—1. The combination of a type-writer frame, the paper-carriage propelling spring and its inclosing pulley, a pinion connected with said spring, the inking ribbon and spool and its frame D, with a toothed lever having its rack-end meshing with the pinion, and its slotted portion connected to the frame D substantially as described.

2. The combination of a type-writer frame, the paper-carriage propelling spring, a pinion connected with said spring, the inking ribbon and spool and its frame D, a rock-shaft having arms connected with the frame D, an arm e^2 projecting laterally from the frame D and a lever L having one end pivoted to the frame of the machine, and the other end provided with rack-teeth in engagement with the pinion and its middle portion slotted for engagement with the arm e^2, substantially as described.

493,255. TYPE-WRITING MACHINE. AMOS DENMORE, New York, N. Y. Filed Aug. 19, 1892. Serial No. 443,516. (No model.)



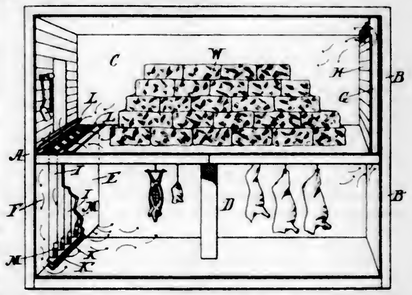
Claim.—1. The combination of a type-writer frame having a ribbon-spool advancing-pawl pivoted to its front portion, the paper-carriage propelling-spring, the inking ribbon and spools, and their frames D with a chain connecting the latter to the carriage propelling spring and adapted to move the ribbon-frame toward the rear of the machine during the retraction of the carriage substantially as described.

2. The combination of a type-writer frame having a ribbon spool advancing-pawl pivoted to its front portion, the paper-carriage propelling-spring, the inking ribbon spool, the ribbon guiding frames D, and chain connection with the carriage propelling spring for moving the ribbon-frame toward the rear of the machine during the retraction of the carriage the rock shaft F having arms connected with frames D, and an arm retracted by a spring substantially as described.

493,256. REFRIGERATOR-BUILDING. AVELYN I. DEXTER, Whitewater, Wis. Filed Nov. 27, 1891. Serial No. 413,312. (No model.)

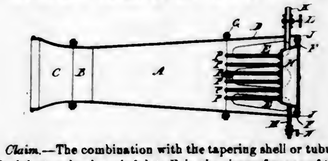
Claim.—1. The combination in a refrigerator or storage building having an ice storage apartment, a produce apartment located below said ice apartment, and upward and downward air flues or passages communicating between said ice and said produce apartments of a chemical refrigerator located in the downward air flue communicating from said ice apartment to said produce apartment, said chemical refrigerator being adapted to cool the air in its passage through said downward flue and accelerate its movement, substantially as and for the purpose specified.

2. In a refrigerator or cold storage building the combination of an ice storage apartment, a produce apartment located below said ice apartment, an upward air duct communicating from the upper part of said lower apartment with the upper part of said ice apartment; a downward air flue communicating from the lower part of said ice apartment to the lower part of said produce apartment, and a chemical refrigerator located in said downward air flue, adapted to intensify the cold air as it falls from said ice storage apartment to the produce apartment substantially as set forth.



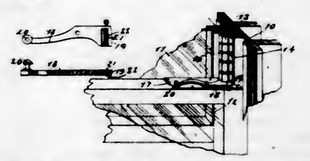
3. In a refrigerator or cold storage building the combination with the ice apartment and produce apartment located below said ice apartment, having upward and downward air flues communicating between said apartments of a series of metallic ice receivers suspended at their upper end from the floor of said ice apartment and extending downward into said produce apartment, all substantially as and for the purpose specified.

493,257. STEAM AND AIR INJECTOR. SALVER R. EARLE, Belleville, Canada. Filed June 20, 1892. Serial No. 437,276. (No model.)



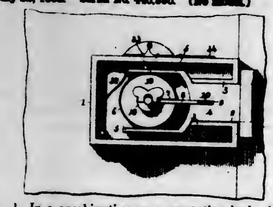
Claim.—The combination with the tapering shell or tubular body of the injector, having air inlets E, in the circumference of the larger end, of the steam chest H, within said end, said steam chest having a circumferential plate or flange J, bolted to the shell whereby said steam chest closes the larger end of the injector, said steam chest having a series of tubes P, surrounded collectively by said air inlets E, and a steam pipe K, passing through the circumference of the shell of the injector into the steam chest, whereby the exposed end of said steam chest is kept intact or without penetration, as and for the purpose set forth.

493,258. SASH-FASTENER. EMANUEL ESSINGER and HENRY S. ESSINGER, Bloomington, Ill. Filed May 17, 1892. Serial No. 433,266. (No model.)



Claim.—The combination, with two sliding sashes, and a stile and bead having slots arranged and adapted to register as shown and described, of the latch pivoted on the top of the lower sash, a stud fixed in the latter, and a spring concealed in a transverse recess in the under side of said latch and engaging said stud, whereby the latch is normally pressed inward to lock the sashes, as shown and described.

493,259. COMBINATION-LOCK. JOHN W. ERVIN, Hale City, Mo. Filed July 23, 1892. Serial No. 440,860. (No model.)



Claim.—1. In a combination or permutation lock, the combination with a sliding bolt and a spring-actuated detent which is carried by and operates in the direction of the movement of said bolt, of the rotatable tumblers provided with slots to receive the said detent to permit the retraction of the bolt, substantially as specified.

2. In a combination or permutation lock, the combination with a sliding bolt and a spring-actuated detent which is carried by and operates in the direction of the movement of said bolt, of the rotary tumblers mounted upon a common arbor and provided with slots to receive the said detent to permit the retraction of the bolt, and means substantially as described for operating said arbor, substantially as specified.

3. In a combination or permutation lock, the combination with a sliding bolt provided with a spring-actuated detent, of the rotary tumblers mounted upon a common arbor and provided with pins on their adjacent faces, and a tumbler-plate secured to one end of said arbor and provided with a cam-face to engage said spring-actuated detent, substantially as specified.

4. In a combination or permutation lock, the combination with the sliding bolt provided with a spring-actuated detent, of the rotary tumblers mounted upon a common arbor and provided with radial slots to receive said detent, and pins to engage each other, means to operate said arbor, and a tumbler-plate secured to the latter and provided with a toothed ring to engage a toothed shoulder on said arbor, whereby they are simultaneously rotatable, said tumbler-plate being provided with a cam to engage the detent, substantially as specified.

5. In a combination or permutation lock, the combination with a sliding bolt carrying a spring-actuated detent, of a circular tumbler-casing, a central arbor arranged therein, the independent slotted tumblers mounted upon said arbor, the split annular washers interposed between said tumblers, and a cam-faced tumbler-plate secured to said arbor and carrying a pin to engage a corresponding pin on an adjacent tumbler, substantially as specified.

6. In a combination or permutation lock, the combination with a self-retracting sliding bolt carrying a spring-actuated detent which operates in the direction of the movement of said bolt, of rotary tumblers slotted to receive said detent, substantially as specified.

7. In a combination or permutation lock, the combination with the sliding bolt, the spring-actuated detent, the arbor, and the rotary tumblers mounted thereon and having slots to receive said detent, of a stationary dial-plate, a rotary disk arranged in juxtaposition thereto, and a knob attached to said disk and provided with a squared sleeve to engage a squared end of said arbor, substantially as specified.

8. In a combination or permutation lock, the combination with a sliding bolt, an arbor, and tumblers mounted on said arbor and capable of adjustment thereby, of a dial-plate, a superimposed rotary disk provided with an indicator and carrying a sleeve to engage said arbor, and a retaining collar fitted over said disk and attached to said dial-plate, substantially as specified.

9. In a combination or permutation lock, the combination with the case having parallel bolt-guides upon opposite sides of its bolt-opening, of a sliding bolt, provided with a bifurcated rear end and having a spring-actuated detent, a tumbler-casing interposed between the arms of said bifurcation, the slotted tumblers mounted in said casing upon a common arbor, said slots to receive the detents, and means to operate said arbor, substantially as specified.

10. In a combination or permutation lock, the combination with the case, the sliding bolt, the slotted bolt-controlling tumblers, and the arbor forming the pivot of said tumblers, of the stationary dial-plate, the superimposed rotary disk provided with an operating knob, and the retaining collar provided with sockets to receive the screws by which said case is secured in place, substantially as specified.

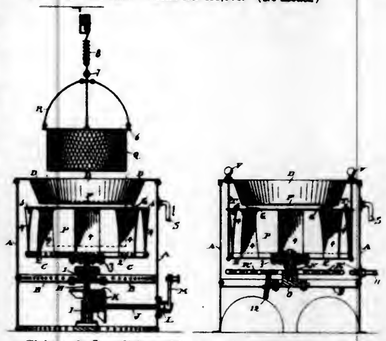
493,260. WATCHCASE-SPRING. NUMA J. FELIX, Brooklyn, N. Y. Filed Nov. 24, 1891. Serial No. 412,963. (No model.)

Claim.—The herein-described watch case spring, made from a single piece of metal and so bent as to form the main portion A, the



top portion *b* and the flap B, the lip or projection *a* at one end of the spring and the opening *c* formed in the top portion *b*, substantially as and for the purpose described.

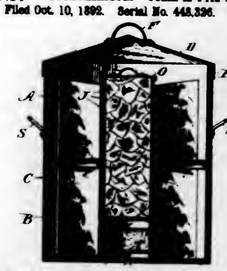
493,261. DISH-CLEANER. ROBERT G. FERGUSON, Lakewood, N. J. Filed Sept. 11, 1891. Serial No. 405,370. (No model.)



Claim.—1. In a dish-washing machine, the combination of a stationary water-tank A, an open-work circular basket or cage, Q, for holding the dishes in a stationary position in said tank, a circular agitator, P, surrounding said basket and provided with tangentially-arranged dashers 4, and means—substantially as described—for imparting an oscillatory motion to said agitator; whereby currents of water will be alternately injected centripetally into and ejected centrifugally out of said basket in a forcible manner, as and for the purpose herein specified.

2. In a dish-washing machine, the combination of a stationary water-tank A provided with a recessed head D having a central opening F and annular-flange G, an open work circular basket or cage Q provided with a circumferential flange 6 fitted to bear upon the annular-flange G, an oscillating agitator P surrounding said basket and provided with tangentially-arranged dashers 4, and means—substantially as described—for imparting oscillatory motion to said agitator, as and for the purpose herein specified.

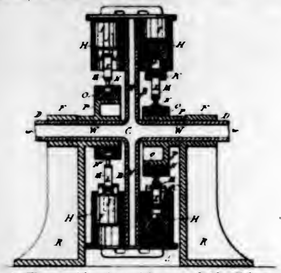
493,262. REFRIGERATOR. JULIA I. FITZ GERALD, Terra Alta, W. Va. Filed Oct. 10, 1892. Serial No. 448,396. (No model.)



Claim.—A refrigerator comprising an exterior casing having an air-tight removable top, and handles on the side to render the same portable; an interior vertical tubular ice-receiver fixed to the inside of the bottom of the casing and having a foraminous wall; a vertically insertible and removable ice-can designed to rest within the ice-receiver and having at its lower end a drip-water chamber formed by a reticulated diaphragm set transversely a prescribed distance above the bottom thereof; a removable thumb nut in a screw-threaded orifice in the bottom of the water-chamber; radial wings extending from the ice-receiver to the wall of the casing bolted at their respective

extremities severally to the ice-receiver and outer wall and dividing the interior space into three compartments; removable horizontal shelves midway the height of said interior space; and a cap for the ice-can provided with a suitable handle; all arranged for the purpose set forth.

493,268. AIR-COMPRESSOR. CHARLES F. POOR, New York, N. Y. Filed Mar. 13, 1888. Renewed Oct. 23, 1890. Again renewed Apr. 19, 1892. Serial No. 429,707. (No model.)



Claim.—1. The combination with a revoluble disk or arms provided with air passages, as set forth, and bearing a series of cylinders adapted and arranged to revolve therewith, of weighted plungers or pistons, playing in said cylinders, said pistons being connected by means of slotted links to a revoluble yoke, eccentrically located to the shaft of the disk, whereby the pistons will be drawn inward by the positive connections but driven outward by the centrifugal force alone, without leverage the whole mounted upon a supporting base, substantially as shown and described.

2. The combination with a revoluble disk or arms wherein are air passages, to which disk or arms are secured cylinders, as set forth, of weighted plungers or pistons fitting within said cylinders, and connected by means of links to a strap or yoke encircling a stationary eccentric through which the shaft of the disk passes, whereby said plungers will be driven outward by centrifugal force alone, but drawn inward by positive connections substantially as shown and described.

3. The combination with a revoluble disk or arms provided with air passages, as set forth, and mounted upon a hollow shaft, of a series of cylinders secured to said disk or arms, and arranged to revolve therewith, and weighted plungers or pistons, playing in said cylinders, said plungers being thrown outward by centrifugal force alone, and drawn inward by positive connections between said pistons and a yoke or strap encircling a stationary eccentric through which the disk shaft passes, said connections consisting of slotted links pivoted at one extremity to the yoke, and connected to the pistons by pins passing through the slots, substantially as shown and described.

4. The combination with a rotatable disk or arms mounted upon a hollow shaft and bearing a series of cylinders having air passages communicating with a hollow shaft, and ingress and egress valves controlling said passages of pistons located in said cylinders, said pistons being connected to a revoluble yoke by means of slotted links whereby they will be positively drawn inward, but will be driven outward by centrifugal force alone without any leverage, substantially as shown and described.

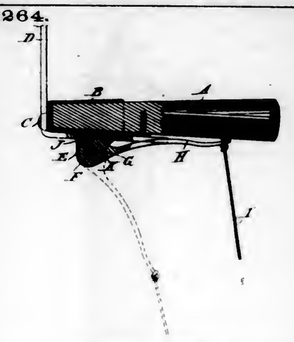
5. The combination of a revoluble disk or arms, having radial air passages therein, and bearing a series of cylinders; weighted plungers or pistons fitting into said cylinders, and arranged to rotate therewith in a circle eccentric to the circle of rotation of the disk or arms, so that the plungers or pistons will be driven outward by centrifugal force alone; and drawn inward by positive connections to an eccentric, and egress valves communicating with an air chamber connecting cylinders on both sides of the disk or arms and leading to a central air passage or passages running through the disk or arms and opening into a hollow shaft, substantially as herein described.

493,264. TRACE-FASTENER. JOHN H. GIBSON, Bruin, Pa. Filed May 14, 1892. Serial No. 433,048. (No model.)

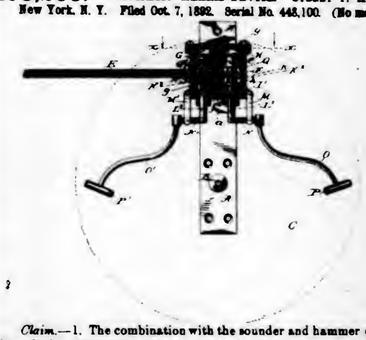
Claim.—1. In a trace fastener, the combination with a whiffle tree, of a bracket secured to the end thereof and having a fulcrum pin, a cam lever fitted in said bracket and having an enlarged eye to receive said fulcrum-pin and permit adjustment of the cam, and means for holding said cam to its adjustment, substantially as described.

2. In a trace fastener, the combination with the whiffle tree of the end cap therefor provided with ears to hold the trace in place and with a bracket, in combination with a cam lever pivoted in said bracket to clamp the trace between the tree and the cam, substantially as and for the purposes described.

493,264.



493,265. PNEUMATIC ALARM DEVICE. SYDNEY P. HASEY, New York, N. Y. Filed Oct. 7, 1892. Serial No. 448,100. (No model.)



Claim.—1. The combination with the sounder and hammer of an alarm device of two cylinders each provided with a piston, a single inlet port, ports connecting with said inlet port and connecting the two cylinders, other ports opening into the cylinders near their respective ends, which connect with exhaust ports, and means substantially as described for connecting the piston rods with the hammer.

2. The combination with the sounder and hammer of an alarm device of two cylinders, each provided with a piston, said pistons composed of a plurality of sections, a single inlet port, ports connecting with the spaces between the sections of the pistons, and also connecting the two cylinders, other ports which connect with the cylinders near their ends respectively and with exhaust ports through the spaces between the sections of the pistons and means substantially as described for connecting the hammer with the piston rods.

3. The combination with the sounder and hammer of an alarm device of two cylinders, each provided with a piston, a single inlet port, ports connecting the two cylinders midway of their ends, other ports connecting the two cylinders, one end of each of which opens at or near the end of one of the cylinders, and exhaust ports through the sides of the cylinders, the whole being constructed and arranged so that each piston acts as a slide valve to control and direct the circulation of the fluid, substantially as set forth.

493,266. SUBMARINE BOAT. JAMES R. HAYDEN, Cleveland, Ohio. Filed Feb. 6, 1892. Serial No. 420,493. (No model.)

Claim.—1. In a submarine boat a cylinder 3 within an air tight casing with conical ends, said casing having an opening 9, therein in open communication with the middle of the cylinder 3, in combination with two pistons 4 and 5, arranged within said cylinder 3 and operated by the right and left screw rod 6 and 7, conjointly with the gear system and motor, whereby a volume of water may be admitted or forced out of the cylinder 3, as desired for sinking or raising the boat substantially in the manner as and for the purpose set forth.

2. In a submarine boat in combination, an air tight casing conical at each end and having lookouts 25 and 26 on top thereof, an interior cylinder 3, with opening 9, therein, the right and left screw pistos rod 6 and 7 and pistons 4 and 5 operating conjointly with the motor and gear system substantially in the manner as and for the purpose specified.

498,266.



3. In a sub-marine boat an air tight casing, a cylinder of less size than the casing located on the bottom thereof, pistons located within the cylinder, a passageway extending from the cylinder between the pistons to the outside of the casing, and means carried within the casing for operating the pistons to admit water to or expel it from the cylinder, substantially as described.

4. In a sub marine vessel a cylindrical casing conical at both ends, a cylinder located in said casing with a passageway leading to the outside, means for admitting water to or expelling it from the cylinder, a propelling device carried by the casing, a motor located in the casing, and means for connecting the motor with the propelling device or with the water forcing means as desired, substantially as described.

5. In a submarine boat, with an exterior air tight casing and an interior cylinder, the right and left screw rod 6. 7. operating the two pistons, in conjoint operation with the gear system and motor whereby said pistons are caused to recede or approach each other for the purpose of filling or emptying the cylinder of water and sinking or raising the boat, substantially in the manner specified.

498,267. TRACTION-ENGINE. HENRY C. HICKS, Chicago, Ill. Filed June 14, 1892. Serial No. 436,864. (No model.)

Claim.—1. In a traction engine, the combination of an endless chain, means for imparting motion thereto, and a traveling block carrying a pressure arm and adapted to be alternately brought into engagement with the upper and lower strands of the endless chain, substantially as described.

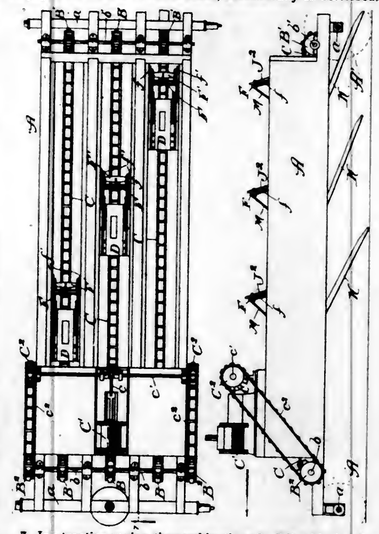
2. In a traction engine, the combination of an endless chain, means for imparting motion thereto, a traveling block carrying a clutch wheel, a pusher arm, and means for bringing the clutch wheel on the traveling block into engagement alternately with the upper and lower strands of the endless chain, substantially as described.

3. In a traction engine, the combination of a frame or body, an endless chain supported therein, means for driving such chain, a traveling block sliding in the body and carrying a pressure arm, and means whereby such block is engaged and operated by the upper and lower strands of the endless chain alternately, substantially as described.

4. In a traction engine, the combination of a frame or body, an endless chain supported therein, means for driving such chain, a sliding block carrying a pressure arm, and means whereby the block is operated upon alternately by the upper and lower strands of the endless chain, whereby as the block is in engagement with one of such strands it will be moved in the body, and as the block is in engagement with the other strand the body will be moved on the block, substantially as described.

5. In a traction engine, the combination of a frame or body, an endless chain supported upon suitable wheels journaled in such body, means for imparting motion to the chain, a block sliding in ways in such body carrying a pressure arm and a clutch wheel, and means whereby the wheel is alternately brought into engagement with the upper and lower strands of the endless chain and held from revolving when in such engagement, substantially as described.

6. In a traction engine, the combination of a frame or body, an endless chain supported therein, means for imparting motion to such chain, a block sliding in the body and carrying a pressure arm, two rigidly connected clutch wheels mounted in such block, means whereby one of such wheels is brought alternately into engagement with the upper and lower strands of the endless chain, and mechanism engaging with the other wheel to prevent the revolution of the wheels when in engagement with the endless chain, substantially as described.



7. In a traction engine, the combination of a sliding block, a frame, arms pivoted to such block and attached to the frame, a shaft journaled in such arms and carrying a clutch wheel and a locking wheel, a lever pivoted to the block connected to the frame and adapted to engage with the locking wheel, a pressure arm pivoted to the block, and means whereby the clutch wheel is brought alternately into engagement with the upper and lower strands of the endless chain and the locking lever brought into engagement with the locking wheel to prevent the rotation of such wheels, substantially as described.

8. In a traction engine, the combination of a body or frame, sprocket wheels journaled in such body, an endless chain passing over such wheels, means for imparting movement to the chain, a clutch block sliding in guides in the frame, a frame E', arms pivoted to the clutch block and connected to the frame, a shaft journaled in such arms, a clutch wheel and two locking wheels mounted on such shaft and rigidly secured together, a Y-shaped locking lever pivoted to the block and connected to the frame E', a pressure arm pivoted to the block and supported in a yoke attached to the frame, rollers connected to the frame traveling in suitable guides in the body, and springs at the ends of such guides for acting upon and directing the rollers, whereby as the chain moves continuously the block engaging with one strand of the endless chain will be moved forward in the body and then, being brought into engagement with the other strand the body of the engine will be moved forward, substantially as described.

493,268. CAR-COUPLING. JAMES R. HINCHMAN and ADOLPH W. HILLS, Denver, Colo.; said Hills assignor to said Hinchman. Filed July 5, 1892. Serial No. 438,094. (No model.)



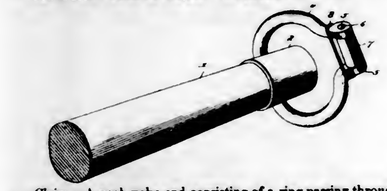
Claim.—1. The link guide or guide-fork H, in combination with handle L secured to iron bar A with rivet I, substantially as set forth.

2. The link guide or guide-fork H, in combination with handle L secured to iron bar A with rivet I, and bar A secured to handles F F with rivets G G, substantially as set forth.

3. The link guide or guide-fork H, in combination with handle L secured to iron bar A with rivet I, handle L passing through link R in iron bar J, with bar J secured to handles F F with loose rivets K K, substantially as set forth.

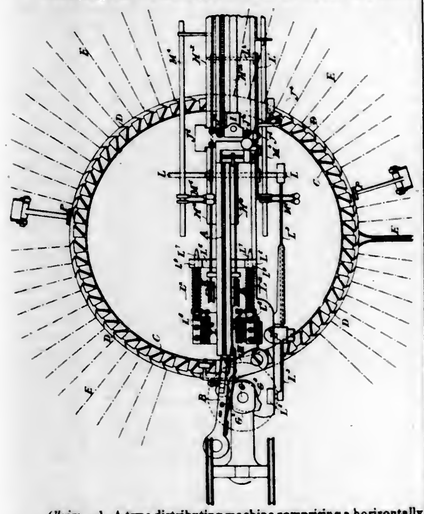
4. The link guide or guide fork H with link rest N, with beveled lugs O O, in combination with handle L secured to iron bar A with rivet I; handle L passing through link R in iron bar J, with bar J secured to handle F F with loose rivets K K substantially as set forth.

493,269. NECK-YOKE. WILLIAM H. HOLT, Busti, N. Y. Filed Dec. 2, 1892. Serial No. 453,822. (No model.)



Claim.—A neck yoke end consisting of a ring passing through a staple attached to the yoke, said ring having its two ends extended outward parallel to each other, a suitable roller journaled between the two parallel extended ends of said ring, and a link surrounding the two said extended ends between the roller and the periphery of the ring, substantially as shown and described.

493,270. MACHINERY FOR DISTRIBUTING TYPE. JOHN HOOKER, Beccles, England. Filed Nov. 23, 1891. Serial No. 412,815. (No model.)



Claim.—1. A type distributing machine comprising a horizontally revolving wheel, a series of pins projecting from the circumference thereof and on which nicked type are hung by their nicks, means for actuating the wheel to carry around the type, a series of channels, means for dropping the type into their own proper channels, bridge pieces set at the points where the several classes of type hanging by their class nicks on to the pins are to be disengaged from the pins, said bridge pieces being constructed and arranged to allow the thin type only to descend a distance but put the thick ones of the class back again on to the pins in the same position that they were in before, so as to admit of the machine being used for distributing type, some of the classes or divisions of which contain two or more sets of type which have identically the same nicks cut it them but which are of different thickness.

2. The combination of a horizontally revolving wheel, means for actuating it, pins projecting from the circumference of the wheel, mechanism for delivering the nicked type one by one on to each pin as it is brought around to such mechanism, means for causing the nick which is nearest to the bottom of the type to engage with the pin, inclined stops at different elevations against which those of the type which hang lowest and which constitute one class come and are set free from the pins while the type of the other class which hang at a higher level are carried on by the wheel, means for actuating the mechanism above referred to, an incline against which the lower end of the next class of type are brought, and which disengage them all from the pins on which they were hanging, a fixed bridge piece set at this point at a short distance from the circumference of the wheel which supports such of the type which are too thick to pass between it and the wheel but allows the thinner ones to descend until the next nick cut in each is caught by the supporting pin, stops to disengage those that hang lowest, a stop to subseqnently disengage the thick ones of the class and allow them to descend until caught by the next nicks cut in them, and stops to disengage these thick ones before those in the next class are lowered.

3. In mechanism for feeding forward a continuous line of type to be distributed in a distributing machine, the combination of a channel supporting the line of type, two blocks, guides parallel with the channels on which the blocks are supported, means for sliding the blocks along the guides, a blade descending from each block into the type channel, a spring for drawing such blade upward out of the channel, a catch for retaining the blade in its lowest position and retaining it in the channel, means for drawing each block forward, mechanism for liberating the above-mentioned catch when the block has traveled to within a short distance of the foremost end of the channel and so putting that sliding block out of action while the line of type continues to be moved forward by the other sliding block.

4. The combination of the channel, two blocks, guides on which they are supported parallel with the channel, means for sliding the blocks on the guides, the blade descending from each block into the channel, the spring for drawing it up, the catch lever for holding it down, the weighted cord for drawing each block forward, a lever, a cam, a continuously revolving shaft on which the cam is mounted, said cam being arranged to strike against the catch lever and set the blade free to be drawn up and put out of action when the block has traveled to within a short distance of the foremost end of the channel.

5. The combination of the channel, two blocks, guides parallel with the channel on which the blocks are mounted, means for sliding the blocks along the guides, a blade descending from each block into the channel, the spring for drawing it up, the catch for holding it down, the weighted cord for drawing each block forward, the weighted cord for drawing the block backward and partially balancing the action of the weight which is drawing it forward, the catch for locking this second cord to the block, and mechanism for liberating this catch and releasing the block from the cord at the time when the blade carried by a preceding block is drawn upward out from the channel and put out of action.

6. The combination of the channel, two blocks, guides in which the blocks are mounted, means for sliding the blocks along the guides, the blade descending from each block into the channel, the spring for drawing it up, the catch for holding it down, the weighted cord for drawing each block forward, the spring stop for the block to come against when the blade is drawn up from the channel, the hinged joint upon which said spring-stop is carried and which allows the block's being moved away sidewise and set free from its guides after it has been drawn up to the stop.

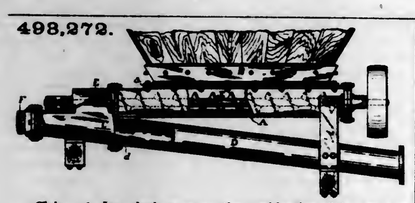
493,271. COPYING-PRESS. HENRY M. HOYT, Spokane, Wash. Filed Sept. 23, 1892. Serial No. 446,739. (No model.)



Claim.—The combination in a desk, of the desk top constituting the upper fixed platen of a copying press, the brackets H H secured to the inner sides of the desk, the guides P P attached to said brackets, the shaft S supported in said brackets and projecting at one extremity outside the desk, the eccentric cams C C rigidly mounted on said shaft adjacent to the sides of the desk, the follower B having an under surface free from depending obstructions and resting upon said cams, and a crank D fitting onto said shaft, exterior to said desk, substantially as described.

493,272. APPARATUS FOR MOVING COAL. EDGAR D. [illegible] strom, Connersville, Ind. Filed Oct. 31, 1892. Serial No. 450,498. (No model.)

498,272.



Claim.—1. In a slack remover, the combination of the conveyer chamber, the hopper mounted thereon an enlarged receiving chamber at the discharge end of the conveyer chamber, the spiral conveyer having its end extending into the enlarged receiving chamber, and the blast pipe leading from a blower and connected to the enlarged receiving chamber substantially as hereinbefore set forth.

2. The combination of the conveyer, a hopper mounted thereon, an enlarged receiving chamber connected to the discharge end of the conveyer, and the blast pipe leading from a force blower and connected to the enlarged chamber said pipe having its end opening which connects with said chamber contracted substantially as and for the purpose set forth.

3. The combination substantially as hereinbefore set forth of the conveyer chamber, the hopper mounted thereon, an enlarged receiving chamber connected to the discharge end of the conveyer chamber, the spiral conveyer extending into the receiving chamber, the blast pipe D, having its end opening contracted at *d*: and its opposite end arranged to connect to a force blower.

498,273. RATCHET-WRENCH. MONTGOMERY F. KILLINGER, Wytheville, Va. Filed June 15, 1892. Serial No. 436,845. (No model.)



Claim.—1. In a wrench of the class described, the combination with a stock having a circular opening, a socket mounted therein and having a rectangular opening, one or more of the faces of which are provided with dovetailed grooves, ribs surrounding the lower edge of the opening and forming stops, of filling blocks having dovetailed ribs for removably fitting the grooves, said ribs terminating short of the lower edges of the blocks, and turn-buttons mounted on the socket and adapted to lock the blocks against upward withdrawal, substantially as specified.

2. In a wrench of the class described, the combination with a stock, of a cylindrical socket mounted in the stock and having a nut receiving opening, one wall of which is removable, whereby the opening is accessible from the side, substantially as specified.

3. In a wrench of the class described, the combination with a stock having a circular opening, of a cylindrical socket mounted in the opening having a rectangular nut-receiving opening, one wall of the rectangular opening being removable, the removable section being hinged at one end to the socket and at its opposite end provided with a tenon adapted to fit a cavity or mortise formed in the opposite end of the socket, and a spring-pressed locking-pin mounted in the free end of the removable section and adapted to engage with an opening in the adjacent end of the socket, substantially as specified.

4. In a wrench of the class described, the combination with a stock, of a cylindrical socket mounted therein, and having a nut receiving opening, one of whose walls is removable, the outer surfaces of the socket and removable portion being toothed continuously, and pawls to engage the toothed periphery, substantially as specified.

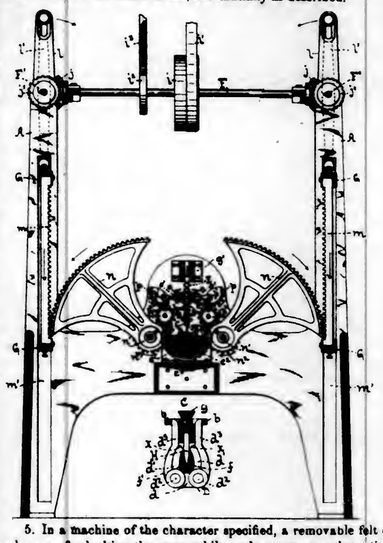
498,274. PIANO-HAMMER-COVERING MACHINE. MARTIN KNUDSEN, Daigsville, N. Y. Filed Nov. 29, 1892. Serial No. 453,510. (No model.)

Claim.—1. In a machine of the character specified, a removable felt die and molding clamp, and means for locking the felt die when closed, substantially as described.

2. In a machine of the character specified, a removable felt die and holding clamp, and a device on the clamp for locking the felt die, substantially as described.

3. The removable felt die herein described, having two hinged sections, and a molding clamp provided with a locking device arranged to engage the sections of the felt die when closed, substantially as described.

4. The removable felt die herein described, having a stationary central part, two sections hinged thereto, and arms projecting from said sections; combined with the molding clamp provided with locking devices arranged to engage with and automatically lock the sections of the felt die when closed, substantially as described.



5. In a machine of the character specified, a removable felt die and means for locking the same while under pressure, substantially as described.

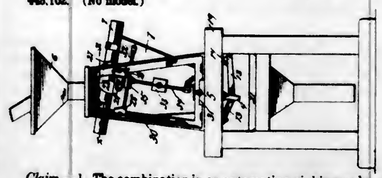
6. In a machine of the character specified, a reciprocating clamp head, a molding clamp adapted to be inserted into the same, a removable felt die, means for closing the same upon the felt, and a locking device for locking the die while under pressure substantially as described.

7. In a machine of the character specified a felt die provided with hinged sections and severing devices secured to said sections, substantially as described.

8. In a machine of the character specified, a felt die provided with hinged sections, severing devices secured to said sections and means for moving said severing devices longitudinally, substantially as described.

9. In a machine of the character specified, the combination with the molding clamp and the felt die provided with movable sections, of reciprocating racks and intermediate gear connections between said racks and the molding clamp and felt die for operating the same, substantially as and for the purpose set forth.

498,275. AUTOMATIC GRAIN-SCALE. MARSHALL R. LLOYD, Minneapolis, Minn., assignor of one-half to Edward H. Holbrook, Jr., same place. Filed July 21, 1890. Renewed Aug. 15, 1892. Serial No. 443,102. (No model.)



Claim.—1. The combination in an automatic weighing scale, with a tilting hopper provided with suitable downwardly swinging discharge doors adapted to swing from the outer edge of said hopper, of knuckle joint locking devices, secured upon said tilting hopper and pivoted to said doors and a suitable notched bar secured upon the frame of said hopper, said knuckle joint devices being adapted to engage with said bar to lock one of said doors in position and to unlock the other of said doors alternately, substantially as described.

2. The combination of the tilting hopper adapted to operate in suitable bearings provided upon a suitable frame, with movable stops provided upon said frame, suitable lugs upon the sides of said hopper and a suitable adjustable weight adapted to be moved up or down upon the said rod whereby the tilting point of the said hopper may be regulated, substantially as described.

3. The combination with a tilting hopper, of an automatic weighing scale, divided into adjacent compartments by a suitable partition, of a suitable deflecting plate pivoted at its lower edge centrally over said partition, a suitable frame in which said hopper is adapted to tilt, and a suitable feed spout supported above said tilting hopper through which the material is fed into said hopper, stationary lugs lying in the path of the upper edge of said deflecting plate adapted to engage with said upper ends to tilt the same into an angle opposite that at which the hopper is tilted, and means whereby the radial swing of said deflecting plate is limited, substantially as described.

4. The combination with a supporting frame, of the tilting hopper divided into the two compartments by the central partition and provided with openings in the bottom of said compartments, suitable swinging doors pivoted to said hopper, notched bars secured upon said supporting frame, knuckle-joint locking devices secured upon either side of the lower end of said partition and pivoted to said doors, respectively, and adapted to engage with the said notched bars to alternately lock and unlock said doors, stops upon said hopper adapted to engage with suitable lugs upon said doors to limit the outward movements of the same, the deflecting plate hinged centrally over said partition, and provided with the sectors upon its ends, the lower edges of said sectors being adapted to engage with said partition to limit the radial movement of said deflecting plate upon its pivot, lugs upon the said frame adapted to engage with said deflecting plate to tilt the same at an angle opposite to that of the said partition when the said plate is carried into engagement with said lugs by the movement of said tilting hopper and means for regulating the tilting point of the said hopper, substantially as described.

5. The combination in an automatic weighing scale, of the tilting hopper pivoted to tilt upon suitable knife edge bearings upon the stationary frame 30 of the machine, and provided with the central partition 4 and with the doors 9 and 10, suitable stops to limit the outward movement of said doors, brackets or arms 13 projecting laterally from the lower end of said partition 4, the links 14 pivoted to the ends of said arms, the links 15 pivoted respectively to said links 14 by the weighted pivots 17, said links 15 being pivotally attached to said doors 9 and 10 respectively, the supporting frame 19 and the notched bars 18 secured thereon and adapted to engage with the links 14 to open and close said doors alternately, substantially as described.

6. The combination with a divided tilting hopper provided with the compartments 2 and 3 and with the discharge doors 9 and 10, and stops limiting the downward movements of said doors, of locking devices attached to said doors, the deflecting plate 22 pivoted centrally over said hopper and provided with the sectors 26 and 27 adapted to operate as stops to limit the radial movement of said deflecting plate, the lugs adapted to engage the upper edge of the said deflecting plate to tilt the same, the upright bar 34 placed centrally upon said hopper, the adjustable weight 33 thereon, the lugs 29 upon the sides of said hopper, and means for limiting the throw of said hopper, substantially as described.

7. The combination with the tilting hopper, of an automatic weighing scale, of the deflecting plate 22 pivoted centrally over said hopper and provided with limiting stops 26, and the lugs 24 and 25 upon the frame of said tilting hopper, said deflecting plate being adapted to engage with said lugs, substantially as described.

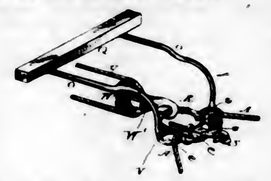
8. The combination with the tilting hopper, of an automatic weighing scale, of the bar 34 placed centrally upon the side of said hopper, the adjustable weight thereon, lugs 29 upon said hopper and the adjustable blocks 28 secured upon the stationary frame of said hopper whereby the tilting point of said hopper may be regulated, substantially as described.

9. The combination in an automatic weighing scale, with a tilting hopper provided with swinging discharged doors adapted to swing from the outer edges of said hopper, of knuckle joint locking devices connected with said doors and arranged to lock and unlock said doors alternately as said hopper is tilted, substantially as described.

10. The combination with the tilting hopper and the stationary inlet spout, of the tilting deflecting plate hinged upon the upper edge of the middle partition of said hopper, said plate adapted to swing freely thereon entirely independent of the movement of any other part of the hopper, and means provided on said spout or other stationary support for tilting said plate after its upper edge has passed beneath said spout, substantially as described.

11. The combination with the tilting hopper of the transverse tube or way arranged upon said hopper, the traveling ball arranged within said tube and the vertically adjustable weight arranged centrally upon said hopper, substantially as described.

498,276. HAY-SLING. WILLIAM LOUDEN, Fairfield, Iowa. Filed Feb. 20, 1892. Serial No. 422,336. (No model.)



Claim.—1. In hay slings, a trip coupling consisting essentially, a casting with a hooked end, a ring to engage it a holder pivoted in the hooked end of the casting and adapted to hold the ring from slipping off it, and a trip catch in the casting to release the holder and discharge the ring, substantially as set forth.

2. In hay slings, a trip coupling consisting essentially of a casting with a hooked end, a ring to engage it, a U shaped hook to hold the ring in place and a trip catch to hold and release the hook, substantially as shown and described.

3. A trip coupling for a hay sling, comprising a casting, a U-shaped hook pivoted at or near its center to the casting, a coupling ring adapted to be engaged by this hook and, a trip catch located and constructed to engage one end of this hook while the other end closes the aperture and prevents a premature discharge of the ring, substantially as set forth.

4. In hay slings, a trip coupling consisting essentially of a hollow casting, a trip catch fitted therein, a hook also pivoted in the casting and adapted to engage the trip catch, and a ring to engage the hook, substantially as shown.

5. In hay slings, a trip coupling consisting essentially of a hollow casting, a trip catch fitted therein, a hook also pivoted in the casting and adapted to engage the trip catch, and a ring to engage the hook, the trip catch being provided with flanges to engage corresponding flanges in the main casting, substantially as shown.

6. In hay slings, a trip coupling consisting essentially of a hollow casting, a trip catch fitted therein, a hook also pivoted in the casting and adapted to engage the trip catch, and a ring to engage the hook, and a stop in the casting to limit the movement of the hook, substantially as set forth.

7. In hay slings, a trip coupling consisting essentially of a hollow casting, a trip catch fitted therein, a hook also pivoted in the casting and adapted to engage the trip catch, and a ring to engage the hook, a loop being formed in the casting to guide the trip cord, substantially as shown.

8. In a hay sling, the combination with a ring having four holes formed at the edge, of a pair of sling ropes the ends of each of which pass successively through two adjacent holes of the ring and thence back between the portion of the ring between the two holes through which the end of the rope passes and the portion of the rope which crosses from one hole to the next hole, substantially as set forth.

9. In a hay sling, the combination with sling ropes, of rings to which one end of each rope is connected, a guard projecting outwardly from each ring, a projection extending from each ring in an opposite direction from the guard, and an extension rope connected to each projection whereby when strain is applied to said extension ropes the guards tend to rise, substantially as set forth.

10. The combination with a hay sling, of guards fitted to the ends of the sling to prevent hay from getting into the elevating pulleys, substantially as set forth.

11. The combination with hay sling, of attaching rings formed with extension arms projecting beyond the rings, and a guard secured to the extension arms for preventing hay from getting into the elevating pulleys, substantially as set forth.

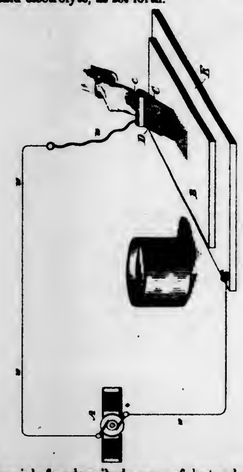
498,277. METHOD OF ELECTRO-DEPOSITING METALS. ORAMO LOGO, New York, N. Y., assignor to the Cosmic Alloy and Metal Depositing Company, of New Jersey. Filed Jan. 8, 1892. Serial No. 417,600. (No specimens.)

Claim.—1. The hereinbefore described process of electro-deposition, which consists in depositing a metal from a liquid electrolyte or paste composed of a mixture of one or more insoluble salts of such metal with water, by passing an electric current through the same in connection with a suitable anode, as set forth.

2. The hereinbefore described process of electro deposition, which

consists in the repeated application to the surface of the object which is to receive the deposit, of a liquid electrolyte or paste, composed of a mixture of water with one or more insoluble salts of the metal to be deposited, and in causing the same to be traversed by an electric current, as set forth.

3. The hereinbefore described process of electro-deposition, which consists in simultaneously depositing two or more metals from a liquid electrolyte or paste, composed of a mixture of water with one or more insoluble salts of each of said metals, by causing an electric current to traverse said electrolyte, as set forth.



4. The hereinbefore described process of electro-deposition, which consists in depositing a metal or metals from a liquid or paste, consisting of a mixture of water with one or more insoluble salts of such metal or metals, by spreading or painting the same upon the cathode while subjected to the decomposing effect of a current of electricity, as set forth.

493,278. URINAL-BOWL. PATRICK J. MADDEN, Rochester, N. Y. Filed July 21, 1890. Serial No. 359,373. (No model.)



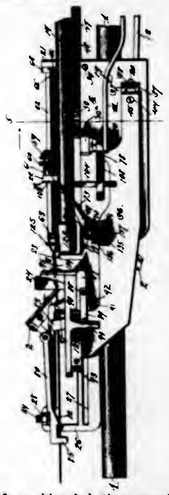
Claim.—In a urinal bowl, the combination of the two vertical passages *g* and *m* in the back of the bowl, one for the supply of water the other for air, the orifice *g'* connecting the bottom of the water passage with the interior of the bowl, the bulb C, formed wholly within the bowl and provided with the curved passages *a b* standing crosswise of the bowl parallel with its back the air passage *m* communicating with the top of said curved passages, and the discharge pipe *f* with which said curved passages connect, as shown and described and for the purpose specified.

493,279. BALE-TIE MACHINE. CHARLES O. MOOR, Kansas City, Mo. Filed June 24, 1892. Serial No. 437,017. (No model.)

Claim.—1. A machine for making bale-ties, comprising a suitable supporting framework, a pivotally movable operating-bar mounted upon said framework, a longitudinally movable slide also mounted upon the framework and having a wire-clamping extension, and a wire-clamping arm pivotally mounted upon said framework and having also a wire-clamping extension to engage the extension of the slide, substantially as set forth.

2. A machine for making bale-ties, comprising a suitable supporting framework, a longitudinally movable slide mounted upon the framework and having a lateral extension, a pivotally operating bar also mounted upon the framework and operatively connected to the slide, and a pivotally operating bending-bar mounted upon the framework and engaged by the extension of the slide, substantially as set forth.

3. A machine for making bale-ties, comprising a suitable supporting framework, an extension or arm therefrom, a cutter blade secured to said arm, a cutter bar pivotally mounted upon the framework and adapted to work in conjunction with the cutter blade, a pivotal fork also mounted upon the framework and embracing the free end of the cutter bar, a bell-crank lever mounted near the delivery end of the machine, a bar connecting the bell-crank lever and the pivotal fork, and an operating bar for actuating the connecting bar, substantially as described.



4. A machine for making bale-ties, comprising a longitudinally extending and horizontal supporting bar, having vertical apertures therethrough, a horizontal base plate secured upon the supporting bar at one end, and a supporting bearing at the opposite end longitudinally adjustable upon said bar and carrying an operating bar, and a longitudinally adjustable block secured upon the supporting bar a suitable distance from the adjustable bearing by bolts passing through said base plate bearing and supporting block and through the apertures of the bar, a longitudinally movable sliding plate mounted upon the base plate, a bar pivotally connecting the crank arm of the shaft carrying the operating arm and the sliding plate, and a bell-crank lever having an outstanding stud or projection against which the slide plate actuating bar is adapted to operate, substantially as described.

5. A bale-tie making machine, comprising a pivotally acting operating-bar provided at one end with a laterally extended arm having a grooved stud at one of its sides, and a pin or hook extending obliquely from the arm at a point adjacent to the stud, substantially as set forth.

6. A bale tie machine, comprising a suitable framework, a base plate mounted upon said framework near one end, and a bearing mounted upon the framework near the opposite end thereof and adjustable toward or from the base plate, a rock-shaft mounted in said bearing having a crank arm at one end, an operating bar secured to the opposite end of the rock-shaft, a slide plate mounted on the upper side of the base-plate, and a link-bar connecting the crank-arm of the rock-shaft and the slide plate, substantially as described.

7. A bale-tie making machine, comprising a suitable supporting framework, a longitudinally movable slide mounted upon said framework and having at one end a vertical standard, a lateral extension of the framework, and a pivotal wire-clamping bar mounted upon the framework and having its free end engaged at times by the standard; the opposite end of the clamping-bar operating in connection with the extension of the framework, substantially as set forth.

8. A bale-tie making machine, comprising a suitable supporting framework, and a twister-bar journaled horizontally upon said framework and having a radial twisting-arm, and also carrying a beveled gear-pinion, a beveled gear-wheel mounted upon the framework and carrying a dog or pawl, a gear-pinion mounted independently of the gear-wheel and having a marginal tooth, and a slide carrying a rack-bar the teeth of which mesh with the said gear-pinion, substantially as set forth.

9. A bale tie machine, comprising a supporting framework and base plate, a pivotal operating arm or handle located at one end of the machine a sliding plate located upon the base plate at the opposite end of the machine and actuated through a connecting bar, and a pivotally acting bender-bar actuated by the sliding plate, substantially as described.

10. In a bale-tie machine, a base-plate, a bender-bar pivotally mounted upon the base plate, having a hollow hub or boss and a returning spring inclosed within said boss, and having also an outwardly extending arm provided near its lower end with a groove for the reception of the wire, and a buffer spring secured to the margin of the base plate and adapted to bear at the rear of the bender arm, and having also an inwardly projecting arm, and a slide mounted upon the base plate provided with a laterally extending arm adapted to engage the inwardly projecting arm and actuate the bender-bar, substantially as described.

11. In a bale-tie machine, a supporting framework and base plate having an extension frame, a laterally movable longitudinally extending clamping arm pivoted upon said extension and having a beveled inner face, and a regulating-screw mounted in an adjacent part of the extension and engaging the free outer end of the clamping bar, substantially as described.

12. A bale-tie machine, comprising a supporting framework and a base plate mounted thereon, a sliding plate mounted upon said base-plate, a standard mounted upon the base plate, a wire guiding and gripping arm pivotally mounted at the outer side of said standard, a spring mounted upon the standard and supporting normally the wire guiding and gripping arm, and a standard mounted upon the slide plate having a cam stud on its outer face and actuating at times the gripping and guiding arm to clamp the bent wire in combination with a stationary and lateral extension of the base plate, substantially as described.

13. In a bale-tie machine, comprising a supporting standard and a base plate, a sliding plate mounted upon the base plate, a standard mounted upon the base plate, a wire guiding and gripping arm pivotally mounted to the outer side of said standard, a spring secured upon said standard, and a standard located upon the sliding plate having a projecting cam-stud upon its outer face, and a standard mounted longitudinally upon the slide plate at its receiving end and adapted to engage and hold the guiding and gripping arm in its depressed and clamping position until the wire is twisted, substantially as described.

14. In a bale-tie machine, a base plate and a standard thereon, a wire guiding and gripping arm pivoted near its middle to the outer side of said standard, an inwardly projecting stud at its lower and receiving end, an inwardly projecting stud near its middle, and an outwardly projecting stud at its rear or delivery end having a depending and bifurcated lug therefrom to guide and retain the wire in its position, and an outwardly and downwardly extending enlargement near its pivotal point having a longitudinally extending groove in its under margin to receive and guide the wire, substantially as described.

15. In a bale-tie machine, a supporting framework, a base plate mounted upon said framework and having a skeleton extension frame, having a lateral extension at its receiving end, and a clamping arm pivotally mounted upon the extension frame and having a vertical and longitudinally rearward and outward beveled inner face, and an extension end having an aperture for the passage of the wire, and an adjusting bolt mounted upon the extension frame and adapted to clamp the wire between the beveled face of the arm and the lateral extension of the slide, substantially as described.

16. In a bale-tie machine, a supporting framework, a base plate mounted upon the supporting framework and having a skeleton extension frame, and also provided with the longitudinally extending slots, one in the base plate proper and one in the extension thereof, and a slide plate mounted upon the base plate and having a friction roller at its rear end, and a downwardly extending guide rib engaging and working in the forward slot in the extension frame, and a vertical bolt extending through and guided in the rear slot and through the laterally extending arm of the rack-bar, substantially as described.

17. The combination in a bale-tie machine, of a twister-bar having a radial twisting arm or pin adapted to engage an eye or loop in the end of the wire, with a pivotal actuating bar having a hook at its free end adapted to receive the wire eye or loop from the twisting arm or pin, and a stud at the inner end of said hook to receive the eye or loop of the wire from the hook, substantially as set forth.

493,280. SURGICAL IRRIGATING-BASIN. JOHN H. MORRISON, Salida, Colo. Filed Aug. 23, 1892. Serial No. 443,773. (No model.)

Claim.—1. In a surgical basin, a segmental inflatable cushion rim, and a curved or rounded bowl partly inclosed by said rim and having a central bottom discharge opening, substantially as set forth.

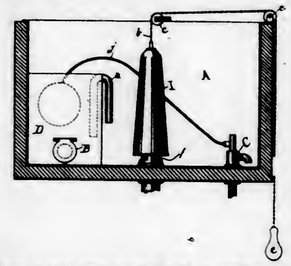
2. In a surgical basin, a segmental inflatable cushion rim, and a fixed central front discharge basin partly inclosed by and forming an

493,280.



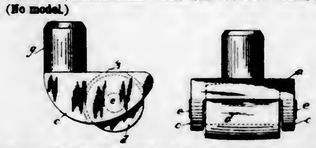
intermediate part of said rim and having an integral upwardly extended dam which is formed by an extension of the front side of the bowl, substantially as set forth.

493,281. FLUSH-TANK. JAMES T. MCDONOUGH, THEODORE MEHRL, and JOSEPH MEHRL, St. Paul, Minn. Filed Oct. 13, 1891. Serial No. 408,569. (No model.)



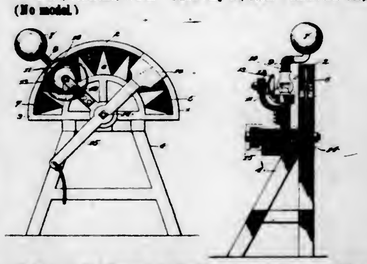
Claim.—A flush tank provided with a secondary tank, in combination with a siphon connecting the two, the long leg of the siphon being located in the secondary tank, a float operating within the secondary tank and connected to actuate a valve in the main tank, and a valved opening between the main and secondary tanks, whereby the main tank is allowed to completely fill before the float is lifted, as and for the purpose set forth.

493,282. DEVICE FOR MOVING HATCH-PLATES. ALEXANDER MCDOUGALL, Duluth, Minn. Filed Mar 27, 1890. Serial No. 345,589. (No model.)



Claim.—An improved caster for moving hatch plates consisting of a main portion *a*, having depending lugs *e e*; a roller *d* having bearings in the lugs *e e*; a cylindrical stud or projection *g* integral with the main portion *a* for the purpose mentioned; and an opening *f* within the main portion above the roller for the purpose mentioned.

493,283. NAUTICAL SIGNAL. JAMES R. MCGREGOR and OLLIE O. PERRY, Centralia, Wash. Filed July 16, 1892. Serial No. 440,951. (No model.)



Claim.—1. The herein described signal comprising a semicircular dial mounted on a framework, and having white or transparent glasses with red and green glasses at the sides thereof arranged concentrically in said dial, and an oscillating hand carrying a white light and

mounted on a shaft in rear of said dial, and connection between said shaft and rudder of the vessel as and for the purpose set forth.

2. In a nautical signal, the combination of a dial having glasses of different colors and an oscillating index hand carrying a light movable in rear of said dial, substantially as described.

3. The herein described nautical signal comprising an oscillating white light mounted on a shaft, a semi-circular stationary dial in front of said light having open spaces with red and green colored glasses at the sides thereof arranged concentrically in said dial, a lever centrally on said shaft and having one end weighted, and connection between its other end and the end of the vessel.

4. The herein described nautical signal comprising an oscillating white light mounted on a pivotal shaft centrally in a circular opening, an oscillating arm carrying an index hand, and connection between said shaft and the rudder of a vessel for deflecting said hand correspondingly with the movements of the rudder, substantially as described.

5. The herein described nautical signal comprising a light carried within an oscillating arm provided with a forward projecting index hand keyed on an oscillating shaft, a dial in front of said index hand and having graduations thereon, a dial being colored red at one side and green on the other side of a vertical line by means of colored glasses, and connection between said shaft and the rudder of a vessel for deflecting said index hand correspondingly with the movements of the rudder, substantially as described.

6. The herein described nautical signal comprising an oscillating light on an oscillating shaft journaled in bearings, an arm keyed on said shaft provided with an index hand at its outer end, and carrying said light within a circular opening thereof, a stationary dial in front of said light and provided with glasses colored red at one side of a vertical line and green at the other side thereof and having graduation marks, and connection between said shaft and the rudder of a vessel for deflecting said hand and said light correspondingly with the movements of the rudder, substantially as described.

7. The herein described nautical signal comprising an upright stationary dial supported by a framework, its face being colored red on one side and green on the other side of a vertical line by means of colored glasses, and having white or colorless triangular pieces for graduation marks pointing radially outward, an oscillating shaft journaled through the center of said dial, an arm keyed on said shaft bearing a light and a forwardly projecting index hand and moving over the outer and front edge of said dial, and connection between said shaft and the rudder of a vessel for deflecting said light and said hand correspondingly with the movements of the rudder, substantially as described.

8. The herein described nautical signal comprising an upright dial supported by a framework, its face being differently colored at opposite sides of a vertical line by means of colored glasses, and provided with graduation marks, an oscillating shaft mounted in bearings and extending through the center of the dial, an arm keyed on said shaft and moving at rear of said dial, a light carried by said arm and provided with a reflector, an index hand carried by said arm projecting forward and over said dial and moving over the outer edge of the latter, and connections between said shaft and the rudder of a vessel for deflecting said light and said hand correspondingly with the movements of the rudder, substantially as described.

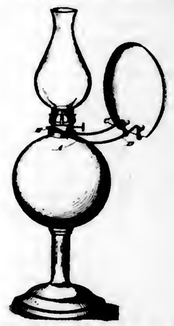
9. In a nautical signal the combination of an oscillating white light provided with a reflector and mounted on an oscillated arm carrying a forwardly projecting index hand, and keyed on an oscillating shaft journaled in bearings supported by a framework, a stationary graduated dial carried by said framework in front of said light and having red and green glasses respectively on the right and left of a vertical line, said oscillating shaft projecting through the center of said dial, a lever weighted at one end keyed on said shaft, and connections between said shaft and the rudder of a vessel for deflecting the light and index hand correspondingly with the movements of the rudder substantially as set forth.

10. In a nautical signal, a dial stationarily supported and having colored glasses therein and open spaces or colorless glasses, and a white light movably supported in rear of said dial, substantially as described.

493,284. REFLECTOR AND BRACKET FOR LAMPS. WILLIAM S. HEVIER, Terre Haute, Ind. Filed Apr. 25, 1892. Serial No. 430,513. (No model.)

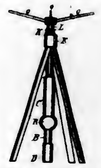


493,284.



Claim.—The combination with the lamp of a bracket formed of a single piece of wire bent back upon itself, and provided at one end with a seat, and at the other with a clasp and pivot, and a reflector having a straight edge portion and perforated to receive the pivot, substantially as shown and described.

493,285. COMBINED CANE AND STOOL. JAMES A. NIXON, Titusville, assignor of three-fourths to Harvey J. Hopkins, Pleasantville, Pa. Filed June 4, 1892. Serial No. 435,509. (No model.)



Claim.—1. In a folding camp stool: the tripod constructed as shown, the legs forming the tripod held together at the top by the elastic ring F; the top forming, when the legs are spread, a frustum of a cone, the top inclosed in the socket E, and with the follower H, fitting over and resting on the conical head of the tripod; substantially as shown and described.

2. A folding camp stool; consisting of a tripod, the legs of which are constructed as shown, the head of the tripod inclosed in the socket E, and forming, when the legs are extended, a frustum of a cone; the follower H, resting on and inclosing the head of the tripod; the ring L, having internally projecting screw threads at the bottom engaging with and passing the externally projecting threads on the top of the neck I, of the follower H; the internal collar K; the radial arms O, hinged in slots in the ring L; and the plug P, inserted in the upper end of the ring L, the radial arms, when extended, resting on the bottom of the slot M and on the under side of the screw P; all the parts working in combination substantially as shown and described.

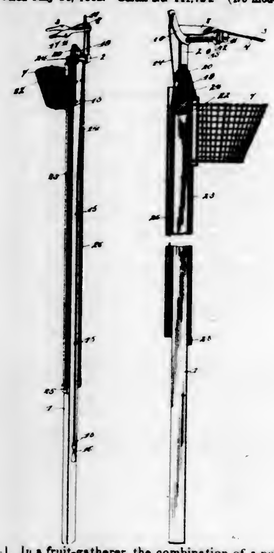
3. A convertible cane and camp stool: consisting of the central section A, formed of the tripod, the legs of which, folded together, form a round stick, and when extended form a tripod for the support of the seat; the head of the tripod inclosed in the socket E; the follower H, inside the socket, resting on and inclosing the head of the tripod; the ring L, with internally projecting screw threads at the bottom, engaging with and passing the externally projecting screw threads on the top of the neck I, of the follower H; the internal collar K; the radial arms O, hinged in slots in the upper end of the ring L; the plug P, in the top of the ring L; and the lower section B, of the cane, inverted and inserted in the center of the tripod and forming a central support; the ferrule C, with head R. All the parts working in combination; substantially as shown and described.

493,286. PROCESS OF DYEING BLACK. CHARLES F. X. NOEOT, Paris, France. Filed Aug. 28, 1891. Serial No. 404,008. (No specimens.) Patented in France Mar. 31, 1888, No. 189,733; in Belgium Oct. 10, 1888, No. 83,561; in Germany Oct. 13, 1888, No. 48,595; in England Nov. 24, 1888, No. 17,094; in Austria-Hungary June 5, 1889, No. 882 and No. 10,799, and in Italy Aug. 26, 1889, XXIII, 26,049, LI, 230.

Claim.—1. The process of dyeing in black, consisting of first submitting the goods to be dyed to a bath composed of water, logwood and a copper salt; then immersing the goods in a second fixing bath composed of water, metallic sulphates, bi-chromate of potash and neutralized nitrated starch, the solution being rendered slightly alkaline by the addition of soda potash or ammonia, substantially as herein described.

2. In a process of dyeing in black, a second or fixing bath composed of neutralized nitrated starch, alum, metallic sulphates, bichromate of potash and a small quantity of soda or ammonia, substantially as described.

493,287. FRUIT-GATHERER. LEVI OLMSTED, Jersey Shore, Pa., assignor of two-thirds to James Stark, Jr., and William A. Seitz, same place. Filed July 30, 1892. Serial No. 441,734. (No model.)



Claim.—1. In a fruit-gatherer, the combination of a pole, shears mounted at the top of the pole, a rock-shaft journaled at the top of the pole and having one end mounted on one of the blades of the shears and provided with an arm and having a collar, a resilient metal strap secured to the other blade of the shears and attached to the collar and adapted to be wound around the same, and connections between the arm and the lower portion of the pole, substantially as described.

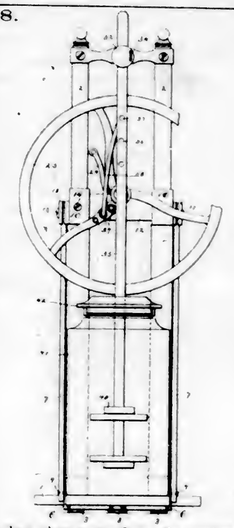
2. In a fruit-gatherer, the combination of a pole, a bar secured to the top of the pole and having its upper portion bent upwardly and outwardly, shears secured to the upper end of the bar and having one of its blades provided with a depending perforated lug, a rock-shaft journaled in the perforated lug and on the bar and provided with a collar arranged beneath the blade having the lug, a resilient metal strap secured to the other blade and attached to the collar and adapted to be wound around the latter, an arm extending from the rock-shaft, and connections between the arm and the lower portion of the pole, substantially as described.

3. In a fruit-gatherer, the combination, of a pole, shears mounted at the top of the pole and having one of its blades provided with a stop to limit the closing of the same, a rock-shaft arranged at the top of the pole and having one end journaled on one of the blades, a resilient strap connected to the other blade, a collar arranged on the rock-shaft and having the resilient strap secured to it, and means for turning the rock-shaft to close the blades, substantially as described.

4. In a fruit-gatherer, the combination of a pole, provided at the upper end with a pulley, a sheet-metal guide arranged at one side of the pole and having its longitudinal edges bent inward on its outer face to provide grooves, a longitudinally disposed tube arranged at the opposite side of the pole, a stop arranged at each end of the guide, a cord passing around the pulley, a basket attached to one end of the rope and provided with a flanged slide engaging the grooves of the guide, and cylindrical weight attached to the other end of the cord and arranged in the tube, substantially as described.

493,288. CHURN-POWER. CHARLES W. PATTON, Clarksville, Ind. Filed May 11, 1892. Serial No. 432,644. (No model.)

493,288.

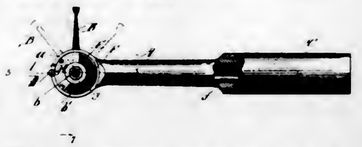


Claim.—1. In a churn-motor frame, the combination with the base provided with openings, standards rising from the openings and removably seated therein, and connecting-bars between the standards, of a pair of inclined braces pivoted at their lower ends to the base and at their upper ends connected to the standards in a detachable manner, said braces being adapted to fold upon the base, and a reciprocating dasher supported by the frame, substantially as specified.

2. In a churn-motor frame, the combination with the base, having the openings, the standards having their lower ends removably mounted in the openings, the transverse cast-metal bar 4, secured to the under side of the base having a central opening and a plug therein which co-acts with the lower ends of the standards to form feet, said casting being further provided at its ends with upturned flanges, of inclined brace-rods pivoted at their lower ends to the upturned flanges and at their upper ends removably connected to the standards, the lower ends of the latter being removably inserted in the openings of the base and a reciprocating dasher supported by the frame, substantially as specified.

3. In a churn-motor frame the combination with the base, the opposite standards, the metal casting 4 having the upturned flanges 6, of the cylindrical castings 10 mounted on the standards and provided at their fronts with transverse openings 11 and between the same with screw-holes, and in rear of said openings, and at their outer sides with lateral arms 15, having concaved faces or ends 16, provided with threaded openings, the transverse bar 12, passed through the transverse openings, the screws 14, passed through the perforation between the same, through the bar, and into the standards, the brace-rods 7, pivoted at their lower ends to the upturned flanges 6, and resting against the concaved faces of the arms 15, and the curved clamping-plates 18, and their screws 17, the plates embracing the outer sides of the rods and the screws passed through the plates and rods and into the arms, substantially as specified.

493,289. ATTACHMENT FOR DENTAL ENGINES. ADELBERT H. PECK and CLARENCE E. ALLENDORF, Chicago, Ill. Filed Nov. 27, 1891. Serial No. 413,218. (No model.)



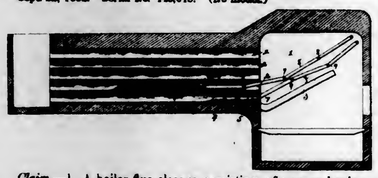
Claim.—1. In combination with the case *a* having a dovetail groove, the sliding catch D having a corresponding form adapted to move endwise in said groove, and having the tooth D' and the tumbler H having the series of notches *h* therein and mounted within said

case, the catch being adapted to lock the tumbler against turning, substantially as described.

2. The combination of the arbor *f* having the bevel gear F, the crown wheel E and the stock *b* suitably recessed for the burr and provided with gear *b'* adapted to revolve the burr, substantially as described.

3. In combination with case *a* the described tumbler having a series of notches *h* in its flange, and recessed for the burr stock, the burr stock *b* suitably recessed for the burr and provided with gear *b'*, the crown wheel E, and the arbor or spindle *f* having its bevel gear F, the whole adapted to secure the rotation of the burr at three or more different angles with the arbor *f*, substantially as set forth.

493,290. BOILER-FLUE CLEANER. CHARLES E. POOR, CLARENCE E. MESSENGER, and ALEXANDER DALLAS, Fairbury, Nebr. Filed Sept. 22, 1892. Serial No. 446,615. (No model.)



Claim.—1. A boiler flue cleaner consisting, of a scoop having a head with a slot therein and a folding handle adjustably connected to said head and movable in the slot thereof, substantially as described.

2. A boiler flue cleaner consisting, of a scoop having a head with a slot therein and a handle pivotally connected to said head and movable in the slot thereof and comprising a series of pivoted folding sections, substantially as described.

493,291. SASH-FASTENER. MICHAEL POST, Shelbyville, Ind. Filed Sept. 26, 1892. Serial No. 446,915. (No model.)



Claim.—1. In a sash lock, the combination with the window frame and upper and lower sashes, of a slat hinged at one edge to the frame and equal in length to the distance between the upper edge of the lower sash, when lowered, and the top of the frame whereby it is adapted to fit there between, and a locking-bolt carried by said slat to engage sockets in the upper sash, substantially as specified.

2. In a sash-lock, the spring-actuated, swinging slat, pivotally mounted upon the window-frame to close over the upper edge of the lower sash, and provided at its lower end with a recess fitted with a swinging-leaf, substantially as specified.

3. In a sash-lock, the spring-actuated, swinging slat, adapted to bear at its lower edge upon the upper edge of the lower sash, a swinging leaf fitted in a recess in the lower end of said slat, and means to lock said leaf in the recess, substantially as specified.

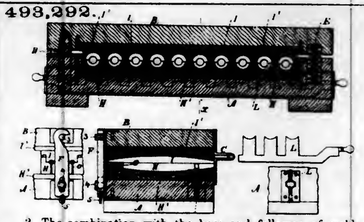
4. In a sash-lock, the pivotally mounted slat, provided with an actuating spring to normally hold it swung outwardly with its lower edge in engagement with the top of the lower sash, and a spring-actuated locking-bolt carried by the slat to engage sockets or depressions in the upper sash, said bolt being provided with a thumb-hold to travel in a slot and engage a notch in the end of the latter when the bolt is in its locking position, substantially as specified.

5. In a sash-locking device, the combination of a swinging slat, adapted to engage the top of the lower sash, a locking bolt carried by the slat to engage sockets or depressions in the upper sash when the slat is in its normal or locking position, and the eye attached to the lower sash to be engaged by said bolt when the slat is swung inward with its lower edge out of engagement with the sash, substantially as specified.

493,292. CIGAR-MOLD. JOHN PRENTICE, New York, N. Y. Filed June 22, 1891. Renewed Aug. 11, 1892. Serial No. 442,773. (No model.)

Claim.—1. The combination with the base and follower, and the cigar molds, connected respectively to the base and follower, of hinges extending out from the base and follower for connecting them at one side, and a hook for holding the parts of the molds together at the other side when closed, and an adjusting screw acting against the attaching stud for varying the operative length of the hook, substantially as set forth.

493,292. (Reissue.)

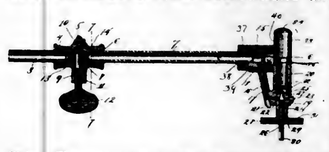


2. The combination with the base and follower, of molds and plates, to which the molds are fastened, and which plates are beveled at the ends and received into similar guides and are removable from the base and follower respectively and hinges for connecting the base and follower and a hook for holding the parts when closed, substantially as set forth.

3. The combination with the base and follower, of hinges for connecting the parts together, molds and removable plates adapted to be received by the base and follower respectively and to which plates the ranges of the molds are connected, a lifter occupying a slot running transversely of the molds in the base and having upward projections one for each mold and passing through mortises in the plate, and in the molds, substantially as set forth.

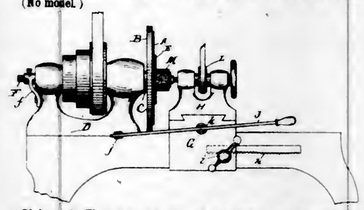
4. The combination with the base and follower, of hinges for connecting such base and follower, molds and plates to which the molds are connected, and which plates are removable from the base and follower respectively, springs for separating the molds, and a hook or connecting device for the molds when closed, substantially as set forth.

493,293. ILLUMINATING VAPOR-BURNER. ANTON PRIER, Kansas City, Mo. Filed Mar. 14, 1892. Serial No. 424,784. (No model.)



Claim.—The combination of a vapor burner, comprising a horizontal generating chamber, and a vertical burner tube having openings 36, and connected to the generating tube by an oblique channel, with a horizontal retort-casing completely surrounding the generating tube, and having an opening 38 for the supply-pipe, and a recess 40 and a recess 39, communicating with its open end, which open end fits snugly and closely against the burner tube, and communicates with the openings 36 of the burner tube, substantially as and for the purpose set forth.

493,294. APPARATUS FOR EDGING METAL RIBBONS OR STRIPS. HENRY E. PROCUNIER, Oak Park, assignor to the American Spring Company, Chicago, Ill. Filed May 4, 1891. Serial No. 391,521. (No model.)



Claim.—1. The apparatus for edging metal strips consisting of the hub *b*, plane surfaced face plate B, and the machine arbor C, in combination with a rotating emery or buff wheel and means for driving such wheel, substantially as set forth.

2. The apparatus for edging metal strips consisting of the hub *b*, face plate B, the machine arbor C, and the spider E and its support, in combination with a rotating emery or buff wheel and means for driving such wheel, substantially as set forth.

3. As a means for supporting the coiled strip while its edge is being ground, the hub *b*, face plate B, the spindle carrying said hub and plate and a retaining device adapted to hold the coiled strip in place, such as E, and suitable supports for such retaining device, all combined and operating substantially as set forth.

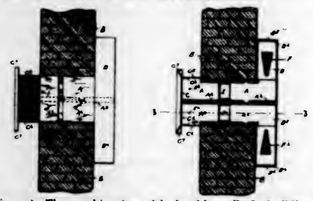
4. In combination with means embracing a face plate for supporting and rotating a coil of metal ribbon, and means for grinding or polishing the side of the coil, a retaining device for holding the coils in position against said face plate, substantially as set forth.

5. In combination with means for supporting and rotating a coiled metal ribbon or strip, a stationary device adapted to retain the coils of the strip in position while being ground, substantially as set forth.

6. In combination with means for supporting and rotating a coiled metal ribbon or strip, a grinding wheel presented endwise for action upon the ribbon, substantially as set forth.

7. In combination with means for supporting and rotating a coiled metal ribbon or strip, a rotating grinding wheel movable across the side of the coil, substantially as set forth.

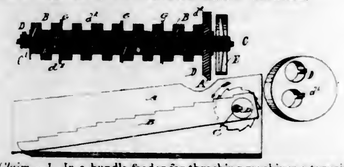
493,295. VENTILATOR. LUTHER ROBINSON, Boston, Mass. Filed Dec. 5, 1891. Serial No. 414,127. (No model.)



Claim.—1. The combination with the side wall of a building, &c., of a shell or casing located in and extending through the wall and having separated horizontal air-passages located side by side and extending lengthwise through it, horizontal continuations of said air-passages leading in opposite directions and along the outer face of the wall and open at their outer ends, a horizontal continuation of all of said air-passages forward of the inner face of the wall, and open on all its sides except the lower, and deflectors at the off end of said open sides of said air-passages at their said inner continuation, all as described, for the purposes specified.

2. The combination with the side wall of a building, &c., of a shell or casing located in and extending through the wall and having separated horizontal air-passages located side by side and extending lengthwise through it, and transversely divided into sections having the walls of each adapted to severally telescope each other, horizontal continuations of said air-passages leading in opposite directions and along the outer face of the wall, and open at their outer ends, a horizontal continuation of all of said air-passages forward of the inner face of the wall, and open on all its sides except the lower, and deflectors at the off end of said open sides of all said air-passages at their said inner continuations, all as described, for the purposes specified.

493,296. BUNDLE-FEEDER FOR THRASHING-MACHINES. FRANK ROBERTSON, Loami, Ill., assignor of one-half to Andrew J. Runyan, same place. Filed Mar. 9, 1892. Serial No. 424,260. (No model.)



Claim.—1. In a bundle feeder for thrashing machines a tapering feeder bar provided with serrations on its upper edge, and having at its wide end a transverse hold adapted to receive an eccentric by means of which said feeder bar is operated in combination with mechanism for imparting to said feeder bar for a reciprocating movement as set forth and for purpose stated.

2. In a bundle feeder for thrashing machines the combination of the box, the transverse shaft supported on the box, the series of contiguous eccentrics secured on said shaft, and the parallel feeder bars supported on said eccentrics and having at their wide ends transverse holes in which said eccentrics revolve, as set forth and for the purpose stated.

3. In a bundle feeder for thrashing machines the combination of the box, the transverse shaft supported on the box, the eccentrics on the shaft, the feeder bars supported on the eccentrics and the washers interposed between and projecting beyond the peripheries of the eccentrics and separating the feeder bars as set forth and for the purpose stated.

4. In a bundle feeder for thrashing machines the combination of the box, the transverse shaft supported on the box and provided with a longitudinal key way, the eccentrics adapted to key on the shaft, the tapering feeder bars having serrations on their upper edges and provided with a hole adapted to fit around the periphery of the eccentric, the washers interposed between the eccentrics, and the circular knives on the shaft, as set forth and for the purpose stated.

5. In a bundle feeder for thrashing machines, the combination of the box, the transverse shaft supported on the box, the collar, the pulley the circular knives, the eccentric, and the washers on the shaft and the reciprocating feeder bars having their lower ends adapted to slide on the bottom of the box and their upper ends supported on the eccentrics as set forth and for the purpose stated.

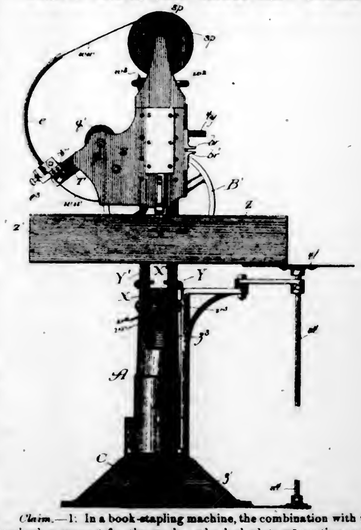
493,297. ACOUSTIC TELEPHONE. THOMAS B. ROGERS, Brooklyn, N. Y. Filed June 3, 1892. Serial No. 435,344. (No model.)



Claim.—1. An acoustic telephone having a diaphragm composed of a non-metallic front disk, a metallic supporting disk therefor, and an elastic ring separating said disks at their edges, substantially as shown and described.

2. In an acoustic telephone, the combination with a casing, a cover-plate and a line-wire and button, of a diaphragm placed loosely between the casing and the cover-plate, said diaphragm being composed of free and independent disks separated by an elastic ring, the front disk being non-metallic and having the button of the line-wire resting thereon, and the rear disk being metallic and entirely free from contact with said line-wire, substantially as shown and described.

493,298. BOOK STAPLING MACHINE. FREDERICK P. ROSBACK, Chicago, Ill. Filed May 2, 1892. Serial No. 431,569. (No model.)



Claim.—1. In a book-stapling machine, the combination with the standard, a support for the work, and a bed plate supporting reciprocating staple-forming and wire cutting mechanism, and reciprocating driving mechanism, of an adjustable actuating cam whereby the

bed plate, driving mechanism and staple forming and wire cutting mechanism may be simultaneously and relatively adjusted, substan-

off block *c*, a cut-off tube *c'*, a knife *c*^{3}, orifice *c*^{4}, lug *c*^{5}, and pin *c*^{6}

as desired in greater or less proximity to a line between the said points

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bed plate, driving mechanism and staple forming and wire cutting mechanism may be simultaneously and relatively adjusted, substantially as and for the purpose set forth.

2. In a book-stapling machine, the combination with a standard, a support for the work, and a bed-plate supporting reciprocating staple-forming and wire-cutting mechanism, and reciprocating driving mechanism, of an adjustable actuating cam D and an adjusting rod W, which is provided with collars *a* and *a'* (between which collars and on which rod W the said cam D is free to revolve) and a terminal screw which operates in a nutted portion of said standard, whereby, the turning of which adjusting rod W, the said cam D, the driving mechanism, the staple forming mechanism and wire cutting mechanism are simultaneously and relatively adjustable, substantially as and for the purpose set forth.

3. In a book-stapling machine, the combination with a standard, a support for the work, and a bed-plate supporting reciprocating staple-forming and wire-cutting mechanism, of an adjustable actuating cam D; and an adjusting rod W with collars *a* and *a'* (between which collars and on which said rod the said cam D is free to revolve) and a terminal screw extending through a nutted portion W' of said standard, a bevel cog D^6 having an elongated hub *r* provided with a feather *r'* upon which elongated hub *r* the said cam D is made to reciprocate, and upon which elongated hub *r* the said cam D is prevented from turning by means of said feather *r'*; and a rotary shaft B provided with a bevel cog D' to which the bevel cog D^6 is geared, substantially as and for the purpose set forth.

4. In a book-stapling machine, the combination with a standard, a support for the work and a bed-plate supporting staple forming mechanism an automatic feed and wire severing mechanism employing an inclined support L, of a reciprocating driver I provided with a lip *l* at its lower extremity, and a ledge L^3 on the adjacent surface of the said inclined support L, substantially as and for the purpose set forth.

5. In a book-stapling machine, the combination with a standard, a support for the work and a bed plate supporting reciprocating driving mechanism, wire cutting mechanism and a former K substantially as described, of an anvil block M secured in said bed plate, and having a nose *m*, mouth *m'*, nipper m^2 and coil spring m^4, shank m^5, and coil spring m^3, which anvil block M may be made to recede into an orifice m^6 in said bed plate, substantially as and for the purpose set forth.

6. In a book-stapling machine, the combination with a standard, a support for the work and a bed-plate supporting reciprocating driving mechanism and reciprocating staple forming mechanism, of an anvil block M provided with a mouth *m'*, a nipper m^2 and coil spring m^3, substantially as and for the purpose set forth.

7. In a book-stapling machine, the combination with a standard, a support for the work and a bed plate H supporting reciprocating driving mechanism, wire cutting mechanism, and a reciprocating staple former, of an anvil block M which is provided with a mouth *m'*, a nipper m^2 and a coil spring m^3, and a detail N which is provided with a shank 11, a flat spring $11'$, slots 11^2 and 11^3, and screws 11^4 and 11^4 passing through the said slots securing said detail from forward displacement against the said bed plate H, substantially in the manner and for the purpose set forth.

8. In a book-stapling machine, the combination with a standard, a support for the work and a bed plate supporting reciprocating staple forming mechanism and wire cutting mechanism, of a reciprocating driver I provided with a curved lip *l* at its lower extremity, substantially as and for the purpose set forth.

9. In a book-stapling machine, the combination with a standard, a support for the work and a bed plate H supporting reciprocating driving mechanism, an automatic feed and wire cutting mechanism, of a reciprocating staple former K substantially as described, an anvil block M provided with a mouth *m'*, a nipper m^2 and coil spring m^3, a detail N, and a reciprocating driver I provided with a lip *l*, and movable in grooves in the side bars of the former K, substantially as and for the purpose set forth.

10. In a book-stapling machine, the combination with a standard, a support for the work and a bed plate supporting reciprocating staple forming and driving mechanism, and wire straightening mechanism, of a feed arm provided with an automatic clamp comprising a slotted dog *f*, pins f^7 and f^8, flat spring f^9, ridge f^{10} and groove f^{11}, all substantially as and for the purpose set forth.

11. In a book-stapling machine, the combination with a standard, a support for the work and a bed plate supporting reciprocating staple forming and driving mechanism, of a feed arm T fulcrumed on a pin *g* and provided with a groove g^2 extending outward from the said fulcrum and adapted to engage with an oscillating finger having a limited movement, whereby the movement of said feed arm may be increased or diminished, substantially in the manner and for the purpose set forth.

12. In a book-stapling machine, the combination with a standard, staple driving mechanism and staple forming mechanism employing oscillating parts, of reciprocating cut-off mechanism comprising a cut-off block *c*, a cut-off tube *c'*, a knife c^3, orifice c^4, lug c^5, and pin c^7 made to engage with the oscillating parts of said staple forming mechanism substantially as and for the purpose set forth.

13. In a book-stapling machine, the combination with a standard staple forming mechanism and driving mechanism employing a feed arm T provided with a lug g^4, of reciprocating cut-off mechanism comprising a cut-off block *c*, cut-off tube *c'*, knife c^3, orifice c^4, lug c^5 and pin c^7; and a cut-off lever S^2 fulcrumed on a pin *d* and provided with a Y-shaped extremity having points d^3 and d^3 and slot *d'* in the lower extremity, which said slot *d'* is placed to include the said pin c^7 of the said cut-off mechanism and which points d^3 and d^3 of the said Y-shaped extremity of said cut-off lever S^2 are placed to intrude into the path of the said lug g^4 of the said feed arm T, substantially as and for the purpose set forth.

14. In a book-stapling machine employing reciprocating staple forming mechanism, reciprocating driving mechanism, an automatic feed arm (provided with a lug g^4 and mechanism for oscillating such feed arm upon a pin *g*) and reciprocating cut-off mechanism, the combination therewith of a cut-off lever S^2 a pin *d* on which said lever is fulcrumed, points d^3 and d^3 of a Y-shaped extremity of said cut-off lever,—the said points d^3 and d^3 of the said Y-shaped extremity of the said cut-off lever S^2 being placed to intrude into the path of the said lug g^4 on the disk *g'* of the said feed arm whereby an intermittent movement is communicated to the said cut-off lever S^2 substantially as and for the purpose set forth.

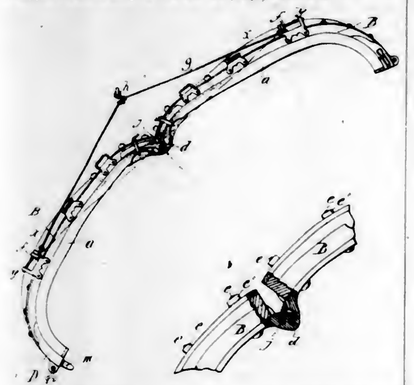
15. In a book-stapling machine employing reciprocating staple forming mechanism and reciprocating driving mechanism the combination therewith of a feed arm T having an automatic clutch, fulcrumed on a pin *g* and provided with a groove g^2 and a lug g^4, a cut-off lever S^2 fulcrumed on a pin *d* and provided with a Y-shaped extremity having points d^3 and d^3, and a slot *d'* in the longer extremity, and reciprocating cut-off mechanism comprising a cut-off block *c*, a cut-off tube *c'*, a knife c^3, an orifice c^4, lug c^5, and pin c^7, substantially as and for the purpose set forth.

16. In a book-stapling machine, the combination with reciprocating staple forming and driving mechanism employing a cam D, of a standard A provided with a wing P, a sleeve O provided with a pin *k* (made to engage the cam D,) an ear O' coupled by a link R to a crank Q on said fixed wing P, and the crank Q pivotally attached to the said wing P by a pin P' and provided with an oscillating finger Q' substantially as and for the purpose set forth.

17. In a book-stapling machine, the combination of a hollow standard A having an inclined portion z^2 provided with a fixed wing P and a thickened portion *y* and a cap z^4, and carrying a driving shaft B journaled on the exterior and interior sides of the said thickened portion *y*, and which driving shaft carries loosely a driving pulley B' and an automatic clutch controlled from the pedal C, bevel cogs D' and D^2, actuating cam D made to reciprocate upon an elongated hub *r* of the bevel cog D^6 but revolved therewith by means of the feather r^2 upon a perpendicular shaft W between collars *a* and *a'* (and by the raising and lowering of which collars *a* and *a'* and shaft W the said cam is reciprocated upon the said elongated hub) and within an opening in a bed plate, a bed plate H capable of vertical movement before an opening in the inclined portion z^2 of the metal support A, but confined thereto by guides G and G', and carrying a reciprocating former K, reciprocating driver and driver-head I and I', an anvil block M, a detail N, a cut off bar V and a face plate S, a sleeve O, with an ear O' coupled by a link R to a crank Q which turns about a pin P' and the fixed wing P and is provided with a finger Q', a feed arm T fulcrumed on a pin *g*, provided with an automatic clutch, a groove g^2 and a lug g^4, a cut-off lever S^2 fulcrumed on the pin *d* and provided with a slot *d'* and a Y-shaped extremity having points d^3 and d^3; reciprocating cut-off mechanism comprising a cut-off block *c*, a cut-off tube *c'*, a knife c^3, lug c^5 and pin c^7; wire straightening mechanism comprising a thickened portion S', a tube *e*, a block *e'*, a die e^3, a set screw e^4 and groove e^5, a branching portion z^4, of the hollow metal standard A, supporting saddle and table brackets Y and Y' (to which are fixed plates Z and Z') and a double plate X containing clinching pawls *aa* and *aa'* and a reciprocating plunger X', and a plunger lever v^3 pivotally attached to a vertical rod *v* with a head *v'* to bear against the rotary shaft B and actuated by a cam v^4 on said shaft, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

493,299. HORSE-COLLAR. HENRY W. ROSS, Springfield, Mass. Filed Aug. 28, 1891. Serial No. 403,946. (No model.)

Claim.—1. A collar formed of two members pivoted together at their upper extremities and a supporting strap or the like, connected, for the support of the collar, to said members at intermediate points thereof, and an adjustable stop adjacent the hinge for regulating the extent of opening of the said members whereby the collar may, by said strap, be suspended opened, having its point of hinge connection, as desired in greater or less proximity to a line between the said points of support substantially as and for the purpose set forth.



2. A collar formed of two members pivoted together at their upper extremities and a supporting strap or the like, connected, for the support of the collar, to said members at intermediate points thereof, and an adjustable stop adjacent the hinge for regulating the extent of opening of the said members, whereby the collar, may, by said strap, be suspended opened, having its point of hinge connection, as desired in greater or less proximity to a line between the said points of support, and a snap catch applied for connecting the separable ends of the members, substantially as and for the purpose set forth.

493,300. SNAP-HOOK. HENRY W. ROSS, Springfield, Mass. Filed Oct. 31, 1892. Serial No. 450,511. (No model.)



Claim.—In a snap-hook the combination with the hook proper having in a portion thereof at the throat, the recess, *d*, of the snap consisting of the bar, *f*, having the angular member, *f'*, with the inclined back, and the arm, *i* with the inclined back, and also having within its inner side the recess with lugs at either side thereof, the pivot, *k*, passed through said lugs and through the shank of the hook, and the spring having intermediately thereof the coil which encircles the pivot and having its one spring member lying against the base of the recess in the hook shank and the other spring member bearing against the snap-bar within the recess therein, substantially as described.

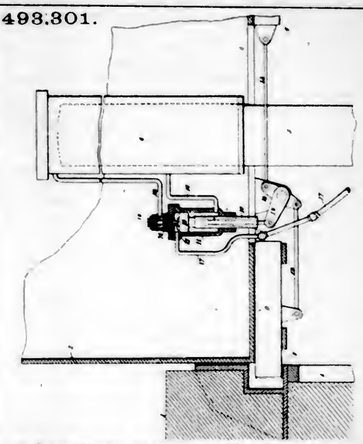
493,301. HYDRAULIC ELEVATING MECHANISM. THOMAS F. ROWLAND, New York, N. Y. Filed Nov. 11, 1892. Serial No. 451,704. (No model.)

Claim.—1. The combination with an elevator or lift, its side or pit walls, and hydraulic elevating mechanism therefor, of hydraulic bolt mechanism carried on the lift and adapted to engage the pit walls and support the lift thereon, and an exhaust outlet to the elevating mechanism provided with a valve adapted to be operated to open said exhaust by the bolt mechanism as the bolts of the same are projected to engage the pit walls.

2. In combination, an elevator or lift and the side or pit walls thereof, a hydraulic cylinder and piston for raising and lowering the same, an exhaust outlet to the said cylinder provided with a valve acting normally to hold the exhaust closed, and hydraulic mechanism separate from the elevating mechanism and operated by the lifting pressure to open said valve when the lift has arrived at a predetermined height.

3. In combination, an elevator or lift and the side or pit walls thereof provided with landings for the lift to rest upon, a hydraulic cylinder and piston for raising and lowering the lift, hydraulic bolt-mechanism carried on the lift and adapted to engage the wall landings, and exhaust outlet to the elevating cylinder which is provided with a valve normally holding the same closed and adapted to be operated to open the exhaust by the bolt-operating mechanism as the bolts are projected to engage the landings.

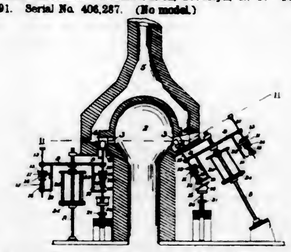
493,301.



4. In combination, an elevator or lift and the side or pit walls thereof provided with landings for the lift to rest upon, a hydraulic cylinder and piston for elevating and lowering the lift, bolt mechanism carried on the lift and for engaging the said landings, a hydraulic piston and cylinder for operating the bolt-mechanism, and an exhaust outlet to the elevating cylinder provided with a valve adapted to be opened by the bolt piston as the same projects the lift-supporting bolts to position for engagement with the lift landings.

5. In combination, an elevator or lift and the side or pit walls thereof provided with landings for the lift to rest upon, a hydraulic cylinder and piston for elevating and lowering the lift, bolt mechanism carried on the lift and for engaging the landings, a hydraulic piston and cylinder for operating the bolt-mechanism and deriving operative pressure from the elevating cylinder, and an exhaust outlet to the elevating cylinder provided with a valve adapted to be opened by the bolt piston as the bolts are projected to position for engagement with the lift landings.

493,302. APPARATUS FOR THE MANUFACTURE OF GLASS-WARE. HERMANN SCHULER-BERGS, Brooklyn, N. Y. Filed Sept. 19, 1891. Serial No. 406,287. (No model.)



Claim.—1. In apparatus for reheating glassware, the combination of a glory-hole furnace, a rotatory shaft having transversely projecting arms, spindles journaled in the arms substantially parallel with the shaft, and driving mechanism for the spindles, comprising a driving wheel rotatory on the shaft's axis and connected with wheels on the spindles; substantially as and for the purposes described.

2. In apparatus for reheating glassware, a glory-hole furnace having a fire-chamber, and a laterally inclosed passage-way for the glass articles, said passage being open on its under side and at both ends, and adapted to permit the entrance of a glass article at one end and its exit at the other end, and being connected for a portion only of its length with the fire chamber by a glory-hole; substantially as and for the purposes described.

3. In apparatus for reheating glassware, a glory-hole furnace having a fire-chamber, and a covered and laterally inclosed passage-way for the glass articles, a discharge-flue for the products of combustion, and openings connecting said passage-way with the discharge-flue and with the fire chamber at the middle portion only of the passage-way said passage way having openings at its ends adapted for

the entrance and exit of the glass articles; substantially as and for the purposes described.

4. In apparatus for reheating glassware, a glory-hole furnace having a fire-chamber, and a covered and laterally inclosed passage-way for the glass articles, said passage way being connected for a portion only of its length with the fire chamber, by a glory-hole, in combination with supporting-rods, and means for moving them through said passage-way said passage having openings at its ends adapted for the entrance and exit of the glass articles: substantially as and for the purposes described.

5. In apparatus for fire-finishing glassware, a glory-hole furnace provided with a fire-chamber, and a covered and lateral passage-way for the glass articles to be reheated separated from the fire-chamber by refractory walls, and a discharge-opening or flue from the fire-chamber crossing or intersecting with the upper part of the passage-way, in combination with a revoluble series of laterally movable individually revoluble supporting rods for the glass articles; substantially as and for the purposes described.

6. In apparatus for reheating and fire-melting glassware, a glory-hole furnace provided with a fire-chamber and a glory-hole accessible through a lateral covered passage-way for the glass articles, in combination with a revoluble series of arms in which are journaled individually rotatory supporting rods for the support of the glass articles said rods being set in inclined positions: substantially as and for the purposes described.

7. In apparatus for fire-finishing glassware, a glory-hole furnace in combination with an axle or shaft provided with a plurality of arms and a plurality of spindles journaled in said arms, and driving mechanism to revolve the spindles, consisting of a pulley revoluble loosely around the axle or shaft and attached to a sprocket-wheel which connects the wheels of the various spindles by a continuous belt or chain; substantially as and for the purposes described.

8. In apparatus for reheating and fire-melting glassware, a revoluble main shaft or axle provided with arms a plurality of supporting spindles journaled in said arms, and driving-wheels revoluble loosely around each of the spindles, each of which driving-wheels is provided with a clutch-disk, a yieldingly supported corresponding clutch-disk connected to the spindles, and means adapted to raise the spindles with the clutch-disk individually to engage with the driving-wheels; in combination with a loosely revoluble driving-wheel on the main shaft adapted to actuate simultaneously all the driving-wheels of the spindles independently of the turning of the main shaft: substantially as and for the purposes described.

9. In apparatus for reheating and finishing glassware, a glory-hole furnace provided with a covered circular flue separated from the fire-chamber by refractory partitions or walls but connected with the fire chamber by an opening adapted to afford heat to the circular flue, which flue constitutes a lateral passage-way for the glass objects and which is adapted to reheat the glassware during its passage through the flue gradually, and after the fire-melting has taken place to allow the articles to cool off, in combination with mechanical means, substantially as described, to revolve the glass articles during their passage through said flue; substantially as and for the purposes described.

10. In apparatus for reheating and finishing glassware, a glory-hole furnace and an intermittently revoluble axle or shaft provided with a series of laterally movable revoluble supporting rods provided at one end with a support for the glass articles, and a platform or guide in the path of the other end of the supporting rods, adapted to move the supporting rods longitudinally in their bearings; substantially as and for the purposes described.

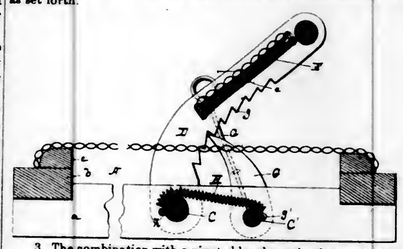
11. In apparatus for reheating and finishing glassware, a glory-hole furnace and an intermittently revoluble axle or shaft having a series of laterally movable revoluble supporting rods, adapted to be moved in succession through the furnace, and a finishing-tool, comprising a plunger and exterior roller, situate at the place of exit of the rods from the furnace and movable into engagement with the glass articles as they reach the exit; substantially as and for the purposes described.

12. In apparatus for reheating and finishing glassware, a glory-hole furnace and an intermittently revoluble axle or shaft having a series of laterally movable revoluble supporting rods, adapted to be moved in succession through the furnace, and a finishing tool, situate at the place of exit of the rods from the furnace and movable into engagement with the glass articles as they reach the exit; substantially as and for the purposes described.

493,303. HEAD-SUPPORT FOR BEDS. WILLIAM S. SEYMOUR, Philadelphia, Pa., assignor to M. H. Marcus & Bro., Baltimore, Md. Filed Sept. 10, 1892. Serial No. 445,549. (No model.)

Claim.—1. The combination with a frame, and a pair of shafts capable of rocking therein, of a head rest carried by one shaft, and dogs carried by the other shaft, and spring secured to each shaft the ends of said spring extending in opposite directions around the shafts, substantially as set forth.

2. The combination with a frame, a rock shaft supported in the frame, said shaft carrying a head rest, of a second rock shaft carrying dogs, and a spiral spring secured to each shaft in a manner to normally draw the head rest and dogs toward each other, substantially as set forth.



3. The combination with a pivoted head rest, having teeth thereon and pivoted dog, of spiral spring extending from the axis of the head rest to the axis of the dog whereby to rock said parts toward each other normally, substantially as set forth.

4. The combination with a hinged head rest, of a dog pivoted in proximity to the head rest and adapted to cooperate therewith, a spring extending from the axis of the head rest to the axis of the dog whereby to rock said parts toward each other normally, and handles secured to the dog for operating the latter, substantially as set forth.

5. The combination with a bed bottom, of a shaft mounted therein, arms having ratchet teeth secured to the ends of said shaft, another shaft mounted in the bed bottom, dogs secured to the ends of said last mentioned shaft and adapted to engage the ratchet teeth, and springs attached at their ends to said shafts in such manner as to maintain said dogs in engagement with the ratchet teeth and tend to force the arms to a closed position and a flexible head rest secured to said arms, substantially as set forth.

6. The combination with a bed bottom, of a shaft mounted therein, arms having ratchet teeth, secured to the ends of said shaft, a flexible head rest connecting said arms, another shaft mounted in the bed bottom, dogs secured to the ends of said last mentioned shaft and adapted to engage said teeth, handles carried by the dogs, and springs attached at one end to one of said shafts and at the other end to the other shaft, substantially as set forth.

493,304. TELEPHONE-INDEX. STILLMAN L. SHAFFER, Worcester, Mass. Filed Oct. 25, 1892. Serial No. 449,961. (No model.)



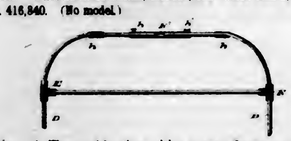
Claim.—1. In a telephone index, the combination of the back, cut to form therein a series of parallel slits and a series of parallel prongs, with a series of indexed leaves inserted and detachably held within the slits, substantially as described.

2. In a telephone index, the combination of a rigid back A, provided with a series of parallel slits, a series of indexed leaves provided with stubs united to said leaves by a flexible joint, said stubs being inserted in said slits and means for clamping the same in position, substantially as described.

3. In a telephone index, the combination of a back provided with a series of parallel slits, forming elastic prongs, leaves inserted in said slits, and a clamping screw by which said prongs are drawn together, substantially as described.

4. In a telephone index, the combination of a back provided with a series of parallel slits, forming elastic prongs, leaves inserted in said slits, and a clamping device by which said prongs are drawn together, substantially as described.

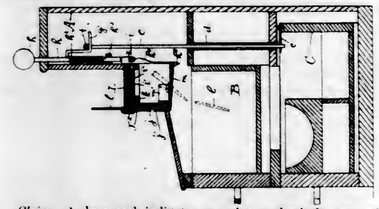
493,305. ADJUSTABLE VENTILATING CANOPY-FRAME FOR BEDS. WALTER H. SHERMAN, Merced, Cal. Filed Jan. 2, 1892. Serial No. 416,840. (No model.)



Claim.—1. The combination, with a canopy frame comprising two parallel, horizontally and longitudinally disposed rods, of a frame carried thereby and adjustable longitudinally with relation thereto, a tubular shaft journaled in said frame, a vertically-adjustable extension sliding within said shaft and carrying a rotary fan, and means for locking said frame and shaft-extension in adjusted position: substantially as and for the purpose set forth.

2. The combination, with a canopy frame comprising two parallel, horizontally-disposed rods, of a frame disposed transversely between said rods and provided at its ends with collars encircling the latter, set-screws for binding the collars to the rods, and a vertical rotary shaft journaled in said frame and carrying a pan at its lower end; substantially as and for the purpose set forth.

493,306. CASH-INDICATOR. JOHN P. SMITH, Portland, Me. Filed June 6, 1892. Serial No. 435,674. (No model.)



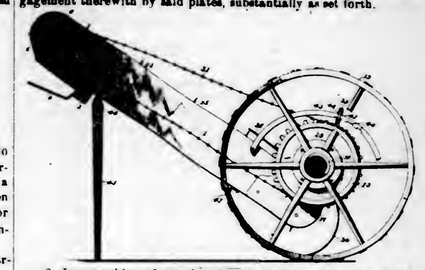
Claim.—1. In a cash indicator, a casing, a check drawer and a money drawer therein, the said casing containing a slot through which the checks are introduced into the check drawer, a vertical rod extending through the top of said casing, a spring for forcing said rod upward, a spring catch for holding said rod down, the end of said catch extending into said slot in such a manner that it will be pressed back to release said rod when the check is pressed in, a locking device for locking said money drawer and connecting mechanism between said rod and said locking device whereby the latter is released when the rod is forced upward by its spring, substantially as described.

2. In a cash indicator, a casing, a money drawer and a check drawer therein, the said casing containing a slot through which the checks are introduced into the check drawer, a rod extending up through the top of the casing, a spring for forcing said rod upward, a spring catch for holding it down adapted to be operated to release said rod by the passage of said check through said slot, a tilting support for normally closing the lower end of said slot, the lower end of said rod being adapted to engage the said tilting support and to tilt it to open said slot when the rod is raised, a locking device for said drawer and means for releasing it by the upward movement of said rod, substantially as described.

3. In a cash indicator, a casing, a money drawer therein, a vertical rod held in suitable guides in said casing the lower end of said rod being adapted to retain said drawer in said casing, a horizontal bar secured to the top of the said rod, vertical rods extending through the top of said casing and having arms on which said horizontal rod rests, a spring for forcing said vertical rod upward, a spring catch for holding it down and means for causing said spring catch to release said vertical rod by the passage of the check into the casing, substantially as described.

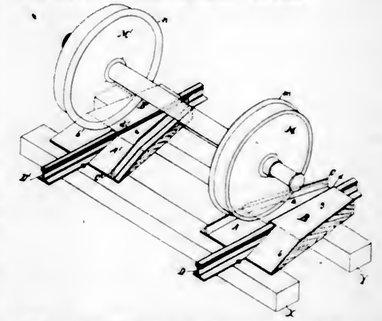
493,307. HAY-LOADER. THOMAS J. SNYDER, Wallowa, Oreg. Filed Oct. 17, 1891. Serial No. 408,984. (No model.)

Claim.—1. In a hay loader, the combination with the frame and endless apron, of a wheel carrying axle, the rake bar loosely mounted on said axle and provided with a series of rake teeth and retaining springs, stationary brackets secured to said rake bar and provided with squared notches, locking plates loosely mounted in the upper ends of said brackets and provided with vertical slots registering with said squared notches said plates being free to move vertically in the brackets and curved adjusting segments pivotally secured at one end to the opposite sides of said frame and provided with a series of notches adapted to engage or rest in said notches in the brackets, and be held in engagement therewith by said plates, substantially as set forth.



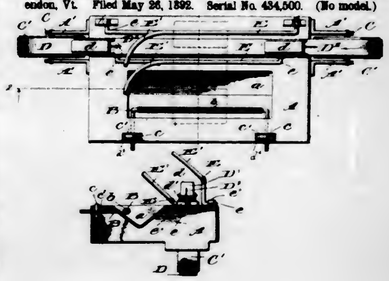
2. In a machine of the class described, the combination of two members pivotally connected, a curved adjusting segment pivotally connected at one end to one of said members and provided with an under series of notches, a stationary bracket secured to the other member and provided with a squared notch in one edge thereof adapted to receive the notched segment, and a locking plate free to move vertically in the upper end of said bracket and provided with a vertical slot registering with said squared notches and adapted to embrace the upper plane edge or side of said segment, substantially as set forth.

493,308. CAR-REPLACER. JOSEPH H. STEIN, Fort Wayne, Ind. Filed Aug. 20, 1892. Serial No. 443,569. (No model.)



Claim.—A portable frog or car-replacer comprising a frog A having an inclined face and provided with a longitudinal guiding flange C adapted to force the impinging derailed car wheel into position upon the track, and a shoe B having an inclined face *b*, and a horizontal face *g* extending over and resting upon the tread of the rail and united to the frog A by the offset *d*, all substantially as set forth and described.

493,309. SOLDERING-MACHINE. JOHN A STEWARD, East Clarendon, Vt. Filed May 26, 1892. Serial No. 434,500. (No model.)



Claim.—1. The combination with a trough, of a pivoted inclined plate having a portion within the trough provided with a bend near its pivot and between the same and the bottom portion of said plate with which the can contacts, substantially as described.

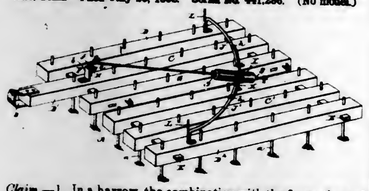
2. The combination with a trough, of an inclined plate pivoted within the trough and provided with a bend near its pivot and between the same and the bottom portion of said plate with which the can contacts, as set forth.

3. The combination with a trough, of an inclined plate pivoted within the trough and having a bend near its pivot and between the same and the bottom portion of said plate with which the can contacts, and means for adjusting said plate, as set forth.

4. The combination with a trough and an endless conveyer provided with devices for engaging a can, of removably supported arms having curved portions fixed relatively to the conveyer and trough and upon which the can is designed to ride and by which it is turned, as set forth.

5. The combination with the can-supporting devices, of an endless conveyer and arms thereon provided with rollers to engage a can as and for the purpose specified.

493,310. HARROW ATTACHMENT. JOSHUA R. STORIE, Travisville, Texas. Filed July 26, 1892. Serial No. 441,286. (No model.)



Claim.—1. In a harrow, the combination with the frame thereof, of an oscillating arm pivotally supported thereon and provided at its rear extremity with a gravitating weight arranged to shift in the arc of a circle and bear upon the said frame in accordance with the influence of gravity, substantially as described.

2. In a rectangular harrow, the combination with a harrow-frame and a superimposed track formed on the arc of a circle and extending diagonally across the frame, said track declining from opposite ends toward its center, of a movable superposed weight arranged to shift its position in accordance with the influence of gravity, substantially as described.

3. In a harrow, the combination with a harrow-frame, of an oscillating arm fixed on said frame and arranged to swing in the arc of a circle, the gravitating weight carried at the free end of said arm and rotatably mounted thereon, and suitable supports or guides for said weight arranged in an arc of a circle on top of the harrow-frame, substantially as described.

4. In a harrow, the combination with a harrow-frame, of an oscillating arm fixed on said frame and arranged to swing in the arc of a circle, the adjustable gravitating weight carried at the free end of said arm and rotatably mounted thereon, and suitable supports or guides for said weight arranged in an arc of a circle on top of the harrow-frame substantially as described.

5. In a harrow, the combination with a harrow-frame, of an oscillatory arm pivotally supported above said frame and arranged to swing in the arc of a circle, the adjustable gravitating weight carried at the free end of said arm and rotatably mounted thereon, and a suitable support or guideway for said weight also arranged in an arc of a circle above the top of the harrow-frame, and sloping or converging from both extremities to its center in a downward direction, as set forth.

6. In a harrow, the combination with a harrow-frame, of an oscillatory arm fixed on said frame and arranged to swing in the arc of a circle, an adjustable gravitating weight carried at the free end of said arm and rotatably mounted thereon, an arc-shaped guideway or support for said weight permitting its free rotation thereupon, and limiting agencies respectively at the ends of said guide-way, substantially as described

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493,311. BREAST-COLLAR COUPLING. ROBERT G. TAMBS, Magog, Canada. Filed Aug. 4, 1892. Serial No. 442,120. (No model.)

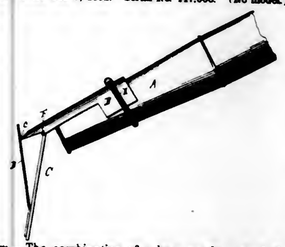
Claim.—1. A breast collar or strap coupling, comprising two coupling plates B, B', both provided with rivet holes C, plate B, having a headed stud D', near one end and a headed stud D, toward the opposite end, and the other plate B', provided with an abutment to overlap a portion of said plate B, said abutment having diagonal curved slots E, E', the outward end of said slots provided with an enlargement G, to admit the head of the studs when both plates intersect one another, whereby the shanks of the studs travel in the slots and couple the plates by the studs and slots interlocking, when said plates are brought into alignment, as set forth.



2. The combination with the strap or collar sections A, A', of the coupling plates B, B', secured thereto respectively, said plate B, having headed studs D, D', and the plate B', diagonal curved slots E, E', said slots provided at the outward ends with an enlargement G, to admit the head of the studs when the plates are adjusted to intersect, whereby the studs and slots interlock to couple said strap or collar sections when said plates are brought into alignment, as set forth

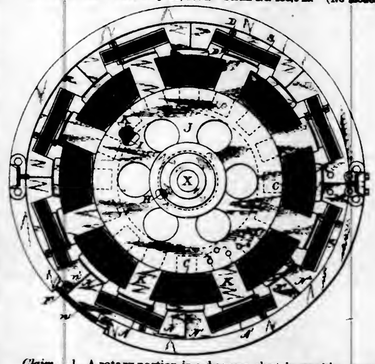
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493,312. LAWN-SPRINKLER. GEORGE H. THONA, Three Rivers, Mich. Filed Oct. 3, 1892. Serial No. 447,660. (No model.)



Claim.—The combination of a hose nozzle, a stock detachably attached thereto, said stock being provided with a point at the free end beyond the end of the nozzle, and a water-deflecting-plate hinged to said stock between said point and the end of the nozzle, said plate being provided with a spring having a series of holes adapted to adjustably engage with said point; substantially as set forth.

493,313. DYNAMO-ELECTRIC MACHINE. ELIHU THOMSON, Swampscott, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed July 28, 1891. Serial No. 400,942. (No model.)



Claim.—1. A rotary portion in a dynamo electric machine, comprising a laminated ring having notches in its periphery, laminated core sections inserted into said notches and coils wound around or between said core sections.

2. A dynamo electric machine having a series of core sections, and coils wound on the alternate sections and extending close to the intervening sections.

3. A dynamo electric machine having a series of core sections with projecting pole portions, and coils wound on the alternate sections and extending under the polar projections of the intervening sections.

4. A dynamo electric machine having a rotating portion comprising end-plates, a laminated ring embraced between said end-plates, and having notches, and core sections entered into said notches and bolts engaging with said end-plates, laminated ring and core sections.

5. The combination in a dynamo electric machine, of a core-body portion having a notch and a core-section entered into said notch and one or more bolts engaging half and half into said core-body and core-section.

6. The combination with a pole piece of a dynamo electric machine, of a coil surrounding the same, and an oil casing inclosing said coil, substantially as described.

7. The combination with the coil and its core, of an oil containing casing around the coil and interposed between the coil and core.

8. The combination with the coil and its core, of a metal casing around the coil, and insulation between the said casing and core.

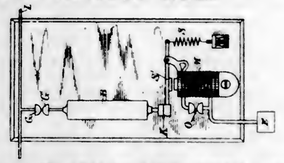
9. The combination of a coil traversed by varying currents, of an oil containing metal casing inclosing said coil, and having its electrical continuity interrupted by an insulating joint, as described.

10. A dynamo electric machine having a series of core sections, separate coils wound thereon, a support surrounding said core sections and clamping the same together, and insulation between the core sections and the support.

11. A dynamo electric machine having a series of laminated core sections, separate coils wound thereon, a support surrounding said core sections and clamping the same together, and insulation between the core sections and the support.

12. A dynamo electric machine having a series of core sections, separate coils wound thereon, a support surrounding said core sections and clamping the same together, and insulation between the core sections and the support, and between the several core sections.

493,314. LIGHTNING-ARRESTER. ELIHU THOMSON, Swampscott, Mass., assignor to the General Electric Company, of New York. Filed Oct. 28, 1892. Serial No. 450,234. (No model.)



Claim.—1. The combination of circuit terminals at which an arc is liable to form with an arc rupturing device for extinguishing an arc thereat, and a resistance or current reducing means to limit the current flowing across said terminals incidental to arcing thereat.

2. The combination of lightning arrester discharge terminals arranged to form a spark gap or gaps, with an arc rupturing device for extinguishing an arc thereat, and means for limiting or reducing the current tending to follow the passage of the discharge to earth.

3. The combination with a lightning arrester having a spark gap and arc rupturing devices, of a resistance non-inductive in character limiting or reducing the current passing from line to ground incident to arcing at the spark gap.

4. The combination with a lightning arrester having a spark gap or gaps with a resistance of non-inductive character, and a circuit leading to ground comprising the spark gap and resistance in series such that the after-flow of line current must pass through said resistance in going to earth, as set forth.

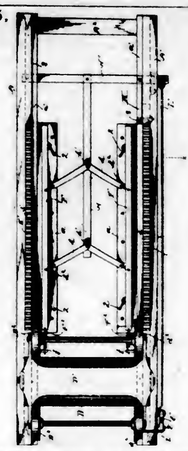
5. The combination with a lightning arrester having a spark gap or gaps and arc rupturing devices, of a resistance in the ground connection, consisting of carbon sand or like granular resistant material arranged to give the desired limiting effect upon the current flowing from line to ground upon arcing at the spark gap, as described.

6. The combination with a lightning arrester having a spark gap or gaps and arc rupturing devices, of a resistance consisting of a confined mass of carbon sand permanently in circuit in the ground connection and arranged to offer a definite, determinate resistance to the flow of current from line to ground, as described.

493,315. APPARATUS FOR TRANSFERRING OR STENCILING UPON TRANSPARENT OR OTHER MATERIAL. GEORGE H TWITCHELL, San Francisco, Cal. Filed May 11, 1892. Serial No. 432,502. (No model.)

Claim.—1. The combination with the machine frame provided with fixed trackway, carriage frame carrying transfer roll working upon said trackway, bed plates retaining cut and plate to be transferred upon in order to allow impression to be received upon roll and transferred to impression plate during rotation of roll thereover with forward movement of carriage upon fixed trackway, movable trackway secured to the frame, and of mechanism for automatically throwing said trackway in or out in order to raise and lower traveling carriage.

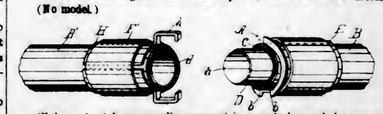
493,315.



2. In a transferring apparatus, the combination with the carriage carrying impression roll, of mechanism for raising same, upon return travel upon the frame, which consists of spring actuated track pieces, links connecting said track pieces with the frame, center rod secured thereto by movable arms, spring actuated cross piece attached to center rod and secured within frame, pivotal depression block for operating said cross piece by weight of carriage traveling thereover for purpose of throwing movable track inward in order to raise impression roll while carriage travels thereover, and of trip lever secured to cross piece by connecting rod for drawing movable track outward in order to lower carriage upon return travel thereof, as and for the purpose set forth.

3. The combination with the frame having longitudinal trackways, and the carriage mounted thereon, of movable track pieces, mechanism for automatically throwing said track pieces under the carriage at the end of its forward movement, a trip lever at the rear of the frame adapted to be depressed by the carriage at the end of its rearward movement, and connections between the said trip lever and the movable track pieces whereby the depression of the lever will move said track pieces from the path of the carriages.

493,316. MANUFACTURE OF HOSE-COUPLINGS. HENRY L. TOWNSEND, Los Angeles, Cal. Filed Apr. 16, 1892. Serial No. 429,438 (No model.)



Claim.—1. A hose coupling comprising a tubular male hose coupling thimble formed of a blank consisting of a sheet of bendable metal cut into shape with one straight side; ends at right angles therewith; and the other side having two inclined wings bent to form the cam flanges as set forth.

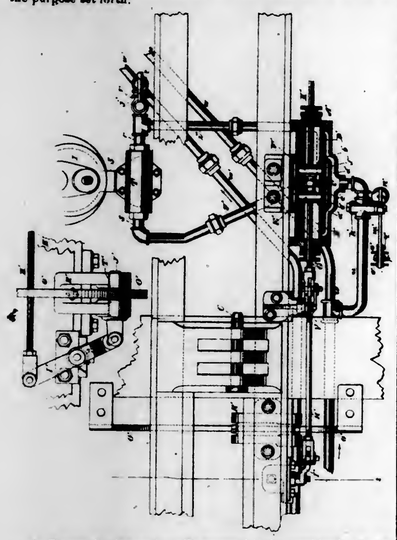
2. A hose coupling comprising a tubular female hose coupling thimble formed of a blank consisting of a sheet of bendable metal cut into oblong rectangular shape and provided on one edge with the two oblong rectangular projections A A bent to form the clutch arms.

493,317. DUMPING-CAR. EDWARD A. TRAFF, Paterson, N. J. Filed Dec. 27, 1892. Serial No. 456,426. (No model.)

Claim.—1. The car having a pivotally mounted body, combined with the compressed air dumping cylinder secured to the truck frame, the air connections leading to both ends of said cylinder, the piston and rod within said cylinder, and the head on the upper end of said piston rod and having the elongated opening for connection with the car body, substantially as and for the purposes set forth.

2. The car having a pivotally mounted body, combined with the compressed air dumping cylinder secured to the truck frame, the air connections leading to the upper and lower ends of said cylinder, the piston in said cylinder, the piston rods connected with said piston, and passing upward through the head of said cylinder, and the head carried on the upper ends of said rods and having the elongated opening to receive a pin connected with the car body, substantially as and for the rods H', L', connected with said pistons, the rocking levers connected with the ends of said rods H', L', the locking pins connected with the lower ends of said levers, and the curved bars secured to the and an air-passage connecting the deposit and heating chambers adjacent to the tray or caldron, whereby the vapors arising from the tank in the upper portion thereof with a nozzle depending centrally over the bottom portion of said cooling chamber and having delivery

passing upward through the head of said cylinder, and the head carried on the upper ends of said rods and having the elongated opening to receive a pin connected with the car body, substantially as and for the purpose set forth.



3. The car having a pivotally mounted body, combined with the dumping cylinder secured to the truck frame and connected through its piston rod with the said body, the air connections leading to the ends of said cylinder, and an automatic cut-off valve in said air connections, and intermediate mechanism between said valve and a moving part of the car whereby the action of the latter will operate said valve to cut off the air supply at a predetermined point; substantially as and for the purposes set forth.

4. The car having the pivotally mounted body, the dumping cylinder for tilting said body and returning it to its horizontal position, the latch cylinder, pipe connections leading to the opposite ends and to the middle thereof, the pistons within said latch cylinder connected through levers with the locking devices, the ports sub-dividing said latch cylinder into three sections and the pipe leading from said ports to the dumping cylinder, the arrangement of ports being such that the pistons in the latch cylinder have a positive simultaneous movement toward and from each other under the action of the air; substantially as and for the purposes set forth.

5. The car having a pivotally mounted body, combined with dumping cylinder supported by the truck frame and having its piston rod connected with said body, the operating slide valve cylinder containing the pistons *c*, *d*, short cylinders *a*, *b*, and slide valve *m*, the ports *o*, *p*, the ports Q, R, leading respectively from said ports *o*, *p*, to the opposite ends of the cylinder I, the exhaust port *q*, and air connections leading from the main pipe line to the opposite ends of the said slide valve cylinder; substantially as set forth.

6. The car having the tilting car body, combined with the dumping cylinder supported by the truck frame and having its piston rod connected with said body, the extension S connected with the side of said cylinder, the ports Q, R, leading from the opposite ends of the said cylinder and passing through said extension, the operating side valve cylinder mounted upon said extension and containing the ports *o*, *p*, connected with said ports Q, R, and the exhaust port *q*, the slide valve within said valve cylinder, air connections leading to the opposite ends of said valve cylinder, the pistons *c*, *d*, connected by a rod with the said slide valve, and means for permitting the air to first move the said slide valve sufficiently to uncover the proper port prior to the main body thereof entering the interior of said valve cylinder; substantially as set forth.

7. The car having the tilting car body, combined with the dumping cylinder having its piston rod connected with said body, and the latch cylinder containing inlets at its middle and opposite ends and outlets intermediate said inlets, the pistons in said latch cylinder and adapted to have a simultaneous motion toward and from each other, the rods H', L', connected with said pistons, the rocking levers connected with the ends of said rods H', L', the locking pins connected with the lower ends of said levers, and the curved bars secured to the car body and having the openings Q' to receive said pins; substantially as set forth.

8. The car having the tilting body, combined with the dumping cylinder whose piston rod is connected with said body, the latch cylinder containing inlets at its middle and ends and outlets intermediate said inlets, the pistons in said latch cylinder adapted to have a simultaneous motion toward and from each other, the rods connecting said pistons with the means for locking the car body in its horizontal position, and the equalizing levers connecting said rods; substantially as set forth.

9. The car having a tilting body, combined with the dumping cylinder whose piston rod is connected with said body, the latch cylinder, air connections leading thereto and therefrom to the dumping cylinder, and a cut-off valve in the pipe leading to said latch cylinder and adapted to be operated by a moving part of the car, substantially as set forth.

10. The car having the tilting body, combined with the dumping cylinder whose piston rod is connected with said body, the latch cylinder, the operating slide valve cylinder containing the slide valve and ports, pipe connections from the main pipe line to said latch cylinder and from the latch cylinder to the slide valve cylinder, connections from the slide valve cylinder to the opposite ends of the said dumping cylinder, and the cut-off valve in the pipe supplying the latch cylinder, and adapted to be operated by a moving part of the car; substantially as set forth.

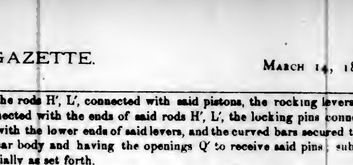
11. In a transportation car, the cylinder sub-divided into three cylinders of the same bore and having air connections at its center and opposite ends and outlets intermediate said center and ends, combined with the pistons in said cylinder and adapted to have a simultaneous movement toward and from each other, connections intermediate said pistons and an operative part of the car or its mechanism, and an automatic cut-off valve in the pipe supplying said cylinder; substantially as set forth.

493,318. ARTIFICIAL TOOTH. JOSHUA M. TWILLEY, Dover, Del. Filed Jan. 12, 1893. Serial No. 458,116. (No model.)



Claim.—An artificial tooth having on the lingual surface thereof a shelf a^2 longer at its outer edge than at its inner portion, with grooves a^3 at the ends of said shelf and in said surface of the tooth substantially as described.

493,319. DRAW-BAR. GEORGE D. WADLEY, Savannah, Ga. Filed Jan. 3, 1893. Serial No. 457,053. (No model.)

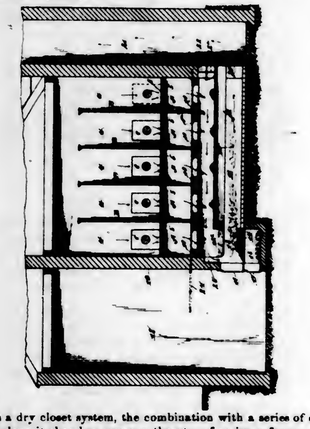


Claim.—1. In combination with the draw-head of a railway car, a draw-rod or bar having a conical or tapering enlargement seated within said draw-head, and joining the body of the rod at so slight an angle as to avoid the formation of a shoulder or well defined line at the meeting point.

2. In combination with draw-heads C, C, a draw-rod D connecting said draw-heads, and consisting of two sections united by a turn-buckle E, the ends of the draw-rod sections within the draw-heads being formed with conical or tapering enlargements of long and gradual taper, substantially as and for the purpose set forth.

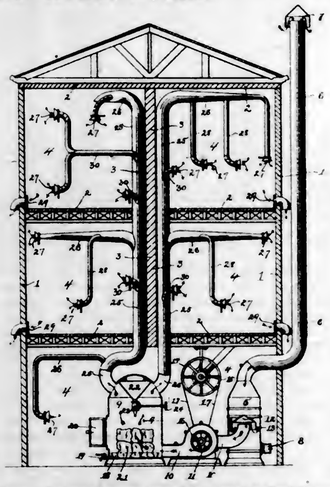
493,320. DRY-CLOSET SYSTEM. FREDERICK G. WARD, Allegheny, Pa. Filed July 28, 1892. Serial No. 441,525. (No model.)

Claim.—1. In a dry closet system, the combination of a series of closets, a deposit chamber common to said closets, a tray or caldron located at one end of the deposit chamber to receive the liquid excrement, a heating chamber subjacent to the deposit chamber and communicating at one end with an exit flue, a fire-place arranged at the opposite end of the heating chamber subjacent to the said tray or caldron, and an air-passage connecting the deposit and heating chambers adjacent to the tray or caldron, whereby the vapors arising from the excrement are introduced into the heating chamber above the fire-place, substantially as specified.



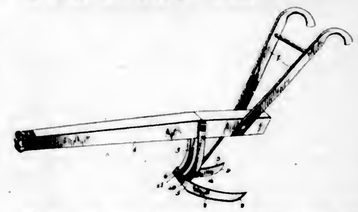
2. In a dry closet system, the combination with a series of closets, and a deposit chamber common thereto, of an imperforate plate forming the floor of the deposit chamber and having a central longitudinal draining rib 12^a, to receive the solid excrement, and parallel gutters or troughs upon opposite sides of the rib to receive the liquid excrement, a tray or caldron located at one end of the deposit chamber to receive the liquid excrement from said gutters or troughs, a heating chamber subjacent to the deposit chamber, and communicating at one end with an exit flue, a fire-place arranged in the heating chamber subjacent to the tray or caldron, and an air-passage connecting the heating and deposit chambers adjacent to the tray or caldron and fire-place, substantially as specified.

493,321. VENTILATOR. JOHN R. WEED, Toledo, Ohio. Filed May 13, 1891. Serial No. 392,578. (No model.)



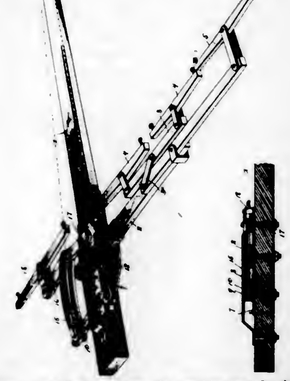
Claim.—In a ventilator system of the class described, the combination with the air supply pipe and means for forcing air through the supply pipes, of a cooling chamber with which the said supply pipe connects adapted to receive ice and having an inverted conical water tank in the upper portion thereof with a nozzle depending centrally over the bottom portion of said cooling chamber and having delivery pipes connected thereto and extending therefrom, a portion of said delivery pipe being arranged horizontally and having supplemental pipes vertically depending therefrom, adjustable nozzles on the ends of said delivery pipes and supplemental pipes, vertically positioned parallel guides arranged in rear of said nozzles and having openings extending therethrough in a horizontal manner, and reciprocating slides mounted in said parallel guides and consisting of a cut-off plate 37, having a spring tongue secured at its upper end to the upper part of said cut-off plate and its lower end slightly deflecting from a perpendicular line and being at right angles to form a limiting stop to prevent the entire withdrawal of said slides, as set forth.

493,322. VINE-CUTTER. JOHN H. WHEELER, Macy, Tex. Filed Oct. 28, 1892. Serial No. 450,294. (No model.)



Claim.—As an improved article of manufacture, a vine-cutting attachment adapted to be applied to a plow standard or foot consisting of a pair of cutting knives or shares integrally connected by a front cross-piece with a single central opening therein for the passage therethrough of a single securing bolt, the knives being rearwardly divergent and obliquely arranged at a downward angle, the lower edges of said knives or shares being sharpened and their rear ends curved upwardly, the said lower edges of the knives or shares adjacent to the said cross-piece being formed blunt, substantially as described.

493,323. DRAFT-EQUALIZER. ISAAC T. WILLIAMS, Clearmont, Mo. Filed Nov. 14, 1892. Serial No. 451,978. (No model.)



Claim.—In a draft-equalizer, the combination of a draft-beam, an equalizing-beam pivoted thereto and projected from one side only thereof, a supplemental beam secured to the said equalizing-beam near the outer end of the latter, a singletree and doubletree carried by said supplemental beam, a lever pivoted to the draft-beam in rear of said equalizing-beam and projecting at a greater distance from one side than the other, a pair of arms pivotally attached to the shorter projecting side of said lever and embracing said equalizing-beam, a pair of segmental arms pivotally connected to the opposite projecting ends of the said lever, a lever pivotally secured to the front ends of said segmental arms, said latter lever of itself being pivotally connected

to the draft-beam, a singletree attached to the outer end of said last-named lever, a metal plate applied to the top portion of the last-

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493,326. BUTTER-DISH. LUKE BRARD, Cambridge, Mass. Filed

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5. In a machine for leveling, trussing and hooping casks, the com-

to the draft-beam, a singletree attached to the outer end of said last-named lever, a metal plate applied to the top portion of the draft-beam and having a lug projecting from one side of the same near the front end, and a metallic clip extending over said parts and arranged in longitudinal alignment with the draft-beam, substantially as described.

493,324. FIFTH-WHEEL. JOHN S. YOUNG, Defiance, Ohio. Filed Dec. 3, 1892. Serial No. 453,573. (No model.)



Claim.—1. The combination with a vehicle reach; of the reach iron secured to the front end of the reach and having a spindle, a sectional coupling comprising upper and lower sections each clamped at its inner end to the opposite section and said spindle and extended at their front ends, and the front axle and fifth wheel arranged between the extended ends of said section, substantially as set forth.

2. The combination of a vehicle reach arm, having a rounded spindle at its front end provided with opposite side grooves, a sectional coupling comprising upper and lower sections, having boxes at their inner ends registering with said spindle, clamping bolts connecting said boxes and engaging the opposite side grooves of said spindle, and the front axle and fifth wheel arranged between said sections, substantially as set forth.

3. In a vehicle, the combination of the front reach iron having a spindle, a sectional coupling clamped loosely at its inner end to said spindle, and the upper section of which is provided with an integral upper fifth wheel section, the front axle arranged upon the lower coupling section, and the lower fifth wheel section mounted upon said axle, substantially as set forth.

4. The combination of the vehicle reach iron having a spindle at its front end, a divided or sectional coupling clamped loosely at its inner end to said spindle, and the upper section of which is provided with an integral right-angularly disposed upper fifth wheel plate at its front end having integral segmental bearing sections and supporting the head block, and the lower section of which is extended into a front curved guard arm reaching to the head block, and is provided with a bearing socket, an axle plate or rest having a perforated bearing stud taking into said socket, the front axle mounted on said plate or rest, the lower fifth wheel section having opposite segmental bearing sections contacting with the integral bearing sections of the upper coupling section, and an intermediate bearing arm, and a king-bolt, connecting the upper and lower coupling sections and passing through said bearing arm and stud, substantially as set forth.

493,325. TOBACCO-PIPE. CHARLES S. BAILEY, Boston, Mass., assignor of one-half to Charles H. Reed, same place. Filed Apr. 16, 1892. Serial No. 429,468. (No model.)

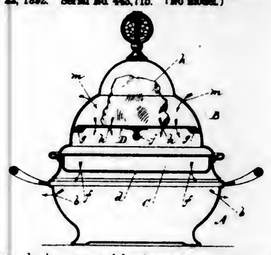


Claim.—1. A tobacco-pipe bowl, screw-threaded around its mouth in combination with a detachable concave screw-cap adapted to be turned onto said bowl and cover the mouth thereof, and provided with air openings in its top, and a screen of wire cloth detachably secured in the mouth of said cap, and of a diameter to span the mouth of said bowl when the cap is secured thereon, substantially as described.

2. In a tobacco-pipe a bowl, in combination with a screw-cap covering the mouth of said bowl, an opening in the top of said cap, a screw-plug in said opening provided with air-vents, a screen across said opening and a screen across the mouth of said cap all being arranged substantially as set forth.

3. In a tobacco-pipe the combination with the bowl with the cap, D, provided with the screens, A, *k*, the chambered screw-plug in said cap and air openings in said cap and plug, substantially as described.

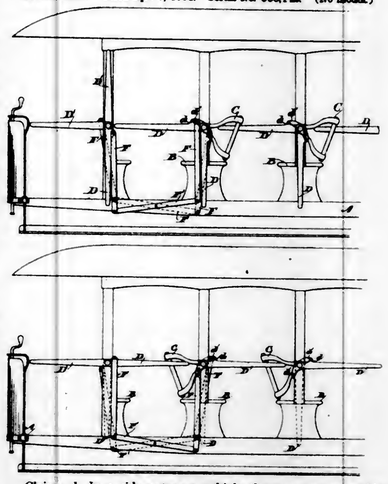
493,326. BUTTER-DISH. LUKE BEARD, Cambridge, Mass. Filed Aug. 23, 1892. Serial No. 443,715. (No model.)



Claim.—1. As a new article of manufacture a butter-dish having air perforations in the side-walls of its body; a tray supported in said body above said perforations and having air-openings; a detachable cover having air-openings in its walls; and a detachable perforated bottom supported in said cover below said openings, substantially as described.

2. The improved butter-dish herein described, comprising the body, A, having perforations, *b*, in its sides, the detachable tray, C, supported above said perforation and provided with openings, *f*; the cover, B, having openings, *m*, and lugs, *g*; the detachable bottom, D, supported on said lugs and having openings, *k*, and slots, *i*, all being arranged to operate substantially as described.

493,327. SIDE GUARD FOR VEHICLES. FRANCIS O. BLACKWELL, Boston, Mass. Filed Apr. 8, 1891. Serial No. 388,142. (No model.)



Claim.—1. In a side entrance vehicle the gates or removable guards on both sides thereof having reversely operating connections, substantially as and for the purpose described.

2. The combination with a side entrance vehicle, of the removable guards or gates on both sides thereof, and the operating device for said gates reversely connected to the gates on the opposite sides of the vehicle.

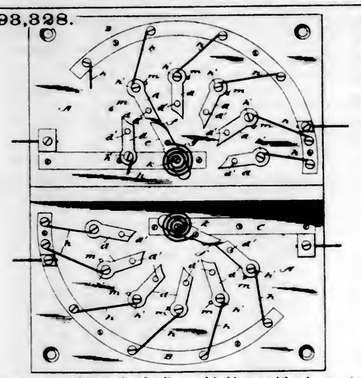
3. The combination with a side entrance vehicle, having tilting seat backs, of the removable gates or guards therefor, having operating connection with said backs.

4. The combination with the side entrance vehicle having tilting seat backs, of the removable guards or gates on the opposite sides thereof, having reverse operating connections with said seat backs.

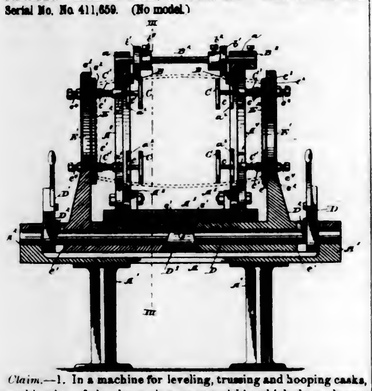
493,328. MULTIPLE TERMINAL CUT-OUT. LARK P. BOSSERMAN, Maryville, Mo. Filed Nov. 10, 1892. Serial No. 451,551. (No model.)

Claim.—A multiple terminal cut-out, consisting of a series of contact levers pivoted on a circular line and held to position by a series of pins and fusible wires, the latter connecting with the main line, in combination with a spring actuated circuit closer pivoted concentric to said contact levers, and spring on the end of the circuit closer, substantially as described.

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493,329. MACHINE FOR LEVELING, TRUSSING, AND HOOPING BARRELS. LOUIS M. GREIF, Cleveland, Ohio. Filed Nov. 12, 1891. Serial No. 411,659. (No model.)



Claim.—1. In a machine for leveling, trussing and hooping casks, the combination of circular cask supports within which the cask may be held, hoop drivers arranged in a circle in each of said supports to slide in parallel lines to the axial line of the same, and heads having means for sliding them toward and from the cask supports in the axial line of the same and against and away from the outer ends of the hoop drivers, substantially as set forth.

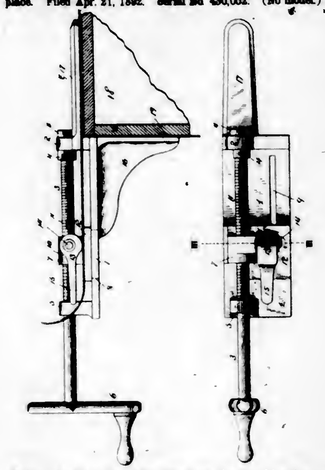
2. In a machine for leveling, trussing and hooping casks, the combination of circular cask supports having means for contracting them, hoop drivers having their stems sliding at equidistant points through said cask supports, and leveling heads having means for sliding them toward and from the cask supports and engaging the stems of the hoop drivers to force them inward and to allow them to slide outward, substantially as set forth.

3. In a machine for leveling, trussing and hooping casks, the combination of circular cask-supports, hoop-drivers having stems sliding through said cask-supports at equidistant points, leveling heads having means for sliding them toward and from the cask-supports, and adjustable stops in said heads and registering with the stems of the hoop-drivers, substantially as set forth.

4. In a machine for leveling, trussing and hooping casks, the combination of a shaft having means for rocking it and provided with two cam-collars and with a cam-sleeve at its middle, cam-sleeves sliding upon the shaft and co-operating with the cam-collars and cam-sleeves upon the same, and leveling heads upon said sliding cam-sleeves, substantially as set forth.

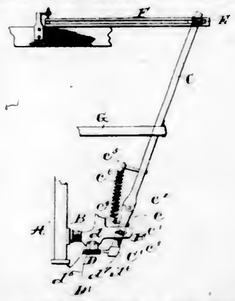
5. In a machine for leveling, trussing and hooping casks, the combination of circular cask-supports, hoop-drivers having their stems sliding at equidistant points through said supports and having springs forcing said stems outward, leveling-heads having means for sliding them toward and from the cask-supports, and screw bolts passing through the heads and having their ends registering with the ends of the stems of the hoop-drivers, substantially as set forth.

493,330. IMPLEMENT FOR BANDING BOXES. THOMAS G. HARDING, Burlington, Vt., assignor of one-half to Jerome W. Goodell, same place. Filed Apr. 21, 1892. Serial No. 430,052. (No model.)



Claim.—In a box banding machine, the combination with the screw 3, and traveling nut thereon having the clamp 13, of the plate 1 provided with guides for said nut and bearings for the screw and having the arm 17 parallel with the screw and the arm 16 at right angles to the screw and intermediate between said clamp and arm 17 for holding the plate with its clamp out beyond the side of the box to be banded, substantially as set forth.

493,331. PICKER-STICK FOR LOOMS. JOHN JOHNSON, Chester, Pa. Filed Feb. 16, 1892. Serial No. 421,717. (No model.)



Claim.—A picker stick composed of the two pieces C and C' having swelled portions *c* and pivoted together, the pins *c*⁴ and *c*⁵ projecting from the rear face of the stick, and the coiled spring *c*⁶, the ends of which are connected to said pins behind the stick and in direct line of its movement and pivot, substantially as described.

493,332. JACK-SCREW. CHARLES JOHNSON, Rutland, Vt., assignor to John Abner Mead, same place. Filed Nov. 10, 1892. Serial No. 451,496. (No model.)

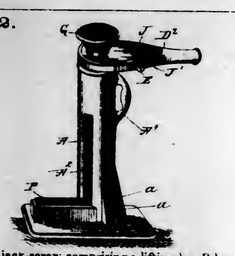
493,332.

2. A holder for insertible saw teeth having a tapered screw-threaded hole opening out to its exposed edge and a corresponding

being pivoted at one end in the outer shell, a dog pivoted in the outer shell underneath the frame, the upper end of the dog supporting the

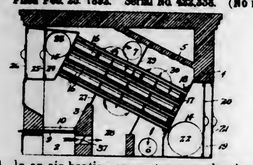
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493,332.



Claim.—A jack-screw comprising a lifting bar B having a lifting foot P, and a removable cap G, a frame A with projections L on its interior surface, an internally threaded nut C in the upper part of the frame, a ratchet wheel D on the nut, ball bearings for said nut, a ratchet lever D embracing the ratchet wheel, and a spring actuated double pawl N having handle E, substantially as described and set forth.

493,333. AIR-HEATING FURNACE. ROBERT S. KENT, Gloucester City, N. J. Filed Feb. 23, 1892. Serial No. 422,858. (No model.)

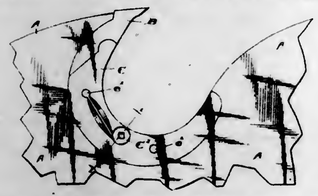


Claim.—1. In an air heating apparatus, a combustion chamber, a series of inclined air tubes, located therein, and connected to a low receiving chamber, and a higher discharging chamber, in combination with a fire box and ash pit located under the upper ends of said tubes; a gas outlet located below the lower ends of said tubes, a pair of doors having an intervening air space arranged to afford access to the interior of the air heating tubes at the upper end, through the air discharging chamber; and a pair of doors with intervening air space located next to the air inlet chamber affording access to the lower ends of the air heating tubes, all constructed and arranged as shown and described.

2. In an air heating furnace the chambers 14 and 24 connected by inclined tubes leading through a combustion chamber, the upper portion of said tubes and the chamber 14 being located above the fire box, and the lower portion of said tubes above the gas outlet 6, and the gas outlet 6 being located below the grate level and in the rear of the ash pit in combination with an upper gas outlet 7, arranged to be used alternately with the gas outlet 6, substantially as set forth and described.

3. In an air heating apparatus a combustion chamber, a series of inclined tubes located therein and connected to a low receiving chamber and a higher discharging chamber in combination with a fire box and ash pit located under the upper ends of said tubes, a gas outlet below the lower ends of said tubes, and a flue provided with a damper leading directly from the ash pit to the lower end of the combustion chamber substantially as shown and described.

493,334. HOLDER FOR INSERTIBLE SAW-TEETH. ANDREW KRIEGER, Indianapolis, Ind., assignor to the E. C. Atkins & Company, same place. Filed July 14, 1892. Serial No. 440,061. (No model.)

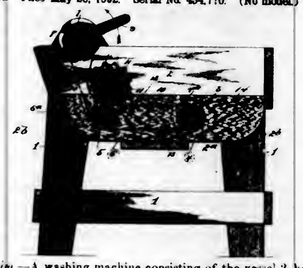


Claim.—1. A holder for insertible saw teeth having a screw threaded hole opening out to its exposed edge, and a screw threaded plug inserted in said hole, whereby said holder may be expanded

2. A holder for insertible saw teeth having a tapered screw-threaded hole opening out to its exposed edge, and a correspondingly tapered screw-plug shorter than the thickness of the holder inserted therein, and provided with a central orifice suitable to receive a wrench whereby the same may be turned, substantially as set forth.

3. The combination of a holder for insertible saw teeth having a longitudinal bevel-sided slot and a hole cutting through from the exposed edge to said slot, and a plug inserted in said hole, substantially as shown and described.

493,335. WASHING-MACHINE. PHILIP H. LAMBACH, Boulder, Colo. Filed May 28, 1892. Serial No. 434,770. (No model.)



Claim.—A washing machine consisting of the vessel 2, having a general rectangular form in its upper part, and provided with a bottom 2^a rounded at its ends 2^b, the cleats 4 attached to the sides of the vessel having open ended upright slots 4^a, the rear roller 3 having gudgeons 3^a bearing in the upright slots, the cleats 6 attached to the sides of the vessel having open ended horizontal slots 6^a, the front roller 5 located at the same level as the rear roller having gudgeons bearing in the horizontal slots, the boxes 8, located upon the vessel, the polygonal faced upper roller 7 bearing in the boxes, having a handle 9 by which it is rotated, the links 12 pivoted to the sides of the vessel near its bottom and extending toward the front end of the vessel, the intermediate roller 11 located over the front roller partly between the latter and the upper roller, mounted in the outer ends of the links, and having ribs 11^a and the endless apron 10, having horizontal parts extending from the rear roller to the front roller and vertical parts extending from the front roller to the upper rollers; substantially as described.

493,336. QUICK-RETURN LIFTING-JACK. JOHN A. MEAD and CHARLES JOHNSON, Rutland, Vt. Filed Nov. 3, 1892. Serial No. 450,827. (No model.)

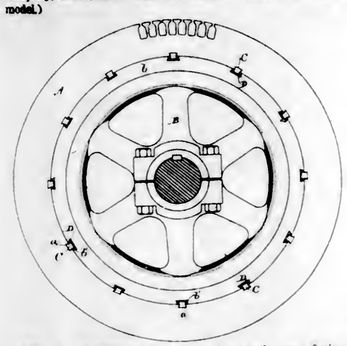


Claim.—1. In a jack, the combination of a lifting bar having a rack, a pinion meshing with the rack and a worm wheel mounted on the same shaft as the pinion, a second shaft a frame in which the latter shaft is journaled, a worm on the latter shaft engaging the worm wheel, said frame pivoted at one end in an outer shell, and a dog pivoted in the outer shell underneath the frame and adapted to support said frame and hold the worm in mesh with the worm wheel, a ratchet lever with an enlarged apertured end to fit the squared end of the second shaft, a ratchet wheel, and a spring actuated double pawl to revolve the second shaft and operate the jack, substantially as described and set forth.

2. The combination in a jack of a lifting bar having a rack, a pinion engaging the rack, and a worm wheel mounted on the same shaft as the pinion, a worm, a frame with a closed bottom, the frame

being pivoted at one end in the outer shell, a dog pivoted in the outer shell underneath the frame, the upper end of the dog supporting the opposite end of said frame to hold the worm in mesh with the worm-wheel, and a lever with an enlarged apertured end to engage the squared end of the second shaft to operate the jack, as and for the purposes set forth.

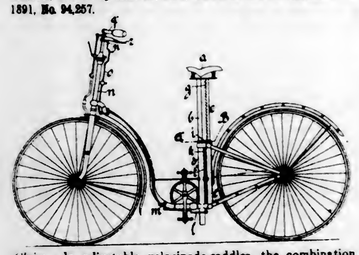
493,337. ARMATURE FOR DYNAMO-ELECTRIC MACHINES. HORACE F. PARSHALL, Lynn, assignor to the Thomson-Houston Electric Company, Boston, Mass. Filed Sept. 15, 1892. Serial No. 445,957. (No model.)



Claim.—1. An armature consisting of an annular core, fitting and surrounding an internal concentric support, and keys between said support and said core, whereby any motion of one independently of the other is prevented, as set forth.

2. An armature comprising a spider or spiders carrying a cylindrical shell, an annular core adapted to fit said shell and be supported thereby, and projections or keys integral with one of said parts and adapted to engage with corresponding grooves or key-seats in the other part, whereby said parts are locked together, as described.

493,338. VELOCIPEDE-SADDLE. EDUARD PETRINI, Upsala, Sweden. Filed Oct. 26, 1892. Serial No. 450,018. (No model.) Patented in Sweden Sept. 29, 1890, No. 2,903; in Germany Oct. 18, 1890, No. 57,565; in Austria-Hungary Feb. 19, 1891, No. 46,221 and No. 75,432; in England Mar. 10, 1891, No. 4,267; in France Mar. 11, 1891, No. 212,085; in Norway Mar. 23, 1891, No. 2,146, and in Belgium Mar. 24, 1891, No. 94,257.



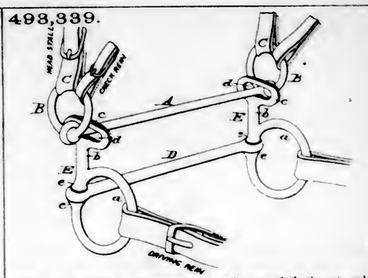
Claim.—In adjustable velocipede-saddles, the combination of two bars supporting the saddle one of which is pressed upward by a spring and the other provided with ratchet teeth some of which teeth are inclined on the upper side but straight on the lower side, and also of a bolt, which can catch in between the ratchet teeth and thus arrest the saddle.

493,339. BRIDLE-BIT. CHARLES W. PHILLIPS, Keokuk, Iowa, assignor to Charles M. Cook and George D. Rand, same place. Filed Oct. 18, 1892. Serial No. 449,285. (No model.)

Claim.—1. The herein described bit, consisting of upper bar A, provided with rings B, lower bar D, and cheek pieces E provided at their upper ends with slots to receive the bar A.

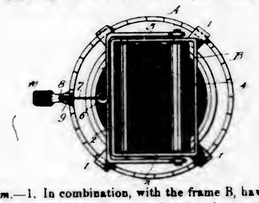
2. An improved bit, consisting of an upper bar A provided at its end with swiveled rings B to receive the head-stall or cheek straps and the check-rein, a lower bar D, provided at its ends with eyes, and cheek pieces E swiveled in the eyes of the bar D and provided

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with slotted extensions through which is passed the bar A, substantially as shown and described.

493,340. MOP-WRINGER. MARY E. PRESCOTT, San Francisco, Cal. Filed July 22, 1892. Serial No. 440,853. (No model.)



Claim.—1. In combination, with the frame B, having a stationary roller and a sliding roller journaled therein, a vertically sliding rod secured in the guideways, a coiled spring surrounding the rod and held between the lower guide way and a pin on the lower rod, a treadle formed on the lower end of this rod, a bail on the sliding roller, and flexible connections between the upper end of the rod and the bail, substantially as described.

2. The combination with the frame B, having a stationary and a sliding roller, of a bail connected to the journals of said sliding roller, a sheave or pulley, a treadle and a cord or chain passing over said sheave and connecting the treadle to the said bail, whereby the depression of the treadle will cause the roller to travel in the frame and approach the stationary roller, substantially as set forth.

3. In combination, the frame B having a stationary roller journaled therein, a sliding roller journaled in slots in the frame, a guide piece 14 having its ends rigidly connected to the frame and provided with a slot extending parallel with the slot of the frame and adapted to form a supplemental sliding bearing for the movable roller and means for operating said roller, substantially as described

493,341. LAMP. JOHN H. PURDY, Chicago, Ill. Filed Sept. 12, 1892. Serial No. 445,672. (No model.)



Claim.—1. The combination in a lamp of a cup shaped base, a spherical lamp body loosely mounted therein, and a wick tube, the walls of said lamp body being made thicker at the bottom or opposite the wick tube, substantially as shown and described.

2. A spherical lamp body, the surface of the interior of which is eccentric to that of the exterior, in combination with a wick tube and cup shaped base, substantially as shown and described.

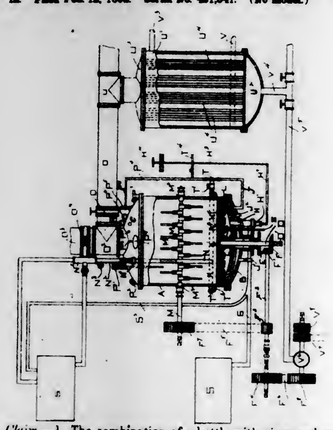
493,342. APPARATUS FOR BREWING. CARL RACH, Chicago, Ill. Filed Feb. 13, 1892. Serial No. 421,541. (No model.)

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Claim.—1. The combination with a cresting plate having a head or bead, of a cresting having a groove or opening adapted to receive

same, an electro-magnet adapted to allow said lever to move in the opposite direction and arranged in circuit with the electro magnet

493,342. APPARATUS FOR BREWING. CARL RACH, Chicago, Ill. Filed Feb. 13, 1892. Serial No. 421,341. (No model.)



Claim.—1. The combination of a kettle with pipes and controlling valves adapted to connect the same with the atmosphere or with a vacuum pump, a vacuum pump thus connected with the kettle, suitable controlling valves and means for heating the contents of the kettle so that the same may be heated to any desired degree at atmospheric pressure or above or below the same.

2. The combination of a kettle with pipes and controlling valves adapted to connect the same with the atmosphere or with a vacuum pump, a vacuum pump thus connected with the kettle, suitable controlling valves and means for heating the contents of the kettle so that the same may be heated to any desired degree at atmospheric pressure or above or below the same said stirring devices consisting of a lower horizontal stirrer and a transverse vertically acting stirrer and means for driving the same.

3. The combination with a kettle having a valved communication with the external air, steam pipes leading into the said kettle at the top and at about the bottom thereof, a steam jacket and steam pipe adapted to discharge so that the contents of the kettle may be heated by means of the steam jacket or by direct application of steam or both, pipes and valves whereby the kettle may be connected with a vacuum apparatus, and a vacuum apparatus so connected with such kettle that the contents thereof may be heated either at, above or below atmospheric pressure.

4. The combination with a kettle, of an inlet and discharge pipe having a vertically movable section extending through the shell of the kettle, and hand operated devices situated outside of the kettle for raising and lowering the same, whereby the contents of the kettle may be exhausted at various points within the kettle, and whereby it may be filled, by one pipe.

5. The combination of a kettle with a vertically movable inlet and discharge pipe and hand operated devices situated outside of the kettle for raising or lowering the same whereby the contents of the kettle may be exhausted at various points within the kettle and whereby it may be filled, by one pipe.

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3. In a device of the class described, the combination of the base sill having an open mortise or notch, the horizontal cross beam supported above said base sill and having a mortise in the underside thereof, an upper guide pulley mounted upon said cross beam directly over the mortise therein, a lower guide pulley removably connected to said base sill, a drag rope passing over both of said pulleys, the main elevated track section resting at one end upon said horizontal cross beam, a vertical brace removably engaging the mortises in the cross beam and base sill, an outer ground track section removably connected to and supporting the other end of said elevated track section, and a self loading dumping scoop connected to said drag rope and moving over said track section, substantially as set forth.

4. In a loading apparatus, the combination of an inclined track terminating in beveled guide ends at the ground, a drag scoop or shovel adapted to be moved over the ground and upon said track, a drag and locking bail pivotally connected to said scoop and suitable operating mechanism, and means for locking and unlocking the scoop to and from the bail, substantially as set forth.

5. In a device of the class described, the combination of the track of the self-loading drag scoop having an inclosing back end and sides, a metallic scraping plate at the front edge of the bottom thereof, rearwardly extending handles and a locking notch in one side thereof, slide runners upon the bottom of the scoop, opposite track followers and scoop supporting blocks secured to opposite sides of the scoop, a bail embracing the front end and sides of the scoop and pivotally connected thereto, a spring catch secured to one of the arms of said bail and adapted to engage said locking notch, a trip rope connected to said catch, and means for moving said scoop upon the ground and said track, substantially as set forth.

493,343. LOADING APPARATUS. JAMES H. RUBYAN, Iola, Kans. Filed Sept. 8, 1892. Serial No. 445,384. (No model.)

Claim.—1. In a loading apparatus, the combination of the opposite inclined track rails having their lower ends resting directly on the ground, a self-loading scoop having side follower blocks adapted to slide on said opposite track rails to guide and support the scoop therebetween, a bail pivotally connected to the opposite sides of the scoop and also adapted to slide over the opposite rails, and drag and tripping devices for the scoop, substantially as set forth.

2. In a device of the class described, the combination of the main elevated track rails supported above a wagon or car way, an outer ground section of rails removably connected to said elevated track section, a self-loading dumping scoop having bottom slide runners and side follower blocks, which latter are adapted to move over said rail sections and guide and support the scoop thereon, a drag bail pivoted to said follower blocks and also sliding on said rails, and means for connecting and disconnecting the bail to and from the sides of the scoop, substantially as set forth.

493,344. CRESTING FOR ROOFS. GEORGE M. VANCE, Anderson, Ind. Filed May 24, 1892. Serial No. 434,206. (No model.)



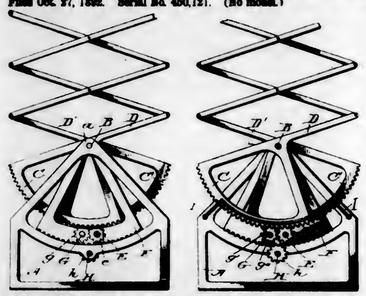
Claim.—1. The combination with a cresting plate having a head or bead, of a cresting having a groove or opening adapted to receive said head or bead and thus hold the cresting without the use of fastening devices, substantially as set forth.

2. The combination with a cresting plate having a head or bead, of a cresting having an opening to receive said head or bead, whereby said cresting will be held in position without the use of fastening devices, and wings depending from said cresting adapted to lie parallel with the sloping sides of the cresting plate, substantially as set forth.

3. A cresting of glass having an opening therein, for the reception of a similarly shaped bead, substantially as set forth.

4. The combination with a cresting plate having a bead or head which describes more than a semi-circle in cross section, of a cresting having an opening or groove therein of a shape to conform to the bead or head of the cresting plate, substantially as set forth.

493,345. FIRE-LADDER. JAMES M. WALLACE, Portland, Oreg. Filed Oct. 27, 1892. Serial No. 450,121. (No model.)



Claim.—In a lazy tongs fire escape, the combination with the frame A, of the shaft B, the toothed lifting segments C C C' C', suspended from and turning on said shaft, the lazy-tongs ladder having its lever arms D D D' D' secured to said segments, the toothed tilting segments F suspended from and keyed to said shaft, the guides I I secured to said frame A forming a single guideway therewith on each side of the frame in which said lifting and tilting segments slide over each other without additional engagement therewith, the lifting device consisting of the shaft E mounted in said segments F having narrow pinions e e' and the wide pinion e^2 the shaft G similarly mounted in said segments F and having the narrow pinions g' and g^2 and the wide pinion g, said wide pinion g meshing with segment C and pinion e^2, and wide pinion e^2 with segment C and pinion g^2 and means for actuating the shaft E and the tilting device consisting of the shaft H mounted in the frame A and having the pinions h h meshing with the segments F F, substantially as described.

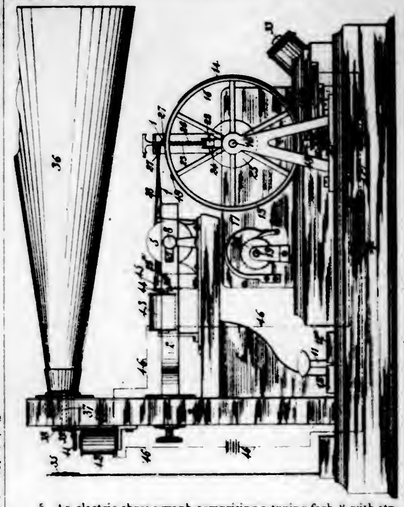
493,346. PERSONAL-EQUATION CHRONOGRAPH. LIONEL DE L. WELLS, London, England. Filed June 17, 1892. Serial No. 437,064. (No model.)

Claim.—1. An electric chronograph comprising a tuning fork carrying a stylus, a movable record carrier, an indicator and an electro-magnetic device for controlling the same, an electro-magnetic device for moving said stylus from said carrier, an electro-magnetic device for enabling said stylus to move toward said carrier, and circuit making and breaking devices for controlling the circuits of said electro-magnetic devices substantially as hereinbefore described for the purposes specified.

2. In an electric chronograph, the combination with a tuning fork carrying a stylus and a movable record carrier, of an electro-magnetically operated device for enabling said stylus to move toward said carrier, an electro-magnetically operated indicator, a circuit closer arranged to be momentarily operated by said carrier and to operate both of said electro-magnetically operated devices simultaneously, an electro-magnetic device adapted to move said stylus from said record carrier, and a circuit making and breaking device under the control of an observer for controlling said last mentioned electro magnetic device substantially as herein described for the purpose specified.

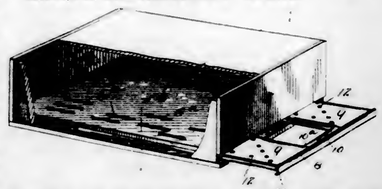
3. In an electric chronograph, the combination of an electro-magnetically operated tuning fork, a stylus carried thereby, a record carrier, a lever adapted to move said stylus from said carrier, an electro magnet to operate said lever in one direction, a circuit closing device under the control of an observer, for closing the circuit of this electro-magnet, an indicator, an electro-magnet for operating the same, an electro-magnet adapted to allow said lever to move in the opposite direction and arranged in circuit with the electro magnet for operating said indicator, a circuit closer for said circuit, and a projection carried by said record carrier and arranged to operate said circuit closer substantially as herein described for the purposes specified.

4. In an electric chronograph, the combination of an electro-magnetically operated tuning fork, a stylus carried thereby, a rotary record drum fixed upon a shaft and provided with guides 14 and a projection 19, means for rotating said drum, and a spring stop adapted to automatically arrest the motion of said drum substantially as herein described.



5. An electric chronograph comprising a tuning fork 2 with stylus 1, the electro magnet 5 with make and break device 7—8, the rotary record drum provided with guides 14, and projection 19, means for rotating said drum, the lever 28—28^2 with pin 27^*, the electro magnet 31 with circuit closer 33—34, the conical tube 36 carried by a support formed with a sight hole 37 in line with said tube, a shutter 38 adapted to move over said hole 37, an electro-magnet 42 for operating said shutter in one direction, a spring for operating said shutter in the opposite direction, an electro-magnet 43 having an armature provided with a tongue 45 to control the movement of said lever 28—28^2, a circuit 46 in which said electro-magnets 42 and 43 are placed, and a circuit closer for said circuit comprising spring contacts 47 47^* arranged to be operated by said projection 19 substantially as described for the purposes specified.

493,347. CIGAR-MOISTENER. ALBERT ALFORD, Chicago, Ill. Filed Sept. 16, 1892. Serial No. 446,073. (No model.)



Claim.—1. In combination with a cigar box, a moistener having two receptacles of sheet metal with perforations in the upper surfaces thereof, and a connecting strip at the outer end, substantially as described.

2. In combination with a cigar box, a moistener consisting of two receptacles of sheet metal with perforations in their upper surfaces, with a passageway connecting said receptacles, substantially as described.

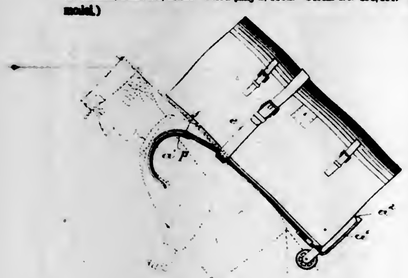
3. In combination with a cigar box having a perforated false

bottom, a sheet metal receptacle adapted to fit the chamber beneath

spiders having heads embracing the core between them, and cylindri-

bottom, a sheet metal receptacle adapted to fit the chamber beneath said false bottom, said receptacle comprising the two chambers perforated on their upper surfaces, a passageway connecting said chambers at one end, and a strengthening rib secured to the ends of the receptacles and the side of the passageway and extending beyond the outer sides of the chambers, substantially as described.

493,348. BAGGAGE-CARRIER. MICHAEL H. BARRY and DANIEL M. CAHILL, Danvers, Mass. Filed May 2, 1892. Serial No. 431,451. (No model.)



Claim.—1. A baggage carrier, consisting of a frame, and devices thereon to hold an article of baggage, combined with open down turned supporting hooks for and forming continuations of the upper ends of the frame sides, and adapted to be passed over the shoulders of a person whereby the carrier and article may be conveyed from one point to another upon the shoulders, substantially as described.

2. In a baggage carrier, side bars, cross bars connecting the same to form a frame to support the article to be carried, the ends of the side bars being extended and downwardly turned to form hooks adapted to pass over a person's shoulders, substantially as described.

3. The combination of the side bars *a* provided with hooked ends a^x of the cross bar *c*, extended beyond said side bars and the wheels or rolls *d*, carried by said cross-bar substantially as described.

4. The combination in a baggage carrier, of the side bars *a*, *a*, and provided at one end with hooked portions a^x, and of the cross-bars *b*, *c*, pivotally connected thereto to permit the said cross-bars to be closed together, said cross-bar *c* being extended beyond the side bars, and wheels or rolls carried by the cross-bar, substantially as described.

5. A baggage carrier consisting of a frame to sustain the article, and a transverse strap to fasten the same in position, combined with open down turned supporting hooks for the frame adapted to be passed over the shoulders of a person whereby the carrier and article may be conveyed from one point to another upon the shoulders, substantially as described.

6. The combination with the side bars *a* provided at one end with hooked portions a^x of the cross bar *c*, extended beyond said side bars the wheels or rolls *d*, carried by said cross-bar and the pads *p*, *p'*, on said hooked portions and side bars respectively substantially as described.

7. A baggage carrier provided at one end with rolls and at the other end with handles by which it may be rolled, combined with two downturned hooks adjacent to said handles, and adapted to pass over the shoulders of a person, substantially as described.

8. A baggage carrier provided at one end with rolls and at the other end with hooks to pass over the shoulders of a person, combined with extensible handles adjacent to said hooks by which to roll the carrier, substantially as described.

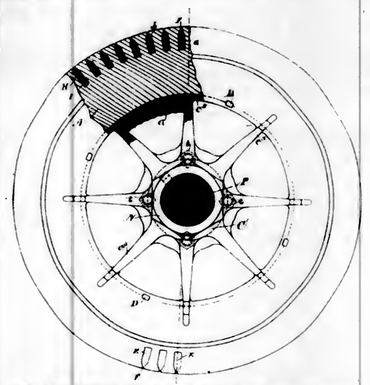
9. The combination with the side bars *a* provided with downwardly turned hooked ends, of the slotted handles *f* having ears f^3, to embrace and be guided by said bars *a* substantially as described.

493,349. ARMATURE FOR MOTORS AND GENERATORS. HORMAN C. BARNETT, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed July 9, 1891. Serial No. 398,910. (No model.)

Claim.—1. The combination with the laminated armature core and the shaft of the supporting spiders secured to the shaft, and having cylindrical flanges engaging with the interior of the core and of such dimensions as to form a support for substantially all the laminæ of the core.

2. The combination of the laminated core, the shaft, and the spiders having heads embracing the core between them, and cylindrical flanges engaging with the interior of the core and of such dimensions as to form a support for substantially all the laminæ of the core.

3. The combination with the armature core, of the shaft, and the spiders secured to said shaft for supporting the core, said spiders being provided with cylindrical flanges engaging with the interior of the core and having serrated intermeshing edges, substantially as described.



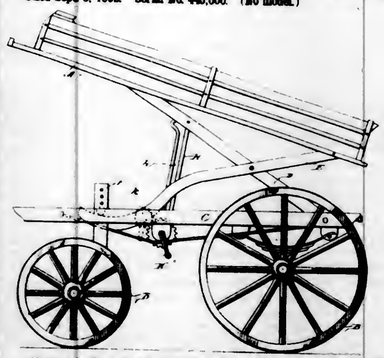
4. An armature having grooves to receive the coils, said grooves having their sides inclining toward each other near the surface of the armature in combination with coils wound in the grooves and binding pieces adapted to be crowded down upon the coils by said inclined sides, substantially as set forth.

5. The combination of the armature core having grooves near its surface, with narrow openings or slits, coils wound in said grooves followers placed on said coils and binding pieces in said grooves between said slits and the followers.

6. The combination with the armature core having grooves near its surface tapering to narrow slits or openings, of the coils wound in said grooves and filling and binding pieces in the tapering portion of said grooves.

7. The combination of an armature core having grooves near its surface with tapering portions, coils wound in said grooves, followers placed on said coils and binding pieces driven into said grooves.

493,350. DUMPING-WAGON. OSCAR R. BECKER, Reading, Pa. Filed Sept. 3, 1892. Serial No. 445,000. (No model.)



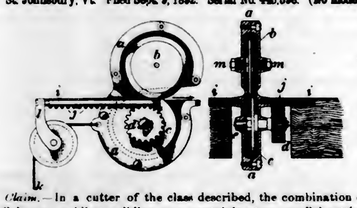
Claim.—1. In a dumping wagon, the combination with the supporting frame movable body and the crossed levers pivotally connected together and co-operating with opposite ends of the frame and body respectively, of the elevator frame depending from and pivotally connected to the said levers, the power shaft journaled in the supporting frame below the levers and connections between the power shaft and lower end of the elevator frame; substantially as described.

2. In a dumping wagon, the combination with the supporting frame and movable body, of the crossed levers pivotally connected together and both pivotally connected to the body and frame respectively at the rear ends, and sliding connections between their forward ends and the forward ends of the frame and body respectively, with means for elevating the upper ends of the levers; substantially as described.

3. In a dumping wagon, the combination with the supporting frame and movable body, of the crossed levers pivotally connected together and pivotally connected to the body and frame respectively, at one end, and an adjustable bearing for the opposite end of one of said levers, and a sliding bearing for the other lever with means for elevating the upper ends of the levers, substantially as described.

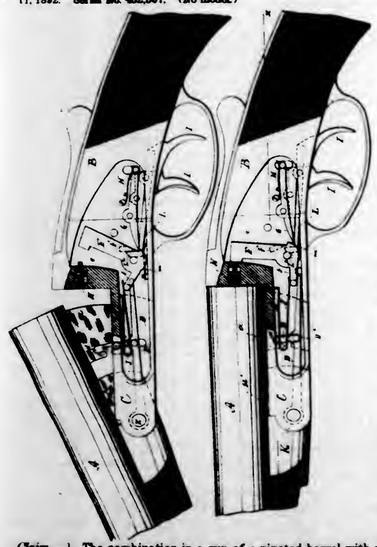
4. In a dumping wagon, the combination with the supporting frame and movable body, of the levers for elevating the body, the power shaft, the elevator frame having the guide slots for the power shaft enlarged at the upper ends to permit the frame to fold, and the connections between the power shaft and elevator frame; substantially as described.

493,351. FABRIC OR PAPER CUTTER. GEORGE A. BURBANK, St. Johnsbury, Vt. Filed Sept. 9, 1892. Serial No. 445,398. (No model.)



Claim.—In a cutter of the class described, the combination of parallel ways guiding a sliding case containing two parallel cutting wheels, *b* and *c*, one above and in advance of the other, the sides of the wheels contiguous, the edges overlapping and sharpened, of a rack and pinion to revolve cutter *c*, and of trunnion screws to adjust cutter *b* to revolve by friction contact, all substantially as described and for the purposes set forth in the accompanying specification.

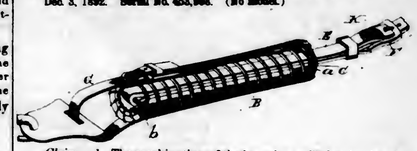
493,352. FIREARM. DAVID COSHER, Groton, Conn. Filed May 11, 1892. Serial No. 432,567. (No model.)



Claim.—1. The combination in a gun of a pivoted barrel with a lever fulcrumed at its forward end to the frame, a hammer having a forwardly projecting arm which is engaged by the rear end of the lever, a main spring acting upon the hammer and with a bail or hook carried by the barrel lug and engaging the lever between its fulcrum and the hammer, substantially as specified.

2. The combination in a gun of a hammer having a lug *f*, with a trigger I operating the hammer, a lever L having an inwardly extending pin L' that engages the trigger and an upwardly extending bolt L³ that engages the lug *f*, substantially as specified.

493,353. CHECKREIN. ALBERT W. COX, Hastings, Nebr. Filed Dec. 3, 1892. Serial No. 453,986. (No model.)

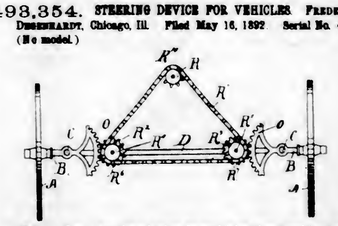


Claim.—1. The combination of the barrel or cylinder, having the head of one end provided with a central aperture and a spiral spring contained therein, with the check rein passing through the interior of said spring engaging with the outer end thereof and doubled back upon itself forming an adjustable loop substantially as and for the purpose described.

2. The combination of the barrel or cylinder, the spiral spring confined within the barrel by the head at one end having the central aperture, and the stiffener at its opposite end, with the check rein passing through the interior of the spring and barrel, engaging with the outer end of the spring and doubled back upon itself forming an adjustable loop substantially as and for the purpose described.

3. The combination of the barrel or cylinder, the spiral spring confined within the barrel by the head at one end having the central aperture and the stiffener at its opposite end, with the check rein passing through the interior of the spring engaging with its outer end and doubled back upon itself forming an adjustable loop, and a strap and buckle secured to opposite sides of the outer end of the barrel, adapting it to form an adjustable loop to engage the check hook, substantially as described.

493,354. STEERING DEVICE FOR VEHICLES. FREDERICK R. DIESENHARDT, Chicago, Ill. Filed May 16, 1892. Serial No. 433,152. (No model.)



Claim.—In a steering device for vehicles the combination of a cross bar or permanent axle with two short axles pivoted each on a vertical pivot near one extremity of the permanent axle, wheels journaled one on one end of each of such short axles, arc-shaped racks one on the other end of each of such short axles, a gear wheel meshing with each of such racks, a series of sprocket wheels, a driving sprocket chain connecting them, two of such sprockets associated with the two gears so as to drive them and another of such sprockets placed forwardly and combined with a shaft and handle whereby the system of sprocket wheels may be operated to move the short shafts on their pivots.

493,355. HOG-FEEDING HOUSE. PAUL R. ERICKSON, Scandia, Kans. Filed Aug. 10, 1892. Serial No. 442,699. (No model.)

Claim.—1. In a hog house, the combination with the inclosing wall and a central post, of radially arranged partitions, provided at their lower edges with studs to engage sockets in the floor and provided at their upper angles with hooks and notches for engagement with the wall and post, substantially as specified.

2. In a hog house, the combination with the inclosing wall and central post, of the partitions provided with depending studs to fit in sockets in the floor, hooks at their outer upper angles to engage the upper edge of the wall, and notches at their inner upper angles, and the ring surrounding the post to engage said notches, substantially as specified.

3. In a hog house, having an inclosing wall and a central post,

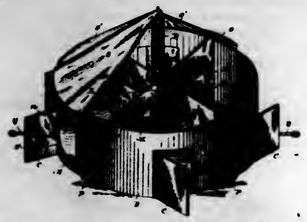
the roofing plates, pivotally connected to said post and resting at their

each other a distance equal to the thickness of the top to be wound.

animam therein, and a suitable steam supply, steam pipes held in the

tor G secured to said frame D by means of a series of springs and con-

the roofing plates, pivotally connected to said post and resting at their free ends upon the upper edge of the inclosing wall, substantially as specified.

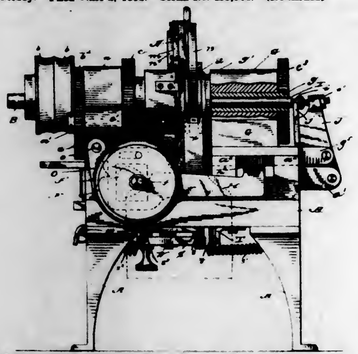


4. In a hog house, the combination with the inclosing wall and central post, of sector-shaped roofing-plates, pivotally connected at their apexes to the central post and resting at their bases upon the upper edge of the wall, substantially as specified.

5. In a hog house, the combination with the inclosing wall and central post, of the sector-shaped roofing-plates, pivotally connected at their apexes to the top of the said post, the plates being provided, alternately, with up-turned and down-turned flanges, which engage with each other, substantially as specified.

6. A roof for a hog house consisting of a series of sector-shaped plates, pivoted at their apexes upon a common pivot, and adapted to be arranged in a single tier, substantially as specified.

493,356. COP-WINDING MACHINE. CHRISTIAN FRIEDERICH, Elizabeth, N. J., assignor to The Singer Manufacturing Company of New Jersey. Filed June 2, 1892. Serial No. 435,301. (No model.)



Claim.—1. In a cop winding machine, the combination with a rotary head or disk and a second rotary head or disk movable toward and from the first disk or head, of an endwise movable pin arranged centrally of the said disks or heads and extending across the space between them, a thread distributer also arranged between the said disks or heads, and means for rotating the said heads or disks, for vibrating or reciprocating the said thread distributer and for moving the said pin and the said movable head or disk outward and inward at times.

2. In a cop winding machine, the combination of a driving shaft provided with fast and loose pulleys, a rotary head or disk on the said driving shaft, and a second rotary head or disk normally separated from the first-named head or disk, a shaft by which the last-named head or disk is carried, a train of gearing connecting the last-named shaft with the driving shaft, a movable bracket in which the shaft carrying the movable head or disk is mounted, an endwise movable pin extending through the shaft carrying the said movable head or disk and crossing the space between them, a thread distributing mechanism, a worm, a worm wheel, a gearing connection between the said worm wheel and the said loose pulley, means operated from said worm wheel for moving the said sliding bracket and the said pin, a belt shipping mechanism, and means, also operated from said worm wheel, for controlling the operation of the said belt shipping mechanism in transferring the belt from the loose to the fast pulley.

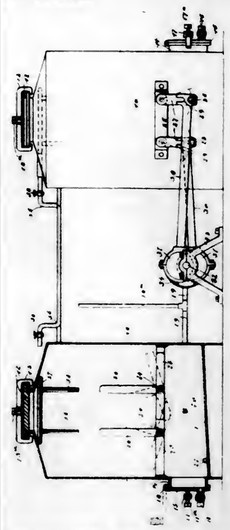
3. In a cop winding machine the combination with two rotary heads or disks which in their normal positions are separated from each other a distance equal to the thickness of the cop to be wound, and one of which disks or heads is movable toward and from the other, a driving shaft carrying one of the said rotary heads or disks and which driving shaft is provided with fast and loose pulleys, a train of gearing connecting the said driving shaft with the other of said rotary heads or disks to operate the latter, a thread compressing wheel or device to bear upon the cop being formed and compress the latter, a belt shipping mechanism for transferring the driving belt from the fast pulley to the loose pulley and vice versa, a cutting mechanism connected with the said belt shipping mechanism, and a mechanism for governing the action of the said belt shipper by the accumulating thread of the cop; whereby when a cop of any desired size has been formed the said governing mechanism may be operated to release the belt shipper and transfer the driving belt from the fast to the loose pulley and thus suspend the winding operation.

4. In a cop winding machine, the combination with two rotary heads or disks normally separated from each other during the winding operation, and one of which is movable toward and from the other, of a thread distributer and a presser wheel or device bearing upon the accumulating thread, mechanism for rotating the said heads or disks, and a stop motion, for said rotating mechanism, controlled by the said presser wheel or device, the position of the latter being governed by the accumulating thread.

5. In a cop winding machine, the combination with two rotary heads or disks normally separated from each other during the winding operation, and one of which is movable toward and from the other, of a thread distributer and a presser wheel or device bearing upon the accumulating thread, mechanism for rotating the said heads or disks, a stop motion, for said rotating mechanism, controlled by the said presser wheel or device, the position of which latter is governed by the accumulating thread on the cop, and a knife for severing the thread

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493,357. APPARATUS FOR DISINTEGRATING BITUMINOUS ROCK. BEN HAGER, Salt Lake City, Utah. Filed Apr. 22, 1892. Serial No. 430,207. (No model.)



Claim.—1. An apparatus of the character described, comprising a kettle having an inlet and outlet, a stationary grate extending transversely across the kettle, and oscillating grate bars comprising bars projecting at right angles to each other and adapted to swing between the bars of the stationary grate, substantially as shown and described

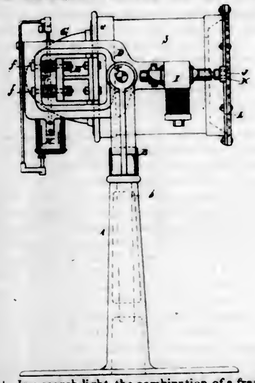
2. An apparatus of the character described, comprising a pair of kettles having suitable inlets and outlets, stationary grates arranged within the kettles, oscillating grate bars held to move between the stationary grate bars, a steam supply for the kettles, and a steam pipe connection between the two kettles, substantially as described.

3 The combination of the two kettles having disintegrating mechanism therein, and a suitable steam supply, steam pipes held in the upper portion of the kettles, and provided with depending delivery pipes, and a pipe leading from the upper part of each kettle to connect with the top pipe of the adjacent kettle, substantially as described.

4. In an apparatus of the character described, the kettle having an inlet at the top, an outlet at the bottom, an inclined bottom, a stationary grate held horizontally therein, oscillating grate bars held to swing between the bars of the stationary grate, a steam pipe adapted to deliver beneath the grate, and a second pipe held to deliver above the grate, substantially as described.

5. The combination of the two kettles, their oscillating crank shafts having grate bars thereon, the driving shaft arranged midway between the kettles, and the swinging eccentric rods driven by the shaft and having their ends adapted to engage the cranks of the crank shafts, substantially as described.

493,358. ELECTRIC SEARCH-LIGHT. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Sept. 16, 1891. Serial No. 405,842. (No model.)



Claim.—1. In a search light, the combination of a frame, an electric lamp carried by said frame, a reflector secured to said frame by means of springs disposed in a transverse plane through the focal point, and mechanical means to vibrate the reflector upon said springs.

2. In a search light, the combination of a frame, an electric lamp carried by said frame, a reflector secured to said frame by means of springs disposed in a transverse plane through the focal point, and mechanical means to vibrate said reflector vertically upon said springs.

3. In a search light, the combination of a frame, an electric lamp carried by said frame, a reflector secured to said frame by means of springs disposed in a transverse plane through the focal point, and mechanical means to vibrate said reflector laterally upon said springs.

4. In a search light, the combination of a frame, an electric lamp carried by said frame, a reflector secured to said frame by means of springs disposed in a transverse plane through the focal point, and mechanical means to simultaneously vibrate said reflector both vertically and laterally upon said springs.

5. In a search light, the combination of a frame, an electric lamp carried by said frame, a reflector secured to said frame by means of springs disposed in a transverse plane through the focal point, mechanical means to vibrate the reflector upon said springs, and a support for said reflector and lamp whereby they may be moved in any direction vertically and laterally.

6. In a search light, the combination of a frame movably supported upon a standard, a source of light, a reflector connected to the said frame by means of springs disposed about the focal point of said reflector, and mechanical devices movable with said movable frame for mechanically vibrating the said reflector.

7. In a search light, the combination of a frame movably supported upon a pedestal or standard, a source of light, a reflector therefor secured to said frame by means of springs disposed about the focal point thereof, two electric motors supported by the said movable frame, and independent power transmitting connections between said motors and the reflector whereby the latter is simultaneously vibrated in two directions at an angle to each other.

8. In a search light, the combination of a frame D supported upon a pedestal or support with freedom of movement about vertical and transverse axes, an electric lamp H supported by said frame D, a reflector G secured to said frame D by means of a series of springs and connecting bolts, electric motors I I' secured to the frame D upon each side of the reflector, and mechanical power transmitting connections between the said electric motors and the reflector whereby the latter is vibrated both vertically and laterally or in directions at angles to each other.

9. In a search light, the combination of a frame D supported upon a pedestal or support with freedom of movement about vertical and transverse axes, an electric lamp H supported by said frame D, a reflector G secured to said frame D by means of springs and connecting bolts, electric motors I I' secured to the frame D upon each side of the reflector, and mechanical power transmitting connections consisting of cranks J and J' and slots K and K' arranged at an angle to each other between the said electric motors and the reflector whereby the latter is vibrated both vertically and laterally or in directions at angles to each other.

10. In a search light, the combination of a source of electric light; a vibrating reflector; two electric motors for vibrating said reflector; and power transmitting connections between the respective motors and the reflector consisting respectively of a crank J and vertical slot K in which it plays, and a crank J' and a horizontal slot K' in which it plays said slots being formed in a frame connecting with the reflector.

11. In a search light, a reflector N consisting of a series of annular reflectors O, P, and Q of which the annular reflectors P project the rays directly from the reflector and the annular parts O project the rays upon the annular part Q and thence from the reflector.

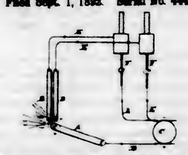
12. In a search light, a reflector N consisting of a series of annular reflectors O, P, and Q of which the annular parts P project the rays directly from the reflector and the annular parts O project the rays upon the annular parts Q and thence from the reflector, in combination with a parabolic reflector G, and an electric lamp having its electrodes M meeting at the focal point of the reflector.

13. The herein described method of lighting which consists in maintaining a light at a focusing point, reflecting the rays of light from the said point by means of reflectors in one direction so as to produce a beam of light, and while maintaining in a fixed position the source of light with respect to the reflector vibrating the said reflector to cause the beam of light to be vibrated about the source of light as a center, whereby the beam of light where it strikes the object to be illuminated may be impressed upon the retina of the eye for all of its positions.

14. The herein described method of lighting which consists in maintaining an intense light at a given focal point, reflecting the rays of light therefrom which radiate either in front or back of said point or source of light in one direction to form a beam of light made up of parallel or substantially parallel rays, and vibrating the said beam of light substantially about the focal point to cause it to rapidly move over the object to be illuminated, whereby the light in all of its positions is impressed upon the retina of the eye.

15. The herein described method of lighting which consists in maintaining an intense light at a given focal point, reflecting the rays of light therefrom which radiate either in front or back of said point or source of light in one direction to form a beam of light made up of parallel or substantially parallel rays, vibrating the said beam of light substantially about the focal point to cause it to rapidly move over the object to be illuminated, whereby the light in all of its positions is impressed upon the retina of the eye, and simultaneously moving the said beam of light independently of its vibrations through space to cover the object desired.

493,359. ELECTRIC-ARC LAMP. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Sept. 1, 1892. Serial No. 444,723. (No model.)



Claim.—1. In an arc lamp, the combination of a positive carbon and two or more negative carbons arranged to form arcs between the said positive carbon and negative carbons, a source of electric energy, a connecting circuit between the positive terminal of the source of electric energy and the positive carbon, and separate circuits for carrying independently maintained electric currents between the negative terminal or terminals of the source of electric energy and the negative carbons.

2. In an arc lamp, the combination of a positive carbon and two

or more negative carbons arranged to form arcs between the said positive carbon and negative carbons, a source of electric energy, a connecting circuit between the positive terminal of the source of elec-

portions of the end of one of the carbons repeatedly and frequently within the zone of the arc whereby the arc formed between the car-

feed it longitudinally or in the direction of its length, and means for

removed without displacement to the regulator and connecting de-

or more negative carbons arranged to form arcs between the said positive carbon and negative carbons, a source of electric energy, a connecting circuit between the positive terminal of the source of electric energy and the positive carbon, independent circuits between the negative terminal or terminals of the source of electric energy and the negative carbons, and independent regulators in the circuits connecting with the negative carbons for controlling the arcs between the negative carbons and the positive carbon.

2. In an arc-lamp, the combination of a positive carbon and two or more negative carbons arranged to form arcs between the said positive carbon and negative carbons, a source of electric energy, a connecting circuit between the positive terminal of the source of electric energy and the positive carbon, independent circuits between the negative terminal or terminals of the source of electric energy and the negative carbons, and independent regulators in the circuits connecting with the negative carbons for controlling the arcs between the negative carbons and positive carbon consisting of automatic devices influenced by the current flowing in the circuits for regulating the resistance of the several independent circuits.

4. In an arc lamp, the combination of a positive carbon and two or more negative carbons arranged to form arcs between the said positive carbon and negative carbons, a source of electric energy, a connecting circuit between the positive terminal of the source of electric energy and the positive carbon, independent circuits between the negative terminal or terminals of the source of electric energy and the negative carbons, and independent regulators for controlling the arcs between the negative carbons and the positive carbon consisting of arc lamps for changing the resistance in the circuits inversely with the resistance of the arcs between the positive and negative carbons.

5. In an electric lamp, the combination of a positive carbon and two or more negative carbons, two separate generating armatures or sources of electric energy, connecting circuits between the positive terminals of the armatures and the positive carbon, and independent circuits between the negative terminals of the armatures and the respective negative carbons.

6. In an electric lamp, the combination of a positive carbon and two or more negative carbons, two separate generating armatures or sources of electric energy, connecting circuits between the positive terminals of the armatures and the positive carbon, independent circuits between the negative terminals of the armatures and the respective negative carbons, and independent regulators in the circuits connecting with the negative carbons for controlling the arcs between the negative carbons and the positive carbon.

7. In an electric lamp, the combination of a positive carbon and two or more negative carbons, two separate generating armatures or sources of electric energy, connecting circuits between the positive terminals of the armatures and the positive carbon, independent circuits between the negative terminals of the armatures and the respective negative carbons, and independent regulators in the circuits connecting with the negative carbons for controlling the arcs between the negative carbons and the positive carbon consisting of automatic devices influenced by the current flowing in the circuits for regulating the resistance of the several independent circuits.

8. An arc lamp having one carbon of one polarity and two or more carbons of different polarity for the purpose of maintaining two or more independent arcs, and in which the carbons of one polarity are arranged at substantially right angles to the carbons of the other polarity, and separate circuits for carrying independent maintained electric currents for the two or more carbons.

9. An arc lamp having two or more carbons of one polarity and a carbon of different polarity for the purpose of maintaining two or more independent arcs, and in which the carbons of one polarity are arranged at substantially right angles to the carbons of the other polarity, in combination with means to feed the carbons of one polarity obliquely with respect to the length of the carbon of the other polarity, and independent electrical circuits including the two or more carbons of one polarity whereby separate currents are fed to the said several carbons.

10. An arc lamp having two or more carbons of one polarity and a carbon of different polarity for the purpose of maintaining two or more independent arcs, and in which the carbons of one polarity are arranged at substantially right angles to the carbons of the other polarity, in combination with means to feed the carbons of one polarity obliquely with respect to the length of the carbon of the other polarity, independent electrical circuits including the two or more carbons of one polarity whereby separate currents are fed to the said several carbons, and an automatic regulator for varying the relative positions of the carbons to maintain arcs of substantially uniform brilliancy.

11. In an electric lamp, the combination of two cylindrical carbons arranged at an angle to each other, a source of electric energy in circuit with the said carbons, and means to cause a very rapid continuous and uniform relative movement between the said carbons to bring all portions of the end of one of the carbons repeatedly and frequently within the zone of the arc whereby the arc formed between the carbons is caused to travel with great rapidity about the end of one of the carbons and maintains the entire end of the carbon at a high temperature.

12. In an electric lamp, the combination of two carbons arranged at an angle to each other, a source of electric energy in circuit with the said carbons, and means to cause a relative movement between the said carbons, whereby the arc formed between them is caused to rapidly travel about the end of one of the carbons, and an electric regulator for moving one of the carbons to maintain an arc of uniform brilliancy.

13. In an electric lamp, the combination of two carbons arranged at an angle to each other, a source of electric energy in circuit with the said carbons, and means to cause a relative movement between the said carbons whereby the arc formed between them is caused to rapidly travel about the end of one of the carbons, an electric regulator for moving one of the carbons to maintain an arc of uniform brilliancy, and means to feed the carbons relatively together to compensate for the consumption thereof.

14. In an electric lamp, the combination of two carbons arranged at an angle to each other, a source of electric energy in circuit with the said carbons, means to cause a relative movement between the the said carbons whereby the arc formed between them is caused to rapidly travel about the end of one of the carbons, an electric regulator for moving one of the carbons to maintain an arc of uniform brilliancy, and means to feed the carbons relatively together to compensate for the consumption thereof, and an electric controlling device controlled by the movement of the carbon holder to operate said feeding device.

15. In an electric lamp, the combination of two carbons arranged at an angle to each other, suitable supports for said carbons, power devices to rapidly uniformly and continuously rotate one of said carbons independently of the other whereby the arc is caused to travel about the end of one of the carbons with great rapidity and uniformity, and a source of electric energy including both carbons.

16. In an electric lamp, the combination of two carbons arranged at an angle to each other, suitable supports for said carbons, power devices to operate one of said carbons independently of the other whereby the arc is caused to travel about the end of one of the carbons, and an electric regulator for moving one of the carbons in the direction of its length for maintaining the brilliancy of the arc.

17. In an electric lamp, the combination of the frame, a holder journaled in said frame and adapted to be rotated therein, power devices to rapidly uniformly and continuously rotate the said holder, a carbon carried by said holder, a second carbon arranged at an angle to the first mentioned carbon, a support for the second mentioned carbon, and an electric circuit including both carbons.

18. In an electric lamp, the combination of the frame, a holder journaled in said frame and adapted to be rotated therein, power devices to rotate said holder, a carbon carried by said holder, a second carbon arranged at an angle to the first mentioned carbon, a support for the second mentioned carbon, and an electric regulator to move the holder for maintaining the brilliancy of the arc.

19. In an electric lamp, the combination of two carbons arranged at an angle to each other, a circuit including the said carbons with a source of electric energy, a support for holding one of the carbons, and means for rapidly continuously and uniformly rotating the other carbon, whereby the arc continually travels about the end of one of the carbons.

20. In an electric lamp, the combination of two carbons arranged at an angle to each other, a circuit including the said carbons with a source of electric energy, a support for one of the carbons, and means for rapidly continuously and uniformly rotating the other carbon upon its axis, whereby the arc continually travels about the end of one of the carbons.

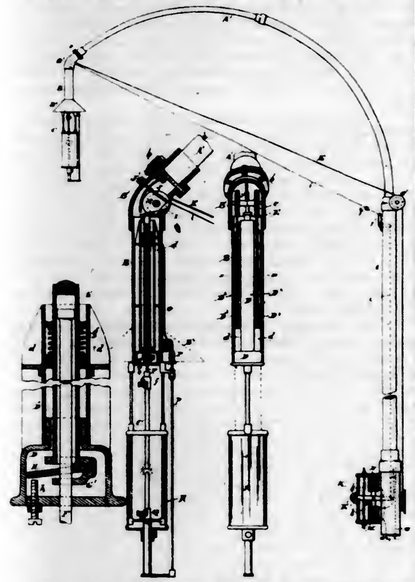
21. In an electric lamp, the combination of two carbons arranged at an angle to each other, a circuit including the said carbons with a source of electric energy, a support for one of the carbons, means for rotating the other carbon upon its axis, and an electric regulator for moving the said rotating carbon in the direction of its axis for maintaining the brilliancy of its arc.

22. In an electric lamp, the combination of two carbons arranged at an angle to each other, a circuit including the said carbons with a source of electric energy, a support for one of the carbons, means for rotating the other carbon upon its axis, an electric regulator for moving the said rotating carbon in the direction of its axis for maintaining the brilliancy of its arc, and independent feeding mechanism for feeding the carbon toward the other carbon to compensate for the consumption thereof.

23. In an electric lamp, the combination of two carbons arranged at an angle to each other, a holder for one of the carbons, means to feed it longitudinally or in the direction of its length, and means for rotating the said carbon about its axis.

24. An arc lamp having a carbon of one polarity and two or more carbons of different polarity for the purpose of simultaneously maintaining two or more independent arcs, a source or sources of electric energy, connecting circuits between the source or sources of electric energy and the several carbons, and independent regulating devices controlled by the current passing through the several arcs for controlling the relative passage of the currents corresponding to the respective arcs.

493,360. ELECTRIC-ARC LAMP. RUDOLPH M. HUNTER, Philadelphia, Pa., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed Oct. 14, 1892. Serial No. 448,814. (No model.)



Claim.—1. In an arc lamp the combination of two carbon holders, a feeding device to feed one carbon holder toward the other, a regulator for controlling the feeding device arranged independently of and laterally with respect to the carbon holders, and a connecting wire of considerable length arranged between the regulator and the feeding mechanism whereby the regulator and feeding device of the lamp may be widely separated.

2. In an arc lamp, two carbon holders, and feeding device to feed one carbon holder toward the other constituting the lamp proper, in combination with a regulator independent of the carbon holders and feeding device for controlling the feeding device, located at a distance from it, a connecting wire of considerable length arranged between the regulator and the feeding device whereby the regulator and lamp proper may be widely separated, and a common laterally projecting support for said regulator and lamp proper.

3. In an arc lamp two carbon holders and a feeding device to feed one carbon holder toward the other, composing the lamp structure proper, in combination with a regulator independent of the lamp proper for controlling the feeding device, a connecting wire of considerable length arranged between the regulator and the feeding device whereby the regulator and feeding device may be widely separated, a common support for said regulator and lamp structure proper, consisting of a vertical pole carrying the regulator and having a laterally projecting arm supported upon the upper part of the vertical pole and carrying at its free end the lamp structure proper.

4. The combination of an electric lamp having feeding mechanism for the carbons, a regulator to control the feeding of the carbons arranged at a distance from the lamp proper, supporting devices for holding the feeding mechanism and lamp proper in relatively fixed positions, connecting devices between the regulator and feeding mechanism of the lamp proper whereby the latter is controlled by the regulator, and detachable connections whereby the lamp proper may be removed without displacement to the regulator and connecting devices.

5. The combination of an electric lamp having feeding mechanism for the carbons, a regulator to control the feeding of the carbons arranged at a distance from the lamp proper, supporting devices for holding the feeding mechanism and lamp proper in relatively fixed positions, connecting devices between the regulator and feeding mechanism of the lamp proper whereby the latter is controlled by the regulator, detachable connections whereby the lamp proper may be removed without displacement to the regulator and connecting devices, and means for raising or lowering the lamp proper into place for operative connections with the connecting devices.

6. The combination of a vertical pole having a laterally projecting arm, a lamp proper adapted to be carried at the free end of said arm, elevating devices for elevating the lamp into position upon the free end of the arm or lowering it therefrom, a regulator supported adjacent to the vertical part of the arm, and connecting mechanism permanently attached to the supporting arm and extending between the free end thereof and the regulator whereby the regulator may control the feeding mechanism of the lamp proper.

7. The combination of a vertical pole having a laterally projecting arm, a lamp proper adapted to be carried at the free end of said arm, elevating devices for elevating the lamp into position upon the free end of the arm or lowering it therefrom, a regulator supported adjacent to the vertical part of the arm, connecting mechanism permanently attached to the supporting arm and extending between the free end thereof, and the regulator whereby the regulator may control the feeding mechanism of the lamp proper, and an insulating support for the lamp at the free end of the arm.

8. The combination of a vertical pole having a laterally projecting arm, a lamp proper adapted to be carried at the free end of said arm, elevating devices for elevating the lamp into position upon the free end of the arm or lowering it therefrom, a regulator supported adjacent to the vertical part of the arm, connecting mechanism permanently attached to the supporting arm and extending between the free end thereof and the regulator whereby the regulator may control the feeding mechanism of the lamp proper, an insulated support for the lamp at the free end of the arm, and a guide permanently attached to the free end of the arm for guiding the lamp into a definite position.

9. The combination of a supporting arm terminating at its free end in a vertical guide, a lamp proper adapted to slide vertically into said guide and be held in a fixed position, an adjustable elevating cord adapted to hold the lamp proper in the guide on the free end of the arm irrespective of variation in the length of the lifting cord and an electric regulator for controlling the lamp proper permanently attached to the arm and unaffected by the movements of the lamp proper.

10. The combination of a supporting arm terminating at its free end in a vertical guide, a lamp proper adapted to slide vertically into said guide and be held in a fixed position, an adjustable elevating device consisting of two cords passing through grooved guides and connecting with the lamp proper by means of springs adapted to hold the lamp proper in the guide on the free end of the arm irrespective of variation in the length of the lifting cords and an electric regulator for controlling the lamp proper permanently attached to the arm and unaffected by the movements of the lamp proper.

11. The combination of a supporting arm having an overhanging arm provided with a guide and terminals of an electric circuit, a movable electric lamp proper adapted to said guide, an electric regulator for the lamp permanently secured to the supporting arm and in circuit with the terminals thereon, and automatic contact devices for automatically coupling the lamp in circuit with the terminals upon lifting it into position upon the guide and automatically coupling the lamp and regulator in circuit.

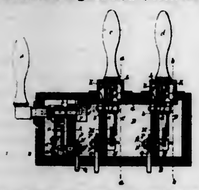
12. In an electric lamp the combination of a supporting frame for the two carbon holders, a feeding device for one of the carbon holders consisting of a movable part having a trip attached to liberate the carbon holder upon being pressed toward the other carbon holder, a spring to move the said movable part so as to separate the two carbons, an electric regulator at a distance from but in circuit with the lamp for opposing the action of the said spring whereby the regulator positively brings the carbons toward each other and the spring positively separates the carbons and operating connecting devices connecting the regulator and lamp proper.

13. In an electric lamp the combination of the frame of the lamp, two carbon holders for the carbons, one of which is carried by a movable holder rod F, a frame or tabular part G arranged parallel to the said carbon holder rod provided with a head G', a feeding washer H carried by the head and encircling the feeding rod F, a stop for tripping the washer, a spring for lifting the part G washer and holder rod,, an electric regulator for opposing action on the spring by pressing upon the part G, and an electric circuit including the carbons of the lamp and the electric regulator.

14. In an arc lamp, feeding devices for the carbons, and a spring to move the carbons apart, constituting the lamp proper, in combination with an electric regulator distantly removed from the lamp proper in circuit with the carbons, and a connecting wire device extending from the regulator to the lamp proper for forcing the carbons together in opposition to the springs.

15. In an electric lamp, the combination of feeding mechanism for the carbons, a spring to separate the carbons, and a spring actuated electric regulator to force the carbons together, and electric circuits including the electric regulator and the carbons of the lamp.

493,361. SWITCH FOR ELECTRIC MOTORS. MORITZ IMMISCH, London, England, assignor to the Immisch Electric Navigation and Power Company, of New Jersey. Filed Nov. 21, 1891. Serial No. 412,674. (No model.) Patented in England Sept. 7, 1889. No. 14,113.

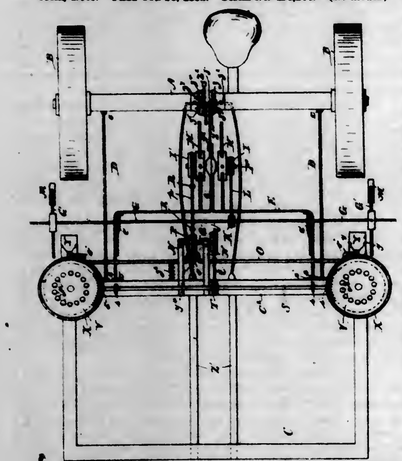


Claim.—1. In combination with the switch lever or levers, as C, D, a make and break lever, as A, a cam, as P, on the axis of the make and brake lever, and a movable locking bar engaging said cam and adapted to engage the switch levers, for preventing the adjustment of the switch levers except when the circuit is broken, substantially as herein described.

2. In combination with the make and break lever switch levers and locking devices, for preventing adjustment of the switch levers under certain conditions as specified, of a stop in the path of the make and break lever and a resistance lever adapted to engage the said stop, substantially as and for the purpose herein described.

3. The combination of the loose contact lever, as A, having the segmental slot V, and pin *a'* fixed arm, as U, upon the axis of said lever, having the pin *u*, fitted in said slot of the lever, spring, as W, connecting the contact lever to said arm, loose auxiliary lever, as T, on the axis of the contact lever, spring, as Y, connecting the two levers, and contact rods, as R. S, all substantially as and for the purpose herein described.

493,362. CHECK-ROW CORN-PLANTER. JAMES B. JARMIN, Oconto, Nebr. Filed Oct. 26, 1892. Serial No. 450,206. (No model.)



Claim.—1. In a corn planter, the combination with the axle provided with ground or bearing wheels, of a runner frame connected with said axle, a revoluble seed-disk and a seed box mounted on said frame, a seed tube into which said seed disk is adapted to discharge, a frame secured to said runner-frame, spider or walking wheels mounted upon a shaft journaled in said former frame, a rocking shaft mounted in bearings on the runner frame, dropping valve pivotally connected to said rocking shaft and to the seed tube and closing the lower end of the latter, and gearing between the spider or walking wheel shaft and the rocking shaft and seed-disk for effecting the revolution of the same, in the manner and for the purpose specified.

2. In a corn planter, the combination with the axle provided with ground or bearing wheels, of a runner frame connected with said axle, a revoluble seed-disk and a seed box mounted on said frame, a seed tube into which said seed disk is adapted to discharge, a frame secured to said runner frame, spider or walking wheels mounted on a shaft journaled in said former frame, marking wheels also mounted on a shaft journaled in said frame, a rocking shaft mounted in bearings on the runner frame, a dropping valve pivotally connected to said rocking shaft and to the seed tube and closing the lower end of the latter, and gearing between the spider or walking wheel shaft, and the rocking shaft, seed disk and marking wheel-shaft for effecting the revolution of the same, in the manner and for the purpose specified.

3. In a corn planter the combination with the axle provided with ground or bearing wheels, of a runner frame connected with said axle, a revoluble seed disk and a seed box mounted on said frame, a seed tube into which said seed disk is adapted to discharge, a frame pivotally secured to said runner frame, spider or walking wheels mounted upon a shaft journaled in said former frame, a rocking shaft mounted in bearings on the runner frame, marking wheels mounted on a shaft journaled in said pivoted frame, a dropping valve pivotally connected to said rocking shaft and to the seed tube and closing the lower end of the latter, gearing between the spider wheel shaft and the rocking shaft and seed-disk for effecting the revolution of the same, and means for raising and lowering the spider wheels and marking wheels, for the purpose specified.

4. In a corn planter, the combination with the axle provided with ground or bearing wheels, of a runner frame connected with said axle, a revoluble seed-disk and a seed box mounted on said frame, a seed tube into which said seed disk is adapted to discharge, a frame secured to said runner frame, spider or walking wheels mounted upon a shaft journaled in said former frame, a rocking crank shaft mounted in bearings on the runner frame, a dropping valve pivotally connected to said rocking shaft and to the seed tube and closing the lower end of the latter, and gearing between the spider wheel shaft and the rocking shaft and seed disk consisting of sprocket wheel carried by the spider wheel shaft and a shaft Q on the runner frame, sprocket chain connecting the said sprocket wheels and provided with pins adapted to strike the crank on the crank shaft, a shaft rotatably mounted on the runner frame and provided with gear wheel engaging teeth on the seed disk, a sprocket wheel on said shaft, and a sprocket wheel on the shaft Q, and a sprocket chain connecting the said sprocket wheel all arranged for co-operation, substantially as described.

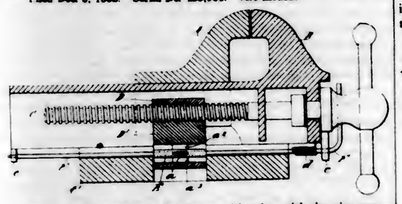
5. In a corn planter, the combination with the axle provided with ground or bearing wheels, of a runner frame connected with said axle, a revoluble seed disk, and a seed box mounted on said frame, a seed tube into which said seed disk is adapted to discharge, a frame secured to said runner-frame, spider or walking wheels mounted on a shaft journaled in said former frame, a rocking crank shaft mounted in bearings on the runner frame, a dropping valve pivotally secured to said rocking shaft and to the seed tube and closing the lower end of the latter, and a marking wheel mounted upon a shaft journaled on the frame carried by the runner frame, and gearing between the spider wheel shaft and the rocking shaft, seed disk and marking wheel shaft consisting of sprocket wheels carried by the spider wheel shaft, and a shaft Q on the runner frame, a sprocket wheel on the marking wheel shaft, a sprocket chain between the said sprocket wheel and one of the sprocket wheels on the spider wheel shaft, a sprocket chain between the other sprocket wheel on the spider wheel shaft and a sprocket wheel on shaft Q, and provided with pins adapted to strike a crank on the rocking shaft, and a second shaft carried by the runner frame provided with gear wheel engaging teeth on the seed disk, a sprocket wheel on said shaft, and a sprocket chain connecting the same with a sprocket wheel on the shaft Q, all arranged and adapted for cooperation, substantially as described.

493,368. DAMPER FOR FURNACE-PIPES. FRANK S. LAPO, Helena, Mont. Filed June 22, 1892. Serial No. 437,554. (No model.)



Claim.—A furnace damper, consisting of a damper plate, in combination with a damper rod in two sections joined by a pin or bolt, each section having a slotted end and being adjustable lengthwise, substantially as shown and described.

493,364. BENCH-VISE. MORTIMER G. LEWIS, New York, N. Y. Filed Dec. 3, 1892. Serial No. 453,966. (No model.)

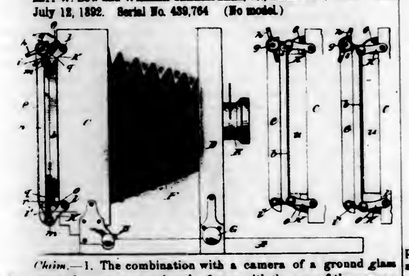


Claim.—1. In a bench vise, the combination with the vise screw and the two part nut, of the operating key provided with wings, said wings being arranged to rest vertically between the two sections of the nut and to hold both said sections in engagement with the screw, substantially in the manner and for the purposes set forth.

2. In a bench vise, the combination of the vise screw, the two part nut of which each section is provided with teeth, the operating key having wings for sustaining the two sections and teeth for engagement with the teeth on said sections crank rod for operating the key and a spring applied upon said rod, substantially as shown and for the purposes set forth

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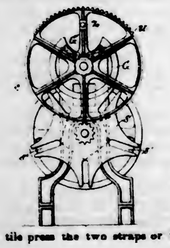
493,365. GROUND-GLASS ADJUSTER FOR CAMERAS. GARRETT W. LOW and WILLIAM SHAKESPEARE, Jr., Kalamazoo, Mich. Filed July 12, 1892. Serial No. 439,764. (No model.)



Claim.—1. The combination with a camera of a ground glass frame, toggle arms connecting the frame with the rear of the camera a cross shaft rigidly attached to one of the arms of each set of toggle arms and a thumb screw attached to the cross shaft, which being turned will actuate the toggle arms, substantially as set forth.

2. The combination in a camera of a ground glass frame connected to the camera at opposite edges by double sets of toggle arms, a cross shaft provided with a thumb screw, and connecting rods between the double sets of toggle arms, whereby the turning of the thumb screw will actuate all of the toggle arms, substantially as set forth.

493,366. RIDGE OR GUTTER TILE MACHINE. WILHELM LEDOWIG, Teningrin, Germany. Filed Oct. 24, 1892. Serial No. 449,884. (No model.)



Claim.—1. In a tile press the two straps or frames D, holding together by semi-circular bearings R, the eccentrics C of shafts A, B, and connected with each other by stays H, the eccentrics C and toothed gearing E being automatically lubricated at each stroke of the stamp K, substantially as described and shown.

2. In a tile press the prism P in combination with disk T on which star wheel S is fixed and readily adjustable thereon, for the purpose specified substantially as described and shown.

3. In a tile press the prism P in combination with plates Q having a recessed surface, lugs L, slots *o*, and studs *p* for fixing the bottom molds or forms substantially as described and shown.

493,367. BAND-CUTTER AND FEEDER FOR THRASHING-MACHINES. GEORGE W. PARSONS, Newton, Iowa, assignor of one-half to W. C. Bergman, same place. Filed Sept. 23, 1892. Serial No. 446,674. (No model.)



Claim.—1. A band cutter and feeder for thrashing machines comprising a suitable supporting frame secured to a thrashing machine an endless carrier in said frame having cross bars with rearwardly inclined tines and a plurality of bars arranged above the said endless carrier and provided with knives on their outer ends and tines throughout the remainder of their length, inclined forwardly, so as to be in an opposite direction from the tines on the endless carrier, to distribute the grain evenly over the carrier and means for operating said bars and carrier.

2. A feeder for thrashing machines and the like comprising a supporting frame adapted to be attached to a thrashing machine, an endless carrier mounted in said frame to advance bundles or sheaves of grain toward the thrasher, tines in the said carrier projecting upwardly and rearwardly relative to the line of advance, a shaft having oppositely disposed cranks mounted above the said carrier a plurality of bars pivotally attached to the said cranks near their outer ends and having knives fixed to their outer ends and forwardly inclined tines located at regular intervals throughout the remainder of their length, a plurality of links pivotally attached to a suitable support and connected with the inner ends of the said bars, and means for automatically operating the said parts.

3. A feeder for thrashing machines and the like comprising a suitable supporting frame secured to a thrashing machine, the endless carrier having the rearwardly inclined tines mounted in said frame as set forth, the rotatable shaft having the oppositely disposed cranks mounted in the bearings as set forth, the said bearings the rock shaft mounted in bearings secured to the thrashing machine arms projecting rearwardly therefrom and links depending from said arms, means for adjusting the said rock shaft as set forth, a plurality of bars having the knives on their outer ends and the forwardly inclined tines on their inner ends as set forth and connected with the aforesaid cranks and links as shown and means for automatically operating said mechanism from power derived from the thrasher.

4. A feeder for thrashing machines and the like, comprising a

and described where by it may be automatically placed in proper po-

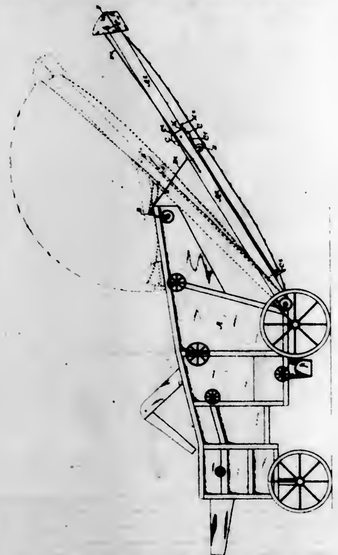
annunciator *s'*, battery s^2 and armature lever *q*, with a line spring *e*

nected to said bifurcated blocks or knuckles, substantially as set forth.

6. The combination with a buffer plate having perforations of

4. A feeder for thrashing machines and the like, comprising a suitable supporting frame attached to a thrashing machine the endless carrier having the rearwardly inclined tines mounted in said frame as set forth, the rotatable shaft having the oppositely disposed cranks mounted in the vertical adjustable bearings as set forth the said cranks having a plurality of bars having knives on their outer ends and forwardly inclined tines on the remainder of their lengths, as set forth, means for pivotally connecting the said bars with the oppositely disposed cranks and means substantially as set forth for supporting the inner ends of the bars and for adjusting said supports, and the mechanism shown and described for advancing the grain from the endless carrier to the thrashing cylinder and for straightening the grain, all arranged and combined substantially in the manner set forth for the purposes stated.

493,868. FOLDING STRAW-CARRIER FOR THRASHERS. GEORGE W. PARSONS, Newton, Iowa, assignor of one-half to W. G. Bergman, same place. Filed Sept. 23, 1892. Serial No. 446,675. (No model.)



Claim.—1. The combination with a folding straw-carrier frame having an endless carrier thereon, of automatically operating mechanism for holding the upper central portion of the endless carrier to the frame, when the same is being folded.

2. An improved straw conveyer comprising a suitable frame having an endless carrier thereon hinged in its approximate central portion, means for operating the top section of the carrier frame to raise or lower it from the ground surface, and automatically operating means for holding the upper portion of the endless carrier to the frame when the same is being folded.

3. An improved straw conveyer comprising a suitable frame, pivotally attached to a thrasher at its lower end, and hinged near its central portion, and having an endless carrier mounted thereon, mechanism adapted to be operated from the top of the thrashing machine for adjusting the incline of the conveyer frame, means for folding or unfolding the conveyer frame from the ground surface, and automatically operating means for holding the upper portion of the endless carrier to the frame when the same is being folded.

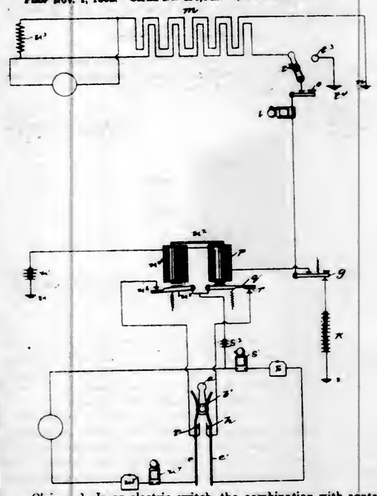
4. An improved straw conveyer, comprising a suitable frame pivotally attached to a thrasher at its lower end and hinged near its central portion and having an endless carrier mounted thereon, mechanism adapted to be operated from the top of the thrashing machine for adjusting the incline of the conveyer frame, means adapted to be operated from the ground surface for folding or unfolding the conveyer frame, automatically operating means for holding the upper portion of the endless carrier to the frame when the same is being folded, a hood on the outer end of the conveyer and the means shown and described where by it may be automatically placed in proper position when the frame is folded.

5. The combination with a folding straw carrier frame having an endless carrier thereon, of the automatically operating mechanism substantially as shown and described, for holding its upper central portion of the endless carrier to the frame when the same is being folded for the purposes stated.

6. An improved straw conveyer, comprising a suitable carrier frame attached to a thrasher, hinged near the central portion and having an endless carrier mounted thereon, the mechanism substantially as shown and described for folding or unfolding the carrier frame from the ground surface, and the automatically operating mechanism, substantially as set forth, for holding the upper central portion of the endless carrier to the frame when the same is being folded.

7. An improved straw conveyer, comprising a suitable carrier frame pivotally attached to a thrasher at its lower end and hinged near its central portion and having an endless carrier mounted thereon, mechanism adapted to be operated from the top of the thrashing machine for adjusting the machine of the conveyer, the mechanism substantially as shown and described for folding or unfolding the carrier frame from the ground surface, the automatically operating mechanism substantially as set forth, for holding the upper central portion of the endless carrier to the frame when being folded, and the hood on the outer end of the conveyer having the means shown and described whereby it may be automatically placed in proper position when the frame is folded, all arranged and combined substantially in the manner set forth and for the purposes stated.

493,869. ELECTRIC SWITCH. ALFRED STROMBERG, Chicago, Ill. Filed Nov. 1, 1892. Serial No. 450,642. (No model.)



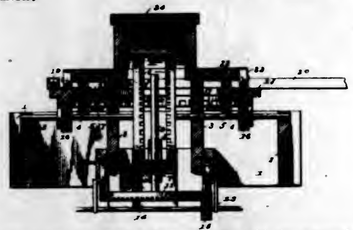
Claim.—1. In an electric switch, the combination with contact springs normally resting against their contact points, of a shaft carrying upon one end a handle, a cam mounted upon said shaft between said springs and of a length greater than the semi-distance between said springs, said shaft adapted to be rotated, whereby one or the other of said springs may be lifted from its contact point, the end of said cam being adapted to fit said springs to hold the shaft in its new position, substantially as described.

2. In an electric switch, the combination with contact springs normally resting against their contact points and situated at the rear of the board, of a shaft passing through said board and carrying at its front end a handle, a cam mounted upon said shaft between said springs and of a length greater than the semi-distance between said springs, said shaft adapted to be rotated in either direction to lift one or the other of said springs from its contact, the end of the cam being adapted to fit the springs to hold the shaft in its new position; whereby the position of said handle may indicate the condition of the line as to electrical connection, substantially as described

3. In an electric switch, the combination of a line spring *e* normally included in the circuit in which are the alarm bell *a*, individual annunciator *s'*, battery s^2 and armature lever *g*, with a line spring *e* normally included in the circuit in which are the alarm bell a^2, individual annunciator s^3, battery s^3 and armature lever g^2, and battery *k*, adapted to ring the subscriber's alarm bell *l* when key *g* is depressed, together with a key *o* included in the circuit from the subscriber's station to central station; whereby the subscriber may signal the central station, substantially as shown and described.

4. In an electric switch, the combination of a line spring *e'* normally included in the circuit in which are the alarm bell *a*, individual annunciator *s'*, battery s^2 and armature lever *g*, with a line spring *e* normally included in the circuit in which are the alarm bell a^2, individual annunciator s^3, battery s^3 and armature lever g^2, together with a key *g* included in circuit from the central station to the subscriber's station; whereby when said key is depressed, the single stroke bell *a'* included in the same circuit with said key *g* is caused to alarm the subscriber, a key *o* being provided whereby the subscriber may signal the central station, substantially as shown and described.

493,870. HORSE-POWER. JOHN R. TERRELL and WILLIAM R. FRAZIER, Osceola, Tex. Filed Nov. 19, 1892. Serial No. 453,534. (No model.)



Claim.—In a horse-power, the combination with the rectangular frame comprising the side and end sills, the pair of transverse yokes, and the inner pair of transverse partitions, short longitudinal shafts journaled in the end walls, yokes, and partitions and projecting beyond the latter, large gears mounted on the inner ends of the shafts between the partitions, small gears mounted upon the shafts between the yokes and end sills, a vertical shaft between the inner gears, a lower horizontal power-shaft, a gear-wheel carried by the vertical shaft and engaged at opposite sides by the two inner gears, means for transmitting motion from the vertical shaft to the horizontal shaft, of a master ring gear having teeth on its under side, said gear encircling the inner gears, partitions and yokes and resting upon the outer gears said yokes being provided with recesses, short longitudinal shafts surmounting the yokes and partitions and terminating over the ring-gear, loose rollers mounted on the outer ends of said short shafts and riding over the ring-gear, rollers loosely mounted in the recesses of the yokes and riding against the inner wall of the ring-gear, and draft poles extending from said ring-gear, substantially as specified.

493,871. BUFFER AND END SILL FOR CARS. JAMES TIMES, Columbus, Ohio, assignor to the Buckeye Automatic Car Coupler Company, same place. Filed Oct. 10, 1892. Serial No. 448,404. (No model.)

Claim.—1. The combination with an end sill for a car, comprising steel plates, of brackets secured between said plates, buffer rods passing through said brackets, springs encircling said buffer rods between the plates comprising the sill, and a buffer plate secured to said buffer rods, substantially as set forth.

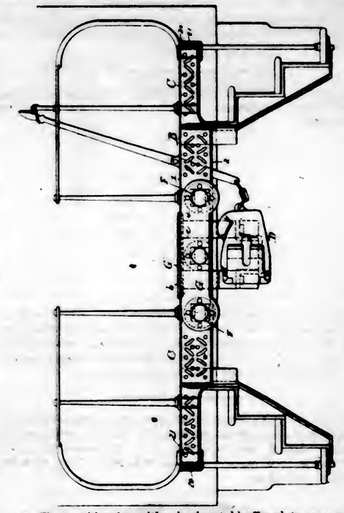
2. The combination with an end sill for a car, comprising pressed steel plates, of sleeves passed through said plates, and posts secured to said sleeves, said posts being adapted to support the end rail of the car, substantially as set forth.

3. The combination with a buffer plate and a rigid bracket, of a buffer rod connected to said buffer plate and passing through said bracket, a spring encircling said buffer rod in rear of the bracket, said spring being adapted to bear at one end against said bracket and at the other end against a collar at the end of the buffer rod, substantially as set forth.

4. The combination with a buffer plate, of a bifurcated block or knuckle secured to the buffer plate said block having a portion extending through an opening in the plate and a buffer rod pivotally connected to said bifurcated block or knuckle, substantially as set forth.

5. The combination with a buffer plate having perforations in its ends, of bifurcated blocks or knuckles having enlargements to enter said perforations in the buffer plate, and buffer rods pivotally connected to said bifurcated blocks or knuckles, substantially as set forth.

6. The combination with a buffer plate having perforations, of bifurcated blocks or knuckles having enlargements to enter said perforations in the buffer plate, flanges projecting from said block or knuckle whereby to secure it to the buffer plate, and buffer rods pivotally connected to said bifurcated blocks or knuckles, substantially as set forth.



7. The combination with a horizontal buffer plate, an apron projecting from the outer edge thereof, a buffer rod connected to the buffer plate, and a draw bar, of a collar secured to said buffer rod, a sleeve mounted loosely on said buffer rod, a spring encircling the buffer rod between the collar and sleeve, and a bracket carried by the draw bar and adapted to strike said sleeve, substantially as set forth.

493,872. SAFETY-PIN. DE VER H. WARNER, Bridgeport, Conn. Filed Nov. 15, 1892. Serial No. 452,071. (No model.)



Claim.—A safety pin consisting of a strip of wire bent to form a coil, 2, pointed pin bar, 1, and a pendent loop, 5, having side arms, 9, 9, and a cross bar, 8, and a socket piece, 3, and a movable bar, 10, parallel to the bar, 8, substantially as and for the purpose set forth.

493,873. VEHICLE-STEP. JOHN A. ALEXANDER, Ardmore, Ind. Ter., assignor of one-half to John M. Alexander, same place. Filed Oct. 13, 1892. Serial No. 448,798. (No model.)



Claim.—1. The combination with a wagon body, of a horizontal

493,876. TUBE FOR TUBULAR BOILERS. WILLIAM HAVES,

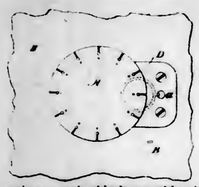
ing in the packing cover the opening K, and upon the ring M, and a

493,881.

Claim.—1. The combination with a wagon body, of a horizontal bar secured to the lower face thereof and projecting laterally therefrom, a riser bar pivoted to the outer end of the horizontal bar and adapted to be folded against the side of the body, a foot plate pivoted to the lower end of the riser bar, and a spring catch secured to the side of the body and consisting of a resilient plate having a shoulder to engage the riser bar, substantially as described.

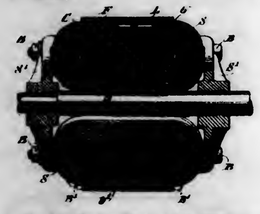
2. The horizontal bar secured to the wagon-body, the riser-bar 3 pivoted to the bar, a foot-plate pivoted to the end of the riser bar, and a catch 6, substantially as described.

493,374. EMBROIDERING-MACHINE. EMILE CORNELY and ROBERT CORNELY, Paris, France. Filed Oct. 29, 1892. Serial No. 450,396. (No model.)



Claim.—In a sewing or embroidering machine, having a universal feed mechanism, the combination with the circular stitching plate and the bed-plate supporting the same, of a detachable leveling plate conforming to the shape of the stitching plate and arranged adjacent thereto, substantially as and for the purpose set forth.

493,375. BALANCED ARMATURE FOR DYNAMO-ELECTRIC MACHINES OR ELECTRIC MOTORS AND METHOD OF BALANCING SAME. GANO S. DUNN, New York, N. Y., assignor to the Crocker-Wheeler Electric Company, same place. Filed June 6, 1892. Serial No. 436,736. (No model.)



Claim.—1. The described method of balancing an armature or other rotary part of an electric motor consisting in securing one or more pieces of lead or equivalent material at one or more points in one or more openings extending substantially through the body of the rotary part.

2. The described method of balancing an armature consisting in inserting within the core of the armature one or more insulated masses of metal and in securing said mass or masses against movement in a direction parallel with the axis of the armature.

3. An armature core provided with one or more openings extending substantially parallel with the sustaining shaft in combination with one or more balancing masses located therein, substantially as described.

4. An armature having a core provided with holes or openings located at intervals in combination with one or more masses of balancing material located in each of said openings and in such proportion as will balance it while in motion and at rest substantially as described.

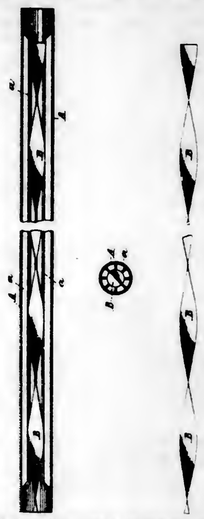
5. An armature core having a series of bolt holes and bolts extending therethrough and secured to a hub or spider in combination with a series of intermediate holes for the disposition of balancing weight substantially as described.

6. A toothed armature core having bolt holes and balancing holes in alternate teeth substantially as described.

7. A toothed armature core having bolt holes *b* located in alternate teeth in combination with balancing holes *b'* and one or more balancing weights P secured in one or more of said holes *b'* substantially as described.

8. A toothed armature core having bolt holes in the teeth and one or more balancing holes located also in the teeth substantially as described.

493,376. TUBE FOR TUBULAR BOILERS. WILLIAM HAVEN, Sheffield, England. Filed Oct. 11, 1892. Serial No. 448,498. (No model.)



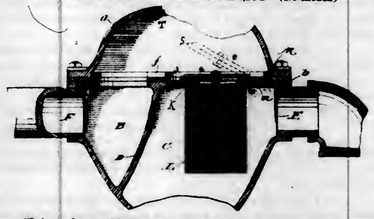
Claim.—A boiler tube having in its interior ribs corrugations or projections in combination with a retarder situated in the space between the ribs corrugations or projections of the tube substantially as, and for the purposes, hereinbefore described.

493,377. FASTENING DEVICE. MALCOLM FRIMS, Paterson, N. J. Filed Dec. 31, 1892. Serial No. 456,974. (No model.)



Claim.—A fastening device consisting of a strip of wire having at one end a point and at the other end an opening formed by bending the wire back upon itself, the pointed end of said fastening device being flattened at or near the point in two planes approximately at right angles to each other to form an enlargement, said enlargement being adapted to enter and be locked in the opening at the other end of the fastening device, substantially as described.

493,378. FOOT-VALVE FOR PUMPS. JOHN H. GIBSON, Canton, Ohio. Filed June 20, 1892. Serial No. 437,264. (No model.)



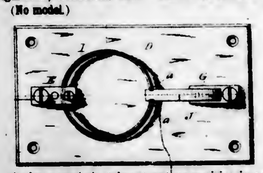
Claim.—In combination, a valve casing consisting of a conical body having inlet and outlet openings, a partition D, and openings K and N, a tubular strainer located in said casing and provided with a flange which rests upon the casing around said opening K, a valve-seat ring M, seated upon said flange, a leather packing F, seated upon the entire upper end of said casing and provided with openings coincident with the openings N, and K, a valve seated within the opening in the packing cover the opening K, and upon the ring M, and a hollow cap seated upon said packing P, and provided with openings coincident with the openings in the said packing, substantially as set forth.

493,379. DENTAL CHAIR. AARON P. GOULD, Canton, Ohio. Filed Mar. 16, 1889. Serial No. 303,616. (No model.)



Claim.—In a chair the combination of a base, a vertically reciprocating frame supported in the base, a rack for elevating the frame, a lifting lever carrying a pawl, to engage the rack, a lever carrying a holding pawl held in engagement with the rack, and a finger operated by the lever carrying the holding pawl and so located as to engage the lifting pawl and release it at the same time the lever releases the holding pawl substantially as set forth.

493,380. COMBINED CUT-OUT AND LIGHTNING-ARRESTER. BAZER F. HANNAHSTALK, Stockholm, Sweden, assignor of one-fifth to Axel Jungmarker, Worcester, Mass. Filed June 3, 1892. Serial No. 435,445. (No model.)



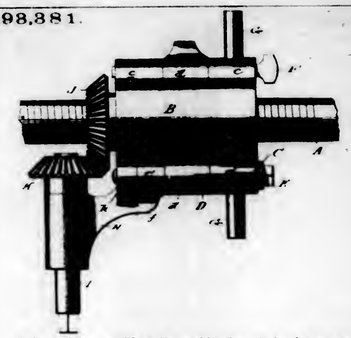
Claim.—An improved electric cut-out, comprising in combination the main, line wire bearing E; the expansible open ring or bow-spring I attached at a convenient point between its ends to said bearing E; the spring-latch J attached to the other line-wire bearing G and adapted to be engaged with the ends of ring I to close the circuit, said circuit being broken through the expansion of said ring and release of the spring-latch by the electric current, substantially as and for the purpose set forth.

493,381. MINING-MACHINE. MARTIN HARDCOCK, Ottumwa, Iowa. Filed Dec. 24, 1892. Serial No. 456,243. (No model.)

Claim.—1. In a mining machine, the combination of a boxing comprising two sections, a bracket arm and a hinge bolt connecting the sections of the boxing together in a hinged manner and also connecting said sections to the bracket arm, substantially as specified.

2. In a mining machine, the combination of a boxing comprising two sections, a bracket arm having a threaded aperture and a hinge bolt connecting the sections of the boxing together in a hinged manner and having threads adapted to engage the threaded aperture of the bracket arm so as to connect the same to the boxing, substantially as specified.

493,381.



3. In a mining machine, the combination of a boxing comprising two sections provided with aligned barrel projections disposed in the direction of the length of the boxing, a bracket arm having an aperture disposed in the same direction as the barrel projections of the boxing sections, and a hinge bolt taking through the aligned barrel projections of the boxing section and the aperture of the bracket arm, and serving to connect the said sections together in a hinged manner and also to connect the same and the bracket arm, substantially as and for the purpose set forth.

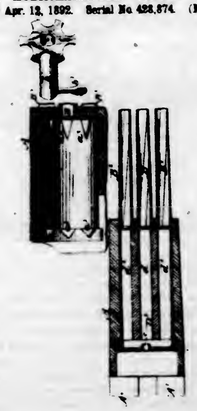
4. In a mining machine, a bracket arm having a shoulder or projection *f*, in combination with a boxing having a seat to receive the shoulder or projection of the bracket arm so as to prevent turning of the same, and a pin or bolt adapted to connect the bracket arm to the boxing, substantially as specified.

5. In a mining machine, the combination with a boxing having the lugs *e*, of a bracket arm having the shoulder *f*, adapted to rest between the lugs of the boxing, and a pin or bolt adapted to connect the bracket arm to the boxing, substantially as specified.

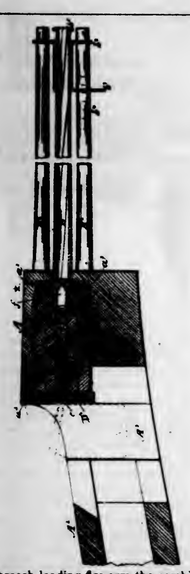
6. In a mining machine, the combination with a boxing having the lugs *e*, and the rib *m*, of the bracket arm having a shoulder adapted to rest between said lugs *e*, and also having a recess to receive the rib *m*, and a pin or bolt adapted to connect the bracket arm to the boxing, substantially as specified.

7. In a mining machine, the combination with a feed bar, and the gear wheel mounted on said bar, of the boxing comprising two sections and having the lugs *e*, and the rib *m*, the bracket arm having a shoulder adapted to rest between the lugs *e*, and a recess to receive the rib *m*, and also having a threaded aperture, the shaft journaled in the bracket arm and carrying a pinion at its inner end in mesh with the gear wheel, and a bolt connecting the sections of the boxing and having threads adapted to engage the threaded aperture of the bracket arm, substantially as and for the purpose set forth.

493,382. MULTICHARGE-GUN. GOTTFRID J. HILDER, St. Cloud, Minn. Filed Apr. 13, 1892. Serial No. 428,874. (No model.)



493,382.

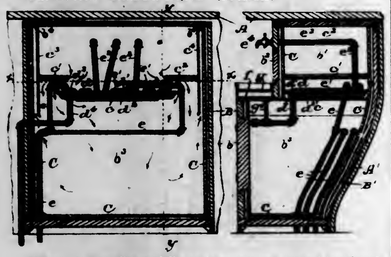


Claim.—1. In a breech loading fire-arm the combination of the breech, a central barrel secured thereto and a series of barrels independently secured to the breech, a flanged sleeve adjustably mounted upon the central barrel and having notches in its periphery to receive the free ends of the encircling barrels substantially as described.

2. In a breech loading fire-arm the combination of the breech, a central barrel secured thereto and a series of barrels independently secured to the breech, a movable rest adjustably mounted upon the central barrel and bearing against the encircling barrels substantially as described.

3. In a breech loading fire-arm, the combination of the breech-frame supporting a series of barrels, with a cylindrical removable breech-piece having a series of tubular firing chambers therein, and intermeshing teeth on the periphery of the removable breech-piece and in the inner surface of the wall of the breech-frame respectively, substantially as described.

493,383. BEER-COOLER. RUDOLPH LEDIG, Newark, N. J. Filed June 27, 1892. Serial No. 438,072. (No model.)



Claim.—1. A cooling and dispensing apparatus comprising therein a lower refrigerating chamber, and an ice box on the top thereof, shelves or partitions c' and c^3 in said ice box adapted to receive the pieces of ice, a dividing partition between said refrigerating chamber and the ice box, a cooling coil d' on said partition, pipes connecting with said coils for conveying the liquor to be cooled, pipes connected with said coil and faucets connected therewith, for drawing the liquor, all arranged substantially as and for the purposes set forth.

2. A cooling and dispensing apparatus comprising therein, a lower refrigerating chamber, and an ice box on the top thereof, shelves or partitions c' and c^3 in said ice box adapted to receive the pieces of ice, a dividing partition between said refrigerating chamber and the ice box, a combined drip and sweat pan d on said partition, a cooling coil d' arranged upon said pan, pipes connecting with said coil for conveying the liquor to be cooled, pipes connected with said coil and faucets connected therewith, for drawing the liquor, all arranged substantially as and for the purpose set forth.

3. A cooling and dispensing apparatus, said apparatus comprising therein, a lower refrigerating chamber and an ice box on the top thereof, vertical partitions c^3 and c^4, and air holes b^4 in the top behind said partitions, shelves or partitions c' and c^3 in said ice box adapted to receive the pieces of ice, a dividing partition between said refrigerating chamber and the ice box, a cooling coil d' on said partition, pipes connecting with said coil for conveying the liquor to be cooled, pipes connected with said coil and faucets connected therewith, for drawing the liquor, all arranged substantially as and for the purposes set forth.

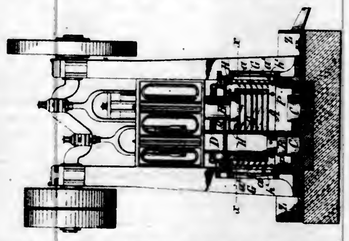
4. A cooling and dispensing apparatus, comprising therein, the lower refrigerating chamber and an ice box on the top thereof, vertical partitions c^3 and c^4, and air holes b^4 in the top behind said partitions, shelves or partitions c' and c^3 in said ice-box adapted to receive the pieces of ice, a dividing partition between said refrigerating chamber and the ice box, a combined drip and sweat pan d on said partition, a cooling coil d' arranged upon said pan, pipes connecting with said coil for conveying the liquor to be cooled, pipes connecting with said coil and faucets connected therewith, for drawing the liquor, all arranged substantially as and for the purposes set forth.

5. The combination, with the lower refrigerating chamber and an ice box on the top thereof, the pipes therein and faucets, of a combined drip and sweat pan d between said chamber and the ice box, a drain beneath the faucets, a drain pipe d^3 from said drip pan, and a drain pipe g' from the drain beneath the faucets, communicating with said pipe d^3, all arranged substantially as and for the purposes set forth.

6. The combination, with a stationary bar, of a separate and independent cooling and dispensing apparatus, comprising therein a lower refrigerating chamber and an ice box on the top thereof, said ice box having a closed top and air holes b^4 therein, and said closed top forming an air space with the upper side of the bar, and the back B' of the apparatus forming an air space with the front or panel A' of the bar, substantially as and for the purposes set forth.

7. A cooling and dispensing apparatus comprising therein, a lower refrigerating chamber, and an ice box on the top thereof, an ice-supporting shelf in said ice box, extending from the side of said ice box, a dividing partition below said ice-supporting shelf, both being arranged to form an air space between them to conduct the cold air from the ice box to the lower refrigerating chamber, a cooling coil on said dividing partition, pipes connecting with said coil for conveying the liquor to be cooled, pipes connected with said coil and faucets connected therewith, for drawing the liquor, all arranged substantially as and for the purposes set forth.

493,384. ORE-STAMPING MILL. JOHN W. MARSHALL, Brooklyn, N. Y. Filed May 14, 1892. Serial No. 433,954. (No model.)



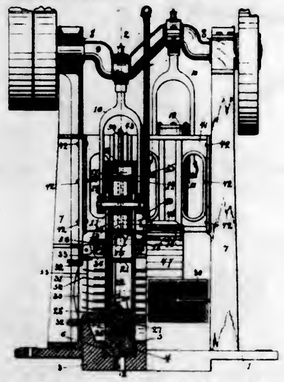
Claim.—1. In an ore-stamping or pulverizing mill, the combination with the coffer or stamping chamber having a discharge opening,—of a series of amalgamated plates connected together in the form of a grille or grating removably-fastened within said coffer or stamping chamber at such point as will cover such discharge opening and intercept the particles of ore while allowing the other pulverized material to freely escape, substantially as set forth.

2. In an ore stamping, or pulverizing mill, a grille, or grating formed of a series of amalgamating plates suspended within the discharge opening of the stamping chamber, or coffer, so as to yield or vibrate under the impact of the pulverized material, substantially as and for the purpose set forth.

3. The amalgamating grille or grating herein described, consisting, essentially, of a series of parallel inclined plates, and supporting rods whereby the same may be suspended from either end, substantially as set forth.

4. An amalgamating grille or grating, consisting of a series of plates g g, having notched ends,—hangers g', g', embraced by said notched ends and having projections for supporting the plates,—and tie rods i,—so combined that each plate may be removed independently, substantially as set forth.

493,385. ORE-STAMP. JOHN W. MARSHALL, Brooklyn, N. Y. Filed Oct. 6, 1892. Serial No. 448,057. (No model.)



Claim.—1. In an ore stamp, the combination with the coffer, and the upright screens which surround the coffer in immediate proximity to the stamp for regulating the passage of the ore-pulp from the coffer, of a pipe having spray orifices directed toward the bases of said screens and adapted to keep the latter clear and ready for the passage of the pulp by washing the material which will not pass the screen back into the coffer and thereby preventing said material from banking against the screens, substantially as set forth.

2. In an ore stamp the combination with the coffer, and screens for regulating the passage of the ore pulp therefrom, of a spray-pipe within the coffer and adapted to act on the material banked against the screens and keep said screens clear and ready for the passage of the pulp, substantially as set forth

3. The combination in an ore stamp, with the coffer, and the screens 30, of the spray pipe 51 situated within the ore receptacle at the base of said screens, substantially as set forth.

4. In an ore stamp the combination with the stamp proper, of a sleeve having an amalgamated surface and mounted on the stamp above the shoe, substantially as set forth.

5. The combination with the stamp proper having the recess or rabbet 23, of the amalgamated plate or sleeve 28 and the shoe 26, substantially as set forth.

6. In an ore stamp the combination with the coffer and the stamp proper, of a pneumatic cylinder and piston connected with the upper end of the stamp, a coffer-cover surrounding the stamp, and a supplemental flange on said cover and around the stamp and adjustable on said cover toward the stamp and operating to prevent particles of ore from the coffer from passing upward at the sides of the stamp to said pneumatic devices, substantially as set forth.

7. The combination in an ore stamp with the coffer and the stamp proper, of the coffer covers surrounding the stamp, guides for the latter, and adjustable gibs 43 in said guides, and having the slotted flanges 44 and bolts 45 substantially as set forth.

8. The amalgamated plates 52 combined with the coffer and the screens 30 and situated within the space inclosed by said screens and in the path of the pulp as it passes to and through said screens, and the spray pipes 51 in proximity to said screens and plates, and adapted to clear the same substantially as set forth.

493,386. COMBINED CHAIR AND BRACE. CHARLES H. READ, Pittsburg, Pa. Filed Nov. 10, 1890. Renewed Aug. 19, 1892. Serial No. 443,428. (No model.)

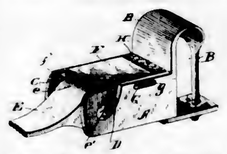
Claim.—1. A chair for tram rails provided with a side support for the rail, and with a bearing surface for the same, a U shaped clip to engage the upper portion of the flange of the rail and the lower portion of the bearing surface, and a locking tongue formed integral with the chair to engage the clip and hold the same in place, substantially as set forth.



2. A chair for tram rails, having the supporting legs connected together, and one leg provided with a side support for the rail and the other with a base support, in combination with a clip to engage the rail and bearing or support, said clip being held and locked in position by the wedging action of the topgue, substantially as set forth.

3. A tram way consisting of the base or support, and its rail, a clip made in substantially "U" form having its engaging faces roughened or corrugated to engage the foot of the rail and the face of the chair or support in combination with the wedging tongue substantially as described, whereby the teeth of the clip imprint themselves in the engaging surfaces by the wedging action of the tongue.

493,387. THILL-COUPLING. WILLIAM J. RIDBOUT and JOHN W. MERRITT, Atwood, Ill. Filed Oct. 25, 1892. Serial No. 449,965. (No model.)



Claim.—1. In a thill coupling, the combination, with a casing provided with a vertical longitudinal chamber, downwardly and forwardly extending slots, and with longitudinally-elongated slots, of a thill iron provided with bearings seated in the first-mentioned slots, and a forwardly-yielding block provided with bearings disposed in said elongated slots, said block being adapted to bear against the thill iron; substantially as and for the purpose set forth.

2. In a thill coupling, the combination, with a casing provided with a vertical longitudinal chamber and with downwardly and forwardly curved slots, of a thill iron comprising a head seated in said chamber, said head being provided with bearings seated in said slots, and with a recess at its periphery, of a forwardly-yielding, pivoted block adapted to bear against said head, and provided with a lug for engaging said recess; substantially as and for the purpose set forth.

3. In a thill coupling, the combination, with a casing forming a vertical longitudinal chamber, the side walls of which being provided with downwardly and forwardly curved slots, D D, and with longitudinally-elongated slots, G, of a thill-iron provided with bearings seated in the slots D, a block, F, provided with bearings seated in the slots G, and an elastic block, H, interposed between the rear wall of the chamber and the block F, and adapted to urge the latter forwardly against the thill iron; substantially as and for the purpose set forth.

493,388. CAR-HEATER. GEORGE W. ROGERS, Bellehaven, Pa., assignor of two-thirds to Isaac Thomas, same place, and Abram S. Valentine, Atlantic City, N. J. Filed Apr. 6, 1892. Serial No. 428,098. (No model.)

Claim.—1. In a car heater, a heating box or chamber supported within the smoke box of a locomotive, and provided with a tapered steam exhaust nozzle, the steam pipes connected to the lower end of

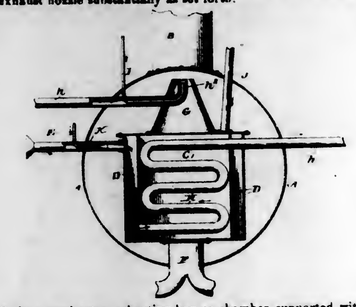
the box, an air jacket surrounding said box or chamber and having

2. In a machine for bending tubes, the combination with the

ing an enlarged bifurcated head, a lever fulcrumed in the bifurcation

Claim.—A last having a spring-pressed bolt normally projecting

the box, an air jacket surrounding said box or chamber and having a force feed receiving pipe, a hot air circulating coil located in said box or chamber and connected with the surrounding air jacket, and the main circulating pipe, and the return pipe, terminating within said exhaust nozzle substantially as set forth.



2. In a car heater, a heating box or chamber supported within the smoke box of a locomotive and connected at its lower end with the cylinder exhaust pipe and provided with a tapered steam exhaust nozzle, an air jacket surrounding said air box or chamber, and having a receiving pipe, hot air circulating pipes located within said box or chamber and connected with the surrounding air jacket and the radiators, and the return suction pipe leading into the smoke box and terminating in said exhaust nozzle, substantially as set forth.

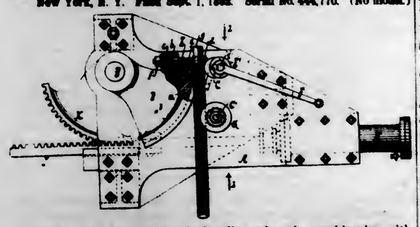
3. In a car heater, a heating box or chamber supported within the smoke box of a locomotive and provided with the surrounding air chamber or jacket having an inlet pipe projecting outside of the smoke box, an upper tapered exhaust nozzle, the steam exhaust pipes connected with said box, hot air circulating pipes located within said box or chamber and connected with the surrounding air jacket and the radiators, the return suction pipe leading into the smoke box and terminating in said exhaust nozzle, a supplemental jet pipe arranged within said return pipe, and a steam injector pipe arranged in said air receiving pipe, substantially as set forth.

493,889. PLOW-SHOVEL. JACOB F. SHULTS, San Jacinto, assignor of one-half to George F. Kernaghan, Pasadena, Cal. Filed Nov. 22, 1892. Serial No. 452,868. (No model.)



Claim.—The herein described shovel, of rhomboidal-shape, whose acute angles form points, the same having its rear side along its inclined edges from its acute to its obtuse angles provided with superficial-ribs, between said ribs provided with a pair of perforations adapted to receive heel-bolts, and having its upper and lower edges beveled upon their rear sides, substantially as specified.

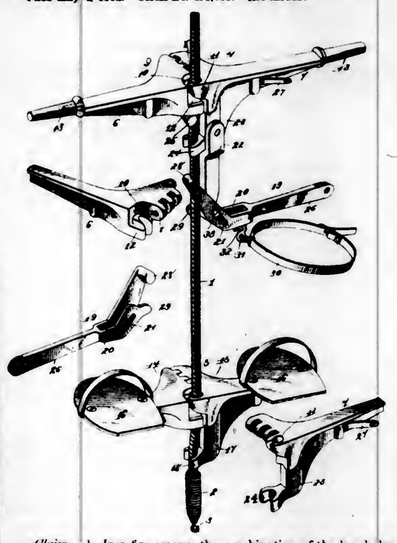
493,890. MACHINE FOR BENDING TUBES. ALLAN STIRLING, New York, N. Y. Filed Sept. 1, 1892. Serial No. 444,770. (No model.)



Claim.—1. In a machine for bending tubes, the combination with the bending die D, of the bridle E having an oblong eye *d* a lip *e* projecting from the bending die into this oblong eye and means for imparting to the bending die a rotary motion, substantially as described.

2. In a machine for bending tubes, the combination with the bending die D and the bridle E, of a roller F mounted eccentrically on an arbor C, a handle for turning this arbor and means for imparting to the bending die a rotary motion, substantially as described.

493,891. FIRE-ESCAPE. CHARLES A. STURTEVANT, Plainfield, N. J. Filed May 4, 1892. Serial No. 431,769. (No model.)



Claim.—1. In a fire-escape, the combination of the hand-clamp composed of sections hinged together and provided with jaws adapted to clamp a cable, a bell-cranked lever fulcrumed on the hand-clamp and provided with a lug arranged to clamp the rope between it and one of the said sections, and a brake-lever connected with the bell-crank lever, substantially as described.

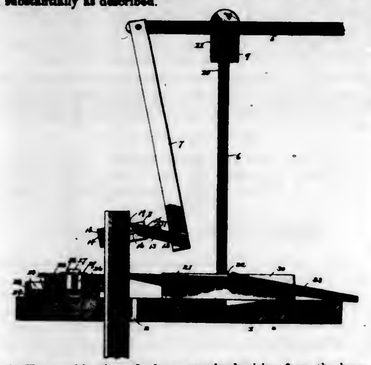
2. In a fire-escape, the combination of a hand-clamp composed of two sections hinged together and provided with jaws adapted to clamp a cable, one of the sections having a depending extension and provided with a grooved lug adapted to receive a cable, a bell-cranked lever fulcrumed on the extension and provided with a lug adapted to clamp a cable between it and the extension, and a brake-lever fulcrumed on the bell-cranked lever and provided with a lug and adapted to clamp a cable between its lug and the bell-cranked lever, substantially as described.

3. In a fire-escape, the combination of a hand-clamp composed of two sections hinged together and provided with jaws adapted to clamp a cable, one of the jaws being provided with a depending extension and having a lug at the lower end of the same adapted to receive a cable, a bell-cranked lever bifurcated at its angle and fulcrumed on the extension and provided at its upper end with a lug adapted to clamp a cable, and an L-shaped brake-lever provided with an opening at its angle to receive the lower end of the bell-crank lever and having slots in its sides to receive the pivot and provided with a clamping-lug and having a guide-flange arranged near its angle, substantially as described.

4. In a fire-escape, the combination of a hand clamp composed of two sections hinged together and provided with clamping jaws, a bell-cranked lever fulcrumed on one of the sections and having a clamping-lug at its upper end a brake-lever connected with the bell-crank lever, and a spring mounted on one of said sections and arranged to engage the brake-lever to hold the same out of engagement with the cable, substantially as described.

493,892. MACHINE FOR RAISING OR LOWERING WELL-TUBING. EDWARD A. WANAMAKER, Montfort, Wis., assignor to Henry Muender and William Muender, same place, and Wm A. Johnson, Lancaster, Wis. Filed June 17, 1892. Serial No. 437,042. (No model.)

Claim.—1. The combination of a base, standards rising from the base, a pivot vertically disposed at the top of the standards and having an enlarged bifurcated head, a lever fulcrumed in the bifurcation of the head, a link bar having its upper end pivotally connected to the lever, and a grapple comprising a U-shaped yoke adapted to receive a pipe or tube, and a pawl adjustably mounted on the yoke and provided with a shank pivotally attached to the lower end of the link bar, substantially as described.



2. The combination of a base, standards rising from the base, a lever fulcrumed at the top of the standards and pivotally connected therewith, a link bar having its upper end pivotally connected to the lever and a grapple comprising a U-shaped yoke adapted to receive a pipe or tube, and a pawl adjustably mounted on the yoke and provided with a shank pivoted to the lower end of the link bar, substantially as described.

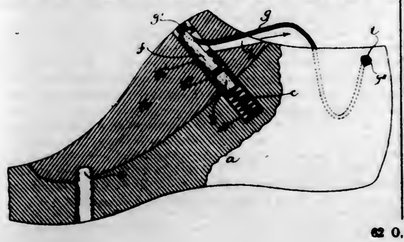
3. The combination of a base having an opening, an adjustable dog mounted on one side of the opening, a pivoted dog arranged at the opposite side of the opening, standards rising from the base, a lever fulcrumed at the top of the standard and pivotally connected therewith, a link-bar having its upper end pivotally connected to the lever, and a grapple comprising a U-shaped yoke adapted to receive a pipe or tube, and a pawl adjustably mounted on the yoke and provided with a shank pivotally attached to the lower end of the link bar, substantially as described.

493,893. NUT-LOCK. ELIPHALET L. ARNOLD, Georgetown, Tex. Filed Sept. 17, 1892. Serial No. 446,159. (No model.)



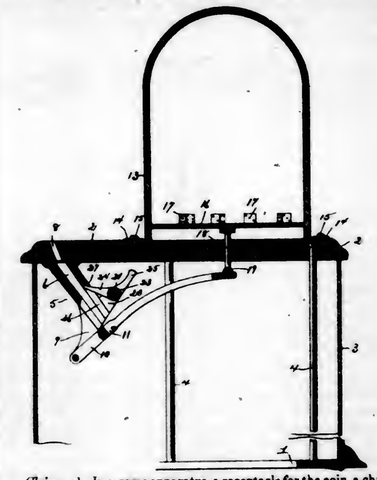
Claim.—In combination with a bolt, an annular, trunco-conical washer surrounding said bolt and provided upon its beveled outer surface with ratchet-teeth, the nut provided with an annular boss to fit loosely over said washer and having a beveled inner surface to correspond therewith, and the locking-springs fitting in kerfs in said boss to engaged the teeth upon the periphery of the washer, substantially as specified.

493,894. LAST-BLOCK FASTENER. GEORGE E. BELCHER, Stoughton, Mass. Filed Nov. 26, 1892. Serial No. 453,177. (No model.)



Claim.—A last having a spring-pressed bolt normally projecting upwardly from its block-seat, combined with a block having a hole or socket extending through it in line with said bolt, the lower portion of said socket receiving the bolt, and a bolt-retracting device comprising a pin fitted to slide in said socket and a flexible handle or cord connected with the upper portion of said pin and extending through an orifice in the upper end of the last block, said cord being arranged so that, when pulled toward the heel of the last, it will move the pin in the direction required to displace the bolt, as set forth.

493,895. COIN-CONTROLLED GAME APPARATUS. WYMAN BOARDMAN, Toledo, Ohio, assignor of one-half to Daniel W. Camp, Jr., same place. Filed Nov. 23, 1892. Serial No. 452,758. (No model.)



Claim.—1. In a game apparatus, a receptacle for the coin, a chute leading therein, a spring attached lever pivoted to extend across the chute, and receive the edge of the coin, a lever for pressing upon the coin to urge the same through the chute, and a disk provided with a depending tappet having a head, said disk being adapted to be moved by the return of the spring actuated lever contacting with the head of said tappet.

2. In a game apparatus, a receptacle for the coin, a transparent closure secured upon the top thereof, a disk within the closure having a tappet extending in to the receptacle for coin, a chute within the receptacle for coin, having a downward extending arm, a spring actuated lever pivoted thereto having a recess co-incident with the chute, a lever journaled to move radially across the chute and release a coin deposited therein by depressing the spring actuated lever.

3. In a game apparatus, a disk, a coin, a controlled mechanism for actuating the same comprising a casting formed with a longitudinal slot extending through the same, a spring actuated lever pivoted to the casting having a recess co-incident with the slot, a shaft journaled transversely of the slot, having a two arm lever secured thereon one of which has a radial movement in the slot the other lever having a movement to contact with the casting, and a spring upon the shaft to withdraw the lever from the slot.

493,896. BOOKBINDING. JOHN P. BEMBRAN, Akron, Ohio. Filed May 7, 1892. Serial No. 432,196. (No specimens.)

Claim.—1. As an improved article of manufacture a stub for a flat-opening book consisting of a strip of material folded in a number of plies, the last ply attached to the others by adhesive material, folded into W form and having adhesive material on the inner edge of one of the outer folds, as set forth.

2. As an improved article of manufacture a stub for a flat-opening book consisting of a strip of material folded to form three equal plies, the last folded ply provided on each face of its edge with adhesive material, and the plies formed into a W, as set forth.

3. As an improved article of manufacture, a set of stubs for a flat-opening book, each stub consisting of a strip of material folded to form three equal plies, folded in W form, the inner edge of one of the outer folds havings a coating of soluble adhesive material, each alter-

nate stub inverted, and all having saw notches in one direction for attaching the signatures, as set forth.



4. A book having independent sections and stubs, the stubs being in form of a letter W, each alternate stub inverted and interlocked with and attached to adjacent stubs by adhesive material as set forth.

5. A book composed of independent stubs in form of the letter W, each alternate stub inverted and interlocked with and attached to adjacent stubs by adhesive material, and independent signatures attached to the front folds of said stubs and binding bands to the back folds as set forth.

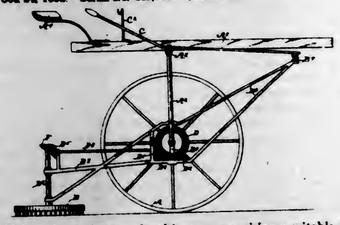
498,397. WASHER FOR WHEEL-SPOKES. ROBERT W. CAVE and THOMAS J. CAVE, Priceville, Ky. Filed Oct. 17, 1892. Serial No. 449,054. (No model.)



Claim.—1. A circular washer having a central tenon receiving opening and provided with a radial split or kerf forming severed ends and having its severed ends arranged together and provided with a pin passing through the washer adjacent to the ends thereof and securing the washer in places and projecting from the upper and lower faces of the washer, substantially as described.

2. A circular washer constructed of flexible material and having a central opening and provided with an inclined radial split or kerf forming beveled ends overlapping each other and provided with a pin passing through the overlapped ends and securing the same together and projecting from the upper and lower faces of the washer and forming spurs, substantially as described.

498,398. CULTIVATOR. BENJAMIN F. COON, Jamaica, Iowa. Filed Oct. 24, 1892. Serial No. 449,751. (No model.)

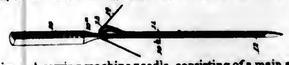


Claim.—1. An improved cultivator, comprising a suitable carriage two frames extended longitudinally of the carriage, on opposite sides of its center and having universal connection therewith, a rotary harrow rotatably mounted in the rear end of each of the said frames, a bar pivotally and adjustably connected with the forward ends of said bars for the purposes stated, a lever having a universal connection with a suitable part of the carriage and a pivotal connection with said bar and means for rotating the said harrows with their inner ends moving forwardly, by means of power transmitted from the traction wheels of the said carriage.

2. An improved cultivator, comprising a suitable carriage, two harrow supporting frames extended longitudinally of the carriage on opposite sides of its center, a vertical shaft mounted upon the end portions of the axle of the traction wheels of the device, to rotate in a plane at right angles thereto, and having the said frames pivotally attached to their ends to produce a universally movable connection between said frame and the axle, a bevel gear wheel formed on or fixed to the inner end portion of each hub, a harrow rotatably mounted in the rear end of each of the said frames, and a train of gears mounted in each of said frames to transmit motion from the aforesaid gear wheel to the harrow and means for controlling the position of the harrows substantially as set forth for the purposes stated.

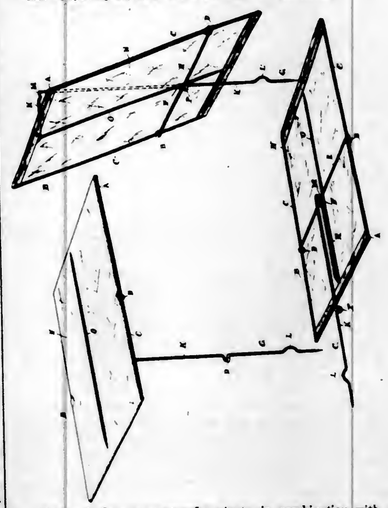
3. An improved cultivator comprising a suitable carriage two rotary harrows each having a vertical axle, the supporting frames B^3 mounted on the vertical shafts B^4 which in turn are rotatably mounted upon the axle of the carriage, the bar B^7 pivotally and adjustably attached to the forward ends of the frame B^3, a lever C having a universal connection with axle of the traction wheels and a pivotal connection with the bar B^7 the support C^8 for the lever C, the bevel gear wheel D formed on or fixed to the inner ends of the traction wheels and a system of gears mounted in the said frames to transmit a rotary motion to the harrows with their inner edges moving forwardly from the gear wheels D substantially in the manner set forth for the purposes stated.

498,399. SEWING-MACHINE NEEDLE. STEPHEN M. CRISTAU, Providence, R. I., assignor of one-half to George H. Williamson, New York, N. Y. Filed Oct. 14, 1892. Serial No. 448,799. (No model.)



Claim.—A sewing machine needle, consisting of a main stationary member and a parallel spring member integral with the stationary member, the upper end of the spring member having diverging arms, which arms are bent upward and outward and thence curved inward and downward and embracing the main member near its upper end, substantially as shown and described and for the purpose set forth.

498,400. PLANT-PROTECTOR. LOUIS GRUNTHALOHER, Galveston, Tex. Filed July 26, 1892. Serial No. 441,159. (No model.)



Claim.—1. In a protector for plants, in combination with a frame having a slitted cover, a bent standard having one arm loosely connected to the frame and a movable cross-wire engaging the other arm of the standard at an intermediate point to adjust the position of the shade, substantially as specified.

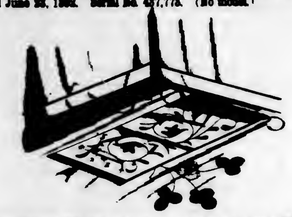
2. In a protector for plants, in combination with the covered frame, the standard having an upper arm secured at one end to the frame, and a vertical arm adapted to be inserted in the ground, and the adjustable cross-bar engaging an intermediate point of said standard, and mounted at its end to slide upon the side-bars of said frame, substantially as specified.

3. In a protector for plants, the combination with a frame having parallel side-bars, and provided with a cover, of the bent standard having one arm attached terminally to one end of said frame, and the other arm free to be inserted in the ground, and a sliding cross-wire mounted at its ends upon said side-bars and provided at its center with a loop to engage the standard, substantially as specified.

4. The combination of the frame composed of a single strand of wire, and a bent standard formed as a continuation of said strand and having a vertical portion to be inserted at its lower end in the ground, said frame being provided with a slitted cover, substantially as specified.

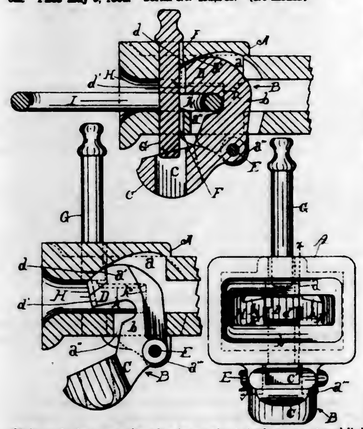
5. In a protector for plants, the combination with the frame, and a centrally-slotted cover secured thereto, of the standard having a horizontal arm which is attached to one end of the frame, and a cross-wire mounted at its ends on the sides of the frame and provided at its center with a loop to engage said standard, substantially as specified.

498,401. CARPET-FASTENER. HARVY M. HARRISON, Perry, Iowa. Filed June 23, 1892. Serial No. 437,773. (No model.)



Claim.—As an improved article of manufacture, a pin of the character described, consisting of a straight shank or supporting bar having an angularly bent free end to form a keeper with a terminating sharpened point to engage the material to which the pin is applied, and an arm of curved formation bent backward over said shank or bar and adapted to engage the said keeper, the said arm being longer than the said shank or bar and having the end thereof pointed to engage the material to which the pin is applied, substantially as described.

498,402. CAR-COUPLING. CHARLES W. HINTON, Los Angeles, Cal. Filed May 9, 1892. Serial No. 432,940. (No model.)



Claim.—1. A car coupling having a pivoted pin support and link grip substantially such as set forth, and having its draw-head provided with the downwardly projecting link guides and stops curved at their front ends downward and backward and arranged in the front of and at the sides of the chamber in the draw-head which is arranged to receive the upper portion of the pin support and link grip.

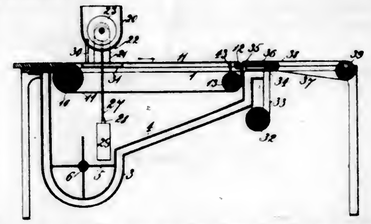
2. A coupler having a pivoted pin support and link grip having the front face of its grip arms curved to fit the end of the link and enlarged to project outward upon each side of the grip arm to rest upon the link.

498,408. CAKE-COATING MACHINE. DANIEL M. HOLMES, Arlington, N. J., assignor to John R. Van Derver, New York, N. Y. Filed Oct. 17, 1892. Serial No. 448,998. (No model.)

Claim.—1. A coating machine in which is comprised a tank for holding the coating material; a pump connected therewith; a showering tank; carrying mechanism passing beneath the showering tank; a pan supported beneath said tank; and a paper arranged to move in unison with the carrying mechanism, substantially as shown and described.

2. In a machine of the character herein specified, the combination with a tank for holding coating material of a perforated agitator mounted within said tank, and arranged to operate, substantially as shown and described.

3. In a machine of the character herein specified, the combination with a showering tank having a perforated bottom, of a worm made of perforated material, mounted within said tank, and arranged to agitate and move the coating material, substantially as shown and described.



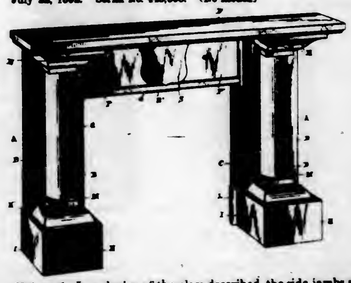
4. In a machine of the character herein specified, the combination with the carrying mechanism, of a pan arranged to hold coating material, over which the carrying mechanism passes, and a continuous showering device located above the carrying mechanism, substantially as shown and described.

5. In a machine of the character herein specified, a showering tank, in combination with cake carrying mechanism, and means for removing surplus coating material, substantially as shown and described.

6. In a machine of the character herein specified, the combination with a showering device, and a cake carrying mechanism, of a paper reel; a paper supporting belt, and means whereby the cake carrying mechanism, paper, and paper supporting belt are caused to move in unison, substantially as shown and described.

7. In a machine of the character herein specified, the combination with a continuous showering device, of a series of wires forming a support for the goods to be coated and arranged to carry said goods beneath the showering device, substantially as shown and described.

498,404. MANTEL. ALLEN W. HOUSE, Homestead, Pa. Filed July 22, 1892. Serial No. 440,995. (No model.)



Claim.—1. In a device of the class described, the side jambs and the horizontal breast connecting said jambs at their upper ends and comprising independent overlapping sections P P', attached to and carried by the jambs, respectively, the section P being provided at its upper edge with a guide R to engage the upper edge of the section P', and the latter being provided at its lower edge with a guide R' to engage the lower edge of the section P, substantially as specified.

2. A portable and adjustable mantel comprising hollow bases, independent side-jambs adjustably fitted at their lower ends, respectively, in said bases, a breast formed in separate overlapping sections permanently attached at their outer ends to the jambs, means to secure the overlapping inner ends of the sections of the breast together, and a separable shelf supported upon the upper ends of the side jambs, all substantially as specified.

3. In a mantel, the combination with the side-jambs provided at

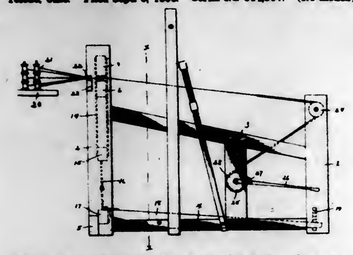
ranged within said inlet pipe, an inverted cone shaped pan in the

498,408.

2. In a turning-machine, the combination with a belt-shifter sub-

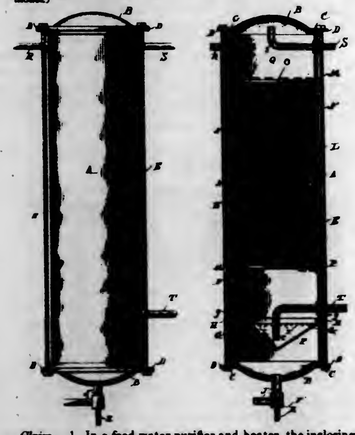
3. In a mantel, the combination with the side-jambs provided at their inner and outer sides with returns and at their inner sides with facings, of the vertically-adjustable bases provided with rearwardly-extending flanges bearing guides to engage, respectively, the rear edges of the outside returns and the inner edges of said facings, substantially as specified.

498,405. WARP-CLAMP FOR LOOMS. JOSEPH F. KIRSWETTER, Toledo, Ohio. Filed Sept. 3, 1890. Serial No. 364,367. (No model.)



Claim.—In a loom, the combination with a frame, of a transverse rigid beam having a V shaped groove in its upper side, a movable transverse beam having a tongue extending throughout its length and adapted to engage the said groove, springs interposed between the two beams, a movable transverse beam located below the rigid beam, rods connecting the two movable beams, a transverse lever pivoted to the frame of the machine, links connecting the lever with the lower movable beam, a foot lever engaging the transverse lever, and means for holding the foot-lever at any desired adjustment.

498,406. FEED-WATER PURIFIER AND HEATER. LOYAL V. LEWIS, Kendallville, Ind. Filed Sept. 30, 1892. Serial No. 447,431. (No model.)



Claim.—1. In a feed water purifier and heater, the inclosing cylinder having a combined steam and water inlet at its lower end and a discharge at its upper end, a combined deflecting and sediment pan removably supported within the cylinder directly above said inlet, said pan being of smaller diameter than the interior diameter of the cylinder and provided with perforations near its upper edge, and an elongated filter basket removably supported within the cylinder between said pan and the upper discharge, substantially as set forth.

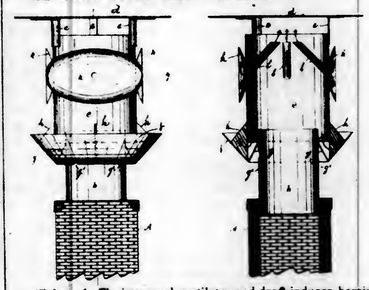
2. In a feed water purifier, the inclosing cylinder, the inlet pipe entering the lower end of the cylinder, a combined deflecting and sediment pan arranged within the cylinder directly above said inlet, a filter basket supported above said pan, and the discharge pipe at the upper end of the cylinder, substantially as set forth.

3. In a feed water purifier and heater, the cylinder, the inlet pipe entering the lower end of the cylinder, a live steam-jet nozzle, arranged within said inlet pipe, an inverted cone shaped pan in the lower end of the cylinder and having its apex directly above the inlet pipe, said pan being spaced from the inner sides of the cylinder and having a circular series of perforations near its upper edge, and a filtering strata supported within the cylinder above the said pan, substantially as set forth.

4. In a feed water heater, the cylinder having a lower inlet, and an upper discharge, a filtering basket, supported within the cylinder between the inlet and discharge and comprising upper and lower perforated disks, and a circular series of tie-rods connecting said disks near their edges and forming the inclosing wall of the basket, and suitable filtering material within said basket, substantially as set forth.

5. In a combined feed water purifier and heater, the cylinder, the lower inlet pipe having a steam jet-nozzle, an inverted cone-shaped pan arranged within the lower end of the cylinder above the inlet and having perforations, a filter basket supported within the cylinder above said pan and terminating short of the top of the cylinder to leave an upper water space, a discharge pipe entering the upper water space, and upper and lower blow-off pipes having inner right angularly disposed ends, the lower of which projects into the bowl of the pan and terminates a short distance above the lower apex thereof, substantially as set forth.

498,407. VENTILATOR. JAMES G. LUCAS, New York, N. Y. Filed Mar. 1, 1892. Serial No. 423,354. (No model.)



Claim.—1. The improved ventilator and draft inducer, herein described, consisting of the pipe *b*, adapted to connect with a chimney or flue, the pipe *c*, of larger diameter than said pipe *b*, and carrying the double deflector, *f*, *g*, the funnels, *k*, *l*, and the cover *d*; said parts being arranged and combined substantially as and for the purposes set forth.

2. In a ventilator, the combination of an inner pipe *b*, an outer pipe *c* encircling the pipe *b*, the double deflectors *f g* arranged at the lower portion of pipe *c*, and the funnels *k l* arranged at the upper portion of pipe *c*, substantially as described.

3. In a ventilator, the combination of the pipe *c*, the double deflector *f*, *g*, and the funnels *k*, *l*, carried by said pipe; said parts being arranged in relation to one another as described and for the purposes set forth.

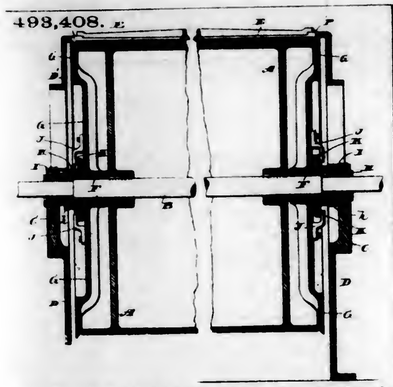
498,408. REVOLVING-FLAT CARDING-ENGINE. OSCAR L. OWEN, Whitinsville, Mass., assignor to the Whitin Machine Works, same place. Filed Jan. 21, 1892. Serial No. 418,738. (No model.)

Claim.—1. The traveling flats and main cylinder of a carding engine, in combination with two disks mounted one on each side of the machine, the peripheries of said disks being finished off on an incline, the flats having faces or surfaces resting on the peripheries of said disks, a roller bearing against the side of each of said disks and means for moving said rollers, substantially as described.

2. The traveling flats, framing and main cylinder of a carding engine, in combination with two disks mounted one on each side of the machine, the peripheries of said disks being finished off on an incline, the flats having faces or surfaces resting on the peripheries of said disks, the slides mounted on the framing, a roller carried by each of the slides and resting against the sides of the disks, and means for moving or adjusting said slides, substantially as described.

3. The traveling flats framing and main cylinder of a carding engine, in combination with two disks mounted one on each side of the machine, the peripheries of said disks being finished off on an incline, the flats having faces or surfaces resting on the peripheries of said disks, the pedestals mounted on the framing and connections between the disks and the pedestals whereby the disks may be moved axially, substantially as described.

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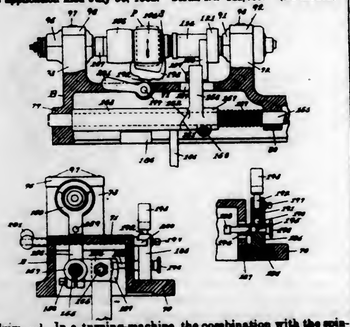


4. The combination of the main cylinder and traveling flats of a carding engine, the shaft on which the cylinder is mounted, the pedestals in which the shaft is journaled, bushings on the shaft, disks mounted on said bushings, the peripheries of said disks being finished off on an incline, the flats having surfaces resting on the peripheries of said disks, and means for moving said disks and bushings on said shaft, substantially as described.

5. The combination of the main cylinder and traveling flats of a carding engine, the shaft on which the cylinder is mounted, the pedestals in which the shaft is journaled, disks mounted on each side of the machine, the peripheries of said disks being finished off on an incline, the flats having surfaces resting on the peripheries of said disks, the said pedestals having threaded projections, nuts mounted on said projections and connected to said disks, whereby the disks may be moved axially, substantially as described.

6. The combination of the main cylinder and traveling flats of a carding engine, the shaft on which the cylinder is mounted, the pedestals in which the shaft is journaled disks mounted on each side of the machine, the peripheries of said disks being finished off on an incline, the flats having surfaces resting on the peripheries of said disks, the said pedestals having threaded projections, nuts mounted on said projections and connected to said disks, said nuts having teeth or notches and clips attached to a fixed part and adapted to engage said nuts, substantially as described.

498,409. BELT-SHIFTING APPARATUS. FRANCIS H. RICHARDS, Hartford, assignor to the Parker & Whipple Company, Meriden, Conn. Original application filed Feb. 15, 1892, Serial No. 421,522. Divided and this application filed July 30, 1892. Serial No. 441,709. (No model.)



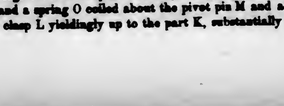
Claim.—1. In a turning-machine, the combination with the spindle having the fixed and loose pulleys, of the belt-shifter provided with the retractible cam pin, the cam 189 adapted to have a reciprocatory movement, and to bear against said pin, a spring normally holding the shifter toward the cam, and means for retracting, detaining and advancing the cam-pin, whereby the belt-shifter may be thrown into engagement or out of engagement with said cam, substantially as described.

2. In a turning-machine, the combination with a belt-shifter substantially as described, of the reciprocatory cam operating to throw the shifter from the fixed pulley toward the loose pulley, a spring normally throwing the shifter from the loose pulley toward the fixed pulley, and shifter retractor substantially as described for locking the belt-shifter in its loose-pulley position independently of the movement of said cam, substantially as described and for the purpose specified.

3. In a turning-machine, the combination with the shifter actuating cam, and with the shifter-arm 185, of the sliding pin 188, the detent engaging said pin, and means for shifting said pin from and into engagement with said cam, substantially as described.

4. In a turning-machine, the combination with a shifter-actuator and with the shifter-arm 185, of the sliding pin 188, the detent 190, the spring 191, the belt-shifter having the stem 192, and means for adjustably fixing said stem in the arm, whereby said belt-shifter is held in place, and whereby said spring may be adjusted, substantially as described.

498,410. REFRIGERATOR. PETER J. VANDERLINDA, Grand Rapids, Mich. Filed Dec. 22, 1892. Serial No. 456,101. (No model.)



Claim.—The combination with the casing A, containing a cold air chamber, of a series of tray frames, arranged to slide horizontally therein, having a front portion C, an interior front portion G, side pieces C' C', and having a back F, arranged at some distance forward of the ends of pieces C' leaving projecting portions C'' C'', at the rear of said back and having bottom slats D, D, arranged substantially as described and for the purposes set forth.

498,411. BASE FOR ELECTRIC-LIGHT BRACKETS. JAMES T. ROSS, Mount Vernon, assignor to the Edison General Electric Company, New York, N. Y. Filed Feb. 24, 1891. Serial No. 382,343. (No model.)



Claim.—1. The combination, with an electric light bracket or fixture, of a base cover, adapted to inclose cut-outs or circuit connections at the base of the bracket and consisting of a cup-shaped section surrounding the base of the bracket and having an opening, and a sliding cover which may be moved into or out of line with said opening, substantially as described.

2. The combination, with an electric light bracket or fixture, of a base cover consisting of a cup-shaped section, a segment of which is cut away, a second cup-shaped section fitting the first and having a similar segment cut away, both sections surrounding the base of the bracket or fixture and one being movable, whereby the openings may be brought into or out of line with each other, substantially as described.

3. The combination of an electric light fixture, a base cover inclosing cut-outs or circuit connections, said base cover having an opening therein, a movable sliding door for said opening, and a flange on the base cover forming a guide or track for the movable door, whereby ready access may be had to the cut-out devices supported at the bracket base, substantially as described.

498,412. REIN-HOLDER. AUGUST ROSENTHAL, Milwaukee, Wis. Filed Aug. 26, 1892. Serial No. 444,161. (No model.)



Claim.—As an article of manufacture, a rein-holder, comprising a frame consisting of a flat top-piece B, and rigid depending legs C C, a clasp including an oblique bearing part K, a flat portion G fitted to the top piece B and a downwardly curved arm I, a bolt H securing the clasp directly to the top piece B, a swinging clasp L pivoted in the legs C C and adapted to bear yieldingly against the bearing part K, and a spring O coiled about the pivot pin M and adapted to hold the clasp L yieldingly up to the part K, substantially as described.

498,418. DYE FROM ALPHA OXYUVITIC ACID. BRUNO R. [illegible]

of the rear axle and adapted to connect with the latter, the front end

bed-section hinged to the front wall of the same, a head piece hinged

498,420.

498,413. DYE FROM ALPHA OXYUVITIC ACID. BRUNO R. SEIFERT, Radebeul, near Dresden, Germany, assignor to Dr. F. von Heyden Nachfolger, same place. Filed May 13, 1892. Serial No. 433,570. (Specimens.)

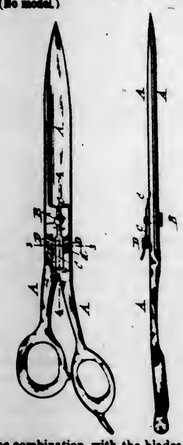
Claim.—The process herein described of manufacturing the new class of meta-azo-compounds herein described serving as coloring matters, said process consisting in combining alpha oxyuvitic acid with diazo-compounds such as herein specified.

498,414. BRUSH. CHRISTIAN SMITH, Detroit, Mich. Filed Mar. 5, 1891. Serial No. 383,923. (No model.)



Claim.—A brush consisting of a flat back formed of an elongated block, having parallel grooves therein extending from end to end along the underside, and inclined grooves at the ends terminating at the top of the block forming extensions of the other grooves, a series of tufts folded and inserted in the grooves throughout their entire length, binding wires in the grooves passing above the bends of the tufts and carried up to and secured on the top of the block and staples spanning the ends of the grooves at the top and adjacent to the ends of the binding wires.

498,415. SHEARS. OTTO STEHMER, Omaha, Nebr., assignor of one-half to Hermann Kind, Stapleton, N. Y. Filed Aug. 13, 1892. Serial No. 442,901. (No model.)

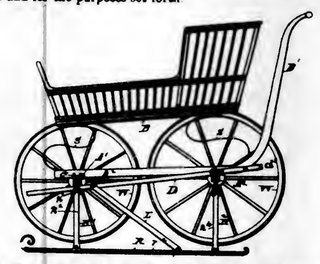


Claim.—1. The combination, with the blades of a pair of shears or scissors, of a pivot having an enlarged head at one end and a diametrical slot at the opposite end, of a tension-spring, the front-end of which is passed through the opening in the pivot-pin, and an inclined transverse bridge arranged back of the pivot, with which the rear-end of the tension-spring is placed in contact, substantially as set forth.

2. The combination, with the blades of a pair of shears or scissors, of a pivot-pin having an enlarged head at one end and a diametrical opening in the opposite end, of a tension-spring the front-end of which is passed through the opening of the pivot-pin, and the rear end of which is provided with a pin, and an inclined bridge on the blade back of the pivot-pin, said bridge being provided with socket-holes or depressions which are engaged by the pin at the rear-end of a tension-spring, substantially as set forth.

498,416. SLEIGH-RUNNER ATTACHMENT FOR BABY-CARRIAGES. WILLIAM P. TARRANT, Saratoga Springs, N. Y., assignor of one-half to Theodore C. Schultheis, same place. Filed Apr. 2, 1892. Serial No. 427,492. (No model.)

Claim.—1. The combination with the front and rear axle of a baby-carriage of two yokes, each of which at its upper end is hinged to one of the axles, of two runners, one of each of which is pivotally connected with the lower end of the arms of each of the said yokes, where on the same side of the vehicle; a draw-bar arranged on top of the rear axle and adapted to connect with the latter, the front end of said draw-bar being beneath the front axle; and links pivotally connected at each of their upper ends with said draw-bar, and at their lower end with one of each of said runners, substantially in the manner as and for the purposes set forth.



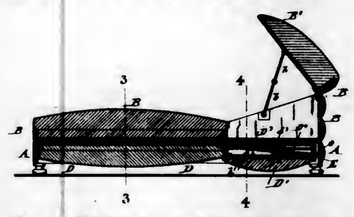
2. The combination with the axles A′, and A², of the yokes N′, and N², each having downcast arms and at their upper ends hinged to said axles substantially as described; the draw-bar D, having holding-pin passages O; the link-bars L, L, pivotally connecting at their upper ends with said draw-bar; the runners R, R, each made with the top rib r^2, and pivotally connected with the lower end of one of said link-bars; and the holding pin P, arranged on said rear axle, all constructed and arranged to operate substantially in the manner as and for the purposes set forth.

498,417. BOBBIN FOR SEWING-MACHINES. CHARLES E. WILKINSON, Westville, Conn. Filed June 11, 1890. Serial No. 355,083. (No model.)



Claim.—A sewing machine bobbin consisting of a tube wound with thread in combination with two removable metal heads separate from and independent of each other and provided with externally screw-threaded necks screwing into opposite ends of said tube, the said tube being of material softer or more yielding than the said heads and necks to permit the screw-threaded necks to form corresponding screw threads in the interior of said tube; substantially as and for the purpose herein set forth.

498,418. BED-COUCH. LUDWIG WOERNER, Brooklyn, N. Y. Filed Nov. 26, 1892. Serial No. 453,274. (No model.)



Claim.—1. The combination, with the main-frame of a bed-couch, of a seat-section hinged to the rear wall of said main-frame, a head-piece for said seat-section, a bed-section hinged to the front wall of the main frame, a hinged head-piece for said bed-section and means, substantially as described, whereby the head-piece of the bed-section is automatically raised into line with the head-piece of the seat-section or lowered into the bed-section during the outward or inward motion of the bed-section, substantially as set forth.

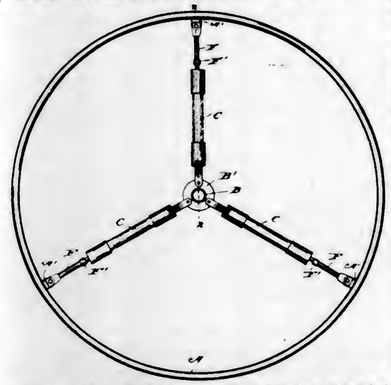
2. The combination, with the main-frame of a bed-couch, of a bed-section hinged to the front wall of the same, a head-piece hinged at its lower edge to said bed-section, mechanism connected with said head-piece and the end wall of the main frame whereby the head-piece is automatically raised or lowered during the outward and inward motion of the bed-section, substantially as set forth.

3. The combination, with the main-frame of a bed-couch, of a bed-section hinged to the front wall of the same, a head piece hinged at its lower edge to said bed-section, mechanism arranged below the head-piece and connected with the same and with the main-frame so as to raise or lower said head-piece during the outward and inward motion of the bed-section and mechanism for releasing from or locking the head-piece to the bed-section during the outward or inward motion of the bed-section, substantially as set forth.

4. The combination, with a main-frame of a bed-couch, of a bed-section hinged to the front wall of the main-frame, a head-piece hinged to said bed-section, supporting arms pivoted to said head-piece, a fixed transverse guide-rod in the frame of the bed-section below said head-piece, a spring actuated sleeve on said guide rod to which the lower ends of the supporting arms are pivoted and a chain or rope attached to said sleeve, guided over a pulley on the frame of the bed-section and attached to the end wall of the main frame, substantially as set forth.

5. The combination, of the main frame, of a bed couch, of a bed-section, hinged to the front wall of the main-frame, a head-piece hinged at its lower edge to the bed-section a fixed guide-rod below said head-piece, a sliding and spring actuated sleeve on said guide-rod, supporting arms pivoted to the head-piece and a sliding sleeve, a guide pulley on the head-end of the bed-section a chain or rope guided on said pulley and connecting the sleeve with the head end of the main frame, a locking hook on the sleeve and a keeper at the under side of the head-piece, substantially as set forth.

498,419. WHEEL FOR VEHICLES. MARCUS R. WOLCOTT, Rockford, Ill. Filed Dec. 19, 1892. Serial No. 455,685. (No model.)



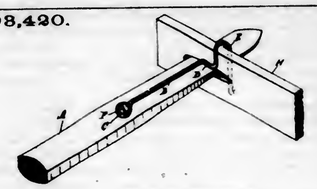
Claim.—1. In a wheel for vehicles, in combination, a rim, a hub, radial sockets pivot-jointed by their inner ends to the hub, spokes pivot jointed by their outer ends to the rim and inserted into the radial sockets, and springs so connecting the sockets and spokes as to form flexible bearings for the hub, substantially as and for the purpose specified.

2. In a wheel for vehicles, in combination, the wheel rim provided with inwardly projecting radial lugs, the hub furnished with annular flanges projecting from the periphery thereof at right angles thereto, the radial sockets pivot-jointed by their inner ends to the hub-flanges and provided interiorly with concentric annular collar-bearings, the loose collars adapted to be freely slid in the sockets and engage with and be disengaged from the annular bearings therein, the springs interposed between the inner faces of the loose collars, the spokes, pivot-jointed by their outer ends to the rim-lugs, inserted into the sockets and through the loose collars and the springs, and being provided with flat collars adapted to engage the outer faces of the loose collars and press them inward against the springs, substantially as and for the purpose specified.

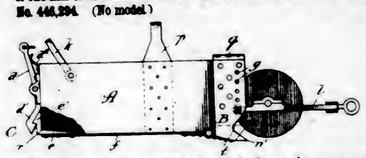
498,420. WHIFFLETREE-HOOK. JAMES WOOD and WILLIAM W. HARR, Hobiesville, Ind. Filed Oct. 28, 1892. Serial No. 450,255. (No model.)

Claim.—In a tug-fastener, the combination of a whiffletree, the tug having an eye adapted to receive the end of the whiffletree, the retaining-hook consisting of the straight arm B pivoted to one arm of the whiffletree so as to swing in a horizontal plane thereon, the short horizontal arm D, and the open hook E adapted to embrace the tug, all combined and arranged to co operate in the manner set forth.

498,420.



498,421. SCRAPER. HENRY G. BUTLER, Kenosha, Wis., assignor of one-half to William Butler, same place. Filed Sept. 19, 1892. Serial No. 446,294. (No model.)



Claim.—1. A scraper formed with a body-portion open at its forward end, in combination with a plow at the open end, comprising a bar having in its forward edge teeth beveled at their edges to form cutters, said bar being bent toward its opposite ends through the end-teeth to suitable angles and secured at the bent end-portions to the sides of the said body-portion, the bent end-portions being beveled from their inner sides outward and forming cutters on their forward edges, substantially as described.

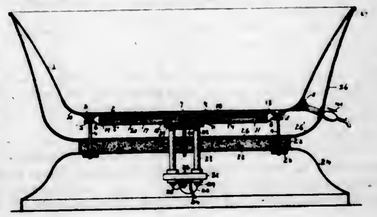
2. A scraper formed with a body-portion open at its forward end, in combination with a plow at the open end, comprising a bar having in its forward edge cutter-teeth and bent to suitable angles, the bent ends being secured to the sides of the body-portion and forming cutters on their forward edges, the bar between the said ends inclining downward and forward toward its cutter-edge and the teeth thence inclining upward, substantially as described.

3. A scraper formed with a body-portion open at its forward end, in combination with a plow at the open end, comprising a bar provided with a beveled cutting edge having projecting therefrom beveled teeth forming cutters, said bar being bent toward its opposite ends to suitable angles, and secured at the bent end-portions to the sides of the said body-portion and, the bar between the bent ends, inclining downward and forward toward its cutter edge and the teeth thence inclining upward, the said bent ends being beveled from their inner sides outward and forming cutters on their forward edges, substantially as described.

4. A scraper formed with a body-portion A open at its forward end, in combination with a plow B at the open end having the downward inclined cutter-bar *m* provided with the thence upward inclined cutter-teeth *n n′* and ends n^3 having the cutting edges *l*, a draft-bar *l*, and a shaft *i*, carrying cutter-disks *k*, in advance of the plow, substantially as described.

5. A scraper comprising, in combination, the body-portion A having the rear drainage-opening *r*, hinged bottom *f* provided with a catch C, brace-bar *g* and hanger-bars *p* and *k*, a plow B at the open end of the said body-portion, having the downward inclined cutter-bar *m* provided with the thence upward inclined cutter-teeth *n*, *n′* and ends n^3 having the cutting edges *l*, an adjustable draft-bar *l*, and shaft *i* supported in the draft-bar and carrying cutter-disks *k*, the whole being constructed and arranged to operate substantially as described.

498,422. ELECTRICALLY-HEATED VESSEL. JOHN V. CAPEN, New York, N. Y., assignor of one-half to Edward H. Johnson, same place. Filed Dec. 14, 1891. Serial No. 414,909. (No model.)



Claim.—1. A heating wire in the form of a flat volute, and an insulating twine interposed between the successive turns of the wire, substantially as described.

2. A heating wire in the form of a flat volute, and an asbestus twine interposed between the successive turns of wire, substantially as described.

3 The combination, in an electrical heating coil, of a fiber insulated heating conductor, and a cord, the insulation and the cord, or either, being impregnated with a hardening material, the cord lying between the convolutions of the conductor, substantially as described.

4. A conductor for electrical heaters having an insulating coating of fiber soaked with silicate of sodium and covered or treated with clay and silicate of sodium, substantially as described.

5. The combination, in a heater, of the receptacle 1 the bottom of which forms the heating plate, the screws passing through the same, the enamel or coating for said receptacle and screw-heads, thereby forming a tight joint around each screw-head and a heating coil on the bottom of the heating plate, substantially as described.

6. The combination of the heating plate 2, the heating conductor therefor, the insulating layer 20, the tubes 28 and conductors carried thereby, said conductors being adapted to receive the ends of the heating coil, substantially as described.

7. The combination of the heating plate 2, the heating coil therefor, the insulating layer 20, the tubes 28 and conductors carried thereby, said conductors being adapted to receive the ends of the heating coil, and means for securing the tubes and the heating plate together, substantially as described.

8. The combination, in a heater, of a heating plate, a heating coil against the plate, a ring resting against the same side of said plate, said ring carrying insulation, and means for securing said ring and inclosed parts to the heating plate, substantially as described.

9. The combination of the heating plate, the screws extending through the same but sealed water tight, the heating coil resting against said plate, the ring and the insulating layer around and over said coil, and means for holding the same against the heating plate, substantially as described.

10. The combination, in a heating apparatus, of two sections, each containing heating coils, said sections being hinged together by means of an adjustable hinge, whereby the distance between them when the cover is in its closed position can be varied, substantially as described.

11. The combination of several heaters, each containing a heating coil, of a switch for controlling the circuit of said coils, said switch having contacts connected to the supply circuit and to the heating conductors, and a switch arm, the parts being so arranged that the two heaters will first be thrown into circuit in series, then one heater will be thrown in circuit alone, and then the heaters will be thrown in multiple arc, substantially as described.

12. The combination, of the heating vessel or plate, devices projecting therefrom, a ring having a notched flange and resting against said vessel or plate, and wires extending around said devices and around the tongues formed by the notches in the flange for securing the ring in place, and an insulated heating coil within the ring, substantially as described.

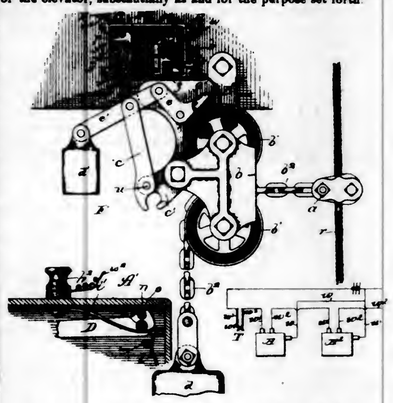
13. The combination of the heating vessel or plate, the heating coil, the insulation over the coil, the connecting device to which the heating conductor connects, and the screw securing said conductor to the face of the insulation, substantially as described.

493,423. SAFETY DEVICE FOR ELEVATOR-SHAFTS. ALBERT D. CATWOOD, Chicago, Ill., assignor to the Underwriters' Hatch-Door Company, same place. Filed Aug. 30, 1892. Serial No. 444,341. (No model.)

Claim.—1. In combination with an elevator car, controlling mechanism therefor, two or more electric locks electrically connected in series in normally open circuit provided with automatic circuit closing means, and an arrester connected with said controlling mechanism and normally engaged by one of said locks, whereby closure of the circuit actuates the several locks in succession and, by actuating the arrester-engaging lock, releases the arrester to operate the said controlling mechanism, substantially as and for the purpose set forth.

2. In combination with an electric lock, an arrester comprising a chain adapted to be connected at one end with the controlling mechanism of the elevator and carrying at its opposite end a weight, pivotally connected gripper-jaws normally held by the lock in closed condition and sustaining the weight-carrying chain, and means for actuating the gripper-mechanism to disengage the chain when said mechanism is released by the lock, substantially as and for the purpose set forth.

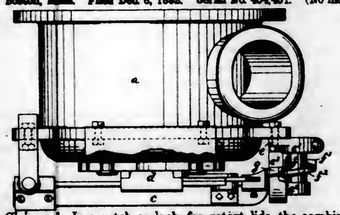
3. In combination with an electric lock, an arrester F comprising a suitable base carrying a bell-crank *c* having a hook *g* on one arm to engage with the lock, a gripper-jaw *d'*, a pair of sheaves *b'*, a weighted link *d'* pivotally connected with the other arm of the bell-crank and carrying a pivotal gripper-jaw *c*, and a chain extending between the sheaves and carrying at one end a weight *d* and adapted to be connected at its opposite end with the controlling mechanism of the elevator, substantially as and for the purpose set forth.



4. In combination an arrester F for connection with the controlling mechanism of an elevator and an electric lock comprising a suitable case containing an electro-magnet C and circuit therefor, a pivotal armature C' provided with an arm *p*, a recessed lever D normally supported by the said arm, contact-springs *i* and *i'* in said circuit and a spring bolt E carrying a finger *n* to engage the lever at its recess and a finger *m* normally maintaining the springs out of contact, the said bolt normally engaging with the arrester, substantially as and for the purpose set forth.

5. In combination an arrester F for connection with the controlling mechanism of an elevator and an electric lock comprising an electro-magnet C and circuit therefor, a pivotal armature C' provided with an arm *p*, a lever D having a recess *o* and normally supported by said arm, contact-springs *i* and *i'* in said circuit, and a spring bolt E carrying a finger *n* to engage the lever at its recess and a finger *m* normally bearing against the spring *i* to maintain it out of contact with the spring *i'*, a thumb-piece *k* on the bolt and a flat portion thereon below the thumb-piece and affording in the normal position of the bolt a latch for the hook-end of the arrester, substantially as and for the purpose set forth.

493,424. CATCH OR LOCK FOR RETORT-LIDS. JOSIAH P. CLARK, Boston, Mass. Filed Dec. 8, 1892. Serial No. 454,431. (No model.)

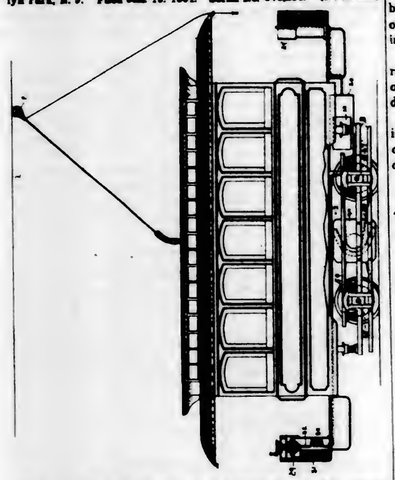


Claim.—1. In a catch or lock for retort lids, the combination, with the mouth-piece *a*, the lid *b*, supporting bar *c* hinged at one end to the mouth-piece, connecting mechanism *d* between the lid and the supporting bar, and the projection *g* attached to the bar, of the bracket *e* attached to the mouth-piece, the screw or worm *f* mounted in bearings on the bracket having the thread f^3 to engage the projection *g* to lock the lid and having also the stop f^2 to limit the movement of the worm when unlocking the lid, so as to allow the lid to be turned on its hinge to open the retort, and the ledge e^2 upon the bracket to support the lid in order to prevent it from sagging or being displaced when the worm is acting upon the projection *g* in locking the lid, for the purpose set forth.

2. In a catch or locking device for retort lids, and other similar articles, the combination with the mouth-piece, the lid, and a projection attached to the lid, of a worm or screw mounted upon and rotatable on its longitudinal axis within bearings on the mouth-piece, the thread of which engages said projection to lock the lid upon its seat on the mouth-piece, and having the height of its thread increased at one place to engage a stationary part of the mouth piece to form a stop to the rotation of the worm when unlocking the lid, so as to allow the lid to be operated to open the retort, for the purpose set forth.

3. In a catch or locking device for retort lids and other similar articles, the combination with a mouth-piece, a lid hinged thereto, a projection attached to the lid, and a worm or screw to engage the projection to lock the lid upon its seat, of a ledge upon which the projection rests and is supported when acted upon by the worm to prevent sagging and displacement of the lid, for the purpose set forth.

493,425. ELECTRIC LOCOMOTIVE. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Jan. 19, 1891. Serial No. 378,356. (No model.)



Claim.—1. The combination, in an electrically propelled vehicle, of a motor, pulleys on the motor shaft, magnetic pulleys on two of the vehicle axles, magnetic belts between said motor shaft and pulleys on the axles, and magnetic clutches between the axles and the magnetic pulleys, substantially as described.

2. The combination of a vehicle, a motor, a shaft for the motor having one or more pulleys, a shield for each of said pulleys and a connection between the shield and the vehicle for supporting the motor, substantially as described.

3. The combination, in a switch, of a plate or block and means for turning it, said plate carrying two switch-arms at an angle to each other and in different planes, one of said arms co-operating with one series of contacts, and the other of said arms co-operating with a second series of contacts, substantially as described.

4. The combination of a vehicle, a motor for propelling it, a switch at each end of the vehicle for controlling the speed thereof, a switch at one end of the vehicle for closing the circuit through the motor in one direction only, and a switch at the opposite end of the vehicle for closing the circuit through the motor in the opposite direction only, substantially as described.

5. The combination of a vehicle, a motor for propelling it, a switch at each end of the vehicle for controlling the speed thereof, a switch at one end of the vehicle for closing the circuit through the motor in one direction only, and a switch at the opposite end of the vehicle for closing the circuit through the motor in the opposite direction only, and means for operating either of said switches at will, substantially as described.

6 The combination of a magnetic clutch, a coil for magnetizing the same, a shunt around said coil, independent of the motor circuit and a switch for controlling the shunt, whereby the condition of the shunt can be varied without affecting the speed of the motor, substantially as described.

7. The combination with a vehicle and a motor for propelling it, of a magnetic clutch between the motor shaft and an axle of the vehicle, a shunt around said magnetic clutch, independent of the motor branch, and a switch for varying the resistance in said shunt, substantially as described.

8. The combination of a motor, a magnetic clutch, a shunt around the clutch, a resistance, a switch having two switch-arms or devices, contacts for each of the arms, one of the arms serving to throw resistance into or out of said shunt circuit, thereby varying the speed of the driven shaft without varying the speed of the motor, the other switch-arm serving to regulate the speed of the motor after all of said resistance has been successively thrown into the shunt circuit, substantially as described.

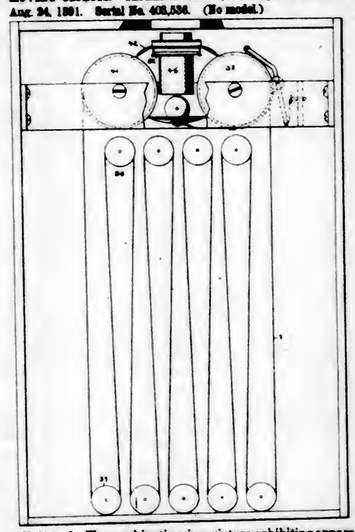
9. The combination of a vehicle, a motor for propelling it, switches comprising circuit contacts and co-operating switch arms on opposite ends of the vehicle, a regulating resistance for the motor supported on the vehicle, connections from said resistance to the two switches, and means for throwing said resistance into or out of the motor circuit, substantially as described.

10. The combination of a vehicle, a propelling motor in which the field magnet and armature are in multiple arc, a single resistance box supported on the vehicle and connected to switches at both ends of the vehicle, and means at said switches for throwing said resistance into or out of the field magnet circuit, substantially as described.

11. The combination of the box or case having double ends, the rods supported between the inner walls of the ends, the resistance coils on said rods, and a passage through the resistance device for the conductors, substantially as described.

12. The combination, in a resistance device, of an inclosing case, insulated rods in said case supported between plates as described, coils on said rods, and a passage through the resistance device for the conductors, substantially as described.

493,426. APPARATUS FOR EXHIBITING PHOTOGRAPHS OF MOVING OBJECTS. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Aug. 24, 1891. Serial No. 403,536. (No model.)



Claim.—1. The combination, in a picture exhibiting apparatus, of a series of rollers, a tape in the form of an endless belt on which are a large number of pictures of a moving object, said tape being passed back and forth over said rollers, suitable means whereby the tape may be fed forward, and a light for illuminating said pictures as they pass over it, substantially as described.

2. The combination, in a picture exhibiting apparatus, of a series of rollers, a tape on which are a large number of pictures of a moving object passed back and forth over said rolls, suitable means whereby the tape may be fed forward, a light for illuminating said pictures as they pass over it, a sight opening, and prisms for directing the beams to said sight opening, substantially as described.

3. The combination, in a picture exhibiting apparatus, of a film in the form of a tape and having a large number of pictures on it representing an object in motion, means of supporting and moving said film, a light for illuminating each picture as it passes before the eye, and a transparent heat absorbent between the light and the film, substantially as described.

4. The combination, in a picture exhibiting apparatus, of a film in the form of a tape and having a large number of pictures on it representing an object in motion, means for supporting and moving said

film, a light for illuminating each picture as it passes before the eye, and a glass cell containing alum water between the light and the film, substantially as described.

5. The combination, in a picture exhibiting apparatus, of a film or surface having a large number of pictures on it representing an object in motion, means of supporting and moving said film, a light for illuminating each picture as it passes before the eye, and a ground glass plate between the light and the film, substantially as described.

6. The combination, in a picture exhibiting apparatus, of a long endless tape on which are a large number of pictures of an object in motion, a support for said tape, means for advancing the tape, and a shutter having an opening in it for exposing the pictures one after another, said shutter being driven so that an opening comes directly over the film at the same moment that a picture is moved along into position to be seen, substantially as described.

7. The combination of an endless tape with pictures representing an object in motion and being so nearly alike as not to be readily distinguishable arranged at regular intervals thereon, means for supporting said tape and for moving it along at a regulated speed, and a light for illuminating each picture as it comes into position to be seen, substantially as described.

8. The combination of a photograph, means for throwing the same onto a suitable lens or prism, and a shutter provided with an opening and movable across the lens in a slit at or near the center thereof, substantially as described.

9. The combination of a film or surface having on it pictures of a moving object taken stereoscopically side by side, means for moving said film or surface rapidly forward at a regulated speed, a projecting lens or prism, and means for superposing said pictures on said lens or prism, substantially as described.

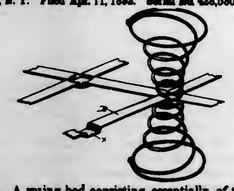
10. The combination of a film or surface having on it pictures taken stereoscopically side by side, means for moving said film or surface forward at a regulated speed, a projecting lens or prism, means for superposing said pictures on said lens or prism, and a screen onto which the pictures are thrown, substantially as described.

11. The combination of a film or surface having on it pictures taken stereoscopically side by side, means for moving said film or surface forward at a regulated speed, means for superposing said pictures, and a screen colored to correspond with the subject of the photograph onto which the superposed pictures are thrown, substantially as described.

12. The combination of the film having pictures taken stereoscopically on it in pairs side by side, means for moving said film, the light and reflector for illuminating the pictures, the heat absorbent between said light and film, and means for superposing the pictures and rendering them visible as a single picture, substantially as described.

13. The combination, in a picture-exhibiting apparatus, of a transparent flexible band or tape having a large number of pictures on it representing an object in motion, means for supporting and moving said tape forward to bring the pictures into view in rapid succession and regular order, and a sight opening at a point along the tape through which the pictures can be seen, substantially as described.

493,427. SPRING-BED. OSCAR S. FOSTER and WILLIAM S. FOSTER, Utica, N. Y. Filed Apr. 11, 1892. Serial No. 428,580. (No model.)



Claim.—1. A spring bed consisting, essentially, of the middle or main frame composed solely of transverse and longitudinal flexible metallic strips, each having spring holding off-sets formed therein and brought into engagement with each other and double-cone springs secured to said middle or main frame, substantially as set forth.

2. The combination in a spring bed of a frame composed of transverse and longitudinal bars or strips each having an indented spring holding off-set, the off-set of one strip being brought into engagement with the off-set of the other and a spiral spring having contiguous convolutions applied to the engaged off-sets and secure the strips together, substantially as set forth.

3. The combination of a frame bar or strip having a single spring-holding offset *x* formed by a double bend in the strip, and a spiral spring having convolutions closely embracing the offset and engaging on both sides of the strip, substantially as set forth.

4. The combination of a frame bar or strip having a single spring-holding offset formed by bending the strip to one side of a direct line and back again, and a spring having contiguous cylinder-like convolutions, some of which closely embrace the offset at one side of the strip and others engaging upon the opposite side of the strip, substantially as set forth.

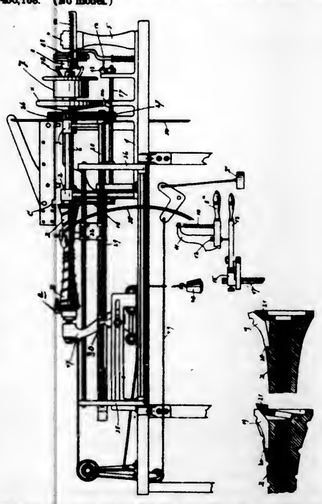
5. The combination of a spring having contiguous cylindrical convolutions and a frame bar or strip having an offset *x* formed on one side by bending or indenting the strip, the offset being received within the contiguous convolutions of the spring and the adjacent portions of the strip to the offset passing between contiguous portions of the spring, substantially as set forth.

6. The combination of a frame, bar or strip having a single offset *x* formed therein and a spring having contiguous cylinder-like convolutions removably secured upon the strip by having the offset placed within the convolutions and the contiguous convolutions gripping the strip, substantially as set forth.

7. The combination of a frame bar or strip having a spring holding offset formed by bending or indenting the entire body of the strip, and a spiral spring having contiguous convolutions removably secured upon the strip by the contiguous convolutions gripping the strip, the spring being secured from lateral displacement by the offset being received within the convolutions of the spring, substantially as set forth.

8. The combination of intersecting, flexible metal strips forming a frame, each strip having spring holding offsets at the intersection, and a spring having contiguous convolutions gripping the strips and engaging the offsets and being secured thereby from displacement, substantially as set forth.

493,428. MACHINE FOR FORMING SPRINGS. OSCAR S. FOSTER and WILLIAM S. FOSTER, Utica, N. Y. Filed Apr. 22, 1892. Serial No. 430,168. (No model.)



Claim.—1. In a spring forming machine the combination of a spring former, a feeding screw and a wire feeding carriage mounted on movable ways to adapt it to be thrown into and out of engagement with the feeding screw, substantially as set forth.

2. The combination in a spring forming machine of a spring former, a feeding screw, movable carriage ways parallel with the screw and a movable carriage on the ways adapted to be thrown in and out of engagement with the screw, substantially as set forth.

3. The combination in a spring forming machine of a spring former, a feeding screw substantially parallel with the former, a feeding carriage mounted on movable ways parallel with the feeding screw and adapted to be thrown into and out of engagement with the feeding screw and a stopper adapted to be engaged and operated by the carriage for holding the carriage and ways in position so that the carriage can become engaged with the feeding screw, substantially as set forth.

4. The combination in a spring forming machine of a rotating spring former, a rotating screw parallel with the former, a carriage adapted to engage with the screw and mounted upon movable ways and a catch or stopper adapted to be engaged and operated by the carriage on the ways and operating to hold the carriage out of engagement with the feeding screw, substantially as set forth.

5. The combination in a spring forming machine of a former mounted on a mandrel, a clutch for driving the mandrel a catch for securing the clutch, a tripping lever connecting with the clutch catch, a washer shaped tripping catch located at the end of the former and surrounding the mandrel and a latch for operating the catch and projecting from a recess in the former, substantially as set forth.

6. The combination in a spring forming machine of a spring former mounted on the mandrel, a recess in the former containing a latch, a washer shaped tripping catch engaged by the latch and having an ear adapted to be projected in position to engage the tripper, substantially as set forth.

7. The combination in a spring forming machine of a spring former, a latch located in the former and adapted to be engaged by the wire forming the spring on the former, a washer shaped tripping catch contained in a recess in the end of the former and adapted to engage a tripping lever operating the clutch and driving the former and a spring for holding the tripping catch in its normal position and projecting the latch, substantially as set forth.

8. The combination in a spring forming machine of a spring former mounted on a shaft, a movable latch on the former adapted to be engaged by the wire on the former, a catch located in the end of the former and surrounding the shaft and provided with a projecting ear adapted to be operated by the latch and tripping mechanism operated by said tripping catch and operating to arrest the movement of the former, substantially as set forth.

9. The combination in a spring forming machine of a mandrel, a former mounted on the mandrel, a projecting latch on the former, a washer shaped tripping catch provided with projecting ear and surrounding the mandrel and adapted to operate a tripping mechanism and arrest the movement of the former, and a spiral spring lying in the plane of the mandrel and engaging on the washer shaped catch, substantially as set forth.

10. The combination in a spring forming machine of a mandrel, a former mounted on the mandrel, a latch piece projecting out of the former, a washer shaped tripping catch located in the end of the former and adapted to be engaged and operated by the latch and held in normal position by a coil spring and thimble projecting from a pocket in the collar of the mandrel and a tripping mechanism for arresting the movement of the former operated by the tripping catch, substantially as set forth.

493,429. GRAIN-CLEANER OR OAT-SIFTING MACHINE. NATHAN B. HIGBEE, Chicago, Ill. Filed May 23, 1892. Serial No. 434,034. (No model.)



Claim.—A grain cleaner comprising, in combination, the case L having the doors O, Q, and provided with the lid G and door *x*, downwardly-inclined screen wires M, M', M'' producing the pocket at the lower end thereof, screens R, 12, 12', 13, 13', and 14, 14' converging in a downward direction toward the center of the case arranged in series, chutes 10', 10'', 20', 20'', 30', 30'', and the upper and lower downwardly-diverging plates or tables producing the same, and the chute N, substantially as set forth.

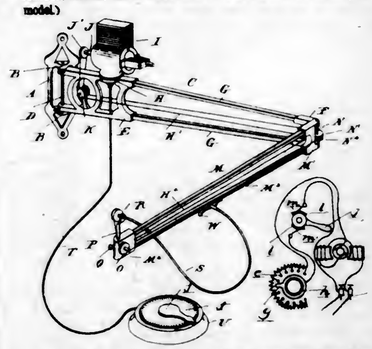
493,430. REVOLVING CHIMNEY-TOP. LOUIS IWAN and WILLIAM REIFSNEIDER, Streator, Ill.; said Reifsneider assignor to Henry Iwan, same place. Filed Oct. 25, 1892. Serial No. 449,969. (No model.)



Claim.—1. In a revolving chimney-top, the combination of the bent plate *p*, plate *p* extending from a point below the deflecting portion of the plate *q* partway up the same, a vane surmounting the cowl, and means for supporting the cowl revolubly upon a chimney, substantially as described.

2. In a revolving chimney-top, the cowl E, comprising the bent plate *q* having the upturned margin *o* and holding extensions *m*, and curved plate *p*, having its margin *n* bent into sheaths for the upturned margin *o*, in combination with a vane surmounting the cowl and means for supporting the cowl revolubly upon a chimney, substantially as described.

493,431. ELECTRIC MOTOR FOR DENTAL WORK. JEREMIAH KELLER, Canton, Ohio. Filed June 6, 1892. Serial No. 435,708. (No model.)



Claim.—1. In an electric motor for the purpose described, the combination of a bracket in two sections hinged together and provided with means for pivotally securing it to a wall, an electric motor mounted upon the bracket, a pulley mounted upon the free end of the bracket, two pulleys journaled at the pivotal connection of the two sections and revolving together horizontally, a rope transmission between one of said pulleys and the armature shaft, and a rope transmission from the other one of said pulleys to the pulley mounted on the free end of the bracket, substantially as described.

2. In an electric motor for the purpose described, the combination of a bracket in two sections hinged together and provided with means for pivotally securing it to a wall, an electric motor mounted upon the inner end of said bracket, with its armature shaft in line therewith, and provided with a pulley, two pulleys mounted at the pivotal connection of the two sections of the bracket and revolving together horizontally, a rope transmission between one of said pulleys and the pulley on the armature shaft, passing over two pulleys journaled on the inner end of the bracket and revolving independently of each other, and a rope transmission from the other end of said pulleys to the pulley mounted upon the inner end of the bracket and passing around two pulleys mounted at the outer end of the bracket and revolving independently of each other, substantially as described.

3. In an electric motor for the purpose described, the combination of the bracket consisting of the two sections C and M hinged to-

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493,434. INSULATOR-PIN. FRED M. LOCKE, Victor, assignor of one-half to George Arthur Paddock, Auburn, and Willard Cobb Page,

of the rotary die seated in said block, having one or more eccentric

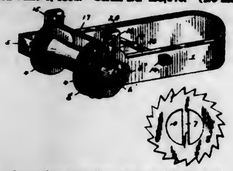
whereby the valve in said exhaust-passage is closed when the train-

3. In an electric motor for the purpose described, the combination of the bracket consisting of the two sections C and M hinged together, the plate A to which the section C is hinged and provided with means for securing it to the wall, the motor I mounted upon the section C of the bracket in line therewith, the pulley J' upon the armature shaft, the independently revolving pulleys K mounted in the inner end of the bracket, the pulleys N' N^3 mounted in the pivotal connection of the two sections of the bracket and revolving together horizontally, the rope H transmitting power thereto from the armature shaft, the pulleys O O mounted on the outer end of the bracket and revolving independently of each other in vertical planes, the pulley R mounted upon the adjustable post P upon the outer end of the bracket and the rope H^3 for transmitting motion from the pulley N^3 to the pulley R, substantially as described.

4. In an electric motor for the purpose described the combination with the motor, of a combined foot switch and resistance for said motor, and comprising the casing *a*, containing the operating parts of the resistance and switch, the movable disk *f* carrying the contact hand of the adjustable resistances and the switch lever *j* carrying the contacts of the switch, all arranged to operate, substantially as described.

5. In an electric motor for the purpose described, the combination with the motor mounted upon the swinging bracket, a combined resistance and switch for said motor, consisting of the case *a*, the fixed spool *b* provided with the resistances, the contacts *e* to which said resistances are connected, the disk *f* mounted upon and loosely revolving upon said case and carrying a contact hand, the ring *h* on the spool contacting with said contact hand, the switch lever *j* mounted upon and turning independently of the disk, the insulating hub *k* of the switch lever carrying the contacts *l*, the brushes *m m* and the circuit connecting the switch and resistance in series with the motor circuit, substantially as described.

493,482. WIRE-STRETCHER. GIDEON P. KIDD, Roann, Ind., assignor of one-half to James H. Arnold and James H. Barnhart, same place. Filed June 6, 1892. Serial No. 435,670. (No model.)



Claim.—1. In a wire stretcher, the combination of a yoke having vertical extensions provided with openings, a shaft journaled in the sides of the yoke and having a longitudinal slot at one end, a ratchet disk having oppositely disposed segmental openings receiving the slotted portion of the shaft, and divided by a diametrically disposed locking bar arranged in the slot of the shaft, and a gravity pawl consisting of the transverse pin arranged in the openings of the extensions and provided at one end with a head and having its other end bent downward, substantially as described.

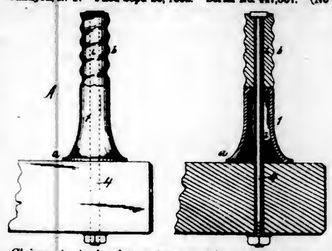
2. In a wire stretcher, the combination of a yoke provided at its head at the lower edge thereof with a wire receiving notch and having at the front ends of its sides vertical extensions provided with openings, the slotted shaft journaled in the sides of the yoke provided with annular flanges and concavely curved between the flanges, the ratchet disk having the oppositely disposed segmental openings receiving the slotted portion of the shaft and divided by the diametrically disposed locking bar arranged in the slot of the shaft, and a transverse pin arranged in the openings of said extensions and engaging the ratchet disk, substantially as described.

493,483. MILL-FILE. CHARLES H. KILBURN, Hoosick, N. Y. Filed Jan. 13, 1892. Serial No. 418,202. (No model.)



Claim.—In a bill file, the combination with the base and the shaft mounted thereon, of a bar mounted over said shaft and extending substantially parallel therewith and provided with openings in its lower face, and the spring arms constructed of wires wound around the aforesaid shaft and having their upper ends engaging with said bar and their lower ends bent downwardly to engage with the base, as set forth.

493,484. INSULATOR-PIN. FRED M. LOCKE, Victor, assignor of one-half to George Arthur Paddock, Auburn, and Willard Cohn Page, Palmyra, N. Y. Filed Sept. 29, 1892. Serial No. 447,307. (No model.)



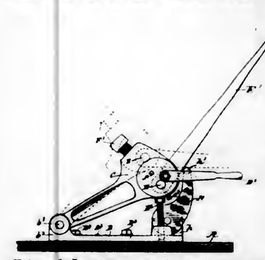
Claim.—1. An insulator pin comprising a base having a central opening, an insulating sleeve mounted thereon, and a bolt for securing them together and to the cross arm, as set forth.

2. An insulator pin comprising a hollow base, and a threaded or corrugated insulating sleeve mounted thereon, and a bolt for securing them together and to the cross arm.

3. An insulator pin comprising a base, enlarged in size at its lower end and having a central opening, an insulating sleeve mounted thereon and means for securing them together and to the cross arm.

4. An insulator pin comprising a hollow base, having a central opening, its upper end roughened and a sliding sleeve mounted thereon, and having recesses in its upper end and a bolt for securing them together and to the cross arm, as set forth.

493,485. SAW-SWAGE. SAMUEL U. LOCKWOOD, Minneapolis, Minn. Filed July 23, 1892. Serial No. 440,962. (No model.)



Claim.—1. In a saw-swage, the combination with a pivoted head-block or vise carrying the swaging dies at its free end, of a hand-lever secured to the rotary member of the said dies, and a combined stop and fulcrum block independent of the said head-block, located in the path of said hand-lever, whereby the lever may be used both to operate the rotary die in the swaging action, and to lift the head-block or vise over the said fulcrum, for engaging with a new tooth of the saw.

2. In a saw-swage, the combination with a pivoted head block or vise carrying the swaging dies at its free end, of the hand-lever secured to the rotary member of the said dies and an adjustable fulcrum block for said lever supported independent of the vise or head-block over which the said hand-lever may be operated to lift the free end of the vise, substantially as described.

3. In a saw-swage, the combination with the rotary die acting on the under surface or hook of the saw-tooth, of a resistance or anvil die having a raised flat surface, bearing against the crown of the tooth, of triangular shape with the apex at the beginning and the base line at the finish of the draw, substantially as and for the purpose set forth.

4. In a saw-swage, the combination with the head-block or vise, of the rotary die seated in said block, having an eccentric drawing surface acting on the under surface or hook of the saw tooth, and a resistance or anvil die seated in said head block, having a raised flat surface bearing against the crown of the tooth with the apex at the beginning and the base at the finish of the draw, and the said dies being so seated, that the center of the rotary die is offset outward with respect to the finish line of the said raised surface on the resistance die, substantially as and for the purpose set forth.

5. In a saw-swage, the combination with the head-block or vise.

of the rotary die seated in said block, having one or more eccentric drawing surfaces acting on the under surface or hook of the saw-tooth, and the resistance die seated in said block, having a raised flat surface bearing against the crown of the tooth, of triangular shape, with the apex at the beginning and the base line at the finish of the draw and reduced or cut away outward from the said finish line of the draw, and the said dies being so seated in the head-block with respect to each other that the center of the rotary die is offset outward, with respect to the finish line of said raised surface, substantially as and for the purposes set forth.

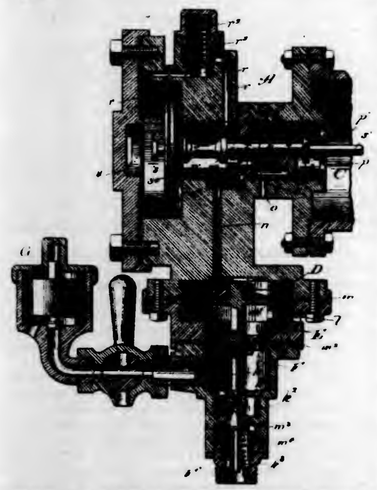
6. In a saw-swage, the combination with the swaging dies of the pivoted head-block or vise carrying the said dies at its free end, a bed-plate to which the said head-block is pivoted, adjustable on its supporting bench or table and provided with a graduated scale and a pointer fixed to said table and overhanging the said scale, for accurately positioning the machine with respect to the saw, substantially as described.

7. In a saw-swage, the combination with the head-block or vise, of the rotary die seated in said block, provided with an eccentric surface for action on the under surface or hook of the saw-tooth, and the resistance or anvil die provided with a raised surface bearing against the crown of the tooth, and provided with a pit or depression, for leaving a centering mark on the crown of the tooth, substantially as and for the purpose set forth.

8. In a saw-swage, the combination with the head-block or vise provided with a seat for the resistance or anvil die, of the anvil or resistance die loosely mounted in said seat and provided with a longitudinal groove on its periphery, and a set-screw seated in the head-block and having its inner end projecting into the said seat and engaging the groove in the said resistance die, for holding the same from turning in its seat.

9. In a saw-swage, the combination with the head-block or vise, of the resistance or anvil die F, having the groove *f*, loosely seated in the said head-block, the set-screw f' seated in said head-block having its inner end engaging the said groove *f* on the die, and the screw-threaded follower or jamb-bolt F' engaging the screw-threaded outer end of the seat in which said die is mounted, and bearing against the die, for holding the same in position, substantially as described.

493,486. QUICK-RELEASE VALVE FOR AIR-BRAKES. HARRY R. MASON, Chicago, Ill. Filed Feb. 11, 1892. Serial No. 421,177. (No model.)



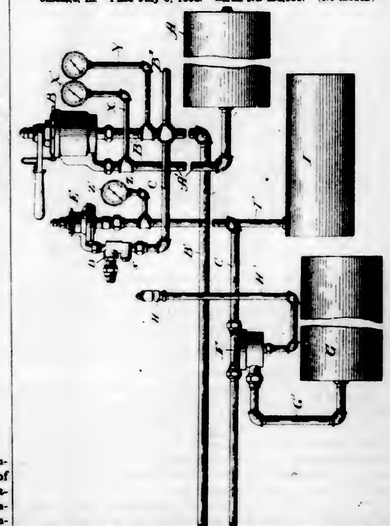
Claim.—1. In combination with the train-pipe and brake-cylinder of a brake-system, a quick-release valve-device, independent of the triple-valve mechanism, provided with a brake-cylinder exhaust-passage, a valve governing the exhaust through said passage controlled by a diaphragm movable by differential pressure, an expansion chamber, and valve mechanism interposed between the train pipe and expansion chamber, and operated by differential pressure, to direct pressure to or vent it from one side of said diaphragm, whereby the valve in said exhaust-passage is closed when the train-pipe pressure is reduced and opened when said pressure is raised, substantially as and for the purpose set forth.

2. In combination with the train-pipe and brake-cylinder of a brake-system, a quick-release valve-device, independent of the triple-valve mechanism, provided with a brake-cylinder exhaust-passage, a valve governing the exhaust through said passage, a diaphragm connected with said valve, moved in one direction, by the force of air-pressure directed against it, to open said valve, a spring acting, counter to said air-pressure, against the diaphragm, when the air-pressure is released, to close said valve, an expansion chamber, and valve mechanism interposed between the train-pipe and expansion-chamber operated by differential pressure to direct air to or vent it from one side of said diaphragm, whereby the valve in said exhaust-passage is opened when the train-pipe pressure is increased, and closed when the train-pipe pressure is reduced, substantially as and for the purpose set forth.

3. In combination with the train-pipe and brake-cylinder of a brake-system, a quick-release valve-device, independent of the triple-valve mechanism, provided with an expansion-chamber communicating with the train-pipe, a brake-cylinder exhaust passage, a diaphragm chamber, a passage between the said expansion and diaphragm-chambers, a diaphragm-chamber exhaust passage, a valve governing the exhaust through the brake-cylinder exhaust passage, controlled by movement of a diaphragm at the said diaphragm-chamber, valve-mechanism governing communication between the expansion and diaphragm chambers and between the diaphragm chamber and outside air, the said valve-mechanism being connected with and operated by a piston movable by differential pressure and interposed between the train-pipe and expansion-chamber, substantially as described.

4. In a brake-system, the combination, with the train-pipe and brake-cylinder, of quick-release valve-mechanism, independent of the triple-valve, comprising valve casing, provided with an expansion chamber communicating with the train-pipe to receive pressure therefrom, an exhaust passage from the brake-cylinder to the outside air, a valve governing the exhaust through said passage, controlled by valve mechanism having a piston movable by differential pressure and interposed between the train-pipe and expansion chamber, a small passage for the escape of pressure from the expansion chamber to the outside air, and a valve governing the escape of pressure through said small passage, controlled by the said interposed movable piston, substantially as and for the purpose set forth.

493,487. TRAIN SIGNALING APPARATUS. HARRY R. MASON, Chicago, Ill. Filed July 5, 1892. Serial No. 438,953. (No model.)



Claim.—1. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicat-

ing therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

2. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

3. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

4. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

5. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

6. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

7. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

8. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

9. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

10. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

11. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

12. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

13. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

14. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

15. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

16. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

17. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

18. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

19. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

20. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

21. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

22. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

23. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

24. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

25. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

26. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

27. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

28. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

29. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

30. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

31. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

32. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

33. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

34. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

35. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

36. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

37. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

38. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

39. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

40. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

41. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

42. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

43. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

44. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

45. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

46. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

47. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

48. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

49. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

50. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

51. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

52. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

53. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

54. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

55. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

56. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

57. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

58. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

59. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

60. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

61. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

62. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

63. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

64. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

65. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

66. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

67. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

68. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

69. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

70. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

71. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

72. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

73. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

74. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

75. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

76. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

77. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

78. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

79. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

80. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

81. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

82. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

83. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

84. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

85. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

86. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

87. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

88. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

89. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

90. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

91. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

92. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

93. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

94. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

95. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

96. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

97. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

98. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

99. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

100. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake-valve, of a signaling pipe, separate from the brake pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

clined circumferential edges into a correspondingly-shaped groove, formed with vertical side walls in one side face of a supporting piece, and forearm sockets hinged together, the swiveled claw at the end of the forearm socket, the connecting rod having a ball and socket

ing therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake-pipe, substantially as described.

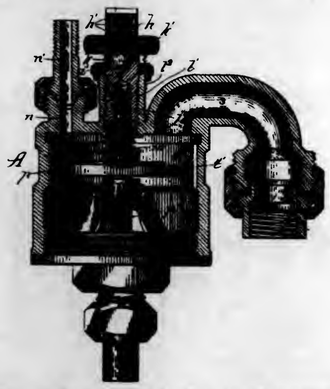
2. In an air-brake and signaling system, the combination with the main-reservoir, brake-pipe, and engineer's brake valve, of a signaling-pipe, separate from the brake-pipe and communicating therewith, beyond the engineer's brake-valve, to be charged with pressure from the brake pipe, and a check valve between said pipes to prevent the retrogression of pressure from the signaling-pipe to the brake-pipe, substantially as described.

3. In an air-brake and signaling-system, the combination with the main-reservoir, brake pipe and engineer's brake-valve, of a signaling pipe charged with pressure from the brake-pipe, and communicating therewith beyond the engineer's brake-valve, and a pressure-reducing valve between the said pipes, substantially as described.

4. In a pneumatic signaling system, the combination with the signaling-pipe, means for charging the same with air under pressure, signal-valve operated by signaling impulses and conductor's signaling valve, for creating said impulses of an equalizing reservoir connected with the signaling pipe, to increase the volume of air subject to said impulses and means for throwing the said pipe and reservoir into and out of communication, substantially as and for the purpose set forth.

5. In a pneumatic signaling system for railway trains, the combination with the signaling-pipe, signal-valve and conductor's signaling valve, of an equalizing-reservoir, and an engineer's signal-pipe valve device between the signaling-pipe and source of compressed-air supply, having a quick feed port and a slow feed port both leading to the signaling-pipe, a port leading to the equalizing reservoir, and means for directing, at will, air from the supply to the signaling pipe, through either the quick feed or slow feed ports, and for throwing the equalizing reservoir into and out of communication with the supply and signaling-pipe alternately, substantially as and for the purpose set forth.

498,488. SIGNAL-VALVE FOR PNEUMATIC SIGNALS. HARRY B. MASON, Chicago, Ill. Filed Oct. 28, 1892. Serial No. 450,238. (No model.)



Claim.—1. In a pneumatic signaling system, the combination, with a pipe charged with air under pressure, vent-valve upon the pipe for creating signaling impulses, and signal-valve, communicating with the pipe, containing a signal-actuating diaphragm movable under the said impulse, of regulating means at the said diaphragm adjustable at will to increase or diminish the resistance of the diaphragm to movement, substantially as described.

2. In a pneumatic signaling system, the combination, with a pipe charged with air under pressure, vent-valve upon the pipe for creating signaling impulses, and signal-valve, communicating with the pipe, containing a normally seated signal-actuating diaphragm movable from its seat under the said impulses, of a spring upon the said diaphragm, and means for regulating the tension of the spring at will to increase or diminish the resistance of the diaphragm to movement from its seat, substantially as described.

3. In a signal-valve A, having the properties described, the combination with the valve-shell and normally seated signal-actuating diaphragm, of a screw-plug extending through the shell, a spring confined between the said plug and diaphragm and means for turning the said plug, from without the shell, to adjust the tension of the spring and thereby regulate the resistance of the diaphragm against movement, substantially as and for the purpose set forth.

498,489. COMMUTATOR FOR DYNAMO-ELECTRIC MACHINES AND METHOD OF CONSTRUCTING SAME. ALEXANDER W. MEIXTON, St. Louis, Mo., assignor to the Emerson Electric Manufacturing Company, of Missouri. Filed Sept. 12, 1892. Serial No. 445,639. (No model.)



Claim.—1. As a new article of manufacture, the herein-described commutator for dynamo-electric machines, consisting in the combination with an annular supporting-plate, provided with an annular groove in one side face of the same, of a segmental contact-ring secured in the said annular groove and insulated from the said supporting-plate: substantially as and for the purposes described.

2. As a new article of manufacture, the herein-described commutator for dynamo-electric machines, consisting in the combination with a disk or annular supporting-plate, provided with an annular groove in one side face of the same, and a radially-extending, circumferential lip-portion, of a segmental contact-ring secured in the said annular groove, and insulated from the supporting-plate: substantially as and for the purposes described.

3. As a new article of manufacture, the herein-described commutator for dynamo-electric machines, consisting in the combination with an annular or disk supporting-plate, provided with means for supporting the same, and an annular groove in one side face of the same, of a segmental contact-ring secured in the said groove, and insulated from the supporting-plate: substantially as and for the purposes described.

4. As a new article of manufacture, the herein-described commutator for dynamo-electric machines, consisting in the combination with a disk or annular supporting-plate provided with a circumferential lip extension, by which the plate is revolubly supported in place, of a segmental contact-ring secured on one of the side faces of the same, and insulated therefrom: substantially as and for the purposes described.

5. As a new article of manufacture, the herein-described commutator, consisting in the combination with a revoluble supporting-plate, of a series of insulated contact-segments secured to one of the side faces of the said plate, concentric thereto: substantially as and for the purposes described.

6. As a new article of manufacture, the herein-described commutator for dynamo-electric machines, consisting in the combination with a revoluble supporting-plate, of a series of insulated contact-segments secured to one side face of the said plate, concentric to the same, arranged in pairs diametrically opposite each other: substantially as and for the purposes described.

7. As a new article of manufacture, the herein-described commutator for dynamo-electric machines, consisting in the combination with a disk or annular supporting-plate, formed with an annular groove in one side face of the same, of a segmental contact-ring secured in the said groove, an annular insulation-plate in the bottom of the groove, and insulation-strips between the side walls of the groove and the edges of the segmental contact-ring: substantially as and for the purposes described.

8. As a new article of manufacture, the herein-described commutator for dynamo-electric machines, consisting in the combination with a disk or annular supporting-plate, formed with an annular groove in one side face of the same, of a segmental contact-ring secured in the said groove, an annular insulation-plate in the bottom of the groove, insulation-strips between the side walls of the groove and the edges of the segmental ring, and insulation-strips between the different segments: substantially as and for the purposes described.

9. As a new article of manufacture, the herein-described commutator for dynamo-electric machines, consisting in the combination with an annular disk supporting-plate, a series of insulated contact-plates secured on one side face of the same, and insulated terminal connections leading from the contact-segments to the reverse side of the supporting-plate: substantially as and for the purposes described.

10. As a new article of manufacture, the herein-described commutator for dynamo-electric machines, consisting in the combination with an annular or disk supporting-plate, of an insulated segmental contact ring secured on one side face of the same, insulated terminal connections from the contact-segments protruding from the reverse side of the supporting-plate, and an insulation-sheet secured on the reverse side of the supporting-plate: substantially as and for the purposes described.

11. The herein-described method of constructing a disk commutator, consisting in fitting an annular-shaped contact piece with inclined circumferential edges into a correspondingly-shaped groove, formed with vertical side walls, in one side face of a supporting piece, and in subsequently upsetting the side walls of the groove onto the inclined edges of the contact piece, substantially as and for the purposes specified.

12. The herein-described method of constructing a disk commutator, consisting in embedding an annular-shaped piece, of which the contact-segments are composed, formed with inclined edges, in an annular groove in one side face of a disk supporting-plate, and in securing the annular-shaped piece, with interposed insulation, in the said groove, by upsetting the side walls of the groove onto the inclined edges of the same: substantially as and for the purposes described.

13. The herein-described method of constructing a disk commutator, consisting in embedding an annular-shaped piece, formed with inclined edges, in an annular groove formed in one side face of a disk supporting-plate and in securing the annular-shaped piece, with interposed insulation, in the groove by upsetting the side walls of the groove onto the inclined edges of the same, and in subsequently dividing the annular-shaped piece into the separate contact-segments: substantially as and for the purposes described.

14. The herein-described method of constructing a commutator, consisting in embedding the contact-piece, formed with inclined edges, of which the sections are composed, in a groove formed therefor in the supporting-piece, and in securing the contact-piece, with interposed insulation, in the said groove by upsetting the side walls of the groove on to the inclined edges of the contact-piece: substantially as and for the purposes described.

15. The herein-described method of constructing a commutator, consisting in embedding the contact-piece, formed with inclined edges, in a groove formed therefor in the supporting-piece, in securing the contact-piece, with interposed insulation, in the groove by upsetting the side walls of the same onto the inclined edges of the contact-piece, and in subsequently dividing the contact-piece into the different segments: substantially as and for the purposes described.

16. The herein-described method of constructing a disk commutator, consisting in embedding an annular-shaped piece, formed with inclined edges, in an annular groove formed therefor, in one side face of a supporting-plate, securing the said annular piece, with interposed insulation, in the groove by upsetting the side walls of the groove onto the inclined edges of the annular piece, dividing the annular-shaped piece into a number of segments by radial slots, inserting insulation in the said slots, and subsequently forcing the segments inwardly by further upsetting the outer wall of the annular groove: substantially as and for the purposes described.

17. In a commutator consisting in a supporting-plate, to which the different sections of the contact-plate are secured, the herein-described means for insulating the segmental plate from the supporting-plate, consisting in the combination of a similar sheet, or sheets, of vulcanized fiber, or like material, and mica, the mica being placed next to the contact-plate or plates: substantially as and for the purposes described.

18. In electrical apparatus, the herein-described method for insulating separate metallic parts one from the other, consisting in interposing therebetween one, or more, sheets of insulating material, sprinkling all contacting parts, insulation and otherwise, and filling all crevices therebetween, with powdered shellac, subjecting all the parts thus assembled together to the action of heat, and subsequently securing the metallic parts together mechanically: substantially as and for the purposes described.

498,440. ARTIFICIAL ARM AND HAND. WILLIAM L. MERRY, Ballerview, assignor of one-half to Henry Schanck, Perkins, Ohio. Filed Oct. 1, 1892. Serial No. 447,564. (No model.)



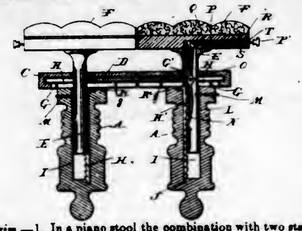
Claim.—1. In an artificial hand and arm, the combination of the upper and forearm sockets hinged together, the claw at the end of the forearm socket, the connecting rod secured to the movable jaw at one end, and to a bail at the other end, said bail being pivotally secured to opposite sides of the upper arm socket, substantially as described.

2. In an artificial hand and arm, the combination of the upper and forearm socket hinged together, the claw at the end of the forearm socket, the connecting rod secured to the movable jaw at one end and to a bail at the other end, and pivoted blocks at opposite sides of the upper socket in which the ends of said bail are adjustably secured, substantially as described.

3. In an artificial hand and arm, the combination of the upper and forearm sockets hinged together, the swiveled claw at the end of the forearm socket, the connecting rod having a ball and socket connection at one end with the movable jaw of the claw, and a bail at the other end adjustably connected with pivoted blocks at opposite sides of the upper arm sections, substantially as described.

4. In an artificial hand and arm, the combination of the upper and fore arm sockets hinged together, the apertured pivoted blocks at opposite sides of the lower end of the upper arm socket, a bail having its ends engaging the apertures in said blocks, and notched on the side, of a spring pin in each block adapted to engage the notches, a claw at the end of the forearm socket and a connecting rod from the movable jaw of the claw to the bail, substantially as described.

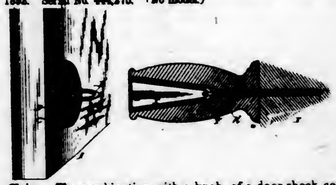
498,441. PIANO-STOOL. CHARLES W. MUSE, Detroit, Mich., assignor of one-half to Warren Williams, same place. Filed Feb. 23, 1892. Serial No. 422,490. (No model.)



Claim.—1. In a piano stool the combination with two standards, of horisontally apertured heads thereon having slotted under sides, and ways at the sides of the slots seats, shanks on the seats extending through the heads, a slide located in the ways uniting the standards and having bifurcated ends through which the shanks pass, pins on the slide entering the slots in the heads and stops on the heads with which the pins engage for preventing the separation of the seat and slide, substantially as described.

2. In a piano stool the combination with two standards formed with horizontally apertured heads having slotted undersides and ways at the sides of the slots, a bifurcated slide in the ways, pins on the slides, stops on the heads, with which the pins engage, seats, tubular shanks on the seats, passing through the heads and bifurcations of the slides and means carried by the seats and standards for vertically adjusting the same, substantially as described.

498,442. DOOR-CHECK. WILLIAM H. MCCOY, Muscatine, Iowa, assignor of one-half to James Brewer, Morrison, Ill. Filed Aug. 27, 1892. Serial No. 444,375. (No model.)



Claim.—The combination with a knob, of a door check consisting of a chambered stop, two spring wire jaws located within the chamber formed of a single piece of wire tapered and united at their inner ends, and an attaching screw passing through the check and into a suitable support, the inner end thereof having an eye through which the wire of the jaws are passed, substantially as described.

498,448. CAR-HEATING APPARATUS. JAMES F. MCELROY, Albany, N. Y., assignor to the Consolidated Car Heating Company, same place. Filed Apr. 29, 1890. Serial No. 349,748. (No model.)

Claim.—1. In a car heating apparatus, the combination of a radiator having its highest and lowest points at substantially the same place in the car, an overflow pipe from the highest point, a drain pipe at the lowest point, a water chamber communicating with the radiator at two points, and a steam supply pipe discharging into the water chamber, substantially as described.

2. In a car heating apparatus, the combination of a radiator inclined to have its highest and lowest points at substantially the middle, and a heater at such middle point, a steam pipe discharging

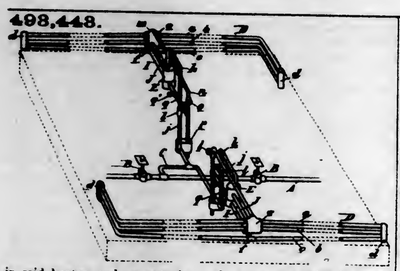
498,448.

and a fixed drum, means for holding the loose drum against rotation, and a latch for holding the locking mechanism which holds the

the carrier remains stationary until the slide has completed its stroke

15. The combination of the type-receiving channel having on one

498,443.



in said heater, and an outgoing and return connection from said heater to the radiator, an overflow pipe from the highest point of said radiator, a drain pipe extending from the heater and a valve to control said drain pipe, substantially as described.

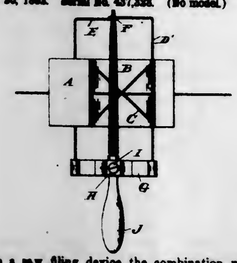
498,444. MORTISING-BIT. LYMAN O. ORTON, Philadelphia, Pa. Filed Aug. 27, 1892. Serial No. 444,357. (No model.)



Claim.—1. The combination of the central boring bit of a mortising tool, with the outer mortising bit having one or more internal spiral grooves, substantially as specified.

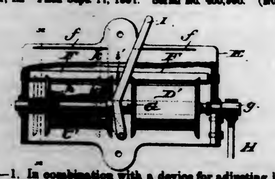
2. The combination of the internal boring bit of a mortising tool, with the outer mortising bit having one or more internal spiral grooves, and a side discharge opening, substantially as specified.

498,445. SAW-FILING DEVICE. MARVIN J. PAGE, Buffalo, N. Y. Filed June 20, 1892. Serial No. 437,338. (No model.)



Claim.—In a saw filing device, the combination with a gage block, of a sliding file holder pivotally secured therein at one side, and consisting of a single piece of wire bent to form parallel side bars and an outer cross bar having its central portion bent into a vertically disposed loop, a cross bar at the opposite end of the frame uniting the inner ends of the side bars, and formed with a central eye, and a fastener at the eye arranged to engage the file handle when adjusted, substantially as described.

498,446. SUPPORT FOR ELECTRIC LAMPS. JOHN R. PROTHERAS, Streator, Ill. Filed Sept. 17, 1891. Serial No. 405,995. (No model.)

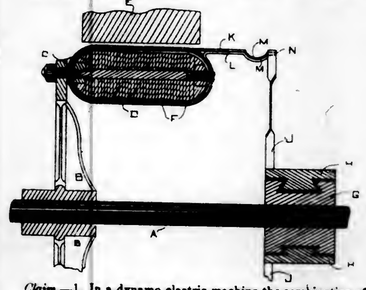


Claim.—1. In combination with a device for adjusting lamps, of a casing E having apertures through which ropes attached to the lamp and adjusting mechanism pass, a shaft carrying a loose drum and a fixed drum, means for holding the loose drum against rotation, and a latch for holding the locking mechanism which holds the loose drum in a fixed position, substantially as set forth.

2. In a device for adjusting lamps for the purpose set forth, a casing E having a shaft upon which is mounted a fixed drum and a loose drum, a lever pivoted to the casing and provided with a portion which extends through an aperture therein, said lever carrying a pin i' for engagement with perforations in one of the faces of the loose drum, and a latch for engagement with the lever for holding said lever in engagement with the loose drum, substantially as set forth.

3. In combination with a casing E for the purpose set forth, of a shaft G journaled therein, a drum D' fixed to said shaft, a drum C' loosely mounted thereon and spring actuated in one direction, means for locking the loose drum against rotation, guide roller F and flexible connections C and D wound upon the drums in opposite directions, substantially as set forth.

498,447. ARMATURE CONNECTION FOR DYNAMO-ELECTRIC MACHINES. GEORGE A. ROLLINS, Chicago, Ill. Filed Feb. 16, 1892. Serial No. 421,686. (No model.)



Claim.—1. In a dynamo electric machine the combination of an armature with coils and wires which are led off therefrom to commutator segment strips, said wires sharply bent each into substantially arc-shaped form at some point of its length away from the direct line followed by such wire between its point of departure from the armature and its point of engagement with the strip, and such wires secured at their outer ends to such strips in the ordinary manner.

2. In a dynamo electric machine the combination of an armature with coils and wires which are led off therefrom to commutator segment strips, each of said wires sharply bent into a short curve at some point along its course from the armature to the strip, said bend being away from the general course of such wire in passing from armature to strip.

498,448. TYPE-SETTING MACHINE. ALBAN V. ROCKRICH, New York, assignor to Julian W. Chadwick, Brooklyn, N. Y. Filed Apr. 2, 1892. Serial No. 427,503. (No model.)

Claim.—1. In a type setting machine, the combination with a vertical type-chute or tube, and a lifter beneath the outlet of said chute or tube, of two traps one above the other, in the path of a type descending to said lifter, substantially as described.

2. In a type setting machine, the combination with a type-chute and a lifter in line therewith, of two traps, one vertically above the other, and devices for opening one trap and simultaneously closing the other, substantially as described.

3. The combination of the two traps in the same vertical line, an oscillating lever arranged to open one trap on its forward movement and the other on its reverse movement, and actuating devices for said lever, substantially as described.

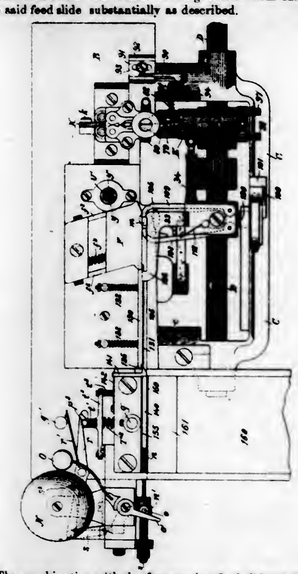
4. The combination with the type-chute or tube containing a trap composed of two separable jaws or plates opening from the center outward, of a plunger or lifter arranged in line with said chute and beneath said trap and spring-actuated feelers, substantially as described.

5. The combination with the type-chute containing two traps, one above the other, of a lifter beneath the lower trap, and spring-actuated feelers between the latter and the lifter, substantially as described.

6. The combination with the carriage and feed-slide carrying type-feeding devices, of means for reciprocating said slide, and actuating devices, such as cams, connected with and moving said carrier transversely to the motion of the feed slide, said actuating devices coming into action at the end of the stroke of the feed slide, whereby the carrier remains stationary until the slide has completed its stroke and then carries the latter away from the frame in a direction at right angles to its own proper motion, substantially as described.

7. The combination of the transversely movable carriage, the feed-slides supported in ways thereof, a cross-shaft receiving motion from the main shaft, a crank on said cross-shaft for actuating the feed-slide, and cams and connections for reciprocating the carriage, substantially as described.

8. The combination of the transversely movable carriage, the feed-slide supported in ways thereof, the crank shaft, and an articulated adjustable connection rod communicating motion from said crank-shaft to said feed slide substantially as described.



9. The combination with the four-motion feed slide, of the type-reverser carried thereby and having a movable jaw, a stationary gage or stop for displacing said movable jaw for the purpose of permitting a type to be seized, said gage or stop being adjustable transversely and longitudinally with reference to said slide, substantially as described.

10. The combination of the feed slide, the reversing pinchers mounted on a revoluble spindle and having two projecting pins on the end thereof, the overhanging projection for starting the revolution of the spindle by engaging the end of a type held by said pinchers, a stop for engaging one of said pins and completing the reversal of the pinchers, and a guide arm for arresting the rotation when the half-revolution is completed and guiding the pinchers during the further movement of the feed-slide, substantially as described.

11. The combination of the carriage, the feed-slide, the type-feeding fingers carried by said slide, a guide pin carried by said fingers, and a guide-groove in which said pin works, substantially as described.

12. The combination of the tripper-mechanism for turning the type on its longitudinal axis, a channel for conducting the type toward the galley formed on one side by a plate having a rib adapted to fit one of the nicks of the type, and feed devices for pushing the type through such channel, substantially as described.

13. The combination with the frame having a type channel beneath which said frame is cut away, feeding devices for advancing the type through said channel, a spring actuated plate forming one side of said channel, the forward motion of said plate being limited so that thin type if turned sidewise would fall out of said channel, substantially as described.

14. The combination of the type-receiving channel formed on one side by a depressible separator-plate, a frame carrying said plate, a spring-actuated slide in said frame adapted when released to come in contact with an eccentric pin on the main shaft, a rod carried by said slide and having a straight corner or ledge, a releasing catch normally holding said rod, and a pin projecting into said channel and connected with said catch so as to remove the same from engagement with said rod when said channel is filled, substantially as described.

15. The combination of the type-receiving channel having on one side a depressible separator plate, a pin lying in said type-channel, an indicator connected with and actuated by said pin, a slide released by the same pin when the latter is displaced from the type-channel, and means actuated on the release of said slide to depress the separator plate, and cut off the line of type, substantially as described.

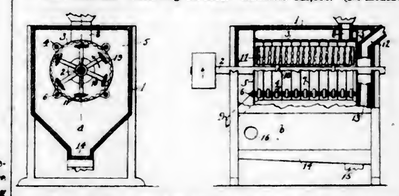
498,449. PROCESS OF ORNAMENTING VITREOUS WARES. FRANÇOIS SCHMALZ, New York, N. Y., assignor, by direct and mesne assignments, to the Photo-Litho Transfer Company, same place. Filed Apr. 26, 1892. Serial No. 430,782. (No specimens.)

Claim.—The herein described process of ornamenting vitreous wares, which consists in forming a soluble film upon a suitable backing, forming a design upon such film in vitrifiable colors held in suspension in a suitable varnish, covering the design with a film of collodion, affixing the collodion film to the article to be ornamented, dissolving the soluble film, removing the backing, and subjecting the article to sufficient heat to burn in the vitrifiable colors, substantially as described.

498,450. PROCESS OF ORNAMENTATION. FRANÇOIS SCHMALZ, New York, N. Y., assignor, by direct and mesne assignments, to the Photo-Litho Transfer Company, same place. Filed May 5, 1892. Serial No. 431,945. (No specimens.)

Claim.—The herein described process of ornamentation, which consists in providing a sheet of paper or other suitable backing with a soluble coating or film, forming a design upon such soluble film, covering the design with a coating or film of rubber, coating the article to be ornamented with a solution of gelatine and chrome alum affixing the rubber film to the coating of gelatine and chrome alum, saturating the backing with a liquid which will dissolve the soluble film, and removing the backing, substantially as described.

498,451. GRAIN-CLEANING MACHINE. THOMAS A. SHIP, Dayton, assignor of one-half to Peter R. Holly and Christian A. Saisman, Hamilton, Ohio. Filed Aug. 12, 1892. Serial No. 442,896. (No model.)



Claim.—1. In a machine for cleaning grain, the combination, substantially as set forth, with a shaft and beaters, of a fixed screen-cylinder surrounding the shaft and beaters with its inner wall contiguous to the exterior of the beaters, said fixed screen-cylinder being provided with a series of continuous uninterrupted circumferential screen-cracks, and with longitudinally laid corrugations upon its inner wall between the screen-cracks.

2. In a machine for cleaning grain, the combination, substantially as set forth, with a shaft and beaters, of a series of rings surrounding the shaft and beaters with the inner wall contiguous to the beaters, each ring being integrally formed provided with a circumferential series of exteriorly projecting lugs of less width than the ring, and threaded rods extending through said lugs and provided with adjusting nuts at each side of said lugs.

3. In a machine for cleaning grain, the combination, substantially as set forth, with a shaft and beaters, of a fixed screen-cylinder formed of a series of rings with their inner walls contiguous to the exterior of said beaters and with their side edges separated entirely around the screen, the interior surfaces of said rings being provided with inward projections or ribs lying lengthwise of the cylinder and forming corrugations within the rings, said ribs retreating or vanishing at the edges of the rings, leaving the inner walls of the rings smooth at each side of the crack of separation between the rings.

4. In a machine for cleaning grain, the combination, substantially as set forth, with a fixed screening-cylinder, a shaft therein, and spiders on the shaft, of longitudinally corrugated beater segments secured to the spiders and provided with transversely disposed eccentric ribs having the corrugations of the segments extended transversely across them.

5. In a machine for cleaning grain, the combination, substantially as set forth, with a screening-cylinder, a shaft therein and spiders on the shaft, of longitudinally corrugated beater segments se-

cured to the spiders and provided with transversely disposed wedge-shaped eccentric ribs upon their exterior surfaces.

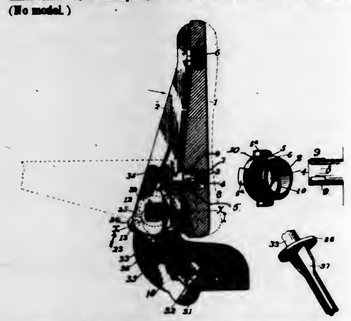
2. Pairs of rollers for snapping or separating ears of corn from the stalks and pairs of rollers for husking corn, constructed with indentations or cavities formed in their surfaces at short distances apart in every direction so as not to leave any broad portions of smooth

chain depending vertically between the brushes, and a gripper at the lower end of such draft chain, and suitable means for actuating the chain longitudinally upward, whereby an object held between the

having respectively grooves and projections adapted to become engaged by the downward stress of the gripper at either of the two po-

cured to the spiders and provided with transversely disposed wedge-shaped eccentric ribs upon their exterior surfaces.

493,452. FOLDING SEAT FOR SCHOOLS, THEATERS, &c. WILLIAM SERIVER, Philadelphia, Pa. Filed July 3, 1890. Serial No. 357,688. (No model.)



Claim.—1. The combination of the plate or casting 2 having the opening 11 and the stud 13, the plate 16 with boss or flange 20, the plate 25 with depressed portion 24 engaging the boss 20 and locking said plates 16 and 25 together, the screw 26, a bar at one end engaging the stud 13 and having a coil spring thereon bearing against a collar on the bar and a flange or ear of the plate 16 through which the bar works, substantially as and for the purpose set forth.

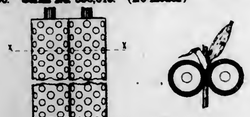
2. The combination of the plate 2 with an opening 11 therein, a groove 14 surrounding said opening and having partitions therein, the casting 16 having the boss 20 with radial grooves on its inner end, a plate having a spring connected with the casting 2, and having a depressed portion provided with lugs, the latter entering said opening 11, and engaging in the grooves of the boss, thereby locking the said castings 16 and plate 25 together, lugs 21 on said plate 16 projecting in said groove 14 and the fastening screw 26 passing through said castings and plate, substantially as described.

3. The combination of a stationary casting, a movable casting hinged thereto, a reinforce plate connected with said stationary casting, a buffer spring connected with said movable casting and reinforce plate, controlling the movement of said movable casting, and a spring connected with said casting for automatically lifting the seat, substantially as described.

4. The combination of a stationary casting, a movable casting having a pivotal connection therewith, a reinforce plate connected with the stationary casting, and having the shoulders 39 thereon, a spring connected with the stationary and movable castings, and adapted to operate the said movable casting, and a spring connected with the movable casting and the reinforce plate, which is held rigidly in connection with the stationary casting, the said spring being adapted to bear against the latter, so as to retard the action of the movable casting at or near the end of its travel, substantially as described.

5. A movable casting having an opening therein, a reinforce plate having shoulders thereon, a stationary casting having a boss interlocking with lugs on the said plate, and a spring connected to the movable casting and to the plate, and adapted to bear against either of the shoulders thereon, said parts being combined substantially as described.

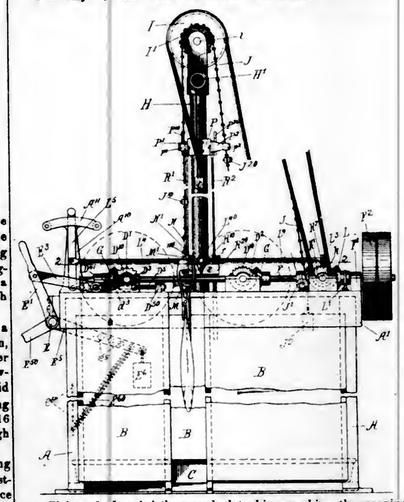
493,453. ROLLER FOR CORN HARVESTING, HUSKING, AND SEPARATING MACHINES. CHARLES H. TAYLOR, Lincoln, Nebr. Filed July 7, 1890. Serial No. 358,015. (No model.)



Claim.—1. Rollers for harvesting, separating and husking corn, constructed with indentations or cavities formed in their surfaces, at short distances apart in every direction, so as not to leave any broad portions of smooth surface between the cavities, substantially as set forth.

2. Pairs of rollers for snapping or separating ears of corn from the stalks and pairs of rollers for husking corn, constructed with indentations or cavities formed in their surfaces at short distances apart in every direction so as not to leave any broad portions of smooth surface between the said indentations or cavities, and said rollers arranged to run together so that the cavities of one roller will come opposite the smooth surface between the cavities of the other roller, all substantially as set forth.

493,454. SCALE AND BRISTLE DETACHING MACHINE. JOHN TOMB, Chicago, Ill., assignor of one-half to Paul J. Daemicke, same place. Filed July 11, 1892. Serial No. 439,660. (No model.)



Claim.—1. In a bristle or scale detaching machine, the scraping combs comprising each a back or rib which is elastic both torsionally and flexibly, and rigid teeth projecting from such elastic back: substantially as set forth.

2. In a bristle or scale detaching machine, a rotary brush consisting of a series of scraping combs arranged in cylindrical order about the axis of the brush, and comprising each a back or rib which is elastic both torsionally and flexibly, and rigid teeth projecting from such elastic back: substantially as set forth.

3. In a scale or bristle detaching machine, a rotary brush consisting of scraping combs arranged in cylindrical order about the axis of the brush, and consisting each of a rubber rod or bar and wire teeth embedded therein, and projecting therefrom approximately radially with respect to the brush: substantially as set forth.

4. In a scale or bristle detaching machine, a rotary brush comprising combs arranged in cylindrical order about the axis of the brush, and consisting each of a flexible back and rigid teeth projecting from the back, such teeth being bent at the ends and serrated on the outer side of the bend: substantially as set forth.

5. In a scale or bristle detaching machine, in combination with a supporting frame, two rotary brushes having their axes parallel and provided with means for rotating them simultaneously in their bearings; each brush comprising a series of scraping combs arranged in cylindrical order about the axis of the brush, said combs consisting each of a rib or back which is elastic both flexibly and torsionally, and rigid teeth projecting from such elastic back approximately radially with respect to the brush: substantially as set forth.

6. In a scale or bristle detaching machine, in combination with the frame, a rotary brush journaled in horizontal bearings thereon and adapted to scrape the object subjected to its action; a draft band or chain operating vertically in a plane substantially tangential to the brush, and a gripper at the lower end of such draft chain whereby the object may be impelled tangentially with respect to the brush in contact therewith: substantially as set forth.

7. In a scale and bristle detaching machine, in combination with a frame, a pair of rotary brushes journaled thereon in parallel horizontal bearings, having scraping teeth or fingers, and a draft band or

chain depending vertically between the brushes, and a gripper at the lower end of such draft chain, and suitable means for actuating the chain longitudinally upward, whereby an object held between the grippers may be impelled tangentially with respect to the brushes between the same and exposed to them respectively at opposite sides simultaneously: substantially as set forth.

8. In a bristle or scale detaching machine, a rotary brush consisting of a series of scraping combs arranged in cylindrical order about the axis of the brush, comprising each a flexibly and torsionally elastic back or rib and rigid teeth projecting therefrom, in combination with a suitable support or backing for the object to be operated upon, the brush being movable bodily at will toward and from the support or backing: substantially as set forth.

9. In a scale or bristle detaching machine, in combination with the rotary brushes of the character set forth, one of said brushes having its bearings fixed and the other having its bearings movable toward and from the first; the horizontal rock shaft on the frame and suitable connections from the same to the movable bearings; said rock shaft having two lever arms extending in opposite directions and adapted to receive the stress of the weight or spring connected to either of them at preference; whereby the movable brush may normally be held away from or toward the other brush at the will of the operator: substantially as set forth.

10. In a bristle or scale detaching machine, in combination with the frame, a pair of rotary brushes journaled thereon in parallel horizontal bearings, the bearings of one of said brushes being fixed and the bearings of the other brush being movable toward and from the first brush; a horizontal rock shaft on the frame and suitable connections from the same to the movable journal boxes respectively, whereby the rocking of the shaft slides the boxes, said rock shaft being subject to a continuous stress tending to rock it in a direction to force the movable brush toward the fixed brush, and provided with a handle by which it may be operated at will: substantially as set forth.

11. In combination with the frame and the brushes journaled thereon in horizontal parallel bearings, the bearings of one brush being fixed and the other movable toward and from the fixed brush; the beveled gears on the shafts of the brushes respectively; the horizontal shaft F journaled on the frame and having on it beveled gears which mesh with and drive the gears on the shafts and brushes respectively: the gear which drives the movable brush being feathered on the shaft, and one journal bearing of the movable brush having slops which engage said feathered gear to slide it on its shaft: substantially as set forth.

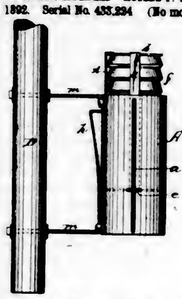
12. In combination, substantially as set forth, the two parallel rotary brushes, the journal bearings of the one being fixed and of the other being movable; the gears on their shafts respectively, and the counter-shaft from which they derive motion, the bearing of the movable brush at the geared end and of the counter shaft at the corresponding end being obtained in one rigid yoke or frame, and the gear on the counter-shaft which drives the movable brush being feathered on said shaft and stopped endwise between the bearings of the shaft on said yoke or frame: substantially as set forth.

13. In combination with the two parallel rotary brushes, the counter-shaft and intermeshing beveled gear by which they are driven; the shaft *k* at right angles to said counter-shaft; the wheel thereon adapted to operate the feeding device; a beveled gear at the end of said shaft; a pair of beveled gears loose on the counter-shaft meshing with the gear on the shaft *k*, and provided on the facing ends of their hubs, respectively, with clutch teeth; a double clutch feathered on the shaft between said toothed hubs; and suitable shipping devices for throwing it into engagement with either of said gears, whereby the feed shaft *k* is rotated in one direction or the other, according to the engagement of said clutch, without change in the rotation of said brushes: substantially as set forth.

14. In combination with the parallel rotary brushes, the draft chain or strap J and the guide over which it passe located above the interval between the brushes; a shaft *k* journaled on the frame parallel to the brushes, and a sprocket wheel therein adapted to engage the draft chain or band; the counter-shaft and the beveled gears by which it drives the brushes; the beveled gears loose on the counter-shaft and the beveled gear on the shaft *k*, which meshes with them, and the clutch feathered on the counter-shaft between them; the shifting lever or fork for shifting the clutch, and the horizontal rods L^4 extending therefrom and provided with the abutment L^{40}, the vertically operated rods R' and R^3 having cams adapted to engage said abutment; the levers P' and P^3, which operate said rods respectively, having loops or eyes through which the two plies of the draft chain pass respectively; and the adjustable knots on said chain, whereby the movement of the chain to either limit determined by the knots operates the clutch to disengage it from its driving gear: substantially as set forth.

15. In combination with the parallel rotary brushes, the hoisting or draft chain and the grippers swiveled to the end of the same, the swivel head and the handle of the gripper to which it is connected having respectively grooves and projections adapted to become engaged by the downward stress of the gripper at either of the two positions which are ninety degrees apart about the swivel axis: substantially as and for the purpose set forth.

493,455. TORPEDO-HOLDER. EUGENE P. TURNER, Elmira, N. Y. Filed May 16, 1892. Serial No. 433,234. (No model.)

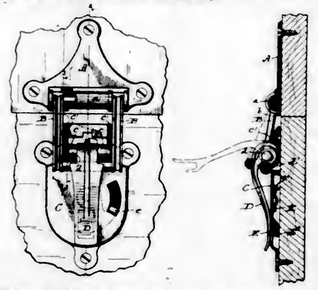


Claim.—1. A torpedo holder, consisting of a casing, and a vertically movable cage inserted therein, comprising heads and bars connecting them, in combination.

2. A torpedo holder, comprising a casing, provided with a vertical slot, a cage within the casing and vertically movable therein and a handle inserted through the slot and connected to the cage, in combination.

3. A torpedo holder, comprising a casing provided with a vertical slot, a cage within the casing and vertically movable therein, a handle inserted through the slot and connected to the cage, and a spring catch mounted upon the casing and adapted to engage with the cage, in combination.

493,456. TRUNK-FASTENING. FRANCIS N. VIOLET, Milwaukee, Wis., assignor of one-half to Burley A. Jacobs, same place. Filed Sept. 1, 1892. Serial No. 444,795. (No model.)



Claim.—1. In a fastening for trunks and other receptacles, the combination of a hinge plate attached to one part and provided with a loop or hasp permanently pivoted or hinged thereto, a latch plate attached to the other part and provided with a projection over which said loop is adapted to be drawn, and a latch pivoted to said latch plate and serving as a lever to carry said loop or hasp over into engagement with said projection and to hold it in engagement therewith, said projection being arranged to take strain exerted through said loop or hasp off from said latch, substantially as and for the purposes set forth.

2. In a fastening for trunks and other receptacles, the combination of a loop or hasp hinged to one part, a latch plate attached to the other part and provided with a projection with which said loop is adapted to engage, a latch pivoted to said plate adjacent to said projection and provided with a keeper which is arranged to enter an opening in said plate, and a catch at the back of said plate, movable into and out of engagement with said keeper, said latch serving as a lever to force the lid closed and the loop over and into engagement with the projection on the latch plate, whereby strain exerted through said loop is taken off from said latch and its connections, substantially as and for the purposes set forth.

3. In a fastening for trunks and other receptacles, the combination of a loop or hasp hinged to one part, a latch plate attached to the other part and provided with a projection with which said loop is adapted to engage, a latch pivoted to said plate adjacent to said

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493,458. FENCE. CLAUDE C. WHEELER, Fairmont, W. Va. Filed Nov. 22, 1892. Serial No. 452,832. (No model.)

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at one side of the traversing jacket 12, means for moving the finishing knife to or away from the said jacket and means for imparting

3. In a fastening for trunks and other receptacles, the combination of a loop or hasp hinged to one part, a latch plate attached to the other part and provided with a projection with which said loop is adapted to engage, a latch pivoted to said plate adjacent to said projection and provided with a keeper which is arranged to enter an opening in said plate, a catch pivoted to the back of said plate and provided with a thumb piece accessible through an opening in said plate for moving it into and out of engagement with said keeper, and a spring connected with said catch and arranged to hold it either open or closed, substantially as and for the purposes set forth.

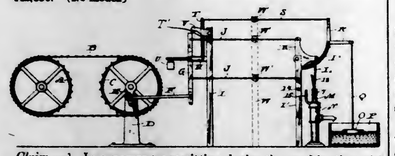
4. In a fastening for trunks and other receptacles, the combination of a loop or hasp permanently hinged to one part, a plate attached to the other part and provided with a projection with which said loop or hasp is adapted to engage, and a latch pivoted to said plate adjacent to said projection and serving as a lever to close the cover or lid of the trunk or receptacle and to force said loop or hasp over said projection, said latch being provided with a hook arranged to force said loop or hasp off from said projection, substantially as and for the purposes set forth.

5. In a fastening for trunks and other receptacles, the combination of a hinge-plate attached to the cover, a loop hinged thereto, a latch-plate attached to the body and provided with a projection with which said loop is adapted to engage, an incline by which said loop is guided over said projection and a latch pivoted to said latch-plate adjacent to said projection and arranged to force said loop over said projection, substantially as and for the purposes set forth.

6. In a fastening for trunks and other receptacles, the combination of a hinge plate attached to one part, a loop or hasp hinged thereto, a latch plate attached to the other part and provided with projections over which said loop or hasp is arranged to close, and with inclines arranged to guide said loop over said projections, and a hooked latch hinged or pivoted between said projections and serving as a lever to force said loop over into and out of engagement with said projections, substantially as and for the purposes set forth.

7. In a fastening for trunks and other receptacles, the combination of a loop hinged to one part, a plate attached to the other part and provided with projections over which said loop is arranged to close, a hooked latch arranged to force said loop over and off from said projections and a catch for holding said latch closed, substantially as and for the purposes set forth.

493,457. POWER TRANSMITTING AND STOPPING DEVICE. JOHN H. WARD, Whitewater, Wis. Filed Aug. 11, 1892. Serial No. 442,839. (No model.)



Claim.—1. In a power transmitting device the combination with a double crank K and connecting rods J, J, of a lever G pivoted medially and provided with a series of apertures in one arm, a rotating wheel C provided with a crank E having a series of apertures therein and a connecting rod F adapted to be connected with the lever G and the crank E through any of the series of apertures in the lever and crank whereby the extent of the motion communicated from the wheel C to the double crank K may be adjusted, substantially as described.

2. The combination with a pump rod L, connected to a double crank K, connecting rods J, J, and tilting lever G of a latch V, a counterpoised bell crank T, a connecting rod S, a bell crank R, and a float O connected with one arm of the bell crank R, substantially as described.

3. The combination, with the tilting lever G of a power transmitting mechanism, a bell crank T provided with a weight U and pin T' connecting rod S, bell crank R, float O connected to the bell crank R, and latch V, substantially as described.

4. In a power transmitting mechanism a rod L provided with a head 4 in combination with a box 5, having an incline 10, a sleeve 7 having an inclined end and provided with an arm 13, a pin 8 provided with a pin 11 and a collar 12 a spring 9 and a tripping device 15, substantially as described.

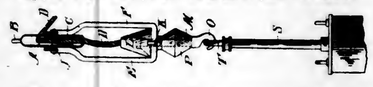
5. In a power transmitting device, the combination, of transmitting mechanism, a vertically-reciprocating rod actuated thereby, said rod formed or provided with a head, a pump-rod entering the head, a spring-actuated pin adapted normally to automatically connect the pump-rod to the bracket, and means for throwing the same out of engagement, substantially as set forth.

493,458. FENCE. CLAUDE C. WHEELER, Fairmont, W. Va. Filed Nov. 22, 1892. Serial No. 452,832. (No model.)



Claim.—As an improvement in fences the combination of the cross stakes A, the under crotch rails C, the upper crotch rails B, the lashings E surrounding the ends of the cross rails B and of the stakes A, the vertical binder-standards F, the rails G, the rail supporting wire *g* having its lower end fastened to the standard F and its upper end encircling the standard above the crotch rails C, and the binder rails H having their lower ends resting on the ground and their upper ends abutting against the cross-stakes A and secured thereto and to the rails of the fence on both sides thereof, substantially as shown and described.

493,459. SUSPENDING DEVICE. MONTRAVILLE M. WOOD, Chicago, Ill. Filed Jan. 11, 1892. Serial No. 417,680. (No model.)



Claim.—1. In a lamp hanger the combination of separable supports with a lamp supporting rope having a conical portion thereon, adapted when drawn upwardly toward the supports to separate them, with a double conical piece movable along such rope and adapted to separate said supporting parts when moved in either direction.

2. In a lamp hanger the combination of a support with a rope, an attachment on such rope and having parts one adapted to separate the supports when moved in one direction and to rest upon them to support the lamp, with a part movable along such rope, and adapted to separate the portions of the support when moved in either direction.

493,460. PROCESS OF MAKING BRANDY-MASH AND COMPOSITION FOR SAME. MOSES WOOL, New York, N. Y., assignor to Solomon L. Kuschewsky, same place. Filed Nov. 8, 1892. Serial No. 451,396. (No specimens.)

Claim.—1. The process of making a brandy mash which consists in preparing a suitable fermenting base, and separately preparing a vinous ferment and supplying the latter with an active fermenting agent, commingling the fermenting base and vinous ferment together to form a yeast, and then mixing the yeast and a saccharine derivative together, and fermenting the resulting mass, substantially as described.

2. A composition of matter for forming a brandy mash, comprising malt and raisins and water as a fermenting base, a vinous ferment, carbonate of ammonia as a fermenting agent, all of which form a yeast or active ferment, and a saccharine fluid derived from dates, combined in substantially the manner and proportions set forth, substantially as described.

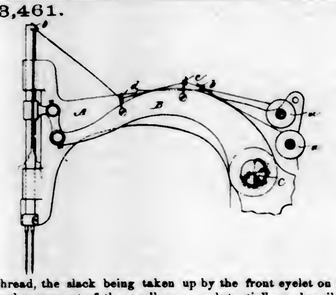
3. A composition of matter for forming a brandy mash, comprising a fermenting base, a fermenting agent, a vinous ferment, and a saccharine fluid derived from dates, combined in or about the manner set forth, substantially as described.

493,461. THREAD-CONTROLLING DEVICE FOR SEWING-MACHINES. RUSSEL G. WOODWARD, Waukegan, assignor to the Union Special Sewing Machine Company, Chicago, Ill. Filed Mar. 27, 1891. Serial No. 386,514. (No model.)

Claim.—1. In combination with the main frame and needle bar of a sewing machine, eyelets secured respectively to the main frame and needle bar, a needle arm with means for vibrating it, a thread eyelet upon said needle arm moving into a plane above the plane in which the eyelet on the main frame is located when said needle arm moves upward, thereby forming slack in the thread, and an additional eyelet also on the needle arm for taking up the slack on the downward movement of the needle arm; substantially as described.

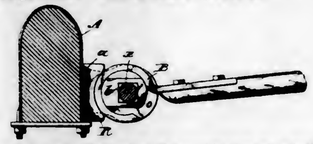
2. In combination with the main frame and needle bar of a sewing machine, the eyelets *b*, *b'*, secured respectively upon the main frame and needle bar, the needle arm B and means for vibrating the same, said needle arm having thread eyelets one in advance of the other and both in advance of the eyelet *b*, the rear eyelet upon the needle arm moving into a plane above the plane in which eyelet *b* is located when said needle arm moves upward thereby forming slack

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in the thread, the slack being taken up by the front eyelet on the downward movement of the needle arm; substantially as described.

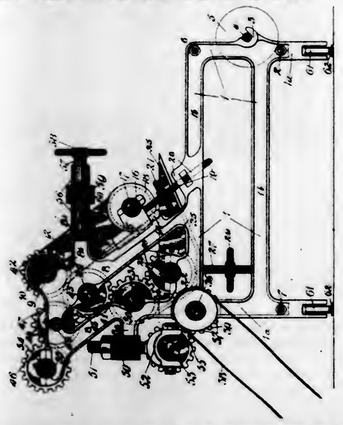
493,462. THILL-COUPLING. CHARLES ANDREW, Cincinnati, Ohio. Filed Sept. 19, 1892. Serial No. 446,280. (No model.)



Claim.—1. In a thill-coupling, the combination of a shaft iron; the thill-jaws: the coupling bolt; an eccentric bushing carried non-rotatively by the bolt; and a ledge or ledges projecting at the outside of one of the jaws engaging the coupling bolt head and retaining the bolt and bushing in adjusted radial positions, substantially as set forth.

2. In a thill-coupling, the combination of a shaft iron having a partial loop; the thill-jaws; the coupling-bolt; an eccentric bushing carried non-rotatively by the bolt having flat sides permitting it to pass the opening in the loop of the shaft iron, and a ledge or ledges projecting at the out side of one of the jaws engaging the coupling bolt head and retaining the bolt and bushing in adjusted radial positions, substantially as set forth.

493,463. MACHINE FOR PAINTING FABRIC MATERIALS. EDWIN ARMITAGE, Newark, N. J., assignor to John L. Armitage, same place. Filed Oct. 1, 1892. Serial No. 447,497. (No model.)

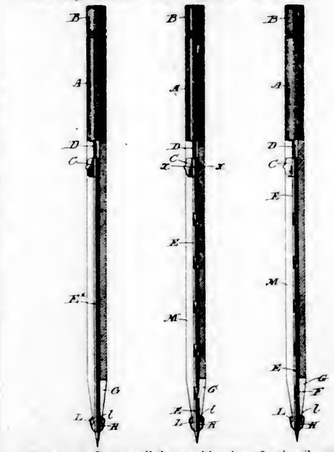


Claim.—1. The combination of the frame 1, the web roll 5 the color box 25, the screw threaded standards 27 for vertically adjusting the color box, the distributing roll 24, the platen roll 32, the traversing jacket 12 the rolls 18 and 11, the screw 19 for moving the roll 18 to or away from the roll 11, the finishing knife 60 arranged at one side of the traversing jacket 12, means for moving the finishing knife to or away from the said jacket and means for imparting a rotary motion to the rolls 24, 32, 18, and 11, substantially as and for the purpose described.

2. The combination of the frame 1, the web roll 5, the color box 25, the screw threaded standards 27 for vertically adjusting the color box, the distributing roll 24, the platen roll 32, the traversing jacket 12, the rolls 18 and 11, the screw 19 for moving the roll 18 to or away from the roll 11, the finishing knife 60 arranged at one side of the traversing jacket 12, means for moving the finishing knife respectively to or away from the jacket, the vertically adjustable roll 54 and the roll 35 and means for imparting motion to the rolls 24, 32, 18, 11, 54, and 35, substantially as and for the purpose described.

3. In a painting machine the combination of the frame 1, the web roll 5, the tension rolls 6, 7, and 54 the vertically adjustable hanger 52, the color box 25, the distributing roll 24, the platen roll 32, the traversing jacket 12, the roll 11 mounted in the top portion of the frame 1, the roll 18 mounted in guide blocks 15 sliding on guides 14, the screws 19 passing through screw threaded collars 20 formed in the frame 1 and adapted to move the guide blocks 15 on said guides in order that the roll 18 can be moved to or away from the roll 11, the finishing knife 60 arranged at one side of the traversing jacket 12, means for moving the finishing knife respectively to or away from the traversing jacket 12, the roll 35 and means for imparting motion to the machine, substantially as described.

493,464. PENCIL. ALEXANDER J. ARTHUR, Fort Dodge, Iowa. Filed Aug. 31, 1892. Serial No. 444,603. (No model.)



Claim.—1. In a pencil the combination of a sheath or barrel provided with a bore to carry the pencil lead, and a longitudinal slot extending from the tip of the pencil backward to the rear end; also with a short longitudinal slot at the tip or point opposite the main longitudinal slot; the tip end of said sheath or barrel being conical in shape; with a slide adapted to move freely back and forth in said bore and longitudinal slot, and a sleeve or thimble adjustable to the form of the said tip and capable of being moved back and forth thereon whereby the two parts of said tip of the pencil may be clamped together or opened; all substantially as shown.

2. In a pencil the combination of a sheath or barrel provided with a bore to carry the pencil lead, and with a longitudinal slot extending from the tip of the pencil backward toward the rear end; also provided with a short longitudinal slot at the tip or point opposite the main longitudinal slot; the tip end of said sheath or barrel being conical in shape; with a slide adapted to move freely in said bore and main longitudinal slot; a series of short pencil leads located and movable in said bore; and a sleeve or thimble adjusted to the form of said tip and capable of being moved back and forth thereon; all substantially as shown.

3. In a pencil the combination of a sheath or barrel provided with a bore to carry the pencil lead and with a main longitudinal slot extending from the tip of the pencil backward toward the rear end; also provided with a short longitudinal slot at the tip or point opposite the main longitudinal slot; the tip end of said sheath or barrel

being conical in form and provided externally with a knob or shoulder; with a slide adapted to move freely in said bore and main longitudinal slot; a series of short pencil leads located and movable in said bore and a sleeve or thimble adjusted to the form of said tip provided with an interior flange or rim engaging with the shoulder of said tip, and capable of being moved back and forth thereon; all substantially as shown.

4. In a pencil the combination of the sheath or barrel provided with a bore, a main longitudinal slot, and a short slot at its tip opposite said main slot, also provided near its tip with a conically shaped knob constituting a shoulder; with a slide adapted to move freely in said bore and main slot, and a sleeve adjusted to the form of said knob and capable of being moved back and forth thereon, and provided at its rear end with an inwardly extending projection adapted to engage with said shoulder; all substantially as shown.

5. In a pencil the combination of a sheath or barrel provided with a bore, a main longitudinal slot and a short slot at its tip opposite said main longitudinal slot; also provided near its tip with a conically shaped knob constituting a shoulder; with a slide adapted to move freely in said bore and main slot; a series of short pencil leads located and movable in said bore, said leads being connected and united by a strip of paper; and a sleeve or thimble adjusted to the form of said knob and movable thereon, all substantially as shown.

493,465. LEAD-PENCIL. ALEXANDER J. ARTHUR, Fort Dodge, Iowa. Filed Sept. 17, 1892. Serial No. 446,225. (No model.)



Claim.—1. A new article of manufacture, a pencil consisting of a holder provided with a tube and having movably located therein a series of two or more leads, mounted upon a thin strip of suitable material; as and for the purpose set forth.

2. In a pencil the combination of the holder, having a tube therein and provided with a sliding collar at its lower end; with two or more pieces of lead pointed at their forward end, and mounted upon a thin strip of suitable material; substantially as and for the purpose set forth.

493,466. BEEHIVE. LEWIS A. ASPINWALL, Jackson, Mich., assignor to the Aspinwall Manufacturing Company, same place. Filed Sept. 30, 1892. Serial No. 447,264. (No model.)

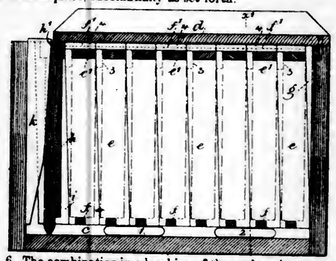
Claim.—1. The combination in a bee hive with the bottom *a* and sides *b b'*, of the end pieces *c c'* made lower than the sides, the movable frames having top bars *d'* that extend over, rest upon, and are supported by the said end pieces, substantially as and for the purposes set forth.

2. The combination in a bee hive with the bottom *a* and sides *b b'*, of the end pieces *c c'* made lower than the sides and with beveled or concaved edges, the movable frames having top bars *d'* that extend over, rest upon and are supported by the said end pieces, the beveled or concaved edges providing room for the fingers in lifting the frames, substantially as set forth.

3. The combination in a bee hive with the cover *d*, of the follower board *h*, the movable frames, and the metal pieces *f'* upon the respective upper corners of the frames, said metal pieces *f'* having ribs 4 upon their upper faces and upon which the cover in part rests, substantially as and for the purposes set forth.

4. The combination in a bee hive with the cover *d*, of the movable frames carrying the combs, the metal pieces *f'* connected to the respective upper corners of the said frames and having wedge shaped corners 3 and ribs 4, substantially as and for the purposes set forth.

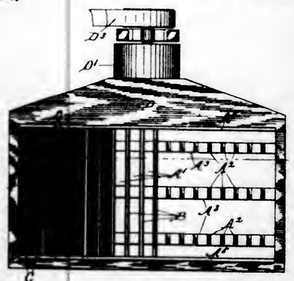
5. The combination with the cover and box in a bee-hive, of the wedge pieces *g g'* within the box and near the corners of the same, movable frames for the combs setting against such wedge pieces and thereby caused to assume an inclined position, and a follower board and means for pressing the same against the movable frames to confine them in place, substantially as set forth.



6. The combination in a bee hive of the wedge pieces *g g'* secured to the side *b* of the hive, movable frames having inclined end pieces *e*, the follower board *h* and its ends *i i'* inclined to the face of said board and bearing against the inclined end pieces *e*, substantially as set forth.

7. In a bee hive, the movable frames composed of the parallel top bars *e'* and lower bars *f*, the end pieces *e* having parallel edges and standing at an inclination, and wedge shaped pieces within the hive, with faces at a corresponding inclination, substantially in the manner and for the purposes set forth.

493,467. APPARATUS FOR DRYING PAPER-BOARD. STEWART R. BAKER, Troy, N. Y. Filed Apr. 12, 1892. Serial No. 428,765. (No model.)



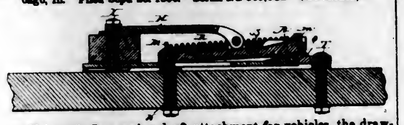
Claim.—In an apparatus for drying paper-boards, the combination with a partitioned drying compartment closed on the bottom and a contiguous side and open on the top and other side respectively to the atmosphere and an air-chamber, of an air-chamber having a downwardly inclined roof adapted to direct air from such chamber downwardly against the bottom of the drying compartment at an oblique angle thereto, and means for forcing air into the air chamber, substantially as described.

493,468. LINK CUFF-BUTTON. WALTER BALLOU, North Attleborough, Mass. Filed June 15, 1892. Serial No. 436,767. (No model.)



Claim.—In link cuff-buttons, the combination with the button 5 having the tail 6, and the link 7 secured in said tail and having its sides bent inwardly as at 8—8, of the button 9 having the hook-shaped shank 10, the end of which is extended to form a jaw, adapted to engage the link 7, as described.

493,469. SPRING DRAFT ATTACHMENT. HIRAM BARBER, Chicago, Ill. Filed Sept. 20, 1890. Serial No. 365,644. (No model.)



Claim.—1. In a spring draft attachment for vehicles, the draw-plate having open chambers at its rear end, and provided with a longitudinal slot and a bolt aperture at its front, in combination with the intermediate draw-bar and the lateral longitudinal stems and their surrounding springs, substantially as specified.

2. In a spring draft attachment for vehicles, the combination of a draw plate having a bolt aperture at its forward end, chambers at each side, open at their forward ends and tops and an intermediate recess at its rear end, a draw bar extending longitudinally over the draw plate to the rear thereof, through said recess, and having lateral plates at its front and rear ends, the springs having their rear ends located in the side chambers of the draw plate and bearing against the forward lateral arms of the draw bar, the draw-bar being provided with apertures by which it may be bolted to a wagon, and the draw plates with a longitudinal slot through which the forward bolt may be passed to permit longitudinal play thereon, substantially as and for the purpose specified.

3. The combination in a draft equalizer of the draw plate P having a bolt aperture in its forward end, lateral chambers and a vertical space at its rear end, the draw bar B extending through the said central space to the rear thereof, and provided with lateral plates *m m'* at its respective ends; the hammer strap H pivoted between the lugs *l l* of the draw-bar and having a bolt aperture at its forward end, the bolt X connecting the hammer strap and draw bar, the rods R R extending through the lateral plates *m m'* and the coiled springs S S surrounding said rods and bearing against the plates *m* and the rear ends of the chambers C C, and the bolts T and K by which the device is attached to the pole of a wagon, the latter passing through a longitudinal slot in the draw bar to permit the draw bar to play back and forth longitudinally, substantially as specified.

493,470. TONGUE-SUPPORT. HIRAM BARBER, Chicago, Ill. Filed Jan. 22, 1892. Serial No. 418,868. (No model.)

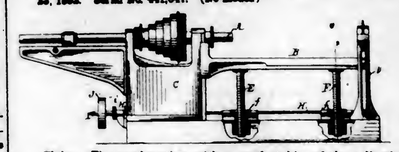


Claim.—1. In a tongue support the frame F consisting of the back plate adapted to be secured to the tongue and provided with the integral perforated right angled brackets *d d* and the rod R for holding the coiled spring S in combination with the draw plate D having at its rear end the hood U formed to inclose the rear end of the spring, said hood being provided with a perforation in its rear wall to receive the rod R and a lug K on its back substantially as and for the purpose described.

2. In a tongue support for vehicles, the spring frame F consisting of the back plate provided with the integral, perforated right angled brackets, the rod F extending through the perforations in the brackets, the coiled spring S surrounding the rod R, the draw plate D provided with the hood U at its rear end to inclose the rear end of the spring, said hood having its rear wall perforated to receive the rod R, the perforated plate M having the recess or opening *j* to receive and support the forward end of the draw plate D, and the bar B, having one end hinged to the front axle and its opposite end to the draw plate all combined and arranged substantially as and for the purpose set forth.

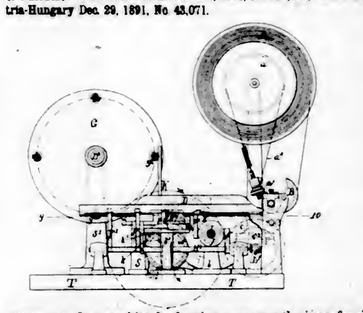
3. In a tongue support for vehicles, the combination of the frame F adapted to be secured to the tongue and provided with the perforated brackets *d d*. The rod R extending through the brackets, the coiled spring S surrounding the rod R between the brackets, the perforated plate M interposed between the forward end of the spring and the front bracket and provided with the opening *j* in its lower edge, the draw plate D provided on its back with a lug K and at its rear end with the hood U the rear wall of which is perforated to receive the rod R and is interposed between the rear bracket and rear end of the spring; with the plate A secured to the front axle, the bar B having its rear end hinged to the plate A and the link bars *b. b.* connecting the forward end of the bar B with the lug K on the draw plate, substantially as and for the purpose set forth.

498,471. DRILLING-MACHINE. ALFRED BETTS, Wilmington, Del., assignor to the Betts Machine Company, same place. Filed July 23, 1892. Serial No. 441,047. (No model.)



Claim.—The combination with a work table, of the adjusting screws E, F and G, nuts thereon, worm wheels secured to or forming part of said nuts, a shaft H, a worm thereon engaging with the worm wheel of the nut on the screw E, and a second worm *k'* also mounted on the shaft H and engaging with the worm wheels of the nuts on the screws F and G, substantially as specified.

493,472. MACHINE FOR MAKING CIGARETTE-MOUTHPIECES. PAUL BLAGER, Paris, France. Filed Oct. 6, 1891. Serial No. 407,885. (No model.) Patented in France Feb. 2, 1891, No. 211,109, and in Austria-Hungary Dec. 29, 1891, No. 43,071.



Claim.—1. In a machine for forming paper mouth-pieces for cigarettes, the combination of a drum A for the roll of paper, a guide B for the paper drawing rollers C, C', a table D and knives E, E', with a rotating nipper H, spring plates F, F', an intermittently rotating plate G, provided with rolling up nippers *g*, and a lever K, all substantially as and for the purposes set forth.

2. In a machine for forming paper mouth-pieces for cigarettes, the combination of drawing cylinders C, C', with a table D and knives E, E' to cut simultaneously two pieces of paper diametrically opposed, and a nipper H actuated by a cam A to carry the second piece into the position previously occupied by the first piece, substantially as set forth.

3. In machines for making paper mouth-pieces for cigarettes, the combination of rotary nippers *g*, with spring plates F, F', to introduce the mouth pieces into nippers *g*, substantially as set forth.

4. In machines for making paper mouth pieces for cigarettes, the combination of an intermittently rotating plate G carrying rotary rolling up nippers *g*, sockets g^4 provided with pins g^5, with a lever K having its free end provided with a notch to engage successively the pins g^5 of the sockets g^4, all substantially as and for the purposes set forth.

5. In machines for making paper mouth pieces for cigarettes, the combination of an intermittently rotating plate G provided with tubes g^4 having rotary rolling up nippers *g* and sockets g^4 provided with pins g^5, the said tubes having slots G^3 in which the pins g^5 work, with a lever K provided with a notch in which the pins g^5 successively engage, and mechanism for actuating the lever K, all substantially as and for the purposes set forth.

493,473. TICKET-HOLDER. GUSTAF J. BORGSTRÖM, Chicago, Ill. Filed Mar. 23, 1892. Renewed Nov. 7, 1892. Serial No. 451,140. (No model.)

Claim.—1. The combination with a holder consisting of a rectangular plate having guides formed along its longitudinal side edges, of a slide consisting of a plate the side edges of which move in said guides which is provided with a spring clamp for clasping one end of a coupon ticket, and which is otherwise so constructed that it can be gaged to move a given distance within the length of said holder each time it is moved, and there retained.

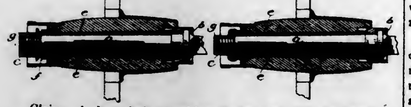
498,478.



2. The combination with a ticket holder consisting of a rectangular plate having guides formed along its longitudinal side edges, of a slide consisting of a plate the side edges of which move in said guides, said holder having a longitudinal central series of indentations in its inner surface and said slide having a protuberance on its under surface which as said slide is moved engages said indentations thereby gaging the distance it is necessary to move said slide, as set forth.

3. The combination with a holder consisting of a rectangular plate having guides formed along its longitudinal side edges, of a slide consisting of a plate the side edges of which move in said guides and which is provided with a spring-clamp whereby the inner end of a ticket can be clasped to said slide, said holder having a longitudinal central series of indentations in its inner surface, and said slide having a protuberance on its under surface which engage said indentations and thereby gage the distance it may be necessary to move said slide, as set forth.

498,474. ATTACHMENT FOR WHEEL-HUBS. JOHN T. BRESSLER, Shepherdstown, Pa. Filed Nov. 11, 1892. Serial No. 451,662. (No model.)

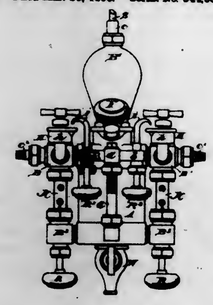


Claim.—1. In a hub attaching device, the ring *f* having the prongs standing in the axial line and the rim *j* standing at right angles to such line, combined with a facing-ring *h* adapted to engage said rim, substantially as described.

2. In a hub attaching device, the ring *f* having the prongs, in combination with the facing-ring and means on the outer end of said pronged-ring for securing said facing-ring against the end of the hub, substantially as described.

3. In a hub attaching device, the combination with the pronged-ring having the rim *j*, of the facing-ring *h* having the notches *i i* in the edge of its central hole corresponding with and engaging the ring-prongs, the said facing ring fitting upon the said pronged-ring against its rim, as shown and for the purpose described.

498,475. LUBRICATOR. FERDINAND RAUHRAUER, Vienna, Austria-Hungary. Filed Mar. 20, 1890. Serial No. 344,608. (No model.)



Claim.—1. In a lubricator comprising an oil reservoir, an oil delivery pipe, a sight feed tube connected at one end with said reservoir and at the other end with the delivery pipe, an auxiliary oil duct also connected with said reservoir and with the delivery end of the sight feed tube, a valve for controlling the flow of oil through the auxiliary oil duct, and a valve having its seat in the delivery end of the sight feed tube below the discharge of the auxiliary oil duct, for the purpose set forth.

2. In a lubricator of the class described, an oil reservoir, a steam condenser in communication therewith, a sight feed tube, an oil delivery pipe, a connection between the receiving end of the sight feed tube and the oil space in the reservoir and between the discharge end of said tube and the oil delivery pipe, an auxiliary oil duct connecting the oil space in the reservoir with the delivery end of the sight feed tube, a valve for controlling the flow of oil through said auxiliary duct, a steam duct leading from the steam space of the condenser across the delivery end of the sight feed and auxiliary oil ducts, and a valve having its seat in the delivery end of said sight feed tube below the discharge of the steam and auxiliary oil ducts, for the purpose set forth.

3. In a lubricator of the class described, the combination with the oil reservoir, A, the condenser, B^1, the sight feed tubes, K, K, having their lower end connected with the oil reservoir by a duct or ducts extending into the same near its upper end, and two oil delivery pipes connected with the upper end of the sight feed tubes and with the steam space of the condenser, of two auxiliary oil ducts, *e*, *e*, and valved branches, *b*, *b*, leading from the upper end of the oil reservoir to the upper end of the sight feed tubes, and valves, B, adapted to seat within the discharge orifice of the sight feed tubes, as and for the purpose set forth.

4. A lubricator in which the oil is displaced by a body of water comprising an oil reservoir, one or more sight feed nozzles connected therewith and discharging oil into the atmosphere, one or more distributing pipes provided with drip cups for catching the oil dripping from the nozzles, and regulating devices for controlling the supply of oil to the distributing pipe or pipes, for the purpose set forth.

5. A lubricator in which the oil is displaced by a body of water comprising an oil reservoir, an oil delivery pipe, a sight feed tube connected with said reservoir and pipe, an auxiliary sight feed nozzle discharging oil into the atmosphere, a delivery pipe provided with a drip cup for catching the oil dripping from said nozzle and regulating devices for controlling the supply of oil to the sight feed tube and nozzle, for the purpose set forth.

6. A lubricator in which the oil is displaced by a body of water comprising an oil reservoir, an oil delivery pipe, a sight feed tube connected with the reservoir and pipe, an auxiliary sight feed nozzle connected with the oil reservoir and discharging oil into the atmosphere, a drip cup connected with the oil delivery pipe for receiving the oil from the sight feed nozzle said nozzle operating jointly with or independently of said sight feed tube and regulating devices for controlling the flow of oil to the delivery pipe, for the purpose set forth.

7. A lubricator in which the oil is displaced by a body of water, comprising an oil reservoir, a condenser in communication therewith, an oil delivery pipe, a sight feed tube connected with the reservoir and delivery pipe, a steam duct connected with the condenser and delivery pipe, an auxiliary sight feed nozzle connected with the reservoir and discharging oil into the atmosphere and operating jointly with or independently of the sight feed tube, a drip cup in communication with the oil delivery pipe, and means for controlling the flow of oil from the reservoir to the sight feed devices, for the purpose set forth.

8. The combination with the oil reservoir and the gage glass connected therewith and having valve seats at opposite ends, of two rigidly connected gravity valves controlled by the pressure within the reservoir to automatically cut off the communication between the same and the gage glass, for the purpose set forth.

498,476. MACHINE FOR APPLYING LABELS TO PLUG-TOBACCO. DAVID J. BURR, Richmond, Va. Filed Apr. 9, 1891. Renewed July 28, 1892. Serial No. 441,541. (No model.)



Claim.—1. In a machine for labeling plug tobacco the combination with a horizontal table and supporting bars pivoted thereto, of a frame located between the upper ends of said bars which are pivoted thereto, a movable head mounted above said frame and held normally by suitable springs, a series of dependent bars, having heads at their lower ends, a movable tray mounted on the table at one end, and mechanism for operating it, said tray being provided with label receptacles and intervening troughs and pads, means for applying glue to the surface of the tobacco, substantially such as described and a tobacco receptacle mounted on the top of the table, the whole arranged to operate as specified.

2. In a machine for labeling tobacco plugs in combination with a table and supporting bars pivoted to the front and rear of the table near one end, the frame pivoted between the upper ends of said bars, the movable head held normally above the said frame by means of springs, the depending bars and heads and the gum tray or pad, substantially as specified.

3. The combination of the supporting bars at the ends of the table, the frame pivoted thereto, the bars carrying the gumming and label applying heads, the movable label carrying plate, the gum tray, and the tobacco receptacle, all arranged to operate substantially as specified.

4. In a machine for labeling tobacco plugs, in combination with the horizontal table and supporting bars pivoted thereto, of a frame pivoted between the upper ends of said bars and carrying a vertically movable head from which depends a series of bars carrying heads, for the purposes described.

5. In a machine for labeling tobacco plugs, in combination with the movable frame and its supporting bars, of the label carrying tray adapted to be adjusted by said bars, carrying rows of label holding cups or receptacles, intervening in position with spaces having absorbent pads, for the purposes specified.

6. The combination in a machine of the nature described with a suitable supporting table having a label holding tray at one end, a gum receptacle at the other, of a movable head with series of dependent label holders arranged over the label holding tray and a second similar movable head with dependent gumming heads arranged over the gum receptacle, whereby a layer of plug tobacco containing a series of plugs may first be gummed and then the labels applied thereto.

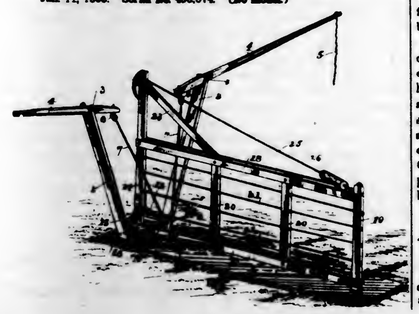
7. The combination in a machine of the nature described with a suitable supporting table of two movable frames, each supporting a vertical moving head upheld by springs and having depending from the lower surface a series of bars carrying heads, a label holding tray and a gumming tray arranged to operate substantially as described.

8. In a machine of the nature described in combination with a suitable table, of a movable gumming head and a gum receptacle beneath the same, a label affixing head and a label holding tray beneath the same and a receptacle for the plug tobacco layers arranged between the movable heads, for the purposes specified.

9. The combination in a machine of the nature described with the movable gumming head, and movable label applying head arranged to operate substantially as described, of an adjustable supporting follower for the layers or sheets of tobacco plugs arranged between the said heads and adapted to be adjusted to bring successive layers of tobacco plugs in position to be operated upon substantially as described.

10. In a machine for labeling tobacco plugs, in combination with a horizontal table, a frame pivoted between the upper ends of bars which bars in turn are pivoted to the table, whereby said frame may be moved longitudinally of said table in the arc of a circle, a head carried by the frame and having a vertical movement therein, a series of bars depending from said head, and a receptacle beneath the frame having separate compartments into which compartments the heads of the dependent bars dip, for the purposes specified.

498,477. GATE. EDWARD CAHILL, Emmetsburg, Iowa. Filed Jan. 11, 1893. Serial No. 458,074. (No model.)



Claim.—The combination of the uprights, the levers pivoted thereto, the downwardly extending rods pivotally connected with said levers, the gate having end bars and top and bottom rails, the angular bar to which said levers are pivoted, secured to the rear end bar and bottom rails of the gate, the bail secured to said end bar and pivoted to the uprights, and the inclined rod, and sliding counterbalance-weight, substantially as described.

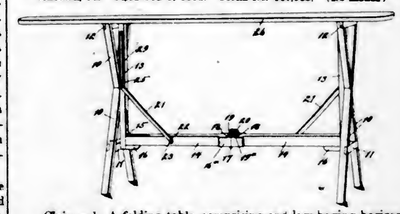
493,478. STOCK WATERING DEVICE. AMOS CAREY, Ashland, Nebr. Filed July 15, 1892. Serial No. 440,143. (No model.)



Claim.—1. A device for watering stock, consisting of a trough provided with a water supply orifice or pipe in its rear, a gravitating lid or nose-gate hinged or pivoted in its rear adapted to close down on said trough, and having an upwardly and outwardly inclined lip at its forward end arranged, when the lid is down, to leave the top of the trough open in front, and a stopper to said supply pipe or orifice pivotally connected with said hinged nose-gate for operation by the latter, in both directions substantially as specified.

2. The combination, of the trough A, having slot-like screw holes *b*, *b*, a tubular backward extension B, and water supply pipe C, in its rear, the hinged gravitating lid or nose-gate D, having an upward open inclined lip *d*, and back ribs *f*; the stopper E, and the rod *e*, connecting the nose-gate with said stopper and constructed with a curl or twist *g*, essentially as shown and described.

493,479. FOLDING TABLE. JOHN CARL and HIRAM A. CARL, Allentown, Pa. Filed Oct. 5, 1892. Serial No. 447,905. (No model.)



Claim.—1. A folding table, comprising end legs having horizontal cross braces at the top and vertical strengthening bars extending downward from the cross braces, stretcher arms hinged together at their inner ends to fold upward and having their outer ends hinged to the lower ends of the vertical bars to abut thereagainst when in a horizontal position, and a detachable top adapted to rest upon the cross braces of the legs, whereby provision is made for forming a long table or a compact stand, substantially as described.

2. A folding table, comprising oppositely arranged pairs of crossed legs, each pair being connected at the top and near the bottom by cross braces, and provided with vertical strengthening bars extending from the top cross brace to the bottom one, stretcher arms hinged together at their inner ends to fold upward and having their outer ends hinged to the lower ends of the vertical bars to abut thereagainst when in a horizontal position, means for locking the legs extended or folded, and a detachable table top adapted to rest upon the top cross brace, substantially as described.

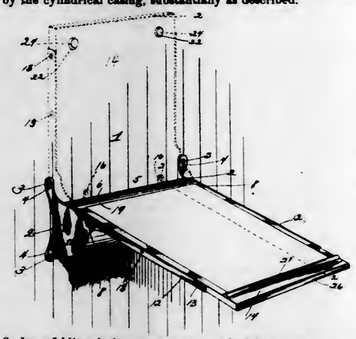
3. A folding table, comprising end cross legs having connecting cross bars at the top, vertical bars secured at the top cross bars and extending downward on the inner sides of the legs, stretcher arms hinged to the lower portions of the vertical bars and hinged together at their inner ends, a fastening device to secure the inner ends of the stretcher arms together when said arms are in a horizontal position, swinging hook braces pivoted on the vertical bars and adapted to engage studs on the stretcher arms, a swinging hook brace pivoted to one of the vertical bars and adapted to engage a stud on the opposite bar when the table is folded, and a detachable top for the table, all substantially as described.

493,480. ADJUSTABLE DESK. CHARLES M. CHILDS, Kansas City, Mo. Filed Oct. 20, 1892. Serial No. 449,433. (No model.)

Claim.—1. A folding desk or arm rest, comprising a cylindrical casing, a board or plate secured to and projecting from said casing, and vertically arranged and stationary guide and supporting castings

pivotally connected to said cylindrical casing at each end thereof, substantially as described.

2. A folding desk or arm rest, comprising vertically arranged supporting castings secured to the wall in any suitable manner a suitable distance apart, a cylindrical casing located and revoluble vertically between said supporting castings, inclosing end plates pivotally connected to the supporting castings, and a connecting plate segmental in cross section connected at each end to said inclosing plates, and a second connecting plate segmental in cross section, having its longitudinal edges adjacent to the longitudinal edges of the first connecting plate and provided at its rear and inner longitudinal edge with laterally extending and horizontal pivot pins engaging recesses or apertures in the periphery of the inclosing plates, and having elongated apertures or slots near its forward longitudinal edge adapted to engage locking lugs or plates secured to the board or plate carried by the cylindrical casing, substantially as described.



3. In a folding desk or arm rest, a cylindrical casing open at each end, and carrying an extension board or table, and plates adapted to close the ends of said cylindrical casing and to inclose the outer edges of the board or table, substantially as described.

4. In a folding desk or arm rest, a cylindrical casing having segmental and elongated slots in its opposite ends, concentric with the axis of the cylinder and end supporting castings, secured to the wall, and guide pins projecting from the inner face of the end supporting castings, and adapted to engage the slots in each end of the cylindrical casing, substantially as described.

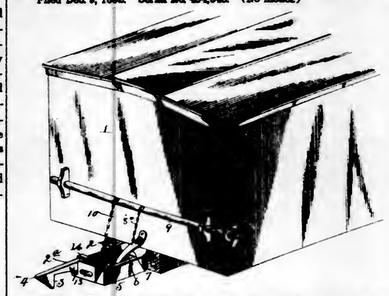
5. A cylindrical casing, comprising segmental and elongated plates, and a board or table having its rear edge beveled and arranged concentrically to the axis of the cylinder formed by segmental plates, and lugs or plates secured to the board and adapted to engage apertures in the lower segmental plate near each end thereof, substantially as described.

6. In a folding desk or arm rest, a cylindrical casing, formed of two segmental and elongated plates permanently adjacent at their rear or inner longitudinal edges, an end plate, comprising a circular enlargement adapted to fit against the segmental ends of the plates forming the cylinder, and provided each with an outstanding arm parallel to each other, substantially as described.

7. In a folding desk or arm rest, a cylindrical casing, formed of two segmental and elongated plates having their rear or inner longitudinal edges adjacent to each other, and end plates, comprising a circular enlargement adapted to fit against the segmental ends of the plates forming the cylinder, and provided each with an outstanding arm parallel with each other, and having a board or plate secured between said parallel arms and having its rear edge beveled concentrically to the axis of the cylindrical casing, substantially as described.

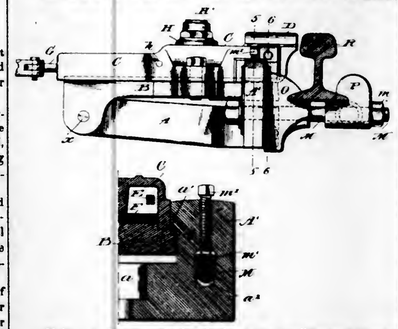
8. In a folding desk or arm rest, a cylindrical casing comprising end plates having extension arms projecting therefrom, a segmental plate connecting said end closing plates, and a second segmental plate hinged at its rear or inner edge between said end plates, and having slots or openings in its forward edge, a board carried between the extension arms of the end plates, and having locking lugs or plates at its rear edge adapted to engage normally the slots or openings in the forward edge of the segmental plate, and openings or perforations also provided in the said board, and a vertically adjustable transversely extending bar, having screws or projections depending from the under side and engaging the perforations of the board, and springs interposed between the under side of the board and the headed end of the screw or projection, and adapted to hold the bar firmly upon the upper side of the board, substantially as set forth.

493,481. CAR-COUPLING. HENRY D. CLARK, Hub City, Wis. Filed Dec. 9, 1892. Serial No. 454,640. (No model.)



Claim.—In a car coupler the combination with a draw bar having a flange on one side with a groove thereon a hook pivoted to one side and provided at the opposite side with a guide-way having a beveled rear wall, and an aligned recess in rear thereof with beveled front and rear walls, and a spring with a flange at its free end abutting against the shank of said hook, of the arm pivoted to the front of the car and having its free end extending into said recess, the transverse rock shaft and the chains connecting said shaft with the pivoted arm and coupling hook, substantially as described.

493,482. TORPEDO-SIGNAL FOR RAILWAYS. HENRY F. CLARK, Poughkeepsie, N. Y., assignor to the National Switch and Signal Company, Easton, Pa. Filed Dec. 17, 1892. Serial No. 455,459. (No model.)



Claim.—1. In a torpedo signal a hanger or anvil support, recessed for the passage of the free end of the anvil, in combination with a vibratory anvil mounted thereon, and extending into or through the recessed portion of the hanger, and a spring for holding the anvil against the top of the recessed portion of the hanger, substantially as and for the purposes set forth.

2. The combination of the hanger provided with side lugs having shoulders upon their interior opposite faces, with the anvil hinged at the rear to the hanger, and passing at the front under the shoulders on the lugs, and the spring interposed between the hanger and the anvil, substantially as and for the purposes hereinbefore set forth.

3. The combination of the rail, the clips, the holding bolts, the hanger, provided with vertical slots for the passage of the bolts, and the saddles and set screws for adjusting the hanger vertically with relation to the clips, substantially as and for the purposes hereinbefore set forth.

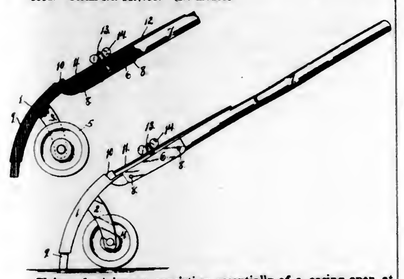
4. In combination with the exploder its spring and cross pin, the reciprocating torpedo slide having side wings provided with the end inclines, and the lifting levers having friction rollers to engage the side wings of the slide, and provided with slotted holes for receiving the ends of the cross pin of the exploder, substantially as and for the purposes hereinbefore set forth.

5. In combination with the housing, the anvil and the slide, the removable magazine tube and the spring impelled follower or plunger contained therein, substantially as and for the purposes hereinbefore set forth.

6. The removable magazine tube formed at the end adjoining the

torpedo slide, with a contracted opening having an outwardly beveled edge, and the plunger and its impelling spring contained in said magazine, in combination with the frame or casing in which said magazine is seated and the torpedo slide, substantially as and for the purposes hereinbefore set forth.

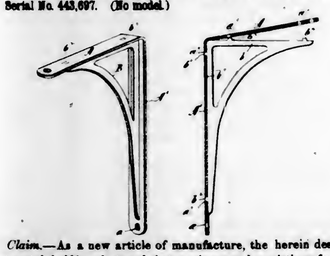
493,483. BROOM. JOHN A. COOK, Buffalo, N. Y. Filed Oct. 24, 1892. Serial No. 449,733. (No model.)



Claim.—1. A broom consisting essentially of a casing open at top and bottom, having wheels to carry and a handle to propel the same, and a brush of any suitable material carried within the casing, its lower end projecting from the bottom of the casing and its upper end having attached thereto adjustable means for fixedly holding the brush in the casing in any desired position, substantially as shown and described.

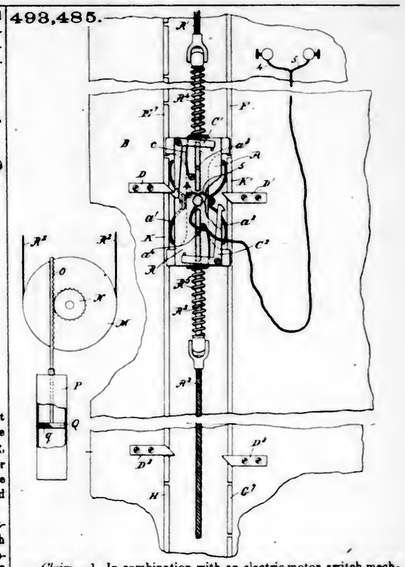
2. A broom consisting of the casing 1, having open top and bottom, and mounted upon wheels and secured to the handle 7, the brush 9, adjustable within the casing, its lower end protruding from the casing and its upper end having the slotted strap 11, 12 and the pin 13 and thumb-nut 14 for engagement with the slotted strap all substantially as and for the purpose stated.

493,484. SHELF-BRACKET. THOMAS CORSCADEN, New Britain, Conn., assignor to the Stanley Works, same place. Filed Aug. 22, 1892. Serial No. 443,697. (No model.)



Claim.—As a new article of manufacture, the herein described sheet-metal shelf-bracket made in two pieces, and consisting of a sheet-metal body and a sheet-metal brace, the said body consisting of a long narrow strip of sheet-metal bent transversely between its ends at a right angle, to form the shelf-plate and the wall-plate of the bracket for which the said body constitutes a continuous, jointless wrought-metal spine or back-bone, both of the said plates being perforated at or near their outer ends, and one or both of them being perforated at or near their inner ends, and the said sheet-metal brace being located between the said wall and shelf plates at a right angle to the plates thereof, and having two straight edges arranged at a right angle to each other, and furnished with retaining lugs corresponding to the said perforations in the said plates, and the said perforations and lugs being relatively arranged so that the former, or some of them, may only be inserted into the latter when the said wall-plate and shelf-plate of the body are at an angle to each other greater than a right angle, and the said plates being also furnished with additional perforations for the attachment of the bracket to the wall, and for the attachment of a shelf to the bracket, substantially as described.

493,485. ELECTRIC SWITCH. ANDREW M. COYLE, Baltimore, Md., assignor to the Standard Screw Elevator Manufacturing Company, same place. Filed Mar. 3, 1892. Serial No. 423,600. (No model.)



Claim.—1. In combination with an electric motor, switch mechanism for making, breaking and reversing the circuit connections thereof, such mechanism comprising a slideway having on one side contact plates connected through resistances with one pole of the motor and opposite these a single plate connected with the other pole, a second series of plates electrically connected with said resistances but arranged on the opposite side of the slideway from the first series, a complementary single contact plate opposite the second series, and a slide carrying brushes adapted to make contact with said plates, said brushes being connected respectively with the direct and return wire of the supply-circuit, substantially as described.

2. An electric switch mechanism comprising in combination, a slide carrying brushes connected respectively with the two conductors of the supply or main circuit, a slideway in which said slide is adapted to move, a series of resistances, a series of terminal plates in said slideway with which said resistances are electrically connected, a second series of terminal plates arranged in said slideway on the side opposite to the first and connected each with one of the first series, the two series being separated by a space of greater length than said slide, so that as said slide is moved from its intermediate position in either direction it completes the main circuit first through all the resistances and cuts these out one by one as it approaches the extremity of its path, substantially as described.

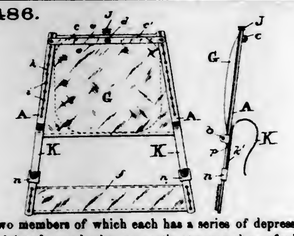
3. In an electric switch mechanism, the combination with an electric circuit, of a movable part or slide carrying contact springs or brushes, and fixed contact plates for completing said circuit through said springs or brushes, a stop or detent in the path of said slide, a catch carried by the latter and engaged by said stop when the slide approaches the end of one of said plates, a spring through which the power to move said slide is applied, and means for disengaging said catch from said stop when said spring is compressed to a certain degree, substantially as described.

4. In an electric switch mechanism the combination of the slide carrying brushes for making contact with fixed terminal plates, a cord for drawing said slide in either direction, springs through which the pull of said cord is transmitted to said slide, stops on opposite sides of said slideway and adjacent to the ends of said contact plates, catches, one on each side of said slide and adapted to be engaged by said stops, and pins acting to disengage said catches and release the slide, so that the latter receives an impulse from the energy stored in one of the springs during the period of arrest, substantially as described.

493,486. HEAD-REST. WILLIAM O. CRAIN, Baltimore, Md. Filed Aug. 6, 1892. Serial No. 442,405. (No model.)

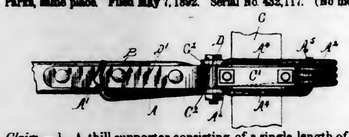
Claim.—A head-rest for car-seats comprising a pair of jointed

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side-bars two members of which each has a series of depressions in one face; a jointed spreader-bar connecting two members of said side-bars; a flexible rest-piece supported by said two members; a band connecting the other two members of the jointed side-bars; and clips fitted to slide on the members of the side bars having the depressions in them,—said clips having projecting spring-shanks which lie against the flat sides of the side-bars and are provided with pins to engage the depressions therein, and said shanks formed into hooks which straddle the seat-back.

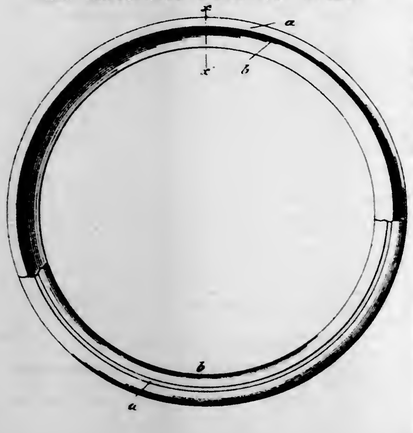
493,487. THILL-SUPPORT. WILLIAM R. DERRICK, Lansinburg, N. Y., assignor to Charles R. Peabody, Charles W. Parks, and Stephen Parks, same place. Filed May 7, 1892. Serial No. 432,117. (No model.)



Claim.—1. A thill supporter consisting of a single length of bent wire comprising a supporting arm with an end-offset, an attaching shank composed of two portions of the wire approximately parallel with each other, an upwardly inclined bend which unites the parallel portions, a single series of springs-coils which connects one of the parallel portions with the supporting arm, and an end offset on the other parallel portion inserted within the coils, substantially as described.

2. The combination with a thill-coupling and vehicle axle; of a bent wire thill-support having a supporting arm with an end offset in engagement with the thill, parallel portions of the wire in engagement with the lower side of the axle on opposite sides of the socket-plate, an upwardly inclined bend which connects the parallel portions in engagement with the head of the thill-iron, a series of spring coils which connects one of the parallel portions with the supporting arm in engagement with the rear side of the coupling clip, and an end offset on the other parallel portion inserted within the coils, substantially as described.

493,488. PNEUMATIC TIRE. CHARLES E. DURYEA, Springfield, Mass. Filed Sept. 5, 1892. Serial No. 445,087. (No model.)



Claim.—1. A pneumatic tire comprising an air-tube and a retaining portion which consists of textile strands knotted together at suitable intervals, substantially as and for the purpose set forth.

2. In a pneumatic tire the combination with the air-tube of the retaining section consisting of flexible strands positively united, as by knotting, at suitable intervals, and the outer elastic tread cover or shoe, substantially as described.

3. The combination with a rim, of the air-tube of a pneumatic tire seated thereon, a retaining portion consisting of flexible strands positively united at suitable intervals, which portion overlies the air-ring and has its edge portions in engagement with the sides of the rim, and the tread cover or shoe for the tire, substantially as described.

4. The combination with a rim having at its side an annular recess with lips thereof turned toward each other to form a contracted orifice for said recess, of an inflatable air-ring encircling and seated on said rim, the retaining cover, *d*, substantially as described, and the tread cover or shoe having their edge portions at one side secured to one side of the rim, and the shoe having its other edge portion extended into said recess and lying against one of said lips, and the said retaining cover having its other edge portion extended into said rim-recess and connected to a strip, *g*, which is located therein to lie against the other of said lips and against the adjacent edge portion of the shoe, substantially as and for the purposes set forth.

5. For a pneumatic tire a retaining band consisting of strands of textile united material at suitable intervals, said band being provided at their edges with bead-forming strips, *g*, substantially as described.

6. The combination with a rim having at each side the outwardly opening recess, with a contracted orifice, of the air-tube, the retaining cover, *d*, substantially as described, with the edge strips, *g*, *g*, and the tread-shoe having its edge portions and the beaded edge portions of the retaining cover, *d*, entered and engaged within the said side recesses of the rim, substantially as and for the purposes set forth.

7. A rim consisting of external and internal annular sections, the former being of an outwardly open trough form with edge lips turned inwardly toward its axial center, and the internal section being in the form of an inwardly opening trough encircled by and having the intermediate portion of its outer surface in contact with and secured to the intermediate inner surface of the external section and said internal section having edge lips turned toward the lips of the external section to form the side recesses with the contracted orifices, substantially as described.

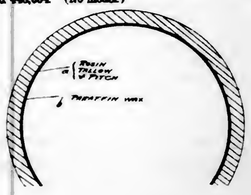
8. A rim consisting of an external, annular section of outwardly opening trough form with annular edge lips inwardly turned and an internal section of inwardly opening trough form and having at the edge portions the outwardly turned annular lips, the external section having the intermediate portion of its inner surface encircling and in contact with the intermediate portion of the internal section and secured to said internal section by heating and shrinking on, substantially as described.

9. In combination, a rim and a pneumatic tire and an inflating tube arranged to lie between the rim and a portion of the tire and to be automatically closed by the pressure of the portion of the tire in contact therewith, which forces the same against the rim, substantially as described.

10. In combination, a rim and a pneumatic tire and an inflating tube arranged to lie between the rim and a portion of the tire and have a portion extended beyond the rim and to be automatically closed by the pressure of the portion of the tire in contact therewith which forces same against the rim, and means for confining the free end of said tube closely against the rim, substantially as described.

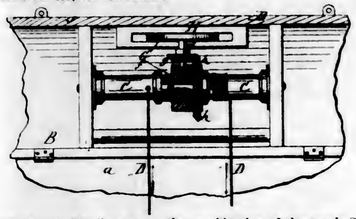
11. In combination, a rim and a pneumatic tire, and an inflating tube for the air-ring of the tire arranged to lie between the rim and a portion of the tire, said tube having a portion which is extended outwardly beyond the rim and tire and adapted to be inturned upon its portion which is between the rim and tire portion, and to be automatically closed by the inflation pressure upon the portion of the tire in contact therewith, substantially as described.

498,489. COVERING FOR PIPES. GWILLYM EDWARDS, Edwardsdale, and ROBERT BLACKLADGE, Larksville, Pa. Filed Oct. 12, 1892. Serial No. 448,634. (No model.)



Claim.—A covering for metallic surfaces, consisting of an inner coating of rosin, tallow and pitch mixed together in substantially the proportions set forth, and an outer coating of paraffine-wax.

493,490. FIRE-ESCAPE. VANDERLYN H. FELT, Kendall, N. Y., assignor of one-half to Charlie D. Jones, same place. Filed June 6, 1892. Serial No. 435,763. (No model.)

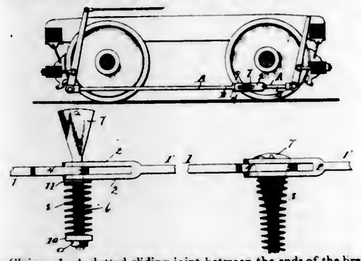


Claim.—1. In a fire escape, the combination of the spools C C, the cord D attached thereto to wind and unwind in reverse directions, the wheel G resting in the opening *f*, the gears *g h* connecting the wheel with the spools, and brakes connected with the wheel, thrown out by centrifugal action and retracted by springs, as described.

2. In a fire escape, the combination of the spools C C, the cord D attached thereto to wind and unwind in reverse directions, the wheel G resting in the opening *f*, the gears *g h* connecting the wheel with the spools, the pivoted arms I I, the shoes *m m* jointed to said arms, and the reacting springs *w w*, arranged to operate in the manner and for the purpose specified.

3. In a fire escape the combination, with the cord D, of the corrugated rod *o*, the flexible strap *p*, and the loop *r*, arranged to operate in the manner and for the purpose specified.

493,491. CAR-BRAKE. GEORGE J. FERGUSON, Greenville, Tex. Filed June 27, 1892. Serial No. 438,171. (No model.)



Claim.—1. A slotted sliding joint between the ends of the brake connecting rods in combination with a wedge operating in said slots substantially as set forth.

2. A sliding joint between the ends of the brake connecting rods, in combination with wedge devices to automatically absorb the slack substantially as set forth.

3. The combination of the brake connecting rods, a slotted fork, a slotted bar capable of parallel movement within said fork, a wedge constructed to operate within said slots, a spring bearing against the slotted fork, and against a retaining nut on the end of the wedge substantially as set forth.

4. A slotted sliding joint between the ends of the brake connecting rods, in combination with a wedge or cam device to shorten said connecting rods substantially as set forth.

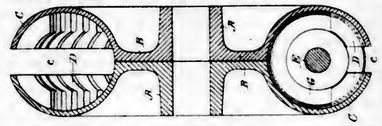
493,492. METAL RAILROAD-TIE. CHARLES L. FITZHUGH, Allegheny, and SEWARD S. RABBITT, Pittsburg, Pa. Filed Nov. 9, 1891. Serial No. 411,559. (No model.)



Claim.—1. As a means for holding railway rails on the track, the combination of rail-underlying bars having projections which engage the rails, and means whereby the bars are forced in proper directions to clamp the rails, the bars having end projections at one end only and situate respectively on the side of the permanent way opposite the rail-engaging projections, said end projections having an inclined bearing at the sides of the permanent way and being adapted to be actuated by vertical pressure on the bars to draw the same lengthwise and to tighten the hold on the rails; substantially as and for the purposes described.

2. As means for holding railway rails on the track, the combination of underlying bars having projections which engage the same sides of the rails, an intermediate bar having projections which engage the opposite sides of the rails, and means whereby the outer and middle bars are forced in the proper directions respectively; substantially as and for the purposes described.

493,493. WORM-GEARING. CHARLES W. FOWLER, Baltimore, Md. Filed May 20, 1892. Serial No. 433,718. (No model.)



Claim.—1. A worm-gearing comprising a driving shaft having a worm thereon, and a worm-wheel having a rim partly surrounding the said shaft and worm, the teeth engaging the worm being formed on the inner face of the rim, and the said driving shaft projecting beyond the circumference of the worm-wheel, substantially as described.

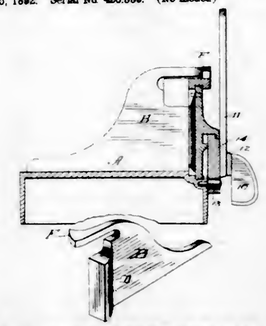
2. A worm-gear comprising a worm-wheel having a hollow rim formed with an annular slot therein, the teeth being on the inside of said hollow rim, a shaft passing through said slot and a worm on the shaft engaging the teeth, substantially as described.

3. A worm gear comprising a worm-wheel having a hollow rim, and composed of two like parts the plane of division passing centrally through the hub, web and rim, and having also an annular slot formed between the outer edges of the two parts, the teeth being on the inner face of the hollow rim on each side of the slot, a shaft passing through said slot between the two parts of the worm-wheel and a worm on said shaft engaging the teeth in the hollow rim substantially as described.

4. The combination with a worm wheel having a rim provided with teeth on the inside or side toward the center of the wheel, of a shaft carrying a hub of spindle shape, and threads on the hub engaging the said teeth, substantially as described.

5. The combination with a worm-wheel having a rim provided with teeth on the inside, or side toward the center of the wheel, of a shaft carrying a hub of spindle shape, and threads on said hub diminishing in diameter toward the ends of the same, substantially as described.

493,494. MITERING-MACHINE. WILLIAM R. FOX, Grand Rapids, Mich., assignor to the Fox Machine Company, same place. Filed Feb. 5, 1892. Serial No. 420,389. (No model.)



Claim.—1. In a mitering machine, a gage having a curved bearing face curved on an arc struck from a point in the line of its shearing edge, in combination with a post having a corresponding bearing face, substantially as described.

2. In combination the main frame having a guide way, the knife carriage adapted thereto and having outwardly projecting knives, said frame having a portion extending adjacent to guide way and out-

side of the line of projection of the knives' edges when the carriage is in normal position the lever for operating the carriage and a weight

ingress of air between the fount and shell of the lantern is prevented, substantially as set forth.

in an opposite direction to those of the other side, substantially as

same, a vertically movable lever pivoted beneath the ratchet wheel,

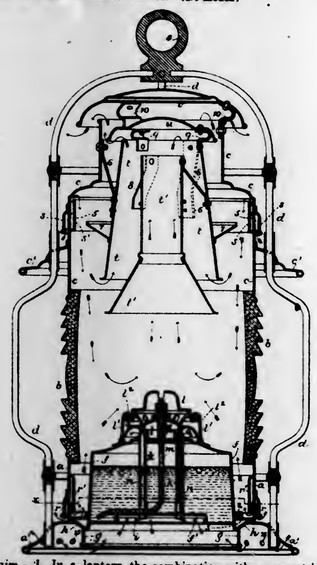
side of the line of projection of the knives' edges when the carriage is in normal position the lever for operating the carriage and a weight for holding the carriage in normal position with its knives shielded by the frame, substantially as described.

3. In combination the frame comprising the upper and lower ways the carriage extending across between the guide ways and movable therein, the knife arranged alongside the said carriage with its body portion bearing thereagainst throughout its extent, both the said knife and carriage having an extension above the line of cut which extensions are secured together, substantially as described.

4. In combination the frame comprising the guide ways, the carriage extending across between the guides, the knife having its body portion secured to the carriage with its cutting edge inclined and projecting beyond the carriage and ending in a forward point 15 at the top of the cutting edge the said knife and carriage having extensions above said point secured together, substantially as described.

5. In combination the frame comprising the guide ways, the carriage extending across between the guides, the knife having its body portion secured to the carriage with its cutting edge inclined, projecting beyond the carriage and ending in a forward point 15 at the top of the cutting edge, the said knife having an extension above the point 15 and the said carriage having an extension above the said point and reaching forward alongside the knife extension and secured thereto.

493,495. LANTERN. JOSEPH FUDOK, New Brighton, N. Y. Filed Mar. 23, 1892. Serial No. 426,666. (No model.)



Claim.—1. In a lantern the combination with a removable oil fount and burner, of a horizontally disposed perforated plate connected to the base of the oil fount and an air chamber between the perforated plate and the bottom plate of the fount, air tubes opening into this air chamber and passing entirely through the fount, a curved or turned over deflector at the upper part of the fount and surrounding the base of the burner and beneath which the air tubes open for the passage and outward deflection of air before it passes up to the flame, substantially as specified.

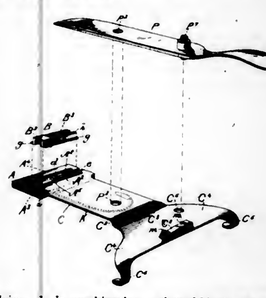
2. In a lantern the combination with a perforated base *a'*, of the oil fount, its imperforate flaring base *g* extending down below the perforations in the base *a'*, the recessed bottom *f'*, the perforated plate *i*, vertical air tubes *n* extending through the top and bottom of the oil fount, and the circumferential deflecting plate *o*, substantially as set forth.

3. In a lantern the combination with a perforated base *a'*, the shell *a* and notched plate 3, of the removable oil fount *f*, its locking pin 2, the flaring base *g* and circular conical flange *h*, the edge of the flange *h* fitting in the angle formed by the plate 3 and shell *a*, whereby ingress of air between the fount and shell of the lantern is prevented, substantially as set forth.

4. In a lantern the combination with the oil fount, burner and glass *b*, of the base *a'*, the lower shell *a* with perforations around the same, the outer and inner shield plates *r r'* secured to opposite surfaces of the shell *a* and extending over such perforations with passages between the shield plates and through the perforations for the ingress of air to the flame, substantially as specified.

5. In a lantern the combination with the oil fount and burner, of the upper shell *c* with perforations around the same and the shield plates *s s'*, the tubes *t t'*, the domes or hoods *u v* over the tube *t* and shell respectively, the brackets and arms by which the parts are connected to and supported by the shell *c* and the deflector 7 around the tube *t*, whereby the products of combustion escape by the tube *t* and air through the openings 5 in the shell *c* is allowed to pass in between the case and the tube *t*, and the entrance of air beneath the dome *v* is prevented, substantially as set forth.

493,496. HEMSTITCHING ATTACHMENT FOR SEWING-MACHINES. MARY E HALL, Boston, Mass. Filed Sept. 15, 1892. Serial No. 445,996. (No model.)



Claim.—1. In combination, a slotted block, means to fasten said block in position under the presser-foot of a sewing machine, a feed-dog located, and free to move to and fro in said slotted block, and having its upper and under sides exposed, and it and said block relatively adapted for the needle to move therethrough, and the stitches to pass therefrom, and means to automatically move said feed-dog in one direction on said block, substantially as described, for the purposes specified.

2. In combination, a slotted block, a spring arm in extension and at one side of said block and adapted to be secured to the cloth or bed plate of a sewing machine, and fasten said block in position under the presser foot, a feed dog located, and free to move to and fro in said slotted block, and having its upper and under sides exposed, and said block relatively adapted for the needle to move therethrough, and the stitches to pass therefrom, and means to automatically move said feed-dog in one direction on said block, substantially as described, for the purposes specified.

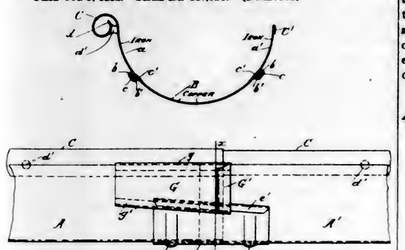
3. In combination, a slotted block, a spring arm in extension and at one side of said block and adapted to be secured to the cloth or bed plate of a sewing machine, and fasten said block in position under the presser foot, means held on said spring-arm extension and consisting of a swinging lever at one end bearing on said extension and a fixed cam edge, in position as said lever is swung to work on the under side of it, a feed dog located, and free to move to and fro in said slotted block, and having its upper and under sides exposed, and it and said block relatively adapted for the needle to move therethrough, and the stitches to pass therefrom, and means to automatically move said feed-dog is one direction on said block, substantially as described, for the purposes specified.

4. A slotted block A, having a bridge A^3, A^4, lengthwise thereof and its portion A^4 above its portion A^3 and said portion A^4 provided with a needle hole *d* and a throat *e* leading therefrom, means to fasten said block in position under the presser foot of a sewing machine, a feed-dog, located and free to move to and fro in and to straddle the lower portion A^3 of said bridge of said slotted block, and to have its upper and under sides exposed, and means to automatically move said feed dog in one direction on said block, substantially as described, for the purpose specified.

5. In combination, a slotted block A and a feed-dog B which is located and is free to move to and fro in said slotted block and has its upper and under sides exposed and provided with parallel transverse ratchet serrations, the incline faces of which on the one side are

in an opposite direction to those of the other side, substantially as described, for the purposes specified.

493,497. EAVES-TROUGH. WILLIAM S. HARRIS Niles, Ohio. Filed Oct. 5, 1892. Serial No. 447,930. (No model.)



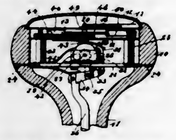
Claim.—1. An eaves trough, provided with sides, and a separate bottom portion of non-corrosible material permanently secured to the sides, substantially as set forth.

2. An eaves trough, provided with sides, and a separate bottom portion of non-corrosible material, said sides and bottom portion being permanently connected together by interlocking hooks, substantially as set forth.

3. An eaves trough, provided with sides having hooked lower edges, and a separate bottom portion having offsets and hooks at its upper edges interlocking with and secured to the said hooked edges of the sides, whereby the trough has a smooth inner surface, substantially as set forth.

4. The combination, with the telescopic ends of two eaves troughs provided with scrolls having internal hooked edges *d*, of a curved band provided with a horizontal hooked edge engaging with the said hooked edges *d* and having the inclined hooked edge *c'*, and the sliding wedge-shaped fastener provided with the hooked edges adapted to engage with the edge of the eaves trough and with the said edge *c'* of the band, substantially as set forth.

493,498. REGISTERING OR COUNTING HAND-STAMP. SAMUEL A. HARRISON, New York, N. Y. Filed July 2, 1892. Serial No. 438,761. (No model.)

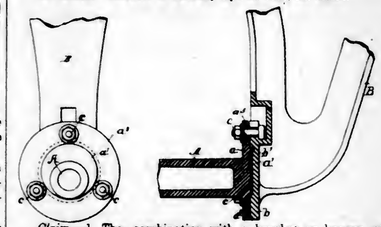


Claim.—1. A counting machine, comprising a case having an elongated shank, a numbered dial arranged in the top of the case, indicating hands held to move over the dial, a gear mechanism for moving the hands so as to indicate consecutive numbers, a vertically rotating ratchet wheel operatively connected with the gear mechanism, a tilting lever pivoted beneath the ratchet wheel, a pawl pivoted to one end of the lever and held to engage the teeth of the ratchet wheel, and a vertically movable shaft pivoted to the opposite end of the lever, and also connected with a stamp or die, substantially as shown and described.

2. A counting machine, comprising a case having a dial in the top, with concentric rows of marks arranged to indicate units, tens, hundreds, and thousands, indicating hands held to move over the units and tens and hundreds and thousands marks, a revoluble vertical shaft to which the units hand is secured, a ratchet wheel journaled loosely on the shaft and held to carry the hundreds hand, an intermediate gear wheel geared to the shaft and held to turn the ratchet wheel a distance of one notch at every two revolutions of the shaft, a pawl and ratchet mechanism adapted to turn the vertical shaft, and a shaft extending longitudinally downward from the case and adapted to actuate the pawl and ratchet mechanism by endwise pressure upon it, substantially as shown and described

3. A counting machine, comprising a case having an elongated shank, a dial held in the top of the case and provided with concentric numbered marks, a central vertical shaft extending through the dial and carrying a hand arranged to express units and tens, a vertically rotating ratchet wheel geared to the central shaft so as to turn the same, a vertically movable lever pivoted beneath the ratchet wheel, a hooked pawl pivoted to one end of the lever and held to engage the ratchet wheel, a shaft pivoted to the opposite end of the lever and held to slide in the shank, the shaft having its lower end connected with the stamp or die, an intermediate gear wheel geared to the central hand carrying the shaft, a ratchet wheel held to turn loosely on the shaft and arranged to carry the hundreds hand of the dial, and a stud on the intermediate gear wheel adapted to extend into the path of the ratchet wheel and turn the latter a distance of one tooth at each revolution of the intermediate wheel, substantially as shown and described.

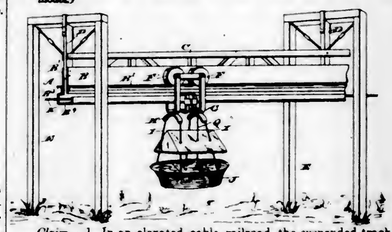
493,499. MEANS FOR SUPPORTING JOURNAL-BOXES. JOHANN F. HEY, Strasburg, Germany. Filed Nov. 9, 1891. Serial No. 411,351. (No model.) Patented in Germany Apr. 30, 1891, No. 60,851.



Claim.—1. The combination with a bracket or hanger, of a bearing support provided with an eccentric disk or flange, and a ring secured to the bracket or hanger and engaging the said disk or flange, substantially as and for the purpose set forth.

2. The combination with a bracket or hanger provided with a disk having a circular recess, of a bearing support provided with an eccentric disk or flange having an offset projecting into the recess of the disk of the bracket or hanger, and a ring secured to the bracket or hanger and engaging the front face of the eccentric flange or disk, substantially as herein shown and described.

493,500. ELEVATED CABLE RAILROAD. WILLIAM R. HEYLMUN, Rich Hill, Mo. Filed July 27, 1892. Serial No. 441,369. (No model.)



Claim.—1. In an elevated cable railroad, the suspended track, composed of two rails having laterally extending flanges for the car wheels to travel on, and the cable-duct or channel secured to and suspended from one of said rails, as shown and described.

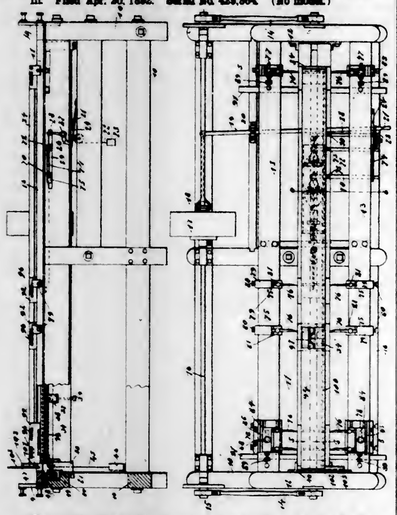
2. An elevated cable railroad provided with a track comprising two vertically disposed rails, each having an outwardly extending horizontal flange for the car wheels to travel on, and a duct or channel secured to and suspended from one of the said rails below the said flanges, and guide rollers and pulleys arranged on one of the said rails for passing the cable to and from the said duct to the power house, substantially as shown and described.

3. In an elevated cable railroad, the combination with a track formed with flanges for the car wheels to travel on and also with a duct for the cable, which is suspended from said track, of a car provided with a frame carrying wheels mounted to travel on the said flanges, and a cable grip held on the said frame and extending into the said duct to grip the cable therein, substantially as shown and described.

4. In an elevated cable railroad, the combination with a track formed with flanges for the car wheels to travel on and also with a suspended duct for the cable, of a car provided with a frame carrying wheels mounted to travel on the said flanges, a cable grip held on the said frame and extending into the said duct to grip the cable therein, and means, substantially as described, for actuating the said grip so as to engage or release the cable, as set forth.

5. The combination with the fixed car track A, fixed cable duct or channel, and fixed side tracks A^4 A^5, of the intermediate pivoted switch track and duct section A', and elevated frame section spanning the pivoted track section and having guide pulleys for the cable, as shown and described.

493,501. MORTISING-MACHINE. SIMEON J. HICKS, Englewood, Ill. Filed Apr. 30, 1892. Serial No. 429,864. (No model.)



Claim.—1. A mortising machine, comprising a longitudinally reciprocating carriage carrying work-holding clamps, a transversely reciprocating frame having chisels to move above the carriage, the frame having parallel bars arranged on opposite sides of the carriage and carrying the chisel-holding blocks, a clutch-controlled driving mechanism for the reciprocating frame and carriage, and means for releasing the clutch by the movement of the carriage, substantially as described.

2. A mortising machine, comprising a longitudinally movable work carrying carriage, a reciprocating frame carrying chisels to engage the work on the carriage, and a feed mechanism for moving the carriage, said mechanism being operated by the reciprocation of the chisel frame, substantially as described.

3. A mortising machine, comprising a longitudinally movable carriage having work-holding clamps thereon, a transversely reciprocating frame carrying chisels to engage the work, a plunger held to move beneath the carriage and having an adjustable connection therewith, a feed bar secured to the under side of the chisel carrying frame, and a wedge carried by the feed bar and extending into contact with the plunger, substantially as described.

4. The combination, of the longitudinally movable carriage, the transversely reciprocating frame having a feed bar thereon, a feed rod held to the under side of the carriage, a plunger actuated by the feed bar, and a clamp connecting the plunger and the feed rod, substantially as described.

5. The combination with the carriage having a feed rod on its under side and the reciprocating plunger held to move beneath the feed rod, of eccentric rollers carried by the plunger and held to press upon opposite sides of the feed rod, and retaining rollers held to engage the feed rod, substantially as described.

6. The combination, of the carriage and its feed rod, spring-pressed feed rollers held to engage the rod, and the lever operated wedge adapted to separate the rollers, substantially as described.

7. The combination, of the movable carriage having a feed rod on its under side, the reciprocating plunger having spring-pressed eccentric rollers to engage the feed rod, the spring-pressed retaining rollers held to engage the feed rod, the wedges adapted to separate the feed rollers and retaining rollers, the levers held to operate the wedges, and the hook strap connecting the two levers, substantially as described.

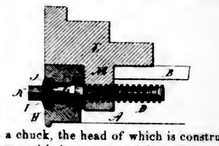
8. The combination, of the main clutch on the driving shaft, the weight repressed lever for operating the clutch, the catch held to lock the lever, the reciprocating carriage having a stop on its under side, the lever 28 having one end extending into the path of the stop, and means for releasing the catch by the movement of the lever 28, substantially as described.

9. In a mortising machine, the combination, of the reciprocating carriage, the reciprocating plunger held beneath the carriage, the spring-pressed eccentric pulleys held to engage the plunger, and the stop secured to the under side of the carriage and adapted to engage the rollers, substantially as described.

10. The combination with the transversely reciprocating frame, the longitudinally movable carriage and the bar carried by the carriage, of a chisel block comprising a bed plate held to the rail of the frame, a spring-pressed slide plate mounted on the bed plate and adapted to carry the chisel and a bolt secured to the slide plate and extending into the path of the carriage bar, substantially as described.

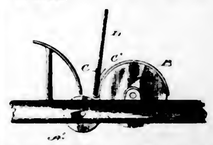
11. In a mortising machine, the combination, with the carriage, of the oppositely moving clamping plates held thereon, a revoluble shaft journaled longitudinally on the carriage, and a cable connection between the shaft and one plate of each clamp, substantially as described.

493,502. CHUCK. WILLIAM J. HOGGSON and EDWARD P. BEMENT, New Haven, Conn., assignors to the Hoggson & Pettis Manufacturing Company, same place. Filed Apr. 18, 1892. Serial No. 429,624. (No model.)



Claim.—In a chuck, the head of which is constructed with several radial grooves, with jaws arranged for radial movement in the said grooves, the combination therewith of screws arranged in said radial grooves, and respectively engaging the several jaws, the head of the chuck constructed solid at its periphery and with openings radially through said periphery into said grooves, the screws constructed with a shank corresponding to said openings, and each screw constructed with a stationary annular collar adapted to take a bearing around the inside of the openings in the head, the shanks screw-threaded at their outer end and provided with corresponding screw-threaded collars adapted to take a bearing around the outer end of said openings, substantially as described.

493,503. GUIDE-SHIELD FOR TYPE-WRITING MACHINES. REBECCA B. HOOPER, San Francisco, Cal. Filed June 9, 1892. Serial No. 436,106. (No model.)



Claim.—1. A guide shield for type writers adapted to be mounted on the carriage roll and having a projecting flange or arm whereby a passage way is formed in which the end of the sheet may be held.

2. A guide shield for typewriters constructed of spring elastic material, and provided with guide passage, said shield adapted to be secured to carriage roll by its own elasticity.

3. The combination with carriage roll of a typewriter, of a spring elastic guide shield adapted to be secured directly thereto, and of the holding flange for maintaining writing material in proper position.

4. The combination with carriage roll of a typewriter, of a spring elastic guide shield, said shield conforming in shape to surface of roll and adapted to be held thereon by its own elasticity, and of the holding flange or arm secured thereto.

493,504. DUST-COLLECTOR. ELIAS W. HOOVER, Chicago, Ill. Filed Mar. 2, 1892. Serial No. 423,518. (No model.)

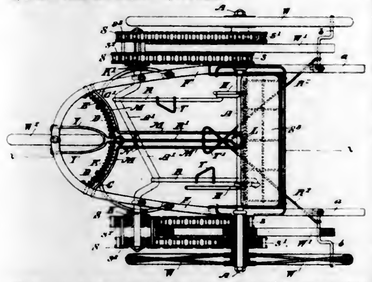
Claim.—The combination with a drum, A, having side openings, *a*, and an encircling duct, C, opening into the interior of the drum through passages, *d*, in a direction opposite to the current of air in the duct, C, of a dust cone, E, arranged beneath the drum, A, and at the discharge end of the duct, C, having a central opening from it into

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the drum, A, an opening, *f*, from the interior of the drum into the dust cone, and an internal flange or rib, F, adapted to guide the dust in the drum to the opening, *f*, substantially as described.

493,505. TRICYCLE. LOUIS KURTZ, New York, N. Y. Filed July 2, 1892. Serial No. 438,800. (No model.)



Claim.—1. A wheel vehicle having a pair of driving wheels, driving gearing operatively connecting said driving wheels with pedal mechanism; a steering wheel held normally in a central position by yielding means; an operating lever or rod connecting to the steering wheel and resting in a guideway the sides of which constitute fulcra for said lever with intermediate connections between the operating lever and the driving gearing consisting of sprocket wheels and clutches operatively connected therewith, said clutches being attached to the opposite ends of a single spring supported by a curved cross bar carried by the frame and arranged as described for connecting and disconnecting the driving gearing to and from either of the driving wheels at will.

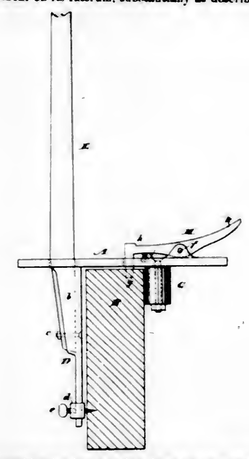
2. A wheel vehicle having a pair of driving wheels and a pair of fly wheels in combination with brake mechanism consisting of brake levers *b b* pivotally attached to extensions *a a* and operatively connected through brake rods R^3 R^3 having foot rests on their inner ends and sliding bearings sustained by the frame of the vehicle, the outer ends of the brake levers *b b* extending past the faces of the fly wheels and drive wheels, whereby when they are actuated they are first brought into frictional contact with the drive wheels and on the application of further power afterward brought into frictional contact with the faces of the brake wheels substantially as described.

493,506. FLOOR-CLAMP. MATHIAS LUTGEN, West Bend, Iowa. Filed Mar. 16, 1892. Serial No. 426,178. (No model.)

Claim.—1. The combination, with the sliding plate A, its leg D, vertically-adjustable carrier *d* on said leg having an attached fulcrum or set screw *e*, and the lever E, of the roller G depending from the plate A, and spaced from and parallel with the leg D, essentially as described.

2. The combination in a floor clamp of the following elements, to wit: a horizontal plate adapted to bear on the top of a joist, and having a pendent leg having a securing device adapted to be driven into the joist, and fulcrum the complete implement, an upwardly projecting lever for laterally rocking the implement with the securing device as a fulcrum, and a dog pivoted on said plate and movable therewith in response to the throw of the lever, the dog serving when driven, to prevent return movement of the implement on its fulcrum, substantially as described.

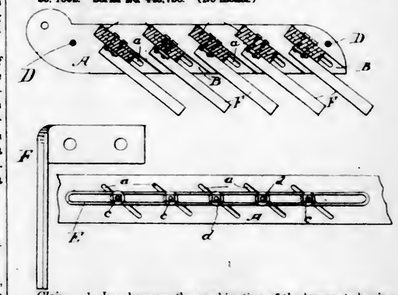
3. The combination in a flooring clamp of the following elements, to wit: a horizontal base plate carrying an operating lever and adapted to bear on the top of a joist and having a pendent leg and means for fulcruming the leg to the joist, a pendent roller on the plate, spaced from and parallel with the leg, and a rocking dog, movable with the plate when the latter is rocked by its lever and adapted to be entered into the joist for serving to hold the implement against return movement on its fulcrum, substantially as described.



4. The combination in a flooring clamp of a base plate carrying a lever, and means for fulcruming the body of the implement on a joist and a rocking dog movable with the plate in response to the throw of the lever, and adapted to be driven into the joist for preventing movement on its fulcrum the lever serving to rock the complete implement on its fulcrum, substantially as described.

5. The combination in a floor clamp, of a base plate having an operating lever and formed with a pendent leg having a device for bodily fulcruming the implement, and a pendent roller spaced from and parallel with the said leg, substantially as described.

493,507. HARROW. THOMAS J. MANN, Mixie, Tenn. Filed Sept. 23, 1892. Serial No. 446,723. (No model.)



Claim.—1. In a harrow, the combination of the beams A, having apertures extending clear through them and a recess surrounding each of said apertures upon the inner side of the said beams, with the cross ribs C adjustably secured between the said beams and adapted to be moved on an incline in the said recesses, the brace rods securing the beams together, and the teeth secured to the cross ribs, substantially as shown and described.

2. In a harrow, the combination of the beams A, having a series of apertures, and a series of recesses, with the cross ribs C having

concave ends which fit in said recesses, the L shaped teeth rigidly secured to the said ribs, and means such as shown and described for

3. An exhaust nozzle consisting of a tip or nozzle proper, provided with inwardly projecting fingers brought to an edge at the un-

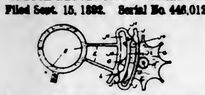
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and upward while the shank proper remains stationary as and for the purposes set forth.

concave ends which fit in said recesses, the L shaped teeth rigidly secured to the said ribs, and means such as shown and described for adjusting the cross ribs simultaneously, for the purpose set forth.

3. In a harrow, the combination of the cross ribs having concave ends, and the L shaped teeth secured between said ends, with the adjusting link E, screw spindles *c* and nuts *d*, substantially as shown and described.

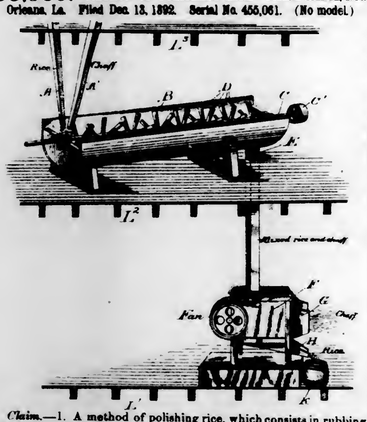
493,508. WATCH-REGULATOR. WILLIAM M. MATHESON, Waltham, Mass. Filed Sept. 15, 1892. Serial No. 446,012. (No model.)



Claim.—1. In a watch movement, a regulator-arm having two sections or lengths J, J^3 continuous with but having open spaces between and more or less parallel with each other and each adapted for elastic action in radial directions and the sections J^3 held on but having an open space between it and the regulator-arm, in combination with a wheel contacting with said section J of, and adapted to operate said regulator-arm, substantially as described, for the purpose specified.

2. In a watch movement, a regulator-arm having two sections or lengths, J, J^3, continuous with but having open spaces between and more or less parallel with each other, and each adapted for elastic action in radial directions and the section J^3 held on but having an open space between it and the regulator-arm, in combination with abutment projections of said sections and the regulator-arm, and a wheel held on the cap-plate and contacting with said section of, and adapted to operate said regulator, substantially as described, for the purpose specified.

493,509. METHOD OF POLISHING RICE. JOSEPH MENGE, New Orleans, La. Filed Dec. 13, 1892. Serial No. 455,061. (No model.)



Claim.—1. A method of polishing rice, which consists in rubbing the hulled grains of rice against the rice hulls or chaff.

2. A method of cleaning and polishing rice, which consists in stirring a mixture of the hulled grains and chaff, and in separating from the grain the refuse matter, substantially as and for the purposes described.

493,510. EXHAUST-NOZZLE. FREDERICK MERTSHEIMER, Cheyenne, Wyo. Filed July 22, 1892. Serial No. 440,905. (No model.)



Claim.—1. An exhaust nozzle having a series of inwardly projecting teeth brought to an edge at the under side.

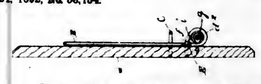
2. An exhaust nozzle having a series of inwardly projecting teeth each presenting a vertical and an inclined side wall, whereby the outgoing steam is given a whirling motion.

3. An exhaust nozzle consisting of a tip or nozzle proper, provided with inwardly projecting fingers brought to an edge at the under side and a rotary ring or cap also provided with a series of inwardly projecting fingers.

4. An exhaust nozzle provided with a series of inwardly projecting fingers, each brought to an edge at the under side, said edge having an upward inclination from the outer toward the inner end.

5. In an exhaust nozzle the combination of the rotatable cap or ring with fingers therein, the tip provided with fingers and the base ring having the internal flange or shoulder substantially as described and shown.

493,511. TICKET-HOLDER. WILLIAM B. MOORE, New Glasgow, and GEORGE B. WILLETT, Moncton, Canada, assignors of two-thirds to William M. Walton and Herbert Richmond, New York, N. Y. Filed May 27, 1892. Serial No. 434,679. (No model.) Patented in Canada Jan. 21, 1892, No. 38,134.



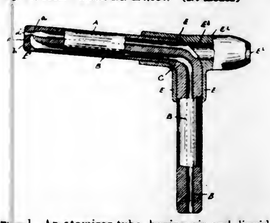
Claim.—1. In a car ticket holder, an open faced movable ticket holding portion, or frame, connected horizontally at its lower end with the supporting base, having a yielding pressure and bearing throughout the length or surface of both vertical sides flat against or parallel with such supporting base, to which the holder is attached; a coiled spring portion for imparting such yielding pressure to said ticket holding portion, a horizontal bar around which such portion is coiled, and means for attaching said bar to the base.

2. In a car ticket holder, the combination of the base such as *a*, of the spring loop B having coiled portions d' d^3 near its ends, and such ends secured to the base, a bar *g* passed through said coiled portions and eyes k' k^3 secured to the base, as shown.

3. In a car ticket holder, the combination of the base such as *a*, of the spring loop B, having coiled portions d' d^3 near its ends and such ends secured to the base; a plate E secured to the base and through which said ends are passed; and a bar *g* passed through said coiled portions of the loop and secured to the base, as shown.

4. In a car ticket holder, the combination of the base such as *a*, of the spring loop B and a fixed retaining bar C located across and a short distance out from the face of the loop near the lower end and having its ends bent at right angles to the face of the base and entering same, as shown.

493,512. ATOMIZER. PATRICK J. MCELROY, Cambridge, Mass. Filed Apr. 5, 1892. Serial No. 427,937. (No model.)



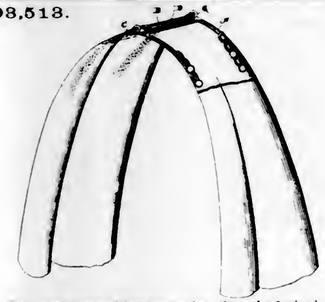
Claim.—1. An atomizer tube, having air and liquid passages A and B, a solid head F over and beyond said passages, an opening *b* within said head and joining said passages and a discharge opening *d*, in line with said air-passage and through said head, substantially as described, for the purpose specified.

2. The combination with an atomizer-tube having in one portion an air passage A and a liquid passage B and in another and angular extending portion a continuation of said liquid passage, of a T-thimble or sleeve E, entered upon said tube portions at their junction C, and having a side tubular extension E^3 in communication with said air-passages, substantially as described, for the purpose specified.

493,513. HORSE-COLLAR FASTENER. ANDREW T. OSBORN, Willow Springs, Mo. Filed June 29, 1892. Serial No. 438,423. (No model.)

Claim.—1. A collar fastener comprising two sections secured to opposite ends of the collar, a latch pivoted to one of the sections, a bulge on one edge of the latch, and a loop on the other fastener section which the said bulge is adapted to engage when the latch is turned, substantially as shown and described.

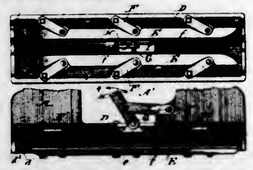
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2. The combination of fastener sections formed of wire having rearwardly extending securing arms, coils G on opposite sides of one of the sections, a latch extending across the end of said section and confined in said coils, a bulge on the latch and a loop on the adjacent fastener section which is adapted to extend beneath said latch and into which loop the said bulge extends when the latch is turned in the coils G, substantially as shown and described.

3. The combination of fastener sections formed of wire, the ends of which being extended rearward to form securing arms, coils G at the ends of the arms of one of the sections, bar H connecting the coils, an angular wire frame secured at its lower side in said coils, outwardly extending bulge J on said lower side, and a loop on the adjacent fastener section adapted to extend between the bar H and the lower side of the wire frame and which is engaged by the bulge J, when the said frame is turned down, substantially as shown and described.

493,514. CABLE-GRIP. JAMES S. PATTEN, Baltimore, Md., assignor to himself and Morton Schaeffer, same place. Filed Aug. 5, 1892. Serial No. 442,229. (No model.)



Claim.—1. A cable grip comprising a vertically movable shank formed with a casing on its lower end, having an open bottom, toggle grip jaws horizontally pivoted on the underside of such casing, and arranged to grip the cable laterally when moved inward, the front ends of such jaws projected down, below the end portions of the casing, whereby they will be forced rearward to release the cable when meeting an obstruction in the conduit, substantially as and for the purposes described.

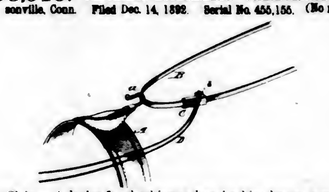
2. A cable grip comprising a vertically movable shank, having a longitudinally and laterally extended open bottom casing, the end walls terminating at a point near the top of such casing, whereby such casing is adapted to seat over the cable, and horizontally arranged toggle jaws pivoted to the side walls of such casing and inclosed thereby, said jaws adapted to engage the cable laterally from opposite sides, and having their front ends at a plane below the ends of the casing, all substantially as and for the purposes described.

3. In a cable grip, the combination with a vertically movable grip shank having a cut out portion A', and a laterally extending open bottom casing on its lower end, and the grip jaws mounted in such casing, of an operating lever connected to such grip jaws, pivotally connected near its lower end to the shank A, and extended upward to a point above the conduit slot within the cut out portion of the shank, and then projected up to the outside of such shank, substantially as and for the purposes described.

4. An improved cable grip comprising a vertically movable grip shank, an open bottom casing hinged to the lower end of such shank, for a rearwardly swinging movement, a pair of horizontally movable toggle jaws adapted to engage the cable laterally from opposite sides, said jaws having their front ends projected to a point below the end walls of the casing, and lever mechanism for operating such jaws, all arranged substantially as described, whereby the jaws will engage a cross cable or other obstruction in the conduit and be forced rearward to release the cable and swing the jaws holding casing rearward and upward while the shank proper remains stationary as and for the purposes set forth.

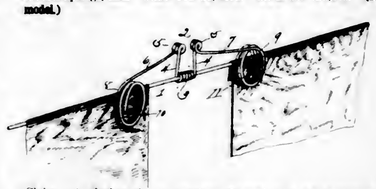
5. The combination with the shank A, having a casing portion D, on its lower end, said casing formed with end cable guides d' d^3, of the jaws E, the pivoted links F F', connecting such jaws to the casing, the lever H the link I connecting such lever with the shank A, and a movable connection G between the jaws E and the lower end of the said lever H all arranged substantially as shown and for the purpose described.

493,515. CHECKREIN ATTACHMENT. JOSHUA PERKINS, Danielsonville, Conn. Filed Dec. 14, 1892. Serial No. 455,155. (No model.)



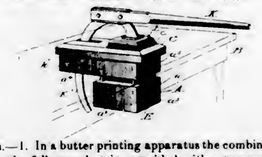
Claim.—A device for checking and unchecking horses, consisting of a rectangular sleeve or slide adapted to be attached to the check rein, a loop attached to the slide or sleeve, and a cord or strap connected to the loop and passed back to the driver for operation, substantially as and for the purpose described.

493,516. MOVABLE CLOTHES-PIN. WILLIAM C. POPPLEWELL, Eureka Springs, Ark. Filed Oct. 28, 1892. Serial No. 450,270. (No model.)



Claim.—A clothes-pin or retainer, formed of a single piece of spring wire, comprising a spirally formed tube or sleeve, an arm or brace extending upwardly from each end of said sleeve, coils formed by bending the wire at the upper ends of said arms or braces, downwardly divergent arms extending longitudinally of the tube or sleeve and from said coils, and spirals formed at the outer ends of said longitudinally extending arms, substantially as described.

493,517. BUTTER-PRINTER. ALBAN H. REID, Philadelphia, Pa. Filed Aug. 31, 1892. Serial No. 444,654. (No model.)



Claim.—1. In a butter printing apparatus the combination of the receptacle, the follower therein, provided with a transverse opening in its base, the operating lever adapted to enter the opening in the follower and to positively raise and lower the latter, and the packer block rigidly attached to the lever, the lever having a limited play independently of the follower.

2. In a butter printer, the combination of the receptacle, the follower therein provided with the vertical slot and transverse pins, and the operating lever having its end arranged to engage between the pins on the elevation of the same.

3. In a butter printing apparatus the combination of the receptacle having a bottom E, the follower movable vertically in said receptacle, a pivoted lever for operating the follower, a packer block connected with the lever and an adjustable support between the bottom and the follower; whereby the latter may be supported in different vertical positions.

4. In a butter printer, the combination of the receptacle, the vertically-movable follower therein the lever for operating the follower, the presser-block carried by the lever, the plate applied to the under

side of the receptacle, and the adjusting screws projecting from the under side of the follower in position to be sustained by the plate

through the hub upon which the dial turns, and a friction washer and nut whereby the dial is retained in position after each actuation

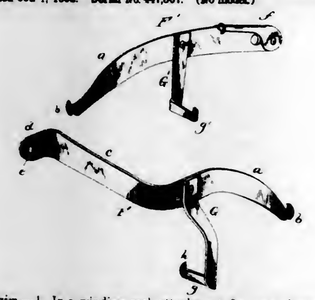
14. The combination with the lower side pieces, cross pieces 107

28. The combination with the cover dial, die 141 and punch 91,

side of the receptacle, and the adjusting screws projecting from the under side of the follower in position to be sustained by the plate.

5. The combination of the receptacle, the movable slotted follower therein, the transverse pins in the follower, the operating lever, the curved arm carried thereby with its rear end in position to enter the slot in the follower and engage between the pins, and the print block at the forward end of the arm and capable of a limited vertical movement independent of the movement of the follower.

493,518. REEL ATTACHMENT. ELLIS REYNOLDS, Hubbard, Iowa. Filed Oct. 1, 1892. Serial No. 447,567. (No model.)



Claim.—1. In a winding reel attachment for corn-planters the combination with the framework and reel, of the reel axle mounted rotatably in a pair of hanger arms, the curved detachable hanger-arms, F, F' supporting the reel axle; the arm F having the curved rear portion, *a*, provided with the clip, *b*, and the angularly bent portion, *c*, and the arm F', having the curved inclined portion, *a*, terminating in a clip, *b*, and a rear end portion provided with a journal opening.

2. In a winding reel attachment for corn-planters, the combination with the frame-work and reel, of the reel-axle mounted rotatably in a pair of hanger arms, the curved detachable hanger arms, F, F', supporting the reel axle, the arm F having the curved rear portion, *a*, provided with the clip, *b*, and the angularly bent portion, *c*, and the arm F' having the curved inclined portion, *a*, terminating in a clip, *b*, and a rear portion provided with a journal opening, and the staples, E, E', severally fixed to the frame-work to engage and hold the clips, *b*, *b*, on the hanger arm.

3. In a winding reel attachment for corn-planters, the combination with the reel and hanger arms detachably secured in staples on the frame-work, of the rear cross-bar of the frame-work, and the plates, G, G' severally attached at their upper ends to the hanger arms F, F', and terminating at their lower extremities in the extension arms, *g*, *g'*.

493,519. MACHINE FOR COVERING BULLETS. CHARLES R. RICHARDS, Bridgeport, Conn., assignor to the Union Metallic Cartridge Company, same place. Filed June 14, 1892. Serial No. 436,721. (No model.)

Claims.—1. The combination with the bullet dial, plate 18 upon which it rests and block 19 to which said plate is secured, of a block 21 in which block 19 slides, set screw 31 engaging a fixed portion of the machine for determining the forward movement of the block, and a bolt 30 by which the block is held in position after adjustment.

2. The combination with the operating punch and the cover dial, of swinging plate 38 by which said dial is carried, and adapted to be swung to and from operative position under the punch, said plate acting to hold the covers in the openings in the dial until they are carried into position to be acted upon.

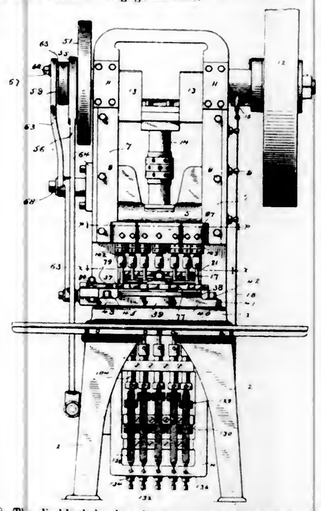
3. In combination, the cover dial having the openings for the covers, the die block having the die and the swinging plate 38 carrying the cover dial plate and extending beneath a number of the openings in said dial the said swinging plate and die block having their upper surfaces in the same plane and their adjacent faces adapted to abut against each other and form a continuous supporting surface below the cover dial, substantially as described.

4. The combination with the cover dial, of swinging plate 38 having heads 41 and 43, the latter having a slot 44, a bolt 42 passing through head 41 upon which the plate swings, and a bolt 45 which is adapted to enter slot 44 by which the swinging plate and dial are locked in operative position.

5. The combination with the cover dial, of swinging plate 38 having cross piece 40 and hub 39, a shouldered stud extending upward through the hub upon which the dial turns, and a friction washer and nut whereby the dial is retained in position after each actuation.

6. In combination, the die block 32, having a series of openings 144 with shoulders 146 the dies fitted to said openings and shoulders, and having screw threaded lower ends, said block having also a continuous groove extending from end to end of the series of openings and the series of nuts arranged in said groove and held against rotation by the walls thereof, said nuts being adapted to receive the screw threaded ends of the dies, substantially as described.

7. The combination with the die block 32 having circular openings 144 with shoulders 146 and a curved groove 147 in its under side, of nuts in said groove the ends of which are arcs and the sides radii so as to permit the nuts to be slid into and out of the groove, and circular dies lying in said openings and resting on the shoulders, and having shanks threaded to engage the nuts.



8. The die block having circular openings 144 and shoulders 146 and a curved groove in its under side, in combination with nuts lying in said groove and dies lying in said openings and having threaded shanks engaging the nuts so that in use said dies may be adjusted in any direction in the horizontal plane.

9. The combination with the die block having socket 149 and opening 170 below said socket, of sizing die 143 in the lower part of said socket, nut 150 by which it is retained loosely in place, countersunk in the upper part of the said die block a delivery tube connected with said opening.

10. The combination with slide 110 having extension 116 and block 117 secured thereto, of slides 104 lying loosely in half sockets in said extension and block, said slides having threaded portions carrying nuts 128 which are engaged by said extension and block in the upward movement.

11. The combination with slide 110 having extension 116 and block 117 secured thereto, of slides 104 lying loosely in half sockets in said extension and block, said slides having threaded portions carrying nuts 128 which are engaged by said extension and block in the upward movement, and nuts 130 which are engaged by said extension and block in the downward movement.

12. The combination with slide 110 having extension 116 and block 117 secured to said extension, of slides 104 having threaded portions 127, nuts 128 engaging said threaded portions to determine the upward movement of the slides, and nuts 130 engaging said threaded portions below said extension and block and which are engaged in the downward movement, and check nuts 129 and 131 for locking said nuts in place after adjustment.

13. The combination with the lower side pieces, cross pieces 107 and blocks 108, of slides 104 lying in half sockets in said cross pieces and blocks, nuts 128 on said slides, and slide 110 having extension 116 and block 117 connected to the extension, said block and extension having half sockets to receive slides 104 loosely and acting to lift said slides by engagement with the nuts when the upward movement takes place.

14. The combination with the lower side pieces, cross pieces 107 and blocks 108 secured thereto, said cross pieces and blocks being provided with half sockets, of slides 104 the upper portions of which are made angular in cross section, the central portions round and screw threaded and the lower ends round in cross section, the sockets in the upper and lower cross pieces and blocks being made respectively angular and round to receive said slides, nuts 128 engaging the threaded portions, and a vertically movable slide and block through which slides 104 pass and which engage said nuts to lift slides 104 as and for the purpose set forth.

15. The combination with slides 104 having nuts 128, slide 110 and block 117, of springs 135 connected respectively to slides 104 and to a fixed portion of the machine whereby said slides are drawn downward when the downward movement of slide 110 takes place.

16. The combination with slides 104 having nuts 128, and slide 110 and block 117 which engage said nuts to move slides 104 upward, of springs 135 which draw slides 104 downward after they have been raised by slide 110 and the block.

17. The combination with slides 104 having nuts 128, slide 110 and block 117 which engage said nuts to move slides 104 upward, of springs 135 which draw slides 104 downward, and set screws 132 engaged by the lower ends of said slides to limit the downward movement.

18. The combination with slides 104 having nuts 128 and 130, slide 110 and block 117 which engage nuts 128 to move slides 104 upward, of springs 135 which draw slides 104 downward, nuts 130 being engaged by the downward movement of the slide 110 and block 117 to move slides 104 downward should the springs fail to act.

19. The combination with the lower side pieces, cross pieces 107 and 133, and blocks 108, of slides 104 moving in sockets in cross pieces 107 and the blocks, nuts 128 on said slides, slide 110 and block 117 through which slides 104 pass and which engage said nuts to raise slides 104, springs 135 acting to draw slides 104 downward, and set screws 132 in cross piece 133 which limit the downward movement to raise the lower punches at each actuation of the machine.

20. The combination with slides 104 having nuts 128, slide 110 and block 117 through which said slides pass, of rock-shaft 120 having an arm 119 engaging slide 110 and an arm 124 which is pivoted to a yoke at the lower end of connecting rod 156.

21 The combination with slides 104, slide 110 and block 117 through which slides 104 pass, and rock-shaft 120 having an arm 119 connected to slide 110, and an arm 124, of connecting rod 56 the lower end of which is pivoted to arm 124 the upper end being provided with an elongated opening 52 and a roller 58, shaft 10 carrying a disk having a cam groove engaged by said roller and a bushing engaging said elongated opening.

22. The combination with the punches having grooves 152 at their lower ends, of punch holders 105 having sockets 151, two-part shouldered collets 153 in said sockets the parts of which are shaped to fit into the grooves, and set screws 106 which lock the parts of the collets together and retain the punches therein but permit movement thereof in the horizontal plane.

23. The combination with the cover dial and plate 38, of punch 81 and a pin 160 in said plate having a head 159 which limits the downward movement of the cover.

24. The combination with the bullet dial and spring actuated plunger 47, of plate 38 having pin 160 with head 159, and punch 81 which sets the cover in the dial where it is retained by the plunger.

25. In combination, the bullet and cover dials with means for operating them, the assembling die 140 below the cover dial, and between the axes of said dials, the upper punch for forcing the bullet through the bullet dial and through the cover dial with the cover into the die, the lower punch 90 operating in the die against the tip of the cover and means for operating said punch 90, to raise the cover and bullet into the cover dial, substantially as described.

26. In combination, the bullet and cover dials with means for operating them, the plate 18, with the spring plungers thereon for holding the bullets, the said cover dial having spring plungers 47 and revolving below the plane of the bullet dial, the die below the cover dial, the upper punch 84 for forcing the bullet through the bullet dial and through the cover dial with the cover into the die, the lower punch 90 operating in the die against the tip of the cover and means for operating the said punch 90, to raise the cover into the cover dial to engage the plungers 47, substantially as described.

27. In combination, the series of dies, including an assembling die, the cover dial arranged to move over the same and carry the cover from die to die, a series of upper and lower punches with means for operating them to transfer the covers from dial to die and from the dies back to the dial and a bullet dial with means for moving the same step by step to align its openings with those of its cover dial, the punch of the bullet dial operating to force the bullet into the cover in the cover dial and through the said dial with the cover into the assembling die, substantially as described.

28. The combination with the cover dial, die 141 and punch 91, of a punch 85 having an inwardly curved recess 163 which crimps the edge of the cover over the base of the bullet.

29. The combination with the bullet dial, sizing die 143 and nut 150, of punch 87 the cover dial moving over the sizing die, and tube 171 by which the finished bullets are expelled from the machine.

30. In combination, the cover dial the die below the same for forming the cover, the upper and lower punches operating in connection with the said die and dial, the bullet dial, the die to receive the bullet and cover from the cover and bullet dials, the upper and lower punches operating in connection with the said die, the crimping die below the cover dial, the upper and lower punches for said die, the means for operating the punches to transfer the covers and the covers with bullets from the cover dial to the dies and from the dies back to the dial and the means for rotating the cover dial step by step to carry the covers past the said dies and bullet dial, substantially as described.

31. In combination, a series of dies including forming dies and a sizing die, a cover dial moving over the same, the upper and lower punches, the bullet dial and means for operating the cover dial to carry the covers past the forming dies and bullet dial to the sizing die, substantially as described.

32. In combination, the cover dial, the bullet dial having openings to register with those of the cover dial, the assembling die arranged below and in line with the aligning openings of the bullet and cover dial and the punch for forcing the bullet through the bullet dial into the cover in the cover dial and thence with said cover through the cover dial into the assembling die, substantially as described.

33. The combination with the bullet dial, the cover dial, the upper punches and the dies, of the lower punches, slides 104 by which they are carried, nuts 128 on said slides, and a slide 110 and block 117 having half sockets to receive slides 104, said slide and block engaging the nuts in the upward movement to raise the lower punches at each actuation of the machine.

34. The combination with the bullet dial, the cover dial, the upper punches and the dies, of the lower punches, slides 104 by which they are carried, nuts 128 on said slides, and a slide 110 and block 117 having half sockets to receive slides 104, said slide and block engaging the nuts in the upward movement to raise the lower punches at each actuation of the machine, and springs 135 which draw the punches downward when slide 110 is moved downward.

35 The combination with the bullet dial, the cover dial, the upper punches and the dies, of the lower punches, slides 104 by which they are carried, nuts 128 and 130 on said slides, nuts 129 and 131 by which they are locked in position after adjustment, and a slide 110 and block 117 having half sockets to receive slides 104, said slide and block engaging nuts 128 to lift said lower punches each time slide 110 and the block move upward and engaging nuts 130 to move them downward each time slide 110 and the block move downward.

36. The combination with the bullet dial, the cover dial, the upper punches and the dies, of the lower punches, slides 104 by which they are carried, nuts 128 on said slides and a slide 110 and block 117 which engage said nuts to raise the lower punches, springs 135 which draw the lower punches downward, and set screws 132 which limit the downward movement of the lower punches.

37. In combination, the dials, the upper and lower set of punches and means for operating said parts comprising a crank shaft journaled in the upper part of the frame and connected with the upper punch carrier, the lower punch carrier the lever 119—124 connected therewith, the link 56 connecting the lever with the crank shaft, the pawls and pawl slides for operating the dials and the lever 63, connected with said pawl slides and to the upper crank shaft to be driven therefrom, substantially as described.

38. In combination, the cover and bullet dials with means for operating them, the assembling punch for bringing the bullet and cover together and an assembling die for receiving the assembled parts, substantially as described.

39. In combination, the dies, the series of punches adapted thereto and to be operated to different degrees, the slides capable of independent movement, the reciprocating block with means for operating the same to move all the slides, and the adjustable collars or contacts on the slides in line with the block to be operated thereby, substantially as described.

40. In combination, the dies, the series of upper punches, the series of lower punches with their slides capable of having independent movement, the reciprocating block arranged to contact with and operate said slides after a part of its movement has been lost, substantially as described.

41. In combination, the cover dial the bullet dial, the setting punch operating through the openings in the cover dial, the stationary bearing below the said punch in line with the opening in the cover

dial, the assembling punch operating in connection with the bullet and cover dial and the means for rotating the dials whereby the cov-

outer rim D supported by the arms C, the upper boss F on the vertical shaft, the curved spokes E extending between the rim D and boss F,

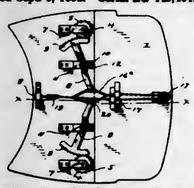
able clamping section having a narrow portion extending into the

6. The combination of the two former-plates, E, E'; two creasing-disks 31 revolving in a horizontal plane and their rims arranged

dial, the assembling punch operating in connection with the bullet and cover dial and the means for rotating the dials whereby the covers will be carried from the setting punch to the bullet dial, substantially as described.

42. In combination, the series of dies including the forming and assembling dies, the series of upper punches operating in connection with said dies, the series of corresponding lower punches, the sizing die at one end of the series of dies, the setting bearing at the opposite end of the dies, the cover dial with means for moving it step by step over the dies and the setting bearing, the bullet dial and the end upper punches 81—87 operating in connection with the setting bearing and the sizing dies respectively.

493,520. DEVICE FOR OPENING DOORS OF HANSOMS. CHRISTOPHER J. RESNOR, Bridgeport, Conn., assignor to Hincks & Johnson, same place. Filed Sept. 9, 1892. Serial No. 445,461. (No model.)



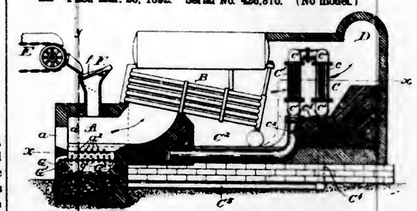
Claim.—The combination with the doors, shafts 4 secured thereto, and pinions on said shafts, of levers 8 having segments engaging said pinions and blocks 20 at their inner ends, and an operating chain one side of which is bifurcated, the branches being attached to the blocks on the levers, so that movement of the bifurcated portion of the chain will oscillate the levers to open or close the door.

493,521. MACHINERY FOR SORTING AND SEPARATING LOOSE SUBSTANCES INTO VARIOUS GRADES OF FINENESS. JOHN M. RENSWORTH, Horsforth, near Leeds, STEPHEN INGHAM, Leeds, and JOSEPH VICKERS, Horsworth, near Leeds, England. Filed May 14, 1892. Serial No. 432,967. (No model.) Patented in England Feb. 20, 1892, No. 3,375.

Claim.—1. In machinery for sifting, sorting and separating semolina, grain, and the like, the combination with a vertical rotating shaft, a screen located on said shaft, and having a continuous unbroken concave sifting surface, extending upward from the outer circular rim in somewhat cone fashion, the inclination of the sieve surface gradually lessening toward the outer edge, and screen framework composed of a boss B keyed to said shaft, radial arms C extending from the boss *b*, winged nuts C' C^2 rendering the arms C adjustable in length, a circular outer rim D supported by the arms C, the upper boss F on the vertical shaft, the curved spokes E extending between the rim D and boss F, and the screen mesh G covering the spokes E, of a horizontal circular table K projecting outwardly and extending entirely around said rim D, substantially as set forth.

2. The combination with a vertical rotating shaft, a circular screen located on said shaft, and having a continuous and unbroken inwardly curved sifting surface G extending upward from the outer rim D in cone fashion, a circular horizontal rotating table K affixed to said rim, of a fixed casing W surrounding the screen, chains S resting on the sieve surface and having ends carried from the fixed casing W whereby the material being sifted has to pass over the chains S disposed in wave form, a felt or leather guard L' fixed to said casing W, and bearing edgewise on the rotating table K, whereby the material to be sifted is retained on said table, and a chute in the casing W and plow or guide L located adjacent thereto, whereby the material is delivered from the machine, substantially as set forth.

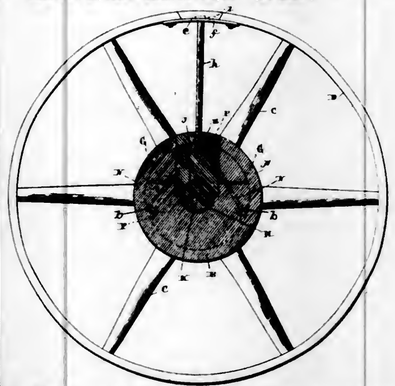
493,522. BAGASSE-BURNER. EDWARD H. ROBBINS, New Orleans, La. Filed Mar. 28, 1892. Serial No. 426,810. (No model.)



Claim.—1. In a burner of the character described, the combination with a hearth having a water-tight base extending the full length of the furnace and partly filled with water, of an endless grate passing over two drums or rollers one at each end of said furnace, said grate moving toward the front of said hearth and having its upper portion above said water and supporting the fuel, and its lower portion passing beneath said water, with means for feeding said fuel from the top of the furnace on said grate, as and for the purposes described.

2. In a burner of the character described, the combination with a hearth having a water-tight base extending the full length of the furnace and partly filled with water, and tuyeres in the side thereof for admitting air, of an endless grate passing over two drums or rollers one at each end of said furnace, said grate moving toward the front of said hearth and having its upper portion above said water and supporting the fuel, and its lower portion passing beneath said water, with means for feeding said fuel from the top of the furnace on said grate, as and for the purposes described.

493,523. SPLIT PULLEY. GUILFORD D. ROWELL, Appleton, Wis. Filed Nov. 26, 1892. Serial No. 453,235. (No model.)

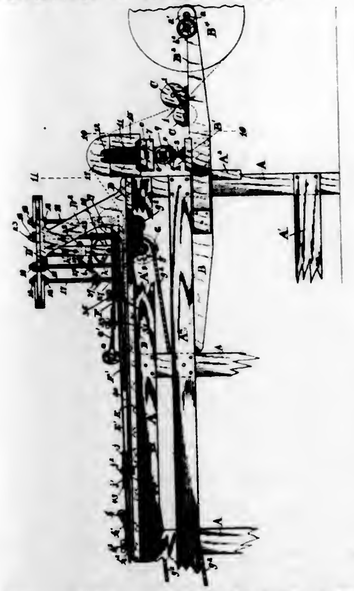


Claim.—1. A split pulley having a hub portion provided with a longitudinal shaft bore, a longitudinal slot extending into the bore, and the hub cut away at one side of the hub at each end a removable clamping section having a narrow portion extending into the said slot, and ears projecting over the cut-away portions, and diagonally extending clamping bolts which pass through the hub portion into the said ears, substantially as specified.

2. A split pulley comprising a rim portion having a removable piece, a hub portion having radial spokes connected with the rim portion, the said hub portion provided with a longitudinal shaft bore and a longitudinal slot extending into the said shaft bore, and cut away portions at each end less than half of the hub, a removable clamping portion having a narrow central portion which extends into the longitudinal slot, and ears which extend over the said cut-away portions, and clamping bolts which pass diagonally through the hub and the said ears and converge toward the said removable section, substantially as described.

3. A split pulley comprising a hub portion having radial spokes, a rim portion having a removable piece, the said hub portion having a longitudinal shaft bore and a longitudinal slot extending into the said shaft bore, a removable clamping portion having a longitudinal portion extending into the said slot, clamping bolts therefor, and a supporting rod connecting the removable clamping section and the removable rim piece, substantially as and for the purpose described.

493,524. PAPER-BAG MACHINE. JOHN SABOLD, Boyertown, Pa. Filed Feb. 27, 1892. Serial No. 422,973. (No model.)



Claim.—1. The combination of the machine-frame; a paper-roll shaft; and arms attached to the said frame and longitudinally movable thereon for supporting the said paper-roll shaft.

2. The combination of the machine-frame; a paper-roll shaft; supports for said shaft which are movable with respect to the said frame; and a roller 13 and paste-wheel 14 mounted on said movable supports.

3. The combination of the machine-frame, a paper-roll shaft; supports for said shaft which are movable with respect to the said frame; a roller 13 and paste-wheel 14 mounted on said movable supports; and means for vertically-adjusting the said roller and paste-wheel.

4. The combination of a laterally-adjustable carriage, c, a roller 13 and a paste-wheel 14 both mounted thereon; and a lifting jack for raising and lowering the said carriage.

5. The combination with the frame of the machine, of the top-plate D', elevated above the said frame and provided with two laterally-extending slots d^3; a roller 19 suspended from said top-plate; a former-plate, E, suspended from said top-plate; two guide-rods 37 one at each side of the former-plate and adjustable in said laterally-extending slots.

6. The combination of the two former-plates, E, E'; two creasing-disks 31 revolving in a horizontal plane and their rims arranged to extend between the said two former-plates; two drawing-and-lapping rollers, *e*, revolving in a vertical plane above the top former-plate; and plates pivoted at one end and carrying both the said creasing-disks and the drawing-rollers.

7. The combination of the two former-plates, E, E'; two creasing disks, 31, revolving in a horizontal plane and their rims arranged to extend between the said two former plates; two drawing-and-lapping rollers, *e*, revolving in a vertical plane above the top-former-plate; and plates pivoted at one end and carrying both the said creasing-disks and the drawing-rollers, said plates having ends arranged to extend between the two former-plates, for the purpose described.

8. The combination of the top-plate, D', having two laterally-extending slots d^3; a rod, 23, secured and adjustable in each of said slots and depending therefrom and having at its lower end a disk 25 which is provided with an upward-projecting pin 26; a creasing-plate, F', pivotally attached to each of said rods and provided with a hole 28 which registers with the said upward-projecting pin.

9. The combination of the former-plates; two plates, F, F', both attached to a block 27 which separates them; a drawing-and lapping-roller, *e*, carried on the upper one, F, of said plates; a rubber-spring 36 under the said upper plate, F; and a thumb-screw 35 co-acting with the said rubber-spring to increase or diminish the tension of the said drawing-roller upon the upper former-plate.

10. The combination of the former plates, E, E'; a horizontal plate 41 laterally-adjustable on the table; an arm 40 pivotally attached to the said horizontal plate and provided with an upward-projecting pin; and two creasing-disks, *j*, *j'*, both revoluble on the said upward-projecting pin.

11. The combination of the former-plates, E, E'; conical drawing-rollers, *k*, to rest on the upper former-plate; and bearings for said rollers hinged to move in a vertical plane.

12. The combination of the lower feed-roller, *l*, mounted on a shaft 45; an upper feed-roller, *l'*, mounted on a shaft 48; a shaft 53 having journaled crank-ends and provided with an arm 56; links 52 loosely connecting the shaft of the upper roller and the said crank-shaft; and a weight 57 adjustable on the said arm.

13. The combination of the former-plates; a creaser device co-acting with the former-plates to produce the inward-fold of the bag-tube; a tongue plate 50 on the edge of which the bag-tube is cut or broken; a narrow neck 49 connecting the former-plate and tongue-plate; feed-rollers *l*, *l'*, located between the former-plates and tongue-plate; and an upward-inclined separator 58 at the point where the tongue-plate joins the neck for the purpose described.

14. The combination of a tongue plate having a serrated edge; and a breaker having a plural number of blades all of which at all times extend in a direction parallel with the edge of said tongue-plate and which revolve with an intermittent motion.

15 The combination of a tongue-plate having a serrated edge; a breaker having a plural number of blades all of which are at all times in a direction parallel with the edge of said tongue-plate; a fixed shaft; and two heads, *n*, loosely revoluble on said shaft and to which the said blades are attached.

16. A breaker for paper-bag machines having in combination a shaft; two heads on the said shaft; and a plural number of breaker-blades attached to said two heads parallel with each other and located apart equi-distant.

17. A breaker for paper-bag machines having in combination a shaft; two heads on the said shaft; a plural number of breaker-blades attached to said two heads parallel with each other and located apart equi-distant; and means to impart an intermittent rotary motion to said two heads.

18. A breaker for paper-bag machines having in combination a shaft; two heads on the said shaft each provided on its perimeter with teeth; a plural number of blades attached to said heads parallel with each other; and means co-acting with the teeth on said heads to impart intermittent rotary motion thereto.

19. A breaker for paper-bag machines having in combination a shaft; two heads on the said shaft each provided in its perimeter with teeth; a plural number of blades attached to said heads parallel with each other; a stop-pawl acting on the breaker-heads to normally prevent them from turning; and an actuating arm, *m*, which engages the teeth on said head to impart intermittent rotary motion thereto.

20. The combination of the main side-frames of the machine; the bag-length carrier, *s*; a frame longitudinally-adjustable on the said main-frame and provided with a series of vertical slots, g^3; and rollers, *t*, *t'*, t^3, loosely journaled in said slots and resting upon the said bag-length carrier.

21. The combination of the three rollers, *u*, *u'*, u^2, driven by a single belt; a paste-roller 101; a vertical slideway 113; a shaft 111 movable in said slideway; a paste and folding-knife, *v*, attached to said shaft; a rock-shaft 110; an arm 118 fixed on said rock-shaft; a link 117 connecting the said arm with the said paste-knife shaft to impart

movement to the latter; and two link-arms, 114, 115, pivoted together and one fixed rigidly to the paste-knife shaft and the other pivoted to a fixed standard to swing the paste-knife.

22. The combination of a paste and folding knife; a rock shaft 110; mechanism connecting the said knife and rock-shaft; an arm 119 fixed on said rock-shaft; a vertical rod 121 connected with said arm and provided at its lower end with a shoe 122; a rocking-cam 123 in contact with said shoe to impart up-and-down movement to the shoe and rod; and means to actuate said cam.

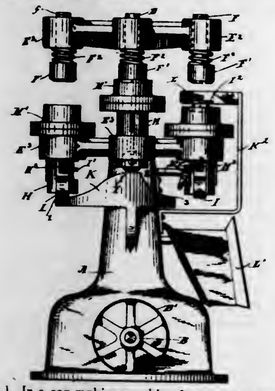
23. In a paper-bag machine the combination with mechanism for actuating the paste and folding knife, of a vertical rod 121 provided at its lower end with a shoe 122 having two depending arms 126; a fixed shaft 124; a cam 123 rocking on said shaft; a flanged roller 125 loose on said fixed shaft and between said two depending arms.

24. In a paper-bag machine, the combination of a rotary bag-receptacle having a number of pockets and a ratchet-disk; a counting ratchet-wheel having a projection; suitable intermittently-operating mechanism for actuating the said wheel; a lever having an end in the path of the projection on the ratchet wheel and weighted at the opposite end; and a push-pawl connected with said lever and engaging the ratchet-disk on the bag-receptacle.

25. In a paper-bag machine the combination of a paper-roll shaft; tension-rollers, C, having their journals resting on inclined sides; a paper-supporting roller, 13, and paste-wheel 14 both on one shaft; and means for vertically-adjusting the said paper-supporting roller and paste-wheel.

26. In a paper-bag machine, the combination of the creasing plates, F', and the plates, F, above them and which are connected with them and pivoted by one end to swing in a horizontal plane; creasing disks, 31, revolving in a horizontal plane; adjustable drawing-and-lapping rollers, *c*, revolving in a vertical plane all mounted on said pivoted plates; and devices for automatically stopping and holding the said pivoted plates when in the normal or operative position.

493,525. CAP-MAKING MACHINE. HENRY SCHAAKE, San Francisco, Cal., assignor to Charles B. Kendall, same place. Filed Aug. 3, 1892. Serial No. 442,090. (No model.)



Claim.—1. In a cap making machine for cans, the combination with a set of vertically movable male dies of a set of female dies, located thereunder, mechanism for synchronously rotating the male and female dies, and, during the operation thereof, raising the female dies, and of the flexible wiping strip for moving the stamped cap into discharge chute, as and for the purpose set forth.

2. In a cap making machine for cans, the combination with the female die thereof, of the movable bottom located therein, and of the spring-actuated lugs secured within the movable bottom, and of the mechanism for raising and lowering the movable bottom during the rotation of the female die, as and for the purpose set forth.

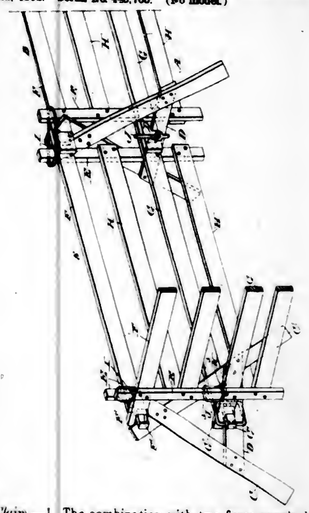
3. In a cap making machine, the combination with the male dies, of the female dies, mechanism for rotating said dies and during rotation thereof, raising and lowering the female dies, of the movable bottom located within the female dies, of the spring-actuated lugs secured therein, and of cam for raising said bottom during travel of the dies.

4. In a cap machine, the combination with the female dies, of the movable bottoms, spring-actuated lugs secured therein, and of the cam adapted to raise said bottom and lugs during travel of female die.

5. In a cap making machine, the combination with the female die provided with a movable bottom, cam for raising said bottom, spring-actuated lugs secured within the movable bottom, said lugs adapted to project beyond level of female die when the bottom is raised, and of the flexible rod or strip for moving the cap from off the female die during the travel thereof.

493,526. WITHDRAWN.

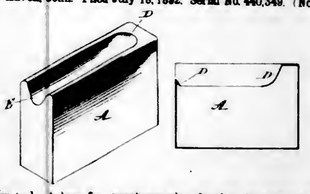
493,527. FENCE. WILLIAM P. SHARP, Lowell, Kans. Filed Aug. 22, 1892. Serial No. 443,705. (No model.)



Claim.—1. The combination with two fence panels, having vertical bars E E at their adjacent ends; said bars projecting at their upper ends above the upper rails and two rails F G of each panel projecting beyond the end bars E E and overlapped, of the rigid support A having a notch C^3 in its upper end in which rest the overlapped ends of the rails F F and a lower notch D' in which rest the overlapped ends of the rails G G, a link I encircling the upper projecting ends of the vertical end bars E E and a lower link J, binding the overlapped ends of panels G G, together and to the support A, substantially as set forth.

2. The combination with two corner panels provided with vertical bars E E and having their upper rails F F and intermediate rails G G cut away and crossed at their projecting ends as at F' F' G' G' upper and lower links I K encircling the said vertical bars E E, a cruciform support A formed of rigidly connected bars C C crossed at their upper ends and provided with a cross bar having a notch D', the crossed ends F' F' and G' G' all extending obliquely through the notches C^3 D' and the link J embracing the crossed ends G' G' and cross bar D, substantially as set forth.

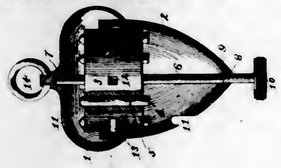
493,528. BOX FOR TOOTH-POWDER. WARREN A. SPALDING, New Haven, Conn. Filed July 18, 1892. Serial No. 440,349. (No model.)



Claim.—1. A box for tooth-powder having its upper end constructed with a long narrow opening located at the bottom of a concavity or depression formed at the top of the box, having inclined sides and ends, and the general contour of the bristle-end of a tooth-brush, the box being cut away at one end of the said concavity to form a clearance space for the handle of the brush, substantially as set forth, and whereby the bristles of the brush are drawn together by the inclined sides and ends of the concavity and consolidated over the opening through which the powder is evenly distributed upon them when the box is inverted or turned down to one side.

2. A box for tooth-powder having its upper end constructed with a long narrow opening located at the bottom of a concavity or depression formed in the top of the box, having inclined sides and ends, and the general contour of the bristle-end of a tooth-brush, the box being cut away at one end of the said concavity to form a clearance space for the handle of the brush; in combination with a cover having a corresponding depression or concavity, closed at the bottom to close the opening in the box, and made a little smaller than the depression thereof, substantially as set forth, and whereby the bristles of the brush are drawn together over the said opening in the box by the inclined sides and ends of the concavity therein and consolidated to receive the powder when the box is inverted or turned down to one side.

493,529. TOY MICROSCOPE. HENRY R. STAUFFER, Wilmington, Del., assignor to David R. Stauffer, Walkersville, Md. Filed Dec. 8, 1892. Serial No. 454,590. (No model.)



Claim.—1. A frame provided with an aperture, in combination with a series of lenses, each carrying a photograph, and means for bringing the lenses successively in line with the aperture, substantially as described.

2. A frame provided with an aperture, in combination with a disk mounted upon a spindle, a milled head for turning said spindle, and a series of lenses, each provided with a photograph, secured to said spindle so as to be brought, by the rotation of the spindle, directly in front of the aperture in the frame, substantially as described.

3. A frame provided with an aperture, in combination with a disk for carrying a series of lenses and photographs, means for rotating said disk, and a holding device, whereby the location of the lenses with relation to the aperture may be maintained, substantially as described.

4. A spindle, in combination with a milled head for turning said spindle, a disk secured to said spindle, and a series of lenses and photographs carried by said disk, substantially as described.

5. A spindle, a milled head for turning said spindle, a shoulder for preventing its longitudinal motion, a disk secured to said spindle, a series of lenses carried by said disk, and an object mounted with each lens, in combination with a frame, said frame being provided with a ring, substantially as described.

6. A disk, and a series of lenses and photographs carried thereby, in combination with a spindle and means for turning said spindle, substantially as described.

493,530. SELF-BINDING HARVESTER. OLE O. STORLE, Burlington, Wis., assignor to William Deering, Chicago, Ill. Filed Jan. 3, 1890. Serial No. 335,786. (No model.)

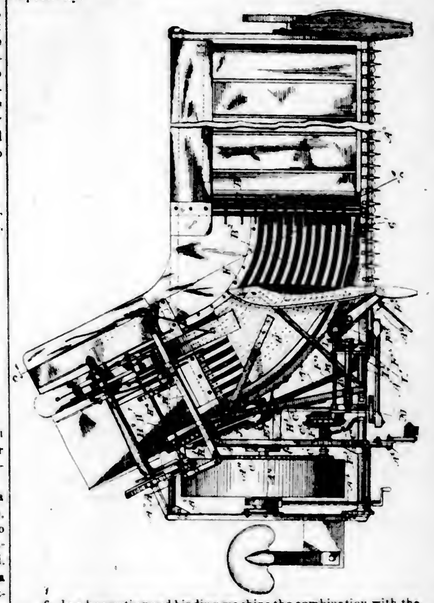
Claim.—1. In a grain harvesting and binding machine, the combination with the main-frame, of the main wheel, the main driving-shaft C^2, extending in a fore and aft direction and driven from the main-wheel, the oblique conveyer-driving shaft D, driven from the main driving-shaft, the transverse shaft E^2, driven from the conveyer driving-shaft, and the conveyer shaft B and its apron driven from the shaft E^2, substantially as described.

2. The combination and arrangement of the driving sprocket wheel C^4, the binder driving sprocket wheel H^2, the driving chain C^5, and the butt-adjusting canvas J, the said chain arranged to pass up between the two parallel sides of the said butt-adjusting canvas, substantially as described.

3. In a harvester and binder the combination with the conveying mechanism arranged to carry the cut grain to the binder, of two endless butting aprons, one in advance of the other, and independent driving mechanism for said aprons whereby the said aprons are adapted to be driven at different rates of speed.

4. In a grain harvesting and binding machine, the combination of the receiving platform and the curved conveying mechanism acting to carry the cut grain to the binder, with the divider extending rearward over the curved conveyer, the sheet K', overlying said conveyer, and the butting mechanism J.

5. In a grain harvesting and binding machine, the combination with the curved conveyer adapted to carry the cut grain from the receiving platform to the binder, of the two butting aprons located at the outer edge of said conveyer at its receiving and delivery ends respectively.



6. In a harvesting and binding machine the combination with the receiving platform and the conveyer thereon, of the curved conveyer arranged between the first named conveyer and the binding mechanism to deliver the grain to the latter, and two butting-aprons located at the outer edge of said conveyer, one in advance of the other, to act successively on the advancing grain.

7. In a grain harvesting machine, the combination with the front sill, of the standards M M' rising therefrom, the butting apron F^4, sustained at the side thereof, the driving-shaft journaled in said standards and arranged to operate the butting apron, the reel standard L', journaled in the first named standards above the driving shaft, the reel at its upper end, the reel driving pinion L^4, driven from the driving-shaft, and the sprocket wheel and chain arranged to transmit motion to the reel.

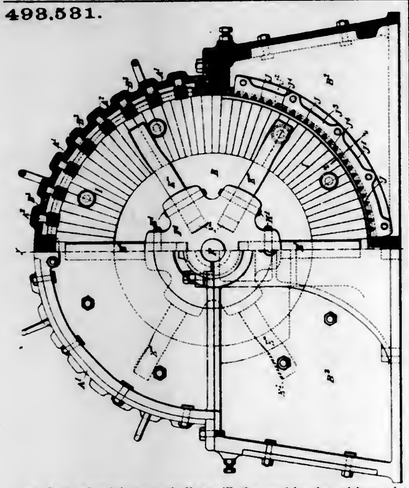
493,531. MACHINE FOR GRINDING, CRUSHING, OR DISINTEGRATING GRAIN, &c. SIDNEY STRAKER, London, England, assignor to the Central Cyclone Company, Limited, same place. Filed July 21, 1892. Serial No. 440,806. (No model.)

Claim.—1. In a pulverizing or grinding mill the combination with a semi-cylindrical casing forming the upper portion of the reducing chamber, of bars placed around the inner circumference of the said casing and resting in recesses therein, and segmental covers having india-rubber buffers or steel or other springs to bear upon the said bars.

2. In a pulverizing or grinding mill the combination with a semi-cylindrical casing forming the upper portion of the reducing-chamber, of bars placed around the inner circumference of the said casing and resting in recesses therein, segmental covers having india-rubber buffers or steel or other springs to bear upon the said bars, and two serrated impinging rings, one on each side of the fan or beater, with faces inclined to the plane in which the fan or beater rotates, substantially as set forth.

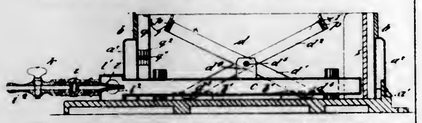
3 In a pulverizing or grinding mill the combination with a series of bars arranged in a semi-circle in the bed with spaces between them, of segments slotted segmentally to receive the ends of the said bars, and other segments secured to the first-named segments and provided with recesses to receive the said bars substantially as set forth.

493,531.



4. In a pulverizing or grinding mill, the combination with a series of bars arranged in a semicircle in the bed with spaces between them, of segments slotted segmentally to receive the ends of the said bars, and supplemental segments provided with recesses to receive said bars, substantially as described.

493,532. GAS HEATING-STOVE FOR SMOOTHING-IRONS. HERMANN STRASSMANN, Erfurt, Germany, assignor to Samuel Baron, New York, N. Y. Filed May 25, 1892. Serial No. 434,279. (No model.) Patented in Germany June 9, 1891, No. 60,645.



Claim.—1. In a gas heating stove for smoothing irons the combination with an outer mantle provided with air openings, of a skeleton support or grate composed of levers d^1, d^2, d^3, d^4, and cross bars d^5, d^7, a gas supply, a gas cock, and mechanism operated by the levers of the support or grate to open and close said gas-cock, substantially as described.

2. In a gas heating stove for smoothing irons, the combination with an outer mantle provided with air openings, of an inner, movable mantle opening and closing said air openings, a movable grate d engaging said inner movable mantle for raising said mantle when an iron is placed on said grate, a gas supply, a gas cock and means connected with said inner mantle and said gas cock for opening and closing said cock, operated by the movement of said mantle, substantially as described.

3. In a gas heating stove for smoothing irons, the combination with a mantle provided with air openings, a movable grate in said mantle, a gas supply pipe, a gas cock in said pipe, a main gas burner, an ignitor burner, a vertically movable device carried by the movable grate, and means connected with said vertically movable device and said gas cock and operated by said device to open and close the gas-cock, substantially as described.

4. In a gas heating stove for smoothing irons, the combination with an outer mantle provided with air openings, of an inner mantle, a movable grate engaging said inner mantle to raise the same when the iron is placed upon the grate, and a plate q connected with and adjustable to and from said inner mantle, substantially as described.

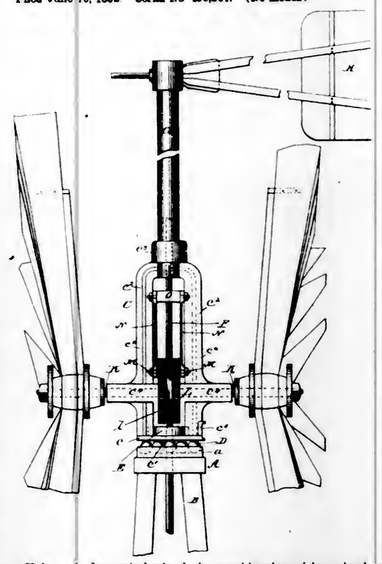
5. In a gas heating stove for smoothing irons, the combination of an outer mantle provided with air openings, a vertically movable inner mantle which controls said air openings, a movable grate connected with the inner mantle and serving to elevate the same when an iron is placed on said grate, a gas supply pipe provided with a gas cock, a lever connected to the inner mantle, a rod connecting the lever with the gas cock, and a removable pin connecting the rod and lever, substantially as described.

6. In a gas heating stove for smoothing irons, the combination with a mantle d^3, of levers d^1, d^2, d^3 d^4, within said mantle, cross bars d^5, d^7, connecting the upper ends of said levers, and shoulders p, on said cross bars, substantially as and for the purpose described.

7. In a gas heating stove for smoothing irons, the combination with an outer mantle provided with air openings, a vertically movable inner mantle located within the outer mantle and controlling said air openings, a movable grate located within the inner mantle and connected therewith to elevate the same and uncover the air openings when an iron is placed on the grate, a gas supply pipe provided with a gas cock, and a lever connected with the inner mantle and with the gas cock, substantially as described.

8. In a gas heating stove for smoothing irons, the combination with an outer mantle provided with air openings, of an inner mantle located within the outer mantle, a movable grate connected with the inner mantle and serving to elevate the same when an iron is placed on said grate, a gas supply pipe provided with a gas cock, a lever connection between the inner mantle and the gas cock, a branch pipe communicating with the gas pipe in advance of the gas cock, and an ignitor burner supplied by the branch pipe, substantially as described.

493,533. WIND-WHEEL. BENJAMIN J. SYKES, Sykesville, Pa. Filed June 10, 1892. Serial No. 436,281. (No model.)



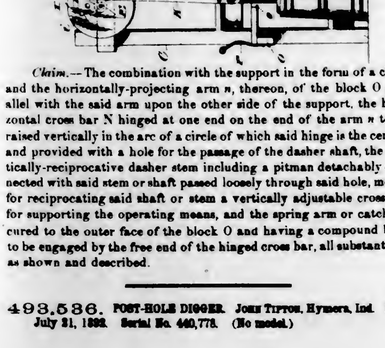
Claim.—1. In a wind wheel, the combination with a wheel casting, of the peripherally grooved meshing gears journaled thereon, the plunger rod working between the gears and the pitmen connecting the gears and plunger rod, and a wind wheel mounted upon the journal shaft of each grooved gear substantially as shown and described.

2. In a wind wheel, the combination with a wheel casting suitably mounted of the oppositely arranged wheel shafts journaled therein, the peripherally grooved meshing gears, the plunger rod, pitmen and vane shaft, and the wind wheels mounted upon the ends of the wheel shafts all arranged substantially as shown and described.

3. In a wind wheel, the combination with a vane casting consisting of a base, bearing standards, and tubular head of the oppositely arranged power shafts, the gears mounted upon said shaft and meshing with each other midway between the standards, said gears having mating peripheral grooves, the plunger rod working between the gears and through the head and base of casting and the pitmen connecting the gears and plunger rod, substantially as shown and described.

493,534. CAR-COUPLING. JOHN H. TALPEY, Richmond, Me., assignor of one-half to Charles H. T. J. Southard, same place. Filed June 22, 1892. Serial No. 437,621. (No model.)

Claim.—1. In a car-coupling, the draw-head provided with the chambers B and a, a, the spring actuated slide-bars D, D, moving in said chambers a, a, and extending into the chamber B and through the sides of the draw head and having their outer ends turned upward as shown, combined with the slide-bars G G' provided with projections k, k, adapted to engage the turned up outer ends of the bars D, D, the hand lever H connected with the bars G G' and adapted to move the same simultaneously in opposite directions to separate the inner ends of the bars D, D, and the arrow-headed coupling-hook C, adapted to move the bars D, D, apart to engage therewith, all operating substantially as described.



2. In a car-coupling, the draw-head provided with the chambers B and a, a, and the spring-actuated slide-bars D D movable in said chambers a, a, and having their outer ends b turned upward as shown, in combination with the slide-bars G G' provided with projections k, k, adapted to engage the turned up outer ends of the bars D, D, the lever H connected beneath its fulcrum with the bar G, the connecting-rod n pivoted to said lever H above its fulcrum and at its opposite end to the bar G', and a pawl s adapted to engage one of said bars G or G' to hold the inner ends of the bars D, D, apart against the stress of their springs, substantially as set forth.

3. In a car-coupling, the draw-head provided with the chambers B and a a, and the spring-actuated slide-bars D, D, movable in said chambers a, a, and extending into the chamber B and through the sides of the draw-head and having their outer ends turned upward as shown, in combination with the slide-bars G G' provided with projections k, k, adapted to engage the turned up outer ends of the slide-bars D, D, and at their outer ends with projections p, p, the lever H connected with the bars G, G', and the stationary fulcrum pins q arranged in proximity with the projections p, whereby the bars G G' may be operated from either side of the car to release the coupling-hook C by a bar or lever introduced between one of said fulcrum pins q and the adjacent projection p of the bar G or G', substantially as set forth.

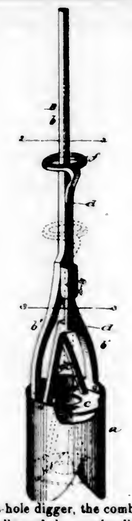
493,535. CHURN. JAMES M. TEDLOCK, Urbana, Mo. Filed May 24, 1892. Serial No. 434,164. (No model.)



Claim.—The combination with the support in the form of a chair and the horizontally-projecting arm n, thereon, of the block O parallel with the said arm upon the other side of the support, the horizontal cross bar N hinged at one end on the end of the arm n to be raised vertically in the arc of a circle of which said hinge is the center, and provided with a hole for the passage of the dasher shaft, the vertically-reciprocative dasher stem including a pitman detachably connected with said stem or shaft passed loosely through said hole, means for reciprocating said shaft or stem a vertically adjustable cross bar for supporting the operating means, and the spring arm or catch secured to the outer face of the block O and having a compound bend to be engaged by the free end of the hinged cross bar, all substantially as shown and described.

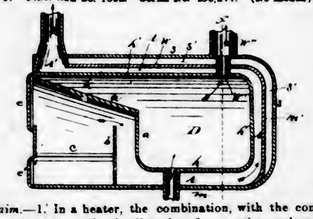
493,536. POST-HOLE DIGGER. JOHN TIPTON, Hymera, Ind. Filed July 21, 1892. Serial No. 440,778. (No model.)

493,536.



Claim.—In a post-hole digger, the combination, with the cylinder, its bifurcated handle, and the annular dirt-tamper c, of the push-rod, d, attached to said dirt-tamper and having an offset and a bifurcation which is aligned with the bifurcation of the cylinder handle, and the flat ring f, formed on its upper end, and embracing the cylinder handle and having opposite lateral extensions, as shown and described.

493,537. HEATING APPARATUS. HIRAM J. WATTLES, Syracuse, N. Y. Filed Oct. 23, 1892. Serial No. 450,277. (No model.)



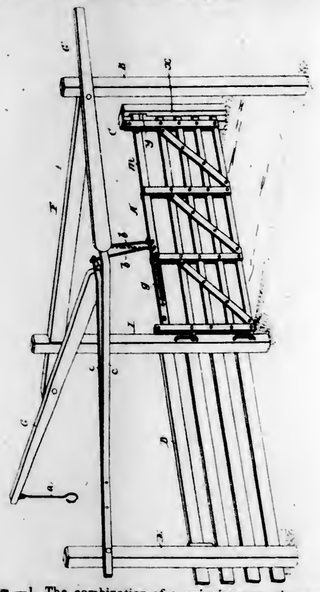
Claim.—1. In a heater, the combination, with the combustion chamber, the indirect flue leading therefrom to the stack, of an air or water chamber substantially inclosed within said flue, an outer casing creating an air or water chamber exterior to said flue, an induction pipe leading to the inner chamber, and eduction pipes from said air or water chambers.

2. In a heater, the combination, with the combustion chamber, the crown-sheet, and the indirect flue leading from said chamber to the stack, of an air or water chamber, partially inclosed within said flue and extending forward over said crown-sheet, an outer casing creating an air or water chamber exterior to said flue, an induction pipe leading to said inner chamber, and eduction pipes leading from said air and water chambers.

3. In a heater, the combination, with the combustion chamber, the crown-sheet, and the indirect flue leading from said chamber to the stack, of an air or water chamber partially inclosed within said flue, an outer casing extending over the top and rear and creating an air or water chamber over and in rear and exterior to said flue, and induction and eduction pipes to and from said air or water chambers.

4. In a heater, the combination, with the combustion chamber, the crown-sheet, and the indirect flue leading from said chamber to the stack, of an air or water chamber partially inclosed within said flue and extending over said crown-sheet, an outer casing extending over the top and rear and creating an air or water chamber over and in rear and exterior to said flue, and induction and eduction pipes to and from said air or water chambers.

493,538. GATE. WILLIAM R. WHITE, Bloomington, Ill. Filed June 3, 1892. Serial No. 435,381. (No model.)



Claim.—1. The combination of a swinging gate, the operating levers G G' having their inner ends close together and both arranged at the same side of the gate, the gate in its movements being arranged to swing under the levers, and the connecting rods between the gate and the operating levers, the connection of the said rods with the operating levers being in different planes parallel to the plane of the gate when situated below the operating lever, whereby both the said connecting rods can never, at the same time, be directly over or in the same plane as is the gate when it is under the operating levers, substantially as described.

2. The combination of a swinging gate, the operating levers having their inner ends close together and both arranged at the same side of the gate, the gate being arranged to swing beneath the inner end of the operating levers as it opens and closes, the connecting rods between the inner end of the levers and the gate, the connection of the said rods with the levers being in different planes parallel to the plane of the gate when situated below the operating levers whereby when the gate swings under the levers both of the rods are not directly above the gate, and means for connecting the rods whereby they positively operate together, substantially as set forth.

3. The combination of a swinging gate, the operating levers G, G', the pivoted connecting bars *c*, *c*, having their free ends connected with the inner ends of the operating levers, and extending to different lengths beyond their connection with the said lever, and connecting rods *d*, connected with the ends of the bars *c*, and with the gate, substantially as set forth.

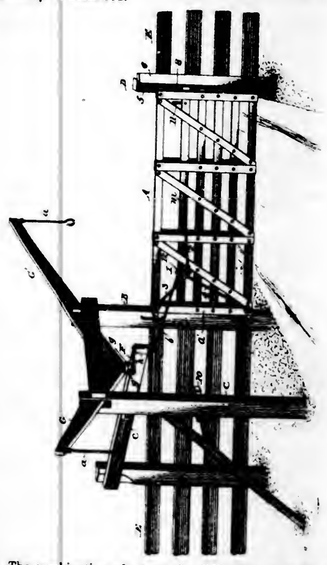
4. The combination of a swinging gate, the operating levers, the pivoted rods *c*, *c*, connected with the inner ends of the operating levers and extending to different distances beyond their connection with the said levers, and the connecting rods *b* connected with the projecting ends of the said bars *c*, *c* and at different points to the gate, substantially as set forth.

5. The combination with a swinging gate, of the operating levers G, G', having their inner ends arranged adjacent to each other and both upon the same side of the gate, the sliding latch bar *m*, upon the gate and the connecting rods *b*, *b*, extending from the inner ends of the operating levers to the said latch bar, substantially as set forth.

493,539. GATE. WILLIAM R. WHITE, Bloomington, Ill. Filed Aug. 18, 1892. Serial No. 443,204. (No model.)

Claim.—1. The combination with a swinging gate, of a bolt or latch therefor, the vibrating gate operating levers having their inner ends above and both on the same side of the gate, a laterally projecting frame arranged between the ends of the gate and projecting from the side thereof toward the inner ends of the operating levers so as to move under the inner end of the gate-operating levers as the gate moves from its closed to its opened positions, and vice versa, the said frame having a laterally movable member connected with the latch and with the gate operating levers, substantially as described.

2. The combination of a gate, the sliding bolt or latch, the gate operating devices, and a laterally projecting frame with which the gate operating devices are connected, consisting of a laterally movable member 2, connected with the gate bolt or latch, and the two bracing pieces 3 and 4, one inclining upward and the other downward substantially as described.



3. The combination of a gate, the sliding bolt or latch, the gate operating devices and the laterally projecting frame, I, to which the gate operating devices are connected, consisting of the laterally movable member 2, connected with the sliding bolt and the bracing members 3 and 4, the outer ends of the members 2, 3 and 4 meeting and being connected at their outer ends by a bolt 12, substantially as described.

4. The combination of a gate, a sliding bolt or latch, the gate operating devices and the laterally projecting frame, I, having a member 2, connected with the sliding bolt and laterally movable, and the members 3 and 4 connected at their outer ends with the member, 2, and at their inner ends turning on supports situated adjacent to the inner end of the gate, substantially as described.

5. The combination of a swinging gate, a sliding locking bolt or latch, a laterally projecting frame having a movable member connected with such latch, the gate operating levers, the connecting rod, *b*, connected with the operating levers and with the said frame and arranged when the gate is closed to incline toward the forward end of the gate and when the gate is open to incline rearward or away from the forward end of the gate, whereby the momentum of the operating levers is transmitted to the latch, moving it in one direction when the gate is opened and in the opposite direction when the gate is closed, and the catches with which the latch engages by reason of such momentum arranged to hold the gate in its closed and open positions substantially as described.

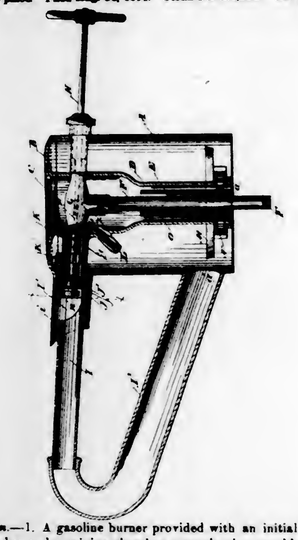
6. The combination with a swinging gate and the sliding latch therefor, of the post B, composed of the part 5 situated in the path of the gate and against which the free end thereof swings when the gate is closed, and the part 6 set at an angle to the part 5 and back of or out of line of the movement of the gate whereby there is formed a recess 7 into which the sliding bolt enters, substantially as set forth.

7. The combination with the gate, of the post against which the free end of the gate rests when closed, composed of the two posts 5 and 6 set at an angle to each other to form the recess 7 and to form a shoulder 9 on the side away from the gate against which the end of the fence may rest, substantially as described.

8. The combination of a swinging gate, the operating levers, the single vibrating guiding or steadying arm to which the inner ends of both the levers are connected,—the connection between one of the levers and the arm being a link,—and the connecting rod between the said arm and the gate, substantially as described.

9. The combination of a swinging gate, the operating levers, G, G', the single vibrating guiding or steadying arm, *c*, to which one of the levers is directly connected, the link, F, uniting the other lever to the arm, and the connecting rod, *b*, connected with the arm *c*, and with the gate, substantially as described.

493,540. GASOLINE-BURNER. JAMES WILLIAMS and GEORGE A. CUMMER, Cleveland, Ohio; said Williams assignor to Robert J. Cummer, same place. Filed Aug. 31, 1891. Serial No. 404,214. (No model.)



Claim.—1. A gasoline burner provided with an initial combustion chamber and a mixing chamber, a supply pipe provided with a regulation valve, a circulation pipe from which the fluid, before being vaporized, flows into the mixing chamber through a passage in communication with the initial chamber, whereby a portion of the fluid is caused automatically to flow to the starting burner of the initial chamber, and then without any adjustment of the feed valve or any other part of the apparatus this flow is caused to cease, and the vaporization of the fluid caused to commence and go on until the supply of fluid is cut off, substantially as described.

2. The gasoline burner having an initial combustion chamber and a mixing chamber, a supply pipe with regulation valve, a circulation pipe, the said mixing chamber being in communication with the initial combustion chamber, and the initial combustion chamber being provided with a tubular projection L filled with vaporizing material, as asbestus, and with a perforated portion N, the said chambers being arranged within one another, and in communication with each other by means of the projection L and the perforations in the portion N, and supplied with air, substantially as and for the purpose described.

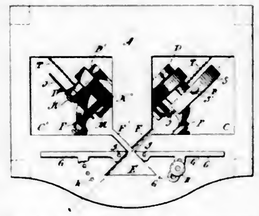
3. A gasoline burner comprising an initial burner chamber, a mixing chamber outside said initial chamber, a heating pipe forming a portion of the supply pipe and arranged to be under the action of the burning vapor of the initial heating chamber, a vapor circulation pipe in communication with the supply and heating pipe, and with the initial heating chamber and mixing chamber, and air induction passages for insuring combustion, substantially as described.

4. In a gasoline burner, the combination of the internally arranged initial combustion chamber into which the supply fluid is introduced in a cold fluid condition, an outer surrounding final combustion chamber into which the fluid is introduced in a vaporous heated condition, a supply pipe passing through said initial chamber and adapted to be heated thereby, the upper end of said initial chamber being inclined and provided with an opening for the entrance of cold fluid, a conducting passage L in said chamber at its upper end, a vaporising pan M near its bottom, a perforated cylinder N forming a communication between the two chambers, and a central draft passage, whereby the vaporous fluid on the drip pan will be automatically siphoned or drawn into the initial combustion chamber to be ignited and the supply of fluid to the initial chamber automatically cut off and the fluid in the form of vapor caused to continuously enter the final combustion chamber, to be consumed, substantially as described.

5. In a gasoline burner, an interior initial combustion chamber an exterior final combustion chamber for gas, a commingling chamber exterior to both chambers and means substantially as described for introducing cold fluid into the exterior chamber, siphoning the same into the interior chamber and initial means for introducing the heated gas into the exterior chamber, all combined as and for the purpose set forth.

6. In a gasoline burner an interior initial combustion chamber, a fluid supply pipe and induction valve passing through said chamber, a commingling chamber in line of the axis of the induction valve and arranged diagonally to discharge into the cold chamber and a chamber for the combustion of gas annularly placed about the initial combustion chamber and a circulation pipe for gas connecting the commingling gas combustion chambers, substantially as described.

493,541. MITERING-MACHINE. WILLIAM W. ABBOTT, New Haven, Conn., assignor to Elbridge F. Barnes, same place. Filed Nov. 14, 1892. Serial No. 451,913. (No model.)



Claim.—1. In a mitering machine, the combination with a table, of two saw-frames pivotally supported below the same at their lower ends, at a right angle to each other, two saws respectively mounted in the upper ends of the said frames, projecting above the table, and also arranged at a right angle to each other, means for driving the saws, and guides located upon the table for holding the work, substantially as described, and whereby either of the saws may be advanced to the work by swinging the frames.

2. In a mitering machine, the combination with a table, of two saw-frames pivotally supported below the same at their lower ends, at a right angle to each other, two saws respectively mounted in the upper ends of the said frames, projecting above the frames, and also arranged at a right angle to each other, two driving-shafts arranged at a right angle to each other, and respectively concentric with the centers on which the frames are swung, connections between the said shafts and the saws, and guides located upon the table for holding the work, substantially as described.

3. In a mitering machine, the combination with the table thereof, of the two saw-frames pivotally supported at their lower ends below the said table, at a right angle to each other, two saws respectively mounted in the upper ends of the said frames and projecting above the said table, two driving-shafts arranged concentrically with the centers on which the said frames swing, and one extending under the other at a right angle thereto, and connections between the said shafts and the saws, substantially as described.

4. In a mitering machine, the combination with a table constructed with two large openings, with a clearance opening located centrally in front of the same, and with two saw-ways located at a right angle to each other, and leading out of the adjacent forward corners of the said large openings into the said clearance opening; of two saw-frames pivotally supported at their lower ends below the said table at a right angle to each other, two saws respectively mounted in the upper ends of the said frames and projecting above the table through the large openings therein, two driving shafts arranged at a right angle to each other, concentric with the centers on which the respective saw-frames are swung, and connections between the said shafts and saws, substantially as described.

5. In a mitering machine, the combination with a table, of two saw-frames located below the same, and pivotally supported at their lower ends at a right angle to each other, two saws respectively mounted in the upper ends of the said frames and projecting above the table, power connections for driving the said saws which are located at a right angle to each other, and two guards or fenders respectively attached to the upper ends of the frames and extending up

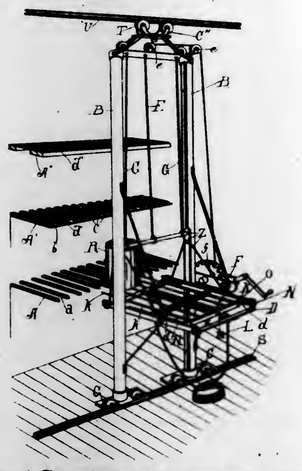
and over the same, and each adapted to be grasped for swinging the frames and hence the saws, substantially as described.

6. In a mitering machine, the combination with a table, of two saw-frames located below the same, and pivotally supported at their lower ends at a right angle to each other, two saws mounted in the upper ends of the respective frames, and projecting above the table, power connections for the said saws which are also arranged at a right angle to each other, guards or feeders for the saws, and two guides pivoted to the said table and movable thereon to present the work at different angles to the saws which are moved up to it by swinging the frames, substantially as described.

7. In a mitering machine, the combination with the table thereof, of two saw-frames located below the said table, arranged at a right angle to each other and each provided at its lower ends with a hub having a concentric bore, two saws respectively mounted in the upper ends of the said frames, and projecting above the table, a bearing located below the table and constructed with two bores arranged one above the other, and at a right angle to each other, and with two recesses respectively concentric with the said bores, two driving-shafts extending through the bores of the said bearing and through the said hubs which take into the recesses of the bearing and support the frames independent of the said driving-shafts which are thus made concentric with the centers on which the frames swing, and connections between the said shafts and saws, substantially as described.

8. In a mitering machine, the combination with the table thereof, of one or more saw-frames pivotally supported below the same at its lower end, each frame having a saw mounted in its upper end to project above the table, a driving-shaft, arranged concentric with the centers on which it is swung, but relieved of its weight, connection between the said shaft and saw, whereby the latter is driven, and a guard attached to the upper end of the frame, and curving upward over the saw, and adapted to be grasped by the hand for swinging the frame, substantially as described.

493,542. DISPLAY-SHELF AND CARPET-ELEVATOR. THEODORE REMING and WILLIAM A. BARKER, Los Angeles, Cal. Filed Feb. 18, 1892. Serial No. 422,051. (No model.)



Claim.—1. The combination of the elevator frame; an elevator platform provided with a horizontally slidable frame comprising a series of load supporting fingers; appliances for raising and lowering the elevator platform and holding it elevated; a shelf provided with a series of finger-chambering spaces, and means for moving the slidable frame toward and from the shelf to insert the fingers into and withdraw them from such spaces.

2. In an elevator of the class set forth, the combination of the shelf provided with the finger chambering spaces; the elevator frame; the elevator platform or cage; the horizontal guides fixed to the elevator cage; the slidable platform provided with the load carrying fingers, and arranged to slide in such guides; appliances for raising and lowering the platform and holding it elevated; and means for moving the sliding frame toward and from the shelf.

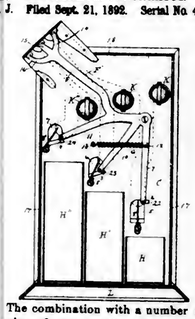
3. In an elevator platform of the class described, the combination of the transverse perforated bars; the fingers provided with suitable heads and inserted through the perforations in the bars; and the latch bar pivoted to the rear side of the rear perforated bar.

493,543. LAP-RING. GEORGE BOSS, Yokena, Miss. Filed Oct. 26, 1892. Serial No. 449,998. (No model.)



Claim.—As an improved article of manufacture, the lap-ring, constructed, as hereinbefore described, of the oval-shaped hook, A, having the integral circular eye, *a*, formed on one of its extremities and projecting laterally from the body of the hook in a plane at right angles to it, and the smaller, shorter hook, B, having a similar integral eye, *b*, in the same plane with its body, the two eyes being interlocked as shown, whereby the smaller hook is adapted to be manipulated in the manner specified.

498,544. COIN-RECEIVING APPARATUS. CLEMENT C. CLAWSON, Newark, N. J. Filed Sept. 21, 1892. Serial No. 446,401. (No model.)



Claim.—1. The combination with a number of inclosed money boxes, and a number of corresponding coin pockets having movable parts for discharging the coins and arranged to expose the coins in said pockets to view and to discharge them into the corresponding money boxes, of discharging means connected with said movable parts and arranged to form for all the pockets a removable obstruction at the entrance thereto, said means in the introduction of a coin thus automatically operating to discharge the contents of any pocket into the corresponding money box irrespective of the pocket which the newly introduced coin may enter, substantially as described.

2. The combination with a coin-exposing pocket provided with a reciprocatory part controlling the exit therefrom, of a reciprocatory finger connected with said exit-controlling part and arranged to form a removable obstruction at the pocket entrance, said finger being adapted to be pressed back by the coin and to permit it to pass on after moving said finger, substantially as described.

3. The combination with a coin-exposing pocket provided with a movable exit-controlling part, of a reciprocatory finger adapted to be pressed back by a coin and arranged to form a removable obstruction at the pocket entrance, and a lever arranged to constitute as well the support for the said exit-controlling part and for said finger as the means for connecting them with each other, so that said part, finger and lever are in effect integral with one another, substantially as described.

4. The combination with a number of coin exposing pockets having each a movable exit-controlling part, of a lever provided with discharging means forming for all the pockets a removable obstruction at the entrance thereto, said lever being arranged to constitute as well the support for, as imparter of motion to, said exit-controlling parts, which thus in effect are integral with said lever, substantially as described.

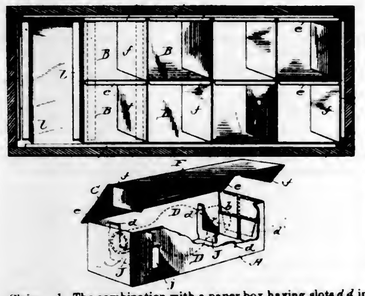
5. The combination with the base, and back of the case, of a metal plate having a groove on the face and provided with a hole through said plate from said groove, and a glass plate over the face of said metal plate, the said hole being of dimensions and arrangement to allow the coin to pass through the plate into a money receptacle behind, substantially as described.

6. A number of coin pockets having each a reciprocatory stud movable laterally to retain or discharge the coins, in combination with a discharging lever integral in effect with said studs and movable in a vertical plane parallel with the faces of the coin pockets, substantially as described.

7. The combination of a glass plate, a grooved metal plate, and a lever pivoted to the back of said metal plate and provided with studs integral in effect with said lever projecting through holes in said metal plate into the grooves on the face thereof for retaining the coins, substantially as described.

8. The combination with a number of inclosed money boxes, and a number of corresponding coin-exposing pockets having exit-controlling parts, of a lever provided with entrance-obstructing means adapted to be pressed back by the coin and to permit the latter then to pass at once to a pocket, said entrance-obstructing means and said exit-controlling parts both being in effect integral with said lever, substantially as described.

493,545. PACKING-BOX. BERNARD COHEN and DANIEL W. GASKILL, Little Rock, Ark. Filed Aug. 19, 1892. Serial No. 443,504. (No model.)

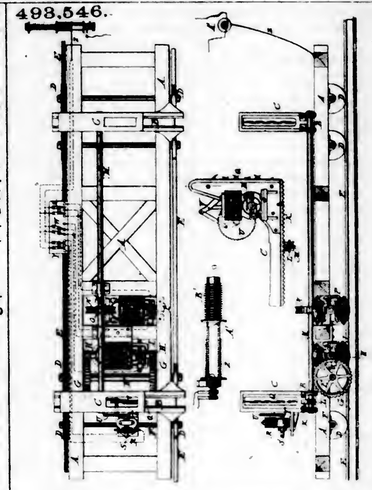


Claim.—1. The combination with a paper box having slots *d d* in its sides, of vertical holders J J arranged near each end of the box and having end portions which are adapted to be thrust through the said slots and be bent upon said sides to retain said holders in place and prevent the spreading of said sides, said holders being depressed or notched in their upper edges, substantially as described for the purpose specified.

2. The herein described packing box for the purpose set forth formed of a single blank comprising, the bottom A having end portions B B and end flaps *b b*, the sides D D having end portions which are slit from their outer edges to the fold to form flaps *d' d'* and having slots *d, d*, the top C having end folding extensions *e e*, the side fold F having end flaps *f f*, and the holders J J depressed in their upper edges and having end portions which are adapted to be thrust through said slots *d d* and be bent upon the sides D to retain the said holders in place and prevent said sides D from spreading, substantially as set forth.

3. A crate to receive a series of paper packing boxes having its bottom, sides, ends and top provided with strips, substantially as described for the purpose specified.

493,546.



493,546. SAWMILL-CARRIAGE. WALTER S. DODGE, Washington, D. C. Filed June 25, 1892. Serial No. 437,954. (No model.)

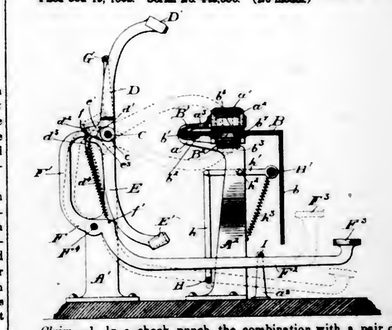
Claim.—1. In combination with a saw mill carriage; the knees mounted thereon; an electric motor for actuating the knees; a dogging mechanism; an independent electric motor for actuating the dogging mechanism,—both of said motors being in communication with a source of electricity,—and means for controlling said motors from a single point.

2. In combination with a saw mill carriage; the knees mounted thereon; independent electric motors for actuating the knees and for propelling the carriage; and means for controlling said motors from a single point.

3. In combination with a saw mill carriage; dogging mechanism mounted thereon; independent electric motors for actuating the dogging mechanism and for propelling the carriage; and means for controlling said motors from a single point.

4. In combination with a saw mill carriage provided with dogging and setting mechanism, three independent electric motors, adapted, respectively, to propel the carriage, and to actuate the dogging and setting mechanisms; and means for controlling said motors from a single point.

493,547. CHECK-PUNCH. LOUIS L. DRIGGS, Washington, D. C. Filed Oct. 19, 1892. Serial No. 449,350. (No model.)



Claim.—1. In a check punch, the combination with a pair of levers pivotally secured together, the one lever being provided with a male die and the other with a female die, of a key lever pivoted below said pair of die levers and having an upwardly projecting arm adapted to operate both of said die levers and a table perforated in the path of said die levers, and adapted to support the article to be punched, substantially as described.

2. In a check punch, the combination with a pair of die levers arranged one above the other and pivotally secured together, the one lever being provided with a male die and the other with a female die, of a key lever pivoted below said pair of die levers and having an upwardly projecting arm adapted to operate said die levers, a table perforated in the path of said die levers, means for holding the check on said table, a feed roller mounted on said table and adapted to engage said check, and mechanism operated by said key lever to impart an interrupted motion to said feed roller, substantially as described.

3. In an apparatus of the character described, the combination with the die levers and dies and means for operating the same of a frame carrying rollers, a table pivoted at one side beneath said rollers and perforated to receive said dies, and a spring secured to said frame and adapted to press said table upward against said rollers, and means for moving the check on said table, substantially as and for the purposes described.

4. In an apparatus of the character described, the combination with the die levers and dies and means for operating the same, of a frame carrying rollers, a table pivoted at one side beneath said rollers and perforated to receive said dies, a spring secured to said frame and

adapted to press said table upward against said rollers, a feed roller mounted beneath said table and adapted to move said check, and

12. In a check punch, the combination with a pair of levers arranged one above the other, the one lever being provided with a male

from the other and adjustable means for varying the speed of motion

bers having an upper jaw, another of the grip members having a

adapted to press said table upward against said rollers, a feed roller mounted beneath said table and adapted to move said check, and means for moving said feed roller, substantially as described.

5. In an apparatus of the character described, the combination with the die levers and dies and means for operating the same, of a frame carrying rollers, a table pivoted at one side beneath said rollers and perforated to receive said dies, a spring secured to said frame and adapted to press said table upward against said rollers, a feed roller mounted beneath said table and adapted to move said check, a ratchet wheel mounted on the same shaft with said feed roller, and a pallet adapted to engage said ratchet wheel, and means for moving said pallet, substantially as and for the purposes described.

6. In a feed mechanism for machines of the character described, the combination with a table and means for holding the check thereon, of a movable part actuated by the motive power, a feed roller journaled beneath said table and projecting above the surface thereof, a ratchet wheel moving with the feed roller, a pallet having two prongs, one adapted to engage in the teeth of said ratchet wheel and the other adapted to strike on the lower portion of said table, a spring normally holding said pallet against said ratchet wheel and the under side of said table, and a projection extending from said pallet below said movable part and adapted to be struck by said part as the latter is pressed down, substantially as described.

7. In a feed mechanism for machines of the character described, the combination with a table and means for holding the check thereon, of a pivoted lever passing beneath said table, a feed roller journaled beneath said table and projecting above the surface thereof, a ratchet wheel moving with the feed roller, a pallet having two prongs, one adapted to engage in the teeth of said ratchet wheel and the other adapted to strike on the lower portion of said table, a spring normally holding said pallet against said ratchet wheel and the under side of said table, and a projection extending from said pallet below said pivoted lever, and adapted to be struck by said lever as the latter is pressed down, substantially as described.

8. In a feed mechanism for machines of the character described, the combination with a table and means for holding the check thereon, of a movable part actuated by the motive power, a feed roller journaled beneath said table and projecting above the surface thereof, a ratchet wheel moving with the feed roller, a pallet having two prongs, one adapted to engage in the teeth of said ratchet wheel and the other adapted to strike on the lower portion of said table, a spring normally holding said pallet against said ratchet wheel and the under side of the table, a spring pawl independent of said pallet and adapted to hold said ratchet wheel against turning backward as said pallet is dragged over said ratchet teeth, and a projection extending from said pallet below said movable part and adapted to be struck by said part as the latter is pressed down, substantially as described.

9. In a feed mechanism for machines of the character described, the combination with a table and means for holding the check thereon, of a pivoted lever passing beneath said table, a feed roller journaled beneath said table and projecting above the surface thereof, a ratchet wheel moving with the feed roller, a pallet having two prongs, one adapted to engage in the teeth of said ratchet wheel and the other adapted to strike on the lower portion of said table, a spring normally holding said pallet against said ratchet wheel and the under side of the table, a spring pawl independent of said pallet and adapted to hold said ratchet wheel against turning backward as said pallet is dragged over said ratchet teeth, and a projection extending from said pallet below said pivoted lever, and adapted to be struck by said lever as the latter is pressed down, substantially as described.

10. In a feed mechanism for machines of the character described, the combination with the devices for punching and holding the check including the table B and the key levers F, of the feed roller B^3 and ratchet wheel b^4 and spring pawl b^5 adapted to engage in said ratchet wheel; the pallet K having the prong k adapted to engage said ratchet wheel, and the arm k' adapted to strike beneath said table, and the spring k^3 adapted to normally press said prong k against said ratchet wheel and said arm k' against said table; the cross bar H suspended beneath said key levers and supporting said pallet, and springs adjusted to support said cross bar H so that it may be struck by any one of said key levers and pressed down temporarily carrying with it the pallet K, substantially as and for the purposes described.

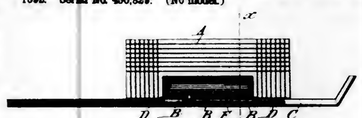
11. In a feed mechanism for machines of the character described, the combination with the devices for punching and holding the check including the table B and the key levers F, of the feed roller B^3 and ratchet wheel b^4 and spring pawl b^5 adapted to engage in said ratchet wheel; the pallet K having the prong k adapted to engage said ratchet wheel, and the arm k' adapted to strike beneath said table, and the spring k^3 adapted to normally press said prong k against said ratchet wheel and said arm k' against said table; the cross bar H suspended beneath said key levers and supporting said pallet, the connecting rods h supporting the ends of said cross bar, the levers h', the cross bar H', and the springs h^3, substantially as and for the purposes described.

12. In a check punch, the combination with a pair of levers arranged one above the other, the one lever being provided with a male die and the other with a female die, of a table having an aperture therein with tapering sides adapted to center and arrest the motion of the female die, and mechanism for so moving the two die levers that the female die first reaches the plate where it is centered and arrested, and then followed by the male die, substantially as and for the purposes described.

13. In a check punch, the combination with a suitable perforated table for holding the check, of the two die levers D and E pivoted at C and carrying the dies, the said die levers being provided with studs d^5 and e^4, respectively, and the key lever F pivoted at F^4 and having the upwardly-projecting arm F^5 with projections f^3 and f^4 and slots f^5 and f^6, substantially as and for the purposes described.

14. In a check punch, the combination with a suitable perforated table for holding the check, of the two die levers D and E pivoted at C and carrying the male die D and the female die E respectively, the die levers being provided with studs d^5 and e^4 and the key lever F pivoted at F and having the upwardly projecting arm F^5 with the projections f^3 and f^4, and the slot f^5 adapted to engage the stud d^5, and the slots f^6 curved at f^7 and adapted to engage the stud e^4, substantially as and for the purposes described.

493,548. STOVE-DAMPER. FAY O. FARWELL, Dubuque, Iowa, assignor of one-half to the Adams Company, same place. Filed Apr. 27, 1892. Serial No. 430,839. (No model.)

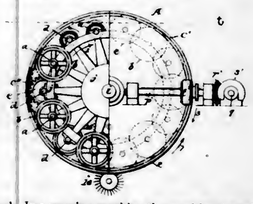


Claim.—1. In a stove damper of the character herein described the combination of a blade having curved lugs on one side and projecting slightly beyond its lower edge, and an intermediate corresponding but reversely curved lug on its other side also projecting beyond said lower edge, a rod having the upper half of its diameter reduced with respect to its lower half, said rod being fluted longitudinally on each of its sides and receiving said lugs into its flutes, and a screw and nut fastening; whereby when the blade is connected rigidly to the rod by means of the lugs, flutes and screw fastening, the outer circumference of the lugs lies within the circle of the greater thickness of the rod, substantially as described.

2. A stove damper comprising a rod having two grooves in it, one on each side thereof extending nearly its entire length, and a blade formed with lugs on its opposite sides, said lugs being fitted loosely in the grooves or flutes and adjustable with the blade in said grooves to any point desired so as to adapt the dampers to stoves requiring different lengths of handles, and a screw for confining the blade to its adjusted position, substantially as described.

493,549. GIG-MILL. NICOLAS H. GROSSELIN, Sedan, France. Filed Nov. 3 1892. Serial No. 450,917. (No model.) Patented in France May 30, 1890, No. 206,004, and in Germany June 11, 1890, No. 65,078.

Brief.—The napping-rolls are arranged in two sets, a and d. On one end of each roll is a gear-wheel, the gears on rolls a being on the opposite end of the rolls from the gears on rolls d. Each set of gears is in mesh with the internal gears on one or the other of the wheels 2. These wheels 2 are connected by adjustable friction-gears l and l', gears r, r', s, and s', and shaft q. The rolls of one set are actuated by the cloth and motion at an increased speed communicated therefrom to the rolls of the other set. The teeth on the two sets of rolls are turned in opposite directions.



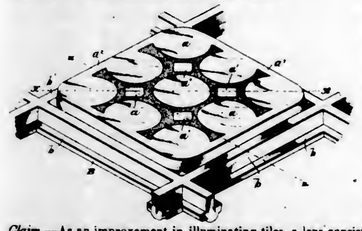
Claim.—1. In a napping machine the combination of a drum and two series of napping rolls carried thereby with their teeth set in opposite directions, and connections whereby one set of rolls is driven from the other and adjustable means for varying the speed of motion thus imparted, substantially as described.

2. The combination of the drum, two sets of napping rolls having reverse teeth gears upon the shaft of the rolls, two independent gear wheels, and adjustable driving connections between said wheels whereby to vary the speed of motion imparted from one to the other, substantially as described.

3. The combination of the drum, two sets of napping rolls carried thereby, two gear wheels or disks and gears gearing each set of rolls to one of the disks and an adjustable friction gear engaging each disk, and shaft and gear connections between the two friction gears, substantially as described.

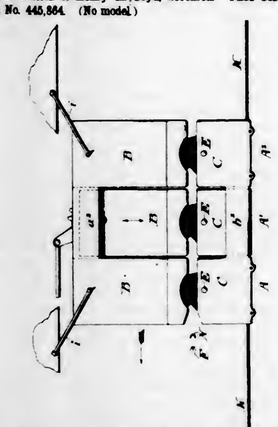
4. The combination of the drum, carrying rolls and gears, and two adjacent disks, c', c'', of a transverse shaft and two side shafts geared together, and an adjustable friction gear on each side shaft bearing on the adjacent disk, substantially as described.

493,550. ILLUMINATING-TILE. JACOB JACOBS, New York, N. Y. Filed May 19, 1891. Serial No. 393,269. (No model.)



Claim.—As an improvement in illuminating tiles, a lens consisting of a plate of glass that has upon its upper side several, integral, separated bosses resembling separately formed lenses, and has around its edge an upwardly extending flange, the spaces between said bosses, being filled with cement, and said flange acting to hold the latter in place, substantially as and for the purpose shown.

493,551. CABLE-GRIP. SOLOMON A. KNEEDLER and OSCAR KNEEDLER, Philadelphia, Pa., assignors of one-fourth to Sarah A. Boyd, same place, executrix of Henry M. Boyd, deceased. Filed Sept. 14, 1892. Serial No. 445,864. (No model.)



Claim.—1. The combination, to form a grip, of a plurality of members, each composed of two blocks and a notched connecting disk firmly secured to both blocks but free for rotation with respect thereto, means for supporting the grip, means for vertically moving one member with respect to another, and means for engaging or gripping a cable, substantially as set forth.

2. The combination, to form a grip, of a plurality of members, each composed of a pair of blocks connected by a notched rotatable disk engaged within housings in each of said pair, one of the grip members having an upper jaw, another of the grip members having a lower jaw, and means for vertically moving one member with respect to the other, substantially as set forth.

3. The combination, to form a grip, of a plurality of members, each composed of a pair of blocks and a notched rotatable connecting disk permanently connected with both of said blocks,—one of the grip members having an upper jaw, another of the grip members having a lower jaw, means for vertically moving one member with respect to another, and means for securing the disks against undue rotation, substantially as set forth.

4. The combination, to form a grip, of a plurality of members, each composed of a pair of blocks and a notched rotatable connecting disk permanently engaged with both of the blocks,—one of the grip members having an upper jaw, another of the grip members having a lower jaw, means for vertically moving one member with respect to the other, one block of each pair being provided with slots and with a pair of levers secured together and mounted upon said block, studs mounted on said levers and projecting through said slots into engagement with the notches of the disk, one of the levers having an inclined deflecting face normally existing in a space existing between the blocks, substantially as set forth.

5. The combination, to form a grip, of three members arranged in alignment, each member composed of two blocks and a notched rotatable connecting disk permanently engaged with both, the central member having a jaw adapted to present against the cable to be gripped, the other two members being connected together and having jaws adapted to present on the other side of the cable to be gripped, and means for moving one of said members in the appropriate direction to grip the cable, substantially as set forth.

6. A pair of blocks, each embodying a housing, a notched rotatable connecting disk permanently engaged within the housing of each of said blocks, slots formed in one of said blocks, a pair of levers secured together and mounted upon one of said blocks, studs mounted on said levers and projecting through said slots into engagement with the notches of the disk, one of the levers having an inclined deflecting face normally existing within the space between the blocks, substantially as set forth.

7. In combination with a two-part or penetrable grip adapted when attached to and traveling with a cable, to pass as to its respective parts respectively above and below an upper crossing cable,—as a means to protect the upper cable from injury in the passage of the grip,—a guard plate adapted to partly inclose the upper cable and to pass with said cable between the respective parts of the grip, a pair of arms respectively attached to the respective extremities of said plate, means to support said arms free for sliding movement, and means to maintain the guard plate normally away from the upper cable, substantially as set forth.

8. In combination with a two part or penetrable grip adapted when attached to and traveling with a cable, to pass as to its respective parts respectively above and below an upper crossing cable,—as a means to protect the upper cable from injury in the passage of the grip,—a guard plate adapted to partly inclose the upper cable and to pass with said cable between the respective parts of the grip, a pair of arms respectively attached to the respective extremities of said plate, brackets in which said arms are mounted free for sliding movement, and springs which maintain said guard plate normally away from the upper cable, substantially as set forth.

493,552. INDEX. JAY P. LANING, Norwalk, Ohio. Filed Feb. 11, 1892. Serial No. 421,207. (No model.)



Claim.—In combination with the regular printed leaves of a book, a combined general and specific index arranged in vertical columns on every page of the book, the general index being printed in a vertical column on one side margin of every page of a book, the said index comprising the first letter, character or abbreviation of the general subject-matter of the book, arranged in a vertical column as each general subject occurs in the book and said letter, abbreviation or character having placed after it in a horizontal line the numeral of the page where the general subject matter first appears in the book; and the specific index printed in a vertical column on the opposite side margin of every page in the book, the said specific index

comprising the first letter, character or abbreviation of a general subject matter of the book arranged in a vertical column and said

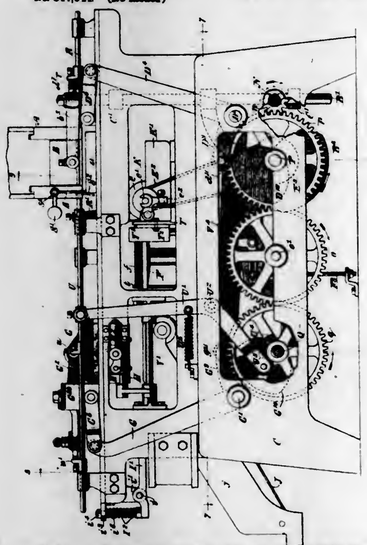
cover-supporting plate arranged to hold the middle portion of the cover in coincidence with said book clamp when the latter is in the

proximately horizontal at its outlet end and curving thence upward

straighten it and force the clamp open, or to trip it and enable the spring to close the clamp.

comprising the first letter, character or abbreviation of a general subject matter of the book arranged in a vertical column and said letter, abbreviation or character having placed after it in a horizontal line the adjoining letter, character or abbreviation representing the second letter in a word or a specific heading under a general subject matter, and this latter letter, abbreviation or character having printed after it in a horizontal line the numeral of the page upon which the specific subject matter is found, substantially as described.

493,558. BOOK-COVERING MACHINE. CHARLES W. LOVELL and ALFRED BERDSEREN, Brooklyn, N. Y. Filed July 18, 1889. Serial No. 317,944. (No model.)



Claim.—1. In a book-covering machine, the combination of a book-holding clamp adapted to hold a book with its back projecting beyoad the clamping members, a gummer adapted to apply adhesive material to unite the cover to the book back, and a cover-applier comprising a cover supporting plate arranged relatively to said clamp to hold the middle portion of the cover toward the book-back, and means for pressing the middle of the cover and book-back together.

2. In a book-covering machine, the combination of a book-holding clamp adapted to hold a book with its back projecting beyond the clamping members, a gummer adapted to apply adhesive material to unite the cover to the back of the book, a cover-applier comprising a cover supporting plate arranged relatively to said clamp to hold the middle portion of the cover toward the book-back, and means for pressing the middle of the cover and book-back together, and a cover folder adapted to fold the cover against the sides of the book.

3. In a book-covering machine, the combination of a book-holding clamp adapted to hold a book with its back projecting beyond the clamping members, a gummer adapted to apply adhesive material to unite the cover to the back of the book, a cover-applier comprising a cover supporting plate arranged relatively to said clamp to hold the middle portion of the cover toward the book-back, means for pressing the middle of the cover and book-back together, a cover-folder adapted to fold the cover against the sides of the book, and a presser for subsequently pressing against the book-back to unite the cover more firmly thereto.

4. In a book covering machine, the combination of a book-carrier comprising a book-holding clamp adapted to hold a book with its back projecting beyond the clamping members, and a carriage for said clamp movable to carry it from a book feeding position to a cover applying position, a driving mechanism constructed to impart said movement to said carrier and to hold it stationary in said cover-applying position, a gummer adapted to apply adhesive material to unite the cover to the book-back, and a cover-applier comprising a cover-supporting plate arranged to hold the middle portion of the cover in coincidence with said book clamp when the latter is in the cover-applying position, and means for pressing the middle of the cover and book-back together.

5. In a book-covering machine, the combination of a book-carrier comprising a book holding clamp adapted to hold a book with its back projecting beyond the clamping members, and a carriage for said clamp movable to carry it from a book feeding position to a cover applying position, a driving mechanism constructed to impart said movement to said carrier and to hold it stationary in said cover-applying position, a gummer located between said positions and constructed to apply adhesive material to the book-back in transit to unite the cover to the book-back, and a cover-applier comprising a cover supporting plate arranged to hold the middle portion of the cover in coincidence with said book clamp when the latter is in the cover applying position, and means for pressing the middle of the cover against the gummed book-back.

6. In a book-covering machine, the combination of book-carrying mechanism adapted to grasp and carry successive books, having a succession of book-holding clamps each adapted to hold a book with its back projecting beyond the clamping members, and driving mechanism for moving said clamps to advance the books intermittently to successive positions, advancing each book from a feeding position to a cover-applying position, and subsequently to a cover folding position, a gummer constructed to apply adhesive material to the book-back on its way from the feeding to the cover applying position, a cover-applier comprising a cover-supporting plate movable toward the book in the latter position to press the middle of a cover against the gummed book-back, and a cover-folder movable against the book in the cover folding position to fold the cover against the sides of the book.

7. In a book-covering machine, the combination of book-carrying mechanism having a succession of book-holding clamps each adapted to hold a book with its back projecting beyond the clamping members, and means for moving said clamps to carry the successive books to successive stopping positions, a gummer for applying adhesive material to the backs of the books, cover-applying, cover-folding, and back-pressing mechanisms arranged to act in the stationary positions of the successive books, and a driving mechanism for alternately operating said book-carrying mechanism to advance the books and said cover-applying, folding, and pressing mechanisms to operate on the books in their stationary positions.

8. In a book-covering machine, the combination with a gummer, a cover-applier, a cover-folder and back-pressers, of book-carrying mechanism having a series of book-holding clamps each adapted to hold a book with its back projecting beyond the clamping members, and means for moving said clamps to carry the books to successive stopping positions, said clamps exceeding in number said cover-applying and folding mechanisms, and said mechanisms being arranged to act in the stopping positions first occupied by the books, a driving mechanism for alternately operating said book-carrying mechanism to advance the books and said cover-applying, folding, and pressing mechanisms for operating upon the books in their stopping positions, and means for discharging the covered books arranged to act at the end of a series of successive movements subsequent to the final covering operation, whereby during the movements subsequent to the covering operations the books are carried and given time for the adhesive material to partially dry before being discharged.

9. In a book-covering machine, the combination of a book-carrier comprising a book-holding clamp having two opposite clamping plates adapted to grasp the sides of a book between them with its back portion exposed and projecting beyond said plates, and a carrier for said clamp movable to carry a book from the feeding position to a cover-applying position, an automatic book-feeder constructed to feed a book to be covered back downward between the plates of the clamp, mechanism for subsequently operating the clamp to cause it to close upon the book, and mechanism for subsequently operating the carrier to cause it to carry the book beyond the feeding position.

10. In a book covering machine, the combination of a book-holding clamp, comprising two opposite upright clamping plates adapted to grasp a book flatwise between them, a chute for holding a stack of books, in upright position, backs downward and a reciprocating book-pusher adapted to engage the end book of the stack and push it from the chute to deliver it back downward into said clamp.

11. In a book covering machine, the combination of a book-holding clamp, a chute for holding a stack of books, having a bottomless end portion and stop plates, and a vertically reciprocating plunger moving over against said bottomless portion and adapted to engage the end book of the stack and push it down through the bottomless part of the chute into said clamp.

12. In a book covering machine, the combination to form a book-feeder of a chute for holding a stack of books back downward, approximately horizontal at its outlet end and curving thence upward so that the weight of the upper books of the stack will press the lower books to the outlet end, having stop-plates and an outlet opening at the outlet end, and a reciprocating plunger adapted in its movement to engage the end book and push it through the outlet opening.

13. In a book covering machine, the combination to form a book-feeder of a chute for holding a stack of books in upright position back downward, constructed with a stationary bottom and side, and with the opposite side adjustable out or in to accommodate the chute to different lengths of books, and with a bottom opening and stop-plates at its outlet end, and a vertically reciprocating plunger working through the outlet end of the chute.

14. In a book covering machine, the combination to form a book feeder of a chute for holding a stack of books back downward, having a bottom opening and stop-plates at its outlet end, and a reciprocating plunger working through the outlet end of the chute formed with a horizontal bottom adapted in its descent to push the end book down through said bottom opening, and a vertical wall adapted to hold back the next succeeding book and prevent its moving to the end of the chute till the reascent of the plunger.

15. In a book covering machine, the combination of a chute for holding a stack of books, having a bottomless outlet and provided with stop-plates, a reciprocating pusher for ejecting the end book therefrom, an end-gage, and a push-plate engaging the opposite end of the book as it is fed, and acting to press it against said end-gage.

16. In a book-covering machine, the combination of a book-holding clamp, an end-gage for determining the proper longitudinal position of the book relatively to said clamp, and a push-plate engaging the opposite end of the book and acting to press it against said end gage.

17. In a book covering machine, the combination of a book holding clamp comprising opposite clamping plates or jaws and having mechanism for forcing them together to grasp a book between them, a cover-applier mounted to be movable relatively toward said clamp to approach it in an invariable position relatively thereto, and adapted to press the middle of a cover against the back of a book held by said clamp, means for so moving the same to bring the book and cover together, an end gage having a fixed location relatively to said clamp, and means acting before the mechanism for closing said clamp to press the end of a book fed thereto against said end gage, whereby the grasping of the book in invariable longitudinal position, and its presentation in invariable relation to said cover applier are insured.

18. In a book covering machine, the combination of an automatically closing book holding clamp, a carrier therefor movable to carry the clamp from the book feeding position to a cover applying position, driving mechanism for so moving said carrier, a cover-applier movable toward and from the clamp in the latter position, and adapted to press the middle of a cover against the back of a book held by said clamp, means for moving said cover applier, and an end gage carried by said carrier and having a fixed location relatively to said clamp for determining the proper longitudinal position of the book in said clamp, whereby the union of the book and cover in correct relative positions is effected.

19. In a book covering machine, the combination of a book holding clamp open at top and bottom and having opposite jaws or clamping plates for embracing the sides of a book with its back exposed and projecting beneath, means for feeding a book into said clamp from above, a back gage for determining the proper projection of the back of the book beyond said clamp consisting of a plate beneath the clamp against which the back of the book rests when introduced in said clamp, means for operating the clamp to close its plates together to grasp the book, and a cover-applier movable toward and from the clamp to press the middle of a cover against the back of a book held in said clamp, and means for so moving said cover-applier.

20. In a book-covering machine, the combination of a book-holding clamp having opposite upright jaws or clamping plates for embracing the sides of a book with its back exposed and projecting, a carrier for moving said clamp from a book-feeding position to a cover-applying position, driving mechanism for so moving said carrier, a gummer located between said positions and adapted to apply adhesive material to the back of the book in transit, a cover applier in said latter position movable toward the clamp to press the middle of a cover against the back of the book, means for so moving said cover applier, and a back-gage consisting of a plate mounted beneath said clamp at the book feeding position and adapted to support the back of a book dropped into the clamp until the latter is closed upon it and to determine the proper projection of the back of the book beyond the clamp to co-operate with said gummer and cover-applier.

21. In a book covering machine, a book-holding clamp comprising opposite clamping plates, a spring for pressing them together to grasp the book, an operating toggle lever adapted to force them apart, and cam-operated tappets for acting on said toggle lever to straighten it and force the clamp open, or to trip it and enable the spring to close the clamp.

22. In a book-covering machine, the combination with a book-holding clamp of a cover-applier consisting of a vertically movable plate adapted to carry a pile of covers, mechanism for lifting this plate at intervals to exert a positive upward thrust to press the topmost cover against the book, and a feeding mechanism adapted to feed up said plate at each cover-applying movement sufficiently to compensate for the thickness of the cover removed from the pile.

23. In a book-covering machine, the combination with a book-holding clamp of a cover-applier consisting of a vertically movable plate, an upright screw-threaded rod carrying it, a nut engaging the threads of said rod, a lever supporting said nut and adapted to lift it and said rod and plate, a cam for imparting the lifting movements to said lever, and a ratchet and pawl adapted at each cover-applying movement to turn said nut and thereby feed up said screw-rod and plate sufficiently to compensate for the thickness of the cover removed from the pile.

24. In a book-covering machine, the combination with cover-applying mechanism for affixing the middle portion of a cover in a flat condition against the back of a book, and a book-holding clamp consisting of jaws or plates adapted to embrace the opposite sides of a book with its back portion exposed and projecting, of a cover-folder consisting of opposite upwardly-moving plates adapted to move from beneath against the opposite sides of the projecting back-portion of a book held by said clamp and fold the cover around the back of the book, and driving mechanism for operating said cover-folder.

25. In a book-covering machine, the combination with cover-applying mechanism for affixing the middle portion of a cover in flat condition against the back of a book, of a book-holding clamp consisting of jaws or plates adapted to embrace the opposite sides of a book with its back-portion to which the unfolded cover is applied exposed and projecting, and a cover-folder consisting of opposite upwardly-moving plates adapted to move from beneath against the opposite sides of the projecting back-portion of the book held by said clamp to fold the cover around the back of the book, and driving mechanism for operating said plates.

26. In a book-covering machine, the combination of a book-holding clamp consisting of jaws or plates adapted to embrace the opposite sides of a book with its back portion exposed and projecting, with a cover-folder consisting of opposite clamping plates movable upwardly and toward each other, wholly beneath said clamp, to engage the projecting back-portion of the book held thereby and first fold the cover against the sides of the book and then squeeze the book and cover between them.

27. In a book-covering machine, the combination with a book-holding clamp consisting of jaws or plates adapted to embrace the opposite sides of a book with its back-portion exposed and projecting, of a cover-folder consisting of opposite cover-folding-and-stretching plates movable wholly beneath said clamp, moving first upwardly and toward each other to fold the cover against the sides of the projecting portion of the book, and moving subsequently upward against the sides of the book to stretch the cover tightly around the back of the book, and operating mechanism for so moving said plates.

28. In a book-covering machine, the combination with a book-holding clamp consisting of jaws or plates adapted to embrace the opposite sides of a book with its back-portion exposed and projecting, of a cover-folder consisting of opposite clamping plates movable wholly beneath said clamp and mounted on rods, oscillatory bearings for guiding said rods, and mechanism for imparting to said plates a movement upwardly and toward each other whereby they swing around said bearings while folding and clamping the cover against the sides of the book.

29. In a book covering machine, the combination with a book-holding clamp, of a cover folder consisting of opposite clamping plates, lever arms and rods carrying said plates, and a cam driving mechanism for oscillating said lever arms to impart to said plates an upward and inward movement to clamp the book between them.

30. In a book covering machine, the combination with a book carrier, cover applier, and cover-folder, of guiding rods for upholding the projecting sides of the unfolded cover during its movement from the cover-applying position to the cover-folding position.

31. The combination with cover-applying-and-folding mechanisms, of a book-carrying mechanism having a succession of clamps for holding the covered books constructed to grasp the sides of the books with the backs thereof exposed, means for advancing the same intermittently, and a plurality of back-pressers arranged at the stopping positions of the successive books and adapted as each book moves to its successive stopping positions to repeatedly exert a pressure against its back.

32. In a book-covering machine, the combination with book-carrying clamps and mechanism for opening them in a delivery position to permit the covered books to drop out, of a receiving table,

and a pusher-plate mounted on a swinging arm and movable from a position for receiving upon it the book dropped from the clamp to

orifice and the rear end of the said oil tube, and a screw threaded plug B removable from the oil tube and having its body portion of a

Claim.—1. In a registering and indicating machine, the combi-

3. In combination, a series of compartments each provided with

and a pusher-plate mounted on a swinging arm and movable from a position for receiving upon it the book dropped from the clamp to a position against the row of books on said table, to push the book thereagainst and make room for the next succeeding book.

33. In a book covering machine, the combination with cover-applying and cover-folding mechanisms of primary and secondary book-holding clamps, reciprocating carriers therefor, and mechanism for operating said clamps, constructed to engage the secondary clamp upon the book carried by the primary clamp to the cover-applying position, and subsequently to release the primary clamp therefrom, whereby the book is transferred from the primary to the secondary clamp.

34. In a book covering machine, the combination with cover-applying and cover-folding mechanisms of a primary book-holding clamp and carrier, adapted to carry a book from a folding to a cover-applying position, a secondary book-holding clamp and carrier, adapted to carry the book from the cover-applying to a cover folding position, a drier having clamps for carrying successive books, a conveyer for conducting the books from the cover-folding position to said drier, and mechanism for operating the respective clamps to cause the primary clamp to deliver the books to the secondary clamp, the secondary clamp to deliver them to the conveyer, and the drier clamps to engage the books from said conveyer, and to finally release them in a delivery position.

35. In a book covering machine, the combination with a cover-applier and a book-holding clamp for carrying the books therefrom to a cover-folding position, of a cover-folder, comprising opposite cover-folding clamping plates movable to fold the cover against the sides of the book, and to clamp the book between them, and operating mechanism adapted to release said clamp while the book is between the plates of the cover-folder, and subsequently to retract the latter to drop the book.

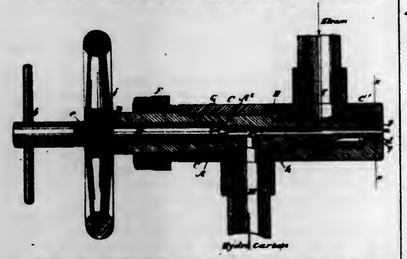
493,554. PNEUMATIC TIRE. CHARLES M. LUDGREN, Bayonne, N. J. Filed June 9, 1892. Serial No. 436,050. (No model.)



Claim.—1. In a pneumatic tire, the combination of an air tube or chamber, a surrounding shoe provided with enlarged edges, a wheel rim having channels at its edges to receive the edges of the shoe, and retaining rings fitting into the rim channels and serving to bind the enlarged edges of the shoe in the rim channels, substantially as specified.

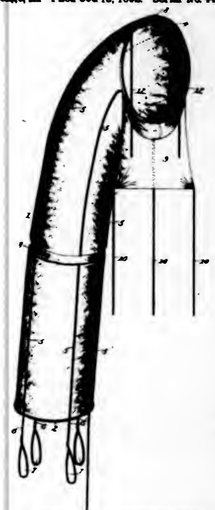
2. In a pneumatic tire, the combination of a band or strip of flexible material provided with enlarged edges, a wheel rim provided with inwardly extending channels at its edges, said channels being narrower at the mouth than at the interior, and removable retaining rings adapted to fit into the rim channels and bind the enlarged edges of the tire strip in place, substantially as specified.

493,555. HYDROCARBON-BURNER. WILLIAM L. MILLER, New York, N. Y. Filed Aug. 8, 1890. Serial No. 361,495. (No model.)



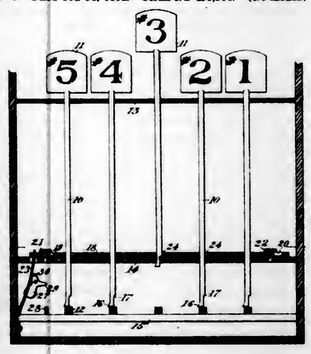
Claim.—In a hydrocarbon burner, the combination with a casing having an oil feed pipe connection E, a steam pipe connection I, an internal valve seat or shoulder H between the oil feed pipe connection and the steam feed pipe connection, and a flame orifice in its front end portion, of an oil tube movable lengthwise in the said casing or cylinder and having a contracted neck *a* movable through the flame orifice, a valve seat or shoulder A, a lateral oil inlet orifice A', and a contracted internal shoulder A^2 between said lateral oil inlet orifice and the rear end of the said oil tube, and a screw threaded plug B removable from the oil tube and having its body portion of a less diameter than its screw threaded portion and bearing at its front end against the internal shoulder in rear of the lateral inlet orifice of the oil tube, substantially as and for the purpose described.

493,556. FIRE-ESCAPE. THOMAS W. B. MURRAY and THOMAS G. SCOTT, Chicago, Ill. Filed Oct. 13, 1892. Serial No. 448,788. (No model.)



Claim.—In a fire escape, the combination of a tube or chute of flexible material having a binding rope or cord at the bottom thereof and a ring or hoop at the upper portion of the same that is adapted to be disposed vertically, a portion of the material of said tube or chute being extended at the lower portion of the upper end thereof to form an apron, a series of steady ropes or cords attached to the exterior of the said tube or chute and projected beyond the opposite ends thereof to form means of securement for the said ends and also as a means of attaching the said apron, a portion of the said steady ropes or cords at the lower ends of the same and beyond the said binding cord or rope being formed with loops, and a web or band loosely located in the interior portion of the said tube or chute and attached at its upper end to the upper portion of the aforesaid ring and at its lower end to the binding cord or rope, substantially as described.

493,557. CASH-REGISTER. WILLIAM K. NICHOLS, Washington, D. C. Filed Oct. 31, 1892. Serial No. 450,591. (No model.)



Claim.—1. In a registering and indicating machine, the combination of a key, a tablet carried by a rod and operated by means of said key, a support for said rod, and a cam for shifting said rod into engagement with said support when said rod is operated.

2. In a registering and indicating machine, the combination of a key, a tablet carried by a rod and operated by means of said key, a support for said rod, and means for shifting said rod into engagement with said support when said rod is operated.

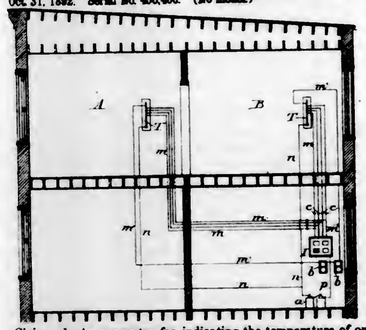
3. In a registering and indicating machine, the combination of a series of keys, a series of tablets carried by a series of rods and operated by means of said keys, a support for said rods, and cams for shifting said rods into engagement with said support when said rods are operated.

4. In a registering and indicating machine, the combination of a series of keys, a series of tablets carried by a series of rods and operated by means of said keys, a support for said rods, and means for shifting said rods into engagement with said support when said rods are operated.

5. In a registering and indicating machine, the combination of a series of keys, a series of tablets carried by a series of rods and operated by means of said keys, a support for said rods, means for shifting said rods into engagement with said support when said rods are operated, and adjunctive mechanism whereby, when a registration is made, the rods of a previous registration are shifted out of engagement with said support.

6. In a registering and indicating machine, the combination of a series of keys, a series of tablets carried by a series of rods and operated by means of said keys, a support for said rods, cams for shifting said rods into engagement with said support when said rods are operated, and adjunctive mechanism whereby, when a registration is made, the rods of a previous registration are shifted out of engagement with said support.

493,558. TELETHERMOMETER. LEROY S. HORTON and FRANK R. HOFFMAN, Alpena, Mich.; said Hoffman assignor to said Horton. Filed Oct. 31, 1892. Serial No. 450,466. (No model.)



Claim.—1. An apparatus for indicating the temperature of one or more apartments, comprising the following elements in combination: a thermometer in the apartment or apartments, provided with contact points corresponding with the degrees of temperature to be indicated; an indicator provided with a series of signals corresponding with the several contact points of the thermometer; electric conductors connecting the contact points of the thermometer with the signals of the indicator, each of said conductors being provided with a contact key or button arranged to normally keep the line or circuit open; a battery or source of electrical energy; and a return wire connecting the thermometer and the battery, substantially as shown and described.

2. In combination with two or more compartments, thermometers, one in each compartment, each thermometer provided with a series of contact points corresponding to different degrees of temperature; an indicator provided with signals corresponding to the respective contact points of said thermometers; conductors connecting the respective contact points of the thermometers with the corresponding signals of the indicator, each of said conductors being provided with a key or switch to complete its connection or circuit; a battery or source of electrical energy; a return conductor connecting the thermostats with the battery; and a separate conductor leading from the thermometers to the battery and arranged to automatically ring an alarm bell whenever the temperature in any one or more of the apartments reaches a predetermined point above the normal temperature, substantially as shown and described.

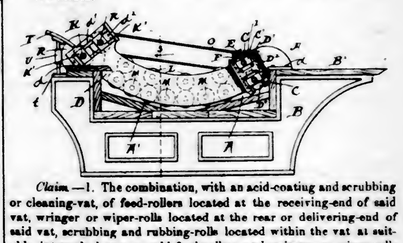
3. In combination, a series of compartments each provided with a thermometer having a series of contact points corresponding with different degrees of temperature; an indicator provided with a series of signals corresponding with the respective contact points of the thermometers; electrical conductors connecting the respective contact points of the thermometers with the corresponding signals of the indicator; a source of electrical energy, and a series of circuit closing keys or devices, arranged to complete the circuit between the contact points of the thermometers and the indicator signals at will.

493,559. GLOVE-FASTENING. CARL A. PFENNIG, Barmen, Germany. Filed Aug. 11, 1892. Serial No. 442,806. (No model.)



Claim.—A fastener for gloves and other articles combining in its structure the following elements to wit: a housing provided with a tube having a lateral opening and adapted to secure the housing to the article, a recessed head adapted to enter the tube, a covering plate *p* and cap *k* connected to said tube, and a spring actuated lever mounted on the housing and having a projection which passes through the lateral opening in the tube to engage the recessed head, said housing lever and covering plate *p* being all located on the under side of the article, substantially as described.

493,560. MACHINE FOR CLEANING METAL PLATES. SAMUEL A. SAGUE, Cleveland, Ohio. Filed June 16, 1892. Serial No. 436,957. (No model.)



Claim.—1. The combination, with an acid-coating and scrubbing or cleaning-vat, of feed-rollers located at the receiving-end of said vat, wringer or wiper-rolls located at the rear or delivering-end of said vat, scrubbing and rubbing-rolls located within the vat at suitable intervals between said feed-rollers and wringer or wiper-rolls and a guide-roller located between the lower scrubbing and rubbing-rolls, substantially as and for the purpose set forth.

2. The combination, with an acid-coating vat for coating metallic sheets or plates, of a pair of feed-rollers at the forward or receiving end of said vat, a pair of wringer or wiper-rolls at the rear or delivering-end of said vat, pairs of rubbing rolls within and at suitable intervals between said feed-rollers and wringer or wiper-rolls and guide-rollers between the lower rubbing-rolls, the pair of feed-rollers and pair of wringer or wiper-rolls being operatively connected with each other and located such a distance apart that the wringer or wiper-rolls will receive the sheet or plate before it has become entirely disengaged from the feed-rollers, substantially as set forth.

3. The combination, with an acid-coating vat for coating metallic sheets or plates, of a pair of feed-rollers at the forward or receiving-end of the vat and pair of wringer or wiper-rolls at the rear or delivering-end of the vat, pairs of rubbing rolls within and at suitable intervals between said feed-rollers and wringer or wiper-rolls, and guide-rollers between the lower rubbing-rolls, said feed-rollers and wringer or wiper-rolls being operatively connected with each other, and located such a distance apart that the wringer or wiper-rolls will receive the sheet or plate before it has become entirely disengaged from the feed-rollers, and one or more curved plates or bridges at the rear of the wringer or wiper-rolls and adapted to receive the sheet or plate from said rolls, substantially as set forth.

4. The combination of an acid-coating vat having a frame, as at D, at or near each side of the same, feed-rollers at the forward or receiving-end of the vat; wringer or wiper-rolls at the rear end of the vat, pairs of rubbing rolls within the vat and at suitable intervals between the feed-rollers and wring or wiper-rolls, and guide-rollers between the lower rubbing-rolls, all of said rolls and rollers, being supported by said frames D or attachments of the same, substantially as set forth.

5. The combination with an acid-coating vat, of feed-rollers located at the forward or receiving-end of said vat, and supported by sliding-boxes, frames or housings, as at D', for said sliding-boxes, U-shaped rods or bars, as at H, for supporting the sliding-boxes of the

lower feed-roller, the end members of said rods or bars extending through corresponding holes or perforations in frames or housings IV

said spool, a second cord connected with said arm led to the upper end of the rods, caused said spool to be

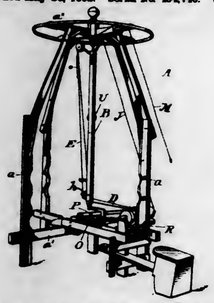
body of air the dust or other light particles contained therein, a num-

sliding section the posts on the opposite sliding section and the clamp

lower feed-roller, the end members of said rods or bars extending through corresponding holes or perforations in frames or housings D' and being screw-threaded at their free or upper ends, and nuts, as at I, mounted upon said screw-threaded portions of the U-shaped rods or bars, said frames or housings being slotted, as at D^2, substantially as and for the purpose set forth.

493,561. EXERCISING AND STRENGTH-TESTING MACHINE.

Levi R. Schaeffer, Philadelphia, Pa., assignor to Frances M. Wetter, same place. Filed May 28, 1892. Serial No. 434,746. (No model.)



Claim.—1. In an exercising or strength testing apparatus, in combination: a framing, a pole, a weight arm mounted upon said pole, revoluble, free for vertical movement with respect to said pole, and adapted when revolved, to ascend said pole, substantially as set forth.

2. In an exercising or strength testing apparatus, in combination: a framing, a revoluble pole, an arm mounted upon said pole, revoluble with it, and free for vertical movement with respect to it, a supporting cord connected with said arm and adapted to be taken up and paid out in the vertical movement of said arm, substantially as set forth.

3. In an exercising or strength testing apparatus, in combination: a framing, a pole, a weight arm mounted upon said pole, revoluble, and free for vertical movement with respect to said pole, and adapted, when revolved, to ascend said pole, and means for occasioning the revolution of said arm, substantially as set forth.

4. In an exercising or strength testing apparatus, in combination: a framing, provided with a spiral series of numbers or symbols, a pole, a weight arm mounted upon said pole, revoluble, and free for vertical movement with respect to said pole, and adapted when revolved to ascend said pole, substantially as set forth.

5. In an exercising or strength testing apparatus, in combination: a framing, a revoluble pole, a weight arm mounted on and free for vertical movement with respect to said pole, a rotatable spool, means for normally holding said spool against rotation, and a cord connected with said weight arm and engaged with the spool, substantially as set forth.

6. In an exercising or strength testing apparatus, in combination: a framing, a revoluble pole, an arm mounted upon said pole and revoluble with it, a revoluble spool, means for at will locking said spool against and releasing it for rotation, a supporting cord connected with the arm and with the spool, substantially as set forth.

7. In an exercising or strength testing apparatus, in combination: a framing, a revoluble pole, an arm mounted upon said pole and revoluble with it, and vertically movable with respect to it, a cord connected with said arm and wound upon a stationary body,—a second cord connected with said arm or its sliding plate, led to the upper end of the pole, around a stationary body, led then to the lower part of the pole, and back to the starting point, and guide sheaves for said cord, substantially as set forth.

8. In an exercising or strength testing apparatus, in combination: a framing, a revoluble pole, an arm mounted upon said pole and revoluble with it, a spool provided with a notched disk, a ratchet arm having a tooth, a spring tending to press said tooth against said disk, a cord connected with the arm and wound upon said spool, a second cord connected with said arm led to the upper end of the pole, around said spool, led then to the lower part of the pole and back to the starting point, and guide sheaves for said cord, substantially as set forth.

9. In an exercising or strength testing apparatus, in combination: a framing, a revoluble pole, an arm mounted upon said pole and revoluble with it, a spool provided with a notched disk, a ratchet arm having a tooth and a brake, a spring tending to press said tooth against said disk, a cord connected with the arm and wound upon said spool, a second cord connected with said arm led to the upper end of the pole, around said spool, led then to the lower part of the pole and back to the starting point, and guide sheaves for said cord, substantially as set forth.

10. In combination, the revoluble pole, embodying a longitudinal groove or slot, the slide plate mounted in said groove or slot, the weight arm secured to said plate, a cord secured to said arm and engaged with a winding drum, a mallet, means for operating the mallet,—a follower, and the follower casing, substantially as set forth.

11. In combination, the revoluble pole, embodying a longitudinal groove or slot, the slide plate mounted in said groove or slot, the weight arm secured to said plate, a cord secured to said arm and engaged with a winding drum, a mallet, the follower, the follower casing, the sheave block, and the reciprocating bar engaged with said sheave block, substantially as set forth.

12. In combination, the pole, the weight arm, the slide plate, the spool, the cord, and the ratchet bar having the tooth and the brake shoe, substantially as set forth.

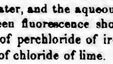
13. In combination, the pole, the weight arm, the slide plate, the spool, the cords, the mallet, the follower, the follower casing, and means for operating the mallet, substantially as set forth.

493,562. MONOSULPHO-DIOXYNAPHTHOIC ACID.

Jakob Schmid and Robert Pagabini, Basle, Switzerland, assignor to the Society of Chemical Industry in Basle, same place. Filed Aug. 25, 1892. Serial No. 444,108. (Specimens.) Patented in France Mar. 4, 1892, No. 219,875.

Claim.—1. The process for producing mono-sulpho-dioxy-naphthoic acid or its salts which consists in heating the sodium salt of disulpho-beta-oxy-naphthoic acid as herein described with caustic alkalies at a temperature of from 200° to 260° centigrade and then precipitating the dissolved melt with hydrochloric acid or sulphuric acid, substantially as described.

2. As a new product the mono-sulpho-dioxy-naphthoic acid of the formula:



which crystallizes from dilute muriatic acid in long faint needles easily soluble in cold water, and the aqueous solutions of its alkaline salts have a yellow green fluorescence showing a dark indigo-blue coloration by addition of perchloride of iron and an intense yellow coloration by addition of chloride of lime.

493,563. BLACKISH-BLUE AZO DYE.

Jakob Schmid, Basle, Switzerland, assignor to the Society of Chemical Industry in Basle, same place. Filed Sept. 1, 1892. Serial No. 444,820. (Specimens.) Patented in France Mar. 23, 1892, No. 220,468.

Claim.—1. The process for manufacturing a blackish-blue azo-coloring matter by combination of one molecular proportion of diazotized dianisidin with one molecular proportion of the sodium salt of mono-sulpho-dioxy-naphthoic acid, combining the obtained new intermediate product with an alkaline solution of one molecular proportion of (1.4) alpha-naphthol-alpha-sulphonic acid of Nevile & Winther and precipitating with common salt.

2. The new blackish-blue azo dyestuff which can be derived from equal molecular proportions of diazotized dianisidin, the sodium salt of mono-sulpho-dioxy-naphthoic acid and (1.4) alpha-naphthol alpha-mono-sulphonic acid of Nevile & Winther and which is a grayish-black glittering powder of a metallic luster, easily soluble in water with a blackish-blue, in concentrated sulphuric acid with a green-blue coloration, difficultly soluble in alcohol and insoluble in ether and benzine.

493,564. GRAY-BLACK TETRAZO DYE.

Jakob Schmid, Basle, Switzerland, assignor to the Society of Chemical Industry in Basle, same place. Filed Sept. 1, 1892. Serial No. 444,821. (Specimens.) Patented in France Mar. 23, 1892, No. 220,468.

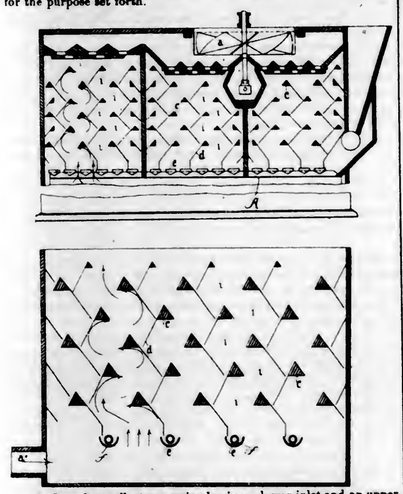
Claim.—1. The process of producing a gray-black tetrazo dyestuff which consists in combining one molecular proportion of tetrazo-diphenyl or ditolyl with two molecular proportions of the sodium salt of mono-sulpho-dioxy-naphthoic acid, substantially as herein described.

2. The gray-black tetrazo dye hereinbefore described which can be obtained from tetrazo-dipheenyl and the sodium salt of mono sulpho-dioxy-naphthoic acid and which is a dark glittering crystalline powder of metallic luster, which dissolves easily in water with a red-violet, in concentrated sulphuric acid with a pure blue coloration and is insoluble in alcohol, ether and benzine.

493,565. DUST-COLLECTOR.

Heinrich Sack, Dresden, Germany. Filed Apr. 2, 1892. Serial No. 427,511. (No model.)

Claim.—1. In a device for removing from a moving current or body of air the dust or other light particles contained therein, a number of plates or webs arranged the one above the other in series between an inlet and an outlet for the current of air, the said plates or webs carrying obstructions near their upper ends and on their lower surfaces and being so arranged that the lowermost plate of each series will terminate above one of a number of spaces containing air in a state of rest and closed toward the side whence the air enters into the apparatus, the lower end of each of the other plates or webs of a series approaching the upper surface of the next plate below it leaving an open intermediate space, and the planes of each two adjoining plates intersecting each other at an acute angle, substantially as and for the purpose set forth.



2. In a dust collector a casing having a lower inlet and an upper outlet opening, a number of series of transverse plates within the said casing, having obstructions near the upper ends of their lower surfaces and so arranged that the planes of each two adjoining plates of a series will intersect each other and the lower end of each plate will approach the upper surface of the next lower plate leaving an open intermediate space, and a number of receptacles each arranged below the lowermost plate of the several series, substantially as described.

3. In a dust collector the combination, with a casing having a lower inlet and an upper outlet opening, of means for conveying a current of air through the said casing, a number of series of transverse plates therein having obstructions near the upper ends of their lower surfaces and so arranged that the planes of each two adjoining plates of a series will intersect each other and the lower end of each plate will approach the upper surface of the next lower plate of the same series leaving an open intermediate space, and of a number of receptacles each arranged below the lowermost plate of the several series, substantially as described.

4. In a dust collector, the combination with a casing, and means for causing the upward passage of dust-laden air through said casing, of a series of plates arranged in the casing, one above the other at such angle relatively to each other that the continuation of the plane of each plate will intersect the plane of the next plate below it and the dust-laden air in its upward passage impinges alternately against the lower sides of the plates, substantially as described.

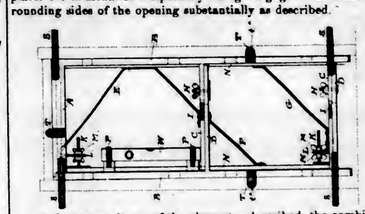
5. In a dust collector, the combination with a casing, and means for causing the upward passage of dust-laden air through the casing, of plates arranged in the casing one above the other, extending in alternating directions and each having its upper end portion provided with an air obstructing cross piece for deflecting the ascending dust-laden air, substantially as described.

493,566. SETTING-GAGE FOR DOOR-FRAMES.

Robert Steedman, Berkeley, Cal. Filed Apr. 1, 1892. Serial No. 427,332. (No model.)

Claim.—1. The herein described gage for setting door-jambs and other frames comprising two movable sections formed of the upright side-bars, B, B, the extensible head-piece A, and the extensible cross-bars C D composed of lapping-bars—adapted to slide on each other and clamp-screws to hold them together, the adjusting screws on one sliding section the posts on the opposite sliding section and the clamp nuts on opposite sides of said posts at the top and bottom of the gage, the straight edges in the inner faces of the side-bars and the projecting plates S S and T T substantially as described.

2. A gage frame or contrivance for setting door-jambs and other frames in openings, comprising two extensible sections formed of upright side-bars and extensible cross-bars united and stiffened by suitable braces, clamp-screws for securing the two sections in position after adjustment, in combination with the plates T T as means of securing the said gage-frame in the jamb or frame to be set and the plates S S as means of temporarily fixing the gage to the walls or surrounding sides of the opening substantially as described.

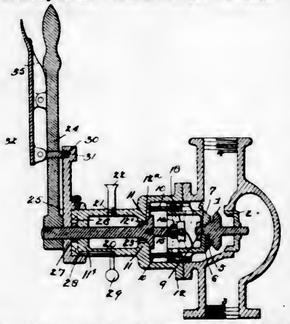


3. In a gage-frame of the character described, the combination of the extensible sections composed of the upright side-bars, B B and the extensible cross-bars, A C D the clamp-screws, and nuts, H the adjusting screw and nuts, K M the permanent straight-edges N on the uprights, the projecting plates S S and T T, and the nailing holes R R in the upright substantially as described.

4. The combination of the two extensible sections formed of upright side-bars and extensible head-piece and cross-bars, the clamping screws and nuts, and the adjusting screws and nuts, the permanent straight-edge N and the spirit-level on said straight-edge, substantially as described.

493,567. PACKINGLESS VALVE.

Fordyce Storar, Springfield, Ill. Filed July 18, 1892. Serial No. 440,356. (No model.)



Claim.—1. In combination the casing, the valve the oil chamber, the partition between the oil chamber and valve chamber, the valve stem passing through the said partition and oil chamber, the means for preventing inward longitudinal movement of the valve stem, the means for preventing outward movement consisting of the collar on the stem bearing on the partition of the casing, the yoke for holding the valve, having interior grooves and the cross head connection between the yoke and the valve stem, substantially as described.

2. In combination the casing having the partitions forming the oil chamber, the valve, the valve stem passing through said chamber and having a stop collar seated against one of the partitions to hold the stem against longitudinal movement, the said partition having a passage leading to said seat, from the oil chamber, and the connection from the valve for moving the latter to and from its seat as the stem is rotated substantially as described.

3. In combination the casing having an oil chamber, the valve, the valve stem having a collar, the seat within the casing for said collar, the said casing having a passage for the oil leading to said seat, one of the said parts, the seat or collar being grooved, substantially as described.

4. In combination the casing having the sealing oil chamber, the valve, the valve stem passing through the said oil chamber, the end pocket, the passage leading therefrom and the bulb to which said

passage extends for catching the escape, substantially as described.

5. In combination the casing, the valve, the valve stem, the lever

eling trucks mounted on said support, gates attached to the trucks,

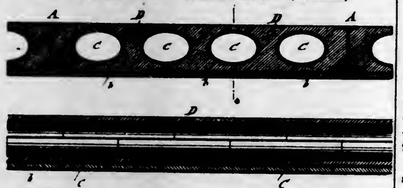
in the casing, a slide pivoted at one end in the spout and adapted to

5. In a registering machine, a wheel, an actuating lever, a gravi-

passage extends for catching the escape, substantially as described.

5. In combination the casing, the valve, the valve stem, the lever on the end of the valve stem, the cover plate having a series of perforations, the catch lever on the main lever having a pin adapted to engage the said plate, both the main lever and the said cover plate being adjustable, substantially as described.

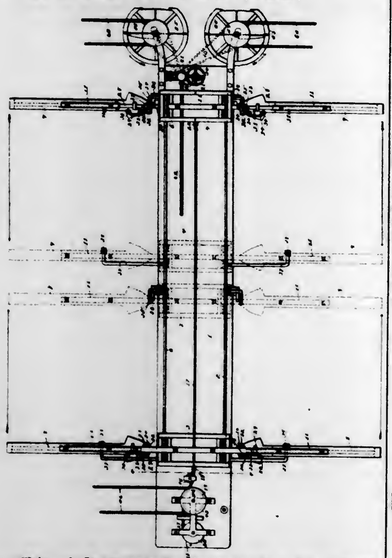
493,568. FIREPROOF FLOOR. CHARLES F. TERRETT, New York, N. Y. Filed Mar. 17, 1892. Serial No. 425,267. (No model.)



Claim.—1. A fire-proof floor, consisting of inverted T-beams, having large bottom flanges, an intermediate filling or body of cement concrete between the beams, longitudinal tubes arranged in said filling and formed of semi-sections arranged to break joint with each other, substantially as set forth.

2. A fire-proof floor, consisting of inverted T-beams, having large bottom flanges, an intermediate filling or body of cement concrete between the beams, longitudinal tubes arranged in said filling and formed of semi-sections arranged to break joint with each other, and a face-layer of tiles, or cement concrete-plates, substantially as set forth.

493,569. WATER-MOTOR. JAMES TOOMEY, Kansas City, Kans. Filed Aug. 25, 1892. Serial No. 444,122. (No model.)



Claim.—1. In a water-motor, the combination of a suitable support, reciprocating gates attached to said support and working in a horizontal plane, connections between said gates and a power transmitting device consisting of the pulleys and the ropes connected with the gates and passing around the respective pulleys whereby said power transmitting device may be operated by the force of the current against said gates, and means connected with and operated by the gates for throwing the idle gates into position to be operated upon by the current, substantially as set forth.

2. In a water-motor, the combination of a suitable support, traveling trucks mounted on said support, gates attached to the trucks, a power transmitting device, means in connection with said trucks and power transmitting device, consisting of the pulleys, the capstan and the ropes connected with the respective gates, passing around the pulleys whereby the action of the current against said gates will cause the trucks to travel to and fro, and thus operate the power transmitting device, substantially as described and for the purpose set forth.

3. In a water motor, the combination of the boat 1, tracks 2, trucks 3, 4, traveling on said tracks, gates 8, 9, working at the sides of the boat and secured to the sides of the trucks, and a rope 17, connecting the trucks with a power transmitting device, substantially as and for the purpose set forth.

4. In a water-motor the combination of the boat 1, trucks 3, 4, tracks 2, on which the trucks travel, gates 8, 9, secured to the trucks, ropes 17 connecting the trucks, said rope passing around ratchet pulleys 19, 21 and around a capstan 20, said ratchet pulleys being turned by the rope 17 and thus causing the shaft 40 to which they are journaled to constantly rotate in one direction, and thus rotate a pulley 45 by which power may be transmitted, substantially as described and for the purpose set forth.

5. In a water-motor, a support, a gate having a suitable frame, a series of slats pivoted to said frame at a point other than their center, a rock shaft 28 to which said slats are connected and by which they are held in raised or lowered position, a detent for holding the rock-shaft at either limit of its movement, and a trip engaging the detent and attached to the support for controlling the movement of the shaft, substantially as described and for the purpose set forth.

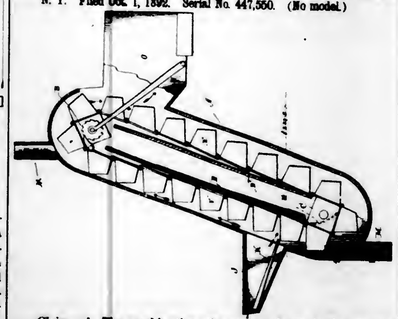
6. In a water-motor, a gate having a suitable frame, a series of slats pivoted to said frame at a point other than their center, rod 23 and staples 24, 25, connecting the slats to each other, link 26 connecting the rod 23 with a bail 27, and shaft 28 to which the bail 27 is secured, said slats being either opened or closed by operating the shaft 28, substantially as described and for the purpose set forth.

7. In a water-motor, a gate having a suitable frame, slats pivoted to said frame, shaft 28 journaled to said frame, means for connecting the shaft with the slats, pin 31 on the shaft, U-shaped rod 29 pivoted to the frame, extension 34 on the U-shaped rod, and a weight 32 in engagement with said extension whereby said extension may be held at a fixed point, and thereby hold the rod 29 against the pin 31, thus holding the slats in their closed position, substantially as described and for the purpose set forth.

8. In a water-motor, the combination of the boat 1, trucks 3, 4, on the boat, gates secured to the tracks, slats 14 in said gates, shaft 28 on said gates, means for connecting the shaft 28 with the slats, pin 38 on the shaft 28, and arm 37 on the boat, whereby when the gates have arrived at a certain position the arm 37 will engage the pin 38 and rotate the shaft 28 to a certain degree thus closing the slats 14, substantially as described and for the purpose set forth.

9. In a water-motor, the combination of the boat 1, gates secured to the boat, slats 14 in the gates, shaft 28 for operating the slats, U-shaped rod 29, for holding the shaft to the position in which it holds the slats closed, weight 32 for holding the rod 29 in said position, pin 35 attached to the boat for the purpose of raising the weight 32 and releasing the rod 29, and a bevel projection 36 on the boat for the purpose of throwing the rod 29 over to one side and thus permit the current to open the slats, substantially as described and for the purpose set forth.

493,570. FRUIT-BLEACHER. CLAUDE J. WHEELER, Wolcott, N. Y. Filed Oct. 1, 1892. Serial No. 447,550. (No model.)



Claim.—1. The combination of a casing, drums in the opposite ends thereof an endless series of buckets adapted to move around the drums and which are subjected to the action of rising fumes, a spout in the casing, a slide pivoted at one end in the spout and adapted to engage the edges of the buckets at its opposite end, substantially as shown and described.

2. The combination of a casing, drums journaled in the upper and lower ends thereof, an endless series of buckets adapted to move around the drums and which are formed with slotted bottoms, a fume box at the lower end of the casing, a fume exit at its upper end, a spout in side of the casing, a slide pivoted at one end therein and adapted to engage the buckets at its outer end, and a discharging bin on the opposite side of the casing, substantially as shown and described.

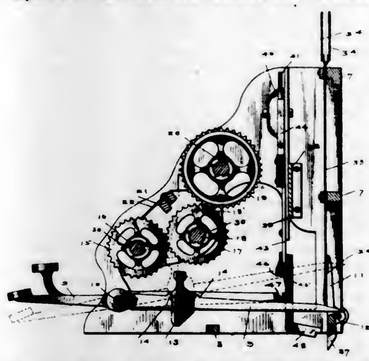
3. The combination of a casing drums journaled therein in different vertical planes, board D, shield E, at its lower end, an endless carrier moving around said drums formed of buckets having slotted bottoms, a fume box at the lower end of the casing and a fume exit at its upper end, substantially as shown and described.

4. The combination of a casing, drums journaled therein in different vertical planes, board D, an endless carrier formed of buckets having slotted bottoms, a spout in one side of the casing, a slide pivoted at one end therein and adapted to engage the edges of the ascending buckets at its opposite end, a discharge bin at the opposite side of the casing, a fume box and a fume exit, substantially as shown and described.

5. A bucket for a device of the class described consisting of an angular receptacle having a slotted bottom, vertical strips secured to the back thereof having openings in their lower ends, and hooks formed on the upper ends of the said strips, substantially as shown and described.

6. The combination of a casing, slotted plates secured to the inner sides of the casing, securing bolts which pass through the slots of the plates, drum shafts journaled in the plates, and an endless carrier adapted to move around the said drums, substantially as shown and described.

493,571. CASH REGISTER AND INDICATOR. FORTUNE L. BAILEY, Freeport, Ind., assignor to the Boston Cash Register Company, Northampton, Mass. Filed Mar. 31, 1892. Serial No. 427,171. (No model.)



Claim.—1. In a registering machine, the combination of a wheel, an actuating lever, a dog mounted on such lever, such dog and lever so constructed that the dog when such lever is operated will engage and move such wheel a certain distance, and then be stopped by such lever, substantially as shown and described.

2. In a registering machine, a wheel, an actuating lever, a gravitating dog riding loosely on such lever and adapted, when such lever is operated, to engage and move such wheel, and a stop adapted to limit the movement of such dog while actuating such wheel, substantially as shown and described.

3. In a registering machine, a wheel, an actuating lever, and a gravitating dog riding loosely on such lever and adapted, when such lever is operated, to engage and move such wheel a certain distance, and then lock on such lever, so that it cannot move such wheel farther until the lever is lowered and again operated, substantially as shown and described.

4. In a registering machine, a wheel, an actuating lever, a gravitating dog mounted loosely on such lever, and lugs on such lever on each side of such dog to prevent such dog from slipping too far backward and forward on such lever, such dog adapted to engage and move such wheel a certain distance and then lock on such lever, so that such wheel cannot be moved farther until such lever is lowered and again operated, substantially as shown and described.

5. In a registering machine, a wheel, an actuating lever, a gravitating dog loosely mounted on such lever, lugs on the lever on each side of such dog to prevent the same from sliding too far backward and forward upon such lever, and shoulders or projections on the side of such dog, above and below such lever, to prevent the upper end of such dog from tipping too far, such dog adapted to engage and move such wheel a certain distance and then lock on such lever, so that such wheel cannot be moved farther by such lever until the dog is lowered and the lever again operated, substantially as shown and described.

6. In a registering machine, a wheel, an actuating lever, a gravitating dog mounted loosely thereon, a lug on such lever on each side of such dog to prevent the same from sliding too far backward and forward, such dog having a recess in its side for the lever to fit and operate in loosely, and a shoulder on each end of such dog adapted to bear against the upper and under sides of such lever, such dog adapted to engage and move such wheel a certain distance and then be locked on such lever by such shoulders and lugs, so that it cannot move such wheel farther until the lever is again operated, substantially as shown and described.

7. In a registering machine, two series of toothed registering wheels, the wheels of the lower series provided with a lug or tooth adapted at each revolution of such wheels to contact with the corresponding wheels in the second series and move the same one notch, a series of levers pivoted on a shaft in the machine, a dog loosely mounted on each of such levers, lugs on such levers to prevent the dog from moving too far backward and forward, and shoulders on such dog above and below the lever, whereby such dog will contact with the lower registering wheel and move the same one notch and then lock on the lever, substantially as shown and described.

8. In a registering machine, two wheels, an actuating lever, a gravitating dog mounted loosely on such lever, and lugs on such lever to prevent the dog from slipping too far backward and forward on such lever, such dog adapted to engage one of such wheels and move it a certain distance and then contact with the other wheel and lock, so that such wheel cannot be moved farther by such dog until it is dropped and the lever again operated, substantially as shown and described.

9. In a cash register, a double series of registering wheels loosely mounted on independent shafts within the framework, an intermediate series of wheels adapted to operate the lower registering wheels, and, at a certain point, to move the upper ones, a series of independent levers pivoted on the shaft within the framework, and dogs carried thereon and adapted to engage with and turn one of the intermediate wheels, substantially as shown and described.

10. In a cash register, a double series of toothed registering wheels loosely mounted on independent shafts within the framework, an intermediate series of toothed wheels adapted to operate the lower registering wheels, and, at a certain point, to move the upper ones, a series of independent levers pivoted on a shaft within the framework, and dogs carried loosely thereon and adapted to engage with and turn one of the intermediate wheels one notch, and at the same time to lock between such intermediate wheels and lower registering wheels, substantially as shown and described.

11. In a cash register, a framework, two series of toothed registering wheels mounted on independent shafts therein, a series of intermediate wheels engaging with the lower registering wheels, such intermediate wheels having on one side a single tooth whereby, when they have made a single revolution, they engage with and move the upper registering wheels one notch, and a series of independent key levers with dogs mounted thereon adapted to engage with and operate the intermediate wheels, substantially as shown and described.

12. In a cash register, a framework, a double series of toothed registering wheels loosely mounted on independent shafts within such framework, a series of toothed wheels mounted on an intermediate shaft, such wheels engaging with the lower series of registering wheels, and each provided with a supplemental tooth in line with and adapted to engage with the upper series of registering wheels, flat springs secured to a cross-bar within the framework, their ends engaging with the teeth of the two sets of registering wheels, a series of operating levers pivoted on a shaft within the framework, dogs loosely mounted on such levers, their heads adapted to engage with the lower registering and intermediate toothed wheels, moving the same and locking them together until the lever drops to its normal position, substantially as shown and described.

13. In a cash register, two series of registering wheels loosely mounted on shafts within the framework, a series of toothed registering wheels mounted on an intermediate shaft, such wheels engaging with the lower registering wheels, and, at certain points, with the upper ones, spring washers keyed on the shafts between the registering wheels, such washers cut on one side, an end thereof slightly sprung to one side to form a projection for engaging with a notch on the side of such wheels, a series of operating levers pivoted on a

shaft having bearings in the framework, and dogs loosely mounted on such levers adapted to engage with and rotate the intermediate

supporting shanks upon which suitable indicating tablets are mounted,

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shaft having bearings in the framework, and dogs loosely mounted on such levers adapted to engage with and rotate the intermediate wheels and lock the same with the lower registering wheels, substantially as shown and described.

14. In a cash register and indicator, a framework, a pair of shafts having bearings therein, each carrying a series of toothed registering wheels, a series of toothed wheels mounted on an intermediate shaft, such wheels engaging with the lower registering wheels, and, at certain points, with the upper ones, a series of independent levers pivoted on a shaft within the framework, dogs loosely mounted thereon adapted to engage with and move the intermediate wheels a single notch, and lock the same with the lower registering wheels until the lever returns to its normal position, in combination with suitable indicating tablets operated through such key levers, substantially as shown and described.

15. In a cash register and indicator, a double series of toothed registering wheels loosely mounted on independent shafts within the framework, a series of toothed wheels loosely mounted on an intermediate shaft, such wheels engaging with the lower registering wheels, and, at a certain point, with the upper ones, flat springs secured to a cross-bar within the framework, their ends engaging with the teeth of two registering wheels, spring washers keyed to the shafts between the registering wheels, such washers cut on one side, an end thereof sprung to one side so as to form a catch to engage with a notch on the sides of the wheels, a pawl and ratchet mechanism attached to the outer ends of the two registering shafts for rotating the same, a stop mechanism attached to the opposite end of such shafts, a series of independent operating levers pivoted to a shaft within the framework, and dogs loosely mounted on such levers and adapted to engage with the intermediate wheels, whereby they are rotated and locked with the lower registering wheels, substantially as shown and described.

16. In a cash register and indicator, a framework, two series of toothed registering wheels mounted upon shafts, a series of toothed wheels mounted upon an intermediate shaft, such wheels engaging with the lower series of registering wheels, and, at a certain point, with the upper ones, cut washers keyed to the several shafts between each of the wheels, one end of such washers being sprung to one side so as to form a catch adapted to engage with a notch in its wheel, ratchet wheels rigidly mounted on one end of each of the registering shafts, an arm carrying a pawl loosely mounted within the same and adapted to revolve them, a notched wheel mounted on the opposite ends of the registering shafts, and a pivoted dog bearing on the periphery thereof, whereby it will engage with such notch when in line with the same, substantially as shown and described.

17. In a cash register and indicator, a framework supported within an inclosing casing, a double series of toothed registering wheels loosely mounted on independent shafts therein, a series of toothed wheels mounted on an intermediate shaft, such wheels engaging with the lower registering wheels, and, at certain points, with the upper ones, a series of independent levers pivoted on a shaft, and adapted to operate the registering mechanism, a series of indicating tablets mounted upon shanks which are supported on the inner ends of such levers, and adapted to be raised by them, the lower end of such shanks when raised engaging with notches on the arms of a pivoted rack, a pivoted cross-bar lying across the tops of and adapted to be raised by the movement of any of such levers and to contact with a projection on a vertical moving bar, such bar carrying a pivoted trigger engaging with a bell hammer operating on a suitable bell, a dog pivoted on the lower end of such vertical moving bar, a spring controlled drawer in the lower part of the casing, its rear end engaging with such dog, whereby it is retained within the casing, a pivoted trigger on the back of such drawer engaging with a lug on the bottom of the pivoted rack as the drawer is forced out, tripping the same and thereby releasing any tablet shanks that may be raised, substantially as shown and described.

18. In a cash register, the combination of a shaft with a series of registering wheels mounted thereon, means for rotating the same, a groove in such shaft, spring washers riding loosely on such shaft between such wheels, such washers having a lug on the inner side of the same adapted to fit in the groove in such shaft to hold such washers in place, such washers cut on one side, one end thereof sprung to one side so as to engage with notches on the side of the wheel when the shaft is turned for the purpose of resetting such registering wheels, substantially as shown and described.

19. In a cash register, the combination of a shaft with a series of registering wheels mounted thereon, means for rotating the same, a groove in such shaft, spring washers riding loosely on such shaft between such wheels, such washers having a lug on the inner side of the same adapted to fit in the groove in such shaft to hold such washers in place, such washers cut on one side, an end thereof sprung to one side so as to engage with notches on the side of the wheel, a pawl and ratchet mechanism mounted on one end of such shaft, and a ratchet wheel on the opposite end adapted to engage with a pivoted dog bearing on the periphery of such wheel, substantially as shown and described.

20. In a cash register, the combination of a shaft with a series of registering wheels mounted thereon, means for rotating the same, spring washers mounted on such shaft between such wheels so as to rotate with such shaft when the shaft rotates, such washers cut on one side, an end thereof sprung to one side so as to engage with notches on the side of the wheel when the shaft is turned for the purpose of re-setting such registering wheels, substantially as shown and described.

21. In a cash register and indicator, a framework, a registering mechanism therein, independent levers pivoted on a shaft within such framework and carrying dogs for operating such registering mechanism, the rear end of such levers resting between the arms of a pivoted rack, and a series of indicating tablets mounted upon shanks supported above such levers and resting thereon, the shanks of such tablets adapted to engage with notches formed in the arms of such rack, when raised by the levers, substantially as shown and described.

22. In a cash register and indicator, a casing with a registering mechanism therein, operating levers pivoted on a shaft within the framework of such register, the rear end of such levers resting between the arms of a pivoted rack-bar, a series of indicating tablets mounted upon shanks, such shanks supported upon the levers and adapted to engage with notches in the arms of such rack when raised, and a lug formed on the lower part of such rack, whereby it may be tripped, and the raised tablet released, the rack-bar returning to its normal position by gravity, substantially as shown and described.

23. In a cash register and indicator, a framework, a suitable registering mechanism therein, a series of independent levers pivoted on a shaft within such framework for operating such registering mechanism, the rear ends of such levers supported between the vertical arms of a pivoted rack, a series of indicating tablets mounted upon shanks, such shanks supported above and by such levers, the shanks of such tablets adapted to engage with notches in the arms of such rack when raised by the levers, and a lug on the under side of such rack adapted to be tripped by a trigger pivoted to a drawer below, in its outward movement, thereby releasing the raised tablet or tablets, substantially as shown and described.

24. In a cash register and indicator, independent levers pivoted on a shaft and adapted to operate a registering mechanism, the rear end of such levers supporting shanks upon which suitable indicating tablets are mounted, and the lower end of such shanks bent backward so as to engage in the notches in the arms of a pivoted rack-bar when the shanks are raised by the levers, substantially as shown and described.

25. In a cash register and indicator, independent levers pivoted on a shaft and adapted to operate a registering mechanism, the rear end of such levers operating between the arms of a pivoted rack-bar, and supporting shanks upon which indicating tablets are mounted, the lower end of such shanks bent backward so as to engage in the notches in the arms of the pivoted rack-bar, when the shanks are raised by the levers, substantially as shown and described.

26. In a cash register and indicator, independent levers pivoted on a shaft and adapted to operate a registering mechanism, the rear end of such levers operating between the arms of a pivoted rack-bar and supporting shanks upon which indicating tablets are mounted, the lower ends of such shanks resting partially upon such levers, the remaining portion of the lower end of such shanks projecting sufficiently from such levers laterally as to enable any of them when raised by such levers to engage with and rest in a notch in an arm of the rack-bar beside such lever, substantially as shown and described.

27. In a cash register and indicator, independent levers pivoted on a shaft and adapted to operate a registering mechanism, the rear end of such levers operating between the arms of a pivoted rack-bar and supporting shanks upon which indicating tablets are mounted, the lower end of such shanks bent backward and resting partially upon such levers, the remaining portion of the lower end of such shanks projecting sufficiently from such levers laterally as to enable any one of them when raised by such levers to engage with and spring into a notch in an arm of the rack-bar beside such lever, substantially as shown and described.

28. In a cash register and indicator, independent levers pivoted on a shaft, and adapted to operate a registering mechanism, the rear end of such levers resting between the arms of a pivoted rack, and supporting shanks upon which suitable indicating tablets are mounted, such shanks movable vertically, and so held in place at the upper end and middle of them as to spring the lower end of the shanks backward, whereby they will spring into notches in the arms of such pivoted rack when the shanks are raised by the levers, substantially as shown and described.

29. In a cash register and indicator, independent levers pivoted on a shaft, and adapted to operate registering mechanism, the rear end of such levers resting between the arms of a pivoted rack, and supporting shanks upon which suitable indicating tablets are mounted, the lower end of such shanks bent backward so as to engage in the notches in the arms of a pivoted rack-bar when the shanks are raised by the levers, substantially as shown and described.

30. In a cash register and indicator, independent levers pivoted on a shaft and adapted to operate registering mechanism, the rear end of such levers resting between the vertical arms of a pivoted rack-bar, such arms having a notch near their upper end, shanks upon which suitable indicating tablets are mounted, such shanks supported below by such levers, and so held in place at the upper end and middle of them and so bent at their lower end as to spring the lower end into the notch in the arm of such rack-bar, when such shanks are raised by such levers, substantially as shown and described.

31. In a cash register and indicator, independent levers pivoted on a shaft and adapted to operate a registering mechanism, the rear end of such levers resting between the vertical arms of a pivoted rack-bar, such arms having a notch near their upper end, shanks upon which suitable indicating tablets are mounted, the lower end of such shanks resting partially upon such levers, the remaining portion of the lower ends of such shanks projecting sufficiently from such levers laterally as when raised to engage with notches in the arms of the rack-bar, and so held in place at the upper end and middle of them and so bent at the lower end as to spring the lower end into the notch in the arm of such rack-bar when such shanks are raised by such levers, substantially as shown and described.

32. In a cash register, actuating levers pivoted on a shaft, a cross-bar resting on such levers, a bell and suitable connecting parts supported on a plate within the machine, and a bar adapted to move vertically on the face of such plate, such bar having a projection at its lower end with which the cross-bar, after being raised by the key levers, is adapted to contact, whereby the vertical moving bar is raised and through its connections the bell is rung, substantially as shown and described.

33. In a cash register and indicator, actuating levers pivoted on a shaft, a cross-bar resting on such levers, its ends bent and pivoted to such lever shaft, a bell and suitable connecting parts supported on a plate within the machine, a bar adapted to move vertically on the face of such plate, a lug attached to such bar near the middle thereof, with which the cross-bar after being raised by the key levers is adapted to contact and through its connections ring the bell, a drawer, and a dog pivoted to the lower end of such vertical moving bar adapted to release such drawer when such bar is raised, substantially as shown and described.

34. In a cash register and indicator, a drawer in the lower part of the same, a pivoted trigger attached to such drawer, a pivoted rack having notched arms to support tablet shanks when raised, and such rack having at its lower end a lug, such pivoted trigger adapted to move the lug forward as the drawer is drawn out, whereby the arms of the rack-bar are thrown backward and the tablet shanks are dislodged so that they drop, substantially as shown and described.

35. In a cash register and indicator, a pivoted rack bar with notched arms above to support the tablet shanks when raised, and with a lug below adapted to be thrown forward by a trigger attached to such drawer when the drawer is drawn out, whereby the arms of the rack-bar are thrown back and the raised tablets dropped, such rack-bar being so pivoted that the arms extend upward inclined slightly forward when the rack-bar is released, substantially as shown and described

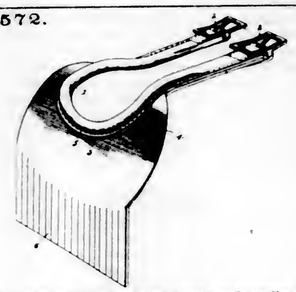
36. In a cash register and indicator, a drawer in the lower part of the same and wheels provided with stub axles working in grooved or slotted bearings in the sides of the casing of the machine, such drawer supported by and operating on such wheels, substantially as shown and described.

37. In a cash register and indicator, a suitable inclosing casing, a drawer in the lower part of the same, flanged wheels provided with stub axles working in grooved or slotted bearings in the sides of the casing, and flanged tracks formed on the sides of such drawer and adapted to be supported by and move longitudinally on such wheels, in combination with a spring for throwing the drawer outward, and a pivoted dog actuated by the key levers engaging such drawer and normally retaining it within the casing, the drawer being released when such dog is operated, substantially as shown and described.

493,572. CRUPPER. WILLIAM T. BAKER and THOMAS R. DORR, Providence, Ky. Filed Nov. 11, 1892. Serial No. 451,884. (No model.)

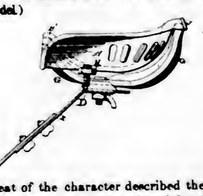
Claim.—1. A crupper, the loop-portion of which has depending therefrom the flat leather apron secured at its upper edge to said loop substantially as specified.

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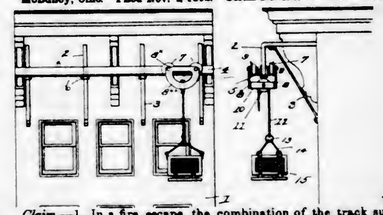
2. A crupper, the loop-portion of which has depending therefrom a flat apron, the lower edge of which is at intervals slit rendering the same flexible, substantially as specified.

493,573. SEAT FOR AGRICULTURAL MACHINES OR VEHICLES. GEORGE BANKS, Oakfield, Mich. Filed Feb. 3, 1891. Serial No. 380,060. (No model.)



Claim.—In a seat of the character described the combination with a seat portion having a socket at each end forming a bearing, of a substantially U shaped support having its ends turned outward to enter the said sockets, substantially as described.

493,574. FIRE-ESCAPE. DAVID BECK and ROBERT W. LEVITT, McLuney, Ohio. Filed Nov. 4, 1892. Serial No. 451,016. (No model.)



Claim.—1. In a fire escape, the combination of the track supported from a building or structure, the trolley consisting of the longitudinal side pieces and wheels traveling on the track, the transverse pieces connecting the side pieces, the grooved pulley mounted in said pieces, the cord or cable passing over said pulley, and a basket or cage consisting of the bottom section, the end sections made of pivoted connecting links, and the side sections all adapted to be secured in position and connected to said pulley.

2. In a fire escape basket or cage, the combination of the bottom section, the end section connected thereto and consisting of the pivoted connecting links, the side and end sections hinged to the bottom section, and devices for securing the sections in open or upright positions.

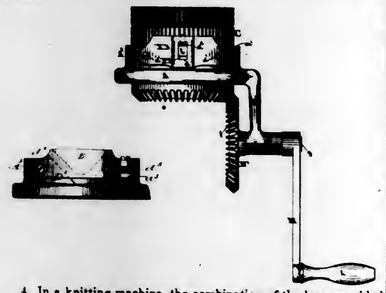
493,575. CIRCULAR-KNITTING MACHINE. EDWIN R. BRABSON, Philadelphia, Pa. Filed June 4, 1892. Serial No. 435,477. (No model.)

Claim.—1. In a knitting-machine, the combination of the base provided with a cam-depression, and a cam in said depression, the space between the edges of the latter and the cam forming a cam-slot for the passage of the heels of such needles as are in operation, and provisions to permit of the passage over said cam of the heels of such needles as are out of operation, substantially as and for the purpose specified.

2. In a knitting-machine, the combination of the base provided with a cam-depression, and a cam adjustably sustained in said depression, the space between the edges of the latter and the cam forming a cam-slot for the passage of the heels of such needles as are a

operation, and provisions to permit of the passage over said cam of the heels of such needles as are out of operation, substantially as and for the purpose specified.

3. In a knitting-machine, the combination of the base provided with a cam-depression, a support outside of the latter, and a cam in said depression and vertically adjustable on said support the space between the edges of the depression and the cam forming a cam-slot for the passage of the heels of such needles as are in operation, and provisions to permit of the passage over said cam of the heels of such needles as are out of operation, substantially as and for the purpose specified.



4. In a knitting-machine, the combination of the base provided with a cam-depression, a support outside of the latter, and a cam in said depression and vertically adjustable on said support; the space between the edges of the depression and the cam forming a cam-slot, and provisions to permit of the passage over said cam of the heels of such needles as are out of operation said cam being V-shaped to permit of the passage of the heels of such needles as are in operation through said slot in either direction, substantially as and for the purpose specified.

5. In a knitting-machiue, the combination of the base provided with an annular upward extension, a cam-depression in the extension, and a cam in the depression, the space between the edges of the latter and the cam forming a cam-slot, the top of said extension being in a horizontal plane so that the heels of the needles will slide thereon and be caused, by said cam, to pass through said slot, and provisions to permit of the passage over the cam of such heels as are raised or out of operative relation with said extension, substantially as and for the purpose specified.

6. In a knitting-machine, the combination of the base provided with an annular upward extension, a cam-depression in the latter, a support outside of the depression, a cam in said depression and vertically adjustable on said support, the space between the edges of the cam and depression forming a cam-slot, the top of the extension being in a horizontal plane so that the heels of the needles will slide thereon and be caused, by said cam, to pass through said slot, and provisions to permit of the passage thereover of such heels as are raised or out of operative relation with said extension, substantially as and for the purpose specified.

7. In a knitting-machine, the combination of the base provided with an annular upward extension, a cam-depression in the extension, a support outside of the depression, a cam in said depression and vertically adjustable on said support, the space between the edges of the cam and depression forming a cam-slot, the top of said extension being in a horizontal plane so that the heels of the needles will slide thereon and be caused, by said cam, to pass through said slot, and provisions to permit of the passage thereover of such heels as are raised or out of operative relation with the extension said cam being V shaped to permit of the passage of the operating needles through the slot in either direction, substantially as and for the purpose specified.

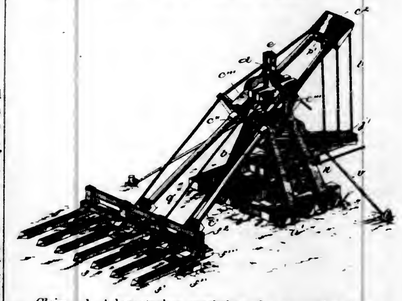
8. In a knitting-machine, the combination of the base provided with a cam-depression, a plate spanning the depression and provided with a vertical slot, a cam in said depression provided with a lug in said slot, and an adjusting device acting on said lug, the space between the edges of the cam and depression forming a cam-slot for the passage of the heels of the needles, substantially as and for the purpose specified.

9. In a knitting-machine, the combination of the base provided with an upwardly projecting extension, the latter having therein a cam-depression, a plate spanning the depression and provided with a vertical slot, a cam in said depression having its top above the top of the extension and provided with a lug in said slot, and an adjusting device acting on said lug, the space between the edges of the cam and depression forming a cam-slot for the passage of the heels of the needles, substantially as and for the purpose specified.

10. In a knitting-machine, the combination of the base provided with an upwardly projecting annular extension having its top in a horizontal plane to permit of the sliding of the heels of the needles on the edge thereof, a cam-depression in said extension, a plate spanning the depression and provided with a vertical slot, a cam in said depression having its top above the top of the extension and provided with a lug in said slot, and an adjusting device acting on said lug, the space between the edges of the cam and depression forming a cam-slot for the passage of said heels, substantially as and for the purpose specified.

11. In a knitting-machine, the combination of the base having integral therewith an upwardly projecting annular extension having its top in a horizontal plane to permit of the sliding of the heels of the needles on the edge thereof, a cam-depression in said extension, a plate spanning said depression and secured to the extension and provided with a vertical slot, a cam in said depression having its top above the top of said extension and provided with a lug in said slot, and an adjusting screw sustained by said plate and acting on said lug, the space between the edges of the cam and depression forming a cam-slot for the passage of said heels, substantially as and for the purpose specified.

493,576. HAY-STACKER. ANDREW M CORBIT, Bethlehem, Iowa. Filed Nov. 14, 1892. Serial No. 451,856. (No model.)



Claim.—1. A hay stacker consisting of a supporting frame, a center post, a crane pivoted on said post, said crane consisting of two arms formed of separable sections, the rear ends of the arms of the section being connected, said section being permanently carried by the center post, the forward section being connected to the rear section forward of its connection to the post, and a fork detachably secured to the front end of the forward section, substantially as described.

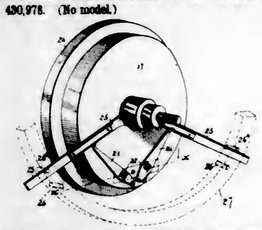
2. A stacker consisting of a support, a crane pivoted on said support, a fork pivoted on the crane, a rope secured to the rear end of the fork and extending rearwardly and passing over pulleys secured to the support, a bar secured to said rope said bar adapted to engage a stop carried by the support, adjustable devices carried by this bar and adapted to engage a stationary part of the support, whereby the throw of the fork may be regulated, substantially as described.

3. A stacker consisting of a support, a crane pivoted on said support, a fork pivoted on the crane, a rope secured to the rear end of the fork, and passing under pulleys q and r, and over pulley c and down on the rear side of the support and between bars r', a catch bar adjustably secured to this rope and adapted to work between the bars r' and to engage a pin carried by said bars, and an adjustable stop carried by said bar and adapted to engage the under side of the bars r', and a weight secured to the catch bar, substantially as described and for the purpose set forth.

4. A stacker consisting of a support, a crane pivoted on the support, a fork pivoted on one end of the crane, and means for elevating said fork, a rope attached to the rear end of the fork and passing rearwardly and provided with a catch to engage a stop secured to the support, and an adjustable stop secured to said rope whereby the throw of the fork may be so regulated that it may automatically discharge its load at any desired angle, substantially as described.

5. A stacker consisting of a support, a center post, a crane pivoted on said post, a fork pivoted on the front end of the crane, and means for elevating the crane, said means consisting of the rope l which is secured to the rear end of the crane and is passed down around a pulley j' pivoted on a beam j, up over a pulley m mounted in a recess in a block secured to the rear end of the crane, down over a pulley m' mounted on beam j, and then over a swivel pulley n mounted on a beam o the beams j and o being secured to the center post, substantially as described.

493,577. RAILWAY-GATE. EDWARD CURRIER, Fall River, Mass., assignor of one-half to Aimé Barre, same place. Filed Apr. 28, 1892. Serial No. 430,978. (No model.)



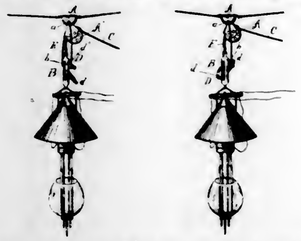
Claim.—1. In a railway gate, the combination of oppositely-disposed disks slightly projecting above the surface of a railway bed, band pulleys or wheels adjacently situated to said disks, bands thereover, a gate-operating rope, cable, or chain connected to one end of each band, a connection between the other ends of said bands, and a clutch for connecting the said band pulleys or wheels to the disks, substantially as described.

2. The combination of band wheels or pulleys having spring-actuated studs or pins extending therethrough and connected to pivoted arms, railroad gates connected to said band wheels or pulleys, disks adjacently situated to said band wheels or pulleys and adapted to be engaged by said pins or studs, arms adapted to engage the arms carrying said pins or studs, and connected bands surrounding and adapted to unitedly operate the said disks, substantially as described.

3. The combination of a series of posts or standards having pulleys therein, and mast-arms journaled thereto, a series of pulleys below the said posts or standards and arranged in pairs, a rope, cable, or chain passing over said pulleys and extending upwardly through the said posts or standards, band wheels or pulleys arranged beyond the said posts or standards, a clutch in connection with said band wheels or pulleys, a disk situated adjacent to each of the said band wheels or pulleys and adapted to be engaged by the said clutch, a band surrounding the said band wheels or pulleys having one end thereof connected to the said rope, cable or chain, and a connection for the opposite ends of the said bands, the said band wheels or pulleys and disks having one face of each loosely bearing against the adjacent face of the other substantially as described.

4. In a railway gate, the combination of posts or standards having openings extending through the lower portions thereof, pulleys therein, and mast-arms journaled therethrough, pulleys arranged in pairs at the lower ends of the openings through said posts or standards, a rope, cable, or chain engaging said pulleys, band wheels oppositely situated and having bands thereon to which the said rope, cable or chain is connected at its opposite ends, a connection for the other ends of said bands, disks adapted to be interlocked with said band-wheels, arms for unlocking said disks from said band-wheels, and a contacting operating device for said disks consisting of an adjustable rubber-covered head which is adapted to be connected to a movable body, substantially as described.

493,578. ELECTRIC-LAMP SUPPORTER. ALVIN G. DE WITT, Detroit, Mich. Filed Feb. 7, 1891. Serial No. 380,583. (No model.)



Claim.—1. In an electric light lamp supporter, the combination of a swinging stirrup, a fixed saddle supporting said stirrup, a pulley, a link suspended from a rope passing over said pulley, a swinging hook on said link, adapted to be reversed in position, and adapted to engage with the stirrup in one position and pass without engaging, when in reversed position, substantially as and for the purpose specified.

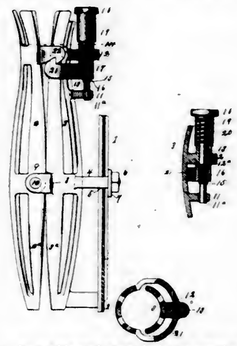
2. In an electric light lamp supporter, the combination of a fixed saddle, a swinging stirrup supported thereby a curved cross-bar to said stirrup, a pulley supported by said saddle, a link attached to a rope over said pulley, and provided with a swinging hook, adapted to be drawn upward within the curve of said cross-bar and to come into engagement with said cross-bar, substantially as and for the purpose described.

3. An electric light lamp supporter, consisting of a link adapted at its upper end to engage the hoisting rope, and at its lower end provided with means for engaging a lamp; said link provided with a bar pivoted between its ends, having a projecting downwardly turned hook at its upper end, and a weighted stem at its lower end projecting from the same side of the link; the whole adapted to operate in connection with a stirrup depending from the cable or support above, which sustains the hoisting pulley, substantially as described.

4. The combination with the link of the hook as described, pivoted between its ends, said hook provided with a notch b in its throat, substantially as and for the purposes set forth.

5. The combination of the hook and link as described, the link being provided with a recess adapted to prevent the stirrup when engaged with the hook to draw into a vertical position, substantially as and for the purposes described.

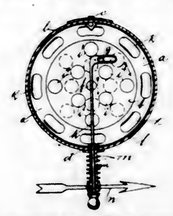
493,579. WHIP-SOCKET. RUDOLPH FALKENRATH and JULIUS FALKENRATH, St. Louis, Mo. Filed July 26, 1892. Serial No. 441,318. (No model.)



Claim.—1. In a whip socket made in two sections hinged together, a stationary hook on one section of the socket, a movable pin working in bearings on the other section of the socket, and a hook on said pin for engaging the stationary hook: substantially as and for the purpose set forth.

2. In a whip socket, made in two sections hinged together, stationary hooks on one of the sections, a spring actuated pin on the other section, and hooks on said pin which are formed to engage said stationary hooks, substantially as and for the purpose set forth.

493,580. DAMPER FOR HOUSEHOLD-STOVES. ALBIN FLEISCHER, Metz, Germany. Filed Oct. 28, 1891. Serial No. 410,056. (No model.)



Claim.—The combination of a disk a pivoted at c and f in the chimney or flue, and having outer ring of perforations k, inner perforations i and handle n mounted in sleeve m of the hollow trunnion d, and having retaining spring m', with a disk b, centrally pivoted to and smaller than said disk a, said disk b having perforations i' corresponding to the perforations i of disk a, having further pin g and op-

erating rod h with rectangular slotted arm engaging pin g, said rod h being guided by the hollow trunnion d and sleeve m, in the manner and for the purpose substantially as described.

the position thereof into alignment with the direction of travel, and wheels between said bifurcated ends, substantially as described.

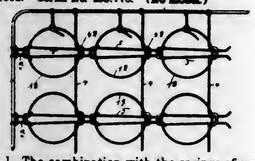
5. In a sulky, the shafts and a wheel separately supported in the

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erating rod A with rectangular slotted arm engaging pin *g*, said rod A being guided by the hollow trunnion *d* and sleeve *m*, in the manner and for the purpose substantially as described.

493,581. SPRING-BED. OSCAR S. FOSTER, Utica, N. Y. Filed June 6, 1892. Serial No. 435,778. (No model.)



Claim.—1. The combination with the springs of a mattress, of a stay consisting of links formed of doubled wire, the wire terminating at one end of the link in hooked arms which pass within the doubled end of the next link and engage with the convolution of the spring, substantially as set forth.

2. The combination of spiral springs forming a bed bottom and a stay consisting of links of doubled wire terminating at one end in a pair of hooked arms, the link passing diametrically across the spring and the doubled end of the link engaging on the under face of the convolution of the spring and hooked ends of the adjacent link passing within the doubled end and engaging over the convolution, substantially as set forth.

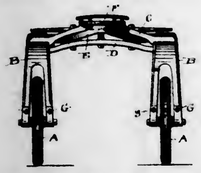
3. The combination in a bed bottom composed of several springs and cross wires engaging the several springs and having offsets engaging each of the springs and a stay passing diametrically across the springs, composed of links, each link having at one of its ends hooks which engage the convolution of the spring, securing it, the link passing within the offset in the stay wire securing the same to the spring, substantially as set forth.

4. The combination in a bed bottom composed of several springs, of cross wires having offsets engaging each spring, stays consisting of links formed of parallel wires united at one end and having hooked arms at the other, the links passing through the offset on the cross wire, securing it and being secured together and to the convolution of the spring by the hooked arms thereof, passing around the convolution of the spring and within the doubled end of the link, substantially as set forth.

5. The combination in a spring bed bottom composed of a number of spiral springs, of a stay connecting springs and consisting of links formed of parallel wires united at one end and hooked at the other, the hooked end of the link engaging the convolution of the spring and passing thence through the doubled end of the next adjacent link on one side diametrically across the next adjacent spring and to the next link on the other side, substantially as set forth.

6. The combination in a spring bed bottom composed of several spiral springs, of a stay extending between the springs and consisting of links formed of parallel wires united and hooked at one end and independent and hooked at the other end, the hooked double end of the link engaging the convolution of a spring and passing thence diametrically across the spring and to the next adjacent spring where the free hooked ends engage the convolution of a spring and are hooked through the double end of the next adjacent spring, substantially as set forth.

493,582. SULKY. HENRY H. GARRARD, Cleveland, Ohio. Filed Dec. 9, 1892. Serial No. 454,612. (No model.)



Claim.—1. A sulky having the carrying wheels supported in the ends of the shafts, substantially as described.

2. In a sulky, a pair of shafts and a carrying wheel journaled in the end of each shaft, substantially as described.

3. The shafts bent downward at their rear ends and bifurcated, and a wheel supported in each of said bifurcated ends, substantially as described.

4. In a sulky, the shafts thereof bent downward at their rear ends and bifurcated, and a brace for the lower end of each shaft to adjust the position thereof into alignment with the direction of travel, and wheels between said bifurcated ends, substantially as described.

5. In a sulky, the shafts and a wheel separately supported in the end of each shaft, a truss connecting said shafts above said wheels, and strengthening braces between truss and shafts, substantially as described.

6. The combination of the shafts and the wheels supported in the ends thereof the truss connecting the shafts, the bow fixed to the truss and the shafts, and the seat on the truss and bow, substantially as described.

493,583. RED DYE. ROBERT GNEHM and JAKOB SCHMID, Basle, Switzerland, assignor to the Society of Chemical Industry in Basle, same place. Filed Aug. 25, 1892. Serial No. 444,112. (Specimens.)

Claim.—1. The process of producing a new red azo-dye which consists in combining molecular proportions of diazotized mono-nitro-benzidine, salicylic acid and alpha-naphthol-alpha mono-sulpho-acid (Nevile and Winther) and then precipitating with common salt, substantially as described.

2. The new red azo coloring matter which can be derived from diazotized mono-nitro-benzidine, salicylic acid and alpha-naphthol-alpha-mono-sulpho-acid (Nevile and Winther) and which is a red-brown powder difficultly soluble in cold water and alcohol, insoluble in benzine, but readily soluble in warm water with a yellow-red color.

493,584. STEM-WINDING WATCH. DIETRICH GRUEN, Columbus, Ohio. Filed June 6, 1892. Serial No. 435,662. (No model.)



Claim.—1. A longitudinally moving clutch in the watch movement, constructed with a spring socket to receive a winding arbor of indeterminate length, in a case-pendant; in combination with a train yoke with which the clutch is connected for shifting it, and with a pinion through which winding and setting motion is transmitted to the train, substantially as set forth.

2. The hollow clutch 15 in the watch movement constructed with a pair of spring jaws forming a square clamping socket, in combination with the longitudinally sliding winding arbor in the case-pendant, engaging by friction with the square socket in the clutch 15 as described.

3. The combination of the pinion 6 in the watch movement having a square eye, the square clutch 15 also mounted in the watch movement sliding in the eye of the pinion 6 and imparting rotation thereto, and the longitudinally moving arbor 3, in the pendant engaging by friction with the clutch 15, substantially as and for the purpose set forth.

4. The combination of the spring clutch 15, the beveled pinion 6, within which it slides, and the shifting lever 7, moved by the longitudinal movement of the spring clutch 15, substantially as described.

5. The combination of the longitudinally sliding spring clutch 15, beveled pinion 6, shifting lever 17, pin 19 forked lever 21, and train yoke 7, substantially as and for the purposes set forth.

6. The combination of the sliding clutch 15, shifting lever 17, pin 19, forked lever 21, train yoke 7, and spring 14, substantially as and for the purposes set forth.

7. The hollow clutch 15 constructed with a square spring socket, a cylindrical body and a base flange or collar substantially as and for the purpose set forth.

8. The combination of the winding arbor in the case-pendant and a train shifting mechanism in the movement provided with a clutch sliding longitudinally in the bevel pinion and constructed with a square spring socket engaging with the winding arbor by friction as herein explained, for the purpose set forth.

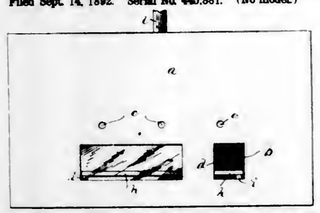
493,585. WOOD-SCREW. MORRIS HERRERA, Chambers County, Ala., and THOMAS L. NORMAN, West Point, Ga. Filed Mar. 10, 1892. Serial No. 424,478. (No model.)

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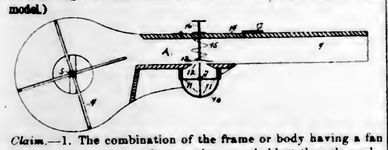
Claim.—A wood screw having on the under side of its head two sets of narrow, inclined grooves, said grooves crossing each other and the grooves of one set being inclined in an opposite direction to those of the other set, substantially as described.

493,586. CHICKEN-BROODER. NIXON HOLLOWAY, Lincolnville, Ind. Filed Sept. 14, 1892. Serial No. 445,881. (No model.)



Claim.—The brooder consisting of the casing, the brooding chamber within the same, upper and lower heating chambers respectively at the top and bottom of said brooding chamber within the casing, partitions forming vertical flues connecting said heating chambers, and a packing in the casing at the outer sides of said flues and said upper heating chamber, substantially as described.

493,587. INSECT-POWDER DISTRIBUTER. ALBERT S. HOTCHKISS, Wallingford, Conn. Filed Nov. 2, 1892. Serial No. 450,743. (No model.)



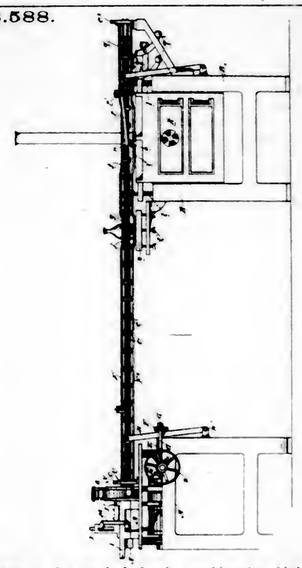
Claim.—1. The combination of the frame or body having a fan chamber and chute; means for creating an air blast therethrough; the separate receptacle 10 opening into the underside of the chute but located outside and below of the air blast therethrough and the take up arms mounted to move from the lower part of the receptacle into the blast through the chute, substantially as described and for the purpose specified.

2. The combination of the frame or body having the fan chamber and chute, devices for forcing air therethrough; the separate receptacle underneath the chute having the connecting opening, the take up arms working therein, and the adjustable cover or regulator plate 13, over said connecting opening between said receptacle and chute substantially as described and for the purpose specified.

3. The combination of the frame or body having the chute 9 and receptacle 10 provided with the opening 12, devices for distributing or taking up the material, the door 14 arranged over said opening and having the adjustable plate or cover 13 mounted thereon, substantially as described and for the purpose specified.

493,588. MACHINE FOR FORMING CAN-BODIES. ROBERT D. HUME, Gold Beach, Oreg. Filed June 9, 1892. Serial No. 436,149. (No model.)

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Claim.—1. In a can body forming machine, the table having the weighted stops projecting from its upper surface, a carrier reciprocating above the table having corresponding movable lugs projecting through its lower face adapted to engage the rear edge of the sheet of metal and carry it forward, a vertically reciprocating knife by which the sheet is cut into lengths sufficient for the can body, and a mechanism consisting of formers and folding jaws into which the opposite edges of the sheet of metal are delivered to be folded, substantially as herein described.

2. In a can body forming machine, the formers B, B^1 upon which the sheet of metal is delivered, having the hook-shaped lugs over which the edges of the sheet are turned, the jaws N, N', N^3, adapted to fold the edges of the sheet over the formers, in combination with the reciprocating carriage A' with the inclined faces A^1 which engage the lugs N^2 of the respective jaws, whereby the latter are caused to move about the formers, substantially as herein described.

3. In a can body forming machine the formers B B' having hook-shaped lugs over which the edges of the sheet of metal are turned, the jaws N, N', N^3 by which the outer fold is made, the reciprocating carriage A' with the projecting pin, the cam grooved rotating cylinder with which it engages whereby the carriage is moved, links connected with the carriage and with cranks by which the vertically reciprocating cutter is actuated to cut the sheets of metal, supports upon which the formers are carried, and stop pins by which the movement of the formers is limited, substantially as herein described.

4. In a can body forming machine, the reciprocating carriage A', the formers B B' moved by the carrier, stop pins B^3 by which the movement of the formers is arrested, and springs B^4 whereby the carriage is allowed a further movement after the formers have been arrested, substantially as herein described.

5. In a can body forming machine, the reciprocating carriage and formers, and the jaws by which the edges of the sheet of metal are folded, in combination with the horn U, the curved arms Q by which the sheet is bent around the horn, the lever to which the curved arms are hinged, said lever having a forked lower end, and a cam on the shaft E' with which the forked end of the lever engages whereby the arms are moved, substantially as herein described.

6. In a can body forming machine, the jaws by which the opposite edges of the sheet of metal are folded so as to engage with each other, a carrier by which the metal is delivered into said jaws, then moved forward above the horn over which the can is to be formed, bodily vertically reciprocating clamping jaws said jaws adapted to open and close and follow the exterior shape of the horn, as they reciprocate by which the edges of the sheet of metal are folded around the horn, and an oscillating head situated below the horn whereby the edges of the metal are brought together, substantially as herein described.

7. In a can body forming machine, the horizontal cylindrical horn

about which the can is formed, vertically reciprocating jaws by which the sheet of metal is bent around said horn, an arm fulcrumed to oscillate beneath the horn having a spring actuated projecting plate V at

forked end and adapted to engage the ratchet wheel, a cord or rope round the pulley, one end whereof is secured to a reciprocating lever or treadle, and the other is secured to the end of a C spring substan-

said central perforation and provided with a longitudinally disposed

an under part, and the upright feed rollers adapted to give a forward

about which the can is formed, vertically reciprocating jaws by which the sheet of metal is bent around said horn, an arm fulcrumed to oscillate beneath the horn having a spring actuated projecting plate V' at its upper end, said plate being depressed when the arm swings beneath the meeting edges of the can until it passes behind the outermost of the folded edges, a stop W projecting from the horn against which the innermost fold of the metal is retained so that when the swinging arm V returns, the plate V' will cause the edges of the can to interlock, substantially as herein described.

8. In a can body forming machine, the cylindrical body about which the can is formed having a stop W at its lower side, vertically reciprocating arms adapted to pass upon opposite sides of the horn and bend the sheet of metal around it, an oscillating arm and head pivoted beneath the horn and mechanism by which it is caused to swing transversely, a spring-actuated projecting plate by which the lower fold of the meeting edges of the metal is moved into line with the fold of the innermost one, and by which the two are interlocked upon the return oscillation of the head, and a mechanism by which the head is forced upwardly after the two edges are locked, so as to compress and secure the edges, substantially as herein described.

9. In a can body forming machine, mechanism by which the metal is cut and the can body formed, a horizontally reciprocating carrier with weighted or spring actuated lugs adapted to recede to allow a can body to pass and to be projected so as to engage the rear edge for the purpose of advancing it, and corresponding spring actuated lugs in the ways or track upon which the body moves, adapted to engage the rear edges of the cans to prevent their being moved backwardly by the reciprocations of the carrier, an acid bath situated beneath the guides and depressed sections of the supporting ways at a point above the acid bath whereby the seam of the can is allowed to dip into the acid as it passes over the bath and is again raised out of it as it leaves, substantially as herein described.

10. In a can body forming machine, the ways upon which the can body is moved, a reciprocating carrier by which the can is advanced upon said ways, depressed sections of said carrier which allows the can to be depressed for a short distance upon the ways and again raised, an acid bath situated beneath one of said depressions, and a soldering bath situated beneath the next succeeding depression whereby the constant reciprocations of the carrier will automatically dip the cans into the acid, raise them out of it and dip them into the solder and raise them out of it, substantially as herein described.

11. In a can body forming machine, guides or ways upon which the can travels, a reciprocating carrier by which it is moved, an adjustable acid bath situated beneath the ways, depressions in the ways by which the can is allowed to dip into the acid bath and again to be raised out of it, a furnace, melting pot, and soldering bath, adjustably suspended beneath the ways, depressions in the ways above the soldering bath, by which the seam of the can is depressed into the bath while passing above it and raised out of it as it passes beyond, and a means by which fresh solder is constantly delivered from the melting pot into the solder bath, substantially as herein described.

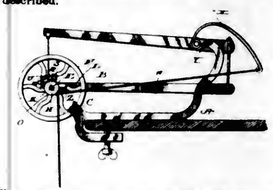
12. In a can body forming machine, a melting pot having the furnace situated beneath it, a solder bath situated above the melting pot, ways upon which the cans are moved, a reciprocating carrier by which they are advanced along said ways, depressions in the ways above the solder bath by which the can is depressed to allow the seam to dip into the solder bath while passing above it and an oscillating ladle fulcrumed above the melting pot and adapted to lift the solder from the melting pot and deliver it into the solder bath whereby a constant supply is retained therein, substantially as herein described.

13. In a can body forming machine, the melting pot the furnace situated beneath it, and a solder bath situated above, ways along which the cans are moved above the solder bath and by which they are dipped into it, a reciprocating carrier by which the cans are moved along the ways, a ladle fulcrumed above the melting pot, a connecting rod by which the lever arm of the ladle is connected with the reciprocating carrier whereby the ladle is caused to dip into the melting pot and raise a portion of its contents and deliver them into the soldering bath, substantially as herein described.

14. In a can body forming machine, a furnace, melting pot, and solder bath, ways along which the cans are moved above the solder bath and dipped into it, interior wipers connected with a centrally supported shaft, and exterior wipers supported upon weighted yielding arms which bring the wipers into contact with the longitudinal seam of the can as it passes and allow the can to pass and be discharged, substantially as herein described.

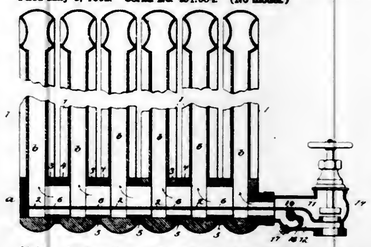
493,589. APPARATUS FOR TRANSMITTING MOTION. JOHN HUNT, Beloit, Wis. Filed June 2, 1892. Serial No. 435,333. (No model.)

Claim.—1. The combination of a fly-wheel, with a driving pulley and a ratchet wheel secured to each other on the axle of the fly wheel, a spring-pressed pawl carried by the fly wheel said pawl having a forked end and adapted to engage the ratchet wheel, a cord or rope round the pulley, one end whereof is secured to a reciprocating lever or treadle, and the other is secured to the end of a C-spring, substantially as described.



2. The combination of a frame, said frame carrying a journal bearing a shaft in said bearing a fly wheel, said fly wheel carrying a roller adapted to engage the device driven, a driving pulley and a ratchet wheel secured to each other on the axle of the fly wheel, a spring pressed pawl carried by the fly wheel said pawl having a forked end and adapted to engage the teeth of the ratchet wheel, a C-spring, a cord or rope round the pulley, one end whereof is secured to a reciprocating lever or treadle, and the other secured to the end of the C-spring, the other end of said spring being coiled round a wrist on an arm of the frame, substantially as and for the purpose set forth.

493,590. RADIATOR. JAMES H. HUTCHINSON, New York, N. Y. Filed May 3, 1892. Serial No. 431,654. (No model.)



Claim.—1. A radiator section having horizontal inlet and outlet passages at the bottom, a vertical central circulating passage communicating with the inlet passage and vertical return passages communicating with the central passage and the outlet passage, the inlet and outlet passages being formed by a diaphragm across an opening having a circular socket or nipple for screw coupling, substantially as described.

2. The combination of a series of radiator sections, having horizontal inlet and outlet passages formed by a diaphragm across an opening adapted for screw couplings, and couplings also having a diaphragm across a passage therethrough, the diaphragms of the respective parts registering with each other to form continuous inlet and outlet passages through the radiator, substantially as described.

3. The combination with the first of the radiator sections, of a valve chamber having inlet and outlet passages formed by a diaphragm registering with the diaphragm of the next succeeding section and the stop valve for controlling the ingress of fluid to the register and the check valve, whereby its egress is controlled, substantially as described.

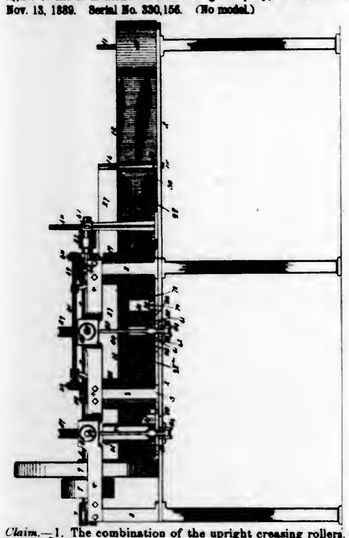
4. A compound valve for radiators consisting of the combination of a casing, an inlet passage, a stop or globe valve to close said passage, an outlet passage, a check valve in said passage and coupling socket arranged to register the passages with those of its complement, substantially as described.

493,591. SYRINGE. CHARLES A. KEHNER, Utica, assignor of one-half to William M. Widener, York, Nebr. Filed Sept. 7, 1892. Serial No. 445,241. (No model.)



Claim.—In a vaginal syringe, the speculum tube closed at one end, and provided at said end with a central perforation and at one side thereof with a guide notch, a sliding syringe tube working through said central perforation and provided with a longitudinally disposed guide rib engaging said guide notch, an attachment knob at its outer end and a plunger head at its other end within the speculum tube, and a sponge removably secured to said plunger head, substantially as set forth.

493,592. TAG-MACHINE. WILLIAM M. LITTLE, Vandalia, Ill., assignor to the R. L. Little Manufacturing Company, of Illinois. Filed Nov. 13, 1889. Serial No. 330,156. (No model.)



Claim.—1. The combination of the upright creasing rollers, the upright guide rollers, the folder consisting of an upright wall, a rib having a winding inclined part, and an under part, and the upright feed-rollers; for manipulating a strip of paper supported on edge substantially as described.

2. The combination of the upright guide rollers, the upright feed-rollers, and the folder, located between the guide rollers and the feed rollers, consisting of an upright wall, a rib having a winding inclined part, and an under part; for manipulating a strip of paper supported on edge substantially as described.

3. The combination of the upright creasing rollers, the upright guide rollers, the upright feed rollers, and the folder located between the guide-rollers, and the feed rollers; for manipulating a strip of paper supported on edge substantially as described.

4. The combination of the upright guide-rollers, the upright feed-rollers, the folder located between the guide-rollers and the feed-rollers, mechanism for operating the guide rollers, and mechanism for operating the feed rollers and imparting a greater speed to the latter than the mechanism imparts to the guide rollers; substantially as described.

5. The combination of the vertical creasing rollers, the vertical guide rollers and the vertical feed rollers having intermittent movement, the folder, and a gluing device; the whole arranged for manipulating a strip of paper supported on edge; substantially as described.

6. The combination of the creasing rollers, the guide rollers, the feed rollers, mechanism for imparting intermittent rotary movement to the guide rollers and to the feed rollers, the folder, the glue pot having a nozzle and a pad, mechanism for reciprocating the glue pot and a device for cutting off and applying a reinforce; substantially as described.

7. The combination of the vertical fixed cutter 87, the angular fixed cutter 88, the plate 86 having a punch-hole 85 and the reciprocating slide 80 having the vertical cutter 82 the angular cutter 83 and the plate 84 having the punch 81; substantially as described.

8. The combination of the vertical fixed cutter 87, the angular fixed cutter 88, the adjustable plate 86, having a punch-hole 85 and the reciprocating slide 80 having the vertical cutter 82, the angular cutter 83 and the adjustable plate 84 having the punch 81; substantially as described.

9. The combination of the upright creasing rollers, the folder consisting of an upright plate, a rib having a winding inclined part, and an under part, and the upright feed rollers adapted to give a forward movement to and manipulate the strip which is supported on its edge; substantially as and for the purpose set forth.

10. The combination of the upright creasing rollers, the upright guide rollers, the folder consisting of an upright plate, a winding inclined part, and an under part, the upright feed rollers, the reciprocating gluing and reinforcing devices, and reciprocating cutting and punching devices; the whole arranged to operate upon a strip supported on its edge and transform it into finished tags; substantially as set forth.

11. The combination of the bracket having an upright strip holder, the cutter blade adapted to sustain the strip, to cut the reinforce from the same, and to apply the reinforce to the tag-strip, and the gluing device located in a position adjacent to the bracket; substantially as and for the purpose set forth.

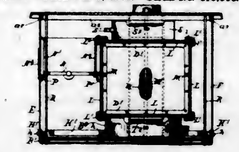
12. The combination with a set of upright creasing rollers, guide rollers, and feed-rollers and a folder; of another set of upright creasing rollers, guide-rollers, and feed rollers and a folder parallel therewith; and mechanism common to both sets having reciprocating bars and connecting devices by which each set is operated intermittently and alternately, substantially as described.

13. The combination of devices for operating upon a tag strip supported on its edge consisting of the upright creasing rollers, the folder having an upright wall, the upright guide rollers, the gluing device, the re-inforcing device, the upright guide rollers, and the cutting and punching devices; substantially as set forth.

493,593. STUMP-EXTRACTOR. BENJAMIN MATTERN, Scribner, Cal. Filed Dec. 29, 1890. Renewed Jan. 21, 1893. Serial No. 459,201. (No model.)

Claim.—The stump extractor having the sweep or lever provided with a flaring recess on one side and a series of cross bolts on the other side, in combination with the fulcrum link bar pivoted to the central one of said series of cross bolts and adapted to project from, and play in said flaring recess in said lever or sweep, the other cross bolts having a series of links, arranged upon the opposite side of the lever from which the fulcrum link bar projects, and the pulling chain adapted to be connected to any one of said links, substantially as set forth.

493,594. STOVE. CHARLES H. MELVIN, Minneapolis, Minn., assignor, by mesne assignments, of two-thirds to himself and George R. Gee, same place. Filed Jan. 2, 1892. Serial No. 416,808. (No model.)



Claim.—1. In a cooking stove having an interior oven, a pair of combined dampers and deflectors located one above and the other

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3. An improved railway car, having a truck platform, mounted

form, and pivotally connected thereto through the medium of a to-

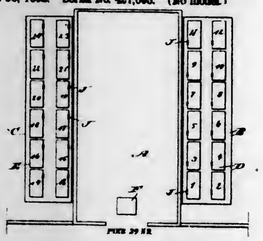
Claim.—1. In a cooking stove having an interior oven, a pair of combined dampers and deflectors located one above and the other below the oven, controlling respectively the direct and indirect passages to the outlet flue, and arranged each to be thrown outward against the line of draft to act as a deflector when open, substantially as and for the purpose set forth.

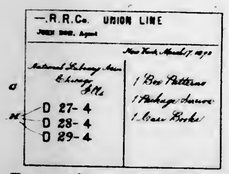
2. In a stove provided with an oven, a pair of combined draft dampers and deflectors located one above and the other under the oven, and controlling the passages to the outlet flue, the said dampers being mounted to move in opposite directions so that when one is open the other is closed and arranged to deflect and spread out the products of combustion so that the direct draft must take the complete circuit of the griddle holes and the indirect the complete circuit of the oven.

3. The combination with the stove having an interior oven and direct and indirect passages to the outlet flue of the combined dampers and deflectors S and T, the operating rod W provided with the reversely related cranks S^1 and T^1 and the links S^2 and T^2 connecting the same with the said dampers, substantially as and for the purpose set forth.

493,595. MEANS FOR SECURING RAILROADS AND SHIPPERS AGAINST LOSS OF FREIGHT. JOSEPH B. MOCKRIDGE, New York, N. Y.

Filed Mar. 30, 1892. Serial No. 427,063. (No model.)



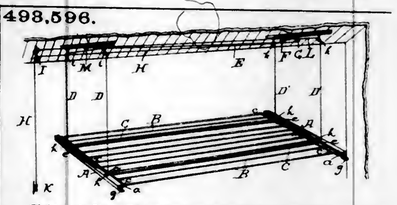


Claim.—1. The means for securing against loss of freight consisting of a receipt or other like document containing characters indicating the car designed to receive the merchandise, a separate independent check or ticket containing duplicate characters of the ones on the said receipt so that the check and receipt control each other, and a receptacle held temporarily on the car and adapted to receive the ticket bearing the number of the car on which the receptacle is held, the ticket being deposited in the said receptacle at the time the merchandise indicated on the ticket is loaded in the car, substantially as shown and described.

2. The means for securing against loss of freight consisting of a shipping receipt, way bill or other like document containing characters indicating serial numbers and the number of the transporting medium, a separate independent ticket or check containing duplicate characters of the ones on the said receipt so that the check and receipt control each other, and a receptacle placed temporarily on the numbered transporting medium to receive the correspondingly numbered checks or tickets at the time the merchandise indicated by the serial number on this ticket is placed in the corresponding transporting medium, substantially as shown and described.

3. The means for securing against loss of freight, consisting of a receipt or other like document containing characters indicating the car designed to receive the merchandise, and characters to designate the merchandise to be shipped, and a separate independent ticket or check containing sets of characters which are a duplicate of the characters on the said receipt or document, substantially as shown and described.

493,596. CLOTHES-DRIER. ALVORD M. McLERAN, Chicago, Ill., assignor of one-half to Orville J. Hogue, same place. Filed Feb 11, 1892. Serial No. 421,294. (No model.)



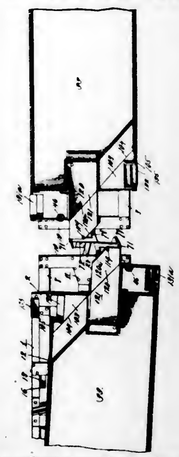
Claim.—1. In a clothes drier the combination with the transverse tubular end-bars having longitudinal flanges on their inner sides which are provided with a series of holes therein, and the longitudinal tubular bars having their ends removably connected to and holding said end-bars apart, of the rods or wires connecting said end-frames, having their ends pass through the holes in said flanges and by their tension holding said end-bars and longitudinal bars together, as set forth.

2. In a clothes drier, the combination with the tubular end bars, the longitudinal tubular bars arranged between said end bars, and plugs inserted in the ends of the said longitudinal bars the outer ends of which are divided and embrace said end bars, of the rods or wires connecting said end bars.

3. In a clothes drier, the combination with the tubular end bars having longitudinal flanges on their inner side, which are provided with a series of holes, longitudinal bars arranged between said end bars, and the plugs inserted in the ends of said bars having the outer end thereof divided longitudinally and bent so as to embrace said flange and end bars as described, of the rods or wires connecting each said end bars and having their ends passed through the holes in the flanges thereof, as set forth.

4. The combination with a clothes drier consisting of a transverse end bar, longitudinal bars, and rods or wires connecting the same, of the cords D, D, and D′, D′, suspending the said drier, and pulleys *i*, *i*, and *k*, *k*, through which the upper ends of said cords pass, the transverse strips L, L, to the ends of each of which said pulleys are respectively secured, the bolts M, and the pull rope H; said cords D, D, and D′, D′, being united midway between their respective pulleys, and said pull rope being connected to said cords D, and D′ at the points at which they are united, as set forth.

493,597. NON-TELESCOPIC RAILWAY-CAR. JUSTIN E. PAGE, Independence, Mo., assignor of one-half to Joseph Luff, same place. Filed Sept. 23, 1892. Serial No. 446,692. (No model.)



Claim.—1. In a railway car, a platform having sliding or telescopic frames projecting from each end, and a car body pivotally mounted upon said platform, substantially as described.

2. An improved railway car, having a platform mounted upon trucks, and the body of a car having its ends beveled, and pivotally mounted upon the said platform, substantially as described

3. An improved railway car, having a truck platform mounted upon trucks, a car-body pivotally mounted above said platform, and telescopic or sliding frames projecting from each end of the truck, and mechanism for holding the telescopic or sliding frames in an extended, longitudinal position, fixed to the platform and adapted to yield automatically to the sliding or telescopic frames when necessary, substantially as described.

4. An improved railway car, having a truck platform, mounted upon trucks, a car-body pivotally mounted upon said truck platform, a guide and sustaining rails, or track, arranged concentrically to the pivot point of the car, and mechanism for locking the car body to the platform, mechanism for automatically unlocking the car body from the truck-platform to its pivotal motion, whereby portions of the car body may be moved laterally upon the truck-platform, substantially as described.

5. An improved railway car, consisting of a rectangular platform having its ends mounted upon trucks, and having a turn-table centrally located upon the platform, a car-body mounted upon the turn-table longitudinally with the platform and adapted to be rotated laterally, and having suitable locking and unlocking mechanism fixed to the car body and to the platform, whereby the car-body may be unlocked and rotated laterally upon the turn-table while the car is in motion, by the engineer in his cab, by means of power conducted from the locomotive to the said car, substantially as described.

6. An improved railway car, comprising a stationary platform, mounted upon trucks, telescoping platforms projecting from the ends of said stationary platform, a car-body pivotally mounted upon said platform, and suitable mechanism carried by said platform and car-body, for locking and unlocking the car-body longitudinally above and to the said platform, whereby said car-body may be rotated upon its pivot, by the telescoping or folding in, of either of the telescopic end platforms, carried by the stationary platform, substantially as described.

7. An improved railway car, consisting of a rectangular platform mounted upon trucks, having a brake fixed to the said trucks, and having a car-body pivotally mounted upon said platform, and having a brake staff mounted upon the said car-body, adapted to be operated by hand and so connected to the brake upon the trucks as to be operative in locking or unlocking the brakes without interfering with, or being interfered with, by the pivotal, or lateral, movement of the car-body, substantially as described.

8. An improved railway car, consisting of a platform mounted upon trucks, and a car-body pivotally mounted upon the platform, and adapted to be rotated laterally, with a car-door which will automatically open by rotating the car-body upon the platform, substantially as described.

9. An improved railway car, consisting of a rectangular platform mounted upon trucks having telescopic or sliding frames projecting from each end, and having a turntable mounted thereon, and having a car-body mounted upon the turntable and adapted to be rotated laterally and mechanism for checking the lateral rotating movement of the car-body upon the rectangular platform, substantially as described.

10. An improved railway car, consisting of a rectangular platform mounted upon trucks and having a car-body with beveled ends, pivotally mounted thereon, a swing step-platform pivotally connected with the car-body at the beveled end thereof, and adapted to be moved laterally and longitudinally with and from the beveled portion of the car-body, substantially as described.

11. An improved railway car, consisting of a rectangular platform mounted upon trucks, and having a car body pivotally mounted upon the platform, and a telescopic gang way platform mounted upon the said car-body, substantially as described.

12. An improved railway car, comprising a platform supported at each end by a truck of the usual, or any preferred construction, a folding or telescopic platform located at each end of the truck platform, a car-body pivotally located above said platform, and having formed at its opposite ends and diagonally opposite to each other, oblique deflecting sides, and having also a door located in each squared end portion of the car, and adapted to open automatically when necessary.

13. An improved railway car, comprising a truck platform supported near each end by a truck of the usual, or any preferred construction, a sliding or telescopic platform located at each end of the truck plat-form, a car-body pivotally located above said truck-platform, and having formed at its opposite ends and diagonally opposite to each other, oblique deflecting sides, and having a door located in each squared end portion of the car, adapted to open automatically when necessary, and a door located also at each end of the car of the ordinary construction and arrangement, and in longitudinal alignment with each other, substantially as described.

14. An improved railway car, comprising a platform supported at each end by a truck of the usual, or any preferred construction, a folding, or telescopic platform located at each end of the truck platform, and pivotally connected thereto through the medium of a turn-table, comprising an upper section secured to the car body and a lower section secured to the truck platform, having a check spring, a set of guide rollers, located in the upper section of the turn table, and a set of guide rollers located below the lower section of the turn table, a set of guide rollers secured to the car-body, and a chain, or cable, guided by said rollers and connecting the hand brake staffs at each end of the car to the brake levers of the trucks, substantially as described.

15. In an improved railway car a truck platform, consisting of a suitable number of longitudinal and parallel beams, braced and connected at suitable intervals by beams and guide bars extending transversely thereof; a number of pivoted friction bars longitudinally arranged between said longitudinal beams, a number of lateral presser springs therefor, longitudinally extending cushion springs, a set of transversely aligned and pendent brackets, a cross rod secured therein, a set of arms pivoted thereto, a set of pendent hangers and transversely extending thrust bars connecting said hangers, a number of longitudinally extending rods pivoted to the lower ends of the pivoted arms, and having their opposite ends projecting through aligned openings in the thrust bars and resistance springs surrounding said bars, and bearing at their opposite ends against the lower ends of the pivoted arms and against the inner sides of the thrust bars; and the folding or telescopic platforms located one at each end of the truck platform, and consisting of longitudinally extending beams provided with beveled inner ends and connected at their outer, or forward ends by a transversely extending beam carrying the coupler, and provided on their upper surface with a roller, a cam plate, and retaining plates, substantially as described.

16. In a railway car, a platform supported at each end by a truck of the usual, or any preferred construction, a sliding or telescopic platform located at each end of the platform, and carrying each a cam plate, with a car body pivotally arranged above said truck platform and having its opposite ends and diagonally opposite to each other obliquely formed sides, a deflecting bar, arranged parallel with said obliquely formed sides, swinging corner platforms resting against said obliquely formed ends, and supporting levers pivotally connected to said swinging platforms and to the car body, substantially as described.

17. In a railway car, a car body having passenger doors located at the opposite ends of the car and in longitudinal alignment with each other, a safety door located in the opposite squared ends of the car and diagonally opposite to each other, the oblique sides formed at opposite ends of the car and diagonally opposite to each other, the swinging corner platforms resting normally against the obliquely formed ends of the car, the transversely arranged lever, pivoted under the longitudinal beams of the car and provided at its outer end with an enlargement, and at its inner end with a slot, the obliquely arranged buffing plates at the opposite ends of the car body, and the intermediate and longitudinally arranged bars or rods held in suitable guides against the bottom of the car-body, and arranged to operate the transversely arranged lever, and the sliding gang-way platforms located at each end of the car, substantially as described.

18. In an improved railway car, a platform supported at each end upon a truck of the usual, or any preferred construction, a folding or telescopic platform located at each end of the truck platform, a locking device secured to said stationary platform, a compressed air cylinder located beneath said truck platform, and a spring returning lever, also located beneath said stationary platform and adjacent to said cylinder, with a car-body pivotally located above said truck platform and having its two diagonally opposite squared end portions provided with safety doors, two diagonally opposite obliquely formed sides, and adjacent swinging corner platforms, and two end doors of ordinary construction, longitudinally opposite each other and in the center of the ends of the car, a sliding gangway platform at each end of the car, and a depending releasing lug or latch, secured to a sliding bar, or rod, under the car, and held normally in engagement with the locking device secured to the stationary platform, and operating levers located between the bottom of the car-body and upper side of the stationary platform, and adapted to be operated by the compressed air, controlled by the engineer, substantially as described.

19. In an improved railway car, a platform supported at each end by a truck of the usual or any preferred form, a sliding or telescopic platform located at each end of the truck platform, a car-body pivotally located above said truck platform, and having at two diagonally opposite squared ends, safety doors, a bell crank lever pivotally located beneath said car-body and locking said doors, with a cam plate located upon the upper side of the sliding, or telescopic, platforms, substantially as described.

20. An improved railway car, comprising a platform supported at its opposite ends on trucks of the usual or any preferred construction, a car body pivotally located above said truck platform guide tracks, or rails, located upon said platform, and a lug depending from the car body engaging said guide track, substantially as described.

21. In an improved railway car, comprising a platform supported

or barrels in place during the loading operation, of the strut or post

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legs by which said case is secured to said back, and a lamina in said

21. In an improved railway car, comprising a platform supported at its opposite ends on trucks, and a pivotally mounted car-body located above said platform, unlocking mechanism, consisting of a transversely arranged lever having a slot therein, a rod extending longitudinally of the car, having a lug depending therefrom, and pivotally connected in the slot of said lever, a compression spring surrounding said rod, with the obliquely arranged buffing plate, the longitudinally extending companion thrust rods, pivoted each at one end of said buffing plate, and suitably guided and held by bearings against the bottom of the car and compression springs surrounding each of said thrust rods, and bearing against a shoulder, and an end enlargement on each of said rods, substantially as described.

22. In an improved railway car, comprising a platform supported at its opposite ends upon trucks, and a car-body pivotally mounted upon said platform, a transversely arranged lever having a slot therein, a longitudinally arranged bar, or rod pivotally connected to the slot of said lever, a lug depending from said bar or rod, with an obliquely arranged buffing plate, companion thrust bars, or rods, pivotally connected at their outer ends to said buffing plate, suitable guide bearings, for said bars or rods, compression springs surrounding said bars or rods, and bearing against a shoulder and an enlargement of each of said bars or rods, and transmitting and parallel bars or rods, extending obliquely of said car body and bearing at their opposite ends against the outer ends of transversely arranged lever, and enlargements of thrust bars or rods, substantially as described.

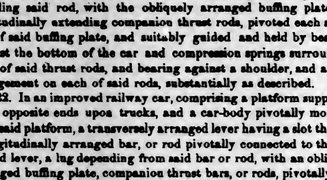
23. In an improved railway car, comprising a platform mounted upon trucks and a car body pivotally mounted upon said platform, a transversely arranged lever having a slot therein, a longitudinally arranged bar or rod, pivotally connected to the slot in said lever, and a lug depending from said bar, or rod, with a compressed air cylinder located beneath said platform and suitably connected to the locomotive, a lever or pin, depending from the car body, a lever having a slot engaging said lug or pin, and a lug having a guide rod projecting through an opening in said lug or pin, a spring surrounding said guide rod, and bearing against the lug or pin, on the car body, and lug on the lever, a vertically extending bolt pivotally engaging the inner end of said lever, a pitman rod, or lever, also engaging said bolt at its front end, and pivotally connected at its rear end to the sliding head of the piston rod, and a lever also pivoted at its inner end to said bolt and its outer end to the platform, and a cam lug projecting upward from said lever, and an obliquely arranged transmitting bar or rod, bearing at its inner end against the transversely arranged lever, and a pin depending from said transmitting bar and adapted to be engaged by the cam lug, substantially as described.

24. In an improved railway car, comprising a platform mounted upon trucks and a car body pivotally mounted above said platform a sliding, or telescoping gangway platform, pivotally connected to the obliquely arranged buffing plate, and adapted to recede therewith, substantially as described.

25. In an improved railway car comprising the platform mounted upon trucks, and the car body pivotally mounted above said platform, the sliding or telescopic frame located at each end of said platform, and the friction roller carried by said frames, with the unlocking mechanism of the car body comprising the longitudinally arranged bar or rod, the unlocking lug thereof, the compression spring surrounding said bar or rod, and the thrust bar or rod, and compression springs therefor, and the lug depending from said bar or rod, and adapted to be engaged by said roller, substantially as described.

26. In an improved railway car, comprising the platform mounted upon trucks and the car-body pivotally mounted above said platform, the friction roller carried by the sliding or telescopic frames located at opposite ends of the platform, with the deflecting bar arranged parallel with the beveled end of the car, and in succession with the swinging corner of the platform, substantially as described.

493,598. WAGON-LOADING DEVICE. ANTON PROTA, West Point, Nebr., assignor of one-half to Kimball R. Valentine. Filed Oct. 17, 1892. Serial No. 449,079. (No model.)

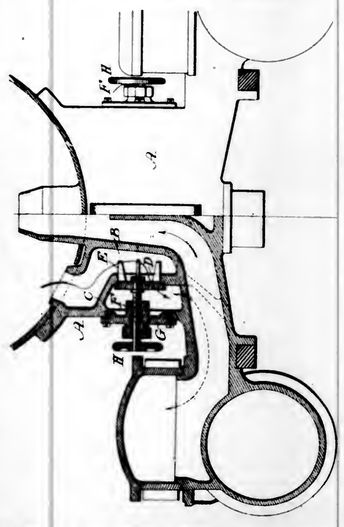


Claim.—1. In a wagon loading device, the combination, with the frame B hinged to the rear end of the wagon and adapted to receive boxes, barrels, and the like, and means for holding said boxes or barrels in place during the loading operation, of the strut or post C hinged to said frame B and provided with means for causing the end of said post to catch on the ground when the wagon moves forward, and means for securing said frame B and post C under the body of the wagon when not in use, substantially as described.

2. In a wagon loading device, the combination, with the frame B hinged to the rear end of the wagon and adapted to receive boxes, barrels, and the like, and the projecting tail piece E secured thereto, of the strut or post C hinged to said frame B and provided with the point or prong D, and means for securing the frame B and post C under the body of the wagon when not in use, substantially as described.

3. In a wagon loading device, the combination, with the frame B hinged to the rear end of the wagon and adapted to receive boxes, barrels, and the like, and the projecting tail piece E and roller F secured thereto, of the strut or post C hinged to said frame B and provided with means for causing the end of said post to catch on the ground when the wagon moves forward, and means for securing the said frame B and post C under the body of the wagon when not in use, substantially as described.

493,599. LOCOMOTIVE-ENGINE. JACKSON RICHARDS, Philadelphia, Pa., assignor to the Richards Balanced Engine Company, of Maine. Filed Sept. 13, 1892. Serial No. 445,741. (No model.)



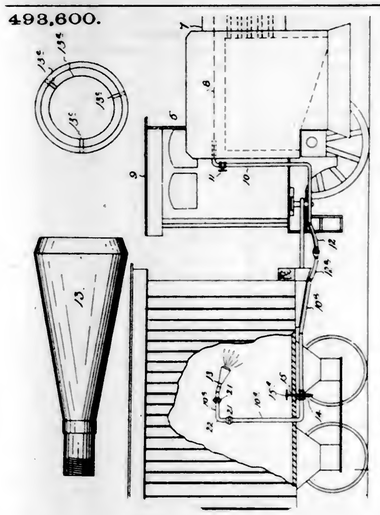
Claim.—1. In a locomotive engine, a saddle having one of its walls forming a wall of a live steam passage, a port in said wall having a valve covering the same, a cap secured to the side of the saddle, and an operating stem on said valve working in said cap, said parts being combined substantially as described.

2. A locomotive engine having the saddle A with a wall C having the port D therein, the cap G secured to the side of the saddle, and the stem F working in said cap and provided with the handle, said wall C forming a wall of the steam passage B, said parts being combined substantially as described.

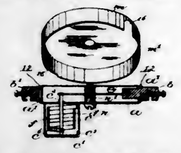
493,600. MEANS FOR PREVENTING RAILWAY-EXPRESS ROBBERIES. THEODOR SCHMID and WILLIAM KIRKER, Denver, Colo. Filed Jan. 6, 1892. Serial No. 417,219. (No model.)

Claim.—The combination with the locomotive boiler, or other hot water receptacle of a pipe connected therewith and communicating with the steam and hot water therein, leading to the cab and express car or other suitable part of the train, said main pipe terminating in the adjustable nozzles and provided with a valve and operating mechanism therefor, consisting of a lever connected with the valve stem and a spring actuated arm projecting into the car and accessible to the trainmen, substantially as described.

493,600.



493,601. THERMOSTAT. THOMAS W. SHEPHERD, Peabody, Mass. Filed Aug. 6, 1891. Serial No. 401,838. (Model.)



Claim.—1. In a thermostat, the combination of a back, a support thereon, and a binding post secured to said support, a contact screw extended transversely through said binding post, a nut of insulating material on said screw to prevent the latter coming in contact with said back, a lamina, and a contact arm moved thereby, substantially as described.

2. In a thermostat, a back consisting of a plate having ears projecting laterally therefrom with the end of the ears upturned, the length of the laterally extended portions of the ear between the edges of the back and the upturned ends being substantially equal to the thickness of the metal of the cover, a lamina on said back; and a contact arm moved thereby; combined with a cover having a downturned annular flange or rim extending completely around its periphery, but cut away to receive the laterally extended portions of the ears, said cut away portions permitting the remaining portion of the flange or rim to fit down outside of, and to inclose within it the edges of the said back, leaving the upturned portions of the ears which protrude through to the outside of the cover to close openings left by the cut away portions, substantially as described.

3. In a thermostat, the back, and a cover having a downturned rim or flange therefor, combined with a screw extended through the said cover and back, and an interposed thimble, substantially as described.

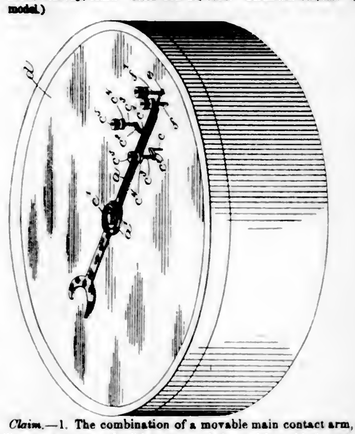
4. The back *a*, and binding screws thereon, one of which is insulated from the back and provided with an adjustable contact screw, combined with the perforated case *c*, the lamina *f*, staff *d*, non-corrosive bearings d', d^3 and contact arm *e*, substantially as described.

5. In a thermostat, the combination with a back, of a cylindrical case supported thereby, a lamina coiled therein and having one of its ends secured to the case, a staff within said coil and to which the free end of the lamina is attached, and having one of its ends supported by the outer end of said case, and a contact arm moved by said staff and a co-operating contact therefor, substantially as described.

6. In a thermostat, the combination with a back, of a perforated cylindrical case comprising an end piece having three upturned legs which constitute the side walls of the case, and ears formed on said legs by which said case is secured to said back, and a lamina in said case, substantially as described.

7. In a thermostat, the combination with the back and a perforated cylindrical case supported thereby, of a staff journaled in said back a helical lamina located within said case and attached at one end thereto, and at its opposite end connected with said staff, a contact arm fast on and moved by said staff, and a co-operating contact for the contact arm, substantially as described.

493,602. ELECTRIC CONTROLLING DEVICE. THOMAS W. SHEPHERD, Peabody, Mass. Filed Oct. 24, 1891. Serial No. 409,665. (No model.)



Claim.—1. The combination of a movable main contact arm, an auxiliary contact arm flexibly connected therewith, and independent contacts for said main and auxiliary contact arms, to operate substantially as described.

2. The combination of a movable main contact arm, main contacts between which it moves, an auxiliary contact arm connected therewith by a flexible connection *e*, and auxiliary contacts independent of said main contacts between which said auxiliary arm moves all to operate substantially as described.

3. A movable main contact arm, and main contacts between which it moves, combined with an auxiliary contact arm flexibly connected with said main arm, and movable between two auxiliary contacts placed nearer to each other than said main contacts, to operate substantially as described.

4. In an electric controlling device, a movable contact arm, combined with a transparent insulating plate covering the same, and a contact carried by said plate to co-operate with said contact arm, said plate serving as an insulating support for the contact and as a transparent covering for the device, substantially as described.

5. In an electric controlling device, a movable contact arm, combined with a movable transparent insulating plate covering the same and a contact carried by said plate to co-operate with said contact arm, said plate serving as an insulating support for the contact and as a transparent covering for the device, substantially as described.

6. In an electric controlling device, movable main and auxiliary contact arms flexibly connected, combined with a movable glass covering said arm, and contacts carried by said glass, to operate substantially as described.

7. The combination with a movable contact arm of a glass, and a contact on an arm, of a rotatable spindle extended through said glass, and locking devices to clamp said spindle, substantially as described.

493,603. GRAIN-SCOURING MACHINE. DENNIS E. SIBLEY, Chicago, Ill., assignor to James A. Sibley, same place. Filed Oct. 10, 1892. Serial No. 448,946. (No model.)

Claim.—1. In a grain scouring machine the combination of a rotatable cylinder having open ends and having its inner walls provided with a series of stirring arms arranged to converge toward its longitudinal center, a rotatable shaft boxed within said cylinder and having a series of radial stirring arms arranged to alternate with the arms of said cylinder stationary heads for closing the ends of said cylinder but out of contact therewith and having respectively inlet and exit apertures, the said cylinder and shaft being adapted to rotate in

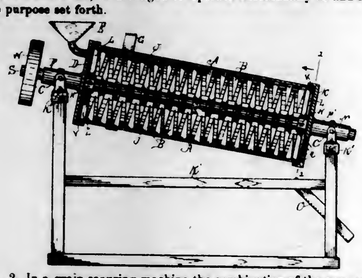
opposite directions, all arranged to operate substantially as and for the purpose set forth.

2. The combination with a hollow standard, a post sliding in said standard, a set screw in the upper end of the standard, a loose collar

493,607.

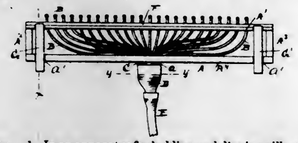
6. The herein described clutch consisting of the member a ring loosely confined on its hub, the opposite member having sockets near

opposite directions, all arranged to operate substantially as and for the purpose set forth.



2. In a grain scouring machine the combination of the open end cylinder A having the stirring arms B on its inner walls, shaft S having the radial stirring arms J, hubs H, arms L for connecting said hubs and cylinder, stationary head D having the inlet hoppers E and E', and having a flange *v*, and also having an integral box F, for receiving said shaft, head K having the discharge apertures *r*, and having an integral box F' for receiving said shaft and also having the flange *v*, and the means for driving said shaft and cylinder in opposite directions substantially as and for the purpose set forth.

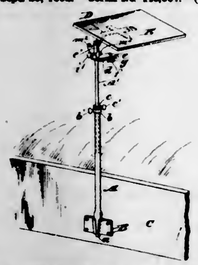
493,604. APPARATUS FOR HOLDING AND DIPPING PILLS. ALBYN D. STEARNS, Detroit, Mich., assignor to Frederick Stearns & Company, same place. Filed Aug. 31, 1892. Serial No. 444,634. (No model.)



Claim.—1. In an apparatus for holding and dipping pills, the combination of a frame constructed with a cross bar A' and a cross bar A^4, of a series of tubes engaged with the bar A' and spaced therein one from another, said tubes assembled at the opposite extremities and passed through the bar A^4, and a suction tube engaging the assembled ends of said tubes, substantially as described.

2. In an apparatus for holding and dipping pills, the combination of a frame, a series of tubes engaged with said frame forming seats for the pills at one end, a suction device connected with the opposite ends of said tubes, and a perforated reciprocatory removing bar engaged with said frame and with said tubes, said frame and tubes having a removable engagement with said suction device, substantially as described.

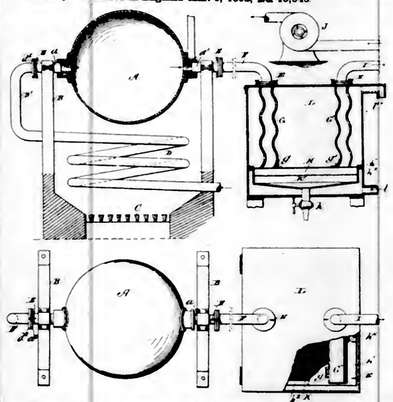
493,605. ADJUSTABLE SUPPORT FOR BRACKET-TABLES. JOHN H. TIFFANY, San Diego, Cal., assignor of one-half to Robert Crockett, same place. Filed Sept. 23, 1892. Serial No. 446,667. (No model.)



Claim.—1. The combination with a supporting post, of a table top on said post, a rocking plate securable to said table top and having a depending limb, and a device on the upper end of the post adapted for adjustment in a horizontal plane and also adapted to support and adjustably secure the limb of the rocking plate at any point of rocking adjustment for the attached table top, substantially as described.

2. The combination with a hollow standard, a post sliding in said standard, a set screw in the upper end of the standard, a loose collar on the post, a set screw in said collar, a dovetailed tapering foot piece on the lower end of the standard, and a bracket plate having a dovetail slot to receive the foot piece and adapted for attachment to a bed or chair, and a lateral limb on the upper end of the post, of a swing plate pivoted on the outer end of the post limb, an upright arm at the other end of said swing plate, a spaced ear on the swing plate, a set screw in the arm of the swing plate opposite said ear, a right angle bent rocking plate pivoted on the arm above the set screw, and slotted at its outer end, and a table top detachably connected with the rocking plate, substantially as described.

493,606. COFFEE-ROASTING APPARATUS. HEINRICH TRILLICH, Munich, Germany, assignor to Kathreiners Malzkaffeefabriken Wilhelm & Brougier, same place. Filed Dec. 19, 1892. Serial No. 455,598. (No model.) Patented in England Mar. 9, 1892, No. 15,848.



Claim.—1. In an apparatus for roasting coffee, a roaster and means for exhausting the vapors and skins from the roaster in combination with a condenser and a screen arranged in the condenser and adapted to separate the skins from the liquefied vapors, substantially as set forth.

2. In an apparatus for roasting coffee, a roaster and means for exhausting the vapors and skins from the roaster in combination with a condenser provided with a collector for the liquefied vapors and a screen arranged in the collector between the bottom and top thereof, so, as to form a passageway through and out of the condenser through which the skins are exhausted from the condenser, while the liquefied vapors drop through the screen into the bottom of the collector, substantially as set forth.

3. In an apparatus for roasting coffee, a condenser for the vapors from the roaster consisting of a collector and two condensing-tubes communicating with the top thereof in combination with a screen arranged horizontally in the collector and dividing the same into two compartments, substantially as set forth.

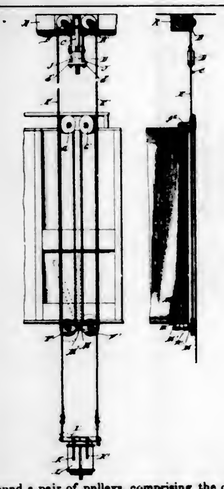
4. In an apparatus for roasting coffee, a condenser for the vapors from the roaster consisting of a collector in combination with two condensing-tubes communicating therewith and having corrugated walls, substantially as set forth.

5. In an apparatus for roasting coffee, a condenser for the vapors from the roaster, consisting of a collector having a removable top in combination with condensing-tubes attached to said top and having hinged side walls, substantially as set forth.

493,607. CONTROLLING DEVICE FOR ELEVATORS. ALLEN TURNER and FREDERICK H. TURNER, Kansas City, Mo., assignors to the Kansas City Elevator Manufacturing Company, same place. Filed Sept. 12, 1892. Serial No. 445,639. (No model.)

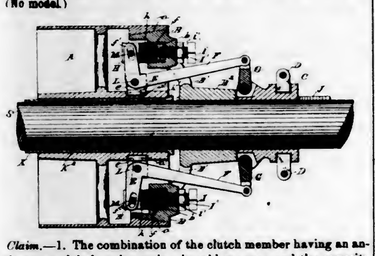
Claim.—A controlling device for elevators, comprising a pair of obliquely arranged sheave pulleys, journaled upon fixed bearings at the top of the car, a rocking bar, pivoted at the bottom of the car, a lever projecting within the car to actuate the rocking bar, a pair of sheave pulleys carried at the ends of the rocking bar, and having their inner vertical tangents plumb with the inner vertical tangents of the obliquely arranged sheave pulleys at the top of the car, and cables

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each looped around a pair of pulleys, comprising the oppositely arranged top and bottom pulleys carried by the car, and secured at their upper ends to a slidable weight and at their lower ends to the opposite ends of a rocking lever in the lower end of the shaft, substantially as described.

493,608. FRICTION-CLUTCH. WILLIAM W. WELLS and HARRY R. TIDMARSH, Sandy Hill, N. Y. Filed Nov. 16, 1892. Serial No. 452,200. (No model.)



Claim.—1. The combination of the clutch member having an annularly grooved hub, a loose ring in said groove; and the opposite member provided with sockets; with tubes or blocks adjustably secured in said sockets, and angular levers each pivoted at its bend on said ring and connected by one arm to one of said tubes, and mechanism for rocking the longer arms of said levers, substantially as specified.

2. The combination of the opposed friction members, a shifting collar, and a ring loosely connected to the hub of one member, with the levers each fulcrumed on said ring, and having one arm extending through openings in the opposite member and linked to the collar, and the tubes or blocks adjustably mounted in sockets in the latter member and loosely connected to the extremities of the other arms of said levers, substantially as set forth.

3. The combination of the opposite members of the clutch and the operating levers substantially as described, with the tubes H, adjustably secured in sockets in one member of the clutch and adjusting bolts I, substantially as described.

4. The combination of the clutch members A, B, a loose ring on one member the levers F fulcrumed on said loose ring, the blocks H, and double threaded bolts I, tapped through sockets in member B and engaging blocks H, substantially as described.

5. The combination of the clutch member having sockets *b*, the tubes H therein, and the bolts confining and adjusting said tubes in the sockets; with the opposite clutch member and the angular levers having a loose connection to the latter member and to said tubes, whereby when the levers are rocked the clutch members are engaged or disengaged, substantially as specified.

6. The herein described clutch consisting of the member a ring loosely confined on its hub, the opposite member having sockets near its rim, the adjustable tubes confined in said sockets, the angular levers pivoted at their bends to said ring, connected by their short arms to said tubes, and the longitudinally movable collar, and links pivotally connected thereto and to the longer arms of said levers, substantially as described.

7. The combination of the shaft, the clutch member fixed thereon, the loose split bushing on the shaft adjoining said fixed member, the movable member of the clutch loose on said bushing, a ring on one of said members, with the levers each fulcrumed on said ring and connected by one arm to the opposite clutch member, and mechanism for rocking the longer arms of said levers, substantially as described.

493,609. LAMP-SOCKET. HENRY P. BALL and AMANDUS MITZER, Schenectady, assignors to the General Electric Company, New York, N. Y. Filed Aug. 3, 1892. Serial No. 441,998. (No model.)



Claim.—1. The combination of a socket body, a spiral wire sleeve secured to a metal cup or ring having an outwardly extending flange to which the sleeve is secured, and means for securing said cup or ring to said socket body, substantially as described.

2. The combination of a socket body, a spiral wire sleeve secured to a metal cup or ring, having an outwardly extending flange to which the sleeve is secured means for securing said cup or ring to said socket body, and a central socket contact device, substantially as described.

3. The combination of an insulating socket body having extensions, metal pieces thereon carrying screws, and a sleeve or shell adapted to be placed over said body and to engage said screws, substantially as described.

4. The combination, in a socket switch, of a switch spring and switch spindle, and a holder and cam for the spindle consisting of a single piece of sheet metal bent to surround the spindle and having a cam edge co-operating with a pin on the spindle to move the latter lengthwise, and having also an extension adapted to support a screw for holding a socket shell, substantially as described.

493,610. EMULSION AND METHOD OF MAKING THE SAME. WILLIAM S. BARNARD, Canton, Ill.; Mary N. Barnard administratrix of said William S. Barnard, deceased. Filed May 31, 1892. Serial No. 62,872. (No specimens.)

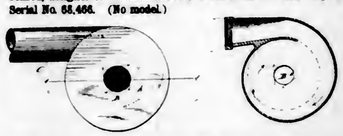
Claim.—1. The process of preparing stable insecticide emulsions which consists in combining by agitation kerosene oil and milk or the emulsive constituents of milk as set forth.

2. The process of preparing stable emulsions which consists in combining by agitation kerosene oil and milk in the presence of water.

3. The hereinbefore described emulsion composed of milk and kerosene oil.

4. The hereinbefore described emulsion composed of kerosene oil and the emulsive constituents of milk as set forth.

493,611. FLUID-DISTRIBUTER. WILLIAM S. BARNARD, Canton, Ill.; Mary N. Barnard administratrix of said William S. Barnard, deceased, assignor to William Nichols, Boston, Mass. Filed Aug. 4, 1892. Serial No. 58,466. (No model.)



Claim.—1. In a nozzle for spraying liquids a chamber substantially circular in one plane of section provided with an outlet port, and with an inlet passage, the axis of which lies in the plane of a circular section and between a diameter and a tangent of such section; whereby a rotary motion is imparted to the liquid in the chamber by the force of the inflow which motion is retained after it escapes from the chamber, substantially as described.

2. In a nozzle for spraying liquids a chamber of substantially circular form in cross-sections, provided with a tangential inlet port, the

axis of which lies in the plane of the circular section, and with an outlet port delivering in a direction transverse to the axis of the inlet port.

493,615. CAR-MOVER. SOLOMON C. CRAER, North Baltimore, Ohio. Filed Jan. 12, 1893. Serial No. 458,131. (No model.)

3. A tube for plastic or viscous materials, having a head provided with a screw-cap, and a body composed of easily compressible

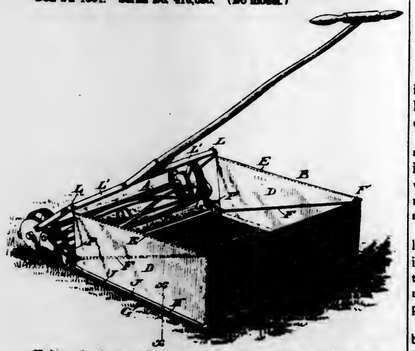
2. In an electrical railroad system the combination of the underground conduit having the two part insulation-blocks

axis of which lies in the plane of the circular section, and with an outlet port delivering in a direction transverse to the axis of the inlet port.

3. A spraying nozzle comprising a chamber of approximately circular form in cross-sections, provided at its periphery with a tangential inlet port, and at its center with an outlet port, the axis of which is transverse to that of the inlet port.

4. A spraying nozzle comprising a chamber having two approximately circular side walls, and an approximately circular peripheral connecting portion, said chamber provided with an inlet port adapted to deliver the incoming fluid against the connecting portion, and one of the said side walls being provided with an opening for the discharge of the fluid.

493,612. GRASS-BOX FOR LAWN-MOWERS. JOHN F. BRAUN, Philadelphia, Pa., assignor to John Braun & Sons, same place. Filed Dec. 24, 1891. Serial No. 416,085. (No model.)



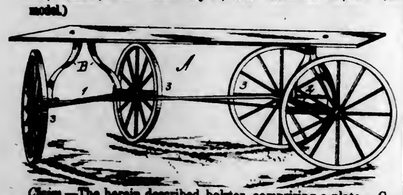
Claim.—1. A grass box consisting of a top frame with hooks, a bottom and sides with diagonal braces, ears and strips secured to said frame, said braces being loosely secured at one end to said strips, and at the other end to said top frame, all combined substantially as described.

2. A grass box for a lawn mower formed of a top frame, a bottom and flexible sides with diagonal braces, said top frame having hooks for engaging the handle of the mower, and the braces having eyes at their upper ends connected with the top frame and secured at their lower ends to the bottom of the box said bottom having ears adapted to be secured to posts on the mower, all combined substantially as described.

493,618. COMPOUND FOR RETARDING THE SETTING OF CEMENT. ERNST A. BESSMER, Lincoln, Nebr. Filed Dec. 15, 1892. Serial No. 455,319. (No specimens.)

Claim.—The composition of matter above described, composed of air-slaked lime, glue, flax-seed or oil-cake, and china clay, combined in the proportions and in the manner set forth.

493,614. VEHICLE. THOMAS R. CAPWELL and WILLIAM C. FULLER, Dunkirk, N. Y. Filed May 31, 1892. Serial No. 434,940. (No model.)



Claim.—The herein described bolster, comprising a plate —C— rotatably mounted on the king-bolt, and serving as a base upon which the body turns provided with the downwardly divergent and integral arms —B— secured to the axle and having their extremities —4— bent up at right angles, in combination with the diagonally arranged reaches —a— secured to the bent up ends of the said divergent arms, all parts being constructed and arranged substantially as and for the purpose described.

493,615. CAR-MOVER. SOLOMON C. CRARE, North Baltimore, Ohio. Filed Jan. 12, 1893. Serial No. 458,131. (No model.)



Claim.—1. A car mover consisting of a base, a lever fulcrumed in said base, and a thrust block pivoted to the inner short arm of the lever and adapted to rest, at its lower edge, on a rail, for the purpose described, substantially as set forth.

2. A car mover, comprising a base, a lever fulcrumed to said base at a point above its longitudinal axis, and a thrust box pivoted to the inner end of the lever and adapted to rest, at its lower end, on a rail, whereby the upper part of the thrust block is given an oscillating motion in an upward and forward direction as the lever is depressed, substantially as set forth.

3. A car mover, comprising a base, a lever fulcrumed above its longitudinal axis to said base, a thrust block having a slot or recess in which the inner end of the lever is fitted, and a connecting pin between the lever and thrust block and capable of a limited play or movement in said lever or thrust block, substantially as described, for the purpose set forth.

4. A car mover, substantially such as described, comprising a base, a lever fulcrumed above its longitudinal axis to said base, and the thrust-block pivoted to the short arm of the lever and adapted to rest, at its lower free end, against a rail, said thrust block provided near its upper part with the transverse rib adapted to bear against the periphery of a car-wheel as the thrust-block is oscillated in an upward and forward direction on depressing of the lever, as set forth.

5. A car mover comprising a base having the raised sides, the lever provided, on its upper side, with the aligned lugs which are fitted between said raised sides, the fulcrum pin supported in the raised sides and passing through the aligned lugs to pivot the lever above its longitudinal axis, in said base, and a thrust block pivoted to the inner end of the lever, substantially as and for the purpose described.

6. In a car mover, the combination with a base, of the lever fulcrumed above its longitudinal axis to said base, and the thrust-block pivoted at an intermediate point of its length to the short arm of said lever and having its free lower end adapted to rest on the top of a rail, whereby as the lever is depressed the upper part of the thrust-block will be oscillated in an upward and forward direction to impart a rolling motion to a car-wheel, substantially as set forth.

493,616. TUBE FOR VISCOUS SUBSTANCES. DAVID W. CLARK, Washington, assignor of one fourth to Charles M. Clarke, Pittsburg, Pa. Filed Apr. 15, 1892. Serial No. 429,293. (No model.)



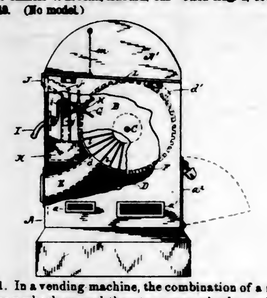
Claim.—1. A tube for plastic materials, having its body or a portion thereof composed of easily compressible transparent resilient material, substantially as described.

2. A tube for plastic materials, having its body composed of a tinted easily compressible transparent resilient material, substantially as described.

3. A tube for plastic or viscous materials, having a head provided with a screw-cap, and a body composed of easily compressible transparent resilient material secured thereto, substantially as described.

4. A tube for plastic materials having its body composed of an easily compressible resilient material.

493,617. VENDING-MACHINE. JOHN W. CRIPPS, Sacramento, assignor to Charles Wubbena, Auburn, Cal. Filed Aug. 1, 1892. Serial No. 441,849. (No model.)



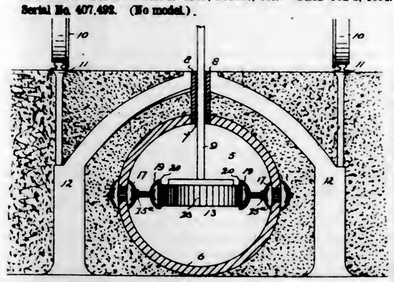
Claim.—1. In a vending-machine, the combination of a rotatable receptacle, a cog-wheel secured thereto, a spur-wheel carrying a pinion engaged with said cog-wheel, and a coin-chute into which said spur-wheel projects, substantially as set forth.

2. The combination, in a vending-machine, of a rotatable receptacle, a cog-wheel secured thereto, a spur-wheel carrying a pinion engaged with said cog-wheel, a coin-chute into which said spur-wheel projects, and a lever adapted to act upon a coin dropped onto the spurs projecting into said chute, substantially as set forth.

3. The combination, in a vending-machine, of a receptacle, a coin-chute, a spur-wheel connected by gearing with said receptacle and projecting into said chute, and a lever adapted to move the receptacle by means of a coin bearing on said spur-wheel, substantially as set forth.

4. The combination, in a vending-machine, of a receptacle having a series of pockets radiating from its center, a drum preventing the fall of articles stored therein, a delivery-slide connected with an outlet in said drum, a cog-wheel secured to said receptacle, a spur-wheel provided with a pinion engaged with said cog-wheel, a coin-chute having an aperture through which said spur-wheel may project, and a forked lever adapted to force a coin past the spurs projecting into said aperture, substantially as set forth.

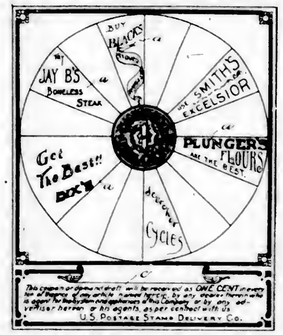
493,618. ELECTRIC-RAILWAY CONDUIT AND CONTACT. JOEL DAVIS and REUBEN M. HUNTINGTON, Denver, Colo. Filed Oct. 2, 1891. Serial No. 407,492. (No model.)



Claim.—1. In an electrical railroad system the combination of the underground conduit having two-part insulating blocks provided with recesses into which the walls of the conduit dip on opposite sides, bolts passing through said blocks and carrying other insulating blocks at their inner extremities, the longitudinally divided conductor having its parts attached to the insulating blocks carried by the bolts, the gatherer carried by the car and provided at its lower extremity with a slotted plate, movable spring actuated boxes located in said slots and carrying rotatable disks engaging the side conductors, from which the current passes to the motor on the car through the medium of the disks, journal boxes and conducting plate of the gatherer, substantially as described.

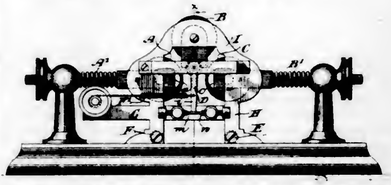
2. In an electrical railroad system the combination of the underground conduit having the two part insulating blocks recessed to receive the walls of the conduit, a block being located on each side, bolts passing through said blocks, the longitudinally divided conductor having its parts attached to the extremities of the bolts but insulated therefrom, the gatherer carried by the car, and provided at its lower extremity with a slotted plate, movable spring actuated boxes located in said slots and carrying rotatable disks engaging the side conductors, from which the current passes to the motor on the car through the medium of the disks, journal boxes and conducting plate of the gatherer, substantially as described.

493,619. COMBINED DEMAND-DRAFT AND ADVERTISING-COUPON. GHOSES H. DREW, Boston, Mass., assignor, by mesne assignments, to the United States Postage Stamp Delivery Company, same place. Filed Sept. 30, 1892. Serial No. 447,368. (No model.)



Claim.—A combined non-separable demand draft and advertising sheet bearing the names and business of a number of dealers and a demand draft on, and a guarantee that the draft will be honored, for a specified amount, by any dealer named thereon, as set forth.

493,620. TELEGRAPH-RELAY. SAMUEL F. PEIRCE, East Orange, N. J., assignor to The Western Union Telegraph Company, of New York. Filed Dec. 15, 1891. Serial No. 415,068. (No model.)



Claim.—1. In a diplex or quadruplex telegraph system, a relay which is responsive to changes in current strength, consisting of three coils, all included in a single circuit, one for polarizing the armature of said relay, and the other two, under the influence of the same current, serving to mutually attract or repel said armature or armatures.

2. In a diplex or quadruplex telegraph system, in which two messages are simultaneously transmitted, one by changes in current strength and the other by reversals, a neutral relay employing electro-magnets having soft iron core and pole pieces, all of whose coils are included in a single circuit and so arranged that one shall polarise the armature or armatures of said relay, and the others mutually attract and repel said armature or armatures, as set forth.

3. In a telegraph relay, the combination of coils A, B, C, end plates G, H, I, connecting bolts E, F, sliding frames for carrying coils A, C, and set screws A', B'.

4. In a telegraph relay, the combination of three electro-magnets, all of whose coils, A, B, C, are included in the main-line circuit, each being provided with a stationary iron core and pole piece, and a soft iron vibrating armature, D, whose pivoted end is in close proximity to and is intermittently polarised by the core of one of said electro-magnets, while its free end is mutually attracted and repelled by the cores of the two other electro-magnets, substantially as described.

5. In a diplex or quadruplex telegraph system in which two messages are simultaneously transmitted, one by changes in current

and to extend between the wheels thereof, substantially as set forth.

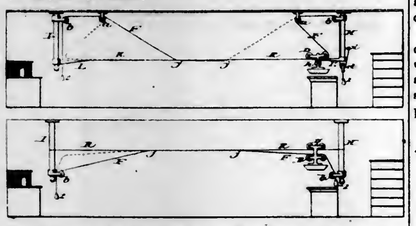
11. The combination of the way, a propelling cord or line ex-

a continuous power line normally disconnected from the sections, a

and switch line, a switch magnet in each of said connections having

5. In a diplex or quadruplex telegraph system in which two messages are simultaneously transmitted, one by changes in current strength and the other by reversals, a relay having a soft-iron vibrating armature whose pivoted end is intermittingly polarized by an electro-magnet in the main circuit and an additional magnet placed in said circuit which serves to intermittingly attract or repel the free end of said armature according to the latter's direction of movement to make a signal and the position of said magnet, whether on one side or the other of said armature.

493,621. STORE-SERVICE APPARATUS. JOHN H. GOODFELLOW, Troy, N. Y., assignor, by mesne assignments, to the Lamson Consolidated Store Service Company, of New Jersey. Filed June 4, 1885. Serial No. 167,606. (No model.)



Claim.—1. The combination in a store service apparatus, with a way and a wheeled carrier movable upon the way, of a flexible line extending along the way and adapted to engage with the carrier and propel it along the way by the progressive separation of the flexible line from the way, substantially as set forth.

2. The combination in a store service apparatus, with a way and a wheeled carrier movable upon the way, of a bendable propeller adapted to engage with the carrier and propel it along the way by the progressive separation of the propeller and the way, which carrier resists such separation during such action, substantially as set forth.

3. The combination in a store service apparatus of a wheeled carrier, a way and a propeller leading between the wheels of the carrier, said propeller adapted to engage with the carrier and propel it along the way by the progressive separation of the propeller and way, substantially as set forth.

4. The combination in a store service apparatus, of a wheeled carrier, a way and a propeller leading between the wheels of the carrier, and an operating handle for separating the propeller and way at one end in rear of the wheeled carrier, substantially as set forth.

5. The combination in a store service apparatus, of a way, a wheeled carrier adapted to travel from end to end on said way, a stop for holding the carrier in the position at which it is arrested, and a propeller extending along the way and adapted to engage with the carrier and propel it along the way by the progressive separation of the propeller from the way, substantially as set forth.

6. The combination, with the way of a store service apparatus, of a propeller connected at one end to the way at a point between its termini, and extending over a pulley and downward within reach of the operator, the wheeled carrier traveling upon the way, and a stop for arresting and holding the carrier at the end of the way, substantially as and for the purpose set forth.

7. The combination in a store service apparatus of a way, a propelling cord one end of which is connected thereto between the ends of said way, a guide pulley, arranged between the end of the way and the point of connection of said cord, and a carrier traveling upon the way and provided with upper and lower wheels, substantially as described.

8. The combination in a store service apparatus with a way stretched between the clerk's counter and the cashier's desk, of a propeller consisting of a line or cord connected at one end to the way and adapted to be moved from the way at the other end, and a carrier adapted to travel freely from end to end of said way, and provided with upper and lower wheels, substantially as set forth.

9. The combination, with a way stretched between salesman's counter and the cashier's desk, of propellers, each secured at one end to the way and adapted to be moved from the way at their other ends, and a carrier adapted to travel freely from end to end of said way, and stops for holding the carriers after they reach the ends of the way, substantially as set forth.

10. The combination, with the way of a store service apparatus, of a propelling cord or line adapted at one end of the way to be separated therefrom, a wheeled carrier having wheels for the propeller, and a wedge at the end of the way adapted to receive the carrier and to extend between the wheels thereof, substantially as set forth.

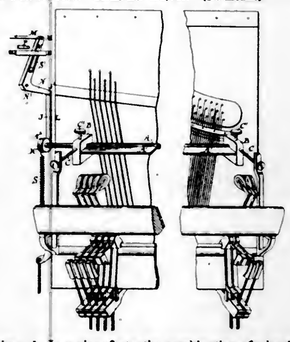
11. The combination of the way, a propelling cord or line extending along the way, a wedge secured at one end to a suitable support and at its opposite end secured to and supporting the way, and a carrier moving upon the way the wheels of said carrier being adapted to engage with said wedge, substantially as set forth.

12. The combination of a way and a bendable propeller extending between the cashier's desk and the station, a double wheeled carrier between the wheels of which the said way and propeller extend, and an operating handle and connections at the station, whereby the propeller and way are separated to propel the carrier from said station, substantially as set forth.

13. The combination of the way, a propelling cord or line secured at one end of the way and movable at the opposite end from the way, and a carrier provided with two sets of wheels, one above and the other below the way, substantially as and for the purpose set forth.

14. The combination with a carrier provided with suitable wheels, of a way and a propeller extending between the wheels, stops at the ends of the way for holding the carrier, and mechanism substantially as described for separating the way and the propeller at the sending station and at the rear of the wheels, substantially as and for the purpose set forth.

493,622. PIANOFORTE-MUTE. FRANCIS W. HALE, Boston, Mass. Filed Feb. 25, 1892. Serial No. 422,743. (No model.)



Claim.—1. In a pianoforte, the combination of a kerfed tubular metallic roller and a mute composed of any suitable material extending radially from it, substantially as described and for the purpose set forth.

2. In a pianoforte, the combination of a kerfed tubular metallic roller, having the flanges K^3. K^3., and a mute composed of any suitable material, substantially as described and for the purpose set forth.

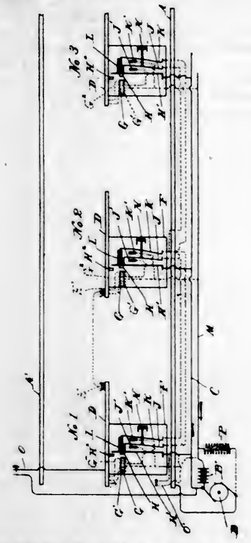
3. In a pianoforte, the combination of a kerfed tubular metallic roller, mute A'. and adjustable fixtures B., C'., C^3., C^4. and C^5., by means of which the roller may be readily adjusted at any desired height, substantially as described and for the purpose set forth.

4. In a pianoforte, the combination of a kerfed tubular metallic roller, mute A., fixtures B., C'., C^3., C^4., C^5., strap or cord J., bell crank lever N., inclined stop P. spring S. and hand cord M., substantially as described and for the purpose set forth.

493,623. ELECTRIC-RAILWAY SYSTEM. THOMAS HARRIS, Detroit, Mich., assignor, by mesne assignments, to the Harris Electrical Propulsion Company, Limited, same place. Filed Jan. 8, 1892. Serial No. 417,347. (No model.)

Claim.—1. The combination of a working conductor composed of disconnected sections, a contact or contacts on the car to electrically connect the ends of adjoining sections, a continuous power line normally disconnected from the sections, a switch line forming in connection with said power line a switch actuating circuit, an electro-magnet for each section of the working conductor the armature of which connects the power line with the section and two oppositely wound helices upon said magnets, each in a circuit connecting its section of the working conductor with the switch line, the circuit of one of the helices containing two normally open breaks, one controlled by the armature of the magnet of the helix, and the other by the armature of the magnet of an adjacent section of the working conductor.

2. The combination of a working conductor composed of disconnected sections, a contact on the car to electrically connect the ends of adjoining sections and to connect the sections to the motor circuit, a continuous power line normally disconnected from the sections, a switch line forming in connection with the power line a switch actuating circuit, an electro-magnet for each section of the working conductor, the armature of which connects the same with the power line, and two opposing helices on said magnets, one in a permanently closed and the other in a normally open circuit connecting the section with the switch line, the latter circuit having two breaks, one controlled by the armature of the magnet of the helix and provided with a relay and the other by the magnet of an adjacent section of the working conductor, substantially as described.



3. The combination of a working conductor composed of disconnected sections, a contact on the car to electrically connect adjacent sections in the travel of the car, a continuous power line, a switch line forming in connection with said power line, a switch circuit, an electro-magnet for each section of the working conductor, the armature of which connects the same with the power line, two opposing helices on said magnets one in a permanently closed circuit connecting the section with the switch line and the other in a normally open circuit connecting the section with the switch line through two branches, and three breaks in said circuit, one controlled by the magnet of the helix and the other two located in the branches of the circuit and controlled respectively by the armatures of the magnets of the two adjacent sections of the working conductor.

4. The combination of a continuous power line, a discontinuous working conductor, a contact on the car to connect the ends of adjacent sections of said working conductor, a switch line forming in connection with the power line a switch circuit and switching devices connected to the sections of the working conductor and operated by said switch circuit, said switching devices comprising an electro-magnet with two opposing helices one to close the contacts controlled by the armature of the magnet, and the other to open said contacts again by neutralizing the magnet when the car has passed to the adjacent section of the working conductor, substantially as described.

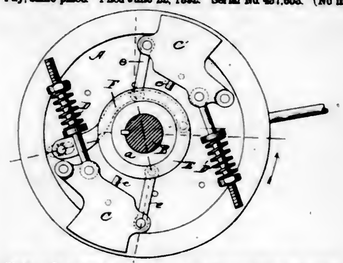
5. The combination of a continuous power line, a discontinuous working conductor, a contact on the car to connect the ends of adjacent sections of said working conductor, a switch line forming in connection with the power line a switch circuit (and having an independent source of electricity) and switching devices connected to the sections of the working conductor and operated by said switch circuit, said switching devices comprising an electro-magnet with two opposing helices one to close the contacts controlled by the armature of the magnet, and the other to open said contacts again by neutralizing the magnet when the car has passed to the adjacent section of the working conductor, substantially as described.

6. The combination of an insulated power line, a switch line forming in connection with said power line a derived or independent switch circuit extending along the track, a sectional working conductor having each of its sections in multiple connection between said power line and switch line, a switch magnet in each of said connections having its actuating helix located between the section of the working conductor, and the switch line, an armature for each magnet located in said connection between the section of the working conductor and the power line to connect and disconnect said power line from the section of the working conductor and a motor car carrying a contact adapted to connect the motor circuit with the sections of the working conductor and to electrically connect the ends of adjacent sections thereof, substantially as described.

7. The combination of an insulated power line, a switch line forming in connection with said power line a derived or independent switch circuit extending along the track, a working conductor composed of widely separated insulated sections each connected in multiple between said power line, and switch line, a switch magnet in each of said connections having its actuating helix located between the working conductor and the switch line and its armature between the working conductor and the power-line to connect said power line with the working conductor and through the working conductor and helix with the switch line, and a motor car carrying two contacts electrically connected with each other and adapted to connect the motor circuit with the working conductor and to electrically connect the ends of adjacent sections, substantially as described.

8. The combination of an insulated continuous power line, an insulated switch line forming in connection with said power line a derived or independent switch circuit extending along the track, a discontinuous working conductor the sections of which are in normally open multiple connection between the power line and switch line, a switch magnet in each of said connections having its actuating helix located between the working conductor and the switch line, and its armature located between the working conductor and the power line to connect said power line to the working conductor and through said working conductor and helix to the switch line, a motor car carrying a contact or contacts to connect the motor circuit with the working conductor and to electrically connect the ends of adjacent sections of the working conductor, and a manual switch or push to electrically connect the initial section of the working conductor into the switch circuit, substantially as described.

493,624. STEAM-ENGINE GOVERNOR. JOHN W. HAYES, Portsmouth, N. H., assignor to himself, Marcellus Eldredge, and Edmund S. Fay, same place. Filed June 22, 1892. Serial No. 437,653. (No model.)



Claim.—In a steam engine governor, the combination with a disk secured to the shaft and having spring controlled weights pivoted thereon capable of outward centrifugal motion, of a plate G adapted to slide on the said disk and carrying an eccentric H, a collar E connected by links *e* to the said weights and adapted to be turned circularly upon the shaft by the motion of the said weights, and a connection F between the said collar and the said plate and pivotally attached to each, whereby the circular motion of the collar imparts rectilinear sliding motion to the plate to vary the eccentricity of the eccentric as set forth.

493,625. VISE. MARVIN T. HERSON, Sidney, Ohio, assignor to Benjamin Gillespie and John W. Macy, same place. Filed Nov. 11, 1892. Serial No. 451,646. (No model.)

Claim.—In a vise the combination of the fixed jaw having a ratchet plate fixed relatively thereto, a movable jaw, a screw attached to the movable jaw and extending beyond the fixed jaw, a nut mounted to slide relatively to the fixed jaw and threaded to receive the end of the screw, and a dog movable vertically in the nut and having serrations for engagement with the fixed plate; the end of the screw being provided with the enlarged and reduced portions upon each of which the dog may rest while the screw moves a distance relatively to said dog, and a spiral cam between the enlarged and reduced portions of the screw and upon which the dog may rest while passing

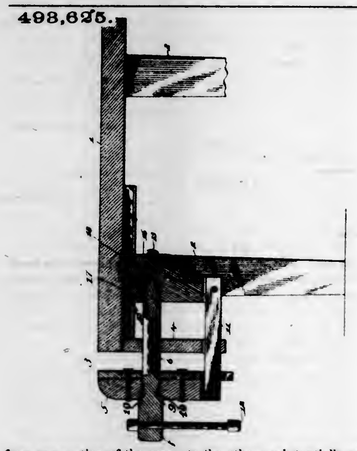
493,626.

Claim.—1. In a soda-water fountain, an elevated can-chamber adapted to receive a sirup-can from below and mechanism for holding the can in position above the bottom substantially as described.

22,278.

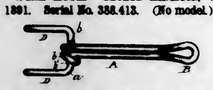
Claim.—The design for a lace fabric herein shown and described

498,825.



from one portion of the screw to the other; substantially as herein described.

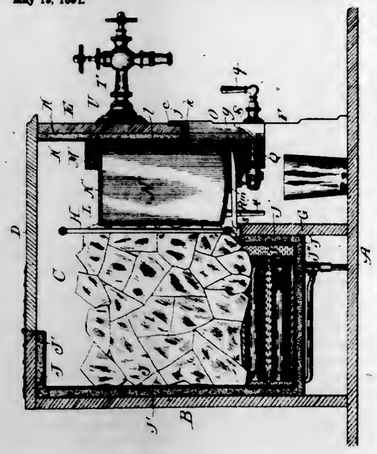
498,826. WIRE HOOK. GEORGE KIDSTON, Worcester, Mass. Filed Apr. 10, 1891. Serial No. 388,413. (No model.)



Claim.—A coat and hat hook consisting of a single piece of wire and comprising the shank A, of doubled wire, having the hook B at its outer end, the bottom hook C formed from a continuation of said doubled wire shank, and the two separated prongs D at the top portion of said hook and formed from the two end portions of the wire bent outward at the rear portion of the said shank, said prongs being provided with the downwardly projecting pointed drive ends *d*.

REISSUES.

11,813. SODA-WATER APPARATUS. JAMES B. HERROS, Chicago, Ill., assignor, by mesne assignments, to Harvey S. Park, same place. Filed Mar. 1, 1892. Serial No. 423,438. Original No. 452,754, dated May 19, 1891.



Claim.—1. In a soda-water fountain, an elevated can-chamber adapted to receive a sirup-can from below and mechanism for holding the can in position above the bottom, substantially as and for the purposes specified.

2. In a soda-water fountain, the combination of an elevated can-chamber receiving a sirup-can from below, a front for such chamber, an opening below the front and extending beneath the can-chamber, a sirup-can adapted to enter the opening at the front, and a support for the can when raised for inserting, raising, and holding a sirup-can from below into its chamber at the front of the fountain, and above the bottom substantially as and for the purposes specified.

3. The combination, in a soda-water fountain, of a chamber receiving a sirup-can from below, an open front for such chamber, a sirup-can inserted through the open front and raised to position from below, a support attached to the can, and a lock for the support when raised for holding the can in its raised position, above the bottom substantially as and for the purposes specified.

4. The combination, in a soda-water fountain, of a vertical sirup-can, a support for such can having on each side wall a locking hook, and a can compartment having on each side a partition with locking recesses receiving the locking hooks of the can support, substantially as and for the purposes specified.

5. The combination, in a soda-water fountain, of an open front, a vertical sirup-can, a support for such can having on each side a locking hook, and a can compartment having on each side a partition with a locking recess in its side, substantially as and for the purposes specified.

6. The combination, in a soda-water fountain, of a vertical sirup-can inserted from below and raised vertically at the front of a fountain, a support attached to the lower end of such can, a lock for the support when raised, and a spring located to bear against the front face of the sirup-can when in its raised position and prevent the forward tipping of such can, substantially as specified.

7. The combination, in a soda-water fountain, of an elevated can receiving chamber, a front for such chamber, an opening below the front and extending beneath the can chamber for the passage of a vertical sirup-can to be raised into its chamber from below, a vertical sirup-can, a support attached to the can at the lower end, and a front plate for the support having an upward extension to overlap the lower edge of the front, when the can is dropped into place, for closing the space between the top of the support and the lower edge of the front provided for the admission of the can, substantially as specified.

8. The front E, in combination with the partitions M, each having sides, projecting ears *a*, screws *b*, entering the ears *a* and metallic strip *c*, located on the outer face of the front E, for attaching the partitions to the front to form separate compartments, substantially as and for the purposes specified.

9. The partitions M, having the strips *d* and recesses *e*, in combination with a vertical sirup-can N, and the holder O, having the locking hooks *f*, shoulders *g*, and side walls *h*, substantially as and for the purposes specified.

10. The wall E, closing the front side of an elevated can-chamber, and an opening F below the wall E and extending beneath the can-chamber, in combination with the vertical sirup-can N and holder O, attached to the lower end of the vertical sirup-can and having a front plate *j*, with an upward extension to overlap the lower edge of the front E, when the vertical sirup-can is in place in its chamber, for closing the opening between the lower edge of the wall E and the can-holder O, substantially as specified.

11. The front E, opening F, and partitions M, forming a series of compartments M', in combination with a series of vertical cans N, having each a holder O for inserting and withdrawing the cans vertically at the front of a soda-water fountain, substantially as and for the purposes specified.

12. The vertical can N, in combination with the holder O, having the chamber P for filling of non-conducting material, substantially as and for the purposes specified.

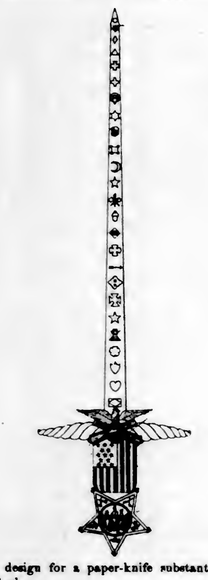
13. The holder O, having a front wall, a locking hook *f*, a shoulder *g*, and a side wall *h* on each side, and a rear wall *i* for attachment to a vertical can, substantially as and for the purposes specified.

14. The partitions M, each having a recess *e* in its side face, and spring *l*, in combination with the vertical can N and holder O, having in each side a hook *f* substantially as and for the purposes specified.

DESIGNS.

22,278. PAPER-KNIFE. WALTER R. ALLEN, Washington, D. C. Filed Feb. 17, 1893. Serial No. 462,775. Term of patent 3½ years.

22,278.



Claim.—The design for a paper-knife substantially as herein shown and described.

22,279. GIMP. CHRISTOPHER R. HERTLEIN, New York, N. Y. Filed Jan. 23, 1893. Serial No. 460,165. Term of patent 3½ years.



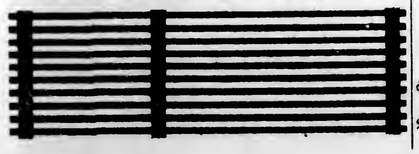
Claim.—The design for gimp, substantially as herein shown and described.

22,280. GIMP. CHRISTOPHER R. HERTLEIN, New York, N. Y. Filed Jan. 23, 1893. Serial No. 460,167. Term of patent 3½ years.



Claim.—The design for gimp, substantially as herein shown and described.

22,281. LACE FABRIC. EDWARD COPE, Nottingham, England. Filed Dec. 19, 1892. Serial No. 455,706. Term of patent 14 years.



Claim.—The design for a lace fabric herein shown and described

22,282. LACE FABRIC. EDWARD COPE, Nottingham, England. Filed Dec. 19, 1892. Serial No. 455,704 Term of patent 14 years.



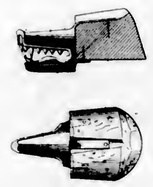
Claim.—The design for a lace fabric herein shown and described.

22,283. DRESS-STAY. DE VER H. WARNER, Bridgeport, Conn. Filed Jan. 3, 1893. Serial No. 457,161. Term of patent 7 years.



Claim.—The design for a dress stay, substantially as herein shown and described.

22,284. HEAD FOR FUR COLLARS. BERNARD COHEN, New York, N. Y. Filed Feb. 2, 1893. Serial No. 460,783. Term of patent 7 years.



Claim.—The design for a head for fur collars, herein shown and described.

22,285. RUG. WILLIAM T. SMITH, Philadelphia, Pa. Filed July 16, 1892. Serial No. 440,283. Term of patent 7 years.

22,285.

22,287.

Claim.—The design for a box herein shown and described.

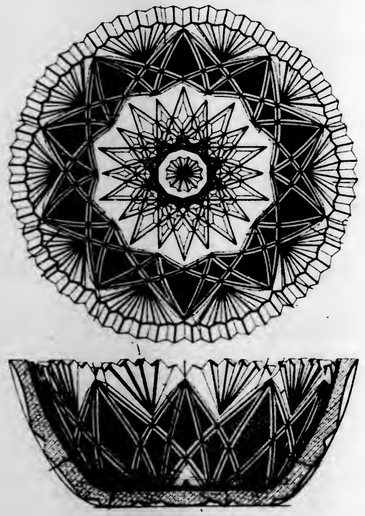
22,293.

22,285.



Claim.—The design for a woven fabric, as shown in the accompanying drawing.

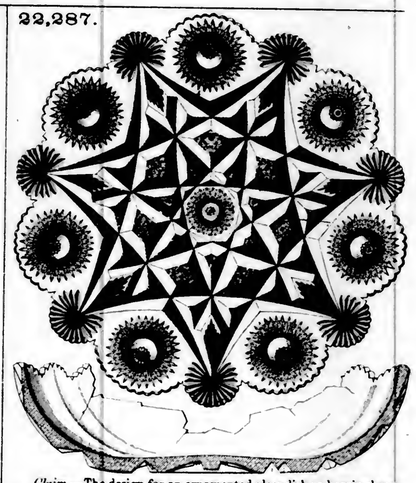
22,286. ORNAMENTATION OF GLASS VESSELS. BENJAMIN DAVIES, Brooklyn, assignor to L. Straus & Sons, New York, N. Y. Filed Feb. 1, 1893. Serial No. 460,614. Term of patent 7 years.



Claim.—The design for the ornamentation of glass vessels, substantially as herein shown and described.

22,287. ORNAMENTAL GLASS DISH. THOMAS SIDDLETON, Jr., New Bedford, Mass., assignor to the Mount Washington Glass Company, same place. Filed Sept. 22, 1892. Serial No. 446,841. Term of patent 7 years.

22,287.



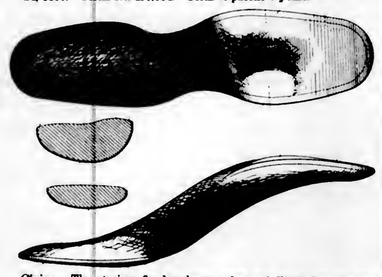
Claim.—The design for an ornamented glass dish as herein shown and described.

22,288. RUG-FASTENER. GEORGE R. SHELLFORD, Montgomery, Ala. Filed Jan. 28, 1893. Serial No. 460,161. Term of patent 14 years.



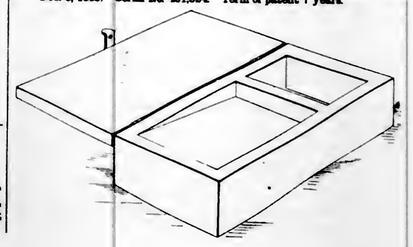
Claim.—The design for a rug fastener herein shown and described.

22,289. LAP-LAST. HERMAN L. HEINE, Chicago, Ill. Filed Jan. 24, 1893. Serial No. 459,604. Term of patent 7 years.



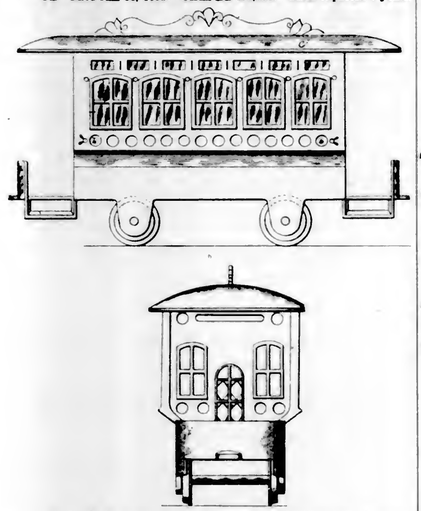
Claim.—The design for lap lasts, substantially as herein shown and described.

22,290. BOX. HEBERIAN J. BUSHWORTH, Cambridge, Ohio. Filed Feb. 3, 1893. Serial No. 461,524. Term of patent 7 years.



Claim.—The design for a box herein shown and described.

22,291. TOY MONEY-SAFE. MILTON J. SHIMER, Freemansburg, Pa. Filed Jan. 11, 1892. Serial No. 417,758. Term of patent 7 years.



Claim.—The design for a toy money-safe herein described and substantially as shown.

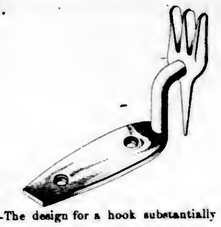
22,292. PICTURE OR ANALOGOUS FRAME. CHARLES J. JORGENSEN, Milwaukee, Wis. Filed Jan. 3, 1893. Serial No. 457,163. Term of patent 3½ years.



Claim.—The design for picture and analogous frames, substantially as shown and described.

22,293. HOOK FOR ROPES. WALTER A. PERRY, New Bedford, Mass. Filed Oct. 27, 1892. Serial No. 450,153. Term of patent 7 years.

22,298.



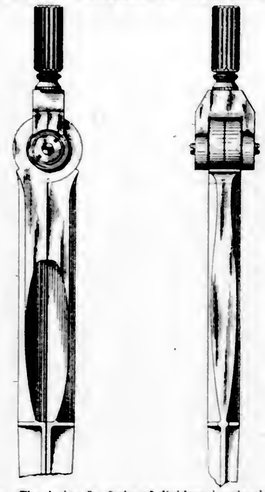
Claim.—The design for a hook substantially as shown and described.

22,294. HEEL OR SOLE PLATE. GEORGE J. DAVISON, Richmond, Va., assignor of two-thirds to Ferdinand Davison and Albert G. Spratley, same place. Filed Jan. 28, 1893. Serial No. 460,162. Term of patent 14 years.



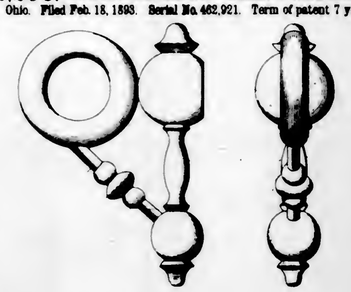
Claim.—The design for sole and heel plates herein shown and described.

22,295. FORK FOR DIVIDERS. HERMANN EBER, Hoboken, N. J. Filed Dec. 14, 1892. Serial No. 455,198. Term of patent 14 years.



Claim.—The design for forks of dividers, herein shown and described.

22,296. CURTAIN-POLE BRACKET. CHARLES W. SMITH, Norwalk, Ohio. Filed Feb. 18, 1893. Serial No. 462,921. Term of patent 7 years.

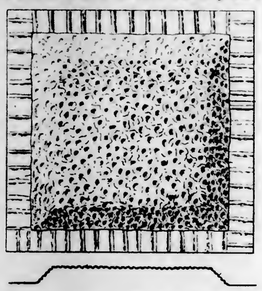


Claim.—The design for a bracket substantially as shown and described.

22,298.

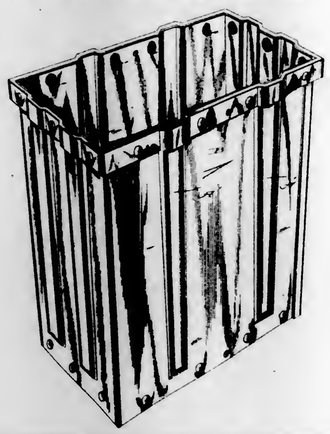
Claim.—The design for a bracket substantially as shown and described.

22,297. SIDING-PLATE. PHILIP A. DESLAURIERS, St. Paul, Minn. Filed May 5, 1892. Serial No. 431,969. Term of patent 14 years.

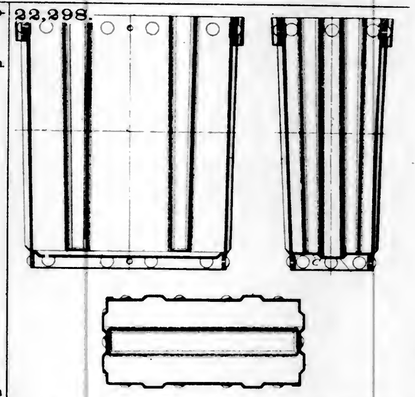


Claim.—The design for a siding plate for a building front shown and described.

22,298. ICE-MOLD. JAMES A. SMITH, Sr., St. Louis, Mo. Filed Feb. 4, 1893. Serial No. 461,066. Term of patent 14 years.

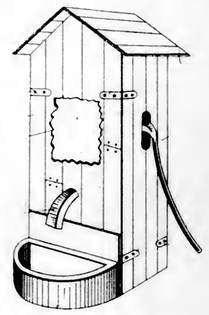


22,298.



Claim.—The design for an ice mold herein described and shown.

22,299. CALENDAR-CASE. ROBERT W. BRUMBY and SIMPSON CLARKE, Hull, England. Filed Nov. 10, 1892. Serial No. 451,591. Term of patent 7 years. Patented in England, No. 187,364, Class I, Feb. 6, 1892, and No. 186,983, Class III, Jan. 28, 1893.

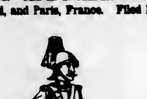


Claim.—The design for a calendar case as herein described and shown.

TRADE-MARKS

REGISTERED MARCH 14, 1893.

22,627. LACE-PINS, SCARF-PINS, STUDS, HAIR-DROPS, AND SIMILAR ARTICLES. R. I. MOORHEAD & Co., Providence, R. I., and New York, N. Y. Filed Feb. 3, 1892.



Essential feature.—The words "JURA GEM." Used since December, 1883.

22,628. CORSETS. THE H. B. CLAFLIN COMPANY, New York, N. Y., Manchester, England, and Paris, France. Filed Feb. 17, 1893.



Essential feature.—The representation of a soldier, and the word "MILITARY." Used since January 1, 1893.

22,629. BOOTS AND SHOES. NATHANIEL F. TUCKER, Boston, Mass. Filed Feb. 15, 1893.

INDEMNITY

Essential feature.—The word "INDEMNITY." Used since February 1, 1893.

22,630. DRILLING. MINOT, HOOPER & Co., New York, N. Y. Filed Jan. 21, 1893.



H

Essential feature.—The representation of a pagoda and the letter "H." Used since 1854.

22,631. SHEETING. MINOT, HOOPER & Co., New York, N. Y. Filed Jan. 21, 1893.

DWIGHT
MANF'G Co.
CABOT

Essential feature.—The words and abbreviations "DWIGHT MAN'F'G. Co., CABOT." Used since 1844.

22,632. CONFECTIONS. HARRIET WILLIAMSON, Braidwood, Ill. Filed Jan. 26, 1893.

G
Snuff

Essential feature.—The letter "G" and the word "SNUFF." Used since December 1, 1892.

22,633. CHEWING-GUM. SHEPHERD B. LAFFERTY, Akron, Ohio. Filed Feb. 16, 1893.

BU-LU

Essential feature.—The word "BU-LU." Used since December 20, 1892.

22,634. BISCUIT AND CRACKERS. LEWIS A. GOUDY, Portland, Me. Filed Jan. 31, 1893.



Essential feature.—The representation of a man standing at a ship's wheel. Used since November 26, 1892.

22,635. COFFEE. J. APARICIO & Co., New York, N. Y. Filed Feb 13, 1893.

JRB

Essential feature.—The letters "J R B." Used since January 1, 1886.

22,636. COFFEE AND SPICES. WHEELING COFFEE AND SPICE COMPANY, Wheeling, W. Va. Filed Jan. 5, 1893.



Essential feature.—The representation of an arrow. Used since October 1, 1892.

22,642. [illegible]

22,651. [illegible]

Essential feature.—The representation of an arrow. Used since October 1, 1892.

22,637. ALIMENTARY PRODUCTS FROM CORN IN THE FORM OF FLAKES. INDIANAPOLIS HOMINY MILLS, Indianapolis, Ind. Filed Jan. 31, 1893.

QUICK MALT

Essential feature.—The words "QUICK MALT." Used since October, 1891.

22,638. HAMS, BACON, AND SHOULDERS. SWIFT & COMPANY, Chicago, Ill. Filed Feb. 6, 1893.

EUCLID

Essential feature.—The word "EUCLID." Used since February 1, 1893.

22,639. PIG-PORK PRODUCTS. THE MCDOWELL PACKING COMPANY, Oconomowoc, Wis. Filed Nov. 14, 1892.

OCONOMOWOC

Essential feature.—The word "OCONOMOWOC," extended across the greatest length of a lozenge-shaped figure of a red-color. Used since November 1, 1886.

22,640. OYSTERS. WM. L. ELLIS & CO., Baltimore, Md. Filed Feb. 17, 1893.

BRAND

Essential feature.—The symbol of a star or the word "STAR." Used since 1866.

22,641. WHISKY. D. L. BEAVER & CO., New York, N. Y. Filed Feb. 2, 1893.

"Rockland Distillery Co."

Essential feature.—The words: "ROCKLAND DISTILLERY CO." Used since February 1, 1891.

22,642. WINES AND BRANDIES. GERMAIN FRUIT COMPANY, Los Angeles, San Francisco, Riverside, and Santa Ana, Cal. Filed Jan. 31, 1893.

22,642.



Essential feature.—The representation of a basket of wine-bottles, together with fruits, vegetables and seeds. Used since June 14, 1892.

22,643. MINERAL WATER AND BEVERAGES INTO WHICH IT ENTERS AS A CONSTITUENT. THE WAUKESHA HYGEIA MINERAL SPRINGS COMPANY, Chicago, Ill., and Waukesha, Wis. Filed Feb. 13, 1893.

HYGEIA

Essential feature.—The word "HYGEIA." Used since 1872.

22,644. COMPLEXION-POWDER. TETLOW MANUFACTURING COMPANY, LIMITED, Philadelphia, Pa. Filed Nov. 21, 1892.

DERMIS

Essential feature.—The word "DERMIS." Used since October 1, 1892.

22,645. HAIR-DRESSING. MARTHA T. HICKEY, Troy, N. Y. Filed Jan. 24, 1893.



Essential feature.—The representation of a hand holding a bottle upon the side of which is a label having the word "BANG-FRIZETTE" in a carve upon the picture of a smaller hand holding a bottle. Used since December 1, 1892.

22,646. LOTIONS FOR REMEDIAL PURPOSES. DAVID A. BOWKER, Cowansville, Canada. Filed Feb. 8, 1893.



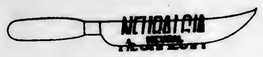
Essential feature.—A portrait of M. R. Bowker. Used since September 1, 1891.

22,647. HOMŒOPATHIC AND OTHER MEDICINES AND REMEDIES. MERIDEN HOMŒOPATHIC FAMILY MEDICINE COMPANY, Camden, N. J., and New York, N. Y. Filed Jan. 18, 1893.



Essential feature.—The representation of a lion rampant upon a crest wreath, with left hind leg resting on the wreath and right hind leg and both fore-legs holding a column or pillar. Used since April, 1892.

22,648. REMEDY FOR NEURALGIA. EDWARD B. WHITE, Lancaster, Ohio. Filed Sept. 16, 1892.



Essential feature.—The representation of a surgeon's knife cutting in twain horisontally the word "NEURALGIA" and bearing the word "NEURAL" upon its blade. Used since May 1, 1892.

22,649. REMEDY FOR HOG-CHOLERA AND OTHER DISEASES. ENRICO C. ROSSINI, Philadelphia, Pa. Filed Feb. 13, 1893.

SUSPHATE

Essential feature.—The word "SUSPHATE." Used since June 1, 1891.

22,650. CATHARTIC. ELI LILLY & COMPANY, Indianapolis, Ind. Filed Jan. 24, 1893.

PURGANS.

Essential feature.—The word "PURGANS." Used since September, 1881.

22,651. SALVES AND LINIMENTS FOR ANIMAL USE. THE ELELIANUM MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

ANIMINE

Essential feature.—The word "ANIMINE." Used since October 1, 1892.

22,652. MEDICINAL PLASTERS. GEORGE M. DORRANCE, Philadelphia, Pa. Filed Feb. 16, 1893.

Atropium

Essential feature.—The word "ATROPIUM." Used since October 7, 1892.

22,653. DISINFECTANT. HENRY B. PLATT, New York, N. Y. Filed Jan. 26, 1893.



Essential feature.—The representation of a bottle upon a circular disk across which is written the name "PLATT," in connection with the fac simile signature of the registrant. Used since December 30, 1892.

22,654. LUBRICATING-OIL. THE RELIANCE MANUFACTURING COMPANY, New York, N. Y. Filed Feb. 1, 1893.

ULTRA

Essential feature.—The word "ULTRA." Used since January 26, 1893.

22,655. COMPOSITION FOR CLEANING WOOD, MARBLE, TILINGS, CEILINGS, &c. CHARLES JULIUS JOHANNSEN, Milwaukee, Wis. Filed Feb. 9, 1893.

CLEANEAT

Essential feature.—The word "CLEANEAT." Used since March 1, 1892.

22,656. PAINTS, STAINS, VARNISHES, AND SIMILAR ARTICLES. HARRISON BROS. & CO., Philadelphia, Pa. Filed Feb. 9, 1893.



Essential feature.—The letter "H" inclosed in a wreath. Used since January, 1893.

22,657. COMPOUND FOR HARDENING AND TEMPERING STEEL. WILLIAM F. ALTEMUS, Hartford, Conn. Filed Feb. 6, 1893.

DIAMOND

Essential feature.—The word "DIAMOND." Used since January 24, 1893.

22,658. BABBITT METAL AND ANTIFRICTION JOURNAL-BEARINGS. THEODORE HIERETH & SON, St. Louis, Mo. Filed Feb. 4, 1893.

NONPAREIL

Essential feature.—The word "NONPAREIL." Used since January 1, 1890.

22,659. SOFT STEEL AND IRON. THE WILSON & HOBBS MANUFACTURING COMPANY, Bridgeport, Conn. Filed Feb. 6, 1893.

SWEDOH

Essential feature.—The word "SWEDOH." Used since October 1, 1892.

22,660. ENGRAVING-PLATES FOR MAKING RELIEF-CUTS. THOMAS H. BELL, WILLIAM T. DESCHNER, and NATHANIEL A. POLLOCK, Cleveland, Ohio. Filed Feb. 14, 1893.



Essential feature.—The representation of a bell. Used since February 6, 1883.

22,661. BICYCLES. THE KENTON BICYCLE MANUFACTURING COMPANY, Des Moines, Iowa. Filed Jan. 7, 1893.

Pacemaker

Essential feature.—The word "PACEMAKER." Used since January, 1892.

22,662. SEWING-MACHINES. CHICAGO SEWING MACHINE COMPANY, Chicago, Ill. Filed Feb. 13, 1893.

PEERLESS

Essential feature.—The word "PEERLESS." Used since February 15, 1890.

22,663. PUMPS. RED JACKET MANUFACTURING CO., Davenport, Iowa. Filed June 22, 1891.

RED JACKET

Essential feature.—The words "RED JACKET." Used since January, 1881.

22,664. WOOD PUMPS. CHARLES S BURLINGHAM, Baltimore, Md. Filed Feb. 14, 1893.



Essential feature.—The representation of a horseshoe. Used since May 1, 1883.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court—Northern District of California.

BRUSH ELECTRIC COMPANY *et al. v.* ELECTRIC IMPROVEMENT COMPANY OF SAN JOSÉ.

Decided October 3, 1892.

1. PATENT—INFRINGEMENT—PIONEER INVENTOR—ELECTRIC LAMPS.

Letters Patent No. 219,208, to Charles F. Brush, September 2, 1879, for an improvement in electric-arc lamps, comprising "two or more pairs or sets of carbons, in combination with mechanism constructed to separate said pairs dissimultaneously or successively," *Held* to cover a pioneer invention and to be entitled to a liberal construction, and, further, *Held* infringed by lamps made under Letters Patent No. 430,722, to James J. Wood, June 24, 1890.

2. CONSTRUCTION OF PATENT.

While courts have no right to enlarge a patent beyond the scope of its claims as allowed by the Patent Office, the inventor is entitled to a liberal construction to secure to him his actual invention. (Citing *Winans* v. *Denmead*, 15 How., 341.)

SUIT by the California Electric Company (licensee of the Brush Electric Company) and others against the Electric Improvement Company of San José, the Brush Electric Company being joined as a plaintiff. Decree for complainants.

Mr. M. M. Estee, *Mr. J. H. Miller*, and *Mr. L. L. Leggett* for the complainants.

Mr. W. F. Herrin and *Mr. R. S. Taylor* for the respondent.

HAWLEY, *J.*:

This is a suit in equity for the infringement of Letters Patent No. 219,208, granted to Charles F. Brush, September 2, 1879, for an improvement in electric-arc lamps. The Brush Electric Company is the owner of the legal title of said patent, and the California Electric Light Company has an equitable title as the exclusive licensee for the States of California, Nevada, Oregon, and Washington. The defendant is charged with infringing this patent by the use of the Wood lamp, under Letters Patent No. 430,722, granted to James J. Wood June 24, 1890, for new and useful improvements in electric-arc lamps. A preliminary injunction was ordered by Judge Sawyer upon the authority of *Brush Electric Co.* v. *Western Electric Light & Power Co.* (52 O. G., 1950; 43 Fed. Rep., 533) and *Brush Electric Co.* v. *Ft. Wayne Electric Co.*, (44 Fed. Rep., 284.) While declining to discuss the questions involved in this case, the learned judge expressly indorsed the views announced in the cases referred to and stated that, in his judgment, "the Brush patent is valid, and the first six claims are infringed by the Wood lamp." (45 Fed. Rep., 242.) The case is now presented upon the final hearing upon the testimony taken before the Examiner.

The validity of the Brush patent has, in addition to the cases referred to, been sustained in *Brush Electric Co.* v. *Ft. Wayne Electric Light Co.* (50 O. G., 434; 40 Fed. Rep., 826) and *Brush Electric Co.* v. *New American Electric Arc Light Co.*, (46 Fed. Rep., 79.) The learned counsel who argued this case for the defendant insists—

that, notwithstanding all the suits that have been brought, and all the actions that have been taken, the questions arising in this case have not been settled or adequately presented or considered,

and he therefore respectfully asks that all the points involved should be again independently considered and decided. Complainants claim that the principles announced and conclusions reached in the prior decisions are correct, and should be followed.

Mr. Brush's invention, as stated in his specifications—

relates to electric lamps or light-regulators; and it consists, first, in a lamp having two or more sets of carbons adapted, by any suitable means, to burn successively—that is, one set after another; second, in a lamp having two or more sets of carbons, each set adapted to move independently in burning and feeding; third, in a lamp having two or more sets of carbons adapted each to have independent movements, and each operated and influenced by the same electric current; fourth, in a lamp having two or more sets of carbons, said carbons, by any suitable means, being adapted to be separated dissimultaneously, whereby the voltaic arc between but a single set of carbons is produced; fifth, in the combination, with one of the carbons or carbon-holders of a lamp employing two or more sets of carbons, as above mentioned, of a suitable collar, tube, or extended support, within or upon which the carbon or carbon-holder to which it is applied shall rest and be supported.

He states at the outstart that his—

invention is not limited in its application to any specific form of lamp. It may be used in any form of voltaic-arc light-regulator, and would need but a mere modification in mechanical form to be adaptable to an indefinite variety of the present known forms of electric lamps. My invention comprehends, broadly, any lamp or light regulator where more than one set of carbons are employed, wherein—say in a lamp having two sets of carbons—one set of carbons will separate before the other. For the purpose merely of showing and explaining the principles of operation and use of my invention, I shall describe it, in the form shown in the drawings, as applied to an electric lamp of the general type shown in United States Letters Patent No. 208,411, granted to me May 7, 1878, reissued May 20, 1879, and numbered 8,718. The leading feature of this type of regulator is that the carbon-holder has a rod or tube which slides through or past a friction-clutch, which clutch is operated upon to grasp and move said carbon rod or holder, and thus to separate the carbons and produce the voltaic-arc light.

Before quoting further from the specifications a brief reference to the prior state of the art will be made, in order that the true character and extent of this invention may be better understood. In 1810 Sir Humphrey Davy, with the aid of a galvanic battery of 2,000 cells, produced a light between two pencils of charcoal. This seems to have been the first dawn of a discovery which gave to the scientists of the world the thought of electric lighting. Unfortunately for Davy, he had no mechanism to adjust his electrodes, and, owing to the great cost of his battery and the rapid combustion of the charcoal points—lasting only a few minutes—his invention was of no commercial value for practical use. In 1836 the more powerful battery of Daniell was tried. In 1839 the nitric-acid

battery of Grove was invented. In 1842 the Bunsen battery was produced. No practical result, however, in the way of advancement was attained until 1844, when Foucault substituted pencils made of hard gas carbon for the charcoal pencils of Davy and thereby extended the duration of the light to some extent; but the expense was still too great to justify any general use of the light, and it was confined principally to laboratories and for the experimental uses of scientists. In 1848 Archeran devised an imperfect regulating device, by means of which two vertical carbon electrodes were maintained in the same relative position. In 1857 the Holmes & Nollett machines were employed in producing the arc electric light in some of the lighthouses of France and England by the use of the Serrin lamp, which was a clockworking lamp, burning one pair of carbons, with a very expensive apparatus It was not until 1870 that a current of sufficient strength to render electric lighting commercially practical by being generated at a small expense was attained. This was brought about by the invention of the dynamo-electric machine of Gramme. None of the arc lamps invented up to this time were suitable for the purpose of general illumination. The defendant has set up, for the purpose of showing the prior state of the art, the following lamps and patents: the Archeran lamp, produced in 1848; the English patent for the Staites lamp, in 1853; the Hart lamp, introduced in 1858; the Browning, Foucault, and Serrin lamps, in use prior to 1860; the patent issued in England to Louis Denayrouse August 21, 1877; the United States patent to M. Day, Jr., February 24, 1874; the French patent granted to Khotinzky March 19, 1875; the Rapieff lamp, described in the *Telegraphic Journal and Electrical Review* of London, August 15, 1878, and the French patent for the Mersanne and Bertins lamp.

The patent of M. Day, Jr., is pleaded as an anticipation of the Brush patent; but in the argument defendant admitted that it was not an anticipation in a technical sense, and was only relied upon as showing the state of the art. The Day patent was held not to be an anticipation of any of the claims of the Brush patent in *Brush Electric Co.* v. *Ft. Wayne Electric Light Co.*, (50 O. G., 434; 40 Fed. Rep., 833.) Judge Gresham correctly said:

> It was unlike the Brush lamp, both in construction and mode of operation.

And the same view is expressed by Brown, J., in *Brush Electric Co.* v. *Western Electric Light & Power Co.*, (52 O. G. 1950; 43 Fed. Rep., 536,) to which reference is here made for a description of the Day patent, the French patent of Denayrouse, and the Jablochkoff candle in the patent of Jablochkoff, as the views therein expressed sufficiently and, in my judgment, correctly answer the argument of defendant's counsel in relation thereto. None of the devices set up by defendant contain the principle of the Brush patent. All of them were presented by the defendant in the several prior suits instituted by the Brush Electric Company except the French patent for the Mersanne and Bertins lamp, which does not introduce any new principle tending to limit the field of invention that was open to Brush. Brown, J., in referring to the inventions prior to those of Mr. Brush, very properly said:

Most of them, however, were directed to improvements in the material of which the carbons were made, in the brilliancy and steadiness of the light itself, to improvements upon the dynamos, and in the mechanism by which the carbons were held in the same relative position during the process of combustion. One difficulty, however, remained to be overcome. The electrical resistance of the carbons was such as to preclude the employment of very long rods, and their consumption by burning away was hastened by their adjacent ends becoming highly heated to a considerable distance from the arc. This difficulty was partially remedied by covering the carbon pencils with a thin film of copper, electrically deposited thereon, by which the electrical resistance of the carbons was materially decreased, much longer rods were possible, and the light maintained continuously for from six to ten hours. This was insufficient, however, for all night lighting, and necessitated the extinguishment of the lamp, and a renewal of the carbons at some time during the night, in order to keep up a continuous light.

In tracing the history of the prior state of the art from 1810 it will be observed that scientific men were continually at work trying to invent some kind of a lamp that would automatically give such a light as would be suitable for general use, and also to discover, if possible, some means whereby the burning of the light could be further prolonged. Early in 1878 Mr. Brush invented a lamp which gave a steady light and was suitable for general use; but only one could be burned on a single circuit. Shortly afterward he invented the series lamp, whereby two or more lamps could be operated at one and the same time upon the same circuit. There still remained another and more important discovery to be made, which, as before stated, had engaged the attention of the brightest inventive minds for many years, without any successful results—viz., how to produce a long-continued light automatically without renewing the carbons. This discovery in the open field of invention was made by Mr. Brush in 1879, and for which he secured the patent in controversy and gave to the world the most practical and useful lamp known to electrical science, and which has proven to be of great value and benefit to the public. In the specifications he said, among other things:

> I do not in any degree limit myself to any specific method or mechanism for lifting, moving, or separating the carbon points or their holders, so long as the peculiar functions and results hereinafter to be specified shall be accomplished. The lifter D, in the present instance, is so formed that when it is raised it shall not operate upon the clamps C C' simultaneously, but shall lift first one and then the other, (preferably the clamp C first and C' second, for reasons which will hereinafter appear.) This function of dissimultaneous action upon the carbons or their holders, whereby one set of carbons shall be separated in advance of the other, constitutes the principal and most important feature of my present invention. In the lamp shown in the drawings the lifter D is actuated and controlled through the agency of magnetic attraction due to the influence of the current operating the lamp, and this is accomplished as follows: One, two, or more spools or hollow helices, E, of insulated wire, are placed in the circuit, within whose cavities freely move cores E'. The electric current, passing through the helices E, operates to strongly draw up within their cavities their respective cores E' in the same manner as specified in my former patent above referred to. The cores E' are rigidly attached to a common bar, E^2, and the upward and downward movement of this bar, due to the varying attraction of the helices E, is imparted by a suitable link-and-lever connection, E^3 E^4, to the lifter D. By this connection the lifter will have an up-and-down movement in exact concert with the cores E'; and it is apparent that this connection between magnet and lifter may be indefinitely varied without any departure from my invention; and therefore, while preferring for many purposes the construction just specified, I do not propose to limit myself to its use.
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> The operation of my device, as thus far specified, is as follows: When the current is not passing through the lamp the positive and negative carbons of each set A A' are in actual contact. When, now, a current is passed through the lamp, the magnetic attraction of the helices E will operate to raise the lifter D. This lifter, operating upon the clamps C and C', tilts them and causes them to clamp and lift the carbon-holders B B', and thus separate the carbons and produce the voltaic-arc light; but it will be especially noticed that the lifting and separation of these carbons is not simultaneous. One pair is separated before the other. it matters not how little nor how short a time before. This separation breaks the circuit at that point, and the entire current is now passing through the unseparated pair of carbons A', and now, when the lifter, continuing to rise, separates these points, the voltaic arc will be

established between them and the light thus produced. It will be apparent by the foregoing that it is impossible that both pairs of carbons A A' should burn at once, for any inequality of weight or balance between them would result in one pair being separated before the other, and the voltaic arc would appear between the last-separated pair. This function, so far as I am aware, has never been accomplished by any previous invention; and by thus being able to burn independently and one at a time two or more carbons in a single lamp it is evident that a light may be constantly maintained for a prolonged period without replacing the carbons or other manual interference. In the form of lamp shown I can, with twelve-inch carbons, maintain a steady and reliable light without any manual interference whatever for a period varying from fourteen to twenty hours.

The claims of the patent are as follows:

1. In an electric lamp, two or more pairs or sets of carbons, in combination with mechanism constructed to separate said pairs dissimultaneously or successively, substantially as and for the purpose specified.

2. In an electric lamp, two or more pairs or sets of carbons, in combination with mechanism constructed to separate said pairs dissimultaneously or successively and establish the electric light between the members of but one pair, (to wit, the pair last separated,) while the members of the remaining pair or pairs are maintained in a separated relation, substantially as shown.

3. In an electric lamp having more than one pair or set of carbons, the combination, with said carbon sets or pairs, of mechanism constructed to impart to them independent and dissimultaneous separating and feeding movements, whereby the electric light will be established between the members of but one of said pairs or sets at a time, while the members of the remaining pair or pairs are maintained in a separate relation, substantially as shown.

4. In a single electric lamp, two or more pairs or sets of carbons, all placed in circuit, so that when their members are in contact the current may pass freely through all said pairs alike, in combination with mechanism constructed to separate said pairs dissimultaneously or successively, substantially as and for the purpose shown.

5. In an electric lamp wherein more than one set or pair of carbons are employed, the lifter D or its equivalent, moved by any suitable means, and constructed to act upon said carbons or carbon-holders dissimultaneously or successively, substantially as and for the purpose shown.

6. In an electric lamp wherein more than one pair or set of carbons are employed, a clamp, C, or its equivalent, for each said pair or set, said clamps C adapted to grasp and move said carbons or carbon-holders dissimultaneously or successively, substantially as and for the purpose shown.

7. In an electric lamp, the combination, with a carbon-holder and the mechanism moving said carbon-holder, of a lifter or support, K, or its equivalent, constructed to operate in compelling the said moving mechanism to sustain the weight of the carbon-holder after its carbon is sufficiently consumed or removed, substantially as and for the purpose described.

It is claimed that this invention of Mr. Brush, as covered by his patent, is simply that of an attachment or modification of the single-carbon lamp previously invented by him. This claim cannot be sustained. The Brush double-carbon lamp operates in a materially-different way and produces different results from any of the prior inventions. The single-carbon lamp invented by Brush had but one solenoid or magnet. His double-carbon lamp has two, so that it controls two pairs of carbons instead of one. In the single-carbon lamp there is but one clutching and feeding mechanism, and in the double lamp there are two, and these are so combined with the other elements and arranged in such a manner that they perform new duties in the double lamp. Each clutch, it is true, lifts its respective carbon, establishes the arc, regulates its light, and controls the feed of the carbons, as was done in the single-carbon lamp; but, in addition to this, they serve to bring the idle pair of carbons into contact and then separate them, and establish the arc at an exactly-premeditated time immediately after the first pair of carbons have consumed, and at which time the carbons of a single lamp would have to be manually renewed. By this new function of the clutches and the feeding mechanism a new, distinct, and important result is obtained. The successive burning of the carbons and a uniform and steady light are secured throughout the consumption of both pairs of carbons, extending from fourteen to twenty hours, in such a manner that a steady and reliable light is produced between one pair of carbons until they have been consumed and an equally good light between the second pair of carbons until they have been consumed. This new, successful, and beneficial result is automatically accomplished by the dissimultaneous or successive arc-forming separation of the two pairs of carbons. Another new function upon the clutching and feeding mechanism is secured by maintaining the carbons of one pair separated during the time that the other pair are consuming, so that the current may be sent through either pair whenever they are called into operation. Another function is imposed upon the duplex clutching and feeding mechanism of the lamp, which is to automatically adjust the two pairs of carbons when the current is first passed through the lamp preparatory to the formation of the arc, so that the arc is formed between only one pair of carbons, while the other pair is separated until required to burn. Still another function is imposed by the maintenance of arcs of equal lengths between the two pairs of carbons, and this is attained by compelling the regulating mechanism to support and carry the two carbon-holders at all times during the operation of the lamp. It is evident at a glance that it required more than a mere attachment to his single-carbon lamp to bring into existence the idea of imposing upon the regulating mechanism of a lamp the additional duties, never before imposed, which produces a result never before accomplished.

Counsel for defendant has ably, intelligently, ingeniously, and exhaustively discussed the question as to the construction of this patent from three different standpoints, which are respectively denominated by him (1) the "complainant's construction," (2) the "liberal construction," (3) the "legal construction." His contention is, first, that under complainants' construction the invention of Mr. Brush did not consist in the mechanism which he described; but the "invention relates to electric lamps or light regulators, and it consists, first, in a lamp having two or more sets of carbons adapted by any suitable means to burn successively—that is, one set after another;" that taken in this broad unlimited sense the patent is void; second, that the liberal construction takes the real invention disclosed in the patent as the true measure of its scope, notwithstanding any language contained in it which would operate of itself to give the claims either a wider or a narrower application, and that taking the patent in this sense the Wood double lamp used and operated by defendant is not an infringement; third, that the legal construction applies to the patent the rule that any limitation put upon an application in the Patent Office by the applicant in order to obtain the patent is binding upon him in favor of the general public, and that taken in this view the claims of the patent are not infringed by the Wood double lamp. The proper construction to be given to the patent must be determined by the court with due regard to the various provisions of the patent law, the principles thereof as interpreted by the courts, and by ascertaining the true meaning of the language used in the specifications and claims of the patent.

Chief Justice Taney, in *O'Reilly* v. *Morse*, (15 How., 62,) in summing up the provisions of the act of Congress, said:

Whoever discovers that a certain result will be produced in any art, machine, manufacture, or composition of matter by the use of certain means is entitled to a patent for it, provided he specifies the means he uses in a manner so full and exact that any one skilled in the science to which it appertains can, by using the means he specifies, without any addition to or subtraction from them, produce precisely the result he describes; and if this cannot be done by the means he describes the patent is void, and if it can be done then the patent confers on him the exclusive right to use the means he specifies to produce the result or effect he describes and nothing more; and it makes no difference in this respect whether the effect is produced by chemical agency or combination, or by the application of discoveries or principles in natural philosophy known or unknown before his invention, or by machinery acting altogether upon mechanical principles. In either case he must describe the manner and process as above mentioned and the end it accomplishes; and any one may lawfully accomplish the same end without infringing the patent if he uses means substantially different from those described.

Brush conceived a new idea and stated it in his specifications in such a plain way that it could be readily adopted and employed by any one "skilled in the science to which it appertains," so as to lead to a practical and useful result. He clearly described his machine—a lamp—and the principles thereof by which it could be distinguished from all other inventions, and stated in concise language what he considered to be the best modes to apply these principles, and in the claims pointed out the parts and improvements which he claimed as his invention and discovery, and thus brought himself within the essential requirements of the patent law. (Sec. 4888, Rev. Stats. U. S.) In his specifications he described but two modes—but declared that there were other methods—that could be used that would accomplish the same result. His invention not only embraced the lamp and modes of construction and operation which he described in his patent, but included all lamps which might be so constructed as to operate in substantially the same way by any equivalent means to accomplish the same results. By the express terms of the act of Congress, the description of his lamp in his specifications, and the language of his claims he was entitled to a patent for his "invention or discovery," and his patent should be so construed as to give him all that he invented, discovered, and claimed; nothing more, and certainly nothing less.

In determining the construction that ought to be given to the patent in controversy it is the duty of the court to ascertain whether Brush was a pioneer or a mere improver in the field of electrical inventions and constantly to bear in mind that his lamp has met the public want and has long been in general and successful use.

Judge Coxe, in sustaining the patent of Swan for a perforated plate for secondary batteries, said:

In approaching this subject it is well to remember, as the court has frequently had occasion to remark before, that we are dealing with a comparatively new and abstruse art, where the most important results are said to follow from changes apparently of the most unimportant character. Complete success has not been attained; but, if we may credit the statements of those who are entitled to speak *ex cathedra* on the subject, the rapid strides in that direction during the last decade are due to changes of form and material which in many other arts would be insufficient to support invention. The substitution of one material for another in a door-knob is the work of the mechanic; the substitution of one material for another in secondary-battery electrodes may solve a problem which will revolutionize the motive power of the world.

This principle is directly applicable to this case:

Before Brush entered the field, electric lamps had been contrived which burned two sets of carbons alternately, shifting the arc from one pair to the other at short intervals, making a flashing, unsteady, and unsatisfactory light. The problem which Brush set himself to solve was to secure the complete combustion of one pair of carbons before the arc was transferred to the other pair and the transfer of the arc to the other pair by the automatic action of the electric current, so that no attendant was needed to light the second pair after the first pair was consumed, thus securing a lamp which would give a steady arc light of from sixteen to twenty hours' duration. This he accomplished by his mechanism, which caused the dissimultaneous separation of the two pairs of carbons by the automatic action of the electric current actuating his separating devices, and a feeding device for bringing the carbons together as fast as they were consumed. This long step forward in the art was taken by Brush, and at the present stage of the art it seems that the inexorable law of the electric current requires that when two or more pairs of carbons are to be burned successively the carbons of each pair must be dissimultaneously separated and the arc produced between the pair last separated. Having done this for the art, Brush is entitled to cover all means equivalent to his own for obtaining the same result, one of which is a clockwork feeding device. (44 Fed. Rep., 385.)

When the discovery was made and explained to the public, it could readily be seen by other inventive and mechanical minds that the means whereby the result was produced were very simple and plain and that they could be accomplished by slight changes in the construction of the lamp. As was said by Brown, J.:

One of the experimenters succeeds, while all the rest fail. After the one has succeeded it is easy to go back into the limbo of these old failures and in the light of the successful machine, by perhaps slight changes, make these old abortive attempts do the work of the successful inventor; but it is the successful experimenter who has shown them the way, and he, and he alone, who is entitled to be called the inventor and be protected by a patent.

Brush should not be limited, restricted, confined, or narrowed down to the rights of a mere improver of an old machine. His invention was not, as defendant's counsel claims—

a pretty duplication of parts in an existing apparatus, another barrel on an old gun, a reversible point on an old plow, a supplemental weight in an old clock, an extra reservoir from an old lamp.

He was not a mere adapter. He solved the problem in electrical science that had never before been answered by controlling a force of nature in such a manner as to produce a continuous light without the aid of manual assistance, and he discovered and devised the means whereby these results could be successfully accomplished. When this problem was solved, it became apparent to him—as it now is to others—that the same results could be brought about by various changes that might be made in the construction of the lamp. Hence he said:

I do not in any degree limit myself to any specific method or mechanism for lifting, moving, or separating the carbon-points or their holders so long as the peculiar function and results hereinafter to be specified shall be accomplished.

After minutely describing the construction and operation of his lamp he "mentioned but two ways of imparting dissimultaneous motion to the carbons of an electric lamp—viz., through magnetic attraction and through the expensive attraction of heat"—but added that this function of his device might "be accomplished by clockwork or equivalent mechanical contrivance; and in this respect, as before stated, I do not limit my invention." The fact is, as shown by the prior state of the art and by the testimony taken in this case, that Brush was a pioneer in this branch of electrical construction. Being a pioneer inventor, he is entitled to a broad and liberal interpretation of his patent. (*McCormick* v. *Talcott*, 20 How., 402; *Hammerschlag* v. *Seamoni*, 20 O. G., 75; 7 Fed. Rep., 593; *Telephone Co.* v. *Spencer*, 8 Fed. Rep., 511; *Machine Co.* v. *Teague*, 15 Fed. Rep., 390; *Worswick Manufacturing Co.* v. *City of Buffalo*, 27 O. G., 1239; 20 Fed. Rep., 137; *Hammerschlag Manufacturing Co.* v. *Bancroft*, 40 O. G., 1339; 32 Fed Rep., 587; *Morley Sewing Machine Co.* v. *Lancaster*, 47 O. G., 267; 129 U. S., 273; 9 Sup. Ct. Rep., 299; *Norton* v. *Jensen*, 9th circuit, 7 U. S. App., 103; 1 C. C. A., 452; 49 Fed. Rep., 859.)

The rule is unquestioned that courts have no right to enlarge a patent beyond the scope of its claims as allowed by the Patent Office, and when the terms of the claims in the patent are clear and distinct the patentee is, of course, bound by them. But patents should be "construed liberally, in accordance with the design of the Constitution and the patent laws of the United States, to promote the progress of the useful arts and allow inventors to retain for their own use not anything which is matter of common right, but what they themselves have created." (*Winans* v. *Denmead*, 15 How., 341, and authorities there cited.) "Mere rigid technicalities are to be set aside, unless there is a clear, legal necessity for sustaining them," (*Hamilton* v. *Ives*, 3 O. G., 30; 6 Fish. Pat. Cas., 253, and authorities there cited,) and "courts should not be astute to avoid inventions," (*Duvoll* v. *Brown*, 1 Woodb. & M., 53.)

The contention so earnestly pressed by defendant's counsel that the first four claims of the patent are void, because they are for functions and results and not for any specific mechanism, is directly, clearly, and, in my opinion, correctly answered in the previous decisions sustaining this patent. Gresham, J., in *Brush Electric Co.* v. *Ft. Wayne Electric Light Co.*, (50 O. G., 437: 40 Fed. Rep., 833,) said:

The specification describes mechanism whereby a result may be accomplished, and the claims are not for mere functions, nor, fairly construed, can it be said that they cover other than equivalent means employed to perform the same functions. The first claim construed in connection with the means described in the specification is for an electric-arc lamp in which two or more pairs of carbons are used, the adjustable carbons of each pair being independently regulated by one and the same mechanism, and in which there is a dissimultaneous or successive separation of the pairs, so effected as to secure the continuous burning of one pair prior to the establishment of the arc between the other pair. This construed the invention claimed is limited to the particular means described in the specification and their substantial equivalents. The second, third, and fourth claims also refer to the particular mechanism described in the specification for the accomplishment of results covered by those claims. They are for combinations of specific mechanisms and their substantial equivalents, and not for results, irrespective of means for their accomplishment.

Brown, J., in *Brush Electric Co.* v. *Western Electric Light & Power Co.*, (52 O. G., 1950; 43 Fed. Rep., 537,) said:

While the claims are undoubtedly broad, they ought not to be interpreted as for a function or result, since there is nothing novel in substituting one pair of carbons for another, and thus securing a successive combustion of two or more pairs. It was done long before the Brush patent, and may still be done by manual interference by replacing one set of carbons with another, or by any mechanism which does not involve the dissimultaneous and dissimultaneously separating and feeding movement. What the claims purport to cover are, briefly, all forms of mechanism constructed to separate the two or more pairs or sets of carbons "dissimultaneously" (a word coined for the occasion, but readily understood) or successively, in order that the light may be established between the members of but one pair or set at a time, while members of the remaining pair are maintained in a separate relation. It is claimed by the defendant, however, that the words "dissimultaneously or successively," contained in the first six claims of the patent, refer only to the exact instant—the very *punctum temporis*—of the separation of the carbons, and that, as the Scribner patent, under which the defendant is operating, provides for the initial simultaneous separation of the carbons, there is no infringement, though the light is formed between but one pair, the other being held in reserve to await their consumption. If this contention be correct, then it necessarily follows that Brush, who is acknowledged to be the actual inventor of the double carbon, and whom defendant's expert, Mr. Lockwood, frankly admits (page 243) to be justly regarded as having done more than any one else to make electric-arc lighting on a large scale a practical success, secured by his patent the mere shade of an idea—a wholly immaterial and useless feature—abandoning to the world all that was really valuable in his invention.

It is true that neither of the judges reviewed the case of *O'Reilly* v. *Morse*, (15 How., 62,) which defendant claims is a "sort of Paradise Lost among cases, * * * universally respected but rarely read;" but it is fair to assume, in justice to the learned counsel who argued the case for the defendant before Judges Gresham and Blodgett, that he did not fail to urge the authority of that case against the validity of the claims of this patent with the same force and ability that characterized his argument in this case. I have carefully read the exhaustive and clear opinion of Taney, C. J., in *O'Reilly* v. *Morse*, and the opinions of the Supreme Court in the *Telephone Cases*, (43 O. G., 377; 126 U. S., 1; 8 Sup. Ct. Rep., 778,) and *Tilghman* v. *Proctor*, (19 O. G., 859; 102 U. S., 707,) and also the pioneer case of *Neilson* v. *Harford*, (8 Mees. & W., 806,) decided in 1841, and the other cases cited and relied upon by defendants. In the *Bell Telephone Cases* the case of *O'Reilly* v. *Morse* was relied upon to defeat the Bell patent. The fifth claim, which was there the subject of a fierce contest, reads as follows:

The method of and apparatus for transmitting vocal or other sounds telegraphically, as herein described, by causing electrical undulations, similar in form to the vibrations of the air accompanying the said vocal or other sounds, substantially as set forth.

Waite, C. J., in delivering the opinion of the Court, said:

In *O'Reilly* v. *Morse* (15 How., 62) it was decided that a claim in broad terms (page 86) for the use of the motive power of the electric or galvanic current called "electro-magnetism," however developed, for making or printing intelligible characters, letters, or signs at any distances, although "a new application of that power," first made by Morse, was void, because (page 120) it was a claim "for a patent for an effect produced by the use of electro-magnetism, distinct from the process of machinery necessary to produce it;" but a claim (page 85) for "making use of the motive power of magnetism, when developed by the action of such current or currents, substantially as set forth in the foregoing description, * * * as means of operating or giving motion to machinery, which may be used to imprint signals upon paper or other suitable material, or to produce sounds in any desired manner for the purpose of telegraphic communication at any distances," was sustained. The effect of that decision was, therefore, that the use of magnetism as a motive power, without regard to the particular process with which it was connected in the patent, could not be claimed, but that its use in that connection could. In the present case the claim is not for the use of a current of electricity in its natural state as it comes from the battery, but for putting a continuous current in a closed circuit into a certain specified condition suited to the transmission of vocal and other sounds and using it in that condition for that purpose. So far as at present known, without this peculiar change in its condition, it will not serve as a medium for the transmission of speech; but with the change it will. Bell was the first to discover this fact, and how to put such a current in such a condition, and what he claims is its use in that condition for that purpose, just as Morse claimed his current in his condition for his purpose. We see nothing in Morse's case to defeat Bell's claim. On the contrary, it is in all respects sustained by that authority. It may be that electricity cannot be used at all for the transmission of speech, except in the way Bell has discovered, and that, therefore, practically, his patent gives him its exclusive use for that purpose; but that does not make his claim one for the use of electricity, distinct from the particular process with which it is connected in his patent. It will, if true, show more clearly the great importance of his discovery, but it will not invalidate his patent.

There is no principle announced in this or the other cases that can fairly be said, in the light of all the facts in this case, to be in opposition to the views I have expressed. In all that has been said the fact has not been overlooked that Brush did not receive his patent without a contest in the Patent Office. The file-wrapper shows that the claims we have been discussing, as at first presented, were rejected as functional, and that the language of the claims was twice slightly changed. But an examination of the claims as first presented and as finally allowed clearly shows that no substantial change was made in any essential feature of either of said claims. The record shows that the Examiner in the Patent Office finally yielded to the views expressed by the patentee and allowed the claims in such language as to express the theory contended for by Mr. Brush. The truth is that Brush never consented to any limitation of his claims, and no limitation was, in fact, made, although the phraseology was, as before stated, slightly changed. During the contest in the Patent Office he took occasion, in person and by counsel, to explain at great length and with remarkable clearness the method of movement to which he for the first time subjected the electrodes of a lamp and showed how the two pairs of carbons are burned; that only one set of carbons could be burned at a time, and that one set was always bound to burn, and particularly described the special functions effected by the independently-acting mechanism when the lamp is first put into operation—viz., the dissimultaneous separation of the carbons and the establishment of the light between one pair only. I quote from the argument then made by Brush's counsel:

It is this peculiar mode of moving the carbons that produces this splendid result and that constitutes the real essence and fact of Brush's invention. When you have this new movement, you have the all; for the mere means of effecting said movements becomes, after the conception of the real invention, a matter of no more than mechanical ingenuity. It is true that many forms of device may be devised for carrying out Brush's invention, and we will grant that they may all be patentable; but every one of them must be fundamentally tributary to this pioneer invention of Mr. Brush. The mode of movement is his. It is this mode, and not the mechanism, that constitutes this pioneer discovery, for Brush has here found out this new principle of moving his multiple carbon sets, and the result is something the world has never before seen, and something that the world very much wants.

The claim of defendant's counsel that Brush accepted a limitation of his claims is without any substantial foundation.

Under the construction which has been given to the patent it necessarily follows, in my opinion, that the Wood lamp clearly embodies the invention of Brush and is an infringement of his lamp. True, there is a difference in the construction of the lamps. Clockwork in the Wood lamp is substituted for the clutch mechanism of the Brush lamp, as was suggested in the patent might be done. But an inspection of the working of each lamp shows that both lamps operate in substantially the same way. The operation of each lamp is due to precisely the same causes and forces. They both automatically bring the idle carbon into contact with its mate in the same way, by the same mode of operation, by the same action of the current, and accomplish identically the same results. Every arc lamp performs three distinct functions: (1) The establishment of the arc; (2) the regulation of the length of the arc; (3) the feeding of the carbon as it is consumed. The Brush lamp has two separate and independently-actuated ring-clamps, which operate as clutches or latches, and when they are tilted and raised each clamp engages its smooth carbon-rod, lifting it and its attached carbon, and thus separating the carbons and establishing the arc. The ring clamp or clutch associated with one of the pairs of carbons serves as a latch to hang up the feeding-carbon of the idle pair during the entire time that the burning pair of carbons are consuming and are being regulated and fed. The regulation of the length of the arc is effected by the ring clamp or clutch raising or lowering the carbon just as much as may be necessary to compensate for the fluctuation of the strength of the current, or the imperfections in the carbon, without necessarily feeding the carbon. The feeding of the carbon is effected by the varying frictional contact of the clamp or clutch with the smooth carbon-rod. When this clamp descends, so that it impinges upon the floor of the lamp, it assumes a lesser angle of inclination to the rod, and its bite on the rod slightly diminishes, so as to allow the rod to slide or slip very slowly through the lamp, and thus feed the carbon. The two ring-clamps operate in conjunction with the floor of the lamp as two separate and distinct feeding mechanisms. When one is operating the other is idle, and vice versa.

Now let us briefly examine the Wood lamp. It has the two clamps in the shape of two separate and independently-actuated pinions, which respectively engage with the rack-bars of their carbon-holders; and when the pinion is raised by action of the magnetic mechanism of the lamp it engages and raises its carbon-rod and the carbon attached to it, and in this manner establishes the arc. The little final pinion or clutch associated with one of the pairs of carbons serves, also, as a latch to hang up one carbon during the entire time the other carbon is being regulated and fed until it has been consumed. The regulation of the length of the arc is accomplished by the pinion or clutch engaging its rack-bar and raising or lowering the carbon ever so little, as may be necessary to compensate for the fluctuations in the strength of the current or imperfections in the carbon, without necessarily feeding the carbon. The feeding of the carbon is accomplished by retarding or checking the action of the clutching pinion which engages the rack-bar on the carbon-rod. This is brought about by a train of gearing provided with an escapement common to both clutching-pinions. The single stop of the Wood lamp is equivalent to the single floor in the Brush lamp, which operates to release or trip the feeding mechanism of each pair of carbons. When one pair of carbons is being fed, the combined clutching and feeding pinion associated with the other carbon is idle, and vice versa. The two pinions of the Wood lamp seem to be as much two separate and distinct feeding mechanisms as are the two ring-clamps of the Brush lamp. The functions and results accomplished by the ring-clamps of the one lamp and the feeding-pinions of the other make them substantially identical. I am therefore of opinion that all of the claims of the patent have been infringed, and this view is certainly sustained by the authorities.

The contention of defendant's counsel that the lamps are essentially different, in that (1) the Brush lamp employs two feeding mechanisms, while the Wood lamp has but one, that operates both carbon pairs; (2) that the Brush lamp operates both carbon pairs, and automatically calls the second pair of carbons into function after the first pair is consumed, electrically, while the Wood lamp does this work mechanically; (3) that the Brush lamp imparts dissimultaneous initial separation to its two pairs of carbons, while the Wood lamp separates the carbons of one pair only, the carbons of the other pair having been manually separated and latched up by the lamp-trimmer before the lamp is put into operation, has been fully, and, as I believe, correctly, answered adversely to defendant in the previous decisions. The operation described by the words "dissimultaneous or successively," as used in the claims of the patent, "refers to that separation which results in the production of a single arc." (43 Fed. Rep., 533.)

In *Brush Electric Co.* v. *Ft. Wayne Electric Co.*, (44 Fed. Rep., 284,) where the only question seriously contested was that of infringement, Blodgett, J., in delivering the opinion of the court, said:

> The Wood lamp, like that of Brush, is a duplex lamp, organized to burn two or more pairs of carbons successively; but the feeding device of the Wood lamp is partially actuated by clockwork instead of its being operated entirely by action of the electric current, as in the Brush. In the Wood lamp, however, the clockwork mechanism is brought into action and controlled by the electric current. The distinguishing feature of the Brush lamp is the arrangement of the feeding mechanism so that the carbons of the two pairs shall be dissimultaneously separated for the purpose of forming the arc; and that, after the arc is formed, one of the carbons of the pair between which the arc is formed shall be fed toward the other as fast as it is consumed, so as to preserve a steady and uniform light; and that when the first pair of carbons is fully consumed the current is automatically transferred to the other pair and the arc is formed between them, which are in turn fed together by the feeding device until consumed. The Wood lamp has the same characteristics. The carbons of each pair are dissimultaneously separated, and the arc is formed by the action of the current passing through magnetic coils, as is done in the Brush lamp; but the feeding, as the burning carbons are consumed, is regulated in Wood's lamp by clockwork. It does not seem to us that the interposition of this clockwork to do the feeding after the arc is formed essentially differentiates the Wood device from that of Brush. The electric current is the efficient motor in both lamps for forming the arc and controlling the action of the feeding mechanisms. * * * It was strenuously urged by the able counsel for the defendant, both in his oral and printed arguments, that the Brush patent shows two feeding devices, while the Wood lamp shows but one feeding device or mechanism. This position, if correct, would hardly, we think, answer the charge of infringement; but we do not entirely agree with the learned counsel in his position that Wood has only one feeding device. The clockwork mechanism of Wood is practically as much a separate device for each pair of carbons as the clutch mechanism of Brush for, while Wood's clockwork is made to feed each pair of carbons in turn, it feeds the first by one pinion, and the next one by another pinion, after the arc has been produced between the second pair by the action of the electric current, thereby making his device as much a duplex feeding device as is that of Brush.
>
> The feature of the Wood lamp which allows the attendant, when he lights the lamp or puts the lamp in circuit, to separate the carbons of one pair by hand, instead of allowing that to be done by the operation of the electric current, as is done by Brush, does not, it seems to us, in any degree evade the Brush patent, because it clearly appears from the proof and operation of the machines, as exhibited upon the hearing of the motion, that if the attendant did not latch up the upper carbon of one pair the machine itself would automatically do so, the same as it is done in the Brush lamp, and the manual separation of one pair of carbons, even before the lamp is lighted, is nothing but the adoption of Brush's dissimultaneous law, and it leaves the arc to be formed between the pair of carbons last separated. In this, as in almost all cases of infringement, there are slight differences in mode of construction and devices for the result accomplished by the patent. It is rare that we find an infringing machine which is copied with Chinese fidelity from that which it is claimed to infringe; but the infringers always endeavor to escape the charge of infringement by some modifications which shall apparently cause their machine to differ from that of the patentee. The essential thing, however, to be considered in all such cases is whether the principle embodied and claimed in the patent has been substantially used by the defendant, and, if we find that it has been so substantially used, it is the duty of the court to protect the patentee, however ingenious may be the mode of infringement.

Complainants are entitled to a decree and to a perpetual injunction. Let counsel for complainants prepare, and in due time submit, the findings.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 62.—No. 12. TUESDAY, MARCH 21, 1893. PRICE—$5 per year.

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Changes in Classification.

(ORDER No. 798.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 13, 1893.

The following changes in the classification of inventions are hereby authorized to be made:

Class 47, Trees, Plants, and Flowers, is transferred from Division II to Division I.

Class 105, Mechanical Motors, is transferred from Division XII to Division II.

Sub-classes 1, Axle boxes, and 2, Axle box lids, of Class 105, Railway Cars, are transferred from Division X to Class 64, Journal Boxes, Pulleys, and Shafting, in Division XII.

In Class 22, Metal-Founding, the following new sub-classes are formed:

Metal molds—
52. Ladles.
Ingots—
53 Strippers.

In Class 45, Furniture, sub-class 42, Spittoon-lifters, is abolished.

In Class 28, Clay and Pottery, sub-classes 2, Brick-kilns, and 3, Brick-machines, rotary, are abolished, and the following new sub-classes established:

18. Brick kilns, continuous—
19. Continuous tunnels.
20. Downdraft.
21. Updraft.
22. Reversible-draft.
23. Vertical.
24. Brick-making implements.
25 Brick-mold sanders.
26. Brick and tile cutters.
27. Brick-machines, hydraulic—
28. Traveling molds.
29. Rotary horizontal,
30. Rotary vertical.
31. Tile-machines, continuous—
32. Dies,
33. Socket-formers,
34. Tampers.

In Class 101, Printing, the following new sub-classes are established:

151. Feeding, sheet-cutters.
152 Folders, oscillating.

In Class 48, Gas, sub-class 1, Anti-combustion, is abolished.

N. L. FROTHINGHAM,
Acting Commissioner.

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1892.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Withdrawal of Cases from Issue.

Hereafter all amendments proposed to allowed applications which involve a withdrawal from issue, and all petitions and requests relating thereto, shall be filed with the docket clerk, Mr. J. M. Emory, and transmitted by him to the Primary Examiner for report. If the Examiner shall report favorably to the admission of such amendment, the matter will be laid before the Commissioner for immediate determination. If the Examiner shall report unfavorably, the case will be docketed and will be heard and decided by the Commissioner in regular course, unless good reasons shall appear for immediate action.

Names of Applicants.

When the full first name of the applicant does not appear either in his signature or in the preamble to the specification, the Examiner will, in his first official letter, require an amendment supplying the omission, and he will not pass the application to issue until the omission has been supplied, unless an affidavit shall have been filed setting forth that the full first name of the applicant is the one originally given by him.

Errata.

Page 1338, first column, first line, for "LABELS" read PRINTS, and, second line, same column, for "6,546" read 1.

Issue of March 21, 1893.

Patents	488	No. 493,6 7 to No. 494,114, inclusive.
Designs	6	No. 2 ,39 to No. 22,305, inclusive.
Trade-Marks	23	No. 22,665 to No. 22,697, inclusive.
Label	None.	
Reissues	2	No. 11,314 to No. 11,315, inclusive.
Total issue	529	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States.	Patents and Designs.	Trade-Marks and Labels.
Alabama	3	.....	Nevada	.....	.....
Arizona Territory	.....	.....	New Hampshire	4	.....
Arkansas	1	.....	New Jersey	13	.....
California	11	.....	New York	88	10
Colorado	.....	.....	North Carolina	2	.....
Connecticut	16	1	North Dakota	.....	.....
Delaware	1	.....	Ohio	25	2
District of Columbia	5	.....	Oklahoma Territ'y	1	.....
Florida	.....	.....	Oregon	4	.....
Georgia	4	.....	Pennsylvania	49	5
Idaho	.....	.....	Rhode Island	4	.....
Illinois	42	1	South Carolina	1	.....
Indian Territory	.....	.....	South Dakota	2	.....
Indiana	14	1	Tennes-ee	2	1
Iowa	6	.....	Texas	10	.....
Kansas	6	.....	Utah Territory	1	.....
Kentucky	7	.....	Vermont	.....	.....
Louisiana	1	.....	Virginia	2	.....
Maine	3	2	Washington	.....	.....
Maryland	3	.....	West Virginia	.....	.....
Massachusetts	41	4	Wisconsin	7	.....
Michigan	16	.....	Wyoming	.....	.....
Minnesota	3	.....	U. S. Army	1	.....
Mississippi	.....	.....	U. S. Navy	.....	.....
Missouri	8	2			
Montana	2	.....	Total to citizens of the United States	413	29
Nebraska	4	.....			

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic	.....	.....	Mexico	1	.....
Austria-Hungary	2	.....	Netherlands	1	.....
Belgium	.....	.....	Newfoundland	.....	.....
Bermuda	.....	.....	New South Wales	4	.....
Brazil	.....	.....	New Zealand	.....	.....
Canada	14	2	Norway	.....	.....
Chile, Republic of	.....	.....	Roumania	.....	.....
Cuba	.....	.....	Russia	.....	.....
Denmark	1	.....	Scotland	1	.....
Ecuador	.....	.....	South Australia	1	.....
England	23	1	Spain	.....	.....
France	7	1	Sweden	1	.....
Germany	20	.....	Switzerland	3	.....
Island of Guernsey	1	.....	Victoria	.....	.....
Ireland	1	.....			
Italy	.....	.....	Total to citizens of foreign countries	81	4
Japan	.....	.....			

APPLICATIONS UNDER EXAMINATION.

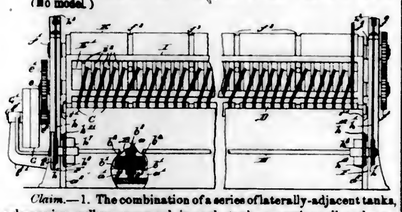
Condition at Close of Business March 14, 1893.

Division No.	Subjects of invention	Oldest new application and oldest action by applicant awaiting office action: New	Amended	No. of applications awaiting action
	Under one month in arrears.			
31	Gas, Painting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Feb. 20	Mar. 3	65
	Between one and two months in arrears.			
14	Metal-Bending, Wire Working, Coin-Controlled Apparatus, Farriery, etc.	Jan. 14	Mar. 10	155
2	Farm Stock, Products, etc	Jan. 17	Mar. 6	307
8	Furniture, Toilet, Umbrellas and Canes, etc.	Jan. 18	Mar. 2	293
15	Telegraphy, Telephony, Electric Lighting and Signaling	Jan. 14	Feb. 27	255
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Jan. 14	Feb. 27	269
21	Textiles, etc	Jan. 19	Feb. 15	213
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone Working, etc.	Jan. 16	Feb. 14	219
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Jan. 15	Feb. 11	371
7	Harvesters, Games and Toys	Jan. 15	Feb. 8	547
13	Metal-Working, Arms and Projectiles, etc	Jan. 17	Feb. 4	182
24	Sewing-Machines and Apparel	Jan. 16	Feb. 4	153
10	Carriages and Wagons and Railway Cars	Jan. 14	Feb. 4	392
18	Steam-Engineering, etc	Jan. 18	Jan. 28	246
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 16	Jan. 24	359
5	Fine Arts, Stationery, Book Binding, Music, etc.	Jan. 16	Jan. 21	315
4	Civil Engineering, etc	Jan. 16	Jan. 17	351
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Jan. 16	Jan 14	290
28	Pneumatics, Refrigeration, Air and Gas Engines, etc	Jan. 14	Jan. 10	386
	Between two and three months in arrears.			
12	Mechanical Engineering, Stores-Service, etc.	Jan. 12	Feb. 25	245
19	Stoves and Furnaces	Dec. 19	Feb. 1	486
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Jan. 9	Jan. 28	277
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc	Jan. 9	Jan. 17	227
15	Plastics, Paper-Making, Paving, Glass, Fuel, Bread-Making, etc.	Dec. 15	Dec. 15	370
	Between three and four months in arrears.			
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Nov. 15	Feb. 27	349
23	Instruments of Precision, Acoustics, Optics, etc.	Dec. 5	Feb. 10	377
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Nov. 18	Feb. 6	451
22	Fire-Arms, Navigation, Signals, etc.	Dec. 13	Feb. 1	274
17	Paper-Manufactures and Printing.	Nov. 26	Jan. 14	343
1	Tillage and Fences	Nov. 17	Jan. 12	298
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Oct. 8	Feb. 15	374
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	July 15	Nov. 4	588
	Total number of applications awaiting action			9,967
	Under one month in arrears			
	Designs	Feb. 25	Feb. 25	132
	Trade-Marks	Mar. 3	Mar. 9	98

PATENTS

GRANTED MARCH 21, 1893.

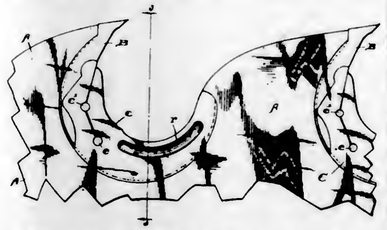
493,627. MACHINE FOR SCOURING CLOTH. MATTHEW H. KOHLHAUSER, Billerica, Mass. Filed Mar. 14, 1892. Serial No. 434,749. (No model.)



Claim.—1. The combination of a series of laterally-adjacent tanks, submerging rollers, arranged in each tank, a carrier-roll and continuous squeese-rolls, arranged longitudinally of said series of tanks and common to all said tanks, and guides, arranged to deflect the cloth in its passage from said carrier-roll to said feed-roll laterally and to guide said cloth from each tank to the next, as and for the purpose specified.

2. The combination of a tank, divided by vertical partitions into a series of laterally-adjacent tanks, submerging-rollers, supported in each of said last-named tanks, a carrier-roll and continuous squeeze-rolls arranged longitudinally of said series of tanks and extending above all said partitions, and a guide, arranged to conduct cloth from said carrier-roll above said partitions from one side to the other of each of said partitions, to pass such cloth successively through all said tanks without intermediate handling, as and for the purpose specified.

493,628. SAW. ANDREW KRIEGER, Indianapolis, Ind., assignor to the R. C. Atkins & Company, same place. Filed July 14, 1892. Serial No. 440,062. (No model.)

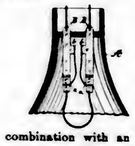


Claim.—1. A holder for the teeth of inserted tooth saws, the upper end of which is slitted or divided, the outer portion constituting a spring-support for the inner, and also serving as a protector for said inner portion, or holder proper, substantially as set forth.

2. A holder for insertible saw teeth provided with cavities or recesses extending along its sides near its exposed edge and extending into but not through the structure substantially dividing said edge from the portion in contact with the saw plate.

3. A holder for insertible saw teeth, wherein the exposed edge is divided from the portion which bears against the saw plate by a slit at the upper end and longitudinal cavities or recesses in its sides at the lower end.

493,629. THERMAL CUT-OUT FOR ELECTRIC LAMPS. HERMANN LEMP and MERLE J. WIGHTMAN, Hartford, Conn., assignors to the Schuyler Electric Company, of Connecticut. Filed Aug. 27, 1886. Serial No. 211,991. (No model.)



Claim.—1. The combination with an incandescent lamp, of a thermostatic shunting contact located on the leading in conductors and within the lamp, and adapted to be brought into contact by the heat of the arc formed upon rupture of the filament, as and for the purpose described.

2. The combination with an incandescent lamp, of a thermostatic shunting contact having a permanent metallic connection at one point with the leading in conductor, and a fusible or destructible connection at another point and in proximity to the filament, as and for the purpose described.

3. The combination with an incandescent lamp, of elastic contacts bent normally out of contact and adapted to spring together upon being released by the increase of the temperature due to the rupture of the filament, as and for the purpose described.

4. In an incandescent electric lamp, an automatic shunting switch having its movable member formed integral with the leading in wire or conductor to which the incandescing body is attached.

5. In an incandescent lamp, an automatic shunting switch attached to a lamp conductor within the lamp and held in normal position by a destructible or fusible fastening applied to the said conductor.

6. In an incandescent electric lamp, a shunting switch composed of a pair of biased contacts mounted on the leading in wires and having a bias toward one another, in combination with a destructible fastening normally holding said contacts apart.

7. In an incandescent electric lamp, a shunting switch consisting of a biased arm or contact secured to a leading in wire or conductor within the lamp, and a fusible or destructible fastening for said switch within the lamp.

8. In an incandescent electric lamp, a spring switch contact integral with the leading in wire or conductor.

9. In an incandescent electric lamp, a spring switch integral with the leading in conductor, and a fusible or destructible fastening normally holding the free end of said spring, as and for the purpose described.

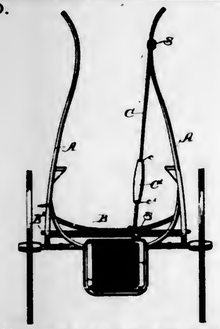
10. In an incandescent electric lamp, a spring switch integral with the lamp conductor within the globe and fastened at its free end to said conductor by a fusible or destructible material, as and for the purpose described.

493,630. ATTACHMENT FOR TROTTING-SULKIES. FRANK LOSH, Freeport, Ill. Filed July 2, 1892. Serial No. 438,758. (No model.)

Claim.—1. In a sulky attachment of the class described, the combination with a bar adapted to be fastened to the shaft and cross-bar, of an anti-friction roller mounted on the bar in position to impinge upon the leg of a horse when in working position; substantially as shown and described.

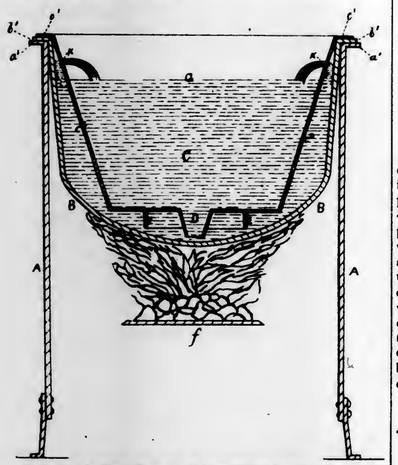
2. The combination of the bar C, the roller C', mounted thereon, and means substantially as shown and described, for holding the roller in place.

493,680.



3. The combination of the bar C, the roller C', the rings *c*, *c*, and the straps S, S; substantially as shown and described.

493,681. WASHBOILER. SUSAN A. MACKIE, London, England. Filed Nov. 20, 1891. Serial No. 412,589. (No model.) Patented in England Apr. 18, 1890, No. 5,917; in France Nov. 17, 1890, No. 209,570; in South Australia Dec. 2, 1890, No. 1,783; in Tasmania Dec. 3, 1890, No. 878/10; in New South Wales Dec. 3, 1890, No. 2,655, and in New Zealand Jan. 7, 1891, No. 4,799.

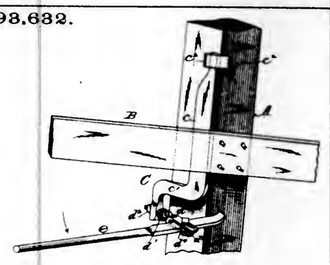


Claim.—In boiling apparatus for laundry and other purposes the combination of a boiler B with a pot C arranged within the same, the two vessels having communication with each other at or near the top and the said pot being provided at the bottom with a downwardly-extending funnel or outlet D and a ring E forming a space between them for the reception of steam in order that the accumulation and expansion of steam therein may force the water up through the space between the sides of the pot and boiler and into the said pot at the top thereof, substantially as set forth.

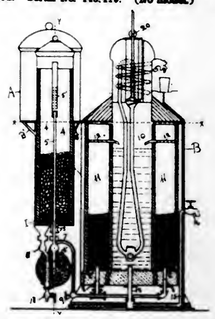
493,682. HAND IMPLEMENT FOR TAKING DOWN BUILDING-STAGINGS. JOHN J. MAHER, Worcester, Mass., assignor of one-half to George D. Webb, same place. Filed Dec. 15, 1892. Serial No. 455,387. (No model.)

Claim.—An improved hand implement or device for taking down building stagings, comprising in combination the angle-bar C, adapted to fit against the side of a staging-post, and having lateral flanges at its outer end adapted to lap onto the face of said post; the swivel-bearing *d* attached to the inner end of said angle-bar, and the hand-lever *e* pivoted near its inner end to said swivel-bearing, substantially as set forth.

493,682.



493,683. WATER-FILTER. BRUNO MARTIN, Saginaw, Mich. Filed Sept. 21, 1892. Serial No. 446,419. (No model.)



Claim.—A water filter consisting of a water tank 1, a pipe 1', depending therefrom, a tube 2, containing filtering material suspended in pipe 1' by a bag made of filtering cloth, and the bag 3, the tube 2 provided with a sieve S, in its lower end, one or more filtering tanks, 4, 4, containing purifying substance and connected at its base by a pipe 13 to pipe 1', the bottom of said tanks 4 being about on line with bottom of pipe 1', and provided in their bottoms with sieve I, and having passing through their length the pipe 5, having in its upper part the sieve 5' and connected at its lower end to the bottom of the basin 6 containing purifying material, the chamber 11, provided with a sieve E in its base, and containing a filtering substance and connected to the basin 6 by the pipes 7 from top of basin 6, the bottom of chamber 11 being on line or below bottom of tank 1, the chamber or reservoir 10 within chamber 11, and connected thereto by pipes 12, and means for drawing water therefrom, substantially as described and as and for the purpose set forth.

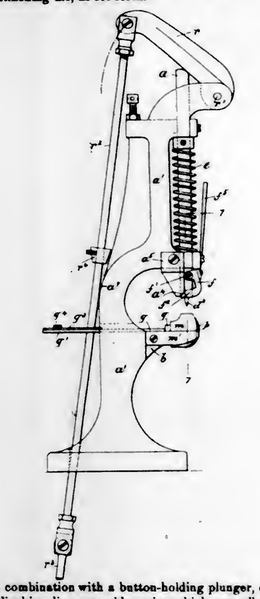
493,684. BUTTON-SETTING MACHINE. JOSEPH MATHIOR, Somerville, Mass. Filed July 31, 1891. Serial No. 401,235. (No model.)

Claim.—1. In a machine for setting pronged buttons, the combination of a prong-clinching die, a plunger movable toward and from said die, and provided in its side with a head-receiving pocket and in its lower end with a shank-receiving slot, an inclined chute arranged to deliver a button to said pocket when the plunger is elevated, the lower end of the chute abutting against the side of the plunger, and having no other obstruction to the passage of a button than the wall of the plunger, a spring-closed gate which normally projects across and closes the shank-receiving slot of the plunger, and means whereby said gate is opened when the pocket of the plunger is in position to receive a button, as set forth.

2. In a machine for setting pronged buttons, the combination of a prong-clinching die, a plunger movable toward and from said die, and provided with a head-receiving pocket and with a prong receiving slot, an inclined chute arranged to deliver a button to said pocket when the plunger is raised, the lower end of the chute abutting against the side of the plunger, and having no other obstruction to the passage of a button than the wall of the plunger, an arm pivoted to said plunger and provided with a gate which normally projects across the shank receiving slot therein and with a finger arranged to be acted on to displace the arm and gate, a spring whereby the said gate is normally held in its operative position, and a fixed incline arranged

to act on said finger to displace the gate when the plunger is raised, as set forth.

3. The combination with a button-holding plunger, of a prong-clinching die opposing said plunger, a movable casing which normally covers said die and is provided with prong-receiving slots over the die, and a stop movable into and out of the path of movement of the casing, and adapted to lock said casing and prevent its yielding movement, said stop, when displaced, permitting the casing to yield and expose the clinching die, as set forth.



4. The combination with a button-holding plunger, of an opposing prong-clinching die, a movable casing which normally covers said die and is provided with prong-receiving slots over the die, a stop movable into and out of the path of movement of the casing, and adapted to lock the casing and prevent its yielding movement, devices for depressing the plunger, and a connection between the plunger-depressing devices and the stop, whereby the stop is displaced from its operative position when the plunger is being depressed, and returned to its operative position when the plunger is being raised, as set forth.

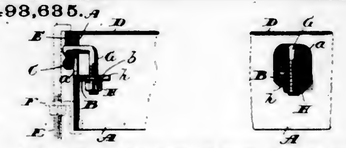
5. In a machine for setting pronged buttons, the combination of a supporting standard or frame, a prong-clinching die affixed thereto, a vertically movable casing supported by said frame and normally covering said die, said casing comprising side pieces at opposite sides of the die and a swinging arm which is yieldingly held between said side pieces with its upper end over the die, a spring-raised plunger movable toward and from said die in guides on the standard, said plunger being formed to hold a pronged button and present the prongs thereof to the die, devices, including a vertically movable rod, whereby said plunger may be depressed, means for giving said rod a lateral movement when it is being moved lengthwise, and a sliding stop engaged with said rod and arranged to support or lock the said casing when the rod is elevated, said stop being moved as described by the lateral movements of the rod, whereby it is made alternately operative and inoperative, as set forth.

493,685. BANJO. WILLIAM MAYER, Chicago, Ill. Filed Nov. 2, 1892. Serial No. 450,708. (No model.)

Claim.—1. In a banjo, the combination with the rim and the hoop the former being provided with inwardly slotted brackets B, of the head, and the hooks connecting the hoop and rim and arranged upon the inside of the rim, as set forth.

2. In a banjo, the combination with the rim having integral brackets, extending inwardly and slotted of the hoop, the head and its ring, the hooks securing the hoop to the rim and the nuts on the hooks arranged within the rim, as set forth.

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3. The combination with the rim having holes and brackets, said brackets being slotted and the inner walls of the slot being beveled, of the hoop, the wire ring, the head, the hooks and the beveled nuts, all substantially as specified.

4. The combination with the rim having slotted brackets and holes, of the hoop, the hooks thereon, the wire ring, the head, and the nuts on the ends of the hooks within the rim and held in the slots of the brackets, substantially as specified.

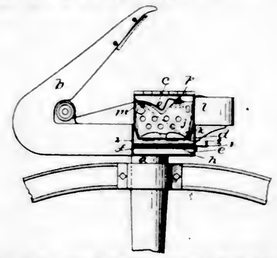
5. In a banjo, the combination with the hoop, of the rim provided with the inwardly extending slotted brackets, the under sides of the inner wall of which are beveled from the inner edge outward, of the clamps, the bolts and the nuts having their upper ends beveled, substantially as shown and for the purpose specified.

493,686. LETTER-SCALE. EDWARD S. MAY, Washington, D. C. Filed Dec. 16, 1892. Serial No. 455,414. (No model.)



Claim.—As an article of manufacture the scale consisting of the flat body A A, having uprights *b*, *b*, at ends B, C, parallel ridges *a a*, *a a*, on under surface, the fingers and lines on upper surface at determined points from a center line, *c*, *c*, the upright *b* at the end B including a definite unit of weight, *d*, arranged to operate with a shifting fulcrum, *f*, substantially as described and for the purpose set forth.

493,687. THREAD-WAXING AND TENSION DEVICE FOR SEWING-MACHINES. JOHN R. MORGAN, Middleborough, Mass. Filed Jan. 25, 1892. Serial No. 419,187. (No model.)



Claim.—1. In a waxing device for sewing machines, the combination with the wax-pot, of a support arranged therein longitudinally of the length of the said pot, a thread-retarding plate carried by one end of the support, a spring having one end adjustably secured to the support, and its free end in engagement with the inner face of the retarding plate and a thread guide carried by the support and arranged diagonally opposite the thread retarding plate.

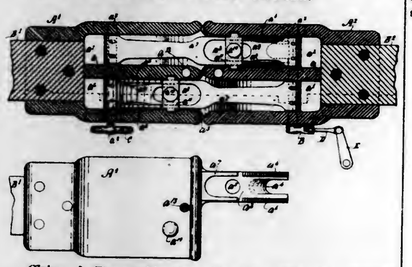
2. In a waxing device for sewing machines, the combination, with the wax-pot, of a vertical support arranged therein, a recessed thread-retarding plate carried by one end of the support, an irregularly bent spring adjustably secured near the opposite part of the support, and having its free end in engagement with the said retarding plate and a thread guide carried by the support and arranged diagonally opposite the thread retarding plate.

3. In a waxing device for sewing machines, the combination, with the wax-pot, of a vertical support having at one end a raised, rounded seat, and at its opposite end a recessed thread retarding plate, a spring adjustably secured to the support, one end of the spring being in engagement with the said seat, and the opposite end in engagement with

the said plate and a thread guide carried by the support and arranged diagonally opposite the thread retarding plate.

4. In a waxing device for sewing machines, the combination, with the wax-pot, of the support *j* arranged therein, the recessed thread-retarding plate *m*, the spring *o*, the raised seat *t*, upon which the spring bears at one end, and the holding screw *p*, and a thread guide *k* carried by the lower portion of the support, substantially as described.

493,638. CAR-COUPLING. CLARENCE MORFIT, New York, N. Y. Filed Dec. 28, 1892. Serial No. 456,528. (No model.)



Claim.—1. The combination with a draw-head, of a vertically moving pin having transverse projections, a lifter therefor and a handle outside of the draw-head whereby said lifter may be operated, substantially as specified.

2. The combination with a draw-head, of a vertically moving pin having transverse projections, a rocking lifter therefor and a handle combined with the shaft or journal of said lifter, substantially as specified.

3. The combination with a draw-head having two portions or compartments, of a pin in one portion or compartment provided with transverse projections or shoulders, a lifter for said pin arranged in the same portion or compartment, an immovable projection from the other portion or compartment, inclined rails or projections extending beyond the other portion or compartment and a lifter in the latter compartment in rear of the inclined rails or projections, substantially as specified.

4. The combination with a draw-head having two portions or compartments, of a pin in one portion or compartment provided with transverse projections or shoulders, a lifter for said pin arranged in the same portion or compartment, an immovable projection from the other portion or compartment, inclined rails or projections extending beyond the other portion or compartment and a lifter in the latter compartment in rear of the inclined rails or projections, both the said lifters being mounted upon a common rock shaft, substantially as specified.

493,639. CORN-HARVESTER. WILLIAM H. MYERS and LOUIS ANDERSON, Oregon, Wis. Filed Apr. 23, 1892. Serial No. 430,406. (No model.)

Claim.—1. In a corn-harvester, the combination with the opposite platforms, the intermediate parallel beams and the outer side beams for supporting the same, of pairs of inclined concaved cutting disks located in front of each platform and having their cutting peripheries contacting, and guides for each pair of disks, substantially as specified.

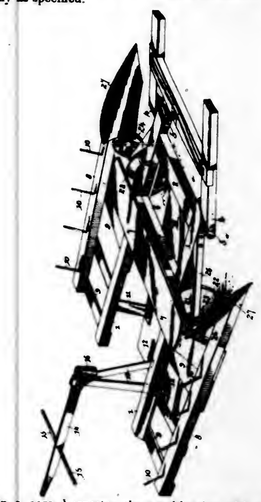
2. In a corn harvester, the combination with the framework, means for supporting the same, and cutting devices, of a standard rising rigidly from the rear end of the framework, an arm projecting rearwardly from the standard and extending in rear of the harvester, and a cross bar mounted in the arm in rear of the harvester, substantially as specified.

3. In a corn harvester, the combination with a pair of parallel bars, of a U-shaped frame bolted to the under sides of the bars and having their terminals provided with inwardly-inclined slotted hangers, stub-shafts mounted adjustably in the hangers, and concave cutting disks mounted for rotation on the stub-shafts, substantially as specified.

4. In a corn harvester, the combination with the opposite bars, of a U-shaped plate bolted to the under sides of the bars and having at their inner sides inclined hangers, stub-shafts extending inwardly from the hangers, and concaved cutting-disks mounted on the stub-shafts and having their peripheries running in contact, substantially as specified.

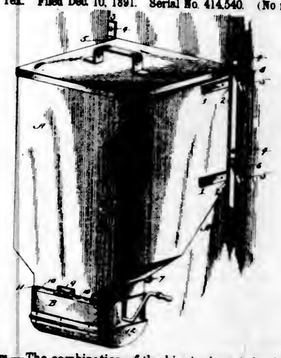
5. In a corn harvester, the combination with the opposite beams, side bars connected thereto, inclined bars 26, and guide-boards 27, of the U-shaped plates bolted to the under sides of the beams and bars and having inwardly inclined slotted hangers, stub-shafts adjustably mounted in the hangers, ground-wheels having inclined peripheries mounted on the inner stub-shafts, and having their outer sides provided with concaved cutting-disks, and loose concave cutting-disks mounted on the outer stub-shafts and running in contact with the peripheries of the inner cutting disks, substantially as specified.

6. In a corn harvester, the combination with a platform and its supporting frame, of a pair of inwardly and upwardly disposed stub-shafts or axles, and concaved cutting disks mounted on the stub-shafts or axles, and having their cutting peripheries contacting, substantially as specified.



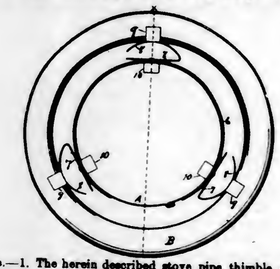
7. In a corn harvester the combination with the frame work comprising opposite platforms, of inwardly and upwardly disposed pairs of stub shafts located in front of each platform, ground wheels mounted on one stub-shaft of each pair, and cutting concaved disks having their cutting peripheries running in contact and mounted on the stub shafts one cutting disk of each pair being made fast to and moving with the ground wheel, substantially as specified.

493,640. FLOUR BIN AND SIFTER. JOHN A. MCCLELLAN, Walnut, Tex. Filed Dec. 10, 1891. Serial No. 414,540. (No model.)



Claim.—The combination of the bin A; bars 1, having the projections 2, attached to the side walls of the bin; bars 3, having the perforations 4, hooks 5, pivoted to the front face of said bars through their slots 6, and having points adapted to work against the rear face of said bars, and to catch under said projections 2, substantially as shown and described.

493,641. STOVEPIPE-THIMBLE. ERNEST F. NEUMANN, New Britain, Conn. Filed Dec. 8, 1892. Serial No. 454,482. (No model.)

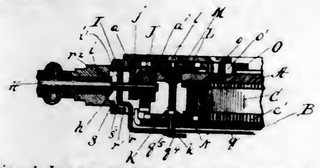


Claim.—1. The herein described stove pipe thimble, consisting of the yielding circumferential bands, longitudinal ribs and connected springs, substantially as described and for the purpose specified.

2. A stove pipe thimble consisting of the yielding circumferential bands, the longitudinal ribs, the springs connected therewith, and the stop lugs 9 at the outer ends of said springs, substantially as described and for the purpose specified.

3. A stove pipe thimble having the circumferential bands the longitudinal ribs secured thereto, and the inwardly projecting stop lugs 10 at the inner ends of said ribs, substantially as described and for the purpose specified.

493,642. STEM WINDING AND SETTING MECHANISM FOR WATCHES. JOHN W. NUHAMAKER, Chicago, Ill., assignor of one-fourth to Harvey L. Hopkins, same place. Filed Feb. 9, 1892. Serial No. 420,911. (No model.)



Claim.—1. In a stem winding watch, an arbor mounted to slide in the direction of its length, in combination with a winding pinion and a setting pinion both mounted thereon, an adjusting device arranged on the outside of the movement, adapted to move the said arbor lengthwise in its bearings, and a sliding pendant arbor, arranged to actuate said adjusting device outside of the movement, substantially as described.

2. In a stem winding watch, an arbor mounted to slide in the direction of its length in combination with the winding and setting pinions mounted thereon, an adjusting device adapted to move said arbor lengthwise arranged outside of the watch movement, a sliding pendant arbor arranged to make contact with said device outside of the movement to operate it for adjustment, and driving pinion on the stem of the pendant arbor, substantially as described.

3. A sliding pendant arbor H, in combination with the sliding arbor K, the hand setting pinion L, and winding pinion N, mounted thereon, the driving pinion J, on the stem of the pendant arbor, the slide Q, provided with the incline or bevel q^2 and arranged on the outside of the back plate, and the arm R, on the slide Q, bent around the outside of the movement and mounted at its outer end on the stem of the pendant arbor, substantially as described.

4. The arbor K, mounted to permit movement lengthwise, in combination with the hand-setting and winding pinions L, N, mounted thereon, the spring M, the sliding plate Q, provided with bevel q^2, the sliding pendant arbor H, the arm R, mounted on the said arbor and connected at its other end to the sliding plate, and the driving pinion J, on the pendant arbor stem, substantially as described.

5. The sliding pendant arbor H, in combination with the sliding arbor K, winding and setting pinions L, N, mounted thereon, the sliding plate Q, provided with bevel q^2, spring q on which said plate is mounted, and arm R, bent as specified and connecting the sliding plate with the pendant arbor, substantially as described.

6. The sliding arbor K, carrying the winding and setting pinions, in combination with the sliding plate Q, provided with bevel q^2 and projecting edge q^3, the screw q^4 setting over said edge, the spring q carrying said plate on one end and fastened at the other to the outside of the back plate, the sliding pendant arbor and a device connecting the same with said plate, whereby the latter is forced inward by the pendant arbor against the action of the spring on which it is mounted, substantially as described.

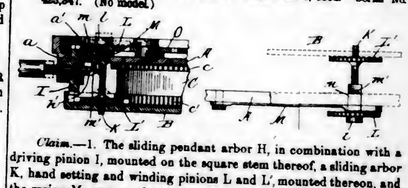
7. A sliding pendant arbor, in combination with the arbor K, movable lengthwise, the winding and setting pinions N, L, mounted thereon, the idler O, provided with an enlarged journal opening o', the pinion P, the beveled sliding plate Q, arm R, driving pinion J, and the train gear driving the hands of the watch, substantially as described.

8. The sliding arbor K, carrying the setting and winding pinions, in combination with the sliding plate Q, provided with bevel to move said arbor, the arm R, connected to said plate and bent around the outside of the movement, the ring center I, cut out to form a chamber i' for the outer end of the arm R, and the sliding pendant arbor H, provided with stem *h* passing through the said arm, substantially as described.

9. The arbor adjusting plate Q, in combination with the arm R, connected thereto and at its outer end provided with an elongated opening r^4, the disk S, provided with V shaped groove in its edge and central opening *s*, and the sliding pendant arbor H, the stem *h* of which passes through the central opening in said disk, substantially as described

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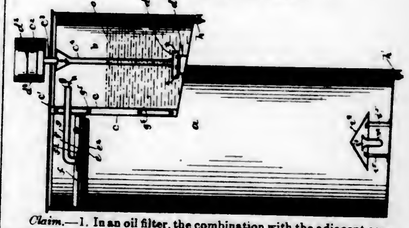
493,643. STEM WINDING AND SETTING MECHANISM FOR WATCHES. JOHN W. NUHAMAKER, Chicago, Ill., assignor of one-fourth to Harvey L. Hopkins, same place. Filed Mar. 1, 1892. Serial No. 423,847. (No model.)



Claim.—1. The sliding pendant arbor H, in combination with a driving pinion I, mounted on the square stem thereof, a sliding arbor K, hand setting and winding pinions L and L', mounted thereon, and the spring M, connected to said arbor and provided with an arm extending down below the front plate just in front of the pendant stem, substantially as described.

2. The pendant arbor H, in combination with a driving pinion I mounted on the stem thereof, a sliding arbor K, hand setting and winding pinions L and L' mounted thereon, a spring attached at one end to a fixed support and at the other or free end connected with the sliding arbor and having an arm adapted to engage with the actuating device, and an actuating device adapted to be operated from the outside of the watch movement, substantially as described.

493,644. OIL-FILTER. FRANK A. NEBAUR, Columbus, Ohio. Filed Oct. 3, 1892. Serial No. 447,588. (No model.)



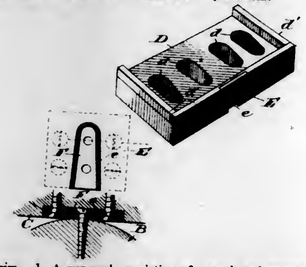
Claim.—1. In an oil filter, the combination with the adjacent compartments *a* and *b*, a volume of water *o*, partially filling said compartment *b*, an oil tube c^4 in said compartment and an inlet opening in the upper end of said compartment *b* communicating with the upper end of said tube c^4, of a pipe *g* connecting the upper portions of said compartments, a filtering pan supported within the compartment *a* beneath one end of said pipe *g*, one or more screens and an intervening fibrous material in said pan and an oil outlet in the lower portion of said compartment *a*, substantially as and for the purpose specified.

2. In an oil filter, the combination with the adjoining compartments *a* and *b*, a volume of water *o* in said compartment *b*, a tube c^4 in said compartment *b* as described, a receiving cup c^5 supported above the filter body and communicating with the upper end of the tube c^4 and one or more screens d^3 d^3 arranged in said receiving cup, of a filtering pan *e* supported within the compartment *a*, one or more

screens in said pan and a pipe *g* connecting the compartments *a* and *b* and discharging upon said filtering pan and an oil outlet in the bottom of said compartment *c*, substantially as for the purpose specified.

3. In an oil filter, the combination of the compartments *a* and *b*, an inclosed space between said compartments, steam pipes passing through said inclosed space, a volume of water contained in said compartment *b*, a tube c^4 extending within said compartment, an inlet opening in the upper portion of said compartment connecting with said tube and an oil pipe *g* connecting said compartments *a* and *b* and discharging in said compartment *a*, substantially as and for the purpose specified.

493,645. GUN-RACK FOR TENTS. SAMUEL S. PAGUE, U. S. ARMY. Filed June 28, 1892. Serial No. 438,289. (No model.)

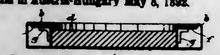


Claim.—1. A gun rack consisting of a stock and muzzle holding block, each block being provided with a socket plate having a beveled socket and adapted to engage with a tongue plate secured to the pole of the tent, substantially as described.

2. A gun rack consisting of a stock and muzzle block, each block provided with a socket plate set flush with the block and having an inwardly beveled tapering socket adapted to engage with correspondingly tapered and beveled tongue blocks secured to the tent pole, substantially as described.

3. The combination of a tent pole, beveled tongue blocks secured thereto at suitable heights, a stock holding block and a muzzle holding block, each of such blocks being provided with a socket plate having a socket corresponding in shape to the tongue blocks, whereby such rack may be attached to the pole by bringing the socket plates into engagement with the tongue blocks, and removed from such pole by disengaging the plate and blocks, substantially as described.

493,646. BEER-SAUCER WITH REGISTERING ATTACHMENT. ERNST PAPROTH and ROBERT ASTER, Kyritz, Germany. Filed June 3, 1892. Serial No. 436,280. (No model.) Patented in Germany April 26, 1892, and in Austria-Hungary May 5, 1892.



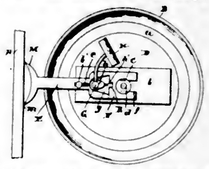
Claim.—1. In combination the saucer comprising a casing having an annular vertical partition dividing said casing into two compartments, the central one of which is open at the top and forms a seat for the glass, and the outer one serving to hold and guide a registering disk of ring form and having a single opening in its closed top, the ring form registering disk arranged in said outer compartment and adapted to bear on the annular partition, and the means for operating and controlling the registering disk, substantially as described.

2. A saucer for beer glasses, consisting of a central support *d*, an encircling casing *b*, brackets *g*, within the same, a disk supported on said brackets, toothed on its periphery and numbered on its upper surface, a handle connected to said disk and projecting through a slot in the casing, and an opening in the top of the casing, substantially as described.

493,647. BURGLAR-ALARM. CHARLES H. PRATT, Lancaster, Pa. Filed Oct. 3, 1892. Serial No. 447,611. (No model.)

Claim.—1. The combination, with a bell, of a rock-shaft carrying a clapper mechanism for actuating the rock-shaft, a tongue attached to said shaft, and a push-bar having a recess therein which is engaged with and disengaged from said tongue by the movement of the push-bar, said recess having the walls thereof flaring inward from its mouth, substantially as and for the purpose specified.

2. The combination, with a bell, of a rock-shaft carrying a clapper, mechanism for actuating the rock-shaft, a tongue attached to said shaft and having a reduced end, a push-bar having a recess therein which is engaged with and disengaged from said tongue by the movement of the push-bar, said recess having the walls thereof flaring inward from its mouth, substantially as and for the purpose specified.

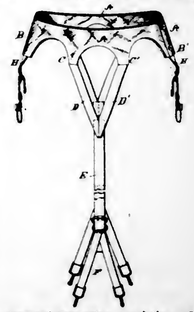


3. The combination with a bell, of a push-bar having an opening therein and jaws formed on the end thereof, a rock-shaft passing through the opening in the push-bar and carrying a clapper, a tongue attached to the rock-shaft and located in the opening in the push-bar, said tongue being engaged with and disengaged from a recess in one end of said opening by the movement of said bar, and a post having grooves engaged by the jaws of the push-bar, substantially as and for the purpose specified.

4. The combination, with a bell, of a rock-shaft carrying a clapper, a push bar having an opening through which the rock-shaft passes and a slot engaged by a headed stud or pin, and a tongue attached to the rock-shaft and located in the opening in the push bar through which the rock-shaft passes, said tongue being engaged with and disengaged from a recess in one end of said opening by the movement of the push-bar, substantially as and for the purpose specified.

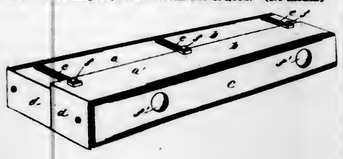
5. The combination, with a bell, of a push-bar having an opening therein and provided with a slot engaged by a headed stud or pin, a rock-shaft passing through said opening and carrying a clapper, jaws formed on the inner end of the push-bar, a tongue attached to the rock-shaft and located in the opening in the push-bar, said tongue being engaged with and disengaged from a recess in one end of said opening by the movement of the push-bar, and a post having grooves engaged by the jaws on the push-bar, substantially as and for the purpose specified.

493,648. GARMENT-SUPPORTER. WILLIAM H. RALPH, Allegheny, Pa. Filed Aug. 5, 1891. Serial No. 401,730. (No model.)



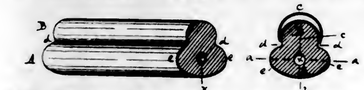
Claim.—The garment supporter consisting of a belt or bodice composed of two joined sections of inelastic fabric each section having its upper edge curved so that the upper edge of the joined sections forms a continuous arc, each section having pendent tabs from its lower edge (to lie at the sides of the hips of a wearer,) and having stocking supports attached thereto as described, the bodice having pendent tabs at front and rear, and detachable elastic strips having safety catches connected to said front and rear tabs, all substantially as described.

493,649. RAILWAY FOOT-GUARD. MICHAEL RILEY, London, Ohio. Filed May 27, 1892. Serial No. 434,552. (No model.)



Claim.—In a foot guard for railways, the combination of the oblong angular sections *a a'*, adapted to telescope one within the other, slotted openings *c* in one of said sections, bolts *f* in the other section passing through said slotted opening and springs f^3 connecting as described, the sides of said sections, substantially as and for the purpose specified.

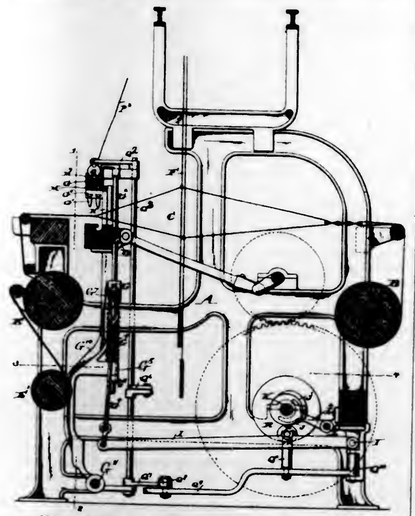
493,650. BICYCLE-TIRE. EDGAR F. RYDER, Providence, R. I., assignor, by direct and mesne assignments, to the Atlantic Manufacturing Company, same place. Filed Sept. 10, 1891. Renewed Feb. 3, 1893. Serial No. 460,909. (No model.)



Claim.—The improved elastic tire for bicycles and other vehicles herein described, consisting of the enlarged portion A, elliptical in cross section, and having the longitudinal bore *x* and the overhanging sides *c*, in combination with the solid, longitudinal rib B at one side upon a line in continuation of the minor transverse axis of the portion A and adapted to fit within the concave periphery of the wheel rim, substantially as specified.

493,651. SWIVEL-LOOM. OTTO W. SCHAUB, Philadelphia, Pa. Filed May 20, 1891. Serial No. 393,475. (No model.)

Brief.—To the swivel-shuttle-actuating racks are attached rods which are adapted to be raised by a jacquard into the path of reciprocating wipers, whereby the swivel-shuttles are actuated in the desired direction at will.



Claim.—1. The combination with a swivel-shuttle supporting-beam with one or more racks longitudinally movable therein, a rod as M^2 pivotally attached to each rack, a lifter operated by the jacquard arranged to throw up said pivoted rod into the path of a reciprocating wiper, and a wiper having a reciprocating motion arranged to engage the pivoted rod when it is thrown up into its path and through it to actuate the connected rack.

2. The combination with a swivel-shuttle supporting-beam with one or more racks longitudinally movable therein, rods as M^2 M^2 pivotally attached to each rack as described, lifters operated by the jacquard arranged to engage one of said rods M^2 at each end of the movement of the rack so as to lift the end of the engaged rod when desired, and reciprocating wipers moving in opposite directions as described and arranged to engage the pivoted rods when thrown up by the lifter and through them to actuate the rack.

3. The combination with a swivel-shuttle supporting-beam with one or more racks longitudinally movable therein, rods as M^2 M^2 pivotally attached to each rack as described, lifters operated by the jacquard arranged to engage one of said rods M^2 at each end of the movement of the rack, mechanism for actuating each pair of lifters simultaneously so as to lift the end of the engaged rod when desired, and reciprocating wipers means for moving them in opposite directions as described said wipers being arranged to engage the pivoted rods when thrown up by the lifter and through them to actuate the rack.

4. In combination with a swivel-shuttle supporting-beam, a series of racks longitudinally movable therein, rods M^2 M^2 pivoted to each rack and beneath a slot in the said beam, lifters P arranged to engage each rod M^2 alternately, mechanism for actuating each pair of lifters simultaneously and wipers Q Q having a constant opposite reciprocating movement over the rod ends, all substantially as and for the purpose specified.

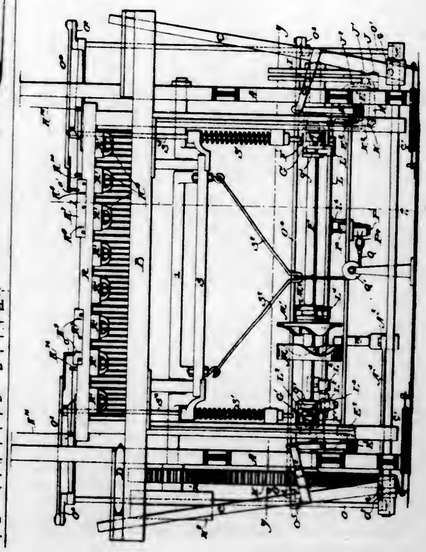
5. The combination with the swivel-shuttle supporting-beam having slots M^2 and slotted plates M^2 with end recesses M^{10} of a reciprocating rack M, rods M^2 pivoted thereto, and having their ends extending upward in slots M^2 spring latches M^4 in the ends of rods M^2 arranged to hold the said ends above the top of slotted plates M^2 and lifters P operated by the jacquard and arranged to engage and lift the rod ends, all substantially as specified.

6. In a loom, the combination of the swivel-shuttle supporting-beam the reciprocating racks M having pivoted rods M^2 as described means for lifting the ends of said rods into the path of the wipers, the reciprocating wipers Q, a movable cam R', means for moving the same as described, and mechanism connecting said cam and the wipers Q so that when in operation said cam will actuate both wipers in opposite directions.

7. In a loom, the combination of the swivel-shuttle supporting-beam the reciprocating racks M having pivoted rods M^2 as described means for lifting the ends of said rods into the path of the wipers, the reciprocating wipers Q, a movable cam R', mechanism connecting said cam, and the wipers so that when in operation said cam will actuate both wipers in opposite directions; a movable cam J, mechanism connecting said cam with the beam so as to draw said beam down at proper times, and mechanism for simultaneously engaging and disengaging cams R R' and J, substantially as and for the purpose specified.

493,652. SWIVEL-LOOM. OTTO W. SCHAUB, Philadelphia, Pa. Filed Aug. 11, 1891. Serial No. 402,339. (No model.)

Brief.—To a longitudinally-movable rod, operated by a pattern-cam, are operatively connected the devices for drawing the swivel-shuttles into position and the devices for suspending the action of the pick-levers, so that while the swivel-shuttles are in operation the fly-shuttle is at rest.



Claim.—1. In a loom, having pick-levers for actuating the ground shuttle or shuttles, the combination with said pick-levers of mechanism for actuating the same, made adjustable, substantially as described, for the purpose specified.

493,654. SWIVEL-LOOM. OTTO W. SCHAUB, Philadelphia, Pa. Filed July 1, 1892. Serial No. 438,669. (No model.)

Claim.—1. The combination of the feed roller A', geared to the loose pinion H', swing cloth W, and shaft C, substantially as described.

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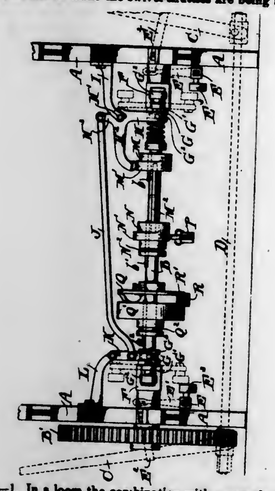
Claim.—1. In a loom, having pick-levers for actuating the ground shuttle or shuttles, the combination with said pick-levers of mechanism for actuating the same, made adjustable, out of and into operative connection with the pick-levers; the swivel shuttle supporting bar normally held above the shed, and mechanism for drawing and holding said bar into operative position, and a longitudinally movable rod connected with the actuating mechanism for the pick-levers and for the said supporting bar as described, and so that by shifting said rod, the swivel shuttle supporting bar is drawn and held into operative position for two or more consecutive picks, at the same time that the pick-lever actuating mechanism is moved and held out of operative position.

2. In a loom the shaft F in combination with bowl carrying levers longitudinally movable on but turning with said shaft, the bowl shifting rod L, mechanism connecting said rod with the bowl levers as described and so as to shift them longitudinally on shaft F, the swivel shuttle supporting bar R, a lever F F² actuated by the rod L, and connections from said lever to bar R all substantially as described and so that the bar is drawn down and held in operative position by the movement of rod L to shift the bowls out of operative position.

493,653. SWIVEL-LOOM. Otto W. Schaum, Philadelphia, Pa.

Filed May 12, 1892. Serial No. 432,730. (No model.)

Brief.—Devices for suspending the operation of the fly-shuttle-actuating mechanism while the swivel-shuttles are being actuated.

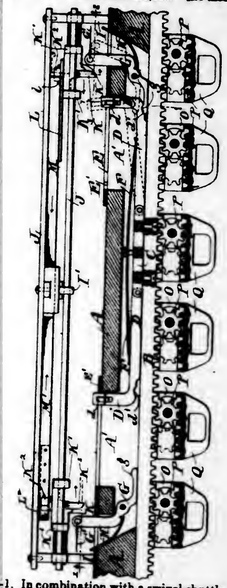


Claim.—1. In a loom the combination with a cam shaft B with clutches F F, hubs G, G, journaled on shaft B so as to be longitudinally movable thereon, bowl carrying arms G' secured to said hubs, a lever H H³ H² pivoted at H' and having an arm as H' engaged with one of the hubs G, a pivoted lever K engaged with the other hub, a rod J connecting lever K with lever H H³ H² as described and so that lever J and arm H will move reciprocally in opposite directions and thrust the bowls simultaneously into and out of operative position, a cam M M' longitudinally movable on shaft B so placed as to engage an arm as H³ of lever H H³ H². and actuate it as described, and means for moving said cam.

2. In a loom the combination with a cam shaft B with clutches F F, hubs G G journaled on shaft B so as to be longitudinally movable thereon, bowl carrying arms G' secured to said hubs, a lever H H³ H² pivoted at H', and having an arm as H engaged with one of the hubs G, a pivoted lever K engaged with the other hub, a rod J connecting lever K with lever H H³ H² as described and so that lever J and arm H will move reciprocally in opposite directions and thrust the bowls simultaneously into and out of operative position, a cam M M' longitudinally movable on shaft B so placed as to engage an arm as H³ of lever H H³ H² and actuate it as described, a cam N N' also longitudinally movable on shaft B, rods M² connecting cams M M' and N N' so that they will move together, a cam shifter O arranged to engage and shift the cams and a swivel beam depressing lever P arranged in the path of cam N N, all substantially as described, and so that the bowls are withdrawn from the clutches simultaneously with the depression of lever P.

493,654. SWIVEL-LOOM. Otto W. Schaum, Philadelphia, Pa.

Filed July 1, 1892. Serial No. 438,669. (No model.)



Claim.—1. In combination with a swivel-shuttle supporting beam A, guides as J suitably supported on said beam, wiper carriers K K supported on said guides, hinged wipers supported on said carriers racks M M', one attached to each carrier and arranged facing each other as shown, and a spur pinion arranged between and in engagement with both racks, all substantially as specified.

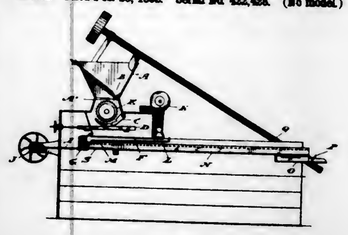
2. In combination with a swivel shuttle supporting beam A, guides as J suitably supported on said beam, wiper carriers K K supported on said guides, wipers K³ pivotally attached to each carrier, racks M M', one attached to each carrier and arranged facing each other as shown and a spur pinion arranged between and in engagement with both racks, all substantially as specified.

3. In combination with a swivel shuttle supporting beam A, guides as J suitably supported on said beam, wiper carriers K K supported on said guides, a rack M secured to one carrier, a rack M' secured to the other carrier by a yielding connection L³, said racks being arranged to face each other, and a spur pinion N placed between and in engagement with both racks.

4. In combination with a swivel, shuttle supporting beam A, racks B having pivotally attached rods D D' formed with a recess as d' on their under sides, and a detent adapted to fit in said recess and hold the rods and their attached racks steady.

5. In combination with a swivel, shuttle-supporting-beam A, a rack having pivotally attached rods D D' formed with a recess as d' on their under sides and lifting levers G formed with a detent at their ends adapted to engage said recess.

493,655. COFFEE-GRINDING MILL. Emil Schmidlin, Brantford, Canada. Filed Feb. 23, 1892. Serial No. 422,423. (No model.)

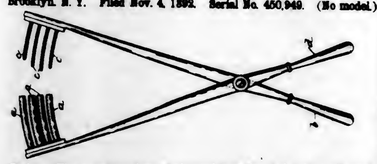


Claim.—1. The combination of the feed roller A', geared to the loose pinion H', spring clutch E', and shaft C', geared to the grinding roller E, substantially as and for the purpose specified.

2. The combination of the feed roller A', bevel pinion B', bevel pinion H', loose on shaft C', spring clutch E', worm wheel F', and worm G', on the shaft of the grinding roller E, substantially as and for the purpose specified.

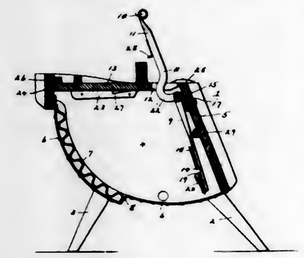
3. In a grinding machine, a grinding roller, a concave adapted to work in connection with said roller in combination with the corrugated tray F, a fan arranged at the end of said tray to draw away the husks, a screen below said tray, shoes G supporting said tray and screen, means, substantially as described, for giving said shoes a vibrating motion, a spout O at the end and below said screen for discharging the ground material and a spout P also at the end of said screen arranged to deliver the material from off the screen into the tube Q, and an elevator in said tube for raising the material to the grinding mechanism, substantially as shown and described.

493,656. GLOVE-TURNING DEVICE. Edward Schwalbach, Jr., Brooklyn, N. Y. Filed Nov. 4, 1892. Serial No. 450,949. (No model.)



Claim.—The combination of pivoted handles *b d*, series of parallel curved finger tubes *a* mounted on one of said handles, and a corresponding series of parallel curved pins *c* mounted on the other of said handles and adapted to enter the tubes *a*, substantially as and for the purpose set forth.

493,657. WASHING-MACHINE. Samuel A. Seay, Hematite, Mo. Filed Sept. 24, 1892. Serial No. 446,816. (No model.)



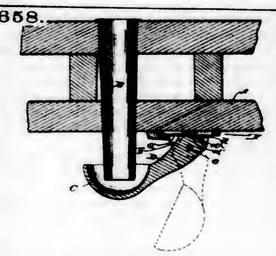
Claim.—1. In a washing machine, the combination of a body having a curved rubbing surface, an oscillating agitator hinged to the body and having a stem provided with a projection, the oppositely disposed notched cleats secured to the inner faces of the sides of the body, and a slotted cover receiving the stem in its slot and adapted to engage said notches and projection, substantially as described.

2. A washing machine comprising a body and the oscillating agitator detachably hinged to the body and consisting of a rectangular frame, the transverse bars connecting the lower ends of the sides of the frame, the plate secured to one of the bars and provided with an upwardly extending flange, and a stem extending upward from the frame, substantially as described.

493,658. WATER SEAL FOR REFRIGERATORS. Willard G. Shelden, Grand Haven, Mich. Filed Dec. 15, 1892. Serial No. 456,274. (No model.)

Claim.—In a sealing device for refrigerator waste pipes, the combination with the cup having the laterally and upwardly extending arm with the substantially flat surfaces and shoulder *d* thereon, of the base having the lugs between which the arm is pivoted and the spring bearing on the flat surfaces and co-operating with shoulder to hold the cup in either elevated or depressed position; substantially as described.

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493,659. MINING-MACHINE. Frank H. Slade, Columbus, Ohio. Filed Apr. 11, 1892. Serial No. 428,710. (No model.)

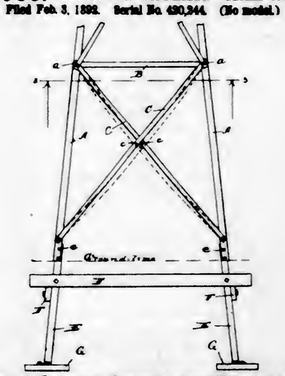


Claim.—1. In a mining machine, the combination with the sliding frame, a sprocket wheel journaled therein and a cutter chain running on said wheel, of a holding device projecting from the machine or a part thereof, and engaging with the kerf cut by said cutting chain, substantially as specified.

2. In a mining machine, the combination with the sliding frame, a sprocket wheel journaled therein, and a cutter chain traveling on said sprocket wheel, of holding plates secured to and projecting from the faces of said sprocket wheel, substantially as and for the purpose specified.

3. In a mining machine, the combination with the sliding frame, sprocket wheels journaled therein, and tool-holding chains carried on said sprockets, of the holding plates *e*, *e'* secured respectively to the upper and lower faces of said sprocket wheel, said plates being formed with large and small lobes as described, and adapted to enter the kerfs formed by the cutting tools of said chain, substantially as and for the purpose specified.

493,660. TOWER FOR WINDMILLS. Thomas Snow, Batavia, Ill. Filed Feb. 3, 1892. Serial No. 420,944. (No model.)



Claim.—1. In a tower, the combination with corner posts of angle iron arranged with their corresponding flanges in line, of struts connecting these posts, and arranged in the same horizontal plane, said struts being formed of angle iron having one flange secured to

the corner posts, and the other flange having abutted mitered ends to form a rigid frame, substantially as specified.

2. In a tower the combination with corner posts of angle iron, arranged with their corresponding flanges in line, of rigid frames connecting said posts at intervals and formed of angle iron struts having their horizontal flanges mitered and abutted at the corners, and the vertical flanges secured to the corresponding flanges of the corner posts, and of corner braces connecting the adjoining struts, substantially as specified.

3. A metallic tower composed of posts A, girts B and braces C, the braces and girts being unitedly secured to the posts by a single bolt at each joint, substantially as specified.

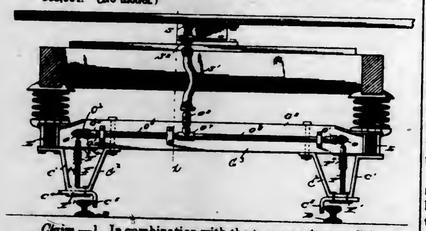
4. The combination with a tower of braces C deflected and joined together so as to produce drawing strains by such braces, substantially as specified.

5. The combination with a steel tower of an anchoring frame work consisting of posts E, bars F and anchor blocks G substantially as specified.

6. The combination in a steel tower of the girts B, forming a square and corner braces *b* rendering the square rigid, substantially as specified.

7. The combination in a tower of the girts, mitered and forming a rigid frame, and secured by their members respectively to the flanges of the upright posts, as and for the purpose set forth.

493,661. SAFETY ATTACHMENT FOR CAR-TRUCKS. ROBERT J. SPEARING, Sherbrooke, Canada. Filed Sept. 24, 1890. Serial No. 365,991. (No model.)



Claim.—1. In combination with the two opposite equalizing-bars the stout safety cross-beams, each firmly secured to the ends of such bars, the strong standards C' C^3, serving to uphold the said beams and equalizing bars, and carrying the shoes severally provided with a flange C^3, all as and for the purposes set forth.

2. In combination, the two opposite equalizing bars, the stout safety cross-beams, the anchor plates G, fastened to the angles of the equalizing-bars and to said cross-beams, the standards C', C^3 serving to uphold said beams and bars, and also provided with the flanged shoes, all as and for the purposes set forth.

3. In combination, the two opposite equalizing-bars, the stout cross-beams, the anchor plates G, serving to fasten firmly together such bars and beams, and the standards C', C^3, firmly secured to such bars and beams, and carrying the broad flanged shoes, extending cross-wise of the track-rails, and provided with a transverse aperture adapted for a tripping rod of a brake attachment, all substantially as set forth.

4. In combination with the cross-beams G^2, the equalizing bars, the anchor plates G, and with the apertured shoes and their standards or supports, eyes or supports on the beam suitable for securing to such beam a pipe or branch pipe of an air brake system, all substantially as set forth.

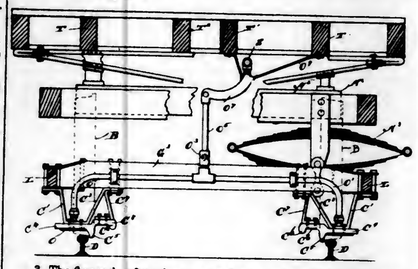
5. In combination, with the safety cross-beam G^2, and with the equalizing bars I_2, the anchor plates G, secured to the upper side of said bars, extended around the truck-springs, and having each an upturned end to fit the angle of the equalizing-bar and the reduced width as at G', to clear the wheels, for the purpose set forth.

6. In combination, the cross-beams G^2, equalizing bars, these jointly serving to support the flanged safety shoes and their standards, and the anchor plates G, made and fitted to such bars and beams as described, and the U-shaped bars G^4 and under plate K, all substantially as set forth.

493,662. SAFETY-SHOE AND BRAKE ATTACHMENT FOR CAR-TRUCKS. ROBERT J. SPEARING, Sherbrooke, Canada. Filed Feb. 10, 1891. Serial No. 381,001. (No model.)

Claim.—1. In combination with the truck of a car provided with main safety shoes described, and with the brake system and branch pipes, the terminal air-chamber connected with the branch air pipes, and located or secured in the lower face of the safety shoe which protects it and carries it close to the rail and to the tread of the wheel, as described and for the purpose set forth.

2. In combination with a car-truck, a flanged safety shoe having a frangible air-chamber firmly located in and protected by the sole of the shoe, and extending cross-wise of the rails, and having its under side exposed, such chamber serving as the terminal for the pipe of an air brake system.

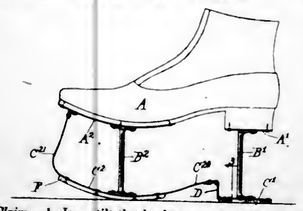


3. The flanged safety shoes as set forth, each having an air chamber secured and firmly located in and protected by the soles of the shoe, and serving as the terminal of an air-brake system of pipes, and having its under side exposed as described, combined with the truck of a car, and with strong shoe supports upholding the truck and rigidly secured to cross-beams and to the equalizing bars, all as and for the purposes set forth.

4. In a safety attachment for car-trucks, the combination with the air-brake system and with the truck of a car provided with cross-beams serving to carry branch pipes of such system and with the main safety shoes having an air-chamber in their lower faces as described, the auxiliary shoe extending inward from the flange of said main shoe, and having a flange on its inner edge, whose lower edge is nearly on a level with the lower face of the main shoe, all substantially as described and for the purpose set forth.

5. In combination with the truck of a car provided with the main and with the auxiliary safety shoes as described, a set of air branch pipes extending from the air-brake system and supported on the cross-beams as described of the truck, and terminating in air-chambers located in safety shoes, and by which they are protected and located close to the rail and wheels and whereby the pipes, shoes and chambers, cannot be separated, but are mutually dependent, all substantially as described and for the purpose set forth.

493,663. SHOE-STILT. WILLIAM R. STEUART, Chicago, Ill. Filed Nov. 7, 1892. Serial No. 451,221. (No model.)



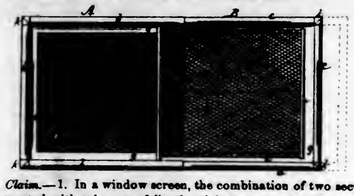
Claim.—1. In a stilt the heel-support and the sole-support provided at their upper ends with suitable means for attaching them rigidly to the heel and sole respectively of the shoe, and being flexibly connected together at the bottom or end remote from the heel and sole of the shoe, substantially as set forth.

2. In a stilt in combination with the heel-support and the sole-support adapted at their upper ends to be rigidly attached to the heel and sole respectively of the shoe, and a link interposed between and connected to their proximate edges at the lower ends whereby they are flexibly connected at the lower ends and have a limited range of fore-and-aft relative movement, substantially as set forth.

3. In a stilt, in combination substantially as set forth, a heel support adapted to be made rigid with the heel of the shoe, and a sole support adapted to be made rigid with the sole of the shoe, and a broad link horizontally pivoted transversely to the rear of the sole support at the bottom and to the forward edge of the heel support at the bottom, whereby relative movement of the two parts longitudinally is permitted and transverse and torsional movement relatively is restrained.

4. In a stilt, in combination with the heel plate and a post extending vertically therefrom to the heel of the stilt, and the sole plate and a post extending vertically therefrom to the sole of the stilt, the latter being extended and up-bent rearwardly to form the shank piece of the stilt; and the link D, broadly hinged transversely to the rear end of the shank-piece and to the forward edge of the heel, and normally extending vertically between said two pivotal lines; substantially as set forth.

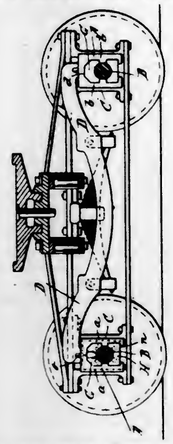
493,664. WINDOW-SCREEN. DRAPER STONE, Pittsford, N. Y. Filed Mar. 3, 1888. Serial No. 266,010. (No model.)



Claim.—1. In a window screen, the combination of two sections constructed with tubes not fully closed in cross section, leaving longitudinal slots therein, backings integral with said tubes, and wire netting attached to the backings, the tubes of one section fitting in those of the other and the backings resting in the slots, as shown and described and for the purpose specified.

2. In a window screen, the combination of two sections constructed with tubes not fully closed in cross section, leaving longitudinal slots therein, and provided with upturned lips *h h*, backings integral with said tubes, and wire netting attached to the backings, the tubes of one section fitting in those of the other, the backings resting in the slots, and the lips keeping the parts in position, as herein shown and described.

493,665. JOURNAL-BOX. HENRY J. THOMPSON, Springfield, Mass. Filed Nov. 25, 1892. Serial No. 452,966. (No model.)



Claim.—1. In a journal-bearing, the combination with a journal-box having in its top a depression, and one or more ducts leading downwardly therefrom, of the brass having the approximately radial recesses extended from its axle-bearing side and having in its top the depression, *i*, and the ducts, i^3, i^3, leading from said depression, *i*, to the radial recesses, substantially as and for the purpose set forth.

2. The combination with a journal-box having in its opposite sides the ledges, *f*, *f*, which at one end terminate within the end of the box, of the brass having at one end the web or flange, *h*, lying alongside the ends of the said ledges and said brass having at its top a rib and groove engagement with the internal upper surface of the journal-box, substantially as and for the purpose set forth.

3. In a journal-box a brass having recesses, *g*, *g*, extended partially through the thickness of the brass from the bearing side thereof, and having ducts, i^3, i^3, leading from its top to said recesses and said brass at its inner lower corners having the recesses, g^3, g^3, substantially as shown.

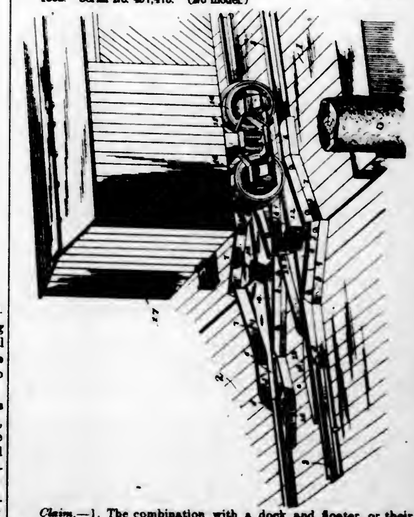
4. The combination with a journal-box having in its opposite sides the inwardly extended ledges, *f*, *f*, which at one end terminate slightly within the end-face of the box, of the removable oil-box, H, having a support at the bottom of the journal-box, and having one side, *p*, of such height as to terminate under the said ledges at one end of the journal-box, and the oil-box having its other side, *q*, so upwardly extended as to lie alongside the other ends of said ledges, and the spring-supported frame and rollers, substantially as and for the purpose set forth.

5. The combination with a journal-box having in its opposite sides the inwardly extended ledges, *f*, *f*, which at one end terminate slightly within the end face of the box, said box also having the inwardly extended rests, *n*, *n*, at its bottom, of the removable oil-box, H, having a support on said rests with the side, *p*, terminating under said ledges at one end thereof, and the other side, *q*, so upwardly extended as to lie alongside the other ends of said ledges, the frame, *J*, movably guided and spring-supported in the oil-box and having the rollers, *s*, *s*, substantially as described and shown.

6. The combination with the journal-box having in the bottom thereof the removable box, J, with the thickened external portion, *w*, with the duct, *x*, leading therethrough and terminating within the oil-box, and the tube, *y*, arranged at the outside of the journal-box and having a connection with said duct, and the rollers, and spring-supported frame therefor movably guided in said oil-box, substantially as described.

7. The combination with a journal-box having in its top the depression, *j*, and the downwardly extended ducts, j^3, j^3, and having in its opposite sides the inwardly extended ledges, *f*, *f*, which at one end terminates slightly within the end face of the box, and also having at its bottom the inwardly extended rests, *n*, *n*, of the brass having the depression, *i*, in its top, and recesses leading upwardly from its axle-bearing side and communicating with said depression and having at one end the portion, *h'*, to bear upon the top of said ledges at one end of the box, said brass having at its other end the web or flange, *h*, downwardly extended to lie alongside the ends of said ledges at the other end of the box, and the removable oil-box, H, having a support on said rests, *n*, *n*, and having the side, *p*, terminating under said ledges at one end thereof and the other side, *q*, so upwardly extended as to lie alongside the other ends of the ledges, the frame, *j*, movably guided and spring supported in the oil-box, and having the rollers, *s*, *s*, and a conduit leading from the outside of the journal box into the oil-box, all substantially as described and shown and for the purposes set forth.

493,666. WHEEL-GUIDE FOR RAILROAD-CARS. WILLIAM F. TURNBULL and JULIUS C. COUNCILL, Newport News, Va. Filed June 21, 1892. Serial No. 437,475. (No model.)

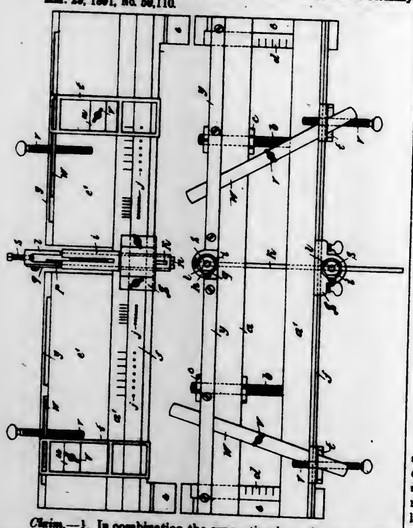


Claim.—1. The combination with a dock and floater, or their equivalents, and rail-sections upon each terminating short of the

meeting points of the sections, of pairs of inner and pairs of outer guide-sections, said inner and outer sections arranged adjacent to each other at the end of each rail and combining to form an intermediate space, each section consisting of a triangular base-plate and provided at their outer edges with flanges which converge toward their outer extremities, substantially as specified.

2. The combination with a dock and floater, or their equivalents, and the rail-sections upon each terminating short of the ends of the dock and floater, of the pair of outer guide-sections each consisting of the triangular plate 4, provided at its outer edge with the flange 7, outside of the same provided with spike-holes and continued at the inner side of the flange to form a rail-portion, and the pairs of inner sections, each of which consists of a triangular base-plate having its edge arranged a slight distance from and parallel with the adjacent edge of the outer section and provided at its outer edge with a vertical flange converging toward the flange of the outer section and outside the same provided with spike-holes, substantially as specified.

493,667. MITER-SAW. ROMAN UHL, Hausach, Germany. Filed Nov. 2, 1891. Serial No. 410,675. (No model.) Patented in Germany Mar. 29, 1891, No. 59,110.



Claim.—1. In combination the supporting legs, the saw, a main support therefor adjustable in width on said legs, a guide on said support and a block movable thereon, said block carrying the saw, substantially as described.

2. In combination the supporting legs, the saw, a main support therefor, formed in two parts adjustable toward and from each other on said legs, a fence for the molding on one part a guide on the other part and a block adjustable along the said guide and carrying one end of the saw, substantially as described.

3. In combination the saw, the two part adjustable support, the means for sustaining said support arranged below the same and having guides to permit adjustment laterally, but not longitudinally of the two part support, the guide on one part of the adjustable support, and the block movable along the said guide and carrying the saw, substantially as described.

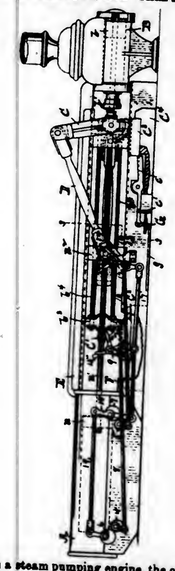
4. In combination the supporting legs, the saw, the main support adjustable in width on said legs, the guide on the said support, the block carrying one end of the saw and arranged to slide on said guide and the revoluble cylinders *i*, one of which is carried by the said block, substantially as described.

5. In combination the supporting legs, the saw, the main support formed in two parts adjustable toward and from each other on said legs, the guide on one of said parts the block for the saw on the guide and the cylinders *i* and guiding bolts therein, one of said cylinders and bolts being carried by the block, substantially as described.

6. In combination, the saw, having a back, the main supporting means, the slotted bolts *l* through which the saw reciprocates and the means for regulating the height of the saw consisting of the adjustable pieces *p* carried within the bolts and the adjusting means for the pieces *p* extending outside the bolts, substantially as described.

7. In combination, the saw, the slotted cylinders for guiding the same, the main support, the guide way thereon the block carrying one of said cylinders movable along the guide way and carrying and adjusting the saw, the said cylinders having additional openings through them, and the setting lever *k*, secured to one cylinder and passing loosely through the opening in the other and being independent of the means for carrying the cylinders, substantially as described.

493,668. STEAM PUMPING-ENGINE. CHARLES C. WEBBER, Springfield, Mass. Filed Apr. 2, 1892. Serial No. 427,468. (No model.)



Claim.—1. In a steam pumping engine, the combination with the steam and water cylinders and their pistons and piston-rods, of a bell-crank lever connected to and carried by the water piston-rod, a connecting rod connecting one arm of said lever with the steam piston-rod, and a stop adapted to be engaged by the opposite arm of said lever, substantially as and for the purpose described.

2. In a steam pumping engine, the combination with the steam and water cylinders thereof and their pistons and piston rods, of suitable steam inlet, cut-off, and exhaust mechanism for said steam cylinder operatively connected with the steam piston-rod, a toothed sector connected with and carried by said water piston-rod, a jointed connection between said sector and the steam piston-rod, and a rack adapted to be engaged by said sector, substantially as and for the purpose described.

3. In a steam pumping engine, the combination with the steam and water piston-rods thereof, a toothed sector pivotally mounted upon and carried by said water piston-rod, intermediate jointed connections between said sector and the steam piston-rod, and a movable rack operatively engaging the teeth of said sector, substantially as and for the purpose set forth.

4. In a steam pumping engine, the combination with the steam and water piston-rods thereof, of a toothed sector pivotally connected with said water piston-rod, a rod connecting said sector with the steam piston-rod, a movable rack operatively engaging the teeth of said sector, a fixed stop permanently limiting the movement of said rack in one direction, and a movable detent adapted to temporarily limit its movement in the opposite direction, substantially as and for the purpose described.

5. In a steam pumping engine, the combination with the steam and water piston-rods thereof, of a toothed lever mounted upon and carried by the water piston-rod, intermediate jointed connections between said lever and the steam piston-rod, a movable rack engaging the teeth on said lever, a fixed stop for limiting the movement of said rack in one direction, a movable detent for limiting its movement in the opposite direction, and means substantially as described for automatically retracting said detent from its engagement with the rack upon the admission of steam to one end of the steam cylinder, arranged and operating substantially as set forth.

6. In a steam pumping engine, the combination with the steam and water cylinders thereof and their pistons and piston rods, of a toothed sector pivotally mounted upon and carried by the water piston-rod, a jointed connection between said sector and the steam piston-rod, a movable rack engaging the teeth of said sector, a fixed stop for limiting the movement of said rack in one direction, a detent-lever for limiting its movement in the opposite direction, a liquid or fluid pressure-actuated device operatively connected with said detent-lever and adapted by imparting movement thereto to withdraw the latter from its engagement with said rack, and pipe connections between said device and one end of the steam cylinder, arranged and operating substantially as set forth.

7. The combination with the steam and water cylinders of a pumping engine and their pistons and piston-rods, of two toothed levers pivotally connected to and carried by the water piston-rod, jointed connections substantially as described between each of said levers and the steam piston-rod, two movable racks engaging the teeth on said levers, two fixed stops for limiting the movement of said racks in one direction, and movable stops for limiting their movement in the opposite direction, arranged and operating substantially as set forth.

8. The combination with the steam and water cylinders of a pumping engine, their pistons and piston-rods, and suitable valve gear governing the admission of steam to and its exhaust from said steam cylinder operatively connected with the steam piston-rod, of two toothed sectors operatively connected to and moving with the water piston-rod, connecting rods connecting each of said sectors with the steam piston-rod, movable racks engaging the teeth of said sectors, fixed stops for limiting the movement of said racks in one direction, movable detents for limiting their movement in the opposite direction, pressure-actuated devices operatively connected with said detents for withdrawing them from their engagement with said racks, and pipe connections connecting said devices with opposite ends of the steam cylinder respectively, substantially as and for the purpose described.

9. The combination with the steam and water cylinders of a pumping engine, their pistons and piston-rods, and suitable valve connections as described, of two toothed sectors mounted upon axes which are rigidly connected to the water piston-rod, connecting rods connecting one of said sectors to the steam piston-rod at the outer end of the latter and the other at a point substantially midway between the ends of said piston-rod, movable racks engaging the teeth of said sectors, and stops for limiting the movement of said racks, arranged and operating substantially as set forth.

10. In a steam pumping engine, the combination with the steam and water piston-rods thereof, of a cross-head, as b^3, secured to said water piston-rod, a head-block, as b^3, suitably guided upon the frame of the machine, rigid connections as the rods b^4, connecting said head-block to said cross-head, two toothed sectors mounted respectively upon said head-block and said cross-head, connecting rods connecting each of said sectors with the steam piston-rod, movable racks engaging the teeth of said sectors, and stops for limiting the movement of said racks, substantially as described.

11. In the pumping engine herein described, the combination with the toothed sectors carried by the water piston-rod and operatively connected with the steam piston-rod, of the bed-pieces C^4, the racks C^5 engaging the teeth of said sectors respectively and having a capacity for a limited sliding movement upon said bed-pieces, and the detent-levers *c* mounted upon said bed-pieces and adapted, in one of their positions, to engage said racks to prevent movement of the latter, substantially as and for the purpose set forth.

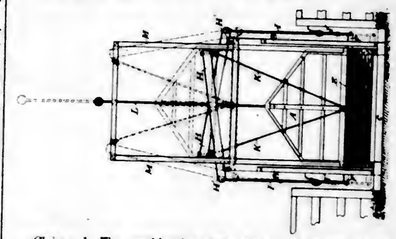
12. In a steam pumping engine, the combination with the steam and water piston-rods, of a bell-crank lever carried by said water piston-rod, a rod connecting one of the arms of said lever with the steam piston-rod, and a guide for holding said rod and the arm of the lever to which it is connected in alignment with each other and parallel with said piston-rods during a portion of the stroke of the latter, substantially as set forth.

13. In a steam pumping engine the steam and water pistons of which move in unison during the first part of their stroke, the combination with the steam and water cylinders thereof and their pistons and piston rods, of intermediate connections substantially as described between said piston-rods whereby the steam piston has a movement in excess of that of the water piston during the latter part of the stroke of said pistons, substantially as and for the purpose set forth.

14. In a steam pumping engine, the steam piston of which has a greater length of stroke than the water piston, the combination with the steam and water cylinders thereof and their pistons and piston-rods, of intermediate connections substantially as described between said piston-rods for mechanically increasing the pressure exerted by the steam piston against the water piston during the latter portion of the stroke of said pistons, substantially as set forth.

15. In a steam pumping engine the steam and water pistons of which move in the same or parallel planes and the steam piston of which has a greater length of stroke than the water piston, the combination with the steam and water pistons thereof and their piston-rods, of a lever pivotally connected with and carried by one of said piston-rods, intermediate jointed connections between one arm of said lever and the other piston-rod, and a fulcrum adapted to be engaged by the opposite arm of said lever during the latter portion of the stroke of said pistons, substantially as set forth.

493,669. AUTOMATIC GATE. ALBERT M. WHITELEY, Aurora, Ark., assignor of one-half to Russell Allen and Elijah Peters, same place. Filed Apr. 13, 1892. Serial No. 429,008. (No model.)

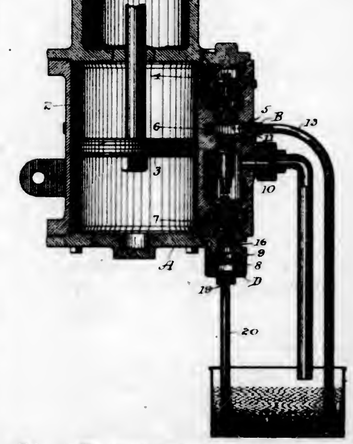


Claim.—1. The combination of the hinged platforms, the sub-sills, the connecting rods, the levers, the lifting rods and the guide rod as and for the purposes substantially as set forth and described.

2. The combination of the upright posts, the gate ways, the sub-sills, the hinged platforms, the levers, the connecting and lifting rods and the guide rod as and for the purposes substantially as set forth and described.

3. The combination, in an automatic gate, of the upright posts B, the frame C, and the braces D, the hinged platforms E, sliding rods G, the levers H, fulcrum H', the connecting rods I and I' the lifting rods K, the guide rod L, and the ways M, as and for the purposes substantially as set forth and described.

493,670. APPARATUS FOR CLEANING AIR-PUMPS OF LOCOMOTIVES. ALEXANDER WHYTE, St. Paul, Minn. Filed July 12, 1892. Serial No. 439,767. (No model.)



Claim.—1. The combination with a pump of the class described, of the hollow cap or cover fitted over the air inlets, and a conduit connecting the same with a supply of cleansing liquid, substantially as described.

2. The combination with a pump of the class described, of the hollow cap or cover inclosing the air inlets having an opening or port

therethrough connecting with said inlets, and a pipe leading therefrom to a supply of cleansing fluid, substantially as described.

3. In a pump of the class described, the combination with the

Claim.—1. The combination, with a storage battery and a dynamo electric machine for charging the same, of a high resistance electro-magnetic circuit closing device adapted to be operated when

or plate having an adjustable sliding connection with the said frame, and provided with a cutting blade pivoted thereto, and an operating frame or lever provided with a rod or shaft having

3. The combination with the rim *a* and the outer covering or tire *d* having flaps d^3, d^3, of the eyelets *f* secured in said flaps at in-

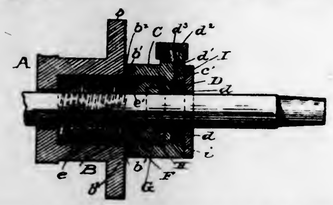
therethrough connecting with said inlets, and a pipe leading therefrom to a supply of cleansing fluid, substantially as described.

3. In a pump of the class described, the combination with the series of air inlets, of a cover adapted to fit over and inclose each series of air inlets and having ports therethrough, means for securing said covers in place, and the pipes connecting the ports in said covers with a supply of cleansing fluid, substantially as described.

4. Means for cleaning the inlet ports of a locomotive air pump comprising in combination, hollow caps or covers fitted over said ports, and pipes leading therefrom to a supply of cleansing fluid, whereby in the operation of the pump the cleansing liquid is drawn through said ports and the impurities washed therefrom, substantially as described.

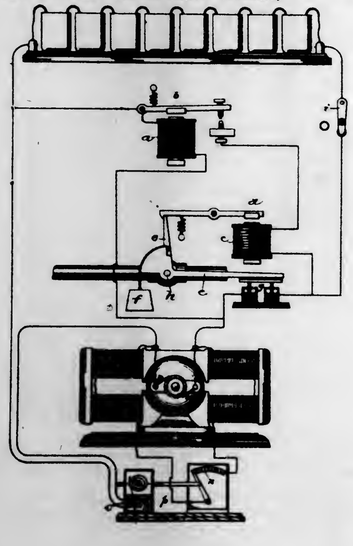
5. The combination with a pump of the class described, of a pipe leading to a supply of cleansing liquid, and means for detachably connecting it with the inlets of the valve chest, substantially as described.

493,671. STUFFING-BOX PACKING FOR PISTON-RODS. WILLIAM H. APPLE, Ashland, Ky. Filed Aug. 13, 1892. Serial No. 443,002. (No model.)



Claim.—In a packing box, the combination with the solid ring F, having a beveled recess in its front face, and the split ring G, having its rear face beveled to correspond with the recess in ring F, and its front face beveled and formed with an annular recess, of the annular split ring H, having a tost A, adapted to engage with a radial division of the ring G, and the ring I, of greater diameter than ring H, having an annular recess in its rear face, and engaging with the beveled edge of ring G, whereby said ring I is concealed and held in place, substantially as described.

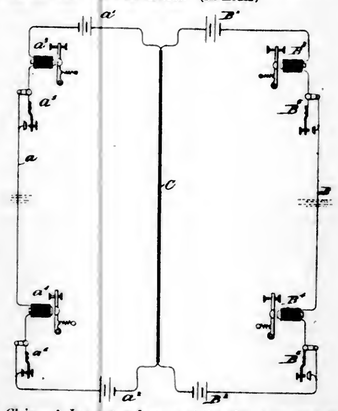
493,672. AUTOMATIC ELECTRIC CUT-OUT. FRANCIS R. BADT, Chicago, Ill., assignor to the Western Electric Company, same place. Filed June 6, 1889. Serial No. 313,395. (No model.)



Claim.—1. The combination, with a storage battery and a dynamo electric machine for charging the same, of a high resistance electro-magnetic circuit closing device adapted to be operated when the battery is fully charged, a circuit controller and mechanism adapted to open the circuit of the storage battery and dynamo, and to close an engine valve, substantially as and for the purpose specified.

2. The combination with the storage battery in the circuit of a dynamo electric machine for charging the same, of a shunt circuit connected around said storage battery including an electro magnetic circuit closing device of high resistance normally included in said shunt circuit and adapted to be operated by the action of the counter electro motive force when the battery is sufficiently charged to cut out the high resistance of said circuit closing device and an electro magnetic valve and circuit controlling mechanism adapted to be included in said shunt circuit which is brought into operation when said high resistance is shunted, substantially as and for the purpose specified.

493,673. SYSTEM FOR TRANSMITTING ELECTRIC CURRENTS. EDWARD BAINES, Brooklyn, N. Y., assignor to himself and Edward J. Mitchell, same place, and Adolph L. Mitchell, Rockville, N. Y. Filed Mar. 21, 1892. Serial No. 425,865. (No model.)

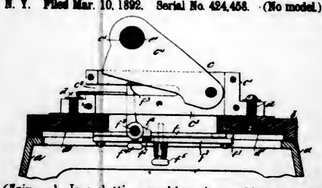


Claim.—1. In a system for transmitting electric currents the combination of two or more non-insulated line wires in contact with the earth, each supplied with an electric generator, transmitting and receiving instruments on each line; and an insulated metallic return connected to all of the line wires, substantially as specified and described.

2. In a system for transmitting electric currents the combination of two or more line wires each provided with an electric generator, transmitting and receiving instruments on each line; the line wires being in contact with the earth for a section or sections of their length and the remaining section or sections being insulated; and an insulated common return connected to the generators on all of the line wires substantially as specified and described.

3. In a system for transmitting electric currents the combination of two or more non insulated or partly insulated line wires, an insulated common return, receiving and transmitting instruments, and electric generators all arranged and combined in the manner shown and described.

493,674. SLOTTING-MACHINE. CHARLES R. BALDWIN, Brooklyn, N. Y. Filed Mar. 10, 1892. Serial No. 424,458. (No model.)



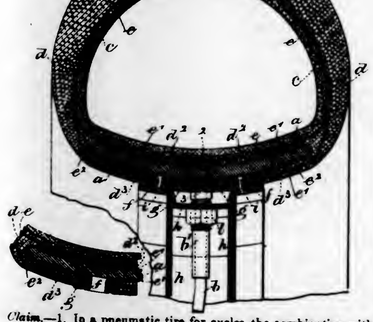
Claim.—1. In a slotting machine, the combination with the supporting frame of a cutting device, consisting of a supporting block or plate having an adjustable sliding connection with the said frame, and provided with a cutting blade pivoted thereto, and an operating frame or lever provided with a rod or shaft having a loose sliding connection with said cutting blade and adapted to operate the same, substantially as described and for the purpose set forth.

2. In a slotting machine, the combination with the supporting frame, of a cutting device consisting of a block or plate having an adjustable sliding connection on said frame and provided with a receiving opening or mouth into which the material to be operated upon is adapted to be inserted, a cutting blade pivoted at one end on said block or plate and adapted to operate across said mouth or opening, an operating frame provided with a rod or shaft having a loose sliding connection with said cutting blade, and an adjustable gage forming a stop to engage with the piece inserted into the said mouth or opening in the cutting device, substantially as described and for the purpose set forth.

3. In a slotting machine, the combination with the supporting frame, of a cutting device, consisting of a supporting block or plate, having an adjustable sliding connection with the frame and provided with a cutting blade connected therewith, an operating frame or lever provided with an arm or shaft having a loose sliding connection with said cutting blade, and suitable means for adjustably securing the cutting device in a desired position, substantially as described and for the purpose set forth.

4. In a slotting machine, the combination with the supporting frame, and a cutting device supported in a horizontally adjustable position on the bed-plate thereof provided with a receiving mouth or opening, of an adjustable gage, consisting of a sliding frame mounted in suitable ways on the under side of the bed-plate, and an arm or rod pivoted on said frame in a manner to be moved across said receiving mouth or be turned beneath the surface of the bed-plate, substantially as described and for the purpose set forth.

493,675. PNEUMATIC TIRE. EDWARD BARRETT, New York, N. Y., assignor to himself and George R. Bidwell, same place. Filed Jan. 25, 1892. Serial No. 419,122. (No model.)



Claim.—1. In a pneumatic tire for cycles, the combination with an inner inflatable tube and a wheel rim of an outer tubular covering or tire divided around its inner face into inner and outer pairs of flaps formed of rubber with the outer covering and having the strips of fabric of the outer covering extended within and molded into said flaps, said flaps being adapted to be opened to receive the wheel rim between them and narrow strips of fabric *g* along the meeting edges of the outer flaps, and eyelets in the outer flaps, and means for engaging the eyelets and securing the tire upon the rim, substantially as specified.

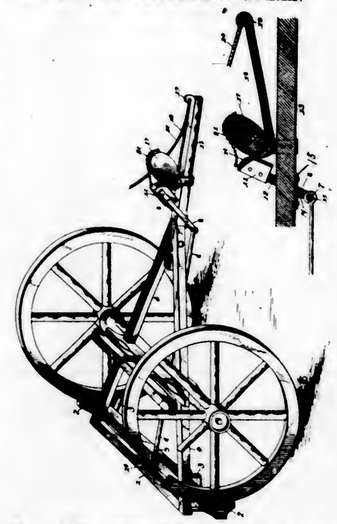
2. In a pneumatic tire for cycles, the combination with an inner inflatable tube and a wheel rim of an outer tubular covering or tire divided around its inner face into inner and outer pairs of flaps formed of rubber with the outer covering and having the strips of fabric of the outer covering extended within and molded into said flaps, said flaps being adapted to be opened to receive the wheel rim between them, and a strip of fabric *e* encircling the rim and strips of fabric *g* extending around the edges of the outer flaps, and eyelets in the outer flaps extending through the same and the strips of fabric and secured thereto, and means for engaging the eyelets and securing the tire upon the rim, substantially as specified.

3. The combination with the rim *a* and the outer covering or tire *d* having flaps d^3, d^3, of the eyelets *f* secured in said flaps at intervals adjacent to the edges thereof, plates *h* agreeing in length with the distance between the spoke centers and having pins on their sides to engage the said eyelets and means for clamping and holding the plates, substantially as specified.

4. The combination with the rim *a* and the outer covering or tire *d* having flaps d^3 d^3, of the eyelets *f* secured in said flaps at intervals adjacent to the edges thereof, plates *h* agreeing in length with the distance between the spoke centers and having pins *i* coinciding with and adapted to engage the said eyelets and a clamping device for pressing the plates upon the tire, substantially as set forth.

5. The combination with the tire portion *d* having flaps d^3 d^3 and eyelets *f*, of the rim *a*, spokes *b*, nipples *b'* with exterior screw threads and nuts *l*, the plates *h* of curved form and centrally depressed and having pins *i* on their under sides coinciding with the eyelets *f*, the nuts *l* operating to secure the plates in place, substantially as specified.

493,676. VEHICLE-BRAKE. MARTIN J. BOSO, Rockmart, Ga. Filed Sept. 21, 1892. Serial No. 446,405. (No model.)



Claim.—1. The combination with a running gear, of a brake-bar carrying brake-shoes, a short brake-lever fulcrumed on the tongue and having its lower end connected with the brake-bar, and a cam lever fulcrumed on the tongue in advance of the brake-lever and having its head engaging the upper end of the brake-lever, substantially as described.

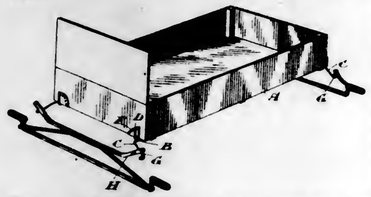
2. The combination with a running gear, of a brake bar carrying brake-shoes, a short brake-lever fulcrumed on the tongue and having its upper end rounded and having its lower end connected with the brake-bar, and the cam lever fulcrumed on the tongue in advance of the brake lever and having a cam head at its rear end engaging the rounded portion of the brake-lever and connected with the latter, substantially as described.

3. The combination with a running gear, of a brake bar arranged in rear of the fore wheels and carrying brake-shoes, a brake-lever fulcrumed on the tongue and consisting of a yoke receiving the tongue and provided at its lower end with a rounded cross-piece, and a cap secured to the sides of the yoke and having a curved face, a connecting rod provided at its front end with an eye receiving the cross-piece and having its rear end adjustably secured to the brake-bar and a cam lever fulcrumed on the tongue in advance of the brake-lever and provided at its front end with a flexible connection and having at its rear end a cam head engaging the brake lever, substantially as described.

4. The combination with a running gear, of a brake bar arranged in rear of the fore wheels and carrying brake-shoes, a brake-lever fulcrumed on the tongue and consisting of a yoke, and a cap having a curved face, a connecting rod provided at its front end with an eye re-

ceiving the yoke and having its rear end secured to the brake-bar, a cam lever fulcrumed on the tongue in advance of the brake-lever and having at its rear end a cam head engaging the brake-lever, and a chain connecting the brake-lever with the cam head of the operating lever, substantially as described.

493,677. SPRING-GEAR FOR VEHICLES. WILLIAM BOSHAR, Moco Mills, Canada. Filed June 6, 1892. Serial No. 435,661. (No model.)



Claim.—1. An improved vehicle spring gear consisting of four torsion rods B, each rod placed longitudinally upon the bottom of the vehicle A, and having a crank C, formed on one end of it and connected by the link G, to the bolster H, or other part of the running gear of the vehicle, in combination with a plate F, having holes E, arranged to receive the bent end D, of the rod B; substantially as and for the purpose specified.

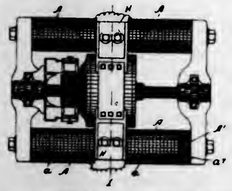
2. An improved vehicle spring gear consisting of four torsion rods B, each rod placed longitudinally upon the bottom of the vehicle A, and having a crank C, formed on one end of it and connected to the link G by the key I, and the bolster H, connected to the link G, in combination with a plate F, having holes E, arranged to receive the bent end D of the rod B; substantially as and for the purpose specified.

493,678. ELECTRIC RAILWAY-SIGNAL. JEFFERSON BRADFORD and JAMES P. WILLIAMS, Boston Station, Ky. Filed June 23, 1892. Serial No. 437,772. (No model.)



Claim.—The combination with the track-rails, of the transverse rods connected to the rails and beneath the same and formed with oppositely extending hooked extensions, insulators on the horizontal portions of said extensions, and the two line wires on said insulators, substantially as described.

493,679. DYNAMO-ELECTRIC MACHINE AND MOTOR. HAROLD P. BROWN, New York, N. Y. Filed Dec. 10, 1891. Serial No. 414,566. (No model.)



Claim.—1. In a dynamo electric machine an armature with coils composed of flat conducting tape, each turn or layer being insulated with fire proof and water proof elastic, non-frangible electrically imperforable material composed of asbestus paper or its equivalent coated or impregnated with burnt shellac, substantially as specified.

2. In a dynamo electric machine a toothed armature with coils composed of flat conducting tape insulated with a tape of fire proof and moisture proof elastic, non-fraagible electrically imperforable material composed of asbestus paper or its equivalent coated or impregnated with burnt shellac, substantially as specified.

3. A toothed armature having in each space between the teeth a single magnet coil composed of flat conducting tape insulated with a tape of insulating material capable of withstanding moisture and of resisting a high degree of heat, composed of asbestus paper or its equivalent, coated or impregnated with burnt shellac, substantially as specified.

4. A fire proof magnet coil composed of alternate layers or turns of metal tape and fire proof insulating tape wound together, the insulating tape being wider than the metal tape and having its overlapping edges turned or folded over or around the edges of the metal tape, substantially as specified.

5. A magnet coil composed of alternate layers or turns of metal tape and of a tape of insulating material capable of withstanding moisture and of resisting a high degree of heat, composed of asbestus paper or its equivalent, coated or impregnated with burnt shellac substantially as specified.

6. A magnet coil composed of a spiral of metal tape whose edges are smoothed, rounded or beveled, and a spiral of insulating tape, wound together so as to insulate each layer of metal tape, said insulating tape being composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

7. A magnet coil composed of metal tape whose edges are smoothed, rounded or beveled, and insulating tape of a material capable of withstanding moisture and resisting a high degree of heat, said insulating tape being composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

8. An armature having two or more coils composed of alternate layers or turns of metal tape and of fire proof and water proof insulating tape, the terminals of said magnets being connected to their respective commutator segments by flexible connections, said insulating tape being composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

9. A magnet coil composed of alternate layers of metal tape and of a fire and water proof insulating tape, said coil being provided with flexible terminals, said insulating tape being composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

10. An armature having coils composed of metal tape with a fire proof insulation, and having flexible metallic terminals provided with fire proof insulation, said fireproof insulation for the tape and terminals being elastic and composed of asbestus paper, or its equivalent coated or impregnated with burnt shellac, substantially as specified.

11. A magnet coil consisting of a spool of fire proof and water proof insulating material, such as vulcanized asbestus, a spiral of metal tape and a spiral of fire proof and water proof insulating tape, such as asbestus coated or impregnated with shellac or other viscous material, said metal and insulating tape being bound together around said spool so as to insulate each layer of the metal tape, substantially as specified.

12. In a dynamo electric machine, an armature consisting of a laminated magnetic core, and two or more spools of heat proof and moisture proof insulation inclosing said core, said spools being wound with a spiral of metal tape and a spiral of heat proof and moisture proof insulating tape so as to insulate each layer of the metal tape, said insulating tape being composed of abestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

13. The fire proof electrically imperforable insulating material composed of fire proof material as abestus, and of a gummy electrically imperforable material as shellac, substantially as specified.

14. In an electric machine a magnet having the coils thereof insulated by an interposed fire proof electrically imperforable material, consisting of mica, spun glass or asbestus paper or fiber coated or impregnated with shellac or other viscous material, substantially as specified.

15. An electric machine comprising field magnets, the coils whereof are composed of flat metal tape wound with an interposed fire proof insulating tape, and an armature the coils whereof are likewise composed of flat metal tape wound with an interposed fire proof insulating tape, said insulating tape being composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

16. An electric machine comprising field magnets with coils composed of flat metal tape wound with an interposed heat proof and moisture proof insulating tape, and an armature the coils whereof are likewise composed of flat metal tape wound with an interposed heat proof and moisture proof insulating tape, said insulating tape being composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

17 In an electric machine a field magnet coil composed of metal tape wound with interposed insulating tape, composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

18. The field magnet coil composed of metal tape wound with interposed fire proof insulating tape, the insulating tape being wider than the metal tape and its overlapping edges being turned or folded over or around the edges of the metal tape, substantially as specified.

19. In an electric machine, a field magnet composed of coils of metal tape wound with interposed fire proof and water proof insulating tape, said coils being wound upon spools of fire and water proof insulating material, said insulating tape being composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

20. In an electric machine a field magnet composed of coils of metal tape wound with interposed insulating tape, said coils being provided with flexible terminals, said insulating tape being composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

21. The toothed armature whose magnets consist of coils of metal tape and an interposed insulating tape, and whose teeth project beyond the outer layers of said coils, said insulating tape being composed of asbestus paper or its equivalent coated or impregnated with burnt shellac substantially as specified.

22. The armature the coils whereof consist of a coil of metal tape and an interposed insulating tape, in combination with a sectional band G for holding the tape coils in place, substantially as specified.

23. The combination with an armature having coils composed of metal tape of protecting plates or bars K for covering the same, substantially as specified.

24. The combination with an armature having coils composed of metal tape of projecting plates or bars K for covering the same, rings K′ K′ for holding said plates in place, substantially as specified.

25. The armature provided with a band G composed of a number of separate segments independently secured by screws for holding the coils thereof in place, substantially as specified.

26. The armature provided with plates K covering the coils for protecting the same from injury, substantially as specified.

27. The armature provided with plates K covering the coils for protecting the same from injury, and holding rings K′ K′ for holding said plates in place, substantially as specified.

28. The combination with an armature of magnet coils provided with protecting plates K, retaining band G screwed or otherwise fastened to the armature, and rings K′ K′ for holding said plates and coils in place, substantially as specified.

29. The combination with an armature having coils consisting of metal tape, of flexible metal leads connecting the terminals of said tape coils with the commutator, substantially as specified.

30. The armature ring furnished with insulating spools C and provided with coils formed of flat metal tape b' and interposed fire proof imperforable insulating tape b^3 composed of asbestus paper and shellac b^4, substantially as specified.

31. The armature ring furnished with insulating spools C, and provided with coils formed of flat metal tape b' and interposed fire proof imperforable insulating tape b^3 composed of asbestus paper and burnt shellac b^4, said insulating tape b^3 being wider than said metal tape and its overlapping edges being turned or folded over the edges of said metal tape, substantially as specified.

32. The armature ring furnished with insulating spools C and provided with coils formed of flat metal tape b' and interposed fire proof imperforable insulating tape b^3 composed of asbestus paper and burnt shellac b^4, said insulating tape b^3 being wider than said metal tape and its overlapping edges being turned or folded over the edges of said metal tape, and flexible wire leads F connecting said coils with segments of the commutator, substantially as specified.

33. The armature ring furnished with metal tape coils b one in each notch of said ring, said coils each having an inner and outer terminal and an intermediate loop terminal connected by round flexible wire leads with commutator segments, substantially as shown and described.

34. A dynamo electric machine, the armature coils whereof are secured in place by the retaining band G screwed to projecting teeth or lugs on the armature, in combination with a groove cut in the field magnet, pole pieces to give proper clearance to said band and screw heads, substantially as specified.

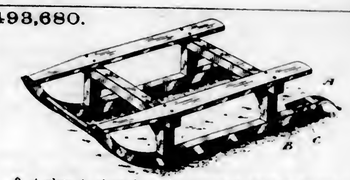
35. An armature with coils composed of alternate layers of turns of metal tape and of a tape of insulating material, metal leads connecting said coils to their respective commutator segments and a recess below said segments filled with burnt shellac or other lubricant, substantially as specified.

36. A magnet coil composed of metal tape insulated with fire-proof and water-proof tape, said coil being wound upon a spool built up of successive layers of fire-proof material such as asbestus and mica, fastened together with a water-proof material, as shellac, and provided with an outer layer, such as rubber cloth capable of withstanding the mechanical abrasion of the process of winding said metal tape, substantially as specified.

493,680. SLED-BRAKE. HARMAS BOMBER, Barrie, Canada, assignor of one-half to James Herbert McKeggie, same place. Filed May 4, 1892. Serial No. 431,790. (No model.)

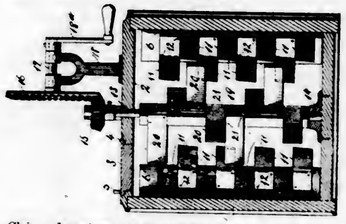
Claim.—1. A brake for sleds, comprising a plate pivoted on the runner, having a point at each end, and constructed so that either may be in contact with the ground, substantially as described.

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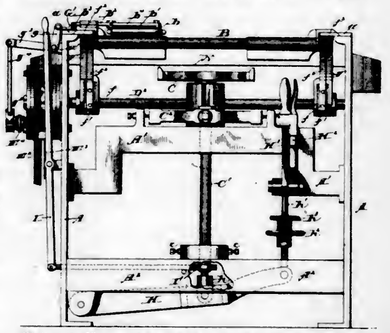
2. A plate A, pivoted on the runner B, heels a, formed on the plate, and a pin D, fixed to the plate and extending across the runner B, substantially as and for the purpose specified.

493,681. CHURN. WILLIAM M. CASON, Kansas City, Mo. Filed Aug. 1, 1893. Serial No. 441,897. (No model.)



Claim.—In a churn, the combination of an angular body-portion and a vertical revoluble dasher-shaft having a vertical angular body-portion, and provided with alternate horizontal outwardly extending dasher-arms or blades secured to the sides of the angular body-portion of the dasher-shaft, with a number of removable standards triangular in cross-section and located in the corners of the churn-body, and each provided with two vertically arranged series of dasher arms, secured to the inner side of the said standards, and projecting inwardly toward the center of the churn, substantially as described.

493,682. SHINGLE-SAWING MACHINE. FRANK CHALLONER, Omro, Wis. Filed Mar. 23, 1887. Serial No. 232,196. (No model.)



Claim.—1. The combination in a shingle sawing machine of a suitable frame, a reciprocating carriage supported in ways on said frame, a cross shaft having bearings in said frame and connected with the source of power, drums fixed on said shaft at each side of the machine, and flexible connections passing in opposite directions around the drums to which they are attached, to opposite ends of the carriage to which they are attached, said connections having adjustable attachments for taking up slack and adjusting the travel of the carriage, substantially as and for the purposes set forth.

2. The combination in a shingle sawing machine of a suitable frame provided with ways, a reciprocating carriage supported in said ways, a rock shaft having bearings in said frame and set transversely to the travel of the carriage, segment shaped drums fixed on said shaft at each side of the machine, and cross straps adjustably attached to opposite sides of each drum and leading therefrom to op-

posite ends of the carriage to which they are attached, substantially as and for the purposes set forth.

3. The combination in a shingle sawing machine of a reciprocating block carriage, an engine connected therewith and arranged to move the same back and forth over the saw, a valve controlling the ingress and egress of steam or the like to and from said engine and a valve operating lever applied to the carriage and having operative connections with said valve, substantially as and for the purposes set forth.

4. The combination in a shingle sawing machine of a reciprocating block carriage, an engine connected therewith and arranged to operate the same, a valve controlling the ingress and egress of steam or the like to and from said engine, a lateral sliding guide set parallel with the side of the carriage and connected with said valve, a transverse slide applied to the adjacent side rail of the carriage and working with said lateral sliding guide and a lever connected with said slide and arranged to operate the valve in whatever position the carriage may be, substantially as and for the purposes set forth.

5. The combination in a shingle sawing machine of a reciprocating carriage, an engine having an oscillatory piston, drums mounted upon the engine shaft and connected by cross straps with the front and rear ends of the carriage and a valve controlling the ingress and egress of steam or the like to and from said engine, substantially as and for the purposes set forth.

6. The combination in a shingle sawing machine of a reciprocating block carriage, an engine having an oscillating piston and drums mounted upon the engine shaft at each side of the machine and provided on opposite sides with adjustable slides, straps attached to the opposite ends of said carriage and to said slides in said drums and a valve controlling the ingress or egress of steam or the like to and from said engine and a lever applied to said carriage and connected with said valve, substantially as and for the purposes set forth.

7. The combination in a shingle sawing machine of a reciprocating carriage, an engine having an oscillatory piston connected with said carriage, a cylinder divided by a transverse partition opposite said piston, a rock valve controlling the ingress or egress of steam or the like to and from the cylinder on each side of said partition, a rock shaft having a crank arm connected with a similar arm on the valve stem, a sliding guide set parallel with the carriage side and connected with crank arms on said rock shaft, a transverse slide mounted upon the adjacent side rail of the carriage and working with said laterally sliding guide and arranged to operate said valve when the carriage is in any position, substantially as and for the purposes set forth.

8. The combination in a shingle sawing machine with the carriage of a vertically adjustable tilting table, a step lever supporting said tilting table, an adjusting lever connected with said step lever and a locking device for securing the adjusting lever in position when adjusted, whereby the tilting table is raised or lowered and set at the desired elevation with reference to the saw, substantially as and for the purposes set forth.

9. The combination in a shingle sawing machine of a reciprocating carriage, a tilting table supported in a step hinged in a lever and a bell crank lever connected with said step lever and provided with a spring catch working with a notched arc, substantially as and for the purposes set forth.

10. The combination in a shingle sawing machine of a reciprocating carriage, a vertically adjustable table resting in a step which is hinged in a lever fulcrumed to the frame of the machine at one end and connected at the other end by an adjustable rod with a lever arranged to raise or lower said table as desired, substantially as and for the purposes set forth.

493,683. BEAM-CALIPERS. GEORGE A. COLSON, Washington, D. C. Filed May 27, 1892. Serial No. 434,533. (No model.)

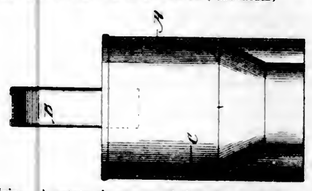


Claim.—1. In a caliper square, the combination with a straight rod having a graduated scale thereon and a fixed jaw at one end thereof, of a movable jaw mounted on said rod and provided with a magnifying glass located over the graduated scale, substantially as shown and described and for the purpose specified.

2. In a device of the character described, the combination with the graduated bar and fixed jaw, of the movable jaw and a magnifying glass pivoted to said jaw and adapted to be swung over the graduated bar, substantially as described and for the purpose specified.

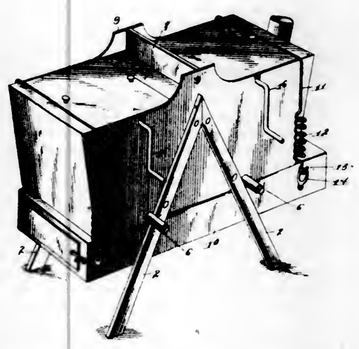
3. In a device of the character described, the combination of the rod A, the graduated bar C, the fixed jaw B, the movable jaw D carrying the standard F, the casing G secured to the outer end of said standard and a magnifying glass pivoted within said casing and adapted to be swung over said graduated bar, substantially as shown and described and for the purpose specified.

493,684. POTATO-CHOPPER. CURTIS F. COMPTON, Davison, Mich. Filed Sept. 13, 1892. Serial No. 445,733. (No model.)



Claim.—A potato-chopper consisting of a cylinder A provided with a suitable handle and a removable interior cylinder, the body of which fits closely within the body of the cylinder A by which it is held in position, one end of said interior cylinder being smaller than the other, substantially as specified.

493,685. WASHING-MACHINE. JOSHUA H. COBBER, Itasca, Tex. Filed Apr. 27, 1892. Serial No. 430,818. (No model.)



Claim.—In a washing machine, the combination of a sheet-metal body having a transverse partition forming two tubs and provided with rubbing-boards, a fire-box arranged beneath the body and provided at each end with a pair of eyes, and bails arranged at the ends of the body and passing over the latter and terminating in springs provided with hooks engaging said eyes, substantially as described.

493,686. WIRE-STRETCHER. LIBERTY CROSS, Poynette, Wis., assignor of one-half to Edgar R. Hinkson, same place. Filed Jan. 6, 1893. Serial No. 457,504. (No model.)

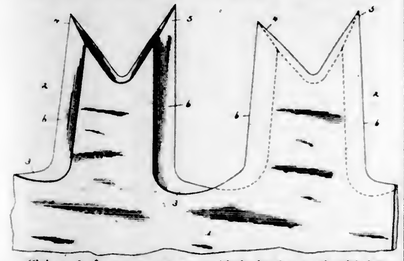
Claim.—1. A wire stretcher comprising the long and short levers curved at their forward ends to form a heel and provided with jaws, the longer lever having its rear end curved and pointed, a pivot connecting the levers at the heel, and a handle extending laterally from the rear end of the shorter lever, substantially as described.

2. A wire stretcher comprising the long and the short levers curved at their forward ends to form a heel, the long lever having its rear end curved and pointed, and its forward end rounded and provided with an outwardly extending flange to form a jaw and the shorter lever being provided at its forward end with a laterally extending flange, forming a jaw and arranged opposite the jaw of the other lever, a pivot connecting the levers, and a handle extending laterally from the rear end of the shorter lever, substantially as described.

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493,687. CROSSCUT-SAW. LEHARD R. DEAN, Vancouver, Canada. Filed Oct. 10, 1892. Serial No. 448,383. (No model.)



Claim.—1. In a cross-cut saw, a blade having teeth with intersecting throats and notched to form smaller teeth arranged in pairs, one of each pair of said smaller teeth being longer than the other, substantially as described.

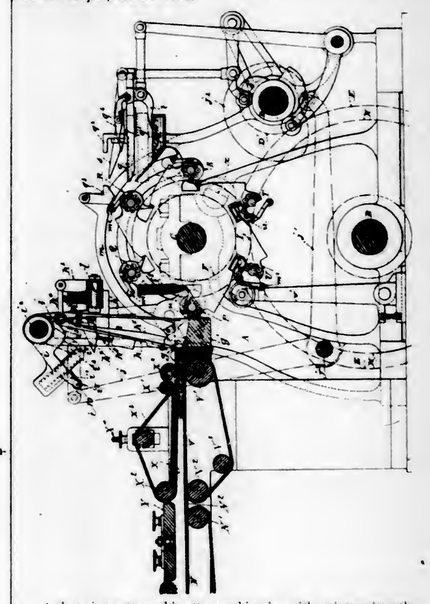
2. In a cross-cut saw, a blade having a series of teeth intersected by throats, the bases of the latter being beveled in opposite directions and said teeth being notched to form pairs of smaller teeth, one of each pair of said smaller teeth being longer than the other tooth and said teeth all sharpened alternately on reversed sides to provide double cutting edges, substantially as described.

493,688. CIGARETTE-MACHINE. ANATOLE R. DROUGLE, Paris, France. Filed Apr. 3, 1891. Serial No. 387,490. (No model.)

Claim.—1. In a cigarette machine the combination with a rotating collar C, provided with end flanges *a*, *a'*, of two groups of forming rollers adapted to revolve within a casing arranged on the outer periphery of said flanges, a tobacco feeding mechanism, a clipping and compressing mechanism and a wrapping mechanism, all said parts being arranged and adapted to operate and be operated substantially as described, and for the purposes set forth.

2. In a cigarette machine the combination with an intermittently rotating collar C provided with end flanges *a*, *a'* mounted to revolve about a single horizontal shaft, of a casing provided with a pivoted top and arranged on the outer periphery of said flanges, a group of forming rollers arranged in each of the parts of said casing, and mechanism, substantially as described, connected with said flanges, and adapted to open and close the pivoted portion of said casing, all substantially as described, and for the purposes set forth.

3. In a cigarette machine, the combination with an intermittently rotating collar C, provided with end flanges *a*, *a'*, of a casing provided with a pivoted top, and arranged on the outer periphery of said flanges, a group of forming rollers arranged in both parts of said casing, and mechanism, substantially as described, for rotating said forming rollers independent of said collar and casing, all substantially as described, and for the purposes set forth.



4. In a cigarette machine the combination with an intermittently rotating collar C provided with end flanges *a*, *a'*, of hollow shaft *c* adapted to rotate in bearings in said flanges, a casing provided with a pivoted top and arranged on the outer periphery of said flanges, a group of forming rollers arranged in each of the parts of said casing, and means for regulating the length of the tobacco roll, said means consisting of rods adapted to reciprocate longitudinally in said hollow shaft *c* buffers *p* secured to the inner ends of said rods, and cams p^2 adapted to operate said rods and secured to and operated by plate *m*, substantially as described and for the purposes set forth.

5. In a cigarette machine the combination with an intermittently rotating collar C provided with end flanges *a*, *a'*, and mechanism, substantially as described, for forming a roll of tobacco and arranged on the outer periphery of said flanges, of a tobacco feeding mechanism, a clipping and compressing mechanism, consisting of a clipping arm A, cutter A^3 on the lower end of said arm A, compressing arm A^1 adapted to reciprocate vertically on said arm A, and an arm A' pivoted to upper end of arm A and adapted to be closed against arm A^3, and means for operating both said feeding and clipping and compressing mechanisms, all substantially as described, and for the purposes set forth.

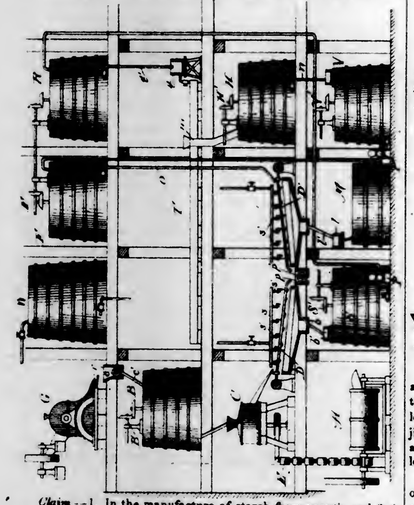
6. In a cigarette machine the combination of an intermittently rotating collar C provided with end flanges *a*, *a'* and adapted to revolve about a single horizontal shaft C, a series of groups of tobacco rolling and wrapper applying devices mounted on the end flanges of said collar C and revolving therewith in a circular path about the axis of the shaft C, means for supplying tobacco to the rolling devices, devices for feeding wrappers thereto, and mechanism for revolving said collar, all said parts being adapted to operate in the manner and for the purpose substantially as described.

7. In a cigarette machine, the combination of an intermittently rotating collar C mounted on shaft C, and provided with end flanges *a a'* a hinged sectional casing arranged on said end flanges, circularly arranged tobacco-roll-forming and wrapper applying rollers mounted in each section of said casing, mechanism, substantially as described, for revolving said collar connected with the driving mechanism of the machine, and means independent of the collar rotating mechanism for rotating the forming rollers and opening and closing the casing to receive and form the tobacco roll, all substantially as described.

8. In a cigarette machine, a wrapper gumming mechanism combining therein a pusher *q'*, means for operating said pusher, a gum-

mer *f* pivoted to said pusher, a regulating lever g^4 also pivoted to said pusher, and a gum reservoir, all said parts being adapted to operate and be operated substantially as shown and described and for the purposes set forth.

493,689. **MANUFACTURE OF STARCH.** JULIUS DUBIEL, Waukegan, Ill. Filed Oct. 5, 1891. Serial No. 407,673. (No model.)



Claim.—1. In the manufacture of starch from coontie and farinaceous plants of like species, the process of separating the albumen and decolorizing the material, which consists in reducing the material to a pulp and treating the pulp prior to separating the starch from the cellular tissue with sulphurous acid and chloride of lime, substantially as described.

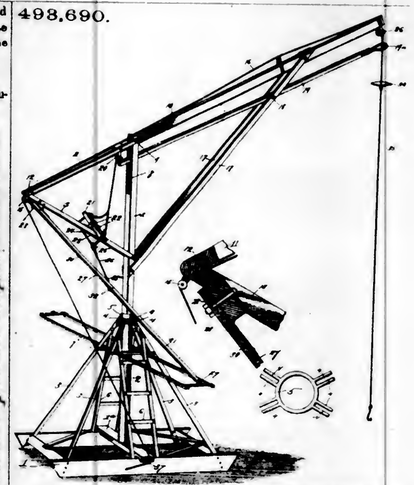
2. The process of manufacturing starch from coontie and farinaceous plants of like species, which consists in reducing the material to a pulp, steeping the pulp and treating it prior to separating the starch from the cellular tissue with sulphurous acid and chloride of lime separating the starch from cellular tissue in the pulp, precipitating the starch from the liquid holding it in suspension, mixing the precipitated starch with fresh water and agitating it, and separating the starch from the liquid, substantially as described.

3. The process of manufacturing starch from coontie and farinaceous plants of like species, which consists in reducing the material to a pulp, steeping the pulp and treating it prior to separating the starch from the cellular tissue with sulphurous acid and chloride of lime separating the starch from cellular tissue in the pulp, precipitating the starch from the liquid holding it in suspension, mixing the precipitated starch with fresh water and agitating it, separating the starch from the liquid and imparities therein by settling, again mixing and agitating the resultant starch with fresh water, further reducing the mixture with water and stirring it and straining it to separate impurities therefrom, and separating the starch from the resultant liquid by precipitation, substantially as described.

4. The process of manufacturing starch from coontie and farinaceous tubers of like species, which consists in first washing the roots, reducing them to a fine pulp by grating, steeping the pulp with a solution of sulphurous acid and agitating the mass, then adding to the mass a solution of chloride of lime, finely grinding the pulp and straining it to separate the starch from the coarser cellular tissue and woodfiber, disintegrating the finer particles of fiber and starch by mixing the strained liquid with fresh water, and stirring it, reducing the gravity of the mixture, depositing the starch from the mixture, mixing the deposited starch and agitating it with fresh water, again reducing the mixture with water and stirring it, straining the mixture to separate the starch from the finer particles of fiber, and separating the starch from the liqaid by precipitation, substantially as described.

493,690. **DERRICK.** LEVI DUNBAULD, Hartford, Kans. Filed Sept. 3, 1892. Serial No. 444,982. (No model.)

493,690.



Claim.—1. In a derrick, the combination of a supporting frame, a revoluble post stepped therein, a slot in said post, and a jib secured therein, and a jib extension also secured to the post, with a tripping lever located beneath the jib, and a break-joint brace connecting the jib extension and a fixed part of the framework, and a rocking bar and ropes or cords connecting the break-joint brace and the tripping lever, substantially as set forth.

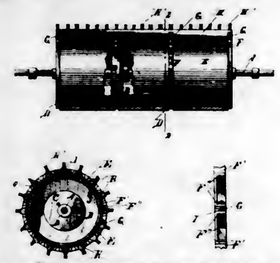
2. A derrick, comprising a suitable supporting frame-work a revoluble post stepped in said frame-work, and having a slotted upper end, a jib secured in said slotted end, and a jib extension also secured to the upper end of the said revoluble post, brace bars connecting the jib and the post, a trip-lever pivoted between the said brace bars and extending through the slotted upper end of the post, a break-joint brace connecting the frame-work and the jib extension, and a rocking-bar located beneath the inner end of the trip-lever, and cords or ropes connecting the inner end of the trip-lever and the rocking bar and the middle portion of the break-joint brace and the rocking bar, substantially as set forth.

3. In a derrick, a supporting frame-work, having a fixed deck-frame at its upper end, a revoluble post stepped in said frame-work, and having a slotted or notched upper end, a jib extending forwardly and upwardly from said post and secured in the slotted upper end, brace bars connecting the jib and the post, and a jib extension also secured to the upper end of the post, and brace bars connecting the jib extension and the post, and a block carried by the brace bars connecting the jib extension and the post, and a break-joint brace pivoted to operate laterally, at its upper end to the said block, and an eye bolt and staple connecting the lower end of the break-joint brace and the deck-frame, and a lever pivotally supported beneath the jib, and a rocking-bar pivotally supported upon the brace bars connecting the jib extension and the post, and cords or ropes connecting the rocking-bar and the trip-lever and connecting the rocking-lever and the break joint brace, substantially as set forth.

4. In a derrick, a framework comprising a sled, a deck frame supported at the upper end of the frame-work, a revoluble post stepped in said framework, a jib secured to the upper end of said post, and a jib extension also secured to the upper end of said post, and a break-joint brace, composed of two similar parts hinged together to operate vertically, and having the upper part thereof hinged to a block, to operate vertically, and having said block pivoted to operate laterally to the block at the outer ends of the braces connecting the jib extension and the post, and having an eye-bolt and staple connecting the lower end of the two part brace with the deck-frame, substantially as set forth.

5. A derrick, comprising a supporting frame work, a revoluble post mounted thereon, a jib extending forwardly from the post and braced, and a jib extension extending rearwardly from said post also braced, pulleys carried at the outer ends of the jib and the jib extension extending rearwardly from the post, and a trip lever pivoted between the jib brace bars, and having a loop at its forward end and connected through medium of rocking arm, and cords or ropes to the break joint brace at its inner end and a sheave or pulley carried at the side of the sled or frame work, and the hoisting rope guided through the loop of the end of trip lever and over the pulleys carried by the jib and by the rearwardly extending jib extension and under the sheave or pulley secured to side of sled, having the adjustable trip plate, to engage the loop of the trip lever and raise the same and through the mechanism described break the joint brace and partially revolve the post and load, substantially as described.

493,691. **COTTON-GIN BRUSH.** WILLIAM E. ELAM and ROBERT S. THOMAS, Dallas, Tex. Filed Sept. 5, 1892. Serial No. 445,069. (No model.)



Claim.—1. The combination with a brush shaft and an entirely closed hollow wooden drum secured thereto, of metal hoops encircling said drum and sunk in its surface until flush therewith, and a series of brush sticks fitting against said surface and removably secured to said hoops.

2. The combination with the wooden drum, of the metal hoops sunk in its surface and provided with a series of projecting flanges forming a series of dove-tail slots, and brush sticks fitting in said slots, substantially as set forth.

3. The combination with the shaft, of the hollow wooden drum, having end closing plates and intermediate plates supporting the drum walls, means for fixing the drum to said shaft, metal hoops encircling the drum, and brush sticks fitting against the outer face of the drum and removably secured to said hoops.

4. In a gin brush, the combination with the drum, of the divided hoop having the external flanges adapted to receive brush sticks, and the belt passing through said flanges and clamping the hoop upon the drum, substantially as and for the purpose set forth.

5. The combination with a shaft, of a normally closed hollow, brush-bearing drum secured to the shaft by devices located within the drum, apertures for permitting access to said devices, and closures normally stopping said apertures.

493,692. **STEERING APPARATUS.** THOMAS ELLIS, Rochester, Mass. Filed July 27, 1892. Serial No. 441,349. (No model.)

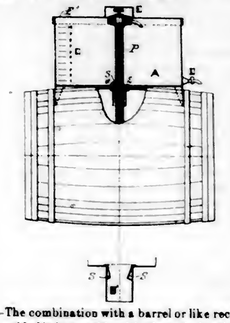


Claim.—A marine vessel having transverse openings through the dead wood near the bow and stern; marine screws journaled in said openings, with their shafts at right angles to the keel, said shafts provided with bevel gears adapted to mesh with gears on the ends of the shafts *c*, and *c'*, extending inward to the center of the vessel; a bevel gear *f*, journaled at right angles to said shafts and adapted to receive motion in either direction, from an engine; a bevel gear *g*, fixed to the shaft *c'*, and meshing with the gear *f*; a bevel gear *g'*, having grooved hub *h*, adapted to slide on the shaft *c'*, and communicate motion to it by means of the spline *k*, and adapted to mesh with the gear *f*, at certain times; a grooved collar *h'*, adapted to connect the shafts *c*, and *c'*, at certain times; a rod *l*, sliding in bearings and provided with the forks *i*, and *i'*, adapted to embrace the grooves in the collars *h*, and *h'*, and means to operate said rod, whereby the marine screws are caused to revolve in the same, or opposite direction at the will of the pilot, for the purpose as shown and described.

493,693. **WASHING COMPOUND.** CAROLINE S. ELY, Champlain, N. Y., administratrix of Charles B. Ely, deceased. Filed Dec. 31, 1892. Serial No. 456,943. (No specimens.)

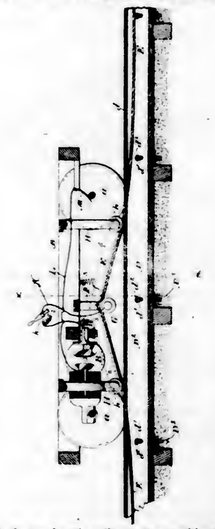
Claim.—The herein described washing compound, consisting of soda ash, sulphate of ammonia, borax, oat flour and wheat flour, substantially in the proportions specified.

493,694. **OIL-PUMP.** EDMUND ENGLISH, Philadelphia, Pa. Filed Mar. 9, 1892. Serial No. 424,351. (No model.)



Claim.—The combination with a barrel or like receptacle for containing oil, provided in its top side with a bung-hole, of a drop-pipe provided with a sustaining encircling flange at its upper end and diametrically disposed slots beneath said encircling flange and inwardly projecting holding springs S, S, at the upper end of drop-pipe adapted to be forced outwardly by the pump-stock when passed downwardly through the measuring tank into the barrel, substantially as specified.

493,695. **CONDUIT ELECTRIC RAILWAY.** HENRY P. FELTROW, Columbus, Ohio, assignor of one-half to Richmond R. Brown, same place. Filed Mar. 4, 1891. Serial No. 383,732. (No model.)

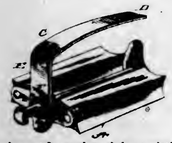


Claim.—1. In an electric railway, the combination of a conduit formed of insulating material and the opposite sides of which terminate at their upper ends in integral inturned slot rails, *d*, metallic braces exteriorly embracing the conduit at intervals, transverse insulated supports arranged inside of the conduit, the motor car having a centrally suspended trolley wheel electrically connected with the car motor, and a flexible conductor supported inside of said conduit on the insulated supports therein and adapted to be lifted out of the conduit between the integral slot rails and to be supported on the centrally suspended trolley wheel, substantially as described.

2. In an electric railway, the combination, of a conduit arranged between the track rails and having its sides and bottom formed of insulating material, cross-pieces arranged transversely in the conduit and having upper insulated faces, the motor car, a central trolley wheel suspended beneath the car and in circuit with its motor, opposite depressing wheels suspended beneath the car near each end and in close proximity to the conduit, and a flexible conductor resting on the insulated cross-pieces in the conduit and adapted to be lifted out of the conduit onto the trolley wheel and to bear under said opposite depressing wheels, substantially as set forth.

3. In an electric railway a car having a motor, a bracket F depending from the center of the car, a shoulder *f*, upon the bracket F, a trolley wheel G journaled upon the said bracket and electrically connected with the motor, brackets H depending from the car near the ends thereof depressing wheels *h* journaled in the lower ends of the brackets H, in combination with a flexible conductor arranged in a conduit of insulating material beneath the track and connected with a suitable source of electricity and adapted to be raised out of the conduit by the trolley wheel G, through which electrical contact is made to the motor and be depressed by the depressing wheels *h*, *h*, and a suitable return circuit, substantially as and for the purpose specified.

493,696. ATTACHMENT FOR CYCLE-PEDALS. WILLIAM L. FERGUSON, Philadelphia, Pa. Filed Aug. 3, 1892. Serial No. 442,090. (No model.)



Claim.—An attachment for cycle pedals consisting of an L-shaped stirrup mounted on the axle of the pedal and adapted to be turned up over the pedal.

493,697. EAVES-TROUGH ATTACHMENT. GEORGE L. FISK, Hinsville, Ill. Filed Oct. 7, 1891. Serial No. 408,050. (No model.)



Claim.—1. The combination of the eaves-trough and drainage pipe with the pivoted trap located within the trough and over the entrance to the pipe and means for operating the same to discharge the accumulations and to re-set the trap, substantially as described.

2. The combination of the trough, pipe and trap, with the lever and cord for operating the trap from the ground, substantially as described.

493,698. STOPPER-FASTENER FOR FRUIT-JARS. JOHN H. FORNEY, Marion, Ind. Filed Aug. 1, 1892. Serial No. 441,817. (No model.)



Claim.—1. A detachable spring clamp for securing the covers or stoppers of fruit jars, &c., comprising a single piece of spring metal bent so as to form a pair of bars extending across the top of the cover and having hook-shaped ends connected by integral transverse bars, together with a thumb-lever hinged to one of said transverse bars, whereby the clamp may be applied and locked so as to bind the cover firmly to its seat, substantially as described.

2. In combination with the jar having the exterior annular shoulder or terminal flange encircling the mouth thereof, the detachable cover, and the fastening device consisting of a single piece of spring metal bent so as to form a pair of bars extending across the top of the cover and having hook-shaped ends connected by integral transverse bars, together with a thumb-lever hinged to one of said transverse bars, whereby the clamp may be applied and locked so as to bind the cover firmly to its seat, substantially as described.

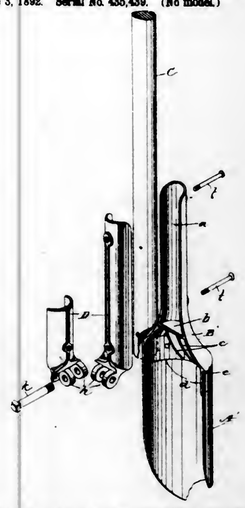
3. The combination with the jar having the exterior annular shoulder encircling the mouth thereof, and the removable cover, of the fastening device consisting of a single rod or bar of spring metal formed with parallel cross-bars whose end portions merge into hooks which are joined together by integral transversely arranged curved bars adapted to catch under said annular shoulder, and an eccentrically pivoted thumb-lever carried by one of said transverse bars, substantially as described.

493,699. CARPET-FASTENER. JOHN R. GALLINGER and THOMAS C. DE LEEW, Superior, Wis. Filed Apr. 15, 1892. Serial No. 429,290. (No model.)



Claim.—As a new article of manufacture, a carpet fastener comprising a bar or strip which is flat upon the bottom and convex upon the top, and provided upon the side adjacent the base board of the room, with the curved or concavo-convex projecting prongs or teeth *a* formed integrally with said bar, and upon a plane with the top of the convexed surface thereof, substantially as described and for the purpose set forth.

493,700. POST-HOLE DIGGER. LEWIS GIBBS, Canton, Ohio. Filed June 3, 1892. Serial No. 435,439. (No model.)



Claim.—A post hole digger comprising opposing blades, extensions secured to said blades, hinged pieces forming in conjunction with said extensions handle sockets, and provided with lugs, handles in said sockets a pivot inserted through said lugs, and bolts for securing the hinge-pieces and extensions to the handles, substantially as described.

493,701. BOTTLE-STOPPER. GEORGE H. GILLETTE, New York, N. Y. Filed Apr. 21, 1892. Serial No. 430,146. (No model.)

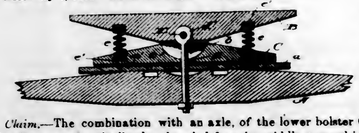
Claim.—1. A bottle stopper consisting in a core having a bulbous lower extremity, a reduced neck, and an india-rubber or other elastic disk attached to the core below the bulb, and means for limiting the insertion of the stopper whereby at its extreme entrance said disk is interposed with upturned margins between the bulb and the throat of the bottle, substantially as described.

2. The combination of a bottle stopper composed of a core having a bulbous lower extremity, a reduced neck, an india-rubber or other elastic disk attached to the core below the bulb, and means for limiting the insertion of the stopper whereby at its extreme entrance said disk is interposed with upturned margins between the bulb and the throat of the bottle, with a bottle circumferentially grooved within its throat for the reception of such bulb, and the upturned disk, substantially as described.



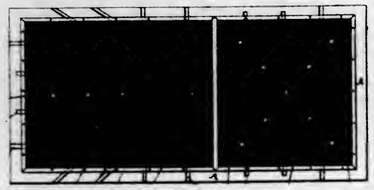
3. In a bottle stopper, the combination of a core having a bulbous lower extremity, a reduced neck, and an india rubber or other elastic disk attached to the core below the bulb, which when inserted is interposed with upturned margins between the bulb and the throat of the bottle, and a rigid disk attached to the core concaved to clamp at its margins upon the said india rubber disk in the manner described.

493,702. VEHICLE-BOLSTER. THOMAS H. GLANCY, Fairport, N. Y. Filed May 4, 1892. Serial No. 431,757. (No model.)



Claim.—The combination with an axle, of the lower bolster C having its upper face inclined or beveled from its middle toward its ends and provided with a socket *c* and the lugs *c'*, an upper bolster B likewise having its lower face beveled toward its ends and provided with the depending parallel lugs *b* adapted to fit in the socket *c* in said lower bolster, a king bolt *d* extending between the parallel lugs *b* and provided at its upper end with an eye or loop, a transverse bolt E extending through the eye of said bolt and the lugs *b* and *c'*, and the cushion springs arranged between the adjacent oppositely beveled faces of the upper and lower bolsters, substantially as described.

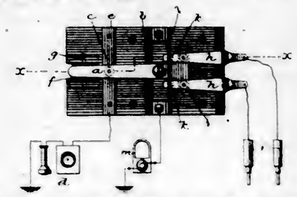
493,703. DOOR OR WINDOW SCREEN. EDWARD GOFF, Franklin County, Ind. Filed Apr. 29, 1892. Serial No. 431,106. (No model.)



Claim.—1. The combination, with a frame having a batten or brace therein, said brace being provided with a rearwardly diverging opening, and with recesses transversely across one face, said perforations and recesses alternating with each other and a perforated wire screen secured to said frame and brace, the perforations of the screen registering with the openings and the recesses of the brace, substantially as set forth.

2. The combination with a wire screen, having perforations of a larger area than its mesh of a guard, pivotally secured to said screen over each perforation, said guard having a conical portion on one side of the pivot with an opening at its apex, and having the portion on the opposite side of the pivot substantially continuous and adapted to close the opening in the screen when turned on the pivot, substantially as set forth.

493,704. LISTENING AND RINGING KEY FOR TELEPHONE-SWITCHBOARDS. WILLIAM M. GOODRIDER, Highland Park, assignor to the Western Electric Company, Chicago, Ill. Filed July 19, 1890. Serial No. 359,247. (No model.)



Claim.—1. In a ringing and listening key the combination of the insulating block, the main metallic spring lever, the cam and lever pivoted on the said insulating block and adapted to force the said spring lever out of contact with a connection to the operator's telephone set, the two terminal metal springs, the contacts therefor provided on the heel of the said main spring lever, the generator strip, the push buttons, said terminal springs adapted to be forced into contact with said generator strip and out of contact with the heel of the said main spring lever by the said push buttons, substantially as shown and described.

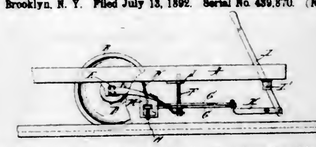
2. The combination of the insulating block with the main metallic spring lever secured thereto and provided at the fixed end with two contacts, the cam and lever, the pivot thereof secured to the said insulating block, the contact forming a connection with the operator's telephone set, said cam and lever working on said pivot in the slotted guide in the insulating block and adapted in one position to hold the said main spring and lever away from the connection with the operator's set and in the opposite position to allow said spring to rest on the said contacts, the metallic springs forming the terminals of a pair of plugs and cords and normally resting on the said contacts provided on the fixed end of the said main spring lever, the push buttons one over each terminal spring, the common generator strip, said terminal springs being adapted to be carried away from their contacts on the main spring lever and into contact with the said generator strip, substantially as shown and described.

3. The combination of the insulating base *b* with the main metallic spring lever *a*, the contact *c* on which said spring lever *a* normally rests, the metallic terminal springs *h* secured to said base *b*, the contacts upon the end, said main spring lever *a* upon which the said terminal springs normally rest, the generator strip *l*, the push buttons *k*, one for each terminal spring by means of which the said springs are pressed away from their normal contacts and into contact with the said generator strip, substantially as shown and described.

4. In a switch board connecting and listening apparatus, a conducting interconnecting section for connecting any two lines comprising a pair of plug connectors united by flexible conductors, and intermediate contact springs; a set of operators telephones normally in electrical connection with the said interconnecting section whereby it is brought into circuit with any line intermediately upon the connection of either plug with said line; and means as indicated, for disconnecting the said telephones from the said interconnecting section when desired without electrically opening said inter-connecting section.

5. A telephone switch board listening and ringing appliance, comprising a normal but separable electrical connection between the two plug connectors of a pair constituting an interconnecting link for any two lines and the operators telephones; means substantially as indicated for connecting either of said plug connectors independently to a call generator for sending an outgoing signal; and a cam lever circuit controller acting simultaneously upon the said separable connections of the said pair of plugs to disconnect them when in use from the said operators telephones.

493,705. EMERGENCY-BRAKE FOR CARS. JAMES GOODFELLOW, Brooklyn, N. Y. Filed July 13, 1892. Serial No. 439,870. (No model.)



Claim.—1. In an emergency brake, the pivoted or hinged arms

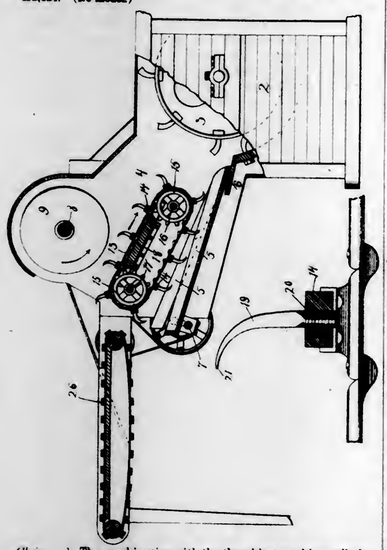
carrying the brake lugs, said arms being mounted upon and combined with a supporting bar attached to the car axle boxes, substantially as and for the purposes set forth.

2. In combination with the hinged arms carrying the brake lugs arranged to bear against the tracks, the movable axis supported as explained, its upper end being guided, substantially as shown and for the purposes set forth.

3. In an emergency brake, the combination with the hinged arms carrying the brake lugs and arranged to tilt as explained, of the slotted guides operating to guide said arms substantially as and for the purposes set forth.

4. In an emergency brake, the combination of the hinged arms carrying the brake lugs and arranged to tilt as explained, a hand lever, connecting arms and slotted guides for the hinged arms, substantially as shown and described.

493,706. FEED-REGULATOR FOR THRASHING-MACHINES. GEORGE W. HALLETT, Aberdeen, S. D. Filed May 6, 1892. Serial No. 432,021. (No model.)



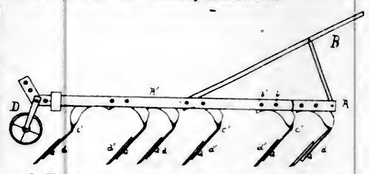
Claim.—1. The combination with the thrashing machine cylinder, of band cutting disks provided on a transverse shaft arranged before said cylinder and rotating at a high rate of speed, an inclined and more slowly operating regulator device arranged beneath said disk and consisting of endless chain belts with transverse bars fixed thereon and provided with backwardly curved square cornered teeth, a table to support the bars of the upper side of the conveyer, and means for driving the cylinder, disks and conveyer, substantially as described.

2. The combination, with the cylinder, of a series of rapidly rotating cutting disks, a conveyer arranged immediately beneath said disks and operating more slowly and inclined toward the conveyer, said conveyer made up of endless chain belts, metal bars fixed thereon and square cornered curved teeth provided on said bars for holding the lower side of the bundle, a floor over which the upper bars operate, and shaker pans provided beneath said conveyer for catching loose grain falling through the regulating conveyer, substantially as described.

493,707. CULTIVATOR. WILLIAM HAMMER, Elyria, Ohio. Filed Aug. 3, 1892. Serial No. 442,035. (No model.)

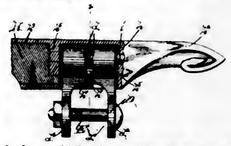
Claim.—1. A cultivator frame having a central bar provided with a series of teeth in line with each other, so that all the succeeding teeth follow in the path of the first, the extreme teeth of said series being at the extreme front and rear of the harrow, and having side beams, each carrying a series of teeth, and adjustable laterally from the central bar, substantially as shown and described.

2. In a cultivator, the frame and teeth shanks secured thereto, and the teeth connected to said shanks, each tooth having parallel ends which are normally horizontal to the surface of the ground, and having concave sides, substantially as described.



3. The cultivator tooth having a perforated body for attachment to the frame, said body being twisted one to an angle of about ninety degrees, and having holes for the attachment of a removable point, in combination with the removable point which is nearly rectangular, with the sides slightly concave, all substantially as described.

493,708. SPRING-GEAR FOR VEHICLES. HENRY W. HANELL, Potsdam, N. Y. Filed Mar. 18, 1889. Renewed Sept. 7, 1892. Serial No. 445,221. (No model.)



Claim.—1. In a vehicle, the combination of a rear axle, a rigid support upon said axle, a front axle, a head block upon said axle, concaving sockets in the opposite extremities of said head block, links having one extremity pivoted within said sockets, springs having one extremity pivoted to said links and the other to said rigid support, said springs having a substantially horizontal central portion elevated above their extremities, and a vehicle body mounted on said elevated portion, substantially as and for the purpose set forth.

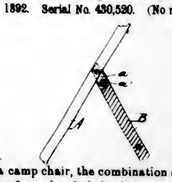
2. In a vehicle, the combination of a body supporting spring, a rigid head block having a socket in the extremity thereof, provided with substantially flat end walls a link for connecting said spring to said socket, and a pin for supporting said link substantially as specified.

3. In a vehicle, the combination of a body supporting spring, a rigid head block having a separable metallic extremity, a socket in the lower part of said extremity, and a connection having one extremity of less width than said socket and supported therein and connected to said spring, substantially as set forth

4. In a vehicle, the combination of a body supporting spring, a head block having a concaving socket in the lower part thereof, formed with substantially flat end walls a link composed of separable halves pivotally supported in said socket a pin for pivoting the upper extremity of said link within said socket, a cut out in the adjacent sides of the lower extremity of said separable divisions of the link, and a spring mounted in said cut out, substantially as set forth.

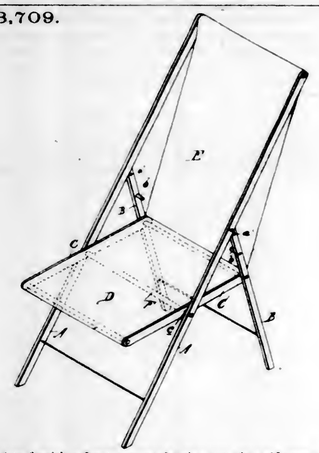
5. In a vehicle, the combination of a hind axle —B—, a rigid support mounted upon said axle, the head block —H— having a socket in the underside of its extremity, provided with substantially flat end walls a spring shackle having its upper extremity of less width than said socket mounted in said socket, and a spring connected to said rigid support and shackle, substantially as described.

493,709. FOLDING CAMP-CHAIR. JOHN HARPPER, Detroit, Mich. Filed Apr. 25, 1892. Serial No. 430,530. (No model.)



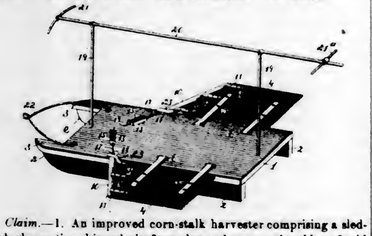
Claim.—In a camp chair, the combination of front standards extending upward to form the chair back, rear standards hinged to the front standards, a seat frame hinged to the rear standards, stops located on the rear standards between the seat hinge and the hinge uniting the front and rear standards, rests on the front standards

493,709.



adapted to furnish a front support for the seat, the said stops on the rear standards being adapted to engage with the seat frame, and cause the lower ends of the rear standards to close in toward the lower ends of the front standards simultaneously with the further closing movement of the forward end of the seat frame to the upper end of the chair back, substantially as and for the purpose described.

493,710. CORN-HARVESTER. ERNEST A. HARRINGTON, Beloit, Kans. Filed Aug. 27, 1891. Serial No. 403,881. (No model.)



Claim.—1. An improved corn-stalk harvester comprising a sled-like body-portion, hinged platforms located at opposite sides of said body-portion and each provided with a rearwardly and outwardly extending front end or margin, and spring-retracted cutters mounted on said front ends or margins of the platforms and movable longitudinally thereon, substantially as set forth.

2. An improved corn-stalk harvester, comprising a sled-like body-portion, hinged extension platforms located at opposite sides of said body portion, cutters movable inwardly and outwardly upon inclined front margins of said platforms, spring retracted rods working in boxes or frames secured upon the sled-body, and jointed rods connecting the cutters to said spring-retracted rods, substantially as set forth.

3. An improved corn-stalk harvester, comprising a sled-like body-portion, having vertical standards or uprights, and a longitudinal supporting bar secured to said uprights, and provided at its rear end with a removable transverse shocking-pin, substantially as set forth.

493,711. FOLDING BED. PHILIP J. HARRAN, Bloomfield, Ind. Filed Mar. 4, 1892. Serial No. 423,763. (No model.)

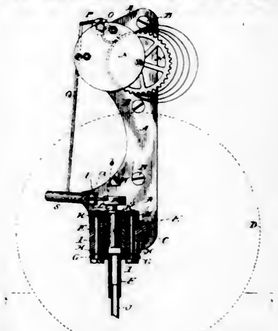


Claim.—1. The herein-described improved folding bed, comprising the stationary frame, the rods secured thereto, the two springs of different tension on said rods, the pivoted bedstead section and the sliding-head section connected with said springs, substantially as set forth.

2. The herein-described improved folding bed, comprising the stationary frame, the rods secured thereto having adjustable nuts thereon, the coil springs on said rods of different tensions, the pivoted or swinging bedstead section, and the sliding head-section having plates or brackets with which said springs are in contact, substantially as set forth.

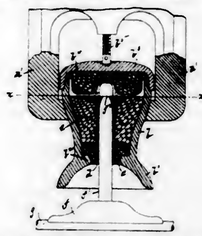
3. The herein-described improved folding bed, comprising the combination with the stationary frame, of the pivoted bedstead-section, the sliding section, the hinging board connected at its longitudinal edges to the lower edge of said sliding section and inner end of said bedstead-section, the threaded rods, the angular plates secured to said stationary frame supporting said rods, the nuts on said rods, the springs on said rods, and the plates attached to said sliding section in contact with said springs, substantially as set forth.

493,712. PNEUMATIC ALARM. SYDNEY P. HASEY, New York, N. Y. Filed Oct. 7, 1892. Serial No. 448,099. (No model.)



Claim.—The combination in a bell alarm device of a pneumatic cylinder, a piston having an enlarged portion and a contracted or recessed portion outside of the cylinder, a clockwork, a gong, a hammer and a trigger, adapted to control the operation of the hammer by resting against it and against the enlarged portion of the piston, substantially as set forth.

493,718. INSULATOR FOR TROLLEY-WIRES. MERRILL H. HATHAWAY, Springfield, Mass., and JOHN KELLEHER, Manchester, N. H.; Adele L. Hathaway administratrix of said Merrill H. Hathaway, deceased. Filed Apr. 2, 1892. Serial No. 427,464. (No model.)



Claim.—1. An insulating hanger for trolley wires consisting of a substantially cup-shaped shell having means whereby it can be suspended from a bracket-arm or other support and having an opening in the bottom thereof, a metallic tube extending upwardly within said shell, a lining of insulating material entirely surrounding said tube within the shell, a metallic stem adapted to enter said tube and having at its lower end means whereby it can be rigidly secured to a trolley wire, and means substantially as described for securing said stem in position within said tube, substantially as set forth.

2. An insulating hanger for trolley wires consisting of a substantially cup-shaped shell having an opening in the bottom thereof and having located within said opening a bushing of insulating material, a metallic tube extending upwardly through said bushing into said shell and having its upper end flared outwardly, a lining of insulating material surrounding said tube within the shell, a stem adapted to be thrust upwardly within said tube and having at its lower end means whereby it can be secured to a trolley wire, said stem being provided with a shoulder at or near its upper end, suitable wedge-blocks adapted to enter the flaring portion of said tube and by their engagement with the shoulder on said stem retain the latter within the tube, and means, as a yoke, for suspending said shell from a suitable support, substantially as set forth.

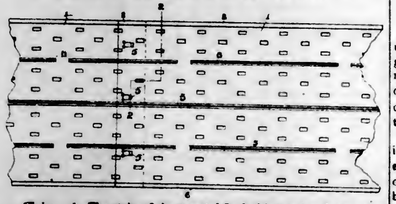
3. An insulating hanger for trolley wires, consisting of a metallic shell having an opening in the bottom thereof and provided with a removable cap or cover lined with insulating material, a metallic tube extending upwardly within said shell, a lining of insulating material surrounding said tube within the shell, a metallic stem adapted to be thrust upwardly within said tube and having means at its lower end whereby it can be secured to a trolley wire, locking means for retaining said stem within the tube, and a yoke for suspending said shell from a bracket-arm or other support, substantially as set forth.

4. In an insulating hanger for trolley wires, a yoke adapted to be secured to a bracket-arm or other support and having depending therefrom two arms, a substantially cup-shaped shell adapted to be inserted between and supported by the arms of said yoke, said shell having an opening in the bottom thereof and a removable cap or cover at its upper end, a vertically movable screw entering a tapped hole in said yoke and adapted to be lowered upon said cap or cover to retain the latter upon the shell and to retain the shell between the yoke-arms, a stem adapted to be thrust upwardly through the opening in the bottom of said shell and carrying at its lower end an ear for securing the same to a trolley wire, a lining of insulating material surrounding said stem within the shell, and means for locking the upper end of said stem within the shell, substantially as set forth.

5. In an insulating hanger for trolley wires, a supporting yoke, a shell adapted to be suspended from said yoke, said shell being of a greater diameter at the top than at the bottom thereof and having depending from said bottom an annular bell-shaped flange, a tube extending upwardly through the bottom of said shell, which tube is entirely surrounded by a lining of insulating material, a stem adapted to be thrust upwardly within said tube and having at its lower end means for securing it to a trolley wire, said stem having a shoulder near the upper end thereof, and means at the upper end of said tube for engaging the shoulder on said stem and retaining the latter within the tube, substantially as set forth.

6. The insulating hanger for trolley wires herein described, consisting of a supporting yoke, a metallic shell adapted to be suspended from said support, said shell having an opening in the bottom thereof and having a removable cover lined with insulating material, a bushing of insulating material located within the opening in the bottom of said shell, a metallic tube passing upwardly through said bushing into the shell and having a flaring upper end, a lining of insulating material surrounding said tube within the shell, a metallic stem adapted to be thrust upwardly within said tube, said stem carrying at its lower end an ear for securing the same to a trolley wire and having near the upper end thereof a transverse shoulder, and a plurality of metallic wedge-blocks adapted to occupy the flaring upper end of said tube and to project beneath the shoulder on said stem for retaining the latter within the tube, substantially as set forth.

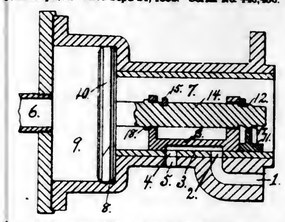
493,714. METALLIC LATHING. ELISHA HAWES, Sacramento, Cal. Filed Mar. 14, 1892. Serial No. 424,862. (No model.)



Claim.—1. The strip of sheet metal for lathing and such purposes consisting of pieces transversely over-lapped and secured together by clinches intermediate the edges of the strip, the overlapped parts of said pieces being provided with edge folds, intermediate stiffening ribs and backwardly curved projections; substantially as set forth.

2. The strip of sheet metal for lathing and like purposes consisting of pieces transversely over-lapped and secured together by clinches intermediate the edges of the strip, the over-lapped portions having also backwardly curved mortar-holding projections formed in each sheet and closely embracing each other, said strip being provided with stiffening and mortar holding lengthwise ribs and edge folds, substantially as set forth.

493,715. GRADUATING-VALVE FOR TRIPLE-VALVE MECHANISMS. JAMES T. HAYDEN, Chicago, Ill., assignor to the Crane Company, same place. Filed Sept. 21, 1892. Serial No. 446,436. (No model.)



Claim.—1. In controlling mechanism for automatic air brakes, the combination of an auxiliary reservoir, a brake cylinder, a triple valve casing, a port and passage leading from said reservoir to the brake cylinder, a port and passage forming an exhaust from said cylinder, a slide valve controlling said ports in the release of the brakes, a graduating valve controlling the port from the reservoir to the brake cylinder in the application of the brakes, a piston and stem for moving said valves, said stem having an incline thereon for operating the graduating valve to open and close the port from the reservoir to the brake cylinder, substantially as described.

2. In triple valve mechanisms, the combination of an auxiliary reservoir, a brake cylinder, a triple valve casing, a piston moved one way by train pipe pressure and the other by reservoir pressure and having an incline on its stem, a slide valve for controlling the exhaust from the cylinder to the atmosphere; with a pivoted graduating valve controlling a port directly from the reservoir cavity to the cylinder passage, said graduating valve being operated to open and shut by a slight movement of the piston independent of any movement of the slide valve and by means of an inclined plane on the piston stem, substantially as described.

3. In graduating valves for triple valve mechanisms, the combination of the piston chamber 9, and piston 10, working therein, the valve chamber 7 and valves 13 and 11 working therein, a port 2 leading from the chamber 7 to the brake cylinder passage 1, the valve 11 pivoted to the valve 13 and controlling said port in the application of the brakes, an exhaust port 4 leading to the atmosphere, said exhaust port being adapted to be put in communication with the brake cylinder port 2 by means of the cavity 3 in the face of the slide valve 13 to insure the release of the brakes; and the pivot pin 19 for holding the graduating valve in position, substantially as described.

4. In graduating valves for triple valve mechanisms the piston and its stem having inclines 12 and 17, a valve 11, for controlling a port opening from the auxiliary reservoir to the brake cylinder, and pivoted to and in combination with a main slide valve 13, and adapted to be operated to open and close the brake cylinder port by the inclines 12 and 17 all arranged substantially as shown.

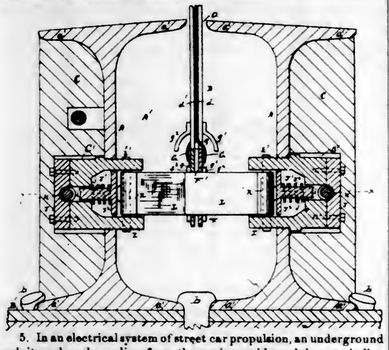
493,716. CONDUIT SYSTEM FOR ELECTRIC RAILWAYS. ELIAS HASELTON, Lansing, Mich., assignor of one-half to Harley Ingersoll, same place. Filed Feb. 15, 1892. Serial No. 421,508. (No model.)

Claim.—1. In an electrical system of street car propulsion, an underground conduit, a main line electrical conductor, casings engaged in the wall of the conduit, through which electrical contact is made with said conductor, and a contact device engaged with said casing for making electrical contact with the conductor, each of said casings provided with a cap engaged over said conductor, substantially as described.

2. In an electrical system of street car propulsion, a conduit having side rails or plates constructed with flanges at top and bottom, extending laterally on both sides of the rail and approaching one another on the inside of the rail, forming an interior and exterior chamber, and in combination therewith a main electrical line wire, located in one of the exterior chambers, a series of casings engaged at intervals with one of said side rails, a shoe movable in said conduit carrying an electrical conductor, and means engaged with said casings, and operated by said shoe, whereby electrical connection may be formed between the line wire and said conductor, substantially as described.

3. In an electrical system of street car propulsion, an underground conduit constructed with perforated flanged side rails or plates, having T-shaped heads and bases, and in combination therewith exterior fillings, located between the flanges of the rail outside the conduit and adjacent to the external body of the rail, and a main line electrical conductor carried in said filling, substantially as described.

4. In an electrical system of street car propulsion, an underground conduit, a shoe depending from the car into said conduit, a main line electrical conductor, a spring plunger to make electrical contact with said conductor, normally out of contact therewith, and a metallic spring arm L connected with said plunger normally extending across the path of the shoe, substantially as described.



5. In an electrical system of street car propulsion, an underground conduit, a shoe depending from the car into said conduit, a main line electrical conductor, a spring plunger to make electrical contact with said conductor, normally out of contact therewith, an oscillatory metallic block K engaging said plunger, said block provided with a metallic spring arm normally extending across the path of the shoe, substantially as described.

6. In an electrical system of street car propulsion, an underground conduit, formed of two rails flanged on each side thereof at the top and bottom, forming an interior chamber therebetween and exterior chambers at either side thereof, said rails separated at their upper ends to form a channel into the interior chamber, said conduit having in combination therewith a main line electrical conductor located in one of said exterior chambers, the adjacent rail perforated to permit electrical contact therewith, substantially as described.

7. In an electrical system of street car propulsion an underground conduit formed of two rails or plates each constructed in a single integral piece provided with flanges at the top and bottom extending laterally on both sides thereof, a main line electric insulated conductor bared at intervals located exterior to said conduit, and a series of contact devices projected through the adjacent rail to make electrical contact with the conductor, substantially as described.

8. In an electrical system of street car propulsion, an underground conduit formed of two flanged side rails, forming an interior and an exterior conduit, a main line insulated electrical conductor bared at intervals, located in said exterior conduit, and a series of electrical contact devices located adjacent to the bared portions of the conductor arranged to project through the adjacent rail, to make electrical contact with said conductor, substantially as described.

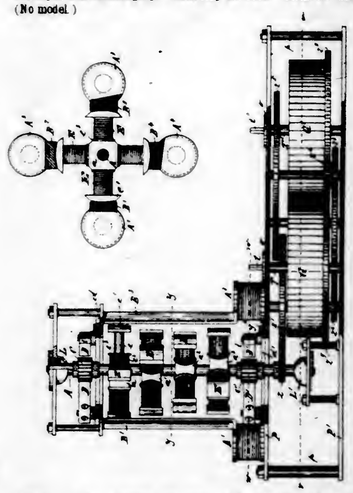
9. In an electrical system of street car propulsion, an underground conduit formed by two rails each flanged on both sides, at the top and bottom said rails resting on underlying ties of the car track and extending upward to the surface of the car track, and provided with a channel therebetween at the top, a main line electrical conductor located exterior to said rails, and contact devices projected through said rails for making electrical contact with said conductor, substantially as described.

493,717. SELF-FEEDING RATCHET-BRACE FOR HAND-DRILLING PURPOSES, &c. WILLIAM H. HESSON, Toronto, Canada. Filed May 13, 1892. Serial No. 432,862. (No model.)



Claim.—A self-feeding ratchet-brace composed of a body 1, having formed at one end a recess 2 to receive the shank of the drill or other tool and having at its other end a sleeve 3 screw-threaded on its inner face in combination with the sleeve 5 provided with a screw 4 at one end located centrally within the shell of the sleeve 5, said screw adapted to mesh with the screw-threaded portion of the sleeve 3 the opposite end of the sleeve 5 extended to form a shank 6 sleeve 7, a metallic bar 9 adapted to slide within the sleeve 7 and provided with a pointed end 11 to serve as a pivot, said metallic bar 9 having a series of apertures 10 therein through which and through apertures 8 formed in the sleeve 7 are adapted to pass, a locking pin, a lever 16 adapted to rotate around the body 1, ratchet teeth 15 on the body 1, pawls 14 meshing with the teeth 15, a spring 13 pivoted to a standard 15ª secured to the lever 16, said spring adapted to bear on the back of the pawls 14 and force the said pawls into engagement with the teeth 15, said springs adapted to be turned on their said pivots, substantially as described.

493,718. DYNAMO-ELECTRIC MACHINE. SANTA HELLEBRANDT, Przemysl, Austria-Hungary. Filed May 26, 1892. Serial No. 434,320. (No model.)



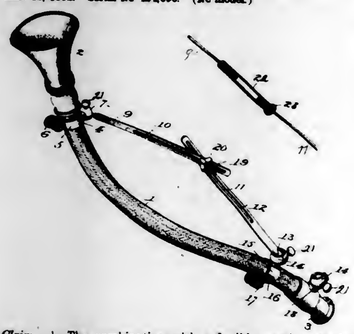
Claim.—1. In a dynamo the combination with the frame, the shaft, and the two commutators, of a series of electro-magnets arranged spirally on said shaft, a series of field magnets secured to the frame and provided with upwardly extending field magnet poles, a series of brushes operating on each of said commutators and adapted to be adjusted separately by means of screws, and in series—by means of slotted plates, to which they are secured, a pinion secured to the shaft and a spring motor operating said pinion substantially as described and set forth.

2. In a dynamo the combination with the frame, the shaft and the two commutators, of a series of electro-magnets arranged spirally on said shaft, a series of field magnets secured to the frame and provided with upwardly extending field magnet poles, a series of brushes operating on each of said commutators and adapted to be adjusted separately by means of screws and in series—by means of slotted plates, to which they are secured, a pinion secured to the shaft, springs arranged on the frame and adapted to operate said pinion by intermeshing gear wheels, and a regulating mechanism for controlling said springs, all said parts substantially as described and for the purposes set forth.

3. In a dynamo the combination with the frame, the shaft and the two commutators, of a series of electro-magnets arranged spirally on said shaft, a series of field magnets secured to the frame and provided with upwardly extending field magnet poles, a series of brushes operating on each of said commutators and adapted to be adjusted separately by means of screws and in series—by means of slotted plates, to which they are secured, a pinion secured to the shaft, springs arranged on the frame and adapted to operate said pinion by intermeshing gear wheels, a regulating mechanism for controlling said springs, a casing surrounding the current generating mechanism, a

lamp socket arranged on top of said casing, and an incandescent lamp in said socket adapted to be operated from said dynamo, all said parts substantially as described and for the purposes set forth.

493,719. SUPPORT FOR PHONOGRAPH SPEAKING-TUBES OR OTHER PURPOSES. WILLIAM G. HENDERSON, Washington, D. C. Filed Mar. 12, 1892. Serial No. 424,696. (No model.)



Claim.—1. The combination with a flexible sound transmitter and means for its attachment to and detachment from a movable carriage, of a support sustaining the outer end of said transmitter and adapted to be carried by the carriage, substantially as and for the purposes set forth.

2. The combination with a flexible sound transmitter and means for its attachment to and detachment from a movable carriage, of a support adapted to be carried by the carriage for sustaining the outer end of the transmitter, said support being adjustable for holding the transmitter at various angles of inclination, substantially as and for the purposes set forth.

3. The combination with a flexible sound transmitting tube constructed to be attached to and carried along by a movable carriage, of a jointed support adapted to be carried by the carriage for sustaining the outer end of the tube, said support permitting the outer end of the tube to be turned sidewise, substantially as and for the purposes set forth.

4. A support for a flexible sound transmitting tube comprising arms or extensions movable one relatively to the other, and means for attaching them to the tube, substantially as and for the purposes described.

5. In a support for a flexible sound transmitting tube, the combination with a member capable of sustaining the outer end of the tube when attached to a base carried by a movable carriage and jointed to permit adjustment of the tube, of means for securing said member to the tube so as to be carried along therewith, substantially as and for the purposes described.

6. A sound transmitter support provided at different points with means for attachment to said transmitter so that the support may be sustained by said transmitter and said support sustain the outer end of the transmitter, substantially as and for the purposes described.

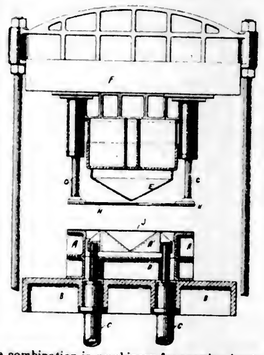
7. The combination with a flexible sound transmitter, of a support for the outer end of the transmitter, said support being sustained from and carried by said transmitter, substantially as and for the purposes set forth.

8. The combination of a plurality of sockets provided with attaching means, an arm connecting both sockets and having a movable and elastic connection therewith, and means for regulating the tension of the connection between the arm and at least one of the sockets, substantially as described.

493,720. MACHINERY FOR PRESSING BOATS FROM SHEET METAL. WILLIAM HESLOP, Wakefield, England. Filed May 2, 1892. Serial No. 431,491. (No model.)

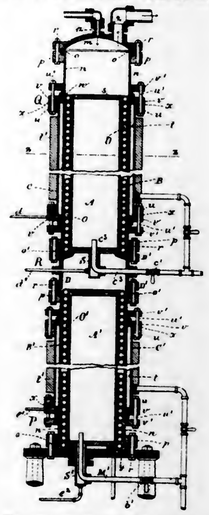
Claim.—1. The combination in mechanism for pressing boats of an upper die and a lower die adapted to give the shape required for the boat, the lower die having a movable central section, a holding down plate for the edges of the sheet while being pressed, and rams for actuating the respective parts, substantially as specified.

2. The combination in mechanism for pressing boats of an upper die and a lower die adapted to give the shape required for the boat, the lower die having a movable central section, a holding down plate for the edges of the sheet while being pressed, changeable packing pieces for supporting the lower die sections during the different operations, and rams for actuating the respective parts, substantially as specified.



3. The combination in machinery for pressing boats of the head or supporting plate F, the sectional male die E connected therewith, the holding down plate H, the sectional female die A the rising table B, on which said die A, is mounted, the central movable die section A', and the rams for actuating the respective parts substantially as specified.

493,721. REFRIGERATING APPARATUS. DANIEL L. HOLDEN, New York, N. Y. Filed Mar. 28, 1892. Serial No. 426,660. (No model.)



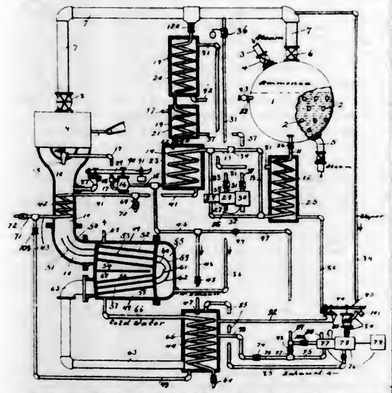
Claim.—1. The combination in an ice machine of a still in two parts each part having an inner heating tube and an outer jacket and a metallic coil or helix in the intermediate generating chamber, a pipe for supplying the rich liquor at the top of the upper still, a chamber connecting the upper and lower generating chambers and a pipe for weak liquor from the lower part of the still, pipes and cocks for supplying exhaust steam to the inner tube and jacket of the upper still and pipes and cocks for supplying steam at a high temperature to the inner tube and jacket of the lower still substantially as specified.

2. The combination in a refrigerating apparatus, of an inner cylinder and an outer cylinder for heating or cooling and intervening wire helices of metal in contact with the respective cylinders to act as conductors for varying the temperature of the liquid material allowed to run over the helices and between the cylinders, substantially as set forth.

3. The combination in a still or generator of an inner tube, an outer tube, a metal coil or helix in the generator space between the respective tubes, heads for closing the outer and inner tubes, a jacket for fluid such as steam or water surrounding the outer tube, rings secured upon the outer tube and to the ends of the jacket and packings confined between the respective rings and tube for rendering the joints tight but for allowing for expansion and contraction substantially as specified.

4. The combination in a two-part still or generator for ice machinery of two inner tubes closed at their ends and one above the other, outer tubes closed at their top and bottom ends, an intermediate cylinder connecting the outer tubes and forming a chamber that opens into the generator spaces between the outer and inner tubes of the respective parts of the still, jackets around the upper and lower parts of the still and separate pipes for supplying steam to the respective parts of the still, so that the lower part of the still can be the hottest and pipes for supplying the rich liquor at the top of the still and for taking off the weak liquor from the bottom of the still substantially as specified.

493,722. METHOD OF AND APPARATUS FOR OPERATING AQUA-AMMONIA ENGINES. CHARLES L. HORACK, Brooklyn, N. Y. Filed Jan. 2, 1890. Renewed May 11, 1892. Serial No. 432,576. (No model.)



Claim.—1. The method herein described of heating aqua ammonia, using part of the gas so evolved for propelling an engine, compressing and cooling another part of said gas in a by-pass around the engine, allowing it to expand afterward therein, thus producing artificial cold, for the purpose of thereby cooling liquid to be used for absorbing the exhaust vapor of said engine, substantially as set forth.

2. The method herein described of heating aqua ammonia, using part of the gas so evolved for propelling an engine, compressing and cooling another part of said gas in a by-pass around the engine, allowing it to afterward expand therein thus producing artificial cold, cooling thereby liquid to be used for absorbing the exhaust vapor of said engine, reabsorbing the exhaust vapor from the engine and the gas used for refrigerating the absorbing liquid in the same absorbing apparatus and forcing the same jointly back into the generator, wherein the ammonia gas was evolved, substantially as set forth.

3. The method herein described of operating an aqua ammonia engine by vapor developed by heating aqua ammonia in a generator, and absorbing the exhaust vapor of the engine by liquid withdrawn from said generator, said absorbing liquid being lowered in temperature first by bringing the pipe containing it in contact with cooling water and by afterward passing it through a chamber in such proximity or relation to that part of a by-pass around the engine wherein ammonia gas from the generator after having been liquefied is expanded, so as to impart the artificial cold of such gas to the absorbing liquid, substantially as set forth.

4. The method herein described of operating an aqua ammonia engine by vapor developed in a generator, and absorbing the exhaust vapor of said engine by liquid withdrawn from said generator, said absorbing liquid being lowered in temperature by passing it through a chamber in such relation or proximity to a column of ammonia gas expanded after having been liquefied and being continuous between the generator and the absorber, as to impart the artificial cold of such gas to said absorbing liquid, substantially as set forth.

5. The method herein described of absorbing the exhaust vapor of an ammonia engine and absorbing ammonia gas expanded for purposes of refrigeration by bringing absorbing liquid withdrawn from the generator, and cooled, first in contact with the exhaust vapor from the engine, and afterward bringing the combined absorbing liquid and exhaust vapor in contact with the ammonia gas expanded for purposes of refrigeration, substantially as set forth.

6. The method herein described of absorbing the exhaust vapor of an ammonia engine and absorbing ammonia gas expanded for purposes of refrigeration, which consists in first bringing absorbing liquid in contact with the exhaust vapor from the engine, then passing the combined absorbing liquid and exhaust vapor through an absorber and in such proximity or relation to the passages wherein ammonia gas from the generator is expanded after having been cooled, as to have the artificial cold so produced serve as cooling agent in said absorber and finally bringing the combined exhaust vapor and spraying liquid in contact with the ammonia gas so expanded for purposes of refrigeration, substantially as set forth.

7. The method herein described of developing ammonia gas by heating aqua ammonia in a generator, passing part of said gas through an engine cylinder for propelling its piston, liquefying another part of said gas by cooling it under pressure, allowing it to expand for purposes of refrigeration, absorbing the exhaust from the engine and the gas expanded for purposes of refrigeration by liquid withdrawn from the generator and cooled, passing the absorbing liquid combined with the exhaust of the engine and with such gas previously used for refrigeration back into the generator and using such combined gas and liquid as a cooling medium in said liquefaction while on their way to the generator, substantially as set forth.

8. The method herein described of developing ammonia gas by heating aqua ammonia in a generator, liquefying gas so generated by cooling it while under pressure, allowing it to expand for purposes of refrigeration, absorbing the expanded gas by liquid withdrawn from the generator and cooled, and employing the combined gas and absorbing liquid as a cooling medium in said liquefaction, prior to forcing the same back into the generator, substantially as set forth.

9. The method herein described of liquefying ammonia gas, using it while expanding as cooling medium for the absorbing liquid of an ammonia engine and conducting such gas through pipes draining toward a receiving well, for the purpose of absorbing it therein, substantially as set forth.

10. The method herein described of absorbing the exhaust vapor of an aqua ammonia engine by liquid discharged under pressure from one or more outlets under such directions, as to make different currents of said liquid impinge upon each other under pressure outside of said outlet or outlets, for the purpose of dispersing, or of atomizing, said absorbing liquid in the passage through which the exhaust vapor flows, substantially as set forth.

11. The method herein described of absorbing the exhaust vapor of an ammonia engine, which consists in reducing the absorbing liquid in temperature by conveying it through passages cooled artificially and discharging it into the absorbing apparatus from one or more outlets in such directions as to make different currents of said liquid impinge upon each other under pressure outside of said outlet or outlets, substantially as set forth.

12. The method herein described of absorbing the exhaust vapor of an ammonia engine, which consists in bringing said vapor in contact with absorbing liquid dispersed in the form of a spray and conveying the combined absorbing liquid and exhaust vapor through an absorber provided with lateral tubes, after first dividing said liquid and vapor carried along by adhesion, for the purpose of making said tubes perform proportionate amounts of absorption, substantially as set forth

13. The method herein described of absorbing the exhaust vapor of an ammonia engine, which consists in bringing said vapor in contact with absorbing liquid and conveying absorbing liquid and exhaust vapor through rows of lateral tubes in an absorber, after first dividing said liquid and vapor carried along by adhesion, for the purpose of making all said rows of tubes perform mixing of liquid and vapor and absorption, substantially as set forth.

14. The method herein described of absorbing the exhaust vapor of an ammonia engine, which consists in bringing the exhaust vapor in contact with absorbing liquid and carrying the two combined through an absorber provided with tubes inclined downward so as to drain the resulting liquid from said absorber, substantially as set forth.

15. The method herein described of converting the liquid pressure at the absorbing jet of an ammonia engine from generator pressure into pump-pressure, by passing such liquid through a pump placed in a by-pass around a suitable valve located in the pipe leading from the generator to the absorbing jet, substantially as set forth.

16. The method herein described of forcing absorbing liquid automatically, upon excessive pressure in the generator, toward suitable

cooling appliances prior to returning it to said generator, which consists in automatically opening a valve, for conducting vapor from the generator through such valve to the vapor cylinder of a pump, placed in a pipe withdrawing liquid from the generator and conducting it to a jet which discharges it into such cooling appliances, substantially as set forth.

17. The method herein described of automatically increasing the supply of cooling liquid for purposes of liquefaction of ammonia gas and refrigeration resulting therefrom as the pressure in the generator and with it the amount of gas subject to liquefaction increases, which consists in automatically opening a valve for conducting vapor from the same source from which the gas for cooling purposes is withdrawn, to the vapor cylinder of a pump, the water cylinder of such pump being made to discharge thereupon cooling liquid into passages in contact with the gas in process of liquefaction, substantially as set forth.

18. The method herein described of relieving the suction pipe of an aqua ammonia pump of free ammonia gas, which consists in discharging into such suction pipe absorbing liquid withdrawn from the generator and cooled, while such free gas remains confined in said suction pipe, substantially as set forth.

19. The method herein described of relieving the suction pipe of an aqua ammonia pump of free ammonia gas, which consists in discharging into said suction pipe absorbing liquid cooled artificially while keeping such gas confined between the pump and a suitable valve substantially as set forth.

20. The method herein described of relieving the discharge pipe of an aqua ammonia pump or of relieving such pump of free gas, which consists in introducing into said pump at or near the point where in a water pump the air-cock is usually located, absorbing liquid under pressure, substantially as set forth.

21. The method herein described of relieving the discharge end of an aqua ammonia pump of free gas, by introducing into it absorbing liquid, refrigerated, substantially as set forth.

22. The method herein described of regulating, in an ammonia engine apparatus, the supply of absorbing liquid to the spray jet in accordance with the pressure existing in the exhaust pipe of the engine, which consists in converting an increase or decrease of pressure in the exhaust pipe into motion of a valve located in or connected with the pipe containing the spray jet, whereby such increase or decrease of pressure will increase or decrease the quantity of liquid passing to the spray jet, substantially as set forth.

23. The method herein described of regulating in an ammonia engine apparatus, the supply of absorbing liquid to the spray jet in accordance with the pressure existing in the absorbing apparatus of the engine, which consists in converting an increase of pressure in the absorbing apparatus into motion of a valve located in or connected with the pipe containing the spray jet, thereby increasing or decreasing the effective water way for supplying the spray jet, substantially as set forth.

24. The method herein described of regulating the amount of saturated liquid in the receiving well of an ammonia engine apparatus, which consists in converting an increase or decrease of pressure therein into motion of a valve controlling the supply of vapor for operating the feed pump, thereby increasing or decreasing the vapor passages in the pipe supplying the feed pump, as the pressure in said well increases or decreases, substantially as set forth.

25. The method herein described of absorbing the exhaust vapor in an ammonia engine apparatus, which consists in discharging absorbing liquid withdrawn from the generator and cooled toward the coils of an absorber containing cooling fluid and surrounded by the exhaust vapor, and carrying vapor and absorbing liquid combined afterward laterally and downward along other cooling surfaces toward a receiving well, substantially as set forth.

26. In an ammonia engine apparatus a pipe conveying absorbing liquid from the generator, to the spray jet in the absorbing apparatus, a suitable valve placed in said pipe, and a by-pass around said valve and containing a pump, the suction end being connected with the aforesaid pipe between said valve and said generator, and its discharge end being connected with a pipe discharging into the absorbing apparatus, all combined substantially as and for the purposes set forth.

27. In the absorbing apparatus of an aqua ammonia engine a pipe leading from the liquid space of a generator along cooling surfaces into a passage conveying the exhaust vapor of the engine, such pipe being provided with a nozzle 18 having two outlet passages converging toward a point outside of said nozzle, all combined substantially as and for the purposes set forth.

28. In the absorbing apparatus of an ammonia engine a discharge nozzle for the absorbing liquid consisting of casing 102, tongue 38 suspended within said casing and springs 40, 40 for centering said tongue, substantially as set forth.

29. In the absorbing apparatus of an aqua ammonia engine, in combination with the engine cylinder and its exhaust pipe, a pipe conveying absorbing liquid from the generator to said exhaust pipe, a jet for distributing such liquid therein laterally and a coil through which cooling fluid circulates, such coil being placed in the path of the exhaust vapor of the engine and of the absorbing liquid so discharged, substantially as set forth.

30. In the absorbing apparatus of an aqua ammonia engine in combination with a jet discharging within it absorbing liquid, two absorbers for successively cooling the combined exhaust vapor and absorbing liquid while in transit toward a receiving well, one of said absorbers receiving its cooling medium from an apparatus producing artificial refrigeration, and the other having circulating through it cooling water, substantially as set forth.

31. In the absorbing apparatus of an aqua ammonia engine an absorber placed in the path of the combined exhaust vapor and absorbing liquid withdrawn from the generator, the cooling passages of such absorber being provided with two separate inlets and two separate outlets all having suitable valves, one of said inlets and one of said outlets connecting with an artificial refrigerating apparatus and the other inlet connecting with a water pipe, substantially as set forth.

32. In the absorbing apparatus of an aqua ammonia engine the combination with a nozzle discharging absorbing liquid between the exhaust ports of the engine and tubes of an absorber, and a plate or plates placed in the path of such liquid, for the purpose of diverting such liquid to said tubes and distributing it among the same, substantially as set forth.

33. In the absorbing apparatus of an aqua ammonia engine the combination of a pipe conveying absorbing liquid to a jet, with an absorber having sections of lateral tubes through which the liquid passes successively, together with a vertical chamber into which one section of tubes discharges the liquid and gas passing through the same and from which another section of tubes withdraws such liquid and gas, and plates in said chamber placed underneath and projecting beyond the outlets of the first named section, and other plates in said chamber placed underneath and projecting beyond aforesaid plates and connecting with, or leading to the inlets of the tubes in the second section, for the purpose of distributing liquid after its passage through the first section among the tubes, and the rows of tubes, of the subsequent section, all substantially as specified.

34. In an aqua ammonia engine apparatus the combination with an aqua ammonia pump, of its suction pipe, a check valve 74 in said pipe and a pipe 97 with proper valve, for the purpose of forcing absorbing liquid through it into the part of the suction pipe between said check valve and said pump so as to close said valve, for the absorption of free gas contained in such part of the suction pipe, substantially as set forth.

35. In an ammonia engine apparatus in combination with a pipe conveying absorbing liquid from the generator to the absorbing jet, a chamber 87 connecting with the interior of the absorbing apparatus, diaphragm 88 forming part of said chamber, lever 89 connected with said diaphragm and operating valve 16 for automatically adjusting the amount of absorbing liquid introduced into the absorbing apparatus through pipe 17, substantially as set forth.

36. In an aqua ammonia engine apparatus in combination with a pipe conveying absorbing liquid from the generator to the absorbing apparatus, a chamber 92 connecting with the interior of the receiving well and closed by diaphragm 93 forming part of such chamber, lever 94 connecting with said diaphragm and operating valve 96 within vapor pipe 84 of pump 76, which pump regulates the amount of liquid stored in said well, substantially as set forth.

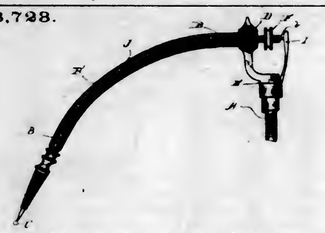
37. In the absorbing apparatus of an aqua ammonia engine a pipe conveying to it absorbing liquid from the generator, and spray nozzle 18 discharging such liquid into the exhaust pipe of the engine outward toward the coils of cooling pipe 42, substantially as set forth.

38. In an aqua ammonia engine apparatus, in combination with a generator wherein vapor of ammonia is expelled from aqua ammonia by heat, an engine propelled by such vapor, a pipe leading from the liquid space of the generator to the suction end of a pump, said pump, its discharge end being connected with a discharge nozzle placed between the exhaust ports of the engine and a receiving well, and cooling surfaces along which said liquid circulates while in transit from the generator to said well, substantially as set forth.

39. In an aqua ammonia engine apparatus, in combination with a generator wherein vapor of ammonia is expelled from aqua ammonia by heat, an engine propelled by such vapor, a pump forcing liquid withdrawn from the generator and cooled to a jet placed in the exhaust pipe of the engine, such jet being made to point, or to discharge, in the same direction in which the exhaust vapor travels toward the receiving well, substantially as set forth.

493,728. DENTAL APPLIANCE FOR OBTUNDING NERVES. WILLIAM P. HORTON, Jr., Cleveland, Ohio, assignor of one-half to Ansel R. Jones, same place. Filed Aug. 18, 1892. Serial No. 443,453. (No model.)

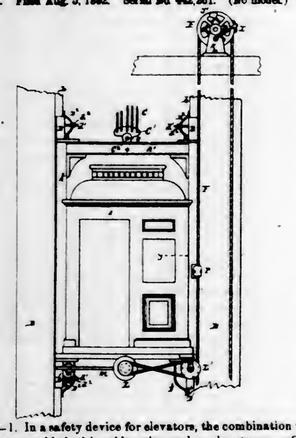
493,728.



Claim.—1. The combination with the standard or support, rotatable shaft and burr of a dental engine, of an arm within which said shaft is journaled, a rotatable contact point on the end of said shaft, a non-rotatable arm serving as the other contact point, an electricity producing apparatus, one pole of which is connected with said non-rotatable arm, and an electrode connected with the other pole of said battery all substantially as shown and described.

2. The combination with the standard of a dental engine an arm D secured thereto and projecting upward therefrom, said arm having an opening through its upper end, an insulating tube or sleeve passing at one end into said opening in the arm and having a hand piece at its opposite end, a rotatable shaft passing through said tube or sleeve, and having a burr at one end and a pulley at its opposite end, said shaft being divided transversely and having its sections flexibly connected together, of a rotatable contact point on the rear end of said shaft, a non-rotatable arm I extending upward from said standard opposite said arm D and having its upper end in contact with said rotatable contact point, an electricity producing apparatus, one pole of which is connected to said non-rotatable arm, and an electrode connected with the other pole of said battery, substantially as shown and described.

493,724. SAFETY DEVICE FOR ELEVATORS. WILLIAM H. HOLTHAUS, Detroit, Mich., assignor of three-fourths to the Michigan Elevator and Engine Company, same place, and A. R. Ellithorpe, Chicago, Ill. Filed Aug. 5, 1892. Serial No. 442,261. (No model.)



Claim.—1. In a safety device for elevators, the combination with the guide posts provided with guide strips, and an elevator car, of pulleys L, L', supported upon said car and movable therewith, a cable engaged with both of said pulleys, a shaft rotated by one of the pulleys, clamping mechanism mounted on the car and operated by said shaft, a governor provided with a brake device adapted to engage with and thereby control the movement of the cable, and means to hold the cable normally unmovable in relation to the car, substantially as described.

2. In a safety device for elevators, the combination with the guide posts provided with guide strips, and an elevator car, of a screw threaded shaft supported upon said car and movable therewith, pulleys L, L', clamping jaws M, M' operated by said shaft, and a cable engaging said pulleys a governor provided with a brake device adapted to engage with and thereby control the movement of the cable, and means to hold the cable normally unmovable in relation to the car, substantially as described.

3. In a safety device for elevators the combination with an elevator car and guide strips, of guide shoes to embrace said guide strips provided with a block "d^8" movable in said shoe, a pulley carried by the car, a cable engaged with the pulley, a governor to engage and control the movement of said cable, means for normally causing the cable to move with the car and clamping appliances provided with arms M connected with said blocks to force them into contact with said guide strips and with arms M' to engage the guide shoe, substantially as described.

4. In a safety device for elevators the combination with an elevator car with guide strips of a cable, clamping mechanism connected with the car operated by said cable, a governor to control the movement of the cable, and a hollow arm P^4 carried by the car sleeved upon the cable, said arm provided with a spring latch to hold the cable normally unmovable in relation to the car, substantially as described.

5. In a safety device for elevators, a cable engaged with the elevator car, and a governor provided with a sheave engaged by said cable, said governor having in combination with said sheave centrifugal arms jointedly connected therewith, and a self releasing brake I extending over the sheave operated by said arms to bind the cable upon the periphery of the sheave, substantially as described.

6. In a safety device for elevators, a governor having in combination a sheave, centrifugal arms jointedly connected therewith, and a self releasing brake I extending over the periphery of the sheave operated by said arms, said arms having a simultaneous centrifugal movement, substantially as described.

7. In a safety device for elevators a governor having in combination, a sheave, centrifugal arms jointedly united therewith and connected together, and a self releasing locking appliance extending over the periphery of the sheave, operated by said arms, substantially as described.

8. In a safety device for elevators, a governor having in combination, a sheave, weighted centrifugal arms jointedly engaged therewith, and connected to operate simultaneously and an oscillating self releasing brake I extending over the periphery of the sheave operated by said arms, substantially as described.

9. In a safety device for elevators, a governor having in combination, a supporting standard, a sheave journaled upon said standard, a cable engaged upon said sheave, a brake extending over the periphery of the sheave and journaled at its lower extremities on said standard, and centrifugal arms carried by the sheave to operate said brake and clamp the cable upon the periphery of the sheave, said brake journaled on said standard eccentrically to the shaft of said sheave substantially as described.

10. In a safety device for elevators, a governor having in combination, a sheave, a self releasing brake extending over the periphery of the sheave, centrifugal oscillatory arms to operate the brake, rods connecting said arms, springs to hold and restore said arms to normal position, said arms limited in their oscillation, substantially as described.

11. In a safety device for elevators, the combination with an elevator car suspended by a cable, guide strips therefor, clamping appliances mounted on said car to grip said guide strips, an additional cable to operate said clamping appliances, pulleys carried by the car engaged with said clamping appliances and with said additional cable, and means to control the operation of said additional cable, substantially as described.

12. In a safety device for elevators, the combination with a car suspended by a hoisting cable, guide strips therefor, clamping devices carried by the car an additional cable, pulleys upon said car engaged by the additional cable and operating said clamping device, a governor to control the movement of the additional cable and means to hold said latter cable normally unmovable with relation to the car, said clamping devices automatically operated by said additional cable upon the breakage of the hoisting cable, substantially as described.

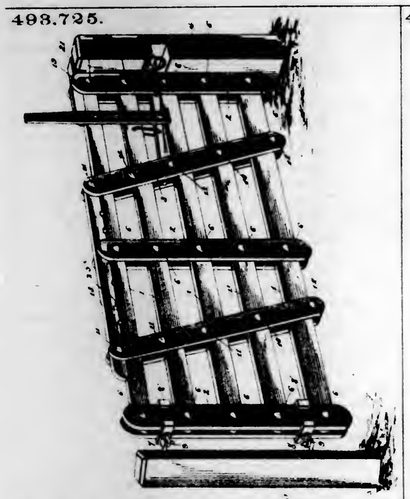
13. In a safety device for elevators, a governor provided with a sheave, a brake journaled eccentric to the shaft of said sheave, and extending over the periphery thereof, and means to operate said brake, substantially as described.

14. In a safety device for elevators, a governor provided with a sheave, a standard in which the shaft of the sheave is journaled, a brake journaled in said standard independent of and eccentric to said shaft, and centrifugal arms to operate said brake, substantially as described.

493,725. GATE. JOHN P. IRWIN, Newark, Ohio. Filed July 20, 1892. Serial No. 440,630. (No model.)

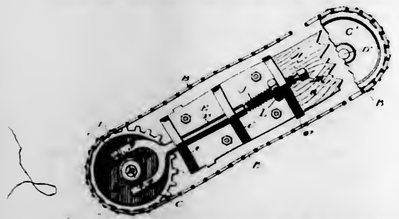
Claim.—In a gate of the character set forth, the combination of pairs of end and intermediate cross-bars; rails movably connected thereto; braces arranged in pairs to embrace the gate and located on

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opposite sides of the intermediate cross-bars, and pivoted to one of the rails nearer the bottom ends thereof, and a clamping bar pivotally secured to the upper ends of the braces and adapted to bear on the upper edge of the topmost rail; said clamping bar and upper rail having their meeting edges half notched and a removable locking pin located therein, substantially as described.

493,726. SHAFT-BEARING FOR CONVEYERS. JAMES B. IVEY, Macon, Ga. Filed June 4, 1892. Serial No. 435,510. (No model.)



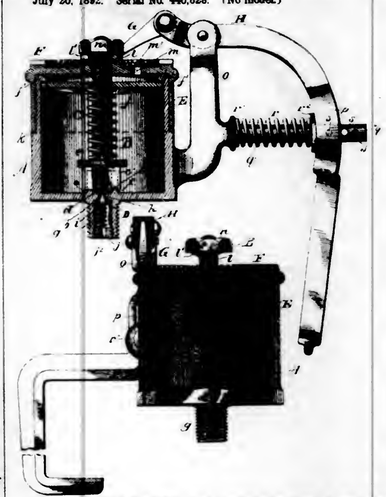
Claim.—1. The combination of the shaft-supporting spindles mounted in bearings parallel to each other, and capable of turning on their axes, the said spindles having forked heads for the reception of shaft-bearing boxes, the boxes trunnioned in said forked heads and capable of oscillating in the planes of the axes of the spindles, and the shaft supported in said boxes.

2. The combination of the shaft-supporting spindles mounted in bearings parallel to each other, and capable of turning on their axes, said spindles having forked heads for the reception of shaft-bearing boxes, the boxes trunnioned in said forked heads and capable of oscillating in the planes of the axes of the spindles, the shaft supported in said boxes, and the adjusting screws for adjusting the spindles longitudinally.

3. The combination of the shaft-supporting spindle having the forked head one arm of which has in its inner side a cavity and the other a longitudinal groove or channel, extending from the end inward, and a bolt opening in said channel, the collar or box having trunnions seated respectively in the cavity and groove of the two fork arms, the shaft mounted in said collar or box, and the bolt for retaining the collar in place.

4. The combination with the forked head provided on its under side with a cavity *f'*, and in its upper inner side with the cavity *f*, and recess A, of the collar provided with projections to enter said cavities and the bolt provided with a head to enter the recess.

493,727. LUBRICATOR. CHARLES C. JEROME, Chicago, Ill. Filed July 20, 1892. Serial No. 440,628. (No model.)



Claim.—1. In a lubricator, the combination with a cup and a valve in the bottom thereof, of a revoluble cap or top, a plunger passing through the cap or top and adapted to normally bear on said valve, a cam carried by the cap or top, a cam carried by the plunger and engaged by the cam on the cap or top to raise the plunger, and means adapted to be connected with an engine for rotating said cap or top, step by step, substantially as and for the purpose set forth.

2. In a lubricator, the combination with a cup and a valve in the bottom thereof, of a cap or top, a plunger adapted to normally bear on said valve and pass through said cap or top, a spring for maintaining said plunger normally to its seat, a cam carried by the cap or top, a cam carried by the plunger and adapted to be engaged by the cam on the cap or top, and means connected with the engine for rotating said cap or top step by step, substantially as set forth.

3. In a lubricator, the combination with a cup having an opening in its bottom and a valve adapted to normally close said opening when released, of a revoluble cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve and close the opening in the bottom of the cup, and means for intermittently raising and lowering said plunger while the engine to which the lubricator is connected is running, substantially as set forth.

4. In a lubricator, the combination with a cup having a recess in its bottom and an opening in said recess, and a valve to close said opening, of a cap or top, a plunger adapted to pass through said cap or top and normally close said opening, a spring for maintaining the head of the plunger normally in said recess in the bottom of the cup, a cam carried by the plunger, a cam carried by the cap or top and engaging the cam carried by the plunger, and means adapted to be connected with a moving part of an engine, for rotating said cap or top, step by step, substantially as set forth.

5. In a lubricator, the combination with a cup and a valve in the bottom thereof, and flanges projecting upwardly from the bottom of the cup, of a cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve, flanges on said plunger adapted to enter between the flanges on the bottom of the cup, a cam carried by the plunger, a cam carried by the cap or top adapted to engage the cam carried by the plunger, a spring for normally forcing said plunger down to its seat and means adapted to be connected with an engine for rotating said cap or top step by step, substantially as and for the purpose set forth.

6. In a lubricator, the combination with a cup and a valve in the bottom thereof, of a revoluble cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve, a projection on the plunger, a spring encircling said plunger, and bearing at one end against said projection, a cross head at the top of the cup against which the other end of said spring bears, a cam carried by the plunger, a cam carried by the cap or top for engaging the cam carried by the plunger, and means for rotating said cap or top step by step, substantially as set forth.

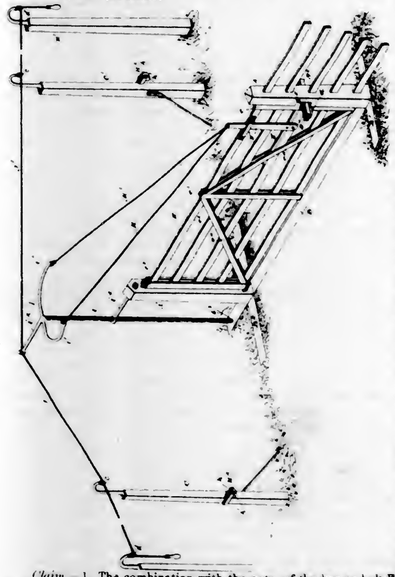
7. In a lubricator, the combination with a cup having a valved opening in its bottom, of a revoluble cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve, a spring for normally maintaining said plunger to its seat, a cam carried by the cap or top, a nut on the plunger, a cam carried by the nut and adapted to be engaged by the cam on the cap or top and means for intermittently revolving said cap or top when the engine to which the lubricator is attached is running, substantially as set forth.

8. In a lubricator, the combination with a cup having a valved opening, of a revoluble cap or top, a plunger passing through said cap or top and bearing normally on the valve in the cup, cams carried by the plunger and cap or top, a series of teeth on said cap or top, a pivoted lever adapted to be connected with a moving part of an engine, a dog carried by said lever and adapted to engage the teeth on the cap or top and a spring adapted to assist in operating said dog, substantially as set forth.

9. In a lubricator, the combination with a cup having a valve in its bottom, of a revoluble cap or top, a plunger passing through said cap or top and adapted to normally bear on said valve, cams carried by the plunger and cap or top, a series of teeth on the cap or top, a pivoted lever adapted to be connected with a moving part of an engine, a dog carried by said lever and adapted to engage the teeth on the cap or top, and means for regulating the throw of the lever and dog, substantially as set forth.

10. In a lubricator, the combination with a cup having a valve in its bottom, of a revoluble cap or top, a plunger passing through said cap or top, and adapted to normally bear on said valve, cams carried by the plunger and cap or top, a pivoted lever, an arm for supporting said pivoted lever, a dog carried by the pivoted lever and adapted to engage the teeth of the cap or top, a rod projecting from said arm and adapted to pass through an elongated slot in the pivoted lever, said rod having a series of perforations for the reception of a key, and a spring on said rod, said spring being adapted to force the lever outwardly and the dog forwardly to turn the cap or top, substantially as and for the purpose set forth.

493,728. FARM-GATE. DAVID W. JEWETT, Oxford, Ky., assignor of one-half to Wash. J. Allen, same place. Filed Oct. 13, 1892. Serial No. 448,761. (No model.)



Claim.—1. The combination with the gate, of the bar or bolt F adapted to move back and forth, the lever F' the swinging latches *g*, *g*, secured to the post A, the post A', the cords or wires J J', the rocker I, supplemental to, and outside of, the vertical lines of post A', and the cords or wires H H', substantially as set forth.

2. The combination with the gate, of the bar or bolt F moving back and forth, the post A, the vertically swinging latch bars *g g* secured to said post, and having stops g^4 to limit their movements, the cords or wires H H' connected to the bar F, the post A', the rocker I having the vertical shaft, i, the curved arms i' i' and the rearwardly extending arm i^3, and the wires or ropes J J', substantially as set forth.

3. The combination with the gate, of the post A, the latch devices for detachably connecting the gate to the post, the cords or wires J J', the post A', and the rocker I, mounted in bearings in the rear of post A', connected to the said cords or wires J J', and connected to the detachable latch devices, substantially as set forth.

4. The combination of the gate posts A, A', swinging gate, the latch therefor, the wires or cords J J', and the rocking mechanism T independent of and supplemental to the gate and the gate posts connected to said ropes or wires J J', and also connected to the latch or lock to open the same, substantially as set forth.

5. The combination with the gate support having the intersecting sills B and B^3, of the post A' mounted at the intersection of the sills, the post A at or near one end of the sill B, the swinging gate, the latch devices, the cords or wires J J', and the rocking mechanism mounted at i' in the sill B in the rear of post A', and connected to the cords or wires J, J', and to the latch devices, substantially as set forth.

6. The combination with the posts A and A', and the swinging gate hinged to post A', and having latch devices engaging with the post A, of the rocking shaft i having arms i' i' extending forwardly, and a rearwardly extending arm i^3, cords or wires J, J' connected to the arms i^3, and cords or wires H, H' connecting the arms i' i' and the latch devices, substantially as set forth.

493,729. CANDY-MOLD. MARCUS M. JUNE, Syracuse, N. Y., assignor of two-thirds to Orson Coville and Truman H. Whitcomb, same place. Filed June 23, 1892. Serial No. 437,677. (No model.)



Claim.—1. The improved confection-mold consisting of a bed provided with a series of matrices in its surface and divided into sections on lines passing through the matrices, and hinges coupling said sections flexibly together as set forth.

2. A confection mold composed of straight slats disposed side by side and formed in the adjacent edges of their top surfaces with coinciding sections of matrices, and plates secured to the ends of the respective slats and pivotally connected to each other at the bottoms of the slats, substantially as set forth.

3. A confection-mold composed of straight slats disposed side by side and formed in the adjacent edges of their top surfaces with coinciding sections of matrices, plates fastened to the ends of the respective slats and projecting below the bottoms of the slats and pivotally connected to each other as set forth.

4. A confection mold composed of straight slats disposed side by side and formed in the adjacent edges of their top surfaces with coinciding sections of matrices, plates fastened to the ends of the respective slats and overlapping each other at their ends and pivotally connected to each other, and feet extending below the bottoms of the slats, as set forth.

5. The combination of the slats —*a*—*a*—*a*— disposed side by side and formed with coinciding sections —*b*—*b*— of matrices in the adjacent edges of their top-surfaces, plates —*c*—*c*—*c*— attached to the ends of the slats and overlapping each other at their ends and formed with downwardly extending feet —*d*—*d*— and with slots —*e*—*e*— in the upper portions of the alternate plates, pins attached to the intermediate plates and entering the aforesaid slots, and rivets —*i*—*i*— pivoting the plates to each other at the bottom of the slats, substantially as described and shown.

493,730. TREPHINE. JOSEPH A. MACKENZIE, Weldon, Tex. Filed Nov. 10, 1892. Serial No. 451,568. (No model.)

Claim.—1. In a trephine of the character described, the combination with the stationary centering device, of a rotatable cutter mounted to revolve around the same, as set forth.

2. In a trephine of the character described, the combination with a stationary centering device comprising a screw threaded shaft and spring arms thereon, of a rotary cutter and means for revolving the same, as set forth.

3. In a trephine of the character described, the combination with the disk and the ring thereon, of the shaft carrying a pinion for rotating the disk, and a device on the said shaft for engaging the ring as and for the purpose specified.

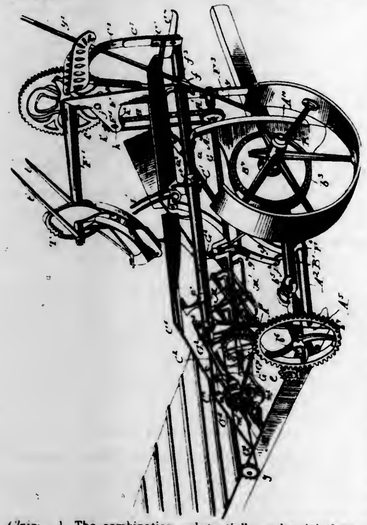
4. In a trephine of the character described, the combination with

the disk and the cutter and collar, of the rods connecting the same, the spring arms on the shaft, the shaft, the pinion on the disk and the shaft carrying a pinion meshing with the pinion on the disk, as set forth.



5. The trephine described consisting of the disk with ring, the cutter, the rods connecting the disk and cutter, the collar and the grooved disk within the same, the bevel pinion on the disk, the horizontal shaft with its pinion, and the wire with arms on the horizontal shaft for engaging the ring on the disk all substantially as specified.

493,781. GRAIN BINDING HARVESTER. LEWIS MILLER, Akron, Ohio. Original application filed Apr. 30, 1886, Serial No. 200,754. Divided and this application filed Mar. 27, 1889. Renewed Aug. 26, 1892. Serial No. 444,175. (No model.) Patented in England Dec. 22, 1888, No. 18,739.



Claim.—1. The combination, substantially as hereinbefore set forth, of the combined main and binder-frame; and the longitudinally intermediately divided binder-table; the lower section of which is secured upon the frame in fixed relation to the platform-carrier; while its upper portion is movable with the binding-mechanism.

2. The combination, substantially as hereinbefore set forth, of the combined main and binder-frame; a platform-carrier; a driving-wheel outside the frame; a binder-gear standard intermediate of the wheel and carrier; and an intermediately divided binder-table, the lower section of which is fixed close to the carrier; while the upper section is attached to and adjustable with the binder-gear standard.

3. The combination, substantially as hereinbefore set forth, of a platform frame; a longitudinal binder-frame-bar thereon; a binder-gear standard adjustable thereon; inclined lateral bracing binder-frame bars or tubes; an intermediate longitudinal supporting-bar; and a divided binder-table having a fixed section supported by said bar; and a movable section supported by said bar at one end and by the binder-gear standard at the other.

4. The combination, substantially as hereinbefore set forth, of a combined main and binding-frame; a driving-wheel on the stubble-side of the frame; packing and binding-mechanisms adjustable on the frame; a platform-carrier, oscillating picker and a slotted sectional elevating binder-table horizontally and intermediately divided into a lower slotted fixed section through which the pickers work and an upper one adjustable with the binding-mechanism and packer.

5. The combination, substantially as hereinbefore set forth, of a combined main and binder-frame; a platform-carrier; an intermediately and horizontally divided sectional elevating binder-table; pickers working up through the slots in the lower fixed portion of the table, and packers and a binder-arm working up through slots in its adjustable portion.

6. The combination, substantially as hereinbefore set forth, of the combined main and binder-frame; a binder-gear standard adjustable thereon; gathering-mechanism; a divided binder-table having a fixed section in connection with which the gathering-mechanism works; and an adjustable or shifting part co-operating with oscillating-packers, and a vibrating needle.

7. The combination, substantially as hereinbefore set forth, of a platform-carrier; an inclined elevating sectional slotted binder-table horizontally and intermediately divided, to which the grain is delivered directly by the carrier; pickers working up through the fixed portion of the table, and packers, and a needle working up through and adjustable with the movable section thereof.

8. The combination, substantially as hereinbefore set forth, of the combined main and binder-frame; the binder-gear standard adjustable on the upper longitudinal binder-frame tube; the pendent arm of the binder-gear standard; supporting clasps on said arm embracing the inner longitudinal frame-bar; and pivots for the packer-links carried by said pendent arm.

9. The combination, substantially as hereinbefore set forth, of the combined main and binder-frame; the binder-gear standard adjustable thereon; its pendent arm; the packer-shaft having a bearing therein; and packers pivoted thereto; in such manner as to be movable longitudinally with the binder-gear standard.

10. The combination substantially as hereinbefore set forth, of a platform frame; a triangular binder-frame of which the platform-frame constitutes the base; a driving-wheel outside these frames; a longitudinal driving-shaft intermediate of the frames and driving-wheel; a longitudinal packer-shaft, and a parallel picker-shaft both inclosed by the triangular-frame, and both driven from the driving-shaft.

11. The combination, substantially as hereinbefore set forth, of a platform-frame; a triangular binder-frame of which the platform-frame constitutes the base; a driving-wheel outside the frames; a longitudinal driving-shaft intermediate of the frames, and driving-wheel; a longitudinal packer-shaft driven thereby; a picker-shaft; a platform-carrier; and gearing driving both from the packer-shaft; both the packer and picker-shafts being mounted in and inclosed by the binder-frame.

12. The combination, substantially as hereinbefore set forth, of a platform-frame; a triangular binder-frame of which the platform-frame constitutes the base; a driving-wheel outside the frame; a longitudinal driving-shaft intermediate of the frames and wheel; a crank-shaft; a packer-shaft and a picker-shaft; all longitudinal and inclosed in the binder-frame, and gearing driving them from the driving-shaft.

13. The combination, substantially as hereinbefore set forth, of a platform-frame; a triangular binder-frame of which the platform-frame constitutes the base; an outside driving-wheel; gearing actuating a longitudinal driving-shaft intermediate of the wheel and frame; a longitudinal packer-shaft inside the frame; driven thereby through interposed gearing, and sliding endwise through its driving gear; a binder-gear standard adjustable longitudinally on the frame; binder-mechanism and its actuating-gearing carried by said standard; and sprocket-wheel and chain-gearing driving the binding-mechanism directly from the packer-shaft; without interference with the adjustment of the binder.

14. The combination, substantially as hereinbefore set forth, of a platform-frame; a triangular binder-frame of which it constitutes the base; an outside driving-wheel; a longitudinal driving-shaft intermediate of the wheel and frame; and longitudinal shafts—inside—the frame respectively driven by said shaft, and in turn driving the cutters, the reel, the platform apron, the pickers, the packers, and the binding mechanism.

15. The combination, substantially as hereinbefore set forth, of a combined main and binder-frame; a binder-gear standard adjustable thereon; a pendent arm or support adjustable with the standard; a longitudinal packer-shaft mounted at one end in the pendent arm; and passing through its bearing at the other; to permit of the longitudinal adjustment of the binder-gear standard without interference with its actuating-mechanism.

16. The combination, substantially as hereinbefore set forth, of the front and rear transverse frame-bars or sills; the inner longitudinal frame-bar or tube; the connecting corner-pieces; the supporting-standards thereon; the longitudinal supporting-bar or binder-frame-tube; the inclined transverse bracing binder-frame-tubes, connecting the sills directly with the longitudinal binder-frame-tube; the binder-gear standard; slide-clasps connecting the lower subtending-arm or sleeve of the binder-gear standard and binder-frame tube; the bent-arm or angular bracing-bar depending from the binder-gear standard; its longitudinal subtending arm; the slide-clasp connecting this arm with the lower inner longitudinal frame-tube; and the guide-groove on the inner front corner-piece, in which the arm slides.

17. The combination, substantially as hereinbefore set forth, of the transverse sills; the inner longitudinal frame-bar; the connecting corner-pieces; the standards thereon; the longitudinal binder-frame supporting-tube; the binder-gear standard; its slide-clasps; the lug on its front slide-clasp; the pivoted axle-support; its guide and teeth; the worm-screw; and the combined shaft and lever, actuating the worm-screw and axle-supporting devices, which lever passes through the lug and constitutes the binder-gear frame-adjusting mechanism.

18. The combination, substantially as hereinbefore set forth, of the front and rear transverse sills; the inner longitudinal frame-bar or tube; the inner front corner-piece connecting them; the binder-frame; the binder-gear standard supported thereon; a pendent-arm or downward extension from the binder-gear standard; and a guide-groove in the corner-piece in which the bent arm traverses.

19. The combination, substantially as hereinbefore set forth, of the combined main and binder-frame; the binder-gear standard; the clasp-brackets connecting the binder-gear standard and the longitudinal binder frame bar or tube on which it slides; the bracing and laterally-supporting pendent-arm carried by the binder-gear standard; its guide-groove in the corner-piece; and the loop-bracket of the pendent-arm, sliding on the inner longitudinal frame-bar.

20. The combination, substantially as hereinbefore set forth, of a combined main and binder frame; a binder-gear standard, which slides on one of the bars thereof; an adjustable axle-support; and a combined shaft and lever, which—as a shaft—revolves a gear to adjust the axle-support, and which—as a lever—also shifts the binding-mechanism, said lever being provided with an intermediate joint, and passing through an ear on the binder-gear standard, for these purposes.

21. The combination, substantially as hereinbefore set forth, of the combined main and binder-frame; the binder-gear standard; the driver's seat; the adjustable axle-support; its actuating-gear and the combined shaft and lever, having an intermediate joint, and passing through an ear on the binder-gear standard, which shifts the binder and adjusts the cutting-apparatus—each independently of the other—at the will of the driver.

22. The combination, substantially as hereinbefore set forth, of an intermediately horizontally divided sectional slotted binder-table; pickers or gatherers working through the slots of the fixed section of the table; and packers, cut-off fingers, and a binder-arm working in the slots of the movable section.

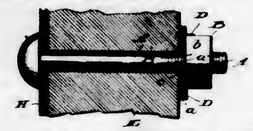
23. The combination, substantially as hereinbefore set forth, of a platform-frame, a binder-frame of which the platform-frame constitutes the base, an outside driving-wheel, a longitudinal driving-shaft intermediate of the wheel and frame, and longitudinal shafts inside the frame, driven from said shaft.

24. The combination, substantially as hereinbefore set forth, of a combined main and binder frame, a binder-gear standard, which slides on one of the bars thereof, an adjustable axle-support, and a combined shaft and lever, which, as a shaft, revolves a gear to adjust the axle-support, and which, as a lever, also shifts the binding mechanism, said lever being provided with an intermediate joint, and being operatively connected with the binder-gear standard.

25. The combination, substantially as hereinbefore set forth, of the combined main and binder frame, the binder-gear standard, the driver's seat, the adjustable axle-support, its actuating gear, and the combined shaft and lever, having an intermediate joint, and operatively connected with the binder-gear standard, which shifts the binder-gear standard, and adjusts the cutting apparatus, each independently of the other, at the will of the driver.

493,732. NUT-LOCK. ARTHUR W. MILES and EDWARD A. COMMANDER, Livingston, Mont. Filed Dec. 24, 1892. Serial No. 456,237. (No model.)

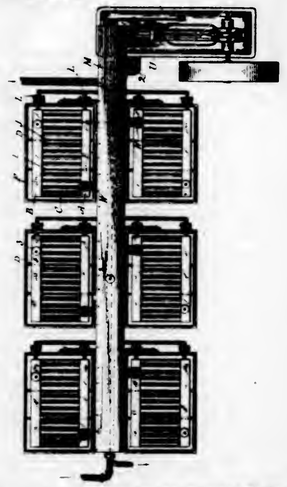
Claim.—1. A washer composed of a rigid part with bolt opening, and a part of bendable material having a neck portion passed through the opening in the rigid part and upset into locking engagement therewith, substantially as specified.



2. The combination with a bolt and a nut, of a compound washer formed of a part with a bolt opening of greater diameter than the bolt and a bendable part having a bolt opening and a portion extending within the bolt opening of the first mentioned part and held thereto and surrounding the bolt, substantially as specified.

3. The combination with a bolt and a nut, of a compound washer composed of a part with radial ribs and a bolt opening of greater diameter than the bolt and a bendable part having a bolt opening and a portion extending within the bolt opening of the first mentioned part and surrounding the bolt and upset against the underside of the first-mentioned part, substantially as described.

493,733. APPARATUS FOR CONDENSING EXHAUST-STEAM. FRED L. MCGAHAN, Indianapolis, Ind. Filed Dec. 14, 1892. Serial No. 455,194. (No model.)



Claim.—1. In an apparatus for condensing steam, the combination of a series of steam condensers, a steam chamber having branch pipes extending to each of said condensers, a trip-valve mounted at the entrance of each branch-pipe, a revoluble shaft, intermediate connecting mechanism connecting said shaft and said trip-valves whereby the valves are successively opened by the revolution of the shaft, and means for revolving the shaft.

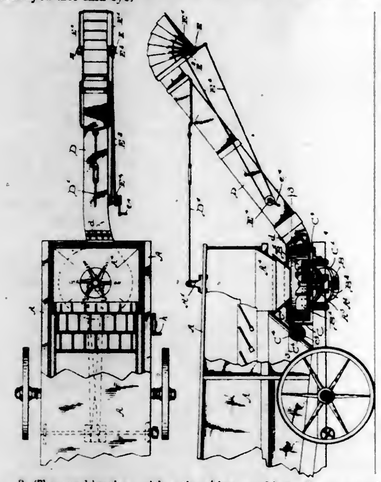
2. In an apparatus for condensing exhaust steam from a steam-engine, the combination of a series of steam-condensers, the steam-chamber having branch pipes extending to each of said condensers, the trip-valves mounted at the entrance of said branch pipes, and intermediate connecting mechanism connecting a regularly moving part of the engine, as the valve-stem, and said trip-valves, whereby said valves are operated in succession at each successive stroke of the engine, substantially as set forth.

493,734. STRAW-STACKER. JOSEPH W. NESTERY, Indianapolis, Ind., assignor to the Indiana Manufacturing Company, same place. Filed Dec. 17, 1892. Serial No. 455,469. (No model.)

Claim.—1. The combination, in a pneumatic straw elevator and stacker, of a fan horizontally mounted under or within the rear end of the separator, with its open eye upward, and adapted to receive

the straw and dust through said eye, and with a trunk projecting out from the rear side thereof, substantially as shown and described.

2. The combination, with a thrashing machine, of a pneumatic straw elevator and stacker, the fan whereof is located horizontally below or within the rear end of said thrashing machine, and having its open eye at the upper side, and a hopper or hopper-like construction within the thrashing machine whereby the straw and dust are conveyed into said eye.



3. The combination, with a thrashing machine, of a pneumatic straw elevator and stacker having the fan located horizontally on a vertical shaft, and a trunk extending out from the fan casing, said fan shaft forming also the pivot upon which the structure is swung from side to side.

4. The combination, in a pneumatic straw elevator and stacker, of the fan mounted on a vertical shaft, the fan casing, the trunk extending out from said fan casing, and a stay rod running from said trunk back to a point directly above said fan, where it is secured, substantially as set forth.

5. The combination, in a pneumatic straw elevator and stacker, of a horizontal fan, a movable fan casing mounted and pivoted upon the fan shaft, a trunk extending out from said casing, a spool shaft and spools thereon located to one side of said fan casing, a rope passing around said spool and secured to the two sides of said fan casing, guides for said rope, and means whereby said spool shaft and spool may be revolved, thereby swinging the fan casing and trunk from side to side, substantially as shown and described.

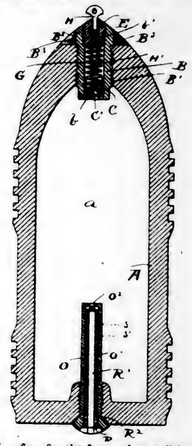
6. The combination, in a pneumatic straw elevator and stacker, of a trunk thereon, a mouth or hood thereto made of sections mounted on arms, a shaft on which said arms are loosely mounted, a main arm fixedly mounted on said shaft and extending out and secured to the outer one of said sections, and means whereby said shaft may be rocked and the sections thereby opened or closed relatively to each other, thus varying the length and direction of said mouth or hood.

7. The combination, in a pneumatic straw elevator and stacker, with the mouth or hood to the trunk, of a rock-shaft, arms on said rock-shaft, ropes running back from said arms to a spool and wound around said spool, and a handle or hand-wheel whereby said spool may be turned and the shaft thus rocked thereby opening or closing the mouth of the hood, substantially as set forth.

493,735. FUSE FOR PROJECTILES. JOSEPH RAPP, Akron, Ohio. Filed July 16, 1892. Serial No. 440,204. (No model.)

Claim.—1. The combination with a hollow shell having an explosive chamber therein, of a percussive fuse for the forward or striking end of the projectile, the same comprising a casing which projects and opens in the explosive chamber, a pin located centrally within the casing, a capsule seated at the inner end of said casing and a spring adapted to act in the direction to retain said capsule against its seat, the arrangement of parts being such that upon the striking of the projectile the inertia of the spring will compress the same in the direction away from the capsule and the latter by its inertia will be thrown against the point of the pin so as to result in the ignition of the explosive material within the capsule, substantially as set forth.

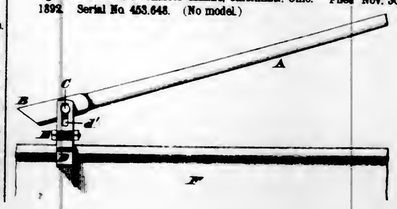
2. A percussion-fuse for the forward or striking-end of a projectile, the same comprising a casing provided at its inner end with an internal flange, a receptacle seated upon said flange, a capsule within said receptacle, a pin located centrally of the fuse and a spring adapted to act in the direction to retain the capsule within its receptacle, said capsule having an open-ended frusto-conical chamber adapted to receive the fulminating or igniting material, the bottom of the capsule-receptacle having a central perforation in open relation with, but less in size than, the adjacent end of the aforesaid chamber in the capsule, substantially as set forth.



3. A percussion-fuse for the forward or striking-end of a projectile, the same comprising the following elements:—a casing adapted to be rigidly secured within said end of the projectile, a capsule seated at the inner end and a bushing rigidly secured within the outer end of the fuse, a pin extending through said bushing into said fuse, said pin secured in the casing and a coil-spring located between the capsule and said bushing, the arrangement of parts being such that, upon the striking of the projectile, the inertia of the spring will compress the same against said bushing, and the capsule, by its inertia, will be thrown against the aforesaid pin, resulting in the ignition of the fulminating or explosive material within the capsule, substantially as set forth.

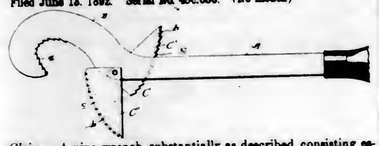
4. A percussion-fuse for the forward or striking-end of the projectile and comprising the following elements:—a casing having an externally screw-threaded portion adapted to engage a correspondingly screw-threaded perforation in said end of the projectile, a capsule seated at the inner end of the fuse, a bushing externally screw-threaded and engaging a correspondingly internally screw-threaded portion of the casing of said fuse, a pin extending through said bushing into the fuse and provided with an externally-screw-threaded portion engaging a correspondingly screw-threaded perforation in the bushing, and a coil-spring located between the capsule and said bushing, the arrangement of parts being such that, upon the striking of the projectile, the inertia of the spring will compress the same against said bushing, and the capsule, by its inertia, will be thrown against the aforesaid pin, resulting in the ignition of the fulminating or explosive material within the capsule, substantially as set forth.

493,736. CAR-STARTER. JACOB RIFBERGER, Newport, Ky., assignor of one-half to Charles Manne, Cincinnati, Ohio. Filed Nov. 30, 1892. Serial No. 453,648. (No model.)



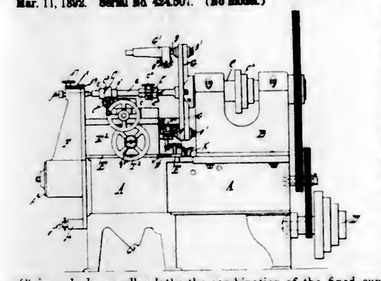
Claim.—The combination, in a car-starter, of the lever A, having a wedge-shaped toe B, a pair of jaws D, D', slotted vertically at d, d', and pivoted to each other by a single bolt E, and a pin C that traverses said toe B and slots d, d', and descends within said slots when said lever is depressed, all as herein described, and for the purpose stated.

493,737. PIPE-WRENCH. JAMES A. SMITH, Cleaversville, Mo. Filed June 13, 1892. Serial No. 436,638. (No model.)



Claim.—A pipe wrench, substantially as described, consisting essentially of the lever or handle bar, the fixed curvilinear jaw B, formed at one end of the lever or handle bar and having its inner side toothed, and the loose or movable jaw C, comprising the independent, acute angle shaped, movable sections C, having convex toothed engaging faces; the said sections C, being independently connected to the lever or handle bar by a bolt or rivet which takes through the sections at a point adjacent to the apex of the angle formed by the straight edges thereof, substantially as and for the purpose set forth.

493,738. PULLEY-LATHE. ANTON STREIT, Cincinnati, Ohio. Filed Mar. 11, 1892. Serial No. 424,507. (No model.)



Claim.—1. In a pulley lathe the combination of the fixed supporting frame, a table pivoted to turn upon said frame tool stocks secured upon said table tool carriers mounted thereon and adapted to slide parallel with the longitudinal center of the table and also at a right angle thereto, and means such as shown to feed the tool carriers parallel to the pulley face to be dressed, substantially as described.

2. In a pulley lathe the combination of the stand, the pivoted tool carrying table mounted thereon the head stock secured upon the stand the live spindle and means for driving the same angle levers fulcrumed in the table and having their angle ends extending under projections from the stand whereby the table is locked firmly upon the stand when adjusted and released from the stand to allow of its adjustment, substantially as shown and described.

3. The combination substantially as described of the supporting frame carrying the head stock and movable tail stock, the table carrying the cutter supports and cutters and pivoted to turn upon said stand, the levers for locking the table and releasing it from the stand the said stand and table being perforated at e, to receive a pin and the steady pin e^3, whereby the table is adjusted and set at the desired angle substantially as shown and described.

4. The combination of the supporting stand A, the head stock B, secured thereon the live spindle the spindle driving mechanism the movable tail stock the table E, supported upon the stand, the box E, secured thereunder, the bridge a, the shaft e, secured in said bridge and passing through the box E', to pivot the table and the levers to lock the table to or release it from the stand substantially as shown and described.

5. The combination in a pulley lathe of the supporting stand the head stock secured thereon, the table E, pivoted to turn upon the stand the tool carriers secured thereon the table and stand being perforated at e', and the tapered steady pin e^3, to fix the adjustment of the table upon the stand substantially as shown and described.

6. The combination, in a lathe for turning pulleys, of the fixed stand and headstock, the hollow spindle and mandrel c, carried thereby, the tail stock F pivoted upon the fixed stand, the centering pin fitted to slide in the plane of the axis of the mandrel, means, such as shown, to release and fix the said centering pin, and means to hold the said tail stock rigidly in its working position, and to release it, for the purpose of quickly placing a pulley on the mandrel, c, or removing it therefrom, substantially as shown and described.

7. The combination of the stand A, the head stock and tail stock supported thereon the table E, pivoted upon the stand the tool stocks E^3, secured upon the table the tool carriages mounted to slide upon the stocks E^3, the racks l, secured to the tool carriage the shaft I', the pinion i and hand wheel l^2, to revolve the shaft and pinion to move the tool carriage by hand substantially as shown and described.

8. The combination of the stand the head and tail stock mounted thereon the pivoted table E, the tool stocks mounted thereon the box E', secured to the underside of the table the feed shaft mounted therein the clutch pinions j', j', loose upon the shaft J, the sliding clutch member j, splined upon said shaft between the clutch pinions the pin e, pivoting the table and extending through the bottom of the box E', the beveled wheel journaled upon said pivot e and meshing with the beveled clutch pinions the gear wheels j, secured upon the opposite ends of the shaft J, to mesh with the driving gear of the tool carriages, a shifting lever to throw the clutch from one clutch pinion to the other to reverse the tool feed and driving mechanism for revolving the beveled wheel j^3, to actuate the tool feed substantially as shown and described.

9 The combination substantially as hereinbefore set forth, of the stand A, the pulley supporting and driving mechanism mounted therein the table E, the tool carriages their supports and feeding devices upon the table, the tool feed shaft, supported from the underside of the table the beveled pinions j' j', loose upon said shaft between the pinions, the pinions j, connecting the shaft and tool feed mechanism the pin e, secured in bridge a, and extending through the tool-feed-shaft support the loose beveled gear wheel upon said pin and meshing with the loose pinions j', and the beveled gear wheel l^3, and intermediate gears mounted in frame A, and the belt connecting it to the pulley driving spindle whereby the feed mechanism supported under the table is revolved in either direction at whatever angle the table may be set.

10. The combination in a pulley lathe of the stand A, the feed driving mechanism mounted therein the table E, resting upon the frame and pivoted therein, the tool stocks E^3, secured upon each end of the frame the tool carriages H', fitted to slide upon said stocks E^3, the rack secured to the tool carriages the shafts I journaled in the stocks E^3, the gear wheels i, secured upon said shafts and meshing with the teeth of the racks, the box E', secured to the underside of the table the feed shaft J, journaled in the sides of said box the pinions j, secured upon the ends of said shaft the cog wheel i^3, loose upon shaft I', and having clutch flange i^3, upon the inner side the male clutch disk i^4, secured upon the shaft I, the hand wheel l^2, splined upon said shaft the wheel i^5, screwed upon the outer end of shaft I', to couple the cog wheel i^3, to the shaft I', or uncouple it therefrom and mechanism to revolve the shaft J, alternately in opposite directions whereby the tool carriages may be coupled to the shaft J, and driven by power or uncoupled and operated by hand substantially as shown and described.

11. In a pulley lathe the combination of the tool carriages H', the rack l, secured thereto the hand wheel shaft I', pinion i, secured thereon to mesh with the rack and wheel i^3, loose upon said shaft and having the clutch flange i^4, the hand wheel l^2, splined upon said shaft and the screw wheel i^5, on the end of the shaft I', for the purpose of connecting and disconnecting the clutch members i^3, i^4, substantially as shown and described.

12. In a pulley lathe the combination of the sliding tool carriages the feed shaft J, and gearing for connecting the feed shaft and tool carriages the clutch for alternately revolving said shaft in opposite directions with the shifting lever for the sliding clutch member consisting of the pivoted lever arm K, the arm k^2, secured at right angles thereto and carrying the clutch guide k^3, and the spring pulled yoke k^4 secured to the frame of the machine at one end and passing around a pin in the arm k^3, for the purpose of quickly snapping the sliding clutch member into engagement with the opposite clutch members after the lever K, has passed the center substantially as shown and described.

13. In a pulley lathe the combination of the live spindle the pulley supporting mandrel the pulley centering-sleeves C, having centering necks c', central collars c^2, arms c^3, and radially slotted through said arms necks and collars upon one side and the screws c^4, to clamp the collars upon the mandrel substantially as shown and described.

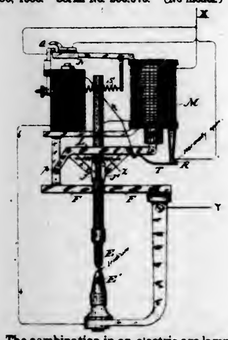
14. The combination of the face plate G, slotted from the ends to near the hubs the studs g, adjustable in said slots the cone sleeves G', bored to fit said studs and longitudinally slotted through to the bore and clamping screw g^2, to clamp said sleeves upon the studs substantially as shown and described.

15. The combination of the face plate slotted and perforated near

the hub the removable studs adjustable in said slots the cone sleeves adjustable upon said studs, studs for the perforations in said face plate, adjustable sleeves for said studs having cone horns adjustable around the studs substantially as and for the purpose set forth.

16. The combination of the driving stud cone sleeves centrally perforated to fit said studs having radially extending lug or arms and slotted to secure the arms and cone sleeve to the central bore and clamping screws to adjust and fasten the sleeves upon the studs.

493,739. **ELECTRIC-ARC LAMP.** ELIHU THOMSON, Lynn, Mass., assignor to the Thomson-Houston Electric Company, of Connecticut. Filed June 30, 1886. Serial No. 206,676. (No model.)



Claim.—1. The combination in an electric arc lamp, of an electro magnet, a positive-feed clutch mechanism actuated by said magnet and arranged to feed the carbon by positive action on a reverse movement of said magnet's parts due to decrease of power in the same, a circuit closer or controller connected to the circuit of said magnet, a derived circuit magnet for throwing the same into position to put the circuits of the feed magnet into operative condition when the arc increases in length, and a second circuit controller for the feed electro magnet actuated thereby and arranged in the manner described so as to cause the magnet to be de-energized when the armature of the same is raised by the magnet's power, as and for the purpose described.

2. The combination substantially as described of the main circuit magnet and a following or yielding contact which serves in closing and opening a circuit to throw the magnet into and out of action, an operating armature for the contact having a range of movement beyond that necessary to merely open and close the circuit of said magnet, a positive or step by step feed mechanism operated by said magnet, a circuit closer for closing the connections of the contact, and a derived circuit magnet for actuating the circuit closer when the arc lengthens, as and for the purpose described

3. The combination in an electric arc lamp, of an electro magnet, a feed mechanism operated thereby, a switch contact governed by the magnet for throwing the same into and out of action so as to produce a reciprocating movement of the parts, and a consequent step by step feed, and a closed circuit conducting band or eavelope for said magnet.

4. The combination in an electric arc lamp, of a main circuit magnet, differentially moving feed clutches supported thereby, a de-energizing circuit, a contact operated by said magnet and thrown, by the variation of the power of the magnet, into and out of position where the de-energizing circuit may be completed, a second contact, and a derived circuit magnet for moving the same into position for completing the de-energizing circuit when the arc increases in length.

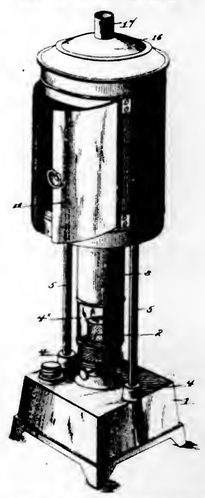
5. The combination with a carbon rod or carrier, of the differentially positively acting clamps bearing on the carbon rod or carrier at opposite sides thereof and moving positively in the same direction under the action of the magnet or its retractor, said clamps being arranged to engage the carbon rod in substantially the same transverse line.

6. The combination with the carbon rod or carrier, of the two clamping shoes J, J', bearing against the carbon rod or carrier at opposite sides thereof and moving positively in the same direction under the action of the magnet or its retractor, said clamping shoes being supported at different distances from the fulcrum of the actuating lever, as and for the purpose described.

7. The combination with the carbon rod or carrier, of differentially moving clamps both applied to tend to move the carbon in the same direction at the same time, one of said clamps, to wit: that having the greater range of movement in a direction to feed the carbon having a greater bite or hold upon the carbon or carbon rods.

8. The combination in an electric arc lamp, of a main circuit magnet, a positive-feed mechanism engaging with the carbon carrier and supported by said magnet, a de-energizing circuit, a contact operated by said magnet and thrown, by the variations of the power of the magnet, into and out of position where the de-energizing circuit may be completed, a second contact, and a derived circuit magnet for moving the same into position for completing the de-energizing circuit when the arc increases in length.

493,740. **OIL-STOVE.** LYMAN F. WILDER, Rochester, N. Y. Filed Apr. 27, 1892. Serial No. 430,929. (No model.)



Claim.—1. In an oil stove, the combination of a grate supported in elevated position thereon and having sockets in the periphery thereof, and a drum with pins or studs on the interior of the same removably fitting said sockets, substantially as described.

2. In an oil stove, the combination of a grate supported in elevated position and having recesses in the periphery thereof, and a drum having pins or studs on the inner periphery of the lower portion of the same adapted to pass through said recesses whereby the drum fits down over the grate, substantially as described.

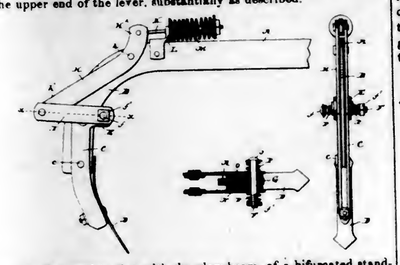
3. In an oil stove, the combination of a grate supported in elevated position and having sockets in the periphery thereof, and recesses adjacent to said sockets, and a drum with pins or studs projecting from the inner periphery of the lower portion thereof adapted to engage said sockets and recesses of the grate, substantially as described.

4. In an oil stove, the oil fount, the grate supported in an elevated position above the oil fount, and the vertically movable drum having an open side closed by doors and removably fitting at its lower edge upon said grate so as to be supported above the latter, said drum being designed and adapted to be lowered down upon the oil fount and inclose the grate when not in use, substantially as described.

493,741. **CULTIVATOR-TOOTH.** ROBERT WILSON, Allen, Pa., assignor of one-half to Charles F. Cornman, same place. Filed Aug. 11, 1892. Serial No. 442,765. (No model.)

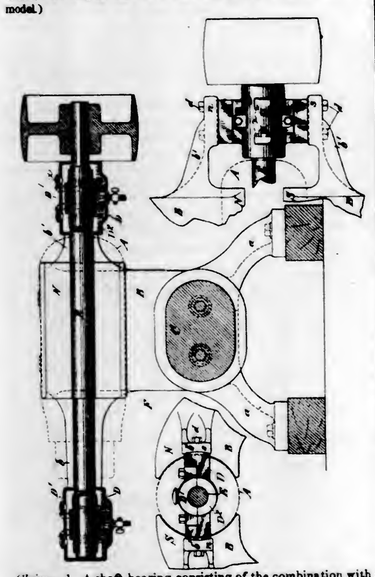
Claim.—1. The combination with the plow-beam and a pivoted angular standard, having its shorter arm bent forward, of a lever arranged at its lower end in rear of the upper end of the standard and connected by a link, thereto, an actuating spring connected to the upper end of the lever, and projections carried by the standard to engage sockets or depressions in the plow-beam, substantially as described.

2. The combination with the plow-beam, having sockets or depressions in its sides, of a bifurcated standard pivoted to the plow-beam with its arms, which lie upon opposite sides of the same, provided with opposite knobs or projections to engage said sockets or depressions, the lever pivoted to the plow-beam and terminating at its lower end in rear of the upper end of the standard, the links connecting the lever and standard, and an actuating-spring connected to the upper end of the lever, substantially as described.



3. The combination with the plow-beam, of a bifurcated standard pivoted thereto and having its branches provided with projections to engage sockets or depressions in the plow-beam, a transverse bolt connecting the free ends of said branches, springs coiled upon the extremities of said bolt to normally hold the branches of the standard in position to cause its projections to engage said sockets or depressions, and a spring-actuated lever connected to the standard, substantially as specified.

493,742. **SELF-LUBRICATING JOURNAL-BEARING.** JAMES J. WOOD, Fort Wayne, Ind. Filed May 2, 1892. Serial No. 431,554. (No model.)

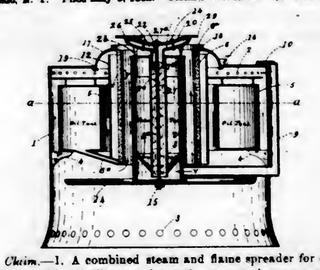


Claim.—1. A shaft bearing consisting of the combination with a supporting shell or chamber adapted to contain oil, of an expansion bushing V seated therein, a bearing sleeve U held within said bushing and projecting beyond the ends thereof, and formed with slots W' W' beyond said bushing and oiling rings W W mounted on the journal in said slots.

2. A shaft bearing consisting of the combination of a transverse bearing head D supported at its ends and constructed at its middle portion with an oil-containing bearing shell D^3, and a cap D' covering said shell, with an expansion bushing V seated within said shell and cap, a bearing sleeve U held within said bushing and projecting beyond the ends thereof, with slots W' W' in its projecting portions, and oiling rings W W in said slots for supplying oil contained in said shell to the journal.

3. A shaft bearing consisting of the combination of a bearing shell D^3 and cap D', an expansion bushing V seated therein, a bearing sleeve U held by said bushing, projecting beyond the ends thereof, formed with slots W' W' beyond said bushing, contracted at the middle by opposite projections y y, and oiling rings W W mounted on the journal in said slots, whereby said rings turn between and are guided by said projections, and the latter serve to wipe the oil from the rings and apply it to the journal.

493,748. **BURNER FOR OIL-STOVES.** ELIAS M. WRIGHT, Buffalo, N. Y. Filed May 3, 1892. Serial No. 431,631. (No model.)



Claim.—1. A combined steam and flame spreader for oil lamps consisting of two shells secured together so as to leave an open space between them, the peripheral edge of the upper shell projecting beyond the edge of the lower shell, a series of openings around the periphery of the lower shell and a tubular portion projecting down therefrom to connect with the water wick tube, for the purposes described,

2. The combination with the water tank of a water wick tube secured centrally within it at the top and bottom, a hollow steam and flame spreader having openings at the periphery of the lower shell and a means for connecting it to the water wick tube, an oil wick inclosed within a wick tube surrounding the water vessel and connected with an oil reservoir, for supplying it with oil, a collar having inclined deflecting sides and an upward projecting rim surrounding its central opening, for directing the flame toward the spreader, whereby the steam rising from the water wick will be conducted from the water wick tube to the steam and flame spreader and superheated, and from thence into the flame, substantially as described.

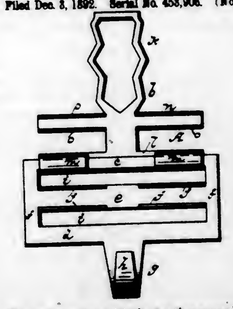
3. In an oil lamp, a water tank located centrally within the oil wick tube, in combination with a water wick tube located centrally within the water tank and a hollow flame and steam spreader connected with the water wick tube and provided with a copper rod extending down through the water wick for conducting the heat downward into the water wick, substantially as described.

4. In an oil lamp, the combination therewith of a feed pipe extending down outside of the lamp case and then horizontally under the oil tank to the water tank, and a hinged cover at the top, for the purposes described.

5. A hollow steam spreader having a series of small openings around its under periphery, a series of lugs by which it is supported on the top of the water tank and a downward projecting pipe for connecting it with the water wick tube, substantially as described

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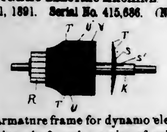
493,744. **BACK-BAND BUCKLE.** WALTER F. ANTHONY, Williamsport, Pa. Filed Dec. 3, 1892. Serial No. 453,906. (No model.)



Claim.—The combination with the portion *a* consisting of a skeleton frame struck up or formed from suitable metal and comprising

the outer longitudinal bars *c* and *d*, the latter being provided with the centrally disposed depending integral piece *g* forming the hook *h*, and the longitudinal inner bar *e* provided with outwardly extended flanges *j j* and a centrally disposed unflanged portion and the integral end-bars *f f* connecting the longitudinal outer and inner bars of said frame, of the portion *b* having a longitudinal bar provided with half-hinges *m m* for engaging the longitudinal outer bar *c* of the skeleton frame or portion *a* provided with the integral cross-bar *n* having parallel rows of teeth *o* bent at right angles to said cross-bar *n* and the loop or handle *k* adapted to be closed over the hook *h* on the depending piece *g* of said frame *a*, substantially as and for the purposes specified.

493,745. DYNAMO-ELECTRIC MACHINE. FOREST BAIN, Chicago, Ill. Filed Dec. 21, 1891. Serial No. 415,686. (No model.)



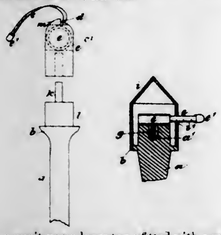
Claim.—1. An armature frame for dynamo electric machines consisting of a supporting shaft and a series of primarily dish-shaped plates on such shaft and flattened thereon to cause them to grip the shaft.

2. An armature frame for dynamo electric machines consisting of a supporting shaft and a series of primarily dish-shaped plates placed on such shaft, and flattened thereon to cause them to grip the shaft, said shaft treated with a saline or similar substance prior to the application of such plates.

3. An armature frame for dynamo electric machines consisting substantially of a supporting shaft with a series of plates thereon, said shaft primarily treated with a saline or similar substance to cause the plates to adhere strongly to the shaft.

4. In a dynamo electric machine, the combination of a series of plates with surrounding rims and inwardly projecting pole pieces and plates with lips thereon, and coils which surround such pole pieces and are secured in position by such lips when turned up.

493,746. QUOIT-PEG. FLEMING A. O'R. BEDINGFELD, Mutford, England. Filed July 11, 1892. Serial No. 439,604. (No model.) Patented in England Mar. 12, 1891, No. 4,458.



Claim.—1. In a quoit peg a loose top *c* fitted with a measure *e* and mounted on a pin *k* and furnished with a cap *i* all substantially as hereinbefore described and shown.

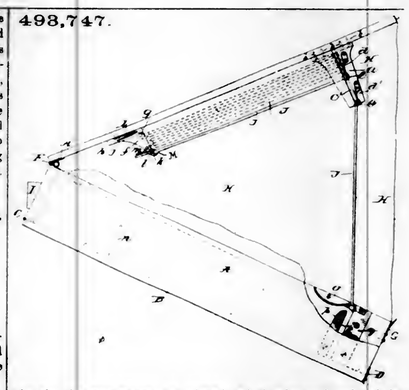
2. In a quoit peg a loose cap *i* having a lateral aperture *i'* wherein the measuring tape is fitted and through which it is drawn out laterally without removing the cap all substantially as hereinbefore described and shown.

493,747. PHOTOGRAPHIC CAMERA. HIRAM A. BENEDICT, Brooklyn, N. Y. Filed Aug. 4, 1892. Serial No. 442,102. (No model.)

Claim.—1. In a photographic camera, the combination of a case, one side whereof is adapted to be opened, means for excluding the light attached to the movable side and also to the body of the case, a frame upon the movable side, adapted to support the rear ends of a series of plate holders, a spring controlled escapement which supports the front ends of the plate holders and a device which trips the escapement upon the closing of the movable side to release the forward end of each plate holder, substantially as set forth.

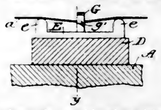
2. In a photographic camera, the combination of a case, one side of which is adapted to be opened, means for excluding the light, attached to the movable side and also to the body of the case, a frame on the movable side provided with spring catches adapted to support the rear ends of a series of plate holders, a spring controlled escapement which supports the front ends of the plate holders and means against which the escapement strikes upon closing the movable side

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whereby the escapements are tripped and the forward ends of the plate holders successively released, substantially as set forth.

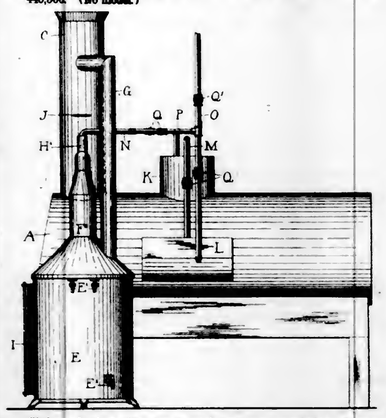
493,748. PIANO-STRINGING DEVICE. ARTHUR BOLLERMANN, New York, N. Y. Filed Nov. 14, 1892. Serial No. 451,878. (No model.)



Claim.—1. In a piano, the combination with the sounding-board, the bridge, and the strings, of an independent, metallic under layer for each string or set of strings, and a cooperating independent bearer composed of a bar or plate having a central perforation, two lateral notches, and a screw-threaded shank to pass through the under-layer into the bridge, substantially as shown and described.

2. A bearer for piano strings composed of a plate or bar having a central perforation and two lateral notches, and a centrally disposed screw-threaded shank, substantially as shown and described.

493,749. SMOKE ARRESTER AND SEPARATOR. HENRY BORN and JOSEPH PARKIN, Cleveland, Ohio. Filed July 19, 1892. Serial No. 440,566. (No model.)



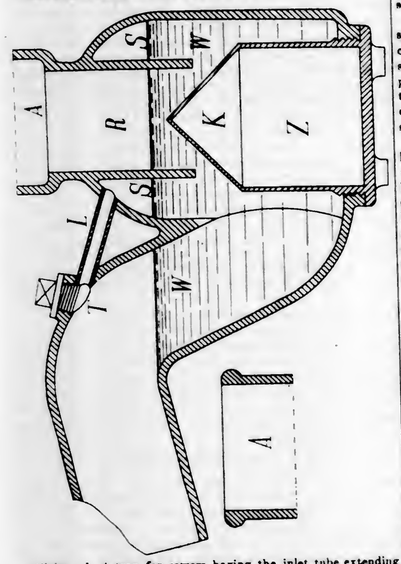
Claim.—1. A smoke arrester and separator, consisting of a water reservoir connected at the top, by the pipe G, with a furnace chimney above the damper, the compartment D, within said reservoir, connected by the pipe F with the lower part of said chimney; the vertical portion of said pipe being enlarged to form an annular chamber, in

combination with a chimney damper, between said pipes F and G, the injector H, in the top of said annular chamber, and connected by the pipe N to the boiler dome, the exhaust pipe O, from the steam-chest, connected with the pipe N, by the pipe P, and the pipe M from the dome to the steam-chest; each of the pipes N, P and M having a valve therein, the pipe O having a valve above and below the junction pipe P, substantially as specified.

2. In an improved smoke arrester and separator, the combination of the water reservoir E, the compartment D, within said reservoir E and open at its base, the annular chamber F', containing the injector H, projecting thereinto and forming an integral part of the pipe F, said pipe opening into the chimney of the furnace, the pipe G in open connection with the chimney and the roof of the water reservoir, the damper between said pipes in the chimney, and the boiler dome connected directly with the projecting portion H' of the injector H, by the pipe N, and indirectly through the steam chest by means of the pipes M O P and N, said pipes being provided with ordinary valves, in the manner substantially as and for the purpose specified.

3. In a smoke arrester and separator, the water reservoir E, connected at the top by a pipe, with the furnace chimney and a damper in said chimney, below said pipe, in combination with the compartment D, within said reservoir, connected with the chimney, below said damper, by a pipe having an annular chamber formed within its vertical portion, and an injector, situated within said annular chamber, connected with the dome of a boiler and the steam-chest by a series of pipes having valves therein, for controlling the passage of steam through the several pipes, substantially in the manner specified.

493,750. WATER-TRAP FOR SEWERS. ALEXANDER BUDDE, Berlin, Germany. Filed May 28, 1892. Serial No. 434,717. (No model.) Patented in Germany Aug. 12, 1891, No. 62,321.



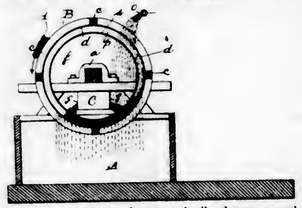
Claim.—1. A trap for sewers having the inlet tube extending into and discharging within the same, and forming an annular chamber surrounding said inlet tube, displacing cone having its side walls in line with said annular chamber and the escape pipe connecting the said annular chamber with sewer, substantially as described.

2. A trap for sewers having the inlet tube extending into and discharging within the same, and forming an annular chamber-surrounding said inlet tube, a discharge pipe connected with said trap below the discharge end of said inlet tube, having a portion extending above the discharge end of said inlet tube, and an escape pipe connecting said annular chamber with said discharge pipe, substantially as described.

3. A trap for sewers having the inlet tube extending into and discharging within the same, and forming an annular chamber surrounding said inlet tube, the displacing cone removably secured in said trap having its side walls in line with said annular chamber and an escape pipe for connecting said chamber with the sewer, substantially as described.

4. A trap for sewers having the inlet tube extending into and discharging within the same, and forming an annular chamber surrounding said tube, the displacing cone having its side walls in line with said annular chamber, the discharge pipe connected to said trap below, and having portions extending above the plane of the discharge end of said inlet tube and the escape pipe connecting the annular chamber with the discharge pipe, substantially as described.

493,751. ROTATING SCREEN FOR SCREENING KAOLIN OR ANALOGOUS SUBSTANCES. JOHN W. BURGESS, Hockessin, Del. Filed Oct. 31, 1891. Serial No. 410,461. (No model.)



Claim.—1. An elevated rotary inclined screen and a receiver below the same which receives the material dropping through said screen, in combination with a water discharge at one side of said screen which showers water onto the upwardly rising portion of the screen, substantially as set forth.

2. An elevated rotary inclined screen open at its lower end, a spout which delivers clay-slip into its interior at its upper end, a receiver below said screen which receives the material dropping through said screen, and a receptacle which receives coarse matters and impurities from the lower end of the screen, in combination with a water discharge at one side of said screen which showers water onto the exterior of the upwardly rising portion of the screen, substantially as set forth.

3. An elevated rotary inclined screen open at its lower end and having the screening material on the interior of its framework, a spout which delivers clay slip into its interior at its upper end, a receiver below said screen which receives the material passing through said screen, said screen delivering the coarse matters and impurities at its lower end outside of said receiver, in combination with a water discharge at one side of said screen and above its middle, said water discharge extending lengthwise of said screen and showering water onto the exterior of the upwardly-rising portion of the screen, substantially as set forth.

4. An elevated rotary inclined screen open at its lower end, a spout which delivers clay-slip into its interior at its upper end, a receiver below the screen, and a receptacle which receives coarse matters and impurities from its lower end, in combination with a water discharge consisting of a pipe extending longitudinally and at one side of the screen, and having a series of discharge orifices throughout its length which shower water onto the exterior of the upwardly rising portion of the screen, substantially as set forth.

493,752. CARDING-ENGINE. LOUIS CLARKEBACH, Jr., Philadelphia, Pa., and EMIL ZOLL, Holyoke, Mass. Filed July 11, 1888. Serial No. 279,642. (No model.)

Claim.—1. The combination in a carding engine, of a main cylinder, with one or more pairs of workers and fancies, the fancy and worker of each pair being contiguous and partially surrounding said cylinder substantially as described.

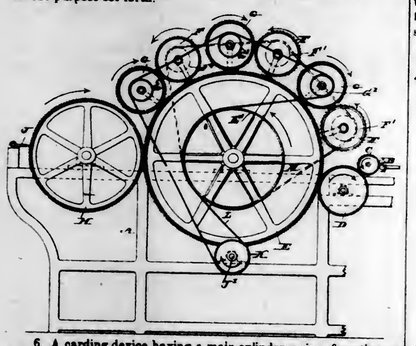
2. A main cylinder, in combination with a worker and fancy, and means for rotating said parts, the card wires of the workers projecting in the same direction as those of said fancy and cylinder, said worker and fancy rotating in reversed directions, substantially as described.

3. A main cylinder in combination with a worker and a fancy, the teeth of said parts projecting in the same direction, and said parts being provided with operating mechanism, said fancy and worker being contiguous and adjacent to said main cylinder substantially as described.

4. A carding engine having a main cylinder and a doffer, a series of contiguous workers and fancies surrounding the main cylinder between the tumbler and doffer, mechanism substantially as described for operating the main cylinder, and mechanisms substantially as described for rotating said fancies and workers in opposite directions,

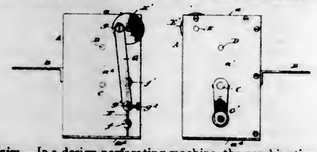
and at different speeds, said parts being combined substantially as described.

5. A carding engine having a main cylinder, a series of pairs of fancies and workers arranged around a portion of said main cylinder, mechanisms substantially as described for operating said main cylinder and fancies, and mechanism for operating said workers, said fancies being rotated at a higher rate of speed than either the workers or main cylinder, said parts being combined substantially as and for the purpose set forth.



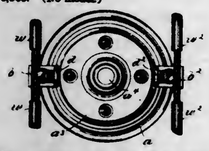
6. A carding device having a main cylinder, pairs of contiguous fancies and workers partially surrounding said cylinder, the teeth of the workers being free from the teeth of the said cylinder, and meshing with the teeth of the fancies, mechanism connected with a main driving shaft for operating said cylinder and fancies, and mechanism also connected with said driving shaft for operating the said workers, said parts being combined substantially as described.

493,758. PERFORATING-MACHINE. JOHN F. CRAEMER, Ogden, Utah. Filed Sept. 14, 1892. Serial No. 445,883. (No model.)



Claim.—In a design perforating machine, the combination of the casing, the power shaft C, the intermediate shaft D, the driving shaft E extending through the casing, the crank E' on shaft E at one side of the casing, the needle in guides on said side of the casing, the pitman directly connecting the crank E' and the needle and moving the needle in both directions, the hand crank C' on the opposite side of the casing, and a handle B projecting backward from the casing, substantially as set forth.

493,754. ELECTRIC CONNECTOR AND CUT-OUT. CHARLES H. CROCKETT and CHANCELLOR C. ALLEN, Boston, Mass. Filed Apr. 8, 1892. Serial No. 428,363. (No model.)

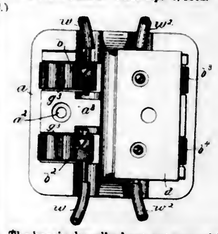


Claim.—1. The combination of the base provided, with wire clamps, and fastening arms in metallic contact therewith, having transverse openings or recesses, one or both of said arms having a pivotal connection with the corresponding wire clamp; with the cap having radial projecting locking arms adapted to enter the openings in the fastening arms of the base portion to thereby secure the said cap to the base portion and make electrical connection between said fastening portions on the base and cap, substantially as described.

2. The combination of a base portion provided with a wire clamp as *b* with the fastening arm or link *d* provided with an opening through which a portion of the wire clamp *b* passes on which said link is pivotally movable, and the cap portion provided with a fastening arm adapted to be engaged with and disengaged from the said link by the pivotal movement thereof, substantially as described.

3. The combination with the base portion provided with a wire clamp, and fastening arm or link as d^3, pivotally connected therewith, of a cap portion provided with a locking arm having a beveled or inclined end and projection to receive said fastening arm, and a spring to accommodate the relative yielding movement of the locking and fastening arms in the engagement and disengagement thereof, substantially as described.

493,755. ELECTRIC CUT-OUT. CHARLES H. CROCKETT and CHANCELLOR C. ALLEN, Boston, Mass. Filed Apr. 8, 1892. Serial No. 428,364. (No model.)



Claim.—1. The herein described cut-out comprising the base portion provided with two sets of wire clamps, insulated from one another by said base portion and each provided with a spring coupling member, combined with a cap composed of two parts each provided with two coupling members co-operating with a pair of the coupling members on the base, said coupling members on each part of the cap being connected by a fuse wire which thus completes the circuit between the corresponding pair of wire clamps on the base portion when the said coupling members are engaged, substantially as described.

2. The coupling members provided with a seat recess as g^3, and a spring as g^4, opposite thereto, combined with the cooperating coupling member having a shank and offset inclined thereto, co-operating with said seat and spring as described, said coupling being engaged and disengaged by a rocking or pivotal movement of one member relative to the other, substantially as described.

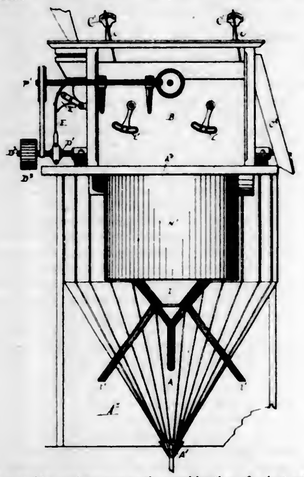
3. The combination of the base portion of an electric cut out composed of insulating material and provided with recesses and a barrier between the same; with two pairs of wire clamps secured in the said recesses, and a cap composed of two independently movable parts, each of said parts having two wire clamps connected by a fuse wire and adapted to engage with one pair of the wire clamps on the base portion to provide electrical connection between the same through the fuse wire, substantially as described.

4. The base portion for an electric cut-out provided with two pair of metallic wire clamps, each provided with one member of a spring coupling having a seat recess and a spring opposite thereto, said coupling members of one pair of wire clamps being in line with one another and a two part cap each part having a pair of coupling members connected by a fuse wire and adapted to cooperate with the coupling members of one pair of wire clamps, on the base portion, substantially as described.

493,756. PURIFIER AND SEPARATOR. GEORGE A. CULVER, JOHN P. CULVER, and WILLARD D. OTIS, Blue Springs, Nebr. Filed Aug 10, 1891. Renewed Nov. 15, 1892. Serial No. 452,027. (No model.)

Claim.—1. In a purifier and separator, the combination with a dust collector comprising a polygonal shaped body portion having a lower pyramidal shaped section, of an openended aspirating trunk at the upper end and extending into said collector, a cylindrical drum centrally within said collector and surrounding the projecting end of said trunk, and a suspended horizontally reciprocating bolting frame centrally above said trunk, provided with converging corrugated gathering boards, adapted to catch and feed the grain centrally into said trunk, substantially as and for the purpose set forth.

2. In a dust collector and separator, the combination with the inclosing casing, of an openended aspirating trunk extending into said casing, and being divided into one main and four sub compartments as follows: an upper main chamber the width and length of the trunk and having a central transverse opening, a transverse main partition centrally dividing the trunk into two compartments and extending into the upper chamber, two secondary partitions dividing the trunk into two separate chambers, one upon each side of the central partition, to form two central chutes and a settling chamber on either side, a divided hopper below said central chute, spouts leading from said hopper and from the settling chambers, and two fan boxes in communication with all of said chambers, fans within said boxes and means for operating the same, substantially as and for the purpose set forth.



3. In a purifier and separator, the combination of a dust collector comprising a polygonal shaped body terminating in a cone, the planes of which are lapped and united by longitudinal ribs so as to form successively a series of angular vertical recesses or abutments, extending the full length of the collector, an openended aspirating trunk extending into said collector, provided with an upper chamber adapted to accommodate a bolting frame and centrally leading into a duplex chute, settling chambers upon each side of said chute and communicating with said chutes at their upper ends, fan boxes positioned below said main chamber and communicating with said settling chambers and having outlets leading into the dust collector proper, a driving shaft passing centrally through the duplex chutes, the settling chambers and the fan boxes being supported upon the outside within suitable bearings, fans upon said shaft and within said fan boxes, and means for operating said shaft, all substantially as and for the purpose set forth.

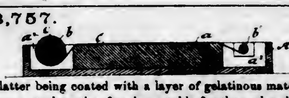
4. In a purifier and separator, the combination of a dust collector comprising a polygonal shaped body terminating in a cone, the planes of which are lapped and united by longitudinal ribs so as to form successively a series of angular vertical recesses or abutments, extending the full length of the collector, an openended aspirating trunk extending into said collector, comprising a main upper chamber below which are positioned two central chutes leading into said main chamber, two settling chambers two fan boxes, a depending deflecting board extending into each of said settling chambers, transverse angular bars within said central chutes arranged successively upon opposite sides of the chutes and inclined deflecting bars within said chutes, and a hopper below said central chutes, all substantially as and for the purpose set forth.

5. The combination with a polygonal and pyramidal shaped inclosing dust collector, of an aspirating trunk, said trunk having an upper chamber adapted to accommodate a horizontally reciprocating bolting frame, an opening leading into a central duplex chute terminating above a duplex settling chamber, said chutes leading into two auxiliary settling chambers, spouts leading from said chamber, transverse and inclined deflecting bars and boards within said chutes, fan boxes leading into said chambers, valves within said fan boxes for regulating the force of the current, a main driving shaft passing through said aspirating trunk, fans upon said shaft, and an eccentric connection in combination with said driving shaft to operate the said bolting frame, all substantially as and for the purpose set forth.

493,757. DUPLICATING APPARATUS. FELIX F. DAUB, New York, N. Y. Filed Nov. 15, 1892. Serial No. 452,029. (No model.)

Claim.—In combination, a copying pad composed of a layer of oil paper adhesively united to a layer of linen material, the surface

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of the latter being coated with a layer of gelatinous material, a box having a central portion forming a table for the pad, a delivery and take-up rollers for the pad pivotally and detachably secured within the box, and a ratchet wheel, pawl and finger knob for each roller to control the movements thereof, substantially as described.

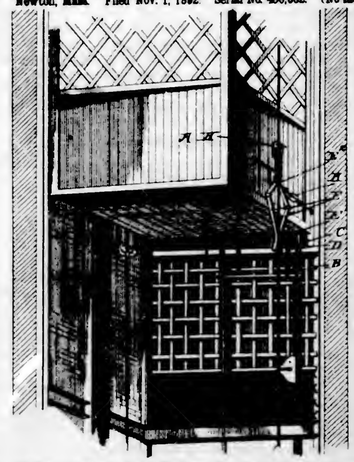
493,758. STAPLE-DRIVING TOOL. SAMUEL C. DAVIDSON, Belfast, Ireland. Filed Nov. 1, 1892. Serial No. 450,637. (No model.)



Claim.—1. A tool for driving staples, consisting of a bar having two recesses, the one a deep recess receiving and fitting the upper portion of a staple, and embracing enough of the body thereof to prevent distortion in the initial driving, and the other a shallow recess receiving and fitting only the shoulders of said staple for its subsequent driving, substantially as and for the purpose set forth.

2. A hand tool for driving staples, consisting of a bar having a deep recess at one end receiving and fitting the upper portion of a staple, and embracing enough of the body thereof to prevent distortion in the initial driving, and said bar having at each side of the mouth of said deep recess a shallow recess, these shallow recesses receiving and fitting the shoulders of said staple for its subsequent driving, substantially as and for purpose set forth.

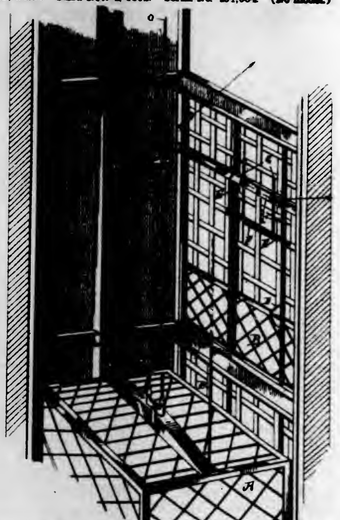
492,759. SAFETY DEVICE FOR ELEVATORS. HENRY H. DAY, Newton, Mass. Filed Nov. 1, 1892. Serial No. 450,682. (No model.)



Claim.—1. The combination in an elevator, of a cage, a movable frame B carried thereby and provided with vertical guide rods, vertical guide ways for said frame, a controlling cable, spring actuated grippers pivoted together and attached to the car, a guide way E' on the grippers, a spring support, and a latch to retain the spring support in a horizontal position, and connected to a vertical guide rod, as and for the purpose set forth.

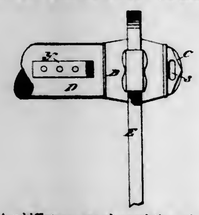
2. The combination in an elevator of a car, a movable frame suspended therefrom and provided with guide-rods D, vertical guide ways C, a controlling cable *m*, spring actuated grippers, pivoted together and attached to the car, a support, and a slide adapted to engage the support and attached to the side of the car and connected to one of rods D, as and for the purposes, set forth.

493,760. SAFETY ELEVATOR DEVICE. HENRY H. DAY, Newton, Mass. Filed Nov. 4, 1892. Serial No. 451,004. (No model.)



Claim.—In an elevator, the combination, with an elevator car and an operating cable provided with a stop, of a movable frame mounted on a side of the elevator shaft adjacent to the door-way, a spring-pressed device mounted on one wall of the shaft and adapted to engage the cable-stop, means for normally supporting said spring device against the tension of the spring and out of engagement with the stop, and a connection between the movable frame and the spring-pressed device whereby, when in the ascent of the elevator car an obstruction meets the movable frame, the spring device will be released from the supporting means and thereby engage the cable stop to arrest the car, substantially as described and set forth.

493,761. WHIFFLETREE-GUARD. LOREN DUNCK, Leeds, Mass. Filed Aug. 15, 1892. Serial No. 443,180. (No model.)

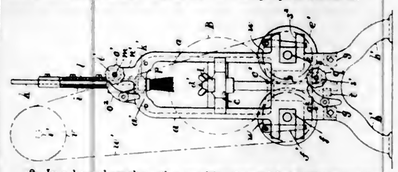


Claim.—1. A whiffletree guard consisting of a shell, convex in its central portion and tapering toward the ends so as to present a smooth surface, having a longitudinal passage of the general shape of the whiffletree and a transverse passage of the general shape of the trace (in cross section) said guard adapted to cover that part of the trace which attaches to the whiffletree, to prevent the catching of the tail of the animal, substantially as described.

2. The whiffletree guard consisting of a shell having an opening for the whiffletree and a transverse passage for the trace, and having an elastic web in proximity to the opening for the whiffletree and in position to bear on said whiffletree, substantially as described.

493,762. BARREL-WASHER. ULRICH EBERHARDT, Newark, N. J. Filed Aug. 3, 1892. Serial No. 442,026. (No model.)

Claim.—1. In a barrel washer, the combination, with suitable stanchions having bearings for the roller shafts *e*, of the cross heads *c* carrying the end brush holders *d* and provided with the racks *c'* adjacent to the stanchions, the shaft *s* extended between the stanchions and provided with the pinions *s'*, and with means for holding the shaft from turning when adjusted, as and for the purpose set forth.

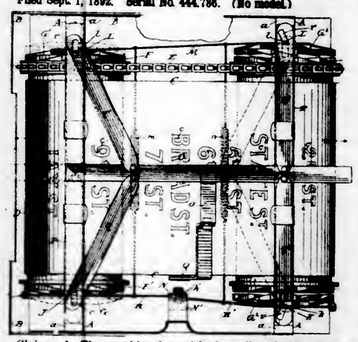


2. In a barrel washer, the combination, with suitable stanchions having bearings for the roller shafts *e*, of the cross heads *c* carrying the end brush holders *d* and provided with the racks *c'* extended downward adjacent to the stanchions, the shaft *s* extended between the stanchions and projected outside of the same and provided with the pinions *s'*, the crank *o*, the ratchet wheel *o'*, and the pawl o^3 to actuate and support both the cross heads simultaneously, as set forth.

3. In a barrel washer, the combination, with the stanchions having the bars *a*, the plate *b*, and the legs *b'*, of bearings for the roller shafts *e*, cross heads fitted movably to the bars *a*, racks *c'* projected downward from the cross head, the shaft *s* with pinions *s'* to actuate both racks, the upper brush holder having shank *k* fitted to guides *i* and provided with the rack *l*, and the shaft *m* provided with the pinion *l'* and projected outside of one of the stanchions, and both the shafts being provided with means to actuate and hold the same when adjusted, substantially as set forth.

4. In a barrel washer, the combination, with the stanchions having the bars *a*, the plate *b*, and the legs *b'*, of bearings for the roller shafts *e*, cross heads fitted movably to the bars *a*, racks *c'* projected downward from the cross head, the shaft *s* with pinions *s'* to actuate both racks, the arch *h* having the guides *i*, the upper brush holder having shank *k* fitted to such guides and provided with rack *l*, and the shaft *m* provided with the pinion *l'* and projected outside of the same stanchion with the shaft *s*, and the shafts *m* and *s* being provided with the ratchet wheels *o'*, pawls o^3, and means for turning the shafts, substantially as set forth.

493,763. STATION-INDICATOR. MICHEL FIRST, Albany, N. Y. Filed Sept. 1, 1892. Serial No. 444,786. (No model.)



Claim.—1. The combination with the rollers D D', endless chain or band gearing said rollers together for simultaneous revolution in like direction, and the strip or web C secured at its ends with the said rollers and provided on its exposed side with letters or figures or both, forming names or numbers, of clutch teeth F F' secured to an end of each of said rollers and coacting clutches G G^2 working loosely on the axles of the same and capable of simultaneous movement in opposite directions so that one of said clutches may engage with the clutch teeth it coacts with while the other will be disengaged from the clutch teeth it coacts with, substantially as and for the purposes set forth.

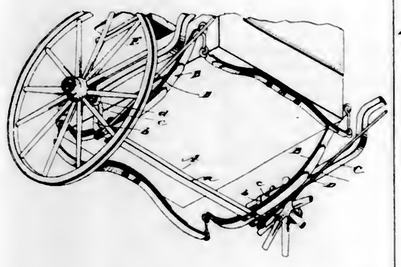
2. The combination with rollers D D', endless chain or band gearing said rollers together that they may be simultaneously revolved in the same direction, web C bearing on its exposed side names or numbers and having its respective ends connected with said rollers so that each roller may wind on itself the portion of the web unrolled from the other, of clutch teeth F F' secured to the respective ends of one of said rollers and teeth F^2 F^3 secured to the respective ends of the other roller, actuating clutches G, G^2 and detents G', G^3 each loosely mounted on the respective axles of the said rollers as described.

springs for forcing said clutches and detents into contact with the teeth they coact with, shifting bars J, K L L respectively held loosely connected with said clutches and detents, levers H H operated at will bar M loosely connected with levers L L and bearing against the outer sides of detents G' G^2 and the elastic connecting piece *m* connecting the said bar M with the arms H, H', all substantially as and for the purposes set forth.

3. The combination with the respective clutches G G^2 and detents G' G^2 loosely mounted on the respective axles of rollers D D', shifting bars J, K L L, springs *g g' g² g²* forcing said clutches and detents in direction toward the teeth secured to the respective ends of said rollers, of the longitudinal shifting bar O levers *q q' q² q²* pivoted with said shifting bar O and provided each with a slot receiving respectively the free ends of the shifting bars J K, L L, and shifting lever Q, all substantially as and for the purposes set forth.

4. The combination with rollers D D' geared together by an endless chain or band, a web C having on its exposed sides, names or figures, clutches G G^2 arms or levers H H' operating to give motion to said clutches, detents G' G^2, springs forcing said clutches and detents toward the teeth fixed on the same, shifting bar J, K, L L shifting levers *q q' q² q²* provided each with slot *r* and receiving the free ends of said shifting bars, bar O pivoted with shifting bars J, K, L L, lever Q operated at will, springs J' K' effecting a return movement of said clutches, and the stops *i i* and a draft device operated at will substantially as and for the purposes set forth

493,764. TWO-WHEELED VEHICLE. DANIEL S. GALLATIN, New Berlin, Ohio. Filed Sept. 19, 1892. Serial No. 446,306. (No model.)



Claim.—1. The combination in a sulky of a crank axle, side springs rigidly secured thereto, a seat over said axle, end springs secured thereto, flexible connections between the end springs and the side springs, shafts loosely connected with said axle, and an adjustable brace rod for adjusting the inclination of said shafts, for the purpose set forth.

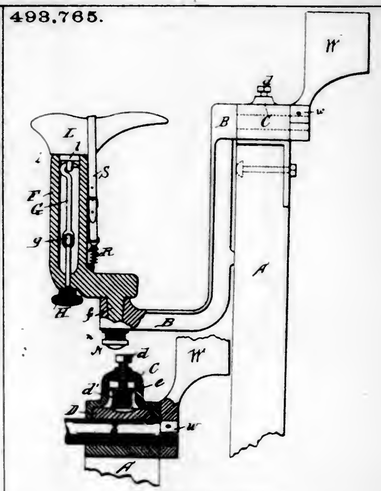
2. The combination in a sulky of the crank axle, side springs secured thereto, a seat over said axle, end springs secured thereto, shafts loosely connected with the axle, and an adjustable brace or cord connecting the axle with the shafts, substantially as described and for the purpose set forth.

493,765. LAST-SUPPORT. JOHN GRAFT, Windsor, Canada. Filed Feb. 2, 1891. Serial No. 379,879. (No model.)

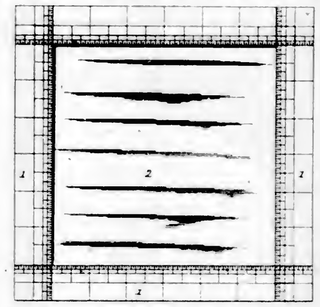
Claim.—1. The combination of an upright arm and its support, a rod substantially centrally located with reference to said arm provided with a hook adapted to engage the last and hold it upon the upper end of said upright arm upon a bearing for the last substantially circumferential to said rod, means for tightening said rod, and a spring actuated strap adapted to engage said last when in position and hold the work thereon, substantially as described.

2. The combination of an upright arm adapted to be rotated upon a bearing which is eccentric to its axial line, the support therefor adapted to be rotated horizontally in an upright fixed standard, a counterweight attached to the axis of said horizontal support, a rod substantially centrally located with reference to said arm, provided with a hook adapted to engage the last and hold it upon the upper end of said upright arm upon a bearing substantially circumferential to said rod, means for tightening said rod, and a spring actuated strap adapted to engage said last when in position and hold the work thereon, substantially as described.

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493,766. DRAWING OR PLOTTING BOARD. GEORGE M. GRAHAM, Chicago, Ill. Filed Aug. 5, 1892. Serial No. 442,249. (No model.)



Claim.—A drawing or plotting board, formed with a sunken central portion, of a square form, and a raised margin surrounding the four sides of the sunken central portion, the top of the margin being plane, and provided with scales, consisting of a series of subdivided squares, substantially as set forth.

493,767. SECTIONAL MOLD FOR BUILDING OR PAVING BLOCKS. GEORGE M. GRAHAM, Chicago, Ill. Filed May 11, 1891. Renewed Sept. 23, 1892. Serial No. 446,724. (No model.)

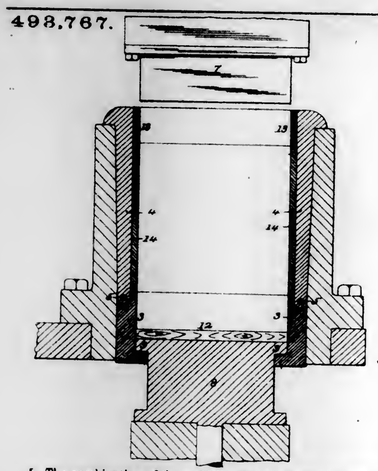
Claim.—1. The combination of the mold housing 2, the lower mold frame 3, and the vertical walls or sections 4, pivoted thereto and provided with flanges or rims 6, at their upper ends, as and for the purpose set forth.

2. The combination of the mold housing 2, the lower mold frame 3, and the vertical walls or sections 4, pivoted thereto and provided with flanges or rims 6, and removable facings or linings 14, as and for the purpose set forth.

3. The combination of the mold housing 2, the lower mold frame 3, and the vertical walls or sections 4, pivoted thereto and provided with flanges or rims 6, removable facings or linings 14, and wear plates 13, as and for the purpose set forth.

4. The combination of the mold housing 2, vertical walls or sections 4, and the lower mold frame 3, connected to the sections 4 by hinges or pivots, with the lower mold plunger and means for confining or limiting its vertical movement independent of the mold, substantially as herein described.

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5. The combination of the mold housing 2, vertical walls or sections 4, and the lower mold frame 3, connected to the sections 4 by hinges or pivots, and provided with inturned flange 11, with the lower mold plunger 8, provided with top and bottom flanges 9 and 10, as described and for the purpose set forth.

493,768. PUZZLE. JOHN GREEN, Renovo, Pa., assignor of one-half to Charles Norberg, same place. Filed Oct. 1, 1892. Serial No. 447,533. (No model.)



Claim.—1. A game board provided with a projecting border and a series of depressions, and apertures through the board under said depressions, in combination with a spring, a spider supported by said spring and provided at its ends with upturned arms engaging said apertures, and a tripping mechanism.

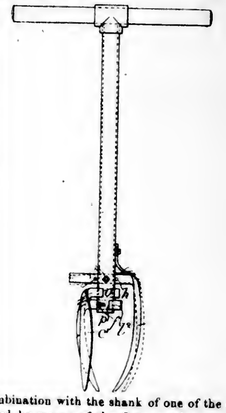
2. A game board provided with a projecting border, pockets in the corners of the board, a series of depressions in the center of the board, apertures through the board under said depressions, and intermediate depressions, in combination with a spring, a spider supported by said spring and provided at its ends with upturned arms engaging said apertures, a rod extending through the board and having a shoulder, and a plate engaged by said shoulder to set the spring and spider.

3. A puzzle consisting of a board having a projecting border, a central aperture and a series of depressions around said aperture and provided with rods or pins, a spring, a notched rod and means for setting said rod, and suitable movable bodies.

493,769. EARTH-AUGER. ABRAHAM J. GREINER, Chicago, Ill. Filed Nov. 12, 1892. Serial No. 452,433. (No model.)

Claim.—1. The combination with the shank provided with a handle, of cutting-blades attached directly to the shank by means of blade-shanks which extend through the lower end of shank *a*, into elongated openings equidistant apart, dispensing with any auger head or common support, substantially as described.

2. The combination with the shank of cutting-blades varying in length with blade-shanks twisted, and extending edgewise or vertically into shank, said cutting-blades being held secure in the shank of the auger, by set-screws into the shank abutting against the blade-shanks substantially as described.



3. The combination with the shank of one of the cutting-blades opening outward by means of the foot pressing on one end of the blade shank, the blade-shank having a number of small holes through which passes a small bolt securing the cutting-blade to the shank, the cutting blade being closed inward and held in place by a spring fastened to shank of auger, with a screw extending through a vertical slot in top part of spring substantially as described.

493,770. TRUCK FOR STREET-CARS. SAMUEL HARRIS, Cleveland, Ohio, assignor to the Steel Motor Company, same place. Filed Nov. 14, 1892. Serial No. 451,894. (No model.)



Claim.—1. In truck for street car, journal boxes having top, bottom and side walls cast integral with each other, each journal box having integral arms extending in opposite directions lengthwise the car, such arms being provided respectively with seats for springs, opposing arms being rigidly connected by means of metal bars that are secured to the respective arms, substantially as described.

2. In truck for street cars, journal boxes having integral top, bottom and side walls and having integral arms extending lengthwise the car, such arms having seats for springs, opposing arms being rigidly connected, a frame for receiving the car body, springs interposed between such frame and the arms of the journal boxes, substantially as and for the purpose set forth.

3. In a street car truck, a journal box having integral top, bottom and side walls, and having a vertical chamber opening downward, with the car axles extending through such chamber, metal plates located in such chamber and mounted on the axle, these plates having annular telescoping flanges, a spring coiled around the outer flanges and engaging the plates to press the plates against the opposing side walls of the chamber, substantially as and for the purpose set forth.

4. In street car truck, journal boxes having integral arms extending forward and rearward, coupling bars connecting next adjacent arms, a cross bar or motor support, such cross-bars having metal straps extending up between such tie-bars, such straps terminating in bolt ends engaging a cap mounted on top of the tie-bars, the straps and tie-bars being bolted through and through, substantially as and for the purpose set forth.

493,771. VEHICLE-HUB-ATTACHING DEVICE. LEVI HARRIS, Kalamazoo, Mich., assignor of three-fourths to Oscar M. Allen, Sr., and Horace B. Peck, same place. Filed Nov. 18, 1892. Serial No. 452,417. (No model.)

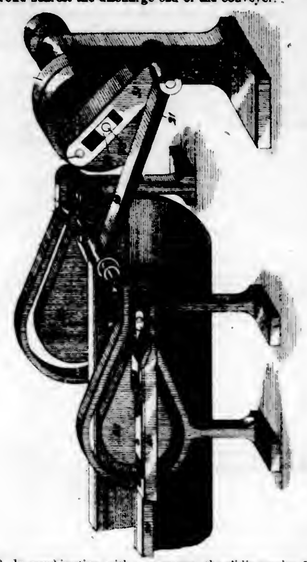


Claim.—1. The combination of a wheel having a box internally threaded at its inner end, an axle having a circular enlarged portion at the inner end of the wheel-hub, said portion being provided with a circumferential groove near said end, and a small circumferential groove parallel with the first named groove and nearer to the terminal end, and a two-part nut provided with an internal rib fitting into said first named circumferential groove of the axle, said two-part nut being adapted to screw into the threaded end of the box of said wheel, the inner end of said two-part nut terminating at the same point at which the inner end of the enlarged portion of said axle terminates, substantially as set forth.

2. The combination of a wheel having a box internally threaded at its inner end, an axle having a circumferential groove at said end of the box, and a two-part nut adapted to screw into the threaded end of said box of the wheel and provided with the internal rib fitting into the circumferential groove of said axle, said two-part nut being provided with an exterior threaded portion, of a width corresponding to the width of the internal rib, the sides of said rib and groove, when viewed in cross section, being curved or slanting; substantially as set forth.

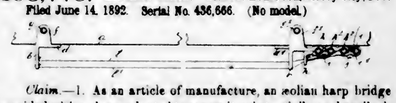
493,772. CONVEYER. RICHARD L. HASSELL, Chicago, Ill. Filed Mar. 23, 1892. Serial No. 426,086. (No model.)

Claim.—1. In combination with a reciprocating conveyer, the driving mechanism specified, consisting substantially, of the fixed shaft 35, the revolving disk or pulley 37, the projecting pin 33, and the slotted arm 31 connected at one end with the disk 37 and at the opposite end with the pitman 21, all constructed and arranged substantially as described, whereby the conveyer trough is moved with an increasing speed toward the end of the forward stroke or that end of the stroke nearest the discharge end of the conveyer.



2. In combination with a conveyer, the sliding valve 52, formed at the end nearest to the discharge end of the conveyer to lap on the inside of the trough, and at the opposite end to lap on the outside of the trough, as and for the purpose specified.

493,773. ÆOLIAN HARP. GILES J. HOLBROOK, Jersey City, N. J. Filed June 14, 1892. Serial No. 436,666. (No model.)



Claim.—1. As an article of manufacture, an æolian harp bridge provided with a clamp adapted to secure it, substantially as described.

2. As an article of manufacture, an æolian harp bridge provided with a clamp adapted to secure it and also provided with a key for each of the strings, substantially as described.

3. In combination, the two bridges of an æolian harp each provided with a clamping device adapted to secure the same to a window sash in an inverted position, substantially as described.

4. In combination, the bridge piece *c*, the clamping device connected therewith, the key clamping plates *i* and *i'* and the keys held thereby, substantially as described.

493,774. FAUCET. ALBERT P. HOWES, Worcester, assignor to Frank W. Foster, Melrose, Mass. Filed Mar. 28, 1891. Serial No. 386,817. (No model.)



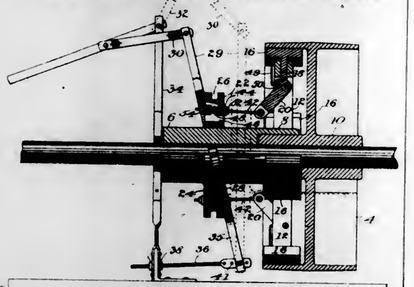
Claim.—1. The combination, with the faucet body having the inlet and delivery passages, internal chamber C, valve seat *a*, relief orifice *c* and supplemental valve-chamber D with the escape passage *d* leading therefrom into the delivery passage, as shown, of the valve-puppet composed of the main valve F, the piston disk F' fitting into said internal chamber, and carrying a barrier-disk I of less diameter

than the valve-seat-circle movably arranged upon the valve-spindle within the passage below said main valve, the valve-spindle guide within the water-way below said barrier-disk, the controlling valve J for the relief orifice, and means substantially as described for manipulating said controlling-valve and for limiting the movement of the same, all substantially as and for the purpose set forth.

2. The combination, with the body having the inlet and delivery passages, the internal chamber, relief orifice *c* and the internally-threaded supplemental valve-chamber D, and the automatically operative piston and valve within said internal chamber, of the threaded stopper or valve for controlling said relief-orifice provided with the pin *h* at one side of its head, and the stop-pin or lug *n* fixed in the body for limiting the action of the valve, as set forth.

3. The barrier-plate I having the slotted hub mounted on the dependent end of the main valve-stem, and the pin *i* arranged therethrough, in combination with the main valve, the valve-seat-way and the guard-bar *m* in a faucet, substantially as and for the purpose set forth.

493,775. FRICTION CLUTCH-PULLEY. CURTIS JOHNSON, River Falls, Wis. Filed Apr. 12, 1892. Serial No. 428,775. (No model.)



Claim.—1. In a device of the class described the combination with the driving shaft and the loose pulley mounted thereon, of the radial standards carried by said shaft within said pulley, the shoes slidably supported upon said standards adapted to engage the inside of the rim of the pulley, the levers pivoted to said standards, the cams upon their fulcrum ends adapted to engage said shoes, the sliding collar upon said shaft, the adjustable connection between the power ends of said levers and said collar, means for sliding said collar upon said shaft, offset points upon said levers, and links connecting said offset points with said shoes, whereby as said collar is moved in one direction said cams are operated to thrust said shoes outward, and when moved in the opposite direction the cams are thrown off said shoes and the links withdraw the shoes from the pulley, substantially as described.

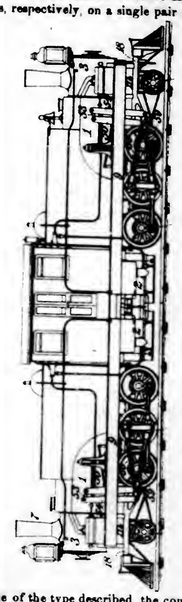
2. In a device of the class described, the combination of the cams for supporting the shoes, the sliding collar, the blocks pivoted to said collar, and the adjustable link connections between said cams and blocks, substantially as described.

3. In a device of the class described, the combination of the sliding collar having a circumferential groove, the clutching devices connected therewith, the shoes lying in said groove, the annular ring surrounding said collar and pivoted to said shoes, the adjustable link connecting said ring with a fixed support, and the lever connected to said ring at a point opposite said ring and adapted when operated to turn said ring upon its pivots, and thereby slide said collar upon said shaft, substantially as described.

4. In a device of the class described, the combination with the driving shaft and the pulley mounted loosely thereon, of the radial standards carried by said shaft and arranged within the rim of said pulley, the shoes slidably mounted upon said standards, the cams pivoted upon said standards and engaging said shoes, the links connecting said shoes with offset points on said cams, the collar slidable upon said shaft, the blocks pivoted to said collar, the links adjustably connecting said cams and blocks, and adjustable means for sliding said collar, substantially as described.

493,776. LOCOMOTIVE-ENGINE. FRANCIS W. JOHNSTON, Mexico, Mexico. Filed Jan. 10, 1893. Serial No. 457,223. (No model.)

Claim.—1. The combination, substantially as set forth, of a rigid main frame carrying a locomotive boiler, a series of driving wheels mounted in a truck or bogie frame adapted to move about a center bearing fixed to the main frame, steam cylinders fixed to the main frame, cross head levers journaled to the piston rod cross heads of said cylinders, fixed fulcrum levers journaled on the main frame, tension rods coupling the cross head levers and fixed fulcrum levers at their upper ends, and connecting rods coupling the lower ends of the cross head levers and fixed fulcrum levers to main and to opposite return crank pins, respectively, on a single pair of driving wheels.



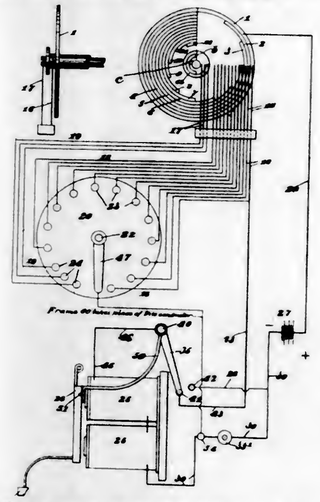
2. In an engine of the type described, the combination, substantially as set forth, of cross head levers journaled to the piston rod cross heads, fixed fulcrum levers, journaled on the main frame, tension rods coupling the cross head levers and fixed fulcrum levers at their upper ends, return cranks fixed upon the crank pins of a pair of main driving wheels and having pins opposite the main crank pins, and connecting rods coupling the lower ends of the cross head levers and fixed fulcrum levers to the main and to the return crank pins.

3. In an engine of the type described, the combination, substantially as set forth, of cross head levers journaled to the piston rod cross heads, fixed fulcrum levers having arms of unequal length and journaled on the main frame, tension rods coupling the cross head levers and fixed fulcrum levers at their upper ends, return cranks fixed upon the crank pins of a pair of main driving wheels and having pins opposite the main crank pins and at a distance from the center of the main driving axle different from the distance of the main crank pins therefrom, and connecting rods coupling the lower ends of the cross head levers and fixed fulcrum levers to the main and to the return crank pins.

493,777. ELECTRIC CLOCK STRIKING MECHANISM. WILLIAM KAMLING, Allegheny, Pa. Filed Apr. 4, 1892. Serial No. 427,723. (No model.)

Claim.—1. The combination with the center shaft of a clock carrying a series of contacts, of a stationary series of contacts adapted to contact electrically therewith during the revolution thereof, a second annular series of stationary contacts electrically connected to the last named series of stationary contacts, a contact arm arranged within said annular series and adapted to contact electrically therewith during its revolution, a normally open electric circuit, including a generator and signal, of which circuit each of the respective stationary and moving contacts and said contact arm form terminals, a spring connected with said contact arm and adapted to rotate the same, a detent for holding said contact arm against rotation, and means for disengaging said detent, whereby said circuit is closed and the signal operated, substantially as set forth.

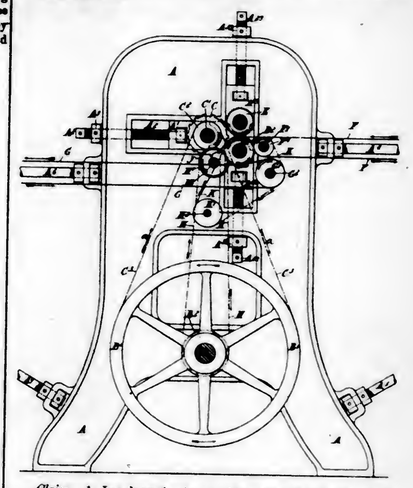
2. The combination with the center shaft of a clock, carrying a series of contacts, of a stationary series of contacts adapted to contact electrically therewith at different points in the revolution thereof, a second annular series of stationary contacts electrically connected to said last named series of stationary contacts, a contact arm arranged within said annular series of contacts and adapted to contact electrically therewith during its revolution, a spring connected to said contact arm and adapted to revolve the same, a pivoted detent for holding said contact arm against movement, a normally open electric circuit including a generator and signal of which circuit each of the respective stationary and moving contacts and said contact arm form terminals, a contact point in said circuit arranged in the path of said detent and forming a terminal of said circuit, a notched disk on the said contact arm and adapted to revolve therewith, a projection on said detent engaging said notch in the disk, a normally open electric circuit including a generator and an electro-magnet, the armature of said electro-magnet, said armature being arranged to engage said pivoted detent in its movement and release said spring, and means for closing said last named circuit whereby the contact arm is released and said first named circuit closed and the signal therein operated, substantially as set forth.



3. The combination with the center shaft of a clock carrying a series of contacts, of a stationary series of contacts adapted to contact electrically therewith during the revolution thereof, a second annular series of stationary contacts electrically connected to said last named series of stationary contacts, a contact arm arranged within said annular series of stationary contacts and adapted to contact electrically therewith in its revolution, a spring connected to said contact arm and adapted to revolve the same, a pivoted detent for holding said contact arm against movement, a normally open electric circuit including a generator and a signal of which circuit each of the respective stationary and moving contacts and said contact arm and said detent form terminals, a contact point in said circuit arranged in the path of said detent and forming a terminal of said circuit, a notched disk on the said contact arm and adapted to revolve therewith, a projection on said detent engaging said notch in the disk, a normally open electric circuit including a generator and an electro-magnet, the armature of said magnet, said armature being arranged to engage said pivoted detent in its movement and release said spring, and means for closing said last named circuit whereby the signal is sounded.

4. The combination with the center shaft of a clock, carrying a series of contacts, of a stationary series of contacts adapted to contact electrically therewith during the revolution thereof, a second annular series of stationary contacts electrically connected with said last named series of stationary contacts, a contact arm arranged within said annular series of stationary contacts and adapted to contact electrically therewith during its revolution, a spring connected to said contact arm and adapted to revolve the same, a shaft bearing a detent for holding said arm against movement, a normally open electric circuit including a generator and a signal of which circuit each of the respective stationary and moving contacts and said contact arm form terminals, a contact point in said circuit and forming a terminal thereof, an arm on said shaft playing over said contact point and forming the other terminal of said circuit, a notched disk borne by said contact arm, a projection on said shaft engaging the notch in said disk, a normally open electric circuit, including a generator and an electro-magnet, the armature of said electro-magnet, an arm on said shaft arranged in the path of said armature, a moving catch for preventing the full movement of said armature, and means for closing said last-named circuit whereby the signal is sounded.

493,778. MACHINE FOR DECORTICATING RHEA, &c. JAMES LORIMORE and WILLIAM L. WATSON, London, England. Filed Oct. 3, 1891. Serial No. 408,198. (No model.) Patented in England May 12, 1890, No. 7,360.

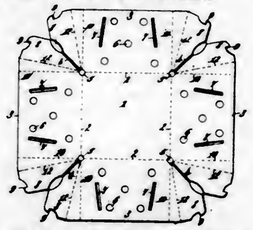


Claim.—1. In a decorticating machine, the combination with the beater and serrated upper feed roll, of the lower feed roll against which the stems are broken by the beater, having its surface covered with serrations finer than the serrations on the upper roll; substantially as described.

2. In a decorticating machine, the combination with the beater and upper feed roll, of the finely serrated lower feed roll against which the stems are broken by the beater, and a belt running in contact with said serrated roll whereby the serrations therein are cleaned; substantially as described.

3. In a decorticating machine the combination with two feed rollers such as D and E the former of which is fluted serrated or otherwise roughened and against which the stems are broken, of a rotating beater for breaking the stems against said roller and an apron such as G traveling in contact with the roller D so as to automatically remove any particles adhering thereto and at the same time deliver the decorticated stems from the machine substantially as herein described.

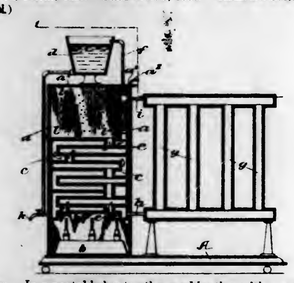
493,779. FRUIT-BOX. ALFRED H. MERCH, Chatham, N. Y. Filed May 24, 1892. Serial No. 434,173. (No model.)



Claim.—1. A box blank formed with a series of radiating wings or flaps every one of which is provided at each end portion with a tongue receiving slot and a projecting hook extension, so that each end of every wing or flap can enter into engagement with the slot in a contiguous wing or flap and also into engagement with the hook extension of each contiguous wing or flap, substantially as described.

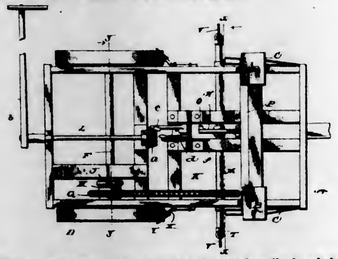
2. A box composed of a blank formed with a series of radiating wings or flaps every one of which is formed at each end portion with a tongue receiving slot 7, converging creases 10 and 12, and a projecting hook extension 9, each end of every wing or flap entering into engagement with the slot in a contiguous wing or flap and also into engagement with the hook extension of such contiguous wing or flap, substantially as described.

493,780. PORTABLE HEATING APPARATUS. JOHN E. MCELFATRICK, Toledo, Ohio. Filed Nov. 8, 1890. Serial No. 370,801. (No model.)



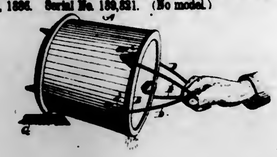
Claim.—In a portable heater the combination with a casing having apertures in its front and rear walls, and having vent holes in its walls near its top, of a heater arranged in said casing, tubes inserted through the openings in the front and rear walls of the casing and secured at their inner ends to said heater whereby the same is held in place, one wall of said casing being provided at its upper end with a cover plate having a slot in its rear end and the opposite wall being provided with a tongue adapted to engage said slot, whereby the top of the casing is closed, substantially as set forth.

493,781. CORN-PLANTER. ANANIAS S. PARKER, Moline, Ill. Filed Nov. 25, 1892. Serial No. 453,020. (No model.)



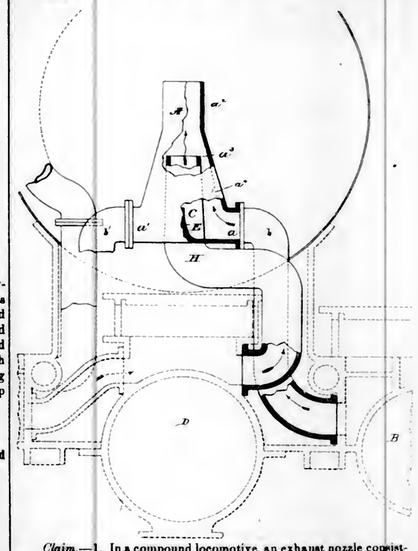
Claim.—The improved corn planter herein described and shown and consisting of a main frame, runners supporting the front end of said frame, wheels supporting the rear end of the same, spring arms secured to the sides of the frame and depending therefrom adjacent to and in advance of the wheels, deflectors or shields secured to the lower ends of said spring arms, a rotatable transverse shaft mounted on the frame in advance of the spring arms, boxes secured rigidly to the ends of said shaft beyond the sides of the frame, marker arms loosely mounted in said boxes, blades secured transversely to the ends of said marker arms, springs coiled around said arms between the boxes and the blades, and a reversible gage mounted on the rear portion of the frame, as specified.

493,782. KETTLE. WILLIAM J. PLESCHER, Galesburg, Ill. Filed Jan. 26, 1892. Serial No. 189,531. (No model.)



Claim.—A kettle comprising, two bails arranged on the body and crossing each other at their centers when in a raised position the center portion of the bails being bent parallel with each other to form a handle and pivotal connections between the bails and body arranged at points below the top of the kettle, substantially as described.

493,788. EXHAUST-NOZZLE. HARRY C. REAGAN, Jr., Philadelphia, Pa. Original application filed Apr. 19, 1892, Serial No. 397,968. Divided and this application filed May 2, 1892. Serial No. 431,521. (No model.)



Claim.—1. In a compound locomotive, an exhaust nozzle consisting of a conical portion having connections for the high pressure exhaust pipe and the low pressure exhaust pipe, the discharge pipe for the latter being within and concentric with said conical portion, and terminating below its upper end, substantially as described.

2. In a compound locomotive, an exhaust nozzle composed of a conical portion A, having lateral openings a a', for connection with the high pressure exhaust pipes, a cylindrical pipe a^3 surmounting the conical portion, and a nozzle C for the low pressure exhaust arranged concentrically within the portion A and terminating below the junction of said portion and the pipe a^3, substantially as described.

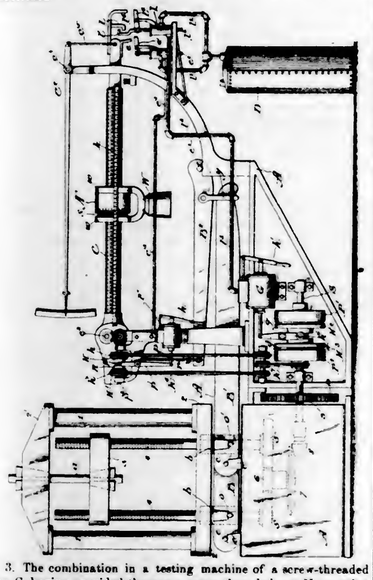
3. In an exhaust nozzle, the combination with the conical portion A having openings a a', and lips a^4, of the inner concentric nozzle C, and the curved webs E uniting said nozzle and conical portion, substantially as described.

4. In an exhaust nozzle, the combination with the lower part A, of the inner nozzle C, the upper part A' extending above the nozzle C and having an annular chamber a^4, provided with a discharge opening concentric with the mouth of the nozzle A', and a pipe G for connecting said chamber with the boiler, substantially as described.

493,784. TESTING-MACHINE. OTTO REBER, Philadelphia, Pa. Filed May 25, 1892. Serial No. 434,234. (No model.)

Claim.—1. The combination in a testing machine of a screw-threaded beam, C, having provided thereon a screw-threaded nut, N, carrying the weighing poise, W; horizontal shaft, s^3, journaled in bearings, j, provided with gear wheel, s', adjustably keyed thereon, and gearing into gear wheel, s, secured on the nut, N; mechanism and gearing connecting said shaft, s^3, with a main driving shaft, means for throwing said gearing out of gear when the outer end of the beam is depressed below its neutral position and for throwing the gearing exerting the strain upon the specimen out of gear when the strain is too great in proportion to the advance of the weighing poise or when the specimen breaks substantially as described.

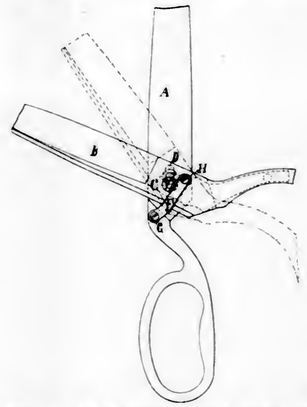
2. The combination in a testing machine of a screw-threaded beam, C, having provided thereon a screw-threaded nut, N, carrying the weighing poise, W, gear wheel, s', gearing into gear, s, provided upon the nut, N, said gear wheel, s', adjustably keyed upon the shaft, s^3, to allow the gear, s', to slide upon said shaft as the nut, N, travels upon the beam, C, gearing connecting with the motive power for driving said shaft, s^3, atmospheric valve, E, communicating with the reservoir, D, and cylinder, F, through piping connections, said valve constructed to be operated by the movement of the outer end of the beam, C, piston, P, provided in cylinder, F, constructed to be operated by the valve, E, said piston, P, connected with the gearing operating the shaft, s^3, constructed by its operation to throw such gearing in or out of gear; valved cylinder, L, connected with the reservoir, D, and cylinder, G, by piping connections, said cylinder, L, constructed to be operated by extreme movements of the end of the beam, C; cylinder, G, provided with piston constructed to be operated by the opening or closing of valve in the cylinder, L, said piston connecting with the gearing operating upon the specimen being tested and constructed to throw such gearing in or out of gear substantially as described.



3. The combination in a testing machine of a screw-threaded beam, C, having provided thereon a screw-threaded nut, N, carrying the weighing poise, W; gear wheel, s', gearing into the gear s provided upon the nut, N, said gear wheel, s', adjustably keyed upon the shaft, s^3, to allow the gear, s', to slide upon the said shaft as the nut, N, travels upon the beam, C, gearing connecting with the motive power for driving said shaft, s^3, atmospheric valve, E, communicating with the reservoir, D, and cylinder, F, through the piping connections, said valve constructed to be operated by the projection, c, secured to the end of the beam, C, when engaging with the lever, c', pivoted to the piston of said valve, E, piston, P, provided in cylinder, F, constructed to be operated by the valve, E, said piston, P, connecting with the gearing operating the shaft, s^3, constructed with lever, p', adapted to throw the gearing operating the nut, N, in or out of gear, cylinder, L, connected with the reservoir, D, and cylinder, G, by piping connections, said cylinder, L, constructed to be operated by hooked projection, l, and projection, l^2, provided on the end of the beam, C; cylinder, G, provided with piston constructed to be operated by the opening or closing of valve in the cylinder, L, said piston connected with the gearing operating upon the specimen being tested and with the gearing operating the nut, N, constructed to throw such gearing in or out of gear substantially as described.

4. The combination in a testing machine of a frame, A, uprights, 1, 1, table, 2, and cross-head, 2', vertically disposed screw-threaded rods, 4, 4, properly journaled and provided with gear wheels, 5, 5, connecting with gearing 6, 7, and 8 and driven from the main shaft, S, adjustable crosshead, 3, provided with screw-threaded orifices through which the screw-threaded vertical rods, 4, 4 pass, means for securing the specimen in the cross-head 2', and in said adjustable crosshead, 3; the table, 2, pivotally adjusted and having its bearings upon pivots, o, o', rigidly secured upon levers, B, B', said levers, B, B', having their bearings through pivoted edges, c, c, upon the supports, c', c', lever, B^2, having its bearing at c^3, connecting near said bearing with the outer end of the lever, B', by a link connection, and its outer end connected with the inner end or short arm of the screw-threaded beam, C; said screw-threaded beam, C, pivotally supported at c^3, screw-threaded nut, N, provided upon said beam, C, carrying the weighing poise, W, keyed shaft, s^3, carrying the adjustable gear wheel, s', gearing into the gear wheel, s, provided upon the nut, N, the shaft, s^3, journaled upon the beam, C, through the medium of the journal bearings, j, gear wheels, p^4, p^5, p^6, p^7, and frictional pulleys, H, H', and clutch, R, projection, c, provided on the end of the beam, C, operating the piston of the valve E, said valve, E, communicating with the reservoir, D, and cylinder F, through the pipe connections, c^6, c^6, piston, P, provided in the cylinder F, connecting with the clutch, R, and operating the same through the piston rod, p, and lever, p', hand lever, h, for setting the valves of the cylinder, F; projections, l, l^2, provided on the end of the beam, C, operating respectively the arms, l', l^2, connected with the piston of the cylinder, L, said cylinder, L, connected with the reservoir, D and cylinder, G, through the piping connections, l^3, l^3, piston provided in cylinder, G, connected with the frictional disks, H^2, H^2, through the medium of piston rod, g', g^3, driving pulleys, P', P^2, provided upon the shaft, S, and connected therewith through the medium of the frictional disks, H^2, H^2, said shaft, S, connecting with the gear wheel, 8, through the medium of the gear wheels 9 and 10, handle, h', provided on the cylinder, G, for setting the valves provided therein, belting and connections substantially as described.

493,785. SHEARS. AUGUST RENSCHEID, Solingen, Germany, assignor to Geo. W. Korn, New York, N. Y. Filed Dec. 10, 1892. Serial No. 454,746. (No model.) Patented in Germany Dec. 28, 1891, No. 1,948.



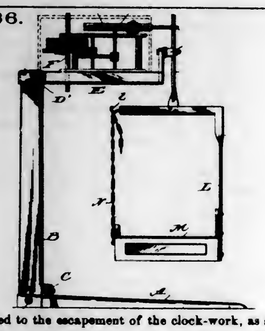
Claim.—In a pair of scissors the blade B provided with a spring E, a pin C and the blade A having a slot D in combination with a strap F holding the blades A and B together by pins G and H, whereby when closing the scissors the blade B turns round the pin H and causes the pin C to move along in the slot D of the blade A as shown and for the purpose set forth.

493,786. SWINGING CRADLE. PHILIP T. RISSER, Geneseo, Ill. Filed July 19, 1892. Serial No. 440,475. (No model.)

Claim.—1. A portable support for a cradle the same consisting of a base piece with a transverse notch, an upright pivoted to the notched end of the base, and a cross bar pivoted to the lower end of the upright and having on its under face opposite its pivot a notch constructed and arranged to interlock with the notch of the base as and for the purpose specified.

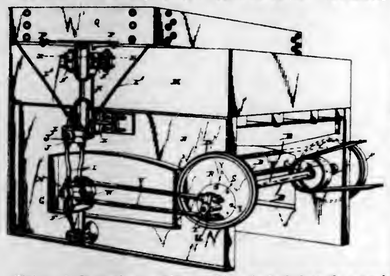
2. The combination with a support and clock-work supported thereby, of a cradle body, a spring arm connected thereto, a horizontal arm on the spring arm, a chain connecting said body with the horizontal arm a vertical arm connected at one end with the horizontal arm, pivoted between its ends and at its upper end connected with

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an arm secured to the escapement of the clock-work, as shown and described.

493,787. PULP-SCREENING MACHINE. GUILFORD D. ROWELL, Appleton, Wis. Filed Apr. 2, 1891. Serial No. 387,407. (No model.)



Claim.—1. In a pulp screening machine, the bed plate, the trough thereon, a screen above the trough, supporting bars depending from the screen, guides therefor, arms pivoted at their lower ends to the bed and having their upper ends bifurcated, spindles extending through the said bifurcated ends, a boxing journaled on each spindle, a boxing journaled upon the lower end of each supporting bar, connections between the said boxes, a driving shaft, and connections between the driving shaft and the said pivoted arms, the parts combined substantially as set forth.

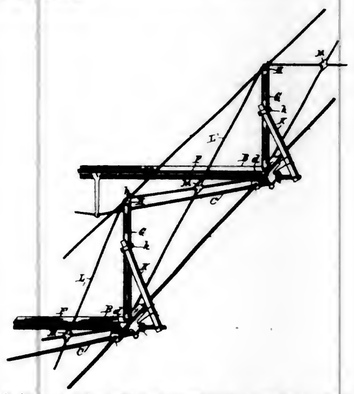
2. In a pulp screening machine, the combination of a bed, the screen having depending legs, guides therefor on the bed, arms pivotally mounted at their lower ends, rocking boxes carried by the upper ends of said arms, rocking boxes carried by said legs, links connecting said boxes on the legs and on said arms, a second box journaled on each pivoted arm, a driving shaft, and pitmen connected to said second boxes and connected with and operated by said shaft, substantially as shown and described.

3. In combination, a support, a screen having depending bars at opposite ends, guides on the support for said bars to prevent lateral movement, each bar having a lateral spindle at its lower portion, reciprocating toggle links at opposite ends of the screen at their lower ends respectively mounted on the support and at their upper ends respectively mounted on said spindle, a drive shaft, pitmen respectively connected to the joints of said links to swing them, and mechanism on the shaft to reciprocate the pitmen, substantially as described.

493,788. SIDE RAIL FOR SUSPENSION-BRIDGES. EDWIN R. RENFRO Pilot Point, Tex. Filed Nov. 2, 1892. Serial No. 450,759. (No model.)

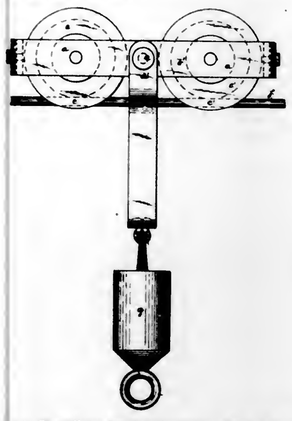
Claim.—1. In a suspension bridge, the combination with the needle beams and floor cables, of a casting on the ends of the beams having horizontal boxings through which the cables pass, arms on the castings, cross bars secured to the castings having apertures in their ends, seats fitted in the apertures, columns on the seats, saddles on the columns, braces extending from the arms to the columns, a hand rail, and diagonal truss cables extending alternately over the saddles and below the needle beams, substantially as described.

2. In a suspension bridge, the combination with the needle beams and floor cables of castings at the ends of the beams, in which the cables are secured, supporting castings seated on said other castings having upwardly extending projections, columns on the supporting castings surrounding the projections, saddles having extensions on their under sides fitted into the tops of the columns, braces for the columns, a hand rail supported by the saddles, and diagonal cables extending alternately over the saddles and below the beams, substantially as described.



3. In a suspension bridge, the combination with the needle beams, floor cables, and castings uniting the same, of cross bars connected with the castings, supporting castings on the ends of the bars, having sleeves on their upper faces, columns fitted around the sleeves and resting on the supporting castings, saddles on the tops of the columns, braces for the columns, hand rails in the saddles, and truss wires extending alternately over the rail and saddles, and below the beams and united at their crossings, substantially as described.

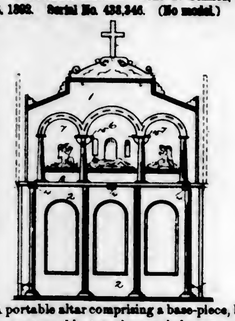
493,789. TROLLEY FOR ELECTRIC RAILWAYS. JOHN F. SAITZ, Baldwin, Allegheny County, assignor of two thirds to Thomas A. Noble, Pittsburg, and Frederick G. Kay, Allegheny, Pa. Filed June 18, 1891. Serial No. 396,680. (No model.)



Claim.—1. In trolleys for electric cars or like conveyances the combination of a trolley frame, two grooved wheels mounted therein, a draft bar connected to the trolley frame between said wheels and a weight hung loosely from said draft bar to balance the trolley frame, substantially as and for the purposes set forth.

2. In trolleys for electric cars or like conveyances, the combination of a trolley frame, two grooved wheels mounted therein, a draft bar pivoted to the trolley frame between said wheels, a weight hung from said draft bar, a second weight hung to the first weight, and a draft cable or like device connected to the trolley between said weights, substantially as and for the purposes set forth.

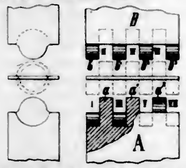
493,790. PORTABLE ALTAR. JOHN D. SCHAUB, Pittsburg, Pa. Filed June 28, 1892. Serial No. 438,346. (No model.)



Claim.—1. A portable altar comprising a base-piece, having compartments therein, a removable top piece, a ledge secured at right angles to said base-piece, having an ornamental front board hinged thereto, and end pieces hinged to the edge of said ledge, having handles secured thereto, the whole adapted to be folded up as described.

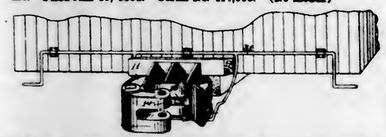
2. A portable altar comprising a base piece having compartments therein, candle supports secured to the partitions of said compartments, a removable ornamental top piece having a detachable cross secured thereto, a ledge secured at right angles to said base piece, having an ornamental front board hinged thereto, hooks on said front board adapted to engage eyes in said base-piece when the altar is closed, end pieces hinged to the edge of said ledge provided with hooks adapted to engage eyes on said front board when the altar is opened, and handles on said end piece, the whole adapted to be folded up as described.

493,791. PUNCHING-MACHINE. HERMANN SCHURIG, Offenbach, Germany. Filed Nov. 18, 1892. Serial No. 452,468. (No model.) Patented in Germany Sept. 12, 1891, No. 64,383.



Claim.—A combined shearing and punching tool consisting of two corresponding stamps (A and B) having toothlike projections (a, a', a^1—b, b', b^1 respectively) and corresponding depressions I, III, V—II, IV, VI into which the projections fit exactly like the punch and matrix of a punching machine, when the tools are moved toward each other, shearing off strips from a plate put between the tools, and molding the same at the same time, the alternate projections in each forming the punch for the corresponding depression or matrix in the other.

493,792. CAR-COUPLING. JAMES M. SOURR and SCOTT R. COTTON, Creston, Iowa, assignors to the Simplex Car Coupler Company, St. Joseph, Mo. Filed Jan. 13, 1892. Serial No. 417,993. (No model.)



Claim.—1. In a car coupler of the class aforesaid the combination with a pivoted knuckle and a rearwardly extending impact arm, of a locking block pivoted at its lower end to the draw head and extended within the interior cavity thereof, which pivot of the locking block assumes varying positions, together with mechanism for rotating said locking block.

2. In a car coupler of the class aforesaid, the combination with a pivoted knuckle and a rearwardly extending arm, of a locking block pivoted at its lower end to the drawhead, which pivot is adapted to assume varying positions, and a trigger, acted upon by manually operated mechanism, integral with the locking block.

3. In a car coupler of the class aforesaid, the combination with a pivoted knuckle and rearwardly extended impact arm, of a locking block pivoted at its lower end which pivot assumes varying positions to the drawhead, and having a chamfered face acted upon by the impact arm to rotate said block.

4. In a car-coupler of the class described, the combination with a pivoted knuckle and a rearwardly extending impact arm, of a locking block pivoted at its lower end to the drawhead, said pivot being adapted to assume varying positions, and a chamfered face on said locking block, which face is acted upon by the impact arm to shift the position of the said pivot.

5. In a car coupler of the class aforesaid, the combination with a pivoted knuckle and a rearwardly extended impact arm, of a locking block pivoted at its lower end to the drawhead, and a pin constituting said pivot of the locking block, which pin is held and travels within slots in ears formed with the drawhead.

6. In a car coupler of the class described, the combination with a pivoted knuckle and a rearwardly extended impact arm, of a locking block pivoted at its lower end to the drawhead, said locking block being centrally located within the interior cavity of said drawhead, the pin forming the pivot for said locking block assuming varying positions longitudinally of the drawhead at various times.

7. In a car coupling of the class described, the combination with a pivoted knuckle and a rearwardly extended impact arm, of a locking block having chamfered faces centrally located in said drawhead, which locking block is pivoted at its lower end to the lower portion of the drawhead, the pin forming the pivot of said locking block assuming various positions longitudinally of the drawhead, and a trigger integrally formed with the locking block, together with means manually actuating to effect an unlocking of said locking block.

493,793. CAR-COUPLING. JAMES M. SOURR and EUGENE D. WHIPPLE, Creston, Iowa, assignors to the Simplex Car Coupler Company, St. Joseph, Mo. Filed Apr. 26, 1892. Serial No. 430,663. (No model.)



Claim.—1. In a car coupling of the vertical plane type, a locking block having shoulders approximately on its lower portion, a recess formed on the interior and lower side of the drawhead, rearwardly inclined ways upon which said shoulder rests and rides, and a meeting face upon the locking block adapted to abut against a face in the rear of the recess.

2. In a car coupler of the type aforesaid, a locking block having shoulders formed thereon, a recess formed on the interior and lower side of the drawhead, ways upon which said shoulders rest and ride, and forwardly inclined ways adapted to form a seat for the locking block when the latter is in its forward and locking position.

3. In a car coupler of the type aforesaid, a locking block having shoulders formed thereon, a recess formed on the interior and lower side of the drawhead, rearwardly inclined ways upon which the shoulders rest and ride, and forwardly inclined ways adapted to form a seat for the locking block when the latter is in its forward and locking position.

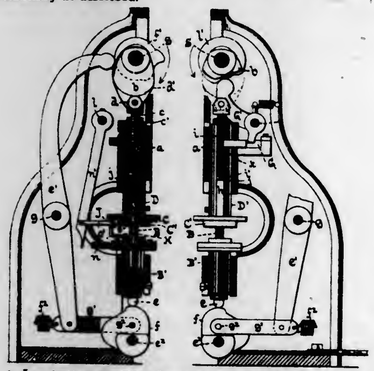
4. In a car coupler of the type aforesaid, a locking block having shoulders formed thereon, a recess formed on the interior and lower side of the drawhead, rearwardly inclined ways upon which the shoulders rest and ride, and forwardly inclined ways adapted to form a seat for the locking block when the latter is in its forward and locking position, and a stop formed on the interior of the drawhead, together with a shoulder formed on the locking block, which shoulder abuts and rests against said stop when the locking block assumes an unlocking position.

493,794. BUTTON-MAKING MACHINE. JAMES T. SHERIDAN, East Orange, N. J., and JOHN DRAHER, Waterbury, Conn., assignors to the City Button Works, of New York. Filed Mar. 25, 1892. Serial No. 426,388. (No model.)

Claim.—1. In a glass button machine, the combination of an upper die, a cutter fitted closely to the same, the two being movable independently of each other, a lower die of the same diameter as the upper die, and movable toward the same, means for moving the cutter and upper die toward the lower die for severing the blank and pressing the button, means for moving the two dies, while together, into the cutter for removing surplus material, a detent for holding the cutter stationary during the said movement of the dies, and means for subsequently returning the cutter to its normal position, substantially as described.

2. In a button machine, a die, a cutter arranged concentric with the same, a spring connection between the two, a detent adapted to engage with the cutter for holding the same stationary while the dies are moving upward, and a release, substantially as described.

3. In a button machine, the combination with the back or shank holding die, of a shank holder movable longitudinally in the die and provided with a recess at its upper end for the reception of the shank, and with a transverse slot intersecting the recess, a pin arranged to pass through said slot into the recess to secure the shank, and means substantially as described for operating the pin and shank holder, substantially as described.



4. In a button machine, the combination with a back or shank holding die bored out longitudinally, of a spring pressed shank holder fitted into the bore of the die and movable longitudinally therein, said holder being provided with a recess at its upper end for the reception of the shank, and with a transverse slot intersecting the recess; a bolt provided with a cam surface and carrying a pin arranged to pass through said slot to secure the shank, a rod engaging with said bolt, a lever engaging with the holder for lifting the same, and a brush arranged to sweep across the die for removing the button, substantially as described.

5. In a button machine, the dies B, D combined with adjusting screws for setting the same, and cams engaging respectively with said adjusting screws for actuating the dies, substantially as described.

6. In a button machine, the cutter having rods *k k*, springs inclosed within said rods, tappets *i i* engaging a pin in the die head, and a detent engaging said rods, substantially as described.

498,795. AUTOMATIC WEIGHING-MACHINE. HENRY R. SMYSER, Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y.

Filed Apr. 15, 1891. Serial No. 389,060. (No model.)

Claim.—1. In an automatic weighing machine, the combination with a series of stationary scales of a series of receptacles adapted to receive the weighed charges from the scales, and mechanically-driven mechanism for automatically dumping the receptacles in regular succession.

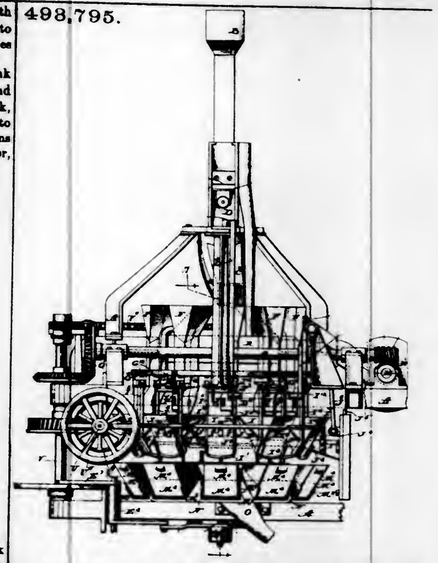
2. In an automatic weighing machine, the combination with a series of stationary scales of a series of carriers adapted to receive the weighed charges from the scales, and movable to convey the charges away, and mechanism for automatically dumping the carriers successively.

3. In an automatic weighing machine, the combination with a series of stationary scales of a corresponding series of movable carriers, mechanism for dumping the scale-pans simultaneously into the carriers, and mechanism for dumping the carriers successively at a given point.

4. In an automatic weighing machine, the combination with a circular series of stationary scales, of a circular series of carriers adapted to receive the weighed charges from the scales, a rotary shaft on which said carriers are mounted, and a mechanism for dumping the carriers successively.

5. In an automatic weighing machine, the combination with a circular series of stationary scales, of a circular series of carriers adapted to receive the weighed charges from the scales, intermittent driving mechanism for moving the carriers step by step from one scale to the next, mechanism for dumping the scale-pans simultaneously, whereby all the carriers are filled, and a mechanism for dumping the carriers as they reach a given point, whereby they are successively emptied.

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6. In an automatic weighing machine, the combination of a series of stationary scales, means for supplying material thereto, means operated by the deflection of the scale-beams for cutting off the supply therefrom, means for simultaneously dumping the scale-pans, a series of receptacles adapted to receive the weighed charges dumped from the pans, and a dumping mechanism for dumping the receptacles successively.

7. In an automatic weighing machine, the combination of a series of stationary scales, a measuring mechanism for delivering charges of the material to be weighed at intervals, and a movable chute over said scales arranged to receive the charges from said measuring mechanism and moving to deliver the successive charges to the respective scales successively.

8. In an automatic weighing machine, the combination of a circular series of stationary scales, a revolving chute mounted above them and movable to deliver into them in succession, a mechanism for feeding charges of material to be weighed into said chute, a series of receptacles arranged to receive the weighed charges from the respective scales, and means for dumping said receptacles in succession.

9. In an automatic weighing machine, the combination of a series of stationary scales, a corresponding series of stationary chutes delivering into the respective scale-pans, mechanism for dumping charges of material to be weighed into said chutes, mechanism for dumping the scales, a series of receptacles adapted to receive the weighed charges therefrom, and mechanism for automatically dumping the receptacles successively.

10. In an automatic weighing machine, the combination of a series of stationary scales, a series of stationary chutes leading to the respective scale-pans, means for supplying material to the pans through said chutes, means for conducting an additional supply to the pans, operated by the deflection of the scale-beams for cutting off the supply from each pan upon its descent under full weight, a series of carriers adapted to receive the weighed charges from the scales, and means for dumping said carriers successively.

11. In an automatic weighing machine, the combination of a series of stationary scales, a corresponding series of stationary chutes delivering into the respective scale-pans, a measuring mechanism operating intermittently to deliver measured charges of material, and a movable chute receiving said charges therefrom and coinciding in its successive movements with the successive stationary chutes, whereby it delivers the measured charges to the stationary chutes in succession.

12. In an automatic weighing machine, the combination of a series of stationary scales, a corresponding series of stationary chutes delivering into the respective scale-pans, and having mechanism for closing them, means for delivering charges of material into the chutes successively, and mechanism for automatically dumping the contents of the several chutes simultaneously into the scale-pans.

13. In an automatic weighing machine the combination of a series of stationary scales, a corresponding series of stationary chutes delivering into the respective scale-pans, and having gates for closing them, mechanism for charging said chutes with material to be weighed, while their gates are closed, so that the charges to be weighed are stored in said chutes, mechanism for opening said gates to dump the stored charges from the chutes into the scale-pans, and mechanism for dumping the scale-pans.

14. In an automatic weighing machine, the combination of a series of stationary scales, a corresponding series of stationary chutes delivering into the respective scale-pans, a measuring mechanism operating intermittently to deliver charges of material, an intermittently-revolving chute for conducting the charges from said measuring mechanism to the stationary chutes successively, an intermittently revolving series of carriers adapted to receive the weighed charges dumped from the scale-pans, and means for dumping said carriers.

15. In an automatic weighing machine, the combination with the series of stationary chutes F and an intermittently-discharging measure D of an intermittently-moving spout C^3 arranged to receive the contents of the measure and deliver it *seriatim* to the chutes.

16. In an automatic weighing machine, the combination with a circular series of scales and a corresponding series of chutes above them, of an intermittently-discharging measure, an intermittently-revolving central shaft, a chute carried thereby receiving the material from said measure and conducting it to said series of chutes *seriatim*, and a series of carriers arranged beneath the scales to receive the weighed material therefrom, and mounted on said shaft.

17. In an automatic weighing machine, the combination with a scale and mechanism for dumping charges of material to be weighed therein, of a movable finger arranged to hold the scale while the charge is being dumped therein and then to release it.

18. In an automatic weighing machine, the combination with a scale and mechanism for dumping the same, a stop arranged to hold the scale-beam depressed while the scale is dumped and to retract slowly therefrom to permit the beam to rise gradually after dumping.

19. In an automatic weighing machine, the combination with a series of stationary scales and mechanism for simultaneously dumping charges of the material to be weighed therein, of a series of movable fingers, connected and moving together, arranged to hold the respective scales while the charges are being dumped therein, and movable to gradually release them.

20. In an automatic weighing machine, the combination with a series of stationary scales and mechanism for simultaneously dumping them, of a series of stops connected and movable together, arranged to hold the scale-beams depressed while the scales are dumped, and movable slowly away therefrom to permit the beams to rise gradually after dumping.

21. In an automatic weighing machine, the combination with the series of scales I, of a ring G having fingers G^2 arranged to engage the scales and prevent their falling, and stops G^{12} arranged to engage the scales and prevent their rising, and mechanism for alternately raising and depressing said ring so as to bring said fingers and stops into operation alternately and intermittently.

22. In an automatic weighing machine, the combination with a series of scales and a series of chutes above them having gates, of mechanism for operating said gates, consisting of arms engaging the respective gates and connected together, and driving mechanism for moving said arms simultaneously to open the gates and dump the charges in said chutes into the scale pans.

23. In an automatic weighing machine, the combination with a series of scales and a series of chutes above them having gates, of mechanism for operating said gates, consisting of a ring G having arms G^2 arranged to engage lever arms F^6 attached to said gates, and mechanism for raising and lowering said ring.

24. The combination of the chutes F, the gates F^3 in said chutes having lever-arms F^6, the series of scales situated below said chutes, a ring G having fingers G^2 arranged to engage and lift levers F^6, and fingers G^3 arranged to engage and hold the scales, said fingers G^2 and G^3 being arranged to act simultaneously, and mechanism for raising and lowering the ring intermittently.

25. The combination of the chutes F, the gates F^3 in said chutes having lever-arms F^6, the series of scales situated below said chutes, a ring G having fingers G^2 arranged to engage and lift levers F^6 and fingers G^3 arranged to engage and hold the scales, said fingers G^2 and G^3 being arranged to act simultaneously, stops G^{12} also secured to ring G and arranged to engage the scales and prevent their rising during dumping, and mechanism for raising and lowering the ring intermittently.

26. In a scale, a scale-pan consisting of an inclined bottom hung from the scale-beam, and a movable body adapted to be lifted from said bottom to dump the scale.

27. In a scale, a scale-pan consisting of an inclined bottom hung from the scale-beam, and a movable body pivoted to the upper part of said inclined bottom, and adapted to be lifted from the lower part of said bottom to permit the contents of the pan to slide out.

28. In a scale, a scale-pan consisting of an inclined bottom hung from the scale-beam, by hangers guided to confine the bottom to a vertical motion, and a movable body adapted to be lifted from said bottom to dump the scale.

29. The combination with the scale-pans I each consisting of an inclined bottom I' supported on the scale-beam, and movable only in a substantially vertical line, and a movable body I^3 pivoted to the upper end of said inclined bottom, of a dumping ring J arranged to lift the bodies I^3 and mechanism for intermittently raising and depressing said ring.

30. The combination with a series of scales of a series of receptacles adapted to receive the charges dumped from the scales, consisting each of an inclined bottom and a movable body adapted to be lifted off said bottom to dump the receptacle.

31. The combination with a series of scales of a series of receptacles adapted to receive the charges dumped from the scales, consisting each of an inclined bottom and a movable body pivoted to the upper part of the inclined bottom and adapted to be lifted at its opposite side from the lower part of said bottom to permit the contents of the receptacle to escape.

32. The combination with a series of scales of a series of receptacles adapted to receive the charges dumped from the sles, consisting each of an inclined bottom and a movable body adapted to be lifted off said bottom to dump the receptacle, and means for dumping said receptacles consisting of an intermittently-rising finger engaging the movable bodies thereof in succession and lifting each in turn.

33. The combination with a series of stationary scales of a series of intermittently-rotating carriers, consisting each of an inclined bottom and a movable body adapted to be lifted off said bottom to dump the carrier, and means for dumping the carriers as they arrive at the dumping position, consisting of an intermittently-rising finger engaging the carriers as they reach said position, and by its rising movement lifting the movable body of each carrier in turn.

34. In an automatic weighing machine, a feeder for delivering a graduated feed to the scales, consisting of a cylindrical casing having openings communicating by chutes with the respective scales, a perforated cylinder revolving in said casing, and a stationary part mounted in said casing to cover the perforations during their coincidence with said openings.

35. In an automatic weighing machine, a feeder for delivering a graduated feed to the scales, consisting of a cylindrical casing having openings communicating by chutes with the respective scales, a perforated cylinder revolving in said casing, and a stationary brush mounted in said casing to cover the perforations in the perforated cylinder during their passage over said openings, and brush off all material except that carried in the perforations.

493,796. AUTOMATIC WEIGHING-MACHINE. HENRY R. SMYSER, Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y.

Filed May 22, 1891. Serial No. 393,673. (No model.)

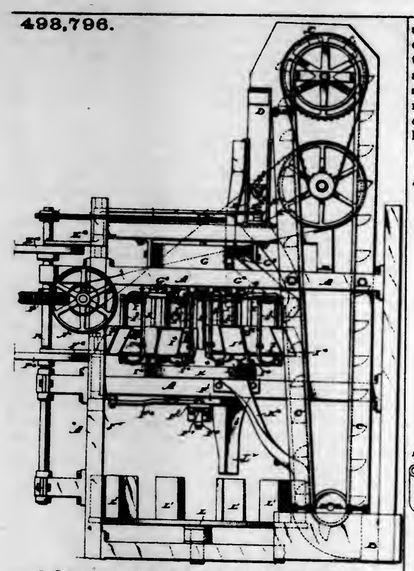
Claim.—1. The combination with an intermittently-revolving series of scales, of an intermittently-discharging measuring device comprising a measuring box and mechanism for filling it and discharging it, and a chute leading therefrom to one of the stopping points in the travel of the scales, so that the scale-pans receive the measured charges at said point in succession, and means for feeding additional material to the scales to bring the charges to full weight.

2. The combination with an intermittently revolving series of scales, of an intermittently discharging measuring device delivering charges to the scales in succession, means for feeding additional material to the scales to bring the charges to full weight, and a dumping device for dumping the scales in turn as they reach one of their stopping positions.

3. The combination of an intermittently revolving carrier, a series of scales carried thereby, a feeder hopper mounted above said scales, chutes leading down therefrom, for feeding a regulated supply to the scales, and a movable chute for each scale, arranged to receive the material from said hopper and connected to the scale beam to be deflected by the descent of the pan, so as to deliver into the pan when the latter is under weight and outside the pan when it is full weight.

4. In an automatic weighing machine, a circular hopper having outlet openings in its bottom near its periphery, chutes beneath receiving the discharge from said openings, a supply chute delivering material into said hopper, a revolving feed-disk in said hopper formed with a conical central portion sloping downwardly and outwardly to the bottom, and with an outer rim covering the openings in the hopper bottom and having perforations, and brushes mounted in the hopper over said rim, whereby the material delivered onto said sloping disk is directed outwardly and enters the perforations in said rim.

498,796.



5. In an automatic weighing machine, the combination of a circular intermittently-rotating series of scales, a series of chutes J attached to the scale-beams as described, a circular feed hopper over said scales, having discharge openings in its bottom, revolving chutes receiving the material from said openings, and conducting it to said chutes J, and a revolving feed-disk in said hopper having perforations through which the material feeds into said openings and passes to the scales.

6. In combination with a series of intermittently-rotating scales and a dumping device arranged to engage and dump each scale-pan in turn, of a device for preventing the premature ascent of the empty pan consisting of a vertically movable piece arranged over the scale at the dumping point, and mechanism for actuating said piece to move it down before the emptying of the pan so that it shall hold the beam and to lift it gradually after the pan is emptied.

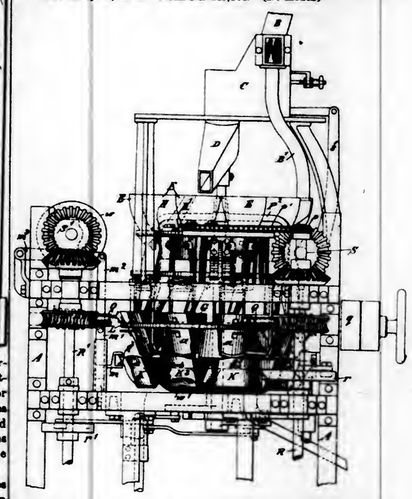
7. In combination with a series of intermittently-rotating scales, a dumping device consisting of a finger M^3 arranged to engage and dump each scale-pan in turn, a device for preventing the premature ascent of the empty pan consisting of a finger N' arranged to come over the scale at the dumping point, a lifter M^6 connected with finger M^3 so as to move with it and arranged to act on finger N' as described lowering it onto the scale-beam when the finger M^3 moves to dump the scale and lifting it after the scale is dumped.

8. In an automatic weighing machine, the combination with an intermittently-rotating shaft or mechanism for imparting to it its intermittent movements consisting of a disk on said shaft having as many slots as the number of its movements in a revolution, a rock-lever, a bolt carried by said lever adapted to enter said slots, a locking bolt movable in stationary bearings and adapted to engage and lock said disk, a driving shaft and interposed mechanism for swinging said lever and for engaging and disengaging said bolts, adapted to engage the bolt on said rock-lever with the disk and hold it engaged during the forward vibration of said lever, and to engage said locking bolt and hold it engaged during the return vibration of said lever, whereby the shaft is positively propelled, and positively locked in position during the intervals between the propulsive movements.

9. In an automatic weighing machine, the combination of a shaft F carrying a series of circularly-arranged receptacles, with mechanism for giving it an intermittent rotary motion consisting of a notched disk F', a rock-lever F^4 pivoted on or concentric with the shaft, mechanism for intermittently-moving the rock-lever as described, a bolt F^8 guided in lever F^4, a stationary guide F^{10} arranged opposite lever F^4, a bolt F^{12} having bearings in said guide, and intermittently acting mechanism connected with bolts F^8 and F^{12} arranged as described to engage them alternately with notches in disk F', substantially as and for the purpose specified.

10. In a weighing mechanism, the combination with a circular series of scales, means for supplying them, and a movable chute for each scale, through which the material is supplied thereto, connected to the scale beam to be deflected by the descent of the scale-pan so as to deliver into the pan when the latter is underweight, and outside the pan when it is full weight, of a box beneath the scales for receiving the material falling outside the pans, having a discharge opening, and a revolving arm adapted to sweep the material accumulating in said box into said opening.

498,797. AUTOMATIC WEIGHING-MACHINE. HENRY R. SHTSER, Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y. Filed Aug. 15, 1892. Serial No. 443,160. (No model.)



Claim.—1. The combination with a series of scales and a corresponding series of stationary receptacles arranged to receive charges of the material to be weighed and deliver them into the scale-pans, of a movable slide beneath the receptacle having openings registering with the respective receptacles, and movable to bring said openings out of register therewith to close the receptacles, or to bring said openings into register therewith to discharge the receptacles.

2. The combination with a series of scales and a corresponding series of receptacles arranged to receive successive charges of the material to be weighed and deliver them simultaneously into the scale-pans, and a measuring device delivering the charges into said receptacles successively, of a movable slide having openings registering with the respective receptacles and movable to bring said openings out of register therewith to close the receptacles and to bring them into register therewith to discharge the receptacles.

3. The combination with a series of scales and a corresponding series of stationary receptacles arranged to receive charges of the material to be weighed and deliver them into the scale-pans, of a movable slide beneath the receptacles having openings registering with the respective receptacles, and movable to bring said openings out of register therewith to close the receptacles, or to bring said openings into register therewith to discharge the receptacles, and a revolving cam for reciprocating said slide at intervals.

4. The combination with a series of scales and a corresponding series of receptacles arranged to receive successive charges of the material to be weighed and deliver them simultaneously into the scale-pans, and a measuring device delivering the charges into said receptacles successively, of a movable slide having openings registering with the respective receptacles and movable to bring said openings out of register therewith to close the receptacles and to bring them into register therewith to discharge the receptacles, and driving mechanism for operating said measuring device and slide, constructed to operate the former as many times in succession as there are scales, and upon the termination of the series of operations, by which all said receptacles are charged, to operate said slide to simultaneously dump said receptacles, and immediately thereafter to restore said slide.

5. The combination with a circular series of scales and a corresponding series of circularly arranged receptacles adapted to receive charges of the material to be weighed, and a series of chutes leading downward from the respective receptacles and adapted to discharge the material therefrom into the scale-pans, of a movable slide consisting of an annular plate having openings registering when in one position of the plate with the respective receptacles, arranged between said receptacles and their chutes, and movable to bring said openings out of register with the receptacles to close the latter, or to bring them into register therewith to simultaneously discharge the receptacles.

6. The combination with the series of scales of a circularly arranged series of receptacles E E, an annular bottom plate H' therefor, having holes under the respective receptacles and a movable slide H consisting of an annular plate mounted to oscillate beneath said bottom plate and having openings registering with the bottom openings of the respective receptacles whereby its movement simultaneously opens or closes the bottom openings thereof.

7. In an automatic weighing machine, the combination with a scale and mechanism for dumping a charge into its pan, of a fixed stop for limiting the descent of the pan, and a movable stop moving to engage the scale-beam and hold it against said fixed stop, and remaining stationary to hold it there until the dumping of the charge into the pan and subsequently retracting to release the beam and permit the scale to weigh the charge.

8. In an automatic weighing machine, the combination with a scale, mechanism for dumping the weighed charge from its pan, and mechanism acting subsequently thereto for dumping a charge into its pan, of a fixed stop for limiting the descent of the pan, and a movable stop moving down before the dumping of the charge from the pan to hold the scale beam against said fixed stop, remaining stationary to hold it there during the dumping of the pan and until the dumping of the new charge into the pan commences, and moving subsequently slowly upward to gradually release the scale.

9. In an automatic weighing machine, the combination of a series of scales, mechanism for dumping the weighed charges from the scale-pans, and mechanism acting subsequently thereto for dumping charges of the material to be weighed simultaneously into the scale-pans, of a series of fixed stops for limiting the descent of the pans, and a vertically movable stop-ring P, and driving mechanism for raising and lowering it adapted to move it down before the dumping of the charge from the pan to force the scale-beams down until held against said fixed stops, to hold it stationary there during the dumping of the pans, and during the dumping of the new charges into the pans, and to subsequently move it slowly upward to gradually release the several scales.

10. In an automatic weighing machine, the combination with a series of scales, mechanism for dumping the scale-pans, and mechanism for subsequently dumping the charges into the pans, of fixed stops for limiting the descent of the pans, and a vertically movable stop-ring P connected to a vertically sliding hub P', and driving mechanism for said ring consisting of a cam v, and a lever v' for transmitting motion from said cam to said hub.

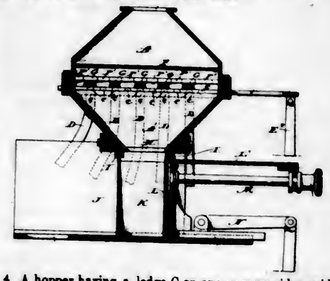
11. In an automatic weighing machine, comprising the combination of a series of scales, mechanism for dumping the scale-pan simultaneously, a revolving series of carrier receptacles beneath the scales arranged to receive the charges dumped from the scale-pans, a delivery chute, and mechanism for dumping the carriers in succession as they reach said chute, the construction of the one of said carrier receptacles which stands over said chute at the instant of dumping the scales with a permanent discharge opening w' whereby said carrier receptacle constitutes essentially a hopper or chute through which the charge dumped from the scale-pan descends directly into the delivery chute independently of the operation of the dumping mechanism.

493,798. FEEDING DEVICE FOR WEIGHING-MACHINES. HENRY R. SHTSER, Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y. Filed Apr. 15, 1891. Renewed Feb. 20, 1893. Serial No. 463,068. (No model.)

Claim.—1. In a weighing machine, the combination with a feed-hopper and a series of scales, of means for feeding graduated streams of material to the scales consisting of chutes leading to the scales from discharge openings in said hopper, and a reciprocating slide having perforations moving over said openings, and arranged to be filled with material from said hopper and by the movement of the slide to carry the material over said openings and discharge it through them into said chutes.

2. In a weighing machine, the combination with a series of scales, a feed-hopper, and a measuring box supplied from said hopper and acting intermittently to deliver charges of material to the respective scales, of means for feeding graduated streams of material to the scales consisting of chutes leading to the scales from discharge openings in said hopper, and a reciprocating slide having perforations moving over said openings, and arranged to be filled with material from said hopper and by the movement of the slide to carry the material over said openings and discharge it through them into said chutes.

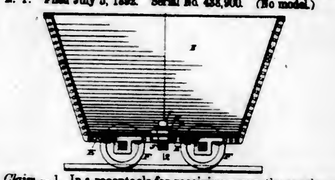
3. A hopper having a ledge C on one or more sides, said ledge being pierced with holes c, in combination with a moving slide E resting on said ledge and pierced with holes e which, during its movements, register intermittently with the holes c.



4. A hopper having a ledge C on one or more sides, said ledge being pierced with holes c, in combination with a moving slide E resting on said ledge and pierced with holes e which, during its movements, register intermittently with the holes c; and a deflecting plate or plates F extending out toward the center of the hopper and adapted to direct some of the material fed to the hopper on to the slide E.

5. A hopper having a ledge C on one or more sides, said ledge being pierced with holes c, in combination with a moving slide E resting on said ledge and pierced with holes e which, during its movements, register intermittently with the holes c; and a series of brushes G arranged to sweep material falling on sides E over their surfaces and into the holes therein.

493,799. SUGAR-WAGON. GEORGE VAN WAGENEN, New York, N. Y. Filed July 5, 1892. Serial No. 438,900. (No model.)



Claim.—1. In a receptacle for receiving sugar, the nozzle secured to the bottom thereof for connection with a source of pressure, the valve G seated upon the inclined upper edges of said nozzle and capable of being raised from its inclined seat under the action of said pressure, the horizontal deflecting plate H carried by said valve, and the vertical lug I carried on said plate, the whole being arranged substantially as and for the purposes set forth.

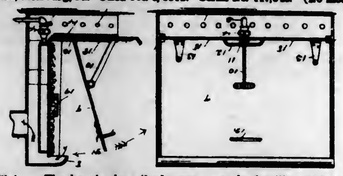
2. The receptacle for receiving sugar, combined with the valve G located therein below the upper level of the sugar, the deflecting plate H carried by said valve, the externally threaded nozzle J receiving the said valve, and the nut K securing the valve in position; the whole being arranged substantially as and for the purposes set forth.

493,800. DENTAL PLATE. JOHN R. WATSON, Smithfield, Pa. Filed Oct. 7, 1890. Serial No. 367,455. (No model.)



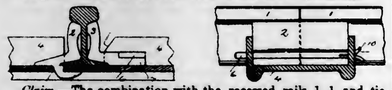
Claim.—The herein-described improved plate for artificial teeth, the same having a general contour adapting it to fit the alveolar ridge and having the inner surface of its gum side provided with a series of longitudinally and transversely disposed shallow intersecting superficial ribs for engaging the soft mucous membrane of the ridge of the gum and producing intermediate cavities for receiving the intermediate portions of the soft mucous membrane, the bottoms of the cavities being provided with shallow semi-spherical section indentations or chambers, substantially as specified.

493,801. APPARATUS FOR BROILING MEATS. JAMES G. WILSON, Pittsburg, Pa. Filed Oct. 4, 1892. Serial No. 447,840. (No model.)



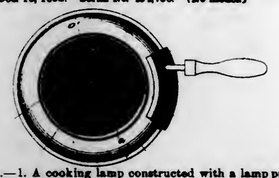
Claim.—The herein described apparatus for broiling meat consisting of the sheet metal heater constructed as described, the sliding plate 18 arranged to move in a horizontal plane, the door 9 hinged thereto capable of being arranged in a vertical, inclined, or horizontal position, suitable means for supporting said door, hooks or other means for holding the broiler to the rear of the door 9, and a burner having an asbestus fibrous front, and gas compartment at the rear, all arranged and combined for service substantially as and for the purpose described.

493,802. RAILWAY-RAIL SPLICE. WILLIAM J. WILLIAMS, Pittsburg, Pa. Filed Mar. 28, 1892. Serial No. 426,809. (No model.)



Claim.—The combination with the recessed rails 1, 1, and tie-plate 4, provided with the integral re-inforcing portions along its lower edges, and the upwardly extending flanges at right angles therewith and extending in the direction of the length of said tie-plate, of the side-plate 2, having the lug 8, extending beneath the tie-plate 4, the side-plate 3, placed at the inside of the rail and provided with an extension 7, having a recess formed across its top face and the wedge 6, having the split end 10, substantially as specified.

493,803. COOKING-LAMP. LOUIS WOJNOW, Brooklyn, N. Y. Filed Dec. 10, 1892. Serial No. 454,730. (No model.)

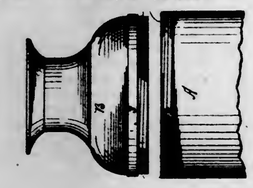


Claim.—1. A cooking lamp constructed with a lamp proper and filled with asbestus or other suitable material, and with a wire gauze or netting fitting over said material, and having a portion thereof removed, substantially as described.

2. In a cooking lamp the combination with the outer casing B of the inclosed lamp proper A, the section—a regulator C—D, and means connected with said casing and regulator for opening or closing the latter, substantially as described.

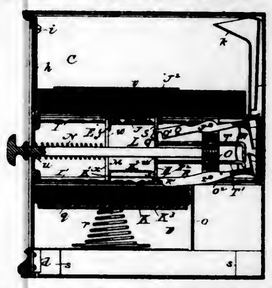
3. In a cooking lamp, the combination with the lamp proper A, of the outer casing B, in and to which said lamp is secured, a regulator contained within the casing and pivotally secured thereto, and provided with slots i, and ratchets *l* secured to said casing and provided with pins extending through the latter and into said slots *i* substantially as described.

493,804. MILK-CAN. GEORGE H. WRIGHT, Syracuse, N. Y. Filed June 4, 1892. Serial No. 435,540. (No model.)



Claim.—A milk can comprising two parts,—A— and —B—, the part —A— having an internally threaded band —1— and the part —B— reduced in size at its upper end and having its lower edge threaded and adapted to engage with the threaded band —1—, and the band —3— adapted to rest upon the upper edge of the band —1— when the parts are secured together, as set forth.

493,805. VENDING DEVICE. JOSEPH C. ATER, Boston, Mass. Filed May 31, 1892. Serial No. 434,894. (No model.)



Claim.—1. In a vending machine adapted to vend articles of differing value or value and form, the combination of a shell or case having one coin slot for the insertion of coins of differing diameters and denominations, each coin of the same denomination so inserted permitting the operation of a different and distinct portion of the mechanism with a door or frame detachable from the case and capable of being securely attached thereto by pins inserted into recesses in the case and the bolt of a lock attached to the door shot into a recess in the case, the door confining in the interior of the case independent movable under and upper article trays and mechanism cage with its contained mechanism, the door having an opening in its face sufficient in size to permit the whole or partial ejectment of the articles vended through it and also the reciprocation of an operating rod, substantially as described.

2. In a vending machine the combination of a shell or case containing independent, unattached, movable upper and under article trays in which and from which articles are stored and vended with an independent, unattached movable mechanism cage containing the operative mechanism inserted within the case immediately above the under article tray and below the upper article tray, substantially as described.

3. In a vending machine adapted to vend articles of differing value and controlled by coins of differing diameters and denomination a case or shell to contain the complete operating mechanism and articles to be vended therefrom, having therein a single coin slot or opening, for the insertion of coins of differing diameters and denomination, each coin of the same denomination so inserted permitting a distinct portion of the mechanism to be operated and each coin of another denomination permitting another and different distinct portion of the mechanism to be operated, the slot having a longitudinal axis greater than that of the largest coin for which the machine is designed, substantially as described.

4. The combination in a vending machine of an operating rod capable of being reciprocated provided with the cross head O, the levers Q R their fulcra, *y*, *z* their coin receivers U, V, and the fingers Q^2 R^2 with the carriages J and K provided with pins or spurs and the butment wall H having the openings *u* S. S'. and the coin ejecting pins T. T' substantially as described.

5. In a vending machine the combination of an operating rod L, the cross head O the lever Q having the fulcrum *y*. the coin receiver U and the finger Q^2 with the carriage J provided with the shoulder J' the recessed lip J^2 and the pins or spurs J^3 substantially as described.

6. In a vending machine the combination of an operating rod, L, the cross head O the lever R with its fulcrum Z coin receiver V and finger R^2. with the carriage K provided with the shoulder K' the arm K^2 and the pins or spurs K^3 substantially as described.

7. In a vending machine the combination of a mechanism cage having connected by suitable rods or bars a front wall with the opening *u*, a rear wall provided with the boss *t*; and the intermediate fixed butment wall H having the opening *u*. S. S' and coin ejecting pins T. T'. with an operating rod capable of being reciprocated provided with a retracting spring and the pin M and having vertically arranged at its rear extremity a cross head supporting two levers each provided with a coin receiver substantially as described.

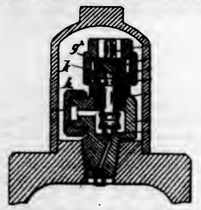
8. In a vending machine adapted to vend articles of differing value having its mechanism controlled by coins of differing diameters and denomination inserted in a single coin slot or opening in its case or shell an independent mechanism cage containing the operative mechanism placed within the case immediately above an under article tray and below an upper article tray, the upper edge of the front wall of the under tray forming with the lower edge of the front wall of the mechanism cage a slot or opening for the whole or partial ejection through the opening of articles vended from the under tray and the upper edge of the front wall of the mechanism cage forming with the lower edge of the front wall of the upper article tray a slot or opening for the whole or partial ejection through the opening of articles vended from the upper article tray—substantially as described.

9. In a vending machine adapted to vend articles of differing value controlled by coins of differing diameters and denomination the combination of a case or shell having a single slot for the insertion of such coins, with a single operating rod provided with a retracting spring and the pin M and having at its rear end a vertically arranged cross head supporting two levers each lever provided with a coin receiver, substantially as described.

10. In a vending machine adapted to vend articles of differing value controlled by coins of differing diameters inserted in a single coin slot. in its case or shell, two levers each. having its own fulcrum and each provided with a coin receiver connected together by a cord whereby both levers are simultaneously tilted by the introduction and holding of a coin in one of the coin receivers, whereby the mechanism is unlocked and made capable of operation substantially as described.

11. In a vending machine two coin receivers each terminating a lever one receiver having a greater interior diameter than the other and so placed one above the other in the path of travel of coins inserted into the machine that a coin of lesser diameter than the interior diameter of the upper receiver will drop through it and be caught and held by the lower smaller receiver, whereby a distinct portion of the mechanism is made capable of operation substantially as described.

493,806. STOP-VALVE OR STOP-VALVE MECHANISM. HUGO RAUH, Berlin, Germany. Filed June 16, 1892. Serial No. 436,931. (No model.) Patented in Germany Mar. 8, 1891, No. 62,843.



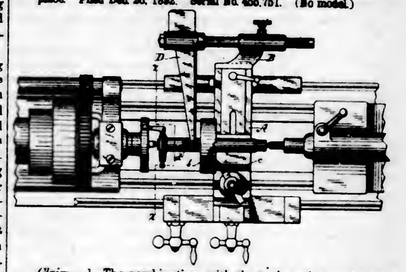
Claim.—1. A stop valve comprising a barrel terminating at one end in an inlet branch parallel with but eccentric to the barrel, said inlet branch provided with an inlet passage having its initial and terminal centrally of said inlet branch and barrel respectively, an outlet branch at right angles to the barrel above the inlet passage and a valve seated in the barrel and controlling the flow of fluid through said inlet passage.

2. The combination with a vessel provided with a boss or projection having an interiorly threaded passage and a cap seated on said boss, of a stop valve comprising a barrel terminating at one end in an exteriorly threaded inlet branch screwing into the passage of the vessel, said inlet branch parallel with but eccentric to the barrel and provided with an inlet passage having its initial and terminal centrally of the inlet branch and barrel respectively, a short outlet branch at right angles to the barrel above the inlet passage, said outlet branch screw-threaded exteriorly, and a valve contained in the barrel and controlling the flow of fluid through the inlet passage, substantially and for the purpose set forth.

3. A stop valve comprising a short barrel terminating in an inlet branch parallel with but eccentric to said barrel, said inlet branch provided with an inlet passage having its initial and terminal centrally of the inlet branch and barrel respectively, a short outlet branch above said inlet passage at right angles to the barrel and a valve comprising a valve spindle working fluid tight in the barrel, an actuating screw plug detachably connected with the valve spindle, an interiorly threaded sleeve loosely seated in the barrel in which sleeve said screw plug works, and a locking sleeve connected with the barrel and bearing on said screw plug, substantially as and for the purpose set forth.

4. A stop valve comprising a barrel, *i*, terminating in an inlet branch, *g*, parallel with but eccentric to said barrel, said inlet branch provided with an inlet passage having its initial and terminal centrally of the inlet branch and barrel respectively, an outlet branch at right angles to the barrel, packing rings and a packing interposed between them arranged in the barrel, a valve whose spindle extends through said packing rings and packing, a screw plug, b^3, detachably connected with the valve spindle and provided with a stem of polygonal form in section, an interiorly threaded gland, *g'*, loosely seated on the upper packing ring in which gland said screw plug works, and a retaining sleeve, d^3, detachably connected with the barrel said sleeve having bearing on the outer end of gland, g^3, and inclosing the stem of the screw plug, substantially as and for the purpose set forth.

493,807. LATHE ATTACHMENT. OSCAR J. BEALS, Providence, R. I., assignor to the Brown & Sharpe Manufacturing Company, same place. Filed Dec. 20, 1892. Serial No. 455,751. (No model.)

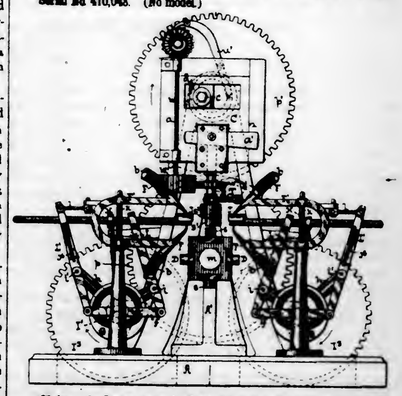


Claim.—1. The combination, with the tool carriage and cutting tool of a lathe, of a gage mounted upon and movable with said tool carriage, said gage being adjustable with relation to said tool carriage in the direction in which said carriage moves, substantially as described.

2. The combination, with the tool carriage and cutting tool of a lathe, of a gage mounted upon and movable with said tool carriage, said gage being adjustable with relation to said tool carriage in the direction in which said carriage moves, and also having a movement in a plane at right angles to the path of movement of said tool carriage, substantially as described.

3. The combination, with the tool carriage and cutting tool of a lathe, of a swinging gage arm mounted upon and movable with said tool carriage, said gage arm being adjustable with relation to said tool carriage in the direction in which said carriage moves, and being provided at its free end with an adjusting screw, substantially as described.

493,808. MACHINE FOR MANUFACTURING ARTICLES OF GLASS. WILLIAM BROSTOLD, New York, N. Y. Filed Oct. 28, 1891. Serial No. 410,043. (No model.)



Claim.—1. In an organized machine for the continuous manufacture of articles of glass, the combination of a punch and die, a mechanism for feeding a glass rod intermittently between the punch

and die, and a burner located between the feed mechanism and the punch and die for heating the end of the rod all combined and operating substantially as set forth.

2. In an organized machine for the continuous manufacture of articles of glass, the combination of a punch and die, a mechanism for feeding a glass rod intermittently between the punch and die, a burner located between the feed mechanism and the punch and die for heating the end of the rod, and a severing device located at the punch and die, substantially as and for the purpose set forth.

3. In a machine for manufacturing articles of glass, a punch and die, a mechanism for feeding the glass rod toward the punch and die, a burner located between the feed mechanism and the punch and die, mechanism for rotating the rod within the feed mechanism and a severing device, substantially as described.

4. In a machine for manufacturing articles of glass, a punch and die, a burner for heating the rod located in proximity to the punch and die, and a mechanism for automatically feeding the rod to bring its end between the punch and die and returning the rod to bring its end into the flame, substantially as described.

5. In a machine for manufacturing articles of glass, a die head, means for rotating the same, a reciprocating punch arranged in line with the die head, a mechanism for automatically feeding the glass rod between the die head and punch and a burner located between the die head and punch and the feed mechanism for heating the end of the rod, substantially as described.

6. The combination with a punch and die arranged in line and of substantially the same diameter, a sleeve fitted to the punch and adapted to slide upon the same, and means for moving the punch over the adjoining end of the die to inclose the same, substantially as and for the purpose set forth.

7. In a machine of the character specified, a severing sleeve thrown into action in advance of the punch on the operating stroke and being withdrawn from the die in advance of the punch on the return stroke, substantially as described.

8. In a machine of the character specified, a severing sleeve provided with a recess terminating in a cutting edge, and adapted to fit over the die, said sleeve being thrown into action to encompass the die in advance of the punch on the operating stroke, and being withdrawn from the die in advance of the punch on the return stroke, substantially as and for the purpose set forth.

9. In combination with a punch and die, a sleeve adapted to slide on the punch and fit over the die, said sleeve being provided with a lateral recess terminating in a cutting edge, substantially as described.

10. The die head E having two or more dies and provided with projections n adapted to engage recesses n' in a stationary part of the machine, a cam or equivalent means for forcing the die head outwardly to clear its projections from the recesses, and friction surfaces thrown into contact on the release of the die head for turning the same through a predetermined angle, substantially as described.

11. In a machine of the character specified, a differential device for feeding the rod forward to the punch and die and returning the same to the heating device, substantially as described.

12. In a machine of the character specified, the feed segments rotating in opposite directions and adapted to engage the rod for feeding the same alternately in opposite directions, substantially as described.

13. In a machine of the character specified, the adjustable feed segments geared together to rotate in opposite directions and adapted to engage the rod for feeding the same alternately in opposite directions, substantially as described.

14. The combination with the die and the reciprocating punch and the sleeve mounted thereon, of the cam U and the arm U' engaging said sleeve and imparting thereto a motion to advance the same more rapidly than the punch on the operating stroke, substantially as and for the purpose set forth.

15. The spring pressed die head E having two or more dies and secured as described, combined with means for clearing the said die head and frictional means for turning the same, substantially as described.

16. In a machine of the character specified, a mechanism for feeding a glass rod toward and from the die and punch, a burner for heating the end of the rod and means for automatically reducing the heat on the rod while same is being moved toward and from the punch and dies, substantially as described.

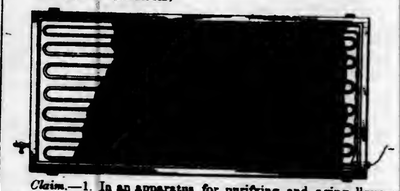
17. In a machine of the character specified, the burners F mounted on brackets F', a mechanism for feeding the glass rod, and means for automatically turning the burners to one side, when the rod is moved toward or from the punch and die, substantially as described.

18. In a machine of the character specified, a punch and die or their equivalent, two mechanisms arranged on opposite sides of the punch and die for alternately feeding glass rods to the punch and die, and heating devices, such as the burners F for heating the ends of the glass rods, substantially as described.

19. In a machine of the character specified, the feed levers L L' provided with suitable grips engaging the rod, combined with the cam g and link f, all substantially as and for the purpose set forth.

20. The die head E provided with recess e^2 combined with die D and spring e^3, substantially as and for the purpose set forth.

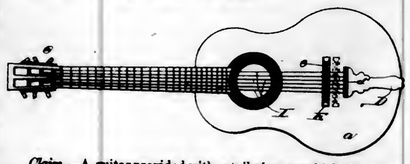
493,809. APPARATUS FOR PURIFYING LIQUORS BY ELECTROLYSIS. JOHN BECKER, Kymulga, Ala. Filed Mar. 12, 1892. Serial No. 424,694. (No model.)



Claim.—1. In an apparatus for purifying and aging liquors a tank, the lining of which, forms the positive electrode, and a wire mat placed horizontally in the tank and forming the negative electrode, the said lining and mat being connected with the opposite poles of an electric battery in the manner and for the purposes set forth.

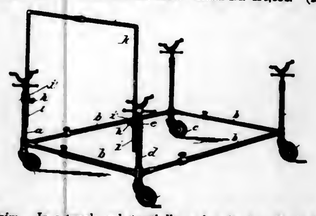
2. In an apparatus for purifying and aging liquors a tank the lining of which forms the positive electrode, and a cloth-covered wire mat placed horizontally in the tank and forming the negative electrode, the said lining and mat being connected with the opposite poles of an electric battery for the purposes described.

493,810. GUITAR. WILLIAM BECKER, Chicago, Ill. Filed Mar. 26, 1892. Serial No. 426,501. (No model.)



Claim.—A guitar provided with a tail-piece to which the strings are attached, and a bridge E provided with a bearing e for the strings, and a broad flat bottom e', and made and arranged separate from the tail-piece and applied to slide upon the sound-board of the guitar whereon it is held in its adjustment by the pressure of the strings, substantially as and for the purpose described.

493,811. COMBINED JACK AND TRUCK. WILLIAM BECKERT, Allegheny, Pa. Filed Dec. 22, 1892. Serial No. 456,081. (No model.)



Claim.—In a truck, substantially as herein described, the combination with the jack sockets of a second socket secured adjacent to each jack socket, rods adapted to fit into the latter sockets, and means for holding the rods in place.

493,812. METHOD OF TRANSFERRING DRAWINGS TO STONES, &c. LOUIS BEHRT, Barmen, Germany. Filed Oct. 29, 1890. Serial No. 369,731. (No specimens.) Patented in Germany July 14, 1890, No. 55,612, and in France Sept. 19, 1890, No. 195,145.

Claim.—The improvement in the art of treating lithographic stone which consists in treating the surface of the clean stone with a solution of sulphate of alumina substantially as described.

493,813. SHOE. AUGUST F. BERTRAM, Wellsville, Ohio. Filed Apr. 25, 1892. Serial No. 430,502. (No model.)



Claim.—In a shoe having a vent at the front and lacing strips at each side thereof, the combination with such strips of a continuous strip secured at its ends to the upper ends of said lacing strips and extending across said vent, said continuous strip forming a tab for convenience in putting on the shoe, substantially as set forth.

493,814. WATCH-BOW FASTENER. WILLIAM F. BINGHAM, Monticello, Iowa. Filed Oct. 1, 1892. Serial No. 447,495. (No model.)



Claim.—1. The combination with a hollow pendant having opposite smooth side openings, of a bow provided with terminal pins or spindles, swivels or collars rotatably mounted upon such pins or spindles and fitted in said side openings in the pendant, a sleeve or shell rotatably fitted in the pendant, and means to lock the swivels or collars to said sleeve or shell, whereby rotation of the former is prevented, substantially as set forth.

2. The combination with a hollow pendant, having opposite smooth side openings, of a bow provided with terminal pins or spindles, swivels or collars rotatably mounted upon such pins or spindles, loosely fitted in said side openings and provided, flush with the bore of the pendant, with opposite transverse kerfs or grooves, and a sleeve or shell rotatably fitted in the bore of the pendant and provided with opposite transverse slots terminating at corresponding extremities in enlargements or openings, substantially as set forth.

3. The combination with a hollow pendant having side openings, of a bow provided with terminal rotatable swivels, fitted in said side openings and having transverse kerfs or grooves, a sleeve or shell rotatably fitted in the bore of the pendant and provided with slots to engage the kerfs or grooves in the swivels, and means to lock the sleeve or shell from rotation, substantially as set forth.

4. A fastening for bows and pendants of watch-cases, consisting of removable pins or spindles screwed or forced into bores in the ends of the bow, swivels upon said pins or spindles, and an inner shell fitting within the outer shell of the pendant and provided with means to engage said swivels when inserted in the openings in the pendant, substantially as specified.

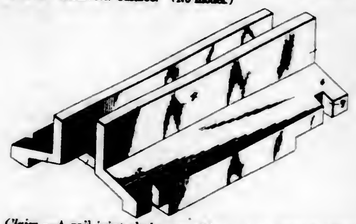
493,815. WATCH-KEY. WILLIAM F. BINGHAM, Monticello, Iowa. Filed Oct. 4, 1892. Serial No. 447,811. (No model.)



Claim.—1. In an adjustable watchmakers' key, the cylindrical case, a sliding key chuck moving in one end of the case having an inner beveled portion at one end and provided with normally separated spring jaws contacting with said beveled end, a longitudinally disposed guide groove, a threaded spindle projecting through the other end of the case, and having an outer handle-receiving squared stud, a pin projecting inwardly from the casing and into said guide groove, and a separate adjusting nut arranged at one end of the cylinder and having an inwardly extending interiorly threaded collar engaging the threaded end of the spindle and working inside of the case, substantially as set forth.

2. In a watch key, the outer cylindrical case, a sliding adjustable key chuck moving in the case and having a threaded spindle projecting through the other end, a separate and independent threaded collar arranged in one end of the case to engage said threaded spindle for reciprocating the spindle, and an auxiliary winding square arranged at the outer projecting end of the spindle, substantially as set forth.

493,816. RAIL-JOINT. JOSEPH D. BLANTON, Dot, Ga. Filed Oct. 3, 1892. Serial No. 448,208. (No model.)



Claim.—A rail joint chair comprising a base plate or bottom 3, and the angle fish plate sides formed integral with the bottom and extending therefrom to provide cross-tie receiving recesses and to form extensions 5 and 6 of unequal length, the extensions 6 being the longer and being arranged at opposite ends of the chair, substantially as and for the purpose described.

493,817. SECONDARY BATTERY. LARS BRISTOL, London, England. Filed Aug. 28, 1890. Renewed Feb. 13, 1892. Serial No. 421,868. (No model.) Patented in Sweden Apr. 10, 1888, No. 1,500; in Norway Apr. 11, 1888, No. 942; in England July 6, 1888, No. 9,854, and in Belgium Nov. 13, 1889, No. 88,445.



Claim.—1. In a secondary battery, plates composed of an active agent and a fibrous binding material, conductors embedded therein, said conductors having anchoring points or projections, substantially as described.

2. In a secondary battery, plates composed of an active agent and a fibrous binding material conductors embedded therein, said conductors being of dovetail shape in cross section, substantially as described.

3. In a secondary battery, a lid *l*, a gas escape plug *p*, extending through the lid, and having a transverse opening in its lower end to the interior of the plug, substantially as described.

493,818. BUCKLE. JOSEPH CANTNER, Millheim, Pa. Filed Aug. 25, 1892. Serial No. 444,090. (No model.)



Claim.—1. A device of the character set forth, comprising a leather tug or strap doubled under and secured at the sides and free end thereof to form a closed loop having a slot extending longitudinally through the upper side of the same, metallic loops disposed at opposite ends of said slot, a wear-plate mounted on the top surface of said tug or strap and having a slot therein aligning with the slot aforesaid, adapted to receive a stud rising from a lug at one end of an integrally-formed laterally-extending flat plate that projects away from the said lug in a horizontal plane and is movable between the parts of said loop, said stud projecting upward through the slot of said loop and the flat plate being confined in position by bearing upon the interior upper and lower surfaces of said loop, a connecting strap or billet being adapted to engage said stud and the said metallic loops, substantially as described.

2. A device of the character set forth, comprising a tug or strap end having a fastening in connection therewith, consisting of metallic loops located on said tug or strap end apart from each other and between which a slot is formed in said tug or strap end, and a stud adjustably rising from the said tug or strap end and adapted to be moved in the said slot, and a yielding plate secured at one end only to said tug or strap end and adapted to extend over and bear upon the free end of a strap or billet that is connected to the aforesaid stud, to prevent the said free end from turning up or curling and being engaged by adjacent projecting parts, substantially as described.

493,819. LATCH. JESSE CHANDLER, Ames, Kans. Filed May 31, 1892. Serial No. 435,027. (No model.)

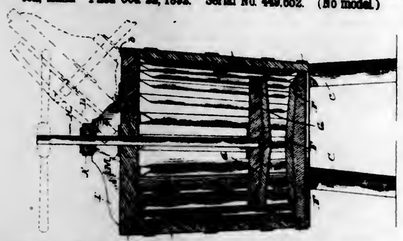


Claim.—1. A latch for doors comprising an operating or handle lever extending through a door and projecting from opposite sides thereof, latch levers pivoted at one end and arranged on opposite sides of a door and provided at the other end with a beveled face, rods arranged on opposite sides of a door and connecting the latch levers with the handle or operating lever, and keeper plates to be engaged by the latch levers, substantially as described.

2. A door latch comprising an operating or handle lever provided at its ends with handles and extending from opposite sides of a door, latch levers arranged on opposite sides of a door and pivoted at one end and provided at their other ends with inclined faces, rods arranged on opposite sides of a door and connecting the latch levers with the operating or handle lever, keeper plates provided with inclined faces adapted to be engaged by the levers, whereby a door is drawn closely against its door frame, substantially as described.

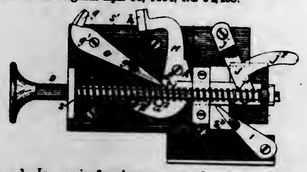
3. In a latch, the combination of a handle lever pivoted intermediate its ends and projecting from opposite sides of a door and provided at its inner side with an opening a pivoted latch provided with a tooth arranged to engage the opening to secure the handle lever against movement, latch levers, and rods arranged on opposite sides of a door and connecting the latch lever with the handle lever, substantially as described.

493,820. WASHING-MACHINE. WILLIAM M. COVENTRY, Longton, Kans. Filed Oct. 22, 1892. Serial No. 449,052. (No model.)



Claim.—In a washing machine, the centrally aligned rubbers having opposing convex ribbed faces, one of said rubbers being rotatably mounted, and means to operate the same, substantially as set forth.

493,821. COIN-FREED MACHINE. JAMES G. CUMMING, Edinburgh, Scotland. Filed June 2, 1892. Serial No. 435,274. (No model.) Patented in England July 4, 1890, No. 10,369; in France Apr. 9, 1891, No. 212,656, and in Belgium Apr. 10, 1891, No. 94,465.



Claim.—1. In a coin-freed apparatus, the combination of a suitable receptacle for holding articles to be delivered, a slide adapted to deliver the articles one by one, a spring lever G adapted to engage the slide for preventing its withdrawal, a spring lever H adapted to be rocked on its pivot by the movement of the slide, and suitable jaws on said levers adapted to receive and hold a coin, whereby the lever G will be rocked on its pivot and disengaged from the slide by the movement imparted to the lever H from the slide, substantially as set forth.

2. In a coin-freed apparatus, the combination of a suitable receptacle for holding articles to be delivered, a slide adapted to deliver the articles one by one and formed with a projection on one side and a depression on the opposite side, a spring lever G adapted to engage the projection for preventing the withdrawal of the slide, and a spring lever H having its end resting in the depression in the slide and adapted to be rocked on its pivot thereby, both of said levers G and H being formed with jaws adapted to receive and hold a coin, whereby the lever G will be moved by the lever H and disengaged from the projection on the slide, substantially as set forth.

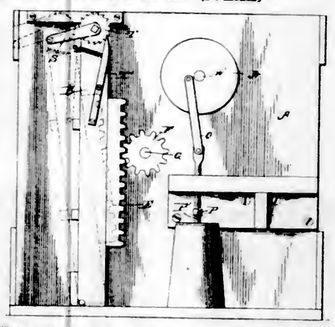
3. In a coin-freed apparatus, the combination of a receptacle for holding articles to be delivered, the grooved bottom b, for supporting the articles, the slide D carrying the arm d^5 formed with the shoulder d^6, a spring lever G adapted to engage the slide and prevent its withdrawal, a spring lever H adapted to be rocked by the movement of the slide and move the lever G out of engagement therewith when a suitable coin is placed between the two levers, substantially as set forth.

4. In a coin-freed machine, the combination of a suitable receptacle for holding articles to be delivered, a slide adapted to deliver said articles one by one and formed with a suitable projection and depressions on its sides, a spring lever G adapted to engage the projection on the slide for preventing its withdrawal and formed with a coin jaw, a lever H adapted to engage in one of the depressions and also formed with a coin-jaw, said coin-jaws being suitably arranged to receive and hold a coin so that the lever G can be disengaged from the slide by the movement of the lever H on its pivot, a spring pawl adapted to prevent the return of the draw until it has completed its outward movement, and means for disengaging the pawl at the completion of the outward movement of the slide, substantially as set forth.

5. In a coin-freed apparatus, the combination of a suitable receptacle for holding articles to be delivered, a slide adapted to deliver the articles one by one and formed with a projection and depressions in its sides, a spring lever G adapted to engage the projection, a spring lever H normally engaging in one of the depressions, and jaws formed on the levers G and H adapted to receive and hold a coin, whereby the lever G will be disengaged from the slide by the movement of the lever H when forced out of the depression by the movement of the slide, and the coin will be dropped and the lever G allowed to rest on the slide in readiness to re-engage the projection when the lever H springs into the second depression, substantially as set forth.

6. In a coin freed machine, the combination of a suitable receptacle for holding the articles to be delivered a slide adapted to deliver the articles one by one, a spring lever G adapted to engage and prevent the withdrawal of the slide, a spring lever H actuated by the slide adapted to disengage the lever G therefrom, a spring pawl adapted to engage the slide for preventing its backward movement, a pivoted arm adapted to come in contact with the spring pawl and disengage it from the slide, and an arm carried by the slide adapted to actuate the pivoted arm, substantially as set forth.

493,822. CHURN-MOTOR. JOHN H. DAMERON, Ruffin, N. C. Filed Sept. 13, 1892. Serial No. 445,777. (No model.)

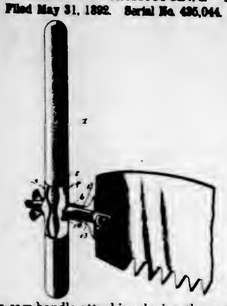


Claim.—1. In a churn motor, the combination of a swinging guide-frame, a slide mounted in said guide-frame and provided with a rack, the main shaft provided with a pinion to mesh with said rack when the guide-frame is in its normal position, an actuating spring connected to the slide, and means for communicating motion from the main-shaft to the churn, substantially as specified.

2. In a churn motor, the combination of a pivoted guide frame, a vertically-movable, spring-actuated slide provided with a rack mounted in said guide-frame, the drum connected to said slide, and provided with a crank, and a pawl and ratchet stop mechanism connected to the shaft of the drum, the main-shaft carrying a pinion to engage said rack, the pitman-operating wheel, and the train of gearing between the main-shaft and the shaft of said wheel, substantially as specified.

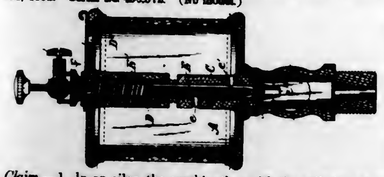
3. In a churn motor, the combination, with the frame, of a vertical guide-frame fulcrumed at its lower end, a guiding-keeper for the free end of the guide frame, the retaining pin to hold said guide-frame in its normal position, the spring-actuated slide mounted in the guide-frame, a ratchet and pawl controlled drum connected to said slide, the main-shaft carrying a pinion to mesh with said rack when the guide-frame is in its normal position, the pitman operating wheel, and the train of gearing between the main-shaft and said wheel, substantially as specified.

493,823. HANDLE FOR CROSSCUT-SAWS. THEODORE J. ELY, Girard, Pa. Filed May 31, 1892. Serial No. 435,044. (No model.)



Claim.—In a saw-handle-attaching device, the combination of a handle having a circumferential groove therein and an opening extending transversely therethrough, two plates located opposite to each other in said groove and arranged in vertical planes, said plates having openings therein aligning with the opening in the handle and surrounded by enlargements one of which is formed with diametrically-opposed notches and a flat rim, a cylindrical post engaging one of said plates and having a pair of aligned arms with grooves therein that extend through the thickness of said post and integrally formed with lugs that extend lengthwise of the post and project slightly beyond the opposite end thereof in the form of beveled lugs that engage the notches of one of the aforesaid plates, the end of the post opposite to that on which the arms are formed having a sleeve of reduced diameter to fit in the opening of the notched plate, and a clamping rod or bolt extending through the said post and plates together with the handle and provided with a bifurcated front end embracing and connected to the saw-blade and having a clamping-nut on the rear end, substantially as described.

493,824. LUBRICATOR. GEORGE B. RAMEY, Detroit, Mich., assignor to the Michigan Lubricator Company, same place. Filed Oct. 31, 1892. Serial No. 450,572. (No model.)



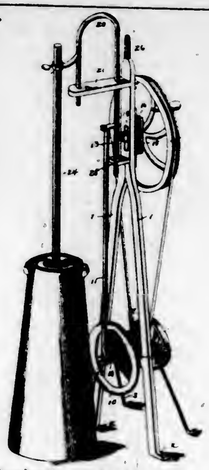
Claim.—1. In an oiler, the combination with the cylinder, of an adjustable pin E, a plug F fixed on the cap of the oil cup, constructed with a beveled collar f, and a hole for the free passage of the pin, a threaded nut H on the threaded portion of the pin, normally supported by the plug, and means for adjustably confining said nut on the pin, whereby the pin moves through the nut in adjusting the feed, but is carried with it when the pin is moved for other purposes, substantially as set forth.

2. In combination with the cylinder A, pin E and seat c^2 of an oiler, the plug F constructed with a beveled-edged collar f, a nut H, arm H^3 supported on the collar, set screw H', and disk H^2 interposed between the point of the set screw and threaded portion of the pin, substantially as set forth.

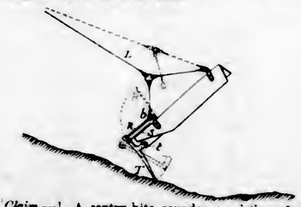
493,825. CHURN. WYATT GIBSON, Dodd, Tex. Filed Mar. 5, 1892. Serial No. 423,936. (No model.)

Claim.—In a churn, the combination of the standards having diverging lower portions, and a straight solid upper portion, a horizontal bar connecting the same near their lower ends, a horizontally disposed rectangular bracing frame 6 secured to the standards and arranged opposite the bar, a shaft 7 journaled in suitable bearings on the bar and the bracing frame, a band wheel mounted on the shaft 7 and arranged within the bracing frame, a vertically adjustable drive wheel mounted on the standards near their upper end and connected with the band wheel, a crank wheel arranged at one end of the shaft 7 and secured to the same, a balance wheel 9 arranged at the other end of the shaft the guide 21 extending horizontally from the standards and provided near its ends with openings, the guide 25 arranged below the guide 21 and having an opening disposed directly below that at the inner end of the guide 21, said guides terminating at their inner ends in threaded shanks and passed through the solid portion of the standards and provided with nuts, an approximately U-shaped dasher rod attachment having parallel sides arranged in the openings of said guides, one of its sides being longer than the other and arranged adjacent to the standards and provided with adjusting perforations, the other side being shorter and provided with an outward extending arm having a clamping device adapted for the attachment of a dasher rod, a pitman connecting the long side of the dasher rod attachment with the crank wheel and having its upper end bent horizontally, and a bolt passing through the horizontally bent end of the pitman and arranged in one of the perforations of the long side of the dasher rod attachment, substantially as described.

493,825.



493,826. SHOAL-ALARM. SAMUEL H. JAMES, London, England. Filed Mar. 17, 1891. Serial No. 385,413. (No model.) Patented in England Apr. 25, 1888, No. 6,134.



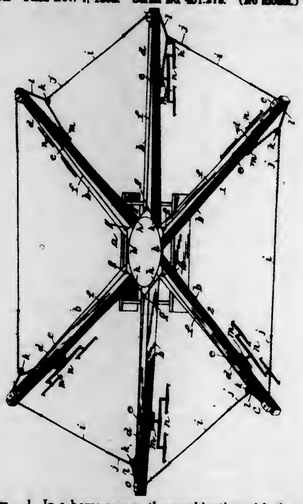
Claim.—1. A sentry kite sounder consisting of tapering wings extending approximately at right angles to each other, a bridle arranged centrally of the wings at the junction of the same and a towing line connected therewith, the said bridle forming a detachable connection between the tow line and the lower pointed end of the wings substantially as described.

2. In combination a kite, a bridle, a towing line, a yielding pivoted bearing for the upper end of the towing line and an alarm operated by the action of the pivoted bearing, substantially as described.

3. In combination a kite, a bridle, a towing line, a winding drum, a fair lead F, and a pivoted drum w resting on the towing line, substantially as described.

4. In a sounding apparatus, a kite consisting of two wings extending on either side of a central axis at an angle to one another, and a bridle connected to the kite by one fixed and one detachable end, substantially as described.

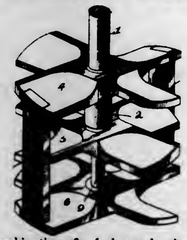
493,827. HORSE-POWER. WILLIAM M. LEWIS, New Hartford, Iowa. Filed Nov. 7, 1892. Serial No. 451,219. (No model.)



Claim.—1. In a horse power, the combination with the poles, of a pulley attached to the free end of each, a second set of pulleys connected by a swing rod to the free ends of said poles, and chains passing over the pulleys and arranged so that one of their ends will be connected to the ends of the others and each of the remaining ends to a whiffle tree, all substantially as described.

2. In a horse power, the combination with its poles of the pulleys *c* and *m*, the pulleys *k*, rods *l*, connected to the pulleys *k*, and a series of chains passing over the pulleys and arranged with one of their ends connected with each of the others, and their remaining ends to a similar number of whiffle-trees, all substantially as described.

493,828. CHURN-DASHER. FRANCIS M. LOGAN, Bakridge, Kans. Filed Jan. 16, 1893. Serial No. 457,923. (No model.)



Claim.—The combination of a dasher rod, a journal secured to the lower end of the same and having its upper portion reduced to form a shoulder and provided in its lower end with a socket, a screw having its upper end secured in the socket and having reduced journal portions at its ends forming an intermediate portion and providing shoulders, the top and bottom dashers composed of propelling blades and arranged on the journal and the lower end of the screw, the opposite vertical bars secured to the ends of dasher blades of the top and bottom dashers and rigidly connecting the latter, and the intermediate dasher arranged on the upper journal portion of the screw and having its propelling blades arranged the reverse of those of the other dashers, substantially as and for the purpose described.

493,829. WRENCH. PETER MADSEN, Dover, N. J. Filed Feb. 9, 1892. Serial No. 420,894. (No model.)

Claim.—1. In a wrench, the combination with a stock terminating at its outer end in a fixed jaw, and below the same at its edge provided with transverse teeth beveled at their ends, of a jaw-carrying sleeve recessed intermediate its ends mounted non-rotatably but longitudinally movable upon the stock, and a nut loosely mounted in the recess of the sleeve and adapted to rotate upon the stock; a device carried by the nut for locking it upon the sleeve, said sleeve being provided at its inner side with a series of short transverse teeth beveled at their ends and adapted to engage with the teeth of the stock, and having the remaining portion of its inner periphery plain or untoothed, substantially as specified.



2. In a wrench, the combination with the stock, the front edge of which is provided with transverse teeth and the outer end of which is provided with a fixed jaw, of a jaw-carrying sleeve bored to fit loosely upon the stock and having a transverse opening the edges of which are connected by front and rear straps, the front being provided with a key-hole notch, of a nut mounted in the transverse opening of the sleeve and adapted for rotation upon the stock, said nut being provided with a transverse series of internal teeth for engaging those of the stock, a pin projecting from the exterior of the nut and adapted to engage the notch when the teeth are in engagement, and a lug at one side of the pin for abutting against the rear strap, substantially as specified.

3. In a wrench, the combination with the stock, the front edge of which is provided with transverse teeth and the outer end of which is provided with a fixed jaw, of a jaw-carrying sleeve bored to fit loosely upon the stock and having a transverse opening the edges of which are connected by front and rear straps, the front being provided with a notch, of a nut mounted in the transverse opening of the sleeve and adapted for rotation upon the stock, said nut being provided with a transverse series of internal teeth for engaging those of the stock, a split spring-pin projecting from the exterior of the nut and adapted to engage the key-hole notch when the teeth are in engagement, and a lug at one side of the pin for abutting against the rear strap, substantially as specified.

493,830. CUFF. ALBERT D. MARBLE, Winfield, assignor of one-half to Lincoln McKinlay, Udall, Kans. Filed Nov. 28, 1891. Serial No. 413,400. (No model.)



Claim.—As an article of manufacture a cuff manufactured of celluloid and consisting of an inner and an outer blank or section of substantially oblong shape, the outer blank having its outer edge folded over and upon the inner face of the inner blank and secured, below which point the sections are independent, the said blanks being provided at corresponding points with the corner-hole 4, and at their inner edges with the central holes 5.

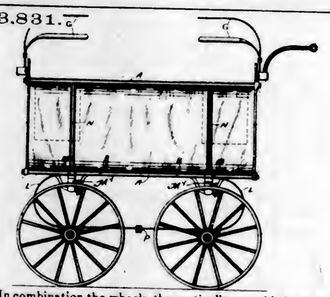
493,831. COLLAPSIBLE PERAMBULATOR. JOHN MARTIN, St. Martin's, Guernsey Island. Filed July 20, 1892. Serial No. 440,601. (No model.)

Claim.—1. In a folding perambulator, the wheels, the springs, the blocks carried by said springs, the vertically sliding bars N, adapted to pass through the blocks and the body carried by said bars and comprising the jointed and pivoted bars forming a collapsible body substantially as described.

2. In combination the wheels, the springs, and the vertically movable body frame adapted to be moved down between the wheels, said frame being collapsible laterally, substantially as described.

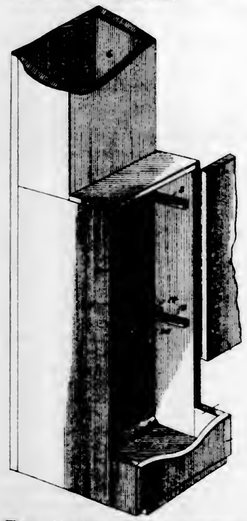
3. In combination the wheels, the springs L, L, the vertical rods N having vertical sliding connection with the said springs and the collapsible frame carried by the said bars, substantially as described.

493,831.



4. In combination the wheels, the vertically movable body frame adjustable between and above the said wheels, said frame comprising the bars A, A, the jointed cross bars B, C, and the side bars pivoted at the ends of the cross bars, substantially as described.

493,832. FEED-BOX. IRA L. MARTIN, Amity, Oreg. Filed Nov. 30, 1892. Serial No. 453,645. (No model.)



Claim.—1. The combination with the box terminating at its lower front end in a feed-trough, a vertical partition subdividing the box, upper and lower horizontal ways, cut-offs mounted in the ways forming upper and lower compartments, the lower one communicating with the trough, of a flap hinged to a wall of the upper compartment between the cut-offs, and means for adjusting the flap in an inclined position, substantially as specified.

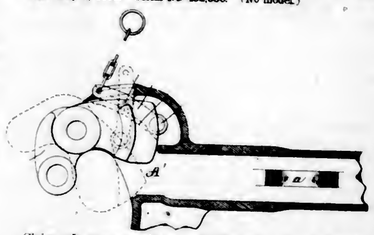
2. The combination with the box, provided at its front lower end with a trough and in rear of the same subdivided by a transverse partition, of upper and lower cut-offs mounted in the ways and dividing the box into upper and lower compartments the lower one communicating with the said trough, a partition or flap hinged to the upper compartment, and a rod loosely connected to the lower end of the flap and passing through the front wall or subdividing partition, substantially as specified.

3. The combination with the box having its lower front edge extended to form a trough, a vertical partition subdividing the box into front and rear compartments and terminating at its lower end short of the bottom forming the discharge-opening, upper and lower cut-offs located in the rear compartment and forming upper and lower compartments, a slide mounted in the bottom of the lower compartment and adapted to close the feed-opening, and a rod for operating the slide, substantially as specified.

4. The combination with a box terminating at its lower end in a trough and provided with upper and lower cut offs forming upper and lower compartments, the lower one communicating with the trough, of a flap hinged to the rear wall of the upper compartment, and means for adjusting the same thereto, substantially as specified.

5. The combination with a box, and upper and lower cut-offs subdividing the same into upper and lower compartments, and a trough located in front of and communicating with the lower compartment, of a flap hinged to the rear wall of the upper compartment, and a rod passing through the front of the box and provided with a scale, substantially as specified.

493,833. CAR-COUPLING. THOMAS L. MCKEEN, New York, N. Y., assignor to the Thurmond Car Coupling Company, of West Virginia. Filed May 9, 1892. Serial No. 432,350. (No model.)



Claim.—In a car coupling, the combination with a hollow draw-bar having a slot *a* therein near the tail bolt, and having projection *a'* and bearing face a^2 at either side of said slot; of the stop F, having shoulder *f*, curved face *f'*, projection f^2 adapted to pass through said slot, and hole f^3 for the cotter pin; and the plate H attached to the car, substantially as and for the purposes described.

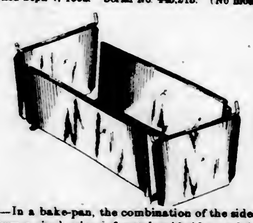
493,834. LID-HOLDER. DENNIS O'LEARY, Winchester, Cal. Filed Sept. 21, 1892. Serial No. 446,426. (No model.)



Claim.—1. The combination with a kettle provided with a hinged handle, and a cover, of an eye arranged on the body, a spring hook secured to the handle and an inverted V-shaped loop secured to the cover and extending upward therefrom and having its rear arm curved and engaged by the hook and provided at its lower end with a pintle extension arranged in said eye and detachably hinging the cover to the body, substantially as described.

2. The combination with a kettle provided with a hinged handle, and a cover, of a spring hook secured to the handle and an inverted V-shaped loop secured to the cover and extending upward therefrom and having its rear arm curved and engaged by the hook when raised the handle being adapted to lock the lid in its closed position, substantially as described.

493,835. BREAD OR CAKE PAN. THOMAS S. PEACOCK, Paxton, Ill. Filed Sept. 7, 1892. Serial No. 445,213. (No model.)



Claim.—In a bake-pan, the combination of the sides and bottom struck up from a single piece of metal, said sides and bottom being formed respectively with vertical guides and horizontal transversely-

extending seats along the edges of the same, and removable ends fitted in the said guides and seats and provided with locking-arms 7, said guides and seats being located outside of and below the planes of the inner surfaces of said sides and bottom, to cause said ends to form a close joint and prevent leakage of the contained material, substantially as described.

493,886. THROTTLE-VALVE. ALBERT J. PITKIN, Schenectady, N. Y. Filed July 13, 1892. Serial No. 439,883. (No model.)



Claim.—1. In combination with a steam dome throttle-valve comprising two valve-chambers, arranged side by side, and provided with four valve-seats, a single pipe or passage C, leading to the engine-cylinders, to which both valve-chambers are connected, a pair of independently moving valves, each having two heads and means, substantially as described, for operating the valves, successively or dis-simultaneously, the organization being such that a sufficient amount of steam is first admitted to start the engine and then a larger amount of steam is admitted to continue the operation of the engine at high speed.

2. In combination with a steam dome, a throttle valve comprising two valve chambers and seats of substantially the same area, a pair of balanced valves of substantially the same area each having two heads, and arranged side by side and fitting said seats, and means, substantially as described, for operating the valves successively or dis simultaneously.

3. The combination of a steam dome, the engine cylinders, a throttle valve in the steam dome and connected with the cylinders, said throttle valve comprising two valve seats and chambers of substantially the same area and arranged side by side, and means, substantially as described, for operating the valves successively or dis-simultaneously.

4. In combination with a steam dome, a throttle valve comprising a pipe or chamber F, having an enlarged top portion *f*, provided with four separate valve seats each of comparatively small area, two valves each having two heads for said seats, means for operating the valves successively or dis-simultaneously, and a single pipe to which the steam admitted by both valves passes.

5. The combination of the valve chambers and seats, two valves, a cross head to which they are connected, a link connected to the cross head between the valve stems and closer to one valve than to the other, a stop or fulcrum against which the shorter end of the cross head strikes, and connections between the link and an operating lever.

6. The combination of the valve chambers and seats, two valves, a cross head pivotally connected with the valves, the link pivotally connected with the cross head between its connection with the valves, and means for moving the link toward and from the valve chambers.

493,887. THILL-TUG. MAYNE POTTER, Orange, N. J. Filed June 30, 1892. Serial No. 438,495. (No model.)



Claim.—1. A thill tug composed of a fixed jaw concaved for the thill and a laterally swinging movable jaw which has a tapering inner side for engagement with the thill, substantially as specified.

2. A thill tug composed of a bar having a lower fixed jaw, concaved for the thill an upper movable jaw and a tapering pad secured to the inner face of the movable jaw, substantially as specified.

3. The combination of bar *a*, provided with loops *a'*, pins a^2, and lower jaw *c*, having a concave upper edge with an eccentrically pivoted upper jaw *d*, having a convex lower edge and a groove d^3, and with a tapering pad *e*, within said groove, substantially as specified.

493,888. HAME-FASTENER. MAYNE POTTER, Orange, N. J. Filed Oct. 18, 1892. Serial No. 449,268. (No model.)



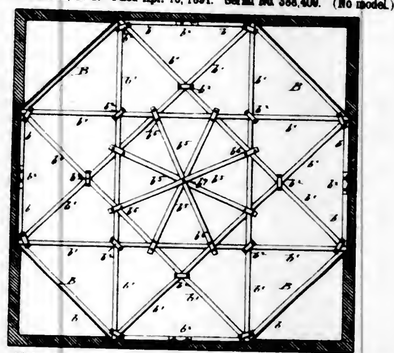
Claim.—1. The combination of link *c*, having handle *c'*, and notches c^3, c^4, with a pair of hooks pivoted to such link and having flanges a^3, b^3, adapted to be received by said notches, substantially as specified.

2. The combination of link *c*, having handle *c'*, and notches c^3, c^4, with a pair of hooks pivoted to such link and having the shoulders a^3, b^3, and the flanges a^3, b^3, substantially as specified.

3. The combination of link *c* having grooved handle *c'* with a pair of hooks pivoted to such link and having flanges a^3, b^3, adapted to engage opposite ends of the link, substantially as specified.

4. The combination of link *c*, having a grooved handle *c'*, and notches c^3, c^4, with a pair of hooks pivoted to such link and having the shoulders a^3, b^3, and the flanges a^3, b^3, substantially as specified.

493,889. FIREPROOF FLOOR OR ROOF. NIELS POULSON, Fort Hamilton, N. Y. Filed Apr. 10, 1891. Serial No. 388,409. (No model.)



Claim.—1. A metallic skeleton-frame for floors and roofs, composed of arched intercrossing bars, each of which is supported at its ends, substantially as set forth.

2. A metallic skeleton-frame for floors and roofs, composed of arched intercrossing bars that are tied together at their crossings and supported at each end, substantially as set forth.

3. A metallic skeleton-frame for floors and roofs, composed of a polygonal base frame and arched inter-crossing bars connecting the corners of the base-frame, substantially as set forth

4. A metallic skeleton-frame for floors and roofs, composed of a polygonal base-frame, arched inter-crossing bars connecting the corners of said base frame and tie-clasps for connecting the arched bars at their points of crossing, substantially as set forth.

5. A metallic skeleton-frame for fireproof floors and roofs, composed of a polygonal base-frame, arched braces connecting the corners of the base-frame, and diametrical bars connecting the inner intersections of the braces, substantially as set forth.

6. In a fireproof floor or roof, a metallic skeleton-frame, formed of a polygonal base, arched braces connecting the corners of said base, clasps for connecting the braces at their points of intersection, and diametrical bars connecting the corners of the polygonal figure inclosed by said braces, substantially as set forth.

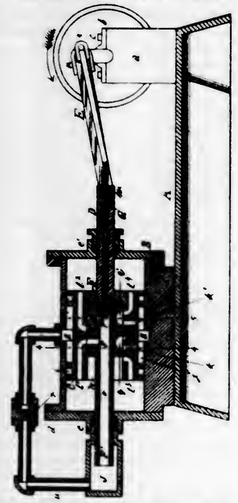
7. A metallic skeleton-frame for fireproof floors and roofs, composed of a polygonal base-frame, arched braces connecting the corners of the base-frame, clasps at the intersections of the braces, diametrical bars connecting the inner intersections of the braces, braces connecting the ends of said bars to the braces, and a central tie-bolt for the diametrical bars, substantially as set forth

8. A fireproof floor or roof, composed of a metallic skeleton-frame, panels supported by the members of said frame, cement-ribs above the main-braces of said frame, and a layer of cement extending over the cement ribs, substantially as set forth.

9. A fireproof floor or roof consisting of metallic skeleton frame, panels supported by the members of said frame, cement-ribs above the main-braces of said frame a wire-netting stretched over the cement-ribs, and a layer of cement extended over the netting and the center of the frame, for supporting the floor, substantially as set forth.

10. A fireproof floor or roof, composed of a metallic skeleton-frame formed of a polygonal base, arched braces connecting the corners of said base, and diametrical center bars connecting the intersections of said braces, panels supported on said frame, cement-ribs formed above said braces, a wire-netting extending over the cement-ribs, and a layer of cement extending over the netting and the center-bars of the frame, said cement-layer forming the foundation for the floor, substantially as set forth.

498,840. STEAM OR PNEUMATIC ENGINE. JAY W. POWERS, Chicago, Ill. Filed June 23, 1892. Serial No. 437,763. (No model.)



Claim.—1. In a steam or pneumatic engine, the combination with the cylinder, and a steam or air pipe entering the side thereof, of a chambered piston head having suitable ports and passages, and a valve having an enlarged portion operating within the chamber of said piston head and formed with suitable ports and passages, and its remaining portion extending through the end of the cylinder and formed with a longitudinal duct extending from end to end of it said duct communicating at its inner end with said ports in the enlarged portion, substantially as specified.

2. In a steam or pneumatic engine, the combination with the cylinder, a chambered piston therein having suitable ports and passages, and a valve having an enlarged portion operating within the chamber of said piston and formed with suitable ports and passages, and its remaining portion extending through the end of the cylinder and formed with a longitudinal duct extending from end to end of it, said duct communicating at its inner end with said ports in the enlarged portion, of a four way cock connected with said cylinder and serving to start, stop or reverse the engine substantially as described.

3. In a steam or pneumatic engine, the combination with the cylinder, a steam or air pipe entering the side thereof, a steam or air chamber at the end of said cylinder, and a steam or air pipe entering the steam or air chamber, of a chambered piston in said cylinder, having suitable ports and passages, and a valve having an enlarged portion operating within the chamber in said piston and its remaining portion extending through the end of the cylinder into said steam or air chamber, said enlarged portion of the valve having ports and passages, and said remaining portion having a longitudinal duct communicating with said ports, substantially as described and for the purposes specified.

4. In a steam or pneumatic engine, the combination with the cylinder having a steam or air chamber at one end, and a four way cock connected by separate pipes with the cylinder and with the steam or air chamber, said pipe serving for the supply and exhaust to, and from, the engine, said cock also having pipes for the feed and escape of steam or air to and from it, of a chambered piston in said cylinder having suitable ports and passages, and a valve having an enlarged portion operating within the chamber in said piston, and its remaining portion extending through the end of the cylinder into the said steam or air chamber, said enlarged portion of the valve having suitable ports and passages, and said remaining portion having a longitudinal duct communicating with said ports, substantially as described and for the purposes specified.

5. In a steam or pneumatic engine, the combination with the cylinder having inlet and outlet ports, a chambered piston head movable longitudinally within said cylinder and having suitable ports and passages, a valve operating within the chamber in the piston head and having suitable ports and passages, and a shaft having a compound crank, to one of the crank portions of which said piston is connected and to the other of the crank portions of which said valve is connected, the crank operating the piston having a greater throw than the crank operating the valve, substantially as described, whereby both the piston head and valve will be acted upon by the motive fluid and both will transmit motion to said shaft, as specified.

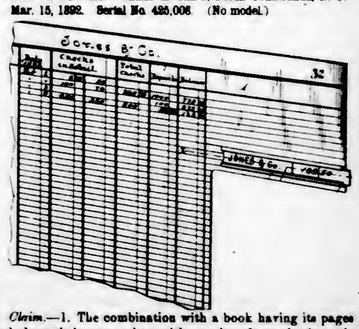
6. In a steam or pneumatic engine, the combination of the cylinder, a steam or air pipe entering the side thereof, a chambered piston in said cylinder, having suitable ports and passages, and a valve having an enlarged portion operating within the chamber in said piston, and formed with suitable ports and passages, and its remaining portion extending through the end of the cylinder, and formed with a longitudinal duct communicating with the ports in said enlarged portion of a compound crank, to one of the crank portions of which said piston is connected, and to the other of the crank portions of which, said valve is connected, the crank operating the piston, having a greater throw than the crank operating the valve, as and for the purposes specified.

7. In a steam or pneumatic engine, the combination with the cylinder having a steam or air chamber at one end, a steam or air pipe entering the side of said cylinder, and a steam or air pipe entering the steam or air chamber, of a chambered piston in said cylinder, having suitable ports and passages, a valve having an enlarged portion operating within the chamber in said piston and its remaining portion extending through the end of the cylinder into said steam or air chamber, said enlarged portion of the valve having suitable ports and passages, and said remaining portion having a longitudinal duct communicating with said port in the enlarged portion, and a compound crank, to one of the crank portions of which, said piston is connected, and to the other of the crank portions of which said valve is connected, the crank operating the piston, having a greater throw than the crank operating valve, as and for the purposes specified.

8. In a steam or pneumatic engine, the combination with the cylinder having an air chamber at one end, a steam or air pipe entering the side of said cylinder, a steam or air pipe entering said steam or air chamber, and a four way cock connecting said pipes, said cock also being provided with pipes for the feed to it or the escape from it of steam or air, of a chambered piston in said cylinder, having suitable ports and passages, a valve having an enlarged portion operating within the chamber in said piston and its remaining portion extending through the end of the cylinder into the said steam or air chamber, said enlarged portion of the valve having suitable ports and passages, and said remaining portion having a longitudinal duct communicating with said ports in the enlarged portion, and a compound crank, to one of the crank portions of which said piston is connected and to the other of the crank portions of which said valve is connected, the crank operating the piston having a greater throw than the crank operating the valve as set forth.

9. The combination with the cylinder of a steam or pneumatic engine, of a piston operating therein, said piston having a longitudinal chamber *h* closed at one end, a circumferential groove *j*, ports *k* and *k'* connecting said chamber and groove, and ducts l l^2 l^3 and l^4 extending inward from opposite ends of said piston to said chamber, and a valve operating in said chamber in the piston, said valve having a longitudinal duct *o* two ports *p* and *p'* with which said ducts communicate, and arranged so as to alternately register with said ducts l and l^2 of the piston, and external recesses *q* and *q'* arranged to alternately register with said ports *k* and *k'* and ducts l^3 and l^4 of the piston, all substantially as shown and described.

498,841. COMBINED INDEX AND BALANCE-INDICATOR FOR ACCOUNT-BOOKS. JAMES H. RAND, North Tonawanda, N. Y. Filed Mar. 15, 1892. Serial No. 425,008. (No model.)



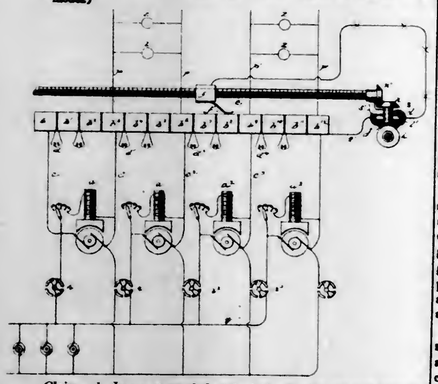
Claim.—1. The combination with a book having its pages provided along their outer edges with a series of open horizontal pock-

ets or holders arranged substantially one below the other, whereby the several pockets form a vertical row in which every pocket is exposed upon opening the cover of the book, of a name card adapted to be placed in each of said holders, and a separate balance indicating card also arranged in each holder and adapted to be changed as the balance of the corresponding account changes, substantially as set forth.



2. A ledger or similar account book having its pages provided with marginal holders or pockets for receiving index and balance indicating cards, the several holders being arranged one below the other and the marginal portions of the leaves of the book being properly cut out to expose the cards in the various holders, substantially as set forth.

493,842. ELECTRIC-LIGHTING SYSTEM. SAMUEL W. RUSHMORE, Brooklyn, N. Y. Filed Feb. 7, 1891. Serial No. 380,692. (No model.)



Claim.—1. In a system of electrical distribution the combination of two or more electrical generators, means for connecting them in series, a circuit containing translating devices arranged in series supplied by said generators, and devices controlled by the current in the said series circuit for connecting more or less of the said generators in the series whereby a constant current is maintained in the circuit under changes in the number of translating devices in circuit, substantially as set forth.

2. In a system of electrical distribution, the combination of two or more dynamo-electric machines, means for connecting them in series, a circuit of translating devices supplied thereby, and means controlled by the current for progressively reducing the potential of individual machines and successively removing such machines from the series circuit and, vice versa, successively replacing machines in the circuit and increasing their potential, substantially as set forth.

3. In a system of electrical distribution, the combination of two or more dynamo electric machines, means controlled by the current for connecting them successively in series, and a series circuit of translating devices one terminal of which is connected with a terminal of the series of dynamos while the other terminal is adapted to be connected either with the opposite terminal of the series of dynamos or with the terminals of intermediate dynamos of the series, and means controlled by the current to automatically change the connection of the latter terminal, whereby the number of dynamos in series may be varied to maintain a constant current in the circuit, substantially as set forth.

4. In a system of electrical distribution, the combination of two or more electrical generators, means for connecting them in series, a range of separated contacts, connections from the terminals of the series to the end contacts, intermediate connections from between the generators with intermediate contacts, and a circuit of translating devices, one terminal of which is connected with an end contact and the other terminal movable from one to another of the range of contacts, substantially as set forth.

5. The combination of two or more electrical generators, means controlled by the current for connecting the generators successively in series, a circuit of translating devices supplied in series thereby, and constant potential circuits supplied by individual generators of the series, substantially as set forth.

6. The combination, in a system of electrical distribution, of several generators connected or adapted to be connected in series to series circuit of translating devices, switches having contacts, and switch arms or devices for connecting the generators in series in said circuit, said switches having additional contacts connected to a multiple arc circuit of translating devices, said switch arms or devices being constructed so that they can close the multiple arc circuit only after the series circuit is broken, substantially as described.

7. In a system of electrical distribution, the combination of two or more electrical generators, means for connecting them in series, a circuit containing translating devices arranged in series supplied by said generators, devices controlled by the current in the said series circuit for connecting more or less of the said generators in the series, and means for removing the dynamos from their series relation on the constant current circuit and for throwing the generators into multiple on a constant potential circuit, substantially as described.

8. The combination of a number of electrical generators, means for connecting them in series, a range of separated contacts, connections from the terminals of the series to the end contacts, intermediate connections from between the generators to intermediate contacts, constant potential circuits connected with the said intermediate contacts whereby they receive the potential of individual generators, and a circuit of translating devices in series, one of whose terminals is connected with an end contact and the other terminal of which is movable from one to another of the range of contacts, substantially as set forth.

9. The combination of a number of generators, means for connecting them in series, the range of contacts with which said generators are connected, the series circuit of translating devices having a terminal movable on said contacts, and the resistances connecting contacts with which generators are connected to adjacent contacts, substantially as set forth.

10. In a system of electrical distribution, the combination of a series of generators, a series circuit of translating devices connected across the terminals of the series of generators, automatic means for changing the current in the series circuit, by varying the number of generators in series intermediate conductors extending from between generators of the series, and translating devices connected in multiple arc between conductors of the series circuit and said intermediate conductors, and also between pairs of intermediate conductors, substantially as set forth.

11. In a system of electrical distribution, the combination of a series of generators, a series circuit of translating devices connected across the terminals of the series of generators, translating devices connected in multiple arc across the terminals of individual generators of the series, and means controlled by the current for varying the number of generators included in the series circuit, substantially as set forth.

12. In a system of electrical distribution, the combination of a series of generators, a series circuit of translating devices connected across the terminals of the series of generators, translating devices

connected or adapted to be connected in multiple arc across the terminals of individual generators of the series, means for regulating the individual generators, and means controlled by the current for varying the number of generators included in the series circuit, and means for disconnecting the series circuit and connecting one or more of the generators in multiple to the multiple arc circuit, substantially as set forth.

13. In a system of electrical distribution, the combination of a series of generators, two or more series circuits of translating devices connected with said generators in multiple arc to each other, and means controlled by the current in the series circuits for varying the number of generators in series, in each circuit, substantially as set forth.

14. In a system of electrical distribution, the combination of a series of generators, two or more series circuits of translating devices connected with said generators in multiple arc relation to each other, and means controlled by the current in the circuits for varying the number of generators in series for varying the potential of individual generators, substantially as set forth.

15. In a system of electrical distribution, the combination of a series of generators, a range of contacts to whose extremities are connected the terminals of the series of generators, intermediate connections from between the generators to intermediate contacts, and two or more series circuits of translating devices each connected at one terminal with the end of the range of contacts and each having its other terminal movable from one to another of the range of contacts, substantially as set forth.

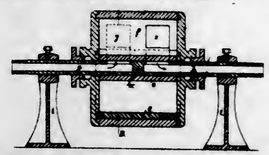
16. In a system of electrical distribution, the combination of a series of generators, a range of contacts to whose extremities are connected the terminals of the series of generators, intermediate connections from between the generators to intermediate contacts, two or more series circuits of translating devices all connected at one terminal with the end of the range of contacts and each having its other terminal movable from one to another of the range of contacts, and an electrically controlled device in each circuit controlling the position of the said movable terminals respectively upon the range of contacts, substantially as set forth.

493,843. DENTAL PLATE. JOHANNES A. A. SCHOONDERMARK, Leeuwarden, Netherlands. Filed July 5, 1892. Serial No. 439,031. (No model.)



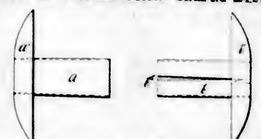
Claim.—The method of manufacturing artificial palates or dental plates, consisting in pressing the plate or foil which constitutes the material for said palate, between two molds or dies, the positive being obtained by forming an electro-deposit of copper on an impression-mold taken by means of a plastic mass, and by impressing this copper-mold into molten metal, and the negative being obtained by casting some metal into the copper-mold, substantially and for the purpose as described.

493,844. ROTARY MOTOR OR PUMP FOR STEAM, WATER, OR COMPRESSED AIR. FERDINAND SCHRÖDER, Pritzwalk, Germany. Filed May 6, 1892. Serial No. 433,041. (No model.)



Claim.—In a power machine or pump for steam, water or compressed air having rotating cylinders, the combination of an outer cylinder *a* turning round a hollow shaft *d*, with an inner cylinder *c* which is guided eccentrically in the front sides *b* of the outer cylinder and is adjustable by means of rings *r* provided with an eccentrical groove, and which with its outer surface closes tightly to the inner surface of the outer cylinder *a*, and to the outer surface of the cylinder *c*, and with a stationary hollow shaft *d* divided by a cross-piece *x* in two hollows *g* and *h*, and being provided with a stationary wing *f* entering through a slit of the cylinder *c*, and with two canals *y* and *z*, of which canals, on the one side *y* is in communication with the hollow *g*, and on the other side, *z* is in communication with the hollow *h* of shaft *d*; substantially as set forth.

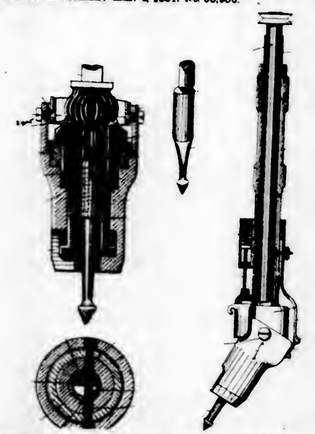
493,845. BOBBIN FOR SEWING-MACHINES. JOHN SCOTT, Willimantic, Conn. Filed Mar. 9, 1892. Serial No. 424,278. (No model.)



Claim.—1. The shell for holding a thread bobbin or cop consisting of the hollow flanged open ended outer thimble or barrel of unbroken cylindrical form, and the hollow flanged open-ended inner thimble adapted to fit within the said outer unbroken cylindrical thimble or barrel and split longitudinally to permit it to contract under pressure within the outer barrel, substantially as set forth.

2. The shell for holding a thread bobbin or cop consisting of the hollow flanged outer thimble or barrel having its bore slightly tapered, and the hollow flanged inner thimble adapted to fit within the outer thimble or barrel and split longitudinally to permit it to contract and fit the tapered interior of the outer barrel when pressed therein, substantially as set forth.

493,846. DENTAL BORING APPARATUS. JAMES WEBER and HUGO HAMPEL, Berlin, Germany, assignors of one-half to Joseph Davidsohn, same place. Filed Jan. 4, 1892. Serial No. 416,994. (No model.) Patented in Germany Mar. 4, 1891. No. 60,956.



Claim.—1. In a dental boring apparatus: the combination, with the hinged parts *r f* of the casing, of the cover *l* hinged to the front part *f*, the corrugated elastic strap *a*, engaging with corrugation *s* on the rear part *r*, the screw *e* and nut *n*, substantially as and for the purpose described.

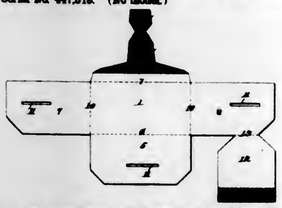
2. In a dental boring apparatus: the combination, with the hinged parts *r f* of the casing, of the tube *u*, rod *o'*, having broad front end, and spring *u'*, substantially as and for the purpose described.

3. In a dental boring apparatus: the combination, with the bit *b*, having a semicircular end portion, and a notch *m*, of a sleeve *s'* inclosing the bit and having two longitudinal slots *x'*, and a semicircular opening in the bottom, of the sleeve *s*, inclosing sleeve *s'*, having two lateral holes *z* and carrying the toothed wheel *w'*, of the collar *c'*, inclosing sleeve *s*, of the pin *v*, passing through collar *c'*, holes *z* and slots *x'*, and of the spring *g*, tending to thrust apart the sleeves *s* and *s'*, substantially as and for the purpose described.

4. In a dental boring apparatus: the combination, with the bit *b*, having a semicircular end portion, and a notch *m*, of the sleeve *s'* inclosing the bit, and having two longitudinal slots *x'*, and a semicircular opening in the bottom, of the sleeve *s*, inclosing sleeve *s'*, having two lateral holes *z* and carrying the toothed wheel *w'*, of the collar *c'*, inclosing sleeve *s*, of the pin *v*, passing through collar *c'*, holes *z* and slots *x'*, of the spring *g*, tending to thrust apart the sleeves *s* and

f', and the casing *f*, inclosing the sleeves *s* and *s'*, and provided with a notch *k*, substantially as and for the purpose described.

493,847. ENVELOPE. JOHN T. WHEELS, Red Lodge, Mont., assignor of one-half to Charles W. Harding, same place. Filed Sept. 29, 1892. Serial No. 447,313. (No model.)



Claim.—1. The herein-described envelope, consisting of the rectangular section 1, the folding bottom flap 5, the side flaps 8 and 9, each of which is provided with a corresponding slot which aligns when the flaps are folded upon the section 1, the sealing flap 2 at the upper edge of the section 1 and provided with a centrally extending tongue having a coating of mucilage and adapted to be inserted within the slots, and the guard flap 12 adapted to fold upon and extending from the lower edge of the side flap 8 and at its upper edge adapted to fold outward upon the flaps 8 and 9, substantially as specified.

2. The herein-described envelope, consisting of the main section 1, provided at its opposite ends with the flaps 9 and 8, the bottom flap 5 at the lower edge of the section 1, and corresponding slots 11 formed in the sections 8, 9 and 5, the sealing flap at the upper edge of the section 1 whose point is extended to form a tongue provided near its free end with an extension, the outer sides of the tongue and extension being coated with mucilage and adapted to be inserted into the slots 11, and the guard flap 12 secured to the lower edge of the flap 8 and provided at its free end with an extension edge adapted to fold over upon the side flaps and sealed thereto, substantially as specified.

3. The herein-described envelope, the front wall of which is provided with a transverse slot, and the sealing flap of which is provided with a central extension or tongue whose end is folded over upon itself and whose outer sides are provided with mucilaged surfaces adapted to enter the slot, substantially as specified.

493,848. LOCK-UP FOR PRINTERS' CHASES. FERDINAND WESEL, New York, N. Y. Filed June 11, 1892. Serial No. 436,330. (No model.)



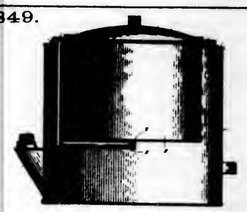
Claim.—The combination, with a printer's chase having a recess at its inner lower edge, of an L-shaped locking-bar extending along the inner wall of the chase, and set-screws passing through the wall of the chase for the purpose of adjusting the locking-bar, substantially as set forth.

493,849. STEAMER. GEORGE WILEY, Chicago, Ill., assignor of two-thirds to Francis Graham, same place, and Robert L. Moorhead, New York, N. Y. Filed Apr. 26, 1892. Serial No. 430,737. (No model.)

Claim.—1. A steamer comprising an outer vessel having at its top a threaded portion, an inner vessel provided at its top with vent openings and having a threaded portion to screw on the threaded portion of the outer vessel, an L-shaped tube arranged on the outside of the inner vessel and having its lower end communicating with same through the bottom thereof, and a cover provided with plugs to fit in the vent openings and having on its inner face a lining separated from it by a space and provided with an opening, substantially as described.

2. A steamer comprising an outer vessel having at its top a

493,849.



threaded portion, an inner vessel provided at its top with vent openings and having a threaded portion to screw on the threaded portion of the outer vessel, and a cover provided with plugs adapted to fit into the vent openings and to close the same and to enable the cover to engage and unscrew the inner vessel, substantially as described.

493,850. ART OF PRINTING. CHARLES B. WOODWARD, St. Louis, Mo. Filed Feb. 15, 1892. Serial No. 421,617. (Specimens.)



Claim.—1. The improvement in the art of printing from photo-engravings, lithographs, cuts, etchings or other plates which print shades or colors by means of shade or color-lines or marks having appreciable interruptions in or spaces between them, consisting in making successive impressions slightly out of register with each other, the lines or marks made by each successive impression falling wholly or partly into the interstices or spaces left blank between the shade lines, or marks of the prior impression or impressions.

2. The improvement in the art of printing from photo-engravings, lithographs, cuts, etchings or other plates which print shades or colors by means of shade or color-lines or marks having appreciable interruptions in or spaces between them, consisting in making successive impressions in different colors and slightly out of register with each other, the lines or marks made by each successive impression falling wholly or partly into the interstices or spaces left blank between the shade lines or marks of the prior impression or impressions.

3. The improvement in the art of printing from photo-engravings, lithographs, cuts, etchings or other plates which print shades or colors by means of shade or color-lines or marks having appreciable interruptions in or spaces between them, consisting in making successive impressions in different degrees of intensity and out of register with each other, the lines or marks made by each successive impression falling wholly or partly into the interstices or spaces left blank between the shade lines or marks of the prior impression or impressions.

4. The improvement in the art of printing, which consists in taking a heavy impression from a photo-engraving, lithograph, cut, etching or the like, to set or fix the picture, and taking one or more light duplicate impressions out of register with said first impression with ink of less body, substantially as and for the purpose described.

5. The improvement in the art of printing, which consists in taking a series of duplicate impressions in different colors or shades, out of register with one another, from a photo-engraving, lithograph, cut, etching or the like, water-proofing the picture so produced, and then polishing or burnishing the said picture to resemble photographic prints, substantially as and for the purpose described.

6. A picture comprising a number of impressions slightly out of register with one another, the marks or lines constituting one impression lying wholly or partly within the blank spaces between or interruptions in the lines or marks of the other impressions, and the different impressions lying too closely together to be readily distinguishable by the eye when the picture is viewed in the ordinary manner, whereby a blending of the different impressions is produced.

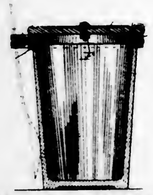
7. A picture comprising a number of impressions differing in shade or color and slightly out of register with one another, the marks or lines constituting one impression lying wholly or partly within the blank spaces between or interruptions in the lines or marks of the other impressions, and the different impressions lying too closely together to be readily distinguishable by the eye when the picture is

viewed in the ordinary manner, whereby a blending of the different impressions is produced.

8. A picture comprising a number of impressions, one heavy and the others light and slightly out of register with one another, the marks or lines constituting one impression lying wholly or partly within the blank spaces between or interruptions in the lines or marks of the other impressions, and the different impressions lying too closely together to be readily distinguishable by the eye when the picture is viewed in the ordinary manner, whereby a blending of the different impressions is produced.

9. A picture comprising a number of impressions slightly out of register with one another, the marks or lines constituting one impression lying wholly or partly within the blank spaces between or interruptions in the lines or marks of the other impressions, the different impressions lying too closely together to be readily distinguishable by the eye when the picture is viewed in the ordinary manner, and said picture having a suitable glaze whereby it is made to resemble photographs.

493,851. PRESCRIPTION-GLASS. JOHN O. ADAIR, Hornellsville, N. Y. Filed May 14, 1892. Serial No. 433,020. (No model.)



Claim.—1. A medicine glass cover and dose indicator, comprising the lid or cap provided with a dial and recessed to form a raised bead, and a rotatable disk for covering the dial formed with an opening located to expose the hours of the dial as the disk is rotated over the dial and fitting in said recess inside of said bead, which forms a protecting shield to the edge of the disk, substantially as and for the purposes described.

2. A combined medicine glass cover and dose indicator, and spoon holder, comprising the lid or cap provided with a dial, a rotatable disk having an erasible surface inscribed with indicia for the dose and frequency with which it is to be taken and formed with an aperture located so as to expose to view the hours of the dial as the disk is rotated over the same for the purpose of indicating when the next dose is to be taken, and a band to encircle the medicine glass, said band having the lid or cap hinged thereto and formed with a spoon support, substantially as and for the purposes described.

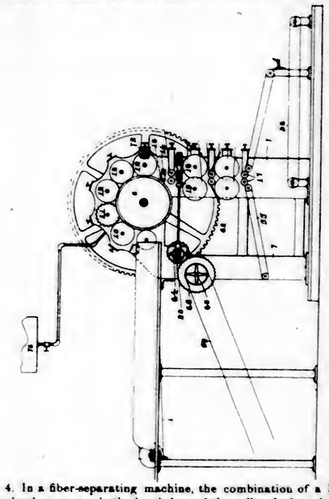
3. In a medicine glass cover and dose indicator, the combination with the lid or cap, of a band having the lid, or cap hinged thereto and formed with laterally extending ears having their ends separated for the insertion of a spoon and constituting a support for the spoon, substantially as and for the purposes described.

493,852. FIBER-SEPARATING MACHINE. SAMUEL B. ALLISON, New Orleans, La., assignor to the American Fibre Company, same place. Filed May 13, 1892. Serial No. 432,880. (No model.)

Claim.—1. In a fiber-separating machine, the combination of the plain surfaced steam drum, the circumferentially corrugated roller 10 to peel the fiber from the woody part of the stalk and the lengthwise corrugated roller 11 to break the wood transversely, both rollers being adapted to press the stalks upon the smooth surface of the drum, and steam heated pressure rollers 12 supported to revolve near said drum for drying and heating the material and for pressing it into a flat sheet after the fiber is peeled from the woody part and the latter is broken; substantially as set forth.

2. In a fiber-separating machine, the combination of the steam drum, the drying rollers, the scraping plate and guide, the reciprocating blades, a pair of holding rollers situated between the blades and the drying rollers and hackling blades whereby the material is flattened, heated, separated from the drum, guided to the hackling blades below and held between said blades and scraping plate; substantially as set forth.

3. In a fiber-separating machine, the combination of the horizontal blades, the eccentric shaft, the eccentric provided with slots, the bearing for the shaft in said slots grooved to embrace the walls of the same, and devices for holding the said bearings at different points in the slot the said devices consisting of removable filling pieces 31, said pieces and the bearing filling the slots, whereby said bearing may be held on two sides directly and on two sides mediately by the walls of the slots and whereby the extent of the movement of the blades may be varied by transferring some of said pieces to the opposite side of the bearing; substantially as set forth.



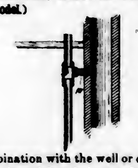
4. In a fiber-separating machine, the combination of a hollow roller having a recess in the head thereof, the roller shaft, and a bearing for said shaft situated in the machine frame and provided with an inwardly flared extension within said recess in the roller head and surrounding the shaft within the head to guide liquids away from the interior of the roller; substantially as set forth.

5. In a fiber-separating machine, the combination of the horizontal interlapping blades having vertical openings constituting a passage for the fiber, detachable teeth situated adjacent to said openings, and devices for reciprocally moving the blades, said teeth or a part of them being outside said passage in the open position of the blades whereby they are stripped of the fiber at every reciprocation; substantially as set forth.

6. In a fiber-separating machine, the combination of the horizontal interlapping blades provided with openings for the passage of fiber, holders for said blades, elastic packing between the blades and the holders, and devices for reciprocally moving the blades; substantially as set forth.

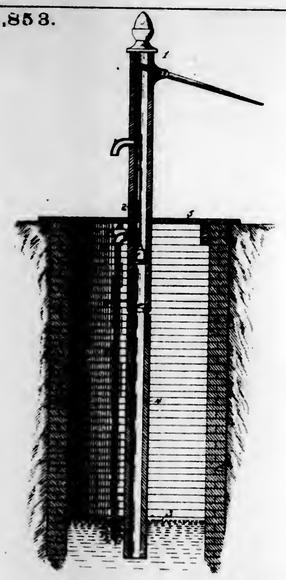
7. In a fiber-separating machine, the combination of brushing rollers for removing refuse from the fiber, the holding rollers situated below them and the outwardly inclined plates each situated on the outside of a holding roller, and the brushing rollers below said holding rollers, the said plates extending laterally as far as the brushing rollers to guide falling material and prevent it falling upon the said lower brushing rollers; substantially as set forth.

493,853. MEANS FOR AERATING AND PURIFYING THE WATER OF WELLS, &c. JOHN H. ARMSTRONG, Duquoin, assignor of one-half to W. C. Russell, Perry County, Ill. Filed Apr. 21, 1892. Serial No. 430,080. (No model.)

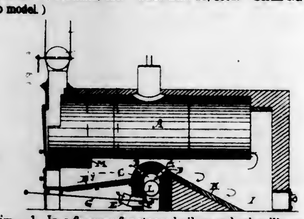


Claim.—The combination with the well or cistern 3 and the pump having the chamber or barrel 2 and pipe 4, of the return pipe 6 connected directly with said barrel below the spout, extending below the surface of the water, and having the air inlet-opening 7 independent of and above the opening through which water enters said pipe 6 and past which opening 7 the water flows through said pipe, whereby air is sucked into the latter, substantially as set forth.

493,853.



493,854. FURNACE FOR BURNING COAL-SCREENINGS. FRANK L. BARTLETT, Portland, Me. Filed Mar. 25, 1892. Serial No. 426,330. (No model.)



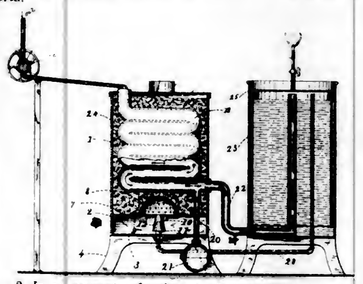
Claim.—1. In a furnace for steam boilers and other like purposes, the combination of a perforated grate, a hollow bridge wall forming an air chamber, perforations at the top of said bridge wall for supplying a hot blast from the upper part of said air chamber, an opening through the lower portion of said bridge wall beneath said grate for discharging the cooler air from said air chamber, substantially as described.

2. The herein described method of burning fine coal under steam boilers consisting of spreading the coal in a thin layer over a perforated grate, forcing an air blast beneath said grate sufficient to lift the fine coal dust from said grate, blowing jets of heated air into the suspended coal dust immediately after it leaves said grate and burning it while held in suspension, and slowly drawing off the products of combustion through the stack, substantially as described.

3. In a furnace for steam boilers and other like purposes, the combination of a finely perforated grate, an air blast apparatus for delivering air under pressure beneath said grate, a bridge wall having air discharge openings therein and a gradually enlarging or expanding chamber in rear of said bridge wall extending without substantial diminution of section to the rear of the furnace, substantially as described.

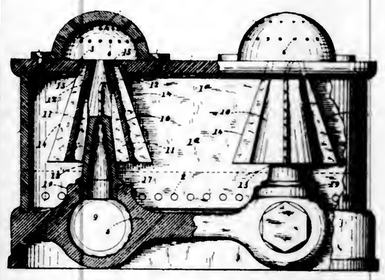
493,855. APPARATUS FOR THE MANUFACTURE OF GAS. ALLAN T. BENNETT, Chicago, Ill. Filed Apr. 29, 1892. Serial No. 431,128. (No model.)

Claim.—1. In an apparatus for the manufacture of gas from oil, the combination with a furnace or retort holding receptacle, provided with a horizontal partition plate near the bottom, forming an apartment between it and the bottom, of a perforated cap secured to the upper surface of the partition, an oil mixer and gas burner in said apartment, a retort located in the receptacle having an inlet and outlet, a covering of imitation fuel in the receptacle around the retort and a gasometer connected with the outlet, substantially as set forth.



2. In an apparatus for the manufacture of gas from oil, the combination with a furnace or retort holding receptacle, of a series of retorts arranged therein, each of which has an inlet and outlet pipe, a valve case connected with the inlet pipes and a gasometer connected with the outlet pipes, a rotary valve within the case in the form of a key shaft and having a series of pockets arranged spirally around the same, each one of the pockets being adapted to communicate with the oil supply pipe, and with one of the inlet pipes to the retorts, and means for rotating the valve and heating the retort, substantially as set forth.

493,856. GAS-BURNER. ALLAN T. BENNETT, Chicago, Ill. Filed Apr. 29, 1892. Serial No. 431,129. (No model.)



Claim.—1. In a burner for heating purposes, the combination with a burner inclosing case having an upper combustion and mixing chamber, and a lower air chamber, a gas burner located in the lower chamber, a sleeve provided with inner projecting ribs by which it is kept central on the burner and having their top ends incline over to one side for the purpose of heating and causing a rotation of the air as it issues from the sleeve, and the products of combustion from the burner, outside wings radially projecting from the sleeve and having their tops inclined to one side to heat and cause a rotation of the air as it passes up from the lower chamber, a burner plate secured to the top of the case and having a hollow perforated burner secured at the top and inclosing the mixing and combustion chamber, for the purposes described.

2. A gas burner for heating purposes, having a tapering sleeve mounted thereon, a series of ribs on the inner and outer sides of said sleeve having their upper ends curved to one side, for increasing the heating surface and causing the air and products of combustion to rotate as they issue from the sleeve, in combination with a burner plate located at the top of the inclosing case, an opening through the burner plate having a corrugated opening into which the top of the sleeve projects, the corrugations inclining one way to assist in rotating the air and gas as they pass into said opening, and a hollow perforated burner secured to the top of the burner plate and inclosing a mixing and combustion chamber, substantially as described.

493,857. DRILL-CHUCK. CHARLES H. BILLINGS, Hartford, Conn. Filed May 10, 1892. Serial No. 432,473. (No model.)

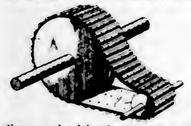


Claim.—1. In a drill-chuck, the combination with the body bored longitudinally to receive the drill-shank, and having therein a transverse cylindrical bore for receiving the chuck-jaws, of a pair of cylindrical chuck jaws fitted to slide in said bore and having segmental internal threads on one side thereof, and the combined actuating-screw and guide-key seated in the chuck-body and engaging in the threaded grooves in the sides of said jaws, whereby the jaws are oppositely actuated and are held from rotation by the same element, substantially as described.

2. In a chuck, the combination with a chuck-body substantially as described, of two pairs of cylindrical chuck-jaws one forward of the other, the forward pair constructed to fit and hold straight shank drills and the rearward pair to fit and hold taper-shank drills, and means for actuating said pairs of chuck-jaws independently of each other, substantially as described.

3. In a drill-chuck, the combination with a chuck-body substantially as described, of the cylindrical chuck-jaws D and D' constructed with recesses on their shank-engaging faces to fit and hold taper-shank drills, and having rearward of said recesses flat faces, constructed for engaging the flatted projecting ends of said shanks, and means for actuating said jaws in opposite directions, respectively, substantially as described.

493,858. TRANSMISSION OF POWER. THOMAS A. EDISON, Llewellyn Park, N. J. Filed Aug. 28, 1890. Serial No. 363,256. (No model.)



Claim.—1. A pulley or wheel having one or more circumferential magnet windings and provided with exposed circumferential surfaces of opposite polarity on the opposite sides of each of said windings, in combination with an endless belt, passing over said pulley or wheel, and held thereto by magnetic attraction, substantially as set forth.

2. The combination with a pulley or wheel provided with one or more circumferential windings, and having exposed circumferential surfaces of opposite polarity at the sides of the windings, of an endless belt passing over the said pulley or wheel, and armatures or keepers closing the magnetic circuit around the winding or windings and acting to increase the adhesion between the pulley or wheel, and the belt, substantially as set forth.

3. The combination with a pulley or wheel having one or more circumferential magnet windings and exposed circumferential surfaces of opposite polarity, of an endless belt of magnetic material passing over said pulley or wheel and closing the magnetic circuit around the winding or windings, substantially as set forth.

4. The combination with a pulley or wheel made magnetic by a suitable winding, of a belt constructed of thin, steel strips riveted together, substantially as set forth.

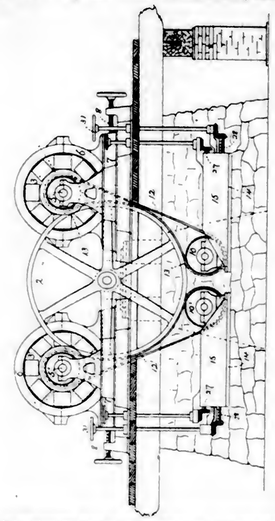
5. The combination with a pulley or wheel made magnetic by a suitable winding, of a belt constructed of a number of thin strips of steel riveted together and provided with cross bars of iron secured externally thereto, substantially as set forth.

6. The combination with a pulley or wheel having two or more circumferential windings and provided with three or more exposed circumferential surfaces of alternating polarity, of an endless belt, passing over said pulley or wheel and held thereto by magnetic attraction, substantially as set forth.

493,859. MECHANISM FOR TRANSMITTING MOTION. GEORGE F. EVANS, Somerville, Mass. Filed Apr. 28, 1892. Serial No. 430,967. (No model.)

Claim.—1. In combination with a rotary driving pulley, a revoluble driven pulley upon a countershaft adjustable with respect to the main shaft, an auxiliary pulley adjustable both vertically and horizontally with respect to the driving pulley, a belt which encircles both driven pulleys and passing between them and the driving pulley, and adapted to be gripped thereby, together with mechanism for adjusting the position of the auxiliary pulley, substantially as specified.

2. The combination with a continuously rotary driving pulley, an adjustable driven pulley, a band which encircles said driven pulley and to be gripped between the two, of an auxiliary driven pulley likewise encircled by the band and adapted to co-operate with the driving pulley to grip said band, together with mechanism for adjusting said auxiliary pulley, composed of a stationary bed plate, a rocking standard thereon for horizontal movement, a journal carriage for vertical movement, together with mechanism for actuating the several elements and holding them as desired, substantially as stated.



3. In mechanism for transmitting motion, a rotary driving pulley, a driven pulley adjustably mounted with respect thereto and adapted to grip with said driving pulley an endless band, combined with an auxiliary driven pulley, the endless band adapted to encircle both driven pulleys and be gripped at the tangent points of said pulleys with said driving pulley, together with mechanism for controlling the position of the auxiliary driven pulley, composed of a stationary bed-plate 14 the screw-actuated standard tapered at its rear end, and oscillated by screws 20, the inclined guide ways 18, a journal carriage mounted in said guide ways, the screw rod with its nut for causing the rise and fall of said carriage, and a slotted boss 24 on the standard, to allow movement of the nut 26, substantially as and for the purposes specified.

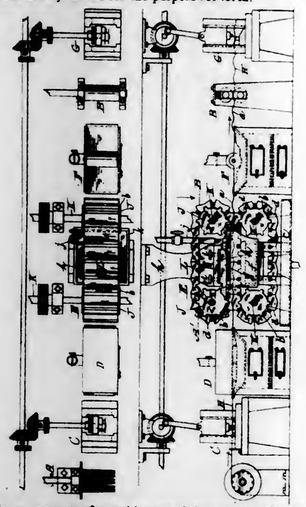
493,860. MACHINERY FOR MAKING METAL SHOE-SHANK STIFFENERS. EDGAR E. FAY, Worcester, Mass. Filed Apr. 20, 1892. Serial No. 429,836. (No model.)

Claim.—1. An apparatus for making metal shoe-shank stiffeners, comprising, in combination, the following elements,—a reel for holding the coil of wire, a punching machine for punching the holes coming at the end of each completed stiffener, a furnace for heating the wire preparatory to bending the same into the form of the stiffeners; mechanism substantially as described for forming said bends; means for cooling or hardening the wire as it is bent; a furnace for tempering the wire; feed rolls for drawing the wire from the aforesaid reel through the machine, and a cutting machine for severing the completed stiffeners successively from the forward end of the strand, as fast as fed forward by a continuous or intermittent, automatic operation, substantially as set forth.

2. In an apparatus for making metal shoe shank stiffeners bending mechanism consisting of a pair of endless, linked blocks, fitted over suitable toothed, carrying rolls, arranged parallel at a short distance apart, and said linked blocks held in contact with the wire between, for a portion of the distance traversed by them, and having means for supplying a flow of water or oil over the same, to cool the wire, as described, in combination with a heating furnace, and a tempering furnace arranged, one at each side of said bending mechanism.

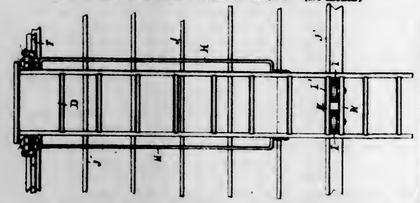
a suitable reel for holding the coil of wire to be operated upon, and suitable feed-rolls for drawing said wire through the apparatus, substantially as and for the purpose set forth.

3. In an apparatus for making metal shoe-shank stiffeners, bending mechanism, consisting of a pair of endless linked blocks fitted over suitable toothed carrying rolls arranged parallel at a short distance apart and said linked blocks held in contact with the wire between, for a portion of the distance traversed by them, and having means for supplying a flow of water or oil over the same, to cool the wire as described, in combination with a heating furnace and a tempering furnace arranged one at each side of said bending mechanism, a suitable reel for holding the coil of wire to be operated upon; a machine for punching the holes coming at each end of the completed stiffeners, and suitable feed-rolls for drawing said wire through the apparatus, substantially as and for the purpose set forth.



4. In an apparatus for making metal shoe shank stiffeners, bending mechanism consisting of a pair of endless linked blocks fitted over suitable toothed carrying rolls, arranged parallel at a short distance apart, and said linked blocks held in contact with the wire between, for a portion of the distance traversed by them and having means for supplying a flow of water or oil over the same, to cool the wire as described, in combination with a heating furnace and a tempering furnace arranged one at each side of said bending mechanism, a suitable reel for holding the coil of wire to be operated upon suitable feed-rolls for drawing said wire through the apparatus, and a cutting machine for severing the stiffeners successively from the front end of the strand as fast as fed forward, substantially as and for the purpose set forth.

493,861. STORE-SERVICE LADDER. HENRY FREES, Frostburg, Md. Filed Dec. 22, 1892. Serial No. 455,988. (No model.)



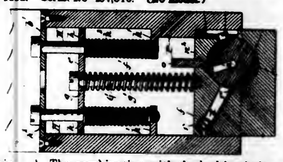
Claim.—1. In a store service ladder the frame consisting of the straps secured to the ladder one of said straps having its ends extending outside the ladder and bent in U form, the cross bars M secured in said bent ends and the wheels having bearings in said bars substantially as set forth.

2. In a store service ladder the panel fastened in the ladder, the cap secured on its upper end, the frame consisting of the straps secured to the panel and side bars of the ladder one of said straps having its ends extended outside the ladder and bent in U form, the cross bars M secured in said bent ends and the wheels having bearings in said bars substantially as set forth.

3. In a store service ladder the cross bars N constituting a ladder step and the fender wheels having journals in said bars substantially as set forth.

4. In a store service ladder the cross bars N constituting a ladder step and the fender wheels having journals in said bars inclined to the lengthwise direction of the side bars and having a diameter greater than their width in combination with a vertical bearing plate substantially as set forth.

493,862. TIME-LOCK. GEORGE J. H. GOEHLER, Buffalo, N. Y., assignor to the Cary Safe Company, Limited, same place. Filed June 20, 1892. Serial No. 437,316. (No model.)



Claim.—1. The combination with the locking bolt and the movable draw plate yieldingly connected with the bolt, of a safety locking mechanism connected with the bolt, whereby the bolt is locked against movement on the draw plate by a force externally applied, substantially as set forth.

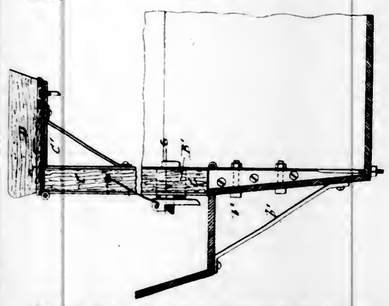
2. The combination with the locking bolt and the movable draw plate yieldingly connected with the bolt, of a tumbler arranged upon the bolt and adapted to lock the bolt against movement upon the draw plate, substantially as set forth.

3. The combination with the locking bolt and the movable draw plate yieldingly connected with the bolt, of a movable tumbler arranged upon the bolt and provided with a groove, and an abutment formed on the draw plate and adapted to engage either in the groove or against the edge of the tumbler, substantially as set forth.

4. The combination with the locking bolt, and the movable draw plate yieldingly connected with the bolt, of a safety tumbler arranged upon the bolt, and a spring and a stop whereby the tumbler is shifted in opposite directions, substantially as set forth.

5. The combination with the inclosing case, the locking bolt and the movable draw plate yieldingly connected with the bolt, of an oscillating tumbler disk arranged upon the bolt and provided with a groove extending from its periphery inwardly, an abutment formed on the draw plate, a spring whereby the tumbler disk is turned to bring its groove in line with the abutment, and a stop formed on the inclosing case and adapted to engage with the tumbler disk and shift the latter to bring its groove out of line with said abutment, substantially as set forth.

493,863. SEAT FOR WAGONS. CHARLES GOELLER, Elmont, N. Y. Filed Oct. 19, 1891. Renewed Sept. 28, 1892. Serial No. 447,105. (No model.)



Claim.—1. The combination with a wagon-body, of lower upright sections attached to the same, keepers at the upper ends of said sections, movable sections hinged to the lower sections and provided with fixed perforated tongues, locking-keys passing through said tongues in front of said keepers, and a seat hinged to the upper ends of the hinged sections and connected by suitable locking-devices, the same, substantially as set forth.

2. The combination with a wagon-body, of stationary standard-sections attached to the same, keepers arranged at the upper ends of said sections, movable sections hinged to the stationary sections, locking-tongues having apertures attached to said hinged sections, a seat hinged to the upper ends of the hinged sections, and means for locking the rear part of the seat to the rear-ends of the brackets, substantially as set forth.

493,864. BEEHIVE. JACKSON D. HAWKINS and FRANCES M. RAY, Temple, Tex. Filed Oct. 1, 1892. Serial No. 447,559. (No model.)



Claim.—1. In a bee hive, interchangeable sections containing comb-frames, each having bee entrances, and a bottom provided with bee passages, in combination with a removable supplemental cover composed of two parts, and an intermediate slide or valve having apertures or passages adapted to register or align with apertures or passages in said parts of said cover said supplemental cover being arranged between the sections, substantially as set forth.

2. In a bee hive, interchangeable sections containing comb-frames, each having bee entrances and a raised bottom provided with bee passages, in combination with a removable supplemental cover composed of two parts, one resting in the lower section upon the comb frames, and the other part in the upper section just below its raised bottom, and the apertured slide or valve sliding in a slot or seat between said parts of said cover, substantially as set forth.

3. The bee-hive, consisting of the separable sections containing comb frames, each having a raised bottom provided with bee passages, one side forming a door, and having a bee alighting platform and entrances, and a removable supplemental cover composed of two parts, one part resting in the lower section upon the comb frames, and the other part in the upper section just below its raised bottom, and the apertured slide seated intermediately of the parts of said cover and adapted for operation, substantially as specified.

493,865. EYEGLASS-HOOK. WILLIAM W. HAYDEN, Newark, N. J. Filed Apr. 30, 1892. Serial No. 431,383. (No model.)



Claim.—1. The eyeglass hook comprising the sheet metal body having an open slot *i* formed therein, and formed at one end with an extension *g* and hook extension *f*', the extension *g* being turned to form an eye at the back of the body and the extension *f*' passed through the slot and shaped to form the hook in front of the body substantially as described.

2. The blank A comprising a slotted body, having a pin extension *f* hook extension *f*' *g*', shoulders or offsets *g*, and side extension or lug *h* at the edge of the narrow portion *g*', substantially as described.

3. The body *a* having a slot formed therein, and having an eye *d*, keeper *c* and pin *b* at the back of the body and a hook *c* having shoulders *g* at the front of the body, the whole being formed of a single piece of plate metal, substantially as described.

493,866. COMBINED MATCH-BOX AND CIGAR-CUTTER. WILLIAM W. HAYDEN, Newark, N. J. Filed July 29, 1892. Serial No. 441,538. (No model.)

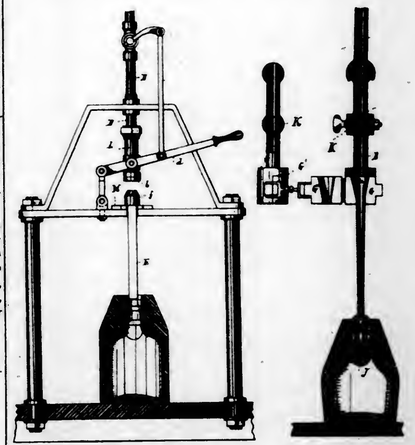


Claim.—1. The match box A having an apertured plate secured within and to one of the side surfaces of the box and projecting beyond the edge thereof to be inclosed by the cover, in combination with a blade pivoted within and to the side surface of the box parallel with the apertured plate substantially as described.

2. The box having the parallel apertured plates d' d^2 secured to and projecting beyond the open end of the box in combination with the blade *d* pivoted to and between the said plates and a spring *f* held between the plates and arranged to act upon the shank of the blade, substantially as described.

3. The box A having a plate d' secured at and projecting beyond the open end of the box in combination with the blade *d* formed with projection f^3 and the spring *f* arranged to press upon said projection, substantially as shown.

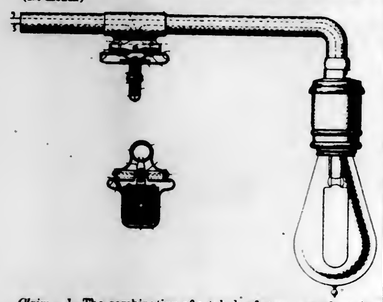
493,867. GLASS-BLOWING APPARATUS. HERMANN HILDE, Rosswein, Germany. Filed Sept. 9, 1890. Serial No. 364,446. (No model.)



Claim.—1. The combination of an air compressor and accumulator with a delivery tube D having cock K, a telescoping tube L having socket *b*, a blow tube E, over which the telescoping tube is adapted to be projected, and with levers *d*, d^2 and link d^3 for simultaneously operating the cock and the telescoping tube, substantially as specified.

2. The combination of an air compressor and accumulator with a delivery tube D, a threaded socket P upon such tube, a blow tube E having threaded head *h* and an angular shoulder beneath such head and with a fork M, that embraces the shoulder, substantially as specified.

493,868. SWITCH FOR ELECTRIC-LIGHT FIXTURES. JOSEPH HUTCHINSON, New York, N. Y. Filed Apr. 8, 1892. Serial No. 428,383. (No model.)



Claim.—1. The combination of a tubular fixture arm adapted to support an electric lamp or device and to contain electric conductors and having a hole through which conductors in the tube may pass to the outside thereof, an insulating body wholly exterior to such tubular arm but secured to it adjacent to the hole therein, terminals to which the wires leading from the tubular arm may be connected, and a movable switch device for connecting the same, carried by said insulating body, substantially as described.

2. The combination of a tube, such as a bracket or chandelier arm, a body secured thereto wholly on the outside and carrying switch terminals or contacts, a switch device for making and breaking connection between them, and means for inclosing said contacts, and the tube where the switch is connected substantially as described.

3. The combination of a tube, such as a bracket or chandelier arm, having an opening in one side thereof, an interrupted circuit wire in the tube, the wire ends at the point where the wire is broken passing through the opening, a switch secured to the tube and comprising a strap surrounding the tube, an insulating plate or block supported by the strap, contacts carried thereby to which the circuit wire is connected, and a movable switch member for making and breaking the circuit, substantially as described.

4. The combination, in a switch, of a strap having beads or flanges at its ends, an insulating plate or block carried by said strap, contacts carried thereby, and a movable switch member engaging said beads or flanges and adapted to turn thereon, substantially as described.

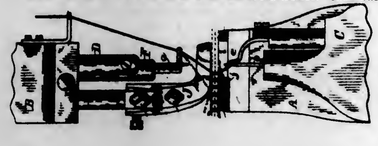
5. The combination, in a switch, of a strap having beads or flanges at its ends, an insulating plate or block carried by said strap, contacts carried thereby, a movable switch member engaging said beads or flanges and adapted to turn thereon, and a spring connecting said parts and so mounted as to be given increased tension when the switch is moved to close the circuit, substantially as described.

6. The combination, in a switch, of two switch members having suitable contacts, one member being fixed and one being movable, one member being provided with a flange or similar device, the other member engaging the same, the movable member being in two sections, and means for securing said sections together, whereby the movable member can be clamped onto the other member, substantially as described.

7. The combination of two switch members having suitable contacts and secured to each other by means of engaging flanges or similar devices, one member comprising an insulting block carrying the switch contact spring or arm, two sheet metal or similar sections forming a cover, and means for securing said sections and block together, substantially as described.

8. The combination of a strap 6, the insulating block 8 carried thereby and having contacts, the movable switch member comprising sections 15, 16, block 13 and spring or arm 11, substantially as described.

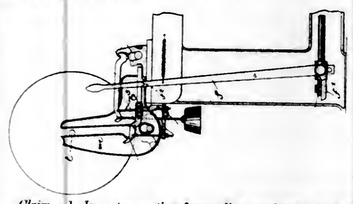
493,869. COMBINED PRESSER-FOOT AND THREAD-HOLDER FOR SEWING-MACHINES. ALBERT R. JOHNSON and CYRUS H. PORTER, Brockton, Mass. Filed Nov. 29, 1892. Serial No. 453,815. (No model.)



Claim.—The combination of the presser-foot I; and the spring jaw J adjustably secured to said presser foot with its lower end in contact with, and extending to the bottom of the heel portion of the presser-foot and adapted thereby to serve as a thread holder and a reinforce or extension of the bearing surface for holding the work.

493,870. STOPPING MECHANISM FOR CARDING-MACHINES. IRA F. LAWRY, Taunton, Mass. Filed July 15, 1892. Serial No. 440,099. (No model.)

Brief.—A lever *b* normally holds in place a shipper-lever *f*, which shipper-lever, when released from the lever *b*, turns the shipper rock-shaft *k*, thereby operating a stopping mechanism. This lever *b* is so arranged as to release the shipper-lever upon the passage of a hard substance between the feed-rolls or upon the lap-rod *t* becoming empty and pressing upon its end.

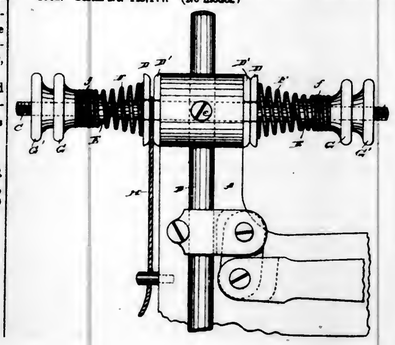


Claim.—1. In a stop-motion for carding machines the following instrumentalities, viz:—a shipper rock-shaft; a shipper lever adapted to engage a projection of said rock-shaft; and a lever as *b* adapted to engage and hold the shipper lever, combined with a feed roll; a lever as a^4 resting on a cap bearing on said feed-roll and adapted to be turned by the rising thereof, and connections intermediate said levers a^4 and *b* whereby the lever *b* may be moved to automatically move the shipper lever upon the intervention of a hard substance below the feed-roll, substantially as described.

2. A feed-roll; a cap as *a* resting upon its journal; a weighted lever as a^4 resting on said cap; a shipper lever having a projection; a latch lever as *b* adapted to engage said projection and hold said shipper lever; and a rocking arm as b^3, combined with links to directly connect said arm b^3 near one end with the latch and near its other end with the said weighted lever, to operate substantially as described.

3. In a stop-motion device for carding machines the following instrumentalities, viz:—a shipper rock-shaft; a shipper-lever to actuate said rock-shaft; a latch to engage a projection of and hold said shipper lever in its normal position as when the machine is running correctly, said latch being made as a lever and having one end crossing the slot in which rides the lap rod *t*, combined with a feed roll; a cap to rest on its journal; a weighted lever resting on said cap; a lever as b^3, and links b^3 and b^4 connecting the lever b^3 with the said weighted lever and the said latch, whereby the said latch will be moved whenever a hard substance passes under the feed-roll and whenever the lap becomes unwound sufficiently to let the lap-rod *t* strike the latch, substantially as described.

493,871. TENSION DEVICE FOR SEWING-MACHINES. JOSEPH M. MERROW, Merrow, Conn. Filed May 20, 1890. Renewed Sept. 6, 1892. Serial No. 445,177. (No model.)

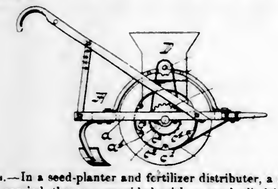


Claim.—1. In a tension device, such as described, the combination with the movable member of the thread clamp and an adjusting device movable toward the clamp, of a cylindro-conoidal spring interposed between the adjusting device and the movable member of the clamp, the cylindrical portion of the spring being supported and guided and the base of the conical portion engaging the clamp; substantially as described.

2. In combination with the thread clamp, and adjusting screw, a cylindro-conoidal spring interposed between a shoulder on the screw-threaded rod and the clamp, the larger end of the spring engaging the clamp and the smaller cylindrical portion embracing a sleeve on the screw-threaded rod; substantially as described.

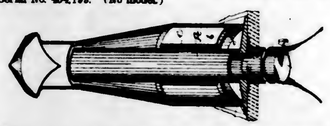
3. In combination with the revoluble clamping disks, supporting rod and adjusting nut, the cylindro-conoidal spring having its cylindrical coils tightly embracing a sleeve interposed between the nut and clamp, with the last coil at the base of the conical portion engaging the outer section of the clamp; substantially as described.

493,872. SEED-PLANTER AND FERTILIZER-DISTRIBUTER. JAMES R. MCCORD, Jackson, Ga. Filed June 13, 1892. Serial No. 436,576. (No model.)



Claim.—In a seed-planter and fertilizer distributer, a frame and a hopper carried thereon, provided with a semicylindrically concaved open bottom, and the wheel *c* journaled on said frame, and a ring carried on the side of said wheel in contact peripherally with said open bottom and having apertures through it, flanges projecting inwardly from around said apertures, and a block seated movably within each aperture formed by the said flanges, said block being reversible and having a portion removed from one of its faces and means for holding said block in any set position in its seat, substantially as and for the purpose specified.

493,873. VENTILATOR. WILLIAM MCFARLANE, Toronto, assignor of one-half to James Wright, Stratford, Canada. Filed May 24, 1892. Serial No. 434,199. (No model.)



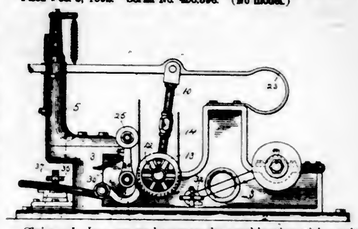
Claim.—1. In combination, the base plate having a central opening, an imperforate cylinder having its lower edge secured to the base plate, an outer annular casing also secured to the base plate, having a series of inwardly opening doors in the lower part, substantially as described.

2. In combination, the base plate having a central opening with inner and outer annular flanges, an imperforate cylindrical casing having its lower edge secured to the inner flange and an outer casing having its lower edge secured to the outer flange and provided with a series of inwardly opening doors in the lower part thereof, substantially as described.

3. In combination, the base plate having a central opening and inner and outer annular flanges and imperforate cylindrical casing secured to the inner flange, and an outer casing secured to the outer flange, said outer casing having a cylindrical lower portion provided with a series of inwardly opening doors and a gradually tapered upper, portion, said tapered portion terminating in proximity to the mouth of the inner casing, substantially as described.

4. In combination, the circular base plate having its upper surface inclined from the center toward the circular edge, and provided with a central opening with a surrounding flange, an outer annular flange having a series of perforations, an inner cylindrical casing secured to the inner flange, an outer casing secured to the outer flange and having perforations aligning with those of the flange, and a series of inwardly opening doors in said outer casing, substantially as described.

493,874. POWER-HAMMER. JOSEPH O'BRIEN, Boston, Mass. Filed Feb. 5, 1892. Serial No. 420,898. (No model.)

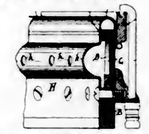


Claim.—1. In a power-hammer, the combination with a suitable standard, its guides, and an oscillating helve slotted at its free end, of an apertured hammer-head adapted to reciprocate vertically in said guides and loosely of the helve, which projects therethrough, a rod rigidly secured in said hammer-head but extending loosely through the helve slot, and springs mounted on said rod upon opposite sides of the helve, all operating substantially as set forth.

2. In a combination with a standard having suitable guides, a helve movably secured to said standard and slotted longitudinally at its free end, a rod extending loosely through the helve slot, an apertured hammer-head reciprocating in said guides and having no positive connection with the helve, which moves freely in said aperture, spring mediums upon said rod on opposite sides of the helve, and means for oscillating the helve, composed of a rotary crank-shaft, and a connecting rod to the helve, substantially as stated.

3. In a power-hammer a suitable standard, the guides thereon, a spring-actuated helve slotted at its free end and secured to the standard by the spring 23, a rotary crank shaft, and connecting rod to oscillate said helve, combined with an apertured hammer-head mounted in said guides, springs interposed between the ends of the hammer-head and opposite sides of the helve, a rod to hold said springs in place and extending loosely through the slotted end of the helve, and the balance spring 21 interconnecting the free end of the helve with the standard, substantially as and for the purposes explained.

493,875. BANJO. JOHN E. QUINLAN, Boston, Mass. Filed Apr. 6, 1892. Serial No. 428,078. (No model.)



Claim.—1. In a banjo, a body consisting of a bottom ring, a series of post or standards secured thereto, and a loose upper ring substantially as set forth.

2. In a banjo, a body consisting of a skeleton frame and a loose upper ring, and spiral springs secured in said frame, substantially as and for the purposes set forth.

3. In a banjo, a body consisting of the ring A, posts or standards B, loose ring C, ring I, an outer thin metal ring G, and an inner perforated thin metal ring H, substantially as set forth.

4. In a banjo, a body consisting of a skeleton frame, springs arranged therein, a loose upper ring having a metal ring secured thereon, a thin outer ring and a thin inner perforated ring covering the skeleton frame and springs, a tightening ring and screws for stretching the head, substantially as set forth.

5. In a banjo, a tubular metal dowel, a wooden tube secured thereon by a pin, said tube being glued into the arm, a screw threaded sleeve secured to the dowel on the inner side of the rim, and a nut upon said sleeve in combination with a sliding piece into which the other end of the dowel fits, said sliding piece being adjusted and held in place by screws substantially as and for the purpose set forth.

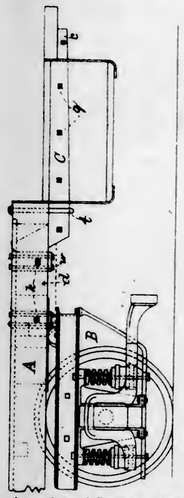
493,876. CAR-FRAME WILLIAM ROBINSON, Boston, Mass. Filed July 8, 1892. Serial No. 439,332. (No model.)

Claim.—1. The car frame A provided with platform supports C attached thereto, said supports having the lower surface of their inner ends flush, or nearly so, with the bottom of the car frame, substantially as described.

2. A car frame provided with platform supports attached thereto, said supports having the lower surface of their inner ends flush, or

nearly so, with the bottom of the car frame and the lower surface of their outer ends on a lower plane than the bottom of the car frame, substantially as described.

3. In a railway car, platform supports consisting essentially of metal plates bent in a vertical plane, the inner ends of said platform supports being higher than the outer ends thereof, substantially as described.

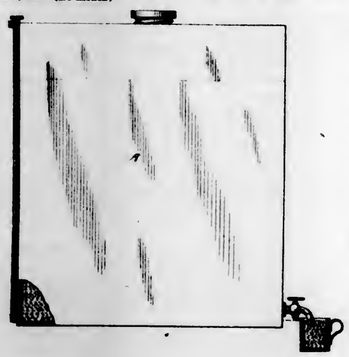


4. The combination, substantially as described, of the car frame A, the metal platform supports C having their inner ends bent upwardly, and the clamps *f*, *f'* securing said platform supports to the car sills *d*, *d'*, above the bottoms of said sills.

5. The combination, substantially as described, of the metal platform support C having its inward end bent upwardly, the clamp *f* supporting and securing the inner end of said platform support to the car frame, back of the end sill, and the clamp *l* securing said platform support to the end sill *n*.

6. The combination, substantially as described, of the metal platform supports C bent in a vertical plane, the inner ends thereof secured to the car frame A, the timbers *l* bolted to the outer ends of said platform support C, the platform end timber *p* secured to said timbers *l*, the intermediate timbers *m* secured to the end sill *n* and to the platform end timber *p*, and the platform *e* resting upon and secured to said timbers *l*, *m*.

493,877. OIL-CAN OR OTHER LIQUID-RECEPTACLE. THEODORE A. SCHEUSTER, Oakland, Cal. Filed May 23, 1892. Serial No. 434,099. (No model.)



Claim.—1. The combination with a can, barrel, or package containing liquid to be drawn off into small vessels or receptacles, of a draw-off faucet and a tube open to the liquid at one end about at the level of the draw-off outlet, and at the opposite end open to the atmosphere above the level of the liquid in the package, substantially as described for operation as set forth.

2. The combination with a can or other liquid-holding package closed to the atmosphere from which the contents are to be drawn off through a plug or faucet, of the tube C communicating with the confined liquid at or near the bottom and with the atmosphere outside above the level of the confined liquid, as described.

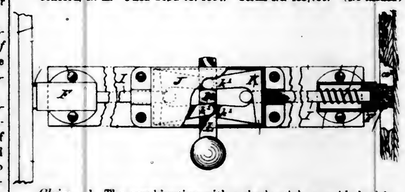
493,878. LISTER-CULTIVATOR. JAMES H. SPENCER, Beaver Crossing, Nebr. Filed Sept. 12, 1892. Serial No. 445,597. (No model.)



Claim.—1. In a lister-cultivator, the combination, with the runners provided with guide-ways for the link-rods, of cultivator-blades pivotally attached to the rear of said runners, link-rods attached to said cultivator-blades and working vertically in said guide-ways, and a hand-lever connected to said link-rods; substantially as and for the purpose set forth.

2. In a lister-cultivator, the combination, with the runners and frame-work of cultivator blades pivotally connected to the rear of said runners and having their outer ends upturned and curved to form cutting edges, link-rods to said blades and vertically movable in guide-ways on the runners, a hand lever connected to said link-rods and provided with a catch or pawl, and a rack-bar formed by one of the frame-supports for the seat.

493,879. SHADE-HOLDING MECHANISM. JAMES B. TRUESTON, Concord, N. H. Filed Sept. 15, 1891. Serial No. 405,739. (No model.)



Claim.—1. The combination with a shade stick, provided with a retaining device, of a casing secured to said stick, a longitudinally movable release rod secured to said device at one end and having its other end within the casing, a longitudinally movable bar within the casing at an angle to the rod and an angle lever within the casing one end of which engages with the rod and the other end engages with the bar, substantially as set forth.

2. The combination with a shade stick, provided with a retaining device, of a casing secured to the stick provided with an interior angle, a longitudinally movable release rod secured to said device at one end and having its other end within the casing, a longitudinally movable bar within the casing at an angle to the rod, and an angle lever loosely secured within the casing, the angle of the lever being more acute than the angle of the casing and located therein, one end of which lever engages with the rod and the other end engages with the bar, substantially as set forth.

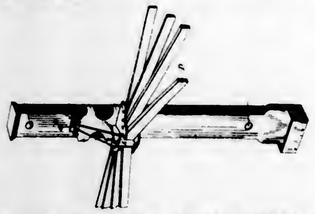
3. The combination with a shade stick of a casing secured thereto provided with four interior angles, of a longitudinally movable rod arranged transversely within the casing, a longitudinally movable rod projecting into each end of the casing substantially in a line with each other and at right angles to the first mentioned rod, and an angle lever in each corner of the casing, one arm of each of which engages with the transverse rod and the other arm of two of the levers engage with each one of the other rods, respectively, substantially as set forth.

4. The combination with a shade stick, of three casings secured thereto, the outer two of which are each provided with a spring, and the central casing is provided with four angles, a longitudinally movable rod arranged transversely in the central casing, four angle levers

loosely mounted in said central casing, one arm of each of which engages with the rod, and two rods, the outer end of each of which is provided with a cushion and is located within one of the end casings, and the other end enters the central casing and engages with one arm of each of two of the levers within the casing, substantially as set forth.

5. The combination with a shade stick, of a casing secured to said stick, of a longitudinally movable spring actuated rod, one end of which is provided with a cushion and the other end is provided with a projection and enters the casing, a longitudinally movable bar within the casing at an angle to the rod and provided with a projection within the casing, and two angle levers in the casing, one upon each side of the end of the rod and each having one of its ends in engagement with the projection thereof, the other ends of said levers being in engagement with the projection on the bar, substantially as set forth.

493,880. CLOTHES-DRIER. GEORGE TYLER, Greenville, Pa., assignor to John A. McHarry, same place. Filed May 2, 1892. Serial No. 431,462. (No model.)



Claim.—1. In combination with the standard, the sliding metallic clutch the hinged bracket, and the bars supported thereby; said clutch being provided with integral rearwardly projecting hooks or ears adapted to embrace the standard and sustain the clutch thereon, in frictional engagement therewith substantially as described.

2. In combination with the standard, the sliding clutch adjustably fitted on said standard in frictional engagement therewith, the bracket hinged to said clutch, the bars the pivoted link having its depending portion in proximity to said bracket, and means for automatically causing the link to engage the bracket so as to sustain the latter in operative position, substantially as described.

3. In combination with the standard, the sliding clutch adjustably fitted on said standard in frictional engagement therewith, the bracket hinged to said clutch, the bars the cam on said bracket, the catch, and the link depending from said clutch in proximity to said cam so as to automatically engage the catch when the bracket is raised, substantially as described.

4. A clothes drier comprising the standard, the sliding clutch, the hinged bracket, the independently pivoted bars, carried by said bracket the cam-plate having the catch thereon, and the sustaining link loosely connected at one end to said bracket and adapted to automatically engage the catch when the bracket is raised to proper position, substantially as described.

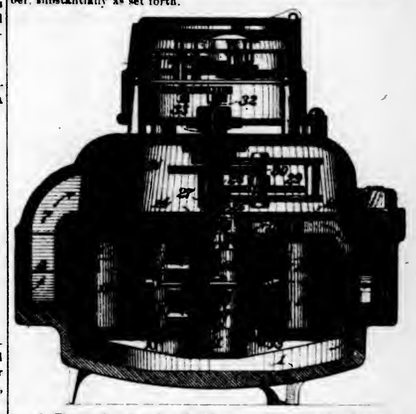
5. In combination with the standard, the clutch consisting of a metallic plate formed with ears adapted to clasp said standard and provided with the open eyes or hooks, depending therefrom the bracket having the studs or pins thereon adapted to engage said eyes, and the sustaining link detachably connecting the bracket and clutch whereby the clutch and bracket are hinged together and secured upon the standard without other fastenings, substantially as described.

6. In combination with the standard, the sliding clutch supporting the hinged bracket and bars, and provided with a vertical transversely slotted extension having grooves or indentations on opposite sides of the slot, and the detachable spring-metal link with bent ends adapted to be sprung into said slot and engage said grooves, substantially as described.

493,881. ROTARY WATER-METER. GEORGE WESTINGHOUSE, Jr., and HOWIS RUUD, Pittsburg, Pa., assignors to the Fuel Gas and Manufacturing Company, same place. Filed Nov. 1, 1892. Serial No. 450,648. (No model.)

Claim.—1. The combination, in a liquid meter, of a piston chamber provided with inlet and discharge ports, a piston located eccentrically in said chamber and free from axial bearing thereon or therein, said piston rotating about its own axis in, and rolling peripherally on the inner surface of said chamber, and being provided with ports registering alternately with the inlet and the discharge ports of said chamber, and a series of abutments fitting in said piston and fitting against the piston chamber, substantially as set forth.

2. The combination, in a liquid meter, of a piston chamber provided with inlet and discharge ports, a piston located eccentrically in said chamber and free from axial bearing thereon or therein, said piston rotating about its own axis in, and rolling peripherally on and around the inner surface of said chamber, and being provided with ports registering alternately with the inlet and the discharge ports of the piston chamber, a series of abutments fitting in said piston and fitting against the piston chamber, and a casing inclosing the piston chamber and provided with inlet and outlet passages communicating, respectively, with the inlet and discharge ports of the piston chamber, substantially as set forth.



3. The combination, in a liquid meter, of a piston chamber provided with inlet and discharge ports, a piston located eccentrically in said chamber and free from axial bearing thereon or therein, said piston rotating about its own axis in, and rolling peripherally on and around the inner surface of said chamber, and being provided with ports registering alternately with the inlet and the discharge ports of the piston chamber, a series of abutments fitting in said piston and fitting against the piston chamber, substantially as set forth.

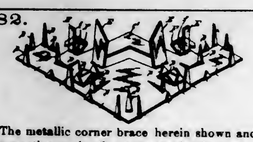
4. The combination, in a liquid meter, of a piston chamber provided with inlet and discharge ports, a piston located eccentrically in said chamber and free from axial bearing thereon or therein, said piston rotating about its own axis in, and rolling peripherally on and around the inner surface of said chamber, and being provided with ports registering alternately with the inlet and the discharge ports of the piston chamber, a series of abutments fitting in said piston, and a distance regulating device bearing on the abutments and maintaining their outer faces continuously in contact with the inner surface of the piston chamber, substantially as set forth.

5. The combination, in a liquid meter, of a piston chamber provided with inlet and discharge ports, a piston adapted to rotate about its own axis on the inner surface of said chamber and provided with ports registering alternately with the inlet and discharge ports of the piston chamber, a series of abutments fitting in guide ways in said piston, and a series of transverse distance rods, each fitting freely in the piston and bearing at its ends on two diametrically opposite abutments, substantially as set forth.

6. The combination, in a liquid meter, of a piston chamber provided with central inlet ports, and discharge ports surrounding the inlet ports, a piston of less diameter than said chamber but fitting closely therein in a plane parallel with its axis, a series of abutments fitting lateral guide ways in the piston, a series of through ports formed in the piston and adapted to register alternately with the inlet and outlet ports of the chamber, lateral ports leading from said through ports to the periphery of the piston, and a distance regulating device bearing on the abutments and maintaining their outer faces continuously in contact with the inner surface of the piston chamber, substantially as set forth.

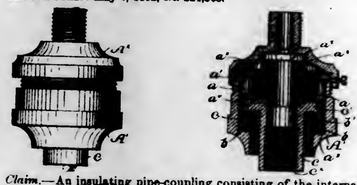
493,882. CORNER-BRACE. HARRY WHITE, Syracuse, N. Y. Filed Aug. 10, 1891. Serial No. 402,192. (No model.)

493,882.



Claim.—The metallic corner brace herein shown and described for frame bars meeting each other at an angle, the same comprising a sheet metal plate composed of bars —c—c— arranged at an angle with each other, and a tie-bar —c'— between the opposite extremities of the bars —c—c—, projections D on the under face of said metallic plate a depending arm —F— extending outwardly from the inner edge of one of said bars —c—c— at an angle therewith greater than a right angle, and provided with a laterally extending extremity —f— having its extreme end disposed in a plane substantially perpendicular to the edge of the adjacent portion of said bar —c—, substantially as and for the purpose set forth.

493,883. INSULATING-COUPLING. ERNEST BALLET, Bordeaux, France. Filed Oct. 31, 1892. Serial No. 450,586. (No model.) Patented in France May 7, 1892, No. 221,365.



Claim.—An insulating pipe-coupling consisting of the internally screw-threaded tubular cylinder *c* having a head *c'* which is recessed on top around its central bore, an insulating cylinder *b*, surrounding cylinder *c*, recessed internally in its upper end to receive and support the said head and having an external annular shoulder, the lower shell section A' having an internal shoulder a^3 for supporting said annular external shoulder, an insulating cylinder *a* which rests on the said head *c'* and is provided with a downward extension that fits into the recess thereof, and the upper shell A provided with a recess a^5 for receiving an extension a^4 on the upper end of the last named cylinder the said upper shell being screw-threaded for coupling with a pipe, the two sections A and A' having screw-threaded engagement together for tightening or loosening and the bores of the parts A, *a*, and *c* being continuous substantially as set forth.

493,884. ROSETTE CUT-OUT. CHARLES E. BARRY, New York, N. Y. Filed Aug. 16, 1892. Serial No. 443,231. (No model.)

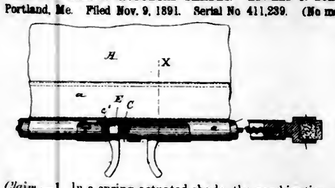


Claim.—1. In a rosette cut-out, the combination of a base having a pair of contacts, a cap or cover having a notched flange constituting, in connection with the contacts, a bayonet joint, by which the cover is secured to the base, and several pairs of contacts located in said cap and provided with fuses connected to the lamp wires and adapted to be brought successively into circuit, substantially as described.

2. In a rosette cut out, the combination of a base having a single pair of contact points C, C, and an annular interior notched flange *e*, a cap or cover having several pairs of contacts F, G, H, I, adapted to fit the notches *i* in the flange *e* and to pass under the same, whereby the cap and base may be readily secured together, substantially as described.

3. In a rosette cut-out, the combination of a base having a single pair of contact points C C and an annular interior notched flange *e*, a cap or cover having several pairs of spring contacts F, G, H, I, adapted to fit the notches *i* in the flange *e* and to pass under the same, terminals K, L, to which the lamp wires are respectively attached, and fusible connections between the terminals K and L and the adjacent pairs of contacts, whereby when one pair of fuses becomes blown or burned out another pair may be brought into the circuit by simply giving the cap a partial turn and bringing another pair of contacts on the cap into electrical connection with the contacts C, C, substantially as described.

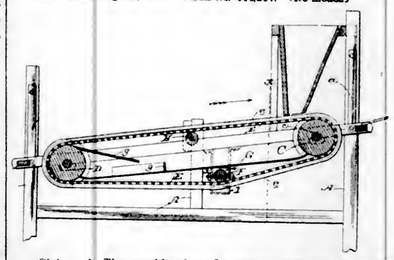
493,885. ATTACHMENT TO FRICTIONAL HOLDING MECHANISMS FOR SPRING-ACTUATED SHADES. EDWARD T. BURROWES, Portland, Me. Filed Nov. 9, 1891. Serial No 411,239. (No model.)



Claim.—1. In a spring actuated shade, the combination with a tubular stick having a slot substantially midway of its length, longitudinally-movable spring-actuated rods in the bore of said stick each of which is provided with a frictional holding device at its outer end and with a releasing pendant at its inner end, said pendants projecting through said slot in the stick, a cover for the stick having an opening registering with the slot in the stick, and a substantially cylindrical guard secured to the stick over the cover, the edges of said guard being of a less length than the stick and extending above the axis of the shade stick, the lower portion of said guard being provided with two slots, the outer ends of which substantially register with the outer ends of the slot in the stick, and the portion of the guard between the slots being between the pendants of the rods and forming abutments therefor, substantially as set forth.

2. In a spring actuated shade, the combination with a tubular stick, provided with a slot substantially midway of its length, longitudinally-movable rods in the stick each of which is provided with a frictional holding device at the outer end and at the inner end with a pendant which projects through the slot in the stick, a cover for the stick having a perforation registering with the slot therein, and a two part guard, of substantial cylindrical cross section, secured to the stick, at its upper edges, above the axis thereof, said portions of the guard overlapping one another at their lower edges and being provided with two slots, forming guideways for the pendants of the rods, the thickened portions of the guard between said slots being between said pendants and forming abutments therefor, substantially as set forth.

493,886. SELF-CLEANING SCREEN. ANTONY FERREVA, Nelson, Cal. Filed Aug. 26, 1892. Serial No. 444,207. (No model.)

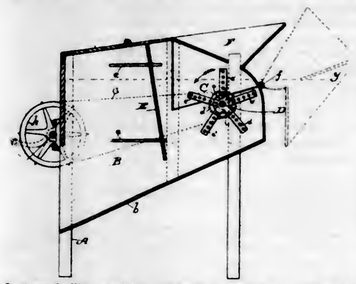


Claim.—1. The combination of a stationary frame, an inclined vibrating or shaking frame carried thereby, a roller at each end of said shaking frame, an endless screen mounted upon said rollers in actual and direct contact therewith, and a roller mounted upon the stationary frame and extending transversely under and in direct contact with the upper fold of said screen, substantially as herein described.

2. The combination of a stationary frame, an inclined vibrating or shaking frame carried thereby, a roller at each end of said shaking frame, an endless screen having side flanges and mounted upon said rollers in actual and direct contact therewith, a vertically adjustable roller carried by the shaking frame and extending transversely above the lower fold of the screen whereby the latter may be tightened down closely to its end rollers, and a roller mounted upon the stationary frame and extending transversely under and in direct contact with the upper fold of said screen, substantially as herein described.

493,887. ALMOND OR WALNUT HULLER. ANDREW GAMBLE, Nordhoff, Cal. Filed Dec. 13, 1892. Serial No. 455,071. (No model.)

Claim.—1. A nut-hulling machine, consisting of a casing, a rotating cylinder therein, with arms adapted to receive and throw the unhulled nuts forwardly, a wall within said casing opposite to the cylinder and adapted to receive and cause the rebound of the nuts into the path of rotation of the cylinder arms whereby they are struck by said arms and their hulls broken and disengaged, and a hopper for feeding the nuts to the cylinder, substantially as herein described.



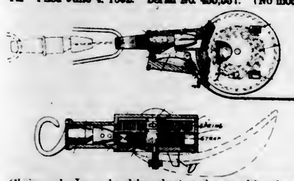
2. A nut-hulling machine, consisting of a casing, a rotating cylinder therein with arms adapted to receive and throw the unhulled nuts forwardly, a hopper for feeding the nuts to said cylinder, and a board within the casing opposite to and movable toward or from the cylinder, said board being adapted to receive and cause the nuts to rebound into the path of the cylinder arms whereby they are struck and their hulls broken and disengaged, substantially as herein described.

3. A nut-hulling machine, consisting of a casing having an inclined bottom, a rotating cylinder provided with arms and mounted within the casing at the upper end of its inclined bottom, a hopper for supplying the nuts to the cylinder and a wall within the casing opposite to the cylinder, said wall terminating short of the inclined bottom of the casing whereby a discharge passage is provided under it, substantially as herein described.

4. A nut-hulling machine, consisting of the casing having the inclined bottom, a rotating cylinder with arms mounted within the casing at the upper end of the inclined bottom, the hopper above the cylinder and hinged to the casing whereby it may be thrown backwardly to expose the cylinder, and the board within the casing opposite to the cylinder and terminating short of the inclined bottom whereby a discharge passage is formed under it, substantially as herein described.

5. A nut hulling machine consisting of a casing having slots in its sides rotating cylinder journaled in said casing, and provided with arms, an unperforated wall adjustably secured in said casing by set screws projecting through the aforesaid slots, said wall located opposite the cylinder to receive and cause the rebound of the nuts into the path of rotation of the arms whereby they are struck by said arms and their hulls broken and disengaged, substantially as herein described.

493,888. HORSE-CHECKING DEVICE. JOHN H. GIBSON, Bruin, Pa. Filed June 4, 1892. Serial No. 435,537. (No model.)



Claim.—1. In a checking device the combination with the shell or casing containing the strap and spring and having a lateral extension of the check-rein hook having its shank located within said extension and connected to said strap and formed with the shoulder between its ends, the pawl pivotally supported within the extension C along side the check-hook shank with its engaging portion normally raised to engage the shoulder on the hook shank and adapted to be depressed by the inward movement of the shank, and a spring acting on said pawl to normally hold it in its raised position, substantially as and for the purposes described.

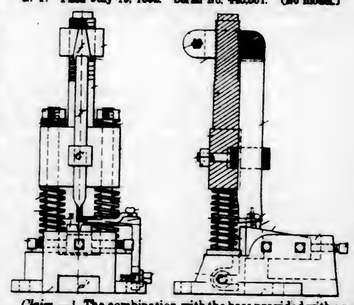
2. The combination with the shell containing the strap and spring, of the check-hook shank having a tapering end and provided with a shoulder located outside of the casing to limit the inward movement of the shank and a second shoulder between said first named shoulder and the inner end of the shank, a pivoted pawl located to engage the second shoulder of the check-hook shank, the link pivoted to said pawl and having connected to it a strap adapted to extend backward to the vehicle, and a spring acting on said pawl and link to restore them to their normal position, substantially as and for the purposes described.

3. In a checking device, the combination with the check-hook shank, a strap connected thereto and pawl adapted to secure said shank and a spring for retracting said shank and strap, of a shell or casing inclosing said parts and having formed on its lower face a recess to receive the end of the harness saddle and projections or lugs to bear against said saddle, to steady and brace the shell or casing on the saddle, and means for securing the casing to the saddle, substantially as and for the purposes described.

493,889. METHOD OF TREATING HYDRATED PHOSPHATES OF ALUMINA. STEPHEN L. GOODALE, Saco, Me., assignor to Alfred M. Goodale, Waltham, Mass., and Marvin W. A. Spring, Portland, Me., trustees. Filed Feb. 21, 1888. Serial No. 300,754. (No specimens.)

Claim.—The new art or process of rendering insoluble hydrated phosphates of alumina and of iron easily soluble and so available as rapidly acting plant fertilisers, which consists in heating these phosphates, in suitable receptacles, by the indirect application of heat, until all the water of constitution is expelled, or usually, until heat has been applied sufficient to raise the temperature of the mass to about 325° centigrade, and then arresting the heat and allowing the resulting product to cool spontaneously, substantially as and for the purpose described.

493,890. PUNCHING-MACHINE. AMBROSE HOOLAHAN, Buffalo, N. Y. Filed July 19, 1892. Serial No. 440,531. (No model.)



Claim.—1. The combination, with the base provided with a pocket, the die, and the adjusting screw securing the die in the pocket, of the vertical guides projecting from the base, the punch holder sliding on the said guides, the punch secured to the said holder, the adjustable thrust block for the punch to bear against and the springs surrounding the guides and supporting the punch holder, substantially as set forth.

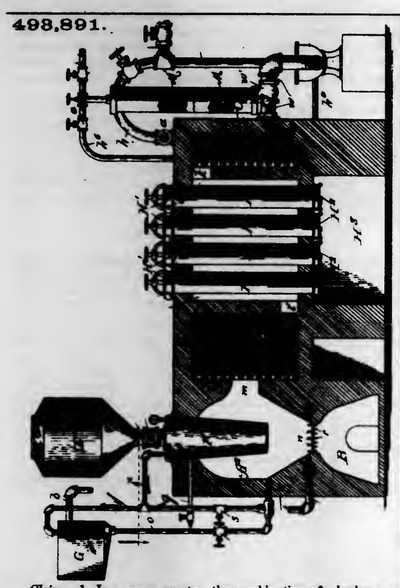
2. The combination, with the base, and the vertical guides projecting from the base, of the punch holder sliding on the said guides, the punch secured to the punch holder, the adjustable thrust block secured to the punch holder above the punch, the springs surrounding the guides and normally holding the punch holder in its raised position, the nuts at the tops of the guides, and the springs interposed between the said nuts and the punch holder and adapted to receive its rebound, substantially as set forth.

3. The combination, with the vertically-movable punch holder provided with an upwardly-projecting screwthreaded bar, of an adjustable thrust block screwed on the said bar and provided with a clamping device, the punch bearing against the said thrust block, and the loop encircling the middle portion of the punch and adapted to clamp it to the punch holder, substantially as set forth.

4. The combination, with the base, and the die secured to the base, of the adjustable standard secured to the base and provided with a horizontal bar having a dovetailed groove, and an adjustable gage sliding in the said groove and provided with a screw for securing it to the said bar at any desired distance from the aperture in the die, substantially as set forth.

493,891. APPARATUS FOR MANUFACTURING GAS. JEANBOT W. KENNEDY, Chicago, Ill. Filed Apr. 25, 1892. Serial No. 430,531. (No model.)

493,891.



Claim.—1. In a gas-apparatus, the combination of a hydro-carbon gas generator, a checker-chamber C communicating therewith, a retort-containing chamber separated from the said checker chamber by a diaphragm *l* having a lower passage *l'* through it, a checker-chamber C' separated from the retort-containing chamber by a diaphragm *k* having an upper passage *k'* through it, and gas-cooling and purifying devices into which the hydro-carbon gas and retort-gas are directed, substantially as described.

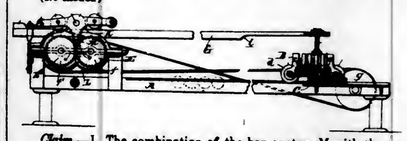
2. In a gas-apparatus, the combination of a hydro-carbon gas-generator A' having a magazine E surmounted by a hopper and surrounded by a boiler F in the chamber A^2, but having no communication with a magazine, a steam-pipe leading from the outer end of the boiler into the chamber A^2, a retort-containing chamber D, communicating with the chamber A^2, and gas-cooling and purifying devices into which the hydro-carbon gas and retort-gas are directed, substantially as described.

3. In a gas-apparatus, the combination of a hydro-carbon gas generator A' having a magazine F surmounted by a hopper and surrounded by a boiler F in the chamber A^2, a steam-pipe leading from the outer end of the boiler into the chamber A^2, a hydro-carbon holder G into which the steam-pipe branches and having an outlet-pipe e forming with the said steam-pipe an injector, a retort-containing chamber D communicating with the chamber A^2, intercommunicating gas cooling and purifying devices into which the hydro-carbon gas and retort gas are directed, and a pump P communicating with the overflow outlets of the said devices and with the holder G, substantially as described.

4. In a gas-apparatus, the combination of a hydro-carbon generator A', a retort-chamber D communicating therewith, one or more retorts in the chamber D, one or more cooling and purifying devices into which the retort-gas is directed, and one or more chambers containing refractory material and charcoal and communicating with the hydro-carbon gas generator from beyond the retort-containing chamber, substantially as and for the purpose set forth.

5. A gas-apparatus comprising, in combination, a hydro-carbon gas generator A' having a chamber A^2 into the base of which lead tuyeres *a* and provided in its upper portion with a magazine E surmounted by a hopper and surrounded by a boiler F, a steam-pipe leading from the outer end of the boiler into the chamber A^2, a hydro-carbon holder G into which the steam-pipe branches and having an outlet-pipe e forming with the said steam-pipe an injector, a checker-chamber C adjacent to and communicating with the chamber A^2, a retort-chamber D adjacent to the said checker chamber and separated therefrom by a diaphragm *l* having a lower passage *l'*, a checker-chamber C' adjacent to the retort-chamber and separated therefrom by a diaphragm *k* having an upper passage *k'*, sets of retorts H having removable caps at their upper and lower ends and connected in transverse pairs from their upper end by pipes *i*, *i'*, leading to opposite sides of the structure, hydraulic mains I and K having gas-outlets and into which the pipes *i*, *i'*, lead, a hydraulic main L having a gas-outlet and connected with the checker-chamber C and with the other said hydraulic mains, chambers M and M' containing scrap-iron and charcoal, and connected with the checker-chamber C', and provided with gas-outlets, overflow-outlets leading from the said hydraulic mains to a manifold A^3, and a pump P communicating with the manifold and holder G, the whole being constructed and arranged to operate substantially as described.

493,892. INKING APPARATUS FOR PRINTING-PRESSES. GEORGE E. MARTIN, Brooklyn, N. Y. Filed Sept. 2, 1892. Serial No. 444,919. (No model.)



Claim.—1. The combination of the bar or stop, M with the oppositely rotating and reversing rollers E, E', the pressure rollers I I', controlled by a tripping device to operate alternately and in proper relation respectively with the reversing-rollers E E', and push-and-draw bar or pole G, and the inking roller carriage B, essentially as described.

2. The combination of the bar or stop M, push-and-draw-bar or pole G, constructed with a recess *l*, reversing rollers E, E', means for tilting the bar G on the stop M, and an inking roller carriage connected with one end of the bar, substantially as and for the purpose specified.

3. The combination of the bar or stop, M, with the push-and-draw bar or pole, G, provided with a tripping-button, *r*, in combination with the stop or roller, *s*, on the rocking tripping device H, which carries the pressure rollers I, I', substantially as specified.

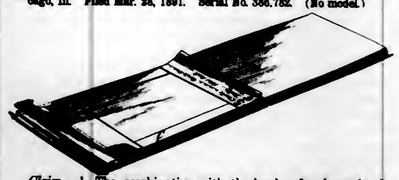
4. The combination with the rocking tripping device H, constructed of a yoke arranged to work on a pivot, *k*, and having pressure-rollers I I', on opposite sides of said pivot, also provided with one or more locking arms or toes, K, and one or more retaining-springs, L, for operation in relation with the reversing-rollers E E', and push bar or pole G, of the bar or stop, M, essentially as described.

493,893. DENTAL-DISK HOLDER. NEWTON MORGAN, Springfield, Mass. Filed Dec. 19, 1892. Serial No. 455,594. (No model.)



Claim.—The combination with a tubular mandrel, of a retaining device for a disk consisting of a head for confining the disk against the end of the mandrel, and a stem or shank, to enter the tubular mandrel, of spring material which in its length normally has a sidewise deflection from the line coincident with the axis of the head, whereby when the stem is forced into the mandrel tube a reaction for frictional engagement is established between the stem and the surrounding wall, substantially as described.

493,894. MANIFOLD SALES-BOOK. JAMES S. MCDONALD, Chicago, Ill. Filed Mar. 23, 1891. Serial No. 386,782. (No model.)



Claim.—1. The combination with the book, of a clamp for detachably holding a sheet of carbon paper independently of the book, said clamp being detachably pivoted to the book, whereby it may be folded back out of the way of the leaves without being detached and without releasing the carbon, substantially as set forth.

2. In a manifold sales book, the combination with a sales book, the leaves of which are bound together at one end and adapted to be folded upon themselves for duplicating, of a carbon impression sheet and a holder attached to the book, to which holder said sheet is detachably secured substantially as described.

3. In a manifold sales book, the combination with a sales book, the leaves of which are bound together at one end, and adapted to be folded upon themselves for duplicating, of a carbon sheet and holder therefor, said sheet being detachably secured to the holder, and the holder detachably connected with said book, substantially as described.

4. In a manifold sales book, the combination with a sales book, the leaves of which are bound together at one end, and adapted to be folded upon themselves for duplicating, of a carbon sheet and a holder therefor, said sheet being detachably secured to the holder, and the holder pivotally attached to said book, substantially as described.

5. In a manifold sales book, the combination with a sales book, the leaves of which are bound together at one end, and adapted to be folded upon themselves for duplicating, of a carbon sheet and a holder therefor, said sheet being detachably secured to the holder, and the holder detachably and pivotally connected with said book, substantially as described.

6. In a manifold sales book, the combination with a sales book, the leaves of which are bound together at one end, and adapted to be folded upon themselves, and a cover therefor provided with a loop or eyes at the bound end of the book, of a carbon sheet holder provided with a pin working in said loop, and a carbon sheet detachably secured to said holder, substantially as described.

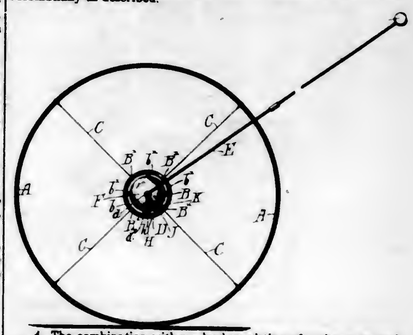
7. In a manifold sales book, the combination with a sales book, the leaves of which are bound together at one end, and adapted to be folded upon themselves for duplicating, and a cover therefor, provided with a loop or eyes at the bound end of the book, of a carbon impression sheet and a holder therefor, comprising a pair of separable clamping plates, between which a carbon sheet is held, and a spring pin working through said loop, substantially as described.

8. In a manifold sales book, the combination with the leaves A, and the cover E, provided with a loop F, of the carbon sheet G, the clamping plates H I, and a spring catch connecting the same at their opposite ends, the spring pin K, attached to one of said plates, and a catch for the free end thereof, substantially as described.

9. In a manifold sales book, the combination with a sales book, the leaves of which are bound together at one end, and adapted to be folded upon themselves, a flexible cover therefor, bound to the leaves and provided with a loop at the bound end of the book, and a stiff cover or back having eyes corresponding and registering with said loop, of a carbon sheet holder provided with a pin working in said loop and eyes, and a carbon sheet detachably secured to said holder, substantially as described.

10. In a manifold sales book, the combination with the leaves A, and the flexible cover E, provided with a loop F, of a stiff back M, provided with the eyes N, a carbon sheet and a holder therefor, provided with a spring pin working in said eyes and the loop of the flexible cover, substantially as described.

11. In a manifold sales book, the combination with the leaves A, the flexible cover E, provided with a loop F, and the stiff back M, provided with the eyes N, of the carbon sheet G, the clamping plates H, I, hinged together at one end, and a spring catch connecting the same at their opposite ends, the spring pin K, attached to one of said plates, and working in said eyes and loop, and the catch L, for the free end thereof, substantially as described.



4. The combination with a wheel consisting of a rim, a central disk provided at its margin with lateral arms, forming central recesses at the sides of the disk and spokes extending from the ends of said arms to the wheel-rim, and with an axle on which the wheel turns, of a gong-bell supported at the side of the disk within the said recesses formed by said arms and centrally apertured for the passage of the axle, a hammer and actuating devices therefor located between the bell and the disk, and a means for moving the wheel engaging the axle outside of the bell, substantially as described.

5. The combination with a wheel and axle on which the wheel turns, of a gong-bell supported concentrically with the axle and centrally apertured for the passage of the latter, a hammer, and means for operating the hammer, comprising a disk attached to the axle and provided with pins giving movement to the hammer in the turning of the wheel, substantially as described.

6. The combination with a wheel and an axle on which it turns, of a gong-bell mounted concentrically with the axle, a hammer, a spring-actuated arm or lever supported by attachment to the wheel, and a disk attached to the axle and provided with pins engaging said arm or lever for operating the hammer, substantially as described.

7. The combination with a wheel comprising a central flat disk and a rim connected therewith, and with an axle on which the wheel turns, of a gong-bell sustained at the side of said disk concentrically with the axle, a hammer, a spring-actuated arm or lever mounted on said disk and a disk attached to the axle and provided with pins adapted to engage and actuate said arm or lever for operating the hammer, substantially as described.

8. The combination with a wheel and axle on which it turns, of a gong-bell, a spring-actuated lever provided with a hammer, a pawl mounted on the lever, and a disk provided with pins acting on the said pawl, said lever and disk being connected one with the wheel and the other with the axle, whereby they are relatively moved in the turning of the wheel, substantially as described.

9. The combination with a wheel and axle and gong-bell, of a lever H provided with a hammer, a pawl mounted thereon, a spring J throwing the lever in one direction, a spring K to limit the movement of the lever, and a disk provided with pins acting on the said pawl to move said lever, substantially as described.

10. The combination with the bell and lever H provided with the stud A^3, of the spring K placed on said stud, the spring J for moving the lever H, and means for moving said lever against the action of said spring J, substantially as described.

11. The combination, with the bell, and lever H, of the pawl I pivoted thereto, and the spring J connected with said pawl and actuating both the pawl and the lever H, substantially as described.

12. The combination with a wheel and axle on which it turns, said axle having tubular ends, of gong-bells mounted on the axle, nuts securing the bells on the axle and a bar provided with prongs having inwardly bent ends engaging the axle, said nuts having arms adapted to strike said prongs to prevent the axle from turning, substantially as described.

493,895. TOY. PATRICK H. MCDONNELL, Chicago, Ill., assignor, by direct and mesne assignments, to John F. Waite and Angelina M. Clarke, same place. Filed June 30, 1891. Serial No. 398,014. (No model.)

Claim.—1. The combination with a wheel-rim, of a central disk provided with laterally projecting arms arranged opposite each other and notched at their ends, and spokes consisting of wires resting in said notches and attached at their ends to the wheel-rim; each pair of spokes being formed of a single wire carried through the notch in one arm, and lengthwise of the two opposite arms, and through the notch in the opposite arm, substantially as set forth.

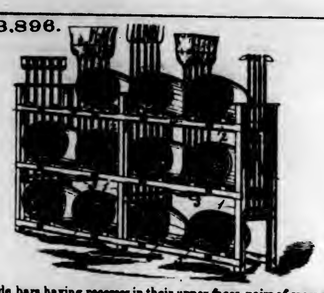
2. The combination, with a wheel consisting of a rim, a central disk provided at its margin with lateral arms forming central recesses at the sides of the disk and spokes extending from the ends of said arms to the rim, and with an axle on which said wheel turns, of a gong-bell supported concentrically with the axle at the side of said disk and within the said recesses formed by said arms, a hammer, and means actuated by the relative movement of the wheel and axle for operating said hammer, substantially as described.

3. The combination with a wheel consisting of a rim, a central disk provided at its margin with lateral arms, forming central recesses at the sides of the disk and spokes extending from the ends of the said arms to the wheel-rim, and with an axle on which said wheel

493,896. KIRE OR TOOL RACK. WARD B PITNER, Pulaski, N. Y. Filed June 16, 1892. Serial No. 436,943. (No model.)

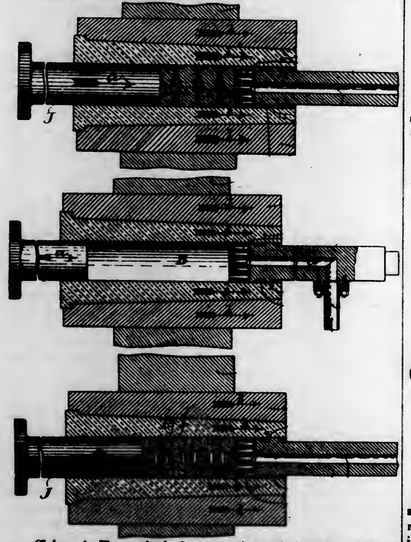
Claim.—A knock-down rack comprising standards mortised and adapted to receive the side bars, side bars, cross pieces connecting

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said side bars having recesses in their upper faces, pairs of cross pieces secured at their front end to the top of the side bars and their rear ends to the under side of the opposite side bars, substantially as described for the purpose set forth.

498,897. METHOD OF AND APPARATUS FOR COMPRESSING AND SHAPING METAL ARTICLES. JAMES ROBERTSON, Manchester, England. Filed July 15, 1892. Serial No. 440,149. (No model.) Patented in England July 6, 1891, No. 11,436.



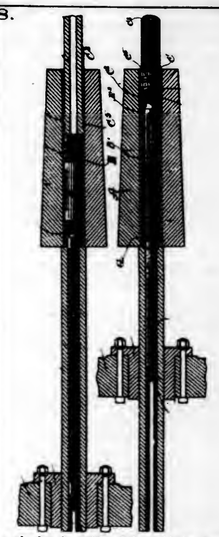
Claim.—1. The method of compressing and shaping a billet of heated metal in a plastic state, the same consisting in longitudinally compressing the billet, and at the same time expanding it laterally against a forming surface and moving said surface in the direction of the compressing pressure, during the entire compressing operation, as set forth.

2. The improved apparatus for compressing and shaping billets of heated metal, the same comprising a longitudinally movable die, a series of formers adapted to fit the interior of the die and to move therein, a fixed supporting head adapted to enter one end of the die, and a movable ram adapted to enter the opposite end of the die, substantially as set forth.

498,898. APPARATUS FOR MAKING TUBES. JAMES ROBERTSON, Manchester, England. Filed July 15, 1892. Serial No. 440,150. (No model.) Patented in England July 6, 1891, No. 11,436.

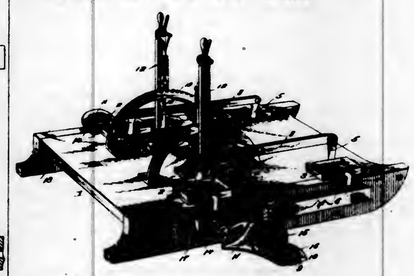
Claim.—An apparatus for making tubes, comprising a metal holding cylinder or die, a stem-rod having a mandrel adapted to co-operate with the die in converting a heated billet of metal into a tube, a support for the said billet at the rear of the die a slotted guide for

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said stem-rod, and a head outside of the guide having a cotter or arm engaged with the stem-rod, as set forth.

498,899. SNOW-PLOW. MICHAEL D. SCHALLER, Lowell, N. Y. Filed May 31, 1892. Serial No. 435,050. (No model.)



Claim.—1. In a snow plow, the combination of a frame, the rock shafts arranged transversely of the frame and located at the front and rear of the same and terminating at the sides of the frame in depending arms having outwardly bent ends extending horizontally from the frame, the longitudinally disposed supporting bars carried by the outwardly turned ends, scrapers suspended from the supporting bars, and means for turning the rock shafts to raise and lower the scrapers, substantially as described.

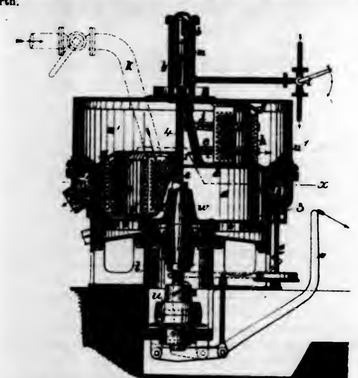
2. In a snow plow, the combination of a frame, rock shafts journaled on the frame, a supporting bar connecting the rock shafts, a scraper secured to and carried by the supporting bar, and a mold board pivotally connected to the scraper and adjustably connected with the supporting bar, substantially as described.

3. In a snow plow, the combination of a frame, rock shafts journaled on the frame and having depending arms, a supporting bar connecting the arms, a scraper secured to the supporting bar, a mold board pivoted to the scraper, and a horizontal brace connecting the mold board with the supporting bar and composed of two sections adjustably secured together, substantially as described.

498,900. CENTRIFUGAL MACHINE. JULIUS SCHNEIDER, Nürnberg, Germany. Filed Sept. 29, 1892. Serial No. 447,940. (No model.)

Claim.—1. The combination with the centrifugal separator having a perforated revolving drum, of a skeleton basket within the drum composed of the conical hub *f*, and bottom *d*, vertical scrapers *h*, the connecting strips *i*, and an inclined rim *s*, connected to the upper end of the scrapers and extending out over the top of the said drum, and means for elevating said basket, substantially as specified.

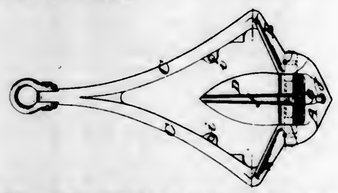
2. The combination with the centrifugal separator having a perforated revolving drum, of a circular outer casing a wall *n* between said drum and casing, scrapers *r* upon the outer face of the wall and within the gutter between the wall and casing, and means for revolving said wall and scrapers, a skeleton basket *c* within the drum and rotating therewith and means for elevating said basket to discharge its contents over the said wall into the gutter, substantially as set forth.



3. The combination with a centrifugal separator having a perforated revolving drum, of a skeleton basket within the drum, a tube connected with the basket and surrounding the axis of the centrifugal separator, a cylinder and piston and means for admitting a fluid under pressure to act upon the sliding tube and piston to elevate the skeleton basket, substantially as set forth.

4. The combination with the centrifugal separator having a perforated revolving drum, of a skeleton basket within the drum, a tube connected with the basket and surrounding the axis of the centrifugal separator, a cylinder and piston and means for admitting a fluid under pressure to act upon the sliding tube and piston to elevate the skeleton basket, the cylindrical wall *n* and scrapers and mechanism for revolving the same, and a case outside of the cylindrical wall forming an annular gutter, and a discharge opening from the same, substantially as set forth.

493,901. ANCHOR. REES T. STARR, New York, assignor to the Starr Anchor Company, Hempstead, N. Y. Filed Apr. 11, 1892. Serial No. 428,619. (No model.)

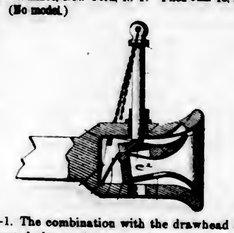


Claim.—1. The combination in an anchor, of a divided or double shank, a continuous crown connecting the two branches of the shank, and provided with projecting flukes at each end and side a reversible fluke pivoted between the said branches and fixed stops formed on and projecting from opposite sides of the crown for stopping the said fluke in operative positions on either side of the anchor, substantially as herein set forth.

2. The combination with the divided shank and the crown provided with stops *c c* on opposite sides, of the reversible fluke constructed with longitudinal strengthening ribs and with stop projections *f* formed by continuations of said ribs, substantially as herein set forth.

3. The combination with the divided shank, the undivided crown and the reversible fluke, of the grooved pivot *a* fitted loosely to both the crown and the pins *g* inserted through the crown in the grooves of the said pivot to confine the said pivot longitudinally while leaving it free to turn in the crown and leaving the fluke free to turn upon it, substantially as herein set forth.

493,902. CAR-COUPLING. VICTOR WALLACE, Oneida, assignor of two-thirds to Charles R. Fish, Helen Potter, Abraham C. Potter, and William A. Wallace, New York, N. Y. Filed Jan. 16, 1893. Serial No. 458,522. (No model.)



Claim.—1. The combination with the drawhead and the pin, of a loosely mounted plate and a spring plate within the drawhead, independent of said loosely mounted plate as and for the purpose specified.

2. The combination with the drawhead, of the pin and a spring plate having a lug and a bolt opening for keeping the link horizontal, as set forth.

3. The combination with the drawhead and the pin, of a loosely mounted plate having a lip and lugs, and a connecting cross bar as set forth.

4. The combination with the drawhead and the pin, of a plate loosely mounted and having lugs, and a spring plate having a lug, working between the said lugs substantially as specified.

5. The car coupling described consisting of the drawhead, the pin, the link, the plate loosely mounted within the drawhead and having lugs and the spring plate having lug working between the lugs of the loosely mounted plate as and for the purpose specified.

493,908. BENCH-PLANE. GRANVILLE W. WRIGHT, New Haven, Conn., assignor to the Sargent & Company, same place. Filed Oct. 19, 1891. Serial No. 409,156. (No model.)

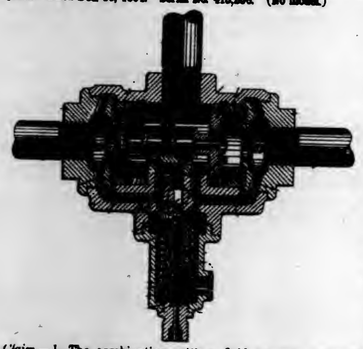


Claim.—1. In a bench-plane, the combination with a stock constructed at its rear end with a central longitudinal recess, of a bit, and an adjusting-lever pivotally attached to the outer end of the same, and extending rearward to be grasped for manual operation, and forward and downward to enter between and engage with the parallel side walls of the said recess at different points in the length thereof according to the position of the bit in the plane-stock, the said walls forming points of purchase for the operation of the lever in squaring the bit in the stock, substantially as set forth, and whereby the lever is always preserved in its right relation to the bit, although the same must constantly be moved forward in the stock as it becomes shorter through wear and grinding.

2. In a bench plane, the combination with a stock constructed at its rear end with two vertical ribs or posts extending parallel with each other and with the stock, and having their upper ends forwardly inclined correspondingly; of a bit having its rear support upon the said inclined upper ends of the said ribs or posts, an adjusting-lever mounted in the stock for vertical movement, and engaging directly with the bit which it adjusts vertically, and an adjusting lever pivotally secured to the rear end of the said bit, and extending rearward for manual operation and forward to enter between and engage with the said ribs or posts at different points in the length thereof according to the position of the bit in the stock, the said ribs forming points of purchase for the operation of the lever in squaring the bit in the stock, substantially as set forth, and whereby the said lever last mentioned is always preserved in its right relation to the bit, although the same must be constantly moved forward in the stock as it becomes shorter through wear, and grinding, whereby also the two levers act on the bit independently of each other.

3. In a bench-plane the combination with a stock constructed at its rear end with two vertical ribs or posts parallel with each other and with the length of the stock, having their upper ends forwardly inclined correspondingly, and joined by a vertically slotted web which is located between them; of a bit having its lower face provided with a longitudinal rack and having its rear support upon the said posts; an adjusting lever pivotally secured to the outer end of the said bit to the rear of the said rack, and extending rearward for manual operation, and forward to enter between and engage with the said posts or ribs at different points in the length thereof according to the position of the bit in the said stock, the said ribs forming points of purchase for the operation of the lever in squaring the bit in the stock; a lever pivoted in the vertical slot formed in the web between the ribs, and taking at its forward end into the rack formed in the lower face of the bit; and means for adjusting the said lever up and down, substantially as set forth, and whereby the adjusting lever pivoted to the bit is always preserved in its right relation thereto, although the same must constantly be moved forward in the stock as it becomes shorter through wear and grinding.

493,904. FLUID-PRESSURE BRAKE. RICHARD W. BAYLEY, Pittsburg, Pa., assignor to the Westinghouse Air Brake Company, same place. Filed Dec. 16, 1891. Serial No. 415,238. (No model.)



Claim.—1. The combination, with a fluid pressure automatic brake apparatus, of a supplemental line of pipe, a pressure retaining valve adapted to close a brake cylinder exhaust passage by pressure in said supplemental line, and a charging valve adapted to open a supply passage to a brake cylinder by pressure in the supplemental line in excess of that which suffices to seat the pressure retaining valve, substantially as set forth.

2. In a fluid pressure automatic brake apparatus, the combination of a main air or train pipe, a triple valve, a supplemental train pipe, a connection from one of said train pipes to the exhaust port of the triple valve, and a valve adapted to be opened by pressure from one of the train pipes to admit fluid under pressure through the triple valve exhaust port to the brake cylinder, substantially as set forth.

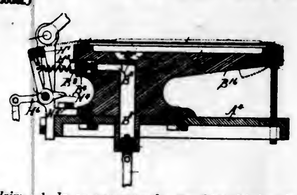
3. In a fluid pressure automatic brake apparatus, the combination of a main air or train pipe, a triple valve, a supplemental train pipe in which a different degree of pressure is maintained from that in the main train pipe, a charging valve adapted to admit fluid under pressure to the brake cylinder, and a reversing valve adapted to connect the charging valve with the train pipe having the lesser degree of pressure, substantially as set forth.

4. In a fluid pressure automatic brake apparatus, the combination of a main air or train pipe, a triple valve, a supplemental train pipe, a charging valve controlling a connection to the brake cylinder, and a reversing valve adapted to admit fluid under pressure from either line of train pipe to the charging valve, substantially as set forth.

5. In a fluid pressure automatic brake apparatus, the combination of a train pipe for the transmission of fluid under pressure, a triple valve controlling the supply and exhaust of fluid to and from a brake cylinder, a pressure retaining valve adapted to be closed by pressure in the train pipe, and a charging valve adapted to be opened by a higher degree of pressure in said pipe, substantially as set forth.

6. The combination, with a fluid pressure supply pipe and a cylinder in which pressure from said pipe is to be exerted, of a valve casing, a movable abutment fitted therein, a chamber on one side of the abutment which communicates with the supply pipe, a chamber on the other side of the abutment which is at all times open to the atmosphere, and a compound valve connected to the abutment and comprising a pressure retaining valve and a charging valve, for closing the exhaust from the brake cylinder and admitting pressure thereto respectively, substantially as set forth.

493,905. APPARATUS FOR STARCHING FABRICS. JOHN M. REICHENSTEIN, Troy, N. Y., assignor of one-half to Frederick Reichenstein, Jr., same place. Filed May 26, 1892. Serial No. 434,338. (No model.)



Claim.—1. In an apparatus for starching fabrics, the combination with a closed vessel having an inner smooth surface; of a removable cover; a support within the inclosure for holding the fabric against the smooth surface; and mechanism for charging the inclosure with liquid starch, substantially as described.

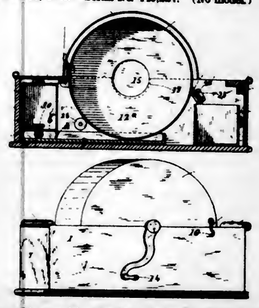
2. In an apparatus for starching fabric, the combination with a starch basin; and a removable cover having a smooth inner surface; of a yielding fabric-support between the peripheral edge of the basin and the cover; and mechanism for charging the basin with liquid starch, substantially as described.

3. In an apparatus for starching fabric, the combination with a starch basin; of a removable cover having a smooth inner surface; a support within the basin for holding the fabric against the cover; and mechanism for charging the basin with liquid starch, substantially as described.

4. In an apparatus for starching fabric, the combination with a starch basin having a removable cover; of a cover-seat between the peripheral edge of the basin and the cover; a porous, flexible diaphragm across the mouth of the basin with its edges between the cover-seat and cover; and mechanism for charging the basin with liquid starch, substantially as described.

5. In an apparatus for starching fabric, the combination with a starch basin having a removable cover, of a yielding seat between the peripheral edge of the basin and the cover; clamps for holding the fabric stretched across the mouth of the basin; and mechanism for charging the covered basin with liquid starch, substantially as described.

493,906. ICE-CREAM FREEZER. THOMAS H. BUSSE, Buffalo, N. Y. Filed Oct. 18, 1892. Serial No. 449,227. (No model.)

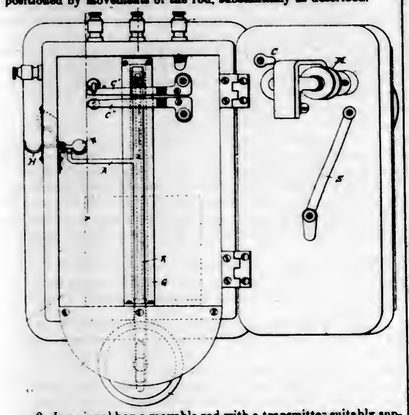


Claim.—The combination in an ice cream freezer, of a refrigerating cylinder provided with a means for turning it and mounted in bearings in the freezer box, a supporting roller for supporting one side of the cylinder and a scraper supporting the opposite side, a cream pan for holding the cream located under the refrigerating cylinder and a vessel for receiving the frozen cream substantially as described.

493,907. TELEPHONE. CHARLES T. BLOOMER, New York, N. Y. Filed Nov. 23, 1892. Serial No. 453,408. (No model.)

Claim.—1. In a signal box a movable rod, in combination with a transmitter suitably supported, and a hook to support the receiver.

and circuit contacts, the transmitter, receiver, hook and contacts, all positioned by movements of the rod, substantially as described.



2. In a signal box a movable rod with a transmitter suitably supported, a fender therefor, and a hook to support the receiver, and circuit contacts, all positioned by movements of the rod, substantially as described.

493,908. EXHAUST-HEAD. GEORGE W. CHESTON, Hartford, Conn., assignor of one-half to Arthur C. Lynch, New York, N. Y. Filed July 22, 1892. Serial No. 440,870. (No model.)



Claim.—1. A condenser head having a conductor for the exhaust steam opening interiorly of the head and near its peripheral wall and an air inlet in said wall at or near the discharge for the exhaust steam, substantially as described.

2. A condenser head having a conductor pipe communicating with the exhaust steam passage and an elbow at its top to deliver exhaust steam at or near the peripheral wall of the head and in a plane at right angles to the axis thereof and an air inlet through the wall of the head near the discharge end of said conductor pipe, substantially as described.

3. In a condenser head, the combination with a conductor pipe communicating with the discharge from the exhaust pipe and extending upwardly within the head and having an elbow at its top and an air inlet pipe communicating with the atmosphere through the wall of the casing and projecting through said elbow in the direction of the opening thereof, substantially as described.

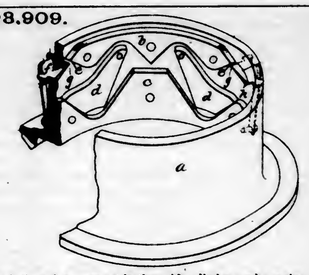
4. A condenser for exhaust steam pipes comprising in combination a conical shell, a dished cover plate having an escape aperture, a depending flaring deflector surrounding said aperture, a conductor pipe communicating with the discharge from the exhaust steam pipe and having its discharge above the lower edge of said deflector and near the peripheral wall of the shell and air inlet pipe communicating with the atmosphere and projected past the end of the conductor pipe, substantially as described.

493,909. CAM-GUARD FOR KNITTING-MACHINES. GEORGE H. COBURN, Laconia, N. H. Filed Oct. 3, 1892. Serial No. 447,952. (No model.)

Claim.—1. A cam cylinder for knitting machines provided with needle-operating cams and equipped with cam-guards adapted to have a bodily backward-yielding and pivotal movement in the cam-cylinder and arranged in proximity to the points of the upper stationary cam, as set forth.

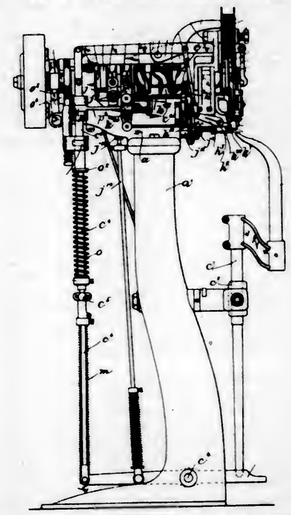
2. A cam cylinder for knitting machines provided with needle-operating cams and equipped with cam-guards, arranged in inclined slots in the cylinder and adapted to have a bodily backward-yield-

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ing and pivotal movement in the said cylinder, and a spring arranged to bear upon the said guards, the upper ends of the latter being arranged in proximity to the ends of the upper stationary cam, as set forth.

493,910. PEGGING-MACHINE. HENRY H. CUMMINGS, Malden, and PETER A. COUPAL, Boston, assignors to Stephen Moore, trustee, Newton, Mass. Filed July 11, 1892. Serial No. 439,568. (No model.)



Claim.—1. In a machine for driving metallic fastenings, the combination of a vertically movable work-supporting horn, a light spring exerting a constant upward pressure on the horn, an auxiliary spring and connections between it and the horn, automatic means for alternately compressing and releasing said auxiliary spring and thereby alternately increasing and decreasing the upward pressure on the horn and automatic means substantially as described for locking the horn after said pressure is increased, as set forth.

2. In a machine for driving metallic fastenings, the combination of a vertically movable work-supporting horn having an upward yielding movement, a perforating awl located over the horn, awl-operating mechanism substantially as described adapted to impart a varying depth of movement to the awl, and connections between said awl-operating mechanism and the horn whereby the depth of movement of the awl is determined by the position of the horn, as set forth.

3. In a machine for driving metallic fastenings, the combination of a vertically movable work-supporting horn having an upward yielding movement, a vertically movable awl-bar carrying a perforating awl, located over the horn, a vertically oscillating lever connected with said awl-bar, a vertically movable fulcrum or pivot supporting said lever, connections between said fulcrum and the horn whereby the position of the fulcrum is varied by changes of position of the horn, and means for oscillating said lever and thereby giving the awl-

bar a reciprocating movement the depth of which is determined by the position of the horn, as set forth.

4. In a machine for driving metallic fastenings, the combination of a vertically movable work-supporting horn, a lever supporting the spindle of said horn, an awl-bar located over the horn and provided with a perforating awl, an awl-operating lever mounted to oscillate on a vertically movable fulcrum, means for oscillating said lever, a connecting-rod connecting said fulcrum with the horn-supporting lever, and a spring arranged to exert a constant upward pressure on the horn, as set forth.

5. In a machine for driving metallic fastenings, the combination of a vertically movable work-supporting horn, a lever supporting the spindle of said horn, an awl-bar located over the horn and provided with a perforating awl, an awl-operating lever mounted to oscillate on a vertically movable fulcrum, means for oscillating said lever, a connecting-rod connecting said fulcrum with the horn-supporting lever, a spring arranged to exert a constant upward pressure on the horn, an auxiliary spring mounted on the connecting-rod, a sleeve movable on said rod and bearing on the auxiliary spring, and automatic means for moving said sleeve back and forth on the connecting-rod and thereby alternately compressing and releasing the auxiliary spring, as set forth.

6. In a machine for driving metallic fastenings, the combination of a vertically movable work-supporting horn, a lever supporting the spindle of said horn, an awl-bar located over the horn and provided with a perforating awl, an awl-operating lever mounted to oscillate on a vertically movable fulcrum, means for oscillating said lever, a connecting-rod connecting said fulcrum with the horn-supporting lever, a spring arranged to exert a constant upward pressure on the horn, an auxiliary spring mounted on the connecting-rod, a sleeve movable on said rod and bearing on the auxiliary spring, automatic means for moving said sleeve back and forth on the connecting-rod and thereby alternately compressing and releasing the auxiliary spring, and automatic mechanism for alternately locking and releasing said rod, said mechanism being timed to lock the rod while the auxiliary spring is compressed, as set forth.

7. In a machine for driving metallic fastenings, the combination of a vertically movable work-supporting horn, a lever supporting the spindle of said horn, an awl-bar located over the horn and provided with a perforating awl, an awl-operating lever mounted to oscillate on a vertically movable fulcrum, means for oscillating said lever, a connecting-rod connecting said fulcrum with the horn-supporting lever, a spring arranged to exert a constant upward pressure on the horn, an auxiliary spring mounted on the connecting-rod, a sleeve movable on said rod and bearing on the auxiliary spring, a vertically movable rod or stud c^4, connections between said stud and the driving-shaft of the machine whereby the stud is depressed at intervals, and a locking device operated by the depression of the stud to lock the latter to the sleeve and thereby cause the depression of the sleeve, as set forth.

8. In a machine for making and driving staples, the combination of a horn or work-support, an awl-bar and a staple-guiding throat located above the work-support and both movable toward and from the latter, an awl on the awl bar, a driver movable in said throat, a sliding head engaged with said awl-bar and throat, a work feeding device engaged with said head, mechanism for horizontally reciprocating said head, mechanism for vertically reciprocating said awl-bar, throat and driver feed operating mechanism, and an anvil which co-operates with the throat in bending a wire blank into a staple, as set forth.

9. In a machine for driving metallic fasteners, the combination of a horn or work-support, an awl-bar and a fastener-guiding throat located above the work-support, an awl affixed to the awl bar a driver movable in said throat, a sliding head engaged with said awl-bar and throat, a feed lever carrying a feed-dog and engaged with said head, mechanism for reciprocating said head horizontally to cause the awl-bar, throat and feed-dog to successively occupy substantially the same position, and mechanism for operating said awl-bar, driver and feed-dog, as set forth.

10. In a machine for making and driving staples, the combination of a work-supporting horn, a vertical movable awl-bar over said horn having two awls, a vertically movable staple-receiving throat, a vertically movable staple driver in said throat, a horizontally movable head engaged with said awl-bar and throat, an awl-bar-operating lever mounted to oscillate on a vertically movable fulcrum and connected with the awl-bar by a connecting-rod, connections between said fulcrum and the horn whereby the fulcrum and horn are moved simultaneously, a throat-operating lever, a driver-operating lever, rods connecting said levers respectively with the throat and driver, a driving-shaft having a series of operating cams, connections between said cams and the head, the awl-operating lever, the throat-operating lever and the driver-operating lever, an anvil and operating mechanism therefor co-operating with the throat in bending wire blanks into staples, and wire-feeding and cutting devices, all substantially as set forth.

11. In a machine for making and driving staples, the combination of a vertically movable work-supporting horn, a vertically movable staple-receiving throat over said horn, a vertically movable driver in said throat, an anvil which co-operates with said throat in forming a staple from a wire blank, cutters located beside said anvil, a movable anvil-support, mechanism for reciprocating said support to carry the anvil toward and from the throat, and connections between said support and the horn whereby the support and anvil are moved toward and from the cutters by changes of position of the horn, as set forth.

12. In a machine for making and driving staples, the combination of a vertically movable work-supporting horn, a vertically movable staple-receiving throat over said horn, a vertically movable driver in said throat, an anvil which co-operates with said throat in forming a staple from a wire blank, cutters located beside said anvil, a movable anvil-support, mechanism for reciprocating said support to carry the anvil toward and from the throat, a disk or plate mounted to turn on the frame of the machine and engaged with the anvil-support, and mechanism substantially as described connecting said disk or plate with the horn whereby the disk or plate is partially rotated and caused to move the anvil-support and anvil laterally when the horn is moved vertically, as set forth.

13. In a machine for making and driving staples, the combination of a vertically movable work-supporting horn, a vertically movable staple-receiving throat over said horn, a vertically movable driver in said throat, an anvil which co-operates with said throat in forming a staple from a wire blank, cutters located beside said anvil, a movable anvil-support, mechanism for reciprocating said support to carry the anvil toward and from the throat, connections between said support and the horn whereby the support and anvil are moved toward or from the cutters by changes of position of the horn, a wire-feeding device, mechanism for moving the same toward and from the cutters, and mechanism controlled by the horn whereby the length of feed is determined by the position of the horn, as set forth.

14. In a machine for making and driving staples, the combination of a vertically movable work-supporting horn, a vertically movable staple-receiving throat over said horn, a vertically movable driver in said throat, an anvil which co-operates with said throat in forming a staple from a wire blank, cutters located beside said anvil, and having a fixed support so that they do not move laterally a wire-feeding arm which is moved alternately toward and from the cutters and is provided with a jaw which alternately grasps and releases the wire, a feed-regulating arm or stop which limits the movement of the feeding arm away from the cutters, and connections between said regulating arm and the horn whereby the position of said arm is determined by the position of the horn, as set forth.

15. In a machine for making and driving staples, the combination of a vertically movable work-supporting horn, a vertically movable staple-receiving throat over said horn, a vertically movable driver in said throat, an anvil which co-operates with said throat in forming a staple from a wire blank, cutters located beside said anvil, and having a fixed support a wire-feeding arm which is moved alternately toward and from the cutters, a wire-grasping and releasing jaw in said arm, and mechanism substantially as described whereby said jaw is caused to alternately grasp and release the wire, as set forth.

16. In a machine for making and driving staples, the combination of a vertically movable work-supporting horn, a vertically movable staple-receiving throat over said horn, a vertically movable driver in said throat, an anvil which co-operates with said throat in forming a staple from a wire blank, cutters located beside said anvil and having a fixed support a wire-feeding arm which is moved alternately toward and from the cutters and is provided with a jaw which alternately grasps and releases the wire, a wire-grasping jaw engaged with the supporting-frame, and mechanism substantially as described whereby said jaw is caused to alternate with the jaw of the feeding arm in grasping and releasing the wire, as set forth.

17. In a machine for making and driving metallic fastenings, the combination with wire-cutters and a wire-feeding device movable toward and from said cutters, of a wire-supporting reel, a movable carrier or support therefor, and automatic means for moving said reel toward and from the feeding device, as set forth.

18. In a machine for making and driving staples, the combination of a fixed cutter, a segmental cutter, a rocking hub or holder supporting the segmental cutter, means for rocking said holder, a point bender consisting of a slide or bar movable in a slot across said holder, and means for moving said bender to cause the bending of the point formed on the wire by the action of the cutters, as set forth.

19. In a machine for making and driving staples, the combination of a fixed cutter, a segmental cutter, a rocking hub or holder supporting the segmental cutter, means for rocking said holder, a point bender consisting of a slide or bar movable in a slot across said holder, a reciprocating slide adjacent to said cutters, and a lever pivoted to said slide and engaged with said bender, said lever having arms or projections formed to bear on said slide and lock the lever to the slide to cause the operation of the bender, as set forth.

498,911. CHILL-CORE FOR MOLDING SOCKETS FOR STOVES.

OSCAR DAHAM, Minneapolis, Minn., assignor to the Northwestern Stove Works, same place. Filed May 23, 1892. Serial No. 433,964. (No model.)



Claim.—1. In a device for molding leg-sockets for stoves, a pattern having ribs with oppositely inclined adjacent sides, in combination with a chill-core having prongs or their equivalents for holding it in the sand and having tapering walls forming wedge-shaped openings between the core and ribs, and independently movable wedges for filling such openings, substantially as set forth.

2. In a device for molding leg-sockets for stoves, a pattern having ribs with oppositely inclined adjacent sides, a two-part chill core having arms adapted to engage said ribs and tapering walls forming wedge-shaped openings between the core and ribs, and independently movable wedges for filling such openings, substantially as set forth.

498,912. SADDLE FOR TOP ROLLS OF SPINNING-MACHINES.

HIRA DIXON, Bristol, R. I. Filed Jan. 4, 1892. Serial No. 416,969. (No model.)

Brief.—The back saddle has at its rear an upturned piece which serves as a handle and an indicator to prevent the saddle being placed wrong end to on the rolls. Flanges *k* prevent longitudinal motion of the saddle.

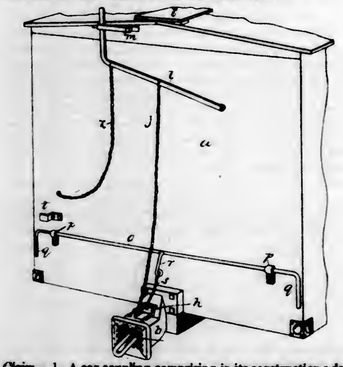


Claim.—1. A back-saddle for the top rolls of spinning machines having its front portion constructed to extend under the front saddle, and its rear portion to extend rearwardly from the rear end of the front saddle, the said back saddle being provided on its rear end with the upturned flange or thumb-piece *j*, whereby it is rendered impossible for the spinner to misplace the back saddle in the machine, by reversing the position of its ends, as set forth.

2. A back saddle for the top rolls of spinning machines having its front portion constructed to extend under the front saddle and its rear portion to extend rearwardly from the rear end of the front saddle, the said back saddle being provided on its rear end with the upturned flange or thumb-piece *j*, and having the downwardly curved lips *k*, on opposite sides of the bearing point of the saddle upon the shaft of the roll, all as and for the purposes set forth.

498,913. CAR-COUPLING.

HERMAN R. DORE, Moultonville, N. H. Filed Dec. 15, 1892. Serial No. 455,332. (No model.)



Claim.—1. A car coupling comprising in its construction a drawbar provided with an inclined chamber *d* and legs *e* extending below the plane of the lower surface of the drawbar, and the hook *c* provided with a shank extended through the said inclined chamber and pivoted in said legs, whereby in case it is desired to remove the hook, the same can be done without removing the drawbar, as set forth.

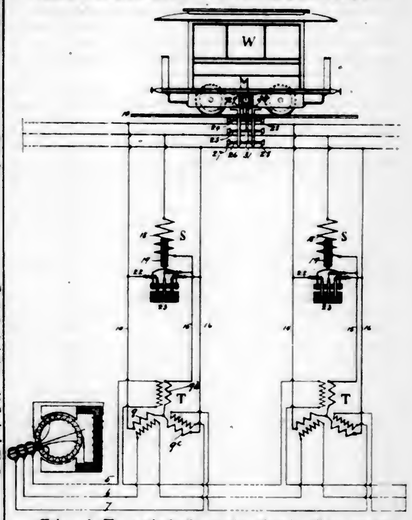
2. In a car coupling, a drawbar provided with the inclined chamber *d*, the hook *c* having its shank extended through the said chamber and pivoted at its lower inner end, a spring in the said chamber bearing upon the said shank, and a hood connected with the hook and covering the opening to the chamber, as set forth.

3. The combination, with the coupling hook, of the lever *l*, the chain *j* connecting the lever with the coupling hook, and the bowed friction spring in the guideway of the lever, as set forth.

4. The combination, with the coupling hook, of the lever *l*, the chain *j* connecting the latter with the coupling hook, the chain *x* for drawing the lever *l* down, the rock rod *o* provided with the crank or angular ends *q*, arm *r*, connecting chain *s*, and retaining clip *t*, as set forth.

493,914. CONVERTER SYSTEM FOR RAILWAYS.

ALARD DU BOIS-REYMOND, Charlottenburg, assignor to Siemens & Halske, Berlin, Germany. Filed Feb. 3, 1892. Serial No. 420,145. (No model.)



Claim.—1. The method of operating electric railway systems, having working conductors sectionally fed from secondary circuits, the primaries of the transformers of which are supplied with an alternating current, the said method consisting in short circuiting the secondary circuits of such sections as are not in operative relation to a moving motor, substantially as and for the purpose set forth.

2. In an electric railway system, the combination with an alternating current generator and feeder conductors therefrom, sectional working conductors, a plurality of transformers having their primary circuits connected to said feeder conductors, and their secondary circuits to independent sections of the working conductors, and means for automatically short-circuiting the secondaries of said transformers, substantially as set forth.

3. In an electric railway system, the combination with an alternating current circuit and generator therefor, working conductors including a series of independent insulated sections and connected with the secondary circuit of a transformer, together with a circuit-closing device in each secondary circuit for short-circuiting the current in said secondary circuit, as the vehicle passes from the end of the current charged section, substantially as described.

4. In an electric railway sytem, the combination with an alternating current circuit and generator therefor, of a series of transformers, and working conductors including insulated sections, each connected with the secondary circuit of one of the transformers, together with circuit closing devices included in said secondary circuits, and each adapted to close and short-circuit the secondary circuit of the insulated section from which the vehicle is passing and open the short-circuiting device of the secondary circuit of the insulated section to which the vehicle is passing, substantially as described.

5. In an electric railway system, the combination with a plural-

ity of transformers, of sectional working conductors connected to the secondaries of said transformers, and a circuit closing device in said secondary conductors, adapted to short-circuit said secondary conductors when no current is required in the sections of the working conductors to which they are connected.

6. In an electric railway system, the combination with a generator of alternating currents of electricity, of feeder conductors leading therefrom, a plurality of transformers having their primaries in series of said feeder conductors, working conductors divided into sections insulated from each other, and each of said sections connected to the secondary terminals of one transformer, a moving vehicle or vehicles and a propelling motor or motors located thereon, and means whereby the said sections are automatically cut into and out of circuit with the source of energy.

7. In an electric railway system, the combination with a generator of alternating currents of electricity, of a plurality of transformers in operative relation with said generator of electricity, working conductors divided into sections insulated from each other and each of said sections connected to the secondary terminals of one transformer, a moving vehicle or vehicles and a propelling motor or motors thereon, a device upon the vehicle or vehicles for establishing electrical contact between said section or sections, vehicle or vehicles, and means whereby said section or sections are automatically energized or de-energized without making or breaking their mechanical connection with the source of energy.

8. The combination with the secondary coils of two transformers, of two adjacent sections of working conductors insulated from each other, two transformers, two circuits of conductors connecting the secondary coils of said transformers with the respective sections of working conductors, a vehicle with a propelling electro-motor or motors mounted thereon, a device for bringing said electro-motor or motors into operative relation with one or both of said sections of working conductors, and short-circuiting devices in said secondary circuits from said transformers, which act to open said normally closed short circuits, when the contact device on the vehicle closes the circuit between the adjacent sections of the working conductors, but which will automatically close said short circuits when the sections of the working conductors are no longer in circuit with the motor or motors upon the vehicle.

9. An electric railway divided into a number of successive sections insulated from each other, each section comprising a current transformer, the primary coil of which is in series with the primary coils of the other transformers in the system, and connected to the source of energy, a pair of supply conductors fed from the secondary coil of the transformer, and a device for short-circuiting the said secondary coil when no current is required in the supply conductors.

10. An electric railway divided into a number of successive sections insulated from each other, each section comprising a current transformer, the primary coil of which is in series with the primary coils of the other transformers in the system, and connected to the source of energy, a pair of supply conductors fed from the secondary coil of the transformer, and a device for short-circuiting the said secondary coil when no current is required in the supply conductors.

11. An electric railway divided into a number of successive sections insulated from each other, each section comprising a current transformer, the primary coil of which is in series with the primary coils of the other transformers in the system, and connected to the source of energy, and means for de-energising the working conductors without rupturing their mechanical connection with the source of current.

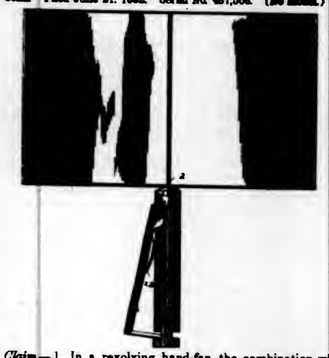
11. An electric railway divided into a number of successive sections insulated from each other, each section comprising a current transformer, the primary coil of which is in series with the primary coils of the other transformers in the system, and connected to the source of energy, and means whereby the current flowing in the working conductors of one section will actuate a device in the next section and thereby permit the supply conductors of that section to be energized.

12. In an electric railway system, the combination with a source electricity, a plurality of independently located transformers, working conductors arranged as successive sections, insulated from each other, and each of said sections connected to the secondary terminals of a transformer, a vehicle and a propelling electro-motor thereon, and means for energing and de-energising said working sections, without altering their mechanical connection with the source of current actuated by apparatus carried on the vehicle.

13. In an electric railway system, the combination with a source of electricity, of a plurality of independently located current transformers, the primaries of which are coupled in series, working conductors arranged as successive sections, insulated from each other, and each of said sections connected to the secondary terminals of a transformer, a vehicle and a propelling electro-motor thereon, and means for energising said motor from said working conductors, substantially as described.

14. An electric railway divided into a number of independent distributing stations, each station comprising a current transformer, a sectional working conductor, a pair of supply conductors interposed between the section of the working conductor and the secondary terminals of the transformer, and a device for automatically short-circuiting the secondary coil of the transformer, at such times as when the working current is not required in the section of the working conductor supplied by it.

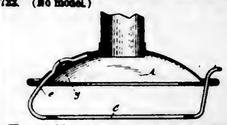
493,915. REVOLVING HAND-FAN. HENRY C. DURGIN, Hartford, Conn. Filed June 21, 1892. Serial No. 437,508. (No model.)



Claim.—1. In a revolving hand-fan, the combination with the fan proper, a spindle connected thereto, a hollow handle into which said spindle extends, an arm pivoted to said handle and having a spring bearing thereagainst, and a lower angular end with a diagonal slot therein adapted to engage said spindle, substantially as described.

2. In a revolving hand fan, the combination of the fan proper, a vertically-disposed spindle on which it is mounted, a hollow handle through which the said spindle extends and is journaled, an arm pivoted to the upper portion of said handle and having a spring bearing thereagainst, and a lower angular end with a diagonal slot therein adapted to engage said spindle and formed integral with the lower end of said arm, the lower end of said spindle being formed with a crank, and the lower portion of the handle with a slot in opposite sides, through which the angular end of said arm has movement, whereby pressure exerted on the said arm will cause a revolution of the fan, substantially as described.

493,916. WIRE-FASTENING. CHARLES F. REA, New York, N. Y., assignor to The R. E Dietz Company, same place, and the Steam Gauge and Lantern Company, Syracuse, N. Y. Filed Aug. 22, 1890. Serial No. 363,722. (No model.)



Claim.—The combination with the sheet metal plate having a pair of openings and the metal between these openings depressed below the plane of the plate to form a recess between said openings, of a wire arranged against the under side of the plate and passing through said openings and above the depressed portion of the plate, the metal between the openings and the portion of the wire resting on said metal, being bent upwardly into said recess, whereby a bulge is formed in the metal between said openings having an upper convex side against which the concave underside of the bent portion of the wire rests, substantially as set forth.

493,917. PIN FOR STRINGS OF MUSICAL INSTRUMENTS. GUSTAV A. REBER, Camden, N. J. Filed Oct. 19, 1892. Serial No. 449,307. (No model.)

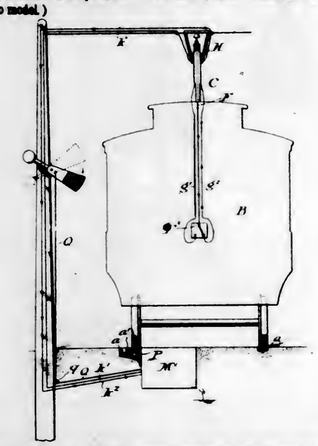


Claim.—1. A pin for a stringed musical instrument having a shoulder, a connected stem, a removable head non-rotatable on said stem and forming a shoulder, a shoulder opposite to that on the pin, and a nut engaging the outer end of the stem and bearing against the head, in combination with a metallic plate through which said pin passes, the shoulders being on opposite sides of said plate, said plate being attachable to and removable from the face of the piece or head of the instrument substantially as described.

2. A pin for a stringed musical instrument formed of a pin proper, a journal or stem of angular form connected therewith, a knob or head having an angular opening fitted on said stem, a nut engaging the end of the stem and bearing against said head, shoulders on the stem and head, and loose washers on the stem in contact with said shoulders in combination with a metallic plate through which said pin freely passes and which has said loose washers on opposite sides of the same, said plate being attachable to and removable from the face of the piece or head of the instrument substantially as described.

3. A metallic plate, a pin passing freely through the same, a portion of said pin being angular, a head on said pin, the inner end of said head forming a shoulder on one side of the plate, said pin having a shoulder thereon on the opposite side of said plate, and washers in contact with said shoulders and plate, the openings of said head and washers being angular to accord with the angular portion of the pin, said plate being attachable to and removable from the face of the piece or head of the instrument, substantially as described.

493,918. ELECTRICALLY-OPERATED RAILWAY-SWITCH. POWELL EVANS, Philadelphia, Pa. Filed Dec. 7, 1891. Serial No. 414,275. (No model.)



Claim.—1. In combination with a relatively stationary structure a depending portion of which forms a guide for a trolley arm or kindred device,—conductors independent of each other mounted upon said structure and having contact pieces laterally disposed with respect to said depending portion, said conductors being adapted to form parts of independent circuits, and being each electrically connected with mechanism adapted to be operated upon the closing of the circuit,—as a means for closing, from a traveling device, a selected one of the several circuits of which said conductors form parts,—a traveling device, such as a trolley arm, equipped intermediate of its length with laterally disposed independent conductors, which latter are, in the travel of the movable device past the stationary structure, carried into contact with the contact pieces of said stationary structure,—and means for electrically connecting the conductors of the traveling device with a source of electricity, substantially as set forth.

2. In combination with a movable device such as a trolley arm,—conductors, out of circuit with each other, mounted upon said arm, and having contact pieces intermediate of the length of the arm,—a relatively stationary structure embodying a passage way through and in contact with the sides of which said arm passes in its travel, and conductors mounted upon the stationary structure in such position as to be encountered each by an appropriate contact piece of the trolley arm, substantially as set forth.

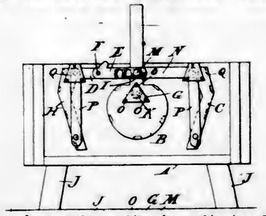
3. In combination with a movable device such as a trolley arm mounted upon a vehicle and equipped with two conductors out of circuit with each other and existing respectively on opposite sides of said arm,—a relatively stationary structure comprising a pair of arms between and in contact with both of which said trolley arm passes in the travel of the vehicle,—and conductors mounted one upon each of said stationary arms and existing respectively on the inner faces of said arms for contact with the conductors of the trolley arm, substantially as set forth.

4. In an apparatus for the control of a switch, in combination with switch operative mechanism contained in a closed casing, as a means for communicating the regulated movement of the operative mechanism to the switch, a rigid shaft bar or pitman passing through and suitably packed with respect to the wall of the said casing, substantially as set forth.

5. In an apparatus for the control of a switch, in combination with electrically operated switch controlling mechanism in communication with a source of electric supply, and contained in a closed casing, as a means for communicating the desired movement of said mechanism to the switch, a horizontally disposed rigid shaft bar or pitman passing through and packed with respect to the wall of the casing, and having an outer end adapted for engagement with the switch rail, substantially as set forth.

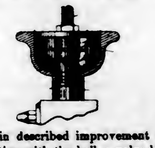
6. In combination with a car carrying conductors in regulated contact with a source of electrical supply, a switch-operating mechanism consisting of a movable armature, means for connecting said armature with a switch, a pair of electro-magnets situated respectively on opposite sides of the armature, and a pair of conductors, the upper portions of which are adapted to be encountered by the conductors on the car, and the lower portions of which are wound oppositely around the armature and then connected with each other and continued as a single conductor to and around both magnets in a common direction, substantially as set forth.

493,919. WASHING-MACHINE. CALVIN FLANDERS, Brantford, Canada. Filed Feb. 25, 1892. Serial No. 422,821. (Model.)



Claim.—In a washing machine, the combination of a suds box, A, the oscillating cylindrical rubber B, journaled in said suds box, and provided with the pins M; the adjustable squeezing washer C, connected by swinging links P, to the suds box A, the arms D, rigidly attached to the washer, C, and having slot connections with the pins M, the stops I, on the arms D, and the notched latches, E, pivoted to the arms, D, all substantially as shown and described.

493,920. STEAM-WHISTLE. HENRY R. PRIMER, Bridgeport, Conn. Filed Apr. 15, 1892. Serial No. 429,277. (No model.)

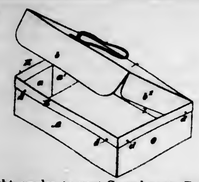


Claim.—The herein described improvement in steam whistles comprising in combination with the bell, a valve body having a hollow steam column projecting therefrom and integrally formed therewith, said column having outlet ports, also a lower threaded base and a shouldered portion as shown, a detachable steam bowl whose interior is so shaped that it will readily form its own core, a threaded hole through the neck or lower part thereof to engage with the threaded base of said steam column, while the face of said neck portion is arranged to engage with the said shouldered portion before mentioned, a detachable bowl plate arranged to be secured to the said steam column in the manner substantially as shown and for the purpose set forth.

493,921. SAMPLE-BOX. ROBERT GAIR, Brooklyn, N. Y. Filed July 20, 1892. Serial No. 441,563. (No model.)

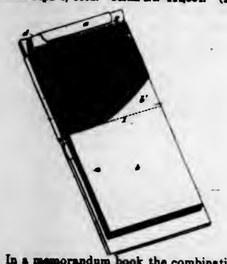
Claim.—The herein described sample box, the same consisting of the bottom part G, front and back parts I A, ends R O, said parts I

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A turned up at right angles to part G, and parts R O turned up at right angles to part G and also to parts I A, laps a a^3 and a' a^3 respectively forming parts of front and back I A and folded at right angles thereto inside the end parts R O, the metal clasp E embracing the top edges of the parts A R O and laps a a^3 a' a^3 and binding them together, and the lid or cover B formed integral with the back part I, and the cover flaps b b' b^3 bent at right angles to the lid and adapted to enter the top of the box when the lid is shut down, substantially as specified.

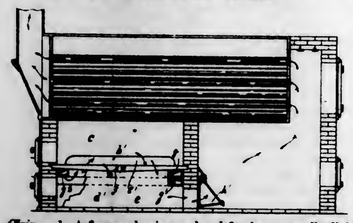
498,922. MEMORANDUM SALES-BOOK. ROBERT GAIR, Brooklyn, N. Y. Filed Sept. 1, 1892. Serial No. 444,801. (No model.)



Claim.—1. In a memorandum book the combination of a cover or back, a book or block of memorandum leaves, a board or holder placed and held between the book and the cover and provided with flanges on the two edges which are in contact with the edges of the cover and thereby prevent the holder from slipping or becoming displaced, and a transfer leaf attached by one edge to the holder under the book and with its free portion carried up over the top or exposed leaf or sheet of the book, substantially as specified.

2. The combination of a cover or back A, a book or block G of duplicate memorandum leaves or slips, a transfer leaf holder R placed between the book and cover and provided with flanges f f which embrace the edges of the cover and prevent the holder from slipping, and a transfer leaf I attached by one edge to the said holder, and with the free part laid over the exposed top leaf of the book, substantially as specified.

498,923. FURNACE. GEORGE F. GALLAGHER, Rochester, N. Y. Filed Aug. 3, 1892. Serial No. 442,002. (No model.)

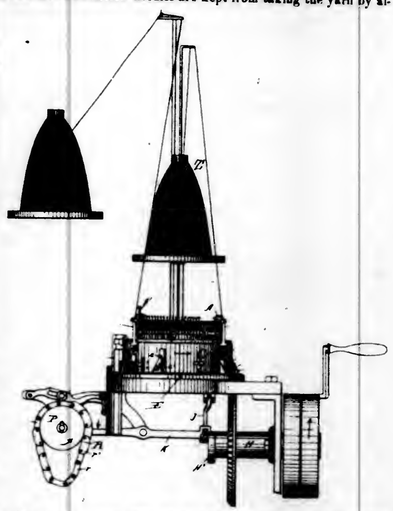


Claim.—1. A furnace having a closed fire-box centrally divided by a partition extending part way to the grate-bars having a space between the grate bars and the partition, for the passage of the products of combustion, an ash-pit divided centrally by a closed partition and adjustable doors in the rear wall of each section of the ash-pit for controlling the direction of the draft all combined and operating substantially as and for the purpose stated.

2. A furnace having a closed fire-box centrally divided by a partition extending part way to the grate bars having a space between the grate-bars and the partition, and ash-pit divided centrally by a closed partition, for the passage of the products of combustion air passages located in the ash-pit below the grate-bars and adapted to conduct air from the outside to the rear of the ash-pit and thence to the front of the same where it is discharged in the front of the ash-pit and adjustable doors in the rear walls of each section of the ash-pit for controlling the direction of the draft, all combined and operating substantially as and for the purpose stated.

498,924. CIRCULAR-KNITTING MACHINE. ALFRED P. GRIFFITH and THOMAS N. CASWELL, Michigan City, Ind. Filed Jan. 14, 1889. Serial No. 296,322. (No model.)

Brief.—The machine makes a striped or a checkered pattern, there being two sets of needles, cams, and thread-guides, and the cams and needles being constructed and arranged to cause either set of needles to take the yarn at either guide while the other set of needles fails to take the yarn. The long-heeled needles are kept from taking the yarn by raising them above the delivery-point thereof, while the short-heeled needles are kept from taking the yarn by allowing them to travel past the yarn-guide below the delivery-point thereof.



Claim.—1. The knitting machine having two classes of needles, combined with yarn feeding devices, and operating means for the said classes of needles whereby one class is raised above the delivery point of the feeding devices and rendered incapable of knitting during some portion of the revolution of the machine, substantially as specified.

2. In a knitting machine the combination of two sets or classes of needles and actuating and holding mechanism therefor acting to maintain one set of said needles too high to knit and the other set too low to knit during some portion of each revolution of the machine, substantially as specified.

3. The combination in a knitting machine of the needles arranged in groups distinguished by long and short projecting arms, and a cam ring having grooves adapted to maintain the long armed needles above the plane at which they will knit while the short armed needles are knitting and maintain the short armed needles below the plane at which they will knit, while the long armed needles are knitting, said grooves having means, such as cam surfaces for operating the active needles to cause them to knit while the passive needles are maintained out of action, substantially as specified.

4. The combination in a knitting machine of the needles arranged in groups distinguished by long and short projecting arms, and a cam ring having grooves adapted to maintain the long armed needles above the plane at which they will knit while the short armed needles are knitting, and maintain the short armed needles below the plane at which they will knit, while the long armed needles are knitting, said grooves having means such as cam surfaces for operating the active needles to cause them to knit while the passive needles are maintained out of action, and said cam surfaces having movable portions whereby the grooves are made changeable at will, so that the two sets of needles may be changed from one yarn to the other, substantially as described.

5. The combination in a knitting machine of the needles made with long and short arms, the cam ring having cam surfaces for operating the same constructed to maintain some of the needles above the plane at which they will knit and to maintain the other needles below the plane at which they will knit, said cam surfaces having blocks or movable slides B B' B^3 B^3 connected by intermediate mechanism to the moving parts of the machine to be automatically shifted or moved at regular intervals, substantially as described.

6. In a knitting machine the combination of the cam ring having a set of grooves for operating the needles constructed to elevate one part of the needles above the knitting point while the other part is knitting and to maintain in the common plane the other part of the needles while the one part is knitting, and the needles A, A', said grooves having means such as cam surfaces for operating the active needles to cause them to knit while the passive needles are maintained out of action, substantially as described.

7. In a knitting machine the combination of the cam ring having a set of grooves for operating the needles constructed to elevate one part of the needles above the knitting point while the other part is knitting and to depress the other part of the needles while the one part is knitting, and the needles A, A', said grooves having means such as cam surfaces for operating the active needles to cause them to knit while the passive needles are maintained out of action, said cam surfaces having movable blocks B, B', B^3, B^3 forming some portion of the grooves, substantially as described.

8. In a knitting machine the combination of the needles A A' and the cam ring having the grooves with the various horizontal and inclined surfaces b, b', b^2, b^3, b^4, b^5, b^6, b^7, b^8, b^9, b^{10}, b^{11}, b^{12}, the common groove and the movable blocks B, B', B^3, B^3, substantially as specified.

9. In a knitting machine the combination of the needles A A', the cam ring having grooves constructed to elevate the needles A' while the needles A are knitting and to maintain in the common plane the needles A while the needles A' are knitting, said grooves having the blocks B, B', B^3, B^3, forming some portion of the grooves, the loose ring E carrying cams D D, D' D', the lever F, the slide G, the lever S, the pulley P, the chain R, r, r', the lever K, the lever J, the cam H' and the shaft H, and the pawl L and the ratchet M, substantially as set forth.

498,925. FOLDING CARD-TABLE. ALBERT A. GRIFFIN, Roscommon, Mich. Filed Apr. 25, 1892. Serial No. 430,557. (No model.)

Claim.—1. In a folding table, the combination with a socketed head, of radial arms pivoted to the head, a fabric secured to the outer ends of the arms, a ferrule in line with the socket, braces connecting the arms at or about their centers with the ferrule, a standard removably secured in the socket and passing through the ferrule, a spring pawl in the standard having a series of notches therein and a stop on the ferrule arranged to engage the notches, substantially as described.

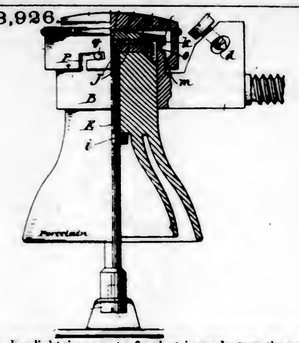
2. In a folding table, the combination of the socketed head, having the L shaped slot therein, the radial arms pivoted in the head, the fabric secured to the outer ends only of the arms, the ferrule in line with the socket, the braces connecting the center of the arms with the ferrule, the spring pawl in the standard having a series of notches, and a bar on the ferrule, adapted to engage in said notches, substantially as described.

498,926. LIGHTNING-ARRESTER. HERMANN O. HERRMANN, Berlin, Germany, assignor to Siemens & Halske, same place. Filed Dec. 9, 1892. Serial No. 454,566. (No model.) Patented in Germany Dec. 6, 1891. No. 64,111.

Claim.—1. In a lightning arrester for electric conductors the combination of a plate and an inner cover adjacent to the same, the former being in electrical connection with a conductor and the latter adapted for ground connection, and an outer cover holding the inner cover in position and forming a moisture conducting chamber around the same.

2. In a lightning arrester for electrical conductors, the combination of a discharge plate and an inner cover relatively separated, the latter having its upper face convexed to form a water shed, and an outer cover bearing on the central portion of said upper face and forming a moisture conducting chamber.

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3. In a lightning arrester for electric conductors, the combination of a discharge plate and an inner cover relatively separated, and an outer cover having a depending rim provided with an inner closing rib perforated as described.

4. In a lightning arrester, the combination with a bracket having a perforation and binding screw for ground wire connection, a collar carried by said bracket and suspending an insulating bell, a discharge plate, an inner cover resting on the collar, and an outer cover holding the inner cover in position and forming a moisture conducting chamber, substantially as set forth.

498,927. EMBOSSED PLATE FOR ENAMELED WATCH-DIALS. FRITZ HESS, Locle, Switzerland. Filed June 15, 1892. Serial No. 436,804. (No model.)



Claim.—1. As a new article of manufacture, a watch dial of thin sheet metal stamped up with an ornamental surface and covered with a transparent enamel, through which the ornamentation is visible substantially as specified.

2. As a new article of manufacture, a watch dial of thin sheet metal stamped up with an ornamental surface and having an upwardly projecting rim, and covered with a transparent enamel substantially as specified.

3. As a new article of manufacture, a watch dial of thin sheet metal stamped up with an ornamental surface and covered with a transparent enamel and having the divisions and figures upon the coating of enamel, substantially as specified.

498,928. RIVETING-MACHINE. EDWARD HEYDE, Saginaw, Mich., assignor to Wickes Brothers, same place. Filed Apr. 15, 1892. Serial No. 429,332. (No model.)

Claim.—1. In a portable hydraulic riveting machine, the combination with a frame consisting of two jaws rigidly connected, a cylinder formed in the outer end of one jaw a piston in the cylinder, a die on the opposite jaw, a movable riveting jaw pivoted between the said other jaws, a pivotal connection directly between the piston and movable jaw, and means on the frame for governing the movement of the liquid to and from the cylinder, substantially as described.

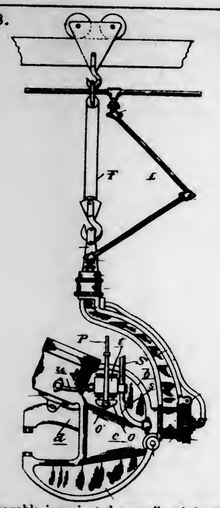
2. In a portable riveter, a frame composed of two arms, and separated webs rigidly connecting the arms at one end, a die at the outer end of one arm, a movable jaw pivoted between the webs and guided thereby, a cylinder in the other arm and a piston therein, connected to the movable jaw, substantially as described.

3. In a portable riveter, a frame composed of two arms rigidly connected at one end by two separated webs, a lever pivoted between and guided thereby, and forming the movable jaw of the riveter, an obliquely arranged hydraulic cylinder at the end of one arm, a piston therein, a pivoted connection between the piston and movable jaw, and a die on the end of the other arm, substantially as described.

4. In a portable riveter, the combination of a C shaped frame, one end carrying the stationary die and the other carrying an obliquely arranged cylinder and a piston therein, and a movable die actuated by and pivotally connected with the piston, having a rearwardly extending support pivotally connected to the frame, substantially as described.

5. In a portable riveter, the combination of a C shaped frame, having integral arms of different length, a stationary die at the end of the longer arm, an obliquely arranged cylinder at the end of the

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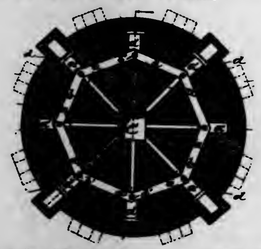
shorter arm, a movable jaw pivoted centrally of the frame and extending between the arms, and a piston in the cylinder connected to the movable jaw intermediate its ends, substantially as described.

498,929. CARPET-LINING, PACKING, &c. THOMAS D. HOLCOMB, Brooklyn, N. Y. Filed July 15, 1892. Serial No. 440,102. (No specimens.

Claim.—1. As a new article of manufacture, a carpet lining, &c., composed of two sheets of paper with flanges cut from one sheet and caused to adhere to the other sheet, substantially as set forth.

2. As a new article of manufacture, a carpet lining, &c., composed of two sheets of paper with flanges cut from one sheet and caused to adhere to the other sheet, and perforations in the second sheet, substantially as set forth.

498,930. BRICK-KILN. ABRAM B. HORNE, Logan, Ohio. Filed June 20, 1892. Serial No. 437,356. (No model.)



Claim.—1. In a kiln, a floor having a central draft pit C, a channel *b* open at its upper side and extending around the floor near the outer wall, flues *a* entirely closed at the upper side radiating from the central draft pit and connecting said pit and channel *b*, flues *a'* extending from the channel *b* to the walls, recesses *d* connecting the flues *a'* with the interior of the kiln, and an exit draft opening for the system of flues, substantially as shown and described.

2. In a kiln, a floor having a central draft pit C with openings at its top, a channel *b* open at its upper side and extending around the floor near the outer wall, flues *a* entirely closed at their upper sides radiating from the central draft pit and connecting said pit with said channel, flues *a'* extending from the channel *b* to the walls, recesses *d* connecting the outer ends of flues *a'* with the interior of the kiln, stringers S on the floor, and corbeling *r* between said stringers where they span the open channel *b* and the upper side of the central draft pit, substantially as shown and for the purpose described.

3. In a kiln, a floor having a central draft pit C with openings in its upper side, a channel *b* open at its upper side and extending around the floor near the outer wall, flues *a* entirely closed at their upper sides connecting the pit C and the channel *b*, stringers S on the floor having free air spaces at their under sides, and corbeling *r* between said stringers where they span the open channel *b* and pit C, substantially as shown and for the purpose described.

4. In a kiln, a fire box and a fire bag, the latter having openings at its top, front, and sides, and the former having fresh air flues leading into the lower part of the fire-bag and fresh air flues opening above the fire bag, substantially as shown, whereby a thorough combustion of the fuel is effected as set forth.

498,931. TICKET-CONTROLLING APPARATUS. LYTLE J. HUNTER, Covington, Ky., and HARRY C. HUNTER and JOSEPH H. HUNTER, Winton Place, Ohio. Filed Sept. 19, 1892. Serial No. 446,316. (No model.)



Claim.—1. In a machine of the general character described, a plurality of holders for webs of paper, a plurality of sets of jaws by which said webs may be projected, and a single operating handle having a plurality of operating connections to engage with and actuate either but not both sets of jaws at the same time, in combination, substantially as described.

2. In a machine of the character described, a plurality of reels for webs of paper, a guide way for each web, a set of jaws reciprocating in the direction of the length of each guide way, and means for closing and projecting one set or the other of the jaws, all in combination substantially as described.

3. In a machine of the character described, a paper holder, a guide way substantially as described leading from near said holder, a pair of jaws capable of reciprocating in the direction of the length of the guide way, and means for closing said jaws and projecting them along the guide way, all combined substantially as described.

4. In a machine of the general character described, a paper holder, a pair of jaws capable of movement toward and from said holder, and means for closing said jaws and reciprocating means substantially as described for them relatively to the holder, in combination substantially as described.

5. In a machine of the general character described, a paper holder, jaws for clamping and advancing the paper from said holder, a handle operatively connected to said jaws, and a cutter in position to be actuated by said handle movement when desirable, all in combination.

6. In a machine of the general character described, the combination of the paper holder, the jaws having a closing and projecting movement substantially as described and the handle operatively connected to the jaws and having a projecting arm, and the punch operating mechanism in the line of movement of said arm, substantially as described.

7. In a machine of the character described, the paper holder and paper advancing mechanism, an operating handle connected to said advancing mechanism to move the same by its reciprocation, a punch and operating mechanism therefor, the handle having an abutment which may be moved to one position to actuate the punch mechanism, and to another position in which the handle and connections op-

erate independently of the punch mechanism, in combination substantially as described.

8. In a machine of the character described, a plurality of paper holders, advancing mechanism in proximity to each holder, and a single operating handle having a plurality of operating connections whereby it may be made to actuate either one of the paper advancing devices without moving the other, in combination substantially as described.

9. In a machine of the character described, a plurality of paper holders, a paper advancing mechanism in proximity to each paper holder, a punching cutter, and a single handle having a plurality of engaging connection, whereby a single complete movement of the handle may be made to actuate one of the paper advancers and the cutter, or the other advancer leaving the first and the cutter at rest, all in combination substantially as described.

10. In a machine of the character described, a plurality of paper holders, advancing jaws in proximity to each holder, a single handle having operative connection to either but not both of the advancing jaws at the same time, and an alarm connected to the handle and actuated by each full movement thereof, all combined substantially as described.

11. In a machine of the character described, a handle and its draw rod, the spindle in proximity to the body of said rod, a head on said rod which may be turned into or out of engagement with said spindle, and a pair of jaws operatively connected to the spindle by lever mechanism, whereby the jaws may be operated by the handle or the handle may be moved without operating the jaws, all in combination substantially as described.

12. In a machine of the character described, the reciprocating rod and handle, the slotted spindle surrounding said rod, the arm on the spindle in position to be turned into said slot, the advancing jaws and their support, and the lever connecting said spindle to the jaw, whereby the jaws may be both closed and advanced, all in combination substantially as described.

13. In a machine of the character described, the combination of the handle and its rod, the spindle surrounding said rod, lever mechanism actuated by said spindle, the jaws operatively connected to said lever mechanism to be closed and advanced thereby, the punch and its operative connections from said spindle, and a projection from the handle whereby the punch may be thrown out of operative relation with the spindle and jaw mechanism, all combined substantially as described.

14. In a machine of the character described the slotted spindle and its supports, the swinging jaws and lever mechanism connecting the spindle and jaws to both close and swing the jaws, the handle and its rod having an arm which may be turned into said slot, and the second set of jaws and lever connections in position to be engaged and actuated by the arm on the handle rod when the same is in the spindle slot, all in combination substantially as described.

15. In a machine of the character described, the spindle and its operative connections to the punch having contact engagement, and the handle having an arm which may be turned into position to disengage said contact while still in position to move the spindle, all combined substantially as described.

16. In a machine of the character described, the spindle 40 having a projecting arm 50, the punch 53 and its operating lever having a hook 51 in position to be engaged by said arm, and the lever 60, supported on the frame in position to be moved to disconnect the hook 51 from arm 50, all combined substantially as described.

17. In a machine of the character described, the punch 53 and lever connected thereto, the spring pressed hook hung to said lever, the lever 60 on the frame in proximity to said hook, the spindle and its arm 50 in position to engage said hook to work the punch, and the handle rod and head 45 in position to actuate the lever to disengage the hook, all combined substantially as described.

18. In a machine of the character described, and in combination with the paper projecting mechanism, a punch extending outside the casing and operatively connected to the paper projecting mechanism, substantially as described.

19. In a machine of the general character described, the casing, a paper holder within the same, the paper advancing mechanism within the casing and the spindle operatively connected thereto, a rigid arm on the spindle, a link connected to said arm, the punch 102 extending into its anvil outside the casing, and the lever 104 and 105 connecting said link to the punch, all combined substantially as described.

20. The spindle 40 and its arm and lever connections as 30 33, the sliding jaw and the swinging jaw to which said lever is connected, and the arched track along which the sliding jaw is guided, all combined in a machine of the character described.

21. The reciprocating spindle 40 and the jaw mechanism operatively connected thereto, the operating rod passing through said spindle and having a head projecting at the side of the spindle, a second set of jaws having operating means in the path of movement of said head on the operating rod, and a spring engaging the operating rod to hold its head normally out of engaging position with the second set of jaw actuating devices, all combined in a machine of the character described.

22. The slotted spindle 40 and the jaw mechanism and punching mechanism operatively connected thereto, the rod 44 passing through said spindle and having an arm projecting at the side thereof and in position to be turned to position to register with the slot, a second set of jaw mechanism in position to be engaged by the arm when so turned, and a spring acting on the rod to retain its arm normally out of the slot in the spindle, all combined in a machine of the general character described.

23. In a machine of the character described, the spindle 40, the jaw mechanism 23 24 operatively connected to said spindle, operating rod 44 and the arm 84 projecting therefrom through a slot in the spindle, the bell and its hammer, and a spring pawl connected to arm 84 in position to actuate said hammer, all combined substantially as described.

24. In a machine of the character described, the handle and its operating rod, the spindle in position to be operatively engaged by said rod and connected to a paper advancing mechanism, the second paper advancing mechanism in position to be engaged by a head on the operating rod when desirable, the arm 84 connected to the operating rod and extending through a slot in the spindle, the bell and hammer, and a pawl on arm 84 in position to actuate the bell hammer, all in combination.

25. In a machine of the character described, a paper holder, a pair of jaws in proximity thereto, and a sliding handle guided to reciprocate in a straight line in the casing and operatively connected to the jaws, whereby the jaws may be closed onto a paper strip and projected a determined distance at a single complete movement of the handle, in combination substantially as described.

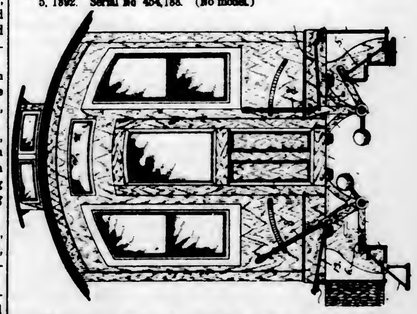
26. The spindle 40 and an arm connected thereto, the bell crank lever 30 33 pivotally connected to said arm, the sliding jaw, the jaw pivotally connected to said sliding jaw and operatively engaged by an arm of said bell crank lever, and the handle connected to said spindle whereby the reciprocation of the spindle serves to close the swinging and advance the sliding jaw, all combined in a machine of the character described.

27. The spindle 40 and means to reciprocate the same, a rigid arm connected to said spindle and the bell crank lever 30 33 operatively connected to said arm, the sliding jaw guided by a track and having a swinging jaw pivoted thereto with which jaw the bell crank lever engages, and a spring acting to move the jaws in one direction all combined in a machine of the character described.

28. In a machine of the character described, the casing having a plurality of paper holders, a paper advancer to operate the paper from each holder, and a single handle having an operative attachment in position to engage and operate one paper advancer when the handle is operated from one position, and to disengage the same and operate another advancer when the handle is operated from another position, all combined substantially as described.

29. In a machine of the character described, the casing, the paper holder and jaws for advancing the paper therefrom, a paper cutter, and a handle having operative surfaces which may be thrown into engagement with the jaw operating mechanism and the cutter, or turned away from the same at will, all combined substantially as described.

493,932. CAR-STEP. WILLIAM KUHL, Buffalo, N. Y. Filed Dec. 5, 1892. Serial No. 454,188. (No model.)



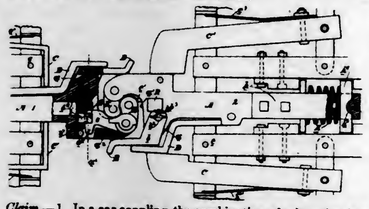
Claim.—I. In combination with the platform and fixed steps of a car, the movable steps 3, suspended by the rods 4, and operated by

the bell-crank-lever 7, and connecting rod 5, the whole arranged and operating substantially as shown and described.

2. In combination with the platform and fixed steps of a car, the movable steps 3, suspended by the rods 4, and operated by the bell crank lever 7, and connecting rod 5, and the pivoted gates 11, operated by the said bell crank lever 7, to which it is connected by the rod 13, the whole arranged and operating, substantially as shown and described.

3. The herein described movable car-step and gate consisting essentially of the pivoted gates 11, and movable steps 3, operated by the bell crank levers 7, said levers being rigidly mounted on the shaft 14, and coupling levers 16, for adjustably securing the shafts 14, to similar shafts, arranged on an adjoining car, substantially as and for the purpose stated.

493,933. CAR-COUPLING. JOHN C. LOOK, San José, Cal. Filed June 3, 1892. Serial No. 435,414. (No model.)



Claim.—1. In a car coupling, the combination of a draw-bar having a pivoted hook-head and pivoted guard, and a connection between the pivoted hook-head and pivoted guard comprising inclined surfaces on said hook-head and guard whereby the draft pressure on the pivoted hook-head tends to hold the pivoted guard in a fixed position on the draw-bar, substantially as herein described.

2. In a car coupling, the combination of a draw-bar having a pivoted hook-head and pivoted guard, and a locking device for the pivoted hook-head, and a connection comprising contacting inclined surfaces between the locking device and pivoted guard whereby the draft pressure on the locking device tends to hold the pivoted guard in a fixed position on the draw-bar, substantially as herein described.

3. In a car coupling, the combination of a draw-bar having a pivoted hook-head and pivoted guard, and a locking device for the hook-head, and an incline in connection with the locking device and pivoted guard whereby the locking device is operated as in uncoupling when the guard is flexed, substantially as herein described.

4. In a car-coupling, the combination of a draw-bar having a pivoted hook-head and pivoted guard with extended arm *b*, a vertical locking pin for the hook-head, having a projection on its upper end extending out over the arm *b* of the pivoted guard, and an incline in connection with said projection and arm, whereby the pivoted guard is held forward into the coupled position when the locking pin is down and under draft pressure, substantially as herein described.

5. In a car coupling, the combination of a draw-bar having a pivoted hook-head with lever arm and a pivoted guard, a locking pin having an incline in connection with the pivoted guard whose downward pressure throws the guard forward, and a notch in the locking pin for the lever arm of the hook-head, whereby the locking pin is held down when the coupling is under draft, substantially as herein described.

6. In a car coupling, the combination of a draw-bar having a pivoted hook-head with lever arm and a pivoted guard, a locking pin for the hook-head, an incline in connection with the locking pin and pivoted guard to hold the guard, a notch in said locking pin for the lever arm of the hook-head, and an incline in connection with said notch and lever-arm, whereby the locking pin is drawn down more firmly under heavy draft pressure, and more easily uncoupled under light draft pressure, substantially as herein described.

7. In a car coupling, the combination of a draw-bar having a vertical wall *a'*, a pivoted hook-head with lever arm and yielding pivoted guard, devices for locking the pivoted guard including the notched locking piece for the reception of the lever arm of the hook-head, and the vertical wall *d'* of the incline in the lever arm standing out in front of the vertical wall *a'* of the incline of the draw-bar, when the lever arm is in the notch, and to recede back when there is buffing pressure, substantially as herein described.

8. In a car coupling, the combination of a draw-bar having a flat face pivoted hook-head and yielding guard, and a drawhead so recessed for the lever arm of the pivoted head, as to allow an inclined plane to be formed of the flat face of the hook-head, said incline pointing inwardly toward the direction of the guard, substantially as herein described.

9. In a car coupling, the combination of a draw-bar having a flat face hook-head and yielding guard, said hook-head forming an inclined plane of its front face, a spring to act from the car on the draw-bar side, and a stronger spring, in connection with a stop, to act from the car on the guard bar side, to hold the hook in a central location when the cars are separated substantially as herein described.

10. In a car coupling, a draw-bar having a flat face pivoted hook-head and pivoted guard, and the reverse incline *c*, substantially as herein described.

11. A laterally swinging draw-bar with U-shaped strap A having the oval boss A^4 and socket A^2 in the draw-plate A^3, substantially as herein described.

12. In a car coupling, a draw-bar having a pivoted hook-head with a locking lever arm, a vertical locking pin having a shoulder for the locking lever, the swinging catch *i* for resting under the shoulder of the locking pin when the locking lever is out, and the inclined projection c^3 on the lever arm, substantially as herein described.

493,934. SAW. JOHN LYKKE, New York, N. Y., assignor of one-third to Jacob Faibel, same place. Filed May 12, 1890. Serial No. 351,433. (No model.)



Claim.—A saw having two sets of teeth, 2 and 3, arranged in groups, each group being between a pair of chip-chambers 11, the teeth 2 being chisel or ripping-teeth and operating to cut or form the kerf, and the teeth 3 being planer teeth operating simply to smooth the sides of the kerf formed by the chisel or ripping teeth, said planer teeth terminating each in a sharp point 8 and having each beveled surfaces 6 and 9 on the same side to form respectively a straight planing edge 7 extending out to said point 8 and a passage way for the clearance of the particles planed, the planer teeth being alternately beveled on opposite sides to enable both sides of the kerf to be smoothed.

493,935. ELECTRIC RAILWAY-SIGNAL. HENRY V. MILLER, Bloomington, and ALEXANDER C. MILLER, Aurora, Ill. Filed Nov. 8, 1892. Serial No. 451,484. (No model.)

Claim.—1. A railway signal comprising a maguet connected with a suitable source of electricity, a pair of contact points adjacent thereto, such points being each connected with an electric light, which lights are in an independent circuit, a vibrating arm placed between such points and normally held in contact with one of them by the action of the magnet,—igniting the light connected therewith, and means whereby when the resistance to the current is increased the power of the magnet will be diminished and the arm be withdrawn therefrom into contact with the other post to ignite its light without cutting-out the magnet, substantially as described.

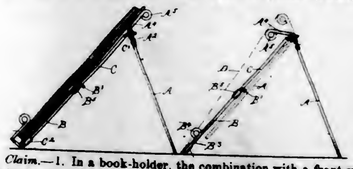
2. A railway signal comprising a magnet connected with the ground and with a suitable source of electricity, a pair of contact posts adjacent thereto, lights of different colors connected respectively to each of these posts, said lights being in an independent circuit, an arm vibrating between such posts and normally held by means of the magnet in contact with one post, whereby the light connected with such post is ignited, indicating safety, and means whereby, when the resistance to the current is increased, the consequently decreased power of the magnet will be overcome by a suitable mechanism and the arm withdrawn into contact with the other post, igniting the lamp connected therewith and extinguishing the lamp connected with the first post, thereby indicating danger, substantially as described.

3. In a railway signal, the combination of an insulated rail divided into blocks and equipped with contact points and magnets constructed and connected substantially as described, a magnet located on the train connected with such insulated rail and with a suitable source of electricity, a pair of contact posts adjacent thereto, each of such posts being connected with an electric light, a vibrating arm between such posts, and a spring connected to the vibrating arm, whereby under normal conditions when a train is running in one block and there is no train ahead, the current will ground through both ends of the block and the magnet will hold the arm in contact with one of the posts, igniting the light connected therewith, but when a train similarly equipped is in the block ahead the circuit will be broken at the forward end of the rearward block, thereby increasing the resistance and decreasing the power of the magnet on the train in this block, when the vibrating arm will be withdrawn by the power of the spring into contact with the other post igniting the light connected therewith and extinguishing the first light, substantially as described.

4. In an electric signal, the combination of a third rail divided into blocks or sections of any desired length, magnets connected with each end of such section and with a suitable contact post, contact posts adjacent to such magnets and connected with similar magnets forming a part of the adjacent blocks, and vibrating arms placed between such posts and connected with the ground, all arranged and operating substantially as described.

5. In an electric signal, the combination of a block or section of an insulated rail, a magnet on a train traveling on such section connected with such rail and with a suitable source of electricity, contact posts adjacent to such magnet, each of said posts being connected with an electric light, a vibrating arm placed between such posts and provided with a spring, magnets B and B' connected with the respective ends of the block, contact points connected with such magnets, arms vibrating in proximity to such contact points, and magnets adjacent to such arms and connected to the adjacent block sections, whereby when there is no train in the block ahead the current will ground through both ends of the section and the magnet on the train will operate to hold its vibrating arm in contact with one of the posts, igniting the light connected therewith, but if there be a train in the block ahead the connection will be broken at the forward end of the section *a'*, whereupon the resistance will be increased, the power of the magnet lessened, and the arm withdrawn by its spring into contact with the other post, igniting the light connected therewith and extinguishing the first light, substantially as described.

493,936. BOOK REST AND HOLDER. ORSON C. MITCHELL, North Granville, N. Y. Filed June 11, 1892. Serial No. 436,413. (No model.)

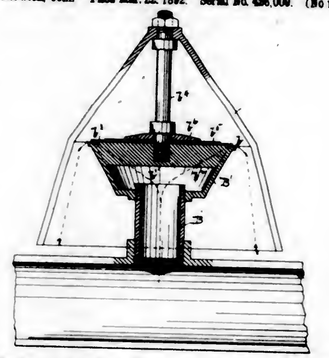


Claim.—1. In a book-holder, the combination with a front support having a rest for the lower end of the book; of a reversible rear support; and an offset projecting from the upper part of the rear support at an angle thereto to form a rest for the upper end of the book in either of two positions, substantially as described.

2. In a book-holder, the combination with the extensible front support; of a reversible rear support; and an offset projecting at an angle to the upper end of the reversible rear support for supporting the upper part of the book, in either of two planes inclined to the horizontal substantially as described.

3. In a book rest the combination of the spring legs B, having clips B^3, the extension C having sliding clip C^3 and book-holding arms one on each side of said legs and normally situated in the same plane whereby when the holding arms are applied to the front of a book and the legs to its back the former are held upon the book front by the torsional force of said legs; substantially as set forth.

493,937. COLLECTING-TUBE FOR FILTERS. GEORGE H. MOORE, Norwich, Conn. Filed Mar. 22, 1892. Serial No. 426,009. (No model.)



Claim.—1. The collecting tube herein described having applied to its mouth a yielding, imperforate plate, which partially closes but does not entirely close said mouth, whereby an open water-way to said tube, capable of being automatically enlarged is provided, substantially as and for the purpose set forth.

2. The collecting tube for filters herein described having applied to its mouth a disk capable of yielding to pressure exerted thereon from the bore of said tube, and a stop or stops on said tube to prevent said disk from entirely closing the mouth thereof, substantially as and for the purpose set forth.

3. The collecting tube for filters herein described having at the mouth thereof a constantly open water-way, one side of which water-way is composed of a yielding, imperforate surface, whereby said water-way is adapted to be enlarged by pressure exerted against said surface, substantially as and for the purpose described.

4. The collecting tube herein described having at the mouth thereof an annular, plane surface, and having a yielding disk supported thereon adjacent to but separated from said plane surface, whereby a narrow water-way between said disk and surface is provided, substantially as and for the purpose set forth.

5. The combination with the collecting tube having a flaring mouthpiece and having a series of rests or supports projecting slightly beyond the end of said mouthpiece, of a yielding covering device connected to said mouthpiece and resting upon said supports, arranged and operating substantially as described.

6. The collecting tube for filters herein described, having a flaring mouthpiece terminating in an annular, plane surface and having at its outer end a central hub and radial ribs, the outer surface of which hub and ribs projects slightly beyond said annular, plane surface, combined with a flexible, imperforate diaphragm mounted upon the outer surface of said hub and ribs, and overlying a portion of said annular, plane surface, substantially as and for the purpose set forth.

7. The collecting tube for filters herein described, having a flaring mouthpiece terminating at its outer end in an annular, plane surface and having at the outer end of said mouthpiece a central hub and radially disposed ribs the outer surface of which projects slightly beyond the line of said plane surface, combined with a thin, metallic or other disk secured at its center to said central hub and covering said ribs, substantially as and for the purpose set forth.

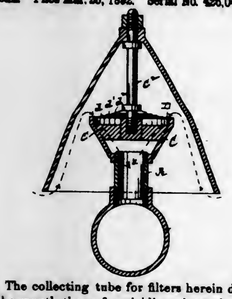
8. The collecting tube B having mouthpiece B' and hub b' and ribs b^3 projecting slightly beyond the end of said mouthpiece, combined with a plurality of disks of spring-metal, superposed upon each other and secured to said mouthpiece by a bolt passing centrally

through said disks into said hub b', substantially as and for the purpose described.

9. The combination with tube B having mouthpiece B' and having disk b^3 partially closing said mouthpiece, of a hood or guard, as C, inclosing said tube and having an open waterway beneath its base and between its inner surface and said mouthpiece, substantially as and for the purpose described.

10. The combination with pipe A, of tube B leading therefrom, said tube having mouthpiece B' at its upper end, central hub b' and radial ribs b^2 arranged within said mouthpiece and projecting slightly beyond the end of the same, disk b^3, bolt b^4 passing centrally through said disk into said hub, and hood C mounted at its upper end upon said bolt, arranged and operating substantially as described.

493,938. COLLECTING-TUBE FOR FILTERS. GEORGE H. MOORE, Norwich, Conn. Filed Mar. 23, 1892. Serial No. 426,049. (No model.)



Claim.—1. The collecting tube for filters herein described having applied to the mouth thereof a yielding plate whose diameter is substantially that of said mouth, whereby said plate will normally close said mouth but will be free to yield in both directions, substantially as and for the purpose described.

2. The collecting tube herein described having applied to the mouth thereof an elastic disk, said disk being supported at its center in position to normally close said mouth and having its periphery free to yield in either direction to pressure exerted thereon, substantially as and for the purpose set forth.

3. The collecting tube for filters herein described, having a flaring mouthpiece and having an elastic disk centrally supported at the outer end of said mouthpiece, the diameter of said disk corresponding substantially with the inner diameter of the mouthpiece at said outer end, whereby said disk will normally close the end of said mouthpiece while its periphery will be free to yield in either direction to open said mouthpiece, arranged and operating substantially as set forth.

4. The collecting tube for filters herein described, the same consisting of a tube having at one end thereof a flaring mouthpiece and having at the outer end of said mouthpiece a central hub and a series of radially disposed ribs connecting said hub to the body thereof, the outer ends of said hub and body projecting beyond the outer surface of said ribs, combined with an elastic disk centrally supported upon said hub, arranged and operated substantially as and for the purpose set forth.

5. The combination with tube A having the elastic disk D normally closing the mouth thereof, of hood E superposed upon said tube, substantially as and for the purpose described.

6. The combination with pipe B of tube A entering said pipe at one end and having at its opposite end mouthpiece C, said mouthpiece having at its outer end hub c and ribs c' the outer surface of which is depressed beneath the plane of the outer end of said hub, and elastic disk D centrally secured upon said hub, substantially as described.

7. The combination with the tube A having mouthpiece C provided with hub c and ribs c', of a series of elastic disks of varying diameters centrally secured upon said hub, substantially as and for the purpose set forth.

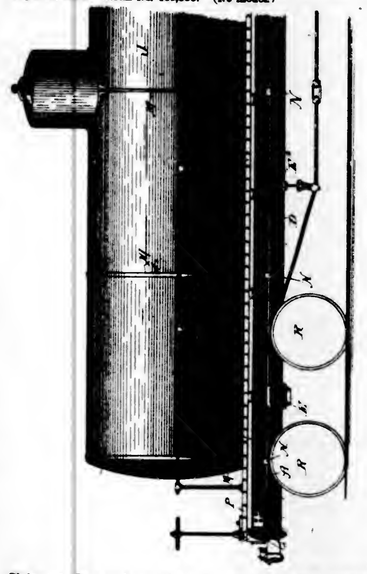
498,939. RAIL-JOINT. FRANK MULVILLE, Philadelphia, Pa. Filed Apr. 25, 1892. Serial No. 430,459. (No model.)



Claim.—1. A rail joint having cheek pieces embracing the sides of the web and the top of the base of the rail, vertical plates connected with said pieces having horizontal plates projecting inwardly, and a key having a longitudinal tongue fitting between the inner ends of the said horizontal plates, the said inner ends in contact with the key tongue being thickened forming bearings for said tongues and fitting in grooves in the underface of the key, said parts being combined substantially as described.

2. A rail joint having cheek pieces with a key therefor, said key having a recess in its top between the end of adjoining rails, substantially as and for the purpose set forth.

493,940. OIL-TANK CAR. JOHN D. McILWAIN, Chicago, Ill., assignor to the Harvey Steel Car and Repair Works, same place. Filed Sept. 22, 1892. Serial No. 446,535. (No model.)



Claim.—1. In a tank car, the combination of I-beam center sills extending the entire length of the car, and draft irons secured to the sills at suitable points, forming a continuous draft rigging, substantially as described.

2. In a tank car, the combination of I-beam center sills, a portion of the flanges of such sills being cut away to form sockets, and draft irons secured in such sockets, substantially as described.

3. In a tank car, the combination of I-beam center sills, and an I-beam end sill with an anchor plate provided with flanges engaging with both the end and center sills to lock them together, whereby any strain upon the end sill is communicated to and taken up by the center sills, substantially as described.

4. The combination of an I-beam end sill, a buffer block secured thereto, I-beam center sills, and an anchor plate provided with two flanges, one extending upward to engage with the flange on the end sill, and the other extending downward to engage with the flanges of the center sills, substantially as described.

5. In a tank car, the combination of intermediate sills, I-beam center sills extending the entire length of the car, end sills secured to the intermediate sills, blocks K, and short sills interposed between the end sills and the blocks and resting upon and secured to the center sills, whereby the tank stops at each end of the tank are rigidly connected, substantially as described.

6. In a tank car, the combination of intermediate sills, an end sill secured to the intermediate sills, a block K, a plate secured to the side sills in front of the block, and short sills interposed between and secured to the end sill and the plate, thereby forming a stop for the tank, substantially as described.

7. In a tank car, a tank saddle composed of channel iron cross beams placed at suitable distances apart to properly support the tank and conforming substantially to the shape of the tank, and fillers

placed within and supported by the channel beams, substantially as described.

8. In a tank car, the combination of I-beam side sills, channel iron cross beams secured to the upper flanges of such sills and bent to conform to the shape of the tank, wooden filler blocks carried in and supported by such channel beams, longitudinal stripe I, and a tank resting upon such stripe, substantially as described.

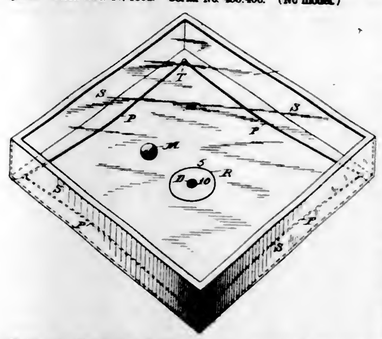
9. In a tank car, the combination of I-beam intermediate sills, a plate E secured to such sills, center sills secured beneath such plate, and a plate E' contacting with the lower faces of such center sills with its ends brought in contact with the plate E, the ends of such latter plate being bent around the ends of the plate E' and the ends secured to each other and to the side sills by suitable means, substantially as described.

10. In a tank car, the combination of I beam side sills, I-beam end sills, the flanges of the side sills being cut off to abut squarely against the flanges of the end sills, the webs of the side sills being extended into contact with the web of the end sill, and a plate A bent around and secured to the webs and locking the sills together, substantially as described.

11. A tank car frame comprising I-beam side and intermediate sills, I beam center sills, plate bolsters attached to such side, intermediate and center sills, and channel iron cross beams secured to the upper flanges of the center sills and bent to conform substantially to the shape of the tank, substantially as described.

12. The combination of I beam side sills, channel iron cross beams secured thereto and bent to conform to the shape of the tank, fillers resting in and supported by such channel beams, longitudinal stripe secured to the fillers, a tank resting upon such strips, and retaining straps passed around such tank, the ends of the straps being held by anchor plates engaging with the lower flanges of the side and intermediate sills, substantially as described.

493,941. PUZZLE. ANDREW NEBRACH, Jr., Cincinnati, Ohio, assignor of one-half to James M. French and Charles F. Stewart, same place. Filed Dec. 17, 1892. Serial No. 455,468. (No model.)



Claim.—1. The box A having a central mark delineated on its floor and a ball eccentrically loaded, and traveling on said floor, substantially as and for the purposes specified.

2. The box A, having on its floor a ring R, marked thereon, and the ball loaded eccentrically and traveling thereon, substantially as and for the purposes specified.

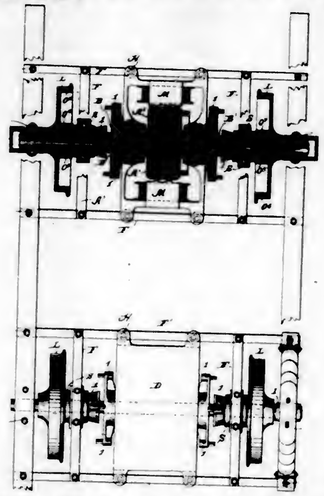
3. A central ring R, and a dot D therein, marked on a smooth floor, having a surrounding edge guard S, and eccentrically loaded ball, substantially as and for the purposes specified.

4. A box having a floor surrounded with a guard, and glass top, separated from said floor, and an eccentrically loaded ball, traveling on said floor below said glass, and a designated mark on said floor, substantially as and for the purposes specified.

5. The ball M having recess M', and metal M^2 inserted therein, and a substance inserted in the recess between the metal and the theoretical surface of the ball and so as to complete the spherical surface of the latter, and a floor adapted to carry said ball and having a designated mark or goal for the ball, substantially as and for the purposes specified.

6. The box A having delineated on its floor a principal goal and a secondary one, being of different competitive values, and the eccentrically loaded ball, located on said floor, for use in a competitive game, substantially as and for the purposes specified.

493,942. ELECTRIC LOCOMOTIVE. ALEXANDER PHILIPBORN, Berlin, Germany, assignor to Siemens & Halske, same place. Filed Apr. 21, 1892. Serial No. 430,084. (No model.) Patented in Switzerland May 4, 1891, No. 3,563; in Austria-Hungary May 6, 1891, No. 22,273 and No. 43,860; in England May 12, 1891, No. 8,153; in France May 15, 1891, No. 213,494; in Belgium May 15, 1891, No. 94,901, and in Germany Aug. 11, 1891, No. 58,270, Oct. 12, 1891, No. 59,200, and Feb. 17, 1892, No. 61,177.



Claim.—1. In an electro-motor car, the combination with the traction wheels, axles, and journal boxes therefor, of a truck frame supported by the traction wheels of the car, an electro-motor, the field-magnets of which are elastically supported upon said truck frame, and the armature shaft of which is concentrically mounted on the car axle but revoluble independently of the same, a car body also elastically supported upon said truck frame and vertically guiding the journal boxes of the axle, and suitable means for transmitting motion from the armature to the traction wheels of the car, substantially as described.

2. The combination in an electro-motor car with the traction wheels, axle, and journal boxes therefor, of a truck frame supported by the traction wheels of the car, an electro-motor, the armature of which is arranged concentric with the car axle and capable of eccentric play relative to the same, and the field magnets of which are elastically supported upon said truck frame, a car body also elastically supported upon said truck frame and vertically guiding the journal boxes of the axle, and suitable means for transmitting motion from the armature to the traction wheels of the car, substantially as described.

3. The combination in an electro-motor car with the traction wheels, axle, and journal boxes therefor, of a truck frame supported by the traction wheels of the car, an electro-motor, the armature of which is arranged concentric with the car axle, and capable of eccentric play relative to the same, and the fixed portion of which is elastically supported upon said truck frame at opposite sides of said axle, a car-body also elastically supported upon said truck frame and vertically guiding the journal boxes of the axle, and suitable means for transmitting motion from said armature to the traction wheels of the car, substantially as described.

4. The combination in an electro-motor car with the traction wheels, axle, journal bearings therefor, and body sills carrying guards by which said journal bearings are vertically guided, of a truck frame elastically connected to the sills, a motor having its field magnets elastically mounted on said truck, and a tubular armature shaft concentric with but revoluble independently of the axle, and suitable means for transmitting motion from the armature to the traction wheels of the car, substantially as described.

5. The combination in an electro-motor car with the traction wheels, axle, journal bearings therefor, and body sills carrying guards by which said journal bearings are vertically guided, of a truck frame elastically connected to the sills, a motor having its field magnets elastically mounted on said truck, and a tubular armature shaft embracing the axle but capable of eccentric play and independent rotation relative to the same, and suitable means for transmitting motion

from the armature to the traction wheels of the car, substantially as described.

6. The combination in an electro-motor car with the traction wheels and axle thereof, of a motor provided with a tubular armature shaft concentric with said axle, suitable means for transmitting motion therefrom to the traction wheels, a truck frame supporting said motor and capable of a limited oscillatory motion relative to the axle, and body sills elastically connected to said frame, substantially as described.

7. The combination in an electro-motor car with the traction wheels and axle thereof, of a motor provided with a tubular armature shaft concentric with said axle, gearing for transmitting motion from the motor to the traction wheels, an oscillatory truck frame secured to the journal boxes of the said axle for supporting the said motor and its gearings, and an elastic connection substantially as described between the said truck frame and the body of the car.

8. The combination in an electro-motor car with the traction wheels and axle thereof, of an electro-motor, a tubular transmission shaft surrounding said axle, a tubular armature shaft of the motor surrounding said transmission shaft, and means whereby rotation is imparted from said armature shaft to the transmission shaft, and thence to the traction wheels, substantially as described.

9. The combination in an electro-motor car with the traction wheels and axle thereof, of an electro-motor, a tubular transmission shaft surrounding said axle, a tubular armature shaft surrounding said transmission shaft and capable of eccentric play relative to the same, a yielding flexible coupling for said armature and transmission shaft, radially variable as described, and means whereby motion is imparted to the traction wheels from the transmission shaft, substantially as described.

10. The combination in an electro-motor car with the traction wheels, axle thereof and a tubular transmission shaft surrounding said axle, of a motor having its field magnets elastically supported on a truck supported by the traction wheels of the car, and a tubular armature shaft surrounding said transmission shaft and capable of eccentric play relative to the same, a yielding flexible coupling between said armature shaft and transmission shaft, radially variable as described, and means whereby motion is imparted to the traction wheels from the transmission shaft, substantially as described.

11. The combination in an electro-motor car with the traction wheels, axle, journal bearings therefor, and a tubular transmission shaft surrounding said axle, of a motor provided with a tubular armature shaft surrounding said transmission shaft, a yielding flexible coupling between said armature shaft and transmission shaft, means whereby motion is imparted to the traction wheels from the transmission shaft, a truck frame elastically supporting said motor, and body sills elastically connected to said frame, substantially as described.

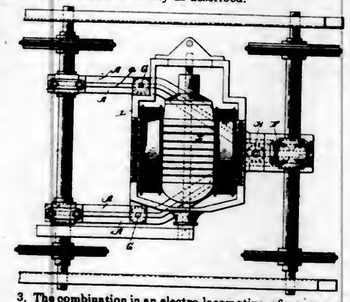
12. The combination in an electro-motor car with the traction wheels, axle, journal bearings therefor, and a tubular transmission shaft surrounding said axle, of a motor provided with a tubular armature shaft surrounding said transmission shaft, a yielding flexible coupling between said armature shaft and transmission shaft, means whereby motion is imparted to the traction wheels from the transmission shaft, a truck frame elastically supporting said motor, and a car body also elastically supported on said truck frame and vertically guiding the journal bearings of the axle in their upward movement, substantially as described.

13. The combination in an electro-motor car with the traction wheels, axle, non-supporting journal boxes therefor, and a tubular transmission shaft surrounding said axle and having frictional transmitting wheels on its ends, connected through transmission wheels with the rim of the said traction wheels, of a truck elastically connected to the car and having journals rigidly supporting the said transmission shaft, a motor having its field magnets elastically mounted on said truck, and having a tubular armature shaft, supported by journals in the said motor frame, and concentric with said axle and power transmission shaft, providing clearance according to the play of the said elastic connection between the said respective frames and between the two tubular shafts thus movable with reference to one another, and a flexible coupling between the armature shaft and the transmission shaft, substantially as described.

498,943. ELECTRIC LOCOMOTIVE. ALEXANDER PHILIPPSBORN, Berlin, Germany, assignor to Siemens & Halske, same place. Filed May 17, 1892. Serial No. 433,389. (No model.) Patented in Germany May 4, 1890, No. 52,694; in Italy Aug. 10, 1890, XXIV, 38,082, LV, 235; in France Aug. 11, 1890, No. 207,555; in Switzerland Aug. 15, 1890, No. 3,561; in Austria-Hungary Aug. 16, 1890, No. 36,982 and No. 63,309; in Belgium Aug. 16, 1890, No. 91,669; in Sweden Aug. 18, 1890, No. 2,744, and in England Aug. 25, 1890, No. 13,359.

Claim.—1. The combination in an electro-locomotive, of a motor supporting frame connected at the rear with rigid bearings in which turns the rear axle and having a free swinging connection with the front axle, shouldered standards mounted on said supporting frame, a motor sustained by said standards, and springs interposed between the shoulders of the latter and the motor, substantially as described.

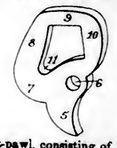
2. The combination in an electro-locomotive, of a motor supporting frame and rear axle, a block in which the front axle turns, and a link connection suspended therefrom and connected to the supporting frame to permit the relative longitudinal movement of the latter in relation to said axle, and the lateral torsional and vertical oscillation of the latter, substantially as described.



3. The combination in an electro-locomotive, of a motor supporting frame formed of compound bars, each comprising sections relatively secured to provide an intervening slot at the front portion thereof, the rear and front axles and wheels, a block in which the front axle turns, and a link suspended from said block and having heads seated and bolted in the slots of the frame bars, substantially as described.

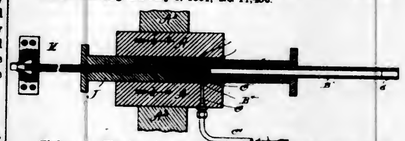
4. The combination in an electro-locomotive, of a motor supporting frame, rear and front axles and wheels, a block in which the front axle turns and provided with front and rear channels of increasing dimensions, and links seated in channels and connected to the supporting frame, substantially as described.

493,944. RATCHET-PAWL. DANIEL J. REARDON, Westerly, R. I. Filed Nov. 26, 1892. Serial No. 453,051. (No model.)



Claim.—A ratchet-pawl, consisting of the engaging-tooth 5 the base of which is perforated at one side as at 6, the counterbalancing-shoulder 7 extending from the base of the tooth, the member 8 and the bars 9 and 10 surrounding an opening the lower end of which forms a socket 11 extending into the counterbalancing-shoulder, as described.

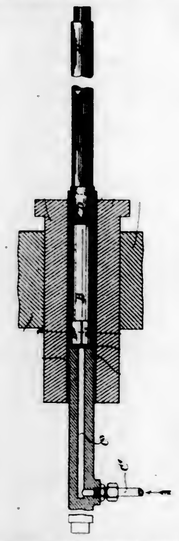
493,945. APPARATUS FOR FORMING ELONGATED ARTICLES FROM BILLETS OF HEATED METAL. JAMES ROBERTSON, Manchester, England. Filed July 15, 1892. Serial No. 440,151. (No model.) Patented in England July 6, 1891, No. 11,436.



Claim.—1. The improved apparatus for forming elongated articles from billets of heated metal, the same comprising a cylinder which is longitudinally movable in both directions, a movable ram or plunger fitting said cylinder and adapted to exert pressure on one end of a billet therein, and thereby cause the metal to exude from the opposite end of the cylinder, the cylinder being of uniform diameter from its forward end nearly to its rear end and having a delivering or forming throat separate from the cylinder and of different diameter, therefrom and a mandrel arranged to co-operate with said throat in forming the exuding metal into a seamless tube, as set forth.

2. The improved apparatus for forming elongated articles from billets of heated metal, the same comprising a cylinder which is longitudinally movable in both directions, a movable ram or plunger fitting said cylinder and adapted to exert pressure on one end of a billet therein and thereby cause the metal to exude from the opposite end of the cylinder, the cylinder being of uniform diameter from its forward end nearly to its rear end and there provided with a contracted throat separate from the cylinder to reduce the diameter of the exuding stream of metal, and a mandrel arranged to co-operate with said contracted throat in forming a tube of less diameter than the billet, as set forth.

493,946. METHOD OF AND APPARATUS FOR SHAPING AND DRAWING METAL TUBES. JAMES ROBERTSON, Manchester, England. Filed July 15, 1892. Serial No. 440,152. (No model.) Patented in England July 6, 1891, No. 11,436.



Claim.—1. In an apparatus for forming tubes from billets of heated metal, the combination of a metal holding cylinder or die, a fixed holder in which said die is adapted to slide lengthwise in both directions, a fixed stem-rod or head arranged to support the rear end of a billet in said die, a movable piercing mandrel adapted to enter the die, and external means for imparting an endwise movement to the die in a direction opposite the movement of the mandrel during a part of the piercing stroke of the mandrel, as set forth.

2. The improved method hereinbefore described of protecting a tube-forming mandrel from injury and of separating it from the formed tube, the same consisting in interposing a landing-piece of hot, soft metal between the billet and the head or support which co-operates with the mandrel in compressing the billet, said piece receiving the mandrel at the close of the tube-forming operation, as set forth.

3. The combination with a metal holding cylinder or die, a piercing mandrel and a billet-support within the die, of a mandrel landing-piece interposed between said support and the billet and adapted to receive the mandrel at the end of the tube-forming operation, as set forth.

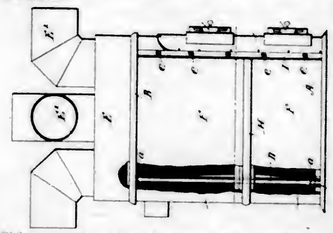
4. The combination with a metal holding cylinder or die, a piercing mandrel, a billet-support within the die and means for introducing a fluid under pressure into the die, of a landing-piece composed of two or more sections interposed between the said support and the billet, the joints or seams between said sections being open to permit the passage of the said fluid through the landing-piece to the mandrel, as set forth.

5. The combination with a tube-forming cylinder, a mandrel and a billet support, of a landing-piece formed to be inserted in the tube-forming die, and composed of two or more loose sections, as set forth.

6. The combination with a tube-forming cylinder, a mandrel and a billet support, of a cup-piece formed externally to fit the cavity of the tube-forming die and provided with a cavity to receive a conical landing piece and with one or more water conduits, as set forth.

7. The combination with a tube forming cylinder, a mandrel and a billet support of a landing-piece of substantially conical form, composed of two or more loose sections, combined with a cup-piece formed externally to fit the cavity of the tube-forming die, and provided with a cavity to receive the landing-piece and with one or more water conduits, as set forth.

493,947. FURNACE OR STOVE. JOHN H. SCHOLDING, Yonkers, N. Y. Filed June 24, 1891. Renewed Aug. 22, 1892. Serial No. 443,900. (No model.)



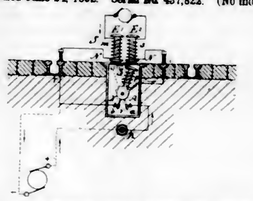
Claim.—1. A frame for a furnace or the like combined with a casing detachably connected with said frame and eccentric swiveled studs carried by said frame for holding said casing and for drawing the latter tight substantially as described.

2. The combination of the frame, a detachable casing carried thereby, fastenings carried by said frame for holding the casing, and covering strips I at the ends of said casing, substantially as described.

3. The base A. and upper part or ring B. combined with posts adjustably connected to said base and ring together forming a frame and with a casing detachably connected with said frame, substantially as described.

4. The combination of a frame, swiveled eccentric studs carried thereby and having oblong heads, with a casing having apertures to receive said studs, whereby said casing will be held in position and also drawn tight, substantially as described.

493,948. CLOSED CONDUIT FOR ELECTRIC RAILWAYS. GEORGE W. VON SIEMENS, Berlin, Germany, assignor to Siemens & Halske, same place. Filed June 24, 1892. Serial No. 437,822. (No model.)



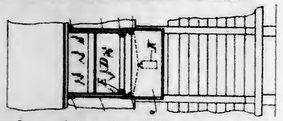
Claim.—1. In an electric railway system, the combination with the track or way and the successive conductor sections insulated from each other, of a permanently located magnetic switch for each section, adapted to cut the same into and out of circuit with the source of energy, a vehicle carrying magnets of the same polarity at its opposite ends but located in different longitudinal planes, and of opposite polarity to the magnet of the switch device, and contact making devices carried by the vehicle.

3. In an electric railway system, the combination with a track or way and the successive conductor sections insulated from each other, of a permanently located electro-magnetic switch for each section to successively cut the same into and out of circuit, a vehicle carrying electro-magnets located in different longitudinal planes, the coils of which are successively in series with those of the electro-magnetic switch devices, and contact making devices carried by the vehicle.

3. In an electric railway system, the combination of a distributing conductor, a series of permanently located switch devices, a series of conductor sections insulated from each other, each section permanently connected to one switch device, a return conductor, a moving vehicle having an electro motor mounted thereon, and two magnets carried on the opposite ends of said vehicle in different longitudinal planes, and contact making devices carried by said vehicle.

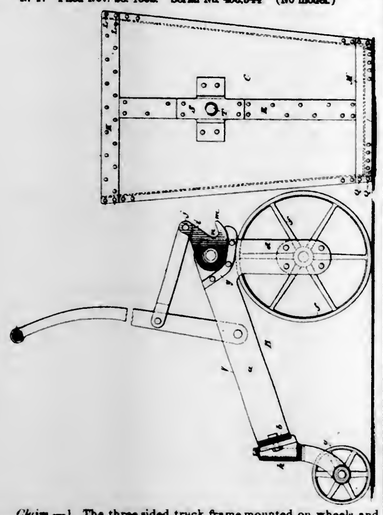
4. In a system of electrical distribution for railways, the combination of a distributing conductor including a series of successive conductor sections insulated from each other, a series of switches having magnets which when energized will always have the same polarity oscillating from one gravital position to another about an axis and in planes substantially perpendicular to the length of the road, electrical connections between the distributing conductor and the sectional conductor controlled by said oscillatory magnets, a vehicle carrying two electro-magnets located at the ends of the vehicle but in different longitudinal planes, and opposite in polarity to that of the oscillating magnets, and contact making devices carried by said vehicle.

493,949. COAL-CHUTE. FRANCIS G. SUERMIEL, Detroit, Mich. Filed Nov. 18, 1892. Serial No. 452,390. (No model.)



Claim.—In a coal chute, the combination with a hinged discharge apron, of a weight below the apron, flexible connections extending from the weight in opposite directions to and connected with the opposite sides of the apron and pulleys above and at the base of the apron over which the connections pass, substantially as described.

493,950. SUGAR-WAGON. GEORGE VAN WAGENEN, New York, N. Y. Filed Nov. 23, 1892. Serial No. 453,344. (No model.)



Claim.—1. The three sided truck frame mounted on wheels and open at one end to pass upon opposite sides of the box or receptacle, combined with the bearing claws pivoted on opposite sides of said frame, and the levers pivoted at their lower ends to said frames, and the links intermediate said levers and said claws, substantially as and for the purposes set forth.

2. The three sided truck frame having the wheels *f f* and swivel *g* and being open at one end to pass upon opposite sides of the box or receptacle, combined with the bearing claws pivoted upon opposite sides of said frame and having the arms *j* and fingers *m*, the levers pivoted at their lower ends to said frame, and the links intermediate said levers and said arms *j*; substantially as set forth.

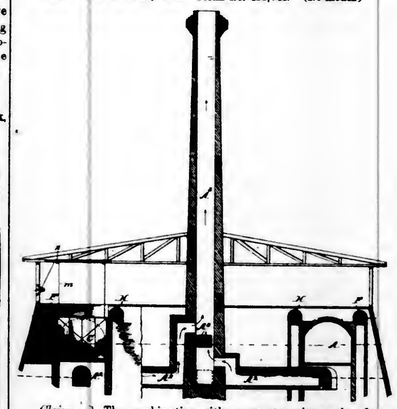
3. The box or receptacle having the trunnions on opposite sides, combined with the truck open at one end to pass on opposite sides of said box or receptacle, movable bearings to engage said trunnions and lift said box or receptacle, and the levers connected with and adapted to move said bearings; substantially as and for the purposes set forth.

4. The three sided truck frame mounted on wheels and adapted to pass on opposite sides of the box or receptacle, combined with the bearing-claws pivoted on opposite sides of said frame, the stops beneath said claws to sustain them in either position, the levers pivoted at their lower ends to said frame and connected at their upper ends and the links intermediate said levers and claws; substantially as set forth.

5. The box or receptacle consisting of the sides, ends and bottom having edge flanges which turn outward, combined with the bands H, I, independently riveted to the upper edges of said sides and ends and also riveted together and to said edge flanges by bolts L, and the bands M, N independently riveted to the lower edges of said sides and ends and the downwardly extending edges of said bottom by the rivets P, and also riveted together and to said edge flanges by rivets Q; substantially as set forth.

6. The box or receptacle consisting of the sides, ends and bottom, combined with the plates S riveted to said sides and carrying the trunnions T, the truck having an open end adapted to pass upon opposite sides of the receptacle, and levers connected with the truck to engage and lift said trunnions; substantially as and for the purposes set forth.

493,951. CONTINUOUS BRICK-KILN. JAMES P. VEIES, Omaha, Nebr. Filed June 14, 1892. Serial No. 436,743. (No model.)



Claim.—1. The combination with a central smoke stack; of a tunnel containing the bricks to be burned extending around the stack, and outlet flues from the tunnel, extending to the stack and opening into the same each at a different level from all the others, substantially as shown and described.

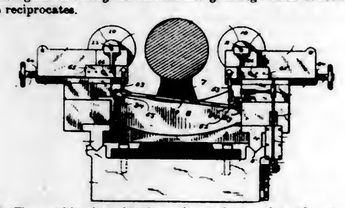
2. A continuous brick kiln comprising a quadrangular firing tunnel with adjustable partitions therein, two quadrangular over head hot air flues F and H arranged above the tunnel on each side thereof, each hot air flue being provided with dampers *g* and alternating passages E D leading directly into the top and bottom of the tunnel respectively, and valves *d* and *e* for throwing these passages into communication with the over head flues substantially as and for the purpose described.

3. A continuous brick kiln comprising a quadrangular firing tunnel with wagon doors B aligned with each section of the quadrangular tunnel, a central smoke stack, outlet passages A' A² leading outwardly from the tunnel and extending beneath its floor to the central smoke stack, valves *a* for controlling the same, adjustable partitions C for dividing the tunnel into sections, the over head hot air flues F and H, with dampers *g* and alternating branches E D leading respectively into the top and bottom of the tunnel, valves *d e* for controlling the same, and firing holes *b* opening into the top of the tunnel substantially as shown and described.

493,952. ROLL-GRINDING MACHINE. GEORGE VINE, Ansonia, Conn. Filed Aug. 8, 1892. Serial No. 442,407. (No model.)

Claim.—1. In a machine of the class described the combination with the reciprocating carriage, the swing rest and the grinding wheels carried by oscillating carriers pivoted to the swing rest, of a curved stationary track plate, a shoe engaging said track plate and moving with the carriage, and intermediate connections substantially as described and shown whereby the upward and downward movements of the shoe upon the track plate is communicated to the carriers causing the grinding wheels to move upward and downward as the carriage is reciprocated in use.

2. The combination with the reciprocating carriage, of the swing rest, the grinding wheels, oscillating carriers therefor pivoted to the swing rest, and suitable means substantially as described and shown for raising and lowering the carriers and grinding wheels as the carriage reciprocates.



3. The combination with the reciprocating carriage, the curved stationary track plate and a shoe adapted to ride thereon, of the swing rest transverse slides 16 in said rest, the grinding wheels, carriers therefor pivoted to the slides, suitable intermediate connections between the carriers and the shoe for the purpose set forth, and suitable means for adjusting the slides and carriers in and out whereby the machine may be adapted to operate upon different sizes of rolls.

4. The combination with the carriers, grinding wheels, the track plate and the shoe, of rod 27, rock shafts 34, connecting rods 53 and 54, crank arm 36 upon one of the rock shafts, lever 38 one arm of which is connected to rod 27, and an adjustable connecting rod 47 between crank arm 36 and lever 38.

5. The combination with the rock shaft 34 having crank arm 36, and lever 38 having slide 43 and scale 59, of adjustable connecting rod 47 pivoted to the slide and adjustably connected to the crank arm, and a vertically movable rod connected to the lever whereby movement is imparted to the rock shaft.

6. The combination with the grinding wheels and oscillating carriers therefor, of vertically moving connecting rods 53 and plates 65 to which said rods are pivoted and which are adjustably connected to the carriers.

7. The swing rest having projections 61, transverse slides 16 in the swing rest, the grinding wheels, carriers therefor, pivoted to the slides, and adjusting screws 60 engaging projections 61 whereby the slides, carriers and grinding wheels may be moved in or out independently to the swing rest.

8. The combination with the carriage, the grinding wheels, carriers therefor, slides to which the carriers are pivoted, and a swing rest adapted to move transversely to the carriage to which said slides are adjnstably secured.

9. The combination with the track plate, shoe 24 and slide 25 by which the shoe is carried, of the carriage having a suitable guide for the slide, rod 27 pivoted to the slide, the swing rest, slides 16, the grinding wheels, carriers therefor pivoted to the slides and suitable intermediate connections between rod 27 and the carriers whereby the upward and downward movements of the shoe are communicated to the carriers and grinding wheels.

10. The combination with the carriage, the grinding wheels, the carriers and adjustable slides to which the carriers are pivoted, of a swing rest supporting the slides and moving upon the carriage.

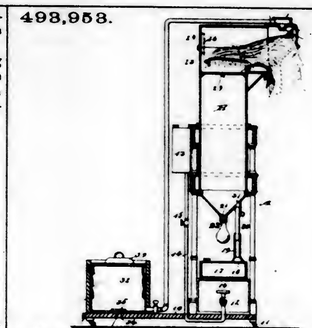
11. The combination with the grinding wheels, carriers therefor, the swing rest and the carriage, of the track plate, the shoe, rock-shafts 34 upon the carriage and intermediate connections between the shoe and the rock shafts whereby the latter are oscillated.

12. The carriers, plates 65 adjustably secured thereto, the rock shafts and connecting rods 53 one end of said rods being connected to the carriers the other to arms extending from the rock shaft, in combination with the carriage, the shoe carried thereby, a curved track plate upon which the shoe rides, and intermediate connections by which the vertical movements of the shoe are caused to oscillate the rock shaft.

493,953. DEVICE FOR SHAMPOOING THE HAIR AND SCALP. WILLIAM C. VOSS, Geneseo, Ill. Filed Aug. 10, 1892. Serial No. 442,868. (No model.)

Claim.—1. In a device for steaming and drying hair and the scalp, the combination, with a cylinder, of a heater, a water tank located upon the heater, a pipe connecting the cylinder and the interior of the water tank, a perforated hood formed at the upper end of the cylinder and provided with a head-receiving opening, drapery adapted to drop from the hood over the opening, and a hair-supporting grating located within the cylinder adjacent to the hood, as and for the purpose set forth.

493,953.

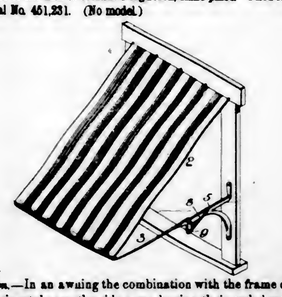


2. In a device of the character described, the combination, with a cylinder open at its upper end, a heater, and a water tank located upon the heater, of a tubular connection between the interior of the water tank and the interior of the cylinder at its lower end, a sieve or perforated partition located within the cylinder, a grating also located within the cylinder above the sieve or partition, a reticulated or perforated hood located at the open end of the cylinder, and drapery pendent from the hood, substantially as and for the purpose specified.

3. In a device of the character described, the combination, with a cylinder open at its top or at one end, provided with a hood at its open end and with drapery pendent from the hood, the cylinder being closed at its lower end, of a heater, a tubular communication between the heater and the lower portion of the cylinder, a bellows, and a connection between the bellows and the upper portion of the cylinder, the bellows being adapted to force air into the cylinder, substantially as shown and described.

4. In a device of the character described, the combination, with a cylinder having its upper portion formed with an elbow of sectional construction, the cylinder being closed at its lower end and open at one end of the elbow extension, a hood formed upon the open portion of the cylinder, drapery pendent from the hood, a sieve or perforated partition located within the cylinder, and a grating located also within the cylinder and above the sieve or partition, of a heater, a tube adapted to connect the heater and the lower end of the cylinder, a spray trough located in the upper portion of the cylinder, a bellows adapted to force air, and a connection between the bellows and the trough, substantially as shown and described.

493,954. AWNING. EDWARD R. WARREN, Hot Springs, S. D., assignor of one-half to Orlando Ferguson, same place. Filed Nov 7, 1892. Serial No. 451,231. (No model.)



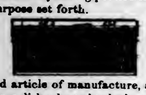
Claim.—In an awning the combination with the frame consisting of the horizontal arm, the side arms having their ends bent forming lugs, the brackets to which said side arms are pivoted, having notches formed therein and the links pivoted to said lugs and adapted to engage with said notches, substantially as described.

493,955. BLACKING-BOX. JAMES M. WHEAT, St. Louis, Mo. Filed June 27, 1892. Serial No. 438,127. (No model.)

Claim.—1. As an improvement in blacking boxes, the combination, with the box proper, of an apertured disk adapted to be loosely disposed therein, and a cover provided with an inwardly-yielding

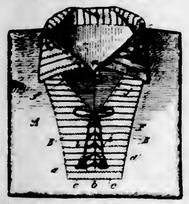
member struck therefrom and adapted to bear upon the disk; substantially as and for the purpose set forth.

2. As an improvement in blacking boxes, the combination, with the box proper, of an apertured disk adapted to be loosely disposed therein, and a cover having a yielding portion struck therefrom and provided with inwardly-projecting studs adapted to engage coinciding apertures in said disk when said yielding portion is depressed; substantially as and for the purpose set forth.



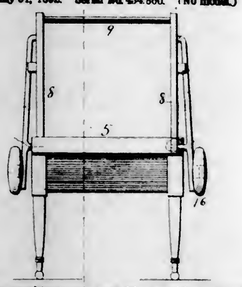
3. As an improved article of manufacture, a blacking box consisting of the box proper, a disk adapted to be loosely disposed therein, and a cover for said box provided with reversely-located segmental slits, forming an inwardly yielding portion to said cover and adapted to be depressed upon said disk; substantially as and for the purpose set forth.

493,956. SHIRT. WILLIAM S. C. WILEY, Catskill, N. Y. Filed Jan. 26, 1893. Serial No. 459,764. (No model.)



Claim.—An outing shirt having a front open down the center, and having a narrow facing secured to said front upon opposite sides of the opening, the upper central portion of said facing being removed to expose said shirt and the lower portion thereof being separated or opened from the cut-away part to or near the lower end, and having a lacing cord passing through and fastening the opposite edges of said separated portion, and a collar secured to said shirt and overlapping the upper ends of said facing, substantially as described.

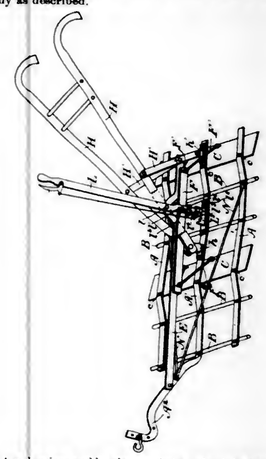
493,957. WASHING-MACHINE. ASA E. WORDEN, Philadelphia, Pa. Filed May 31, 1892. Serial No. 434,860. (No model.)



Claim.—The combination in a washing machine, of a tub provided with bumpers at its sides; a dasher pivotally hung to reciprocate therein between the bumpers and provided with a vertically projecting handle; a pair of arms connected with the handle outside of the tub, and located below the pivots and projecting in opposite directions from the vertical plane of the pivots; and weights located upon those arms at opposite sides of the pivots to balance each other, the united weight of the arms and weights a little overbalancing the handle, substantially as described.

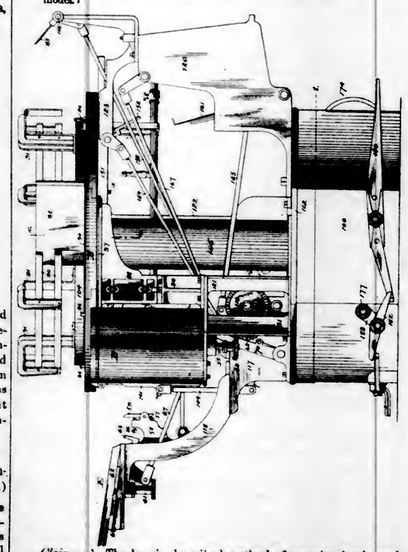
493,958. PULVERIZER AND LEVELER. SAMUEL L. ALLEN, Cinnaminson, N. J. Filed Jan. 14, 1891. Serial No. 377,893. (No model.)

Claim.—1. A pulverizer and leveler consisting of a rigid frame provided with draw bar and guiding handles, said frame having longitudinal bars A and transverse bars B firmly bolted to the under sides thereof, in combination with thin plates C hinged to said longitudinal bars and means whereby said plates may be firmly set at any desired angle with the longitudinal bars, both the bars B and the plates C being adapted to engage directly with and work in the ground, substantially as described.



2. A pulverizer and leveler consisting of a rigid frame having thin metal plates pivoted thereto in combination with a hand lever, a suitably guided sliding piece operated by said lever and links connecting said sliding piece and plates whereby said plates may be rigidly set at any desired angle with the frame depending on the position of said lever, substantially as described.

493,959. BOOK-COVERING MACHINE. HORACE L. ARNOLD, Brooklyn, N. Y., assignor of fifty-one one-hundredths to Ferdinand W. Roebling, Trenton, N. J. Filed Dec. 27, 1889. Serial No. 335,102. (No model.)



Claim.—1. The herein described method of covering books and the like which consists first, in applying adhesive material to the back of the book, then presenting the cover in its flat condition thereto, then pressing the center of the cover onto the book back, then simultaneously smoothing and drying the back of the book and cover, and then folding the flaps of the cover against the sides of the book.

2. The herein described method of covering books and the like, which consists first in applying adhesive material to the back of the book, then presenting the cover in its flat condition thereto, then pressing the center of the cover onto the book-back, then breaking the cover around the edges of the book-back, then simultaneously smoothing and drying the back of the book and cover and then folding the flaps of the cover against the sides of the book.

3. The combination of a book carrier, means thereon to grasp a book, along its sides and retain it with its back projecting beyond the grasping device, a cementing device for the book back, a support for the covers, a cover feeder for carrying a cover from said support to the book-back, and a presser for pressing the cover and book-back together, substantially as described.

4. The combination in a book covering machine, of a cementing device for the book back, a cover-feeder, a presser for uniting the cover to the book back, with a book-carrier having a grasping device grasping a book along its sides to allow its back to project beyond said grasping device, and means whereby the carrier is moved constantly forward step by step to present the back successively to the cementing device, cover feeder and presser devices, substantially as described.

5. The combination of a book-carrier, means for revolving said carrier, means on said carrier to grasp a book, a cementing device for the book-back, a support for the covers, a cover feeder, means for vibrating the cover feeder to carry a cover from said support into covering position, and a presser for pressing the book-back and cover together, substantially as described.

6. The combination in a book covering machine, of a cementing device for the book backs, a cover-feeder, a presser for pressing the book-backs and covers together, with a book carrier having a plurality of grasping devices each to grasp a book along its sides and to allow the backs to project beyond said grasping devices and means whereby the carrier is moved constantly forward step by step to present the book-backs successively to the cementing device, cover feeder and pressing devices, substantially as described.

7. The combination of a movable book-carrier, means thereon to grasp a book and retain it while moving onward to the point of delivery, a cementing device to apply cement to the back of the moving book, a cover feeder, means for moving the feeder across the path of the carrier, and a presser for pressing book back and cover together, substantially as described.

8. The combination of a movable book carrier, means thereon to grasp a book, a cementing device to apply cement to the book back, a cover feeder, a presser for pressing the cover and book back together, and a breaker for breaking the cover around the edges of the book back, substantially as described.

9. The combination of a book carrier, means thereon to grasp a book, means to revolve the carrier intermittently, a cementing device to apply cement to the book-back, a cover feeder, a presser to press the book back and cover together, and a breaker to break the cover around the edges of the book-back, substantially as described.

10. The combination of a book-carrier, means thereon to grasp a book, a cementing device to apply cement to the book-back, a cover feeder, means for moving the feeder across the path of the carrier, a presser, and means for vertically reciprocating said presser to press the cover and book-back together, substantially as described.

11. The combination of a book carrier, means thereon to grasp a book, a cementing device to apply cement to the book-back, a cover feeder, a vertically reciprocating presser for uniting the cover and book-back, and a vertically reciprocating breaker for breaking the cover around the edges of the book-back, substantially as described.

12. In a book covering machine, the combination of cementing, cover-feeding, and pressing devices to cement, feed, and attach a cover to the book-back, a breaker for breaking the cover around both of the corners of the book-back, and means for vertically reciprocating the breaker, with a book-carrier having a grasping device to grasp a book along the sides with its back projecting beyond said grasping device and retain such book until after the operation of the breaker, substantially as described.

13. In a book covering machine, the combination of cementing, cover-feeding, and pressing devices to cement, feed, and attach a cover to the book-back, a breaker for breaking the cover around both of the corners of the book back, and means for moving the breaker, with a book carrier having a grasping device to grasp a book along its sides with its back projecting beyond said grasping device and retain such book until after the operation of the breaker, and means whereby the carrier is moved constantly forward step by step to present the back successively to the cementing, cover feeding, pressing and breaker devices, substantially as described.

14. The combination of a book carrier means thereon to grasp a book, a cementing device to apply cement to the book-back, a cover feeder, a presser for pressing the cover and book-back together, a breaker for breaking the cover around the edges of the book-back, and a smoothing device for contact with the book-back and cover, substantially as described.

15. The combination in a book covering machine, of a book carrier having a plurality of grasping devices mounted therein, cover attaching devices, a cover-smoothing device, and delivery devices for the covered book, occupying definite successive positions along the path of the book-carrier, with an operating driver and gearing interposed between the driving shaft and the book-carrier to intermittently operate said driver and carrier, the number of stops made by the driver in a given time corresponding to the grasping devices which are moved step by step from a book feeding position in said given time, so that each stoppage of the carrier places a grasping device adjacent to said cover attaching, cover smoothing, and delivery devices, whereby the books are retained in position to be acted upon sequentially, substantially as described.

16. In an organized machine for covering books, the combination of an intermittently revoluble book carrier, a plurality of grasping devices thereon, a cover feeder adapted to feed a cover in position before or simultaneous with each dwell of the book carrier, and a presser for pressing the book-back and cover together during the dwell of the book carrier, substantially as described.

17. In an organized machine for covering books, the combination of an intermittently revoluble book carrier, a plurality of grasping devices therein, a cover feeder adapted to feed a cover in position before or simultaneous with each dwell of the book carrier, a presser for pressing the cover and book-back together during the dwell of the book carrier, and a breaker for breaking the cover around the corners of the book-back during the dwell of the book-carrier, substantially as described.

18. The combination of a book carrier means thereon to grasp a book, a pivoted book holder, and a pin projecting from the carrier for swinging the holder to one side to permit a book to be fed to the book carrier, substantially as described.

19. The combination of a book carrier, a plurality of grasping devices therein, a pivoted book holder, common to said grasping devices and a plurality of pins for contact with the holder to move it to one side to permit a book to be fed into each of the grasping devices, substantially as described.

20. The combination of a book carrier provided with means to grasp a book along its sides and retain it with its back projecting beyond said grasping means, means for moving the carrier constantly forward step by step, a rotating glue brush supported in a fixed position with respect to the carrier for applying glue to the back of the book, a cover feeder and means for attaching the cover to the book, substantially as described.

21. The combination of a book carrier means thereon to grasp a book, a temporary holder, means carried by a moving part for moving the holder to one side to allow a book to be fed to the carrier, and a supporting gage for determining the position of the book with respect to the carrier, substantially as described.

22. The combination of a book carrier, provided with means to grasp a book along its sides with its back projecting beyond the grasping means, means for constantly moving said carrier forward step by step, a cover feed table, a movable feeding device for carrying the covers from the feed table and presenting them in position to the book back, substantially as described.

23. The combination of a book carrier, means thereon to grasp a book, a cover feed table, a cover feeder for taking the covers from the feed table and presenting them in position to the book back, and means for vibrating the cover feeder, substantially as described.

24. The combination of a book carrier means thereon to grasp a book, a cover feed table, vibrating arms having grippers for taking the cover from the feed table and presenting it in position to the book-back, and means for operating the grippers to grip and release the cover, substantially as described.

25. The combination of a book carrier means thereon to grasp a book, a cover feed table, vibrating arms having grippers for taking the cover from the feed table and presenting it to the book-back, and a position rod for holding the grippers in substantially a horizontal position during the vibration of said arms, substantially as described.

26. The combination of a book carrier means thereon to grasp a book, a traveling cover feeder adapted to present a cover in proper position to the book, and means for regulating the travel of the cover feeder to adjust the center of the cover to the book-back, substantially as described.

27. The combination of a book carrier means thereon to grasp a book, a cover feed table, a cover feeder for taking the cover from the table and presenting it to the book-back and having a constant

range of movement in one direction, and means for varying the range of movement of the cover feeder in the other direction, substantially as described.

28. The combination of a book carrier means thereon to grasp a book, a cover feed table, a vibrating cover feeder for taking the cover and presenting it in position to the book, and a radius rod adjustably connected to the cover feeder, substantially as described.

29. The combination of the vibrating gripper arms an operating cam imparting a constant range of movement, a radius rod interposed between the cam and a gripper arm and adjustably connected to the latter for varying the arc of vibration of the gripper arms, substantially as described.

30. The combination of vibrating gripper arms a gripper rock-shaft carrying a gripper jaw, a gripper sleeve surrounding said rock shaft and carrying the other jaw, means for holding the sleeve in a determined position with respect to the rock shaft, and a tripper for rocking the rock shaft, substantially as described.

31. The combination of vibrating gripper arms, a gripper rock shaft carrying a gripper jaw, a gripper sleeve surrounding said rock shaft and carrying the other jaw, a position rod for holding the gripper jaws in a determined position in the vibration of the gripper arms, and for holding the gripper sleeve fixed with respect to the rock shaft, substantially as described.

32. The combination of a presser stand, a presser bar carrier, a pair of links connecting the carrier to the stand and a presser bar seated at the upper end of the carrier, substantially as described.

33. The combination of a breaker stand, a breaker carrier, a pair of links connecting the carrier with the stand, and a pair of breaker-jaws pivotally connected to the carrier, substantially as described.

34. The combination of a breaker carrier, a pair of breaker jaws pivotally mounted thereto, and a double faced wedge for holding the jaws in contact with the book and for releasing them to permit them to leave the book, substantially as described.

35. The combination of a breaker-carrier, a pair of breaker jaws pivotally connected to the carrier, a presser-bar-carrier and a double-faced wedge carried by said presser carrier for holding the breaker jaws in contact with the book, and releasing them to move from the book, substantially as described.

36. The combination of a presser-carrier and a removable presser bar secured thereto, a breaker-carrier, a pair of jaws secured to said carrier and means for adjusting one of the jaws with respect to the other and to the presser bar, substantially as described.

37. The combination of a movable book carrier, with means thereon to grasp a book, a fixed trough, and a smoothing plate adjustably mounted in said trough, substantially as described.

38. The combination of a movable book carrier, with means thereon to grasp a book, a fixed trough, a smoothing plate adjustably mounted in said trough, and means for heating the plate, substantially as described.

39. The combination of a book-carrier, having means to grasp a book, with its back projecting beyond the grasping means, a cementing device, a presser-bar having a definite range of movement, a smoothing plate, and means for adjusting it with respect to the surface of the carrier, substantially as described.

40. The combination of a book-carrier having a grasping device to grasp a book, a delivery bracket having an opening through which the covered book is delivered, means for opening the grasping device, and a receiving plate to close said opening of the delivery bracket, substantially as described.

41. The combination of a book carrier means thereon to grasp a book, having its cover flap unfolded, a delivery bracket having an opening through which the covered book is delivered, whereby the cover flaps are folded against the sides of the book a receiving plate controlling such opening, and a knocker to insure the delivery of the book, substantially as described.

42. The combination of an intermittently rotating book carrier, a plurality of grasping devices therein, a cementing device, a cover feeder, a presser for pressing the cover onto the book back, breaker jaws for breaking the cover around the corners of the book-back, a smoothing plate for contact with the book-back and cover, a delivery bracket having an opening for the passage of the covered book, and a delivery fly frame, substantially as described.

43. The combination of a book carrier means thereon to grasp a book and carry to the point of delivery, and a guide way for the projecting leaves of the book, extending from the book receiving station to the point of delivery, substantially as described.

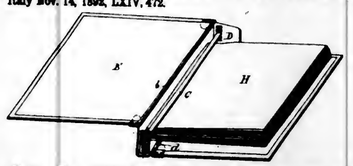
44. The combination in a book binding machine, of a book carrier having a plurality of devices to grasp and retain the book, with the back protruding beyond said devices while being carried onward, and a stationary elongated flat smoothing plate extending along the path of the carrier along and over which the book-backs are carried.

45. In a book covering machine, the combination of a book grasping device, a presser for pressing the cover against the back of the book, means for moving the presser, substantially at right angles to the plane of the back of the book, and a pair of breakers adapted to break the cover against the sides of the book, substantially as described.

46. The combination with a grasping device and an end gage for determining the position of the end of the book in said grasping device, of a cover feed table having an adjustable cover-head gage adjustable with respect to the position of the end of the book in the grasping device, means for moving the grasping device with the end of the book in alignment with the cover-head gage, a cover feeder for carrying the cover from the feed table to a position below the book back, and means for attaching the cover to the book back.

47. The combination of a book carrier having a grasping device consisting of a fixed jaw and a movable jaw, a lever pivoted at one end to the carrier and at the other end pivoted to and carrying the movable jaw, a cam roll carried by said lever, coincident with its pivotal connection with the movable jaw a spring for constantly pressing the movable jaw toward the fixed jaw, and a cam for moving the movable jaw from the fixed jaw against the force of said spring, substantially as described.

493,960. LETTER-FILE. VICTOR ASTIER, Bouilly, France. Filed Dec. 3, 1892. Serial No. 453,946. (No model.) Patented in France Aug. 9, 1892, No. 223,473; in England Nov. 14, 1892, No. 20,573, and in Italy Nov. 14, 1892, LXIV, 472.



Claim.—The combination of the metallic back provided with a hinge A, carrying the covers B, B', with two parts D, E, one of which is movable and the pressing ruler C, engaging the parts D, E, substantially as described.

493,961. PLASTER-BOARD. JAMES D. BAKER, Montreal, Canada. Filed Mar. 28, 1892. Serial No. 426,783. (No model.)



Claim.—A plaster board formed of a plaster facing and backing having a sunken face round two of its edges and strips of textile fabric secured in its other two edges between the backing and facing and adapted to lie in the sunken faces of adjacent boards by means of which adjacent boards may be secured together by a suitable plastic filling.

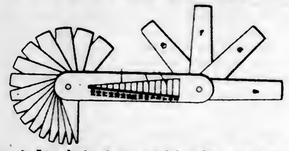
493,962. PERFUMERY OR OTHER BOTTLE. GEORGE W. BEAR, Philadelphia, Pa. Filed May 16, 1892. Serial No. 433,137. (No model.)



Claim.—1. A bottle with its mouth at the lower end, a flexible frame or netting embracing the body of the bottle and having the vertical pieces D at its lower end, the horizontal piece H with hooks thereon, and the eye G at its upper end, and the base E connected with said vertical pieces D, said parts being combined substantially as described.

2. A bottle with its mouth at its lower end, a flexible netting embracing the body of the bottle and having the depending pieces D, a base with hooks thereon, and a wire encircling said base and fitted on said hooks, said wire and said pieces D being connected, said parts being combined substantially as described.

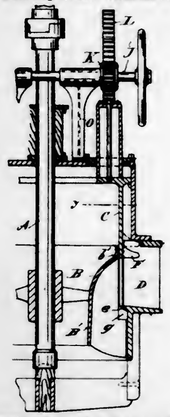
493,968. AGE-GAGE. ANDREW BOLINGER and JOHN BOLINGER, Speedwell, Tenn. Filed Dec. 8, 1892. Serial No. 454,511. (No model.)



Claim.—1. In a device for ascertaining the approximate age of a horse, a handle consisting of two plates connected to each other, said handle having at each end a series of gage-plates and on each side a scale the gage marks of which correspond with the width of the ends of the gage-plates, substantially as shown, and for the purpose set forth.

2. In a gage or device for ascertaining the approximate age of a horse, the combination of the plates A and A' having scales formed thereon, said scales consisting of lines which converge and transverse lines extending between the converging lines, the transverse lines decreasing in width progressively from end to end, together with a series of blades pivoted between the plates A and A', said blades having ends corresponding in width with the transverse gage-marks on the scales, substantially as set forth.

493,964. WATER-WHEEL. FRANCIS M. BOOKWALTER and WILLIAM W. TYLER, Springfield, Ohio, assignors to the James Leffel & Company, same place. Filed Aug. 1, 1892. Serial No. 441,781. (No model.)



Claim.—1. The combination with a casing, and a wheel having buckets with an edge extending from its periphery inward, of guide walls forming passages for the water delivered to the wheel, the said walls of which passages overhang the outer portion of said buckets, and the bottom wall of which is cut away between the side walls to allow the water to drop downward, while the side walls direct it inward well within the wheel.

2. In a water wheel, the combination with a wheel proper of two diameters forming a shoulder on the buckets and thus providing an entering edge for each bucket to receive the water from its side and from above, and a casing for such wheel proper, of guide walls forming water passages, the side walls of which overhang the outer portion of said buckets, and the bottom wall of which is cut away between said side walls, substantially as described.

3. In a water wheel, the combination with a wheel proper formed in two diameters of buckets, each providing substantially a vertical and a horizontal entering edge, and a casing for said wheel proper, of a cylinder gate operating vertically past said vertical edges of the buckets, the casing being provided with partition walls forming the water passages to said wheel proper, the inner ends of which walls extend over the shouldered portions of the buckets, and a bottom for said passages having lateral flanges at said overhanging ends, and cut away between, substantially as shown and described.

4. In a water wheel, the combination with a casing and a wheel proper mounted therein having buckets formed in two diameters to constitute a shouldered entering edge on the buckets themselves, side walls forming water passages to said buckets extended over said shouldered edge of the buckets, and the bottom of the passages cut away between said walls, the shoulder of the bucket being located below said bottom wall so as to leave a space between the overhanging walls through which the water passes before it strikes said bucket shoulder.

5. In a water wheel, the combination with a casing and a wheel proper mounted therein, the shell of which is curved outward and upward substantially as shown and described, of a cylinder gate and operative devices therefor, the gate co-operating as a guide with the said outward and upward curve of the shell.

6. In a water wheel, the combination with a casing and a wheel proper mounted therein, the shell on which the buckets are mounted being curved upward and rounded at the junction of the buckets with said shell, of a cylinder gate mounted in said casing and operating with said buckets and designed to effect the greatest efficiency of the wheel when partially closed, as shown, and admit of maximum opening substantially as and for the purpose described.

7. In a water wheel, the combination with a casing and a wheel proper mounted therein, of a cylinder gate provided with a flange to receive the upward pressure of the water and thus resist the downward tendency of the gate under a known head, of one or more auxiliary surfaces consisting of interchangeable pieces adapted to be mounted on said gate and exposed to the downward pressure of the water, whereby the gate may be balanced under other pressures than that for which the parts were proportioned, by substituting different auxiliary surfaces thereon.

8. In a water wheel, the combination with a casing and a wheel proper mounted therein, of a cylinder gate having a flange to receive the upward pressure, and auxiliary pressure portions consisting of cylinders passing through said casing and adapted to receive the downward pressure of the water, whereby the gate may be balanced.

9. In a water wheel, the combination with a casing and a wheel proper mounted therein, of a cylinder gate having a flange adapted to receive the upward pressure of the water and proportioned to balance the gate under a known pressure or head, of a cylinder detachably mounted on said gate and extending upward through said casing to afford an auxiliary surface exposed to the downward pressure of the water, and a detachable gland of constant diameter with an opening according to the size of the cylinder, whereby the gate may be balanced under other pressures or heads than the one for which it is designed.

10. In a water wheel, the combination with a casing, a wheel proper and a cylinder gate therefor, the latter being provided with a flange to balance the downward tendency of the gate under a certain pressure or head, of a detachable cylinder mounted on said gate and exposed to the downward pressure, a gland therefor mounted on the casing, a rack secured to said cylinder, and a shaft and pinion meshing with said rack to operate said gate up and down.

11. In a water wheel, the combination with a casing a wheel proper and a cylinder gate having a flange to receive the upward pressure, of a detachable cylinder secured to said gate and adapted to receive the downward pressure of the water and a glandular opening in said casing for said cylinder, a rack secured thereto, a pinion meshing with the rack and a shaft therefor, a roller at the back of said rack, and a bracket standard to support said roller and pinion in operative position, substantially as described.

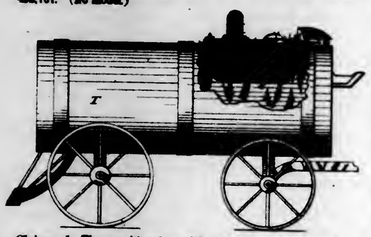
12. In a water wheel, a wheel proper formed in two diameters, whereby the outer edge of the bucket is provided with a substantially horizontal shoulder, said shouldered portion being bent forward more or less toward the horizontal, substantially as described.

13. In a water wheel, a wheel proper provided with buckets, the outer edge of each bucket being in two diameters, the larger one below, and the shouldered portion thus formed being cut down along the inner diameter and extending forward substantially horizontal at its forward end, and blending in its downward and backward curve into the surface of the bucket, substantially as and for the purpose described.

14. In a water wheel, the combination with a casing, and chute walls extending inward beyond the inner walls of said casing, substantially as described, of a wheel proper formed in outer and inner diameters, whereby a shoulder is formed, the bucket being cut down-

ward at said inner diameter opposite said shoulder, and the cut-down portion bent forward to leave a space below said inner chute walls, substantially as described.

493,965. STRAINER-COVER FOR SPRINKLING-TANKS. FREDERICK B. BOWMAN, South Bend, Ind. Filed May 12, 1892. Serial No. 432,767. (No model.)

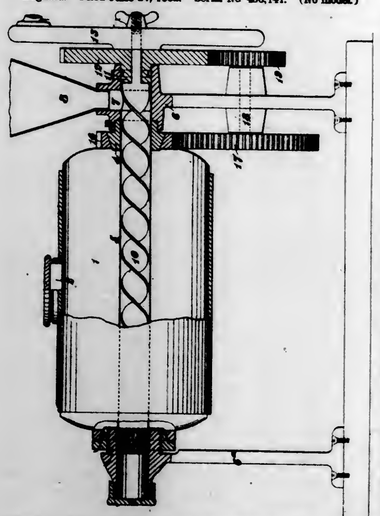


Claim.—1. The combination with a tank having a man-hole, of a cover for said man-hole having a filling opening and a cleaning out opening in it, and a basket screen rigidly secured to the underside of said cover and removable therewith, extending under both openings and adapted to depend into the tank when the cover is in position, and a cap closing said cleaning out opening, substantially as and for the purpose described.

2. The combination with the tank having a man-hole, of a man-hole cover having two openings in it and means for securing it tightly over the man-hole, a depending basket screen fixed to the underside of the cover and underlying both openings, a pipe joint fixed to the top side of the cover over one opening, and a cap closing the other opening, substantially as specified.

3. In a combined man-hole cover and strainer the combination of the plate A having lugs *a*, *a*, at its ends and openings E, *e*, a pipe joint secured over opening *e*, and a cap F closing opening E; with a basket screen K attached to the underside of the cover, and the packing gland B attached to the underside of the cover around and exterior to the edges of the basket screen, substantially as and for the purpose set forth.

493,966. ICE-CREAM FREEZER. JOSEPH W. BOWLEY, London, England. Filed June 27, 1892. Serial No. 438,141. (No model.)



Claim.—1. A refrigerating machine comprising a rotary vessel to contain the freezing agent, a passage cooled thereby and having inlet and outlet openings a screw conveyer located within and of approximately the same cross sectional area as said passage and means for rotating said vessel and screw propeller substantially as herein described for the purpose specified.

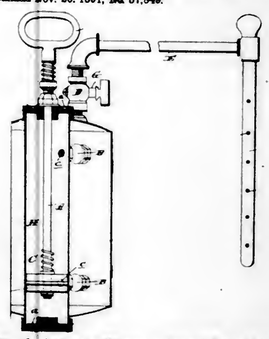
2. A refrigerating machine comprising a rotary vessel to contain the freezing agent, a passage arranged to be cooled by the contents of said vessel, and a removable screw conveyer located within and approximately of the same cross-sectional area as said passage substantially as herein described for the purpose specified.

3. In a refrigerating machine the combination of a rotary vessel to contain a freezing agent, a tube extending centrally therethrough and provided with inlet and outlet apertures, a screw conveyer located in said tube and mechanism for rotating said vessel and screw conveyer substantially as herein described.

4. In a refrigerating machine, the combination of a rotary vessel to contain a freezing agent, a tube extending centrally therethrough provided with supply and discharge openings and about which said vessel can rotate, standards wherein said tube is fixed, a screw conveyer located in said tube and mechanism for independently rotating said vessel and screw propeller substantially as herein described for the purpose specified.

5. In a refrigerating machine, the combination of a rotary vessel to contain a freezing agent, means for rotating said vessel, a tube extending centrally therethrough and having supply and discharge openings, a screw conveyer located in said tube and provided with a screw threaded extension, a driving wheel mounted on said extension and having a boss arranged to close one end of the passage way through said tube and formed with a transverse slot in which the end of said screw conveyer is fitted, and a fastening device such as a nut for securing said screw conveyer and driving wheel together substantially as herein described for the purpose specified.

493,967. AIR-PUMP ATTACHMENT FOR STOVES OR FURNACES. GEORGE S. BOTLER and FREDERICK ROTHWELL, Havelock, Canada. Filed Jan. 2, 1892. Serial No. 416,899. (No model.) Patented in Canada Nov. 26, 1891, No. 37,849.

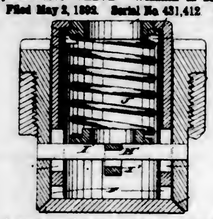


Claim.—1 A stove or furnace, substantially as described, comprising a fire box or fuel chamber, a compressed air reservoir, a pipe leading from the reservoir to the fire box or fuel chamber and adapted to discharge in the latter, and a suitable means for replenishing the compressed air reservoir, substantially as specified.

2. In a stove or furnace, substantially as described, the combination with a fire box or fuel chamber, a compressed air reservoir, a pipe leading from the reservoir into the fire box or fuel chamber, a series of apertures formed in said pipe within the fire box or fuel chamber, and a stop cock for controlling the passage of said pipe; of a pump casing seated in the reservoir and extending through the ends of the same and having valve controlled ports in its ends or heads and also having the ports *e*, in its side, check valves controlling the said ports *e*, and a reciprocatory piston within the pump casing, substantially as specified.

3. A device adapted to feed a continuous and even blast of compressed air to a stove or furnace, comprising a reservoir adapted to be connected to a stove or furnace, the pipe leading from the reservoir and having the egress apertures *g*, and the stop cock G, the pump casing arranged in the reservoir and extending through the ends of the same and having valve controlled ports in its ends or heads and also having the ports *e*, in its side, check valves controlling the said ports *e*, a reciprocatory piston within the pump casing the piston rod connected thereto and the cushion springs mounted on said rod, substantially as specified.

493,968. SUCTION-VALVE. WILLIAM H. BRENNER, Sr., Port Carbon, Pa. Filed May 2, 1892. Serial No. 431,412. (No model.)



Claim.—1. A suction valve, comprising a cylindrical casing having a valve seat around its inner end and two transverse openings between its ends, a valve seating on said seat and provided within the casing with an extension having two longitudinally extending slots closed at their ends, a cross bar extending through the said openings and slots, and a spring bearing at its inner end on said cross bar and at its outer end engaging the outer end of the extension and pressing the valve to its seat, substantially as set forth.

2. A suction valve, comprising the cylindrical casing, the valve having a slotted extension sliding in said casing, a cross bar extending through the casing and slotted extension and provided with a central notch in its outer edge, and the spring bearing at its outer end on the outer end of the extension and having a seat at its inner end provided with an eye on its inner side engaging said notch, substantially as set forth.

3. A suction valve, comprising the cylindrical casing A having a valve seat at its inner end, the valve closing against said seat and having a cylindrical longitudinally slotted extension extending through the casing and having an inwardly extending flange at its outer end provided with recesses L, the cross bar extending through the casing and slotted extension, the spring seat on the cross bar, the spring bearing at its inner end thereon, and the cap against which the outer end of the spring bears and having lugs passed through the recesses L and engaging the said flange, substantially as set forth.

4. In a suction valve, the combination with a valve casing provided with a cross bar and formed with a valve seat, of a valve adapted to be seated on the said seat and provided with a cylindrical wall fitted to slide in the valve casing, the said wall being formed with inlet openings and with apertures for the passage of the said cross bar, a rest held on the said cross bar, a spring engaging the said rest with its inner end, and a cap held on the outer end of the said wall and engaged by the outer end of the said spring, substantially as shown and described.

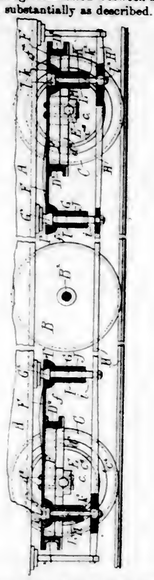
493,969. ELECTRIC CAR. CHARLES BROWN, Basle, Switzerland, assignor to the Maschinenbau Gesellschaft, same place. Filed Mar. 5, 1892. Serial No. 424,190. (No model.) Patented in France June 19, 1891, No. 214,283, and in Belgium Aug. 29, 1891, No. 96,905.

Claim.—1. A car provided at its center with two wheels which are without lateral movement relatively to the car body and at its ends with two separate truck frames each carrying two wheels, each of said truck frames being pivotally connected with the car by means of a pivotal connection located between and equidistant from the axis of rotation of the truck wheels and the axis of rotation of the wheels at the center of the car; and means connecting the car body with the said truck frames outside of the axles of the truck wheels, comprising upright supporting members pivotally connected with the car body and trucks to allow lateral movement of the said frame, substantially as described.

2. The combination with a car body, of central supporting wheels and truck frames located at the ends of the car body and each provided with two wheels, said truck frames being pivoted to the car body at points between the axes of rotation of the truck wheels and the center of the car, springs located between the truck frames and the car body at the points of pivotal connection between the same for supporting a part of the weight of the car, and other springs applied between the truck frames and the car body at points outside of the axis of rotation of the wheels and acting both to sustain a part of the weight of the car and to hold the truck frames normally in a central position relatively to the car body, substantially as described.

3. The combination with a car body, of a laterally movable truck provided with two wheels and connected with the car body by a vertical pivot located at one side of the axis of rotation of the truck wheels, and an elastic or yielding connection between the car body and the truck frame consisting of two parts constructed to slide longitudinally one upon the other and connected at their opposite ends with the car body and truck frame by universal joints, and a spring interposed between the sliding parts of said connection tending to hold the truck frame in its central position, substantially as described.

4. The combination with the car body, of a truck frame having two wheels and pivotally connected with the car body at a point at one side of the axis of rotation of the wheels, a rigid bar attached to the car body and extending longitudinally beneath the truck frame, an elastic or yielding connection between said longitudinal bar and the truck frame, consisting of two parts having longitudinal movement with reference to each other, said parts being connected at their ends with the longitudinal bar and the truck frame by universal joints, and a spring interposed between said longitudinally movable parts, substantially as described.



5. The combination with a car body, of a truck frame having two wheels and pivotally connected with the car body at a point at one side of the axis of rotation of the wheels, a rigid bar attached to the car body and extending longitudinally beneath the truck frame, an elastic or yielding connection between said longitudinal bar and the truck frame, consisting of two parts having longitudinal movement with reference to each other, said parts being connected at their ends with the longitudinal bar and the truck frame by universal joints, and a spring interposed between said longitudinally movable parts, substantially as described.

6. The combination with a car body, of two centrally arranged wheels, and two laterally movable truck frames located at opposite ends of the body and each provided with two wheels, said truck frames being each pivotally connected with the car body by universal joints located at points between and equidistant from the axis of rotation of the truck wheels and the axis of rotation of the wheels at the center of the car, substantially as described.

7. The combination with a car body, of a truck frame having two wheels, and a pivotal connection between the truck frame and car body located at one side of the axis of rotation of the truck wheels and consisting of a dependin pivot stud attached to the car body, a sleeve surrounding the same and connected with the truck frame by a universal joint, and a spring interposed between the shoulders on the said stud and the said sleeve, substantially as described.

8. The combination with a car body, of a truck frame provided with two wheels, a pivotal connection between the truck frame and car body located at a point at one side of the axis of rotation of the wheels and embracing a universal joint, and a spring interposed between the car body and the truck frame and acting both to hold the truck frame normally in a central position and to sustain a part of the weight of the car body, substantially as described.

9. The combination with a car body, of a truck frame provided with two wheels and pivotally connected with the car body at a point at one side of the axis of rotation of the wheels, a rigid bar attached to the car body and extending longitudinally beneath the truck frame, and an elastic or yielding connection between said longitudinal bar and the truck frame consisting of a rod pivotally connected with said bar at its lower end, a sleeve surrounding the rod and connected with

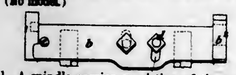
the truck frame by a universal joint, and a spring located between opposing shoulders on the rod and sleeve, substantially as described

10. The combination with a car body, of central supporting wheels which are without lateral movement relatively to the car body, truck frames located at the ends of the car and pivotedly connected with the same, two fixed axles attached to each truck frame, one at each side thereof, wheels independently mounted on each of said axles and an electric motor for each wheel, of which the stationary part is attached to the fixed axle, and the revolving part is attached to the wheel, the pivots connecting with the truck frames and the car being located midway between the axis of rotation and the wheel at the center of the car and those of the truck wheels, substantially as described.

11. The combination with a driving wheel provided with an outer part or rim made separate from the body of the wheel, of a motor for actuating the same, the revolving part of which is attached to the body of the wheel, and a spring or cushion interposed between the outer part or rim and the body of the wheel, substantially as described.

12. The combination with a driving wheel comprising a cylindric shell forming the body of a wheel and a wheel rim surrounding the shell, of a motor for driving the wheel, the revolving part of which is attached to the inner surface of the shell, and an elastic packing or spring interposed between the wheel rim and the shell, substantially as described.

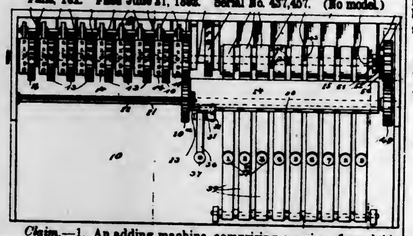
493,970. MACHINE FOR WINDING YARN OR THREAD. ROBERT BROADBENT, Stalybridge, England. Filed Apr. 18, 1892. Serial No. 429,675. (No model.)



Claim.—1. A spindle carrier consisting of the combination of a straight bar having bosses upon which the carrier hangs, with a second straight bar, provided with arms having bearings for the spindle, the two said bars being surfaced to fit together, and means for firmly securing and adjusting them together in different positions, substantially as described.

2. A spindle carrier consisting of the combination of a bar having bosses upon which the carrier hangs, with a bar provided with arms having bearings for the spindle, the two bars being fitted together, and being hinged together at one end and means for securing the two bars together when adjusted on said hinge, all substantially as described.

493,971. ADDING-MACHINE. AUGUSTUS J. BROOKS, Wichita Falls, Tex. Filed June 21, 1892. Serial No. 437,457. (No model.)



Claim.—1. An adding machine, comprising a series of revoluble number wheels held to turn upon a shaft and arranged so that the revolution of one wheel will turn the next wheel a distance of one number, a spring-returned shaft journaled parallel with the number wheel shaft, a series of drums journaled loosely on the spring returned shaft, projecting studs on the drums and arms on the shaft which are adapted to contact with each other, belts secured to the drums and adapted to be wound thereon, numbered depressible keys secured to the free ends of the belts and also to the main case of the machine, a series of stops of graduated height arranged beneath the keys and adapted to limit their movements, and an operative gear and ratchet connection between the spring returned shaft and the number wheels, whereby the turning of the spring shaft in one direction will actuate the number wheels, substantially as described.

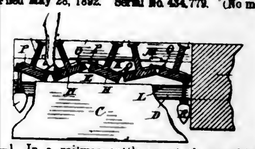
2. An adding machine, comprising a series of numbered cog wheels journaled loosely on a shaft and geared together so that a revolution of one wheel will impart a tenth of a revolution to the adjacent wheel, a shaft journaled parallel to the number wheel shaft, a sliding locking plate and cog wheel keyed to the shaft and adapted to engage the number wheels, the cog wheel to rotate and the plate to lock them a series of movable numbered keys held to swing adjacent to the locking plate, a revoluble spring-returned shaft operatively connected with the swinging keys, a ratchet connection between the key operated shaft and the shaft carrying the locking plate, and a key mechanism for sliding the locking plate and its cog wheel, substantially as described.

3. An adding machine, comprising a series of parallel numbered wheels journaled loosely on a shaft and geared together so that a revolution of one will impart a tenth of a revolution to the next, a key shaft arranged adjacent to the number wheel, a locking plate and cog wheel held to slide on the key shaft and adapted to engage the number wheels, the cog wheel to rotate and the plate to lock them a lever mechanism for sliding the locking plate and its cog wheel, a series of spring-returned drums journaled loosely on the number wheel shaft, a series of numbered keys held to swing beneath the drums and connected with them by belts, means, as the studs on the drums and the arms on the shaft, for connecting the arms and their shaft, the graduated series of stops to limit the movements of the keys, and a ratchet and gear connection between the drums and the key shaft, substantially as described.

4. The combination, with the numbered cog wheels arranged to represent units, tens, hundreds, &c., and constructed so that the revolution of one wheel turns the next higher wheel a distance of one number, of a locking plate held to slide opposite the wheels and adapted to engage the teeth thereof, substantially as described.

5. The combination of the revoluble number wheel having cogs thereon, a key mechanism for revolving the number wheels, the sliding locking plate and cog wheel held to move adjacent to the number wheels and to engage the cogs thereon, the cog wheel to rotate and the plate to lock the number wheels; a rack fixed to the locking plate, a bell crank pivoted beneath the rack and connected therewith by a pawl, and a swinging key held to operate the bell crank, substantially as described.

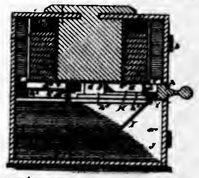
493,972. RAILWAY CATTLE-GUARD. JOHN J. BURKE, Roseburg, Oreg. Filed May 28, 1892. Serial No. 434,779. (No model.)



Claim.—1. In a railway cattle-guard, the combination with a frame-work, of a series of parallel slats, journaled in said frame work, said slats being of an inverted-T cross section and a rope or cord passing through loops or eyes on each of said parallel slats, said cord bearing a weight at its ends, substantially as and for the purpose set forth.

2. In a railway cattle-guard, the combination with a frame-work, of a series of parallel slats, journaled in said frame-work, said slats being of an inverted-T cross-section, and metallic grip-strips secured to the upper edges of said slats, substantially as described.

493,973. COIN-OPERATED VENDING-MACHINE. HENRY BYRON, New York, N. Y. Filed Oct. 6, 1892. Serial No. 448,032. (No model.)



Claim.—1. In a coin-operated vending machine, the combination, with a receptacle for the goods, of a drawer having a hinged bottom adapted to receive and transmit the coin to a coin receptacle, a slide supporting the goods in the receptacle therefor and adapted to be pressed out of engagement with said goods by the coin, for the purpose of delivering one package thereof to the operator, substantially as described.

2. In a coin-operated vending machine, the combination, with a receptacle for the goods, of a drawer having a partial bottom adapted to receive one package of the goods and a hinged bottom adapted to receive and deposit a coin; a support for the goods adapted to be pressed out of engagement therewith by the coin for the purpose of delivering such goods to the operator, substantially as described.

3. In a coin-operated vending machine, the combination, with a receptacle for the goods, of a drawer adapted to receive the coin and deliver the goods, and a slide having wings to support the goods in the receptacle therefor, and provided with a downward projection adapted to be engaged by the coin deposited in such drawer and forced from engagement with such goods, substantially as described.

4. In a coin-operated vending machine, the combination, with a goods container, of a drawer having a partial bottom adapted to receive one package of the goods, and a hinged bottom adapted to receive and deposit a coin, a slide having wings to support the goods in one compartment of the container and provided with a downward projection adapted to be engaged by a coin supported upon such hinged bottom and forced from engagement with such goods, substantially as described.

493,974. KETTLE. THOMAS CARGADEN, Jr., Waterloo, Iowa. Filed Oct. 14, 1892. Serial No. 448,896. (No model.)

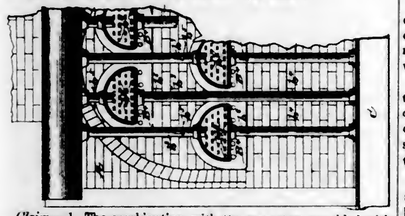


Claim.—1. In combination with a boiling kettle A, a curved or semi-spherical guard plate having a number of perforations at the lower portion thereof, the upper edge of said guard-plate being adapted to contact with the kettle so as to provide an air-tight space above the perforations between the kettle and false-bottom or guard-plate, substantially as shown and for the purpose set forth.

2. In combination with a kettle A having ears, and means extending therefrom for attaching to the kettle a false-bottom having a centrally perforated portion, the upper portion of said false-bottom being without perforations and adapted to contact with the kettle, for the purpose set forth.

3. In combination with a kettle having a bottom convex on its under side, a concavo-convex guard-plate having an outwardly projecting flange adapted to bear against a shoulder formed on the kettle, said guard-plate having at its lower portion a multiplicity of perforations, the parts being so shaped that the greatest distance between the guard-plate and kettle is at the center, for the purpose set forth.

493,975. GAS APPARATUS. CHARLES F. CATTELL, Darby, Pa. Filed Apr. 16, 1891. Serial No. 389,154. (No model.)

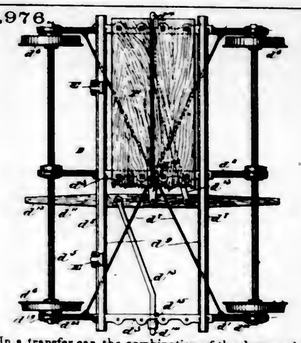


Claim.—1. The combination with the gas retort provided with the tube *b* opening into the retort by means of small perforations, and the gages connected with each tube of the rear mouth piece provided with the rear ascension pipe the lower end of which extends into the said mouth piece a suitable distance, the damper b^3 and the pipe b^4 provided with a water spray close to the mouth piece, all combined and operating substantially as described.

2. The combination with the gas retort having the perforated back b^3 and the generators *b* provided with the valves *d*, gages connected to each of the generators, of the rear mouth piece provided with the ascension pipe leading to the stack and provided with a damper, the lower end of said pipe extending into the mouth piece a suitable distance and the pipe b^4 leading to a suitable hydraulic main and provided with the water spray b^4 all combined and operating substantially as described.

493,976. TRANSFER-CAR. CYRUS CHAMBERS, Jr., Wynnewood, assignor to the Chambers Brothers Company, Philadelphia, Pa. Filed Sept. 3, 1888. Serial No. 284,850. (No model.)

Claim.—1. In a car of the class recited, the combination of the depressed side bars, the middle bar, the axle extending through said middle bar, and journaled in boxes, or bearings, at the ends of said side bars, the wheels on said axles, and the track supported by said bars, substantially as and for the purpose set forth.



2. In a transfer car, the combination of the depressed side bars, the middle bar, the axle extending through said middle bar, and journaled in boxes, or bearings, at the ends of said side bars, the wheels on said axles, and the track supported by said bars, together with the brace rods, substantially as and for the purpose set forth.

3. The combination with the tracks A and B, and the socketed plate, or plates, adjacent to, and parallel with, said latter track, of the transfer car, consisting of a wheeled frame, or truck, provided with a track, d^9, thereon, the sliding bolt, or bolts, in the side, or sides, of said car, and means, such as the pivoted lever, for engaging and disengaging said bolt, or bolts, with and from the socketed plate, or plates, all constructed, arranged with relation to each other, and adapted to operate substantially as and for the purpose set forth.

4. The combination with the tracks A and B, and the socketed plate, or plates, adjacent to, and parallel with, said latter track, of the transfer car, consisting of a wheeled frame, or truck, provided with a track, d^9, thereon, the centrally-pivoted lever, the arm pivoted thereto and working in the sides of the car, all constructed, arranged relatively, and adapted to operate substantially as and for the purpose set forth.

5. The combination of the connected side bars, the roller journal boxes at the ends thereof, embraced by said bars, the fingers projecting from said bars down in front of said boxes, the axles journaled in the latter, and the wheels, substantially as described.

6. The combination with the wheeled frame or truck, of the bevel edged rollers, the frame in which the same are journaled, the beveled flanged box, d^{15}, the depending arms, d^{20}, the bolt or pin connecting said arms, and the finger for retaining said roller-frame within the box d^{15}, substantially as and for the purpose described.

7. The combination with the rail, of the base plate secured thereto, and provided with the depending lugs, the curved lever arm pivoted in and between said lugs and provided with the rearward stop or projection which is adapted to impinge against the under side of said base plate when the lever arm is thrown away from the tread of the rail, substantially as described.

8. The combination with the rail, of the base plate provided with the rail embracing lugs and with the depending pivot lugs, the curved lever arm pivoted in and between said latter lugs, and provided with a suitable back stop or projection, and the set screw or screws adapted adjustably and detachably to secure said plate to the rail, substantially as described.

9. The combination with the rail, of the base plate secured thereto and provided with the depending lugs on its under side, the pivot pin or bolt extending through the vertically elongated holes in said lugs, the curved lever arm mounted on said pin or bolt, and provided with the head or shoe, which is adapted to be swung upon or away from the tread of the rail, substantially as described.

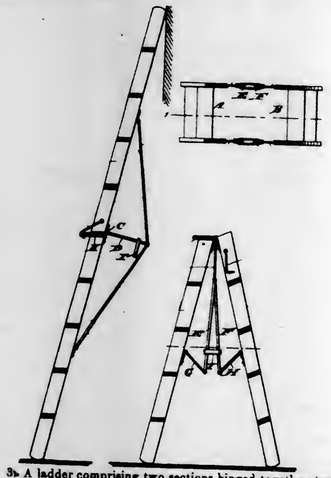
10. The combination with the rail, of the base plate provided with the rail embracing lugs, with the depending pivot lugs and with the outer screw receiving lugs, the curved lever arm pivoted in and between said depending lugs, and provided with a stop or projection which is adapted to take against the base plate when the lever is swung away from the rail, and the set screws adapted to work in said receiving lugs and act against the rail, substantially as described.

493,977. LADDER. CHARLES V. CHILDS, Pittsburg, Pa. Filed May 20, 1892. Serial No. 433,652. (No model.)

Claim.—1. A ladder formed of two sections hinged together at their upper ends, rods D depending from the hinge joints depending truss rods E F, pivoted at their upper ends to the lower ends of rods D, and short rods G H pivoted at their inner ends to the lower ends

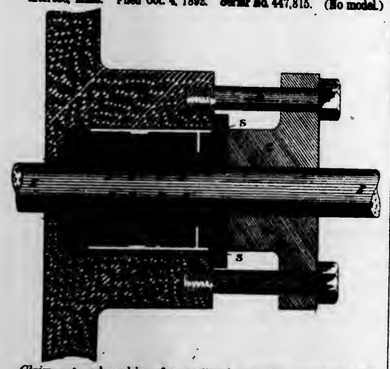
of truss rods E F respectively and at their outer ends to the respective ladder sections, substantially as set forth.

2. A ladder formed of two sections hinged together at their upper ends, a hook to connect the two sections when swung into longitudinal alignment, and a truss connection between the two ladder sections bracing them when in their extended or folded positions, substantially as set forth.



3. A ladder comprising two sections hinged together, truss rods hinged to the said sections and pivotally connected with each other, a rod connecting the joint of the truss rods with the hinge of the ladder sections, and a link adapted to be passed over the said truss rods to lock the latter in place, substantially as shown and described.

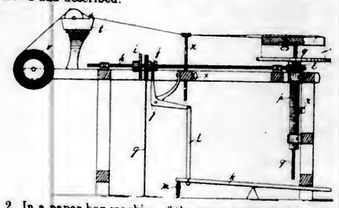
493,978. METALLIC ROD-PACKING. CHARLES F. CHURCHILL, Melrose, Mass. Filed Oct. 4, 1892. Serial No. 447,815. (No model.)



Claim.—A rod-packing for stuffing-boxes, &c., consisting of an inner, expansible, segmental packing-ring F provided with radial keys N, N', closing the joints between its segments, its exterior surface tapering from the center toward its ends, and inclosed between outer compressing rings G, H, in combination with a ring or washer I bearing against the ring H and having outwardly a convex, circular boss e, adapted to engage with a concave socket g, in a ring J, seated against the gland, substantially as described.

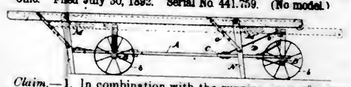
493,979. PAPER-BOX MACHINE. WALTER H. COFFIN, New Bedford, Mass. Filed Oct. 13, 1892. Serial No. 448,661. (No model.)

Claim.—1. In a paper box machine of the character described, the combination of the horizontal table *c*, mounted on the hollow shaft *p*; a rod *g*, vertically adjustable through said table and shaft having its top adapted to have removably secured to it a form *b*; the form *b* the vertically adjustable guide *n*; the paste roll *w*; and means to intermittently rotate said table, at the will of the operator, substantially as shown and described.



2. In a paper-box machine of the character described; the combination of the horizontal table *c*, mounted on the hollow shaft *p*, provided with the worm gear *d*; the shaft *h*, having friction plate *i*, and the worm *e*, meshing with the worm gear *d*; the driving friction pulley having grooved hub *f*, mounted loosely on said shaft *h*, and adapted to be brought in contact with the friction plate *i*, by means of a treadle, whereby motion is communicated to the shaft *h*, and table *c*, at the will of the operator; the rod *q*, bearing a form *b*, vertically adjustable through said hollow shaft and table; the vertically adjustable guide *n*; and the paste roll *w*, substantially as shown and described.

493,980. UNLOADING-PLATFORM. ELIJAH J. COLER, Liberty, Ohio. Filed July 30, 1892. Serial No. 441,759. (No model.)



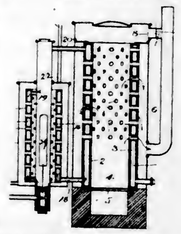
Claim.—1. In combination with the running gear of a wagon, a spring coupling rod, rigidly attached thereto, having a hook *e*, at one end, a platform with rods extending across the front and rear ends thereof, the rear one of said rods adapted to become automatically in and out of contact with the hook *e*, substantially as herein described.

2. In combination with the running gear of a wagon, a portable platform with legs pivoted to the sides thereof by transverse rods M, and M' the herein described folding joints by means of which the legs are maintained in a vertical position, and the spring coupling rod with hook *e*, by means of which the said platform and the running gear are automatically united, substantially as herein described.

3. In a portable platform adapted to use in connection with the running gear of a wagon, the combination with the platform having transverse rods M and M' and legs pivoted to said rods, and the folding joints O, having the projecting part I, of the spring coupling rod D, with hook *e*, substantially as herein described.

4. In a portable platform, the combination with the herein described platform with cross rod M', the plate P, and the coupling rod D, as herein set forth.

493,981. FEED-WATER HEATER. GILBERT H. CONKLIN, Riverhead, N. Y. Filed Dec. 5, 1892. Serial No. 454,198. (No model.)

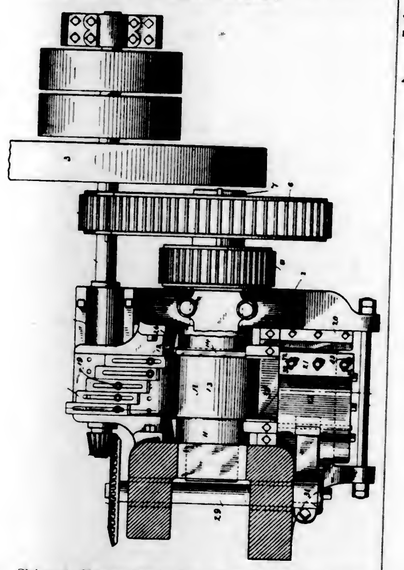


Claim.—1. In a feed-water attachment the combination with a steam boiler of an inner and an outer concentric cylinder forming a water receptacle connected with said boiler, a water tube located in said inner cylinder and connected with the water receptacle and with the boiler, the extension to said tube having an annular recess, the hollow plug located in said extension and provided with a corresponding recess and with water passages, the supply pipe, the bob float,

and the valve stem secured thereto provided with a conical valve, substantially as described.

2. The combination with a steam boiler, of the feed water attachment comprising an inner and outer concentric cylinder forming a water receptacle connected with said boiler, a water tube located within the inner cylinder and connected with the water receptacle and boiler, the bob float located in the water tube provided with the valve stem and valve, the hollow plug having a valve seat in its upper end and connected with a supply pipe, the safety valve comprising a casing a hollow piston rod, a coiled spring, a piston, having a central bore and a shoulder, the valve rod provided with a head, and a valve the valve casing connecting with the supply pipe leading to the water tube, and the pipe and valve communicating therewith and with the source of water supply, substantially as described.

493,982. MACHINE FOR TAPERING AND SHAPING METAL BARS. THOMAS COULTER and JAMES COULTER, Bridgeport, Conn. Filed Aug. 29, 1892. Serial No. 444,485. (No model.)



Claim.—1. The combination with the roll shafts, each being provided with an adjustable roll die, of a series of adjustable stops back of the roll dies and a curved guard plate acting to throw the end of a bar of metal against one of the stops should the bar become depressed.

2. The combination with the driving shaft, the roll shafts, transverse shaft 29 having an eccentric, and suitable connections between said shaft and the driving shaft, of tapering rolls upon the roll shafts, fixed die 20, a slide 22 carrying adjustable dies 21 and a strap pivoted to the slide and engaging the eccentric.

3. The combination with the roll shafts and adjustable roll dies carried thereby for tapering a bar in the relatively horizontal plane, of die 20 and a series of adjustable squeezing dies 21 carried by a reciprocating slide whereby the bars are shaped in the relatively vertical plane.

4. The combination with the roll shafts and adjustable roll dies carried thereby, die 20 and dies 21 carried by a reciprocating slide, of cross bar 38 and side guides 39.

5. The combination with the roll shafts and adjustable roll dies carried thereby, die 20 and dies 21 carried by a reciprocating slide, of guard plate 26 carried by a block 27, and adjustable stops 18 carried by the guard plate.

6. The combination with shaft 2, shaft 29, pinion 4, bevel pinion 5, gear wheels 6, 8 and 9 and bevel gear 28, of the roll shafts and roll dies, die 20, reciprocating slide 22 carrying dies 21, an eccentric on shaft 29, and strap 31 connecting said eccentric with the slide.

7. The combination with the roll shafts and roll dies, of die 20, slide 22, adjustable dies 21 placed above each other on said slide in the form of steps, and suitable means for reciprocating the slide.

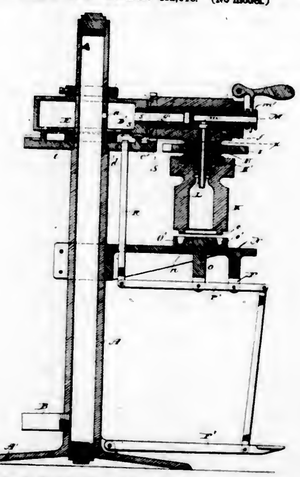
493,983. MATCH-BOX. HOWARD CRANER, Newberry, Pa. Filed Aug. 2, 1892. Serial No. 441,907. (No model.)



Claim.—1. A match box comprising a containing case with an open top, a series of detachable friction blocks arranged in parallel position therein, a door arranged at the side of the series of friction blocks, and a spring interposed between said door and the series of blocks substantially as shown and described.

2. A match box having at its opposite ends metal plates D D' with slots in the same arranged at right angles, and the flanged clamp screws E E' substantially as shown and described.

493,984. APPARATUS FOR MOLDING BOTTLES. CHARLES D. CRICKLER and HARRY F. CRICKLER, Bridgeton, N. J., assignors of one-third to Clement W. Shoemaker, same place. Filed Dec. 30, 1890. Renewed Feb. 16, 1893. Serial No. 462,610. (No model.)



Claim.—1. In a bottle molding apparatus in combination with the mold and a support therefor, the movable blow tube or nozzle projecting into the neck of the mold, a pin on the tube or nozzle, a guide piece for the latter having a longitudinal slot through which the pin projects, and a rotary cam having a cam groove engaging the pin, substantially as and for the purpose shown.

2. In a bottle molding machine in combination with the mold having its body divided into several parts each provided with a pin or stud, and a support for the mold parts adapted to allow them to be moved to and from each other, the reciprocable blow tube or nozzle projecting into the mold neck, a guide for the tube, a pin or stud on the latter, and a rotary piece having cam grooves to engage the pins or studs on the mold parts and the tube, substantially as and for the purpose set forth.

3. In a bottle molding machine in combination with a hollow boss provided with a longitudinal slot, a mold having its body divided into several parts each provided with a pin or stud, supports for the mold parts on the boss adapted to allow such parts to be moved to and from each other, the blow tube or nozzle within the boss, having a pin projecting through the longitudinal slot in the latter, and a rotary disk on the boss having a cam groove engaging said pin, and eccentric slots engaging the pins or studs on the mold parts, substantially as and for the purpose described.

4. In a bottle molding machine, in combination with a movable support, a mold divided into several parts supported from said sup-

port, so as to be capable of movement to and from each other, the cam for opening and closing the mold. also carried by the movable support, and a stationary cam projection to move the mold operating cam in opposite directions, as it passes the projection, substantially as and for the purpose specified.

5. In a bottle molding machine, in combination with the divided mold and the movable support therefor, the rotary cam piece for opening and closing the mold having two cam projections, and the stationary cam projection to engage the latter, substantially as and for the purpose shown.

6. In a bottle molding machine, in combination with a movable support and the mold supported therefrom having its body divided into several parts made movable to and from each other, and each provided with a stud or pin, a stationary cam projection and a rotary cam piece having cam slots engaging the studs on the mold parts, and two projections to engage the stationary cam projection, so as to cause turning of the cam piece first in one direction and then in the other, as the mold support moves along, substantially as and for the purpose set forth.

7. In a bottle molding machine, in combination with a movable support or carrier, and the mold carried thereby, the blow tube or nozzle on the support or carrier, having its end adapted to project down into the neck of the mold, a cam device for reciprocating the nozzle, also carried by the movable support or carrier, and a cam projection on a stationary support to move the cam device first in one direction and then in the other as the carrier moves along, substantially as and for the purpose described.

8. In a bottle molding machine, in combination with a movable support or carrier, and the divided mold having the parts of its body made movable with reference to each other, the reciprocable blow tube or nozzle, also, on the support or carrier, a rotary cam device having cam connections between it and the mold parts and the nozzle so as to close the mold and move the nozzle down into the neck of the same, and to open the mold and withdraw the nozzle as the cam device is turned in one direction or the other, and two cam projections, a stationary cam to engage such projections, as the carrier or support is moved along, substantially as and for the purpose specified.

9. In a bottle molding machine, in combination with the mold and the rotary carrier to which the mold is attached so as to be inverted and turned back into upright position as the carrier revolves, a movable device upon which the mold carrier is journaled, gear teeth on the mold carrier, and teeth on a stationary piece to mesh with those on the carrier, substantially as and for the purpose shown.

10. In a bottle molding machine, in combination with a movable arm or horn, and a sleeve journaled thereon provided with gear teeth, the mold carried by the sleeve, and a stationary piece with series of teeth, each series being adapted to engage the teeth on the sleeve and give the latter a partial turn, as it moves along, substantially as and for the purpose set forth.

11. In a bottle molding machine, in combination with a movable arm or horn, and the sleeve journaled thereon provided with gear teeth, the mold carried by the sleeve, a stationary piece provided with series of teeth to engage those on the sleeve, and turn the latter, as it is moved along, and locking devices to lock the sleeve when its teeth are not meshing with those on the stationary piece, substantially as and for the purpose described.

12. In a bottle molding machine, in combination with a movable arm or horn, and the sleeve journaled thereon provided with gear teeth, and a locking notch, a stationary piece provided with teeth to mesh with those on the sleeve, and a lock to engage the recess in the sleeve and lock the latter from turning on its supporting arm or horn, when the sleeve teeth are not meshing with those on the stationary piece, substantially as specified.

13. In a bottle molding machine, in combination with the mold, a movable horn or arm, the mold supporting sleeve journaled thereon provided with gear teeth and a locking notch, teeth on a stationary piece to engage those on the sleeve, a lock to engage the locking recess in the sleeve when the latter has been turned to bring the mold down into operative position and a cam to actuate such lock as the mold supporting lever is moved along, substantially as and for the purpose set forth.

14. In a bottle molding machine, in combination with the mold, a movable arm or horn, the mold supporting sleeve journaled thereon, provided with the gear teeth and the two locking notches, or recesses, the lock to engage the latter, and a stationary piece provided with two series of teeth, each series being adapted to mesh with the sleeve teeth, and give the sleeve a half turn as it moves along, and with a cam to move the lock into operative position to lock the sleeve when its gear teeth are out of engagement with those on the stationary piece, substantially as and for the purpose shown.

15. In a bottle molding machine, in combination with the rotary cylinder and a horn thereon, the sleeve journaled on the latter and provided with gear teeth, a stationary piece having teeth to mesh with those on the sleeve and the mold supported from the latter, substantially as and for the purpose set forth.

16. In a bottle molding machine, in combination with a rotary cylinder and a horn thereon, the sleeve journaled upon the horn and provided with gear teeth, the mold supported from the sleeve, a lock on the cylinder adapted to engage a locking recess in the sleeve, and a stationary piece having teeth to engage the teeth on the sleeve, and the cam for moving the lock into and out of position to lock the sleeve from rotating when the teeth on the latter are not meshing with those on the stationary piece, substantially as and for the purpose described.

17. In a bottle molding machine, in combination with the rotary cylinder and a horn thereon, the sleeve journaled on the horn provided with gear teeth, the divided mold having the parts of its body supported on the sleeve, so as to be movable to and from each other, the cam for opening and closing the mold also supported from the sleeve, and a stationary piece provided with teeth to engage those on the sleeve, and engaging cam devices on the stationary piece, and the mold closing cam, whereby the cam will be turned first in one direction and then the other, substantially as and for the purpose specified.

18. In a bottle molding machine, in combination with the rotary cylinder and the horn thereon, a sleeve journaled on the horn, and provided with gear teeth, the divided mold having the parts of its body movably supported from the sleeve, the cam disk journaled on a part of the sleeve and having the two cam projections, cam connections between the disk and the mold parts to open and close the mold as the disk is moved in one direction or the other, and a stationary piece having teeth to engage those on the sleeve, and a cam projection to engage the projections on the disk, substantially as and for the purpose shown.

19. In a bottle molding machine, in combination with a supporting tubular horn to be connected with a source of supply of compressed air, the sleeve journaled thereon, the mold and the blow tube or nozzle carried by the sleeve, and suitable ports or passages in the horn and sleeve to put the tube or nozzle in communication with the bore of the horn, substantially as and for the purpose set forth.

20. In a bottle molding machine, in combination with a tubular horn and a sleeve journaled thereon, the mold and blow tube or nozzle carried by the sleeve, a port in the horn for admitting air from the latter to the nozzle, and a valve to regulate the passage of air through such port, substantially as and for the purpose described.

21. In a bottle molding machine, in combination with a tubular standard, the hollow cylinder having its interior in communication with that of the standard, a tubular horn on the cylinder, the mold supported from the horn, a blow tube or nozzle, a port in the horn to communicate with the bore of the tube or nozzle, and a suitable valve to open and close such port, substantially as set forth.

22. In a bottle molding machine, in combination with the hollow cylinder and the tubular standard upon which the cylinder is supported, having its bore in communication with the interior of the cylinder, the tubular horn on the cylinder, the mold supported from the horn, the blow tube or nozzle, a port in the horn to communicate with the tube or nozzle bore, and a valve adapted to open and close the port and to put it into communication with the atmosphere, substantially as and for the purpose described.

23. In a bottle molding machine, in combination with a tubular horn to be connected with a source of supply of compressed air, and the blow tube or nozzle, a port in the horn to communicate with the tube or nozzle, and a reciprocating valve in the horn consisting of a plug adapted to be moved over and caused to close the port, and itself having an exhaust passage communicating with the atmosphere, and a port opening into such passage, adapted to be brought over the port in the horn by a movement of the plug beyond what is necessary to cause its end to close the latter port, substantially as and for the purpose specified.

24. In a bottle molding machine, in combination with the blow tube or nozzle and the tubular horn provided with a port to admit compressed air to the former, the reciprocating valve plug for opening and closing the port in the horn, having the exhaust passage and port communicating therewith, the valve operating lever supported from the horn and engaging the valve plug so as to actuate the same as the lever is moved, substantially as and for the purpose shown.

25. In a bottle molding machine, in combination with a movable piece carrying several mold bodies, a suitable table or support, a movable mold bottom over which the mold bodies are carried, and means for raising such bottom up to close the bottom of any one of the mold bodies brought over it by the motion of the carrying piece, substantially as and for the purpose set forth.

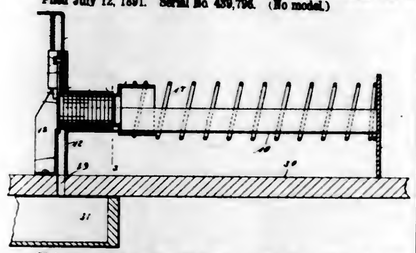
26. In a bottle molding machine, in combination with two or more mold bodies and a movable carrying piece for supporting the same, a suitable table or support, a movable mold bottom, not carried by the mold body carrying piece means for raising the latter up against any of the mold bodies brought over it by the movement of the carrying piece, and a lock for holding such piece when the mold bottom is raised, substantially as and for the purpose described.

27. In a bottle molding machine, in combination with a suitable moving carrier for them, two or more mold bodies, a mold bottom over which the bodies will be carried by the movement of their carrier, a lever for raising the bottom up against any of the mold bodies which may be brought over it, and a lock connected with the lever and locking recesses in the carrier so situated that each one will be in position to be engaged by the bar as a mold body is brought over the mold bottom, substantially as and for the purpose specified.

28. In a bottle molding machine, in combination with two or more mold bodies and the rotary cylinder by which the latter are carried, provided with a locking recess for each mold, a movable mold bottom adapted to be raised up against any mold body brought over it by rotation of the cylinder, the lever for raising such bottom, and the cylinder locking bar connected with the lever, substantially as and for the purpose shown.

29. In a bottle molding machine in combination with the rotary cylinder provided with two or more horns, the sleeves journaled on the latter each having gear teeth, mold bodies supported from the sleeves, locking devices on the cylinder for the respective sleeves, and a stationary disk having the two series of teeth with each series adapted to give a sleeve a part revolution, and a cam engaging the sleeve locking devices so as to cause each one to lock its respective sleeve when the latter has been turned by the gear teeth on the disk to bring its attached body into upright position above or beneath it, substantially as and for the purpose set forth.

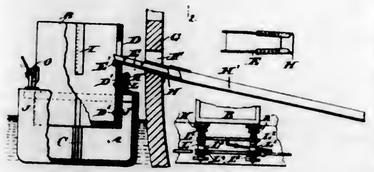
493,985. CHECK-REGISTER. CAROL T. DANIELS, Naperville, Ill. Filed July 12, 1891. Serial No. 439,796. (No model.)



Claim.—1. In a sales register, the combination with the tablet holding trough 10, which is open on the upper side, of a spring-pressed plunger having a slot, which receives said trough, whereby the plunger is supported and guided in its reciprocating movement, the keeper-plate at the front of the trough, and a tablet ejector, arranged to slide between the trough and keeper-plate, substantially as shown and described.

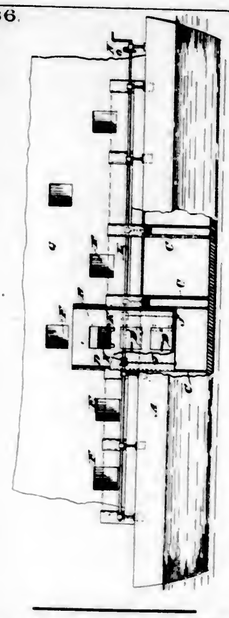
2. In a sales register, the combination with the tablet-holding trough, and spring-pressed plunger, the keeper-plate in front of the trough, and the tablet ejecting plate arranged behind the keeper-plate, having its upper end bent forward, of the spring barrel or socket, the spring arranged therein and beneath the bent end of the ejector, a guide rod on which the spring is coiled and the slot and screw for limiting the movement of the ejector, as shown and described.

493,986. LOADING DEVICE. LOUIS A. DE MAYO, New York, N. Y. Filed June 14, 1892. Serial No. 436,669. (No model.)

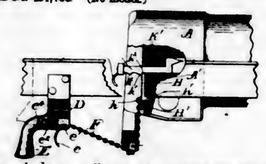


Claim.—The combination with a barge, of boxes mounted to slide vertically in the barge and each provided in its sides with doors one above the other, and means for raising the boxes separately or collectively, substantially as set forth.

493,986.



493,987. MECHANISM FOR FIRING BREECH-LOADING ORDNANCE. WILLIAM H. DRIGGS, Washington, D. C. Filed Nov. 12, 1892. Serial No. 451,760. (No model.)



Claim.—1. In a recoil mount for breech-loading guns, the combination with a sliding piece attached to the gun-mount, and firing mechanism attached to the gun, of a flexible connection between the two whereby said firing mechanism may be operated by said sliding piece, substantially as described.

2. In a recoil mount for breech loading guns, the combination with a sliding piece attached to the gun mount, of a spring operated firing pin attached to the gun, a sear for holding said firing pin, and a flexible connection between said sliding piece and said sear, whereby said firing pin may be released, substantially as and for the purposes described.

3. In a recoil mount for breech-loading guns the combination with a grip piece attached to the gun mount, and a trigger attached to said grip piece, of a spring-operated firing pin attached to the gun, a sear for holding said firing pin, and a flexible connection between said trigger and said sear whereby said firing pin may be released, substantially as and for the purposes described.

4. In a recoil mount for breech-loading guns, the combination with the directing bar B, and grip piece E attached thereto, of the trigger e and plunger e' adapted to slide longitudinally in said grip piece, the chain F connected to said plunger, and passing through suitable guides, the spring operated pin K having teeth on the lower side thereof, and the spring operated catch H connected to said chain F and adapted to engage said teeth in the firing pin, substantially as and for the purposes described.

5. In a recoil mount for breech-loading guns, the combination with the directing bar B of the arm D and grip piece attached thereto, the trigger e and plunger e' adapted to slide longitudinally in said arm D, the chain F connected to said plunger and passing through suitable guides, the sliding sear H connected to said chain, the spring H' normally pressing said sear upward, the firing pin K having teeth adapted to engage said sliding pawl and the spring K' normally

pressing said firing pin toward the cartridge, substantially as and for the purposes described.

493,988. TELLURIAN. WILLIAM R. DURHAM, Troy, N. H. Filed May 9, 1892. Serial No. 432,296. (No model.)



Claim.—1. In a tellurian, the combination with a frame mounted to turn, of a sleeve journaled in the said frame and set at an angle to the axis of the pivot of the said frame, a ball held on the said sleeve, and two opposite disks which have a concavo-convex form and made thickest at the middle and gradually thinner from that point to the edge, the same arranged in conjunction with the said ball to indicate the position of the tides, substantially as shown and described.

2. In a tellurian, the combination with a ball representing the sun, of an arm mounted to swing and having its fulcrum eccentric to the support of the said ball, a frame secured on a shaft mounted to turn in the said arm, a sleeve journaled in the said frame and set at an angle to the said shaft, a ball attached to the said sleeve and revolving with the same when the arm swings around, means, substantially as described, for imparting a rotary motion to the said sleeve and the said frame on swinging the said arm, a shaft journaled in the said sleeve and deriving its rotary motion from the latter by intermediate gear wheels, and an arm supported on the said shaft and carrying a ball representing the moon, the said arm being made in sections jointed together, substantially as shown and described.

3. In a tellurian, the combination with a ball representing the sun, of an arm mounted to swing and having its fulcrum eccentric to the support of the said ball, a frame secured on a shaft mounted to turn in the said arm, a sleeve journaled in the said frame and set at an angle to the said shaft, a ball attached to the said sleeve and revolving with the same when the arm swings around, means, substantially as described, for imparting a rotary motion to the said sleeve and the said frame on swinging the said arm, a shaft journaled in the said sleeve and deriving its rotary motion from the latter by intermediate gear wheels, and an arm supported on the said shaft and carrying a ball representing the moon, the said arm being made in sections jointed together, one of the sections being mounted to turn in the adjacent section, substantially as described.

4. In a tellurian, the combination with a ball representing the sun and a frame adapted to rotate around the center on which said ball is fixed, of a sleeve journaled in the said frame and standing at an angle to the axis of the pivot of the said frame, a ball secured on the said sleeve and rotating with the same, a plate engaged by the said sleeve, and a cone fitted to slide on the said plate and having its base end engaging the said ball, substantially as shown and described.

5. In a tellurian, the combination with a ball representing the sun and a frame adapted to rotate about it, of a sleeve journaled in the said frame and standing at an angle to the axis of the pivot of the said frame, a ball secured on the said sleeve and rotating with the same, a plate engaged by the said sleeve, a block fitted to slide on the said plate, and a hollow cone adapted to be attached to the said block and arranged to engage with its base end part of the said ball, substantially as shown and described.

6. In a tellurian, the combination with a ball representing the sun, a frame adapted to travel around the center on which said ball is fixed and a ball representing the earth, of an adjustable arm, which is made of jointed sections and mounted on the axis of the earth ball to swing with it, a ball attached to the outer end of such arm, and a cone having its base contiguous to the last mentioned ball, substantially as described.

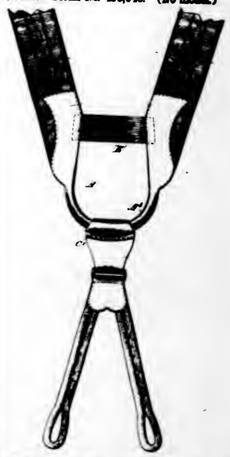
7. In a tellurian, the combination with a ball representing the sun and a sleeve mounted to turn and journaled in a revolving frame, of a ball representing the earth and secured on the said sleeve, a shaft mounted to turn in the said sleeve, an adjustable arm attached to the said shaft and made in sections, a ball attached to the outer section of the said arm, and a cone adapted to engage with its base end the last mentioned ball, substantially as shown and described.

493,989. CARPENTER'S HAMMER. EDWIN G. DURYEA, Riverhead, N. Y., assignor of one-half to Charles M. Blydenburgh, same place. Filed Aug. 10, 1892. Serial No. 442,683. (No model.)



Claim.—A hammer provided with a main and an auxiliary claw one being set farther back from the front of the hammer than the other, whereby nails partially withdrawn by one may be entirely drawn by the other claw, substantially as herein described.

493,990. SUSPENDERS. MICHAEL FELDMAN, New York, N. Y. Filed Jan. 17, 1893. Serial No. 458,646. (No model.)

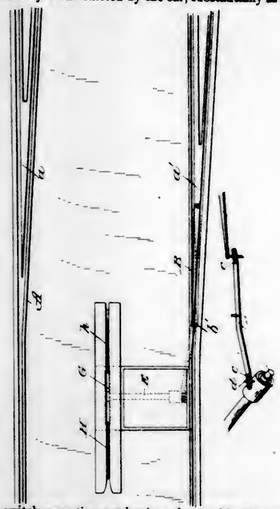


Claim.—A suspender provided with a connection for the rear ends of the shoulder straps, the said connection being approximately U-shaped and fastened at its ends to the shoulder straps, the middle portion forming a bearing for the rear suspender ends, and an elastic band connecting the ends of the connection with each other, substantially as shown and described.

493,991. RAILROAD-SWITCH. CHARLES M. FITCH, South Norwalk, Conn. Filed Nov. 3, 1892. Serial No. 450,867. (No model.)

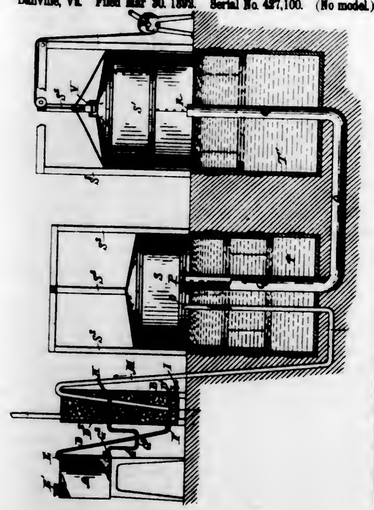
Claim.—1. In a switch operating mechanism, a movable switch-point connected to a reciprocating sleeve, said sleeve having cam portions with which contacts an outwardly projecting pin carried by a shaft, and means for actuating said shaft, substantially as shown.

2. In a switch operating mechanism, the combination of a horizontal shaft carrying a tappet-wheel, a sleeve which is adapted to be reciprocated when said shaft is turned, said sleeve engaging with mechanism for shifting the switch-point, the tappet-wheel being adapted to be operated by a bar carried by the car, substantially as set forth.



3. In a switch-operating mechanism, the combination of the reciprocating sleeve inclosing cams, a pin secured to a shaft for engaging with said cams, and a tappet-wheel mounted on the shaft, together with a lever adapted to engage with the sleeve and with the switch-point, for the purpose set forth.

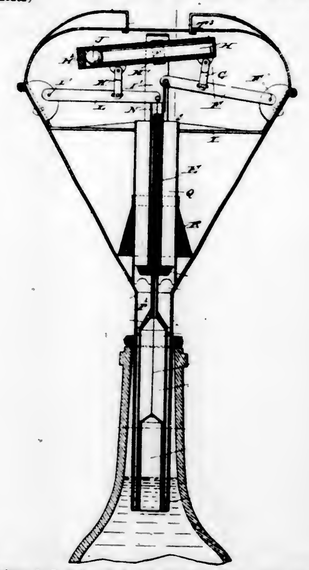
493,992. APPARATUS FOR CARBURETING AIR. PATRICK H. FONTAINE, Reno, assignor of one-half to C. G. Holland and Ellen Blair, Danville, Va. Filed Mar. 30, 1892. Serial No. 427,100. (No model.)



Claim.—1. The combination with a carburetor of separate air forcing and air receiving chambers constructed to rise and descend, and downwardly bowed air pipes of approximate U-shape and of different diameters for connecting the carburetor and the air forcing and receiving chambers, and conducting air uninterruptedly or continuously to the carburetor, the air-forcing chamber being provided with an air admission valve in its top and opening downward, and also provided with a windlass mechanism for raising and lowering the said movable air forcing chamber; and the pipe directly connecting the air forcing and air receiving chambers being of greater diameter than the pipe directly connecting the carburetor with the air receiving chamber, the whole constructed, arranged and operating, substantially as described.

2. In an apparatus for carbureting air, the combination of a separate oil reservoir A, two or more separate carburetors B, each having a residuum chamber with a draw off cock and a perforated diaphragm at its top, said chambers being below the oil entrance passage and connected by a pipe; an oil supply pipe G having a U-shaped bend forming a trap G^3, and also a perforated branch extending from the trap, entering the first carburetor, running across the same, connecting with the second carburetor and extending across the same, said extension being on a plane above the level of the oil in the residuum chambers: columns of saturated charcoal below said branch and columns of dry charcoal above said branch in the carburetor; an air vent pipe D connected with the reservoir A above the oil therein and with the carburetor B at the level of the oil in the residuum chambers, and a system of piping M, connecting the carburetor and extending from the air forcing apparatus and through the carburetor and into the residuum chambers, substantially as and for the purpose described.

493,993. FUNNEL. EDWARD H. GAUDRON, Portland, Oreg., assignor, by direct and mesne assignments, to himself and Ions Graham Bewlton, same place. Filed Apr. 29, 1892. Serial No. 431,186. (No model.)



Claim.—1. In a funnel, the combination with a valve adapted to close the funnel nozzle, of a pivoted cylinder closed at its ends and containing a ball, the said cylinder being connected at one side of its fulcrum with the said valve, and a float connected with the said cylinder at that side of the fulcrum of the cylinder normally containing the ball, substantially as shown and described.

2. In a funnel, the combination with a funnel body and a nozzle extending therefrom and forming a valve seat at its upper end, of a valve adapted to be seated on the said seat, a cylinder pivoted in the said body and containing a ball, the said cylinder being connected at one side of its fulcrum with the said valve, and a float connected with

the said cylinder at the other side of its fulcrum to trip the said cylinder on the rising of the fluid, substantially as shown and described.

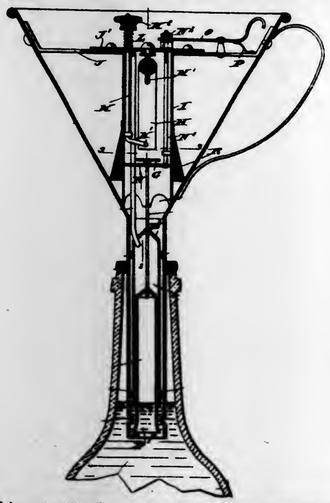
3. In a funnel, the combination with a funnel body and a nozzle extending therefrom and forming a valve seat at its upper end, of a valve adapted to be seated on the said seat, a cylinder pivoted in the said body and containing a ball, the said cylinder being connected at one side of its fulcrum with the said valve, and a float connected with the said cylinder at the other side of its fulcrum to trip the said cylinder on the rising of the fluid, and a tube held concentric in the said nozzle and containing the said float, substantially as shown and described.

4. A funnel comprising a funnel body and a nozzle extending therefrom and forming a seat in the same, a valve adapted to be seated on the said seat, a cylinder pivoted in the said body and connected at one end with the stem of the said valve, a float connected with the other end of the said cylinder, and a tube held concentrically in the said nozzle and forming an inlet space in the said nozzle for the incoming liquid, the float being fitted to slide in the said tube, and a pipe extending from the upper end of the said tube to form an outlet for the air compressed in the said tube on the rising of the said float within the tube, substantially as shown and described.

5. A funnel comprising a body and a nozzle extending therefrom and forming a valve seat for the same, a valve adapted to be seated on the said valve seat, and a tube formed with a scalloped end resting on the said body above the valve seat, to protect the said valve from the incoming liquid, substantially as shown and described.

6. A funnel comprising a body and a nozzle extending therefrom and forming a valve seat for the same, a valve adapted to be seated on the said valve seat, a tube formed with a scalloped end resting on the said body above the valve seat, to protect the said valve from the incoming liquid, and a strainer attached to the said tube and extending to the sides of the said body, substantially as shown and described.

493,994. FUNNEL. EDWARD H. GAUDROS, Portland, Oreg., assignor, by direct and mesne assignments, to himself and Ions Graham Howison, same place. Filed May 12, 1892. Serial No. 432,737. (No model.)



Claim.—1. A funnel, comprising a body, a nozzle, a tube held concentric in the said nozzle and forming with the latter an annular space for the liquid to pass through, and a float valve contained in the said tube and adapted to automatically close the lower end of the said nozzle, substantially as shown and described.

2. A funnel provided with a float forming at its lower end, a valve for closing the nozzle of the funnel, and a permanent magnet for finally seating the valve of the float on its seat on the nozzle, substantially as shown and described.

3. A funnel provided with a float forming, at its lower end, a valve for closing the nozzle of the funnel, and a permanent magnet for finally seating the valve of the float on its seat on the nozzle, and a releasing device for unseating the said valve, substantially as shown and described.

4. In a funnel, the combination with a funnel body, and a nozzle extending therefrom, the lower end of the nozzle being formed with a valve seat, of a float closed at its upper end and formed at its lower end with a valve adapted to be seated on the said valve seat, a tube arranged concentrically within the said funnel and in which slides the said float, a valve stem connected with the said float and extending through the said tube, the upper end of the said valve stem carrying a plate, and a permanent magnet adapted to attract the said plate, substantially as shown and described.

5. In a funnel, the combination with a funnel body, and a nozzle extending therefrom, the lower end of the nozzle being formed with a valve seat, of a float closed at its upper end and formed at its lower end with a valve adapted to be seated on the said valve seat, a tube arranged concentrically within the said funnel and in which slides the said float, a valve stem connected with the said float and extending through the said tube, the upper end of the said valve stem carrying a plate, a lever and a rod connected with the said lever and provided with a disk adapted to engage the said plate, for raising the latter, substantially as shown and described.

6. In a funnel, the combination with a funnel body, and a nozzle extending therefrom, the lower end of the nozzle being formed with a valve seat, of a float closed at its upper end and formed at its lower end with a valve adapted to be seated on the said valve seat, a tube arranged concentrically within the said funnel and in which slides the said float, a valve stem connected with the said float and extending through the said tube, the upper end of the said valve stem carrying a plate a permanent magnet adapted to attract the said plate, and a releasing device, substantially as described, for disconnecting the said plate from the said permanent magnet to unseat the valve of the float, substantially as shown and described.

7. A funnel provided with a flexible split ring adapted to engage the nozzle of the funnel and formed at its inner edge with notches forming air escapes, substantially as shown and described.

8. In a funnel, the combination with a funnel body, and a nozzle extending therefrom, the lower end of the nozzle being formed with a valve seat, of a float closed at its upper end and formed at its lower end with a valve adapted to be seated on the said valve seat, a tube arranged concentrically within the said funnel and in which slides the said float, a valve stem connected with the said float and extending through the said tube, the upper end of the said valve stem carrying a plate a permanent magnet adapted to attract the said plate, and means, substantially as described, for adjusting the said magnet relative to the said plate, as set forth.

493,995. BILLET-LOOP. WILLIAM P. GELABERT, Sweet Springs, Mo., assignor to Nelson & Gelabert, same place. Filed Nov. 29, 1892. Serial No. 453,463. (No model.)



Claim.—The improved article of manufacture herein described, consisting of a strap loop formed of two curved end bars *b b'*, and two thin flattened cross bars *a a'* one of which latter (*a'*) being oval in cross section so as to rock, and the end bars being shaped to extend forward and upward from the cross bar *a'* on an angle less than a right angle, and to have the cross bar *a* located a considerable distance forward of the bar *a'*, and both cross bars to bear substantially flatwise upon the strap, and the rear bar *a'* provided on one or both of its edges with a notch and being set on a plane above the lowest bearing portions of the end bars, and thereby forming downwardly extended side confining flanges, substantially as described.

493,996. BALING-PRESS. LAWRENCE F. GERRETY, Ballinger, Tex. Filed Oct. 3, 1892. Serial No. 447,632. (No model.)

Claim.—1. In a press, the combination with the baling chamber, the power platform, and the stub shaft, of the eccentrically mounted grooveless power wheel 22, provided on its periphery with a tire 23 that extends above the upper side of the wheel forming a peripheral flange, the friction rollers mounted on the platform at intervals and supporting the power wheel, the plunger 17, having its front end bifurcated and provided with a roller 25, to ride over the outer face of the tire of the power wheel, a link 26 pivoted to the end of the plunger by the same bolt that forms the journal for the roller 25, and the roller 28 journaled on the end of the link and engaging the inner surface of the tire, and resting on the plain upper face of the power wheel, substantially as described.

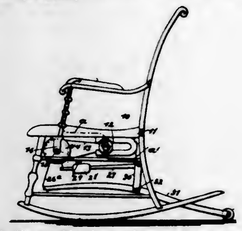
2. In a press, the combination with the baling-chamber, the

493,996.



beam 3 projecting therefrom, the transverse beams mounted thereon, the casting mounted on the beams and provided with a vertical axle, the disk having the peripheral flange mounted eccentrically on the axle, the draft-pole mounted on the disk, the anti friction rollers located in the path of the disk, the plunger mounted in the baling-chamber and bifurcated at its front end, a shaft passed therethrough, a wheel mounted on the shaft within the bifurcation, a loose connection between the end of the plunger and flange of the power-wheel, a loose roller on the link engaging the periphery of the power-wheel, standards at opposite sides of the plunger, guide-wheels journaled therein and embracing the plunger, metal straps secured to the main beam and embracing the plunger, and pulleys or rollers journaled in the straps above and below the plunger, substantially as specified.

493,997. ELECTRICAL ATTACHMENT FOR ROCKING-CHAIRS. CHARLES E. HARTHUN, Bay Ridge, N. Y. Filed Nov. 22, 1892. Serial No. 452,890. (No model.)

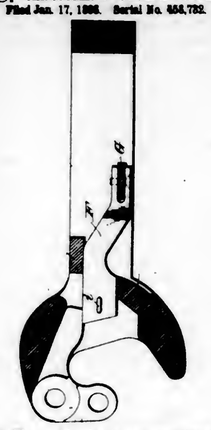


Claim.—1. The combination, with a rocking chair, of electrodes or contacts carried by the chair, a dynamo arranged in circuit with said electrodes or contacts, and mechanism actuated by the movements of the chair for operating the dynamo, substantially as described.

2. The combination, with a rocking chair, of contacts or electrodes secured thereto, a dynamo carried by the chair and connected with the electrodes or contacts, a lever fulcrumed beneath the chair and having one end in contact with the floor, and an operative driving connection between the lever and the dynamo whereby the movement of the chair will operate the latter, substantially as described.

3. The combination, with a rocking chair, of electrodes or contacts secured thereto, a dynamo carried by the chair and connected with the electrodes or contacts, a lever fulcrumed beneath the chair and having at one end a roller which runs upon the floor, and an operative driving connection between one end of the lever and the dynamo whereby the movement of the chair will operate the dynamo, substantially as described.

493,998. CAR-COUPLING. FRANK HARVEY and JOHN KARR, Renovo, Pa. Filed Jan. 17, 1893. Serial No. 458,732. (No model.)



Claim.—1. The combination, in a car-coupling, of a draw-bar carrying a latch the rear end of which is pivoted to a web located to one side of the center of the draw-bar, together with bearing walls C and D between which the latch moves, the forward end of the latch being adapted to engage with the coupling-hook, substantially as shown, and for the purpose set forth.

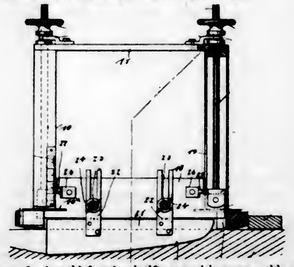
2. The combination in a car-coupling, of a draw-bar carrying within the same a vertically moving latch, the rear end of said latch being bifurcated to embrace a vertical web G, to which it is pivoted, together with guide C and D provided with straight walls against which the forward portion of the latch bears, the center portion of the latch being bent to locate the ends out of line, substantially as shown, and for the purpose set forth.

3. In a twin jaw car coupling, a draw-head having one side extended inward to form a guide for the latch, webs D and G located on opposite sides of the draw-bar, a pivoted coupling hook B adapted to be engaged by the forward end of the latch, the forward portion of the latch lying between the guides or bearings D and C and the rear portion being bent so as to be pivoted to the web G, substantially as shown and for the purpose set forth.

493,999. MANUFACTURE OF PAINT. JOHN K. HAWKINS, Mohawk, Tenn. Filed Sept. 8, 1892. Serial No. 445,344. (No specimens.)

Claim.—The herein described mode of preparing paint, which consists in dissolving a suitable quantity of resin in benzine or gasoline, then placing said solution with lime treated with water to cause slaking so that the lime will slake in said solution and the steam generated will agitate and thoroughly mix particles of the lime in the solution, then pouring off the solution from the lime and then mixing dissolved rubber or gutta-percha in the solution, substantially as shown and described.

494,000. MOLD-FORMING KNIFE. LOUIS HIR, New York, N. Y. Filed Apr. 26, 1892. Serial No. 430,761. (No model.)



Claim.—1. A mold-forming knife comprising a movable support-

ing frame and a vertically adjustable blade having its opposite ends independently and adjustably secured to the frame, the said blade having also an inclined lower edge, substantially as described.

2. A mold-forming knife, comprising a supporting frame having opposite end uprights, a vertically adjustable knife having an inclined lower edge, and adjusting screws connected with the knife and held in the end uprights of the frame, substantially as described.

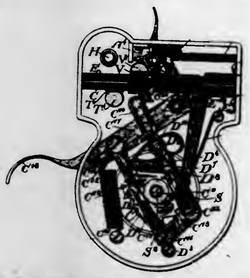
3. A mold-forming knife, comprising a supporting frame having end uprights, a vertically adjustable plate held to slide between the uprights, and a detachable mold shaping blade secured to the lower portion of the plate, substantially as described.

4. A mold-forming knife, comprising a supporting frame having end uprights with base blocks at their lower ends, a forming knife blade having an inclined lower edge, the said blade extending between the uprights, and a screw mechanism for adjusting the blade vertically, substantially as described.

5. A mold-forming knife, comprising a supporting frame having vertical hollow side columns or uprights with base blocks at their lower ends, adjusting screws held within the columns a plate carried by the screws and extending between the columns, and a shaping or forming blade detachably secured to the lower portion of the plate, substantially as described.

6. The combination of the supporting frame having vertical columns or uprights at the ends, the vertically adjustable knife-holding plate held to slide in the frame, a gage secured to one of the uprights, a pointer carried by the plate and held to move over the gage, and a shaping knife secured to the lower portion of the plate, substantially as described.

494,001. TICKET, TRANSFER, AND RECEIPT CONTROLLER. LYTLE J. HUSTER, Covington, Ky., and HARRY C. HUSTER and JOSEPH H. HUSTER, Winton Place, Ohio. Filed Jan. 28, 1892. Serial No. 419,531. (No model.)



Claim.—1. In a ticket transfer and receipt controller, the combination of the jaws reciprocating on the guideways, the jaws pivotally connected to one another, one of the jaws being provided with the lever C^9, for working said jaw and means for operating said lever, and for reciprocating said jaws, the paper roll, and axial support substantially as and for the purposes specified.

2. In a ticket transfer and receipt controller, the combination of the jaws reciprocating on the guideways, one jaw C^3 provided with ears to which the jaw C^4 is pivoted, and the lever C^9 fixed to the jaw C^4, and provided with projection C^9, and lever C^9 fulcrumed at C^{12}, and having slot C^{10} in which the projection C^9 operates, substantially as and for the purposes specified.

3. In a ticket transfer and receipt controller, the combination of the jaws reciprocating on the guideways, one jaw C^3 provided with ears to which the jaw C^4 is pivoted, and the lever C^9 fixed to the jaw C^4, and provided with projection C^9, and lever C^9, C^{12}, fulcrumed at C^{12}, and having slot C^{10} in which the projection C^9 operates, and link C^{16}, and lever C^{17} pivotally fulcrumed at C^{20}, substantially as and for the purposes specified.

4. In a ticket transfer and receipt controller, the combination of the jaws reciprocating on the guideways, one jaw C^3 provided with ears to which the jaw C^4 is pivoted, and the lever C^9 fixed to the jaw C^4, and provided with projection C^9, and lever C^9, C^{12}, fulcrumed at C^{12}, and having slot C^{10} in which the projection C^9 operates, and link C^{16}, and lever C^{17}, fulcrumed at C^{20}, and punch connected to one end of this lever C^{17}, and the pawl D^8, and arm D^4 and clapper D^{12}, and bell D^6, ratchet wheel D and pawl D^7, connected to lever C^9, and spring D^8, connected to lever C^9, and said pawl, substantially as and for the purposes specified.

5. In a ticket transfer and receipt controller, the reciprocating jaws and means for closing them, the tension device for holding a paper strip, the bell and mechanism for ringing it, and mechanism substantially as described for simultaneously advancing the jaws and ringing the bell, substantially as described.

6. In a ticket transfer and receipt controller, the reciprocating jaws and means for closing and advancing them, the case having delivery orifice A^3 and tension device for holding a paper strip, the ratchet wheel D, spring D^3 carrying arm D^4, clapper D^{12} and roll D^5, and mechanism for enabling the lever for operating the jaws to simultaneously operate said ratchet wheel, in combination substantially as described.

7. In a ticket transfer and receipt controller, the combination with the reciprocating jaws and means for closing and advancing them, the case provided with delivery orifice, tension device for holding the paper, and the ratchet wheel D, and spring lever pawl D^8, carrying arm D^4, and clapper D^{12} and bell D^6, the lever C^9 and link C^{16}, and the pawl D^7 pivoted to lever C^9 and operating on the ratchet D, all substantially as described.

8. In a ticket transfer and receipt controller the jaws reciprocating on guides and pivoted together, and having lever E^7 fixed to one of the jaws, and provided with projections E^8, E^9, and the reciprocating carriage E^{10}, having projection E^9, between the projections E^8, E^9, and wall provided with slit A^3, substantially as and for the purposes specified.

9. In a ticket transfer and receipt controller the jaws reciprocating on guides and pivoted together, and having lever E^7 fixed to one of the jaws, and provided with projections E^8, E^9, and the reciprocating carriage E^{10}, having projection E^9, between the projections E^8, E^9, and handle E^{13}, projecting through and located in a slot in the register case, and wall provided with slit A^3, substantially as and for the purposes specified.

10. In a ticket transfer and receipt controller in combination with the reciprocating jaws and means for closing and advancing them, and wall having delivery orifice A^3, and tension device for holding the paper strip stationary, and the ratchet wheel D, and spring D^3 carrying arm D^4 and clapper D^{12} and bell D^6, and the lever C^9, C^{12}, and link C^{16}, and lever C^{17}, and pawl D^7, pivoted at D^4 to the lever C^9, and spring D^8, and spring E^{20} for retracting the jaws, substantially as and for the purposes specified.

11. In a ticket transfer and receipt controller the jaws reciprocating on guides and pivoted together, and having lever E^7 fixed to one of the jaws, and provided with projections E^8, E^9, and the reciprocating carriage E^{10}, having projection E^9, between the projections E^8, E^9, and handle E^{13}, projecting through and located in a slot in the register case, and wall provided with slit A^3, and spring E^{20}, pressing against the said handle, substantially as and for the purposes specified.

12. In a ticket transfer and receipt controller the jaws reciprocating on guides and pivoted together, and having lever E^7 fixed to one of the jaws, and provided with projections E^8, E^9, and the reciprocating carriage E^{10}, having projection E^9 between the projections E^8, E^9, and handle E^{13}, projecting through and located in a slot in the register case, and wall provided with slit A^3, and spring E^{20} provided with coil E^{21} and extension arm bearing against said handle, substantially as and for the purposes specified.

13. In a ticket transfer and receipt controller the reciprocating jaws and carriage E^{10}, and means substantially as described for reciprocating them, and wall provided with slit A^3, the carriage E^{10}, having the projections E^{14}, E^{14}, and the lever E^{15}, E^{22}, having the connecting rod or pawl E^{16}, and ratchet wheel and means for enabling the latter to ring the bell, substantially as and for the purposes specified.

14. In a ticket transfer and receipt controller the jaws reciprocating on guides and pivoted together, and having lever E^7 fixed to one of the jaws, and provided with projections E^8, E^9, and the reciprocating carriage E^{10}, having projection E^9, between the projections E^8, E^9, and wall provided with slit A^3, and carriage E^{10} having the projections E^{14}, E^{14}, and the lever E^{15}, E^{22}, and pawl E^{16}, pivoted to the lever arm E^{15}, and ratchet wheel, and spring E^{20} elastically bearing against the said pawl, and the pawl D^8 and arm D^4 and clapper D^{12}, and bell D^6, substantially as and for the purposes specified.

15. In a ticket transfer and receipt controller the jaws C^3, C^4, reciprocating on the guideways and wall provided with slit A^3, and tension device, and lever for reciprocating said jaws and punch C^{20}, located in guides, the punch connected to the end of the said lever, for enabling the ticket to be punched as a receipt is advanced, substantially as and for the purposes specified.

16. In a ticket transfer and receipt controller the jaws C^3, C^4, reciprocating on the guideways and wall provided with slit A^3, and tension device, and lever for reciprocating said jaws and punch C^{20}, located in guides, the punch connected to the end of the said lever, for enabling the ticket to be punched as a receipt is advanced, and mechanism for ringing the bell, and mechanism substantially as described for enabling the said lever to ring said bell, substantially as and for the purposes specified.

17. In a ticket transfer and receipt controller the jaws C^3, C^4, reciprocating on the guideways, and wall provided with slit A^3, and tension device, and lever C^9, C^{12}, having slot C^{10}, and lever C^9 fixed to the movable jaw, and engaging lever C^9, in slot C^{10}, and connecting rod or link C^{16}, lever C^{17}, fulcrumed at C^{20}, and punch connected to one end of this lever C^{17}, and the pawl D^8, and arm D^4 and clapper D^{12}, and bell D^6, ratchet wheel D and pawl D^7, connected to lever C^9, and spring D^8, connected to lever C^9, and said pawl, substantially as and for the purposes specified.

18. In a ticket transfer and receipt controller the jaws C^3, C^4, reciprocating on the guideways and wall provided with slit A^3, and tension device, and lever C^9, C^{12}, having slot C^{10}, and lever C^9 fixed to the movable jaw, and engaging lever C^9 in slot C^{10}, and connecting rod or link C^{16}, lever C^{17}, fulcrumed at C^{20}, and punch connected to one end of this lever C^{17}, and the pawl D^8, and arm D^4 and clapper D^{12}, and bell D^6, ratchet wheel D and pawl D^7, connected to lever C^9, and spring D^8, connected to lever C^9, and said pawl, and spring C^{19}, for retracting lever C^{17}, substantially as and for the purposes specified.

19. In a ticket transfer and receipt controller the combination of the mechanism for advancing the jaws, and the tension device consisting of the axis or spindle S, having the concentric disk S^2, sliding on said axle, and spring S^7, at the side of said disk, and the opposing concentric disk S^4 sliding on the spindle and nut S^5 bearing against said disk and engaging a screw thread on said spindle, substantially as and for the purposes specified.

494,002. TOY. JOHN G. HUFF, Philadelphia, Pa. Filed Dec. 14, 1892. Serial No. 455,151. (No model.)



Claim.—1. A toy comprising a base provided with an opening, as *a*, a depending flexible cord *d*, a support for said cord, and a body, as D, attached to the lower end of said cord, substantially as specified.

2. In a toy, the combination of the box A having a central opening *a*, the lid B, a removable arched strip C, a flexible cord connected to said strip and an egg-shaped body attached to the lower end of said cord, substantially as specified.

494,003. PNEUMATIC TIRE. FOSTER H. IRONS, Toledo, Ohio. Filed May 23, 1892. Serial No. 434,709. (No model.)



Claim.—1. The herein described method of forming pneumatic tires, which consists in molding the rubber tubes of the tire in a spiral shape, and then straightening the tubes out and forming them into a tire, substantially as described.

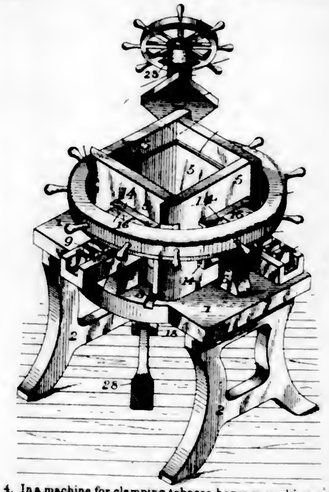
2. The combination, with the concentric tubes, each tube having a joint in its inner side, of a re-inforcing strip held within the inner tube and arranged to cover the joint, substantially as described.

494,004. TOBACCO-BOX-CLAMPING MACHINE. JOHN H. KESTER, Winston, N. C. Filed June 26, 1892. Serial No. 438,011. (No model.)

Claim.—1. In a machine for clamping tobacco boxes or packing cases, the combination with the base, and the movable clamping plates, of the radially movable plates provided with teeth and connected with said plates, and the wheel having a volute groove on one face with which said teeth engage, substantially as described.

2. In a machine for clamping tobacco boxes or packing cases, the combination with the base, having radial grooves therein, of the laterally and horizontally movable clamping plates arranged at right angles to each other, the radially movable arms provided with teeth and connected with said plates, and the rotatable annular ring or wheel having a volute groove with which said teeth engage, substantially as described.

3. In a machine for clamping tobacco boxes or packing cases, the combination with the base having radial grooves therein, of the laterally and horizontally movable clamping plates arranged at right angles with each other and provided with slides working in said grooves, the uprights, the grooved bearings secured thereto, the radially movable arms seated in said bearings, provided with teeth and having a plate at their inner ends with anti-friction rollers, the grooved guides secured to said plates, and the rotatable wheel having a series of tangential grooves with which said teeth engage, substantially as described.

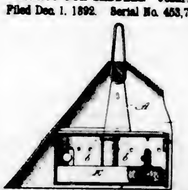


4. In a machine for clamping tobacco boxes or packing cases, the combination with the base having radial grooves, of the laterally and horizontally movable clamping plates arranged at right angles to each other the uprights, the grooved bearings, the radially movable arms, provided with teeth and connected with said plates, the annular ring or plate having a volute groove on one face, and an annular groove on the opposite face, and the studs secured to said grooved bearings having outwardly extending flanges engaging with said annular groove, substantially as specified.

5. In a machine for clamping tobacco boxes or packing cases the combination with the base, the laterally and horizontally movable clamping plates, and means substantially as described for actuating said plates, of the bracket secured to said base, having a recess therein, the curved arm seated in said recess and pivoted to said bracket, the screw and platen carried by said arm, the pivoted foot lever having a short arm adapted to strike and actuate said curved arm, substantially as described

6. In a machine for clamping tobacco-boxes or packing cases, the combination with the base, having radial grooves therein, of the laterally and horizontally movable clamping plates arranged at right angles and formed with dovetailed grooves on their inner faces and provided with a T-shaped tenon at one end, the radially movable arms provided with teeth, and the rotatable ring or wheel having a volute groove in one face with which said teeth engage, substantially as described.

494,005. STIRRUP FOR SADDLES. JOSEPH A. KREWSON, Rogersville, Mo. Filed Dec. 1, 1892. Serial No. 453,769. (No model.)



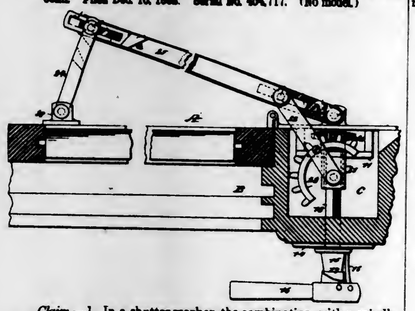
Claim.—1. The combination of a riding stirrup having attached to the loop thereof a hollow casing, an oil burner adapted to be secured within said hollow casing, and flaps attached to the loop of the stirrup to provide a covering for the foot of the rider and lamp casing, substantially as shown, and for the purpose set forth.

2. The combination in a riding stirrup, of a foot-warmer consist-

ing of a metal case having an end door and a line of perforations in the side walls thereof, of flaps carried by the stirrup and adapted to retain the heat given off from the foot-warmer, for the purpose set forth.

3. In a riding-stirrup, the combination of a loop carrying a foot-warmer, a strip attached to the loop, and a cover secured to the loop and adapted to contact with said strip, substantially as shown, whereby the cover is kept out of contact with the heated portion of the foot-warmer, for the purpose set forth.

494,006. SHUTTER-WORKER. LOUIS KUTSCHER, New Britain, Conn. Filed Dec. 10, 1892. Serial No. 454,717. (No model.)



Claim.—1. In a shutter worker, the combination, with a spindle, mechanism for turning the spindle, a rack operated from the spindle, and a link pivoted at one end to a fixed support and connected with the rack, of two bars arranged parallel one above the other, the lower bar being pivoted to the fixed support and the upper bar to the link, one bar having sliding movement upon the other, and a shutter link pivotally connected with the lower bar, the upper bar having sliding movement upon the pivot of the shutter link, and inclined planes produced upon the upper surface of the upper parallel bar and the under surface of the shutter link, substantially as and for the purpose set forth.

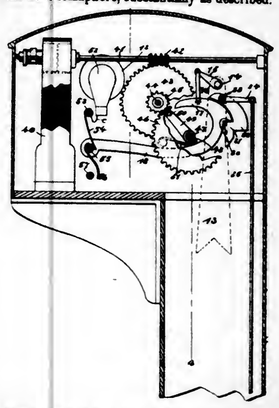
2. In a shutter worker, the combination, with a spindle, a device for revolving the spindle, a pinion actuated by the spindle, a rack actuated from the pinion, and a link pivoted at one end to a fixed support and connected with the rack, of bars located one above the other, the two bars being connected and one having sliding movement upon the other, the lower bar being pivoted to a fixed support, a link adapted for engagement with a shutter and pivoted to the lower bar, the pivotal pin passing through a slot in the upper bar, and cam locking surfaces produced upon the upper bar and shutter link, which surfaces are in engagement when the shutter link is parallel with the bars, and a pivot pin connecting the rack link with the upper bar, said pin having sliding movement in the lower of the parallel bars, as and for the purpose set forth.

3. In a shutter worker, the combination, with a spindle, a lever carried by the spindle, a locking pin carried by the lever and adapted to enter a fixed keeper, a pinion secured to the spindle, a link pivoted upon a fixed support, and a segmental rack the teeth of which engage with the pinion, the rack being secured to the link, of parallel bars having movement one upon the other, the lower bar being pivoted to a fixed support and provided with a slot near its pivotal end, the upper bar having a slot in its upper end, a pivot pin connecting the upper bar with the link and passing down through the slot in the lower bar, a shutter link pivoted to the lower bar, a pivot pin passing through the slot in the upper bar, and bosses formed upon the opposing faces of the upper bar and shutter link, the engaging faces of the bosses being shaped as inclined planes, as and for the purpose set forth.

494,007. BLOCK-SIGNAL SYSTEM. JOHN LA BURT, New York, N. Y., assignor, by direct and mesne assignments, to the La Burt Automatic Electric Block Signal System and Car Coupler Company, same place. Filed June 16, 1892. Serial No. 436,863. (No model.)

Claim.—1. A block signal system, comprising a series of semaphores arranged along the track, a circuit closer connected with the semaphore arm of each semaphore and adapted to act as a counterbalance for the same, an electric motor arranged at each semaphore and geared to depress the semaphore arm and raise the circuit closer, a lever mechanism for tripping the circuit closer by the passing of a train, and electrical connections whereby the tripping of the circuit closer of one semaphore will close the circuit through a motor at the next semaphore, substantially as described.

2. A block signal system, comprising a series of semaphores placed along the track, swinging semaphore arms carried by the semaphore, swinging circuit closing hooks having a crank connection with the semaphore arms whereby the tripping of the hooks will raise the arms, pawls arranged to hold the hooks in a raised position, electric motors at the semaphores and geared to depress the semaphore arms and raise the circuit closing hooks, a lever mechanism for releasing the circuit closing hook pawls by the passing of a train, and electrical connections whereby the dropping of a circuit closing hook at one semaphore will close an electric circuit through the motor at the next semaphore, substantially as described.



3. A block signal system, comprising a series of semaphores arranged along the track, swinging circuit closers arranged at the semaphores and connected with the semaphore arm so that the dropping of the circuit closer will by gravity raise the arm, swinging pawls adapted to engage the circuit closers and hold them in a raised position, a lever mechanism for releasing the pawls by the passing of a train, an electric motor arranged at each semaphore and geared to depress the semaphore arm and raise the circuit closer, an electric lamp at each semaphore, and electrical connections whereby the dropping of the circuit closer at one semaphore will close the circuit through its lamp and through the motor of the next semaphore, substantially as described.

4. In a block signal system, the combination with the semaphore post and the swinging semaphore arm, of a counterbalance connected with the arm and adapted to hold it in extended position, a pawl adapted to support the counterbalance in a raised position, a swinging tripping lever placed adjacent to the track and extending into the path of the wheels of a train, operative connections between the tripping lever and the pawl whereby the movement of the lever will release the pawl, a motor at the post arranged in an electric circuit extending along the track and geared to the counterbalance so as to raise the same, and a circuit closer operated in unison with the tripping lever and adapted to close the circuit through the motor, substantially as described.

5. The combination, of the semaphore posts, the swinging semaphore arm, the counterbalance connected with the semaphore arm and adapted, by dropping, to raise the same and mechanism for raising the counterbalance, of a pawl adapted to hold the counterbalance in a raised position, a rod having a crank connection with the pawl and extending downward through the semaphore post, a bell crank having one arm connected with the rod to raise the same and its lower arm extending downward, a tripping lever pivoted adjacent to the track and having its lower end connected by a rod with the lower arm of the bell crank, said lever having a bend on one side, and a second bell crank lever having one arm extending against the bend of the depending lever and the other arm extending into the path of the wheels of the train, substantially as described.

6. A block signal system, comprising a series of semaphores arranged along the track, semaphore arms carried by the semaphores, swinging circuit closers having a crank connection with the semaphore arms and acting as counterbalances so that the dropping of the circuit closers will raise the semaphore arms, a lever mechanism for tripping the circuit closers by the passing of a train, motors arranged at the semaphores and geared to raise the circuit closers and depress

the semaphore arms, contact rails extending between the track rails, electrically controlled mechanism carried by a locomotive and adapted to shut off the steam therefrom, operative electrical connections between said mechanism and the contact rails, and electrical connections whereby the dropping of a circuit closer at one semaphore will close an electric circuit through the contact rails and locomotive mechanism and the motor of the next semaphore, substantially as described.

7. In a block signal system, the combination with the contact rails held upon the track and having their circuit controlled by the action of an adjacent semaphore, of a locomotive provided with contact wheels to engage the contact rails, an engine carried by the locomotive and operatively connected with the shut-off lever thereof, an electric motor adapted to operate the valve of the engine, a circuit closer arranged in the motor circuit, a magnet controlling the said circuit closer and arranged in circuit with the contact rails, and automatic means for locking and releasing the circuit closer, substantially as described.

8. In a block signal system, the combination with electrically connected contact rails supported on the track bed, of a locomotive having contact wheels to engage the contact rails, an engine carried by the locomotive and operatively connected with its shut-off lever, an electric motor carried by the locomotive and geared to the engine valve, a circuit closer arranged in the motor circuit, a magnet arranged in circuit with the contact rails an armature operated by the magnet and adapted to control the circuit closer, a hook to automatically engage the magnet and hold it against the circuit closer, and a lever mechanism operated by the motor and adapted to release the hook, substantially as described.

9. In a block signal system, the combination with the contact rails arranged upon the track bed and connected with a source of electricity, of a locomotive, an engine carried by the locomotive and operatively connected with its shut-off lever, an electric motor operatively connected with the engine valve so as to open and close the same, a circuit closer arranged in the motor circuit, a magnet arranged in circuit with the contact rails, an armature operated by the magnet and carrying a contact plate to operate the circuit closer, a gravity hook to hold the circuit closer against the magnet, a swinging lever arranged to disengage the hook, and a cam mechanism operated by the motor and adapted to swing the lever, substantially as described.

10. In a block signal system, the combination with the controlling motor carried by the locomotive and the engine operatively connected with the locomotive shut-off lever and having its controlling valve stem projecting from its steam chest, a forked lever pivoted to a support connected with the valve stem, a counter shaft geared to the motor, an eccentric carried with the counter shaft and connected with the forked lever, a circuit closer arranged in the motor circuit, a magnet arranged in an independent circuit, an armature operated by the magnet and held to control the circuit closer, a gravity hook to hold the armature against its magnet, a swinging lever to disengage the hook, and a cam carried by the counter shaft and extending into the path of the swinging lever, substantially as described.

11. In a block signal system, the combination with the track, contact rails having electrical connections controlled by the operations of an adjacent semaphore, a locomotive, an engine carried by the locomotive and operatively connected with the locomotive's shut-off lever, an electric motor carried by the locomotive and adapted to control the engine valve, and an electrically controlled circuit closer adapted to hold the motor in circuit till the engine is operated and then to break the motor circuit, substantially as described.

494,008. VEHICLE. LEOPOLD LANDRETH, Bristol, Pa. Filed Dec. 29, 1892. Serial No. 456,642. (No model.)



Claim.—1. A vehicle provided with one or more wheels having guides extending from the hubs outward, in combination with movable weights supported upon said guides, and catches adapted to hold the weights adjacent to the hub until centrifugal action is increased sufficiently to overcome the catches and liberate the weights.

2. A vehicle provided with one or more wheels having guides extending from the hubs outward and secured to the tire of the wheel and intermediate of the spokes, in combination with movable weights supported upon said guides, and catches adapted to hold the weights adjacent to the hub until centrifugal action is increased sufficiently to overcome the catches and liberate the weights.

3. A vehicle provided with one or more wheels having guides extending from the hub outward, in combination with movable weights supported on said guides, and spring catches adapted to hold the weights adjacent to the hub until centrifugal action is increased sufficiently to overcome the catches and liberate the weights.

4. A vehicle having one or more of its wheels provided with guides extending from the hub toward the tire, weights supported upon said guides, a spring to receive the thrust of the weight when in its outward position, and a suitable catch to hold the weight adjacent to the hub of the wheel until a predetermined centrifugal action is obtained.

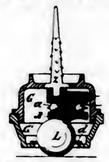
5. A vehicle having one or more wheels formed with a pneumatic tire and oblique spokes leading from the hub, two or more stretched wire guides between the hub and the rim of the wheel, weights guided upon said stretched wires, and automatic catches adapted to hold the weights adjacent to the hub until a given speed has been obtained.

6. A vehicle having one or more wheels formed with a pneumatic tire and oblique spokes leading from the hub, two or more stretched wire guides between the hub and the rim of the wheel, weights having springs guided upon said stretched wires, and automatic catches adapted to hold the weights adjacent to the hub until a given speed has been obtained.

7. A vehicle having one or more wheels formed with a pneumatic tire and oblique spokes leading from the hub, two or more stretched wire guides between the hub and the rim of the wheel, weights guided upon said stretched wires and having notches, and automatic catches consisting of a spring catch part having an oblique retaining portion projecting into the notch of the weight and adapted to hold the weights adjacent to the hub until a given speed has been obtained.

8. A vehicle having one or more of its wheels provided with guides extending from or near the hub outward toward the tire and in which the said guides meet the tire at a suitable distance to the rear of a radial line through their connection with the hub, weights supported by said guides and free to move thereon, and automatic catches to liberate said weights under the action of centrifugal force.

494,009. BALL-CASTER. ALOYS M. LEHNWATHER, Basle, Switzerland. Filed Nov. 5, 1892. Serial No. 451,063. (No model.)



Claim.—1. In a ball caster, the combination of a hollow casing formed in two detachable sections G and G', the upper section G having the shank Z, and the lower section G' having a hole in the center of its lower portion, of the disk E, the disk A, the balls *a* rotating between the said disks, and the running ball L rotating in said hole, and held in position by the ring *d*, all arranged and operating substantially as and for the purposes described.

2. In a ball caster, the combination of a hollow casing formed in two detachable sections G and G', the upper section G having the shank Z, and the lower section G' having a hole in the center of its lower portion, of the disk E, the spring *f* interposed between the disk E and the upper portion of the section G of the hollow casing, the disk A, the balls *a* rotating between the said disks E and A, and the running ball L rotating in said hole, and held in position by the ring *d*, all arranged and operating substantially as and for the purposes described.

494,010. CULTIVATOR. HARRY M. LITTLE, Rivera, Cal. Filed Sept. 22, 1892. Serial No. 446,614. (No model.)

Claim.—1. In a cultivator, the combination of pole U, frame A, cross-piece B, harrow bar O, shaft D, beams E and F, which are hinged to the frame A, beam W hinged or pivoted to pole U, and also having connecting links to frame A, said pole U being hinged to the frame A, in combination with springs (*s*) and shares G, Y and H, and means for raising and lowering the shares G, Y and H, substantially as and for the purpose set forth.

2. In a cultivator, the frame A, pole U, said pole being hinged to said frame in combination with beam W carrying a plow share, said share being connected to said beam by means of bolts, which pass through rectangular slots in said beam, said beam being hinged or pivoted to said pole U and also bearing pivoted connecting links which connect said beam to said frame A, and means for raising or lowering the rear end of said beam, substantially as and for the purpose set forth.

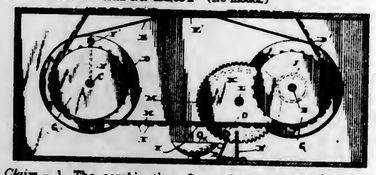
3. In a cultivator, the frame A, pole U hinged to said frame, beams E, W and F, said beams E and F being hinged to said frame

494,010.



and beam W being hinged to said pole and connected to said frame by means of pivoted connecting links, shaft D having arms which are connected to said beams E, W and F by means of connecting rods, harrow bar O bearing harrow teeth P, said harrow bar being pivotally supported by means of supports N, said harrow bar having arm Q, which is connected to lever R by means of rod S, and lever L adapted to raise or lower the beams E, W and F and shares G, Y and H, substantially as and for the purpose set forth.

494,011. GAME-COUNTER. SAMUEL B. MILLER, Cairo, Ill. Filed Nov. 23, 1892. Serial No. 452,834. (No model.)



Claim.—1. The combination of a surface having an indicating point, a ribbon adapted to pass adjacent the same having numbers on its surface, a mechanism by which the opposite ends of the ribbon are taken up, an endless band which moves around the said take-up mechanism and which passes up through slots in the said surface and numbers on the said surface on opposite sides of the space traveled by said band, substantially as and for the purpose described.

2. The combination with a top surface provided with an opening, a ribbon having numerals adapted to pass beneath said opening, a depending casing, shafts journaled therein, drums mounted on the shafts on which the respective ends of the ribbon are wound, sprocket wheels secured to the said shafts and an endless band adapted to move around the same and up through slots in the said top surface, substantially as shown and described.

3. The combination of a top surface having an opening, a numbered ribbon adapted to pass thereunder, drums supported beneath the said surface to which the opposite ends of the ribbon are secured, sprocket wheels moving in unison with the said drums, an endless sprocket band adapted to move around the said wheels and up through slots in the said top surface, and numbers on said surface adjacent the space traversed by the band, substantially as shown and described.

4. The combination of a top surface provided with an opening, a numbered ribbon adapted to pass thereunder, drums supported beneath the said surface to which the respective ends of the ribbon are secured, sprocket wheels moving in unison with said drums, an endless sprocket band adapted to pass around said wheels and up through slots in the top surface, and projected coverings over the sprocket openings in said band, for the purpose, substantially as shown and described.

5. The combination of a top surface provided with an opening, a numbered ribbon adapted to pass thereunder, drums supported beneath the top surface to which the ends of the ribbon are secured, sprocket wheels adapted to move in unison with said drums, an endless sprocket band adapted to move around said wheels and up through slots in the top surface, projected coverings for the sprocket openings in said band having inwardly curved sides, and numbers on the top surface adjacent the space traversed by said band, substantially as shown and described.

6. The combination of a numbered counting ribbon, a suitable casing, shafts therein, drums on said shafts to which the ends of the ribbon are secured, a gear wheel secured to one of the shafts, a second gear journaled in the casing which meshes with the first named gear, and a stop projecting from the casing which engages the said second gear at a predetermined point, substantially as shown and described.

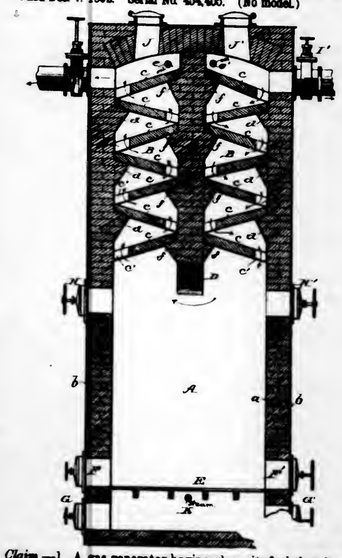
7. The combination with a numbered counting ribbon, a suitable casing, shafts therein, drums on said shafts to which the ends of the ribbon are secured, a gear wheel secured to one of the shafts, a second gear journaled in the casing which meshes with the first named gear, a projection on said second gear, a stop secured to the casing which engages the said projection, a series of pins projecting from the opposite side of the second gear, and a bell adapted to be rung by said pins, substantially as shown and described.

8. The combination of a top surface provided with an opening, a numbered ribbon adapted to pass thereunder, drums supported beneath the top surface to which the ends of the ribbon are secured, sprocket wheels adapted to move in unison with the drums, a sprocket chain adapted to pass around said wheels and up through slots in the top surface, numbers on the top surface adjacent the space traversed by the hand, a gear wheel secured to one of the drum shafts, a second gear meshing therewith, a stop on said second gear, a projection on the casing which engages said stop on the wheel, a series of pins on the opposite side of the second wheel, and a bell adapted to be rung by said pins, substantially as shown and described.

9. The combination of a casing having a slotted top surface, shafts B and C journaled in the casing, drum D′ secured to shaft B, drum D loosely mounted on shaft C, spring arm F projecting from the latter and engaging at its outer end the drum D, an indicating ribbon secured at its respective ends to said drums, and passing beneath said slotted top surface, and a means for actuating the same, substantially as shown and described

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494,012. GAS-GENERATOR. JOHN H. MILLER, Jr., Galion, Ohio. Filed Dec. 7, 1892. Serial No. 454,405. (No model.)



Claim.—1. A gas generator having above its fuel chamber a vertical partition wall in the middle forming two compartments with baffle plates arranged in the two compartments, and with oil inlets, draft dampers, and gas outlets arranged at the top of said compartments, substantially as shown and described.

2. A gas generator having above its fuel chamber a vertical partition wall in the middle forming two compartments with shoulders on the sides of the partition and generator walls, and fire tile arranged as baffle plates on said shoulders in inclined position one above the other, and provided also at the upper ends of said compartments with inlet oil pipes, draft dampers and gas outlet valves, substantially as shown and described.

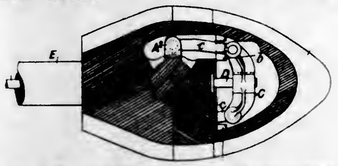
3. The gas generator consisting of an upright casing with fuel chamber A in its lower part and a vertical partition wall C in its upper part with shoulders *d* and *f*, the tile *c* with openings *c′* on the side arranged in inclined position one above the other on said shoulders, the oil inlets *e e′*, the draft dampers J J′ and the gas outlet valves I I′, substantially as shown and described.

494,013. HOOF-TRIMMER. HENRY C. MCCLEAVE, Trimble, Ill. Filed Aug. 2, 1892. Serial No. 441,921. (No model.)



Claim.—In a tool for trimming the hoofs of horses and other animals, the combination of a vibrating double edged knife, with an adjustable fulcrum piece or bar provided with an upturned hook or lip at its outer end and having a series of holes in and along it, and a pivot uniting the one end of said knife with said fulcrum piece through any one of said holes as required, essentially as set forth.

494,014. SCREW-PROPELLER. ROBERT MCGLASHAN, Selhurst, England. Filed May 21, 1891. Renewed Feb. 9, 1893. Serial No. 461,684. (No model.)



Claim.—1. The combination with a reversible screw propeller, and a reversing mechanism for said blades of a throttle valve or valves placed in the steam supply pipe of the main engines and connected to the blade reversing mechanism and operated thereby to control the steam supply concurrently with and proportionately to the alteration of pitch of the screw, as described.

2. The combination with a reversible screw propeller, its shaft and a lever connected with the propeller blades for reversing them, of mechanism consisting of a nut traveling on a screw threaded countershaft and connected to said lever, sets of reversing gearing, a clutch, whereby the countershaft may be geared through either set with the propeller shaft, and of a throttle valve or valves placed in the steam supply pipe of the main engines and connected to the said blade reversing lever so as to be operated to control the steam supply concurrently with and proportionately to the alteration of pitch of the screw, as described.

3. The combination with a reversible screw propeller, its shaft and a lever for reversing the propeller blades, of mechanism consisting of a nut traveling on a screw threaded countershaft and connected to said lever, sets of reversing gearing, a clutch, whereby the countershaft may be geared through either set with the propeller shaft, and of a slotted link connecting the collar lever with a stud on the clutch operating lever so as to cause the clutch to be automatically thrown out of gear, and of a throttle valve or valves placed in the steam supply pipe of the main engines and connected to the collar lever so as to be operated to control the steam supply concurrently with and proportionately to the alteration of pitch of the screw as described.

4. The combination with the propeller shaft, its propeller having reversible blades and a lever for reversing the blades, of a screw counter shaft, geared to the propeller shaft and having a nut connected with said lever, and a clutch mechanism connected to the screw shaft, and gearing to rotate the screw shaft in either direction from the propeller shaft, without changing the direction of rotation of said propeller shaft, substantially as set forth.

5. The combination with the propeller shaft, the propeller having reversible blades, and a lever for reversing said blades, of the screw counter shaft, having a traveling nut connected with said lever, two sets of gearing connecting the said two shafts, and a double clutch mechanism for connecting either set of gearing with the screw shaft, a clutch lever, a slotted link pivoted to the blade reversing lever, a pin projecting into said slot from the clutch lever, and means for operating the clutch lever from any suitable point, substantially as set forth.

494,015. ALE-TAP. JOHN NEUMANN, Brooklyn, N. Y. Filed Oct. 22, 1892. Serial No. 449,545. (No model.)



Claim.—1. An ale tap, comprising a shell having a faucet protecting skeleton frame in front, an insertible faucet, and means for connecting the skeleton frame and faucet, substantially as described.

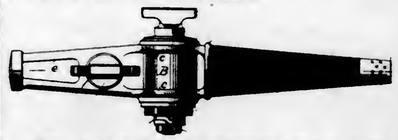
2. An ale tap, comprising a shell adapted to receive and convey liquid, a bent plug faucet engaging the front end of the tap shell and a faucet protecting frame forwardly on said shell, and means for holding said parts connected, substantially as described.

3. The combination with a conical tap shell adapted to receive liquid and screen it at its small end, of a plug faucet entering the large end of the tap shell and bent to project one end at the side of said shell, and clamping devices for holding the shell and faucet connected, substantially as described.

4. The combination with a conical tap shell, a screen within the shell at its small end, a skeleton frame formed at the forward end of the tap shell and aligning therewith, and adapted to sustain percussion on its free end and also to support part of a faucet body, of a bent faucet having a transverse controlling plug and adapted to penetrate the tap shell at one end and form a tight joint therewith, and a securing device engaging a pad on the faucet and parts of the frame, to retain the faucet in the tap shell, substantially as described.

5. The combination with a conical tap shell transversely apertured at its small end, a screen for said aperture, and a frame at the large end of said tap, consisting of parallel side bars merged into a knob at their forward ends, and a transverse bar and an apertured web plate connecting said side bars, of a bent plug faucet entering at one end a passage in the front end of the tap shell, and provided thereat with a joint ring, a pad on the faucet body adapted to seat on the web plate of the frame, longitudinal spaced keeper bars within said frame, a perforated cap-plate covering said keeper-bars, and a clamping bolt passing through said cap-plate and between said keeper bars, and provided with a suitable washer and nut, substantially as described.

494,016. ALE-TAP. JOHN NEUMANN, Brooklyn, N. Y. Filed Nov. 12, 1892. Serial No. 451,769. (No model.)



Claim.—1. In an ale tap, the combination with a tap stock tapered at one end, and adapted to withstand percussion at the opposite end, of a plug valve the shell of which is securable transversely in a mating formation of the tap stock, and a transversely securable pipe connection in a chamber of the tap stock between the plug cock and the end of the tap stock which receives blows and adapted to re-

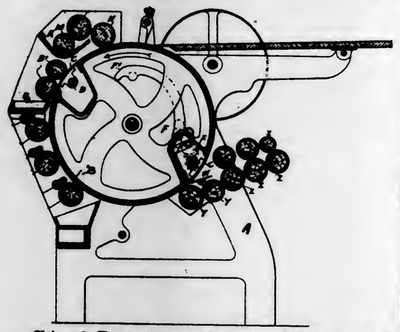
ceive liquid from the tapered part of said stock, substantially as described.

2. In an ale tap, the combination with a tap stock tapered at one end and laterally perforated near the terminal of said tapered part, and adapted to withstand percussion at the opposite end, of a plug valve securable transversely in the tap stock and removable therefrom, and a transverse tubular connecting piece securable in a chamber of the tap stock in advance of the plug valve and adapted for rotary adjustment, substantially as described.

3. In an ale tap, the combination with a tap stock having a conical end, a transverse oppositely slotted coniform wall, and elongated chamber adjoining said coniform wall and axially coincident with the conical end, and a head wall projected away from the chamber by two spaced walls, of a plug valve securable in the space formed by the coniform wall, and a transverse pipe connection securable in opposite apertures in the chamber wall, substantially as described.

4. In an ale tap, the combination with a tap stock tapered at one end and sealed thereat, and transversely foraminated near said end, a transverse coniform wall oppositely slotted near the longitudinal center of the conical part, an elongated chamber joined to the coniform wall and axially aligned with the conical portion, and spaced walls longitudinally projected from the front end of the chamber and joined by a head wall, of a pliable sleeve in the aperture in the coniform wall, a plug valve securable in the sleeve and upon the coniform wall, and a tubular connection transversely secured in opposite apertures in the elongated chamber, and reversible therein, substantially as described.

494,017. BROOMING-MACHINE. GEORGE NEWBON, Leeds, England. Filed July 27, 1892. Serial No. 441,379. (No model.) Patented in England Oct. 1, 1891, No. 16,673.

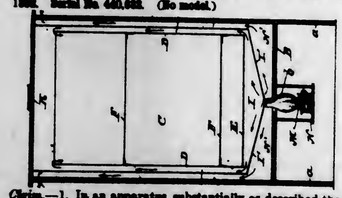


Claim.—1. The combination of the rollers M N and O. with the cam Q cam plate Q.' and the rotating cylinder B. arranged substantially as shown and as hereinbefore described.

2. The combination of the rotating cylinder B. having suitable grippers for holding the paper or the like brossing and brushing rollers and the receiving rollers Y, Y, with the rollers Z arranged substantially in the manner as shown and as hereinbefore set forth.

3. In combination with the cylinder B having gripping devices the brossing roller N and the means for applying bronze thereto, the brushing rollers B', the collecting trough S beneath the same, the brushing rollers beneath the trough, the receiving rollers Y and the rollers Z, substantially as described.

494,018. BREAD-RAISER. JOHN C. NICHOLLS, Blue Mound, Ill., assignor of one-half to Philip D. Spooner, same place. Filed July 20, 1892. Serial No. 440,922. (No model.)



Claim.—1. In an apparatus substantially as described the combination of the casing, the raising chamber, the hot air chamber having its end plate provided with inlet openings, valve devices for controlling said inlet openings, the hot air flues for conducting the air from said chamber to the raising chamber and the heating chamber substantially as set forth.

2. The improved apparatus substantially as herein described and shown consisting of the casing having an outlet K and smoke outlets *l*, the raising chamber, the hot air chamber below the raising chamber and having its bottom I' I' inclined as described, the air flues leading from the hot air chamber and arranged to discharge into the raising chamber, means whereby to admit air to the hot air chamber and the heating chamber having a door Q and smoke flues leading up alongside the hot air flues all substantially as and for the purposes set forth.

494,019. STRAP. NILS NILSSON, Brooklyn, N. Y. Filed Apr. 11, 1892. Serial No. 428,641. (No model.)



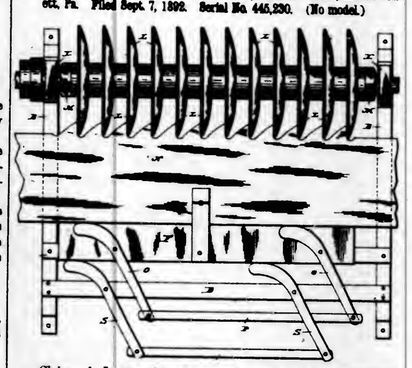
Claim.—As an improved article of manufacture a solid box-strap or band provided with a series of longitudinal eyes produced therein, one side of the eyes being arched upward to extend above the plane of the upper surface of the band, the opposite side of the eyes being arched downward below the lower surface of the band, whereby the width of the eyes is practically at right angles with respect to the upper face of the band, and whereby also by turning the strap more or less upon its edge the eyes may be made to receive nails or fastening devices of different sizes, as more or less of their width will be brought to a horizontal position.

494,020. SAD-IRON. HARRIET I. NOBLE, New York, N. Y. Filed Dec. 17, 1892. Serial No. 455,470. (No model.)



Claim.—A sad-iron having curved sides terminating in front and rear edges, a plane face, and opposite thereto a narrow seam pressing face formed by beveling upon the sides and terminating at one end with the edge of the iron as set forth.

494,021. SAW-SHARPENER. WILLIAM H. HOGAN, Mount Jewett, Pa. Filed Sept. 7, 1892. Serial No. 445,230. (No model.)



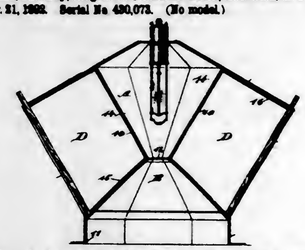
Claim.—1. In a machine for sharpening saws, the combination of the series of sharpening disks carried by a common arbor, the saw-supporting carriage, and the cam-levers fulcrumed upon the carriage to engage the back of the saw, substantially as specified.

2. In a saw-sharpening machine, the combination of the sharpening disks carried by a common arbor, the carriage mounted upon suitable guides, the cam-levers carried by the carriage, the pivotal clamp carrying a thumb screw to engage the saw-blade, and the operating levers mounted upon the frame of the machine to engage the carriage, substantially as specified.

3. In a saw sharpening machine the combination with the sharpening devices, the saw supporting carriage, the cam levers fulcrumed on the carriage to engage the back of the saw, and the adjusting levers arranged to engage the carriage to move it toward the sharpening devices, substantially as specified.

4. In a machine of the class described the combination with a framework, provided with inclined guides E, a slidable carriage mounted upon such guides, an arbor K, sharpening disks carried thereby and means to lock the saw upon the said carriage, of adjusting levers S S, pivotally connected to the framework and having cam faces to engage the rear edge of the carriage and a connecting bar T between the free ends of such levers, substantially as described.

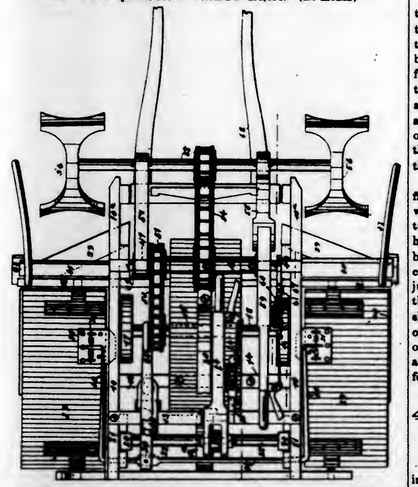
494,022. PHOTOGRAPHIC-PRINTING DEVICE. WILHELM OBER, Dessau, Germany, assignor to Ferdinand Heuer, New York, N. Y. Filed Apr. 21, 1892. Serial No. 430,073. (No model.)



Claim.—1. An apparatus for photographic printing, comprising a frame having its back of translucent glass, and provided with colored walls in its top and bottom, the front of the frame being fitted to receive a negative, and a lighting device in rear of the translucent back of the said frame, substantially as described.

2. In an apparatus for printing photographs, the combination, with a frame provided with a back of translucent glass, top and bottom being formed of a clear glass backed with a colored strip, of a holder adapted to receive a negative and located at the front of the frame opposite the translucent glass, and a lighting device located back of the translucent glass, substantially as and for the purpose specified.

494,023. CORN-HARVESTER. RASMUS PEDERSON, Dramman, Minn. Filed Apr. 11, 1892. Serial No. 428,658. (No model.)

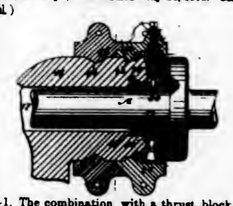


Claim.—1. In a corn harvester, a cutting device consisting of two knives, one located diagonally with respect to the sides of the machine and the other at a right angle to the sides, the diagonal knife being fixed and the knife located at right angles to the sides capable of reciprocating movement, the reciprocating knife crossing the diagonally-located knife at its outer end only, as and for the purpose specified.

2. In a corn harvester, the combination, with the body of the machine, the side portions at the front of the machine being of a height corresponding essentially to that of standing corn, and a shield located opposite the higher portions of the body, of dumping platforms arranged at the rear of the shields and opposite the spaces between the shields and the sides of the body of the machine, cutting devices located in front of each of the platforms, each of the said cutting devices consisting of a knife diagonally located with respect to the sides of the machine and the ends of the platforms, the outer end of the diagonal knives being carried in direction of the rear, and reciprocating knives traveling across the outer ends of the diagonally located knives and parallel with the ends of the dumping platforms, a shaft journaled in the body and provided with crank arms at its ends, a connection between the crank arms of the shaft and the dumping platforms, and a shifting lever connected with the shaft, substantially as shown and described.

3. In a corn harvester, the combination, with the body thereof and tables located at the sides of the body, of knives located in front of the tables, one extending essentially parallel with and in front of the forward end of each table, the other knives being diagonally located in front of the forward end of each table across the knives, extending parallel with the tables near one end of said knives, a reciprocating mechanism connecting the knives extending parallel with the tables and operating said knives, and a means substantially as shown and described for adjusting the diagonally located knives, whereby any material that shall escape one knife will be cut by the other knife of the set, substantially as and for the purpose set forth.

494,024. THRUST-BEARING FOR PROPELLER-SHAFTS. HANS C. PEDERSEN, Brooklyn, N. Y. Filed July 20, 1892. Serial No. 440,597. (No model.)



Claim.—1. The combination, with a thrust block, a sleeve held to revolve in the outer end of the thrust block and adapted for frictional engagement with the propeller shaft, and a collar having rotary movement upon the exterior of the thrust block and extending beyond its outer edge, the said collar being provided with recesses formed in its inner face, of adjustable blocks fitted in the recesses in the collar, friction rollers pivoted upon centers carried by the sleeve and adapted for engagement with the outer end of the thrust block and the collar of the propeller shaft, and balls interposed between the outer ends of the friction rollers and the inner or under surfaces of the adjustable blocks carried by the collar, substantially as and for the purpose set forth.

2. The combination, with a thrust block having an inclined surface at one end, a propeller shaft turning in said block, the collar of which faces the inclined end of the block, and a loose collar held to turn upon the thrust block, of a plate secured to the shaft collar, having an inclined surface facing that of the thrust block, the incline being in the opposite direction, adjusting devices carried by the loose collar of the block, conical friction rollers located beneath the adjusting devices and in engagement with the inclined surfaces of the thrust block and plate, a sleeve in frictional engagement with the shaft, centers carried by the sleeve and journaling the end surfaces of the friction rollers, and balls located upon the outer end surfaces of the friction rollers, the said balls being engaged also by the said adjusting devices carried by the collar, as and for the purpose set forth.

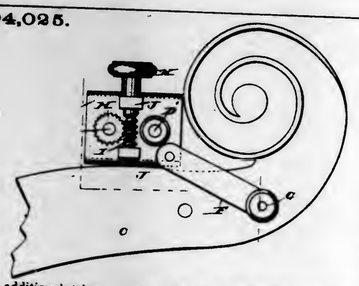
494,025. MUSICAL INSTRUMENT. AUGUST PETTERSSON, Hudiksvalla, Sweden, assignor to Harvey Johnson, Duluth, Minn. Filed Oct. 31, 1892. Serial No. 450,477. (No model.)

Claim.—1. A musical instrument provided with a detachable casing held on the neck of the instrument, and provided with spindles adapted to be turned, and connected with additional strings, substantially as shown and described.

2. An attachment for musical instruments consisting in a casing provided with spindles and adjusting devices therefor, and the attaching arms provided with a transverse securing bolt or screw, substantially as set forth.

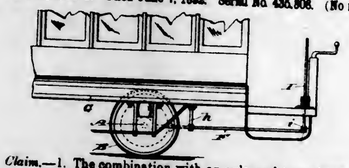
3. A violin comprising a tail piece, a bridge, a set of ordinary

494,025.



strings, additional strings arranged alongside the ordinary strings and turned to the same pitch, a neck, and fastening devices thereon for the ordinary strings, a casing held on the said neck and provided with spindles adapted to be turned, and connected with the additional strings, arms connected with the said casing, and a screw rod engaging the said arms and passing transversely through the neck of the violin, substantially as shown and described.

494,026. CAR-STARTER. KARL J. PIHL and OSCAR W. HULT, Brooklyn, N. Y. Filed June 7, 1892. Serial No. 435,808. (No model.)



Claim.—1. The combination with an axle, and two wheels fixed thereon, of two fixed clutch hubs, two loose clutch disks a spiral spring loose on the axle and fast to the clutch disks, and means to detachably lock either clutch disk, substantially as described.

2. The combination with a car body, a car axle, and two fixed car wheels, of two fixed clutch hubs on the axle, two loose clutch disks, a spiral spring loose on the axle and fast at the ends to the disks, two vibratable shifting bars loosely engaging the clutch disks, and two pawls on the shifting bars adapted to interlock with teeth on the clutch disks, substantially as described.

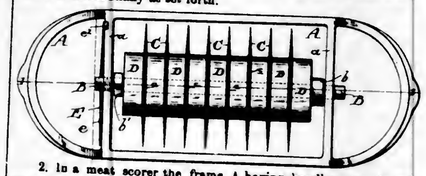
3. The combination with a car body, a car axle, and two car wheels fixed on the axle, of two fixed clutch hubs on the axle, two loose clutch disks thereon each having a grooved hub, a spiral spring encircling the axle and fixed at the ends on the clutch disks, two pivotally sustained shifting bars that are joined at one end of each, and forked at their other ends which engage the hub grooves, and a double toed pawl on each shifting bar adapted to interlock with radial teeth on the clutch disks, substantially as described.

4. The combination with a car body, an axle, two fixed car wheels, and two coniform clutch hubs fixed on the axle near the wheels, of two cupped clutch disks loose on the axle between the clutch hubs and car wheels, a spiral spring encircling the axle and attached by its ends to the clutch disks, two parallel shifting bars pivoted on the car below, each having a fork at one end that loosely engages a grooved hub on a clutch disk, a spacing bar joining the other ends of the shifting bars, a double toed pawl pivoted on each shifting bar and adapted to interlock with teeth on the clutch disks, and means to vibrate the shifting bars, substantially as described.

5. The combination with a car body, an axle, two fixed car wheels, and two clutch hubs adjustably fixed on the axle, of two cupped clutch disks, a series of radial teeth on each disk, a peripherally grooved hub on each disk, a spiral spring encircling the axle and attached at the ends to the clutch disks, two parallel shifting bars pivoted on the car frame, a spacing bar on the shifting bars at one end, forks on the opposite ends of the shifting bars entering the grooves of the disk hubs, a double toed pawl pivoted on each shifting bar and adapted to engage the teeth on the clutch disks, and a lever that is adapted to vibrate the shifting bars, when manipulated, substantially as described.

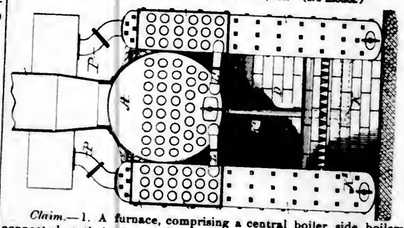
494,027. MEAT-SCORER. EDWARD RABER and LEO G. HEINZ, Philadelphia, Pa. Filed Aug. 17, 1892. Serial No. 443,311. (No model.)

Claim.—1. In a meat scorer the frame A having handles at each end thereof, cross-bars *a a* having recesses *a'* and a^2 therein, latch E having recesses *d'* therein and lip d^2 in combination with shaft B carrying knives or cutting disks C and adapted to be carried by said cross-bars *a a*, substantially as set forth.



2. In a meat scorer the frame A having handles at each end cross-bars *a a* having recesses *a'* and a^2 therein, projecting ledge a^3 and pivot *e* in combination with shaft B having thread and nut *b'* and boss *b*, and carrying knives or cutting disks C and washers D substantially as set forth.

494,028. BOILER-FURNACE. WILLIAM J. RICHARDS, Marquette, Mich. Filed Dec. 19, 1892. Serial No. 455,841. (No model.)



Claim.—1. A furnace, comprising a central boiler, side boilers connected at their front ends with the smoke box of the central boiler and at their rear ends with the rear end of the furnace, the said side boilers having water legs forming the side walls for the furnace, substantially as shown and described.

2. A furnace, comprising a central boiler, side boilers connected at their front ends with the smoke box of the central boiler and at their rear ends with the rear end of the furnace, the said side boilers having water legs forming the side walls for the furnace, and pipes connecting the water compartments of the said central boiler and side boilers with each other at the front and rear ends, substantially as shown and described

494,029. METALLIC RAILROAD-TIE. ALBERT E. ROBERTS, Norwalk, Ohio. Filed Mar. 2, 1892. Serial No. 423,805. (No model.)



Claim.—1. A metallic railway tie, having a metal seat block provided with spike sockets formed at their lower ends with angular enlargements, and angular detachable abutments projected into such enlargements, substantially as and for the purpose described.

2. In a metallic railway cross tie, in combination, a ⌴ shaped cross tie or base plate having lock apertures, a metal seat block having lock studs engaging such apertures, and formed at its opposite ends with spike sockets bifurcated at their lower ends, substantially as shown and described.

3. In a metallic cross tie, the combination with the cross tie or base plate, of a metal seat block having spike sockets at its opposite ends ending at their lower ends in angular enlargements extending through the sides of the seat blocks and removable angular abutment members adapted to be fitted in such enlargements substantially as and for the purpose described.

4. A metallic railroad tie provided with a seat block having spike apertures formed at their lower ends with angular enlargements, and angular abutments fitting in such enlargements and vertically adjustable therein, as and for the purpose described.

5. In a metallic railroad tie, the combination with a base plate, of seat blocks secured therein having longitudinal ∧ openings in their lower faces, spike apertures opening at their lower end into the ∧ openings, the detachable and adjustable △ blocks fitting in such ∧ openings and means for adjustably securing such △ blocks, as and for the purpose described.

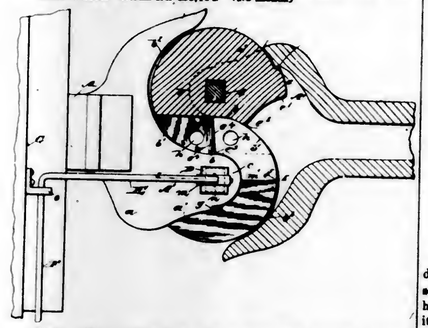
6. In a metallic railroad tie the combination with the ⌴ shaped base plate, of a seat block movable longitudinally on said plate and locking devices for holding such block to its adjusted position on said ⌴ plate, substantially as shown described.

7. The combination in a metallic railroad tie, with a ⌴ shaped base plate having apertures in its side flanges, of seat blocks held between such flanges and formed with lateral lugs adapted to fit the apertures in the said side flanges when spread apart, substantially as and for the purpose described.

8. In a metallic railroad cross tie, the combination with the rail, the fish plates and the metallic cross tie or base plate, of a hollow seat block having spike apertures at its opposite ends and projecting lugs at such ends arranged to lap the lower edge of the tie and fish plates, and the spikes, all arranged substantially as shown and described.

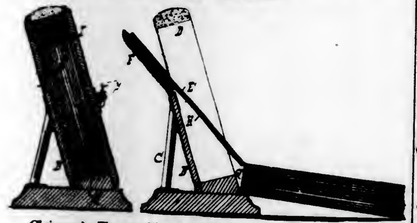
9. In a metallic railway tie, the combination with the ⌴ shape cross tie having a series of apertures in its sides and bottom and the rail, of a hollow seat block having projecting lugs on its sides and lower edges adapted to fit the apertures in the said cross tie and formed at its opposite ends with spike apertures forked at their lower ends, and the split spikes all arranged substantially as and for the purpose described.

494,030. CAR-COUPLING. GUSTAV RUMER, Sidney, Nebr. Filed June 1, 1892. Serial No. 435,164. (No model.)



Claim.—The combination, with a drawhead, having a lateral limb and an opposite slotted limb A' having a rectangular aperture above and a cylindrical one below it, and a depending boss *c'* having an aligning hole which is partly cylindric and partly square in cross section, of the flat latch block B, substantially circular on the periphery having a central perforation which is rectangular in one part and cylindrical in the other part, a latching radial shoulder thereon, and a fulcrum bolt adapted for a reciprocating vertical movement, which bolt has the two rectangular sections *i i²* and intermediate cylindrical section *i'* whereby it is fitted to the described rectangular and cylindrical apertures in the slotted limb and latch block, and thus locks within the two rectangular apertures when the latch block is in coupling position, substantially, as described.

494,031. ALBUM. GUSTAVE SCHWAB, New York, N. Y. Filed Dec. 2, 1892. Serial No. 453,849. (No model.)



Claim.—1. The combination with a base, and a stationary back, of a swinging section flexibly connected with the upper edge portion of the back, and a series of leaves jointed together and one of which is secured to the said swinging section, substantially as described.

2. The combination with a base, and a stationary back, rising therefrom, of a swinging section hinged to the upper edge of the stationary back, and a series of leaves jointed together and one of which is secured to the said hinged section, substantially as described.

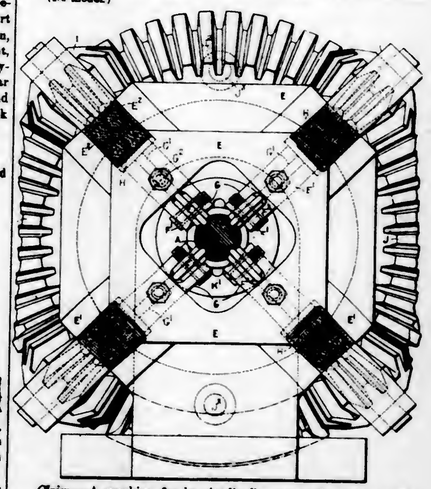
3. The combination with a base A, an inclined back B rising therefrom and provided with sides D, of a swinging section F jointed to the top edge portion of the inclined back, and a series of leaves jointed together and one of which is secured to the said hinged, swinging section, substantially as described.

494,032. FAN. HERMAN SCHRUBB, New York, N. Y. Filed Jan. 7, 1893. Serial No. 457,610. (No model.)



Claim.—A fan comprising a circular folding web, a metallic handle made in sections, a wooden strip secured on each metallic handle section and connected with the end of the web, and a metallic block held in the handle section and clamping the wooden strip in place at its outer end, substantially as shown and described.

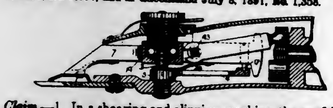
494,033. CORRUGATED TUBE FOR BOILERS, &c. LOUIS SILVERMAN, Crayford, England. Filed July 21, 1892. Serial No. 440,810. (No model.)



Claim.—A machine for longitudinally corrugating tubes, comprising the head-stock E, spindles G provided with rollers F and ad-

justable endwise in guides in the head stock toward or away from the central orifice of the head-stock, and screws H, screwed into the ends of the guides, to bear upon the ends of the spindles G, and provided with squared ends, a bevel wheel J placed upon a large hollow bearing K and geared with bevel pinions I which are placed upon the square portions of the spindles G and are retained in place by wings E^2 formed on the head-stock, substantially as set forth.

494,084. ANIMAL-SHEARS. WILLIAM SILVER, Tamworth, New South Wales. Filed Sept. 10, 1892. Serial No. 445,548. (No model.) Patented in England Feb. 4, 1891, No. 2,036; in New South Wales Apr. 2, 1891, No. 2,897, and in Queensland July 8, 1891, No. 1,358.



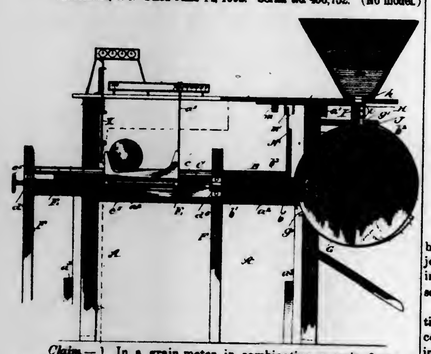
Claim.—1. In a shearing and clipping machine, the combination with the shell or casing, of a spindle mounted in bearings formed in said casing, the vertically adjustable cutter-bar vibrating about said spindle as a center and pivotally supported at its rear end upon a bracket arm extending from said spindle, substantially as described.

2. In a shearing and clipping machine, the combination with the shell or casing, of a spindle mounted in bearings formed in said casing, the vertically adjustable cutter-bar vibrating about said spindle as a center and pivotally supported at its rear end upon a bracket arm extending from said spindle, and a tension cap tapped into the upper bearing and acting to depress the cutter-bar, substantially as described.

3. In a shearing and clipping machine, the combination with the shell or casing, of a spindle mounted in bearings formed in said casing, the vertically adjustable cutter-bar vibrating about said spindle as a center and pivotally supported at its rear end upon an upwardly turned pivot point formed at the rear end of a bracket arm extending from the spindle, and a tension cap tapped into the upper bearing and acting to depress the forward end of the cutter-bar, substantially as described.

4. In a shearing and clipping machine, the combination with the shell or casing of a spindle mounted in bearings formed in said casing and provided with a fixed rearwardly extending bracket arm rotating with said spindle and provided at its extremity with an upwardly turned pivot point, the cutter-bar pivotally supported near its center upon the spindle and at its rear end pivotally supported upon the said pivot point, and a screw threaded cap tapped in the upper bearing and acting to depress the forward end of the cutter-bar, substantially as described.

494,085. ROTATING GRAIN-WEIGHER. BENJAMIN SIMONS, Charleston, S. C. Filed June 14, 1892. Serial No. 436,752. (No model.)



Claim.—1. In a grain meter, in combination, a main frame, a balance frame fulcrumed thereon, carrying a rotary bucket wheel at one end, and a track way at its opposite end, a movable weight held to travel on such track way, stops on the main frame adapted to limit the opposite movements of the weight and automatic lock devices adapted to lock the bucket wheel from rotating when raised and arranged to become disconnected therefrom when said wheel is depressed substantially as and for the purpose described.

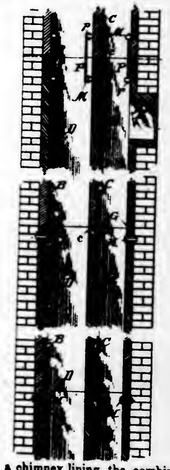
2. In a grain meter the combination with the main frame and the bucket carrying balance frame or lever fulcrumed thereon, said lever provided with a rearwardly extending longitudinally slotted track way, of a sub track projected through the slotted track, inclined rearward and downward, stops forming the ends of such sub track, and a movable weight held to travel on the main and sub tracks between the stops substantially as and for the purpose described.

3. The combination with the frame A the balance frame B fulcrumed thereon and provided with a bucket wheel G at its front end and a longitudinally slotted track way at its rear end, of the sub track D longitudinally adjustable in said slotted track C, and formed with upwardly projecting stops at its ends, and the movable weight held therebetween and on the main track all substantially as and for the purpose described.

4. The combination with the main frame A, a scale or gage beam held thereon, the balance frame B fulcrumed thereon, and provided with a bucket wheel G at its front end, and a longitudinally slotted track C at its rear end, of the sub track D longitudinally adjustable along the slotted track, said track D having upturned ends and a pointer secured thereto and arranged to traverse the gage bearing and means for adjusting the sub track substantially as and for the purpose described.

5. The combination with the main frame, the balance frame journaled thereon and provided with counterbalance devices, of the rotary bucket wheel G formed of the end disks and the internal buckets or compartments, said disk having radial lock stops g' and lock springs G^x the lock pins H H vertically movable in the arms b^3 of the balance frame B, the rod I connecting the pins H H, having rollers i at its outer ends and the fixed stops or bars J J secured to the main frame and adapted to retard the downward movement of the pins H when the bucket is depressed, whereby to release the said pins from the lock stops on the bucket wheel disks, all arranged as and for the purpose described.

494,086. LINING FOR FLUES OR CHIMNEYS. YORICK W. SMITH, Washington, D. C. Filed Aug. 30, 1892. Serial No. 444,550. (No model.)

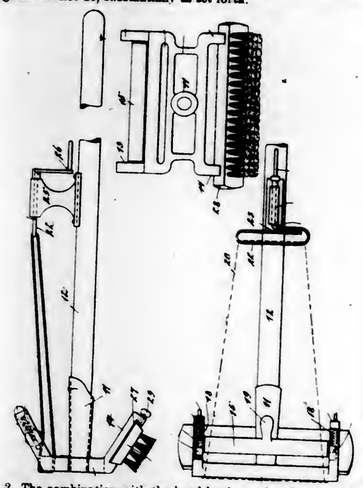


Claim.—1. In a chimney lining, the combination of a series of hollow sections having their meeting ends arranged to form a lap joint, and cement-embedded securing pins fitted in passages extending through the lapped ends of adjacent sections, substantially as described.

2. In a chimney lining, the combination of a series of hollow sections having their meeting ends arranged to form a lap joint, headed cement-embedded securing pins extending through passages formed in the lapped ends of adjacent sections, and pins K, extending through apertures formed in the securing pins on opposite sides of the sections from the heads of the securing pins, substantially as described.

494,087. SCRUBBER. OPHELIA SMITH, Shepherdsville, Ky. Filed Oct. 6, 1892. Serial No. 448,055. (No model.)

Claim.—1. The scrubber head 10, having at the ends of one of its longitudinal edges a pair of inclined arms 14 provided on their outer faces with brush receiving recesses and at the ends of its opposite longitudinal edge with a pair of arms 13, 13 having recesses in their adjacent faces spring pressed bearings in said recesses and a cross bar carried by said bearings; the head being provided with a longitudinal slot 21, substantially as set forth.



2. The combination with the head having a slot 21 and a spring pressed cross bar 15 of the handle 12 having a bearing 25, a longitudinal crank shaft extending through said bearing and having a keeper 22 having a split or entering-opening 23, substantially as set forth.

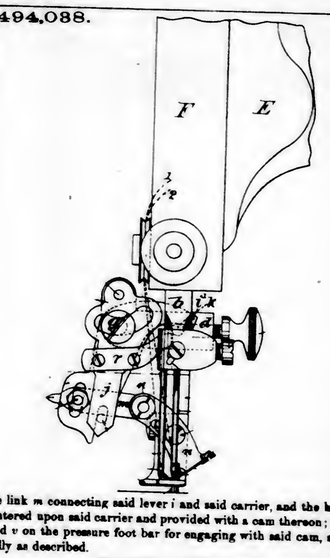
3. A scrubber, comprising a head having a suitable handle and diverging arms arranged in pairs on opposite sides of the handle, a detachable brush held in one pair of arms, a mop held between the other arms, and a revolvible keeper journaled on the scrubber handle and arranged to carry one end of the mop, substantially as described.

4. The combination with the slotted scrubber head and handle, of an endless mop carried by the head, a hanger or support secured to the handle, a revolvible keeper journaled in the hanger or support, a mop having one end secured to the head and the opposite end to the keeper, and a spring-pressed cross bar arranged to press upon the mop, substantially as described.

494,088. SEWING-MACHINE. GEORGE SPRIGHT, Bradford, SAMUEL CHAPMAN, Blackley, and RICHARD TODD, Manchester, England. Filed Mar. 31, 1892. Serial No. 426,797. (No model.) Patented in England Nov. 23, 1891, No. 20,231.

Claim.—1. The combination with a sewing machine provided with the two needles a and a', said needles being arranged side by side in the direction of the feed and operating simultaneously; a shuttle reciprocating below said needles; of a removable button hole attachment therefor, consisting of the removable bracket d on the pressure foot bar; the lever i pivoted to said main bracket d and provided with the horn i', the lever j pivoted to said bracket d at a point above the pivoting point of the lever i and connecting at its lower end to the lower portion of the lever i; the finger r secured to the lever j; the stud k on the needle bar for engaging said horn i' on the upstroke and said finger r on the down-stroke; the carrier s pivoted to the needle bar; the link m connecting said lever i and said carrier, and the hooker c centered upon said carrier and vibrating adjacent to and in conjunction with said needles a and a', substantially as described.

2. The combination with a sewing machine provided with the two needles a and a', said needles being arranged side by side in the direction of the feed and operating simultaneously; a shuttle reciprocating below said needle; of a removable button-hole attachment therefor, consisting of the removable bracket d on the pressure foot bar; the lever i pivoted to said main bracket d and provided with the horn i'; the lever j pivoted to said bracket d at a point above the pivoting point of the lever i and connecting at its lower end to the lower portion of the lever i; the finger r secured to the lever j; the stud k on the needle bar for engaging said horn i' on the upstroke and said finger r on the down stroke, the carrier s pivoted to the needle bar;



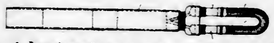
the link m connecting said lever i and said carrier, and the hooker c centered upon said carrier and provided with a cam thereon; and the stud v on the pressure foot bar for engaging with said cam, substantially as described.

494,089. SEWING-MACHINE. GEORGE SPRIGHT, Bradford, and SAMUEL CHAPMAN, Blackley, England. Filed May 31, 1892. Serial No. 435,096. (No model.)



Claim.—In a sewing machine and in combination with the stitch forming mechanism thereof comprising two needles and a loop-taker, the needles being arranged in a vertical plane at a right angle to the path of the loop-taker, of a pivoted, needle-deflecting cam-plate located in the same vertical plane with one of the needles, and means for adjusting said plate vertically, substantially as described.

494,040. INCANDESCENT BURNER FOR HYDROCARBON GAS. JAMES S. P. STUPLEY, Adelaide, South Australia. Filed Apr. 21, 1892. Serial No. 430,155. (No model.)



Claim.—1. In an incandescent gas burner such as herein described, a perforated thimble, having the burrs made by the perforations projected inwardly, and the interior of said thimble coated with powdered or finely ground asbestus, for the purposes herein set forth.

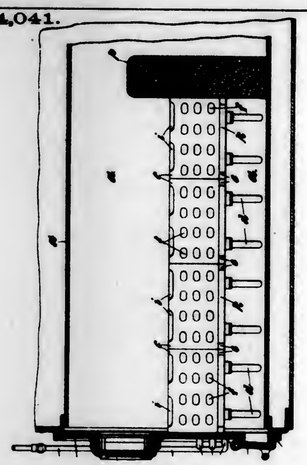
2. In combination in an incandescent gas burner, the thimble having perforations and the interior coating of asbestus against the inner wall of the thimble, substantially as described.

3. In an incandescent gas burner the union piece (l) provided with two nipples (f') and (f'') and the platinum or iridium body (k), substantially as herein described.

494,041. STEAM-BOILER FURNACE. JOHN SUTTON and JOHN W. FOSBLEY, Formby, England. Filed Dec. 6, 1892. Serial No. 454,209. (No model.)

Claim.—In a steam generator or analogous furnace, the combination of plates c having a plurality of holes f therein and disposed at an inclination sloping downward from each side of the furnace toward the center; steam pipes h disposed under said plates and having holes therein under said aperture by which jets of steam issue into and force air through said apertures into and through the fuel on said plates; and an aperture or apertures k at the lower part of said plates by which ash and dust are removed from the fuel into the space below said plates: all substantially as set forth with reference to the drawings.

494,041.



494,042. SYSTEM OF WINDING ARMATURES FOR DYNAMO-ELECTRIC MACHINES. WILLIAM M. THOMAS, Grand Rapids, assignor to Louis Warfield, Detroit, Mich. Filed Jan. 29, 1892. Serial No. 419,719. (No model.)



Claim.—1. The method of winding drum armatures for electric machines which consists in winding all wires constituting each coil simultaneously side by side like longitudinal threads in a ribbon, and filling the area of the divisions of the armature at each winding substantially as set forth.

2. The method of winding drum armatures for electric machines which consists in winding all wires constituting each coil simultaneously side by side, commencing at the middle of the length of all wires composing a ribbon, and winding the ends of the ribbon in opposite directions across one end of the armature then along the sides each alternate wire at the ends of the ribbon being connected to the commutator, while each intermediate wire is passed around and joined to the commutator with the next wire which is connected on the opposite side, substantially as described.

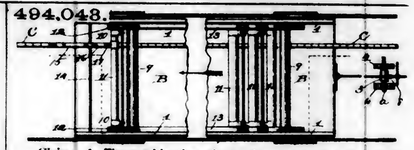
3. The method of winding drum armatures for electric machines, which consists in passing all wires in a convolution to one side of the armature shaft and then extending them across the end of the armature by means of a flat twist in the ribbon, substantially as set forth and described.

4. The method of winding drum armatures for electric machines which consists in winding the individual wires of one half of a convolution of the ribbon, on one side of the armature, diametrically opposite, the same wires in the other half of the convolution of the ribbon and each ribbon filling the area of a division of the armature, thus permitting the use of any of the well known forms of connections to commutator as explained.

5. A drum armature whose winding consists of ribbons formed of a series of wires and wound from their middle in both directions along the sides of the armature, said ribbons crossing the ends and having thereat a flat twist so that parts of the individual wires lie diametrically opposite each other in the halves of the respective convolutions on opposite sides of the armature; whereby the building up of the ends of the armature is avoided and the armature adapted for different systems of commutator connection as explained.

494,048. THEATRICAL STAGE APPLIANCE. DAVID I. TOWNE, New York, N. Y., assignor to Nelson Burgess, Highlands, N. J. Filed Feb. 5, 1891. Serial No. 380,276. (No model.)

494,048.



Claim.—1. The combination of a track, a carriage on the track, an endless apron on the carriage, a releasing mechanism on the carriage in position to be engaged by the endless apron and intermittently release and hold the carriage, on the track and means to move the carriage forward when released, substantially as described.

2. The combination of a track, a carriage on the track, an endless apron on the carriage, a ratchet bar secured on the bed of the track, and a pawl on the carriage to engage the ratchet bar and adapted to be released by the endless apron, substantially as described.

3. The combination with a track and a carriage thereon, of an endless apron on the carriage having a lug secured thereon, a fixed ratchet bar, and a pawl on the carriage arranged to engage the ratchet bar and to be released from such engagement by the lug on the endless apron, substantially as described and for the purpose specified.

4. The combination with a track, a carriage on the track, an endless apron on the carriage having a lug fixed therein, a fixed ratchet bar on the bed of the track, a pawl on the carriage to engage the ratchet bar and hold the carriage against movement and to be engaged and released by the lug on the endless apron and a weight to move the carriage when the pawl is released, substantially as and for the purpose specified.

5. In combination with the track and the carriage arranged thereon, of push buttons arranged in the track to be engaged by the wheels of the carriage at determined distances apart, an electrically operated indicator adjacent to the track, and electric circuit connections between the push buttons and the indicator, substantially as described.

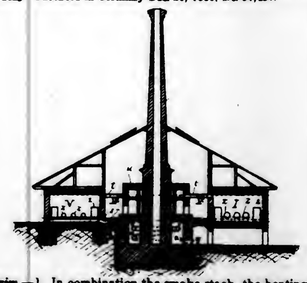
6. In a theatrical stage appliance, the combination with a track, and a carriage on the track, of an abutting-piece arranged across the track at the limit of movement of the carriage, a push-button in the abutting-piece, an electrically operated indicator and alarm, substantially as described,

7. In a theatrical stage appliance, the combination with a track and a carriage on the track, of push buttons in the path of the carriage arranged to be depressed by the carriage, a stop at the end of the track, a push-button in the stop, an electrically operated indicator and alarm, and electric circuit connections between the push-buttons and the indicator, substantially as described.

494,044. PROCESS OF EXTRACTION OF METAL FROM ORES. JAMES TURTON, London, England. Filed Apr. 6, 1892. Serial No. 428,072. (No specimens.)

Claim.—The process herein described for the extraction of metals from ores and minerals, which consists in subjecting the ore or mineral to the action of a nitrate of an alkali metal such as nitrate of potash, chloride of sodium and sulphuric acid for solution of the contained metals, then separating the earthy matters and precipitating the metal from the solution, substantially as set forth.

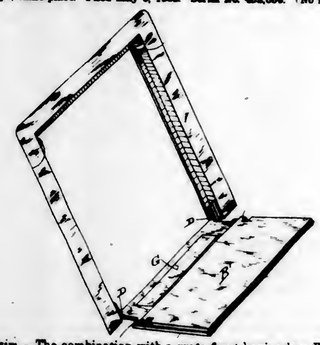
494,045. KILN FOR DRYING WOOD. IGNATZ UNGAR, Budapesth, Austria-Hungary. Filed Feb. 12, 1890. Serial No. 340,113. (No model.) Patented in Germany Dec. 29, 1889, No. 57,487.



Claim.—1. In combination the smoke stack, the heating chamber *n* about the same, the series of drying chambers about the heating chamber, each having a passage *r* leading to the heating chamber, the annular receptacle *u* about the chimney and communicating therewith, and a second series of passages *t* leading from the drying chambers and entering the receiving chamber, substantially as described.

2. In combination the smoke stack, the central heating chamber, the series of drying chambers about the heating chamber, the passages *r* leading from the heating chamber to the drying chambers and the passages *t* leading independently from the drying chambers, and connecting with the smoke stack, each of said passages having a valve whereby each chamber may be cut off from direct communication with the chimney and heating chamber and the ports or passages connecting the drying chambers, substantially as described.

494,046. FOLDING GRATE-FRONT AND HEARTH. WILLIAM H. VADEN, San Francisco, Cal., assignor of one-half to George Humphreys, same place. Filed May 6, 1892. Serial No. 432,099. (No model.)



Claim.—The combination with a grate front having lugs E upon their upper inner edges of the hinged folding plates one of said plates having lugs F, at the upper edge by which said plates are retained in a vertical position to close the grate front opening, hinges at the bottom of the lower plate about which the two may turn when the catches at the top are disengaged whereby the plates fold upon each other and extend outwardly from the bottom of the grate front, forming a hearth thereto, substantially as herein described.

494,047. WINDOW. PETER VANDERBOTH, New York, N. Y. Filed July 26, 1892. Serial No. 441,126. (No model.)



Claim.—1. A window comprising a frame having a movable sill, parallel guide rods arranged on opposite sides of the frame, and overlapping window sashes held to slide and swing on the guide rods, the lower sash being adapted to rest normally on the sill, substantially as described.

2. A window comprising a frame having a swinging sill thereon, vertical guide rods arranged in opposite sides of the frame, and window sashes held to slide and swing on the guide rods, the window sashes being held on separate rods, substantially as described.

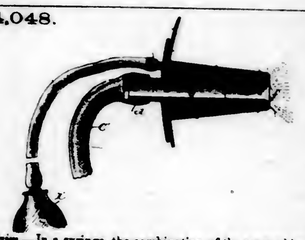
3. A window comprising a frame having an inwardly swinging sill, vertical guide rods arranged in opposite sides of the frame, counterbalanced window sashes held to slide and swing on the guide rods, each sash being held on an independent rod, and inwardly swinging parting strips and bead strips secured to the window frame and adapted to overlap the sashes, substantially as described.

4. In a window, the combination of the swinging sashes, and an inwardly swinging sill arranged beneath and upon which rests the lower sash, the sill having an upwardly extending flange 26 to abut with the inner side of the lower sash rail, substantially as described.

5. In a window, the combination of the frame, the swinging sashes held therein, the inward-swinging bead strips hinged to the frame adjacent to the sashes, the strips having rabbeted lower ends, and the swinging sill arranged beneath the lower sash and having rabbeted ends to fit the rabbeted ends of the bead strips, substantially as described.

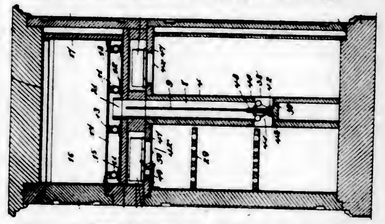
494,048. SYRINGE. JOSHUA M. WARDELL, Cadillac, Mich. Filed Dec. 9, 1892. Serial No. 454,694. (No model.)

494,048.



Claim.—In a syringe, the combination of the tapered body, having a water-inlet passage, and a central passage which is screw-threaded at its rear end, enlarged in its middle portion, and flared at its front end, and also provided with a series of parallel grooves *g* as shown, and the detachable outlet tube having its front end flared and provided with a screw-thread adapted to engage the thread of said passage, all as shown and described.

494,049. REFRIGERATOR. FREDERICK H. LAHEN, Michigan City, Ind. Filed May 16, 1892. Serial No. 433,206. (No model.)



Claim.—1. In a refrigerator, the combination with the inclosing casing, and vertical intersecting partitions located therein and forming corner compartments, of angular doors corresponding each to the two outer sides of the compartments respectively, and hinged to the outer edge of one of the partitions to close against the outer edges of the other partition, substantially as specified.

2. In a refrigerator, the combination with an inclosing casing having doors or closures, vertical intersecting partitions, one of which is hollow and provided with openings communicating, respectively, with the compartments into which the interior is divided by the partitions, and an ice box or chamber communicating with the space within the hollow partition, of gravity cut-offs arranged in the openings, and devices between the doors and cut-offs whereby closing the doors will open the cut-offs, substantially as specified.

3. In a refrigerator, the combination with the base, the transverse and longitudinal partitions mounted thereon and intersecting each other, one of said partitions being hollow, of an ice receptacle mounted on the upper ends of the partitions, and communicating with the hollow partitions, doors for closing the compartments formed at the angles of the partitions, openings formed in the rear wall of each compartment, and communicating with the space of the longitudinal partition, cut-offs hinged over the openings and normally closed, and connections between the cut-offs and doors whereby a closing of the latter will operate the cut offs to open the same, substantially as specified.

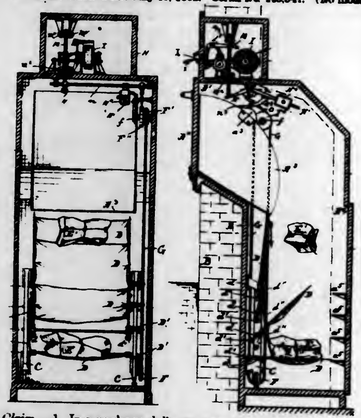
4. The combination with the base, the transverse and longitudinal partitions, the latter forming opposite cold-air flues, and provided with openings communicating with the four compartments formed at the angles of the partitions, the top-section mounted on the partitions, and having opposite openings communicating with the cold-air flues, and a double bottom forming an intermediate warm air space 7, a surrounding inner wall, spaced to form a continuation of the space 7, an ice-receptacle mounted therein and having a drip-tube between the cold-air flues, and extending down to the base, the series of doors for closing the compartments, the series of cut-offs for closing the cold-air openings, openings formed in the roofs of the compartments and communicating with the space 7, cut-offs for normally closing the openings, and devices between the doors and the cold and warm-air cut-offs of each compartment, whereby they are opened by a closing of the doors, substantially as specified.

5. In a refrigerator, the combination with the ice section or box having the slanting bottom, terminating in a drip-tube, the series of coiled wires, strips located at the upper and lower sides of the wires,

of the ice pan mounted on the upper strips, and the perforated ice-tray mounted in the pan and provided with perforations, substantially as specified.

6. In a refrigerator the combination with the base, the longitudinal hollow partition rising therefrom and provided with intermediate cold-air flues, openings formed in the partition, forming exits for the air in the compartments at opposite sides of the partition, a top section mounted on the partition, and division-plates located in each of the cold-air flues, the said top section being provided with warm-air flues, and openings in its bottom communicating with the compartments at opposite sides of the partition, an internal lining for and spaced apart from the ice-box, of a metal ice-pan having a back and opposite side walls, the latter being shallower than the former, and a superimposed cover for the same, substantially as specified.

494,050. PACKAGE-REGISTERING DEVICE. ROBERT F. ANDERSON, Lynn, Mass. Filed July 19, 1892. Serial No. 440,547. (No model.)



Claim.—1. In a package delivery apparatus, a receptacle having a pivoted door and a series of shelves pivoted one above the other and adapted to receive the packages, an endless chain actuated by said shelves, a strip feeding and severing device and connecting and operative mechanism from the endless chain and pivoted door, substantially as and for the purpose set forth.

2. In a package delivery apparatus, a receptacle having a movable door and series of shelves pivoted one above the other and adapted to receive the packages, an endless chain actuated by said shelves, a strip feeding and severing device adapted to be set for operation by the door motion and released by the downward movement of the shelves, substantially as and for the purpose set forth.

3. In a package delivery apparatus, the combination of a receptacle having a series of shelves pivoted one above the other and adapted to receive the packages, a strip feeding and severing mechanism, and devices operated by the movement of the shelves for actuating the strip feeding and severing mechanism, substantially as described.

494,051. PIANOFORTE. DAVID A. BARBER, GEORGE BATES, WILLIS MABEY, and HORACE T. SHELTON, Cambridge, Mass. Filed Nov. 9, 1892. Serial No. 451,490. (No model.)

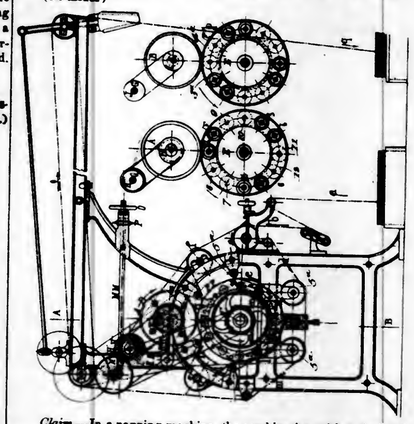


Claim.—1. In a piano action, the combination with the hammer-butt, the butt flange, and the pivot pin, of a corrugated bearing plate, forming a groove to receive the pin and a rib to prevent displacement of the plate, substantially as described.

2. In a piano action, the combination with the hammer-butt, the butt flange, and the pivot pin, of a clamping plate having a groove to receive the pin, and a sleeve seated in the butt to receive the plate securing screw, substantially as described.

3. In a piano action, the combination with the hammer-butt, the butt flange, and the pivot pin, of a corrugated bearing plate, and a grooved clamping plate between which the pivot pin is clamped, and a threaded sleeve seated in the butt to receive the clamping screw, substantially as described.

494,052. CLOTH-NAPPING MACHINE. GUSTAVE RAUCHE and HENRI RAUCHE, Paris, France. Filed Aug. 13, 1892. Serial No. 443,011. (No model.)



Claim.—In a napping machine, the combination with a shaft, of two spur-gears loose thereon and having a different number of teeth, a series of teasel-cylinders arranged concentrically with relation to said shaft, each alternate pair having pinions at one end gearing with one of said spur-gears, and the remaining pairs being geared in like manner to the other spur-gear, a series of rolls and guide-rolls whereby the fabric is brought into contact with one of the series of pairs, means for feeding the fabric to impart revolution to the said pairs of teasel-cylinders, a pulley-disk forming part of the spur-gear meshing with pinions on the said cylinders, a friction-disk operated by the pulley-disk, and a second friction-disk and pulley-disk to transmit the movement to the other spur-gear and impart rotary movement at a different speed to the remaining pairs of teasel-cylinders, substantially as described.

494,053. RECIPROCATING ELECTRIC DRILL. WILLIAM A. G. BIRKIN, Nottingham, England. Filed Apr. 23, 1892. Serial No. 430,421. (No model.) Patented in England June 11, 1891, No. 9,936, and in France Apr. 4, 1892, No. 220,659.

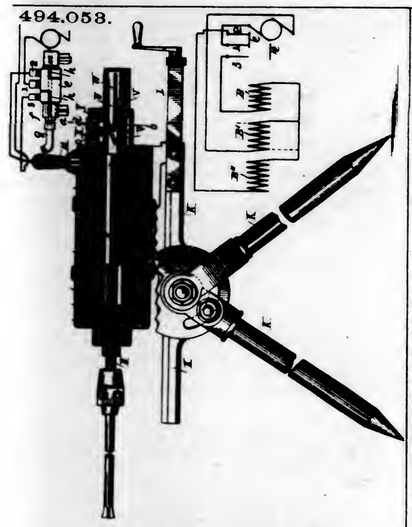


Claim.—1. The combination of the shell or jacket A composed of soft iron end sections and a central non-magnetizable section, a series of solenoids B, B′ and B″ inclosed in said shell, the soft iron core D attached to one end of the shell and projecting into the hollow of the adjacent solenoid, the plunger E inclosed by the solenoids and provided with a rod or stem H that projects longitudinally through the core D and carries a tool stock, the commutator *c*, and electrical connections with the solenoids, substantially as described.

2. The combination of the shell or jacket A, solenoids B, B′ B″ inclosed in said shell, the plunger E inclosed by the solenoids and having an extension U provided with sinuous grooves V and straight longitudinal grooves W, the ratchet wheel X provided with sinuous ribs X′, the ratchet wheel Y provided with straight ribs Y′, and the spring pawls or stops *c d*, substantially as described.

3. The combination of the shell A having a handle M, the solenoids B B′ B″ inclosed in said shell, the plunger E inclosed in the solenoids and carrying a tool stock, electrical connections passed through the handle M to the solenoids, and the segmental commutator *c* having brushes 1, 2, 3, substantially as described.

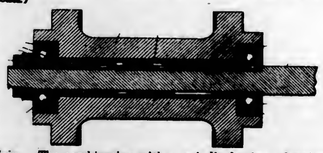
494,054. PROCESS OF AND SOLVENT FOR SEPARATING PRECIOUS METALS FROM THEIR ORES. WILLIAM A. G. BIRKIN, Nottingham, England. Filed Jan. 21, 1893. Serial No. 459,273. (No specimens.)



Claim.—1. In the art of separating metals from their ores, the process set forth which consists in subjecting an ore, suitably comminuted to the action of a menstruum composed of potassium cyanide, potassium ferri-cyanide, and peroxide of hydrogen, in water, agitating the said ore, and finally separating the values out of solution, substantially as described.

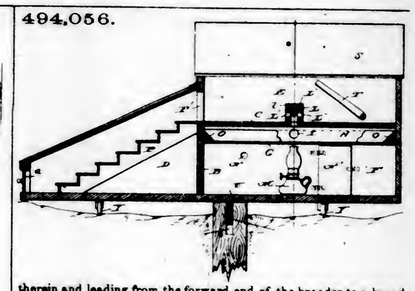
2. The fluid solvent for removing precious metals from their ores, the same consisting of potassium cyanide, potassium ferri-cyanide, and peroxide of hydrogen in water, in the proportions specified, or thereabout, substantially as described.

494,055. ROLLER-BEARING. GEORGE BOTHFORD and WILLIAM HOLTZ, Nineveh, Ind. Filed Sept. 13, 1892. Serial No. 445,802. (No model.)



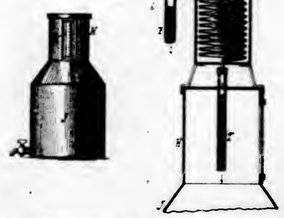
Claim.—The combination with a spindle having a longitudinal groove and terminating at the inner end of the latter with a shoulder, and a hub having annular recesses at its ends, of cylindrical bushings L-shaped in cross-section arranged within the recesses of the hub and of less depth than the recesses and leaving outer annular spaces sleeves provided with interior ribs engaging the groove of the spindle, said sleeves being provided at their outer ends with integral annular flanges conforming to the cylindrical bushings and closing the mouths of the same and fitting in said annular spaces, balls arranged within the bushings and mounted on the sleeves, and a nut arranged at the outer end of the spindle, substantially as described.

494,056. POULTRY-BROODER. DAVID B. BRICKER, Boiling Springs, Pa. Filed May 9, 1892. Serial No. 432,336. (No model.)



Claim.—A poultry brooder, consisting of a centrally pivoted shell having its interior divided into two main compartments by a vertical partition, B, one of said compartments D, having its top closed by a glass cover or roof and having a stairway, P, rigidly secured in place therein and leading from the forward end of the brooder to a brooding compartment, E, formed in rear of the partition, B, by a horizontal floor or partition C, a heater arranged below the brooding compartment, an air chamber formed between the heater and the brooding compartment by means of a horizontal partition, G, which extends continuously across the brooder, below the floor of the brooding compartment, and has its edges secured to the front, rear, and side walls thereof, a seal, O, situated at the junction of the partition G, with the walls of the brooder, an air tube connecting the air chamber with the brooding compartment, and air inlet pipes extending through the side walls of the brooder and into the air chamber, substantially as described.

494,057. STEAM-CALORIMETER. ROLLA C. CARPENTER, Ithaca, N. Y., assignor to Schaeffer & Budenberg, New York, N. Y., and Buckau-Magdeburg, Germany. Filed Nov. 25, 1892. Serial No. 453,079. (No model.)



Claim.—1. The combination with a vessel or receptacle for steam, of an inlet or tube for causing the steam to enter the vessel, said inlet being closed in the direction toward the bottom of the vessel but having openings toward the side of the vessel so as to introduce the moisture and steam into the vessel and to separate the moisture from the steam without agitating the water at the bottom of the vessel, and a discharge orifice or outlet from the vessel for the dry steam, substantially as described.

2. The combination with a vessel or receptacle for steam, of a circuitous or angular inlet of undiminished diameter throughout to allow the steam to enter the vessel without previous change of pressure, said inlet being closed in the direction toward the bottom of the vessel but having openings toward the side of the vessel so as to introduce the moisture and steam into the vessel and to separate the moisture from the steam without agitating the water at the bottom of the vessel, a discharge or outlet from the vessel for the dry steam,

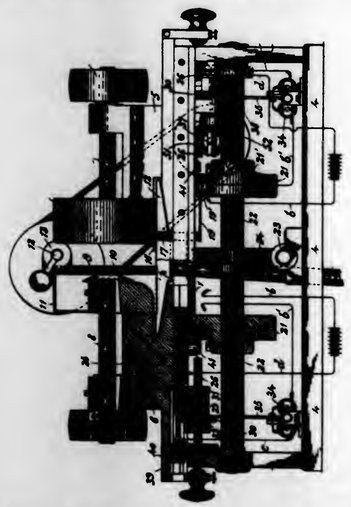
and a condenser made to communicate with the discharge or outlet, substantially as described.

3. The combination with a water chamber or receptacle provided with an inlet closed in the direction toward the bottom of the chamber but having openings toward the side of the chamber so as to introduce steam and water into the chamber without agitating the water at the bottom thereof, of a steam chamber or receptacle made to communicate with the water chamber for receiving steam separated directly from the water, said water chamber being provided with a water glass and with a scale or index for noting the precipitated water, substantially as described.

4. The combination with a water chamber or receptacle having an inlet of a steam chamber or receptacle made to surround the water chamber to form a jacket for the latter said steam chamber being made to communicate with the water chamber for receiving steam separated directly from the water, substantially as described.

5. The combination with a water chamber or receptacle having an inlet closed in the direction toward the bottom of the chamber but having openings toward the side of the chamber so as to introduce steam and water into the chamber without agitating the water at the bottom of the chamber, of a steam chamber or receptacle communicating with the water chamber a condenser made to communicate with the steam chamber, and a measure connected to the condenser, substantially as described.

494,058. GRINDING-MACHINE. DUANE H. CHURCH, Waltham, Mass. Filed Mar. 1, 1892. Serial No. 423,416. (No model.)

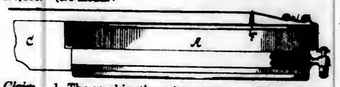


Claim.—1. The combination of a grinding lap, a feed mechanism which causes a progressive action of the lap upon the piece being ground, and an automatic stop whereby said feed mechanism is rendered inoperative when the piece is reduced to a predetermined size, as set forth.

2. In a grinding machine, the combination of a movable grinding device, a normal feed mechanism, a compensating feed mechanism which is made operative by said normal feed mechanism to give the grinding device a movement in addition to its normal movement, and means for automatically arresting said compensating movement when the grinding surface reaches a predetermined position.

3. In a grinding machine, the combination of a movable grinding device, a normal feed mechanism, a compensating feed mechanism, an electric circuit and an electrically controlled device for making said compensating feed mechanism alternately operative and inoperative, a circuit closing device operated by the normal movement of the grinding device to make said compensating feed mechanism operative, and a circuit breaking device which makes said compensating feed mechanism inoperative when the grinding surface reaches a predetermined position.

494,059. BANJO. FRANK B. CONVERSE, New York, N. Y., assignor to Hamilton S. Gordon, same place. Filed Nov. 26, 1892. Serial No. 453,111. (No model.)



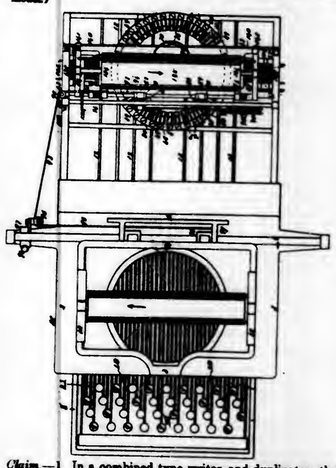
Claim.—1. The combination with a banjo, and the strings thereof, of a bridge adjustable on the drum head of the banjo and provided in its bottom edge with a groove F, substantially as and for the purpose described.

2. In a banjo, or similar instrument, a tail piece composed of two sections J J' having a jointed connection K, one of said sections being provided with a cylindrical bead I and two rows of string holes H, H' located between the bead and the jointed connection of the two sections, substantially as and for the purpose described.

3. The combination with a banjo, of a tail piece having a joint K, a cylindrical bead I and two series of string holes H and H' located between the cylindrical bead and the said joint, substantially as and for the purpose described.

4. In banjos and similar instruments the provision on the interlocked parts J J' of the tail piece, of the projections or indentations M M for preventing those parts from sliding endwise upon or away from each other, substantially as shown and described.

494,060. COMBINED TYPE-WRITING MACHINE AND DUPLICATOR. JOHN T. DAVIS, St. Louis, Mo., assignor of one-half to Charles J. Moffett, same place. Filed Jan. 30, 1892. Serial No. 419,772. (No model.)



Claim.—1. In a combined type writer and duplicator, the combination of the initial leader type writer, the duplicating type writer, the fulcrum type-lever, having a weighted type-bearing end to increase the momentum of the type stroke and the rock-shafts and their transmitter attachments, that transmit simultaneous co-operative action from the keys of said leader machine on the type levers of both machines; substantially as described.

2. In a combined type writer and duplicator, the combination of the transmitter case, the initial leader type writer, the duplicator type writer, the fulcrum type-lever having a light spring shank end to provide elasticity to its type stroke and the transmitter rock-shafts with their rock-levers, that transmit action from the pitman keys of said lever machine to said duplicator; substantially as described.

3. In a combined type writer and duplicator, the combination of the initial leader type writer, the duplicator type writer, the flanged pulleys 95 and 96 and the cord 93 that works on said pulleys and connects the carriages of said machines the transmitter rock-shafts, and the initial and secondary rock levers and attachments that transmit action from the pitman keys of said leader machine to the type lever of the duplicator, and said type lever having a heavy type bearer end and light elastic spring shank end, substantially as described.

4. In a combined type writer and duplicator, the combination of

the initial leader type writer, the duplicator type writer, the transmitter rock-shafts 13, the perforate plates in which said rock-shafts have their rock-bearings, the keys 9 that simultaneously work the combined machines, the pivoted key arms 10, the pitman transmitter rods or duplicator keys 20, the said keys having the bifurcated adjustable pitman screw heads 23 the perforate guide plate or duplicator key table 18, in which said duplicator transmitter keys work, the initial and secondary rock levers, that rock and are rocked by said rock shaft, and the pitman rods that connect said rocked levers to the fulcrum type levers that impress the type of the duplicator machine; substantially as described.

5. In a combined type-writer and duplicator, the combination of the initial leader type-writer, the duplicator, the keys 9 that simultaneously work the combined machines, the bifurcated joint screws 23, the pitman transmitter rods or duplicator keys 20, worked by said initial keys 9, the perforate guide plate or duplicator key table 18, the guide bars 25, the reactionary spiral springs 27, that return the initial and duplicator keys to their normal positions, the transmitter rock-shaft 13, the rock levers, that rock said shaft, and those that are rocked by it, and the pitman rods that connect the latter with the type lever of the duplicator; substantially as described.

6. In a combined type-writer and duplicator, the combination of the initial leader type-writer, the duplicator, said duplicator having the printer carriage 67, the clamp sleeve 97, the set screw that secures said clamp sleeve to said leader machine, the pulley 96 carried by said clamp sleeve and the chain or cord 93, that by release secures simultaneous letter space action with the duplicator to that of the initial machine; substantially as described.

7. In a combined type writer and duplicator, the combination of the initial leader type writer, the duplicator, said duplicator having the carriage 67, controlled by the cords 93 and 90 under the impulse of the carriage of the initial type-writer and of the coil spring 89 the flanged drum 86, the axle 86 on which said drum is mounted, the coil spring 89 in said drum, and the draw cord 90, secured to said drum and to said carriage said cord under the impulse of said spring, letter spacing in the duplicator simultaneously with that of said leader machine; substantially as described.

8. In a combined type writer and duplicator, the combination with the initial leader type-writer, of the duplicator and manifolder 4, having the carriage 67, and the printing roller 77, the ratchet disk 111 secured to one end of said printing roller, the chain or cord 93 that connects the carriage of said leader machine to the carriage of the duplicator, and effects the return of the duplicator carriage simultaneously with the carriage of the leader machine, preparatory to writing another line, the spacing dog 112 that engages in said ratchet disk 111, the crank rock-shaft 119, the crank arm 123 on said rock-shaft, and the trip pin 123; substantially as described.

9. In a combined type-writer and duplicator, the combination with the initial leader type-writer, of the duplicator and manifolder 4, having the carriage 67, the printing roller 77, and the ratchet disk 111 on said roller, the chain or cord 93, the automatically operated line spacing dog 112, and the stop dog 134; substantially as described.

10. In a combined type-writer and duplicator, the combination with the initial leader type-writer, of the duplicator and manifolder carriage 67, the cord 93 that connects said carriage to the initial carriage, the coil spring 89, the cord 90, that connects said duplicator carriage to said coil spring the front wheels of said carriage and the duplex rails between which said wheels run, the rear wheel of said carriage and the single rail on which said wheel runs; substantially as described.

11. In a combined type-writer and duplicator, the combination with the initial leader type-writer, of the duplicator and manifolder carriage, the spring drum 85, the coil spring 89 in said drum, the chain or cord 90 that connects said drum to said carriage, the shaft on which said drum is mounted, the drive pinion mounted on said shaft, the rack wheel 100, the hub 107, and its journal shaft that carries said rack wheel, the journal bearing hanger on which said rack wheel is mounted, the duplex reels 102, the slotted spindles on which said reels are mounted, the projecting wings 106 on said spindles, which wings engage in recesses in said hub, the hangers 109 on which said reels are mounted, and the ink ribbon 105 mounted on said reels; substantially as described.

12. In a combined type writer and duplicator, the combination of the initial leader type writer, the duplicator and manifolder carriage, the spring drum 85, the chain or cord 90 that connects said drum to said carriage, the shaft 86 on which said drum is mounted, the drive-pinion 87 mounted on said shaft, the ratchet wheel 137, the follower dog 138, the spring 139, the rack wheel 100 with which said drive pinion, engages, and the ink ribbon reels 102 run by said rack wheel; substantially as described.

13. In a combined type-writer and duplicator, the combination of the initial leader type-writer, the duplicator and manifolder carriage, the printing roller mounted on said carriage, the feed roller 129, the spring guide bars 131, the guide bar 81, the guide and hand bow 83, the spiral springs 84, the cords 93 that connect the carriage of the initial type writer to that of the duplicator, the spring drum 85, the chain or cord 90 that connects said spring drum to said carriage, of the duplicator, the ratchet disk 111 secured to said printing roller, the spacing dog 112 that operates on said ratchet, the crank rock shaft 119 that operates said dog and the trip pin 123 that automatically trips said crank shaft; substantially as described.

14. In a combined type-writer and duplicator, the combination of the initial leader type-writer, the duplicator and manifolder carriage 67, the chain or cord 93 that connects said carriage of said initial machine to that of said duplicator, the pedestals 132 that surmount the carriage of the duplicator, and the paper roll 135, mounted on said pedestals; substantially as described.

15. In a combined type-writer and duplicator, the combination of the initial leader type-writer, the duplicator carriage 67, the printing roller mounted on said carriage, the chain or cord 93 that connects said carriage to the carriage of said leader type writer, the ratchet disk on said printing roller, the automatically tripped line spacing dog 112, the pedestals 132, the paper roll on said pedestals, the pivoted knife 140, and the set screw 142, that secures said knife in its working position; substantially as described.

16. In a combined type-writer and duplicator, the combination of the initial leader type-writer, the duplicator carriage, the chain or cord 93 that connects the carriage of said leader machine to that of said duplicator, the printing roller 77 mounted on said duplicator carriage, the ratchet disk 111 secured to said roller, the automatically worked line spacing dog 112 mounted on said carriage and that line spaces said roller, the stop dog 134, the spiral springs 116 and 126 that respectively push said line spacing and stop dogs, the crank handle 80, on the printing roller shaft and the hand pins 117 and 127 that are mounted in said dogs; substantially as described.

17. In a combined type-writer and duplicator, the combination of the initial leader type writer, the duplicator carriage, the printing roller mounted on said carriage, the chain or cord that connects said duplicator carriage to the carriage of said leader machine, the duplicator circle bar 46, the U shaped type bar fulcrums that are seated on said circle bar, the ring plate 50 that surmounts said fulcrums, the screws 52 that secure said ring plate and fulcrums to their seats, the fulcrum type lever having a weighted type carrier end and elastic shanks; said lever pivoted in said U shaped fulcrums 49; substantially as described.

18. In a combined type-writer and duplicator, the combination of the initial leader type-writer, the duplicator type basket frame, the transmitter rock-shafts 13, the duplicator keys or transmitter rods 20, the rock levers that connect said vertical transmitter rods to said horizontal transmitter rock shafts, the rock levers that said rock-shafts drive, the circle bar that forms the surmounting rim of said type basket, the U shaped fulcrums, the fulcrum type levers having weighted type bearer ends and elastic shank ends, and the pitman rods that connect said driven rock levers of the transmitter shafts to said type levers; substantially as described.

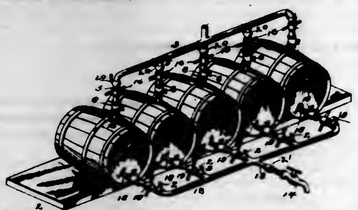
19. In a combined type-writer and duplicator, a fulcrum type lever, having a bulge head at its type bearer end, and having a light, elastic shank end near its fulcrum bearings; substantially as described.

20. In a combined type-writer and duplicator, the combination of the carriage of the leader machine, the carriage of the duplicator, the alternating drag and releasing cord 93 that connects said carriages the pulleys 95 and 96 on which said cord runs the drum 85 on said duplicator carriage, the coil spring in said drum; the cord 90 secured to said drum and to said carriage of the duplicator, the printing roller mounted on said carriage, the ratchet disk 111 secured to one end of said roller, the spacing dog 112 that engages in said ratchet disk, the crank rock shaft 119, and the trip pin 126 that automatically trips said crank arm to dog said ratchet of said printing roller to interspace between lines; substantially as described.

21. In a combined type-writer and duplicator, the combination of the carriage 12 the carriage 67, the alternating draft and releasing cord 93 that connects said carriages, the pulleys 95 and 96 on which said cord runs the pedestals that surmount said carriage 67 the paper roll mounted on said pedestals; the knife 140 pivoted to one of the end pieces of said carriage 67, the set-screw 142 that fastens said knife in its cutting position and the guide-bar 81 that surmounts the printed paper at its exit from the machine substantially as described.

22. In a combined type-writer and duplicator, the combination of the carriage 12 the carriage 67, the paper roll that surmounts said carriage 67 the pivoted paper cutting knife 140 secured to said carriage; the pulleys 95 and 96, the cord 93 that connects said carriages and runs on said pulleys, the coil spring 89 the cord 90 that connects said duplicator carriage 67 to said spring, the drum 85 that incloses said spring, the pinion 87, the rack-wheel 100 that engages said pinion, the spool 102, the spindle 104 on which said spool is mounted and the wings 106, that project from said spindle and engage in the slots 108, in the hub 107 of said rack-wheel substantially as described.

494,061. METHOD OF AND APPARATUS FOR DISPENSING LIQUIDS. JAMES P. DAY, Anniston, Ala. Filed Feb. 2, 1892. Serial No. 420,079. (No model.)



Claims.—1. The process or method herein described of preserving from deterioration fluids containing effervescing gas during the period of dispensing the same, the same consisting in drawing from only a portion of the main body of the fluid stored for use by dividing the body of the fluid containing the volatile gas into comparatively small volumes and storing the same in a series of separate closed vessels, or receptacles, each of a comparatively small size and cut off from communication with other vessels and drawing the fluid from any one of the series of vessels through a final discharge passage common to all of said separate small bodies of liquid as it is dispensed for consumption, substantially as described.

2. The apparatus described, the same consisting of a series of small or comparatively small closed vessels, or receptacles, each having a branch induction or filling pipe capable of communication with a common induction, and a separate branch eduction or draw-off pipe disconnected from the filling pipe, and a common eduction pipe having a single main pipe for all the receptacles, substantially as described.

3. An apparatus of the type substantially herein described for storing liquids consisting of a series of small or comparatively small, separate vessels, or receptacles, each having a short pipe, entering said vessel and provided with a cock, and a second short pipe also connected thereto and having a cock, said short pipes each being provided with means for coupling and uncoupling with branch pipes for filling and for withdrawing the contents of said receptacles, respectively, substantially as described.

4. The combination with a series of small or comparatively small, closed vessels, or receptacles arranged upon a suitable support and provided with filling pipes, and draw off pipes, having suitable cocks, of a series of branch pipes. pipe unions adapted to connect said filling pipes and draw-off pipes, and branch pipes, said filling and draw off branch pipes communicating respectively with a common or main supply pipe, and a common draw-off pipe, substantially as described.

5. The combination of the series of vessels, or compartments of comparatively small size cut off from communication with one another and each provided with a valved pipe, and a common or main draw off pipe communicating with each of said valved pipes, substantially as described.

6. The combination with the series of vessels or compartments of comparatively small size and each provided with an inlet and an outlet pipe having a controlling valve, of a main supply pipe, means for detachably connecting it with each inlet pipe of the series of vessels and compartments, and a series of valves to said main supply pipe located to cut-off communication between said main supply pipe and any one or more of the inlet pipes to said compartments or vessels, substantially as and for the purposes described.

494,062. SECONDARY-BATTERY ELECTRODE. WILLIAM W. DUBALDEN and RODERICK MACRAE, Baltimore, Md. Filed Mar. 4, 1892. Serial No. 423,767. (No model.)



Claim.—1. A battery-plate section made up of a diaphragm, a cup and an interposed filling of active material, the diaphragm being imperforate and the cup and filling perforated, as set forth.

2. A battery plate made up of sections each with a diaphragm and united together with their diaphragms in juxtaposition, as set forth.

3. A battery plate made up of sections each with a diaphragm and complete in itself with their diaphragms in juxtaposition in the same plane, as set forth.

4. A battery plate made up of sections each with a diaphragm and complete in itself and united together with their diaphragms in juxtaposition in the same plane, as set forth.

5. A battery plate made up of a series of sections each having a diaphragm, said sections being united to each other at the edges of the diaphragms, substantially as specified.

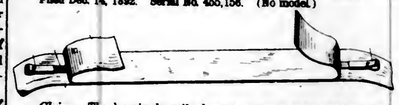
6. A battery plate made up of sections, each complete in itself with a diaphragm, a cup and interposed active material and arranged to form a plate of the desired size and shape with the diaphragms united together in the same plane as set forth.

7. A battery-plate section composed of a diaphragm, a cup and interposed active material, the cup and active material being provided with perforations, of greater or less depth as set forth.

494,063. MARBLED GLASS. CARL F. E. GROSSE, Berlin, Germany. Filed May 12, 1892. Serial No. 432,763. (Specimens.)

Claim.—The herein described process for the manufacture of marbled or stone grained glass plates, consisting in blowing a pulverized colored glass flux upon the surface of a glass plate while said plate is in a soft condition and subsequently exposing said plate to furnace heat whereby the flux is disposed into irregularly grained or blazed figures forming an imitation of marble, granite or other stone, substantially as specified.

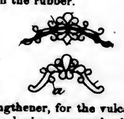
494,064. GARMENT-STAY. HENRY JOHNSTON, Ypsilanti, Mich. Filed Dec. 14, 1892. Serial No. 455,156. (No model.)



Claim.—The herein described garment stay, composed of the resilient blade having a surrounding adhesive coating, the guard tips, each consisting of a folded rubber strip having its ends secured to the blade by said adhesive coating, and two covering strips of textile material extended beyond the ends and side edges of the blade and tips and having their entire inner faces coated with said adhesive material, whereby the covering strips are adherent to each other and to the inclosed blade and tips, substantially as described.

494,065. ARTIFICIAL-TOOTH PLATE. GUSTAV A. JÜTERBOCK, Berlin, Germany, assignor to Carl Otto Jüterbock, Penge, England. Filed Dec. 21, 1892. Serial No. 455,918. (No model.)

Brief.—The metal strengthener for the vulcanite base is made of narrow pieces of wire arranged in an open-work form, with grooves, and inserted edgewise in the rubber.



Claim.—1. A strengthener, for the vulcanite bases of artificial teeth, formed of flattened wire arranged edgewise in a filigree design, said wire being grooved on the sides of the openings in the design thus formed substantially as herein shown and described and for the purpose stated.

2. A strengthener for the vulcanite bases of artificial teeth formed of flattened wire arranged edgewise in a filigree design combined with a strip of flattened wire attached to the back thereof, substantially as herein shown and described and for the purpose stated.

494,066. MARINE RAILWAY. EDWARD KAYE, Phillipsburg, Pa. Filed Dec. 9, 1892. Serial No. 454,656. (No model.)

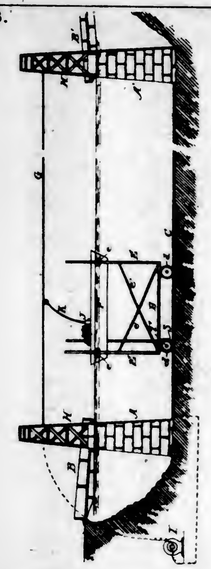
Claim.—1. In a marine railway, the combination of a submarine car, a floating vessel connected to said car, a motor carried on the vessel, and means for communicating motion from the motor to the driving axle of the car, substantially as described.

2. In a marine railway, the combination of a submarine car, a floating vessel connected to said car, an electric motor on the vessel, and means for communicating motion from the motor to the driving axle of the car, with a stationary electric generator and electric connections between said generator and said motor, substantially as described.

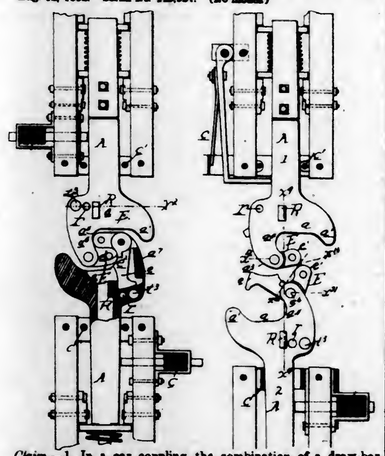
3. In a marine railway, the combination of a submarine car, tracks for the support of the car, vertical masts or standards attached to the car, a floating vessel having guides or ways for the reception of said masts, and means for propelling said car, substantially as described.

4. In a marine railway, the combination of a submarine car D, vertical masts E, E, carried thereby, a floating vessel F, having guides *e*, *e*, for the reception of said masts, and a motor carried on the vessel, with organized mechanism for imparting motion from the said motor to the driving axle of the car, such mechanism including the hollow shaft O and the shaft P, sliding in said hollow shaft, substantially as described.

494,066.



494,067. CAR-COUPLING. JOHN C. LOOK, San José, Cal. Filed Aug. 13, 1892. Serial No. 442,927. (No model.)



Claim.—1. In a car coupling, the combination of a draw-bar having a buffer-arm and guard, and a flat-face pivoted hook-head with lever-arm, the pivot center of said hook-head being so located that the end of the draw-bar in connection with the hook-head forms the buffing face, said hook-head being adapted to turn outwardly to a fixed angle beyond the longitudinal plane of the draw-bar forming an incline inwardly in the direction of the central plane of the draw-bar, and a locking device to engage the said lever arm, substantially as herein described.

2. In a car coupling, the combination of a draw-bar having a flat-face buffer-arm and guard integral therewith, a flat-face pivoted hook-head with rearwardly extending locking lever-arm, a locking device engaging said arm, an incline a^6 in the draw-bar extending rearwardly of the instop a^5 occupied by the opposite hook in drawing, the said instop being rearwardly of the pivotal center of the hook-head, and a similar incline a^3 in the lever arm of the hook-head, whereby by the lateral contact of the opposing hook-head said lever-arm is forced laterally to bring its incline flush with that in the draw-bar, thereby swinging its hook-head to engagement substantially as herein described.

3. In a car coupling, the combination of a laterally movable draw-bar, a flat-face pivoted hook-head with lever arm carried by the draw-bar, and adapted to turn outwardly to a fixed angle beyond the longitudinal plane of the draw-bar to form an incline inwardly toward the central plane of the draw-bar, said lateral movement of the draw-bar being such as to allow said draw-bar to lie with the greater part of the hook beyond the center line of the car, substantially as herein described.

4. In a car coupling, the combination of a laterally movable draw-bar having a buffer-arm and guard, a flat-face pivoted hook-head with lever arm carried by the draw-bar and adapted to turn outwardly to a fixed angle beyond the longitudinal plane of the draw-bar to form an incline in the direction of the guard, and to turn inwardly to form an incline in the direction of the guard, and said lateral movement of the draw-bar being such as to allow said draw-bar to lie with the greater part of the hook beyond the center line of the car, substantially as herein described.

5. In a car coupling, the combination of a laterally movable draw-bar having a flat face pivoted hook-head with lever arm, an incline in said lever arm and draw-bar rearwardly of the pivotal center of the hook-head, and a spring on the draw-bar to force it laterally toward the opposite draw-bar to impinge the hooks on said inclines, substantially as herein described.

6. In a car coupling, the combination of a laterally movable draw-bar, a flat face pivoted hook-head carried by the draw-bar and adapted to turn outwardly beyond the center line of the car and to an angle beyond the plane of said draw-bar, said hook-head having a lever arm against which the opposing hook impinges, and a spring acting on the draw-bar whereby it is pressed over and held in such a position that the greater part of the hook-head lies beyond the center line of the car when the cars are separated, substantially as herein described.

7. In a car coupling, the combination of a laterally movable draw-bar having a guard and a flat face buffer arm, a flat face pivoted hook-head carried by the draw-bar and having a lever arm, said draw-bar and lever arm having an incline toward the buffer arm, and a spring on the draw-bar to force it laterally toward the opposite draw-bar, to cause the hooks to impinge on the incline as the draw-bar head strikes the buffer arm, substantially as herein described.

8. In a car coupling, the combination of a laterally movable draw-bar, a flat face pivoted hook-head carried thereby and having a lever arm, said hook-head being adapted to turn outwardly to an angle beyond the plane of the draw-bar, to form an incline, and to turn inwardly to form an incline, and a spring acting on the draw-bar to force it over and hold the greater part of the hook-head past the center line of the car when the cars are separated, substantially as herein described.

9. In a car coupling, the combination of a draw-bar having a pivoted knuckle, the pivotal pin of said knuckle extending below the draw-bar, and a chain fastened beneath or to the lower part of the knuckle, said chain passing around the extended pin and rearwardly through a guide, and a means for operating said chain to open the knuckle, substantially as herein described.

10. In a car coupling, the combination of a draw-bar having a pivoted knuckle with a locking device therefor, a lever connection for operating said locking device, and the chain *l* and spring l^6 for opening the knuckle, said chain being connected with the lever for operating the locking device, substantially as herein described.

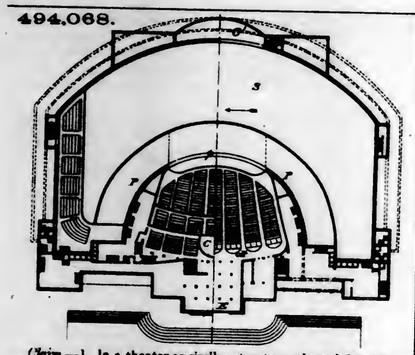
11. In a car coupling, the combination of the vertically movable locking pin R, a lifting chain fastened to its lower part and passing upwardly through a guide in the draw-bar, and a means for lifting said chain whereby a flexible connection is obtained from the draw-bar while the pin moves vertically, substantially as herein described.

12. In a car coupling, the combination of a gravity locking pin extending through the draw-bar, a chain attached to said locking pin beneath the draw-bar, and passing upwardly through a guide in the draw-bar and a means above whereby said locking pin is raised, substantially as herein described.

13. In a car coupling, the combination of a locking pin extending through the draw-bar, said pin having a lateral extension at its lower portion and a chain fastened to said extension and connected with means above whereby said locking pin is raised, substantially as herein described.

494,068. SPECTATORIUM. STERLE MACKAYE, Chicago, Ill., assignor to the Spectatorium Company, same place. Filed Dec. 9, 1892. Serial No. 454,666. (No model.)

494,068.



Claim.—1. In a theater or similar structure adapted for the exhibition of various scenic effects, a semi-circular scenitorium adapted to support the scenic arrangements, in combination with an auditorium constructed in the form of an opposing arc, substantially as described.

2. In a theater or similar edifice, a scenitorium constructed in the form of an arc of a circle, in combination with an auditorium forming an opposing arc, the two arcs being struck from a common center, substantially as and for the purpose set forth.

3. In a theater or other similar edifice, the scenitorium constructed in the form of a segment of a circle, in combination with the chorus gallery located at the rear thereof centrally of the arc, substantially as and for the purpose set forth.

4. In a theater or other similar edifice, the scenitorium constructed in the form of a segment of a circle, and the auditorium constructed in the form of an opposing segment, in combination with the chorus gallery located at the rear of the scenitorium centrally of the curved line describing the exterior limits of the scenic department, and a second chorus gallery located at the rear of the auditorium centrally of the circle describing the exterior limits thereof, substantially as and for the purpose set forth.

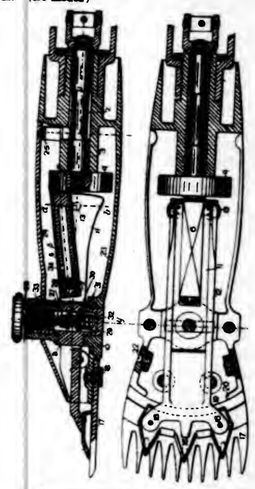
5. A spectatorium comprising essentially a circular scenitorium, an opposing circular auditorium, a chorus gallery located in an elevated position at the rear of the auditorium approximately at the center of a circle describing the exterior limits of said auditorium, and an auxiliary chorus gallery located on a lower level at the rear of the scenitorium centrally of the curved line describing the exterior limits of the said circular scenitorium, substantially as and for the purpose set forth.

494,069. ROTARY ENGINE. JONATHAN MATTHEWS, Birmingham, Ala. Filed Aug. 31, 1892. Serial No. 444,625. (No model.)



Claim.—In a rotary engine as shown and described, having a cylinder casing with heads on both sides, an annular valve chamber in the casing, having inlet and exhaust ports from the valve chamber in both sides of the casing, said ports terminating in steam chambers formed on the inside of both sides of the cylinder below the center of the head, the said steam chambers having walls formed on the sides inside the casing heads, a partition, or steam wall separating the steam chambers at the bottom of the cylinder, a main shaft having bearings in the casing heads, a piston head secured on the main shaft inside the casing, the said head having two slots provided with pistons, recesses formed in the pistons provided with metallic strips and springs, the said pistons having pivots formed on their ends, the pivots on the ends of the pistons inserted in shoes, placed to slide in annular grooves formed in the casing heads, all combined as set forth.

494,070. ANIMAL-SHEARS. JOHN MOFFAT and WILLIAM W. VIRTUE, Sydney, New South Wales. Filed Dec. 31, 1891. Serial No. 416,642. (No model.)



Claim.—1. The combination in a shearing or clipping machine, of a cutter bar and comb, a driving or power lever with which the cutter bar is connected; a balanced disk carried by a rotating shaft; and an overhung pin or spindle operating said lever, said pin and rotary shaft being so arranged relatively that if their axes were produced, they would intersect at the axis of vibration of the machine, substantially as described.

2. The combination in a shearing or clipping machine, of a vibrating lever, provided with parallel wings or arms; a rotating disk, a hollow spindle projecting eccentrically from said disk, a bushing surrounding said spindle, and moving between said wings or arms, substantially as described.

3. The combination in a shearing or clipping machine, of a vibrating lever, provided with parallel wings or arms, of a rotating disk; a hollow spindle projecting eccentrically from said disk, a bushing surrounding said spindle, and a screw-plug for closing the end of the spindle and securing the bushing in place, substantially as described.

4. The combination with the cutter bar, comb, and casing, of a center block oscillating in bearings supported in the casing and provided with rearwardly extending wings, the vibrating cutter bar pivotally secured to said wings, and means for reciprocating the wings, substantially as described.

5. The combination with the cutter bar, comb, and casing of a hollow center block oscillating in bearings supported in the casing and provided with rearwardly projecting wings, the vibrating cutter bar pivotally secured at its rear end to the wings, means for reciprocating the wings, and tension devices arranged within the center block for depressing the cutter bar, substantially as described.

6. In a shearing or clipping machine, the combination with an inclosing casing or shell, of a stationary comb or gathering-plate; a vibrating cutter bar carrying knives; a hollow center block provided with wings to which the cutter bar is secured; tension devices arranged within the center block, and a thimble for supporting the tension screw, substantially as described.

7. The combination with the casing and stationary gathering-plate, of an upper and a lower bearing in the casing, a center block supported in said bearings and having rearwardly extending wings; a bifurcated cutter bar, embracing said center block and its wings and pivotally secured to the latter; means for reciprocating the cutter bar; a bridge pin and screw for tensioning the cutter bar and a spring arranged below the bridge-pin within the center-block, substantially as described.

8. In a shearing or clipping machine, the combination with the casing and its upper and lower bearings, of a center block supported in said bearings and provided with projecting wings; a reciprocating cutter bar, and an eccentric pin or spindle projecting from a rotating disk between the wings of the center block, substantially as described.

9. The combination with the machine casing, of a cover, and a spring secured to the inner side thereof for removably securing the cover in place, substantially as described.

10. In a shearing machine, the combination with the cutter bar, comb and casing, of a hollow center block oscillating in bearings supported in the casing and provided with projecting wings, a spring supporting said cutter bar on said center block, a screw for regulating the tension of said spring, and means for reciprocating said wings substantially as described.

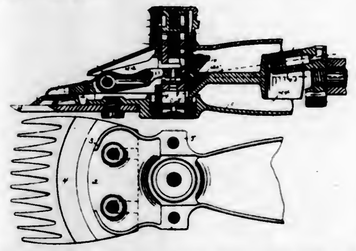
11. In a shearing machine, the combination with an inclosing casing or shell, of a comb plate, a hollow center block provided with wings, tension devices arranged within said hollow center block, a vibrating cutter bar connected to said tension devices and pivotally secured to said wings, and means for reciprocating said wings, substantially as described.

12. In a shearing machine, the combination with the comb-plate and casing, of the center block mounted in bearings in said casing and provided with wings, the cutter bar carrying knives and pivotally secured to said wings, the drive shaft and balanced disk, and the hollow spindle carried by the disk and provided with a bushing, the said hollow spindle and bushing having oil openings, substantially as described.

13. In a shearing machine the combination with the comb-plate and casing, of a center block supported in bearings in said casing and having rearwardly extending wings a bifurcated cutter bar embracing said center block and its wings and pivotally secured to the latter, a bridge pin passing through openings formed in the center block and the sides of the cutter bar, washers arranged above and below said bridge pin, a tension screw and spring respectively bearing against said washers, and means for reciprocating the cutter bar, substantially as described.

14. In a shearing machine, the combination with the comb-plate and casing, of a hollow center block mounted in bearings in the casing and provided with rearwardly extending wings, the cutter bar carrying knives, bolts pivotally connecting said cutter bar to the wings, a disk and spindle for reciprocating said wings, and mechanism arranged in said hollow center block for vertically adjusting said cutter about its pivot bolts, substantially as described.

494,071. ANIMAL-SHEARS. JOHN MOFFAT and WILLIAM W. VIRTUE, Sydney, New South Wales. Filed Jan. 4, 1892. Serial No. 417,008. (No model.)



Claim.—1. In a shearing or clipping machine, the combination with the machine casing, of a reciprocating lever provided with a hollow hub or bearing, tension fingers pivotally secured to the forward end of the lever, and bearing upon the cutters, a spring for depressing the fingers, and mechanism arranged within the hollow hub or bearing for controlling the tension of said springs, substantially as described.

2. In a shearing or clipping machine, the combination with a reciprocating lever provided with a hollow hub or bearing, of independently yielding fingers pivotally secured to the lever, and bearing upon the cutters, springs for depressing the fingers, and mechanism arranged within the hollow hub or bearing common to all the springs for adjusting the tension thereof, substantially as described.

3. In a shearing or clipping machine, the combination with the machine casing, of a reciprocating lever provided with a hollow hub or bearing, tension fingers or forks pivotally secured to the forward end of the lever and bearing upon the cutters, a rocking bearing therefor, and mechanism arranged within the hollow hub or bearing for controlling the tension of said fingers or forks, substantially as described.

4. In a shearing or clipping machine, the combination with the casing, and its bearings, of a reciprocating lever having a hollow hub; a motion tube arranged within said hub; a tension slide arranged within the motion tube, and a tension screw for operating said slide, substantially as described.

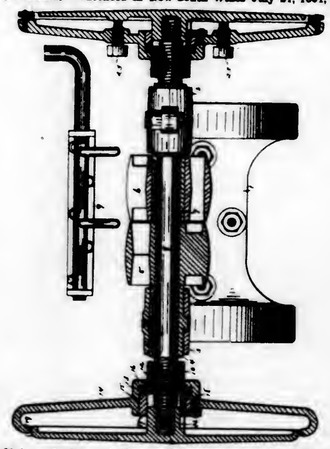
5. In a shearing or clipping machine, the combination with the tension-claw and the reciprocating lever having a hollow hub or bearing, of a tension slide slotted to receive the rear end of the shank of the tension claw; and a screw provided with a cap for operating said slide, substantially as described.

6. In a shearing or clipping machine, the combination with the tension claw, and the reciprocating lever having a hollow hub or bearing, the tension slide, and the screw provided with a cap for operating said slide, of a locking spring secured at a point within the machine casing and engaging the lower edge of said cap, substantially as described.

7. In a shearing or clipping machine, the combination of a motion tube or hollow spindle at the center of vibration, a tension slide-piece, and mechanism for moving the slide-piece up and down in the tube, said slide-piece being in connection with the tension-claw, substantially as described.

8. In a shearing or clipping machine, the combination with the machine casing, of a reciprocating lever provided with a hollow hub or bearing and at one end with forwardly extending wings to which the tension finger shank is pivoted, and at the other end with rearwardly extending wings to receive the power transmitting devices, tension fingers pivotally secured to the forward end of said lever, springs for depressing said fingers and mechanism arranged within the hollow hub or bearing for adjusting the tension of said springs, substantially as described.

494,072. MACHINE FOR GRINDING AND SHARPENING SHEARING COMBS AND CUTTERS, &c. JOHN MOFFAT and WILLIAM W. VIRTUE, Sydney, New South Wales. Filed Jan. 4, 1892. Serial No. 417,010. (No model.) Patented in New South Wales July 21, 1891, No. 3,134.



Claim.—1. In a grinding and sharpening machine, the combination with the spindle, of the face plate or disk fixed thereon, the back plate fitted on said spindle and movable relatively to the face plate, a peripheral clamp adapted to hold the ed es of the emery cloth, and means for moving the back plate so as to draw the cloth taut upon the face plate, substantially as described.

2. In combination with the spindle having the screw threaded portion and reduced screw threaded end, the traveling nut fitting said screw threaded portion and having a collar thereon, the back plate provided with a peripheral claw ring and a hub having a collar adapted to overlap the collar on the traveling nut, and the disk having a hub screwed onto the reduced end of the spindle, substantially as described.

3. In combination with the spindle having a screw threaded portion and reduced screw threaded end, the traveling nut and disk screwed onto said threaded portion and screw threaded end, respectively, the back plate provided with a peripheral clamp, and connections between said plate and nut whereby the plate may be moved to permit the insertion of the cloth and then drawn back relatively to the face plate so as to stretch the cloth upon the latter, substantially as described.

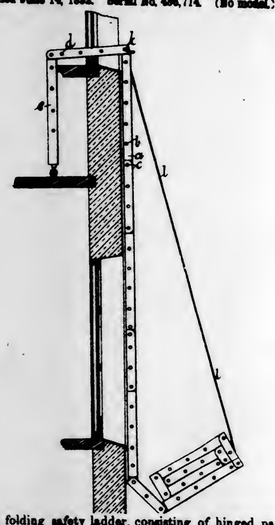
4. The combination of a face plate or disk, a sheet of emery cloth or like abrading fabric, a peripheral clamping ring for gripping such cloth or fabric about the edges, a movable support therefor, mechanism for retiring the clamping ring relatively to the face plate or disk, and a glue or equivalent film between the cloth and the disk.

5. An abrading cloth or fabric setting and stretching attachment for grinding and sharpening machines of the kind described, consist-

ing of a peripheral clamping ring for gripping the cloth about the edges, a movable support therefor, and means for retiring such clamping ring relatively to the face plate or disk.

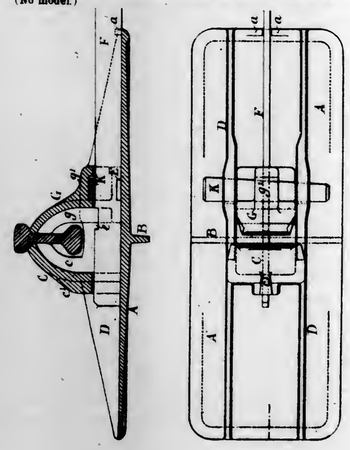
6. In a grinding and sharpening machine, the face plate or disk, the back plate movable relatively thereto, and the set screws passing through said back plate and engaging the back of the face plate, all arranged and adapted to operate substantially as described.

494,073. SAFETY-LADDER. AUGUST NECKER, Lippstadt, Germany. Filed June 14, 1892. Serial No. 436,714. (No model.)



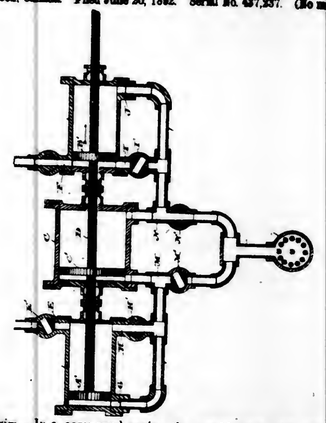
Claim.—A folding safety ladder, consisting of hinged parts or links, surrounded by an endless rope, said links capable of being folded into a small compass when at rest and which are adapted, when dropped from a position, to unfold until the parts form a straight line, the two upper parts or links being capable of swinging to either side of the next adjacent link to form an anchorage, substantially as described.

494,074. CHAIR-SLEEPER AND TIE FOR RAILS. WYNDARTS G. OLPHERTS, London, England. Filed Dec. 6, 1892. Serial No. 454,257. (No model.)



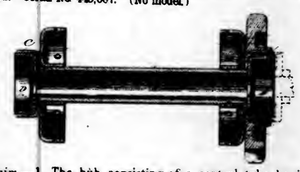
Claim.—A chair sleeper for rails, consisting of a base plate cast with a fixed jaw and with two longitudinal ribs between which a sliding jaw is set up by a key, both jaws being so formed as to clamp the web of the rail immediately under the head the shoulders of which rest on the jaws, in combination with a tie bar having a notch in its edge held engaged with a projection on the base plate by the key which sets up the jaw, substantially as described.

494,075. COMPOUND ENGINE. JAMES S. PARMENTER, Woodstock, Canada. Filed June 20, 1892. Serial No. 437,237. (No model.)



Claim.—In a compound engine the combination with the low pressure cylinder and piston, of two high pressure cylinders and pistons arranged to coact therewith, a single inlet port leading to the inner end of each high pressure cylinder provided with a suitable valve, pipes K, and L, connecting the outer ends of the low pressure cylinders with the outer ends of the high pressure cylinders, exhaust pipes H, and I, connecting the inner ends of the high pressure cylinders with the pipes K, and L, provided with suitable cut off valves, and exhaust pipes connecting the pipes K, and L, with the condenser, with suitable cut off valves located in said exhaust pipes, substantially as described.

494,076. CYCLE-HUB. ALBERT PERKINS, Chicopee, Mass., assignor to A. G. Spalding & Brothers, New York, N. Y., and the Lamb Knitting Machine Manufacturing Company, Chicopee Falls, Mass. Filed Sept. 5, 1892. Serial No. 445,087. (No model.)



Claim.—1. The hub consisting of a central tube having upon each end a pair of sheet steel cups placed back to back and brazed to each other and to the tube.

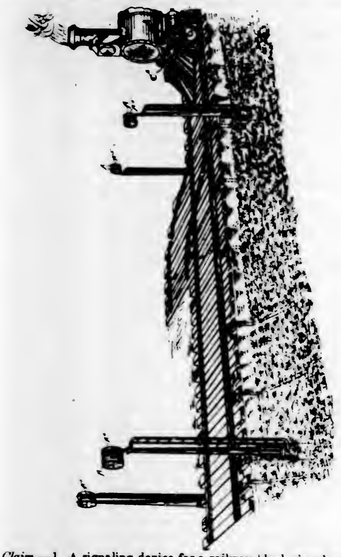
2. The combination with four sheet steel cups placed back to back in pairs, of a tube having each end passed centrally through one pair of cups, and a ball-case fixed in the outer cup of each pair; the four cups and the tube being inseparably united into one whole, substantially as set forth.

3. The combination with the central tube, of a cup U-shaped in radial cross section fixed thereon, a sprocket wheel resting against the bottom of the cup, and screws, or the like, passing through the sprocket wheel and fixing it to the bottom of the cup.

4. The combination with the steel tube or hub shaft, of the independently formed cups U-shaped in radial cross section and secured upon the tube, the outwardly open cups U-shaped in diametrical cross section and secured upon the tube in contact with the former cups, the ball case secured in the cups, and the sprocket wheel fixed in the outwardly open cup in the plane of the ball case within it.

5. In a front wheel hub, the tube or hub shaft provided near its ends with the non-integrally formed cups having central, external tubular extensions to fit the hub shaft, and also having their outer ends flanged to diverge from the axis, substantially as set forth.

494,077. RAILWAY BLOCK-SIGNAL. ROBERT D. PETERS, Winamac, Ind., assignor of one-half to Charles L. Walt, same place. Filed July 11, 1892. Serial No. 439,652. (No model.)



Claim.—1. A signaling device for a railway block signal system consisting of indicator cases mounted upon supports set at desired intervals alongside the track, each case having a dial provided with suitable indicator marks thereon, and an indicator hand mounted therein, a magnet arranged behind each of said indicator marks, a wire running from each magnet to the proper point alongside the track and connected with a suitable contact device, and a suitable device located on the locomotive or train for throwing said contact device into an electric circuit, substantially as set forth.

2. In a railway block signal system the combination of the indicator consisting of suitable casings arranged in pairs supported on suitable posts at the ends of each block the cases of each pair being arranged with their backs adjacent and having indicator marks upon their faces, an indicator hand mounted within each case, a magnet mounted behind each indicator mark, contact devices located alongside the track at the desired intervals, a wire running from each of said contact devices to a magnet behind the corresponding indicator marks of the oppositely disposed indicators at the ends of the block, and means upon the locomotive or train for establishing an electric circuit through said magnets, substantially as set forth.

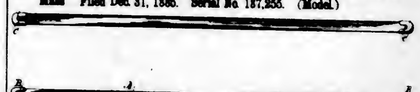
3. In a railway block signal system the combination of the indicators consisting of the casing having faces with suitable indicator marks, the indicator hand, and the magnets behind each mark, and means for energizing said magnets consisting of a battery suitably mounted upon the locomotive or train, a contact arm or brush connected therewith and extending down to a position alongside the track, contact brushes located alongside the track in the path of said arm or brush, and wires running from said contact brushes to said magnets, substantially as set forth.

4. In a railway block signal system the combination of the indicator consisting of the casing having a transparent face or dial, indicator marks thereon, an indicator hand in said casing mounted upon a suitable pinion, a tension spring or device on said pinion, a magnet mounted behind each indicator mark, a lamp mounted behind the central opening in the back side of said casing, contact brushes located at the desired intervals throughout the block alongside the track, wires running from said magnets to said contact brushes, a battery on the locomotive or train, a contact brush also on said locomotive or train in position to strike the contact brushes alongside the track, and a wire connecting said brush with said battery, all substantially as set forth.

5. In a railway block signal system, the combination of indicator cases located at suitable or desired intervals alongside the road and on opposite sides thereof, an indicator hand in each case, a magnet arranged behind each indicator mark on the dial to draw said indicator hand to its mark on the dial of said case when thrown into an electric circuit, and a suitable device located on the train for closing said circuit, trains going in opposite directions being equipped to operate the indicators on opposite sides of the roads, substantially as set forth.

6. An indicator for indicating the position of a train on a railway system consisting of a casing, indicator marks, an indicator hand therein, a magnet at each indicator mark, each magnet being electrically connected to a device alongside the track which a passing train will operate to throw said magnet into an electrical circuit, substantially as set forth.

494,078. CORSET-STIFFENER. CHARLES K. PEVEY, Worcester, Mass. Filed Dec. 31, 1885. Serial No. 187,255. (Model.)



Claim.—As an article of manufacture, a dress and corset stiffener, of thin, flat, tempered steel, having the temper-cracks filled with tin, and the surface covered with a smooth thin coating of tin, substantially as and for the purpose described.

494,079. BED-PAN OR COMMODE. ELISABETH PHILLIPS, London, England. Filed June 18, 1892. Serial No. 437,119. (No model.) Patented in England May 24, 1892, No. 9,845.

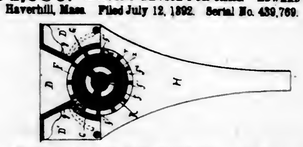


Claim.—1. In a sanitary pan for the use of invalids and others, the combination of the pan, a frame for holding the pan, a movable air-tight or close-fitting cover provided with a glazed aperture working in said frame, and a movable seat substantially as shown and described.

2. In a sanitary pan for the use of invalids and others, the combination of the pan, a frame for holding the pan, a movable air-tight or close-fitting cover, fitted with a glazed aperture working in said frame, and a movable seat provided with an aperture closed by a spring valve substantially as shown and described.

3. In a sanitary pan for the use of invalids and others the combination of a pan, a frame for holding said pan, a plurality of movable air-tight or close-fitting covers working in said frame, one of said covers being provided with a glazed aperture, a movable cover provided with an aperture closed by a spring valve, substantially as shown and described.

494,080. SANDING DEVICE FOR CARS. EDWARD H. PINKHAM, Haverhill, Mass. Filed July 12, 1892. Serial No. 439,769. (No model.)



Claim.—1. In a sand distributing apparatus the combination of a hopper on the car-body with a wheel having annular flanges on its periphery connected by transverse partitions forming radial compartments, said wheel being journaled below and closing the mouth of said hopper; drive mechanism for the wheel; a chute for receiving sand from the wheel and delivering it onto the car-track, said drive mechanism and wheel being arranged to deliver intermittently a determined quantity of sand to the chute, substantially as described.

2. In combination with a sand depositing apparatus for car tracks having a wheel with circumferential compartments, hinged flaps on each side of said wheel to hold the sand in said compartments as it is passed from the hopper to the chute but free to yield to allow the passage of large stones as set forth.

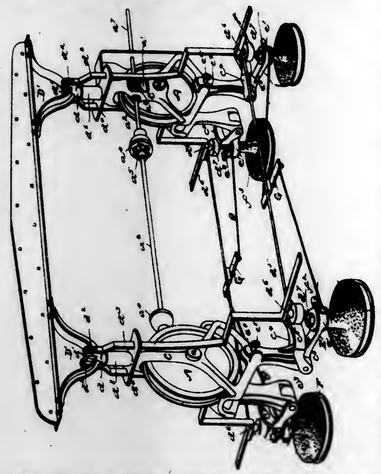
3. In combination a car having a sand box B, arranged under the

seat, the hopper D, and flaps G, the wheel F, having circumferential compartments f^1, shaft E for carrying said wheel, sprocket wheel I, loosely mounted upon said shaft and driven from a sprocket wheel K, on the wheel axle, a clutch and lever for causing said shaft E, to rotate when desired as set forth.

4. In a sand depositing apparatus the combination of a hopper on the car-body; a chute; a hollow wheel for conveying sand from the hopper to said chute; an electrical heater disposed within said wheel, and electrical conducting wires connecting the heater with a source of electricity whereby the sand in said hopper may be heated, substantially as described.

5. In a sand depositing apparatus the combination of the hopper and sand box with the hollow wheel, F, fitted to rotate in the mouth of said hopper; the spool, R, within said wheel wound to form a resistance coil and conducting wires connecting said coil with a source of electricity.

494,081. ELEVATED-RAILWAY CAR. HENRY S. PRUYN, Hoosick Falls, N. Y., assignor to the Pruyn Company, Chicago, Ill. Filed Jan. 30, 1891. Serial No. 379,635. (No model.)



Claim.—1. In a railway car, the combination with a truss or frame carrying depending bars for supporting the floor and seats, of a frame or truck at each end of said truss and having a swivel connection therewith and each carrying a traction wheel, substantially as described.

2. In a railway car, the combination with a truss carrying means for supporting the car body, of a swiveled truck at each end of the truss and having a traction wheel, and a spring cushion interposed between the truck and truss, substantially as described.

3. In a railway car, the combination with a truss and two trucks swiveled to it, and each carrying a traction wheel of gears on the axles of said wheels, worm shafts meshing with the gears and an intermediate shaft having flexible joint connections with the worm shafts.

4. In a railway car, the combination with a truss and depending bars therefrom on each side for supporting the car body, of swiveled trucks between said bars and carrying traction wheels substantially as described.

5. In a railway car a truss having two bifurcated trucks swiveled to it and carrying traction wheels in bearings between the arms of said trucks, substantially as described.

6. In a railway car, the combination with a truss having two bifurcated trucks swiveled to it and carrying traction wheels, of lateral guide wheels also carried by said trucks, as and for the purpose set forth.

7. In a railway car, the combination with a truss having two bifurcated trucks swiveled to it and carrying traction wheels, of lateral guide wheels mounted in vertical bearings yieldingly connected to said trucks.

8. In a railway car, the combination with a truss having two bifurcated trucks swiveled to it and carrying traction wheels on bearings between the arms of said trucks, of bearings pivotally connected to said arms, guide wheels mounted in said bearings and springs for forcing said bearings in one direction, substantially as described.

9. In a railway car, the combination with the traction wheels and frame thereof, of guide wheels mounted in substantially vertical bearings, and having their upper surfaces provided with an insulating covering, substantially as described.

10. In a railway car, the combination with two traction wheel trucks pivotally connected to a uniting frame or truss of lateral guide wheels carried by said trucks, a lever pivoted to the car frame between the guide wheels on one side of the car, and bars connecting the opposite ends of said lever with lateral arms extending from said trucks.

11. In a railway car, the combination with two traction wheel trucks pivotally connected to a uniting frame or truss, and having outwardly projecting face plates, of a body frame depending from the truss on each side of the trucks and having stops to rest against said face plates.

12. In a railway car, the combination with two traction wheel trucks pivotally connected to a uniting frame or truss and having outwardly projecting curved face plates, of a body frame depending from the truss on each side of the trucks and having rollers engaging said face plates, substantially as described.

13. In a railway car, the combination with two traction wheel trucks, pivotally connected to a uniting frame or truss, of gears on the axles of the traction wheels, shaft sections a^3 having worms a^4, the gears and worms being on opposite sides of the two traction wheels, an intermediate shaft section, and universal joint connections between it and the end sections a^3.

14. The combination with the pivoted trucks C having traction wheels and gears A, a', of the worm shafts having internally toothed pinions a^4 and the shaft a^4 having pinions a^5 entering and engaging pinions a^4, substantially as described.

15. The combination with the truss D having brackets D' provided with bosses d and bearings d', of the trucks C having pintles c fitting said bearings, and coiled springs c^2 surrounding the pintles below the said bosses, substantially as described.

16. The combination with the truss D having brackets D' provided with bosses d, bearings d', shoulders d^3 and step bars d^4, of the cross braces d^5 having sleeves d^6 receiving the bosses d, the trucks C having pintles c and stop pin c' and springs c^2 inclosed within sleeves d^6 substantially as described.

17. The combination with the bifurcated trucks C having wheels and jaws c^3, of elbow arms E pivoted on pins e in said jaws, and carrying wheels F at their lower ends, and springs e^4 between their upper ends and the sides of the trucks, substantially as described.

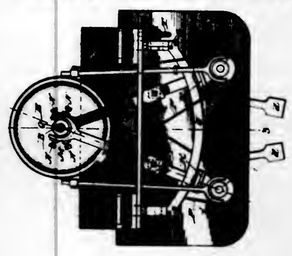
18. The combination with the arms E having insulating bearings, of the wheels F provided with axles fitted to said bearings and having metallic clips e^5, substantially as described.

19. The combination with the car frame carrying guide wheels F of the oil drip cups H secured to their lower surfaces and having annular oil receptacles h', substantially as described.

20. In a railway car, a truck provided with an upper vertical wheel and a lower horizontal wheel, the two wheels adapted to run respectively on upper and lower rails, and the lower wheels provided with horizontal flanges embracing the rail, in combination with the car body pivoted to said truck by a joint located above the upper wheel and constructed to permit movement of the parts in a vertical plane and in the direction of the rails or road bed.

21. In a vehicle, the combination with two independently pivoted trucks, of a system of levers connecting them, whereby the wheels connected with the respective trucks on the same side of the vehicle will act upon each other to cause a movement toward or away from each other, substantially as described.

494,082. DOUBLE-BORING MACHINE. CHARLES H. PURDY, Michigan City, Ind., assignor to the Frank H Clement Company, Rochester, N. Y. Filed May 26, 1892. Serial No. 434,396. (No model.)



Claim.—1. In a boring or routing machine, the combination of an arm or arms G, swinging concentrically with the driving-shaft B, and a yoke or boring-head K, L pivoted to the extremity of said arm, whereby the boring spindle is adjustable laterally and to an angle with the boring table, substantially as described.

2. In a boring or routing machine, the combination of the concentrically swinging arms G; screw-shaft E having sections threaded right and left; swiveling nuts Q; and means of preventing end movement of said screw-shaft, whereby the arms G are adjusted at equal distances from the center line of the machine, and the center line through both bearing spindles is retained parallel with the longitudinal edge of the table c'.

3. In a boring or routing machine, the combination of the concentrically swinging arms G, guide-bar J, adjustable pivoted yokes K, actuating levers A, and suitable retaining bearings r, constructed to admit of the rolling movement, the vertical swing, and the lateral and endwise movements of the levers A, for the purposes set forth.

494,083. RAILROAD-SPLICE. WILLIAM QUINN and JOHN S. BERRY, Tyler, Tex. Filed June 30, 1892. Serial No. 438,567. (No model.)



Claim.—The combination of the cross-ties, the rails A, A', having the top flanges of their end portions cut away, the joint plate C fitting round the cut away portions to form a bearing surface for the car wheels and having the opposite sides C', C^2 extending over the bottom flanges of the rails, lying flush with the lower sides of said bottom flanges and resting upon a plurality of the cross-ties, the bolts h passing through the joint-plate and the cut-away parts of the rails, and the clamps K extending under the rails between the cross-ties and having their opposite ends turned upward and overlapping the side portions of the joint-plate beneath the connecting bolts, substantially as described.

494,084. LACING STUD. PIERRE A. RAYMOND, Grenoble, France, assignor to the Consolidated Fastener Company, Portland, Me. Filed Oct. 14, 1892. Serial No. 448,844. (No model.)



Claim.—1. A glove or analogous fastening comprising a lacing stud having the hook b and base A provided with two prongs a a, projecting in front of the hook and in the same direction thereof and adapted to rest on the top of the material substantially as described.

2. An improved article of manufacture, a glove or analogous fastening, comprising a strip of cloth or of other material, provided with lacing hooks, consisting of a head proper b projecting through the strip and bent over the strip, and its base A which is provided with two prongs a a projecting in the same direction as the hook and resting on top of the strip whereby the two prongs a a press the material of the glove, or other article to which the hook is attached, up near the edges of the button of the head proper b as and for the purpose substantially as described.

3. A glove or analogous fastening comprising a lacing stud, in combination with a glove flap said stud being attached to a strip of cloth, having a hook b and provided with prongs extending in front of the hook, and above said strip and underneath the glove flap, whereby the glove flap is pressed up toward the hook b and partially closes the entrance to the same, substantially as described.

4. A glove or analogous fastening comprising a lacing stud for gloves and other articles, struck up from one piece of metal, consisting of a hook having its button end bent up and over its base, which is provided with prongs which extend in front of the hook, and above said base, and in juxtaposition to said button end, substantially as described.

5. An improved article of manufacture, a glove or analogous fastening, comprising a strip of cloth or tape in combination with a series of lacing hooks attached thereto having prongs a a and having their button ends bent up and over said strip and prongs a a as and for the purpose substantially as described.

6. An improved article of manufacture a glove or analogous fastening, comprising a strip of cloth or tape provided with lacing hooks in combination with a glove flap provided with perforations in its edge, said lacing hooks having their button ends bent up and over said strip and inserted through said perforations and said glove flap resting between said button end and said strip, substantially as described.

7. A glove or analogous fastening, comprising a strip of cloth or tape adapted to rest on the underside of a glove flap and provided with a series of lacing hooks attached thereto in combination with a glove flap provided with perforations, the button ends of said hooks being adapted to extend through said perforations and over said glove flap substantially as described.

494,085. SHOE-FASTENING. PIERRE A. RAYMOND, Grenoble, France, assignor to the Consolidated Fastener Company, Portland, Me. Filed Oct. 28, 1892. Serial No. 450,949. (No model.)



Claim.—A lacing hook comprising a dome shaped head, a vertical shank and a substantially circular base, the latter having a spiral fastening device struck down from the central portion of the body of the same and all constructed of a single piece of sheet metal substantially as described.

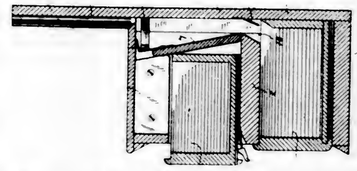
494,086. BUCKLE. PIERRE A. RAYMOND, Grenoble, France, assignor to the Consolidated Fastener Company, Portland, Me. Filed Nov. 14, 1892. Serial No. 451,996. (No model.)



Claim.—1. An improved buckle for gloves and other articles, consisting of a base plate having on its upper side a struck up socket in combination with a tongue provided with a spherical elastic stud on its free end, said tongue being pivoted to the plate at its opposite end, substantially as described.

2. An improved buckle for gloves and other articles, made in two pieces, consisting of a base plate provided with a socket and a tongue having on its lower side a resilient struck up spherical stud formed integral with the tongue on its free end, said tongue being pivoted to the plate at its opposite end, substantially as described

494,087. BARBER'S CASH-REGISTER. MICHAEL J. SARSFIELD, Bridgeport, Conn., assignor of one-third to Richard H. Cullen, same place. Filed Dec. 19, 1892. Serial No. 455,590. (No model.)

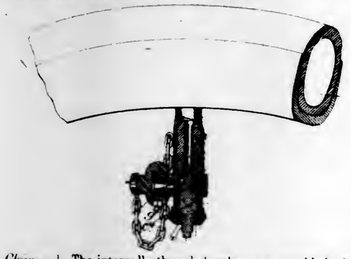


Claim.—1. In a cash register the combination with a check receiving drawer and a cash drawer placed above it, of a false back in the rear of the cash drawer, springs acting to throw said false back forward when the cash drawer is opened, and a check way above the false back, said false back acting as a stop for checks in the way when the cash drawer is closed but permitting the checks in the way to drop down into the check receiving drawer when the cash drawer is opened.

2. The combination with the case, the check receiving drawer and the cash drawer lying above it, of a false back lying back of the cash drawer and provided with a plate 14, springs 8 for throwing the false back forward when the cash drawer is opened, a spring catch for retaining the cash drawer closed against the power of springs 8, and a check way above plate 14, said plate acting to retain the checks in the way until the cash drawer is opened and the false back moved forward, when they are permitted to drop down behind the false back and into the check receiving drawer.

3. The combination with the case having a horizontal partition 2 extending nearly to the back of the case leaving an opening between the case and partition, a check receiving drawer lying under the partition and the opening, and a cash receiving drawer lying above the partition, of a false back lying between the cash drawer and the case and having a plate 14, springs 8 acting to throw the false back forward when the cash drawer is opened, a spring catch acting to hold the cash drawer closed against the power of the springs, and a check way above plate 14 in which checks to balance cash placed in the cash drawer remain in view until the cash drawer is again opened when said checks pass down behind the false back and into the check receiving drawer.

494,088. VALVE FOR PNEUMATIC TIRES. ASAHEL M. SHURTLEFF, Boston, Mass., assignor to Codman & Shurtleff, same place. Filed Feb 13, 1892. Serial No. 421,385. (No model.)



Claim. 1. The internally threaded valve-case provided with a corner-like annular seat as described, combined with a tapering faced valve having a portion of its stem adjacent thereto threaded externally to engage the threads of the valve-case, rotation of the valve in said case moving it toward or away from the seat, substantially as described.

2. The internally threaded valve case provided with a seat as described, combined with a tapering faced valve having a portion of its stem adjacent thereto threaded externally to engage the threads of the valve-case, and a stuffing box on the end of the valve-case to receive the shank of the said valve, extended therethrough, substantially as described.

3. The wheel tire, and communicating valve case having a seat and a hollow lateral stem in communication with the valve-case passage, combined with a longitudinally movable valve, and a dust-cap to cover the stem, substantially as described.

4. The wheel tire, and communicating valve-case having a seat and a hollow lateral stem in communication with the valve-case passage, combined with a longitudinally movable valve seat, and a dust cap to cover the stem, said cap having an opening to fit the valve-stem and form a wrench to turn the said valve, substantially as described.

5. In a valve, a valve-case having a valve-seat, and a hollow laterally projecting stem in communication therewith, combined with a pump-coupling consisting of a tapering nozzle adapted to enter said stem, and a threaded cap to engage the end of said stem: substantially as described.

6. In a valve, a valve case having a chamber 4, a passage 3, an annular corner-like seat between them, a tubular stem, and a threaded neck, combined with an externally threaded tapering surfaced valve having a shank, a dust cap, and a stuffing box, substantially as described.

7. In a valve, a valve case having a chamber 4, a passage 3, an annular corner-like seat between them, a tubular stem, a check-valve in said stem, and a threaded neck, combined with an externally threaded tapering surfaced valve having a shank, a dust cap, and a stuffing box, substantially as described.

494,089. VALVE FOR PNEUMATIC TIRES. ASAHEL M. SHURTLEFF, Boston, Mass., assignor to Codman & Shurtleff, same place. Filed Sept. 16, 1892. Serial No. 446,096. (No model.)

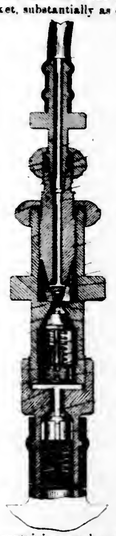
Claim.—1. The combination with a valve casing containing a valve seat, of a hollow valve movable longitudinally within the casing to co-operate with said valve seat, and formed at its outer end to constitute one member of a detachable coupling, the other member of which is on the inflating tube, substantially as described.

2. A valve casing open at its end in the direction of movement of the valve and having a valve seat, combined with a hollow longitudinally movable valve to co-operate with said seat whereby air admitted at the open end of the said casing may be forced through said valve and between it and its seat, substantially as described.

3. A valve casing containing a valve seat, a co-operating longitudinally movable hollow valve therefor, and a socket in the end of said valve, combined with an inflating tube fitted at its end with a nipple to enter said socket, and means to draw the nipple into the socket to form an air tight joint, substantially as described.

4. A valve casing containing a valve seat and a co operating longitudinally movable hollow valve therefor provided at one end with a conical socket, combined with a conical nipple adapted to enter said socket and a cap adapted to be screwed upon the end of the valve and acting upon and to draw said nipple into its socket, substantially as described.

5. A valve casing containing a valve seat, and a co-operating longitudinally movable hollow valve therefor provided at one end with a socket, combined with a nipple adapted to enter said socket, a lateral pin and slot connection between the nipple and its socket to prevent rotation of one with relation to the other, and means to draw the nipple into its socket, substantially as described.



6. A valve casing containing a valve seat, and a longitudinally movable valve therefor formed at its outer end to constitute one member of a detachable coupling, combined with a co-operating coupling member adapted to be carried by the end of the inflating tube, and a handle on the co-operating member by which to operate the valve when the two members are coupled together, substantially as described.

7. A valve casing containing a valve seat and a longitudinally movable valve therefor having a socket at its outer end, combined with a nipple adapted to enter said socket, means to lock the nipple in the socket, and a valve operating handle on the nipple by which to rotate the valve, substantially as described.

8. A valve casing having inlet and outlet passages, and a valve seat between the same, combined with a hollow longitudinally movable valve to co-operate with said seat, whereby air admitted through the inlet passage may be forced through said valve and between it and its seat, a check valve in and controlling the said outlet passage, and an extension piece between the said hollow valve and check valve whereby the latter is unseated by seating of the former, substantially as described.

9. A valve casing having inlet and outlet passages and a valve seat between the same, combined with a hollow longitudinally movable valve to co-operate with said seat, whereby air admitted through the inlet passage may be forced through said valve and between it and its seat, a check valve in and controlling the said outlet passage, and an adjustable extension piece between the said hollow valve and check valve whereby the latter is unseated by seating of the former, substantially as described.

10. The combination with a tire provided with a valve B containing a check valve, of a valve casing adapted to be secured to said valve B, and containing a main valve, and a device interposed between said valve casing and check valve to retain the latter in its unseated position so long as the said valve B and valve casing are secured one to the other, substantially as described.

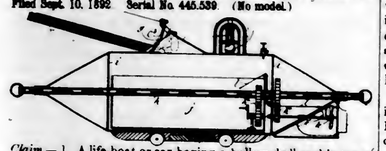
11. The combination with a valve casing and main check valves therein, of a T-shaped piece adapted to be interposed between said casing and another valve, substantially as and for the purpose specified.

12. The combination with a tire provided with a valve B containing a check valve, of a valve casing adapted to be secured to said valve B and containing a valve seat and a co-operating main valve, and a device to act upon said check valve to hold the same positively in one position, independently of and to permit free movement of said main valve substantially as described.

13. A valve casing containing a valve seat, and a co-operating longitudinally movable hollow valve therefor provided at one end

with a socket, combined with a nipple adapted to enter said socket, and devices co-operating with said nipple and socket whereby the nipple and socket may be moved in unison in a direction to effect the closing of the valve, substantially as described.

494,090. LIFE-SAVING APPARATUS. HENRY A. STEVENS, Norristown, assignor of one-half to J. Walter Douglass, Philadelphia, Pa. Filed Sept. 10, 1892. Serial No. 445,539. (No model.)



Claim.—1. A life-boat or car having a hollow shell or skin tapering to a point at each extremity and provided with buoyant projecting wings, a pivotally supported passenger basket or cradle mounted therein, automatic means for admitting air to and excluding water from the interior of the car, a spar or rod ranging longitudinally of said shell or skin and forming the support for said car or cradle, and provided with eyes or rings, and a rope and its complemental connections, substantially as and for the purposes set forth.

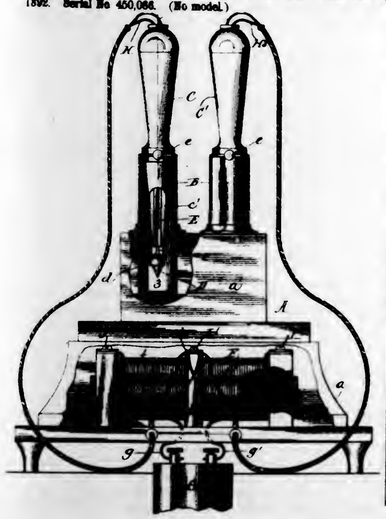
2. A life-boat or car, comprising a hollow shell or skin tapering to a point at each extremity, buoyant projecting wings, automatic means consisting of an air inlet, a sleeve, a spider-frame and a weight working within the spider-frame and adapted to operate the sleeve, substantially as and for the purposes set forth.

3. In a life saving apparatus, a car or boat consisting of a hollow shell or skin tapering to a point at each extremity and having buoyant projecting wings and a normally closed hatch provided with a flexible ladder or chute, and a cord and its complemental connections for opening the hatch, substantially as and for the purposes set forth.

4. A life saving boat or car provided with buoyant wings, an internally swinging cradle or basket, automatic means for the admission of air and exclusion of water, and a spring controlled hatch, substantially as for the purposes set forth.

5. In a life saving apparatus, a car or boat consisting of a hollow shell or skin tapering to a point at each extremity and having buoyant projecting wings, means for admitting air to and excluding water from the basket or cradle, and a spar or rod ranging longitudinally of said shell or skin and forming the support for said basket or cradle substantially as and for the purposes set forth.

494,091. ELECTRIC CIGAR-LIGHTER. WILLIAM M. THOMAS, Chicago, Ill., assignor to Louis Warfield, Detroit, Mich. Filed Oct. 26, 1892. Serial No. 450,086. (No model.)

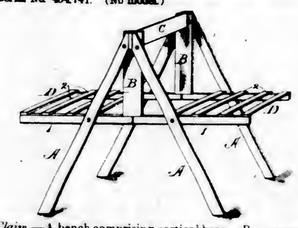


Claim.—1. In an electric cigar lighter, a tubular handle in combination with a spring lever E mounted in an insulated plug c^3, a contact point d at the tip end of the handle, conducting wires connecting the handle and lever, respectively, with a spark coil and an insulated button d' attached to said spring and extending through the handle, whereby the spring may be pushed into contact with the point and to the outer side of the same, substantially as described.

2. In an electric cigar lighter, a tubular handle, in combination with a contact point d mounted therein, the elastic lever E mounted in an insulating plug c^3 and arranged to stand normally in a plane inclined from the contact point, the insulating button d' provided with slot e^3, the pin c^3 passing through said slot, and electric conductors connecting said handle and lever, respectively, with the spark coil F, substantially as described.

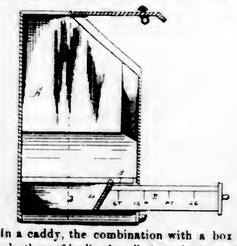
3. In an electric cigar lighter, a spark coil F, the wire of which is divided into sections f, f', in combination with the binding posts I, I' to which the inner ends of said wire sections are, respectively, connected, tubular handles provided with contact points and insulated vibratable contact levers, and circuit wires connecting said handles and levers, respectively, with the central binding posts I, I', substantially as described.

494,092. LAUNDRY-BENCH. EDWARD A. WHITING, Ithaca, N. Y., assignor of one half to Jeremiah Tobin, same place. Filed Dec. 10, 1892. Serial No. 454,741. (No model.)



Claim.—A bench comprising vertical bars —B—, a cross-bar mortised in their upper ends and extending beyond their faces, bars —A— journaled to said vertical bars and having their upper inner diagonal faces adapted to bear against the extended ends of the cross bar, arms —D— journaled to the diagonal bars and having the inner ends adapted to abut against the lower ends of the vertical bars.

494,093. CADDY. WILLIAM H. WOOD, Elmira, N. Y., assignor of one-half to John B. Stanchfield, same place. Filed May 12, 1892. Serial No. 432,726. (No model.)



Claim.—In a caddy, the combination with a box or casing A, having interiorly thereof inclined walls 1, 1, sloping toward the center, of the trough 2, located at the bottom of said inclines and provided with a bridging 3, and pivoted gate 4, the scoop B, having scale marking thereon and adapted to travel in said trough and the catch basin at the open end of the latter, substantially as and for the purpose set forth.

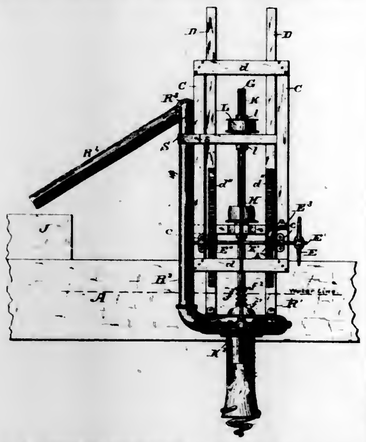
494,094. CENTRIFUGAL DREDGING-MACHINE. JAMES L. ALLISON, Waddington, N. Y., and ROBERT G. NASH, Morrisburg, Canada. Filed Feb. 18, 1892. Serial No. 421,991. (No model.) Patented in Canada May 20, 1890, No. 34,353.

Claim.—1. In a centrifugal dredging machine, the combination of a scow, an upright frame hinged to suitable arms secured to said scow, a frame slidingly connected to the said hinged frame, means for raising and lowering said sliding frame, a centrifugal pump secured to the lower end of said sliding frame and provided with a pump

valve feathered to its shaft and held movably longitudinally thereon by a spring; a delivery pipe, a shaft journaled within said sliding frame, a suction pipe with offset therein, and a secondary shaft journaled to said sliding frame and pump and passing through the mouth of said suction pipe and provided with an agitator, all substantially as shown and set forth.

2. In a centrifugal dredging machine, the combination of a scow, an upright frame hinged to suitable arms secured to said scow, a frame slidingly connected to the said hinged frame, means for raising and lowering said sliding frame, a centrifugal pump secured to the lower end of said sliding frame and provided with a pump valve feathered to its shaft and held movably longitudinally thereon by a spring; a delivery pipe, a shaft journaled within said sliding frame, a suction pipe, with offset therein, and a secondary shaft journaled to said sliding frame and pump and passing through the mouth of said suction pipe and provided with an agitator, and the tackle for tilting said frames, all substantially as shown and set forth.

3. In a centrifugal dredging machine, the combination of a scow, or vessel, suitable arms fastened thereto for supporting the frames, two upright frames, hinged to said support one sliding within the other, with means for raising and lowering the inner frame, a centrifugal pump fastened to the lower end of the inner frame with suction and delivery pipes attached thereto a main shaft driving said pump and an agitator at the mouth of the suction pipe driven by a secondary shaft.



4. In a centrifugal dredging machine, the combination of a scow, or vessel, suitable arms fastened thereto for supporting the frames, two upright frames, hinged to said support one sliding within the other, with means for raising and lowering the inner frame, a centrifugal pump fastened to the lower end of the inner frame with suction and delivery pipes attached thereto, a main shaft driving said pump and an agitator at the mouth of the suction pipe driven by a secondary shaft differentially coupled to said main shaft.

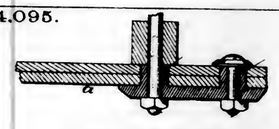
5. In a centrifugal dredging machine, the combination of a scow, or vessel, suitable means for securing thereto the frames herein mentioned; two upright frames, one sliding within the other, with means for raising and lowering the inner frame, so that when in operation the centrifugal pump shall be wholly immersed within and covered by water, a centrifugal pump fastened to the lower end of the inner frame with suction and delivery pipes attached thereto, and an agitator at the mouth of the suction pipe.

494,095. RUNNING-GEAR FOR VEHICLES. JOHN S. CLELAND, Binghamton, N. Y., assignor to the Binghamton Wagon Company, same place. Filed Dec. 10, 1892. Serial No. 454,744. (No model.)

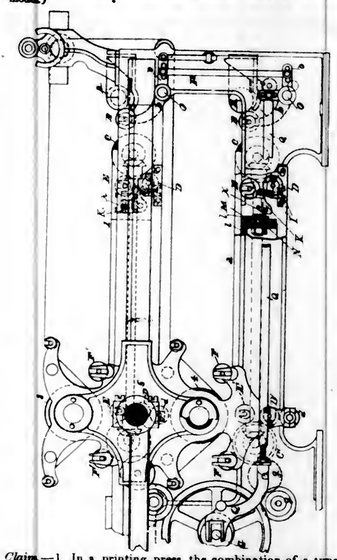
Claim.—1. In a vehicle gear, the combination with the reach sections lying one upon the other, of a plate having tubular studs inserted through them, and a king-bolt and a securing bolt inserted through said studs and plate.

2. In a vehicle gear, the combination with the reach sections lying one above the other, and having coinciding perforations, of tubular bushings inserted through said perforations and the king-bolt and the securing bolt inserted through said bushings.

494,095.



494,096. INKING APPARATUS FOR PRINTING-PRESSES. JOSEPH L. GOE, Battle Creek, Mich., assignor to the Duplex Printing Press Company, same place. Filed Aug. 12, 1892. Serial No. 442,923. (No model.)



Claim.—1. In a printing press, the combination of a type bed, and ink distributing rolls at each end thereof, with a transfer roller adapted to be reciprocated out of contact with the type to transfer ink from one set of rolls to the other, substantially as specified.

2. The combination of a type bed, and inking rolls at each end thereof, and a transfer roller under the bed and adapted to be shifted so as to alternately contact with an ink roll at opposite ends of the press, substantially as described.

3. In a printing press, the combination of a type bed, and ink distributing rolls at each end thereof; and form inking rollers with a transfer roller adapted to be reciprocated out of contact with the forms to transfer ink from one set of rolls to the other, and an ink fountain supplying ink to only one set of ink distributing rolls, substantially as specified.

4. The combination of a type bed, and inking rolls at each end thereof, and a transfer roller under the bed and adapted to be shifted so as to alternately contact with an ink roll at opposite ends of the press, and a single ink fountain from which ink is directly supplied to but one set of the ink rolls, substantially as and for the purpose set forth.

5. The combination of two separate and independent sets of ink distributing rolls, and a direct ink supply to one of said sets, with a reciprocating transfer roller under the bed adapted to carry ink from one set of ink rolls to the other, substantially as described.

6. In a printing press, the combination of a type bed, and ink distributing rolls at each end thereof, with a transfer roller adapted to be reciprocated to transfer ink from one set of rolls to the other, and a cylinder and form rollers on opposite sides thereof respectively contacting with the ink rolls at opposite sides of the bed, and means for reciprocating said cylinder and form rollers, substantially as specified.

7. The combination of a type bed and inking rolls at each end thereof, and a transfer roller under the bed and adapted to be shifted so as to alternately contact with an ink roll at opposite ends of the press, and a cylinder and form rollers on opposite sides thereof respectively contacting with the ink rolls at opposite sides of the bed, and means for reciprocating said cylinder and form rollers, substantially as described.

8. The combination of the bed and the inking rolls at each end thereof; with the cylinder, the form rollers on opposite sides thereof each adapted to receive ink from one of the opposite sets, and means for reciprocating said cylinder and form rollers, the ink rollers, and the transfer roller adapted to transfer ink from one set of ink rollers to the other, substantially as described.

9. The combination of the stationary type bed, and a set of inking rollers at each end thereof; with a reciprocating cylinder, form rollers at each side thereof respectively receiving ink from the opposite sets of ink rollers, and a reciprocating transfer roller adapted to convey ink from one set of rollers to the other, substantially as and for the purpose specified.

10. The combination of the ink roll, and a longitudinal vibrating roller beside the same, and an eccentric driven by gearing from the roll shaft, and the strap and pitman connected to the eccentric and to one of the journals of the roller for vibrating said roller, substantially as and for the purpose set forth.

11. The combination of the driven ink roll C, the ink distributing roller D, and the vibrating roller E, the sliding box K, and bracket *i*, all constructed and operated substantially as herein specified.

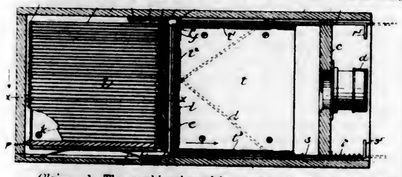
12. The combination of the rolls C, C', the shaft H, and gearing between said shaft and roll shafts, the ink distributing rollers E, E', and the eccentric straps, and gearing for operating rollers E, E', all substantially as and for the purpose specified.

13. The combination of the type bed the driven ink rolls C C' at opposite ends of the bed, the inking rollers D D', and the vibrating roller E, a fountain supplying ink to roll C, and a reciprocating roller for transferring ink from roll C to roll C', substantially as and for the purpose described.

14. The combination of the rolls C, C' the shaft H, and gearing between said shaft and roll shafts, and the distributing rolls D, D' and the transfer roller *d*, for carrying ink from roller D to D', all constructed and arranged to operate substantially as and for the purpose specified.

15. The combination of the rolls C, C' and shaft H geared thereto; with the vibrating rollers E, E', the eccentrics driven from shaft H, and the pitman L, and sliding journal boxes K, and journal boxes supporting the other ends of rollers E E' substantially as and for the purpose described.

494,097. PHOTOGRAPHIC CAMERA. JOSEPH A. DAVISON, Polo, assignor, by direct and mesne assignments, to the Aladdin Camera Company, Chicago, Ill. Filed Feb. 8, 1892. Serial No. 420,718. (No model.)



Claim.—1. The combination with a camera having a plate holding space or receptacle in the rear, parallel guides in the sides of the camera at the bottom and top respectively, for the reception of laterally projecting plate-holder lugs, vertical guides upon opposite sides of the camera connecting said parallel guides in the bottom and top, plate shifters arranged to move in parallel planes in said bottom and top guides, means for actuating the same from the outside of the camera, and means upon said plate shifters for engaging laterally projecting lugs upon the corners of movable plate-holders whereby a plate may be withdrawn from the top of the pile with one of said shifters and permitted by its own gravity to assume a vertical position in front of the objective, and thence removed by the secondary shifter and restored to the bottom of said pile, substantially as shown and described.

2. The combination with a camera having a magazine chamber in the rear, a partition separating said magazine chamber from the remainder of the camera, said partition being provided with an opening at the bottom and top respectively for the egress and ingress of plates, horizontal guides upon the sides of said camera at the bottom and top respectively, and in line with said partition openings, vertical guides in the sides of the camera immediately in front of said partition, connecting with said horizontal guides, and plate shifters arranged to slide in said horizontal guides and to engage with laterally projecting plate-holder lugs adapted to move in said horizontal and vertical guides, substantially as shown and described.

3. The combination with a camera having a magazine chamber in the rear, of sliding cross-heads *r' s'* arranged to move in suitable parallel guides, which are connected by means of vertical guides, said cross-heads or shifters being provided with means for engaging laterally projecting lugs upon movable plate-holders, and arranged to face each other whereby said lugs may, by the gravity of the plate, be disengaged from one of said shifters and engaged by the other, substantially as set forth.

494,098. ELECTRICAL APPLIANCE. CHARLES H. FOLGER, Cincinnati, Ohio, assignor, by direct and mesne assignments, to the Cincinnati Novelty Manufacturing Company, same place. Filed Sept. 5, 1892. Serial No. 445,077. (No model.)



Claim.—The combination, with the two axial solenoids wound in the same direction, of the rod or plunger C common to both solenoids, stops to limit the throw of the rod in both directions, the groove *a*, cut in said rod, switch E pivoted upon a suitable support, and contact surfaces *b*, *b'*, each in electrical connection with the coil of its respective solenoid, said switch being in electrical connection with one pole of the circuit, while the solenoid coils are both in connection with the other pole, whereby the reciprocation of the rod will shift the current from one solenoid to the other, substantially as shown and described.

494,099. VESSEL FOR PRESERVING PERISHABLE ARTICLES. WILLIAM B. FRANTZ, Guthrie, Okla., assignor of one-half to George E. Mundy, same place. Filed July 19, 1892. Serial No. 440,706. (No model.)

Claim.—1. A vessel composed of an inner metal lining, a reticulated wall surrounding the same, an asbestus wall surrounding the reticulated wall, a second reticulated wall surrounding the asbestus and an external lining of metal, substantially as specified.

2. A non-conducting wall, consisting of an inner metal imperforate lining and a similar outer jacket, inner reticulated walls adjacent to the inner surfaces of said lining and jacket, and a layer of asbestus located between the two reticulated walls and independent thereof, substantially as specified.

494,100. HORIZONTAL BORING-MACHINE. ARTHUR J. FRITH, New York, N. Y. Filed Apr. 14, 1892. Serial No. 429,066. (No model.)

Claim.—1. In a boring machine, the combination of the hollow spindle and boring bar having a rotary motion with said spindle and an independent longitudinal movement, a feed shaft communicating its movement to said longitudinally movable bar, a friction disk on said feed shaft, a friction disk receiving its motion from said spindle and intermediate friction disks clamping said disks with an unyielding pressure, substantially as set forth.

2. In a boring machine, the combination with the hollow spindle and boring bar, a friction disk receiving its motion from said spindle, a feed shaft and a friction disk communicating its motion thereto, of a frame 12, having arms 13—14, bar 15 carrying clamping disks 18, 18, a clamping bushing extending through one of said arms and engaging one of said disks, and a hand nut for forcing said bushing against one of said disks and the latter into unyielding engagement with the co-operating disks, substantially as set forth.

3. In a friction feed, the combination of the fulcrumed frame, having arms 13—14, disk-carrying shaft, 15, threaded at one end and having an enlarged head, 17, receiving the side of one of the friction disks at the other, a bushing arranged in the arm 14, around the shaft 15 and engaging the opposite side of the other disk, and hand nuts for forcing said disks into firm contact with co-operating disks, substantially as set forth.

4. In combination, in a horizontal boring machine, with a cog wheel, 1, arranged on the hollow spindle, *f*, a shaft, 2, having a hand nut, 3, pintles 4 and 5, an arm, 6, carrying a cog wheel, 8, a cog wheel, 9, arranged on the pintle 4, a friction disk, 10, movable with said cog wheel 9, and friction disks 18 and 21, the latter arranged on the feed shaft, substantially as set forth.

5. In combination, in a horizontal boring machine, with a longitudinally movable shaft, a spindle giving rotary motion to said shaft a cog arranged on said spindle a rock shaft having cogs 8 and 9 movable to and from said cog, 1, means for setting the shaft and holding said cogs in the operative positions, a disk, 10, operating with said cog 9, a disk 21 arranged on the feed shaft, intermediate friction disks 18, transmitting power from the disk 10 to the disk 21 and means for transmitting motion from said feed shaft to said longitudinally, movable boring tool shaft, substantially as set forth.

6. In a horizontal boring machine, the combination with a longitudinally movable boring shaft, a hollow spindle having a rotary movement a friction disk receiving its movement from said spindle, a friction disk arranged in connection with the feed shaft, said feed shaft and means for transmitting the motion thereof to the longitudinally movable boring shaft, a, frame, 12, adjustable on the frame of the machine, intermediate friction disks arranged on said adjustable frame and means for holding said adjustable frame in position, substantially as set forth.

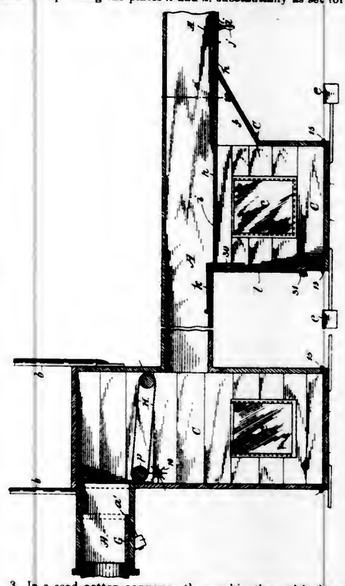
7. In a boring machine, the combination with the rotary and longitudinally movable boring shaft and feeding shaft, of friction disks connecting with said shafts, and a fulcrumed frame having a spring-actuated catching handle, 24, arranged on one of the arms of said frame, a toothed segment engaged by said catching handle, a shaft, 17, arranged on the arms of the frame, clamping disks, a hand nut and an inelastic bushing interposed between one of said clamping disks and said nut and imparting an unyielding pressure to the said disk, substantially as set forth.

494,101. SEED-COTTON CONVEYER. FERDINAND C. GAMMON, Bridgewater, Mass., assignor to the Eagle Cotton Gin Company, same place. Filed Oct. 1, 1892. Serial No. 447,515. (No model.)

Brief.—The cotton is drawn through the tube A and is fed into boxes C. Over each box except the last is the sliding board *h* and the hinged plate *k*, both adjustable, so that the amount fed to the box may be regulated or cut off entirely as desired by the operator. When a sufficient weight of cotton has collected in the box, the hinged valves *d* at the bottom open and permit the cotton to fall into the gin stand or bin. Over the top of the last box is a moving screen H and a stripper L for removing the cotton therefrom.

Claim.—1. In a seed cotton conveyer, the combination, with a series of cotton receiving boxes C, and the pneumatic tube or conveyer A arranged above the level of said boxes and having its bottom provided at its junction with said boxes with downwardly inclined enlargements *f*, of the horizontally sliding plates or covers *h* located on the bottom of said tube A at its junction with the boxes C, and adapted to be extended more or less over or across the tops of the enlargements *f* and boxes C to regulate the quantity of cotton deposited in said boxes, substantially as set forth.

2. In a seed-cotton conveyer, the combination, with the cotton-receiving boxes, of the pneumatic tube or conveyer having its bottom provided, at its junction with one end of a receiving box, with a horizontally-sliding plate or cover *h* adapted to be extended more or less over or across the top of said box, and at its junction with the opposite end of said box with a hinged plate *k* having its free end bent downward to fit within said box, and adapted to be raised within the pneumatic tube to retard the passage of the cotton therethrough, and means for operating the plates *h* and *k*, substantially as set forth.



3. In a seed cotton conveyer, the combination, with the cotton receiving boxes, of the pneumatic tube or conveyer having its bottom provided, at its junction with one end of a receiving box, with a horizontally-sliding plate or cover *h* adapted to be extended more or less over or across the top of said box, and at its junction with the opposite end of said box with a hinged plate *k* having its free end bent downward to fit within said box, and adapted to be raised within the pneumatic tube to retard the passage of the cotton therethrough, means for operating the plates *h* and *k*, the exhaust fan, the traveling screen, and the rotating stripper or clearer adjacent to said screen, all operating substantially as and for the purpose set forth.

4. In a seed cotton conveyer, the combination of the cotton receiving boxes provided with hinged and counterbalanced bottoms, substantially as described, the pneumatic tube or conveyer having its bottom provided, at its junction with one end of a receiving box, with a horizontally-sliding plate or cover *h* adapted to be extended more or less over or across the top of said box, and at its junction with the opposite end of said box with a hinged plate *k* having its free end bent downward to fit within said box, and adapted to be raised within the pneumatic tube to retard the passage of the cotton therethrough, means for operating the plates *h* and *k*, the traveling apron H, the stripper-roll or clearer I, the cut-off valve G, and mechanism for automatically operating said valve at stated periods, substantially as set forth.

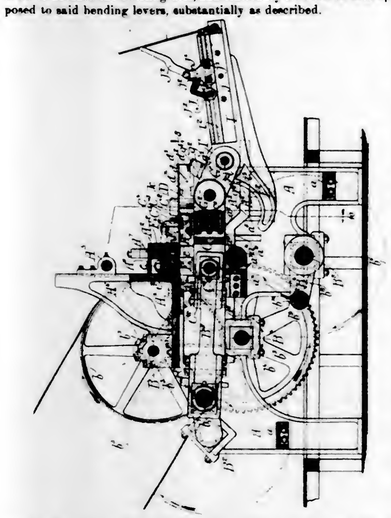
5. In a seed-cotton conveyer, the combination, with a series of cotton-receiving boxes provided with hinged counterbalanced bottoms, of the pneumatic tubes or conveyers S, T, arranged along the sides of said boxes and provided with openings a^2, b^2, communicating therewith, the openings a^2 being provided with hinged gates or cut-offs c^2, controlling said openings a^2, and each adapted when moved a quarter circle to close the portion of the tube T between said cut-off c^2 and the receiving-box next beyond, and the screens for excluding the cotton from the tube S, substantially as described.

494,102. MACHINE FOR MAKING BEAM-HANGERS. JOHN GRANT, Chicago, Ill. Filed Feb. 11, 1892. Serial No. 421,166. (No model.)

Claim.—1. The combination with a reciprocating carriage, a form or die thereon and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms pivoted to the carriage and supporting said twisting dies, and tracks or ways adapted for engagement with the free ends of said arms, and provided

with inclined parts for moving said arms to actuate the twisting dies, substantially as described.

2. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms pivoted to the carriage and supporting said twisting dies, bending levers pivoted to the free ends of the said arms, tracks or ways acting on the free ends of said arms and provided with inclined parts for moving said arms to actuate the twisting dies, and stationary surfaces or dies opposed to said bending levers, substantially as described.



3. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms pivoted to the carriage and supporting said twisting dies, said arms being provided at their free ends with anti-friction rollers, and tracks or ways adapted for engagement with the said rollers, and provided with inclined parts for moving the arms, substantially as described.

4. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms for supporting said dies comprising links pivoted to the carriage and arranged in pairs at opposite sides of the dies, bending levers pivoted between the outer ends of each pair of links, tracks or ways acting on the free ends of said arms and provided with inclined parts for moving the latter, and stationary surfaces or dies opposed to said bending levers, substantially as described.

5. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies, acting against the top of said guide passage, swinging arms for supporting the said dies, each comprising two parallel links, a horizontal pivot rod connecting the said links with the carriage, blocks to which said dies are attached, located between the links and provided with apertures for the passage of the said pivot rod, and tracks or ways adapted for engagement with the free ends of said arms and provided with inclined parts for moving the same, substantially as described.

6. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms supporting the twisting dies, each comprising two parallel links, a pivot-rod connecting the said links with the carriage, blocks to which said dies are attached, located between the links and provided with apertures for the passage of said pivot rod, bending arms pivoted between the outer ends of the links and provided with cylindric surfaces bearing against the outer ends of said blocks, which latter are provided with concave surfaces fitting against said cylindric surfaces of the bending levers, substantially as described.

7. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms pivoted to the carriage and supporting said twisting dies, bending levers pivoted to the outer ends of said arms, tracks or ways acting on the free ends of said arms and provided with inclined parts for moving the same, and stationary surfaces or dies opposed to the bending levers, said arms and bending levers being provided with stops or shoulders to limit the outward movement of the bending levers, substantially as described.

8. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms supporting the twisting dies comprising parallel links, a pivot rod connecting the links with the said carriage, blocks to which said twisting dies are attached, located between the links, bending levers pivoted to the outer ends of the links, said blocks and the bending levers being provided with stops or shoulders to limit the outward or downward movement of the bending levers, substantially as described.

9. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms pivoted to the carriage and supporting said twisting dies, tracks or ways acting on the free ends of said arms and provided with inclined parts for moving the same, and stationary rollers located beneath the carriage in position to engage the arms when the latter are elevated, substantially as described.

10. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage swinging arms pivoted to the carriage and supporting said twisting dies and means for detachably supporting the die on the carriage, consisting of a tongue detachably secured to the carriage and extending outwardly between the said swinging arms and adapted to sustain the die on its upper surface, substantially as described.

11. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of means for clamping the blank against the die, comprising a clamp plate movable toward and from the die, a cam pivoted upon the carriage and acting against the rear surface of the clamp plate, said cam extending upwardly into position to engage the top of said guide passage, substantially as described.

12. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of means for clamping the blank against the die comprising a clamp plate, a cam acting against the clamp plate, and a block in which said cam is pivoted, said block being adjustable on the carriage toward and from the die, substantially as described.

13. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of means for clamping the blank against the die, comprising a clamp plate, a cam acting against the clamp plate, and a block in which said cam is pivoted, said block being adjustable on the carriage toward and from the die, and bars upon the clamp plate engaging guide grooves in the said block, whereby the clamp plate is guided in its movement toward and from the die, substantially as described.

14. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies, swinging arms supporting said twisting dies, and bending levers pivoted to the free ends of said arms, bending arms pivotally connected with the bending levers, actuating levers also pivotally connected with the bending levers and connected with said bending arms, and means for affording longitudinal adjustment of the bending arms and actuating levers upon the bending levers, consisting of longitudinal, dovetailed grooves on said bending levers, bolts engaging said grooves, on which the said bending arms are pivoted, and a sliding bracket to which the actuating levers are pivoted, said brackets being connected with the bending levers by means of bolts entering the said dovetailed grooves, substantially as described.

15. The combination with a reciprocating carriage, a former or die mounted thereon, and a guide passage for the carriage, of twisting dies, swinging arms supporting said twisting dies, bending levers, bending arms pivotally connected with the bending levers, actuating levers pivotally connected with the bending levers and with said bending arms, and a cylindrical bar upon the machine frame adapted for contact with said actuating levers; said bar being mounted eccentrically upon said frame for the purpose of adjustment, substantially as described.

16. The combination with a reciprocating carriage, a former or die mounted thereon and a guide passage for the carriage, of twisting dies, swinging arms supporting said twisting dies, bending levers pivotally connected with said arms, stationary parts or dies opposed to said bending levers, and means for counterbalancing said bending levers, substantially as described.

17. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms pivoted to

the carriage and supporting said twisting dies, bending levers pivoted to the free ends of said arms, bending arms pivoted to said bending levers, a transverse beam A^3, and an anvil beam A^7 removably secured to the top of said transverse beam, substantially as described.

18. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms pivoted to the carriage and supporting said twisting dies, bending levers pivoted to the free ends of said arms, bending arms pivoted to said bending levers, a transverse beam A^3, and anvil beam A^7 removably secured to said transverse beam, and anvil plates secured against the vertical faces of the said beam A^3 and anvil beam A^7, substantially as described.

19. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms for supporting said twisting dies and a transverse pivot rod connecting said swinging arms with the carriage, said arms being adapted to slide laterally upon said rod, and means for holding the arm from lateral movement on the pivot rod, substantially as described.

20. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms for supporting said twisting dies, and a transverse pivot rod connecting said swinging arms with the carriage, said arms being adapted to slide laterally upon said rod, and means for holding the arms from lateral movement when adjusted, comprising washers or collars placed on the rod beween the said arms and the parts of the carriage engaged thereby, substantially as described.

21. The combination with a reciprocating carriage, a former or die thereon, and a guide passage for the carriage, of twisting dies acting against the top of said guide passage, swinging arms pivoted to the carriage and supporting said twisting dies, a tongue detachably secured to the carriage and extending outwardly between said arms for sustaining the said die, a pivot rod for connecting said swinging arms with the carriage passing through said tongue, said arms being adapted to slide laterally upon the said pivot rod, and means for holding the said arms in position adjacent to the said tongue and the die thereon, substantially as described.

22. The combination with a reciprocating carriage, a former or die mounted thereon, and a guide passage for the carriage, of twisting dies, swinging arms supporting said twisting dies, bending levers, bending arms pivotally connected with said bending levers and bending arms, and an inclined block secured at the junction of said bending levers and bending arms, substantially as described.

494,103. CROSSCUT-SAW. JOSEPH V. HOTCHKISS, Jay, assignor of one-half to Henry Kehlenbeck, Pleasant, Ind. Filed Oct. 15, 1892. Serial No. 449,015. (No model.)



Claim.—A cross cut saw provided with a series of teeth arranged in triplets composed of two cutting teeth and between them a double pointed raking tooth, the outer vertical edges of the cutting teeth standing approximately at right angles to the blade and beveled, in reverse, throughout their entire length, substantially as described.

494,104. GLOVE-FASTENING. EDWIN J. KRAETSER, Cambridge, Mass., assignor to the Consolidated Fastener Company, Portland, Me. Filed Oct. 10, 1891. Serial No. 408,315. (No model.)

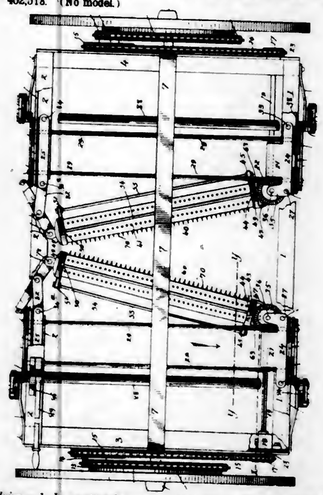


Claim.—1. In a button hole member of a fastener for gloves and garments the combination with a suitable fastener top provided with eyelet clinching and retaining devices of a flaring bell-shaped stud-receiving chamber D whose upper portion is drawn inward and extended upward into a clinching eyelet *d* integral with said chamber adapted to engage with said fastener top, and a flanged lip whose upper portion is clinched in around the outwardly flaring mouth of said chamber, the material around the central opening of said lip being bent upward and backward to form a rolling collar *e*, substantially as and for the purposes described.

2. In a button hole member of a fastener for gloves and garments the combination with a suitable fastener top provided with eyelet clinching and retaining devices, of a flaring bell-shaped stud-receiving chamber D whose upper portion is drawn inward and extended upward into a clinching eyelet *d* integral with said chamber adapted to engage with said fastener top, and a flanged lip whose upper portion is clinched in around the outwardly flaring mouth of said chamber, the bottom of the lip being corrugated at *e*, substantially as and for the purposes described.

3. In a fastener for gloves and garments the combination with a fastener top consisting of a cover A, a central anvil piece B, and an eyelet retaining piece C, around the sloping sides of which the cover is clinched, in combination with a flaring bell-shaped stud-receiving chamber D whose upper portion is drawn inward and extended upward into a clinching eyelet *d* integral with said chamber adapted to engage with said anvil and retaining pieces, and a flanged lip E whose upper portion is clinched around the outwardly flaring mouth of said chamber, the lip being corrugated at *e* and the material around the central opening thereof being curved upward, and backward to form a rolling collar *e'*, substantially as and for the purposes described.

494,105. COTTON-HARVESTER. GEORGE LISPENARD, Brooklyn, assignor, by mesne assignments, to Wallis-Lispenard Cotton Picker and Machinery Company, of New Jersey. Filed Aug. 13, 1891. Serial No. 402,518. (No model.)



Claim.—1. In a cotton harvester, the combination of a main frame, a picker frame adapted to be moved transversely of the main frame,

picker stems supported by the picker frame, and adapted to be moved in the same direction, means for so moving the picker frame, and independent means for giving their movement to the picker stems, substantially as described.

2. In a cotton harvester, the combination of a main frame, picker frames having two walls of superposed and opposing picker stems, said walls or stems diverging from the rear outwardly to the front of the main frame, means for moving each picker frame independently and transversely of the main frame, and independent means for moving each individual picker stem, substantially as described.

3. In a cotton harvester, the combination with a main frame, two walls of opposing and superposed picker stems diverging from the rear outwardly to the front of the main frame, the stems having a fixed plane of movement at the forward end, and a movement at the rear end about a point movable in said fixed plane, each wall being independently movable away from the other, substantially as described.

4. In a cotton harvester, a main frame having an opening therein extending from the front to the rear thereof, picker frames supporting a series of picker stems on each side of said opening, the picker stems being arranged to form two diverging walls, extending from the rear to the front, and means whereby one picker frame can be moved to or from said opening independently of the other, substantially as described.

5. In a cotton harvester, picker stems diverging from rear to front, rotatably supported at their forward ends, and yielding connections between the rear ends and the supports for those ends, substantially as described.

6. In a cotton harvester, picker stems diverging from rear to front, each picker stem having a fixed support at its forward end, said stem being movable about the support, combined with means at its rear end for holding the stem normally in a projected position and which is adapted to yield, substantially as described.

7. In a cotton harvester, the combination with the shaft 36, and rod 34^a, of the picker stem 40 having the outwardly extending yoke 47 and collar 48, the shaft 36 passing through said yoke, a lever 82 on the rod 34^a, a lever 77 fulcrumed to the lever 82, one end of which is connected to the picker stem, a spring 85 secured to the rod 34^a, and said lever 77, substantially as described.

8. In a cotton harvester, the combination with the shaft 36, and rod 34^a of the picker stem 40 having the yoke 47 and collar 48, the shaft 36 passing through said collar, a collar 80 set on the rod 34^a, a lever 82 having a collar 83 about the said rod and resting on the collar 80, a lever 77 fulcrumed to the lever 82, one end of which is pivotally secured to the picker stem, the other having a spring 85 secured to the collar 80, substantially as described.

9. In a cotton harvester, the picker stem 40 having the yoke 47, a rod 33^a having a jaw 74, a set screw 76 for securing the jaw to the rod 33^a, a rod 34^a having the collar 80 and set screw 81, the picker stem resting on the collar 80, substantially as described.

10. In a cotton harvester, the picker stem 40 having the yoke 47, a rod 33^a having a jaw 74, a set screw 76 for securing the jaw to the rod 33^a, a rod 34^a having the collar 80 and set screw 81, and an articulated lever 77, 82 secured to the picker stem at one end, the other resting on the collar 80, substantially as described.

11. In a cotton harvester, the picker stem 40 having the yoke 47 and collar 48, a shaft 36 passing through the collar, a miter wheel 64 on the shaft 36 and adjustable on it, a miter wheel 63 on the picker stem, a rod 33^a having a jaw 74, a set screw 76 for securing the jaw to the rod 33^a, a rod 34^a having the collar 80 and set screw 81, and an articulated lever 77, 82 secured to the picker stem at one end, the other resting on the collar 80, substantially as described.

12. In a cotton harvester, a frame for carrying picker stems, comprising top and bottom opposed cross-heads, upwardly extending bars uniting the cross-heads on each side, and horizontally extending shafts passing through the top and bottom cross-heads respectively and pass to rollers, substantially as described.

13. In a cotton harvester, a rectangular frame for carrying picker stems comprising top and bottom cross-heads set in each angle thereof, upwardly extending bars uniting the cross heads on each side, fore and aft bars uniting the cross-heads, the top and bottom cross-heads on one side having an inwardly extending arm, a bracket on one of the top cross-heads, an upright rotatable shaft set in said arms, and a picker stem geared at one end to the upright shaft, and at the other supported upon one of the upwardly extending bars, a transverse shaft having bearings in the said bracket and gearing between the upright and transverse shafts, substantially as described.

14. In a cotton harvester, a main frame having guides, combined with a picker frame comprising top and bottom opposed cross-heads, upwardly extending bars uniting the cross-heads on each side, and fore and aft extending shafts passing through the top and bottom cross-heads respectively, having rollers fast thereon, said rollers engaging the guides on the main frame, substantially as described.

15. In a cotton harvester, a picker frame comprising the top cross-heads 24, 25, bottom cross-heads 26, bosses 27 on the ends of each cross-head, upright rods $33, 33^a$ uniting the top and bottom cross-heads 24, 26, upright rods 34, 34^a uniting the top and bottom cross-heads 25, 26 and transverse rods connecting the top and bottom cross-heads, substantially as described.

16. In a cotton harvester, a picker frame comprising the top cross-heads 24, 25, bottom cross-heads 26, bosses 27 on the cross-heads, arms 35 on the cross-heads 24, 26, upright rods fixed to each cross-head, and upright shaft 36 rotatively secured in said arms, a picker stem in gear with the shaft 36 and supported by one of the upright rods of the opposing cross-head, cross bars connecting the top and bottom cross-heads, and means for operating the shaft 36, substantially as described.

17. In a cotton harvester, a main frame having the top guide-ways formed by the member 2 of the frame and bar 38, the lower guide 39, combined with a picker frame which comprises the top cross-heads 24, 25, bottom cross heads 26, bosses 27 on the ends of each cross-head, transverse shafts 29, 30 passing through the cross-heads and having wheels engaging with the guide ways and guide, upright rods $33, 33^a$ uniting the top and bottom cross-heads 24, 26, and upright rods 34, 34^a uniting the top and bottom cross-heads 25, 26, substantially as described.

18. The picker frame, having the top cross-heads 24, 25, bottom cross heads 26, bosses 27 on the end of each cross head, a downwardly extending bracket 21 on the cross-head 24, an inwardly exteuding arm 35 having the bosses 34 on the said cross-head, upright rods 33, 34^a uniting the top and bottom cross-heads 24, 26, upright rods 34, 34^a uniting the top and bottom cross-heads 25, 26, an upright shaft 36 rotatably secured in the bosses 34, a shaft 19 in the bracket 21, transverse shafts 29, 30 extending through the cross-heads, wheels on said shafts, gearing between the shafts 19, 36 and guards for the wheels, substantially as described.

19. A picker stem 40 comprising the heads 43, 49, the head 43 having the lugs 44, 45, the head 49 having the lugs 50, 51, a cylinder 41 between the heads, and bolts 54, 55 between the lugs for holding the said cylinder in the heads, substantially as described.

20. A picker stem 40 comprising the head 43, having the outwardly extending yoke 47 and collar 48 and lugs 44, 45, a head 49 having the projection 52, eye 53, lugs 50, 51, a cylinder 41 between the heads, and bolts 54, 55 between the lugs for holding the said cylinder in the heads, substantially as described.

21. A picker stem 40, having the heads 43, 49, the head 43 having an opening through which extends the spindle 67, having at its outer end the miter wheel 63 and at the other the slotted head 67, a cam-way 57 formed between the head 43 and slotted head, a cam-way in the head 49, hackle bars 69 within the cam-ways and engaging with the slotted head, a perforated cylinder 41 held between the heads, and radially extending hackle pins 70 on the hackle bars, aligning with the perforations in the cylinder 41, substantially as described.

22. In a cotton harvester, the combination of a main frame, a movable picker-frame, guides in the main frame for the movable frame, and a toggle joint mechanism for actuating the movable frame comprising the top and bottom articulated levers 96, 97, secured to the main and movable frames at the ends thereof, a rod 100 connecting the top and bottom levers, bearings 86 on the main frame, transverse shaft 88 in said bearings, a crank arm 91 on said shaft, and a pitman 92, connecting the crank arm 91 and rod 100, substantially as described.

23. A picker stem having the heads 43, 49, the head 43 having the opening through which extends the spindle 62, having at its outer end the miter wheel 63 and at the other the slotted head 67, the cam-plates 57, 58 secured to said head, like parts secured to the head 49, hackle bars 69 engaging with the cam-plates and slotted heads, a perforated cylinder 41 held between the heads, and radially extending hackle pins 70 on the hackle bars, aligning with the perforations in the cylinder 41, substantially as described.

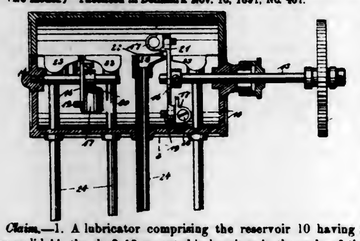
24. The combination of the heads 43, 49, the head 43 having the lugs 44, 45, the head 49 having the lugs 50, 51, a cylinder 41 between the heads, bolts 54, 55 between the lugs for holding the said cylinder in said heads, and the deflector 71 supported on the bolt 55 and adapted to be held against the outer surface of said cylinder, substantially as described.

25. The combination in superposed picker stems, each stem being supported in heads at each end thereof, longitudinal bars extending between each head of each individual picker, one bar being disposed above, and another being disposed at the side of the picker stem, the top bar of each individual picker stem being between it and the next picker stem, and the guard between any two of the picker stems and extending between the same, substantially as described.

26. The combination in superposed picker stems, each stem comprising the heads 43, 49, the head 43 having the lugs 44, 45, the head 49 having the lugs 50, 51 picking instrumentalities between the heads, bolts 54, 55 between the lugs for holding the said picking instru-

mentalities in place, and the plate 72 held on the bar 55 of one of the picker stems and resting against the bar 54 of another of the picker stems, substantially as described.

494,106. LUBRICATOR. VILHELM C. TH. LOHMANN and CARL V. ANDERSEN, Copenhagen, Denmark. Filed Oct. 4, 1892. Serial No. 447,890. (No model.) Patented in Denmark Nov. 10, 1891, No. 467.

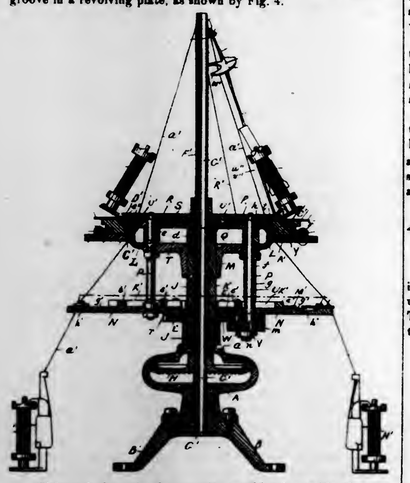


Claim.—1. A lubricator comprising the reservoir 10 having a cover or lid 11, the shaft 13 mounted in bearings in the ends of the reservoir and provided with means for rotating it, a cross arm on the shaft within the reservoir, a bucket pivoted to said arm and provided with a lug 22, a lug 21 on the arm in the path of the upper edge of the bucket, a discharge pipe leading from the reservoir to the part to be lubricated and provided at its upper end with a funnel 23 the upper edge of which is in the path of the lug 22 to cause the bucket to dump its contents into the funnel, substantially as set forth.

2. The combination with the oil receptacle and two funnels placed side by side therein and provided with discharge pipes, of a shaft extending below the funnels and having a cross arm, the ends of which pass between the adjacent sides of the funnels, buckets pivoted to the ends of the cross arm and at opposite sides thereof and each having a projecting portion to engage the respective funnel and tip or dump it, substantially as set forth.

494,107. CIRCULAR-WEAVING MACHINE. NATHANIEL LOMBARD, Boston, Mass., assignor to Henry A. Clark, same place. Filed May 11, 1892. Serial No. 432,638. (No model.)

Brief.—Each carrier is provided with an inclined arm having two switch-plates at its upper end which open the shed. The carriers run in a circular track and are driven by spur gearing. The shed is formed by pivoted levers having thread holes in their opposite ends, said levers being actuated by rods driven by an eccentric-groove in a revolving plate, as shown by Fig. 4.



Claim.—1. In a circular weaving machine in combination, a revolving plate having a circular eccentric groove, radial arms extending therefrom adapted to engage with said groove and to slide back and forth in suitable guideways, and levers pivoted to a support and each connected to a radial arm and having holes or openings diametrically opposite to each other through each of which holes or openings a warp thread passes.

2. In a circular weaving machine in combination, a vertical tubular revolving shaft, a gear on the upper end of said tubular shaft, a series of gears engaging with said gear, and a bobbin carrier plate adapted to travel in a circular raceway and having a segment of an internal gear adapted to engage with said gears, a vertical shaft on one of said series of gears, another gear on said shaft, a revolving gear having an eccentric groove in its side and engaging with and operated by said shaft gear, radial arms extending therefrom and engaging with said groove and adapted to slide back and forth in suitable guideways and levers pivoted to a support and each connected to a radial arm and having holes or openings diametrically opposite to each other, through each of which holes or openings a warp thread passes.

3. In a circular weaving machine, a bobbin carrier plate adapted to travel in a circular raceway having attached thereto a switch plate having a pointed end, an inclined arm, a smaller pointed switch plate at its upper end and an intermediate pointed switch plate secured to said arm, said arm at its upper end having an eye or passage and its upper surface having a longitudinal groove and extending in an inclined direction for the passage of a woof thread.

4. In a circular weaving machine, in combination a central revolving gear, a vertical revolving shaft, a gear on said shaft engaging with said central gear another gear on said shaft, another central gear engaging with said other shaft gear, said last named central gear having an eccentric groove in its upper surface, radial arms engaging with said eccentric groove and extending therefrom and adapted to slide back and forth in suitable guideways and levers pivoted to a support each connected to a radial arm and having holes or openings diametrically opposite to each other through each of which holes or openings a warp thread passes.

5. In a circular weaving machine in combination, a revolving gear, a series of gears engaging with said gear, a bobbin carrier plate adapted to travel in a circular raceway and having a segment of an internal gear adapted to engage with said series of gears, a vertical shaft on one of said series of gears, another gear on said shaft, another central gear engaging with said other shaft gear and having an eccentric groove in its side, radial arms extending from and adapted to engage with said groove and adapted to slide back and forth in suitable guideways, levers pivoted to a support, each connected to a radial arm and having holes or openingu diametrically opposite to each other through each of which holes or openings a warp thread passes.

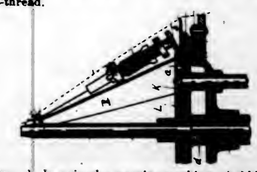
6. In a circular weaving machine, a bobbin carrier plate adapted to travel in a circular raceway having attached thereto a switch plate having a pointed end, an inclined arm, a smaller pointed switch plate at its upper end and an intermediate pointed switch plate secured to said arm, said arm at its upper end having an eye or passage for a woof thread to pass through it

7. In a circular weaving machine, a bobbin carrier plate adapted to travel in a circular raceway having attached thereto a switch plate having a pointed end, an inclined arm, a smaller pointed switch plate at its upper end and an intermediate pointed switch plate secured to said arm, the upper end of the arm being inclined.

8. In a circular weaving machine, a bobbin carrier plate adapted to travel in a circular raceway having attached thereto a switch plate having a pointed end, an inclined arm, a smaller pointed switch plate at its upper end and an intermediate pointed switch plate secured to said arm, said arm at its upper end or edge being inclined and grooved along its length.

494,108. CIRCULAR-WEAVING MACHINE. NATHANIEL LOMBARD, Boston, Mass., assignor to Henry A. Clark, same place. Filed Dec. 31, 1892. Serial No. 456,924. (No model.)

Brief.—To the shuttle-carrier is fixed a switch-plate for separating the warp-threads. To this plate is fixed an arm which extends upward and inward, having at its upper end a small switch-plate. The upper end of the arm is inclined and grooved for the passage of the weft-thread.



Claim.—1. In a circular weaving machine, a bobbin carrier plate adapted to travel in a circular raceway having attached thereto a switch plate having a pointed end, an inclined arm, a smaller pointed switch plate at its upper end and an eye or passage for a woof thread to pass through it in the upper end of said arm.

2. In a circular weaving machine a bobbin carrier plate adapted to travel in a circular raceway having attached thereto a switch plate having a pointed end, an inclined arm, a smaller pointed switch plate at its upper end, the upper end or edge of the arm being inclined.

3. In a circular weaving machine a bobbin carrier plate adapted to travel in a circular raceway having attached thereto a switch plate having a pointed end, an inclined arm, and a smaller pointed switch plate at its upper end, said arm at its upper end or edge being inclined and grooved along its length.

4. In a circular weaving machine a bobbin carrier plate adapted to travel in a circular raceway having attached thereto a switch plate having a pointed end, an inclined arm, a smaller pointed switch plate at its upper end and an eye or passage for the woof thread to pass through it in the upper end of said arm and its upper end or edge being inclined and grooved along its length.

494,109. WAX PAD. LOUIS L. LUCAS, Falconer, N. Y., assignor of one-half to George H. Benson, same place. Filed May 7, 1892. Serial No. 432,164. (No model.)



Claim.—A wax-pad consisting of a series of superposed sheets of tissue paper, thoroughly impregnated with paraffine, adhering to each other and pressed together substantially as described.

494,110. LINK BELTING. OSCAR MAXON, Dayton, Ohio, assignor of two-thirds to Casper Fensel and Thomas Maxon, same place. Filed Dec. 8, 1892. Serial No. 454,521. (No model.)



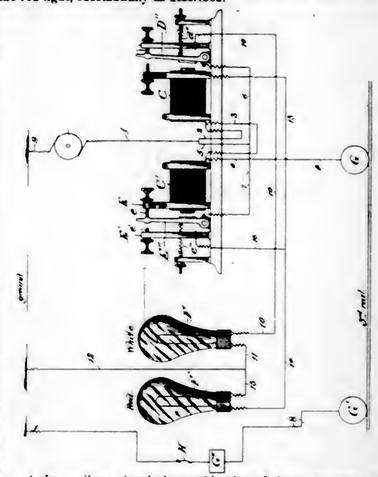
Claim.—A drive chain link consisting of a single metal bar bent to form a link of substantially oblong shape, a rounded bearing-block mounted on the end bar of the link, the side bars of the link being bulged or curved outwardly adjacent the ends of bearing block to form the recess a', hooks a^3 formed on the ends of the side-bars and adapted to enter the recesses a' of an adjacent link, being held therein from accidental displacement by the shoulders a^2 and the ends of bearing-block, the side bars of all the links of the chain being in line with one another, substantially as described.

494,111. ELECTRICAL RAILWAY-SIGNAL. SAMUEL W. MILLER and ALEXANDER C. MILLER, Aurora, and HENRY V. MILLER, Bloomington, Ill.; said Samuel W. Miller assignor to said Alexander C. Miller and Henry V. Miller. Filed Apr. 4, 1892. Serial No. 427,691. (No model.)

Claim.—1. A railway signal comprising a magnet connected with the ground and with a suitable source of electricity, a pair of contact posts adjacent thereto, a white light connected with one of such posts, and a red light connected with the other, both lights being in an independent circuit, and a vibrating arm placed between the posts and normally held in contact with the one connected with the white light, and means whereby, when the current, passing through the magnet, is increased, the arm will be withdrawn from the white light post and brought into contact with the post connected with the red light, thereby extinguishing the white light, and lighting the red one, substantially as described.

2. A railway signal comprising an insulated rail, wheels traveling upon such rail, one of such wheels being connected with the ground and the other with the electro-magnet, a suitable source of electricity connected with the ground and with such magnet, a pair of posts adjacent to the magnet and connected respectively with a white and red light, which lights are independently connected with the source of electricity, and a vibrating arm normally in contact with the post connected with the white light, but adapted to be withdrawn, as the current, passing through the magnet, increases, into contact with the post connected with the red light, thereby igniting the latter and extinguishing the white light, and giving warning, substantially as described.

3. In a railway signal, the combination of electro-magnets C, C', connected with a suitable source of electricity and with the ground, two binding posts adjacent to the magnet C and connected respectively with a white and red light, which lights are in an independent circuit, a vibrating lever placed between such posts, and normally held in contact with the white light, but adapted to be withdrawn as the current of electricity increases to extinguish the white and ignite the red light, a post adjacent to the magnet C', connected to the red light, and a vibrating arm pivoted between such post and magnet, normally withdrawn from the post, to break the connection with the red light, but adapted, when the current of electricity passing through the magnet ceases, to be withdrawn into contact with the post to ignite the red light, substantially as described.



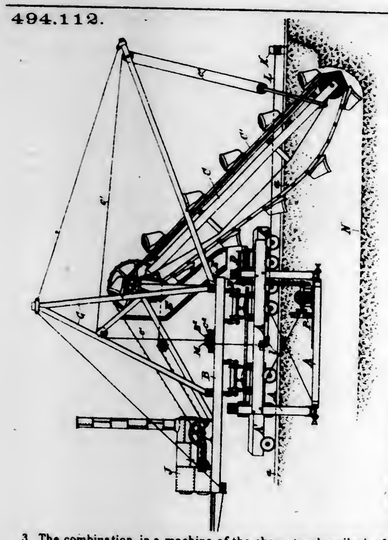
4. In a railway signal, the combination of electro magnets C C' connected with a suitable source of electricity and with the ground, two posts D D' placed adjacent to the magnet C and connected respectively with a red and a white light, which lights are in an independent circuit, an arm D^3 between such posts normally held in contact with D', a post E' adjacent to magnet C and connected to the red light, an arm E^3 provided with a spring but normally held away from the post E' against the tension of such spring by the power of the magnet C', whereby under normal conditions the white light will alone be burning, but when the current through the magnets increases the arm D^3 will be drawn into contact with the post D, extinguishing the white and igniting the red light, and when the current through the magnet ceases, the arm D^3 will remain in contact with the post D', and the arm E^3 will be drawn into contact with the post E' igniting the red light, so that both lights will be burned simultaneously, substantially as described.

494,112. CANAL-DIGGER. JOHN MCMULLEN, HERMAN KRUSE, and HENRY S. WOOD, San Francisco, Cal. Filed Jan. 26, 1892. Serial No. 419,563. (No model.)

Claim.—1. In a digging machine, the combination of a traveling bridge, the ends of which are provided with wheels or trucks upon which it is supported, and tracks upon which it travels, a transverse moving carriage thereon, a digging machine supported on the moving carriage, a conveyer belt of canvas or other suitable material, and a conveyer frame of less width than the belt, the said frame provided with raised edges whereby the edges thereof are turned up to form a trough of the upper fold of the belt, intermediate of the end carrying pulleys, substantially as described

2. The combination of a traveling bridge, a transversely-moving carriage thereon, a digging machine pivotally-connected to and working at right angles with said carriage, a conveyer frame having raised edges mounted on and extending the length of the bridge, below the pivoted end of said digging machine, an endless conveyer-belt of greater width than the said frame, and an engine whereby the said conveyer-belt may be run in either direction from the lowermost part of said bridge, substantially as set forth.

494,112.

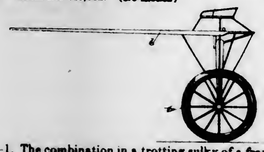


3. The combination, in a machine of the character described, of a conveyer-frame provided with raised edges, and a flexible endless conveyer of greater width than the said frame, substantially as and for the purpose set forth.

4. The combination, in a digging machine, of the chains C' and removable wearing plates C^3 set across and countersunk in the side-bars of the links composing the said chains, substantially as set forth.

5. The combination, in a digging machine, of a tumbler wheel, removable angular plates set over bolts across said wheel, between the flanges thereof, and other plates detachably secured to said flanges, across the ends of said angular plates, substantially as set forth.

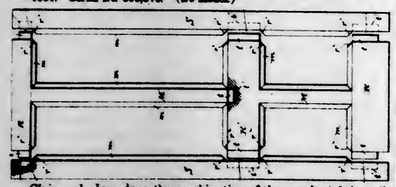
494,113. SULKY. STERLING ELLIOTT, Newton, Mass. Filed Oct. 14, 1892. Serial No. 448,802. (No model.)



Claim.—1. The combination in a trotting sulky of a frame, shafts or pole and seat, and wheels less in diameter than the distance between the shafts and the ground, and provided with elastic tires, substantially as described.

2. The combination with the frame, shafts and seat of a sulky, of wheels less in diameter than the distance between the shafts and the ground, and provided with pneumatic tires, substantially as and for the purpose set forth.

494,114. DOOR. ELI R. HAYES, Oshkosh, Wis. Filed July 15, 1891. Serial No. 399,579. (No model.)

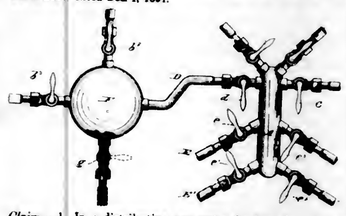


Claim.—1. In a door the combination of the panels and the rails and stiles, provided with moldings integral therewith, said moldings being cut away or removed to form recesses for the abutting ends of said parts and the ends of the moldings being mitered, substantially as set forth.

2. In a door a frame the parts of which are provided with integral moldings having re-entering angles or depressions *a*, recesses *r*, and miters, substantially as set forth.

REISSUES.

11,314. DISTRIBUTING APPARATUS FOR BEER, &c. JOHN HARTIN, Boston, Mass. Filed Oct. 12, 1892. Serial No. 448,706. Original No. 464,021 dated Dec. 1, 1891.

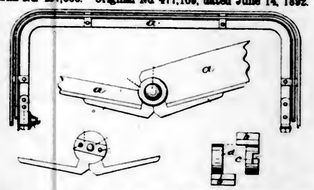


Claim.—1. In a distributing apparatus for beer &c., the combination with a reservoir, of one or more faucet-controlled supply pipes, each of which connects said reservoir with a separate source of liquor supply adapted to be in turn connected with said reservoir, and one or more faucet-controlled distributing pipes directly connected to said reservoir and connecting it with various parts of the bar, substantially as and for the purpose described.

2. In a distributing apparatus for beer &c., a reservoir provided with one or more faucet-controlled supply pipes each of which connects said reservoir with a separate source of liquor supply adapted to be in turn connected with said reservoir, and one or more faucet controlled distributing pipes directly connected to said reservoir and connecting it with various parts of the bar, in combination with an air chamber connected with a suitable source of air supply and having separate faucet controlled pipes connecting said air chamber with the sources of liquor supply, arranged and operating substantially as and for the purpose described.

3. A distributing apparatus for beer having a reservoir with suitable supply and distributing pipes and provided with means for cleaning the same when not in use, consisting of a faucet controlled air-pipe and a faucet controlled water-pipe whereby said reservoir and pipes are first blown out by compressed air and then washed out by water, substantially as set forth.

11,315. SATCHEL OR BAG FRAME. ROBERT FLOCKE, Newark, N. J., assignor to Gustav Bernheim, New York, N. Y. Filed Jan. 7, 1893. Serial No. 457,666. Original No. 477,109, dated June 14, 1892.



Claim.—1. In a hinge or satchel-frame, the combination, with the leaves, each of which is provided with perforations parallel with the central or hinge perforation, of a tubular pintle through the central opening of the leaves, a spring-actuated rod through the pintle, a cross-head on the rod, and pins in the cross head, the inner ends of which are adapted to enter the holes in the leaves and lock the hinge, substantially as set forth.

2. The combination, with the hinge of a satchel-frame, of a tubular pintle, a socketed head or washer upon one side of the knuckle of the hinge and a recess or groove in the other, a spring-actuated rod passing through said socketed head and pintle, and means connected with said rod for automatically locking the hinge when the latter is open, as described, and for the purposes set forth.

3. In a hinge for a satchel-frame, the combination with the leaves, having perforations arranged parallel with the central or hinge perforation, of a tubular pintle passing through the central opening of the leaves, a spring-actuated rod arranged in said tubular pintle, and means in connection with said rod for engaging with the holes in the leaves and locking the hinge, as described and for the purposes set forth.

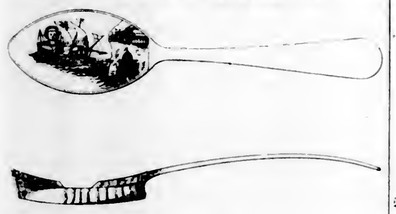
DESIGNS.

22,300. MEDAL CHARLES W. MCCAIN, Vancouver, Canada. Filed Jan. 6, 1893. Serial No. 457,551. Term of patent 3½ years.



Claim.—The design for a medal as herein shown and described.

22,301. SPOON. WILLIAM S. O'BRIEN, San Francisco, Cal. Filed Dec. 13, 1892. Serial No. 455,077. Term of patent 7 years.



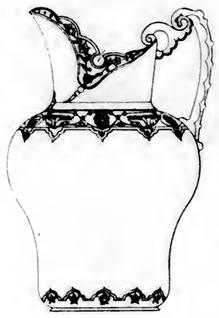
Claim.—The design for a spoon substantially as shown and described.

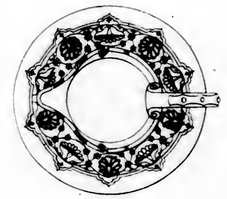
22,302. HANDLE FOR SPOONS. JOHN W. MAILLOT, North Attleborough, Mass., assignor to F. M. Whiting & Co., same place. Filed Jan. 28, 1893. Serial No. 460,164. Term of patent 3½ years.



Claim.—The design for the handles of spoons and forks herein shown and described.

22,303. EWER. HENRY BRUST, Baltimore, Md. Filed Feb. 21, 1893. Serial No. 463,257. Term of patent 3½ years.





Claim.—The design for a ewer as herein shown and described.

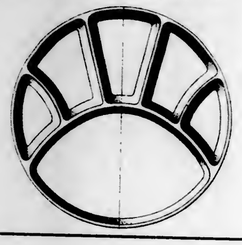
22,304. BOTTLE. HENRY J. HEINZ, Pittsburg, Pa. Filed Dec. 5, 1892. Serial No. 454,176. Term of patent 14 years.



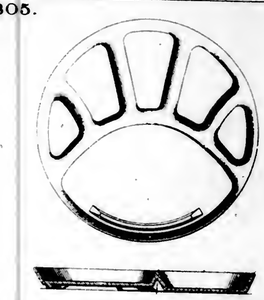


Claim.—The design for bottles substantially as herein shown and described.

22,805. COMPARTMENT-PLATE. WILLIAM R. GULICK, Bay Head, N. J., assignor to Alexander R. Gulick, New York, N. Y. Filed Feb. 15, 1893. Serial No. 462,499. Term of patent 14 years.



22,805.



Claim.—The design for a compartment plate substantially as illustrated and described.

TRADE-MARKS

REGISTERED MARCH 21, 1893.

22,665. WRITING-PAPER. SPRINGDALE PAPER COMPANY, Westfield, Mass. Filed Jan. 3, 1893.

CENTURY LINEN

Essential feature.—The words "CENTURY LINEN." Used since October, 1887.

22,666. ALBUMENIZED PAPER. THE SCOVILL & ADAMS COMPANY, New York, N. Y. Filed Feb. 23, 1893.

COLUMBIA

Essential feature.—The word "COLUMBIA." Used since November, 1892.

22,667. WATCHCASES. JACOB MACHER, New York, N. Y. Filed Feb. 11, 1893.

N.Y.W.C.Co

Essential feature.—The letters "N. Y. W. C. Co." Used since July 1, 1891.

22,668. CORSETS, CORSET-WAISTS, AND SHOULDER-BRACES. WILLIAMSON CORSET AND BRACE COMPANY, St. Louis, Mo. Filed Dec. 12, 1892.



Essential feature.—The word "COMET," and the representation of a comet. Used since December 1, 1892.

22,669. BOOTS AND SHOES. HAYDEN, GUARDENIER & Co., Boston, Mass. Filed Feb. 25, 1893.

ZEBRA

Essential feature.—The word "ZEBRA." Used since August 25, 1892.

22,670. SILK RIBBONS. WILLIAM OPHEIYM & SONS, New York, N. Y. Filed Feb. 23, 1893.

22,670.



Essential feature.—The representation of a bunch of grapes. Used since January, 1890.

22,671. BURLAPS. JOHN T. BAILEY & Co., Philadelphia, Pa. Filed Feb. 4, 1893.

CORN EXCHANGE

Essential feature.—The words "CORN EXCHANGE." Used since 1880.

22,672. BURLAPS AND BUCKRAM. JOHN T. BAILEY & Co., Philadelphia, Pa. Filed Feb. 4, 1893.

LEATHER FINISH

Essential feature.—The words "LEATHER FINISH." Used since 1880.

22,673. BINDER-TWINE. JOHN T. BAILEY & Co., Philadelphia, Pa. Filed Feb. 4, 1893.

MIXED
Russian

Essential feature.—The words "MIXED RUSSIAN." Used since March, 1890.

22,674. CERTAIN NAMED RUBBER GOODS. ARLINGTON U. BETTS, Toledo, Ohio. Filed May 21, 1892.

22,674.



Essential feature.—The representation of a Greek cross in red color. Used since April 15, 1892.

22,675. WHISKY. KAUFMANN BROS. & Co., Toledo, Ohio. Filed Feb. 23, 1893.

LOTUS CLUB.

Essential feature.—The words "LOTUS CLUB." Used since October 24, 1882.

22,676. COFFEE CLASSIFIERS, HULLERS, POLISHERS, POWER-SCREENS, PULPERS, AND ELEVATORS. MARCUS MASON & Co., New York, N. Y. Filed Jan. 28, 1893.

EL JEFE

Essential feature.—The words "EL JEFE." Used since August 1, 1892.

22,677. OLIVE-OIL, FRENCH PEAS, MUSHROOMS, HARICOTS VERTS, FLAGEOLETS, MACEDOINES, TRUFFES, SARDINES, PRUNES D'ENTE, AND SIMILAR ARTICLES. ADÈLE MARIE CAFFE, New York, N. Y., and Paris, France. Filed Feb. 21, 1893.

GEORGE CADEAU & Cie

Essential feature.—The words, character and abbreviation "GEORGE CADEAU & CIE." Used since July 1, 1878.

22,678. MACARONI, VERMICELLI, EGG-NOODLES, AND SIMILAR COMPOUNDS. ADÈLE MARIE CAFFE, New York, N. Y., and Paris, France. Filed Feb. 18, 1893.

HENRI MARCELLENI

Essential feature.—The words "HENRI MARCELLENI." Used since July 1, 1878.

22,679. WHISKY, MANHATTAN, AND OTHER COCKTAILS. ALFRA S. DE LISSA, Philadelphia, Pa. Filed Jan. 12, 1893.

De Lissa



Essential feature.—The words "DE LISSA" and the monogram of the letters "A S De L." Used since November 1, 1882.

22,680. LAGER-BEER. CHATTANOOGA BREWING COMPANY, Chattanooga, Tenn. Filed Feb. 14, 1893.

22,680.

Magnolia

Essential feature.—The word "MAGNOLIA." Used since April 1, 1892.

22,681. ORANGE QUININE-WINE. MEAGHER BROS. & Co., Montreal, Canada, and Rouse's Point, N. Y. Filed Dec. 28, 1892.



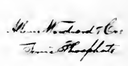
Essential feature.—The representation of an orange having the words "ORANGE QUININE WINE" in white letters and in parallel lines across it, and a scroll above it bearing the firm name and one below it, having the word "MONTREAL" on it. Used since November 7, 1892.

22,682. SARSAPARILLA AND COUGH-SIRUP. RED SEAL REMEDY Co., Rockland, Me. Filed Nov. 28, 1892.



Essential feature.—The representation of a red seal bearing a picture of a ship upon the water with a light house in the distance, and the words "RED SEAL." Used since September 15, 1892.

22,683. MEDICINAL TONIC. ALLAIRE, WOODWARD & COMPANY, Peoria, Ill. Filed Feb. 3, 1893.



Essential feature.—The words, character and abbreviation "ALLAIRE, WOODWARD & Co.'s TONIC PHOSPHATE," in type which is a fac-simile of the handwriting of James A. Smith, general manager of the corporation. Used since July 1, 1892.

22,684. REMEDY FOR RHEUMATISM. WILLIAM H. A. NESBITT, Pittsburg, Pa. Filed Nov. 19, 1892.

22,684. NESBITT



Essential feature.—A portrait of the registrant and the word "NESBITT." Used since February 10, 1892.

22,685. REMEDY FOR CERTAIN NAMED DISEASES. MACURA DRUG Co., Binghamton, N. Y. Filed Oct. 18, 1892.

·MACURA·

Essential feature.—The word "MACURA." Used since March 1, 1892.

22,686. ANTISEPTIC COMPOUND FOR PURIFYING THE BLOOD. CHARLES W. EMAN and JACOB S. POWLEY, Toronto, Canada. Filed Feb 2, 1893.



Essential feature.—The words "OZONE SPECIFIC" and the symbol of a letter "X" along the sides of which are shown the representation of electric flashes. Used since November 15, 1892.

22,687. LINIMENTS. HOFBAUER BROS., Hannibal, Mo. Filed Dec. 16, 1892.



Essential feature.—The abbreviation, letter and words "Dr. F. NORMAN'S HEALING OIL" and the representation of a star and crescent delineated on a disk. Used since July 1, 1892.

22,688. LIQUID MEDICINE FOR EXTERNAL USE. CYONA COMPANY, LIMITED, London, England. Filed Feb. 15, 1893.

CYONA

Essential feature.—The word "CYONA." Used since November, 1891.

22,689. DERMAL TOILET PREPARATION. JENNIE A. MAXIM, Pittsfield, Mass. Filed Nov. 16, 1892.

Lanola Skin Food

Essential feature.—The words "LANOLA SKIN FOOD." Used since June 15, 1892.

22,690. PERFUMED TOILET PREPARATIONS, INCLUDING SOAP. VICTOR KLOTZ, Paris, France, and New York, N. Y. Filed Dec. 23, 1892.

22,690.

AURORA TULIP

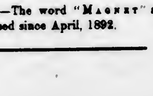
Essential feature.—The words "AURORA TULIP." Used since September 1, 1892.

22,691. TOILET AND LAUNDRY SOAP. ANALGA SOAP COMPANY, Brooklyn, N. Y. Filed Feb. 1, 1893.

GRAND ARMY

Essential feature.—The words "GRAND ARMY." Used since December 1, 1892.

22,692. WASHING FLUID. EMMA WARTENBERG, New York, N. Y. Filed Oct. 6, 1892.



Essential feature.—The representation of a hand pointing to the word "YOU" of the rebus or legend "YOU USE NO WASHBOARD WITH THE HOUSEHOLD WASHING FLUID." Used since February 1, 1891.

22,693. LAMPS AND LAMP-BURNERS. BRIDGEPORT BRASS COMPANY, Bridgeport, Conn., and New York, N. Y. Filed Feb. 6, 1893

M-BOSS-D

Essential feature.—The letters, dashes and word "M—BOSS—D." Used since January 15, 1893.

22,694. SEWING, KNITTING, AND EMBROIDERY SILK THREADS AND SILK FABRICS. THE BRAINERD & ARMSTRONG COMPANY, New York, N. Y., Philadelphia, Pa., and Boston, Mass. Filed Feb. 15, 1893.

SUNFAST

Essential feature.—The word "SUNFAST." Used since January 6, 1893.

22,695. STOVES AND RANGES. FAMOUS STOVE Co., Indianapolis, Ind. Filed Feb. 6, 1893.



Essential feature.—The word "MAGNET" and the representation of a magnet. Used since April, 1892.

22,696. VALVES FOR MACHINERY. MASON REGULATOR COMPANY, Boston, Mass. Filed Feb. 20, 1893.



Essential feature.—An annular band or ring circumscribing a star symbol upon which is imprinted the word "MASON." Used since January, 1893.

22,697. BICYCLES. JOSEPH R. GRIGAN, Baltimore, Md. Filed Feb. 21, 1893.

NEW SOUTH

Essential feature.—The words "NEW SOUTH." Used since February 1, 1893.

THE NORRIS PETERS CO.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

Supreme Court of the United States.

LOVELL MANUFACTURING COMPANY, LIMITED, *v.* CARY *et al.*

Decided March 6, 1893.

1. PATENT—PROCESS OF TEMPERING SPRINGS—DOUBLE USE.
Letters Patent No. 116,266, to Alanson Cary, June 27, 1871, for an improvement in modes of tempering springs, which consists in subjecting the spring to a temperature of 600°, *Held*, in view of the prior development of the same principle in the manufacture of wire bells for clocks and of hair balance springs, to be invalid on the ground of double use.
2. "BETTER RESULT" OR "WIDER RANGE OF USE."
The public cannot be deprived of an old process because some one has discovered that it is capable of producing a better result or has a wider range of use than was before known. [Citing *Smith* v. *Nichols*, 21 Wall., 112; *Roberts* v. *Rye*, 91 U. S., 150; *Hollister* v. *Benedict Mfg. Co.*, 113 U. S., 59.]
3. DOUBLE OR ANALOGOUS USE.
It is not patentable invention to apply old and well known devices and processes to new uses in other and analogous arts.

APPEAL from the Circuit Court of the United States for the Western District of Pennsylvania.

Mr. W. Bakewell and *Mr. J. K. Hallock* for the appellant.

Mr. S. N. Taylor for the appellees.

Mr. Justice BLATCHFORD delivered the opinion of the Court.

This is a suit in equity, brought March 14, 1885, in the Circuit Court of the United States for the Western District of Pennsylvania, by Alanson Cary and Edward A. Moen against the Lovell Manufacturing Company, Limited, an association under the laws of the State of Pennsylvania, to recover for the alleged infringement of Letters Patent No. 116,266, granted to Alanson Cary, June 27, 1871, for an improvement in modes of tempering springs.

The specification of the patent is as follows:

Be it known that I, Alanson Cary, of city, county, and State of New York, have invented a new and useful improvement in furniture-springs; and I do hereby declare that the following is a full, clear, and exact description thereof, which will enable others skilled in the art to make and use the same

This invention relates to spiral springs, usually made in a conical form, of steel wire, and extensively used in upholstering sofas and chairs, and for bed-bottoms, &c.; and consists in subjecting the spring to a tempering process after it has been completed in the usual manner, whereby its strength, elasticity, and durability are greatly increased.

The ordinary furniture-spring is made of hard drawn wire, coiled and forced to the proper shape, and when this is done the spring is considered finished, without having been subjected to any tempering process other than what is incidental to the drawing of the wire. To give them a finished appearance, however, copper or other material is frequently applied by suitable means. The metal being greatly condensed and hardened in the process of drawing the wire, a good degree of elasticity is given the wire thereby; but in bending or coiling the wire into the proper shape the metal is unavoidably weakened—the outer portion of the wire coil is drawn or stretched, while the inner portion is crushed or shortened. When straight bars or wire is subjected to the bending process the stretching or drawing of the outer and crushing of the inner portions are inevitable results. This greatly reduces the elasticity, strength, and durability of the spring. Being a manufacturer of furniture-springs, and aware of this difficulty, I have tried many experiments with a view of restoring the wire, after being bent or formed into springs, to its normal condition. This I have discovered can be done by subjecting the spring to a degree of heat known as "spring-temper heat," which is about 600°, more or less, and that a subjection to this temperature for about eight minutes is sufficient to produce the result desired. This temperature I have found to be sufficient to so far relax or produce a complete homogeneity of the metal of the spring so as to add from twenty to thirty per cent. to the value of the spring, consequent on its increased powers of resistance. Thus treated the spring will bear much heavier pressure, and its strength and elasticity are much less impaired than the ordinary spring after long-continued use.

For carrying out and putting in practice my discovery I have invented a tempering-oven, for which I have an application for Letters Patent now pending.

The claim is as follows:

The method of tempering furniture or other coiled springs, substantially as hereinbefore described.

The answer set up various defenses, and among them want of novelty and non infringement. It averred that the process set forth in the specification of the patent was merely a method of increasing the elasticity of steel, applicable not only to furniture-springs and other coiled springs, but also springs and other articles made of steel, whether coiled, bent, twisted, or straight; that the same was old, well known, and in common use or practice for many years prior to the alleged invention by Cary, and for more than two years before he filed his application for the patent; that said process or method had been so practiced on coiled springs, uncoiled springs, hard-drawn steel wire, and other articles of steel in various forms, for the purpose of increasing their elasticity; and that the patent was, therefore, void. It also set forth the names of many persons to whom the process described in the patent, whether considered as a restoring process or as a tempering process merely, was known, and by whom it was practiced, prior to the alleged invention thereof by Cary; and it averred that by reason of such prior knowledge and use the patent was void. It also averred that it was a common practice to subject furniture-springs and other coiled springs, made of hard-drawn steel wire, to 600° of heat, more or less, in the process of finishing such springs; that the same was practiced long prior to the alleged invention by Cary, by sundry persons, whose names were given in the answer; that there was not, at the time of the grant of the patent or of the alleged invention by Cary, any patentable novelty in the process described and claimed in the patent, or in the application of the process to the tempering of coiled springs for furniture, and that the patent was, therefore, void. It also set up various United States and English patents, and various printed

publications, in which the alleged invention of Cary was said to have been described prior to the making of his alleged discovery and prior to his application for the patent. A replication was filed to the answer, and proofs were taken.

Prior to the filing of the bill in this suit, the patent had been sustained by a decision made by Judge Wheeler, on February 7, 1885, in the Circuit Court of the United States for the Southern District of New York, in *Cary v. Wolff*, (32 O. G., 257; 24 Fed. Rep., 139.) On the basis of that decision a preliminary injunction was granted in the present suit by Judge Acheson, on June 12, 1885, (24 Fed. Rep., 141.) In *Cary v. Domestic Spring-Bed Co.*, in the Circuit Court for the District of New Jersey, on July 28, 1885, in a suit on the same patent, Judge Nixon, following Judge Wheeler and Judge Acheson, granted a preliminary injunction, (27 Fed. Rep., 299.) On January 6, 1886, (34 O. G., 1158; 26 Fed. Rep., 38,) Judge Nixon dissolved the injunction in the New Jersey suit, on the presentation of new affidavits relating to the novelty of the invention, and on February 2, 1886, the preliminary injunction in the present suit was suspended on the giving by the defendant of a bond.

After the proofs were taken in the present suit, it was brought to a final hearing before Judges McKennan and Acheson, and they sustained the patent, following Judge Wheeler's decision. Their opinions are reported in 31 *Federal Reporter*, 344, 317. On August 3, 1887, the court entered an interlocutory decree, holding the patent to be valid and to have been infringed, awarding to the plaintiffs a recovery of profits and damages, with costs, referring it to a master to take the account of profits and damages, and granting a perpetual injunction. The master reported six cents damages and costs in favor of the plaintiffs. The plaintiffs excepted to his report, and the court, on a hearing of the exceptions, entered a final decree, on February 16, 1889 awarding to the plaintiffs a recovery of $3,745.34, and costs. The opinion of the court on the exceptions is found in 37 *Federal Reporter*, 654. The defendant has appealed to this Court.

The invention claimed, as appears from the specification, is a method of restoring steel wire which has been mechanically strained, by subjecting it to a temperature of 600°, more or less, whereby its disturbed and disarranged molecules are allowed to assume their normal relation. The claim limits the method to its application to "furniture or other coiled springs;" but it appears from the evidence that the process, as applied to those springs, is in no respect different, in method or effect, from the same process when applied to any mechanically-strained wire, or to steel made in straight pieces or strips, or otherwise. The claim covers broadly the described method of tempering, applied to any coiled springs as well as coiled springs for furniture, and if the evidence shows that, prior to Cary's invention, the method had been used for the restoration of any springs of strained steel, or other articles of strained steel having the resiliency which is a well-known property of steel, the claim is substantially anticipated. Particularly, if the method claimed had been used by others to restore articles of coiled spring-steel, even though they were not used for furniture-springs, the claim is anticipated.

In the testimony for the plaintiffs, it appears to be contended that, in order to establish the charge of infringement, the patent is to be construed so as to cover the restoring of strained steel springs by the application of any temperature, less than a red heat, which will produce in the metal a blue color. If that be true, the patent must be so construed also in comparing it with the prior state of the art. Mr. Brevoort, an expert for the plaintiffs, says that if a coiled spring is attempted to be used, without further treatment, for a furniture-spring, the wire will take a set and lose its resilient properties, and its usefulness will be lost. He adds:

> To cure this defect the spring must be tempered, as it is called in the trade, and the way of doing this upon such springs constitutes the process of the Cary patent. The process described in the patent gives to the spring apparently the same qualities as would be imparted to steel by tempering. But I do not know that the process is really one of tempering strictly so called, although it produces like results.

The date of Cary's alleged invention is December, 1870, and the question is, what was the state of the art at that date. Mr. Brevoort explains "the ordinary tempering process" as follows:

> Steel is ordinarily tempered substantially in the following way: The steel is first best heated to a cherry red; it is then suddenly cooled either in water or oil; it is then in a very brittle and exceedingly-hard condition and is extremely liable to be warped or bent during the hardening as well as during the heating. The next step is to reheat the article carefully and gradually and watch the appearance of a bright portion of the surface of the article when certain colors will be noticed following one another in succession; first a very light yellow, then a deeper yellow, shading into purple, then a deeper purple, until finally the purple merges into blue, and lastly a blue color. Yellow, purple, and blue being the three prominent colors; the colors indicate different degrees of hardness in the steel and act as guides, telling when the proper degree of temper has been reached for any desired article; thus, for example when the yellow just begins to shade into the purple the proper degree of hardness for a penknife has been reached, and the further drawing of the temper is stopped; thus, if a spring is to be made the temper is drawn until a blue color shows when the further drawing of the temper is stopped; the above is an outline of the ordinary tempering process as I have known it for the last twenty years.

The metal is partially restored to its original condition, by heating it to a blue heat, if the condition of spring-temper is desired, or to a red heat if it is wished to have a perfect restoration of the metal. In making wire, the metal is rolled into the form of a rod, which is drawn, when cold, through successively smaller holes in a draw-plate. It is thus gradually reduced in diameter, and the effect of the strain is to compact it and make it very hard, increasing its elasticity up to a certain point, and finally weakening the material. For many years, in drawing wire to small sizes, it has been the practice to heat it to a red heat between successive drawings, and thus to completely restore it, rendering it less brittle and preventing the fracture of it by the strain of the drawing process. At the conclusion of the drawing operation, when the wire has passed through the dies several times, and is hardened and elastic, the wire is called "hard-drawn," and in that state it comes to the hands of the makers of furniture-springs. It is shown by the evidence to have been well known in the art that wire weakened and strained by drawing, could be completely restored to its original soft state by heating it to a red heat and gradually cooling it, producing thus, by the operation of annealing, the opposite of the "hard-drawn wire," of which Cary speaks in his specification. It was also known that if such strained and weakened hard-drawn wire was heated to a temperature less than red heat, but sufficient to blue it a partial process of restoration would be effected, which would add strength and elasticity to the wire and fit it for making springs and corset-steels. The defendant's witnesses, Roberts and Booth, state that, prior to the date of Cary's alleged invention, they practiced this method of bluing hard-drawn wire, so as to increase its strength and elasticity. The testimony shows the prior use of the Cary process applied to wire to effect the same results, and to correct the same undesirable consequences of mechanical strain, which are described in the Cary specification.

The two principal matters relied on by the defendant to show the invalidity of the patent are (1) the prior use of what are called the New England wire clock-bells; and (2) the blued hair-springs. It is clearly shown by the witnesses for the defendant that, prior to Cary's alleged invention, wire clock-bells and hair-springs had been subjected to heat in the manner described in the Cary specification, and with the same bluing effect. The treatment to which the articles were subjected was in all respects the same in the prior use as in the patented process. The only contention of the plaintiffs is that the purpose of the prior use was not the same, and that the results, so far as they were those of the patent, were accidental.

Higgins, a witness for the defendant, thus describes the way in which wire clock-bells were made, prior to Cary's alleged invention. He says that—

> the untempered steel wire was taken from the hank and straightened by machinery, cut off at the proper length, and then tumbled in sawdust to clean the oil from it. Then the brass collet was driven on to one end, a small coil of silver was put on for the purpose of brazing the steel and brass together, then borax and water were put on, and they were brazed together, and then were tumbled in sawdust to clean off the borax, and then was wound on a wooden block, then turned by a pair of pliers to the proper shape, then was blued and oiled, and then they were ready for use.

He also says that the method of "bluing" was this:

> They were put in piles of a hundred each, and then spread on to a sheet-iron pan, and then put into an oven and there kept until the heat blued them, and then taken out and oiled ready for use. They were cooled in the air.

That the object of the winding was to put them into a "bell" form; that the effect of the winding was to make the vibration—to give them the sound; that the bluing stiffened them and gave them the tone; and that the bell, when struck by a clock-hammer before bluing had no sound, while after bluing it had a good tone.

Horton, a witness for the defendant on the same subject, says that he used to make bells of untempered steel wire, although some of it was drawn harder than others; that some of it was hard-drawn steel wire; and that the object of heating the coiled wire was to make it sound and to stiffen it. He also describes the manufacture by him, during the ten or twelve years succeeding 1846, of wire clock-bells of a spiral form, not helical, which were blued in the same way and for the same purpose.

Andrews, a witness for the defendant, gives testimony to the same effect, and says that the coiling of the wire, to give it the shape of a "bell," weakens the spring and causes it to lose its elasticity, while subjecting it to heat makes it more springy and elastic.

Thomas, a witness for the defendant, states that he had known the wire clock-bells for forty years; that they were made from hard, untempered steel wire, straightened, cut into lengths, then wound on a form, and subjected to the bluing process to make the spring; and that there was no spring to the wire until it was blued.

Warner, a witness for the defendant, states that the wire was steel wire, used just as it was drawn; that the coiling of the wire upon a block to give it the form of a wire bell stretched the outside and upset the inside, and weakened the wire; and that the bluing process restored it and gave it more elasticity.

Broomhead, a witness for the defendant, states that as early as about 1863 he saw hard-drawn steel wire used in the manufacture of clock-bells.

Higgins also testifies that he discovered, as early as 1866, that the bluing process made the steel stiffer than it was before: and that he had known since 1866 that the tendency of the spring to keep its shape, and to restore itself to its proper shape when the coils were drawn apart or pressed together, was increased by the bluing process.

Gardiner testifies that he knew that heating of strained bell-steel stiffened it, making it stronger and more elastic, and that he would have known that the process of blue-heating steel wire in the form of furniture-springs would have increased its stiffness and elasticity in a measure.

As to the hair-springs, they are used in marine clocks, to control the balance, and are steel springs made of steel wire, rolled down. Hubbell, a witness for the defendant, made them as early as 1848. He describes the way in which they were made by him in 1848 as follows:

> The first process was taking the wire in the coil and passing it between two steel rolls to a required thickness. They were cut up to the proper lengths, fastened to a hub, wound on a disk, and wound down solid. We wound them down according to the tension of the wire, so that when they were let loose the outside coils were of about or nearly the right diameter. The next process was twisting them into a snail of a required form, and bluing them. I blued them on an iron placed over a fire. They were then removed from the snail. All the inequalities were remedied by bending and twisting by a pair of pliers into the proper shape. They were then ready for use.

He says that he used steel wire, untempered; that the object of bluing the spring after it had been so wound, was to equalize the density—the elasticity; that the bluing process had that effect; and that he had repeatedly tested blued hair-springs and unblued hair-springs, to compare their elasticity with each other, and that the blued spring would sustain double the tension or strain that the unblued one would, without bending.

Wright, a witness for the defendant, describes the use of the same process by him on hair-springs for seven years following 1848; and says that the steel wire was untempered, just as it came from the wire-maker; and that the bluing increased its elasticity.

Testimony to the same effect was given by the witness W. B. Barnes, who said that the steel wire was hard-drawn and untempered; and that the bluing had the effect of keeping the spring near the shape of the snail, and also giving it temper or elasticity.

Hendrick, another witness for the defendant, testified to the same effect.

It is contended for the plaintiffs that the bell-making process was for a different purpose from that con-

templated by Cary in his specification; that the results were not analogous; and that, therefore, the patent was not anticipated. But we are of opinion that in the Cary process and the bell-making process the operations are precisely the same. In both, the operator is dealing with wire which is strained by being bent past the elastic limit, and is deadened thereby. The wire is blued by subjecting it to a degree of heat sufficient for the purpose, and is then allowed to cool. The result in both cases is the same, namely, the restoration, stiffening, and equalizing of the wire, and the only difference is in the use to which the resulting article is put. In both, the wire is made stiffer and more spring-like, these qualities being utilized, in one case in a furniture-spring, and in the other in a clock-bell. Cary observed that, in winding furniture-springs, the wire, already weakened by the drawing process, was still further strained and deadened, so as to impair the quality of the spring. The question was, how to equalize and stiffen the mechanically-strained steel wire. The same problem had been solved by the clock-bell makers, and the solution of the problem was merely the use of the knowledge possessed by those skilled in the art. The wire used in making the clock-bells was also hard-drawn wire; but it does not appear that the process of the patent acts differently, when applied to strained hard-drawn wire, from what it would if applied to strained wire that was not hard-drawn.

The difference contended for by the plaintiffs, between the process of bluing wire clock-bells and the process of bluing furniture-springs, in that one deals with spiral articles and the other with articles of a helical form, is not a difference in the process, but is at most a difference in the articles to which the process is applied. If the straining of furniture-springs is peculiarly aggravated because of their shape, the difference is merely one of degree, not of kind. Moreover, the Cary claim describes the process as applicable to the manufacture of furniture-springs "or other coiled springs." A coiled-wire bell, although not a furniture-spring, is a coiled spring; and it appears from the evidence that any wire drawn through dies, although not coiled, is when heated to a blue color, stiffened and its elasticity increased.

In rebuttal of the defendant's evidence as to wire clock-bells and hair-springs, it is admitted that the plaintiffs show that sundry witnesses would not have known that the bluing process was applicable to the treatment of such heavy material as furniture-springs, and that it was not used in tempering clock-springs of wide, flat steel, but there was applied to such springs what is called in the record the old process of tempering. But, in the first place, these witnesses were not manufacturers of furniture-springs; and, in the second place, the reason why the old process of tempering is not used on furniture-springs, is that their upright shape, like an hour-glass or the half of an hour-glass, precludes them from being heated to a red heat without their sagging and becoming distorted. The clock-springs can be laid flat upon a support, so as not to sag while heated, and there is no reason, in regard to them, for changing the old process of tempering for another. In addition, even some of the plaintiffs' witnesses admitted, on cross-examination, that they knew that the treatment of the wire bells stiffened the steel, and allowed its molecules to return to their proper relations, and that they would have expected the application of the bluing process to furniture-springs to increase their elasticity to some extent. But it does not amount to invention to discover that an old process is better in its results, when applied to a new working, than would have been expected, the difference between its prior working and the new working being only one of degree and not one of kind. It has been often held that the mere fact that one who uses a patented process finds it applicable to more extended use than has been perceived by the patentee, is not a defense to a charge of infringement. It follows necessarily that the public cannot be deprived of an old process because some one has discovered that it is capable of producing a better result, or has a wider range of use than was before known.

In *Smith* v. *Nichols*, (21 Wall., 112,) it was held that a mere carrying forward, or new or more extended application, of the original thought, a change only in form, proportions, or degree, the substitution of equivalents, doing substantially the same thing in the same way, by substantially the same means, with better results, was not such invention as would sustain a patent; and in *Roberts* v. *Ryer*, (91 O. G., 204; 91 U. S., 150,) it was held that it was no new invention to use an old machine for a new purpose, and that the inventor of a machine was entitled to the benefit of all the uses to which it could be put, no matter whether he had conceived the idea of the use or not.

It is contended, as against the wire bells, that the evidence does not show the application of the patented process to an article designed to be used as a spring. But the clock hair-springs are quite as truly springs as the furniture-springs, for they require the exercise and use of the resiliency of tempered steel. Both are subjected to the same strains in coiling; both for the same reasons need restoration; and in both the application of a blue heat produces the same desirable results.

Within the rule laid down by this Court in *Hollister* v. *Benedict Mfg. Co.*, (113 U. S., 59,) there was nothing more than mechanical skill in arriving at the alleged invention, in view of the state of the art. Cary says, in his specification, that "in bending or coiling the wire into the proper shape, the metal is unavoidably weakened;" that "this greatly reduces the elasticity, strength, and durability of the spring;" that "being a manufacturer of furniture-springs, and aware of this difficulty," he had made many experiments with a view to restoring the wire, after being bent or formed into springs, to its normal condition; and that he had discovered that that could be done "by subjecting the spring to a degree of heat known as 'spring-temper heat,' which is about 600°, more or less, and that a subjection to this temperature for about eight minutes is sufficient to produce the result desired."

It is contended, however, by the plaintiffs that the applicability of the former processes is contradicted by the fact that no one had used them for the manufacture of furniture-springs, and that as soon as Cary's

process was made known the art of making furniture-springs was revolutionized. But, it was said by this Court in *McClain* v. *Ortmayer*, (54 O. G., 1129; 141 U. S., 419, 428:)

> That the extent to which a patented device has gone into use is an unsafe criterion even of its actual utility, is evident from the fact that the general introduction of manufactured articles is as often effected by extensive and judicious advertising, activity in putting the goods upon the market and large commissions to dealers, as by the intrinsic merit of the articles themselves.

And (page 429) that while—

> in a doubtful case, the fact that a patented article had gone into general use is evidence of its utility, it is not conclusive even of that, much less of its patentable novelty.

In the present case, it appears that it was not until a short time before 1870 that furniture-springs began to be commonly made of steel wire. It was not until 1868, when the general introduction of Bessemer steel and open-hearth steel afforded a cheap substitute for iron, that the use of steel became general in the art in question. It was then natural that there should be introduced into that art methods of treatment which were well known as applied in allied arts. The method of the patent, already in use, thus occurred to Cary; but he was appropriating a method which was common property. When steel was adopted for the first time in any art, it was natural that existing methods of treating it should be applied to its new use in the given art. The case is merely one of a double use. Nor is it of force that experts expressed surprise that the process in question was applicable to furniture-springs.

Cary was not the first to discover the process described in his specification, for the restoration of steel. He claims only the process; and the use made of the article after it is subjected to the process does not affect the nature of the process itself. As a process, there is nothing new in the subject matter of the claim. The claim does not cover an improvement in furniture-springs or other coiled springs, as a new article of manufacture: and the "coiled springs," to which, by the claim, the method of tempering is to be applied, include all such springs, irrespective of the use to which they are to be applied. The method or process claimed is substantially the old method of restoring mechanically-strained steel.

The present case is covered by the cases of *Vinton* v. *Hamilton*, (21 O. G., 557; 104 U. S., 485;) *Stow* v. *Chicago*, (21 O. G., 790; 104 U. S., 547;) *Locomotive Truck Case*, (27 O. G., 207; 110 U. S., 490;) *Blake* v. *San Francisco*, (31 O. G., 380; 113 U. S., 679;) *Thompson* v. *Boisselier*, (31 O. G., 377; 114 U. S., 1;) *Miller* v. *Foree*, (33 O. G., 1497; 116 U. S., 22;) *Dreyfus* v. *Searle*, (42 O. G., 291; 124 U. S., 60;) *Brown* v. *District of Columbia*, (47 O. G., 398; 130 U. S., 87;) *Aron* v. *Manhattan Ry. Co.*, (49 O. G., 1365; 132 U. S., 84;) *Watson* v. *Railway Co.*, (49 O. G., 1843; 132 U. S., 161;) *Marchand* v. *Emken*, (49 O. G., 1841; 132 U. S., 195;) *Royer* v. *Roth*, (49 O. G., 1987; 132 U. S., 201;) *Hill* v. *Wooster*, (50 O. G., 560; 132 U. S., 693, 701;) *Burt* v. *Evory*, (50 O. G., 1294; 133 U. S., 349;) *Howe Machine Co.* v. *National Needle Co.*, (51 O. G., 475; 134 U. S., 388;) *Florsheim* v. *Schilling*, (53 O. G., 1737; 137 U. S., 64;) *Consolidated Roller-Mill Co.* v. *Walker*, (54 O. G., 1415; 138 U. S., 124;) *Ansonia Co.* v. *Electrical Supply Co.*, (58 O. G., 1692; 144 U. S., 11;) *Ryan* v. *Hard*, (59 O. G., 1435; 145 U. S., 241.) The principle deducible from those cases is that it is not a patentable invention to apply old and well-known devices and processes to new uses, in other and analogous arts. The decision in *Ansonia Co.* v. *Electrical Supply Co.*, (*supra*,) is very pertinent. In the opinion in that case, the cases were reviewed which establish (1) that the application of an old process or machine to a similar or analogous subject, with no change in the manner of application, and no result substantially distinct in its nature, will not sustain a patent, even if the new form of result had not before been contemplated; and (2) that on the other hand, if an old device or process be put to a new use, which is not analogous to the old one, and the adaptation of the old process to the new use is of such a character as to require the exercise of the inventive faculty to produce it, such new use will not be denied the merit of patentability.

In the case of *Cary* v. *Wolff*, (32 O. G., 257; 24 Fed. Rep., 139,) Judge Wheeler remarked that the discovery of Cary was that the application of heat would restore the lost strength and elasticity of the wire, consequent on the displacement of its particles; that the application of heat for that purpose was not known until it was applied to that kind of springs in their peculiarly-weakened state; that the discovery was of a new application of an old process, which produced a new and highly-useful result; that wire bells for clocks were made to have sonorous properties by the same process in kind, but for a different purpose and with a different result; that what seemed to be the nearest to it was the method of shaping and spacing the coils of hair balance springs for marine clocks, by coiling the wire into a mold of the required shape, called a snail, and subjecting it to heat while there in place, to make it retain its shape, but there was no displacement of the particles of which the wire was composed, by distortion, and the process was not a restoration of any lost quality, but a mere shaping of the wire into the article desired: that the discovery of that effect of restoration by Cary's mode was new; that experts called by the defendants admitted that they had not believed the result would be produced, until they saw the process tried in connection with that litigation; and that such production of a new and useful result, although by a new application of an old process, was patentable; citing *Crane* v. *Price*, (1 Webster's Pat. Cas., 393;) *Smith* v. *Goodyear Co.*, (11 O. G., 246; 93 U. S., 486;) and *Loom Co.* v. *Higgins*, (21 O. G., 2031; 105 U. S., 580.)

In the present case, in the opinion of Judge Acheson granting the preliminary injunction, (24 Fed. Rep., 141,) the court cited and followed the decision of Judge Wheeler.

In the opinion of Judge Nixon in *Cary* v. *Domestic Spring-Bed Co.*, (34 O. G., 1158; 26 Fed. Rep., 38,) he stated that, in ordering the preliminary injunction, he had followed the decision of Judge Wheeler: and that is shown also by his opinion granting such injunction. (27 Fed. Rep., 299.)

In the opinion of Judge Acheson in the present case, on final hearing, (31 Fed. Rep., 344,) concurred in by Judge McKennan, (31 Fed. Rep., 347,) it is stated that the process of the patent is based on the fact that the

evils resulting from the distortion of hard-drawn steel wire, in the ordinary operation of coiling it into springs for furniture, can be removed by a single application of heat, as set forth in the specification, so as to result in a greatly improved spring; that furniture-springs so treated came into immediate and very general use, on their introduction into the market, largely superseding springs not subjected to that treatment; and that experts and others practically familiar with the treatment and behavior of steel were greatly surprised at the result effected by the patented process, it being contrary to all their previous conception and experience. The opinion then cites and quotes from the opinion of Judge Wheeler, and states that the latter opinion held that the Cary process was new and patentable, although previously, in the manufacture of wire bells for clocks, heat had been applied to them for the purpose of giving them the desired sound and tone, and hair balance springs for marine clocks were subjected to heat while coiled in the grooves of a metallic plate, for the purpose of permanently setting the coils in proper relation to each other. The opinion of Judge Acheson further said that, after giving to the subject-matter an independent investigation, the court saw no reason to doubt the correctness of Judge Wheeler's conclusions, and added:

The purpose, object, and result of the application of heat in the practice of the Cary invention are so entirely different from those aimed at and attained by the application of heat in the manufacture of wire clock-bells, hair balance springs for marine clocks, and the other shown instances of its prior use, that we do not hesitate to adopt the conclusion of Judge Wheeler upon this branch of the case.

But we are of opinion that the same principle set forth in the patent was developed in the manufacture of the wire bells for clocks and of the hair balance springs; that there was no patentable invention in applying that principle to the springs mentioned in the specification, and that the case is merely one of a double use.

It results that the decree of the circuit court must be reversed, and the case be remanded to that court with a direction to dismiss the bill, with costs.

Mr. Justice Brewer did not sit in this case or take any part in its decision.

U. S. Circuit Court—Eastern District of Pennsylvania.

EX PARTE MOSES.

Decided December 27, 1892.

WITNESS—SUBPŒNA DUCES TECUM—AUTHORITY OF CLERK—PATENT OFFICE INTERFERENCE PROCEEDINGS.

Sec. 4906, Revised Statutes, providing that, on the application of any party to a contested case pending in the Patent Office, the clerk of any Federal court shall issue a subpœna for a witness commanding him "to appear and testify," does not include an authority to issue a subpœna duces tecum.

STATEMENT OF THE CASE.

Rule to show cause why an attachment should not issue against George Stuart for contempt in refusing to produce certain letters in obedience to a subpœna duces tecum issued by the clerk in an interference proceeding pending in the Patent Office.

The subpœna was issued under section 4906, Revised Statutes, which reads as follows:

Sec 4906. The clerk of any court of the United States, for any district or territory wherein testimony is to be taken for use in any contested case pending in the Patent Office, shall, upon the application of any party thereto, or of his agent or attorney, issue a subpœna for any witness residing or being within such district or territory, commanding him to appear and testify before any officer in such district or territory authorized to take depositions and affidavits, at any time and place in the subpœna stated; but no witness shall be required to attend at any place more than forty miles from the place where the subpœna is served upon him.

Messrs. Jones, Carson & Phillips for the motion.
Mr. Archibald R. Dewey opposed.

DALLAS, *J.*:

Under section 4906 of the Revised Statutes a subpœna was issued by the clerk of this court, commanding George Stuart to appear and testify before an officer in this district authorized to take depositions and affidavits, at a time stated in the subpœna, and at a place not more than forty miles from the place where the subpœna was served upon said George Stuart. In this subpœna a clause of duces tecum was inserted, commanding also the production of a certain letter. The subpœna is under the seal of this court, and the testimony to be taken is for use in a contested case pending in the Patent Office. The witness has duly appeared and testified; but, upon a ground and for reasons which need not be particularly mentioned, but which would not constitute a justification of his refusal if a lawful subpœna in that behalf had been duly served upon him, he has declined, and still declines, to produce the letter referred to. He disclaims, through his counsel, any disrespect to the court, or intended contempt of its process, and seeks only an adjudication upon the question of the regularity and sufficiency of the subpœna, as to the duces tecum clause. To this he is entitled. If the writ is not lawful, disobedience is not a contempt. (Rev. Stats., sec. 725.)

The authority to issue any subpœna such as has been issued in this instance is, and must be, wholly statutory. It is derived from and is dependent solely upon the section of the Revised Statutes which I have mentioned. In the absence of that section any subpœna, either to testify or to produce a document, could not, in aid of a proceeding in the Patent Office, be lawfully issued by the clerk of this court. It, and it alone, casts the duty upon the clerk to issue a subpœna; and in charging him with the performance of that duty it expressly defines and limits its extent, and, of course, restricts his power within the same boundaries. The language of this legislation is not general or indefinite; it is particular and specific:

The clerk * * * shall * * * issue a subpœna for any witness, * * * commanding him to appear and testify.

It is not admissible that, from these words, a duty and authority to issue a subpœna commanding, under penalty, the production of documents, should be implied. This is unquestionable upon general principles; but in this matter the intent of Congress that such an implication of power should not be assumed is quite obvious. In this connection it has said nothing whatever about a subpœna duces tecum, but, in dealing with the subject of depositions under a dedimus potestatem, it has plainly and expressly distinguished a subpœna to testify merely from a subpœna duces tecum. I must presume that the distinction was in mind in the passage of section 4906, as well as in the enactment of sections 868 and 869, and that, if in the former, as in the latter, it had been intended to authorize a subpœna duces tecum, that intention would have been expressed.

The rule for attachment is discharged.

THE
OFFICIAL GAZETTE
OF THE
United States Patent Office.
[BY AUTHORITY OF CONGRESS.]

VOL. 62.—No. 13. TUESDAY, MARCH 28, 1893. PRICE,—$5 per year.

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Privileges of the Scientific Library.

(ORDER No. 799.)

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 20, 1893.

Persons who are not employés of the Office may, under the supervision and direction of the Librarian, make extracts from descriptions and drawings contained in the Scientific Library, such extracts, when in the nature of copies, not to exceed one-third of the descriptions or drawings from which the copies are made. Violation of this order will subject all persons and parties concerned in the violation to exclusion from thereafter making any such extracts or copies whatever.

W. E. SIMONDS,
Commissioner.

DISCLAIMER.

387,366.—*Seth White Paine*, Rochester, N. Y., *Hiram A. Gray*, New Haven, Conn., and *Charles E. Pettee*, Ilion, N. Y., assignors to *William S. King*, Minneapolis, Minn. IMPROVEMENT IN LASTING-MACHINES. Patent dated August 7, 1888. Disclaimer filed March 16, 1893, by the assignee.

Enters his disclaimer to that part of the claims in said specification and patent which is in the following words, to wit:

"23. In combination with a last and supports therefor adapted to hold the last with its sole in a vertical plane, a frame provided with stretching devices to act upon an upper carried by the last, said frame being arranged to swing in a horizontal plane into and out of alignment with the last.

"24. In a lasting-machine, the combination of a last, a frame adapted to swing laterally in reference thereto, and a sash or sliding frame movable within the swinging frame and carrying pinchers or stretching devices to act upon an upper carried by the last.

"25. In combination with a last or work support, a laterally-swinging frame in front thereof, a sash or frame mounted in said swinging frame and movable toward and from the last, a catch or locking bolt adapted to lock the swinging frame against lateral movement, and a toe or trip carried by the sliding sash and serving to force back the catch and unlock the swinging frame when the sash moves back to a prescribed point."

World's Columbian Exposition.

DEPARTMENT OF THE INTERIOR,
UNITED STATES PATENT OFFICE,
Washington, D. C., March 8, 1893.

To the Inventors and Manufacturers of the United States:

It is the intention of the Patent Office to make at the World's Columbian Exposition at Chicago in 1893 an exhibit which will show that great advance in the several arts which is due, in large measure, to the encouragement and support afforded by our patent system. This exhibit is to consist of models of patented inventions, which will be carefully selected, to show as far as is possible the inception of each art, the stages through which the art has advanced, and the final development reached at the present time. This display of typical inventions, embodied in concrete form and properly arranged, will, it is believed, constitute a grand historical exhibit of the progress of the useful arts and one which will be of great interest not only to inventors and manufacturers, but to the public generally.

The Office collection of models has been seriously impaired by fire, and is further incomplete by reason of the fact that models have not generally been required or received during the last ten years. The Office is not, therefore, in possession of the models of many valuable inventions which might properly be included in such an exhibit, and without which, indeed, the exhibit would be incomplete. The limited appropriation for this exhibit will not permit the Office to make such models. An urgent appeal is therefore made to all inventors and manufacturers to come to the assistance of the Office in this matter, either by loans of models already built or by the construction of such models not in the possession of the Office as should properly be placed in such a collection. Of course, where models are loaned to the Office all proper credit will be given both in labels and catalogues to the parties by whom the loans are made, and such disposition will be made of the models after the close of the exhibit as the owners shall direct. Many inventors and manufacturers have already indicated a willingness to co-operate with the Office in this matter, and it is confidently expected that such a response will be made to this general appeal as will assure the unparalleled success of this attempt to graphically and concretely show the development of American invention.

W. E. SIMONDS,
Commissioner.

Notice.

On the 9th day of February, 1893, the President approved "An act to establish a Court of Appeals for the District of Columbia, and for other purposes," which contains the following:

Sec. 9. That the determination of appeals from the decision of the Commissioner of Patents, now vested in the general term of the Supreme Court of the District of Columbia, in pursuance of the provisions of section seven hundred and eighty of the Revised Statutes of the United States, relating to the District of Columbia, shall hereafter be and the same is hereby vested in the court of appeals created by this act; and in addition, any party aggrieved by the decision of the Commissioner of Patents in any interference case may appeal therefrom to said court of appeals.

Sec. 17. That all acts and parts of acts inconsistent herewith are hereby repealed.

The Official Gazette.

THE OFFICIAL GAZETTE is published every Tuesday, simultaneously with the weekly issue of patents. From January 1, 1872, (the commencement of its publication,) to June 30, 1883, it was published and bound in semi-annual volumes; since July 1, 1883, in quarterly volumes. All subscriptions must commence with the beginning of a volume; none taken for less than three months. Terms: To all subscribers within the United States and Canada, $5 per annum; to foreign subscribers, $7; single copies, 10 cents; bound semi-annual volumes, (prior to June 30, 1883,) full sheep, $4 per volume; bound quarterly volumes, (subsequent to July 1, 1883,) full sheep, $2.75 per volume. No club rates. *Payment in advance.* All orders should be addressed to "The Commissioner of Patents, Washington, D. C."

Issue of March 28, 1893.

Patents	425	No 494 115 to No. 494 539, inclusive.
Designs	11	No. 22,306 to No. 22,316, inclusive.
Trade-Marks	16	No. 22,698 to No. 22,713, inclusive.
Labels	None.	
Prints	None.	
Reissues	3	No. 11,316 to No. 11,318.
Total issue	455	

TO CITIZENS OF THE UNITED STATES.

States.	Patents and Designs.	Trade-Marks and Labels.	States	Patents and Designs.	Trade-Marks and Labels.
Alabama	1		Nevada		
Arizona Territory			New Hampshire	3	
Arkansas	3		New Jersey	15	
California	9		New York	57	3
Colorado	5		North Carolina	2	1
Connecticut	17		North Dakota		
Delaware			Ohio	24	
District of Columbia	3		Oklahoma Territ'y		
Florida	2		Oregon	3	1
Georgia	3		Pennsylvania	24	
Idaho	1		Rhode Island	10	1
Illinois	42	4	South Carolina	2	
Indian Territory			South Dakota	1	
Indiana	18		Tennessee		
Iowa	4		Texas	13	
Kansas	5		Utah Territory	1	
Kentucky	4		Vermont	1	
Louisiana	4		Virginia	5	
Maine	3		Washington		
Maryland	3	1	West Virginia	1	
Massachusetts	46		Wisconsin	15	
Michigan	17		Wyoming	2	
Minnesota	10	1	U. S. Army		
Mississippi			U. S. Navy		
Missouri	14	3			
Montana			Total to citizens of the United States	397	15
Nebraska	7				

TO CITIZENS OF FOREIGN COUNTRIES.

Countries.	Patents and Designs.	Trade-Marks and Labels.	Countries.	Patents and Designs.	Trade-Marks and Labels.
Argentine Republic			Mexico		
Austria-Hungary	2		Netherlands		
Belgium			Newfoundland		
Bermuda			New South Wales		
Brazil			New Zealand		
Canada	10		Norway		
Ceylon			Roumania		
Chile, Republic of			Russia		
Cuba	1		Scotland		
Denmark			South Australia		
Ecuador			Spain		
England	10	1	Sweden		
France	5		Switzerland	1	
Germany	10		Victoria		
India					
Italy			Total to citizens of foreign countries	39	1
Japan					

APPLICATIONS UNDER EXAMINATION.

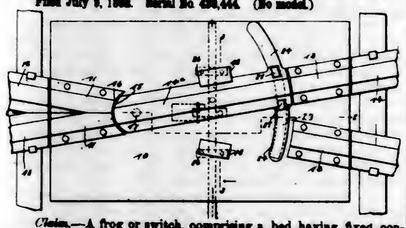
Condition at Close of Business March 21, 1893.

Division No.	Subjects of invention.	Oldest new application and oldest action by applicant awaiting office action. New.	Amended.	No. of applications awaiting action.
	Under one month in arrears.			
31	Gas, Paluting, Leather, Tanning, Alcohol, Oils, Fats, and Glue, etc.	Mar. 1	Mar. 16	68
	Between one and two months in arrears.			
16	Telegraphy, Telephony, Electric Lighting and Signaling.	Jan. 21	Mar. 16	247
14	Metal-Bending, Wire-Working, Coin-Controlled Apparatus, Farriery, etc.	Jan. 21	Mar. 11	152
8	Furniture, Toilet, Umbrellas and Canes, etc.	Jan. 21	Mar. 11	318
12	Mechanical Engineering, Stores-Service, etc.	Jan. 21	Mar. 8	239
11	Boots and Shoes, Clasps, Buckles and Buttons, Harness, Hose and Belting.	Jan. 23	Mar. 6	298
21	Textiles, etc.	Jan. 24	Feb. 24	205
25	Artesian and Oil Wells, Butchering, Mills and Thrashing, Stone Working, etc.	Jan. 23	Feb. 23	257
10	Carriages and Wagons and Railway-Cars.	Jan. 23	Feb. 17	386
20	Builders' Hardware, Cutlery, Safes, Dentistry, Surgery, Undertaking, Artificial Limbs, etc.	Jan. 24	Feb. 15	368
7	Harvesters, Games and Toys	Jan. 23	Feb. 15	553
13	Metal-Working, Arms and Projectiles, etc.	Jan. 23	Feb. 8	305
30	Lamps, Gas-Fittings, Type-Writers, Matrix-Making Machines.	Jan. 28	Feb. 4	252
27	Brushing and Scrubbing, Grinding and Polishing, Laundry, etc	Jan. 31	Feb. 2	195
28	Pneumatics, Refrigeration, Air and Gas Engines, etc.	Jan. 25	Jan. 29	367
4	Civil Engineering, etc.	Jan. 31	Jan. 28	340
6	Chemistry, Medicines, Fertilizers, Preserving, Photography, Sugar and Salt, etc.	Jan. 21	Jan. 28	298
5	Fine Arts, Stationery, Book-Binding, Music, etc.	Jan. 21	Jan. 26	330
	Between two and three months in arrears.			
2	Farm Stock, Products, etc	Jan. 17	Mar. 6	252
24	Sewing-Machines and Apparel	Jan. 16	Feb. 8	178
9	Hydraulics, Fire-Extinguishers, etc.	Jan. 18	Feb. 3	358
18	Steam-Engineering, etc.	Jan. 18	Feb. 2	258
	Between three and four months in arrears.			
32	Advertising, Baggage, Packing and Storing Vessels, etc.	Nov. 25	Mar. 9	450
23	Instruments of Precision, Acoustics, Optics, etc.	Dec. 10	Feb. 23	356
22	Fire-Arms, Navigation, Signals, etc.	Dec. 14	Feb. 13	301
3	Metallurgy, Metal Founding, Forging, Rolling, Coating, Annealing and Tempering, etc.	Nov. 25	Feb. 7	386
19	Stoves and Furnaces	Dec. 19	Feb. 1	499
1	Tillage and Fences	Dec. 7	Jan. 26	316
17	Paper-Manufactures and Printing.	Nov. 26	Jan. 14	373
15	Plastics, Paper-Making, Paving Glass, Fuel, Bread-Making, etc.	Dec. 15	Dec. 25	376
	Between five and six months in arrears.			
29	Wood-Working Machines, Carpentry, Coopering and Roofing, etc.	Oct. 8	Mar. 2	372
	Between seven and eight months in arrears.			
26	Electricity, Generation, Distribution, etc.	July 25	Nov. 4	594
	Total number of applications awaiting action			10150
	Under one month in arrears.			
	Designs	Mar. 6	Mar. 6	126
	Trade-Marks	Mar. 3	Mar. 11	133

PATENTS

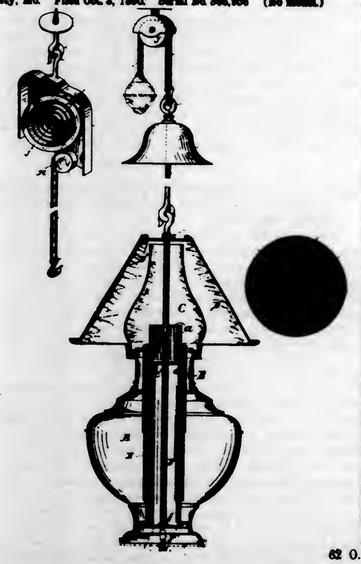
GRANTED MARCH 28, 1893.

494,115. RAILROAD-FROG. CARSON C. ANDREWS, New York, N. Y. Filed July 9, 1892. Serial No. 439,444. (No model.)



Claim.—A frog or switch, comprising a bed having fixed converging rails at the ends, a shifting rail held to swing between and register with the fixed rails, lugs secured to the bed and arranged to limit the movement of the shifting rail, a guide rod fixed to the shifting rail and held to move in a slot in the bed, cover plates secured to the rail and held to cover the slot, a switch rod operatively connected with the shifting rail, a spring-pressed locking pin held to move vertically in the bed and enter recesses in the shifting rail, and a cam mechanism operated by the switch rod and adapted to release the locking pin, substantially as described.

494,116. LAMP-SUSPENDING DEVICE. JOHN BARBER, Kansas City, Mo. Filed Oct. 3, 1890. Serial No. 366,956 (No model.)



Claim.—1. In suspending devices for hanging lamps, the combination with a lamp provided with a central draft tube and a wick inclosing the said draft tube, of a rod connected to a plate supporting the lamp and to a point of support above and located within the draft tube, substantially as described.

2. In suspending devices for hanging lamps, the combination with a lamp provided with a drip pan and a central draft tube inclosed by the wick, of a rod connected to the drip pan and to a point of support above and located within the said draft tube, substantially as described.

3. In suspending devices for hanging lamps, the combination with a lamp provided with a central draft tube, having a guide plate located at its upper end, of a rod supporting the lamp and located within the draft tube, and passing through the guide plate to a point of support above, substantially as described.

4. In a lamp suspending device, the combination with a lamp provided with a tubular wick and a tube encircled by the wick, of a support for the lamp from above and located within the tube, substantially as described.

5. In a lamp suspending device, the combination with a lamp provided with a shade, a tubular wick and a tube encircled by the wick, of means, located within the tube, of independently supporting the lamp and shade, substantially as described.

6. In a lamp suspending device, the combination with a chain connected with and supporting a lamp, of an eccentrically pivoted roller over which the chain passes, and a counterbalance operating on the chain against the weight of the lamp, substantially as described.

7. In a lamp suspending device, the combination with a chain connected with, and supporting a lamp, of an eccentrically mounted roller, over which the chain passes, and a spring for winding the chain and adapted to counterbalance the weight of the lamp, substantially as described.

8. In a lamp suspending device, the combination with a lamp provided with a central draft tube inclosed by the burner of the lamp, of a rod located within the said draft tube and supporting the lamp, a chain connected with the rod, an eccentrically mounted roller over which the chain passes, and a counterbalance operating on the chain against the weight of the lamp, substantially as described.

9. A pulley eccentrically pivoted upon a support, and provided with a spring connected to the pulley and support and adapted to be wound when the pulley is revolved in the proper direction, substantially as described.

494,117. CAR-TRUCK. GEORGE M. BRILL and JOHN A. BRILL, Philadelphia, Pa. Filed June 30, 1892. Serial No. 438,508. (No model.)

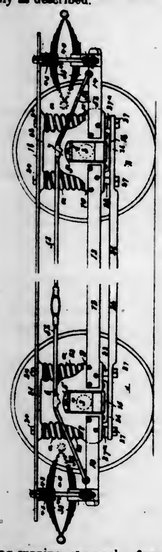
Claim.—1. In a truck, the combination of a stationary frame supported on the running gear, a movable frame, a series of sets of springs of varying capacity for the movable frame, and an additional set of springs auxiliary to one set of the series substantially as described.

2. In a truck, the combination of a stationary frame supported on the running gear, a movable frame, sets of springs for said movable frame, whereof one set acts continuously thereon and another set is supplemental to the first set, coming into operation after commencement of compression of the first set, and an auxiliary set of springs acting simultaneously with the supplemental set, substantially as described.

3. In a truck, the combination with a stationary frame supported on the running gear, said frame having sections extending outwardly from the axle, a movable frame, spiral springs between the movable and stationary frames, elliptical springs between the extended sections and the movable frame, and an additional set of springs auxiliary to the elliptical springs, substantially as described.

4. In a truck, the combination of a stationary frame, supported on the running gear, a movable frame, a set of springs *a* connected to both frames, a supplemental set 33 connected to one frame, and a set of springs 51 connected to the other frame, auxiliary to the supplemental set, substantially as described.

5. In a truck, a spring supporting frame having outwardly extending sections, a movable frame having like extensions, spiral springs about the running gear and extending between both frames, elliptical springs between the extensions of both frames, and elastic cushions in combination with and auxiliary to the elliptics and located adjacent thereto, substantially as described.



6. A truck having running gear and a frame, spiral springs for supporting the car body supplemented by elliptical springs adapted to coact therewith, and auxiliary springs, acting independently of the elliptical springs, opposing a resilient resistance to the upward movement only of said frame, substantially as described.

7. A truck having running gear and a frame, springs adapted to support said frame, and elastic cushions independent of said springs opposing a resilient resistance to the upward movement only of the frame, the cushions at one end co acting with the springs at the other to resist the said movement, substantially as described.

8. A truck having running gear and a frame, springs adapted to support said frame, supports for said springs, devices secured to said frame for confining the upper portion of the springs and connections between said devices and the spring supports, said devices and connections being constituted so as to permit a transverse movement of either of the springs or the frame independently of each other, substantially as described.

9. The combination with the side beams, the superposed saddles secured to the side beams, a spring held between the saddles, a cap secured to the upper chord or car sill engaging the upper end of the said spring, pillars extending between the saddles and cap, and elastic cushions on said cap engaging the pillars, substantially as described.

10. The upper chord or car sill having the depending cap 43, outwardly extending ears 44 on said cap, elastic cushions 45 on said ears, an elliptical spring held on the side beams adapted to move in said cap, and pillars 40 secured to the side beams and passing through and bearing on said cushions, substantially as described.

11. The upper chord or car sill having the depending cap 43, ears 44, extended openings 48 in said ears, elastic cushions 45 on said ears, pillars 40 passing through the opening 48 and cushions and bearings on said cushions, and a spring 33 extending within the cap which is wider than engaging end of the spring, substantially as described.

12. The combination with the side beam, a spring secured to the side beams, a cap secured to the upper chord or car sill straddling the upper portion of the spring, an elastic support on said cap, and devices connecting the side beam with the elastic support, substantially as described.

13. The upper chord or car body having the depending yoke shaped cap 43 with the inwardly extending lips 50, and the elliptical spring 33 held in said cap and adapted to move therein, substantially as described.

14. The upper chord or car body having the depending yoke shaped cap 43 with the inwardly extending lips 50, a spring 33 adapted to bear on said lips and move in the cap, substantially as described.

15. The upper chord or car body having the depending cap 43, lips 50 on said cap, and a spring 33 suitably supported and having the binding strap 33ª in contact with the lips, substantially as described.

16. The upper chord or car body having the depending cap 43, a spring suitably supported and adapted to move in said cap, and an elastic cushion between the spring and cap, substantially as described.

17. The upper chord or car body, the yoke shaped cap 43 having the lips 50, an elastic block 51 set in the upper portion of the cap, and an elliptical spring suitably supported and adapted to move in said cap, substantially as described.

18. The upper chord or car body, having a depending yoke-shaped cap with laterally projecting lips thereon, said lips adapted to engage a spring opposing a resilient resistance to the upward movement of said chord, substantially as described.

19. In a truck, the combination of a stationary frame supported on the running gear, a movable frame, a yoke-shaped cap secured thereto, laterally projecting lips on the cap, and a spring connected to the stationary frame and engaging said lips, substantially as described.

20. In a truck, the combination, with a stationary frame supported on the running gear, of a movable frame and springs 33, 45 secured to the stationary frame, each adapted to commence a resilient resistance to the movable frame, one after said frame has commenced its downward movement and the other after it has commenced its upward movement, substantially as described.

21. In a truck, the combination, with a stationary frame supported on the running gear, of a movable frame, and elastic cushions 45, 51, attached one to each frame, and resiliently resisting respectively the upward and the downward movement only of the movable frame, substantially as described.

22. In a truck, the combination of a stationary frame, a movable frame, a spring secured to the stationary frame, a yoke-shaped cap secured to the movable frame and embracing the spring, and an elastic cushion secured in said cap, and arranged to contact with said spring, substantially as described.

23. In a truck, the combination, with a stationary frame, a movable frame, a spring secured to the stationary frame, a saddle secured to the movable frame, an elastic cushion secured to said saddle and adapted to contact with the spring, and an elastic cushion connected to the stationary frame, and contacting with the saddle, substantially as described.

24. In a truck, the combination of a stationary frame supported on the running gear, a movable frame, a yoke-shaped cap secured to said movable frame straddling an attachment of the stationary frame, and an elastic cushion secured within the yoke of said cap, and adapted to contact with said attachment, substantially as described.

25. The combination of the saddles 34, 35 the elliptical spring 33 secured therein, the upper saddle or cap 43 arranged to compress said spring, and the posts 40, serving as bolts for the lower saddles, and as guides for the upper saddle, substantially as described.

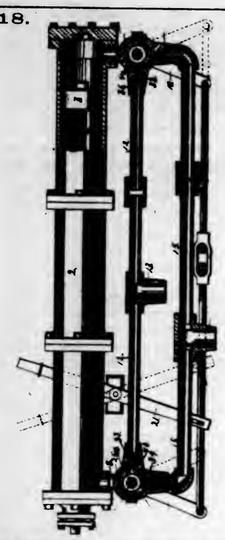
494,118. VALVE CONNECTION FOR STEAM SAWMILL-FEEDS. JAMES H. BROWN, Eau Claire, Wis. Filed Feb. 27, 1892. Serial No. 423,264. (No model.)

Claim.—1. The combination with the steam feed cylinder for saw-mills, of the live and exhaust steam connections with the ends of said cylinder, a rotary valve introduced therein close to each end of said cylinder, each of said valves made up of a casing 25 having the inlet and exhaust ports 33 and 34 respectively, the duct 26 leading into the cylinder, the rotary sleeve 24 arranged in said casing and having the openings 38 and 40, the stem or rod of said sleeve, a lever or arm 18 fixed on one or both ends of said rod, and a connecting rod or link arranged between the arms of the two valves, means being provided for throwing said link as described.

2. The combination in a rotary valve, of the cylindrical casing 25 having the necks 36 and the ports 33 and 34, a head 23 having the duct 26 of smaller diameter than the cylinder of the casing, a rod passing concentrically through said casing, means for rotating the stem, a rotary valve sleeve arranged in said cylinder and having the open end concentric with the duct 26, said sleeve provided with the openings 38 and 40 to be moved over the ports 34 and 33 respectively and said sleeve being fixed upon said stem to rotate therewith.

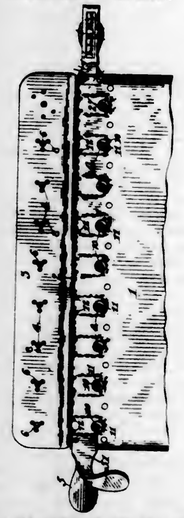
3. The combination in a rotary valve, of the casing 25 provided with the ports 33 and 34, and with the openings 37 in its side, of the head 23 provided with the duct 26, the shoulder 41 of said head, the head 30 and the shoulder 29 thereof, the valve sleeve 24 arranged in

494,118.



said cylinder and fitting between said shoulders, said sleeve having the open end and the ports 38 and 40 the valve stem passing through said sleeve and said heads, means for rotating said stem, said sleeve secured thereon and provided with the holes 28 in its end 27 whereby the sleeve is balanced, substantially as described.

494,119. MAIL-BAG. PETER J. CARMAN, Duluth, Minn. Filed Feb. 20, 1892. Serial No. 422,306. (No model.)



Claim.—1. In combination with a mail bag and its closing flap; a series of locking devices each composed of two co-operating members which are arranged respectively on the adjacent parts of the bag and flap, one of said members consisting of a locking bolt, and the other of said members consisting of a spring catch adapted to engage said locking bolt; a suitable cam on each of one set of said members adapted to actuate them and release the bolts from the spring catches; and an actuating strap provided with a series of lugs adapted to engage all of said cams for releasing all of said locking devices simultaneously; substantially as and in the manner set forth.

2. In combination with a mail bag and its closing flap, a series of locking bolts, a series of metallic casings having openings in their faces to receive said bolts, and transverse openings through their sides, to receive an actuating strap or chain, spring catches pivotally supported in said casings and having their engaging noses traversing the openings in the faces for engaging the locking bolts, and their cam shoulders traversing the transverse openings, and a strap or chain passing through all of said transverse openings and engaging the cam shoulders of said catches for actuating them, substantially as and for the purpose set forth.

3. In combination with a mail bag and its closing flap, a series of locking bolts, a series of pivoted spring catches adapted to engage said bolts and formed with cam shoulders, and an actuating strap provided with a series of lugs adapted to engage said cam shoulders for actuating the spring catches and disengaging them from the locking bolts, substantially as set forth.

4. In combination with a mail bag and its closing flap, a series of locking bolts, a series of spring catches adapted to engage said bolts and formed with cam shoulders, an actuating strap provided with a series of lugs adapted to engage said cam shoulders for actuating the spring catches, and a main controlling lock adapted to engage said actuating strap and hold it when the bag is closed, substantially as herein set forth.

5. In combination with a mail bag and its closing flap, a series of locking bolts, a series of metallic casings having openings in their faces to receive said bolts, and transverse openings through their sides to admit the passage of an actuating strap, spring catches pivotally supported in said casings and having their engaging noses traversing the openings in the faces of said casings for engaging said locking bolts, and formed with cam shoulders extending into the transverse openings, an actuating strap passing through all of said transverse openings and provided with lugs which are adapted to engage said cam shoulders for actuating said catches, substantially as set forth.

6. In combination with a mail bag and its closing flap, a series of locking bolts, a series of metallic casings having openings in their faces to receive said bolts, transverse openings through said casings adapted to receive an actuating strap, spring catches pivotally supported in said casings and formed with cam shoulders, an actuating strap passing through said transverse openings and provided with lugs which are adapted to engage the shoulders of said catches, and lugs on said strap adapted to engage the sides of said casings for limiting its movement, substantially as set forth.

7. In combination with a mail bag and its closing flap, a series of locking bolts, a series of pivoted spring catches adapted to engage said bolts and formed with cam shoulders, an actuating strap provided with lugs adapted to engage the shoulders of said catches for actuating them, a main controlling lock, and a lug on said actuating strap engaged by said controlling lock, whereby all of the locking devices can be locked in engaged position, substantially as set forth.

8. In combination with a mail bag and its closing flap, a series of locking bolts, a series of pivoted spring catches adapted to engage said bolts, an actuating strap engaging said catches for actuating them, a main controlling lock provided with a pivoted latch which is formed with a rearwardly extending locking heel, a lug on the actuating strap adapted to be engaged by said locking heel, and means for operating said main lock, substantially as set forth.

9. In combination with a mail bag and its closing flap, a series of locking bolts, a series of pivoted spring catches adapted to engage said bolts and to move them in the same direction for disengaging all of them, a main locking bolt, a main pivoted spring catch having a projecting heel and adapted to engage said main locking bolt and to move in a direction opposite to the direction of movement of the auxiliary spring catches for disengaging said main locking bolt, and an actuating strap provided with lugs for operating said auxiliary spring catches, and a locking lug adapted to be engaged by the heel of said main spring catch, substantially as set forth.

10. In combination with a mail bag and its closing flap, a series of auxiliary locking devices, a main controlling lock, and an actuating strap adapted to release said auxiliary locking devices and engaged by said main controlling lock for preventing its movement; said main controlling lock consisting essentially of a spring catch, a rotatable locking bolt adapted to be engaged by said catch, lugs formed integral with said locking bolt, and curved spring actuated tumblers adapted to engage one of said lugs, and formed with cam faces, substantially as set forth.

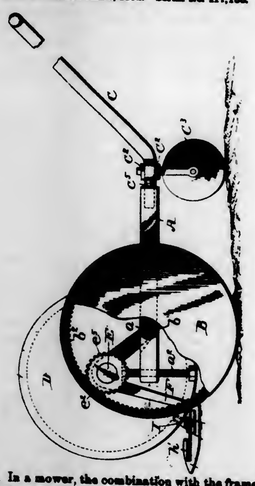
11. In combination with a mail bag and its closing flap, a series of locking devices, a longitudinally movable strap adapted to actuate said locking devices, and an address plate attachment secured to one end of said strap and formed with an opening at its inner end for the

passage of the address card, whereby said card can be inserted when the bag is open and the strap is in its outer position and will be locked in place when the bag is locked and the strap is in its inner position, substantially as set forth.

12. In combination with a mail bag and its closing flap, a series of locking devices, an actuating strap passing through and controlling said locking devices, an address plate hinged to the edge of said mail bag and adapted to have said strap passed therethrough, spring lugs on said strap adapted to receive an address card, and an opening in the address plate, substantially as set forth.

13. In combination with a mail bag and its closing flap, a series of locking devices, an actuating strap passing through and adapted to control all of said locking devices, a hollow cylindrical casing secured to the edge of the mail bag, a similar hollow casing secured to the opposite end of the actuating strap, and spiral springs seated in said hollow casings and connected respectively to the end of the actuating strap and the edge of the mail bag, substantially as set forth.

494,120. LAWN-MOWER. FRED CARLSON and CHARLES G. CARLSON, Topeka, Kans. Filed Jan. 6, 1892. Serial No. 417,188. (No model.)



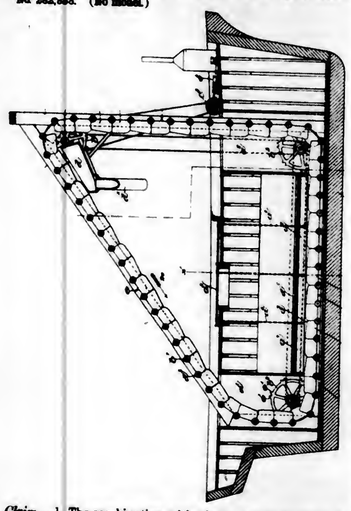
Claim.—1. In a mower, the combination with the frame, and the drive wheels B B and the wheel C^3 for supporting the said frame at a fixed relative distance from the ground, of arms pivotally connected with the frame, a cam shaft carried by the said arms and driven by direct contact with the said drive wheels, the cutting apparatus attached to the arms and actuated by a cam on the said cam shaft, means for adjusting the said arms independently of the said frame to raise and lower the cutting mechanism, and a handle attached to the fixed frame, substantially as described.

2. In a mower, the combination with the frame, and the drive wheels B B and the wheel C^3 for supporting the said frame at a relative fixed distance from the ground of arms pivotally supported, the pivots being in axial line with the drive wheels, a cam shaft carried by the said arms and driven directly from the said drive wheels, the cutting apparatus carried by the said arms and operated directly from the cam on the cam shaft, means for adjusting the arms independently of the frame to raise and lower the cutting apparatus and a handle attached to the fixed frame, substantially as described.

3. In a mower, the combination with the frame A, and the drive wheels B B and the wheel C^3 for supporting the said frame at a relative fixed distance from the ground, of the arms F having pivotal connection with the frame A in axial line with the drive wheels, the cam shaft E mounted in the arms F and rotated by direct connection with the said drive wheels, the cutting apparatus carried by the said arms and driven from the cam wheel on the said cam shaft, the set screws for adjusting the arms independently of the said frame A to raise and lower the cutting mechanism, and the handle attached to the fixed frame, substantially as set forth.

4. The combination with the frame A, drive wheels B B and caster wheel C^3 to support the said frame at a relatively fixed distance from the ground, and the arms F having pivotal connection with the frame A in axial line with the drive wheels, of the cam shaft E mounted in the arms F and driven from the wheels B, the cutting apparatus carried by the arms F and actuated by the cam on shaft E, the set screws e^3 passing through the frame A and adapted to engage with the said arms F for adjusting the said arms to raise and lower the cutting apparatus independently of the frame A and the handle attached to the fixed frame whereby it will remain at a given distance from the ground whatever the position of the cutters, substantially as set forth.

494,121. COAL-BARGE. JONATHAN CHASE, Boston, Mass., assignor to Henry Kellogg, Jr., same place. Filed Aug. 16, 1888. Serial No. 283,838. (No model.)



Claim.—1. The combination, with a barge or vessel provided with elevator wells a' a^2 at or near its opposite ends, and a false bottom forming a passage way to connect the said elevator wells, a sprocket wheel located in each elevator well, an upright frame, and a sprocket wheel supported thereby, of an endless chain of buckets extended through said elevator wells and passage way, and means to rotate said sprocket wheels to cause the endless chain of buckets to travel, substantially as and for the purpose specified.

2. The combination with a barge or vessel provided with elevator wells a' a^2 at or near its opposite ends, and a false bottom composed of inclined parts a^4 a^4 forming a passage way to connect the said elevator wells, doors a^7 hinged to the parts, and connections to operate said doors from above the deck, and an upright frame, of an endless chain of buckets, and sprocket wheels about which the endless chain is passed, and means to drive said endless chain of buckets, substantially as described.

3. The combination with a barge or vessel provided with elevator wells a' a^2 at or near its opposite ends, and inclined parts a^4 a^4 forming a passage way to connect said elevator wells, of an upright frame extended above the deck of the barge or vessel, side rails b' extended from the frame to the elevator well a', sprocket wheels located in said elevator wells and on said frame, and an endless chain of buckets passed about said sprocket wheels and adapted to travel through said elevator wells and passage way, as and for the purpose specified.

4. The combination with a barge or vessel provided with elevator wells a' a^2 at or near its opposite ends, and a false bottom forming a passage way to connect said elevator wells, of an upright frame extended above the deck of the barge or vessel, side rails b' extended from the upright to the elevator well a', sprocket wheels located in said elevator wells and on said frame, and an endless chain of buckets passed about the said sprocket wheels and supported within the circumference of the said wheels, substantially as described.

5. The combination, with a barge or vessel provided with a passage-way extended lengthwise of the same and communicating with the deck, of an upright frame, and a continuous or endless chain of buckets extended through the said passage-way and over the said upright frame, substantially as described.

6. The combination, with a barge or vessel provided with a passage-way extended lengthwise of the vessel, and communicating with the deck, of an upright frame, a continuous or endless chain of inverted buckets extended through said passage-way and over said frame, and means to cause the endless chain of buckets to travel, substantially as described.

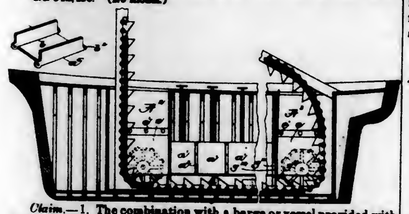
7. The combination with a barge or vessel provided with elevator wells a', a^2 at or near its opposite ends, and a false bottom composed of inclined parts a^4, a^4 forming a passage-way to connect the said elevator wells, doors a^7 hinged to the parts, and connections to operate said doors from above the deck, auxiliary doors or knives as a^8, and an upright frame, of an endless chain of buckets, and sprocket wheels about which the endless chain is passed, and means to drive said endless chain of buckets, substantially as described.

8. The combination, with a vessel provided with a passage-way between the bottom and a false-bottom, of a vertically-arranged elevator frame at the end of such passage-way, an endless chain of buckets arranged in said passage-way and upon said elevator-frame, and wheels to move and guide said chain, whereby the coal or other contents of the vessel may be taken therefrom and carried directly to and up the elevator-frame to be discharged, substantially as described.

9. The combination, with a vessel provided with a passage-way between a false-bottom and the real bottom, of a vertically-arranged elevator-frame at one end of such passage-way, said elevator-frame being provided with a portion overhanging the discharge chute, an endless chain of buckets and troughs arranged in said passage-way and on said elevator-frame, and wheels or pulleys and tracks to move and guide said chain of buckets and troughs, substantially as set forth.

10. The combination, with a barge or vessel provided with a passage-way extended lengthwise of the vessel, of elevator wells connected to the said passage-way at its opposite ends, an upright frame, a continuous or endless chain of inverted buckets extended through said passage-way and over said frame, and means to cause the endless chain of buckets to travel, substantially as described.

494,122. COAL-BARGE. JONATHAN CHASE, Boston, Mass., assignor to Henry Kellogg, Jr., same place. Filed May 23, 1889. Serial No. 312,496. (No model.)



Claim.—1. The combination with a barge or vessel provided with a longitudinal passage-way, communicating with the deck of the vessel, and an upright frame supported by the said vessel, of an endless chain of inverted buckets located in said passage-way and passed about said frame, a knife to close the said passage-way and means to operate said knife, substantially as described.

2. The combination with a barge or vessel provided with a longitudinal passage-way having side walls a, of a false bottom composed of detachable sections having one end supported by said walls, an endless chain of inverted buckets in said passage-way, a series of knives to close said passage-way, and means to move the said knives, substantially as described.

3. The combination with a barge or vessel provided with a longitudinal passage-way, a track located therein, and an endless chain of buckets provided with wheels to run on said track, of a dirt deflector or shed located below the said buckets between the rails of the track, substantially as described

4. The combination with a barge or vessel provided with a longitudinal passage-way having side walls, a track located therein, and an endless chain of buckets provided with wheels to run on said track, of a dirt deflector or shed located below the said buckets between the rails of the track, and side guards between the rails and walls of the passage-way, substantially as described.

5. The combination, with a barge or vessel provided with a longitudinal passage-way having side walls, an elevator well communicating with the ends of the said passage-way, of a track located in said passage-way, sprocket wheels located in said elevator well, an endless chain of inverted buckets in said passage-way passed about said sprocket wheels, a shield for said sprocket wheels, a dirt deflector or shed located below the said buckets between said track, and knives to close said passage-way, and means to operate said knives, substantially as described.

6. The combination, with a barge or vessel provided with a longitudinal passage-way having side walls, an elevator well communicating with the ends of the said passage-way, of a track located in said passage-way, sprocket wheels located in said elevator well, an endless chain of inverted buckets in said passage-way passed about said sprocket wheels, a shield for said sprocket wheels, and knives to close said passage-way, and means to operate said knives, substantially as described.

7. The combination of a barge or vessel provided with a longitudinal passage-way having side walls, a track located therein, and an endless chain of buckets provided with wheels to run on said track, and side guards between said rails and walls of the passage-way, substantially as described.

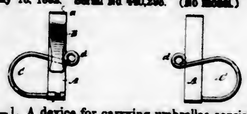
8. The combination with a barge or vessel provided with a longitudinal passage-way having side walls, an elevator well communicating with the ends of the said passage-way, an opening g^{21} in one of the elevator wells, and a door to close said opening, of a track located in said passage-way, sprocket wheels located in said elevator well, an endless chain of inverted buckets in said passage-way passed about said sprocket wheels, a shield for said sprocket wheels, and knives to close said passage-way, and means to operate said knives, substantially as described.

9. The combination of a barge or vessel provided with a longitudinal passage-way, and an endless chain of independent inverted buckets located in said passage-way and provided on their underside with eyes, and ropes or chains engaging said eyes to connect said buckets and preserve the integrity of the endless chain, substantially as specified.

10. The combination, with a barge or vessel provided with a longitudinal passage-way having side walls, an elevator well communicating with the ends of the said passage-way, an opening g^{21} in one of the said elevator wells, and a door to close said opening, of a track located in said passage-way, sprocket wheels located in said elevator wells, an endless chain of inverted buckets in said passage-way passed about said sprocket wheels, substantially as described.

11. The combination, with a barge or vessel provided with a longitudinal passage way, communicating with the deck of the vessel, and an upright frame supported by the said deck, of an endless chain of inverted buckets extended through said passage-way, and over said frame, and a series of independent knives to close said passage-way, and means to move said knives, substantially as described.

494,123. UMBRELLA-HOLDER. THOMAS B. COMINS, Boston, Mass. Filed July 15, 1892. Serial No. 440,298. (No model.)



Claim.—1. A device for carrying umbrellas consisting of a suspender for securing it to the person of the wearer and a holder C hinged thereto to open to an approximately horizontal position and open laterally to receive the umbrella, substantially as, set forth.

2. In a device for attaching umbrellas &c., to the person a hooked suspender, in combination with a hinged holder provided with a stop b and a lock d substantially as, and for the purposes, set forth.

3. In a device for attaching umbrellas &c., to the person, a hooked suspender combined with a spring holder hinged thereto and provided with a lock d substantially as, and for the purposes, set forth.

494,124. KITCHEN-CABINET. DAVID R. COTNER, Bardwell, Ky. Filed Aug. 31, 1891. Renewed Aug. 17, 1892. Serial No. 443,330. (No model.)

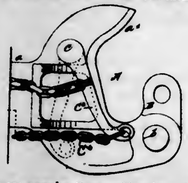


Claim.—1. In a kitchen cabinet, the combination, with the casing provided with bins, a central recess upon its top, and with a frame partially covering said recess, of a bread-board sliding within the latter and provided at its rear end with an upwardly projecting portion, the latter being in conjunction with the board of approximately

the same depth as the recess, and a cover of corresponding thickness to the projecting portion and hinged at the front edge of the board, said cover when in folded position being adapted to enter the recess; substantially as and for the purpose set forth.

3. In a kitchen cabinet, the combination, with the casing provided with obliquely-arranged, swinging bins and with drawers, side boards disposed on the top of the frame at its ends and forming an intermediate recess, and a frame provided with compartments and partially covering said recess, of a bread-board sliding within the latter and having its rear end of increased depth and approximately the same depth as the recess, for the purpose described, and a cover hinged at the outer edge of said board and adapted to fit over the board proper and form a continuation of the deeper rear end of the board, whereby the inner edge of said cover is received within the recess when the board is in closed position; substantially as set forth.

494,125. CAR-COUPLING. CHARLES H. DALE, New York, N. Y. Filed Dec. 23, 1892. Serial No. 454,016. (No model.)



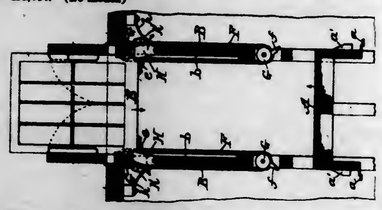
Claim.—1. In a car coupler the combination with a coupler head and a swinging knuckle, of a vertically-extending rock shaft, having an inclined plane on its lower portion, an inclined plane, extending from the lower wall of the coupler head, and coacting with the first named inclined plane, and a locking dog or block extending from the rock shaft, substantially as specified.

2. In a car coupler the combination with a coupler head and a swinging knuckle, of the vertically extending rock shaft, an inclined plane for oscillating the shaft to a normal position, a locking dog or block extending from the rock shaft, and the link having a pivotal connection with the knuckle and a lost motion engagement with the dog or block, substantially as specified.

3. In a car coupler the combination with the coupler head having the bearing blocks provided with the double bevels b', b^2, and the knuckle having the corresponding bevels, substantially as specified.

4. In a car coupler the combination with the head and the knuckle of the dog or block, the vertical rock shaft carrying the same, the lever on the rock shaft and the operating chain attached to the car body, substantially as specified.

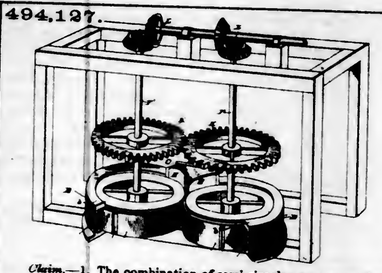
494,126. DEVICE FOR OPERATING GATES TO ELEVATOR-WELLS. CHARLES F. DE ARDEN, New York, N. Y., assignor of one-half to Cornelius B. Parker, same place. Filed July 12, 1892. Serial No. 439,797. (No model.)



Claim.—1. The combination of an elevator gate adapted to slide vertically and to drop below the level of the floor, a latch to hold said gate in its highest position, an endless chain attached to the gate, and having a projection thereon, a car, a finger fixed to said car and adapted to move therewith in the same path with the projection on the chain, and an incline carried by said car and adapted to withdraw the latch, substantially as shown and described.

2. The combination with an elevator, a gate to stand above the level of the floor and means actuated by the movement of the car to raise said gate, of doors to close the opening in the floor, said doors having legs or cars forming ways for said gate to steady the same, substantially as shown.

494,127. WATER-WHEEL. JOHN J. DESKINS, Livingston Manor, N. Y. Filed July 16, 1892. Serial No. 440,236. (No model.)



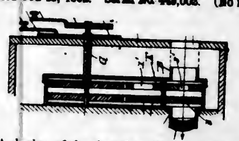
Claim.—1. The combination of semi-circular or segmental wheel casings connected to a common inlet at their adjacent ends and terminating at their other ends in separate discharge openings J, said wheel casings being provided with short inwardly extending flanges, and the oppositely moving water wheels having their edges projecting slightly within and overlapped by the flanges of said casings and provided with a series of intermeshing or registering buckets and pockets, the buckets receiving the impact of water from the common inlet and relieving themselves therefrom at the discharges J, substantially as set forth.

2. In a hydraulic motor, semi-circular or segmental wheel casings meeting at one end in a common inlet and provided with short inwardly extending flanges, and the oppositely moving water wheels touching each other between their shafts and provided with upper and lower encircling annular shoulders fitting the edges of said inwardly projecting flanges, and a series of intermeshing buckets and pockets moving in said casings, substantially as set forth.

3. In a hydraulic motor, semi-circular or segmental wheel casings, a triangular water inlet box connecting the nearest ends of said casings, and oppositely moving water wheels touching each other near their shafts and having their edges moving in said casings and water box, said wheels being provided with a series of intermeshing buckets and pockets moving in said casings, substantially as set forth.

4. In a hydraulic motor, semi-circular or segmental wheel casings, having inwardly projecting flanges, a triangular water inlet box connecting the nearest ends of said casings, the vertical wheel shafts, the meshing cog wheels mounted upon said shafts, and oppositely moving water wheels touching each other between said shafts and provided with upper and lower encircling annular shoulders fitting the edges of said inwardly projecting flanges and said water box, and a series of intermeshing buckets and pockets moving in said water box and said wheel casings which partly inclose the same, substantially as set forth.

494,128. LENS FOR CAMERAS. ERSKINE DUNKIN, Cassopolis, Mich. Filed Oct. 15, 1892. Serial No. 449,008. (No model.)



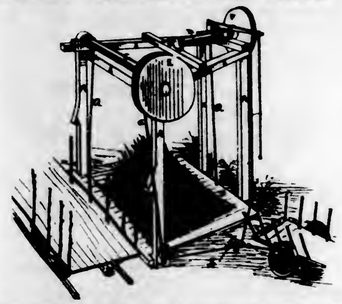
Claim.—A device of the class described, comprising a casing provided with a tube —B—, the bi-convex and bi-concave lenses in the tube, the toothed disks —D—E— revolubly and concentrically mounted in the casing and having one or more openings adapted to coincide with that of the tube as the disks are rotated, the lenses in the opening of said disk —D—, and the indicator cranks —I—J— controlling and operating said disks through suitable gearing substantially as and for the purpose specified.

494,129. TRANSFERRING-MACHINE. FRANCIS L. DELPIER, St. Patrick, La. Filed Apr. 15, 1892. Serial No. 429,330. (No model.)

Claim.—1. In a transfer apparatus the combination of a platform, independent hoists, attached to the front and rear sides of the same, an actuating rope connected with both of said hoists, and means for arresting the operation of one of the hoists during the operation of the actuating rope, substantially as described.

2. In a transfer apparatus the combination of a platform, independent hoists connected with the front and rear sides of the same, an actuating rope connected with both of said hoists, means for arresting the ascent of one side of the platform, and mechanism for retarding the operation of one of the hoists, substantially as described.

3. In a transfer apparatus the combination of a platform, independent hoists attached to the front and rear sides of the same, means for actuating said hoists, posts or guides along which the platform moves in its ascent, and stops L on said guides in line with and above the front portion of the platform, substantially as described.

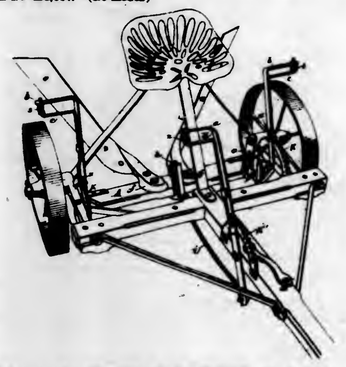


4. In a transfer apparatus the combination of a platform, independent hoists attached to the front and rear sides of the same, an actuating rope connected with both of said hoists, a pulley K on said rope, and means for retarding the operation of one of the hoists during the operation of the actuating rope, substantially as described.

5. In a transfer apparatus the combination of a platform, independent hoists connected with the front and rear sides of the same, an actuating rope connected with both of said hoists and provided with a stopper, a pulley K on said rope and means for arresting the upward movement of the front side of the platform, substantially as set forth.

6. In a transfer machine, a platform B, drums C, D, with the hoist ropes or chains attached to said platform, drum pulleys E, F, the hoist rope G common to both said drum pulleys, and the draft pulley K.

494,130. CULTIVATOR FOR LISTED CORN. EBENHARD DIRITY, Clay Centre, Kans. Filed Apr. 21, 1891. Renewed Jan. 24, 1893. Serial No. 459,607. (No model.)



Claim.—1. In a cultivator, the combination with the frame and the slotted crank-arms B, of the rocking cross head A, the knives *c* adjustably secured thereto and means for rocking said cross head and adjusting the knives thereon, substantially as shown and described.

2. In a cultivator, the combination with the frame and the slotted crank arms B, of the rocking cross head A having journals *p*, the arms *i* pivoted to the crank arms B, the crank levers *b* connected with the arms *i*, the pawls *c*, the ratchets *k*, and the knives *c* secured to the cross head, substantially as shown and described.

3. In a cultivator, the combination with the frame and the slotted crank arms B, of the rocking cross head A provided with knives *c*, the rod *i*, the lever *a* provided with pawl *d*, and the ratchet *k'*, substantially as shown and described.

4. In a cultivator, the combination with the adjustable rocking cross-head A, and its attached knives, of the lever *a* for varying the inclination of said cross head and knives and the levers *b* for raising and lowering the same, substantially as shown and described.

494,131. PULLEY FOR FEEDING CLOTH. JOHN HANSOME, Waltham, Mass., assignor to the Boston Manufacturing Company, same place. Filed Sept. 16, 1892. Serial No. 446,084. (No model.)



Claim.—The herein described pulley for feeding cloth and the like, having its rim made with converging sides meeting in a rounded apex or bottom and supplied with transverse ribs which are rounded in cross-section, substantially as and for the purpose set forth.

494,132. DIVIDER. HERMANN HEISS, Hoboken, N. J. Filed Dec. 14, 1892. Serial No. 455,131. (No model.)



Claim.—In a pair of dividers, the fork A, in combination with the conical-ended screws D, corresponding heads B, C, and jam-nuts E, *e*, arranged to serve substantially as herein specified.

494,133. WAGON-BODY. ANDREW SWIRE, Asbury Park, N. J. Filed June 3, 1892. Serial No. 435,395. (No model.)



Claim.—1. The combination with a vehicle body having indentations in the opposite edges of the bed, of a door composed of sections which are hinged together at their meeting edges, which door is constructed to lie close to the side of the vehicle body when opened, and which is adapted to conform to the sides of the said indentations when closed, substantially as and for the purpose described.

2. The combination with a vehicle body having openings in its sides, of doors to close the said openings, composed of sections which are hinged together at their meeting edges and which are supported at their outer edges, whereby the said sections are adapted to swing inward at their meeting or hinged edges, substantially as and for the purpose specified.

3. The combination with a vehicle body having openings in its sides, and having indentations in the opposite edges of the bed corresponding with the position of the said opening, and doors to close the said openings composed of sections which are hinged together at their meeting edges, of a rod supported above each opening, brackets provided at the outer end of the door sections, and eye bolts mounted in the said brackets and adapted to slide on the said rods substantially as and for the purpose described.

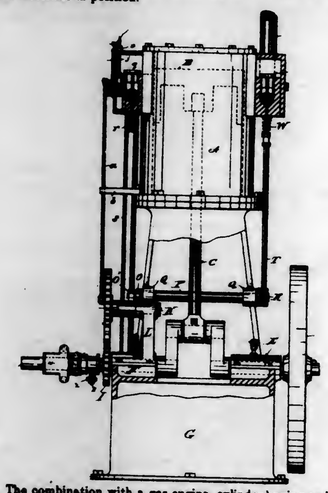
4. The combination with a vehicle body having indentations in its opposite sides, and a door suspended at its upper end and composed of sections which are hinged together at their meeting edges, of a guard rail secured to the bed of the wagon and having its outer end conformed to the side of the said indentations, substantially as and for the purpose set forth.

494,134. GAS-ENGINE. JOHN FOOS and CHARLES F. REDTER, Springfield, Ohio; said Redter assignor to said Foos. Filed June 15, 1891. Serial No. 396,230. (No model.)

Claim.—1. In a gas engine, the combination with a cylinder having an igniting chamber, and an adjustable flexible electrode mounted in said chamber, and adapted to be adjusted inward and outward according to the wear, of a rotatable electrode operating with said stationary electrode and acting safely in one direction only, a hook crank for the rotatable electrode, the shaft of the latter extending outside of the chamber of said crank, a reciprocating rod, one end having a pin normally engaged with said hook-crank when said end is rotated in one direction, and disengaging automatically when reversely ro-

tated, an eye post forming a guide for the middle portion of said rod to guide it in its reciprocation, and means to rotate the other end of said rod and effect its reciprocation and the rotation of said electrodes.

2. In a gas engine, the combination with an igniting chamber having a screwthreaded opening and of contracted size at one end, of the electrode mounted in said opening, a sleeve thereon having a flange at its inner end, insulating material about said sleeve and flange and a collar about said insulating material, and screw threaded into said opening at its larger end, whereby the said collar will press upon the flanged sleeve and interposed insulating material and maintain the said electrode in position.



3. The combination with a gas engine, cylinder having an igniting chamber, electrodes mounted therein and an operative connection therefor, of a centrifugal governor mounted on said shaft, a carburetor, and a pipe connecting its igniting chamber, a mixing and regulating valve mounted in said pipe, the valve consisting of a perforated collar to admit air and a sliding piece forming the valve proper and having a reduced central portion to admit of the passage of the charge, a lever arm to reciprocate said valve proper and actuated by said governor, and an adjustable connection between the said valve proper and the said lever arm.

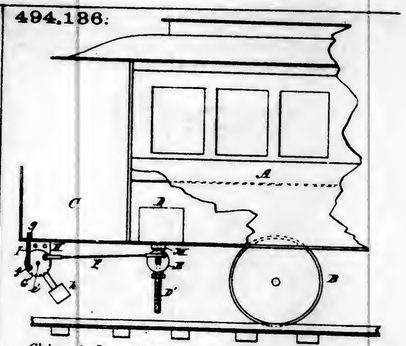
494,185. LENS ATTACHMENT FOR TUBULAR LANTERNS. ALBERT L. FRANCE, Millvale, assignor to the Kenton Gas Company, Covington, Ky. Filed Feb. 20, 1892. Serial No. 422,842. (No model.)



Claim.—1. The combination substantially as specified of the lens A, its edge incasing frame B, and spring wire frame C, C', having their circular central portion to receive and hold the lens, and extend laterally upon each side of the lens, curving around at e, and having rearwardly extending arms the inner ends of which forming clasping loops c', the upper and lower arms of each side being brought together and the link D securely holding them together.

2. In a spring frame lens holder for lanterns, the combination of the upper and lower spring wires C, C', centrally curved in opposite directions to receive and hold the lens, said arms being bent around and centrally secured together upon each side as shown, and having independent clasping loops c', the lower loops having downwardly extending branches c^2, to bear upon the base of the tubular portion of the lantern and hold the lens securely in position, substantially as shown and described.

494,186. SANDING DEVICE FOR CARS. DAVID A. GIBBY and ONAVIUS S. COLBRAN, Burlington, Canada. Filed Jan. 6, 1892. Serial No. 407,269. (No model.)

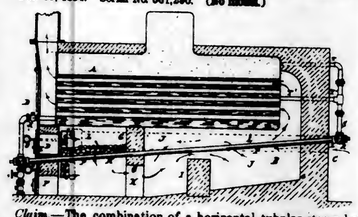


Claim.—1. In combination with a street railway car, a sand reservoir attached thereto having a valve adjusted to the same and an eccentric secured to it, and a connecting rod from it to a second eccentric to which is fastened a vertical operating foot lever to open the valve to admit sand to the track rails, and a counter-balance weight attached on one of the eccentrics to automatically close the valve and shut off the sand when pressure is removed from the operating lever-rod, substantially as specified.

2. In combination with a street railway car, the reservoir D, valve seat M, valve d, eccentric E, connecting rod F, eccentric G on the stud e', operating rod I, substantially as and for the purpose specified.

3. In combination with a street railway car, the reservoir D, valve seat M, valve spindle d, eccentric E on valve spindle d, adjustable connecting rod F, attaching eccentric E to eccentric G, operating rod I, counterbalance weight h, and pipe D', all constructed substantially as and for the purpose specified.

494,187. BOILER-FURNACE. JAMES GILBERT, Omaha, Nebr. Filed Feb. 13, 1891. Serial No. 381,290. (No model.)



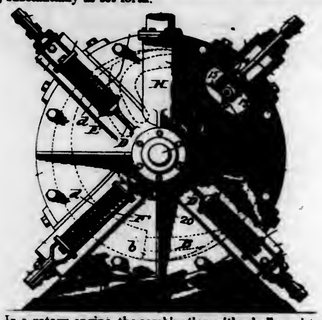
Claim.—The combination of a horizontal tubular steam boiler, a furnace having front and rear walls and doors, a bridge wall solidly joining the bottom of the boiler and provided with an opening from the ash pit into the combustion chamber, a wall across the combustion chamber to direct the flame to the bottom of the boiler, flues communicating with the combustion chamber and ash-pit, openings M N, dampers O and grate bars, all arranged and operating, substantially as described.

494,188. ROTARY ENGINE. GEORGE H. GRAHAM, Ridgeland, Ill. Filed Apr. 15, 1892. Serial No. 429,637. (No model.)

Claim.—1. In a rotary engine, the combination with the casing, a hollow piston located within said casing, and having one side arranged to work steam tight against a head of the said casing, and a governor located within the said piston, of a governor controlling mechanism located within the said piston and adapted to be reached through co-incident openings in the said steam tight fitting side of the piston and the head of the casing, and a plug for closing the opening in the head of the casing, substantially as described.

2. In a rotary engine, the combination with the casing having a lateral opening in one of its heads, a hollow piston having one side open, and having the open side closed by a cap plate, said piston fitting steam tight between the heads of the casing and having an opening in said cap plate to register with a corresponding opening in a head of the casing, of a governor and a governor controlling mechanism located within said piston and the governor controlling mechanism adapted to be actuated through the said co-incident openings, and a plug for closing the opening in the casing head, substantially as described.

3. In a rotary engine, the combination with a casing, a hollow piston arranged to work in the said casing, and a governor placed within said hollow piston, of a spring connected at one end with the governor, a head connected with the other end of the spring and working in guides, and a mechanism for moving said head in the guides to vary the tension on the said spring adapted to be actuated through co-incident openings in a side of the piston and a head of the casing, substantially as set forth.



4. In a rotary engine, the combination with a hollow piston, and a governor located within the said piston, of a spring connected with the governor, a threaded rod attached to the said spring, a nut mounted on the said threaded rod and having a worm gear, and a worm threaded shaft to rotate the said nut to vary the tension of the said spring, substantially as and for the purpose described.

5. In a rotary engine, the combination with a piston having a steam inlet port A formed therein, and a cut off to control the said port, of weighted levers, one on each side of the axis of the piston, an equalizing lever connected with the said weighted levers, and connections between the said cut off and the said equalizing lever, substantially as described.

6. In a rotary engine, the combination with a piston having a steam inlet port A formed therein, and a cut off to control the said port, of weighted levers, one on each side of the axis of the piston, an equalizing lever, the three levers being approximately parallel and links connecting the weighted levers with the equalizing lever, a bell crank lever connected with the cut off and an adjustable connecting rod between the said bell crank lever and the equalizing lever, substantially as described.

7. In a rotary engine, the combination with a piston having a steam inlet port A formed therein, and a cut off to control the said port, of weighted levers, one on each side of the axis of the piston, an equalizing lever, the three levers being approximately parallel and links connecting the weighted levers with the equalizing lever, a bell crank lever connected with the cut off, an adjustable connecting rod between the said bell crank lever and the equalizing lever, a spring connected at one end with one of the weighted levers, and a tension controlling mechanism connected with the other end of the said spring, substantially as described.

8. In a rotary engine, the combination with a cylinder, and four valves equally disposed around the same, of a piston having a primary and a secondary head to use the expansive force of the steam twice, the secondary piston head being of larger area than the primary piston head to admit of the once used steam exerting a force on the said secondary piston head about equal to that exerted in the first instance on the primary piston head.

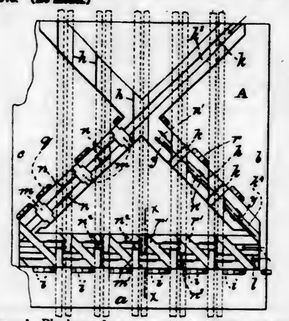
9. In a rotary engine, the combination with a piston having a primary and a secondary piston head, a steam passage being formed through the said secondary piston head, of a cylinder, and four valves equally disposed around the said cylinder, substantially as described.

10. In a rotary engine, the combination with a piston having a primary and a secondary piston head, a steam passage being formed through the said secondary piston head, the steam inlet port extending through the primary piston head, and having the exhaust port leading through the piston just in the rear of the said primary piston head, of a cylinder and four valves equally disposed around the said cylinder, substantially as described.

11. In a rotary engine, the combination with the cylinder having a casing, of a valve head 13 having a slot in one side and provided with a roller on its inner face, and having a depression in its outer face, a packing strip 15 inserted in the said slot, and a plate 14 fitted in the said depression and bearing down on the upper edge of the said strip 15, substantially as and for the purpose specified.

12. In a rotary engine, the combination with the cylinder having a valve casing, a radially working valve located in and having its stem working through the valve casing, and radial guide rods D exterior to and supported by the cylinder heads, of a lever A' pivoted midway of its ends to the said valve stem, rods F connected at their outer ends with the ends of the pivoted lever A' and guided in their movements by lugs on the sides of the cylinder heads, cross heads E mounted to slide on the rods D and connected with the inner ends of the rods F, and springs d mounted on the rods D and held between the said cross heads and the lugs, substantially as set forth.

494,189. MACHINE FOR WEAVING CANE FOR CHAIR-SEATS. CHARLES W. GREENWOOD, South Gardner, Mass., assignor to the Greenwood Brothers & Company, same place. Filed Apr. 26, 1892. Serial No. 271,873. (No model.)



Claim.—1. Blocks or frames provided with longitudinal grooves A, A', and the cross grooves l, l' at right angles to said longitudinal grooves, said blocks being provided, at suitable intervals, with projections arranged in pairs at either side of said cross grooves and with recesses opposite said projections, substantially as described.

2. The blocks or frames A, B, having their corresponding surfaces provided with longitudinal grooves A, A', cross grooves l, l', and diagonal grooves k', k^2, and with plates or projections arranged at each side of said cross and diagonal grooves, in pairs, at suitable intervals apart, and with recesses opposite said plates, substantially as set forth.

3. The blocks or frame A, B, provided, respectively, with longitudinal grooves A, A', cross grooves at right angles thereto, projections arranged alongside of said cross grooves, recesses opposite said projections, diagonal grooves k', k^2, the diagonal grooves of one block crossing the diagonal grooves of the other block at right angles when the corresponding faces of said blocks are brought together, substantially as described.

4. The blocks A, B, provided, respectively, with longitudinal and cross grooves crossing each other at right angles, diagonal grooves also crossing each other at right angles, and vertical plates or projections arranged at each side of said cross and diagonal grooves, in pairs, said plates or projections on one block corresponding to depressions in the opposite block, substantially as described.

5. The blocks or frames A, B, provided, respectively, with longitudinal grooves, grooves crossing the same at right angles, projections at the sides of said cross grooves at suitable intervals apart, and depressions or recesses opposite said projections, the whole so related to each other that when said blocks are brought together, face to face, a cane web may be interwoven between said blocks by passing strands of cane through or along said grooves, substantially as set forth.

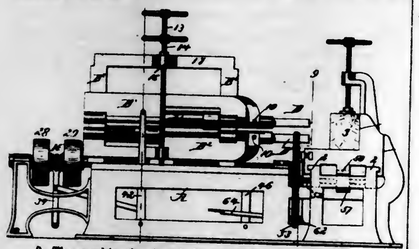
6. The blocks or frames A, B, provided with grooves, and having guides arranged in close proximity to said grooves for the purpose of guiding strands of cane into said grooves, substantially as described.

494,140. HOLLOW-CHISEL MORTISING-MACHINE. JOHN HARRIS, Chicago, Ill. Filed Mar. 26, 1891. Serial No. 386,720. (No model.)

Claim.—1. The combination substantially as hereinbefore set forth, in a hollow chisel mortising machine, of a reciprocating carriage provided with one or more bits and hollow chisels, a reversibly operating power driven propelling screw applied for reciprocating the said carriage, suitable power operated driving means operating the propelling screw alternately in opposite directions, and a movable

work carriage arranged for adjusting the work relatively to the mortising devices.

2. The combination in a hollow chisel mortising machine of a reciprocating carriage for the bits and chisels, a work carriage arranged for movement transversely to the line of movement of the reciprocating bit and chisel carriage, a couple of vertically adjustable bit and hollow chisel supports arranged one above the other and adjustable upon the bit and chisel carriage independently of one another, and a couple of horizontally arranged bits and hollow mortising chisels carried by said supports so as to operate at different points in height along a piece of work carried by the work carriage, substantially as described.



3. The combination in a hollow chisel mortising machine, of a carriage provided with a couple of vertically and independently adjustable bit and chisel supports B' and B^2 each carrying a bit and chisel, and a movable work carriage.

4. In a hollow chisel mortising machine, the reciprocating bit and chisel carrying carriage provided with an upright B^3, the independently adjustable bit and chisel supports B' and B^2 arranged for vertical adjustment upon said upright independently of one another, adjusting screws 13 and 14 respectively engaging said bit and chisel supports, and bit spindles and chisels carried by said supports, substantially as described.

5. The reciprocating carriage provided with an upright frame portion B^3, the bit and chisel supports B' and B^2 arranged for vertical adjustment upon said upright frame portion independently of one another and carrying bits and chisels substantially as set forth, means for separately adjusting the bit and chisel supports, the large belt pulleys 21 and 22 on the bit spindles, driving belts 23 and 24 applied to said pulleys and passing through openings in the bit and chisel supports whereon the bit-spindles are at the front while the belting passes back from the same to the rear, substantially as described.

6. The combination of the reciprocating carriage provided with one or more hollow chisels and bit-spindles, the reversibly rotative power driven propelling screw engaging a threaded bearing on the carriage and arranged for reciprocating the same, and an automatic stop device for disconnecting the propelling screw from the power at the end of each stroke on the part of the carriage, substantially as described.

7. The combination of the reciprocating carriage provided with one or more hollow chisels and bit-spindles, the reversibly rotative propelling screw engaging a nut on the carriage and arranged for reciprocating the same, and suitable reversing mechanism for changing the direction of rotation of the propelling screw, substantially as set forth.

8. The combination as hereinbefore set forth in a hollow chisel mortising machine of a reciprocating bit and chisel carriage carrying one or more bits and hollow chisels, a reversibly rotative screw shaft engaging a nut on the carriage as a means for advancing and retracting the same, a couple of pulleys for operating said shaft alternately in opposite directions, and a clutch device for connecting the pulleys alternately with the shaft.

9. The combination in a hollow chisel mortising machine of a reciprocating bit and chisel carriage, a work carriage movable transversely to the line of reciprocation of the bit and chisel carriage, a set of adjustable stops arranged for adjustment independently of one another along the work carriage, and a movable stop device arranged for engaging and releasing the said adjustable stops on the work carriage and subject to the control of an attendant, substantially as described.

10. In a hollow chisel mortising machine the combination of the movable work carriage, a set of stops or gages set in a slot thereon and capable of being adjusted and a stop for engaging the gages consisting of a vibratory lever which can be raised to engage the stops or lowered to release them substantially as set forth.

11. The combination in a hollow chisel mortising machine of a movable work carriage, a set of gages or abutments supported for adjustment thereon, the sliding arm 63 for engaging the same and a lever 64 for raising the arm to engage the abutments and lowering the same to release them.

12. The combination with the reciprocating bit and chisel carriage of the vibratory arms or levers 44 and 46 connected by a link 47 which carries a stop 48, a stop on the carriage arranged for engaging the stop 48 and the lever 44 respectively at opposite ends of the movement of the carriage, and a reversing mechanism connected with the lever 44 and applied for reversing the power by which the carriage is propelled, substantially as described.

494,141. CLOTHES-DRIER. WILLIAM E. B. HARRIS, Vincennes, Ind. Filed Sept. 30, 1892. Serial No. 447,421. (No model.)

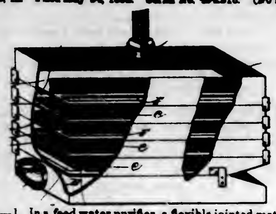


Claim.—A clothes-drier consisting of the legs A connected with a central screw clamp pivot by radial arms near the top and with a series of circular rings passing loosely therethrough, the said legs turning on said rings to fold up and the said rings adapted to stand horizontally when in use and to drop on the inside of the legs when the latter are brought together, all substantially as shown and described.

494,142. SLIDING DOOR. LOWELL HENDERSHOTT, Kansas City, Mo. Filed July 21, 1890. Serial No. 359,466. (No model.)

Claim.—The combination with a sliding door, of a guide frame provided with an adjustable clamping mechanism consisting of a series of transverse plates secured at one end to a guide rail and extending toward similar plates secured to the opposite guide rail and means, for locking together the free ends of opposite plates substantially as described.

494,143. FEED-WATER PURIFIER. FREDERICK J. HENDERSON, Chicago, Ill. Filed May 24, 1892. Serial No. 434,318. (No model.)



Claim.—1. In a feed water purifier, a flexible jointed metallic mat for collecting boiler scale, substantially as described.

2. In a feed water purifier such as set forth, a series of superposed oblong pans whereof the one next over the lowest pan is provided with a transverse discharge opening b adjacent to one end of the pan, while the remaining upper pans are provided with longitudinally arranged oblong discharge openings b' arranged alternately adjacent to and extending parallel with the opposite longer sides of the pans, substantially as described.

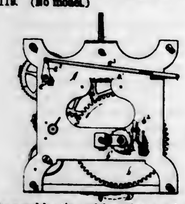
3. In a feed water purifier such as set forth, a set of superposed oblong pans provided with discharge openings arranged as and for the purpose described, and a partition F arranged lengthwise within the top pan which has an oblong discharge opening b' arranged parallel with and near one of its longer sides, with said partition arranged parallel with and near said opening so as to provide at one side of the longitudinal discharge opening b' through the bottom of said pan a receptacle wherein the water received by the purifier is heated, substantially as described.

494,144. RAIL FOR STREET-RAILWAYS. WILLIAM T. JENNINGS, Toronto, Canada. Filed Mar. 7, 1892. Serial No. 424,062. (No model.) Patented in Canada Apr. 9, 1892, No. 33,694.



Claim.—A rail sunk so that its face shall be substantially flush with the surface of the road bed, a plate A detachably secured to the stem of the rail, having its bottom edge resting on the foot of said rail and its upper end extending outwardly and upwardly to a point substantially flush with the surface of the road bed, thereby leaving a channel or groove for the flange of the car wheel, and a filling of concrete or other waterproof material in the bottom of the groove, preventing the passage of water through the joint, substantially as described.

494,145. CLOCK-MOVEMENT. ANTHONY KEIL, Connersville, Ind., assignor to Roots & Heinemann, same place. Filed July 15, 1892. Serial No. 440,119. (No model.)



Claim.—1. The combination with a time movement of the arbor d', the pinion e secured thereon and meshing with the third wheel D, of said movement, the crank arm e^2 secured upon said arbor, the vertical arbor f', the sector F', secured thereon, the sliding rack F, geared with said sector, the connecting rod e^3, coupling the crank arm and rack, and an escapement controlling arbor d', substantially as shown and described.

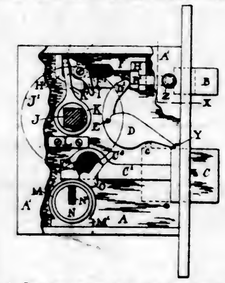
2. The combination substantially as hereinbefore set forth of the time movement, the arbor d' driven thereby, the vertical arbor f', and gearing actuated by arbor d', to impart an intermittent reciprocating movement to said arbor, the wheel E, secured upon the arbor d', the arbor g, carrying arm g', and the pinion G, said pinion meshing with wheel E, the grooved arbor H against the periphery of which the said arm g' bears, and an independent spring movement to revolve said arbor H, and release the pinion G and wheel E.

3. The combination as hereinbefore set forth of the time movement, the arbor d', and its attachments actuated thereby, the escapement for releasing said arbor consisting of the arbor g its fixed pinion G and arm g', the fluted arbor H, the scape wheel A, and ratchet wheel A', secured thereon, the wheel A^2, and A^3, journaled upon said arbor said wheel A^2 meshing with pinion G, the wheel A^3 coupled by a click with the ratchet A', the spring A^4, coupling the wheels A^2 A^3 and the pallets and balance wheel to control the movements of said arbor, H, whereby the main train is intermittently released and the spring actuating the scape wheel A, is automatically wound.

4. In a clock movement of the character described, the escapement for controlling the main spring and its train, an independent escapement to control the escapement of the main train, and an intermediate mechanism for both escapements to wind the spring which actuates the second escapement, substantially as shown and described.

5. The combination of the main movement, an independent movement actuated thereby, and the arbor i, pinion I, knurl i', to wind the spring of the independent movement combined and arranged substantially as hereinbefore set forth.

494,146. MAGNETIC LOCK. ALCUIN B. KIEFFER, Painesville, Ohio. Filed Apr. 4, 1892. Serial No. 427,585. (No model.)



Claim.—1. In a magnetic lock, the latch operating conjointly with a counterweight pivoted to the face plate, one end of said counterweight in constant contact with the rear terminal of said latch, in combination with a slotted slide, pivoted dog, arm and pin, collar, knob spindle and knobs, substantially in the manner as and for the purpose specified.

2. In a magnetic lock, the knob spindle passing through a collar having an extending arm K' provided with a pin at the end thereof, engaging and operating in combination with the slotted slide, a dog pivoted to the face plate through said slot, the latch and the pivoted counterweight substantially in the manner as and for the purpose set forth.

3. In a magnetic lock, the knob spindle J having the knobs attached thereto, extending through a collar and an arm attached thereto said arm provided with a pin in the end thereof, operating conjointly with a slotted slide, pivoted dog, latch and counterweight in combination with a bolt provided with a projection Y substantially in the manner as and for the purpose set forth.

4. In a magnetic lock, the recessed shank C of a bolt, sliding between a guide and drum, in combination with a disk and arm O in connection with a drum in the manner substantially as and for the purpose set forth.

5. In a magnetic lock an indented disk provided with the arm O and a notch in the lower edge, having a bifurcated tumbler therein, in combination with a slotted drum having the openings W, two blocks and slotted escutcheons, in the manner substantially as and for the purpose set forth.

6. In a magnetic lock a slotted drum having the openings W, and two or more guides, a disk provided with an arm which actuates the recessed shank of the bolt and with a notch in the bottom having the base of the bifurcated tumbler therein and the blocks on opposite sides of said disk in combination with the magnetic key in the manner substantially as and for the purpose set forth.

7. In a magnetic lock, two blocks and slotted escutcheons, and indented disk having the arm O and a bifurcated tumbler received

at its base into a notch in the lower edge of said disk within a slotted drum, said drum being provided with the openings W, and one or more guides, in combination with a magnetic key, having one or more notches therein, in the manner substantially as and for the purpose set forth.

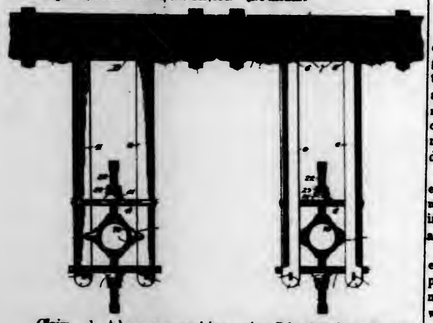
3. In a magnetic lock, in combination, a shell having a pivot E, post G, and guide L, secured thereto, a collar through which is the rod J, having knobs attached to opposite ends thereof, a latch and slide actuated by an arm K' and pin K^2, of a collar, and a dog, a thumb screw, counterweight, a bolt having a projection Y, and a recessed shank, a slotted drum having the openings W and one or more guides, an indented disk having an arm O, a bifurcated tumbler received at its base into a notch in the lower edge of said disk, two blocks and slotted escutcheons arranged in the manner substantially as and for the purpose set forth.

494,147. JOINT FOR GAS OR WATER PIPES. GORDON W. LLOYD, Detroit, Mich. Filed Jan. 30, 1892. Serial No. 419,642. (No model.)



Claim.—In a pipe joint the combination of the abutting ends of the pipes, a folded flexible packing thereon with the fold at the joint interposed between the ends, ribs formed on the pipes near the ends, and apertured sleeves embracing the joint and overlapping the ribs at each end, forming a chamber, the ends of which are formed by the ribs, the outer wall by the sleeve, the inner wall by the pipe and a filling of cement in said chamber, substantially as described.

494,148. HANGER. CHARLES C. LOOMIS AND, Chicago, Ill. Filed Sept. 13, 1892. Serial No. 445,811. (No model.)



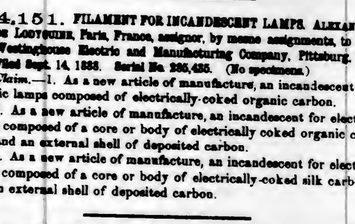
Claim.—1. A hanger comprising a plate B having slots 7 therein, two hanger-rods 3 each having a projection 6 on one end thereof adapted to be secured within said slots 7, lateral flanges 8 on the outer faces of said hanger-rod, said flanges 8 being secured to said plate *B*, and a hanger-box secured between the other ends of said hanger-rods.

2. A hanger comprising a plate B having slots 7 therein, hanger-rods 3 of T-iron having their flanges 5 bent outwardly at a point inward of the ends of the web 4 to provide projections 6 on the ends of said hanger-rods, said projections 6 being secured within the slots 7, and said outwardly bent portions of the flanges being secured to the face of said plate B, and a hanger-box secured between the other ends of said hanger-rods.

3. A hanger comprising a plate B, two parallel hanger-rods 3 secured thereto at one end, said hanger-rods being made of T-iron with their webs 4 adjacent to each other, a cross piece 11 having notched ends to receive said webs 4 located between said hanger-rods and having its ends secured to the flanges 5 thereof, a cross piece 12 secured to said hanger-rod adjacent to said cross piece 11, and a hanger-box secured between said cross pieces 11 and 12.

4. A hanger comprising a plate B, two parallel hanger rods secured thereto at one end, said hanger-rods being made of T-iron with the webs thereof adjacent to each other, end portions 18 at the other ends of said hanger-rods projecting beyond the ends of the flanges 5 thereof, the cross piece 12 having slots therein to receive said projections 18, keys 20 passing through openings 19 in said end portions 18 to hold said cross piece 12 against the ends of said flanges 5, a cross piece 11 secured to said hanger-rods adjacent to said cross-piece 12, and a hanger-box secured between said cross pieces 11 and 12.

494,149. PROCESS OF MANUFACTURING FILAMENTS FOR INCANDESCENT LAMPS. ALEXANDRE DE LODYGUINE, Paris, France, assignor, by mesne assignments, to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed Sept. 14, 1888. Serial No. 285,422. (No specimens.)



Claim.—The process of making carbon filaments or incandescents for electric lamps from organic material, which consists in the following steps, viz: dehydrating and decomposing the incandescents by the action of a chemical agent; then subjecting them to a high temperature with the exclusion of oxygen; then expelling the occluded gases from the incandescents and coking them by subjecting them to a high temperature by the passage of an electric current; and finally giving them the required resistance by the deposition of carbon; substantially as described.

494,150. PROCESS OF MANUFACTURING FILAMENTS FOR INCANDESCENT LAMPS. ALEXANDRE DE LODYGUINE, Paris, France, assignor, by mesne assignments, to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed Sept. 14, 1888. Serial No. 285,424. (No specimens.)

Claim.—1. The method of making incandescents for incandescent electric lamps, which consists: first, in carbonizing a filament of organic material; second, in driving off the occluded gases contained in the carbonized filament and coking the same by passing therethrough an electric current *in vacuo* whereby the resistance of the filament is reduced to approximately that of the hot resistance of the original carbonized filament; and lastly, rendering the resistance of the filament uniform by the deposition of carbon thereon; substantially as described.

2. A step in the manufacture of incandescents for incandescent electric lamps, which consists in heating a carbonized organic filament by a current of electricity *in vacuo* until the filament is changed into a hard carbon and its permanent or cold resistance is reduced to approximately the hot resistance of the original carbonized filament.

3. The method of treating carbonized filaments for incandescent electric lamps, which consists in heating the same *in vacuo*, by the passage of an electric current, to a temperature at which its permanent resistance gradually decreases and in interrupting the current when the resistance has reached approximately a minimum.

494,151. FILAMENT FOR INCANDESCENT LAMPS. ALEXANDRE DE LODYGUINE, Paris, France, assignor, by mesne assignments, to the Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filed Sept. 14, 1888. Serial No. 285,425. (No specimens.)

Claim.—1. As a new article of manufacture, an incandescent for electric lamps composed of electrically-coked organic carbon.

2. As a new article of manufacture, an incandescent for electric lamps composed of a core or body of electrically coked organic carbon, and an external shell of deposited carbon.

3. As a new article of manufacture, an incandescent for electric lamps composed of a core or body of electrically-coked silk carbon, and an external shell of deposited carbon.

494,152. CLOTH-NAPPING MACHINE. FERDINAND MARTINOT, Sedan, France. Filed May 21, 1891. Serial No. 393,005. (No model.) Patented in England July 19, 1887, No. 10,076, and May 18, 1888, No. 7,363, and in Germany July 23, 1887, No. 43,014.

Brief.—The machine consists of a number of pairs of napping-rolls. The first roll of each pair is driven by the cloth passed over it and is geared to the second roll, to which it communicates motion, the gearing being so proportioned that the second roll rotates more rapidly than the first. The teeth on the two rolls point in opposite directions. Under each napping-roll is placed a rotating brush.



Claim.—1. A gigging machine having a pair of rotatable teaseling cylinders mounted in proximity to path of the traveling fabric, and geared together so as to be rotated by the contact of one of them with said fabric, the teeth on one of said cylinders being set in an opposite direction to those on the other cylinder substantially as described.

2. A gigging machine having one or more pairs of teaseling cylinders geared together so as to run in the same direction, one of said cylinders having its teeth so set as to catch into the traveling fabric, whereby both cylinders will be rotated by the movement of the fabric, substantially as described.

3. A gigging machine having one or more pairs of teaseling cylinders geared together to run in the same direction but at different speeds, and adapted to be rotated by the contact of one of them with the traveling fabric, substantially as described.

4. A gigging machine having a plurality of teaseling cylinders, rotatably mounted in proximity to the path of the traveling fabric, said cylinders being suitably connected by gearing so that all will be rotated by the contact of some of them with the fabric, each cylinder having a clearer positively rotated by gearing, substantially as described.

494,153. CARRIAGE FOR GRAIN-SPOUTS. EDWARD D. MAYO, Minneapolis, Minn., assignor of one-half to the Barnett-Record Company, same place. Filed Aug. 18, 1892. Serial No. 443,551. (No model.)



Claim.—1. The combination with a movable spout, of a carriage arranged on the lower end thereof to travel upon the floor and in itself vertically adjustable, whereby said lower end of the spout may be raised or lowered, as and for the purpose specified.

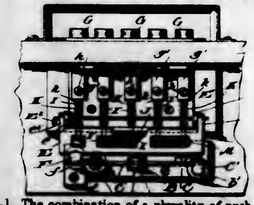
2. The combination with a movable spout, of a vertically adjustable carriage arranged to support the lower end of said spout.

3. The combination with the movable spout, of a vertically adjustable carriage secured upon the lower end of said spout and arranged to support the same.

4. The combination with the spout 3 of the adjustable carriage arranged thereon and comprising the pivoted bail 11, having the supporting rolls 15, and means for holding said bail, substantially as described.

5. The combination with the spout 3, provided with the flange 5, the lugs 7 and journals 9, of the bail 11, pivoted upon said journals 9 and provided with the pivoted rolls 15, the locking hook 19 and the lugs 17 upon said spout, substantially as described.

494,154. PERMUTATION-LOCK. CHARLES H. MORFORD, Allentown, Pa. Filed July 9, 1892. Serial No. 439,531. (No model.)



Claim.—1. The combination of a plurality of push pins, a lever arranged at right angles to the push-pins, and an interposed removable part constructed and arranged to coact with the pins to prevent movement of the lever.

2. The combination of a plurality of push-pins, a lever arranged at right angles to the push-pins, an interposed removable part constructed and arranged to coact with the pins to prevent movement of the lever, and a vertically-movable push-pin constructed and arranged to actuate the lever when said part is free to move.

3. The combination of a plurality of push-pins, a lever, an interposed pivoted removable part normally held against movement by said pins, and a vertically-movable push-pin connected with the lever and engaged by said interposed part.

4. The combination of a plurality of push-pins, a lever carrying at one end a bolt and at the other a vertical push-pin, and a pivoted removable part interposed between the pins and lever and engaging the vertical push-pin.

5. A plurality of push-pins, a slotted pivoted removable part normally held against movement thereby, a lever carrying at one end a bolt and a vertical part carried by the lever and engaged by the pivoted part and a drawer with a plate located and arranged to be engaged by said vertical part.

6. The combination of a plurality of independently adjustable push-pins having their ends extended at right angles to their length, a lever, and an interposed part pivotally mounted parallel with the horizontal portion of the pins and constructed and arranged to coact with the pins to prevent movement of the lever.

7. The combination with a plurality of push-pins having their ends extended at right angles to their length, and a lever, of an interposed part pivotally mounted parallel with the horizontal portion of the pins and coacting with the pins to hold the lever against movement, and a lever-actuating device coacting with the pins, as set forth.

8. The combination with the lever and the push-pins having their ends extended at right angles to their length, of a pivoted slotted interposed part mounted pivotally, in a substantially horizontal plane to coact with the lever and pins, as and for the purpose specified.

9. The combination with the lever and its bolt, of the push-pins having vertical inner portions, the pivoted slotted plate horizontally arranged and connected with the lever, and the adjustable pins for engaging said plate, as set forth.

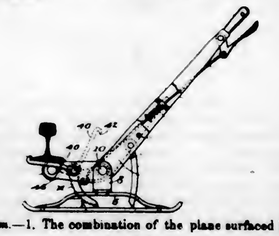
10. The combination of a pivoted slotted plate, horizontally arranged and a lever with a bolt, and connected with the plate, and push-pins having adjustable vertical portions for coaction with said plate, as set forth.

11. The combination with the lever carrying a bolt, of a pivoted slotted plate horizontally arranged and connected with the bolt-lever, push-pins mounted for coaction with said plate, and a drawer having a strip for engagement with the bolt, as set forth.

12. The combination of a spring-actuated pivoted lever and a bolt carried thereby, a vertical part connected with the lever, a pivoted slotted plate horizontally arranged and connected with said vertical part, and a plurality of push pins having portions for coaction with the plate.

13. The combination with push-pins, a lever, a bolt carried thereby, and a lever-actuating device, of a removably pivoted slotted horizontal plate mounted between the pins and lever as and for the purposes specified.

494,155. RAILWAY-TRACK JACK AND LINER. EDWARD D. MORIARTY, Broadland, S. D. Filed Feb. 23, 1892. Serial No. 422,851. (No model.)



Claim.—1. The combination of the plane surfaced base having

upturned ends, the arch upon the same, the standard upon said arch, the lever pivoted to said standard, the stop or catch upon said base underneath said arch, the toothed dog for engaging said stop to support the fulcrum end of said lever in adjusted positions, and means for tripping said dog, substantially as described.

2. The combination with the base and the lever pivoted thereon, of the anti friction roll carried by the fulcrum end of said lever and adapted to bear upon the base of the rail, and the pivoted dog carried by said lever and adapted to engage the opposite edge of the base of the rail, whereby the device may be employed at will either to lift the rail vertically, or to carry it upward and outward, substantially as described.

3. The combination with the base and the lever pivoted thereon, of the dog pivoted to the power end of the lever and projecting downward through said base, substantially as described.

4. The combination with the base and the lever pivoted thereon, of the dog or catch pivoted to the fulcrum end of said lever and adapted to engage the opposite edge of the base of the rail, substantially as described.

5. The combination of the base, the bell crank lever pivoted thereon, the pivoted dog carried by the power end of said lever and projecting downward through said base, the toothed dog pivoted to the fulcrum end of said lever and engaging said base, means for tripping said toothed dog to release it from engagement with said base, the anti friction roll journaled on the fulcrum end of said lever, the catch pivoted to the fulcrum end of said lever and adapted to engage the base of the rail, and the pivoted lever engaging said catch and adapted to lift the same into contact with said rail, substantially as described.

6. The combination with the base and the bell crank lever pivoted thereon, the fulcrum end of which is adapted to be brought into contact with the base of the rail, of automatic means for supporting said fulcrum end in adjusted positions, and means operated by said lever for engaging the ground upon which the base rests, so as to prevent its slipping thereon, substantially as described.

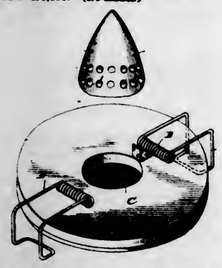
7. The combination with the base, and the bell crank lever pivoted thereon, of automatic means for supporting the fulcrum end of said lever in adjusted positions, means operated by said lever for engaging the ground to prevent the device from slipping, and means carried by the fulcrum end of said lever whereby said rail may be engaged and moved laterally, substantially as described.

8. The combination with the base and the lever pivoted thereon, of the dog or catch pivoted to the fulcrum end of said lever, and the pivoted lever adapted to engage said dog and to lift it into engagement with the opposite edge of the base of the rail, substantially as described.

494,156. COMPOSITION FOR BEARINGS. JOHN F. NEWELL, Gardiner, Me. Filed Mar. 26, 1892. Serial No. 426,596. (No specimens.)

Claim.—A molded and hardened composition of matter for bearings, &c., and consisting of plumbago, fibrous substance, red lead, white lead and a drying oil, substantially as described.

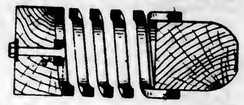
494,157. MILK-PAN COVER. SARAH NEWELL, Versailles, Ill., assignor of one-half to Margaret Peacock, same place. Filed Nov. 25, 1892. Serial No. 453,159. (No model.)



Claim.—1. A lid of the class described comprising a cover having a central opening with a gauze fabric closing the same, and a hollow perforated cone hinged to said cover at one side of said arranged to close over the said central opening, substantially as described.

2. A lid of the class described, comprising the centrally perforated cover A, the gauze fabric closing said perforation, the hollow, perforated cone B, inclosing said fabric, and the hook-shaped spring clamps D for securing the lid to the vessel which it covers, substantially as described.

494,158. BOLSTER-SPRING. ALBERT G. HORTH, Pontiac, Mich. Filed Jan. 18, 1892. Serial No. 418,405. (No model.)



Claim.—1. In combination with a bolster and bolster stakes, a cross bar provided with end slots, a coiled spring terminating at its upper end with a central eye, and having its lower coil provided with two diametrically opposite depending loops formed integral with the spring, a bolt adapted to pass through the eye and secure the spring to the cross-bar. The said depending loops being adapted to embrace the sides of the bolster, substantially as and for the purpose described.

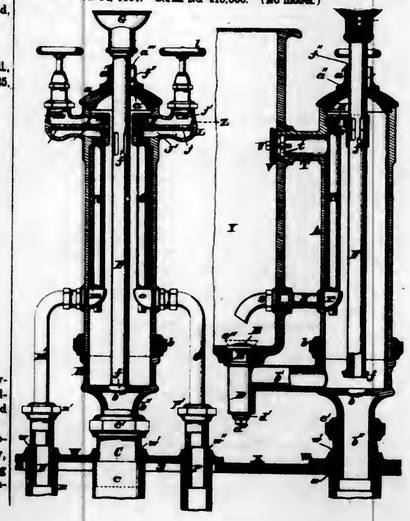
2. In combination with a bolster and bolster stakes a cross bar provided with slotted ends, a spring terminating at its lower end with a long tapering point, and provided on its lower coil, with two diametrically opposite depending loops, and having a central eye at the termination of its upper coil, a bolt securing the coil to the cross-bar, substantially as and for the purpose specified.

494,159. HORSE-WEIGHT. MICHAEL S. O'NEIL, Chicago, Ill. Filed Dec. 18, 1891. Serial No. 415,488. (No model.)



Claim.—The combination with a base-plate and having a mound arising therefrom having an opening therein, and an inverted bowl-shaped cover having a boss in its upper part with a suitable socket therein, of a bolt having its head secured within said socket and its lower screw-threaded end extending through the opening in said mound in the base, a nut on the lower end thereof, the drum journaled on said bolt, a hitching strap wound thereon and having its outer end passing through an opening in said cover, and a spring for automatically returning said drum to its original position so as to rewind said strap, as set forth.

494,160. BATH-TUB FITTING. JAMES POWELL, Avondale, Ohio. Filed Dec. 14, 1891. Serial No. 415,066. (No model.)



Claim.—1. The combination, in a bath-tub fitting, of a barrel having external hot and cold water pipes connected to it, near its lower end, continuations of said pipes carried up within said barrel, valve-guarded channels connecting said continuations with an internal mixing-pipe, and an external branch leading from the latter and adapted to discharge into the tub, substantially as herein described.

2. The combination, in a bath-tub fitting, of a barrel having external hot and cold water pipes connected to it, near its lower end, continuations of said pipes carried up within said barrel, valve-guarded channels connecting said continuations with an internal mixing-pipe, an external branch leading from the latter and adapted to discharge into the tub, an outlet at the base of said barrel, and a side pipe above said outlet adapted to communicate with the bottom of said tub, substantially as herein described.

3. The combination, in a bath-tub fitting, of a barrel having external hot and cold water pipes connected to it near its lower end, continuations of said pipes carried up within said barrel, valve-guarded channels connecting said continuations with an internal mixing-pipe, an external branch leading from the latter and adapted to discharge into the tub, an outlet at the base of said barrel, a side pipe above said outlet adapted to communicate with the bottom of said tub, and a vertically shiftable pipe having an overflow port and a valve that controls said outlet, substantially as herein described.

4. The combination, in a bath-tub fitting, of a barrel A, having external pipes M', O', coupled to it near its lower end, continuations M, O, of said pipes carried up within said barrel, lower channels I', J', to which said continuations are attached, ports *i*, *j*, connecting these channels with an upper channel H I J, valves *i'*, *j'*, for controlling said ports, an internal mixing-pipe R, depending from this upper channel H I J, and an external branch S, leading from said mixing pipe, and adapted to discharge into the tub, as herein described.

5. The combination, in a bath-tub fitting, of a barrel having hot and cold-water pipes applied to it, a mixing-pipe within said barrel, a lateral branch projecting from the lower end of this pipe and having means for attachment to the tub, and valve-guarded channels that connect the hot and cold-water pipes with the upper end of said mixing-pipe, substantially as herein described and for the purpose stated.

494,161. COMBINATION-TOOL. WILLIAM RANKIN, Lincoln, Ill. Filed Mar. 19, 1892. Serial No. 425,617. (No model.)



Claim.—In a tool, a member with a handle having a slot therein opening out at one side only thereof and terminating at its outer end, at one end of the said slot, in a stationary jaw and at the opposite end provided with a push-pin, a movable jaw having a head pivoted in the outer end of said slot, and a handle extending rearward from the said jaw provided with a shoulder at its rear end and adapted to be received by the said slot, and a spring interposed between the handle of the member and the handle of said movable jaw and located within the slot of the handle of said member, said spring operating to normally throw the handle of the movable jaw outward from the said slot and having the rear end thereof turned up to form a catch, substantially as described.

494,162. SAFETY CLOTHES-LINE SUPPORT. THEOPHIL RASMUS, Long Island City, N. Y. Filed Mar. 15, 1892. Serial No. 425,023. (No model.)

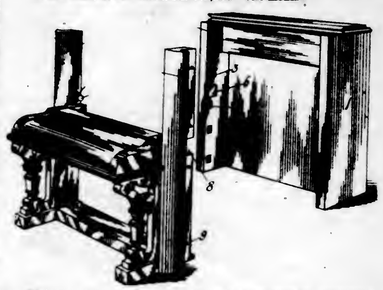


Claim.—1. A safety support for clothes lines comprising a bracket, an arm pivoted on the said bracket and forming with the latter and on its pivotal end a clamp for locking the clothes line in place, and means substantially as described for locking the arm in place at its pivot end as set forth.

2. A safety support for clothes-lines comprising a bracket provided with a pivot and a fixed lug, and an arm provided with an eccentric hub engaging the said pivot, and forming with the said fixed lug a clamp for locking the clothes-line in place, substantially as shown and described.

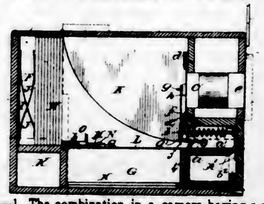
3. A safety support for clothes-lines comprising a bracket provided with a pivot and a lug, and an arm having an eccentric hub engaging the said pivot, and forming a clamp with the said lug, and a flange held on the head of the said arm, and formed with an incline to push the clothes line strands between the said hub and the said lug, substantially as shown and described.

494,163. PIANO-CASE. JEREMIAH REIMER, Toronto, Canada. Filed Oct. 25, 1892. Serial No. 449,992. (No model.)



Claim.—A piano case consisting of a back-section comprised of side pieces 1, a series of countersunk metallic plates 2 arranged in each of the side pieces 1, each of which is fitted with a threaded aperture, and a front section comprised of side pieces having a rabbeted edge, the said side pieces adapted to enter the space between the side pieces of the back-section and the rabbeted edge adapted to over-lap the front edge of the side pieces of the back-section, guide blocks located on the inner side of the side pieces of the back section, grooves formed in the outer side of the side pieces of the front section and adapted to engage with the said guide blocks, and screws adapted to pass through the side pieces of the front section and enter the threaded portion of the counter sunk metallic plates, substantially as specified.

494,164. MAGAZINE-CAMERA. ROBERT F. RICE, Hartford, Conn. Filed July 29, 1892. Serial No. 441,633. (No model.)



Claim.—1. The combination in a camera having a vertical exposure chamber and a horizontal storage chamber, of devices to support the lower edges of the plate holders in the exposure chamber both vertically and horizontally; a horizontal slide provided with devices adapted to grasp the plate holders and to displace the said horizontal supports, the said slide being located in front of the exposure chamber and flatwise over the storage chamber as a cover therefor, substantially as set forth.

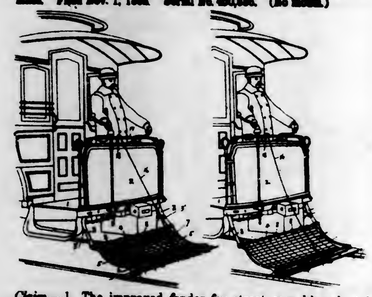
2. The combination in a camera having a vertical exposure chamber and a horizontal storage chamber of devices to support the lower edges of the plate holders in the exposure chamber both vertically and horizontally; a horizontal slide provided with devices adapted to grasp the plate holders and to displace said horizontal supports, the said slide being a solid one and located in front of the exposure chamber and flatwise over the storage chamber as a cover therefor, and guides for the plate holders during their movement from one chamber to the other, substantially as set forth.

3. The combination in a camera of a vertical exposure chamber, a horizontal storage chamber both adapted to contain a series of plate holders, a solid slide located in front of the exposure chamber, and flatwise over the storage chamber, as a cover therefor, devices on the slide adapted to engage with the plate holders and to displace the horizontal supports for the lower edge thereof, said horizontal supports themselves, a deflector on the slide, and a lever for the shutter which engages with the deflector, substantially as set forth.

4. The combination in a camera of a solid slide having pivoted

levers adapted to catch hold of projections on the plate holders, said slide moving horizontally over the storage chamber and acting as a cover therefor when closed and deflectors on the camera which when the slide is extended cause the pivoted levers to let go of the plate holders, substantially as set forth.

494,165. STREET-CAR FENDER. THOMAS C. RICE, Worcester, Mass. Filed Nov. 1, 1892. Serial No. 450,896. (No model.)



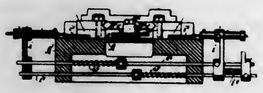
Claim.—1. The improved fender for street cars, hinged at its rear edge, and provided with a receiving apron, and a metal strip or plate extending in front of the receiving apron, and a rod carrying rollers adapted to travel on the track or road-bed, substantially as set forth.

2. The combination with the fender hinged at its rear edge, and provided with a receiving apron, and adapted to be raised and lowered on its hinge joint, of means for lowering the fender, consisting of a lever, and a foot treadle, and intermediate connection for operating said lever to disengage and release the holding link of the supporting chain or cord attached to the fender, substantially as set forth.

3. The combination with a street car fender, hinged at its inner edge, and adapted to be raised and lowered on its hinge joint, and provided with a supporting chain or cord, of means for releasing said chain to lower the fender, consisting of a spring actuated lever, with its free end extending under the attaching link of the chain, so that the raising of said lever will release the attaching link to free the chain, and drop the fender, substantially as set forth.

4. The combination with a street car fender, hinged at its inner edge, and adapted to be raised and lowered on its hinge joint, and a supporting chain or cord attached at its lower end to the fender, with its upper end extending over the guard rail of the car, of means for tightening the supporting chain to raise the fender, consisting of a lever adapted to engage the supporting chain and place the holding link over the notched holding device, substantially as set forth.

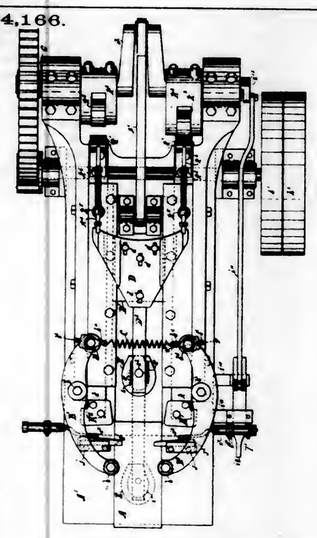
494,166. HORSESHOE-MACHINE. JACOB ROBERTS, Catasauqua, Pa. Filed Mar. 19, 1891. Serial No. 385,504. (No model.)



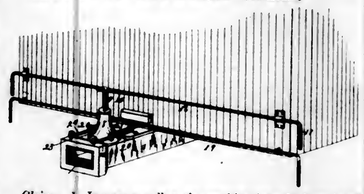
Claim.—1. In a machine for forming horse shoes or horse shoe blanks, the combination with bending mechanism and swaging mechanism, of centering devices consisting of longitudinally yielding fingers, arms carrying said fingers and in which they are longitudinally adjustable, two rods extending through side pieces of the machine frame and each rod being rigidly connected to an arm and passing loosely through the other arm, a spring for each rod and reciprocating ways or inclines for separating the centering devices, substantially as specified.

2. In a machine for forming horse shoes or horse shoe blanks, the combination with bending mechanism substantially such as described and intermittingly acting swaging mechanism, of centering devices each comprising an upright arm, a tube longitudinally adjustable in said arm, a finger extending into said tube, a spring within the tube for forcing the finger longitudinally, a rod rigidly attached to each of said arms and passing loosely through the other, springs for drawing said arms toward each other and means operated from the main shaft for separating them, substantially as specified.

494,166.



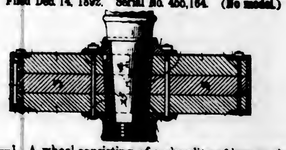
494,167. CAR-COUPLING. GEORGE W. ROBERSON, Shushan, N. Y. Filed Nov. 30, 1892. Serial No. 453,851. (No model.)



Claim.—1. In a car coupling, the combination of a draw-head provided in its top with a longitudinal and a transverse slot, a head rising from the draw-head and having a coupling pin perforation and having its lower face recessed, a top plate secured to the draw-head and covering the slots and having its lower face recessed to form a way, a pin support comprising a plate arranged in said way and having a depending flange located in the longitudinal slot and provided at its front with a depending transverse disk, a spiral spring arranged within the draw-head and engaging the pin support, and a plate located in the transverse slot and forming a bearing for the rear end of the spring, substantially as described.

2. In a car coupling, the combination with a car and the draw-head, of a link lifting frame vertically movable in the draw-head and extending through the top of the same, a rock-shaft mounted on the car and provided with parallel outwardly extending arms terminating at their outer ends in eyes, and adjustable sections having their outer ends connected to the link lifting frame and intermediate of its ends arranged in said eyes and provided at its inner ends with eyes receiving said arms, substantially as described.

494,168. VEHICLE-WHEEL. CHARLES W. ROBINSON, Reed City, Mich. Filed Dec. 14, 1892. Serial No. 455,164. (No model.)



Claim.—1. A wheel consisting of a plurality of layers, the grain

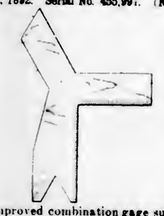
of the alternate layers being at right angles to each other and the intermediate layer consisting of a plurality of sectors cut lengthwise of the grain.

2. A wheel consisting of a plurality of layers, the grain of the alternate layers being at right angles to each other and the intermediate layer consisting of a plurality of sectors cut lengthwise of the grain, the said alternate layers being held together by irons entering the periphery thereof, substantially as described.

3. The combination of a wheel consisting of a plurality of layers, the grain of the alternate layers being at right angles to each other and the intermediate layer consisting of a plurality of sectors cut lengthwise of the grain; perforated ring bearing upon the outer surfaces of the said alternate layers, and bolts passing through the said rings and through the thickness of the wheel, substantially as described.

4. The combination of a wheel consisting of a plurality of layers, the grain of the alternate layers being at right angles to each other and the intermediate layers consisting of a plurality of sectors cut lengthwise of the grain, a box having an annular flange on one end thereof projecting through the wheel thus formed and having wings extending longitudinally along its outer surface, a collar mounted on the said box and having the recesses therein to receive the said wings, and bolts passing through the said collar and flange, and through the thickness of the wheel, whereby the former may be drawn tightly upon the latter, substantially as described.

494,169. COMBINATION-GAGE. OTTO W. SCHAUM, Philadelphia, Pa. Filed Dec. 22, 1892. Serial No. 455,997. (No model.)



Claim.—1. An improved combination gage substantially such as herein shown and described, formed with the three radiating arms 1, 2 and 3, the proximate edges of the said arms meeting at three predetermined definite angles as described, one arm having in the free end thereof an entering angle of a definite number of degrees, and another arm having at the free end thereof an exterior angle of a definite number of degrees, substantially as described.

2. The improved combination gage herein shown and described, and formed with the three radiating arms 1, 2 and 3, the proximate edges of arms 1 and 2 meeting at a right angle, the proximate edges of arms 2 and 3 meeting at an angle of one hundred and twenty degrees, and the proximate edges of arms 3 and 1 meeting at an angle of one hundred and thirty-five degrees, the arm 1 having in the free end thereof an entering angle of sixty degrees, and the arm 3 having at the free end thereof an exterior angle of sixty degrees, substantially as described.

494,170. ENVELOPE. ALFRED L. SEWELL, Evanston, Ill. Filed Dec. 10, 1891. Serial No. 414,564. (No specimens.)

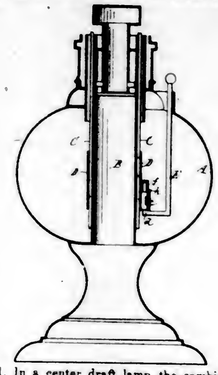


Claim.—1. As a new article of manufacture, an envelope having the front and back formed of a single piece of material with straight parallel edges doubled upon itself, two of the four sides of the envelope being separate from the front and back and of stronger material folded inward longitudinally and pasted to their edges, uniting them on two sides, substantially as set forth.

2. As a new article of manufacture, an envelope having the front and back formed of a single piece of material with straight parallel edges doubled upon itself, and the separate strips *f*, *f*, of stronger material, folded inward longitudinally, the edges of the front and back being between the folds of the strips *f*, and pasted thereto, substantially as set forth.

3. As a new article of manufacture, an envelope having the front and back formed of a single strip e having straight parallel sides and folded on the line *g*—*g*, and the strips *f*, *f*, of stronger material folded inward longitudinally and pasted to the edges of the front and back, substantially as set forth.

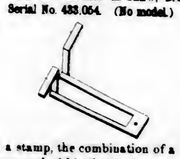
494,171. WICK-RAISER. HENRY R. SHAFFER, Rochester, N. Y. Filed Aug. 9, 1888. Serial No. 282,381. (No model.)



Claim.—1. In a center draft lamp, the combination of a wick holder provided with a tubular socket, a handle provided with a vertical stem to fit the socket, and a locking attachment connected with the stem forming a permanent attachment to same and adapted to shut over the top of the socket to secure the parts together, as herein shown and described.

2. In a center draft lamp, the combination of a wick holder provided with a tubular socket, a handle provided with a vertical stem to fit the socket, and a sleeve fitted to turn on the stem, and having a pin to shut over the top of the socket to secure the parts together, as herein shown and described.

494,172. STAMP. CHARLES H. SHAW, Brooklyn, N. Y. Filed May 14, 1892. Serial No. 433,054. (No model.)



Claim.—1. In a stamp, the combination of a body having a slot or opening, a bar arranged within the slot or opening and a band projecting through the slot or opening and having its upper portion unsupported and accommodated within the stamp, substantially as specified.

2. In a stamp, the combination of a body having a slot or opening, a bar arranged within the slot or opening, a spring arranged within the slot or opening and a band passing through the slot or opening in contact with said spring, the upper portion of the band being unsupported and accommodated within the stamp, substantially as specified.

3. In a stamp, the combination of a body having a slot or opening, a bar extending into the slot or opening and having an adjustable connection with the stamp body and a band projecting through the slot or opening and having its upper portion unsupported and accommodated within the stamp, substantially as specified.

4. In a stamp, the combination of a body having a slot or opening, a bar extending into the slot or opening, springs for supporting said bar intermediate of the ends of the stamp body, screws passing through the ends of the bar and engaging with the stamp body, and a band projecting through the slot or opening and having its upper portion unsupported and accommodated within the stamp, substantially as specified.

5. In a stamp, the combination of a body having a slot or opening in its lower portion and a recess in its upper portion a bar arranged within the slot or opening and a band projecting through the slot or opening and having its upper portion unsupported and accommodated within the recess, substantially as specified.

6. In a stamp, the combination of a body having a slot or opening and a recess or space above the slot or opening, a hinged cover or upper section a bar arranged within the slot or opening and a band projecting through the slot or opening and having its upper portion unsupported and accommodated within the stamp, substantially as specified.

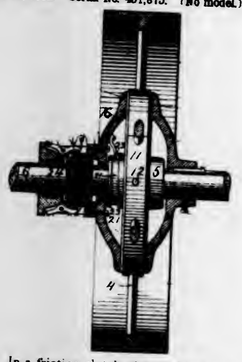
7. In a stamp, the combination of a body having a slot or opening and a notch or space above the slot or opening, a bar extending into the slot or opening, a bridge extending across the slot or opening and a number of bands extending through the slot or opening, separated by the bridge and having their upper portions accommodated within the stamp body, substantially as specified.

8. In a stamp, the combination of a body having a slot or opening, a bar arranged within the slot or opening a band extending through the slot or opening and having its upper portion extended under an arm or keeper, substantially as specified.

9. In a stamp, the combination of a body having a slot or opening, a bar arranged within the slot or opening, a band extending through the slot or opening and having its upper portion pinched and held between two arms, substantially as specified.

494,173. SELF-ADJUSTING FRICTION-CLUTCH. FRANK M. SHAW, JAMES R. METHVEN, and GEORGE M. SHARP, Minneapolis, Minn.

Filed Nov. 14, 1892. Serial No. 451,875. (No model.)



Claim.—1. In a friction clutch, the combination with the shaft, of a clutch or clamping device, means for operating the same consisting of a worm arranged rigidly upon said shaft and a threaded block engaging said worm and movable radially and longitudinally of said shaft, and means for moving said block into engagement with said worm, substantially as and for the purposes set forth.

2. In a friction clutch, the combination with the shaft, of the clutch or clamping device, means for operating the same consisting of a worm arranged upon said shaft and a threaded block engaging said worm and movable laterally and longitudinally of said shaft, means for moving said block into engagement with said worm, and a sleeve inclosing said worm and said block and adapted to be moved by said block longitudinally of the shaft and said worm, substantially as and for the purposes set forth.

3. In a friction clutch, the combination with the shaft of a pulley and the sleeve loosely mounted on the shaft, a threaded block inside of said sleeve and movable in guides formed in the sleeve, means for moving said block into or out of engagement with a worm secured to said shaft, and a friction disk on said shaft into engagement with which said pulley is forced when said block is moved into engagement with said worm, substantially as and for the purposes specified.

4. In a friction clutch, the combination, with the shaft, of a pulley and a sleeve loosely mounted on said shaft, a fixed worm on said shaft, movable threaded blocks carried on said sleeve, short levers connected with said blocks and pivoted on the sleeve, a movable ring on said sleeve for operating said levers, and a friction disk on said shaft, into engagement with which said pulley is forced when said blocks engage said worm, substantially as described.

5. The combination with the shaft, of a friction disk arranged on the shaft to move therewith, the loose pulley provided with the friction ring, a movable friction disk arranged opposite the first disk and provided with a sleeve having bearings on said shaft, a worm upon the shaft and laterally movable threaded blocks provided on said sleeve and adapted to be moved into engagement with said worm whereby as the pulley or shaft revolves one with respect to the other said disk is moved into engagement with said friction ring and said ring into engagement with the other disk thereby clamping the pulley on the shaft, substantially as described.

6. The combination with the shaft, of the ring or disk connected therewith, the loose pulley provided with the sectional friction ring composed of wood, paper or like material, the movable disk 16 provided with the sleeve and loosely journaled on said shaft, a worm arranged within said sleeve, slidable blocks provided on the sleeve and threaded to correspond to said worm, short levers arranged on the sleeve and pivoted on said blocks, a longitudinally movable ring to alternately engage opposite ends of said levers whereby said blocks are thrown into or withdrawn from engagement with said worm, substantially as described.

7. The combination with the shaft, of the loose pulley journaled thereon, the sectional wooden friction ring provided on said pulley, the disk 16 journaled on said shaft and adapted to engage the opposite sides of the ring, a sleeve or hub on said disk 16, the laterally movable threaded blocks 26 carried by said sleeve, the pivoted levers 31 longitudinally arranged on said sleeve and engaging said blocks, the ring longitudinally movable on said sleeve and adapted to engage said levers to operate said blocks, and the threaded sleeve or worm 24 secured upon the shaft in position to be engaged by said blocks, substantially as described.

8. The combination with the shaft, of the loose pulley journaled thereon and provided with the ring 9, the wooden blocks 10 having the slotted ends to engage the spokes of the pulley, the clamping plates correspondingly slotted, bolts for securing said clamping plates and the blocks to the ring 9 and the pulley, a fixed friction disk on said shaft to engage one side of the ring made up by said blocks, the longitudinally movable disk 16 to engage the opposite side of the ring, and loosely journaled on the shaft, a worm provided on said shaft, laterally movable blocks carried by said sleeve and adapted to engage said worm, and means for operating said blocks, substantially as described.

9. The combination with the shaft of the pulley journaled thereon and provided with the friction ring, the friction disk 15 fixed on said shaft to engage one side of said ring, the movable disk 16 to engage the opposite side of said ring, a worm provided on the shaft, movable threaded blocks carried on the sleeve or hub of said disk, means for operating said blocks, the hub of said pulley grooved as described and the lug 40 provided on said disk 16 and projecting into said groove whereby as the clutch is freed the disk 16 is first withdrawn from engagement with said ring and afterward said ring withdrawn from engagement with the fixed friction disk, substantially as described.

10. The combination in a friction clutch, of a shaft, with the loose pulley thereon, a fixed friction disk on said shaft, the ring 9 connected to the spokes of the pulley, the sectional blocks 10 having slotted ends to engage said spokes, the sectional plates 11 similarly slotted, bolts for securing said blocks and plates, and means for moving the pulley into engagement with said friction disk, substantially as described

494,174. FLAX OR HEMP BRAKE. JOHN T. SMITH, Heron Lake, Minn.

Filed Apr. 23, 1892. Serial No. 430,413. (No model.)

Brief.—The material is passed between several pairs of rolls, some fluted and some smooth. Between the various sets of rolls are stirrers or agitators and shaking screens, by which the fiber and boon are separated from each other and then conveyed by suitable conveyers to different places.

Claim.—1. The combination in a machine for treating flax, of a frame having in its lower part a conveyer, with a feed conveyer projecting over the forward ends thereof, thrashing rolls arranged in advance thereof to receive the crude stock therefrom, corrugated rolls in advance of the thrashing rolls, a short conveyer arranged between the two pairs of rolls mentioned, a doffer arranged to revolve above said short conveyer, a shaker to receive the stock from the corrugated rolls and a doffer to throw the stock thereon, all substantially as and for the purpose specified.

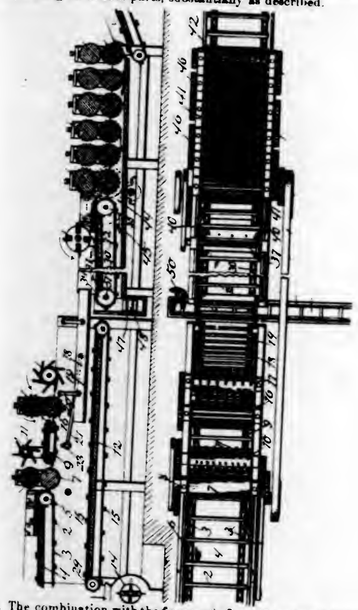
2. The combination with a long conveyer made up of side belts and cross slats with the table 4 thereon, a power connection for operating said belt, a pair of smooth rolls arranged in advance of said conveyer to receive the stock therefrom, a pair of corrugated rolls, a short open slat conveyer arranged between the two pairs of rolls, a doffer arranged above said conveyer and operating close to the smooth rolls and at a greater speed, a trough or table arranged beneath the whole, a conveyer operating over the same to carry off the seed, and means for driving all of said parts, substantially as described.

3. The combination with the frame, of a conveyer having cross slats, a table 4, the converging side boards, the smooth rolls 7, the rapidly revolving doffer arranged in advance thereof, the short open conveyer beneath said doffer and whereon the stock is delivered from the smooth rolls, corrugated rolls, a more rapidly revolving doffer 17 to act upon the stock emerging from the corrugated rolls, a shaker 18, a floor 12 beneath all of said parts, a conveyer operating over the same to carry away the seed, and means for operating all of said parts, substantially as described.

4. The combination with a feed conveyer, of a pair of smooth rolls to receive the stock therefrom, a pair of corrugated brake rolls, a short conveyer arranged between said pairs of rolls, a shaker having cross slats 18, a crank shaft, a connecting rod or rods extending

therefrom to the shaker, a rapidly revolving doffer 17 arranged to scatter the stock emerging from the corrugated rolls, and a seed receiving table and conveyer arranged beneath the whole, as and for the purpose specified.

5. The combination with a feed conveyer, of thrashing and breaking rolls arranged in advance thereof, a short conveyer and a doffer arranged between the thrashing and breaking rolls, a shaker to receive the stock from the brake rolls, a seed conveyer a long conveyer to receive the stock from said shaker, a beater operating above said conveyer to scatter the stock thereon, and to regulate the feed therefrom, and a series of diminishingly corrugated brake rolls to receive the stock from the last mentioned conveyer, and power connections for operating all of said parts, substantially as described.



6. The combination with the frame, of a floor 45 arranged therein and a second floor 31 arranged above the same, a conveyer arranged to operate upon both, a spreader and beater arranged above the upper part of the conveyer and revolving at a high rate of speed, a series of diminishingly corrugated brake rolls to receive the stock from said conveyer and from one another, a conveyer trough and conveyer 48 arranged to receive shives falling from the end of the floor 45, the lower brake rolls being arranged to operate just above said floor and to push the shives back thereon, substantially as described.

7. The combination with the long conveyer 30, of the two floors whereon the same are adapted to operate, the cross slats and sprocket belts of said conveyer, the beater arranged above the upper floor and having the radial pins 29, the converging side boards 40 and the series of brake rolls with means for operating the same, substantially as described

8. The combination in a machine for treating flax, of a frame provided in its lower part with a conveyer 15 a feed conveyer projecting over the outer end thereof, thrashing rolls in advance of said feed conveyer, corrugated rolls in advance of said thrashing rolls, and a shaker to receive the stock from the corrugated rolls.

9. The combination with the floor, of the long conveyer to operate upon the same, the two shafts, the sprocket wheels thereon, said conveyer made up of endless chains to run upon said wheels and the cross slats secured upon said chains, the brake rolls, the large and small gears provided upon the nearest roll, and a power pinion to engage one and a gear wheel upon one of said shafts to engage the other, substantially as described.

10. The combination with a feed conveyer, of thrashing and breaking rolls arranged in advance thereof, a shaker to receive the stock from the brake rolls, a conveyer to receive stock from said shaker, and a series of diminishingly corrugated brake rolls to receive the stock from said conveyer, and means for driving said parts, substantially as described.

11. The combination with a feed conveyer, of the thrashing and breaking rolls arranged in advance thereof, a short conveyer and a doffer arranged between the thrashing and breaking rolls, and shaker to receive the stock from the brake rolls, a conveyer to receive the stock from said said shaker, and a series of corrugated brake rolls to receive the stock from said conveyer.

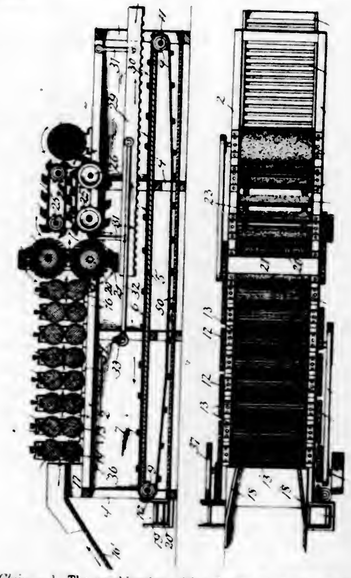
12. The combination in a machine of the class described, with means for thrashing and separating the seed from the flax straw, of a conveyer arranged to receive the straw, a separate conveyer arranged to receive the seed, a series of brake rolls arranged to receive the straw from its conveyer, and a fanning mill arranged to receive the seed from its conveyer.

13. The combination in a machine of the class described, with means for thrashing and separating the seed from the straw, of a conveyer arranged to receive the seed, a separate conveyer arranged to receive the straw, and a series of brake rolls arranged to receive the straw from its conveyer.

14. In a machine of the class described, the combination, with means for thrashing and separating the seed from the straw, of a conveyer arranged to receive the seed, a separate conveyer arranged to receive the straw, a beater arranged above the straw and conveyer, and a series of diminishingly corrugated brake rolls arranged to receive the straw from its conveyer, substantially as described

494,175. FINISHING-MACHINE FOR FLAX OR HEMP FIBER. JOHN T. SMITH, Heron Lake, Minn. Filed Apr. 23, 1892. Serial No. 430,414. (No model.)

Brief.—The fiber, after having been broken, is passed between several pairs of corrugated rolls having successively finer corrugations, then between a pair of carding or cleaning rolls, next between a pair of endless carding or cleaning belts, and finally it is subjected to a cleaning operation. The fiber then falls onto a shaker, where the hurds, &c. are removed and the fiber delivered in a cleaned condition.



Claim.—1. The combination with a frame, of a series of brake rolls finely corrugated with a pair of carding rolls revolving at a higher rate of speed than the brake rolls and arranged to take the stock from the last pair thereof, a pair of endless carding belts having cross cards and arranged to receive the stock from said carding rolls, and a final cleaning and stripping device having a still greater speed, substantially as described

2. The combination with a frame, of a series of diminishingly corrugated brake rolls, more rapidly revolving carding rolls to receive the stock from the last pair thereof, a pair of endless carding belts made up of endless chains, and cross slat cards means for finally stripping the sheaves from the stock, and reciprocating shaker to re-

ceive the fiber therefrom, and a long conveyer in the bottom of the machine to carry off the waste portions, substantially as described.

3. The combination with a series of diminishingly corrugated brake rolls, with carding rolls to receive the stock therefrom, a more rapidly revolving pair of stripping and carding belts having the cross cards 22, and a second pair of stripping and carding devices to receive the stock therefrom, substantially as described.

4. The combination with a series of brake rolls, of carding rolls to receive the stock therefrom, the combs 21 for cleaning said rolls, the endless carding belts arranged to receive the stock from said rolls, a second set of carding rolls, and a second set of carding belts, substantially as and for the purpose specified.

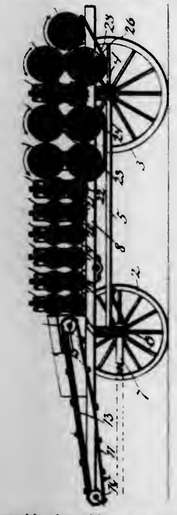
5. The combination with a series of brake rolls, the rapidly revolving carding rolls to receive the stock therefrom, the pins of said rolls being backwardly bent, endless carding belts having cross cards 22 and having their forward ends running over small sprocket wheels 41 and their rear ends over larger wheels and a final stripping and cleaning device, substantially as described.

6. The combination with the frame of the machine, of a table having an inclined and a level portion, a series of diminishingly corrugated brake rolls having a finely corrugated and a smooth roll, of a final pair of carding rolls 20 arranged to receive the stock from said brake rolls and operating more rapidly than the same, endless carding belts having the cross cards 22, said cards arranged to alternate in position, a final cleaning and stripping device, the shaker 29, the pivot arms 31 thereof, the slats forming the bottom of said shaker, the connecting rod or rods 32, the crank shaft, the long conveyer extending between the whole, the floor over which said conveyer operates, and the second conveyer 20 to carry away the shives, all substantially as described and for the purpose specified.

7. The combination with a frame, of a series of brake rolls, carding rolls to receive the stock therefrom, and the endless carding belts to receive the stock from the carding rolls and to strip the same, substantially as described.

494,176. PORTABLE FLAX AND HEMP BRAKE. JOHN T. SMITH, Heron Lake, Minn. Filed Apr. 23, 1892. Serial No. 430,415. (No model.)

Brief.—Upon a suitable framework supported on wheels are a number of pairs of corrugated or fluted rolls, the flutings diminishing in size toward the front of the machine. Following these fluted rolls are a number of carding or brushing rolls. The fiber-bearing stalk is passed through the crushing-rolls, which break up the woody matter or boon, this woody matter or boon being removed and the fibers cleaned and straightened by the carding or brushing rolls.



Claim.—1. The combination with a series of brake rolls, of an inclined feed table, a conveyer arranged to operate over said table and to carry the stock into said rolls, carding rolls into which the stock is delivered from the last of the brake rolls, a final stripping mechanism, and a reciprocating shaker having a perforated bottom composed of transverse slats and whereon the stock is thrown from said stripping mechanism, substantially as described.

2. The combination with a feed table and a cross slat conveyer to operate over the same, a series of diminishingly corrugated brake rolls, carding rolls revolving at a greater speed than said brake rolls and into which the material is delivered therefrom, a second pair of brake rolls, and a final stripping and shaking mechanism, substantially as described.

3. The combination with the wheels and the bolsters, of the sills 8, the pairs of diminishingly corrugated rolls mounted thereon, the feed table mounted on said wheels, the conveyer to operate over said table, carding rolls, an intermediate roll or rolls, brake rolls 25 and a beater, substantially as described.

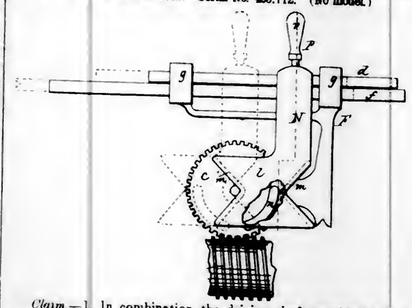
4. The combination with the wheels, of the sills 8 mounted thereon, the series of brake rolls supported upon said wheels, the feed table, carding rolls into which the stock is delivered from the series of brake rolls, a pair of brake rolls 25, a final stripping mechanism, a shaker 42 having cross slats 43 and means for operating all of said parts, substantially as described.

5. The combination with the frame, of the wheeled support for the same, the brake and stripping rolls and the curved guard plates arranged beneath said stripping rolls, substantially as described.

6. The combination with the frame, of the brake rolls mounted thereon, the carding rolls 23, the lower card or comber rolls 24, the brake rolls 25, and the small card roll 50 arranged as described and for the purpose specified.

7. The combination with a suitable carriage, of a series of brake rolls mounted thereon, an inclined feed table also mounted upon said carriage, a conveyer arranged to operate over said table and carry the stock into said rolls, the carding rolls into which said stock is delivered from the last of the said brake rolls, a final stripping mechanism and a reciprocating shaker onto which the stock is thrown from said stripping mechanism, substantially as described.

494,177. BELT-SHIPTER. AUSTIN V. M. SPRAGUE, Rochester, N. Y. Filed Mar. 21, 1892. Serial No. 425,712. (No model.)



Claim.—1. In combination, the driving shaft provided with a worm and with the loose and fixed pulleys, the belts, the belt shifter comprising two V-shaped portions adapted to be alternately pressed by a cam *n* fixed on the gear wheel, said cam and wheel, the cam being in the form of an arc of a circle and arranged to positively hold the belt shifter approximately at all times by the medium of one or the other of the V-shaped portions or flanges; substantially as set forth.

2. The combination of the main shaft provided with fast and loose pulleys, the driving belts, a slide carrying belt guides, a slide carrying a block provided with cam bearings, an arc shaped cam operated mediately by the shaft to move the block and the last named slide, and a clutch P pivotally supported on said slide and adapted to be put in engagement with either the cam block or with a part of the machine frame, whereby the slides may be locked together or the lower or belt-moving slide may be locked to the frame; substantially as set forth.

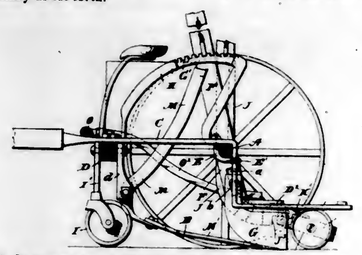
494,178. TRANSPLANTER. TIMOTHY SULLIVAN, Janesville, Wis. Filed Sept. 21, 1891. Serial No. 406,371. (No model.)

Claim.—1. In a transplanter, the combination with an axle, of irons mounted thereon, a cross bar secured to said irons, casters connected with said cross bar, supports for an operator formed by the rearward extensions of said irons, and a furrow opener between said supports, substantially as set forth.

2. In a transplanter, the combination with an axle, of a pivotally mounted lever extending above and below the plane of the axle,

and adapted to swing laterally upon its support, and a furrow opener loosely connected to the lower end of the lever, substantially as set forth.

3. In a transplanter the combination with an axle, of a lever mounted at a point between its ends on said axle and having an elongated slot in its lower end, a furrow opener, and a pin or screw passing from said furrow opener into the elongated slot of the lever, substantially as set forth.



4. In a transplanter, the combination with an axle, of a furrow opener, pivotally supported on the axle a lever mounted on the axle, and a yielding presser wheel carried by said lever, in proximity to the furrow opener, substantially as set forth.

5. In a transplanter, the combination with an axle, of a furrow opener, a lever mounted on the axle, a bracket pivotally connected with said lever, a spring secured at one end to the lever and at the other end to the bracket, and a presser wheel carried by said bracket, substantially as set forth.

6. In a transplanter, the combination with an axle, of a furrow opener, a lever mounted on the axle, a bracket pivotally connected with said lever, a spring secured at one end to the lever and at the other end to the bracket, a presser wheel carried by said bracket, and a guard secured to the bracket and extending in rear of the presser wheel, substantially as set forth.

7. In a transplanter, the combination with an axle, and a furrow opener pivotally supported on the axle, of a lever mounted at a point between its ends on said axle, a yielding presser wheel carried by said lever, a toothed segment and a lock bar carried by said lever and adapted to engage said toothed segment, substantially as set forth.

8. In a transplanter, the combination with an axle, a furrow opener pivoted thereto and a cross bar, of a lever pivotally supported by said cross bar, and a sliding presser blade projecting from said lever and terminating in proximity to the furrow opener, substantially as set forth.

9. In a transplanter, the combination with an axle, a furrow opener pivoted thereto and a cross bar, of a lever pivotally supported by said cross bar, a sliding presser blade projecting from said lever and terminating at a point in proximity to the furrow opener, a toothed segment and a lock bar carried by said lever and adapted to engage said toothed segment, substantially as set forth.

10. In a transplanter, the combination with an axle and a cross bar, of irons mounted on said axle and connecting said axle and cross bar, said irons being adapted at their forward ends to receive a pole or tongue, and at their rear ends bent downwardly and rearwardly to form supports for operators, platforms on said supports, foot rests on said supports, and a furrow opener between said supports, substantially as set forth.

11. In a transplanter, the combination with a suitable frame, a lever pivotally connected therewith, and a furrow opener loosely connected with the lower end of the lever, of water supply pipes for conducting the water to the furrow-opener, and means for locking the lever in any desired position, substantially as set forth.

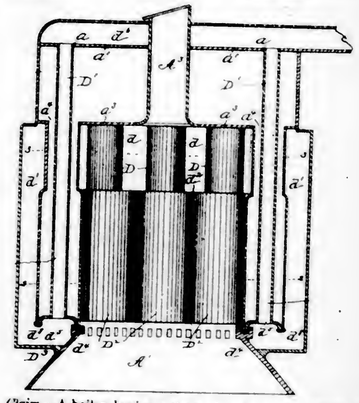
494,179. PORTABLE CONFESSIONAL. MICHAEL H. SULLIVAN, Fall River, Mass. Filed Mar. 11, 1892. Serial No. 424,544. (No model.)



Claim.—1. A portable confessional, comprising a rear wall, side wings hinged to the rear wall, one of the side wings being L-shaped and hinged at the vertex, of the angle apertured side walls one hinged to the forwardly extending portion of the L-shape wing and the other to the inner front edge of the other wing, and detachable braces extending from the wings to the side walls, substantially as described.

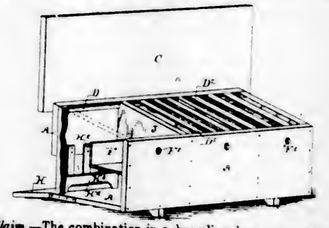
2. A portable confessional, consisting of the rear wall A, the side wings B C hinged to the rear wall, the wing B being L-shaped, the apertured side walls E D, the wall D being hinged at *c* to the side wing C and the wall E to the forwardly projecting member of the wing B, braces *d* extending from the wings to the side walls and detachably secured to the side wall, the seat *m* hinged to the rear wall and supported by stop blocks on the side walls, and the triangular stools *o* in the spaces between the wings and side walls, substantially as herein shown and described.

494,180. STEAM-GENERATOR. JAMES R. VANCE, Geneva, N. Y. Filed June 27, 1892. Serial No. 438,161. (No model.)



Claim.—A boiler, having a steam dome, a water fire-box composed of pipes arranged vertically with approximating sides abutting against each other, pipes connecting the pipes of the water fire-box and steam drum and having spaces between said pipes to form lateral flues, a casing inclosing the said fire-box and pipes to form a down flue, pipes passing through said connecting pipes, the water fire-box and the steam drum, forming up flues and connected with said down flue and a cap over the steam dome, forming a collecting flue for the up flues, substantially as described.

494,181. HEN-COOP. ERNEST R. VOSS, Exira, Iowa. Filed Apr. 28, 1892. Serial No. 431,068. (No model.)



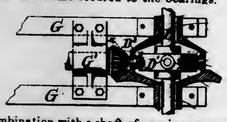
Claim.—The combination in a brooding hen coop, of an open-topped casing or frame, a hinged cover therefor, vertical partitions to divide the casing or frame into separate compartments, a nest secured to the back of each compartment, a lattice in the front of each compartment adapted to exclude full grown fowls and permit younger ones to pass therethrough, the front of the said casing or frame being divided horizontally, and hinged at its under edge to swing outwardly and serve as an approach or platform and a support for elevating the device above the ground surface substantially as set forth.

494,182. DEVICE FOR COMMUNICATING MOTION. LOUIS WARFIELD, Detroit, Mich. Filed Nov. 28, 1892. Serial No. 453,319. (No model.)

Claim.—1. The combination with a shaft of a casing surrounding the same, and having one or more bearings formed on or secured

to it; means for uniting the casing and shaft, so that they will turn together while free to change their angular positions, and a frame secured to the casing bearing or bearings.

2. The combination with a shaft of a casing surrounding the same and having bearings through one or both of which the shaft extends; means for uniting the casing and shaft so that they will turn together while free to change their angular positions; a driving wheel secured to the casing; and a frame secured to the bearings.



3. The combination with a shaft of a casing surrounding the same and having bearings through one or both of which the shaft extends; means for uniting the casing and shaft so that they will turn together while free to change their angular positions; a driving wheel secured to the casing; a frame secured to the casing bearings, and power transmitting mechanism supported on said frame and operatively connected with the casing gear.

4. The combination, with a shaft B, of a casing having hollow journals through which said shaft extends; means for uniting the casing and shaft between the bearings so that they will turn together though free to change their angular positions; a frame G secured to the bearings of the casing; an electric motor supported on the frame, and means for driving the casing from the motor also supported on the frame.

5. The combination, with a carriage, of two axles B B, casings having hollow bearings secured to each axle by a universal joint as described; a frame G secured to the bearings of the two casings; a motor supported upon the frame; and means for driving the casings from the said motor also supported on the frame.

6. The combination, with a carriage, of two axles B B, casings having hollow journals secured to each axle by a universal joint as described; a frame G secured to the bearings of the two casings; a motor supported upon the frame; a longitudinal driving shaft H journaled in the frame G, and means for operatively connecting said shaft with the casings.

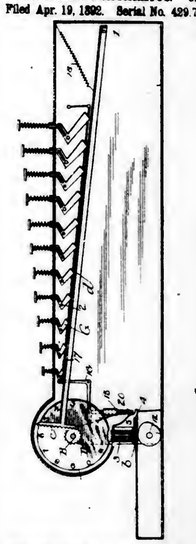
7. The combination, with a casing having hollow bearings, of a shaft passing through said bearings; bearing pins D' D' secured to the shaft and projecting on opposite sides thereof; an annulus D^3 journaled on said pins and pivotally connected with the casing by pins D^2 D^2 arranged in a line transverse to the line of pins D' D'; a gear wheel secured to the casing, a frame supported on the casing bearings, and driving mechanism supported on the frame and in operative connection with the casing gearing.

494,183. HIDE-WORKING CYLINDER. ARTHUR E. WHITNEY, Winchester, Mass. Filed Jan. 2, 1892. Serial No. 416,766. (No model.)



Claim.—In a hide working cylinder, the combination of two sets of spirally curved blades, arranged in right and left hand spirals at each side of the center of the length of said cylinder, said spirals being inclined toward the opposite ends of the cylinder, and short blades interposed at intervals between said spirally curved blades, said short blades lying adjacent connecting one spirally curved blade with the other, and being oppositely inclined.

494,184. PERFORATING APPARATUS. CLARENCE R. WIBNER, Lowell, Ind. Filed Apr. 19, 1892. Serial No. 429,758. (No model.)



Claim.—1. A perforating machine consisting of sets of punches, a series of die surfaces in alignment with said punches controlling and determining the punching operation, and a series of key levers with connections for each die surface, substantially as described.

2. The combination with a series of punches, a series of die wheels controlling and determining the amount of the punches, key levers and connections for independently operating each of said wheels, means for bringing the wheels and punches into contact simultaneously and means for restoring the wheels to normal position when released from the punches, substantially as described.

3. In combination the wheels, the means for rotating the die wheels independently, and locking them automatically in their moved position, the punches, means for making contact between the wheels and the punches with connections for automatically releasing the locking device when said contact is established the said wheels being returned to normal position automatically when released from the punches, substantially as described.

4. In combination, the punches, a series of die wheels, the series of keys for each wheel, an operating connection between each series of keys and each wheel said connection being common to them all and arranged to be moved to different degrees by the said keys, substantially as described.

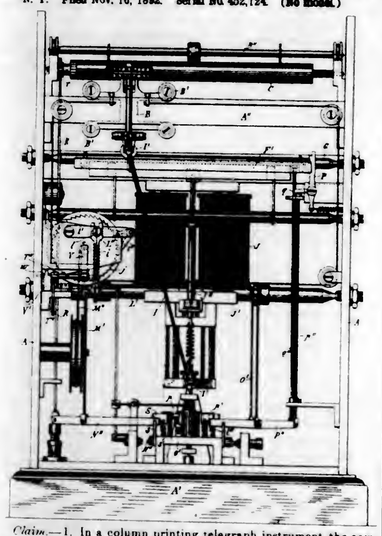
5. In combination, the punches, a series of die wheels having pinions, the levers having the racks engaging therewith, a series of keys for each lever and the angular dogs between the keys and the levers, substantially as described.

6. In combination, the punches, the series of die wheels, the keys, the levers with connections to the wheels, the automatic locking means, devices for moving the punches and wheels into contact, the connections to the locking means for releasing them when the contact is established and the means for returning the wheels to normal position after the contact is broken, substantially as described.

7. In combination, the die wheels, the means for rotating the wheels comprising the keys, the levers with the automatic locking dogs between the punches with means for making the punches and wheels contact with each other, the frame for releasing the dogs and the operating connections thereto.

8. In combination, the die wheels the levers with operating connections thereto, the keys, the interposed locking dogs, the vertically movable punches with operating means therefor, and the connections for releasing the dogs including the wire frame, substantially as described.

494,185. PRINTING-TELEGRAPH. JOHN R. WRIGHT, New York N. Y. Filed Nov. 16, 1892. Serial No. 452,124. (No model.)



Claim.—1. In a column printing telegraph instrument, the combination with a type-wheel and carriage for the same movable transversely for printing lines of characters, an escapement and a connection between the escapement and type-wheel capable of universal movement with respect to both.

2. In a column printing telegraph instrument, the combination with a type-wheel and carriage for the same movable transversely for printing lines of characters, an extension rod and universal joints between the two members of the same and the type-wheel and escapement respectively.

3. The combination with the escapement wheel, of a printing or similar instrument, of an electro-magnet, two polarized armature levers, a divided bar or frame connecting the same and pawls carried thereby and engaging with the escapement wheel on opposite sides of the center.

4. The combination with the escapement wheel of a printing or similar instrument, of an electro-magnet, two polarized armature levers, a divided bar or frame connecting the same, pawls carried by the bar or frame and engaging with the escapement on opposite sides of the center, said pawls being provided with extensions beyond their fulcrums and fixed stops in the paths of said extensions, whereby the pawls are caused to bind the escapement and prevent overthrowing.

5. The combination with an escapement wheel, of two pivoted and polarized armatures, a bar connecting their ends and stops for limiting the oscillation or play of the same and pawls carried by the bar and engaging with the escapement wheel on opposite sides of its center.

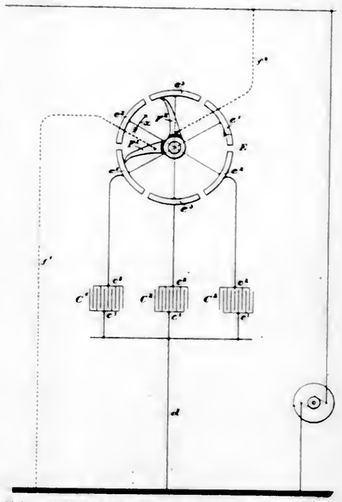
6. In a column printing telegraph instrument, the combination with any or all of the several devices for feeding the paper, restoring the type-wheel to begin a line, and adjusting the type-wheel vertically, of levers oscillated by the printing magnet and connected at one end to the said mechanism but having the other end free, a stationary support or table under the free ends of said levers and a pin or stud carried by the escapement and adapted to be interposed by the same between any one of the levers and the table, as set forth.

7. In a column printing telegraph instrument, the combination with the type wheel carriage of a plate connected therewith and movable vertical with respect thereto, a frame pivotally connected with the plate, and a type-wheel mounted in said frame.

8. The combination of a transversely moving type-wheel carriage, a spring-actuated drum, cords connecting the carriage and drum, a shaft having longitudinal play and carrying the drum, a ratchet-wheel turning loosely on the shaft and adapted to be rotated intermittently by the operation of the printing magnet, a spring for maintaining the ratchet and drum in engagement and means for moving the shaft longitudinally and disengaging the ratchet and drum to restore the type-wheel carriage to the starting position.

9. The combination with a transversely movable type-wheel carriage and stationary escapement, of a type-wheel carried by a spindle capable of rotary, angular and vertical movement with respect to the carriage, and an extensible connection between the said spindle and the escapement capable of universal movement with respect to both.

494,186. LIGHTNING-ARRESTER. ALEXANDER WURTS, Pittsburg, Pa., assignor to the Westinghouse Electric and Manufacturing Company, same place. Filed Jan. 14, 1892. Serial No. 418,064. (No model.)



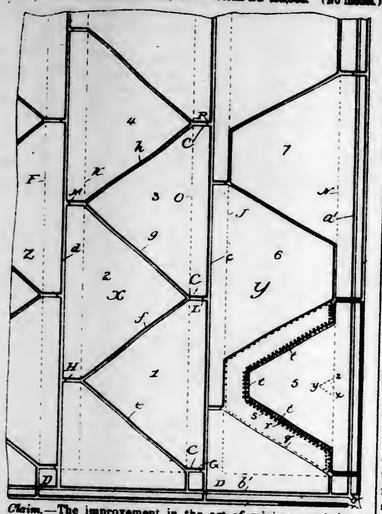
Claim.—1. In a device for removing a static charge from a conductor, the combination with a single series of contact plates and a condenser for each plate of the series, each condenser having one side connected to its proper contact-plate and having its other side grounded, of two arms adapted to come into contact with said series of contact-plates in order, one of said arms being connected to the conductor to be discharged and the other being grounded, substantially as described.

2. In a device for removing a static charge from a conductor, the combination of a number of sets of contact plates in a single series and condensers equal in number to said sets each having one side connected to all the plates of each set of contacts and the other side connected to earth, of two moving arms adapted to touch said series of contact-plates in order, one of said arms being connected to the conductor to be discharged and the other being grounded, substantially as described.

3. In a device for removing a static charge from a conductor, the combination with a number of sets of contact-plates arranged in a single circular series and condensers equal in number to said sets, each having one side connected to all the plates of each set of contacts, and the other side connected to earth, of two revolving arms adapted to touch said series of contact-plates in order, one of said arms being connected to the conductor to be discharged and the other being grounded, substantially as described.

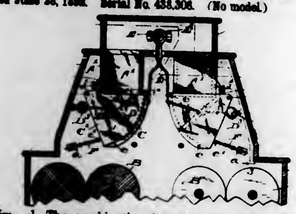
4. The combination with an electric generator and its circuit of a series of condensers each having one plate connected with the earth and a single series of insulated contact-plates with which the remaining sides of the respective condensers are connected, and two circuit controlling arms for making contact with the respective plates in succession, one of said arms being connected with the circuit and electrical connections from the other contact arm with the earth, substantially as described.

494,187. ART OF MINING COAL. DARWIN C. BOYER, Guinnimont, W. Va. Filed Nov. 19, 1892. Serial No. 452,532. (No model.)



Claim.—The improvement in the art of mining, consisting in forming sections for main haul roads or courses, and sub-dividing these main sections by ways communicating with said main haul roads or courses, and diagonal thereto, substantially as described.

494,188. FEEDER FOR MILLS. ALLEN C. BRANTINGHAM, Indianapolis, Ind., assignor to the Nordyke & Marmon Company, same place. Filed June 28, 1892. Serial No. 438,308. (No model.)



Claim.—1. The combination, in a feeding apparatus for roller mills and such like machines, of a feed-hopper mounted on a pivot at one upper corner, and a cam shaft connected thereto at the other upper corner, whereby the same is given a shaking motion concentric to the pivot.

2. The combination, in a feeding apparatus for roller mills and such like machines, of a feed hopper, the upper edge of which incloses the lower end of the main hopper and is mounted on a pivot at a point to one side of said main hopper, a cam shaft upon the other side, arms connecting said cam shaft to said feed hopper, the side of said feed hopper opposite to its pivot being curved and substantially concentric therewith, and an adjustable gate within said feed hopper below the mouth of the main hopper whereby the feed may be regulated, substantially as set forth.

3. The combination, in a feeder for roller mills and such like machines, of the main hopper, the feed hopper arranged below said main hopper to receive the discharge therefrom and pivoted to one side of the mouth thereof, the face of said feed hopper opposite to its pivot being curved substantially concentric with said pivot and serrated as shown, an adjustable board D' rigidly but adjustably secured to said main hopper, a gate D hinged to said board and provided with an adjustable counterbalancing weight, a cam shaft, connections between said cam shaft and said feed hopper, and a spring secured to the frame-work and to said feed hopper and acting oppositely to said cam shaft, substantially as set forth.

4. The combination, in a feeding apparatus for roller mills and such like machines, of the main hopper, a feed hopper arranged below and surrounding the mouth of said main hopper, and pivoted to one side of said mouth, and having a curved inner surface substantially concentric to said pivot against which the material to be operated upon will rest, and a hinged gate attached to the main hopper and extending in an inclined direction from a point substantially in line with said pivot but variable more or less from said line to near said curved surface, and mechanism for shaking said feed hopper while said gate remains substantially stationary and in the inclined relation thereto, substantially as set forth.

5. The combination, in a feeding apparatus for roller mills and such like machines, of a main hopper, a pivoted and a shaking feed hopper arranged to surround the mouth thereof, and a hinged gate extending within said feed hopper, said gate being mounted upon a vertically adjustable board attached to the main hopper, substantially as shown and described.

6. The combination of the main hopper terminating in the vertical chutes A', a hopper C mounted on the pivot rod C^2 and having a curved and serrated face opposite to said pivot, a hinged gate D extending within said feed hopper substantially at right angles to the general direction of its curved face and mounted on the main hopper, the cam shaft E and rods E' connecting said cam shaft to said feed hopper, and a spring F attached to the frame-work and to the feed hopper, said several parts being arranged and operating substantially as set forth.

7. The combination, of the pivotally mounted shaking feed-hopper, the cam shaft, arms connecting said cam shaft, and said feed hopper, an adjustable board attached to the main hopper or its chute extending to within said feed-hopper, a gate or bottom hinged to said adjustable board and provided with a counterbalancing weight, and a spring connected to said feed-hopper and to the frame-work.

8. The combination, in a feeding apparatus for double roller mills, of two feed hoppers mounted on pivots at their outer corners, a central cam shaft, and arms running from said cam shaft to both said feed hoppers whereby they are simultaneously operated from said single cam shaft, substantially as shown and described.

9. The combination, in a feeding apparatus for double roller mills, of feed hoppers pivoted at their outer corners, a central cam shaft, arms connecting said cam shaft to said feed hoppers, and hinged gates extending into said hoppers, provided with adjustable counterbalancing weights, substantially as set forth.

10. The combination, in a feeding apparatus for roller mills, of a shaking feed hopper mounted upon a pivot at one point and positioned to receive the discharge from the main hopper, and having a curved operating side substantially concentric with the pivot terminating at a point above the grinding rolls, means for regulating the quantity of discharge through said feed hopper, and means for giving the same a continuous vibrating motion, whereby the material is fed evenly through the discharge orifice and caused to flow over the edge of the feed hopper evenly to between the grinding rolls, substantially as shown and described.

494,189. INDICATOR FOR LOCOMOTIVE-ENGINEERS. SAMUEL G. CLARK, Stevens Point, Wis. Filed May 23, 1892. Serial No. 434,115. (No model.)

Claim.—1. The combination with a locomotive of a casing running from the cab to the front of the engine, guide rollers and feed rollers in said casing, an endless belt traveling around said rollers, an upright shaft geared to one of the truck axles, and connected with one of the feed rollers, means for causing the continuous forward rotation of the truck axle to drive the belt in either direction at will, a glass plate covering an opening in the rear portion of the casing, said opening revealing a considerable portion of the belt, and a pointer fixed near the middle of said opening, said belt containing a chart of the road, substantially as described.

2. The combination with a locomotive, of a hollow hand rail running along the boiler and opening at its rear end into the cab, an endless belt indicator traveling in said rail, and exposed to the engineer at the rear end thereof, and driving mechanism connected with the truck, substantially as described.

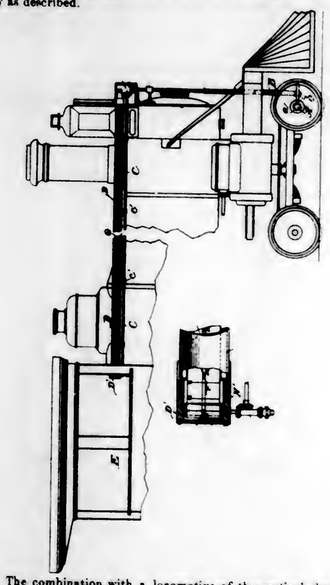
3. The combination with a locomotive having a hollow hand rail, of a box in the cab communicating with said rail, and having an open glazed front, rollers in said box and at the front end of the rail, an endless belt passing around said rollers, and driving mechanism connected with the truck, substantially as described.

4. The combination with a locomotive, of a hollow hand rail running along the boiler and recessed filling pieces inclosed in said rail, whereby chambers are formed for an endless belt indicator, substantially as described.

5. The combination with a locomotive of a hollow hand rail running along the boiler, filling pieces inclosed in said rail, having registering recesses, and a thin strip clamped between the filling pieces to form a partition between the recesses, substantially as described.

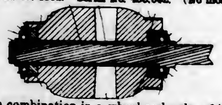
6. The combination with the hollow rail D, of the recessed filling

pieces F, the thin strip F' clamped between them, the adjustable and removable roller H at the front end of the rail, and the box D' at the rear end thereof containing rollers H' H^2 and feed rolls N N', substantially as described.



7. The combination with a locomotive of the vertical shaft B geared to one of the truck axles, the horizontal shaft C geared to the shaft B, and running back to the cab, the casing D D', the feed rolls N N', one of which gears into the shaft C, the rollers H H' H^2 and means for reversing the motion of the feed rolls, substantially as described.

494,190. BALL BEARING. PIERRE DAMBREAU, Montreal, Canada. Filed Dec. 13, 1892. Serial No. 455,092. (No model.)



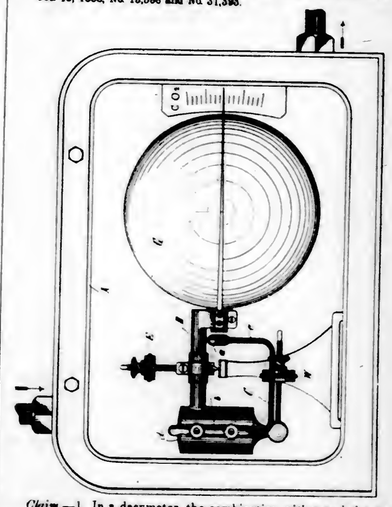
Claim.—The combination in a wheel and axle, of hub *c*, having lining *b*, axle *a*, having collar *m*, with groove *m'*, and having a screw-threaded outer end: thimble A, provided with groove *i*: nuts *g*, and caps *k*, and the balls *f*: the whole arranged substantially as and for the purpose set forth.

494,191. KITCHEN-TABLE. JULIUS A. DE LA PORTE, Hannibal, Mo. Filed June 9, 1892. Serial No. 436,104. (No model.)



Claim.—In a dish drainer, the combination of a table with an opening through the top thereof and hinged end-extension leaves, a metallic sink let down from said opening in the top of the table and having a partition therein to form a receptacle or compartment at one end communicating with the main body of the sink and provided with a surrounding supporting flange, a perforated plate or tray removably mounted on the bottom of said receptacle or compartment, a rack removably supported on said flange above said plate or tray, a hinged lid or cover having an inner metallic lining adapted to close down over the opening in the top of said table and supported at a rearward angle of inclination when in raised operative position with the lower edge slightly overhanging the said sink, and a drain-basket secured against the inner side adjacent to one end of said cover, substantially as described.

494,192. DEVICE FOR MEASURING THE DENSITY OF GASES. WALTHER DURR, Munich, Germany. Filed Aug. 11, 1892. Serial No. 442,517. (No model.) Patented in England Sept. 24, 1887, No. 12,963; in Belgium Sept. 30, 1887, No. 78,922; in France Dec. 24, 1887, No. 185,936; in Germany Feb. 29, 1888, No. 42,639, and in Austria-Hungary Oct. 13, 1888, No. 13,388 and No. 31,393.



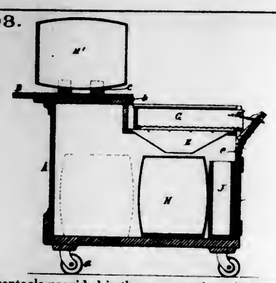
Claim.—1. In a dasymeter, the combination with a scale-beam, of a bent compensating tube, secured thereto, one of whose limbs *c* has a body of air confined therein by a sealing liquid, such as mercury, sulphuric acid or the like, while the other limb is open, whereby the center of gravity of the liquid is shifted by variations in the volume of the confined body of air, due to variations in atmospheric pressure or temperature, and whereby the disturbing influence, acting in a contrary sense on the dasymeter, is eliminated, substantially as set forth.

2. In a dasymeter, the combination with a scale-beam having a knife-edge support or fulcrum, of a bent compensating tube attached to one of the arms of the scale-beam and having a column of air confined in one limb by a suitable sealing liquid under normal conditions, while the other limb is open, the center of gravity of the sealing liquid being approximately on a vertical line drawn from the knife-edge support of the scale-beam, substantially as set forth.

494,193. APPARATUS FOR CLEANING MALAGA GRAPES, &c. ROMUALDO FARRELLI, New York, N. Y., assignor of one-half to Wulfredo Uffreduzzi, same place. Filed Jan. 16, 1892. Renewed Feb. 25, 1893. Serial No. 463,763. (No model.)

Claim.—1. Means for cleaning Malaga grapes, &c., comprising a suitable receptacle provided with a lid closing one portion of its top, said lid adapted to rest when thrown back on the rear portion of the top of the receptacle and having upon its inner surface a barrel rest, a stationary hopper below the open top of the receptacle, a movable front-piece opposite the hopper and a screen resting on the hopper frame and adapted to be reciprocated, the said movable front piece permitting of such reciprocation substantially as set forth.

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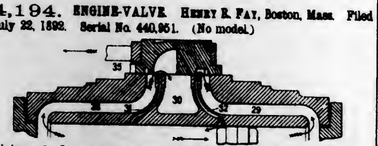


2. The receptacle provided in the open portion of its top with a stationary hopper and at its top with a hinged front-piece having means for suspending the same in an inclined open position in combination with a screen resting over the hopper within the open portion of the top of said receptacle and having an open front and adapted to be reciprocated, substantially as set forth.

3. The combination with receptacle A having an open top portion provided with a lid having a barrel rest on its inner surface, and also having a front door, as C, and a hinged front-piece above said door, as D, of a hopper arranged within the open top portion of the receptacle, a screen adapted to reciprocate within said open top portion above the hopper, a receptacle for receiving the screenings from the hopper and a second receptacle arranged between the last mentioned receptacle and the front door C, immediately below the opening provided by the hinged front-piece D, substantially as set forth.

4. The combination with the receptacle provided at its top with a movable front-piece adapted to be fixed in an inclined position and to serve as a guideway as explained, of the hopper, the receptacle beneath the same for receiving the screenings, the reciprocating screen above the hopper having an open front and receptacle J, substantially as set forth.

494,194. ENGINE-VALVE. HENRY R. FAY, Boston, Mass. Filed July 22, 1892. Serial No. 440,951. (No model.)



Claim.—1. In an engine, the cylinder provided with the extra cylinder ports, in combination with the valve provided with the extra valve ports, by means of which, compression release is accomplished, substantially as specified.

2. In an engine, the cylinder provided with the extra cylinder ports, in combination with the valve provided with the extra valve ports, by means of which steam admission into the exhaust port may take place, substantially as specified and for the purposes set forth.

3. In an engine, the cylinder provided with the extra cylinder ports, in combination with the valve provided with the extra valve ports, by means of which, on the short points of cut-off of the valve, in which case the compression is excessive, compression release is accomplished, substantially as set forth.

4. In an engine, the cylinder provided with the extra cylinder ports, in combination with the valve provided with the extra valve ports, by means of which, on the long points of cut-off of the valve, steam admission into the exhaust port may take place, substantially as specified and for the purposes set forth.

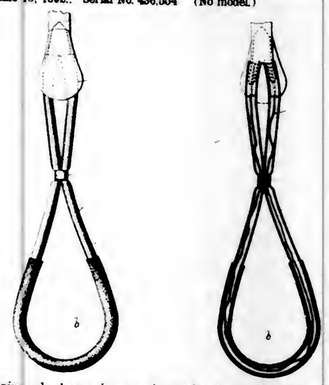
5. In an engine, the cylinder provided with the extra cylinder ports 31 and 32, in combination with the valve 34 having the extra valve ports 35 and 36, by means of which, compression release may take place, the path of the travel being from the cylinder and admission port around the piston through the extra valve and cylinder ports into the other end of the cylinder, and from the cylinder through the admission port, and exhaust cavity, into the exhaust port, substantially as set forth.

6. In an engine, the cylinder provided with the extra cylinder ports 31 and 32, in combination with the valve 34' having the extra valve ports 35' and 36' by means of which steam admission from the steam chest into the exhaust port may take place, the path of the travel of the steam admission being from the steam chest into the cylinder, through the steam admission port into the cylinder and from the cylinder through the extra cylinder port into the exhaust cavity and port, substantially as set forth.

7. The combination of the cylinder 20, provided with the extra cylinder ports 31 and 32, with the valve 34 provided with the extra valve ports 35 and 36, and having the sides of the valve 37 and 38 of some considerable width, substantially as and for the purposes set forth.

8. The combination of the cylinder 20 provided with the extra cylinder ports 31 and 32, with the valve 34' provided with the extra valve ports 35' and 36' and having the sides of the valve 37' and 38' cut back, substantially as and for the purposes set forth.

494,195. CRUPPER. JAMES W. FITZGERALD, Maysville, Ky. Filed June 13, 1892. Serial No. 436,554. (No model.)

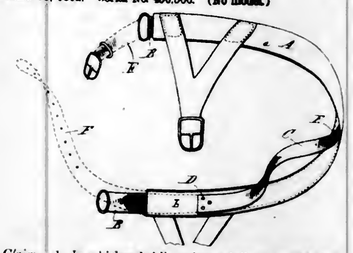


Claim.—1. As an improved article of manufacture, a crupper comprising a piece of tubular, elastic material having its ends connected to a back strap of a harness, and a non-elastic cord or tape of a greater length than the tubular, elastic piece arranged loosely within the said tubular elastic piece and having its ends connected to the harness back strap, substantially as and for the purpose set forth.

2. As an improved article of manufacture, a crupper comprising a piece of tubular, elastic material having its ends connected to a back strap of a harness and an elastic band mounted upon the crupper and adapted to be adjusted to increase and diminish the size of the crupper loop, substantially as specified.

3. As an improved article of manufacture, a crupper comprising a piece of tubular, elastic material having its ends connected to a back strap of a harness, a non-elastic cord or tape of a greater length than the tubular, elastic piece arranged loosely within the said tubular elastic piece and having its ends connected to the harness back strap, and an elastic band mounted upon the crupper and adapted to be adjusted to increase and diminish the size of the crupper loop, substantially as and for the purpose set forth.

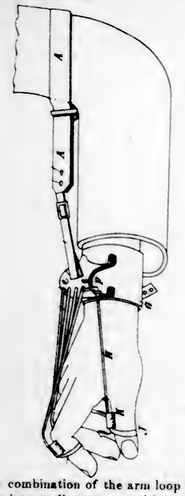
494,196. BRIDLE. WILLIAM FRIEDRICH, Ponchatoula, La. Filed June 13, 1892. Serial No. 436,506. (No model.)



Claim.—1. In a bitless bridle, substantially as specified, the combination with the nose band, and springs fixedly connected at their rear ends to the inside of the nose band and having their forward ends passed loosely through slots in the inner section or pieces of the nose band; of the straps B, arranged loosely within the nose band and having their forward ends connected to the forward ends of the springs, substantially as and for the purpose set forth.

2. In a bitless bridle, substantially as specified, the combination with the nose band, the springs fixedly connected at their rear ends to the inside of the nose band, and having their forward ends passed loosely through slots in the inner section or piece of the nose band, and the straps B, arranged loosely within the nose band and having their forward ends connected to the forward ends of the springs; of the straps F, adapted to secure the nose band in position, substantially as and for the purpose set forth.

494,197. MANUAL GYMNASIUM FOR MUSICIANS. JOSEPH HALL, Kirmington, near Brocklesby, England. Filed Oct. 19, 1892. Serial No. 449,382. (No model.)



Claim.—1. The combination of the arm loop provided with an adjusting buckle, an intermediate strap and its adjusting buckle, a bridge, wrist strap, flexible springs, finger loops, and pads, and intermediate springs passing from loop to loop and from pad to pad, as set forth.

2. In hand gymnasiums such as herein described the combination of the finger loops J, and pads K with the flexible springs H, bridge E and wrist strap G said pads being arranged directly in rear of the loops and projecting laterally from the springs to bear upon the fingers and keep the springs elevated therefrom, substantially as described, as set forth.

3. In hand gymnasiums such as herein described the combination of finger loops J, pads K, elastic tubing K', ferrule K^2, and springs H as set forth.

4. In a hand gymnasium such as herein described the combination of the wrist strap G, bridge E, of arched form arranged on the strap with its arched opening extending transversely of the wrist—springs H, and finger loops J as set forth.

5. In hand gymnasiums such as herein described the combination of the finger loops J—flexible springs H, with the arm loop A and its adjusting buckle B as set forth.

6. In hand gymnasiums such as herein described, the combination of the arm loop A,—bridge E adjustably attached to wrist strap G springs H, intermediate springs I, finger loops J, and pads K all as set forth.

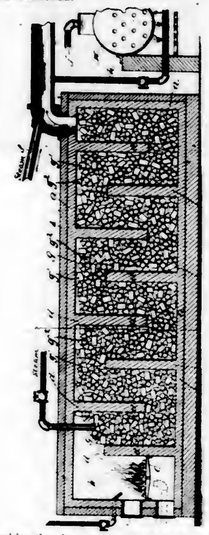
7. In hand gymnasiums such as herein described, the combination of the arm loop A and its adjusting buckle, intermediate strap D, bridge E wrist strap G, flexible springs H intermediate springs I finger loops J and pads K all as set forth.

8. In hand gymnasiums such as herein described the combination of an arm loop A—provided with an adjusting buckle B, intermediate strap D, buckle C, bridge E, wrist strap G, flexible springs H, intermediate springs I, finger loops J, elastic tubing K', and ferrules K^2 as set forth.

494,198. APPARATUS FOR MANUFACTURING GAS. THURSTON G. HALL, Chicago, Ill., assignor to the Hall Chemical and Gas Company, same place. Filed Dec. 2, 1889. Serial No. 332,871. (No model.)

Claim.—1. A filling for the regenerating chamber of a gas machine composed of materials of opposite electric polarities arranged so that materials of opposite polarities will not come in contact with each other; substantially as described.

2. In a gas machine, a regenerator consisting of a chamber having an inlet and an outlet, and a filling contained therein, composed of materials of opposite electric polarities, the materials of opposite polarities not coming in electrical contact with each other, and so arranged as to form a series of gas passages through the chamber substantially as described.



3. The combination in a gas apparatus of a converter having a combustion chamber and a regenerating chamber communicating therewith, such regenerating chamber having a filling therein of materials having opposite electric polarities arranged so that materials of opposite polarities will not come in contact with each other, and such filling forming a series of gas passages; substantially as described.

4. The combination in a gas apparatus, of a converter provided with a combustion chamber, a series of partitions extending alternately from opposite walls of said converter partially across the same thereby forming a serpentine-form passage-way, and a filling of refractory materials having opposite electric polarities contained in such serpentine-form passage-way forming a series of gas passage-ways, and so disposed that materials of opposite polarities will not be in contact, substantially as shown and described.

5. A gas apparatus consisting of an inclosure or converter provided with a combustion-chamber therein, means for admitting air and steam to said converter, a series of partitions extending alternately from the bottom to near the top and from the top to near the bottom of the converter forming a serpentine-form passage-way, a filling of refractory material of opposite electric polarities in such serpentine-form passage-way forming a series of gas passage-ways, an eduction pipe, and means for producing a circulation through the same of air, steam and the products of combustion, substantially as shown and described.

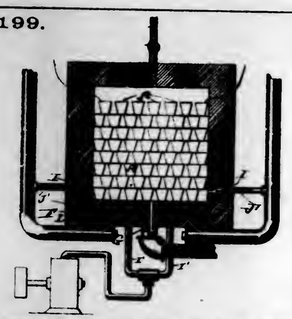
6. The combination in a gas apparatus of a series of vertical partitions arranged to extend partly across the inclosure, beginning alternately at the bottom and top thereof, and a filling of refractory material therein of opposite electric polarities forming a series of gas passages therethrough, substantially as shown and described.

494,199. PYROELECTRIC BATTERY. THURSTON G. HALL, Chicago, Ill., assignor to the Hall Chemical and Gas Company, same place. Filed Mar 3, 1892. Serial No. 424,188. (No model.)

Claim.—1. An element of a pyro-electric battery consisting of a porous insulating cup, and a second and smaller porous insulating cup contained in the first named cup, in combination with material contained in one of said cups and material of opposite electric polarity contained in the other of said cups; substantially as described.

2. A pyro-electric battery constructed of elements of opposite electric polarity separated from each other by porous insulating material and arranged so that heated gaseous material can be forced through the series of passages formed by the interstices obtaining in the pyro-electric pile constituting such battery; substantially as described.

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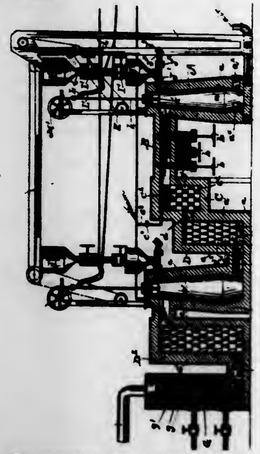
3. A pyro electric battery consisting of an insulating casing, a series of elements arranged therein to form a series of passage-ways therethrough, such elements consisting of materials of opposite electric polarity separated from each other, by porous insulating material an inlet and an outlet pipe through such casing, and inlet pipes for heated gaseous material and air extending through such casing; substantially as described.

4. A pyro-electric battery constructed of elements of opposite electric polarity, separated from each other by porous insulating material and arranged so that heated gaseous material can be forced through the series of passages formed by the interstices obtaining in the pyro-electric pile constituting such battery, an insulating casing surrounding the battery, an air and a steam inlet pipe through such casing, and an inlet pipe for fluid or other materials through the casing, and an outlet pipe for such fluid and other materials from the casing whereby air, steam, fluid, and other material can be forced through the interstices obtaining in the battery, and subjected to the electric action thereof while contained therein, substantially as described.

5. A pyro-electric battery consisting of an insulated chamber, a series of elements of opposite electric polarity contained in porous insulating cups and thereby separated from each other and arranged so that heated gaseous material can be forced through the series of passages formed by the interstices extending between the elements, and electric conductors connecting such elements whereby the electric current generated by the battery can be collected and conveyed therefrom; substantially as described.

494,200. PROCESS OF AND APPARATUS FOR MANUFACTURING GAS.

THURSTON G. HALL, Chicago, Ill., assignor to the Hall Chemical and Gas Company, same place. Filed Nov. 30, 1892. Serial No. 453,573. (No model.)



Claim.—1. The continuous process of making gas, which consists in burning carbonaceous fuel, supplying air under pressure to said fuel, forcing steam into the products of combustion, mixing the steam and products of combustion, and then conducting the mixture through a heated regenerator filled with materials of opposite electric polarities, such filling being so disposed as to leave passages for the gas therethrough; substantially as described.

2. The continuous process of making gas, which consists in burning carbonaceous fuel, supplying air under pressure to said fuel, mechanically breaking down the arch or crust which forms in the combustion of such fuel, forcing steam into the products of combustion, mixing the steam and products of combustion, and then conducting the mixture through a heated regenerator filled with materials of opposite electric polarities, such filling being so disposed as to leave passages for the gas therethrough; substantially as described.

3. The continuous process of making gas, which consists in burning carbonaceous fuel, supplying air under pressure to said fuel, forcing steam into the products of combustion, mixing the steam and products of combustion, carbureting the mixture, and then conducting the mixture through a heated regenerator filled with materials of opposite electric polarities, such filling being so disposed as to leave passages for the gas therethrough: substantially as described.

4. The continuous process of making gas, which consists in burning carbonaceous fuel, supplying air under pressure to said fuel, forcing steam into the products of combustion, mixing the steam and products of combustion, conducting the mixture through a heated regenerator filled with materials of opposite electric polarities, such filling being so disposed as to leave passages for the gas therethrough, in carbureting the heated compound gas thus obtained and then conducting the mixture through an additional regenerator having filling of opposite electric polarities so disposed as to leave passages for the gas therethrough; substantially as described.

5. The continuous process of making gas, which consists in burning carbonaceous fuel, supplying air under pressure to said fuel; forcing steam into the products of combustion, mixing the steam and products of combustion, and then alternately conducting the mixture through one or the other of a series of heated regenerators filled with materials of opposite electric polarities, such filling being so disposed as to leave passages for the gas therethrough, substantially as described.

6. In a gas machine a mixing chamber having series of gas passages therethrough, formed by a filling of refractory material in combination with a regenerator consisting of a chamber having an inlet and an outlet, and a filling contained therein composed of materials of opposite electric polarities, the materials of opposite polarities not coming in electrical contact with each other, and so arranged as to form series of gas passages through the chamber; substantially as described.

7. A gas generating apparatus consisting of a combustion chamber, a mixing chamber into which the heated products from the combustion chamber may be delivered, a filling of a refractory material in such mixing chamber arranged to form series of gas passages therethrough, a regenerating chamber having a passage-way extending thereinto from the mixing chamber, a filling of material of opposite electric polarities, arranged in the regenerating chamber so that material of one polarity will not come in contact with material of opposite polarity, and to form series of gas passage-ways therethrough, an air supply extending into the combustion chamber at the base thereof, and a steam supply extending through the walls of the apparatus, and adapted to discharge steam into the heated products obtained from the combustion of the carbonaceous fuel; substantially as described

8. A gas generating apparatus consisting of a combustion chamber, a mixing chamber into which the heated products from the combustion chamber may be delivered, a regenerating chamber having a passage-way extending thereinto from the mixing chamber, a filling of material of opposite electric polarities, arranged in the regenerating chamber so that material of one polarity will not come in contact with material of opposite polarity, and to form series of gas passage-ways therethrough, an air supply extending into the combustion chamber at the base thereof, and a steam supply extending through the walls of the apparatus, and adapted to discharge steam into the heated products obtained from the combustion of the carbonaceous fuel: substantially as described.

9. A gas generating apparatus consisting of more than one combustion chamber and more than one mixing chamber into which the products of the combustion chambers can be delivered, passage ways connecting the several mixing and combustion chambers a filling of a refractory material in such mixing chambers arranged to form series of gas passages therethrough, regenerating chambers, connected, respectively, with the respective mixing chambers, and a filling of material of opposite electric polarities arranged in the regenerating chambers, respectively, so that material of one polarity will not come in contact with material of opposite polarity, and to form series of gas passage-ways therethrough; substantially as described.

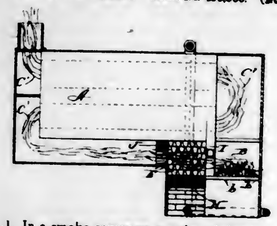
10. A gas generating apparatus consisting of more than one combustion chamber and more than one mixing chamber into which the products of the combustion chambers can be delivered, passage ways connecting the several mixing and combustion chambers, regenerating chambers, connected respectively with the respective mixing chambers, and a filling of material of opposite electric polarities arranged in the regenerating chambers, respectively, so that material of one polarity will not come in contact with material of opposite polarity, and to form series of gas passage-ways therethrough; substantially as described.

11. A gas generating apparatus consisting of a combustion chamber, an air supply extending into the combustion chamber, at the base thereof, and a steam supply extending through the walls of the apparatus and adapted to discharge steam into the heated products obtained from the combustion of the carbonaceous fuel, a carbureting chamber adapted to contain carbonaceous material, a passage or way extending from the combustion chamber into the carbureting chamber, and a regenerating chamber having a passage-way extending thereinto from the carbureting chamber, and a series of gas passages in the regenerating chamber obtained by filling of material of opposite electric polarities, arranged so that material of one polarity will not come in contact with material of opposite polarity; substantially as described.

12. In a gas apparatus, the combination of a closed receptacle forming a combustion chamber with a stoker, such stoker consisting of a rod extending through the top of the closed receptacle, a circular head on the lower end of the rod, and within the combustion chamber, the top of the head extending downward and outward from the rod to the periphery of such head, and means for hoisting and letting fall such rod and head; substantially as described

494,201. SMOKE-CONSUMER.

THURSTON G. HALL, Chicago, Ill., assignor to the Hall Chemical and Gas Company, same place. Filed Apr. 8, 1892. Renewed Jan. 14, 1893. Serial No. 458,380. (No model.)



Claim.—1. In a smoke consumer a series of elements consisting of insulating cups containing materials of opposite electric polarities arranged so that materials of opposite electric polarities will not come in contact with each other, and so that the products generated in the fire-box will extend through the series of passage-ways formed by the interstices between such material in passing out of the fire-box, in combination with steam and air pipes extending through the walls of the fire-box and opening into the series of passage-ways formed by the interstices between the cups in which such material is contained; substantially as described.

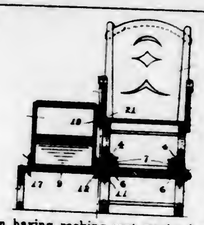
2. The combination in a smoke consumer of, an arch built into the fire-box of a boiler back of the grate bars therein, series of insulating receptacles arranged on the arch so as to make passage-ways through the mass obtained thereby, materials of opposite electric polarities contained in such receptacles, passage-ways through the casing of the fire-box opening into the passage-ways between such receptacles, and through which steam and air may be forced into the passage-ways and in contact with the products from the fire-box, also passing through such passage-ways; substantially as described.

3. The combination in a smoke consumer of a series of insulating receptacles arranged in a mass so as to obtain series of passage-ways therethrough, materials of opposite electric polarities contained in such receptacles, so that materials of one electric polarity are not in electrical contact with materials of opposite electric polarity, air inlets in the casing of the fire-box through which air may be forced into the fuel and into the passage-ways, and steam inlets through which steam may be forced into the passage-ways, and an air blower connected with the air inlets; substantially as described.

494,202. CHURN.

JAMES R. HAVELY, Waynesville, Ohio. Filed Oct. 3, 1892. Serial No. 448,191. (No model.)

Claim.—1. In a churn having rocking seat mechanism the chair base having slots 10 combined with the churn base provided with the bar 9 and with a churn having bearings on said bar and connected to the rocking seat; substantially as set forth.



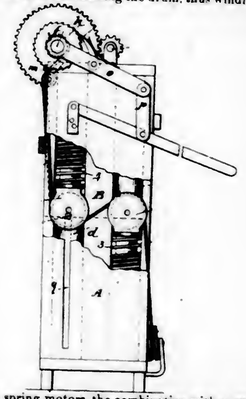
2. In a churn having rocking seat mechanism the chair base having slots 10 combined with the churn base provided with the bar 9 and with a churn having bearings on said bar and connected to the rocking seat by means of a pin and slot; substantially as set forth.

3. In a churn having rocking seat mechanism the chair base having slots 10 combined with the churn base provided with the rounded bar 9 and with a churn having bearings on said bar and connected to the rocking seat by means of a pin and slot, said bearing being formed in posts 16; substantially as set forth

494,203. SPRING-MOTOR.

EPHRAIM HERRINGTON, Atlanta, Ga., assignor of one-half to Robert P. Horton, same place. Filed Nov 16, 1892. Serial No. 452,125. (No model.)

Brief.—The cord *k*, passing over pulleys fixed in the end of each spring, is made fast at one end to the casing and passes over the drum *c*, to which it is fastened at the other end. The expansion of the springs draws upon the cord and revolves the drum, motion being taken therefrom by means of the gears F and I. *r* is an indicating-rod moving in slot *q*. D is the lever for rotating the drum, thus winding springs up.



Claim.—In spring motors, the combination with a casing slotted and recessed as described, of a pulley *g* in fixed bearings, movable blocks *b* carrying the pulleys *a*, a series of spiral springs received into the recess of the casing, each spring bearing at one end against the casing and having attached to its other end one of the aforesaid movable blocks *b* a cord fast at one end to a rotary shaft, passing successively over all the pulleys and secured at the other end to the frame, an indicating rod *r* connected with a block *b*, and a pivoted hook *t* having toggle arms connected therewith, all substantially as shown and described

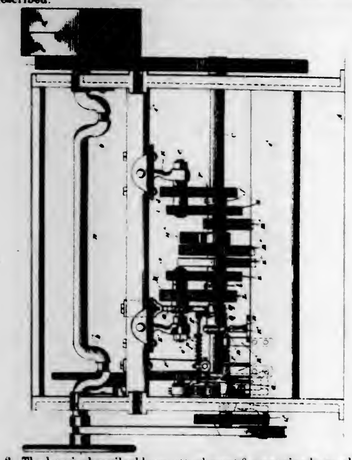
494,204. LOOM FOR WEAVING BAGS.

HENRY P. HUNTER, Manchester, N. H. Filed Apr. 12, 1892. Serial No. 428,866. (No model.)

Brief.—The loom is adapted to weave bags, for which purpose the motion of two of the four harness-cams is periodically and temporarily stopped, the gearing for said cams being automatically clutched and unclutched through the instrumentality of a yoke which is shifted at proper times through intermediate mechanism from a cam-faced circular rotating plate which is held stationary while the body of the bag is being woven.

Claim.—1. In a loom attachment for weaving bags, the combination with the mechanism of an ordinary cloth weaving loom, including the harness cams, of the gearing for driving said cams, a portion of which is adapted to be clutched or unclutched so as to temporarily stop the motion of two of the cams, a circular plate having

face cams, the levers, cams and rods, operating in connection with said face cams for the purpose of accomplishing the aforesaid clutching and unclutching, an automatically operating notched wheel, the spring rod and the stud-provided lever, the latter having one end in proximity to the aforesaid cam-provided circular plate, substantially as described.



2. The herein described loom attachment for weaving bags which consists in the combination with the mechanism of an ordinary loom, including the harness cams, of the gearing for driving said cams, that belonging to two of them being adapted to be clutched or unclutched so that at intervals said two cams may be temporarily stopped and the mechanism for controlling said clutching and unclutching consisting essentially of a positively driven circular plate having thereon face cams and pins, a positively driven notched wheel, a spring rod engaged by the said wheel and operating a lever on which is a stud acting in conjunction with the pins on the circular plate, the levers, and cam mechanism which is operated by the cams on the circular plate to produce the unclutching or clutching action of the harness gears, substantially as described.

3. In a loom attachment for weaving bags and the like similar articles, the combination with the mechanism of an ordinary loom, including the harness cams, of gearing for driving said cams, that which acts in connection with two of them being adapted to be in engagement or out of engagement so that said two cams may be temporarily stopped for the purpose described, a yoke engaging one of said gears and provided with a spring device acting to normally keep the gears in engagement, a sliding cam acting on the yoke at times to throw the gears out of engagement, a positively driven circular plate having on its face lateral projections, an endwise and shifting rod which is acted on by said projections and a movable lever pivoted to the aforesaid shifting cam and connected to the said endwise rod so that the cam will be actuated at times and the gears thrown out of clutch, substantially as specified.

4. In a loom attachment, the combination with two of the harness cams, of gearing for driving them which is adapted to be thrown into or out of clutch so that at times the two cams may be temporarily stopped, the pivoted yoke which vibrates and slides one of said gears, the spring mechanism for keeping the yoke in such position that the gears will be normally clutched with each other, a sliding cam on the main cam carrying shaft which acts in conjunction with the said yoke for the purpose of unclutching the said gears, the positively driven circular plate having lateral projections on its face, an endwise movable spring-provided rod which is shifted by the action of said plate and a vibrating lever connected to said rod and to the sliding cam so that as the circular plate rotates said cam will act at times to operate the yoke and unclutch the gears, substantially as described.

5. In a loom attachment for weaving bags, the combination with two of the harness cams, of gearing therefor which is adapted to be clutched and unclutched so that at times the cams will temporarily stand idle, a yoke for shifting one of said gears into or out of clutch with its companion, a sliding cam on the main cam-carrying shaft which acts in conjunction with said yoke, the circular plate having on its face lateral projections and pins, an endwise movable rod which is shifted at times by the said lateral projections, a vibrating lever connected to the sliding cam and also to the said rod by which it is actuated for the purpose of causing the cam to engage the aforesaid yoke, a positively driven notched wheel, a spring rod engaged thereby a perpendicular lever actuated by the spring rod and having a stud thereon which engages the pins on the circular plate, all substantially as described.

6. In a loom attachment for weaving bags and the like similar articles, the combination with the harness cams, of the gearing for actuating them, two of the gears being at certain times in clutch and at other times out of clutch, the pivoted yoke engaging one of said gears and acting to throw it into or out of clutch with its companion, a sliding cam on the main cam carrying shaft, which engages the aforesaid yoke, a circular plate having on its face lateral projections and pins and on its periphery having pins, suitable connections whereby the projections on said plate operate upon the sliding cam, the picker lever having a projection thereon which comes into engagement with the peripheral projections on the circular plate, and the cam on the main cam carrying shaft which acts to vertically lift the picker lever at certain times, substantially as described.

7. In a loom attachment for weaving bags and the like similar articles, the combination with the mechanism of the loom including four harness cams, of gearing for actuating said cams, two of the gears belonging to the gearing for two cams being thrown into or out of clutch at certain times so as to cause a temporary stop of the two cams, a sliding cam on the main cam carrying shaft which acts to throw said two gears into or out of clutch, a circular plate having on its face lateral projections and pins, suitable connections between said plate and the aforesaid sliding cam so that the plate in its rotation may actuate the cam, a notched wheel, a spring-provided rod engaged by said notched wheel, a lever to which said spring provided rod is movably connected, said lever having a stud which engages pins on the face of the circular plate, a picker lever having a projection for engaging pins on the periphery of the circular plate and a cam on the main cam carrying shaft which acts upon said picker lever, substantially as described.

494,205. SALT BOX OR CELLAR. WILLIAM I. JOHNSON, Pomona, Cal., assignor of one-half to Robert Franken, same place. Filed July 20, 1892. Serial No. 440,654. (No model.)



Claim.—1. A salt box or cellar, consisting of the box or cellar, a top fitting on said cellar and provided with a series of discharge openings and an agitator in said box or cellar having a series of teeth or tines adapted to pass through the discharge openings and prevent clogging thereof and a depending loop which serves as a breaker and normally rests on the bottom of the cellar to keep the tines always in the discharge openings of the top, for the purpose described.

2. A salt cellar or box, consisting of a box or cellar proper, a top carried by said cellar or box and having discharge openings, and an agitator consisting of a ring or band having a depending breaking portion and teeth or tines for clearing the discharge openings of the top, said depending breaking portion normally resting on the bottom of the cellar and causing the tines to always project through the discharge openings, as and for the purpose described.

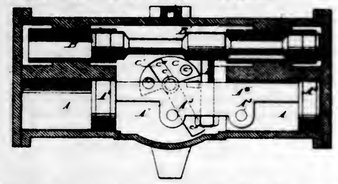
494,206. COFFEE-POT. WESLEY C. JONES, Warrensburg, Mo. Filed Dec. 21, 1892. Serial No. 455,917. (No model.)



Claim.—1. The combination with a coffee-pot, of a hollow base removably located therein, a pair of tubes rising from the base and terminating at their upper ends in inwardly-disposed branches, a perforated strainer having a flared wall located between the tubes near their upper ends, said wall being provided at one side with an indentation for engaging over one of the tubes, and a sleeve at the opposite side loosely engaging the opposite tube, substantially as specified.

2. The combination with a cylindrical coffee pot, of a conical base which is circular and adapted to fit snugly within the coffee pot and to have frictional contact therewith whereby it may be supported at any point of elevation, diverging tubes extending from the base and through the same and to points near the upper end of the pot and provided with inwardly-disposed branches, and a perforated strainer adapted to interlock with one of the tubes and loosely hung and adapted to swing upon the remaining tube, substantially as specified.

494,207. STEAM-PUMP. GEORGE R. KENDRICK, Portland, Ind. Filed June 20, 1892. Serial No. 437,364. (No model.)

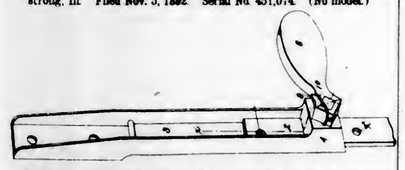


Claim.—1. In a steam pump, the combination of the compound piston working in adjacent steam and water cylinders, water inlet and discharge valves connected with the water chamber, a semicircular cap valve mounted in the steam cylinder and operated by a lever thrown by tappets connected to the steam piston, and a spring device outside of the steam cylinder connected to the valve and operated to throw the same off its center.

2. In a steam-pump of the character described, the combination of the adjacent steam and water cylinders, the pistons moving in said cylinders and rigidly connected to each other.

3. In a steam pump of the kind described, the combination with a steam and water piston moving in adjacent cylinders and rigidly connected to each other, of a semi-circular valve operated by the movement of the piston, and an exhaust passage opened and closed by the movement of the valve, an exhaust valve connecting with the water chamber, an exhaust opening connecting with the air, and an index cock for controlling the course of the exhaust steam.

494,208. ROD-COUPLING DEVICE. ALBERT W. KNIGHT, Armstrong, Ill. Filed Nov. 5, 1892. Serial No. 451,074. (No model.)



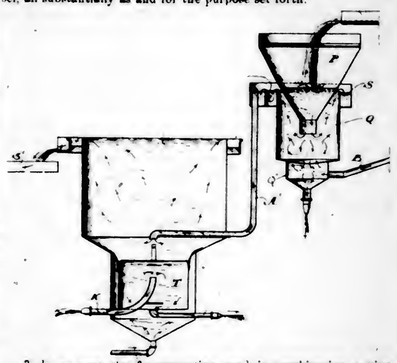
Claim.—1. The combination, of the casting 3 formed at its lower end with the vertical slot 5 and the transverse threaded openings 6, the threaded binding-screw mounted in said opening and having a rectangular outer end, and a detachable locking-weight or piece, as 8, formed at its inner end to fit detachably upon the outer end of said binding-screw, to adapt it to be fitted thereon at the desired angle, substantially as and for the purpose set forth

2. The combination, of the casting 3 formed at its lower end with the vertical slot 5 and the transverse threaded opening 6, the set-screw mounted in said opening and having the square head, the locking-piece 8 formed at its inner end with the square opening and the retaining-lip 9, and having the weighted outer end, and the retaining loop 10; substantially as set forth.

494,209. APPARATUS FOR RECOVERING SAND USED IN GLASS GRINDING AND POLISHING. JOHN M. KRAMPF, New Albany, Ind., assignor to the W. C. De Pauw Company, of Indiana. Filed Oct. 26, 1890. Serial No. 369,378. (No model.)

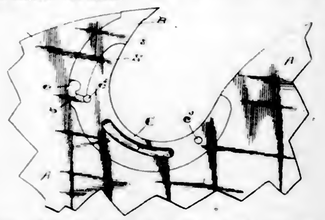
Claim.—1. In an apparatus for separating sand, in combination, a pipe through which the mixed sand and water is carried, a funnel-shaped vessel into which said pipe feeds, a primary separating vessel surrounding the lower part of said funnel-shaped vessel, an outlet and an inlet in said vessel, a secondary separating vessel, connection between said primary and secondary vessels, an inlet pipe in the latter vessel, means for breaking the force of the current issuing from said inlet pipe, and outlets at different levels from said secondary vessel, all substantially as and for the purpose set forth.

2. In an apparatus for separating sand, in combination, a pipe through which said mixed sand and water is carried, a funnel-shaped vessel into which said pipe feeds, a primary separating vessel surrounding the lower part of said funnel-shaped vessel, a vessel beneath, and of smaller diameter than, the primary vessel, an outlet and an inlet in said lower vessel, a secondary separating vessel, connection between said primary and secondary vessels, an inlet pipe in the latter vessel, means for breaking the force of the current issuing from said inlet pipe, and outlets at different levels from said secondary vessel, all substantially as and for the purpose set forth.



3. In an apparatus for separating sand, in combination, a pipe through which said mixed sand and water is carried, a primary separating vessel into which said pipe feeds, an outlet and an inlet in said primary separator, a secondary separating vessel, connection between said primary and secondary vessels, an inlet pipe in the latter vessel, means for breaking the force of the current issuing from said inlet pipe, and outlets at different levels from said secondary vessel, all substantially as and for the purpose set forth.

494,210. SAW. ANDREW KRIEGER, Indianapolis, Ind., assignor to the E. C. Atkins & Company, same place. Filed July 14, 1892. Serial No. 440,063. (No model.)



Claim.—1. A saw tooth having a recess and projection at its lower end, with its shank formed of uniform width and bounded by parallel curved lines, and with a shoulder at the upper end on the front side adapted to rest on the holder, substantially as shown and described.

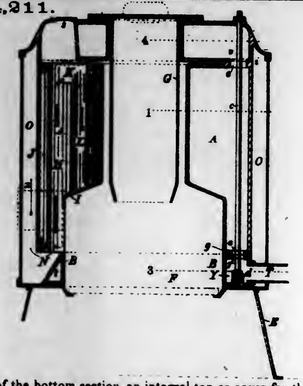
2. The combination of the saw A having a socket bounded by curved lines struck from a common center the upper one of which is of a greater radius than the other, a saw tooth, having a hook-shaped lower end *b* and a shoulder *a* and a holder having a recess *c* to receive the lower end of the tooth, and a hook-shaped jaw *e* to interlock therewith, substantially as shown and described

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494,211. STEAM-BOILER. JOHN LAFF, Rochester, N. Y. Filed Feb. 11, 1892. Serial No. 421,098. (No model.)

Claim.—In a sectional boiler, the combination, with an annular bottom section, having an inlet in its side wall, and a series of openings in its top wall, an annularly arranged series of vertical sections secured thereto, each of said sections being provided with an opening at each end, and with a smoke flue, said flues communicating with each other, and the lower openings registering with the openings in

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the top of the bottom section, an integral top or cover for the boiler consisting of a hollow annular section provided with an outlet and with a series of openings in its bottom, said openings registering with the openings in the tops of the vertical sections, said cover being also provided with a series of recesses in its under side to register with the smoke flues of the vertical sections, and the upper side of the top being provided with an opening and a cover for each of said recesses, said cover being further provided with an integral annular flange X projecting from its outer edge or periphery, and with a pipe collar formed integral with the cap or cover and communicating with the smoke flues, bolts through the registering opening in the top section, through the vertical section and the opening in the bottom section and engaging with a boss in the water space of the bottom section, an outer shell engaging with the flange X and with the bottom section, and a magazine suspended from the cover down between the vertical sections, substantially as set forth.

494,212. PLOW ATTACHMENT. EDGAR H. MALOON and MARSHALL E. BLAKE, Meredith, N. H. Filed Dec. 7, 1892. Serial No. 454,381. (No model.)

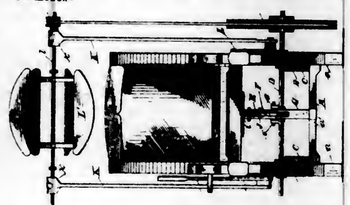


Claim.—1. The combination in a plow, of the beam having a bearing perforation therethrough in advance of the plow, a pivot bolt or shank mounted in said perforation, and having a lower threaded end an operating crank arm adjustably clamped to the upper projecting end of the said pivot bolt or shank, a bearing collar adjustably fitting the lower threaded end of said bolt or shank, and a rotary cutter or colter journaled on said collar, substantially as set forth.

2. The combination in a plow, of the beam having a perforation in advance of the plow, a bearing socket secured to the under side of the plow beam in alignment with the perforation therein, a pivoted bolt or shank mounted in said perforation, a bearing collar adjustably secured to the lower end of said bolt or shank and turning in said socket, a rotary cutter or colter journaled on said collar, and means for turning said pivot bolt or shank, substantially as set forth.

3. The combination in a plow, of the beam having a bearing perforation in front of the plow, an enlarged tubular bearing socket attached to the under side of the beam in alignment with the perforation therein and provided with opposite stop shoulders, a pivot bolt or shank working in the perforation in the plow beam and having a lower threaded end, a bearing collar engaging said threaded end and having a laterally projecting stop pin and a spindle, a rotary cutter or colter journaled on said spindle and adapted to be aligned with either side of the plow beam and to the landside of the point of the plow, a crank arm adjustably clamped to the upper projecting end of the pivot bolt or shank, a turning rod loosely connected to said crank arm at one end and having a right angularly disposed locking end, and a suitably arranged perforated locking bar adapted to receive said locking end, substantially as set forth.

494,213. FAN ATTACHMENT FOR ROCKING-CHAIRS. JACOB MARTIN, Muscatine, Iowa. Filed June 4, 1892. Serial No. 435,515. (No model.)



Claim.—1. The combination of the cranked shaft, the pitman attached thereto, the lever as F pivotally connected to said pitman near one end and to a fixed point at the other, the oscillating lever as H linked at one end to the free end of the lever F and the devices for oscillating said lever H, substantially as set forth.

2. The combination of the crank shaft, the pitman connected thereto, the lever pivoted at one end to a fixed stud and pivotally connected near its free end to the pitman, an oscillating lever, a link connecting one end of said oscillating lever to the free end of the first lever, and the springs connecting the pitman to the link and lever, substantially as and for the purpose described.

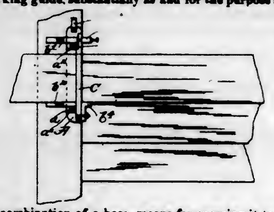
3. The combination of the cranked shaft, the lever pivoted at one end to a fixed point, the pitman connecting the free end of said lever to the shaft, and the oscillating lever having a link connection with the first lever at one end; with the rocking chair, the link connecting the seat thereof to the free end of said oscillating lever, the uprights, the fan-shaft journaled on the uprights above the seat, and the devices for transmitting motion from the cranked shaft to the fan shaft, substantially as and for the purpose set forth.

4. The combination of the uprights pivotally connected at their lower ends to a rocking chair seat, the segment and spring for adjusting and securing said upright, the fan shaft journaled in the upper ends thereof and the fan and pulley thereon; with the means substantially as described for imparting motion to said fan shaft, all substantially as specified.

5. The combination of the base frame, the rocking chair mounted thereon, the cranked shaft journaled in rockers, the pitman attached thereto, the lever pivotally connected to said pitman near one end and to a stud on the frame at the other, the oscillating rod mounted on said frame and linked at one end to the free end of the lever and linked by the other end to a chair seat; with the uprights connected to the seat, the fan shaft journaled in the upper end thereof, the fan thereon, and the belt and pulleys for driving said fan shaft from the cranked shaft, substantially as specified.

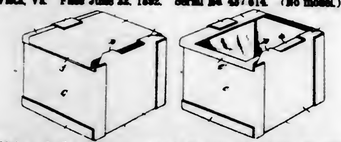
494,214. SIDING-GAGE. JAMES J. MARTIN, Roberts, S. C. Filed June 13, 1892. Serial No. 436,582. (No model.)

Claim.—1. The combination of a base piece provided with means for engaging the corner board and for supporting a siding board when placed thereon, an upright on said base having a slot therein, a pin movable in said slot, a marking guide pivoted on said pin, and adapted to be turned upwardly against a siding board, and a catch adjustable correlatively with said pin and adapted to engage the upper end of the said marking guide, substantially as and for the purpose set forth.



2. The combination of a base, means for securing it to the corner board, a bracket whereon the board to be affixed may be seated, a lug thereon and a marking guide mounted on said lug pivotally, a slotted arm near the upper end of said base, a sleeve movable in said slot, and a pin movable longitudinally in said sleeve and adapted to engage the free end of said marking guide, substantially as and for the purpose specified.

494,215. KNOCKDOWN BOX OR CRATE. JAMES C. MEEK, Buena Vista, Va. Filed June 22, 1892. Serial No. 437,614. (No model.)



Claim.—1. In a box or crate of the class described, the combination with the opposite end sections, the side-edges of which are inwardly bent, the bottom-section having its ends struck up to embrace the end-sections, and the side sections having their lower ends bent under the bottom, of the open locking-frame having its opposite ends downwardly bent to embrace the end-sections and its side-edges embraced by the upper bent edges of the side-sections, and the cover surmounting the locking-frame and covering the opening therein, said cover having its opposite ends downwardly bent similar to and embracing those of the locking-frame, and its opposite side-edges overlapped by the upper inwardly bent edges of the side sections, substantially as specified.

2. A knock-down box comprising a bottom having upturned side edges, the sides having upturned end edges, the ends having upturned lower edges and provided at their upper edges, respectively, with ears D D and tongue, D', the open key-frame E engaging said ears and tongue and provided with side flanges, and a cover surmounting the key-frame, engaged by the ears D D and having its ends embracing two of the opposite walls of the box, substantially as specified.

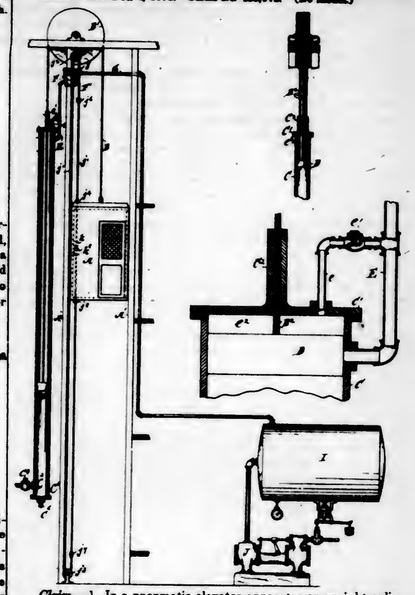
494,216. KNAPSACK. HENRY C. MERRIAM, Fort Logan, Colo. Filed Apr. 2, 1892. Serial No. 427,436. (No model.)



Claim.—1. In combination with the knapsack the braces adapted to be supported in the hip strap and having the edges of their upper ends provided with a series of notches, and the flexible fastening means passing around the braces and engaging said notches to adjustably secure the braces to the pack, substantially as described.

2. In combination with the pack and braces adapted to be supported upon the hip-strap and adjustably connected to the pack at the upper rear corners the adjusting strap *c* secured at the lower part of the pack and extending forward to the braces for the purpose of regulating the angle of the pack with reference to the brace A, and the back of the person carrying pack.

494,217. PNEUMATIC ELEVATOR. GEORGE MILES, Wellesley, Mass. Filed Dec. 4, 1891. Serial No. 413,972. (No model.)



Claim.—1. In a pneumatic elevator apparatus an upright cylinder having its lower end closed but provided with an inwardly opening check valve, and having at a prescribed short distance above its lower end, a relief passage opening the adjacent part of its interior to the external atmosphere, in combination with a piston, an elevator car, connections for connecting said piston with said car, and means for effecting the reciprocation of said piston in said cylinder.

2. In a pneumatic elevator apparatus, an upright cylinder closed at its lower end and having at a prescribed short distance above its lower end a relief passage opening the adjacent part of its interior to the external atmosphere, a piston, an elevat r car, connections for connecting said piston with said car and means for effecting the reciprocation of said piston in said cylinder, in combination with a valve for adjusting the cross area of said relief passage and thereby influencing the speed of movement of said piston.

3. In a pneumatic elevator apparatus, an upright cylinder having an opening through which its lower portion communicates with the external atmosphere, a piston, an elevator car, connections extending through the cylinder head at the upper end of said cylinder for connecting said piston with said car, a conducting pipe for conducting compressed air into the upper end of said cylinder to effect the direct stroke of said piston and for conducting off the exhaust during the return stroke of said piston, and a compressed air service pipe; in combination with valve mechanism for alternately connecting said conducting pipe with said service pipe to supply compressed air for effecting the direct stroke of said piston and for connecting said conducting pipe with an exhaust outlet to permit the escape of the air expelled from the upper end of said cylinder during the return stroke of said piston.

4. In a pneumatic elevator apparatus, the combination as herein set forth of an upright cylinder, a piston reciprocating therein, an elongated tubular head at the upper end of said cylinder, an elevator car, a suspender rope therefor, a flexible piston connector led loosely through said elongated tubular head and connected with said piston and connected with or forming a prolongation of said suspender rope and means for supplying compressed air to the upper end of said cylinder to effect the direct stroke of said piston and for shutting off the supply of compressed air and opening an outlet for the escape of the air from the upper end of said cylinder to permit the return stroke of said piston.

5. In a pneumatic elevator apparatus, the combination as herein set forth of a cylinder, a piston reciprocating therein, an elevator car, connections for connecting said piston with said elevator car, a com-

pressed air service pipe, a conducting pipe for conducting compressed air to said cylinder to effect the direct stroke of said piston, a valve mechanism for opening or closing a connection between said service pipe and said conducting pipe, and means for maintaining the compressed air in said service pipe at a substantially constant degree of pressure.

6. In a pneumatic elevator apparatus, the combination as herein set forth of a cylinder, a piston reciprocating therein, an elevator car, connections for connecting said piston with said elevator car, a compressed air service pipe, a conducting pipe for conducting compressed air to said cylinder to effect the direct stroke of said piston, and a bleed valve for admitting from said compressed air service pipe into said conducting pipe and thence into said cylinder, a supply of compressed air, enough to compensate for the leakage from said cylinder and to maintain upon said piston sufficient pressure to counterbalance the weight of said elevator car for the purpose of affording a convenient means for holding the elevator car stationary at any desired stage in its upward or downward excursion.

7. In a pneumatic elevator apparatus, a cylinder; a piston reciprocating therein; an elevator car; connections for connecting said piston with said elevator car; a conducting pipe connected with the side of said cylinder at a prescribed distance below its upper end; a tube inserted into the upper cylinder head, and connected outside the cylinder with the said conducting pipe and provided with a check valve, as shown, as and for the purposes set forth.

494,218. PACKING-CASE FOR CARDS, &c. SAMUEL J. MURRAY, Indianapolis, Ind., assignor to the National Card Company, same place. Filed May 18, 1891. Serial No. 393,144. (No model.)

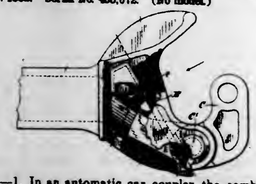


Claim.—1. A packing case or box for cards and such like articles, provided with a follower, and an operating screw between said follower and an end or side of the box.

2. The combination of the box or case A for cards or such like articles, plates to be interposed between the several articles, a follower in one end or side of said case, and an operating screw having a bearing in the portion of the box behind it by which said follower is driven and pressure thus applied to the contents of the box, substantially as set forth.

3. The combination of the box or case A having a bearing-plate *a* in one end or side, a follower D having a nut *d* secured thereto, and a screw E having a thumb-piece E′ and stepped in the bearing *a*, whereby said follower may be driven and the contents of the box compressed, substantially as shown and described.

494,219. CAR-COUPLING. ALVIN C. MCCORD, Chicago, Ill. Filed June 6, 1892. Serial No. 435,672. (No model.)

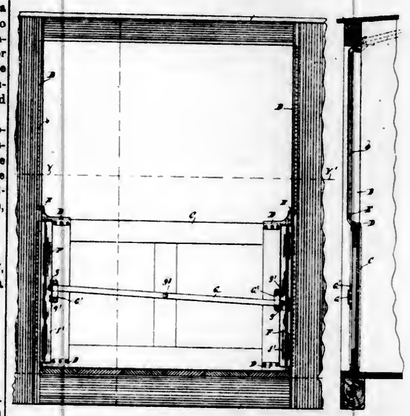


Claim.—1. In an automatic car coupler, the combination with the coupler-head and pivoted knuckle, of a lock, for the knuckle, having a cam surface adapted to be brought into action by a continuation of the lock's releasing movement, and an intermediate rod or direct connection subject, at one end, to the action of said cam, and connected at its other end, to said knuckle, at a point eccentric to the knuckle pivot; whereby, after the release, the continued movement of the lock will force the knuckle open by a direct strain.

2. In an automatic car-coupler, the combination with the coupler-head and the pivoted coupling-hook, of a vertically movable sliding lock recessed or slotted and provided with a cam-surface on one wall of the slot, and a hook opening rod having its inner end working in the said slot or recess subject to the action of said cam-surface, and its outer end seated in the coupling-hook, whereby the lift of the lock will first release and then open the hook, substantially as described.

3. The combination with the coupler-head of the pivoted coupling-hook C having the cam-surface *e* on its tail-piece, the vertically sliding lock D having the cam surface *d* on its inner lower corner for co-operation with the cam-surface on the tail-piece of the coupling-hook, in the closing action, and provided on its face with the open ended recess *d*′ having the cam-surface *d*³, and the hook opening rod E loosely seated in the coupler-head having its inner end working in said recess *d*′ of the lock and its outer end working in the seat *c* on the coupling hook, substantially as and for the purpose set forth.

494,220. GRAIN-DOOR FOR CARS. ALVIN C. MCCORD, Chicago, Ill. Filed July 5, 1892. Serial No. 438,949. (No model.)



Claim.—1. A grain-door for cars, constructed to work between the opposing faces of the door-posts, provided with pivoted filling or joint pieces at its sides, having angularly extended flanges or wings of reverse form, adapted one to interlock with the door-post and the other with the door to form a grain-tight joint, and a locking device for holding said filling pieces in their interlocked positions, whereby the door is held in position against the pressure of the grain in the car, substantially as described.

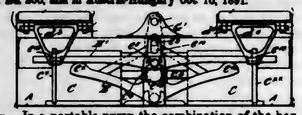
2. The combination with the door-posts provided with vertical ways, of a grain door having trunnions or bearing pivots at its upper corners, working in the said ways, and provided at its sides with pivoted filling or joint pieces having angularly extended flanges or wings of reverse form, adapted to interlock one flange with the inner faces of the door-posts and the other with the outer face of the door, for holding the door against the pressure of the grain when the parts are in their closed position, and for clearing the posts when the parts are in their open position, permitting the door to swing outward on its trunnions for the discharge of the grain.

3. The combination with the door posts having vertical ways, of the grain door having trunnions at its upper corners working in the said ways, the pivoted filling or joint pieces at the sides of the door provided with the angularly extended flanges or wings for interlocking with the door posts, and the pivoted latch-bar carried on the outer face of the door and engageable at its ends with latch lugs on said filling pieces for holding the same in their closed or locked position, substantially as described.

4. The combination with the posts having vertical ways, of the grain-door having trunnions working in the said ways the pivoted filling or joint pieces carried by the door at its sides, having the angularly extended flanges or wings interlocking with the posts and the door, when closed, and having on their outwardly extended flanges or wings latch-lugs and latch-stops spaced apart from each other and arranged in reverse order on the opposite pieces, and the latch lever centrally pivoted to the outer face of the door having its ends working through keepers fixed to the door and engageable or disengageable with said latch-lugs, by a pivotal movement, substantially as and for the purpose set forth.

5. The combination with the door-post B, having the ways *b*, of the grain-door C, having the bearings D and the trunnions E working in the said ways, the filling or joint pieces F pivoted in the bearings D, and having the flanges or wings *f* and *f*″, and the latch-lugs and stops *g* and *g*′, the latch-lever G pivoted to the face of the door working through the keepers G′ and engageable with the said latch-lugs and stops, substantially as and for the purposes set forth.

494,221. PORTABLE PUMPING APPARATUS. DONALD NOBLE, Leeds, England. Filed Mar. 8, 1892. Serial No. 424,218. (No model.) Patented in England Aug. 26, 1890, No. 13,413; in France June 16, 1891, No. 214,211; in Belgium June 16, 1891, No. 95,903; in India Oct. 7, 1891, No. 200, and in Austria-Hungary Oct. 10, 1891.



Claim.—In a portable pump the combination of the box A containing the horizontal acting pump C, the piston rod c^5 for said pump, the vertical lever G′ pivoted at its upper end and connected at its lower end with the said piston rod, the horizontal bent lever E mounted within said box A, the upright arm c^6 rigidly connected with said lever E and pivotally connected with said lever G′ at or near its center, the horizontal lever F bearing on the free ends of the lever E and the brackets d^3 d^3 connected to said hinged covers D, D′, and bearing at or near the ends of said lever F, substantially as set forth.

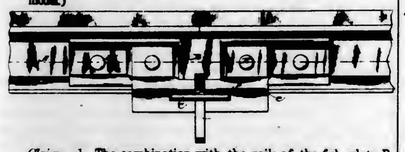
494,222. COMBINED CHURN AND BUTTER-WORKER. JEREMIAH OVERHALSER, Bellefontaine, Ohio. Filed June 20, 1892. Serial No. 437,373. (No model.)



Claim.—1. In a butter worker or churn, the revolving box having the ridged inner faces, the removable fluted end piece, located in the end of the box beneath the opening lid as and for the purpose set forth.

2. In a butter worker or churn, the revolving box having the ridged inner faces, the removable fluted end piece, the pins P, and slots Q, as and for the purpose set forth.

494,223. RAILWAY-RAIL JOINT. PAUL PEARSON and JAMES ROBINSON, Chicago, Ill. Filed Sept. 21, 1892. Serial No. 446,452. (No model.)

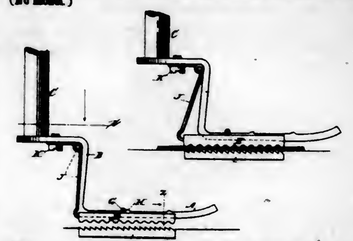


Claim.—1. The combination with the rails of the fish plate B, the sectional area of which is reduced from the center to the ends by means of successive steps or shoulders adapted to form even or level seats for the heads and nuts of the securing bolts, and provided with the lateral projection *e* and the perforated downward bent portion formed integral with said plate and adapted for the insertion of the wedge plate C substantially as and for the purpose specified.

2. The combination with the rails of the fish plate B provided with the successive steps or shoulders formed thereon and the lateral extension *e* and perforated downward bent portion adapted for the insertion of the wedge plate C and the upward bent horizontal flange *f* formed integral with said fish plate and the bolts E adapted to secure said fish plate to the rails substantially as and for the purpose specified.

3. In a rail joint the combination with the rails of the fish plates provided with the successive steps or shoulders formed thereon and adapted to form even or level seats for the heads and nuts of the securing bolts, and provided with lateral extensions formed integral with said fish plates, and which are bent downward past the edges of the rails, and are bent up at a right angle thereto to form flanges which extend horizontally underneath the rails, said downward bent portions perforated for the insertion of a wedge plate and said wedge plate perforated for a taper key and adapted to be drawn to a solid bearing between said flanges and bottom of said rails by said taper key and the bolts adapted to bolt said fish plates firmly to said rails substantially as and for the purpose specified.

494,224. PRESSER-FOOT FOR SEWING-MACHINES. STEPHEN W. PHILLIPS, Woburn, Mass. Filed Apr. 30, 1892. Serial No. 431,260. (No model.)

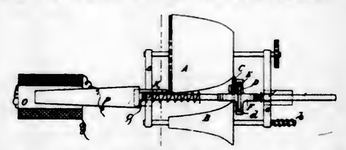


Claim.—1. In a sewing machine the combination with a main presser-foot, of a supplemental presser-foot movably secured thereto and arranged on the bottom of the same, and adapted to travel with the goods as the same are fed along, and suitable connections between the bottom of the main presser-foot and the supplemental presser-foot for guiding the said supplemental presser foot during its reciprocations along the bottom of the said main presser-foot, and means for returning said supplemental presser-foot to its normal position after the feed of the goods has stopped, substantially as set forth.

2. In a sewing machine, the combination with a main presser-foot, of a supplemental presser-foot movably secured thereto and located on the bottom of the same, and adapted to travel with the goods as the same are fed along, and a grooved connection between the said main and supplemental presser-feet for guiding said supplemental presser-foot during its reciprocations along the bottom of the said main presser-foot, and means for returning said supplemental presser foot to its normal position after the feed of the goods has stopped, substantially as set forth.

3. In a sewing machine, the combination with a main presser-foot of a supplemental presser-foot movably secured thereto, and located along the bottom of the same, and having a groove in which the main presser-foot rests, and adapted to travel with the goods as the same are fed along, a stop for limiting the forward movement of the said supplemental presser-foot as it returns to its normal position, and means for returning it to its normal position after the feed of the goods has stopped, substantially as set forth.

494,225. ELECTRICAL METER. GUSTAV REISSERFELT, Buffalo, N. Y. Filed Apr. 1, 1892. Serial No. 427,333. (No model.)



Claim.—In an electric meter the combination with the driving and driven cones, and the movable core of the electro-magnet, of the yoke connected with the core and movable thereby along and between the cones lengthwise, the bar movable transversely thereto in the slide ways of the yoke, and the transmitting friction wheel mounted on said bar in the plane of the axes of the rolls substantially as described.

2. In an electric meter the combination with the driving and driven cones, and the movable core of the electro-magnet, of the yoke connected with the core and movable thereby along and between the cones lengthwise, the car movable transversely in the slide ways of the yoke, the transmitting friction wheel mounted on said bar in the plane of the axes of the rolls, and the springs opposing the pull of the electro-magnet substantially as described.

3. In an electric meter the combination with the driving and driven cones, one of said cones having the stop notches, the movable core of the electro-magnet, intermediate transmitting wheel and the retracting springs, of the stop finger on the said movable core adapted to engage a notch of said cone and lock the meter in the normal position substantially as described.

4. In an electric meter the combination with the driving and driven cones, one of said cones having the stop notches, the movable core of the electro-magnet, intermediate transmitting wheel and the retracting springs, of the stop finger on the movable core adapted to engage a notch of said cone, and lock the meter in the normal position, said finger having the back thrusting bevel side engaging the wall of the notch substantially as described.

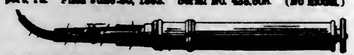
494,226. DIE FOR POINTING METAL-DRILLS. FRANCIS H. RICHARDS, Hartford, Conn. Filed Mar. 29, 1892. Serial No. 426,962. (No model.)



Claim.—1. The improved drill-pointing dies herein described, consisting in a pair of dies having the corresponding oppositely-disposed drill-forming spaces each corresponding on one side thereof to the plane of the die-faces, and having the other side thereof warped substantially as described for broadening and thinning the quadrant-sections of the drill-blank, substantially as described.

2. The improved drill-pointing die herein described, consisting in a die having the concaved face corresponding to the relieved surface of the drill, and the warped surface for spreading the drill-point, substantially as shown and described.

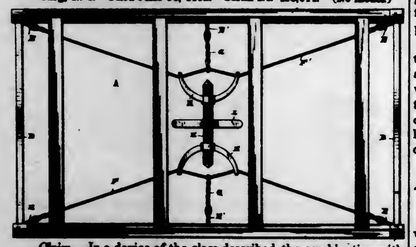
494,227. DENTAL PLUGGER. FRANK J. RICHARDS, Williamsport, Pa. Filed June 20, 1892. Serial No. 436,908. (No model.)



Claim.—1. In combination with a straight plunger, a striking pin fitting in a socket in the end of said plunger, a curved guide tip E and a curved holder mounted in said guide tip with its inner end in the path of the striking pin, substantially as specified.

2. The combination with a straight plunger, and an inclosing casing, of a tapered sheath fitted to the end of the casing to inclose the end of the plunger, a striking pin fitting in a socket in the end of the plunger, a curved tip fitted in the reduced end of said sheath, and a curved holder, slidably fitted in the tip with its inner end in the path of the striking-pin, substantially as specified.

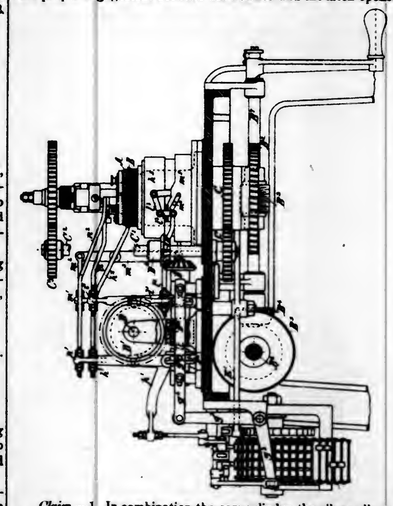
494,228. BRACE FOR BEDSTEADS. MILTON M. RITCH, Laurinburg, N. C. Filed June 30, 1892. Serial No. 438,611. (No model.)



Claim.—In a device of the class described, the combination with a bedstead frame, eyes secured to the corner posts, and eyes arranged at the centers of the side-rails, of tension wires attached at their terminals to the eyes upon the corner posts and having their intermediate portions drawn inward toward the center of the space inclosed by the bedstead frame, a tension device comprising duplicate yokes H provided with terminal eyes through which said tension-wires are threaded and central tapped eyes, a transversely-disposed bolt K engaging said central tapped eyes and means to operate such bolt, and short transverse wires G, connected at their outer ends to the eyes at the centers of the side-rails and connected at their inner ends to the centers of said tension-wires between the arms of the yokes H, whereby the portions of the tension wires between the terminal eyes of the yokes are held at fixed distances from the centers of the side rails, substantially as specified.

494,229. CIRCULAR-KNITTING MACHINE. ALBIN ROSCHER, Chemnitz, Germany. Filed June 30, 1892. Serial No. 438,630. (No model.) Patented in England June 20, 1891, No. 10,503.

Brief.—The machine knits a string of rib-tops, each provided with slack courses for running on and for cutting off and with a double-walled hem at the top. During the knitting of the hem an increased length is given to the stitches. When the ordinary ribbed tube is again to be commenced, the upthrow and outthrow cams, out of action in knitting the hem, are projected in sections in order to secure proper engagement between the needles and the latch-openers.



Claim.—1. In combination the cam cylinder, the rib needle cam disk, each of said parts having a movable upthrow or out throw cam formed in two portions adapted to advance the needles by successive steps, and the stationary cams arranged adjacent to the movable cams to act in conjunction therewith, the means for operating the portions of the movable cams independently, the thread guides and the needles, substantially as described.

2. In combination in a latch needle knitting machine, the thread guides having latch openers, the needles, and the out throw cams formed in sections with means for operating the said sections independently, substantially as described.

3. In combination the cam cylinder and rib cam disk, the two thread guides, the stationary cams and the movable cams for operating the needles, the means for operating the said movable cams whereby the separate portions or the welt may be formed by the stationary cams, the said stationary cams having adjustable depressing or drawing-in portions, with means for adjusting them to vary the length of the stitches while the welt is being knit, substantially as described.

494,230. OIL-LAMP. JOHN H. ROSS and EDWARD R. ATKINS, Birmingham, England. Filed July 8, 1891. Serial No. 398,757. (No model.)

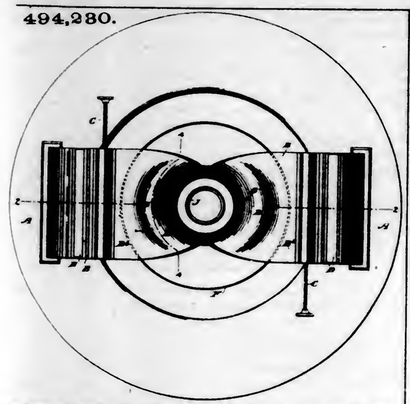
Claim.—1. In a lamp the combination with a suitable oil reservoir and a circular or curved burner, of a wick-tube constructed with a medially central raised or humped portion, a circular or curved vertical portion toward the burner, and a flat portion toward the oil reservoir, substantially as and for the purposes set forth.

2. In a lamp the combination with a suitable oil reservoir and a circular or curved burner, of a wick-tube constructed with a medially central raised or humped portion, a circular or curved vertical portion toward the burner and a flat portion toward the oil reservoir, the said wick-tube having a toothed wheel or ratchet in its flat portion, substantially as and for the purposes set forth.

3. In a lamp the combination with a suitable oil reservoir and a central circular or curved burner, of two or more wick-tubes B having a medially central raised or humped portion B', a circular or curved vertical portion B^2, and a flat portion B^3, substantially as and for the purposes set forth.

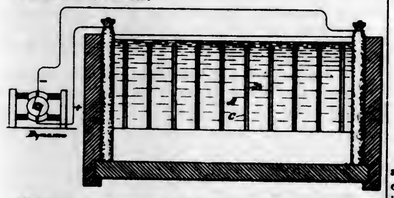
4. In a lamp the combination with a suitable oil reservoir and a central circular or curved burner and a central chimney within the burner, of two or more wick-tubes B, having a medially central raised

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or humped portion B', a circular or curved vertical portion B^2, and a flat portion B^3, substantially as and for the purposes set forth.

494,231. TREATMENT OF METAL PLATES PRIOR TO ELECTROLYSIS. CHARLES R. SCHOENHERR, Waterbury, Conn., assignor of one-half to Alden M. Young, same place. Filed Apr. 11, 1892. Serial No. 428,637. (No model.)



Claim.—1. As an improvement in apparatus for purifying metals by electrolysis, the combination with a containing vessel having positive and negative electrodes arranged therein, of a series of plates of the crude metal to be operated upon disposed between the electrodes, each plate having one face provided with a coating or layer of material, electrically conductive, but insoluble in the electrolyte.

2. As an improvement in apparatus for purifying metals by electrolysis, the combination with a containing vessel having positive and negative electrodes arranged therein, of a series of plates of the crude metal to be operated upon disposed between the electrodes, each plate having the face thereof which is opposed to the anode coated with a layer of non-metallic material, electrically conductive and insoluble in the electrolyte, substantially as described.

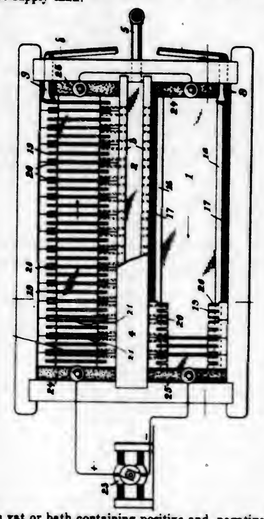
3. As an improvement in apparatus for purifying metals by electrolysis, the combination with a containing vessel having positive and negative electrodes, and an electrolyte arranged therein, of a series of plates of the crude metal to be electrolyzed, arranged between the electrodes in the electrolyte, each of said plates having its cathode face coated with a layer of material electrically conductive and insoluble in the electrolyte and of a color contrasting with the color of the metal upon which it is laid, substantially as set forth.

4. The combination with the containing vessel containing the electrolyte and having the electrodes arranged in opposite ends thereof, of a series of plates vertically arranged composed of the crude metal to be electrolyzed, and arranged between the electrodes each plate having its cathode face provided with a layer of carbon or graphite, substantially as and for the purpose set forth.

494,232. APPARATUS FOR ELECTROLYSING COPPER. CHARLES R. SCHOENHERR, Waterbury, Conn., assignor of one-half to Alden M. Young, same place. Filed Apr. 11, 1892. Serial No. 428,636. (No model.)

Claim.—1. The vat or bath provided with electrodes and having means for the support of the plates, in combination with the fluid supply-chamber alongside said vat, said chamber being of substantially equal depth with said vat and connected thereto by a multiplicity of flow openings, an induct or supply pipe entering the chamber, and an outlet leading from the vat.

2. A vat or bath to contain the plates, and having suitable electrodes in combination with a chamber at one side thereof and communicating therewith through a multiplicity of openings, plate supports arranged in the bath for sustaining the plates between the flow openings a supply tank above the vat and a connection between said tank and the chamber, an outlet from the vat and a drain tank into which it empties, and a pump to return the electrolyte from the drain tank to the supply tank.



3. The vat or bath containing positive and negative electrodes and the chamber alongside and connected therewith as described, in combination with plate supports within the bath, having openings coinciding with the openings between the vat and chamber, substantially as specified.

4. In an apparatus of the character described, the combination with the vat provided with positive and negative electrodes and containing the electrolyte, of the chamber for the supply and circulation of the electrolyte arranged alongside the vat and having flow openings opening into it, a series of plate supports arranged at the sides of the vat and having openings corresponding with the flow openings, and screens attached to the plate supports and extending across the vat, the whole arranged substantially as and for the purpose set forth.

5. The vat to contain the electrolyte and plates and the chamber communicating therewith through a multiplicity of openings, in combination with the plate supports upon each side the vat, and having perforations corresponding with the holes into the chamber, positive and negative electrodes and screens or filters interposed between the plates and extending across the vat.

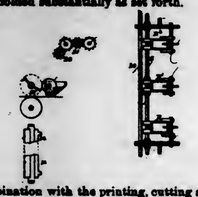
6. In an apparatus for electrolyzing copper, the combination with the vat and the positive and negative electrodes and plates arranged therein, of the pipe 7 adapted to draw off the fluid from a point near the bottom of the vat, the overflow pipe 9 entering the vat near its top, a connecting pipe 8 joining pipes 7 and 9, and a cock 10 located below the juncture of pipes 7 and 8, the whole arranged and adapted to operate substantially as specified.

7. In an apparatus for electrolyzing copper, the combination with a vat and the positive and negative electrodes and plates arranged therein, of the pipe 7 adapted to draw off the fluid from a point near the bottom of the vat, the overflow pipe 9 entering the vat near its top, a connecting pipe 8 joining pipes 7 and 9, the cock 10, and the additional pipe 13 having connection with pipe 9 near the top of the latter, the whole arranged substantially as specified.

494,288. PASTING MECHANISM FOR PRINTING-PRESSES. WALTER SCOTT, Plainfield, N. J. Filed Dec. 8, 1890. Serial No. 373,693. (No model.)

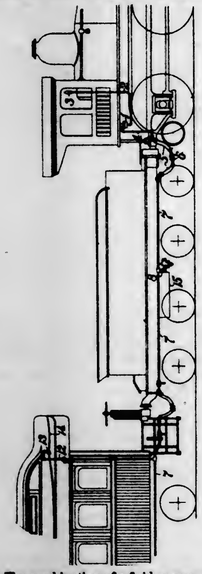
Claim.—1. The combination with the paste trough and its roller, of the rotary pasting blades 30. and 32. at about one hundred and

seventy degrees distant from each other and the blade 32, notched on its edge so as to apply paste in spots near the edges of the sheets, and the blade 30, to apply a transverse line of paste to the web where the same is to be folded substantially as set forth.



2. The combination with the printing, cutting and folding mechanisms, of the rotary pasting blades 30 and 32, at about one hundred and seventy degrees distant from each other, the blade 32 being notched on its edges so as to apply paste in spots near the edges of the sheet and the blade 30, to apply a transverse line of paste to the web where the same is subsequently folded, and the movable paste troughs and paste rollers 10, to apply paste in spots upon other parts of the margins of the sheets substantially as specified.

494,234. TRAIN SIGNALING APPARATUS. WILLIAM J. SMITH, Wilkinsburg, assignor of one-half to T. W. Welsh, Wilmerding, Pa. Filed May 31, 1892. Serial No. 434,905. (No model.)



Claim.—1. The combination of a fluid pressure signaling system, an automatic fluid pressure brake system, and a fluid pressure supply passage from an auxiliary reservoir of the brake system to the train pipe of the signaling system, substantially as set forth.

2. The combination, with a fluid pressure signaling system, of an automatic fluid pressure brake system, and a triple valve device through which fluid under pressure is supplied to the signaling system, and to an auxiliary reservoir of the brake system substantially as set forth.

3. The combination, with a fluid pressure signaling system, of an auxiliary reservoir of an automatic brake system, said auxiliary reservoir being located on the tender of a locomotive and a connection from the auxiliary reservoir of the brake system to the train pipe of the signaling system through which fluid under pressure is supplied to the signaling system, substantially as set forth.

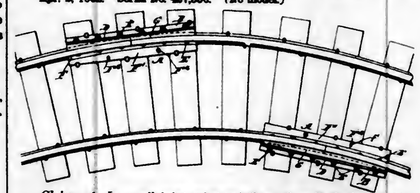
4. In a fluid pressure train signaling device the combination with the signal train pipe, of a passage connecting the train pipe with an auxiliary reservoir of a brake system, and a non-return valve in the passage which prevents the return of fluid from the train pipe to the reservoir, substantially as set forth.

5. In a fluid pressure train signaling device, the combination, with the signal train pipe, of a passage connecting the train pipe with an auxiliary reservoir of a brake system, a non-return valve in said passage and a contracted opening in said passage between the supply reservoir and the non-return valve, substantially as set forth.

6. The combination, with a fluid pressure signaling system, of an automatic fluid pressure brake system, and a valve device having connections to an auxiliary reservoir of the brake system, and to the signaling system, substantially as set forth.

7. The combination with a fluid pressure signaling system, of an automatic fluid pressure brake system, and a valve device through which fluid under pressure is supplied from the train pipe of the brake system, to the signaling system, and to an auxiliary reservoir of the brake system, substantially as set forth.

494,235. RAIL-JOINT. JOHN M. STAMP, Carterville, Mo. Filed Apr. 2, 1892. Serial No. 427,556. (No model.)



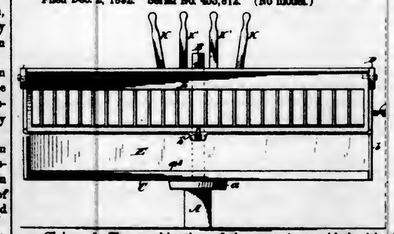
Claim.—1. In a rail joint substantially as described, the combination of the chair having an upright D, the fish plate F, the channeled fish plate G, curved on its inner face to conform to the curvature of the rails, and having the outer edges of its wings made straight to bear flat against the upright D and the fastening bolts all substantially as set forth.

2. The improved rail joint substantially as described comprising the adjacent rails curved at the desired degree, the chair receiving the said rails and provided with an upright D, the inner fish plate, the fish plate G formed with the wings I and having its inner face beveled at i and curved to fit the longitudinal curvature of the rails and the outer edges of its wings I made straight and arranged to bear against the upright D and the fastening bolts, such bolts being passed between the wings of the part G all substantially as and for the purpose set forth.

3. The improved rail joint herein described consisting of the adjacent rails curved at the desired degree the chair having uprights C and D, the inner fish plate F curved to fit the rails and provided at its lower edge with an outwardly projected flange to fit upon the base of the rail and extend over and rest upon the inner upright of the chair, the fish plate G curved at its inner face to fit the longitudinal curvature of the rails and having the wings I, made straight and arranged to bear against the upright D and the fastening bolts E all substantially as and for the purposes set forth.

4. The improved rail joint substantially as described comprising the chair having the longitudinally straight upright D, and the fish plate having its outer edge made straight to bear flat against the upright D, and its inner edge curved longitudinally to conform to the curvature of the rail against which it is clamped all substantially as and for the purposes set forth.

494,236. FEED-TROUGH. JACOB E. WENGER, Burton City, Ohio. Filed Dec. 2, 1892. Serial No. 453,512. (No model.)



Claim.—1. The combination of the post A, provided with the bar B, the base or bottom C, having fixed thereto the ends b, the feed boxes F, the sliding bar G, the fixed bar H, and the apertures d and d', located in said bars, the pivoted hoppers E, and the levers K and K', all arranged substantially as and for the purpose specified.

2. The combination of a manger and feed trough, having a series of feed boxes and pivoted hoppers located above said feed troughs, and adapted to swing inward and away from the feed boxes, the sliding bar G, and the fixed bar H, the levers K' and means for holding the hoppers over or away from the feed boxes, substantially as and for the purpose specified.

3. The combination of a feed manger and trough, pivoted upon the post A, a series of feed boxes, pivoted hoppers provided with bars at their bottom or lower ends provided with apertures, and means for opening and closing said apertures, substantially as and for the purpose specified.

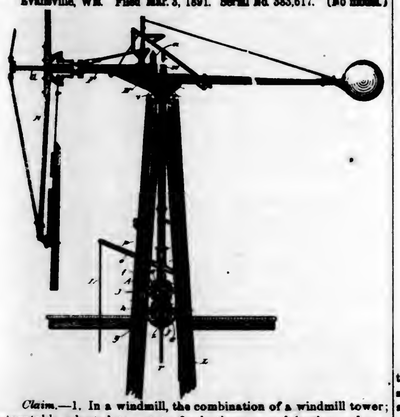
4. The combination of a base provided with end pieces, having fixed thereto the cross bars D, the pivoted hoppers E, provided with the levers K and K', the rack L, pivoted to the bars such as D or their equivalents, and the buttons or catches k', substantially as and for the purpose specified.

494,237. PROCESS OF CURING LOGWOOD-CHIPS. PETER T. AUSTEN, New Brunswick, N. J., assignor to the William J Matheson & Company, Limited, New York, N. Y. Filed Jan. 10, 1893. Serial No. 457,930. (No specimens.)

Claim.—1. The process of rapidly curing chip logwood, which consists in adding to logwood chips a solution of a suitable nitrite, substantially as hereinbefore described.

2. The cured logwood chips consisting of logwood chips with which has been incorporated a suitable nitrite, substantially as described.

494,238. WINDMILL. JOHN S. BAKER and ALLEN S. BAKER, Evansville, Wis. Filed Mar. 3, 1891. Serial No. 383,617. (No model.)



Claim.—1. In a windmill, the combination of a windmill tower; a turntable adapted to rotate freely thereon, and having a downwardly extending cylindrical portion k, sufficiently long to carry the sleeve n, and permit it to have the necessary vertical motion; a wind-wheel shaft journaled in the turntable; a wind-wheel at the end of said wind-wheel-shaft; a vertical shaft journaled within the turntable; and operated by the wind-wheel-shaft; a second vertical shaft within the tower and connecting with the driven machinery, and gearing connecting the vertical shafts together and reacting on the turn-table, substantially as described.

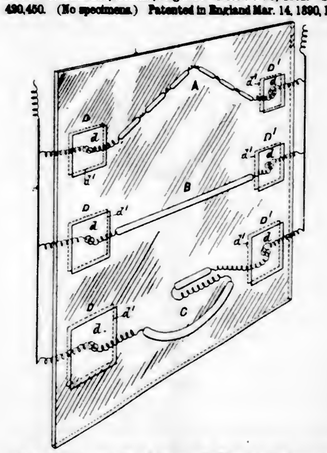
2. In a wind-mill, the combination of the wind-mill tower, a turntable adapted to rotate freely thereon a wind wheel shaft journaled in said turntable and carrying a wind wheel at its outer end; the shaft s, journaled in the turntable, and carrying double trunnions h, h, at its lower end; two bevel wheels c, c, on said double trunnions engaging with the loosely mounted double gear d, and with the gearing e, secured to the shaft r, which connects with the driven machinery; double trunnions j, j, on the turntable, carrying two bevel gears f, f, which also engage with said loosely mounted double gear d, and with the stationary bevel gear g, on the tower; substantially as described.

3. In a wind-mill of the character described, the combination of the wind-mill-tower; a turntable adapted to rotate on said tower, a wind-wheel-shaft journaled in said turntable; and carrying a wind wheel at its outer end; a gear wheel e, secured to said wind wheel shaft and engaging with the gear g, on the vertical shaft s; the double trunnions h, h, secured to said shaft s, and carrying the two bevel gear wheels c, c, the loosely mounted double gear d, with which said double gears c, c, engage; the bevel gear e, secured to the shaft r, and with which said bevel gears c, c, engage; double trunnions j, j, secured to the turn table and carrying gears f, f, which also engage with the bevel gears d, and with the stationary gear g, secured to the tower, and the movable sleeve k', upon which the double gear d bears; substantially as described.

4. In a wind mill, the combination of a tower; the turn table adapted to rotate thereon; a wind-wheel shaft journaled in said turntable and geared to the shafts; the shaft r, connected with the driven machinery; suitable gears connecting the shafts s and r, so that the shaft r, will be driven at a higher speed than s; and a yoke y, carried by the shaft s, and provided with a bearing s, for the shaft r, substantially as described.

5. In a wind mill, the combination of the tower; the turn table adapted to rotate thereon; a wind wheel shaft journaled in said turntable and geared to the shaft s, the shaft r, connected with the driven machinery; suitable gears connecting the shafts s and r, so that the shaft r, will be driven at a higher speed than s, and a yoke y, carried by the shaft s, and provided with a bearing s, having a cup shaped projection thereon, substantially as described.

494,239. ELECTRICAL EXCITATION OF VACUUM-TUBES. HARRY T. BARNETT, London, England. Filed Feb. 5, 1892. Serial No. 420,450. (No specimens.) Patented in England Mar. 14, 1890, No. 4,004.



Claim.—1. In a system of electrically illuminating vacuum tubes, the combination of glass plate G, condensing plates d d secured to the same side of said plate, a vacuum tube B connected at each end with a condensing plate d, condensing plates d' d' arranged opposite said plates d d, and leads E, E' connecting said plates d' d' with an induction coil, all said parts being adapted to operate substantially as described and for the purposes set forth.

2. The glass plate G combined with the condensers d d', glass tube or series of tubes A connected at one end with condenser d, conductor E connected with condenser d' and conductor E' connected with the other end of said tube, said condensers being on opposite sides of the glass plate G, substantially as described and for the purposes set forth.

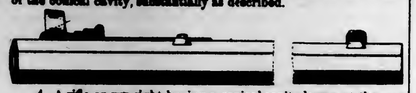
494,240. GUN-SIGHT. DANIEL M. BARRINGER, Philadelphia, Pa. Filed June 21, 1892. Serial No. 437,514. (No model.)

Claim.—1. A rifle or gun sight having a conical cavity larger at the rear end and terminating in a peep hole near the front end of said sight, with a series of parallel rings or steps upon the surface of the conical cavity having their centers upon the axis of said conical cavity, substantially as described.

2. A rifle or gun sight having a conical cavity larger at the rear end and terminating in a peep hole at the front end of said sight, and having a flaring notch at top of sight, the bottom of which notch intersects longitudinally and opens into the conical cavity and the top of peep hole, substantially as described.

3. A rifle or gun sight having a conical cavity larger at the rear end and terminating in a peep hole at the front end of said sight, and

having a flaring notch at top of sight, the bottom of which notch intersects longitudinally and opens into the conical cavity and the top of peep hole, with a series of parallel rings or steps upon the surface of the conical cavity, substantially as described.



4. A rifle or gun sight having a conical cavity larger at the rear end, and terminating in a peep hole near the front end of said sight, and having the front face of said sight concave or counter sunk, and having a flaring notch at top of sight, the bottom of which notch intersects longitudinally and opens into the conical cavity and the top of peep hole, substantially as described.

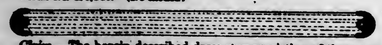
5. A rifle or gun sight having a conical cavity larger at the rear end and terminating in a peep hole near the front end of said sight, and having the front face of said sight concave or counter sunk; with a flaring notch at top of sight, the bottom of which notch intersects longitudinally and opens into the conical cavity and the top of peep hole, with a series of parallel rings or steps upon the surface of the conical cavity, substantially as described.

494,241. TROUSERS-STRETCHER. RICHARD BIBBERT, New York, N. Y. Filed Mar. 17, 1892. Serial No. 425,312. (No model.)



Claim.—In a trousers stretcher the combination with the rod A and the U-shaped arms B, rigid therewith and provided with adjustable sleeves carrying hooks, of the adjustable sleeve at the lower end of the rod, the clamp jaws pivotally secured to said sleeve and the swinging yokes pivoted to opposite ends of said jaws and provided with set screws, substantially as described.

494,242. DRESS-STAY. ISABELLA BRAY, New York, N. Y., assignor to the American Dress Stay Company. Filed June 27, 1892. Serial No. 438,116. (No model.)



Claim.—The herein described dress stay consisting of three parallel springs inclosed within a covering, with metal tips over the end of the covering and springs, the tips adapted to embrace the ends of the springs, and with central projections on opposite sides extending over the central spring, the said projections secured together through the said central spring and covering, substantially as described.

494,243. BRACE-CHAIR FOR RAILROAD-RAILS. WILLIAM M. BROWN, Johnstown, Pa., assignor to the Johnson Company, same place. Filed Feb. 20, 1890. Serial No. 341,121. (No model.)



Claim.—1. A chair, of rolled or malleable metal, for girder-rails, having a portion of its rail-seat pressed downward so as to form a side-channel, and one side of the chair bent over said channel.

2. A box-chair, of rolled or malleable metal, for girder-rails, having a portion of its rail-seat pressed downward so as to form a side-channel and one side of the chair bent over said channel.

3. A box-chair, of rolled or malleable metal, for girder-rails, having a rail-brace on one side and a portion of its rail-seat pressed downward to form a side-channel, in combination with a key inserted in said channel under a clip, as D, and over the foot of the rail.

494,244. PYROMETER. EDWARD BROWN, Philadelphia, Pa. Filed May 26, 1891. Serial No. 394,180. (No model.)



Claim.—1. In a pyrometer the combination of the heavy pipe C, the thin expansion tube R separable from but secured rigidly thereto, the interior non-expanding bar M, the rod D communicating with the mechanism within the head A, which is adjusted to indicate the correct temperature when the pointer first arrives at a nearly stationary position.

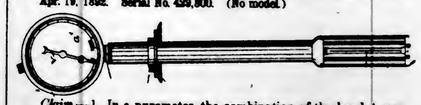
2. In a pyrometer stem the combination of the pipe C, the expansion tube R the coupling K, the non expanding bar M, the rod D, which at its lower end elongates per degree of heat more than the pipe C, and the pin W, to operate the pointer V as herein described.

3. In a pyrometer stem adapted to be inserted in a heated medium, the combination of a heavy tube C protected from the access of heat by the casing E, the thin metal expansion tube R separable from but secured rigidly thereto, the non-expanding bar M and an inside rod for communicating the expansion of the tube R to the pointer.

4. In a pyrometer stem the combination of the pipe C, the metal expansion tube R, flange r', coupling K, the nonexpanding bar M, the rod D, and pin W communicating with the pointer V as herein described.

5. In a pyrometer stem the combination of the pipe C the flanged sheet metal tube R, coupling K, non-expanding bar M, rod D, substantially as described.

494,245. PYROMETER. EDWARD BROWN, Philadelphia, Pa. Filed Apr. 19, 1892. Serial No. 429,800. (No model.)



Claim.—1. In a pyrometer, the combination of the head A carrying the indicating mechanism, the heavy tube M, the expansion bar E, secured within the frame D G H, and the sliding rod K which communicates the expansion of the said bar to the indicating mechanism.

2. In a pyrometer, the combination of the expansion strip E pivoted within the frame at the end of the tube M, mechanism within the case A connected with the said strip and adjusted to indicate the correct temperature when the pointer V first arrives at its maximum position.

3. In a pyrometer stem, the combination of the heavy tube M the sliding rod K, the outside case m', the expansion strip E within the frame D G H, and the outside tube ℓ'.

4. In a pyrometer stem, the combination of the convex expansion strip E pivoted at k' to the frame H. G. D, the sliding rod K by which the expansion of the said strip is communicated to the mechanism within the head A.

5. In a pyrometer stem, the combination of the expansion strip E of very light weight relatively to the frame D G H which carries it, the tube M and sliding rod K, operating substantially as described.

6. The adjusting mechanism within the case A consisting of a pinion d', a toothed segment D^3 carrying the adjusting arm C, the screw c^4, the spring c^3, the case A and opening c^2 in the said case.

494,246. CAR-COUPLING. PHILIP C. BROWN, Washington, D. C. Filed Aug. 2, 1892. Serial No. 441,948. (No model.)



Claim.—1. In a car coupling, the combination with the draw-bar and draw-head, of the pivoted hooked catch D provided at one end with a downwardly projecting lip E and at its other end with a hooked end F, and adapted to be reversed, substantially as described and for the purpose specified.

2. In a car coupling, the combination with the draw-bar and draw-head, of the hooked catch D provided at one end with the downwardly projecting lip E and at its other end with a hooked end F, said hooked catch being provided with an elongated slot inclined as shown, and a pivot bolt passing through the draw-head and said slot, substantially as described and for the purpose specified.

3. In a car coupling, the combination with the draw-bar and draw-head, of the pivoted hooked catch D provided at one end with a downwardly projecting lip E and at its other end with a hooked end F, and the shoulder g' on the draw-head adapted to be engaged by the hooked end F, substantially as described and for the purpose specified.

4. In a car coupling, the combination with the draw-bar and draw-head, of the pivoted hooked catch provided at one end with a downwardly projecting lip E and at its other end with a hooked end F, the draw-head being recessed as at g, forming a shoulder g', and adapted to receive and be engaged by the hooked end F, substantially as described and for the purpose specified.

5. In a car coupling, the combination with the draw-bar and draw-head, of the hooked catch provided at opposite extremities with hooked ends and near one end with an enlongated slot inclined as shown, the pivot bolt passing through said slot and through the sides of the draw-head, said draw-head being provided at its rear with a shoulder g', and a chain connected to said hooked catch for reversing the same, substantially as described.

494,247. CLOTHES-DRIER. MELBOURNE C. BURR, Minneapolis, Minn. Filed Feb. 1, 1892. Serial No. 419,892. (No model.)



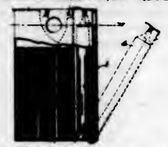
Claim.—The combination with the back-board having the rabbeted and shouldered end of the board 9, the wire 12 confined in a groove provided in the back board and having the link and end portion 12 and 13 respectively, and bars 14 pivoted on the board 9, substantially as described.

494,248. STALK-CUTTER. HENRY G. CADY, Pine Bluff, Ark. Filed Mar. 30, 1891. Serial No. 386,833. (No model.)



Claim.—A stalk cutter, consisting of a series of cutter-bars abutting against each other each bar having a beveled projecting side, cutters or knives secured upon the beveled sides of the cutter-bars, end plate to which the cutter bars are secured and a frame carrying an axle journaled centrally in the end plates, substantially as described

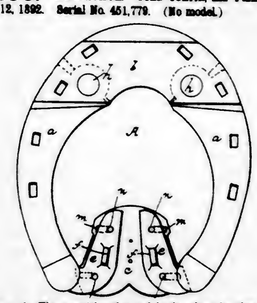
494,249. POCKET-BOX. JOHN I. COVINGTON, Brooklyn, N. Y. Filed Dec. 29, 1891. Serial No. 416,453. (No model.)



Claim.—1. A pocket box having an aperture in one of its sides and a cutter having a cutting edge arranged to co operate therewith and provided with an aperture to allow the passage of a candle said aperture located to register with the aperture in the box when the cutter is in its closed position the interior of the box opposite the aperture being unobstructed so that when the butt end of a candle is inserted through the said apertures it may rest on the opposite side of the box, substantially as described.

2. A pocket box having an aperture in one of its sides and a lid provided with an apertured cutter having a cutting edge and with an apertured projection, the two apertures in cutter and projection arranged to register with the aperture in box when the lid is closed, the interior of the box opposite the aperture in cutter being unobstructed so that when the butt end of a candle is inserted through the said aperture it may rest on the opposite side of the box, and within the aperture in said projection substantially as described.

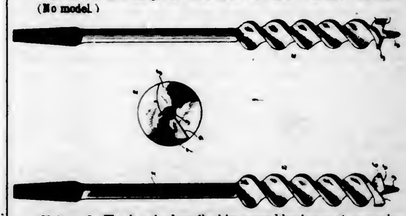
494,250. HORSESHOE. JOHN CURTIN, Elk Falls, Kans. Filed Nov. 12, 1892. Serial No. 451,779. (No model.)



Claim.—1. The combination with the shoe having the inwardly extended bars provided with the screws, of the frog plate provided with the slots adapted to engage said screws and having the cushion secured to it, substantially as described.

2. The horse shoe herein described, consisting of the side bars and upper and lower toe plates, said bars being pivoted between the plates; the latter secured to one another as described, the bars having the lugs on the upper face near the heel, and inwardly projecting bars having the screws; the frog plate provided with the slots, and the cushion, all substantially as described.

494,251. BIT. WILLIS DODGE, Blaine, Me., assignor of one-half to John H. Bubar, same place. Filed Feb. 16, 1892. Serial No. 421,724. (No model.)

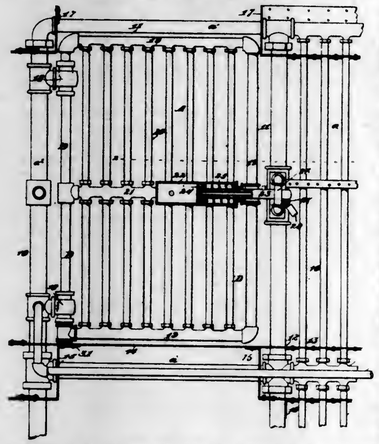


Claim.—1. The herein-described improved boring-tool, comprising the shank, spiral and screw, the said spiral terminating at opposite sides of the screw in cutting-edges, one of which inclines from the screw to its outer end, and the other of which declines from the screw toward its outer end, substantially as specified.

2. The herein-described improved boring tool, the same consist-

ing of the shank, a spiral and a screw, the spiral terminating at opposite sides of the screw in cutting edges, one of which inclines from the screw to its outer end and is slightly curved opposite to the direction of movement of the tool, and the other of which declines from the screw to its outer end, substantially as specified.

494,252. PRISON CAGE OR CELL. PAUL E. GLAPCKE, Cheyenne, Wyo. Filed Mar. 30, 1892. Serial No. 427,069. (No model.)



Claim.—1. In a prison cell, cage &c. a hollow wall or grating, consisting in a series of vertical and transverse connected pipes, means for supplying a fluid under pressure to the said tubular wall or grating, and an alarm operated by a reduction of pressure due to the breaking, leaking or opening of said wall or grating, substantially as set forth.

2. In a prison cell, cage &c., a hollow wall or grating, consisting in a series of connected pipes and having a door opening, a tubular keeper at one side of the opening and communicating with the said pipes, means for supplying a fluid under pressure to the said pipes and kesper, a door closing said opening and having a bolt to engage the keeper, and an alarm mechanism operated by a reduction of pressure in the wall or its keeper, substantially as set forth.

3. In a prison cell, cage &c., a hollow wall or grating, consisting in a series of connected pipes, and having a door opening, a hollow door formed of a series of connected pipes, means for supplying fluid under pressure to said door and hollow wall or grating, alarm mechanism connected with said wall and door and actuated by the breaking, or leaking of said pipes or opening of the door, substantially as set forth.

4. In a prison cell, cage &c., a hollow wall or grating formed of a series of connected tubes and having a door opening bounded by tubes, a hollow door for said opening, formed of connected pipes, and having a tubular or valved hinge connection with one of the pipes at said opening, a fluid pressure mechanism connected with the hollow wall and its door to fill the same with fluid under pressure and an alarm actuated by a diminution of pressure in said piping, substantially as set forth.

5. In the construction of prisons, a cage or cell constructed of a series of tubes arranged to admit of a circulation of water in them, a door of like construction and having tubular or valved hinges connecting it with the body of the structure, gages connected with the door and with the body of the structure, an alarm device, and an electric connection between the gages and the alarm, substantially as and for the purpose specified.

6. In the construction of prisons, a cell or cage the body of which comprises a series of tubes connected to admit of water circulating through them, a door of similar construction having a tubular or valved hinge connection with the body of the structure, a hydraulic bolt carried by the door, pressure gages connected with the door and with the body of the structure, an apparatus for creating water pressure also connected with the structure and with the door, an alarm mechanism, and an electric connection between the alarm mechanism and the gages, substantially as and for the purpose set forth.

7. The combination with a hollow or tubular door, closure, or grating having a tubular bolt-casing communicating with its interior, and a bolt provided at its inner end with a piston fitting said casing, of a fluid pressure mechanism for charging the door and the bolt casing with fluid under pressure; the fluid being adapted to project the bolt, a valve for exhausting the fluid to lessen the pressure and permit retraction of the bolt, and an alarm actuated by the escape of fluid from the closure or grating or its bolt case due to tampering with the tubular grating or its bolt casing, substantially as set forth.

8. The combination with a hollow or tubular door, closure, or grating having a tubular bolt casing communicating with its interior, and a tubular bolt closed at its outer end and provided at its inner open end with a piston fitting the casing, of a fluid pressure mechanism for charging the door, closure, or grating, the bolt casing and the bolt with fluid under pressure; the fluid being adapted to project the bolt, a valve for exhausting the fluid to lessen the pressure and permit retraction of the bolt, and an alarm actuated by escape of fluid from the door, closure, or grating, the bolt case, or bolt due to tampering therewith, substantially as set forth.

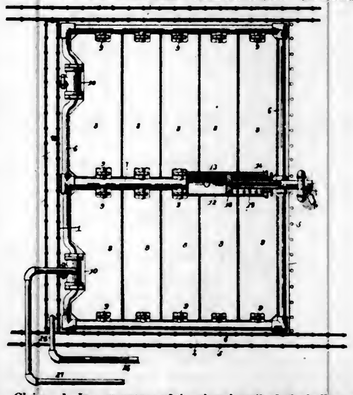
9. The combination with a hollow or tubular door, closure, or grating for cells &c, having a tubular bolt casing communicating with its interior, and a spring retracted bolt provided at its inner end with a piston fitting said casing, of a fluid pressure apparatus to charge the hollow or tubular closure or grating and project its bolt, a valve for exhausting the fluid to lessen the pressure in the bolt cylinder and permit the spring to retract the bolt when the closure or grating is to be opened by an authorized person, and an alarm operated by exhaust of fluid due to tampering with the closure or grating, substantially as set forth.

10. The combination with the tubular structure, and a fluid pressure apparatus connected therewith, of the gage indicating the pressure in said structure, and an alarm electrically connected with the said gage and actuated from its pointer axis or center pin, substantially as set forth.

11. The combination with the fluid pressure mechaniam, and the tubular structure charged therefrom, of a fluid pressure gage having a follower or arm on its pointer axis or pin, a contact piece in the gage casing and provided with a spindle extending to the outside of the casing and having a handle to move said piece into and out of the path of the follower or arm, an alarm, and the electrical connections, substantially as set forth.

12. The combination with a prison cell, cage &c., the walls of which are formed of connected pipes, of a supply pipe leading from the office or other suitable point to said pipes, a fluid pressure apparatus at the office end of the pipe to force a fluid therethrough into the walls, a valve in the pipe adjacent to said apparatus, a valved exhaust pipe leading from said supply pipe above its valve, a fluid pressure gage connected with said supply pipe above the said valves, electrical contact devices actuated from the pointer axis of the said gage, and an alarm electrically connected with said devices, substantially as set forth.

494,253. PRISON-CELL, SAFE, OR OTHER DEPOSITORY. PAUL E. GLAPCKE, Cheyenne, Wyo., assignor of one-half to Thomas A. Kent, same place. Filed Oct. 28, 1892. Serial No. 450,200. (No model.)



Claim.—1. In a structure of the class described, the hollow walls having a door-opening, a hollow door communicating therewith and hinged thereto, combined with means for supplying liquid under pressure to the walls and door, a diaphragm-valve connected with the liquid

supply means, and an alarm mechanism adapted to be operated by said diaphragm-valve, substantially as specified.

2. In a structure of the class described, the walls thereof, consisting of inner and outer plates forming intermediate spaces communicating with each other, a hollow door, hollow hinges communicating only with the intermediate spaces of the door and cell, means for supplying a fluid agent under pressure to the walls and door, and an alarm mechanism operated by a reduction of pressure in the walls or door, substantially as specified.

3. In a structure of the class described, the walls thereof consisting of inner and outer metal-plates, tie-bolts connecting the plates, flanged filling strips between the edges of the plates, rivets connecting the flanges and edges of the plates, means for supplying a fluid agent under pressure to the space between the plates, and an equaliser connected with the said supplying means, substantially as specified.

4. In a structure of the class described, the walls thereof consisting of inner and outer metal-plates, tie-bolts connecting the bolts, flanged filling-strips between the edges of the plates, rivets connecting the flanges and edges of the plates, means for supplying a fluid agent under pressure to the space between the plates, an equalizer connected with the said supplying means, and an alarm mechanism operated by a reduction of pressure in the walls, substantially as specified.

5. In a structure of the class described, the combination with the hollow walls and door, of pipes leading thereto, means for supplying a fluid agent under pressure to the pipes, means for drawing off the fluid from the pipes, tubes extending from the pipes, diaphragm-valves mounted on the tubes, a contact point on the upper side of the valve, a piston extending from the valve, a spring for depressing the piston, a contact-point carried by the piston, electrical conductors, alarm-bells connected therewith, and wires leading from the contact-points to said electrical conductors, substantially as specified.

6. In a structure of the class described, the combination with the hollow walls and door, of pipes leading thereto, means for supplying a fluid agent under pressure to the pipes, means for drawing off the fluid from the pipes, tubes extending from the pipes, diaphragm-valves mounted on the tubes, a ring swiveled on the valve and provided with a contact point and binding-post, a piston passing through the ring and valve and connected with the diaphragm, a spring for depressing the piston and valve, a ring mounted on the piston and provided with a binding-post and contact-point, electrical conductors, alarm-bells connected therewith, and wires leading from the conductors to the binding-posts of the ring, substantially as specified.

7. In a structure of the class described, the combination with the hollow walls and door, of the fluid agent supply-pipes leading thereto, means for forcing the agent through the pipes, diaphragm-valves connected with the pipes, alarm mechanism operated by the valves, and gages located on the pipes above the valves, substantially as specified.

8. In a structure of the class described, a door comprising a hollow frame and an intermediate filling of hollow boxes with connecting pipes arranged between the boxes and frame, and means for forcing fluid therein, substantially as specified.

494,254. MACHINE FOR STEMMING TOBACCO. MARY L. GUERRANT, Danville, Va., administratrix of John C. Guerrant, deceased, assignor to the Guerrant-Cable Tobacco Stemmer Company, same place. Filed Mar. 29, 1890. Serial No. 345,926. (No model.)

Claim.—1. The combination in a machine for stemming tobacco, of means for carrying the leaves along, means for seizing the stems of the leaves and means for tearing the leaf portions from the stems and delivering the same, substantially as described.

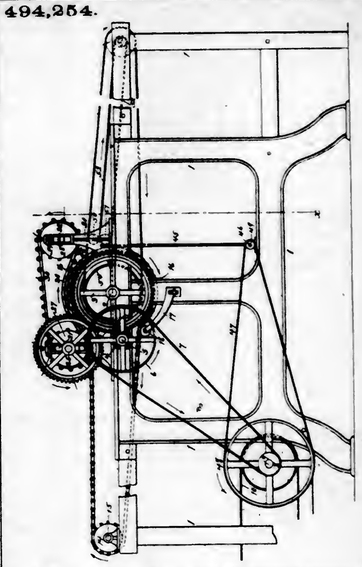
2. In a machine for stemming tobacco, the sprocket heads carrying serrated gripping blades, in combination with a series of guide fingers, and a series of gripping fingers, and mechanism for operating the same to seize and grip the ribs of the leaves, substantially as specified.

3. The combination in a machine for stemming tobacco, of a revolving shaft, heads carried by said shaft, fingers for holding up the leaf portions and between which the stems pass, and gripping devices acting to seize and hold the stems and mechanism for tearing the leaf portions from the stems and delivering the same, substantially as specified.

4. The combination in a machine for stemming tobacco, of a feeding belt, a revolving shaft, heads carried by said shaft, fingers for holding up the leaf portions and between which the stems pass, and gripping devices acting to seize and hold the stems and mechanism for tearing the leaf portions from the stems and delivering the same, substantially as specified.

5. The combination in a machine for stemming tobacco, of a revolving shaft, heads carried by said shaft, fingers for holding up the leaf portions and between which the stems pass and gripping devices acting to seize and hold the stems, and mechanism for tearing the leaf portions from the stems, and a delivery belt and roller, substantially as specified.

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6. The combination in a machine for stemming tobacco, of two feeding and carrying belts between which the leaves are received, means for seizing the stems of the leaves and means for tearing the leaf portions from the stems and delivering the same, substantially as specified.

7. The combination in a machine for stemming tobacco, of the carrying belt composed of rollers with connecting links at their ends, means for seizing the stems of the leaves, and means for tearing the leaf portions from the stems and delivering the same, substantially as specified.

8. The combination in a tobacco stemming machine of means for supplying the leaves, fingers upon which the leaf portions rest and between which the stems pass, hooking teeth for engaging and holding the stems and mechanism for tearing the leaf portions from the stems and delivering the same, substantially as specified.

9. The combination in a tobacco stemming machine of means for supplying the leaves, fingers upon which the leaf portions rest and between which the stems pass, hooking teeth for engaging and holding the stems, means for pressing the stems into the hooking teeth and mechanism for tearing the leaf portions from the stems and delivering the same, substantially as specified.

10. The combination in a machine for stemming tobacco, of two feeding belts composed of transverse rollers, the rollers in one belt coming between the rollers in the other belt, means for seizing the stems of the leaves and means for tearing the leaf portions from the stems and delivering the same, substantially as specified.

11. The combination in a tobacco stemming machine of feeding mechanism, a revolving shaft with sprocket heads, blades with hooking teeth, bars and fingers adjacent to the teeth, means for moving the bars and grasping the stems and mechanism for tearing the leaf portions from the stems, substantially as specified.

12. The combination with suitable feeding devices, of a series of grippers adapted to seize the stem of a tobacco leaf at different points along its length, and means for tearing the leaf from the stem while held by the grippers, substantially as and for the purpose specified.

13. In a machine for stripping the stems from tobacco leaves, the combination with mechanism for feeding the leaves, of grippers for seizing the stems and means for tearing the leaves from the stems, substantially as shown and described.

14. In a machine for stripping the stems from tobacco leaves, the combination with a feeding device, of revolvible heads, toothed bars connecting the heads, and grippers for forcing the stem into the spaces between the teeth of the bars, substantially as shown and described, for the purpose specified.

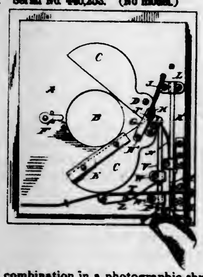
494,255. IMITATION MOTHER-OF-PEARL AND METHOD OF MAKING SAME. JACOB DE JONG, Jersey City, N. J. Filed June 6, 1892. Serial No. 436,734. (No specimens.)



Claim.—1. As an improved article of manufacture, an imitation of mother of pearl composed of a transparent sheet provided on one side with suitable adhesive material, suitable ornamental material adhering to the adhesive material, a covering of gold or silver leaf and tin foil secured together, substantially as set forth.

2. The art of making imitation of mother of pearl, which consists of taking a sheet of transparent material and covering it upon one side with adhesive material, decorating or ornamenting the sides so prepared in a suitable manner, as described, covering it with gold or silver leaf, varnishing the back of the foil when dry, and placing a sheet of tin foil and pressing and drying the parts together into a compact fold, substantially as and for the purpose described.

494,256. CAMERA-SHUTTER. WILLIAM H. LEWIS, Huntington, assignor to the E. & H. T. Anthony & Company, New York, N. Y. Filed July 16, 1892. Serial No. 440,253. (No model.)



Claim.—The combination in a photographic shutter of pivoted wings connected together so that movement of one will move the other, a projection upon one of the wings, a sliding bar provided with an elastic part such as a spring pawl adapted to engage with the said projection from one of the wings when moved in one direction, but to be deflected and pass over it when moved in the other direction, a spring which actuates said bar, means for varying the tension of said spring and means to hold the sliding bar against the stress of the spring, substantially as set forth.

494,257. PULLEY-ARM PATTERN. ORTON C. LITTLE, Menasha, Wis., assignor of one-half to Duncan T. H. MacKinnon, same place. Filed July 7, 1892. Serial No. 439,347. (No model.)



Claim.—1. A pulley arm pattern, tapering from its inner to the outer end thereof, its inner end having a concave opening and an eye, or handle therein, and within the circle of the hub for which the pattern of the pulley arm is fitted, for allowing said pattern to be grasped by the molder and drawn inward into the hub mold, substantially as described.

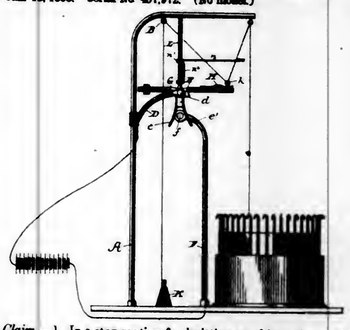
2. The combination with a pulley arm pattern, tapering from its inner to the outer end thereof, of a fillet mold around said outer end, having one side thereof fitted to the inner circle of the pulley rim to be molded and the hole therein fitted for a longitudinal movement upon said outer end of the arm pattern, said hole being flaring from near its inner to the outer end thereof, and the fillet mold thereby adapted to form a fillet around the arm in casting a pulley, at the meeting point of the pulley arm and rim, substantially as described.

3. A pulley arm pattern divided transversely thereof into two, or more sections, said sections being connected together with a hinge joint, and means in said connecting joint for permitting the sections to be separated, and for the sections to turn transversely of the pulley mold in a direction at nearly a right angle, one with the other, substantially as described.

4. A pulley arm pattern, tapering from its inner to the outer end thereof, and being divided transversely thereof, into two or more sections, said sections being connected together with a hinge, whereby the sections will turn transversely of the pulley mold and in a direction at nearly a right angle one with the other, and thereby to permit the several sections of said pattern to be drawn from their mold, through, and out of the hub mold, substantially as described.

5. A pulley arm pattern, divided transversely thereof into two or more sections, said sections being connected together with a joint, consisting of a slotted plate and a link, the link being movable in the slot of said plate for permitting the sections to be separated, and the plate being hinged to the link for permitting its section to turn transversely of the pulley mold, and in a direction at nearly a right angle with the adjoining section, substantially as described.

494,258. STOP-MOTION FOR KNITTING-MACHINES. GEORGE J. MADDERFIELD, Royersford, Pa., assignor of one-half to J. M. Levin, Samuel Levin, U. S. G. Finkbiner, and A. R. Saylor, same place. Filed Jan. 10, 1893. Serial No. 457,972. (No model.)



Claim.—1. In a stop motion for knitting machines, the combination with the fixed eyes B and C and the detachable eyelet A, said eyes and eyelet being arranged in different planes, of a vertically movable arm resting over said eyelet and the yarn passing therethrough, and adapted to rise with the yarn and exert a tension thereon when the eyelet is detached, substantially as described and for the purpose specified.

2. In a stop motion for knitting machines, the combination with a pivoted lever carrying a detachable eyelet and retained in its normal position by the yarn, and mechanism connected with said lever for closing an electric circuit upon an abnormal vibration of said lever of a vertically movable arm adapted to be raised by the yarn and exert a tension thereon by gravity to prevent the yarn from kinking or twisting, substantially as described.

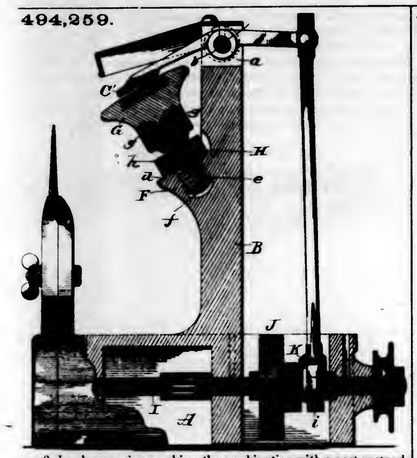
3. In a stop motion for knitting machines, the combination with a pivoted lever carrying a detachable eyelet and retained in its normal position by the yarn passing through said eyelet, and mechanism connected with said lever for closing an electric circuit upon an abnormal vibration of said lever, of a vertically movable arm loosely mounted upon a support and projecting over the yarn and eyelet, said arm being adapted to be raised by the yarn when the eyelet is detached and exert a tension by gravity thereon to prevent the yarn from kinking or twisting, substantially as described.

4. In a stop motion for knitting machines, the combination with a pivoted lever carrying a detachable eyelet and retained in its normal position by the yarn passing through said eyelet, and mechanism connected with said lever for closing an electric circuit upon an abnormal vibration of said lever, of the tension device consisting of the horizontal arm *n* bent to form loops *n'* and *n²* which loosely encircle a vertical rod L, said arm projecting over the yarn and said eyelet and adapted to rise with the yarn and exert a tension thereon when the eyelet is detached, substantially as described and for the purpose specified.

494,259. MACHINE FOR HAMMERING LEATHER. PETER W. MILLER, Springville, N. Y. Filed Aug. 13, 1892. Serial No. 443,086. (No model.)

Claim.—1. The combination with a post or standard, a bracket or enlargement projecting therefrom, a hammer and means for operating said hammer, of an anvil having a screwthreaded shank, for entering said bracket or enlargement, and means for securing said anvil at any desired adjustment relatively to the hammer, substantially as set forth.

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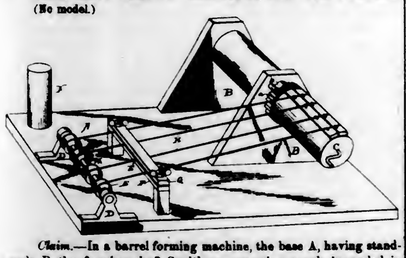
2. In a hammering machine, the combination with a post or standard, an enlargement having an inclined face and a screwthreaded socket, projecting from said post or standard, a hammer and means for operating the same, of an anvil, a screwthreaded shank projecting from said anvil and adapted to enter the screwthreaded socket in the enlargement, and a nut adapted to screw on said shank and bear against the inclined face of the enlargement to retain the anvil in any desired adjustment relatively to the hammer, substantially as set forth.

3. In a hammering machine, the combination with a post or standard, an enlargement having an inclined face and a screwthreaded socket, projecting from said post or standard, a hammer and means for operating said hammer, of an anvil having a socket or perforation for the reception of a tool whereby to turn it, and a nut adapted to screw on said shank and bear against the inclined face of the enlargement to retain the anvil in any desired adjustment relatively to the hammer, said nut having sockets for the reception of a tool whereby to turn it, substantially as set forth.

4. In a hammering machine, the combination with a hollow base, of a shaft mounted in said hollow base, a crank arm or eccentric carried by said shaft, a fly wheel also carried by the shaft, a standard, a lever carrying a hammer mounted in said standard, a pitman connecting said lever and crank arm or eccentric, and an adjustable anvil, constructed to screw into the standard, substantially as set forth.

5. In a hammering machine, the combination with a standard, and an anvil adjustably supported thereby, of a hammer adapted to act in conjunction with said anvil, means for operating said hammer, and a hood rigidly secured in place and projecting over and adapted to receive said hammer, substantially as set forth.

494,260. MACHINE FOR MAKING BARRELS. GOMER S. PASQUITH, Chase's Wharf, Va. Filed Dec. 22, 1891. Serial No. 415,858. (No model.)



Claim.—In a barrel forming machine, the base A, having standards B, the forming shaft C with an operating crank journaled in said standards, so as to leave one end of the shaft free for the removal of the finished barrel, in combination with the wire holding spools E mounted on a shaft M journaled in the standards D, the tension device F, G through which the wires pass, the ratchet wheel *a*, and gravitating pawl *b*, whereby the backward motion of the forming shaft is prevented, substantially as specified.

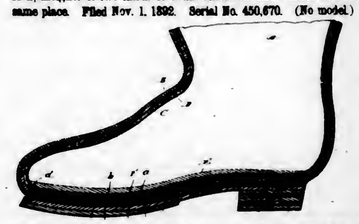
494,261. TOY PARACHUTE. GEORGE F. PERKINS, Kenton, Ohio. Filed May 27, 1892. Serial No. 434,542. (No model.)



Claim.—1. In a toy of the character set forth, the combination of an automatically opening receptacle consisting of two sections connected to each other and adapted to be impelled through the air, a yielding cord or spring connecting said sections, an elastic cord extending transversely across the upper portions of said sections and a parachute connected to said sections and adapted to be inclosed or confined therein against the action of the elastic cords, substantially as described.

2. In a toy of the character set forth, the combination of a containing receptacle consisting of two sections hinged to each other, a weighted cord attached to the hinged portions of said sections, a yielding or spring cord extending across from one section to the other, an elastic cord extending transversely across the upper portions of each of said sections, a parachute secured to both of said sections and adapted to be confined therein against the repelling action of the said elastic cords, and an impelling cord attached to one of said sections, substantially as described.

494,262. RUBBER BOOT. BENJAMIN A. PICKERING, Woonsocket, R. I., assignor of two-thirds to John Shambow and Parker J. Burton, same place. Filed Nov. 1, 1892. Serial No. 450,670. (No model.)

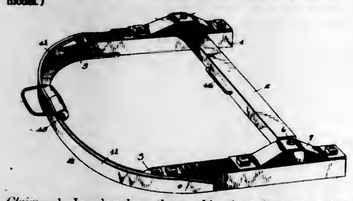


Claim.—1. The improved boot herein described, comprising the top sole, the insole E, the leg and foot lining C, lapped over upon and connected to the under side of the insole, the filling sole F, connected to the insole and resting between the lapped edges of the lining C, the vamp lining D, lapped over upon and connected to the under side of the filling sole F, the filling sole G, interposed between the lapped edges of the lining D—, and connected to the under side of the sole F, the vamp B, having its edges lapped and connected, and the canvas sole H, of a greater length and width than the soles E, F, G, connected to the under side of the sole G, the whole being vulcanized into a homogeneous mass, substantially as and for the purpose set forth.

2. The improved boot herein described, comprising the insole E, the leg and foot lining C, lapped over upon and connected to the under side of the insole, the filling sole F, interposed between the lapped edges of the lining C, and also connected to the under side of the insole, the vamp lining D, lapped over upon and connected to the underside of the filling sole F, the filling sole G, interposed between the lapped edges of the lining D, and connected to the under side of the filling sole F, the vamp B, having its edges lapped and connected, the

canvas sole H, of a greater length and width than the soles E, F, G, connected to the under side of the sole G, the top sole I, and nails connecting said top sole to the boot; the said nails extending through the canvas sole H, the lapped edges of the linings C, D, and the vamp B, and the insole E, and serving to strengthen the connection of the same, substantially as and for the purpose specified.

494,263. LOG-DRAY. CHARLES W. REICHERT and GEORGE J. REICHERT, Kennan, Wis. Filed Dec. 27, 1892. Serial No. 456,392. (No model.)

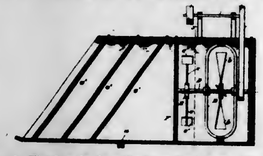


Claim.—1. In a log dray, the combination of a bunk or bolster, opposite runners loosely connected with the ends of the bunk or bolster and adapted to rock, and a nose composed of two sections having their rear ends secured to the front ends of the runners and having their front adjacent ends pivotally connected together, substantially as described.

2. In a log dray, the combination of a bunk or bolster, opposite runners loosely connected to the ends of the bunk or bolster and adapted to rock, and a nose composed of two sections L-shaped in cross-section and secured to the runners and provided at their front ends with opposed perforated lugs, and a pivot pin passing through the perforations of the lugs and pivotally connecting the sections of the nose together, substantially as described.

3. In a log dray, the combination of opposite runners having their front ends tapered and provided near their rear ends with vertical pins, a bunk or bolster having enlarged openings receiving the pins to permit the runners to have a yielding or rocking movement, braces arched over the ends of the bunk or bolster and securing the latter to the runners, the nose composed of two sections L-shaped in cross-section and receiving the tapered ends of the runners and secured to the same and provided at their front ends with opposed perforated lugs, a pivot pin passing through the lugs and an approximately U-shaped guide provided at its ends with eyes receiving the pivot pin, substantially as described.

494,264. VENTILATING MECHANISM. JAMES M. SEYMOUR, Jr., Newark, N. J. Filed May 25, 1892. Serial No. 434,333. (No model.)



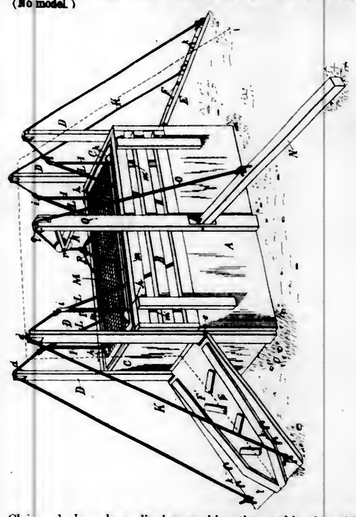
Claim.—1. The herein described ventilating mechanism, consisting of a casing, a fan or blower arranged therein for the purpose of creating a current of air through the casing, a revolving wheel also within the casing, a series of one or more nozzles for directing jets of water against the wheel which revolves in a direction reversely to the direction of motion of the water jets so that the revolving wheel will strike said jets and produce a thin spray or mist through which the air will be forced by the fan, substantially as described

2. As an improvement in ventilating mechanism, the combination of suction or blast fans suitably arranged for creating a current of air and mechanical devices for providing a thin spray of water or mist through which said air will be forced, said devices consisting of a series of one or more water nozzles and a moving wheel revolving in a direction the reverse of the direction of motion of the water jets so that the jets will be struck by the wheel and dashed into spray, substantially as described.

3. In a ventilating mechanism, the combination of the casing A, fan B therein, the mechanism for actuating it, a water wheel having the paddles c', said wheel being located upon the shaft of fan B, a series of one or more water jets arranged in connection with the water wheel, which wheel revolves in a direction reverse to the direction of motion of the water, a screen L at one end of the casing, a screen F contiguous to the water wheel and screens at the other end of the casing, all arranged substantially as described.

4. In a ventilating mechanism, a series of water jets or nozzles arranged tangentially to the water wheel, in combination with said wheel which rotates in a direction opposite to the direction of motion of said jets of water so that the latter may be struck and converted into a thin spray or mist through which the air may be passed for the purpose of purification, moistening and cooling, substantially as described.

494,265. SHEEP-DIPPER. EDWARD A. SIEKER and ADOLPH H. SCHMIDT, Brownwood, Tex. Filed Oct. 10, 1892. Serial No. 448,405. (No model.)



Claim.—1. In a sheep dipping machine, the combination with a vat of a vertically movable cage or elevator, hinged counterbalancing gangways or platforms connected to the cage or elevator and means for elevating the latter, substantially as specified.

2. In a sheep dipping machine, the combination of a cage or elevator, the counterbalancing gangways or platforms connected to the cage or elevator and arranged to slightly over balance the same, and a movable lid fitting over the cage or elevator and adapted, when added to the weight of the latter to over balance the gangways or platforms, substantially as specified.

3. In a sheep dipping machine, the combination of a cage or elevator, provided with uprights, a lid mounted to slide upon said uprights to cover the cage or elevator, the gangways or platforms connected by cables to the uprights upon the cage or elevator, and the operating lever connected to the lid, substantially as specified.

4. In a sheep dipping machine, the combination with the vat, of a cage or elevator adapted to move vertically therein, means to operate the same, and hinged gangways or platforms connected at their free ends, by cables, to the cage or elevator, one of said gangways being provided with transverse strips to form means to enable the sheep to ascend, and the other being provided with convergent, concentrating ribs, leading to an escape-hole, substantially as specified.

5. In a sheep dipping machine, the combination with the vat provided with side guards and vertical standards, of a cage or elevator provided with uprights, a lid mounted to slide upon said uprights, end-gates to close the ends of the vat between the side-guards, the hinged gangways or platforms, the connecting cables attached to the uprights upon the cage and connected to staples upon the gangways, and the operating lever connected to the lid, substantially as specified.

494,266. BUSH-HAMMER. EMILE T. VIETT, Charleston, S. C. Filed Nov. 17, 1892. Serial No. 452,341. (No model.)

Claim.—1. The combination with a sectional head having transverse sockets formed in the sections of the head, said sockets corresponding in shape and one forming a complement of the other when the sections are together and the socket formed thereby having wide and narrow portion, of blade or blades constructed at the center to conform to and fit in the socket, the blade and sections of the head having aligned holes adapted to receive a bolt or similar device by which the sections of the head and blade or blades are held together, substantially as set forth.



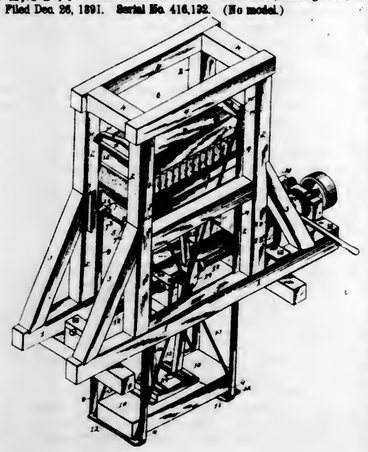
2. The combination with a sectional head having a pair of sockets formed therein, one for a blade or cutter and the other for a handle, the socket for the handle being T-shaped, of a cutter handle having a T-shaped inner end adapted to enter the T-shaped socket, and a bolt passed through the head and blade for holding the head, blade and handle securely together, substantially as set forth.

3. The combination with a head formed in sections each section having two sockets therein each forming a complement of the other when the sections are together, and one socket extending at right angles to the other, of a cutter adapted to be held in one socket, a handle in the other, and a bolt passed through the head and cutter for holding the parts together, substantially as set forth.

4. The combination with a sectional head having a socket for a handle and a socket for a blade or cutter, the socket for the handle being enlarged at its lower end, of a handle having a T-shaped plate secured in its lower or inner end the short member of said plate adapted to rest within the enlargement of the socket and a ring embracing said socket for locking the parts together, substantially as set forth.

5. The combination with a sectional head having a handle socket and a blade socket, the latter having shoulders as described, of the blade, handle, angular bolt passing through the sections of the head and blade and locked by a nut and a ring embracing the handle socket, substantially as set forth.

494,267. BALING-PRESS. CARLOS G. WILSON, Milledgeville, Ga. Filed Dec. 26, 1891. Serial No. 416,132. (No model.)



Claim.—1. The combination of the upper follower 8 lower cross-head 10, draft connections 9 and diagonal tie-rods 13, by which the upper follower and the lower cross head are secured together and toggle bars for imparting vertical movement to said cross-head and follower, as explained.

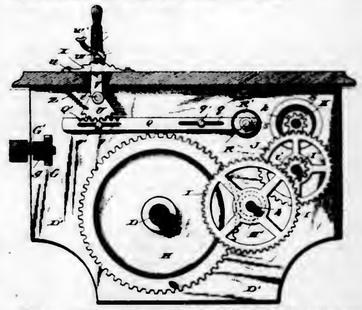
2. The combination of the frame 1, 2, 3 the followers 7, 8, guided thereon, rollers 16, vertical guides 17, lower cross-head 10, vertical connections 9 and diagonal ties 13, between said cross-head and the upper follower 8, driving screw 18, and toggle-bars 21, 22, for imparting movement to the followers from the driving screw 18, as explained.

3. The combination of the lower cross-head 10, upper follower 8, connecting straps 9, bearing blocks 11, and bolsters 12, substantially as described.

4. The combination of the upper follower 8, lower cross head 10, diagonal tie-rods 13, extending from the follower to the cross head and angle-washers 14 and nuts 15, by which said tie-rods are secured to the follower, and cross-head as explained.

5. The improved screw and toggle-joint baling-press constructed substantially as herein described with horizontal driving right and left screw 18, right and left nuts 19 and 20 thereon, the lower and upper followers 7, 8, lower cross head 10 the toggle bars 21 and 22, the draft-connections 9, and diagonal ties 13 between said upper follower and lower cross-head, and rollers 16, and vertical guides 17 by which the follower 7 is confined to a vertical path; as and for the purpose explained.

494,268. MACHINE-BRAKE. ADOLPH BOULTE, Abilene, Tex. Filed July 2, 1892. Serial No. 438,744. (No model.)



Claim.—1. The combination with the fly wheel of a spring motor, of a longitudinally movable brake arm a brake wheel carried thereby, and means, including a toothed segment and rack, for reciprocating the brake arm, as set forth.

2. The combination with the fly wheel of a spring motor, and a gear wheel thereon, of a longitudinally movable brake arm carrying a wheel to engage the fly wheel and a projection to engage the said gear wheel, as set forth.

3. The combination with the fly wheel of a spring motor, of a gear wheel carried thereby, a longitudinally movable brake arm provided at one end with a projection and a rubber wheel, means for moving the brake arm in one direction, and a spring for moving it in the opposite direction, substantially as specified.

494,269. COMBINED HAT AND CLOTHES RACK. ABRAHAM L. COFFEY, Leroy, Ill. Filed Sept. 29, 1892. Serial No. 447,256. (No model.)



Claim.—1. In a hat and garment hook, the combination of a hook proper having an opening through the upper portion thereof, a slide mounted on the upper portion of the said hook and a supplemental slide, adjustably mounted on the said hook and having an overhanging upper portion and a lower forwardly-projecting part, substantially as described.

2. In a hat and garment hook, the combination of a hook proper constructed of wire, a slide mounted on the upper portion of the said

hook and a supplemental slide mounted below the aforesaid slide and consisting of a wire frame having an upper overhanging portion and a lower forwardly-projecting part, substantially as described.

3. In a hat and garment hook, the combination of a stationary hook having a lower outwardly extending arm in a substantial horizontal plane, and a vertical stem extending upward therefrom, a slide mounted on the upper portion of said stem and a supplemental slide mounted on said stem below the aforesaid slide and at a plane at right angles to the plane of the aforesaid outwardly-extending arm, said slide being adjustable on the stem to and from the said arm, substantially as described.

4. In a hat and garment hook, the combination of a stationary hook having a lower outwardly-extending arm in a substantially horizontal plane, and a vertical stem rising therefrom in rear thereof, a slide applied to the back of said stem and having a stop in connection with the lower end thereof provided with an embracing portion mounted on said stem, and a supplemental slide mounted on said stem below the said stop of the aforesaid slide and comprising an outwardly-bent lower end and an upper broadened extended portion to form a lip overhanging the said outwardly-bent lower end, and said parts of the supplemental slide having rearwardly-extending ears embracing the said stem or shank, substantially as described.

494,270. EXTENSION-LADDER. ISAAC T. CROSS, Watertown, N. Y., assignor of one-half to Victor F. Thomas, same place. Filed Sept. 9, 1892. Serial No. 445,294. (No model.)



Claim.—In an extension ladder the combination of a section having rungs arranged in pairs attached to opposite sides of uprights or supports, a movable section adapted to slide in and out between the said rungs and uprights, and a holding latch pivoted to the lower section above and adjacent to one of the rungs of the lower section and comprising a frame with straight holding sides adapted to extend across to the opposite rung of the pair, and form a support for a rung of the upper section when extended, and which is turned up to a position parallel with the supports or sides of the ladder when the upper section is being lowered substantially as described.

494,271. FLUTED OR GROOVED DRAWING-ROLL. JOHN DODD, Oldham, England. Filed Jan. 23, 1892. Serial No. 418,978. (No model.) Patented in England Sept. 23, 1889, No. 15,276.

Brief.—To prevent the top roll from becoming fluted the flutes of the lower roll are arranged in sections, in which the flutes are of different pitch or different variations of pitch.



Claim.—1. A grooved or fluted drawing roller the circumference of which is divided into sections or groups of flutes or grooves, and the flutes or grooves of one of which sections or groups are of different pitch from those of the other of said sections or groups, substantially as herein set forth.

2. A grooved or fluted drawing roller the circumference of which is divided into sections or groups of flutes or grooves and the flutes or grooves of certain of which sections or groups are of a different pitch from those of the adjacent section or group, substantially as and for the purpose herein set forth.

3. A grooved or fluted drawing roller the circumference of which is divided into sections or groups of flutes or grooves the flutes or grooves in each of said sections or groups being of a different varied pitch, substantially as herein set forth.

4. A grooved or fluted drawing roller the circumference of which is divided into sections or groups of flutes or grooves, the flutes or grooves in each of said sections or groups being of varied pitch and the variation of pitch in each of said sections differing from the variation of pitch in the other sections, substantially as herein set forth.

494,272. SMOKE-CONSUMING FURNACE. MAX FRICKE, New York, N. Y. Filed Nov. 28, 1892. Serial No. 453,316. (No model.)

Claim.—1. The combination in a furnace, of a fire bridge in rear of the fire chamber, a plate arranged across the furnace in rear of the fire bridge, two longitudinal partitions dividing the space in rear of said plate into a middle flue or passage and two side flues or passages, the said middle flue or passage being in communication above the said plate and the fire bridge with the fire chamber and also in communication with the outlet passage to the chimney and the two side flues or passages communicating through openings in the said plate with the space between the said plate and the fire bridge and having air inlets at their rear ends, substantially as and for the purpose herein set forth.



2. In a boiler furnace, the combination with the fire grate and the fire bridge in rear thereof, of the plate E transversely arranged behind the fire bridge and having openings *a a* in its lower corners, and the longitudinal diagonal partitions H H behind the said transversely arranged plate, said partitions consisting of separate plates resting upon the base of the furnace and leaning against the side walls thereof and forming with the walls and base of the furnace air-passages in communication with the space between the fire bridge and said transversely arranged plate, all substantially as herein set forth.

3. The combination with the fire bridge, the transverse plate E in rear thereof, and the longitudinal diagonal partition plates H H in rear of said transverse plate E dividing the space in rear of said plate E into a central passage I for the gaseous products of combustion and side passages J J for incoming air, of the cords i i of asbestus fiber attached to the said partition plates H H within said passage I, substantially as and for the purpose herein set forth.

494,273. WATCH-HOLDER. RUDOLPH FUCHS, New York, N. Y. Filed Dec. 6, 1892. Serial No. 454,243. (No model.)



Claim.—1. A casing having an open slot extending from the top to the bottom of one side thereof, a nose or abutment formed upon the interior wall of the side of the casing opposite the slot, means for securing the casing to its support, and a catch having a retaining piece thereon adapted to engage the said nose or abutment when the retaining piece is inserted within the casing, substantially as set forth.

2. A casing having an open slot extending from the top to the bottom of one side thereof, a nose or abutment upon the interior wall of the side opposite the slot and near its top, the said side opposite the slot having its bottom portion approaching the side having the slot so as to form a reduced space between the said sides, means for securing the casing to its support, and a catch having a retaining piece thereon adapted to enter the casing and engage the said nose or abutment to lock the catch from withdrawal in one direction, the inclined bottom portion of the casing preventing the unintentional withdrawal of the retaining piece in the opposite direction, substantially as set forth.

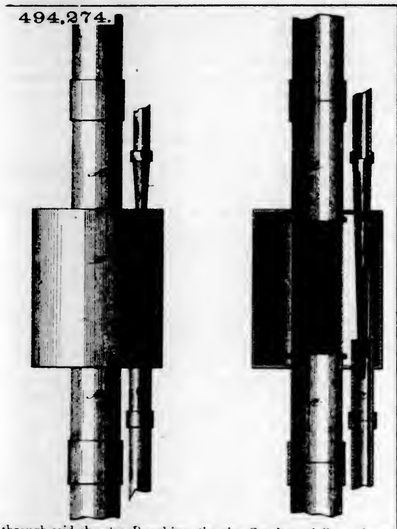
3. A casing having an open slot extending from top to bottom of one side thereof and an interior nose or abutment in the casing, means for securing the casing to its support, and a catch consisting of an eye piece having a shank adapted to slide along the slot and a spring retaining piece secured to the shank and adapted to enter the casing, the said retaining piece consisting of two upwardly extending branches diverging from each other and adapted to spring past the nose or abutment when the retaining piece is forced into the casing and serving to prevent the withdrawal of the catch in one direction, substantially as set forth.

494,274. PNEUMATIC CONVEYER. HENRY C. KELLY, Jr., Chicago, Ill. Filed Dec. 12, 1891. Serial No. 414,779. (No model.)

Claim.—1. In a pneumatic conveyer, the combination of a chamber D, a pipe A of substantially uniform diameter extending in a substantially straight line through and being foraminous within said chamber, a pipe C leading from said chamber at one side of said pipe A, and a steam nozzle B entering said pipe C and directed away from said chamber D, substantially as shown and described.

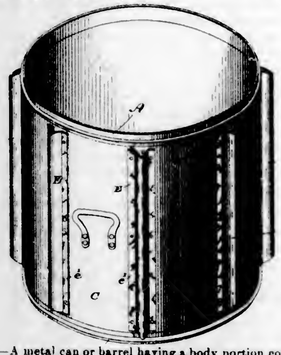
2. In a pneumatic conveyer, the combination of a chamber D, a pipe A of substantially uniform diameter extending in a substantially straight line through and being foraminous within said chamber, a pipe C leading from said chamber, and a steam nozzle B extending

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through said chamber D and into the pipe C, substantially as shown and described.

494,275. METAL BARREL. JOHN L. KIRBY, Cambridge, assignor to the Dover Stamping Company, Boston, Mass. Filed Apr. 28, 1892. Serial No. 430,963. (No model.)



Claim.—A metal can or barrel having a body portion consisting of a cylindrical shell of thin metal continuous throughout to present a smooth interior, said shell being provided on its outside with a series of longitudinal, hollow, reinforcing and protecting metallic ribs formed separate from the body of the barrel and provided on both sides with lateral flanges, said ribs being secured in place by rivets passing through said flanges and the said shell.

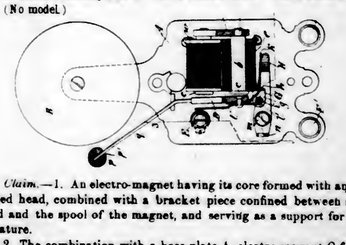
494,276. VIOLIN. CHARLES C. KNOPF, Newark, N. J. Filed Aug. 4, 1892. Serial No. 442,106. (No model.)

Claim.—1. The improved violin, or like instrument, combining therein the body *a*, bridge *b*, and stud *c*, and a tension bar and pressure head bearing on the said body on the side thereof opposite the bridge, substantially as herein set forth.

2. In combination with a violin or similar instrument, a removable tension bar and pressure head arranged at the back of said violin substantially as and for the purposes set forth.

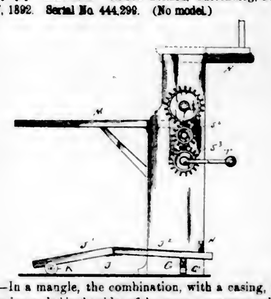
3. In combination, a tension bar having arms adapted to engage the upper side or front of the instrument and having a portion between said arms to extend transversely across the back of the instrument and a pressure head arranged and adapted to engage the said back of the instrument at or near the stud or post, *c*, thereof, substantially as set forth.

4. In combination, the bar, *d*, having arms *d'*, *d'*, and the pressure head having an adjusting screw by means of which the pressure may be varied substantially as set forth.



5. In combination with the violin, or like instrument, a back bar having a pressure head and its adjusting screw, said bar being separable from said violin substantially as and for the purposes set forth.

494,277. MANGLE. ASTON LORENZ, Guttenberg, N. J. Filed Aug. 27, 1892. Serial No. 444,299. (No model.)



Claim.—In a mangle, the combination, with a casing, of a supporting roller journaled in the sides of the same, a pressure-roller above the supporting roller, which pressure roller is mounted at its ends in slides at the sides of the casing, a cross-bar uniting the said slides, a lever mounted in the casing lengthwise and projecting from one side of the same, a rod connecting the cross-bar uniting the slides with the said lever, an abutment for a foot-lever projecting from the side of the casing, a foot-lever composed of two sections hinged together at the bottom and provided with rollers at its outer end, and gearing for rotating the rollers, substantially as set forth.

494,278. ELECTRIC BELL. FREDERICK W. MANGER and OTTO H. HUEBEL, Brooklyn, N. Y. Filed June 8, 1892. Serial No. 436,016. (No model.)

Claim.—1. An electro-magnet having its core formed with an enlarged head, combined with a bracket piece confined between said head and the spool of the magnet, and serving as a support for the armature.

2. The combination with a base-plate A, electro-magnet C fixed thereto, and its armature D, of a bracket piece G for supporting the armature formed with an opening *f* embracing one of the magnet cores, and with a foot *j* resting against the base-plate.

3. An electro-magnet having an enlarged head on one of its cores, combined with a bracket piece G applied on said core and confined between said head and the spool of the magnet, and formed with projecting ears adapted to support the armature.

4. The combination of an electro-magnet C having an enlarged head on one of its cores, a bracket-piece G applied on said core and confined between its head and the spool of the magnet, formed with perforated ears *g g*, armature D having a metal plate fastened to it, and rolled at *l* to form an eye, and a pintle *i* passing through said perforated ears and eye to form a hinge connection for the armature.

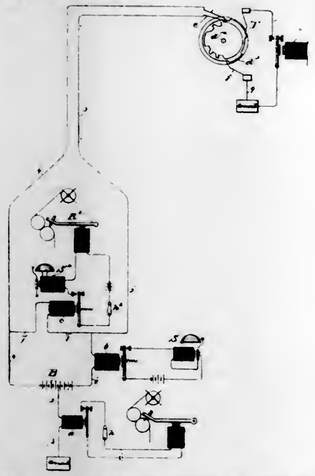
5. The combination with an electro-magnet and its armature, of a retracting spring consisting of a leaf fastened to and projecting from the armature, combined with a movable adjusting piece against which said spring bears, frictionally attached to the base-plate and movable thereon at will to vary the tension of the retracting spring.

6. The combination with an electro-magnet and armature and its retracting spring *k*, of an adjusting piece H in frictional contact with the base-plate, and a fastening screw *m* for attaching it thereto, whereby said plate H may be displaced around said screw as a pivot to vary the adjustment of said retracting spring.

7. The combination with an electro-magnet and a retracting spring for its armature, of an adjusting piece H consisting of a metal plate pivotally connected to the base-plate and held frictionally thereagainst, and having its opposite ends turned up to facilitate its displacement to adjust the tension of said spring.

8. In an electric bell or analogous electric instrument, the combination with the base-plate of an insulated post or standard and a fastening therefor consisting of a fastening screw passing through the base-plate and engaging the post, an angular metal washer under the head of said screw, and an angular recess in the base-plate engaging opposite sides of said angular washer through the medium of an insulating washer, whereby the turning of said metal washer as the screw is tightened is prevented.

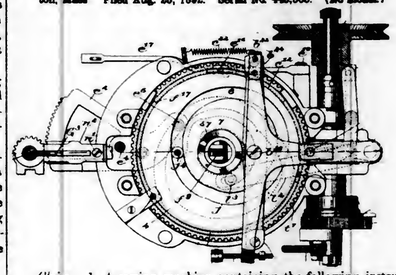
494,279. CIRCUIT OF ELECTRIC SIGNALING. MORRIS MARTIN, Malden, Mass., assignor, by direct and mesne assignments, to the United States Electric Fire Signal Company, of Maine. Filed July 14, 1890. Serial No. 358,632. (No model.)



Claim.—1. A circuit for electric transmission comprising a main metallic line connecting the receiving and transmitting stations and having a battery included therein, a receiving instrument in a branch of said main line and normally shunted thereby while the said main line is closed and intact; a ground branch and receiving instrument therein at the receiving station connected with an intermediate portion of said battery and a transmitting instrument comprising a break wheel or movable signaling surface and contacts co-operating therewith connected with the portions of the main line extending to the opposite terminals of the main battery and with the ground; and a normally open ground branch as 10, and transmitting instrument therein by which messages may be sent to the receiving instrument in the ground branch at the receiving station independent of those sent by the break wheel, substantially as described.

2. A circuit for electric transmission comprising a main metallic line connecting the receiving and transmitting stations and having a battery included therein; a receiving instrument in a branch of said main line, and normally shunted thereby while said main line is closed and intact; and a ground branch and receiving instrument therein at the receiving station, connected with an intermediate portion of said battery, and a transmitting instrument comprising a break wheel or a movable signaling surface, and contacts co-operating therewith connected with the portions of the main line extending to the opposite terminals of the main battery and a contact connected with the ground, substantially as described.

494,280. BUTTONHOLE SEWING-MACHINE. JOHN REECE, Boston, Mass. Filed Aug. 23, 1892. Serial No. 443,885. (No model.)



Claim.—1. A sewing machine containing the following instrumentalities, viz;—a clamp frame, and a stitch frame, one relatively movable with relation to the other; a manually controlled starting device; a work-clamp; and devices to automatically close the work-clamp after the machine has been started by the manually controlled starting-device preparatory to the making of a button-hole, substantially as described.

2. A sewing machine containing the following instrumentalities, viz;—a clamp-frame, and a stitch-frame, one relatively movable with relation to the other; a manually controlled starting device; a work-clamp; devices to automatically close the work-clamp after the machine has been started preparatory to the making of a button-hole, and button-hole cutting mechanism to automatically cut the material in the work-clamp preparatory to the stitching of a button-hole, substantially as described.

3. A sewing machine containing the following instrumentalities—viz;—a clamp-frame and a stitch-frame, one relatively movable with relation to the other; a manually controlled starting device; a work-clamp; devices to automatically close the work-clamp after the machine has been started preparatory to the making of a button-hole; button-hole cutting mechanism to automatically cut the material in the work-clamp preparatory to the stitching of a button-hole; and mechanism to automatically spread the cut button-hole, substantially as described.

4. In a sewing machine the following instrumentalities, viz;—a clamp-frame and a stitch-frame, one relatively movable with relation to the other; stitch forming mechanism; a manually controlled starting device; a work-clamp; devices to automatically close the work-clamp after the machine has been started preparatory to the stitching of a button-hole; and devices to automatically open said work-clamp at the completion of a button hole, substantially as described.

5. In a sewing machine the following instrumentalities, viz;—a clamp-frame and a stitch-frame, one relatively movable with relation to the other; stitch forming mechanism; a manually controlled starting device; a work-clamp; devices to automatically close the work-clamp after the machine has been started preparatory to the stitching of a button-hole; devices to automatically open said work-clamp at the completion of a button-hole; and devices to automatically stop the machine at the completion of each button-hole, substantially as described.

6. In a button-hole sewing machine, a stitch frame a clamp frame, stitch forming mechanism, a work-clamp, a cam device to change the relative positions of the said frames during the stitching of a button-hole, and button-hole cutting mechanism, combined with actuating mechanism for said cam device, and with devices to rotate the said actuating mechanism and cam device at times continuously and at other times intermittingly, substantially as described.

7. A stitch frame; a clamp frame; and a cam device to effect the relative changes of position of said frames during the stitching of a button-hole, combined with an actuating device for said cam device, and two clutch pulleys and cams, and devices controlled thereby to automatically determine which of said pulleys shall move the said actuating mechanism and cam device, substantially as described.

8. A stitch-frame; a clamp-frame; and a cam device to effect the relative changes of position of said frames during the stitching of a button-hole; combined with an acteating device for said cam device; and two clutch pulleys each having a continuously rotating part, and cams, and devices controlled by said cams, whereby the said actuating device may be automatically put under the control of either of the said clutch pulleys and rotate the said actuating device at a high speed or at a slower speed, substantially as described.

9. The work-clamp, combined with a starting device located between the upper and lower members thereof and adapted to be actuated as the material is put into the said clamp, substantially as described.

10. The work-clamp, combined with a starting lever occupying a position to cross a line coincident with the length of the button-hole, substantially as described.

11. A button-hole sewing-machine containing stitch-forming mechanism, a work-clamp, and a throat plate, adapted to over stitch the side edges and eye end of a button-hole with radiating stitches, and cutting mechanism, combined with a manually controlled starting device, to start the machine, and devices to thereafter automatically start the different parts, to effect first the automatic closing of the work clamp and then the cutting of the button hole and the stitching thereof, substantially as described.

12. In a machine for sewing button-holes, a stitch-frame, a clamp-frame, a work-clamp, stitch-forming mechanism comprising an eye-pointed needle located above the material, a complemental stitch-forming device located below the material and both rotatable substantially in unison about a common center when stitching the eye of the button-hole by radiating stitches, a cam device to change the relative positions of the said frames during the operation of stitching a button-hole, a manually controlled starting device to start the machine; and devices to thereafter automatically close the work clamp to clamp the material, substantially as described.

13. In a machine for sewing button-holes, a stitch-frame, a clamp-frame, a work-clamp, stitch forming mechanism comprising an eye-pointed needle located above the material, a complemental stitch-forming device located below the material and both rotatable substantially in unison about a common center when stitching the eye of the button-hole by radiating stitches, button-hole cutting mechanism, a cam device to change the relative positions of the said frames during the operation of stitching a button-hole, devices for automatically closing the work clamp, and devices to close the cutting mechanism, combined with a manually controlled starting device whereby the movement of the said starting device manually starts in motion the device for automatically closing the work-clamp, and causes the button-hole cutting mechanism to be actuated, substantially as described.

14. The combination with a work-clamp, a starting device to start the machine; devices to automatically close the work-clamp, a clutch mechanism, and intermediate devices to effect the engagement of the clutch, of a restoring device to automatically restore the starting device to its normal position, substantially as described.

15. The worm shaft, the cam device having worm teeth, a ratchet wheel at one end of the worm shaft, the main shaft a^3, a clutch pulley normally loose thereon, and devices between said main shaft and said ratchet wheel to rotate the worm shaft, combined with a clutch pulley loose at the opposite end of said worm shaft, a co-operating clutch member fast on said shaft, devices to couple one of said clutch pulleys operatively to the shaft on which it is mounted and to simultaneously unclutch the other pulley, substantially as described.

16. The lever b^{32}, the shaft b^{34}, a pulley normally loose thereon, clutch parts carried by said pulley and said shaft, connections between said loose pulley and said lever, a bar as c^{30}, and a spring c^{31}, combined with a starting lever co-operating with said bar, to operate, substantially as described.

17. A work clamp, a lever as c^{17}, connections between it and the said work-clamp, and a cam, combined with a slide rod actuated by said cam and moving the said lever to close the work-clamp automatically, substantially as described.

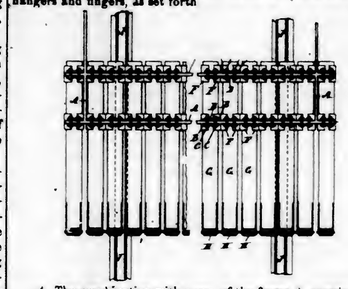
18. A work-clamp, a lever as c^{17}, connections between it and the said work-clamp, and a cam, combined with a slide rod actuated by said cam and moving the said lever to close the work-clamp automatically, and an adjusting device to close the work-clamp more or less, substantially as described.

494,281. ELECTRIC-CAR FENDER. EDWIN ROCHESTER, Ottawa, Canada. Filed Oct. 18, 1892. Serial No. 449,236. (No model.)

Claim.—1. The combination with a car of a projecting platform composed of a series of yielding fingers G, pivotally secured to hangers E, flexibly attached to the car or frame A, whereby more or less of said fingers swing and the fingers hung thereto yield and rise when meeting an obstruction to diminish the impact, and pass over the obstruction when unable to remove it, to prevent injury.

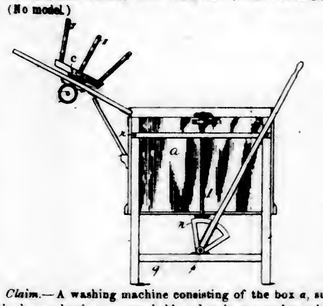
2. The combination with a car, of a row of hangers E, suspended at the end of said car, and a platform composed of fingers G, attached to the lower end of said hangers and extending inclinedly below said car and forwardly from the end, and springs at the intersection of said hangers and fingers, whereby said hangers swing and more or less of the fingers yield to an obstruction and rise, as set forth.

3. The combination with a car having a frame A, secured thereto at the end, of a row or rows of hangers E, hung from said frame to swing in the direction of the path of the car, a platform composed of fingers G, supported by said hangers, said fingers projecting beyond the end of the car and inclining downwardly to near the ground, and springs K, interposed at the angle of intersection of said hangers and fingers, as set forth



4. The combination with a car, of the frame A, crossing the end, clips B, B, secured to said frame, a row or rows of vibrating hangers E, hung to the clips, a shoe or socket F, pivotally hung to the hangers, fingers G, composing a platform supported by said sockets or shoes, and provided with a roller H, at the outer end, and springs K, at the intersection of said hangers and fingers, substantially as set forth.

494,282. WASHING-MACHINE. CHARLES SEVIGNY and ZOEL SEVIGNY, New Bedford, Mass. Filed Jan. 7, 1893. Serial No. 457,690. (No model.)



Claim.—A washing machine consisting of the box *a*, supported on the legs *v*, having a cover *b*, hinged to its top and provided with the stirrer *c*, journaled therein by the shaft *d*, to which is secured the bevel gear *e*, adapted to engage with the bevel gear *f*, on the shaft *h*, which is journaled on said cover and provided with the bevel gear *g*, which is adapted to engage with the bevel gear *k*, on the shaft *l*, when the cover is lowered into position, which shaft, is journaled on said box *a*, and provided with the spur gear *m*, adapted to engage with the quadrant gear *n*, which is pivoted to the cross bar *q*, and provided with the lever *o*, whereby when the said lever is oscillated, the stirrer *c*, is caused to rotate reciprocally: as and for the purpose described.

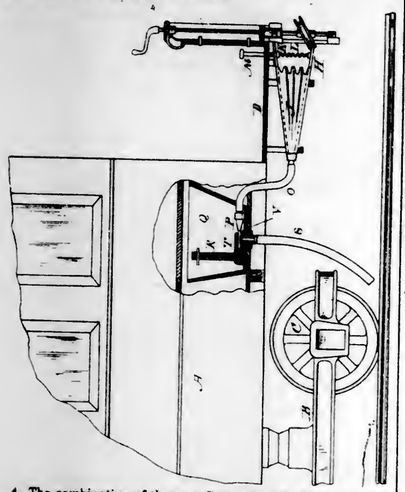
494,283. TRACK-SANDING DEVICE FOR STREET-CARS. CHARLES W. SHERBURNE, Boston, Mass. Files Nov. 14, 1892. Serial No. 451,897. (No model.)

Claim.—1. In combination with the sand box Q, and a chambered valve T, introduced into the said sand box, and a delivery pipe S, also introduced into said sand pipe and governed by the arrangement necessary for said sand box, the air nozzle P adapted to deliver a blast of air into the cavity of the valve T, substantially as and for the purposes described.

2. The combination between the valve T, the air nozzle P, the sand box Q and independent sources of air supply J, substantially as and for the purposes described.

3. The combination of the handle E, the stem R, and the wheel

G in combination with the lower handle A of the bellows J, substantially as and for the purposes described.



4. The combination of the stem R, the valve T, chambered at V, the sand box Q, the pipe O, the nozzle P, and the bellows J adapted to deliver automatically sand through the pipe S in front of the wheel, substantially as and for the purposes described.

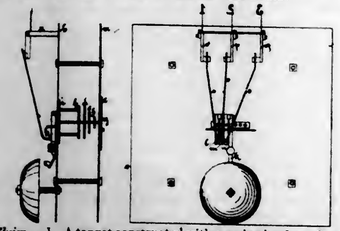
494,284. PIPE-COUPLING. ORANGE M. SWEET, Silver Creek, N. Y., assignor of one-half to John R. Webster, same place. Filed Oct. 5, 1891. Serial No. 407,747. (No model.)



Claim.—1. In a pipe coupling, the combination with a cylindrical casing having a port or passage, of a cylindrical block capable of turning in said casing and having a passage adapted to register with the port of the casing and an internal cylindrical socket and a cylindrical knuckle fitted in the socket of the block and having a passage adapted to coincide with the passage of the block, substantially as set forth.

2. In a pipe coupling, the combination with a cylindrical casing having a port or passage in its rear side and an opening in its front side, of a cylindrical block arranged to turn in said casing and having an internal cylindrical socket, a passage leading from said socket to the periphery of the block, and in its front side a vertical slot, and a cylindrical knuckle fitted in the socket in the block and having a passage adapted to register with the passage of the block, and a stem or pipe extending through the slot of the block and the opening in the front side of the casing, substantially as set forth.

494,285. TARGET. JOHANN B. WALTER, Nuremberg, Germany. Filed Mar. 30, 1892. Serial No. 427,044. (No model.)

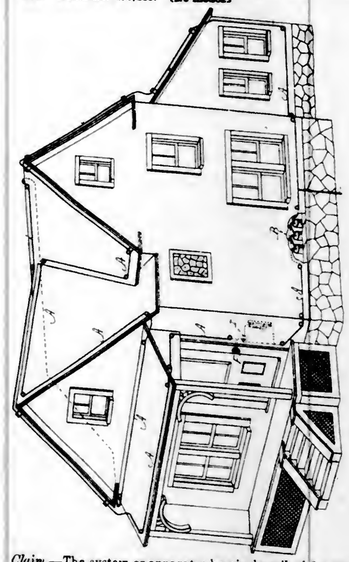


Claim.—1. A target constructed with a casing having a face-plate provided with an aperture, a series of concentric rings arranged behind the face-plate within the area of the aperture, bolts connected with each of said rings, hammers operated by said bolts and a gong on which the hammers can act, substantially as set forth.

2. In a target, the combination with a face-plate having an aperture, of concentric rings arranged behind the face-plate within the area of the aperture, a hammer for each ring, which hammers can be operated from the several rings, a gong on which the hammers can act, tilting numbers and arms on the hammers for acting on said numbers, substantially as set forth.

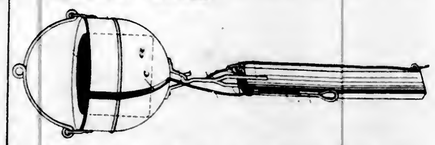
3. The combination, with a face plate having an aperture, of a series of rings arranged behind the face-plate within the area of the aperture, bolts on each ring, a hammer for each ring, which hammers are operated by the bolts of the respective rings, a gong on which the hammers can act, a series of bars suitably pivoted and weighted to hang vertically and arms on the hammers adapted to act on the weight at the ends of the bars and numbers on said bars, substantially as set forth.

494,286. APPARATUS FOR PROTECTING BUILDINGS FROM LIGHTNING. JONATHAN R. L. BARTLETT, Boston, Mass. Filed Oct. 31, 1892. Serial No. 450,415. (No model.)



Claim.—The system or apparatus herein described for protecting buildings from damage by lightning comprising a wire or wires in an electrical circuit strung externally upon the building, and an electric bell or alarm arranged to be included in the circuit by the operation of a switch as H, substantially as described.

494,287. TWINE-HOLDER CUP AND TAKE-UP. WILLIAM BENTLEY and JAMES D. FULLER, Lethbridge, Canada. Filed May 19, 1892. Serial No. 433,533. (No model.)

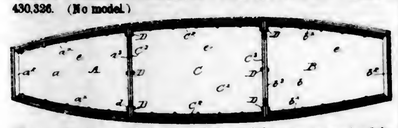


Claim.—1. In a twine holder, the combination with the casing or box and the vertically movable weight therein, of a cord guide at one side of the casing or box through which guide the cord passes from the weight, and a vertically movable tension bar or piece at the opposite side of the box or casing from said cord guide and having an eye through which the cord passes to the weight; whereby when the free end of the cord is released the tension bar or piece will descend and engage the cord and prevent the descending weight from unwinding the ball, substantially as set forth.

2. A twine-holder, comprising a cup having a twine slot or opening, the guide box or casing C containing the weight and having a cord guide at one side of its upper edge, and a sliding tension bar at its opposite side provided with an eye at its upper end through which the cord passes from the cup to the weight; the said tension bar in its descent bending the cord across the upper edge of the guide box and preventing the descending weight from unwinding the ball, substantially as set forth.

3. A twine holder and take up, consisting in the slotted cup having a suspension bail, and a take up comprising the tubular casing C suspended from the bottom of the cup and provided with a vertically sliding weight having an eye *f*, the upper and lower guides *k' m* on the same side of the casing, and the vertically sliding bar *i* on the upper end of the casing opposite the guide *k'* and provided at its upper end with an eye i^2 to clamp the cord across the upper edge of the casing when the operator releases the cord, substantially as set forth.

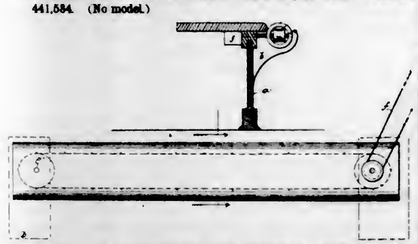
494,288. PORTABLE NESTING BOAT. JAMES M. CLARK and CHARLES W. HAMILTON, Chicago, Ill. Filed Apr. 23, 1892. Serial No. 430,336. (No model.)



Claim.—1. A portable boat consisting of three parts, each of the parts thereof having a bottom, sides and ends, one end of the bow part substantially the same width as one end of the part forming the middle of the boat and adapted to be secured thereto, and one end of the part forming the stern of the boat substantially the same width as the other end of the part forming the middle of the boat and adapted to be secured thereto, with one end of the middle part wider than the other end thereof, and each of said parts covered on the outside thereof with ducking extending over the bottom, sides and ends thereof whereby when the several parts are bolted together, a boat is formed having two bulk-heads therein each of such bulk heads consisting of two thicknesses of planking with two thicknesses of ducking interposed therein and extending from the top to the bottom of the boat and when the several parts are taken apart and nested together the part forming the stern adapted to fit, when turned so that the stern end thereof is forward, into the part forming the middle of the boat and the part forming the bow adapted to fit into the part forming the stern, and be thereby nested; substantially as described.

2. A boat consisting of three parts, each part having a bottom, sides and ends, and such parts being adapted to be secured together by the joining of the ends of the part forming the middle of the boat to one of the ends, respectively, of the other parts; and the putting of bolts through holes therefor in such ends and each of such parts constructed of a plank bottom, slat sides and plank ends, with the bottom covered on the inner and outer side with canvas, such canvas on the outer side of the bottom extending up the sides and ends to the upper edge of the bulk heads, and to the gunwale of the boat formed by the putting together of the parts; substantially as described.

494,289. ADVERTISING COUNTER-GUARD FOR RAILS OR BARS. WILLIAM R. P. CLARK, Newark, N. J. Filed July 29, 1892. Serial No. 441,584. (No model.)



Claim.—1. The combination with a counter, of a transparent tube arranged at the front of the counter and having a clear space between, and a belt carrying a series of advertising cards extending through the chamber in said tube, substantially as set forth.

2. The combination with the counter of a leaning bar and guard rail secured forward of said counter with a clear space between, a belt traveling through said rail or bar longitudinally and a motor for operating said belt, substantially as set forth.

3. The combination with a glass tube serving as a leaning or guarding bar or rail, brackets or supports for said bar or rail, of a belt extending through said tube and card holders carried by said belt and a motor for operating the said belt, substantially as set forth.

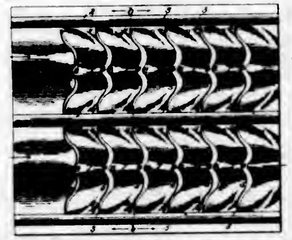
4. In combination with a glass tube arranged at the front of a counter, a belt, having card holders, extending through said tube, substantially as set forth.

5. A leaning bar consisting of a tubular and transparent guard-rail through which extends a belt having advertisements thereon substantially as shown and described.

6. The leaning bar consisting of a tube inclosing a series of advertisements substantially as shown and described.

7. The leaning bar consisting of a hollow tube having an endless and longitudinally movable belt having advertisements thereon, substantially as set forth.

494,290. GRAIN-SEPARATING SCREEN. CHARLES CLOSE and JACOB CLOSE, St. Anagar, Iowa. Filed Apr. 16, 1892. Serial No. 429,414. (Model.)



Claim.—1. A sheet metal platform-screen formed with longitudinal rows of openings produced from approximately bow shaped cuts, in transverse relation, the raised edges of the metal between each two cuts overhanging one of said openings in forwardly projecting lobes divided by an indentation or hollow, and formed with a convex surfaced ridge extending from the said indentation to the depressed edge of the next preceding cut, substantially as described.

2. A sheet metal platform-screen formed with longitudinal rows of openings produced from approximately bow-shaped cuts in transverse relation, the raised edges of the metal between each two cuts overhanging one of said openings in forwardly projecting lobes terminating in a higher intermediate receding scallop or indentation formed with a sloping convex ridge terminating in a point or lobe in the depressed edge of the next preceding cut, substantially as described.

3. A sheet metal platform screen having longitudinal rows of openings produced from approximately bow-shaped cuts in transverse relation, the forwardly standing edge of the metal between each of two cuts being raised and having lobes forming a double transverse ridge standing toward the tail end of the screen overhanging said opening, substantially as described.

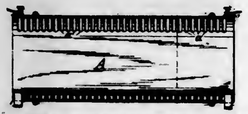
4. A sheet metal screen having longitudinal rows of transverse openings produced from approximately bow-shaped cuts, the metal between each two cuts forming an elevated double lobed transverse ridge standing toward the tail end of the screen overhanging said openings and sloping backward to a lower point or lobe and standing inward and also sloping laterally from said forward lobes to give the greatest width of opening under said lobes, substantially as described.

5. A sheet metal screen formed with longitudinal ridges 2 dividing it into channels, intermediate longitudinal series of transverse bow-shaped cuts, the material between each two cuts being formed at its inner lower edge with a central point or lobe 8 and at its forward or outer edge with a central indentation or hollow 6 between two lobes 5, 5, and bent upwardly toward the front edge, corrugated to form a central longitudinal ridge 7 terminating in the central point or lobe 8, and formed with lateral oblique ridges 9 converging forwardly, and terminating in the two lobes, rearwardly sloping depressions 12, 12, between the central and diagonal ridges and forwardly sloping triangular depressions 4, 4, between the diagonal ridges and the longitudinal ridges 9 and 2, substantially as described.

494,291. ELECTRIC HEATING APPARATUS. MARK W. DEWEY, Syracuse, N. Y., assignor, by mesne assignments, to the Dewey Electric Heating Company, same place. Filed Mar. 24, 1892. Serial No. 426,196. (No model.)

Claim.—1. In an electric heater, a plate, saddles of insulating

material on two edges of the plate, and a resistance-conductor wound around the plate alternately across opposite planes thereof but not in contact therewith, and a perforated case, as and for the purpose described.



2. In an electric heater, a support, a rectangular plate having its opposite extremities held by said support, saddles of insulating material on two edges of the plate, and a resistance-conductor wound around the plate alternately across opposite planes thereof, but not in contact therewith, and a perforated case, as and for the purpose described.

3. In an electric heater, a perforated case, a metal plate held at or near its corners by the case, saddles of insulating material on two edges of the plate, and a resistance-conductor wound around the plate alternately across opposite planes thereof but not in contact therewith, as and for the purpose described.

4. In an electric heater, a perforated case, a plate held in said case, round or chamfered edges on said plate, saddles of insulating material on two edges of the plate, and a resistance-conductor wound around the plate alternately across opposite planes thereof, but not in contact therewith, as and for the purpose described.

5. In an electric heater, a perforated case, a plate in said case, two electric terminals or binding screws secured to the plate, saddles of insulating material on two edges of the plate and a resistance-conductor wound around the plate and saddles but not in contact therewith, as and for the purpose described.

6. In an electric heater, a perforated case, a metal plate held in said case, two electric terminals or binding screws secured to but insulated from the plate, saddles of insulating material on two edges of the plate, and a resistance conductor wound around the plate and saddles, but not in contact with the plate, as and for the purpose described.

7. In an electric heater, a perforated case, a body held in the case, saddles of insulating material in sections on each of two opposite edges of said body, and a resistance-conductor wound around the body and saddles but not in contact with the body, as and for the purpose described.

8. In an electric heater, a perforated case, a metallic body held in the case, saddles of porcelain in sections on each of two opposite sides of said body, and a resistance-conductor wound around the body and saddles, but not in contact with the body, as and for the purpose described.

9. In an electric heater, a support consisting of a case or screen, inclosing the resistance-conductor, made in two parts, holding devices at each end of the case, a body around which the resistance conductor is wound between said holding devices, apertures between the parts of the case and electric terminals connected to the ends of the resistance-conductor and extending through the case between the two parts thereof as and for the purpose described.

10. In an electric heater, a support consisting of a case or screen, inclosing the resistance conductor, made in two parts, perforations in the bottom and top of the case, holding devices at each end of the case, a body around which the resistance conductor is wound between said holding devices, and electric terminals connected to the ends of the resistance-conductor and extending through the case between the two parts thereof as and for the purpose described.

11. In an electric heater, a support consisting of a case or screen, inclosing the resistance-conductor, made in two parts, slots in the bottom, top and sides of the case, holding devices at each end of the case, a body around which the resistance conductor is wound between said holding devices, and electric terminals connected to the ends of the resistance conductor and extending through the case between the two parts thereof as and for the purpose described.

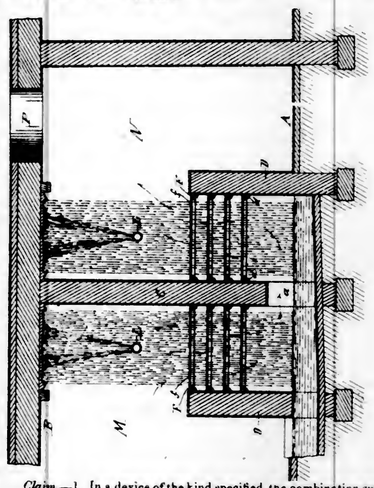
12. In an electric heater, a metal plate, a perforation near the end of the plate, a binding screw, a yoke secured thereto and extending on both sides of the plate, a screw connecting the ends of the yoke through the perforation and an insulating bushing to insulate the yoke and screw from the metal plate.

13. In an electric heater, a slotted case made in two parts, a body or bodies of insulating material supported in and by the ends of the case, a resistance-conductor around the body or bodies of insulating material, conductors leading to the interior of the case between the two parts, and screws or bolts extending through the parts of the case to hold them together and thereby to hold the said body or bodies in position within the case.

14. In an electric heater, a slotted case made in two parts, a body or bodies of insulating material supported in and by the ends of the case, a resistance-conductor around the body or bodies of insulating material, conductors leading to the interior of the case between the two parts, insulating rings between the said parts, and screws or bolts extending through the parts of the case to hold them together and to hold the said body or bodies in position within the case and also the insulating rings.

15. In an electric heater, a support consisting of a case or inclosure divided longitudinally in two parts, supports or holding devices on the interior of the case, a plate or thin body held by said devices parallel to and in the plane of the meeting edges of the parts of the case, a resistance conductor wound around the plate, supply conductors leading through the case to the terminals of said resistance conductor, and means to hold the parts of the case together and the plate or thin body in position.

494,292. APPARATUS FOR MOISTENING AND ATTEMPERATING AIR. JOHN F. DORNFELD, Watertown, Wis., assignor to the Saladin Pneumatic Malting Company, Chicago, Ill. Filed May 28, 1892. Serial No. 434,795. (No model.)



Claim.—1. In a device of the kind specified, the combination substantially as hereinbefore set forth, with a plurality of screens or perforated plates horizontally arranged within a chamber unobstructed above and below said screens or plates, said screens or plates having practically air-tight connections with the sides of said chamber of openings for the passage of air communicating with said chamber above and below said screens or perforated plates, a water supply pipe or passage located above said screens or perforated plates for supplying water thereto, and a trough or receptacle to receive such water after passing through said perforated plates or screens.

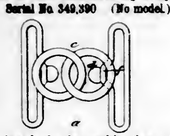
2. In a device of the kind specified, the combination substantially as hereinbefore set forth, with a plurality of screens or perforated plates horizontally arranged within a chamber unobstructed above and below said screens or plates, said screens or plates having practically air-tight connections with the sides of said chamber, of openings for the passage of air communicating with said chamber above and below said screens or perforated plates, a water supply pipe or passage located above said screens or perforated plates and having openings on its upper side for the escape of water therefrom, and a trough or receptacle to receive such water after passing through said plates or screens.

3. In a device of the kind specfied, the combination substantially as hereinbefore set forth, with a plurality of screens or perforated plates horizontally arranged within a chamber unobstructed above and below said screens or plates, said screens or plates having practically air-tight connections with the sides of said chamber, of openings for the passage of air communicating with said chamber above and below said screens or perforated plates, a water supply pipe or passage located above said screens or perforated plates and having openings on its upper side for the escape of water therefrom, a deflecting plate located above the same, and a trough or receptacle to receive such water after passing through said plates or screens.

4. In a device of the kind specified, the combination substantially as hereinbefore set forth, with a plurality of corrugated screens or eprforated plates horizontally arranged within a chamber and having practically air-tight connections with the sides thereof, of openings for the passage of air communicating with said chamber above and below said screens or perforated plates, a water supply pipe or passage located above said screens or perforated plates for supplying water thereto, and a trough or receptacle to receive such water after passing through said perforated plates or screens.

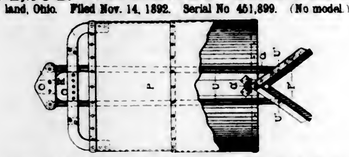
5. In a device of the kind specified, the combination substantially as hereinbefore set forth, with a plurality of screens or perforated plates horizontally arranged within a chamber and having practically air-tight connections with the sides thereof, an opening communicating with said chamber above said screens or perforated plates and provided with blind slatted partitions O, an opening in the side of said chamber below said screens or perforated plates, a water supply pipe or passage located above said screens or perforated plates for supplying water thereto, and a trough or receptacle to receive such water after passing through said screens or perforated plates.

494,293. BELT-CLASP. FRANK J. HERRICK, New Britain, Conn., assignor to the North & Judd Manufacturing Company, same place. Filed Apr. 24, 1890. Serial No. 349,390. (No model.)



Claim.—In a fastening device in combination a loop, a link secured to the loop and having an inturned knob projecting underneath the same, the inturned knob on the opposite end of the link, and an engaging loop having an eye offset in a plane at right angles to the plane of the loop, all substantially as described.

494,294. DROP-BOTTOM BUCKET. GEORGE H. HULETT, Cleveland, Ohio. Filed Nov. 14, 1892. Serial No 451,899. (No model.)



Claim.—A drop-bottom bucket, consisting of a divided bottom, hinged to a bar secured to and bisecting the bucket, near the base: said bottom being actuated by two rods pivotally connected to opposite sections thereof at one end and, after passing through openings in the bail of the bucket, to a head-block at the other end, in combination with any suitable device or mechanism for operating said bucket, substantially as described.

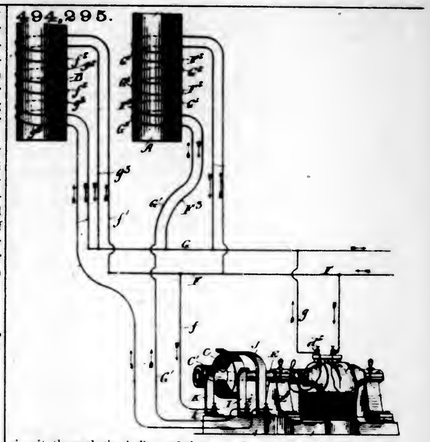
494,295. INDUCTION SYSTEM OF ELECTRICAL HEATING. SAMUEL B JENKINS, Boston, Mass., assignor to the Butterfield-Mitchell Electric Heating Company, same place. Filed May 28, 1892. Serial No. 434,712. (No model.)

Claim.—1. A series of cores arranged individually at the points where an induced current and its results are needed, in a combination with a series of coils or helices wound thereon and forming part of a circuit for a continuous current, a second series of coils or helices wound on the same cores and forming part of the circuit for an interrupted current, and mechanism for automatically interrupting the latter current either for the individual coils in succession or for the series taken together in order to create an induced current substantially as set forth.

2. The method of generating heat by electricity and applying the same to a heating system for various points or apartments consisting in sending a continuous current and an intermittent current in opposite directions with respect to the length of the cores on which they are wound, the interruption of the latter current generating a reverse induced current and producing heat thereby known as the heat of hysteresis while the continuous current first mentioned prevents sparking at such interruptions substantially as set forth.

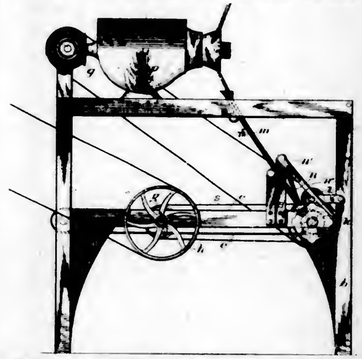
3. A motor and commutator in combination with a series of magnetic cores, two series of coils or helices wound thereon, conductors for making circuit for a continuous current through the first series of helices and conductors and contact pieces for making intermittent

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circuit through the helices of the second series individually or collectively by means of the said commutator the two currents entering at opposite ends of the said helices substantially as set forth.

494,296. TOBACCO-TAGGING MACHINE. JAMES M. KING, North Danville, Va. Filed Mar. 24, 1892. Serial No 426,299. (No model.)



Claim.—1. The combination in a tobacco tagging machine, of a hopper, a revoluble drum therein, and a scoop on said drum for transferring tags from the hopper to the drum, substantially as described.

2. In a tagging machine the combination with a hopper, a revoluble drum therein, a scoop on said drum for raising tags from the hopper to the drum, and a feed chute registering with one end of the drum and so located that it receives the tags discharged therefrom, substantially as described.

3. In a tagging machine the combination with a hopper, a revoluble drum therein, a scoop on said drum for raising tags from the hopper to the drum, a feed chute registering with one end of the drum and so located that it receives the tags discharged therefrom, and a check in said chute for intermittingly feeding tags therefrom, substantially as described.

4. In a tobacco tagging machine, the combination with a tag hopper, of a revoluble drum therein, a scoop on said drum, lateral arms or conveyers secured to the drum, and a feed chute adapted to receive tags from the conveyers, substantially as described.

5. The combination in a tagging machine, of a hopper having a revoluble drum therein, a scoop on said drum, lateral arms or conveyers secured to the drum, a feed chute, and a check in said chute for intermittingly feeding tags therefrom, substantially as described.

6. In a tagging machine the combination with a hopper, a revoluble drum therein, a scoop on said drum for raising tags from the hop-

per to the drum, and agitators on the interior of the drum for keeping the tags in motion, substantially as described.

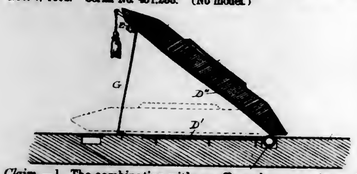
7. In a tagging machine the combination with a hopper, a revoluble drum therein, a scoop on said drum for raising tags from the hopper to the drum, agitators on the interior of the drum, and a feed chute registering with one end of the drum and so located that it receives the tags discharged therefrom, substantially as described.

8. The combination in a tagging machine, of a hopper, a revoluble drum therein, a scoop on said drum for raising tags from the hopper, agitators on the interior of the drum, lateral arms or conveyers secured to the drum, a feed chute, and a check for intermittingly feeding tags from the chute, substantially as described.

9. In a tagging machine the combination with a hopper, of a revoluble drum therein, a scoop on said drum for raising tags from the hopper to the drum, agitators on the interior of the drum, a feed chute registering with one end of the drum and so located that it receives the tags discharged therefrom, and a check for intermittingly feeding tags from the chute, substantially as described.

10. In combination with pressure rollers, an endless belt passing between the rollers, a feed chute leading to said belt, and a check for intermittingly releasing tags from the chute, substantially as and for the purpose set forth.

494,297. COFFIN. WILLIAM J. LEONHARDT, Chicago, Ill. Filed Nov. 7, 1892. Serial No. 451,233. (No model.)



Claim.—1. The combination with a coffin and a name-plate, of a movable support to which the name-plate is secured, said support being in turn secured to the lid, and means for holding said support either in an inclined position or flat against the lid of the coffin, substantially as set forth.

2. The combination with a coffin and a name-plate therefor, of a movable support to which said name-plate is secured, a hinge connecting one edge of the support to the coffin lid and means for holding said support in inclined position or permitting it to be folded down against the lid of the coffin, substantially as set forth.

3. The combination with a coffin and a name-plate, of a support to which said plate is secured, a hinge connecting one edge of the support to the lid of the coffin, a spring for holding said support in inclined position, and a catch for holding it against the lid of the coffin, substantially as set forth.

4. The combination with a coffin and the name-plate therefor, of a movable panel to which said name-plate is secured, a hinge connecting one edge of panel to the lid of coffin, and means for holding said panel in inclined position or permitting it to be folded down flat against the lid of the coffin, substantially as set forth.

5. The combination with the coffin and a name-plate, of the panel C to which said plate is secured, the springs having coils D and arms D′ and D″ secured to the lid of the coffin and panel, respectively, the strip of fabric G secured at its edges to the lid of the coffin and panel, respectively, and the catch E for holding the panel against the lid of the coffin, substantially as set forth.

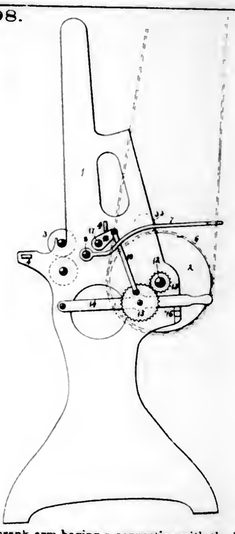
494,298. STOP-MOTION FOR SPOOLING-MACHINES. CLAUDE O. LIGHTNER and FRANK W. FRANEWAY, Barsboo, Wis. Filed Aug. 29, 1892. Serial No. 444,427. (No model.)

Brief.—The belt-shipper is controlled by a spring-pressed rod which is held in place by a latch on a pivoted slotted frame. A vibrating blade enters said slot in the frame, and when a drop-wire comes between the blade and the frame the latch is raised to release the spring-pressed rod. The gear for oscillating the blade is mounted on a lever so that it can be readily thrown out of mesh with the driving-gear.

Claim.—1. In a stop motion, the combination of a swinging frame provided with an elongated opening and latch, an oscillatory blade, drop wires capable of being placed across the elongated opening in the swinging frame and across the path of the blade, the frame provided with a shield which guides and limits the drop wires in their downward movement, said guide provided with an elongated opening or openings and means for imparting an oscillatory movement to the blade.

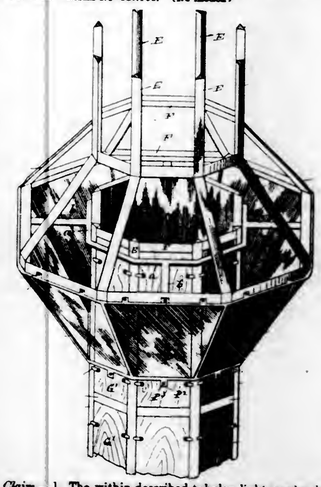
2. In a stop motion, the combination of a swinging frame, an oscillatory blade, drop wires capable of being placed between the frame

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and blade, a crank arm having a connection with the blade, a shaft, a gear wheel on the shaft, a pivotal lever upon which is mounted a driven gear wheel which meshes with the teeth of the gear wheel, mounted on the shaft and capable of being disengaged therefrom and a link connection between the driven gear wheel and the crank arm.

494,299. APPARATUS FOR LIGHTING THE INTERIOR OF BUILDINGS. HORATIO N. H. LUGRIN, Worcester, Mass. Filed Sept. 28, 1892. Serial No 447,169. (No model.)



Claim.—1. The within described tubular light conducting shaft comprising a frame work of vertical and horizontal bars, preferably triangular in their cross section, in order to present an edge upon the interior surface of the shaft, said bars inclosing a series of openings and panels having beveled edges fitting said openings with reflecting surfaces, substantially as described.

2. In a tubular light conducting shaft, the frame-work composed of the vertical bars E and horizontal bars F, triangular in their cross

section, so as to present an edge upon the interior of the shaft, said bars inclosing a series of openings G, panels G′ fitting said openings, said panels having a reflecting surface upon their inner sides and means for detachably fastening said panels within said openings, substantially as described.

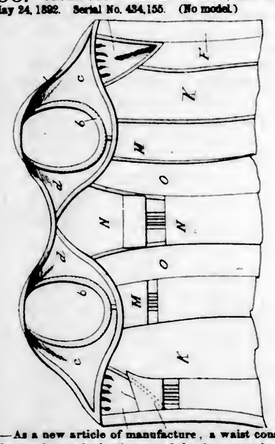
3. In a tubular light conducting shaft, the combination with a supporting frame-work provided with a series of openings, of panels G′ fitting said openings and provided with a coating of adhesive material upon their inner sides and glass plates 1 resting upon said adhesive material and forming a reflecting surface, substantially as described.

4. In a tubular light conducting shaft formed in sections, one of said sections having at its inner, or light discharging end a flaring mouth and another of said sections having its light receiving end inclosed by said flaring mouth, with the opposing end of the two sections held in alignment, but separated, whereby a portion of the light is diverted from said shaft, substantially as described.

5. The combination in a tubular light conducting shaft formed in sections, of a flaring mouth L′ attached to one of said sections and inclosing an end of another section, forming an annular space, through which a portion of the light is diverted from said shaft, said annular space being closed by a frame-work P′ and glass panels P held in said frame-work, substantially as described.

6. A tubular light conducting shaft made in sections each of said sections having an independent support within the building and said sections being telescopically connected, substantially as described.

494,300. UNDERWAIST. ANNIE J. MILLER, New York, N. Y. Filed May 24, 1892. Serial No. 434,155. (No model.)



Claim.—As a new article of manufacture, a waist consisting of a yoke made up of two single pieces each having extensions *b* passing under the arm, and extensions *c d*, the lower part of the waist being supported therefrom and comprising a central piece N conforming to the contour of the yoke pieces to which it is connected, bias and bone pieces on each side of the central piece N, facing strips, and bust form pieces gathered at their connection with the yoke pieces and connected to the facing strips and bone pieces, substantially as described.

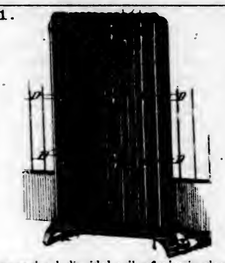
494,301. ELECTRICALLY-HEATED RADIATOR. WILLIS MITCHELL, Malden, assignor to the Butterfield-Mitchell Electric Heating Company, Boston, Mass. Filed June 8, 1892. Serial No. 435,930. (No model.)

Claim.—1. A radiator for heating rooms halls and other spaces consisting of a shell having a front wall provided with openings and inwardly extending cores concentric therewith and open at their inner ends, in combination with electric heating devices applied to the said cores substantially as set forth.

2. In a radiator consisting of a hollow shell, the perforated bottom A and back plate C in combination with the front plate B provided with openings and short tubular cores D extending inward therefrom and open at their inner ends and heaters applied to said cores for the purpose set forth.

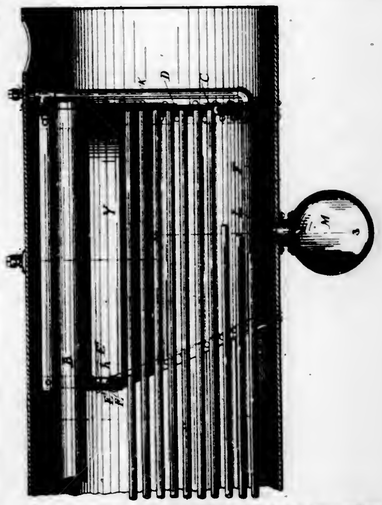
3. A radiator provided with internally extending cores, in combination with electrical heaters applied to the said cores, each heater

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consisting of successive helicoidal coils of wire in electric circuit and interposed cylindrical partitions substantially as set forth.

494,302. FEED-WATER HEATER AND PURIFIER. RUTHEN MCDOUGALL, Chicago, Ill. Filed Apr. 14, 1892. Serial No. 429,179. (No model.)



Claim.—1. The combination with a boiler shell, of an auxiliary chamber located therein, means for supplying said auxiliary chamber with water, a passage communicating with the upper part of the auxiliary chamber and with the main chamber of the boiler below the water line, so that water flows from the upper part of the auxiliary chamber through said passage, and enters the main chamber of the boiler below the surface of the water therein and an open mud hole located at the bottom of the auxiliary chamber, substantially as set forth.

2. The combination with a boiler shell, of an auxiliary chamber located therein, a feed check opening into the auxiliary chamber above its bottom, an open mud hole located below the check, and an open water-passage communicating with the auxiliary chamber above the check and with the main chamber of the boiler below the water line, so that the feed water flows from the auxiliary chamber through said passage and enters the main chamber of the boiler below the surface of the water therein substantially as set forth.

3. The combination with the boiler shell, of an annular chamber located therein, the upper portion of said chamber being in direct open communication with the steam space of the boiler, so that steam may pass into the chamber and into direct contact with the water therein, means for supplying said chamber with water, a mud hole located at the bottom thereof, and an open passage connecting the upper part of the auxiliary chamber with the main chamber of the boiler, below the water line thereof, so that the feed water flows from the auxiliary chamber through said passage, and enters the main

chamber of the boiler below the surface of the water therein substantially as set forth.

4. The combination with the boiler shell A, of the barrel F located therein, bar H, and plate E extending from said barrel to the shell, forming an annular chamber, a feed check J communicating with said chamber about its mid-height, so that the colder water entering will pass down on one side of the chamber under the barrel and up on the other side, a mud hole located at the bottom of the chamber, and a water-passage leading from the upper part of said chamber to the main chamber of the boiler, substantially as set forth.

5. The combination with a boiler shell, of an auxiliary chamber located therein and a mud hole located at the bottom of the auxiliary chamber, means for supplying said chamber with water, and an open passage from said chamber to the main chamber of the boiler, the end of the auxiliary chamber being sloped toward the mud hole, substantially as set forth.

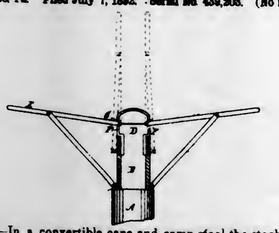
6. The combination with the boiler shell, of the barrel F located therein, bar H, and plate E extending from said barrel to the shell so as to form a continuous or annular auxiliary chamber, a passage Z through which the auxiliary chamber and main chamber communicate at top, means for supplying the auxiliary chamber with water, and a pipe communicating with the upper part of the auxiliary chamber and with the main chamber of the boiler below the water line, substantially as set forth.

7. The combination with the boiler shell, of the barrel F, located therein, bar H, and plate E extending from said barrel to the shell so as to form an annular auxiliary chamber, a passage connecting the auxiliary chamber with the main chamber, means for supplying the auxiliary chamber with water, and the washout plug N located over the auxiliary chamber, substantially as set forth.

8. The combination with a boiler shell and the dry pipe, of an auxiliary chamber located within the shell and having a portion removed from its end to receive the dry pipe, and a plate embracing the dry pipe and secured water tight to the ends of the auxiliary chamber, substantially as set forth.

9. The combination with the boiler shell, of an auxiliary chamber located therein, means for supplying it with water, and the pipe K communicating with the main chamber of the boiler near its bottom and with the auxiliary chamber near its top, said pipe having the extension *k* and means for closing it, substantially as set forth.

494,303. COMBINED CANE AND CAMP-STOOL. JAMES A. NIXON, Titusville, Pa. Filed July 7, 1892. Serial No. 439,203. (No model.)

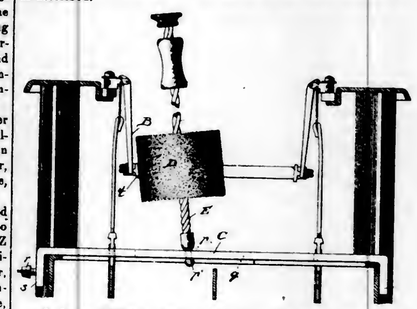


Claim.—In a convertible cane and camp stool the stock A, the seat supported thereby and consisting of the radial arms E, the cap D to which said arms are attached in the manner described, the central sleeve B which receives cap D, the braces H which support said arms E in an approximately horizontal position, and the loose collar C to which the braces H are attached at their inner end, said sleeve B having a free telescoping and rotary movement in the stock A, substantially as shown and described.

494,304. CLEANER FOR TYPE-WRITING MACHINES. ARTHUR R. REID, Chicago, Ill. Filed Oct. 14, 1892. Serial No. 448,826. (No model.)

Claim.—1. A type cleaner for typewriters comprising in combination a rod carrying at one end a handle, and toward the other end a brush, with means for rotating it, and a plate located below the field of type of the typewriter to afford a vertically unchanging bearing for said rod and brush, whereby the rod carrying the brush may be inserted from above into the typewriter and held in a fixed position in vertical relation to the field of type while being rotated, substantially as described.

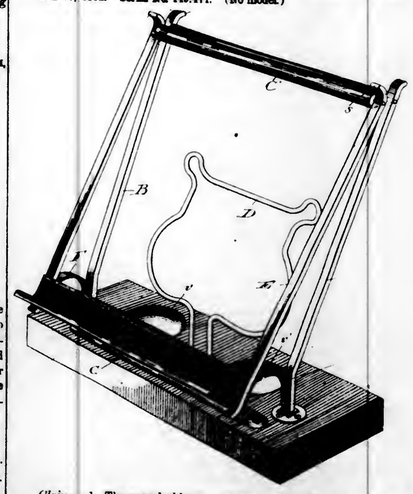
2. A type cleaner for typewriters comprising a rotatable rod constructed in part of its length with a spiral outline, having at one end a handle and toward the other end a brush, and a nut adapted to be moved by hand, thereby to rotate the rod, whereby the cleaner may be inserted into the field of type and held in one hand, while being rotated by longitudinal movement of the other, substantially as described.



3. In combination with a type writer, the slotted plate C supported below the field of type and extending across the machine, the rod carrying the brush, said rod having at its lower end means for inserting and retaining it in the slot of the plate C, and means, such as described, for rotating the rod and the brush carried thereby, and moving the same across the field of type, substantially as described.

4. The combination with a type writer, of the slotted plate C having the enlarged aperture *q'*, a rod E carrying at its lower end the reduced portion *p* and knob *p'* and toward its lower end the brush D, and means connected with said rod and operative from above the machine for rotating the rod and the brush carried thereby, and moving the same across the field of type, substantially as described.

494,305. COPY-HOLDER. ARTHUR R. REID, Chicago, Ill. Filed Oct. 20, 1892. Serial No. 449,471. (No model.)



Claim.—1. The copy holder comprising vertical frames separated at their bases and held normally together at their upper ends by a spring and readily separable at said upper ends to receive copy, substantially as described.

2. The copy holder comprising vertical frames having at their upper ends rollers and held normally in contact at their upper ends by a spring located at the lower ends, substantially as described.

3. A copy holder comprising, in combination, the pair of rigidly supported upward extending arms B and the pair of arms E supported on the arms B, respectively, and springs between the arms B and E respectively, operating to hold the upper ends of the arms B and E, respectively, together, the said frames E and F being separated from each other at their lower ends substantially as described.

4. A copy holder comprising the rigidly supported upward extending arms B connected at their upper ends by a roller C, similar arms E connected at their upper ends by a roller C', and springs F joining each arm E to an arm B and operating to hold the rollers C C' normally together, substantially as described.

5. A copy holder comprising vertical extending arms B rigidly supported, arms E supported upon the arms B, respectively, by a spring connection F serving to hold the upper ends of the arms E and B, respectively, together, and a shelf G extending from one arm E to the other, as and for the purpose described.

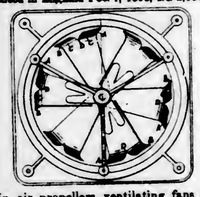
6. A copy holder comprising companion frames composed respectively of rigid arms B with cross-piece C and arms E with cross-piece C', the arms E having a spring connection with the arms B respectively, to hold their upper ends together, and a frame D rigidly supported between the arms B, substantially as described.

7. A copy holder comprising the following elements: rigid upward extending arms B having at their upper ends the connecting roller C, frame D located between the arms, arms E connected at their upper ends by a roller C', springs F serving to support the arms E on the arms B and hold the upper ends respectively together, and a shelf G extending between the arms E on the front side thereof, as and for the purpose set forth.

494,306. PHOTOGRAPHIC FILM. THOMAS SAULT, New Haven, Conn. Filed Sept. 3, 1892. Serial No. 444,942. (No specimens.)

Claim.—A film for a photographic camera having its surface raised along its edge to form a spacing for the admission of a transferring device between the edges of two consecutive plates, substantially as set forth.

494,307. AIR-PROPELLER OR VENTILATING-FAN. WILLIAM SAYER, Derby, England. Filed Sept. 14, 1892. Serial No. 445,915. (No model.) Patented in England Feb. 7, 1890, No. 2,014.



Claim.—1. In air propellers, ventilating fans and like devices, the combination of a shaft, means for driving the same, and blades or wings fixed to the shaft and having their peripheral extremities divided radially into two parts, such parts being bent into curves having their concavities in opposite directions.

2. In air propellers, ventilating fans and like devices, the combination of a shaft, means for driving the same, and blades or wings fixed to the shaft and having their peripheral extremities divided radially into parts, such parts being bent into curves having their concavities alternately in opposite directions.

494,308. CHECKREIN-GUIDE. JAMES B. STURGEON, Churubusco, Ind. Filed July 5, 1892. Serial No. 439,052. (No model.)



Claim.—1. A guide for an overdraw check rein consisting of the piece A having curved sides *a* and loops *a'* depending from the front of said piece, and the trough-shaped strip E lying midway between said curved sides *a*, and having flanges *c* stitched to said piece A, substantially as described.

2. The combination with the crown-band B and the brow band C of a piece of leather A secured at one end to the crown band, and adapted to lie flat between the horse's ears, and provided with loops *a'* encircling the brow band, and a trough-shaped strip of leather E lying along the middle of said piece A, and having flanges *c* stitched to said piece, substantially as described.

494,309. BLACK-LAND PLOW. WILLIAM B. VESTAL, Dallas, Tex. Filed Sept. 2, 1892. Serial No. 444,858. (No model.)



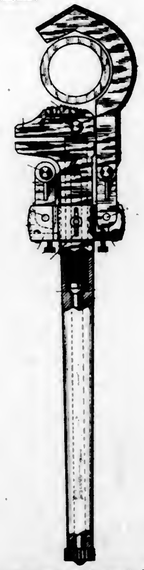
Claim.—1. In a plow, the combination with the solid convex point and share of the mold-board composed of equidistant rods secured to the share and bent into concave form, substantially as and for the purpose set forth.

2. The combination and arrangement of the point and share, the concave rods A, and clamps 9—10, substantially as and for the purposes set forth.

3. The combination and arrangement of the standard 4, the landside 8, point and share, and clamping plates 11 and 12, substantially as and for the purposes set forth.

4. In combination with the landside and share the clamp 12, adapted to be secured to the standard and point, and made convex on its front surface to shield the furrow from falling earth, substantially as described.

494,310. COMBINED PIPE-WRENCH, MONKEY-WRENCH, AND FLANGE-HOLDER. JOHN WEBBING, Milwaukee, Wis., assignor of one-third to Anthony V. Kielish, same place. Filed May 23, 1892. Serial No. 433,946. (No model.)



Claim.—1. The combination, of a stock, having its upper end extended laterally to form a fixed jaw, a shank movably connected with the stock, the upper end of said shank provided with a laterally-extending jaw, the outer face of said jaw forming the lower jaw of the pipe-wrench and the inner face thereof the upper jaw of the monkey-wrench, and a jaw pivoted to the stock and longitudinally adjustable

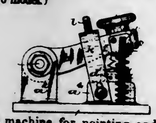
thereon, the upper portion thereof being curved to form the upper jaw of the pipe-wrench, substantially as set forth.

2. The combination, of a wrench, the movable jaw thereof provided with a pin, an adjustable collar upon the stock of the wrench, said collar provided with lateral recessed extensions, and spring pressed jaws pivoted in said recesses, each provided with projecting pins, substantially as set forth.

3. The combination, of a wrench, the movable jaw thereof provided with pins of different sizes upon opposite sides thereof, an adjustable collar upon the stock of the wrench said collar provided with lateral recessed extensions, and spring pressed outwardly-adjustable jaws pivoted in said recesses, each provided with projecting pins upon opposite sides thereof, said pins upon the opposite sides, respectively, being of different diameter, substantially as set forth.

4. The combination, of a wrench having its stock provided with serrations or teeth, and the movable jaw thereof provided with a projecting pin, an adjustable collar upon the stock, said collar provided with lateral recessed extensions, and spring pressed and outwardly-adjustable jaws pivoted in said recesses, each provided with projecting pins, and one of said jaws having teeth or serrations engaging the teeth of the stock, substantially as set forth.

494,311. MACHINE FOR POINTING AND PUNCHING SHOE-LACES. JOSEPH WILLS, Newark, N. J. Filed Aug. 31, 1892. Serial No. 444,630. (No model.)



Claim.—1. In a machine for pointing and piercing shoe laces, the combination, with a support *a*, having a post a^4, a cutting and punching base secured to said support, and a combined guide and stripper secured betwsen said post a^4 and said base, of a cutter and a punching or piercing device, subetantially as and for the purposes set forth.

2. In a machine for pointing and piercing shoe laces, the combination, with a support *a*, having a post a^4, a cutting and punching base secured to said support, and a combined guide and stripper secured between said post a^4 and said base, of a pivoted operating arm *b*, a cutter and a punching or piercing device on said arm, substantially as and for the purposes set forth.

3. In a machine for pointing and piercing shoe laces, the combination, with a support *a*, having a post a^4, a cutting and punching base secured to said support, and a combined guide and stripper secured between said post a^4 and said base, of a pivoted operating arm *b*, a cutter and a punching or piercing device on said arm, and a spring connected with said arm *b* for causing its return when depressed, substantially as and for the purposes set forth.

4. The herein described machine for pointing and piercing shoe laces, comprising therein, a support *a* provided with a pivoted operating arm *b* having a punching knob *b'*, a knife and a piercing needle on said arm, a cutting and punching base *c* on said support *a*, and a combined guide and stripper connected therewith, and means connected with said arm to limit its upward as well as its downward movement, consisting of a plate *k* having a lip *k'* and an elongated hole in said lip, and a screw *l* secured in the top of said arm *b* and passing through said hole in said lip, substantially as and for the purposes set forth.

494,312. SUPPORT FOR NON-CONDUCTING COVERINGS. THOMAS WILLIAMS, Brooklyn, N. Y. Filed Sept. 22, 1892. Serial No. 446,534. (No model.)



Claim.—1. A support for the non-conducting covers of vacuum pans and the like, consisting of a removable encircling band or hoop and a removable support for the said band or hoop, substantially as described.

2. A support for the non-conducting covering of vacuum pans and the like, consisting of an encircling band or hoop and a vertical support into which said band or hoop is removably received, substantially as described.

3. A support for the non-conducting coverings of vacuum pans and the like, the same consisting of a removable encircling band or hoop united at its ends by means of a wire or similar fastening, and a removable vertical support for said band or hoop, substantially as described.

4. A support for the non-conducting coverings of vacuum pans and the like, the same consisting of an encircling band or hoop, and a vertical support for said band or hoop having its upper end slit and bent outwardly so as to form a space into which the band or hoop is received, substantially as described.

5. A support for the non-conducting coverings of vacuum pans and the like, the same consisting of a band or hoop to which the covering is attached, and a vertical support for the band, the said support being provided at its upper end with means for receiving and holding said band, substantially as shown and described.

494,313. REMOVABLE FASTENING FOR NON-CONDUCTING COVERINGS. THOMAS WILLIAMS, Brooklyn, N. Y. Filed Feb. 15, 1892. Renewed Feb. 16, 1893. Serial No. 462,617. (No model.)

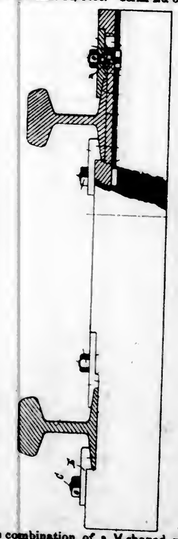


Claim.—1. In a non-conducting covering for boiling kettles or vessels a removable fastening consisting of an encircling ring or band, a clamp embracing said ring or band on the under side, and a hook or hanger suspended on said ring or band and united at its lower ends by means of a fastening pin or the like, substantially as described.

2. In a non conducting covering for boiling kettles or vessels, a removable fastening consisting of an encircling ring or band, a suspending hook or hanger, and a securing clamp, substantially as described.

3. In a non-conducting covering for boiling kettles or vessels constructed of a number of superimposed flanged sections, the combination of a ring or band encircling said sections and a non-conducting covering, hooks or hangers from which the covering is suspended, and a securing clamp embracing the flanges of a vessel and the encircling band, substantially as described.

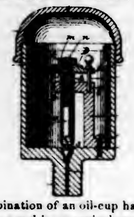
494,314. METALLIC RAILWAY-TIE. EDWIN D. BANGS, Milwaukee, Wis. Filed Mar. 14, 1890. Serial No. 343,853. (No model.)



Claim.—The combination of a V-shaped railway tie with arms with rounded edges, and having a depression provided with shoulders

f, A, in its upper face to engage with the plate flanges; with the plate D, having the rib *q*; the plate E, with its flange *r*, to secure the rail; the bolts and nuts C, *o*, *m*; and the said rail, all substantially as set forth.

494,315. LUBRICATOR. EDWIN D BANGS, Milwaukee, Wis. Filed June 3, 1892. Serial No. 435,407. (No model.)



Claim.—1. The combination of an oil-cup having the passage in its nozzle terminated at one end in a conical seat, a valve that corresponds to the seat, has vertical channels and a concavity below the channels; and a stem for the valve held adjustable in the cup, substantially as set forth.

2. The combination of an oil-cup having the passage in its nozzle terminated at one end in a conical seat, a valve that corresponds to the seat, has vertical channels and a concavity below the channels; a stationary support upon the interior of the cup, a stem extended from the valve and having a screw-adjustment in the support, a head rigid on the stem, and suitable means for locking this head to said support at various elevations due to the adjustment of said stem, substantially as set forth.

3. The combination of an oil-cup, a stationary support in the cup independent of the cap for the same and provided with two openings one of which is screw-threaded, a valve controlling the cup-outlet, a stem extended from the valve and provided with screw-threads engaging those in the support, a head rigid on the stem and having a series of openings arranged on a circle to come into successive register with the non-threaded opening in said support, and a pin for engagement with said non-threaded opening and any one of the head-openings in register therewith, substantially as set forth.

4. The combination of an oil-cup, a standard having a foot-lug provided with a screw-threaded opening that registers with a similar opening in the cup-bottom, a screw for engagement with said opening, an arm extended at right angles from the upper end of the standard, a valve controlling the cup-outlet, and a stem that extends from the valve and has a screw-adjustment in the standard-arm, substantially as set forth.

5. The combination of an oil-cup having the passage in its nozzle terminated at one end in a conical seat, a valve that corresponds to the seat, has vertical channels and a concavity below the channels; a stem extended from the valve, and a support for the stem, substantially as set forth.

494,316. HOSE-COUPLING. SAMUEL M. BRERY, Chicago, Ill., assignor to the Consolidated Car-Heating Company, Wheeling, W. Va. Filed Aug. 8, 1892. Serial No. 442,402. (No model.)



Claim.—1. The hollow head of a hose-coupling provided on one side with a forward projecting lip having on its inner surface a convexly curved locking shoulder, and with a convexly but reversely curved locking shoulder on the opposite side of the head, substantially as and for the purpose set forth.

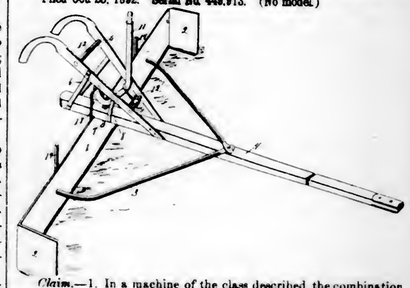
2 The hollow head of a hose-coupling provided on one side with a forward projecting lip having on its inner side a convexly curved locking shoulder, and with a convexly but reversely curved locking shoulder on the opposite side of the head having its bearing point, for tightening by engagement with the oppositely curved locking shoulder on a companion-head, near the line of the center of the gasket-opening in the meeting-face of its head, substantially as and for the purpose set forth.

3. The hollow head of a hose-coupling provided on one side with a forward projecting lip having on its inner side a convexly curved locking shoulder provided in its periphery with a rectangular groove, and a convexly but reversely curved locking shoulder on the opposite side of the head provided with a rectangular groove in its periphery and having its bearing point, for tightening by engagement with the oppositely curved locking shoulder on a companion-head, near the line of the center of the gasket-opening in the meeting-face of its head, substantially as and for the purpose set forth.

4. The hollow head of a hose-coupling having on one side a forward projecting lip provided on its inner side with a locking shoulder, a locking shoulder on the opposite side of the head, a rib and a recess near the base of its meeting face, and a stop at the outer end of the recess, substantially as and for the purpose set forth.

5. A hollow hose-coupling head A provided on one side with a forward projecting lip *n* having on its inner side a convexly curved locking shoulder *m* and a similarly but reversely curved locking shoulder *l* on the opposite side of the head having its bearing point, for tightening by engagement with the oppositely curved locking shoulder on a companion-head, near the line *x* of the center of the gasket-opening in the meeting-face of its head, a rib *o* and recess *o'* having a stop o^3 at its outer end near the base of the meeting face of the head, a nozzle entering the head to bear against the gasket therein, and a clamp-nut device having a nut D to engage the threaded neck of the head and bear against the nozzle to clamp it against the gasket, the whole being constructed and arranged to operate substantially as and for the purpose set forth.

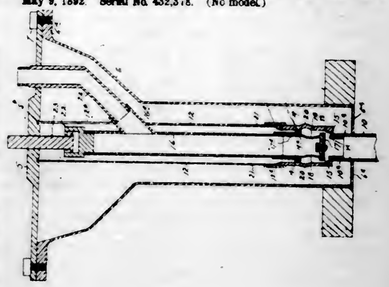
494,317. ROAD-SCRAPER. PAUL BLANCHARD, Arnaudville, La. Filed Oct. 25, 1892. Serial No. 449,913. (No model.)



Claim.—1. In a machine of the class described, the combination with a central draft-tongue, a scraping-blade connected therewith, and provided upon its rear side with pairs of vertically opposite keepers, a pair of caster-wheels having their shanks located for reciprocation in the keepers, a bar connecting the same, a lever having a lower rearwardly bend end fulcrumed on the draft-tongue, a yoke connecting the lever at its rear extremity with the connecting bar, and means for securing the lever in either a rearward or forward position, substantially as specified.

2. In a machine of the class described, the combination with a central draft-tongue, a transverse scraping-blade connected therewith, and provided upon its rear side with keepers, a pair of diverging handles secured to and rising from the tongue, and upper and lower rungs connecting the handles, caster-wheels having their shanks mounted in the keepers, a standard upon the tongue, a hand-lever having a lower rearwardly curved end fulcrumed in the standard, a yoke connected to the rear end of the lever, a connecting bar between the yoke and caster-shanks, the same being connected with the lower end of the yoke, and hooks located upon the upper and lower rungs and adapted for connecting with the lever, substantially as specified.

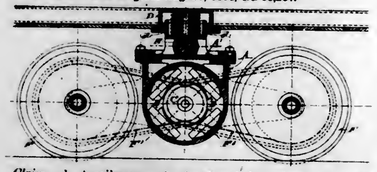
494,318. HYDRANT. ROBERT A. BROOKS, Denver, Colo. Filed May 9, 1892. Serial No. 432,378. (No model.)



Claim.—1. In a hydrant the combination of the stationary outer casing, the bottom plate to which it is made fast, the supply pipe or conduit passing through said plate, the removable top plate secured to the casing, the vertically movable valve pipe 16, and the intermediate pipe 12 carrying the valve seat, its lower portion being horizontally shouldered to rest upon the top of the supply pipe and terminating in a depending vertical portion which dips into the top of the supply conduit forming a water tight joint, while its upper extremity engages the top plate which is grooved to receive it, thus preventing displacement, pipe 12 being vertically slotted to receive the outlet spout connected with pipe 16, whereby the last named pipe is allowed the necessary movement for opening and closing the valve, substantially as described.

2. In a hydrant the combination of the stationary outer casing, the bottom plate to which it is made fast, the supply pipe or conduit, the removable top plate secured to the casing, the vertically movable valve pipe 16 and the intermediate pipe 12 carrying the valve seat, its lower portion being shouldered to rest upon the top of the supply pipe and terminating in a depending portion adapted to slip into the top of the supply conduit forming a water-tight joint, while its upper extremity engages the top plate to which it is loosely connected but in such a manner as to prevent both vertical and lateral displacement, substantially as described.

494,319. RAILWAY-CAR. CHARLES BROWN, Basle, Switzerland, assignor to Maschinenbau Gesellschaft, same place. Filed Apr. 11, 1892. Serial No. 428,716. (No model.) Patented in France May 20, 1891, No. 213,590, and in Belgium Aug. 29, 1891, No. 96,207.



Claim.—1. A railway car having four independent trucks, each provided with two wheels one in front of the other, and with a motor connected with and arranged to actuate said wheels, said trucks having vertical pivot connections with the body of the car whereby they are permitted to turn independently of each other so as to follow curves in the track, substantially as and for the purposes set forth.

2. A railway car having four independent trucks, each provided with two wheels one in front of the other, and with a motor connected with said wheels, said trucks having vertical and horizontal pivot connections with the body of the car whereby they are permitted to turn independently of each other so as to follow curves and variations in the level of the track, substantially as and for the purposes set forth.

3. A railway car with four trucks having jointed connections with the body, each truck having two wheels, one in front of the other, and a special motor inclosed therein, and connected by suitable gearing with the truck wheels, substantially as and for the purposes set forth.

4. In a railway car, the combination of the body mounted upon four independent trucks having universal joint connections therewith, and each provided with a casing, and separate motors inclosed in the several trucks and connected by suitable gearing with the truck wheels, substantially as and for the purposes set forth.

5. In a railway car the combination of the body mounted upon four independent trucks, each having two wheels one in front of the other, horizontal sleeves to which said trucks are pivoted vertically, and cross shafts upon which said sleeves are mounted and free to turn, substantially as and for the purposes set forth.

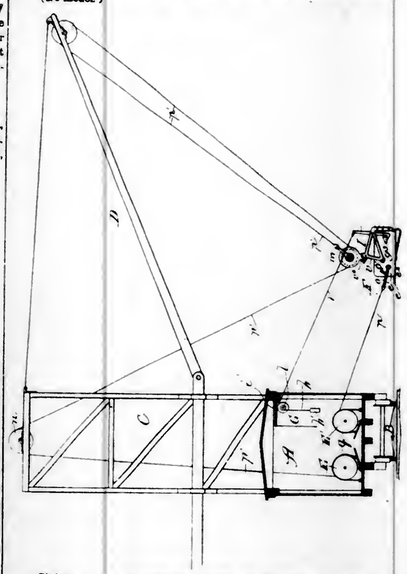
6. In a railway car, the combination of the body, trucks each having two wheels one in front of the other, cups pivoted vertically to said trucks and loosely inserted in caps in the base of the car, springs interposed between said cups and caps, and cross shafts to which said caps are pivoted horizontally, substantially as and for the purposes set forth.

7. In a railway car, the combination of the car body, trucks each provided with two wheels one in front of the other, and with a housing between the wheels open on the outer side, and a motor inclosed in said housing with its commutator or collector and brushes adjacent to the opening therein, substantially as and for the purposes set forth.

8. In a railway car, the combination of the car body, trucks each provided with two wheels one in front of the other, and with a housing between the wheels for a motor, sprocket wheels mounted upon the truck axles and on the motor shaft, and chain belts connecting the sprocket wheels on the truck axles with the sprocket wheels on the motor shaft and inclosed by the truck frame, substantially as and for the purposes set forth.

9. In a railway car, the combination of the car body, four independent trucks each comprising a frame provided with two wheels one in front of the other, and formed with an intermediate housing, and a motor inclosed in said housing and connected by suitable gearing with said wheels, circle plates pivotally connected horizontally with the upper sides of the truck frames between the truck wheels and provided on their upper sides with cups which are loosely inserted in caps in the base of the car body and with horizontal sleeves, springs interposed between said cups and caps, and horizontal cross shafts loosely secured at the ends in said sleeves, substantially as and for the purposes set forth.

494,320. SCRAPER APPARATUS. WILLIAM BUTLER and HENRY O. BUTLER, Kenosha, Wis. Filed Oct. 14, 1892. Serial No. 448,806. (No model.)



Claim.—1. In a scraper-apparatus, the combination with a support carrying cable winding-mechanism having a scraper-filling drum and a scraper hauling-out drum, a mast and a boom, of a scraper, a cable connecting the scraper from its forward end with the said filling-drum, and a cable connected at one end with the said hauling-out drum, passing thence upward over a guide on the mast and down about the scraper-hanger over a guide near the outer end of the boom and back to the scraper hanger to which it is fastened at its opposite end, substantially as described.

2. In a scraper-apparatus, the combination with a support carrying cable winding-mechanism having a scraper filling drum and a scraper hauling-out drum, a mast and a boom, of a scraper, a cable connecting the scraper from its forward end with the said filling-drum, a cable connected at one end with the said hauling-out drum, passing thence upward over a guide on the mast and down about the scraper-hanger over a guide near the outer end of the boom and back to the scraper-hanger to which it is fastened at its opposite end, and a dumping device on the said support connected with the scraper, substantially as described.

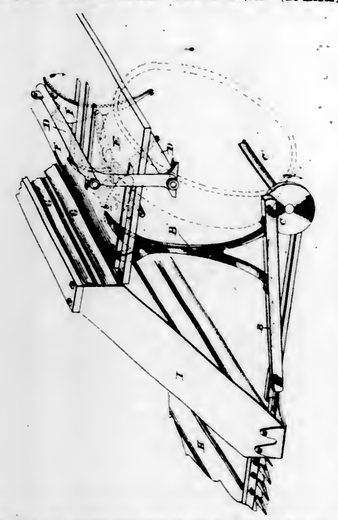
3. In a scraper-apparatus, the combination with suitable scraper-operating mechanism, of a scraper F having the body-portion provided with a rear extension of its base bent downward and forward and fastened near its forward end to the base and forming a rounded tilting-shoe e^3 on the rear portion of said base, a hanger and a forward draft-bar, substantially as described.

4. In a scraper-apparatus, the combination with suitable scraper-operating mechanism, of a scraper F having the body-portion formed with a bottom, sides, and open ends, a cradle I pivotally supported between the sides forward of the transverse center of the scraper and terminating in a back for the rear end of the body-portion, a dumping catch H journaled on the cradle to engage the said body-portion and provided with a dumping lever g, and a draft-bar e, substantially as described.

5. In a scraper-apparatus, the combination with suitable scraper-operating mechanism of a scraper F comprising the body-portion formed with a bottom, sides and open ends, the bottom being formed into a beak e at its forward end, and into a shoe e^3 at its rear end, and the sides having ears g^3, a cradle I pivotally supported between the sides forward of the transverse center of the scraper and terminating in a back for the rear end of the body-portion, a dumping-catch H formed of a shaft g' carrying a lever g and journaled in the said sides and provided with depending catches g^4 to engage the ears, and a draft-bar e, substantially as described.

6. A scraper-apparatus comprising, in combination with a car A supporting the winding-drums E and E' having brakes, a mast C and a boom D, a dumper G on the car formed with a rotary shaft l carrying drums k and k', a brake for the dumper, a weighted cord h fastened to the drum k' to wind thereon in one direction and a dumping-cord i fastened at one end on the drum k to wind in the opposite direction, a scraper F formed with the body-portion open at opposite ends and provided with a cradle I journaled between the sides in advance of the transverse center of the scraper and terminating in a back for the rear open end of the body-portion, a suspension-pulley m on the hanger-bar of the cradle, a dumping-catch H on the rear portion of the cradle for supporting and releasing the body-portion and provided with a lever g with which the opposite end of the cord i is connected, a cable p connecting the draft-bar of the scraper with the drum E', and a cable p' fastened at one end to the drum E, passing thence upward over a guide on the mast and down under the hanger-pulley m on the scraper over a guide near the outer end of the boom and back to the axis of the pulley m, substantially as described.

494,321. SELF-BINDING HARVESTER. WILLIAM BUTTERFIELD, Chicago, Ill. Filed June 13, 1891. Serial No. 396,110. (No model.)

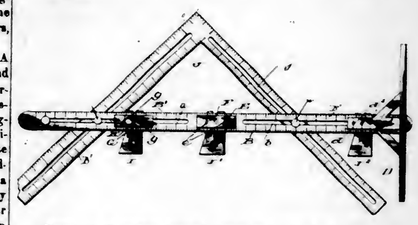


Claim.—1. The combination with the binder-table, and the binding mechanism thereon, of the pitman and the vertical arm thereon operating above the binder-table to advance the butts of the grain thereon.

2. The combination with the binder-table, the binding mechanism thereon, the packers, and the conveyers for delivering the grain to the binder table, of the pitman, the crank-shaft for driving the same with a rising and falling movement, the vertical arm or standard operating above the binder table to advance the grain thereon.

3. In a grain binding machine, the combination of the frame, the grain platform, the cutting mechanism at its front the inclined elevator aprons, the binding table projecting laterally from the delivery ends of the elevator aprons, the binding mechanism, the crank shaft sustained by the frame below the binding table, the pitman extending longitudinally of the cutting mechanism and connected respectively at its ends to the crank shaft and the cutting mechanism, and the upright arm carried by the pitman and having its upper end arranged to act adjacent to the binding table on the butts of the grain to advance the same.

494,322. STAIR-BUILDER'S LAYING-OUT TOOL. CHARLES H. CALLAHAN, Alexandria, Va. Filed Sept. 19, 1892. Serial No. 446,282. (No model.)



Claim.—1. The stock having a vertical longitudinal slot in combination with the removable T head or miter jack having a slot for the passage of the stock, substantially as described.

2. The slotted stock in combination with the dove-tail patterns having their shanks secured in the stock slots, substantially as described.

3. The combination of the stock with a removable and adjustable T head or miter jack having a stem provided with scorers, substantially as specified.

4. The combination of the stock having scorers and dove-tail patterns secured thereto adjoining and at right angles to the scorers, substantially as and for the purpose described.

5. The combination of the stock composed of a bar and a scaled piece, with an adjustable miter jack or T head thereon having a stem and wings as and for the purpose set forth.

6. The combination of the stock having scorers and dove tail patterns secured thereto in relation to the scorers, both the scorers and dove tail patterns being adjustable, substantially as specified.

7. The combination of the stock, the scorers, the dove tail patterns and the miter jack, substantially as and for the purpose described.

8. The combination of the bar A having angular shoulders a^2 on its upper face, with the scale piece B adjustably connected to the bar and adapted to abut against one of said shoulders, substantially as described.

9. The stock having a vertical longitudinal slot in combination with the removable T head or miter jack having a stem, and the scorers connected to said stock and stem, substantially as and for the purpose specified.

10. The stock having a vertical longitudinal slot in combination with the removable T head or miter jack, and the dove tail patterns connected to the stock and T head, substantially as described.

11. The combination of the stock, the adjustable plates G, E, provided with a pair of relatively non-adjustable scorers, and the clamping screws securing the plates to the stock, substantially as described.

12. The combination of the stock having non-adjustable scorer at center, with the miter jack adjustably mounted on the stock, and the scorer attached to said jack, substantially as set forth.

13. The combination of the stock, the plates G and E provided with scorers, and the clamping screws securing the plates to the stock, and the patterns attached to said stock by said screws, substantially as and for the purpose set forth.

14. The combination of the stock having a non-adjustable scorer at center, with the miter jack adjustably mounted on the stock and the scorer attached to said jack, and the scorer adjustably mounted on the opposite end of the stock, substantially as described.

15. The combination of the stock, the central fixed pattern, and the adjustable pattern on opposite ends of the stock, substantially as and for the purpose set forth.

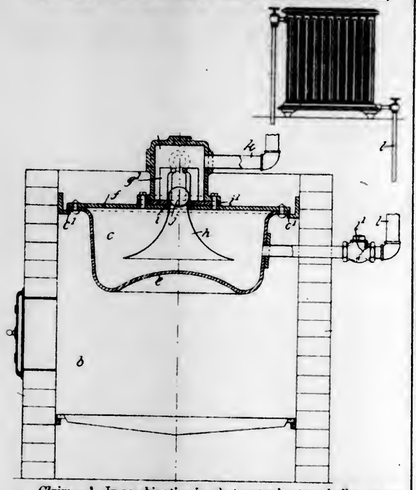
16. The combination of the stock, the central fixed pattern, and the adjustable pattern on opposite ends of the stock, and the adjustable scorers adjoining each pattern, substantially as described.

17. The combination of the slotted stock, with the angle slotted in both limbs, and each limb adjustably secured to the stock in a slot thereof, substantially as and for the purpose described.

18. The miter-jack or T head having a stem and adjustable scorers mounted on said stem, substantially as described.

19. The miter jack, having a stem *d* wings *d' d'* substantially as and for the purpose described.

494,823. HOT-WATER HEATER. FREDERICK K. CASWELL, Hartford, Conn. Filed Nov. 19, 1892. Serial No. 452,483. (No model.)



Claim.—1. In combination in a hot water heater a boiler, an outlet communicating with a riser, a valve arranged in the outlet and normally closed against the return flow of water from the riser into the boiler, a circulator extending from the valve chamber to within the boiler, a return pipe connecting with the boiler, and the pipes and coils of the circulation, all substantially as described.

2. In a hot water heater in combination with a boiler, the outlet communicating with a riser, a valve located in the outlet and normally closed against the return flow of water from the riser into the boiler and the funnel shaped circulator extending from the outlet within the vessel with its smaller end adjacent to the outlet, all substantially as described.

3. In a hot water heater a boiler, a valve automatically controlling the return flow of heated water into the boiler from the riser and a funnel-shaped circulator having the flaring mouth arranged within and near the bottom of the boiler, all substantially as described.

494,824. RAKE. ALICE J. CHAMBERLAIN, Bridgeport, Conn. Filed May 4, 1888. Serial No. 272,780. (No model.)



Claim.—As a new article of manufacture the woven wire rake guard A, having the curved wire B, and straight base wire *d*, the netting attached to said wires, the ends *a*, *a'* of the wire B, projecting below the base wire *d*, such projecting ends forming one of the means for attaching said guard to the rake head, all substantially as shown and set forth.

494,825. BARBED WIRE. JOHN D. CURTIS, Worcester, Mass. Filed Nov. 2, 1892. Serial No. 450,796. (No model.)



Claim.—1. In combination with a fence wire, a four-pointed barb, made of wires non-circular in cross-section, the two members of the barb being wrapped around the main fence wire so that the wrapped portion of each member shall partially overlap or rest upon the other, whereby the two members of the barb are firmly interlocked, substantially as described.

2. In combination with a fence wire, a four-pointed barb, made of wires half round in cross-section, the two members of the barb being wrapped around the main fence wire, so that the wrapped portion of each member shall partially overlap or rest upon the other whereby the two members of the barb are firmly interlocked, substantially as described

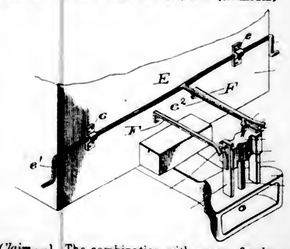
494,826. BARBED WIRE. JOHN D. CURTIS, Worcester, Mass. Filed Nov. 2, 1892. Serial No. 450,796. (No model.)



Claim.—1. The combination with a double strand fence wire of a four point barb, formed of wires non-circular in cross-section, each of which is wrapped around both strands with its flat side next to the said strands, and is inserted at one end between them, in the manner hereinbefore shown and set forth.

2. The combination with a double strand fencing of a four-point barb made from two half-round or flat wires inserted between and wrapped around the main wires so as to cross each other between the main wires and bring the flat surfaces of the barb in contact with the strands of the fence and with each other, thereby giving the barb a broad bearing and locking the two parts of the barb firmly in position, substantially as shown and described.

494,827. CAR-COUPLING. JAMES S. DERROUGH, Walnut Hill, La. Filed Jan. 11, 1893. Serial No. 458,098. (No model.)



Claim.—1. The combination with a car, of a draw bar movable longitudinally with respect to the car, a slide mounted on the draw bar, and carrying a coupling pin, devices for elevating said slide and pin and holding them in an elevated position, and a tripping mechanism secured to the car, and adapted to be engaged by a part connected with the movable draw bar to release said slide and pin, when the draw bar is forced inward in the act of coupling substantially as described.

2. The combination with the car, of a draw bar movable longitudinally with respect to the car, a slide carrying a coupling pin mounted on said draw bar, a catch for retaining the slide in elevated position, a releasing device for said catch, secured to the car and adapted to be operated by the inward movement of the draw bar in coupling, to release said slide and pin, substantially as described.

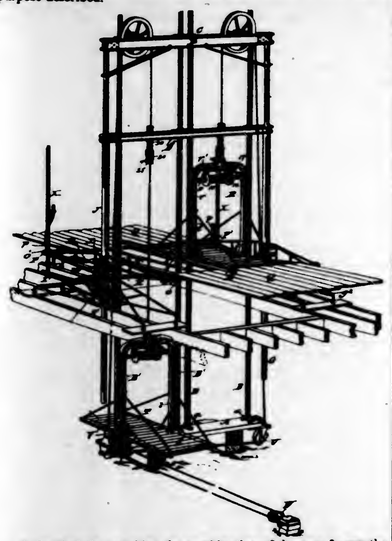
3. The combination with the draw bar, of a slide carrying a coupling pin, vertical guides for said slide secured to the draw bar, devices for elevating said slide spring catches secured to said guides for engaging the slide and holding it in an elevated position, stationary arms secured to the car having cam portions adjacent to said spring catches, for automatically releasing the slide when the draw bar is forced inwardly in coupling, substantially as described.

494,828. HOISTING-MACHINE. JOHN E. ENNIS, Duluth, Minn. Filed Oct. 31, 1891. Renewed Aug. 26, 1892. Serial No. 444,171. (No model.)

Claim.—1. A hoisting machine comprising a cage supporting frame, platform supporting frames, said frames arranged for independent vertical movement, and mechanism for simultaneously elevating such frames substantially as shown and described.

2. A hoisting machine comprising a vertically movable elevator frame formed of vertical shafts G and a cross head D, the elevator cable sheaves mounted on the said cross head, the alternately movable elevator cages supported on such sheaves, clutch devices for supporting and operating to elevate the said shafts, G, platform supporting frames adjustably mounted on the shafts G and the clutch mechanism for elevating and holding the said frames on the said shafts substantially as and for the purpose described.

3. In a hoisting machine the combination with a vertically movable elevator frame arranged to support the alternately operated cages and means for elevating such cages substantially as shown, of the vertically adjustable platform supporting frames, and mechanism substantially as described adapted to operate the elevator and the platform frames at the same time and to raise the platform frame to a greater degree than the elevator frame, whereby provision is made to adjust the cage elevating ropes to bring the cage floor and the platform in the same horizontal plane substantially as and for the purpose described.



4. In a hoisting machine the combination of the cage frames the counterbalanced cages supported thereon, the platform supporting frames K and mechanism for supporting the said frames and mechanism for simultaneously lifting them to varied degrees of movement substantially as shown and described.

5. In a machine for the purpose described a vertically movable cage supporting frame having vertical shafts G the frames g^3 for supporting such shafts, the platform frames K mounted to travel on the shafts G, the clutch devices carried by the frames K and the similar devices held by the frames g^3 and the intermediate lever mechanism connecting such clutch devices, whereby a single operating lever is adapted to elevate both the shafts G slower than the frames K all arranged substantially as and for the purpose described.

6. In a hoisting machine the combination with the vertical supports or shafts of the platform supporting frames K held to travel on such shafts and to be supported thereon, the clutch mechanism substantially as described carried by said frame and arranged to operate on the shafts G such mechanism having extended lever arms M, a rock shaft journaled on said frame, levers P^2 for rocking the shaft and connections between such levers and the arms M all arranged as and for the purpose described.

7. In a hoisting mechanism substantially as described, the combination with the vertical shafts G, the standards g^3, the clutch devices supported on the standards g^3 and adapted to operate to lift the shafts on their up movement and to travel loosely thereon when on their downward movement, of the frames K mounted on the shafts G for vertical movement, the clutch devices carried thereby movable on the shafts G on their upward movement and adapted to clutch and become fixed to the said shafts when forced downward, and means for operating both of such clutch devices, substantially as shown and described.

8. The combination with the shafts G the frames or standards g^3 the frames K, the clutch collars 6 6 held on the standards g^3, the clutch collars N, N, held on the frame K, such clutch devices having operating levers L and M respectively, of the angle levers P' the rods X having a frictional contact with the levers P' and connected at their lower end to the levers M the links X^3 and the clutches Z all arranged as shown and for the purpose described.

9. In a hoisting mechanism substantially as described, an elevator cage formed of an arched frame R and the floor supporting sections S said sections consisting of the angle frames T each having a floor portion and adapted to be detachably secured to the frames R substantially as and for the purpose described.

10. In a hoisting mechanism, substantially as shown the combination with the elevator cages R, the cable, and the snatch block W of the guide pulleys U V V' arranged as shown whereby they are adapted for adjustment substantially as and for the purpose described.

11. The combination with the cage frame R the side members r' of which have apertured lugs r^2 r^4 of the platform sections S, formed each of angular frames T the vertical members of which *t* are extended at *t'* and formed with hooked members t^2 and are adapted to be detachably held in said apertured lugs, substantially in the manner and for the purpose described.

494,829. SPINDLE FOR PAPER-ROLLS. AUSTIN L. FLINT, Watertown, N. Y. Filed Oct. 1, 1892. Serial No. 447,502. (No model.)

Claim.—In a spindle for paper-rolls, in combination, a shaft, the two sets of radial lugs with outer faces all inclined in the same direction, the cylinder sections engaging said lugs, the cylindrical pieces G, with collars to engage the opposite ends of said sections, having on their inner faces hubs with flat sides to engage the similarly shaped portions of the cylinder sections, and a threaded nut on the shaft bearing against one cylindrical piece and a hand-wheel having swiveled connection with the other collar said hand-wheel having a screw-threaded hub engaging screw threads on the shaft substantially as described and for the purpose specified.

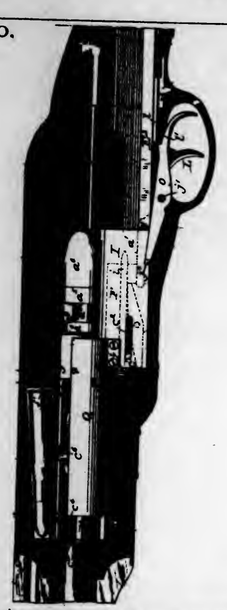
494,830. BREECH-LOADING GUN. DUNCAN K. CRAFT, Goshen, Canada, assignor of one-third to Annie Ritchie, same place. Filed May 3, 1892. Serial No. 431,694. (No model.)

Claim.—1. In a magazine gun, a rotatable magazine mounted concentric with the barrel of the gun and provided with peripheral openings.

2. In a magazine gun, a rotatable magazine having figures or markings thereon to indicate the number of cartridges in the magazine.

3. In a magazine gun, a rotatable magazine comprising the end rings *f f'* and the separated bars f^3 connecting the rings, and forming the division walls of the cartridge compartments.

494,880.



4. In a magazine gun, a rotatable magazine comprising the separated bars f^3 and the end rings $f\,f'$ to which the bars are connected, and a stationary casing encircling the rotatable magazine and forming the outside wall of its compartments.

5. In a magazine gun, a rotatable magazine provided with openings in its periphery, in combination with a receiver mounted centrally within the magazine and forming the inside wall of its compartments.

6. In combination with the rotatable magazine, the receiver within the same, and the cup-shaped block encircling the magazine.

7. In combination with the gun frame provided with the feed opening h^2 and discharge opening h^3, the rotatable magazine, the oscillating receiver mounted within the magazine, and a pawl g' adapted to connect the magazine with the receiver.

8. In a magazine gun, the combination with a frame, of a magazine, a cut off mechanism therefor, a feed opening in the frame, and a cover for the feed-opening which operates the cut-off mechanism.

9. In combination with the gun frame having the openings h^2 and h^3, the cover g^8 for the opening h^3, the rotatable magazine, the receiver, the pawl g' connecting the receiver and the magazine, the cut-off plate g^6 for throwing the pawl out of action, and the spring g^7 for actuating the plate; said plate being controlled by the cover in such manner that when the opening h^3 is uncovered, the cut-off plate is permitted to rise and sever the connection between the receiver and the magazine, and when the opening h^3 is covered, the cut-off plate is depressed so as to allow the receiver to resume its connection with the magazine.

10. In combination with a gun frame or casing provided with a feed-opening, a rotatable magazine, means for rotating the latter, and a cover for the feed opening controlling the said means, and preventing the rotation of the magazine when the cover is off the opening.

11. In a magazine gun, the combination with a rotatable magazine, of means for rotating the magazine, and the gun frame or casing provided with an opening R in its side wall through which the magazine may be operated by hand.

12. In combination with the frame or casing, the rotatable magazine having all the bars f^3 except one, notched as at f^4, and means for rotating the magazine the screw f^5 projecting from the frame into the notches, as and for the purpose set forth.

13. In combination with the frame or casing, the rotatable magazine provided with rings f and f' and the bars f^3, the said ring f' being provided with teeth or shoulders f^4,—the receiver N provided with a pawl g' to engage the shoulders f^4, and means for oscillating the receiver.

14. In combination with the frame or casing provided with the feed opening h^2, the rotatable magazine having the toothed ring f', the receiver N mounted within the magazine and provided with a spring pawl or dog g' to engage the teeth of the ring, a cut-off plate encircling the receiver and its pawl or dog and provided with a pin or stud g^4, a cover g^8 for the opening h^3, provided with an inclined groove g^4 to receive the pin g^3, and a spring g^4 for urging the plate into contact with the pawl of the receiver.

15. In combination with a rotatable magazine concentric with the barrel, a receiver mounted within the magazine, and a breech-bolt adapted to oscillate the receiver as the receiver passes over it.

16. In combination with a rotatable magazine concentric with the barrel, an oscillating receiver mounted centrally therein and forming the inner wall of the cartridge compartments of the magazine, said receiver being slotted or cut away longitudinally as shown, whereby when the slot or opening in the receiver comes opposite the feed opening of the gun, the cartridge contained in the compartment of the magazine which is in line with the feed opening, may fall into the receiver, in line with the barrel.

17. In combination with a rotatable magazine, an oscillating receiver, and intermediate devices operatively connecting the magazine and receiver to turn the magazine when the receiver turns in one direction and to leave the magazine at rest when the receiver turns in the opposite direction.

18. In combination with a frame or casing having the feed opening h^2 and the discharge opening h^3, a rotatable magazine mounted concentric with the barrel, and an oscillating receiver within the magazine, having its mouth brought alternately opposite the openings h^2 and h^3.

19. In combination with the breech-bolt the firing-pin mounted therein, the sear d' to engage the firing-pin, the lever d^5 bearing upon the sear at one end, and the trigger L provided with the upright arm d^6 to engage the lever d^5.

20. In combination with a breech-bolt and its carriage, a firing-pin mounted within the breech-bolt, and provided with a carriage mounted within the breech-bolt carriage, and means for moving one of said carriages in relation to the other.

21. In combination with the breech-bolt and its carriage the firing-pin and its carriage, a rocking dog or lever J adapted to connect the carriages, and a pin or "knock-off" i adapted to tip or rock the lever J out of engagement with the breech-bolt carriage as the said pin i moving relatively to the carriages comes in contact with the upper end of the lever J.

22. In combination with the breech-bolt carriage I having slots c^3, the firing-pin carriage F provided with a pin c' to enter the said slots for the purpose of limiting the movement of the carriages with reference to each other, a dog or lever J adapted to connect the carriages so that they shall move forward together, and a stop i to tip or rock the dog J out of engagement with the breech-bolt carriage.

23. In combination with the breech-bolt carriage, an armed wheel a^3 mounted on the breech-bolt and provided with the pin a^{10}; the firing pin-carriage provided with a slot b^3 to receive the pin a^{10}; a tube or shell K through which the wheel moves, provided with one or more grooves c^2 and abutments c^4 corresponding to the arms or teeth of the wheel a^3, and means for moving one of the carriages in relation to the other so as to turn the wheel and bring its arms into or out of alignment with the grooves in the tube for the purpose of unlocking or locking the breech-bolt.

24. In combination with the carriage I provided with the rings a^4 and a^5, the shouldered and threaded breech bolt passing through the rings, the wheel a^3 mounted upon the bolt between the rings, the retaining nut a^6, the firing-pin-carriage movable relatively to the carriage I, and provided with a cam-slot to receive a pin on the wheel, and the grooved shell K through which the bolt and attendant parts move.

25. In combination with the hollow breech-bolt slotted at its rear end, the firing-pin carriage provided with the arms b and b', the firing-pin passing through the arm b' and provided with a nut or shoulder b^4 at its forward end, and the spring b^5 bearing at its ends against the shoulder b^4 and arm b'.

26. In combination with the shell or casing K provided with a rib c^4, an extractor consisting of a lever c^5 pivoted to the breech-bolt, and urged upward at its rear end by a spring c^6 which has a sliding connection with the lever and which is adapted to be depressed by the rib c^4, as it passes over it in the act of unloading, so as to raise the forward end of the extractor sufficiently to release the flange of the cartridge from the hook.

27. In a breech-loading gun, the combination with the frame and stock-portion B, of the butt or heel portion A, the interposed spring E^4, the reciprocating breech-bolt and firing-pin carriages, a rod connecting the firing-pin carriage with the heel-plate, and a trigger O adapted to engage the said firing-pin carriage to prevent the unlocking of the breech-bolt and consequent movement of the breech-loading mechanism.

28. In combination with the locking trigger O and the firing-pin-trigger L, the sliding safety plate F moving over the top of the triggers to prevent the actuation thereof.

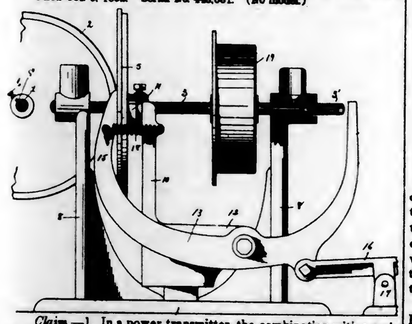
29. In a gun, a "safety" consisting of a plate adapted to slide over the rear ends of the triggers, a friction spring to hold it stationary and a handle capable of moving within the rear end of the trigger guard.

30. In a breech-loading gun, the combination with the main frame or casing in which the lock and attendant parts are mounted, of a sleeve or butt portion A mounted upon the stock portion B to which the main frame is secured, a coiled spring urging the said portions A and B in opposite directions; and a rod secured at one end to the butt portion and at the other end to the operative mechanism of the gun, whereby the reciprocation of the gun relatively to the sleeve or butt portion which surrounds the stock shall effect the operations of loading and unloading.

31. In combination with the breech-bolt, a rotatable magazine, an oscillating receiver actuated by the breech-bolt, a sleeve or butt portion A encircling the main body of the gun stock B, the interposed spring E^4 and a positive connection within the gun between the breech-bolt and the said sleeve or butt portion A.

32. In a breech loading gun, a rotary magazine, and an oscillating receiver mounted within the magazine to receive and discharge by gravity through the chamber of the magazine.

494,331. POWER-TRANSMITTER. ROBERT HARRIS, Toledo, Ohio. Filed Oct. 6, 1892. Serial No. 448,061. (No model.)



Claim.—1. In a power transmitter, the combination with a main shaft, of a friction driver fixed thereon, a shaft mounted at an angle to the first named shaft, and so as to be longitudinally movable, a friction driver thereon, a frame provided with a brake surface, a rock lever pivoted to the frame and having arms adapted to contact, respectively, with the end of the movable shaft and with the friction driver thereon.

2. In a power transmitter, the combination, with a main drive shaft, of a friction driver fixed thereon, a shaft mounted at right angles to the first named shaft, and longitudinally movable in its bearings, a driver mounted thereon, a frame, a brake surface formed thereon, a U-shaped rock lever pivoted to the frame, the vertical arms of which rock lever are adapted to contact, respectively, with the end of the movable shaft and with the drive wheel thereon.

3. In a power transmitter, the combination with a friction drive wheel, of a shaft arranged at right angles to the axis of said wheel, and longitudinally movable, a friction wheel mounted on the shaft, a frame having a brake surface, a rock lever having vertical arms, a foot lever for operating the rock lever in one direction, and a spring for reversing the motion.

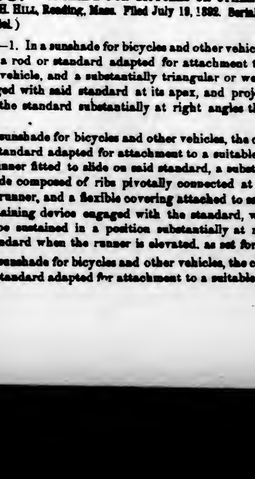
494,332. VEHICLE-GEAR. MATTHEW HARCOURT, Detroit, Mich. Filed Sept. 23, 1892. Serial No. 447,158. (No model.)

Claim.—1. In a vehicle gear, the combination, with a pair of trucks, each having wheels pivotally secured at its ends adapted to be turned parallel with the length of the trucks, and a frame secured to the truck above the top of the wheels, substantially as set forth.

2. In a vehicle gear, the combination, with a pair of trucks, each having wheels pivotally secured at its ends and adapted to be turned parallel with the length of the trucks, said trucks also being provided with posts, and a frame upon the posts above the top of the wheels, substantially as set forth.

3. In a vehicle gear, the combination, with a pair of trucks, each of which comprises an upper and a lower cross-bar, uprights bolted between said cross-bars, a wheel journaled at the outer end of each of said trucks, and a frame secured to the trucks, and connecting them together, substantially as set forth.

4. In a vehicle gear, the combination, with a pair of trucks, each of which comprises an upper and a lower cross-bar, an evener secured in the ends of said bars, one end of each of the eveners in the front truck being extended and provided with a brake shoe, a wheel upon each evener, and a frame secured to the trucks for connecting them together, substantially as set forth.



5. In a vehicle gear, the combination, with a pair of trucks, the outer end of each of which is provided with wheels pivotally secured thereto, and adapted to be turned parallel with the length of the trucks, a spring supported frame secured to the trucks above the top of the wheels, the under side of the front end of which frame is provided with stop blocks, adapted to be forced into engagement with the wheels after said wheels have been turned parallel with said trucks, substantially as set forth.

6. In a vehicle gear, a frame, longitudinally extended eveners F constructed with lateral arms F' carrying wheels E and journaled in said frame, lever connections jointedly engaging said eveners toward their extremities, and a steering mechanism engaging said lever connections, substantially as described.

7. In a vehicle gear, a frame, longitudinally extended eveners journaled intermediate their ends in said frame and carrying wheels E, lever connections G, G' jointedly engaging said eveners, and a steering bar G^3 engaging said lever connections, substantially as described.

8. In a vehicle gear, the combination, with a pair of trucks, each having wheels pivotally secured at its ends and adapted to be turned parallel with the length of the truck, said trucks being provided with posts, springs upon the posts, and a frame above the tops of the wheels, and provided with a socket for each post, the sockets resting upon the tops of said springs, substantially as set forth.

494,333. SUNSHADE FOR BICYCLES OR OTHER VEHICLES. GEORGE H. HILL, Reading, Mass. Filed July 19, 1892. Serial No. 440,460. (No model.)

Claim.—1. In a sunshade for bicycles and other vehicles, the combination of a rod or standard adapted for attachment to a suitable part of the vehicle, and a substantially triangular or wedge shaped shade engaged with said standard at its apex, and projecting from one side of the standard substantially at right angles therewith, as set forth.

2. In a sunshade for bicycles and other vehicles, the combination of a rod or standard adapted for attachment to a suitable part of the vehicle, a runner fitted to slide on said standard, a substantially triangular shade composed of ribs pivotally connected at their inner ends to said runner, and a flexible covering attached to said ribs, and a shade sustaining device engaged with the standard, whereby the shade may be sustained in a position substantially at right angles with the standard when the runner is elevated, as set forth.

3. In a sunshade for bicycles and other vehicles, the combination of a rod or standard adapted for attachment to a suitable part of the

494,333.



vehicle, a runner fitted to slide on the standard, a shade composed of a series of ribs pivoted at their inner ends to the runner and a flexible covering attached to said ribs, and a shade sustaining device comprising first, a laterally projecting loop or guide affixed to the standard above the runner, and formed to permit the shade, when folded, to pass through it, and secondly, a laterally projecting stop affixed to the standard above the guide and made of less external area than the latter, whereby the shade when folded is permitted to move vertically between the guide and stop, said stop projecting over the guide so that when the shade has been passed upwardly through the guide, the stop and guide co-operate in sustaining it in its operative position, as set forth.

494,334. TIRE-TIGHTENER. WILLIAM D. HILLS, Salem, Ill. Filed Nov. 17, 1892. Serial No. 452,262. (No model.)

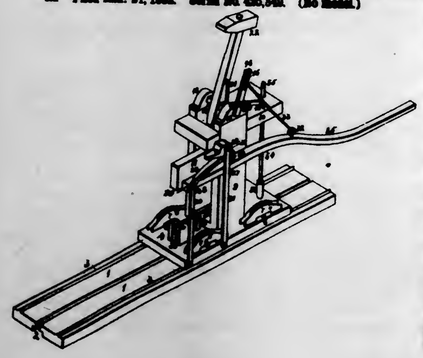


Claim.—1. A washer for the purpose named, consisting of an annulus in a single piece severed entirely through at one point, and partially at another, substantially as and for the purpose described.

2. A washer, comprising an annulus of a single piece severed entirely through at one point and partially at another, and adapted to receive a fastening at the point of complete severance, substantially as described.

3. A washer in the form of an annulus formed of a single piece of flexible material having a slot at one point and cut entirely through at its diametrical opposite side with enlargements opposite the cut and slit, substantially as shown and described.

494,335. FOOT-POWER HAMMER. GEORGE HUMPHREY, Belvidere, Ill. Filed Mar. 31, 1892. Serial No. 426,849. (No model.)

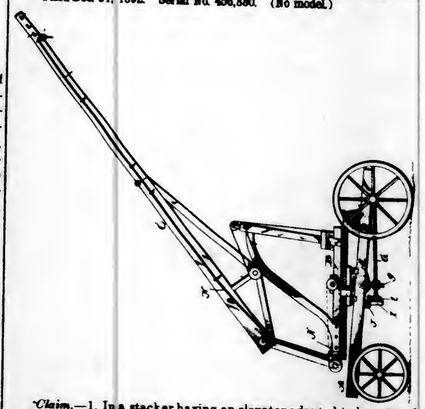


Claim.—1. In a foot power hammer, the combination of a track, a carriage thereon, a hammer having a pivotal connection with the carriage, a foot lever having a connection with the hammer, a spring having a connection with the hammer and with a stationary support, a cam for varying the distance through which the hammer is raised and a connection between the cam and the hammer.

2. In a foot power hammer, the combination of a track, a carriage thereon, means for affixing the carriage to the track a shaft journaled on the carriage, an arm extending from the shaft, a bar adjustably secured to the arm, a hammer affixed to the shaft, a lever pivoted to the carriage, a connection between the lever and the before mentioned arm, a spring for raising the hammer, a cam for varying the distance through which the hammer is raised and a connection between the cam and the hammer.

3. In a foot power hammer, the combination of a track having a groove therein, a carriage on the track, a shoe in the groove and a cam supported by the carriage, having a connection with the shoe for holding the shoe in engagement with the track.

494,336. HAY-STACKER. GEORGE A. KENNEDY, Olena, Ohio. Filed Dec. 31, 1892. Serial No. 456,590. (No model.)



Claim.—1. In a stacker having an elevator adapted to be rotated horizontally, the gearing for rotating the same, comprising in part a worm and worm-wheel, the means for moving these into and out of mesh comprising a jointed bar a sliding-bar to which one end of the jointed bar is pivoted a spring to move the latter in one direction and a cord extending to a distant part of the machine to move it in the opposite direction, substantially as described.

2. In a stacker having an elevator adapted to be rotated horizontally, in combination with the rotary mechanism, the means to throw the latter in and out of gear, comprising a bell crank lever a sliding bar, connected with the bell crank lever a hinged or jointed bar connected to the latter, a spring connected with the hinged bar to move it in one direction, and a cord connected to the same to move it in the opposite direction, said cord running to the outer end of the elevator, substantially as and for the purpose described.

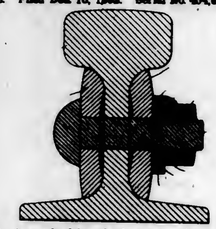
494,337. ELECTRIC ANNUNCIATING PUSH-BUTTON. JOHN KIPP, Chicago, Ill. Filed June 24, 1892. Serial No. 437,853. (No model.)



Claim.—1. In an electric annunciating push-button the combination of a base piece adapted to support an electro-magnet, an electro-magnet supported thereby in the line circuit, spring terminals mounted upon said magnet, a button for closing said terminals, and an armature for said magnet located within said base piece and adapted to produce a resonating sound when caused to vibrate by a make and break device in the same circuit, substantially as described.

2. In an electric annunciating push-button the combination of a base piece provided with a recess, and a shoulder adapted to receive and hold secure the insulating head of an electro-magnet, and an electro-magnet supported thereby in the line circuit; spring terminals mounted thereon, a button for closing the terminals, an armature for said magnet located within the recess of said base piece and adapted to vibrate synchronously with an electric bell in the same circuit, substantially as described.

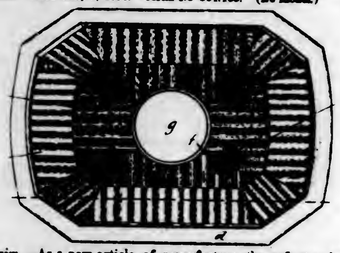
494,338. NUT-LOCK. EPHRIM LA ROCHELLE, Salem, Mass., assignor, by direct and mesne assignments, of two-thirds to Emile Poirier, same place. Filed Dec. 10, 1892. Serial No. 454,695. (No model.)



Claim.—1. A nut-locking device, comprising, first, a bolt-encircling plate adapted to be bent into engagement with the nut and having an ear or lug to indent and engage the threads on the bolt, the back of said ear or lug being beveled, and, secondly, a bolt-encircling washer having a recess, the bottom of which is beveled and constitutes a seat for the beveled back of said lug, the said plate and its lug being moved by the bearing of the beveled back on the beveled seat when lateral pressure is exerted on the plate by a nut on the bolt, as set forth.

2. The combination with a bolt and its nut, of a plate laterally movable on the bolt and provided with an ear or lug to indent and engage the threads on the bolt, and a washer having a seat formed to bear on the back of said ear or lug, the said plate being adapted for engagement with the nut, as set forth.

494,339. LIGHT-REFLECTOR. WILLIAM G. MARSTON, Boston, Mass. Filed Aug. 6, 1890. Serial No. 361,153. (No model.)



Claim.—As a new article of manufacture, the reflector herein described having a central corrugated face of sheet metal, a continuous corrugated rim extending outward therefrom and having an outer flat portion beat at an angle thereto provided with a wired strengthening edge and a coat or covering of white enamel, as set forth.

494,340. PADLOCK. FRANZ MEINER, Cörlin, Germany. Filed Sept. 3, 1892. Serial No. 445,026. (No model.)

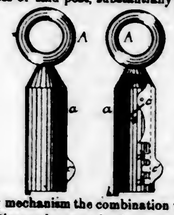
Claim.—1. In a locking mechanism the combination with a lock casing provided with an immovable solid key receiving post having exterior rigid wards of a hollow key having interior projections corresponding to the grooves or clefts between the wards of the key post, whereby only the proper key can be inserted in the lock and turned upon the post to move the bolt of the lock, substantially as described.

2. In a locking mechanism the combination with a lock casing provided with an immovable solid key receiving post having exterior rigid wards of a hollow key having a bit secured thereto and extending within the hollow portion of the same, said inwardly extending portion of the bit being cut away to permit the same to pass the wards of said key receiving post when the key is rotated upon the same, substantially as described.

3. In a locking mechanism a key having a hollow tubular body provided with an exterior projection to actuate the bolt and on its interior with a longitudinal projection having ward engaging clefts or recesses whereby the taking of an impression of the ward registering portion of the key is prevented, substantially as described.

4. In a locking mechanism a key having a hollow body, said key being provided with a bit pivoted thereto and extending within the hollow of the same, said bit having the portion projecting within the hollow of the key provided with ward engaging clefts or recesses whereby the taking of impressions of the ward registering portion of the bit is rendered impracticable, substantially as described.

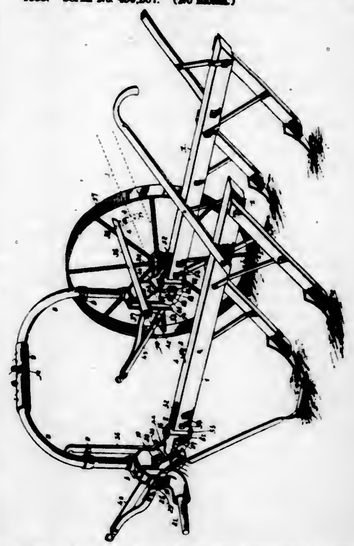
5. In a locking mechanism the combination with the lock casing provided with a stationary key post having recessed portions, and a longitudinally extending slot, of a key having a hollow body and a bit pivotally secured therein for engaging the longitudinal slot of said post, said bit having portions projecting into said hollow body for engaging the recesses of said post, substantially as described.



6. In a locking mechanism the combination with the lock casing provided with a stationary key post having a corrugated surface and a revoluble boss, having a recess therein, of a key having a hollow body provided with a bit having a corrugated surface for engaging said post, and a projecting portion for engaging the recess of said boss, substantially as described.

7. In a locking mechanism the combination with the lock having a corrugated key post, a revoluble boss provided with an aperture and a spring plate having a stop in the path of said aperture, of a key having a hollow body provided with a bit for engaging said boss having projections extending into said body for engaging the key post and a projection adapted to fill the aperture of said boss and prevent the stop from entering the same, substantially as described.

494,341. CULTIVATOR. FLOYD M. MONTGOMERY, Tarkio, Mo., assignor of one-half to John S. Smith, Clarinda, Iowa. Filed Jan. 21, 1893. Serial No. 459,207. (No model.)



Claim.—1. In a cultivator of the class described, the combination with the opposite gangs and their movements, of vertical spindles rising from the movements, inverted L-shaped tubular standards mounted loosely on the spindles, securing devices for binding the spindles and standards together, and a horizontal sleeve connecting the horizontal portions of the standards and provided with adjusting-devices, substantially as specified.

2. In a cultivator of the class described, the combination with the opposite beams, and gangs, and their movements, provided with

vertical spindles, having annular grooves formed near their upper ends, of inverted L-shaped tubular standards mounted on the spindles, set-bolts mounted in the standards and engaging the grooves of the spindles, perforations formed in the horizontal portions of the standards, a sleeve loosely connecting the horizontal portions of the standards and provided with perforations, and split-pins located in said perforations of the sleeve and engaging-devices for the standards, substantially as specified.

3. In a cultivator, the combination with the arch and beams, of the movements connecting the two, each consisting of an inverted U-shaped yoke, having transverse openings and provided upon its outer side with vertical ribs, a bolt passed through the yoke, an elbow-shaped axle secured to the outer end of the bolt, a nut mounted on the inner end of the bolt adjacent to the yoke, a plate countersunk upon its inner side to receive the bolt mounted upon the plate, and provided upon its outer side with an inclined shoulder, an arm mounted on the bolt at the side of the plate and adapted to be supported by the shoulder, a binding-nut upon the bolt at the outer side of the arm, and a link carried by the beam for engaging the end of the arm, substantially as specified.

4. In a cultivator of the class described, the combination with the beam and connecting-arch, of the movements connecting the same, each of said movements consisting of an inverted U-shaped yoke, having transversely opposite openings and provided upon its outer side with vertical ribs, an elbow-shaped axle recessed upon its inner side to receive the ribs and provided with slots, and upon its exterior with transverse teeth, a bolt passed through the slots and holes in the yoke, a nut for securing the bolt, an adjusting-block mounted on the bolt beyond the axle, said block having its inner face recessed whereby its opposite edges engage the teeth of the axle, an arm located in the recess of the block and having an opening for the reception of the bolt, said arm being rearwardly-extended and having a keeper upon its upper edge, and an extension-arm having a slot engaging a stud on the arm and adapted to be engaged by the keeper, substantially as specified.

5. In a cultivator of the class described, the combination with the arch, the beams of the cultivator, and the movements engaging the same, each of said movements consisting of an inverted U-shaped yoke having opposite openings, a bolt passed through the openings, a stub-axle mounted upon the outer end of the bolt and having a vertical slot and its front face provided with teeth, a locking-block having its inner face recessed and mounted upon the bolt, and its opposite edges engaging the teeth of the axle, an arm mounted in the recess of the block and perforated to receive the bolt, and carrying an extension-arm, a slot formed in the inner terminal of the yoke, a plate engaging the same, and draft-straps pivoted to the front end of the plate and to the front end of the arm, said straps having their front ends converging and provided with draft-hooks, substantially as specified.

6. In a cultivator of the class described, the combination with the beams, the intermediate tubular-arch and the movements, each consisting of an inverted U-shaped cast-metal yoke, integrally formed, and having cast upon its upper side a vertical spindle for engaging the tubular arch, the terminals of said yoke having opposite bolt-holes, bolts passed through the holes and extending beyond the yoke, elbow-shaped axles mounted upon the outer ends of the bolts provided with slots, and upon their outer sides with transverse teeth, locking-blocks mounted upon the outer ends of the bolts and having their inner faces recessed and their opposite edges engaging the teeth of the axles, a curved extension-bar carrying arms located in the recesses of the locking-blocks, ground-wheels carried by the shafts, nuts located at the inner ends of the bolts, plates having outer inclined shoulders, an inner recess, mounted on the inner ends of the bolts and receiving the nuts, hang-up arms mounted on the bolts adjacent to the plates terminating at their ends in hooks, inner nuts located upon the bolts and binding against the hang-up arms, links carried by the beams, and draft-straps connected to the movements, substantially as specified.

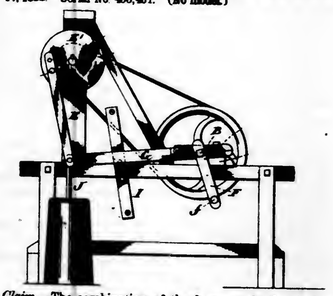
7. In a cultivator of the class described, the combination with the yoke, having the rearwardly-extending brackets, and the coupling-plates swiveled thereon, of the transverse bolts having nuts, the locking-plate interposed between the nuts and having upper and lower stop-lugs, and upon its outer side having a locking lug for taking between the nuts, substantially as specified.

494,842. STOVEPIPE-THIMBLE. DAVID MYERS, North Manchester, Ind. Filed Nov. 25, 1892. Serial No. 453,976. (No model.)



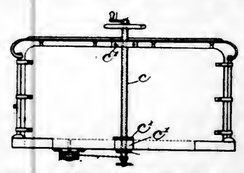
Claim.—In a stove-pipe thimble, the combination of the front-plate having an opening adapted to receive a stove-pipe, and provided with a tubular section extending from one side of the plate and surrounding said opening, the ball-crank lever pivoted substantially as shown and described to lugs arranged adjacent to said tubular section, said lever being arranged to project through the wall of the tubular section into said opening and to receive the stove-pipe between its free arm and the wall of the opening, and the bolt connected at one end to said arm and extending through the front-plate, all arranged to co-operate substantially as described, whereby the turning of the bolt operates to clamp the pipe between the free end of the lever and the wall of the opening, as set forth.

494,848. MOTOR. HENRY P. MCAFEE, Overton, Tex. Filed Dec. 17, 1892. Serial No. 455,431. (No model.)



Claim.—The combination of the frame-work, the shaft with its grooved wheel, the parallel shaft with its grooved smaller wheel, the endless belt connecting the two, the crank disk on the upper shaft, the horizontal arm, the link between the same and the crank disk, the guide for the said arms, and the dasher stem pivoted at its upper end to the pivot that connects the swinging arm and the said link, substantially as specified.

494,844. CONTROLLING DEVICE FOR ELECTRIC CARS. JAMES H. NEAL, Boston, Mass. Filed Dec. 30, 1891. Serial No. 416,529. (No model.)

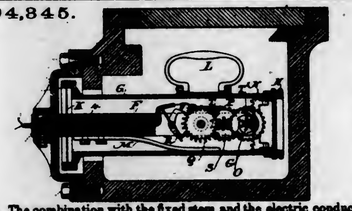


Claim.—A tubular shaft, a wheel thereon to rotate it, a shaft arranged within said tubular shaft, and a crank to rotate said inner shaft, the crank being adjacent to and above the wheel, and of a lesser radius, combined with a brake mechanism, a current regulator, intermediate connections between said brake mechanism and current regulator and said tubular shaft, a circuit reverser, and an intermediate connection between it and the inner shaft, rotation of the wheel in either direction positively controlling the current and brake mechanism equally at all times, rotation of the crank reversing the current, substantially as described.

494,845. ELECTRIC SIGNALING APPARATUS. FREDERICK PEARCE, New York, N. Y. Filed Nov. 2, 1892. Serial No. 450,731. (No model.)

Claim.—1. The combination with the electric conductors, of a fixed stem, signaling mechanism supported by the fixed stem and connected with the conductors, a water-tight case surrounding the fixed stem and the signaling mechanism, the said case being flexibly connected and movable, and a train of gearing receiving its motion from the case and actuating the electric signaling device, substantially as set forth.

494,845.



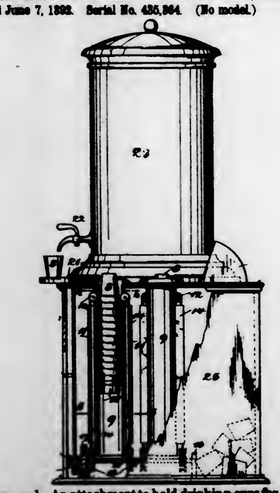
2. The combination with the fixed stem and the electric conductors, of a train of gearing and electric circuit closing devices receiving motion from the same, a water-tight case surrounding the stem and the signaling mechanism, a flexible diaphragm closing one end of the case and allowing motion to be given to such case, a handle for moving the case in one direction and a spring for restoring the case to its normal position and giving the signals, and a rack connected to the case and giving motion to the train of gearing, substantially as set forth.

3. The combination with the fixed stem and the electric conductors, of a train of gearing and electric circuit closing devices receiving motion from the same, a water-tight case surrounding the stem and the signaling mechanism, a flexible diaphragm closing one end of the case, pivots upon which the case is allowed to swing, a handle for moving the case in one direction and a spring for restoring the case to its normal position and giving the signals, and a rack connected to the case and giving motion to the train of gearing, substantially as set forth.

4. The combination with the electric conductors extending along a cable railway, of a box having a removable cover, a signaling apparatus within the box for indicating the station or location from which the signal is sent, a closed circuit finger key also in said box connected with the main conductors and adapted to giving signals upon the said circuit, circuit springs and a wedge between such springs normally closing the circuit and adapted to be removed so that a telephone instrument can be introduced into the circuit, substantially as set forth.

5. The block V having openings in it and a finger projecting therefrom, in combination with the main conductors, a closed circuit finger key connected with the main conductors, a soft rubber sheath inclosing such finger key and excluding air and moisture, a movable cover and wedge and circuit springs adapted to receive between them a connection for a telephone instrument, substantially as set forth.

494,846. CUP HOLDING AND LIFTING ATTACHMENT FOR PUBLIC DRINKING-PLACES. ALBY LE G. PERRY, Cincinnati, Ohio. Filed June 7, 1892. Serial No. 435,964. (No model.)



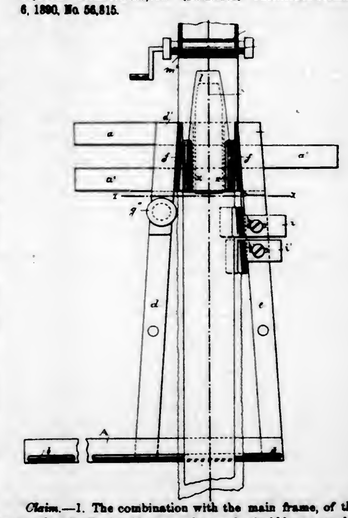
Claim.—1. An attachment to hold drinking-cups for public drinking-places consisting of a guideway for the cups, a support for them, pulleys 13, flexible connection combining support and pulleys, and means to rotate these pulleys whereby the flexible connection is wound upon them and causes the cup-support to be moved, all substantially as shown and described.

2. An attachment to hold drinking-cups for public drinking-places consisting of a guideway which holds the cups, a support for them, a flexible connection on which the support rests, pulleys to which the ends of the flexible connection are secured, a ratchet-wheel, which rotates the pulley-shaft and a pawl which actuates the ratchet-wheel, all substantially as shown and described.

3. An attachment to hold drinking-cups for drinking-places consisting of a guideway which holds the cups, a support for them, a flexible connection on which the supports rest, pulleys to which the ends of the flexible connection are secured, a ratchet-wheel which rotates the pulleys, a pawl which actuates the ratchet-wheel and a rod 20, by which this pawl is actuated and the upper end of which rod is located within convenient reach, all substantially as shown and described.

4. An attachment to hold drinking-cups for public drinking-places consisting of a guideway which holds the cups, a support for them, a flexible connection on which the support rests, pulleys to which the ends of the flexible connection are secured, a ratchet-wheel which rotates the pulleys, a pawl which actuates the ratchet-wheel, a rod 20, by which this pawl is actuated and the upper end of which rod is located within convenient reach and link 19, which keeps pawl 18, in operative contact, all substantially as shown and described.

494,847. APPARATUS FOR FOLDING AND CREASING THE EDGES OF RIBBONS. WILHELM RENY, Crefeld, Germany. Filed Oct. 24, 1891. Serial No. 409,706. (No model.) Patented in Germany Sept. 6, 1890, No. 56,815.



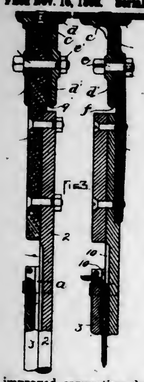
Claim.—1. The combination with the main frame, of the hemmers, a longitudinal guide secured to each of said hemmers above the plane of the said hemmers and a removable presser plate for engaging the said guides, substantially as described.

2. The combination with the main frame, of the hemmers, the inclined guides secured thereto, a presser plate for engaging said guides, and a second presser plate adapted to be placed beneath the first, substantially as described.

3. The combination with the main frame, of the hemmers, the guides secured thereto, a presser plate for engaging said guides and the compressing rolls provided with milled portions, substantially as described.

4. The combination with the frame including a pair of longitudinal bars, each having adjacent to one end a cross bar rigidly secured thereto, and movably engaging the other longitudinal bar, and a set screw for securing the parts together in their adjusted positions of hemmers secured to the longitudinal bars, whereby said bars may be moved toward and from each other to adjust the hemmers and secured in their adjusted positions, substantially as described.

494,348. ELECTRIC-LAMP SUPPORT. CHARLES H. RICHARDSON, Springfield, Vt. Filed Nov. 16, 1892. Serial No. 452,512. (No model.)



Claim.—1. The improved supporting device hereinbefore described, comprising in its construction a plate *b* adapted for attachment to an elevated support; a plate *d* fitting against the plate *b* and connected therewith by a single vertical pivot said plate *d* provided with an ear *d'* standing substantially at right angles to it; and an extensible arm, one member of which is provided with an extension fitting against said ear *d'* and connected therewith by a horizontal pivot, as set forth.

2. A supporting device comprising in its construction an extensible arm composed of two members fitted to slide one upon the other, and provided with coinciding grooves in their inner sides for the reception of a flexible conductor; external elastic clips which connect the two members together and hold them by friction at any desired longitudinal adjustment; and a universal joint device connected to the inner end of one of said members, as set forth.

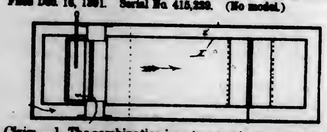
494,349. PROCESS OF EXTRACTING LEAD FROM ITS ORES. BERNHARD RÖSING, Charlottenburg, Germany. Filed Apr. 22, 1892. Serial No. 430,354. (No specimens.) Patented in Germany Feb. 5, 1893, No. 64,615; in France Feb. 5, 1893, No. 219,175; in Belgium Feb. 5, 1893, No. 96,235; in Sweden Feb. 5, 1893, No. 3,940; in Spain Mar. 15, 1893, No. 13,964, and in Italy Mar. 31, 1893, XXVI, 51,236, and LXI, 223.



Claim.—1. In the extraction of lead, the hereindescribed improvement, which consists in bringing a molten oxygen compound of lead into contact with a decomposing agent that will liberate the lead from said oxygen compound, the decomposition being effected solely by the heat of the molten oxygen compound and the heat generated by the reaction.

2. In the extraction of lead the hereindescribed improvement, which consists in bringing a molten oxygen compound of lead, as litharge, in contact with a sulphide or sulphide compound of lead, as galena, the decomposition being effected solely by the heat of the materials and the heat generated by the reaction.

494,350. COOKING-STOVE. SIDNEY M. STEVENS, De Kalb, Ill. Filed Dec. 16, 1891. Serial No. 415,229. (No model.)



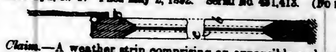
Claim.—1. The combination in a stove having a combustion chamber B, of a burner pan suspended in said chamber, and an air inlet at the rear of said pan, said conduit acting to shut off the passage of the flame from the pan to the smoke flue, and compelling it to pass around and under the pan, substantially as set forth.

2. The combination in a stove of a combustion chamber B, a burner pan C suspended therein and receiving air from its rear side, and means for closing the space between the rear of the pan and the top of the chamber against the flame, whereby the flame is compelled to pass around and under the pan, substantially as set forth.

3. The combination in a petroleum stove of a combustion chamber B, a burner pan C and an air conduit at the rear of the pan formed of plate D, cover E and pipe or pipes F, substantially as specified.

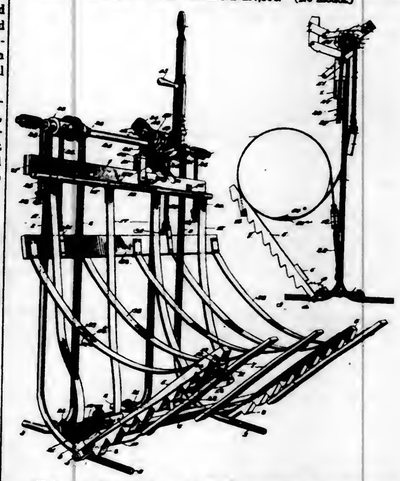
4. The combination in a petroleum stove, of a combustion chamber B, a burner pan C, and an air condnit at the rear of the pan formed of plate D, cover E and pipe or pipes F, said pan being suspended in the chamber and said air conduit shutting off the flame from direct passage to the smoke flue, substantially as specified.

494,351. PNEUMATIC WEATHER-STRIP. GEORGE L. THOMAS, Brooklyn, N. Y. Filed May 2, 1892. Serial No. 431,413. (No model.)



Claim.—A weather strip comprising an expansible and collapsible tube inclosing a body of fluid, the incloscd body of fluid having such a relation to the interior space of the tube that when one portion of the tube is distended another portion will be collapsed, substantially as set forth.

494,352. TREE OR SHRUB BALER OR BINDER. HENRY O. THOMAS, Kimball, assignor of one-half to John W. Stevenson, North Bend, Nebr. Filed Apr. 1, 1892. Serial No. 427,301. (No model.)



Claim.—1. In a machine of the class described, the combination with the two frames hinged together at two of their adjacent ends and one of them adapted to swing downward from the remaining, bottom straps connecting the frames, of top-straps connected at their ends with one frame and adapted to be connected at their remaining ends with the remaining frame, and means for applying tension to the series of straps, substantially as specified.

2. In a machine of the class described, the combination with the two frames hinged together at two of their adjacent ends, and one of them adapted to swing downward bottom straps connecting the frames, of top straps connected at their ends with one frame and adapted to be adjustably connected at their remaining ends with the remaining or swinging frame, and means for applying draft to the straps, substantially as specified.

3. In a machine of the class described, the combination with the opposite hinged frames, a suspension-bar located in rear of one of the same, bottom straps connected to the suspension-bar and connected at their opposite ends to the opposite frame, of a winding mechanism, ropes connecting the same and suspension-bar, an evener-bar, means for connecting the same with the machine, straps leading from the evener-bar, and a strap connecting bar secured to the ends of said straps and adapted to engage with the opposite frame, substantially as specified.

4. In a machine of the class described, the combination with the opposite hinged frames, a suspension-bar located in rear of one of the same, bottom straps connected to the suspension-bar and connected at their opposite ends to the opposite frame, of a winding mechanism, ropes connecting the same and suspension-bar, an evener-bar, means for connecting the same with the machine, straps leading from the evener-bar, and a strap connecting bar secured to the ends of said straps and adapted to adjustably engage with the opposite frame, substantially as specified.

5. In a machine of the class described, the combination with the opposite frames one of which comprises finger-bars having a series of teeth upon their outer sides, a suspension-bar located in rear of the rear frame, straps depending therefrom and connected with the front or notched frame, of an equalizing mechanism connected to the bottom, straps connected to the equalizing mechanism, a bar connected to the ends of the straps and adapted to be brought over into engagement with the notches of the bars, and a winding mechanism mounted on the rear frame and connected with the suspension-bar, substantially as specified.

6. In a machine of the class described, the combination with the rear stationary frame, a winding mechanism mounted thereon, and a front hinged frame, of means for adjusting and locking the front hinged frame at a desired inclination, a bar located in rear of the stationary frame, straps connecting the bar with the front frame, connections between the winding mechanism and bar, an equaliser, straps leading therefrom, connecting devices between the straps and base of the machine, and an engaging bar connected with the opposite ends of the straps and adapted for connection with the hinged frame, substantially as specified.

7. In a machine of the class described, the combination with the rear stationary frame mounted upon a base, winding mechanism mounted on the upper end of the frame, a front shaft journaled in the base, a frame pivoted thereon, of a toothed ratchet-plate located at the side of the frame, a pawl secured to the frame and adapted to engage the plate, a U-shaped bail pivoted to one of the bars of the frame and provided at one side of its pivot with a lug, a connecting-wire between the lug and pawl, a suspension-bar located upon the stationary frame, connecting devices between the same and winding mechanism, straps leading from the suspension-bar to the pivoted frame, and straps terminating in a connecting-bar for engaging the pivoted frame and leading from the base, substantially as specified.

8. In a machine of the class described, the combination with the pivoted frame, straps connecting the frames, a bar connected to the ends of the straps, of a transverse winding-shaft, a ratchet-wheel mounted thereon and having its teeth provided with curved seats, a lever and pawl for operating the wheel, a holding-lever adapted at one end to engage the teeth and provided at said end with an anti-friction roller for engaging the seats, and ropes wound upon the shaft and connected to the bar, substantially as specified.

9. In a machine of the class described, the combination with the front and rear hinged frames, a suspension bar located upon the rear frame, straps connected at their rear ends to the bar and at their front ends to the front frame, top straps connecting the two frames, of bearings located upon the upper side of the rear frame, a shaft journaled in the bearings, ropes wound upon the shaft and connected to the suspension-bar, and means for rotating the shaft, substantially as specified.

10. In a machine of the class described, the combination with the front and rear hinged frames, a suspension-bar located upon the rear frame, straps connected at their rear ends to the bar and at their front ends to the front frame, top straps connecting the two frames, of bearings located upon the upper side of the rear frame, a shaft journaled in the bearings, ropes wound upon the shaft and connected to the bar, means for rotating the shaft, and means for arresting said rotation, substantially as specified.

11. In a machine of the class described, the combination with the front and rear hinged frames, the rear one of which is provided with a cross-bar having slots in its ends, a suspension-bar located upon the rear frame, straps leading therefrom to the front hinged frame, top straps leading from the rear frame to the front hinged frame, of bearings mounted upon the cross-bar, a shaft journaled in the bearings and provided with drums, ropes secured to the drums and to the suspension-bar, means for winding the shaft, and stop-ropes reversely wound upon the ends of the shaft, passed through the slots of the bar, and terminating below the same in stops, substantially as specified.

12. In a machine of the class described, the combination with the series of vertical standards having their lower ends bent in reverse direction to form a base, a cross-bar connecting the upper ends of the standards, a series of finger-bars comprising a frame and connected to the lower ends and at the front of the standards, a suspension-bar located in rear of the standards, and straps connected to the suspension-bar, passed between the standards, and connected to the bars of the front frame, of a series of top straps connected with the base of the rear frame, a bar connecting the front ends of the top straps and adapted to be supported upon the cross-bar and removed therefrom and connected with notches formed in the bars of the front frame, and means for giving tension to the suspension-bar, substantially as specified.

13. In a machine of the class described, the combination with the front and rear hinged frames, the latter provided with a cross-bar, a suspension-bar, bottom straps connected therewith and to the front frame, and top straps removably connecting the frames, of a pair of shafts journaled in bearings on the cross bar of the rear frame, windlasses mounted on the shafts, ropes connected to the windlasses and to the suspension-bar, and a lever adapted to operate either or both shafts, substantially as specified.

14. In a machine of the class described, the combination with the front and rear hinged frames, the latter having a cross-bar, a suspension-bar connected with the rear frame, straps leading therefrom and connected with the front frame, a series of top straps connected with the rear frame and removably connected with the front frame, of bearings upon the cross bar of the rear frame, a pair of aligning shafts journaled in the bearings, a pair of ratchet-wheels mounted upon the inner ends of the aligning shafts and adapted to move therewith, a bail loosely mounted on the inner ends of the shaft adjacent to the ratchet-wheels, pawls pivoted to the bail and engaging the wheels, a fulcrum, a lever pivoted in the fulcrum, a clevis adjustably mounted on the lever, and a connecting device between the clevis and bail, substantially as specified.

15. In a machine of the class described, the combination with the front and rear hinged frames, the latter having a cross-bar, a suspension-bar connected with the rear frame, straps leading therefrom and connected with the front frame, and a series of top straps connecting the front and rear frames, of a pair of aligning shafts mounted on the cross-bar, ropes wound thereon and connected with the suspension-bar, ratchet-wheels mounted upon the inner ends of and moving with the shafts, an inverted U-shaped bail loosely mounted on the ends of the shafts adjacent to the ratchet-wheels, pawls pivoted on the bail and engaging the wheels, a fulcrum, a hand-lever mounted on the fulcrum and provided with notches in its rear side, a clevis removably mounted in any one of the notches, and a connecting device between the clevis and the bail, substantially as specified.

16. In a machine of the class described, the combination with the front and rear hinged frames, the latter consisting of a series of vertical standards, a cross-bar connecting the same above which the standards project, a suspension-bar connected with the rear frame, straps leading therefrom and connected with the front frame, and a series of top straps removably connecting the frames, of a series of bearing-eyes having tenons mounted in the upper ends of the standards of the rear frame, a pair of shafts journaled in the eyes, ropes passed around the shafts connected thereto and at their lower ends connected to the suspension-bar, ratchet-wheels mounted on the inner ends of the shafts and moving therewith, a bail loosely mounted upon the shafts between the wheels, a bolt passed through the bail, pawls pivoted upon the bolt and engaging the ratchet-wheels, an arm extending downwardly from the intermediate eye or bearing, a brace secured to the outer end of the arm and at its inner end to the standards in which the bearing is mounted, a lever fulcrumed on the outer end of the brace, and connecting devices between the lever and bolt of the bail, substantially as specified.

17. In a machine of the class described, the combination with the front and rear frames hinged together, the suspension-bar connected to the rear frame, straps leading therefrom to the front frame, and top straps leading from the rear frame and removably connected to the front frame, of a cross-bar mounted on the rear frame, bearings mounted on the cross-bar, a pair of shafts journaled in the bearings, ropes wound upon the shafts, secured thereto and at their lower ends to the suspension-bar, a pair of ratchet-wheels mounted on the inner ends of the shafts, an inverted U-shaped bail loosely mounted on the shafts, pawls mounted on the bail and engaging the wheels, a fulcrum below the bail, a hand-lever mounted in the fulcrum and provided above the same with a series of inclined teeth forming notches, each of said teeth being provided with a stud, a cuff or clevis removably embracing a tooth and having an opening for the reception of the stud, a spring interposed between the lever and front end of the cuff or clevis for maintaining it in engagement with the stud, and a bail pivotally connected to the front end of the cuff and to the swinging bail of the shafts, substantially as specified.

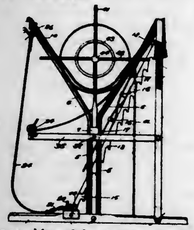
18. In a machine of the class described, the combination with the opposite pivoted frames, a suspension-bar connected with the rear frame, straps depending from the bar and connected to the front frame, and means for elevating said suspension-bar, of a base, equalizers adjustably connected to the base, and top straps connected to the equalizers and provided with means for adjustably connecting the same to the front frame, substantially as specified.

19. In a machine of the class described, the combination with the rear frame comprising a series of standards having their lower ends

beat in reverse directions, and connecting base-bars, of a front frame hinged to the lower ends of the standards, a suspension-bar in rear of said standards, straps connected to the suspension-bar and to the front frame, an equalizer located adjacent to the standards, ropes connected with the equalizer and adjustably connected with the base-bars, straps connected with the equalizer and adapted for removable connection at their opposite ends with the front frame, and means for elevating the suspension-bar, substantially as specified.

20. In a machine of the class described, the combination with the baling-straps, of a series of blocks secured thereto, and a series of slip straps secured to the upper sides of the blocks and extending beyond the ends of the same forming eyes for the passage of the binding-cord, substantially as specified.

494,853. TREE-BALER. HENRY O. THOMAS, Kimball, assignor of one-half to John W. Stevenson, North Bend, Nebr. Filed June 2, 1892. Serial No. 435,208. (No model.)



Claim.—1. In a machine of the class described, the combination with a base, a cradle comprising diverging arms mounted upon the base straps loosely connecting the upper ends thereof, baling-straps passed between the arms of the frames, and means for connecting the terminals of the straps at a common point eccentric with the point of connection between the cradle and base, and means for putting the straps under tension, substantially as specified.

2. In a machine of the class described, the combination with the base, the cradle comprising diverging arms, straps loosely connecting the upper ends thereof rack-bars connected at their upper ends to the front arms of the cradle and at their lower ends to the base, of baling-straps passed between the arms of the cradle and having their rear ends connected to the base adjacent to the lower ends of the rack-bars, and a cross-bar connected to the free ends of the baling-straps and adapted to engage the teeth of the rack-bars, substantially as specified.

3. In a machine of the class described, the combination with a base, a pivoted cradle mounted thereon, and a pivoted supporting-leg connected with the cradle, of a rack-bar connected at its upper end to the cradle and at its lower end to the base in rear of the point of pivot of the cradle, baling-straps passed between the arms composing the cradle and having their rear ends connected to the base and a cross-bar connected on the front ends of the straps adapted to engage the rack bars and to support the supporting-leg at the supporting position, substantially as specified.

4. In a machine of the class described, the combination with the base, the cradle, opposite pairs of rack bars having inclined teeth adapted to slide by each other, connections between the rack-bars and the cradle and base, and spring-supports for maintaining the rack-bars in alignment with each other, of baling straps passed between the arms of the cradle, connections between the rear ends of the straps and the base, and a cross-bar connecting the free ends of the straps and adapted to engage the rack-bars, substantially as specified.

5. In a machine of the class described, the combination with the base, the Y-shaped cradle pivoted upon the same and comprising front and rear diverging arms, straps loosely connecting said arms the opposite pairs of rack-bars, the lower bars being pivoted at their lower ends in rear of the point of pivot of the cradle, and the upper ones pivoted at their upper ends to the front ends of the cradle, loops extending from the corresponding edges of the bars, and spring-tongues extending from the bars and taking into the loops, of baling straps passed between the arms of the cradle, connections between the rear ends of the same and the base, and a cross bar connecting the front end of the straps and adapted to engage the rack-bars, substantially as specified.

6. In a machine of the class described, the combination with the base having a series of perforations and at opposite ends of the same eyes, of the Y-shaped pivoted cradle, chains passed through the eyes, pins at the inner ends of the chains for engaging the perforations, baling-straps connected with the chains, and means for locking the free ends of the baling-straps at the opposite sides of the cradle, substantially as specified.

7. In a machine of the class described, the combination with the base, the pivoted Y-shaped cradle, the baling-straps and means for securing the same, of a ring, radiating arms connected to the ring, means for loosely connecting one of the arms to the machine, a binding-cord and means for tightening said cord, substantially as specified.

8. In a machine of the class described, the combination with the base, a pivoted Y-shaped cradle mounted thereon, the baling-straps and means for securing the ends of the same, of the bar 29, pivoted to the frame in front of the cradle, the bar 35, pivoted between its ends to the end of the cradle, and at its front end to the bar 29, the windlass on the rear end of the bar 35, and the baling cord connected to the windlass and to the bar 29, substantially as specified.

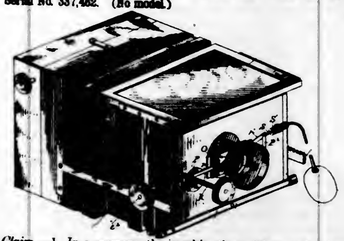
9. In a machine of the class described, the combination with the base, the pivoted Y-shaped cradle, the baling straps and means for securing the ends of the same of the bar 29 pivoted at its lower end to the base and having a series of perforations 30, the bar 35 pivoted between its ends to the end of the cradle and at its front end pivoted to the bar 29, the windlass on the rear end of the bar 35, the binding cord connected to the windlass and passed through a kerf in the bar 29, and the pin connected to the binding cord and movably inserted in one of the openings 30, substantially as specified.

10. In a machine of the class described, the combination with the base, the Y-shaped cradle, the intermediate cross-bar 7, connecting the arms thereof, the pair of staples mounted on the cross-bar 7, the baling-straps located between the arms of the cradle, and means for tightening and locking the straps, of the rod 40 mounted for reciprocation and vibration in the staples and having its outer end upwardly bent to form the vertical branch 41, a transverse branch 42, connected to the branch 41, and rings connected to the branches 41 and 42, and the spike 44, located at the intersection of these parts 41 and 42, substantially as specified.

11. In a machine of the class described, the combination with the base, the Y-shaped cradle pivoted thereon the baling-straps, and means for securing the ends of the same, of the cradle supporting-leg 11, pivoted to the cradle, substantially as specified.

12. In a machine of the class described, the combination with the base, the pivoted Y-shaped cradle, the baling-straps, a cross-bar connecting the front ends of the same, and means for securing the cross-bar adjustably to the front of the cradle, of the pivoted leg 11 arranged in rear of the cross-bar and adapted to be elevated thereby, substantially as specified.

494,854. PHOTOGRAPHIC CAMERA. JOHN M. TRACY, New York, N. Y., and GEORGE S. HOUGH, Orchard Lake, Mich. Filed Jan. 30, 1890. Serial No. 337,462. (No model.)



Claim.—1. In a camera, the combination with a casing having a movable focusing chamber thereon, rack bars on the chamber extending forward, a vertically movable ground glass having rack bars thereon extending across the said other rack bars, and pinions engaging the rack bars for moving the same simultaneously, substantially as described.

2. In a camera, the combination with an extensible focusing chamber, and a ground glass, of racks on the chamber and racks connected with the glass, and sliding pinions, engaging the respective racks for moving the same, substantially as described.

3. In a camera, the combination with a casing and lens, of an exposing slide within the casing, a spring for actuating the slide, reciprocating shutters for the lens, a shaft having a disk thereon, a link connection between the disk and shutters, and means on the shaft engaging the slide for actuating the shutters upon the movement of the slide, substantially as described.

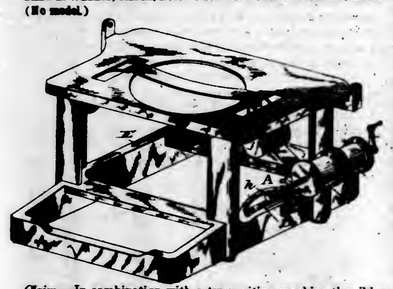
4. In a camera, the combination with a casing, and lens, of a contractible partition in the casing having its forward edges normally below the lens, an inclined movable reflector above the partition and a spring for moving the reflector and forward edge of the partition above the lens, substantially as described.

494,855. STRAINER. CHARLES I. WAGAMAN, Baltimore, Md., assignor to Keen & Hagerty, same place. Filed Apr. 22, 1892. Serial No. 430,410. (No model.)



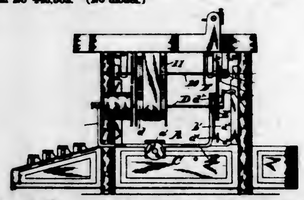
Claim.—As an improved article of manufacture a strainer consisting of the combination with a suitable vessel or rim having an aperture, of a strainer cloth situated in said aperture and having a peripheral edge or flange, and a ring having an outwardly extending lip situated in the aperture and clamping or confining the said edge of the strainer cloth by said lip, and having its other or lower edge turned outward to engage said vessel or rim, substantially as set forth.

494,856. ATTACHMENT FOR TYPE-WRITING MACHINES. ANDREW R. WALKUP, Omaha, Nebr. Filed June 7, 1892. Serial No. 435,598. (No model.)



Claim.—In combination with a typewriting machine the ribbon winding attachment consisting of the spools *c*, having the feather *f*; shaft *d*, having the groove *d'*, and bearing said spools; bearings *a*, in which said shaft is journaled, said bearings adapted to be secured to the frame of the typewriting machine in any substantial manner, substantially as shown and described and for the purposes set forth.

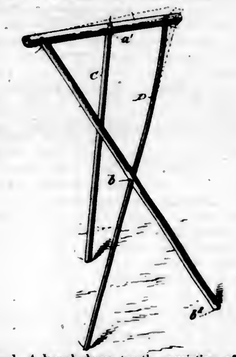
494,857. RIBBON ATTACHMENT FOR TYPE-WRITING MACHINES. ANDREW R. WALKUP, Omaha, Nebr. Filed Sept. 19, 1892. Serial No. 446,302. (No model.)



Claim.—1. The combination of the shaft B, constructed to be secured to the base of a typewriter, shaft D, borne in the bearings *b*, and *b'*, of said shaft B; spools *d*, borne on the shaft D; bearing d^3, having a slotted arm d^3, and pivoted to the bearing *b'*, wheel E, rigidly secured on the shaft D; wheel F, pivoted on the bearing d^3 and meshing with the wheel E, and wheel 6, rigidly secured on the shaft 10, of the typewriter, all substantially as shown and described and for the purposes set forth.

2. The combination of the shaft B, constructed to be secured to the base of a typewriter, shaft D, borne in the bearings *b*, and *b'*, of said shaft B; spools *d*, borne on the shaft D; bearing d^3, having the slotted arm d^3, pivoted to the bearing *b'*; wheel E, rigidly secured on the shaft D; wheel F, pivoted on the bearing d^3, and meshing with the wheel E; wheel 6, rigidly secured on the shaft 10, of the typewriter, and thumb screw d^5, working through slot d^3, and adapted to hold wheel F, in or out of contact with wheel 6, substantially as shown and described and for the purposes set forth.

494,858. TRESTLE. ALBERT W. WEBER, Palmer, Mass. Filed Mar. 11, 1892. Serial No. 424,609. (No model.)



Claim.—1. A knock-down trestle consisting of a top rail, two cross-braced legs, one engaging by one end with said rail and having a perforation therethrough from side to side about midway between its extremities formed at an incline to the axis thereof, and the other of said two legs passing through said perforation and engaging with said rail, combined with a third leg engaging also with said rail by one end and arranged in laterally and oppositely bracing position to said two first-named legs, substantially as set forth.

2. A knock-down trestle consisting of a top-rail having side perforations to receive the ends of the legs, two cross-braced legs, one engaging by one end in one of said perforations in the rail, and having a perforation therethrough from side to side about midway between its extremities formed at an incline to the axis thereof; and one leg passing through said leg-perforation and having its upper end bent laterally and engaged with one of said rail-perforations, combined with a third leg engaging also with said rail by one end and arranged in a laterally and oppositely bracing position to said two first-named legs, substantially as set forth.

3. A knock-down trestle consisting of a top-rail having side perforations to receive the ends of the legs, two cross-braced legs, one engaging by one end in one of said perforations in the rail, and having a perforation therethrough from side to side about midway between its extremities formed at an incline to the axis thereof; and one leg passing through said leg-perforation and having its upper extremity engaged with said rail to one side of the termination of the normal line of incline thereof, combined with a third leg engaging also with said rail by one end arranged in a laterally and oppositely bracing position to said two first-named legs, substantially as set forth.

4. A knock down trestle consisting of a tubular top-rail having side perforations to receive the ends of the legs, two tubular cross-braced legs, one engaging by one end in one of said perforations in the rail, and having a perforation therethrough from side to side about midway between its extremities formed at an incline to the axis thereof; and one leg passing through said leg-perforation and having its upper end bent laterally and engaged with one of said rail-perforations, whereby the intersecting parts of said two legs are caused to have a firm frictional engagement, and a tensional strain is imparted to said rail, combined with a third leg engaging also with said rail by one end arranged in a laterally and oppositely bracing position to said two first named legs, substantially as set forth.

5. A knock-down trestle consisting of a tubular top-rail having one end closed and having side perforations to receive the ends of the legs, two tubular cross-braced legs, one engaging by one end in one of said perforations in the rail and having a perforation therethrough from side to side about midway between its extremities formed at an incline to the axis thereof; and one leg passing through said leg-perforation and bent laterally and engaging by its upper extremity with one of said rail-perforations combined with a third tubular leg engaging also with said rail by one end and arranged in laterally and oppositely bracing position to said two first named legs, said rail and legs being adapted, substantially as described, for longitudinal telescopic assemblage, substantially as and for the purpose set forth.

6. A knock-down trestle consisting of a tubular top-rail having one end closed and leg-perforations for the engagement of the ends of the trestle-legs therewith combined with three tubular trestle-legs, substantially as set forth, said rail and legs being of varying diame-

ers whereby, upon knocking down the trestle, said legs are assembled one within the other, and partially within said rail, substantially as set forth.

494,859. ELECTRIC BRUSH. ROBERT B. WILLIAMS, Hot Springs, Ark., assignor of one-half to Charles W. Israel, Paris, Ill. Filed Nov. 29, 1892. Serial No. 453,548. (No model.)



Claim.—1. An electric brush having yielding rollers comprising the electrodes of said brush, substantially as set forth.

2. An electric brush having yielding rollers constituting its electrodes, said rollers having perforations, substantially as set forth.

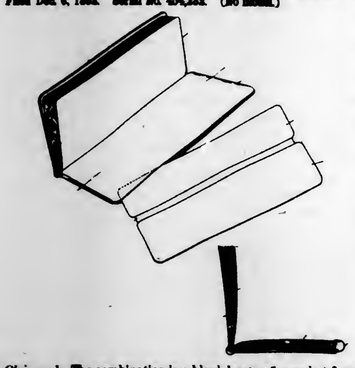
3. An electric brush comprising a body, yielding perforated rollers mounted within said body and extending below the surface of the same, a battery and metallic connections between said battery and rollers, substantially as set forth.

4. An electric brush comprising a body, metallic receptacles 2 located therein, bearings carried by the said receptacles, rollers having shafts the ends of which are located within said bearings, U-shaped bars 10 the ends of which are in contact with the said shafts, springs 11 for holding said bars in contact and rendering the rollers yielding, a battery and metallic connections between said battery and U-shaped bars, substantially as set forth.

5. A galvanic battery for electric brushes each cell thereof comprising a casing of zinc 21, absorbent material 23 located therein, copper 22 folded upon itself and located between said absorbent material, a metallic connection 24 one end of which is in contact with said copper, and its opposite end in contact with the zinc of the adjacent cell, one of said cells having an opening 27 formed in the zinc element of the same for forming connection with the copper or carbon located therein, substantially as set forth.

6. In an electric brush a receptacle 15 having a central longitudinal partition 16, transverse partition 17 forming spaces 18, and depressions 20 formed on one side of the said transverse partition for the reception of the metallic connections between the cells of the battery, substantially as set forth.

494,860. BLANK BOOK. WILLIAM H. WINFIELD, Detroit, Mich. Filed Dec. 6, 1892. Serial No. 454,232. (No model.)



Claim.—1. The combination in a blank book, of a pocket formed at the back thereof, a strip adapted to fit in said pocket, a blotter and a flexible hinge connecting the strip and blotter, substantially as described.

2. The combination in a blank book, of the pocket formed on the back cover thereof, a rigid strip J adapted to fit in said pocket, the blotter and the flexible hinge K, of a width equal substantially to the thickness of the leaves of the book, substantially as described.

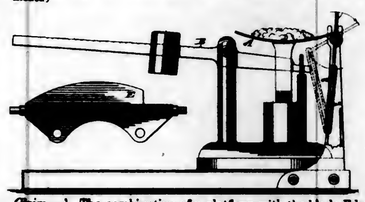
3. The combination in a blank book, of a back cover, the leather cover D therefor, the end extensions E of said cover, the leaf F within the cover to which the ends of the extensions E are secured, the stiffening strip J adapted to be secured in the pocket between the leaf F and the back cover, the flexible hinge K at the outer edge of said strip and the blotter I secured to said hinge, the parts being arranged substantially as and for the purpose described.

494,861. STOPPER FOR BOTTLES. WILLIAM P. BURWICK, London, England. Filed July 6, 1891. Serial No. 398,541. (No model.) Patented in England Dec. 4, 1890, No. 19,825; in France July 3, 1891, No. 214,611; in Belgium July 6, 1891, No. 95,504; in Victoria July 15, 1891, No. 8,236; in New South Wales July 18, 1891, No. 3,126; in Queensland July 20, 1891, No. 1,806; in New Zealand July 27, 1891, No. 5,115; in Spain Aug. 28, 1891, No. 13,235; in Italy Sept. 30, 1891, LXI, 305; in Austria-Hungary Nov. 25, 1891, No. 24,599; in Switzerland Mar. 19, 1892, No. 4,761; in Norway Mar. 23, 1892, No. 3,605; in Sweden Mar. 23, 1892, No. 4,001; in South Australia Apr. 5, 1892, No. 2,300; in India July 16, 1892, No. 93, and in Canada July 25, 1892, No. 39,423.



Claim.—The herein described bottle stopper consisting of the core 1, of hard material provided with a head and having the flat projections 2, arranged longitudinally (vertically) thereon with their lower edges inclined upwardly and their upper edges forming shoulders or stops, as described, and the tube or ring of soft elastic material into which said core is forced so that said shoulders prevent the core pulling out and the flat sides of the projections prevent the core independently rotating.

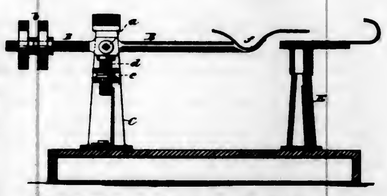
494,862. APPARATUS FOR MAKING CIGAR-FILLERS. NICHOLAS H. BORGFELDT, Brooklyn, N. Y., assignor to himself and Adolph C. Schutz, same place. Filed Apr. 19, 1892. Serial No. 429,739. (No model.)



Claim.—1. The combination of a platform with the blade E having curved edge A and placed adjacent to and projecting above one edge of said platform, the edge of said blade having approximately the form of a cigar filler, all as specified.

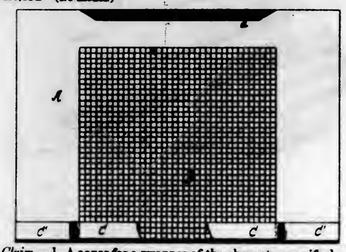
2. The combination of a platform with the blade E having approximately the form of a cigar filler, and with means substantially as described for holding said blade pivotally near one edge of the said platform, so that said blade projects normally above the surface of said platform and is capable of being folded into substantial alignment with said platform, all as specified.

494,863. APPARATUS FOR MAKING CIGAR-FILLERS. NICHOLAS H. BORGFELDT, Brooklyn, N. Y., assignor to himself and Adolph C. Schutz, same place. Filed July 16, 1892. Serial No. 440,367. (No model.)



Claim.—In a cigar-bunching machine, the fixed plate D, having curved lip *g* and curved edge A, said edge being shaped to conform generally to the configuration of the bunch to be produced, whereby the size, configuration and length of the bunch is determined, as and for the purpose herein shown and described.

494,864. WRAPPER FOR BOTTLES OR OTHER ARTICLES. RICHARD G. BERMACK, Brooklyn, N. Y. Filed July 6, 1892. Serial No. 439,114. (No model.)

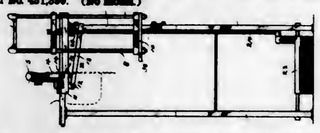


Claim.—1. A cover for a wrapper of the character specified, composed of a sheet of paper with a pocket to receive one edge of the lining, substantially as shown and described.

2. A cover for a wrapper of the character specified, composed of a sheet of paper with one of its edges folded and secured at the extremities thereof to the body of the sheet, to form a pocket for receiving one edge of the lining, substantially as shown and described.

3. A wrapper for a bottle or other article, consisting of the combination of a cover, of paper, with the pocket at one of its edges, and the lining with one of its edges fitted into said pocket, for retaining the lining in fixed position on the cover, substantially as shown and described.

494,865. MACHINE FOR ATTACHING SWEATS AND BANDS TO HATS. GEORGE B. BENNS, Danbury, Conn. Filed May 2, 1892. Serial No. 431,399. (No model.)



Claim.—1. In a machine for attaching sweats and bands to hats the combination with the staple driver, of a hat carrier adapted to be moved into operative position with each new hat to be operated upon and provided with a clinching plate adapted to pass between the sweat and the body, and to be sprung downward slightly by the staple driver, a vertically movable anvil in said carrier, and independent means for raising said anvil against the clinching plate after each staple has been driven through the body, the carrier remaining stationary until the hat is finished.

2. The combination with the staple driver and a vertically movable hat carrier having a clinching plate and a vertically movable anvil, of the operating lever and levers 30, 27, and 13 by which the anvil is raised when the downward movement of the operating lever takes place.

3. The combination with the staple driver, and a vertically movable hat carrier having a clinching plate and a vertically movable anvil, of the operating lever having a set screw 5ª to limit its downward movement and a guard 6 to limit its upward movement, and suitable intermediate connections whereby the downward movement of said lever causes an upward movement of the anvil.

4. The combination with the staple driver and a vertically movable anvil, of an operating lever having a boss 35, lever 30 having an adjusting screw 33 engaged by said boss, lever 27 engaged by lever 30 and lever 13 engaged by lever 27 and engaging the anvil to raise the latter when the operating lever is moved downward.

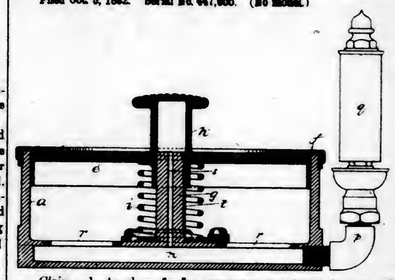
5. The combination with the staple driver, the operating lever and the lever 30, of the hat carrier, the anvil having a shank 17, a spring 18 for retaining the anvil in its normal position, a lever 13 pivoted to the hat carrier and engaging the shank of the anvil and a lever 27 also pivoted to the hat carrier which is engaged by lever 30 to raise the anvil when the downward movement of the lever takes place.

6. The combination with guides 22 and 21, the latter having a set screw 36, the staple driver and the operating lever, of a hat carrier consisting of rods sliding in the guides, an arm 25 which engages the set screw to limit the upward movement, a carrying arm a movable anvil in said arm and suitable intermediate connections whereby the anvil is raised when the operating lever is moved downward.

7. The combination with the staple driver and the operating lever, of a hat carrier consisting of rods 8, arm 25, lever 27 pivoted to said arm, carrying arm 11 having movable anvil 16, lever 13 pivoted to the carrying arm and engaged by lever 27, a spring 29 holding said parts in operative position and a lever 30 which engages lever 27 and is engaged by the operating lever as and for the purpose set forth.

8. The combination with the staple driver and the operating lever, of guides 21 and 22 a hat carrier moving in said guides, and having a yielding clinching plate adapted to pass between the sweat and the body and a vertically movable anvil adapted to engage the sweat, a treadle and rod for moving the hat carrier upward and a suitable latch for retaining the hat carrier at the raised position.

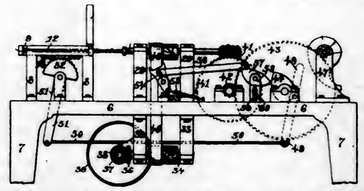
494,866. CAR-SIGNAL. CORNELIUS CALLAHAN, Canton, Mass. Filed Oct. 3, 1892. Serial No. 447,955. (No model.)



Claim.—1. An alarm for fire apparatus, street cars, &c., comprising in its construction a whistle, an air cylinder or chamber, provided with means for attaching it to an engine or other vehicle, a depressible piston, a foot-rest connected with the piston for depressing the same, conduit between the cylinder and whistle, and a spring for returning the piston to normal position, as set forth.

2. An alarm for fire apparatus, street cars &c., comprising in its construction a whistle, an air cylinder or chamber provided with means for attaching it to an engine or other vehicle, a depressible piston, a foot-rest connected with the piston for depressing the same, a conduit between the cylinder and whistle, a spring for returning the piston to normal position, a flanged ring for limiting the upward movement of the piston, and valve-controlled ports in the bottom of the said cylinder or chamber, as set forth.

494,867. NUT-TAPPING MACHINE. LLOYD H. COLE, Pawtucket, R. I. Filed Mar. 23, 1892. Serial No. 426,044. (No model.)

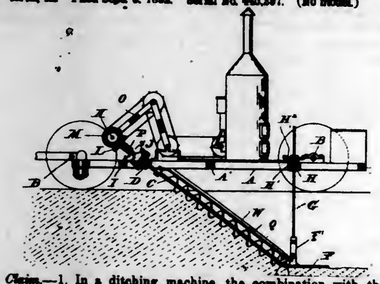


Claim.—1. In a nut-tapping machine having a longitudinally rotatable tap and means for driving the same, the combination with the table 9, movably supported by the frame 8 in front of said tap, and having the arm 11, a spring 12 secured to said arm and to the stud 13 on the forward end of said frame, a feed-box 15 secured to the central forward portion of said table, a jaw-block 14 secured in a slot in said table below said box, the spring operated bar 17, carrying fingers supported in the slide 16 on the lower surface of said table, and operated against the spring pressure by the rod 19 pivoted to said bar 17 and to a depending arm on said table, and adapted to be engaged by the stop 20, and a rack 10 secured to the under side of the table, of the lever 51 pivoted between studs below said table and having the semi-circular pinion 52 engaging with said rack 10, a rod 50 connecting the lower end of the lever 51 with that of the pivoted lever 49, a cam 48 carried by the shaft 46 journaled in suitable bearings, and means for operating said cam to throw the lever 49, as described.

2. In a nut-tapping machine, the combination with a longitudinally movable table 9, provided with a jaw-block 14 and having a depending-arm 21 carrying a shaft, of a sleeve 22 journaled on said shaft and having the fingers 23', a cam 24 pivoted on the lower end

of said arm 21, a rod 23 eccentrically pivoted to the cam 24 and to the sleeve 22, and a stop 25 adapted to engage said cam to operate the same, as described.

494,868. DITCHING-MACHINE. GOTTFRIED W. DECKER, Danforth, Ill. Filed Sept. 8, 1892. Serial No. 445,237. (No model.)



Claim.—1. In a ditching machine, the combination with the truck, of an inclined auger supported therefrom, means for rotating said auger and means for imparting a longitudinal reciprocating movement to said auger, substantially as described.

2. In a ditching machine, the combination with the truck and supporting frame, of an inclined auger pivotally journaled at its upper end and supported in a vertically adjustable bearing at its lower end and means for imparting a rotary and reciprocating movement to said auger, substantially as described.

3. In a ditching machine, the combination with the truck and supporting frame, of an inclined auger journaled in a pivotal bearing at its upper end and a vertically adjustable bearing at its lower end, means for rotating said auger, and means for imparting a longitudinally reciprocating movement thereto, substantially as described.

4. In a ditching machine the combination with the truck and supporting frame, of an inclined vertically reciprocating auger journaled in a pivotal bearing at its upper end and in a movable bearing at its lower end, a shoe vertically adjustably supported from the frame and a flexible connection between said shoe and movable bearing, substantially as described.

494,869. CARRIAGE-SUNSHADE. HIRAM F. DOUGLASS and AUGUSTUS G. STOUDER, Troy, Ohio. Filed Feb. 29, 1892. Serial No. 423,394. (No model.)



Claim.—1. In a carriage sun shade, the combination with a frame consisting of a piece of resilient material each end of which is bent at an angle to the main portion and one of which ends is formed into a hook and the other end is formed into a helix, a roller on the frame and a curtain on the roller, substantially as set forth.

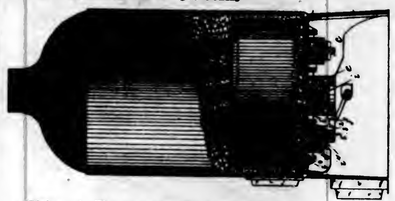
2. In a carriage sun shade, the combination with a frame consisting of a piece of resilient material each end of which is bent at an angle to the main portion and covered with yielding material, and one of which ends is formed into a hook and the other end is formed into a helix, a roller on the frame and a curtain on the roller, substantially as set forth.

494,870. METHOD OF MAKING SUPPORTING BRACKETS FOR BOILERS, &c. GEORGE H. DRAKE, Omaha, Nebr., assignor of two-thirds to William J. White, Saginaw, Mich., and Alfred M. Castle, Chicago, Ill. Filed Jan. 10, 1893. Serial No. 457,879. (No model.)



Claim.—The herein-described method of making a lug or bracket from sheet metal, which consists in providing a blank wider at its middle than at its ends, and then bending said blank transversely to provide body portions angularly disposed with reference to each other and simultaneously turning up the edges of said blank to provide marginal strengthening ribs or flanges, substantially as described.

494,871. GRATE. EDWARD FALES, Boston, Mass. Filed Mar 7, 1892. Serial No. 423,976. (No model.)



Claim.—1. The grate herein described comprising the central grated bottom, two or more concentrically arranged imperforate cylinders surrounding said central bottom and two or more perforated rings located between the imperforate cylinders, the alternate rings being located at the top and bottom respectively of said cylinders.

2. The grate herein described comprising the circular grated bottom i, imperforate cylinder i', grated ring i^3 located in a horizontal plane above the grated bottom i, and the concentrically arranged imperforate rings i^2, i^2, and the grated ring i^4, between said rings i^2, i^2, arranged in a horizontal plane below the grated ring i^3, and the grated ring i^3, outside of said ring i^2, lying in a horizontal plane above the grated ring i^4, and the supporting frame for said parts, substantially as described.

3. The grated ring herein described comprising the circular grated bottom i, imperforate cylinder i', rising above said grated bottom, the grated ring i^3, lying in a plane substantially flush with the top of said cylinder i, the concentrically arranged imperforate rings i^2, i^2, the upper ends of which terminate substantially flush with the plane of said grated ring i^3, the grated ring i^4, located at or near the bottoms of said rings i^2, i^2, and the grated ring i^3 lying in a plane substantially flush with the upper ends of said rings i^2, i^2, combined with the supporting frame for said parts consisting of the outer ring a, and inner ring e and radially arranged stepped or shouldered arms b, c, d, f f', all substantially as described.

4. The grate herein described comprising the outer grated ring i^4, the concentrically arranged imperforate rings i^2, i^2, the upper ends of which terminate substantially flush with the plane of the grated ring i^3, and the grated ring i^4, located at or near the bottoms of said rings i^2, i^2, combined with the supporting frame for said parts consisting of the outer ring a, and radially arranged stepped or shouldered arms connected to it, the stepped portions of said arms lying in different planes to accommodate the parts supported by them, substantially as described.

5. The grate herein described composed of the circular grated bottom i imperforate cylinder i' rising above it, the grated ring i^3, lying substantially flush with the upper end of said cylinder, the imperforate rings i^2, i^2, the upper ends of which terminate substantially flush with the plane of said grated ring i^3, the tilting grated ring i^4, located at or near the bottom of said rings i^2, i^2, and the grated ring i^3 lying substantially flush with the upper ends of said rings i^2, i^2, and supporting frame comprising the outer ring a, inner ring e, radially connected arm c, stepped or shouldered to receive and support the several parts of the grate in the relative positions specified, and notched to receive and support said tilting member and the radially connected arms b, d, also stepped or shouldered to receive and support the said several parts of the grate in the relative positions specified, and provided with spaces 6, 7, which permit movement of said tilting member and the short radial arms f, f', also stepped or shouldered to receive and support the said several parts of the grate in the relative positions specified, and having an open space between them, to allow free and unobstructed passage of said tilting member, substantially as described.

494,872. GRATE. EDWARD FALES, Boston, Mass. Filed May 2, 1892. Serial No. 431,501. (No model.)

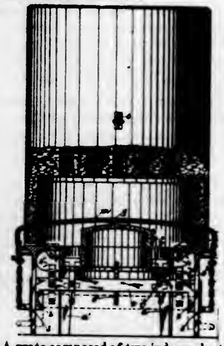


Claim.—1. The grate herein described comprising the outer grated ring i^3, the imperforate concentrically arranged rings i^2, i^2, the upper ends of which terminate substantially flush with the plane of said grated ring i^3, the grated ring i^4, located between and at or near the bottoms of said rings i^2, i^2, and supports for said parts, and the dome g, inclosing the space within the inner ring i^2, and projecting above it, substantially as described.

2. The grate herein described comprising the outer grated ring i^4, the imperforate concentrically arranged rings i^2, i^2, the upper ends of which terminate substantially flush with the plane of said grated ring i^3, the grated ring i^4, located between and at or near the bottoms of said rings i^2, i^2, and supports for said parts, and the dome g, supported on top of or by said inner ring i^2, substantially as described.

3. The grate herein described comprising several concentric imperforate and grated rings alternately arranged, the alternate grated rings being arranged at the top and bottom respectively of the imperforate rings, and the central dome g.

494,873. GRATE. EDWARD FALES, Boston, Mass. Filed May 21, 1892. Serial No. 433,825. (No model.)



Claim.—1. A grate composed of two independent circular grated rings, a transverse cross-bar arranged diametrically beneath and adapted to move both of said rings bodily vertically, vertical guideways in which the ends of said cross bar works, a pivoted lever connected to each end of said cross bar, and connecting devices for said levers, whereby they are simultaneously moved, substantially as described.

2. A grate comprising two independent grated rings located in different horizontal planes, a transverse cross-bar arranged diametrically beneath and adapted to move both of said rings bodily vertically, to shake the bed of coal, the lowermost grated ring being supported on or connected to said cross bar, to follow with it as the latter is lowered to dump the bed of coal, vertical guide ways for the ends of said transverse cross bar, and means for moving the cross-bar vertically in its guide-ways, substantially as described.

3. A grate composed of two or more circular grated rings, occupying different planes, a cross bar to which one of said grated rings is connected, and arms as 4, secured to said cross-bar, adapted to engage the other grated ring, and means substantially as described, for moving said cross-bar vertically, as and for the purposes set forth.

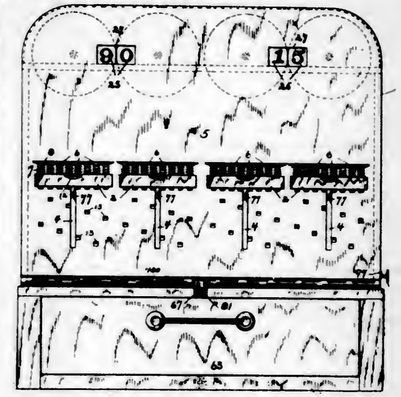
4. A grate composed of the outer ring a, supports c, formed integral with or secured thereto, grated ring i^3, and solid ring i^2, resting on said supports c, lugs c' formed integral with or secured to the under side of said ring i^2, and ring i^3, supported thereon, the grated ring i^4, located between the rings i^2, i^2, and occupying a plane below the level of the grated rin i^3, and means for moving said grated ring i^4, bodily, for the purpose of dumping or shaking the bed of coal, substantially as described.

5. The grate composed of the outer ring a, supports c, formed integral with or secured thereto, grated ring i^3 and solid ring i^2, resting on said supports c, lugs c', formed integral with or secured to the under side of said ring i^2, and the ring i^3, supported thereon, the grated ring i^4, located between the rings i^2, i^2, and occupying a plane below the level of the grated ring i^3, the cross bar e supporting said ring i^4, and means for moving said cross bar vertically to raise and lower the ring i^4, to disturb or dump the bed of coal, substantially as described.

494,874. CASH REGISTER AND INDICATOR. WILLIAM R. POWLER, Baltimore, Md. Filed June 7, 1892. Serial No. 436,233. (No model.)

Claim.—1. In a cash-register, the combination of a rotary spring-actuated indicator-disk having a drum; a slide-head; a flexible connection between said drum and slide head; an operating lever having sliding connection with said slide-head; and means for holding the slide-head at different positions to which it is brought, substantially as described.

2. In a cash-register, the combination of a rotary spring-actuated indicator disk having a drum; a slide-head; a flexible connection between said drum and slide-head; an operating lever having a rod which exteeds loosely through the said slide head and has an enlargement at the end; and means for holding the slide-head at different positions to which it is brought, substantially as described.



3. In a cash-register, the combination of a rotary spring-actuated indicator-disk having a drum; a slide-head; a flexible connection between said drum and slide-head; an operating lever having sliding connection with said slide-head; and a movable rack for engaging and holding said slide-head.

4. In a cash-register, the combination of a rotary spring-actuated indicator-disk having a drum; a slide-head; a flexible connection between said drum and slide-head; an operating lever having sliding connection with said slide-head; a movable rack for engaging and holding said slide-head; and means for automatically releasing the slide-head from said rack.

5. In a cash-register, the combination of a toothed registering wheel; a registering ratchet-wheel one of whose peripheral ratchet-teeth is arranged to be automatically projected outward into engagement with the toothed wheel upon each revolution of the ratchet-wheel; and an operating lever having a pawl which engages the ratchet-wheel.

6. In a cash-register, the combination of a toothed registering wheel; a stationary part having a cam-block; a registering ratchet-wheel one of whose peripheral ratchet-teeth is mounted to slide radially and is provided with a projection to ride over the cam-block on the stationary part whereby the said tooth is projected outward into engagement with the toothed registering wheel upon each revolution of the ratchet-wheel; and an operating lever having a pawl which engages the ratchet wheel.

7. In a cash-register, the combination of a drawer-casing; a spring-actuated drawer therein and having a stud which projects upward through the top of said casing; a lever pivoted above said casing-top to move in a horizontal plane and engaging the said drawer-stud to hold the drawer closed; a vertically-movable operating lever; and a laterally movable trip piece actuated by said operating lever and acting upon the drawer-holding lever to release the drawer.

8. In a cash-register, the combination of a drawer-casing; a spring-actuated drawer therein and having a stud which projects upward through the top of said casing; a lever pivoted above said casing-top to move in a horizontal plane and engaging the said drawer-stud to hold the drawer closed; a vertically-movable operating lever; a vertically-placed trip-lever having a lateral projection in the path of the operating lever; and suitable connections from said trip-lever to the drawer holding lever whereby the latter is moved and the drawer released upon the depression of the operating lever and consequent lateral movement of the trip-lever.

9. In a cash-register, the combination of a drawer-casing; a spring-actuated drawer, therein and having a stud which projects upward through the top of said casing; a lever pivoted above said casing-top to move in a horizontal plane and engaging the said drawer-stud to hold the drawer closed; a number of vertically-movable operating levers; a corresponding number of vertically-placed trip levers each having a lateral projection in the path of one of the operating

levers; and a bar connecting all of said trip-levers together and arranged to engage the drawer-retaining lever whereby the latter is moved and the drawer released upon the depression of any one of the operating levers and consequent lateral movement of the trip-levers and connecting-bar.

10. In a cash-register, the combination of a sliding spring-actuated drawer having a projecting stud; a lever engaging said stud to hold the drawer shut; a number of operating levers; a number of trip-levers each having a projecting part in the path of one of the said operating levers; and a bar connecting said trip levers and arranged to move the drawer-holding lever out of engagement with the projecting stud on the drawer, said bar having a stem and a knob thereon outside the machine-casing for the purpose described.

11. In a cash-register, the combination of a sliding drawer having two projecting studs; a bell; a spring-actuated bell striker-arm engaged and held withdrawn by one of the said drawer-studs; a lever engaging the other of said drawer-studs to hold the drawer closed and also arranged to release the bell-striker-arm; an operating lever; and means whereby a movement of the latter trips the drawer-holding lever.

12. In a cash-register, the combination of a sliding drawer having two projecting studs; a bell; a spring-actuated bell striker-arm engaged and held withdrawn by one of the said drawer-studs; a lever engaging the other of said drawer-studs to hold the drawer closed and extending beneath the bell-striker-arm; a beveled stationary block for engagement of said lever whereby it will be raised to free the bell-striker-arm from the drawer-stud; an operating lever; and means whereby a movement of the latter trips the drawer-holding lever.

13. In a cash-register, the combination of a casing having a slot; a sliding drawer having a projection to reciprocate in said slot; a lever of resilient material having a notched end over the slot and arranged to engage the drawer-projection to hold the drawer closed; an operating-lever; and a trip-device actuated thereby to release the drawer-holding lever.

14. In a cash-register, the combination of a casing having a slot; a sliding spring-actuated drawer having two projections to reciprocate in said slot; a bell; a resilient spring-actuated bell striker-arm engaged and held withdrawn by one of said drawer-projections; a lever of resilient material having a notched end projecting over the casing-slot and arranged to engage the other of said drawer-projections and thereby hold the drawer closed, the opposite end of said lever extending beneath the bell striker-arm and beveled on the under side; a beveled block for said beveled end of the lever to ride upon and thereby free the bell striker-arm from the drawer-projection; an operating lever; and means whereby a movement of the latter trips the drawer-holding lever.

15. In a cash-register, the combination of a rotary indicator; an operating lever; suitable connections between the indicator and lever whereby a movement of the latter turns the indicator: mechanism for setting the indicator at the position to which it is brought by the operating lever; a sliding spring-actuated drawer having a projecting stud; a spring-actuated bell striker-arm engaged and held withdrawn by said projecting stud; a lever for holding the drawer closed; trip-devices for releasing the drawer from said lever which holds it; means for automatically releasing the bell-striker-arm from the drawer stud; and suitable connections between said striker arm and the setting mechanism for holding the indicator, whereby the said indicator is released by the striker-arm, substantially as described.

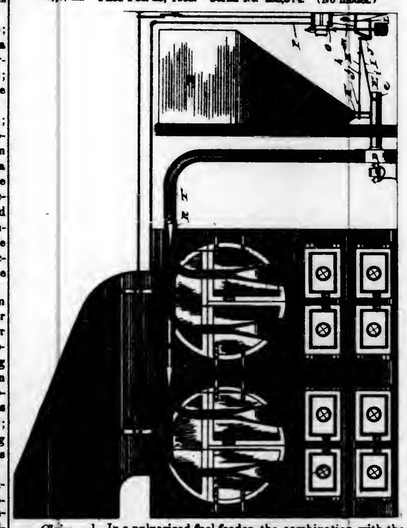
16. In a cash-register, the combination of a rotary spring-actuated indicator having a drum; a slide head; a flexible connection between the latter and the drum; an operating lever having sliding connection with said slide-head; a movable rack for engaging and holding the slide head; a swinging frame having a depending arm; a bell; a spring-actuated bell-striker arranged to engage said depending arm and move it to throw the swinging frame into contact with the movable rack and thereby move the latter out of engagement with the slide head; a sliding drawer having a projection which engages the bell striker and holds it withdrawn; and trip devices actuated by the operating lever for releasing the bell-striker from the drawer-projection.

17. In a cash-register, the combination of a rotary spring actuated indicator having a drum; a slide-head; a flexible connection between the latter and the drum; an operating lever having sliding connection with said slide-head; a movable rack for engaging and holding the slide head; a swinging frame having a depending jointed arm carrying a lever pivoted to its lower end; a bell; a spring-actuated bell-striker-arm arranged to engage said lever on the depending arm and move it and the depending arm so as to throw the swinging frame against the movable rack and thereby move the latter out of engagement with the slide-head; a stationary projection to trip the depending-arm lever out of engagement with the bell-striker-arm; a sliding drawer having a projection which engages the bell-striker-arm and holds it withdrawn; and trip-devices actuated by the operating lever for releasing the bell-striker arm from the drawer-projection.

18. In a cash-register, the combination of a number of rotary spring-actuated indicators each having a drum; slide-heads; flexible connections between the drums and slide-heads; operating levers having sliding connection with the slide-heads respectively; movable spring-actuated racks to engage and hold the slide-heads; a swinging frame having feet for contact with the rack, and a depending arm; a bell; a spring-actuated bell-striker-arm arranged to engage said depending arm and actuate it to throw the feet of the swinging frame against the racks and thereby move the latter out of engagement with the slide-heads a sliding drawer having a projection to engage the bell-striker-arm and hold it withdrawn; and trip-devices actuated by the operating levers for releasing said bell-striker-arm.

19. In a cash-register, the combination of an outside casing having a hinged front-plate; rotary indicating dials on said front-plate; mechanism for operating the said dials, also on said front plate; registering mechanism carried by said front plate; levers for operating the dials and registering apparatus also carried by the front-plate; a sliding drawer in the lower part of the casing; a lock for the drawer; a bell; a striker therefor; and suitable means of connection between the apparatus carried by the front plate of the casing, and the apparatus connected with the drawer and bell whereby the said front-plate may be turned outward on its hinges and replaced without disturbing the operative adjustment of parts.

494,375. PULVERIZED-FUEL FEEDER. HUGH S. GRIGSBY, Chicago, Ill. Filed Feb. 23, 1892. Serial No. 422,374. (No model.)



Claim.—1. In a pulverized fuel feeder, the combination with the fuel reservoir, of a fan interposed between the fuel supply and the furnace and having its suction connected with the fuel supply and with the atmosphere, a discharge pipe leading from the fan to deliver the fuel into the fire box, valves for controlling the fuel and air supply passages to the fan, a steam generator located in proximity to the fire box of the furnace, and a regulator actuated by the boiler pressure to operate said valves, whereby variations of the pressure is utilized to regulate the supply of fuel and air to the furnace, substantially as described.

2. A regulating device for pulverized fuel feeders, comprising in combination with an exhaust fan having its suction connected with the fuel supply and with the atmosphere, valves in said connections, a steam generator located in proximity to the fire and connected with a pressure chamber, a piston reciprocating within said chamber, a bell crank operated by the piston rod, and links or rods adjustable as to length and pivotally connected to the bell crank, substantially as described.

3. A regulating device for pulverized fuel feeders, comprising in combination with an exhaust fan having its suction connected with the fuel supply and with the atmosphere, valves in said connections, a steam generator located in proximity to the fire and connected with a pressure chamber, a piston reciprocating within said chamber, a bell crank operated by the piston rod, and links or rods connected with the valves and adapted to be connected with the bell crank at different distances from its pivot, substantially as described.

494,376. CAR-COUPLING. CHARLES KOERNER, Detroit, Mich. Filed June 13, 1892. Serial No. 436,545. (No model.)



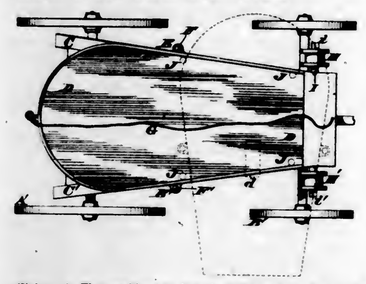
Claim.—1. In a car-coupler, the combination with a draw bar, a jaw at its forward end having elongated slots therein, a spring in one member of said jaw, a coupler hook pivoted in said slots and a head actuated by said spring against the rear of the coupler hook, substantially as described.

2. In a car coupler, the combination of the draw-bar having a jaw at its forward end and having a longitudinal slot in one member of the jaw, of the pivoted swinging coupling hook arranged in a plane parallel with the slot having its pivot pin engaging in said slot and a spring applied in the rear of said hook, substantially as described.

3. In a car coupler, the combination with the draw bar, having a jaw at its forward end, said jaw being provided with a longitudinal slot in one member, of a coupler hook having its pivot pin engaged in said slot, a spring in said jaw in rear of the end of the slot, an extension of the coupling hook beyond its pivotal point, having a curved bearing on and over which the end of the spring rides, substantially as described.

4. In a car coupler, the combination with a draw-bar having a jaw at its forward end, a spring in one member of said jaw, the coupler hook pivoted in said member, the head K actuated by said spring against the rear end of the coupler hook, the tooth M on said head and the catch N in the coupling hook, the parts arranged to operate, substantially as described.

494,377. DUMPING-WAGON. MEINRAD MAGOH, Cincinnati, Ohio. Filed Nov. 29, 1892. Serial No. 453,473. (No model.)



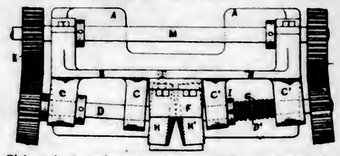
Claim.—1. The combination, in a dumping wagon, of a running-gear, a frame mounted thereon, and a body pivoted at its sides to said frame by a pair of shiftable pins, whereby said body is capable of being swung around either to the right or left, substantially as herein described.

2. The combination, in a dumping wagon, of a running gear, a frame mounted thereon, a body pivoted at its sides to said frame by a pair of shiftable pins, and a catch on the under side of said body, which catch is so arranged as to engage with side beams of said frame, for the purpose described.

3. The combination, in a dumping wagon, of a running gear, a frame mounted thereon, a body pivoted at its sides to said frame by a pair of shiftable pins, and devices for swinging said body around, either to the right or left of said frame, for the purpose described.

4. The combination, in a dumping-wagon, of a running gear, a frame C, C', mounted thereon and having rounded bearings *c*, *c'*, a body D pivoted at its sides to said frame by a pair of shiftable pins F, F', and having a catch *d* on its under side, a shaft I journaled to said frame and having a pair of drums H, H', and a rope or chain G having one end secured to said body and its other end free to be wound around either of said drums, for the purpose described.

494,378. RAND-TURNING MACHINE. LEVI A. MERRITHEW, Brockton, assignor of one-half to Ernest L. Drew, Boston, Mass. Filed Sept. 28, 1892. Serial No. 447,193. (No model.)

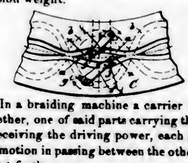


Claim.—1. A rand turning machine consisting of a frame having two oblique rotary drive-heads, one of which is adapted to yield axially by means of a spring, and a segmental faced former-block partially surrounding the said heads, substantially as described.

2. In a rand turning machine, the combination of two oblique rotary drive-heads, and a segmental faced former-block partially surrounding the said drive-heads, for the purpose set forth.

494,379. BRAIDING-MACHINE. JOHN MCCARRY, Providence, R. I., assignor to the New England Butt Company, same place. Filed May 31, 1892. Serial No. 434,929. (No model.)

Brief.—To prevent the fraying of the thread by reason of its passing back and forth through the tension-weight, the braiding-carrier is made in two parts, pivoted together. Two raceways are provided, the lower being of the usual construction, in which the lower carrier moves, while the upper raceway, in which the upper carrier moves, is so formed that the thread-guides have but a small movement toward and from the center of the machine, thus reducing the number of times a given length of thread will pass back and forth through the tension weight.



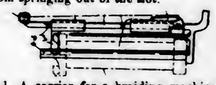
Claim.—1. In a braiding machine a carrier made in two parts and pivoted together, one of said parts carrying the thread guide and the other part receiving the driving power, each part having its own separate line of motion in passing between the other carriers, substantially as herein set forth.

2. In a braiding machine a motor carrier to receive the driving power in combination with a supplementary carrier with a spool spindle and thread guide bar thereon pivoted to said motor carrier, and a separate raceway for each carrier substantially as set forth.

3. The combination of the base plate holding the lower raceway, said raceway, a carrier in said raceway, the bracket supporting the gear, the gear, the horn wheel attached to its hub, the stub on which the gear wheel and horn wheel revolve, an upper raceway, and a carrier guide movably pivoted to said lower carrier, fitted to run therein, substantially as described.

494,380. BRAIDING-MACHINE CARRIER. JOHN MCCARRY, Providence, R. I., assignor to the New England Butt Company, same place. Filed May 31, 1892. Serial No. 434,930. (Model.)

Brief.—The guide bar is bent over at its top to form a head for a bushing. It is cut away just below the head, and the weight is provided with a notch at its back to enable it to be shifted over the cut-away portion of the guide-bar. The drop-pawl has its arm engaging a slot in the top of the spool-spindle to prevent the pawl from binding on the guide-bar. A pin in the top of the guide bar prevents the drop-pawl from springing out of the slot.

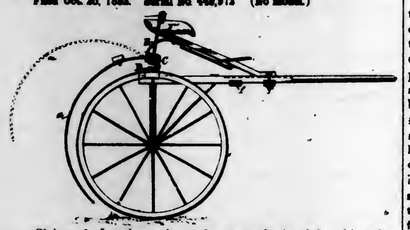


Claim.—1. A carrier for a braiding machine having a thread guide consisting of a flat bar having its upper end narrowed in edgewise and bent over with a hub-like head with a vertical hole through it for the passage of the thread, in combination with a tension weight having a notch in its back at its upper end and a front opening cut out wider at the lower end to allow it to pass over the shoulders near the upper end of the guide bar as set forth.

2. In a braiding machine carrier, a spool spindle having a vertical groove in its side at its upper end, and having a pin extending through the sides of the groove near the top of the spindle, in combination with a guide bar and a drop pawl having an arm long enough to reach into said groove and extend under the pin, so as to be pre-

vented from rising out of the groove when the machine is in operation, substantially as specified.

494,881. HORSE HAY-RAKE. FRANCIS L. OSBORN, Windsor, N. Y. Filed Oct. 26, 1892. Serial No. 449,972. (No model.)



Claim.—1. In a horse hay rake, the rake head C,— hinged to the bolster D immediately above the axle and having the curved bow E in combination with the seat F supported on a yielding bar F, substantially as and for the purpose described

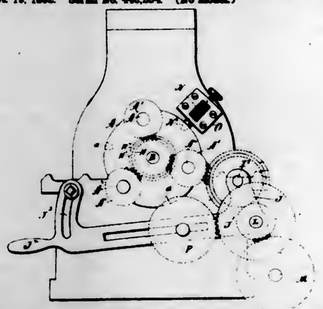
2. In a horse hay rake, the combination of the seat F and yielding seat bar F the rods *g*, and A, the bow E and rake head C with the teeth *a* all as and for the purpose described.

494,882. BOOK. HOYT P. PARMELEE, Des Moines, Iowa. Filed Dec. 8, 1891. Serial No. 414,406. (No model.)



Claim.—In a bound book, series of folios fastened together in overlying position by means of stitches or staples as shown and described, a flexible strip, extending the entire length of the folios, fixed on the rear portions of the outside folios to cover and reinforce the stitches and staples that hold the folios together in such a manner that a portion of the entire length of the strip overlying the outside folio will be free and adapted to be fastened its entire length to the inside of a finished cover fastened to the outside surface of said free portion of the strip, and all the parts permanently connected, substantially as shown and described for the purposes stated.

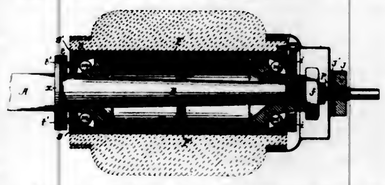
494,888. ENGINE-LATHE. OSCAR B. PERRIGO, New Haven, Conn., assignor to the New Haven Manufacturing Company, same place. Filed Sept. 19, 1892. Serial No. 446,254. (No model.)



Claim.—1. In the feed-rod gear of an engine lathe, the combination with the "stud" and the feed-rod thereof, of means for driving the said "stud," a cone of gears fixed on the "stud," a rotatable head swiveled on the "stud" and carrying gears differentiated in their radial distance from the "stud" and in their offset from the face of the head, and corresponding in number to the steps of the said cone with which they are respectively meshed; a loose cone of gears corresponding in number to the gears carried by the said head which is rotated to bring its gears into mesh with the steps of the said loose cone; means for locking the said head in any of its adjustments, and connection between the said loose cone and the feed-rod, substantially as described, and whereby by rotating the head the speed of the rod may be varied within the limits of the gears and carried by the said rotatable head, and comprised in the fixed and loose cones.

2. In the feed-rod gear of an engine lathe, the combination with the "stud" and the feed-rod and the feed-screw thereof, of means for driving the stud, a cone of gears and a screw-cutting gear fixed to the said "stud," a rotatable head swiveled on the said "stud" and carrying idle gears arranged to mesh into the cone of gears, a stud-plate swung on the feed-screw, a loose cone of gears mounted on an arm of the said plate and meshed into by the gears of the rotatable head according to the adjustment of the same, means for locking the said head in any of its adjustments, a rod-gear mounted on the feed-rod, an idle gear mounted on the feed-screw and connecting the said loose cone of gears with the rod gear, a screw-cutting gear mounted on the feed-screw, and a gear carried by the stud-plate and connecting the screw-cutting gear on the "stud" with that on the feed-screw, substantially as described, and whereby by rotating the said head the speed of the rod may be raised, and by shifting the stud-plate the feed-rod gear may be cut out of, and the feed-screw gear cut into, action.

494,884. BALL-BEARING FOR VEHICLES. DAVID PETTIT, Beverly, N. J., and JOHN R. CORSON, Philadelphia, Pa., assignors to the Common Sense Bicycle Manufacturing Company, Philadelphia, Pa. Filed Oct. 12, 1892. Serial No. 448,641. (No model.)



Claim.—1. The combination of an axle having a projecting journal with a ball bearing having as one of its elements a sleeve with internally projecting rings at the ends, said rings being seated upon the journal respectively at the inner and outer ends thereof, substantially as specified.

2. The combination of the axle having a projecting journal with a ball bearing having as one of its elements a sleeve with internally projecting rings seated upon the journal, one of said rings being located at the inner end and one at the outer end of the journal, and a third ring being about midway of the journal, substantially as specified.

3. The combination in a ball bearing, of the inner bearings for the balls, with the outer bearings carried by a sleeve having a periphery of uniform diameter from end to end of the hub and having at each end an internally projecting ring forming an outer bearing for the balls, substantially as specified.

4. The combination in a ball bearing, of the inner bearings for the balls, with the outer bearings consisting of internally-projecting rings carried by a sleeve having a uniform diameter from end to end of the hub, and threaded exteriorly so as to be screwed into said hub, substantially as specified.

5. The combination in a ball bearing of the inner bearings for the balls, with the outer bearings carried by a sleeve having uniform diameter from end to end of the hub, one or both of said outer bearings having a flange flush with the exterior of the sleeve, substantially as specified.

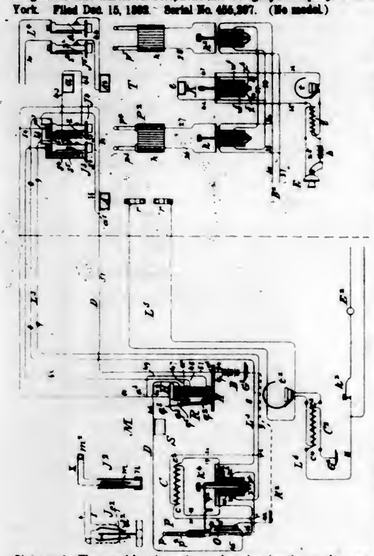
6. The combination of the hub sleeve having at its ends bearings for the balls, with an inner sleeve made in two parts joined together, and each having an internal ring bearing upon the axle journal, and constituting a bearing for the balls, substantially as specified.

7. The combination of an axle having a projecting journal with a ball bearing consisting of a sleeve mounted upon said journal and carrying bearings for the balls, a sleeve adapted to the hub, and also carrying bearings for the balls, a ring rigidly mounted upon the axle, and a packing ring confined between said ring and the inner bearing of the hub sleeve, and serving to prevent access of dust to or escape of oil from the bearing at the inner end, substantially as specified.

8. The combination of the hub sleeve and journal sleeve and their ball bearings, with the hub cap and the journal projecting through an opening in said hub cap for the attachment of a tie, brace, guard, or the like, substantially as specified.

9. The combination of the hub sleeve and journal sleeve and their ball bearings, the hub cap, the journal projecting through an opening therein, and the nut and washer applied to the projecting portion of the journal to form a dust and oil proof joint with the cap, substantially as specified.

494,885. TELEPHONE AND SIGNALING CIRCUIT. FRANK A. PICKERNELL, Newark, N. J., and FRANCIS W. DUNBAR, New York, N. Y., assignors to the American Telephone and Telegraph Company, of New York. Filed Dec. 15, 1892. Serial No. 455,207. (No model.)



Claim.—1. The combination of an electric circuit; a plug connector constituting a movable terminal therefor; and a resting socket or seat for the said plug; with a key or circuit changer having a spindle capable of vertical movement in one direction when pressed, and in the opposite direction under the influence of a spring, in juxtaposition to the said resting socket; and a retaining device adapted to engage the said key when depressed during the absence of the said plug from its socket, and to maintain said depression; but to release the same upon the replacement of said plug, substantially as described.

2. The combination of a telephone circuit; a plug connector constituting a movable terminal or connection thereof and a resting socket therefor; an induction coil, and a circuit changing key controlling the connection of said induction coil with said circuit, associated with and mounted near to said resting socket; with a controlling spring for the said key depending for its position upon the presence or absence of said plug in its resting socket, and capable of engaging the said key if depressed to connect the induction coil, when the plug is absent from the said resting socket, but adapted to release the same and to cause the automatic disconnection of the said induction coil upon the replacement of said plug in said resting socket, substantially as described.

3. The combination of an electric circuit; a repeating induction coil adapted for inclusion therein; a press key or circuit changer controlling the connections of said coil with said circuit, the said key having a shouldered shank and adapted to move vertically in one direction when manipulated, and reversely by means of a spring; with a plug connector; a normal seat or resting socket therefor; a controlling spring for the said key fixed at one end, having a perforation encircling the shank of said key and adapted thereby to engage the shoulder thereof, and maintain the connection of the induction coil with the circuit; and a mechanical spring connection between the said plug seat and said controlling spring whereby the latter may be permitted to engage the key when the plug is absent from said plug seat, but is caused to release the said key on the replacement thereof, substantially as described.

4. The combination with an electrical circuit; and a plug connector therefor normally resting in a suitable socket or seat; of a repeating induction coil, adapted to be manually included in and automatically withdrawn from such circuit; a vertically moving key controlling the induction coil circuit connections, and adapted when depressed to connect the said coil with said circuit, and when retracted to withdraw the same therefrom; a retaining device for the said key adapted to engage the same and to maintain the depression thereof; and controlling mechanism for the said retaining device itself controlled by the removal from and replacement in its resting socket of the said plug, and adapted on said replacement to free the said key from the said retaining device; substantially as described.

5. A normally open signaling circuit comprising a main section including an electrical generator, a relay having independent high and low resistance helices, a relatively high resistance annunciator; a relatively low resistance self setting annunciator, and an automatic main section circuit closer; combined with a shunt circuit round the high resistance relay coil, normally closed through separable contacts in one of a pair of twin springjacks; an independent shunt circuit round the high resistance annunciator normally open between contacts in the remaining twin springjack; a twin plug for the said springjacks adapted when inserted to close the said annunciator shunt, and open the said relay shunt; and a supplementary normally open shunt round the said annunciator controlled by the said relay, and arranged to be closed thereby for the purpose of reducing the resistance of the main circuit, and of operating the said low resistance annunciator on the withdrawal of the twin plugs, substantially as described

6. The combination with a trunk telephone line between two switchboards having a plug terminal in a resting socket at one, and springjack and plug connections at the other of said boards: with an independent associated signaling circuit, having at the plug terminal switchboard a self setting annunciator responsive (when the said plug terminal is removed from its socket) to the withdrawal of the plug from its jack at the other switchboard; and having at the said other switchboard an annunciator responsive to the removal of the trunk terminal plug from its said resting socket; substantially as described.

7. The combination with a terminal connecting plug at one end of a trunk telephone circuit; a terminal twin springjack and twin plugs therefor at the other end of said circuit; of an associated signaling circuit having a circuit controller actuated by the removal and replacement of said terminal plug from its resting socket, and operating to close and open said signaling circuit; a circuit changer in each of the said twin springjacks operated by the insertion and withdrawal of the twin plugs thereof to close and open shunt circuits of the said signaling circuits: a relatively high resistance annunciator normally in the signaling circuit at the twin springjack end of the telephone circuit, and adapted to give its signal when the said signaling circuit is closed by the removal of said terminal plug; means for short circuiting or shunting the said annunciator when the said twin plug is inserted in the said twin springjacks, and for maintaining the said short circuit on the withdrawal of said twin plug, until the said signaling circuit is broken by the replacement of the terminal plug; and a relatively low resistance indicator in the said signaling circuit at the terminal plug end thereof adapted to give its signal only when the circuit having first been closed by the absence of the terminal plug from its resting socket, the high resistance annunciator is short circuited by the insertion and withdrawal of the said twin plug, and to restore its signal when the signaling circuit is opened by the subsequent replacement of the said termical plug, substantially, as described.

8. The combination with a trunk telephone line between two switchboards fitted at one of said switchboards with twin springjacks adapted to receive a twin plug, and at the other with a terminal cord and plug having a suitable plug seat or resting socket; of an associated normally open signal circuit and apparatus independent thereof, comprising the following elements, a circuit closer mounted in the said plug seat actuated by the removal and replacement of said plug to close and reopen the signaling circuit; circuit changers mounted within the said twin springjacks at the other end of signaling circuit, actuated by the insertion and withdrawal of the twin plugs to establish and disestablish shunt circuits, and thereby vary the resistance of the main circuit; an annunciator normally in the signaling circuit at the springjack end of said trunk organized to respond to the closure thereof by the removal of the said terminal plug from its socket; a relay normally shunted from the signaling circuit but included therein by the operation of one of the said springjack circuit changers; a shunt circuit round the said annunciator closed by the operation of said relay; and a self setting annunciator at the plug end of said trunk, organized to respond only when the signaling circuit is closed by the removal of the terminal plug and when its resistance is reduced by the establishment of shunt circuits round the said annunciator by said relay, and round said relay by the withdrawal of said twin plug substantially as described.

9. The combination with an office trunk line extending between a local and a toll switchboard and provided at the former with a terminal plug and a resting socket therefor, and at the latter with twin terminal springjacks adapted to receive twin connecting plugs; of an automatic signaling system of circuits comprising a normally open

main section; a battery therefor; a circuit controller placed in the resting socket of said plug, and operated by the removal and replacement thereof; an annunciator at the toll switchboard in said main circuit responsive to the withdrawal of said plug; a relay having independent high and low resistance coils or helices; a shunt circuit round the high resistance coil of said relay normally closed through contact points in one of said twin springjacks, but adapted to be opened on the insertion of the plug therein; an independent shunt circuit round the toll board annunciator normally open between contact points in the other of said twin jacks, and adapted to be closed by the insertion of the plug; a second normally open shunt circuit round the said annunciator controlled by the said relay; and a self setting indicator at the local board responsive to the withdrawal of the twin plugs at the toll board, only when shunt circuits are closed round the high resistance relay coil, and the toll board annunciator, and when the terminal plug at the local board is absent from its socket and resetting itself on the replacement of said plug, substantially as described.

10. The combination with a trunk telephone circuit between two switchboards terminating at one of said switchboards in a cord and plug, and a resting socket for said plug when not in use; of a normally open associated signaling circuit, including a battery; an automatic circuit closer therefor mounted in the said resting socket, and actuated by the removal of the said plug therefrom, and an annunciator in said signaling circuit at the other switchboard adapted to give its signal when the said circuit is closed, and thereby to respond to the removal of said plug from said socket, substantially as described.

11. The combination with a trunk telephone circuit extending between two switchboards, terminating at one of said switchboards in a cord and plug, and at the other in a twin or loop springjack, and having a resting socket for said plug, and a twin or loop plug for said springjacks; of a normally open associated signaling circuit including a battery; an automatic circuit closer therefor mounted in said resting socket and actuated by the removal and replacement of said plug; a high resistance relay and annunciator connected with said signaling circuit; a low resistance annunciator capable of giving its signal on the closure of the circuit only after said high resistance has been shunted; a circuit changer in the said springjack shunting the said relay, and a supplementary shunt controlled by the said relay for the said high resistance annunciator; whereby the said low resistance annunciator may be operated and caused to give its signal when the terminal plug is not in its socket by the insertion in and withdrawal from its springjack of the said twin or loop plug, and whereby the said signal may be withdrawn by the replacement of said plug in its resting socket; substantially as described.

12. The combination with a telephone circuit extending between two points terminating at one of said points in a cord and plug; of a normally open associated signaling circuit including an electrical generator; an automatic circuit closer therefor actuated by connections and disconnections made by said terminal plug; and an annunciator in said signaling circuit at the other of said points, adapted to give its signal when its circuit is closed by the act of making a connection with said plug; substantially as described.

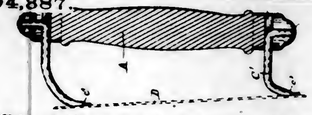
13. The combination, substantially as hereinbefore described with a telephone circuit, extending between two switchboards, and terminating at one of them in an extensible cord and plug: of a normally open associated signaling circuit including an electrical generator; an automatic circuit closer therefor actuated by the operation of said plug; two annunciators in the signaling circuit, the first responsive to the operation of said circuit closer directly and the second to the operation of said circuit closer, only when the first is shunted.

494,886. HANDLE FOR VESSELS. ALBERT R. PRITCHARD, Rochester, N. Y., assignor of one-half to Charles D. Milne, same place. Filed Jan. 6, 1893. Serial No. 457,686. (No model.)



Claim.—A handle for metallic vessels, consisting of a non-conducting portion A, constituting the handle proper, having axial sockets, arms bent at suitable angles and resting in said sockets and in transverse slots in the ends of said handle proper, caps perforated at the side and adapted to fit on the ends of said handle proper, through which perforations the wires extend, said wires being flattened at the ends and adapted to be soldered or otherwise fastened to a vessel, substantially as described.

494,887. HANDLE FOR VESSELS. ALBERT R. PRITCHARD, Rochester, N. Y., assignor of one-half to Charles D. Milne, same place. Filed Feb. 11, 1893. Serial No. 461,969. (No model.)



Claim.—1. The combination of a metallic vessel, a non-conducting handle having transverse slots across the ends thereof, caps fastened on the ends of said handle, wires fastened to said vessel passing through the side of the caps, seated in said slots and fastened to said caps, substantially as described.

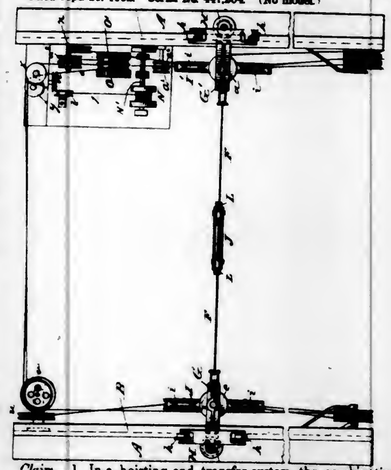
2. The combination of a metallic vessel, a non-conducting handle having transverse slots across the ends thereof, caps fastened on the ends of said handle, wires fastened to said vessel passing through perforations in the sides of said caps bent substantially at right angles inside said caps and fastened to the ends thereof and seated in said slots, substantially as described.

494,888. AIR-HEATING DEVICE FOR STOVES OR RANGES. FRANKLIN L. SHEPPARD, Philadelphia, Pa. Filed May 21, 1891. Serial No. 393,635. (No model.)



Claim.—The combination in a cooking stove or range, of the fire box and oven situated side by side, double top flues I, I', ascending and descending end flues J, J', double bottom flues K, K', an outlet from the flue I' for the products of combustion, end and back plates for the stove, so situated as to form air heating flues between the end flues J, J' and the end plate of the stove, and between the back plate of the oven and the back plate of the stove, an inlet for the air to be heated and an outlet for the heated air, substantially as specified.

494,889. HOISTING AND TRANSFER APPARATUS. WILLIS D. SHERMAN, Brooklyn N. Y., assignor of four-fifths to Charles R. Johnson, Frank R. Johnson, Ellis H. Baillie, and John J. Wilson, same place. Filed Sept. 26, 1892. Serial No. 447,204. (No model.)



Claim.—1. In a hoisting and transfer system, the combination with the elevated parallel frames and tracks, the sheaves, *u*, *v*, *w*, *p*, *q*, *r*, *s*, *t*, *a'*, *a²* and *z*, secured to said frames, the traveling yokes connected together by a rope or cable F, the sheaves *i*, *i*, *a*, *b*, *c*, *d*, *e* and *f* secured to said yokes, the trolley having sheaves *k*, *k*, and track wheels K, and the ropes passing over said sheaves, the hoisting block and rope and means for transmitting motion to said yokes, trolley and hoisting block, substantially as described.

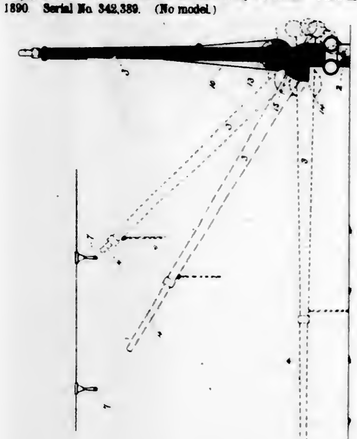
2. The carriage comprising the yoke, G, top traveler, H, having wheels, *h h*; side traveler, I, having sheaves or grooved wheels, *i* and *i'*; sheaves, *e* and *f*, journaled on a vertical shaft within the yoke, and top and bottom guide sheaves, *j* and *k*; substantially as and for the purpose herein shown and set forth.

3. The right hand carriage comprising the yoke, G', top traveler, H', having wheels, *h h*; side traveler, I', having sheaves or grooved pulleys, *i²* and *i²*; sheaves, *a*, *b*, *c* and *d*, journaled on a vertical axle within the yoke, G'; and top and bottom guide sheaves, *j* and *k*; substantially as and for the purpose herein shown and set forth.

4. The combination of the drums N, O and O'; ropes 1, 2, 3 and 4; left hand carriage comprising the top traveler, H, side traveler, I, and yoke, G, with their appropriate sheaves as described; right hand carriage comprising the top traveler, H', side traveler, I', and yoke, G', with their appropriate sheaves as described; flexible track, F, connecting the yokes, G and G'; trolley, J, and block, M; substantially as and for the purpose herein shown and set forth.

5. The combination of the stationary elevated tracks arranged parallel to each other and in the same horizontal plane; the carriages running on said tracks and constructed as described; the flexible and movable track, F, connecting said side carriages; the trolley, J, running upon the flexible track; hoisting block, M; ropes, 1, 2, 3 and 4; and drums or winches adapted to operate said ropes either independent of or in combination with, one another; substantially as and for the purpose herein shown and set forth.

494,890. GATE. HENRY A. SMITH, Lynn, Mass. Filed Mar. 3, 1890. Serial No. 342,389. (No model.)



Claim.—1. A radially moving railway gate, comprising a swinging arm, and a telescopic end section; positive means in engagement with said arm for swinging the same, and connecting devices attached to the telescopic end section, whereby in the downward movement of the arm, the end section is simultaneously projected, substantially as specified.

2. A railway gate comprising a radially moving arm provided with a telescopic end section, and positive means in engagement with said arm for swinging the same and simultaneously projecting or retracting the end section according as the arm is moving from a vertical to a horizontal position or vice-versa, substantially as specified and set forth.

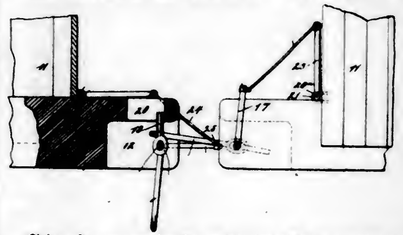
3. A radially moving railway gate, comprising a swinging arm, a telescopic end section therein, and a band connection between mechanism at the base of said arm and the telescopic end section, whereby the arm and end section are operated simultaneously, substantially as stated and described.

4. A fixed support, an arm pivotally connected thereto at one end, and a telescopic end section in the free end of said arm, in combination with a segment on said post, a shaft carried by the swinging arm, a pinion on said shaft adapted to engage said segment, and an operating band between said shaft and said end section, substantially as set forth.

5. A gate comprising a swinging arm having vertical movement, and a telescopic end section in the free end of the arm, combined with a rotary pulley carried by said arm, a cord or band which connects said end section with said pulley, and gearing connected with said pulley and actuated by the pivotal motion of the swinging arm, substantially as stated.

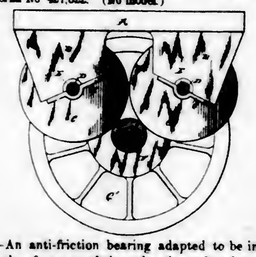
6. In a railway gate the combination with a swinging arm, a movable tip section and an operating non-revolvable toothed segment concentric with the main pivot and adjustably mounted on the gate post a wheel turned by said segment, a band connection from said wheel to the tip section, and intermediate mechanism between the said wheel and the segment, whereby in the operation of the gate the times of movement of the tip section may be controlled, substantially as stated.

494,891. CAR-COUPLING. WILLIAM W. SMITH, Traverse City, Mich. Filed Sept. 30, 1892. Serial No. 447,373. (No model.)



Claim.—In a car coupler, the combination with the draw bar 10, having a mouth 12 in its lower front end and a narrow opening 20 in its top communicating with the mouth 12, the crank shaft 16, the sleeve 15 fixedly held on the said shaft, the link 13 secured at its ends to the sleeve 15 and the pin 18 projected from such sleeve in an opposite direction, its free end adapted to swing in the opening 20, of a crank shaft 20ª journaled on the car body, having an arm 23, the clip 25 secured to crank arm of the shaft 16, and the rod 24 pivotally connected at its opposite ends to the crank arm 23, and the clip 25, as and for the purposes described.

494,892. ANTIFRICTION JOURNAL-BOX. GEORGE SPENCER, Old Mission, Idaho, assignor to C. W. Colby, same place. Filed Mar. 30, 1892. Serial No. 427,022. (No model.)



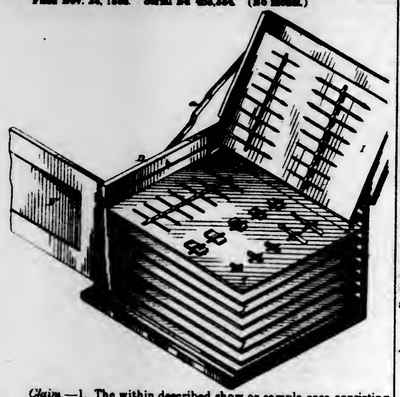
Claim.—An anti-friction bearing adapted to be interposed between the body of a car and the axles thereof, and comprising the horizontal plate provided at its ends with pairs of downwardly and inwardly inclined hangers, having their lower ends cut at an angle and provided with semi-cylindrical bearing recesses, the two anti-friction rollers arranged between the hangers of each pair and provided with trunnions extending from both faces of each roller and arranged in the bearing recesses, and the bearing plates retaining the trunnions in the bearing recesses, substantially as described.

494,893. ARTIFICIAL-TOOTH PLATE. JOHN C. STAPLETON, Washington, D. C. Filed Jan. 17, 1893. Serial No. 458,696. (No model.)



Claim.—As an improved article of manufacture a dental plate having a smooth crown and provided with a suction pad corresponding in size and shape to the crown of the plate substantially as shown and described.

494,894. SAMPLE-CASE. RICHARD H. STUART, Philadelphia, Pa. Filed Nov. 28, 1892. Serial No. 453,334. (No model.)



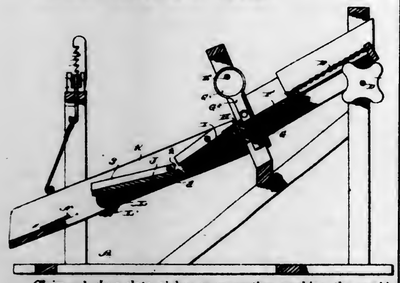
Claim.—1. The within described show or sample case consisting of an outer casing, and a series of superposed shelves having projecting portions adapted to guides of varying length in the ends of the casing so that the shelves can be first drawn forward and then turned up so as to overlap, substantially as specified.

2. The within described show or sample case consisting of an outer casing having guides of varying lengths in the end portions, and shelves each composed of two parts hinged together, the rear portion having projecting ends adapted to said guides, substantially as specified.

3. The within described show or sample case consisting of an outer casing having at its ends guides of varying lengths, and shoulders or projections terminating at the ends of said guides, in combination with exhibiting shelves having pivot portions adapted to the guides, whereby, when the shelves are turned upward the shoulders or projections serve to support the same, substantially as specified.

4. The within described show or sample case consisting of a fixed casing having in its ends guides of different lengths for the successive shelves, a door for closing the front of the case, a lid or cover for closing the top of the same, and shelves having pivot portions adapted to the guides in the ends of the case, substantially as specified.

494,895. SLATE-PICKER. SEPTIMUS THOMAS, Scranton, Pa. Filed July 5, 1892. Serial No. 438,915. (No model.)



Claim.—1. In a slate picker or separating machine, the combination of the inclined screen B, chute F, the vertically reciprocating feeder G at the lower edge of said chute, the inclined platform H, the upper inclined plane I separated from the platform H by a transverse dust opening A, the lower plane J having a less incline than the upper plane I, the coal discharge, and the slate discharge opening between said coal discharge and the lower plane J, substantially as specified.

2. In a slate picker, or separating machine, the combination with the main supporting frame A, its inclined screen, the chute and the feeder, of the frame K supported at an inclined position in the frame A, an upper inclined plane supported in the upper portion of the frame K, a second plane having a less incline supported in said frame below the upper plane, a transverse dust opening A between said planes, means for adjusting the inclination of the frame K, and thereby the common adjustment of both said planes, and means for effecting the independent adjustment of the lower plane, substantially as specified.

3. In a slate picker or separating machine, the combination with the supporting frame A, the inclined vibratory screen B supported in the upper portion of said frame, the cam shaft D and the cams C thereon for effecting the vibration of said screen, and the chute F below said screen, of the vertically-reciprocating feeder G working adjacent to the lower edge of said chute, the driving shaft having the eccentrics, the connecting rods operated by said eccentrics and connected to said feeder and a series of inclined separating planes below said feeder, substantially as specified.

4. In a slate picker or separating machine, the combination with the inclined pivoted frame K having the upper stationary plane I, and the lower plane J separated from the upper plane by a transverse dust opening A, of the lever P connected by rods p, p' with the lower portion of said frame and providing means for the adjustment of its inclination, the eccentric bar upon which the lower portion of the lower plane J is supported, and the ratchet and pawl for holding said bar, substantially as specified.

494,896. FRUIT-PRESS. SARAH R. THOMPSON, Henrietta, Tex. Filed Oct. 24, 1892. Serial No. 449,787. (No model.)



Claim.—1. In a fruit press, or device for expressing and straining the juice of fruits, the combination with a bracket plate adapted to be connected to a wall or other support: of an arm pivotally connected to the bracket plate and carrying a ring at its outer end adapted to support a fruit receptacle, a suitable means for supporting the arm and ring in a horizontal position, the arm G, pivotally connected to the bracket plate and devices carried by said arm G, adapted to be manipulated to express the juice from the fruit, substantially as specified.

2. In a fruit press, or device for expressing and straining the juice of fruits, the combination with a bracket plate adapted to be connected to a wall or other support, an arm pivotally connected to the bracket plate and carrying the ring C, at its outer end, the ring E, adapted to be placed upon the ring C, to secure a straining cloth thereto, and a suitable means for supporting the arm and rings in a horizontal position; of the arm G, pivotally connected to the bracket plate so as to swing in a horizontal plane and having a hook at its free end adapted to embrace the rings C, E, and devices carried by the arm G, adapted to be manipulated to express the juice from the fruit, substantially as specified.

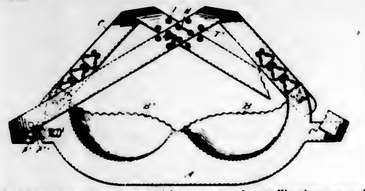
3. In a device for expressing and straining the juice of fruits, the combination with a bracket plate adapted to be connected to a wall or other support; and having the hook *a*; of an arm pivotally connected to the bracket plate and carrying the ring C, at its outer end, adapted to support a fruit receptacle, the bail loop pivotally connected to the ring C, and adapted to engage the hook of the bracket plate, the arm G, pivotally connected to the bracket plate, and devices carried by said arm G, adapted to be manipulated to express the juice from the fruit, substantially as specified.

4. In a fruit press or device for expressing the juice from fruits, the combination with the bracket plate having the hook *a*, the arms B, pivotally connected with the bracket plate and carrying the ring C, at their outer ends, the bail loop pivotally connected to the ring C, and adapted to engage the hook of the bracket plate, and the ring E, adapted to secure a strainer cloth to the ring C; of the arm G, pivotally connected to the bracket plate so as to swing in a horizontal plane, and having the hook *g*, at its outer end, and devices carried by said arm adapted to be manipulated to express the juice from the fruit, substantially as specified.

494,897. BREAST-SUPPORTER. MARIE TOBIN, New York, N. Y. Filed Jan. 11, 1892. Serial No. 418,018. (No model.)

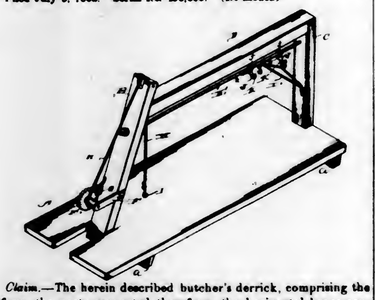
Claim.—1. A breast supporter, comprising a plate curved to conform to the wearer's body at the front thereof, and partial pockets formed at the top of the said plate at opposite sides of its center to engage the under side of the breasts, and shoulder straps connected with the ends of the said plate and crossing each other at the back and adjustably connected together at the crossing, substantially as shown and described.

2. A breast support, consisting of the curved plate A having the upwardly extending ends A' A^2, and provided with the pockets B B', and the straps C D, the strap C having one end secured to the plate at C' and its other end to the end A', and the strap D having one end secured to the plate at D and its other to the end A^2, substantially as described.



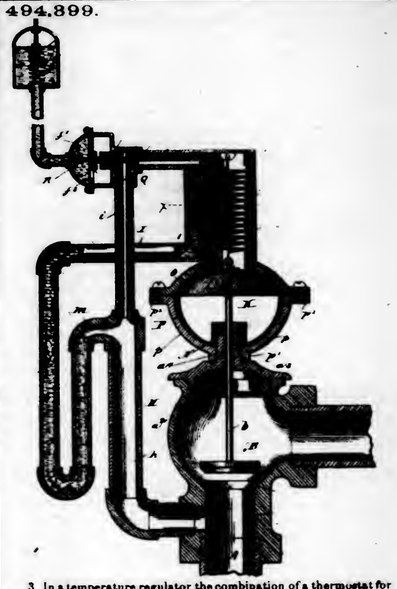
3. A breast supporter, comprising a covered metallic plate curved to conform to the wearer's body at the front thereof, the top edge of the plate being curved to conform to the contour of the breasts at the base thereof, partial pockets extending upward and forward from the curved top edge of the said plate to engage the under side of the breasts, crossing shoulder straps adjustably connected with the ends of the said plate, and a lacing for connecting the straps with each other at their point of crossing, substantially as shown and described.

494,898. BUTCHERING-DERRICK. JACOB ULFERS, Maryland, Ill. Filed July 5, 1892. Serial No. 438,896. (No model.)



Claim.—The herein described butcher's derrick, comprising the platform, the posts supported therefrom, the horizontal brace connecting said posts, the rod underneath said brace and secured in said post, the hoisting windlass and gambrel, and the hooks arranged to slide on said rod and having extensions designed to bear against said rod when the hooks are weighted, substantially as specified.

494,899. TEMPERATURE-REGULATOR. BYRON E. VAN AUKEN, Chicago, Ill., assignor to Clarence E. Van Auken, same place. Filed July 31, 1891. Serial No. 401,372. (No model.)



Claim.—1. In a temperature regulator, the combination of a service supply valve controlling a service supply of steam, hot-water or hot-air, a thermostat for operating the service supply valve, a valved passage arranged between the service supply and the thermostat so as to permit the application and utilization of a portion of the service supply of steam, hot-water or hot-air as a heating agent for operating the thermostat, and a temperature-controlled thermostat governing the application of the service supply of steam, hot-water or hot-air to the thermostat which operates the service supply valve, substantially as set forth.

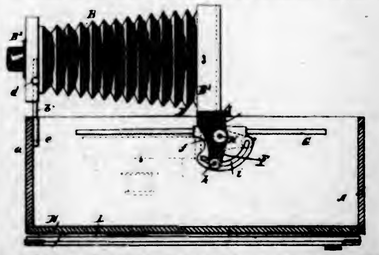
2. In a temperature regulator a service supply valve controlling a service supply of steam, hot-water or hot-air, a thermostat controlling the service supply valve and comprising a pressure chamber having a movable abutment or piston which operates the service supply valve, a heating chamber connected with the service supply passage at the supply side of the service supply valve and arranged so that when supplied with steam hot-water or hot-air from the service supply, the same shall heat and operate the thermostat, and a temperature controlled thermostat governing the valve which opens and closes communication between the service supply of steam hot-water or hot-air, substantially as set forth.

3. In a temperature regulator the combination of a thermostat for governing the service supply, a heating chamber connected with the service supply by a valved passage and arranged to apply the heat of a portion of the service supply as a means for operating said thermostat, and a supplemental passage connected with the heating chamber and arranged to receive a body of cooling liquid which is expelled from the heating chamber by the service supply pressure when such service supply is admitted into the heating chamber substantially as set forth.

4. In a temperature regulator, a pressure chamber provided with a movable abutment or piston, a heating chamber arranged for communicating heat to the pressure chamber, and a supply of cooling liquid and means for automatically applying the same to cool the pressure chamber when the supply of heat is cut off from the heating chamber, substantially as set forth.

5. The combination in a temperature regulator of the service supply valve B arranged to control a service supply of steam, hot-water or hot air, a pressure chamber D having its bottom formed by a movable abutment with which the stem of said valve is connected a spring I, arranged within the pressure chamber to exert its retractile energy against the depression of the movable abutment, and a heating chamber having valved communication with a service supply or steam hot-water or hot-air, substantially as set forth.

494,400. PHOTOGRAPHIC CAMERA. ABRAHAM VANDERBEEK, Hartford, Conn. Filed Nov. 24, 1891. Serial No. 412,967. (No model.)



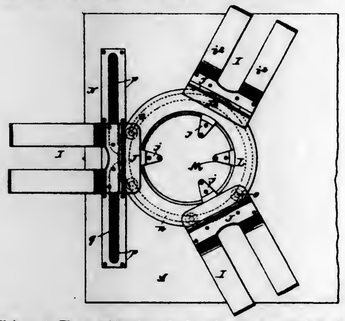
Claim.—1. The combination of the box or receptacle A, guide rack G carried thereby, frame F, on said rack a bracket pivoted on

said frame, a gear for moving said frame on said rack, and a thumb screw and slotted part for holding said bracket on the frame, substantially as described.

2. The combination of the box or receptacle A, rack G, frame F, having slot *i*, bracket E pivoted thereto, thumb screw *h*, carried by said bracket and entering said slot, whereby the frame can be swung down and up and held in position, substantially as described.

3. The combination of the box or receptacle A, rack G, frames F, shaft H, connecting said frames, gear on said shaft, brackets E, pivoted on said shaft a cross bar connecting said brackets and means to connect said frame and bracket to hold the latter in position, substantially as described.

494,401. TRIPOD OR STAND FOR CAMERAS OR FOR OTHER PURPOSES. ABRAHAM VANDERBERK, Hartford, Conn. Filed Apr. 28, 1892. Serial No. 431,006. (No model.)



Claim.—1. The combination of a board or support with the legs of a tripod or stand adjustably carried thereby to fold against the board or support, and also support the latter when extended, substantially as described.

2. The combination of a board or support, with the legs of a stand or tripod adjustably carried thereby in such manner that they can fold parallel on the board or support, and be extended to support the latter, substantially as described.

3. The combination with the legs of a stand or tripod, of a ring or disk, and means for detachably connecting one or more of said legs with said ring or disk, and means for holding said legs when so detached to permit them to lie parallel, substantially as described.

4. The combination with the legs of a stand or tripod of a ring or disk, said ring or disk having recesses *m* arranged in pairs, and pairs of studs carried by one or more of said legs to enter the corresponding pairs of recesses on the ring or disk to detachably hold the legs to the ring or disk, substantially as described.

5. The combination with the legs of a stand or tripod, of a ring or disk to which said legs are to be attached, and a holder, adjacent to said ring or disk to receive said legs when they are detached from the ring or disk to permit them to lie parallel, substantially as described.

6. The combination of a board or the like with a ring on the same, cleats for holding the ring on the board, and means for locking the ring on its support, and with the legs of a stand or tripod adapted to be attached to the ring, and a holder to receive the legs when they are detached from the ring, substantially as described.

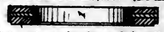
7. The combination of a ring or disk adapted to turn, and having recesses on its periphery, with the legs of a stand or tripod, studs carried by one or more of said legs, and a holder for said legs when they are detached from the ring, substantially as described.

8. The combination of a rotary ring or disk having recesses on its periphery, with the legs of a stand or tripod, hinges on said legs, studs on one or more of said hinges, and with a slotted bar to receive said studs to hold the legs when they are detached from the ring, substantially as described.

9. The combination of a rotary ring or disk having recesses on its periphery, with the legs of a stand or tripod, hinges on said legs, the hinge of one of said legs being secured to the ring or disk, the other hinges carrying studs to enter said recesses, and with a slotted bar to hold said hinges when the legs are detached from the ring, substantially as described.

10. The combination with a ring or disk having recesses on its periphery, with the legs of a stand or tripod to be connected to the ring or disk, hinges on said legs, studs on one or more of said hinges, and a slotted bar whose slot leads to the edge of said ring or disk, and is adapted to receive the studs on the hinges, substantially as described.

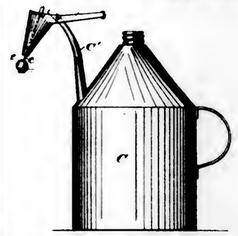
494,402. GASKET-PACKING. RICHARD WALSH, Philadelphia, Pa. Filed Dec. 17, 1892. Serial No. 455,533. (No model.)



Claim.—1. A flat rectangular bar of ductile metal having dovetailed grooves in the flat sides thereof, in combination with strips of india-rubber of corresponding dovetailed form inserted in said grooves, the whole being adapted to be formed into gasket packing rings substantially as set forth.

2. A gasket packing consisting of a flat ring of ductile metal having a rectangular cross-section with dovetailed grooves in the flat sides thereof in combination with fillets of india-rubber of corresponding dovetailed form inserted in said grooves substantially as set forth.

494,408. INDICATOR-FUNNEL FOR CANS. HENRY B. WATSON, Glen Cove, N. Y. Filed July 15, 1892. Serial No. 440,130. (No model.)



Claim.—1. A vibratable funnel adapted to removably engage with the spout of a vessel, and a counter-balancing device for said funnel, substantially as described.

2. A vibratable funnel, a clasping device adapted to removably support the funnel on a can spout, an indicating device within the funnel, and a counter-balance for the funnel, substantially as described.

3. An attachment for cans, comprising a funnel, a looped arm on the funnel, perforated near its ends, a device securable upon the can spout and provided with journal studs adapted to engage the perforations in the looped arm, and a vertically movable float in the funnel, substantially as described.

4. The combination with the spout on a can, of a funnel, a looped arm laterally projected from the funnel near its top, a weight on said arm, and a device adapted to engage the can spout near its pouring end and pivotally support the funnel and its arm, substantially as described.

5. The combination with the spout on a can, of a conical sleeve on said spout, journal studs on said sleeve, a funnel pivoted on said studs, and a looped weighted arm on the funnel near its upper end, substantially as described.

6. The combination, with a funnel for discharging and filling vessels, said funnel having aligning ears therein, of a rod adapted to slide freely in said ears, a float on the lower end of the rod, and a stop on the rod limiting its downward movement, substantially as described.

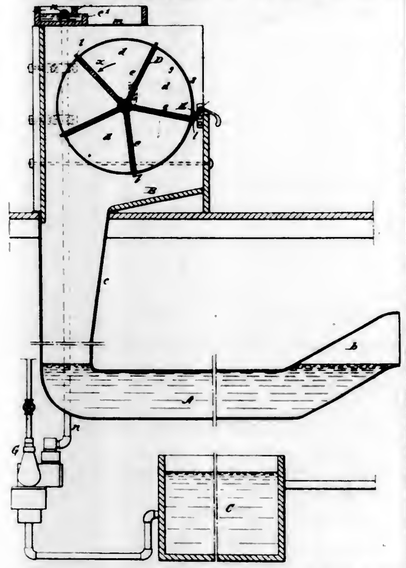
7. The combination with the spout on a can, and a sleeve engaging the spout near its free end, said sleeve having opposite journal studs thereon, of a funnel, a looped arm on the funnel near its larger end, which arm is perforated to engage the journal studs of the sleeve, and a counterbalancing weight on the looped arm, substantially as described.

494,404. DRESS-SKIRT. MARK ADOMSON, New York, N. Y. Filed Dec. 2, 1892. Serial No. 453,803. (No model.)



Claim.—As an improved article of manufacture a lady's dress skirt comprising a body portion formed with a plaited closed back and an opening in the front, a waist band rigidly connected with the upper end of the said body portion and provided at its free ends with an adjustable fastening device extending across the said front opening, a flap formed integral with the front of the said body portion and adapted to close the said front opening, the upper end of the flap being provided with a waist band section adapted to overlap and be attached to the sides of the waist band to form an auxiliary fastening device for the waist band, and buttons secured in the said waist band and adapted to be engaged by button holes in the said waist band section, substantially as shown and described.

494,405. FEEDER FOR SCOURING AND WASHING APPARATUS. JOHN H. BICKLEY, West Medway, Mass. assignor to Frank E. Anderson, East Orange, N. J. Filed May 26, 1891. Renewed Nov. 14, 1892. Serial No. 451,883. (No model.)



Claim.—1. The combination, with a staple and liquid feeding wheel or drum, divided into a series of successive compartments, of a liquid supplying cistern or receptacle above said wheel and provided with a sprinkler arranged more to the one side of the axis of said wheel than to the opposite side thereof, as and for the purpose stated.

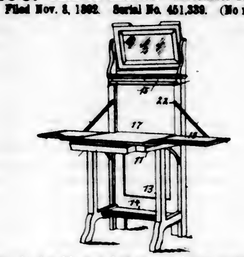
2. The combination, with a staple and liquid feeding wheel or drum, divided into a series of successive compartments and provided with stops to arrest it in its movements, of a liquid supplying cistern or receptacle above said wheel with its discharge more to the one side of the axis of the wheel than to the other side thereof, and a movable stop bar or device arranged to engage with said stops, essentially as and for the purpose stated.

3. The combination of the automatically engaging stop bar or device, with the multiple compartment staple and liquid feeding wheel or drum provided with stops corresponding with said compartments, and a liquid supplying device having its discharge above and to one side of the axis of said wheel, essentially as described.

4. The combination, with the multiple compartment staple and liquid feeding wheel or drum provided with circular heads and projecting stops corresponding with the compartments in the wheel, of the automatically engaging stop bar arranged for operation in connection with said stops and also as a frictional brake on the peripheral heads or ends of the wheel, as herein set forth.

5. In apparatus for scouring and washing wool and other fibrous material or staple, the combination of a movable staple feeding device and a liquid supplying cistern provided with a dam-like compartment and with a numerously perforated or sieve-like sprinkler in the bottom of the cistern beyond the dam-like compartment and above the movable staple feeding device, substantially as and for the purpose stated.

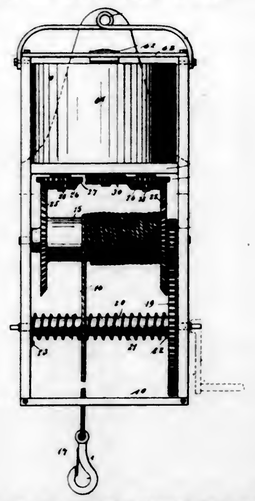
494,406. DESK OR CABINET. THEOPHILUS BELLINGTON, Dallas, Tex. Filed Nov. 3, 1892. Serial No. 451,339. (No model.)



Claim.—1. A cabinet or desk comprising the table provided with a vertical back transversely slotted at or near its upper edge, a roller top working through said slot and having an exposed cross piece 15ª provided at its ends with pins or lugs 16, the vertically swinging leaves hinged at their lower edges to the opposite ends of the table to swing into horizontal position or into vertical position with their rear edges abutting against said back; the inner faces of the leaves near their outer margins being provided with grooves 19 to receive said pins or lugs, and locking and supporting devices for locking the leaves when in their vertical positions and supporting them when swung down, substantially as set forth.

2. A cabinet or desk comprising the table provided at its rear edge with a back having a roller top 15 working in a transverse slot through its upper portion and provided at its exposed end 15ª with lugs or pins 16, the vertically swinging leaves 18 hinged at their lower edges to the ends of the table to swing down into horizontal alignment or swing up in vertical positions with their rear edges abutting the said back; the inner faces of the leaves near their outer margins being provided with grooves 19 receiving the pins, the slotted links 20 parallel with the front faces of the back and pivoted at their outer ends to the rear edges of the leaves near their swinging edges and sliding on pins 22 on the front face of the back at opposite sides thereof, said links having notches or recesses 23 in the upper walls of their slots near the outer ends thereof and adapted to engage the pins 22 when the leaves are swung up to lock said leaves in place, substantially as set forth.

494,407. FIRE-ESCAPE. WILLIAM E. BRADLEY, Middletown, N. Y. Filed May 31, 1892. Serial No. 434,950. (No model.)



Claim.—1. In a fire escape, the combination with a winding drum, and a governor, of a brake pulley connected with the governor, brake shoes carried by the brake pulley and operated by the governor, and

means for operating the governor and brake pulley from the winding drum, substantially as described.

2. In a fire escape, the combination with a winding drum, and a governor, of a brake pulley connected with the governor, brake shoes carried by the brake pulley, means for operating the brake shoes from the governor, and a gear and ratchet connection between the winding drum and the brake pulley, substantially as described.

3. In a fire escape, the combination with a vertical shaft carrying a governor, and a winding drum, of a brake pulley connected with the brake shaft, brake shoes carried by the brake pulley and provided with projecting pins, arms engaging the governor weights and the pins of the brake shoes, and a gear and ratchet connection between the winding drum and the brake pulley, substantially as described.

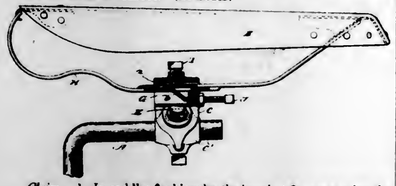
4. In a fire escape, the combination with a vertical shaft, and sliding and spring pressed weights carried by the shaft, of a brake pulley connected to the shaft and provided with vertical recesses, brake shoes carried by the said pulley and provided with pins projecting into the recesses of the brake pulley, arms projecting into the recesses of the brake pulley and having their upper ends engaging the said weights, and means for operating the brake pulley, substantially as described.

5. A fire escape comprising a frame having a winding drum journaled therein, a cable carried by the drum, a vertical shaft journaled adjacent to the drum, a ratchet wheel journaled loosely on the vertical shaft and connected by a gear mechanism with the drum, a brake pulley held to encircle the ratchet wheel and connected with the vertical shaft, pawls carried by the brake pulley and held to engage the ratchet wheel, brake shoes carried by the brake pulley and adapted to move outward against a fixed support, outwardly moving weights carried by the vertical shaft, and an operative connection between the weights and the brake shoes, whereby the latter will be actuated by the movement of the weights, substantially as described.

6. In a fire escape, the combination of the frame, the winding mechanism, the vertical shaft having a ratchet connection with the winding mechanism, the brake pulley carried by the shaft, the outwardly-moving brake shoes carried by the brake pulley and held to abut with a fixed support, radially-extending pins extending through a portion of the brake pulley and connected with the brake shoes, radially moving weights carried by the vertical shaft, and arms connected with the weights and adapted to strike the brake shoe pins substantially as described

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494,408. BICYCLE-SADDLE. FRANK D CAMP, Toledo, Ohio, assignor to the Yost Manufacturing Company, same place. Filed Aug. 9, 1892. Serial No. 442,568. (No model.)



Claim.—1. In saddles for bicycles the bracket for connecting the saddle post and saddle spring, composed of two parts C, C', connected adjustably on an oblique line by a screw bolt E whereby the distance between the saddle and saddle post is reduced, substantially as and for the purpose set forth.

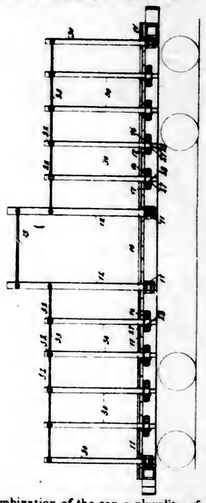
2. In combination with the saddle K, and bracket provided with a slot or recess to receive the ends of the springs, the springs H and H', one provided with the tongue *b*, and the other with the holes *a*, and the clamping and adjusting bolts or screws I, J, substantially as and for the purposes set forth.

494,409. STAKE-POCKET FOR CARS. JUSTO P. CASIGAL, San Augustin, Cuba. Filed Dec. 3, 1892. Serial No. 453,916. (No model.)

Claim.—1. A stake pocket comprising a pair of angle brackets 16, 17, the inner members of which have bolt holes for use in bolting them to the side of a car and the outwardly projecting members of which are parallel; a vertically apertured lug 25 being formed on the outer edge of the angle bracket 17, and a hasp 23 hinged by a vertical pintle 21 to the outer edge of the bracket 16 and having an aperture 24 through which lug 26 projects, substantially as set forth.

2. A stake pocket consisting in the two angle brackets 16 17 having spurs 18 on their faces next to the car and also having apertures for the bolts 19, a lug 25 projecting from the outer vertical edge of the bracket 17 and provided with a vertical aperture 26, a hasp 23 hinged to the outer vertical edge of the bracket 16 and having an aperture 24 to receive the lug 25 and the locking pin 27, substantially as set forth.

3. The combination, with the car body and the stake pockets having means for opening them and releasing the stakes, of a plurality of stakes strung on a horizontal supporting rod 33 and adapted to enter the pockets, substantially as described.



4. The combination of the car, a plurality of pockets capable of being opened, a plurality of stakes adapted to rest in the pockets, and means, as the horizontal rod and the eyes on the stakes, for supporting the upper ends of the stakes, substantially as described.

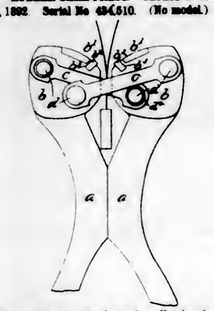
494,410. ELASTIC TOY. ORVILLE CARPENTER, Pawtucket, R. I. Filed Dec. 22, 1892. Serial No. 456,051. (No model.)



Claim.—1. In closed or approximately closed hollow toys or images made of rubber or like elastic material, the construction of the toy or image with one or more parts of it of greater elasticity than the adjacent parts, whereby on squeezing the toy or image where it is of lesser elasticity, the air compressed in the toy or image will be caused to specially enlarge, control or change in form the part or parts of greater elasticity, substantially as specified

2. In closed or approximately closed hollow toys or images made of rubber or like elastic material, the construction of the toy or image of varying thickness or the rubber or elastic material in adjacent parts, essentially as and for the purpose herein described.

494,411. ROLLER SEAL-PRESS. GEORGE A. CLISE, Toledo, Ohio. Filed May 26, 1892. Serial No. 434,510. (No model.)



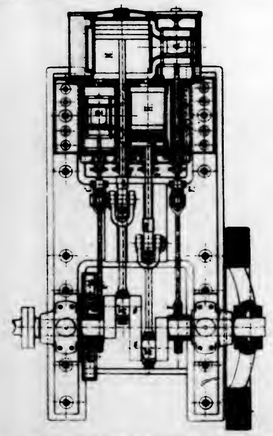
Claim.—1. In a seal press, the lever handles having the jaws provided with rolling contact impression surfaces, and diagonally arranged links connecting said jaws, all substantially as described.

2. As an improved article of manufacture, a roller seal press or like device having lever handles pivotally connected by means of diagonally arranged links extending from one to the other, all substantially as described.

3. In a seal press, in combination, the lever handles, the integral jaws provided with die sockets, the dies fitting said sockets, and diagonally arranged links pivotally connecting the jaws, all substantially as described.

4. In a seal press, in combination, the lever handles, the integral jaws having their rolling contact surfaces provided with a stamp or seal, diagonally arranged links pivotally connecting the lever handles, and the pins or lugs forming stops to limit the movement of the lever handles, all substantially as described.

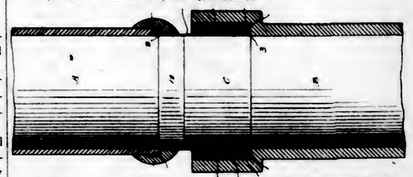
494,412. STEAM-ENGINE. ALFRED COLLMANN, Vienna, Austria-Hungary. Filed July 6, 1892. Serial No. 439,120. (No model.) Patented in Austria-Hungary Nov. 6, 1888, No. 29,681 and No. 49,749; in France Jan. 30, 1889, No. 218,836; in Germany Mar. 14, 1889, No. 49,861, and in Belgium Jan. 30, 1892, No. 97,934.



Claim.—1. In a steam engine, the combination with a main shaft of a large and a small cylinder, the larger cylinder being partially behind the smaller, and having its axis parallel thereto, of a piston rod for each cylinder parallel with and close to the piston rod of the next, a suitable connecting rod for each piston rod, two cranks set approximately at an angle of one hundred and eighty degrees for the said pair of cylinders, and having the weight of the reciprocating parts of each cylinder of said pair made practically equal, an admission valve to the larger cylinder arranged at the side thereof next the piston rod of the smaller cylinder, and an admission valve to the smaller cylinder arranged at the opposite side of the smaller cylinder, and overlapping the larger cylinder, substantially as and for the purposes described.

2. In a steam engine, the combination with a main shaft, of a large and a small cylinder the larger cylinder being partially behind the smaller, and the piston rod of the larger cylinder passing through the steam chest of the smaller and being parallel to the piston rod of the smaller, a suitable connecting rod for each piston rod, two cranks set at approximately an angle of one hundred and eighty degrees for the said pair of cylinders, and having the weight of the reciprocating parts to each cylinder of said pair made practically equal, an admission valve to the larger cylinder arranged at the side thereof next the piston rod of the smaller cylinder, and an admission valve to the smaller cylinder arranged at the opposite side of the smaller cylinder, and overlapping the larger cylinder, substantially as and for the purposes described.

494,413. PLUMBER'S FERRULE. CHARLES A. COTTER, Waterbury, Conn., assignor to Randolph & Clowes, same place. Filed Nov. 11, 1892. Serial No. 451,506. (No model.)



Claim.—In combination, with the iron pipe B, the flanged ferrule secured thereto by a packed joint, an offset 8, formed at the opposite end of the ferrule, a lead pipe fitting within the same, and a wiped joint securing the ferrule thereto, substantially as described.

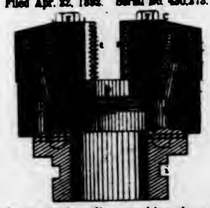
494,414. CLOTHES-PIN. WILLIAM R. CRUMP, Sealy, Tex. Filed Oct. 10, 1892. Serial No. 448,393. (No model.)



Claim.—1. The herein described metal clothes pin, comprising the parallel end loop arms *a*, *a*, the connecting horizontal portion B, and the open coil C, in said horizontal portion, substantially as specified.

2. The herein described metal clothes pin, consisting of a single piece of wire, formed at its end portions into depending parallel loop arms *a*, *a*, a horizontal arm connecting said arms, the central portion of said arm having a depending circular single coil parallel with the arms *a*, *a*, and having its ends separated by an oblique opening C', substantially as specified.

494,415. REVOLVING DIE-HEAD. HARRY A. COWPER, Mishawaka, Ind. Filed Apr. 22, 1892. Serial No. 430,373. (No model.)



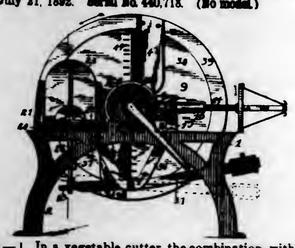
Claim.—1. In a bolt threading machine the combination of a revolving head, jaws radially movable thereon and adapted to carry threading dies, oblique pins engaging said jaws, and a sliding part pro-

vided with portions adapted to advance to the plane of separation M between said jaws and head, the said pins being carried by said portions and being entirely surrounded and supported by said portions and jaws up to said plane of separation, substantially as described.

2. In a bolt threading machine the head A, provided with jaws C, and sliding collar H, provided with studs *l*, adapted to advance to, and meet said jaws, on their plane of separation, the oblique holes *p*, passing through said studs into said jaws at their meeting faces, and the pins N adapted to be fastened in said collar and slide in said jaws substantially as shown: whereby the movement of said jaws will be produced by a movement of said collar and the strains upon said pins while the cutting dies are in action are wholly shearing strains.

3. In a bolt threading machine the sliding jaws C provided with slots *f*, the dies E provided with an oblique groove U, the pins S and operative screw T substantially as set forth to constitute a differential adjustment for said jaw.

494,416. VEGETABLE-CUTTER. MARTIN J. CUNNINGHAM, Springfield, Mo., assignor of one-half to August F. Leonhardt, same place. Filed July 21, 1892. Serial No. 440,718. (No model.)

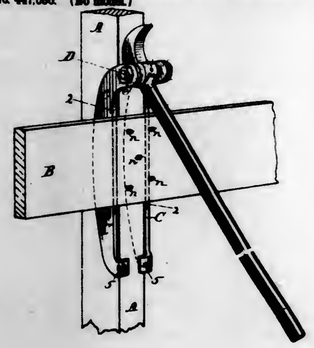


Claim.—1. In a vegetable cutter, the combination, with a frame carrying a cutter and provided with a receiving chamber located at right angles to said cutter and having a longitudinally slotted bottom, of a follower working in said chamber, a crank-lever journaled upon the frame and having one end engaging said follower, a second lever journaled upon the frame at right angles to said crank-lever and having its opposing end loosely connected with the free end of the latter, and a weight mounted upon the free end of said second lever; substantially as and for the purpose set forth.

2. In a vegetable cutter, the combination, with a frame carrying a cutter and provided with a receiving chamber located at right angles to said cutter and having a longitudinally slotted bottom, of a follower working in said chamber, a crank-lever journaled upon the frame and having one end engaging said follower and its other end provided with a slot, a second lever journaled upon the frame at right angles to said crank-lever and having its opposing end engaging the slot in the latter, and a weight adjustably mounted on the free end of said second lever; substantially as and for the purpose set forth.

3. In a vegetable cutter, the combination, with the frame carrying a rotary cutter, of a rotary peeling device geared with said cutter and comprising a disk, and outwardly converging spring blades, the free ends of the latter being curved outwardly; substantially as and for the purpose set forth.

494,417. IMPLEMENT FOR DISMANTLING BUILDERS' STAGINGS, &c. GEORGE H. CUTTING, Worcester, Mass. Filed Sept. 27, 1892. Serial No. 447,080. (No model.)



Claim.—1. In an implement for the purpose specified, two press-off bars each having an opposite lateral offset or claw at one end, centrally an edge or bearing surface for engagement with the ledger-board, and a hinging eye at the other end, in combination with a transverse connecting-pivot or bolt arranged through the said eyes, and a power-applying device connected with said pivot and adapted for action against the post or timber for forcing outward the ends of said press-off-levers, as set forth.

2. A tool or implement consisting of the press-off bars or levers having the lateral claw or offset at one end and the pivot eye at the other end, the pivot-pin or bolt loosely connecting the ends of said press-off-bars; and the operating-bar or hand-lever fulcrumed on said pivot and having a cam or curved bearing-end 6, and an extended handle portion 7, substantially as and for the purpose set forth.

494,418. GUIDE ATTACHMENT FOR RAILWAY ROLLING STOCK. THORNTON E. W. FAY, Philadelphia, Pa. Filed Oct. 11, 1892. Serial No. 448,541. (No model.)



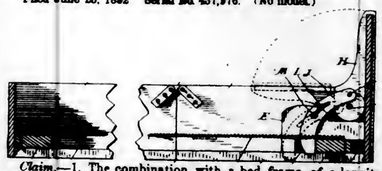
Claim.—1. In a guide attachment the tie plate 20 having rail chairs 22 at its ends and a short tubular open top socket 19 on its upper side between its ends, substantially as set forth.

2. In a guide device of the character described a long rod provided with hangers for suspending it longitudinally beneath a car and short open top sockets for attachment to the sleepers and through which the rod is adapted to pass, substantially as set forth.

3. A guide device of the character described comprising a long rod provided with bolts for suspending it longitudinally under a car, brackets through which the bolts pass, jam nuts on the bolts at opposite sides of the brackets for adjusting the bolts vertically and the short open-top sockets 19 for the sleepers, substantially as set forth.

4. A guide device of the character described, the long rod having tapered ends, means for suspending the rod longitudinally under a car and the sockets 19 each formed in a single piece with its attaching plate or base, substantially as set forth.

494,419. FOLDING BED. WILLIAM S. GUNN, Grand Rapids, Mich. Filed June 25, 1892. Serial No. 437,976. (No model.)



Claim.—1. The combination with a bed frame, of a longitudinally-contractile bed bottom secured at one end to a fixed bar, and at the other end to a movable bar, a pivoted foot board, and a lever connecting said pivoted foot board and said movable bar in such a manner that said movable bar will be reciprocated by the movement of said pivoted foot board, substantially as described.

2. The combination with a bed frame, of a longitudinally-contractile bed bottom secured at one end to a fixed bar, and at the other end to a movable bar, a pivoted foot board, and a slotted lever connecting said pivoted foot board and said movable bar, and engaging an intermediate fulcrum, whereby said movable bar is reciprocated by the movement of said pivoted foot board, substantially as described.

3. In a folding bed in combination with a longitudinally contractile bed bottom having a movable bar attached to one end of the same, and a pivoted foot board; levers pivoted to said foot board at one end, engaging said movable bar at the other end and having intermediate slots engaging and traversed by studs, attached to the side rails substantially as described.

4. In a folding bed in combination with side rails divided and hinged; a fixed transverse bar, and a movable bar and a longitudinally contractile bed bottom attached to said bars, a foot board having supports extending below the bottom of the same and pivoted to said side rails, curved levers pivoted to said supports, having slots near the middle and engaging said movable bar at their opposite ends, and

fixed studs attached to the side rails and traversing said slots, substantially as described.

494,420. PLOW OR CULTIVATOR TOOTH. WILLIAM M. HEWITT, Sharptown, Ind. Filed Oct. 12, 1892. Serial No. 448,673. (No model.)

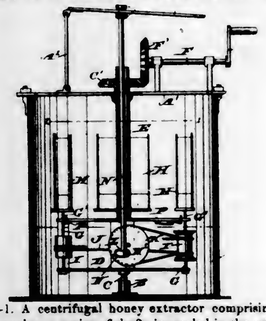


Claim.—1. In a plow or cultivator tooth, substantially as described, the combination with a shank having a forward cutting edge, and an angular bracket arm connected to the shank; of a shovel connected to the bracket arm and resting laterally with respect to the shank the said shovel being set away from the shank so as to afford a space between the two, as and for the purpose set forth.

2. In a plow or cultivator tooth, substantially as described, the combination with a shovel; of a shank resting at one side of the shovel and disposed at right angles to the same and having a forward cutting edge; the said shank being inclined forwardly and upwardly from the shovel so as to take through the earth in advance of the shovel, substantially as and for the purpose specified.

3. In a plow or cultivator tooth, substantially as described, the combination with the shank, having the forward cutting edge, and comprising the upper, upwardly and rearwardly inclined portion *c*, the intermediate, downwardly and rearwardly inclined portion *d*, and the lower, downwardly and forwardly inclined portion *e*, of the shovel or blade carried by said shank, substantially as specified.

494,421. CENTRIFUGAL HONEY-EXTRACTOR. OSCAR M. HILL, Santa Paula, Cal. Filed Oct. 1, 1892. Serial No. 447,561. (No model.)



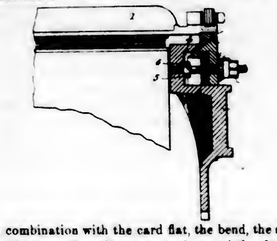
Claim.—1. A centrifugal honey extractor comprising a frame mounted to revolve, a series of shafts journaled in the said frame, a basket secured on the upper end of each of the said shafts, drums secured on the said shafts, an endless rope or belt winding around the said drums, a pulley journaled in the said frame and over which passes the said belt or rope, the said pulley being mounted to turn, and means, substantially as described, for turning the said pulley to reverse the position of the said baskets, without interrupting the revolving of the said frame as set forth.

2 A centrifugal honey extractor comprising a frame mounted to revolve, a series of shafts journaled in the said frame, a basket secured on the upper end of each of the said shafts, drums secured on the said shafts, an endless rope or belt winding around the said drums, a pulley journaled in the said frame and over which passes the said belt or rope, the said pulley being mounted to turn, a crank pin secured in the face of the said pulley, a rod connected with the said crank pin, and means for imparting a sliding motion to the said rod, as set forth.

3. A centrifugal honey extractor comprising a frame mounted to revolve, a series of shafts journaled in the said frame, a basket secured on the upper end of each of the said shafts, drums secured on the said shafts, an endless rope or belt winding around the said drums, a pulley journaled in the said frame and over which passes the said belt or rope, the said pulley being mounted to turn, and springs engaging the said shafts for holding the same in position until reversed, substantially as shown and described.

494,422. DEVICE FOR ADJUSTING THE BENDS OF TRAVELLING-FLAT CARDING-ENGINES. ALFRED HITCHCOCK, Accrington, England. Filed Nov. 26, 1892. Serial No. 453,194. (No model.) Patented in England Aug. 5, 1891, No. 13,290.

Claim.—1. In combination with the card flat, the bend 2, the segment ring 3, and the frame, a screw threaded rod passing loosely through the ring and secured to the frame, a nut and dial to screw upon the said rod against the outer side of the ring 3, and means for keeping the ring close against the dial, substantially as and for the purposes described.

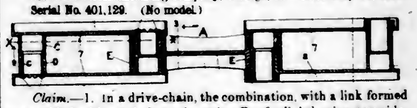


2. In combination with the card flat, the bend, the segment ring 3, an index 14 upon the said segment ring, and the frame, a screw threaded rod passing loosely through the ring and secured to the frame, a nut, a dial adjustably secured to said nut to screw upon the said rod against the said ring, and means for keeping the ring close against the nut, substantially as and for the purposes described.

3. In combination with the card flat, the bend 2, the segment ring 3, and the frame, a screw threaded rod passing loosely through the ring and secured to the frame, a nut and dial to screw upon the said rod against the outer side of the ring 3, and a nut upon the screw-threaded rod to press the ring against the dial, substantially as and for the purposes described.

4. In combination with the card flat, the bend, the segment ring, and the frame, a screw threaded rod passing loosely through the ring and connected to the frame, a nut and dial to screw upon the said rod and hold the ring in said frame, and means bearing the ring against the dial and nut for holding the ring in position, substantially as and for the purposes described.

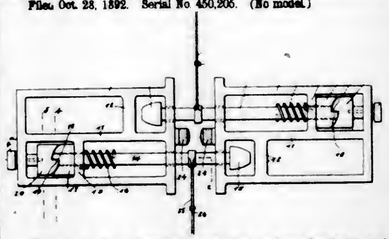
494,423. CHAIN. GLENN G. HOWE, Indianapolis, Ind., assignor to the Ewart Manufacturing Company, Chicago, Ill. Filed July 30, 1891. Serial No. 401,129. (No model.)



Claim.—1. In a drive-chain, the combination, with a link formed or provided with a tubular end-portion E, of a link having two side-bars, and two hollow end-bars each of which is secured, at one end, to one of said side bars; all substantially as and for the purposes set forth.

2. In a centrally open drive-chain link, the combination, with two side-bars, of two hollow end-bars, each of which is long enough to extend, from one side to and through the other, and is provided, at its free end, with a means of securement to the side bar through which it passes; substantially as and for the purposes hereinbefore set forth.

494,424. CAR-COUPLING. GAMALIEL JENKINS, Queensbury, N. Y. Filed Oct. 28, 1892. Serial No. 450,205. (No model.)



Claim.—1. A car coupling, comprising a frame having a spring-pressed draw bar held to slide therein, and having a flattened head, the draw bar being held to turn by means of its tension spring, a clutch to fix the position of the draw bar, an elongated mouth produced in the end of the frame at one side of the draw bar, and a cross rib arranged behind the mouth, substantially as described.

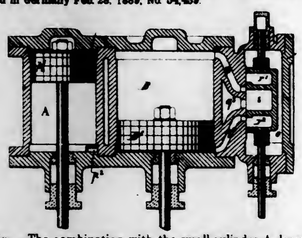
2. A car coupling, comprising a frame having an elongated mouth on one side, and a cross rib behind the mouth, a sliding spring-pressed draw bar arranged longitudinally in the opposite side of the frame

and having a flattened head at one end, a spring held to twist the draw bar, a lever mechanism for turning the draw bar against the tension of the spring, and a fastening clutch to hold the draw bar in place, the fastening clutch being released by pressure endwise upon the draw bar, substantially as described.

3. A car coupling, comprising a frame having a flat front end with a central bumper thereon, an elongated mouth produced at one side of the bumper, a cross rib held behind the mouth, a sliding draw bar held longitudinally in the frame on the opposite side of the bumper, a flattened head produced at the front end of the draw bar, a spring arranged to twist the draw bar, and a clutch to fix the position of the draw bar, the clutch being adapted to be released by endwise pressure on the draw bar, substantially as described.

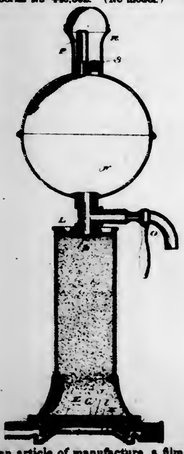
4. In a car coupling, the combination with the spring-turned draw bar having a fixed hub thereon, of a lug fixed to the draw bar frame, and held to enter a segmental recess in the hub, substantially as described.

494,425. COMPOUND ENGINE. JOHANN KLEIN, Frankenthal, Germany. Filed Dec. 6, 1890. Serial No. 373,743. (No model.) Patented in Germany Feb. 28, 1889, No. 54,439.



Claim.—The combination with the small cylinder A, large cylinder B placed side by side and each having a piston, and the steam chest on one side of the cylinder B, the valve seat having two ports from which lead two passages $p' p^3$ to the ends of the cylinder A, two ports in the vertical planes of the ports leading to passages $p' p^3$ and from which extend short passages $q' q^3$ leading to the ends of the cylinder B, and the exhaust passage q^2 between the two passages $q' q^3$, of the single valve o having two elongated end ports $r' r^3$ to connect the ports of passages $q' p'$ and q^3 and p^3 respectively and a shorter intermediate port s of greater width than said end ports and adapted to connect passages $q' q^3$ with the exhaust port q^2, substantially as set forth.

494,426. FILTER. EDWARD M. KNIGHT, Brooklyn, N. Y. Filed Sept. 26, 1892. Serial No. 446,892. (No model.)



Claim.—1. As an article of manufacture, a film for a filter having a thin wafer-like form and composed wholly of comminuted asbestus the fibers of which interlock to produce a surface pervious to water but of sufficient density to hold back impurities in the water, substantially as herein described.

2. As an article of manufacture, a thin film composed wholly of comminuted asbestus whose fibers are interlocked, said film adapted for insertion in a filter bed to hold back impurities that have passed the preliminary screening point.

3. The method herein described of making films for use in filters, consisting essentially in first floating comminuted asbestus in water while contained in a foraminous holder; then tamping the saturated asbestus to cause its fibers to interlock; then removing the holder from the water; then expelling the surplus water in the material by pressure; then transferring the wet films from the holder to a support; and finally transferring the films from said support to a heater and applying heat to evaporate the moisture and thoroughly dry the film, substantially as herein described.

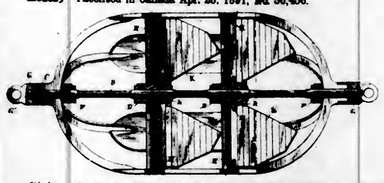
4. In a filter, a filter bed composed of asbestus cloth the outer surface of which is "jigged" to produce a roughened surface of loose adhering fibers adapted to be forced by the pressure of water into the meshes of the cloth to produce a close compact filtering surface, substantially as herein described.

5. In a filter, the filter bed consisting of the foraminous plate with its asbestus cloth of open weave, and a second piece of asbestus stretched over the first named piece having a finished inner surface and a roughened outer surface formed of loose adhering fibers adapted to be forced into the meshes of the outer cloth by the pressure of water to form a close compact filter surface, substantially as herein described.

6. In a filter the filter bed composed of a foraminous plate having asbestus stretched over its surface, a second sheet of asbestus stretched over the first named sheet and having its outer surface roughened or "jigged" as described, and thin wafer-like films of asbestus introduced between the adjacent faces of the asbestus sheets and serving to hold back any impurities that have escaped or passed through the outer sheet, substantially as specified.

7. In a filter, the body portion or cylinder, with its conical flanged lower end, the base casting with its recessed seat and chamber, and the inlet and outlet openings communicating with opposite sides of the chamber and a draw-off for filtered water at the upper end of the filter body or cylinder, in combination with a filter bed on said recessed seat and formed of a plurality of sheets of asbestus as described, with interposed and removable asbestus films, a packing ring between the base flange of the body and base casting and a combined coarse foraminous disk and fine woven wire disk united together and adapted to be seated over the inner side of filter bed and against a shoulder on the base of the cylinder or body of the filter, substantially as herein described.

494,427. SEWER-CLEANER. NAPOLEON LACROIX and LOUIS DUBOIS, Montreal, Canada. Filed July 11, 1892. Serial No. 439,734. (No model.) Patented in Canada Apr. 23, 1891, No. 36,456.



Claim.—1. An apparatus for cleaning sewers, having a skeleton frame comprising an axial draft-rod and radially-disposed trusses, fixed at their extremities to the draft-rod, in combination with pivoted valves, arranged at intervals to close transversely across the frame, substantially as specified.

2. An apparatus for cleaning sewers, having a skeleton frame comprising an axial draft-rod, radially-disposed trusses or ribs, flat in transverse section, secured at their extremities to the draft-rod, and the radially-disposed brace-rods fitted at their ends in topped apertures in the trusses or ribs and hubs secured upon the draft-rod, in combination with sectoral or triangular valves pivoted within the frame respectively adjacent to the braces, substantially as specified.

3. An apparatus for cleaning sewers, having a skeleton containing frame, provided with radial brace-bars, in combination with sectoral or triangular valves, pivoted at one edge radially in the frame and adapted to close the spaces between said brace bars, substantially as specified.

4. An apparatus for cleaning sewers, having an axial draft-rod, provided at its ends with eyes, radially-disposed trusses or ribs, secured at their extremities to said draft-rod, hubs attached to the intermediate points of the draft rod, radial brace-bars secured at their opposite ends in the said hubs and ribs or trusses, and the sectoral

or triangular valves, provided with trunnions which are mounted in bearings respectively in the hubs and in the trusses, in front of the brace-bars, substantially as specified.

494,428. NOSE-BAG FOR ANIMALS. GEORGE D. LEONARD, New Haven, Conn. Filed Dec. 16, 1891. Serial No. 415,236. (No model.)

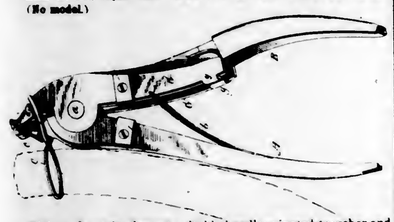


Claim.—1. The feed bag described having suitable suspensory devices, having its front, rear, and bottom formed of a single piece of canvas and the canvas side pieces connected thereto substantially as described, and the bottom creased from front to rear to fold inwardly and not outwardly and reinforced on the inside with a material more rigid than canvas, all substantially as described.

2. The feed bag described having suitable suspensory devices, having its front, rear, and bottom formed of a single piece of canvas and the canvas side pieces connected thereto as described, said side pieces provided with ventilators attached to the canvas at a distance above the bottom, the bottom being reinforced on the inside with a material more rigid than canvas, and creased from front to rear to fold inwardly, substantially as described.

3. The feed bag described having suitable suspensory attachments and having its front, bottom and back formed of a single piece of canvas, with the canvas side pieces having ventilators and secured thereto as described, the bottom reinforced on the inside with material more rigid than canvas and creased to fold inward and not outward, and the outside of the bottom provided with wear pieces, permanently attached substantially as described.

494,429. WIRE TWISTING AND CUTTING IMPLEMENT. WILLIAM MANEY, Piqua, Ohio. Filed Nov. 26, 1892. Serial No. 453,905. (No model.)



Claim.—In an implement, suitable handles pivoted together and having jaws with shoulders upon their sides, one of said handles having mortises or reduced portions upon its sides, in combination with the pinchers connected to the handles by the same pivot which joins the handles together, said pinchers having rearwardly extending arms located within the mortises or reduced portions of the handle, and provided at their ends with thumb-plates and stops, cutters upon one of the arms and handles respectively, and a spring between the handles and bearing against the arms of the pinchers, substantially as and for the purpose set forth.

494,430. CHURN. WILLIAM F. MARTIN, Ambia, Tex. Filed Nov. 17, 1892. Serial No. 452,328. (No model.)



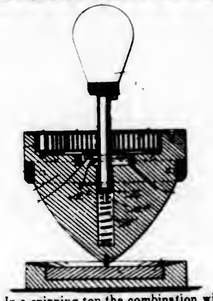
Claim.—1. In an apparatus substantially as described, the combination of the frame uprights, the connections between the same, having central ring like portions for the passage of the dasher rod and the lower connection being formed in sections having an adjustable connection all substantially as and for the purposes set forth.

2. The combination substantially as described of the frame uprights, the connections between the same, having intermediate ring portions and adapted to adjust the uprights together and apart, the dasher rod movable vertically within said ring portions and devices for operating said rod all substantially as set forth.

3. The combination substantially as described of the uprights the upper connection between the same, the lower connection formed in sections one having a ring like portion and the other a threaded shaft, the dasher rod, and operating devices for reciprocating the said rod all substantially as set forth.

4. The improved apparatus substantially as herein described consisting of the frame uprights, the upper connection E having a central ring like portion, the guide I fitted and held in said portion and having a central guide opening the lower connection formed in sections $F' F^3$ having a threaded connection, the dasher rod, the fly wheel, and pitman connecting said wheel and the dasher rod, and the operating gearing substantially as set forth.

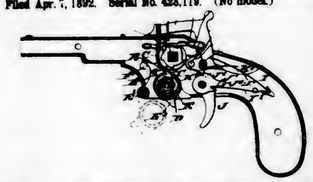
494,431. SPINNING TOP. NATHANIEL MCLAREN, New Perth, Canada. Filed July 13, 1892. Serial No. 439,879. (No model.)



Claim.—1. In a spinning top the combination with the recessed body A, a spindle which is vertically movable, a coiled spring attached to the said body and spindle, a wheel fixed in the body and having ratchet teeth on its under side, and a cross pin fixed in the spindle and arranged below said wheel, whereby it is disengaged from the ratchet when the spindle is pressed downward, as specified.

2. A spinning top, comprising a body, a spring coiled in the said body and secured at its outer end to the said body near its periphery, a spindle mounted to turn centrally in the said body and connected with the inner end of the said spring, a ratchet wheel fixed in the said body, a pin extending from the said spindle and adapted to glide over the teeth of the ratchet when the shaft is turned in one direction, and adapted to lock against the back of the teeth, and a second spring held in the said body and pressing on the said spindle to hold the pin thereon in contact with the ratchet wheel, substantially as shown and described.

494,432. TOY PISTOL. CARL NEUMANN, Vienna, Austria-Hungary. Filed Apr. 7, 1892. Serial No. 428,119. (No model.)



Claim.—1. The combination with the frame, and the trigger having a shoulder on its upper edge, of the hammer provided on its pivoted end with a rocking dog or arm having a limited upward and rearwardly swinging movement at its lower end permitting it to ride over the trigger shoulder and engage the forward side thereof, said shoulder acting first to bring the hammer to a full cock and then by a further pull on the trigger to release it by disengaging the lower end of the said dog, substantially as set forth.

2. The combination with the frame, and the trigger having a shoulder J^3 on its upper edge, of the hammer provided with a rocking dog or arm K pivoted to its lower end in front of its pivot to swing rearwardly and upwardly to ride over the shoulder J^3 and en-

gage the front face thereof, the rocking movement of the dog or arm K being limited by the hammer pivot, and a spring pressing downward upon the dog or arm in rear of its pivot, said shoulder acting first to bring the hammer to a full cock and then by a further pull on the trigger to release it by disengaging the lower end of the said dog, substantially as set forth.

3. The combination with the frame, and the trigger having a shoulder J^3 on its upper edge and a rearwardly projecting foot J^4, of the hammer G provided with a rearwardly extending foot G^4 over the foot J^4, a rocking dog or arm K on the lower end of the trigger in front of the pivot thereof and having a lug K′ on its upward and rearwardly swinging lower end to ride over shoulder J^3 and engage the front face thereof, a spring bearing down on the dog or arm in rear of its pivot; the hammer pivot serving as a stop to limit the rocking movement of the dog or arm, and a V spring the ends of which engage the trigger and hammer respectively, substantially as set forth.

4. The combination with the frame having an anvil, a feed wheel to feed the percussion tape past the anvil, and a ratchet wheel on the feed wheel, of the spring actuated hammer having a forwardly extending pawl between its ends engaging said ratchet, a rocking spring actuated dog on the lower end of the hammer, and the trigger having a shoulder on its upper edge to engage the lower end of the rocking dog, said shoulder acting first to bring the hammer to a full cock and then by a further pull on the trigger to release it by disengaging the lower end of the said dog, substantially as set forth.

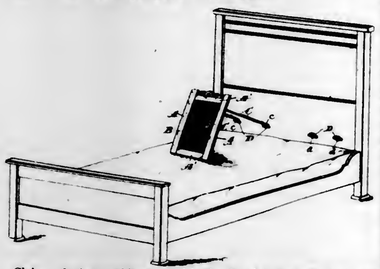
5. The combination with the frame, the tape feeding and the firing mechanism, of a downwardly swinging arm pivoted at E^1 in a slot in the lower face of the frame in front of the trigger and provided on its upper side with a tape carrying casing E having a slot E′ for the passage of the tape to the feeding mechanism, substantially as set forth.

494,433. COMPOSITION FOR BEARINGS. JOHN F. NEWELL, Gardiner, Me. Filed Nov. 10, 1892. Serial No. 451,559. (Specimens.)

Claim.—A composition of matter for bearings, &c., composed of plumbago, fibrous substance, an oil, and an oxide, carbonate, or basic carbonate of lead, substantially as described

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494,434. BACK-REST. HENRY OHLSCHLAGER, Quincy, Ill. Filed Mar. 11, 1892. Serial No. 424,548. (No model.)



Claim.—1. In combination with the head board of a bed, and eyes or loops fixed thereto, a back support or rest composed essentially of a back engaging portion whose lower end rests upon the bed without being attached thereto, and extensible brace bars pivoted to said portion to support the same away from the head board and having hooks to detachably engage the eyes or loops on the head board, substantially as and for the purpose shown.

2. In a back rest, adapted to be supported by the head board of a bed in combination with the frame of the back-engaging portion having two, vertical, side pieces, an extensible brace bar composed of two pieces that is pivoted at its upper end to each side piece and has a hook at its lower end, to engage a loop or eye on the head board of a bed said side piece being provided with a recess or cavity into which said bar may be moved, substantially as and for the purpose specified.

494,435. TABLE ATTACHMENT FOR BEDS. HENRY OHLSCHLAGER, Quincy, Ill. Filed May 9, 1892. Serial No. 432,345. (No model.)

Claim.—1. In combination with a back rest or support, a swinging frame attached thereto, the table carried by said frame, and adapted to be fixedly held at the upper part of said rest or support, substantially as and for the purpose shown.

2. In combination with a back rest or support, the projections at its upper edge, and the table adapted to be placed between and held by said projections, substantially as and for the purpose set forth.

3. In combination with a back rest or support, the projections at its upper edge, a swinging, and longitudinally movable frame attached to said rest or support, and a table carried by said frame, adapted to be placed between and held by said projections, substantially as and for the purpose set forth.

4. In combination with a back rest or support, the projections at its upper edge on both back and front sides, a swinging frame having two side bars each of which is slotted at its lower end, and attached to the side of the rest by a screw, and a table carried by said frame and adapted to be placed between and held by the projections on said rest, substantially as and for the purpose described.



5. In combination with a back rest or support, a bar or rod attached to the head board of a bed, connections between the latter and said rest or support, and a table carried by the rest or support, substantially as and for the purpose shown.

6. In combination with a back rest or support, the head board of a bed having an opening conforming to the shape of said rest to receive and contain the same, a rod or bar placed on the head board beneath said opening and connections between said rod or bar and the rest or support, adapted to allow the latter to be placed in said opening substantially as and for the purpose described.

7. In combination with the head board of a bed, the horizontal rod attached thereto, the back rest or support adapted to rest at its lower edge upon the bed and the brace rods attached to the latter and adapted for connection with the horizontal rod at any point of its length, substantially as and for the purpose shown.

8. In combination with a back rest or support, the braces attached thereto having each at its lower end a rigid and a spring hook, and the rod or bar attached to the head board of a bed, substantially as and for the purpose specified.

9. In combination, a back rest or support, the projections at its upper edge on both front and back sides, a swinging frame having two side bars, each of which has a slot in its lower end and is attached to the side of the rest by a screw, that passes through the slot, a table attached to and carried by the frame, and adapted to be placed between and held by the projections on said rest, a head board having an opening conforming to the shape of the latter and the table, to receive and contain them, the rod attached to the head board and extending cross-wise of the same, and the braces extending between the rest and said rod, being detachably connected to the latter, substantially as and for the purpose shown.

494,436. SURGICAL APPLIANCE. FRANK ORTH, Astoria, Oreg. Filed Aug. 1, 1892. Serial No. 441,819. (No model.)

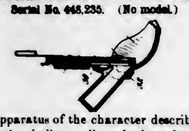


Claim.—1. In a device of the character described, the combination, with a pocket, a plate located adjacent thereto and provided with an opening, and spring rods carrying contact points crossing the opening in the plate, of a motor, a fan connected with the motor, a tubular connection between the fan and the pocket, and an electric circuit, in which the motor is located, the terminal wires of which circuit are carried opposite the contact points of the rods, substantially as shown and described.

2. In a device of the character described, the combination, with a pocket a wall of which is provided with an opening and spring rods crossing the opening, their lower ends being free and provided with contact points, of an electrically propelled fan in communication with the pocket, and means substantially as shown and described, for making and breaking the circuit in which the fan is located by the manipulation of the spring rods, as and for the purpose specified.

3. In a device of the character described, the combination, with a pocket a wall of which is provided with an opening, and circuit closers crossing the opening, of an electrically propelled fan connected with the pocket and an exit tube having communication also with the pocket, substantially as and for the purpose specified.

494,437. SURGICAL APPLIANCE. FRANK ORTH, Astoria, Oreg. Filed Oct. 8, 1892. Serial No. 448,235. (No model.)



Claim.—1. An apparatus of the character described, comprising a sack or envelope having hollow walls and adapted to be applied to the male organs of generation, a tube connected with the sack or envelope and with a source of cold water supply, an outlet tube leading from the sack or envelope, and means for automatically operating the said supply tube by the distention of the penis substantially as shown and described.

2. An apparatus of the character described, comprising a waist belt, a hollow-walled sack or envelope suspended from the belt and adapted to embrace the male organs of generation, a cold water supply tube connected with the sack, a device to control the supply tube, and levers extending across the sack opening and arranged to operate by the distention of the penis and adapted to open the said controlling device, substantially as shown and described.

3. An apparatus of the character described, comprising a waist belt, a perforated plate suspended from the belt and adapted to lie upon the body of the wearer, a hollow walled sack or envelope arranged at the lower end of the plate and adapted to embrace the male organs of generation, a tube connected with the sack and with a source of cold water supply, levers fulcrumed on the plate and having their lower ends extending opposite the perforation in the plate and their upper ends provided with jaws which impinge on the supply tube, and an outlet for the sack, substantially as shown and described.

4. An apparatus of the character described, comprising a waist belt, a plate suspended from the front of the belt and having a hole therein, a hollow walled sack or envelope suspended from the plate and belt, the sack having its front portion formed into a hood held in front of the hole in the plate and its rear portion elongated, a tube connected with the front portion of the sack and with a source of cold water supply, swinging levers arranged with their lower portions opposite the plate hole, the levers having diverging upper ends, jaws carried by the upper ends of the levers and held to normally clasp the supply tube, and an outlet tube leading from the rear portion of the sack and held in a support on the back of the belt, substantially as shown and described.

494,438. FIREWORKS-TORCH. THOMAS M. PIERCE, Concord, Mass. Filed Jan. 16, 1892. Serial No. 418,268. (No model.)

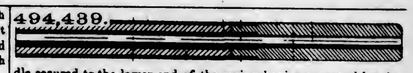


Claim.—1. A fireworks torch, composed of an outer casing, a longitudinal central tube, an annular chamber between the two tubes for the fireworks composition, the central tube having an air passage through it and opening to the outside of the torch at or near its lower end for the purpose specified.

2. A fireworks torch, composed of an outer casing, a longitudinal central tube, an annular chamber between the two tubes for the fireworks composition, the central tube having an air passage through it and a transverse air passage having an outlet at the side of the torch at or near its lower end and communicating with the central tube air passage for the purpose specified.

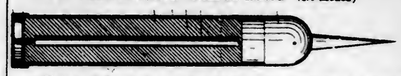
3. A fireworks torch, composed of an outer casing, a longitudinal central tube, an air passage through the tube an annular chamber between the two tubes for the fireworks composition, and a transverse air passage extending from one side to the other of the torch having an outlet on each side of the torch at or near its lower end and centrally connected to and communicating with the central tube air passage for the purpose specified.

494,439.



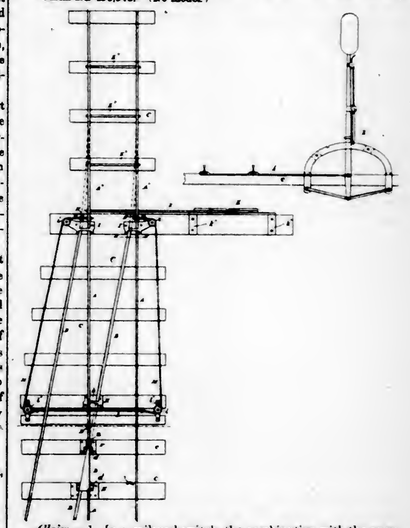
dle secured to the lower end of the casing, having a central longitudinal air passage through it communicating with the air passage in the central tube.

494,440. FIREWORKS-TORCH. THOMAS M. PIERCE, Concord, Mass. Filed Dec. 23, 1892. Serial No. 456,094. (No model.)



Claim.—A fireworks torch or signal fusee, consisting of a tube or casing, fireworks composition therein, and a longitudinal wire, rod or stem embedded in the composition.

494,441. RAILWAY-SWITCH. HARRISON RICH, Muskegon, Mich., assignor of one-half to Edwin Rich, same place. Filed June 11, 1892. Serial No. 436,373. (No model.)



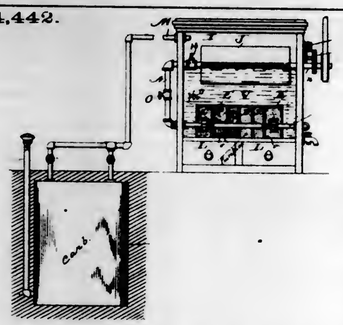
Claim.—1. In a railroad switch, the combination with the angular rail piece D serving as a portion of the main track and as a portion likewise of the switch track, of the supporting plate E for one end thereof and the supporting plate F for the other end, said plate F having the parallel flanges *f f*, the plate G pivoted to said plate F and provided with parallel flanges *g′* and the swinging rail B′ secured to plate G between its flanges, substantially as described.

2. In a railroad switch, the combination of the stationary rails A A, the stationary rails B B, the swinging rails A′ A′ and the short pivoted swinging pivoted rail B′, the ropes or cables M M passing around suitable sheaves and pulleys, connected to the bridle fastened to the rail B′ and said ropes being likewise connected to the rails A′, a bridle also connected to the rails A′ all arranged to operate, substantially as described.

494,442. CARBURETING APPARATUS. JOHN RUTHVEN, Topeka, Kans. Filed Apr. 13, 1891. Serial No. 388,812. (No model.)

Claim.—The combination with a case or closure A, having therein an air-tight chamber I, a suction fan operating in the upper portion of said chamber, a submerged drying and purifying chamber in the lower portion of said chamber I, and a pipe leading from the upper portion of said chamber I to said drying and purifying chamber, and from said chamber to the burners, of a carburetor located exterior to the building in which said case or cabinet is situated, an air-inlet pipe for said carburetor, and a pipe connecting said carburetor with the upper portion of said chamber I, substantially as specified.

494,442.



494,443. TRACE. ERNEST S. SAETTLER, Giddings, Tex. Filed Dec. 10, 1892. Serial No. 454,709. (No model.)

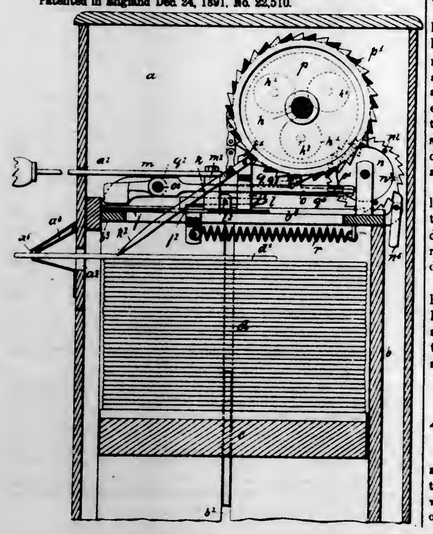


Claim.—1. As an improved article of manufacture, a trace provided with a reinforcing plate located between the straps at the eye portion and provided with a slot registering with the eye of the trace, and slides receiving the edges of the reinforcing plate and extending over the edges of the trace at the eye, and secured to the side surfaces of the trace, as and for the purpose specified.

2. The combination, with the straps of a trace at the eye portion thereof, of a reinforcing plate introduced between the straps, the said plate being provided with a slot registering with the eye of the trace, and with marginal flanges extending beyond the side edges of the straps, and slides fitted over the flanges of the plate, the said slides clamping the side surfaces of the trace, as set forth.

3. A reinforcing device for the eye portions of traces and other straps, the same consisting of a body plate provided with side flanges and a slot located between the flanges, and slides having channeled surfaces to receive the flanges of the body plate, said slides being provided with fastening devices near their edges, as and for the purpose specified.

494,444. COIN-FREED MACHINE FOR THE AUTOMATIC SALE OF NEWSPAPERS. GEORGE SALTER and JOHN HUGHES, West Bromwich, England. Filed June 1, 1892. Serial No. 435,192. (No model.) Patented in England Dec. 24, 1891, No. 22,510.



Claim.—1. In the feed part of an automatic prepayment coin freed machine for the delivery of newspapers, periodicals, books and other like printed matter, a rising and falling hoist table, located and working transversely within a pillar like casing, and with the articles to be intermittently delivered, resting upon the topside of the same, in combination with a pawl like jointed arm or arms adapted to engage with and project the articles forward, a reciprocating slide upon which said jointed arm is mounted, a pull rod mounted on said slide and projecting through the casing mechanism substantially as described for automatically elevating the hoist table, a coin receiving chute and detent mechanism released by the weight of a coin such detent mechanism being constructed and adapted to normally prevent the pull rod and the slide upon which it is mounted from being operated, as set forth.

2. In an automatic prepayment coin freed machine, for the delivery of newspapers, periodicals, books and other like printed matter, the combination with a hoist table rising and falling vertically within a suitable casing, balancing or counter-poising mechanism connected to said table and comprising a rotary spring operated shaft carrying sprocket wheels, sprocket wheels mounted on arms or brackets attached to said table and chains passing around said sprocket wheel, an inclined jointed arm for feeding the articles forward a slide upon which said arm is mounted, a pull rod connected to said slide, a coin freed detent mechanism to normally prevent the movement of said slide and mechanism substantially as described whereby upon the insertion of a coin said slide is released; of coin freed mechanism constructed and adapted to normally prevent the rotation of the sprocket wheels and the elevation of the hoist table, substantially as described.

3. In an automatic pre-payment coin freed machine, for the delivery of newspapers &c., the combination with a hoist table, adapted to rise and fall within the casing of the apparatus, of a transverse shaft having connected thereto counterbalancing springs, and having mounted on its end sprocket wheels, sprocket wheels mounted on said table, sprocket chains connecting the sprocket wheels on the shaft with the sprocket wheels on the table, a reciprocating slide arranged above the hoist table, a pull rod and a delivery arm mounted on said slide, and coin released detent mechanism, substantially as described, for normally preventing the movement of the slide and for preventing the rotation of the shaft, as set forth.

4. In an automatic pre-payment coin freed machine, for the delivery of newspapers &c., the combination with a hoist table located within a frame and adapted to rise and fall therein, of a shaft or axle having spring lifting and balancing mechanism connected therewith and coupled to said table, a reciprocating slide working upon the top of said frame and carrying a push pawl and delivery arm, ratchet wheel n, carrying studs n^2, n^2, differentially arranged toothed wheels p, p', counter-poised stop arms o, q having teeth o^2, and q^2, respectively, push pawl l, pivotally supported on said slide and adapted to engage with the said ratchet wheel, and coin freed mechanism for unlocking said slide, substantially as described.

5. In an automatic pre-payment coin freed machine for the delivery of newspapers, &c., the combination with a counter-balanced hoist table, working within an inclosing framing and with coin freed mechanism located above said table and adapted to raise the same and deliver papers therefrom, of a counterpoised coin lever fitted with a tray located within a tray box, a throated coin chute at the lower end of which said tray is located, a counterpoised lever connected to the tray and having a depending stop, a slide which said stop intersects and upon which is mounted detent and releasing mechanism, a delivery arm and a pull bar constructed and arranged substantially as described.

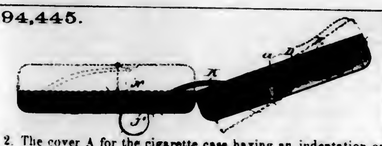
6. In an automatic pre-payment coin-freed machine for the delivery of newspapers &c., the combination with the coin tray t^3, counterpoised tray supporting lever t, carrying the swing peg t^5, slide j, delivery arm k mounted on said slide and notched sliding bar v, carried by said slide and passing under the said lever t, substantially as described.

7. In an automatic pre-payment coin freed machine for the delivery of newspapers &c., the combination with a slide carrying a delivery arm, of a stationary rack y, a pawl catch z, carried by said slide and having a snug z^2, a pivoted rack y^2, having a gate y^3, for the passage of said snug, and coin freed mechanism for unlocking the slide, substantially as described.

494,445. CIGARETTE-ROLLING CASE. EUGENE SCHMIDT, Stillwater, Minn. Filed June 1, 1892. Serial No. 435,239. (No model.)

Claim.—1. The cover A having compartments C and I with lids, and recesses b b at the ends; in combination with the arms K K hinged to the cover and provided at their opposite ends in the body portion, with roller L, and the body or bottom portion B with two parallel openings and a flexible sheet, substantially as shown and described.

494,445.

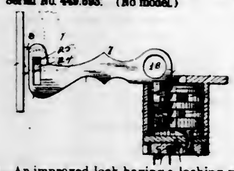


2. The cover A for the cigarette case having an indentation or notch G in its outer edge and provided also with a lid D hinged upon the cover at a and having at its freely swinging edge a clasp spring E extending downwardly from the edge alongside the lid to hold the cigarette paper, and having also at its free edge a lip F turned over in the opposite direction from the clasp spring to engage the notch G and fasten the lid substantially as shown and described.

3. The combination with the cigarette rolling device and its case; of the cover A formed with two compartments C and I provided with lids hinged near the middle, the one cover having a lid D upon its inside with spring E and catch F, and the other I having a lid H upon the outside, substantially as shown and described.

4. The base or body part B having the two longitudinal openings J J', in combination with the flexible sheet M attached to the inner edge d of opening J and extending across the other opening and attached to its remote edge, the roller L arranged beneath the flexible sheet and provided with arms and a hinged part pivoted to said arms, substantially as shown and described.

494,446. LOCK. FRANK SIMONS, St. Louis, Mo., assignor of two thirds to Arthur D. Aquart and Charles Fuchs, same place. Filed Oct. 22, 1892. Serial No. 449,693. (No model.)



Claim.—1. An improved lock having a locking mechanism comprising a central cylindrical shaped portion provided with projecting annular rims, separated by annular grooves, curvilinear depressions in alignment in the periphery of each of said plates and extending inwardly to said cylindrical central portion, and a smaller curvilinear recess in each of said plates adjoining said larger recesses, substantially as set forth.

2. An improved lock having a locking mechanism located within a casing, a circular plate surmounting said casing, a removable plate closing the lower aperture of said casing, said locking mechanism having a center cylindrical portion, annular rims extending therefrom, said rims or plates separated by annular grooves, curvilinear recesses in alignment in the peripheries of said annular plates, a transverse groove in the lower of said plates, a vertically oscillating tumbler block centrally pivoted in said slot, a spring normally holding said tumbler block at an angle with said removable casing plate and the tapering projecting end of which normally engages in an opening in said removable casing plate, substantially as set forth.

3. An improved lock having a locking mechanism located within a casing, said mechanism having a central portion with projecting annular rims, aligned curvilinear recesses in said rims, annular depressions between said rims, a transverse slot in the lower rim and central portion, a spring controlled vertically oscillating tumbler block centrally pivoted therein, the normal position of said tumbler block being with one end raised and between the lower and middle plates or rims, and the insertion of a latch shank into one of said curvilinear recesses adapted to push down said tumbler block and disengage the engagement of the opposite tapered end of said tumbler block in the opening in a removable plate normally and removably secured to said casing, substantially as set forth.

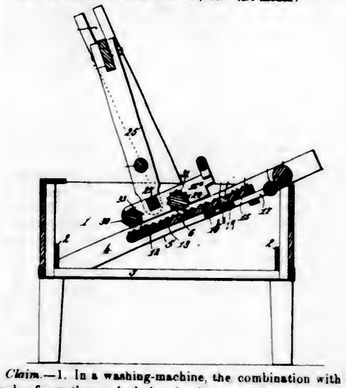
4. An improved lock having a tumbler block vertically oscillatory and centrally pivoted, said tumbler block controlled by a spring, said tumbler block adapted to be changed to a horizontal position by the downward movement of the latch shank upon its raised end, the opposite end of said tumbler provided with a right angularly projecting tapered portion normally engaging in an opening in a removable casing plate, and said central portion, projecting annular rims and tumbler block adapted to revolve a prescribed distance, when said tumbler block assumes a horizontal position with the tapered end upon the inner surface of the removable casing plate, and the limit of such movement controlled by the faces terminating the smaller curvilinear recess, substantially as set forth.

5. An improved lock latch consisting of a shank having a projecting portion at one end, said projecting portion provided in its outer side with rectangular openings, which leaves rectangular lugs, said lugs and openings adapted to correspond to the annular rims and grooves upon the locking mechanism, an elongated portion upon the opposite end of said latch-shank, a rectangular slot in said elongated end, and said slot adapted to fit over a pin held by projecting lugs upon a plate, substantially as set forth.

6. An improved lock having a locking mechanism located within a casing, an annularly projecting plate mounted upon said casing, said plate provided with a transverse slot running from one side of its periphery to its center, a key guide in the center of said plate, an upwardly projecting key pin, located in one corner of a curvilinear recess in the top plate of the locking mechanism, a key adapted to fit upon said key pin, and the engagement of the projection upon the key against the side of said recess, adapted when turned to turn the locking parts and release the latch shank, substantially as set forth.

7. An improved electric alarm lock having a locking mechanism located within a casing, said casing provided at one end with an annularly projecting plate, its opposite end closed by a removable metallic plate 12, a plate of insulating material adapted to be secured to said removable metallic plate, said locking mechanism adapted to be connected in an electric circuit by a wire connected to the screw used to secure said insulation plate to said metallic plate, said metallic and insulation plates provided with coinciding openings, an electrical conductor projecting into said opening, and the tapered projecting end of the spring controlled vertically oscillating tumbler block adapted to engage said electrical conductor secured to said insulation plate when the device is unlocked, thus completing the circuit, substantially as set forth.

494,447. WASHING-MACHINE. HENRY C. SNIDER, Joshua, Tex. Filed Oct. 29, 1892. Serial No. 450,361. (No model.)



Claim.—1. In a washing-machine, the combination with a tub, or tank, of a stationary bed-piece having parallel side-bars resting at one end upon the bottom of said tub and projecting at the other end over the edge thereof, a fabric-holding and feeding-roll journaled in said side-bars, a second roll journaled in a movable, spring-pressed frame, the sides of which lie within the side-bars of the bed-piece and are provided with pins which project outwardly and move in slots in the said side-bars, means for rotating said rolls, and a reciprocating rubber pivotally attached to a frame hanging upon supports on the side of the tub, substantially as described.

2. In a washing-machine, the combination with a stationary bed-piece of a reciprocating rubber having two independent rolls, one provided with a series of disks, seated in circular depressions in the face of the said roll and a second roll provided with circumferential corrugations, a series of rawhide strips running longitudinally of said roll and having one edge lying in channels in said roll and attached by screws, or nails, driven in the lines of the channels intermediate of the said circumferential corrugations, leaving the other edges free, substantially as described.

494,448. AUTOMATICALLY-FEEDING INKSTAND. THADDEUS SWEENY, Bradford, Pa. Filed Nov. 16, 1892. Serial No. 452,175. (No model.)

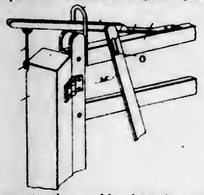
Claim.—1. An automatically feeding ink stand comprising a well, a cap having a depending flange C fitting the upper end of the well, the said cap having a central opening, a depending annular flange surrounding said opening provided with a laterally extending flange

G, combined with a diagram having an upwardly extending flange passing around the flange G, the diaphragm having a central opening, and a tube extending through the diaphragm and having a bowl at its upper end, substantially as described.



2. An ink well having a detachable cap provided with a depending flange C fitting the upper end of the well, a central opening, a depending flange surrounding the said opening, the said flange having an outwardly extending lateral annular flange, a flexible diaphragm surrounding the said lateral flange, the depending flange extending inward to form a stop within the said cap central opening, combined with a feeding tube which passes through the said diaphragm and provided with a laterally extending flange to engage the said stop, substantially as described.

494,449. SWINGING GATE. CHARLES A. TAYLOR, Jacksonville, Ill. Filed Nov. 23, 1892. Serial No. 452,801. (No model.)



Claim.—1. In a gate, the combination of a post, a gate hinged thereto, a rearwardly extending vertically movable spring arm secured to the gate, and a link loosely secured at one end to the post and at its opposite end to the said arm, substantially as shown and described.

2. In a gate, the combination of a post, a gate hinged thereto, a flat spring secured at one end to the gate, a rearwardly extending arm secured to the free end of the spring, and a link loosely secured at one end to the post and at its opposite end to the arm, substantially as shown and described.

3. In a gate, the combination of a post, a gate hinged to one side of the same, a rearwardly extending vertically movable spring arm secured to the top of the gate, a link loosely secured to the side of the post opposite the hinges, and at its opposite end to the arm, and an operating line, substantially as shown and described.

4. In a gate, the combination of a post, a gate hinged thereto, a rearwardly extending vertically movable spring arm secured thereto, guides projecting from the gate between which the said arm moves vertically, a link secured at one end to the post and at its opposite end to the arm, and an operating line, substantially as shown and described.

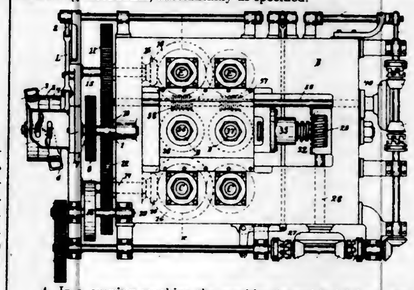
5. In a gate, the combination of a post, a gate hinged thereto, post C, a longitudinally movable latch which at its outer end engages the said post C, an upwardly extending bar loosely secured to the latch having a longitudinal slot formed therein a pin projecting from the gate through said slot of the bar, a vertically movable arm carried by the gate which is loosely connected to the upper end of the said bar, and an operating line for raising the said arm vertically, substantially as shown and described.

494,450. RAIL-CURVING MACHINE. FREDERIC C. WEIR and EDWARD W. HARDEN, Cincinnati, Ohio, assignors to the Weir Frog Company, of Ohio. Filed Sept. 12, 1892. Serial No. 445,675. (No model.)

Claim.—1. In a curving machine the combination with driving rolls and curving rolls, of laterally and vertically movable journal boxes carrying said curving rolls, and mechanism for driving said driving rolls, substantially as described.

2. In combination with the two outside pairs of driving rolls, the inside curving rolls, mounted in movable journal boxes, with reverse driving mechanism for moving said journal boxes laterally and vertically, and unshipping device for reversing motion, and throwing said laterally moving mechanism in and out of gear, substantially as specified.

3. In combination with the two outside pairs of driving rolls, the inside curving rolls D D′, mounted in a vertically moving journal box frame 35, the nut and screw gear applied to the shafts of said rolls, the worm wheels 41, 42, the worms 57, 58, mounted on shaft 56, and the reversing clutches 48, 49, operated by the shipping lever 55, and connecting mechanism, substantially as specified.

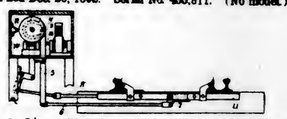


4. In a curving machine the combination with driving rolls, of laterally and vertically movable journal boxes, and rolls carried by said journal boxes and provided with collars to bear upon the top and bottom of article operated upon, and mechanism for driving said driving rolls, substantially as described.

5. In combination with the outside pairs of driving rolls C C′ E E′, respectively intergeared, reversing driving and shipping mechanism, the inside curving rolls D D′, mounted in a journal box frame 35, supported vertically and laterally by nut and screw mechanism, and worm mechanism for driving either or both of said laterally or vertically supporting screws by the power of the machine at the will of the operator, substantially as specified.

6. In a curving machine, the combination with driving rolls, of laterally and vertically movable curving rolls provided with collars to bear upon the top and bottom of the article operated upon, and means for driving said driving rolls, substantially as described.

494,451. ELECTRICAL SWITCH-LOCK. FREDERIC C. WEIR and EDWARD W. HARDEN, Cincinnati, Ohio; said Harden assignor to said Weir. Filed Dec. 20, 1892. Serial No. 455,811. (No model.)



Claim.—1. In combination with a railway switch, a switch bar, and the electric motor driving mechanism connecting said motor and switch bar, and adapted to move the switch alternately in opposite directions by the revolution of the motor, the locking mechanism consisting of the cam I, the locking arm 8 operated alternately with the switch throwing mechanism, substantially as specified.

2. In combination with the switch moving mechanism consisting of the electric motor, the plates C, D, provided with the grooves E, F, a stud pin P, and the connecting rod N, the locking mechanism consisting of the cam G, crank arm 5, connecting rod 6, locking arm 8 engaging and disengaging with the switch bar 11, substantially as specified.

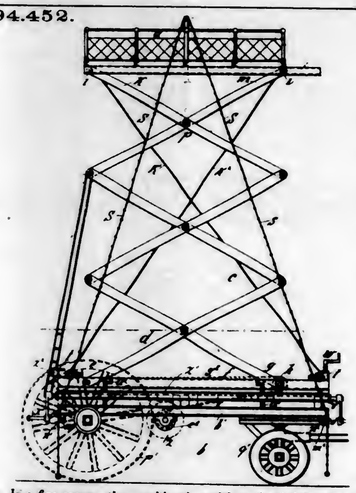
494,452. FIRE-LADDER. OSCAR WITZEL, Langensalza, Germany. Filed June 28, 1892. Serial No. 438,318. (No model.)

Claim.—1. In a portable and adjustable fire ladder the combination of the rope ladders *s s* with rigid rungs, which are passed over horns *r* on the platform *a* and are fixed at their lower ends to and there held by withdrawable rods $n' n' n^2 n^2$, substantially as described.

2. In a fire escape, the combination with a suitable carriage, of tongs *c* having one pair of lower links pivoted to the carriage and the other pair provided with rollers *h* adapted to travel back and forth on said carriage, a drum shaft *f*′ mounted on the carriage and having a worm wheel *z* and drums c', c^2, a shaft *x* having a worm *z*′ engaging the worm wheel, means for rotating the worm carrying shaft, and ropes g', g^2 connected at one end with stationary parts of the carriage, passing round the said rollers on the lower pair of links and engaged with the drums on the drum shaft, substantially as described.

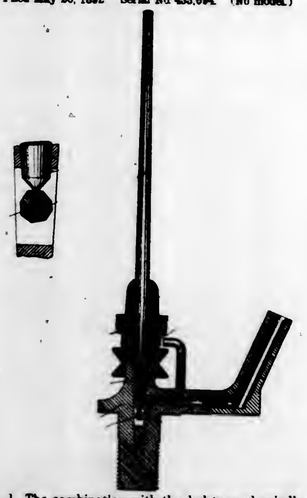
3. In a fire escape, the combination with the carriage framing *b* having the bracket z^2, and the lazy tongs *c* supported by the carriage framing, of the supporting bar *y*′ pivoted at its upper end to the links of the lazy tongs and having its lower end portion engaged with the bracket on the carriage framing, substantially as described.

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4. In a fire escape, the combination with a wheeled framing, the platform *a* having the horns *r*, and the lazy tongs for raising and lowering the platform, of the sliding or withdrawable rods carried by the wheeled framing and adapted to be slid outward thereupon, and the rope ladders passing over the horns of the platform and connected with the said rods, substantially as described.

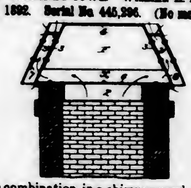
494,453. SPINDLE AND ITS SUPPORT. WILLIAM R ALLEN, Providence, R. I., assignor to the Sawyer Spindle Company, Hopedale, Mass. Filed May 20, 1892. Serial No. 433,694. (No model.)



Claim.—1. The combination with the bolster and spindle, of a many-faced rotatable step-block eccentrically pivoted in the bolster, to operate, substantially as described.

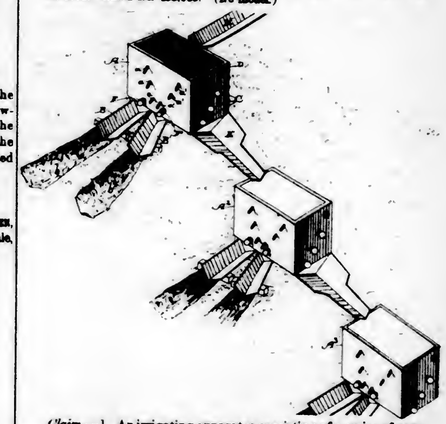
2. The supporting case, a bolster bearing therein tapered internally to receive the tapered lowered end of a spindle, combined with an irregularly faced polygonal step-block contained within the supporting case, whereby by the rotation of the said step block, the position of the spindle vertically with relation to its bolster may be regulated to compensate for wear between the spindle and bolster, substantially as described.

494,454. CHIMNEY-COWL. WILLIAM H. ASHTON, Seward, Nebr. Filed Sept. 8, 1892. Serial No. 445,396. (No model.)



Claim.—The combination, in a chimney cowl, of a plate A adapted to the end of the chimney, a cowl F having inclined sides and a top, a shield G also having inclined sides and of a size larger than the cowl whereby it is adapted to fit over the latter and the braces or supports D, D, having the horizontal portions 6 adapted to be secured to the plate A, and the inclined portions 7 and 8 to which the inclined faces of the shield and the cowl are respectively secured, and the connecting parts 9, between the inclined portions, substantially as set forth.

494,455. APPARATUS FOR DISTRIBUTING WATER FOR IRRIGATION. FREDERICK W. BARNHAM, Jr., Wright's, Cal. Filed Dec. 3, 1892. Serial No. 453,965. (No model.)



Claim.—1. An irrigating apparatus consisting of a series of communicating tanks, a vertical series of corresponding outlets in each tank, each series being adapted to discharge into its own channel or ditch, and a vertical series of separately controllable discharges in each tank adapted to deliver the water into the communication with the succeeding tank, and so located with respect to the outlets of the tanks that each discharge of a series shall be below the horizontal plane of a corresponding outlet in its own tank, substantially as herein described.

2. An irrigating apparatus consisting of the series of tanks, each having the corresponding vertical series of outlets, and the corresponding vertical series of separately controllable discharges on relatively lower planes than the outlets, the troughs into which the outlet series discharge the flumes connecting the tanks and into which the series of discharges deliver their water, and the supply flume communicating with the first tank of the series, substantially as herein described.

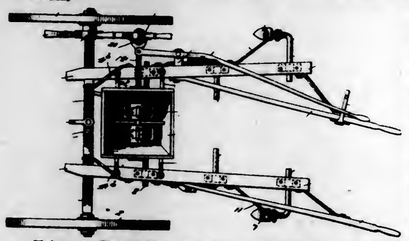
494,456. BUTTON-FASTENER. RICHARD BLABER, Berlin, Germany. Filed June 30, 1892. Serial No. 438,560. (No model.)



Claim.—1. The combination of a transversely notched pin and the spring clasp provided with side flanges engaging the pin; substantially as described.

2. The combination of the notched pin, and the spring clasp provided with over-lapping side flanges, and a hole in the lower portion receiving the lower end of the pin; substantially as described.

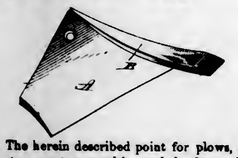
494,457. CULTIVATOR AND FERTILIZER-DISTRIBUTER. DAVID W. BROOKER, Polkton, N. C. Filed May 3, 1892. Serial No. 431,444. (No model.)



Claim.—1. The combination of a cultivator beam, a standard 6 carrying a cultivator-shovel at its lower end, said standard being provided with a lateral cylindrical arm 8 at its upper end, means for securing this arm adjustably and pivotally to the cultivator beam and a brace 11, its upper end secured to the cultivator beam and its lower end adjustably secured to the standard 6, whereby the cultivator shovel may be positively adjusted forwardly and backwardly and laterally in either direction substantially as described.

2. The combination of an arched axle mounted on wheels and constructed of two sections pivoted together at the upper part of the arch, rearwardly extending cultivator beams connected to the axle on each side of the arch, a series of standards having cultivator shovels at their lower ends carried by said beams, said standards being independently adjustable laterally, forwardly and rearwardly, means for securing said standards in their adjusted positions, and a laterally swinging draft clevis pivotally connected directly to the arch at its middle; substantially as described.

494,458. PLOW. THOMAS R. C. BRIELY, Louisville, Ky. Filed Jan. 17, 1893. Serial No. 458,698. (No model.)

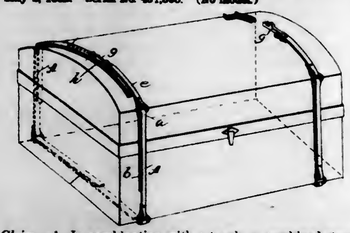


Claim.—1. The herein described point for plows, having a top rib secured thereto so as to extend beyond the forward end of said point, of a lip secured to the under side of the wing and to the under side of the top rib to form a point, substantially as shown.

2. In a plow, the combination, of the point, top rib and lip formed of separate pieces, the top rib and lip being welded to the wing and to each other, substantially as shown.

3. A combined plow point, having a top rib which projects beyond the point, a lip also attached to the point, the rear end of said lip being beveled to provide a shoulder against which the landside or standard will abut, substantially as shown, and for the purpose set forth.

494,459. TRUNK-STRAP. EDWARD R. BULL, Ogden, Utah. Filed May 2, 1892. Serial No. 431,395. (No model.)



Claim.—1. In combination with a trunk, a combined strap and brace formed of three sections, each section consisting of a strap having one end secured to a ring and its other end passing through the ring of the adjacent section and doubled back on itself, and fastening means consisting of a short strap connected to the ring upon one end and carrying a pivoted lever, and a double strap secured to the ring upon the other end, the upper portion of said double strap having a series of perforations adapted to be engaged by the end of the lever, substantially as described.

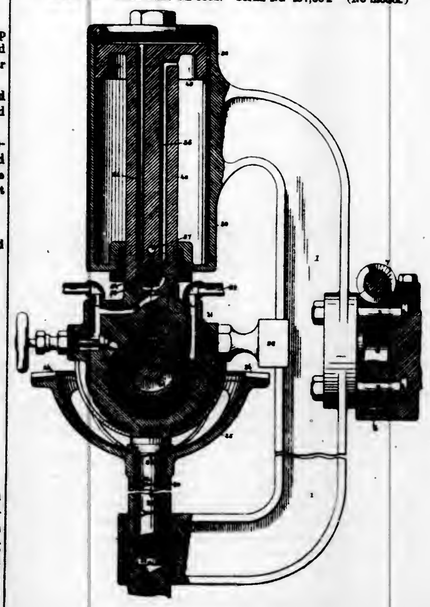
2. A trunk strap including a portion A to pass partially about the trunk, a section secured upon one end carrying a pivoted lever and a section carried upon the other end consisting of a double strap having its ends secured together and its looped portion passing through a ring on the part A, and perforations in the upper half of the double strap adapted to be engaged by the end of the lever, the lower half serving to protect the trunk from the point of the lever, substantially as described.

494,460. TREADLE. IRA S. BUNKER, Nevada, Mo. Filed May 7, 1892. Serial No. 432,193. (No model.)



Claim.—In combination with a treadle, a series of flat springs connected thereto and extending above the same, a pitman in connection with the treadle, and supports removably attached to a frame and consisting of horizontal members inserted through the sides of the frame in longitudinal alignment and screw-threaded to removably receive nuts, the inner ends of said supports being arched or segmentally curved to rise above the treadle and having their free ends slotted to receive the springs attached to the opposite sides of the treadle, the said pitman being of rigid formation and having the upper end thereof directly attached to the driven shaft, substantially as described.

494,461. POWER-DRIVEN TOOL. FRANK H. CATHCART, Lower Merion, Pa. Filed June 24, 1892. Serial No. 437,884. (No model.)



Claim.—1. The combination of a rotated motor, a casing within which said motor is contained, a tool shank operatively connected to and rotated by said motor, and a fluid pressure cylinder adapted to continuously feed the motor and tool toward the work, substantially as specified.

2. The combination of a rotated motor, the casing within which said motor is contained, a tool shank operatively connected to and rotated by said motor, and a fluid pressure cylinder adapted to advance and retract both the motor and tool toward and from the work, substantially as specified.

3. The combination of a supporting and guiding frame, a motor casing guided by the frame, a motor contained within said casing, a tool shank operatively connected to and rotated by said motor, a cylinder, as 50, carried by the frame, and a piston connected to the motor casing and adapted to be traveled within said cylinder, substantially as specified.

4. The combination of a casing, a fluid motor contained therein, a tool shank operatively connected to and rotated by said motor, a pressure cylinder, a piston within said pressure cylinder, a piston rod connecting the piston to said casing, communicating fluid passages in the piston rod and in the casing, controlling valves, a fluid supply, as 53, and an exhaust, as 82, substantially as specified.

5. The combination with a rotated tool of a feeding device for advancing and retracting said tool, said feeding device comprising a pressure cylinder, as 50, a piston within said cylinder, a piston rod, as 48, forming communication between the piston and the tool, fluid passages in said rod and communicating with a chamber, as 55, supply and escape passages also communicating with said chamber and a controlling valve in said chamber, substantially as specified.

6. The combination of a rotated motor, a casing within which said motor is contained, a tool mandrel operatively connected to and rotated by said motor, and an axis for said tool mandrel secured to or forming part of said motor casing, substantially as specified.

7. The combination of a rotated motor, a casing within which said motor is contained, a tool mandrel, a cup-like body, as 25, secured to or forming part of said tool mandrel, gear teeth on said cup-like body, and a pinion rotated by said motor and meshing with the gear teeth on said cup like body, substantially as specified.

8. The combination of a rotated motor, a casing within which said motor is contained, an axis, as 26, secured to or formed integral with the casing, a hollow body, as 25, mounted on said axis, a tool shank secured to said hollow body, gear teeth on said hollow body, and a pinion rotated by the motor and meshing with said gear teeth, substantially as specified.

9. The combination of a motor, a pinion rotated by said motor, a casing within which said motor is contained, an axis, as 26, secured to or formed integral with said casing, a loose sleeve, as 30, surrounding said axis, a hollow body, as 25, partly surrounding the motor casing, and secured to said sleeve 30, a tool shank secured to said hollow body, and gear teeth on said hollow body meshing with the teeth of the said pinion, substantially as specified.

10. The combination in a rotated tool, a plunger, a frame by which said plunger is carried, fluid passages in the piston of said plunger, a valve for controlling the same and a fixed cylinder inclosing said plunger, substantially as specified.

11. The combination of the frame 1, a supporting arm 2, therefor, a worm wheel carried by said frame 1, and a worm carried by said arm 2, and meshing with said worm wheel, substantially as specified.

12 The combination of the frame 1, the arm 2, having an undercut circular slot, a series of bolts projecting from the frame 1 and adapted to said slot, a worm wheel carried by said frame and a worm carried by the arm 2, and engaging with said worm wheel, substantially as specified.

13. The combination of the frame 1, the longitudinally adjustable arm 2, the vertical arm, and a clamping foot in which said vertical arm is swiveled, with devices for securing the said vertical arm in said clamping foot, substantially as specified.

494,462. GRATE. BENJAMIN F. CHOLLAR, Fort Worth, Tex. Filed July 21, 1892. Serial No. 440,719. (No model.)

Claim.—1. A grate composed of the separable bars A, each bar formed integral and having transverse openings at both ends to receive the horizontal clamping bolts holding the bars together, the bars being formed at both ends with lateral projections and depressions to interlock and prevent twisting or warping of the bars, one side of an end of each bar having the lateral tube G integral therewith and countersunk at its outer end and the other side of said end having the raised boss I to fit the countersunk end of the tube of the next bar, as shown and described.

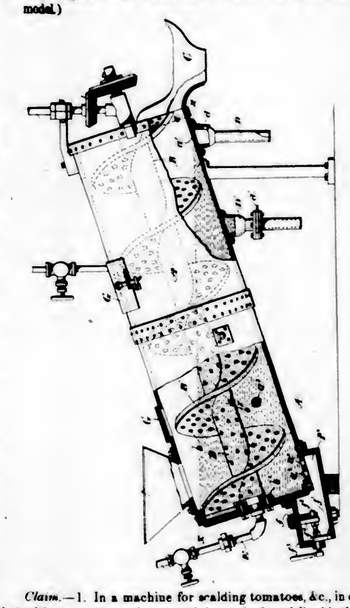
2. The grate composed of the bent bars, each bar being formed integral with the lateral tube at one end so that all the tubes of the bars register, a rod passed therethrough to clamp the bars together,

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the opposite end of each bar having the lateral angular flange B, the edges of the bars and flanges having corresponding depressions and bulges to intermesh, perforated lugs on the bars, and a clamping bar passed through the same, substantially as shown and described.

494,463. MACHINE FOR SCALDING TOMATOES. JAMES D. COX, Bridgeton, N. J. Filed Sept. 21, 1892. Serial No. 446,362. (No model.)



Claim.—1. In a machine for scalding tomatoes, &c., in combination with a suitable casing containing a body of liquid, the rotary hollow shaft, extending through the body of liquid, and having perforations through its walls, and a perforated screw flange, for engaging and forcing the material along through the liquid, and a source of supply of steam connected with the interior of the shaft, substantially as and for the purpose shown.

2. In combination with the casing having an inclined bottom, a feed opening over the lower part of such bottom, and a discharge opening at the upper end of the latter, the rotary shaft, also inclined, provided with a screw flange, and having its lower portion made hollow with perforated walls, a body of liquid within the casing, and a pipe, to be connected with a source of supply of steam or other heating medium, communicating with the interior of the shaft, substantially as and for the purpose specified.

3. In combination with the casing having an inclined bottom, a feed inlet above the lower part of such bottom, and a discharge opening at the upper end of the latter, the rotary shaft also inclined, having its lower part hollow, and with perforated walls, and a screw flange also perforated, means for connecting the interior of the shaft with a source of supply of steam or other heating medium, substantially as and for the purpose shown.

4. In combination with the casing having an inclined bottom, a feed inlet over the lower portion of the latter, a discharge outlet at the upper end thereof, and the liquid overflow passage at a point in the bottom below the level of the discharge outlet, and a rotary shaft having a screw flange to force any material in the casing up the inclined bottom thereof, to the discharge outlet, substantially as and for the purpose set forth.

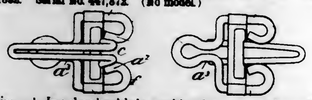
5. In combination with the casing having an inclined bottom, a feed inlet over the lower portion thereof, a discharge outlet at its upper end, and two liquid overflow passages, at different points below the level of the discharge outlet, a valve for the lower of such passages, and the rotary shaft having the screw flange, to engage and force any material in the casing, up the inclined bottom of the latter to the discharge outlet, substantially as and for the purpose described.

6. In combination with the casing having the inclined bottom, and the conveyer to convey any material up such bottom, the sand trap at the lower end of the latter, consisting of a casing in communication with the interior of the large casing through one or more holes in the bottom thereof, and having an outlet at its outer end, a valve to close such outlet, and another valve to check the flow of liquid from the larger casing out through the trap outlet, while the valve for closing the latter is open to allow the sand to be removed, substantially as and for the purpose specified.

7. In combination with the casing having the inclined bottom provided with one or more small openings at or near its lower end, the box or small casing below the inclined bottom adapted to receive sand falling through the opening or openings therein, and having the outlet port at its outer end and a second port in a partition at some distance from such end, and the two valves, one for each port, connected together, so that, as one is moved to close its port, the other will be moved to open the other port, substantially as and for the purpose shown.

8. In combination with the inclined casing having a discharge outlet at its upper end and a body of liquid partly filling it, a liquid overflow pipe communicating through one or more small openings, adapted to permit the passage of liquid, but not of the material being treated, with the under side of the casing interior, at a point below the level of the lower side of the discharge outlet, the inclined rotary shaft having its part within the lower portion of the casing hollow, and with perforated walls, and the perforated screw flange, and a steam supply pipe connected with the interior of the hollow part of the shaft, substantially as and for the purpose set forth.

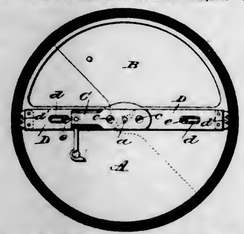
494,464. SHOE-BUCKLE. DANIEL F. DALTON, Waterbury, assignor to the Hammond Buckle Company, Rockville, Conn. Filed Oct. 5, 1892. Serial No. 447,872. (No model.)



Claim.—1. In a shoe buckle in combination a tongue frame formed of wire bent to shape and comprising within the bent portion an eye or socket to receive the fastening means and with the free ends of the wire turned back upon the side parts of the frame and in the plane thereof, the cross bar formed of thin metal and having pintle sockets, and a swinging hook-shaped tongue pivoted to the cross bar and with a broadened part adapted to pass between the adjacent sides of the back turned ends of the frame, all substantially as described.

2. In a shoe buckle in combination, a tongue frame formed of wire bent to shape and comprising within the bent portion an eye or socket to receive the fastening means and with the side parts projecting beyond the pintle sockets, the cross bar formed of thin metal and having integral rolled up portions forming pintle bearings, and a hook shaped tongue with its pivots arranged in the pintle bearings, all substantially as described.

494,465. COVER FOR TOBACCO-PAILS. ERNEST A. DAVIS, Albion, Mich. Filed Jan. 12, 1893. Serial No. 458,137. (No model.)



Claim.—1. In combination with a cover A, having an aperture and a lid adapted to be swung over said aperture, of slotted bars D D attached to the under side of the cover, said bars being connected to each other by a lever one end of which is adapted to be moved to project within the opening in the cover, and means for retaining said lever on a line with the slotted bars, substantially as shown.

2. In combination with a cover having an aperture over which a lid is adapted to be swung, of bars movably secured to the cover and pivoted to a lever, said lever being mounted on the same screw which pivots the lid to the cover, substantially as shown, and for the purpose set forth.

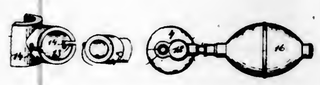
3. In combination with a cover and lid connected to each other as shown, of bars D D having the ends which abut against each other inclined or beveled as shown, a lever C pivotally attached to the cover and connected to the bars D D, and serrated plates attached to the outer ends of said bars, for the purpose set forth.

494,466. INDEX. LYMAN L. DENNICK, Los Angeles, Cal. Filed May 25, 1892. Serial No. 434,271. (No model.)



Claim.—An index book having an index sheet or sheets composed of a series of columns or sections with different alphabetical headings, each column or section having letters and numerals thereon indicating a name or portion thereof and page of index book in which such name is to be found, each column or section containing only such names the initial letters of which correspond to its alphabetical heading, said numerals and letters being arranged in the same column or section substantially as set forth.

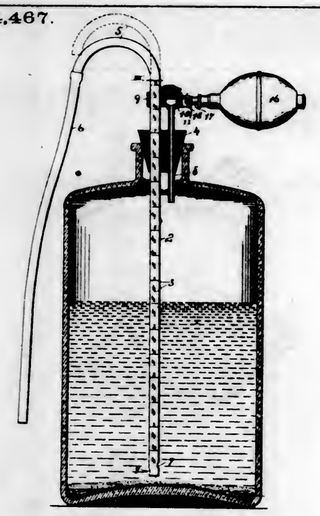
494,467. LIQUID MEASURER AND EXTRACTOR. WILLIAM R. DONATHEN, Kansas City, Mo. Filed Nov. 3, 1892. Serial No. 450,844. (No model.)



Claim.—1. The combination of a graduated tube having suitable top and bottom openings; a tapering cork through which said tube extends; a goose neck on the upper end of said tube; an air tube extending through said cork parallel to the first mentioned tube; a T having a chamber; a collar connected with said T, said collar surrounding the liquid discharge tube; a plug for closing the chamber in said T, and a bulb connected with said T; substantially as described and for the purpose set forth.

2. The combination of a liquid discharge tube having suitable top and bottom openings; a tapering cork formed of yielding substances through which said tube extends; an air tube extending through said cork; a combined T and collar; said collar surrounding the discharge tube; a chamber in said T a plug for closing said chamber; a bulb having a tube at its inner end provided with pins; and horizontal and vertical slots in said T, with which said pins engage substantially as and for the purpose set forth.

494,467.



494,468. SURFACE FOR SKATING-RINKS. BOERS DOWALD, Elberfeld, Germany. Filed Nov. 25, 1892. Serial No. 453,133. (No model.)

Claim.—1. A surface for skating rinks adapted for ordinary skates, which consists of paper or pasteboard tablets or plates permeated with varnish and paraffine, and coated with glycerine, wax and oil, substantially as and for the purposes herein set forth.

2. A material for coating surfaces of skating rinks, consisting of glycerine, wax and oil, substantially as and for the purposes herein specified.

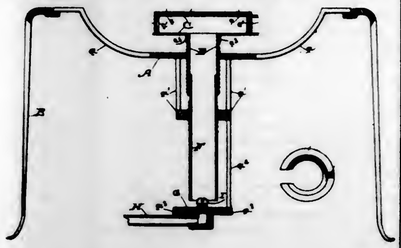
494,469. MOLDER'S FLASK. WILLIAM EDGAR, Sanford, Fla. Filed May 24, 1892. Serial No. 434,144. (No model.)



Claim.—1. A molder's flask having a horizontal partition upon which the mold pattern is secured, and a pipe provided with a series of burners or jets and located within said flask beneath said partition, as set forth.

2. A molder's flask having a horizontal partition upon which the mold pattern is secured and provided with upper and lower series of holes or apertures in its sides, below said partition and a heating pipe located in said flask beneath said partition, substantially as set forth.

494,470. HEATING ATTACHMENT FOR GAS-BURNERS. GEORGE EDWARDS, Berkeley, Cal. Filed Mar. 9, 1892. Serial No. 424,326. (No model.)

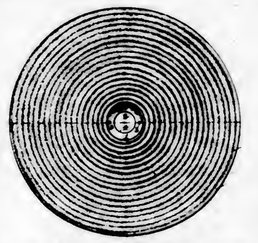


Claim.—1. A heating attachment for gas burners consisting of a plate having arms to support the cooking utensil, a vertically adjustable pipe mounted in said plate, a spreader fitted upon the top of said pipe and consisting of the perforated inner shell and the perforated cap, mounted to turn thereon and the vertically adjustable tube mounted in the hub of the plate and communicating at its upper end with the pipe, and at its lower end with the outer air and with the gas burner, substantially as herein described.

2. In a heating attachment for gas burners, the combination of a supporting plate having a downwardly extending leg with the annular foot, the air regulating tube F supported by said plate above the annular foot, and the insertible button-plate G fitted to the annular foot under the tube F, said plate having on its under side the gas pipe coupling, and in its upper side the gas tip, substantially as herein described.

3. A heating attachment for gas burners consisting of a plate having arms for supporting the cooking utensil, and a downwardly extending leg with the annular foot, the vertically adjustable pipe E fitted in the plate, the spreader fitted on top of said pipe, the vertically adjustable air-regulating tube F supported by the hub of the plate, fitting its upper end in the pipe E and having its lower end open, and the removable plate G fitted in the foot of the supporting plate having on its under side the gas coupling, and in its upper side the tip communicating with the lower end of the air-regulating tube F, substantially as herein described.

494,471. GRINDING OR POLISHING WHEEL AND THE ART OF MANUFACTURING SAME. FREDERICK N. GARDNER, Beloit, Wis., assignor to Charles H. Besly, Chicago, Ill. Filed Oct. 26, 1891. Serial No. 409,908. (Model.)



Claim.—1. A grinding or polishing wheel comprising a body portion having its surface provided with grooving or depressions and an abrading facing formed by a sheet of emery or analogous abrading cloth or paper secured to said surface by an intervening stratum of glue or cement and depressed within the grooving or depressions thereof so as to provide an abrading facing corresponding with the surface to which it is united substantially as and for the purpose described.

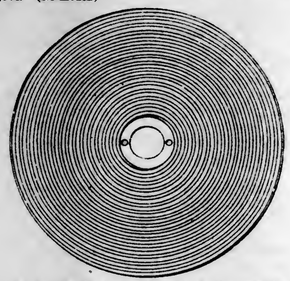
2. A grinding or polishing wheel comprising a disk of metal or analogous dense material having a grooved side, and an abrading facing formed by a sheet of emery or analogous abrading cloth or paper secured to the grooved side of the disk by an intervening stratum of glue or cement and depressed within the grooving thereof so as to correspond with the grooved surface to which it is united, substantially as and for the purpose described.

3. A grinding or polishing wheel comprising a body portion having a spirally grooved surface, and an abrading facing united to said surface by glue or cement and depressed within the grooving thereof, so as to provide the wheel with a spirally grooved abrading facing, substantially as described.

4. The within described improvement in the preparation of grinding or polishing wheels consisting in applying an abrading sheet to the surface of a wheel provided with grooving or recesses with an intervening stratum of glue or cement, and shaping and giving to such abrading sheet a permanent set in conformity with the grooved or recessed surface of the wheel, by pressure applied to depress the abrading sheet within the grooving or recesses in the wheel.

5. The within described improvement in the preparation of grinding or polishing wheels, consisting in applying an abrading sheet of emery or analogous abrading cloth, paper or like material to the surface of a wheel provided with grooving or depressions, applying a flexible or elastic pad upon said sheet, and applying pressure so as to cause the pad to compress the abrading sheet in conformity with the surface of the wheel.

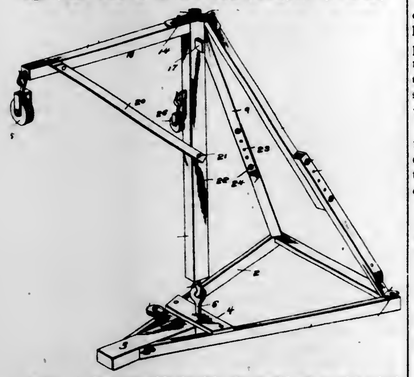
494,472. GRINDING OR POLISHING WHEEL AND THE ART OF MANUFACTURING SAME. FREDERICK H. GARDNER, Beloit, Wis., assignor to Charles S. Besly, Chicago, Ill. Filed Aug. 15, 1892. Serial No. 443,071. (No model.)



Claim.—1. An abrading or polishing wheel comprising a main body having depressions, a sheet of emery or analogous abrading cloth or paper, and an intervening body of glue or cement compactly uniting the sheet to the body and compacted within the depressions of the body.

2. The within described improvement in the preparation of grinding or polishing wheels consisting in applying to the surface of a wheel provided with grooving or analogous distinctive recesses an abrading facing consisting of a sheet of emery or analogous abrading cloth or paper with an intervening strata of glue or cement, subjecting the same to a degree of pressure sufficient to compact and wedge the glue in the form of ribbing or like distinctive projections within the grooving or depressions in the wheel and prolonging such pressure until the glue or cement has firmly united with the abradin s sheet, and has formed hardened ribs or like distinctive projections countersunk and wedged within the wheel.

494,473. PORTABLE HAY-DERRICK. DAVID V. GARRISON, Remington, Ind. Filed Oct. 18, 1892. Serial No. 449,233. (No model.)

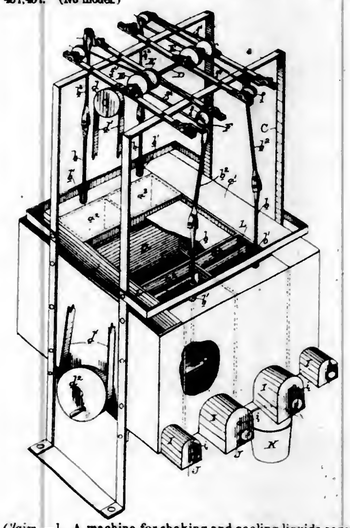


Claim.—1. In a portable derrick, the combination, with a bed, and a crane, of the upright pivotally connected to the bed, the rear brace-bars intermediate the upright and bed, the hinges fastened to the crane and the brace-bars, and the common bolt passing through lapped parts of the hinge-leaves, into the upright, and held by a transverse key which is fitted in the post and the lower end of the bolt, substantially as described.

2. In a portable derrick, the combination of a bed, an upright pivotally connected at its lower end to the bed, the crane having a hinge connection with the upper end of the upright and braced by an arm which is adjustably connected to said upright, the extensible brace-bars detachably connected at their lower ends to the bed and having hinge-connections with the upper end of the upright, and a single fastening which unites the hinge-connections of the crane and brace-bars to the upper end of the upright, as and for the purpose described.

3. In a portable derrick, the combination of a bed, an upright carrying the crane, and the adjustable brace bars intermediate the bed and upright and each comprising the extensible members, one having the teeth or notches and the two clasps fixed to the respective sections and one clasp having a pawl to engage with the teeth or notches, substantially as described.

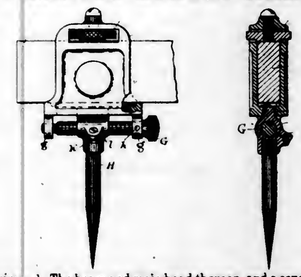
494,474. LIQUID SHAKING AND COOLING MACHINE. EDWARD H. GERRISH, San Francisco, Cal. Filed Nov. 9, 1892. Serial No. 451,457. (No model.)



Claim.—1. A machine for shaking and cooling liquids consisting of a reservoir divided into separate compartments for containing the liquid and a cooling medium, dashers in the liquid containing compartments, having stems passing through the top of said compartments, a drive-shaft with pulleys above said reservoir, separate crank shafts with pulleys, separate belts between the pulleys of the drive shaft and the crank shafts and pitmen connecting said crank shafts with the stems of the dashers, substantially as herein described.

2. A machine for shaking and cooling liquids consisting of the reservoir with its liquid containing and cooling compartments having controllable discharges, the reciprocating dashers in said liquid containing compartments and the screens in said compartments near the cooling compartment walls, substantially as herein described

494,475. BEAM-COMPASS. MARION E. GLADFELTER, Cleveland, Ohio. Filed Nov. 7, 1892. Serial No. 451,165. (No model.)



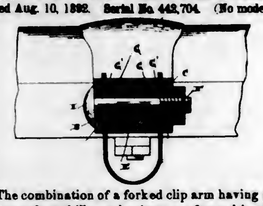
Claim.—1. The beam and main head thereon, and a separate head on said main head constructed to support the marking point and bodily adjustable on the main head by means of a screw, substantially as described.

2. In a beam compass, a socket or head having a guide way longitudinally in its bottom, in combination with a marking point supporting head constructed to engage in said guide-way and a screw to support and adjust said point supporting head, substantially as described.

3. In a beam compass, the main head, the point carrying head and the screw supporting the same, the said point carrying head split on one side and a screw to tighten said head on its support, substantially as described.

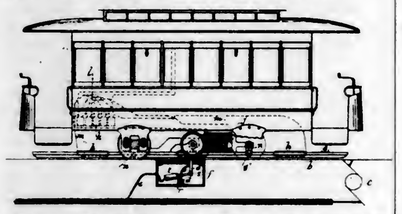
4. The main head having ears at its bottom and a channel in its bottom, in combination with a point carrying head constructed to engage in said channel, and an adjusting screw passing through said point carrying head and the ears in the main head, substantially as described.

494,476. THILL-COUPLING. RALPH HARTSON, Richmond Centre, Ohio. Filed Aug. 10, 1892. Serial No. 442,704. (No model.)



Claim.—The combination of a forked clip arm having perforated and slotted outer ends, a thill arm having a perforated head, the ends of the said head being reamed out, bearing points adapted to fit in said reamed out openings, a yoke to the ends of which the said points are secured, the said yoke ends resting when in position in the slots of the forked arm, and a clamping bolt, substantially as shown and described.

494,477. ELECTRIC RAILWAY. JOHN C. HENRY, New York, N. Y. Filed Aug. 19, 1890. Serial No. 362,458. (No model.)



Claim.—1. The contact box comprising the combination of stationary exposed contact pieces or pin *o* of magnetic material, armature *s* arranged in proximity to said pin and having mercury contact box *t*, and branch wires *c*, *u* the whole being arranged and adapted to operate, substantially as set forth.

2. The combination of contact pin *o* of magnetic material having the exposed terminal or head at the surface of the street, the insulated tilting armature *s* having mercury box *t*, the branch conductor *u* permanently connecting pin *o* and armature *s*, and branch conductor *c* having exposed terminal within said mercury box and permanently connected with a source of electricity, substantially as set forth.

3. The combination of stationary contact pins in the roadway and two contact shoes carried by the car and adapted to grasp the contact pins between them as they move along, substantially as set forth.

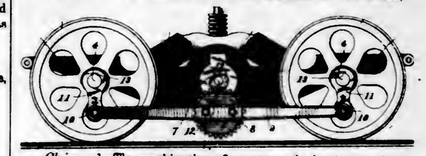
4. The combination of the two contact shoes *g*, the interposed electro magnets *h*, means for suspending the same from a vehicle, and an electric circuit comprising the said electro-magnets and a source of electricity.

5. The combination of the car axles, the slotted hangers pendent therefrom, the contact shoes and supporting pins therefor resting in the slots of said hangers and suitably insulated therefrom substantially as set forth.

6. In an electric railway system, the combination of a stationary source of electricity, line conductors extending therefrom along the railway, a traveling vehicle having an electric motor, a branch circuit from said lines to the armature of said motor and batteries carried by said vehicle and connected to the field-magnets of said motor independently of the said branch circuit whereby the said field magnets are separately excited, substantially as set forth.

7. In an electric railway system, the combination of a stationary source of electricity, line conductors therefrom extending along the railway, a traveling vehicle, a motor carried thereby having its armature in a branch circuit making traveling connection with said line conductors, and a local circuit on the car including the motor field magnets, batteries whereby the latter are separately excited and suitable means of regulation, substantially as set forth.

494,478. DRIVING-GEAR FOR MOTORS. JOHN C. HENRY, New York, N. Y. Filed Dec. 12, 1891. Serial No. 414,870. (No model.)



Claim.—1. The combination of a motor, axles having cranks connected by a stiff rod, a gear wheel rigidly fixed to said rod, and a pinion on the motor shaft meshing with said gear, substantially as set forth.

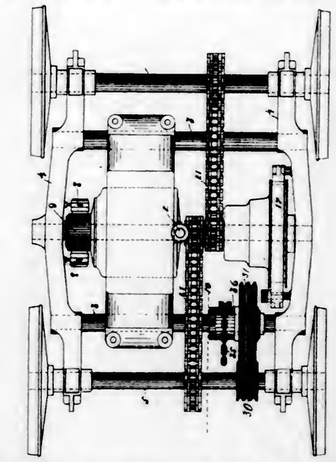
2. In a motor truck the combination of a driving pinion located centrally between the driven axles and a gear engaging therewith and secured to a rigid connecting rod driving a pair of wheels at its extremities.

3. The combination of a rigid connecting rod and a gear fixed to its center with cranks at the ends of said rod adapted to be driven thereby.

4. In combination with a motor mounted centrally on a truck its driving gear consisting of a pinion secured to the armature shaft and a rigid connecting rod on which is centrally secured a gear.

5. The combination of a motor, a pinion connected to the shaft thereof, an internal gear meshing with said pinion, and a connecting rod to which said gear is fixed adapted to operate substantially as described.

494,479. ELECTRIC-CAR TRUCK. JOHN C. HENRY, New York, N. Y. Filed Jan. 2, 1892. Serial No. 415,838. (No model.)



Claim.—1. The combination of the axles 5, longitudinal bars 4 carried thereby, the electric motor mounted on said longitudinal bars having its armature shaft bearing therein at both ends, the speed-reducing gear surrounding said armature shaft and having sprocket wheels and sprocket chains and wheels connecting the said gear to the car axles.

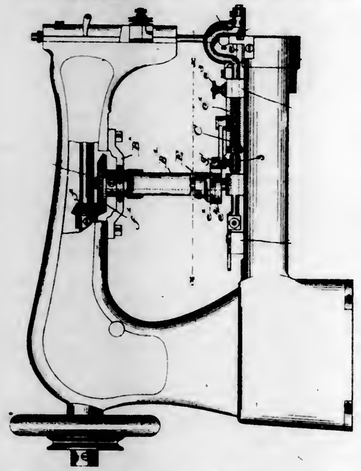
2. The combination in an electric car of the motor, the differential speed-reducing gear comprising pinion 10, intermediate pinions 11, internal gear 14, means of arresting said internal gear, disk 13 whereon said intermediate pinions are mounted, and sprocket wheels 20 connected to said disk 13; and chain and sprocket connection from said sprocket wheels to the car axles.

3. The combination of the car truck, the electric motor thereon and the differential speed reducing gear, the car truck having a projection 16 whereon one member of said gear rotates.

4. The combination in an electric car of the longitudinal truck

bar 4, having tubular projection 16, the electric motor having shaft 7 and pinion 10, the intermediate pinions and their supporting and power transmitting mechanism, and the internal gear 14 having braking devices and mounted so as to revolve on said projection 16.

494,480. SEWING-MACHINE. GEORGE S. HILL, Bradford, assignor to John Reece, Boston, Mass. Filed Nov. 28, 1892. Serial No. 453,371. (No model.)



Claim.—1. A grooved throat or work support; a bender-bar provided with a bender; a feed carrier provided with a feeding device; a frame to support said bender-bar and feed carrier; and connections between the said feed carrier and bender-bar, combined with actuating means for the feed carrier, the combination being and operating, substantially as described.

2. A grooved throat or work support; a slotted feed carrier; a feed device attached thereto; an adjustable fulcrum for the feed carrier; a bender bar; an attached bender: a connecting device between the bender-bar and the feed carrier, whereby the feed carrier in its reciprocations moves the bender-bar substantially in unison with it, combined with means for both reciprocating and vibrating the feed carrier, to operate, substantially as described.

3. In a sewing machine, the following instrumentalities, viz:—stitch-forming mechanism, a tubular arm, a work support mounted upon the end of said arm and presenting a vertical face containing a groove, said support being provided with a needle hole, combined with a bender-bar, a bender, a feeding device, and means for actuating the feeding device and bender-bar, to operate, substantially as described.

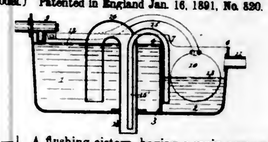
4. A work support having its acting face grooved and being provided with a needle hole, a bender-bar bent to embrace the work-support, and a bender attached to said bender bar, combined with actuating devices to reciprocate the said bender-bar, and with work feeding mechanism, to operate, substantially as described.

5. A grooved throat or work support; a bender-bar provided with a bender; a feed carrier provided with a feeding device; a frame to support said bender-bar and feed carrier; and connections between the said feed carrier and bender-bar, combined with actuating means for the feed carrier, and with a presser-bar and an attached slotted presser, the combination being and operating, substantially as described.

6. A grooved throat or work support; a bender-bar provided with a bender; a feed carrier provided with a feeding device; a frame to support said bender-bar and feed carrier; and connections between the said feed carrier and bender-bar, combined with actuating means for the feed carrier, a presser-bar bent as described to embrace the work-support, and a slotted presser-foot attached to said presser-bar, the combination being and operating, substantially as described.

7. A tubular arm; a work-support mounted upon the end of said arm and provided with a groove, as *b*, and with a needle hole; stitch-forming mechanism; a bender-bar bent to embrace the work-support; a bender attached to the said bender-bar; a presser-bar provided with a presser-foot, a frame having bearings for said bender-bar and presser-bar and for an upright shaft; combined with an upright shaft, as E, an eccentric carried by said shaft, means to rotate the shaft, a feed carrier provided with a feed device and actuated by said eccentric, and a jointed connection between said feed carrier and said bender-bar, to operate, substantially as described.

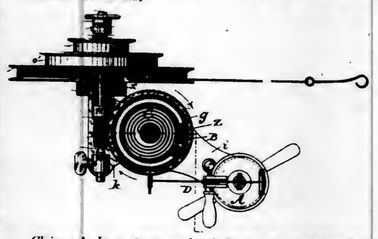
494,481. FLUSHING-CISTERN FOR WATER-CLOSETS, &c. JAMES HOLT, Liverpool, England. Filed Jan. 16, 1893. Serial No. 458,512. (No model.) Patented in England Jan. 16, 1891, No. 830.



Claim.—1. A flushing cistern having a main compartment containing the main body of the flush water and the main discharge siphon, and having also a secondary compartment in combination with a ball float placed in said secondary compartment, the main compartment receiving the water supply and having an overflow at the normal water level delivering to the secondary compartment, whereby the said water level in the main compartment is positively determined, and the secondary compartment being provided with means for discharging it and having its overflow pipe and walls at a lower level than the overflow of the main compartment so that any waste water necessarily leaves the cistern by the overflow pipe or walls of the said secondary compartment, substantially as and for the purpose set forth.

2. A flushing cistern having a main compartment containing the main body of the flush water and the main discharge siphon, and a secondary compartment in combination with a ball float placed in said secondary compartment, the two compartments being separated by a division wall the top edge of which is lower than the remaining walls of the main compartment and over which the water supply, which enters the main compartment, overflows, when the normal water level is reached, into the secondary compartment; the secondary compartment having a siphon or other means for discharging it along with the main compartment, and having its walls and overflow pipe lower than the top edge of the division wall so that any waste water necessarily leaves the cistern by the overflow pipe or walls of the said secondary compartment, substantially as and for the purpose described and illustrated.

494,482. ATTACHMENT FOR STEAM-ENGINE INDICATORS. WILLIAM HOUGHTALING, Bridgeport, Conn., assignor to the Ashcroft Manufacturing Company, same place. Filed Dec. 10, 1891. Serial No. 414,548. (No model.)



Claim.—1. In a steam engine indicator, the combination with the diagram barrel of a cord pulley composed of a series of pulleys of different diameter secured together to adapt the indicator to engines having a different length of stroke, a connected worm spindle geared with the diagram barrel to rotate the same in one direction, and a retracting spring to return the barrel to its normal position, as set forth.

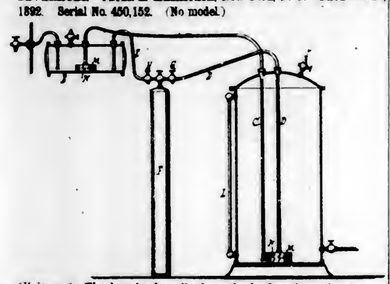
2. The combination in a steam engine indicator of the diagram barrel, a pulley for communicating motion to said barrel, a cord for operating the same connected with the reciprocating part of the engine and an engaging clutch adapted to automatic disengagement, substantially as described.

3. The combination with the diagram barrel and its retracting spring, of the pulley *o*, auxiliary spring *s*, and connected cord, substantially as and for the purpose set forth.

4. The combination with the cord pulley, of the sliding collar G, engaging bolt P, and the clutch *t*, constructed with a cam surface as shown, whereby the bolt is automatically disengaged, substantially in the manner and for the purpose specified.

5. The combination of the cord pulley *o*, provided with the clutch *t*, the collar F, sliding collar G, engaging bolt P, and ring *u*, substantially as described.

494,483. APPARATUS FOR CARBONATING AND DISPENSING BEVERAGES. PETER R. MALMSTRÖM, New York, N. Y. Filed Oct. 27, 1892. Serial No. 450,152. (No model.)

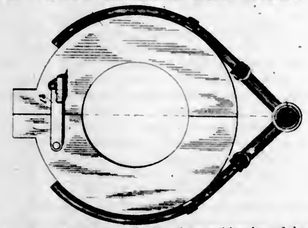


Claim.—1. The herein described method of carbonating beverages or liquids which consists in charging a vessel with carbonic acid under pressure and causing the liquid to flow distributively thereinto from another vessel under increased pressure of carbonic acid through a tube or connection provided with a distributer and made to extend from the upper part of each vessel to near the bottom thereof, said distributer being located within said secondary vessel at the bottom thereof substantially as described.

2. The combination with a primary impregnating vessel and a secondary impregnating vessel of a tube or connection made to extend from the upper part of each vessel toward the bottom thereof a distributer located within and at the bottom of said secondary vessel connected to said tube and charging tubes D E connected to said vessels, substantially as described.

3. The combination with a primary impregnating vessel and a secondary impregnating vessel of a tube or connection made to extend from the upper part of each vessel toward the bottom thereof, a distributer at the bottom of said secondary vessel connected to said tube and charging tubes D E connected to said vessels, said primary impregnating vessel being provided with a force pump or equivalent mechanism for the introduction of liquid, substantially as described.

494,484. IRON-PIPE-HEATING DEVICE. JOHN H. MCRAE, Chicago, Ill. Filed Oct. 8, 1892. Serial No. 448,242. (No model.)



Claim.—In a pipe heating device, the combination of the halves of an iron fire-box formed with perforations in its sides, and provided with a recess in each end, said halves hinged upon the pipe 12, and held together by a latch 13; the pipes 8 secured upon the fire-box, furnished with the nipples 10, opening into the perforations; the pipe 12 formed with one end closed, and the pipes 11 connecting the pipe 12 with the pipes 8, as and for the purpose specified.

494,485. ATTACHMENT FOR GUITARS, MANDOLINS, ZITHERS, OR OTHER STRINGED INSTRUMENTS. ISAIAH NIGHTINGALE, Evansville, Ind. Filed Oct. 7, 1892. Serial No. 448,138. (No model.)



Claim.—In a guitar, mandolin, or other stringed, musical instrument, a supplemental sound-board, with a tube thereon, substantially as and for the purpose set forth.

494,486. FANNING-COVER FOR BEDS, &c. ROB R. PARRISH, Portland, Oreg. Filed Feb. 17, 1892. Serial No. 421,832. (No model.)

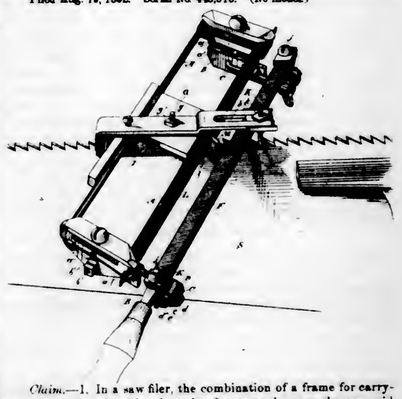


Claim.—1. The combination with a bed, couch, or other place of repose, furnished with a cover suitably secured against displacement, and having dependent folds or flaps adapted to confine and direct contained air toward the head of the said place of repose, of mechanism for imparting an up and down motion to said cover.

2. The combination with a bed, couch, or other place of repose, furnished with a cover, suitably secured against displacement, and having dependent folds, or flaps, adapted to confine and direct contained air toward the head of the bed, couch, or other place of repose, and mechanism for giving an up and down motion to said cover, of pliable suspenders connecting said cover to said mechanism.

3. The combination with a bed, couch, or other place of repose, having a cover suitably secured against displacement, and counterpoised mechanism for giving an up and down motion to said cover, of pliable suspenders connecting said cover to said mechanism.

494,487. SAW-FILER. ANDREW G. PHILLIPS, San Francisco, Cal. Filed Aug. 19, 1892. Serial No. 443,510. (No model.)



Claim.—1. In a saw filer, the combination of a frame for carrying a file, a slotted guide adapted to fit over and rest on the saw, said guide passing under the frame, an arm connected with said guide and passing over the frame whereby a space is formed between said guide and arm in which the frame may move vertically and longitudinally, and a gage standard connected with the top arm and adapted to rest between the saw teeth previously filed, substantially as described.

2. In a saw filer, the combination of a file carrying frame having the parallel side rods, the block seated freely between said rods, the arm H pivotally secured to the top of said block and adapted to be set by a nut, and the slotted guide I secured to the arm and passing under the file carrying frame, substantially as herein described.

3. In a saw guide, the combination of the frame A having the parallel side rods and adapted to carry a file on one side, the block seated freely between said side rods, the arm H adjustably secured to the top of said block and extending over the frame and beyond the plane of the file, the slotted guide secured to the rear end of the arm and passing under the frame, and the vertical gage standard carried by the forward end of the arm beyond the plane of the file, substantially as herein described.

4. In a saw guide, the combination of the frame A having the parallel side rods and adapted to carry a file on one side, the block seated freely between said side rods, the arm H adjustably secured to the top of said block and extending over the frame and beyond the plane of the file, the slotted guide secured to the rear end of the arm and passing under the frame, and the vertical gage standard carried by the forward end of the arm beyond the plane of the file, said standard being vertically adjustable in said arm, substantially as herein described.

5. In a saw guide, the combination of the frame A having the parallel side rods and adapted to carry a file on one side, the block seated freely between said side rods, the arm H adjustably secured to the top of said block and extending over the frame and beyond the plane of the file, the slotted guide secured to the rear end of the arm and passing under the frame, and the vertical gage standard carried by the forward end of the arm beyond the plane of the file, said standard being vertically adjustable in said arm, and adapted to be moved forward and back therein, substantially as herein described.

6. In a saw filer, the combination of the slotted guide with its gage standard, the reciprocating frame connected with the guide by a sliding connection, the vertically adjustable bars B at the ends of the frame having horizontal shafts, the sleeves pivotally mounted on said shafts and file holder sockets carried by the sleeves, substantially as herein described.

7. In a saw filer, the combination of the slotted guide with its gage standard, the reciprocating frame connected with the guide by a sliding connection, the vertically adjustable bars B at the ends of the frame having horizontal shafts, the sleeves pivotally mounted on said shafts, said sleeves having horizontal pins, and the file holder sockets pivotally mounted on said pins, substantially as herein described.

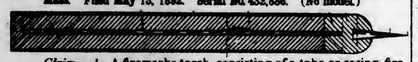
8. In a saw filer, the combination of a frame adapted to carry a file at one side, and the slide bar L carried by the frame and having a lug adapted to come in contact with the saw top when the file has cut the required depth, substantially as herein described.

9. In a saw filer, the combination of a frame adapted to carry a file at one side, the slide bar L carried by the frame and having its forward end projecting from the end of the frame, the spring acting on the other end of the bar to keep its forward end projected, and the lug on the bar adapted to come in contact with the saw top when the file has cut the required depth, substantially as herein described.

10. In a saw filer, the combination of the frame adapted to carry a file at one side, the slotted guide and connected gage standard, said guide being connected with the frame by an adjustable sliding connection, the indicating slide bar carried by the side of the frame and the lug on the bar adapted to come in contact with the saw top when the file has cut to the required depth, substantially as herein described.

11. In a saw filer, the combination of a reciprocating file carrying frame, the stationary slotted guide over which the frame moves and the horizontal bar N on the guide lying beside the frame whereby its horizontal position is indicated, substantially as herein described.

494,488. FIREWORKS-TORCH. THOMAS M. PIERCE, Concord, Mass. Filed May 13, 1892. Serial No. 432,886. (No model.)



Claim.—1. A fireworks torch, consisting of a tube or casing, fireworks composition therein, and a central longitudinal wire or rod, or stem extending within the casing, and secured thereto.

2. A fireworks torch, consisting of a tube or casing, fireworks composition therein, a plug or stopper at the lower end and a central longitudinal wire, or rod, or stem secured to the plug.

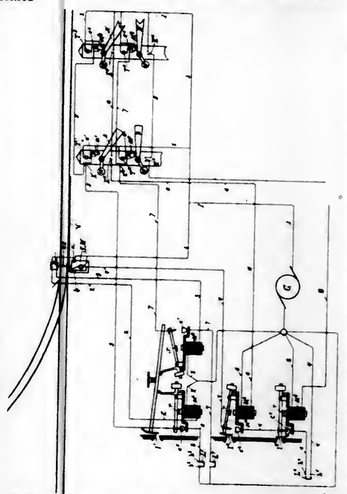
3. A fireworks torch consisting of a tube or casing, fireworks composition therein, a plug or stopper at the lower end having a pin or point at its outer end and a central longitudinal wire, or rod, or stem secured to said plug and extending within the casing.

494,489. ELECTRIC SIGNAL, SWITCH MOVING, AND INTERLOCKING MECHANISM. JOSEPH RAMSEY, Jr., and EDWARD W. HARDEN, Cincinnati, Ohio, assignors to Frederic C. Weir, same place. Filed Aug. 13, 1892. Serial No. 443,096. (No model.)

Claim.—1. In an electric interlocking system, the combination of the railway switch with the switch motor and its circuit, a signal motor and its circuit, a signal indicator circuit 6 and the magnet M^2 at the tower in said circuit 6, with an armature for making and breaking the switch motor circuit, whereby the switch circuit is broken when the signals are at safety, substantially as described.

2. In an electric interlocking system, the combination of the railway switch with the switch motor and its circuit, a signal motor and its circuit, signal indicator circuit 6 with magnet M^2 at the tower in said circuit 6, operating an indicator I^2, with an armature for making and breaking the switch motor circuit, whereby the switch motor circuit is broken when the signals are at safety, substantially as specified.

3. In combination with the switch motor circuit 4, the signal motor circuits 5 and 7, the signal motors T' T^2, the signal indicator circuits 6 and 8, the magnets M^2, M^3, and their armatures r controlling circuit breakers for said circuit 4, whereby said circuit 4 can only be completed when the circuits 6 and 8 are closed by the operation of the signal devices in circuits 5 and 7, substantially as specified



4. In combination with a railway switch, a switch motor circuit 4, a signal motor circuit 5, a switch indicator circuit 2, of the magnet M^2 with its armature r controlling terminals for the switch circuit 5, operated by the circuit 2, the magnet M^2 being located in the tower, and the circuit making and breaking terminals c being located in box D near the switch and operated automatically by said switch, substantially as herein specified.

5. In combination with a railway switch, a switch motor circuit 4, a signal motor circuit 5, a switch indicator 3, the magnet M^3, with its armature r controlling terminals for the switch circuit 5, operated by the circuit 3, the magnet M^2, being located in the tower and the circuit making and breaking terminals d being located in box D near the switch, and operated automatically by said switch, substantially as specified.

6. The combination of a switch, a track box, the electric circuits 2 and 3, the magnets M^3 and M^2 in said circuits, their armatures, the signals, and their circuits 5 and 7 with circuit controllers c^4 and c^5 contained in said circuits 5 and 7, and operated by the armatures of the magnets M^3 and M^2, substantially as specified.

7. In combination with a railway switch, a switch motor and circuit closing mechanism, the circuit terminals a operated by the arm 22 of the switch motor mechanism, the switch indicator circuits 2 and 3, provided with terminals c, d, located in box D and operated by the switch connecting rod 25, the magnets M^2 and M^3 located at the tower, connected up respectively in circuits 2 and 3, and the signal motor circuits 5 and 7 alternating closed or opened by the operation of the armature of magnets M^3 and M^2, whereby the signal circuits 5 and 7 are under the control of the switch motor mechanism, and their condition indicated at the tower, substantially as specified.

8. In an electric interlocking system having one or more signal circuits, and signal indicator circuits, the switch motor M S, located at the switch, the switch indicator circuits 2 and 3, with the circuit making and breaking devices c, d, in box D, operated by the switch rod 25, the magnets M^2 M^3 connected up respectively with different indicator circuits, with their respective armatures operated to make and break alternately the signal circuit 5 and 7, by the operation of the switch motor mechanism, substantially as specified.

9. In a switch motor mechanism, the combination of the switch, the switch motor box, the circuits 2 and 3, and the switch motor S M, having a locking lever 22 for making and breaking the circuits at

a', whereby said circuits are respectively opened and closed in the switch motor box when the switch is shifted to either extreme position by the operation of the switch motor, substantially as described.

10. In combination with the signal motor mechanism located in box H, the terminals k', the lever 5 provided with the conducting strip A, mounted on the rock shaft 16, adapted to open and close a secondary or distant signal motor circuit by the operation of the signal motor within said box, substantially as specified.

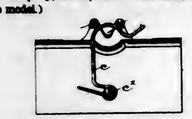
11. The combination of the signal motor, the block O having terminals e e thereon, the magnet M^3, and the armature lever N journaled on the stud shaft N' and having the switch or contact point e' whereby the signal motor circuit is opened and closed automatically at e e' by the operation of the signal motor mechanism, substantially as described.

12. In combination with the signal motor and the magnet M^3, in parallel connection therewith, the circuit terminals e e' the lever armature N, and the locking mechanism 28 and 29, whereby the said magnet holds the signal in a given position when the motor is cut out, substantially as specified.

13. In combination with the signal motor, and the magnet in parallel circuit therewith, the lever K operated to open and close the terminals k k', the armature lever N operated to open and close the circuit terminals e e', the lever 15 carrying the circuit closer e^3, said levers N, 15, and K, being operated automatically by the rock shaft 16, to cut in and out the motor and lock the shaft 16, and to cut in and out the signal indicator, and to open and close a distant signal circuit, substantially as specified.

14. In combination with the switch motor, the detector bar V connecting rod 51 with crank 52, shaft 53, operating the circuit closer b to make and break the switch motor circuit 4, substantially as specified.

494,490. YARN-GUIDE FOR DOUBLING AND TWISTING MACHINES. ALONZO E. RHOADES, Hopedale, Mass., assignor to the Hopedale Machine Company, same place. Filed Aug. 4, 1892. Serial No. 442,115. (No model.)



Claim.—The within described yarn guide composed of the vitreous throat having the deep thread-receiving space, combined with the throat closer rigidly secured before the throat and having a bend in line with the throat and a free end projecting laterally beyond the throat, substantially as described.

494,491. MACHINE FOR WINDING FABRICS. EUGENE H. SCHOFIELD, Chicago, Ill., assignor of one-half to Oren Dunham, Ludington, Mich. Filed Oct. 27, 1890. Serial No. 369,419. (No model.)

Brief.—The invention includes a winding device for fabrics, mechanism whereby as the winding-reel increases in size its speed is reduced in order that its surface speed may always be the same, the speed-changing devices being regulated by the thickness of the cloth on the reel, and devices whereby the cloth is automatically guided in a true line to the reel.

Claim.—1. In a reeling apparatus, the combination with the reel; of guide rollers adapted to be actuated by the shifting of the cloth and a connection between said rollers and the opposite ends of the reel for changing the alignment of the latter, substantially as set forth.

2. In a reeling apparatus, the combination with the reel; of hook arms engaging said reel and guide rollers adapted to be actuated by the edges of the cloth, said rollers being connected with said arms for imparting motion thereto, substantially as set forth.

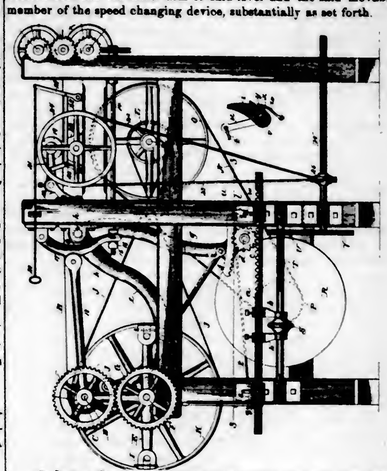
3. In a reeling apparatus the combination with the reel; of guide rollers adapted to be actuated by the edges of the cloth, screw rods operated by said rollers and being connected with the ends of said reel for changing the alignment thereof, substantially as set forth.

4. In a reeling apparatus, the combination of guides having beveled edges between which the cloth engages in shifting, and a reel connected with said guides whereby its alignment will be changed by the motion of the guides, substantially as set forth.

5. In a reeling apparatus, the combination with the shaft, F; of the reel supporting spiders through which said shaft passes, having journal bearings in the arms thereof, for the reception of a reel shaft adapted to be driven by the shaft, F, guiding rollers actuated by the shifting of the fabric and connected with the reel shaft for changing the alignment thereof, substantially as set forth.

6. In a reeling apparatus, the combination with the reel; of guide rollers adapted to be actuated by the shifting of the cloth, the levers, 17, connected to said reel, and worm and wheel connection between said levers and rollers, substantially as set forth.

7. In a reeling apparatus, the combination with the reel and a speed changing device having a movable member; of a bell crank lever, one arm of which engages the reel and a rack and pinion connection between the other arm of said lever and the said movable member of the speed changing device, substantially as set forth.



8. In a reeling apparatus, the combination with the reel, a friction disk suitably geared or belted thereto for driving the same, the power shaft and a movably supported friction wheel driven thereby, and working upon the face of the disk, of a bell-crank lever, one arm of which engages the reel, and a rack and pinion connection between the other arm of said lever and the support of the friction wheel, substantially as described.

9. In a reeling apparatus, the combination with the reel, a friction disk suitably geared or belted thereto for driving the same, a driven counter-shaft and a friction wheel splined upon said shaft and working upon the face of said disk, of a movable rack-bar, an arm projecting therefrom on each side of the said friction wheel for shifting the same upon the counter shaft, a rotatable shaft carrying a pinion engaging and operating said rack-bar, a bell-crank lever, one arm of which engages the reel, and a rack and pinion connection between the other arm of said lever and the rotatable shaft, substantially as described.

10. In a reeling apparatus, the combination with the reel, a friction disk suitably geared or belted thereto for driving the same, a clutch for throwing the reel into and out of gear, the power-shaft and a friction wheel driven thereby and working upon the face of said disk, of a bell crank-lever, one arm of which engages and is actuated by the reel, a rack and pinion connection between the other arm of said lever, and the support for the friction wheel, a lock device for said lever, and a hand lever connected therewith for simultaneously operating said lock device, and the reel clutch, substantially as described.

11. In a reeling apparatus, the combination with the reel, the adjustable reel frame, the friction disk suitably geared or belted to the reel, a clutch for throwing the reel into and out of gear, the power-shaft and a friction wheel driven thereby, movably supported and working upon the face of said disk, of a bell crank-lever, one arm of which engages the reel, a rack and pinion connection between the other arm of said lever, and the support for the friction wheel, a spring actuated lock device for said lever, and a hand lever connected therewith, for simultaneously operating said lock device and the reel clutch, substantially as described.

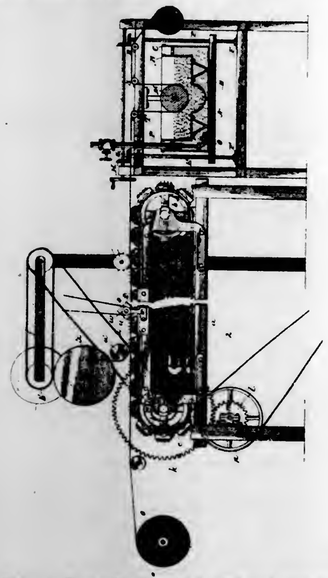
12. In a reeling apparatus, the combination with the reel, of an automatic cloth guide operated by the cloth being reeled, and connected with, so as to change the alignment of the reel, substantially as described.

13. In a reeling apparatus, the combination with the reel, of an automatic cloth guide comprising two pairs of guide rollers adapted to be actuated by the shifting of the cloth, and a connection between each pair of said rollers and the reel, whereby the reel is alternately shifted out of alignment in opposite directions, substantially as described.

14. In a reeling apparatus, the combination with the reel, of an automatic cloth guide comprising a pair of transverse shafts, a loose and a fixed guide roller on each of said shafts, the loose roller of one shaft opposing the fixed roller of the other, all of said rollers being provided with beveled or inclined faces, a gear on one end of each of said shafts, an intermediate gear connecting the same, a pair of screw shafts each having a worm connection with one of said transverse shafts at one end, and at their opposite ends provided with right and left hand screw threads respectively, screw-threaded sleeves working thereon, levers pivotally connected to said sleeves, and a rod connecting each of said levers with the shaft of the reel, substantially as described.

494,492. CLOTH DRYING, TENTERING, AND TRIMMING MACHINE. EUGENE H. SCHOFIELD, Chicago, Ill., assignor of one-half to Oren Dunham, Ludington, Mich. Filed Oct. 27, 1890. Serial No. 369,420. (No model.)

Brief.—The cloth is dried while stretched on a tenter-chain. Over the teeth of said chain, below the points, are arranged guards, a space thus being formed under the cloth for the escape of the hot air. After being dried the selvages are cut from the cloth by rotary cutters, the cloth being wound upon a roll as usual, while the selvage strips are wound upon spools.



Claim.—1. The combination with the cloth carriers consisting of traveling belts, and a heated compartment located beneath the carriers and adapted to be spanned by the cloth; of means for holding the cloth aloof from said belts so as to form exits for the heated air between the edges of the cloth and the belts, substantially as set forth.

2. The combination of cloth carriers consisting of traveling belts, provided with longitudinal series of teeth and guards arranged between the belt and the points of the teeth, substantially as described.

3. The combination of cloth carriers consisting of belts, provided with longitudinal series of teeth, and guards arranged between said belts and the points of the teeth, and pinioning wheels arranged to register with each series of teeth, substantially as described.

4. The combination with the cloth carriers, consisting of belts provided with longitudinal series of teeth and guards arranged between said belts and the points of said teeth, of a pinioning wheel registering with each series of teeth and comprising a wheel with a peripheral groove into which the teeth project, and transverse bars circumferentially arranged, spanning said groove, substantially as described.

5. The combination of the cloth carriers consisting of link chains, to the links of which are secured blocks, a series of teeth longitudinally arranged in each block, and a guard consisting of a flattened arch of wire secured at its ends respectively to said block and intersecting each tooth of the block between the point thereof and the surface of the block, substantially as and for the purpose described.

6. The combination with the cloth carriers comprising link chains provided with longitudinal series of teeth and guards intersecting the teeth between their points and the chains, of a heated compartment located between the carriers and underlying the cloth stretched between the carriers, said compartment being open at the top and bottom thereof, substantially as and for the purpose described.

7. The combination with the cloth carriers, provided with longitudinal series of teeth, and guards intersecting said teeth between their points and the surface of the carrier, of trimmers provided with rotary cutters entering the cloth adjacent to said guards, substantially as described.

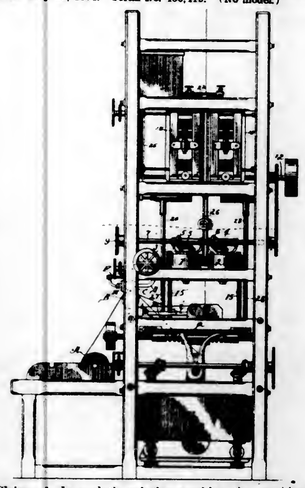
8. The combination with the cloth carriers and the trimmers, of a storage reel for the finished cloth, a pair of storage spools for the trimmings, and a pair of vertically movable friction wheels bearing upon and operating said spools, substantially as described.

9. The combination with the cloth carriers, provided with longitudinal series of teeth, and guards intersecting said teeth between their points and the surface of the carrier, and trimmers provided with rotary cutters entering the cloth adjacent to said guards, of a storage reel for the finished cloth, a pair of storage spools for the trimmings, and a pair of vertically movable friction wheels bearing upon and rotating said spools, substantially as described.

10. The combination with the cloth carriers and the trimmers; of a storage spool for the trimmings and a movable friction wheel for operating said spool, substantially as set forth.

11. The combination of the cloth carriers having rows of teeth, the trimmers located between said rows of teeth, a storage spool for the trimmings, and a movable friction wheel for operating said spool, substantially as set forth.

494,493. CLOTH-PAINTING MACHINE. EUGENE H. SCHOFIELD, Chicago, Ill., assignor of one-half to Oren Dunham, Ludington, Mich. Filed July 23, 1891. Serial No. 400,419. (No model.)



Claim.—1. In a cloth painting machine, the combination with the paint applying devices, of endless traveling belts between which the painted cloth is passed and brushes secured to each belt at a distance from one another, substantially as set forth:

2. In a cloth painting machine, the combination with the paint applying devices, of endless traveling belts between which the painted cloth is passed, and brushes secured at intervals to such belts, the brushes on one belt being opposite the spaces between the brushes on the other belt, substantially as set forth:

3. In a cloth painting machine the combination with the paint applying devices of a pair of endless brushes between which the painted cloth is passed, and means for causing said brushes to move transversely across the cloth, substantially as described.

4. In a cloth painting machine the combination with the paint applying devices of a pair of endless brushes between which the

painted cloth is passed, and means for moving said brushes transversely across the cloth in opposite directions to each other, substantially as described.

5. In a cloth painting machine the combination with the paint applying devices of two pairs of endless brushes between which the cloth is passed, one pair of said brushes being actuated to move transversely across the cloth and the other longitudinally of the cloth, substantially as described.

6. In a cloth painting machine the combination with the paint applying devices of two pair of endless brushes between which the painted cloth is passed, one pair of said brushes being actuated to travel transversely across the cloth in opposite directions to each other, and the other pair being actuated to travel longitudinally of the cloth in the same direction, substantially as described.

7. In a cloth painting machine, the combination with the paint applying devices and a pair of squeeze rolls between which the painted cloth is passed, of a pair of traveling endless brushes working on opposite sides of the cloth, each of said endless brushes being composed of a series of brushes with spaces between them, substantially as set forth.

8. In a cloth painting machine, the combination with the paint applying devices and a pair of squeeze rolls between which the painted cloth is passed, of a pair of traveling endless brushes adapted to work on opposite sides of the cloth, each of said brushes being composed of a series of brushes arranged at intervals and the brushes in one series being arranged opposite the spaces between the brushes in the other series, substantially as set forth:

9. In a cloth painting machine the combination with the paint applying devices and a pair of squeeze rollers, of a pair of endless brushes working on opposite sides of the cloth and traveling transversely of the cloth in opposite directions to each other, substantially as described.

10. In a cloth painting machine the combination with the paint applying devices and a pair of squeeze rollers, of two pairs of endless brushes working on opposite sides of the cloth, one pair of said brushes traveling transversely of the cloth and the other pair traveling longitudinally of the cloth, substantially as described.

11. In a cloth painting machine the combination with the paint applying devices and a pair of squeeze rollers, of two pairs of endless brushes working on opposite sides of the cloth, said brushes of one pair traveling transversely of the cloth in opposite directions to each other and the brushes of the other pair traveling longitudinally of the cloth in the same direction, substantially as described.

12. In a cloth painting machine, the combination with paint applying devices and endless traveling brushes, of casings inclosing said brushes and being open at their adjacent sides, and scrapers arranged in said casings in the paths of said brushes substantially as set forth.

13. In a cloth painting machine the combination with paint applying devices endless traveling brushes, arranged to operate on opposite sides of the cloth casings inclosing the said brushes and chambers in said casings, of adjustable scrapers located in said chambers and adapted and arranged to be brought into the path of the brushes, a benzine containing tank and valved pipe connection between said tank and chambers, and discharge pipes for said chambers, substantially as described.

14. In a cloth painting machine the combination with paint applying devices endless traveling brushes, arranged to operate on opposite sides of the cloth casings inclosing the said brushes, and chambers in said casings, of adjustable scrapers located in said chambers and adapted and arranged to be brought into the path of the brushes, and discharge pipes for said chambers, substantially as described.

15. In a cloth painting machine the combination with a reel, a paint vat and suitable guide and immersing rollers of a tension device engaging the cloth between the reel and the immersing rollers comprising a pair of U shaped brackets pivoted to the frame of the machine, a roller loosely journaled in said brackets to one side of their pivots, a bar extending across each of said brackets and a weight adjustably secured on each of said bars, substantially as described.

16. In a cloth painting machine the combination with a reel, a paint vat and suitable guide and immersing rollers of a pair of squeeze rollers, connected by a belt with, and driven by, the guide roller, substantially as described.

17. In a cloth painting machine the combination with a reel, a paint vat and suitable guide and immersing rollers of a tension device engaging the cloth between the reel and the immersing rollers and a pair of squeeze rollers connected by a belt with, and driven by, the guide roller, substantially as described.

18. In a cloth painting machine the combination with a reel, a paint vat and suitable guide and immersing rollers of a weighted tension roller between which and the guide roller the cloth is passed and a pair of squeeze rollers connected by a belt with and driven, by the guide roller, substantially as described.

19. In a cloth painting machine, the combination with a reel, a paint vat, and suitable guide and immersing rollers, of a pair of squeeze rollers having paddled surfaces, connected with and driven by the said guide roller, substantially as described.

20. In a cloth painting machine the combination with a reel, a paint vat, suitable guide and immersing rollers, and a tension device engaging the cloth between said reel and the immersing rollers, of a pair of endless traveling brushes working on opposite sides of the cloth, and means for removing the surplus paint from the cloth located between said brushes and the immersing rollers, substantially as described.

21. In a cloth painting machine the combination with a reel, a paint vat, and suitable guide and immersing rollers, of a pair of endless traveling brushes working on opposite sides of the cloth, means for causing said brushes to travel transversely of the cloth, and means for removing the surplus paint from the cloth located between said brushes and the immersing rollers, substantially as described.

22. In a cloth painting machine the combination with a reel, a paint vat, suitable guide and immersing rollers, of a pair of endless traveling brushes working on opposite sides of the cloth, means of causing the said brushes to travel transversely of the cloth in opposite directions to each other, and means for removing the surplus paint from the cloth located between the said brushes and the immersing rollers, substantially as described.

23. In a cloth painting machine the combination with a reel, a paint vat, suitable guide and immersing rollers, and a tension device engaging the cloth between said reel and the immersing rollers, of two pair of endless traveling brushes working on opposite sides of the cloth, means for causing one pair of said brushes to travel transversely of the cloth and the other pair to travel longitudinally of the cloth, and means for removing the surplus paint from the cloth located between said brushes and the immersing rollers, substantially as described.

24. In a cloth painting machine the combination with a reel, a paint vat, and suitable guide and immersing rollers, of a pair of endless traveling brushes working on opposite sides of the cloth, and a pair of squeeze rollers connected by a belt with, and driven by, the guide roller, substantially as described.

25. In a cloth painting machine the combination with a reel, a paint vat, suitable guide and immersing rollers, and a tension device engaging the cloth between said reel and the immersing rollers, of a pair of endless traveling brushes working on opposite sides of the cloth and a pair of squeeze rollers connected by a belt with, and driven by, said guide roller, substantially as described.

26. In a cloth painting machine the combination with a reel, a paint vat, and suitable guide and immersing rollers, of a pair of endless traveling brushes working on opposite sides of the cloth, means for causing said brushes to travel transversely of the cloth, and a pair of squeeze rollers connected by a belt with and driven by, said guide roller, substantially as described.

27. In a cloth painting machine the combination with a reel, a paint vat, suitable guide and immersing rollers, and a tension device engaging the cloth between said reel and the immersing rollers, of a pair of endless traveling brushes working on opposite sides of the cloth, means for causing said brushes to travel transversely of the cloth, and a pair of squeeze rollers connected by a belt with, and driven by, said guide roller, substantially as described.

28. In a cloth painting machine the combination with a reel, a paint vat, suitable guide and immersing rollers, and a tension device engaging the cloth between said reel and the immersing rollers, of two pair of endless traveling brushes working on opposite sides of the cloth, means for causing one pair of said brushes to travel transversely of the cloth and the other pair to travel longitudinally of the cloth, and a pair of squeeze rollers connected by a belt with, and driven by, the guide roller, substantially as described.

29. In a cloth painting machine the combination with a reel, a paint vat, suitable guide and immersing rollers, and a tension device engaging the cloth between the said reel and the immersing rollers, of two pair of endless traveling brushes working on opposite sides of the cloth, means for causing the brushes of one pair of said brushes to travel transversely of the cloth in opposite directions to each other, and the brushes of the other pair to travel longitudinally of the cloth in the same direction, and a pair of squeeze rollers connected by a belt with, and driven by, the guide roller, substantially as described.

30. In a cloth painting machine the combination with a reel, a paint vat, and suitable guide and immersing rollers, of a tension device engaging the cloth between the reel and the immersing rollers comprising a pair of U shaped brackets pivoted to the frame of the machine, a roller loosely journaled in said brackets to one side of their pivots, a bar extending across each of said brackets a weight adjustably secured on each of said brackets and a windlass for swinging said brackets on their pivots so as to elevate the roller, substantially as described.

31. In a cloth painting machine the combination with a reel, a

paint vat, and suitable guide and immersing rollers, of reciprocating carriages working in said vat, rotary agitators journaled in said carriages and means for actuating said carriages and agitators, substantially as described.

32. In a cloth painting machine the combination with a reel, a paint vat, and suitable guide and immersing rollers, of reciprocating carriages working in said vat, rotary agitators loosely journaled in said carriages, stationary racks in said vat and pinions on the journals of said agitators engaging said racks, substantially as described.

33. In a cloth painting machine the combination with a reel, a paint vat, and suitable guide and immersing rollers, of reciprocating carriages working in said vat, rotary agitators loosely journaled in said carriages, fixed racks in the paint vat, pinions on the journals of the agitators engaging said racks, a horizontally reciprocating endless cable connected with and actuating the carriages and means for operating the same, substantially as described.

34. In a cloth painting machine the combination with a reel, a paint vat, and suitable guide and immersing rollers, of reciprocating carriages working in said vat, rotary agitators loosely journaled in said carriages, fixed racks in the paint vat, pinions on the journals of the agitators engaging said racks, a horizontally reciprocating endless cable connected with and actuating the said carriages, a rotary endless-worm shaft, and a sleeve working thereon attached to said cable and provided with a pivoted dog working in said worm, substantially as described.

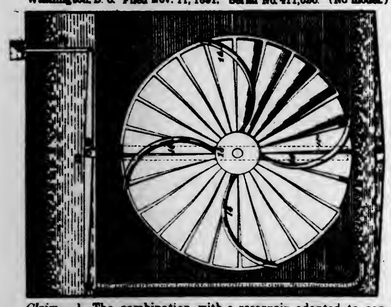
35. In a cloth painting machine the combination with a reel, a vertically adjustable paint vat and suitable guide and immersing rollers, of reciprocating carriages working in said vat, rotary agitators loosely journaled in said carriages, fixed racks in the paint vat, pinions on the journals of the agitators engaging said racks, a horizontally reciprocating endless cable detachably connected with, so as to actuate, the said carriages, and means for operating the said cable, substantially as described.

36. In a cloth painting machine the combination with a reel, and suitable guide and immersing rollers of a paint vat provided with a pocket or depression in the bottom thereof in which the lower immersing roller works, and stirrers dipping into said pocket substantially as described.

37. In a cloth painting machine the combination with a reel, suitable guide and immersing rollers, and a paint vat provided with a pocket or depression in the bottom thereof in which the lower immersing roller works, of reciprocating carriages working in said vat, rotary agitators journaled in said carriages, and arms depending from said carriages and working in said pocket or depression, substantially as described.

38. In a cloth painting machine the combination with a reel, suitable guide and immersing rollers, and a vat provided with a pocket or depression in the bottom thereof in which the lower immersing roller works, of reciprocating carriages working in said vat, rotary agitators loosely journaled in said carriages, fixed racks in the paint vat, pinions on the journals of the agitators engaging said racks, a horizontally reciprocating endless cable connected with and actuating said carriages in alternately opposite directions, and arms depending from said carriages and working in said pocket or depression below the lower immersing roller, substantially as described.

494,494. APPARATUS FOR MOISTENING AND COOLING THE ATMOSPHERE OF ROOMS. GEORGE SHILLING and CHARLES G. SMITH, Washington, D. C. Filed Nov. 11, 1891. Serial No. 411,620. (No model.)

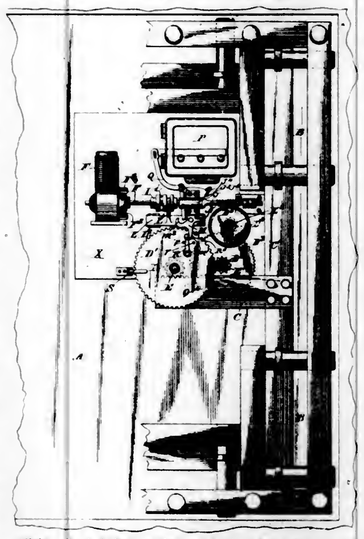


Claim.—1. The combination with a reservoir adapted to contain a liquid, of a revoluble wheel and curved tubes thereon, open at both ends, and extending from near the axial center of said wheel toward the periphery thereof, so that their outer ends will dip into and elevate the water as the wheel is rotated, substantially as specified.

2. The combination with a reservoir and wheel having inclined blades, and curved tubes, the latter open at both ends and extending from near the center toward the periphery of the wheel, so as to discharge the water taken up against obstructions as the blades and spray or disintegrate the same, substantially as specified.

3. The combination with the wheel, of the curved tubes extending from near the axial center of the wheel toward the periphery thereof, and tapered or contracted toward their inner ends, as they approach the axial center of the wheel, whereby water is taken up as the wheel is rotated and discharged in jets near its axial center, substantially as specified.

494,495. ELECTRIC BOLT-OPERATING MECHANISM FOR SAFES. EMORY STOCKWELL and HERBERT C. STOCKWELL, Stamford, Conn., assignors to The Yale & Towne Manufacturing Company, same place. Filed July 11, 1892. Serial No. 439,644. (No model.)



Claim.—1. A bolt-operating mechanism for safes, comprising suitable bolt-work which is cast and retracted by an electric motor suitably geared thereto, means for automatically throwing the bolt-work out of gear when it is cast, and a time-lock for throwing the motor into gear at the proper time, substantially as set forth.

2. A bolt-operating mechanism for safes, comprising suitable bolt-work which is cast and retracted by an electric motor suitably geared thereto, an automatically disengaging clutch for throwing the bolt-work out of gear when it is cast, and a time-lock for shifting the clutch into gear at a pre-determined time, substantially as set forth.

3. In an electrical bolt-operating mechanism for safes, the combination of a suitable bolt-work a train of gear engaging the bolt-work, a reversible electric motor geared to the train of gear and adapted to cast and retract the bolt-work, means for automatically disengaging the train of gear from the motor when the bolt-work is cast, and a time-lock for throwing the motor into engagement at a pre determined time, substantially as set forth.

4. In an electrical bolt-operating mechanism for safes, the combination of suitable bolt-work, a train of gearing for operating the bolt-work, an electric motor, an automatic clutch gearing the armature shaft of the motor to the train of gearing, means carried by one of the gear of the train for disengaging the clutch, and a time-lock for throwing the clutch into gear at a pre-determined time, substantially as set forth.

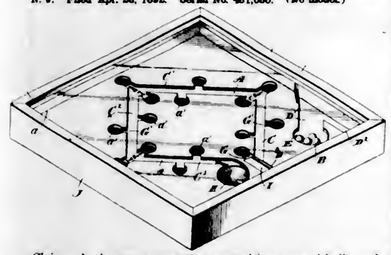
5. In an electrical bolt-operating mechanism for safes, the combination of suitable bolt-work, a train of gearing for operating the bolt-work, an electric motor, an automatic clutch gearing the armature shaft of the motor to the train of gearing, a spring for throwing the clutch out of gear, a device for retaining the clutch in gear,

means carried by one of the gearwheels for engaging said clutch-retaining device and allowing the clutch to be moved out of engagement by its spring, and a time-lock for throwing the clutch into gear at a pre-determined time, substantially as set forth.

6. In an electric bolt-operating mechanism for safes, the combination of suitable bolt-work, a rack-bar extending from the bolt-work, a pinion engaging the rack-bar, a train of gearing geared to said pinion, a reversible electric motor, an automatic clutch gearing the armature shaft to the train of gearing, a device for retaining said clutch in engaged position, means for disengaging the clutch, and a time-lock adapted to shift the clutch into engaged position, substantially as set forth.

7. In an electrical bolt-operating mechanism for safes, the combination of suitable bolt-work, and an electric motor geared thereto; with electric supply wires extending through the wall or door of the safe, a battery, a suitable circuit-closing device, and a burglar proof housing extending from the wall of the safe and inclosing the circuit closer, substantially as set forth.

494,496. GAME APPARATUS. ARTHUR R. STOKES, Island Heights, N. J. Filed Apr. 28, 1892. Serial No. 431,035. (No model.)



Claim.—1. A game apparatus comprising several balls, and a board having a way along which a ball can be caused to pass, arranged in the form of a quadrilateral, pockets at points adjacent to the way, and a starting point and a goal to which the way leads, separate from each other as and for the purpose shown.

2. A game apparatus comprising several balls, and a board having a way along which a ball may move, arranged in the form of a quadrilateral, a pocket adjacent to each corner of the latter, and a starting point and a goal to which the way leads, separate from each other substantially as and for the purpose set forth.

3. A game apparatus comprising several balls, and a board having a way along which a ball may move, arranged in the form of a quadrilateral and terminating in a pocket to form a goal, a starting pocket separate from the latter leading to the way a pocket adjacent to each corner of the quadrilateral, two pockets adjacent to each of the sides of the latter, between the corners and on opposite sides of the way, but not opposite each other, substantially as and for the purpose shown.

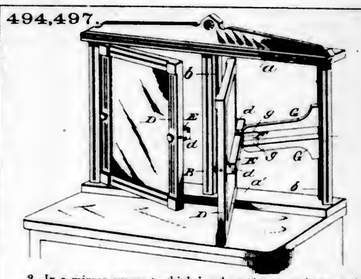
4. A game apparatus comprising several balls and a board having a way along which a ball may move, arranged in the form of a quadrilateral and terminating in a pocket constituting a goal, a second way communicating with the quadrilateral at one of its corners, the pocket adjacent to such corner, the two pockets adjacent to each of the other corners, the pockets between the corners, and the starting pocket apart from the goal and communicating with said second way, substantially as and for the purpose set forth.

5. A game apparatus comprising several balls, and a board having a way along which a ball may move, arranged in the form of a quadrilateral and terminating in a pocket forming a goal, a second way leading from a starting pocket communicating with the quadrilateral at one of its corners, and adjacent to the goal pocket, and a flange or other obstruction between said second way and said goal pocket, substantially as and for the purpose described.

494,497. MIRROR-SUPPORT AND ADJUSTING DEVICE. WEBDELL P. TARBELL, Milford, N. H. Filed June 9, 1892. Serial No. 436,136. (No model.)

Claim.—1. The combination with the mirror frames D D, plates *d d* pivotally attached thereto and provided with cross-bars E E, bracket arms G pivotally attached to said cross-bars and rigidly secured to turning post C C and a central post B constituting a part of the mirror supporting frame, the post B being rigidly attached to the upper and lower horizontal pieces *a* and *a'* substantially as shown, and for the purpose set forth.

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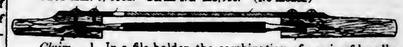
2. In a mirror support which is adapted to sustain two mirrors, the combination of the frame having vertical supports C C, pivoted to the frame so as to turn therein arms rigidly attached thereto, said arms consisting of upper and lower portions as shown, a cross-bar pivotally secured to the arms so as to swing between the upper and lower portions, the cross bars being pivotally attached to the mirror frames, for the purpose set forth.

3. In combination with a frame, which is adapted to support two mirrors the vertical supports C pivoted so as to turn in the frame, said supports having outwardly projecting arms G G rigidly connected thereto, said arms carrying plates which are pivotally attached to a bar E the ends of which are in pivotal engagement with the mirror frames, and means for adjusting the frictional bearing between the mirror frame and the plates which engage therewith.

4. In combination in a support for two mirrors of the upper and lower transverse pieces *a* and *a'*, a central parting strip B, vertical uprights C C pivoted between said pieces and carrying arms or brackets G G the ends of which embrace a transverse rock bar, said rock bar being held in pivotal engagement with the mirror frame, the parting strip and uprights C C having stripes *b b* against which the sides of the mirror frame bear, substantially as shown, and for the purpose set forth.

5. As an improvement in mirror supporting and adjusting devices, the combination of a frame consisting of upper and lower horizontal pieces, a central parting strip having a ledge or strip on each side, uprights pivoted near the ends of the horizontal pieces and provided with vertical ledges, brackets rigidly attached to the uprights, said brackets engaging with rock bars E to one side of their centers, said rock bars supporting mirror frames which are capable of being tilted thereon, substantially as shown, whereby the mirrors can be swung horizontally so as to be adjusted to and from each other and tilted to change their vertical inclination, for the purpose set forth.

494,498. FILE-HOLDER. ANDREW W. TAYLOR, Pierce City, Mo. Filed Mar. 1, 1892. Serial No. 423,969. (No model.)



Claim.—1. In a file-holder, the combination of a pair of handles or holders provided with sockets in their inner ends and a file having its ends rounded and held in said sockets, so as to rotate freely therein and be held against longitudinal movement, substantially as described.

2. In a file-holder, the combination of a pair of handles provided with rounded sockets and connected together and an angular file having its ends rounded and held loosely in said sockets, whereby the file, will be permitted to rotate freely independently of the handles, and be held against longitudinal movement, substantially as described.

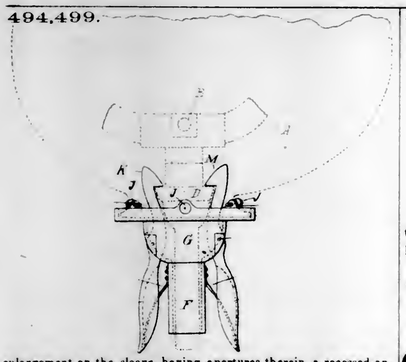
494,499. GLOBE-HOLDER FOR ELECTRIC-ARC LAMPS. WILLIAM A. TURBAYNE, Detroit, Mich., assignor to the Liggett, Turbayne & Company, same place. Filed July 1, 1892. Serial No. 438,694. (No model.)

Claim.—1. In an electric arc lamp globe holder, the combination of the tail tube, a flange on said tube, a sleeve fitted upon the tail tube, an enlargement on the sleeve a recessed annular flange on the enlargement and spring hooks on the sleeve engaging the flange on the tail tube, substantially as described.

2. In an electric arc lamp globe holder, the combination of the tail tube, an annular flange on said tube having beveled faces thereon, a sleeve fitted upon the tail tube, a cup shaped enlargement on the sleeve, a recessed annular flange on the enlargement, and spring hooks pivotally secured to the enlargement adapted to engage the flange on the tail tube, substantially as described.

3. In an electric arc lamp globe holder, the combination of the tail tube, a flange on said tube, a sleeve fitted upon the tail tube, an

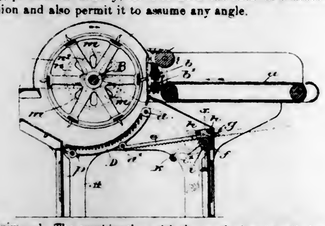
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enlargement on the sleeve, having apertures therein, a recessed annular flange on the enlargement, vertical hooks within the apertures pivotally secured to the enlargement having beveled upper ends engaging the flange on the tail tube, handles on the hooks and springs secured to the sleeve and bearing against the handles, substantially as described.

494,500. MACHINE FOR OPENING AND CLEANING FIBROUS MATERIAL. MELVILLE T. WADLIN, North Andover, Mass., assignor to the Davis & Furber Machine Company, same place. Filed Dec. 7, 1892. Serial No. 454,343. (No model.)

Brief.—The grid under the toothed cylinder is pivoted at *d*, and connected with the grid at *d'* is a rack *e*, operated by a pinion *i'*, by means of which the grid can be raised and lowered. Rolls *k'* on a frame *g*, pivoted on shaft *f*, serve to hold the rack in contact with the pinion and also permit it to assume any angle.



Claim.—1. The combination with the toothed main cylinder, and feeding devices, of a pivotally supported grid, a rotatable shaft, a gear fast thereon, a rack-bar pivotally connected to the grid and in mesh with said gear, and a pivotally supported guide for the rack-bar, substantially as described.

2. In an opening and cleaning machine, a main cylinder, and a hinged grid therefor, combined with a rotatable shaft, a gear fast thereon, a rack-bar in mesh therewith and pivotally connected to said grid, a guide free to rotate on said shaft, and parallel rolls carried by the guide, to contact with the top of the rack-bar and maintain it in mesh with the gear, substantially as described.

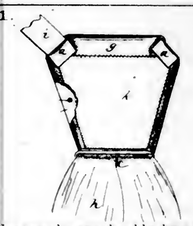
3. In an opening and cleaning machine, a main cylinder and a hinged grid therefor, combined with a rotatable shaft, a gear fast thereon, a rack-bar in mesh therewith and pivotally connected to said grid, a guide free to rotate on said shaft, parallel rolls carried by the guide, to contact with the top of the rack-bar and maintain it in mesh with the gear, and a locking device to restrain the shaft from rotation, substantially as described.

4. The toothed main cylinder, and feed rolls, combined with a grid hinged at one end, a rotatable shaft, gears fast thereon, rack-bars pivotally connected to the sides of the grid and in mesh with the gears, guides loose on said shaft, and rolls carried by said guides to contact with the tops of the rack-bars, substantially as described.

494,501. STIFFENING-PLATE FOR NECKTIES. EDWARD L. WALLACE, Spencerport, assignor of one-half to Frank D. Hill, Dryden, N. Y. Filed Jan. 7, 1893. Serial No. 457,614. (No model.)

Claim.—The combination, with a neck tie, of a stiffening plate provided with the angular corner pieces *a a* at the upper corners, said corner pieces extending through the openings at the corners of

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the tie and being turned outward and backward, as and for the purpose specified.

494,502. ENGINEER'S VALVE. WILLIAM C. WHITACRE, St. Louis, Mo., assignor of two-thirds to Shepard Knapp and John F. Baumgartner, same place. Filed Apr. 12, 1892. Serial No. 428,855. (No model.)



Claim.—1. In an engineer's valve, the combination with the valve casing and ports leading therefrom to the main reservoir and train pipe, a valve between said ports for automatically establishing communication between the main reservoir and the train pipe at a given pressure in the former, valves for controlling direct communication between the several ports, and a handle for operating said valves, substantially as described.

2. In an engineer's valve, the combination with the valve-casing provided with ports leading therefrom to the main reservoir and to the train-pipe and outlet openings to the external atmosphere, of a valve for controlling communication between the said ports, a valve for controlling communication between the port to the train-pipe and the outlet openings, the said valves being connected together and being provided with an extension adapted to be engaged with a cam of an eccentric cam, adapted to move the valves longitudinally, a shaft for the cam, and a handle to operate the shaft: substantially as and for the purposes described.

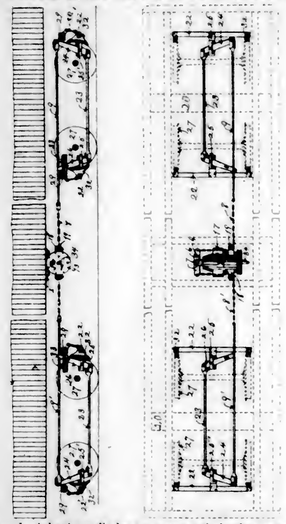
3. In an engineer's valve, the combination with the valve-casing, provided with ports leading therefrom to the main reservoir and to the train-pipe and outlet openings to the exterior atmosphere, valves for controlling communication between the said ports, and between the train-pipe port and the outlet openings, secured to a common valve-stem, a cam, shaft, and handle for operating said valves, and an automatic reduction-valve between said ports, of a short port between the aforementioned ports, and a valve for controlling said port: substantially as and for the purposes described.

4. In an engineer's valve, the combination with the valve-casing provided with ports leading therefrom to the main reservoir and to the train-pipe and outlet openings to the exterior atmosphere, valves for controlling communication between the said ports and between the train-pipe port and the outlet openings, said valves being centered to a common valve-stem, and automatic reducing-valve between the said ports, of a short port between the aforementioned ports, a valve for closing the short port, a double eccentric cam for operating the said controlling valves and the short-port valve, and a cam-shaft and handle for operating the cam: substantially as and for the purposes described.

5. In an engineer's valve, the combination with the valve-casing internally formed to two different diameters, with a relatively enlarged portion at each end, the train-pipe port leading from the relatively reduced middle portion, and the main reservoir port and outlet openings from either of the relatively enlarged end portions, respectively, of valves for controlling communication between the said ports and between the train-pipe port and the outlet openings, said valves being secured to a common valve-stem, and being seated, respectively, in the shoulders formed by the relatively enlarged portion: substantially as and for the purposes described.

6. In an engineer's valve, the combination with the controlling valves 9 and 10, secured to a common hollow valve-stem 11, formed with extension 38, the short port valve 14, the valve-stem 32 of which projects up through the hollow valve-stem 11, double eccentric cam 31, cam-rod 27, and handle 29, substantially as and for the purposes described.

494,503. CAR-BRAKE. WILLIAM C. WHITACRE, St. Louis, Mo., assignor of two-thirds to Shepard Knapp and John F. Baumgartner, same place. Filed June 20, 1892. Serial No. 437,320. (No model.)



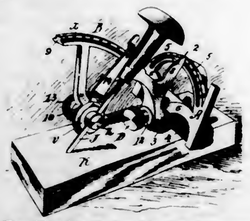
Claim.—1. A brake cylinder for pneumatic brake systems, consisting of a casing formed with means for securing it to the under side of the car and diametrically opposite lugs in which are revolubly secured sheaves for the guidance of the brake chains, substantially as and for the purposes specified.

2. In a pneumatic car brake system, the combination with a brake cylinder formed with diametrically opposite lugs, of sheaves revolubly secured in said lugs, a piston rod an equalizing lever, pivotally secured in the extending end of the piston-rod, chains secured to the ends of said equalizing lever, brake beams and intermediate connections between the said chains and the brake beams, substantially as described and for the purposes specified.

3. In a brake cylinder for pneumatic brake systems, the combination with a cylinder casing formed with diametrically opposite lugs, of sheaves revolubly secured in said lugs, and guide lugs formed in the said casing in line with said sheave lugs, combined substantially in the manner and for the purposes specified.

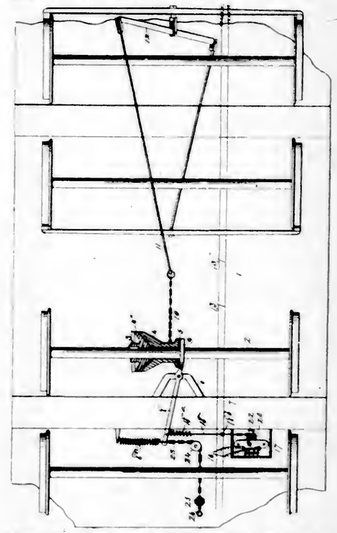
4. In a pneumatic brake system, the combination with a brake cylinder, of a piston therein provided with an expansion head, a pipe leading to the front end of said casing, a spring surrounding the piston at the back of the head, an equalizing bar carried by said piston, brake beams, and connections between said equalizing bar and beams, whereby the thrust of the piston will operate the beams; substantially as described.

494,504. DEVICE FOR HOLDING GRAVERS OR OTHER TOOLS FOR SHARPENING THEM. MARTIN BOCK, Haselton, assignor to Ezra F. Bowman, Lancaster, Pa. Filed Sept. 19, 1892. Serial No. 446,283. (No model.)



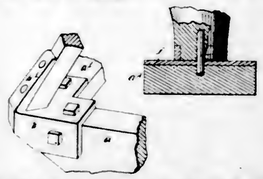
Claim.—The within described tool-holding device consisting of a frame on which is a gaging scale and a screw-hub and in which is hung a bearing roll rotating freely therein, combined with a tool-holding bracket having an arm thereon extending to said gaging scale and having a screw connection with said hub on the frame whereby said bracket is adjustable from a vertical to laterally-inclined positions and vice versa and having a gaging scale thereon, the transversely perforated tool-clamping bolt, *h*, passing loosely through the hub,, 10, on said bracket, a nut operating on said bolt, and the gage-arm, 14, for engagement with the bracket gaging-scale and having on its lower end a spring-washer encircling the perforated end of said clamping bolt, substantially as set forth.

494,505. CAR-BRAKE. MILTON E. CAMPANY, Hamilton, assignor of one-half to Horace B. Peck, Kalamazoo, Mich. Filed Apr. 5, 1892. Serial No. 427,869. (No model.)



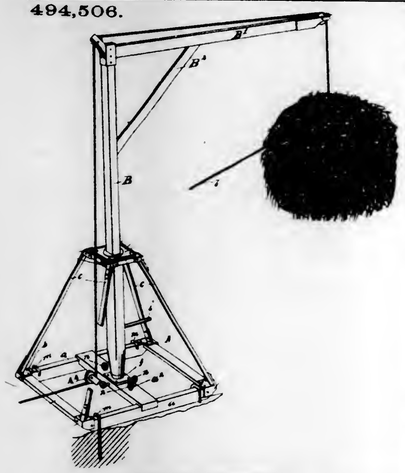
Claim.—In a car brake, the combination with the axle of the car, of a friction clutch mounted thereon, one of the pieces of which clutch is movable longitudinally upon the axle, and is provided with a drum, a chain from the drum to the brake lever, a lever pivotally secured to the frame of the car, one end of which lever engages with the movable portion of the clutch, an electrical motor secured to the car provided with a projecting shaft, and a chain secured to the opposite end of said pivoted lever, and to the projecting end of the shaft and adapted to be wound thereon, whereby the lever is operated and the clutch is thrown into engagement and the brakes are set, substantially as set forth.

494,506. HAY-STACKER. JOSEPH A. CARLISLE, Orchard, Ohio, assignor of one-half to Edward Zinn, same place. Filed Sept. 5, 1892. Serial No. 445,046. (No model.)



Claim.—The combination with a sled-shaped frame having the runners and cross bars, as described, the vertical beam B, cross bar B', brace B^2, supporting block *c*, wearing plate *k*, sleeve *k'*, ring plate *f*, pivot *g*, braces *e*, brace connections *b*, having projecting spurs *b'*, all arranged for joint operation, substantially as specified

494,506.



494,507. TIRE-TIGHTENER. JAMES W CUTHBERTSON, Bothwell, assignor, by direct and mesne assignments, to Alem J. Green, Essex, Canada. Filed June 27, 1892. Serial No. 438,064. (No model.)



Claim.—In a tire-set, the combination with the shields each having a recess in its outer side to receive the end of the felly, and having a squared recess in its inner face, of the nuts arranged in said recesses in the inner faces of the shield and the right and left screws engaging the respective nuts, said screws having a mid-head arranged between said shields, substantially as set forth.

494,508. FIREPROOF PAINT. ROBERT R. GRAF, Baltimore, Md., assignor, by direct and mesne assignments, to the Phœnix Fire Proof Paint Company, New York, N. Y. Filed Dec. 13, 1892. Serial No. 455,074. (No specimens.)

Claim.—1. A fire-proof paint consisting of tungstate of ammonia, hyposulphite of ammonia, sulphate of soda, caustic lime, chalk, alum, carbonate of soda, and oil in about the proportions herein specified.

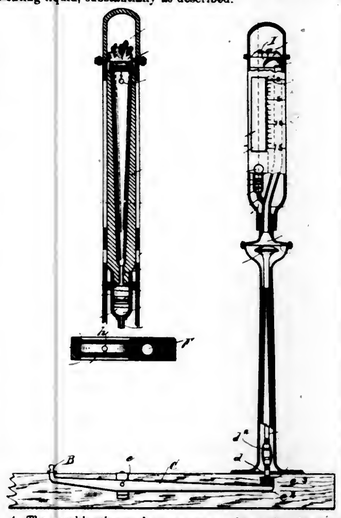
2. A fire-proof composition consisting of tungstate of ammonia, hyposulphite of ammonia, sulphate of soda, caustic lime, chalk, alum, carbonate of soda, and a suitable liquid in about the proportions specified.

494,509. RAILWAY TIME-SIGNAL. BENJAMIN R. MORGAN, Ypsilanti, Mich., assignor to the Morgan Alcohol Time Signal Company, same place. Filed May 12, 1892. Serial No. 432,741. (No model.)

Claim.—1. In a railway time signal, the combination of a chamber of variable capacity, means whereby the capacity thereof may be diminished by the passage of a moving train, an upright looped tube furnishing a free unobstructed passage way leading from and returning directly to said chamber, the return portion of said tube being provided with a transparent section, and having a restricted portion between said transparent section and the variable chamber, substantially as described.

2. In a time signal, the combination of a chamber of variable capacity, means whereby the capacity thereof may be diminished by a passing train, an upright looped tube rising from its upper side, and substantially returning upon itself and unobstructed by valves throughout its extent, its discharge end arranged to discharge into the chamber the return portion having a transparent section and a restricted section between such transparent portion and the return connection, and an indicating liquid, all so arranged that the indicating liquid is forced upwardly quickly through the larger portion of the loop to the top of the transparent section and descends slowly through such section and the restricted portion, substantially as described.

3. In a time signal, the combination of a variable chamber, means whereby its capacity may be diminished by a passing train, an upright looped unobstructed tube connected therewith and returning directly thereto, said tube having an air chamber at its extreme upper end, a transparent section below the enlargement, and a restricted portion between the transparent section and the variable chamber, and an indicating liquid, substantially as described.



4. The combination and arrangement of two chambers, one elevated above the other, said chambers communicating by passage-ways, one of which is relatively small and leads from the bottom of the lower chamber directly to the upper chamber, and the other of which is relatively large and constitutes an unobstructed passage way leading from the top of the upper chamber to the top of the lower chamber, an elastic diaphragm forming the under portion of the walls of the lower chamber, and a system of levers and plungers adapted to impinge against said diaphragm on the passage of a train, whereby the capacity of said lower chamber is decreased and the liquid contained therein is compelled to be transferred to the upper chamber, through the large passage way leading to the top thereof substantially as described.

5. In a railway liquid time signal, the combination of a hopper shaped indicating chamber, a liquid contained therein, an indicator scale, and means for permitting gradual descent of the liquid by gravity, whereby the decreased quantity descending due to decreased hydrostatic pressure is substantially indicated by uniform spaces on the indicator, substantially as described.

6. In combination with two chambers, one placed above the other, the lower end of the upper one communicating by a relatively small aperture with the lower chamber, and the upper end of the upper chamber communicating by a large aperture with the lower chamber, and the collapsible air bag forming the upper wall of the upper chamber, substantially as and for the purpose described.

7. The combination of an upper and a lower chamber, unobstructed passageways substantially as described connecting the two, means whereby the capacity of the lower chamber may be decreased on the passage of a train, a collapsible air bag inclosing the upper end of the upper chamber, and the upper end of the passage from the lower chamber and adjustable connections between said means and the movable track whereby the variations in the adjustment of the track are prevented from unduly varying the capacity of the lower chamber, substantially as described.

8. The combination of an upper chamber, a lower chamber connected therewith by two passage ways one relatively small leading from the lower chamber, the other from the lower chamber to the top of the upper chamber, a collapsible air bag inclosing the top of the upper chamber and the top of the larger passage, and means whereby the capacity of the lower chamber may be diminished, substantially as described.

9. The combination of a lower and upper chamber connected by a relatively small passage way leading from the bottom of the upper chamber, a larger passage way leading from the interior of the lower chamber to the top of the upper chamber, a check valve on the upper end of the larger passage way, and a passage way leading into the upper passage way below the check valve from the upper chamber, whereby the liquid in the upper chamber is quickly brought to a uniform level coincident with an indicator, substantially as described.

10. The combination of the signal post A, the movable rail B, the lever C, the plunger D carrying a convex head, the diaphragm E, the coil spring c^4, the collar c^5, and the diaphragm d, substantially as described.

11. The combination of the movable rail B, the lever and plunger C, D, the diaphragm E, the case H', the pipe F, the air bag J, and the perforated diaphragm h', substantially as described.

12. In a signal, the combination with a casing having a liquid holding chamber therein and means for varying the capacity of the chamber, of a circuit leading from and returning to the chamber its out going and return ends being on a plane above the chamber, and a transparent section in the circuit, substantially as described.

494,510. ATTACHMENT FOR PENCILS OR PENS. JAMES A. MURPHY, Holyoke, Mass. Filed Feb. 4, 1893. Serial No. 460,990. (No model.)

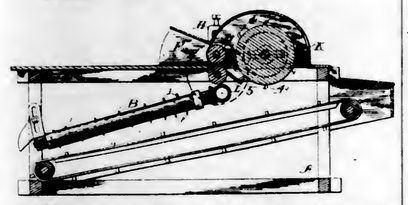


Claim.—1. An attachment for pencils and like objects, consisting of a longitudinally slotted tube of flexible, springy material, combined with a cylindrical casing of rubber inclosing said tube, and having an erasing head at one end thereof, combined and operating substantially as set forth.

2. An attachment for pencils and like objects, consisting of a longitudinally slotted tube of flexible, springy material, having pointed projections thereon, combined with a cylindrical casing of rubber inclosing said tube and engaging with said projections, and having an erasing head at one end, substantially as set forth.

3. An attachment for pencils and like objects, consisting of a longitudinally slotted tube of flexible, springy material, having one end of conical form, and an annular shoulder therein about midway between its ends, combined with a cylindrical casing of rubber inclosing said tube and having an erasing head at one end thereof, substantially as set forth.

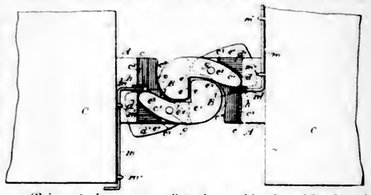
494,511. COMBINED CORN-HUSKER AND FODDER-SHREDDER. GEORGE W. PACKER, Rock Falls, assignor to the Keystone Manufacturing Company, Sterling, Ill. Filed Oct. 27, 1891. Serial No. 409,998. (No model.)



Claim.—1. In a corn shredder, the combination and co-operation of the following three elements:—a cylinder K provided on its periphery with teeth 4, co-acting feed rollers, D, E, located in front of said cylinder, each of said feed rollers being positively driven at a less surface velocity than the surface velocity of the cylinder and being adjustably held together with such degree of pressure as to prevent the stalks, while passing between them, from being drawn faster than their own surface velocity, and a concave L located out of the radial plane between the center of the cylinder K and the contacting or operating portions of the surfaces of the feed rollers, whereby the material must be bent out of its line of travel in passing from the feed rollers to the concave, said concave being provided with teeth 5 projected upwardly into the intervals between the line of movement of the several teeth 4 of the cylinder, substantially as set forth.

2. The husking rollers B, provided peripherally with projections 1, gradually decreasing in altitude from the upper to the lower end of said rollers, substantially as shown and for the purpose described.

494,512. CAR-COUPLING. WILLIAM W. SMITH, Traverse City, Mich. Filed Jan. 25, 1893. Serial No. 459,681. (No model.)

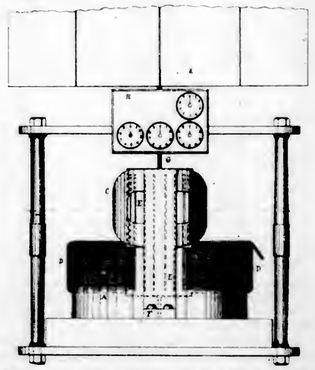


Claim.—1. In a car coupling, the combination with a draw-head having an integral forward horizontal tongue, of a latch block slotted horizontally, forming two horizontal flanges, the top flange incurved and the bottom flange sector-shaped, a pivot bolt connecting said flanges and the tongue, a key adapted to vertically slide in a slot of the draw-head and bear laterally on the inner edges of the latch block flanges, and a latching shoulder laterally and forwardly formed on the latch block, substantially as described.

2. In a car coupling, the combination with a draw-head body, a horizontal tongue forwardly thereon, and an abutment wall curved on its inner face and projected upwardly from the tongue near one side, and an extension on the same side of said tongue, of a latch block rounded forwardly and having a lateral latching shoulder thereon near the front, two parallel horizontal flanges rearwardly extended on the latch block and spaced by a slot, the upper flange incurved and rounded on its rear end, and the lower flange sector-shaped and longer than the top flange, a pivot bolt engaging the flanges and intervening tongue, in its extension, a key sliding in a vertical slot of the draw-head at its transverse center and adapted to lock the latch block when lowered and release said block when raised, and means to move the key by manipulation from the side or roof of a car, substantially as described.

3. In a car coupling, the combination with a draw-head body, a thinner horizontal tongue forwardly projected therefrom at the center of thickness, and incurved on its front edge, a forward extension on said tongue at one side, an upwardly projecting abutment wall on the tongue at the rear of its extension and incurved on its inner side, a pivot hole in the extension of the tongue forward of the abutment wall, and a vertical rectangular and longitudinal slot at the transverse center of the drawhead, partly opposite the curved inner face of the abutment wall, of a latch block having a rounded front end, a transverse latching shoulder laterally formed near the front end, two spaced horizontal flanges rearwardly on the latch block, the upper flange incurved laterally and the lower flange sector-shaped and longer than the top flange, a key shouldered on one edge, fitting the slot with its narrow part and adapted to receive the impingement of the latch block flanges laterally when lowered, and means to move the key from the side or roof of a car, substantially as described.

494,513. ALTERNATING-CURRENT METER. WILLIAM STANLEY, Jr., Pittsfield, Mass. Filed Aug. 11, 1892. Serial No. 442,843. (No model.)



Claim.—1. In an alternating current meter, the combination with

two field-producing circuits of different self-induction, one adapted for connection with the circuit in which the current is to be measured, the other in a shunt to said circuit, of rotating conductors forming circuits within the influence of both fields but occupying different relative positions with respect to each, and registering devices connected with said conductors, as set forth.

2. In an alternating current meter, the combination with two field-producing circuits of different self-induction, adapted respectively for connection in series with and in shunt to the translating devices in the circuit in which the current is to be measured, of rotating or armature conductors forming closed circuits common to both fields but in relatively different inductive positions in each, and a train of registering wheels and dials in gear with and operated by the said rotating conductors, as set forth.

3. In an alternating current meter, the combination with a rotary spindle or shaft, a registering device operated thereby, and conductors carried by the spindle and forming closed circuits with paths parallel to the axis of the spindle, of independent field coils or circuits of different self-induction acting on different portions of the said conductors, and having their magnetic axes at an angle, as set forth.

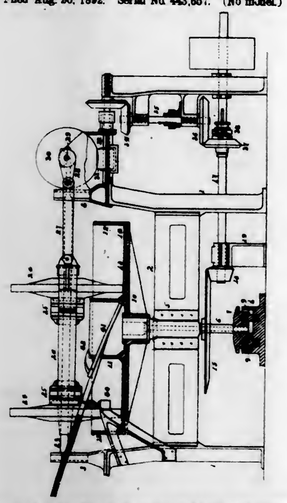
4. The combination with the rotary spindle, the registering train in gear therewith, and the bars or conductors E carried thereby and forming closed circuits, of the coil D and a core A presented to one end of the bars, and the circular coils C inclosing the other end and placed so that the magnetic axes of the two fields produced by the coils shall be at right angles.

494,514. COLORING OR BURNISHING COMPOSITION. JAMES F. THOMPSON, Rockland, assignor of one-half to Charles F. Baker, Boston, Mass. Filed Jan. 19, 1893. Serial No. 459,002. (No specimens.)

Claim.—1. The improved burnishing composition, hereinbefore described, comprising an alkaline solution, an alkali-neutralizing ingredient, carnauba wax, and coloring matter, as set forth.

2. The improved burnishing composition hereinbefore described, comprising an alkaline solution, an alkali neutralizing ingredient, carnauba wax, a suitable gum, and coloring matter, as set forth.

494,515. CLAY-MILL. CALVIN W. VAUGHN, Cuyahoga Falls, Ohio. Filed Aug. 20, 1892. Serial No. 443,657. (No model.)



Claim.—1. In a clay mill of the class designated, the combination with a horizontal pan arranged to be horizontally revolved, of two wheels journaled on a stationary, horizontal axle, arranged to travel in said pan, and provided with means for causing them to move reciprocally horizontally in the line of their axle radially between the center and outer rim of said pan, as set forth.

2. In a clay mill of the class designated, the horizontal pan having inner and outer rims, and means for horizontally revolving it, and a stationary, horizontal axle above said pan, combined with two wheels journaled on said axle and arranged to travel on the bed of said pan between the inner and outer rims, a yoke uniting said wheels, and means for moving said frame reciprocally parallel with the axis of said stationary axle, substantially as shown and described.

3. The combination with the horizontal pan and its shaft, the horizontal driving shaft, and the bevel gears on said shafts, and the stationary axle, and the wheels mounted thereon, and the frame uniting said wheels, of the connecting rods, the crank shaft and its arms and worm wheel, the worm and its shaft and the bevel gears and vertical shaft for communicating motion from said main driving shaft to said frame, substantially as shown and described.

494,516. CALKING-TOOL. JOSEPH O. WALTON, Titusville, Fla. Filed Nov. 12, 1892. Serial No. 451,776. (No model.)



Claim.—1. A calking tool, comprising a handle curved at the ends, and a roller journaled in each end of the handle, substantially as described.

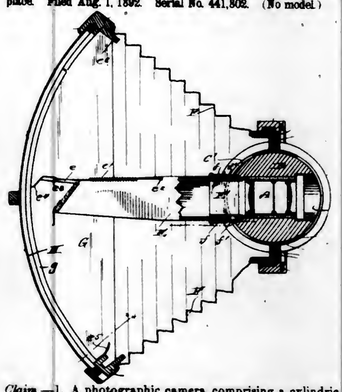
2. A calking tool comprising a handle, and rollers journaled at opposite ends of the handle and in the same plane, one roller having a concave face, substantially as described.

3. A calking tool, comprising a curved handle having a longitudinal groove therein, rollers journaled at the ends of the handle, and a hook pivoted in the handle and adapted to lie in the groove, substantially as described.

4. In a calking tool, comprising a handle having end rollers and a longitudinal groove, the back wall of which is inclined near one end, and a hook pivoted in the groove and adapted to lie upon the inclined wall thereof, substantially as described.

5. The combination with the handle having rollers at the ends, of a chisel pivoted at one end of the handle, and a fastening device to fix the position of the chisel, substantially as described.

494,517. PHOTOGRAPHIC CAMERA. WILLIAM A. ARMSTRONG, Milwaukee, Wis., assignor to the Armstrong Camera Company, same place. Filed Aug. 1, 1892. Serial No. 441,802. (No model.)



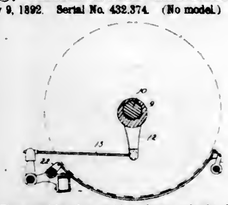
Claim.—1. A photographic camera, comprising a cylindric, vertically disposed housing provided with suitable horizontally elongated apertures in its front and rear walls, a back constructed upon a cylindric curve concentric with said housing, a suitable bellows extending from said housing to said curved back, a cylindric block fitted within said casing and provided at its upper and lower ends with suitable trunnions and also provided with a transverse bore, a lens secured within said bore with its optical center upon the axial line of said block, and suitable means upon the outside of the camera, for oscillating said block upon its trunnions, substantially as set forth.

2. A photographic camera, comprising a cylindric, vertically disposed housing, provided with suitable horizontally elongated apertures in its front and rear walls, a back constructed upon a cylindric curve concentric with said housing and provided with suitable means for holding a sensitized plate or film, a suitable bellows extending from said housing to said curved back, a block, cylindrical in cross section and fitted within said cylindric housing and provided at its upper and lower ends with suitable trunnions, a transverse bore in said block, a lens supported in said bore with its optical center upon the axial line of said block, a hood secured to the rear side of said block and extending rearward through the aperture in said cylindric housing, and provided in its rear end with a narrow, vertical slot, and suitable means upon the outside of the camera for oscillating said block upon its trunnions, substantially as set forth.

3. A photographic camera, comprising a cylindric, vertically disposed housing, provided with suitable horizontally elongated apertures in its front and rear walls, a back constructed upon a cylindric curve concentric with said housing and provided with suitable means for holding a sensitized plate or film, a suitable bellows extending from said housing to said curved back, a block, cylindrical in cross section and fitted within said cylindric housing and provided at its upper and lower ends with suitable trunnions, a transverse bore in said block, a lens supported in said bore with its optical center upon the axial line of said block, a hood secured to the rear side of said block and extending rearward through the aperture in said cylindric housing, and provided in its rear end with a narrow vertical slot, a shutter hinged to one side of the rear end of said hood and adapted to normally close said slot, means for opening and closing said shutter, and suitable means upon the outside of the camera for oscillating said block upon its trunnions, substantially as set forth.

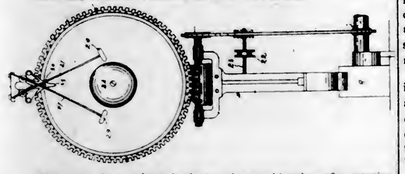
4. A photographic camera, comprising a vertically adjustable front, a vertically disposed, cylindric housing secured thereto and provided with horizontally elongated apertures in its front and rear walls, a cylindric block fitted within said housing and mounted upon suitable trunnions, a transverse bore in said block a lens supported horizontally in said block with its optical center upon the axial line of the block, a back constructed upon a cylindric curve concentric with said axial line a suitable bellows extending from said housing to said curved back, a hood secured to the rear side of the block and communicating with the rear end of the lens tube, a narrow vertical slot in the rear end of said hood, a spring shutter for closing said slot, suitable means for setting the shutter open when the chamber is at the limit of its movement in one direction, and suitable means for closing said shutter when the hood reaches the limit of its movement in the opposite direction, substantially as set forth.

494,518. BRAKE MECHANISM. HENRY BOLTHOFF, Denver, Colo. Filed May 9, 1892. Serial No. 432,374. (No model.)



Claim.—The combination, with a drum, of a brake band fitting on the drum, a stationary shaft at the rear of the drum, arms mounted to rock upon said shaft and having pivotal means for attachment to the rear end of the band, a shaft at the front of the drum, and arms thereupon having pivotal attachment with the front end of the band, a rock shaft, a lever mounted thereupon, and means connecting said lever, and the last-mentioned arms, substantially as set forth.

494,519. ALARM-INDICATOR. HENRY BOLTHOFF, Denver, Colo. Filed May 9, 1892. Serial No. 432,375. (No model.)



Claim.—1. In an alarm indicator the combination of a rotating gear carrying a gong, the actuating worm operated from a rotating shaft, a hammer carried by an oscillating spindle mounted upon the frame, a dog connected with the spindle and projecting into the path of a pin located on the gear, the construction being such that when the gear moves in one direction the pin acting on the dog moves the spindle, raises the hammer, and sounds the gong, while when the gear moves in the opposite direction the pin raises the dog without moving the spindle, substantially as described.

2. In an alarm indicator the combination with a frame, a rotating gear mounted thereon and carrying a gong, a divided worm mounted upon a suitable shaft, one part of the worm having a normal tendency to move away from the other part under the influence of a spring to take up lost motion and compensate for the wear of the part, and a hammer carried by an oscillating spindle mounted on the frame and actuated by the gear to sound the gong substantially as described.

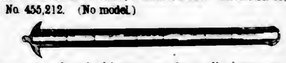
3. In an alarm indicator the combination of the rotating disk provided with a gong and carrying pins and oscillating hammers mounted upon the frame and controlled by dogs projecting into the path of the pins on the disk by which they are actuated to sound the gong, substantially as described.

4. In an alarm indicator the combination of the rotating disk carrying a gong and a pin, a movable spindle mounted upon the frame and provided at one extremity with a crank arm, a hammer connected with the spindle at the opposite extremity, a dog mounted upon the spindle and adapted to engage the crank arm and projecting into the path of the pin on the disk, whereby as the disk moves in one direction the spindle is turned and the gong sounded, while when the disk moves in the opposite direction the dog allows the pin to pass without turning the spindle, substantially as described.

5. In an alarm indicator the combination with suitable alarm mechanism, of actuating means therefor consisting of a disk having a cogged periphery, and the divided worm engaging the periphery of the disk and mounted upon a rotating shaft, one part of the worm having a longitudinal movement on the shaft and having a normal tendency to separate from the other part to take up lost motion or compensate for the wear of the parts, substantially as described.

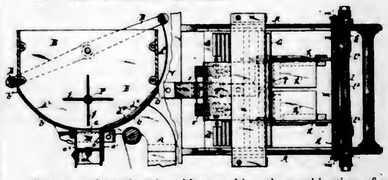
6. In an indicator the combination of a suitable lever alarm mechanism and means for operating the same consisting of a disk having a cogged periphery and a divided actuating worm mounted upon a shaft, the sections of the worm being interiorly recessed, a coil spring surrounding the shaft located in said recess and engaging the shoulders of the worm sections, substantially as described

494,520. ELECTRICAL INSTRUMENT FOR MEDICAL PURPOSES. BENJAMIN Y. BOYD, Wichita, Kans. Filed Dec. 15, 1892. Serial No. 455,212. (No model.)



Claim.—An electrical instrument for medical purposes composed of cylinders of negative, and positive elements separated by an electrical non-conducting cylinder.

494,521. CIGAR-BUNCHING MACHINE. FRANK BROWNING, Coraopolis, Pa., administrator of Clinton Browning, deceased. Filed June 8, 1891. Serial No. 395,597. (No model.)



Claim.—1 In a cigar bunching machine, the combination of a hopper having a curved base, an opening in the side wall at the top of said curved base, and an opening in the base communicating with a measuring box, a curved plate passing through the opening in the side wall adapted to travel over said base and close the top of the measuring box, substantially as and for the purposes set forth.

2. In a cigar bunching machine, the combination of a hopper having a curved base on its inside provided with a central opening over a measuring box, and having openings in the side walls at the ends of said curved base, and a frame mounted on the hopper and having curved plates passing through such side openings and adapted to travel over the curved base, and close the opening in the measuring box substantially as and for the purposes set forth.

3. In a cigar bunching machine, the combination of a hopper having a curved base on its inside provided with a central opening over a measuring box and having openings in the side wall at the ends of said curved base and a frame mounted on the hopper and having curved plates passing through such side openings and adapted to travel over the curved base, and close the opening in the measuring box and bars extending across the space between said curved plates

and adapted to travel over the opening of the measuring box, substantially as and for the purposes set forth.

4. In a cigar bunching machine, the combination of a hopper having a curved base on its inside and an opening in the center thereof communicating with a measuring box, a stirring bar having arms thereon mounted in the hopper above said opening, and a curved plate traveling over the curved base to close the opening in the measuring box, substantially as and for the purposes set forth.

5. In a cigar bunching machine, the combination of a hopper having a curved base on its inside, a central opening in said base above said box and openings in the side walls at the ends of said curved base, a rocking frame carrying curved plates passing into the hopper through such openings and traveling over the curved base to close the opening in the measuring box, and a stirring bar mounted in the hopper and provided with arms above the opening of the measuring box, substantially as and for the purposes set forth.

6. In a cigar bunching machine, the combination of a hopper having a curved base on its inside, a central opening in said base above said box and openings in the side walls at the ends of said curved base, a rocking frame carrying curved plates passing into the hopper through such openings and traveling over the curved base to close the opening in the measuring box, and a stirring bar having arms thereon mounted in the hopper above the opening of the measuring box, said stirring bar carrying a pinion and said rocking frame having segmental gear engaging therewith, substantially as and for the purposes set forth.

7. In a cigar bunching machine, the combination of a bunching table, a bunching apron, a bunching roller having a straight face and an apron adjusting roller of irregular shape above the bunching roller, substantially as and for the purposes set forth.

8. In a cigar bunching machine, the combination of a bunching table, a bunching apron, a bunching roller having a straight face and an apron adjusting roller of irregular shape above the bunching roller, said apron-adjusting roller being adjustable with relation to the position of the bunching roller, substantially as and for the purposes set forth.

9. In a cigar bunching machine, the combination of a bunching table, a bunching apron, a bunching roller having a straight face and an apron adjusting roller of irregular shape above the bunching roller, said apron-adjusting roller being formed of different sleeves mounted on a shaft and adjustable thereon according to the shape desired for the bunch, substantially as and for the purposes set forth.

10. In a cigar bunching machine, the combination of a bunching table, a bunching apron, a bunching roller having a straight face traveling over said table, an apron-adjusting roller above the bunching roller and of irregular shape, said rollers being back of the bunching apron, and a roller mounted in front of the bunching roller and in front of the bunching apron, substantially as and for the purposes set forth.

11. In a cigar bunching machine, the combination with a traveling bunching roller of a bunching table, a bunching apron extending over the table and having a pocket at the rear end thereof so as to receive the filler, and a supporting plate extending under said pocket of the bunching apron, said plate being vertically adjustable, substantially as and for the purposes set forth.

12. In a cigar bunching machine, the combination of a bunching table, a bunching apron extending over the table and having a pocket at the rear end thereof so as to receive the filler, plates forming the sides of said pocket, and a supporting plate extending under said pocket of the bunching apron, said plate being formed in sections and said sections being secured to and extending inwardly from the side plates, which side plates are adjustable from and toward each other, substantially as and for the purposes set forth.

13. In a cigar bunching machine, the combination of an arm pivoted on the machine frame and having a groove or guideway thereon, said arm carrying a bunch carrier and an operating frame having a bar thereon entering said guideway and imparting movement to said arm, substantially as and for the purposes set forth.

14. In a cigar bunching machine, the combination of the arm P supporting the bunch carrier and having the guideway p, and the frame C having the bar r entering such guideway so as to impart motion to said arm B, substantially as and for the purposes set forth.

15. In a cigar bunching machine, the combination of the arm P supporting the bunch carrier and having the guideway p and the depression p' below the same, and the operating frame C having the bar r adapted to travel in the said guideway and to enter said depression, substantially as and for the purposes set forth.

16. In cigar bunching machines, the combination of the arm P supporting a bunching carrier and having the guide-way p and the removable lug or shoe r' at the lower end of said guideway, and the operative frame C having the bar r entering said guideway and adapted to contact with said removable shoe, substantially as and for the purposes set forth.

17. In a cigar bunching machine, the combination of a carrier support reciprocating between the front and back portions of said machine, a bunching carrier pivoted to said support, and a bracket adapted to engage with said bunch carrier and to lift it in front of the bunching table of the machine, substantially as and for the purposes set forth.

18. In a cigar bunching machine, the combination of a carrier support reciprocating between the front and back portions of the machine, a bunch carrier pivoted to said support, a spring pressing against said bunch carrier to hold it down, and a bracket adapted to engage with said bunch carrier and raise it up in front of the bunching table, substantially as and for the purposes set forth.

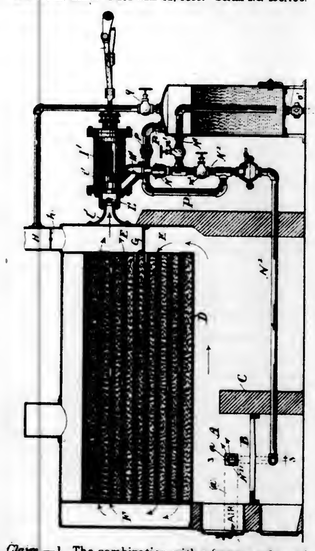
19. In a cigar bunching machine, the combination of a bunching table, a bunching apron secured at the forward end thereof, a bunching roller traveling over said table, a bunch carrier reciprocating under the table, and a finger engaging with the bunch carrier and adapted to raise it up in front of the bunching table to receive the bunch as the bunching roller passes off the forward end of the table, substantially as and for the purposes set forth.

20. In a cigar bunching machine, the combination of a carrier support, the bunch carrier s pivoted thereto and having the lip s^4 extending out at the forward end thereof, and the stationary bracket u adapted to pass under said lip and raise the bunch carrier, substantially as and for the purposes set forth.

21. In a cigar bunching machine, the combination of a carrier support, the bunch carrier hinged or pivoted thereto by one plate s' thereof, having fingers extending down on each side of the support and the other arm or plate s^3 in front of the plate s' having fingers extending down at the sides of the support and connected to the bases of the fingers s', substantially as and for the purposes set forth.

22. In a cigar bunching machine, the combination of the carrier support P, the bunch carrier hinged or pivoted thereto by one plate s' thereof, having fingers extending down on each side of the support and the other arm or plate s^3 in front of the plate s' having fingers extending down at the sides of the support and connected to the bases of the fingers of the plate s' and the adjusting screws s^5 between said plates s' and s^3, substantially as and for the purposes set forth.

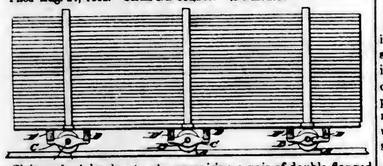
494,522. SMOKE PURIFIER AND CONSUMER. JOHN BUTLER, Ellsworth, Minn. Filed Jan. 12, 1893. Serial No. 458,156. (No model.)



Claim.—1. The combination with a furnace, of an exhaust apparatus, means connecting its induction port with one of the smoke-flues, the pipe N communicating with its eduction port, the closed reservoir O having a body of liquid therein, the branch pipe N' having valve n' and communicating with the interior of the reservoir below the surface of the liquid therein, the branch pipe N^3 having the valve n^3, and communicating with the combustion chamber, and the pipe P having valve p and communicating at one end with the reservoir, above the surface of the liquid therein and at the other with the branch pipe N^3 between the valve n^3 and the combustion chamber, substantially as set forth.

2. The combination with a furnace, of an exhaust apparatus, means connecting its induction port with one of the smoke flues of the furnace, the pipe N communicating with its eduction port, the closed reservoir O having a body of liquid therein, the branch pipe N' having valve n' and communicating with the interior of the reservoir below the surface of the liquid therein, the branch pipe N^3 having valve n^3 and communicating with the combustion chamber, the pipe P having valve p and communicating at one end with the reservoir above the surface of the liquid therein and at the other with the branch pipe N^3 between the valve n^3 and the combustion chamber, and the pipe Q having valve q and communicating at one end with the reservoir above the surface of the water therein, and at the other with the atmosphere, substantially as set forth.

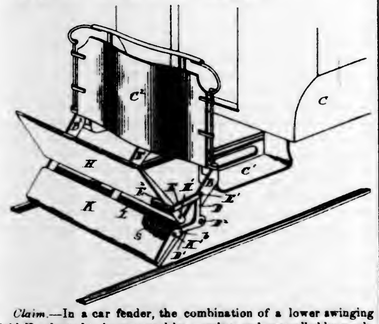
494,523. LUMBER-TRUCK. EDWARD DODGE, Longview, Tex. Filed Aug. 27, 1892. Serial No. 444,279. (No model.)



Claim.—1. A lumber truck, comprising a pair of double flanged wheels, the axes of which are in longitudinal alignment a frame for each wheel, and cross beams for connecting the frames with each other, at opposite sides of and parallel with the axes of said wheels substantially as shown and described.

2. A lumber truck, consisting in a single grooved wheel for each track, a frame C for each wheel, comprising two parallel bars between which the said wheels are journaled, and a pair of cross beams D D' resting at their ends on the ends of the two frames C, substantially as set forth.

494,524. CAR-FENDER. HORACE T. FIELD, Boston, Mass. Filed May 20, 1892. Serial No. 433,750. (No model.)



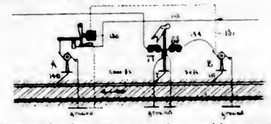
Claim.—In a car fender, the combination of a lower swinging shield K, adapted to be operated by a spring, and controlled by mechanism connected to an upper shield H: with an upper shield H, all operating together substantially as described and for the purpose set forth.

494,525. BLOCK-SIGNAL SYSTEM FOR RAILWAYS. EUGENE FONTAINE, Detroit, Mich., assignor to the Fontaine Safety Signal Company, same place. Filed July 11, 1892. Serial No. 439,714. (No model.)

Claim.—1. The combination with a semaphore, of a connecting rod composed of an independently movable upper section adapted to hold said semaphore in one position, and of an independently movable lower section constructed and adapted to automatically couple therewith and a spring on said lower section adapted to move the semaphore into its other position when the two sections are coupled together, substantially as described.

2. The combination with a semaphore, of a connecting rod composed of an independently movable upper section provided with a spring to move said semaphore into one position and hold it there, and of an independently movable lower section provided with a spring and a coupling device, whereby when the two sections are coupled together the lower section is adapted to move and hold said semaphore in its other position, substantially as described.

3. The combination with a semaphore and its actuating connecting rod composed of an independently movable upper section constructed to move the semaphore into one position, and of an independently movable lower section constructed and adapted to couple with said upper section and move the semaphore into its other position and hold it there, of means operated by the passing train to raise said lower section of the connecting rod to couple it with the upper section, and an automatic stop adapted to uphold it in such raised position, substantially as described.



4. The combination with a semaphore and its actuating connecting rod composed of an independently movable upper section constructed and adapted to move the semaphore into one position, of an independently movable lower section constructed and adapted to couple with said upper section and move the semaphore into its other position and hold it there, of means operated by the passing train to raise said lower section of the connecting rod to couple it with the upper section, an automatic stop adapted to uphold it in such position, and means for tripping such stop, substantially as described.

5. The combination with a semaphore and its actuating connecting rod composed of an independently movable upper section constructed and adapted to move the semaphore into one position and of an independently movable lower section constructed and adapted to move the semaphore into its other position, and hold it there when the two sections act united together, of automatic coupling means on the two sections, means operated by the passing train to raise the lower section into coupling engagement with the upper section, an automatic stop adapted to uphold it in such position, means for tripping said stop and means for tripping said coupling, substantially as described.

6. The combination with a semaphore and its actuating connecting rod composed of an independently movable upper section constructed and adapted to move the semaphore into its other position and hold it there when the two sections act united, of an automatic coupling uniting the two sections, a tripping device for said coupling and an electric lock controlling such tripping device, substantially as described.

7. The combination with a semaphore and its actuating connecting rod composed of an independently movable upper section constructed and adapted to move the semaphore into one position and of an independently movable lower section constructed and adapted to move the semaphore into its other position and hold it there when the two sections act united, of an automatic coupling adapted to unite the two sections, means operated by the passing train to raise the lower section to cause it to couple with the upper section, an automatic stop to uphold the sections when coupled together, a tripping device for such stop and an electric lock controlling such tripping device, substantially as described.

8. The combination with a semaphore and its actuating connecting rod composed of an independently movable upper section constructed and adapted to move the semaphore into one position and hold it there and of an independently movable lower section constructed and adapted to move the semaphore into its other position and hold it there when the two sections act united, of an automatic coupling adapted to unite the two sections, means operated by a passing train to raise the lower section to cause it to couple with the upper section, an automatic stop adapted to uphold it, means for tripping said stop controlled by an electric lock and means for tripping the coupling controlled by an electric lock, substantially as described.

9. In a block signal system, the combination for each block, of a semaphore actuated by a connecting rod constructed and adapted to move said semaphore from its position of danger to a position of safety by mechanical power received and stored from an impulse of the train in passing said semaphore, an electric lock controlling the release of said power, an electro-magnetic generator in circuit therewith, mechanism for operating said generator by an impulse derived from the passage of the train at such generator and a delay in said mechanism, substantially as described.

10. In a block signal system, the combination for each block of a semaphore actuated by a connecting rod constructed and adapted to move said semaphore from its position of danger to a position of safety by mechanical power received and stored from an impulse of

the train in passing said semaphore, an electric lock controlling the release of said power, a circuit extending from said electric lock to a predetermined point in the track beyond the next succeeding semaphore, means for transmitting a current through said circuit to operate the lock by the passing of the train at such point and a normally open break in said circuit electrically controlled by the passing of the train at a preceding point in the track, substantially as described.

11. In a block signal system, the combination for each block, of a semaphore actuated by a connecting rod constructed and adapted to move said semaphore from its position of danger to a position of safety by mechanical power received and stored from an impulse of the train in passing said semaphore, an electric lock controlling the release of such power, an electric generator at a point beyond the next succeeding semaphore and provided with means for operating the same by an impulse from the passing train, said means being provided with a delay, and an electric circuit for transmitting the current generated to operate the electric lock, said circuit being provided with a normally open break controlled by the passing of the train at a preceding point in the track, substantially as described.

12. In a block signal system, the combination of a semaphore, an actuating connecting rod composed of independently movable upper and lower sections provided with an automatic coupling device, a spring on the lower section adapted to move the semaphore into its other position when the sections are coupled, means to raise said lower section by an impulse from the passing train to compress its spring and couple it with the upper section, a stop adapted to automatically engage with and hold the upper section of the connecting rod in position and an automatic releasing device for such stop controlled by an electric lock operated by the passage of the train at a predetermined point, substantially as described.

13. In a block signal system, the combination of a semaphore, an actuating connecting rod composed of independently movable upper and lower sections provided with an automatic coupling device, a spring on the lower section adapted to move the semaphore into its other position when the sections are coupled, means on the track whereby an impulse from the passing train raises said lower section to compress its spring and couple it with the upper section, a stop adapted to automatically engage with and hold the upper section in position, an automatic tripping device for the stop controlled by an electric lock operated by the passage of the train at a predetermined point beyond the semaphore and an automatic releasing device for the coupling controlled by an electric lock operated by the passage of the train in advance of the semaphore, substantially as described.

14. In a block signal system, the combination of a semaphore an actuating connecting rod composed of independently movable upper and lower sections provided with an automatic coupling device, a spring on the lower section adapted to move the semaphore into its normal position of safety when the sections are coupled together, a spring or its equivalent on the upper section adapted to move the semaphore to danger when the sections are uncoupled, means to raise the lower section by an impulse from the passing train to compress its spring and couple it with the upper section, a stop adapted to automatically engage with and hold the upper section of the connecting rod in position, an automatic tripping device for the stop controlled by an electric lock, an electric generator at a point beyond the next succeeding semaphore for operating said lock by an impulse from the passage of the train, an automatic tripping device for the coupling controlled by an electric lock and an electric generator at a point in advance of the semaphore for operating said tripping device by the passage of the train, substantially as described.

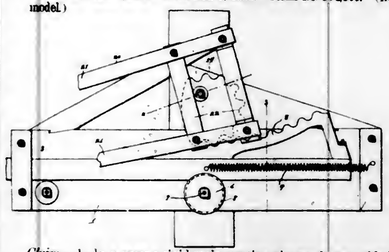
15. The combination with the semaphore and its actuating connecting rod composed of an independently movable upper section adapted to move the signal into one position and of an independently movable lower section adapted to hold the semaphore in its other position when coupled therewith, of the hook 43 on the lower section, the roller wrist 41 on the upper section, with which said hook is adapted to couple, the spring arm 78 pivotally secured to the hook, and the latches 81, 84, adapted to engage with the spring arm 78 to trip the hook as a safety device, substantially as described.

16. The combination with the semaphore and its actuating connecting rod composed of the independently movable sections 30 and 12, of the spring 28 on the upper section adapted to move the signal into one position, the spring 16 on the lower section adapted to move the signal into its other position when the sections are coupled together, the automatic coupling device comprising the roller wrist 41 and coupling hook 43, the tripping arm 49 on the coupling hook, the electric lock for such tripping arm comprising the parts 54, 56, 61 63 and 65, the automatic stop 45 and the tripping device therefor comprising the parts 66, 67, 68, 69, 70, 74 and 75, substantially as described.

494,526. PROCESS OF MAKING TRANSPARENT PHOTOGRAPHS ON GLASS. FRANCIS B. FORSTER, New York, N. Y. Filed Apr. 14, 1892. Serial No. 429,194. (No specimens.) Patented in Belgium May 16, 1891, No. 99,446.

Claim.—The process of making transparent photographic pictures which consists in printing the positive image in a metallic oxide from the negative upon a medium which has been surfaced with a mixture of the materials constituting the sensitive film and said metallic oxide; then transferring said print in said metallic oxide to and developing it upon a temporary support; then transferring said developed print to and rendering it insoluble upon the surface of a metallic glass plate; then coating said print with a vitreous flux of the character substantially as set forth, which fuses at about the temperature stated; and subjecting the glass plate bearing the print and its flux to a degree of heat to fuse the flux, substantially as and for the purpose set forth.

494,527. OPERATING MECHANISM FOR BALING-PRESSES. HOSEA H. HUNTLEY, Quincy, Ill., assignor to Michael Rooney and Mary L. Huntley, same place. Filed Dec. 9, 1890. Serial No. 374,069. (No model.)



Claim.—1. In a press a rigid reciprocating plunger bar provided with a tapered toothed rack bar, said plunger bar held in position in front of the operating mechanism by a rigid cross bar and provided with friction wheels having flanges which embrace the plunger bar at opposite sides to secure perfect alignment; in combination with an operating lever and an eccentric irregularly curved, toothed cam, connected therewith, the teeth of which register with the teeth on the curved toothed rack bar on the plunger bar, the plunger bar being held firmly against lateral movement by the flanged friction wheels, and against vertical movement by the friction wheels and the toothed cam which are mounted at opposite sides of the plunger bar, substantially as and for the purpose specified.

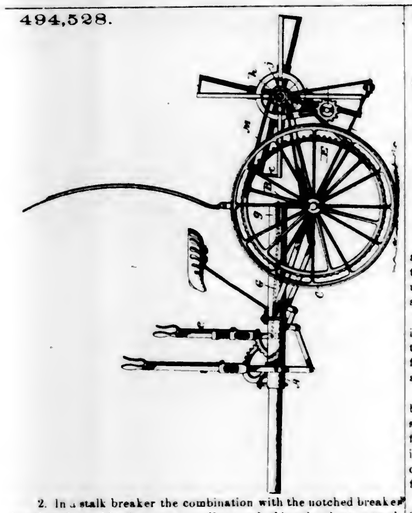
2. In a press a rigid reciprocating plunger bar provided with a tapered, toothed rack bar, said plunger bar held in position in front of the operating mechanism by a rigid cross bar 3 and provided with friction wheels having flanges which embrace the plunger at opposite sides to secure perfect alignment, said rollers located back of the cross bar 3 near the operating mechanism and approximately opposite the spindle 12; in combination with an operating lever and an eccentric, irregularly curved, toothed cam, the teeth of which register with the teeth on the toothed rack bar on the plunger, the plunger bar being held firmly against vertical movement by the flanged friction wheels and against lateral movement by the cam and the face of the wheels, substantially as and for the purpose specified.

3. In a press, a rigid reciprocating plunger bar adapted to reciprocate in a right line and provided with a spring connecting it with a permanent part of the structure of the press, and held in position by a rigid guide in front and flanged friction wheels at the rear in the region of the operating mechanism, said plunger bar provided with a tapered toothed rack bar; in combination with a pivotally mounted eccentric cam provided with a series of teeth at different distances from the pivotal support of the cam and arranged on an irregular curved line, said cam provided with projections which extend beyond the line of the face of the cam, one side of the periphery of said cam being devoid of teeth and cut away to allow the rack bar to pass the cam as the rack bar flies back, and to which cam is secured an operating lever, all constructed and combined to operate substantially as described.

494,528. STALK-BREAKER. WILL S. JAMES, Fort Worth, assignor of one-half to W. D. Crothers, Brownwood, and W. L. Ward, Victoria, Tex. Filed Feb. 9, 1892. Serial No. 420,879. (No model.)

Claim.—1. In a stalk breaker the combination with the stationary breaker bar *d*, of the reel having notched breaker bars *c*, extending from one side of the machine to the other in an oblique direction substantially as and for the purpose described.

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2. In a stalk breaker the combination with the notched breaker bar *d*, of the reel having corresponding notched breaker bars, extending from one side of the machine to the other in an oblique direction substantially as and for the purpose described.

3. In a stalk breaker, the combination with the reel having breaker bars, and the braces K and the clips *k*, of the breaker bar *d* having slots *i* and fastening bolts passing through the said braces K, clips *k* and the slots *i* in the said breaker bar *d*, substantially as and for the purpose set forth.

4. In a stalk breaker, the combination with bar *d* the reel provided with breaker bars *c*, the axle, wheels C loosely mounted on the axle and having half clutches D, and the gear wheels E mounted on the said axle and provided with half clutches D' and adapted to actuate the said reel, of the bars *f* having connection at their outer ends with the said gear wheels, grapples *g* pivoted together at one end, and having their free ends curved and adapted to engage with the inner ends of the rods *f*, links *g'* pivotally connected together at one end, and having their other ends pivotally connected with the said grapples *g* midway of their ends, rod G connected with the pivoted ends of the grapples and a lever having connection with the said rod G for purposes of operating the same, substantially as and for the purpose described.

5. In a stalk breaker, the combination with the reel shaft having bosses H which are provided with cone bearings, of sprocket pinions mounted on the said reel shaft and cone bearings, a nut for holding the said pinion in frictional contact with the cone bearing, and means for actuating the said pinion for operating the reel, substantially as and for the purpose described.

494,529. PIPE-WRENCH. HENRY F. JESES, Pawtucket, R. I. Filed Aug 20, 1892. Serial No 443,646. (No model.)

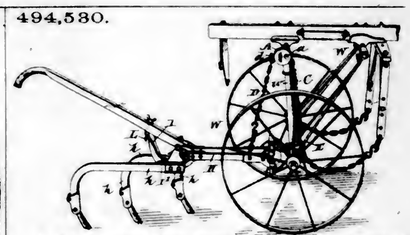


Claim.—In a pipe wrench the combination with the handle A and the jaw B provided with the screw threaded shank *a*, of the jaw E held in the socket *c*, and provided with the lip *d*, and the nut D having a shoulder *e*, adapted for engagement with the lip *d* to hold the jaw E in its socket, substantially as described.

494,530. SULKY-PLOW. NICHOLAS P. LEHR and JAMES H. WOLFE, Fremont, Ohio. Filed Oct. 29, 1892. Serial No. 450,358. (No model.)

Claim.—1. In a cultivator a lifting device for the drag-bars consisting of a spring, chain secured thereto, an eccentric pulley having a groove therein, and a bearing upon which the said eccentric pulley rotates, all arranged for operation as specified.

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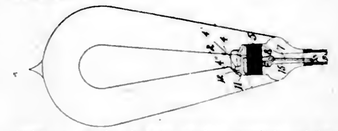
2. In a cultivator a lifting device for the drag bars consisting of a spring, chain secured thereto, an eccentric pulley having a groove therein, a pin in said groove for holding the chain, and the bearing upon which the said eccentric rotates, all arranged for operation as specified.

3. In a cultivator a handle holding and adjusting device consisting of a bracket curved or elbowshaped having an elongated slot at the said curved or elbowshaped portion, a flared or broadened or flanged upper portion, and a hole for a pivot bolt in its forward end, as set forth.

4. In a sulky plow or cultivator the combination of the drag bars with an adjusting device consisting of a bracket curved or elbow-shaped having a slot at the curved or elbowshaped portion, and a flared or broadened and flanged upper end, and a pivot bolt hole in its forward end, whereby the handles can be adjusted either vertically or longitudinally, or both vertically and longitudinally, as set forth.

5. The combination with a cultivator arch and hinged drag-bars of a lifting device consisting of a spring secured to the front of the axle, a chain secured to said spring and to the drag-bar, and a pulley eccentrically mounted on the axle, as set forth.

494,531. ELECTRIC-LAMP VIBRATOR-REGULATOR. DANIEL M. MOORE, New York, N. Y. Filed Nov. 23, 1892. Serial No 452,960. (No model.)



Claim.—1. An electric lamp regulator consisting of the combination with the bulb and filament of an incandescent electric lamp, of an armature-controlled current vibrator within said bulb and in circuit with said filament, a magnet outside of the bulb and within inductive action of said armature, and means for varying the relative distance between said armature and said magnet.

2. An electric lamp regulator consisting of the combination with the bulb and filament of an incandescent electric lamp, of an armature-controlled current vibrator within said bulb and in circuit with said filament, a magnet outside of the bulb and within inductive action of said armature, and means for varying the relative distance between said armature and said magnet, said means consisting of a movable handle and intermediate mechanism between the same and the magnet.

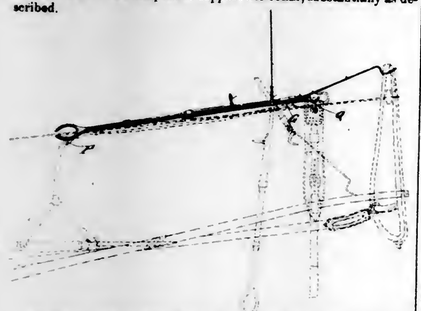
3. An electric lamp regulator consisting of the combination with the bulb and filament of an incandescent electric lamp, of an armature-controlled current vibrator within said bulb and in circuit with said filament, a magnet outside of the bulb and within inductive action of said armature, means for varying the relative distance between said armature and said magnet, said means consisting of a movable handle and intermediate mechanism between the same and the magnet, and a circuit interrupter having terminals *o*, *p*, and controlled by said handle.

494,532. HARNESS-SUPPORT. WILLIAM MORGAN, St. Louis, Mo., assignor of one-fifth to James L. Hopkins, same place. Filed Sept. 2, 1892. Serial No 444,915. (No model.)

Claim.—1. A harness suspending frame comprising a tubular main portion consisting of two members having devices at the ends for suspending the harness, one of the members being at its end cut away to form a shell-like bearing for embracing the end of the other member which is pivoted thereto and a bolt for holding the other member of the frame in line therewith, substantially as described.

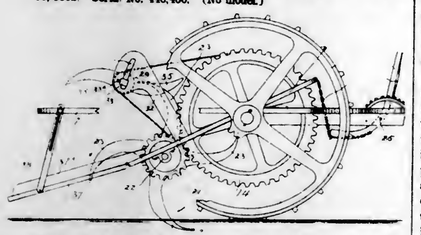
2. A harness suspending frame comprising a main portion made

up of two members jointed together whereby the frame is adapted to fold or bend between its ends, means for holding the two parts of the frame rigidly in line with each other, one of the members of the frame being provided with means for suspending the rear part of the harness, and the other member being provided with the cross bar L having the hook for the saddle, and with the loop N extending in front of the cross bar and adapted to support the collar, substantially as described.



3. A harness suspending frame composed of two members hinged together whereby the frame is adapted to bend between its ends, means for holding the two parts of the frame rigidly in line with each other, one of the parts or members of the frame being provided with means for suspending the front end of the harness, and the other member being provided with a T-joint and with the fork made up of two arms B, B' which are screwed into the T-joint and are provided at their ends with the oval-shaped or double hooks C, C, substantially as described.

494,538. POTATO-DIGGER. LINDSAY S. STREPEY, Aspen Junction, assignor of one-half to Henry R. Gillispie, Aspen, Colo. Filed Oct. 10, 1892. Serial No. 448,480. (No model.)

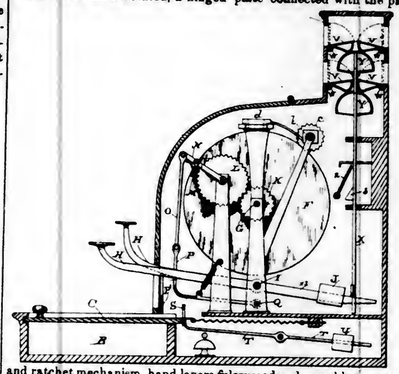


Claim.—In a potato digger the combination with the axle, traction wheels and stationary frame of the movable frame pivoted on the axle and extending both in the front and rear of the same, the shaft journaled on the movable frame in the rear of the axle, the diggers supported upon said shaft, upwardly extending arms attached to the movable frames, a shaft journaled in the upper extremities of said arms which are provided with curved slots to receive the journals, pulverizing teeth made fast to said shaft and adapted to pass between the digger teeth as both shafts are rotated, and means for adjusting the movable frame, said means being attached to the same forward of the axle whereby the diggers and pulverizers may be raised and lowered at pleasure, substantially as described.

494,534. CASH REGISTER AND INDICATOR. EDWARD T. TAYLOR, Oakland, Cal. Filed Dec. 1, 1892. Serial No. 453,757. (No model.)

Claim.—1. In a cash register, one or more drums having spirally arranged rows of figures upon the periphery, pawl and ratchet mechanisms by which the drums are advanced, hinged plates connected with the pawl carrying levers, hand levers fulcrumed so that the depression of either of the levers will move the plate and actuate the drum, slots of different depths made in the plates in the line of movement of the levers whereby the distance to which the drum is advanced by either lever is determined, a cash drawer having a sliding cover, a stop bar by which said cover is locked in place when closed, a vertically movable bar S which is engaged by the pawl actuating plate P when it is depressed, whereby the cover of the drawer is released and automatically opened, substantially as herein described.

2. In a cash register, one or more drums having spirally arranged rows of figures upon the periphery, a pawl and ratchet mechanism by which the drum is rotated, a hinged plate connected with the pawl



and ratchet mechanism, hand levers fulcrumed and movable to engage the pawl actuated plate, slots in the plate corresponding with each of the levers, said slots having different depths whereby the movements of the levers advance the drum a distance equal to the amount to be indicated by the lever moved, a drawer having a horizontally sliding spring actuated cover, a weight actuated locking bar which engages the rear edge of the drawer cover and retains and locks it when the drawer is closed, said bar being moved to release the drawer cover whenever the hand levers are moved to indicate a purchase, substantially as herein described.

3. In a cash register, one or more drums having spirally arranged rows of figures upon the periphery, pawl and ratchet mechanism whereby the drums are rotated, hand levers and intermediate slotted plates connected with the pawl mechanism and moving it and the drums whenever the hand lever is depressed, indicators with screw-threads by which they are advanced over the spiral rows of figures upon the drums as the latter are rotated, whereby the total amount received during the day is indicated by inspection of the drums, substantially as herein described.

4. In a cash register, one or more drums having spirally arranged rows of figures upon the periphery and traveling indicators with a mechanism whereby they are advanced over the rows of figures as the drum rotates, pawl and ratchet mechanism and plates connected therewith, by the depression of which the drum is rotated, hand levers indicating the different amounts received hinged and engaging the pawl actuating plates so that the depression of one of the levers will advance the drum proportionately to the amount to be indicated, a case having a series of openings upon opposite sides, plates having their lower outer edges hinged adjacent to the bottom of said openings, each plate having figures marked upon it corresponding with the amount to be indicated, vertical rods, the lower ends of which are engaged by the rear ends of the hand levers so that the rods are raised when the front end of the hand levers are depressed arcs fixed to the upper ends of the vertically movable rods and engaging the inner ends of the indicating plates whereby the latter are rotated about their hinges and presented in the corresponding openings of the indicator case whenever the indicator rods are raised, substantially as herein described.

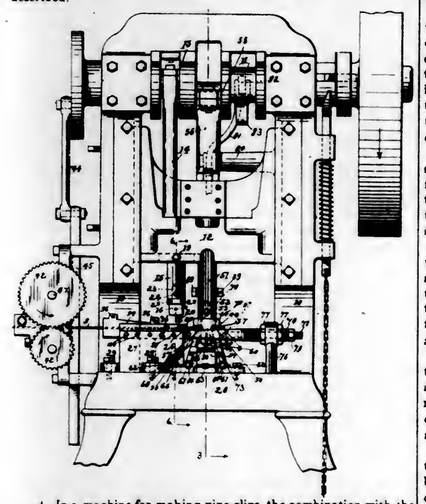
494,535. MACHINE FOR MAKING PIPE-CLIPS. SAMUEL VANSTONE, Providence, R. I., assignor of three-fourths to William K. Atwood and Joseph Nichols, same place. Filed July 21, 1892. Serial No. 440,797. (No model.)

Claim.—1. In a machine for making pipe clips, the combination with the cutting off plunger provided with the opposite punches, of the die provided with the perforations adapted to receive the punches, and the intervening perforation adapted to receive the cutting off plunger, and the perforated plate provided with the guiding groove for the metal strip, substantially as described.

2. In a machine for making pipe-clips, the combination with the cutting off plunger provided with the opposite punches, and the die provided with the perforations adapted to receive the punches and the intervening perforation adapted to receive the cutting off plunger, of the adjustable grooved side guides, and the grooved perforated plate adapted to guide the metal strip to its proper position over the cutting off die, substantially as described.

3. In a machine for making pipe-clips, the combination with the bending plunger having opposite recesses at its base, of the pivoted

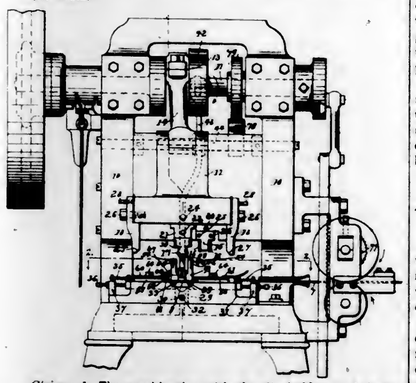
arms, and means for drawing the said arms together to press the sides of the clip into the recesses of the bending plunger, substantially as described.



4. In a machine for making pipe-clips, the combination with the bending plunger having opposite recesses at its base, of the adjustable pivoted arms, means for drawing the said arms together to press the sides of the clip into the recesses of the bending plunger, the spring for throwing the arms outward, and the adjustable rests for limiting the outward movement of the arms, substantially as described.

5. In a machine for making pipe-clips, the combination with the bending plunger provided with the opposite recesses at its base and the central groove for the clearer, of the pivoted arms, means for drawing the said arms together to press the sides of the clip into the recesses, of the bending plunger, means for operating the bending plunger, and the clearer lever provided with the adjustable clearers adapted to force the finished clip laterally from the bending plunger, substantially as described.

494,536. MACHINE FOR MAKING PIPE-CLIPS. SAMUEL VANSTONE, Providence, R. I., assignor of three-fourths to William K. Atwood and Joseph Nichols, same place. Filed July 29, 1892. Serial No. 441,609. (No model.)



Claim.—1. The combination with the die holder made in two parts, and the perforated dies held therein, of the opposite punches, and the intervening cutting off plunger, substantially as described.

2. The combination with the reciprocating plunger head, provided with the cutting off and punching plungers, and the forming plunger, of the cutting off and punching dies, the concave forming die, and the reciprocating carrier for transferring the blank laterally from the cutting off and punching dies, to the forming die, substantially as described.

3. The combination with the reciprocating plunger head, provided with the cutting-off and punching plungers, and the contracted or recessed forming plunger, of the cutting off and punching dies, the concave forming die, and the reciprocating carrier for transferring the blank laterally from the cutting off and punching dies to the forming die, the plungers for forcing the bent clip into the recess or contraction at the sides of the forming plunger, and the clearers adapted to force the clip laterally from the forming plunger, substantially as described.

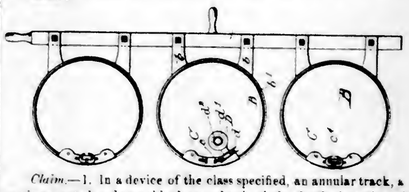
4. The combination with the forming plunger, provided with a slot at its end, and contracted or recessed at its base, and the concave forming die, of the plungers for forcing the sides of the bent clip into the recess of the forming plunger, and the clearer adapted to enter the slot in the forming plunger, to force the finished clip from the same, substantially as described.

5. The combination with the reciprocating plunger head, provided with the forming plunger, contracted or recessed at its base, and the opposite inclined cam pieces, of the concave forming die, and the spring actuated plungers provided with an incline, adapted for the engagement of the cam pieces to cause the forward movement of the said plungers, to force the bent clip into the recess or contraction at the sides of the forming die, substantially as described.

6. The combination with the cutting off and punching dies, and the concave forming die, of the adjustable guide plates, the adjustable stops for holding the blank over the forming die, and the reciprocating carrier for transporting the blank laterally from the cutting off and punching dies to its position over the forming die, substantially as described.

7. The combination with the cutting off and punching dies, and the forming die, of the reciprocating carrier for transporting the blank laterally from the cutting off and punching dies, to its position over the forming dies, and means for preventing the turning of the blank, upon the initial forward movement of the carrier, substantially as described.

494,537. PICKET-WIRING FENCE-MACHINE. MATTHEW F. CONNETT, Atlanta, Ga. Filed Feb. 17, 1892. Serial No. 421,895. (No model.)



Claim.—1. In a device of the class specified, an annular track, a carriage seated and movable thereon having holes for the insertion of the wires to be twisted, a stud carried on the side thereof, and a guide consisting of a split ring carried thereon adapted to converge the wires passing through said holes, substantially as and for the purpose specified.

2. In a device of the class specified, a ring, a carriage seated and movable thereon having holes for the introduction of the wires to be twisted, a stud carried on the side thereon, and a guide carried thereon adjustable to and from said carriage and adapted to hold the wires closer together at that point than where they pass through the said holes, substantially as and for the purpose specified.

494,538. HARROW. CHARLES LA DOW, Albany, N. Y. Filed June 29, 1891. Serial No. 397,885. (No model.)

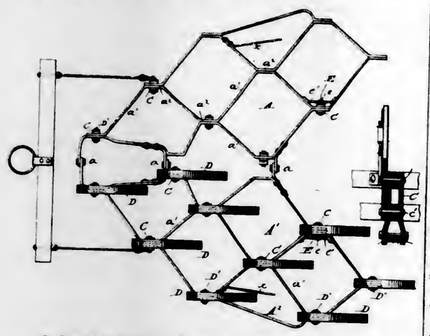
Claim.—1. In a harrow, a frame having openings substantially wedge shaped at their rear portions, in combination with devices moving simultaneously at the will of the operator relatively to the wedge shaped openings whereby rubbish may be dislodged from several of said openings simultaneously.

2. In a harrow, a frame whose bars form openings substantially diamond shaped between them, C shaped teeth distributed over the frame substantially as described, and hinged at or near the forward ends of said openings, and having their front bow portions located in advance of the points of juncture of the frame bars and operatively connected together so that several teeth may be moved simultaneously, in combination with means for adjusting the hitch of the teeth.

3. A harrow frame having bars arranged to form openings substantially such as described, teeth shaped substantially as described and having their front bow portions arranged in advance of the rear-

ward parts of said openings, and devices operatively connecting several of the teeth whereby their front bow portions may be simultaneously varied relatively to the obliquely inclined sides of said openings so that said movement of the teeth may act on and dislodge rubbish that may be centralized at or near said bow portions of the teeth by said obliqsely inclined bars, during the progress of the harrow.

4. In a float harrow, a frame and C shaped teeth hinged thereto so as to be simultaneously adjustable and arranged in such relative proximity to each other that when the front portions of some teeth are moved by their operating devices in opposite direction from the rear portions of adjacent teeth, said front portions assist in disengaging rubbish from the rear portions of other teeth.



5. In a float harrow, a frame and C shaped teeth independently hinged thereto and arranged in stepped series across the line of draft with the front bow portions of teeth in one series arranged adjacent to the rear soil working portions of teeth in another series, in combination with devices operatively connected with the teeth whereby the front bow portions of one series may be moved downwardly at the same time that the rear soil working portions of its adjacent series are moved upwardly, adapting the front bows of one series to disengage rubbish from the rear portion of its fellow series when simultaneously operated.

6. In a float harrow, a frame and C shaped teeth hinged thereto and so arranged relatively to each other that when the front bow portions of some teeth are rocked simultaneously with the rear soil working portions of adjacent teeth (but in opposite direction therefrom,) said bow portions step on or rock on rubbish clinging to said soil working portions and thus assist in disengaging said rubbish.

7. In a harrow a frame and C shaped teeth hinged thereto, and so arranged relatively to each other that the front bow portions of some teeth may be rocked simultaneously with but in an opposite direction from the rear portions of other teeth in the same series and that said front and rear portions of different teeth may when rocked intersect a line transverse to the path of the harrow, thus adapting teeth in the same series to assist in disengaging rubbish from each other when operated in concert.

8. In a harrow a frame and C shaped teeth adapted to be simultaneously rocked relatively thereto and arranged in obliquely inclined stepped series across the line of draft substantially as shown, the teeth in each series being so arranged relatively to each other that the rear soil working portion of one tooth may, when rocked, move at a different speed than the front bow portion of an adjacent tooth in the same series, the unequal speed of said adjacent moving parts adapting them to assist in loosening or disengaging rubbish from each other when simultaneously operated.

9. In a harrow a draft frame and C shaped teeth adapted to be simultaneously rocked relatively thereto, the teeth being so arranged relatively to each other that the rear soil working portion of one tooth may operate in a plane substantially transversely opposite to the front bow portion of another tooth in the same obliquely inclined series, whereby the front portion of said tooth is adapted to be moved forwardly and downwardly while the rear portion of its adjacent fellow is being moved upwardly, the unequal movement of said teeth facilitating the discharge of rubbish therefrom.

10. A harrow having its frame, or a section thereof, made up of series of bars rigidly connected together with openings substantially diamond-shaped between the bars, and with teeth moving on separate centers and mounted at or near the angles of the bars and simultaneously adjustable as to pitch, whereby teeth in different series may be adjusted at one time.

11. A harrow having its frame, or a section thereof, made up of zig-zag bars united at their contiguous portions, and simultaneously adjustable harrow teeth mounted at the contiguous portions and braced by the diagonal parts of the frame.

12. In a harrow, two sections, each composed of zig zag bars rigidly secured together at their contiguous portions and a series of simultaneously adjustable harrow teeth carried by each section.

13. A main harrow frame having curved teeth secured thereto in zig-zag lines, each rocking on a separate center, a lever for simultaneously adjusting the pitch of the teeth, and bars shaped substantially the same as the main frame for connecting the lever and teeth.

14. In a harrow, zig-zag frame bars having longitudinal portions, plates or bars pivoted thereto, and teeth supported by these plates, in combination with means for rocking the plates, whereby the pitch of several teeth is simultaneously adjusted.

15. A harrow having zig-zag frame bars with their longitudinal portions bolted or riveted in direct contact, in combination with teeth mounted on said longitudinal portions.

16. The combination of a harrow frame, or a section thereof, individually adjustable harrow teeth secured thereto in zig-zag lines and moving about separate centers and means for simultaneously adjusting the pitch of several teeth on a section.

17. In a harrow a frame whose bars form openings between them, and a circular tooth adapted to dig the ground in each of said openings, in combination with means adapted to simultaneously move two or more of said teeth upwardly and downwardly within said openings whereby the frame around each tooth acts as a stripper therefor.

18. In a harrow circular teeth and a frame having openings substantially diamond-shaped in which teeth operate, in combination with mechanism for simultaneously adjusting the pitch of the teeth, said mechanism occupying substantially parallel planes with the frame, so as not to obstruct the diamond shaped openings, nor to prevent the backward and forward or upward and downward movement of the working ends of the teeth within said openings.

19. In a harrow upper and lower bars, circular teeth hinged thereto by an upper and a lower pivot for each tooth, in combination with a ratchet and lever by which said circles of the teeth may be simultaneously set more or less in advance of their hinges and adapted to shield the hinges from rubbish.

20. In a harrow frame zig-zag or wavy bars set up edgewise vertically and joined into a rigid section, and circular teeth attached at various points to said section and individually braced thereby, in combination with means for simultaneously rocking several of the teeth upwardly and downwardly relatively to the frame bars the vertical thinness of said bars affording the greatest possible space in which to simultaneously adjust circular teeth which are individually braced during their rocking movements.

21. As a new article of manufacture, a harrow frame having obliquely inclined bars, curved teeth having trailing ends, and means for rocking the teeth simultaneously and for holding the front and rear portions of each tooth squarely in line with the draft during their rocking movement.

22. In a harrow a frame, curved teeth hinged thereto by two hinges for each tooth, in combination with means whereby the front bow portion of two or more teeth can be simultaneously rocked forward below their hinge connections, and the points of said teeth elevated above said hinge connections.

23. In a harrow non-revolving bars, circular teeth thereon, and mechanism located within the circle formed by each overhanging tooth for adjusting the pitch thereof, in combination with devices for connecting said mechanism with a lever whereby several teeth may be simultaneously adjusted.

24. In a harrow a frame and C shaped teeth, each separately pivoted at a point between its front and rear portions so as to have the weight of its front part balanced against the weight of its rear part (so as to be easily moved backwardly and forwardly), in combination with means for simultaneously adjusting several of said teeth.

25. The combination of a C shaped tooth with a swinging arm dividing the space between the soil working end and the front bow portion of the tooth, whereby rubbish is prevented from working forward into said front bow portion and the tooth is adjusted as to pitch.

26. In a harrow a frame having two sections, circular teeth hinged loosely relatively to the frame and arranged in three diagonal series on each section, upper bars hinged to the front and rear teeth and deflected sidewise so as to be hinged to teeth located between the front and rear series, but in a different draft line, the said intermediate hinge being adapted to prevent the deflected bars from buckling, in combination with means operatively connected with the bars, adapted to impart a backward and forward movement to the teeth.

27. In a harrow circular spring teeth, a frame attached thereto and then diverging therefrom, in combination with backwardly and forwardly moving rods, links, or other bars also attached to the teeth or to devices moving with the teeth and theo diverging therefrom for the purpose of simultaneously varying their pitch without contact therewith except at the points of attachment thereto.

28. A float harrow frame having separately hinged teeth in combination with devices operatively connected to and moving with the teeth in such manner that the pitch of several teeth may be simultaneously adjusted; said devices, at their junction with the teeth, being encircled thereby to such extent that they are guarded by the encircled thereby to such extent that they are guarded by the en-

29. In a harrow a draft frame, two or more series of teeth hinged thereto, arms supporting the teeth, and a lever for moving teeth in different series simultaneously, in combination with zig-zag bars operatively connecting the lever with arms of different draft lines, and braced at their deflected portion by said arms.

494,539. CAR-COUPLING. HENRY H. MARKLEY, Marianna, Ark. Filed Dec. 29, 1892. Serial No. 456,733. (No model.)



Claim.—In a hook and link coupler, the combination with the rear-pivoted coupler, of the yoke F having the two opposite rigid arms E E', one bearing on the bottom of drawhead and the other on the bottom of said coupler, the said yoke being jointed to a handle-bar as shown and described.

REISSUES.

11,316. PROCESS OF FORMING MATRICES. CASPER L. REDFIELD, Chicago, Ill., assignor to the Chicago Matrix Machine Company. Filed May 27, 1891. Serial No. 394,059. Original No. 429,864, dated June 10, 1890.



Claim.—1. The process of forming matrices for stereotype-plates which consists in impressing dies in sequence into a matrix-body, and compressing material at the sides of the paths of the type faces and forming offsets in the walls of the impressions, substantially as set forth.

2. The process of forming matrices for stereotype-plates, which consists in forming the impressions successively by dies and compressing the matrix material unequally at both sides of the path of the type-face to produce varying offsets in the walls, substantially as set forth.

3. The process of forming matrices for stereotype-plates which consists in forming the impressions successively by dies and compressing the matrix material unequally at both sides of the path of the type-face to form offsets in the walls of greater width at the front than in rear of the character-face, substantially as set forth.

4. The process of forming matrices for stereotype-plates which consists in forming the impressions successively by dies and compressing the matrix material unequally at both sides of the path of the type-face to form offsets in the walls of greater depth at the front than in rear of the character-face, substantially as set forth.

5. The process of forming matrices for stereotype plates, which consists in forming the impressions successively by dies and compressing the matrix material unequally at both sides of the path of the type-face to form offsets in the walls of greater width and depth at the front than in rear of the character-face, substantially as set forth.

6. The process of forming matrices for stereotype-plates, which consists in forming the impressions in succession by dies and compressing the matrix material at both sides of the path of the type-face to form shoulders in walls adjacent to the hair-lines of the character-faces, substantially as set forth.

7. The process of forming matrices for stereotype-plates, which consists in forming impressions by successively impressed dies and compressing the matrix material both laterally and parallel to the path of the type-face to form sloping walls and offsets therein, substantially as set forth.

8. The method of forming matrices for stereotype-plates, which consists in compacting in downward direction only matrix material adjacent to the character impressions to less depth than the character impressions.

9. A matrix for stereotype-plates having its impressions wider than the character-faces and their walls provided with offsets, substantially as set forth.

10. A matrix for stereotype-plates, having the walls of its impressions sloping outward from the character-faces and provided with offsets, substantially as set forth.

11. The method of forming stereotype matrices, which consists in making successive type-face impressions in a matrix material, compacting material adjacent to character impressions and forming offsets in the compacted portions of materials.

12. The method of forming matrices for stereotype-plates, which consists in compacting in downward direction matrix material adjacent to the character impressions to less depth than the character impressions.

13. The method of forming stereotype-matrices, which consists in forming successive character impressions in a matrix material and in compacting in downward direction to less depth material adjacent to such impressions simultaneously with their formation.

14. The method of forming stereotype-matrices, which consists in making the impressions in the matrix material successively, compressing downward to less depth material adjacent to the face-impressions, and inclining the walls of such impressions.

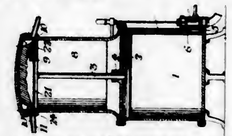
15. The method of forming matrices, which consists in simultaneously forming in a matrix body a character-impression and an impression lateral and parallel thereto but of less depth, and in making the successive impressions partly in the material compacted by such lateral impressions.

16. The method of forming stereotype-matrices, which consists in forming the impressions successively by dies, inclining the walls of the impressions from the type-face outward, and forming offsets in the walls, for the purpoee set forth.

17. The method of forming stereotype-matrices by the successive impression of single dies into a matrix body, which consists in successively impressing the dies and in forming offsets in the walls of the impressions parallel to their type-faces for the purpoee set forth.

18. A matrix for stereotype-plates, having the walls of its impressions provided with offsets on planes parallel with the type-faces, substantially as set forth.

11,317. SAUSAGE STUFFING MACHINE. JOHN EPPLER, Philadelphia, Pa. Filed Feb. 8, 1893. Serial No. 461,525. Original No. 435,576, dated Nov. 1, 1892.



Claim.—In a sausage stuffing machine the cylinder 8, provided with the cover 13 openings 10 and meat tubes 11, and the cylinder 1, separated by a partition having a stuffing box 4 therein, the cylinder 1 having steam ports 5 and 6, and a steam channel 27, and fitted with a piston 2, attached to one end of the piston rod 3 working through the stuffing box 4, in combination with the piston 9 attached to the opposite end of the piston rod 3, and fitted to work in the cylinder 8, and having grooves 24 located in the same vertical plane with the openings 10, through which meat is forced into the meat tubes 11, when the pistons 2 and 9 are raised, substantially as shown and described.

11,318. DIE AND DIE-HOLDER FOR DRAWING STEEL RODS, &c. STEPHEN MOLTRUP and WILLIAM MOLTRUP, Beaver Falls, Pa. Filed Nov. 21, 1891. Serial No. 412,691. Original No. 423,334, dated Mar 11, 1890.



Claim.—1. A die comprising side blocks having curved or rounded inner faces and interposed die blocks, the abutting sides of which conform to the curved or rounded faces against which they bear, substantially as described.

2. A die comprising side and end die blocks having curved or

rounded inner sides, the end blocks being interposed between the side blocks and the sides of the end blocks conforming to the faces of the side blocks, substantially as described.

3. The combination with a draw plate, of a die composed of side and end die blocks having curved or rounded inner faces the sides of the end blocks conforming to the faces of the side blocks, wedge blocks against which the outer sides of the side blocks bear, and means for adjusting the wedge blocks, substantially as described.

4. In a die and die-holder for drawing, compressing, and polishing metal bars, the combination with the draw-plate, of die blocks consisting of rectangular shaped blocks having their inner faces curved or rounded and end blocks disposed between the ends of said side blocks so as to form a central opening, the ends thereof which bear against the side blocks being concaved, while their inner faces are convexed or rounded, and adjustable blocks against which the outer sides of the die blocks bear for regulating the pressure of the die upon the metal, substantially as set forth.

5. In combination with the herein described die blocks, the apertured circular-recessed draw-plate, segmental guides fitting in said recess, and the adjustable wedge blocks, substantially as set forth.

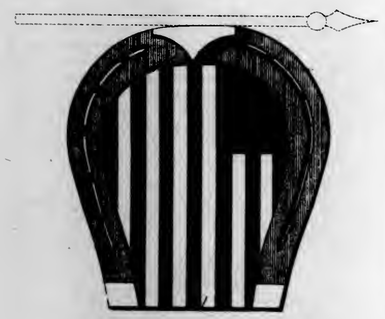
6. In combination with the herein described die-blocks, the apertured circular recessed draw-plate, segmental guides, the outer faces of which are adapted to conform with the contour of the wall of the circular recess, and provided with inclined inner faces, adjustable wedge blocks, screw-threaded bolts attached to said adjustable blocks, and the nuts for tightening or loosening said blocks, substantially as and for the purpose set forth.

7. The combination with the herein-described die-blocks and draw plate, of the inclined segmental guide blocks, shoulders formed upon said guides, adjustable wedge blocks having their outer faces inclined correspondingly with the incline of the segmental guides, and fitting between the shoulders of the guides, screw-bolts attached to the adjustable blocks, and the nuts for increasing or decreasing the pressure of said blocks upon the die-blocks, substantially as and for the purpose herein shown and described.

8. In the herein-described draw-plate, the combination with the die-blocks, of the segmental guide-blocks, beveled shoulders formed on said blocks, a groove or channel located at the bottom of the inner face of said blocks, an adjustable wedge fitting between the shoulders of the guide, screw-threaded bolts attached to said wedges, and the nuts for increasing or decreasing the pressure of the wedge-blocks upon the die for regulating the size of the opening for the metal, substantially as herein set forth.

DESIGNS.

22,306. FLAG. WILLIAM BRADLY, Philadelphia, Pa. Filed Jan. 24, 1893. Serial No. 459,603. Term of patent 14 years.



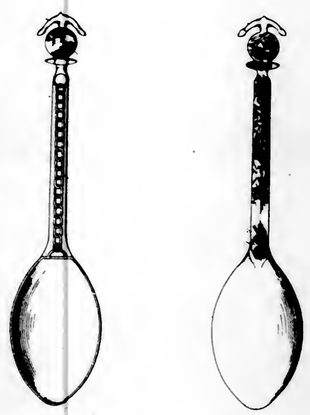
Claim.—The design for a flag, substantially as shown and described.

22,307. BADGE. JOHN M. CALDWELL, Anniston, Ala. Filed Feb. 13, 1893. Serial No. 462,950. Term of patent 3½ years.



Claim.—The design for a badge as described and illustrated by the accompanying drawing.

22,308. SPOON-HANDLE, &c. WILLIAM S. O'BRIEN, San Francisco, Cal. Filed Feb. 20, 1893. Serial No. 463,121. Term of patent 7 years.

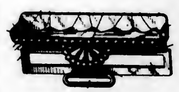


Claim.—1. In a design for the handle of spoons, the design for the obverse of the handle, substantially as set forth and shown.

2. In a design for the handle of spoons, the design for the reverse of the handle, substantially as shown and described.

3. The design for the handle of spoons substantially as herein shown and described.

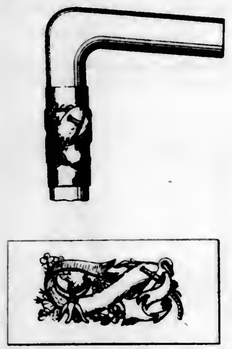
22,309. SUSPENDER-BUCKLE. THOMAS J. FLAGG, New York, N. Y., assignor to Fisk, Clark & Flagg, same place. Filed Jan. 21, 1893. Serial No. 459,269. Term of patent 3½ years.



Claim.—The design for a suspender buckle, as herein shown and described.

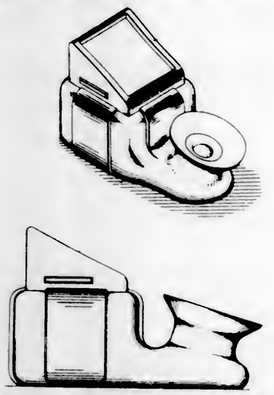
22,310. UMBRELLA-HANDLE. EDWARD STEIN, New York, N. Y. Filed Feb. 4, 1893. Serial No. 461,069. Term of patent 3½ years.

22,310.



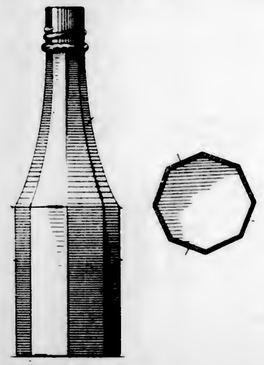
Claim.—The design for umbrella handles, substantially as herein shown and described.

22,311. INK-WELL. CHARLES A. GILDEMEYER, Haddonfield, N. J. Filed Feb. 20, 1893. Serial No. 463,122. Term of patent 14 years.



Claim.—The design for an ink well as herein described and shown.

22,312. BOTTLE. HENRY J. HEINZ, Pittsburg, Pa. Filed Dec. 5, 1892. Serial No. 454,177. Term of patent 14 years.



Claim.—The design for bottles substantially as herein shown and described.

22,313. DISH. STEPHEN G. HOWARD, Providence, R. I., assignor to the Howard Sterling Company, same place. Filed Dec. 12, 1892. Serial No. 454,972. Term of patent 7 years.



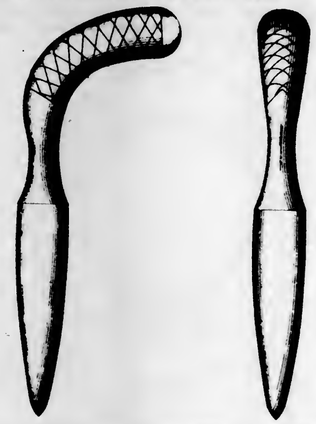
Claim.—The design for a dish or similar article as herein shown and described.

22,314. LACE FABRIC. EDWIN FRANCOM, Calais, France. Filed Feb. 17, 1893. Serial No. 462,774. Term of patent 3½ years.



Claim.—The design for a lace fabric, substantially as shown and described.

22,315. PLANTING-DIBBLE. WARREN R. WARNER, Rochester, N. Y., assignor to Weaver, Palmer & Richmond, same place. Filed Jan. 31, 1893. Serial No. 460,457. Term of patent 7 years.



Claim.—The design for planting-dibbles, substantially as shown and described.

22,316. STATIONARY-TUB SUPPORT. CHARLES GRAHAM, Brooklyn, N. Y. Filed Dec. 7, 1892. Serial No. 454,396. Term of patent 14 years.



Claim.—The design for stationary tub support as herein shown and described.

TRADE-MARKS

REGISTERED MARCH 28, 1893.

22,698. WATCHCASES AND JEWELRY. LISSAUER & Co., New York, N. Y. Filed Mar. 1. 1893.



Essential feature.—The representation of a pansy. Used since July 1, 1891.

22,699. CERTAIN NAMED STUFFS FOR LININGS FOR CLOTHING. SAMUEL KIRK & SONS, Leeds, England. Filed Feb. 18, 1893.



Essential feature.—The representation of two does' heads. Used since December, 1892.

22,700. TOILET WASH. OLIVER J. FREEMAN, Chicago, Ill. Filed Jan. 9, 1893.



Essential feature.—The representation of a calla lily bloom inclosing a lady's face, below which are several water lilies floating upon the water. Used since December 30, 1882.

22,701. COMPOUND OF SARSAPARILLA. WILLIAM R. MANNERS, GEORGE H. DOWNING, and GRIFFIN S. ACKLEY, Binghamton, N. Y. Filed Feb. 16, 1893.



Essential feature.—A monogram composed of the letters "M D E. S." Used since January 1, 1890.

22,702. COUGH MEDICINES. LYNN B. TAYLOR, Stillwater, Minn. Filed Feb. 3, 1893.

O. A. Watier

Essential feature.—The fac-simile signature, "O. A. WATIER." Used since November 1, 1891.

22,703. COAL-TAR PRODUCTS IN THE FORM OF TABLETS FOR MEDICAL PURPOSES. MELLIER DRUG COMPANY, St. Louis, Mo. Filed Feb. 11, 1893.

BROMOPHINE

Essential feature.—The word "BROMOPHINE." Used since January 1, 1893.

22,704. OINTMENT USED AS A REMEDY FOR SKIN DISEASES. RAYSOR & SMITH, Asheville, N. C. Filed Jan. 4, 1893.

ROYAL
CAMPHORLINE.

Essential feature.—The words "ROYAL CAMPHORLINE." Used since October 1, 1890.

22,705. LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Feb. 23, 1893.

LA SIN RIVAL

Essential feature.—The words "LA SIN RIVAL." Used since September, 1890.

22,706. LARD. ANGLO-AMERICAN PROVISION COMPANY, Chicago, Ill. Filed Feb. 23, 1893.



Essential feature.—The word "ANTILLA" and the representation of the Island of Cuba above it. Used since September, 1890.

22,707. CANNED CORN. J. C. MICHAEL & SONS, Oakington, Md. Filed Feb. 23, 1893.

NECTARINA

Essential feature.—The word "NECTARINA." Used since 1881

22,708. FLOUR. CHARLES T. LOUD, Hamilton, Ohio. Filed Dec. 23, 1892.



Essential feature.—A diamond shaped figure with the word "BISCUIT" included within the borders thereof. Used since May 17, 1891.

22,709. SCREWS, BOLTS, NUTS, RIVETS, BURRS, WASHERS, WIRE NAILS, AND KINDRED ARTICLES. THE AMERICAN SCREW COMPANY, Providence, R. I. Filed Jan. 17, 1893.

BAY STATE

Essential feature.—The words "BAY STATE." Used since January 1, 1861.

22,710. BICYCLES AND OTHER VELOCIPEDES AND PARTS THEREOF. H. C. STEARNS & Co., Syracuse, N. Y. Filed Feb. 13, 1893.

Stearns

Essential feature.—The word "STEARNS." Used since May 1, 1891.

22,711. VELOCIPEDES AND BICYCLES. MONARCH CYCLE COMPANY, Chicago, Ill. Filed Feb. 18, 1893.



Essential feature.—The representation of a lion's head. Used since February 1, 1892.

22,712. WATER-CLOSETS. L. M. RUMSEY MANUFACTURING COMPANY, St. Louis, Mo. Filed Mar. 1, 1893.

Tri-Seal.

Essential feature.—The word "TRI-SEAL." Used since December 1, 1892.

22,713. WATER-CLOSETS. L. M. RUMSEY MANUFACTURING COMPANY, St. Louis, Mo. Filed Mar. 1, 1893.

Una-Seal.

Essential feature.—The word "UNA-SEAL." Used since December 1, 1892.

THE NORRIS PETERS CO. PHOTO-LITH. WASHINGTON, D.C.

DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS IN PATENT CASES.

DECISIONS OF THE U. S. COURTS.

U. S. Circuit Court of Appeals—Sixth Circuit.

COLUMBUS WATCH COMPANY *et al. v.* ROBBINS *et al.*

Decided October 10, 1892.

APPEALS—JURISDICTION—CIRCUIT COURTS OF APPEAL—INTERLOCUTORY INJUNCTION IN PATENT CASES.

A decree sustaining the validity of a patent, declaring infringement, directing an injunction perpetual in form, and referring the cause to a master to take an account of damages and profits, is not appealable in its entirety, so as to give the circuit court of appeals jurisdiction to finally determine the questions of validity and infringement, for the decree is not final in its nature and appealable as such under prior laws, but is interlocutory, and on an appeal therefrom, under section 7 of the act creating the circuit court of appeals, the court is limited to the question whether the injunction was providently granted in the exercise of a legal discretion, and it can have no jurisdiction to render a decision on the other questions, even at the request of both parties. (*Jones Co.* v. *Munger Manufg. Co.*, 50 Fed. Rep., 785; 1 C. C. A., 158, disapproved.)

APPEAL from the Circuit Court of the United States for the Eastern Division of the Southern District of Ohio.

Statement by JACKSON, circuit judge:

On application of the parties to have this court, under the appeal from an interlocutory order of the lower court granting an injunction, hear and finally determine the merits of the controversy relating to the validity of the patent in suit and the infringement of same.

Mr. James Watson and *Mr. M. D. Leggett* for the complainants.

Mr. Lysander Hill and *Mr. George S. Prindle* for the defendants.

Before JACKSON and TAFT, Circuit Judges, and HAMMOND, District Judge.

JACKSON, *J.*:

The appellees, as assignees and exclusive owners of Reissued Letters Patent No. 10,631, dated August 4, 1885, for improvements in stem-winding watches, brought this suit in the ordinary form against appellants for the infringement thereof. On the hearing of the cause upon the pleadings, proofs, exhibits, etc., the circuit court sustained the validity of the original and reissued patents, adjudged that defendants had infringed certain claims of the reissue, ordered the usual account as to damages and profits, and granted an injunction restraining them, their officers and agents, from making, selling, or using watches or watch-movements embracing and embodying the invention or improvements described in and covered by the claims of the reissue which were held to be infringed. (See 50 Fed. Rep., 545.) This decree was passed in May, 1892. The defendants filed an assignment of errors and prayed an appeal from the entire decree and for a *supersedeas* of the injunction. The circuit court allowed an appeal from so much of its said decree as granted the injunction, but denied it as to the balance of the decree, the order of the court upon the prayer for appeal being as follows:

And now upon the filing of the assignment of errors and petition for appeal of the defendants by their solicitors for an appeal in said cause to the United States Circuit Court of Appeals for the Sixth Circuit, and for a *sup rsede as* of the injunction granted in said cause, the court refuses the appeal as prayed, being of the opinion that such an appeal can be taken only from a final decree, but allows an appeal from so much of the decree, the same being interlocutory, as grants an injunction against the defendants, on condition that appellants (defendants) file an appeal bond for $10,000 herein, within ten days, conditioned as required by law, with security to be approved by one of the judges of this court.

Under and in pursuance of this allowance of appeal the defendants, on the same day—June 1, 1892—filed the required bond for superseding the injunction, which bond recited that—

an appeal has been allowed from so much of said decree as grants an injunction against the defendants, and a *supersedeas* of said injunction granted.

The appellants having perfected their appeal from so much of the decree below as granted the injunction, a full and complete transcript of the record has been filed and the case docketed in this court. The appellants and appellees now make application to this court to hear and finally determine the entire cause upon its merits—that is, to finally decide and adjudicate the matters of controversy touching the validity of the reissue patent and the question of its infringement—to the end that the delay and expense incident to taking of the account of damages and profits directed by the decree below may be obviated should this court adjudge that the circuit court was in error in sustaining the patent and in finding that it had been infringed. This application is rested upon the authority of *Richmond* v. *Atwood*, (61 O.G., 1655; 48 Fed. Rep., 910; 1 C. C. A., 144,) decided by the Circuit Court of Appeals for the First Circuit, and *Jones Co.* v. *Munger Manufg. Co.*, (50 Fed. Rep., 785; 1 C. C. A., 158,) decided by the Circuit Court of Appeals for the Fifth Circuit. In the latter case the Circuit Court of Appeals for the Fifth Circuit expressed the opinion that an appeal like the present, under the seventh section of the act of March 3, 1891, invested the appellate court with such jurisdiction over the cause that if the appellee submitted to its being heard and decided upon its merits the court had the authority to consider and finally determine the entire controversy. It will,

however, be observed that the order in that case remanding the cause to the circuit court only directed the injunction to be dissolved and discharged. In *Richmond* v. *Atwood* the court went into a consideration of the questions relating to the validity of the patent and its infringement for the purpose of ascertaining whether the injunction was properly or improperly granted, and did not undertake to pronounce any judgment or decree upon the merits, as this court is requested to do in the present case. We entertain no doubt as to the power and duty of this court, under the present appeal, to examine and consider the case presented by the record for the purpose of determining whether the order of the lower court granting the injunction was or was not erroneous; but we find ourselves unable to concur in the opinion expressed by the court in *Jones Co.* v. *Munger Manufg. Co.* that this court can by the submission or consent of the parties assume and exercise jurisdiction over the subject-matter of the litigation not covered by the appeal allowed and taken. It admits of no question that the entire decree of the circuit court was not appealable either under the sixth section of the act of March 3, 1891, or under previous provisions of law. (*Barnard* v. *Gibson*, 7 How., 650; *Humiston* v. *Stainthorp*, 2 Wall., 106; *Iron Co.* v. *Martin*, 132 U. S., 91; 10 Sup. Ct. Rep., 32.) It was not final, but interlocutory, in its character, and subject to the further and future control of the court below, and that court properly denied an appeal from the entire decree and allowed it only from so much thereof as related to the injunction as authorized by section 7 of the act of March 3, 1891. This limited appeal from a part of the interlocutory decree clearly did not remove the whole case or the entire decree from the circuit court to this court. It only brought up for review the question whether the action or order of the circuit court granting the injunction was proper or improper. This court, by virtue of that appeal, has before it for determination only the question whether that injunction should be sustained or dissolved. The cause is still pending in the circuit court upon all other questions and matters involved in the litigation. It is well settled that in respect to all matters and questions not withdrawn by said appeal and still under its jurisdiction and control the circuit court may hereafter, either before or upon the coming in of the master's report upon the matters of account, change its opinion on the very questions this court is requested to decide finally. In *Fourniquet* v. *Perkins* (16 How., 84) the rule is laid down that the whole case is open for revision, and that the court may change all interlocutory decrees or orders relating to the merits when the cause comes to final hearing. The same general principle is announced in *Beebe* v. *Russell*, (19 How., 283–287;) *Craighead* v. *Wilson*, (18 How., 199;) *Farrelly* v. *Woodfolk*, (19 How., 288,) and *Green* v. *Fisk*, (103 U. S., 518.)

If this court were now to pronounce a final decree upon the matters or questions which still remain subject to the jurisdiction and control of the circuit court, it would be going beyond its legitimate sphere of judicial authority. This court, under the law of its creation, possesses and can properly exercise only an appellate jurisdiction. If it should, upon the request or consent of parties, assume to pass on and finally decide upon their merits causes or questions pending in a court of original jurisdiction, and not properly before this court, such action would clearly involve the exercise of original jurisdiction. Consent of parties cannot invest this court with such power or authority. The province of this court is the correction of errors in cases properly brought before it by writ of error or appeal. Each party to suits is not only entitled to the benefit of a final decision of the court below on the merits, but to the revisory jurisdiction of this court for its final disposition, after the court of original jurisdiction has ceased to have any further control over the controversy or litigation. Until the questions of controversy leave the lower court and cease to be subject to its control this court cannot rightfully take jurisdiction thereof without invading and encroaching upon the judicial domain of such lower court. The act of 1891, section 7, permits an appeal from an interlocutory order granting or continuing an injunction. The present appeal is allowed and taken from such an order, and its legal effect and operation are to remove from the trial court to this court only that part of the decree which relates to the injunction. That part of the interlocutory decree is before this court for review. The lower court has no further control or jurisdiction over that subject until it receives the mandate of this court affirming or reversing its order granting the injunction. But all other parts or portions of the interlocutory decree—such as those relating to the validity of the reissue patent and its infringement and the questions that may arise upon the account ordered to ascertain damages and profits—have not yet left the jurisdiction of the lower court. That court may hereafter change its interlocutory decree on the very questions this court is requested to decide finally. For aught that appears or is known to this court, the lower court may have already done so; but suppose this court should decide the merits of the case, its decision of matters or questions not before it for review under the present appeal would have no binding force on the lower court, and might be wholly disregarded when that court came to a final hearing of the cause. Nor would the premature decision of this court upon questions not properly before it prevent either side from taking an appeal from the final decree of the circuit court when such a decree shall be hereafter rendered.

Such a course of practice and procedure as this court is requested to pursue in respect to matters not properly before it, involving the exercise of original jurisdiction, would be attended with great confusion and perplexity and would greatly embarrass the orderly administration of justice. It is contrary to all precedent and entirely out of harmony with the Federal judicial system of the United States. Under that system original jurisdiction can only be exercised by the courts on which it is conferred by the Constitution or laws. The blending of original and appellate jurisdiction is not sanctioned by either the Constitution or laws of the United States. Sound principle, as well as wise public policy, requires that original and appellate jurisdictions should be kept distinct and independent. To blend them or allow one court to exercise both would be attended inevitably with evil and mischievous results. It would doubtless have been well if in the creation of this court the seventh section of the act had permitted or authorized an appeal from interlocutory decrees sustaining the validity of patents and adjudging their infringement, so as to obviate in many cases the taking of expensive accounts and the delays incident thereto. This has not, however, been done, as we construe the act of March 3, 1891, and it is not in the power of this court to afford relief such as the present application seeks to secure.

In our view of the subject this court cannot properly comply with or accede to the application of the parties for the reasons already stated—that the appeal as allowed and taken does not bring up for review anything more than that portion of the interlocutory decree which granted the injunction, and that to consider and finally decide other matters not covered by or included in the appeal would involve the exercise of original jurisdiction, when this court, under the law of its creation, is restricted and confined to the exercise of appellate jurisdiction. In our opinion the submission or consent of parties cannot invest this court with the jurisdiction to pass upon and determine finally matters of controversy still pending in the lower court and subject to its control and jurisdiction; but inasmuch as the Circuit Court of Appeals for the Fifth Circuit, in the case of *Jones Co.* v. *Munger Manufg. Co.*, above referred to, seems to have entertained, if not taken, a different view of the question, this court deems it proper to certify the matter to the Supreme Court of the United States, to the end that an authoritative decision may be made by that court, which will, by their construction of section 7 of the act of 1891, establish a uniform rule for all the circuit courts of appeals.

The following order was thereupon entered:

This cause comes before this court by an appeal from the decree of the Circuit Court of the United States for the Eastern Division of the Southern District of Ohio sustaining the Letters Patent of the appellees, and declaring that the appellants have infringed said Letters Patent, and directing the issue of a perpetual injunction, and ordering the statement of an account of profits and damages. The transcript presented to this court shows that the appeal was taken immediately from said decree before accounting was had. Both parties desire that this court should give a full hearing on the merits of said decree, so far as relate to the validity of the patent and infringement, and should enter a final decree in this court thereon, the parties agreeing between themselves to suspend accounting until the decision of this court can be had. This court, however, cannot find that they have, under the seventh section of the act creating United States circuit appellate courts, jurisdiction to grant such a hearing and enter such a final decree as is asked, because said decree of the circuit court is only an interlocutory decree and presents on appeal, under section 7, only the question whether the decree for an injunction, interlocutory in fact, however final in form, was improvidently granted in the legal discretion of the court and involves only incidentally the question of the validity of the patent and the infringement complained of. The Circuit Court of Appeals for the Fifth Circuit, under similar circumstances, after listening to adverse argument in *Jones Co.* v. *Munger Manufg. Co.*, (50 Fed. Rep., 785; 1 C. C. A., 158,) held that said section 7 gave jurisdiction to the court on agreement of parties to render a final decree on the merits of the validity and infringement of the patent involved. As the judgment of this court differs from that of a co ordinate court, the instruction of the Supreme Court is respectfully requested upon the question.

It is therefore ordered that a copy hereof, certified under the seal of the court, be transmitted to the clerk of the Supreme Court of the United States.

U. S. Circuit Court of Appeals—Ninth Circuit.

HUNT BROS. FRUIT PACKING COMPANY *v.* CASSIDY.

Decided October 24, 1892.

1. PATENTS FOR INVENTIONS — INFRINGEMENT — OPINION — EVIDENCE—DRYING APPARATUS.

In an action for infringement of a patent for improvements in fruit driers, the patentee, after stating that he had been engaged in mechanical pursuits, had seen many different driers, and had sufficient knowledge of mechanics to permit him to give an intelligent opinion as to the cost of a piece of machinery when he saw it, was asked which in his judgment would be the cheaper to construct, his or the alleged infringing drier. *Held* that the question was not objectionable, on the ground that the witness had said he did not know the cost of the infringing drier.

2. SAME—INVENTION—BURDEN OF PROOF—DIRECTING VERDICT.

The existence of Letters Patent issued in due form constitutes *prima facie* evidence of the validity of the patent, and where, in an action at law for infringement, such letters are introduced an alleged want of invention is matter of defense, the burden of showing which is on defendant, and the court cannot direct a judgment for defendant, even though the patentee on cross-examination has given evidence that may tend to show a prior state of the art excluding invention on his part.

3. SAME—INFRINGEMENT—INSTRUCTIONS—QUESTIONS FOR JURY.

Whether there was invention in the patent, whether plaintiff was the first inventor, and whether the use of gravity-catches as mechanical equivalents of spring-catches was known at the time of plaintiff's application were questions of fact for the jury.

4. SAME—DISCLAIMER—MECHANICAL EQUIVALENTS.

In Letters Patent No. 172,608, issued January 25, 1876, to John W. Cassidy for an improvement in fruit-driers, the patentee first claimed "spring or other catches" but, on an objection that his application was not in proper form, amended by striking out "or other." *Held* that this was not a disclaimer of gravity-catches, which were known mechanical equivalents for spring-catches.

5. SAME—NOMINAL DAMAGES—EVIDENCE.

Plaintiff, owning a patent for two improvements in fruit-driers, sued for the infringement of but one. *Held* that nominal damages only were recoverable where the evidence showed only the amount of a license fee for both devices and the profits to be made in manufacturing fruit-driers containing both improvements.

6. TRIAL—INSTRUCTIONS—WAIVER OF OBJECTIONS.

An exception to the court's refusal to direct a verdict for defendant at the close of plaintiff's evidence is waived by proceeding in the cause and introducing evidence for the defense. (*Railway Co.* v. *Cummings*, 1 Sup. Ct. Rep., 493, 106 U. S., 700, and *Insurance Co.* v. *Crandal*, 7 Sup. Ct. Rep., 685, 120 U. S., 527, followed.)

IN ERROR to the Circuit Court of the United States for the Northern District of California.

Action by John W. Cassidy against Hunt Bros. Fruit Packing Company to recover damages for infringement of patent. Judgment for plaintiff. Defendant brings error.

Messrs. Wheaton, Kalloch & Kierce for the plaintiff in error.

Mr. John H. Miller for the defendant in error.

Before MCKENNA, ROSS, and KNOWLES, Judges.

KNOWLES, *J.*:

Defendant in error instituted suit in the Circuit Court of the United States for the Northern District of California for an infringement upon his Letters Patent for improvement in a drying apparatus for drying fruit.

The allegations in the declaration are:

That said invention related to an improved device for desiccating fruit and other substances by means of artificial heat, and consisted, among other things, of a novel means of moving the trays on which the fruit is held within the drying-chambers from the time it is admitted until it is removed therefrom, as will more fully appear from the Letters Patent hereinafter set out, to which reference is here made for a fuller description.

The charge is that defendant—

has wrongfully made, used, and sold large numbers of machines containing and embracing the invention described and claimed in and by the said Letters Patent.

Turning to the Letters Patent we find what are the inventions claimed of Cassidy. He says:

First. My invention relates to an improved device for desiccating fruit and other substances by means of artificial heat, and it consists, first, of a novel method of utilizing the heat which passes through flues from the furnace, and by leading these flues around the chamber within suitable pipes or cases and making certain openings from these cases into the chamber I am enabled to admit heated air from any or all sides and at different heights between the layers of fruit, while heat is also admitted from the bottom of the chamber or not, as may be desired.

Second. My invention also consists in a novel means of moving the fruit within the chamber from the time it is admitted until it is again removed.

In describing this second invention the applicant says:

In order to elevate and support the trays of fruit after they are introduced, I have employed a combination of movable and stationary standards upon two opposite sides of the chamber, and these standards are provided with spring-catches, which can be forced inward to allow a tray to pass up, but will return to their places after it passes and prevent its going down.

Plaintiff in error says in his brief:

The patent was for alleged improvements in a drying apparatus.

Defendant in error says in his brief:

The patent in suit was granted to John W. Cassidy, * * * and covers improvements in drying apparatus used for drying fruits, vegetables, and other products.

It contains two claims. Infringement is charged of the second only.

Again:

The device covered by the first claim is a system of flues for evenly distributing the heat. No infringement thereof is charged, and it may be dismissed from consideration.

Again:

There is no resemblance whatever between the Alden and Cassidy machines further than the fact that they are both stack-driers. But the Cassidy claim is not for a stack-drier. It is for a peculiar mechanism to lift the trays of a stack drier.

From the foregoing it would appear that there was no contention but that defendant in error's patent was for improvements in fruit-driers and not for a fruit-drier. In the subsequent consideration of this case this may become important.

Plaintiff in error urges that the circuit court committed an error in allowing Cassidy to give an opinion as to the relative costs between his patented fruit-drier and the Alden fruit-drier. The witness stated that he had for a number of years been engaged in mechanical pursuits; that he had seen a great many fruit-driers of different kinds; that he thought his knowledge of mechanics sufficient to permit him to give an intelligent opinion as to the cost of a piece of machinery when he saw it. This question was then asked him:

With that as a basis I will repeat the question, and will ask you which in your judgment would be the cheapest to construct, yours or the Alden?

The objection of plaintiff in error to this question was—

because the witness says he does not know what the Alden drier would cost.

It will be seen that the objection was not that the witness was not competent to give an opinion as to the relative costs of these two machines, or that this was not a competent way of proving their relative costs. It is urged by plaintiff in error that the cost of building the Alden drier was capable of exact proof. There is no evidence to show this, and this was not the objection made. A party objecting to the introduction of evidence must specify the point of objection definitely, and none other will be considered. The fact that the witness did not know the exact cost of the Alden machine would be no objection to his giving his opinion as a competent expert as to its cost. A party is never injured by a question propounded to a witness unless he can show injury from the answer thereto. In this case the answer was much narrower than the question would have warranted. In response thereto the witness said:

I think, so far as the shifting apparatus is concerned, this would be fifty per cent. cheaper than the Alden—fifty or seventy-five.

This was competent evidence upon the question as to the utility of the machine of the defendant in error.

The next error claimed by plaintiff in error to have been committed by the circuit court is in its refusing to instruct the jury to find a verdict for defendant when the plaintiff in the court below had rested his case upon the evidence then presented. The ground upon which it is urged that the court should have given this instruction seems to be that it appeared from the evidence that there was no novelty in plaintiff's patent; that it was superseded by the Alden machine; that Cassidy had substituted in his patent only mechanical equivalents for those devices used in the Alden. Plaintiff introduced his patent in evidence. This was *prima facie* proof of the validity of his patent. In the case of *Mitchell* v. *Tilghman* (5 O. G., 299; 19 Wall., 390) the Supreme Court said:

A patent issued in due form, when introduced, is *prima facie* presumption of its correctness.

In Walker on Patents the rule is expressed that the patent, when introduced in evidence, is *prima facie* proof of its own validity, unless it appears on its face not to be such a document as the statute prescribes. (Walk. Pat., sec. 491.) When Letters Patent are introduced in evidence, the burden is cast upon the defendant to show that they are not good or that the patentee is not the first inventor. (*Blanchard* v. *Putnam*, 8 Wall., 420; *Seymour* v. *Osborne*, 11 Wall., 516-538.) The question of anticipation or want of invention is a matter of defense. The question of anticipation cannot be raised without notice specifying the anticipating invention. (Sec. 4920, Rev. Stats.) The question as to whether, considering the previous state of the art, no invention was made by the patentee may be raised without notice; but the want of invention in a patent is a matter of defense unless the thing for which a patent is claimed shows on its face that it is without invention. (Walk. Pat., sec. 599.) In the following cases want of invention is spoken of as a defense: *Mahn* v. *Harwood*, (30 O. G., 657; 112 U. S., 354; 5 Sup. Ct. Rep., 174, and 6 Sup. Ct. Rep., 451;) *Hendy* v. *Iron Works*, (43 O. G., 1117; 127 U. S., 370, and 8 Sup. Ct. Rep., 1275.) The evidence given by Cassidy concerning the Alden drier was brought out by defendant on cross-examination. It would appear to have been an attempt on its part to make out its defense in this way. If the evidence of Cassidy had any tendency to make out defendant's defense, it was a matter for the jury to determine its weight; and they should have been able to find from it, beyond reasonable doubt, that there was no invention in his patented devices or that it had been anticipated. (*Coffin* v. *Ogden*, 5 O. G., 270; 18 Wall., 120; Walk. Pat., sec. 76.) It was not pretended that the Cassidy machine showed want of invention on its face. This result was to be reached only by evidence. Under such a condition there could have been no error in the court refusing to take the case from the jury and decide the issue of fact presented itself. Defendant in error urges that plaintiff in error waived the exception to the refusal of the court to instruct the jury to find for defendant by proceeding in the cause and introducing evidence on its part. In the case of *Railway Co.* v. *Cummings* (106 U. S., 700; 1 Sup. Ct. Rep., 493) the Supreme Court said:

It is undoubtedly true that a case may be presented in which the refusal to direct a verdict for the defendant at the close of plaintiff's testimony will be good ground for the reversal of a judgment on a verdict in favor of the plaintiff, if the defendant rests his case on such testimony, and introduces none in his own behalf; but if he goes on with his defense, and puts in testimony of his own, and the jury under proper instructions finds against him in the whole evidence, the judgment cannot be reversed, in the absence of the defendant's testimony, on account of the original refusal, even though it would not have been wrong to give the instruction at the time it was asked.

In the case of *Insurance Co.* v. *Crandal* (120 U. S., 527; 7 Sup. Ct. Rep., 685) the Supreme Court held that under such circumstances the ruling of the Court—

cannot be assigned as error because the defendant at the time of requesting such an instruction had not rested its case.

This doctrine was affirmed in *Robertson* v. *Perkins*, (129 U. S., 236; 9 Sup. Ct. Rep., 279.) Under these controlling authorities the contention of defendant in error on this point must be sustained.

Plaintiff in error urges that under the evidence it was wrong to have left it to the jury to determine whether or not gravity-catches were mechanical equivalents for spring-catches, for the reason that defendant in error narrowed his claim by an amendment of his application for a patent so as to leave out of his claim for spring or other catches the words "other catches." It does appear from the record that defendant in error, in his application for a patent, first claimed "spring" or "other catches" and then amended to "spring-catches." This was done by direction of the Patent Office on the ground that the application was not proper in form. There is a decision of the Supreme Court that urges that such applications should not be received, because of indefiniteness and liability to misconstruction; but we do not think that this can be classed as a disclaimer of any other catches which would be a mechanical equivalent therefor. Such was not the object of the amendment or the reason for requiring the same. Generally a patentee, no matter what the character of his patent may be, can claim mechanical equivalents known to exist at the time of the application, whether he claims them or not in his application. (Walk. Pat., sec. 350; *Goodyear Vulcanite Co.* v. *Davis*, 19 O. G., 543; 102 U. S., 230; *Tatum* v. *Gregory*, 60 O. G., 1753; 41 Fed. Rep., 142.) There may be a rule of strict construction applied to patents that do not embrace pioneer inventions when considering this question; but there is no dispute but that the gravity-catches were known mechanical equivalents for spring-catches at the time of defendant in error's application. There would seem to be no room, then, for construction upon this point. If defendant in error is entitled to mechanical equivalents at all, he should be in this case. We hold that this point is not well taken.

The court in his instructions submitted to the jury the question as to whether there was invention in the patent and as to whether defendant in error was the first inventor of the devices mentioned in his patent, and also the question as to whether gravity-catches were the mechanical equivalent for spring-catches known at the time of the patentee's application. These are all questions of fact, and in a law case should be submitted to the jury under proper instructions as to the law applicable to the same. This, we think, was properly done by the court. Plaintiff has assigned and claimed many errors as committed by the court in regard to the refusal to instruct as requested by it and in giving certain instructions to the jury. Considering the charge as a whole, we think, upon the matters above stated, it was correct and sufficient. Under these circumstances we think it a profitless expenditure of time to consider and review in this opinion all of the alleged errors.

The plaintiff in error upon another issue not above stated—namely, upon the question of damages—asked the court to instruct the jury that, under the evidence presented, the plaintiff could not recover more than nominal damages, if any. As stated before, defendant in error claimed two improvements in fruit-driers. He sued for an infringement of but one of these claims. His claim for damages cannot be broader than for the infringement he claims. In other words, he cannot claim damages for anything more than this one device. He is injured only to the extent of the use of that part of his patent which has been infringed. The evidence as to damages consisted of evidence of a license-fee which he had fixed for both of his devices, and evidence of the profit to be made in manufacturing fruit-driers containing both of these improvements, and also certain unpatented features. The authorities are full upon the point that a party cannot recover as damages the profits to be derived from the manufacture of the whole of a machine when only a portion of the same contains a patented feature. (*Garretson* v. *Clark*, 27 O. G., 524; 111 U. S., 120; 4 Sup. Ct. Rep., 291; *Dobson* v. *Carpet Co.*, 31 O. G., 787; 114 U. S., 440; 5 Sup. Ct. Rep., 945; *Philp* v. *Nock*, 17 Wall., 460.) The burden of proving damages for the infringement of a

patent is upon the plaintiff, and he must establish his damages by competent evidence, and they must not be left to be surmised or arrived at from conjecture by the jury. (*Garretson* v. *Clark*, *supra*; *Blake* v. *Robertson*, 11 O. G., 877; 94 U. S., 728.) It is true that when there is no evidence which can be produced of a license-fee, or the profits to be derived from the manufacture of the patented device, the jury may be called upon to determine what would be a reasonable license fee when proper evidence is introduced tending to establish that fact. (Walk. Pat., secs. 563, 564.) But the evidence in this case did not have a tendency to establish that fact. No evidence was introduced for that purpose. No evidence of the relative utility or value of the two devices named in the patent was presented. The proof of a license-fee for two improvements in fruit-driers is not competent in order to show the damage sustained by an infringement of one of these improvements. (*Philp* v. *Nock*, 17 Wall., 460; *Seymour* v. *McCormick*, 16 How., 480.) The market price of two pieces of land could not be proven in order to show the market value of one of these pieces. A license fee, when established and agreed to by the public, is only a means of estimating the market value of a patented machine or device of which the patentee had been deprived by infringement. (*Seymour* v. *McCormick*, *supra*, 490, opinion; *Packet Co.* v. *Sickles*, 19 Wall., 617; *Rude* v. *Westcott*, 130 U. S., 152–165; 9 Sup. Ct. Rep., 463.) Plaintiff's evidence was of such a character, then, in our opinion, as not to give the jury the means of arriving at any more than nominal damages for plaintiff. The damages found cannot be deduced from any evidence in the case, but must have been reached by surmise or conjecture, and the evidence was not of the character to have warranted the same. It was therefore error in the court below to have refused plaintiff in error's request to instruct the jury that they could find only nominal damages for plaintiff.

For this error the judgment of the court below is reversed and set aside and the cause remanded for further proceedings.

Supreme Court of the District of Columbia—General Term.

UNITED STATES, *ex rel.* FOWLER *et al.*, *v.* COMMISSIONER OF PATENTS.

Decided June 23, 1890.

MANDAMUS AGAINST COMMISSIONER OF PATENTS—INSPECTION OF ABANDONED CASES.

In a petition for mandamus against the Commissioner of Patents where the prayer was for permission "to inspect the abandoned cases in the United States Patent Office," and was restricted to a specific case. *Held* that no such broad right exists to the public, and writ refused. (Citing *U. S. ex rel. U. S. Elec. Lighting Co.* v. *Com. of Pats.*, C. D., 1891, 271; 54 O. G., 267.)

PETITION for writ of mandamus against the Commissioner of Patents.

STATEMENT OF THE CASE.

On September 4, 1889, the relators filed a petition to be allowed to inspect the abandoned cases in the United States Patent Office. This petition sets forth that the petitioners are doing business at the city of St Louis, Mo., as attorneys at law in patent cases; that the Hydraulic Brick Machine Company, of said city, a client of theirs, has been threatened with suit for alleged infringement of Letters Patent No. 379,429, of March 13, 1888, for improvements in building blocks or bricks; that said company has instructed them to obtain all possible information relative to the rights of the aforesaid parties in the matter; that the petitioners are desirous of protecting their client aforesaid from said suit, and have reason to believe and do believe that the subject-matter of the aforesaid patent was old and well known at the time the application therefor was filed; that the owners of said patent have attempted to broaden the terms of their claim by construing it so as to include bricks manufactured by the company aforesaid, which are substantially different from the building block covered by the said Letters Patent; that the petitioners have reason to believe and do believe that an application for a patent was filed in the United States Patent Office and abandoned for the same kind of a building block or brick manufactured by the said Hydraulic Brick Machine Company, and that the petitioners are fully satisfied in their own minds that the owners of the patent aforesaid have no rights whatever in the matter as alleged by them.

The prayer of the petition is "that an order be issued permitting them to inspect the abandoned cases in the United States Patent Office in order to protect their aforesaid client from unnecessary expense and suit to the great injury of its business and in order that substantial justice may be done to all parties and all facts adduced which may be just and proper to this end."

The petitioners referred in their brief in support of the said petition to *United States, ex rel. Anthony Pollok*, v. *Hall, Commissioner of Patents*, (48 O. G., 1263,) and contended that by this decision they had full right to inspect the abandoned applications of the Patent Office, as prayed for in their petition.

On October 14, 1889, this petition was denied by the respondent, on the ground that the language of the court in that case implied, first, that a request should be made for a specific abandoned application; second, that the request should be made under "reasonable conditions;" third, for the reason that the inventions represented in the abandoned applications of the Patent Office are not the property of the public, and, fourth, because of the danger of the fraudulent appropriation of the inventions of others. Furthermore, the respondent stated in his decision denying the said petition that—

> If the petitioners shall make request for certified copies of one or more abandoned applications, accompanied by a reasonable suggestion of their necessity for purposes of evidence, the request will be granted under authority conferred upon the Commissioner by Rule 179.

Thereafter and on February 28, 1890, the relators filed their petition for a writ of mandamus.

It does not appear anywhere in the said petition to the Commissioner of Patents that the relators have asked to inspect any specific abandoned application, but have asked generally to inspect all abandoned applications for patents in the Patent Office.

Messrs. Fowler & Fowler, pro se.

Mr. N. L. Frothingham for the Commissioner of Patents.

Before COX, JAMES, and HAGNER, Judges.

JAMES, *J.*, (orally:)

There is another case here where the application is for leave to search the files of the secret archives of the Patent Office in order to find out whether there is any evidence there. What I have already said covers that ground. (U. S., *ex rel. U. S. Electric Lighting Co.*, v. *Comr. of Pats.*, C. D., 1891, 271; 54 O. G., 267.) Certainly we cannot authorize that by writ of mandamus. Not every one can go there and search the files of the Office. There is no such right. At the best, the law only contemplates the specification of the patent and it is not every paper an applicant can have. This is an application for leave to search to see if there is any such paper. The relators ask for leave to investigate the files to see if they cannot find something. Certainly we should not interfere by writ of mandamus to any such extent.

The application is denied.

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*Subpœnas, *ex parte* Moses 1826
*Testimony, Hunt Bros Fruit Packing Company *v.* Cassidy 1965
* Lalance & Grosjean Manufacturing Company *v.* Habermann Manufacturing Company 452
Testimony, construction of, Brungger *v.* Smith 1513
Trade-Marks, *ex parte* American Chemical Company 588
Ex parte Brand Stove Company, (Limited) 588
Jersey City Packing Company *v.* Jacob Dold Packing Company 317
Ex parte Peyser & Co 588
*Trade-Marks, certificate of registration conclusive as to description, but continuous use necessary to establish right thereto, Kohler Manufacturing Company *v.* Beshore 592
Trade-Mark, registration of word and device, *ex parte* Adam Roth Grocery Company 315
Type-writing machine, Webb *v.* Blickensderfer 159
*Valid patents, Brush Electric Company *v.* Electric Improvement Company of San José 1651
*Lalance & Grosjean Manufacturing Company *v.* Habermann Manufacturing Company 452
*National Cash Register Company *et al. v.* American Cash Register Company 449
*Thum *et al. v.* Andrews *et al* 1356
*Void patents, Bergner *et al. v.* Kaufmann *et al* 1068
Ex parte Gross 1205
*Lovell Manufacturing Company, Limited, *v.* Cary *et al* 1821
*Perrin *et al. v.* Manhattan Railway Company *et al* 1209
*Siemens *et al. v.* Chambers & M'Kee Glass Company 1351
*Steiner Fire Extinguisher Company *v.* City of Adrian 1065
*Waiver, Hunt Bros. Fruit Packing Company *v.* Cassidy 1965
*Witnesses, *ex parte* Moses 1826

DIGEST OF DECISIONS

OF THE

COMMISSIONER OF PATENTS

AND OF

UNITED STATES COURTS

IN THE MATTER OF

PATENTS, TRADE-MARKS, &c.

OFFICIAL GAZETTE—January–March, 1893.

DIGEST OF DECISIONS

[Decisions of United States courts are designated by an asterisk (*).]

ABANDONED AND REJECTED FILES.

MANDAMUS AGAINST COMMISSIONER OF PATENTS—INSPECTION OF ABANDONED CASES.

In a petition for mandamus against the Commissioner of Patents where the prayer was for permission "to inspect the abandoned cases in the United States Patent Office," and was not confined to a specific case, *Held* that no such broad right exists to the public, and writ refused. (Citing *U. S. ex. rel. U. S. Elec. Lighting Co. v. Com. of Pats.*, C. D., 1891, 271; 54 O. G., 267.)

[*United States *ex rel.* Fowler *et al. v.* Commissioner of Patents, 1968.

ABANDONED APPLICATIONS.

(See Abandonment.)

PRACTICE—SECTION 4394, REVISED STATUTES—ABANDONMENT.

Where an applicant allowed two years to lapse without response to an Office action, and his application thereby became abandoned, and he subsequently moved a revival of it on the ground of error on the part of the Examiner in not originally holding his claims patentable, *Held* that a possible error by the Examiner does not cure the applicant's own laches, and, it not appearing that the delay was unavoidable, the motion must be denied.

[*Ex parte* Hein, 316.

ABANDONED CLAIMS.

(See Construction of Specifications and Patents, 2.)

ABANDONMENT.

(See Abandoned Applications; Reduction to Practice.)

ABANDONMENT—TWO YEARS' LIMITATION REFERS TO COMPLETED INVENTION.

The two years within which the law requires an inventor to act if he would save his invention from abandonment relate to a *completed* invention and have no reference to the conception and maturing of the invention.

[Brungger *v.* Smith, 1513.

ACTING COMMISSIONER.

(See Rehearing, 1.)

ACTION AT LAW.

(See Suits for Infringement, 2, 3.)

ADMINISTRATOR.

(See Amendment by Attorney After Applicant's Death.)

AFFIDAVIT UNDER RULE 94, PARAGRAPH 2.

(See Interference, 6.)

AMENDMENTS.

(See Construction of Specifications and Patents, 3; Disclaimers.)

AMENDMENT BY ATTORNEY AFTER APPLICANT'S DEATH.

AMENDMENT BY ATTORNEY AFTER APPLICANT'S DEATH—RATIFICATION BY ADMINISTRATRIX.

Where objection was made to the validity of a patent because of an amendment made by the attorneys after the applicant's death, no new power of attorney having been filed at the Patent Office and no administrator having intervened and filed a new oath, *Held* (1) the amendment was within the scope of the original specification and required no new oath; (2) it appearing that the attorneys had power in fact to act, and that their acts were subsequently ratified by both administratrix and assignee, the amendment did not invalidate the patent. (Distinguishing *Eagleton Mfg. Co.* v. *West*, 27 O. G., 1237; 111 U. S., 490.)

[*De La Vergne Refrigerating Machine Company *v.* Featherstone *et al.*, 741.

AMENDMENTS TO PRELIMINARY STATEMENTS.

(See Preliminary Statement.)

ANTICIPATION.

(See Construction of Specifications and Patents, 10; Particular Patents, 7, 11, 12, 13.)

APPEAL TO THE CIRCUIT COURT OF APPEALS.

APPEALS—JURISDICTION—CIRCUIT COURTS OF APPEAL—INTERLOCUTORY INJUNCTION IN PATENT CASES.

A decree sustaining the validity of a patent, declaring infringement, directing an injunction perpetual in form, and referring the cause to a master to take an account of damages and profits, is not appealable in its entirety, so as to give the Circuit Court of Appeals jurisdiction to finally determine the questions of validity and infringement, for the decree is not final in its nature and appealable as such under prior laws, but is interlocutory, and on an appeal therefrom, under section 7 of the act creating the Circuit Court of Appeals, the Court is limited to the question whether the injunction was providently granted in the exercise of a legal discretion, and it can have no jurisdiction to render a decision on the other questions, even at the request of both parties. (*Jones Co. v. Munger Manufg. Co.*, 50 Fed. Rep., 785; 1 C. C. A., 158, disapproved.)

[*Columbus Watch Company *et al. v.* Robbins *et al.*, 1963.

APPEAL TO THE COMMISSIONER.

(See Designs.)

ASSIGNEES.

(See Amendment by Attorney After Applicant's Death.)

ASSIGNEE'S RIGHT TO APPOINT ATTORNEY.

(See Attorney.)

ATTORNEY.

(See Amendment by Attorney After Applicant's Death; Interference, 5.)

1. PRACTICE—REVOCATION OF POWER OF ATTORNEY—APPLICANT AND ASSIGNEE.
The assignee of an entire interest may control the appointment and dismissal of an attorney to the exclusion of the applicant; but when an applicant joins with an assignee of less than the whole interest, or with the grantee or a licensee, in making a power it will require the co-operation of both to revoke it.
[*Ex parte* Anderson, 449.

2. SAME.
When an applicant alone makes a power of attorney, he may revoke and appoint anew to the exclusion of every one except the assignee of the whole interest. [Id.

BURDEN OF PROOF.

(See Infringement, 2; Suits for Infringement, 2.)

PRIOR USE—DEGREE OF PROOF REQUIRED TO ESTABLISH.
He who alleges prior use must establish it by the same high class of testimony which a prosecuting attorney is required to produce in a criminal case. He holds the affirmative of that issue and must prove it beyond a reasonable doubt. If the evidence is susceptible of two interpretations, the one sustaining and the other destroying the patent, the court must accept the former.
[*Lalance & Grosjean Manufacturing Company *v.* Habermann Manufacturing Company, 452.

CIRCUIT COURT OF APPEALS.

(See Appeal to the Circuit Court of Appeals; Comity.)

COMBINATIONS.

(See Construction of Specifications and Patents, 7, 8.)

COMITY.

COMITY BETWEEN CIRCUIT COURTS.
The rule of comity as between the circuit courts approved; but it does not apply as between the circuit courts and the Circuit Courts of Appeals. The latter Courts, while regarding the decisions of the circuit courts with sincere respect, are not bound to follow them, but must base their decisions upon their own independent judgment.
[*National Cash Register Company *et al. v.* American Cash Register Company, 449.

COMMISSIONER OF PATENTS.

(See Abandoned and Rejected Files; Rehearing, 1.)

CONCEPTION OF INVENTION.

(See Interference, 3, 4, 5; Reduction to Practice.)

CONSTRUCTION OF RULES.

(See Interference, 1, 2, 6.)

CONSTRUCTION OF SPECIFICATIONS AND PATENTS.

(See Disclaimers; Infringement, 1; Invention, 1; Patents to Dead Men; Particular Patents.)

1. EXTENT OF CLAIM—PRIOR ART.
If the Fox machine could be held to show patentable invention, it constitutes one of a series of improvements, all having the same general object and purpose, and the patent must therefore be limited to the precise form and arrangement of parts described in the specifications and to the purpose indicated therein. (*Bragg* v. *Fitch*, 39 O. G., 829; 7 Sup. Ct. Rep., 980; 121 U. S., 483, and *Phœnix Caster Co.* v. *Spiegel*, 50 O. G., 1591; 10 Sup. Ct. Rep., 409; 133 U. S., 360, followed.)
[*Fox *v.* Perkins, 160.

2. SAME—ABANDONMENT.
This construction of the patent is also rendered necessary by the fact that various broader claims were rejected and abandoned under both the original and the reissue applications.
[*Id.

3. PATENTEE IS HELD TO THE LIMITATIONS UNDER WHICH HE TAKES HIS PATENT.
Where a patentee, on the rejection of his application, inserts in his specification limitations and restrictions for the purpose of obtaining his patent, he cannot, after he has obtained it, claim that it shall be construed as it would have been if such limitations and constructions were not contained in it.
[*Royer *v.* Coupe *et al.*, 318.

4. CONSTRUCTION OF CLAIM.
The claim of a patent for a primary invention should be as liberally interpreted as its fair import will allow, to the end that the inventor's conception shall be justly protected to its true extent and in its broad and actual scope.
[*National Cash Register Company *et al. v.* American Cash Register Company, 449.

5. SAME.
In such a claim, while it may be true that particular mechanism is mentioned, it does not necessarily result that the patentee intended to limit the claim to any special devices or that the law will so restrict it. [*Id.

6. SAME—BROAD AND NARROW CLAIMS.
Broad and narrow claims on the same invention are not to be so construed as to render their expressed distinctions meaningless. The distinction between them must be maintained, that both may be given effect. [*Id.

7. COMBINATION OF ELEMENTS.
Pickering v. *McCullough* (21 O. G., 73; 104 U. S., 310) examined and explained. It is not necessary in a new combination of old elements that each element should modify or change the characteristic mode of action or method of operation of the others, but only that the combination should produce a new and useful result as the product of the combination and not a mere aggregate of several results each the complete result of one of the combined elements. Where a new result is produced as a product of the combination, it is enough that each element contributes to its production. [*Id.

8. EQUIVALENTS.
In comparing the patented combination with the defendant's machine, "though some of the corresponding parts of the machinery are not the same, and, separately considered, could not be regarded as identical or conflicting, yet, having the same purpose in the combination and effecting that purpose in substantially the same manner, they are the equivalents of each other in that regard." [*Id.

9. CONSTRUCTION OF PATENT.
Where a patentee has made a meritorious invention the court should not be overzealous in trying to defeat him by an illiberal construction of the patent. On the contrary, the court should seek a construction which gives life to the patent and protection to the inventor.
[*Lalance & Grosjean Manufacturing Company *v.* Habermann Manufacturing Company, 452.

10. ANTICIPATION—KEY-FASTENER.
"A key-fastener made of a single piece of light wire and provided with a bent hook and adapted to take over the knob-spindle and a flattened unyielding shank adapted to or inserted through the bow of the key," etc., *Held* anticipated by a key-fastener consisting of a piece of round wire bent to siphon shape, the short leg hooked over the knob-shaft, and the long leg projecting down through the key's eye.
[*Ex parte* Gross, 1205.

11. SCOPE OF PATENT—WEIGHT OF DRAWINGS IN DETERMINING.
While the drawings only illustrate the invention in its application to railroad-cars and to railroad-cars having each two four-wheeled trucks, from the language of the specification it is apparent that the invention was designed to be applied to a series of vehicles of kinds that are not provided with four-wheeled trucks, but are usually provided with two-wheeled trucks.
[*Perrin *et al. v.* Manhattan Railway Company *et al.*, 1209.

12. SAME.
The terms of the claim are coextensive with the description of the patent. They are not narrowed by any letters of reference to the drawings. The drawings are therefore illustrative and explanatory, but not definitive, and are only to be treated as part of the description of the thing patented. [*Id.

13. CONSTRUCTION OF PATENT.
While courts have no right to enlarge a patent beyond the scope of its claims as allowed by the Patent Office, the inventor is entitled to a liberal construction to secure to him his actual invention. (Citing *Winans* v. *Denmead*, 15 How., 341.)
[*Brush Electric Company *et al. v.* Electric Improvement Company of San José, 1651.

CONSTRUCTION OF STATUTES.

(See Abandoned Applications; Final Fees; Labels; Prints; Subpœna.)

COPYRIGHTS.

(See Prints.)

CORPORATIONS.

(See Trade-Marks, 2.)

DAMAGES AND PROFITS.

NOMINAL DAMAGES—EVIDENCE.
Plaintiff, owning a patent for two improvements in fruit-driers, sued for the infringement of but one. *Held* that nominal damages only were recoverable where the evidence showed only the amount of a license-fee for both devices and the profits to be made in manufacturing fruit-driers containing both improvements.
[*Hunt Bros. Fruit Packing Company *v.* Cassidy, 1965.

DEATH OF APPLICANT FOR PATENT.

(See Amendment by Attorney After Applicant's Death; Patents to Dead Men.

DECREE.

(See Appeal to the Circuit Court of Appeals.)

DELAY IN FILING APPLICATION.

(See Interference, 4.)

DESIGNS.

(See Particular Patents, 1, 17.)

UTILITY.
In an application for Design patent the question whether its utility warrants the granting of the patent is a question of merit and not subject-matter for interlocutory appeal.
[*Ex parte* Walter, 1205.

DILIGENCE.

(See Interference, 4; Reduction to Practice.)

PRACTICE—EVIDENCE OF DISCLOSURE AND REDUCTION TO PRACTICE ABROAD.
What an applicant has done abroad by way of disclosure or reduction to practice is not pertinent to the question as to whether he exercised reasonable diligence arising in an interference in the Office.
[Peters *v.* Hisey, 315.

DISCLAIMERS.

DISCLAIMER—MECHANICAL EQUIVALENTS.
In Letters Patent No. 172,608, issued January 25, 1876, to John W. Cassidy, for an improvement in fruit-driers, the patentee first claimed "spring or other catches," but, on an objection that his application was not in proper form, amended by striking out "or other." *Held* that this was not a disclaimer of gravity-catches, which were known mechanical equivalents for spring-catches.
[*Hunt Bros. Fruit Packing Company *v.* Cassidy, 1965.

DISCLOSURE OF INVENTION ABROAD.

(See Diligence.)

DISCLOSURE OF INVENTION TO ATTORNEY.

(See Interference, 5.)

DOUBLE USE.

(See Particular Patents, 5.)

DRAWINGS.

(See Construction of Specifications and Patents, 11, 12.)

EQUIVALENTS.

(See Construction of Specifications and Patents, 8; Disclaimers.)

EVIDENCE.

(See Suits for Infringement, 1, 2.)

EVIDENCE OF INVENTION.

(See Burden of Proof; Public Appreciation Evidence of Invention; Testimony.)

EXAMINATION OF APPLICATIONS.

(See Rejected Cases.)

EXAMINER OF INTERFERENCES.

(See Interference, 1, 2; Trade-Marks, 2.)

EXAMINERS.

(See Abandoned Applications.)

EXCEPTIONS.

(See Suits for Infringement, 4.)

FINAL FEES.

PRACTICE—FINAL FEE—SECTION 4885, REVISED STATUTES.
No discretion is vested in the Commissioner by virtue of the terms of Section 4885 of the Revised Statutes to accept and apply a final fee received more than six months after notice of allowance sent to the applicant, even though the last day of the six months falls upon a national holiday.
[*Ex parte* Mills, 317.

FOREIGN DISCLOSURE.

(See Diligence.)

FORFEITED CASES.

(See Final Fees.)

FORMER DECISIONS CONSTRUED.

(See Construction of Specifications and Patents, 7.)

FORMER DECISIONS DISAPPROVED.

(See Appeals to the Circuit Court of Appeals; Particular Patents, 4.)

FORMER DECISIONS REVERSED.

(See Particular Patents, 6; Patents to Dead Men.)

GRANTEE.

(See Patents to Dead Men.)

HEIRS OR ASSIGNS.

(See Patents to Dead Men.)

IMPROVEMENTS.

(See Construction of Specifications and Patents, 1.

INFRINGEMENT.

(See Construction of Specifications and Patents, 8; Damages and Profits; Particular Patents, 2, 3, 6, 8, 9, 10, 15; Suits for Infringement; Trade-Marks, 7, 8, 9.)

1. CONSTRUCTION OF PROCESS CLAIM.
Where the claim is for "the treatment of the prepared rawhide in the manner and for the purposes set forth" and the process as described comprehends "the removal of the hair from the hide by means of sweating" and further avers that the patentee avoids "the use of lime, acid, or alkali," a treatment which omits the "sweating" but uses the "liming" process is not an infringement.
[*Royer *v.* Coupe *et al.*, 318.

2. INFRINGEMENT—BURDEN OF PROOF.
The burden of proving an infringement rests on complainant, and it is not enough to show that defendant's furnace ought theoretically to perform the functions covered by the patent sued upon; but the facts must be shown.
[*Siemens *et al. v.* Chambers & M'Kee Glass Company, 1351.

INJUNCTION.

(See Appeal to the Circuit Court of Appeals.)

INFRINGEMENT—INJUNCTION.
A complainant is ordinarily entitled to an injunction after final hearing and decree in his favor, and in the Southern District of New York it will be suspended only in exceptional cases. (*Pasteur* v. *Blount*, 61 O. G., 1484; 51 Fed Rep., 610, disapproved.)
[*Lalance & Grosjean Manufacturing Company *v.* Habermann Manufacturing Company, 746.

INSPECTION OF ABANDONED CASES IN THE PATENT OFFICE.

(See Abandoned and Rejected Files.)

INTERFERENCE.

(See Preliminary Statement.)

1. PRACTICE—RULE 109—MOTION TO AMEND UNDER.
It is within the discretion of the Examiner of Interferences to extend, upon a proper showing, the limitation of time within which a motion for leave to amend an application under Rule 109 should be brought.
[House *v.* Butler, 587.

2. INTERFERENCE—PRIORITY—RULES 114, 115, 116.
Where one of the parties to an interference failed to file his preliminary statement within the time limited, and the Examiner of Interferences decided the interference in favor of his opponent "in accordance with the provisions of Rules 114, 115, and 116," *Held* on appeal that as the appellant disclosed, but did not claim, the invention in controversy in application antedating his opponent's earliest claimed date, the Office must consider this in determining the question of priority.
[O'Shaughnessy *v.* Van Depoele, 1063.

3. SAME—EVIDENCE.
Certain evidence introduced by a party to an interference to fix his time of conception and to identify his invention as that called for by the interference issue, examined, and *Held* insufficient for the latter purpose.
[Brungger *v* Smith, 1511.

4. REDUCTION TO PRACTICE—REASONABLE DILIGENCE—WHAT IS NOT.
Where a party to an interference claimed to have had a conception of the invention in controversy on or about April 1, 1887, and to have made various sketches and disclosures of it between that date and March 7, 1889, when he filed an application for patent, and where it appears that he took no other step toward developing the invention during that interval, although he knew the great value of the invention, was an experienced inventor, and meanwhile filed at least two other applications for patents, *Held* his delay to either actually or constructively reduce to practice in this interval was not the exercise of reasonable diligence.
[Id.

5. DISCLOSURE TO ATTORNEY—SUGGESTION BY EMPLOYÉ.
The disclosure by an inventor to his attorney entitles the inventor to the benefit of the rule laid down in *Agawam* Co. v. *Jordan* (7 Wall., 583) in a subsequent interference between the parties, the issue of which is the disclosed invention.
[Wheaton *v.* Kendall, 1516.

6. PRACTICE—AFFIDAVIT REQUIRED BY RULE 94, PARAGRAPH 2.
The affidavit required by paragraph 2 of Rule 94 must identify the invention in controversy and state that affiant made it before the patentee's application was filed; but it does not call for a statement of facts showing date of invention. The right to call for such a showing is discretionary with the Office. (Citing Ries *v.* Thomson, 57 O. G., 1598.)
[*Ex parte* Davis, 1516.

INVENTION.

(See Construction of Specifications and Patents, 7, 13, 14; Particular Patents, 1.)

1. "BETTER RESULT" OR "WIDER RANGE OF USE."
The public cannot be deprived of an old process because some one has discovered that it is capable of producing a better result or has a wider range of use than was before known. (Citing *Smith* v. *Nichols*, 21 Wall., 112; *Roberts* v. *Ryer*, 10 O. G., 204; 91 U. S., 150; *Hollister* v. *Benedict Mfg. Co.*, 113 U. S., 59.)
[*Lovell Manufacturing Company, Limited, *v.* Cary *et al.*, 1821.

2. DOUBLE OR ANALOGOUS USE.
It is not patentable invention to apply old and well-known devices and processes to new uses in other and analogous arts.
[*Id.

JURISDICTION OF THE CIRCUIT COURT OF APPEALS.

(See Appeal to the Circuit Court of Appeals.)

JURY TRIALS.

(See Suits for Infringement, 2, 3, 4.)

LABELS.

(See Prints.)

CONSTITUTIONALITY.
Until the Supreme Court distinctly says otherwise the Label law is, for the Patent Office, constitutional.
[*Ex parte* H. J. Heinz & Co., 1064.

LACHES.

(See Abandoned Applications; Interference, 4.)

LETTERS PATENT PRIMA FACIE EVIDENCE OF VALIDITY OF PATENT.

(See Suits for Infringement, 2.)

LICENSE FEES.

(See Damages and Profits.)

LIMITATION IMPOSED BY THE PATENT OFFICE.

(See Construction of Specifications and Patents, 3.)

MANDAMUS.

(See Abandoned and Rejected Files.)

MOTION FOR LEAVE TO AMEND.

(See Interference, 1.)

MOTION FOR REHEARING.

(See Rehearing, 1.)

NEW USE.

(See Invention.)

OATH.

(See Amendment by Attorney After Applicant's Death.)

OLD ELEMENTS.

(See Construction of Specifications and Patents, 7, 10; Invention, 1, 2.)

OLD PROCESS.

(See Invention, 1.)

PARTICULAR PATENTS.

(See Construction of Specifications and Patents, 1; Disclaimers.)

1. BERGNER—ALBUM-CASES—PATENTABILITY.
Design Patent No. 20,347, issued November 25, 1890, to Frederick Bergner, for an album-case set upright on a base-board and having on its exterior an oval ornamental frame with an open center, is invalid, since the patentee invented neither the album-case nor the ornamental frame, but merely conceived the idea of placing the ornament on the case, and this conception is not patentable, for the statute only provides for patents on Designs for articles of manufacture and for ornaments to be placed upon or worked into such articles.
[*Bergner *et al. v.* Kaufmann *et al.*, 1068.

2. BRUSH—ELECTRIC LAMPS—INFRINGEMENT—PIONEER INVENTOR.
Letters Patent No. 219,808, to Charles F. Brush, September 2, 1879, for an improvement in electric-arc lamps, comprising "two or more pairs or sets of carbons, in combination with mechanism constructed to separate said pairs simultaneously or successively," *Held* to cover a pioneer invention and to be entitled to a liberal construction, and, further, *Held* infringed by lamps made under Letters Patent No. 430,722, to James J. Wood, June 24, 1890.
[*Brush Electric Company *et al. v.* Electric Improvement Company of San José, 1651.

3. CAMPBELL—CASH-REGISTERING APPARATUS—INFRINGEMENT.
The third claim of Letters Patent No. 253,506, granted to Michael Campbell February 14, 1882, for improvement in cash-registering apparatus, *Held* valid as a broad claim for a primary invention and infringed by appellee's cash-register.
[*National Cash Register Company *et al. v.* American Cash Register Company, 449.

4. FORMER DECISION.
The decision of the Circuit Court for the District of Massachusetts in *National Cash Register Co.* v. *Boston Cash Indicator and Recorder Co.* (51 O. G., 627; 45 Fed Rep., 481-485) examined and not concurred in on the ground that it was based upon an incorrect application of the law of equivalents in mechanical combinations.
[*Id.

5. CARY—PROCESS OF TEMPERING SPRINGS—DOUBLE USE.
Letters Patent No. 116,266, to Alanson Cary, June 27, 1871, for an improvement in modes of tempering springs, which consists in subjecting the spring to a temperature of 600°, *Held*, in view of the prior development of the same principle in the manufacture of wire bells for clocks and of hair balance springs, to be invalid on the ground of double use.
[*Lovell Manufacturing Company, Limited, *v.* Cary *et al.*, 1821.

6. COUPE—HIDE-STRETCHING MACHINES—INFRINGEMENT.
Letters Patent No. 218,323, to William Coupe, March 18, 1879, for an improvement in hide-stretching machines, discussed as to claims 1 and 3 and *Held* not infringed in the present case. (Reversing *Coupe et al. v. Weatherhead et al.*, 16 Fed. Rep., 673.)
[*Weatherhead *et al. v.* Coupe *et al.*, 1205.

7. FOX—MITER-CUTTING MACHINES—NOVELTY—PRIOR ART.
Reissued Letters Patent No. 11,062, issued February 25, 1890, to William R. Fox, for an improvement in miter-cutting machines, are void for want of patentable novelty, in view of the prior state of the art, as shown more particularly in the Howard patent of August 21, 1866, No. 57,325; the Aiken patent of February 21, 1871, No. 111,896; the Jones patent of July 21, 1874, No. 153,343; the Nichols patent of July 18, 1876, No. 179,944, and the Lannartson patent of April 16, 1878, No. 202,445.
[*Fox *v.* Perkins *et al.*, 160.

8. KEGREISZ—ORNAMENTATION OF ENAMELED IRONWARE—INFRINGEMENT.
Letters Patent No. 279,094, to Emile Kegreisz, June 5, 1883, for an improvement in the ornamentation of enameled ironware, sustained and *Held* infringed.
[*Lalance & Grosjean Manufacturing Company *v.* Habermann Manufacturing Company, 432.

9. ROBERTS—CAR-WINDOWS—INFRINGEMENT.
Letters Patent No. 192,014, to George S. Roberts, June 12, 1877, for improvement in car-windows, *Held*, in view of the prior state of the art, limited to the specific structure described and shown—viz., a bay-window whose two sides are oblique to the side of the car and meet in an obtuse angle, and therefore not infringed by a structure whose two sides are oblique to the side of the car, but connected at their outer extremities by a line parallel therewith.
[*Tubman *v.* Wason Manufacturing Company, 745.

10 ROYER—PROCESS OF PREPARING RAWHIDE FOR BELTING—INFRINGEMENT.
Letters Patent No. 149,934, to Herman Royer, April 21, 1874, for an improvement in the mode of preparing rawhide for belting, *Held* limited strictly to the process as described in the specification and not infringed by defendants.
[*Royer *v.* Coupe *et al.*, 318.

11. SIEMENS—GLASS-MELTING FURNACE—INFRINGEMENT.
Letters Patent No. 261,054, to Charles William Siemens, assignee of Frederick Siemens, July 11, 1882, for a glass-melting furnace, covering "a tank for the continuous melting of glass, having gas and air ports and of the depth herein described for the purpose of forming below the upper fluid portion of the metal a layer of metal in a semi-fluid or partially solid condition, as and for the purpose described," *Held* invalid in view of the state of the art at the time of the grant.
[*Siemens *et al. v.* Chambers & M'Kee Glass Company, 1351.

12. SAME—ANTICIPATION—NEW PURPOSE—NO ANSWER TO.
The patent is anticipated by Belgian patent to C. W. Siemens, granted in 1877, which shows a furnace meeting every requirement of this patent, and it is no answer to this anticipation that the Belgian patentee "may not have fully comprehended the possibilities of the furnace." (Citing *Blake* v. *San Francisco*, 3 O. G., 350; 113 U. S., 679, and *Burt* v. *Evory*, 50 O. G., 1294; 133 U. S., 358.)
[*Id.

13. STEINER—CHEMICAL FIRE-EXTINGUISHERS—ANTICIPATION—APPLICATION OF OLD DEVICE TO NEW USE.
Letters Patent No. 147,422, issued February 10, 1874, to John H Steiner, cover, in claim 4, a chemical fire-engine consisting of a wheeled frame provided with a generator or extinguisher and with a hollow journaled reel, the latter having its journal connected permanently to the generator by a pipe and being provided with a hose coupled to it, so that the fluid may be forced through the hose while wound on the reel and the reel may be unwound to any desired length without kinking. *Held* that this claim is void because of anticipation by Patent No. 142,488, issued September 2, 1873, to O. R. Mason, for an apparatus for thawing ice from water and gas pipes, and by British Patent No. 100, granted January 12, 1865, to William Russ, for an improved apparatus for distributing liquid manure, and British Patent No 2,510, granted August 12, 1868, to Edward P. G. Headley, for an apparatus for watering streets, etc., and extinguishing fires,—since all these patents show the leading idea of a hollow journaled reel and hose connected thereto, and there was no invention in applying the same to a chemical fire-extinguisher by making the necessary connections with the other well-known elements of such a machine
[*Steiner Fire Extinguisher Company *v.* City of Adrian, 1065.

14 SAME—NEW RESULT.
The Steiner patent cannot be sustained on the ground that the journaled reel, the hose coiled thereon, and its connections, in the combination, promote the perfect neutralization of the carbonic acid by the alkali and diminish the liability to discharge any free acid which may have escaped from the generator, for the patentee did not invent the instrumentality by which this result is achieved, and his specifications contain no hint that he either sought or expected such a result.
[*Id.

15. THUM—FLY-PAPER—INFRINGEMENT.
Letters Patent No. 278,294, May 22, 1883, to Otto Thum, and claim 3 of Letters Patent No. 305,118, September 16, 1884, to Otto Thum, for fly-paper, sustained and *Held* infringed.
[*Thum *et al. v.* Andrews *et al.*, 1356.

16 TRENOR—RUNNING-GEAR FOR RAILROAD-CARS AND OTHER VEHICLES—DOCTRINE, UT RES MAGIS VALEAT QUAM PEREAT—WHEN THE CONSTRUCTION OF A CLAIM WILL NOT BE LIMITED IN ORDER TO SAVE IT.
The second claim of Letters Patent No. 50,518, granted to Henry H. Trenor, for improvements in the running-gear for railroad cars and other vehicles, dated October 17, 1865, which is as follows—"2. The method of coupling the cars or vehicles of a train of two or more cars or vehicles by means of connecting-links attached to the pivots or king-bolts of the trucks, substantially as herein shown and set forth"—cannot by any reasonable construction be limited to a method of coupling cars or vehicles having four wheeled trucks, and upon the broad construction given to the second claim of the patent it was *Held* void for want of novelty
[*Perrin *et al. v.* Manhattan Railway Company *et al.*, 1209.

17. WOFFENDEN—DESIGN FOR RUBBER MATS.
Design Patent No 11,208, March 27, 1879, to George Woffenden, for a Design for rubber mats, *Held*, in view of the prior state of the art, and particularly of the English patent for rubber brushes to Fanshawe and Jacques, No. 2,935, November 29, 1860, limited to the mere design or pattern shown in the drawing, and therefore not infringed.
[*New York Belting and Packing Company *v.* New Jersey Car Spring and Rubber Company, 589.

PATENTABILITY.

(See Invention.)

PATENTS TO DEAD MEN.

VALIDITY OF GRANT TO A PATENTEE DEAD AT TIME OF ISSUE.
A patent to a man dead at the time of the grant is not void for want of a grantee, since the phrase "his heirs or assigns" must be construed as creating a grant in the alternative, and the use of the word "heirs" in a patent grant raises no limitation in the sense of the strict common-law rule applied to realty. (Reversing *De La Vergne Refg. Co.* v *Featherstone*, 58 O G., 1842.)
[*De La Vergne Refrigerating Machine Company *v.* Featherstone *et al.*, 741.

PRACTICE IN THE COURTS.

(See Abandoned and Rejected Files; Appeal to the Circuit Court of Appeals; Burden of Proof; Comity; Construction of Specifications and Patents, 3, 4, 5, 6, 9, 14, 18; Disclaimers; Infringement, 2; Injunction; Subpœna; Suits for Infringement.)

PRACTICE IN THE PATENT OFFICE.

(See Designs; Final Fees; Interference; Rehearing, 1; Rejected Cases; Testimony.)

PRELIMINARY STATEMENT.

(See Interference, 2.)

PRACTICE—AMENDED PRELIMINARY STATEMENT.

Upon motion of a junior party to amend his own and strike out the senior party's amended preliminary statement, certain facts *Held* to warrant an equitable treatment of the matter, and both amendments received.

[Pratt and Johns *v.* Thomson, 449.

PRINTS.

(See Labels.)

1. REGISTRATION OF LABELS—"PRINTS" AND "LABELS."

Under section 3 of the act of June 18, 1874, relating to patents, trade-marks, and copyrights, "Prints" as well as "Labels" are entitled to registration.

[*Ex parte* H. J. Heinz Co., 1064.

2. PURPOSE OF THE LABEL ACT.

The purpose of the so-called "Label act" was to relegate to the Patent Office all registry in the general nature of or akin to copyright of things which are mere adjuncts or appurtenances of articles of trade and to leave to the Librarian of Congress the registry of things whose value in exchange resides in themselves. In any case some spark of intellectual creation must be present. (See *Ex parte Palmer*, 50 O. G., 383.) [Id.

PRIOR USE.

(See Burden of Proof.)

PRIORITY OF INVENTION

(See Diligence; Interference, 2, 3, 4, 5; Reduction to Practice.)

PROCESS.

(See Infringement, 1; Invention, 1.)

PROTEST AGAINST ISSUANCE OF A PATENT.

(See Rehearing, 2.)

PUBLIC APPRECIATION EVIDENCE OF INVENTION.

NOVELTY—EFFECT OF LARGE SALES.

Large sales of a patented machine, while evidence more or less cogent of value and usefulness, are not conclusive evidence of patentable novelty and are of little weight when it appears that such sales are the result of active and energetic efforts by means of circulars and traveling agents. (*McCain v. Ortmayer*, 57 O. G., 1129; 12 Sup. Ct. Rep., 76; 141 U. S., 427–429, followed.)

[*Fox *v.* Perkins *et al.*, 160.

PUBLIC USE.

(See Abandonment.)

REDUCTION TO PRACTICE.

(See Diligence; Interference, 4.)

REDUCTION TO PRACTICE—REASONABLE DILIGENCE.

An interval of a year and a half after conception of an invention, during which the inventor practically gave up work on his improvement, *Held* to negative reasonable diligence.

[Slattery *v.* Shallenberger, 1515.

REFERENCES.

(See Rejected Cases.)

REHEARING.

1. PRACTICE—REHEARING—DECISION AGAINST EVIDENCE.

On a motion for rehearing of a case originally heard and determined by the Acting Commissioner, upon the ground of decision contrary to evidence, the Commissioner will not disturb the prior decision upon a showing that the testimony was closely balanced and admitted the possibility of a contrary conclusion; but it must appear that the decision was clearly against the weight of testimony.

[Webb *v.* Blickensderfer, 159.

2. REHEARING.

Motion for rehearing in matter of protests of Riley *v.* Barnard denied in view of certain evidence herein quoted.

[*Ex parte* Riley, 1515.

REJECTED CASES.

PRACTICE—RULE 66—REJECTION FOR "LACK OF INVENTION" AND "WANT OF NOVELTY."

A rejection for "lack of invention" *Held* in effect a rejection for "want of novelty," and that the Examiner must cite references under Rule 66.

[*Ex parte* Clifford, 316.

RENEWAL OF ABANDONED APPLICATIONS.

(See Abandoned Applications.)

RESULTS.

(See Construction of Specifications and Patents, 7; Invention, 1; Particular Patents, 1.)

REVOCATION OF POWER OF ATTORNEY.

(See Attorney.)

SCOPE OF PATENTS.

(See Construction of Specifications and Patents, 11, 12.)

SEAL OF CORPORATIONS.

(See Trade-Marks, 2.)

SUBPŒNA.

WITNESS—SUBPŒNA DUCES TECUM—AUTHORITY OF CLERK—PATENT OFFICE INTERFERENCE PROCEEDINGS.

Sec. 896, Revised Statutes, providing that, on the application of any party to a contested case pending in the Patent Office, the clerk of any Federal court shall issue a subpœna for a witness commanding him "to appear and testify," does not include an authority to issue a subpœna duces tecum.

[*Ex parte Moses, 1826.

SUITS FOR INFRINGEMENT.

(See Damages and Profits; Disclaimers; Infringment, 2; Subpœna.)

1. PATENTS FOR INVENTIONS — INFRINGEMENT — OPINION — EVIDENCE—DRYING APPARATUS.

In an action for infringement of a patent for improvements in fruit-driers, the patentee, after stating that he had been engaged in mechanical pursuits, had seen many different driers, and had sufficient knowledge of mechanics to permit him to give an intelligent opinion as to the cost of a piece of machinery when he saw it, was asked which in his judgment would be the cheaper to construct, his or the alleged infringing drier. *Held* that the question was not objectionable, on the ground that the witness had said he did not know the cost of the infringing drier.

[*Hunt Bros. Fruit Packing Company *v.* Cassidy, 1965.

2. SAME—INVENTION—BURDEN OF PROOF—DIRECTING VERDICT.

The existence of Letters Patent issued in due form constitutes *prima facie* evidence of the validity of the patent, and where, in an action at law for infringement, such letters are introduced an alleged want of invention is matter of defense, the burden of showing which is on defendant, and the court cannot direct a judgment for defendant, even though the patentee on cross-examination has given evidence that may tend to show a prior state of the art excluding invention on his part.

[*Id.

3. SAME—INFRINGEMENT—INSTRUCTIONS—QUESTIONS FOR JURY.

Whether there was invention in the patent, whether plaintiff was the first inventor, and whether the use of gravity-catches as mechanical equivalents of spring-catches was known at the time of plaintiff's application were questions of fact for the jury.

[*Id.

4. TRIAL—INSTRUCTIONS—WAIVER OF OBJECTIONS.

An exception to the court's refusal to direct a verdict for defendant at the close of plaintiff's evidence is waived by proceeding in the cause and introducing evidence for the defense. (*Railway Co.* v. *Cummings*, 1 Sup. Ct. Rep., 493, 106 U. S., 700, and *Insurance Co.* v. *Crandal*, 7 Sup. Ct. Rep., 685, 120 U. S., 527, followed.)

[*Id.

TECHNICAL TERMS.

(See Infringement, 1.)

TESTIMONY.

(See Burden of Proof; Rehearing, 1.)

TESTIMONY—WEIGHT AND CONSTRUCTION OF.

Testimony must be construed with reference to "the ordinary laws that govern human conduct." (Quoting and discussing *Atlantic Works* v. *Brady*, 23 O. G., 1330; 107 U. S., 192, and *The Telephone Cases*, 43 O. G., 377; 126 U. S., 1.)

[Brungger *v.* Smith, 1513.

TESTIMONY TAKEN IN FOREIGN COUNTRIES.

(See Diligence.)

TRADE-MARKS.

1. TRADE-MARK—WORD AND PICTURE.

A word and a picture which are true alternatives and invariably express the same idea may be covered by one Trade-Mark registration; but the rule will not cover the case of a word and a picture capable of such a variety of modifications that two of them might appear as substantially different things to an ordinary purchaser.

[*Ex parte* Adam Roth Grocery Company, 315.

2. TRADE-MARK—CONCESSION OF PRIORITY BY CORPORATION—USE OF SEAL.

Where the Examiner of Interferences refused to recognize a concession of priority of Trade-Mark adoption executed by an officer of a corporation without the corporate seal, *Held* that a concession of priority is not such an instrument as requires the use of a seal by corporation or individual, and that, it satisfactorily appearing on the record that the officer was empowered to execute the paper, the Office will accept it.

[Jersey City Packing Company *v.* Jacob Dold Packing Company, 317.

3. TRADE-MARK—WORD "MAGICO."

The word "Magico" *Held* not anticipated by the word "Magic" already registered for use on a similar class of goods.

[*Ex parte* American Chemical Company, 588.

4. TRADE-MARK—WORD "FAMOUS" NOT PROPER SUBJECT OF.

The word "Famous" is merely descriptive in its nature and not registrable as a Trade-Mark.

[*Ex parte* Brand Stove Company, Limited, 588.

5. TRADE-MARK—GLOVES.

A "representation of a band with eyelets therein and cross-lacings connecting the eyelets" *Held* not registrable as a Trade-Mark, since its function is purely decorative in the connection in which it is intended for use.

[*Ex parte* Peyser & Co., 588.

6. SAME.

The primary function of a Trade-Mark is to denote the origin of the article which bears it. A "representation" which upon its face appears clearly to have another purpose, such as decoration, and which by reason of that decorative character creates no suspicion that it is intended as a Trade-Mark, is not registrable as such.

[Id.

7. TRADE-MARK—INFRINGEMENT.

"One Night Cure" *Held* not infringed by words "Beshore One Night Cough Cure."

[*Kohler Manufacturing Company *v.* Beshore, 592.

8. CERTIFICATE OF REGISTRATION CONCLUSIVE AS TO MARK.

A certificate of registration *Held* conclusive as to description of plaintiff's Mark where he sought to enlarge its terms on a suit for infringement.

[*Id.

9. MERE ADOPTION CARRIES NO RIGHTS WHERE CONTINUOUS USE DOES NOT CONCUR.

A mere adoption of a Mark carries no rights unless there concur a continuous use of it and public familiarity with it. To establish a proprietary right in such a Mark, it is necessary that the public understanding respecting the purpose of its use shall be fully proved.

[*Id.

USE AND SALE OF PATENTED ARTICLES.

(See Public Appreciation Evidence of Invention.)

UTILITY.

(See Designs.)

VALID PATENTS.

(See Patents to Dead Men; Particular Patents, 2, 3, 8, 9, 10, 15.)

VOID PATENTS.

(See Particular Patents, 1, 5, 7, 11, 13, 16.)

WAIVER OF OBJECTIONS.

(See Suits for Infringement, 4.)

WITNESSES.

See Subpœna; Suits for Infringement, 1.)

ALPHABETICAL LIST OF PATENTEES

FOR

THE QUARTER ENDING MARCH 31, 1893.

[Claims and drawings of Designs do not appear in the Monthly Volumes. Separate indexes for Designs, Trade-Marks, Prints, and Disclaimers follow this.]

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
			Specification.	Drawing.	Volume.	Page.
A. L. Due Fireworks Company. (See Hebenstreit, Edward, assignor.)						
Abbott, Albert R., Boston, Mass. Ticket-printing apparatus	490,939	Jan. 31	3145	807	62	690
Abbott Machine Company. (See Blodgett, John W., assignor.)						
Abbott, William W., assignor to E. F. Barnes, New Haven, Conn. Mitering-machine	493,541	Mar. 14	1221	313	62	1611
Abel, George H., and J. W. Daly, Maxwell, Cal. Heading and reaping machine	491,629	Feb. 14	935	235	62	951
Abell, Bernard M., and W. Ostrander, New York, N. Y. Means for forming and ornamenting sheet-metal articles	493,005	Mar. 7	370	92	62	1432
Abenheim, Sidney, New York, N. Y. Shoe-polishing machine	489,907	Jan. 17	1417	367	62	323
Aberg, Walfrid A., assignor to himself and H. F. Heimerle, New Westminster, Canada. Wrench	493,051	Mar. 7	435	110	62	1445
Abert, William B., and W. Scherer, Washington, D. C. Paint	491,003	Jan. 31	3248	.....	62	710
Abney, Dite. H., assignor of one-third to G. W. Rose, Kansas City, Mo. Shoe-lace fastening	493,202	Mar. 7	663	169	62	1489
Accumulator Company. (See Pfaischer, Mathias, assignor.)						
Acheson, Edward G., assignor to Carborundum Company, Monongahela City, Pa. Production of artificial crystalline carbonaceous materials	492,767	Feb. 28	2722	678	62	1340
Actien-Gesellschaft für Anilin Fabrikation. (See Diehl, Theodor, assignor.)						
Adams, Benjamin D., assignor of one-half to J. H. Howard, Minneapolis, Minn. Lawn-mower	491,914	Feb. 14	1370	341	62	1038
Adams, Charles P., Cleveland, Ohio. Steam-boiler	492,253	Feb. 21	1899	474	62	1160
Adams Company. (See Farwell, Fay O., assignor.)						
Adams, Frederick U., assignor of one-half to R. S. McCormick, Chicago, Ill. Ventilating apparatus for railway-cars in trains	489,908	Jan. 17	1417	367, 368, 369	62	323
Adams, Frederick U., assignor of one-half to R. S. McCormick, Chicago, Ill. Air-supply device for railway passenger-cars	489,909	Jan. 17	1420	369	62	323
Adams, Frederick U., assignor of one-half to R. S. McCormick, Chicago, Ill. Air-supply device for railway-cars	489,910	Jan. 17	1422	370, 371, 372	62	324
Adams, Frederick U., assignor of one-half to R. S. McCormick, Chicago, Ill. Railway car and train	489,911	Jan. 17	1425	373, 374, 375	62	324
Adams, Frederick U., assignor of one-half to R. S. McCormick, Chicago, Ill. Railway-car	489,912	Jan. 17	1429	375, 376	62	325
Adams, Frederick U., assignor of one-half to R. S. McCormick, Chicago, Ill. Locomotive and tender housing	490,057	Jan. 17	1693	440, 441	62	377
Adams, George B., Irvington, N. J. Garment-supporter	489,702	Jan. 10	1101	284	62	244
Adams, George E., Providence, R. I. Glove-fastener	489,890	Jan. 10	1375	358	62	300
Adams, George E., Providence, R. I. Clasp	489,891	Jan. 10	1376	358	62	300
Adams, George E., Providence, R. I., assignor to Traut & Hine Manufacturing Company, New Britain, Conn. Suspender-end cast-off	489,445	Jan. 10	717	193	62	167
Adams, George E., Providence, R. I., assignor to Traut & Hine Manufacturing Company, New Britain, Conn. Cast-off for suspender-ends	490,058	Jan. 17	1695	441	62	377
Adams, George E., assignor to Traut & Hine Manufacturing Company, New Britain, Conn. Cast-off for suspender-ends	489,596	Jan. 10	954	248	62	213
Adams, George E., assignor to Traut & Hine Manufacturing Company, New Britain, Conn. Cast-off buckle	491,630	Feb. 14	936	235	62	951
Adams, George E., assignor to Traut & Hine Manufacturing Company, New Britain, Conn. Suspender-end cast-off	492,131	Feb. 21	1701	423	62	1119
Adams, George F., Nashua, N. H., and J. S. Lynam, Winchester, Mass., assignors of one-third to C. S. Collins and I. F. Harris, Nashua, N. H. Railway-signal	490,220	Jan. 17	1962	514	62	431
Adams, Marshall L., Elroy, N. C. Fender for plows	493,236	Mar. 14	727	187	62	1519
Adams, Thomas, assignor to Hensel-Colladay Company, Philadelphia, Pa. Cord-covering machine	492,618	Feb. 28	2491	618	62	1293
Adams Tobacco Press Company. (See Hill, Thomas, assignor.)						
Adams, Walter S. (See Brill and Adams.)						
Adams & Westlake Company. (See Giese, James A., assignor.)						
Adams & Westlake Company. (See Johnston, John S., assignor.)						
Adams, William T., Reading, Pa. Mold for artificial teeth	488,976	Jan. 3	1	1	62	3
Addyston Pipe and Steel Company. (See Anderson, Larz W., assignor.)						
Adler, Joseph B., New York, N. Y. Nail	493,144	Mar. 7	579	145	62	1473
Adriance, John E. (See Thompson, Sumner C., assignor.)						
Adsit, John O., Hornellsville, N. Y. Prescription-glass	493,851	Mar. 21	1740	442	62	1739
Adsit, John O., Hornellsville, N. Y., and C. H. Wickham, Tioga, Pa. Street-car	492,882	Mar. 7	175	42, 43	62	1393
Aery, George W. (See Bunch, James M., assignor.)						
Agabeg, Frank. J., Charanpore, India. Fan	489,913	Jan. 17	1433	377	62	396
Agnew, William C., Creston, Ill. Horse-collar	491,065	Feb. 7	1	1	62	749
Agricola La Burt Manufacturing Company. (See La Burt, John, assignor.)						
Ahearn, Thomas, Ottawa, Canada. Electric warming-bottle	490,891	Jan. 31	3061	786	62	675

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Abner, Cyrus S., Harmony, assignor of one-fourth to W. J. Steel, Zelienople, Pa. Sucker-rod clamp or wrench	492,380	Feb. 28	2097	523	62	1213
Ahrens, Louis, *et al.* (See Bowen, Philip A., assignor.)						
Aiken Alblon P., Port Perry, Pa. Lifting-jack	490,221	Jan. 17	1963	514	62	431
Aiken, Henry, Pittsburg, Pa. Charging-crane	489,779	Jan. 10	1223	320, 321, 322	62	268
Aiken, Henry, Pittsburg, Pa. Crane	491,933	Feb. 14	1402	350	62	1414
Aiken, Henry, Pittsburg, Pa. Apparatus for straightening metal plates	492,951	Mar. 7	281	71, 72	62	1038
Akester, William H., London, England. Electric-arc lamp	491,915	Feb. 14	1372	342	62	1039
Akester, William H., London, England. Electric-arc lamp	491,916	Feb. 14	1373	342	62	1044
Aktiebolaget Separator. (See Bernström, John, assignor.)						
Aktiebolaget Separator. (See Jönsson and Berg, assignors.)						
Al. Hugo Lhota, House of. (See Klár, Karel, assignor.)						
Aladdin Camera Company. (See Davidson, Joseph A., assignor.)						
Albach, William H., Manafield, Ohio, assignor to Barr Cash and Package Carrier Company. Cash and parcel carrier apparatus	490,093	Jan. 17	1749	456	62	390
Albin, Elmer E., *et al.* (See Broome, Henry, assignor.)						
Albinson, James E., Washington, D. C. Portable sprayer	489,780	Jan. 10	1226	321	62	269
Aldrich, Henry E., Boston, Mass., assignor, by mesne assignments, to Postal Improvement Company, Norristown, Pa. House-door letter-box	491,509	Feb. 14	743	189	62	911
Alexander, Horace C., Bonham, Tex. Churn	491,917	Feb. 14	1376	343	62	1039
Alexander, John A., assignor of one-half to J. M. Alexander, Ardmore, Indian Ter. Vehicle-step	493,373	Mar. 14	954	245	62	1561
Alexander, John M. (See Alexander, John A., assignor.)						
Alexander, John W. (See Timmerman, William T., assignor.)						
Alexander, Reece H., Fort Wayne, Ind. Steam-generating-boiler furnace	491,918	Feb. 14	1377	343	62	1039
Alford, Albert, Chicago, Ill. Cigar-moistener	493,347	Mar. 14	909	233	62	1551
Alfred, Chauncey C., Fairfax, Vt. Sugar-evaporating pan	489,622	Jan. 10	987	258	62	220
Alger, Albert W., Kansas City, Mo. Stove	490,531	Jan. 24	2474	637, 638	62	544
Allaeys, Honoré B., Frenchtown, Mont. Making mosaics	490,467	Jan. 24	2368	612	62	523
Allan, Edward T., assignor of seven-tenths to A. Godshaw, Cincinnati, Ohio, and T. James, Newport, Ky. Button for shoes or other articles	490,595	Jan. 24	2559	659	62	561
Allan, Edward T., assignor of seven-tenths to A. Godshaw, Cincinnati, Ohio, and T. James, Newport, Ky. Machine for securing buttons to fabrics	490,619	Jan. 24	2603	671	62	570
Allan, John W., assignor of three-fourths to R. Ehrenberg and A. H. Runge, Minneapolis, Minn. Wagon-brake	489,175	Jan. 3	291	81	62	67
Allderdice, Taylor, Swissvale, assignor to Carnegie Steel Company, Limited, Pittsburg, Pa. Manufacturing steel	491,035	Jan. 31	3313		62	724
Allen, C. A., *et al.* (See Trautman, Adam, assignor.)						
Allen, Chancellor C. (See Crockett and Allen.)						
Allen, David H. (See Gamble and Allen.)						
Allen, J. W., *et al.* (See Avery, Oliver, assignor.)						
Allen, James A. (See McCaslin, Irving A., assignor.)						
Allen, Oscar M., Sr., *et al.* (See Harris, Levi, assignor.)						
Allen, Russell, *et al.* (See Whiteley, Albert M., assignor.)						
Allen, Samuel L., Cinnaminson, N. J. Pulverizer and leveler	493,958	Mar. 21	1918	489	62	1762
Allen, Wash. J. (See Jewett, David W., assignor.)						
Allen, William E., Providence, R. I., assignor to Sawyer Spindle Company, Hopedale, Mass. Spindle and its support	494,453	Mar. 28	2739	687	62	1929
Alligear, Nelson, Syracuse, N. Y. Machine for edging razors, &c	492,910	Mar. 7	223	56	62	1402
Allis, Abram Q., assignor of one-third to H. T. Wurth and T. H. Flynn, Prattsburg, N. Y. Oil-stove	489,138	Jan. 3	236	65	62	54
Allis, John, Lowville, N. Y. Apparatus for supplying water to animals	492,568	Feb. 28	2407	600	62	1278
Allison, James L., Waddington, N. Y., and R. G. Nash, Morrisburg, Canada. Centrifugal dredging-machine	494,094	Mar. 21	2149	549	62	1805
Allison, Robert, Port Carbon, Pa. Governor for steam-engines	492,254	Feb. 21	1900	474	62	1161
Allison, Samuel B., assignor to American Fibre Company, New Orleans, La. Fiber-separating machine	493,852	Mar. 21	1741	443, 444	62	1729
Allshouse, Clarence E. (See Peck and Allshouse.)						
Alpaugh, Ephraim, Galt, Canada. Bin for flour, meal, &c	489,552	Jan. 10	887	232	62	201
Alpaugh, Ephraim, Galt, Canada. Churn	493,006	Mar. 7	372	93	62	1432
Althen, Fredrick W., Rome, Ohio. Forge	490,732	Jan. 31	2810	721	62	625
Althoff, William F., and J. H. Stokesbary, Denver, Colo. Oil-cup	491,830	Feb. 14	1238	309	62	1012
Althouse, Milo J., Waupun, Wis. Car-coupling	491,503	Feb. 7	719	182	62	887
Althouse, Milo J., Waupun, Wis. Car-coupling	491,504	Feb. 7	721	182	62	887
Altmann, Arthur, Rostock, assignor to S. Gray, Cologne, Germany. Track-gage	490,705	Jan. 31	2772	712	62	618
Ambruster, Joseph H., St. Louis, Mo. Extension copy-holder and rest	489,518	Jan. 10	845	220	62	192
American Bell Telephone Company. (See McQuarrie, James L., assignor.)						
American Cap Company. (See Rodgers, Samuel, assignor.)						
American Carbonate Company. (See Endemann, Hermann, assignor.)						
American Dress Stay Company. (See Bray, Isabella, assignor.)						
American Electric Heating Company. (See Jenkins, Samuel B., assignor.)						
American Electric Heating Company. (See Mitchell, Willis, assignor.)						
American Fibre Company. (See Allison, Samuel B., assignor.)						
American Magnetic Electric Company. (See Humann, William, assignor.)						
American Meter Company. (See Logue, Hugh, assignor.)						
American Napping Machine Company. (See Leech and Himelspark, assignors.)						
American Novelty Manufacturing Company. (See Beehler, Charles W., assignor.)						
American Optical Company. (See De Celles and Wells, assignors.)						
American Perfuming Machine Company. (See Busenbenz, Jacob J., assignor.)						
American Saw Company. (See Brooke, William E., assignor.)						
American Shoe Tip Company. (See Dixon, George W., assignor.)						
American Soda Fountain Company. (See Kelsey, Benjamin F., assignor.)						
American Soda Fountain Company. (See Puffer, Alvin D., Jr., assignor.)						
American Spring Company. (See Procunier, Henry E., assignor.)						
American Telephone and Telegraph Company. (See Hall, Edward J., assignor.)						
American Telephone and Telegraph Company. (See Hall and Pickernell, assignors.)						
American Telephone and Telegraph Company. (See Pickernell, Frank A., assignor.)						
American Telephone and Telegraph Company. (See Pickernell and Dunbar, assignors.)						
American Tire Company. (See Hnss, Rndolph W., assignor.)						
American Writing Machine Company. (See Carthy, Florence M., assignor.)						
Ames, Charles D., Portland, Ind., assignor to Creamery Package Manufacturing Company, Chicago, Ill. Tub or Pail Making Machinery	491,157	Feb. 7	151	39	62	778

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ames, Emerson, assignor of one-half to H. E. Ames, Washington, D. C. Covered bucket or other vessel	493,145	Mar. 7	580	145	62	1473
Ames, Fisher, Newton, Mass. Playing-card	491,302	Feb. 7	400	103	62	823
Ames & Frost Company. (See Pease, Charles F., assignor.)						
Ames, Howard E. (See Ames, Emerson, assignor.)						
Ames, Jesse E., Boston, Mass. Transfer-binder	492,772	Mar. 7	1	1	62	1359
Ames, Samuel F., Berea, Ky. Sawmill head-block	490,131	Jan. 17	1818	475	62	404
Ammons, William H., Little Rock, S. C. Plow	491,397	Feb. 7	559	141	62	855
Amo, Max, New York, N. Y. Wall-facing	489,914	Jan. 17	1434	377	62	326
Amsinck, Gustav, *et al.*, trustees. (See Mattullath, Hugo, assignor.)						
Andem, James L. (See Anthony, Marcus O., assignor.)						
Andersen, Carl V. (See Lohmann and Andersen.)						
Anderson, Benjamin B., Chicago, Ill. Railway-ticket	492,601	Feb. 28	2463	612	62	1289
Anderson, Carl. A., Lynn Centre, Ill. End-gate	490,333	Jan. 24	2162	564	62	483
Anderson, Eli, assignor of one-half to T. Hinson, Carpentersville, Ind. Spike-extractor	492,977	Mar. 7	326	82	62	1423
Anderson, Frank, Shoals, Ind. Wheeled harrow	490,132	Jan. 17	1820	475	62	405
Anderson, Frank E. (See Bickley, John H., assignor.)						
Anderson, Frederick E., Chicago, Ill. Barrel-washer	489,066	Jan. 3	139	35	62	32
Anderson, James, Harrodsburg, Ky. Corn-planter	489,446	Jan. 10	718	193	62	167
Anderson, Larz W., assignor to Addyston Pipe and Steel Company, Cincinnati, Ohio. Apparatus for molding pipe-cores	491,973	Feb. 21	1465	365	62	1071
Anderson, Louis. (See Myers and Anderson.)						
Anderson, T. S., *et al.* (See Smith, George, assignor.)						
Anderson, William F. (See Gustafson, Axel R., assignor.)						
Anderson, William W., New York, N. Y. Clasp	489,781	Jan. 10	1227	321	62	269
Andersson, Robert F., Lynn, Mass. Package-registering device	494,050	Mar. 21	2074	530	62	1792
Anderton, George P., Concession, La. Levee and dam structure	492,704	Feb. 28	2021	519	62	1120
Andreasen, Peter O., Ferndale, Cal. Butter-molding and cutting machine	491,792	Feb. 14	1192	297	62	1000
Andrews, Cassius C., New York, N. Y. Railway-frog	494,115	Mar. 28	2197	561	62	1829
Andrew, Charles, Cincinnati, Ohio. Thill-coupling	493,462	Mar. 14	1090	279	62	1587
Andrews, George, Ashford, England. Animal-trap	491,329	Feb. 7	446	115	62	853
Andrews, Thomas C., New York, N. Y. Steam-boiler and water-heater	490,940	Jan. 31	3149	807	62	691
Angell, Edward F. (See Spear, Arthur, assignor.)						
Angerer, Victor, and C. A. Pallander, assignors to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa. Apparatus for the manufacture of track structures	490,941	Jan. 31	3152	808	62	691
Anidjah Fire Escape Company. (See Anidjah, Lewis, assignor.)						
Anidjah, Lewis, assignor to Anidjah Fire Escape Company, Limited, London, England. Fire escape	489,915	Jan. 17	1435	377	62	326
Anschütz, Ottomar, Lissa, Germany. Fraud-preventive device for coin-controlled apparatus	489,667	Jan. 10	1044	272	62	232
Anthony, John M., Hadnot, La. Floor or ceiling set	489,405	Jan. 3	641	174	62	138
Anthony, Marcus O., assignor of three-fifths to J. L. Andem, Cincinnati, Ohio. Automatic feed and return mechanism for phonographs	489,519	Jan. 10	845	220	62	192
Anthony, Walter F., Williamsport, Pa. Back-band buckle	493,744	Mar. 21	1576	401	62	1697
Apfelbaum, Herman. (See Schweiger, William J., assignor.)						
Apple, Benjamin J. (See Hohenstein and Apple.)						
Apple, William H., Ashland, Ky. Stuffing-box packing for piston-rods	493,671	Mar. 21	1448	369	62	1672
Aquart, Arthur D., *et al.* (See Simons, Frank, assignor.)						
Arbuckle Brothers. (See Smyser, Henry E., assignor.)						
Archer, John B., Washington, D. C. Manufacturing gas	491,066	Feb. 7	2	1, 2	62	749
Archer, John B., Washington, D. C. Apparatus for the manufacture of gas	491,067	Feb. 7	5	2, 3	62	749
Archer, John B., Washington, D. C. Furnace	492,653	Feb. 28	2550	631	62	1305
Archer, John H., St. Louis, Mo. Water-purifier	488,977	Jan. 3	2	1	62	3
Archer Manufacturing Company. (See Butler, Magnler, assignor.)						
Armat, Thomas, Washington, D. C. Finger-protector	490,733	Jan. 31	2811	721	62	625
Armitage, Edwin, assignor to J. L. Armitage, Newark, N. J. Machine for painting fabric materials	493,463	Mar. 14	1091	279, 280	62	1587
Armitage, John L. (See Armitage, Edwin, assignor.)						
Armour, Robert J. (See Huntington and Armour.)						
Arms, Melford D., assignor of one-half to F. R. Strong, San Diego, Cal. Wood water-pipe	490,892	Jan. 31	3062	786	62	675
Armstrong, Alexander. (See Bronson and Armstrong.)						
Armstrong Camera Company. (See Armstrong, William A., assignor.)						
Armstrong, George, Chicago, Ill. Tool-holder	492,381	Feb. 28	2098	523	62	1213
Armstrong, John E., Santa Cruz, Cal. Latch and lock	491,793	Feb. 14	1188	297	62	1001
Armstrong, John H., Duquoin, assignor of one-half to W. C. Russell, Perry county, Ill. Means for aerating and purifying the water of wells, &c	493,853	Mar. 21	1744	444	62	1729
Armstrong, William A., assignor to Armstrong Camera Company, Milwaukee, Wis. Photographic camera	494,517	Mar. 28	2842	711, 712	62	1948
Arnemann, Wilhelm, Hamburg, Germany. Smoke-consuming furnace	491,233	Feb. 7	982	70	62	802
Arnemann, William, Jr., New York, N. Y. Smoke-consuming furnace	491,696	Feb. 14	1036	262	62	972
Arnett, Thomas F. (See Sonnett and Arnett.)						
Arnold, Craig R., Sharon Hill, Pa. Electric metal-working	489,114	Jan. 3	206	55	62	48
Arnold, Craig R., Sharon Hill, Pa. Secondary battery	489,115	Jan. 3	207	55	62	48
Arnold, Don J., Omaha, Nebr. Fire-escape	490,222	Jan. 17	1965	515	62	432
Arnold, Eliphalet L., Georgetown, Tex. Construction of railways	493,052	Mar. 7	437	110	62	1445
Arnold, Eliphalet L., Georgetown, Tex. Nut-lock	493,393	Mar. 14	979	252	62	1567
Arnold, Horace L., Brooklyn, N. Y., assignor of fifty-one one-hundredths to F. W. Roebling, Trenton, N. J. Book-covering machine	493,959	Mar. 21	1919	490, 491, 492, 493	62	1762
Arnold, James H., *et al.* (See Kidd, Gideon P., assignor.)						
Arnold Print Works. (See Browning, William, assignor.)						
Arnold Print Works. (See Donald, George, assignor.)						
Arnold Print Works. (See Pearson, Frank P., assignor.)						
Aronson, Mark, New York, N. Y. Dress-skirt	494,404	Mar. 28	2669	669	62	1916
Arthur, Alexander J., Fort Dodge, Iowa. Pencil	493,464	Mar. 14	1093	280	62	1587
Arthur, Alexander J., Fort Dodge, Iowa. Lead-pencil	493,465	Mar. 14	1095	280	62	1588
Ash, Edwin. (See Ellsworth, John J., assignor.)						
Ashcroft Manufacturing Company. (See Houghtaling, William, assignor.)						
Ashley, Frank M., Brooklyn, N. Y. Automatic boiler-feeder	493,237	Mar. 14	728	187	62	1519
Ashley, Frank M., Brooklyn, N. Y. Safety water column	493,238	Mar. 14	731	187	62	1519
Ashley, Ralph. (See Growith and Ashley.)						
Ashley, Ralph, Philadelphia, Pa., assignor, by mesne assignments, to United Columbian Electric Company, of New Jersey. Brush-holder for dynamos and electric motors	488,978	Jan. 3	5	2	62	4

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ashton, William H., Seward, Nebr. Meat-chopping machine	488,979	Jan. 3	7	2	62	4
Ashton, William H., Seward, Nebr. Chimney-cowl	494,454	Mar. 28	2740	687	62	1929
Ashurst, John L., Havana, assignor to L. B. Ashurst, Kilbourne, Ill. Press-drill	492,255	Feb. 21	1902	475	62	1161
Askins, Joseph, Lima, Ohio. Apparatus for the manufacture of gas	491,398	Feb. 7	560	141, 142	62	855
Aspinwall, Lewis A., assignor to Aspinwall Manufacturing Company, Jackson, Mich. Beehive	493,466	Mar. 14	1095	281	62	1588
Aspinwall Manufacturing Company. (See Aspinwall, Lewis A., assignor.)						
Aster, Robert. (See Paproth and Aster.)						
Astier, Victor, Ecully, France. Letter-file	493,960	Mar. 21	1935	493	62	1764
Atherton, Edmond F., Cleveland, Ohio. Winding attachment for derricks	490,259	Jan. 24	2031	531	62	457
Athey, Isaac H., assignor of two-thirds to W. W. Simpson and H. J. Sievers, Chicago, Ill. Fire-escape	492,180	Feb. 21	1784	446	62	1137
Atkins, Edward E. (See Ross and Atkins.)						
Atkins, Elias C. (See Poore, Henry F., assignor.)						
Atkinson, Henry C., assignor to Donaldson Manufacturing Company, Louisville, Ky. Churn	492,654	Feb. 28	2551	632	62	1305
Atkinson, Lewis E., assignor to Standard Lubricant Company, Boston, Mass. Axle-lubricator	491,671	Feb. 14	995	250	62	963
Atkinson, Llewelyn B. (See Goolden and Atkinson.)						
Atkinson, William H., and D. M. Somers, Brooklyn, N. Y. Drive-rod clutch for shears	489,210	Jan. 3	349	98	62	80
Atlantic Manufacturing Company. (See Ryder, Edgar F., assignor.)						
Atmospheric Propulsion Company. (See Kames, Joshua, assignor.)						
Atwood, George F., assignor to G. M. French, Malden, Mass. Bottle-stopper	490,405	Jan. 24	2270	590	62	505
Atwood, William K., *et al.* (See Vaustone, Samuel, assignor.)						
Auerbach, Moritz. (See Jaeck and Auerbach.)						
Anfuldish, John B., Dayton, assignor to Columbia Cash Register Company, Miamisburg, Ohio. Cash register and indicator	492,454	Feb. 28	2213	553, 554	62	1236
Austen, Peter T., New Brunswick, N. J., assignor to W. J. Matheson & Co., Limited, New York, N. Y. Coloring-matter from logwood and preparing same	491,972	Feb. 14	1463	.....	62	1057
Austen, Peter T., New Brunswick, N. J., assignor to William J. Matheson & Company, Limited, New York, N. Y. Solid coloring-matter from fustic and preparing same	492,368	Feb. 21	2073	.....	62	1195
Austen, Peter T., New Brunswick, N. J., assignor to William J. Matheson & Company, Limited, New York, N. Y. Curing logwood-chips	494,237	Mar. 28	2399	.....	62	1867
Austin, Henry K., Reading, Mass. Combination-square	490,893	Jan. 31	3062	786	62	675
Austin, Louise, Whatcom, Wash. Pinking-shears	489,406	Jan. 3	642	174	62	138
Automatic Can Opening Attachment Company. (See Fitz Gerald, Augustine F., assignor.)						
Automatic Machine Company. (See Hawk and Hazlett, assignors.)						
Automatic Telegraph Improvement Company. (See Hotchkiss, Zeroy P., assignor.)						
Automatic Water Tank Company. (See Winkelmann, Herman R., assignor.)						
Averbeck, Theodore, Cincinnati, Ohio. Permutation-lock	489,447	Jan. 10	719	193	62	167
Avery, Oliver, assignor to D. McLachlan, Groton, and J. W. Allen, Richford, N. Y. Household implement	491,919	Feb. 14	1378	344	62	1040
Ayer, George A., New Bedford, Mass. Machine for balling cotton-warps	492,506	Feb. 28	2316	574	62	1257
Ayer, Joseph C., Boston, Mass. Vending device	493,805	Mar. 21	1675	427	62	1716
Aylsworth, George M., Collingwood, Canada. Buckle	492,256	Feb. 21	1904	475	62	1161
Ayres, Andrus D., Kalamazoo, Mich. Electro-magnetic brake	492,773	Mar. 7	2	1	62	1359
Ayrton, William E., and J. Perry; said Ayrton assignor to C. E. Holland, London, England. Heat-measuring device	492,602	Feb. 28	2464	612, 613	62	1289
Aze, Emile, and E. N. Gilfillan, assignors to H. A. Wheeler, Chicago, Ill. Car-seat	491,761	Feb. 14	1133	285	62	991
Babbitt, Seth W., assignor to Wilcox Silver Plate Company, Meriden, Conn. Letter-scale	490,422	Jan. 24	2296	596	62	509
Babbitt, Seward S. (See Fitzhugh and Babbitt.)						
Babendreier, Arthur O., and F. P. Davis, Baltimore, assignors of one-half to J. E. Norwood, Sykesville, Md. Cable-grip	491,934	Feb. 14	1403	350	62	1044
Bache-Wüg, Carl, *et al.* (See Drewsen, Viggo, assignor.)						
Bache-Wüg, Hartwig, *et al.* (See Drewsen, Viggo, assignor.)						
Bacon, William F. (See Quilleash and Bacon.)						
Badger, John F. (See Burke and Badger.)						
Badger, Leslie P., *et al.* (See Karnes and Rice, assignors.)						
Badia, Jose G., New York, N. Y. Washtub	492,343	Feb. 21	2034	506	62	1188
Badoni, Massimiliano, assignor to A. R. de Muralt, Geneva, Switzerland. Box-fastener	493,203	Mar. 7	665	169	62	1489
Badt, Francis B. (See Gruessner, Frank, assignor.)						
Badt, Francis B., Chicago, Ill. Multiphase railway system	489,597	Jan. 10	956	248, 249	62	213
Badt, Francis B., Chicago, Ill. Electric-lighting system	489,598	Jan. 10	959	249	62	214
Badt, Francis B., assignor to Western Electric Company, Chicago, Ill. Automatic electric cut-out	493,672	Mar. 21	1449	370	62	1672
Bagley, Allen, Ypsilanti, Mich. Continuous rail	493,223	Mar. 7	714	183	62	1498
Baehr, George, assignor to S. O'Connor, Brooklyn, N. Y. Electrical switch	489,553	Jan. 10	884	232	62	201
Baer, Samuel H., Brooklyn, N. Y. Fan	490,532	Jan. 24	2476	638	62	544
Bahret, John, Mount Vernon, N. Y. Clamp	489,782	Jan. 10	1228	322	62	969
Bailey, Charles A., assignor to J. and E. Stevens Company, Cromwell, Conn. Registering toy money-bank	489,860	Jan. 10	1330	347	62	992
Bailey, Charles S., assignor of one-half to C. H. Reed, Boston, Mass. Tobacco-pipe	493,325	Mar. 14	883	225	62	1546
Bailey, Clarence W., San Francisco, Cal. Swing-joint	492,619	Feb. 28	2493	618	62	1294
Bailey, Fortune L., Freeport, Ind., assignor to Boston Cash Register Company, Northampton, Mass. Cash register and indicator	493,571	Mar. 14	1280	327, 328	62	1623
Bailey, John W. (See Morris and Bailey.)						
Bailey, Leonard, Hartford, Conn. Bookbinding	490,382	Jan. 24	2241	583	62	499
Baillie, Ellis H., *et al.* (See Sherman, Willis D., assignor.)						
Bain, Forée, Chicago, Ill. Dynamo-electric machine	493,745	Mar. 21	1577	401	62	1698
Baines, Edward, assignor to himself, E. J. Mitchell, Brooklyn, and A. L. Mitchell, Rockville, N. Y. System for transmitting electric currents	493,673	Mar. 21	1451	370	62	1672
Baird, Archie M., Topeka, Kans. Bolt-cutting machine	492,931	Mar. 7	252	64	62	1408
Baird, Thomas F., Gasburg, Va. Seed planter and cultivator	491,510	Feb. 14	744	189	62	911
Baker, Albert, Fort Wayne, Ind. Apparatus for preserving foods	489,916	Jan. 17	1436	377, 378	62	327
Baker, Allen S. (See Baker, John S. and A. S.)						
Baker, Charles E. (See Baker, John S. and C. E.)						
Baker, Charles F. (See Thompson, James F., assignor.)						
Baker, James D., Montreal, Canada. Plaster-board	493,961	Mar. 21	1936	493	62	1764
Baker, James H. (See Rogers and Baker.)						
Baker, John L., Baltimore, Md. Curtain-fixture	492,705	Feb. 28	2622	649	62	1320

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Baker, John S. and A. S., Evansville, Wis. Windmill	494,238	Mar. 28	2400	606	62	1867
Baker, John S. and C. E., Newberg, Oreg. Cooking and smoking apparatus	492,257	Feb. 21	1905	475	62	1162
Baker, Joseph M., Louisville, Ky. Wooden box	490,260	Jan. 24	2032	531	62	457
Baker, Melville M., Chestnee Mills, Tenn. Wagon-body	491,461	Feb. 7	662	166	62	875
Baker, Sidney F., Santa Barbara, Cal. Combination index device	489,599	Jan. 10	960	250	62	214
Baker, Stewart E., Troy, N. Y. Apparatus for drying paper-board	493,467	Mar. 14	1097	281	62	1588
Baker, William T., and T. B. Doris, Providence, Ky. Crupper	493,572	Mar. 14	1287	329	62	1625
Baldwin, Charles B., Brooklyn, N. Y. Slotting-machine	493,674	Mar. 21	1452	370, 371	62	1672
Baldwin, George W., Brooklyn, N. Y. Suspender-end	489,727	Jan. 10	1137	294	62	251
Baldwin, Marcus Y., Caldwell, N. J. Brake-shoe	491,697	Feb. 14	1037	262	62	972
Baldwin, William D. (See Kirby, William A., assignor.)						
Baldwin, William J., Brooklyn, N. Y. Floor-plate	490,094	Jan. 17	1752	457	62	360
Ball, Arthur W., *et al.* (See Trautman, Adam, assignor.)						
Ball, Charles A., Brooklyn, assignor to Ball Compound Locomotive Company, New York, N. Y. Balanced steam-engine	489,917	Jan. 17	1443	378, 379	62	329
Ball Compound Locomotive Company. (See Ball, Charles A., assignor.)						
Ball, Henry P., and A. Metzger, Schenectady, assignors to General Electric Company, New York, N. Y. Lamp-socket	493,609	Mar. 14	1349	343	62	1637
Ball, James, assignor to Holyoke Envelope Company, Holyoke, Mass. Envelope-machine	491,935	Feb. 14	1405	350, 351	62	1045
Ball, Jesse W., Tyler Town, Miss. Plow sweep and shovel	490,798	Jan. 31	2919	750	62	645
Ball, John G., Chesterville, Ohio. Weight-motor	493,053	Mar. 7	438	110	62	1446
Ball, Richard L., Terre Haute Ind. Base-heating stove	489,849	Jan. 10	1314	343	62	288
Ball, Samuel E., Winters, Cal. Fruit-gatherer	492,952	Mar. 7	283	72	62	1414
Ballet, Ernest, Bordeaux, France. Insulating-coupling	493,883	Mar. 21	1787	456	62	1738
Ballou, Barton A., Providence, R. I. Scarf-pin	492,522	Feb. 28	2334	579	62	1261
Ballou, Walter, North Attleborough, Mass. Link cuff-button	493,468	Mar. 14	1099	282	62	1588
Balston, Clyde C., Brooklyn, N. Y., assignor to F. W. Barker, Dunellen, N. J. Pocket-knife	492,620	Feb. 28	2494	619	62	1294
Baltzell, Virginia C., Madison, Wis. Apparatus for hanging and adjusting window-curtains	492,755	Feb. 28	2697	669	62	1334
Balzer, Stephen M., New York, N. Y. Register to count the operations of mechanism	489,892	Jan. 10	1377	358	62	300
Balzer, Stephen M., New York, N. Y., assignor to Davids Machine Works, of New York. Register or counting device	489,703	Jan. 10	1102	285	62	244
Bambridge, George F., Toronto, Canada. Photograph-holder	490,059	Jan. 17	1696	441	62	377
Bancroft, George W., and C. R. Hawcroft, Chicago, Ill. Car-ventilator	491,068	Feb. 7	8	3	62	750
Band, Henry F. (See Roeback and Band.)						
Banghart, Andrew B. (See Treat and Banghart.)						
Bangs, Edwin D., Milwaukee, Wis. Metallic railway-tie	494,314	Mar. 28	2513	634	62	1888
Bangs, Edwin D., Milwaukee, Wis. Lubricator	494,315	Mar. 28	2514	634	62	1889
Banks, George, Oakfield, Mich. Seat for agricultural machines or vehicles	493,573	Mar. 14	1287	329	62	1625
Banta, Henry J., Logansport, Ind. Fence-post	489,116	Jan. 3	208	55	62	48
Barber, David A., G. Bates, W. Mabry, and H. T. Skelton, Cambridge, Mass. Pianoforte	494,051	Mar. 21	2076	531	62	1792
Barber, Hiram, Chicago, Ill. Spring draft attachment	493,469	Mar. 14	1099	282	62	1589
Barber, Hiram, Chicago, Ill. Tongue-support	493,470	Mar. 14	1101	282	62	1589
Barber, John, Kansas City, Mo. Lamp-suspending device	494,116	Mar. 28	2198	561	62	1829
Barber, Luther A. (See Twiss and Barber.)						
Barbrey, Jesse A., Brunswick, Ga. Fencing-machine	490,261	Jan. 24	2032	532	62	457
Barclay, James, Sioux City, Iowa. Safety-stop for engine-governors	492,258	Feb. 21	1906	475, 476	62	1162
Bardsley, Edward E. (See Borzell and Bardsley.)						
Bardwell, Carroll. (See Scarborough and Bardwell.)						
Barker, Asbury, Peekskill, N. Y. Pneumatic regulating device	491,794	Feb. 14	1190	298	62	1001
Barker, Frederick W. (See Balston, Clyde C., assignor.)						
Barker, Irving, Springfield, Ill. Dump-car	489,211	Jan. 3	351	99	62	80
Barker, James, Philadelphia, Pa. Rubbing belt or apron for carding-engines	489,281	Jan. 3	462	128	62	101
Barker, William A. (See Bessing and Barker.)						
Barkhaus, Frederick W., Jr., Wright's, Cal. Apparatus for distributing water for irrigation	494,455	Mar. 28	2741	687	62	1929
Barkley, James, Carlyle, Ill. Buckle	491,462	Feb. 7	662	166	62	875
Barler, Augustus C., Fremont, Nebr. Blacking outfit	491,974	Feb. 21	1465	365	62	1071
Barlow, John H., New Haven, Conn. Bullet-mold	489,580	Jan. 10	929	241	62	208
Barnes, Charles E., Paterson, N. J. Hook and eye	491,399	Feb. 7	562	142	62	855
Barnes, Elbridge F. (See Abbott, William W., assignor.)						
Barnes, Henry J., Oxville, Ill. Vehicle-brake	489,189	Jan. 3	318	87, 88	62	72
Barnes, Joshua B., Springfield, Ill. Snake-burner	491,975	Feb. 21	1467	365	62	1071
Barnes, R. G. (See Crane, George C., assignor.)						
Barnes, William F., Orlando, Fla. Making rubber stamps or casts	489,448	Jan. 10	723	194	62	168
Barnes, William M. (See Buck and Barnes.)						
Barnett, Harry T., London, England. Electrical excitation of vacuum-tubes	494,239	Mar. 28	2403	606	62	1867
Barnett-Record Company. (See Mayo, Edward D., assignor.)						
Barnhart, Daniel K., Gaines, Pa. Dust-pan	492,455	Feb. 28	2216	554	62	1237
Barnhart, James H., *et al.* (See Kidd, Gideon P., assignor.)						
Barnum, William T., New Haven, Conn. Electrotype	489,704	Jan. 10	1104	285	62	245
Baron, Samuel. (See Strassner, Hermann, assignor.)						
Barr Cash and Package Carrier Company. (See Albach, William H., assignor.)						
Barr, Samuel W., Mansfield, Ohio. Cash and package carrier apparatus	490,533	Jan. 24	2477	638, 639	62	545
Barré, Aimé. (See Currier, Edward, assignor.)						
Barrett, Charles L., Kent City, Mich. Land-roller	488,980	Jan. 3	10	3	62	5
Barrett, Charles W., Lemoore, Cal. Lemon-squeezer	492,259	Feb. 21	1907	476	62	1162
Barrett, Edward, assignor to himself and G. R. Bidwell, New York, N. Y. Pneumatic tire	493,675	Mar. 21	1454	371	62	1673
Barrett, Frank A., Newman Grove, Nebr. Special point for tubular wells	492,181	Feb. 21	1786	446	62	1137
Barrett, Frank A., Newman Grove, Nebr. Stand-point for tubular wells	492,182	Feb. 21	1786	446	62	1137
Barringer, Daniel M., Philadelphia, Pa. Gun-sight	494,240	Mar. 28	2404	606	62	1867
Barry, Charles E., New York, N. Y. Rosette cut-out	493,884	Mar. 21	1788	456	62	1738
Barry, Frank. (See Brower, James F., assignor.)						
Barry, Michael H., and D. M. Cahill, Danvers, Mass. Baggage-carrier	493,348	Mar. 14	910	233	62	1552
Barry, Nicholas, Jr., Muscatine, Iowa. Plumber's trap	492,260	Feb. 21	1909	476	62	1163
Barry, Nicholas, Jr., and P. J., Muscatine, Iowa. Grease-trap	492,261	Feb. 21	1911	477	62	1163
Barry, Patrick J. (See Barry, Nicholas, Jr., and P. J.)						
Bartholomew, Isaac H., Northford, Conn. Secondary-battery electrode	493,007	Mar. 7	373	93	62	1432
Bartlett, Frank L., Portland, Me. Furnace for burning coal-screenings	493,854	Mar. 21	1745	444	62	1730

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bartlett, James, Toledo, Ohio. Temperature-indicator	489,212	Jan. 3	352	99, 100	62	80
Bartlett, Jonathan B. L., Boston, Mass. Apparatus for protecting buildings from lightning	494,286	Mar. 28	2476	624	62	1880
Barton, Alfred, Boston, Mass. Sash-fastener	491,505	Feb. 7	724	183	62	888
Bartsch, Wilhelm J., Dresden, Germany. Ore-dressing apparatus	491,672	Feb. 14	906	251	62	963
Basch, David, New York, N. Y. Corset-shield	489,783	Jan. 10	1229	282	62	270
Baskett, Elisha F., McFall, Mo Trough for salting stock	490,095	Jan. 17	1754	457	62	390
Bass, Robert T., Danville, Va. Tobacco casing and spraying machine	490,262	Jan. 24	2034	532, 533	62	458
Bass, Samuel H., Oakland, Cal. Window frame and sash	492,655	Feb. 28	2552	632	62	1305
Bassett, Norman C., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Safety-guard for cars	492,932	Mar. 7	254	64, 65	62	1409
Bassett, Norman C., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Armature for motors and generators	493,349	Mar. 14	912	234	62	1552
Bassford, Isaac F., assignor of one-half to A. Docter, Milwaukee, Wis. Mowing-machine cutter-bar	493,054	Mar. 7	440	111	62	1446
Bates, Chester M., Lehman, Pa. Combined elevator and carrier	491,511	Feb. 14	746	189, 190	62	912
Bates, Edwin G., New York, N. Y., assignor to Bates Manufacturing Company, of New York. Numbering-machine	489,449	Jan. 10	724	194	62	168
Bates, George. (See Barber, Bates, Mabry, and Skelton.)						
Bates, Henry A., New York, N. Y., assignor to J. R. Leeson & Co., Boston, Mass. Combined spool-holder and tension	490,096	Jan. 17	1755	458	62	391
Bates, James H., Hoboken, N. J. Conduit electric railway	492,737	Feb. 28	2667	661, 662	62	1329
Bates Manufacturing Company. (See Bates, Edwin G., assignor.)						
Bates, Zervah E., and M. E. Collins, Grand Rapids, Mich. Hook and eye	489,520	Jan. 10	849	221	62	193
Battles, Edwin W., *et al.* (See Losey, James, assignor.)						
Banche, Gustave and H., Paris, France. Cloth-napping machine	494,052	Mar. 21	2077	531	62	1792
Banche, Henri. (See Banche, Gustave and H.)						
Bauder, Godfrey W., Sheldon, Iowa. Wagon-box strap	493,055	Mar. 7	441	111	62	1446
Baugher, George W., Milford, Ind. Thill-coupling	492,507	Feb. 28	2317	574	62	1257
Baum, Hugo, Berlin, Germany. Stop-valve or stop-valve mechanism	493,806	Mar. 21	1679	428	62	1717
Baum, Jacob, assignor to Victor Safe and Lock Company, Cincinnati, Ohio. Metal-bending machine	492,858	Mar. 7	129	32	62	1383
Baum, James B., and O. F. Sensabaugh, Durango, Colo. Car-coupling	492,376	Feb. 21	2085	521	62	1197
Baumgarten, Constant, St. Louis, Mo. Belt-holder	492,738	Feb. 28	2668	662	62	1329
Baumgartner, Johann J., St. Fiden, and H. Dreifuss, St. Gall, Switzerland. Cigar or cigarette holder	491,631	Feb. 14	937	235	62	951
Baumgartner, John F., *et al.* (See Whitacre, William C., assignor.)						
Bausch, John J., assignor to Bausch & Lomb Optical Company, Rochester, N. Y. Frame for eyeglasses	489,358	Jan. 3	574	155	62	123
Bausch & Lomb Optical Company. (See Bausch, John J., assignor.)						
Bayless, William C. (See Watkins and Bayless.)						
Bayley, Richard W., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Fluid-pressure brake	493,904	Mar. 21	1818	462, 463	62	1741
Bayrer, William J., assignor to Peck, Stow & Wilcox Company, Southington, Conn. Machine for cutting and bending sheet metal	490,060	Jan. 17	1697	442, 443	62	378
Beach, Clifton H., Pittsburg, Pa. Tool for finishing the necks and mouths of bottles	491,069	Feb. 7	11	4	62	734
Beach, Edwin R., Jersey City, N. J., and H. A. Berger, Brooklyn, N. Y. Check-punch	490,894	Jan. 31	3064	787	62	675
Beale, Oscar J., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Lathe attachment	493,807	Mar. 21	1681	428	62	1717
Beals, Erle V., Muskegon, Mich. Matrix-making machine	490,263	Jan. 24	2037	533, 534, 535	62	458
Beam, Aron. M. (See Calhoun and Beam.)						
Bean, George W., Philadelphia, Pa. Perfumery or other bottle	493,962	Mar. 21	1936	493	62	1764
Beard, Luke, Cambridge, Mass. Butter-dish	493,326	Mar. 14	884	226	62	1546
Beardsley, Charles B., New York, N. Y. Lathe attachment	493,008	Mar. 7	373	93	62	1432
Beattie, Hans S. (See Winslow, Stewart, assignor.)						
Beaty, William A., Plant City, Fla. Phosphate-washer	492,262	Feb. 21	1912	477	62	1163
Beaumel, David, New York, N. Y. Fountain-pen	491,795	Feb. 14	1191	298	62	1001
Beaumont, Thomas C., assignor to Henry Huber Company, New York, N. Y. Stench-trap	491,330	Feb. 7	447	115	62	833
Beaver, William G., assignor of two-thirds to T. Evans and J. C. Garrison, Hillsborough, Tex. Clothes-pounder	492,774	Mar. 7	4	1	62	1350
Bechard, David. (See Boucher, John, assignor.)						
Bechtold, William, New York, N. Y. Machine for manufacturing articles of glass	493,808	Mar. 21	1682	428, 429	62	1717
Beck, David, and R. W. Levitt, McLuney, Ohio. Fire-escape	493,574	Mar. 14	1288	329	62	1625
Beck, Frederick, New York, N. Y. Printing block or roller	490,061	Jan. 17	1699	443	62	378
Beck, Isaac. (See Gehrt, Hermann, assignor.)						
Beck, John H., and E. E. Reilly, Peru, Ind. Milk-cooler	492,183	Feb. 21	1788	447	62	1138
Beck, Niels L., Brayton, Iowa. Harrow	491,400	Feb. 7	563	142	62	856
Becker, Charles G., Westfield, Mass. Whip	491,612	Feb. 14	748	190	62	912
Becker, Heinrich. (See Vonhans and Becker.)						
Becker, John, Fitchburg, Mass. Milling-machine	489,282	Jan. 3	463	129	62	102
Becker, John, Kymulga, Ala. Apparatus for purifying liquors by electrolysis	493,809	Mar. 21	1685	430	62	1718
Becker, John D., Peoria, Ill. Bronze	490,706	Jan. 31	2772	.....	62	618
Becker, Margaret J., Cohoes, N. Y. Window-cleaner	492,899	Mar. 7	204	50	62	1399
Becker, Oscar R., Reading, Pa. Dumping-wagon	493,350	Mar. 14	913	234	62	1552
Becker, William, Chicago, Ill. Guitar	493,810	Mar. 21	1687	430	62	1718
Beckert, William, Allegheny, Pa. Combined jack and truck	493,811	Mar. 21	1688	430	62	1718
Beckman, Peter, Buckaport, Me. Antifriction-bearing	491,401	Feb. 7	565	142	62	856
Beckwith, William G., assignor to Daniel Pratt Gin Company, Prattville, Ala. Belt-tightener for cotton-gins	493,204	Mar. 7	665	170	62	1489
Bedard, Joseph A., Detroit, Mich. Shirt	488,981	Jan. 3	11	3	62	5
Bedell, Charles H., Swarthmore, Pa., assignor to Electro-Dynamic Company of Philadelphia, of Pennsylvania. Automatic switch	493,009	Mar. 7	375	93	62	1433
Bedford, Alexander L. (See Walker, William J., assignor.)						
Bedingfeld, Fleming A. O., Mutford, England. Quoit-peg	493,746	Mar. 21	1579	402	62	1698
Bedwell, Frederick L., London, England. Support for telegraph-cables	490,534	Jan. 24	2479	639	62	545
Beehler, Charles W., assignor to A. Kuehne and F. Hansperger, St. Louis, Mo. Fire-grate	493,056	Mar. 7	441	111	62	1446
Beehler, Charles W., assignor to American Novelty Manufacturing Company, St. Louis, Mo. Box-fastener	493,057	Mar. 7	442	111	62	1447

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Beckman, Gerard, New York, N. Y. Reaping or mowing machine	490,781	Jan. 31	2894	742, 743	62	640
Beckman, Gerard, New York, N. Y. Reaping or mowing machine	490,782	Jan. 31	2896	743, 744	62	641
Beckman, Gerard, New York, N. Y. Cotton-harvesting device	493,010	Mar. 7	376	94	62	1433
Beeler, George, Garlington, Kans. Slat-and-wire-fence machine	489,139	Jan. 3	238	66	62	55
Beeman, Frank A., assignor of two-thirds to C. A. Carpenter and E. A. Handy, Cleveland, Ohio. Switch-stand	491,463	Feb. 7	663	166, 167	62	875
Beeman, Marcus M., Syracuse, N. Y. Binding	490,819	Jan. 31	2946	756	62	651
Beers, Andrew. (See Linabury, Charles E., assignor.)						
Beers, Franklin H., Newark, N. J. Ceiling-fan	492,523	Feb. 28	2335	579, 580	62	1261
Beers, Franklin H., Newark, N. J. Electric motor	492,524	Feb. 28	2338	580	62	1261
Beers, Franklin H., Newark, N. J., assignor to E. Hayes, New York, N. Y. Machine for splitting feathers	490,468	Jan. 24	2369	613	62	523
Beery, Samuel M., Chicago, Ill., assignor to Consolidated Car-Heating Company, Wheeling, W. Va. Hose-coupling	494,316	Mar. 28	2516	634	62	1889
Behr, Arno, Chicago, Ill. Making starch and cattle-food	491,234	Feb. 7	283	.....	62	802
Behr, Claus F. J., Wakefield, Mass. Chair	490,334	Jan. 24	2164	564	62	484
Behr, Hans C., San Francisco, Cal. Variable transmitting gearing	491,866	Feb. 14	1301	321	62	1024
Beiermeister, Frederick, Jr. (See Beiermeister, John M., assignor.)						
Beiermeister, John M., assignor of one-half to F. Beiermeister, Jr., Troy, N. Y. Apparatus for starching fabrics	493,905	Mar. 21	1821	464	62	1744
Belcher, George E., Stoughton, Mass. Last-block fastener	493,394	Mar. 14	980	252	62	1567
Bell, Charley A. (See Rayburn and Bell.)						
Bell, Thompson R., Indianapolis, Ind. Fluid-pressure regulator	489,176	Jan. 3	292	81	62	67
Bell, Winslow M., Milton, N. Y. Electric stop-motion for knitting-machines	491,004	Jan. 31	3249	831	62	710
Bellamy, Charles H., South Hadley Falls, Mass. Method of and apparatus for marbling or coloring paper, &c	492,933	Mar. 7	255	65	62	1409
Bellamy, William H. (See Schnepf, John, assignor.)						
Bellinger, Albert D., assignor to himself and H. B. Cole, Black River Falls, Wis. Rotary engine	491,402	Feb. 7	565	143	62	856
Belser, James H., assignor to Wood & Willard, Marlborough, Mass. Elevator	489,359	Jan. 3	575	155, 156	62	123
Beltman, Arnold A. (See Learmonth and Beltman.)						
Bement, Edward P. (See Hoggson and Bement.)						
Bement & Sons, E. (See Ovensshire, Elijah A., assignor.)						
Bemberger, Frank. (See Mitchell and Bemberger.)						
Bender, Frank, Armourdale, Kans. Car-coupling	491,976	Feb. 21	1468	366	62	1072
Bender, Fritz, and M. Kämmerer, assignors to A. Leonhardt & Co., Mülheim-on-the-Main, Germany. Yellow-red dye	489,623	Jan. 10	988	.....	62	221
Bender, Harriet, Denver, Colo. Garden-seed drill	493,146	Mar. 7	581	145	62	1473
Bender, Hubert H. (See Bender, John O. and H. H.)						
Bender, John O. and H. H., Fayetteville, N. Y. Transplanter	490,942	Jan. 31	3153	808	62	691
Bendure, William H., and S. Tilbery, assignors of one-third to J. H. Hartman, Fort Wayne, Ind. Sleigh attachment for bicycles	490,240	Jan. 17	1997	523	62	438
Benedict, Francis D., Haverhill, Mass., assignor, by mesne assignments, to Reece Button Hole Machine Company, Portland, Me. Buttonhole-finishing machine	490,062	Jan. 17	1700	443, 444	62	378
Benedict, Hiram A., Brooklyn, N. Y. Photographic camera	493,747	Mar. 21	1580	402	62	1698
Benfield, Joseph, Walsall, England. Die for making horseshoes	490,734	Jan. 31	2812	721, 722	62	625
Benjamin Machine Company. (See Hackney, Herbert, assignor.)						
Bennett, Allan T., Chicago, Ill. Apparatus for the manufacture of gas	493,855	Mar. 21	1746	445	62	1730
Bennett, Allan T., Chicago, Ill. Gas-burner	493,856	Mar. 21	1748	445	62	1730
Bennett Amalgamator Manufacturing Company. (See Bennett, Erastus S., assignor.)						
Bennett, Erastus S., assignor to Bennett Amalgamator Manufacturing Company, Denver, Colo. Dredge	493,226	Mar. 7	703	180, 181	62	1496
Bennett, Francis E., Philadelphia, Pa. Garment-hook	493,011	Mar. 7	377	94	62	1433
Bennett, George H., Cincinnati, Ohio. Bracket for electric-light wires	489,861	Jan. 10	1332	348	62	292
Bennett, Richard, New York, N. Y. Trousers-stretcher	494,241	Mar. 28	2405	607	62	1868
Bennett, Walter E. (See Hardman, Fred H., assignor.)						
Bennett, Willis, Parish, assignor to C. H. Sprague and J. L. Newton, Watertown, N. Y. Coin-controlled vending-machine	492,756	Feb. 28	2698	670	62	1335
Benoit, Louis, Barmen, Germany. Transferring drawings to stones, &c	493,812	Mar. 21	1689	.....	62	1718
Benson, George H. (See Lucas, Louis L., assignor.)						
Benson, Joseph R., Sonora, Tex. Thill-coupling	489,407	Jan. 3	643	174	62	138
Bentley, Edward M., Boston, Mass., assignor to General Electric Company, of New York. Electric-circuit breaker	490,762	Jan. 31	2861	734	62	633
Bentley, Jeffrey O., Philadelphia, Pa. Air-filtering apparatus	489,450	Jan. 10	727	194	62	169
Bentley, William, and J. D. Fuller, Lethbridge, Canada. Twine-holder cup and take-up	494,267	Mar. 28	2477	625	62	1880
Berg, Tave. (See Jönsson and Berg.)						
Berger, Henry A. (See Beach and Berger.)						
Berger, William F., Moravia, N. Y. Revolving bookcase	491,277	Feb. 7	342	87	62	814
Bergfels, Henry, Newark, N. J. Bicycle-seat spring	490,097	Jan. 17	1757	458	62	391
Bergman, W. C. (See Parsons, George W., assignor.)						
Bergmann, Franz. (See Kraus, Rudolf, assignor.)						
Bergreen, Rudolph, Roitzsch, Germany. Slicing-machine for beet-roots, &c	490,223	Jan. 17	1967	515, 516	62	432
Berlin, Frederick, Detroit, Mich. Harrow attachment, &c	489,213	Jan. 3	356	100	62	81
Berlinerblau, Joseph, Sosnowice, Russia, assignor to F. von Heyden Nachfolger, Radebeul, Germany. Paraphenetol-carbamide and making same	489,728	Jan. 10	1138	.....	62	251
Bernheim, Gustav. (See Flocke, Robert, assignor.) (Reissue.)						
Bernstein, Benny, New York, N. Y. Gate-latch	489,918	Jan. 17	1446	379	62	399
Bernstein, Benny, New York, N. Y. Fastening for garments	491,070	Feb. 7	13	4	62	751
Bernström, John, assignor to Aktiebolaget Separator, Stockholm, Sweden. Crank connection for centrifugal separators	489,140	Jan. 3	239	66	62	55
Berrini, Ernest, Tacoma, Wash. Egg-cutter	490,133	Jan. 17	1821	475	62	405
Berry, Frederick H., Milwaukee, Wis. Dental engine	489,117	Jan. 3	210	56	62	48
Berry, Frederick H., Milwaukee, Wis. Switch for operating shunt-wound electric motors	492,456	Feb. 28	2217	555	62	1237
Berry, John S. (See Quinn and Berry.)						
Berry, Louis M., Boston, Mass. Sprinkler	489,408	Jan. 3	644	174	62	138
Berry, Richard L., and J. M. Oliver, Orangeburg, S. C. Roller-bearing	491,867	Feb. 14	1302	321	62	1024
Berry, Seneca L., San Francisco, Cal. Water-wheel	493,239	Mar. 14	732	188	62	1520
Bertin, Auguste, Paris, France. Neckscarf	490,890	Jan. 31	2947	757	62	651

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bertou, Camille L. C., Paris, France. Precipitating oxide of tin from solutions	489,624	Jan. 10	989	.....	62	221
Bertram, August, Brooklyn, N. Y. Street-sweeping machine	491,278	Feb. 7	343	87	62	814
Bertram, August F., Wellsville, Ohio. Shoe	493,813	Mar. 21	1689	430	62	1719
Besly, Charles H. (See Gardner, Frederick N., assignor.)						
Besly, Charles H., Chicago, Ill. Paper-file	490,707	Jan. 31	2773	712 / 713	62	618
Besly, Charles S. (See Gardner, Frederick N., assignor.)						
Besse, Thomas H., Buffalo, N. Y. Ice-cream freezer	493,906	Mar. 21	1824	465	62	1744
Bessing, Theodore, and W. A. Barker, Los Angeles, Cal. Display-shelf and carpet-elevator	493,542	Mar. 14	1223	313	62	1612
Bessonette, William T., Temple, assignor of one-half to W. A. Patterson, Lampasas, Tex. Cotton-press	492,132	Feb. 21	1702	423 / 424	62	1119
Best, George B., Englewood, N. J. Child's carriage	492,656	Feb. 28	2554	633	62	1306
Bettingen, Paulina, New York, N. Y. Bust-form	492,263	Feb. 21	1913	477	62	1164
Betts, Alfred, assignor to Betts Machine Company, Wilmington, Del. Drilling-machine	493,471	Mar. 14	1102	282	62	1589
Betts Machine Company. (See Betts, Alfred, assignor.)						
Bevan, Joseph H. (See Veazie and Bevan.)						
Beyer, Bruno, Grossenhain, Germany. Treating raw silk	489,919	Jan. 17	1448	.....	62	329
Blaggi y Dias, Antonio, Havana, Cuba. Automatic time lighting device	489,428	Jan. 3	680	183	62	146
Bibb, John T., Tacoma, Wash. Buggy-top	489,451	Jan. 10	729	195	62	169
Bibb, John T., Tacoma, Wash. Pipe-union	489,784	Jan. 10	1230	322	62	270
Bichowsky, Emmo C. (See Winston and Throop, assignors.)						
Bickley, John H., West Medway, Mass., assignor to F. E. Anderson, East Orange, N. J. Feeder for scouring and washing apparatus	494,405	Mar. 28	2670	670	62	1917
Bidwell, George R. (See Barrett, Edward, assignor.)						
Bieg, Frederick C., Alexandria, Va., and E. Theiss, Washington, D. C. Attachment for type-writing machines	489,920	Jan. 17	1448	379	62	330
Bierce, Will W., Montgomery, Ala. System of tracks for transferring cotton-bales	492,319	Feb. 21	1906	497	62	1181
Biggar, John S., Whitesborough, Cal. Gas-engine	491,403	Feb. 7	569	143	62	857
Bigger, Thomas J. (See Clough and Bigger.)						
Bill, Jeremiah C., Willimantic, Conn. Let-off mechanism for looms	493,058	Mar. 7	443	112	62	1447
Bill, William, Montreal, Canada. Wrench	491,513	Feb. 14	748	190	62	912
Billberg, Carl O. C., Philadelphia, Pa. Commutator-brush	490,183	Jan. 17	1897	494	62	419
Billings, Alvah G., assignor of two-thirds to G. W. Fritz and C. A. Grow, Lake Park, Wash. Automatic brake	489,452	Jan. 10	730	195	62	169
Billings, Charles E., Hartford, Conn. Drill-chuck	493,657	Mar. 21	1749	445	62	1731
Billings, John H., New York, N. Y. Shirt-adjuster	489,921	Jan. 17	1451	379	62	330
Billington, Edward R., Liverpool, England. Woven-wire mattress	493,147	Mar. 7	582	146	62	1473
Billington, Theophilus, Dallas, Tex. Desk or cabinet	494,406	Mar. 28	2671	670	62	1917
Bingham, Calista, Padua, Ill. Kneading and cooling board	491,977	Feb. 21	1469	366	62	1072
Bingham, Wells A. (See Liddell, William, assignor.)						
Bingham, William F., Monticello, Iowa. Watch-bow fastener	493,814	Mar. 21	1690	431	62	1719
Bingham, William F., Monticello, Iowa. Watch-key	493,815	Mar. 21	1692	431	62	1719
Binghamton Wagon Company. (See Cleland, John S., assignor.)						
Birch, Frank C., San Francisco, Cal., assignor of one-half to L. Rosenfeld, New York, N. Y. Hoisting and conveying machinery	489,785	Jan. 10	1231	322	62	270
Birch, William, Manchester, England. Apparatus for cleansing sewage, &c	491,796	Feb. 14	1192	298	62	1002
Birchall, Thomas, assignor to B. Eastwood, Paterson, N. J. Self-adjustable supporting-rod for shuttle-boxes	489,922	Jan. 17	1451	380	62	330
Bird, George M., Boston, Mass. Metallic car	490,469	Jan. 24	2370	613	62	523
Bird, Henry, Plymouth, England. Manufacturing purple-ore bricks	490,535	Jan. 24	2479	.....	62	545
Bird, John. (See Purling, William, assignor.)						
Birge, George K., Buffalo, N. Y. Apparatus for printing and bronzing wall-paper	491,303	Feb. 7	403	103 / 104	62	824
Birkin, William A. G., Nottingham, England. Reciprocating electric drill	494,053	Mar. 21	2079	531	62	1792
Birkin, William A. G., Nottingham, England. Process of and solvent for separating precious metals from their ores	494,054	Mar. 21	2081	.....	62	1793
Bischoff, Ferdinand F., Thiensville, Wis. Egg-case	489,118	Jan. 3	211	56	62	49
Bispham, George R. (See Roth and Bispham.)						
Bitner, Harry, Chicago, Ill. Toaster	492,517	Feb. 28	2328	578	62	1259
Bixi, Charles, Selma, Cal. Cultivator	491,632	Feb. 14	938	236	62	952
Blache, Paul, Paris, France. Machine for making cigarette-mouthpieces	493,472	Mar. 14	1103	283 / 284	62	1589
Blache, Paul V. M., Paris, France. Machine for manufacturing tubes of cigarette-paper	492,264	Feb. 21	1915	477 / 478	62	1164
Black, John L., Chambersburg, Pa. Ribbon-holder	489,360	Jan. 3	578	156	62	124
Black, John W., Glasgow, Scotland. Speaking-tube apparatus	493,059	Mar. 7	445	112	62	1447
Black, Joseph, Jr., assignor to J. Black & Sons, Philadelphia, Pa. Hosiery	490,241	Jan. 17	1998	523	62	438
Black, Robert. (See Havey, Cornelius M., assignor.)						
Black & Sons, Joseph. (See Black, Joseph, Jr., assignor.)						
Blackladge, Robert. (See Edwards and Blackladge.)						
Blackledge, John W., Indianapolis, Ind. Show-case	489,705	Jan. 10	1105	285	62	245
Blackman, Henry, New York, N. Y. Apparatus for recovering alkali	492,382	Feb. 28	2099	523 / 524	62	1213
Blackmer, Frederick W., Windham, Me. Mower	489,214	Jan. 3	358	100	62	81
Blackmore, Francis E. (See Palmer and Blackmore.)						
Blackmore Heating Company. (See Blackmore, Joseph J., assignor.)						
Blackmore, Joseph J., assignor to Blackmore Heating Company, Newark, N. J. Tubular air-warmer	490,763	Jan. 31	2462	734	62	634
Blackwell, Francis O., Boston, Mass. Side guard for vehicles	493,327	Mar. 14	885	226	62	1546
Blackwell, Francis O., Boston, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric-railway block system	492,457	Feb. 28	2221	555	62	1238
Blaeske, Richard, Berlin, Germany. Button-fastener	494,456	Mar. 28	2742	688	62	1929
Blair Camera Company. (See Blair and Kelley, assignors.)						
Blair, D. W., Jr. (See Blair, William A., assignor.)						
Blair, Ellen, *et al.* (See Fontaine, Patrick H., assignor.)						
Blair, John, Ardtrea, Canada, assignor to L. C. Dillman, F. Wilson, and D. G. Eaton, Spokane, Wash. Recovering gold	492,133	Feb. 21	1705	424	62	1120
Blair, Thomas H., and F. H. Kelley, assignors to Blair Camera Company, Boston, Mass. Photographic camera	491,920	Feb. 14	1380	344 / 345	62	1040
Blair, Thomas H., and F. H. Kelley, assignors to Blair Camera Company, Boston, Mass. Camera-shutter	491,921	Feb. 14	1382	345 / 346	62	1040
Blair, William A., assignor of one-half to D. W. Blair, Jr., Chicago, Ill. Crease or seam dampener	491,331	Feb. 7	448	116	62	833

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Blake, Charles E. (See Whitlock, Alma, assignor.)						
Blake, Charles E., Sr., San Francisco, Cal. Surgical forceps for dental use	491,464	Feb. 7	666	167	62	876
Blake, Charles E., Sr., San Francisco, Cal. Dental forceps	491,514	Feb. 14	750	191	62	912
Blake, Charles E., Sr., San Francisco, Cal. Dental forceps	491,515	Feb. 14	751	191	62	913
Blake, Charles E., Sr., San Francisco, Cal. Dental forceps	491,516	Feb. 14	752	191	62	913
Blake, Charles E., Sr., San Francisco, Cal. Dental forceps	491,517	Feb. 14	752	191	62	913
Blake, Charles E., Sr., San Francisco, Cal. Dental forceps	491,518	Feb. 14	753	192	62	913
Blake, Charles E., Sr., San Francisco, Cal. Dental forceps	491,519	Feb. 14	754	192	62	913
Blake, Charles E., Sr., San Francisco, Cal. Dental forceps						
Blake, Marshall E. (See Maloon and Blake.)						
Blanchard, Allen I., Chicago, Ill., assignor to National Cash Register Company, Dayton, Ohio. Cash register and indicator	489,177 / 494,317	Jan. 3 / Mar. 28	204 / 2518	81, 82 / 634	62 / 62	67 / 1889
Blanchard, Paul, Arnaudville, La. Road-scraper						
Blanchard, Willie N. (See Richard and Blanchard.)						
Blanke, Ferdinand J., Cold Spring, Wis. Spring-draft device	493,240	Mar. 14	733	188	62	1520
Blankinsop, Thomas. (See Hanes and Blankinsop.)						
Blanton, Joseph D., Dot, Ga. Rail-joint	493,816	Mar. 21	1693	431	62	1719
Blessing, Francis X. (See Blessing, Frank, assignor.)						
Blessing, Frank, Lancaster, assignor to F. X. Blessing, Reading, Pa. Chuck	489,862	Jan. 10	1333	348	62	292
Blessing, Frank, Lancaster, assignor to H. Blessing, Reading, Pa. Chuck	491,071	Feb. 7	14	4, 5	62	751
Blickensderfer, George C., Stamford, Conn. Type-writing machine						
Bliss & Co., John. (See Bliss, John, assignor.)						
Bliss, John, Brooklyn, assignor to J. Bliss & Co., New York, N. Y. Compensation-balance for timepieces	492,184	Feb. 21	1790	447	62	1138
Blodgett, John W., assignor to himself and Abbott Machine Company, Chicago, Ill. Buttonhole attachment for sewing-machines	490,735	Jan. 31	2813	722 / 723	62	625
Blood, Aretas, *et al.* (See Tripp, Thomas, assignor.)						
Blood, Benjamin P., Amsterdam, N. Y. Sidesaddle	491,831	Feb. 14	1239	310	62	1012
Blood, Mary L. (See Blood, Maurice E., assignor.) (Reissue.)						
Blood, Maurice E., assignor to M. L. Blood, Kalamazoo, Mich. Parcel-carrier for bicycles. (Reissue)	11,301	Jan. 17	2026	529	62	444
Bloomburg, Martin W. (See Niles, Jesse E., assignor.)						
Bloomer, Charles T., New York, N. Y. Telephone-transmitter	492,883	Mar. 7	178	43	62	1393
Bloomer, Charles T., New York, N. Y. Telephone	493,907	Mar. 21	1825	465	62	1744
Bloss, Richard P., Palmer, N. Y. Machine for removing the bark from logs	489,178	Jan. 3	300	83	62	68
Blydenburgh, Charles M. (See Dunyea, Edwin G., assignor.)						
Boardman, Frank, Bennett, Pa. Match-safe	493,227	Mar. 7	707	181	62	1497
Boardman, Thomas, Warehouse Point, Conn. Automatic circulator for bleaching-keirs	489,361	Jan. 3	579	157	62	124
Boardman, Wyman, assignor of one-half to D. W. Camp, Jr., Toledo, Ohio. Coin-controlled game apparatus	493,395	Mar. 14	981	253	62	1567
Boas, Felix, Potsdam, and S. Weinmann, Charlottenberg, Germany. Scale-measure	492,569	Feb. 28	2409	600	62	1278
Bobb, George, Yokena, Miss. Lap-ring	493,543	Mar. 14	1225	314	62	1612
Bobo, Martin J., Rockmart, Ga. Vehicle-brake	493,676	Mar. 21	1455	371	62	1673
Bock, Martin, Hazelton, assignor to E. F. Bowman, Lancaster, Pa. Device for holding gravers' or other tools for sharpening them	494,504	Mar. 28	2821	708	62	1945
Boddam, Edmond M. T., Sydney, New South Wales. Device for opening or closing elevator-doors	491,892	Feb. 14	1241	310	62	1012
Bodenbrown, William, Jr., Boston, Mass. Type-writing machine	491,072	Feb. 7	17	5	62	752
Bodenstein, John G., Staatsburg, N. Y. Tooth-fastening for ice-plows	491,332	Feb. 7	450	116	62	834
Bodkin, Charles W., assignor of one-half to G. H. Houser, Celina, Ohio. Street-lamp	492,320	Feb. 21	1997	497	62	1181
Boedeker, Hermann, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Höchst, Germany. Pink dye	493,241	Mar. 14	735	.....	62	1521
Boesch, Emile, San Francisco, Cal. Car-lamp	492,953	Mar. 7	285	73	62	1415
Boesch, Emile, San Francisco, Cal. Car-lamp	492,954	Mar. 7	287	73, 74	62	1416
Bogy, Ben, *et al.* (See Hacker, Charles F., assignor.)						
Bohlin, John A. S., Stockholm, Sweden. Protector for pocketbooks	492,911	Mar. 7	226	56	62	1403
Bohls Cigarette Machine Company. (See Bohls, Henry, assignor.)						
Bohls Cigarette Machine Company. (See Payne, William J., assignor.)						
Bohls, Henry, San Francisco, Cal., assignor to Bohls Cigarette Machine Company, Richmond, Va. Machine for dressing and feeding tobacco	493,148 / 492,321	Mar. 7 / Feb. 21	585 / 1999	146 / 147 / 498	62 / 62	1474 / 1181
Bohner, Joseph E., assignor to Wallace & Sons, Ansonia, Conn. Hanging lamp						
Böhringer, Carl, Offenburg, Germany. Stamped or folded metal sheet spool for winding thread	492,657	Feb. 28	2555	632	62	1306
Boise, Eugene, *et al.* (See Moulton, Luther V., assignor.)						
Bole, William A. (See Westinghouse and Bole.)						
Bolinger, Andrew and J., Speedwell, Tenn. Age-gage	493,963	Mar. 21	1937	494	62	1765
Bolinger, John. (See Bolinger, Andrew and J.)						
Bollermann, Arthur, New York, N. Y. Piano-stringing device	493,748	Mar. 21	1582	402	62	1698
Bolster, Alexander J., York, Nebr. Cultivator	489,844	Jan. 10	1315	343	62	288
Bolster, Alexander J., York, Nebr. Disk cultivator	489,845	Jan. 10	1317	343	62	288
Bolte, Frank H., assignor of two-thirds to P. H. Sercombe and T. A. Donlevy, Milwaukee, Wis. Workman's time-recorder	491,978 / 494,518	Feb. 21 / Mar. 28	1470 / 2845	366 / 712	62 / 62	1072 / 1949
Bolthoff, Henry, Denver, Colo. Brake mechanism	494,519	Mar. 28	2846	713	62	1949
Bolthoff, Henry, Denver, Colo. Alarm-indicator	493,242	Mar. 14	736	188 / 189	62	1521
Bolton, Gilman B., Waverly, assignor of one-half to F. H. Henry, Wakefield, Mass. Street-car	491,506	Feb. 7	726	183 / 184	62	888
Bolusa, Alfred R., Norwood, Ohio, assignor of one-half to W. T. Bothwell, Jersey City, N. J. Steam-actuated valve	489,591	Jan. 10	850	221	62	193
Bonbrake, Lewis S., Decatur, Ill. Stovepipe-joint	489,600	Jan. 10	962	250	62	215
Bonbrake, Lewis S., Waynesburg, Ohio. Eaves-trough hanger	489,786	Jan. 10	1233	323	62	270
Bonbrake, Lewis S., Dwight, Ill. Oil or gasoline can						
Bonebrake, Lark P. (See Glover and Jean, assignors.)	493,328	Mar. 14	886	226	62	1546
Bonebrake, Lark P., Marysville, Mo. Multiple terminal cut-out	493,677	Mar. 21	1456	371	62	1674
Bonnar, Willis A., Mono Mills, Canada. Spring-gear for vehicles	494,361	Mar. 28	2600	653	62	1904
Bonwick, William P., London, England. Stopper for bottles						
Bookwalter, Francis M., and W. W. Tyler, assignors to James Leffel & Company, Springfield, Ohio. Water-wheel	493,964 / 492,658	Mar. 21 / Feb. 28	1938 / 2556	494 / 632	62 / 62	1765 / 1306
Boone, Samuel H., assignor to himself and W. A. West, Douglas, Canada. Thread-case						
Booth, John L., *et al.* (See Smith, George, assignor.)						
Booze, John W. (See Sweeney, Robert E., assignor.)						
Bopp, Oscar, New York, N. Y. Bed-couch	490,423	Jan. 24	2297	596	62	509
Borchers, Warnerus, Munich, Germany. Aspirator and air-injector	493,012	Mar. 7	378	94	62	1433
Borden, James Y., Philadelphia, Pa. Hair structure	489,283	Jan. 3	465	129	62	102
Borden, William H., assignor of two-thirds to H. F. Murray and J. A. Brogan, Lawrence, Mass. Knot-tying machine	493,205	Mar. 7	666	170 / 171	62	1489

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Borgfeldt, Nicholas H., assignor to himself and A. C. Schutz, Brooklyn, N. Y. Apparatus for making cigar-fillers	494,362	Mar. 28	2601	653	62	1904
Borgfeldt, Nicholas H., assignor to himself and A. C. Schutz, Brooklyn, N. Y. Apparatus for making cigar-fillers	494,363	Mar. 28	2602	653	62	1904
Borgström, Gustaf J., Chicago, Ill. Ticket-holder	493,473	Mar. 14	1105	284	62	1589
Born, Henry. (See Parkin and Born.)						
Born, Henry, and J. Parkin, Cleveland, Ohio. Smoke arrester and separator	493,749	Mar. 21	1583	403	62	1698
Bornholdt, Adolph, assignor to National Vacuum Drying and Air Distilling Company, Brooklyn, N. Y. Extracting or separating liquids from vegetable substances	489,362	Jan. 3	580	157	62	125
Bornholdt, Adolph, assignor to National Vacuum Drying and Air Distilling Company, Brooklyn, N. Y. Separating the constituents of liquid bodies	489,363	Jan. 3	582	157	62	125
Bornholdt, Adolph, assignor to National Vacuum Drying and Air Distilling Company, Brooklyn, N. Y. Pneumatic press	489,409	Jan. 3	645	175	62	139
Borzell, Harry E. F., and E. E. Bardsley, Philadelphia, Pa. Starting attachment for gasoline-burners	489,284	Jan. 3	466	129	62	102
Boadyk, James C. M. (See Spencer, Charles F., assignor.)						
Boaley, Lee W., Gainesville, Tex. Mandrel attachment	492,775	Mar. 7	5	2	62	1359
Bossert, William F., assignor to Utica Electrical Manufacturing and Supply Company, Utica, N. Y. Combination fuse-box	489,364	Jan. 3	583	157 / 158	62	125
Bossert, William F., assignor to Utica Electrical Manufacturing and Supply Company, Utica, N. Y. Electric switch	493,243	Mar. 14	737	189	62	1521
Bossomaier, Alfred, Launceston, Tasmania. Coin-operated exhibiting apparatus	489,285	Jan. 3	467	129 / 130	62	102
Boston Cash Register Company. (See Bailey, Fortune L., assignor.)						
Boston Footwear Machine Company. (See Day, George W., assignor.)						
Boston Manufacturing Company. (See Edmunds, John, assignor.)						
Boston, Orren W., David City, Nebr. Chimney-protector	490,536	Jan. 24	2481	639	62	545
Bosworth, Charles R. (See Smith, Charles T., assignor.)						
Bosworth, George F., assignor to Easton & Burnham, Pawtucket, R. I. Stop-motion for spoolers	493,206	Mar. 7	671	171	62	1490
Bothwell, William T. (See Boluss, Alfred R., assignor.)						
Botsford, George, and W. Holtz, Nineveh, Ind. Roller-bearing	494,055	Mar. 21	2081	532	62	1793
Bouchard, Eli, assignor to Excelsior Horse Shoe Company, Worcester, Mass. Horseshoe	490,063	Jan. 17	1702	444	62	379
Bouchard, Joseph, St. Anne, Ill. Washing-machine	491,520	Feb. 14	755	192	62	913
Boucher, John, assignor of one-half to D. Bechard, Belle River, Canada. Combined switch and signal device for railway-crossings	490,736	Jan. 31	2716	721	62	626
Boulte, Adolph, Abilene, Tex. Machine-brake	494,268	Mar. 28	2446	617	62	1875
Boulter, William A., Brooklyn, assignor to himself, and A. R. Kolb, New York, N. Y. Receptacle for cans of condensed milk	489,923	Jan. 17	1452	380	62	330
Bourassa, Pierre E., Montreal, Canada. Clamp	491,633	Feb. 14	939	236	62	952
Bourdette, Willis C., Ridgway, Colo. Wrecking-frog	491,005	Jan. 31	3254	831 / 832	62	711
Boulier, Alphonse, *et al.* (See Coon, Frank S., assignor.)						
Bourlier, Emile, *et al.* (See Coon, Frank S., assignor.)						
Boutelle, George S. (See Long, Horace B., assignor.)						
Bowen, Annetie S. and G. S., New York, N. Y. Musical block	491,833	Feb. 14	1243	310	62	1013
Bowen, Daniel C., Grand Rapids, Mich. Rail-puller	490,383	Jan. 24	2242	583	62	499
Bowen, Goodridge S. (See Bowen, Annette S. and G. S.)						
Bowen, Hugh J. (See Conley, Joseph, assignor.)						
Bowen, Philip A., assignor to L. Ahrens, C. E. and L. M. Morehouse, Milwaukee, Wis. Toilet-paper holder	489,787	Jan. 10	1234	323	62	271
Bowles, William R., *et al.* (See Sanguinetti, Percy A., assignor.)						
Bowley, James D., Woodlawn, Ala. Lock	491,868	Feb. 14	1303	322	62	1024
Bowley, Joseph W., London, England. Ice-cream freezer	493,966	Mar. 21	1942	495	62	1766
Bowman, Charles M., Lebanon, Pa. Match	491,204	Feb. 7	234	59	62	792
Bowman, Charles M., Lebanon, Pa. Method of and device for making matches	491,205	Feb. 7	231	59	62	792
Bowman, Charles R., San Angelo, Tex. Windmill	493,060	Mar. 7	447	113	62	1447
Bowman, Ezra F. (See Bock, Martin, assignor.)						
Bowman, Frederick E., South Bend, Ind. Strainer-cover for sprinkling-tanks	493,965	Mar. 21	1941	494	62	1766
Bowser, David J., Cadillac, Mich. Planter	492,383	Feb. 28	2103	524	62	1014
Boyce, Darwin C., Quinnimont, W. Va. Mining coal	494,187	Mar. 28	2315	586	62	1852
Boyd, Alexander, Whitewright, Tex. Gate	490,737	Jan. 31	2719	734	62	626
Boyd, Benjamin Y., Wichita, Kans. Electrical instrument for medical purposes	494,520	Mar. 28	2849	713	62	1949
Boyd, James M., Jr., *et al.* (See Brewer, Andrew T., assignor.)						
Boyd, John and T. A., Glasgow, Scotland. Stop-motion for twisting, doubling, winding, or analogous machines	492,603	Feb. 28	2466	613	62	1289
Boyd, Samuel M. (See Wray, David A., assignor.)						
Boyd, Sarah A., executrix. (See Knoedler, Solomon A. and O., assignors.)						
Boyd, Thomas A. (See Boyd, John and T. A.)						
Boyer, Israel D., assignor to himself and W. E. Haas, Dayton, Ohio. Revolving fan	491,006	Jan. 31	3256	832	62	711
Boyer, James F., Blair, Nebr. Violin-support	492,884	Mar. 7	179	43	62	1394
Boyer, Josiah E., and H. Dixon, assignors to National Candy Mold Company, Dayton, Ohio. Autographic register	493,207	Mar. 7	672	172	62	1490
Boyle, Frank P., J. H. Dundon, and J. E. Boyle, Youngstown, Ohio. Fare-register	491,007	Jan. 31	3258	832	62	711
Boyle, John E. (See Boyle, Dundon, and Boyle.)						
Boyle, John J. (See Buck and Barnes, assignors.)						
Boyler, George S., and F. Rothwell, Havelock, Canada. Air-pump attachment for stoves or furnaces	493,967	Mar. 21	1944	495	62	1766
Boynton Furnace Company. (See Boynton, Nathaniel A., assignor.)						
Boynton, John W., assignor to Brown & Sharpe Manufacturing Company, Providence, R. I. Tail-stock for milling-machines	491,521	Feb. 14	756	192	62	914
Boynton, Nathaniel A., assignor to Boynton Furnace Company, New York, N. Y. Sectional steam-boiler	491,979	Feb. 21	1173	367	62	1073
Bradford, Jefferson, and J. P. Williams, Boston Station, Ky. Electric railway-signal	493,678	Mar. 21	1457	372	62	1674
Bradford, Winslow P., Haverhill, Mass. Sole-slotting machine	492,185	Feb. 21	1791	447	62	1133
Bradford, Winslow P., Haverhill, Mass. Shoe	492,186	Feb. 21	1793	447	62	1138
Bradley, Charles S., Avon, N. Y. Electrical transmission of power	491,465	Feb. 7	667	167 / 168	62	876
Bradley, Charles S., Avon, N. Y. Transformer and means for developing rotary magnetic fields	492,480	Feb. 28	2256	563	62	1245
Bradley, Christopher C., *et al.* (See Bunnell, Francis A., assignor.)						
Bradley, Ebenezer. (See Monahan, John J., assignor.)						
Bradley, George T. and M. H., New Haven, Conn. Puzzle	492,605	Feb. 28	2469	614	62	1290

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Bradley, Henry C. (See Hill, Lyman L., assignor.)						
Bradley & Hubbard Manufacturing Company. (See Penfield, William A., assignor.)						
Bradley, Jay L., assignor of two-thirds to F. Meyrose and C. Cherbonnier, St. Louis, Mo. Whip-socket	490,861	Jan. 31	3005	771	62	664
Bradley, Milton, Springfield, Mass. Color-disk rotating mechanism	492,604	Feb. 28	2468	613	62	1290
Bradley, Milton H. (See Bradley, George T. and M. H.)						
Bradley, William E., Middletown, N. Y. Fire-escape	494,407	Mar. 28	2673	670 / 671	62	1917
Bradley, William F., Owosso, Mich. Car-truck	492,776	Mar. 7	7	2	62	1360
Bradsby, William B. (See Pyle, Charles and J., assignors.)						
Braham, Harry C. (See Steel, Walter J., assignor.)						
Braley, Charles L., and J. C. Stewart, Buffalo, N. Y. Ironing-machine	491,634	Feb. 14	940	236	62	952
Bramlitt, Thomas W. (See Tornwall, Perry A., assignor.)						
Brandt, Adolph. (See Powell, Winslow W., assignor.)						
Brandt, August C., Fort Wayne, Ind. Washing-machine	491,073	Feb. 7	18	5	62	752
Brandt, Christopher C. F., Muscatine, Iowa. Clothes-drier	490,943	Jan. 31	3154	808	62	692
Brann, Fred W., Oakland, Cal. Conduit electric railway	492,365	Feb. 21	1917	479	62	1164
Branson, David, R. D. Thornburgh, and J. E. Starr, St. Louis, Mo. Underground distribution and recovery of anhydrous ammonia	489,729	Jan. 10	1139	294 / 295	62	251
Branson, Edwin R., Philadelphia, Pa. Circular-knitting machine	493,575	Mar. 14	1289	329	62	1625
Brantingham, Allen C., assignor to Nordyke & Marmon Company, Indianapolis, Ind. Feeder for mills	494,188	Mar. 28	2316	587	62	1852
Brash, John C., Loami, Ill. Band-cutter and feeder	491,522	Feb. 14	757	193	62	914
Brass, Robert, Brooklyn, assignor to L. W. Levy and E. Dreyfus, New York, N. Y. Opera-glass holder	490,264	Jan. 24	2046	536	62	459
Braun, John F., assignor to J. Braun & Sons, Philadelphia, Pa. Grass-box for lawn-mowers	493,612	Mar. 14	1355	344	62	1638
Braun & Sons, John. (See Braun, John F., assignor.)						
Brazier, Daniel, Detroit, Mich., assignor of one-half to W. H. Carson. Stove fire-pot and stoker	491,333	Feb. 7	451	116	62	834
Bray, Isabella, New York, N. Y., assignor to American Dress Stay Company. Dress-stay	494,342	Mar. 28	2406	607	62	1868
Bredenberg, Alfred. (See Lovell and Bredenberg.)						
Bredenberg, Alfred, assignor of two-thirds to C. W. Lovell, Brooklyn, and J. W. Lovell, New York, N. Y. Book-cover machine	490,895	Jan. 31	3067	787 / 788 / 789 / 790	62	676
Breed, Burritt B., Cincinnati, Ohio. Carriage-top crate	491,869	Feb. 14	1304	322	62	1024
Bremer, Isidor, Brooklyn, N. Y. Padlock	490,537	Jan. 24	2482	640	62	546
Brenack, Richard G., Brooklyn, N. Y. Wrapper for bottles or other articles	494,364	Mar. 28	2603	654	62	1905
Brennan, John P., Akron, Ohio. Bookbinding	493,396	Mar. 14	982	253	62	1567
Brenner, David H., Grand Rapids, Mich. Folding bed	492,707	Feb. 28	2625	650	62	1321
Brenner, David H., assignor of one-half to D. W. Kendall, Grand Rapids, Mich. Folding bed	492,706	Feb. 28	2623	649 / 650	62	1320
Brenner, William H., Sr., Port Carbon, Pa. Suction-valve	493,968	Mar. 21	1946	496	62	1767
Bressler, John T., Shepherdstown, Pa. Attachment for wheel-hubs	493,474	Mar. 14	1107	285	62	1590
Brewer, Andrew T., assignor of two-thirds to E. C. Holmes and J. M. Boyd, Jr., Minneapolis, Minn. Spark-catcher	490,242	Jan. 17	2001	521	62	438
Brewer, Frank P., Angola, Ind. Pruning-saw	491,980	Feb. 21	1475	367	62	1073
Brewer, Gilbert T., Hoboken, N. J. Hot-water heater for cars, &c	489,141	Jan. 3	240	66	62	55
Brewer, James. (See McCoy, William H., assignor.)						
Brewer, William M., New Brighton, assignor of one-half to F. P. Musser, Beaver Falls, Pa. Treating clay for pottery-ware	491,074	Feb. 7	19	.....	62	752
Brewster, William H., Boston, Mass. Hypodermic syringe	490,842	Jan. 31	2979	764	62	658
Bricker, David E., Boiling Springs, Pa. Poultry-brooder	494,056	Mar. 21	2082	532	62	1793
Bricker, David W., Polkton, N. C. Cultivator and fertilizer-distributer	494,457	Mar. 28	2743	688	62	1930
Bridges, Alfred. (See Dorgan and Bridges.)						
Bridgewater, Christopher A., assignor of one-half to A. B. Lawler, Rushville, Ill. Earth-mover	490,243	Jan. 17	2002	524	62	439
Brier, Henry, Crosshill, Scotland. Fluid-pressure regulator	489,646	Jan. 10	1016	264	62	227
Brigger, Gottfried, assignor of one-half to C. L. Kempel, Akron, Ohio. Wrench	489,429	Jan. 3	588	158	62	126
Briggs, Horace A., and C. W. Hopkins, Norwich, Conn. Firearm	489,366	Jan. 3	586	158	62	126
Briggs, Isaac, Middleborough, Mass. Railway-crossing gate and signal	489,365	Jan. 3	585	158	62	126
Briggs, John S., San Buenaventura, Cal. Fruit-stoning machine	490,265	Jan. 24	2048	536	62	459
Brigham, Henry M., Brooklyn, N. Y. Pocket-knife	492,084	Feb. 21	1629	404	62	1104
Bright, George M., Abingdon, Va. Postage-stamp	492,912	Mar. 7	226	57	62	1403
Bright, Pittman, Philadelphia, Pa. Crank-power	490,134	Jan. 17	1822	476	62	405
Brighton Sign Company. (See Kennedy, Franklin K., assignor.)						
Brill, George M. (See Brill, John A. and G. M.)						
Brill, George M. and J. A., Philadelphia, Pa. Car-truck	494,117	Mar. 28	2280	561	62	1822
Brill, John A. (See Brill, George M. and J. A.)						
Brill, John A., Philadelphia, Pa. Axle-box frame for car-trucks	492,525	Feb. 28	2339	581	62	1262
Brill, John A. and G. M., Philadelphia, Pa. Combination open and closed car	493,013	Mar. 7	379	95, 96	62	1433
Brill, John A., and W. S. Adams, Philadelphia, Pa.; said Adams assignor to said Brill. Motor-truck	493,234	Mar. 7	716	183 / 184 / 185	62	1499
Brill, William H., Willow Springs, assignor of one-half to G. Flint, De Soto, Mo. Car-coupling	490,799	Jan. 31	2919	750	62	645
Brindle, Mark W., *et al.* (See Brunney, Daniel F., assignor.)						
Brinker, Oliver P., Ashville, Ohio. Attachment for corn-planters	490,266	Jan. 24	2051	536	62	460
Brinkerhoff, Milford H. (See Juvinall, Ingard, and Brinkerhoff.)						
Brinkman, Sebastian G., New York, N. Y. Electrically-controlled ventilator	489,625	Jan. 10	989	258	62	221
Brinly, Thomas E. C., Louisville, Ky. Plow	494,458	Mar. 28	2744	688	62	1930
Brinton, Henry A., Harrisburg, Pa. Compound locking device	490,098	Jan. 17	1758	458	62	391
Brisben, William W., assignor to J. E. Rundle, Cleveland, Ohio. Emery-wheel dresser	491,466	Feb. 7	670	168	62	876
Bristöl, Lars, London, England. Secondary battery	493,817	Mar. 21	1694	431	62	1719
Bristol, William S. (See Moore, James S., assignor.)						
Brizzi, Carlo. (See Narberti, Giorgio, assignor.)						
Broadbent, Robert, Stalybridge, England. Machine for winding yarn or thread	493,970	Mar. 21	1951	496 / 497	62	1768
Brodie, William H., Brooklyn, N. Y. Automatic switch for trolley-tracks	489,179	Jan. 3	300	83	62	69
Brodie, William H., New York, N. Y. Multiple switch for overhead trolley-lines	492,526	Feb. 28	2342	581	62	1262
Brogan, James A., *et al.* (See Borden, William H., assignor.)						
Brolowska, Charles, Port Huron, Mich. Clothes-drier	490,843	Jan. 31	2981	764	62	658
Bromley, Daniel W. (See Carver, James W., assignor.)						
Bronner, Paul, Stuttgart, Germany. Manufacturing white lead	491,635	Feb. 14	941	.....	62	952

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bronson, Enos A., Lincoln, Nebr. Compound for retarding the setting of cement	493,613	Mar. 14	1356	.....	62	1638
Bronson, Thomas J., and A. Armstrong, Jacksonville, Ill.; said Armstrong assignor to said Bronson. Metallic railway-tie	491,922	Feb. 14	1384	346	62	1041
Brooke, William E., assignor to American Saw Company, Trenton, N. J. Wrench	491,870	Feb. 14	1305	322	62	1025
Brooks, Augustus J., Wichita Falls, Tex. Adding-machine	493,971	Mar. 21	1952	497	62	1768
Brooks, Charles N. (See Matthews, Edward, assignor.)						
Brooks, Edward J., East Orange, N. J., assignor to E. J. Brooks & Company, New York, N. Y. Hand-punch	489,430	Jan. 3	683	184	62	147
Brooks, James W., *et al.*, trustees. (See Goddu, Louis, assignor.)						
Brooks, John, assignor to C. Potter, Jr., H. W. Fish, J. M. and D. E. Titsworth, Plainfield, N. J. Cylinder printing-machine	489,431	Jan. 3	684	184	62	147
Brooks, John, Plainfield, N. J., assignor to C. Potter, Jr., H. W. Fish, J. M. and D. E. Titsworth, New York, N. Y. Bed and cylinder printing-machine	491,334	Feb. 7	453	116, 117, 118	62	834
Brooks, Mott B., Oak Point, N. Y. Portable force-pump	489,367	Jan. 3	589	159	62	126
Brooks, Robert A., Denver, Colo. Hydrant	494,318	Mar. 28	2519	635	62	1889
Brooks, William H., West Point, N. Y. Lock for metallic plates	491,306	Feb. 7	236	59	62	792
Broome, Henry, assignor of two-thirds to E. E. Albin and J. W. Hughes, Springfield, Ohio. Coin-delivering device	489,863	Jan. 10	1335	348	62	292
Broome, Isaac, New Brighton, Pa. Apparatus for ornamenting architectural tiles	493,244	Mar. 14	739	189, 190	62	1521
Brosius, Samuel G., Savannah, Ga. Rotating-cylinder engine	492,859	Mar. 7	130	33	62	1383
Brosius, Samuel G., Savannah, Ga. Rotating-cylinder engine	492,860	Mar. 7	134	33, 34	62	1384
Brosius, Samuel G., Savannah, Ga. Rotating-cylinder engine	492,861	Mar. 7	137	34	62	1385
Brost, Charles A., Lakeville, Minn. Automatic wagon-brake	492,490	Feb. 28	2286	568	62	1250
Brouwer, Theophilus A., Jr., East Hampton, N. Y. Pocket stamp-holder	490,783	Jan. 31	2898	744	62	641
Brower, Bloomfield, New York, N. Y. Letter-file cabinet	490,099	Jan. 17	1759	459	62	391
Brower, James F., assignor of one-half to F. Barry, Rodney, Mich. Saw-tooth gage	492,187	Feb. 21	1794	448	62	1138
Brown, Burke D. (See Bullard, Kennedy C., assignor.)						
Brown, Charles, assignor to Maschinenbau Gesellschaft, Basle, Switzerland. Electric car	493,969	Mar. 21	1947	496	62	1767
Brown, Charles, assignor to Maschinenbau Gesellschaft, Basle, Switzerland. Railway-car	494,319	Mar. 28	2520	636	62	1890
Brown, Charles F., *et al.* (See Farnham, Charles H., assignor.)						
Brown, Charles H., H. W. Meyer, and H. Schiewetz, assignors to S. N. Brown & Company, Dayton, Ohio. Box for vehicle-wheels	492,384	Feb. 28	2106	525	62	1215
Brown, David R. (See Cook, John, assignor.)						
Brown, Edward, Philadelphia, Pa. Pyrometer	494,244	Mar. 28	2407	607	62	1868
Brown, Edward, Philadelphia, Pa. Pyrometer	494,245	Mar. 28	2409	608	62	1868
Brown, Elizabeth. (See Reynolds, Christopher C., assignor.)						
Brown, Francis C., New York, N. Y. Fountain-pen	490,862	Jan. 31	3006	771	62	664
Brown, Francis R., assignor to Globe Manufacturing Company, Denver, Colo. Baling-press	490,633	Jan. 24	2651	683	62	580
Brown, Fred. H., assignor, by mesne assignments, of one-fifth to Brown Telephone and Telegraph Company, Chicago, Ill. Telegraphy and telephony	490,064	Jan. 17	1703	444	62	379
Brown, George M., Nashville, Tenn., assignor of one-half to E. J. Cahill, La Salle, Ill. Ear attachment for telephones	493,245	Mar. 14	742	190	62	1522
Brown & Gilman. (See Wright, William A., assignor.)						
Brown, Gilman W., West Newbury, Mass. Valve for fire-alarm whistles	489,215	Jan. 3	359	100, 101	62	81
Brown, Harold P., New York, N. Y. Dynamo-electric machine and motor	493,679	Mar. 21	1458	372	62	1674
Brown, Horace F., Butte, Mont., assignor to M. C. Brown, Chicago, Ill. Ore-roasting furnace	489,142	Jan. 3	242	67	62	56
Brown, Horace F., Butte, Mont., assignor to M. C. Brown, Chicago, Ill. Ore-roasting furnace	489,143	Jan. 3	245	68, 69	62	57
Brown, Horace F., Chicago, Ill., and L. De Camp, Denver, Colo. Condensing-chamber for lead fumes	489,144	Jan. 3	248	69	62	57
Brown, Horace T., and G. H. Morris, Burton-on-Trent, England. Preparing raw grain	490,538	Jan. 24	2482	.....	62	546
Brown, James D., Philadelphia, Pa. Automatic fire-extinguisher	490,821	Jan. 31	2948	757	62	652
Brown, James H., Denver, Colo. Car-coupling	491,467	Feb. 7	670	168	62	876
Brown, James H., Eau Claire, Wis. Valve connection for steam sawmill-feeds	494,118	Mar. 28	2203	562	62	1830
Brown, John W. L., Marietta, assignor of one-half to F. S. Roach, Athens, Ohio. Fire-escape	492,955	Mar. 7	291	74	62	1416
Brown, Joseph S., Academia, Pa. Dough-raiser	489,153	Jan. 3	260	72	62	61
Brown, Mary C. (See Brown, Horace F., assignor.)						
Brown, N. B. (See Redwine, William J., assignor.)						
Brown, Perry, Sharonville, Ohio. Drawbar attachment	490,635	Jan. 31	2955	685	62	595
Brown, Philip C., Washington, D. C. Car-coupling	494,246	Mar. 28	2411	608	62	1869
Brown, Reinhart L., Chicago, Ill. Manual recorder and cash-drawer	489,067	Jan. 3	130	35	62	32
Brown, Reuben H. (See Lavigne, Joseph P., assignor.)						
Brown, Richmond R. (See Feltrow, Henry P., assignor.)						
Brown, Robert K., Whitinsville, Mass. Sash-balance	491,762	Feb. 14	1136	286	62	991
Brown, Robert K., Whitinsville, Mass. Sash-holder	491,763	Feb. 14	1137	286	62	992
Brown & Sharpe Manufacturing Company. (See Beale, Oscar J., assignor.)						
Brown & Sharpe Manufacturing Company. (See Boynton, John W., assignor.)						
Brown Telephone and Telegraph Company. (See Brown, Fred. H., assignor.)						
Brown, Theodore H., Viroqua, Wis. Endless sickle for reapers	492,322	Feb. 21	2000	498	62	1182
Brown, Theodore H., assignor of one-half to H. Casson, Viroqua, Wis. Car-coupling	492,370	Feb. 21	2075	518	62	1196
Brown, Theodore H., assignor to United States Sheathing Lath Company, Viroqua, Wis. Sheathing-lath attachment for planing-machines	492,369	Feb. 21	2074	518	62	1196
Brown, Theodore M., Troy, Minn. Blank form for keeping accounts	490,135	Jan. 17	1824	476, 477	62	405
Brown, Warren, Eaton, Me. Horse-hoof guard	492,621	Feb. 28	2497	619	62	1295
Brown, William B. (See Parmley, Lemuel, assignor.)						
Brown, William J., Philadelphia, Pa. Device for holding metallic staples	491,235	Feb. 7	284	71	62	802
Brown, William M. (See Soper and Brown.)						
Brown, William M., Johnstown, Pa., assignor to Johnson Steel Street Rail Company, of Kentucky. Interlocking rail-chair	492,458	Feb. 28	2223	555	62	1239
Brown, William M., assignor to Johnson Company, Johnstown, Pa. Brace-chair for railway-rails	494,243	Mar. 28	2407	607	62	1868
Brown, Willis L., Lake Geneva, Wis. Lifting device	493,061	Mar. 7	448	113	62	1448
Browne, Arthur W., Prince's Bay, N. Y., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Flexible shaft for dental engines	492,966	Feb. 21	1920	479	62	1165
Browne, Frank E., Los Angeles, Cal. Coffee-urn or like vessel	491,834	Feb. 14	1244	311	62	1013
Brownell, John R., Dayton, Ohio. Boiler	489,453	Jan. 10	732	195, 196	62	169

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Browning, Clinton, deceased; F. Browning, Coraopolis, Pa., administrator. Cigar-bunching machine	494,521	Mar. 28	2819	713, 714	62	1949
Browning, Frank, administrator. (See Browning, Clinton.)						
Browning, John M. and M. S., Ogden, Utah Ter., assignors to Winchester Repeating Arms Company, New Haven, Conn. Magazine-firearm	492,459	Feb. 28	2224	556, 557	62	1239
Browning, Matthew S. (See Browning, John M. and M. S.)						
Browning, William, Accrington, England, assignor to Arnold Print Works, North Adams, Mass. Printing colors with aniline-black	491,673	Feb. 14	997	.....	62	964
Bruce, Avery C., and J. W. Warnock, South Pittsburg, Tenn. Apparatus for casting sash-weights	490,184	Jan. 17	1894	494	62	419
Bruce, Fred W., Mayport, Fla. Rotary valve	492,267	Feb. 21	1921	479	62	1165
Bruce, Robert K., Sperryville, Va. Fire-escape	489,368	Jan. 3	590	159	62	127
Bruff, Charles M., Cummings, Ill. Recording weighing-scale	492,708	Feb. 28	2626	650, 651	62	1321
Brunbauer, Ferdinand, Vienna, Austria-Hungary. Lubricator	493,475	Mar. 14	1108	285	62	1590
Brunelle, François X., Worcester, Mass. Steam generator or heater	491,523	Feb. 14	761	193	62	915
Brunney, Daniel F., Lancaster, Ohio, assignor of one-half to M. W. Brindle and C. E. Reese. Cider mill and press	490,335	Jan. 24	2165	565	62	484
Bruno, Désiré, Avondale, Ill. Trammel-point	493,062	Mar. 7	449	113	62	1448
Brush, George E., Danbury, Conn. Machine for attaching sweats and bands to hats	494,365	Mar. 28	2604	654	62	1905
Bryan, Clarence H., Chicago, Ill. Electric battery	489,658	Jan. 10	1045	272	62	233
Bryant, Alden B., assignor of one-half to H. Wolf, Boston, Mass. Potato-digger	491,981	Feb. 21	1476	367	62	1073
Bryden, Williamson, Boston, Mass. Veterinary appliance	492,268	Feb. 21	1923	479	62	1165
Bubar, John H. (See Dodge, Willis, assignor.)						
Buchanan, Archibald, Jr., Ayr, Scotland. Floor for stables, &c	492,777	Mar. 7	8	2, 3	62	1360
Buchanan, George W. (See Meily and Buchanan.)						
Bucher & Gibbs Plow Company. (See Ream, George W., assignor.)						
Buck, Edwin C., and W. M. Barnes, assignors to J. J. Boyle, Philadelphia, Pa. Tag	492,085	Feb. 21	1630	404	62	1104
Buckeye Automatic Car Coupler Company. (See Timms, James, assignor.)						
Buckhalter, Frederick, *et al.* (See Diebel, William, assignor.)						
Buckingham, George. (See Lovell and Buckingham.)						
Buckingham, Roswell H., Chicago, Ill. Harrow	491,036	Jan. 31	3315	845	62	724
Buckley, John W. (See Sutton and Buckley.)						
Buckley, Thomas H., Worcester, assignor of one-half to E. Hamel, Lynn, Mass. Lunch-wagon	489,893	Jan. 10	1379	359	62	300
Bucyrus Steam Shovel and Dredge Company. (See Douglas, William M., assignor.)						
Budde, Alexander, Berlin, Germany. Water-trap for sewers	493,750	Mar. 21	1584	403	62	1699
Buell, Benjamin F., Duff, Nebr. Rein attachment	492,978	Mar. 7	327	82	62	1424
Bufford, George W., Ithaca, N. Y. Wrench	489,454	Jan. 10	737	196	62	171
Bufford, George W., and J. E. Kitson, Ithaca, N. Y. Pipe-wrench	489,455	Jan. 10	737	196	62	171
Buhoup, Harry C., Chicago, Ill. Car-coupling	491,207	Feb. 7	237	60	62	793
Bule, Edward R., Ogden, Utah Ter. Trunk-strap	494,459	Mar. 28	2745	689	62	1930
Bullard, Kennedy C., Milledgeville, Ga. Trace-carrier	492,508	Feb. 28	2318	575	62	1257
Bullard, Kennedy C., assignor of one-half to B. D. Brown, Milledgeville, Ga. Harrow	490,336	Jan. 24	2166	565	62	485
Bullard, Kennedy C., Hartford, Conn. Sash-balance	491,507	Feb. 7	728	184	62	888
Bullock, Edmund L., Hartford, Conn. Sash-balance						
Bullock, Edwin R., Pawtucket, R. I., assignor to J. & P. Coats, Limited, Paisley, Scotland. Doubling drum spooler	490,822	Jan. 31	2950	757	62	652
Bump, Charles M., Bay City, Mich. Bank-check book	492,956	Mar. 7	292	74	62	1417
Bumpus, George D., assignor of one-fourth to C. J. D. Strohecker, Zelienople, Pa. Oil-well pump	491,674	Feb. 14	998	252	62	964
Bunch, George D. (See Hudson, La Strong, and Bunch.)						
Bunch, James M., assignor of one-half to G. W. Aery, Willow Springs, Mo. Car-coupling	489,924	Jan. 17	1454	380	62	331
Bunch, James M., assignor of one-half to G. W. Aery, Willow Springs, Mo. Car-coupling	490,896	Jan. 31	3080	790	62	678
Bunker, Augustus S., Lawrence, Mass. Sanding device for street-cars	493,680	Mar. 21	1464	373	62	1675
Bunker, Harman, assignor of one-half to J. H. McKeggie, Barrie, Canada. Sled-brake	494,460	Mar. 28	2746	689	62	1930
Bunker, Ira S., Nevada, Mo. Treadle	492,778	Mar. 7	8	3	62	1361
Bunker, William L., La Grange, Ill. Gearing						
Bunn, Harry C. (See Maloney, John P., assignor.)						
Bunnell, Francis A., assignor to C. C. Bradley and M. E. Bunnell, Syracuse, N. Y. Filter	492,134	Feb. 21	1707	425	62	1120
Bunnell, Francis A., assignor to C. C. Bradley and M. E. Bunnell, Syracuse, N. Y. Filter						
Bunnell, Mary E., *et al.* (See Bunnell, Francis A., assignor.)						
Burbank, George A., St. Johnsbury, Vt. Fabric or paper cutter	493,351	Mar. 14	914	234	62	1553
Burges, James C. (See Williams and Burges.)						
Burgess, John W., Hockessin, Del. Rotating screen for screening kaolin or analogous substances	493,751	Mar. 21	1585	403, 404	62	1699
Burgess, Josiah. (See Thomas, Thomas, assignor.)						
Burgess, Neilson. (See Towers, David L., assignor.)						
Burgess, Perry A., Steamboat Springs, Colo. Flue-cleaner	491,404	Feb. 7	571	143	62	857
Burgess, Perry A., Steamboat Springs, Colo. Fire-escape	491,405	Feb. 7	572	144	62	857
Burgess, Perry A., Steamboat Springs, Colo. Fire-escape	488,982	Jan. 3	12	3	62	5
Burkard, David, Waverly, Md. Bushing	489,788	Jan. 10	1236	323	62	271
Burke, James V., Chicago, Ill. Smokeless furnace						
Burke, John. (See Hauty, Auguste J., assignor.)						
Burke, John B., and J. F. Badger, Quitman, Ga. Combined planter and cultivator	493,063	Mar. 7	451	114	62	1448
Burke, John J., Roseburg, Oreg. Railway cattle guard	493,972	Mar. 21	1955	498	62	1768
Burkholder, John H., Ashland, Ohio. Adjustable stop device for hay-carriers	490,738	Jan. 31	2820	724, 725	62	627
Burmeister, Frederick, Cleveland, Ohio. Hot-air register	491,524	Feb. 14	762	194	62	915
Burnet, Robert, East Orange, N. J. Paper-feeding machine	489,925	Jan. 17	1455	380, 381	62	331
Burnett, Isaac, Joliet, Ill. Coal-chute	489,926	Jan. 17	1459	381	62	332
Burnham, Frank A., assignor to Union Manufacturing Company, Battle Creek, Mich. Valve for direct-acting engines	492,188	Feb. 21	1795	448	62	1139
Burnham, William H. (See Miller and Burnham.)						
Burnham, William H., and J. H. Miller, assignors to United States Wind Engine and Pump Company, Batavia, Ill. Windmill-tower	490,267	Jan. 24	2052	537	62	460
Burnham, Williams & Co. (See Volmer and Thomas, assignors.)						
Burns, John, Rochester, assignor of one-half to J. H. Reynolds, Troy, N. Y. Apparatus for burning hydrocarbons mixed with air and superheated steam	490,470	Jan. 24	2372	614	62	524
Burns, Priscilla M., St. Louis, Mo. Flour-sifter with reversible closed bottom and cover	491,008	Jan. 31	3259	833	62	712
Burns, William A., East Hickory, Pa. Hame-tug	489,706	Jan. 10	1106	285	62	245
Burr, David J., Richmond, Va. Machine for applying labels to plug-tobacco	493,476	Mar. 14	1112	285, 286	62	1590
Burr, Melbourne C., Minneapolis, Minn. Clothes-drier	494,247	Mar. 28	2412	608	62	1869
Burrowes, Edward T., Portland, Me. Attachment to frictional holding mechanisms for spring-actuated shades	493,885	Mar. 21	1789	457	62	1738
Burson, William W., Chicago, Ill. Knotting-hook for tyers for grain-binders	490,636	Jan. 31	2956	685	62	595

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Burt, Charles A., assignor to Burt Manufacturing Company, Rochester, N. Y. Can-wiping machine	490,100	Jan. 17	1761	459	62	392
Burt, Frank B., New York, N. Y. Block-signal for railways	493,228	Mar. 7	708	182	62	1497
Burt Manufacturing Company. (See Burt, Charles A., assignor.)						
Burton, John M., Wichita, Kans. Stock-car	492,344	Feb. 21	2035	506, 507	62	1188
Burton, John M., Wichita, Kans. Stock-car	492,345	Feb. 21	2039	507, 508	62	1188
Burwell, John J., Covington, Ky. Heating and ventilating railway-cars	491,468	Feb. 7	673	169	62	877
Busby, Nahum J., Maplewood, Mass. Bell	492,779	Mar. 7	9	3	62	1361
Busenbenz, Jacob J., assignor to American Perfuming Machine Company, Chicago, Ill. Vending apparatus	489,432	Jan. 3	687	185	62	148
Bush, Henry J., Westfield, Mass. Whip	492,606	Feb. 28	2471	614	62	1290
Bushnell, Benjamin F. (See Camp, Charles, assignor.)						
Butler, George, Cincinnati, Ohio. Brake-lever for vehicles	489,456	Jan. 10	739	197	62	171
Butler, George E., *et al.* (See Butler, James L., assignor.)						
Butler, Henry G. (See Butler, William and H. G.)						
Butler, Henry G., assignor of one-half to W. Butler, Kenosha, Wis. Scraper-operating apparatus	491,765	Feb. 14	1141	287	62	992
Butler, Henry G., assignor of one-half to W. Butler, Kenosha, Wis. Scraper	493,421	Mar. 14	1012	261	62	1573
Butler, James F., Scranton, Pa. Mining-drill	489,246	Jan. 3	412	114, 115	62	92
Butler, James L., assignor of two-thirds to G. E. Butler and S. A. Howard, Huntley, N. C. Apparatus for wiring wood fences	492,323	Feb. 21	2001	498	62	1182
Butler, John, Ellsworth, Minn. Smoke purifier and consumer	494,522	Mar. 28	2854	714	62	1950
Butler, Maguler, assignor of one-half to Archer Manufacturing Company, Rochester, N. Y. Dental chair	490,037	Jan. 31	2657	695, 696	62	595
Butler, William. (See Butler, Henry G., assignor.)						
Butler, William and H. G., Kenosha, Wis. Burning clay to make ballast, &c.	491,764	Feb. 14	1138	286	62	992
Butler, William and H. G., Kenosha, Wis. Scraper apparatus	494,320	Mar. 28	2521	636	62	1890
Butt, Addison W., assignor to F. G. Butt, Springfield, Ohio. Cultivator	491,797	Feb. 14	1193	298, 299	62	1002
Butt, Frances G. (See Butt, Addison W., assignor.)						
Butt, Moses E. (See Cadenhead, Benjamin F., assignor.)						
Butterfield-Mitchell Electric Heating Company. (See Jenkins, Samuel R., assignor.)						
Butterfield-Mitchell Electric Heating Company. (See Mitchell, Willis, assignor.)						
Butterfield, William, Chicago, Ill. Self-binding harvester	494,321	Mar. 28	2525	636	62	1891
Butterworth, Benjamin. (See Heckert, William, assignor.)						
Butterworth, John, Jr. (See Butterworth, William H. and J., Jr.)						
Butterworth, William H. and J., Jr., Trenton, N. J. Thrashing-machine	490,944	Jan. 31	3156	809, 810	62	692
Buttrick, Charles G., Holyoke, Mass. Spindle bolster and step	490,337	Jan. 24	2167	565	62	485
Butts, Charles W., Sag Harbor, N. Y., assignor to Fahys Watch Case Company, of New York. Apparatus for forming watchcase-pendants	492,739	Feb. 28	2670	662, 663	62	1329
Buxton, Parker J., *et al.* (See Pickering, Benjamin A., assignor.)						
Buyase, Edward, South Bend, Ind. Bicycle-lock	491,335	Feb. 7	458	118	62	835
Bye, Martin, and E. G. Parry, Worcester, Mass. Breech-loading firearm	490,065	Jan. 17	1705	445	62	379
Byington, Albert, Rochelle, Ill. Scraper for disk harrows	492,385	Feb. 28	2107	525	62	1215
Byler, James K., Morgantown, Pa. Railway signaling apparatus	491,798	Feb. 14	1197	299	62	1003
Byrkit, Christian S., assignor of one-half to L. C. Smith, Des Moines, Iowa. Book-holder	488,983	Jan. 3	13	4	62	5
Byrkit, George E. (See Milburn, Byrkit, and Crabbs.)						
Byrne, William C., Chicago, Ill. Drier	491,075	Feb. 7	20	6	62	752
Byron, Henry, New York, N. Y. Coin-operated vending-machine	493,973	Mar. 21	1956	498, 499	62	1768
Cable, Frank D., assignor to Yost Manufacturing Company, Toledo, Ohio. Bicycle-saddle	494,408	Mar. 28	2675	671	62	1918
Cable, George W., New York, N. Y., assignor to himself, and J. T. Morehead, Leaksville, N. C. Machine for stripping and stemming tobacco-leaves	491,871	Feb. 14	1306	322, 323, 324	62	1025
Cable, Martin L., Reidsville, N. C. Car-coupling	490,800	Jan. 31	2220	750	62	645
Cabot, Godfrey L., Cambridge, Mass. Manufacture of lampblack	491,923	Feb. 14	1385	346, 347	62	1041
Cabot, John W., Boston, Mass. Valve	490,945	Jan. 31	3161	810	62	693
Cadenhead, Benjamin F., assignor of one-half to M. E. Butt, Blountsville, Ala. Cotton-scraper	489,119	Jan. 3	214	56	62	49
Cady, Henry G., Pine Bluff, Ark. Stalk-cutter	494,248	Mar. 28	2113	608	62	1869
Caesar, Peter J., Duluth, Minn. Mail-bag	494,119	Mar. 28	2205	562, 563	62	1831
Cagigal, Justo P., San Augustin, Cuba. Stake-pocket for cars	494,409	Mar. 28	2676	671	62	1918
Cahall, William C., Philadelphia, Pa. Galvanic battery	489,522	Jan. 10	851	221	62	193
Cahill, Daniel M. (See Barry and Cahill.)						
Cahill, Edward, Emmetsburg, Iowa. Gate	493,477	Mar. 14	1115	286	62	1591
Cahill, Edward J. (See Brown, George M., assignor.)						
Caille, Adolph A., Saginaw, Mich. Store-service apparatus	491,076	Feb. 7	22	6, 7	62	752
Caldwell, Arthur R. (See McCrudden, James, assignor.)						
Caldwell, Chester L., *et al.* (See Dion, Charles J., assignor.)						
Calhoun, Hugh, Hot Springs, and A. M. Beam, Bear, assignors of one-third to P. H. Ellsworth, Hot Springs, Ark. Amalgamator	489,216	Jan. 3	364	101	62	83
Call, Harry H., and A. A. Clough, Denver, Colo. Cotton-picker	490,101	Jan. 17	1764	459	62	392
Call, Harry H., and A. A. Clough, Denver, Colo. Cotton-picker	492,378	Feb. 21	2090	522	62	1198
Callaghan, John J., and A. R. Horn, Stevens Point, Wis. Cattle-guard	489,601	Jan. 10	963	250	62	215
Callahan, Charles H., Alexandria, Va. Stair-builder's laying-out tool	494,322	Mar. 28	2526	636, 637	62	1891
Callahan, Cornelius, Canton, Mass. Car-signal	494,366	Mar. 28	2606	655	62	1905
Cameron, Alexander A., Cobbville, Ga. Bed-bottom	492,135	Feb. 21	1708	425	62	1121
Cameron, James W., West Bend, Wis. Window	491,279	Feb. 7	347	87	62	815
Cameron, John A., *et al.* (See Fishburn, John, assignor.)						
Cameron, Murdick, assignor of one half to A. McDonald, Minneapolis, Minn. Meat or bread cutter	489,457	Jan. 10	742	197	62	172
Cameron, Murdick, assignor of one-half to A. McDonald, Minneapolis, Minn. Fabric-turfing machine	492,780	Mar. 7	10	3, 4	62	1361
Camp, Charles, assignor of one-half to B. F. Bushnell, Chicago, Ill. Smoke-consumer	490,539	Jan. 24	2483	640	62	546
Camp, Daniel W., Jr. (See Boardman, Wyman, assignor.)						
Campany, Milton E., Hamilton, assignor of one-half to H. B. Peck, Kalamazoo, Mich. Car-brake	494,505	Mar. 28	2823	708	62	1945

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Campbell, Albert, Branford, Conn. Device for sharpening drills	491,766	Feb. 14	1144	287	62	993
Campbell, Alexander, Griswold, Iowa. Plow-shield	489,145	Jan. 3	250	69	62	58
Campbell, Archibald F., Portage la Prairie, Canada. Grain-scourer	493,065	Mar. 7	456	115	62	1449
Campbell Barrel Machine Company. (See Campbell, Henry, assignor.)						
Campbell, Henry, assignor to Campbell Barrel Machine Company, Baltimore, Md. Crozing-machine	492,137	Feb. 21	1710	426	62	1121
Campbell, Henry, assignor to Campbell Barrel Machine Company, Baltimore, Md. Stave-crozing machine	492,138	Feb. 21	1711	426	62	1121
Campbell, James A., assignor of one-half to J. M. Lockhart, New Orleans, La. Barrel-head-cutting machine	493,064	Mar. 7	452	114, 115	62	1449
Campbell, James M., Jordan's Store, assignor to himself, and L. B. Vaughan, Richmond, Va. Tobacco-hanger	490,224	Jan. 17	1949	516	62	433
Campbell, John J., Gleeson Station, Tenn. Flood-fence	492,126	Feb. 21	1709	425	62	1121
Campbell, John N., assignor of one-half to M. H. McKenna, Denver, Colo. Car-coupling	490,634	Jan. 24	2483	633	62	580
Campbell, John R., assignor to J. A. McCabe, Arlington, Mass. Measuring-jacket	490,606	Jan. 24	2480	665	62	565
Campbell, Mark, Chicago, Ill. Crimping-iron	489,217	Jan. 3	365	101	62	83
Campbell Printing Press and Manufacturing Company. (See Wood, Henry A. W., assignor.)	490,897	Jan. 31	3081	790	62	678
Campbell, William H., New York, N. Y. Receipt-form and stripper therefor	491,872	Feb. 14	1311	324	62	1026
Canfield, Carlton W., Winthrop, Minn. Sliding friction-tongs						
Canning, William P., assignor to Lowell Machine Shop, Lowell, Mass. Actuating mechanism for doffer-combs of carding-engines	492,537	Feb. 28	2360	586	62	1267
Cantner, Joseph, Millheim, Pa. Buckle	493,818	Mar. 21	1695	432	62	1719
Cantwell, Edward L., Calcutta, India. Milk-can, &c	489,554	Jan. 10	899	233	62	201
Capek, John V., assignor of one-half to E. H. Johnson, New York, N. Y. Electric motor and controlling apparatus for cars	491,982	Feb. 21	1476	368, 369	62	1073
Capek, John V., assignor of one-half to E. H. Johnson, New York, N. Y. Electrically-heated vessel	493,422	Mar. 14	1014	261, 262	62	1573
Capellen, William H., and H. A. Crabtree, Lake Park, Iowa. Hay-rack	492,709	Feb. 28	2628	651	62	1321
Capitol Manufacturing Company. (See Cook, Frank S., assignor.)						
Capron, Oliver, *et al.* (See Key, Isaac, assignor.)	493,614	Mar. 14	1357	344	62	1638
Capwell, Thomas R., and W. C. Fuller, Dunkirk, N. Y. Vehicle						
Carbo-Alumina Metal Company. (See Stark, Frank. G., assignor.)						
Carborundum Company. (See Acheson, Edward G., assignor.)						
Carey, Anson, Ashland, Neb. Stock watering device	493,478	Mar. 14	1146	286	62	1591
Carey, Philip, Cincinnati, Ohio. Paper tube	489,927	Jan. 17	1461	362	62	392
Carey, Samuel F. (See Foland and Carey.)						
Carl, Hiram A. (See Carl, John and H. A.)	493,479	Mar. 14	1117	286	62	1591
Carl, John and H. A., Allentown, Pa. Folding table						
Carland, Willis W., *et al.* (See Phillips, Elwood C., assignor.)	494,506	Mar. 28	2825	708	62	1945
Carlisle, Joseph A., assignor of one-half to E. Zinn, Orchard, Ohio. Hay-stacker	493,149	Mar. 7	587	147	62	1474
Carlman, Frank. L. T., Salem, Mass. Damper-regulator	492,269	Feb. 21	1921	480	62	1165
Carlson, Andrew E., Wallace, Idaho. Mechanical index	491,698	Feb. 14	1038	263	62	973
Carlson, August, Peoria, Ill. Car-coupling	490,136	Jan. 17	1826	477	62	406
Carlson, Charles F., Honolulu, Hawaii. Hub-attaching device						
Carlson, Charles G. (See Carlson, Fred and C. G.)	494,120	Mar. 28	2210	563	62	1832
Carlson, Fred and C. G., Topeka, Kans. Lawn-mower	489,922	Jan. 17	1461	362	62	332
Carlson, John A., Rockford, Ill. Meat-pounder						
Carlyle, George, assignor to Standard Pearl Button Company, Limited, Detroit, Mich. Machine for forming pearl buttons	490,471	Jan. 24	2374	614	62	534
Carmody, James D., Evansville, Ind. Transom-lifter	489,846	Jan. 10	1318	343	62	280
Carnegie Steel Company. (See Allderdice, Taylor, assignor.)						
Carney, Thomas, assignor to National Cash Register Company, Dayton, Ohio. Cash register and indicator	490,898	Jan. 31	3082	791, 792	62	679
Caro, Harry and J., New York, N. Y. Mirror-frame	491,525	Feb. 14	763	194	62	915
Caro, Jacob. (See Caro, Harry and J.)						
Carolan, Eugene P., Eagle Pass, E. H. and J. R. Terrell, Seguin, Tex. Desk-receptacle	490,225	Jan. 17	1970	516	62	433
Carpenter, Charles E., assignor to Carpenter Enamel Rheostat Company, Bridgeport, Conn. Rheostat-plate	492,757	Feb. 28	2700	670	62	1335
Carpenter, Charles E., assignor to Carpenter Enamel Rheostat Company, Bridgeport, Conn. Rheostat-plate	492,758	Feb. 28	2701	671	62	1335
Carpenter, Charles F., Louisville, Ky. Non-magnetic watch-balance	489,790	Jan. 10	1238	324	62	272
Carpenter, Charles W., *et al.* (See Crowell, Luther C., assignor.)						
Carpenter, Charles W., *et al.* (See Shattuck, Edwin L., assignor.)						
Carpenter, Clarence A., *et al.* (See Beeman, Frank A., assignor.)						
Carpenter Enamel Rheostat Company. (See Carpenter, Charles E., assignor.)	489,626	Jan. 10	991	258	62	221
Carpenter, Esther, Helena, Mont. Cuff-holder						
Carpenter, James H., West Point, Ga., assignor of one-half to T. T. Eaton and F. D. Hale, Louisville, Ky. Time stock-feeder	489,789	Jan. 10	1237	324	62	271
Carpenter, Newton F., Menomonee, Wis. Horse or carriage block	489,669	Jan. 10	1046	272	62	233
Carpenter, Orville, Pawtucket, R. I. Elastic toy	494,410	Mar. 28	2677	671	62	1918
Carpenter, Rolla C., Ithaca, assignor to Schaeffer & Budenberg, New York, N. Y., and Buckau-Magdeburg, Germany. Steam-calorimeter	492,710	Feb. 28	2629	651	62	1322
Carpenter, Rolla C., Ithaca, assignor to Schaeffer & Budenburg, New York, N. Y., and Buckau-Magdeburg, Germany. Steam-calorimeter	494,057	Mar. 21	2084	532	62	1793
Carpenter, Varnum F., Cleveland, Ohio. Wrench-milling machine	489,523	Jan. 10	851	221, 222	62	193
Carpigiani, Balilla, Philadelphia, Pa. Rub-flute	493,066	Mar. 7	458	115	62	1450
Carr, Asmus J., Chicago, Ill. Reel	489,286	Jan. 3	468	130	62	102
Carr, Robert S., Hamilton, Ohio. Meat-slicer	492,934	Mar. 7	259	65	62	1410
Carr, Warren H., Bath, Me. Burglar-proof safe	490,869	Jan. 31	3019	776	62	667
Carr, Warren H., assignor to himself and J. W. Wakefield, Bath, Me. Electric burglar-alarm	490,870	Jan. 31	3020	776	62	667
Carr, William L., Blanchard, assignor of one-half to T. M. Monzingo, Coin, Iowa. Car-mover	489,410	Jan. 3	646	175	62	139
Carrington, Sterling R. (See Whitaker, David W., assignor.)						
Carroll, Hiram, Pawling, N. Y. Stock-watering trough	491,077	Feb. 7	27	7	62	753
Carroll, Homer L. (See Pearsons and Carroll.)						
Carroll, Thomas P., Franklin Furnace, N. J. Car-coupling	489,791	Jan. 10	1239	324	62	272
Carson, William H. (See Brazier, Daniel, assignor.)						
Carter & Company. (See O'Hara, Walter W., assignor.)						
Carter, Floyd H., Shirland, Ill. Wire-reel carrier	490,899	Jan. 31	3091	793	62	680
Carter, Franklin S., Burlington, N. J. Hotel time-annunciator	493,067	Mar. 7	459	116	62	1450
Carter, John T. (See Helm, Thomas W., assignor.)						
Carthy, Florence M., Orange, N. J., assignor to American Writing Machine Company, Hartford, Conn. Attachment for type-writing machines	491,767	Feb. 14	1146	287	62	993

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Cartmell, Edson B., assignor to Hocking Valley Manufacturing Company, Lancaster, Ohio. Hay-loader	491,636	Feb. 14	941	237	62	952
Carver, Edmund D. (See Carver, Henry C., assignor.)						
Carver, Henry C., Manchester, assignor to E. D. Carver, Wimbledon, England. Fastening device for wheels, &c	491,469	Feb. 7	673	169	62	877
Carver, James W., assignor of one-half to D. W. Bromley, Pawlet, Vt. Post	493,068	Mar. 7	460	116	62	1450
Cary Safe Company. (See Goehler, George J. H., assignor.)						
Casaday, William L., South Bend, Ind. Wheel	489,458	Jan. 10	743	197	62	172
Cascaden, Thomas, Jr., Waterloo, Iowa. Kettle	493,974	Mar. 21	1957	499	62	1769
Case, Frank E., Canton, Ohio. Stirrup attachment for chairs	490,540	Jan. 24	2487	641	62	546
Case, Frank E., Canton, Ohio. Head rest	490,541	Jan. 24	2489	641	62	547
Case, George F. (See Hicks, Thomas H., assignor.)						
Case, Schuyler S., Elmira, N. Y. Folding table	489,369	Jan. 3	591	159	62	127
Casey, David F., assignor of one-half to A. S. Coe, Harrisonville, Ohio. Churn-operating mechanism	489,155	Jan. 3	262	73	62	61
Casey, George M., Hingham, Mass. Bottle-opening implement	492,570	Feb. 28	2410	601	62	1278
Casey, John, and M. S. Chism, Philadelphia, Pa. Key-pouch	493,069	Mar. 7	461	116	62	1450
Casey, Matthew, Smithfield, N. C. Cultivator	491,873	Feb. 14	1313	324	62	1026
Casler, Philo W., Little Falls, N. Y. Ticket-holder	489,627	Jan. 10	992	259	62	221
Cason, William N., Kansas City, Mo. Churn	493,681	Mar. 21	1465	373	62	1675
Cassel, Reuben Z., Columbus, Ohio. Pipe-thimble	489,068	Jan. 3	131	36	62	33
Casson, Henry. (See Brown, Theodore H., assignor.)						
Casterlin, James B., *et al.* (See Weldaw, Frank T., assignor.)						
Castle, Alfred M., *et al.* (See Drake, George H., assignor.)						
Caswell, Frederick K., Hartford, Conn. Hot-water heater	494,323	Mar. 28	2528	637	62	1892
Caswell, Thomas N. (See Griffith and Caswell.)						
Caswell, William A., assignor to M. H. Naber, Chicago, Ill. Railway-car for transporting horses	491,936	Feb. 14	1408	351, 352	62	1045
Catchpole, Alfred, Geneva, N. Y. Lathe	491,236	Feb. 7	286	71	62	803
Cathan, Alonzo, assignor of one-half to T. S. Gerhard, Cleveland, Ohio. Mop-wringer	488,984	Jan. 3	14	4	62	5
Cathcart, Frank H., Lower Merion, Pa. Power-driven tool	494,461	Mar. 28	2747	689, 690	62	1930
Cattell, Charles F., Darby, Pa. Gas apparatus	493,975	Mar. 21	1958	499, 500	62	1769
Cattori, Michelangelo, Rome, Italy. Electric railway	492,659	Feb. 28	2557	633	62	1306
Caulfield, Luke F., Ashtabula, Ohio. Leather-frame	490,338	Jan. 24	2169	565	62	485
Caulfield, Luke F., Ashtabula, Ohio. Leather-frame	490,339	Jan. 24	2170	566	62	485
Caulfield, James P., Baltimore, Md. Reed-organ	492,189	Feb. 21	1797	448	62	1139
Caulfield, James P., Baltimore, Md. Solo attachment for reed-organs	493,014	Mar. 7	385	96	62	1435
Caustic Soda and Chlorine Syndicate. (See Girvenwood, James, assignor.)						
Cave, Robert W. and T. J., Priceville, Ky. Washer for wheel-spokes	493,397	Mar. 14	983	254	62	1568
Cave, Thomas J. (See Cave, Robert W. and T. J.)						
Caywood, Albert D., assignor to Underwriters' Hatch Door Company, Chicago, Ill. Safety device for elevator-shafts	493,423	Mar. 14	1016	262	62	1574
Cefrey, Arsène T., Boston, Mass. Floral figure	489,218	Jan. 3	366	102	62	83
Central Cyclone Company. (See Straker, Sidney, assignor.)						
Chadwick, James M., Gadsden, Ala. Attachment for plows	491,009	Jan. 31	3261	833	62	712
Chadwick, John L., Creason, Tex. Gate	491,637	Feb. 14	943	237	62	953
Chadwick, Julian W. (See Ruckmich, Alban V., assignor.)						
Chadwick, Robert Sumner, Nebr. Check-rower	490,268	Jan. 24	2054	537	62	461
Chalfant, Horace W. (See McLellan, John T., assignor.)						
Challoner, Frank, Omro, Wis. Shingle-sawing machine	493,682	Mar. 21	1467	373, 374	62	1675
Chamberlain, Alice J., Bridgeport, Conn. Rake	494,324	Mar. 28	2529	637	62	1892
Chamberlain, George D., assignor to Warwick Cycle Manufacturing Company, Springfield, Mass. Tire for velocipede-wheels	490,425	Jan. 24	2299	597	62	509
Chamberland, Charles E., Paris, France. Sun-dial	490,185	Jan. 17	1899	494	62	420
Chamberlin, Thomas P., Fort Recovery, Ohio. Folding buggy-top	491,983	Feb. 21	1479	368	62	1074
Chambers Brothers Company. (See Chambers, Cyrus, Jr., assignor.)						
Chambers, Cyrus, Jr., Wynnewood, assignor to Chambers Brothers Company, Philadelphia, Pa. Transfer-car	493,976	Mar. 21	1960	500	62	1769
Chambers, George W., and B. F. Gruver, Bitter Water, Cal. Reloader for cartridges	492,324	Feb. 21	2002	498	62	1182
Chambers, James M., assignor to Chambers Patent Barrel Heater Company, St. Louis, Mo. Apparatus for steaming casks	492,346	Feb. 21	2040	508	62	1189
Chambers, Josephus C., Detroit, Mich. Electric lamp-lighter	492,913	Mar. 7	228	57	62	1403
Chambers Patent Barrel Heater Company. (See Chambers, James M., assignor.)						
Chambers, Samson, Sheffield, England. Caster	490,424	Jan. 24	2298	597	62	509
Chambers, Thomas R., assignor of one-third to H. M. McCroskey, Glenloch, Penn. Bedstead	490,066	Jan. 17	1708	446	62	380
Chandler, Jesse, Ames, Kans. Latch	493,819	Mar. 21	1696	432	62	1720
Chapel, Edward A., Marengo, Ill. Automatic railway-gate	490,801	Jan. 31	2921	751	62	645
Chapman, Charles H., Groton, Mass. Spinning-ring and traveler	491,526	Feb. 14	764	194	62	915
Chapman, Frank L. G. (See Hoeffler and Chapman.)						
Chapman, Henry P., Ivoryton, Conn. Flange for piano-actions	492,386	Feb. 28	2108	526	62	1215
Chapman, James E., San José, Cal. Border for walks, &c	489,792	Jan. 10	1240	325	62	272
Chapman, Samuel. (See Speight and Chapman.)						
Chapman, Samuel. (See Speight, Chapman, and Todd.)						
Chappell, George F., New York, N. Y. Water-meter	490,871	Jan. 31	3021	777, 778	62	667
Charvat, Joseph L., Chicago, Ill. Chimney or flue cowl	489,450	Jan. 10	744	198	62	172
Chase, Charles A., Moro, Me. Water-wheel	492,802	Mar. 7	141	34	62	1386
Chase, Isaac M., Washington, D. C. Type-bar	490,739	Jan. 31	2823	725	62	627
Chase, John F., Augusta, assignor to himself, and W. H. Stevens, Portland, Me. Vaporizer	492,979	Mar. 7	328	82	62	1424
Chase, Jonathan, assignor to H. Kellogg, Jr., Boston, Mass. Coal-barge	494,121	Mar. 28	2212	563, 564	62	1832
Chase, Jonathan, assignor to H. Kellogg, Jr., Boston, Mass. Coal-barge	494,122	Mar. 28	2214	564	62	1833
Chase, Solomon C., North Baltimore, Ohio. Car-mover	493,615	Mar. 14	1358	344	62	1638
Chase, Willis B., *et al.* (See Davis, George A., assignor.)						
Chaster, John E., Shawlands, assignor to Regent Gold Extracting Company, Limited, Glasgow, Scotland. Ore-amalgamator	492,711	Feb. 28	2631	652	62	1322
Chatfield, James M., Thomaston, Conn. Apparatus for charging and discharging annealing-furnaces	491,768	Feb. 14	1148	288	62	994
Chatfield, James M., Thomaston, Conn. Coupling device for trays for annealing-furnaces	492,190	Feb. 21	1798	448	62	1140

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Chavez, Augustin M., Mexico, Mexico. Plow	493,246	Mar. 14	744	191	62	1522
Cheney, Walter L., assignor to Meriden Machine Tool Company, Meriden, Conn. Lathe-tool and support	491,256	Feb. 7	311	78	62	808
Cherbonnier, Caleb, *et al.* (See Bradley, Jay L., assignor.)						
Chereat, Léon J., Chicago, Ill. Metallic ceiling	490,186	Jan. 17	1901	495	62	420
Chesterton, Arthur W., Boston, Mass. Boiler-tube cleaner	492,935	Mar. 7	259	66	62	1410
Chicago Matrix Machine Company. (See Redfield, Casper L., assignor.) (Reissue.)						
Childs, Charles M., Kansas City, Mo. Adjustable desk	493,480	Mar. 14	1118	287	62	1591
Childs, Charles V., Pittsburg, Pa. Ladder	493,977	Mar. 21	1962	501	62	1769
Childs, Eugene, Revere, assignor of one-half to O. L. Noble, Boston, Mass. Lathe	490,426	Jan. 24	2301	597	62	510
Childs, Eugene, Revere, assignor of one-half to O. L. Noble, Boston, Mass. Cutting-off attachment for lathes	490,427	Jan. 24	2303	597, 598	62	510
Childs, J. Morris, *et al.* (See Savage, Arthur W., assignor.)						
Chipman, De Witt C. (See Reed, Franklin M., assignor.)						
Chipman, De Yoe C., Peoria, Ill., assignor to Port Huron Engine and Thresher Company, Port Huron, Mich. Flax-thrashing machine	491,237	Feb. 7	287	72	62	803
Chipman, Robert J., assignor of one-half to J. F. Kerr, Paterson, N. J. Device for shooting marbles	492,491	Feb. 28	2288	568	62	1251
Chisholm, Archibald, Bay City, Mich. Track-cleaner	490,260	Jan. 24	2056	538	62	461
Chism, Murray S. (See Casey and Chism.)						
Choate, Parker C., New York, N. Y. Producing metallic zinc	489,460	Jan. 10	745	198	62	172
Choate, Parker C., New York, N. Y. Producing metallic zinc	489,461	Jan. 10	747	198	62	173
Chollar, Benjamin C., Fort Worth, Tex. Grate	494,462	Mar. 28	2751	690	62	1931
Chorley, Frederick O., Reading, England. Tobacco-pipe	493,150	Mar. 7	589	148	62	1475
Christiansen, Simon, New York, N. Y. Garment-fitting pattern	489,793	Jan. 10	1241	325	62	272
Christofferson, Christian A., Indianapolis, Ind. Interlocking switch and signal	489,581	Jan. 10	930	241	62	208
Christoph, George W., Hartford, Conn., assignor of one-half to A. C. Lynch, New York, N. Y. Exhaust-head	493,908	Mar. 21	1826	465	62	1745
Christy, Robert C. (See Schmieder, Otto E., assignor.)						
Church & Co. (See Sundstrom, Karl J., assignor.)						
Church, Duane H., Waltham, Mass. Grinding-machine	494,058	Mar. 21	2086	532, 533	62	1794
Church, Frank S., assignor of one-half to W. F. Edwards, Detroit, Mich. Machine for maintaining a constant pressure in beer-barrels	488,985	Jan. 3	15	4	62	6
Church, Frank S., assignor of one-half to W. F. Edwards, Detroit, Mich. Vehicle-axle	489,180	Jan. 3	302	84	62	69
Church, Frank S., assignor of one-half to W. F. Edwards, Detroit, Mich. Vehicle-axle	489,181	Jan. 3	303	84	62	69
Church, William G., assignor to Woodruff Manufacturing Company, Hartford, Conn. Drill-holder	489,847	Jan. 10	1319	344	62	280
Churchill, Charles F., Melrose, Mass. Metallic rod-packing	493,978	Mar. 21	1963	501	62	1770
Churchward, James, Brooklyn, N. Y. Railway-spike	492,527	Feb. 28	2344	582	62	1263
Churchward, James, Brooklyn, N. Y. Wear-plate	492,528	Feb. 28	2345	582	62	1263
Cincinnati Novelty Manufacturing Company. (See Folger, Charles H., assignor.)						
City Button Works. (See Sheridan and Draher, assignors.)						
Claassen, Peter L. R. C., Berlin, Germany. Valve for mustard-pots	492,782	Mar. 7	14	4	62	1302
Clancy, Martin, Jr. (See Shaw and Clancy.)						
Clarenbach, Louis, Jr., Philadelphia, Pa., and E. Zoll, Holyoke, Mass. Carding-engine	493,752	Mar. 21	1588	404	62	1699
Clark, Carson J., Leslie, Mich. Stone-gathering machine	491,984	Feb. 21	1480	368, 369	62	1074
Clark, Chester C., San Angelo, Tex. Quilting attachment for sewing-machines	488,986	Jan. 3	17	4	62	6
Clark, Chester W., Mishawaka, Ind. Plow	490,542	Jan. 24	2491	642	62	547
Clark, David W., Washington, assignor of one-fourth to C. M. Clarke, Pittsburg, Pa. Tube for viscous substances	493,616	Mar. 14	1360	345	62	1638
Clark, Edward. (See Jolly, Richard H., assignor.)						
Clark, Francis L., Wilkinsburg, assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Core-bar	491,470	Feb. 7	676	169	62	877
Clark, Franklin A., assignor to himself and G. A. Sanders, Worcester, Mass. Meat-press	492,781	Mar. 7	13	4	62	1361
Clark, Fred L. (See West, Stillman A., assignor.)						
Clark, Fred L. (See West and Clark.)						
Clark, Henry A. (See Lombard, Nathaniel, assignor.)						
Clark, Henry D., Hub City, Wis. Car-coupling	493,481	Mar. 14	1120	287	62	1592
Clark, Henry F., Poughkeepsie, N. Y., assignor to National Switch and Signal Company, Easton, Pa. Torpedo-signal for railways	493,482	Mar. 14	1121	287, 288	62	1592
Clark, Horace T., and C. B. Russell, Bridgeport, Conn. Pea-sheller	489,920	Jan. 17	1402	362	62	332
Clark, James M., and C. W. Hamilton, Chicago, Ill. Portable nesting boat	494,288	Mar. 28	2478	625	62	1881
Clark, John A. (See Wyman and Clark.)						
Clark, Joseph O. (See Hunter and Clark.)						
Clark, Josiah P., Boston, Mass. Retort-lid	491,760	Feb. 14	1149	288	62	994
Clark, Josiah P., Boston, Mass. Catch or lock for retort-lids	493,424	Mar. 14	1019	262	62	1574
Clark, Myron W., Parma, Mich., assignor, by mesne assignments, of one-half to Edward P. Allis Company, Milwaukee, Wis. Flour-bolt	492,270	Feb. 21	1925	480	62	1166
Clark, Myron W., Parma, Mich., assignor, by mesne assignments, of one-half to Edward P. Allis Company, Milwaukee, Wis. Flour-bolt	492,347	Feb. 21	2042	508, 509	62	1189
Clark, Myron W., Parma, Mich., assignor, by mesne assignments, of one-half to Edward P. Allis Company, Milwaukee, Wis. Flour-bolt	492,914	Mar. 7	230	57, 58	62	1404
Clark, Samuel G., Stevens Point, Wis. Indicator for locomotive-engineers	494,189	Mar. 28	2319	587	62	1852
Clark, William, North Greenfield, Wis. Type-writing machine	493,015	Mar. 7	387	96	62	1435
Clark, William H. (See Fawcett, Richard, assignor.)						
Clark, William P., Elberton, Ga. Car-coupling	491,835	Feb. 14	1247	311	62	1014
Clark, William R. P., Newark, N. J. Advertising counter-guard for rails or bars	494,289	Mar. 28	2480	625	62	1881
Clarke, Alfred L. (See Clarke, Frank H., assignor.)						
Clarke, Alfred L., assignor of one-half to F. H. Clarke, Springfield, Ohio. Car-fender	489,848	Jan. 10	1320	344	62	280
Clarke, Angelina M., *et al.* (See McDonnell, Patrick E., assignor.)						
Clarke, Charles M. (See Clark, David W., assignor.)						
Clarke, Frank H. (See Clarke, Alfred L., assignor.)						
Clarke, Frank H., assignor of one-half to A. L. Clarke, Springfield, Ohio. Electric signal	491,874	Feb. 14	1314	324, 325	62	1026
Clarke, George, Jersey City, N. J. Ash-ejector for steamships	491,959	Feb. 14	1439	358, 359	62	1052
Clarke, Henry B., Chicago, Ill. Hot-water heater	492,538	Feb. 28	2363	596	62	1268
Clarke, William B., Kansas City, Mo. Shears	491,078	Feb. 7	28	7	62	753
Clarkin, John M., St. Paul, Minn. Refrigerator	489,247	Jan. 3	413	115	62	92
Clarkson, Edwin S. (See Tauberschmidt, George A., assignor.)						
Clasen, John H., Philadelphia, Pa. Machine for twisting and winding chenille	489,370	Jan. 3	592	159, 160	62	127

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Clatworthy, Thomas B., Waterbury, Conn. Machinery for the manufacture of hollow bodies from metal disks	492,571	Feb. 28	2411	601	62	1279
Clatworthy, Thomas B., assignor to Randolph & Clowes, Waterbury, Conn. Safety-valve for kitchen-boilers	491,938	Feb. 7	288	72	62	803
Clausen, Anne M. (See Rock, Ferdinand, assignor.)						
Clawson, Clement C., Newark, N. J. Coin-receiving apparatus	493,344	Mar. 14	1226	314	62	1612
Clawson, Linna G., and E. G. Wheeler, assignors of one-tenth to G. T. Ware, Pleasant Hill, Mo. Portable wagon-scale	489,930	Jan. 17	1463	383	62	333
Clay, Henry, assignor to Electric Pneumatic Transit Company, Philadelphia, Pa. Pneumatic dispatch or transit system	489,931	Jan. 17	1466	383 384 385	62	333
Clay, Henry, assignor to Electric Pneumatic Transit Company, Philadelphia, Pa. Pneumatic dispatch or transit system	489,932	Jan. 17	1475	385 386	62	336
Clay, John S., Farmington, and J. R. Rucker, Bismarck, Mo. Drag-saw	491,985	Feb. 21	1482	369	62	1075
Clayton, Herbert, New York, N. Y. Gas-stove	492,712	Feb. 28	2632	652	62	1322
Clayton, James, Brooklyn, N. Y. Triple compound air or gas compressor	492,915	Mar. 7	234	58, 59	62	1404
Clayton, Thomas A. (See Olliphant and Clayton.)						
Cleland, John S., assignor to Binghamton Wagon Company, Binghamton, N. Y. Running-gear for vehicles	494,095	Mar. 21	2151	549	62	1806
Clement, Tomas J., New Orleans, La. Cooking utensil	492,271	Feb. 21	1927	481	62	1166
Clements, Charles J., Brooklyn, N. Y. Attachment for brooms	490,472	Jan. 24	2378	615	62	525
Clifford, Frank H., St. Louis, Mo. Telescoping cup	492,900	Mar. 7	204	50	62	1399
Clifford, Patrick, assignor of one-half to L. Fridet, Rhinelander, Wis. Pipe-core	491,927	Feb. 14	765	194 195	62	916
Cline, George A., Toledo, Ohio. Roller seal-press	494,411	Mar. 28	2678	672	62	1919
Cline, George J., Goshen, Ind. Fence	490,946	Jan. 31	3163	810	62	693
Closs, Lawrence M. (See Freeman, Wallace E., assignor.)						
Closz, Charles and J., St. Ansgar, Iowa. Grain-separating screen	491,290	Mar. 28	2481	625	62	1881
Closz, Jacob. (See Closz, Charles and J.)						
Cloud, John W., Chicago, Ill. Car-wheel	492,529	Feb. 28	2346	582	62	1263
Clough, Augustus A. (See Call and Clough.)						
Clough, Justin E., Tolland, Conn. Beam-calipers	492,783	Mar. 7	15	5	62	1362
Clough, Roger M., Tolland, Conn. Duplex gear-cutter	490,638	Jan. 31	2661	686	62	596
Clough, Thomas A., and T. J. Bigger, Philadelphia, Pa. Dyeing-machine	491,336	Feb. 7	459	118 119	62	835
Cobb, John W., Taunton, Mass., assignor to Cobb Stove and Machine Company. Grate	489,462	Jan. 10	750	198	62	173
Cobb Stove and Machine Company. (See Cobb, John W., assignor.)						
Cobbs, Chapman, *et al.* (See Sennett and Arnett, assignors.)						
Coburn, George H., Laconia, N. H. Cam-guard for knitting-machines	493,909	Mar. 21	1827	465	62	1745
Cochran, Edward J., Pittsburg, Pa., assignor to W. Garrett, Joliet, Ill. Manufacture of hoops	492,348	Feb. 21	2045	509	62	1190
Cochran Gold and Silver Releasing and Steam Generating Company. (See Cochran, Samuel H., assignor.)						
Cochran, Henry, Chester, Pa. Folding gate for car-platforms	492,139	Feb. 21	1713	426	62	1122
Cochran, Samuel H., Everett, Mass., assignor to Cochran Gold and Silver Releasing and Steam Generating Company, of Maine. Process of and apparatus for obtaining metals from their ores	491,638	Feb. 14	943	237 238	62	953
Codman & Shurtleff. (See Hesse, Frank K., assignor.)						
Codman & Shurtleff. (See Shurtleff, Asahel M., assignor.)						
Coe, A. S. (See Casey, David F., assignor.)						
Coe, Isaac, Jersey City, assignor to F. H. La Pierre, East Orange, N. J. Clasp	491,079	Feb. 7	29	8	62	754
Coe, John B., Boston, Mass. Culinary chopper	489,647	Jan. 10	1017	265	62	227
Coffey, Abraham L., Le Roy, Ill. Combined hat and clothes rack	494,269	Mar. 28	2447	617	62	1875
Coffin, Charles L., Detroit, Mich. Welding metals electrically	492,713	Feb. 28	2635	653	62	1323
Coffin, John P. (See Mortimer and Coffin.)						
Coffin, Walter H., New Bedford, Mass. Paper-box machine	493,979	Mar. 21	1965	501	62	1770
Coffman, Martin. (See Coffman, Samuel M., assignor.)						
Coffman, Samuel M., Braymer, assignor of one-half to M. Coffman, Georgeville, Mo. Car-coupling	489,894	Jan. 10	1382	359 360	62	301
Cohen, Bernard, and D. W. Gaskill, Little Rock, Ark. Packing-box	493,545	Mar. 14	1228	314	62	1613
Cohen, Emanuel G., assignor of one-half to C. M. Miller, Cleveland, Ohio. Stapling-machine	489,730	Jan. 10	1141	295	62	252
Cohn, Max, Milwaukee, Wis. Underskirt	490,102	Jan. 17	1765	460	62	393
Coker, James R., Knoxville, assignor of one-half to S. A. Rogers, Graveston, Tenn. Fire-escape	489,463	Jan. 10	751	199	62	173
Colbran, Octavius S. (See Ghent and Colbran.)						
Colby, C. W. (See Spencer, George, assignor.)						
Colby & Co. (See Levy, Abraham, assignor.)						
Cole, Charles T. (See Hamill, Lentz, and Cole.)						
Cole, Francis J. (See Hazlehurst and Cole.)						
Cole, Henri B. (See Bellinger, Albert D., assignor.)						
Cole, James W. (See Steen, James H., assignor.)						
Cole, Lloyd H., Pawtucket, R. I. Nut-tapping machine	494,367	Mar. 28	2607	655	62	1905
Coler, Elijah J., Liberty, Ohio. Unloading platform	493,980	Mar. 21	1966	502	62	1770
Coler, Peter P., Plano, assignor of one-half to Plano Manufacturing Company, Chicago, Ill. Grain-binder	489,219	Jan. 3	367	102	62	83
Coley, Joseph, assignor to W. J. Hogg, Worcester, Mass. Loom for weaving double-faced pile fabrics	489,731	Jan. 10	1143	296	62	252
Colgrove, James, Clear Water, Minn. Potato-harvester	490,596	Jan. 24	2560	659 660	62	561
Colleret, Rodrigue, Montreal, Canada. Fire-ladder	489,628	Jan. 10	994	259 260	62	222
Collins, Charles S., *et al.* (See Adams and Lynam, assignors.)						
Collins, Edmund R. (See Cornelius and Collins.)						
Collins, George, assignor of one-half to R. B. Wheeler, Detroit, Mich. Car-heating apparatus	489,524	Jan. 10	853	222	62	194
Collins, James R., Brooklyn, N. Y. Bag	490,103	Jan. 17	1766	460	62	393
Collins, Mary E. (See Bates and Collins.)						
Collins, Walter A., Tullytown, Pa. Sprinkling-machine	490,900	Jan. 31	3092	793	62	680
Collmann, Alfred, Vienna, Austria-Hungary. Steam-engine	494,412	Mar. 28	2680	672	62	1919
Collord, Charles A., New York, N. Y. Metal-shaping machine	493,151	Mar. 7	590	148	62	1475
Colton, George A., Washington, D. C. Beam-calipers	493,683	Mar. 21	1469	374	62	1676
Columbia Cash Register Company. (See Anfuldish, John B., assignor.)						
Columbia Drill Company. (See Fender, John M., assignor.)						
Colvin, Russell L. (See O'Neill, John M., assignor.)						
Combs, Seth D., and R. A. Frates, Ione, Cal. Pinch-bar	491,986	Feb. 21	1483	369	62	1075

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Comfort, James F., Kendall Creek, Pa. Ice-creeper	492,272	Feb. 21	1928	481	62	1166
Comins, Frank B. (See Topliff and Comins.)						
Comins, Thomas B., Boston, Mass. Umbrella-holder	494,123	Mar. 28	2217	564	62	1833
Comly, James I., Philadelphia, Pa. House. (Reissue)	11,304	Feb. 7	732	185 186	62	889
Commander, Edward A. (See Miles and Commander.)						
Commeans, William, Lily Chapel, Ohio. Fence	492,784	Mar. 7	17	5	62	1362
Common Sense Bicycle Manufacturing Company. (See Pettit and Congdon, assignors.)						
Compound Spring Power Company. (See Pfantz, Daniel M., assignor.)						
Compton, Curtis F., Davison, Mich. Potato-chopper	493,684	Mar. 21	1470	374	62	1676
Comstock, Clark S., Brooklyn, N. Y. Button	489,288	Jan. 3	471	130	62	103
Comstock, Harry, assignor of one-half to W. J. Watson, Fulton, N. Y. Pneumatic tire	491,010	Jan. 31	3262	833	62	712
Comstock, Thomas H., and J. E. Junk, Nashville, Tenn. Sawmill-dog	489,287	Jan. 3	469	130	62	103
Conant, Albert F., Boston, Mass. Bed	491,080	Feb. 7	30	8	62	754
Conchar, James W., Dubuque, Iowa. Door-hanger	491,061	Feb. 7	31	8	62	754
Condé, Samuel L., Rockford, Ill. Type-writer cabinet	491,249	Feb. 7	289	72	62	803
Condict, Nathan W., Jr., Jersey City, N. J. Still	493,247	Mar. 14	745	191	62	1522
Condit, Emmett H., Outville, Ohio. Horse-power	491,528	Feb. 14	767	195	62	916
Congdon Brake Shoe Company. (See Sargent, Fitz William, assignor.)						
Congdon, John R. (See Pettit and Congdon.)						
Conklin, Ezra F. (See Conklin, Oliver S. and E. F.)						
Conklin, Gilbert H., Riverhead, N. Y. Feed-water heater	493,981	Mar. 21	1967	502	62	1770
Conklin, Oliver S. and E. F., Undercliff, N. J. Hat-stand	493,248	Mar. 14	746	191	62	1522
Conklin, Oliver S. and E. F., Undercliff, N. J. Bridge-gate	492,387	Feb. 28	2109	526	62	1215
Conklin, Theodore F., assignor to N. S. Lepperr, Chicago, Ill. Bridge-gate	491,037	Jan. 31	3316	846	62	724
Conley, Joseph, assignor of one-half to H. J. Bowen, St. Joseph, Mo. Brick-kiln	491,038	Jan. 31	3318	846	62	724
Conley, Joseph, assignor of one-half to H. J. Bowen, St. Joseph, Mo. Circular brick-kiln						
Connell, Patrick J., *et al.* (See Curtis, Frederic A., assignor.)						
Connelly, James T., Milton, Pa. Lap-joint for steam-boilers	490,067	Jan. 17	1709	446	62	380
Conner, David, Groton, Conn. Firearm	493,352	Mar. 14	915	235	62	1553
Conner, Joshua H., Itasca, Tex. Washing-machine	493,685	Mar. 21	1471	375	62	1676
Connett, Matthew F., Jr., Nashville, Tenn. Hand fence-machine	491,770	Feb. 14	1152	288	62	994
Connett, Matthew F., Atlanta, Ga. Picket-wiring fence-machine	494,537	Mar. 28	2883	723	62	1955
Connor, Thomas, Holyoke, Mass. Chute for ashes	491,960	Feb. 14	1443	359	62	1053
Conradi, Henry, London, England. Rail-cleaner for railway and tramway rails	489,120	Jan. 3	215	56 57 58	62	50
Conradson, Conrad M., Madison, Wis. Chuck for screw-machines	489,933	Jan. 17	1480	387	62	335
Conradson, Conrad M., Madison, Wis. Chuck	489,934	Jan. 17	1482	387	62	335
Conradson, Conrad M., Madison, Wis. Rod-feeding device	489,935	Jan. 17	1484	387 388	62	336
Conradson, Conrad M., Madison, Wis. Rod-gripping device	489,936	Jan. 17	1485	388	62	336
Conradson, Conrad M., Madison, Wis. Automatic chuck and rod-feeder	490,863	Jan. 31	3006	771 772	62	664
Conradson, Conrad M., Madison, Wis. Lathe	490,864	Jan. 31	3009	772 773 774	62	665
Conradson, Conrad M., and B. V. Norberg, Milwaukee, Wis. Adjustable bearing for connecting-rods, &c.	490,639	Jan. 31	2662	686	62	596
Consolidated Brake Adjuster Company. (See Holmes, William W., assignor.)						
Consolidated Brake Adjuster Company. (See Marshall, Waldo H., assignor.)						
Consolidated Car Heating Company. (See Beery, Samuel M., assignor.)						
Consolidated Car Heating Company. (See McElroy, James F., assignor.)						
Consolidated Fastener Company. (See Hall, Frank E., assignor.)						
Consolidated Fastener Company. (See Kraetzer, Edwin J., assignor.)						
Consolidated Fastener Company. (See Raymond, Pierre A., assignor.)						
Consolidated Railway Equipment Company of Toronto. (See Nunn, William C., assignor.)						
Consolidated Refrigerating Company. (See Fuller, J. Ensign, assignor.)						
Contant, Auguste C., Fort Wayne, Ind. Undried-brick protector	492,388	Feb. 28	2110	526 527	62	1215
Converse, Frank B., assignor to H. S. Gordon, New York, N. Y. Banjo	494,059	Mar. 21	2088	533	62	1794
Cook, August D., Lawrenceburg, Ind. Plunger for pumps	493,249	Mar. 14	747	191 192	62	1523
Cook, Charles M., *et al.* (See Phillips, Charles W., assignor.)						
Cook, Edward S., Drake's Branch, Va. Plow	491,529	Feb. 14	768	195	62	916
Cook, Frank S., deceased; J. W. Cook, Springfield, Ohio, administrator, and assignor to Capitol Manufacturing Company, Chicago, Ill. Bolt-threading machine	492,140	Feb. 21	1715	427 428 429	62	1122
Cook, George D. (See Steele, James W., assignor.)						
Cook, Jerome W., administrator. (See Cook, Frank S.)						
Cook, John, assignor of one-half to D. R. Brown, Trenton, N. J. Machine for shaping brush blocks or backs	492,660	Feb. 28	2559	634	62	1307
Cook, John, assignor of one-half to D. R. Brown, Trenton, N. J. Handle for brush-making machines	492,661	Feb. 28	2561	634 635	62	1307
Cook, John A., Buffalo, N. Y. Broom	493,483	Mar. 14	1124	288	62	1593
Cook, John R., *et al.* (See Gentry, Edward S., assignor.)						
Cook, John W. B., Camden, Ark. Nut-lock	490,740	Jan. 31	2825	725 726	62	627
Cook, Marcus E., Wallingford, Conn. Wheeled excavator and carrier	489,707	Jan. 10	1108	286	62	945
Cook, Thomas P., New York, N. Y. Permutation-lock	489,411	Jan. 3	647	175	62	139
Cook, Waddington L., *et al.* (See Gentry, Edward S., assignor.)						
Coombes, Joseph A., London, England. Concentrator	493,070	Mar. 7	461	116 117	62	1451
Coomer, Cicero, *et al.* (See McCain, Benjamin H., assignor.)						
Coon, Benjamin F., Jamaica, Iowa. Cultivator	493,398	Mar. 14	984	254	62	1568
Coon, Frank S., assignor to A. and E. Bourlier, Louisville, Ky. Disinfecting apparatus	492,662	Feb. 28	2562	635	62	1307
Coons, Samuel F., *et al.* (See Tatro, Charles P., assignor.)						
Cooper, Charles. (See Sibbald, Charles J., assignor.)						
Cooper, Frederick. (See Keen, Marriott, and Cooper.)						
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Boston, Mass. Wheel-hub	491,937	Feb. 14	1410	352	62	1046
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Boston, Mass. Type-writing machine	492,141	Feb. 21	1718	429 430	62	1123
Copeland, James S., Hartford, Conn., assignor to Pope Manufacturing Company, Boston, Mass. Gun-clip for bicycles	492,740	Feb. 28	2672	663	62	1330
Coquy, Francois, Lyons, France. Respirator	492,980	Mar. 7	329	83	62	1494

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Corbit, Andrew M., Bethlehem, Iowa. Hay-stacker	493,576	Mar. 14	1292	330	62	1626
Cording, Albert. (See Steuerwald and Cording.)						
Corey, John A., Hope Valley, R. I. Wagon-jack	492,389	Feb. 28	2113	257	62	1216
Corkhill, Henry R., Jr., Rochester, N. Y. Ellipsograph	492,142	Feb. 21	1724	430	62	1123
Corley, Daniel B., Abilene, Tex. Holder for ink-bottles	492,143	Feb. 21	1727	431	62	1124
Corliss, Herbert A., St. Helen, Oreg. Self-hoisting flood-gate	490,137	Jan. 17	1827	477	62	406
Cornelius, James, and E. R. Collins, Brooklyn, N. Y. Stone-separator	490,947	Jan. 31	3164	811	62	693
Cornelius, James, and E. R. Collins, Brooklyn, N. Y. Brick or tile cutter	492,663	Feb. 28	2563	635	62	1307
Cornelius, John, Oakland, Md., assignor of one-half to R. S. Kayler, Alliance, Ohio. Truck.	492,273	Feb. 21	1929	481	62	1167
Cornell, Stephen A., Grand Rapids, Mich. Work-table	490,473	Jan. 24	2378	615	62	525
Cornely, Emile and R., Paris, France. Embroidering-machine	493,374	Mar. 14	954	246	62	1502
Cornely, Robert. (See Cornely, Emile and R.)						
Corning Manufacturing Company. (See Stasch, Emil R., assignor.)						
Cornman, Charles F. (See Wilson, Robert, assignor.)						
Cornwell, Phillip W., Brockton, Mass. Draft-regulator	491,082	Feb. 7	32	9	62	754
Corry, William, Cincinnati, Ohio. Safe	491,875	Feb. 14	1316	325	62	1027
Corscaden, Thomas, assignor to Stanley Works, New Britain, Conn. Shelf-bracket	493,484	Mar. 14	1125	288	62	1593
Cory, Albert J. (See Hunt, Preston R., assignor.)						
Cosmic Alloy and Metal Depositing Company. (See Lugo, Orazio, assignor.)						
Cotner, David R., Bardwell, Ky. Kitchen-cabinet	494,124	Mar. 28	2218	565	62	1833
Cotter, Charles A., assignor to Randolph & Clowes, Waterbury, Conn. Plumber's ferrule.	494,413	Mar. 28	2681	673	62	1919
Cotter, John F., St. Louis, Mo. Blow-off basin for steam-boilers	489,602	Jan. 10	964	251	62	215
Cotton, Scott R. (See Scurr and Cotton.)						
Couch, Joel, Clayton, N. Y. Centerboard	492,785	Mar. 7	19	5	62	1363
Coulson, William H., Jersey City, N. J., assignor to T. W. Weathered's Sons, New York, N. Y. Trellis-wire support and stretcher	491,771	Feb. 14	1154	288	62	995
Coulter, James. (See Coulter, Thomas and J.)						
Coulter, Thomas and J., Bridgeport, Conn. Machine for tapering and shaping metal bars.	493,982	Mar. 21	1969	502, 503	62	1771
Coulter, William S., Stockwell, Ind. Fence-building device	489,154	Jan. 3	261	72	62	61
Councill, Julius C. (See Turnbull and Councill.)						
Coupal, Peter A. (See Cummings and Coupal.)						
Covel, James L., Naples, N. Y. Material for covering pipes, &c	491,836	Feb. 14	1249	311	62	1014
Covell, Edward T., New Bedford, Mass. Fastening for horseshoes	490,270	Jan. 24	2057	538	62	461
Coventry, William M., Longton, Kans. Washing-machine	493,820	Mar. 21	1697	432	62	1720
Coville, Orson, *et al.* (See June, Marcus M., assignor.)						
Covington, John I., Brooklyn, N. Y. Pocket-box	494,249	Mar. 28	2414	609	62	1869
Covyeow, George L., Bay City, Mich. Steam-engine	493,250	Mar. 14	748	192	62	1523
Cox, Albert W., Hastings, Nebr. Checkrein	493,353	Mar. 14	916	235	62	1553
Cox, Eliza A., Rutledge, Mo. Cultivator	489,708	Jan. 10	1110	286	62	246
Cox, Francis M., Haynes, Ark. Car-coupling	493,251	Mar. 14	750	192	62	1523
Cox, George S., Philadelphia, Pa. Loom	492,144	Feb. 21	1728	431	62	1124
Cox, James D., Bridgeton, N. J. Machine for scalding tomatoes	494,463	Mar. 28	2752	690, 691	62	1931
Cox, John H., Howard, Kans. Horse hay-rake	492,145	Feb. 21	1731	431, 432	62	1125
Cox, Joseph L., assignor to Duplex Printing Press Company, Battle Creek, Mich. Inking apparatus for printing-presses	494,096	Mar. 21	2152	550	62	1806
Cox, Louis, Birmingham, England. Glove	491,471	Feb. 7	677	170	62	878
Coyle, Andrew M., assignor to Standard Screw Elevator Manufacturing Company, Baltimore, Md. Automatic electric switch	492,786	Mar. 7	20	6	62	1363
Coyle, Andrew M., assignor to Standard Screw Elevator Manufacturing Company, Baltimore, Md. Electric switch	493,485	Mar. 14	1126	288, 289	62	1593
Crabbs, Cyrus, Delphos, Ohio. Fence	492,901	Mar. 7	205	50	62	1399
Crabbs, John C. (See Milburn, Byrkit, and Crabbs.)						
Crabtree, Henry A. (See Capellen and Crabtree.)						
Crabtree, Leonard T., New London, Wis. Railway train order and signaling device	491,837	Feb. 14	1249	312	62	1014
Craemer, John F., Ogden, Utah Ter. Perforating-machine	493,753	Mar. 21	1569	404	62	1700
Craig, Hiram L., Wayne, Ind. Sash-balance	491,639	Feb. 14	947	238	62	953
Craig, James D., Rogers Park, assignor to Keyless Lock Company, Chicago, Ill. Combination-lock	491,158	Feb. 7	153	40	62	778
Craig, James D., Rogers Park, assignor to Keyless Lock Company, Chicago, Ill. Combination-lock	491,159	Feb. 7	158	40, 41	62	779
Craigie, Hugh H., assignor to J. A. Craigie, Stamford, Conn. Window	490,244	Jan. 17	2003	524	62	439
Craigie, J. Agnes. (See Craigie, Hugh H., assignor.)						
Crain, William O., Baltimore, Md. Head-rest	493,486	Mar. 14	1128	289	62	1563
Crain, William O., assignor of two-thirds to Wise Bros., Baltimore, Md. Stop-motion for rotary machine parts	489,849	Jan. 10	1321	344	62	289
Cram, Alonzo W., Haverhill, Mass. Drain-pipe	492,191	Feb. 21	1800	449	62	1140
Cramer, Howard, Newberry, Pa. Match-box	493,983	Mar. 21	1970	503	62	1771
Cramer, W. J. C. Putnam. (See Stevens, Truman E., assignor.)						
Crandall, David A. (See Davis, Charles B., assignor.)						
Crandall & Godley Company. (See Thurston, George A., assignor.)						
Crane Company. (See Doolittle, William W., assignor.)						
Crane Company. (See Hayden, James T., assignor.)						
Crane, George A., Cleveland, Ohio. Steam-boiler	492,936	Mar. 7	260	66	62	1410
Crane, George C., Stony Creek, assignor of one-half to R. G. Barnes, Ypsilanti, Mich. Harrow	493,071	Mar. 7	463	117	62	1451
Crane, John H., Auburn, N. Y. Grinding-machine	491,530	Feb. 14	770	196	62	917
Crane, Stephen. (See Mild, William, assignor.)						
Cranford, Charles E., assignor of one-half to S. Williamson, Moscos, Miss. Sawmill	492,787	Mar. 7	23	6, 7	62	1363
Crannell, Charles W., assignor of one-half to D. E. Grobe, Oberlin, Kans. Nailless horseshoe	492,460	Feb. 28	2227	557	62	1240
Crannell, Charles W., assignor of one-half to D. E. Grobe, Oberlin, Kans. Nailless horseshoe	492,481	Feb. 28	2258	564	62	1245
Crapsey, George B., Merrill, Wis., assignor of one-half to C. Crisladoro, St. Paul, Minn. Segment-saw	490,384	Jan. 24	2243	563	62	499
Crary, Joseph M., Jersey City, N. J. Type-writing machine	493,016	Mar. 7	388	97, 98	62	1435
Crawford, Andrew L., Columbus, Ga. Cash register and till	491,876	Feb. 14	1318	326	62	1027
Crawford, Benjamin, Louisville, Ky. Lever attachment for brake-wheels	490,543	Jan. 24	2493	642	62	548
Creager, Jonathan, Cincinnati, Ohio. Brick-machine cut-off	492,390	Feb. 28	2114	527	62	1216
Creamery Package Manufacturing Company. (See Ames, Charles D., assignor.)						
Crehan, Hubert, assignor to Oliver Iron and Steel Company, Pittsburg, Pa. Bolt-threading machine	490,901	Jan. 31	3093	793, 794	62	680

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Creque, Allen P., New York, N. Y. Ceramic boiler	491,083	Feb. 7	33	9	62	754
Creque, Allen P., New York, N. Y. Washbowl	492,192	Feb. 21	1801	449, 450	62	1140
Creteau, Stephen M., Providence, R. I., assignor of one-half to G. H. Williamson, New York, N. Y. Sewing-machine needle	493,399	Mar. 14	986	254	62	1568
Crews, James M., Arlington, Tenn. Fastening device	492,193	Feb. 21	1805	450	62	1141
Crickler, Charles D. and H. F., assignors of one-third to C. W. Shoemaker, Bridgeton, N. J. Apparatus for molding bottles	493,984	Mar. 21	1971	503, 504	62	1771
Crickler, Harry F. (See Crickler, Charles D. and H. F.)						
Crim, John T., Eureka Springs, Ark. Automatic sliding or rolling gate	492,863	Mar. 7	142	35	62	1396
Cripe, Jacob M., Sandusky, Ohio. Cash-register	490,640	Jan. 31	2663	686, 687	62	597
Cristadoro, Charles. (See Crapsey, George B., assignor.)						
Crites, John W., Sacramento, assignor to C. Wubbena, Auburn, Cal. Vending-machine	493,617	Mar. 14	1360	345	62	1639
Crittenden, Mason H., and F. V. Emery, Minneapolis, Minn. Metallic lathing	489,850	Jan. 10	1321	345	62	290
Crittenden, W. B. (See Hayward, Jacob L., assignor.)						
Critzer, John A., Waynesborough, Va. Bolster-standard for wagons	489,895	Jan. 10	1386	360	62	301
Croasdale, Edgar, assignor to Electro-Dynamic Company, Philadelphia, Pa. Speed-varying device	490,104	Jan. 17	1768	460	62	393
Crocker-Wheeler Electric Company. (See Dunn, Gano S., assignor.)						
Crockett, Charles H., and C. C. Allen, Boston, Mass. Electric connector and cut-out	493,754	Mar. 21	1580	404	62	1700
Crockett, Charles H., and C. C. Allen, Boston, Mass. Electric cut-out	493,755	Mar. 21	1592	405	62	1700
Crockett, Robert. (See Tiffany, John N., assignor.)						
Crompton, George, Cranston, R. I. Doctor-blade for fabric-printing machines	491,240	Feb. 7	290	72	62	804
Crompton Loom Works. (See Wyman, Horace, assignor.)						
Crompton Loom Works. (See Wyman and Clark, assignors.)						
Crook, James E., and J. J. Davis, Lincoln, Nebr. Lawn-mower	491,039	Jan. 31	3319	846	62	725
Crook, John W., Columbus, Ohio. Ticket-holding device	489,069	Jan. 3	132	36	62	33
Crooke, John J., New York, N. Y. Separating metals	491,084	Feb. 7	35	.....	62	755
Crooks, William, assignor to Rembert Roller Compress Company, Galveston, Tex. Flue for cotton-condensers	490,271	Jan. 24	2059	538	62	461
Crosby, James H., Somerville, Mass., assignor to Gamewell Fire Alarm Telegraph Company, New York, N. Y. Electro-steam-valve attachment	489,464	Jan. 10	753	199	62	174
Cross, Anson K., Boston, Mass. Testing and correcting free-hand drawing	491,160	Feb. 7	160	41	62	779
Cross, Isaac T., assignor of one-half to V. F. Thomas, Watertown, N. Y. Extension-ladder	494,270	Mar. 28	2449	617	62	1876
Cross, Liberty, assignor of one-half to E. E. Hinkson, Poynette, Wis. Wire-stretcher	493,686	Mar. 21	1471	375	62	1676
Crossley, Arthur W., *et al.* (See Farnham, Charles H., assignor.)						
Crossley, Atkinson, Pontypool, and J. W. Jones, Whalley Range, England. Apparatus for producing ferroferric and ferric oxides	491,085	Feb. 7	36	9, 10	62	755
Crossley, Azro T., Duluth, Minn. Advertising device for glass vessels	489,555	Jan. 10	899	231	62	201
Crossley, Harry A., Cleveland, Ohio. Brake for street-cars	489,465	Jan. 10	755	200	62	174
Crothers, W. D., *et al.* (See James, Will S., assignor.)						
Crowder, Albert B., St. Louis, Mo. Smokeless boiler-furnace	490,544	Jan. 24	2493	643	62	548
Crowell, John P. (See Moon, Hiram, assignor.) (Reissue.)						
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Inking mechanism for printing-machines	492,759	Feb. 28	2702	671	62	1335
Crowell, Luther C., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Folding mechanism	492,760	Feb. 28	2705	672, 673	62	1336
Crowley, George G., assignor to Johnston Harvester Company, Batavia, N. Y. Disk harrow	489,146	Jan. 3	251	70	62	58
Crowley, George H., Youngstown, Ohio. Car-coupling	488,987	Jan. 3	17	5	62	6
Crown Electric Manufacturing Company. (See Foster, George C. H., assignor.)						
Crown Manufacturing Company. (See Mead, Edwin D., assignor.)						
Cruickshank, Arthur B., San Francisco, Cal., assignor of one-half to Kaupfe Brothers, New York, N. Y. Vaginal syringe	493,208	Mar. 7	674	172	62	1490
Crum, Samuel. (See Currier, Heap, and Crum.)						
Crump, Walter H., *et al.* (See Williams, Samuel, assignor.)						
Crump, William E., Sealy, Tex. Clothes-pin	494,414	Mar. 28	2682	673	62	1919
Cryder, Peter E., Pittsburg, Pa. Safety-gate for elevators	493,229	Mar. 7	710	182	62	1498
Culbreath, Walter W., Sellers, assignor of one-half to C. S. McCall, Bennettsville, S. C. Car-coupling	493,072	Mar. 7	464	117	62	1451
Cullen, Richard H. (See Sarsfield, Michael J., assignor.)						
Cullis, John M., *et al.* (See Ellis, John T., assignor.)						
Culver, Frank S., Washington, D. C., assignor of two-thirds to C. H. Hoffman, Baltimore, Md., and N. H. Culver, Detroit, Mich. Fireproofing composition for wall-coverings	493,152	Mar. 7	591	148	62	1475
Culver, George A. and J. P., and W. D. Otis, Blue Springs, Nebr. Purifier and separator	493,756	Mar. 21	1593	405	62	1700
Culver, John P. (See Culver and Otis.)						
Culver, Newton H., *et al.* (See Culver, Frank S., assignor.)						
Culver, William P., Detroit, Mich. Coat-collar supporter	491,337	Feb. 7	460	119	62	835
Cumfer, Harry A., Mishawaka, Ind. Revolving die-head	494,415	Mar. 28	2683	673	62	1919
Cummer, George A. (See Williams and Cummer.)						
Cummer, Robert J. (See Williams and Cummer, assignors.)						
Cumming, James G., Edinburgh, Scotland. Coin-freed machine	493,821	Mar. 21	1698	432	62	1720
Cummings, Henry H., Malden, and P. A. Coupal, Boston, assignors to S. Moore, trustee, Newton, Mass. Pegging machine	493,910	Mar. 21	1829	466, 467, 468	62	1745
Cummings, John W., Gold Hill, Nev. Electric belt	490,948	Jan. 31	3165	811	62	694
Cummins, Theodore, Dover, assignor of one-half to J. C. Van Horn, Marksborough, N. J. Bicycle attachment	491,040	Jan. 31	3321	847	62	725
Cunningham, Alonzo, *et al.* (See Preston, Leonard Z., assignor.)						
Cunningham, Martin J., assignor of one-half to A. F. Leonhardt, Springfield, Mo. Vegetable-cutter	494,416	Mar. 28	2684	673, 674	62	1920
Cunningham, James, Dushore, Pa. Harness-tool	491,086	Feb. 7	38	10	62	755
Cupler, John A., Kendall Creek, Pa. Necktie-fastener	490,138	Jan. 17	1829	478	62	406
Cuplin, Pascal P., West Bend, Iowa. Grand stand	491,087	Feb. 7	39	10	62	755
Curley, Joseph H., *et al.* (See Fay, Alphens, assignor.)						
Currie, James A., Springfield, Ohio. Street-car motor	492,274	Feb. 21	1930	482	62	1167
Currier, Edward, assignor of one-half to A. Barré, Fall River, Mass. Railway-gate	493,577	Mar. 14	1294	330, 331	62	1627
Currier, Jacob B., Lowell, Mass., assignor to Currier Telephone Bell Company, of Massachusetts. Electrical signaling apparatus	491,531	Feb. 14	771	196	62	917
Currier, Jacob B., and D. H. Rice, Lowell, Mass. Electric governor for signaling-circuits	491,532	Feb. 14	772	196	62	917
Currier, John, and F. Ellis, Amesbury, Mass. Carriage	492,461	Feb. 28	2228	557	62	1240
Currier, John H., Jr., W. S. Heap, and S. Crum, Garnett, Kans. Latch to prevent sagging.	**489,220**	**Jan. 3**	**369**	**102**	**62**	**83**

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Currier Telephone Bell Company. (See Currier, Jacob B., assignor.)						
Curtin, John, Elk Falls, Kans. Horseshoe	494,250	Mar. 28	2415	609	62	1869
Curtis, Ashley B., *et al.* (See Curtis, Frederic A., assignor.)						
Curtis, Frederic A., assignor of two-thirds to P. J. Connell, S. O'Day, J. D. Sueridan, F. X. Vevia, Muskegon, Mich., and A. B. Curtis, Iron River, Wis. Automatic railway-gate	491,472	Feb. 7	677	170	62	878
Curtis, John D., Worcester, Mass. Manufacture of barbed wire	491,304	Feb. 7	405	104	62	824
Curtis, John D., Worcester, Mass. Barbed wire	494,325	Mar. 28	2530	637	62	1892
Curtis, Jonn D., Worcester, Mass. Barbed wire	494,326	Mar. 28	2532	638	62	1892
Curtis, Ruby Z., Minneapolis, Minn. Clothes-drier	491,987	Feb. 21	1484	370	62	1075
Cusack, Caristopher, *et al.* (See Thomas, Henry O., assignor.)						
Cusack, Michael, *et al.* (See Taylor, Alfred, assignor.)						
Cushing, Alfred D., and A. Mitchell, Wheeling, W. Va., assignors to Postal Improvement Company, Norristown, Pa. Letter-box	491,533	Feb. 14	774	197	62	917
Cushing, Alfred D., and A. Mitchell, Wheeling, W. Va., assignors to Postal Improvement Company, Norristown, Pa. House-door letter-box	491,534	Feb. 14	775	197, 198	62	918
Cushman, Charles A. (See Guthrie, James F., Jr., assignor.)						
Cushman, George F. (See Parker, Cushman, and Fairbanks.)						
Cuthbertson, James W., Bothwell, assignor to A. J. Green, Essex, Canada. Tire-tightener	494,507	Mar. 28	2826	709	62	1946
Cutten, Elisha B., New York, N. Y. Preparing liquid chlorine	491,699	Feb. 14	1039	263	62	973
Cutten, Elisha B., New York, N. Y. Electrolytically producing soda and chlorine	491,700	Feb. 14	1041	263	62	973
Cutten, Elisha B., New York, N. Y. Electrolytically producing potassium chlorate	491,701	Feb. 14	1044	.....	62	974
Cutting, George H., Worcester, Mass. Implement for dismantling builders' stagings, &c	494,417	Mar. 28	2686	674	62	1920
Cutting, Walter P. (See Hodge, Harmon S., assignor.)						
Cyr, Félix and J. W., Aurora, Ill. Car-brake adjuster	491,535	Feb. 14	776	198	62	918
Cyr, Joseph W. (See Cyr, Félix and J. W.)						
D'Auria, Luigi, Philadelphia, Pa. Non-rotative pumping-engine	493,153	Mar. 7	592	149	62	1475
D'Entremont, John B. J., East Pubnico, Canada. Trawl-roller	490,139	Jan. 17	1829	478	62	406
Daemicke, Paul J. (See Tobin, John, assignor.)						
Dages, John, Navarre, Ohio. Horse-power	491,267	Feb. 7	325	83	62	811
Dahl, Magnus. (See Low and Dahl.)						
Dahlman, Henry, Cambridge, Minn. Capo tasto	489,525	Jan. 10	855	223	62	194
Dale, Charles H., New York, N. Y. Car-coupling	494,125	Mar. 28	2219	565	62	1834
Dale & Davis. (See Smith, William, assignor.)						
Dalisch, Oscar, Neisse, Germany. Velocipede	488,988	Jan. 3	20	5	62	7
Dallas, Alexander. (See Poor, Messenger, and Dallas.)						
Dalton, Daniel F., Waterbury, assignor to Hammond Buckle Company, Rockville, Conn. Shoe-buckle	494,464	Mar. 28	2755	691	62	1932
Daly, James W. (See Abel and Daly.)						
Dalyason, Louis N. (See Henry and Dalyason.)						
Daman, Oscar, assignor to Northwestern Stove Works, Minneapolis, Minn. Chill-core for molding sockets for stoves	491,911	Mar. 21	1838	468	62	1747
Dambach, Edward, Evans City, Pa. Guide-strip for inside blinds	489,937	Jan. 17	1486	388	62	336
Dameron, John H., Ruffin, N. C. Churn-motor	493,822	Mar. 21	1700	433	62	1720
Danforth, Charles O. (See Wallin, Joseph, assignor.)						
Daniel Pratt Gin Company. (See Beckwith, William G., assignor.)						
Daniels, Addison L. (See Jackson and Daniels.)						
Daniels, Carol T., Naperville, Ill. Check-register	493,985	Mar. 21	1977	504	62	1773
Daniels, Cornelius F., Macon, Ga. Armature for electric motors or dynamos	489,070	Jan. 3	134	36, 37	62	33
Daniels, Cornelius F., Macon, Ga. Field-magnet for electric motors or dynamos	489,071	Jan. 3	136	37, 38	62	33
Dansereau, Pierre, Montreal, Canada. Vehicle-axle box	492,146	Feb. 21	1733	432	62	1126
Dansereau, Pierre, Montreal, Canada. Ball-bearing	494,190	Mar. 28	2321	587	62	1853
Darby, James B., Batesville, Miss. Adjustable double plow	491,675	Feb. 14	1000	252	62	964
Darling, D. H. (See Harrington, George W., assignor.)						
Darragh, Albert C., Allegheny, Pa. Oil-filter	493,073	Mar. 7	465	117	62	1451
Dasher, Hiram D., Middletown, assignor of one-half to S. P. Fowler, Jenkintown, Pa. Railway-tie	491,041	Jan. 31	3324	848	62	725
Dandetean, Louis M. R., Vannes, France. Magazine-gun	491,772	Feb. 14	1155	289, 290	62	995
Daugherty, Le Roy, Muncie, Ind. Butter-pail	491,406	Feb. 7	574	144	62	858
Daus, Felix F., New York, N. Y. Duplicating apparatus	493,757	Mar. 21	1596	406	62	1701
Davey, Charles E., Detroit, Mich. Flue-scraper	493,235	Mar. 7	723	185	62	1501
David, Isaac, Harvard, Nebr. Car-coupling	491,924	Feb. 14	1389	347	62	1041
Davids, E. M. Chisholm. (See Davids, John B., assignor.)						
Davids, John B., assignor to E. M. C. Davids, North Dartmouth, Mass. Game-board	489,851	Jan. 10	1324	345	62	290
Davids, John B., assignor to E. M. C. Davids, North Dartmouth, Mass. Game-board	489,852	Jan. 10	1325	345	62	290
Davids, John B., assignor to E. M. C. Davids, North Dartmouth, Mass. Game-board	489,853	Jan. 10	1325	345	62	290
Davids, John B., assignor to E. M. C. Davids, North Dartmouth, Mass. Game apparatus	489,854	Jan. 10	1326	346	62	290
Davids, John B., assignor to E. M. C. Davids, North Dartmouth, Mass. Game apparatus	489,855	Jan. 10	1327	346	62	291
Davids, John B., assignor to E. M. C. Davids, North Dartmouth, Mass. Game apparatus	489,856	Jan. 10	1327	346	62	291
Davids, John B., assignor to E. M. C. Davids, North Dartmouth, Mass. Game apparatus	489,857	Jan. 10	1328	346	62	291
Davids Machine Works. (See Balzer, Stephen M., assignor.)						
Davidsohn, Joseph. (See Weber and Hampel, assignors.)						
Davidson, Alexander, Bridgeport, Conn., assignor to Yost Writing Machine Company, New York, N. Y. Type-writing machine	493,252	Mar. 14	750	192, 193	62	1523
Davidson, David J., Brockway, Mich. Machine for re-dressing mill-rolls	489,412	Jan. 3	649	176	62	140
Davidson, James L., Pittsburg, Pa. Attachment for telephones	489,603	Jan. 10	965	251	62	216
Davidson, Joseph A., Polo, assignor to Aladdin Camera Company, Chicago, Ill. Photographic camera	494,097	Mar. 21	2154	550	62	1807
Davidson, Samuel C., Belfast, Ireland. Staple-driving tool	493,758	Mar. 21	1597	406	62	1701
Davidson Ventilating Fan Company. (See Davidson, William H. A., assignor.)						
Davidson, William H. A., assignor to Davidson Ventilating Fan Company, Boston, Mass. Ventilator	489,466	Jan. 10	756	200	62	174
Davies, Charles H., Chenoa, Ill. Ventilated hat	488,989	Jan. 3	21	6	62	7
Davis, Appleton R., Valley, Nebr. Cultivator	492,509	Feb. 28	2319	575	62	1257
Davis, Charles B., assignor to himself and D. A. Crandall, Savona, N. Y. Culvert	491,408	Feb. 7	576	144	62	858
Davis, Emry, New York, N. Y. Inkstand	491,640	Feb. 14	948	238	62	954
Davis, Ernest A., Albion, Mich. Cover for tobacco-pails	494,465	Mar. 28	2756	691	62	1932
Davis, Frank P. (See Babendreier and Davis.)						
Davis & Furber Machine Company. (See Wadlin, Melville T., assignor.)						
Davis, George A., Waltham, assignor to himself, C. H. Taylor, G. W. Williams, Boston, and W. B. Chase, Somerville, Mass. Machine for drying matrices	492,147	Feb. 21	1734	432	62	1126
Davis, George H. (See Piper and Davis.)						
Davis, George W., Hot Springs, Ark. Paint or varnish cup	491,257	Feb. 7	312	79	62	808

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Davis, Greenfield T. (See Gordon and Davis.)						
Davis, Isaac, Catasauqua, Pa. Sliding-door lock	489,221	Jan. 3	370	103	62	84
Davis, Joel, and R. M. Huntington, Denver, Colo. Electric-railway conduit and contact	493,618	Mar. 14	1362	345	62	1639
Davis, John H., Detroit, Mich. Electric battery	489,938	Jan. 17	1488	389	62	337
Davis, John J. (See Crook and Davis.)						
Davis, John T., assignor of one-half to C. J. Moffett, St. Louis, Mo. Combined type-writing machine and duplicator	494,060	Mar. 21	2089	533, 534	62	1794
Davis, John W., New York, N. Y. Kite	490,949	Jan. 31	3106	811	62	694
Davis, Leonard L., Springfield, Mass. Hack-saw	492,937	Mar. 7	262	66	62	1410
Davis, Levi, Jr., Alton, Ill. Car-coupling	492,275	Feb. 21	1932	492	62	1167
Davis, Theodore F., Marshalltown, Iowa. Fan	491,407	Feb. 7	575	144	62	858
Davis, W. P., *et al.* (See Smith, George, assignor.)						
Day, Florence M., assignor to Sawyer Spindle Company, Hopedale, Mass. Spindle	490,245	Jan. 17	2005	524	62	439
Day, George W., Haverhill, Mass., assignor to Boston Footwear Machine Company, of Maine. Making boots or shoes	491,278	Feb. 7	313	79	62	808
Day, Henry H., Newton, Mass. Safety device for elevators	493,759	Mar. 21	1598	406	62	1701
Day, Henry H., Newton, Mass. Safety elevator device	493,760	Mar. 21	1599	406	62	1702
Day, James P., Anniston, Ala. Method of and apparatus for dispensing liquids	494,061	Mar. 21	2096	535	62	1796
Day, William H. (See Eriksen and Day.)						
Dayton Autographic Register Company. (See Grimes and Harter, assignors.)						
Dayton Paper Novelty Company. (See Schmidt, Theodore F. W., assignor.)						
Dayton, William H., assignor to Excelsior Needle Company, Torrington, Conn. Wire-swaging machine	492,572	Feb. 28	2413	601	62	1279
Dayton, William H., assignor to Excelsior Needle Company, Torrington, Conn. Wire-swaging machine	492,573	Feb. 28	2414	602	62	1279
Dayton, William H., assignor to Excelsior Needle Company, Torrington, Conn. Machine for swaging rods	492,574	Feb. 28	2415	602	62	1279
Dayton, William H., assignor to Excelsior Needle Company, Torrington, Conn. Machine for swaging rods, &c	492,575	Feb. 28	2416	602, 603	62	1280
Dayton, William H., assignor to Excelsior Needle Company, Torrington, Conn. Machine for swaging wire, &c	492,576	Feb. 28	2419	603	62	1281
De Arden, Charles F., assignor of one-half to C. B. Parker, New York, N. Y. Device for operating gates to elevator-wells	494,126	Mar. 28	2220	565	62	1834
De Camp, Lee. (See Brown and De Camp.)						
De Celles, Joseph H. E., and G. W. Wells, assignors to American Optical Company, Southbridge, Mass. Eyeglasses	492,622	Feb. 28	2408	610	62	1295
De Grasse, George W. (See Einsele and De Grasse.)						
De La Porte, Julius A., Hannibal, Mo. Kitchen-table	494,191	Mar. 28	2221	588	62	1853
De Lisle, Thomas C. (See Gallinger and De Lisle.)						
De Lissa, Benjn, *et al.* (See Smith, Thomas, assignor.)						
De Long, Frank E., assignor to Richardson & De Long Brothers, Philadelphia, Pa. Garment-hook	492,741	Feb. 28	2673	663	62	1330
De Long, Frank E., assignor to Richardson & De Long Brothers, Philadelphia, Pa. Garment-hook	492,742	Feb. 28	2674	664	62	1330
De Long, Frank E., assignor to Richardson & De Long Brothers, Philadelphia, Pa. Garment-hook	492,743	Feb. 28	2675	664	62	1330
De Long, Frank E., assignor to Richardson & De Long Brothers, Philadelphia, Pa. Garment-hook	492,744	Feb. 28	2677	664, 665	62	1330
De Long, Frank E., assignor to Richardson & De Long Brothers, Philadelphia, Pa. Garment-hook	492,745	Feb. 28	2679	665	62	1331
De Long, Julius, Brooklyn, N. Y. Window-ventilator	491,088	Feb. 7	40	10	62	756
De Mayo, Louis A., New York, N. Y. Loading device	493,995	Mar. 21	1978	504	62	1773
De Witt, Alvin G., Detroit, Mich. Electric-lamp supporter	493,578	Mar. 14	1296	331	62	1627
De Witt, Emil F., Lansingburg, N. Y. Sand-box for street-cars	491,161	Feb. 7	161	41, 42	62	779
De Wolfe, Edward R. (See Gray, William A., assignor.)						
Deacon, Clifford B., *et al.* (See Dion, Charles J., assignor.)						
Deal, Josiah J., Canton, Ohio. Permutation-padlock	490,784	Jan. 31	2899	744	62	641
Dean, H. Elmer. (See Whitcomb, Alonzo L., assignor.)						
Dean, John H., Grand Rapids, Mich. Fruit-can wrench	492,714	Feb. 28	2636	653	62	1323
Dean, John R., Porter, Tex. Combination heel-sweep plow	492,462	Feb. 28	2230	558	62	1240
Dean, Lenard E., Vancouver, Canada. Crosscut-saw	493,687	Mar. 21	1472	375	62	1677
Dean, P. C. (See Wieland, Louis A., assignor.)						
Dean, William B., *et al.* (See Frey, Frank, assignor.)						
Dear, Barton H., Pueblo, Colo. Steam-boiler furnace	492,142	Feb. 21	1737	433	62	1126
Decker, Erskine, Cassopolis, Mich. Lens for cameras	494,128	Mar. 28	2222	566	62	1834
Decker, Gottfried W., Danforth, Ill. Ditching-machine	494,368	Mar. 28	2609	655	62	1906
Decker, John J., Livingston Manor, N. Y. Water-wheel	494,127	Mar. 28	2221	566	62	1834
Deconflé, Anatole E., Paris, France. Cigarette-machine	493,688	Mar. 21	1473	375, 376, 377, 378	62	1677
Decrow, William E., Boston, Mass. Signaling-telegraph	493,253	Mar. 14	753	193	62	1524
Deen, James M., Harlan, Iowa. Loom-shuttle	490,010	Jan. 17	1606	419	62	361
Deering, William. (See Storle, Ole O., assignor.)						
Degenhardt, Frederick E., Chicago, Ill. Steering device for vehicles	493,354	Mar. 14	917	235	62	1553
Delfer, Francis L., St. Patrick, La. Transferring-machine	494,129	Mar. 28	2224	566	62	1834
Delffs, Arnold, assignor of one-half to T. G. Parks, Bedford, Tenn. Barbed-wire fencing	490,187	Jan. 17	1902	495	62	490
Deming, William B., and H. C. Fuller, Bentonville, Ark. Paint-pot. (Reissue)	11,302	Jan. 31	3353	856	62	732
Dempsey, Arthur C., Rochester, N. Y. Spring-holder for druggists' labels	493,154	Mar. 7	595	149	62	1476
Dempsey, Michael E., Cincinnati, Ohio. Nut-lock	492,715	Feb. 28	2637	653	62	1323
Demuth, William, New York, N. Y. Tobacco-pipe	491,409	Feb. 7	576	145	62	858
Denhard, William, Jr., Louisville, Ky. Trunk	489,732	Jan. 10	1146	296, 297	62	253
Denne, Eli, Newmarket, assignor of one-half to F. A. Denne, Stayner, Canada. Cut-off for gas-burners	491,042	Jan. 31	3325	848	62	726
Denne, Frederick A. (See Denne, Eli, assignor.)						
Dennick, Lyman L., Los Angeles, Cal. Index	494,466	Mar. 28	2756	691	62	1932
Denny, Christopher C., *et al.* (See Regester, Thomas L., assignor.)						
Dénoruz, Emile, assignor to C. Weber, Paris, France. Metallization	491,799	Feb. 14	1199	.....	62	1003
Densmore, Amos, New York, N. Y. Type-writing machine	493,254	Mar. 14	756	193	62	1525
Densmore, Amos, New York, N. Y. Type-writing machine	493,255	Mar. 14	757	193	62	1525
Denton, Leml B., Grand Rapids, Mich. Windmill	492,916	Mar. 7	235	59	62	1405
Derrick, William E., assignor to C. E. Peabody, C. W. and S. Parks, Lansingburg, N. Y. Thill-support	493,487	Mar. 14	1129	289	62	1594

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Derrough, James S., Walnut Hill, La. Car-coupling	494,327	Mar. 28	2533	638	62	1892
Desant Electric Company. (See Desant, William F. Z., assignor.)						
Desant, William F. Z., assignor to Desant Electric Company, New York, N. Y. Railway-signal	489,629	Jan. 10	997	200	62	222
Desant, William F. Z., assignor to Desant Electric Company, New York, N. Y. Cash register and indicator	492,761	Feb. 28	2709	{673 674	62	1337
Desha, Abram S., Nolton, Ark. Car-door	492,276	Feb. 21	1934	4-3	62	1168
Desha, Abram S., Nolton, Ark. Car	492,277	Feb. 21	1935	483	62	1168
Deslauriers, Philip A. (See Pruden, Clarence D., assignor.)						
Deslauriers, Philip A., St. Paul, Minn. Means for securing sheet-metal fronts to the walls of buildings	489,467	Jan. 10	757	200	62	174
Desper, Henry A. (See McCartney, John F., assignor.)						
Detrick, Edward I., Susanville, Cal. Measuring-vessel	492,957	Mar. 7	293	74	62	1417
Detroit Combination Tool Company. (See Reinhold, Alexander and F. J., assignors.)						
Detroit Electrical Works. (See Rae, Frank B., assignor.)						
Dettra, Benjamin F., Reading, assignor to W. W. Lesher, Mosserville, Pa. Window	491,043	Jan. 31	3326	848	62	726
Dever, Daniel. (See Wilkins, Alfred T., assignor.)						
Devey, Mathew H., Chester, Pa. Insulating compound	490,641	Jan. 31	2666	.....	62	597
Devlin, Peter, Baltimore, Md. Shutter-regulator	489,371	Jan. 3	593	160	62	128
Devoe, Alexander. (See Havell, Henry, assignor.)						
Dewé, John, London, England. Photograph-exhibitor	492,149	Feb. 21	1738	433	62	1127
Dewey Electric Heating Company. (See Dewey, Mark W., assignor.)						
Dewey, Frederic P., Washington, D. C. Treating mixtures containing sulphides	490,068	Jan. 17	1710	.....	62	381
Dewey, Mark W., assignor, by mesne assignments, to Dewey Electric Heating Company, Syracuse, N. Y. Electric heating apparatus	494,291	Mar. 28	2482	626	62	1881
Dexter, Avelyn I., Whitewater, Wis. Refrigerator-building	493,256	Mar. 14	758	194	62	1525
Dibble, Fernando J., Peabody, Mass. Electric meter	490,011	Jan. 17	1607	{419 420	62	361
Dibble, Fernando J., Peabody, Mass. Electric telemeter-transmitter	490,012	Jan. 17	1612	{421 422	62	362
Dibble, Fernando J., Peabody, Mass. Electric telemeter-transmitter	490,013	Jan. 17	1618	422	62	363
Dibble, Fernando J., Peabody, Mass. Electric telemeter system	490,014	Jan. 17	1621	{423 424	62	363
Dibble, Ira H. (See Livengood, Winfield S., assignor.)						
Dickenson, John H., Bayard, Kans. Gate	490,015	Jan. 17	1628	424	62	364
Dickey, Edmund, Fremont, Ohio. Force-feed ruling-pen	490,340	Jan. 24	2171	566	62	485
Dickey, Mary A. (See Russell, John Q. A., assignor.)						
Dickinson, Alfred, Darlaston, England. Electric-railway trolley	491,988	Feb. 21	1485	{370 371	62	1075
Dickson, Clarence A. (See Rosenblatt, Dickson, and Owen.)						
Dickson, Rockwell W. (See Lake and Dickson.)						
Diebel, William, Philadelphia, Pa., assignor to F. Buckhalter and V. C. Driesbach. Needle-picking device for circular-knitting machines	491,089	Feb. 7	41	11	62	756
Diebel, William, Philadelphia, Pa., assignor to F. Buckhalter and V. Driesbach. Knitting-machine	492,539	Feb. 28	2364	587	62	1268
Diehl, Jacob. (See Lehr and Diehl.)						
Diehl, Theodor, assignor to Actien-Gesellschaft für Anilin Fabrikation, Berlin, Germany. Blue-black azo dye	491,410	Feb. 7	577	.....	62	858
Diemer, Emil, St. Louis, Mo. Frame for artificial flowers	490,642	Jan. 31	2667	687	62	597
Dienelt & Eisenhardt. (See Eisenhardt, George F., assignor.)						
Dietrich, Harry A. R., South Bethlehem, Pa. Boiler	492,664	Feb. 28	2565	635	62	1308
Diez, George, Santa Clara, Cal. Pencil-sharpener	490,272	Jan. 24	2061	539	62	462
Diez, George, Santa Clara, Cal. Pencil-sharpener	491,536	Feb. 14	778	199	62	918
Dill, Thomas C., assignor to T. C. Dill Machine Company, Philadelphia, Pa. Spool-support for mules	490,950	Jan. 31	3167	811	62	694
Dillingham, Edward, Chelsea, Mass. Tea-strainer	489,468	Jan. 10	759	201	62	175
Dillman, L. C., *et al.* (See Blair, John, assignor.)						
Dilts, Charles C., Plainfield, N. J. Jar-fastener	492,391	Feb. 28	2116	528	62	1217
Dimlty, Engelhard, Clay Centre, Kans. Cultivator for listed corn	494,130	Mar. 28	2225	567	62	1835
Dimock, Lucius, Leeds, Mass. Whiffletree-guard	493,761	Mar. 21	1601	407	62	1702
Dingee, William W., Racine, Wis. Thrashing-cylinder	493,155	Mar. 7	597	156	62	1476
Dinsmore, Robert, assignor of one-half to A. Greenstein, Weston, W. Va. Magazine-gun	492,864	Mar. 7	143	35, 36	62	1387
Dion, Charles J., assignor of one-half to C. L. Caldwell, C. B. Deacon, and E. L. Mabon, St. Paul, Minn. Starching-machine	489,556	Jan. 10	891	233	62	201
Dippold, Georg, Brooklyn, N. Y. Safety attachment for vehicle-thills	491,838	Feb. 14	1252	312	62	1015
Diabrow, Reuben B., assignor of one-half to D. W. Payne, Minneapolis, Minn. Combined churn and butter-worker	490,105	Jan. 17	1768	{460 461	62	393
Dishart, David. (See Thompson and Dishart.)						
Dister, Joseph, assignor of one-half to O. Soehner, Dayton, Ohio. Patty-pan and holder	489,372	Jan. 3	594	160	62	128
Dittmann, Gustav. (See Nelson, Nels, assignor.)						
Dixon, Ezra, Bristol, R. I. Saddle for top rolls of spinning-machines	493,912	Mar. 21	1839	469	62	1747
Dixon, George W., Lynn, assignor to American Shoe Tip Company, Boston, Mass. Slip-sole for boots or shoes	491,731	Feb. 14	1088	275	62	982
Dixon, George W., Lynn, assignor to American Shoe Tip Company, Boston, Mass. Making imitation soles	491,732	Feb. 14	1089	275	62	982
Dixon, Henry. (See Boyer and Dixon.)						
Dixon, James J., *et al.* (See Pugh, Cortez V., assignor.)						
Dixson, Simon H., Cleghorn, Iowa. Apparatus for preventing railways from being blockaded with snow	490,545	Jan. 24	2406	643	62	548
Dockstader, James, Syracuse, N. Y. Cue-rack	489,373	Jan. 3	595	160	62	128
Docter, Adolph. (See Baasford, Isaac F., assignor.)						
Dodd, John, Oldham, England. Fluted or grooved drawing-roll	494,271	Mar. 28	2450	618	62	1876
Dodds, Alexander, Grand Rapids, Mich. Mitering-knife	491,773	Feb. 14	1159	280	62	995
Dodds, James H., Eau Claire, Wis. Setting device for sawmill-carriages	491,090	Feb. 7	42	12	62	756
Dodds, Matthew J., New Brunswick, N. J. Water-tube steam-boiler	489,374	Jan. 3	596	161	62	128
Dodge, Edward, Longview, Tex. Lumber-truck	494,523	Mar. 28	2856	714	62	1951
Dodge, James M., assignor to Link Belt Engineering Company, Philadelphia, Pa. Gate for conveyer-troughs	489,289	Jan. 3	472	131	62	103
Dodge, Walter S., Washington, D. C. Sawmill-carriage	493,546	Mar. 14	1229	314	62	1613
Dodge, Willis, assignor of one-half to J. H. Bubar, Blaine, Me. Bit	494,251	Mar. 28	2415	609	62	1869
Doerr & Reinhark. (See Probst, Adam, assignor.)						
Döhrer, John M., Bridgeport, Conn. Gas-burner	490,764	Jan. 31	2864	735	62	634
Doig, William S., Brooklyn, N. Y. Box-nailing machine	492,086	Feb. 21	1630	{405 406	62	1105

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Dolbey, Edward N., Philadelphia, Pa. Refrigerator	489,290	Jan. 3	472	131	62	103
Dolan, James, Geneseo, N. Y. Heel-calk	492,194	Feb. 21	1806	451	62	1141
Dom, Alexander, Mount Healthy, assignor to Globe Company, Cincinnati, Ohio. Clamp-file and manufacture of same	491,011	Jan. 31	3263	833	62	712
Dom, Alexander, Mount Healthy, assignor to Globe Company, Cincinnati, Ohio. Temporary binder for file-cases	491,473	Feb. 7	679	171	62	878
Donald, George, assignor to Arnold Print Works, North Adams, Mass. Printing colors with aniline-black	491,961	Feb. 14	1144	.....	62	1053
Donaldson Manufacturing Company. (See Atkinson, Henry C., assignor.)						
Donaldson, Richard A., Brooklyn, N. Y., assignor to W. F. Parker & Co., Oxford, Pa. Caramel-holder	489,858	Jan. 10	1328	347	62	291
Donaldson, William W., and R. Macrae, Baltimore, Md. Secondary-battery electrode	494,062	Mar. 21	2099	535	62	1796
Donally, Amalia M., New York, N. Y. Labeling-machine	491,989	Feb. 21	1486	371	62	1075
Donally, Amalia M., New York, N. Y., assignor, by mesne assignments, to Donally Manufacturing Company. Bottle-filling apparatus. (Reissue)	11,300	Jan. 17	2024	529	62	443
Donally Manufacturing Company. (See Donally, Amalia M., assignor.) (Reissue.)						
Donard, Eugene, Rouen, France. Apparatus for drying in vacuum	491,338	Feb. 7	461	119	62	836
Donathen, William B., Kansas City, Mo. Corn-popping apparatus	489,939	Jan. 17	1489	389	62	337
Donathen, William B., Kansas City, Mo. Liquid measurer and extractor	494,467	Mar. 28	2757	692	62	1932
Donecho, Isaac R. (See Rusing, Donecho, and Rusing.)						
Donegan, Daniel F., Los Angeles, Cal. Dumping-wagon	492,623	Feb. 28	2499	619	62	1295
Donkin, Samuel, Durham, England. Device for placing belts on pulleys	490,546	Jan. 24	2497	643	62	549
Donlevy, Thomas A., *et al.* (See Bolte, Frank H., assignor.)						
Donovan, John E., Cincinnati, Ohio. Vapor-stove	489,375	Jan. 3	597	161	62	129
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Screw-cutting machine	489,222	Jan. 3	371	103	62	84
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Automatic collapsible tap	489,223	Jan. 3	373	{103 104	62	84
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Tapping-machine	489,224	Jan. 3	375	104	62	85
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Tapping-machine	490,273	Jan. 24	2062	539	62	462
Doolittle, William W., assignor to Crane Company, Chicago, Ill. Separator for castings	490,274	Jan. 24	2064	{539 540	62	463
Doran, Edward F., Pullman, Ill. Sliding-door lock	489,291	Jan. 3	473	131	62	103
Dore, Herman R., Moultonville, N. H. Car-coupling	493,913	Mar. 21	1840	469	62	1747
Doremus, William T., Flatbush, N. Y. Blank check, draft, money-order, or similar instrument	490,951	Jan. 31	3169	812	62	694
Dorgan, Thomas, Carlton, and A. Bridges, South Yarra, Victoria. Puzzle	490,069	Jan. 17	1712	446	62	381
Doris, Thomas B. (See Baker and Doris.)						
Doris, Thomas B. and W. F., Providence, Ky. Back-band buckle	490,643	Jan. 31	2668	687	62	597
Doris, William F. (See Doris, Thomas B. and W. F.)						
Dorman, George E., Chicago, Ill. Multipolar-dynamo-electric-machine armature	491,990	Feb. 21	1488	372	62	1076
Dormitzer, Anna, New York, N. Y. Ornamental step-ladder	488,990	Jan. 3	22	6	62	7
Dornfeld, John F., Watertown, Wis., assignor to Saladin Pneumatic Malting Company, Chicago, Ill. Apparatus for moistening and attemperating air	494,292	Mar. 28	2485	626	62	1892
Dorrance, George W., St. Paul, Minn. Reversible gate for water-ways	489,557	Jan. 10	895	234	62	202
Dorsey, George T. (See Huston, William H., assignor.)						
Dosch, Peter, assignor to Fox Machine Company, Grand Rapids, Mich. Chucking-machine and gage-lathe	490,406	Jan. 24	2270	590	62	505
Doss, James P. (See Rice and Doss.)						
Doty, Ellsworth P., Weedsport, N. Y. Steam-cooker	492,195	Feb. 21	1806	451	62	1141
Doty, Milton W., Chicago, Ill. Turning-lathe	489,248	Jan. 3	414	{115 116	62	92
Doubleday, Harry M., Pittsburg, Pa. Electric-lighting system	489,526	Jan. 10	856	223	62	194
Douglas, J. Walter. (See Stevens, Henry A., assignor.)						
Douglas, William B., Phenix, R. I. Ball-bearing	492,958	Mar. 7	294	75	62	1417
Douglas, William M., Galveston, Tex., assignor of one-half to Bucyrus Steam Shovel and Dredge Company, Bucyrus, Ohio. Dredging apparatus	491,723	Feb. 14	1076	272	62	980
Douglass, Heman F., and A. G. Stouder, Troy, Ohio. Carriage-sunshade	494,369	Mar. 28	2610	655	62	1906
Douglass, William E. (See Havener, Frank O., assignor.)						
Douty, William H. (See Floyd and Douty.)						
Dover Stamping Company. (See Kirby, John L., assignor.)						
Dowald, Eugen, Elberfeld, Germany. Surface for skating-rinks	494,468	Mar. 28	2758	.....	62	1933
Dowell, Lawson H., Walton, assignor of one-half to D. R. Murchison, Athens, Tex. Wire stretcher and splicer	490,070	Jan. 17	1713	{446 447	62	381
Downes, William A., assignor to Penberthy Injector Company, Detroit, Mich. Lubricator	490,246	Jan. 17	2006	525	62	440
Downey, Thomas F., Detroit, Mich. Gas-meter	491,411	Feb. 7	578	{145 146	62	858
Dowse, William B. H., trustee. (See Mead, Albert G., assignor.)						
Doyle, Richard J., Owen Sound, Canada. Non-inflammable paint	490,547	Jan. 24	2498	.....	62	549
Doyle, Richard J., Owen Sound, Canada. Non-inflammable cement	490,548	Jan. 24	2498	.....	62	549
Doyle, Thomas, San Francisco, Cal. Rope-tread horseshoe	492,665	Feb. 28	2567	635	62	1308
Draher, John. (See Sheridan and Draher.)						
Drake, George H., Omaha, Nebr., assignor of two-thirds to A. M. Castle, Chicago, Ill., and W. J. Wickes, Saginaw, Mich. Supporting-lug	491,091	Feb. 7	44	12	62	757
Drake, George H., Omaha, Nebr., assignor of two-thirds to W. J. Wicks, Saginaw, Mich., and A. M. Castle, Chicago, Ill. Making supporting-brackets for boilers, &c.	494,370	Mar. 28	2612	656	62	1906
Draper, Eben S., assignor to Sawyer Spindle Company, Hopedale, Mass. Spinning-ring	491,962	Feb. 14	1445	359	62	1053
Draper, George O., Hopedale, Mass. Bicycle	490,844	Jan. 31	2983	764	62	659
Draper & Sons, George. (See Draper, William F., assignor.)						
Draper & Sons, George. (See Smith, Edward, assignor.)						
Draper, William F., assignor to G. Draper & Sons, Hopedale, Mass. Loom	491,044	Jan. 31	3328	849	62	736
Dreifuss, Herrmann. (See Baumgartner and Dreifuss.)						
Dreisbach, Stephen S., Catawissa, Pa. Head-rest	490,865	Jan. 31	3015	775	62	666
Dresdner, Isidor, Brooklyn, N. Y. Fur-plucking machine	493,017	Mar. 7	392	98	62	1436
Dresse, Henry, Cincinnati, Ohio. Turning-lathe	493,018	Mar. 7	393	98	62	1436
Drew, Ernest L. (See Merrithew, Levi A., assignor.)						
Drew, George H., assignor, by mesne assignments, to United States Postage Stamp Delivery Company, Boston, Mass. Combined demand-draft and advertising coupon	493,619	Mar. 14	1363	346	62	1639
Drew, James C., Arcadia, La. Motor for sewing-machines	489,121	Jan. 3	216	58	62	50
Drewsen, Viggo, assignor to himself and H. and C. Bache-Wüg, Christiania, Norway. Regaining sulphurous acid	492,196	Feb. 21	1807	451	62	1142
Dreyer, William, Cleveland, Ohio. Lock	491,991	Feb. 21	1489	372	62	1076
Dreyfus, Edward, *et al.* (See Brass, Robert, assignor.)						
Dreyfuss, Bernard, assignor to E. Dreyfuss, New York, N. Y. Cement	491,980	Feb. 7	348	.....	62	815

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Dreyfuss, Rosa. (See Dreyfuss, Bernard, assignor.)						
Driesbach, Victor, *et al.* (See Diebel, William, assignor.)						
Driesbach, Victor C., *et al.* (See Diebel, William, assignor.)						
Driggs, Louis L., Washington, D. C. Check-punch	493,547	Mar. 14	1230	315	62	1613
Driggs, William H., Washington, D. C. Mechanism for firing breech-loading ordnance	493,987	Mar. 21	1979	505	62	1773
Drill, Charles, and H. J. Schmitt, St. Louis, Mo.; said Schmitt assignor to said Drill. Elevated-railway system	490,549	Jan. 24	2499	643 / 644	62	549
Driscoll, James E., St. Paul, Minn. Bridle-bit	492,666	Feb. 28	2568	636	62	1308
Dromgold, Walker A. (See Reese, Hench, and Dromgold.)						
Dromgold, Walker A. (See Richey, Hench, and Dromgold.)						
Dronsfield, Joseph S., Oldham, England. Fillet-card mounting machine	492,716	Feb. 28	2637	653 / 654	62	1923
Drysdale, David, Cleveland, Ohio. Gas-heater	492,577	Feb. 28	2423	604	62	1281
Drysdale, Hugh, Cleveland, Ohio. Turret-lathe	493,019	Mar. 7	394	98, 99	62	1436
Du Bois-Reymond, Alard, Charlottenburg, assignor to Siemens & Halske, Berlin, Germany. Converter system for railways	493,914	Mar. 21	1841	469 / 470	62	1747
Dubiel, Julius, Waukegan, Ill. Manufacture of starch	493,689	Mar. 21	1478	379	62	1678
Dubois, Louis. (See Lacroix and Dubois.)						
Ducey, Patrick A. (See Tarrant, George, assignor.)						
Duffy, Joseph, Paterson, N. J. Duplex spindle	489,292	Jan. 3	474	131	62	103
Duggan, Philip J., assignor of one-half to P. Krumschied, Boston, Mass. Agraffe for pianos	491,877	Feb. 14	1320	326	62	1027
Dühkop, Fritz, New York, N. Y. Baker's oven	492,392	Feb. 28	2116	528	62	1217
Dulier, Edward E., London, England. Apparatus for removing impurities from smoke	490,550	Jan. 24	2502	644	62	550
Dumbauld, Levi, Hartford, Kans. Derrick	493,690	Mar. 21	1480	379	62	1678
Dunbar, Francis W. (See Pickernell and Dunbar.)						
Dunbar, Marcene B., Torrington, Conn. Extension-skate	490,872	Jan. 31	3025	778	62	668
Duncan & Co., J. (See Werner, Paul F., assignor.)						
Duncan, James E., Centralia, Wis., assignor of one-half to J. H. Welch, Minneapolis, Minn. Folding try-square	489,413	Jan. 3	650	176	62	140
Duncan, John R., Glen Cove, assignor of one-half to W. P. Rasco, Coleman, Tex. Quilting attachment for sewing-machines	489,156	Jan. 3	263	73	62	61
Dundon, John H. (See Boyle, Dundon, and Boyle.)						
Dundon, William, Leavenworth, Kans. Device for cleaning flues, drains, or pipes	492,393	Feb. 28	2117	528	62	1217
Dunham, Frank, *et al.* (See Toncey, Ferris D., assignor.)						
Dunham, James S., and E. D. Middlekauff, Stockton, Cal. Lemon-squeezer	490,802	Jan. 31	2925	751	62	646
Dunham, Oren. (See Schofield, Eugene H., assignor.)						
Dunham, William R., Troy, N. H. Tellurian	493,988	Mar. 21	1980	505	62	1774
Dunlap, Henry G., Chicago, Ill., assignor to Ford, Johnson & Co., Michigan City, Ind. Machine for splitting the ends of cane	489,225	Jan. 3	377	104	62	85
Dunn, Benjamin F., Kansas City, Mo. Light-varying attachment for lamps	490,644	Jan. 31	2668	687	62	598
Dunn, Dennis, assignor of one-half to T. Gorman, Mahanoy City, Pa. Air-brake for railway-cars	489,527	Jan. 10	857	223	62	194
Dunn, Gano S., assignor to Crocker-Wheeler Electric Company, New York, N. Y. Balanced armature for dynamo-electric machines or electric motors and balancing same	493,375	Mar. 14	955	246	62	1562
Duplex Printing Press Company. (See Cox, Joseph L., assignor.)						
Duplex Rotary Engine Company. (See Meyer, Klehl, and Grant, assignors.)						
Durand, Louis, New York, N. Y. Dough-kneader	493,074	Mar. 7	466	118	62	1451
Durant, Walter N., Milwaukee, Wis. Counting-register	491,537	Feb. 14	779	199	62	919
Durfee, Bradford K., *et al.* (See Hartley, Charles J., assignor.)						
Durgin, Henry C., Hartford, Conn. Revolving hand-fan	493,915	Mar. 21	1845	470	62	1748
Durham, Thomas C., Gates, Tenn. Harrow or cultivator	492,717	Feb. 28	2639	654	62	1923
Durr, Franklin, Pittsfield, Ill. Fence-wire stretcher	492,278	Feb. 21	1936	483	62	1168
Dürr, Walther, Munich, Germany. Device for measuring the density of gases	494,192	Mar. 28	2323	588	62	1853
Duryea, Charles E., Springfield, Mass. Pneumatic tire	493,488	Mar. 14	1130	289 / 290	62	1594
Duryea, Edwin G., assignor of one-half to C. M. Blydenburgh, Riverhead, N. Y. Carpenter's hammer	493,989	Mar. 21	1983	505	62	1774
Duse, William A., Stewartsville, Mo. Running-gear for wagons	490,803	Jan. 31	2926	751	62	647
Dutton, Samuel T., Worcester, England. Interlocking apparatus for railway signaling	489,940	Jan. 17	1492	390	62	337
Duval, Jennie P., Richmond, Mo. Lunch-box	490,341	Jan. 24	2172	566	62	486
Dwenger, Emil W. J. H., Greenwich, Conn. Ash-sifter	489,293	Jan. 3	476	132	62	104
Dye, George W., Washington, Iowa. Ditching and grading machine	492,087	Feb. 21	1632	406 / 407	62	1105
Dyer, Lucius, Millbridge, Me., assignor to Schott Brothers, Providence, R. I. Buckle	489,859	Jan. 10	1329	347	62	291
Dyke, Albion, assignor to J. K. Sullivan, Newport, R. I. Buckle	490,551	Jan. 24	2503	644	62	550
Dyke, Albion, assignor of one-half to J. K. Sullivan, Newport, R. I. Saddletree	490,552	Jan. 24	2504	645	62	550
Dyre, William E., assignor of one-half to E. S. York, Washington, D. C. Temporary binder	489,794	Jan. 10	1242	325 / 326	62	272
Dyson, John H., Belleville, Wis. Electric clock	491,339	Feb. 7	462	120	62	836
E. C. Atkins & Company. (See Krieger, Andrew, assignor.)						
E. & H. T. Anthony & Company. (See Harrison, Frederick J., assignor.)						
E. & H. T. Anthony & Company. (See Lewis, William H., assignor.)						
E. J. Brooks & Company. (See Brooks, Edward J., assignor.)						
E. & T. Fairbanks & Company. (See Sargent, Willis H., assignor.)						
E. W. Bliss Company. (See Leavitt, Frank M., assignor.)						
Eades, Charles L., Blue Ridge, Mo. Latch	490,645	Jan. 31	2671	688	62	598
Eagle Cotton Gin Company. (See Gammons, Ferdinand C., assignor.)						
Eames, George H., South Framingham, Mass. Chin-rest for violins	493,020	Mar. 7	396	99	62	1436
Earle, Henry C., New York, N. Y. Gas-heater	491,045	Jan. 31	3329	849	62	727
Earle, Salyer R., Belleville, Canada. Steam and air injector	493,257	Mar. 14	760	194	62	1525
East-Coast Manufacturing Company of New Jersey. (See Lee, George S., assignor.)						
Easton & Burnham. (See Bosworth, George P., assignor.)						
Eastwood, Benjamin. (See Birchall, Thomas, assignor.)						
Eastwood, Benjamin. (See Rink, Robert J., assignor.)						
Eastwood, James N., Kansas City, Mo. Vehicle-spring	492,788	Mar. 7	26	7	62	1364
Eaton, Aaron J., *et al.* (See Miller, Henry O., assignor.)						
Eaton, D. G., *et al.* (See Blair, John, assignor.)						
Eaton, James E., Utica, N. Y. Artificial board	491,092	Feb. 7	46	12	62	757
Eaton & Prince Company. (See Eaton, Thomas W., assignor.)						
Eaton, Thomas T., *et al.* (See Carpenter, James H., assignor.)						
Eaton, Thomas W., assignor to Eaton & Prince Company, Chicago, Ill. Elevator brake mechanism	490,275	Jan. 24	2066	540	62	463
Eaves, William, Sheffield, England. Tube for tubular boilers	493,376	Mar. 14	956	246	62	1562

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Eberle, Gottlieb F., Philadelphia, Pa. Thill-coupling	491,774	Feb. 14	1161	290	62	995
Eberhardt, Ulrich, Newark, N. J. Barrel-washer	493,762	Mar. 21	1602	407	62	1702
Eberhart, Frank, New York, N. Y. Baking-oven	492,938	Mar. 7	263	67	62	1411
Echo Telephone Company. (See Francis, John C., assignor.)						
Eckert, Amos, Gettysburg, Pa. Convertible furniture	490,952	Jan. 31	3171	812	62	695
Eclipse Wind Engine Company. (See Moore, Moses M., assignor.)						
Eddy, Arthur J., *et al.* (See North, Alfred C., assignor.)						
Eddy, Charles R., Springfield, Mo. Windlass for lowering or raising street electric lamps	491,412	Feb. 7	580	146	62	859
Eddy, Jerome, *et al.* (See North, Alfred C., assignor.)						
Edgar, William, Sanford, Fla. Molder's flask	494,469	Mar. 28	2759	692	62	1933
Edge, William, Brooklyn, N. Y. Hollow sheet-metal ware	492,463	Feb. 28	2231	558	62	1241
Edgerton, Charles W., Bristol, Conn. Hanging shelf	491,093	Feb. 7	47	12	62	757
Edgerton, Herbert O. (See Tirrell, Jacob P., assignor.)						
Edgerton, Nathan H., Philadelphia, Pa. Secondary battery	491,878	Feb. 14	1321	327	62	1027
Edison Electric Light Company. (See Edison, Thomas A., assignor.)						
Edison General Electric Company. (See Goold, Frederick D., assignor.)						
Edison General Electric Company. (See Hutchinson, Joseph, assignor.)						
Edison General Electric Company. (See Kolben, Emil, assignor.)						
Edison General Electric Company. (See Lozier, Robert T., assignor.)						
Edison General Electric Company. (See Metzger, Amandus, assignor.)						
Edison General Electric Company. (See Ott and Kennelly, assignors.)						
Edison General Electric Company. (See Robb, James T., assignor.)						
Edison, Thomas A., Menlo Park, N. J. Generating electricity	490,953	Jan. 31	3174	812	62	695
Edison, Thomas A., Llewellyn Park, N. J. Manufacture of carbon filaments for electric lamps	490,954	Jan. 31	3175	.....	62	696
Edison, Thomas A., Llewellyn Park, N. J. Cut-out for incandescent electric lamps	491,992	Feb. 21	1490	372	62	1076
Edison, Thomas A., Llewellyn Park, N. J. Stop device	491,993	Feb. 21	1491	372	62	1077
Edison, Thomas A., Llewellyn Park, N. J. Electric locomotive	493,425	Mar. 14	1020	263 / 264	62	1575
Edison, Thomas A., Llewellyn Park, N. J. Apparatus for exhibiting photographs of moving objects	493,426	Mar. 14	1024	265	62	1575
Edison, Thomas A., Llewellyn Park, N. J. Transmission of power	493,858	Mar. 21	1750	446	62	1731
Edison, Thomas A., Menlo Park, N. J., assignor to Edison Electric Light Company, New York, N. Y. Coating conductors for incandescent lamps	492,150	Feb. 21	1740	433	62	1127
Edison, Thomas A., Menlo Park, N. J., assignor to Western Union Telegraph Company, New York, N. Y. Speaking-telegraph	492,789	Mar. 7	27	7	62	1364
Edland, Joseph L., Brooklyn, assignor of one-half to J. M. Van Orden, New York, N. Y. Type-writing machine	489,072	Jan. 3	137	38, 39	62	34
Edmunds, John, assignor to Boston Manufacturing Company, Waltham, Mass. Pulley for feeding cloth	494,131	Mar. 28	2226	567	62	1835
Edmunds, William H., New York, N. Y. Insulator-clip	491,208	Feb. 7	238	60	62	793
Edson, Jacob, assignor to Edson Manufacturing Company, Boston, Mass. Street-sweeper	490,188	Jan. 17	1904	495 / 496	62	429
Edson Manufacturing Company. (See Edson, Jacob, assignor.)						
Edward P. Allis Company. (See Clark, Myron W., assignor.)						
Edward P. Allis Company. (See Gray, William D., assignor.)						
Edward P. Allis Company. (See Hinkley, Hanson, and Trout, assignors.)						
Edwards, Albert J., Athens, Ga. Car-coupling	489,376	Jan. 3	600	162	62	129
Edwards, Evan A., Toledo, Ohio. Oil-stove	492,718	Feb. 28	2640	654	62	1324
Edwards, George, Berkeley, Cal. Heating attachment for gas-burners	494,470	Mar. 28	2760	692	62	1933
Edwards, Gwillym, Edwardsville, and R. Blackladge, Larksville, Pa. Covering for pipes	493,489	Mar. 14	1133	290	62	1594
Edwards, Herbert S., Titusville, Pa. Machinery for pumping oil-wells	489,073	Jan. 3	138	39	62	34
Edwards, Thomas H., assignor of one-half to D. Klos, Latrobe, Cal. Vehicle-axle gage	490,804	Jan. 31	2927	751	62	647
Edwards, William F. (See Church, Frank S., assignor.)						
Edwards, William J., assignor to Union Manufacturing and Plating Company, Chicago, Ill. Velocipede-saddle	491,162	Feb. 7	163	42	62	779
Edwards, William S., Charleston, W. Va. Newspaper-file	489,074	Jan. 3	139	39	62	34
Eframson, Carl, Nicollet, Minn. Combined cane and seat	489,294	Jan. 3	476	132	62	104
Egerton, Charles C., Baltimore, assignor to J. G. Rouse, Bel Air, Md. Folding basket	492,379	Feb. 21	2091	522	62	1198
Egge, Frederick, assignor to Smith & Egge Manufacturing Company, Bridgeport, Conn. Padlock	490,428	Jan. 24	2305	598	62	510
Eggert, Carl L., Jr. (See Owen and Eggert.)						
Eglin, William, assignor of one-half to J. L. Hill, Philadelphia, Pa. Coin-controlled lock	493,209	Mar. 7	675	172 / 173	62	1491
Ehman, Benedickt, Brownwood, Tex. Composition of matter for removing grease, &c.	491,413	Feb. 7	582	.....	62	859
Ehrenberg, Robert, *et al.* (See Allan, John W., assignor.)						
Ehrlich, Leo, assignor to St. Louis Register Company, St. Louis, Mo. Street-car register	490,342	Jan. 24	2173	567	62	486
Eichberg, William N., Chicago, Ill. Insulator-bracket	492,394	Feb. 28	2118	528	62	1217
Eicher, Joseph. (See Faisant and Eicher.)						
Eicher, Thomas C., Scottdale, Pa. Valve for steam-pumps	490,140	Jan. 17	1830	478	62	406
Eicher, Thomas C., Scottdale, Pa. Steam-pump	490,141	Jan. 17	1833	479	62	407
Eicken, Richard de, Paris, France. Engine-governor	490,343	Jan. 24	2179	568	62	487
Eimers, William H. (See Hansen, Julius W., assignor.)						
Einsele, George N., Crete, Ill. Balance-staff protector for watches	490,708	Jan. 31	2776	713	62	618
Einsele, George N., and G. W. De Grasse, Crete, Ill. Automatic railway-switch	492,790	Mar. 7	28	7	62	1364
Eisenbrandt, Christian H., Baltimore, Md. Hammer for autoharps	490,407	Jan. 24	2273	590	62	505
Eisenhardt, George F., assignor to Dienelt & Eisenhardt, Philadelphia, Pa. Oil-cloth-printing machine	492,909	Mar. 7	206	50, 51	62	1399
Eisenhart, Henry W., assignor to A. B. Farquhar, York, Pa. Spring-tooth harrow	490,226	Jan. 17	1971	517	62	433
Eisenhart, Henry W., assignor to A. B. Farquhar, York, Pa. Holder for spring harrow-teeth	492,349	Feb. 21	2046	510	62	1190
Eklund, Gustaf, Davenport, Iowa. Car-coupling	491,474	Feb. 7	680	171	62	878
Elam, William E., and R. S. Thomas, Dallas, Tex. Cotton-gin brush	493,691	Mar. 21	1482	379	62	1679
Eldredge, Marcellus, *et al.* (See Hayes, John W., assignor.)						
Electric Brand Company. (See Fitzmaurice, James S., assignor.)						
Electric Gas Lighting Company. (See Lane, Thomas W., assignor.)						
Electric Pneumatic Transit Company. (See Clay, Henry, assignor.)						
Electric Storage Battery Company. (See Lloyd, Henry H., assignor.)						
Electro-Automatic Appliance Company. (See Taylor, Frederick D., assignor.)						
Electro-Dynamic Company. (See Crossdale, Edgar, assignor.)						
Electro-Dynamic Company of Philadelphia. (See Bedell, Charles H., assignor.)						
Elgin National Watch Company. (See Hunter, George E., assignor.)						
Elkins, Eugene W. (See Hathaway and Elkins.)						
Ellington, Alvey M., Almira, assignor of one-half to T. N. Westbrook, Atlanta, Tex. Plow-fender	489,941	Jan. 17	1494	390	62	338

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Ellington, George W., *et al.* (See Kernodle, James A., assignor.)						
Elliott, Abraham, Rochester, assignor of one-half to Excelsior Elevator Guard and Hatch Cover Company, New York, N. Y. Elevator-guard	490,785	Jan. 31	2900	745	62	641
Elliott, Abraham, Rochester, assignor to Excelsior Elevator Guard and Hatch Cover Company, New York, N. Y. Elevator-guard	492,350	Feb. 21	2047	510	62	1190
Elliott, Edwin R., Litchfield, Ill. Lamp-socket	491,268	Feb. 7	328	83	62	811
Elliott, Sterling, Newton, Mass. Pneumatic tire	489,295	Jan. 3	478	132	62	104
Elliott, Sterling, Newton, Mass. Shield or covering for drive-chains	491,750	Feb. 14	1113	281, 282	62	967
Elliott, Sterling, Newton, Mass. Sulky	494,113	Mar. 21	2190	560	62	1814
Elliott, Sterling, Newton, assignor to Hickory Wheel Company, Watertown, Mass. Support for velocipedes	491,475	Feb. 7	681	171	62	879
Elliott, Sterling, Newton, assignor to Hickory Wheel Company, Watertown, Mass. Ball-bearing	491,938	Feb. 14	1411	352	62	1046
Elliott, William S., and William S., Jr., Washington, D. C. Cutting apparatus for mowers and reapers	491,340	Feb. 7	464	120	62	836
Ellis, Charles B. (See Schanck and Ellis.)						
Ellis, Frederick. (See Currier and Ellis.)						
Ellis, John T., assignor to J. Ruse, Toronto, Canada, and J. M. Cullis, Buffalo, N. Y. Smoke-consumer	491,775	Feb. 14	1161	290	62	986
Ellis, Seeds H., Waverly, N. Y., assignor to G. S. and F. M. Scofield, Greenwich, Conn. Inflator for pneumatic tires	490,620	Jan. 24	2609	672	62	571
Ellis, Thomas, Rochester, Mass. Steering apparatus	493,692	Mar. 21	1483	380	62	1679
Ellithorpe, A. B., *et al.* (See Hultgren, William H., assignor.)						
Ellsworth, John J., Alma, Mich., assignor to E. Ash, Baltimore, Md. Cutter-bar for mowing and reaping machines	489,433	Jan. 3	689	185	62	148
Ellsworth, Marcus E., Hudson, Ohio. Apparatus for operating car-brakes	489,122	Jan. 3	218	58, 59	62	50
Ellsworth, Marcus E., Hudson, Ohio. Car-brake	491,094	Feb. 7	48	13	62	757
Ellsworth, Prosper H. (See Calhoun and Beam, assignors.)						
Ellsworth, Rufus G., Northcott, Kans. Farm-gate	489,469	Jan. 10	759	201	62	175
Elmore, Thomas M. (See Newman, Werden, and Stempel, assignors.)						
Elwood, Jonathan, Sanger, Cal. Furniture-caster	490,016	Jan. 17	1629	424	62	364
Ely, Caroline S., administratrix. (See Ely, Charles R.)						
Ely, Charles R., deceased; C. S. Ely, Champlain, N. Y., administratrix. Washing compound	493,693	Mar. 21	1484	.....	62	1679
Ely, Theodore J., Girard, Pa. Handle for crosscut-saws	493,821	Mar. 21	1701	433	62	1721
Embree, Pearson, West Chester, Pa. Butter-worker	492,325	Feb. 21	2004	499	62	1183
Emde, Edward C., Tacoma, Wash. Steadying device for portable engines	489,795	Jan. 10	1244	326	62	273
Emerson Electric Manufacturing Company. (See Meston, Alexander W., assignor.)						
Emery, Frank. V. (See Crittenden and Emery.)						
Emig, Clayton E., Baltimore, Md. System of water-supply	492,351	Feb. 21	2049	510, 511	62	1191
Emison, J. H., *et al.* (See Smith, George, assignor.)						
Emmitt, John V. (See Thorne, Lawrence C., assignor.)						
Enamel Insulator Company. (See Morford, Thomas E., assignor.)						
Enamel Insulator Company. (See Morford, Thomas E., assignor.) (Reissue.)						
Endemann, Hermann, Brooklyn, assignor to American Carbonate Company, New York, N. Y. Composition of matter for artificial stone	489,377	Jan. 3	601	.....	62	129
Endter, Charles F. (See Foos and Endter.)						
Engel, Godfrey, South Baltimore, Md. Sectional steam-boiler	490,741	Jan. 31	2826	726	62	627
English, Andrew J., Cincinnati, Ohio. Regenerative lamp	489,582	Jan. 10	933	241, 242	62	209
English, Arthur B. (See Grant and Richardson, assignors.)						
English, David B., Guerneville, Cal. Plow	490,276	Jan. 24	2067	540, 541	62	464
English, Edmund, Philadelphia, Pa. Oil-pump	493,694	Mar. 21	1495	380	62	1679
Engsberg, Karl, New York, N. Y. Fringe attachment for looms	491,305	Feb. 7	409	105	62	895
Ennis, John E., Duluth, Minn. Hoisting-machine	494,328	Mar. 28	2535	638, 639	62	1892
Eno, Joseph A., Newark, N. J. Removable cap for street-railway rails	491,538	Feb. 14	780	199	62	919
Ensign, Frank. H., Toledo, Ohio. Wheelbarrow-wheel	490,277	Jan. 24	2069	541	62	464
Ensminger, Emanuel and H. S., Bloomington, Ill. Sash-fastener	493,258	Mar. 14	761	194	62	1525
Ensminger, Henry S. (See Ensminger, Emanuel and H. S.)						
Enzinger, Lorenz A., Worms, Germany. Bottle-washing machine	491,414	Feb. 7	582	146, 147	62	859
Eppler, John, Philadelphia, Pa. Sausage-stuffing machine. (Reissue)	11,317	Mar. 28	2892	724	62	1957
Erb, Charles F., assignor to R. E. Dietz Company, New York, and Steam Gauge and Lantern Company, Syracuse, N. Y. Wire-fastening	493,916	Mar. 21	1846	470	62	1748
Erickson, Andrew M., Cork, Minn. Machine for welding plow-irons	489,670	Jan. 10	1047	273	62	223
Erickson, Olaf, Cannon Falls, Minn. Seeder	491,994	Feb. 21	1493	373	62	1077
Erickson, Paul E., Scandia, Kans. Hog-feeding house	493,355	Mar. 14	917	236	62	1553
Ericson, Lewis E., San Francisco, Cal. Bicycle-bell	491,012	Jan. 31	3264	834	62	712
Eriksen, Eduard A. O., and W. H. Day, Morgan, Tex. Hoe attachment for cultivators	491,676	Feb. 14	1001	252	62	965
Erkens, Charles R. H., Lakewood, N. Y. Thermometric indicator	489,075	Jan. 3	140	39	62	34
Ermold, Edward, New York, N. Y. Compressor for bottle-corking machines	492,540	Feb. 28	2-64	587	62	1268
Ernst, Gustav A., Camden, N. J. Pin for strings of musical instruments	493,917	Mar. 21	1847	471	62	1748
Erxler, Bertha M. (See Gedde, Charles and C. C. J., assignors.)						
Esser, Hermann, Hoboken, N. J. Dividers	494,132	Mar. 28	2227	567	62	1835
Esser, George B., assignor to Michigan Lubricator Company, Detroit, Mich. Lubricator	493,824	Mar. 21	1702	433	62	1721
Eslington, Heber B., St. Louis, Mo. Drawer for sewing-machine needles	489,558	Jan. 10	899	234, 235	62	203
Easley, Elisha L., Chicago, Ill. Wrench	491,415	Feb. 7	584	147	62	860
Estes, John W., Hale City, Mo. Combination-lock	493,259	Mar. 14	761	194, 195	62	1526
Eugen, Ole L. (See Wyman and Eugen.)						
Evans, Elmer O., Cincinnati, Ohio, assignor to Johnson Company, Johnstown, Pa. Joint-box for the joints of street-railways	492,885	Mar. 7	180	43, 44	62	1394
Evans, George F., Somerville, Mass. Mechanism for transmitting motion	493,859	Mar. 21	1752	446	62	1731
Evans, Henry C., Brooklyn, N. Y., assignor to Johnson Company, Johnstown, Pa. Railway-rail and chair	492,464	Feb. 28	2232	558, 559	62	1241
Evans, Louis C., Springfield, Ohio. Corn-planter	489,182	Jan. 3	304	84, 85	62	69
Evans, Nelson, and W. A. Henry, Ukiah, Cal. Wagon-jack	489,157	Jan. 3	265	73	62	61
Evans, Powell, Philadelphia, Pa. Electrically-operated railway-switch	493,918	Mar. 21	1848	471	62	1749

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Evans, Taylor, *et al.* (See Beaver, William G., assignor.)						
Evans, William. (See Riley and Evans.)						
Everitt, Charles, Oshkosh, Wis. Collar-fastener	489,796	Jan. 10	1245	326	62	273
Everts, Carl R., Brooklyn, N. Y. Razor	493,075	Mar. 7	466	118	62	1451
Ewart Manufacturing Company. (See Howe, Glenn G., assignor.)						
Ewig, John, Philadelphia, Pa. Moistening attachment for hot-air registers	489,296	Jan. 3	479	132	62	104
Ewing, Andrew, Asbury Park, N. J. Wagon-body	494,133	Mar. 28	2228	567	62	1835
Excelsior Elevator Guard and Hatch Cover Company. (See Elliott, Abraham, assignor.)						
Excelsior Horse Shoe Company. (See Bouchard, Eli, assignor.)						
Excelsior Needle Company. (See Dayton, William H., assignor.)						
Eyboulet, Jules F. (See Frenot and Eyboulet.)						
Eynon, William D., Philadelphia, Pa. Machine for rolling and bending metal into spiral forms	491,341	Feb. 7	467	120	62	837
Eyre, Clarence P., assignor to Nutriment Company, Chicago, Ill. Milk-coagulating product	491,416	Feb. 7	585	.....	62	860
Fabbrini, Egisto, assignor of one-half to W. Uffreduzi, New York, N. Y. Apparatus for cleaning Malaga grapes, &c	494,193	Mar. 28	2324	588, 589, 590	62	1853
Faber, Charles, Riverside, N. J. Ore-washer	489,797	Jan. 10	1246	326	62	273
Faber, Eberhard. (See Mnasinan, Oscar, assignor.)						
Facstl, Joseph W., Troy, Wis. Hoof-cleaner	490,474	Jan. 24	2380	616	62	525
Fahrney, Callo, Polo, Ill. Road-cart	490,278	Jan. 24	2070	541	62	464
Fahys Watch Case Company. (See Butts, Charles W., assignor.)						
Failor, Ezra K., assignor of one-half to G. R. Sanderson, Des Moines, Iowa. Scriptoscope for type-writing machines	490,189	Jan. 17	1905	496	62	420
Fairbank Canning Company. (See Gregg, Robert, assignor.)						
Fairbanks, Albert C., Somerville, Mass. Banjo	489,470	Jan. 10	760	201	62	175
Fairbanks, Henry. (See Parker, Cushman, and Fairbanks.)						
Fairfield, John M., assignor to Type Writing Machine Company, Hartford, Conn. Ink-roller supporting device for printing-machines	491,046	Jan. 31	3331	849	62	727
Faisant, John B., and J. Eicher, Paterson, N. J. Tension device for loom-shuttles	492,395	Feb. 28	2119	529	62	1218
Falasconi, Luigi, Fermignano, Italy. Brick or tile kiln	491,985	Feb. 21	1496	373	62	1078
Fales, Edward, Boston, Mass. Grate	494,371	Mar. 28	2613	656	62	1906
Fales, Edward, Boston, Mass. Grate	494,372	Mar. 28	2615	657	62	1906
Fales, Edward, Boston, Mass. Grate	494,373	Mar. 28	2616	657	62	1907
Falkenrath, Julius. (See Falkenrath, Rudolph and J.)						
Falkenrath, Rudolph and J., St. Louis, Mo. Whip-socket	493,579	Mar. 14	1297	331	62	1627
Falkner, Victor, Sydney, New South Wales. Corn-husker	490,429	Jan. 24	2305	598	62	510
Falvey, Cornelius, Sprague, Conn. Shedding mechanism for looms	490,106	Jan. 17	1771	461	62	394
Fancher, Alton H., Brooklyn, N. Y. Pencil-sharpener	491,996	Feb. 21	1498	374	62	1078
Fanning, James W., assignor of one-half to G. H. and W. H. Quinn, Chicago, Ill. Hoof-pad	489,896	Jan. 10	1387	360	62	302
Farbenfabriken, vormals Fr. Bayer & Co. (See Janssen, Hermann, assignor.)						
Farbenfabriken, vormals Fr. Bayer & Co. (See Ulrich, Moritz, assignor.) (Reissue.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Boedeker, Hermann, assignor.)						
Farbwerke, vormals Meister, Lucius & Brüning. (See Herrmann, Albert, assignor.)						
Farley, Osias A., *et al.* (See Regester, Thomas L., assignor.)						
Farmer, John N., *et al.* (See Vernon, William E., assignor.)						
Farnham, Charles H., assignor of one-half to A. W. Crossley, Boston, and C. F. Brown, Reading, Mass. Gage for counting tickets	491,800	Feb. 14	1200	300	62	1003
Farnsworth, George J. (See Scherer, John, assignor.)						
Farquhar, Arthur B. (See Eisenhart, Henry W., assignor.)						
Farquhar, Arthur B., York, Pa. Holder for harrow-teeth	492,326	Feb. 21	2006	499	62	1183
Farquharson, Henry C., New York, N. Y. Railway-car step	490,344	Jan. 24	2180	548	62	487
Farrar, Frank W., St. Paul, Minn. Combined hinge and hanger for storm-sashes	492,791	Mar. 7	31	8	62	1365
Farrar, Fred, Bangor, Me. Carrier for grapples	489,226	Jan. 3	379	105	62	85
Farrar, William S. (See Nevin and Farrar.)						
Farrel, John H., Camden, N. J., assignor to H. W. Maybaum, Philadelphia, Pa. Pocket-lamp. (Reissue)	11,299	Jan. 10	1414	366	62	306
Farrell, John, *et al.* (See Pugh, Cortez V., assignor.)						
Farrell, Thomas F., Paterson, N. J. Steam rock-drill	489,471	Jan. 10	761	201	62	175
Farwell, Fay O., assignor of one-half to Adams Company, Dubuque, Iowa. Stove-damper	493,548	Mar. 14	1234	316	62	1614
Fassett, Francis K., and G. Rein, assignors to St. Louis Register Company, St. Louis, Mo. Street-car register	490,345	Jan. 24	2182	568, 569	62	467
Fauber, William H., Chicago, assignor of one-half to H. W. Norton, Wellington, Ill. Velocipede	492,959	Mar. 7	295	75	62	1417
Faulds, James G., Glasgow, Scotland. Mason's tool	491,997	Feb. 21	1500	374	62	1078
Faulks, John. (See Sweetland and Faulks.)						
Faust, Jacob N., Rockford, Ill. Buckle	491,241	Feb. 7	291	73	62	804
Fauteux, Edouard, Montreal, Canada. Clothesline-pulley	491,998	Feb. 21	1501	374	62	1078
Fauvel, Charles J., London, England. Furnace for the treatment of refractory ores	493,076	Mar. 7	468	118	62	1452
Favre, Louis, Cormoret, Switzerland. Stem winding and setting watch	491,242	Feb. 7	292	73	62	804
Fawcett, Richard, assignor to W. H. Clark, Salem, Ohio. Thill-coupling	492,327	Feb. 21	2007	499	62	1183
Fawell, Joseph. (See Hemphill and Fawell.)						
Fay, Alphens, assignor to C. C. Reakirt, J. H. Curley, E. Geis, Cincinnati, Ohio, and J. Pronsnitzer, Nashville, Tenn. Running-gear for vehicles	492,762	Feb. 28	2715	674, 675	62	1338
Fay, Edgar E., Worcester, Mass. Machinery for making metal shoe-shank stiffeners	493,860	Mar. 21	1754	447	62	1731
Fay, Edmund S., *et al.* (See Hayes, John W., assignor.)						
Fay, Frank T., Boston, Mass. Oil-delivery appliance	488,991	Jan. 3	23	6, 7	62	7
Fay, Henry R., Boston, Mass. Engine-valve	494,194	Mar. 28	2325	590	62	1854
Fay, Rimmon C., assignor to Remington Arms Company, Ilion, N. Y. Vehicle-wheel	492,578	Feb. 28	2024	504	62	1261
Fay, Thornton E. W., Philadelphia, Pa. Car-coupling	491,839	Feb. 14	1253	312	62	1015
Fay, Thornton E. W., Philadelphia, Pa. Guide attachment for railway rolling-stock	494,418	Mar. 28	2687	674	62	1920
Fay, Waldo G., Columbus, Ohio. Combined coasting-pedal and lock for bicycles	491,342	Feb. 7	468	121	62	837
Fearn, William R., assignor of one-half to D. Jones, Camden, N. J. Pocket-lamp	491,963	Feb. 14	1446	360	62	1053
Featherstone, Henry F., West New Brighton, N. Y. Trousers stretcher and shaper	492,279	Feb. 21	1937	483	62	1168
Fechner, William R. (See Hecht and Fechner.)						
Feicker, Fredrick C., Northampton, Mass. Fork-guard	489,414	Jan. 3	651	176	62	140
Feicker, Fredrick C., assignor to Northampton Cutlery Company, Northampton, Mass. Fork-guard	490,430	Jan. 24	2306	599	62	511
Feiner, Adolph, Lexington, Ky. Trousers-hanger	490,646	Jan. 31	2672	688	62	598
Felbel, Jacob. (See Lykke, John, assignor.)						
Feldman, Michael, New York, N. Y. Suspenders	493,990	Mar. 21	1984	506	62	1774
Feldmeyer, Joseph, *et al.* (See Smith, Levi W., assignor.)						
Felix, Numa J., Brooklyn, N. Y. Receptacle for feeding animals	491,702	Feb. 14	1044	263	62	974
Felix, Numa J., Brooklyn, N. Y. Rake	491,703	Feb. 14	1045	264	62	974

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Felix, Numa J., Brooklyn, N. Y. Watchcase-spring	493,260	Mar. 14	764	195	62	1526
Fell, Amos C., Newville, Ind. Churn	491,677	Feb. 14	1003	253	62	965
Fellheimer, August. (See Fellheimer, Willey J., assignor.)						
Fellheimer, Willey J., assignor to A. Fellheimer, New York, N. Y. Signal-lantern	489,798	Jan. 10	1248	327	62	274
Fellner, Christian, Bockenheim, Germany. Revolving roasting-furnace	491,704	Feb. 14	1046	264	62	974
Fellowes, Clarence A., Three Rivers, Mich. Furniture-caster	492,624	Feb. 28	2501	630	62	1295
Felt, Vanderlyn H., assignor of one-half to C. D. Jones, Kendall, N. Y. Fire-escape	493,490	Mar. 14	1134	290	62	1595
Feltrow, Henry P., assignor of one-half to R. R. Brown, Columbus, Ohio. Conduit electric railway	493,695	Mar. 21	1485	380	62	1679
Fender, John M., assignor to Columbia Drill Company, Liberty, Ind. Spring device for grain-drills	492,465	Feb. 28	2233	559	62	1241
Fenzel, Casper, *et al.* (See Maxon, Oscar, assignor.)						
Fereday, John, Logan City, Utah Ter. Smoke-consumer	491,879	Feb. 14	1322	327	62	1023
Fereva, Antony, Nelson, Cal. Self-cleaning screen	493,886	Mar. 21	1790	457	62	1738
Ferguson, Orlando. (See Warren, Edward B., assignor.)						
Ferguson, George J., Greenville, Tex. Car-brake	493,491	Mar. 14	1135	291	62	1595
Ferguson, Georgiana, Mount Vernon, N. Y. Window-cleaner	490,431	Jan. 24	2308	599	62	511
Ferguson, Robert G., Lakewood, N. J. Dish-cleaner	493,261	Mar. 14	765	195	62	1526
Ferguson, Robert G., Lakewood, N. J., assignor of two-thirds to W. A. Williams, Scarborough, N. Y. Packing	490,107	Jan. 17	1773	462	62	394
Ferguson, William L., Philadelphia, Pa. Attachment for cycle-pedals	493,696	Mar. 21	1487	380	62	1680
Fernald, John, Wellington, Ill. Tile machine and cutter	493,077	Mar. 7	471	119	62	1452
Ferrall, Thomas R., assignor of two-thirds to A. and G. Krouse, Bridgeport, Conn. Hoisting-block	492,550	Feb. 28	2383	591	62	1273
Ferrand, Georges, Brussels, Belgium, and G. Göttl, Carlsbad, Austria-Hungary. Siphon for aerated liquids	490,742	Jan. 31	2828	726	62	628
Ferrell, Frank J., New York, N. Y., assignor to Ferrell Manufacturing Company, of New Jersey. Valve	490,227	Jan. 17	1972	517	62	433
Ferrell Manufacturing Company. (See Ferrell, Frank J., assignor.)						
Ferrm, Frank M. (See Miranda, Abraham R., assignor.)						
Fetner, George W., Columbia, S. C. Steam-packing	491,539	Feb. 14	781	199	62	919
Fetzer, James J., Columbiana, assignor to Herbrand Company, Fremont, Ohio. Fifth-wheel coupling for vehicles	492,719	Feb. 28	2642	654 655	62	1324
Field, Benjamin F., Elmira, N. Y. Combination-tool	491,840	Feb. 14	1255	312	62	1015
Field, Hardin G., Denver, Colo. Car-coupling	491,999	Feb. 21	1501	374 375	62	1078
Field, Horace T., Boston, Mass. Car-fender	494,594	Mar. 28	2856	715	62	1951
Field, John S., Chicago, Ill. Making ice-tongs	491,540	Feb. 14	783	200	62	919
Field, Linus S., Storm Lake, Iowa. Cash-register	490,647	Jan. 31	2673	668	62	598
Field, Stephen D., Yonkers, N. Y. Vibratory telegraphy	491,163	Feb. 7	166	43	62	789
Field, Walter D., Milburn, N. J. Compound of blown oils	491,880	Feb. 14	1324	.....	62	1028
Fields, Jacob F. (See Widmeyer and Fields.)						
Finch, Charles M., Toledo, Ohio. Combined washstand and table	492,530	Feb. 28	2347	582	62	1264
Finch, Ernest, Wellsville, Ohio. Chimney-top	491,678	Feb. 14	1004	253	62	965
Fincher, Francis W., Pentwater, Mich. Metallic calking-strip	491,417	Feb. 7	586	147	62	860
Finkbiner, U. S. G., *et al.* (See Manderfield, George J., assignor.)						
Firnstein, George A., Cincinnati, Ohio. Folding confessional	490,873	Jan. 31	3026	778	62	668
Firth, Joseph K. (See Gould and Firth.)						
Fischer, Walther, Solingen, Germany. Shears	491,679	Feb. 14	1005	253	62	966
Fiset, Michel, Albany, N. Y. Station-indicator	493,763	Mar. 21	1603	407 408	62	1702
Fish, Charles E., *et al.* (See Wallace, Victor, assignor.)						
Fish, Horace W., *et al.* (See Brooks, John, assignor.)						
Fishburn, John, assignor to himself, J. A. Cameron, and J. H. Watson, Walla Walla, Wash. Safety-valve for water-gages	490,955	Jan. 31	3176	813	62	686
Fishel, Henry W., New York, N. Y. Bontonnière	489,671	Jan. 10	1048	273	62	234
Fisher, Alonzo, and G. H. Prestley, Stockton, Cal.; said Fisher assignor of one-sixth to said Prestley. Horse-hitching device	490,874	Jan. 31	3028	779	62	669
Fisher, Charles N., Houston, Tex. Box-fastener	490,228	Jan. 17	1974	517	62	434
Fisher, George P., Bucyrus, Ohio. Wheel	492,280	Feb. 21	1938	484	62	1169
Fisher, Harry A. (See Lyon, Charles D., assignor.)						
Fisk, George L., Ellisville, Ill. Eaves-trough attachment	493,697	Mar. 21	1487	381	62	1680
Fitch, Charles L., Brooklyn, assignor to W. P. Watson, New York, N. Y. Manufacturing gas	489,472	Jan. 10	763	202	62	176
Fitch, Charles M., South Norwalk, Conn. Railway-switch	490,190	Jan. 17	1906	496	62	421
Fitch, Charles M., South Norwalk, Conn. Railway-switch	493,991	Mar. 21	1984	506	62	1774
Fitch, Charles M., and A. B. Kingsland, Burlington, Vt. Portable baking-oven	492,541	Feb. 28	2386	587	62	1268
Fitch, W. & E. T. (See Hubbard, George M., assignor.)						
Fitz Gerald, Augustine F., Brooklyn, assignor to Automatic Can Opening Attachment Company, New York, N. Y. Seal for vessels and means for opening same	489,183	Jan. 3	309	86	62	70
Fitz Gerald, Julia L., Terra Alta, W. Va. Refrigerator	493,202	Mar. 14	766	196	62	1526
Fitz-Roy, Robert, Bridgeport, Conn. Dumping-wagon	491,343	Feb. 7	470	121	62	837
Fitz Water, Marshall V., assignor of one-half to M. W. Gass, Cross Anchor, Tenn. Rotary fly-fan	492,596	Feb. 28	2452	610	62	1286
Fitzgerald, Edward E., West Duluth, assignor, by mesne assignments, of one-half to F. W. Merritt, Duluth, Minn. Band-saw mill	491,047	Jan. 31	3392	850	62	727
Fitzgerald, James W., Maysville, Ky. Crupper	494,195	Mar. 28	2928	590	62	1854
Fitzgerald, John H., Houston, Tex. Apparatus for washing and scrubbing gas	493,156	Mar. 7	598	150	62	1477
Fitzgerald, Michael J., Aravaipa, Ariz. Ter. Tire-tightener	492,667	Feb. 28	2569	636	62	1308
Fitzgibbon, Thomas, Grove Centre, Ky. Combined reel-support and wire-stretcher	492,060	Feb. 21	1503	375	62	1079
Fitzhugh, Charles L., Allegheny, and S. S. Babbitt, Pittsburg, Pa. Metal railway-tie	493,492	Mar. 14	1136	291	62	1595
Fitzmaurice, James S., assignor to Electric Brand Company, Limited, Sydney, New South Wales. Auto-calorific branding-tool	493,078	Mar. 7	474	119	62	1453
Fitzsimmons, James A., Wheeling, W. Va. Grapple or grip-tongs	490,866	Jan. 31	3015	775	62	666
Flach, Adam, Philadelphia, Pa. Trimmer for reeds for musical instruments	492,668	Feb. 28	2570	636	62	1309
Flagg, George H. P. (See Webster, Harold A., assignor.)						
Flanders, Calvin, Brantford, Canada. Washing-machine	493,919	Mar. 21	1851	471	62	1749
Flanigan, Stephen A., Watervliet, N. Y. Hand-strap for street-cars	490,191	Jan. 17	1907	497	62	421
Flather, Frederick A., Newton, Mass. Coiler for carding-engines	491,909	Feb. 7	239	60, 61	62	793
Flechtner, Albin, Metz, Germany. Damper for household-stoves	493,580	Mar. 14	1298	331	62	1627
Flegal, Aaron C. (See Smith, Daniel H., assignor.)						
Fletcher John R., Dayton, Ohio. Locking device for suspending-lines	491,541	Feb. 14	784	200	62	919
Fletcher, Wendell C., St. Louis, Mo., assignor to N. P. Willard, trustee, Chicago, Ill. Electric car-brake	492,492	Feb. 28	2290	569	62	1251

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Fletcher, Wendell C., St. Louis, Mo., assignor to N. P. Willard, trustee, Chicago, Ill. Automatic speed indicator and recorder	492,493	Feb. 28	2291	569	62	1252
Fletcher, Wendell C., St. Louis, Mo., assignor to N. P. Willard, trustee, Chicago, Ill. Railway-crossing	492,770	Feb. 28	2726	679	62	1340
Fletcher, William J., assignor of one-half to Twin City Iron Works, Minneapolis, Minn. Liquid-cooler	491,964	Feb. 14	1447	360	62	1053
Flint, Austin L., Watertown, N. Y. Spindle for paper-rolls	494,329	Mar. 28	2538	639	62	1893
Flint, George. (See Brill, William H., assignor.)						
Flocke, Robert, Newark, N. J., assignor to G. Bernheim, New York, N. Y. Satchel or bag frame. (Reissue)	11,315	Mar. 21	2194	560	62	1814
Floyd, Hezekiah, and W. H. Douty, assignors of one-third to J. M. Gaskins, Shamokin, Pa. Block signaling system and apparatus for railways	490,192	Jan. 17	1908	497 498	62	421
Flynn, Thomas H., *et al.* (See Allis, Abram Q., assignor.)						
Fogg, Charles F., New York, N. Y. Air-compressor	493,263	Mar. 14	768	196	62	1527
Foisy, Arsène, West Gardner, Mass. Rein-holder	491,542	Feb. 14	785	200	62	919
Foland, George, and S. F. Carey, Wilmington, Ohio. Pad-fastener	490,743	Jan. 31	2831	727	62	628
Foley, Nicholas W. (See Naylor and Foley.)						
Folger, Charles H., assignor to Cincinnati Novelty Manufacturing Company, Cincinnati, Ohio. Electrical appliance	494,098	Mar. 21	2157	550	62	1807
Fontaine, Eugene, assignor to Fontaine Safety Signal Company, Detroit, Mich. Block-signal system for railways	494,525	Mar. 28	2857	715 716	62	1951
Fontaine, Patrick H., Elmo, assignor of one-half to C. G. Holland and E. Blair, Danville, Va. Apparatus for carbureting air	493,992	Mar. 21	1985	506 507	62	1775
Fontaine Safety Signal Company. (See Fontaine, Eugene, assignor.)						
Foos, John, and C. F. Endter, Springfield, Ohio; said Endter assignor to said Foos. Gas-engine	494,134	Mar. 28	2229	568	62	1835
Foote, Charles H., assignor to R. Jenkins, deceased; J. B. Jenkins, executor, Chicago, Ill. Wall for circular structures	489,415	Jan. 3	652	176 177	62	140
Foote, George L., Brooklyn, N. Y. Galvanic battery	489,559	Jan. 10	901	235	62	204
Ford, Johnson & Co. (See Dunlap, Henry G., assignor.)						
Ford, Lauren M., Mill Village, Pa. Deep-well pump	490,142	Jan. 17	1835	479	62	407
Ford, Thomas P., Brooklyn, N. Y. Valve	489,799	Jan. 10	1250	327	62	274
Forgie, William, Washington, Pa. Gudgeon	489,733	Jan. 10	1147	297	62	253
Forgie, William, Washington, Pa. Construction of tanks	492,001	Feb. 21	1504	375	62	1079
Forker, William, Pittsville, Pa. Means for handling drill-bits for oil or Artesian wells	491,164	Feb. 7	170	43, 44	62	780
Forman, John, Pottstown, Pa. Coal-chute	492,281	Feb. 21	1939	484	62	1169
Forney, Matthias N., New York, N. Y. Reversible back for car or other seats	488,992	Jan. 3	24	7, 8	62	7
Forney, Matthias N., New York, N. Y. Counterbalance and guide for reciprocating mechanisms	489,648	Jan. 10	1018	265	62	227
Forrest, John H., Marion, Ind. Stopper-fastener for fruit-jars	493,698	Mar. 21	1488	381	62	1680
Forster, Francis B., New York, N. Y. Making transparent photographs on glass	494,526	Mar. 28	2886	.....	62	1952
Foster Engineering Company. (See Foster, John M., assignor.)						
Foster, Finley M., New York, N. Y. Hand-power attachment	491,418	Feb. 7	587	147	62	860
Foster, Frank W. (See Howes, Albert P., assignor.)						
Foster, George C. H., assignor to Crown Electric Manufacturing Company, Bridgeport, Conn. Incandescent-lamp socket	489,158	Jan. 3	266	74	62	62
Foster, John K., Greenville, Ohio. Horse-measuring device	491,733	Feb. 14	1090	275	62	982
Foster, John M., Cranford, assignor to Foster Engineering Company, Newark, N. J. Pump-regulator	489,297	Jan. 3	480	133	62	105
Foster, Jonas R., Stoneham, assignor to E. I. Smith, Waltham, Mass. Pencil-sharpener	492,669	Feb. 28	2571	636	62	1309
Foster, Oscar S., Utica, N. Y. Spring-bed	493,581	Mar. 14	1299	332	62	1628
Foster, Oscar S. and W. S., Utica, N. Y. Spring-setting machine	490,845	Jan. 31	2984	765	62	659
Foster, Oscar S. and W. S., Utica, N. Y. Spring-bed	493,427	Mar. 14	1026	266	62	1576
Foster, Oscar S. and W. S., Utica, N. Y. Machine for forming springs	493,428	Mar. 14	1028	266	62	1576
Foster, William S. (See Foster, Oscar S. and W. S.)						
Foudray, Thomas E., Sedalia, Mo. Gate	489,604	Jan. 10	966	251	62	216
Fowler, Charles W., Baltimore, Md. Worm-gearing	493,493	Mar. 14	1137	291	62	1595
Fowler, Samuel P. (See Dasher, Hiram D., assignor.)						
Fowler, William M., Milford, Conn. Liquid measuring and recording apparatus	490,823	Jan. 31	2951	758	62	652
Fowler, William M., Milford, Conn. Liquid measuring and dispensing apparatus	491,705	Feb. 14	1049	265	62	975
Fowler, William R., Baltimore, Md. Cash register and indicator	494,374	Mar. 28	2617	657 658	62	1907
Fowler, William R., assignor to M. Ingram & Co., Baltimore, Md. Fly-fan	491,476	Feb. 7	682	172	62	879
Fox, Edward B., *et al.* (See Willyoung, Elmer G., assignor.)						
Fox, George M., *et al.* (See Green, Ira L., assignor.)						
Fox Machine Company. (See Dosch, Peter, assignor.)						
Fox Machine Company. (See Fox, William R., assignor.)						
Fox, Samuel L., *et al.* (See Willyoung, Elmer G., assignor.)						
Fox, William R., assignor to Fox Machine Company, Grand Rapids, Mich. Metal-planing machine	489,734	Jan. 10	1148	297	62	253
Fox, William R., assignor to Fox Machine Company, Grand Rapids, Mich. Mitering-machine	493,494	Mar. 14	1139	291 292	62	1595
France, Albert L., Mildale, assignor to Kenton Can Company, Covington, Ky. Lens attachment for tubular lanterns	494,135	Mar. 28	2229	568	62	1836
Franchot, Stanislaus P. (See Gibbs and Franchot.)						
Francis, John C., assignor to Echo Telephone Company, New York, N. Y. Telephone-switch	488,993	Jan. 3	26	8	62	8
Frank H. Clement Company. (See Purdy, Charles H., assignor.)						
Frank, Joseph, and F. H. Frankenberg, Pueblo, Colo. Screw-clamp	490,143	Jan. 17	1836	479	62	407
Franken, Robert. (See Johnson, William L., assignor.)						
Frankenberg, Frank H. (See Frank and Frankenberg.)						
Franks, Orrin G., assignor to North Western Wire Mattress Company, Kenosha, Wis. Bed	491,243	Feb. 7	293	73	62	804
Franks, Orrin G., assignor to North Western Wire Mattress Company, Kenosha, Wis. Bed	491,244	Feb. 7	294	73	62	805
Franks, Orrin G., assignor to North Western Wire Mattress Company, Kenosha, Wis. Folding leg for furniture	493,021	Mar. 7	397	99	62	1437
Fransway, Frank W. (See Lightner and Fransway.)						
Frantz, Hiram A., Tamaqua, Pa. Motor for sewing-machines	491,751	Feb. 14	1114	282	62	988
Frantz, William B., assignor to G. E. Mundy, Guthrie, Okla. Ter. Vessel for preserving perishable articles	494,099	Mar. 21	2158	551	62	1807
Franzen, Harm H., Golden, Ill. Broadcast hand-seeder	490,956	Jan. 31	3177	813	62	686
Frasch, Herman, Cleveland, Ohio, assignor to Solar Refining Company, of Ohio. Apparatus for refining petroleum	490,144	Jan. 17	1837	479 480	62	407

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Frasch, Herman, Cleveland, Ohio, assignor to Solar Refining Company, of Ohio. Furnace for roasting, calcining, and oxidizing metals and their compounds	492,551	Feb. 28	2384	591, 592	62	1273
Fraser, James, London, England. Clutch	492,625	Feb. 28	2502	620	62	1296
Frasier, William E. (See Terrell and Frasier.)						
Frazier, William W. (See Steffen, Carl, assignor.)						
Frates, Ramond A. (See Combs and Frates.)						
Frederick Stearns & Company. (See Stearns, Albyn D., assignor.)						
Freedman, Charles H., *et al.* (See Sugden and Sandy, assignors.)						
Freeman, Francis I., assignor to Totten & Hogg Iron and Steel Foundry Company, Pittsburg, Pa. Rolling-mill	492,352	Feb. 21	2051	511, 512	62	1191
Freeman, Wallace E., Long Island City, assignor to L. M. Closs, New York, N. Y. Electric-arc lamp	491,095	Feb. 7	49	13	62	758
Freeman, Wallace E., Long Island City, assignor to L. M. Closs, New York, N. Y. Dynamo-electric machine	492,151	Feb. 21	1741	434	62	1127
Freeman, William F. (See Welsh, Pierre V. W., assignor.)						
Freese, Francis J., Lowell, Mass. Sewing-machine needle	489,800	Jan. 10	1251	327	62	274
Freir, Samuel P., East Orange, N. J., assignor to Western Union Telegraph Company, of New York. Telegraph-relay	493,620	Mar. 14	1364	346	62	1639
Frellsehr, Julius, New York, N. Y. Knitting-machine	489,801	Jan. 10	1252	327, 328	62	274
French, Andrew, Larbert, Scotland. Obtaining gold, silver, and copper from ores	490,193	Jan. 17	1912	.....	62	422
French, Brooks, Sioux City, Iowa. Transposing-keyboard	490,194	Jan. 17	1913	498	62	422
French, Carlos. (See Yarrington, Charles H., assignor.)						
French, David W., Union Hill, N. J. Pipe-cutter	492,579	Feb. 28	2425	604	62	1282
French, George M. (See Atwood, George F., assignor.)						
French, Henry A., Lansing, Mich. Pump	491,801	Feb. 14	1302	300	62	1004
French, Henry A., Lansing, Mich. Pump	491,802	Feb. 14	1303	301	62	1004
French, James M., *et al.* (See Nembach, Andrew, Jr., assignor.)						
Frenot, Louis D., and J. F. Eyboulet, Newark, N. J. Adjustable pattern for drafting garments	492,670	Feb. 28	2572	637	62	1309
Fresh, Henry, Frostburg, Md. Store-service ladder	493,861	Mar. 21	1756	447	62	1732
Freshour, Andrew C., Cedar Rapids, Iowa. Sliding gate	492,282	Feb. 21	1940	485	62	1169
Frey, Frank, assignor, by mesne assignments, of two-thirds to C. A. Myers, W. B. Dean, and J. W. Myers, Quincy, Ill. Incubator	488,994	Jan. 3	27	8	62	8
Frey, John, West Berkeley, Cal. Separator	492,720	Feb. 28	2644	655	62	1324
Frey-Sheckler Company. (See Thompson, John, assignor.)						
Friant, Thomas, *et al.* (See Raymond, Silas H., assignor.)						
Frick, Charles E., Norwood, Ohio. Ice-cream freezer	488,995	Jan 3	30	9	62	8
Fricke, Max, New York, N. Y. Smoke-consuming furnace	494,272	Mar. 28	2453	618	62	1876
Fridlet, Louis. (See Clifford, Patrick, assignor.)						
Friederich, Christian, Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Cop-winding machine	493,356	Mar. 14	918	236, 237	62	1554
Friederich, Philippe, Langley, Kans. Device for loading or unloading cattle	492,092	Feb. 21	1506	376	62	1080
Friedrich, William, Ponchatoula, La. Bridle	494,196	Mar. 28	2329	590	62	1854
Fries, Anna W., Pawnee City, Nebr. Garment-supporter	492,396	Feb. 28	2120	529	62	1218
Frisbie, Hamlin F., Covington, Ky. Valve for pumps	491,543	Feb. 14	786	200	62	920
Frisbie, Henry R., Bridgeport, Conn. Steam-whistle	493,920	Mar. 21	1852	472	62	1749
Frisen, Malcolm, Paterson, N. J. Fastening device	493,377	Mar. 14	957	246	62	1562
Frith, Arthur J., New York, N. Y. Horizontal boring-machine	494,100	Mar. 21	2158	551	62	1807
Fritz, George W., *et al.* (See Billings, Alvah G., assignor.)						
Froberg, Louis M., New York, N. Y. Shutter-fastener	491,165	Feb. 7	172	44	62	781
Froehlich, Amadeus A., Brooklyn, assignor of one-half to W. Hodgson, New York, N. Y. Curtain-fastener	490,709	Jan. 31	2777	713	62	610
Frölich, Oscar, assignor to Siemens & Halske, Berlin, Germany. Electric meter	490,279	Jan. 24	2072	541	62	464
Fry, John C., Larned, Kans. Cinder, dust, and smoke excluder for car-windows	492,671	Feb. 28	2573	637	62	1309
Fry, Thomas E., Nipomo, Cal. Animal-trap	488,996	Jan. 3	31	9	62	9
Frysinger, Jesse, Hanover, Pa. Automatic railway-signal	491,061	Jan. 31	3050	855	62	532
Frysinger, Jesse, Hanover, Pa. Automatic railway-train arrester	492,152	Feb. 21	1742	434	62	1127
Frysinger, Jesse, Hanover, Pa. Automatic railway-train arrester	492,153	Feb. 21	1744	434, 435	62	1128
Frysinger, Jesse, Hanover, Pa. Automatic railway-train arrester	492,154	Feb. 21	1746	435	62	1128
Frysinger, Jesse, Hanover, Pa. Automatic railway-train arrester	492,155	Feb. 21	1748	435	62	1129
Fuchs, Charles, *et al.* (See Simons, Frank, assignor.)						
Fuchs, Rudolph, New York, N. Y. Watch-holder	494,273	Mar. 28	2454	618	62	1876
Fuel Gas and Manufacturing Company. (See Westinghouse and Raud, assignors.)						
Fükenwirth, Albert, Peterwitz, Germany. Combined safety-brake and shaft-coupling	489,123	Jan. 3	219	59	62	51
Fuller, Allen J., Philadelphia, Pa. Rotating fluid-meter	489,124	Jan. 3	220	59	62	51
Fuller, Henry C. (See Deming and Fuller.) (Reissue.)						
Fuller, J. Ensign, New York, N. Y. Apparatus for forming, maintaining, and renewing the ice-floors of skating-rinks	489,227	Jan. 3	380	105	62	88
Fuller, J. Ensign, assignor to Consolidated Refrigerating Company, New York, N. Y. Combined ammonia-distilling and refrigerating apparatus	489,897	Jan. 10	1388	361	62	302
Fuller, James D. (See Bentley and Fuller.)						
Fuller, Joseph W. (See Marble, James E., assignor.)						
Fuller, William C. (See Capwell and Fuller.)						
Fulwider, Horace M., Redmon, Ill. Automatic grain-weigher	490,957	Jan. 31	3179	813	62	696
Funcheon, Daniel C., assignor of two-thirds to G. Funcheon and C. E. Olsen, Valverde, Colo. Barbed wire	493,210	Mar. 7	677	173	62	1491
Funcheon, George, *et al.* (See Funcheon, Daniel C., assignor.)						
Funck, Joseph, New Brighton, N. Y. Lantern	493,405	Mar. 14	1140	292	62	1596
Gabler, Ferdinand, Topeka, Kans. Car-brake	490,554	Jan. 24	2506	645	62	550
Gaines, George S., Corona, Ala. Car-coupling	490,958	Jan. 31	3180	813	62	696
Gair, Robert, Brooklyn, N. Y. Sample-box	493,921	Mar. 21	1853	472	62	1749
Gair, Robert, Brooklyn, N. Y. Memorandum sales-book	493,922	Mar. 21	1854	472	62	1750
Gaither, Ira H. (See Hinkle and Gaither.)						
Galbreath, Robert H., Cincinnati, Ohio. Ice-holder	490,902	Jan. 31	3096	794	62	680
Galindo, Augustin J., Concord, Cal. Wagon-jack	490,017	Jan. 17	1630	424	62	365
Gall, Henry, Hermes, (Oise.) and A. de Villardy de Montlaur, Paris, France. Manufacture of chlorates of the alkaline metals and metals of the alkaline earths	492,003	Feb. 21	1508	376	62	1080
Gallagher, George F., Rochester, N. Y. Furnace	493,923	Mar. 21	1855	472, 473	62	1750
Galland-Henning Pneumatic Malting Drum Manufacturing Company. (See Giesler, Franklin B., assignor.)						
Gallatin, Daniel S., New Berlin, Ohio. Two-wheeled vehicle	493,764	Mar. 21	1606	408	62	1703

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Galle, Charles, St. Louis, Mo. Portable water-heater	493,022	Mar. 7	397	99	62	1437
Gallinger, John R., and T. C. De Lisle, Superior, Wis. Carpet-fastener	493,699	Mar. 21	1489	381	62	1680
Gamble, Andrew, Nordhoff, Cal. Almond or walnut huller	493,887	Mar. 21	1791	457	62	1738
Gamble, William H., and D. H. Allen, Miamisburg, Ohio. Price-indicating attachment for weighing-scales	489,942	Jan. 17	1495	390	62	338
Gamewell Fire Alarm Telegraph Company. (See Crosby, James H., assignor.)						
Gammons, Ferdinand C., assignor to Eagle Cotton Gin Company, Bridgewater, Mass. Seed-cotton conveyer	494,101	Mar. 21	2161	551, 552	62	1808
Gandee, George W., and J. Peters, Belpre, Ohio. Grindstone	489,208	Jan. 3	482	133	62	105
Ganzfried, Jacob, New York, N. Y. Burglar-alarm	492,792	Mar. 7	93	8	62	1365
Garlsen, Henry A., Chicago, Ill. Spring protection	489,649	Jan. 10	1020	266	62	228
Gardeen, Oscar S., assignor of one-half to A. M. Magnuson and C. Lindberg, St. Paul, Minn. Rotary engine	490,648	Jan. 31	2675	689	62	599
Gardiner, George, and C. H. Millins, Spokane, Wash. Refrigerator for barreled liquors on tap	493,157	Mar. 7	600	150	62	1477
Gardner, Andrew, Atlantic, Iowa. Grain-binding harvester	491,641	Feb. 14	950	238, 239	62	954
Gardner, Andrew, Atlantic, Iowa. Elevating and packing mechanism for harvesters	491,680	Feb. 14	1006	253, 254	62	966
Gardner, Frederick N., Beloit, Wis., assignor to C. H. Besly, Chicago, Ill. Grinding or polishing wheel and manufacturing same	494,471	Mar. 28	2761	692, 693	62	1933
Gardner, Frederick N., Beloit, Wis., assignor to C. S. Besly, Chicago, Ill. Grinding or polishing wheel and manufacturing same	494,472	Mar. 28	2764	693, 694	62	1934
Gardner, George W., assignor to himself and E. Putnam, Rossville, Ill. Bottle-stopper extractor	491,306	Feb. 7	409	105	62	825
Gardner, William F., Washington, D. C. Electric time system	490,744	Jan. 31	2432	727	62	628
Garland, Clara G. (See Pennycnick, James G., assignor.)						
Garland, Michael, Bay City, Mich. Conveyer	491,344	Feb. 7	471	121	62	838
Garlick, Edward C., Cleveland, Ohio. Car-coupling	489,943	Jan. 17	1496	390, 391	62	338
Garner, John H., Kingwood, W. Va. Horse-detacher	491,734	Feb. 14	1090	276	62	982
Garnett, Carroll, Front Royal, Va. Corn-thinner	492,721	Feb. 28	2647	655	62	1325
Garrard, Edward J., Franklin, Pa. Hod-elevator	491,419	Feb. 7	588	148	62	860
Garrard, Edward J., Franklin, Pa. Chain-gearing	491,420	Feb. 7	589	148	62	860
Garrard, Henry H., Cleveland, Ohio. Sulky	493,582	Mar. 14	1300	332	62	1628
Garraux, Frederick, assignor to Winship Machine Company, Atlanta, Ga. Saw cotton-gin	490,745	Jan. 31	2837	728	62	629
Garraux, Frederick, assignor to Winship Machine Company, Atlanta, Ga. Cotton condenser and flue	491,013	Jan. 31	3265	834	62	713
Garretson, Oliver S., Buffalo, N. Y., and W. S. Shipe, Minerva, Ohio. Stovepipe	490,649	Jan. 31	2678	689, 690	62	599
Garrett, William. (See Cochran, Edward J., assignor.)						
Garrett, William, Joliet, Ill. Rolling-mill plant	492,156	Feb. 21	1750	436	62	1129
Garrison, David V., Remington, Ind. Portable hay-derrick	494,473	Mar. 28	2767	694	62	1934
Garrison, John C., *et al.* (See Beaver, William G., assignor.)						
Garrison, Theodore M., Hazleton, Pa. Clothes-hanger	490,145	Jan. 17	1840	480	62	408
Garrison, William F., assignor to Guild & Garrison, Brooklyn, N. Y. Lubricator	491,477	Feb. 7	684	172	62	879
Garside, John E., Peoria, Ill. Shoveling-board for wagons	489,528	Jan. 10	858	224	62	195
Gartland, Francis X., Philadelphia, Pa. Combined gas and electric light fixture	490,903	Jan. 31	3096	794	62	681
Garvin Machine Company. (See Sjoberg, Carl J. A., assignor.)						
Garwood, Spencer, Milford Centre, Ohio. Vehicle	491,544	Feb. 14	787	201	62	920
Gary, Prosper, Toulouse, France. Gas-burner	489,802	Jan. 10	1255	328	62	275
Gas Economising Foreign Patents. (See Love, James, assignor.)						
Gaskill, Daniel W. (See Cohen and Gaskill.)						
Gaskins, James M. (See Floyd and Donty, assignors.)						
Gasoline Torch Manufacturing Company. (See Walsh, John C., assignor.)						
Gass, Marion W. (See Fitz Water, Marshall V., assignor.)						
Gasser, Sanford, Trout Creek, Mich. Wrench	489,605	Jan. 10	967	252	62	216
Gastrell, James P. H., Wiesbaden, Germany. Sash-fastener	489,735	Jan. 10	1150	298	62	254
Gateau, Antoine, Chicago, Ill. Vapor-burner	493,079	Mar. 7	476	119	62	1453
Gates, Albert J., assignor to Gates Iron Works, Chicago, Ill. Stone-breaker	491,096	Feb. 7	50	13, 14	62	758
Gates, Charles A., Gloversville, N. Y., assignor to Singer Manufacturing Company of New Jersey. Sewing-machine trimmer	490,846	Jan. 31	2985	765	62	659
Gates Iron Works. (See Gates, Albert J., assignor.)						
Gaudie, William B., Jarrow, England. Pie raising and lidding machine	492,531	Feb. 28	2348	583	62	1264
Gaudron, Edward N., assignor to himself and I. G. Hewison, Portland, Oreg. Funnel	493,993	Mar. 21	1987	507	62	1775
Gaudron, Edward N., assignor to himself and I. G. Hewison, Portland, Oreg. Funnel	493,994	Mar. 21	1989	507	62	1776
Gay, Albert, London, England. Coupling of dynamo-electric machines in parallel	490,959	Jan. 31	3181	814	62	697
Gay, William A., Corry, Pa. Car-ventilator	490,960	Jan. 31	3182	814	62	697
Gaylord, Edward L., Bridgeport, Conn. Picture-mat-cutting device	491,307	Feb. 7	411	105, 106	62	825
Geary, John E., Syracuse, N. Y. Railway-signal	489,736	Jan. 10	1152	298, 299	62	254
Geemen, Joseph. (See Sperl and Geemen.)						
Gedde, Carl C. J. (See Gedde, Charles and C. C. J.)						
Gedde, Charles and C. C. J., assignors of one-half to B. M. Ersler, Brooklyn, N. Y. Swinging support for clothes-lines	490,385	Jan. 24	2244	584	62	500
Gee, George E. (See Melvin, Charles H., assignor.)						
Geis, Edward, *et al.* (See Fay, Alpheus, assignor.)						
Geisenhöner, Henry, assignor of one-half to E. E. Kriegsman, Schenectady, N. Y. Polishing and grinding machine	492,768	Feb. 28	2724	678	62	1340
Gekeler, Alvin G., Frostburg, Md. Potato-planter	490,555	Jan. 24	2507	645	62	551
Gelabert, William P., assignor to Nelson & Gelabert, Sweet Springs, Mo. Billet-loop	493,995	Mar. 21	1991	507	62	1776
General Electric Company. (See Ball and Metzger, assignors.)						
General Electric Company. (See Bentley, Edward M., assignor.)						
General Electric Company. (See Morton, Henry W., assignor.)						
General Electric Company. (See Thomson, Elihu, assignor.)						
Geneste, William, New Orleans, La. Gun cleaner	489,606	Jan. 10	968	252	62	217
Gentry, Edward S., Panaca, assignor of two-thirds to W. L. and J. R. Cook, Pioche, Nev. Whiffletree-coupling	490,071	Jan. 17	1715	447	62	382
Geo. D. Barnard & Company. (See Stockstrom, Louis, assignor.)						
George, Aimé, Puteaux, France. Cleansing wool	493,158	Mar. 7	602	151	62	1477
George, Alexander B., Dallas, Tex. Waffle-iron	491,681	Feb. 14	1010	255	62	967
George, James S., Jr., Philadelphia, Pa. Burner for rolls of burnishing-machines	489,299	Jan. 3	483	134	62	105
Gérard, Jean M. A., Paris, France. Treatment or desiccation of peat	491,545	Feb. 14	788	201	62	920

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Gerhard, Henry E. T., Mattapan, Mass., assignor of one-half to E. J. Tucker, New York, N. Y. Mat or similar flexible article	490,556	Jan. 24	2508	646	62	551
Gerhard, Thomas S. (See Cathan, Alonzo, assignor.)						
Gerhardt, Wilhelm, Berlin, Germany. Vise	490,432	Jan. 24	2309	589	62	511
Gering, Henry R. (See Hubbell, Edwin, assignor.)						
Gerlitz, Gottlieb, Graz, Austria-Hungary. Apparatus for curing spinal curvature	492,903	Mar. 7	208	51, 52	62	1400
Gerrard, Charles H., Xenia, Ill. Plow	493,080	Mar. 7	477	120	62	1453
Gerrish, Edward H., San Francisco, Cal. Liquid shaking and cooling machine	494,474	Mar. 28	2768	694	62	1934
Gersdorff, Augustus, Washington, D. C. Funnel	491,421	Feb. 7	590	148	62	861
Ghent, David A., and O. S. Colbran, Burlington, Canada. Sanding device for cars	494,136	Mar. 28	2233	568	62	1836
Gholson, William C., Cincinnati, Ohio. Metallic column	492,518	Feb. 28	2329	578	62	1259
Gibbs, Jacob S., assignor to Perkins Electric Switch and Manufacturing Company, Hartford, Conn. Electric switch						
Gibbs, Lewis, Canton, Ohio. Lawn-rake	490,746	Jan. 31	2838	728	62	629
Gibbs, Lewis, Canton, Ohio. Post-hole digger	489,672	Jan. 10	1049	273	62	234
Gibbs, William T., and S. P. Franchot, Buckingham, Canada. Obtaining chlorates of the alkalies or of the alkaline earth metals by electrolysis	493,700	Mar. 21	1490	381	62	1680
Gibson, Gerolt, St. Louis, Mo. Sash-fastener	493,023	Mar. 7	398	.....	62	1417
Gibson, Gerolt, St. Louis, Mo. Sash-fastener	491,881	Feb. 14	1325	327	62	1028
Gibson, Gerolt, St. Louis, Mo. Nut-lock	491,882	Feb. 14	1326	328	62	1028
Gibson, Gerolt, St. Louis, Mo. Nut-lock	492,672	Feb. 28	2574	637	62	1310
Gibson, Gerolt, St. Louis, Mo. Sash-fastener	492,722	Feb. 28	2648	656	62	1325
Gibson, Harvey V. (See Hines and Gibson.)	493,159	Mar. 7	603	151	62	1477
Gibson, John H., Bruin, Pa. Trace-fastener						
Gibson, John H., Bruin, Pa. Horse-checking device	493,264	Mar. 14	769	196	62	1527
Gibson, John H., Canton, Ohio. Foot-valve for pumps	493,888	Mar. 21	1793	457	62	1749
Gibson, Wyatt, Dodd, Tex. Churn	493,378	Mar. 14	958	247	62	1562
Giese, James A., assignor to Adams & Westlake Company, Chicago, Ill. Latch and lock	493,825	Mar. 21	1703	434	62	1721
Gieseler, Franklin B., assignor to Galland-Henning Pneumatic Malting Drum Manufacturing Company, Milwaukee, Wis. Grain-spout	492,494	Feb. 28	2293	570	62	1252
Gilbert, F. M. (See Ostenberg, John A., assignor.)						
Gilbert, Franklin T., Walla Walla, assignor to S. M. R. Gilbert, Seattle, Wash. Gravel washer and separator	492,004	Feb. 21	1509	377	62	1080
Gilbert, Franklin T., Walla Walla, assignor to S. M. R. Gilbert, Seattle, Wash. Gravel washing and separating machine	489,378	Jan. 3	602	162	62	129
Gilbert, Franklin T., Walla Walla, assignor to S. M. R. Gilbert, Seattle, Wash. Gravel-screening machine	489,379	Jan. 3	604	162	62	130
Gilbert, Henry G. (See Nugent and Gilbert.)	489,380	Jan. 3	606	162	62	130
Gilbert, Henry J., Saginaw, Mich., assignor to National Cash Register Company, Dayton, Ohio. Cash register and indicator	491,546	Feb. 14	790	201, 202	62	921
Gilbert, James, Omaha, Nebr. Boiler-furnace	494,137	Mar. 28	2234	569	62	1836
Gilbert, Joshua J., Syracuse, N. Y. Side-spring vehicle	489,673	Jan. 10	1050	273, 274	62	234
Gilbert, Susie M. R. (See Gilbert, Franklin T., assignor.)						
Gildemeyer, Charles A., assignor of one-half to O. Twitchell, Haddonfield, N. J. Railway-tie	491,048	Jan. 31	3336	850	62	728
Gilfillan, Essington N. (See Aze and Gilfillan.)						
Gillam, Manly M., Philadelphia, Pa. Educational map	492,005	Feb. 21	1511	377	62	1081
Gillespie, Benjamin, *et al.* (See Henson, Marvin T., assignor.)						
Gillespie, Chester. (See Gillespie, Nelson, assignor.)						
Gillespie, Evander J., San José, Cal. Paper holder and cutter	491,883	Feb. 14	1327	328	62	1028
Gillespie, Evander J., San José, Cal. Roll-paper holder and cutter	492,552	Feb. 28	2368	592	62	1273
Gillespie, Henry B. (See Stropey, Lindsay S., assignor.)						
Gillespie, Nelson, assignor of one-half to C. Gillespie, Hoosick Falls, N. Y. Animal-muzzle	489,184	Jan. 3	310	86	62	71
Gillespie, Richard S., and H. James, New York, N. Y. Pipe-wrench	489,803	Jan. 10	1255	329	62	275
Gillet, Alexis F., assignor to G. W. and J. D. Whiteaker, Kearney, Nebr. Vehicle-wheel	489,300	Jan. 3	485	134	62	106
Gillet, Alexis F., assignor of two-thirds to G. W. and J. D. Whiteaker, Kearney, Nebr. Rotary engine	493,081	Mar. 7	478	120	62	1454
Gillett, Clarence, Gloversville, N. Y. Road-wagon	493,082	Mar. 7	480	120, 121	62	1454
Gillette, George H., New York, N. Y. Bottle-stopper	493,701	Mar. 21	1491	382	62	1680
Gilmer, William C., assignor of one-half to L. Manning, Stockton, Cal. Combination-tool	492,532	Feb. 28	2349	583	62	1264
Gladfelter, Marion E., Cleveland, Ohio. Beam-compass	494,475	Mar. 28	2769	695	62	1934
Gladney, James R., and J. C. Mayfield, Roanoke, Ala. Plow	492,283	Feb. 21	1941	485	62	1169
Glafcke, Paul E., Cheyenne, Wyo. Prison cage or cell	494,252	Mar. 28	2416	609, 610	62	1870
Glafcke, Paul E., assignor of one-half to T. A. Kent, Cheyenne, Wyo. Prison-cell, safe, or other depository						
Glancy, Thomas H., Fairport, N. Y. Vehicle-bolster	494,253	Mar. 28	2420	610	62	1870
Glanton, James A., Columbus, Ind. Extension-table	493,702	Mar. 21	1493	382	62	1681
Glidewell, Alfred. (See Glidewell, John W. and A.)	489,529	Jan. 10	859	224	62	195
Glidewell, John W. and A., Grand Island, Fla. Crate						
Globe Company. (See Dorn, Alexander, assignor.)	488,997	Jan. 3	32	9	62	9
Globe Manufacturing Company. (See Brown, Francis R., assignor.)						
Glover, Charles B., Houston, Tex. Machine for removing mud or sand from rivers or harbors	490,747	Jan. 31	2840	728	62	629
Glover, Taylor, and T. J. Jean; said Jean assignor to L. P. Bonebrake, Maryville, Mo. Lubricator						
Gnehm, Robert, and J. Schmid, assignors to Society of Chemical Industry in Basle, Basle, Switzerland. Brown dye	490,247	Jan. 17	2007	525	62	440
Gnehm, Robert, and J. Schmid, assignors to Society of Chemical Industry in Basle, Basle, Switzerland. Red dye	491,422	Feb. 7	591	.....	62	861
	493,583	Mar. 14	1301	.....	62	1628
Godding, Milon O., Monrovia, Cal. Combined automatic thrasher, feeder, and separator	489,301	Jan. 3	486	134, 135, 136	62	106
Goddu, Louis, Winchester, assignor to J. W. Brooks, Petersham, and F. F. Stanley, Swampscott, Mass., trustees. Machine for uniting soles to uppers	490,621	Jan. 24	2610	672, 673	62	572
Goddu, Louis, Winchester, assignor to J. W. Brooks, Petersham, and F. F. Stanley, Swampscott, Mass., trustees. Machine for uniting soles to uppers	490,622	Jan. 24	2619	674, 675	62	573
Goddu, Louis, Winchester, assignor to J. W. Brooks, Petersham, and F. F. Stanley, Swampscott, Mass., trustees. Nailing-machine	490,623	Jan. 24	2625	675, 676	62	574
Goddu, Louis, Winchester, assignor to J. W. Brooks, Petersham, and F. F. Stanley, Swampscott, Mass., trustees. Machine for uniting soles to uppers	490,624	Jan. 24	2629	676, 677	62	575
Goddu, Louis, Winchester, assignor to J. W. Brooks, Petersham, and F. F. Stanley, Swampscott, Mass., trustees. Nailing-machine	490,625	Jan. 24	2632	677, 678	62	575

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Godshaw, Abraham, *et al.* (See Allan, Edward T., assignor.)						
Goehler, George J. H., assignor to Cary Safe Company, Limited, Buffalo, N. Y. Time-lock	493,862	Mar. 21	1758	447	62	1732
Goeller, Charles, Elmont, N. Y. Seat for wagons	493,863	Mar. 21	1760	448	62	1732
Goertz, August, Newark, N. J. Bag or purse frame	490,433	Jan. 24	2310	599, 600	62	511
Goertz, August, Newark, N. J. Purse and frame therefor	490,434	Jan. 24	2311	600	62	512
Goese, Hermann, Milwaukee, Wis. Window-frame	490,108	Jan. 17	1774	462	62	395
Goetz, August C., Milwaukee, Wis. Electric-railway switch	489,944	Jan. 17	1498	391	62	338
Goetz, John J., Covington, and J. A. Smith, Dayton, Ky., assignors to themselves, and H. M. Littell, Cincinnati, Ohio. Trolley-wheel	491,014	Jan. 31	3266	834	62	713
Goff, Edward, Franklin county, Ind. Door or window screen	493,703	Mar. 21	1494	383	62	1681
Goffett, Joseph T., Dubuque, Iowa. Car-seal	490,018	Jan. 17	1631	425	62	365
Gohrt, Hermann, assignor of one-half to I. Beck, Liverpool, England. Measuring-instrument	492,886	Mar. 7	181	44	62	1394
Gold, Egbert H., Chicago, Ill. Valve	491,166	Feb. 7	173	44	62	781
Gold, Egbert H., Chicago, Ill. Steam-trap	492,495	Feb. 28	2295	570	62	1253
Golding, William, New Orleans, La. Evaporating apparatus	489,147	Jan. 3	254	70	62	59
Golding, William, assignor to C. Macintosh & Co., Limited, Manchester, England. Rubber tire	493,160	Mar. 7	604	151, 152	62	1478
Goldsmith, Byron B., New York, N. Y. Producing nitro-cellulose or celluloid surfaces	490,195	Jan. 17	1916	.....	62	422
Goldsmith, Jacob M., Chicago, Ill. Gas-generating apparatus	489,737	Jan. 10	1154	299, 300, 301	62	254
Goldstein, Jacob D., New York, N. Y. Oil or kerosene stove	490,196	Jan. 17	1919	499	62	422
Goldthwait, Charles, Weymouth, Mass. Shoe-lace	492,793	Mar. 7	34	8	62	1366
Golfin, John H., *et al.* (See Smith, Jacob C., assignor.)						
Gooch, Elmer E. (See Gooch, George W. and E. E.)						
Gooch, George W. and E. E., Avon, Iowa. Land-marker	492,006	Feb. 21	1512	378	62	1081
Good, William E., assignor to Southwark Foundry and Machine Company, Philadelphia, Pa. Blowing-engine	490,109	Jan. 17	1775	462	62	395
Goodale, Alfred M., *et al.*, trustees. (See Goodale, Stephen L., assignor.)						
Goodale, Stephen L., Saco, Me., assignor to A. M. Goodale, Waltham, Mass., and M. W. A. Spring, Portland, Me., trustees. Treating hydrated phosphates of alumina	493,889	Mar. 21	1794	.....	62	1739
Goodell, Jerome W. (See Harding, Thomas G., assignor.)						
Goodfellow, Frank, Vienna Cross Roads, Ohio. Tile-machine	490,110	Jan. 17	1777	463	62	395
Goodfellow, Frank, Springfield, Ohio. Feed-water heater and purifier	491,547	Feb. 14	796	202	62	922
Goodfellow, James, Brooklyn, N. Y. Emergency-brake for cars	493,705	Mar. 21	1496	383	62	1681
Goodfellow, John H., Troy, N. Y., assignor, by mesne assignments, to Lamson Consolidated Store Service Company, of New Jersey. Store-service apparatus	493,621	Mar. 14	1366	347	62	1640
Goodhue, Henry M., Rochester, N. Y., assignor to W. S. King, Minneapolis, Minn. Lasting-machine	488,998	Jan. 3	33	9, 10	62	9
Gooding, Charles S., Brookline, assignor to Seaver Sewing Machine Company, Boston, Mass. Sewing-machine	489,945	Jan. 17	1500	391, 392	62	339
Goodman, Edward H. (See Stupakoff, Simon H., assignor.)						
Goodman, Joseph, Pittsburg, Pa. Glass-batch mixer	490,346	Jan. 24	2188	569	62	489
Goodrich, Abram. (See Hubbard and Goodrich.)						
Goodrich, Charles F., Chicago, Ill., assignor to J. G. Thompson, Milwaukee, Wis. Commutator-brush holder	489,185	Jan. 3	311	86	62	71
Goodrich Hard Rubber Company. (See Pellinger, George, assignor.)						
Goodridge, William M., Highland Park, assignor to Western Electric Company, Chicago, Ill. Listening and ringing key for telephone switchboards	493,704	Mar. 21	1495	383	62	1681
Goodwyn, George W., assignor of one-third to B. Mann, Petersburg, Va. Coffee or tea pot	491,478	Feb. 7	685	172	62	880
Gooling, Martin B., Bastrop, assignor of one-half to S. H. Puckett, Locharbor, La. Cultivator	490,765	Jan. 31	2866	735	62	635
Gould, Frederick D., Schenectady, assignor to Edison General Electric Company, New York, N. Y. Loop-switch	489,674	Jan. 10	1053	274	62	235
Gould, Frederick D., Schenectady, assignor to Edison General Electric Company, New York, N. Y. Electric-arc lamp	491,548	Feb. 14	798	202	62	922
Gould, Frederick D., Schenectady, assignor to Edison General Electric Company, New York, N. Y. Pole-standard for arc lamps	492,008	Feb. 21	1515	378	62	1081
Gould, Frederick D., assignor of one-half to J. Hutchinson, New York, N. Y. Apparatus for distributing mail	490,607	Jan. 24	2581	665, 666	62	565
Goulden, Walter T., and L. B. Atkinson, London, England. Dynamo-electric machine and motor	489,302	Jan. 3	490	136	62	107
Gordon, Angus C., Rochester, N. Y. Railway time-signal	493,083	Mar. 7	483	121	62	1455
Gordon, Elonso J., Greenville, Mich. Blast-pipe for furnace-grates	491,549	Feb. 14	800	203	62	923
Gordon, Hamilton S. (See Converse, Frank B., assignor.)						
Gordon, Reuel F., and G. T. Davis, Auburn, Me. Boot or shoe creaser	489,630	Jan. 10	998	260	62	223
Görges, Johannes H. F., assignor to Siemens & Halske, Berlin, Germany. Electrical measuring-instrument	489,249	Jan. 3	418	116	62	93
Gorman, Thomas. (See Dunn, Dennis, assignor.)						
Gormley, Thomas. (See McMillan and Gormley.)						
Gornly, Robert W., Troy, N. Y. Burr-wheel	491,345	Feb. 7	472	121	62	838
Gorringe, Charles R., London, England. Strainer and sieve	490,786	Jan. 31	2902	745	62	642
Gorrow, Lewis P., Downington, Mich. Vehicle-pole tip	490,805	Jan. 31	2928	752	62	647
Gott, Clarence P., assignor to himself and J. C. Hays, New York, N. Y. Registering-turnstile	492,353	Feb. 21	2052	512	62	1191
Göttl, Gustav. (See Ferrand and Göttl.)						
Gottwals, William O., Ottawa, Canada. Letter or bill file	493,024	Mar. 7	400	100	62	1437
Gould, Aaron P., Canton, Ohio. Dental chair	489,675	Jan. 10	1054	274, 275	62	235
Gould, Aaron P., Canton, Ohio. Dental chair	491,097	Feb. 7	51	14, 15	62	758
Gould, Aaron P., Canton, Ohio. Dental chair	491,098	Feb. 7	53	15, 16	62	759
Gould, Aaron P., Canton, Ohio. Dental engine	491,099	Feb. 7	56	16	62	759
Gould, Aaron P., Canton, Ohio. Dental chair	493,379	Mar. 14	959	247	62	1563
Gould Coupler Company. (See Richards, Willard F., assignor.)						
Gould Coupler Company. (See Wallace, Martin E., assignor.)						
Gould, Franklin G., Boston, Mass., and J. K. Firth, San Francisco, Cal. Concentrating-machine	492,007	Feb. 21	1513	378	62	1081
Gould, Thomas W., Paterson, N. J. Flour scoop and sifter	490,766	Jan. 31	2867	735	62	635
Gounand, Louis, Buenos Ayres, Argentine Republic. Machine for affixing elastic to boxes	490,366	Jan. 24	2245	584	62	500
Gowland, John, Philipsburg, Pa. Running-gear for mining-cars	492,917	Mar. 7	236	59	62	1405
Gowland, John, Philipsburg, Pa. Running-gear for mining-cars, lumber-trucks, &c.	492,918	Mar. 7	237	59	62	1405

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Graaff, Julius S., and I. M. Harbaugh, Portland, Oreg. Extension-table	492,284	Feb. 21	1942	485	62	1170
Graber, Herman S., St. Louis, Mo. Water-gage	489,804	Jan. 10	1257	329	62	276
Graf, Jacob, New York, N. Y. Fabric-holding frame for embroidering-machines	490,111	Jan. 17	1779	463	62	396
Graf, Robert R., Baltimore, Md., assignor to Phoenix Fire Proof Paint Company, New York, N. Y. Fireproof paint	494,508	Mar. 28	2826	.....	62	1946
Graffin, George W., Jr., Baltimore, Md. Nut-lock	490,553	Jan. 24	2505	645	62	550
Graffin, George W., Jr., Baltimore, Md. Nut-lock	490,557	Jan. 24	2508	646	62	551
Grafunder, Ernst H., Horicon, Wis. Broadcast seeder	491,167	Feb. 7	174	44, 45	62	781
Grafunder, Ernst H., Horicon, Wis. Grain-drill	492,009	Feb. 21	1516	379	62	1082
Graham, Clarence V. (See Griswold, John B., assignor.)						
Graham, Francis, *et al.* (See Wiley, George, assignor.)						
Graham, Frank B., and J. H. Knapp, Westphalia, Kans. Hay-press attachment	490,072	Jan. 17	1716	447	62	382
Graham, George C. B., Memphis, Tenn. Perforating attachment for printing-presses	492,794	Mar. 7	35	8	62	1366
Graham, George H., Ridgeland, Ill. Rotary engine	494,138	Mar. 28	2235	569, 570	62	1836
Graham, George M., Chicago, Ill. Drawing or plotting board	493,766	Mar. 21	1608	408	62	1703
Graham, George M., Chicago, Ill. Sectional mold for building or paving blocks	493,767	Mar. 21	1609	409	62	1703
Graham, William J., Waltham, Mass. Closing device for cans or jars	488,999	Jan. 3	35	10	62	9
Granger, James B., Franklin, N. Y. Car-coupling	492,328	Feb. 21	2009	500	62	1183
Granger, John W., assignor of one-half to Richardson & De Long Brothers, Philadelphia, Pa. Machine for carding hooks and eyes	491,281	Feb. 7	349	88	62	815
Granger, John W., assignor to Richardson & De Long Brothers, Philadelphia, Pa. Machine for manufacturing hooks and eyes	491,282	Feb. 7	353	89	62	816
Granger, Lorenzo O., San Francisco, Cal. Trousers-stretcher	491,062	Jan. 31	3351	855	62	732
Grant, Alexander. (See Meyer, Kiehl, and Grant.)						
Grant, Arthur L., and C. G. Richardson; said Grant assignor to A. B. English, Toronto, Canada. Treating ores containing nickel	490,847	Jan. 31	2987	.....	62	660
Grant, Duncan E., assignor of one-third to A. Ritchie, Quebec, Canada. Breech-loading gun	490,650	Jan. 31	2679	690, 691	62	599
Grant, Duncan E., assignor of one-third to A. Ritchie, Quebec, Canada. Breech-loading gun	494,330	Mar. 28	2540	640, 641	62	1893
Grant, John, Windsor, Canada. Last-support	493,765	Mar. 21	1607	408	62	1703
Grant, John, Chicago, Ill. Machine for making beam-hangers	494,102	Mar. 21	2164	552, 553	62	1808
Grant, Maurice. (See Kohler, Edward, assignor.)						
Grant, Oscar F. (See Stifel, Torrance, and Grant.)						
Grattan, Christopher, Stockton, Cal. Brake for harvesters	490,197	Jan. 17	1920	499	62	423
Grau, William, Philadelphia, Pa. Candle-holder for Christmas-trees	493,161	Mar. 7	607	152	62	1478
Graves, Calvin V. (See Welch, Henry J., assignor.)						
Gray, Christian H., Silvertown, England. Pneumatic tire	491,479	Feb. 7	686	172	62	880
Gray, Elisha, Highland Park, Ill. Electro-mechanical movement	491,346	Feb. 7	473	122	62	838
Gray, Elisha, Highland Park, Ill. Telautograph	491,347	Feb. 7	477	123, 124	62	839
Gray, John, Buffalo, N. Y. Truss	490,558	Jan. 24	2510	646	62	551
Gray, Richard, Bloomington, Ill. Bridge	489,946	Jan. 17	1503	392, 393	62	339
Gray, Samuel. (See Altmann, Arthur, assignor.)						
Gray, William A., Elizabeth, N. J., assignor to himself, and E. R. De Wolfe, New York, N. Y. Valve for pneumatic tires	490,904	Jan. 31	3098	794	62	681
Gray, William D., Milwaukee, Wis. Middlings-purifier	489,676	Jan. 10	1056	275	62	235
Gray, William D., Milwaukee, Wis., assignor to Edward P. Allis Company, of Wisconsin. Flour-bolt	492,795	Mar. 7	37	9	62	1366
Greeley, Andrew J., Hillsborough, Wis. Floor-clamp	492,010	Feb. 21	1519	379	62	1082
Green, Alem J. (See Cuthbertson, James W., assignor.)						
Green, Harvey G. (See Hogg and Green.)						
Green, Ira L., Kittanning, assignor of five-sixths to J. M. Patterson, Sharpsburg, G. M. Fox, W. Reynolds, C. C. Shadle, Kittanning, and M. D. Wayman, Ford City, Pa. Railway-signal	490,626	Jan. 24	2636	678, 679	62	576
Green, John, assignor of one-half to C. Norberg, Renovo, Pa. Puzzle	493,768	Mar. 21	1611	409	62	1704
Green, John, assignor of one-half to W. L. Holman and J. McCord, Renovo, Pa. Manufacture of drawbars	491,480	Feb. 7	687	173	62	880
Green, Martha A., Montclair, Colo. Cover-holder	492,329	Feb. 21	2011	500	62	1184
Green, William W., Chicago, Ill., assignor of one-half to A. V. Terry, Brockport, N. Y. Harrow	491,100	Feb. 7	57	16	62	759
Greene, Fred. H. (See Marble and Greene.)						
Greene, James G., Elizabeth, N. J., assignor to Singer Manufacturing Company of New Jersey. Buttonhole-cutter	492,796	Mar. 7	38	9	62	1366
Greene, William H., and W. H. Wahl, Philadelphia, Pa. Manufacturing manganese and alloys of manganese free from carbon	489,303	Jan. 3	491	.....	62	107
Greene, William H., and W. H. Wahl, Philadelphia, Pa. Producing metallic alloys	490,961	Jan. 31	3184	.....	62	697
Greener, Harry, Birmingham, England. Breech-loading breakdown gun	489,947	Jan. 17	1505	393	62	340
Greenlees, J. R., *et al.* (See Welsh, Artemus and A., assignors.)						
Greenstein, Adolph. (See Dinsmore, Robert, assignor.)						
Greenwood Brothers & Company. (See Greenwood, Charles W., assignor.)						
Greenwood, Charles W., assignor to Greenwood Brothers & Company, South Gardner, Mass. Machine for weaving cane for chair-seats	494,139	Mar. 28	2238	570	62	1837
Greenwood, James, assignor to Caustic Soda and Chlorine Syndicate, Limited, London, England. Apparatus for the production of chlorine and caustic soda	489,677	Jan. 10	1058	275, 276	62	236
Greer, Howard, Chicago, Ill. Railway-rail	489,948	Jan. 17	1507	393	62	340
Greer, Jerome B., *et al.* (See Jones, Wesley C., assignor.)						
Greeves, Malcom M., Belfast, Ireland. Clearer for yarns	490,347	Jan. 24	2189	570	62	489
Gregg, Robert, assignor to Fairbank Canning Company, Chicago, Ill. Machine for making cans	489,250	Jan. 3	419	116, 117	62	94
Gregg, Robert, assignor to Fairbank Canning Company, Chicago, Ill. Can-making machine	491,015	Jan. 31	3269	834, 835	62	714
Gregory, Clarence C. (See Sweet, Ira C. N., assignor.)						
Gregory, Herbert, New York, N. Y. Shoe for cycle-wheels	492,510	Feb. 28	2321	576	62	1258
Greif, Louis M., Cleveland, Ohio. Machine for leveling, trussing, and hooping barrels	493,329	Mar. 14	886	226, 227	62	1547
Greiner, Abraham J., Chicago, Ill. Earth-auger	493,769	Mar. 21	1611	410	62	1704
Gressett, Lawrence F., Ballinger, Tex. Hay-press	493,996	Mar. 21	1992	508	62	1776
Gridley, Wilmer D., Brooklyn, N. Y. Device for supporting flower-pots	492,919	Mar. 7	238	60	62	1405
Griffin, A. G., *et al.* (See Smith, George, assignor.)						
Griffin, Albert A., Roscommon, Mich. Tool-holder	489,678	Jan. 10	1059	276	62	236

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Griffin, Albert A., Roscommon, Mich. Folding card-table	493,925	Mar. 21	1859	474	62	1751
Griffin, Charles H., Lake City, Colo. Car-truck and means for automatically arresting the same	489,473	Jan. 10	764	202	62	176
Griffin, Thomas A., Chicago, Ill. Sectional chill	489,474	Jan. 10	765	202	62	176
Griffith, Alfred P., and T. N. Caswell, Michigan City, Ind. Circular-knitting machine	493,924	Mar. 21	1856	473, 474	62	1750
Griffith, Charles, South Waverly, Pa. Hotating-machine	491,168	Feb. 7	179	45	62	782
Griffith, Charles E., Storm Lake, Iowa. Catching and holding tool	491,642	Feb. 14	954	240	62	955
Griffith, Wilfred S., Ambler, assignor of one-half to C. S. Solomon, Philadelphia, Pa. Pump-regulator	491,101	Feb. 7	59	17	62	760
Grigsby, Hugh S., Chicago, Ill. Pulverized-fuel feeder	494,375	Mar. 28	2023	658	62	1908
Grimes, Charles D., Dayton, and G. E. Harter, Springfield, assignors to Dayton Autographic Register Company, Dayton, Ohio. Autographic register apparatus	491,348	Feb. 7	487	125	62	840
Grimes, Charles L., assignor to W. White & Co., Moline, Ill. Hydrostatic tire-setter. (Reissue)	11,307	Feb. 7	749	187	62	891
Griswold, John B., Zanesville, Ohio, assignor of one-half to C. V. Graham. Brick-kiln	489,805	Jan. 10	1258	329, 330	62	276
Griswold, John B., Zanesville, Ohio, assignor of one-half to C. V. Graham. Building-brick	489,898	Jan. 10	1391	362	62	302
Griswold, John H., Oakland, Cal. Combined fruit-picker and pruning implement	491,269	Feb. 7	329	83	62	811
Griswold Manufacturing Company. (See Shields, David, assignor.)						
Griswold, Thomas, Jr., Cleveland, Ohio. Clutch mechanism	491,169	Feb. 7	180	46	62	782
Grob & Co. (See Grob, Julius, assignor.)						
Grob, Julius, assignor to Grob & Co., Horgen, Switzerland. Heddle and heddle-frame for looms	489,631	Jan. 10	1000	260	62	223
Grobe, D. E. (See Crannell, Charles W., assignor.)						
Groenendyke, Montgomery, Cleveland, Ohio. Dish-washing machine	489,190	Jan. 3	319	88	62	72
Groom, Patrick W., deceased; J. Kennedy, Lamar, administrator, and assignor of one-half to C. D. Moody, Webster Groves, Mo. Manufacture of shovels	491,944	Feb. 14	1420	354	62	1048
Grosh, Thomas J., Savanna, Ill. Boiler-furnace	490,062	Jan. 31	3186	815	62	697
Grosse, Carl F. E., Berlin, Germany. Marbled glass	494,063	Mar. 21	2100	.....	62	1796
Grosselin, Nicolas H., Sedan, France. Gig-mill	493,549	Mar. 14	1235	316	62	1614
Groswith, Henry, and R. Ashley, Philadelphia, Pa., assignors, by mesne assignments, to United Columbian Electric Company, of New Jersey. Commutator for dynamos and electric motors	489,000	Jan. 3	36	10	62	9
Grosz, Herman, Modota, Ill. Windmill-regulator	491,550	Feb. 14	862	203	62	923
Grotz, Gottlob F., Bissingen, Würtemberg, Germany. Machine for cutting keyways	489,304	Jan. 3	403	136, 137	62	107
Groves, Aaron, *et al.* (See Shattuck, Samuel, assignor.)						
Grow, Charles A., *et al.* (See Billings, Alvah G., assignor.)						
Grow, Elisha P. (See Thomas and Grow.)						
Gruen, Dietrich, Columbus, Ohio. Stem-winding watch	493,584	Mar. 14	1302	332	62	1628
Gruessner, Frank, assignor of one-fourth to F. B. Badt, Chicago, Ill. Regenerating solutions	489,632	Jan. 10	1001	.....	62	223
Gruessner, Frank, assignor of one-fourth to F. B. Badt, Chicago, Ill. Recovering metastannic acid	489,633	Jan. 10	1002	.....	62	223
Gruetzmacher, Louis, Galveston, Tex. Plant-protector	493,400	Mar. 14	987	254	62	1568
Gruhike, Henry C. O., Morris, Ill. Automatic safety railway-switch	489,563	Jan. 10	935	242	62	209
Grundy, William S. (See Lever and Grundy.)						
Gruver, Benjamin F. (See Chambers and Gruver.)						
Guattari, Auguste, Milan, Italy. Process of and apparatus for producing ornamental woodwork	491,283	Feb. 7	358	90	62	817
Guc, Jerome V., North Western, N. Y. Feed mechanism for sawing-machines	490,748	Jan. 31	2841	729	62	630
Guenther, Jacob, Philadelphia, Pa. Portable vise	490,112	Jan. 17	1780	463	62	396
Guernsey, Jane M. (See Guernsey, William B., assignor.)						
Guernsey, William B., assignor to J. M. Guernsey, Norwich, N. Y. Automatic train-brake	489,890	Jan. 10	1392	362, 363	62	302
Guerrant Cable Tobacco Stemmer Company. (See Guerrant, John C., assignor.)						
Guerrant, Estill C., Memphis, Tenn. Pump-rod coupler	491,551	Feb. 14	803	203	62	923
Guerrant, John C., deceased; M. L. Guerrant, administratrix, assignor to Guerrant-Cable Tobacco Stemmer Company, Danville, Va. Machine for stemming tobacco	494,254	Mar. 28	2423	611	62	1871
Guerrant, Mary L., administratrix. (See Guerrant, John C.)						
Guild & Garrison. (See Garrison, William F., assignor.)						
Guild & Garrison. (See Worthen, William H., assignor.)						
Gulick, Ashley J., Clearfield, Pa. Baggage-check	490,806	Jan. 31	2929	752	62	647
Gumbel, Gustav, Strasburg, Germany. Compound for waterproofing oil-receptacles	491,284	Feb. 7	360	.....	62	817
Gundelach, Emil, New York, N. Y. Bicycle-gear	492,295	Feb. 21	1943	485, 486	62	1170
Gunn, William S., Grand Rapids, Mich. Folding bed	494,419	Mar. 28	2688	674	62	1920
Gunning, Thomas, Pittsburg, Pa. Smoke-consumer	489,381	Jan. 3	608	163	62	131
Gunzburg, Charles, New Orleans, La. Wall-protector	492,673	Feb. 28	2576	637	62	1310
Gustafson, Axel R., Chicago, Ill., assignor of one-half to W. F. Anderson, Negaunee, Mich. Ironing-machine	490,113	Jan. 17	1781	463, 464	62	396
Gustafsson, Karl P. (See Lind and Gustafsson.)						
Guth, Frederick A., Waverly, Ohio, assignor of one-half to G. H. Ohlstrom, Shelton, Conn. Piano-action	491,308	Feb. 7	413	107	62	826
Guthrie, James F., Jr., assignor of one-half to C. A. Cushman, Somerville, Mass. Throw-out	489,530	Jan. 10	861	224, 225	62	195
Gutmann, Julius, Berlin, Germany. Horseshoe with auxiliary flanges	491,643	Feb. 14	956	240	62	956
Guttmann, Oscar, London, England. Making nitric acid	491,481	Feb. 7	688	173	62	880
Haag, Gustav C., New York, N. Y. Loading attachment for carts	492,763	Feb. 28	2715	675	62	1338
Haarmann, Ludwig, Eschershausen, Germany. Securing asphaltic mastic	492,197	Feb. 21	1808	.....	62	1142
Haas, Joseph. (See Porter and Haas.)						
Haas, Walter E. (See Boyer, Israel D., assignor.)						
Hack, Peter, Michigan City, Ind. Tension device for wire fences	490,073	Jan. 17	1717	448	62	382
Hacker, Charles F., Parsons, Kans., assignor of five-eighths to J. A. Scott, Muscogee, Indian Ter., B. Bogy and F. Shapleigh, St. Louis, Mo. Breech-loading shotgun	493,084	Mar. 7	485	121, 122	62	1455
Hackney, Herbert, South Evanston, Ill., assignor to Benjamin Machine Company, of Illinois. Feedwork for woodworking-machines	489,076	Jan. 3	141	40	62	35
Hadley, Charles E., Chicopee, Mass., assignor to Overman Wheel Company, Hartford, Conn. Pneumatic tire	492,580	Feb. 28	2426	604	62	1292
Hadley, William, and A. T. McDonald, assignors of one-third to W. Wilkinson, Shelton, Conn. Rossing-machine	489,251	Jan. 3	422	117	62	94
Hafey, Cuthbert J., Eureka, Kans. Lid-lifting attachment for kettles	491,552	Feb. 14	804	204	62	924
Hager, Ben, Salt Lake City, Utah Ter. Apparatus for disintegrating bituminous rock	493,357	Mar. 14	921	237	62	1554

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Hahn, Jeremiah, *et al.* (See Key, Isaac, assignor.)						
Hahn, John W., *et al.* (See Schenerecker, Joseph, assignor.)						
Hahnel, Robert, Toledo, Ohio. Power-transmitter	494,331	Mar. 28	2548	641, 642	62	1895
Haight, Henry J., New York, N. Y. Electrical indicator	492,011	Feb. 21	1521	380, 381	62	1083
Haines Brothers. (See Haines, William P., assignor.)						
Haines, William P., assignor to Haines Brothers, New York, N. Y. Piano	491,423	Feb. 7	592	149	62	861
Hale, Francis W., Boston, Mass. Pianoforte-mute	493,622	Mar. 14	1368	347	62	1640
Hale, Fred D., *et al.* (See Carpenter, James H., assignor.)						
Hale, Henry S., Philadelphia, Pa. Manger	490,767	Jan. 31	2868	735, 736	62	635
Hale, James W., Newburyport, Mass. Plug or stopper for lavatory apparatus	492,012	Feb. 21	1528	381	62	1083
Hall, Bicknell, Taunton, assignor to Wainwright Manufacturing Company, Boston, Mass. Corrugating-machine	491,259	Feb. 7	314	79, 80	62	809
Hall Chemical and Gas Company. (See Hall, Thurston G., assignor.)						
Hall, Cofran I., San Francisco, Cal. Apparatus for controlling pumps	492,723	Feb. 28	2649	656	62	1325
Hall, Edward J., Morris, N. J., assignor to American Telephone and Telegraph Company, of New York. Trunk-line signaling apparatus and circuit for telephone exchanges	491,553	Feb. 14	804	204	62	924
Hall, Edward J., Morris, and F. A. Pickernell, Newark, N. J., assignors to American Telephone and Telegraph Company, of New York. Signaling apparatus and circuit	492,482	Feb. 28	2259	564	62	1246
Hall, Edward J., Morris, and F. A. Pickernell, Newark, N. J., assignors to American Telephone and Telegraph Company, of New York. Busy-signal for telephone-circuits	492,483	Feb. 28	2263	564	62	1246
Hall, Frank E., Newton, Mass. Glove-fastener	490,627	Jan. 24	2040	679	62	577
Hall, Frank E., Newton, Mass., assignor to Consolidated Fastener Company, Portland, Me. Glove or clothing fastener	490,435	Jan. 24	2013	600	62	512
Hall, Frank E., Newton, Mass., assignor to Consolidated Fastener Company, Portland, Me. Glove-fastener	490,436	Jan. 24	2314	601	62	513
Hall, Frank E., Newton, Mass., assignor to Consolidated Fastener Company, Portland, Me. Button-setting machine	491,016	Jan. 31	3270	585, 586	62	714
Hall, Fred J., Wallingford, Conn. Bicycle-whistle	492,887	Mar. 7	182	44	62	1395
Hall & Garrison. (See Williams, William, assignor.)						
Hall, Hiram, Jr., South Thomaston, assignor to Hall Manufacturing Company, Rockland, Me. Ax-helve. (Reissue)	11,312	Mar. 7	724	185	62	1501
Hall, Joseph, Kirmington, near Brocklesby, England. Manual gymnasium for musicians	494,197	Mar. 28	2330	591	62	1855
Hall, Lester, Kansas City, Kans. Rocking grate	493,085	Mar. 7	487	122	62	1456
Hall Manufacturing Company. (See Hall, Hiram, Jr., assignor.) (Reissue.)						
Hall, Mary E., Boston, Mass. Hemstitching attachment for sewing-machines	493,406	Mar. 14	1142	292, 293	62	1596
Hall, Orlando C., Auburn, N. Y., assignor to Sheldon Axle Company, Wilkes-Barré, Pa. Channeled axle bar and blank	492,553	Feb. 28	2389	593	62	1273
Hall Signal Company. (See Kenyon, William H., assignor.)						
Hall Signal Company. (See Wilson and Salmon, assignors.)						
Hall, Thurston G., assignor to Hall Chemical and Gas Company, Chicago, Ill. Apparatus for manufacturing gas	494,198	Mar. 28	2333	591	62	1855
Hall, Thurston G., assignor to Hall Chemical and Gas Company, Chicago, Ill. Pyro-electric battery	494,199	Mar. 28	2334	592	62	1855
Hall, Thurston G., assignor to Hall Chemical and Gas Company, Chicago, Ill. Process of and apparatus for manufacturing gas	494,200	Mar. 28	2336	592	62	1856
Hall, Thurston G., assignor to Hall Chemical and Gas Company, Chicago, Ill. Smoke-consumer	494,201	Mar. 28	2341	593	62	1857
Hall, Willis E., Altoona, assignor to himself, and M. W. Rudderow, Philadelphia, Pa. Cylinder for power-hoists	492,709	Feb. 28	2726	678	62	1340
Halldén, John A., Ishpeming, Mich. Permutation-padlock	491,102	Feb. 7	61	17	62	760
Hallett, George W., Aberdeen, S. D. Feed-regulator for thrashing-machines	493,706	Mar. 21	1498	383, 384	62	1682
Hallman, Clarence C., Paul's Valley, Indian Ter. Wagon-raiser	490,787	Jan. 31	2902	745	62	642
Halsey, Charles B., assignor, by mesne assignments, to E. A. Halsey, New York, N. Y. Chair	491,794	Feb. 14	1077	272	62	980
Halsey, Effie A. (See Halsey, Charles B., assignor.)						
Halstenbach, August, Buffalo, N. Y. Washing-machine	489,475	Jan. 10	706	202	62	177
Halvardsgaard, Svein M., South Sioux Falls, S. D. Husking-pin	490,559	Jan. 24	2511	646	62	551
Halvorson, Cromwell A. B., Saugus, assignor of one-half to R. B. Lincoln, Boston, Mass. Bushing for incandescent-lamp sockets	491,682	Feb. 14	1012	255	62	968
Ham, Albert W., Lansingburg, N. Y. Machine for setting buttons	492,397	Feb. 28	2121	529, 530	62	1218
Ham, Albert W., Lansingburg, assignor to Trojan Button Fastener Company, Incorporated, Troy, N. Y. Machine for threading button-fasteners into the eyes of buttons	491,103	Feb. 7	62	17, 18	62	761
Hamann, Carl, Reinbeck, Germany. Shears	492,198	Feb. 21	1809	452	62	1142
Hambric, Thomas W., Denver, Colo. Churn	491,644	Feb. 14	957	240	62	956
Hamel, Ephraim. (See Buckley, Thomas H., assignor.)						
Hamell, Henry W., Potsdam, N. Y. Spring-gear for vehicles	493,708	Mar. 21	1500	384	62	1682
Hamill, John F., P. B. Lentz, and C. T. Cole, York, Pa. Match-splint-bundling machine	490,963	Jan. 31	3187	815	62	698
Hamilton, Charles L. (See Newhall and Hamilton.)						
Hamilton, Charles W. (See Clark and Hamilton.)						
Hamilton, William R., Indiana, Pa. Washing-machine	492,674	Feb. 28	2577	638	62	1310
Hammack, Emma C., *et al.* (See Lattimore, Daniel J., assignor.)						
Hammarström, Ernst F., Stockholm, Sweden, assignor of one-fifth to A. Jungmarker, Worcester, Mass. Combined cut-out and lightning-arrester	493,380	Mar. 14	960	247	62	1563
Hammer, William, Elyria, Ohio. Cultivator	493,707	Mar. 21	1499	384	62	1682
Hammerschmidt, Louis. (See Walker and Hammerschmidt.)						
Hammond Buckle Company. (See Dalton, Daniel F., assignor.)						
Hammond, Edward D. (See Hammond, Eugene G. and E. D.)						
Hammond, Eugene G. and E. D., Hanover, Ill. Washing and sizing machine	489,738	Jan. 10	1160	301, 302	62	255
Hammond, Henry, Balston, N. Y. Pipe tongs and wrench	492,199	Feb. 21	1810	452, 453	62	1142
Hampel, Hugo. (See Weber and Hampel.)						
Hanaford, Riley, Beloit, Wis. Coupling for extension-table leaves	489,001	Jan. 3	37	11	62	10
Hancock, Edwin A., E. E. Lovelace, and T. F. Lawless, Lynchburg, Va. Plug tobacco form	489,900	Jan. 10	1404	363	62	304
Hancock, George, assignor to himself and S. Smith, Providence, R. I. Vestibuled railway-car	489,906	Jan. 10	1413	366	62	306
Hancock Inspirator Company. (See Park and Williston, assignors.)						
Hand, Nelson T., Kincaid, Kans. Box-lid fastener	489,531	Jan. 10	862	225	62	195

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Handy, Edward A., *et al.* (See Beeman, Frank A., assignor.)						
Hanes, Joseph T., and T. Blankinsop, Martin's Ferry, Ohio. Apparatus for forming stemmed glass articles	490,905	Jan. 31	3069	705	62	681
Hanna, Robert. (See Reid, Hanna, Holroyd, and Wheat.)						
Hanna, William A., Henry, Ill. Vehicle-tongue	492,013	Feb. 21	1530	381	62	1084
Hanna, William H., Petersburg, Ill. Sewing-machine	491,554	Feb. 14	810	204, 205	62	925
Hannigan, Willis H., Manistique, Mich. Hame	492,157	Feb. 21	1752	436	62	1130
Hannum, Henry A., assignor of one-half to P. A. Webster, Cazenovia, N. Y. Comminuting-machine. (Reissue)	11,298	Jan. 3	712	190, 191	62	153
Hansen, Julius W., assignor of one-half to W. H. Eimers, St. Paul, Minn. Electric motor	490,980	Jan. 24	2073	542	62	465
Hansen, Niels, Cedar Falls, Iowa. Post-support	490,651	Jan. 31	2686	692	62	600
Hanson, Alice A., Baltimore, Md. Child's carriage	490,114	Jan. 17	1783	464	62	397
Hanson, Dempsey B. (See Hinkley, Hanson, and Trout.)						
Hanson, Harry. (See Richard and Hanson.)						
Hanson, John F., Macon, Ga. Clothes-drier	489,305	Jan. 3	495	137	62	108
Hansson, Charles A., Brooklyn, N. Y. Producing pure cultivated pressed yeast	491,939	Feb. 14	1412	353	62	1046
Hansson, John, New York, N. Y. Seed-planter	492,920	Mar. 7	239	60	62	1406
Harbaugh, Idah M. (See Graaff and Harbaugh.)						
Harcourt, Matthew, Detroit, Mich. Vehicle-gear	494,332	Mar. 28	2549	642	62	1895
Hard, John R., New York, N. Y. Electrical annunciator	492,519	Feb. 28	2430	578	62	1260
Hardee, Isaiah, Burke, Tex. Rotary stock-cutter	492,675	Feb. 28	2578	638	62	1310
Hardeman, Emmanuel J., *et al.* (See Smith, Jacob C., assignor.)						
Harden, Edward W. (See Ramsey and Harden.)						
Harden, Edward W. (See Weir and Harden.)						
Harden, Edward W., assignor to F. C. Weir, Cincinnati, Ohio. Direct-acting and compound engine	490,348	Jan. 24	2190	570	62	489
Harden, Edward W., assignor to F. C. Weir, Cincinnati, Ohio. Steam-engine	490,349	Jan. 24	2192	570, 571	62	489
Harder, Charles N. (See Sagendorph, Longley L., assignor.)						
Harding, Charles W. (See Webber, John T., assignor.)						
Harding, Philip A., *et al.* (See Henry, John, assignor.)						
Harding, Thomas G., assignor of one-half to J. W. Goodell, Burlington, Vt. Implement for banding boxes	493,330	Mar. 14	888	227	62	1547
Hardman, Fred H., Beverly, assignor to W. E. Bennett, Boston, Mass. Shank-button	489,864	Jan. 10	1317	349	62	203
Hardoin, Nicolas, Detroit, Mich. Tap and filler for oil-cans	491,349	Feb. 7	489	125	62	841
Hardoin, Nicolas, Detroit, Mich. Beer tap and pump	493,086	Mar. 7	489	122	62	1456
Hardsocg, Martin, Ottumwa, Iowa. Mining-machine	493,381	Mar. 14	961	247, 248	62	1563
Hardwick, Harry, Philadelphia, Pa. Jacquard mechanism	490,350	Jan. 24	2193	571	62	490
Hardy, Lewis W., Chicago, Ill., assignor of two-thirds to H. Rickel and J. A. Ward, Cedar Rapids, Iowa. Steam-pump	492,797	Mar. 7	39	9, 10	62	1367
Hare, William W. (See Wood and Hare.)						
Harper, Henry, assignor to himself, J. Tryon, and T. G. Poole, London, England. Electric-arc lamp	492,200	Feb. 21	1811	453	62	1143
Harper, Henry, assignor to himself, J. Tryon, and T. G. Poole, London, England. Electric-arc lamp	492,201	Feb. 21	1812	453, 454	62	1143
Harper, James M. (See Otis and Harper.)						
Harpfer, John, Detroit, Mich. Folding camp-chair	493,709	Mar. 21	1502	384	62	1682
Harrah, Daniel, Gila, Ill. Folding crate, box, &c	490,281	Jan. 24	2076	542	62	465
Harrah, Philip J., Bloomfield, Ind. Folding bed	493,711	Mar. 21	1505	385	62	1683
Harrington, Ernest A., Beloit, Kans. Corn-harvester	493,710	Mar. 21	1503	385	62	1683
Harrington, George W., Wakefield, Mass. Pipe coupling or fitting	492,159	Feb. 21	1754	437	62	1130
Harrington, George W., assignor of one-half to D. H. Darling, Wakefield, Mass. Preparing the ends of lined pipes for jointing	489,949	Jan. 17	1507	394	62	340
Harrington, George W., assignor of one-half to D. H. Darling, Wakefield, Mass. Method of and apparatus for forming lined pipe	489,950	Jan. 17	1508	394	62	340
Harrington, George W., assignor of one-half to D. H. Darling, Wakefield, Mass. Tool for cutting lead-lined iron pipe	492,158	Feb. 21	1753	436	62	1130
Harris, Charles, Brighton, England. Steamship	491,170	Feb. 7	182	46	62	782
Harris Electrical Propulsion Company. (See Harris, Thomas, assignor.)						
Harris, Frank M., deceased, New Albany, Ind.; W. W. Tuley, executor. Uniting metals	489,077	Jan. 3	142	40	62	35
Harris, George W., New York, N. Y. Storage-battery electrode	489,186	Jan. 3	313	87	62	71
Harris, Ira F., *et al.* (See Adams and Lynam, assignors.)						
Harris, John, Chicago, Ill. Hollow-chisel mortising-machine	494,140	Mar. 28	2240	571, 572	62	1857
Harris, Levi, assignor of three-fourths to O. M. Allen, Sr., and H. B. Peck, Kalamazoo, Mich. Vehicle-hub-attaching device	493,774	Mar. 21	1614	411	62	1705
Harris, Luther M., Somerville, Mass. Cigar	492,676	Feb. 28	2580	638	62	1310
Harris, Mary B., New Albany, Ind. Type-writing machine	489,306	Jan. 3	496	137	62	108
Harris, Mary M., Chicago, Ill. Refrigerator	492,286	Feb. 21	1944	486	62	1170
Harris, R. Duncan. (See Whalin, Adolph, assignor.)						
Harris, Robert N., Hickory, N. C. Coffee-strainer	492,981	Mar. 7	330	83	62	1424
Harris, Samuel, assignor to Steel Motor Company, Cleveland, Ohio. Trolley-stand	491,210	Feb. 7	242	61	62	793
Harris, Samuel, assignor to Steel Motor Company, Cleveland, Ohio. Truck for street-cars	493,770	Mar. 21	1612	410	62	1704
Harris, Thomas, assignor to Harris Electrical Propulsion Company, Limited, Detroit, Mich. Electric-railway system	490,248	Jan. 17	2008	525	62	440
Harris, Thomas, assignor, by mesne assignments, to Harris Electrical Propulsion Company, Limited, Detroit, Mich. Electric-railway system	493,623	Mar. 14	1370	348	62	1640
Harris, William E. B., Vincennes, Ind. Clothes-drier	494,141	Mar. 28	2246	572	62	1858
Harris, William S., Niles, Ohio. Eaves-trough	493,407	Mar. 14	1147	293	62	1597
Harrison, Dallas M. (See Trippe, Merrill H., assignor.)						
Harrison, Eben L., *et al.* (See Merrill, Anson P., assignor.)						
Harrison, Frederick J., Brooklyn, assignor to E. & H. T. Anthony & Company, New York, N. Y. Film measuring and cutting device	492,354	Feb. 21	2053	512	62	1192
Harrison Machine Works. (See Stout, James A., assignor.)						
Harrison, Nancy M., Perry, Iowa. Carpet-fastener	493,401	Mar. 14	988	255	62	1569
Harrison, Samuel A., New York, N. Y. Registering or counting hand-stamp	493,498	Mar. 14	1148	293	62	1597
Harrison, Walter J., *et al.* (See Merrill, Anson P., assignor.)						
Harry, Albert S., Steubenville, Ohio. Retouching device	491,171	Feb. 7	183	46	62	783
Hart, George P., New Britain, Conn. Stop-hinge	491,645	Feb. 14	959	241	62	956
Hart, Harry, Kansas City, Mo. Horse-collar fastener	490,282	Jan. 24	2078	542	62	465
Hart, James M., Topeka, Kans. Ice-cream freezer	491,104	Feb. 7	66	18	62	761
Hart, Joel T., Pleasant Hill, Mo. Vehicle-hub	491,925	Feb. 14	1390	347	62	1042

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Hart, Joseph E., assignor of one-half to J. Hollingsworth, Fowler, Ind. Governor for mechanical motors	490,249	Jan. 17	2011	526	62	441
Hart, Mark A., Scribner, Cal. Suspended chair	491,172	Feb. 7	184	47	62	783
Hart, Marshall M. (See Mealy, John J., assignor.)						
Hart, Russell A., Battle Creek, Mich. Counting apparatus for printing-presses, &c	489,078	Jan. 3	143	40	62	35
Hart, Thomas J., assignor to Sherwood Manufacturing Company, Buffalo, N. Y. Injector	492,921	Mar. 7	941	60, 61	62	1406
Hart, William H., assignor to Stanley Works, New Britain, Conn. Manufacture of chain-links	489,252	Jan. 3	424	118	62	94
Harte, Richard, Croydon, England. Cryptographic instrument	492,677	Feb. 28	2581	638	62	1311
Hartelius, Charles E., Bay Ridge, N. Y. Electrical attachment for rocking-chairs	493,997	Mar. 21	1994	508	62	1777
Harter, George E. (See Grimes and Harter.)						
Hartin, John, Boston, Mass. Distributing apparatus for beer, &c. (Reissue)	11,314	Mar. 21	2192	560	62	1814
Hartley, Charles J., assignor of two-thirds to J. K. Warren and B. K. Durfee, Decatur, Ill. Grain-weigher	490,710	Jan. 31	2778	714	62	619
Hartman, John B. (See Bendure and Tilbery, assignors.)						
Hartman, Marion B., *et al.* (See Ilse, Anthony and A., assignor.)						
Hartsock, Ithamar S., Van Wert, Ohio. Kitchen-cabinet	489,951	Jan. 17	1509	394	62	341
Hartson, Ralph, Richmond Centre, Ohio. Thill-coupling	494,476	Mar. 28	2770	695	62	1935
Hartzell, Conrad, St. Joseph, Mo. Plow	492,724	Feb. 28	2651	656	62	1326
Harvey, Francis B., Atglen, Pa. Harrow and roller	490,198	Jan. 17	1921	499	62	423
Harvey, Frank, and J. Kane, Renovo, Pa. Car-coupling	493,998	Mar. 21	1995	508 / 509	62	1777
Harvey Steel Car and Repair Works. (See McIlwain, John D., assignor.)						
Harwood, Thomas T. H., Rockport, Mass. Dumping-scow	489,434	Jan. 3	691	185 / 186	62	148
Hasey, Sydney P., New York, N. Y. Pneumatic alarm device	493,265	Mar. 14	770	196 / 197	62	1527
Hasey, Sydney P., New York, N. Y. Pneumatic alarm	493,712	Mar. 21	1506	385	62	1683
Haslam, John G. (See Schilling and Haslam.)						
Hassell, Richard L., Chicago, Ill. Conveyer	493,772	Mar. 21	1615	411	62	1705
Hassler, Robert H., Dayton, Ohio. Armature for electric motors	493,025	Mar. 7	401	100	62	1438
Hastings, Robert L., assignor of one-half to H. O. Stearns, Waltham, Mass. Needle-threader	492,581	Feb. 28	2428	605	62	1282
Haswell, Alfred M., Chicago, Ill. Shade-guide	493,162	Mar. 7	668	153	62	1478
Haswell, Theodore, assignor to W. S. Haswell, Denver, Colo. Blacking-brush	491,105	Feb. 7	69	19	62	762
Haswell, William S. (See Haswell, Theodore, assignor.)						
Hatch, Nathan, Boston, Mass. Window-cap	492,922	Mar. 7	943	61	62	1406
Hatfield, Charles B., Utica, N. Y., assignor to Stanley Manufacturing Company, Boston, Mass. Sole-inking machine	492,798	Mar. 7	41	10	62	1367
Hathaway, Adele L., administratrix. (See Hathaway and Kelleher.)						
Hathaway, Louis A., and E. W. Elkins, Kenyon, Minn. Sash-holder	489,476	Jan. 10	767	203	62	177
Hathaway, Merrill H., deceased, Springfield, Mass., (A. L. Hathaway, administratrix,) and J. Kelleher, Manchester, N. H. Insulator for trolley-wires	493,713	Mar. 21	1507	385	62	1683
Hauff, Henry J., Magnolia, Iowa. Windmill-regulator	493,103	Mar. 7	610	153	62	1478
Hausburg, Otto E., Brooklyn, N. Y. Watchman's time-detector	489,532	Jan. 10	863	226	62	195
Hauser, Jacob, and J. Whittaker, Boston, Mass. Steam and air engine	489,148	Jan. 3	255	70, 71	62	59
Hauser, Joseph C., New Haven, Conn. Sash-fastener	492,799	Mar. 7	44	10	62	1367
Hausperger, Frank, *et al.* (See Beehler, Charles W., assignor.)						
Haustein, Henry, San Francisco, Cal. Illuminating-tile	492,865	Mar. 7	150	36	62	1388
Hautin, Victor. (See Soret, Hurtin, and Hautin.)						
Hanty, Auguste J., assignor of one-third to J. Burke, Saltsburg, Pa. Insulator	490,560	Jan. 24	2512	617	62	551
Havell, George, Newark, N. J. Forming button-hooks	492,607	Feb. 28	2472	614	62	1290
Havell, Henry, assignor to A. Devoe, Newark, N. J. Car-axle box	493,026	Mar. 7	403	100	62	1438
Havener, Frank O., Rockport, Me., assignor of one-half to W. E. Douglass, Rome, Ohio. Lumber-gage	489,584	Jan. 10	936	242	62	210
Havey, Cornelius M., assignor to himself and R. Black, New York, N. Y. Signal for railways	493,211	Mar. 7	678	173	62	1492
Hawcroft, Charles R. (See Bancroft and Hawcroft.)						
Hawes, Benjamin N., Toledo, Ohio. Hydrocarbon-burner	492,466	Feb. 28	2234	559	62	1241
Hawes, Elisha, Sacramento, Cal. Metallic lathing	493,714	Mar. 21	1510	386	62	1684
Hawk, Hale E., and A. J. Hazlett, Bucyrus, assignors to Automatic Machine Company, Alliance, Ohio. Vending apparatus	490,019	Jan. 17	1632	425	62	365
Hawk, Hale E., and O. W. Johnson, Bucyrus; said Johnson assignor to said Hawk, Alliance, Ohio. Street-sweeper	491,555	Feb. 14	813	205 / 206	62	926
Hawkins, Charles F., St. John, Kans. Band-cutter and feeder	489,679	Jan. 10	1060	276 / 277	62	236
Hawkins, Jackson D., and F. M. Ray, Temple, Tex. Beehive	493,864	Mar. 21	1761	448	62	1733
Hawkins, John K., Mohawk, Tenn. Manufacture of paint	493,999	Mar. 21	1996	.....	62	1777
Hawkins, Thomas. (See Hawkins, William and T.)						
Hawkins, William and T., Portsmouth, England. Hydrogen-gas generator	490,437	Jan. 24	2315	601	62	512
Hayden, James T., assignor to Crane Company, Chicago, Ill. Graduating-valve for triple-valve mechanisms	493,715	Mar. 21	1511	386	62	1684
Hayden, James W., Lewisport, Ky. Spool-thread cabinet	493,087	Mar. 7	490	122 / 123	62	1457
Hayden, Raphael, Fairmont, W. Va. Conductor system for electric railways	490,597	Jan. 24	2564	660	62	592
Hayden, William W., Newark, N. J. Eyeglass-hook	493,865	Mar. 21	1763	449	62	1733
Hayden, William W., Newark, N. J. Combined match-box and cigar-cutter	493,866	Mar. 21	1763	449	62	1733
Haydon, James R., Cleveland, Ohio. Submarine boat	493,266	Mar. 14	773	197 / 198	62	1527
Haydon, William H., Santo, Tex. Washing-machine	491,424	Feb. 7	593	149	62	861
Hayes, Edward. (See Jensen and Hayes.)						
Hayes, Edward, Rochester, N. Y. Generator	489,002	Jan. 3	38	11	62	10
Hayes, Eli B., Oshkosh, Wis. Door	494,114	Mar. 21	2191	560	62	1814
Hayes, Erastus. (See Beers, Franklin H., assignor.)						
Hayes, James P., Mount Vernon, N. Y. Washstand	491,211	Feb. 7	244	61	62	794
Hayes, John W., assignor to himself, M. Eldredge, and E. S. Fay, Portsmouth, N. H. Steam-engine governor	493,624	Mar. 14	1373	348	62	1641
Hayner, Clark, Troy, Ohio. Fly-switcher for horses	492,287	Feb. 21	1945	496	62	1170
Haynes, Charles M., Omaha, Nebr. Long-distance electric telephony	492,467	Feb. 28	2235	559	62	1241
Hays, John C. (See Gott, Clarence P., assignor.)						
Haysit, James R., Waynesville, Ohio. Churn	494,202	Mar. 28	2343	593	62	1857
Haytock, Benjamin, Paterson, N. J., assignor to Hess, Goldsmith & Co., New York. N. Y. Swivel-loom	491,425	Feb. 7	504	150	62	861
Hayward, Jacob L., Wadeville, N. C., assignor of one-half to W. B. Crittenden, Bucyrus, Ohio. Nut-lock	491,173	Feb. 7	186	47	62	783

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Hazard, Thomas B. and W. E., Buffalo, assignors to H. F. McCann, Salamanca, N. Y. Machine for sharpening matcher-head cutters, &c	490,283	Jan. 24	2079	543	62	466
Hazard, Willet E. (See Hazard, Thomas B. and W. E.)						
Hazelton, Elias, assignor of one-half to H. Ingersoll, Lansing, Mich. Conduit system for electric railways	493,716	Mar. 21	1513	386 / 387	62	1684
Hazlehurst, George B., and F. J. Cole, Baltimore, Md. Coupling-gage	491,174	Feb. 7	188	48	62	783
Hazlett, Andrew J. (See Hawk and Hazlett.)						
Head, Frank E., assignor of one-half to E. E. Kuney, Toledo, Ohio. Trolley-wire support	493,212	Mar. 7	679	173	62	1492
Healy, Caleb E., Detroit, Mich. Combined steam-muffler and heating apparatus	491,482	Feb. 7	689	173 / 174	62	880
Heard, Thomas, St. Thomas, Canada. Car-coupling	489,952	Jan. 17	1510	395	62	341
Heatly, Isaiah S., assignor to I. S. Heatly and H. L. Praet, Jr., Jersey City, N. J. Break-down gun	489,191	Jan. 3	321	88, 89	62	73
Heaton, Charles, Philadelphia, Pa. Shaft-hanger for grinding and polishing machines	491,884	Feb. 14	1328	328	62	1029
Heavener, Floyd, Helena, Mont. Tie-holder	492,202	Feb. 21	1814	454	62	1143
Hebenstreit, Edward, Reading, Ohio, assignor to A. L. Due Fireworks Company. Device for displaying fireworks	489,444	Jan. 3	711	190	62	152
Hecht, Alexander, and W. R. Fechner, New York, N. Y.; said Fechner assignor to said Hecht. Newspaper-file	489,901	Jan. 10	1406	364	62	304
Hecht, Jacob. (See Maxim and Price, assignors.)						
Heckert, William, Findlay, assignor of one-half to B. Butterworth, Cincinnati, Ohio. Universal tube-rolling mill	490,628	Jan. 24	2041	680 / 681	62	577
Heddy, Miller P., Hillburn, N. Y. Liquid-bottling machine	490,020	Jan. 17	1635	426	62	365
Hedges, Charles, Box, England. Stake-shoe	492,520	Feb. 28	2332	579	62	1260
Hedges, Fabian. (See Werner and Williams, assignors.)						
Heene, George W., Cleveland, Ohio. Workman's time-recorder	491,556	Feb. 14	815	206	62	926
Heene, George W., Cleveland, Ohio. Workman's time-recorder	491,557	Feb. 14	816	207	62	926
Heeson, William H., Toronto, Canada. Self-feeding ratchet-brace for hand drilling purposes, &c	493,717	Mar. 21	1516	387	62	1685
Hegart, Frank J., Challis, Idaho. Veterinary surgical instrument	492,288	Feb. 21	1946	486	62	1170
Heggem, Charles O., assignor to Russell & Company, Massillon, Ohio. Steering apparatus for traction-engines	489,865	Jan. 10	1337	349	62	293
Heggem, Charles O., assignor to Russell & Company, Massillon, Ohio. Spark-arrester	489,866	Jan. 10	1339	349	62	293
Heggem, Charles O., assignor to Russell & Company, Massillon, Ohio. Balanced slide-valve	489,867	Jan. 10	1339	350	62	293
Heggem, Charles O., assignor to Russell & Company, Massillon, Ohio. Balanced slide-valve	491,940	Feb. 14	1413	353	62	1046
Heidelberg, Samuel R., Jacksonville, Tex. Device for loading baggage	489,003	Jan. 3	41	11, 12	62	11
Heidler, Gustav, Chemnitz, Germany. Straight-bar knitting-frame	490,351	Jan. 24	2195	571 / 572	62	490
Heimerle, Henry F. (See Aberg, Walfrid A., assignor.)						
Heinemann, Carl, Hammond, Ind. Device for suspending scaffolding	491,885	Feb. 14	1329	329	62	1029
Heinke, Frederick W., Summerfield, Kans. Combination-tool	493,088	Mar. 7	492	123	62	1457
Heintz, Christian, Buffalo, N. Y. Method of and apparatus for purifying and softening liquors	492,542	Feb. 28	2366	588	62	1269
Heiser, Adolph, Chicago, Ill. Closed electric conduit for railways	492,398	Feb. 28	2123	530	62	1218
Heist, Leo G. (See Rader and Heist.)						
Heldebrant, George D., Piqua, Kans. Clod-pulverizer	492,390	Feb. 28	2125	530 / 531	62	1218
Helenbolt, George S., Medina, assignor of one-half to E. Knapp, Middleport, N. Y. Hand-rest for penmen	490,906	Jan. 31	3100	795	62	681
Helldorfer, Georg K., Baltimore, Md. Washing-machine	489,806	Jan. 10	1261	330	62	276
Hellebrandt, Santa, Przemysl, Austria-Hungary. Dynamo-electric machine	493,718	Mar. 21	1517	387 / 388	62	1685
Heller, Louis, Omaha, Nebr. Refrigerator	489,004	Jan. 3	43	12	62	11
Hellings, William P., Aurora, Nebr. Fly-screen	492,014	Feb. 21	1531	382	62	1084
Helm, Thomas W., assignor of one-half to J. T. Carter, Danville, Va. Combined clothes-brush, flask, and drinking-cup	490,964	Jan. 31	3100	815	62	698
Helmer, James L., Rome, N. Y. Cheese-press	490,284	Jan. 24	2081	543	62	466
Hemphill, James, and J. Fawell, Pittsburg, Pa. Crane	489,634	Jan. 10	1002	261	62	223
Hemphill, James, and J. Fawell, Pittsburg, Pa. Crane	489,635	Jan. 10	1003	261	62	224
Hench, Samuel N. (See Reese, Hench, and Dromgold.)						
Hench, Samuel N. (See Richey, Hench, and Dromgold.)						
Henck, John B., Jr., Brooklyn, N. Y. Mop-wringer	490,561	Jan. 24	2513	647	62	552
Hencks & Son, D. S. (See Weese, Tolbert, assignor.)						
Hendershott, Lowell, Kansas City, Mo. Sliding door	494,142	Mar. 28	2247	572	62	1838
Henderson, Fredrick J., Chicago, Ill. Feed-water purifier	494,143	Mar. 28	2248	573	62	1839
Henderson, George. (See Noble and Henderson.)						
Henderson, Henry T., Keokuk, Iowa. Washing-machine	491,063	Jan. 31	3352	855	62	732
Henderson, Norman M., Broxburn, Scotland. Treating or purifying paraffine-wax and apparatus therefor	490,199	Jan. 17	1924	500	62	424
Henderson, Robert H. C. (See Medley, John A., assignor.)						
Henderson, William G., Washington, D. C. Support for phonograph speaking-tubes or other purposes	493,719	Mar. 21	1518	388	62	1686
Hendrick, Jod H., assignor to Warwick Cycle Manufacturing Company, Springfield, Mass. Vehicle-wheel	490,438	Jan. 24	2317	601	62	512
Henkle, Louis R. (See Keene, Milton W., assignor.)						
Henneberg, Hermann O., assignor to Siemens & Halske, Berlin, Germany. Lightning-arrester	493,926	Mar. 21	1860	474	62	1751
Henninger, Theodor, St. Paul, Minn. Mouthpiece for musical instruments	491,616	Feb. 14	960	241	62	956
Henry, Charles H. (See Long and Henry.)						
Henry, Fred H. (See Bolton, Gilman B., assignor.)						
Henry Huber Company. (See Beaumont, Thomas C., assignor.)						
Henry, John, Ilderton, assignor to P. A. Harding and D. Smith, London, Canada. Lever track-jack	491,049	Jan. 31	3337	851	62	729
Henry, John C., New York, N. Y. Truck for electric locomotives	493,089	Mar. 7	494	123	62	1457
Henry, John C. New York, N. Y. Electric railway	494,477	Mar. 28	2771	695	62	1935
Henry, John C., New York, N. Y. Driving-gear for motors	494,478	Mar. 28	2773	695	62	1935
Henry, John C., New York, N. Y. Electric-car truck	494,479	Mar. 28	2774	696	62	1935
Henry, Louis, and L. N. Dalyson, Newark, N. J. Socket-switch for incandescent electric lamps	489,739	Jan. 10	1161	302	62	256
Henry, William A. (See Evans and Henry.)						
Hensel-Colladay Company. (See Adams, Thomas, assignor.)						
Hensel, Georgo F., Philadelphia, Pa. Pendant for dress-trimmings	491,350	Feb. 7	490	125	62	841
Hensley, Joseph B. (See Noble and Hensley.)						
Henson, Marvin T., assignor to B. Gillespie and J. W. Macy, Sidney, Ohio. Vise	493,625	Mar. 14	1374	348	62	1641

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Herb, Charles A., and H. Meyer, Alton, Ill. Switch-signal	490,387	Jan. 24	2247	584	62	501
Herbert, Micheal E., St. Joseph, Mo. Hot-water boiler	489,807	Jan. 10	1261	331	62	276
Herbert, Michael E., St. Joseph, Mo. Hot-water boiler	492,289	Feb. 21	1947	487	62	1171
Herbert, Michael E., St. Joseph, Mo. Fire-box for steam-boilers	492,290	Feb. 21	1948	487	62	1171
Herbrand Company. (See Fetzer, James J., assignor.)						
Herdman, Frank E., Indianapolis, Ind. Electric elevator	492,160	Feb. 21	1755	437, 438	62	1130
Hering, Carl, Philadelphia, Pa. Variable-speed electric motor	489,709	Jan. 10	1111	287	62	246
Herman, John C., St. Louis, Mo. Nut-lock	493,213	Mar. 7	680	174	62	1492
Herman, Ludwig, Cleveland, Ohio. Chain	490,409	Jan. 24	2275	591	62	506
Herman, Ludwig, Cleveland, Ohio. Animal-trap	491,309	Feb. 7	415	107	62	826
Herrick, Frank J., assignor to North & Judd Manufacturing Company, New Britain, Conn. Hammock attachment	490,250	Jan. 17	2012	526	62	441
Herrick, Frank J., assignor to North & Judd Manufacturing Company, New Britain, Conn. Belt-clasp	494,293	Mar. 28	2487	627	62	1883
Herrington, Ephraim, assignor of one-half to R. P. Horton, Atlanta, Ga. Spring-motor	494,203	Mar. 28	2344	593	62	1857
Herrmann, Albert, assignor to Farbwerke, vormals Meister, Lucius & Brüning, Hochst-on-the-Main, Germany. Indigo-blue dye	490,408	Jan. 24	2273	.....	62	506
Herrmann, Charles P., Milwaukee, Wis. Latch	491,285	Feb. 7	361	90	62	817
Herrmann-Rabich Fan and Motor Manufacturing Company. (See Rabich, William, assignor.)						
Herron, James B., assignor, by mesne assignments, to H. S. Park, Chicago, Ill. Soda-water apparatus. (Reissue)	11,313	Mar. 14	1376	349	62	1642
Hersey Manufacturing Company. (See Tilden, James A., assignor.)						
Hersey Manufacturing Company. (See Winton, Henry D., assignor.)						
Herzberg, Morris, Chambers county, Ala., and T. L. Norman, West Point, Ga. Wood-screw	493,585	Mar. 14	1304	332	62	1628
Hesketh, William, Wakefield, England. Machinery for pressing boats from sheet metal	493,720	Mar. 21	1522	389, 390	62	1686
Hesp, William S. (See Currier, Hesp, and Crum.)						
Hess, Fritz, Locle, Switzerland. Embossed plate for enameled watch-dials	493,927	Mar. 21	1861	474	62	1751
Hess, Goldsmith & Co. (See Haytock, Benjamin, assignor.)						
Hess, William T. (See Stockwell, Millard E., assignor.)						
Hess, William T., Grand Rapids, Mich. Trimming-machine	490,848	Jan. 31	2088	765	62	660
Hesse, Frank K., assignor to Codman & Shurtleff, Boston, Mass. Dental engine	489,416	Jan. 3	655	177, 178	62	141
Hesse, Gustav, Long Island City, N. Y. Cigar-wrapping machine	492,203	Feb. 21	1815	454, 455	62	1143
Hetn, Arthur, Holyoke, Mass. Bevel-square	491,351	Feb. 7	491	126	62	841
Hetzer, Otto, Weimar, Germany. Floor	491,647	Feb. 14	960	241	62	956
Heuer, Ferdinand. (See Ohse, Wilhelm, assignor.)						
Hewison, Iona G. (See Gaudron, Edward N., assignor.)						
Hewitt, Philander, Cambria, Mich. Stock-rack	491,886	Feb. 14	1330	329	62	1029
Hewitt, William M., Sharptown, Ind. Plow or cultivator tooth	494,420	Mar. 28	2689	675	62	1921
Hewlings, A. J., *et al.* (See Sanguinetti, Percy A., assignor.)						
Hey, Johann F., Strasburg, Germany. Means for supporting journal-boxes	493,499	Mar. 14	1150	294	62	1597
Heyde, Edward, assignor to Wickes Brothers, Saginaw, Mich. Riveting-machine	493,928	Mar. 21	1862	475	62	1751
Heyden, F. von, Nachfolger. (See Berlinerblau, Joseph, assignor.)						
Heyden, F. von, Nachfolger. (See Seifert, Bruno V., assignor.)						
Heylmun, William R., Rich Hill, Mo. Elevated cable railway	493,500	Mar. 14	1151	294	62	1597
Heywood, Frank E., Worcester, Mass. Box-fastener	489,740	Jan. 10	1163	302	62	256
Hibbs, Augustine A. (See Reagan, Saupp, and Hibbs.)						
Hickman, Luther S. (See Jones, Wesley C. P., assignor.)						
Hickory Wheel Company. (See Elliott, Sterling, assignor.)						
Hicks, Bohn C., Chicago, Ill. Hook for stock-cars	491,803	Feb. 14	1204	301	62	1004
Hicks, Charles A., *et al.* (See Merrill, Anson P., assignor.)						
Hicks, George F. H., Chicago, Ill. Match-safe and cigar-cutter	491,841	Feb. 14	1257	313	62	1016
Hicks, Henry C., Chicago, Ill. Traction-engine	493,267	Mar. 14	774	198, 199	62	1528
Hicks, Oliver H., Chicago, Ill. Apparatus for making bundles of toilet paper	492,204	Feb. 21	1818	455	62	1144
Hicks, Simeon J., Englewood, Ill. Mortising-machine	493,501	Mar. 14	1153	294, 295	62	1598
Hicks, Thomas H., Detroit, Mich. Magnetic core for armatures	492,355	Feb. 21	2055	543	62	1192
Hicks, Thomas H., assignor of one-half to G. F. Case, Detroit, Mich. Bipolar electrical machine	491,106	Feb. 7	70	19	62	762
Higbie, Nathan B., Chicago, Ill. Grain-cleaner or oat-sifting machine	493,429	Mar. 14	1031	266	62	1577
Higginbottom, James, Liverpool, England. Centrifugal dressing-machine	490,652	Jan. 31	2087	692	62	601
Higginbottom, James, and O. Stuart, Liverpool, England. Middlings-purifier	490,285	Jan. 24	2081	543, 544	62	467
Higgins, Martin, Niles, Ohio. Lock	491,352	Feb. 7	493	126	62	841
Higgins, Rozander S., Neoga, Ill. Feed-trough	489,808	Jan. 10	1263	331	62	277
Higginson, Henry C., Newburg, N. Y. Manufacture of whiting	491,353	Feb. 7	494	127	62	842
High, Maurice F., Lebanon, Pa. Nut-machine	491,175	Feb. 7	190	48	62	784
Higham, Charles C., St. Louis, Mo., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Truck-brake	492,923	Mar. 7	243	61, 62	62	1407
Higman, George N., *et al.* (See Stephens, Jesse A., assignor.)						
Hilde, Hermann, Rosswein, Germany. Glass-blowing apparatus	493,867	Mar. 21	1764	449, 450	62	1733
Hilder, Gottfrid J., St. Cloud, Minn. Multicharge-gun	493,382	Mar. 14	962	248	62	1563
Hildreth, Charles L., assignor to Lowell Machine Shop, Lowell, Mass. Actuating mechaniam for doffer-combs of carding-engines	492,533	Feb. 28	2350	583	62	1264
Hill, Elijah R., New Albany, Miss. Pump	492,678	Feb. 28	2582	639	62	1311
Hill, Frank D. (See Wallace, Edward L., assignor.)						
Hill, George H., Reading, Mass. Sunshade for bicycles or other vehicles	494,333	Mar. 28	2551	643	62	1895
Hill, George S., Bradford, assignor to J. Reece, Boston, Mass. Sewing-machine	494,480	Mar. 28	2775	696	62	1936
Hill, Herbert P. (See Irons and Hill.)						
Hill, Joel E., Germanton, N. C. Filter	492,161	Feb. 21	1757	478	62	1131
Hill, John J., Chicago, Ill. Device for facilitating copying	489,953	Jan. 17	1511	395	62	341
Hill, John J., Chicago, Ill. Device for facilitating copying	489,954	Jan. 17	1512	395	62	341
Hill, John L. (See Eglin, William, assignor.)						
Hill, John M. (See Laird, Archibald F., assignor.)						
Hill, Joseph B. (See Hill, Samuel C., assignor.)						
Hill, Julian P., Buffalo, N. Y. Ball-throwing device	491,558	Feb. 14	817	207	62	927
Hill, Lyman L., assignor to H. C. Bradley, Bridgeport, Conn. Wood-turning lathe	491,941	Feb. 14	1414	353	62	1047

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hill, Oscar M., Santa Paula, Cal. Centrifugal honey-extractor	494,421	Mar. 28	2690	675	62	1921
Hill, Peter, assignor of two-thirds to W. B. and M. Roche, Newark, N. Y. Dust-pan	490,300	Jan. 17	1925	500	62	424
Hill, Samuel C., assignor to J. B. Hill, Washington, D. C. Railway-spike	491,050	Jan. 31	3338	851	62	729
Hill, Thomas, Jersey City, N. J. Wheel-vehicle	490,562	Jan. 24	2514	647	62	552
Hill, Thomas, assignor to Adams Tobacco Press Company, Quincy, Ill. Tobacco-press	489,741	Jan. 10	1165	302, 303	62	256
Hille, Adolph W. (See Hinchman and Hille.)						
Hille, Gustav L., Bolton, England. Machine for cutting caoutchouc sheets	490,824	Jan. 31	2956	758, 759	62	653
Hillgren, Andreas, Geneva, Switzerland. Inkstand	489,636	Jan. 10	1004	261	62	224
Hillhouse, Charles B. (See Stoner, John B., assignor.)						
Hills, Elmer E., Dixon, Ill. Type-writing machine	492,800	Mar. 7	46	11	62	1368
Hills, William D., Salem, Ill. Tire-tightener	494,334	Mar. 28	2553	643	62	1896
Hilsinger, Adin W., Orange, N. J. Hat-blocking and stretching machine	490,563	Jan. 24	2516	647	62	552
Himelspark, George. (See Leech and Himelspark.)						
Hinchman, James B., and A. W. Hille, Denver, Colo., said Hille assignor to said Hinchman. Car-coupling	493,266	Mar. 14	777	199	62	1528
Hincks & Johnson. (See Rishor, Christopher J., assignor.)						
Hindermeyer, Anthony J., assignor to M. A. and M. W. Hunter, Philadelphia, Pa. Converting malleable iron into steel	492,679	Feb. 28	2584	.....	62	1311
Hines, Elisa F., and H. Y. Gibson, Peoria, Ill. Clothes-drier	492,015	Feb. 21	1532	382	62	1084
Hinkle, Wilber W., Hood's Mills, and I. H. Gaither, Cockeysville, Md. Double-shovel cultivator	491,176	Feb. 7	191	49	62	784
Hinkle, Wilber W., Hood's Mills, and I. H. Gaither, Cockeysville, Md. Harrow	492,680	Feb. 28	2584	639	62	1311
Hinkley, George M., D. B. Hanson, and W. H. Trout, assignors of one-half to Edward P. Allis Company, Milwaukee, Wis. Band-saw mill	491,683	Feb. 14	1013	255, 256, 257	62	968
Hinkson, Edgar E. (See Cross, Liberty, assignor.)						
Hinson, Titus. (See Anderson, Eli, assignor.)						
Hinton, Charles W., Los Angeles, Cal. Car-coupling	493,402	Mar. 14	988	255	62	1569
Hinze, Adolph, New York, N. Y. Apparatus for dyeing	489,955	Jan. 17	1514	396	62	342
Hirsch, Franz L. von, Dusseldorf, Germany. Bottle-stopper	489,637	Jan. 10	1005	262	62	224
Hirst, Charles S. (See McMurrow, John, Jr., assignor.)						
Hirt, Louis J., Arlington, Mass. Street-car	491,107	Feb. 7	71	19	62	762
His, Louis, New York, N. Y. Mold-forming knife	494,000	Mar. 21	1907	509	62	1777
Hise, George. (See Hise, Max and G.)						
Hise, Max and G., Grahamton, Ky. Boiler	489,809	Jan. 10	1264	331	62	277
Hiser, Daniel B. (See Thomas and Hiser.)						
Hiss, Nelson, Baltimore, Md. Elevator-indicator	489,005	Jan. 3	44	12, 13	62	12
Hitchcock, A. P. (See Laighton and Hitchcock.)						
Hitchcock, Howard H., *et al.* (See Wheat, John J., assignor.)						
Hitchcock, Robert, and H. D. Waite, Watertown, N. Y. Sponge-cup	490,653	Jan. 31	2689	692	62	601
Hitchon, Alfred, Accrington, England. Device for adjusting the bends of traveling-flat carding-engines	494,422	Mar. 28	2692	675	62	1921
Hitt, Adrian, Anderson, Ind. Window	491,310	Feb. 7	416	107	62	826
Hoare, George, Newark, N. J. Armature for dynamo-electric machines	492,681	Feb. 28	2585	639, 640	62	1312
Hobday, William A., Hurley, Wis. Pedal attachment for organs or pianos	489,810	Jan. 10	1265	332	62	277
Hocking Valley Manufacturing Company. (See Cartmell, Edson B., assignor.)						
Hodge, Harmon S., assignor of one-half to W. P. Cutting, Metropolis City, Ill. Hat and coat hook	490,768	Jan. 31	2869	736	62	635
Hodges, George S. (See Tracy and Hodges.)						
Hodges, Pliny F., Goochland Court-House, Va., assignor to G. A. Prevost, trustee, Washington, D. C. Corn-harvester	489,680	Jan. 10	1063	277, 278	62	237
Hodges, William W., Cleveland, Ohio. Car-brake	490,711	Jan. 31	2780	714	62	619
Hodgson, William. (See Frohlich, Amadeus A., assignor.)						
Hodson, Jubal E., Redwood Falls, Minn. Fence-post	492,088	Feb. 21	1638	407	62	1106
Hoe, Robert, *et al.* (See Crowell, Luther C., assignor.)						
Hoe, Robert, *et al.* (See Shattuck, Edwin L., assignor.)						
Hoefer, Frederick W., Freeport, Ill. Handle	489,560	Jan. 10	902	235	62	204
Hoefer, Frederick W., Freeport, Ill., assignor to C. G. and W. J. Shepard, Buffalo, N. Y. Wire handle	491,648	Feb. 14	961	242	62	957
Hoeffler, Adolph, and F. L. G. Chapman, Stevens Point, Wis. Safety-gate for drawbridges	491,177	Feb. 7	192	49	62	784
Hoelzer, Theodore, Toledo, Ohio. Muffle-kiln	490,825	Jan. 31	2957	759	62	653
Hoenig, Joseph, Lockport, N. Y. Machine for reducing piles preparatory to rolling	490,021	Jan. 17	1638	426	62	366
Hofacker, Martha, New York, N. Y. Bedstead	490,201	Jan. 17	1926	501	62	424
Hoffman, Carroll B., *et al.* (See Culver, Frank S., assignor.)						
Hoffman, Frank E. (See Norton and Hoffman.)						
Hoffmann, Ernst A., Del Norte, Colo. Potato-digger	492,016	Feb. 21	1533	382	62	1084
Hoffmann, Gustav, Tischdorf, Germany. Potato-planting machine	491,887	Feb. 14	1331	329	62	1030
Hoffmann, Gustav, Gottesberg, Germany. Coke-oven	492,400	Feb. 28	2125	531, 532	62	1219
Hoffstaedt, Frank N., and J. F. Springer, Firth, Nebr. Reel-carrier	489,742	Jan. 10	1167	303, 304	62	256
Hofmann, Otto, Lissa, Germany. Money-tray	491,649	Feb. 14	962	242	62	957
Hogg, James A., Independence, and H. G. Green, Cleveland, Ohio. Potato-digger	489,650	Jan. 10	1021	266	62	228
Hogg, William J. (See Coley, Joseph, assignor.)						
Hoggson & Pettis Manufacturing Company. (See Hoggson and Bement, assignors.)						
Hoggson, Samuel J., New Haven, Conn. Making piano or organ keyboards	493,027	Mar. 7	404	101	62	1438
Hoggson, William J., and E. P. Bement, assignors to Hoggson & Pettis Manufacturing Company, New Haven, Conn. Chuck	493,502	Mar. 14	1156	295	62	1598
Hogue, Orville J. (See McLeran, Alvord M., assignor.)						
Hohenreiner, Josef, Munich, Germany. Chimney-door	491,735	Feb. 14	1092	276	62	983
Hohenstein, Henry, and B. J. Apple, Savannah, Ga. Bicycle-canopy	490,239	Jan. 17	1974	518	62	434
Holbrook, Edward H., Jr. (See Lloyd, Marshall B., assignor.)						
Holbrook, Giles J., Jersey City, N. J. Æolian harp	493,773	Mar. 21	1616	411	62	1705
Holcomb, Thomas D., Brooklyn, N. Y. Carpet-lining, packing, &c	493,929	Mar. 21	1863	475	62	1752
Holcombe, John H. L., U. S. Navy. Combined electric switch and door-lock	491,426	Feb. 7	596	150	62	862
Holden, Daniel L., New York, N. Y. Ice-making machinery	490,475	Jan. 24	2381	616	62	525
Holden, Daniel L., New York, N. Y. Refrigerating apparatus	493,721	Mar. 21	1524	390, 391	62	1686
Holfert, Max, Dayton, Ohio. Sign	490,654	Jan. 31	2690	692, 693	62	601

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Holland, C. G., *et al.* (See Fontaine, Patrick H.)						
Holland, Charles E. (See Ayrton and Perry, assignors.)						
Holland, John P., Newark, N. J. Submarine gun	491,051	Jan. 31	3340	851	62	729
Holland, John P., Newark, N. J. Steering apparatus for submarine vessels	492,960	Mar. 7	998	75	62	1418
Holland, Timothy, Chicago, Ill. Mantel hot-water heater	491,108	Feb. 7	72	20	62	762
Hollander, Alva L., Millis, Mass. Dust-pan	490,875	Jan. 31	3029	779	62	669
Holley, Joseph, Brooklyn, N. Y. Box	489,253	Jan. 3	425	118	62	94
Holliday, John W., Paris, Ky. Sulky	492,725	Feb. 28	2652	657	62	1326
Hollingsworth, Charles M., Cleveland, Ohio. Vapor-stove	489,477	Jan. 10	768	203	62	177
Hollingsworth, Charles M., Cleveland, Ohio. Vapor-stove	490,655	Jan. 31	3691	693	62	601
Hollingsworth, Jesse. (See Hart, Joseph E., assignor.)	490,656	Jan. 31	3692	693	62	602
Holloway, Charles T., Baltimore, Md. Chemical fire-engine	493,028	Mar. 7	406	101	62	1438
Holloway, Nixon, Lincolnville, Ind. Chicken-brooder	493,586	Mar. 14	1305	333	62	1629
Hollowell, Robert T., Danville, Ind. Self-serving table	490,286	Jan. 24	2085	544	62	467
Holly, Peter B., *et al.* (See Selp, Thomas A., assignor.)						
Holman & Co., A. J. (See Holman, William A., assignor.)						
Holman, Silas W., Boston, Mass. Telephone-cable	491,109	Feb. 7	74	20, 21	62	763
Holman, William A., assignor to A. J. Holman & Co., Philadelphia, Pa. Easel-album	491,942	Feb. 14	1417	354	62	1047
Holman, William L., *et al.* (See Green, John, assignor.)						
Holmes, Booth & Haydens. (See Shipley, Ralph J., assignor.)						
Holmes, Daniel M., Arlington, N. J., assignor to J. R. Van Derver, New York, N. Y. Machine for coating confectionery	490,769	Jan. 31	2870	{736 737	62	636
Holmes, Daniel M., Arlington, N. J., assignor to J. R. Van Derver, New York, N. Y. Machine for coating confectionery	492,205	Feb. 21	1820	{455 456	62	1144
Holmes, Daniel M., Arlington, N. J., assignor to J. R. Van Derver, New York, N. Y. Cake-coating machine	493,403	Mar. 14	990	255	62	1569
Holmes, Edwin C., *et al.* (See Brewer, Andrew T., assignor.)						
Holmes, John. (See O'Brien, Geraldine, assignor.)						
Holmes, John B., New York, N. Y. Twine reel and holder	492,162	Feb. 21	1759	{438 439	62	1131
Holmes, Philip H., Gardiner, Me. Pulley	492,801	Mar. 7	47	11	62	1368
Holmes, William J. (See Simmons and Holmes.)						
Holmes, William W., assignor to Consolidated Brake Adjuster Company, Chicago, Ill. Slack-adjuster for car-brakes	490,352	Jan. 24	2198	{572 573	62	491
Holroyd, Thomas. (See Reid, Hanna, Holroyd, and Wheat.)						
Holstein, Carl. (See Streufert, Charles, assignor.)						
Holt, Benjamin. (See Ingersoll, George W., assignor.)						
Holt, Benjamin, Stockton, Cal. Traction-engine	489,811	Jan. 10	1266	332	62	277
Holt, Florence E., Stoneham, Mass. Garment-supporter	492,356	Feb. 21	2057	513	62	1192
Holt, James, Liverpool, England. Flushing system for water-closets, &c	494,481	Mar. 28	2777	697	62	1936
Holt, William H., Busti, N. Y. Neck-yoke	493,269	Mar. 14	778	199	62	1529
Holtz, William. (See Botsford and Holtz.)						
Holyoke Envelope Company. (See Ball, James, assignor.)						
Homan, William C., Meriden, Conn. Argand lamp	491,965	Feb. 14	1449	{360 361	62	1054
Hommel, Charles H., Sayville, N. Y. Wrench	491,888	Feb. 14	1332	330	62	1030
Honman, Andrew, and V. Vulliez, Williamstown, Victoria. Process of and apparatus for the manufacture of white lead	489,254	Jan. 3	426	{118 119	62	95
Hood, Daniel C. (See Klahn, Emil, assignor.)						
Hook, William J., Union City, Ind. Hoop-driving machine	490,476	Jan. 24	2382	{616 617	62	526
Hooker, John, Beccles, England. Machinery for distributing type	493,270	Mar. 14	779	{200 201 202 203	62	1529
Hool han, Ambrose, Buffalo, N. Y. Punching-machine	493,800	Mar. 21	1796	458	62	1739
Hooper, Rebecca E., San Francisco, Cal. Guide-shield for type-writing machines	493,503	Mar. 14	1157	295	62	1598
Hooper, William J. (See Price, George W., assignor.)						
Hoover, Elias W., Chicago, Ill. Dust-collector	493,504	Mar. 14	1158	296	62	1598
Hoover, Jeremiah L., Fishertown, Pa. Farm-gate	489,533	Jan. 10	864	226	62	196
Hopedale Machine Company. (See Rhoades, Alonzo E., assignor.)						
Hopkins, Adelbert C. (See Shephard and Hopkins.)						
Hopkins, Charles W. (See Briggs and Hopkins.)						
Hopkins, Harvey J. (See Nixon, James A., assignor.)						
Hopkins, Harvey L. (See Ninnamaker, John W., assignor.)						
Hopkins, Henry W. (See Hopkins William D., assignor.)						
Hopkins, James L. (See Morgan, William, assignor.)						
Hopkins, Jason R., assignor of one-half to G. S. Prindle and P. G. Russell, Washington, D. C. Spindle-chuck	489,006	Jan. 3	45	13	62	12
Hopkins, Selden R., New York, N. Y. Bank or check book	489,561	Jan. 10	903	{235 236	62	204
Hopkins, Selden R., New York, N. Y. Coupon-bond	489,956	Jan. 17	1515	396	62	342
Hopkins, William D., Goffstown, assignor of one-half to H. W. Hopkins, Wilton, N. H. Wood-sawing machine	492,746	Feb. 28	2080	{665 666	62	1331
Hopkinson, Henry, Nottingham, England. Injector	489,812	Jan. 10	1269	333	62	278
Hopkinson, Henry, Nottingham, England. Injector	489,813	Jan. 10	1270	333	62	278
Hopkinson, John E., London, England. Hose	489,478	Jan. 10	770	203	62	177
Horack, Charles L., Brooklyn, N. Y. Method of and apparatus for operating aqua-ammonia engines	493,722	Mar. 21	1527	391	62	1687
Horn, Albro R. (See Callaghan and Horn.)						
Horn, Ernest F. W., Antigo, Wis. Band-saw guide	492,511	Feb. 28	2322	576	62	1258
Horn, George A. (See Horn, Henrietta, assignor.)						
Horn, Henrietta, assignor of one-half to G. A. Horn, Newark, N. J. Adjustable pattern for drafting garments	490,622	Jan. 17	1640	{426 427	62	366
Horn, Jeremiah M. (See Howell and Horn.)						
Horne, Abram B., Logan, Ohio. Brick-kiln	493,930	Mar. 21	1864	{475 476	62	1752
Horne, Alexander, Cathcart, Scotland. Pressure-reducing valve	491,178	Feb. 7	194	50	62	785
Horrie, David, Kaukauna, Wis. Railway-frog	491,842	Feb. 14	1261	313	62	1016
Horton, Gilbert D., Snohomish, Wash. Fly-catcher	491,427	Feb. 7	599	151	62	862
Horton, Robert P. (See Herrington, Ephraim, assignor.)						
Horton, William P., Jr., assignor of one-half to A. B. Jones, Cleveland, Ohio. Dental appliance for obtunding nerves	493,723	Mar. 21	1535	391	62	1688

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Hoster, Charles E., *et al.* (See Iske, Anthony and A., assignor.)						
Hotchkiss, Albert S., Wallingford, Conn. Insect-powder distributer	493,587	Mar. 14	1306	333	62	1629
Hotchkiss, Clarence F., Binghamton, N. Y. Boring-machine	491,110	Feb. 7	75	21	62	763
Hotchkiss, Joseph V., Jay, assignor of one-half to H. Kehlenbeck, Pleasant, Ind. Cross-cut-saw	494,103	Mar. 21	2170	554	62	1810
Hotchkiss, Zeroy P., Oak Park, assignor to Automatic Telegraph Improvement Company, Chicago, Ill. Telegraphy	489,435	Jan. 3	602	{186 187	62	149
Hottman, Charles W., Philadelphia, Pa. Sausage-stuffing machine	490,712	Jan. 31	2781	714	62	619
Hough, T. C. (See McAmarney, John S., assignor.)						
Houghtaling, William, assignor to Ashcroft Manufacturing Company, Bridgeport, Conn. Attachment for steam-engine indicators	494,482	Mar. 28	2779	697	62	1936
Houghton, Edward J., and W. White, London, England. Commutating apparatus for dynamo electric machines	492,291	Feb. 21	1550	417	62	1171
Houk, Robert T., assignor to National Cash Register Company, Dayton, Ohio. Cash-register	492,982	Mar. 7	331	83	62	1425
Houk, Robert T., assignor to National Cash Register Company, Dayton, Ohio. Cash-register	492,983	Mar. 7	334	84	62	1425
House, Allen W., Homestead, Pa. Mantel	493,404	Mar. 14	991	256	62	1569
House, Frank J., Chicago, and F. X. Martin, Downer's Grove, Ill. Hammock	490,287	Jan. 24	2086	544	62	467
Houseman, Harry A., Philadelphia, Pa. Circular-knitting machine	489,957	Jan. 17	1516	396	62	342
Houser, George H. (See Bodkin, Charles W., assignor.)						
Houston, Joseph M. (See Young, William J., assignor.)						
Hounsworth, Robert. (See Marlow, Thomas F., assignor.)						
Hovey, Elmer A., Chicago, Ill. Means for mounting pulleys in curves of cable railways	491,559	Feb. 14	818	{207 208	62	927
Howard, Amasa. (See Kidder, Amasa N., assignor.)						
Howard, Charles, New York, N. Y. Vulcanizing and drying wood. (Reissue)	11,309	Feb. 21	2604	562	62	1199
Howard, Charles D., Syracuse, N. Y. Draft-regulator	491,752	Feb. 14	1116	282	62	988
Howard, James H. (See Adams, Benjamin D., assignor.)						
Howard, Samuel A., *et al.* (See Butler, James L., assignor.)						
Howard Sterling Company. (See Wientge, Charles C., assignor.)						
Howard, William H., Pueblo, Colo. Apparatus for separating matte from slag	489,307	Jan. 3	497	137	62	108
Howe & Bassett. (See O'Neil, Daniel, assignor.)						
Howe, Eugene L., Cleveland, Ohio. Hame-tug	489,007	Jan. 3	47	13	62	12
Howe, Eugene L., Cleveland, Ohio, assignor of one-third to I. P. Rice, Chicago, Ill. Wheel	492,017	Feb. 21	1334	302	62	1085
Howe, Glenn G., Indianapolis, Ind., assignor to Ewart Manufacturing Company, Chicago, Ill. Chain	494,423	Mar. 28	2693	676	62	1921
Howe, John B., Danbury, Conn. Hat-pouncing machine	490,788	Jan. 31	2902	{746 747	62	642
Howell, Osborn G., and J. M. Horn, Arba, Ind. Pump	490,657	Jan. 31	2694	{693 694	62	602
Howes, Albert P., Worcester, assignor to F. W. Foster, Melrose, Mass. Faucet	493,774	Mar. 21	1617	412	62	1705
Howes, Isaiah C., Kansas City, Mo. Railway-spike	490,439	Jan. 24	2318	601	62	513
Hoy, Asa R., Indianapolis, Ind. Lubricator	492,018	Feb. 21	1535	380	62	1085
Hoyt, Benjamin W., Brooklyn, assignor to E. S. T. Kennedy, New York, N. Y. Steam drying and superheating apparatus for steam-boilers	490,965	Jan. 31	3191	816	62	699
Hoyt, Eli T., Algansee, Mich. Wire stretching and twisting tool	491,111	Feb. 7	76	21	62	763
Hoyt, Frederick A. (See Rundlett and Hoyt.)						
Hoyt, Henry M., Spokane, Wash. Copying-press	493,271	Mar. 14	784	203	62	1529
Hoyt, Will. F., Dowagiac, Mich. Seeding-drill	492,802	Mar. 7	48	11, 12	62	1368
Hubbard, Allen, Boston, Mass. Air-valve for radiators	491,112	Feb. 7	77	22	62	764
Hubbard, Charles F., Toronto, Canada. Baking-oven	489,743	Jan. 10	1168	{304 305	62	257
Hubbard, George M., assignor to W. & E. T. Fitch, New Haven, Conn. Currycomb	493,029	Mar. 7	406	101	62	1439
Hubbard, William D. (See Williams, Harry R., assignor.)						
Hubbard, William H., and A. Goodrich, Auburn, N. Y. Shelving	490,288	Jan. 24	2087	544	62	468
Hubbell, Edwin, assignor of one-half to H. R. Gering, Plattsmouth, Nebr. Sliding-door lock	490,251	Jan. 17	2013	526	62	441
Hudnut, Benjamin G., Terre Haute, Ind. Corn product	491,432	Feb. 7	590	151	62	803
Hudson, Daniel C., Berlin, Md. Plotter	492,642	Feb. 28	2567	640	62	1312
Hudson, David W., F. La Strong, and G. D. Bunch, Los Angeles, Cal. Manufacture of butter	489,814	Jan. 10	1271	.....	62	279
Huebel, Otto H. (See Manger and Huebel.)						
Huether, Ernest. (See Urmy and Huether.)						
Huffman, William P., Hickory, N. C. Cash-register	489,228	Jan. 3	384	106	62	86
Hughes, John. (See Salter and Hughes.)						
Hughes, John W., *et al.* (See Broome, Henry, assignor.)						
Hughes, Samuel, Lindsay, Canada. Railway-car ventilator	490,388	Jan. 24	2248	585	62	501
Huguley, Joh. C., Dallas, Tex. Car-coupling	489,607	Jan. 10	970	252	62	217
Hulett, George H., Cleveland, Ohio. Drop-bottom bucket	494,294	Mar. 28	2487	627	62	1883
Hull, William S., Sheffield, Ala., assignor of one-half to C. H. Sparks, St. Louis, Mo. Electric prison cell and guard	489,902	Jan. 10	1407	364	62	304
Hullings, Charles W., assignor of one-half to J. W. Thatcher, Philadelphia, Pa. Locomotive fire-box	490,629	Jan. 24	2647	{681 682	62	578
Hult, Oscar W. (See Pihl and Hult.)						
Hultgren, William H., assignor of three-fourths to Michigan Elevator and Engine Company, Detroit, Mich., and A. B. Ellithorpe, Chicago, Ill. Safety device for elevators	493,724	Mar. 21	1537	{391 392	62	1680
Hunn, Edward K., Pittsburg, Pa. Lightning-rod ball	492,512	Feb. 28	2323	576	62	1258
Humans, William, Cambridge, Mass., assignor to American Magnetic Electric Company, Jersey City, N. J. Magneto-telephone switch	492,019	Feb. 21	1535	383	62	1085
Hume, Charles S., Detroit, Minn. Hanger for electric lamps	489,815	Jan. 10	1271	333	62	279
Hume, Robert D., Gold Beach, Oreg. Can-lacquering machine	489,903	Jan. 10	1409	364	62	305
Hume, Robert D., Gold Beach, Oreg. Machine for forming can-bodies	493,588	Mar. 14	1307	{333 334 335	62	1629
Hummel, August, Chicago, Ill., assignor to C. C. Puffer, Rochester, N. Y. Manufacture of beer	492,292	Feb. 21	1951	488	62	1172
Hummel, Georg, Nuremberg, Germany. Coulomb-counter	491,560	Feb. 14	819	208	62	927
Hummer, Andrew, Maria Stein, Ohio. Thill-coupling	492,293	Feb. 21	1955	488	62	1172
Humphrey, Henry L., *et al.* (See Stark, James M., assignor.)						
Humphrey, Victor, Lexington, N. C. Bed-brace	489,479	Jan. 10	771	204	62	178
Humphreys, George. (See Vance, William H., assignor.)						
Humphry, George, Belvidere, Ill. Foot-power hammer	494,335	Mar. 28	2554	643	62	1896
Hunt, Alfred E., Pittsburg, Pa. Manufacturing steel	493,090	Mar. 7	494	.....	62	1457
Hunt, John, Beloit, Wis. Apparatus for transmitting motion	493,589	Mar. 14	1311	335	62	1630

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Hunt, John G., Philadelphia, Pa. Toy	494,002	Mar. 21	2004	510	62	1779
Hunt, Jonathan H., Westborough, Mass. Velocipede-saddle	489,308	Jan. 3	498	138	62	108
Hunt, Joseph, Allentown, Pa. Grinding or pulverizing mill	493,164	Mar. 7	613	153, 154	62	1479
Hunt, Preston R., Plattsville, assignor of one-half to A. J. Cory, Tawawa, Ohio. Corn-harvester	491,889	Feb. 14	1333	330, 331	62	1030
Hunter, Edwin. (See Rader and Hunter.)						
Hunter, George E., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Mechanism for testing watch-balances and hair-springs	490,202	Jan. 17	1927	501, 502, 503, 504, 505	62	425
Hunter, George E., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Testing watch-balances and hair-springs	490,203	Jan. 17	1932	505, 506, 507	62	426
Hunter, George E., Elgin, assignor to Elgin National Watch Company, Chicago, Ill. Manufacture of timepiece-balances	490,204	Jan. 17	1936	508	62	426
Hunter, Harry C. (See Hunter, Lytle J., H. C., and J. H.)						
Hunter, Henry C., Alameda, Cal. Packing-vessel	492,803	Mar. 7	51	12	62	1368
Hunter, Henry C., Alameda, Cal. Packing	492,804	Mar. 7	51	12	62	1369
Hunter, Henry C., Alameda, Cal. Side-seaming strip for cans	492,805	Mar. 7	53	13	62	1369
Hunter, Henry C., Alameda, Cal. Packing-vessel	492,806	Mar. 7	54	13	62	1369
Hunter, Henry P., Manchester, N. H. Loom for weaving bags	494,204	Mar. 28	2345	593, 594	62	1857
Hunter, Joseph H. (See Hunter, Lytle J., H. C., and J. H.)						
Hunter, Lytle J., Covington, Ky., H. C. and J. H. Hunter, Winton Place, Ohio. Ticket-controlling apparatus	493,931	Mar. 21	1866	476, 477	62	1752
Hunter, Lytle J., Covington, Ky., H. C. and J. H. Hunter, Winton Place, Ohio. Ticket, transfer, and receipt controller	494,001	Mar. 21	1998	509	62	1778
Hunter, Maria W., *et al.* (See Hindermeyer, Anthony J., assignor.)						
Hunter, Marshall E., and J. O. Clark, Boston, Mass., assignors, by mesne assignments, to J. H. Mitchell, Philadelphia, Pa. Machine for molding oval or other shapes from plastic material	492,206	Feb. 21	1822	457	62	1145
Hunter, Mary A., *et al.* (See Hindermeyer, Anthony J., assignor.)						
Hunter, Rudolph M., Philadelphia, Pa., assignor to Thomson-Houston Electric Company, of Connecticut. Dynamo-electric machine and motor	492,888	Mar. 7	183	44, 45	62	1395
Hunter, Rudolph M., Philadelphia, Pa., assignor to Thomson Houston Electric Company, of Connecticut. Electric search-light	493,358	Mar. 14	923	238	62	1555
Hunter, Rudolph M., Philadelphia, Pa., assignor to Thomson-Houston Electric Company, of Connecticut. Electric-arc lamp	493,359	Mar. 14	925	238	62	1555
Hunter, Rudolph M., Philadelphia, Pa., assignor to Thomson-Houston Electric Company, of Connecticut. Electric-arc lamp	493,360	Mar. 14	930	238	62	1557
Hunting, Eben B. (See Mahaffey, James B., assignor.)						
Huntington, Lawson G., New York, N. Y., and R. J. Armour, Newark, N. J. Signal lamp or lantern	490,770	Jan. 31	2872	737	62	636
Huntington, Reuben M. (See Davis and Huntington.)						
Huntley, Hosea H., assignor to M. Rooney and M. L. Hunttley, Quincy, Ill. Operating mechanism for baling-presses	494,527	Mar. 28	2867	717	62	1952
Huntley, Mary L., *et al.* (See Huntley, Hosea H., assignor.)						
Huntman, Mary A., Stapleton, N. Y. Tellurian	491,017	Jan. 31	3273	836	62	715
Huot, Abel, New York, N. Y. Combined cigar-cutter and electric lighter	493,030	Mar. 7	407	102	62	1439
Hurd, Charles S., Cleveland, Ohio. Automatic electric sprinkler and alarm	492,866	Mar. 7	151	36	62	1388
Hurdle, Edgar F., *et al.* (See Miller, Henry O., assignor.)						
Hurtu, Jacques. (See Soret, Hurtu, and Hantin.)						
Huss, Rudolph W., Chicago, Ill., assignor to American Tire Company, Cleveland, Ohio. Pneumatic tire for velocipedes	490,658	Jan. 31	2696	694	62	603
Huston, Charles L., Coatesville, Pa. Truck	490,598	Jan. 24	2566	660	62	562
Huston, William H., Mexico, Mo., assignor of one-half to G. T. Dorsey, Litchfield, Ill. Combination-wrench	490,789	Jan. 31	2906	747	62	643
Hutchins, Charles W., Springfield, Mass. Tuning-peg for stringed musical instruments	490,564	Jan. 24	2517	648	62	552
Hutchins, George F., assignor to Knowles Loom Works, Worcester, Mass. Reversing mechanism for looms	491,776	Feb. 14	1163	291	62	996
Hutchinson, Ira R., Fresno, Cal. Wrapping-machine	490,608	Jan. 24	2586	666, 667	62	566
Hutchinson, James H., New York, N. Y. Radiator	493,590	Mar. 14	1312	335	62	1630
Hutchinson-Jenkins Steel Company. (See Jenkins, John B., assignor.)						
Hutchinson, Joseph. (See Goold, Frederick D., assignor.)						
Hutchinson, Joseph, New York, N. Y. Electrical connecting device	490,477	Jan. 24	2383	617	62	526
Hutchinson, Joseph, New York, N. Y. Switch for electric-light fixtures	493,868	Mar. 21	1765	450	62	1734
Hutchinson, Joseph, assignor to Edison General Electric Company, New York, N. Y. Incandescent-lamp socket	491,561	Feb. 14	821	208	62	928
Hutchinson, Samuel P., Philadelphia, Pa. Furnace	492,020	Feb. 21	1537	383	62	1085
Hutter, Karl, New York, N. Y. Bottle-stopper	491,113	Feb. 7	79	22	62	764
Huyler, John S. (See Richmond, Alvan S., assignor.)						
Hyatt, Frank T., *et al.* (See Weaver, William, assignor.)						
Hyde, Clarence L., Chicago, Ill. Construction of emery-wheels and supports therefor	489,149	Jan. 3	256	71	62	59
Hyde, Frank S., Sulphur Springs, Tex. Cotton-chopper	492,867	Mar. 7	152	36, 37	62	1389
Hyde, Thomas B., Taylor, Tex. Exhaust-fan	489,159	Jan. 3	267	74	62	62
Hymans, Joseph, Del Rio, Tex. Picture-hanger	489,160	Jan. 3	268	74	62	62
Ide, Fred B., Troy, assignor to N. D. Ide, Corinth, N. Y. Hand-wrench	492,626	Feb. 28	2504	620	62	1296
Ide, Nathan D. (See Ide, Fred B., assignor.)						
Iden, Andrew J., Milwaukee, Wis. Steam cooking apparatus	493,091	Mar. 7	496	124	62	1457
Iden, Andrew J., Milwaukee, Wis. Combined step-ladder and ironing-board	493,092	Mar. 7	497	124	62	1457
Ihle, Otto, Chemnitz, Germany, and R. Rothe, Canton, Ohio. Potato-planter	492,021	Feb. 21	1539	384	62	1086
Ill, Edward J. (See Nenninger, Robert F., assignor.)						
Illig, Heinrich, Bockenheim, Germany. Electric meter	489,161	Jan. 3	269	75	62	62
Immisch Electric Navigation and Power Company. (See Immisch, Moritz, assignor.)						
Immisch, Moritz, London, England, assignor to Immisch Electric Navigation and Power Company, of New Jersey. Switch for electrical tram-cars	491,483	Feb. 7	691	174, 175	62	881
Immisch, Moritz, London, England, assignor to Immisch Electric Navigation and Power Company, of New Jersey. Switch for electric motors	493,361	Mar. 14	934	239, 240	62	1558
Indestructible Fuel Company. (See Johnson, Albert, assignor.)						
Iddiana Manufacturing Company. (See Nethery, Joseph W., assignor.)						
Ingalsbe, Adna R., Wheaton, Kans. Button-cabinet	492,683	Feb. 28	2589	640	62	1312

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Ingard, Daniel L. (See Juvinall, Ingard, and Brinkerhoff.)						
Ingersoll, George W., assignor to B. Holt, Stockton, Cal. Grain-saving device in thrashers	490,807	Jan. 31	2930	752	62	647
Ingersoll, Harley. (See Hazelton, Elias, assignor.)						
Ingham, Stephen. (See Rishworth, Ingham, and Vickers.)						
Ingram & Co., Matthai. (See Fowler, William R., assignor.)						
International Self Closing Gas Burner Company. (See Keeney, Charles H., assignor.)						
Irgens, Paul H., Christiania, Norway. Apparatus for carbureting air	493,165	Mar. 7	615	154	62	1479
Irish, Delos, and J. G. Williams, Salt Lake City, Utah Ter.; said Williams assignor to said Irish. Automatic circuit-breaker	492,807	Mar. 7	56	13	62	1369
Irons, Foster H., Toledo, Ohio. Pneumatic tire	494,003	Mar. 21	2004	510	62	1779
Irons, Henry A., and H. P. Hill, Greeley, Colo. Draft-equalizer	492,294	Feb. 21	1956	488	62	1172
Irving, James H., Jersey City, N. J. Fan	492,684	Feb. 28	2590	640	62	1312
Irwin, John P., Newark, Ohio. Gate	493,725	Mar. 21	1540	393	62	1690
Irwin, John S., Saltsburg, Pa. Label-former for glass-molds	490,966	Jan. 31	3193	816	62	699
Ishöy, Frederik C. C., and H. P. Linderoth, Copenhagen, Denmark. Device for handling fermented liquids	490,565	Jan. 24	2518	648	62	553
Iske, Albert. (See Iske, Anthony and A.)						
Iske, Anthony and A., assignors to C. E. Hoster, H. E. Osborn, and M. B. Hartman, Lancaster, Pa. Cork-driver	491,052	Jan. 31	3341	852	62	729
Israel, Charles W. (See Williams, Robert E., assignor.)						
Ives, Charles A., Minneapolis, Minn. Moth-proof bag	492,103	Feb. 21	1760	439	62	1132
Ivey, James B., Macon, Ga. Shaft-bearing for conveyers	493,726	Mar. 21	1541	393	62	1690
Iwan, Henry. (See Iwan and Reiferscheid, assignors.)						
Iwan, Louis, and W. Reiferscheid; said Reiferscheid assignor to H. Iwan, Streator, Ill. Revolving chimney-top	493,430	Mar. 14	1032	267	62	1577
J. and E. Stevens Company. (See Bailey, Charles A., assignor.)						
J. & P. Coats. (See Bullock, Edwin R., assignor.)						
Jack, Alexander, Evansville, Ind. Heater	492,796	Feb. 28	2653	657	62	1326
Jackson, Alfred. (See Jackson, Frank S., J. T., T., and A.)						
Jackson, Frank S., J. T., T., and A., Toronto, Canada. Mowing-machine	491,736	Feb. 14	1093	276, 277	62	983
Jackson, Joel G., Minneapolis, Minn., and A. L. Daniels, Marion, Iowa. Incandescent gas lamp	492,295	Feb. 21	1957	488	62	1173
Jackson, John T. (See Jackson, Frank S., J. T., T., and A.)						
Jackson, Joseph L., Columbus, Kans. Hedge-trimmer	490,074	Jan. 17	1718	448	62	382
Jackson, Milton, assignor to Miller Lock Company, Philadelphia, Pa. Latch	491,053	Jan. 31	3342	852	62	730
Jackson, Thomas. (See Jackson, Frank S., J. T., T., and A.)						
Jackson, William B., Pueblo, Colo. Treating ores	490,659	Jan. 31	2698	694	62	603
Jackson, William J., Philadelphia, Pa. Heater	492,207	Feb. 21	1825	457, 458	62	1145
Jacobs, Burley A. (See Violet, Francis N., assignor.)						
Jacobs, Daniel, Grigsby, Kans. Snow-plow	489,008	Jan. 3	47	14	62	13
Jacobs, Jacob. (See Reutlinger, Jean, assignor.)						
Jacobs, Jacob, New York, N. Y. Illuminating-tile	493,550	Mar. 14	1236	316	62	1615
Jacobus, Lyman E., Romulus, N. Y. Lock	490,440	Jan. 24	2319	602	62	513
Jacobus, Lyman E., Romulus, N. Y. Sliding-door lock	490,441	Jan. 24	2320	602	62	513
Jacobus, Lyman E., Romulus, N. Y. Latch	491,706	Feb. 14	1051	265	62	975
Jacot, Aristides H., Hoboken, N. J., assignor to Jacot & Son, New York, N. Y. Detent mechanism	489,480	Jan. 10	772	204	62	178
Jacot-Burmann, Henri, Bienne, Switzerland. Stop-watch	489,255	Jan. 3	427	119	62	95
Jacot & Son. (See Jacot, Aristides H., assignor.)						
Jaeck, Emile, and M. Auerbach, Brooklyn, N. Y. Bronze-dusting machine	491,054	Jan. 31	3343	852, 853	62	730
James, David. (See James, John A. and D.)						
James, Frederick R., *et al.* (See Oldfield, Joseph, assignor.)						
James, Harry. (See Gillespie and James.)						
James, Harry B. (See Thomas, Nathan M., assignor.)						
James, John A. and D., Coffeyville, Kans. Attachment for thrashing-machines	490,075	Jan. 17	1721	449	62	383
James Leffel & Company. (See Bookwalter and Tyler, assignors.)						
James, Samuel H., London, England. Shoal-alarm	493,826	Mar. 21	1704	434	62	1721
James, Thomas, *et al.* (See Allan, Edward T., assignor.)						
James, Thomas, Braddock, assignor to Southwark Foundry and Machine Company, Philadelphia, Pa. Discharge-valve for blowing-engines	490,146	Jan. 17	1841	480, 481	62	408
James, Will S., Fort Worth, assignor of one-half to W. D. Crothers, Brownwood, and W. L. Ward, Victoria, Tex. Stalk-breaker	494,528	Mar. 28	2869	717	62	1952
James, William G., Harlem, Ill. Electric mat	490,353	Jan. 24	2199	573	62	491
James, Henry, Waterbury, Vt. Reed tube for musical instruments	490,115	Jan. 17	1783	465	62	397
Jansen, Alexander, San Francisco, Cal. Lounge	489,958	Jan. 17	1518	397	62	343
Janssen, Hermann, assignor to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Salicylic-acid compound	492,868	Mar. 7	154	.....	62	1389
Jarmin, James B., Osceola, Nebr. Check-row corn-planter	493,362	Mar. 14	937	240, 241	62	1558
Jay, Etienne and S., Grenoble, France. Glove	490,354	Jan. 24	2200	573	62	491
Jay, Stéphane. (See Jay, Etienne and S.)						
Jaynes, Charles P., Boston, Mass. Chest-protecting jacket	489,681	Jan. 10	1066	278	62	237
Jean, Thomas J. (See Glover and Jean.)						
Jefferson, Charles W., Schenectady, assignor to E. Munsell & Co., New York, N. Y., and Elizabeth, N. J. Electrical insulating conduit	491,707	Feb. 14	1052	266	62	976
Jefferson, Charles W., Schenectady, assignor to E. Munsell & Co., New York, N. Y., and Elizabeth, N. J. Electric motor and dynamo mica insulator	491,708	Feb. 14	1053	266	62	976
Jeffery, Joseph A., Shell Lake, Wis. Apparatus for moistening the air in hot-air furnaces	492,296	Feb. 21	1959	489	62	1173
Jefferys, William, East Orange, N. J. Manure-receptacle for cars, &c	489,309	Jan. 3	501	138	62	109
Jeffries, Charles W., South Bend, Ind. Gear for children's carriages	490,280	Jan. 24	2089	545	62	468
Jenkins, Anthony D., Philadelphia, Pa. Bicycle	490,252	Jan. 17	2014	527	62	441
Jenkins, Ebenezer C., Shrewsbury, Mass. Thread holder and cutter	491,260	Feb. 7	317	80	62	809
Jenkins, Ebenezer C., Shrewsbury, Mass. Spool-holder	491,261	Feb. 7	318	81	62	809
Jenkins, Ebenezer C., Shrewsbury, Mass. Combined thread holder and cutter	491,262	Feb. 7	319	81	62	810
Jenkins, Ernest H., Winfield, Md. Electric-railway trolley	489,481	Jan. 10	774	204	62	178
Jenkins, Gamaliel, Queensbury, N. Y. Car-coupling	494,424	Mar. 28	2695	676	62	1921
Jenkins, John B., Pittsburg, Pa., assignor to Hutchinson-Jenkins Steel Company, of West Virginia. Process and composition of matter for the manufacture of steel	490,660	Jan. 31	2702	.....	62	603
Jenkins, Nicholas, Waterbury, Conn. Adjustable lamp-hanger	492,808	Mar. 7	57	14	62	1369
Jenkins, Reuben. (See Foote, Charles H., assignor.)						
Jenkins, Samuel B., assignor, by mesne assignments, to American Electric Heating Company, Boston, Mass. Electrically-heated soldering-iron	491,311	Feb. 7	417	108	62	926

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Jenkins, Samuel B., assignor, by mesne assignments, to American Electric Heating Company, Boston, Mass. Electrically-heated smoothing-iron	491,312	Feb. 7	418	108	62	826
Jenkins, Samuel B., assignor, by mesne assignments, to American Electric Heating Company, Boston, Mass. Electric curling-iron heater	491,313	Feb. 7	419	109	62	827
Jenkins, Samuel B., assignor to Butterfield-Mitchell Electric Heating Company, Boston, Mass. Electrically-heated vessel	491,484	Feb. 7	693	175	62	881
Jenkins, Samuel B., assignor to Butterfield-Mitchell Electric Heating Company, Boston, Mass. Induction system of electrical heating	494,295	Mar. 28	2488	627	62	1883
Jenkinson, Samuel, Rochester, assignor to Vanderbilt Sash Balance Company, Canandaigua, N. Y. Sash-cord fastener	491,966	Feb. 14	1450	361	62	1054
Jenks, Henry F., Pawtucket, R. I. Pipe-wrench	494,529	Mar. 28	2870	718	62	1953
Jennings Machine Company. (See Jennings, William C., assignor.)						
Jennings, Oscar E., *et al.* (See Losey, James, assignor.)						
Jennings, William C., Camden, N. J., assignor to Jennings Machine Company, of New Jersey. Suspension device	489,638	Jan. 10	1006	262	62	224
Jennings, William T., Toronto, Canada. Rail for street-railways	494,144	Mar. 28	2249	573	62	1539
Jensen, John S., and E. Hayes, Chicago, Ill. Stovepipe-rack	490,076	Jan. 17	1723	449	62	384
Jerome, Charles C., Chicago, Ill. Lubricator	493,727	Mar. 21	1543	393	62	1690
Jessup, Gilbert H., Tracy, Minn. Fire-screen	489,482	Jan. 10	775	{204 / 205}	62	178
Jessup, Nathan C., West Hampton Beach, N. Y. Sailing vessel	492,022	Feb. 21	1541	{384 / 385}	62	1086
Jett, James, Walla Walla, Wash. Lawn-sprinkler	491,354	Feb. 7	495	127	62	842
Jewett, David W., assignor of one-half to W. J. Allen, Oxford, Ky. Farm-gate	493,728	Mar. 21	1545	394	62	1691
Jewett, Henry M. (See Walker, William Y., assignor.)						
Johnson, Albert, assignor to Indestructible Fuel Company, Haverhill, Mass. Fire-kindler	491,355	Feb. 7	496	127	62	842
Johnson, Albert E., and C. H. Porter, Brockton, Mass. Combined presser-foot and thread-holder for sewing-machines	493,869	Mar. 21	1767	451	62	1734
Johnson, Charles. (See Mead and Johnson.)						
Johnson, Charles, assignor to J. A. Mead, Rutland, Vt. Jack-screw	493,332	Mar. 14	800	228	62	1547
Johnson, Charles B., *et al.* (See Sherman, Willis D., assignor.)						
Johnson, Clarence B., Wilkes-Barré, Pa. Fire-escape	490,355	Jan. 24	2200	{573 / 574}	62	491
Johnson & Co., Isaac G. (See McKeen, Thomas L., assignor.)						
Johnson Company. (See Brown, William M., assignor.)						
Johnson Company. (See Evans, Elmer O., assignor.)						
Johnson Company. (See Evans, Henry C., assignor.)						
Johnson Company. (See Suppes, Max M., assignor.)						
Johnson, Curtis, River Falls, Wis. Friction clutch-pulley	493,775	Mar. 21	1619	412	62	1706
Johnson, Edward H. (See Capek, John V., assignor.)						
Johnson, Edward H. (See Lundell, Robert, assignor.)						
Johnson, Frank B., *et al.* (See Sherman, Willis D., assignor.)						
Johnson, Frank P., Danville, Pa. Sash-balance	491,114	Feb. 7	80	22	62	764
Johnson, Frederick C., *et al.* (See Toncey, Ferris D., assignor.)						
Johnson, Frederick L., Wallingford, Conn. Hat-hanger	492,297	Feb. 21	1961	489	62	1174
Johnson, George C. (See Mann and Johnson.)						
Johnson, Harvey. (See Pettersson, August, assignor.)						
Johnson, Hilary G., Media, Pa. Tackle-block	492,496	Feb. 28	2296	570	62	1253
Johnson, James F. (See Osteen, William A., assignor.)						
Johnson, James S., Almont, Mich. Coupling for tubular frames	493,166	Mar. 7	617	155	62	1480
Johnson, John, Chester, Pa. Picker-stick for looms	493,231	Mar. 14	889	228	62	1547
Johnson, John W. R., assignor to Tredegar Company, Richmond, Va. Machine for cutting, pointing, and shaping rods	489,586	Jan. 10	937	{243 / 244}	62	210
Johnson, Oliver W. (See Hawk and Johnson.)						
Johnson, Samuel S., assignor of one-half to J. S. Wright, Owensborough, Ky. Valve for fermenting-tubs	489,868	Jan. 10	1340	350	62	200
Johnson, Sidney N., assignor to Marion Manufacturing Company, Chicago, Ill. Game apparatus	492,961	Mar. 7	360	76	62	1419
Johnson Steel Street Rail Company. (See Brown, William M., assignor.)						
Johnson Steel Street Rail Company. (See Street, Clement F., assignor.)						
Johnson, Thomas W., Boston, Mass. Funnel	489,585	Jan. 10	937	243	62	210
Johnson, Will A., *et al.* (See Wanamaker, Edward A., assignor.)						
Johnson, William H., Shreveport, La. Mosquito-canopy	492,298	Feb. 21	1962	489	62	1174
Johnson, William H., assignor of one-half to G. E. Maxwell, Delhi, N. Y. Hame-fastening	493,214	Mar. 7	681	174	62	1492
Johnson, William L., assignor of one-half to R. Franken, Pomona, Cal. Salt box or cellar	494,205	Mar. 28	2250	594	62	1858
Johnston, Andrew L., Richmond, Va. Insulator	491,890	Feb. 14	1337	331	62	1031
Johnston, Edgar D., Connersville, Ind. Apparatus for moving coal	493,272	Mar. 14	785	203	62	1529
Johnston, George, San Francisco, Cal. Ore-concentrator	489,744	Jan. 10	1170	305	62	257
Johnston, George, San Francisco, Cal. Ore-concentrator	490,849	Jan. 31	2989	{765 / 766}	62	660
Johnston, George, San Francisco, Cal. Ore-concentrator	490,850	Jan. 31	2991	766	62	660
Johnston Harvester Company. (See Crowley, George G., assignor.)						
Johnston, Henry, Ypsilanti, Mich. Garment-stay	494,064	Mar. 21	2101	535	62	1796
Johnston, Henry L., and J. E. Sandberg, Butte City, Mont. Saw-guide	492,290	Feb. 21	1963	489	62	1174
Johnston, John H., assignor of one-half to G. Purves, Little Rock, Ark. Sash-holder	490,907	Jan. 31	3102	795	62	682
Johnston, John S., assignor to Adams & Westlake Company, Chicago, Ill. Car-seat	489,562	Jan. 10	905	236	62	204
Johnston, William T., Newport, Ky. Steering apparatus	491,212	Feb. 7	245	62	62	794
Johnstone, Francis W., Mexico, Mexico. Locomotive-engine	493,776	Mar. 21	1620	{412 / 413}	62	1706
Johnstone, Norman & Co. (See Windeatt, William H., assignor.)						
Jolly, Richard H., assignor of one-half to E. Clark, Bucyrus, Ohio. Lamp-lighter	492,685	Feb. 28	2591	641	62	1313
Joncas, Louis, Auburn, Me. Machine for setting up Congress uppers	490,709	Feb. 14	1054	267	62	976
Jones, Ansel B. (See Horton, William P., Jr., assignor.)						
Jones, Charles E., Wheatland, Mo. Whiffletree-hook	490,021	Jan. 17	1642	427	62	367
Jones, Charlie D. (See Felt, Vanderlyn H., assignor.)						
Jones, Corry, Long Island City, N. Y. Quill-winder	493,093	Mar. 7	498	124	62	1458
Jones, David. (See Fearn, William R., assignor.)						
Jones, Doctor R., Creighton, Mo. Car-coupling	491,592	Feb. 14	823	209	62	998
Jones, Ellis T., New York, N. Y. Bottling-machine	491,753	Feb. 14	1118	283	62	988
Jones, Horace K., Hartford, assignor to Russell & Erwin Manufacturing Company, New Britain, Conn. Attachment for machines for rolling screw-threads	492,468	Feb. 28	2239	560	62	1242
Jones, J. M., *et al.* (See Welsh, Artemus and A., assignors.)						
Jones, James, Sharon, Iowa. Draft-equalizer	489,009	Jan. 3	49	14	62	13
Jones, James W. (See Crossley and Jones.)						
Jones, Joseph, Dukinfield, England. Apparatus for grinding flats of carding-engines	491,356	Feb. 7	497	128	62	842

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Jones, Lorenzo D., Kenosha, Wis. Harness-rosette	493,094	Mar. 7	500	125	62	1458
Jones, Owen P., Baltimore, Md. Expansion or cut-off gear	489,904	Jan. 10	1410	365	62	305
Jones, Wesley C., Warrensburg, Mo. Coffee-pot	494,206	Mar. 28	2351	594	62	1858
Jones, Wesley C., assignor to T. A. Sollors and J. B. Greer, Warrensburg, Mo. Broom-rack	490,851	Jan. 31	2993	766	62	661
Jones, Wesley C. P., Rusk, Tex., assignor to L. S. Hickman, Warrensburg, Mo. Broom-rack	491,891	Feb. 14	1338	331	62	1031
Jones, William H., assignor to Whitney Glass Works, Glassborough, N. J. Apparatus for operating glass-molds	490,908	Jan. 31	3103	{795 / 796}	62	682
Jones, William H., assignor to Whitney Glass Works, Glassborough, N. J. Glass-mold	490,909	Jan. 31	3104	796	62	682
Jones, William P. (See Ulsh, John L., assignor.)						
Jong, Jacob de, Jersey City, N. J. Imitation mother-of-pearl and making same	494,255	Mar. 28	2427	612	62	1872
Jönsson, Johan L., and T. Berg, assignors to Aktiebolaget Separator, Stockholm, Sweden. Milk-heater	492,300	Feb. 21	1964	490	62	1175
Joralemon, Joseph, Troy, Pa. Ice-cream freezer and packer	491,650	Feb. 14	963	{242 / 243}	62	957
Jordan, Andrew P., Ellsworth, Me. Head-rest	491,651	Feb. 14	967	243	62	957
Jörgensen, Erik. (See Krag and Jörgensen.)						
Joslin, Omar T., Chicago, Ill. Making fertilizers from tank-water	489,010	Jan. 3	50	.....	62	13
Joss, Jacob, St. Joseph, Mo. Car-coupling	491,357	Feb. 7	498	{128 / 129}	62	843
Joy, David, London, England. Valve-operating device for engines	490,599	Jan. 24	2568	{661 / 662 / 663}	62	563
Joy, Sam S., New Market, N. H. Wagon-jack	493,031	Mar. 7	409	102	62	1439
Julia, John P., New York, N. Y. Copying-book	489,011	Jan. 3	52	15	62	13
June, Marcus M., assignor of two-thirds to O. Coville and T. H. Whitcomb, Syracuse, N. Y. Candy-mold	489,959	Jan. 17	1520	397	62	363
Jungmarker, Axel. (See Hammarström, Ernst F., assignor.)	493,729	Mar. 21	1546	394	62	1691
Junk, John E. (See Comstock and Junk.)						
Jüterbock, Carl O. (See Jüterbock, Gustav A., assignor.)						
Jüterbock, Gustav A., Berlin, Germany, assignor to C. O. Jüterbock, Penge, England. Artificial-tooth plate	494,065	Mar. 21	2102	535	62	1796
Juvinall, Charles D., D. L. Ingard, and M. H. Brinkerhoff, Upper Sandusky, Ohio. Barrel truck and stand	489,745	Jan. 10	1172	306	62	258
Kahl, Adolph, assignor of one-half to T. Scharf and A. Kahl, Sorento, Ill. Wire-stretcher	490,566	Jan. 24	2519	648	62	553
Kahl, Albert, *et al.* (See Kahl, Adolph, assignor.)						
Kaisling, William, Allegheny, Pa. Electric clock striking mechanism	493,777	Mar. 21	1622	413	62	1706
Kaldenberg, Frederick J., Tarrytown, N. Y. Tobacco-pipe	493,032	Mar. 7	410	102	62	1439
Kaltenbeck, William H., Middlesborough, Ky. Wrench	492,401	Feb. 28	2127	532	62	1319
Kam, Joseph, Buffalo, N. Y. Dry-kiln for malting	489,746	Jan. 10	1174	306	62	258
Kames, Joshua, Philadelphia, Pa., assignor to Atmospheric Propulsion Company, of New Jersey. Compressed-air motor for propelling wheeled vehicles	491,892	Feb. 14	1339	{331 / 332}	62	1031
Kammer, John von der, Chicago, Ill. Incandescent lamp	492,809	Mar. 7	59	14	62	1370
Kämmerer, Michael. (See Bender and Kämmerer.)						
Kampfe Brothers. (See Cruickshank, Arthur B., assignor.)						
Kamsler, Julius, New York, N. Y. Electric burglar-alarm	492,330	Feb. 21	2011	500	62	1184
Kane, John. (See Harvey and Kane.)						
Kane, Maurice, Chicago, Ill. Safety-wheel attachment for harvesters	489,012	Jan. 3	54	15	62	14
Kanneberg, Alvin C., Canton, Ohio. Sheet-metal roofing	492,513	Feb. 28	2323	576	62	1258
Kansas City Elevator Manufacturing Company. (See Turner, Allen and F. E., assignors.)						
Karges, Theodore, Blair, Nebr. Horse-collar fastener	492,023	Feb. 21	1544	385	62	1086
Karlstéen, Karl K., Stockholm, Sweden. Oven	489,651	Jan. 10	1023	{266 / 267}	62	228
Karnes, Leonadus E., and K. F. Rice, assignors to B. F. Putnam and L. P. Badger, Eureka Springs, Ark. Tire-heater	489,436	Jan. 3	701	187	62	150
Katheiners Malzkaffeefabriken Wilhelm & Brougier. (See Trillich, Heinrich, assignor.)						
Kauffman, William H., Columbus, Ohio. Dumping-wagon	492,686	Feb. 28	2592	641	62	1313
Kaufman, Ernst A., Canton, Ohio. Dumping-car	492,904	Mar. 7	211	52	62	1400
Kaufman, Jacob H., Marysville, Cal. Adjustable map or chart stand	491,358	Feb. 7	499	129	62	843
Kaufmann, Hermann, Langerwehe, Germany. Spring	490,389	Jan. 24	2240	585	62	501
Kauser, Joseph E., Pensacola, Fla. Dredging apparatus	491,843	Feb. 14	1263	{313 / 314}	62	1017
Kavanaugh, George H., Middletown, Conn. Punch	489,534	Jan. 10	865	226	62	196
Kay, Frederick G., *et al.* (See Saltz, John F., assignor.)						
Kay, Joshua A., assignor of one-half to R. A. V. Rae, Balwyn, Victoria. Machinery for setting type	492,164	Feb. 21	1761	{439 / 440}	62	1132
Kaye, Edward, Phillipsburg, Pa. Marine railway	494,066	Mar. 21	2102	536	62	1796
Kaye, Samuel, Yazoo City, Miss. Fire-escape	489,483	Jan. 10	776	205	62	179
Kayler, Raymond S. (See Cornelius, John, assignor.)						
Keating, Robert M., Springfield, Mass. Automatic inflating device for rubber tires	491,213	Feb. 7	250	62	62	795
Keck, Franklin J., assignor to Keck Transom Opener Company, Allentown, Pa. Transom-lifter	491,563	Feb. 14	824	209	62	928
Keck Transom Opener Company. (See Keck, Franklin J., assignor.)	489,310	Jan 3	502	138	62	109
Keckeley, William H., Covington, Ky. Coupling for trolley-wires	492,301	Feb. 21	1966	490	62	1175
Keefe, John C., Lowell, Mass. Purchase-block sheave	492,208	Feb. 21	1826	458	62	1145
Keeler, Berton A., Russell, Ark. Car-coupling	493,167	Mar. 7	618	155	62	1480
Keen & Hagerty. (See Wagandt, Charles L., assignor.)						
Keen, John, T. R. Marriott, and F. Cooper, London, England. Velocipede driving-gear	491,429	Feb. 7	600	{151 / 152}	62	863
Keenan, George J., Buffalo, N. Y. Press-board for molding-machines	489,013	Jan. 3	55	15	62	14
Keene, Milton W., assignor of one-third to L. R. Henkle, Dallas, Tex. Furnace	491,115	Feb. 7	83	23	62	764
Keeney, Charles H., Milwaukee, Wis. System and device for elevating water by pneumatic pressure	491,116	Feb. 7	83	23	62	765
Keeney, Charles H., assignor to International Self Closing Gas Burner Company, Milwaukee, Wis. Self-closing cut off for gas-burners	491,943	Feb. 14	1418	354	62	1047
Keeney, Mayro, Somerville, Conn. Registering device for textile-fabric machines, &c	491,564	Feb. 14	826	209	62	929
Kehl, Anthony, assignor to Roots & Heinemann, Connersville, Ind. Clock-movement	494,145	Mar. 28	2250	573	62	1839
Kehlenbeck, Henry. (See Hotchkiss, Joseph V., assignor.)						
Kehr, Cyrus, Lakeside, Ill., assignor to North Western Wire Mattress Company, Kenosha, Wis. Folding chair	491,214	Feb. 7	251	62, 63	62	795

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Kehr, Cyrus, Lakeside, Ill., assignor to North Western Wire Mattress Company, Kenosha, Wis. Folding chair	491,215	Feb. 7	253	63	62	796
Kehr, Cyrus, Lakeside, Ill., assignor to North Western Wire Mattress Company, Kenosha, Wis. Folding chair	491,216	Feb. 7	254	63	62	796
Keil, Adam, McKeesport, Pa. Electric lantern	489,150	Jan. 3	256	71	62	60
Keiser, Henry B. A., Braddock, Pa. Straightening-machine	489,816	Jan. 10	1272	333	62	279
Keith, Joseph, Duncan's, Va. Evaporator	490,967	Jan. 31	3195	816	62	690
Kelleher, John. (See Hathaway and Kelleher.)						
Keller, Jeremiah, Canton, Ohio. Electric motor for dental work	493,431	Mar. 14	1034	267	62	1577
Kelley, Charles H. (See Robbins, Frank G., assignor.)						
Kelley, Charles H., Revere, Mass. Heel and shank finishing machine	490,808	Jan. 31	2031	752	62	648
Kelley, Fred H. (See Blair and Kelley.)						
Kelley, George B., Rockford, Ill. Burnishing-machine	493,033	Mar. 7	411	103	62	1440
Kellner, Carl, Vienna, Austria-Hungary. Machine for reducing paper-stock	489,079	Jan. 3	146	41	62	36
Kellogg, Henry, Jr. (See Chase, Jonathan, assignor.)						
Kellogg, William L., Indianapolis, Ind. Stave-making machine	492,905	Mar. 7	213	52, 53	62	1400
Kellum, W. H., trustee, *et al.* (See Welch, Rosia W., assignor.)						
Kellum, William H., *et al.* (See Welch, Rosia W., assignor.)						
Kelly, Henry C., Jr., Chicago, Ill. Pneumatic conveyer	494,274	Mar. 28	2456	618	62	1876
Kelly, James R., Waterloo, N. Y. Machine for tying cross-wires in wire fences	490,442	Jan. 24	2321	602, 603	62	513
Kelly, John T., North Fitzroy, and A. McIntyre, Fitzroy, Victoria. Means for raising sunken vessels	491,725	Feb. 14	1078	272	62	980
Kelly, O. W., *et al.* (See Neer, Harry M., assignor.)						
Kelly, Walter J. (See Rauch and Kelly.)						
Kelsey, Benjamin F., Somerville, assignor to American Soda Fountain Company, Boston, Mass. Making dies for producing designs on soft metal	491,179	Feb. 7	196	50	62	785
Kelsey, Frank N., New Haven, Conn. Railway-signal	491,754	Feb. 14	1120	283	62	980
Kelso, Oliver M., Rock Rapids, Iowa. Animal-holder	490,968	Jan. 31	3196	817	62	690
Kelso, William, assignor to W. McConway, Pittsburg, Pa. Car-coupling	492,357	Feb. 21	2058	513	62	1192
Kempel, Casper L. (See Brigger, Gottfried, assignor.)						
Kempkens, Heinrich, Grefrath, near Crefeld, Germany. Press for pressing cheese, &c	489,151	Jan. 3	258	71	62	60
Kendall, Charles B. (See Schaake, Henry, assignor.)						
Kendall, Charles B., Newton, Mass., and H. Schaake, Baltimore, Md.; said Schaake assignor to said Kendall. San Francisco, Cal. Can-seaming machine	489,484	Jan. 10	777	205, 206, 207	62	179
Kendall, David W. (See Brenner, David H., assignor.)						
Kendrick, George R., Portland, Ind. Steam-pump	494,207	Mar. 28	2352	595	62	1859
Kenevel, Jeannot W., Chicago, Ill. Apparatus for manufacturing gas	493,891	Mar. 21	1797	458	62	1739
Kennedy, Edward S. T. (See Hoyt, Benjamin W., assignor.)						
Kennedy, Franklin K., assignor to Brighton Sign Company, Limited, New Brighton, Pa. Sign-letter	489,905	Jan. 10	1412	365	62	306
Kennedy, George A., Olena, Ohio. Hay-stacker	494,336	Mar. 28	2556	644	62	1896
Kennedy, Joseph, administrator. (See Groom, Patrick W.)						
Kennedy, Julian, Latrobe, Pa. Pump-valve	491,256	Feb. 7	362	90	62	817
Kennedy, Richard J. (See Stout, John P., assignor.)						
Kennelly, Arthur E. (See Ott and Kennelly.)						
Kenner, Charles A., Utica, assignor of one-half to W. M. Widener, York, Nebr. Syringe	493,591	Mar. 14	1313	335	62	1630
Kenner, William H., Dundee, Tex. Baling-press	491,967	Feb. 14	1451	361, 362	62	1054
Kent, Robert S., Gloucester City, N. J. Air-heating furnace	493,333	Mar. 14	891	228	62	1548
Kent, Thomas A. (See Glafcke, Paul E., assignor.)						
Kent, Walter G., and H. S. Price, London, England. Fluid-meter	491,245	Feb. 7	296	74, 75	62	805
Kenton Can Company. (See France, Albert L., assignor.)						
Kenyon, William H., New York, N. Y., assignor to Hall Signal Company, of Maine. Electric signaling apparatus	492,497	Feb. 28	2298	571	62	1253
Kernaghan, George F. (See Shultz, Jacob F., assignor.)						
Kernodle, George S., *et al.* (See Kernodle, James A., assignor.)						
Kernodle, James A., assignor of two-thirds to G. W. Ellington and G. S. Kernodle, Reidsville, N. C. Churn	491,737	Feb. 14	1096	277	62	984
Kerr, James W., San Francisco, Cal. Rope sheave or wheel	492,331	Feb. 21	2012	500, 501	62	1184
Kerr, John F. (See Chipman, Robert J., assignor.)						
Kerr, William, Cleveland, Ohio. Sink or basin trap	489,639	Jan. 10	1007	262	62	925
Kester, John H., Winston, N. C. Tobacco-box-clamping machine	494,004	Mar. 21	2005	510, 511	62	1779
Ketchum, Oliver W., Toronto, Canada. Gas-producer	490,771	Jan. 31	2873	738	62	636
Ketchum, Oliver W., Toronto, Canada. Steam-boiler gas-producing furnace	491,359	Feb. 7	501	129	62	844
Ketchum, Oliver W., Toronto, Canada. Water heating and purifying device	491,360	Feb. 7	504	130	62	844
Ketter, John F., Ironton, Ohio. Two-wheeled vehicle	492,384	Mar. 7	336	81	62	1426
Ketteringham, John P., assignor to F. O'Brien and S. J. Perrault, Natchez, Miss. Transom-lifter	489,311	Jan. 3	503	130	62	109
Key, Isaac, assignor of one-half to O. Capron and J. Hahn, Winamac, Ind. Churn	491,055	Jan. 31	3345	853	62	730
Keyless Lock Company. (See Craig, James D., assignor.)						
Keystone Manufacturing Company. (See Packer, George W., assignor.)						
Keystone Watch Case Company. (See Mink, Fritz, assignor.)						
Kidd, Gideon P, assignor of one-half to J. H. Arnold and J. H. Barnhart, Roann, Ind. Wire-stretcher	493,432	Mar. 14	1036	267	62	1578
Kidder, Amasa N., assignor of one-half to A. Howard, Chelmsford, Mass. Paper-making machine	492,209	Feb. 21	1827	458	62	1146
Kiehl, Joseph S. (See Meyer, Kiehl, and Grant.)						
Kieswetter, Joseph F., Toledo, Ohio. Warp-clamp for looms	493,405	Mar. 14	992	256	62	1570
Kilbourne, Frederick H., *et al.* (See Wheat, John J., assignor.)						
Killinger, Montgomery F., Wytheville, Va. Ratchet-wrench	493,273	Mar. 14	786	203	62	1530
Kilmer, Charles H., Elmira, N. Y. Bill-file	493,433	Mar. 14	1037	267	62	1578
Kimball, Daniel E., Topeka, Kans. Electric railway	489,563	Jan. 10	906	236	62	204
Kimball, Frank C., Salem, Mass. Machine for shaving leather	490,443	Jan. 24	2322	603	62	514
Kimball, Freddie C., assignor to H. E. Kimball and A. I. Whitney, Cleveland, Ohio. Harness	492,210	Feb. 21	1828	458	62	1146
Kimball, Helen E., *et al.* (See Kimball, Freddie C., assignor.)						
Kimball, James F., Tilden, Me., assignor to Western Wheeled Scraper Company, Aurora, Ill. Road-scraper	491,565	Feb. 14	827	210, 211	62	929
Kime, Enoch, Milton, Ohio. Land-roller	489,587	Jan. 10	940	244	62	210

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Kinch, John Z., *et al.* (See Reagan, Sapp, and Hibbs, assignors.)						
Kind, Hermann. (See Steinen, Otto, assignor.)						
Kindler, Louis A., Cleveland, Ohio. Stringing pianos	491,652	Feb. 14	968	243	62	955
King, Alexander, Painesville, and F. F. King, Cleveland, Ohio. Shears and scissors sharpener	492,810	Mar. 7	61	14	62	1350
King, Clarence E., Washington, D. C. Saw-gage	489,817	Jan. 10	1274	334	62	280
King, Frank F. (See King, Alexander and F. F.)						
King, Frank H. and G. W., Marion, Ohio. Device for locking and operating dredging-spuds	492,687	Feb. 28	2593	641, 642	62	1313
King, George W. (See King, Frank H. and G. W.)						
King, Hawkins A., and A. J. Wright, Quincy, Mich. Machine for attaching cross-wires in wire fences	490,660	Jan. 24	2572	663	62	563
King, James M., North Danville, Va. Tobacco-tagging machine	494,296	Mar. 28	2490	628	62	1883
King, John, Chicago, Ill. Electric annunciating push-button	494,337	Mar. 28	2557	644	62	1896
King, John P., Philadelphia, Pa. Automatic crying doll	489,014	Jan. 3	55	16	62	14
King, Lazerne, South Sioux City, Nebr. Cutting mechanism for mowers or reapers	490,024	Jan. 17	1643	427	62	367
King, Sidney D., Pittston, Pa. Car-truck	490,749	Jan. 31	2843	729	62	630
King, William S. (See Goodhue, Henry M., assignor.)	491,263	Feb. 7	320	81, 82	62	810
King, William S. (See O'Bolger, Thomas, assignor.)						
Kingman, Alpheus H. (See Mosely and Kingman.)						
Kingsland, Allan B (See Fitch and Kingsland.)						
Kington, George, Worcester, Mass. Wire hook	493,626	Mar. 14	1375	349	62	1642
Kinkead, James H., Virginia City, Nev. Grinding-pan	492,962	Mar. 7	302	76	62	1419
Kinkel William. (See Schmid and Kinkel.)						
Kinman, James J., Petersburg, Ind. Clothesline holding and operating device	492,628	Feb. 28	2507	621	62	1297
Kinsman, Frank E., Plainfield, N. J. Electric train-controlling apparatus	492,402	Feb. 28	2128	533	62	1219
Kinsman, Frank E., Plainfield, N. J. Means for operating throttle-valves of steam-engines	492,403	Feb. 28	2133	531, 534	62	1220
Kinsman, John H., Bridgeport, Conn. Telephone-call	491,893	Feb. 14	1342	332, 333	62	1032
Kintner, Alcuin E., Painesville, Ohio. Magnetic lock	494,146	Mar. 28	2252	574	62	1839
Kintner, Charles J., New York, N. Y., assignor of one-third to G. Stahl, Philadelphia, Pa. Apparatus for electrically-propelled cars	492,627	Feb. 28	2505	621	62	1296
Kipper, Emil. (See Perry, Enoch W., Jr., assignor.)						
Kirby, John L., Cambridge, assignor to Dover Stamping Company, Boston, Mass. Metal barrel	494,275	Mar. 28	2457	619	62	1877
Kirby, William A., Auburn, assignor of one-half to W. D. Baldwin, Yonkers, N. Y. Hose-reel	492,024	Feb. 21	1543	385	62	1087
Kirk, John P., Austin, Tex. Plow	489,015	Jan. 3	56	16	62	15
Kirk, Rebecca, Stratford, Canada. Arm and wrist rest	492,889	Mar. 7	185	45	62	1395
Kirkman, James N., Baltimore, Md. Fly-fan	491,287	Feb. 7	363	91	62	818
Kirkpatrick, Roger, Philadelphia, Pa. Needle for knitting-machines	491,117	Feb. 7	85	24	62	765
Kirkpatrick, Roger, Philadelphia, Pa. Cam-cylinder for knitting-machines	491,118	Feb. 7	86	24	62	765
Kirsch-King, Albert W., Chicago, Ill. Machine-joint	490,576	Jan. 31	3030	779	62	669
Kisinger, John T., Sr., Belton, assignor to J. T. T. Kisinger, Jr., and L. G. Rowell, Kansas City, Mo. Animal-trap	489,869	Jan. 10	1341	350	62	294
Kisinger, John T. T., Jr., *et al.* (See Kisinger, John T., Sr., assignor.)						
Kisinger, William S., Bellevue, Ky. Wire-connector	492,811	Mar. 7	62	14	62	1370
Kitching, Henry C., Licking, Mo. Box-fastener	489,535	Jan. 10	865	226	62	196
Kitching, Henry C., Licking, Mo. Device for holding and stretching card-clothing while being attached to carding-cylinders	492,404	Feb. 28	2137	534	62	1221
Kitson, Arthur, Philadelphia, Pa. Smoke-consuming apparatus	490,826	Jan. 31	2958	760	62	653
Kitson, John E. (See Bufford and Kitson.)						
Klahn, Emil, West Hoboken, N. J., assignor to D. C. Hood, New York, N. Y. Self-winding electric clock	491,945	Feb. 14	1421	355	62	1048
Klár, Karel, Prague, assignor to the House of Al. Hugo Lhota, Králové Hradec, Austria-Hungary. Pedal bass organ	491,566	Feb. 14	831	211	62	930
Klay, Andrew, Bluffton, Ohio. Photographic camera	492,025	Feb. 21	1547	386	62	1087
Kleeman, William M., Columbus, Ohio. Memorandum-tablet for telephones	491,777	Feb. 14	1164	291	62	996
Klees, James A., Reading, Pa. Dumping-wagon	490,661	Jan. 31	2703	695	62	603
Kleifish, Anthony V. (See Wensing, John, assignor.)						
Klein, Charles C., Abington, Pa. Twisting and cop winding machine	492,211	Feb. 21	1829	459	62	1146
Klein, Johann, Frankenthal, Germany. Compound engine	494,425	Mar. 28	2696	676	62	1922
Klemann, Peter, New York, N. Y. Device for cutting or lighting cigars	489,818	Jan. 10	1275	334	62	280
Klenk, Gottlieb, Defiance, Ohio. Carpet-fastener	489,016	Jan. 3	58	17	62	15
Kline, Bruce F., assignor of one-half to Smith & Boullemet, New Orleans, La. Riveting-tool	489,608	Jan. 10	971	252	62	217
Kline, John E., Casey, Ill. Fence	491,180	Feb. 7	198	51	62	795
Kling, Peter M., St. Louis Mo. Car-truck	492,727	Feb. 28	2654	657	62	1326
Klipper, Benjamin. (See Stahl and Klipper.)						
Klos, Daniel. (See Edwards, Thomas H., assignor.)						
Klots, Henry D., New York, N. Y. Spinning-spindle support	493,034	Mar. 7	414	103	62	1440
Knapp, Charles, St. Louis, Mo. Sash-fastener	493,035	Mar. 7	416	104	62	1441
Knapp, Charles H., *et al.* (See Van Wormer, Chauncey E., assignor.)						
Knapp, Edgar. (See Helenbolt, George S., assignor.)						
Knapp, James H. (See Graham and Knapp.)						
Knapp, Shepard, *et al.* (See Whittacre, William C., assignor.)						
Knapper, Joseph, and S. B. Martin, Connellsville, Pa. Engine	490,662	Jan. 31	2704	695	62	604
Kneedler, Oscar. (See Kneedler, Solomon A., and O.)						
Kneedler, Solomon A. and O., assignors of one-fourth to S. A. Boyd, Philadelphia, Pa., executrix of H. M. Boyd, deceased. Cable-grip	493,551	Mar. 14	1237	317	62	1615
Knight, Albert W., Armstrong, Ill. Rod-coupling device	494,208	Mar. 28	2354	595	62	1859
Knight, Charles H. (See Lundy, Sinclair G., assignor.)						
Knight, Edward M., Brooklyn, N. Y. Filter	494,426	Mar. 28	2697	677	62	1922
Knight, Richard D., Providence, R. I. Pocket-case and making the same	489,125	Jan. 3	222	60	62	51
Knight, Richard D., Providence, R. I. Advertising device	489,126	Jan. 3	223	60	62	51
Knobloch, Frank, *et al.* (See Taylor, Alfred, assignor.)						
Knowles Loom Works. (See Hutchins, George F., assignor.)						
Knowles Loom Works. (See Nutt, George H., assignor.)						
Knowles Loom Works. (See Wattle, William, assignor.)						
Knowlton, Mark D. (See Smith and Knowlton.)						
Knox, Davis R., Portland, Mo. Box-fastener	490,567	Jan. 24	2521	649	62	553
Knox, Henry K., Vevay, Ind. Car-coupling	493,095	Mar. 7	501	125	62	1458

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Koch, Edouard A., Waterloo, La. Plow	493,168	Mar. 7	618	155	62	1480
Koch, Walter E., Pittsburg, Pa. Furnace for heating steel ingots	489,017	Jan. 3	59	17	62	15
Kochs, Albert. (See Kochs, Benjamin and A.)						
Kochs, Benjamin and A., St. Louis, Mo. Electric-railway trolley	491,561	Feb. 7	505	130	62	844
Koeniges, Martin, Dolgeville, N. Y. Piano-hammer-covering machine	493,274	Mar. 14	788	204	62	1530
Koepp, Henry, assignor of one-half to F. Z. Nedden, Milwaukee, Wis. Window	491,653	Feb. 14	969	243	62	958
Koerner, Charles, Detroit, Mich. Car-coupling	494,376	Mar. 28	2624	659	62	1909
Koetter, John F. W., St. Louis, Mo. Repeating toy pistol	490,568	Jan. 24	2522	649	62	553
Kohl, Georg, Vienna, Austria-Hungary. Button-fastener and key for detaching	489,127	Jan. 3	223	60	62	51
Kohler, Edward, assignor to M. Grant, London, England. Rotary shuttle-actuating mechanism for sewing-machines	489,162	Jan. 3	271	75	62	63
Kohler, Edward, assignor to M. Grant, London, England. Sewing-machine	489,163	Jan. 3	272	76	62	63
Kohlransch, Matthew H., Billerica, Mass. Machine for scouring cloth	490,627	Mar. 21	1381	351	62	1659
Koken, Ernest E., St. Louis, Mo. Chair-base	492,554	Feb. 28	2390	593	62	1274
Kolb, August R. (See Boulter, William A., assignor.)						
Kolben, Emil, Schenectady, assignor to Edison General Electric Company, New York, N. Y. Conductor for armatures	491,567	Feb. 14	832	211	62	930
Kolben, Emil, Schenectady, assignor to Edison General Electric Company, New York, N. Y. Armature and means for supporting the same	491,568	Feb. 14	833	211 / 212	62	930
Kollenberg, Fred G., Owensborough, Ky. Letter-box	492,026	Feb. 21	1549	386	62	1087
Koontz, Augustus O., South Bend, Ind. Windmill	489,080	Jan. 3	147	41	62	36
Koppes, William M., Orrville, Ohio. Thrashing-machine	491,485	Feb. 7	694	175 / 176	62	881
Koretke, Charles A. C., Belvidere, Ill. Heating-stove	490,478	Jan. 24	2385	617	62	526
Korn, George W. (See Remscheid, August, assignor.)						
Krabach, Frank X., Defiance, Ohio. Harrow or cultivator tooth	489,960	Jan. 17	1520	397	62	343
Kraetzer, Edwin J., Gloversville, N. Y., assignor to Consolidated Fastener Company, Portland, Me. Glove-fastener	490,444	Jan. 24	2324	603	62	514
Kraetzer, Edwin J., Cambridge, Mass., assignor to Consolidated Fastener Company, Portland, Me. Glove-fastening	494,104	Mar. 21	2171	554	62	1810
Kraft, Charles H. F., Battle Creek, Mich. Wrench	491,056	Jan. 31	3346	853	62	731
Kraft, Georg W., assignor to Lingner & Kraft, Dresden, Germany. Flexible ruler	490,390	Jan. 24	2250	565	62	501
Krag, Ole H. J., and E. Jörgensen, Kongsberg, Norway. Magazine-gun	492,212	Feb. 21	1834	459 / 460	62	1147
Kraker, Joseph, San Francisco, Cal. Filter	489,747	Jan. 10	1175	306	62	258
Krampf, John M., New Albany, Ind., assignor to W. C. De Pauw Company, of Indiana. Apparatus for recovering sand used in glass grinding and polishing	494,209	Mar. 28	2355	596	62	1859
Kratz, John, Baltimore, Md. Mallet	492,608	Feb. 28	2473	614	62	1291
Kraus, Rudolf, assignor of three-twentieths to F. Bergmann, Long Island City, N. Y. Automatic match-lighter	491,314	Feb. 7	420	109 / 110	62	827
Krebs, Henry, Wadena, Iowa. Potato-digger	492,332	Feb. 21	2014	501 / 502	62	1184
Kregel, Louis G., St. Louis, Mo. Coffin-fastener	493,096	Mar. 7	502	125	62	1458
Kreischer, George F., New York, N. Y. Enameling-furnace	492,405	Feb. 28	2139	534	62	1221
Krenkel, Ernst P., Leipsic, Germany. Material for the manufacture of trunks	491,018	Jan. 31	3275	836	62	715
Krenkel, Paul, Leipsic, Germany. Life-preserving trunk	492,688	Feb. 28	2595	642	62	1314
Krensler, Arnold, Kreischerville, assignor to himself, and A. Zinsser, New York, N. Y. Treating beer and analogous liquids	489,018	Jan. 3	60	18	62	16
Krewson, Joseph A., Rogersville, Mo. Stirrup for saddles	494,005	Mar. 21	2007	511	62	1779
Krieger, Andrew, Indianapolis, Ind. Saw	492,890	Mar. 7	186	45	62	1396
Krieger, Andrew, assignor to E. C. Atkins & Company, Indianapolis, Ind. Holder for insertible saw-teeth	493,334	Mar. 14	893	228	62	1548
Krieger, Andrew, assignor to E. C. Atkins & Company, Indianapolis, Ind. Saw	493,628	Mar. 21	13-3	351	62	1659
Krieger, Andrew, assignor to E. C. Atkins & Company, Indianapolis, Ind. Saw	494,210	Mar. 28	2356	596	62	1859
Kriegsman, E. E. (See Geisenhöner, Henry, assignor.)						
Kropp, Charles C., Newark, N. J. Violin	494,276	Mar. 28	2457	619	62	1877
Krouse, Andrew, *et al.* (See Ferrall, Thomas R., assignor.)						
Krouse, George, *et al.* (See Ferrall, Thomas R., assignor.)						
Krouse, Louis M., Cincinnati, Ohio. Flushing-tank	492,027	Feb. 21	1550	386	62	1088
Krug, Philip F., Brooklyn, N. Y. Lubricator	490,910	Jan. 31	3106	796	62	683
Krug, Wilhelm, Kries Siegen, Germany. Ore-separator	490,911	Jan. 31	3107	796 / 797	62	683
Krumscbied, Peter. (See Duggan, Philip J., assignor.)						
Krnschke, Rudolph C., Duluth, Minn. Electric show-case alarm	490,479	Jan. 24	2385	617 / 618	62	526
Krusi, Herman. (See McMullen, Krusi, and Wood.)						
Kuehne, Albert, *et al.* (See Beehler, Charles W., assignor.)						
Kuh, Solomon, Sioux Falls, S. D. Advertising apparatus	489,961	Jan. 17	1522	398	62	344
Kuhn, Edmond, Brooklyn, N. Y. Clock-attaching device for cycles	490,750	Jan. 31	2844	730	62	630
Kuhn, Edmund, New Albany, Ind. Pattern for molding dovetails	492,728	Feb. 28	2655	658	62	1327
Kundtz, Theodor, Cleveland, Ohio. Cabinet sewing-machine table	490,116	Jan. 17	1784	465	62	397
Kundtz, Theodor, Cleveland, Ohio. Sewing-machine table	491,651	Feb. 14	970	244	62	958
Kundtz, Theodor, Cleveland, Ohio. Sewing-machine table	491,655	Feb. 14	971	244	62	958
Kundtz, Theodor, Cleveland, Ohio. Sewing-machine table	491,656	Feb. 14	973	245	62	959
Kuney, Elmer E. (See Head, Frank E., assignor.)						
Kunz, William, Buffalo, N. Y. Car-step	493,932	Mar. 21	1871	477	62	1753
Küpferling, Carl. (See Thiele, Küpferling, and Sichtermann.)						
Kurtz, John S., Richfield, Pa., assignor to C. La Dow, Albany, N. Y. Spring-tooth harrow	489,417	Jan. 3	659	178 / 179	62	141
Kurtz, Louis, New York, N. Y. Tricycle	493,505	Mar. 14	1159	296	62	1599
Kuschewsky, Solomon L. (See Wool, Moses, assignor.)						
Kutscher, Louis, New Britain, Conn. Shutter-worker	494,006	Mar. 21	2008	512	62	1780
Kwiatkowski, Louis F. (See Rieckert and Kwiatkowski.)						
L'Enfant, Charles, New York, N. Y. Cover for books	492,925	Mar. 7	246	62	62	1407
La Burt Automatic Electric Block Signal System and Car Coupler Company. (See La Burt, John, assignor.)						
La Burt, John, New York, assignor to Agricola La Burt Manufacturing Company, Brooklyn, N. Y. Electric block-signal system	490,663	Jan. 31	2705	696	62	604
La Burt, John, assignor to La Burt Automatic Electric Block Signal System and Car Coupler Company, New York, N. Y. Block-signal system	494,007	Mar. 21	2010	512 / 513	62	1780
La Burt, John, assignor of one-third to A. M. Lowry, New York, N. Y. Convertible step-ladder and window-platform	490,664	Jan. 31	2709	697	62	605
La Dow, Charles. (See Kurtz, John S., assignor.)						
La Dow, Charles, Albany, N. Y. Harrow	494,538	Mar. 28	2885	723	62	1955

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La France, Elzear, Worcester, Mass. Fire or burglar alarm	489,312	Jan. 3	505	139	62	110
La Pierre, Frank H. (See Coe, Isaac, assignor.)						
La Rochelle, Ephrem, assignor of two-thirds to E. Poirier, Salem, Mass. Nut-lock	494,338	Mar. 28	2558	644	62	1897
La Strong, Frank. (See Hudson, La Strong, and Bunch.)						
La Subérine. (See Vasson, Raphaël G. de, assignor.)						
La Tour, Louis, Bridgeport, Conn. Bed-lounge	490,480	Jan. 24	2387	618	62	527
Labady, Louis C., Tacoma, Wash. Hub for vehicle-wheels	493,097	Mar. 7	503	126	62	1459
Lachman, Morris, London, England, assignor to Standard Caster and Wheel Company, of West Virginia. Caster-wheel	492,924	Mar. 7	245	62	62	1407
Lactoix, Napoleon, and L. Dubois, Montreal, Canada. Sewer-cleaner	494,427	Mar. 28	2700	678	62	1922
Laighton, William S., and A. P. Hitchcock, Norwich, Conn. Camera	490,117	Jan. 17	1785	465 / 466	62	397
Laininger, Korbinian, St. Louis, Mo. Harrow	490,713	Jan. 31	2782	715	62	620
Laird, Archibald F., assignor of one-half to J. M. Hill, Thornton, Tex. Cotton-bag carrier	492,028	Feb. 21	1551	386	62	1088
Lake, Leon, Hornellsville, N. Y., assignor to Whiffen-Lake Lasting Machine Company, Hammonton, N. J. Lasting-machine	491,804	Feb. 14	1344	333	62	1032
Lake, Thomas H., and R. W. Dickson, Mobile, Ala.; said Dickson assignor to said Lake. Fertilizer-distributer	489,313	Jan. 3	507	139	62	110
Lamb, George B., Waterbury, Conn. Wire-drawing machine	489,588	Jan. 10	941	244 / 245	62	211
Lamb, George B., assignor to Waterbury Farrel Foundry and Machine Company, Waterbury, Conn. Hydraulic-pressure valve	490,290	Jan. 24	2090	545	62	468
Lamb, James, Aurora, Ind., assignor to L. K. Lamb, Tolono, Ill. Prescription case	489,652	Jan. 10	1025	267	62	298
Lamb Knitting Machine Manufacturing Company *et al.* (See Perkins, Albert, assignor.)						
Lamb, Lamartine K. (See Lamb, James, assignor.)						
Lamb, Nathan H., Verdon, S. D. Type-writing machine	492,812	Mar. 7	63	15	62	1370
Lamb, Salem T., New Albany, Ind. Corn-planter	490,605	Jan. 31	2711	697	62	605
Lamb, William, Aberdeen, S. D. Brick-mold-sanding machine	493,098	Mar. 7	504	126 / 127	62	1459
Lambach, Philip H., Boulder, Colo. Washing-machine	493,335	Mar. 14	894	229	62	1548
Lambert, Frank, Brooklyn, N. Y., assignor to Thomson Meter Company, of New Jersey. Mechanism for controlling the action of oscillating disks	490,025	Jan. 17	1644	427	62	367
Lambert, Frank, Brooklyn, N. Y., assignor to Thomson Meter Company, of New Jersey. Mechanism for controlling the action of oscillating disks	490,026	Jan. 17	1646	428	62	368
Lambert, George A., Belfast, Me. Plow-colter clamp	491,895	Feb. 14	1346	334	62	1033
Lamp, William P., Brownsville, Ill. Car-coupling	492,029	Feb. 21	1552	387	62	1088
Lamson Consolidated Store Service Company. (See Goodfellow, John H., assignor.)						
Lamson, Warren H., Bridgeport, Conn. Toy	492,963	Mar. 7	303	76, 77	62	1419
Laucrenon, Marie F., Paris, France. System of heating by steam	489,748	Jan. 10	1176	306 / 307	62	259
Landis, Abraham B., Waynesborough, Pa. Rotating grain-meter	492,860	Mar. 7	155	37	62	1389
Landis, Abraham B., Waynesborough, Pa. Pumping-engine	492,870	Mar. 7	157	38	62	1389
Landis, Frank F., Waynesborough, Pa. Grain-separator	492,213	Feb. 21	1808	460	62	1148
Landis, Johann H., Oerlikon, near Zurich, Switzerland. Machine for sharpening and setting saws	490,110	Jan. 24	2276	591	62	506
Landis, Levi K. (See Rote and Landis.)						
Landreth, Leopold, Bristol, Pa. Vehicle	494,008	Mar. 21	2015	514	62	1781
Landry, Adolphus J., Somerville, Mass. Eyeglasses	493,169	Mar. 7	620	156	62	1480
Landry, Adolphus J., assignor to A. J. Lloyd, Boston, Mass. Eyeglasses	490,291	Jan. 24	2091	545	62	469
Lane, Almeron M., Meriden, Conn. Pendulum-ball	492,030	Feb. 21	1553	387	62	1088
Lane, Almeron M., Meriden, Conn. Clock-case sash	492,031	Feb. 21	1553	387	62	1088
Lane, Almeron M., Meriden, Conn. Clock	492,813	Mar. 7	66	15, 16	62	1371
Lane, Augustus R., New York, N. Y. Insulator	491,362	Feb. 7	507	130	62	845
Lane, Cornelius. (See Lane, John and C.)						
Lane, John and C., Holly, Mich. Wire-fence machine	492,214	Feb. 21	1839	460 / 461	62	1148
Lane, Thomas W., Boston, Mass., assignor to Electric Gas Lighting Company, Portland, Me. Electric gas-lighter	489,653	Jan. 10	1025	267	62	229
Lang, Frank S., Helena, Mont. Damper for furnace-pipes	493,363	Mar. 14	910	241	62	1558
Langmuir, Woodburn, Toronto, Canada. Cushion-tire	490,714	Jan. 31	2784	715	62	620
Langton, Alfred, Deptford Pier, England. Steam-generator	491,217	Feb. 7	256	61	62	786
Laning, Jay F., Norwalk, Ohio. Index	493,552	Mar. 14	1210	317 / 318 / 345 / 346	62	1615
Lanouette, Victor F., Dover, N. H. Brick-machine	491,657	Feb. 14	974	246	62	959
Lapham, Charles, *et al.* (See Weaver, William, assignor.)						
Lapham, Joseph H. and O. T., Cleveland, Ohio. Washboard	491,181	Feb. 7	199	51	62	785
Lapham, Owen T. (See Lapham, Joseph H. and O. T.)						
Lapp, John, Rochester, N. Y. Steam boiler and heater	491,804	Feb. 14	1205	301	62	1005
Lapp, John, Rochester, N. Y. Steam-boiler	494,211	Mar. 28	2357	596	62	1859
Larish, Wilbur F., Oshkosh, Wis. Sanding-drum	491,658	Feb. 14	975	246	62	959
Larkins, A. O. (See Rodgers, William H., assignor.)						
Larkins, Samuel O., Blair, Nebr. Hanger for electric incandescent lamps	492,215	Feb. 21	1843	461	62	1149
Lary, Morris. (See Lewis, William H., assignor.)						
Lastelle, Henry P. de, assignor to Société Nouvelle de Constructions Systeme Tollet, Paris, France. Separable skeleton structure	491,288	Feb. 7	365	91, 92	62	818
Latshaw, W. H., trustee. (See Shepler, Cassius R., assignor.)						
Lattig, Jacob W., assignor to National Switch and Signal Company, Easton, Pa. Relay	492,689	Feb. 28	2536	643	62	1314
Lattimore, Daniel J., assignor of three-fourths to E. C. Hammack and M. Tucker, St. Louis, Mo. Embossing-machine	490,912	Jan. 31	3110	798	62	683
Lauber, Adam C., Cincinnati, Ohio. Portable house or tent	490,205	Jan. 17	1937	508	62	426
Lauderdale, Queenie T., Dyersburg, Tenn. Invalid's hot tray	489,019	Jan. 3	62	18	62	16
Laughlin, Elizabeth S., Pittsburg, Pa. Cabbage-cutter	492,814	Mar. 7	68	16	62	1371
Laughlin, Henry A., Pittsburg, Pa. Steam-boiler	490,118	Jan. 17	1788	466 / 467	62	397
Laughlin, Henry A., Pittsburg, Pa. Steam-boiler	490,119	Jan. 17	1790	467	62	398
Laughlin, Henry A., Pittsburg, Pa. Steam-boiler	490,120	Jan. 17	1793	468	62	398
Lauhoff, Joseph, Detroit, Mich. Bottle-stopper	491,119	Feb. 7	86	24	62	765
Lavigne, Joseph P., assignor of one-half to R. H. Brown, New Haven, Conn. Air-cushion tire	490,827	Jan. 31	2959	760	62	654
Lavigne, Joseph P., assignor of one-half to R. H. Brown, New Haven, Conn. Bicycle-tire	490,828	Jan. 31	2961	760	62	654
Lavigne, Joseph P., assignor of one-half to R. H. Brown, New Haven, Conn. Self-holding tire for bicycles	490,829	Jan. 31	2963	761	62	655
Lavigne, Joseph P., assignor of one-half to R. H. Brown, New Haven, Conn. Bicycle-tire	490,830	Jan. 31	2964	761	62	655

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr.	Official Gazette. Vol.	Official Gazette. Page.
Lawler, Albert B. (See Bridgewater, Christopher A., assignor.)						
Lawless, Thomas F. (See Hancock, Lovelace, and Lawless.)						
Lawry, Ira F., Taunton, Mass. Stopping mechanism for carding-machines	493,870	Mar. 21	1768	451	62	1734
Lawson, Margaret H., Boston, Mass. Bicycle-garment	491,057	Jan. 31	3347	853	62	731
Lawton, Lewis, Trenton, N. J. Pottery-kiln furnace	491,569	Feb. 14	835	212	62	931
Lawton, Lewis, Trenton, N. J. Steam-boiler furnace	491,570	Feb. 14	857	212	62	931
Layman, Hiram D., Little Rock, Ark. Automatic railway pumping mechanism	489,962	Jan. 17	1523	398	62	344
Layman, Hiram D., Little Rock, Ark. Automatic railway pumping machinery	490,666	Jan. 31	2714	698	62	606
Layton, Ralph D., St. Matthews, S. C. Mechanical movement	491,896	Feb. 14	1346	334	62	1033
Le Blois, Leopold, Elbeuf, France. Method of and apparatus for bleaching or dyeing textile materials	489,819	Jan. 10	1276	334	62	280
Le Valley, Henry E., Providence, R. I. Arm-rest and support for guitars	491,735	Feb. 14	1122	283	62	989
Lear, Mason D., Kane, Pa. Clothes-pin lathe	490,206	Jan. 17	1942	509	62	427
Learmonth, Alexander, and A. A. Belman, Tower City, N. D. Seed-planter	491,363	Feb. 7	509	131	62	845
Leavitt, Frank M., Brooklyn, N. Y., assignor to E. W. Bliss Company, Limited, London, England. Clutch mechanism for power-presses	490,715	Jan. 31	2784	715	62	620
Leavitt, John E., Boston, Mass. Skirt-supporter	492,406	Feb. 28	2140	535	62	1221
Leavitt, John E., Boston, assignor of one-half to C. A. Patten, Somerville, Mass. Garment-shaper	492,514	Feb. 28	2324	576	62	1258
Leavy, Michael, Pittsfield, Mass. Cut-out for electric circuits	490,292	Jan. 24	2092	545	62	469
Ledig, Rudolph, Newark, N. J. Beer-cooler	493,383	Mar. 14	964	248	62	1562
Lee, Clinton R., Davenport, Iowa. Device for grading broom-corn stems	492,032	Feb. 21	1554	387	62	1088
Lee, George S., Hawthorne, N. J., assignor, by mesne assignments, to East Coast Manufacturing Company of New Jersey. Composition of matter for pavements, &c	490,667	Jan. 31	2716	698	62	606
Lee, George S., Hawthorne, N. J., assignor, by mesne assignments, to East Coast Manufacturing Company of New Jersey. Roofing material	490,668	Jan. 31	2716	698, 699	62	606
Lee, Henry M., Waterville, Me. Piston-head	490,913	Jan. 31	3111	798	62	683
Lee, John C. (See Skaggs, Newton J., assignor.)						
Lee, John E., Conshohocken, Pa. Surgeon's ligature-receptacle	490,207	Jan. 17	1944	510	62	427
Lee, John E., Conshohocken, Pa. Thermocanter	490,969	Jan. 31	3197	817	62	700
Lee, John E., Conshohocken, Pa. Surgical-ligature receptacle	491,315	Feb. 7	422	110	62	827
Lee, John E., Conshohocken, Pa. Inhaler	491,778	Feb. 14	1165	291	62	996
Lee, Kenneth. (See Waterman and Luther, assignors.)						
Lee, Patrick, and J. A. O'Farrell, Boise City, Idaho; said Lee assignor to said O'Farrell. Car-coupling	490,147	Jan. 17	1842	481	62	408
Leech, William T., and G. Himelspark, Philadelphia, Pa., assignors, by mesne assignments, to American Napping Machine Company, of Maine. Cloth-napping machine	493,215	Mar. 7	683	174, 175	62	1492
Leeson & Co., J. R. (See Bates, Henry A., assignor.)						
Legg, A. M. (See Niles, Peter H., assignor.)						
Legg, Benjamin A., Allegheny, Pa. Slate-cleaning device	489,152	Jan. 3	259	72	62	60
Leggett, William, Nutley, N. J. Hose-nozzle	490,445	Jan. 24	2325	604	62	514
Leggott, Henry. (See Marsh, Edwin, assignor.)						
Lehman, Daniel C., Fultonville, N. Y. Book-rest	490,569	Jan. 24	2523	649	62	554
Lehman, Otto A., Hoboken, N. J. Closure or cover for pocketbooks	489,710	Jan. 10	1112	287	62	246
Lehmann, Edmund, Bautzen, Germany. Hand nailing implement	489,020	Jan. 3	62	18	62	16
Lehmann, Franz, Cöpenick, Germany. Producing leaf-metal patterns on woven fabrics	491,364	Feb. 7	510		62	845
Lehmann, Karl L., Chicago, Ill. Tower	489,963	Jan. 17	1524	399	62	344
Lehmann, Karl L., Chicago, Ill. Tower	489,964	Jan. 17	1525	399, 400	62	344
Lehmer, William, Chicago, Ill. Tire-shrinker	490,731	Jan. 31	2845	730	62	630
Lehr, Horace, and J. Diehl, Easton, Pa. Pedal attachment for organs	490,970	Jan. 31	3198	817	62	700
Lehr, Nicholas P., and J. H. Wolfe, Fremont, Ohio. Sulky-plow	494,530	Mar. 28	2871	718	62	1953
Leighton, George A., assignor to W. C. Lovejoy, Newaygo, Mich. Clothes drier	490,570	Jan. 24	2525	650	62	554
Leighton, Herbert J., Syracuse, N. Y. Protractor-bevel	490,121	Jan. 17	1797	468, 469	62	399
Leighton, Walter F., Boston, Mass. Thill-coupling	491,182	Feb. 7	200	51	62	786
Leimberger, Frederick W., Petersburg, Va. Trunk-handle	489,820	Jan. 10	1279	335	62	281
Leiner, William, Milwaukee, Wis. Attachment for musical instruments	493,099	Mar. 7	508	128	62	1460
Leininger, Augustus. (See Shreiner and Leininger.)						
Leinwather, Aloys M., Basle, Switzerland. Car-wheel	490,571	Jan. 24	2526	650	62	554
Leinwather, Aloys M., Basle, Switzerland. Ball-caster	494,009	Mar. 21	2016	514	62	1781
Leinwather, Aloys M., and E. Riggenbach, Basle, Switzerland. Car-truck	491,897	Feb. 14	1318	334, 335	62	1033
Leitch, Archibald K., Deltotte, Ceylon. Lock	491,779	Feb. 14	1166	291	62	996
Leith, Harvey I., Providence, R. I. Bottle	489,965	Jan. 17	1527	400	62	345
Leith, Harvey I., Providence, R. I. Bottle	489,966	Jan. 17	1530	400	62	345
Leith, Harvey I., Providence, R. I. Bottle	489,967	Jan. 17	1532	400	62	345
Lemp, Hermann, and M. J. Wightman, Hartford, Conn., assignors to Schuyler Electric Company, of Connecticut. Thermal cut-out for electric lamps	493,629	Mar. 21	1763	351	62	1659
Lennard, Fer J., Stamford, Conn. Caster	491,710	Feb. 14	1056	267	62	976
Lentz, Peter B. (See Hamill, Lentz, and Cole.)						
Leonard, George D., New Haven, Conn. Nose-bag for animals	494,428	Mar. 28	2701	678	62	1923
Leonhardt, August F. (See Cunningham, Martin J., assignor.)						
Leonhardt & Co., A. (See Bender and Kämmerer, assignors.)						
Leonhardt, William J., Chicago, Ill. Coffin	494,297	Mar. 28	2491	628	62	1884
Lepley, Daniel F., Berlin, Pa. Valve-gear	492,302	Feb. 21	1968	490, 491	62	1175
Lepperr, Nathan S. (See Conklin, Theodore F., assignor.)						
Lepsius, Bernhard, Griesheim, Germany. Preparing explosive compounds	492,089	Feb. 21	1639		62	1106
Lesher, William W. (See Dettra, Benjamin F., assignor.)						
Leslie, Robert, New York, N. Y. Air circulating and cooling device	493,036	Mar. 7	417	104	62	1441
Letson, Augustus F., assignor to C. E. Letson, Buffalo, N. Y. Railway-switch	489,536	Jan. 10	866	227	62	196
Letson, Catherine E. (See Letson, Augustus F., assignor.)						
Letson, Samuel B., Colfax, Wash. Washing-machine	489,609	Jan. 10	972	253	62	217
Lever, Oswald, and W. S. Grundy, Philadelphia, Pa. Chenille-cutting machine	491,218	Feb. 7	257	64	62	797
Levin, J. M., *et al.* (See Manderfield, George J., assignor.)						
Levin, Samuel, *et al.* (See Manderfield, George J., assignor.)						
Levitt, Robert W. (See Beck and Levitt.)						
Levy, Abraham, Boston, Mass., assignor to Colby & Co., Brooklyn, N. Y. Waistband for trousers	490,446	Jan. 24	2326	604	62	515
Levy, Herman L., Brooklyn, N. Y. Shirt-waist	493,170	Mar. 7	621	156	62	1481
Levy, Israel, Kouts, Ind. Heel-pad	491,756	Feb. 14	1123	284	62	989
Levy, Louis E. and M., Philadelphia, Pa.; said Louis E. Levy assignor to said M. Levy. Screen for photomechanical printing	492,733	Feb. 21	2017	502	62	1185

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Levy, Louis W., *et al.* (See Brass, Robert, assignor.)						
Levy, Louis W., New York, N. Y. Opera-glass holder	491,711	Feb. 14	1057	267	62	976
Levy, Max. (See Levy, Louis E. and M.)						
Lewin, Jacob, New York, N. Y. Sofa-bed	492,729	Feb. 28	2656	658	62	1327
Lewis, John A. (See Reneau, Charles W., assignor.)						
Lewis, Loyal V., Kendallville, Ind. Feed-water purifier and heater	493,406	Mar. 14	993	256	62	1570
Lewis, Mortimer G., New York, N. Y. Bench-vise	493,361	Mar. 14	941	241	62	1559
Lewis, Thomas, Townsend, N. Y. Feed-trough	489,589	Jan. 10	943	245	62	244
Lewis, Thomas B., Renovo, Pa. Automatic brick-press	491,712	Feb. 14	1059	268	62	977
Lewis, Wilfred, assignor to William Sellers & Company, Incorporated, Philadelphia, Pa. Bending-roll	491,908	Feb. 14	1453	362	62	1055
Lewis, William, Des Moines, Iowa. Well-drilling machinery	489,021	Jan. 3	64	19	62	16
Lewis, William, Sank Centre, Minn. Draft-equalizer	492,939	Mar. 7	263	67	62	1411
Lewis, William H., Rome, assignor to M. Lary, New York, N. Y. Spring pillow	490,447	Jan. 24	2327	604	62	515
Lewis, William H., Huntington, assignor to E. & H. T. Anthony & Company, New York, N. Y. Camera-shutter	494,256	Mar. 28	2498	612	62	1872
Lewis, William M., New Hartford, Iowa. Horse-power	493,827	Mar. 21	1707	404	62	1702
Ley, Rudolph, Arnstadt, Germany. Pegging-machine	492,906	Mar. 7	217	53, 54	62	1401
Leyburn, Edward J., Lexington, Va. Drink-mixer	489,824	Jan. 10	1280	305	62	281
Libbey, Hosea W., Boston, Mass. Wheel	490,391	Jan. 24	2252	585	62	501
Libbey, Hosea W., Boston, Mass. Automatic aerial railway	491,572	Feb. 14	839	213	62	931
Libbey, Hosea W., Boston, Mass. Conductor's registering trip-slip	492,764	Feb. 28	2717	675	62	1338
Libbey, Hosea W., Boston, Mass. Car-wheel	492,907	Mar. 7	220	55	62	1401
Lickey, John W., Rushville, Ill. Lifting device	489,610	Jan. 10	974	253	62	218
Liddell, William, Brooklyn, N. Y. Perforating and cutting machine	492,871	Mar. 7	159	38	62	1390
Liddell, William, Brooklyn, N. Y., assignor to W. A. Bingham, Bloomfield, N. J. Paper-bag machine	491,573	Feb. 14	840	213	62	932
Liddell, William, Brooklyn, N. Y., assignor to W. A. Bingham, Bloomfield, N. J. Paper-bag machine	492,198	Feb. 28	2302	571	62	1254
Lieb, George W., Newark, N. J. Machine for making button-backs	492,534	Feb. 28	2351	583, 584, 585	62	1265
Lieberich, Heinrich, Neustadt, Germany. Filter	491,574	Feb. 14	843	213	62	932
Liggett, Turbayne & Company. (See Turbayne, William A., assignor.)						
Lightbody, John P., San Francisco, Cal. Balanced slide-valve	489,128	Jan. 3	224	60	62	52
Lightbody, John P., San Francisco, Cal. Balanced slide-valve	489,129	Jan. 3	225	61	62	52
Lightner, Claude O., and F. W. Fransway, Baraboo, Wis. Stop-motion for spooling-machines	494,298	Mar. 28	2492	628, 629	62	1884
Likly, Henry, Rochester, N. Y. Hat-tray	489,968	Jan. 17	1533	401	62	346
Lillie, Samuel M., Philadelphia, Pa. Evaporating liquids	491,650	Feb. 14	977	246	62	959
Linabury, Charles E., assignor of one-half to A. Beers, Dansville, Mich. Map-stand	490,253	Jan. 17	2015	527	62	441
Lincke, Lena, Berlin, Germany. Folding umbrella	491,805	Feb. 14	1208	302	62	1005
Lincoln, Robert B. (See Halvorson, Cromwell A. B., assignor.)						
Lind, Erik G., and K. P. Gustafsson, Näs-Station, Sweden. Stone-dressing machine	492,033	Feb. 21	1555	388	62	1089
Lindberg, Charles, *et al.* (See Gardeen, Oscar S., assignor.)						
Lindemuth, Harry H., Harrisburg, Pa. Vertical boiler	490,669	Jan. 31	2717	699	62	606
Lindemuth, Harry H., Harrisburg, Pa. Water-tube boiler	492,499	Feb. 28	2304	571, 572	62	1254
Linder, Mons. A., Pullman, Ill. Sink and bath-tub	489,485	Jan. 10	785	207	62	181
Linderoth, Henrik P. (See Ishäg and Linderoth.)						
Lindeström, Hjalmar, Moline, Ill. Compensating lever for plows	489,486	Jan. 10	786	207, 208	62	181
Lindeström, Hjalmar, Moline, Ill. Compensating lever, &c	492,730	Feb. 28	2657	658	62	1327
Lindsey, Lucien B. (See Sears and Lindsey.)						
Lindstrom, Axel, Ogden, Utah Ter. Curtain-exhibitor	490,572	Jan. 24	2526	650	62	555
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Making sheet-metal mounts for brushes, &c	492,216	Feb. 21	1844	461, 462	62	1149
Lingner & Kraft. (See Kraft, Georg W., assignor.)						
Link-Belt Engineering Company. (See Dodge, James M., assignor.)						
Link, Judge W., and A. E. Wilcox, Sinclairville, N. Y. Hoof-spreader	492,985	Mar. 7	337	85	62	1426
Linn, A. M. (See Rowley, James F., assignor.)						
Lintz, Martin, Socorro, N. Mex. Ter. Cork for bottles	489,081	Jan. 3	149	41	62	36
Liotard, Louis F., Paterson, N. J. Reed for looms	491,575	Feb. 14	844	214	62	932
Lippy, David, Mansfield, Ohio. Store-service apparatus	489,537	Jan. 10	868	227	62	197
Lispenard, George, Brooklyn, N. Y., assignor, by mesne assignments, to Wallis-Lispenard Cotton Picker and Machinery Company, of New Jersey. Cotton-harvester	494,105	Mar. 21	2172	554, 555, 556	62	1810
Littell, Harvey M. (See Goetz and Smith, assignors.)						
Little, Francis, Marshall, Tex. Cinder and smoke consuming apparatus	491,738	Feb. 14	1097	277, 278	62	984
Little, Harry M., Rivera, Cal. Cultivator	494,010	Mar. 21	2017	514	62	1781
Little, Orton C., assignor to D. T. H. MacKinnon, Menasha, Wis. Belt	491,660	Feb. 14	979	247	62	960
Little, Orton C., assignor of one-half to D. T. H. MacKinnon, Menasha, Wis. Pulley-arm pattern	494,257	Mar. 28	2489	612	62	1872
Little, William M., Vandalia, Ill., assignor to R. L. Little Manufacturing Company, of Illinois. Tag-machine	493,592	Mar. 14	1314	336, 337	62	1631
Littlefield, Frank A., assignor to Pepperell Machine Company, Pepperell, Mass. Steam-trap	491,486	Feb. 7	695	176	62	892
Littlefield, George, Burlington, Wis. Vapor-generating burner	493,171	Mar. 7	622	156	62	1481
Littlejohn, Charles F., Bridgeport, Conn. Connection for steam-engines	490,852	Jan. 31	2904	766, 767	62	661
Littlejohn, Charles F., Bridgeport, Conn. Valve-gear	490,853	Jan. 31	2905	767	62	661
Livengood, Winfield S., assignor to I. H. Dibble, Kansas City, Mo. Lifting-jack	490,293	Jan. 24	2093	546	62	469
Livingston, Andrew W., San Francisco, Cal., assignor to E. Norton, Maywood, and O. W. Norton, Chicago, Ill. Can-body-forming machine	489,969	Jan. 17	1535	401	62	346
Livingston, Andrew W., San Francisco, Cal., assignor to E. Norton, Maywood, and O. W. Norton, Chicago, Ill. Can-soldering machine	492,034	Feb. 21	1557	388	62	1089
Lloyd, Andrew J. (See Landry, Adolphus J., assignor.)						
Lloyd, Gordon W., Detroit, Mich. Joint for gas or water pipes	494,147	Mar. 28	2254	574	62	1840
Lloyd, Henry H., Philadelphia, Pa., assignor to Electric Storage Battery Company, Gloucester City, N. J. Secondary battery	490,254	Jan. 17	2016	527	62	442
Lloyd, Marshall B., assignor of one-half to E. H. Holbrook, Jr., Minneapolis, Minn. Automatic grain-scale	493,275	Mar. 14	790	205	62	1530
Lloyd, Robert M., New York, N. Y. Manufacture of secondary-battery electrodes	491,684	Feb. 14	1015	257	62	968

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lobdell, Henry, West Troy, N. Y. Adhesive paste	492,515	Feb. 28	2425	.....	62	1259
Lochman, Charles W., Crescent City, Cal. Ventilator	490,927	Jan. 17	1647	428	62	368
Lochmann, Paul, Gohlis, near Leipsic, Germany. Governor	491,219	Feb. 7	258	64	62	797
Palmyra, N. Y. Insulator-pin						
Locke, Herbert M., Washington, D. C. Door-hinge	493,434	Mar. 14	1037	268	62	1578
Lockhart, John M. (See Campbell, James A., assignor.)	493,230	Mar. 7	711	182	62	1498
Lockhart, William S., and E. W. Streeter, London, England; said Streeter assignor to said Lockhart. Hydraulic mineral-separating apparatus	489,538	Jan. 10	869	{227 228}	62	197
Lockstaedt, Charles C., Chicago, Ill. Hanger	494,148	Mar. 28	2955	574	62	1840
Lockwood, John B., Helmville, Mont. Clothes-pin	490,971	Jan. 31	3199	817	62	700
Lockwood, Samuel U., Minneapolis, Minn. Saw-swage	493,435	Mar. 14	1038	268	62	1578
Lodyguine, Alexandre de, Paris, France, assignor, by mesne assignments, to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Manufacturing filaments for incandescent lamps	494,149	Mar. 28	2956	574	62	1840
Lodyguine, Alexandre de, Paris, France, assignor, by mesne assignments, to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Manufacturing filaments for incandescent lamps	494,150	Mar. 28	2958	.....	62	1840
Lodyguine, Alexandre de, Paris, France, assignor, by mesne assignments, to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Filament for incandescent lamps	494,151	Mar. 28	2960	.....	62	1840
Logue, Hugh, Philadelphia, Pa., assignor to American Meter Company, New York, N. Y. Gas meter frame	490,149	Jan. 17	1845	481	62	409
Logue, William A., Sunset, Mont. Whist game-board	490,148	Jan. 17	1844	481	62	409
Löhers, Heinrich, Heidelberg, Germany. Tooth-brush	490,831	Jan. 31	2966	761	62	655
Lohges, John, Elizabeth, N. J. Vehicle-axle	489,487	Jan. 10	787	208	62	181
Lohmann, Wilhelm C. T., and C. V. Andersen, Copenhagen, Denmark. Lubricator	494,106	Mar. 21	2178	556	62	1812
Lohr, Frank, Freeport, Ill. Attachment for trotting-sulkies	494,630	Mar. 21	2385	351	62	1659
Lomas, John R., West Haven, assignor to B. Shoninger, New Haven, Conn. Attachment for pianos						
Lombard, Nathaniel, assignor of one-half to H. A. Clark, Boston, Mass. Car-brake	491,946	Feb. 14	1423	355	62	1048
Lombard, Nathaniel, assignor to H. A. Clark, Boston, Mass. Circular-weaving machine	492,891	Mar. 7	187	46	62	1396
Lombard, Nathaniel, assignor to H. A. Clark, Boston, Mass. Circular-weaving machine	494,107	Mar. 21	2179	{557 558}	62	1812
Long, Eugene F., Scranton, Pa. Bird-warbler	494,108	Mar. 21	2182	558	62	1812
Long, Frank B., Los Angeles, Cal. Key-touch adjuster for pianofortes	491,571	Feb. 14	831	212	62	931
Long, Horace B., assignor of one-half to G. S. Boutelle, Worcester, Mass. Milk-aerator	489,564	Jan. 10	907	237	62	205
Long, Timothy, Cleveland, Ohio. Cash-register	489,164	Jan. 3	273	77	62	63
Long, William K., and C. H. Henry, Cleveland, Ohio. Wagon-body	492,025	Feb. 21	1559	{388 389}	62	1089
Longenecker, Charles K., assignor to Weston Engine Company, Painted Post, N. Y. Crank-shaft	492,090	Feb. 21	1639	408	62	1106
Longmore, James, and W. L. Watson, London, England. Machine for decorticating rhea, &c	491,487	Feb. 7	698	176	62	882
Longstreth, Ezra R., and L. B. Spung, Dumontville, Ohio. Apparatus for administering medicated vapors	493,778	Mar. 21	1625	{413 414}	62	1707
Look, John C., San José, Cal. Car-coupling	491,430	Feb. 7	601	152	62	863
Look, John C., San José, Cal. Car-coupling	493,933	Mar. 21	1872	{477 478}	62	1754
Lorenz, Anton, Guttenberg, N. J. Mangle	494,067	Mar. 21	2104	{536 537}	62	1797
Losey, James, assignor of two-thirds to E. W. Battles and O. E. Jennings, Freeport, Mich. Portable gate	494,277	Mar. 28	2458	619	62	1877
Loss, Henrik V., Philadelphia, Pa. Hydraulic packing	490,077	Jan. 17	1723	{449 450}	62	384
Louden Machinery Company. (See Louden, William, assignor.)	492,917	Feb. 21	1845	462	62	1149
Louden, William, Fairfield, Iowa. Hay-sling	493,276	Mar. 14	793	205	62	1531
Louden, William, assignor to Louden Machinery Company, Fairfield, Iowa. Hay-carrier track	493,216	Mar. 7	685	175	62	1493
Love Electric Traction Company. (See Love, John C., assignor.)						
Love Electric Traction Company. (See Towson, Morris S., assignor.)						
Love, James, Barking, assignor to Gas Economising Foreign Patents, Limited, London, England. Apparatus for carbureting gas or air	490,972	Jan. 31	3200	818	62	700
Love, John C., assignor to Love Electric Traction Company, Chicago, Ill. Trolley	490,028	Jan. 17	1649	428	62	369
Lovejoy, Wilford C. (See Leighton, George A., assignor.)						
Lovelace, Elijah E. (See Hancock, Lovelace, and Lawless.)						
Lovell, Charles W., *et al.* (See Bredenberg, Alfred, assignor.)						
Lovell, Charles W., and A. Bredenberg, Brooklyn, N. Y. Book-covering machine	493,553	Mar. 14	1241	{318 319 320 321}	62	1616
Lovell, Charles W., and A. Bredenberg, Brooklyn, assignors of one-third to J. W. Lovell, New York, N. Y. Book-trimming machine	490,877	Jan. 31	3031	{779 780}	62	669
Lovell, John W. (See Lovell and Bredenberg, assignors.)						
Lovell, John W., *et al.* (See Bredenberg, Alfred, assignor.)						
Lovell Manufacturing Company. (See Lovell, Melvin N., assignor.)						
Lovell, Melvin N., assignor to Lovell Manufacturing Company, Limited, Erie, Pa. Cash-register and indicator	489,382	Jan. 3	608	{163 164}	62	131
Lovell, Melvin N., assignor to Lovell Manufacturing Company, Limited, Erie, Pa. Cash-register and indicator	489,383	Jan. 3	612	{164 165 166}	62	132
Lovell, Melvin N., assignor to Lovell Manufacturing Company, Limited, Erie, Pa. Tablet and key locking device for cash-registers	489,384	Jan. 3	616	166	62	133
Lovell, Thomas H., and G. Buckingham, Cleveland, Ohio. Burglar-alarm	493,037	Mar. 7	418	104	62	1441
Low, Abbot A., Brooklyn, N. Y. Combination pocket implement	491,780	Feb. 14	1167	292	62	997
Low, Everett M., Worcester, Mass. Ball-and-socket-joint clamping device	490,150	Jan. 17	1846	482	62	409
Low, Garrett W., and W. Shakespeare, Jr., Kalamazoo, Mich. Ground-glass adjuster for cameras	493,365	Mar. 14	942	242	62	1559
Low, James E., and M. Dahl, Chicago, Ill.; said Dahl assignor to said Low. Tool-holder	491,316	Feb. 7	423	110	62	827
Low, James E., and M. Dahl, Chicago, Ill.; said Dahl assignor to said Low. Tool-holder	491,317	Feb. 7	425	110	62	828
Low, Philip B., New York, N. Y. Apparatus for coaling ships at sea	489,749	Jan. 10	1178	{307 308 309}	62	959
Lowe, Robert E., Brooklyn, N. Y. Spring-hinge and check	491,898	Feb. 14	1348	335	62	1033
Lowell Machine Shop. (See Canning, William P., assignor.)						
Lowell Machine Shop. (See Hildreth, Charles L., assignor.)						
Lowinsky, Marcus W., London, England. Buttonhole-facing	494,731	Feb. 28	2657	658	62	1327

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lowry, Alexander M. (See La Burt, John, assignor.)						
Lowry, George A., Des Moines, Iowa, assignor, by mesne assignments, to Warder, Bushnell & Glessner Company, Springfield, Ohio, and Walter A. Wood Mowing and Reaping Machine Company, Hoosick Falls, N. Y. Automatic feeder for twine-machines	491,947	Feb. 14	1425	355	62	1048
Lowry, George D., Wheeling, Mo. Traction-engine	492,303	Feb. 21	1972	{491 492}	62	1176
Lozier, Robert T., assignor to Edison General Electric Company, New York, N. Y. Automatic circuit-breaker for motors	492,036	Feb. 21	1561	389	62	1090
Lubbers, John H., Jeannette, Pa. Window-glass leer	492,765	Feb. 28	2718	{675 676 677}	62	1339
Lucas, Francis M., Eskridge, Kans. Churn-dasher	493,898	Mar. 21	1707	435	62	1722
Lucas, James G., New York, N. Y. Ventilator	493,407	Mar. 14	995	257	62	1570
Lucas, John M., Cadiz, Ohio. Egg-separator	492,892	Mar. 7	188	46	62	1396
Lucas, Louis L., assignor of one-half to G. H. Benson, Falconer, New York. Wax pad	494,109	Mar. 21	2184	558	62	1813
Luce, Edwin W., Meadville, Pa. Screw-stopper lock	490,356	Jan. 24	2302	574	62	491
Luce, Edwin W., Meadville, Pa. Automatic car-brake	493,100	Mar. 7	510	128	62	1460
Luce, Fredrick R., *et al.* (See Moulton, Luther V., assignor.)						
Ludowici, Wilhelm, Tockgrim, Germany. Ridge or gutter tile machine	493,366	Mar. 14	943	242	62	1559
Luff, Joseph. (See Page, Justin E., assignor.)						
Lugo, Orazio, New York, N. Y., assignor to Cosmic Alloy and Metal Depositing Company, of New Jersey. Electro-depositing metals	493,277	Mar. 14	795	206	62	1531
Lugrin Flexible Door Company. (See Lugrin, Horatio N. H., assignor.)						
Lugrin, Horatio N. H., Worcester, Mass. Apparatus for lighting the interior of buildings	494,299	Mar. 28	2404	620	62	1884
Lugrin, Horatio N. H., Worcester, Mass., assignor to Lugrin Flexible Door Company, Portland, Me. Flexible door	490,448	Jan. 24	2329	{604 605}	62	515
Luhmann, Edmard, Andernach, assignor to Sürther Maschinenfabrik, vormals H. Hammerschmidt, Sürth, near Cologne, Germany. Making pure carbonic-acid gas	491,365	Feb. 7	510	.....	62	845
Lull, Thurston, Ainsworth, Nebr. Cultivator	490,151	Jan. 17	1848	482	62	409
Lundell, Robert, Brooklyn, assignor of two-thirds to E. H. Johnson, New York, N. Y. Dynamo-electric machine	490,449	Jan. 24	2331	605	62	516
Lundell, Robert, Brooklyn, assignor of two-thirds to E. H. Johnson, New York, N. Y. Dynamo-electric machine	490,809	Jan. 31	2932	753	62	648
Lundell, Robert, Brooklyn, assignor of two-thirds to E. H. Johnson, New York, N. Y. Dynamo-electric machine or electric motor	490,810	Jan. 31	2935	753	62	649
Lundy, Sinclair G., assignor of one-half to C. H. Knight, Elizaville, Ky. Machine for measuring wall-paper	491,488	Feb. 7	699	177	62	883
Lungren, Charles M., Bayonne, N. J. Pneumatic tire	493,554	Mar. 14	1254	321	62	1618
Lunken, Edmund H., assignor to Lunkenheimer Company, Cincinnati, Ohio. Lubricator. Lunkenheimer Company. (See Lunken, Edmund H., assignor.)	492,091	Feb. 21	1641	408	62	1106
Luscomb, John F., Marshfield, Mass. Musical instrument	491,183	Feb. 7	202	51	62	786
Lutgen, Mathias, West Bend, Iowa. Floor-clamp	493,506	Mar. 14	1161	296	62	1599
Luther, Benjamin G., Worcester, Mass. Gluing attachment for matching-machines	493,101	Mar. 7	514	129	62	1461
Luther, Charles H., Jr. (See Waterman and Luther.)						
Lux, Nicholas, Topeka, Kans. Paper-feeding attachment	492,218	Feb. 21	1847	462	62	1150
Lykke, John, assignor of one-third to J. Felbel, New York, N. Y. Saw	493,934	Mar. 21	1875	478	62	1754
Lyle, Robert W. (See Strusholm, Anders M., assignor.)						
Lyman, Adelvin B., Cleveland, Ohio. Lightning conductor and arrester	492,219	Feb. 21	1849	463	62	1150
Lyman, George N., Sr. (See McGrath, John, assignor.)						
Lynam, John S. (See Adams and Lynam.)						
Lynch, Arthur C. (See Christoph, George W., assignor.)						
Lynch, Charles D., Detroit, Mich. Valve	491,899	Feb. 14	1352	335	62	1034
Lynn, Elmore P. (See Lynn, Mirabeau N. and E. P.)						
Lynn, Elmore P., Cincinnati, Ohio. Bottle-sealing device	491,433	Feb. 7	605	153	62	864
Lynn, Mirabeau N., Rising Sun, Ind. Bottle-sealing device	491,431	Feb. 7	602	152	62	864
Lynn, Mirabeau N., Rising Sun, Ind., and E. P. Lynn, Cincinnati, Ohio. Bottle-sealing device	491,432	Feb. 7	604	153	62	864
Lyon, Cassini A., *et al.* (See Smith, Levi W., assignor.)						
Lyon, Charles D., Lynn, assignor of one-half to H. A. Fisher, Swampscott, Mass. Car-brake handle	491,969	Feb. 14	1455	363	62	1055
Lyon, William F., Detroit, Mich. Grain-door for cars	492,926	Mar. 7	247	63	62	1407
Lytle, Albert E., assignor to S. D. Ovitt, Chicago, Ill. Heater for fireplaces, &c	492,732	Feb. 28	2658	659	62	1327
Mabon, Ernest L., *et al.* (See Dion, Charles J., assignor.)						
Mabry, Willis. (See Barber, Bates, Mabry, and Sketon.)						
MacDonald, John W., Pittsburg, Pa. Ice-cream freezer	489,565	Jan. 10	909	237	62	205
MacFadden, Carl K., Chicago, Ill. Electric-arc lamp	492,815	Mar. 7	69	16, 17	62	1371
MacKenzie, Joseph A., Weldon, Tex. Trephine	493,730	Mar. 21	1547	394	62	1691
MacKinnon, Duncan T. R. (See Little, Orton C., assignor.)						
MacNeece, William, Philadelphia, Pa. Desk	489,611	Jan. 10	975	254	62	218
Macdonell, Allan G., New York, N. Y. Advertising device	491,900	Feb. 14	1353	336	62	1034
Mace, Stuart R., Monlton, Iowa. Device for handling liquids	491,844	Feb. 14	1264	314	62	1017
Macintosh & Co., Charles. (See Golding, William, assignor.)						
Mack, Patrick H., assignor to Oil Well Supply Company, Bradford, Pa. Casing-spear	492,371	Feb. 21	2075	519	62	1196
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Cloud-creator or nebulator	490,481	Jan. 24	2388	618	62	527
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Proscenium-adjuster	490,482	Jan. 24	2390	619	62	527
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Apparatus for producing scenic effects	490,483	Jan. 24	2392	619	62	528
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Wave-maker	490,484	Jan. 24	2395	619	62	528
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Sliding stage	490,485	Jan. 24	2397	620	62	529
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Tele copic stage	490,486	Jan. 24	2398	620	62	529
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Luxaulator	490,487	Jan. 24	2400	620	62	529
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Floating stage	490,488	Jan. 24	2402	620	62	530
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Appliance for theaters	490,489	Jan. 24	2403	621	62	530
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Apparatus for producing increased realism in scenic effects	490,490	Jan. 24	2404	{621 622 623}	62	530
Mackaye, Steele, assignor to Spectatoria Company, Chicago, Ill. Spectatorium	494,068	Mar. 21	2107	537	62	1797
Mackie, Susan A., London, England. Washboiler	493,631	Mar. 21	1386	352	62	1660
Mackintosh, Donald A. S., Glasgow, Scotland. Mug for measuring beer	492,816	Mar. 7	70	17	62	1371
Macleod, William A., Boston, Mass. Accumulator	491,726	Feb. 14	1079	273	62	980
Macneal, Charles B., Philadelphia, Pa. Brace and tie-plate for railway-rails	492,817	Mar. 7	71	17	62	1371
Macomber, Squire H., Chicago, Ill., assignor of one-half to E. A. Rix, San Francisco, Cal. Clutch for rock-drilling machines	490,152	Jan. 17	1849	482	62	410

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Macrae, Roderick. (See Donaldson and Macrae.)						
Macy, John W., *et al.* (See Henson, Marvin T., assignor.)						
Madden, Gustau, assignor to T. C. Mosely, Chicago, Ill. Folding bath-tub	490,914	Jan. 31	3112	798	62	684
Madden, James L., Lewisport, Ky. Baling-press	492,037	Feb. 21	1563	389	62	1090
Madden, Patrick J., Rochester, N. Y. Urinal-bowl	493,278	Mar. 14	797	206	62	1532
Madgen, William L., London, England. Coin-freed machine	490,450	Jan. 24	2333	605	62	516
Magargal, George C., Philadelphia, Pa. Portable book and package case	490,122	Jan. 17	1798	469	62	399
Magnuson, Andrew M., *et al.* (See Gardeen, Oscar S., assignor.)						
Mahaffey, James B., assignor of one-half to E. B. Hunting, Baltimore, Md. Cable-railway grip	489,870	Jan. 10	1344	351	62	294
Mahan, George W., Cold Spring Harbor, N. Y. Car-coupling	493,102	Mar. 7	515	129	62	1461
Maher, John J., assignor of one-half to G. D. Webb, Worcester, Mass. Hand implement for taking down building-stagings	493,632	Mar. 21	1387	352	62	1660
Mahon, Charles, Washington, D. C. Track-clearer	490,772	Jan. 31	2874	{738 / 739}	62	636
Mahoney, William, New York, N. Y. Bicycle-gear	491,366	Feb. 7	511	131	62	845
Main, William, Brooklyn, N. Y. Electric head-lamp	491,713	Feb. 14	1060	268	62	977
Maitland, George, *et al.* (See Osborn, Francis C., assignor.)						
Major, Edmund, Terraville, S. D. Guide for stamp-mills	490,973	Jan. 31	3203	818	62	701
Mallett, Markham W., assignor of one-half to T. G. Rollins, Waltham, Mass. Watch-hand remover	491,781	Feb. 14	1168	292	62	997
Mallette, George W., Trenton, N. J. Saw-tooth	492,407	Feb. 28	2432	595	62	1222
Malmström, Peter E., New York, N. Y. Apparatus for carbonating and dispensing beverages	494,483	Mar. 28	2781	697	62	1937
Maloney, John C., Beaver Falls, Pa. Pitman	491,727	Feb. 14	1081	273	62	981
Maloney, John P., assignor of one-half to H. C. Bunn, Chicago, Ill. Combined smoke consumer and spark-arrester	491,576	Feb. 14	845	214	62	933
Maloon, Edgar H., and M. E. Blake, Meredith, N. H. Plow attachment	494,212	Mar. 28	2358	597	62	1860
Mancheron, Philippe, Nevers, France. Heating apparatus	491,806	Feb. 14	1208	302	62	1005
Manderfield, George J., assignor of one-half to J. M. and S. Levin, U. S. G. Finkbiner, and A. R. Saylor, Royersford, Pa. Stop-motion for knitting-machines	494,258	Mar. 28	2411	612	62	1872
Mandigo, Peter, Dover, N. J. Wrench	493,829	Mar. 21	1708	435	62	1722
Mandioni, John J. C., Chicago, Ill. Lunch box or case	489,711	Jan. 10	1113	287	62	246
Maney, William, Piqua, Ohio. Wire twisting and cutting implement	494,429	Mar. 28	2702	678	62	1923
Manger, Frederick W., and O. H. Huebel, Brooklyn, N. Y. Electric bell	494,278	Mar. 28	2459	619	62	1877
Mann, Bernard. (See Goodwyn, George W., assignor.)						
Mann, Hosea, Jr. (See Quimby, John R., assignor.)						
Mann, Thomas J., Mixie, Tenn. Harrow	493,507	Mar. 14	1162	297	62	1599
Mann, William, and G. C. Johnson, Los Angeles, Cal. Butter-mold	489,566	Jan. 10	910	237	62	205
Manne, Charles. (See Ripberger, Jacob, assignor.)						
Manning, Bowman & Co. (See Manning, Edward B., assignor.)						
Manning, David J., Chippewa Falls, Wis. Fertilizer or insecticide distributer	491,318	Feb. 7	429	111	62	829
Manning, Edward B., assignor to Manning, Bowman & Co., Meriden, Conn. Handle for culinary vessels	489,256	Jan. 3	428	110	62	95
Manning, Harry G., Watertown, N. Y. Fluid-pressure valve	492,372	Feb. 21	2078	519	62	1196
Manning, Lincoln. (See Gilmer, William C., assignor.)						
Manning, Middleton J. (See Nagele, John, assignor.)						
Manson, George W., Menominee, Mich. Bolt	491,019	Jan. 31	3275	837	62	715
Manuel, David, assignor of one-half to B. E. Phillips, Hyde Park, Mass. Harrow	490,294	Jan. 24	2095	546	62	469
Manville, Robert C., Waterbury, Conn., assignor to Richardson & De Long Brothers, Philadelphia, Pa. Method of and machine for making garment-hooks	491,289	Feb. 7	367	{92 / 93 / 94 / 95 / 96 / 97}	62	818
Manwaring, Charles D., C. C. and F. G. Nagley, Memphis, N. Y. Transplanter	491,290	Feb. 7	385	98	62	820
Marble, Albert D., Winfield, assignor of one-half to L. McKinlay, Udall, Kans. Cuff	493,830	Mar. 21	1709	435	62	1722
Marble, Edwin H. (See Marble, Edwin T. and E. H.)						
Marble, Edwin H. (See Marble and Greene.)						
Marble, Edwin T. and E. H., Worcester, Mass. Mechanism for shearing cords or twine	492,408	Feb. 28	2143	{335 / 336}	62	1222
Marble, Edwin T. and E. H., and F. H. Greene, Worcester, Mass. Machine for doubling webs of fabric longitudinally and stitching the edges	489,590	Jan. 10	944	{245 / 246}	62	211
Marble, James E., assignor of one-half to J. W. Fuller, Albany, N. Y. Automatic coupling for steam and air pipes for railway-cars	491,291	Feb. 7	386	98	62	821
Marchand, Henry E., Bayonne, N. J., assignor, by mesne assignments, to T. P. Ryan, New York, N. Y. Valve	490,878	Jan. 31	3040	781	62	671
Marchand, Henry E., Bayonne, N. J., assignor, by mesne assignments, to T. P. Ryan, New York, N. Y. Adjustable crank	490,879	Jan. 31	3040	781	62	671
Marcus & Bro., M. H. (See Seymour, William S., assignor.)						
Marion Manufacturing Company. (See Johnson, Sidney N., assignor.)						
Maris, Jared, Cincinnati, Ohio. Dust and mud cap for vehicle-hubs	489,257	Jan. 3	429	119	62	95
Maritz, Edward F., Sr. (See Ritchie, William A., assignor.)						
Markee, Reuel T., assignor to Schamm & Uhlinger, Philadelphia, Pa. Jacquard harness-evening mechanism for looms	492,038	Feb. 21	1565	390	62	1091
Markle, Charles N., assignor to Simmons Hardware Company, St. Louis, Mo. Gun-case	492,304	Feb. 21	1976	492	62	1177
Markley, Henry H., Marianna, Ark. Car-coupling	494,539	Mar. 28	2889	724	62	1957
Marks, George E., New York, N. Y. Artificial limb	489,258	Jan. 3	430	120	62	95
Marlow, Thomas F., assignor of one-half to R. Housworth, Carrollton, Ga. Gin-saw guard	492,560	Feb. 28	2265	572	62	1255
Marple, Thomas, Philadelphia, Pa. Bung	490,153	Jan. 17	1850	483	62	410
Marriott, Thomas R. (See Keen, Marriott, and Cooper.)						
Marsh, Edwin, Leeds, assignor to H. Leggott, Bradford, England. Connection with domestic fire-ranges or other ranges	490,573	Jan. 24	2528	651	62	555
Marsh, Joseph A., *et al.* (See Osborn, Francis C., assignor.)						
Marshall, Charles S., Brockton, Mass. Machine for winding bobbins	491,434	Feb. 7	607	{153 / 154 / 155}	62	865
Marshall, James, Fall River, Mass. Hat-brim-pressing machine	489,591	Jan. 10	946	{216 / 217}	62	212
Marshall, John W., Brooklyn, N. Y. Ore-stamping mill	493,384	Mar. 14	966	249	62	1564
Marshall, John W., Brooklyn, N. Y. Ore-stamp	493,385	Mar. 14	967	249	62	1565
Marshall, Waldo H., assignor to Consolidated Brake Adjuster Company, Chicago, Ill. Slack-adjuster for car-brakes	490,357	Jan. 24	2203	574	62	493
Marston, William G., Boston, Mass. Light-reflector	494,339	Mar. 28	2559	645	62	1297

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Martin, Brnno, Saginaw, Mich. Water-filter	493,633	Mar. 21	1388	352	62	1660
Martin, Francis X. (See House and Martin.)						
Martin, George E., Brooklyn, N. Y. Inking apparatus for printing-presses	493,892	Mar. 21	1800	459	62	1740
Martin, George W., Titusville, Fla. Wrench	489,922	Jan. 10	1282	335	62	281
Martin, Harrison S., Brooklyn, assignor to Wyckoff, Seamans & Benedict, New York, N. Y. Type-writing machine	491,714	Feb. 14	1062	269	62	977
Martin, Ira L., Amity, Oreg. Feed-box	493,832	Mar. 21	1711	436	62	1723
Martin, Isaac T. (See Martin, Thomas E., assignor.)						
Martin, Jacob, Muscatine, Iowa. Fan attachment for rocking-chairs	494,213	Mar. 28	2360	597	62	1860
Martin, James J., Roberts, S. C. Siding-gage	494,214	Mar. 28	2361	597	62	1860
Martin, John, St. Martin's, Guernsey Island. Collapsible perambulator	493,831	Mar. 21	1710	{435 / 436}	62	1722
Martin, John H., Oroville, Cal. Rivet-feeding device	490,609	Jan. 24	2589	{667 / 668}	62	566
Martin, Morris, Malden, Mass., assignor to United States Electric Fire-Signal Company, of Maine. Circuit of electric signaling	494,279	Mar. 28	2461	620	62	1878
Martin, Myron R., Brooklyn, Wis. Windmill-tower	492,690	Feb. 28	2598	643	62	1314
Martin, Thomas, *et al.* (See Williams, Samuel, assignor.)						
Martin, Thomas E., assignor of one-half to I. T. Martin, Des Moines, Iowa. Hot-air furnace	489,192	Jan. 3	323	89	62	73
Martin, Willard E., and P. Walrad, Herkimer, N. Y. Reclining-chair	491,246	Feb. 7	297	75	62	805
Martin, William F., Ambia, Tex. Churn	494,430	Mar. 28	2703	678	62	1923
Martino, Francis R. (See Martino, Frederick W. and F. R.)						
Martino, Frederick W., Sheffield, and F. R. Martino, Birmingham, England. Metallic alloy	489,314	Jan. 3	508	.....	62	110
Martinot, Ferdinand, Sedan, France. Cloth-napping machine	494,152	Mar. 28	2261	575	62	1840
Marton, Stuard B. (See Knapper and Marton.)						
Marvin, Julius S., Providence, R. I. Twine-cutter	490,078	Jan. 17	1725	450	62	384
Maschinenbau Gesellschaft. (See Brown, Charles, assignor.)						
Mason, Harry R., Chicago, Ill. Quick-release valve for air-brakes	493,436	Mar. 14	1041	{268 / 269}	62	1579
Mason, Harry R., Chicago, Ill. Train signaling apparatus	493,437	Mar. 14	1043	{269 / 270}	62	1579
Mason, Harry R., Chicago, Ill. Signal-valve for pneumatic signals	493,438	Mar. 14	1048	270	62	1580
Mason, May B. (See Tripp, John W., assignor.)						
Mason, Newton E. (See Van Duzer, Lewis S., assignor.)						
Mason, Thomas E. B., Wichita, Kans. Book-cover	489,970	Jan. 17	1536	401	62	346
Mast, Foos & Company. (See Welsh, William S., assignor.)						
Mather, William, Sebastopol, Cal. Horse-detacher	490,610	Jan. 24	2591	668	62	567
Mathers, Chester E., Pushmataha, Ala. Gate-opening mechanism	490,974	Jan. 31	3204	818	62	701
Matheson & Co., William J. (See Austen, Peter T., assignor.)						
Matheson, Richard T., Brooklyn, N. Y. Trousers-protector	491,845	Feb. 14	1266	314	62	1017
Matheson, William M., Waltham, Mass. Watch-regulator	493,508	Mar. 14	1163	297	62	1600
Mathews, George, *et al.* (See Schenck, John D. P., assignor.)						
Mathews, John S., Pendleton, Oreg. Rotary-sickle cutter-bar	493,103	Mar. 7	516	129	62	1461
Mathieu, Victor, Inverness, Fla. Hoisting apparatus	490,574	Jan. 24	2529	651	62	555
Mathison, Albert C., Philadelphia, Pa. Thill-coupling	491,782	Feb. 14	1170	292	62	997
Mathison, Joseph, Somerville, Mass. Button-setting machine	493,634	Mar. 21	1390	{352 / 353}	62	1660
Matthews, Edward, assignor of one-half to C. N. Brooks, Denver, Colo. Vehicle-coupling	489,437	Jan. 3	702	188	62	151
Matthews, George, *et al.* (See Schenck, John D. P., assignor.)						
Matthews, Henry A., Southbury, Conn. Stove-knob	491,292	Feb. 7	388	99	62	821
Matthews, Jonathan, Birmingham, Ala. Rotary engine	494,069	Mar. 21	2109	538	62	1798
Mattison, Richard V., Ambler, Pa. Non-heat-conducting composition	492,092	Feb. 21	1642	.....	62	1107
Mattison, Richard V., Ambler, Pa. Non-heat-conducting composition for covering boilers, &c	492,093	Feb. 21	1642	.....	62	1107
Mattison, Richard V., Ambler, Pa. Non-heat-conducting composition for coating boilers	492,094	Feb. 21	1642	.....	62	1107
Mattress, Benjamin, Scribner, Cal. Stump-extractor	493,593	Mar. 14	1317	337	62	1631
Mattullath, Hugo, Detroit, Mich., assignor to W. A. Nash and G. Amsinck, trustees, and M. Mattullath. Barrel-hoop	490,255	Jan. 17	2018	527	62	442
Mattullath, Meta, *et al.* (See Mattullath, Hugo, assignor.)						
Manch, Meinrad, Cincinnati, Ohio. Dumping-wagon	494,377	Mar. 28	2626	659	62	1909
Manchain, Armand, Geneva, Switzerland. School-desk	492,940	Mar. 7	264	67	62	1414
Mauro, Philip, administrator. (See Rollet, Antoine P. G.)						
Mauser, Paul, assignor to Waffenfabrik Mauser, Oberndorf, Germany. Fixed magazine for breech-loading bolt-guns	490,629	Jan. 17	1651	429	62	369
Mauser, Paul, assignor to Waffenfabrik Mauser, Oberndorf, Germany. Shiftable magazine for bolt-guns	492,543	Feb. 28	2369	588	62	1269
Maxim, Hosea F., and J. M. Price; said Price assignor to J. Hecht, Norfolk, Va. Thermometer	489,259	Jan. 3	432	120	62	95
Maxon, Oscar, assignor of two-thirds to C. Fenzel and T. Maxon, Dayton, Ohio. Link belting	494,110	Mar. 21	2184	558	62	1813
Maxon, Thomas, *et al.* (See Maxon, Oscar, assignor.)						
Maxwell, Gurden E. (See Johnson, William R., assignor.)						
Maxwell, Harry B., Stromsburg, Nebr. Spark-arrester	491,367	Feb. 7	512	{131 / 132}	62	845
May, Edward S., Washington, D. C. Letter-scales	493,636	Mar. 21	1394	353	62	1661
May, John, London, England. Knife	492,409	Feb. 28	2147	536	62	1223
Maybach, Wilhelm, Cannstadt, Germany. Engaging or disengaging gear for machine-belts	492,872	Mar. 7	161	39	62	1390
Maybaum, Henry W. (See Farrel, John H., assignor.) (Reissue.)						
Mayer, William, Chicago, Ill. Banjo	493,635	Mar. 21	1393	353	62	1661
Mayfield, James C. (See Gladney and Mayfield.)						
Maynard, Edward, Brooklyn, N. Y. Cord for sashes, &c	492,582	Feb. 28	2429	605	62	1282
Mayo, Edward D., assignor of one-half to Barnett-Record Company, Minneapolis, Minn. Carriage for grain-aponts	494,153	Mar. 28	2263	575	62	1841
Mayow, Daniel L., Mount Sylvan, Tex. Fastening for nailless horseshoes	492,091	Feb. 28	2599	643	62	1315
McAdams, John, Camden, N. J. Core-spindle	492,226	Feb. 21	1862	465	62	1152
McAfee, Henry P., Overton, Tex. Motor	494,343	Mar. 28	2566	646	62	1898
McAlister, George W., Jake's Prairie, Mo. Machine for boring fellies and tenoning spokes	491,582	Feb. 14	852	216	62	934
McAlister, Wilson-Elia P., Richmond, Ky. Cake-cutter	492,417	Feb. 28	2156	539	62	1225
McAnarney, John S., Chandler, assignor of one-half to T. C. Hough, Oklahoma, Okla. Ter. Sliding door	492,592	Feb. 28	2309	572	62	1255
McAusland, William, assignor to Reed & Barton Corporation, Taunton, Mass. Manufacture of oval or oblong shells for plated ware, &c	493,108	Mar. 7	526	131	62	1463

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
McCabe, Julia A. (See Campbell, John R., assignor.)						
McCain, Benjamin H., assignor of two-thirds to J. M. Pierce and C. Coomer, Des Moines, Iowa. Signal attachment for locomotive-headlights	492,334	Feb. 21	2018	502, 503	62	1185
McCahey, John, assignor to New England Butt Company, Providence, R. I. Braiding-machine	494,379	Mar. 28	2628	659, 660	62	1909
McCahey, John, assignor to New England Butt Company, Providence, R. I. Braiding-machine carrier	494,380	Mar. 28	2629	660	62	1909
McCall, Charles S. (See Culbreath, Walter W., assignor.)						
McCall, Wiley E., Jasper, Fla. Roller cotton-gin	489,825	Jan. 10	1285	336	62	282
McCann, Henry F. (See Hazard, Thomas B. and W. E., assignors.)						
McCann, John. (See Widmer, Charles C., assignor.)						
McCarthy, Denis, Columbus, Ohio. Combined hay loader and carrier	490,158	Jan. 17	1856	481, 485	62	411
McCarthy, John, Syracuse, N. Y. Casket-handle	491,122	Feb. 7	91	25	62	766
McCarthy, Louis, Boston, Mass. Strain-insulator	489,658	Jan. 10	1030	269	62	229
McCarthy, Louis, Boston, Mass. Insulator	490,302	Jan. 24	2103	518	62	472
McCarthy, Louis, Boston, Mass. Insulator	491,729	Feb. 14	1083	273	62	981
McCartney, John F., assignor to H. A. Desper, Worcester, Mass. Double testing-plug for soil-pipes	491,184	Feb. 7	203	52	62	786
McCarty, Ella M., administratrix. (See McCarty, John E.)						
McCarty, John E., deceased, Elkins, W. Va.; E. M. McCarty, administratrix. Process of and apparatus for making extracts	491,370	Feb. 7	516	132	62	846
McCaslin, Irving A., assignor of one-half to J. A. Allen, Santa Clara, Cal. Horse-detacher	491,807	Feb. 14	1210	302	62	1006
McCauley, Reuben A., Baltimore, Md. Gripping device for cable railways	491,439	Feb. 7	624	156	62	867
McClave, William, Scranton, Pa. Furnace for burning garbage, &c	490,582	Jan. 24	2538	653, 654	62	557
McClave, William, Scranton, Pa. Steam-jet conveyer for ashes or other light substances	490,583	Jan. 24	2541	654	62	557
McClave, William, Scranton, Pa. Steam-jet conveyer for ashes or other light substances	490,584	Jan. 24	2543	651, 655	62	558
McClean, Thomas H., Washington, Iowa. Windmill	490,359	Jan. 24	2306	575	62	492
McCleave, Henry C., Trimble, Ill. Hoof-trimmer	494,013	Mar. 21	2022	515	62	1783
McClellan, John A., Walnut, Tex. Flour bin and sifter	493,640	Mar. 21	1400	355	62	1662
McClintock, Charles E., Ozark, assignor of one-half to H. G. and R. A. Sadler, Paris, Ark. Bed bottom	489,229	Jan. 3	386	106	62	86
McClintock, Charles T., Oil City, Pa. Button	492,418	Feb. 28	2157	530	62	1225
McClure, Albert E., assignor to McClure Manufacturing Company, Sedalia, Mo. Buckle	491,123	Feb. 7	92	25, 26	62	767
McClure, Harry, Hawarden, Iowa. Skate-sharpener	493,174	Mar. 7	625	157	62	1481
McClure Manufacturing Company. (See McClure, Albert E., assignor.)						
McComish, John J., Providence, R. I. Tire for bicycle-wheels	489,975	Jan. 17	1515	404	62	348
McConway, William. (See Kelso, William, assignor.)						
McCord, Alvin C., Chicago, Ill. Car-coupling	489,492	Jan. 10	795	210	62	182
McCord, Alvin C., Chicago, Ill. Car-coupling	489,976	Jan. 17	1546	404	62	348
McCord, Alvin C., Chicago, Ill. Car-coupling	489,977	Jan. 17	1548	405	62	349
McCord, Alvin C., Chicago, Ill. Car-platform	489,978	Jan. 17	1550	405	62	349
McCord, Alvin C., Chicago, Ill. Car-coupling	494,219	Mar. 28	2371	599	62	1802
McCord, Alvin C., Chicago, Ill. Grain-door for cars	494,220	Mar. 28	2372	599	62	1802
McCord, James R., Jackson, Ga. Seed-planter and fertilizer-distributer	493,872	Mar. 21	1769	451	62	1735
McCord, John, *et al.* (See Green, John, assignor.)						
McCormick, Charles W., Emporia, Kans. Nut-lock	490,585	Jan. 24	2545	655	62	558
McCormick, Robert S. (See Adams, Frederick U., assignor.)						
McCroskey, Henry M. (See Chambers, Thomas R., assignor.)						
McCoslin, Henry B., Litchfield, Ill. Windmill	492,097	Feb. 21	1647	410	62	1108
McCoy, William H., Muscatine, Iowa, assignor of one-half to J. Brewer, Morrison, Ill. Door-check	493,442	Mar. 14	1057	272	62	1581
McCreedy, Elbridge H., Camden, Mich. Wire fence	491,440	Feb. 7	624	156	62	867
McCrudden, James, assignor of one-half to A. R. Caldwell, Flint, Mich. Whiffletree-hook	490,672	Jan. 31	2722	700	62	607
McCulloch, James, Minas Riotinto, Spain. Rock-drilling machine	493,175	Mar. 7	626	157, 158, 159	62	1481
McDade, James, Montgomery, Tex. Car-coupling	489,826	Jan. 10	1286	336	62	282
McDivitt, Edward L., Belvidere, Ill. Combined carpet stretcher and tacker	492,045	Feb. 21	1574	392	62	1093
McDonald, Angus. (See Cameron, Murdick, assignor.)						
McDonald, Angustine T. (See Hadley and McDonald.)						
McDonald, James M., Lake Charles, La. Shaft-tug	490,036	Jan. 17	1661	432	62	371
McDonald, James S., Chicago, Ill. Manifold sales-book	493,804	Mar. 21	1803	459	62	1740
McDonald, William S., Boston, Mass. Display-stand	489,027	Jan. 3	72	20	62	18
McDonnell, Patrick E., assignor to J. F. Waite and A. M. Clarke, Chicago, Ill. Toy	493,695	Mar. 21	1805	460	62	1741
McDonough, James T., T. and J. Michel, St. Paul, Minn. Flush-tank	493,281	Mar. 14	896	207	62	1533
McDougall, Alexander, Duluth, Minn. Rudder	492,873	Mar. 7	163	39	62	1391
McDougall, Alexander, Duluth, Minn. Device for moving hatch-plates	493,282	Mar. 14	897	207	62	1533
McDougall, Ruther, Chicago, Ill. Feed-water heater and purifier	494,362	Mar. 28	2497	630	62	1885
McDowell, Anthony B., Edna, Tex. Snap-hook	491,852	Feb. 14	1277	316	62	1019
McDuffie, Rees E., Cincinnati, Ohio. Artificial-leg attachment	492,583	Feb. 28	2430	605	62	1282
McElfatrick, John E., Toledo, Ohio. Portable heating apparatus	493,780	Mar. 21	1692	414	62	1708
McElfatrick, Samuel, Princeton, Ky. Railway-tie	490,586	Jan. 24	2545	655	62	558
McElroy, James F., assignor to Consolidated Car Heating Company, Albany, N. Y. Railway-car heating apparatus	490,673	Jan. 31	2723	701	62	608
McElroy, James F., assignor to Consolidated Car Heating Company, Albany, N. Y. Car-heating apparatus	493,443	Mar. 14	1058	272	62	1581
McElroy, Patrick J., Cambridge, Mass. Atomizer	493,512	Mar. 14	1167	297	62	1600
McElwain, George, Englewood, Ill. Penholder	492,555	Feb. 28	2391	593	62	1274
McEwan, Jessie L. (See McEwan, Robert B., J. L., and R. W.)						
McEwan, Richard W. (See McEwan, Robert B., J. L., and R. W.)						
McEwan, Robert B., J. L., and R. W., Whippany, N. J. Paper-board	492,927	Mar. 7	218	.....	62	1408
McEwan, William. (See Murray, Thomas E., assignor.)						
McEwan, William W., Belvidere, N. J. Machine for forming hollow articles from pulp	490,037	Jan. 17	1662	432	62	371
McEwen, Joseph C., Lochloosa, Fla. Car-coupling	491,185	Feb. 7	201	52	62	787
McFarland, Thomas A., Portland, Oreg. Sketching device	490,159	Jan. 17	1860	485	62	412
McFarlane, William, Toronto, assignor of one-half to J. Wright, Stratford, Canada. Ventilator	493,873	Mar. 21	1771	452	62	1735
McGahan, Fred L., Indianapolis, Ind. Apparatus for condensing exhaust-steam	493,733	Mar. 21	1555	396	62	1693
McGillvra, Lucius A., Baraboo, Wis. Draft-evener	489,753	Jan. 10	1185	310	62	281
McGinis, Johnson, Emlenton, Pa. Tongue-support for vehicles	492,822	Mar. 7	80	19	62	1373

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
McGlasson, Robert, Selhurst, England. Screw-propeller	494,014	Mar. 21	2022	515, 516	62	1783
McGowan, Thomson, Cleveland, Ohio. Still-lining	492,419	Feb. 28	2158	539	62	1225
McGowan, Thomson, Cleveland, Ohio. Sheet-packing	492,420	Feb. 28	2159	540	62	1225
McGowan, Thomson, Cleveland, Ohio. Still for the distillation and purification of hydrocarbons	492,421	Feb. 28	2160	540	62	1226
McGrath, John, assignor of three-fifths to G. N. Lyman, Sr., Minneapolis, Minn. Combined flax thrasher and card	489,493	Jan. 10	797	210, 211	62	183
McGraw, Edwin C., G. W., and H. L., Pittsburg, Pa. Brick-mold	490,160	Jan. 17	1861	485	62	412
McGraw, George W. (See McGraw, Edwin C., G. W., and H. L.)						
McGraw, Henry L. (See McGraw, Edwin C., G. W., and H. L.)						
McGregor, James R., and G. O. Perry, Centralia, Wash. Nautical signal	493,283	Mar. 14	898	208	62	1533
McHardy, Francis P., Chicago, Ill. Velocipede	490,587	Jan. 24	2546	655	62	558
McIlhenny, George A. (See Steedley, Robert T., assignor.)						
McIlvoy, Robert. (See Sutton, William, assignor.)						
McIlwain, John D., assignor to Harvey Steel Car and Repair Works, Chicago, Ill. Oil-tank car	493,940	Mar. 21	1886	480, 481	62	1756
McInerney, George. (See Veronee and McInerney.)						
McIntosh, William H., Culbertson, Nebr. Washing-machine	492,823	Mar. 7	80	19	62	1373
McIntyre, Archibald. (See Kelly and McIntyre.)						
McIntyre, Byron F., assignor to J. A. Riley, East Orange, N. J. Bottle-stopper	492,098	Feb. 21	1648	410	62	1108
McIver, James M., Winchester, Tenn., assignor of one-half to J. Van Wordragen, Cincinnati, Ohio. Rotary steam-engine	490,813	Jan. 31	2940	754, 755	62	650
McKee, Henry H. (See Tinsley, Wyatte H., assignor.)						
McKee, Martin E., St. Paul, Minn. Automatic brake-adjuster	489,494	Jan. 10	800	211	62	184
McKeen, Thomas L., assignor to I. G. Johnson & Co., New York, N. Y. Buffer for railway-cars	490,977	Jan. 31	3213	820	62	703
McKeen, Thomas L., assignor to I. G. Johnson & Co., New York, N. Y. Buffer for cars	491,371	Feb. 7	518	133	62	847
McKeen, Thomas L., assignor to I. G. Johnson & Co., New York, N. Y. Coupling for locomotives	491,903	Feb. 14	1356	337, 338	62	1035
McKeen, Thomas L., assignor to I. G. Johnson & Co., New York, N. Y. Car-coupling	492,610	Feb. 28	2476	615	62	1291
McKeen, Thomas L., New York, N. Y., assignor to Thurmond Car Coupling Company, of West Virginia. Car-coupling	493,833	Mar. 21	1713	436	62	1723
McKeggie, James H. (See Bunker, Harman, assignor.)						
McKenna, Michael H. (See Campbell, John N., assignor.)						
McKenna, William H., Allegheny, Pa. Lathe	490,918	Jan. 31	3116	799	62	685
McKinlay, Daniel S., Albany, N. Y. Bag	489,165	Jan. 3	275	77	62	63
McKinlay, Lincoln. (See Marble, Albert D., assignor.)						
McKinley, Franklin W., assignor of one-half to G. E. Philbrick, Manchester, N. H. Drink-mixer	489,028	Jan. 3	72	20	62	18
McKinney, Andrew C., Chatham Run, Pa. Clothes-pounder	491,685	Feb. 14	1016	257	62	969
McKinnon, John, Colfax, Wash. Clothes-drier. (Reissue)	11,310	Feb. 28	2730	679	62	1341
McKinnon, John, assignor to W. J. Morden, Chicago, Ill. Railway-frog	489,979	Jan. 17	1552	406	62	349
McKnight, Henry F. (See McKnight, Joseph L., assignor.)						
McKnight, Joseph L., assignor of one-half to H. F. McKnight, Ingraham, Ill. Hen's nest	492,046	Feb. 21	1575	392	62	1093
McKnight, Thomas R., Aurora, Ill. Wheel	491,662	Feb. 14	981	247	62	960
McLachlan, Duncan, *et al.* (See Avery, Oliver, assignor.)						
McLain, William R., Des Moines, Iowa. Apparatus for removing obstructions	489,541	Jan. 10	873	228	62	198
McLane, Labazure O., Linesville, Pa. Transfer for evaporating-pans	490,858	Jan. 31	3002	770	62	663
McLaren, James, *et al.* (See Stark, James M., assignor.)						
McLaren, Nathaniel, New Perth, Canada. Spinning top	491,431	Mar. 28	2704	679	62	1923
McLaren, Raynes L., London, England. Axle-bearing	493,176	Mar. 7	629	159	62	1482
McLauchlin, William D. (See Phillips and McLauchlin.)						
McLaughlin, Daniel P., Chicago, Ill. Paper-folding machine	490,881	Jan. 31	3043	782	62	671
McLaughlin, James, Chicago, Ill. Arc-light carbon	491,124	Feb. 7	94	26	62	767
McLaughlin, James F., Philadelphia, Pa. Commutator-brush and holder	490,081	Jan. 17	1726	451	62	385
McLaughlin, James F., Philadelphia, Pa. Electric heater	490,082	Jan. 17	1730	451	62	385
McLaughlin, James F., Philadelphia, Pa. Battery-jar	492,422	Feb. 28	2162	540	62	1226
McLaughlin, James F., Philadelphia, Pa. Incandescent-lamp socket	493,109	Mar. 7	526	132	62	1363
McLean, Aaron R., assignor to C. L. Yates, Rochester, N. Y. Fruit-gatherer	492,824	Mar. 7	82	19	62	1374
McLean, William S., Saginaw, Mich. Apparatus for administering heated and medicated air	489,029	Jan. 3	73	21	62	19
McLellan, John T., Truro, Canada, assignor of one-half to H. W. Chalfant, Minneapolis, Minn. Locomotive-boiler	493,232	Mar. 7	713	183	62	1498
McLeran, Alvord M., assignor of one-half to O. J. Hogue, Chicago, Ill. Clothes-drier	493,596	Mar. 14	1322	338	62	1632
McLoughlin, Thomas F., Leavenworth, Kans. Tool-driver	492,693	Feb. 28	2601	644	62	1315
McManigal, Frank H., St. Paul, Minn. Letter-box	493,177	Mar. 7	630	159	62	1482
McMillan, Alfred F., and T. Gormley, Benicia, Cal. Gang-plow	490,210	Jan. 17	1947	510, 511	62	428
McMullen, John, H. Krusi, and H. S. Wood, San Francisco, Cal. Canal-digger	494,112	Mar. 21	2188	559	62	1813
McMurrow, John, Jr., assignor of one-fourth to C. S. Hirst, Philadelphia, Pa. Electric alarm for hotels	492,694	Feb. 28	2603	644	62	1316
McNaney, John, Elmira, N. Y. Attachment for bar-room counters	489,388	Jan. 3	621	168	62	134
McNary, John A. (See Tyler, George, assignor.)						
McNeil, Alexander J. (See Planthaber, Newton J., assignor.)						
McNeill, Thomas E., New York, N. Y. Steam-boiler	489,712	Jan. 10	1115	287, 288	62	247
McNeir, George, *et al.* (See Toucey, Ferris D., assignor.)						
McPhee, Eugene, Lead City, S. D. Two-wheeled vehicle	491,125	Feb. 7	95	26	62	767
McPherson, Horace, Crete, Ill. Hay rake and loader	492,825	Mar. 7	83	19, 20	62	1374
McQuarrie, James L., assignor to American Bell Telephone Company, Boston, Mass. Telephone central-station circuit	492,484	Feb. 28	2207	565	62	1247
McQuarrie, William L., Boston, Mass. Car-coupling	489,195	Jan. 3	329	90	62	74
McQueen, Daniel, assignor to G. Miller, Jr., Toledo, Ohio. Time stock-feeder	493,219	Mar. 7	690	177	62	1494
McQueen, Daniel P., Schenectady, N. Y. Steam-boiler	490,303	Jan. 24	2108	549	62	472
McRae, John H., Chicago, Ill. Iron-pipe-heating device	494,484	Mar. 28	2782	698	62	1937
McSherry Manufacturing Company. (See Nugent and Gilbert, assignors.)						
McVey, John M., Lima, Ohio. Basin-clamp	493,178	Mar. 7	632	160	62	1482
Mead, Albert G., assignor to W. B. H. Dowse, trustee, Boston, Mass. Glove-fastener stud	490,411	Jan. 24	2278	591	62	506
Mead, Edwin D., Phelps, N. Y., assignor to Crown Manufacturing Company, of New York, Seeder	492,358	Feb. 21	2058	513, 514	62	1192
Mead, John A. (See Johnson, Charles, assignor.)						
Mead, John A., and C. Johnson, Rutland, Vt. Quick-return lifting-jack	493,336	Mar. 14	895	229	62	1548

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Mead, Theodore H., *et al.* (See Crowell, Luther C., assignor.)						
Mead, Theodore H., *et al.* (See Shattuck, Edwin L., assignor.)						
Meado, Robert A. P., Sayre, Pa. Coat-sleeve protector	489,567	Jan. 10	911	218	62	205
Meaher, Joseph A., Cleveland, Ohio. Toy base-ball game	491,247	Feb. 7	298	76	62	806
Mealy, John J., assignor of one-half to M. M. Hart, Iola, Kans. Corn-harvester	490,790	Jan. 31	2997	747	62	643
Means, William G., *et al.* (See Tripp, Thomas, assignor.)						
Mechtersheiner, Henry C. (See Sitler, Edwin J., assignor.)						
Medart, Frederick, St. Louis, Mo. Striking-bag drum	489,750	Jan. 10	1181	309	62	260
Medart, Philip, assignor of one-half to W. Medart, St. Louis, Mo. Machine for grinding pulley-shafts and their couplings	492,095	Feb. 21	1643	{408 / 409}	62	1107
Medart, William. (See Medart, Philip, assignor.)						
Medley, John A., assignor of one-half to R. H. C. Henderson, Comanche, Tex. Washboiler	490,575	Jan. 24	2530	651	62	555
Medlin, Logan M., Latham, Mo. Traction-engine	491,846	Feb. 14	1267	{314 / 315}	62	1017
Meech, Alfred H., Chatham, N. Y. Bottle package or packing-box	492,305	Feb. 21	1976	492	62	1157
Meech, Alfred H., Chatham, N. Y. Bottle-wrapper	492,306	Feb. 21	1978	492	62	1157
Meech, Alfred H., Chatham, N. Y. Fruit-box	493,779	Mar. 21	1627	414	62	1707
Meecker, Walter C., Jersey City, N. J. Switch-stand	490,576	Jan. 24	2531	652	62	555
Meem, James C., Buena Vista, Va. Knockdown box or crate	494,215	Mar. 28	2363	597	62	1861
Melgs, Montgomery C., Lafayette, Ind. Excavator	491,577	Feb. 14	847	{214 / 215}	62	933
Meily, Ringgold W., and G. W. Buchanan, Lima, Ohio. Cane	489,385	Jan. 3	617	{166 / 167}	62	133
Meinke, Franz, Cörlin, Germany. Padlock	494,340	Mar. 28	2560	645	62	1897
Meisel, Francis, Boston, Mass. Machine for cutting into strips and reeling or winding paper	492,964	Mar. 7	304	77, 78	62	1419
Meister, Herman, New York, N. Y. Chuck and drill	492,733	Feb. 28	2660	659	62	1328
Meltzler, George R., Cincinnati, Ohio, assignor of one-half to W. H. Osborne, Prince's Bay, N. Y. Electrically-heated soldering-iron	490,256	Jan. 17	2020	528	62	442
Melchior, Alfred, Sydney, New South Wales. Animal-shears	492,213	Mar. 7	72	17	62	1372
Melfi, Domenico, New York, N. Y. Padlock	489,022	Jan. 3	65	19	62	17
Melling, John W., Wigan, England. Reversing-gear for engines	489,130	Jan. 3	226	61	62	52
Mellinger, Jacob, Waverly, Md. Unhairing hides	490,791	Jan. 31	2910	.....	62	643
Melvin, Charles H., assignor, by mesne assignments, of two-thirds to himself and G. E. Gee, Minneapolis, Minn. Stove	493,594	Mar. 14	1318	337	62	1631
Melzer, Manuel S., Philadelphia, Pa. Shoe-rest	490,915	Jan. 31	3113	798	62	684
Memminger, Christopher G., Charleston, S. C. Pot-scraper	490,577	Jan. 24	2532	652	62	556
Menge, Bernard J. M., Cincinnati, Ohio. Lamp	489,488	Jan. 10	788	209	62	181
Menge, Joseph, New Orleans, La. Polishing rice	491,569	Mar. 14	1164	297	62	1600
Mercer, William R., Terre Haute, Ind. Tilting seat for bicycles	491,578	Feb. 14	849	215	62	933
Meredith, Jaquelin M., Jr., Norfolk, Va. Cloth-measuring machine	492,734	Feb. 28	2662	{659 / 660}	62	1328
Mergenthelm, Alexander. (See Rosenthal, Emanuel M., assignor.)						
Meriden Machine Tool Company. (See Cheney, Walter L., assignor.)						
Merker, Herman C., assignor of one-half to Salter Brothers, Rochester, N. Y. Umbrella-stand	492,350	Feb. 21	2061	514	62	1193
Merriam, Henry C., Fort Logan, Colo. Knapsack	494,216	Mar. 28	2364	598	62	1861
Merrick, Frank W., Boston, Mass. Feed mechanism for sewing-machines	490,854	Jan. 31	2996	{767 / 768}	62	661
Merrick, Frank W., Boston, Mass. Work-support for sewing-machines	490,855	Jan. 31	2998	{768 / 769}	62	662
Merrick, Frank W., Boston, Mass. Thread-carrier mechanism for sewing-machines	490,856	Jan. 31	2999	769	62	662
Merrick, Frank W., Boston, Mass. Sewing-machine	490,857	Jan. 31	3000	770	62	662
Merrill, Anson P., assignor to himself, C. A. Hicks, Fall River, W. J. and E. L. Harrison, Boston, Mass. Alarm-bell	492,410	Feb. 28	2147	536	62	1223
Merrithew, Levi A., Brockton, assignor of one-half to E. L. Drew, Boston, Mass. Rand-turning machine	494,378	Mar. 28	2627	659	62	1999
Merritt, Frank W. (See Fitzgerald, Edward E., assignor.)						
Merritt, Henry W., assignor to Merritt Manufacturing Company, Springfield, Mass. Type-writing machine	489,871	Jan. 10	1345	351	62	294
Merritt, John W. (See Rideout and Merritt.)						
Merritt Manufacturing Company. (See Merritt, Henry W., assignor.)						
Merrow, Joseph M., Merrow, Conn. Tension device for sewing-machines	493,871	Mar. 21	1769	451	62	1534
Merry, Elwin J., Magog, Canada. Cyclometer	491,739	Feb. 14	1099	278	62	964
Merry, Thomas, Chicago, Ill. Bag-holder	490,578	Jan. 24	2533	652	62	556
Mershon, George B., Jr., Secane, assignor to G. B. Mershon, Philadelphia, Pa. Garment-hook	491,435	Feb. 7	619	155	62	866
Mersmann, Benjamin F., Moberly, Mo. Washboiler	491,436	Feb. 7	620	155	62	866
Mertsheimer, Frederick, Cheyenne, Wyo. Exhaust-nozzle	493,510	Mar. 14	1165	298	62	1000
Merunka, August. (See Schmidt, Merunka, and Werner.)						
Merz, Theodore C., Detroit, Mich. Gelatine-circulating device	489,539	Jan. 10	871	228	62	197
Messenger, Clarence E. (See Poor, Messenger, and Dallas.)						
Messer, Louis, New York, N. Y. Frame for pocketbooks	490,154	Jan. 17	1852	483	62	410
Messier, Joseph H., Worcester, Mass. Water-heater	489,971	Jan. 17	1538	402	62	347
Messina, John A. (See Moffat and Messina.)						
Meston, Alexander W., St. Louis, Mo. Electric motor	491,970	Feb. 14	1457	363	62	1055
Meston, Alexander W., St. Louis, Mo., assignor to Emerson Electric Manufacturing Company, of Missouri. Commutator for dynamo-electric machines and constructing same	493,439	Mar. 14	1051	271	62	1580
Methven, James R. (See Shaw, Methven, and Sharp.)						
Metzger, Amandus. (See Ball and Metzger.)						
Metzger, Amandus, Schenectady, assignor to Edison General Electric Company, New York, N. Y. Lamp-socket	489,682	Jan. 10	1067	278	62	218
Meurer, Eugene, Palmer Falls, N. Y. Pulp-screen	492,039	Feb. 21	1567	390	62	1091
Meyer, Carl G., Frohnau, Germany. Garment-loop	491,661	Feb. 14	980	247	62	960
Meyer, Frederick, J. S. Kiehl, and A. Grant, assignors to Duplex Rotary Engine Company, Chicago, Ill. Rotary engine	492,360	Feb. 21	2062	{514 / 515}	62	1193
Meyer, Henry. (See Herb and Meyer.)						
Meyer, Henry W. (See Brown, Meyer, and Schiewetz.)						
Meyer, William, New York, N. Y. Blotter	489,823	Jan. 10	1283	335	62	981
Meyrose, Ferdinand, *et al.* (See Bradley, Jay L., assignor.)						
Michel, Auguste M., Paris, France. Secondary-battery electrode	489,315	Jan. 3	509	139	61	110
Michel, Auguste M., Paris, France. Manufacture of accumulator-plates	489,316	Jan. 3	510	.....	62	111

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g	Official Gazette. Vol.	Official Gazette. Page.
Michel, Joseph. (See McDonough and Michel.)						
Michel, Theodore. (See McDonough and Michel.)						
Michigan Elevator and Engine Company *et al.* (See Hultgren, William H., assignor.)						
Michigan Lubricator Company. (See Essex, George B., assignor.)						
Middlekauff, Ellsworth D. (See Dunham and Middlekauff.)						
Middleton, Albert G., and C. S. Minchin, Allegheny, Pa. Umbrella-holder	491,058	Jan. 31	3347	854	62	731
Milburn, Charles F., Toledo, Ohio. Wagon-axle	493,039	Mar. 7	421	106	62	1442
Milburn, Charles F., and G. E. Byrkit, Toledo, and J. C. Crabbs, Auburndale, Ohio. Machine for turning wooden axles	493,038	Mar. 7	419	105	62	1441
Mild, William, assignor of one-half to S. Crane, Hamilton, Ohio. Process of and compound for coating metals	491,220	Feb. 7	259	.....	62	797
Miles, Arthur W., and E. A. Commander, Livingston, Mont. Nut-lock	493,732	Mar. 21	1554	396	62	1693
Miles, Bradford S., Gray's Summit, Mo. Barrel-heading press	491,847	Feb. 14	1270	315	62	1018
Miles, George, Wellesley, Mass. Pneumatic elevator	494,217	Mar. 28	2365	598	62	1861
Mill, Anton, Cincinnati, Ohio. Tapping attachment for drills	489,317	Jan. 3	511	140	62	111
Miller, A. B. (See Sandel, Sam D., assignor.)						
Miller, Abraham, Newark, Ohio. Clover-hulling machine	491,740	Feb. 14	1100	278	62	984
Miller, Adam, London, England. Feed-water heater	492,411	Feb. 28	2148	537	62	1223
Miller, Alexander C. (See Miller, Henry V. and A. C.)						
Miller, Alexander C. (See Miller, Samuel W., A. C., and H. V.)						
Miller, Alonzo R., assignor of one-half to S. Nesbitt, Washington, D. C. Pug-mill	490 611	Jan. 24	2593	668	62	567
Miller, Alonzo R., assignor of one-half to S. Nesbitt, Washington, D. C. Lime-slaking machine	490,612	Jan. 24	2594	669	62	568
Miller, Amos E., Palmyra, N. J. Lawn-mower	492,941	Mar. 7	265	68	62	1411
Miller, Andrew C., Auburn, N. Y. Electric-car brake	489,952	Jan. 17	1530	402	62	347
Miller, Annie J., New York, N. Y. Underwaist	494,300	Mar. 28	2495	630	62	1885
Miller, Anthony, Cape Girardeau, Mo. Wagon-bolster standard	489,824	Jan. 10	1293	336	62	292
Miller, Arnold, Medford, Wis. Car-brake	489,023	Jan. 3	66	19	62	17
Miller, Arnold, Medford, Wis. Car-brake	490,079	Jan. 17	1726	450	62	384
Miller, August, Burlington, Iowa. Washboiler	490,268	Jan. 17	1945	510	62	427
Miller, Basil, West Lafayette, Ohio. Gate	490,579	Jan. 24	2534	652	62	556
Miller, Charles J. (See Pruyn, John R., assignor.)	491,579	Feb. 14	850	215	62	934
Miller, Charles M. (See Cohen, Emanuel G., assignor.)						
Miller, Elisha G., Chicago, Ill. Folding bed	489,489	Jan. 10	792	209	62	182
Miller, George, Jr. (See McQueen, Daniel, assignor.)						
Miller, George N. (See Wearn, Walter R., assignor.)						
Miller, Henry O., assignor of one-half to A. J. Eaton and E. F. Hurdle, Eaton, Colo. Car-coupling	490,811	Jan. 31	2937	{753 / 754}	62	649
Miller, Henry V. (See Miller, Samuel W., A. C., and H. V.)						
Miler, Henry V., Bloomington, and A. C. Miller, Aurora, Ill. Electric railway-signal	493,935	Mar. 21	1877	478	62	1754
Miller, Herman, New York, N. Y. Soldering apparatus	492,956	Mar. 7	308	85, 86	62	1426
Miller, Jacob. (See Weaver, Oscar, assignor.)						
Miller, John H. (See Burnham and Miller.)						
Miller, John H., Jr., Gallon, Ohio. Gas generator	494,012	Mar. 21	2020	515	62	1782
Miller, John H., assignor to United States Wind Engine and Pump Company, Batavia, Ill. Pitman-bearing	490,296	Jan. 24	2092	547	62	470
Miller, John H., and W. H. Burnham, assignors to United States Wind Engine and Pump Company, Batavia, Ill. Windmill-brake	490,295	Jan. 24	2091	546	62	470
Miller, John J., Howell, Mich. Belt-tightener	491,728	Feb. 14	1082	273	62	981
Miller, John M., Westwood, Ohio. Vehicle-brake	489,024	Jan. 3	67	19	62	17
Miller, Lewis, Akron, Ohio. Grain-binding harvester	493,731	Mar. 21	1549	395	62	1692
Miller Lock Company. (See Jackson, Milton, assignor.)						
Miller, Louis L., Newport, Ky., assignor to Ross Moyer Manufacturing Company, Cincinnati, Ohio. Sewing-machine	493,217	Mar. 7	686	176	62	1193
Miller, Newton C., French Corral, Cal. Hydraulic mining apparatus	489,751	Jan. 10	1152	309	62	260
Miller, Ruben, Sergeant Bluffs, Iowa. Cultivator	492,692	Feb. 28	2690	643	62	1315
Miller, Samuel B., Cairo, Ill. Game-counter	494,011	Mar. 21	2018	514	62	1782
Miller, Samuel W. and A. C., Aurora, and H. V. Miller, Bloomington, Ill.; said Samuel W. Miller assignor to said A. C. and H. V. Miller. Electrical railway-signal	494,111	Mar. 21	2185	559	62	1813
Miller, Sherman R., Detroit, Mich. Shipping and display box for seeds	490,156	Jan. 17	1853	{483 / 484}	62	411
Miller, William L., New York, N. Y. Hydrocarbon-burner	493,555	Mar. 14	1255	322	62	1618
Miller, William P., Redding, Cal. Recovering precious metals	492,040	Feb. 21	1567	390	62	1091
Millet, John W., Dolgeville, N. Y. Felting-machine	491,901	Feb. 14	1354	{336 / 337}	62	1034
Milligan, Charles J., Chicago, Ill. Escaping-gas alarm	491,580	Feb. 14	851	215	62	934
Millins, Charles H. (See Gardiner and Millins.)						
Mills, George W., Elizabeth, N. J. Paper-file	490,155	Jan. 17	1853	483	62	411
Mills, James, and A. S. Smith, Cincinnati, Ohio. Metal-shaping machine	490,670	Jan. 31	2720	700	62	607
Mills, John, Newark, N. J. Railway-gate	489,131	Jan. 3	228	61	62	52
Mills, Mortimer B. (See Mills, Stephen G., assignor.)						
Mills, Stephen G., assignor to M. B. Mills, Chicago, Ill. Pneumatic-power apparatus	489,193	Jan. 3	326	89	62	74
Milne, Charles D. (See Pritchard, Albert R., assignor.)						
Milnes, John C., Cedar Rapids, Iowa. Veterinary operating-table	492,819	Mar. 7	74	18	62	1372
Minchin, Charles S. (See Middleton and Minchin.)						
Miner, Howard A., New York, N. Y. Electric-railway conductor	490,297	Jan. 24	2099	547	62	470
Miner, William W., New Haven, assignor to New Process Nail Company, Torrington, Conn. Making horseshoe-nails	490,392	Jan. 24	2252	586	62	502
Miner, William W. New Haven, assignor to New Process Nail Company, Torrington, Conn. Making horseshoe-nails	490,393	Jan. 24	2254	586	62	502
Miner, William W., New Haven, assignor to New Process Nail Company Torrington, Conn. Manufacturing horseshoe-nails	490,394	Jan. 24	2255	586	62	502
Miner, William W., New Haven, assignor to New Process Nail Company Torrington, Conn. Die for the manufacture of horseshoe-nails	490,395	Jan. 24	2257	586	62	502
Miner, William W., New Haven, assignor to New Process Nail Company, Torrington, Conn. Making horseshoe-nails	490,396	Jan. 24	2258	587	62	502
Miner, William W., New Haven, assignor to New Process Nail Company Torrington, Conn. Feeding mechanism for horseshoe-nail machines	490,397	Jan. 24	2259	587	62	502
Miner, William W., New Haven, assignor to New Process Nail Company, Torrington, Conn. Horseshoe-nail	490,613	Jan. 24	2596	669	62	568
Miner, William W., New Haven, assignor to New Process Nail Company, Torrington, Conn. Manufacturing horseshoe-nails	491,368	Feb. 7	514	132	62	846
Mink, Fritz, assignor to Keystone Watch Case Company, Philadelphia, Pa. Watchcase	492,629	Feb. 28	2508	621	62	1297

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Minnemeyer, Edward G., Peoria, Ill. Washtub	489,082	Jan. 3	150	42	62	36
Minnemeyer, Edward G., Peoria, Ill. Pipe-hanger for water-conductors	489,083	Jan. 3	151	42	62	36
Minnis, Frank, Ann Arbor, Mich. Composition of matter for leather for razor-strops	490,030	Jan. 17	1653	.....	62	369
Minor, Mary E., Colfax, Ind. Dust-pan	492,373	Feb. 21	2079	520	62	1197
Minor, Peter W., Springville, N. Y. Machine for hammering leather	491,259	Mar. 28	2433	613	62	1572
Minter, Frank, Corning, Kans. Incubator	490,298	Jan. 24	2101	547	62	470
Minzey, William L., Belleview, assignor of one-half to H. Schenck, Perkins, Ohio. Artificial arm and hand	493,440	Mar. 14	1054	271	62	1581
Missouri Lamp and Manufacturing Co., *et al.* (See Stempel, Omar A., assignor.)						
Miranda, Abraham R., Boston, assignor to F. M. Ferrm, Natick, Mass. Vaporizer	491,902	Feb. 14	1355	337	62	1035
Mishler, Melvin S., Chicago, Ill. Harvester	492,412	Feb. 28	2149	537	62	1223
Mitchell, Adolph L., *et al.* (See Baines, Edward, assignor.)						
Mitchell, Alexander. (See Cushing and Mitchell.)						
Mitchell, Edward J., *et al.* (See Baines, Edward, assignor.)						
Mitchell, Edward W., Covington, Ky., assignor to Mitchell-Thompson Underground Electric Conductor Company, of West Virginia. Electric railway	490,975	Jan. 31	3205	819	62	701
Mitchell, J Henry. (See Hunter and Clark, assignors.)						
Mitchell, James D., Marine City, Mich. Gage-cock	490,157	Jan. 17	1855	484	62	411
Mitchell, James H., Philadelphia, Pa. Dough-machine	489,973	Jan. 17	1540	{402 / 403}	62	347
Mitchell, James H., Philadelphia, Pa. Cake-machine	492,220	Feb. 21	1850	463	62	1150
Mitchell, Orson C., North Granville, N. Y. Book rest and holder	493,936	Mar. 21	1879	478	62	1755
Mitchell-Thompson Underground Electric Conductor Company. (See Mitchell, Edward W., assignor.)						
Mitchell, William B., and F. Benberger, Galion, Ohio. Foot-guard for railways	490,580	Jan. 24	2535	653	62	556
Mitchell, William L., New York, N. Y. Gas-burner	492,041	Feb. 21	1570	391	62	1092
Mitchell, Willis, Malden, assignor, by mesne assignments, to American Electric Heating Company, Boston, Mass. Electro-magnetically-heated receptacle	489,318	Jan. 3	512	140	62	111
Mitchell, Willis, Malden, assignor, by mesne assignments, to American Electric Heating Company, Boston, Mass. Hat-brim-soft-ning device	491,319	Feb. 7	432	111	62	830
Mitchell, Willis, Malden, assignor, by mesne assignments, to American Electric Heating Company, Boston, Mass. Electric water-heater	491,320	Feb. 7	433	111	62	830
Mitchell, Willis, Malden, assignor, by mesne assignments, to American Electric Heating Company, Boston, Mass. Electrically-heated vessel	491,321	Feb. 7	434	112	62	830
Mitchell, Willis, Malden, assignor, by mesne assignments, to American Electric Heating Company, Boston, Mass. Electrically-heated gridiron	491,322	Feb. 7	435	112	62	831
Mitchell, Willis, Malden, assignor to American Electric Heating Company, Boston, Mass. Electric metal-heating device	491,437	Feb. 7	621	156	62	866
Mitchell, Willis, Malden, assignor to American Electric Heating Company, Boston, Mass. Electrically-heated muffle	491,438	Feb. 7	623	156	62	867
Mitchell, Willis, Malden, assignor to Butterfield-Mitchell Electric Heating Company, Boston, Mass. Electrically-heated radiator	494,301	Mar. 28	2496	630	62	1885
Möckel, Gotthilf L., Doberan, Germany. Arch for ceilings or vaults	489,654	Jan. 10	1023	267	62	229
Mockridge, Joseph B., New York, N. Y. Means for securing railways and shippers against loss of freight	493,595	Mar. 14	1320	338	62	1632
Modes, William F., Streator, Ill. Glass-tank furnace	492,820	Mar. 7	76	18	62	1372
Moe, George T., Philadelphia, Pa. Furnace	489,490	Jan. 10	793	209	62	182
Moeller, Herman, Brooklyn, N. Y. Cap for chimneys, flues, &c.	491,848	Feb. 14	1272	315	62	1018
Moffat, Charles S. B., and J. A. Messina, Key West, Fla. Cigar-maker's gage	489,025	Jan. 3	70	20	62	18
Moffat, John, and W. W. Virtue, Sydney, New South Wales. Animal-shears	494,070	Mar. 21	2111	{538 / 539}	62	1798
Moffat, John, and W. W. Virtue, Sydney, New South Wales. Animal-shears	494,071	Mar. 21	2114	{539 / 540}	62	1799
Moffat, John, and W. W. Virtue, Sydney, New South Wales. Machine for grinding and sharpening shearing-combs and cutters, &c.	494,072	Mar. 21	2117	540	62	1799
Moffitt, Charles J. (See Davis, John T., assignor.)						
Mohlberg, John, New York, N. Y. Brick	491,248	Feb. 7	299	76	62	806
Mohler, Johannes. (See Schmid and Mohler.)						
Moldenhauer, Carl, Frankfort-on-the-Main, Germany. Extracting gold from its ores	492,221	Feb. 21	1854	.....	62	1151
Mole, James R. (See Salter, John M., assignor.)						
Mole, John G., Batavia, Ill. Portable grinding-mill	490,812	Jan. 31	2939	754	62	650
Molera, Eusebius J., San Francisco, Cal. Camera-shutter	490,031	Jan. 17	1654	429	62	369
Molloy, James F., New Haven, Conn. Fastening device for suspenders	492,222	Feb. 21	1855	464	62	1151
Moltrup, Stephen and W., Beaver Falls, Pa. Die and die-holder for drawing steel rods, &c. (Reissue)	11,318	Mar. 28	2893	724	62	1957
Moltrup, William. (See Moltrup, Stephen and W.) (Reissue.)						
Monahan, John J., assignor of one-half to E. Bradley, Nashville, Tenn. Incrustation device	490,671	Jan. 31	2721	700	62	607
Mond, Ludwig, Northwick, England. Apparatus for volatilizing ammonium chloride	491,741	Feb. 14	1102	279	62	985
Monday, Newton, assignor of one-half to J. M. O'Carr, Lathrop, Mo. Churn	489,872	Jan. 10	1347	351	62	295
Mondor, Hector J., Holyoke, Mass. Combination-tool	491,715	Feb. 14	1064	269	62	978
Monfort, Abram C., Pawtucket, R. I., assignor to Monfort Stamp and Envelope Company, of Maine. Envelope-dispensing machine	489,683	Jan. 10	1069	278	62	238
Monfort Stamp and Envelope Company. (See Monfort, Abram C., assignor.)						
Monger, Ivor J. and R., Baltimore, Md. Furnace	489,319	Jan. 3	513	140	62	111
Monger, Robert. (See Monger, Ivor J. and R.)						
Monks, George H., Boston, Mass. Game-board	491,293	Feb. 7	359	99	62	821
Montanelli, Anacleto, Portland, Oreg. Electrical musical instrument	490,358	Jan. 24	2204	575	62	492
Mouteer, Alexander N., Springfield, Mo. Covering attachment for car-roofs	491,120	Feb. 7	88	24, 25	62	766
Montgomery, Floyd E., Tarkio, Mo., assignor of one-half to J. S. Smith, Clarinda, Iowa. Cultivator	494,341	Mar. 28	2561	{645 / 646}	62	1897
Montgomery, Harry C., Cleveland, Ohio. Door-closing device	490,032	Jan. 17	1655	{429 / 430}	62	370
Montgomery, Henry, Newark, N. J. Bowling-alley	490,916	Jan. 31	3114	799	62	684
Montgomery, Thomas J., *et al.* (See Woolf, Albert E., assignor.)						
Monzingo, T. M. (See Carr, William L., assignor.)						
Mooney, William, Atlantic Highlands, N. J. Boiler	490,257	Jan. 17	2021	528	62	443
Moody, Charles D. (See Groom, Patrick W., assignor.)						
Moody, Emery C., Avon, assignor of one-half to H. A. Peach, Randolph, Mass. Last	491,489	Feb. 7	699	177	62	883
Mook, Charles O., Kansas City Mo. Bale-tie machine	493,279	Mar. 14	798	{206 / 207}	62	1579
Moon, Hiram, deceased, Red Creek, (P. C. Moon, administratrix,) assignor of one-half to J. P. Crowell, Westbury, N. Y. Transplanter. (Reissue)	11,305	Feb. 7	733	186	62	889
Moon, Prudence C., administratrix. (See Moon, Hiram.) (Reissue.)						
Moore, Daniel M., New York, N. Y. Electric-lamp vibrator-regulator	494,531	Mar. 28	2872	718	62	1953

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Moore, Edward Y., Milwaukee, Wis. Adjustable track for sliding doors	492,413	Feb. 28	2151	538	62	1224
Moore, Edward Y., Milwaukee, Wis. Differential pulley-block	492,609	Feb. 28	2474	615	62	1291
Moore, Francis A., Tyler, Tex. Car-replacer	489,187	Jan. 3	315	87	62	72
Moore, George H., Norwich, Conn. Collecting-tube for filters	493,937	Mar. 21	1880	479	62	1755
Moore, George H., Norwich, Conn. Collecting-tube for filters	493,938	Mar. 21	1883	{479 / 480}	62	1756
Moore, Horatio N., Savannah, Ga. Pianoforte-action	493,172	Mar. 7	623	157	62	1481
Moore, James S., Sullivan, assignor of one-half to W. S. Bristol, Flat Rock, Ind. Can-filling machine	490,033	Jan. 17	1656	430	62	370
Moore, Moses M., assignor to Eclipse Wind Engine Company, Beloit, Wis. Tappet for duplex steam pumping-engines	489,655	Jan. 10	1027	268	62	229
Moore, Stephen, trustee. (See Cummings and Coupal, assignors.)						
Moore, Sylvester, Audubon, Iowa. Fence-wire reel	491,849	Feb. 14	1273	{315 / 316}	62	1018
Moore, William B., New Glasgow, and G. B. Willett, Moncton, Canada, assignors of two-thirds to W. M. Walton and H. Richmond, New York, N. Y. Ticket-holder	493,511	Mar. 14	1166	298	62	1600
Moore, William H., assignor to W. H. Moore Mattress Company, Gardiner, Me. Apparatus for filling mattresses	489,540	Jan. 10	871	228	62	197
Moores, George W., New Orleans, La. Buckle	489,656	Jan. 10	1028	268	62	229
Moorhead, Robert L., *et al.* (See Wiley, George, assignor.)						
Morden, William J. (See McKinnon, John, assignor.)						
Mordey, William M., London, England. Dynamo-electric machine	493,104	Mar. 7	519	130	62	1462
Morehead, J Turner. (See Cable, George W., assignor.)						
Morehouse, Cyrus E., *et al.* (See Bowen, Philip A., assignor.)						
Morehouse, Leonard M., *et al.* (See Bowen, Philip A., assignor.)						
Morein, Jules, Norfolk, Va. Awning	493,105	Mar. 7	522	131	62	1462
Morfit, Clarence, New York, N. Y. Car coupling	493,638	Mar. 21	1397	354	62	1662
Morford, Charles H., Allentown, Pa. Permutation-lock	494,154	Mar. 28	2264	575	62	1841
Morford, Thomas E., Minneapolis, Minn., assignor of one-half to Enamel Insulator Company, of Illinois. Electric heater	490,034	Jan. 17	1658	430	62	370
Morford, Thomas E., Minneapolis, Minn., assignor of one-half to Enamel Insulator Company, of Illinois. Insulation of dynamo-armatures	491,490	Feb. 7	700	177	62	883
Morford, Thomas E., Minneapolis, Minn., assignor of one-half to Enamel Insulator Company, of Illinois. Insulated magnetic coil	491,491	Feb. 7	701	177	62	883
Morford, Thomas E., Chicago, Ill., assignor to Enamel Insulator Company, of Illinois. Insulating electric conductors. (Reissue)	11,303	Feb. 7	731	185	62	889
Morgan Alcohol Time Signal Company. (See Morgan, Benjamin B., assignor.)						
Morgan, Benjamin B., assignor to Morgan Alcohol Time Signal Company, Ypsilanti, Mich. Railway time signal	494,509	Mar. 28	2827	709	62	1916
Morgan, Fred W., and R. Wright, Chicago, Ill. Manufacture of pneumatic tires	490,035	Jan. 17	1659	{431 / 432}	62	370
Morgan, James B., Davenport, Iowa. Tag-holder	491,581	Feb. 14	892	216	62	934
Morgan, John B., Middleborough, Mass. Thread-waxing and tension device for sewing-machines	493,637	Mar. 21	1395	354	62	1661
Morgan, John M., Salisbury, N. C. Filter	489,084	Jan. 3	152	42	62	37
Morgan, Newton, Springfield, Mass. Dental-disk holder	493,893	Mar. 21	1802	459	62	1740
Morgan, William, assignor of one-fifth to J. L. Hopkins, St. Louis, Mo. Harness support	494,532	Mar. 28	2873	719	62	1953
Morgan, William A. (See Worcester and Morgan.)						
Moriarty, Edward D., Broadland, S. D. Railway-track jack and liner	494,155	Mar. 28	2266	575	62	1841
Morrell, Samuel, Wellington, New Zealand. Sash fastener	490,269	Jan. 17	1946	510	62	428
Morrill, George W., Alton, N. H. Pipe-wrench	491,850	Feb. 14	1275	316	62	1019
Morrill, Osgood, and H. P. Wells, Amesbury, Mass. Carriage-seat	492,414	Feb. 28	2152	538	62	1224
Morris, Elmer P., Boston, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Switch and safety-fuse	490,917	Jan. 31	3116	799	62	685
Morris, George H. (See Brown and Morris.)						
Morris, Henry G., Philadelphia, Pa. Evaporating apparatus	489,260	Jan. 3	434	120	62	96
Morris, John T. L., Kirksville, Mo. End-gate lock	489,386	Jan. 3	619	167	62	133
Morris, Joseph L., and J. P. Nace, Lawrence, Kans. Trip for automatic railway-switches	492,042	Feb. 21	1571	391	62	1092
Morris, Norman K., and J. W. Bailey, Denver, Colo. Producing white lead	493,106	Mar. 7	523	131	62	1461
Morris, Norman K., and J. W. Bailey, Denver, Colo. White lead	493,173	Mar. 7	624	.....	62	1481
Morrison, James W. (See Porter, Joseph Y., assignor.)						
Morrison, John H., Salida, Colo. Surgical apron	489,132	Jan. 3	220	61	62	53
Morrison, John H., Salida, Colo. Surgical irrigating basin	493,280	Mar. 14	806	207	62	1533
Morrison, William, Lansingburg, N. Y. Sectional brush-mold	492,415	Feb. 28	2153	538	62	1224
Morse, Andrew J., Boston, Mass. Folding bed	491,757	Feb. 14	1124	284	62	989
Morse, Edward C., Manchester, N. H. Cremating-furnace	490,582	Jan. 31	2967	761	62	655
Morse, Everett F., Trumansburg, N. Y. Two-wheeled vehicle	492,087	Mar. 7	341	86	62	1426
Morse, Everett F., Trumansburg, N. Y. Two-wheeled vehicle	492,223	Feb. 21	1856	464	62	1151
Morse, Martin V. B., Marblehead, Mass. Feed-trough	492,224	Feb. 21	1859	{464 / 465}	62	1151
Mortimer, Furman F., and J. P. Coffin, Florence, S. C. Locomotive-engine pilot	493,040	Mar. 7	422	106	62	1442
Morton, Andrew, New York, N. Y. Cork mat for bath rooms	489,320	Jan. 3	515	141	62	111
Morton, Henry W., Boston, Mass., assignor to General Electric Company, of New York. Transmitting mechanism for motors and dynamos	491,851	Feb. 14	1276	316	62	1019
Moseley, Thomas C. (See Madden, Gustan, assignor.)						
Mosely, Thomas C., and A. H. Kingman, Chicago, Ill. Gasoline-heater	489,026	Jan. 3	71	20	62	18
Moser, Charles, and C. Schirmer, Brooklyn, N. Y. Machine for dehairing fur-skins	490,880	Jan. 31	3042	782	62	671
Moser, Eli D., Hiawatha, Kans. Combined plow and harrow	490,976	Jan. 31	3208	{819 / 820}	62	702
Mott, Francis D., London, England. Covering for ships' bottoms	492,043	Feb. 21	1572	391	62	1092
Motter, Jacob V., Brooklyn, N. Y. Driving mechanism	492,044	Feb. 21	1573	391	62	1092
Moul, Martin, Hanover, and E. G. Quickel, York, Pa. Machine for punching match-sticks	491,221	Feb. 7	260	64	62	797
Moulton, Luther V., assignor to F. R. Luce, E. Boise, and J. R. Shelly, Grand Rapids, Mich. Machine for making school-crayons	489,752	Jan. 10	1183	310	62	260
Mowry, Edward, Maplewood, Ohio. Hand corn-planter	492,361	Feb. 21	2065	516	62	1194
Mowry, Joseph B., assignor of one-fourth to J. F. Stine, Mansfield, Ohio. Brick-machine	489,491	Jan. 10	794	209	62	182
Mowry, William G., Greenwich, N. Y. Vehicle-spring	489,974	Jan. 17	1542	{403 / 404}	62	348
Moxham, Arthur J., Johnstown, Pa. Tie-rod for railway-tracks	489,321	Jan. 3	516	141	62	112
Moyer, Harvey A., Syracuse, N. Y. Folding seat for carriages	492,469	Feb. 28	2240	560	62	1242
Moyer, Harvey A., Syracuse, N. Y. Bolster-plate	490,080	Jan. 17	1797	456	62	385
Moyer, Oliver A., and H. W. Rhodes, Ogden, Utah Ter. Electric lock	491,783	Feb. 14	1170	292	62	997
Mozingo, Lewis W., Bloomington, Ill. Pressure water-filter	491,369	Feb. 7	515	132	62	846
	492,501	Feb. 28	2307	572	62	1255

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Muckle, Henry A., St. Paul Park, Minn. Side-spring vehicle	490,209	Jan. 24	2102	548	62	471
Mudd, Frank X., Chicago, Ill. Poultry-car	489,657	Jan. 10	1029	268, 269	62	229
Mueller, Frank. H., assignor, by mesne assignments, of one-third to J. Oelke, Milwaukee, Wis. Device for operating sliding doors	491,121	Feb. 7	90	25	62	766
Mueller, Frederick, Butte City, Mont. Apparatus for condensing fumes	492,225	Feb. 21	1860	465	62	1152
Muender, Henry, *et al.* (See Wanamaker, Edward A., assignor.)						
Muender, William, *et al.* (See Wanamaker, Edward A., assignor.)						
Muir, Alfred, Manchester, England. Tool-rest for lathes	493,041	Mar. 7	423	106	62	1442
Muir, Alfred, Manchester, England. Chuck	493,231	Mar. 7	712	182	62	1498
Muir, John, Brantford, Canada. Combined drill-hoe and cultivator-tooth	490,833	Jan. 31	2969	762	62	656
Muller, John A., New York, N. Y. Ice-machine	489,387	Jan. 3	619	167	62	133
Mulligan, John, Dayton, Ohio. Axle-lubricator	490,300	Jan. 24	2103	548	62	471
Mullins, William H., Salem, Ohio. Ridge-cresting	490,581	Jan. 24	2537	653	62	557
Mulville, Frank, Philadelphia, Pa. Rail-joint	493,939	Mar. 21	1886	480	62	1756
Munchweiler, Maurice, St. Louis, Mo. Convertible skid or truck	492,416	Feb. 28	2135	539	62	1225
Mundy, George E. (See Frantz, William B., assignor.)						
Munroe, Charles E., Newport, R. I. Explosive powder and making same	489,684	Jan. 10	1070	.....	62	238
Munsell & Co., Eugene. (See Jefferson, Charles W., assignor.)						
Munson, Comteil, Utica, N. Y. Sewer well and grate	490,301	Jan. 24	2105	548	62	471
Munton, James, Maywood, Ill. Manufacturing car-couplings	493,218	Mar. 7	687	176	62	1494
Munz, Charles W., assignor of one-half to W. Williams, Detroit, Mich. Piano-stool	493,441	Mar. 14	1056	272	62	1581
Muralt, Aloys R. de. (See Badoni, Massimiliano, assignor.)						
Murchison, Daniel R. (See Dowell, Lawson H., assignor.)						
Murdock, Edwin H., Cincinnati, Ohio. Cash indicator and register	489,085	Jan. 3	153	42	62	37
Murnane, Daniel J. (See Sheldon, Murnane, and Van Beek.)						
Murphy, Andrew, Columbus, Ohio. Truck	490,716	Jan. 31	2789	716	62	621
Murphy, James A., Holyoke, Mass. Attachment for pencils or pens	494,510	Mar. 28	2830	709	62	19 7
Murphy, Jeremiah. (See Tabor and Murphy.)						
Murphy, Joseph E., *et al.* (See Vernon, William E., assignor.)						
Murphy, Michael. (See Reardon, Patrick, assignor.)						
Murphy, Peter H., East St. Louis, Ill. Car-roof	489,322	Jan. 3	517	141	62	112
Murphy, Robert, Canisteo, N. Y. Planter	492,096	Feb. 21	1645	409, 410	62	1107
Murphy, Robert D., Baltimore, Md. Sash-fastener	493,107	Mar. 7	521	131	62	1463
Murray, Henry F., *et al.* (See Borden, William H., assignor.)						
Murray, Samuel J., assignor to National Card Company, Indianapolis, Ind. Printing-press	492,893	Mar. 7	189	46, 47	62	1396
Murray, Samuel J., assignor to National Card Company, Indianapolis, Ind. Packing-case for cards, &c	494,218	Mar. 28	2370	598	62	1862
Murray, Thomas E., assignor of one-half to W. McEwan, Albany, N. Y. Construction of bins or pockets for containing coal, grain, &c	490,258	Jan. 17	2023	528	62	443
Murray, Thomas W. B., and T. G. Scott, Chicago, Ill. Fire-escape	493,556	Mar. 14	1256	322	62	1618
Musser, Frank P. (See Brewer, William M., assignor.)						
Mussman, Oscar, New York, assignor to E. Faber, West Brighton, N. Y. Attachment for lead-pencils	489,685	Jan. 10	1051	279	62	238
Mustin, James G., Knoxville, Pa. Annealing wire	489,194	Jan. 3	327	90	62	74
Mutual Engineering Company. (See Schmidt, Frederick T., assignor.)						
Myers, Clarence A., *et al.* (See Frey, Frank, assignor.)						
Myers, David, North Manchester, Ind. Stovepipe-thimble	494,342	Mar. 28	2565	646	62	1898
Myers, John W., *et al.* (See Frey, Frank, assignor.)						
Myers, Martin, Mundy, Mich. Reversible plow	492,821	Mar. 7	78	18	62	1373
Myers, William H., and L. Anderson, Oregon, Wis. Corn-harvester	493,639	Mar. 21	1398	354	62	1662
Myers, William M., Cosby, Mo. Whiffletree-clip	492,640	Feb. 28	2510	622	62	1297
Naher, Moses H. (See Caswell, William A., assignor.)						
Nace, John P. (See Morris and Nace.)						
Nadeau, Joseph A., Detroit, Mich. Electric alarm-lock	490,161	Jan. 17	1862	485	62	412
Nagele, John, assignor of one-half to M. J. Manning, Clarendon, Ark. Car-fender	492,423	Feb. 28	2163	540	62	1226
Nagley, Charles C. (See Manwaring and Nagley.)						
Nagley, Charles C., Memphis, N. Y. Shears	489,612	Jan. 10	976	254	62	218
Nagley, Frank G. (See Manwaring and Nagley.)						
Narberti, Giorgio, assignor to himself and C. Brizzi, New York, N. Y. Violin-supporter	491,372	Feb. 7	519	133	62	847
Nase, John, assignor to Syracuse Specialty Manufacturing Company, Syracuse, N. Y. Hose-clamp	492,165	Feb. 21	1763	440	62	1132
Nase, John, assignor to Syracuse Specialty Manufacturing Company, Syracuse, N. Y. Lawn-rake	492,166	Feb. 21	1764	440	62	1132
Nase, John, assignor to Syracuse Specialty Manufacturing Company, Syracuse, N. Y. Lawn-rake	492,167	Feb. 21	1765	440	62	1133
Nash, Edward. (See Nash, Richard, assignor.)						
Nash, Richard, assignor of one-half to E. Nash, Ellensburg, Wash. Railway-switch	493,179	Mar. 7	633	160	62	1482
Nash, Rodney G. (See Allison and Nash.)						
Nash, William A., *et al.*, trustees. (See Mattullath, Hugo, assignor.)						
National Candy Mold Company. (See Boyer and Dixon, assignors.)						
National Card Company. (See Murray, Samuel J., assignor.)						
National Cash Register Company. (See Blanchard, Allen I., assignor.)						
National Cash Register Company. (See Carney, Thomas, assignor.)						
National Cash Register Company. (See Gilbert, Henry J., assignor.)						
National Cash Register Company. (See Houk, Robert T., assignor.)						
National Cash Register Company. (See Pfeifer, John, assignor.)						
National Cash Register Company. (See Pritchard, Hugh C., assignor.)						
National Cash Register Company. (See Sneckner, Frank A. L., assignor.)						
National Cash Register Company. (See Wythe, William W. and W. H., assignors.)						
National Company. (See Smith, Rudolph C., assignor.)						
National Electric Machine Company. (See Pope, William R., assignor.)						
National Switch and Signal Company. (See Clark, Henry F., assignor.)						
National Switch and Signal Company. (See Lattig, Jacob W., assignor.)						
National Ticker Company. (See Porter, Major D., assignor.)						
National Type Writer Company. (See Unz, Henry H., assignor.)						
National Vacuum Drying and Air Distilling Company. (See Bornholdt, Adolph, assignor.)						
Nau, John B., New York, N. Y. Making metal plates	490,451	Jan. 24	2335	606	62	516
Navarre, Anthony F. (See Warner, John P., assignor.)						
Naylor, Ernest W., Cleveland, Ohio. Jib-crane	491,126	Feb. 7	95	26	62	767
Naylor, Ernest W., Cleveland, Ohio. Jib-crane	491,127	Feb. 7	96	27	62	767
Naylor, George W., and N. W. Foley, Jersey City, N. J. Car-gate	492,826	Mar. 7	84	20	62	1374

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Naylor, Joshua G., and H. Williams, Richmond, Victoria. Apparatus for pressing bricks	490,412	Jan. 24	2279	592, 593	62	506
Neal, Afton H., *et al.* (See Smith, George, assignor.)						
Neal, Blan A., *et al.* (See Smith, George, assignor.)						
Neal, Dixie A., *et al.* (See Smith, George, assignor.)						
Neal, George S. and H. C., Eddyville, N. Y. Bolster-spring	490,083	Jan. 17	1732	451	62	385
Neal, Henry C. (See Neal, George S. and H. C.)						
Neal, James H., Boston, Mass. Controlling device for electric cars	494,344	Mar. 28	2567	646, 647	62	1898
Neal, Orrin B., *et al.* (See Smith, George, assignor.)						
Neale, David, Fort Calhoun, Nebr. Compressor	489,980	Jan. 17	1553	406	62	350
Neblett, N. H. (See Winn, Columbus M., assignor.)						
Necker, August, Lippstadt, Germany. Safety-ladder	494,073	Mar. 21	2119	540, 541	62	1800
Nedden, Frederick Z. (See Koepp, Henry, assignor.)						
Neeb, William, Burkett, Tex. Gate	490,491	Jan. 24	2411	623	62	532
Needham, Arthur J., H. C., and W. C., London, England. Link for fastening cuffs, &c	490,413	Jan. 24	2283	593	62	507
Needham, Horace C. (See Needham, Arthur J., H. C., and W. C.)						
Needham, Walter C. (See Needham, Arthur J., H. C., and W. C.)						
Neer, Harry M., assignor of two-thirds to O. W. Kelly and T. Reynolds, Springfield, Ohio. Cash-register	490,304	Jan. 24	2110	549, 550, 551	62	472
Neer, Harry M., assignor to O. W. Kelly and T. Reynolds, Springfield, Ohio. Cash register and indicator	491,020	Jan. 31	3276	537, 538, 539	62	715
Nell, James O., Sacramento, Cal. Continuous brick-kiln	492,965	Mar. 7	306	78	62	1420
Nelson, Charley A., Des Moines, Iowa. Wagon dump and elevator	490,674	Jan. 31	2725	701, 702	62	608
Nelson, Charles A., Ithaca, Mich. Hame-staple	491,128	Feb. 7	97	27	62	768
Nelson & Gelabert. (See Gelabert, William P., assignor.)						
Nelson, Robert H., and T. H. Temple, Ridgeway, Mich. Photograph-exhibitor	489,713	Jan. 10	1116	288	62	247
Nelson, Nels, assignor to G. Dittmann, Chicago, Ill. Combined scouring, polishing, and buffing machine	492,099	Feb. 21	1650	411	62	1108
Nembach, Andrew, Jr., assignor of one-half to J. M. French and C. F. Stewart, Cincinnati, Ohio. Puzzle	493,941	Mar. 21	1889	481	62	1757
Nenninger, Robert F., assignor to E. J. Ill, Newark, N. J. Producing zinc oxide from sulphite or sulphate of zinc	489,873	Jan. 10	1348	.....	62	295
Neracher, William, Cleveland, Ohio. Fire-bucket	490,717	Jan. 31	2790	716	62	621
Nerger, Charles G., Abilene, Tex. Milk-cooler	490,398	Jan. 24	2261	587	62	503
Nesbit, Arthur F., Milton, Pa. Car-coupling	490,978	Jan. 31	3214	821	62	703
Nesbitt, Scott. (See Miller, Alonzo R., assignor.)						
Nethery, Joseph W., assignor to Indiana Manufacturing Company, Indianapolis, Ind. Straw-stacker	493,734	Mar. 21	1556	397	62	1693
Neuhaus, Carl, Vienna, Austria Hungary. Toy pistol	494,432	Mar. 28	2705	679	62	1921
Neumann, Ernest F., New Britain, Conn. Stovepipe-thimble	493,641	Mar. 21	1401	355	62	1663
Neumann, John, Brooklyn, N. Y. Ale-tap	494,015	Mar. 21	2025	516	62	1781
Neumann, John, Brooklyn, N. Y. Ale-tap	494,016	Mar. 21	2027	516	62	1783
Nevin, Harper P., and W. S. Farrar, Detroit, Mich. Routing-machine	490,492	Jan. 24	2416	624	62	533
Nevins, William S., Terre Haute, Ind. Reflector and bracket for lamps	493,284	Mar. 14	811	208	62	1534
New England Butt Company. (See McCahey, John, assignor.)						
New Haven Manufacturing Company. (See Perrigo, Oscar E., assignor.)						
New Process Nail Company. (See Miner, William W., assignor.)						
Newell, John F., Gardiner, Me. Composition for bearings	494,156	Mar. 28	2268	.....	62	1842
Newell, John F., Gardiner, Me. Composition for bearings	494,433	Mar. 28	2707	.....	62	1924
Newell, Sarah, assignor of one-half to M. Peacock, Versailles, Ill. Milk-pan cover	494,157	Mar. 28	2268	576	62	1842
Newhall, George M., and C. L. Hamilton, Philadelphia, Pa. Chloride-of lime dissolver	489,261	Jan. 3	435	120, 121	62	96
Newlin, Joseph S., Fairfax, S. C., assignor of one-fourth to V. Walker, Savannah, Ga. Locomotive boiler	489,827	Jan. 10	1286	337	62	282
Newman, Henry A., Huntsville, J. D. Werden, Kansas City, and O. A. Stempel, St. Louis, assignors of one-fourth to T. M. Elmore, Huntsville, Mo. Artificial-slate blackboard	490,979	Jan. 31	3215	821	62	703
Newman, Samuel, Buffalo, N. Y. Tracing-wheel	491,746	Feb. 14	1065	269	62	978
Newman, Ulrich B., Greenfield, Ohio. Cash register and indicator	489,086	Jan. 3	155	43	62	37
Newpher, Alfred H., Pullman, Ill. Device for preventing spreading of railway-tracks	491,441	Feb. 7	625	157	62	807
Newsum, George, Leeds, England. Bronzing-machine	494,017	Mar. 21	2029	517	62	1784
Newton, James L., *et al.* (See Bennett, Willis, assignor.)						
Nicholls, John C., assignor of one-half to P. D. Spooner, Blue Mound, Ill. Bread-raiser	494,018	Mar. 21	2031	517	62	1784
Nichols, Edward A., Crockett, Tex. Trace-carrier	490,980	Jan. 31	3216	821	62	703
Nichols, Joseph, *et al.* (See Vanstone, Samuel, assignor.)						
Nichols, L. T., West Concord, Minn. Rotating measuring-vessel	491,064	Jan. 31	3352	855	62	732
Nichols, William K., Washington, D. C. Cash-register	493,557	Mar. 14	1257	322	62	1618
Nicolet, Georges, Chaux-de-Fonds, Switzerland. Stop-watch	490,123	Jan. 17	1791	469	62	400
Niehoff, Ernest, Tacoma, Wash. Egg-puzzle	491,021	Jan. 31	3286	839	62	718
Nielsen, Hans P., Alameda, Cal. Automatic releasing device	490,211	Jan. 17	1949	511	62	428
Nielsen, Peter H., Denver, Colo. Device for removing shoe-buttons	491,948	Feb. 14	1426	356	62	1049
Nightingale, Isaiah, Evansville, Ind. Attachment for guitars, mandolins, zithers, or other stringed instruments	494,485	Mar. 28	2782	698	62	1937
Niles, Jesse E., assignor of two-thirds to M. W. Bloomburg, Pontiac, Mich. Stovepipe-fastener	491,949	Feb. 14	1427	356	62	1049
Niles, Peter H., Potwin Place, assignor of one-half to A. M. Legg, Topeka, Kans. Automatic adjustable window-screen	490,752	Jan. 31	2846	730	62	631
Nilsen, Sivert B., Duluth, Minn. Device for unloading vessels	492,827	Mar. 7	85	20, 21	62	1374
Nilsson, Nils, Brooklyn, N. Y. Strap	494,019	Mar. 21	2032	518	62	1784
Nixon, James A., Titusville, Pa. Combined cane and camp-stool	494,303	Mar. 28	2499	631	62	1886
Nixon, James A., Titusville, assignor of three-fourths to H. J. Hopkins, Pleasantville, Pa. Combined cane and stool	493,285	Mar. 14	812	208, 209	62	1534
Noble, Andrew and G. Henderson, assignors to Sir W. G. Armstrong, Mitchell & Company, Limited, Newcastle-upon-Tyne, England. Breech-loading ordnance	492,942	Mar. 7	266	68, 69	62	1412
Noble, Donald, Leeds, England. Portable pumping apparatus	491,186	Feb. 7	205	52, 53	62	787
Noble, Donald, Leeds, England. Portable pumping apparatus	494,221	Mar. 28	2374	599, 600	62	1863
Noble, Harriet I., New York, N. Y. Sad-iron	494,020	Mar. 21	2033	518	62	1784
Noble, John B., Tatum, and J. B. Hensley, Baird, Tex. Belt-tightener	489,323	Jan. 3	518	141	62	112

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Noble, Oscar L. (See Childs, Eugene, assignor.)						
Noble, Thomas A., *et al.* (See Saltz, John F., assignor.)						
Noë, Peter, Mosbach, Germany. Apparatus for expanding and contracting hats	491,853	Feb. 14	1278	317	62	1019
Nogar, William H., Mount Jewett, Pa. Saw-sharpener	494,021	Mar. 21	2033	518	62	1784
Nolan, Eugene M., Jacksonville, Fla. Cotton chopper and cultivator	489,640	Jan. 10	1008	262, 263	62	225
Noland, John, Pittsburg, Pa. Door-securer	489,230	Jan. 3	386	106	62	86
Nolen, Stephen A., McCrory, Ark. Harness-saddle	489,087	Jan. 3	157	43	62	38
Norlberg, Charles. (See Green, John, assignor.)						
Nordberg, Bruno V. (See Conradson and Nordberg.)						
Nordyke & Marmon Company. (See Brantingham, Allen C., assignor.)						
Norman, Joseph L., Kansas City, Mo. Index file-holder	489,686	Jan. 10	1072	279	62	239
Norman, Thomas L. (See Herzberg and Norman.)						
Norris, James L., administrator. (See Youngjohns and Taylor.)						
Noroy, Charles F. X., Paris, France. Dyeing black	493,286	Mar. 14	813	.....	62	1534
North, Albert G., Pontiac, Mich. Bolster-spring	494,158	Mar. 28	2269	576	62	1842
North, Alfred C., Benton Harbor, assignor to J. Eddy, Flint, Mich., and A. J. Eddy, Chicago, Ill. Printing-machine	489,981	Jan. 17	1554	406, 407, 408	62	350
North, Alfred C., Benton Harbor, assignor to J. Eddy, Flint, Mich., and A. J. Eddy, Chicago, Ill. Stringing-machine	489,982	Jan. 17	1560	405, 409, 410	62	351
North & Judd Manufacturing Company. (See Herrick, Frank J., assignor.)						
Northampton Cutlery Company. (See Feicker, Fredrick C., assignor.)						
Northwestern Stove Works. (See Daman, Oscar, assignor.)						
North Western Wire Mattress Company. (See Franks, Orrin G., assignor.)						
North Western Wire Mattress Company. (See Kehr, Cyrus, assignor.)						
Norton, Edwin, *et al.* (See Livingston, Andrew W., assignor.)						
Norton, Edwin and L. M., Maywood, assignors to said Edwin and O. W. Norton, Chicago, Ill. Water-closet	489,030	Jan. 3	74	21	62	19
Norton, Fred O., Clinton, Iowa. Ore-amalgamator	491,686	Feb. 14	1017	257	62	969
Norton, Henry W. (See Fauber, William H., assignor.)						
Norton, Le Grand M. (See Norton, Edwin and L. M.)						
Norton, Leroy S., and F. E. Hoffman, Alpena, Mich.; said Hoffman assignor to said Norton. Telethermometer	493,558	Mar. 14	1258	323	62	1619
Norton, Oliver W. (See Norton, Edwin and L. M., assignors.)						
Norton, Oliver W., *et al.* (See Livingston, Andrew W., assignor.)						
Norwood, John E. (See Babendreier and Davis, assignors.)						
Nugent, John B., and H. G. Gilbert, assignors to McSherry Manufacturing Company, Dayton, Ohio. Harrow	490,718	Jan. 31	2791	716	62	621
Nunamaker, John W., assignor of one-fourth to H. L. Hopkins, Chicago, Ill. Alarm for watches	492,611	Feb. 28	2478	616	62	1291
Nunamaker, John W., assignor of one-fourth to H. L. Hopkins, Chicago, Ill. Stem winding and setting watch	492,612	Feb. 28	2482	616	62	1292
Nunamaker, John W., assignor of one-fourth to H. L. Hopkins, Chicago, Ill. Stem winding and setting mechanism for watches	493,642	Mar. 21	1401	355, 356	62	1663
Nunamaker, John W., assignor of one-fourth to H. L. Hopkins, Chicago, Ill. Stem winding and setting mechanism for watches	493,643	Mar. 21	1404	356	62	1663
Nunn, William C., Toronto, Canada, assignor to Consolidated Railway Equipment Company of Toronto, Limited. Railway surface cattle-guard	492,424	Feb. 28	2164	541	62	1226
Nusbaum, Frank A., Columbus, Ohio. Oil-filter	493,644	Mar. 21	1406	356, 357	62	1663
Nutriment Company. (See Eyre, Clarence P., assignor.)						
Nutt, George H., Worcester, Mass. Surface-gage	491,926	Feb. 14	1392	347	62	1042
Nutt, George H., assignor to Knowles Loom Works, Worcester, Mass. Machine for cutting worms for gearing	492,966	Mar. 7	308	79	62	1420
Nye, Harvey T., Cleveland, Ohio. Hot-water heater	492,695	Feb. 28	2605	644, 645	62	1316
O'Bolger, Thomas, Rochester, N. Y., assignor to W. S. King, Minneapolis, Minn. Lasting-machine	489,031	Jan. 3	77	21, 22	62	20
O'Brien, Frank, *et al.* (See Ketteringham, John P., assignor.)						
O'Brien, Geraldine, assignor to J. Holmes, Boston, Mass. Combination knitted undergarment	491,950	Feb. 14	1428	356	62	1049
O'Brien, Joseph, Boston, Mass. Power-hammer	493,874	Mar. 21	1772	452	62	1735
O'Brien, Thomas J., Buffalo, N. Y. Self-cleaning outside water-closet	490,719	Jan. 31	2793	717	62	622
O'Brien, William S., Lafayette, Ind. Vehicle-seat	490,919	Jan. 31	3117	799	62	685
O'Carr, James M. (See Monday, Newton, assignor.)						
O'Connor, Dennis, Biddeford, Me. Hasp-lock	489,613	Jan. 10	977	254	62	218
O'Connor, Phillip, assignor of one-half to F. R. Skidmore, Milwaukee, Wis. Band sawing-machine	490,212	Jan. 17	1951	511	62	429
O'Connor, Samuel. (See Bachr, George, assignor.)						
O'Day, Simon, *et al.* (See Curtis, Frederic A., assignor.)						
O'Farrell, John A. (See Lee and O'Farrell.)						
O'Hara, Walter W., Arlington, Mass., assignor to Carter & Company, Limited, Niagara Falls, N. Y. Manifold memorandum-book	490,675	Jan. 31	2730	702, 703	62	609
O'Leary, Dennis, Winchester, Cal. Lid holder	493,834	Mar. 21	1713	437	62	1723
O'Neil, Daniel, assignor of two-fifths to Howe & Bassett, Rochester, N. Y. Curb-box cover	492,227	Feb. 21	1863	465	62	1153
O'Neill, Michael S., Chicago, Ill. Horse-weight	491,159	Mar. 28	2270	576	62	1842
O'Neill, John M., assignor of one-half to R. L. Colvin, Janesville, Wis. Egg-beater	491,583	Feb. 14	853	216	62	934
Oakes, Lucian R., Bloomington, Ind. Lamp-filler	492,828	Mar. 7	87	21	62	1375
Odegard, John T. (See Uchermann, Fredrik S., assignor.)						
Odell, Albert P., and N. E. Smith, Bradford, Pa. Pencil-sharpener	491,129	Feb. 7	98	27	62	768
Oeffner, John G. (See Kaye, Timothy, assignor.)						
Oehlstrom, William, Cleveland, Ohio. Automatic coal feeder and stoker	489,542	Jan. 10	875	229	62	198
Oelke, Julius. (See Mueller, Frank. H., assignor.)						
Ogletree, James F., Stinson, Ga. Fence	490,102	Jan. 17	1864	486	62	413
Ogram, Thomas E., Washington, D. C. Cover for jars	490,720	Jan. 31	2794	717	62	622
Ohlschlager, Henry, Quincy, Ill. Back-rest	494,434	Mar. 28	2708	679	62	1924
Ohlschlager, Henry, Quincy, Ill. Table attachment for beds	494,435	Mar. 28	2709	679	62	1924
Ohlstrom, Gustav H. (See Guth, Frederick A., assignor.)						
Ohse, Wilhelm, Dessau, Germany, assignor to F. Heuer, New York, N. Y. Photographic-printing device	494,022	Mar. 21	2034	519	62	1785

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Oil Well Supply Company. (See Mack, Patrick H., assignor.)						
Olberg, Gustav. (See Procher, Gustav, assignor.)						
Oldfield, Joseph, assignor to R. J. Oldfield and F. R. James, Toronto, Canada. Duplicating check-book	490,038	Jan. 17	1605	432	62	371
Oldfield, Rosa J., *et al.* (See Oldfield, Joseph, assignor.)						
Oliver Iron and Steel Company. (See Crehan, Hubert, assignor.)						
Oliver, James M. (See Berry and Oliver.)						
Oliver, Samuel F., and J. M. Reed, Brooklyn, N. Y.; said Reed assignor to said Oliver. Door-check	490,920	Jan. 31	3118	800	62	685
Ollier, Marie. (See Souchet, Mathieu E. A., assignor.)						
Olliphant, Samuel R., and T. A. Clayton, New Orleans, La. Fumigating apparatus	490,981	Jan. 31	3217	821, 822	62	704
Olmsted, Franklin H., Yokohama, Japan. Device for administering medicine	490,493	Jan. 24	2417	624	62	533
Olmsted, Levi, assignor of two-thirds to J. Stark, Jr., and W. A. Selts, Jersey Shore, Pa. Fruit-gatherer	493,287	Mar. 14	816	209	62	1595
Olpherts, Wybrants G., London, England. Chair, sleeper, and tie for rails	494,074	Mar. 21	2119	541	62	1899
Olsen, Charles E., *et al.* (See Finecheon, Daniel C., assignor.)						
Olsen, Jens P., Hot Springs, Ark. Device for tuning musical instruments	490,494	Jan. 24	2418	624	62	533
Olson, Nils M., Chicago, Ill. Writing-slide for furniture	489,389	Jan. 3	622	168	62	134
Opdale, John, Duluth, Minn. Vehicle-wheel	492,735	Feb. 28	2664	660	62	1328
Ophoven, Aleis, Paderborn, assignor to C. H. S. Schulz, Berlin, Germany. Making colored pictures on textile fabrics	492,302	Feb. 21	2067	.....	62	1194
Oppenheimer, Simon, New York, N. Y. Board for winding veils	491,808	Feb. 14	1210	303	62	1006
Oppenheimer, Simon, New York, N. Y. Continuous veiling fabric	491,809	Feb. 14	1211	303	62	1006
Ord, Craven R., Ontario, Canada. Pressure-regulator	492,100	Feb. 21	1651	411	62	1109
Orford Copper Company. (See Thompson, Robert M., assignor.)						
Orford Copper Company. (See Thomson, John L., assignor.)						
Ormsby, Charles C., Waterford, N. Y. Amalgamator	492,425	Feb. 28	2104	541	62	1226
Ormsby, Charles C., Waterford, N. Y. Amalgamating ores	492,426	Feb. 28	2108	542	62	1227
Ormsby, Oliver H., *et al.* (See Reagan, Sampp, and Hibbs, assignors.)						
Orth, Frank, Astoria, Oreg. Surgical appliance	494,436	Mar. 28	2712	680	62	1924
Orth, Frank, Astoria, Oreg. Surgical appliance	494,437	Mar. 28	2714	680	62	1925
Orth, Ludwig Von, Berlin, Germany. Electric signaling apparatus	491,558	Feb. 14	1125	284	62	989
Orthwein, George H., assignor of one-half to J. F. Orthwein, Broken Sword, Ohio. Spade attachment	493,110	Mar. 7	528	132	62	1403
Orthwein, Jeremiah F. (See Orthwein, George H., assignor.)						
Ortner, John E., Newark, N. J. Pocketbook-fastening	492,521	Feb. 28	2343	570	62	1260
Orton, Allen T., Battle Creek, Mich. Radiator, stove, &c	489,874	Jan. 10	1340	351	62	295
Orton, Lyman O., Philadelphia, Pa. Mortising-bit	493,444	Mar. 14	1060	272	62	1582
Osborn, Francis C., assignor to himself, G. Maitland, and J. A. Marsh, Detroit, Mich. Cash-register	491,022	Jan. 31	3087	839, 840	62	718
Osborn, Francis L., Windsor, N. Y. Horse hay-rake	494,381	Mar. 28	2631	660	62	1910
Osborn, Henry E., *et al.* (See Iske, Anthony and A., assignors.)						
Osborne, Charles, assignor to Whiting Manufacturing Company, New York, N. Y. Perforating metal	490,773	Jan. 31	2876	739	62	637
Osborne, William H. (See Meitzler, George R., assignor.)						
Osbron, Andrew T., Willow Springs, Mo. Horse-collar fastener	493,513	Mar. 14	1168	299	62	1600
Osburn, Harry G., Chicago, Ill. Secondary-battery electrode	490,753	Jan. 31	2847	730	62	631
Osgood, Elijah R., Columbus, Ohio. Curtain-stretcher	490,230	Jan. 17	1976	518	62	434
Osgood, Frederick S., Toledo, Ohio. Butter-firkin	492,470	Feb. 28	2341	560	62	1243
Osteen, William A., assignor of one-half to J. F. Johnson, De Ann, Ark. Wrench	489,032	Jan. 3	79	22	62	20
Ostenberg, John A., Des Moines, Iowa, assignor to F. M. Gilbert, Walpole, N. H. Automatic weighing and packing machine	492,485	Feb. 28	2270	565, 566	62	1248
Oster, Herman W., Cleveland, Ohio. Adjustable die-stock	490,676	Jan. 31	2732	703, 704	62	609
Ostrander, Willie. (See Abell and Ostrander.)						
Otis Brothers & Company. (See Smith, Rudolph C., assignor.)						
Otis, John D., and J. M. Harper, Peoria, Ill.; said Otis assignor to said Harper. Hose-patch	492,047	Feb. 21	1576	392	62	1093
Otis, Willard D. (See Culver and Otis.)						
Ott, Ernst, Alexandria, Va. Keg-tapping apparatus	490,039	Jan. 17	1605	433	62	371
Ott, John F., and A. E. Kennelly, Orange, N. J., assignors to Edison General Electric Company, New York, N. Y. Means for controlling electric motors	489,687	Jan. 10	1073	279, 280	62	239
Ovenshire, Elijah A., Lansing, Mich., assignor to E. Bement & Sons, of Michigan. Cultivator	492,307	Feb. 21	1980	493	62	1178
Overhalser, Jeremiah, Bellefontaine, Ohio. Combined churn and butter worker	494,222	Mar. 28	2377	600	62	1863
Overman Wheel Company. (See Hadley, Charles E., assignor.)						
Overman Wheel Company. (See Shortsleeve, William H., assignor.)						
Ovitt, Simeon D. (See Lytle, Albert E., assignor.)						
Owen, Edward A., assignor to Union Store Service Company, East Saginaw, Mich. Cash and parcel carrier apparatus	491,130	Feb. 7	99	27, 28	62	768
Owen, Oscar L., assignor to Whitin Machine Works, Whitinsville, Mass. Revolving-flat carding-engine	493,408	Mar. 14	996	257	62	1570
Owen, Thomas G. (See Rosenblatt, Dickson, and Owen.)						
Owen, William P., and C. L. Eggert, Jr., Joplin, Mo. Combined bridge and tail-piece for musical instruments	490,213	Jan. 17	1953	512	62	429
Owens, Michael J., Toledo, Ohio. Apparatus for mechanically operating paste-glass molds	489,543	Jan. 10	876	229	62	199
Owens, Samuel T., Pittsburg, Pa. Boiler-furnace	492,943	Mar. 7	268	69	62	1412
P. & B. Nail Machine Company. (See Roth and Bispham, assignors.)						
Pack, Carl, Barmen, Germany. Skate	489,088	Jan. 3	158	43	62	38
Packard, Ralph G., Morristown, N. J. Steam-generator	489,495	Jan. 10	805	212	62	184
Packer, George W., Rock Falls, assignor to Keystone Manufacturing Company, Sterling, Ill. Combined corn-husker and fodder-shredder	494,511	Mar. 28	2832	709	62	1947
Packham, Frank R., assignor to Superior Drill Company, Springfield, Ohio. Grain-drill	490,360	Jan. 24	2309	575, 576	62	493
Paddock, George A., *et al.* (See Locke, Fred M., assignor.)						
Paganini, Robert. (See Schmid and Paganini.)						
Page, Albert A., and W. E. Sparks, assignors to Sargent & Company, New Haven, Conn. Bell	493,042	Mar. 7	424	107	62	1442
Page, Fred H., New York, N. Y. Can-receptacle	492,101	Feb. 21	1656	411	62	1109
Page, John J., Haverhill, Mass. Making boots or shoes	489,196	Jan. 3	330	93	62	75
Page, Justin E., assignor of one-half to J. Luff, Independence, Mo. Non-telescopic railway-car	493,597	Mar. 14	1324	338, 339	62	1632
Page, Marvin J., Buffalo, N. Y. Saw-filing device	493,445	Mar. 14	1060	273	62	1582

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Page, Willard C., *et al.* (See Locke, Fred M., assignor.)						
Pague, Samuel S., U. S. Army. Gun-rack for tents	493,645	Mar. 21	1408	357	62	1664
Paige, Charles F., assignor of two-thirds to J. C. Rice and J. P. Riley, Denver, Colo. Anti-frictional journal-bearing	490,867	Jan. 31	3017	775	62	666
Palmer, Alfred, and F. E. Blackmore, Reading, England. Apparatus for grinding the point ends of drills, &c	490,588	Jan. 24	2548	656	62	559
Palmer, John F., Riverside, Ill. Bicycle and other tubing	489,714	Jan. 10	1117	289	62	247
Palmer, John F., Riverside, assignor to Palmer Pneumatic Tire Company, Chicago, Ill. Fabric	493,220	Mar. 7	691	177	62	1494
Palmer Pneumatic Tire Company. (See Palmer, John F., assignor.)						
Palmer & Taylor. (See Taylor, Henry B., assignor.)						
Palmer, Thomas C., Melbourne, Victoria. Means for locking nuts on bolts	492,829	Mar. 7	88	21	62	1375
Paproth, Ernst, and R. Aster, Kyritz, Germany. Beer-saucer with registering attachment	493,646	Mar. 21	1409	357	62	1664
Paquin, Asarios. (See Tebo and Paquin.)						
Parcho, Giacomo, Sierra City, Cal. Cam	490,982	Jan. 31	3219	823	62	704
Park, Harvey S. (See Herron, James B., assignor.) (Reissue.)						
Park, Harvey S., Chicago, Ill. Umbrella-stand	490,305	Jan. 24	2120	551	62	475
Park, William R., Taunton, and B. T. Williston, Somerville, assignors to Hancock Inspirator Company, Boston, Mass. Inspirator	492,944	Mar. 7	271	69	62	1412
Parker, Abram H., Clinton, Ill. Hay-rack	491,442	Feb. 7	626	157	62	868
Parker, Ananias S., Moline, Ill. Corn-planter	493,781	Mar. 21	1629	415	62	1708
Parker & Co., W. F. (See Donaldson, Richard A., assignor.)						
Parker, Cornelius B. (See Dé Arden, Charles F., assignor.)						
Parker, Howard, G. F. Cushman, and H. Fairbanks, St. Johnsbury, Vt. Pulp-drying or paper-making machine	491,717	Feb. 14	1065	270	62	978
Parker, James C., Woodston, assignor of one-half to W. Rosegrant, Alton, Kans. Syringe-tube holder	489,544	Jan. 10	878	229	62	199
Parker, Russell, and B. F. Sutton, Brooklyn, N. Y. Closed conduit for electric railways	490,306	Jan. 24	2122	552	62	475
Parker & Whipple Company. (See Richards, Francis H., assignor.)						
Parkin, Joseph. (See Born and Parkin.)						
Parkin, Joseph, and H. Born, Cleveland, Ohio. Smoke-arrester	489,715	Jan. 10	1120	289	62	248
Parks, Charles W., *et al.* (See Derrick, William E., assignor.)						
Parks, Charles W., Lansingburg, N. Y. Brush	492,584	Feb. 28	2431	605	62	1283
Parks, Stephen, *et al.* (See Derrick, William E., assignor.)						
Parks, Thomas G. (See Delffs, Arnold, assignor.)						
Parmelee, Addella A., administratrix. (See Parmelee, Wolcott J.)						
Parmelee, Hoyt P., Des Moines, Iowa. Book	494,382	Mar. 28	2631	660	62	1910
Parmelee, Wolcott J., deceased, Scranton, Pa.; A. A. Parmelee, administratrix. Car-wheel	489,496	Jan. 10	810	212	62	185
Parmenter, George A., Cambridge, Mass. Automatic life-guard for street-cars	489,716	Jan. 10	1121	289	62	248
Parmenter, James S., Woodstock, Canada. Compound engine	494,075	Mar. 21	2120	541	62	1800
Parmley, Lemuel, Momence, Ill., assignor of one-third to W. B. Brown, Crown Point, Ind. Car-coupling	489,659	Jan. 10	1031	269	62	230
Parramore, Reldin W., Asbury Park, N. J. Corset-shield	490,495	Jan. 24	2419	624	62	533
Parrish, Rob R., Portland, Oreg. Fanning-cover for beds, &c	494,486	Mar. 28	2783	698	62	1937
Parrish, Washington B., Oral Oaks, Va. Windlass water-elevator	493,180	Mar. 7	634	{160 161}	62	1483
Parrot, Gabriel V. M. A., and A. C. Reignier, Paris, France. Dynamo-electric machine	491,294	Feb. 7	390	{99 100}	62	821
Parry, Edward G. (See Bye and Parry.)						
Parshall, Horace F., Lynn, assignor to Thomson-Houston Electric Company, Boston, Mass. Armature for dynamo-electric machines	493,337	Mar. 14	897	229	62	1549
Parsons, Charles H. (See Smith, Roswell T., assignor.)						
Parsons, Charles O., Milwaukee, Wis. Piano-stool	493,111	Mar. 7	529	132	62	1463
Parsons, George W., assignor of one-half to W. C. Bergman, Newton, Iowa. Band-cutter and feeder for thrashing-machines	493,367	Mar. 14	944	242	62	1559
Parsons, George W., assignor of one-half to W. C. Bergman, Newton, Iowa. Folding straw-carrier for thrashers	493,368	Mar. 14	946	243	62	1560
Partridge, James A., Tenbury, England. Contrivance for training growing hop-plants	492,516	Feb. 28	2336	577	62	1259
Partyka, Edmund, Buffalo, N. Y. Metal-bending machine	491,187	Feb. 7	307	53	62	787
Parvin, Albert B., assignor to K. V. Parvin, Philadelphia, Pa. Photographic objective	492,335	Feb. 21	2021	503	62	1185
Parvin, Katie V. (See Parvin, Albert B., assignor.)						
Pasquith, Gomer S., Chase's Wharf, Va. Machine for making barrels	494,260	Mar. 28	2434	613	62	1873
Pasteur-Chamberland Filter Company. (See Way, Frank K., assignor.)						
Patchett, Frank R., Reddick, Ill. Hog-trap	491,810	Feb. 14	1212	303	62	1006
Paterson, William A., Flint, Mich. Fifth-wheel	490,452	Jan. 24	2338	606	62	517
Patin, Octave, Paris, France. Alternating-current generator	491,811	Feb. 14	1213	{303 304}	62	1007
Patten, Clinton A. (See Leavitt, John E., assignor.)						
Patten, James S., Baltimore, Md. Vegetable-cutter	492,967	Mar. 7	309	79	62	1420
Patten, James S., assignor to himself and M. Schaeffer, Baltimore, Md. Door-check	493,112	Mar. 7	530	133	62	1464
Patten, James S., assignor to himself and M. Schaeffer, Baltimore, Md. Cable-grip	493,514	Mar. 14	1169	299	62	1601
Patterson, Benjamin, *et al.* (See Roberts, John W., assignor.)						
Patterson, Benjamin E., New York, N. Y. Gas-governor	489,324	Jan. 3	520	142	62	112
Patterson, Charles M., *et al.* (See Tatro, Charles P., assignor.)						
Patterson, James D., Lebanon, Mo. Combination-tool	489,390	Jan. 3	622	168	62	134
Patterson, James M., *et al.* (See Green, Ira L., assignor.)						
Patterson, Warren A. (See Bessonette, William T., assignor.)						
Patterson, William R. (See Scribner and Patterson.)						
Patton, Charles W., Clarksville, Ind. Churn-power	493,288	Mar. 14	817	209	62	1535
Paul, John A. (See Paul, William C. and J. A.)						
Paul, William C. and J. A., Jersey City, N. J. Thrust-block for shafts	491,584	Feb. 14	855	216	62	935
Pauly, Melvin A. Eau Claire, Wis. Fire apparatus	490,496	Jan. 24	2420	625	62	534
Payne, Darius W. (See Disbrow, Reuben B., assignor.)						
Payne, Howard B., assignor of one-half to D. B. Van Slyke, Chicago, Ill. Telethermometer	490,882	Jan. 31	3046	782	62	672
Payne, Howard B., assignor of one-half to D. B. Van Slyke, Chicago, Ill. Telethermometer	490,883	Jan. 31	3048	783	62	672
Payne, R. L., Sr., *et al.* (See Trexler, David L., assignor.)						
Payne, William J., assignor to Bohls Cigarette Machine Company, Richmond, Va. Device for dressing and feeding tobacco	493,181	Mar. 7	635	{161 162}	62	1483
Peabody, Charles E., *et al.* (See Derrick, William E., assignor.)						
Peabody, William W., *et al.* (See Schenck, John D. P., assignor.)						
Peach, Henry A. (See Moody, Emery C., assignor.)						
Peacock, Margaret. (See Newell, Sarah, assignor.)						
Peacock, Thomas S., Paxton, Ill. Bread or cake pan	493,835	Mar. 21	1714	437	62	1723
Pearce, Frederick, New York, N. Y. Electric signaling apparatus	494,345	Mar. 28	2568	647	62	1898

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Pearl, Coroden E., North Bangor, N. Y. Vehicle spring	490,677	Jan. 31	2733	704	62	669
Pearson, Frank P., assignor to Arnold Print Works, North Adams, Mass. Printing colors with aniline-black	491,951	Feb. 14	1430	.....	62	1050
Pearson, Henry, Brightwood, and C. J. Rose, Chicopee, Mass. Sleeping-car	489,089	Jan. 3	159	44	62	38
Pearson, Lewis F., Medicine Lodge, Kans. Hose-holder	491,443	Feb. 7	627	157	62	868
Pearson, Paul, and J. Robinson, Chicago, Ill. Railway-rail joint	494,223	Mar. 28	2377	600	62	1863
Pease, Charles F., assignor to Ames & Frost Company, Chicago, Ill. Velocipede	492,988	Mar. 7	343	86	62	1427
Pease, Charles F., assignor to Ames & Frost Company, Chicago, Ill. Pedal	492,989	Mar. 7	344	87	62	1427
Pease, Charles F., assignor to Ames & Frost Company, Chicago, Ill. Velocipede-pedal	492,990	Mar. 7	345	87	62	1427
Peck, Adelbert H., and C. E. Allshouse, Chicago, Ill. Attachment for dental engines	493,289	Mar. 14	819	210	62	1535
Peck, Arthur E., Minneapolis, Minn. Dental plugger	492,850	Mar. 7	90	22	62	1375
Peck, Horace B. (See Campany, Milton E., assignor.)						
Peck, Horace B., *et al.* (See Harris, Levi, assignor.)						
Peck, Melinda. (See Peck, Orrin B., assignor.)						
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,090	Jan. 3	163	45	62	39
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,197	Jan. 3	331	91	62	75
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,198	Jan. 3	334	92	62	75
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,199	Jan. 3	335	92, 93	62	76
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,200	Jan. 3	336	93	62	76
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,201	Jan. 3	337	93, 94	62	76
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,202	Jan. 3	339	94	62	77
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,203	Jan. 3	340	95	62	77
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,204	Jan. 3	342	95, 96	62	78
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	489,205	Jan. 3	343	96	62	78
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	490,040	Jan. 17	1667	433	62	372
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal amalgamator	490,041	Jan. 17	1668	{433 434}	62	372
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Centrifugal ore-separator	490,084	Jan. 17	1733	{451 452}	62	385
Peck, Orrin B., assignor to M. Peck, Chicago, Ill. Machine for centrifugally treating molten materials	491,131	Feb. 7	102	28, 29	62	768
Peck, Stow & Wilcox Company. (See Bayrer, William J., assignor.)						
Pedersen, Hans C., Brooklyn, N. Y. Thrust-bearing for propeller-shafts	494,024	Mar. 21	2029	520	62	1785
Pederson, Rasmus, Dramman, Minn. Corn-harvester	494,023	Mar. 21	2035	{519 520}	62	1785
Peet, Walter F., Philadelphia, Pa. Fastener for garments	490,921	Jan. 31	3119	800	62	685
Peirce, Almy L., Cincinnati, Ohio. Cup holding and lifting attachment for public drinking-places	494,346	Mar. 28	2570	647	62	1899
Peirce, Isaac N., Folcroft, Pa. Signal for railway-trains	489,418	Jan. 3	602	170	62	142
Pellet, Auguste, New York, N. Y. Wrench	491,222	Feb. 7	261	65	62	797
Pellow, John, assignor of one-half to G. B. Wilson, Grand Rapids, Mich. Combined water-heater and shower-bath	489,660	Jan. 10	1032	269	62	230
Pellinger, George, assignor to Goodrich Hard Rubber Company, Akron, Ohio. Penholder	492,102	Feb. 21	1057	412	62	1110
Pelzer, Friedrich, Dortmund, Germany. Centrifugal pump and ventilator	490,922	Jan. 31	3120	800	62	686
Penberthy Injector Company. (See Downes, William A., assignor.)						
Pendleton, John H., Brooklyn, and C. Tiers, New York, N. Y. Apparatus for shipping or unshipping cable-car grippers	492,103	Feb. 21	1058	{412 413}	62	1110
Penfield, William A., assignor to Bradley & Hubbard Manufacturing Company, Meriden, Conn. Wick-carrier for central-draft lamps	492,585	Feb. 28	2432	606	62	1283
Penney, William L., Perryville, Ky. Sash-fastener	492,427	Feb. 28	2109	542	62	1227
Pennycuick, James G., Boston, assignor to C. G. Garland, Lowell, Mass. Skylight	492,361	Feb. 21	2067	516	62	1194
Pepperell Machine Company. (See Littlefield, Frank A., assignor.)						
Perew, Frank C., Buffalo, N. Y. Feed-water heater and purifier	492,928	Mar. 7	249	63	62	1408
Perkins, Albert, Chicopee, Mass., assignor to A. G. Spalding & Brothers, New York, N. Y., and Lamb Knitting Machine Manufacturing Company, Chicopee Falls, Mass. Cycle-hub	494,076	Mar. 21	2122	541	62	1800
Perkins, Charles P., Brockton, Mass. Inseam-trimming machine	492,991	Mar. 7	346	87, 88	62	1427
Perkins Electric Switch and Manufacturing Company. (See Gibbs, Jacob S., assignor.)						
Perkins, Frank C., Dunkirk, N. Y. Inclosed conductor for electric railways	491,132	Feb. 7	104	29	62	769
Perkins, George F., Kenton, Ohio. Toy parachute	494,261	Mar. 28	2436	614	62	1873
Perkins, George L., Brooklyn, N. Y. Loose-pulley lubricator	492,831	Mar. 7	91	22	62	1375
Perkins, John D., Kenton, Ohio. Latch and lock	491,742	Feb. 14	1103	279	62	985
Perkins, Joshua, Danielsonville, Conn. Checkrein attachment	493,515	Mar. 14	1171	299	62	1601
Perrault, Samuel J., *et al.* (See Ketteringham, John P., assignor.)						
Perrigo, Oscar E., assignor to New Haven Manufacturing Company, New Haven, Conn. Engine-lathe	494,383	Mar. 28	2632	661	62	1910
Perry, E. E., *et al.* (See Scheuerucker, Joseph, assignor.)						
Perry, Enoch W., Jr., New York, N. Y., assignor of one-half to E. Kipper, Adams, Mass. Photographic camera	492,696	Feb. 28	2606	645	62	1317
Perry, Giles O. (See McGregor and Perry.)						
Perry, John. (See Ayrton and Perry.)						
Perry, John G., Wakefield, R. I. Nut-lock and bolt-tightener	491,718	Feb. 14	1069	270	62	979
Perry, Thomas O., Chicago, Ill. Windmill	492,104	Feb. 21	1059	413	62	1110
Peters, Elijah, *et al.* (See Whiteley, Albert M., assignor.)						
Peters, John. (See Gandee and Peters.)						
Peters, Robert D., assignor of one-half to C. L. Wait, Winamac, Ind. Railway block signal	494,077	Mar. 21	2123	542	62	1801
Peterson, Alexander, Berlin, Germany. Perforated sheet or plate for musical instruments	489,568	Jan. 10	912	228	62	206
Peterson, Anderew, Cleveland, Ohio. Apparatus for indicating the position of tows	493,113	Mar. 7	531	133	62	1464
Peterson, Godfrey P., and S. U. Stewart, Chicago, Ill. Map-case	490,884	Jan. 31	3050	783	62	672
Peterson, Ole, Hinsdale, Ill. Paper trimming and pasting machine	491,586	Feb. 14	858	{217 218}	62	935
Peterson, William, Sheboygan, Wis. Calcimining machine	489,928	Jan. 10	1287	337	62	282
Petraeus, Carl V., assignor to O. H. Picher, Joplin, Mo. Making sublimated lead pigment	492,892	Mar. 7	92	22	62	1376
Petrini, Edvard, Upsala, Sweden. Velocipede-saddle	493,338	Mar. 14	897	230	62	1549
Petterson, Alfred, Baltimore, Md. Roller-bearing	491,585	Feb. 14	855	217	62	935
Pettersson, August, Eskilstuna, Sweden, assignor to H. Johnson, Duluth, Minn. Musical instrument	494,025	Mar. 21	2040	520	62	1785
Pettijohn California Breakfast Food Company. (See Shamp, Henry B., assignor.)						
Pettit, David, Beverly, N. J., and J. R. Congdon, assignors to Common Sense Bicycle Manufacturing Company, Philadelphia, Pa. Ball-bearing for vehicles	494,384	Mar. 28	2634	661	62	1910
Pevey, Charles K., Worcester, Mass. Corset-stiffener	494,078	Mar. 21	2125	{542 543}	62	1801
Pfatischer, Mathias, assignor to Accumulator Company, Philadelphia, Pa. Apparatus for transferring secondary batteries	493,221	Mar. 7	693	{177 178}	62	1494

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Pfautz, Daniel M., Philadelphia, Pa., assignor to Compound Spring Power Company, Camden, N. J. Spring-propelled vehicle	490,983	Jan. 31	3220	823	62	704
Pfeifer, Edmund I. and E. A., Austin, Tex. Chain-steamer	491,492	Feb. 7	701	178	62	883
Pfeifer, Eduard A. (See Pfeifer, Edmund I. and E. A.)						
Pfeifer, John, assignor to National Cash Register Company, Dayton, Ohio. Cash-register	491,587	Feb. 14	860	218, 219	62	936
Pfeifer, John, assignor to National Cash Register Company, Dayton, Ohio. Manual recorder	491,784	Feb. 14	1171	293, 294	62	997
Pfenning, Carl A., Barmen, Germany. Glove-fastening	493,559	Mar. 14	1261	323	62	1619
Pflanz, John R., Louisville, Ky. Railway-crossing	492,228	Feb. 21	1865	466	62	1153
Pharis, Charles S., *et al.* (See Van Wormer, Chauncey E., assignor.)						
Phegley, James, Harrisburg, Oreg. Churn	492,945	Mar. 7	274	70	62	1413
Phelps, John A., *et al.* (See Smith, George, assignor.)						
Philbrick, George E. (See McKinley, Franklin W., assignor.)						
Philbrick, Stephen W., Woburn, Mass. Presser-foot for sewing-machines	494,224	Mar. 28	2378	600	62	1863
Philipps, John. (See Stone and Philipps.)						
Philipsborn, Alexander, assignor to Siemens & Halske, Berlin, Germany. Electric locomotive	493,942	Mar. 21	1890	481, 482	62	1757
Philipsborn, Alexander, assignor to Siemens & Halske, Berlin, Germany. Electric locomotive	493,943	Mar. 21	1893	482, 483	62	1758
Philipsborn, Alexander, and M. Schiemann, assignors to Siemens & Halske, Berlin, Germany. Electric locomotive	490,307	Jan. 24	2120	552	62	475
Phillips, Andrew G., San Francisco, Cal. Saw-filer	494,487	Mar. 28	2755	699	62	1937
Phillips, Austin, and W. D. McLauchlin, Corunna, Mich. Low-water alarm	489,497	Jan. 10	811	213	62	185
Phillips, Charles W., assignor to C. M. Cook and G. D. Rand, Keokuk, Iowa. Bridle-bit	493,339	Mar. 14	892	230	62	1549
Phillips, Elizabeth, London, England. Bed-pan or commode	494,079	Mar. 21	2127	543	62	1801
Phillips, William B., Crocker, Mo. Running-gear for vehicles	489,688	Jan. 10	1077	280	62	239
Phillips, Elwood C., assignor of two-thirds to A. J. Stone and W. W. Carland, Chicago, Ill. Folding umbrella	492,048	Feb. 21	1577	392, 393	62	1093
Phillips, William P., Somerville, Mass. Relief-valve	492,168	Feb. 21	1765	441	62	1133
Phoenix Fire Proof Paint Company. (See Graf, Robert R., assignor.)						
Photo-Litho Transfer Company. (See Schmalz, François, assignor.)						
Picher, Oliver H. (See Petraeus, Carl V., assignor.)						
Pickering, Benjamin A., assignor of two-thirds to J. Shambow and P. J. Buxton, Woonsocket, R. I. Rubber boot	494,262	Mar. 28	2437	614	62	1873
Pickering, John, New York, N. Y. Disinfecting device	492,631	Feb. 28	2511	622	62	1298
Pickernell, Frank A. (See Hall and Pickernell.)						
Pickernell, Frank A., Newark, N. J., assignor to American Telephone and Telegraph Company, of New York. System of combined telephony and telegraphy	492,471	Feb. 28	2242	561	62	1243
Pickernell, Frank A., Newark, N. J., and P. W. Dunbar, New York, N. Y., assignors to American Telephone and Telegraph Company, of New York. Telephone and signaling circuit	494,385	Mar. 28	2635	661, 662	62	1911
Pickles, Charles K., assignor to D. P. Slattery, St. Louis, Mo. Brake-beam	492,747	Feb. 28	2683	666	62	1332
Pickles, Charles K., assiguor to D. P. Slattery, St. Louis, Mo. Brake-beam	492,748	Feb. 28	2684	666	62	1332
Pickles, Charles K., assignor of two-thirds to J. O'Brien and S. J. Weaver, St. Louis, Mo. Clutch	491,444	Feb. 7	628	157	62	868
Pickles, Frederick H., Fairfield, and R. H. Pickles, Marple, England. Purifying pyroligenites	490,497	Jan. 24	2424	.....	62	534
Pickles, Robert H. (See Pickles, Frederick H. and R. H.)						
Pictet, Raoul P., Berlin, Germany. Purifying chloroform	489,592	Jan. 10	947	247	62	212
Pierce, James M., *et al.* (See McCain, Benjamin H., assignor.)						
Pierce, Thomas M., Concord, Mass. Fireworks-torch	494,438	Mar. 28	2715	680	62	1925
Pierce, Thomas M., Concord, Mass. Fireworks-torch	494,439	Mar. 28	2716	680	62	1925
Pierce, Thomas M., Concord, Mass. Fireworks-torch	494,440	Mar. 28	2716	681	62	1925
Pierce, Thomas M., Concord, Mass. Fireworks-torch	494,488	Mar. 28	2787	699	62	1938
Pierce, Ward E., Pulaski, N. Y. Keg or tool rack	493,896	Mar. 21	1808	460	62	1741
Pierce, William C., Providence, R. I. Winding-machine	492,613	Feb. 28	2484	616	62	1292
Pierpoint, James, Pittsburg, Pa. Water-tube boiler	490,923	Jan. 31	3121	801	62	6-6
Pierpoint, James, Pittsburg, Pa. Water-tube boiler	492,556	Feb. 28	2292	594	62	1274
Pierpoint, James, Pittsburg, Pa. Water-tube boiler	492,557	Feb. 28	2292	594	62	1274
Pietschmann, Ferdinand, Berlin, Germany. Mechanical musical instrument	491,923	Feb. 7	262	65, 66	62	798
Pigott, Michael A., Hamilton, Canada. Stone-cutting machine	490,721	Jan. 31	2795	717	62	622
Pihl, Karl J., and O. W. Hult, Brooklyn, N. Y. Car-starter	494,026	Mar. 21	2041	520	62	1786
Pilcher, John V., Louisville, Ky. Cuff-holder	492,968	Mar. 7	311	79	62	1421
Pine, Leighton, South Bend, Ind. Drying-kiln	489,717	Jan. 10	1123	290	62	248
Pine, Norton H., Eureka, Cal. Rope-leader for winding-drums	490,984	Jan. 31	3222	824	62	704
Pinkham, Edward H., Haverhill, Mass. Sanding device for cars	494,080	Mar. 21	2128	544	62	1801
Piper, Edward E., and G. H. Davis, Portland, Me. Curtain-holding device	491,588	Feb. 14	868	220	62	937
Piper, Edward S., Toronto, Canada. Railway signal-flag	492,229	Feb. 21	1866	466	62	1153
Piper, John S., Winters, Tex. Wagon attachment	492,049	Feb. 21	1579	393	62	1094
Piper, Robert, Toledo, Ohio. Folding bed	493,043	Mar. 7	426	107	62	1443
Pitceathly, David, Fenelon Falls, Canada. Reversing-gear	490,308	Jan. 24	2125	552, 553	62	476
Pitkin, Albert J., Schenectady, N. Y. Throttle-valve	493,836	Mar. 21	1715	437	62	1724
Pitt, Walter H., and G. Sittmann, Brooklyn, N. Y. Card-exhibiting machine	489,262	Jan. 3	436	121	62	96
Pittman, William S., Pierceville, Kans. Spark-arrester	489,263	Jan. 3	440	121	62	97
Plançon, Emile, Brooklyn, N. Y. Milk or other can	489,829	Jan. 10	1288	337	62	283
Plano Manufacturing Company. (See Coler, Peter P., assignor.)						
Planthaber, Newton J., Sterling, assignor of one-half to A. J. McNeil, Rock Falls, Ill. Eaves-trough protector	490,414	Jan. 24	2284	593	62	507
Platt, James F., Sterling, Ill. Disk harrow	493,182	Mar. 7	637	162	62	1483
Player, John, Dunkirk, N. Y. Reversing-lever	489,264	Jan. 3	441	122	62	97
Plecker, William J., Galesburg, Ill. Kettle	493,782	Mar. 21	1630	415	62	1708
Plympton, Arthur H. (See Plympton, Warren H., assignor.)						
Plympton, Warren H., assignor of one-half to A. H. Plympton, Providence, R. I. Weather-strip	491,952	Feb. 14	1431	356	62	1050
Poertner, Emil C. (See Poertner, Peter, assignor.)						
Poertner, Peter, assignor of one-half to E. C. Poertner, Milwaukee, Wis. Extension step-ladder	492,992	Mar. 7	348	88	62	1428
Poff, Joseph A., Lawrence, Kans. Vending-machine	489,830	Jan. 10	1299	337, 738	62	283
Poirier, Emile. (See La Rochelle, Ephrem, assignor.)						
Polte, Eugen, Sudenburg, Magdeburg, Germany. Apparatus for spinning metal	491,188	Feb. 7	209	53, 54	62	787

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Pomeroy, George M. D., and G. H. Webber, Lebanon, Ind. Potato-digger	490,924	Jan. 31	3122	801	62	686
Pool, David P., Georgetown, Tex. Bed-brace	492,308	Feb. 21	1981	493	62	1178
Poole, Edward, Fordyce, Ark. Nut-lock	492,050	Feb. 21	1579	393	62	1094
Poole, Thomas G., *et al.* (See Harper, Henry, assignor.)						
Pooley, Charles A., Buffalo, N. Y. Car-coupling	491,589	Feb. 14	869	220	62	937
Poor, Charles E., C. E. Messenger, and A. Dallas, Fairbury, Nebr. Boiler-flue cleaner	493,290	Mar. 14	820	210	62	1536
Poore, Henry F., assignor to E. C. Atkins, Indianapolis, Ind. Grooving-saw	489,206	Jan. 3	314	97	62	78
Poore, Townsend, Scranton, Pa. Lubricator	491,224	Feb. 7	265	66	62	798
Pope, John L., Cleveland, Ohio. Automatic lock-joint for railway-rails	492,558	Feb. 28	2293	594, 595	62	1275
Pope Manufacturing Company. (See Copeland, James S., assignor.)						
Pope, William R., assignor to National Electric Machine Company, New York, N. Y. Coin-controlled machine for administering electricity	492,486	Feb. 28	2277	566, 567	62	1249
Poppert, George, Milwaukee, Wis. Window-blind	492,991	Mar. 7	350	88	62	1428
Popplewell, William C., Eureka Springs, Ark. Movable clothes-pin	493,516	Mar. 14	1172	299	62	1601
Porch, Robert F., Spiceland, Ind. Step-ladder	490,042	Jan. 17	1672	435	62	373
Port Huron Engine and Thresher Company. (See Chipman, De Yoe C., assignor.)						
Porter, Benjamin F., Manchester, N. H. Umbrella-runner	492,586	Feb. 28	2434	606	62	1283
Porter, Cyrus H. (See Johnson and Porter.)						
Porter, George W., Parkersburg, W. Va. Pipe-wrench	492,834	Mar. 7	94	23	62	1376
Porter, Harry T., *et al.* (See Porter and Haas, assignors.)						
Porter, Harry T., and J. Haas, assignors to I. and H. T. Porter, Philadelphia, Pa. Attaching bail-ears to sheet-metal cans or pails	493,114	Mar. 7	532	133	62	1464
Porter, Isaac, *et al.* (See Porter and Haas, assignors.)						
Porter, James, Greenfield, Mass. Pipe-cutter	492,833	Mar. 7	93	23	62	1376
Porter, John C., Jr. (See Smith, John V., assignor.)						
Porter, Joseph Y., Cleveland, Ohio, assignor to J. W. Morrison, Detroit, Mich. Tramway-switch	492,472	Feb. 28	2245	561	62	1243
Porter, Louis H., Rockdale, Tex. Machine for forming wire articles	492,051	Feb. 21	1580	393	62	1094
Porter, Major D., Brooklyn, N. Y., assignor to National Ticker Company, of West Virginia. Printing-telegraph receiver	491,133	Feb. 7	105	29, 30	62	769
Porter, Rufus, Lewistown, Ill. Bee-escape	489,554	Jan. 10	1186	311	62	261
Possons, Minard A., and H. L. Carroll, Cleveland, Ohio. Reservoir	491,025	Jan. 31	3220	840	62	719
Post, George W., Fond du Lac, Wis. Thill-support	491,854	Feb. 14	1279	317	62	1020
Postal Improvement Company. (See Aldrich, Henry E., assignor.)						
Postal Improvement Company. (See Cushing and Mitchell, assignors.)						
Posz, Michael, Shelbyville, Ind. Sash-fastener	493,291	Mar. 14	821	210	62	1536
Potter, Abraham C., *et al.* (See Wallace, Victor, assignor.)						
Potter, Charles, Jr., *et al.* (See Brooks, John, assignor.)						
Potter, Helen, *et al.* (See Wallace, Victor, assignor.)						
Potter, Maynes, Orange, N. J. Thill-tug	493,837	Mar. 21	1716	438	62	1724
Potter, Maynes, Orange, N. J. Hame-fastener	493,838	Mar. 21	1717	438	62	1724
Potter, Richard, Ardsley, near Barnsley, England. Air-heating device for furnaces	492,428	Feb. 28	2170	542, 543	62	1228
Potter, William B., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric cut-out	490,231	Jan. 17	1977	518	62	434
Poulk, William H., Cairo, Ga. Pump	489,991	Jan. 3	164	45, 46	62	39
Poulson, Britton, Fort Wayne, Ind. Combined chair and table	493,840	Mar. 21	1720	439	62	1725
Poulson, Niels, Fort Hamilton, N. Y. Fireproof floor or roof	492,364	Feb. 21	2068	516, 517	62	1195
Powell, James, Avondale, Ohio. Bath-tub fitting	493,839	Mar. 21	1718	438, 439	62	1724
Powell, Joseph C., Bayou La Chute, La. Car-coupling	494,160	Mar. 28	2271	576, 577	62	1842
Powell, Noah M., assignor to United States Burglar Alarm Company, Galesburg, Ill. Galvanic battery	489,391	Jan. 3	623	168	62	134
Powell, Winslow W., assignor of one-half to A. Brandt, Freeport, Ill. Combination-lock	490,231	Jan. 17	1977	518	62	434
Powers, Jay W., Chicago, Ill. Steam or pneumatic engine	489,091	Jan. 3	164	45, 46	62	39
Powers, Marion, Lexington, Ind. Garden-tool	493,840	Mar. 21	1720	439	62	1725
Pract, Henry L., Jr. (See Heatly, Isaiah S., assignor.)						
Pratt, Charles H., Lancaster, Pa. Burglar-alarm	493,647	Mar. 21	1410	357	62	1664
Pratt, Henry C., Canandaigua, N. Y. Wire-stretching device	491,743	Feb. 14	1104	279	62	985
Pratt, William, Montreal, Canada. Can	492,105	Feb. 21	1663	413	62	1111
Pray, Joseph F., Boston, Mass. Sulky	491,591	Feb. 14	874	220	62	938
Prendergast, Will. P., De Soto, Mo. Locomotive-coupling	491,719	Feb. 14	1070	270	62	979
Prentice, John, New York, N. Y. Cigar-mold	493,292	Mar. 14	822	210	62	1536
Prescott, Mary E., San Francisco, Cal. Mop-wringer	493,340	Mar. 14	899	230	62	1540
Prest, John E., assignor to Whitin Machine Works, Whitinsville, Mass. Guide	492,749	Feb. 28	2685	666	62	1332
Prestley, Gorge H. (See Fisher and Prestley.)						
Preston, Leonard Z., assignor of two-thirds to O. H. Wirsig, Champion, and A. Cunningham, Imperial, Nebr. Endless carrier-belt	491,953	Feb. 14	1431	357	62	1050
Preu, Bernhard. (See Reusch and Preu.)						
Prevear, Charles M., San Francisco, Cal. Elevator-hatchway attachment	489,755	Jan. 10	1188	311	62	261
Prevost, George A., trustee. (See Hodges, Pliny F., assignor.)						
Price, Bennett, Brooklyn, N. Y. Supplementary truck for street-cars	492,230	Feb. 21	1867	466	62	1153
Price, Henry S. (See Kent and Price.)	491,592	Feb. 14	875	221	62	932
Price, Jesse M. (See Maxim and Price.)						
Price, Thomas J., Monroe, N. C. Churn-power	492,429	Feb. 28	2171	543	62	1228
Price, William A., Iowa Falls, Iowa. Apparatus for electrically treating the eyes	490,678	Jan. 31	2734	704	62	609
Price, William A., Iowa Falls, Iowa. Apparatus for electrically treating the ear	490,679	Jan. 31	2735	704	62	609
Price, William G., Waterbury, Conn. Pencil sharpener	492,336	Feb. 21	2024	503	62	1186
Price, William J. (See Rathbone, William, assignor.)						
Prier, Anton, Kansas City, Mo. Illuminating vapor-burner	493,293	Mar. 14	824	211	62	1536
Prindle, George S., *et al.* (See Hopkins, Jason R., assignor.)						
Pritchard, Albert R., assignor of one-half to C. D. Milne, Rochester, N. Y. Handle for vessels	494,386	Mar. 28	2644	662	62	1912
Pritchard, Albert R., assignor of one-half to C. D. Milne, Rochester, N. Y. Handle for vessels	494,387	Mar. 28	2644	662	62	1912
Pritchard, Hugh C., assignor to National Cash Register Company, Dayton, Ohio. Cash register and indicator	491,593	Feb. 14	880	222	62	939
Probst, Adam, assignor to Doerr & Reinhart, Worms, Germany. Machine for working leather	489,641	Jan. 10	1010	263	62	226
Proctor, David G., Washington, D. C. Air cooling and purifying apparatus	489,033	Jan. 3	80	22, 23	62	21

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Proctor, H. P. (See Smith, Seth T., assignor.)						
Procunier, Henry E., Oak Park, assignor to American Spring Company, Chicago, Ill. Apparatus for edging metal ribbons or strips	493,294	Mar. 14	826	211	62	1536
Proeber, Gustav, Brunswick, assignor, by mesne assignments, to G. Olberg, Grovenbroich, Germany. Centrifugal machine	489,166	Jan. 3	276	77	62	64
Protzman, John R., Streator, Ill. Support for electric lamps	493,446	Mar. 14	1061	253	62	1582
Pronsnitzer, Julius, *et al.* (See Fay, Alpheus, assignor.)						
Pronty, Enoch, Chicago, Ill. Power-transmitting device	491,759	Feb. 14	1129	284 / 285	62	990
Provine, James E., Ridgewood, N. J. Brush	489,034	Jan. 3	84	24	62	92
Pruden, Clarence D., assignor of one-half to P. A. Deslauriers, St. Paul, Minn. Sheet-metal-molding machine	489,498	Jan. 10	812	213 / 214	62	186
Prufer, Carl. (See Schurig and Prufer.)						
Prutzman, Morris G., Lehigh Gap, Pa. Switch-stand	491,812	Feb. 14	1214	304	62	1307
Pruyn Company. (See Pruyn, Henry S., assignor.)						
Pruyn, Henry S., Hoosick Falls, N. Y., assignor to Pruyn Company, Chicago, Ill. Elevated-railway car	494,081	Mar. 21	2129	544 / 545	62	1802
Pruyn, John R., assignor of one-half to C. J. Miller, Chicago, Ill. Telephone-tablet	492,587	Feb. 28	2434	606	62	1283
Psota, Anton, West Point, Nebr., assignor of one-half to K. E. Valentine. Wagon-loading device	493,598	Mar. 14	1334	340	62	1634
Puckett, S. H. (See Gooing, Martin B., assignor.)						
Puetz, Tillman, Jr., St. Louis, Mo. Mash-mixing machine	490,498	Jan. 24	2425	626	62	534
Puffer, Alvin D., Jr., Medford, Mass., assignor to American Soda Fountain Company, Jersey City, N. J. Faucet for soda-water draft apparatus	489,325	Jan. 3	522	142	62	113
Puffer, Charles C. (See Hummel, August, assignor.)						
Pugh, Andrew F., Palouse, Wash. Fabric-turfing implement	490,792	Jan. 31	2911	748	62	643
Pugh, Cortez V., assignor of two-thirds to J. Farrell and J. A. Dixon, Bowling Green, Mo. Hasp-lock	489,326	Jan. 3	524	142	62	113
Pugh, David, Cumberland, Md. Glass-batch mixer	491,445	Feb. 7	629	158	62	868
Pugh, Oliver C., Chicago, Ill. Cane	490,722	Jan. 31	2797	717	62	622
Pullman, William R., and H. Smith, Godalming, England. Machine for treating hides	491,446	Feb. 7	631	158 / 159	62	869
Pumphrey, Nimrod B., Moorefield, Ohio. Plow	492,904	Feb. 14	1358	348	62	1035
Purdon, Frederick, H. E. Waltera, and W. H. Woodcock, London, England. Roller-bearing	490,859	Jan. 31	3003	770	62	663
Purdy, Charles H., Michigan City, Ind., assignor to Frank H. Clement Company, Rochester, N. Y. Double-boring machine	494,082	Mar. 21	2132	545	62	1802
Purdy, John H., Chicago, Ill. Lamp	493,341	Mar. 14	900	231	62	1549
Purington, Warren S., *et al.* (See Weldaw, Frank T., assignor.)						
Purling, William, assignor of one-half to J. Bird, Roanoke, Va. Folding fence	492,614	Feb. 28	2486	617	62	1292
Purvee, George. (See Johnston, John H., assignor.)						
Pusey, Lea, Wilmington, Del. Ice-making apparatus	491,225	Feb. 7	267	67	62	799
Pusey, Thomas M., West Chester, Pa. Valve-gear for steam-engines	490,986	Jan. 31	3225	824	62	705
Putnam, B. F., *et al.* (See Karnes and Rice, assignors.)						
Putnam, Edmond. (See Gardner, George W., assignor.)						
Putnam, William F., Wellington, Ohio. Flour compound	492,969	Mar. 7	312	.....	62	1421
Pyle, Charles and J., Lebanon, assignors of one-third to W. B. Bradsby, Greenville, Ill., Windmill	491,663	Feb. 14	982	247 / 248	62	960
Pyle, Joseph. (See Pyle, Charles and J.)						
Quickel, Edwin G. (See Moul and Quickel.)						
Quiggle, James B., McElhattan, Pa. Coffee-mill	490,163	Jan. 17	1865	486	62	413
Quillenah, John M., and W. F. Bacon, Sanborn, Iowa. Bridle-check	489,545	Jan. 10	879	230	62	199
Quimby, John R., assignor to H. Mann, Jr., Wilmington, Vt. Attachment for screw-drivers	491,687	Feb. 14	1018	258	62	969
Quinby, Albert O., Fresno, Cal. Gate-hinge	490,834	Jan. 31	2970	762	62	656
Quinlan, John E., Boston, Mass. Banjo	493,875	Mar. 21	1774	452	62	1735
Quinn, Gordon H., *et al.* (See Fanning, James W., assignor.)						
Quinn, John N., Cincinnati, Ohio. Grinding-machine for scarfing or beveling saws	489,984	Jan. 17	1568	410	62	352
Quinn, Roger, Philadelphia, Pa. Tool for cutting tapering openings	489,265	Jan. 3	442	122	62	97
Quinn, William, Tyler, Tex. Screw-jack	493,183	Mar. 7	639	163	62	1484
Quinn, William, and J. S. Berry, Tyler, Tex. Railway-splice	494,083	Mar. 21	2134	546	62	1803
Quinn, William H., *et al.* (See Fanning, James W., assignor.)						
Quortrup, August, Richmond Hill, N. Y. Bill-file	491,905	Feb. 14	1359	338	62	1035
R. E. Dietz Company *et al.* (See Erb, Charles F., assignor.)						
R. L. Little Manufacturing Company. (See Little, William M., assignor.)						
Rabbidge, Parnell, Sydney, New South Wales. Telephonic switch appliance	489,266	Jan. 3	443	122	62	97
Rabich, William, assignor, by mesne assignments, of one-half to Herrmann-Rabich Fan and Motor Manufacturing Company, St. Louis, Mo. Adjustable belt-tightener for fans	491,024	Jan. 31	3293	840 / 841	62	719
Rach, Carl, Chicago, Ill. Making beer	492,052	Feb. 21	1582	.....	62	1095
Rach, Carl, Chicago, Ill. Apparatus for brewing	493,342	Mar. 14	901	231	62	1550
Rader, Edward, and L. G. Heist, Philadelphia, Pa. Meat-scorer	494,027	Mar. 21	2043	521	62	1786
Rader, William, and E. Hunter, Allentown, Pa. Car-axle box	492,231	Feb. 21	1869	467	62	1154
Radovanovic, Andreas, Pilsen, Austria-Hungary. Reversing-gear	490,754	Jan. 31	2848	731	62	631
Rae, Frank B., assignor to Detroit Electrical Works, Detroit, Mich. Electric locomotive	491,857	Feb. 14	1284	318 / 319	62	1021
Rae, Frank B., assignor to Detroit Electrical Works, Detroit, Mich. Conduit-railway	492,106	Feb. 21	1664	413 / 414	62	1111
Rae, Robert A. V. (See Kay, Joshua A., assignor.)						
Rae, Thomas, New York, N. Y. Door-check	490,925	Jan. 31	3124	801	62	686
Raeuchle, William, Boston, Mass. Guide for sewing-machines	490,885	Jan. 31	3051	783	62	673
Raffel, Isaac G., Baltimore, Md. Paper-box-covering machine	490,124	Jan. 17	1801	469 / 470	62	400
Ragan, James B., Sidney, Nebr. Station-indicator	489,499	Jan. 10	816	211	62	186
Rahr, Reinhardt, Manitowoc, Wis. Making caramel malt	491,813	Feb. 14	1216	.....	62	1007
Ralph, William H., Allegheny, Pa. Garment-supporter	493,648	Mar. 21	1411	358	62	1664
Ramage, William A., Auburn, N. Y. Oyster-steamer	492,970	Mar. 7	313	80	62	1421
Ramer, Elwood T., Geneseo, Ill. Work-box	489,593	Jan. 10	949	247	62	212
Rammel, Augusta, Alexandria, Va. Baking-pan	489,985	Jan. 17	1569	411	62	352
Ramsburg, George W., Van Clevesville, W. Va. Flood-fence	492,242	Feb. 21	1871	467	62	1154
Ramsey, George M., Clokey, Pa. Steel rail for use on common roads	492,365	Feb. 21	2070	517	62	1195
Ramsey, Joseph, Jr., and E. W. Harden, assignors to F. C. Weir, Cincinnati, Ohio. Electric signal, switch moving, and interlocking mechanism	494,489	Mar. 28	2788	699 / 700	62	1938
Rand, Charles N., Geneva, Ohio. Pedal-piano	489,035	Jan. 3	85	24	62	22

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Rand, George D., *et al.* (See Phillips, Charles W., assignor.)						
Rand, James H., North Tonawanda, N. Y. Combined index and balance-indicator for account-books	493,841	Mar. 21	1723	439 / 440	62	1725
Randolph & Clowes. (See Clatworthy, Thomas B., assignor.)						
Randolph & Clowes. (See Cotter, Charles A., assignor.)						
Randolph, James J., Cadiz, Ky. Pole or shaft support for vehicles	489,614	Jan. 10	978	254	62	218
Randolph, William, Ashton, Nebr. Hand-car	492,337	Feb. 21	2025	503 / 504	62	1186
Rankin, William, Lincoln, Ill. Combination-tool	494,161	Mar. 28	2274	557	62	1843
Ransome, Ernest L., Oakland, Cal. Electric conduit	490,630	Jan. 24	2649	682	62	579
Ransome, Ernest L., Oakland, Cal. Concrete-mixing machine	490,631	Jan. 24	2649	682	62	579
Ransome, Ernest L., Oakland, Cal. Concrete-distributing apparatus	490,632	Jan. 24	2650	682	62	579
Ranson, Thomas W., Hornellsville, N. Y. Car-coupling	489,661	Jan. 10	1033	270	62	230
Rapieff, John, New York, N. Y. Auxiliary valve for pneumatic guns	490,125	Jan. 17	1803	470 / 471	62	400
Rapp, Jerome W., Pineville, Pa. Horseshoe-sharpener	490,499	Jan. 24	2425	626	62	535
Rapp, Joseph, Akron, Ohio. Fuse for projectiles	493,735	Mar. 21	1558	397	62	1694
Rasco, W. P. (See Duncan, John R., assignor.)						
Rasmus, Theophil, Long Island City, N. Y. Safety clothesline-support	494,162	Mar. 28	2275	577	62	1843
Rathbone, William, assignor of one-half to W. J. Price, St. Louis, Mo. Vise	489,327	Jan. 3	524	142	62	113
Ranch, Emil G. and G., and W. J. Kelly, Milwaukee, Wis. Device for operating vehicle-tops	489,756	Jan. 10	1190	312	62	262
Ranch, George. (See Rauch and Kelly.)						
Ranton, William J., Syracuse, N. Y. Steam-generator	489,689	Jan. 10	1078	280	62	240
Ray, Francis M. (See Hawkins and Ray.)						
Rayburn, Eddy S., and C. A. Bell, San José, Cal. Hand-truck	490,043	Jan. 17	1673	435	62	373
Raymond, Jean M., Paris, France. Treating vulcanized rubber to render it adhesive	490,500	Jan. 24	2426	.....	62	535
Raymond, John W., San Francisco, Cal. Gas-engine	491,755	Feb. 14	1281	317	62	1020
Raymond, Pierre A., Grenoble, France, assignor to Consolidated Fastener Company, Portland, Me. Lacing-stud	494,084	Mar. 21	2135	546	62	1803
Raymond, Pierre A., Grenoble, France, assignor to Consolidated Fastener Company, Portland, Me. Shoe-fastening	494,085	Mar. 21	2136	546	62	1803
Raymond, Pierre A., Grenoble, France, assignor to Consolidated Fastener Company, Portland, Me. Buckle	494,086	Mar. 21	2136	546	62	1803
Raymond, Silas H., assignor to T. S. White and T. Friant, Grand Rapids, Mich. Carpet-sweeper	491,954	Feb. 14	1432	357	62	1050
Read, Charles H., Pittsburg, Pa. Combined chair and brace	493,386	Mar. 14	971	250	62	1565
Read, Isaac, Eastbourne, England. Bow for use in drilling and turning	492,559	Feb. 28	2396	596	62	1275
Ready, John, Boonville, N. Y. Label-holder	490,164	Jan. 17	1866	486	62	413
Reagan, Dominick A., F. D. Sampp, and C. A. Hibbs, assignors to themselves, J. Z. Kinch, and O. H. Ormsby, Altoona, Pa. Steam-boiler	492,766	Feb. 28	2721	677	62	1339
Reagan, Harry C., Jr., Philadelphia, Pa. Exhaust-nozzle	493,781	Mar. 21	1632	415 / 416	62	1708
Reagan, Paul M., Chicago, Ill. Draft-rigging for cars	491,785	Feb. 14	1175	294	62	998
Reakirt, Charles C., *et al.* (See Fay, Alpheus, assignor.)						
Ream, George W., assignor to Bucher & Gibbs Plow Company, Canton, Ohio. Planer for plow-beams	492,338	Feb. 21	2026	504	62	1186
Reams, Andrew J., Wichita, Kans. Electric program-clock	492,971	Mar. 7	314	80	62	1421
Reamy, Thomas J., St. Louis, Mo. Feed mechanism for sawmills	491,856	Feb. 14	1283	318	62	1020
Reardon, Daniel J., Westerly, R. I. Ratchet-pawl	493,944	Mar. 21	1895	483	62	1758
Reardon, Patrick, assignor of one-half to M. Murphy, Paterson, N. J. Street-sweeper	492,487	Feb. 28	2280	567	62	1249
Rebhun, Daniel C., Albany, N. Y. Machinery for boring lasts	491,493	Feb. 7	703	178	62	884
Redding, William F., King's Station, N. Y. Clothes-drier	490,361	Jan. 24	2211	576	62	494
Redfield, Casper L., Chicago, Ill., assignor to Chicago Matrix Machine Company. Forming matrices. (Reissue)	11,316	Mar. 28	2890	724	62	1957
Redwine, William J., assignor of one-half to N. B. Brown, Concordia, Kans. Rifle attachment for shotguns	490,614	Jan. 24	2597	669	62	568
Reece Button Hole Machine Company. (See Benedict, Francis D., assignor.)						
Reece, John. (See Hill, George S., assignor.)						
Reece, John, Boston, Mass. Buttonhole sewing-machine	494,280	Mar. 28	2465	620 / 621 / 622	62	1878
Reed & Barton Corporation. (See McAusland, William, assignor.)						
Reed, Charles H. (See Bailey, Charles S., assignor.)						
Reed, Charley R. (See Sutton and Reed.)						
Reed, David W., assignor of one-half to J. G. Reed, Bearden, Ark. Cant-hook	492,107	Feb. 21	1666	414	62	1111
Reed, Franklin M., assignor of one-half to D. C. Chipman, Anderson, Ind. Gas-protector	489,392	Jan. 3	624	169	62	134
Reed, Franklin M., assignor of one-half to E. Shaw, Anderson, Ind. Generator	492,366	Feb. 21	2071	517	62	1195
Reed, George W., Derby, Vt. Toilet-paper holder	492,894	Mar. 7	193	48	62	1397
Reed, James M. (See Oliver and Reed.)						
Reed, John G. (See Reed, David W., assignor.)						
Reed, John W., Chicago, Ill. Piano	489,231	Jan. 3	387	107	62	87
Reed, John W., Chicago, Ill. Upright-piano back	489,232	Jan. 3	388	107	62	87
Reed, William B., East Lynne, Mo. Washing-machine	492,430	Feb. 28	2172	543	62	1228
Réenstierna, Gustaf L., Boston, Mass. Electric-bell alarm	492,309	Feb. 21	1982	493	62	1178
Rees, Napoleon B., Lincoln, Kans. Time-lock	493,115	Mar. 7	534	133	62	1464
Reese, Charles E., *et al.* (See Brunney, Daniel F., assignor.)						
Reese, Edwin A., S. N. Hench, and W. A. Dromgold, York, Pa., said Reese assignor to said Hench and Dromgold. Mechanism for operating sawmill-carriages	491,447	Feb. 7	641	160	62	870
Reese, John H., Austin, Ill. Hot-air register	492,233	Feb. 21	1872	467	62	1154
Reese, Thomas B., Mansfield, Ohio. Cutter-head	491,573	Feb. 7	530	133	62	847
Regent Gold Extracting Company. (See Chaster, John E., assignor.)						
Regester, Thomas L., assignor to C. C. Denny and O. A. Farley, Blair, Nebr. Windmill-governor	493,784	Mar. 21	1633	416	62	1708
Reich, Christian, Nuremberg, Germany. Apparatus for automatically guiding skin molds in machines for making leaf metal	492,488	Feb. 28	2282	567	62	1250
Reichart, Sarah, Mainville, Pa. Cover or protector for plants	489,642	Jan. 10	1011	263	62	226
Reichert, Charles W. and G. J., Kennan, Wis. Log-drag	489,560	Jan. 10	817	214	62	187
Reichert, George J. (See Reichert, Charles W. and G. J.)	494,265	Mar. 28	2438	614	62	1874
Reid, Alban H., Philadelphia, Pa. Butter-printer	493,517	Mar. 14	1173	300	62	1601
Reid, Arthur B., Chicago, Ill. Cleaner for type-writing machines	494,304	Mar. 28	2500	631	62	1886
Reid, Arthur B., Chicago, Ill. Copy-holder	494,305	Mar. 28	2502	631	62	1886

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Reid, John M., Jacksonville, Ill. Manger	492,473	Feb. 28	2246	561	62	1243
Reid, Robert, R. Hanna, T. Holroyd, and H. A. Wheat, Melbourne, Victoria. Lamp	490,415	Jan. 24	2295	594	62	507
Reiferscheid, William. (See Iwan and Reiferscheid.)						
Reignier, Antoine C. (See Parrot and Reignier.)						
Reilly, Bernard T., assignor of one-half to M. R. Zehnder, Ashley, Pa. Governor for steam-brakes	489,757	Jan. 10	1191	312	62	262
Reilly, Edward E. (See Beck and Reilly.)						
Reimer, Jeronimus, Toronto, Canada. Piano-case	494,163	Mar. 28	2276	577	62	1843
Rein, Gustavus. (See Fassett and Rein.)						
Reinhold, Alexander and F. J., assignors to Detroit Combination Tool Company, Detroit, Mich. Combination-tool	491,189	Feb. 7	211	54	62	788
Reinhold, Frank J. (See Reinhold, Alexander and F. J.)						
Reiss, Ernst, Düsseldorf, Germany. Ceiling or wall	492,108	Feb. 21	1666	411	62	1112
Rekart, Adam, Fort Jennings, Ohio. Harvester-reel	491,264	Feb. 7	321	82	62	810
Reliance Corset Company. (See Smith, Emmet L., assignor.)						
Rembert Roller Compress Company. (See Crooks, William, assignor.)						
Remington Arms Company. (See Fay, Rimmon C., assignor.)						
Remscheid, August, Solingen, Germany, assignor to G. W. Korn, New York, N. Y. Shears	493,785	Mar. 21	1636	417	62	1709
Remy, Wilhelm, Crefeld, Germany. Apparatus for folding and creasing the edges of ribbons	494,347	Mar. 28	2572	648	62	1899
Renaud, Charles W., assignor of one-half to J. A. Lewis, Meridian, Miss. Conveyer	489,831	Jan. 10	1293	348	62	264
Rennerfelt, Gustaf, Buffalo, N. Y. Electrical meter	494,325	Mar. 28	2380	601	62	1863
Rennyson, William, Norristown, Pa. Heating attachment	492,431	Feb. 28	2174	{543 / 544}	62	1228
Renshaw, Alfred H., assignor to Trojan Car Coupler Company, Troy, N. Y. Car-coupling	489,233	Jan. 3	389	{107 / 108}	62	87
Resser, Philip T., Geneseo, Ill. Swinging cradle	493,786	Mar. 21	1637	417	62	1709
Retterer, Gustave, Paris, France. Apparatus for galvanizing iron	491,720	Feb. 14	1072	271	62	979
Reud, William R., New York, N. Y. Galvanic battery	489,832	Jan. 10	1294	338	62	284
Reusch, Hermann, Seubach, Austria-Hungary, and B. Preu, Goerlitz, Germany. Casting hard-metal or chilled rolls	492,874	Mar. 7	164	39	62	1391
Reutlinger, Jean, assignor of one-half to J. Jacobs, St. Louis, Mo. Electric-railway trolley	489,234	Jan. 3	391	108	62	87
Reynolds, Berton L. (See Reynolds, Herbert H. and B. L.)						
Reynolds, Christopher C., assignor of one-half to E. Brown, Eldorado, Utah. Combination-tool	489,855	Jan. 10	1350	352	62	295
Reynolds, David R., Philadelphia, Pa. Glove or dress fastener	490,044	Jan. 17	1674	435	62	374
Reynolds, Elles, Hubbard, Iowa. Reel attachment	493,518	Mar. 14	1174	300	62	1602
Reynolds, Herbert H. and B. L., West Bangor, N. Y. Wagon-brake	489,036	Jan. 3	86	24	62	22
Reynolds, James A. (See Skinner, Thomas J., assignor.)						
Reynolds, John H. (See Burns, John, assignor.)						
Reynolds, Richard S., *et al.* (See Savage, Arthur W., assignor.)						
Reynolds, Sylvanus J., Saginaw, Mich. Adjustable desk	491,249	Feb. 7	301	76	62	806
Reynolds, Thomas, *et al.* (See Neer, Harry M., assignor.)						
Reynolds, Wythington, *et al.* (See Green, Ira L., assignor.)						
Rhoades, Alonzo E., assignor to Hopedale Machine Company, Hopedale, Mass. Yarn-guide for doubling and twisting machines	494,490	Mar. 28	2592	700	62	1939
Rhodes, Henry W. (See Moyer and Rhodes.)						
Rhone, Charles E., Bellefonte, Pa. Dental engine	492,432	Feb. 28	2175	544	62	1229
Rhone, Charles E., Bellefonte, Pa. Dental engine	492,433	Feb. 28	2178	545	62	1229
Rice, David H. (See Currier and Rice.)						
Rice, Edward J., assignor to T. Rice, Rochester, N. Y. Beer-cooler	489,546	Jan. 10	880	230	62	199
Rice, Frederick A., Bridgeport, Conn. Folding hoe for removing ashes	492,875	Mar. 7	166	39	62	1391
Rice, I. Preston. (See Howe, Eugene L., assignor.)						
Rice, John C., *et al.* (See Paige, Charles F., assignor.)						
Rice, Keness F. (See Karnes and Rice.)						
Rice, Keness F., and J. P. Doss, Eureka Springs, Ark. Clothes-fastener for wire clothes-lines	492,835	Mar. 7	95	23	62	1376
Rice, Robert F., Hartford, Conn. Magazine-camera	494,164	Mar. 28	2277	578	62	1843
Rice, Theresa. (See Rice, Edward J., assignor.)						
Rice, Thomas C., Worcester, Mass. Street-car fender	494,165	Mar. 28	2280	578	62	1844
Rich, Alfred J., San Francisco, Cal. Securing attachment for fire-escapes	490,302	Jan. 24	2212	576	62	494
Rich, Edwin. (See Rich, Harrison, assignor.)						
Rich, George H., Chicago, Ill. Oat-cleaner	491,594	Feb. 14	884	222	62	939
Rich, Harrison, assignor of one-half to E. Rich, Muskegon, Mich. Railway-switch	494,441	Mar. 28	2717	681	62	1925
Rich, Willard G., and J. H. Sager, Rochester, N. Y. Saddle for velocipedes	489,501	Jan. 10	818	214	62	187
Richard, Stephen, Jr., and W. N. Blanchard, Southbridge, Mass. Eyeglasses	492,234	Feb. 21	1573	468	62	1151
Richard, Walter C., and H. Hanson, Natrona, Pa. Car-coupling	491,059	Jan. 31	3348	854	62	731
Richards Balanced Engine Company. (See Richards, Jackson, assignor.)						
Richards, Charles R., assignor to Union Metallic Cartridge Company, Bridgeport, Conn., Machine for covering bullets	493,519	Mar. 14	1176	{301 / 302 / 303}	62	1602
Richards, Francis H., Hartford, Conn. Die for pointing metal drills	494,226	Mar. 28	2381	601	62	1864
Richards, Francis H., Hartford, Conn., assignor to W. Wood, Philadelphia, Pa. Hydrant	490,601	Jan. 24	2373	603	62	564
Richards, Francis H., Hartford, assignor to Parker & Whipple Company, Meriden, Conn. Belt-shifting apparatus	493,409	Mar. 14	998	258	62	1571
Richards, Frank J., Williamsport, Pa. Dental plugger	494,227	Mar. 28	2382	601	62	1864
Richards, George C., assignor of one-half to R. A. Shade, Sisson, Cal. Lock-nut	491,814	Feb. 14	1217	304	62	1007
Richards, Hubert P., assignor to Trant & Hine Manufacturing Company, New Britain, Conn. Snap-hook	489,502	Jan. 10	821	215	62	187
Richards, Jackson, Philadelphia, Pa., assignor to Richards Balanced Engine Company, of Maine. Locomotive-engine	493,599	Mar. 14	1335	340	62	1634
Richards, John T., Gardiner, Me. Axle-lubricator	492,697	Feb. 28	2669	646	62	1317
Richards, John T., Gardiner, Me. Composition for journal-bearings	492,750	Feb. 28	2686	.....	62	1332
Richards, Willard F., Buffalo, assignor to Gould Coupler Company, New York, N. Y. Car-coupling	491,134	Feb. 7	110	30	62	770
Richards, William, Mayburg, Pa. Friction-pulley for sand-reels	492,682	Feb. 28	2512	622	62	1298
Richards, William E., New York, N. Y. Device for partitioning drawers, &c	490,987	Jan. 31	3227	825	62	706
Richards, William J., Marquette, Mich. Boiler-furnace	494,028	Mar. 21	2044	521	62	1786
Richardson, Charles E., Springfield, Vt. Electric-lamp support	494,348	Mar. 28	2573	648	62	1900
Richardson, Charles G. (See Grant and Richardson.)						
Richardson & De Long Brothers. (See De Long, Frank E., assignor.)						
Richardson & De Long Brothers. (See Granger, John W., assignor.)						
Richardson & De Long Brothers. (See Manville, Robert C., assignor.)						
Richardson, Howe & Lovejoy. (See Wing, Lingan C., assignor.)						
Richardson, Jeremiah J., New York, N. Y. Furnace	489,758	Jan. 10	1192	312	62	262

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Richardson, Joseph M., Indianapolis, Ind. Farm-gate	492,698	Feb. 28	2610	646	62	1317
Richey, James N., Carmichael's, S. N. Hench and W. A. Drongold, York, Pa.; said Richey assignor to said Hench and Drongold. Mechanism for operating sawmill-carriages	491,494	Feb. 7	705	178	62	884
Richmond, Alvan S., assignor to J. S. Huyler, New York, N. Y. Dental apparatus	489,235	Jan. 3	391	108	62	87
Richmond, Alvan S., assignor to J. S. Huyler, New York, N. Y. Dental apparatus	492,434	Feb. 28	2180	545	62	1230
Richmond, Herbert, *et al.* (See Moore and Willett, assignors.)						
Rick, August, Jr., St. Louis, Mo. Coping	490,501	Jan. 24	2427	626	62	535
Rickel, Henry, *et al.* (See Hardt, Lewis W., assignor.)						
Ricketts, James J., Pittsburg, Pa. Coupling for water-closets	492,966	Mar. 7	275	70	62	1413
Ridell, Frank R., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Post-office lock-box	491,495	Feb. 7	706	179	62	884
Rideout, William J., and J. W. Merritt, Atwood, Ill. Thill-coupling	493,387	Mar. 14	972	250	62	1565
Rieckert, Herman A. J., and L. F. Kwiatkowski, New York, N. Y. Opera-chair	489,328	Jan. 3	526	143	62	113
Riesberry, William C., Carlberry, Canada. Wrench	492,536	Mar. 7	96	.....	62	1376
Rifo, Charles E., Chandler, Mo. Pulverizer and stalk cutter	491,721	Feb. 14	1070	271	62	979
Riggenbach, Edmund. (See Leinwather and Riggenbach.)	489,690	Jan. 10	1082	281	62	241
Riley, George, Vallejo, Cal. Horse-detacher	491,875	Feb. 14	1218	305	62	1007
Riley, John A. (See McIntyre, Byron F., assignor.)						
Riley, John C., New Orleans, La. Sugar-cane-juice strainer and elevator	492,235	Feb. 21	1873	468	62	1155
Riley, Joseph P., *et al.* (See Paige, Charles F., assignor.)						
Riley, Michael, London, Ohio. Railway foot-guard	493,649	Mar. 21	1412	358	62	1664
Riley, Samuel, and W. Evans, Huron, Kans. Harrow	493,116	Mar. 7	535	134	62	1464
Ringle, William H., Van Buren, Ohio. Fence-post	489,986	Jan. 17	1571	411	62	353
Rink, August, Philadelphia, Pa. Moistening device for envelopes, &c	489,267	Jan. 3	444	122	62	98
Riordan, Dennis W., assignor to H. Riordan, Elburn, Ill. Refrigerator-car	491,496	Feb. 7	707	179	62	885
Riordan, Helena. (See Riordan, Dennis W., assignor.)						
Ripberger, Jacob, Newport, Ky., assignor of one-half to C. Manne, Cincinnati, Ohio. Car-starter	493,736	Mar. 21	1559	397	62	1694
Rishor, Christopher J., assignor to Hincks & Johnson, Bridgeport, Conn. Device for opening doors of hansoms	493,529	Mar. 14	1184	303	62	1604
Rishworth, John M., Horsforth, S. Ingham, Leeds, and J. Vickers, Horsforth, England. Machinery for sorting and separating loose substances into various grades of fineness	493,521	Mar. 14	1185	303	62	1604
Risk, Robert J., assignor to B. Eastwood, Paterson, N. J. Take-up mechanism for looms	491,816	Feb. 14	1219	305	62	1008
Risley, Edwin H., *et al.* (See Savage, Arthur W., assignor.)						
Ritch, Milton M., Laurinburg, N. C. Brace for bedsteads	494,228	Mar. 28	2383	601	62	1864
Ritchie, Annie. (See Grant, Duncan E., assignor.)						
Ritchie, William A., assignor of one-half to E. F. Maritz, Sr., St. Louis, Mo. Adding or registering machine	493,417	Mar. 7	536	134	62	1465
Rittenhouse, Silas B., Liberty Mills, Ind. Pipe-wrench	492,435	Feb. 28	2182	545	62	1230
Ritter, Abraham, assignor to R. Wolff & Co., New York, N. Y. Purse and making same	490,165	Jan. 17	1867	487	62	413
Rix, Edward A. (See Macomber, Squire H., assignor.)						
Roach, Frank S. (See Brown, John W. L., assignor.)						
Roach, John M., Chicago, Ill. Safety-coupling for cars	490,399	Jan. 24	2262	568	62	503
Roadhouse, Levi, assignor to Weir Plow Company, Monmouth, Ill. Lister plow and planter	489,037	Jan. 3	88	24, 25	62	22
Robb, James T., Mount Vernon, assignor to Edison General Electric Company, New York, N. Y. Electric-lamp fixture or bracket	491,596	Feb. 14	887	223	62	940
Robb, James T., Mount Vernon, assignor to Edison General Electric Company, New York, N. Y. Base for electric-light brackets	493,411	Mar. 14	1001	258	62	1571
Robb, John W., De Witt, Iowa. Seed-planter	489,268	Jan. 3	444	123	62	98
Robbins, Frank G., Haverhill, assignor of one-half to C. H. Kelley, Revere, Mass. Tacking-machine	490,988	Jan. 31	3229	825	62	706
Robbins, George B., Hinsdale, Ill. Refrigerator-car	489,750	Jan. 10	1194	313	62	262
Roberson, George W., Shushan, N. Y. Car-coupling	494,167	Mar. 28	2284	579	62	1844
Roberts, Albert E., Norwalk, Ohio. Metallic railway-tie	494,029	Mar. 21	2045	{521 / 522}	62	1786
Roberts, Benjamin, Indianapolis, Ind. Oil-burner	491,226	Feb. 7	268	67	62	799
Roberts, Ellwood W., Brooklyn, N. Y. Folding hollow body	490,680	Jan. 31	2736	705	62	610
Roberts, Jacob, Catasauqua, Pa. Furnace	490,774	Jan. 31	2877	739	62	637
Roberts, Jacob, Catasauqua, Pa. Horseshoe-machine	494,166	Mar. 28	2282	{578 / 579}	62	1844
Roberts, John R., Homer City, Pa. Thermostat	490,926	Jan. 31	3125	802	62	687
Roberts, John W., assignor to Sherwin-Williams Company and B. Patterson, Cleveland, Ohio. Can-soldering machine	490,196	Jan. 17	1805	{471 / 472 / 473}	62	401
Roberts, Miller, Poplar Bluff, Mo. Washing-machine	489,760	Jan. 10	1196	313	62	263
Roberts, Luke, and J. Wheater, Bradford, England; said Wheater assignor to said Roberts. Brake-mechanism for cars	491,661	Feb. 14	983	248	62	961
Roberts, Robert S., Philadelphia, Pa. Telegraph-transmitter	491,595	Feb. 14	885	223	62	940
Robertson, Frank, assignor of one-half to A. J. Runyan, Loami, Ill. Bundle-feeder for thrashing-machines	493,296	Mar. 14	899	211	62	1537
Robertson, Harry, Jersey City, N. J. Bottling carbonated fluids	490,681	Jan. 31	2738	705	62	610
Robertson, James, Manchester, England. Method of and apparatus for compressing and shaping metal articles	493,897	Mar. 21	1809	460	62	1742
Robertson, James, Manchester, England. Apparatus for making tubes	493,898	Mar. 21	1810	461	62	1742
Robertson, James, Manchester, England. Apparatus for forming elongated articles from billets of heated metal	493,945	Mar. 21	1895	{483 / 484}	62	1758
Robertson, James, Manchester, England. Method of and apparatus for shaping and drawing metal tubes	493,946	Mar. 21	1898	484	62	1759
Robertson, Richard S., Castle Gate, Utah Ter. Car-coupling	489,092	Jan. 3	169	46	62	40
Robeson, Edward H., New Orleans, La. Bagasse-burner	493,522	Mar. 14	1187	304	62	1604
Robinson, Charles W., Reed City, Mich. Vehicle-wheel	494,168	Mar. 28	2285	579	62	1844
Robinson, Edward W., Boston, assignor of one-half to E. B. Welch, Cambridge, Mass. Apparatus for automatically stopping railway-trains	492,837	Mar. 7	96	24	62	1376
Robinson, Harry, St. Louis, Mo. Attachment for mortising-machines	490,502	Jan. 24	2428	627	62	535
Robinson, James. (See Pearson and Robinson.)						
Robinson, Luther, Boston, Mass. Ventilator	493,295	Mar. 14	897	211	62	1537
Robinson, Orton H., Grand Rapids, Mich. Tumbler-washer	491,374	Feb. 7	521	133	62	847
Robinson Radial Car Truck Company. (See Robinson, William, assignor.)						
Robinson, Sidgmund. (See Rowlett and Robinson.)						
Robinson & Taylor. (See Robinson, Walter H., assignor.)						
Robinson, Walter H., assignor to Robinson & Taylor, St. Paul, Minn. Clamp	493,118	Mar. 7	539	135	62	1465
Robinson, William, Boston, Mass. Mechanical movement	491,295	Feb. 7	391	100	62	822
Robinson, William, Boston, Mass. Car-frame	493,876	Mar. 21	1775	453	62	1735

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Robinson, William, Boston, Mass., assignor to Robinson Radial Car Truck Company, Portland, Me. Car-truck	491,497	Feb. 7	709	179, 180	62	885
Roche, Morgan, *et al.* (See Hill, Peter, assignor.)						
Roche, William B., *et al.* (See Hill, Peter, assignor.)						
Rochester, Edwin, Ottawa, Canada. Electric-car fender	494,281	Mar. 28	2471	622, 623	62	1879
Rock, Ferdinand, assignor of one-half to A. M. Clausen, St. Paul, Minn. Combined door spring and check	490,886	Jan. 31	3052	783, 784	62	673
Rockford Mitten and Hosiery Company. (See Ziock, William, assignor.)						
Rodebaugh, George W., Jackson, Mich. Sawmill-carriage attachment	490,453	Jan. 24	2339	606	62	517
Rodgers, George W., assignor of two-thirds to I. Thomas, Bellefonte, Pa., and A. S. Valentine, Atlantic City, N. J. Car-heater	493,388	Mar. 14	973	250	62	1505
Rodgers, Samuel, assignor to American Cap Company, San Francisco, Cal., Detonating compound	489,761	Jan. 10	1197	.....	62	263
Rodgers, William H., Bay Side, N. Y., assignor of one-half to A. O. Larkins, Portsmouth, N. H. Low-water indicator for boilers	492,236	Feb. 21	1874	468	62	1155
Roe, William C., Honolulu, Hawaii. Lathe-center	493,119	Mar. 7	540	135	62	1465
Roebel, Max C., Philadelphia, Pa. Cigar or cigarette holder	491,744	Feb. 14	1105	279	62	986
Roebling, Ferdinand W. (See Arnold, Horace L., assignor.)						
Roecker, Wilhelm, Loechgau, Germany. Straw-cutting machine	491,745	Feb. 14	1107	280	62	986
Roehr, Charles. (See Roehr, William H. and C.)						
Roehr, William H. and C., Bucyrus, Ohio. Pew-back, &c	491,190	Feb. 7	212	54	62	788
Roemer, Hermann, Philadelphia, Pa. Apparatus for polishing the caps of bottles, &c	490,682	Jan. 31	2739	706	62	610
Rogers, Haskell A., and J. M. Runyan, Boone, Iowa. Drilling-tool	492,053	Feb. 21	1583	394	62	1095
Rogers, James A., Glencoe, Nebr. Earmark	492,838	Mar. 7	99	24	62	1377
Rogers, James S., and J. H. Baker, Saratoga Springs, N. Y. Apparatus for producing gas	489,594	Jan. 10	950	247	62	212
Rogers, Lewis H., Buffalo, N. Y. Tree-transplanter	491,135	Feb. 7	113	31	62	770
Rogers, Samuel A. (See Coker, James R., assignor.)						
Rogers, Thomas B., Brooklyn, N. Y. Acoustic telephone	493,297	Mar. 14	831	212	62	1537
Rohn, Jacob P., Easton, Pa. Sheaf-register for harvesters	492,109	Feb. 21	1667	414, 415	62	1112
Rohrer, Albert L., Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric switch	490,363	Jan. 24	2213	576, 577	62	494
Rollet, Antoine P. G., deceased, St. Etienne, France; P. Mauro, Washington, D. C., administrator. Refining metals	491,498	Feb. 7	711	.....	62	885
Rollet, Antoine P. G., deceased, St. Etienne, France; P. Mauro, Washington, D. C., administrator. Apparatus for the purification of cast-iron	491,508	Feb. 7	729	184, 185	62	889
Rollins, George A., Chicago, Ill. Armature-connection for dynamo-electric machines	493,447	Mar. 14	1062	273	62	1502
Rollins, Robert W., Hartford, Conn. Electric-lighting system	492,633	Feb. 28	2513	622	62	1208
Rollins, Thomas G. (See Mallett, Markham W., assignor.)						
Romans, Justus M., White Cloud, Mich. Dumping-wagon	489,987	Jan. 17	1572	411	62	353
Rominger, George S., Philadelphia, Pa. Worm-gear-cutting machine	490,503	Jan. 24	2430	627	62	535
Romoser, Charles W., Marion, Ohio. Vapor-stove	490,085	Jan. 17	1737	452	62	387
Roney, William R., Chicago, Ill. Pyrometer	490,723	Jan. 31	2798	718	62	623
Rood, Vernon H., Jeanesville, Pa. Coal or ore jigger	490,793	Jan. 31	2912	748, 749	62	644
Rooney, Michael, *et al.* (See Huntley, Hosea H., assignor.)						
Roop, Jacob W., Harrisburg, Pa. Corner and base carpet-sweeper	490,589	Jan. 24	2550	657	62	559
Roots & Heinemann. (See Kehl, Anthony, assignor.)						
Roovers, Alfred W. (See Williams and Roovers.)						
Rosback, Frederick P., Chicago, Ill. Book-stapling machine	493,298	Mar. 14	831	212, 213, 214	62	1537
Rosback, Frederick P., and H. F. Band, Chicago, Ill. Fence	492,876	Mar. 7	167	40	62	1391
Roscher, Albin, Chemnitz, Germany. Circular-knitting machine	494,229	Mar. 28	2484	602	62	1864
Rose, Charles J. (See Pearson and Rose.)						
Rose, George W. (See Abney, Dite. H., assignor.)						
Rose, Henry, British Royal Navy. Speaking-tube	490,364	Jan. 24	2215	577	62	494
Rosegrant, William. (See Parker, James C., assignor.)						
Rosenblatt, Harry M., C. A. Dickson, and T. G. Owen, Chicago, Ill.; said Dickson and Owen assignors to said Rosenblatt. Spring for medicine-cases	491,136	Feb. 7	114	31	62	770
Rosenfeld, Louis. (See Birch, Frank. C., assignor.)						
Rosenthal, August, Milwaukee, Wis. Rein-holder	493,412	Mar. 14	1062	258	62	1571
Rosenthal, Emanuel M., assignor of one-half to A. Mergentheim, Fort Wayne, Ind. Display glove-case	489,691	Jan. 10	1084	251	62	241
Rösing, Bernhard, Charlottenburg, Germany. Extracting lead from its ores	494,340	Mar. 28	2574	648	62	1900
Ross, David P., South Evanston, Ill. Hanging and adjusting pressure-bars of planers	489,038	Jan. 3	91	25, 26	62	23
Ross, Elmore W., deceased, Springfield, Ohio; M. F. Ross, executrix. Carrier attachment	492,751	Feb. 28	2687	667, 668	62	1332
Ross, George W., assignor of one-half to J. A. Winebrener, Boonsville, Tex. Straw-cutter	490,989	Jan. 31	3233	826	62	707
Ross, Henry W., Springfield, Mass. Horse-collar	493,299	Mar. 14	841	214	62	1538
Ross, Henry W., Springfield, Mass. Snap-hook	493,300	Mar. 14	842	215	62	1539
Ross, John, London, England. Ejector mechanism for drop-down guns	491,270	Feb. 7	230	84	62	811
Ross, John H., and E. E. Atkins, Birmingham, England. Oil-lamp	494,210	Mar. 28	2487	603	62	1864
Ross, Mary F., executrix. (See Ross, Elmore W.)						
Ross Moyer Manufacturing Company. (See Miller, Louis L., assignor.)						
Ross, Simon, Jr., Cincinnati, Ohio. Sole-trimming machine	489,876	Jan. 10	1351	352	62	295
Rosse, Salisbury F., Sedalia, Mo. Retaining device for hydrant-caps	489,329	Jan. 3	527	143	62	114
Rote, Samuel F., and L. K. Landis, Lancaster, Pa. Cork-cutting machine	491,375	Feb. 7	523	134	62	848
Roth, Edward B., and G. R. Bispham, assignors, by mesne assignments, to P. & B. Nail Machine Company, St. Louis, Mo. Wire-nail machine	493,222	Mar. 7	698	178, 179	62	1495
Rothe, Richard. (See Ihle and Rothe.)						
Rothwell, Frederick. (See Boyler and Rothwell.)						
Rott, Christian Z. F., Pittsburg, Pa. Machine for printing glassware	491,025	Jan. 31	3294	841, 842	62	720
Rouch, David R., Yonkers, N. Y. Device for holding lining or other materials for cutting	491,026	Jan. 31	3298	842	62	721
Rouech, Augustus E., *et al.* (See Rouech, Marian L., assignor.)						
Rouech, Azell N., *et al.* (See Rouech, Marian L., assignor.)						
Rouech, Maggie A., *et al.* (See Rouech, Marian L., assignor.)						
Rouech, Marian L., assignor of three-fourths to A. N., A. E., and M. A. Rouech, Bay City, Mich. Soap-receptacle	490,887	Jan. 31	3054	784	62	674
Rouse, John G. (See Egerton, Charles C., assignor.)						
Roughead, David, Buffalo, N. Y. Ball-bearing for wheels	489,133	Jan. 3	229	62	62	53
Rouy, Gustave, Redlands, Cal. Three-wheeled carriage	490,400	Jan. 24	2264	588	62	504

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Rowell, Guilford D., Appleton, Wis. Split pulley	493,523	Mar. 14	1188	304	62	1604
Rowell, Guilford D., Appleton, Wis. Pulp-screening machine	493,787	Mar. 21	1638	417	62	1710
Rowell, Loren G., *et al.* (See Kisinger, John T., Sr., assignor.)						
Rowland, Frank. B., Collamer, N. Y. Plow	491,137	Feb. 7	115	31	62	770
Rowland, Thomas F., New York, N. Y. Hydraulic elevating mechanism	493,301	Mar. 14	843	215	62	1539
Rowlett, Daniel F. (See Rowlett and Robinson, assignors.)						
Rowley, James F., assignor of one-half to A. M. Linn, Des Moines, Iowa. Fracture apparatus	491,271	Feb. 7	331	84	62	812
Rowlett, James H., and S. Robinson, assignors of one-third to D. F. Rowlett, Ludlow, Mo. Machine for reeling and stretching wire	489,877	Jan. 10	1354	353	62	296
Royce, Marvin O., Somerville, Mass. Lock	489,692	Jan. 10	1085	281	62	241
Ruby, Gabriel F., Columbus, Ohio. Tension device for sewing-machines	491,265	Feb. 7	322	82	62	810
Ruch, Jacob, Mount Eaton, Ohio. Vehicle-seat	489,569	Jan. 10	912	238	62	206
Rucker, James R. (See Clay and Rucker.)						
Rucknich, Alban V., New York, assignor to J. W. Chadwick, Brooklyn, N. Y. Type-setting machine	493,448	Mar. 14	1063	274, 275	62	1582
Rudderow, Morris W. (See Hall, Willis E., assignor.)						
Rudolph, Franklin, Chicago, Ill. Manufacturing tin-plate	492,588	Feb. 28	2436	.....	62	1283
Ruehs, Charles L., Chicago, Ill. Sandpapering-machine	489,093	Jan. 3	170	46, 47	62	40
Rugg, Joseph K., Cincinnati, Ohio. Steam-boiler furnace	490,454	Jan. 24	2341	606	62	517
Rump, John H. (See Wells, James A., assignor.)						
Runciman, John, Goderich, Canada. Apparatus for manufacturing salt	491,376	Feb. 7	528	134, 135	62	849
Rundle, James E. (See Brisben, William W., assignor.)						
Rundlett, Howard, South New Market, N. H., and F. A. Hoyt, Melrose, Mass., assignors to Swampscott Machine Company, South New Market, N. H. Water-heater	492,615	Feb. 28	2487	617	62	1293
Runge, Augustus H., *et al.* (See Allan, John W., assignor.)						
Runge, Gustav, Sidney, Nebr. Car-coupling	494,030	Mar. 21	2046	522	62	1787
Runyan, Andrew J. (See Robertson, Frank, assignor.)						
Runyan, James H., Iola, Kans. Loading apparatus	493,343	Mar. 14	903	231, 232	62	1550
Runyan, John M. (See Rogers and Runyan.)						
Runyon, Edwin E., Pilot Point, Tex. Side rail for suspension-bridges	493,788	Mar. 21	1639	417, 418	62	1710
Runyon, William W., Corning, Iowa. Cleaning attachment for type-writing machines	490,310	Jan. 24	2128	554	62	476
Ruse, Joseph, *et al.* (See Ellis, John T., assignor.)						
Rushmore, Samuel W., Brooklyn, N. Y. Electric-lighting system	493,842	Mar. 21	1725	440	62	1726
Rusing Edward, I. R. Donecho, and H. E. Rusing, Marietta, Pa. Curtain-raising device for vehicles	491,665	Feb. 14	985	248	62	961
Rusing, Henry E. (See Rusing, Donecho, and Rusing.)						
Russell, Charles B. (See Clark and Russell.)						
Russell, Charles H., Ennis, Tex. Gate	492,237	Feb. 21	1876	468, 469	62	1155
Russell & Company. (See Heggem, Charles O., assignor.)						
Russell & Erwin Manufacturing Company. (See Jones, Horace K., assignor.)						
Russell, George L., Middletown, Conn., assignor to Schuyler Electric Company, of Connecticut. Connector for electrical conductors	490,755	Jan. 31	2851	731	62	631
Russell, John Q. A., Superior, Nebr., assignor of one-half to M. A. Dickey, Eskridge, Kans. Hame	490,615	Jan. 24	2599	669, 670	62	569
Russell, Josephine, Tabor, Iowa. Tag-holder for umbrellas	490,365	Jan. 24	2215	577	62	494
Russell, Milo M., New Richmond, Wis. Sled	493,184	Mar. 7	640	163	62	1484
Russell, Milo M., Augusta, Wis. Sled	493,185	Mar. 7	642	163	62	1484
Russell, Philip G., *et al.* (See Hopkins, Jason R., assignor.)						
Russell, W. C. (See Armstrong, John H., assignor.)						
Ruth, Sylvester, Baltimore, Md. Can-soldering machine	489,269	Jan. 3	447	123	62	98
Ruthven, John, Topeka, Kans. Gas cooking apparatus	489,762	Jan. 10	1197	312, 313, 314	62	263
Ruthven, John, Topeka, Kans. Carbureting apparatus	494,442	Mar. 28	2719	681	62	1925
Rutter, Andrew L., Washington, D. C. Electric elevated railway	489,330	Jan. 3	528	143, 144	62	114
Rund, Edwin. (See Westinghouse and Rund.)						
Ryan, James H., Sycamore, Ill. Animal mouth opener	490,602	Jan. 24	2575	664	62	564
Ryan, Michael B, St. Louis, Mo., and P. Ward, Madison, Ill. Tree-protector	490,309	Jan. 24	2127	554	62	476
Ryan, Thomas P. (See Marchand, Henry E., assignor.)						
Ryder, Edgar F., assignor to Atlantic Manufacturing Company, Providence, R. I. Hub-protector	492,436	Feb. 28	2482	546	62	1230
Ryder, Edgar F., assignor to Atlantic Manufacturing Company, Providence, R. I. Bicycle tire	493,650	Mar. 21	1413	358	62	1665
Rygg, Lewis A., St. Paul, Minn. Mechanical horse	491,927	Feb. 14	1393	348	62	1042
S. N. Brown & Company. (See Brown, Meyer, and Schiewetz, assignors.)						
S. S. White Dental Manufacturing Company. (See Browne, Arthur W., assignor.)						
S. S. White Dental Manufacturing Company. (See Starr, Eli T., assignor.)						
Sabold, John, Boyertown, Pa. Paper-bag machine	493,524	Mar. 14	1190	304, 305	62	1605
Sack, Joseph, Berlin, Germany. Automatic individual telephone call apparatus	492,110	Feb. 21	1668	415, 416	62	1112
Sadler, Hymenus G., *et al.* (See McClintock, Charles E., assignor.)						
Sadler, Ralph A., *et al.* (See McClintock, Charles E., assignor.)						
Saettler, Ernest S., Giddings, Tex. Trace	494,443	Mar. 28	2720	682	62	1926
Sagendorph, Longley L., Philadelphia, Pa., assignor of one-half to C. N. Harder, Philmont, N. Y. Metallic ceiling-plate	489,236	Jan. 3	393	108	62	88
Sager, James H. (See Rich and Sager.)						
Sague, Samuel A., Cleveland, Ohio. Machine for cleaning metal plates	493,560	Mar. 14	1262	324	62	1619
Sailer, John M., assignor to J. R. Mole, Janesville, Wis. Transplanting-machine	491,597	Feb. 14	888	223, 224	62	940
Saitz, John F., Baldwin, assignor of two-thirds to T. A. Noble, Pittsburg, and F. G. Kay, Allegheny, Pa. Trolley for electric railways	493,789	Mar. 21	1640	418	62	1710
Saladin Pneumatic Malting Company. (See Dornfeld, John F., assignor.)						
Salmon, Wilmer W. (See Wilson and Salmon.)						
Salter Brothers. (See Merker, Herman C., assignor.)						
Salter, George, and J. Hughes, West Bromwich, England. Coin-freed machine for the automatic sale of newspapers	494,444	Mar. 28	2721	682, 683	62	1926
Salzman, Christian A., *et al.* (See Seip, Thomas A., assignor.)						
Samson, Julia, Salt Lake City, Utah Ter. Portable binder for sheet-music, &c	492,238	Feb. 21	1878	469	62	1155

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Samuel, Edward, assignor to William Wharton, Jr., & Company, Incorporated, Philadelphia, Pa. Fish-plate joint for street-railway rails	489,878	Jan. 10	1356	353, 354	62	296
Sandberg, John E. (See Johnston and Sandberg.)						
Sandel, Sam D., assignor of one-half to A. B. Miller, Austin, Tex. Delivery apparatus for printing-presses	492,054	Feb. 21	1584	394	62	1095
Sandelin, Johan E., New York, N. Y. Safety-lock for railway-switches	490,616	Jan. 24	2600	670	62	569
Sanders, George A. (See Clark, Franklin A., assignor.)						
Sanders, Louis, Brooklyn, N. Y. Belt-support	490,166	Jan. 17	1868	487	62	413
Sanderson, George R. (See Failor, Ezra K., assignor.)						
Sandy, Wallace J. L. (See Sugden and Sandy.)						
Sanguinetti, Percy A., Chicago, Ill., assignor of two-thirds to A. J. Hewlings and W. R. Bowles. Folding bed and toilet-case	490,888	Jan. 31	3055	784, 785	62	674
Sargent & Company. (See Page and Sparks, assignors.)						
Sargent & Company. (See Wright, Granville W., assignor.)						
Sargent, Fitz William, Aurora, assignor to Congdon Brake Shoe Company, Chicago, Ill. Brake-shoe	490,756	Jan. 31	2852	732	62	632
Sargent, George F., New York, N. Y. Adjustable book-rack	489,693	Jan. 10	1087	281	62	242
Sargent, William D., Chicago, Ill. Key for brake-shoes	492,839	Mar. 7	100	25	62	1377
Sargent, Willis H., assignor to E. & T. Fairbanks & Company, St. Johnsbury, Vt. Druggist's weighing-scales	489,331	Jan. 3	531	144	62	114
Sarsfield, Michael J., assignor of one-third to R. H. Collen, Bridgeport, Conn. Barber's cash-register	494,087	Mar. 21	2137	547	62	1803
Sartell, Egbert P., St. Cloud, Minn. Door-check	490,504	Jan. 24	2432	627	62	536
Sartorius, Henry, St. Louis, Mo. Machine for mixing and cooling lard	490,505	Jan. 24	2433	628	62	536
Satterwhite, John T., Five Points, Ala. Mop	492,339	Feb. 21	2027	564	62	1186
Sault, Thomas, New Haven, Conn. Photographic film	494,306	Mar. 28	2503	632	62	1887
Saum, David F., Washington, D. C. Writer's aligning guide	490,086	Jan. 17	1738	453	62	387
Saunders, Cecil L., Cleveland, Ohio. Hoisting and conveying apparatus	489,662	Jan. 10	1036	270	62	231
Sauppp, Frank D. (See Reagan, Saupp, and Hibbs.)						
Savage, Arthur W., assignor to J. M. Childs, R. S. Reynolds, and E. H. Risley, Utica, N. Y. Magazine-firearm	491,138	Feb. 7	115	31, 32	62	751
Sawyer, Horace A., Lynn, Mass. Inner sole	492,994	Mar. 7	351	88	62	1498
Sawyer Spindle Company. (See Allen, William E., assignor.)						
Sawyer Spindle Company. (See Day, Florence M., assignor.)						
Sawyer Spindle Company. (See Draper, Eben S., assignor.)						
Sayer, William, Derby, England. Air-propeller or ventilating-fan	494,307	Mar. 28	2504	632	62	1887
Sayers, Annie, Chicago, Ill. Gasoline-burner attachment	493,146	Mar. 7	643	164	62	1484
Sawyers, Eldridge H., Unionville, Iowa. Whiffletree-clip	490,681	Jan. 31	2740	706	62	610
Saxe, William, Port Huron, Mich. Saw-setting gage	489,039	Jan. 3	93	26	62	23
Saxon, Silas J., Colfax, Wash. Churn	489,833	Jan. 10	1295	338	62	25
Saylor, A. R., *et al.* (See Manderfield, George J., assignor.)						
Scarborough, James A., and C. Bardwell, Wesson, Miss. Whiffletree	492,560	Feb. 28	2307	596	62	1275
Schaake, Henry. (See Kendall and Schaake.)						
Schaake, Henry, assignor to C. B. Kendall, San Francisco, Cal. Cap-making machine	493,525	Mar. 14	1198	306	62	1606
Schaal, Eugen, Stuttgart, Germany. Process of and apparatus for thickening linseed-oil	493,187	Mar. 7	644	161	62	1485
Schaeffer & Budenburg. (See Carpenter, Rolla C., assignor.)						
Schaeffer, Levi R., assignor to F. M. Wetter, Philadelphia, Pa. Exercising and strength-testing machine	493,561	Mar. 14	1264	324	62	1620
Schaeffer, Morton. (See Patten, James S., assignor.)						
Schafer, John F., San Francisco, Cal. Check, draft, or the like	493,221	Mar. 7	701	179	62	1496
Schaffer, John A., Kensington, Ill. Puzzle	490,757	Jan. 31	2753	732	62	632
Schairer, George E., Saline, Mich. Hay and stock rack	489,094	Jan. 3	171	47	62	40
Schallehn, Theodore C. (See Tarrant, William P., assignor.)						
Schaller, Michael D., Lowell, N. Y. Snow-plow	493,899	Mar. 21	1812	461	62	1742
Schamba, George M., Jamestown, N. Y. Suspenders	491,191	Feb. 7	214	54	62	748
Schanck, Henry I., Holmdel, and C. B. Ellis, Freehold, N. J. Sprinkling device	491,377	Feb. 7	529	135	62	849
Schenck, William A., Richmond, Va. Combination-lock	491,598	Feb. 14	892	224	62	941
Schandoney, Peter V., Sacramento, Cal. Draft-equalizer	490,214	Jan. 17	1954	512	62	429
Scharf, Thomas, *et al.* (See Kahl, Adolph, assignor.)						
Scharling, John H., Newark, N. J. Producing raised metallic designs on bottles, vases, or similarly-shaped articles and means therefor	493,840	Mar. 7	101	25	62	1377
Schaub, John D., Pittsburg, Pa. Portable altar	493,790	Mar. 21	1642	418	62	1711
Schaum, Otto W., Philadelphia, Pa. Shedding mechanism for looms	492,908	Mar. 7	221	55	62	1402
Schanm, Otto W., Philadelphia, Pa. Swivel-loom	493,651	Mar. 21	1414	358, 359	62	1665
Schaum, Otto W., Philadelphia, Pa. Swivel-loom	493,652	Mar. 21	1417	360, 361	62	1665
Schaum, Otto W., Philadelphia, Pa. Swivel-loom	493,653	Mar. 21	1420	361, 362	62	1666
Schaum, Otto W., Philadelphia, Pa. Swivel-loom	493,654	Mar. 21	1422	362	62	1666
Schaum, Otto W., Philadelphia, Pa. Combination-gage	494,169	Mar. 28	2287	579	62	1845
Schaum & Uhlinger. (See Markee, Renel T., assignor.)						
Scheid, Adam, Harrison, N. J. Hydrant	490,311	Jan. 24	2129	554	62	476
Schenck, Henry. (See Minzey, William L., assignor.)						
Schenck, John D. P., Nashville, Tenn., assignor of one-half to G. Matthews, Cincinnati, and W. W. Peabody, Madisonville, Ohio. Pumping-engine	490,312	Jan. 24	2130	554	62	477
Schenck, John D. P., Nashville, Tenn., assignor of one-half to G. Mathews, Cincinnati, and W. W. Peabody, Madisonville, Ohio. Automatic valve for air-brakes	492,841	Mar. 7	104	25, 26	62	1378
Scherer, John, assignor of one-half to G. J. Farnsworth, Nahma, Mich. Device for side-swaging and setting saws	489,663	Jan. 10	1037	270	62	231
Scherer, William. (See Abert and Scherer.)						
Schermerhorn, David M., P. V., and S. P., Warren, Pa.; said David M. and P. V. Schermerhorn assignors to S. P. Schermerhorn. Apparatus for the manufacture of gas-black	489,332	Jan. 3	532	145	62	115
Schermerhorn, Peter V. (See Schermerhorn, David M., P. V., and S. P.)						
Schermerhorn, Simon P. (See Schermerhorn, David M., P. V., and S. P.)						
Scheuer, Herman, New York, N. Y. Fan	494,032	Mar. 21	2049	523	62	1787
Scheuer, Joseph F., Kewaunee, assignor of one-half to G. Schumaker, Chilton, Wis. Recording and receipting machine	489,040	Jan. 3	94	26, 27	62	24
Schenerecker, Joseph, assignor of seven-eighths to J. W. Hahn, Toledo, Ohio, and E. E. Perry, Indianapolis, Ind. Refrigerating apparatus	493,120	Mar. 7	512	135, 136	62	1466
Schiemann, Max. (See Philipsborn and Schiemann.)						
Schier, Adolph, Chicago, Ill. Soda-fountain	491,272	Feb. 7	332	84	62	812

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Schiewetz, Henry. (See Brown, Meyer, and Schiewetz.)						
Schilling, Charles R. (See Schraubstadter and Schilling.)						
Schilling, George W., and J. G. Haslam, Philadelphia, Pa. Automatic alarm device	490,684	Jan. 31	2741	706	62	611
Schilling, William, Hartford, Conn. Knob attachment	490,685	Jan. 31	2743	706	62	611
Schirmer, Conrad. (See Moser and Schirmer.)						
Schleuter, Theodore A., Oakland, Cal. Oil-can or other liquid-receptacle	493,877	Mar. 21	1776	453	62	1736
Schlickeysen, Carl, Berlin, Germany. Coupling for pulleys	490,313	Jan. 24	2131	555	62	477
Schloss, Joseph W., New York, N. Y. Braiding-machine	492,437	Feb. 28	2183	546	62	1230
Schlosser, George J., Leadville, Colo. Feed-box	490,045	Jan. 17	1675	435	62	374
Schlumberger, Albert, Paris, France. Making safety-paper	491,858	Feb. 14	1246	.....	62	1021
Schmaltz, Friedrich, Offenbach-on-the-Main, Germany. Machine for sharpening saws	490,927	Jan. 31	3127	802	62	687
Schmalz, François, assignor to Photo-Litho Transfer Company, New York, N. Y. Ornamenting vitreous wares	493,449	Mar. 14	1068	.....	62	1583
Schmalz, François, assignor to Photo-Litho Transfer Company, New York, N. Y. Ornamentation	493,450	Mar. 14	1069	.....	62	1583
Schmerber, Jules, Eilenburg, Germany. Centrifugal machine	493,900	Mar. 21	1812	461	62	1742
Schmid, Jakob. (See Gnehm and Schmid.)						
Schmid, Jakob, assignor to Society of Chemical Industry in Basle, Basle, Switzerland. Blackish-blue azo dye	493,563	Mar. 14	1268	.....	62	1620
Schmid, Jakob, assignor to Society of Chemical Industry in Basle, Basle, Switzerland. Gray-black tetrazo dye	493,564	Mar. 14	1269	.....	62	1620
Schmid, Jakob, and J. Mohler, assignors to Society of Chemical Industry in Basle, Basle, Switzerland. Violet-blue induline dye	491,378	Feb. 7	531	.....	62	849
Schmid, Jakob, and R. Paganini, assignors to Society of Chemical Industry in Basle, Basle, Switzerland. Monosulpho-dioxynaphthoic acid	493,562	Mar. 14	1267	.....	62	1620
Schmid, Theodor, and W. Kinkel, Denver, Colo. Means for preventing railway-express robberies	493,600	Mar. 14	1336	340, 341	62	1634
Schmidlin, Emil, Brantford, Canada. Coffee-grinding mill	493,655	Mar. 21	1423	362	62	1666
Schmidt, Adolph H. (See Sieker and Schmidt.)						
Schmidt, Eugene, Stillwater, Minn. Cigarette-rolling case	494,445	Mar. 28	2725	685	62	1926
Schmidt, Frederick T., Bradford, England, assignor to Mutual Engineering Company, Limited. Parallel vise	490,603	Jan. 24	2576	664	62	564
Schmidt, Henry, A. Merunka, and C. J. Werner, New York, N. Y. Cigar-bunching machine	492,438	Feb. 28	2184	516, 547	62	1231
Schmidt, Joseph, Cleveland, Ohio. Barrel-washer	493,044	Mar. 7	427	107	62	1443
Schmidt, Theodore F. W., assignor of one-half to Dayton Paper Novelty Company, Dayton, Ohio. Paper box	490,167	Jan. 17	1869	487	62	414
Schmieder, Otto E., assignor of one-half to R. C. Christy, Chicago, Ill. Hook and eye	489,095	Jan. 3	172	47	62	41
Schmitt, Henry G., Hendy Creek, N. Y. Plow	491,590	Feb. 14	893	224	62	941
Schmitt, Henry J. (See Drill and Schmitt.)						
Schneekloth, Hans A., New York, N. Y. Punching, shearing, and forging machine	490,401	Jan. 24	2266	589	62	504
Schnepf, John, assignor of one-half to W. H. Bellamy, New York, N. Y. Pneumatic annunciator	491,027	Jan. 31	3300	842	62	721
Schneible, Joseph, Brooklyn, N. Y. Pressure-regulator	492,111	Feb. 21	1671	416	62	1112
Schnur, Charles. (See Staiger and Schnur.)						
Schoaf, John W., McKeesport, Pa. Axle-lubricator	493,121	Mar. 7	544	136	62	1466
Schoaf, John W., McKeesport, Pa. Nut-lock	493,122	Mar. 7	546	136	62	1467
Schoen, Charles T., Allegheny, Pa. Manufacture of center-bearing plates	491,192	Feb. 7	215	55	62	788
Schoenmehl, Charles B., assignor of one-half to A. M. Young, Waterbury, Conn. Treatment of metal plates prior to electrolysis	494,231	Mar. 28	2388	603	62	1865
Schoenmehl, Charles B., assignor of one-half to A. M. Young, Waterbury, Conn. Apparatus for electrolyzing copper	494,232	Mar. 28	2390	603, 604	62	1865
Schofield, Albert B., Brooklyn, N. Y. Tack or nail puller	490,402	Jan. 24	2267	589	62	504
Schofield, Albert B., Brooklyn, N. Y. Fastening device	490,403	Jan. 24	2268	589	62	504
Schofield, Eugene H., Chicago, Ill., assignor of one-half to O. Dunham, Ludington, Mich. Machine for winding fabrics	494,491	Mar. 28	2793	700, 701	62	1939
Schofield, Eugene H., Chicago, Ill., assignor of one-half to O. Dunham, Ludington, Mich. Cloth drying, tentering, and trimming machine	494,492	Mar. 28	2797	701	62	1940
Schofield, Eugene H., Chicago, Ill., assignor of one-half to O. Dunham, Ludington, Mich. Cloth-painting machine	494,493	Mar. 28	2800	702	62	1940
Scholding, John H., Yonkers, N. Y. Furnace or stove	493,947	Mar. 21	1900	484	62	1759
Schoondermark, Johannes A. A., Leeuwarden, Netherlands. Dental plate	493,843	Mar. 21	1728	440	62	1727
Schott Brothers. (See Dyer, Lucius, assignor.)						
Schrader, Jean F. D., Paris, France. Apparatus for mapping or drawing lands	491,193	Feb. 7	216	55	62	789
Schrag, John J., Valentine, Kans. Heat-regulator	491,600	Feb. 14	894	225	62	942
Schraubstadter, Carl, Jr., and C. R. Schilling, assignors to Western Engravers' Supply Company, St. Louis, Mo. Belt-shifter	492,752	Feb. 28	2691	668	62	1333
Schreiber, Philip J., Dayton, Ohio. Automatic elevator-gate	491,601	Feb. 14	895	225	62	942
Schreyer, Henry, Toledo, Ohio. Car-coupling	492,842	Mar. 7	106	26	62	1378
Schröder, Ferdinand, Pritzwalk, Germany. Rotary motor or pump for steam, water, or compressed air	493,844	Mar. 21	1729	441	62	1727
Schroeder, Conrad, Milwaukee, Wis. Harness-pad	489,270	Jan. 3	448	124	62	99
Schroeder, Frank O., Oak Harbor, Ohio. Sawmill-carriage feed	489,088	Jan. 17	1573	412	62	353
Schubert, George, Walnut, Tex. Knotting mechanism for grain-binders	489,096	Jan. 3	173	48	62	41
Schulenburg, Adolph, San Francisco, Cal. Ore-crushing mortar	492,634	Feb. 28	2515	623	62	1296
Schulte, Catherine, Port Huron, Mich. Convertible chair	491,602	Feb. 14	897	225	62	942
Schulte, Hermann, Vienna, Austria Hungary. Rag-engine	492,239	Feb. 21	1879	469, 470	62	1156
Schultz, Charles H. S. (See Onhoven, Alois, assignor.)						
Schultze, Frederick W., Philadelphia, Pa. Padlock	492,240	Feb. 21	1880	470	62	1156
Schulze-Berge, Hermann, Brooklyn, N. Y. Apparatus for the manufacture of glassware	493,302	Mar. 14	845	215, 216	62	1539
Schumaker, Gustave. (See Scheuer, Joseph F., assignor.)						
Schumann, Francis, Philadelphia, Pa. Grinding-machine	489,333	Jan. 3	535	145, 146	62	116
Schurig, Carl H., and C. Prüfer, Mügeln, Germany. Flower-pot	491,786	Feb. 14	1177	294, 295	62	998
Schurig, Hermann, Offenbach, Germany. Punching-machine	493,791	Mar. 21	1642	419	62	1711
Schutte, Lonis, Philadelphia, Pa. Condenser	493,123	Mar. 7	547	136, 137	62	1467
Schutz, Adolph C. (See Borgfeldt, Nicholas H., assignor.)						
Schuyler Electric Company. (See Lemp and Wightman, assignors.)						
Schuyler Electric Company. (See Russell, George L., assignor.)						
Schwab, Gustave, New York, N. Y. Album	494,031	Mar. 21	2049	522	62	1787

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Schwalbach, Edward, Jr., Brooklyn, N. Y. Glove-turning device	493,656	Mar. 21	1424	363	62	1667
Schwaller, William L., Halbur, Iowa. Belt-guide	489,394	Jan. 3	537	146	62	116
Schwartz, Charles, Brooklyn, N. Y. Sign	493,045	Mar. 7	429	108	62	1443
Schweim, Herman, Detroit, Mich. Lawn traverser and sprinkler	492,843	Mar. 7	107	26	62	1378
Schweiger, William J., assignor of one-half to H. Apfelbaum, New York, N. Y. Fire-alarm	489,237	Jan. 3	394	109	62	88
Schweinburg, Emil, New York, N. Y. Corset	490,455	Jan. 24	2343	607	62	517
Schwendemann, Joseph, Reutlingen, Germany. Parallel vise	491,817	Feb. 14	1221	305	62	1008
Scofield, F. M., *et al.* (See Ellis, Seele H., assignor.)						
Scofield, Frederic R., Penfield, Pa. Harness-snap	493,188	Mar. 7	645	164	62	1485
Scofield, G. S., *et al.* (See Ellis, Seele H., assignor.)						
Scott, Bluford T., Milford, Ill. Cultivator	493,124	Mar. 7	549	137	62	1467
Scott, Charles F., assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Lightning-arrester	492,544	Feb. 28	2370	588	62	1270
Scott, Jacob R., New York, N. Y. Skiving-machine	493,189	Mar. 7	646	164 / 165	62	1485
Scott, James, Bethany, Cal. Tug-clip for hames	489,989	Jan. 17	1575	412	62	354
Scott, James A., *et al.* (See Hacker, Charles F., assignor.)						
Scott, John, Willimantic, Conn. Bobbin for sewing-machines	493,845	Mar. 21	1731	441	62	1727
Scott, John, Willimantic, assignor to Willimantic Linen Company, Hartford, Conn. Wood-turning lathe	492,112	Feb. 21	1672	417	62	1112
Scott, Robert W. (See Williams, Louis N. D., assignor.)						
Scott, Robert W., assignor of one-half to L. N. D. Williams, Philadelphia, Pa. Sleeve for knitted garments	493,224	Mar. 7	701	179	62	1496
Scott, Theodor N., New York, N. Y. Steam-cooker	489,718	Jan. 10	1125	280	62	248
Scott, Thomas G. (See Murray and Scott.)						
Scott, Walter, Plainfield, N. J. Multicolor-printing machine	490,456	Jan. 24	2344	607	62	518
Scott, Walter, Plainfield, N. J. Pasting mechanism for printing-presses	494,233	Mar. 28	2393	604	62	1665
Scovill Manufacturing Company. (See Lines, John, assignor.)						
Scovill Manufacturing Company. (See Wolff, Adrian, assignor.)						
Scranton, George H., and L. Spillman, Columbus, Ohio. Trolley-wire support	489,097	Jan. 3	179	48	62	42
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Testing apparatus for multiple switchboards	489,098	Jan. 3	180	49	62	42
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Testing apparatus for multiple switchboards	489,099	Jan. 3	181	49	62	42
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Test-circuit for multiple switchboards	489,100	Jan. 3	183	49, 50	62	43
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Spring-jack switch	489,570	Jan. 10	913	238	62	306
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Telephone	489,990	Jan. 17	1575	412	62	354
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Multiple-switchboard system. (Reissue)	11,306	Feb. 7	735	186	62	890
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Testing apparatus for multiple-switchboard systems	491,250	Feb. 7	301	77	62	806
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Duplex electric-arc lamp	491,251	Feb. 7	303	77	62	807
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Duplex electric-arc lamp	491,603	Feb. 14	808	225	62	942
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Electric-arc lamp	491,604	Feb. 14	900	226	62	943
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Cut-out for arc lamps	491,605	Feb. 14	901	226	62	943
Scribner, Charles E., assignor to Western Electric Company, Chicago, Ill. Switching system for telephone-exchanges	491,688	Feb. 14	1021	258	62	970
Scribner, Charles E., and W. R. Patterson, assignors to Western Electric Company, Chicago, Ill. Spring-jack switch for telephone-exchanges	489,571	Jan. 10	915	239	62	306
Scriven, Caroline A., New York, N. Y. Waist or blouse	490,686	Jan. 31	2744	707	62	611
Scriven, Charles, Leeds, England. Door-closing device	490,990	Jan. 31	3233	826	62	707
Scriven, Jeremiah A., New York, N. Y. Undergarment	492,055	Feb. 21	1585	394	62	1095
Scurr, James M., and S. R. Cotton, Creston, Iowa, assignors to Simplex Car Coupler Company, St. Joseph, Mo. Car-coupling	493,792	Mar. 21	1644	419	62	1711
Scurr, James M., and E. D. Whipple, Creston, Iowa, assignors to Simplex Car Coupler Company, St. Joseph, Mo. Car-coupling	493,793	Mar. 21	1646	419	62	1711
Seaman, John A., Chicago, Ill. Crozing and howeling machine	490,314	Jan. 24	2133	555	62	477
Seaman, John A., Chicago, Ill. Crozing and howeling machine	490,315	Jan. 24	2134	555 / 556	62	477
Seaman, John A., Chicago, Ill. Machine for hooping barrels	490,316	Jan. 24	2134	556	62	478
Seamans, Irving M., Buffalo, N. Y. Thermostat	489,991	Jan. 17	1577	413	62	354
Sears, Charles, Cleveland, Ohio. Machine for making linotypes	489,503	Jan. 10	822	215 / 216	62	188
Sears, Robert, and L. B. Lindsey, Spokane, Wash. Bridle-bit	492,241	Feb. 21	1681	470	62	1156
Seat, Samuel A., Hematite, Mo. Washing-machine	493,657	Mar. 21	1425	363	62	1667
Seaver Sewing Machine Company. (See Gooding, Charles S., assignor.)						
Seaverns, George W., Cambridge, Mass. Pianoforte-action	489,615	Jan. 10	978	255	62	319
Seck, Heinrich, Dresden, Germany. Dust-collector	493,565	Mar. 14	1269	325	62	1620
Seebeck, August H., North Redwood, Minn. Straw-stacker	492,113	Feb. 21	1674	417	62	1113
Seeley, Joseph S., Fremont, Nebr. Belt-tightener	492,972	Mar. 7	317	80	62	1422
Seely, John A., New York, N. Y., assignor to Western Electric Company, Chicago, Ill. Metallic circuit for multiple-switchboard systems	491,252	Feb. 7	305	77, 78	62	807
Seger, Garret, Buffalo, N. Y. Clothes-pounder	491,448	Feb. 7	643	160	62	870
Seidell, Mary V., Washington, D. C. Hair-curler	492,561	Feb. 28	2398	596	62	1276
Seifert, Bruno R., assignor to F. von Heyden Nachfolger, Radebeul, near Dresden, Germany. Dye from alpha oxyvitic acid	493,413	Mar. 14	1003	.....	62	1572
Seiler, Paul, San Francisco, Cal. Electric-railway danger signal and bell	493,125	Mar. 7	550	137	62	1468
Seip, Thomas A., Dayton, assignor to P. B. Holly and C. A. Salzman, Hamilton, Ohio. Machine for cleaning grain	489,504	Jan. 10	825	216	62	188
Seip, Thomas A., Dayton, assignor of one-half to P. B. Holly and C. A. Salzman, Hamilton, Ohio. Grain-cleaning machine	493,451	Mar. 14	1070	275	62	1583
Selts, Edward, Peoria, Ill. Beer-cooler	490,506	Jan. 24	2435	628	62	537
Self Adjusting Shoe Company. (See Trice, William E., assignor.)						
Selts, William A., *et al.* (See Olmsted, Levi, assignor.)						
Senderling, Martin L., Jersey City, N. J. Dump-wagon	492,562	Feb. 28	2399	596	62	1276
Seng, Wendelin, Chicago, Ill. Chair	490,366	Jan. 24	2216	578	62	495
Sennett, Leonidas, and T. F. Arnett, assignors of one-half to C. C. Talley and C. Cobbs, Russell, Ky. Air-brake coupling	489,763	Jan. 10	1198	314	62	263

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sensabaugh, Oscar F. (See Banm and Sensabaugh.)						
Sercombe, Parker H., *et al.* (See Bolte, Frank H., assignor.)						
Sevier, Moses N., Vernon, Tex. Scale-beam	490,507	Jan. 24	2436	628	62	537
Sevigny, Charles and Z., New Bedford, Mass. Washing-machine	494,282	Mar. 28	2472	623	62	1879
Sevigny, Zoel. (See Sevigny, Charles and Z.)						
Sewell, Alfred L., Evanston, Ill. Envelope	494,170	Mar. 28	2287	580	62	1845
Seymour, Charles E., Lake Geneva, Wis. Means for and process of separating metals from ores	489,101	Jan. 3	186	50	62	43
Seymour, James M., Jr., Newark, N. J. Ventilating mechanism	494,264	Mar. 28	2439	614 / 615	62	1874
Seymour, William S., Philadelphia, Pa., assignor to M. H. Marcus & Bro., Baltimore, Md. Head-support for beds	493,303	Mar. 14	848	216	62	1540
Shade, R. A. (See Richards, George C., assignor.)						
Shadle, Christopher C., *et al.* (See Green, Ira L., assignor.)						
Shaffer, Henry E., Rochester, N. Y. Wick-raiser	494,171	Mar. 28	2289	580	62	1845
Shaffer, Stillman L., Worcester, Mass. Telephone-index	493,304	Mar. 14	850	216	62	1540
Shakespeare, William, Jr. (See Low and Shakespeare.)						
Shambow, John, *et al.* (See Pickering, Benjamin A., assignor.)						
Shamp, Henry B., assignor to Pettijohn California Breakfast Food Company, Minneapolis, Minn. Wheat-steamer	493,225	Mar. 7	702	179	62	1496
Shapleigh, Frank, *et al.* (See Hacker, Charles F., assignor.)						
Sharp, Albert A., Memphis, Tenn. Vegetation-exterminator	492,635	Feb. 28	2517	623	62	1299
Sharp, George M. (See Shaw, Methven, and Sharp.)						
Sharp, Samuel P., Knoxville, Tenn. Angle attachment for dental engines	491,499	Feb. 7	714	180	62	886
Sharp, William P., Lowell, Kans. Fence	493,527	Mar. 14	1200	306	62	1606
Sharpe, Harry S., Seattle, Wash. Music-board	493,126	Mar. 7	552	137	62	1468
Sharpe, John and T., Thornton, R. I. Wool-combing machine	492,169	Feb. 21	1767	441	62	1133
Sharpe, John and T., Thornton, R. I. Wool-combing machine	492,170	Feb. 21	1768	441	62	1133
Sharpe, Thomas. (See Sharpe, John and T.)						
Sharples, David T. (See Sharples, Philip M. and D. T.) (Reissue.)						
Sharples, Philip M., West Chester, Pa., and D. T. Sharples, Elgin, Ill. Centrifugal separator. (Reissue)	11,311	Feb. 28	2731	680	62	1342
Shattuck, Edwin L., Brooklyn, assignor to R. Hoe, S. D. Tucker, T. H. Mead, and C. W. Carpenter, New York, N. Y. Printer's galley	489,572	Jan. 10	918	239	62	207
Shattuck, John, *et al.* (See Shattuck, Samuel, assignor.)						
Shattuck, Samuel, Keith's, assignor of one-half to A. Groves and J. Shattuck, Morgan county, Ohio. Car-coupling	489,393	Jan. 3	625	169	62	135
Shaw, Charles H., Brooklyn, N. Y. Stamp	494,172	Mar. 28	2289	580	62	1845
Shaw, Daniel D., Denver, Colo. Pump	489,419	Jan. 3	602	179	62	142
Shaw, Edward. (See Reed, Franklin M., assignor.)						
Shaw, Frank M., J. R. Methven, and G. M. Sharp, Minneapolis, Minn. Self-adjusting friction-clutch	494,173	Mar. 28	2291	580	62	1846
Shaw, James, and M. Clancy, Jr., Racine, Wis. Device for destroying noxious plants	489,167	Jan. 3	278	78	62	64
Shaw, Thomas, Newark, N. J. Making knife-blades	489,719	Jan. 10	1126	290 / 291	62	249
Shaw, Thomas, Philadelphia, Pa. Apparatus for purifying water from air in the process of freezing	490,508	Jan. 24	2437	628	62	537
Shaw, William E., Charlotte, N. C. Trace-carrier	490,317	Jan. 24	2136	557	62	478
Shedlock, Alfred, Jersey City, N. J. Chain and the manufacture thereof	492,439	Feb. 28	2189	547	62	1231
Sheldon Axle Company. (See Hall, Orlando C., assignor.)						
Sheldon, James B., D. J. Murnane, and G. L. Van Beck, St. Louis, Mo. Underground electric railway	489,764	Jan. 10	1200	314 / 315	62	264
Sheldon, Mark A., Detroit, Mich. Tack-lifter	491,818	Feb. 14	1222	306	62	1008
Sheldon, Willard C., Grand Haven, Mich. Water seal for refrigerators	493,658	Mar. 21	1426	363	62	1667
Shellard, Rachel A., Virginia City, Nev. Sewing-machine attachment	491,194	Feb. 7	219	56	62	789
Shelly, James R., *et al.* (See Moulton, Luther V., assignor.)						
Shepard, Charles G., *et al.* (See Hoefer, Frederick W., assignor.)						
Shepard & Co., Sidney. (See Tripp, Augustus F., assignor.)						
Shepard, Walter J., *et al.* (See Hoefer, Frederick W., assignor.)						
Shepard, William A., Elgin, Ill. Combined inhaler and spirometer	492,973	Mar. 7	319	81	62	1422
Shepardson, Samuel, La Grange, Iowa. Car-coupling	492,242	Feb. 21	1682	470	62	1157
Sheperd, Edwin S., Vincennes, Ind. Egg-carrier filler	489,664	Jan. 10	1041	271	62	232
Shephard, Francis J., Concord, and A. C. Hopkins, Ashippun, Wis. Bag-tie or analogous fastening	490,457	Jan. 24	2340	608	62	519
Shepherd, Thomas W., Peabody, Mass. Thermostat	493,601	Mar. 14	1337	341	62	1635
Shepherd, Thomas W., Peabody, Mass. Electric controlling device	493,602	Mar. 14	1339	341	62	1635
Shepler, Cassius R., assignor to W. H. Latshaw, trustee, Pittsburg, Pa. Steam-generator	490,928	Jan. 31	3120	803	62	687
Sheppard, Franklin L., Philadelphia, Pa. Air-heating device for stoves or ranges	494,388	Mar. 28	2645	662 / 663	62	1912
Sherburne, Charles W., Boston, Mass. Track-sanding apparatus	489,720	Jan. 10	1129	291 / 292	62	249
Sherburne, Charles W., Boston, Mass. Track-sanding device for street cars	494,283	Mar. 28	2473	623	62	1879
Sheridan, James D., *et al.* (See Curtis, Frederic A., assignor.)						
Sheridan, James T., East Orange, N. J., and J. Draher, Waterbury, Conn., assignors to City Button Works, of New York. Button-making machine	493,794	Mar. 21	1648	420	62	1711
Sherman, Charles P., Toledo, Ohio, assignor to Sherman Nut Lock Company, Detroit, Mich. Nut-lock	490,458	Jan. 24	2350	608	62	519
Sherman, George H., Detroit, Mich. Tunneling-machine	490,318	Jan. 24	2137	557	62	478
Sherman Nut Lock Company. (See Sherman, Charles P., assignor.)						
Sherman, Walter N., Merced, Cal. Adjustable ventilating canopy-frame for beds	493,305	Mar. 14	851	216 / 217	62	1541
Sherman, Willis D., assignor of four-fifths to C. B. and F. B. Johnson, E. H. Baillie, and J. J. Wilson, Brooklyn, N. Y. Hoisting and transfer apparatus	494,289	Mar. 28	2646	663 / 664	62	1912
Sherwin-Williams Company, *et al.* (See Roberts, John W., assignor.)						
Sherwood Manufacturing Company. (See Hart, Thomas J., assignor.)						
Shetty, John A., Paterson, N. J. Metallic fastener for envelopes	490,814	Jan. 31	2942	755	62	650
Shields, David, assignor to Griswold Manufacturing Company, Erie, Pa. Means for uniting tools to handles, &c.	492,474	Feb. 28	2247	561	62	1244
Shilling, George, and C. G. Smith, Washington, D. C. Apparatus for moistening and cooling the atmosphere of rooms	494,494	Mar. 28	2806	703	62	1942
Shipe, Walter S. (See Garretson and Shipe.)						
Shipley, Ralph J., assignor to Holmes, Booth & Haydens, Waterbury, Conn. Punching and riveting machine	489,547	Jan. 10	881	230 / 231	62	200

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Shipman, John W., assignor of one-half to E. J. Weber, Kirkwood, Mo. Swing	491,379	Feb. 7	532	135, 136	62	350
Shipman, Richard A., Chicago, Ill. Car-coupling	489,765	Jan. 10	1202	315, 316	62	264
Shleppy, Ettie E. B., Crawfordsville, Ind. Combination beef-mangler	490,367	Jan. 24	2217	578	62	495
Shoemaker, Clement W. (See Crickler, Charles D. and H. F., assignors.)						
Shoninger, Bernard. (See Loman, John R., assignor.)						
Short Electric Railway Company. (See Short, Sidney H., assignor.)						
Short, John N., Johnstown, Pa. Metal-straightening press	489,102	Jan. 3	189	50, 51	62	44
Short, Sidney H., assignor to Short Electric Railway Company, Cleveland, Ohio. Electric locomotive	491,666	Feb. 14	986	249	62	961
Short, Sidney H., assignor to Short Electric Railway Company, Cleveland, Ohio. Directly-connected motor for cars	491,667	Feb. 14	989	249	62	962
Shortaleave, William H., Chicopee Falls, Mass., assignor to Overman Wheel Company, Hartford, Conn. Wheel-carrying frame for sulkies	490,929	Jan. 31	3131	803	62	688
Showalter, J. Benjamin F., Valparaiso, Ind. Musical key and transposition guide	490,509	Jan. 24	2438	629	62	537
Shreiner, Edward M., and A. Leinfinger, Canton, Ohio. Toy	490,319	Jan. 24	2139	558	62	479
Shriver, William, Philadelphia, Pa. Folding seat for schools, theaters, &c	493,452	Mar. 14	1072	276	62	1584
Shulio, Neal P., Butte City, Mont. Combined writing-desk, bureau, and book and dressing case	492,877	Mar. 7	168	40	62	1391
Shull, John H., Findlay, Ohio. Matched lumber	492,736	Feb. 28	2665	660	62	1328
Shultz, Edward L., Hartford, Conn. Wrench	491,606	Feb. 14	902	226	62	944
Shultz, Jacob F., San Jacinto, assignor of one-half to G. F. Kernaghan, Pasadena, Cal. Plow-shovel	493,389	Mar. 14	974	251	62	1566
Shumway, Perry H., Sizerville, Pa. Apparatus for filling barrels	491,195	Feb. 7	220	56	62	789
Shumway, Perry H., Corry, Pa. Device for shaking crated bottles	493,046	Mar. 7	429	108	62	1443
Shurtleff, Asahel M., assignor to Codman & Shurtleff, Boston, Mass. Valve for pneumatic tires	494,088	Mar. 21	2138	547	62	1804
Shurtleff, Asahel M., assignor to Codman & Shurtleff, Boston, Mass. Valve for pneumatic tires	494,089	Mar. 21	2140	547	62	1804
Sibbald, Charles J., Cohoes, N. Y., assignor to C. Cooper, Bennington, Vt. Stop-motion attachment for knitting-machines	489,420	Jan. 3	664	180	62	143
Sibley, Dennis E., assignor to J. A. Sibley, Chicago, Ill. Grain-scouring machine	493,603	Mar. 14	1340	341	62	1635
Sibley, James A. (See Sibley, Dennis E., assignor.)						
Sichel, Max, San Francisco, Cal. Producing dental cement	492,056	Feb. 21	1586	.....	62	1095
Sichtermann, Fritz. (See Thiele, Küpferling, and Sichtermann.)						
Sickles, Garret F., Coxsackie, N. Y. Refrigerator-box	492,503	Feb. 28	2310	573	62	1256
Sieber, John H., Henderson, Ky. Box or canister	492,878	Mar. 7	169	40	62	1392
Siebert, Alfred, New York, N. Y. Refrigerating apparatus	489,335	Jan. 3	539	146, 147	62	116
Siebert, Frederick, St. Louis, Mo. Pulley	490,835	Jan. 31	2970	762	62	656
Sieker, Edward A., and A. H. Schmidt, Brownwood, Tex. Sheep-dipper	494,365	Mar. 28	2441	615	62	1874
Siemens, Georg W. von, assignor to Siemens & Halske, Berlin, Germany. Conductor system for electric railways	489,573	Jan. 10	919	239, 240	62	207
Siemens, Georg W. von, assignor to Siemens & Halske, Berlin, Germany. Closed conduit for electric railways	493,948	Mar. 21	1902	485	62	1759
Siemens & Halske. (See Du Bois-Reymond, Alard, assignor.)						
Siemens & Halske. (See Fröhich, Oscar, assignor.)						
Siemens & Halske. (See Görges, Johannes H. F., assignor.)						
Siemens & Halske. (See Henneberg, Hermann O., assignor.)						
Siemens & Halske. (See Philipsborn, Alexander, assignor.)						
Siemens & Halske. (See Philipsborn and Schiemann, assignors.)						
Siemens & Halske. (See Siemens, Georg W. von, assignor.)						
Sienknecht, Christian C. A., Kingston, Tenn. Gate-brace	491,906	Feb. 14	1360	338	62	1036
Sievers, Henry J., *et al.* (See Athey, Isaac H., assignor.)						
Siewers, Joseph B., Decatur, Ill. Churn-dasher	489,336	Jan. 3	545	147	62	117
Sigafoos, Russel B., Racine, Wis. Type-writer cabinet	490,197	Jan. 17	1811	473	62	403
Silleck, Charles D. (See Stephens, Henry, assignor.)						
Silliman, Herbert R., Rochester, N. Y. Last	492,114	Feb. 21	1675	417	62	1113
Silver, William, Tamworth, New South Wales. Animal-shears	494,034	Mar. 21	2052	524	62	1788
Silverman, Louis, Crayford, England. Corrugated tube for boilers, &c	494,033	Mar. 21	2050	523, 524	62	1787
Simmons, Daniel W., Cave Spring, Ga. Snap and buckle	489,505	Jan. 10	826	216	62	188
Simmons Hardware Company. (See Markle, Charles N., assignor.)	491,449	Feb. 7	644	160	62	870
Simmons, John P., and W. J. Holmes, San Francisco, Cal. Adjustable rock-crusher	490,215	Jan. 17	1956	512	62	430
Simmons, Joseph C., Martinsville, Ohio. Fence	492,115	Feb. 21	1677	418	62	1113
Simon, Jacob J., McDonaldsville, Ohio. Potato cutter and planter	492,943	Feb. 21	1883	471	62	1157
Simons, Benjamin, Charleston, S. C. Rotating grain-weigher	494,035	Mar. 21	2053	524, 525	62	1788
Simons, Frank, assignor of two-thirds to A. D. Aquart and C. Fuchs, St. Louis, Mo. Lock	494,446	Mar. 28	2726	683	62	1927
Simonson, Flavel, Milwaukee, Wis. Riffle	492,057	Feb. 21	1587	395	62	1096
Simplex Car Coupler Company. (See Scurr and Cotton, assignors.)						
Simplex Car Coupler Company. (See Scurr and Shipple, assignors.)						
Simpson, Alexander, Scranton, and M. Speicher, Archbald, Pa. Injector	490,590	Jan. 24	2552	657	62	559
Simpson, John, Cleveland, Ohio. Car-coupling	489,992	Jan. 17	1578	413	62	354
Simpson, W. W., *et al.* (See Athey, Isaac H., assignor.)						
Simpson, William S., London, England. Apparatus for casting metals	493,047	Mar. 7	430	108	62	1443
Sims, Henry J., Ottawa, Canada. Hat or clothes brush	489,694	Jan. 10	1089	282	62	242
Sims, Jesse B., Washington, D. C. Whiffletree-hook	489,271	Jan. 3	449	124	62	99
Sims, Lewis C., Newark, Ohio. Roof-gutter	490,815	Jan. 31	2943	755	62	651
Singer, Joseph, Los Angeles, Cal. Fishing-reel	491,955	Feb. 14	1433	357	62	1050
Singer Manufacturing Company of New Jersey. (See Friederich, Christian, assignor.)						
Singer Manufacturing Company of New Jersey. (See Gates, Charles A., assignor.)						
Singer Manufacturing Company of New Jersey. (See Greene, James G., assignor.)						
Singer, Paris E., London, England. Keyed musical instrument actuated by electricity	492,563	Feb. 28	2399	597	62	1276
Sinkler, James F., Troy, Tenn. Vehicle-brake	490,368	Jan. 24	2217	578	62	495
Sinn, Louis, Philadelphia, Pa. Cooking-pot	489,041	Jan. 3	96	27	62	24
Sir W. G. Armstrong, Mitchell & Company. (See Noble and Henderson, assignors.)						
Sitler, Edwin J., assignor of two-fifths to H. C. Mechtersheiner, Chicago, Ill. Car-coupling	489,421	Jan. 3	667	181	62	143
Sitzig, Lena, Brooklyn, N. Y. Combined cloak and skirt-protector	489,103	Jan. 3	191	51	62	45
Sittmann, Gustav. (See Pitt and Sittmann.)						
Sjoberg, Carl J. A., Brooklyn, assignor to Garvin Machine Company, New York, N. Y. Type-writing machine	492,844	Mar. 7	109	27	62	1379

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Skaggs, Newton J., assignor of one-half to J. C. Lee, Montgomery, Ala. Fluid-fuel burner	492,440	Feb. 28	2191	547, 548	62	1282
Skelton, Horace T. (See Barber, Bates, Mabry, and Skelton.)						
Skidmore, Frederick R. (See O'Connor, Phillip, assignor.)						
Skiles, Richerd J., Pittsburg, Pa. Vehicle-spring	490,794	Jan. 31	2914	749	62	644
Skinner, Thomas J., Auburn, assignor of one-half to J. A. Reynolds, Carroll, Iowa. Tire-heater	489,042	Jan. 3	97	27	62	24
Slade, Frank N., Columbus, Ohio. Mining-machine	493,659	Mar. 21	1427	363	62	1667
Slater, George L., South Bend, Ind. Vending-machine	491,323	Feb. 7	436	112	62	831
Slattery, Dennis P. (See Pickles, Charles K., assignor.)						
Slaughter, Lorenzo T., Roanoke, Va. Locomotive sand-box	492,058	Feb. 21	1589	395	62	1096
Slocomb, Charles E., Everett, Mass. Shoe-nail	489,548	Jan. 10	884	231	62	200
Slonecker, Abiram J., Farmersville, Mo. Store-service apparatus	490,168	Jan. 17	1869	488	62	414
Sloper, Thomas B., Devizes, England. Means for plugging holes in rubber fabrics	490,369	Jan. 24	2219	578, 579	62	495
Sloss, Aaron M., Kansas City, Mo. Electric gas-lighting apparatus	489,616	Jan. 10	979	255	62	219
Slough, Martin, New York, N. Y. Coin-controlled apparatus	492,535	Feb. 28	2355	585	62	1265
Slutz, Herman V., Alta, and T. Slutz, Storm Lake, Iowa. Railway-tie	492,895	Mar. 7	194	48	62	1397
Slutz, Theophilus. (See Slutz, Herman V. and T.)						
Smethurst, William, and J. Wade, London, England. Apparatus for mixing gas and air	490,087	Jan. 17	1740	453	62	387
Smith, Albert, Washington, D. C. House-door letter-box	492,564	Feb. 28	2400	597	62	1276
Smith, Albert S. (See Mills and Smith.)						
Smith, Albert W., San Francisco, Cal. Constructing armature-cores for electric motors or dynamos	492,244	Feb. 21	1884	471	62	1157
Smith & Boullemet. (See Kline, Bruce F., assignor.)						
Smith, Charles F., New Britain, Conn. Molasses-gate	490,404	Jan. 24	2269	590	62	505
Smith, Charles G. (See Shilling and Smith.)						
Smith, Charles R., Providence, R. I. Sleeve-button	490,836	Jan. 31	2972	762	62	656
Smith, Charles T., assignor of two-fifths to C. R. Bosworth, Cleveland, Ohio. Oil-burner	489,549	Jan. 10	885	231	62	200
Smith, Christian, Detroit, Mich. Brush	493,414	Mar. 14	1005	259	62	1572
Smith, Clarence C. (See Stone and Smith.)						
Smith, Daniel H., Holyoke, Mass. Pneumatic tire	491,296	Feb. 7	393	101	62	822
Smith, Daniel H., assignor of one-fourth to A. C. Flegal, Morrisdale, Pa. Spring-motor	491,140	Feb. 7	125	33	62	772
Smith, Darwin, Des Moines, Iowa. Insecticide	490,688	Jan. 31	2748	.....	62	612
Smith, David, *et al.* (See Henry, John, assignor.)						
Smith, David J., assignor of one-half to G. D. Turner, Chicago, Ill. Reciprocating engine	489,766	Jan. 10	1204	316	62	264
Smith, E. Irving. (See Foster, Jonas R., assignor.)						
Smith, Edward, Bradford, England, assignor, by mesne assignments, to G. Draper & Sons, Hopedale, Mass. Automatic warp stop-motion for looms	491,139	Feb. 7	121	33	62	771
Smith, Edward G., San José, Cal. Electrical pressure-indicator for steam-gages	490,725	Jan. 31	2801	718	62	623
Smith & Egge Manufacturing Company. (See Egge, Frederick, assignor.)						
Smith, Elihn E., Baltimore, Md. Box for railway-joints	491,787	Feb. 14	1178	295	62	999
Smith, Emmet L., assignor to Reliance Corset Company, Jackson, Mich. Corset	492,172	Feb. 21	1772	442	62	1134
Smith, Ernst G., Columbia, Pa. Reversing-gear	489,104	Jan. 3	192	51	62	45
Smith, Eugene, Philadelphia, Pa. Saw-set	490,371	Jan. 24	2225	579	62	496
Smith, Frank J., Muskegon, Mich. Hinge	493,190	Mar. 7	648	165	62	1486
Smith, George, Little Rock, assignor of nine-tenths to D. A., O. B., A. H., B. A. Neal, J. L. Booth, A. G. Griffin, T. S. Anderson, J. H. Emison, J. M. Wright, W. P. Davis, El Paso, and J. A. Phelps, White county, Ark. Steam-engine	491,141	Feb. 7	126	33	62	773
Smith, Harry. (See Pullman and Smith.)						
Smith, Henry. (See Smith, Theodore and H.)						
Smith, Henry A., Lynn, Mass. Gate	494,390	Mar. 28	2651	665	62	1913
Smith, Herbert G., Clayaville, Pa. Well-bailer	492,117	Feb. 21	1681	419	62	1114
Smith, Horace T., Port Jefferson, N. Y. Speed-indicator	490,589	Jan. 31	3056	785	62	674
Smith, Ira T., Mount Carmel, Conn. Machine for swaging needle-blanks	492,589	Feb. 28	2437	606, 607	62	1284
Smith, J. B., *et al.* (See Trexler, David L., assignor.)						
Smith, Jacob C., assignor of one-half to J. H. Golfin and E. J. Hardeman, Luling, Tex. Combined car and air-brake coupling	491,227	Feb. 7	270	67, 68	62	799
Smith, James A., Cleavesville, Mo. Pipe-wrench	493,737	Mar. 21	1560	398	62	1695
Smith, James B., Brooklyn, assignor to E. Todd & Co., New York, N. Y. Magazine lead-pencil	489,043	Jan. 3	98	27	62	25
Smith, James H. (See Walker, Francis M., assignor.)						
Smith, Jay H., Rochester, N. Y. Fly-paper holder	491,860	Feb. 14	1288	319	62	1021
Smith, Jay H., and M. D. Knowlton, Rochester, N. Y., said Knowlton assignor to said Smith. Machine for the manufacture of fly-paper	491,861	Feb. 14	1290	319, 320	62	1022
Smith, John A. (See Goetz and Smith.)						
Smith, John L., Ogden, Utah Ter. Car-coupling	490,169	Jan. 17	1872	488	62	414
Smith, John M., Charleston, S. C. Axle-box	491,380	Feb. 7	533	136	62	850
Smith, John P., Portland, Me. Cash-indicator	493,306	Mar. 14	852	217	62	1541
Smith, John S. (See Montgomery, Floyd E., assignor.)						
Smith, John S., Leavenworth, Kans. Label-holder	490,687	Jan. 31	2746	707	62	612
Smith, John T., Heron Lake, Minn. Flax or hemp brake	494,174	Mar. 28	2294	581	62	1846
Smith, John T., Heron Lake, Minn. Finishing-machine for flax or hemp fiber	494,175	Mar. 28	2296	581	62	1847
Smith, John T., Heron Lake, Minn. Portable flax and hemp brake	494,176	Mar. 28	2298	582	62	1848
Smith, John V., Hayes, Ill. Pin-lock	489,272	Jan. 3	450	124	62	99
Smith, John V., Reserve, assignor of one-half to J. C. Porter, Jr., Allegheny, Pa. Core-barrel	489,188	Jan. 3	316	87	62	72
Smith, Levi W., assignor of two-thirds to J. Feldmeyer and C. A. Lyon, Milwaukee, Wis. Draft-evener	492,995	Mar. 7	352	89	62	1428
Smith, Lew C. (See Burkit, Christian S., assignor.)						
Smith, Lewis R., Portland, Mich. Cartridge-filler	492,171	Feb. 21	1769	442	62	1134
Smith, Loring M., Romeo, Mich. Running-gear for vehicles	492,845	Mar. 7	111	27, 28	62	1379
Smith, Martin L., Elwell, Iowa. Music-leaf turner	491,907	Feb. 14	1361	339	62	1036
Smith, Minard M., Brooklyn, N. Y. Piston	490,724	Jan. 31	2800	718	62	623
Smith, Morris F., Philadelphia, Pa., assignor of one-half to William Cramp & Sons Ship and Engine Building Company, of Pennsylvania. Machine for finishing bores of large gun-tubes or cannon	493,191	Mar. 7	649	165, 166	62	1486
Smith, Ned E. (See Odell and Smith.)						
Smith, Ophelia, Shepherdsville, Ky. Scrubber	494,037	Mar. 21	2056	525	62	1788
Smith, Reuben K., Greeley, Colo. Neck-yoke coupling	490,046	Jan. 17	1676	436	62	374
Smith, Richard, Sherbrooke, Canada. Mixing apparatus	492,475	Feb. 28	2248	562	62	1244
Smith, Roswell T., Nashua, N. H., assignor to C. H. Parsons, Brooklyn, N. Y. Cloth-folding machine	492,116	Feb. 21	1678	418, 419	62	1114

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Smith, Rudolph C., Yonkers, N. Y., assignor, by mesne assignments, to National Company, of Illinois. Elevator	490,370	Jan. 24	2223	579	62	496
Smith, Rudolph C., Yonkers, assignor to Otis Brothers & Company, New York, N. Y. Heater for compressed-air engines	491,859	Feb. 14	1287	319	62	1021
Smith, Samuel R., Colusa, Cal. Step-ladder	490,991	Jan. 31	3235	826	62	707
Smith, Seth T., assignor of one-half to H. P. Proctor, Viroqua, Wis. Hitching-strap holder. (See Hancock, George, assignor.)	489,438	Jan. 3	703	188	62	151
Smith, Theodore and H., Jersey City, N. J. Drier	492,340	Feb. 21	2028	504 505	62	1187
Smith, Thomas, Breckenridge, Miss. Tongs	490,510	Jan. 24	2440	629	62	538
Smith, Thomas, assignor to B. De Lissa and J. A. Wallace, Melbourne, Victoria. Apparatus for mixing air and gas	491,060	Jan. 31	3349	854	62	731
Smith, Willard A., Providence, R. I. Coin-actuated machine	491,196	Feb. 7	223	56, 57	62	790
Smith, William, assignor to Dale & Davis, Trenton, N. J. Water-closet	492,947	Mar. 7	276	70	62	1413
Smith, William J., Wilkinsburg, assignor of one-half to T. W. Welsh, Wilmerding, Pa. Train signaling apparatus	494,234	Mar. 28	2394	604 605	62	1866
Smith, William W., Traverse City, Mich. Car-coupling	494,391	Mar. 28	2652	665	62	1913
Smith, William W., Traverse City, Mich. Car-coupling	494,512	Mar. 28	2835	710	62	1947
Smith, Willie J., Ellis, Mo. Hay-stacker	492,059	Feb. 21	1589	395	62	1096
Smith, Yorick W. Washington, D. C. Lining for flues or chimneys	494,036	Mar. 21	2055	525	62	1788
Smyser, Henry E., Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y. Paper-feeder	492,374	Feb. 21	2080	520 521	62	1197
Smyser, Henry E., Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y. Automatic weighing-machine	493,795	Mar. 21	1650	420 421 422	62	1712
Smyser, Henry E., Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y. Automatic weighing-machine	493,796	Mar. 21	1658	422 423 424	62	1713
Smyser, Henry E., Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y. Automatic weighing-machine	493,797	Mar. 21	1663	424 425	62	1714
Smyser, Henry E., Philadelphia, Pa., assignor to Arbuckle Brothers, New York, N. Y. Feeding device for weighing-machines	493,798	Mar. 21	1667	425	62	1715
Smyth, David M., Northwood, N. H., assignor to Smyth Manufacturing Company, Hartford, Conn. Book-sewing machine	491,928	Feb. 7	273	68, 69	62	800
Smyth Manufacturing Company. (See Smyth, David M., assignor.)						
Smyth, Samuel, Pittston, Pa. Folding table	490,320	Jan. 24	2140	558	62	479
Sneckner, Frank A. L., assignor to National Cash Register Company, Dayton, Ohio. Cash-register	492,974	Mar. 7	320	81	62	1423
Sneer, George S., Marengo, Iowa. Wagon end-gate	489,721	Jan. 10	1131	292	62	249
Snider, Henry C., Joshua, Tex. Washing-machine	494,447	Mar. 28	2729	684	62	1927
Snoddy, Hayden C. and S. D., Greenville, Ky. Type-setting machine	489,934	Jan. 10	1296	339 340 341	62	285
Snoddy, Samuel D. (See Snoddy, Hayden C. and S. D.)						
Snoeck, Albert, Ensival, Belgium. Depth-gage	490,860	Jan. 31	3003	771	62	693
Snow, Charles B. (See Watrous and Snow.)						
Snow, Thomas, Batavia, Ill. Tower for windmills	493,660	Mar. 21	1428	364	62	1667
Snyder, Andrew S., Homestead, Pa. Gage-line holder	492,636	Feb. 28	2518	621	62	1269
Snyder, John A., Pittsburg, Pa. Cork cutting and facing machine	492,846	Mar. 7	113	28, 29	62	1340
Snyder, John T., Luzerne, Pa. Drilling-machine	489,044	Jan. 3	100	25	62	25
Snyder, John T., Luzerne, Pa. Drilling-machine	492,118	Feb. 21	1682	419	62	1114
Snyder, Robert L., Chattanooga, Tenn. Water-cooling refrigerator	490,511	Jan. 24	2441	629 630	62	538
Snyder, Thomas J., Wallowa, Oreg. Hay-loader	493,307	Mar. 14	853	217 218	62	1541
Snyder, Waldo V., Canton, Ohio. Tricycle	492,060	Feb. 21	1590	395	62	1096
Snyder, Waldo V., Canton, Ohio. Toy	492,061	Feb. 21	1592	396	62	1097
Snyder, Waldo V., Canton, Ohio. Tricycle	492,062	Feb. 21	1593	396	62	1097
Snyder, Waldo V., Canton, Ohio. Tricycle	492,063	Feb. 21	1595	396	62	1097
Sobolewski, Amanda J., Denver, Colo. Toy	492,476	Feb. 28	2249	562	62	1244
Société, Nouvelle de Constructions Système Tollet. (See Lastelle, Henry P. de., assignor.)						
Society of Chemical Industry in Basle. (See Gnehm and Schmid, assignors.)						
Society of Chemical Industry in Basle. (See Schmid, Jakob, assignor.)						
Society of Chemical Industry in Basle. (See Schmid and Mohler, assignors.)						
Society of Chemical Industry in Basle. (See Schmid and Paganini, assignors.)						
Soderberg, Anders A., Boston, Mass. Cake-cutter	490,993	Jan. 31	3237	827	62	707
Soehner, Oscar. (See Diater, Joseph, assignor.)						
Söhner, Andreas, Berlin, Germany. Lantern	492,896	Mar. 7	195	48	62	1397
Solar Refining Company. (See Frasch, Herman, assignor.)						
Soldwedel, Nicholaus, Union, N. J. Refrigerator	490,216	Jan. 17	1957	513	62	430
Sollors, Trustin A., *et al.* (See Jones, Wesley C., assignor.)						
Solomon, Charles S. (See Griffith, Wilfred S., assignor.)						
Solomon, Saunders B., Rochester, N. Y. Neckscarf	490,512	Jan. 24	2442	630	62	538
Somers, Daniel M. (See Atkinson and Somers.)						
Somers, William, Atlantic City, N. J. Roundabout	489,238	Jan. 3	395	109 110	62	89
Sommer, John. (See Sommer, Peter, J., and P. W.)						
Sommer, Peter, J., and P. W., Tremont, Ill. Machine for making wire fencing	490,775	Jan. 31	2878	739 740	62	637
Sommer, Peter W. (See Sommer, Peter, J., and P. W.)						
Sooter, Milton C., Palace, Mo. Cutter-bar for mowing-machines	491,142	Feb. 7	126	34	62	773
Soper, Hubbell O., Aurora, and W. M. Brown, Dixon, Ill. Clothes-pounder	489,506	Jan. 10	827	216	62	180
Soper, William H., Jackson, Mich. Lamp-chimney holder	489,695	Jan. 10	1090	282	62	242
Soret, Almable H., Elbeuf, J. Hurtu and V. Hautin, Paris, France. Circular loom	491,324	Feb. 7	438	113 114	62	831
Sonchet, Mathieu E. A., assignor of one-half to M. Ollier, Paris, France. Artificial flower and making same	490,170	Jan. 17	1874	488	62	415
Soules, Silas G., and H. E. Stowe, Hudson, Mass. Eye-shade	490,513	Jan. 24	2443	630	62	538
Southard, Charles H. T. J. (See Talpey, John H., assignor.)						
Southwark Foundry and Machine Company. (See Good, William E., assignor.)						
Southwark Foundry and Machine Company. (See James, Thomas, assignor.)						
Southwick, Albert N., Boston, Mass. Apparatus for holding checks	492,441	Feb. 28	2192	548	62	1232
Spalding & Brothers, A. G., *et al.* (See Perkins, Albert, assignor.)						
Spalding, Warren A., New Haven, Conn. Box for tooth-powder	493,528	Mar. 14	1201	307	62	1606

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Spangler, Fred S., Orion, Ill. Washing-machine	490,372	Jan. 24	2227	580	62	497
Spangler, James M., Canton, Ohio. Combined hay rake and tedder	492,341	Feb. 21	2030	505	62	1187
Sparks, Charles H. (See Hull, William S., assignor.)						
Sparks, William E. (See Page and Sparks.)						
Spear, Anson R., Devil's Lake, N. D. Envelope	491,928	Feb. 14	1395	348	62	1043
Spear, Arthur, assignor of one-half to E. F. Angell, Chicago, Ill. Self-closing gas-burner	490,321	Jan. 24	2141	558	62	479
Spearing, Robert J., Sherbrooke, Canada. Safety attachment for car-trucks	493,661	Mar. 21	1429	364	62	1668
Spearing, Robert J., Sherbrooke, Canada. Safety-shoe and brake attachment for car-trucks	493,662	Mar. 21	1432	365	62	1668
Spectatoria Company. (See Mackaye, Steele, assignor.)						
Speer, Jacob S., Springfield, Mo. Car-axle box	491,819	Feb. 14	1222	306	62	1009
Speicher, Mathias. (See Simpson and Speicher.)						
Speight, George, Bradford, and S. Chapman, Blackley, England. Sewing-machine	494,039	Mar. 21	2060	526	62	1789
Speight, George, Bradford, S. Chapman, Blackley, and R. Todd, Manchester, England. Sewing-machine	494,038	Mar. 21	2057	525 526	62	1789
Spencer, Charles F., assignor of one-half to J. C. M. Bosdyk, Rochester, N. Y. Game puzzle	489,304	Jan. 3	627	169	62	135
Spencer, George, assignor to C. W. Colby, Old Mission, Idaho. Antifriction journal-box	494,392	Mar. 28	2651	665	62	1913
Spencer, James H., Beaver Crossing, Nebr. Lister-cultivator	493,878	Mar. 21	1777	453	62	1736
Spencer, Michael J., Lawrence, Mass. Drier and carbonizer	490,171	Jan. 17	1876	489	62	415
Sperl, Antonin, Los Angeles, and J. Gecmen, Cucamonga, Cal.; said Gecmen assignor to said Sperl. Portable fruit-evaporator	489,168	Jan. 3	280	78	62	64
Spilker, John J., Cincinnati, Ohio. Miter-box	490,514	Jan. 24	2444	630 631	62	539
Spillman, Lorenz. (See Scranton and Spillman.)						
Spink, Eugene A., Chicago, Ill. Aging liquors	489,337	Jan. 3	545	147	62	117
Spittell, Christian A., New Brunswick, N. J. Folding paper box	489,993	Jan. 17	1570	413	62	355
Spofford, Jason, Jr., Amesbury, Mass. Carriage	492,477	Feb. 28	2250	562	62	1244
Spohr & Krämer. (See Vonhaus and Becker, assignors.)						
Spooner, Philip D. (See Nicholls, John C., assignor.)						
Sprague, Austin V. M., Rochester, N. Y. Belt-shifter	494,177	Mar. 28	2300	582 583	62	1848
Sprague, Charles H., *et al.* (See Bennett, Willis, assignor.)						
Spring, Gottlieb L., Pawnee City, Nebr. Cultivator	489,507	Jan. 10	898	217	62	189
Spring, Marcia W. A., *et al.*, trustees. (See Goodale, Stephen L., assignor.)						
Springer, James F. (See Hoffstaedt and Springer.)						
Springston, John W. C., Winfield, Kans. Mail bag or pouch	490,172	Jan. 17	1878	489	62	415
Spry, Benjamin F., Des Moines, Iowa. Pavement	489,105	Jan. 3	194	52	62	45
Spung, Lemuel B. (See Longstreth and Spung.)						
St. Germain, Marshall, St. Albans, Vt. Stall-floor	490,931	Jan. 31	3136	804	62	689
St. Louis Register Company. (See Ehrlich, Leo, assignor.)						
St. Louis Register Company. (See Fassett and Reh, assignors.)						
St. Louis Stamping Company. (See Zeitinger, Christian J., assignor.)						
St. Mary, Joseph. (See St. Mary, Peter and J.)						
St. Mary, Peter and J., San Francisco, Cal. Damper-regulating apparatus	491,384	Feb. 7	538	137	62	851
Stahl, Gustav. (See Kintner, Charles J., assignor.)						
Stahl, Samuel A., and B. Klipper, Knoxville, Tenn. Watch-chain charm or other article of jewelry	491,382	Feb. 7	536	136	62	850
Stahr, William J., Bloomsburg, Pa. Car-brake	491,381	Feb. 7	534	136	62	850
Staiger, John F., and C. Schnur, Mount Vernon, Ind. Suspender-button	491,197	Feb. 7	225	57	62	790
Stamp, John M., Carterville, Mo. Rail-joint	494,235	Mar. 28	2396	605	62	1866
Stanbrough, Rufus G., New York, N. Y. Dental machine for grinding artificial tooth-crowns	490,930	Jan. 31	3133	803 804	62	688
Stanchfield, John B. (See Wood, William H., assignor.)						
Standard Caster and Wheel Company. (See Lachman, Morris, assignor.)						
Standard Lubricant Company. (See Atkinson, Lewis E., assignor.)						
Standard Pearl Button Company. (See Carlyle, George, assignor.)						
Standard Screw Elevator Manufacturing Company. (See Coyle, Andrew M., assignor.)						
Standiford, Jacob F., Muscogee, Indian Ter. Magnetic tool	492,245	Feb. 21	1886	471	62	1157
Stanley, Frank F., *et al.*, trustees. (See Goldin, Louis, assignor.)						
Stanley, Frank M., Guthrie, Oklahoma Ter. Car-coupling	490,515	Jan. 24	2447	631	62	539
Stanley Manufacturing Company. (See Hatfield, Charles B., assignor.)						
Stanley, William, Jr., Pittsfield, Mass. Alternating-current meter	494,513	Mar. 28	2837	710	62	1947
Stanley Works. (See Corscaden, Thomas, assignor.)						
Stanley Works. (See Hart, William H., assignor.)						
Stanwood, Jeremiah D., Warren, R. I. Spring-presser for carding-machines	491,143	Feb. 7	128	34	62	773
Staples, Edward F. (See Sullivan and Staples.)						
Stapleton, John G., Washington, D. C. Artificial-tooth plate	494,393	Mar. 28	2654	665	62	1913
Stark, Andrew, Chicago, Ill. Grain-binder	492,590	Feb. 28	2439	607	62	1284
Stark, Andrew, Chicago, Ill. Cord-knotter for grain-binders	492,591	Feb. 28	2443	608	62	1285
Stark, Charles A., Duluth, Minn. Closed-conduit electric railway	489,835	Jan. 10	1303	340	62	286
Stark, Charley H., *et al.* (See Stark, George L., assignor.)						
Stark, Frank G., assignor, by mesne assignments, to Carbo-Alumina Metal Company, St. Louis, Mo. Alloy of metals and making same	490,174	Jan. 17	1880	.....	62	416
Stark, George L., McKinney, Tex., assignor of two-thirds to C. H. and T. J. Stark. Bed-spring-coiling machine	489,550	Jan. 10	885	232	62	200
Stark, James, Jr., *et al.* (See Olmsted, Levi, assignor.)						
Stark, James M., assignor of one-half to J. McLaren and H. L. Humphrey, Detroit, Mich. Car-coupling	489,395	Jan. 3	628	169	62	135
Stark, Theodore A., Ottawa, Ill. Motor	490,173	Jan. 17	1878	489	62	416
Stark, Thomas J., *et al.* (See Stark, George L., assignor.)						
Starkey, James T. (See Starkey, William H. and J. T.)						
Starkey, William H. and J. T., Moncton, Canada. Car-coupling	491,450	Feb. 7	645	161	62	871
Starkweather, Martin S., Boston, Mass. Fender for electric or other cars	489,207	Jan. 3	344	97	62	79
Starr Anchor Company. (See Starr, Eben T., assignor.)						
Starr, Eben T., New York, assignor to Starr Anchor Company, Hempstead, N. Y. Anchor	493,901	Mar. 21	1814	461 462	62	1743
Starr, Eli T., assignor to S. S. White Dental Manufacturing Company, Philadelphia, Pa. Dental chair	490,516	Jan. 24	2450	631 632	62	540
Starr, John E. (See Branson, Thornburgh, and Starr.)						
Starz, Albert. (See Starz, Cornelius, assignor.)						
Starz, Cornelius, assignor of one-half to A. Starz, Pittsburg, Pa. Nut-lock	491,908	Feb. 14	1363	339	62	1036
Stasch, Emil R., assignor to Corning Manufacturing Company, Corning, N. Y. Hot-air furnace	489,994	Jan. 17	1580	413	62	355

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stauffer, David R. (See Stauffer, Henry E., assignor.)						
Stauffer, Henry E., Wilmington, Del., assignor to D. R. Stauffer, Walkersville, Md. Toy microscope	493,529	Mar. 14	1202	307	62	1607
Steam Gauge and Lantern Company *et al.* (See Erb, Charles F., assignor.)						
Stearns, Albyn D., assignor to Frederick Stearns & Company, Detroit, Mich. Apparatus for holding and dipping pills	493,604	Mar. 14	1341	342	62	1636
Stearns, Henry O. (See Hastings, Robert L., assignor.)						
Steck, George, New York, N. Y. Piano	491,607	Feb. 14	904	227	62	944
Steedley, Robert T., Hillsborough, assignor of one-fourth to G. A. McIlhenny, Forest, Miss. Thrasher and separator	491,689	Feb. 14	1025	256 / 259	62	970
Steedman, Robert, Berkeley, Cal. Setting-gage for door-frames	493,566	Mar. 14	1271	325	62	1621
Steel Motor Company. (See Harris, Samuel, assignor.)						
Steel, Walter, Reading, Pa. Machine for rounding, straightening, and planishing metal bars	491,668	Feb. 14	990	250	62	962
Steel, Walter J., assignor of one-half to H. C. Braham, London, England. Sash-fastener	489,274	Jan. 3	452	125	62	99
Steel, William J. (See Ahner, Cyrus S., assignor.)						
Steele, James W., Elizabethtown, N. Y. Car-coupling	491,862	Feb. 14	1296	320	62	1020
Steele, James W., assignor to G. D. Cook, Chicago, Ill. Wrench	489,273	Jan. 3	451	124	62	99
Steele, John, Denver, Colo. Spraying device for fire-hose nozzles	492,119	Feb. 21	1683	420	62	1115
Steen, James H., Canton, assignor of one-half to J. W. Cole, Columbus, Ohio. Surface-cutting tool	492,310	Feb. 21	1983	493	62	1178
Steers, William, Boston, Mass. Bicycle-saddle	492,375	Feb. 21	2084	521	62	1197
Steffen, Carl, Vienna, Austria-Hungary. Centrifugal machine	489,643	Jan. 10	1013	263	62	226
Steffen, Carl, Vienna, Austria-Hungary, assignor, by mesne assignments, to W. W. Frazier, Philadelphia, Pa. Obtaining sugar	489,879	Jan. 10	1357	354	62	297
Stein, Herman E., *et al.* (See Sumner, William A., assignor.)						
Stein, Joseph N., Fort Wayne, Ind. Car-replacer	493,308	Mar. 14	855	218	62	1541
Steinen, Otto, Omaha, Nebr., assignor of one-half to H. Kind, Stapleton, N. Y. Shears	493,415	Mar. 14	1005	259	62	1572
Stelzner, Alfred, Wiesbaden, Germany. Stringed musical instrument	492,948	Mar. 7	277	70	62	1413
Stempel, Omar A. (See Newman, Werden, and Stempel.)						
Stempel, Omar A., assignor of two-thirds to J. F. Wangler and Missouri Lamp and Manufacturing Co., St. Louis, Mo. Fire-extinguisher	489,767	Jan. 10	1206	317	62	265
Stenberg, John A., La Vergne, Ill. Razor	489,995	Jan. 17	1582	414	62	355
Stenger, Francis, Philadelphia, Pa. Car-coupling	491,929	Feb. 14	1395	348	62	1043
Stephan, Franz, Werchniatschka, Russia. Machine for cutting beet-roots	489,338	Jan. 3	546	147 / 148	62	117
Stephens, Benjamin H., Woodland, Cal. Device for raising loaded trucks	489,339	Jan. 3	548	149	62	118
Stephens, George W., Denison, Iowa. Beehive	491,669	Feb. 14	992	250	62	962
Stephens, Henry, assignor, by mesne assignments, to C. D. Silleck, Brooklyn, N. Y. Mail-bag	490,232	Jan. 17	1978	519	62	435
Stephens, Jesse A., assignor of two-thirds to G. N. Higman and M. E. Vandercook, Muncie, Ind. Carpet stretcher and tacker	492,771	Feb. 28	2728	679	62	1341
Stephens, Olney, Astoria, Ill. Valve-gear	489,836	Jan. 10	1308	341	62	287
Stephenson, Elwood F., Cartersburg, Ind. Brick or tile kiln	492,064	Feb. 21	1596	396 / 397	62	1097
Stephenson, John, New York, N. Y. Tram-car	491,608	Feb. 14	904	227	62	944
Sterns, Jacob, New York, N. Y. Car-coupling	490,128	Jan. 17	1813	474	62	403
Sterrit, William B., Pittsburg, Pa. Molding-machine	491,273	Feb. 7	334	85	62	812
Stetson, Charles M., Rosario, Argentine Republic. Nut and bolt lock	490,176	Jan. 17	1883	490	62	416
Steuart, William R., Chicago, Ill. Shoe-stilt	493,663	Mar. 21	1435	365	62	1668
Steuerwald, Philip, and A. Cording, Sannemin, Ill. Latch	490,517	Jan. 24	2452	632	62	540
Stevens, Edward G. (See Warren, John D., assignor.)						
Stevens, Henry A., Norristown, Pa. Folding table	491,760	Feb. 14	1131	285	62	991
Stevens, Henry A., Norristown, assignor to J. W. Douglas, Philadelphia, Pa. Life-saving apparatus	494,090	Mar. 21	2144	548	62	1805
Stevens, Samuel J., assignor of one-half to D. S. Trimmer, Springfield, Ohio. Nut-lock	493,127	Mar. 7	553	138	62	1468
Stevens, Sidney M., De Kalb, Ill. Cooking-stove	494,350	Mar. 28	2576	649	62	1900
Stevens, Truman E., Blair, assignor of one-half to W. J. C. P. Cramer, Omaha, Nebr. Balanced electric drop-light hanger	492,847	Mar. 7	114	29	62	1380
Stevens, Wilbur F., Detroit, Mich. Screw-cleaning device	491,144	Feb. 7	128	34	62	773
Stevens, William H. (See Chase, John F., assignor.)						
Stevenson, John, Jr., New Castle, Pa. Wire-nail machine	492,565	Feb. 28	2402	597 / 598 / 599	62	1276
Stevenson, John L., assignor of one-half to J. E. York, Chicago, Ill. Brick	490,726	Jan. 31	2802	718 / 719	62	623
Stevenson, John W. (See Thomas, Henry O., assignor.)						
Stevenson, John W., *et al.* (See Thomas, Henry O., assignor.)						
Stever, Solomon F., Fairfield, Iowa. Railway-rail joint	492,848	Mar. 7	115	29	62	1380
Steward, John A., East Clarendon, Vt. Soldering-machine	493,309	Mar. 14	857	218	62	1541
Steward, John F., Chicago, Ill. Sheaf-carrier for self-binding harvesters	490,591	Jan. 24	2553	657	62	560
Stewart, Allen H., Des Moines, Iowa. House-door letter-box	492,443	Feb. 28	2194	549	62	1233
Stewart, Charles F., *et al.* (See Nembach, Andrew, Jr., assignor.)						
Stewart, George W., Ticonderoga, N. Y. Core-driver	493,192	Mar. 7	651	166	62	1486
Stewart, Jennie M., Camden, N. J. Eye for hooks and eyes	492,442	Feb. 28	2193	548	62	1232
Stewart, John C. (See Braley and Stewart.)						
Stewart, Joseph B., Haverstraw, N. Y. Track-circuit	491,609	Feb. 14	905	227	62	944
Stewart, Sherman U. (See Peterson and Stewart.)						
Stewart, William G., Ireland, Ind. Beehive	489,696	Jan. 10	1091	282	62	242
Stibbs, William P., Belleville, N. J. Step-ladder	491,820	Feb. 14	1223	306	62	1009
Stickney, Charles W., Butte, Mont. Roasting sulphur-bearing ores	493,193	Mar. 7	652	.....	62	1486
Stifel, Herman C., St. Louis, Mo., F. J. Torrance, and O. F. Grant, Allegheny, Pa. Bath-tub	493,194	Mar. 7	654	166	62	1486
Stiggleman, James H., Wabash, Ind. Fastening for furniture	491,383	Feb. 7	537	137	62	851
Stine, George A., Spokane, Wash. Seed-planter	491,863	Feb. 14	1297	320	62	1023
Stine, John F. (See Mowry, Joseph B., assignor.)						
Stirling, Allan, New York, N. Y. Machine for bending tubes	493,390	Mar. 14	975	251	62	1566
Stirling, Allan, New York, N. Y., assignor to Stirling Boiler Company, Chicago, Ill. Steam-boiler	491,451	Feb. 7	646	161	62	871
Stirling Boiler Company. (See Stirling, Allan, assignor.)						
Stockard, Charles C., Sr., Columbus, Miss. Garden-hoe plow	492,120	Feb. 21	1685	420	62	1115
Stocking, Harry M., and E. L. Vroom, Castleton Corners, N. Y. Separable square	490,994	Jan. 31	3238	827	62	708
Stockstrom, Louis, assignor to Geo. D. Barnard & Company, St. Louis, Mo. Ballot-box	493,195	Mar. 7	655	166 / 167	62	1487

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Stockwell, Emory and H. C., assignors to Yale & Towne Manufacturing Company, Stamford, Conn. Electric bolt-operating mechanism for safes	494,495	Mar. 28	2808	703 / 704	62	1942
Stockwell, Herbert C. (See Stockwell, Emory and H. C.)						
Stockwell, Willard E., assignor of one-half to W. T. Hess, Grand Rapids, Mich. Trimming-machine	490,837	Jan. 31	2973	763	62	657
Stoddard, Hiram D., Binghamton, N. Y. Breast-strap	491,864	Feb. 14	1299	320	62	1023
Stokes, Arthur E., Island Heights, N. J. Game apparatus	494,496	Mar. 28	2811	705	62	1943
Stokesbary, John H. (See Althoff and Stokesbary.)						
Stolle, Frank J., Cincinnati, Ohio. Cloth-notcher	491,253	Feb. 7	306	78	62	807
Stone, Albert J., *et al.* (See Phillips, Elwood C., assignor.)						
Stone, Charles F., Chicago, Ill. Starching-machine	492,311	Feb. 21	1984	494	62	1179
Stone, Draper, Pittsford, N. Y. Window-screen	493,664	Mar. 21	1436	366	62	1669
Stone, Samuel A., Fennimore, and J. Philipps, Lancaster, Wis.; said Stone assignor to said Philipps. Bracket or support for foot-railings	490,395	Jan. 31	3240	827	62	708
Stone, Thomas B., and C. C. Smith, Camptown, Pa. Buckle and snap-hook combined	490,047	Jan. 17	1677	436	62	374
Stoner, John B., New York, N. Y. Grain-conveyer	492,879	Mar. 7	170	41	62	1392
Stoner, John B., assignor to C. B. Hillhouse, New York, N. Y. Pneumatic grain-elevator	489,340	Jan. 3	549	149	62	118
Storar, Fordyce, Springfield, Ill. Packingless valve	493,567	Mar. 14	1273	325	62	1621
Storie, Joshua R., Travisville, Tenn. Harrow attachment	493,310	Mar. 14	859	219	62	1542
Storle, Ole O., Milwankee, Wis., assignor to William Deering & Company, Chicago, Ill. Harvester	491,746	Feb. 14	1108	280	62	986
Storle, Ole O., Burlington, Wis., assignor to W. Deering, Chicago, Ill. Self-binding harvester	493,530	Mar. 14	1203	307 / 308	62	1607
Storm, John, Kirksville, Mo. File gage and clamp	492,065	Feb. 21	1597	397	62	1097
Storz, Carl A. G., Frankfort-on-the-Main, Germany. Hose-pipe coupling	489,106	Jan. 3	195	52	62	45
Storz, Carl A. G., Frankfort-on-the-Main, Germany. Hose-pipe coupling	489,107	Jan. 3	196	52	62	46
Stott, Samuel H., Preston, county of Lancaster, England. Means for impregnating the water or liquid discharged from syringes	489,396	Jan. 3	630	170	62	136
Stonder, Augustus G. (See Douglass and Stonder.)						
Stout, James A., assignor to Harrison Machine Works, Belleville, Ill. Traction-engine	491,385	Feb. 7	540	137 / 138	62	851
Stout, John P., assignor of one-fourth to R. J. Kennedy, Washington, D. C. Combined check or token and missive	490,048	Jan. 17	1678	436	62	374
Stow, William E., Newborn, Ga. Display-stand	493,128	Mar. 7	554	138	62	1468
Stowe, Horace E. (See Soules and Stowe.)						
Stowe, James G., Kansas City, Mo. Device for holding harrow-teeth	491,297	Feb. 7	394	101	62	822
Straker, Sidney, assignor to Central Cyclone Company, Limited, London, England. Machine for grinding, crushing, or disintegrating grain, &c.	493,531	Mar. 14	1206	308 / 309	62	1607
Strassner, Hermann, Erfurt, Germany, assignor to S. Baron, New York, N. Y. Gas heating-stove for smoothing-irons	493,532	Mar. 14	1207	309	62	1608
Strattner, Frederick, Salisbury, Md., assignor of one-half to W. Thompson, Wilmington, Del. Draft-regulator for locomotive smoke-stacks	492,246	Feb. 21	1887	471	62	1158
Stratton, Charles H., Brandt, Pa. Traction-engine	492,637	Feb. 28	2520	624	62	1291
Stratton, William H., Providence, R. I. Valve for automatic dry-pipe fire-extinguishers	489,311	Jan. 3	552	150	62	118
Stratton, William H., Providence, R. I. Automatic fire-extinguisher	489,342	Jan. 3	553	150	62	119
Straub, Ambrose W., Philadelphia, Pa. Metallic railway-tie	492,121	Feb. 21	1686	420	62	1115
Straubel, Richard, Jr., New York, N. Y. Eyeglasses	489,996	Jan. 17	1584	414	62	355
Straus, Alexander, New York, N. Y. Cycle-handle	490,459	Jan. 24	2351	608	62	520
Straus, Alexander, New York, N. Y. Cycle-tire	491,386	Feb. 7	543	138	62	852
Straus, Alexander L., Baltimore, Md. Bottle	491,198	Feb. 7	226	57	62	790
Street, Clement F., Milwaukee, Wis., assignor to Johnson Steel Street Rail Company, of Kentucky. Spring-tongue switch	490,323	Jan. 24	2143	559	62	480
Streeter, Edwin W. (See Lockhart and Streeter.)						
Streeter, Nelson R., Groton, N. Y. Knockdown paper-roll holder and cutter	492,975	Mar. 7	322	81	62	1423
Streit, Anton, Cincinnati, Ohio. Pulley-lathe	493,738	Mar. 21	1561	398	62	1695
Strepey, Lindsay S., Aspen Junction, assignor of one-half to H. B. Gillespie, Aspen, Colo. Potato-digger	494,533	Mar. 28	2874	719	62	1954
Strenfert, Charles, assignor of one-half to C. Holstein, Chicago, Ill. Furnace	492,066	Feb. 21	1598	397	62	1097
Strippgen, Emil, St. Louis, Mo. Composite board or strip for walls, &c	492,849	Mar. 7	117	30	62	1380
Stroite, Thomas A., Johnstown, Mo. Tension-needle for harvester-binders	492,444	Feb. 28	2195	549	62	1233
Strohecker, C. J. D. (See Bumpus, George D., assignor.)						
Stromberg, Alfred, Chicago, Ill. Electric switch	493,369	Mar. 14	948	243 / 244	62	1560
Strong, Frank R. (See Arms, Melford D., assignor.)						
Strowger, Almon B. and W. S., assignors to Strowger Automatic Telephone Exchange, Chicago, Ill. Combined indicating electric switch and current reverser	492,850	Mar. 7	117	30	62	1381
Strowger Automatic Telephone Exchange. (See Strowger, Almon B. and W. S., assignors.)						
Strowger, Walter S. (See Strowger, Almon B. and W. S.)						
Strnsholm, Anders M., Woodbridge, N. J., assignor of one-half to R. W. Lyle, New York, N. Y. Tile-fastener	492,996	Mar. 7	353	89	62	1429
Stuart, Alexander, Jr., Hamilton, Canada. Tobacco-cutter	489,108	Jan. 3	197	53	62	46
Stuart, Charles H. (See Thayer, Bernard, assignor.)						
Stuart, Orsini. (See Higginbottom and Stuart.)						
Stuart, Richard H., Philadelphia, Pa. Sample-case	494,304	Mar. 28	2655	666	62	1914
Stuck, Dewell, Rochester, N. Y. Bracket for dental chairs	491,610	Feb. 14	908	227	62	945
Stuck, Dewell, Rochester, N. Y. Dental chair	491,611	Feb. 14	909	228 / 229	62	945
Stupakoff, Simon H., assignor of one-half to E. H. Goodman, Pittsburg, Pa. Pattern for railway-frogs	492,638	Feb. 28	2521	624 / 625	62	1300
Sturdy, Joseph E., Yarmouth, Mass. Cranberry-gatherer	489,239	Jan. 3	397	110	62	89
Sturgeon, James R., Churubusco, Ind. Checkrein-guide	494,308	Mar. 28	2564	632	62	1897
Sturtevant, Charles A., Plainfield, N. J. Fire-escape	493,391	Mar. 14	976	251	62	1566
Sturts, Charles F. A., San Francisco, Cal. Electric burglar-alarm	492,478	Feb. 28	2251	563	62	1245
Stutley, James S. P., Adelaide, South Australia. Incandescent burner for hydrocarbon gas	494,040	Mar. 21	2061	526	62	1789
Sugden, James, and W. J. L. Sandy, assignors to C. H. Freedman, F. W. Suter, and H. Wyman, London, England. Electric-arc lamp	490,992	Jan. 31	3236	826	62	707
Sullivan, Daniel F., and E. F. Staples, Lowell, Mass. Stop mechanism for knitting-machines	490,758	Jan. 31	2854	732	62	632
Sullivan, Jere K. (See Dyke, Albion, assignor.)						
Sullivan, Michael H., Fall River, Mass. Portable confessional	494,179	Mar. 28	2303	583	62	1849
Sullivan, Timothy, Janesville, Wis. Transplanter	494,178	Mar. 28	2301	583	62	1848
Sumner, William A., Clay Center, Nebr., assignor of three-fourths to J. C. and G. S. Ward and H. E. Stein. Well-tilling coupler	491,956	Feb. 14	1436	358	62	1051

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Sundstrom, Karl J., Brooklyn, assignor to Church & Co., New York, N. Y. Manufacture of soda	492,929	Mar. 7	251	63	62	1408
Superior Drill Company. (See Packham, Frank R., assignor.)						
Suppes, Max M., assignor to Johnson Company, Johnstown, Pa. Brace-chair for girder-rails	489,508	Jan. 10	830	217	62	189
Sürther Maschinenfabrik, vormals H. Hammerschmidt. (See Luhmann, Eduard, assignor.)						
Susemihl, Francis G., Detroit, Mich. Coal-chute	493,949	Mar. 21	1904	485	62	1760
Suter, Frank W., *et al.* (See Sugden and Sandy, assignors.)						
Sutherland, Robert, Boston, Mass. Attachment for elevators	489,240	Jan. 3	398	110	62	89
Sutton, Benjamin F. (See Parker and Sutton.)						
Sutton, Columbus P., Nashville, Ark. Cultivator	490,322	Jan. 24	2142	559	62	479
Sutton, Edward L., and C. R. Reed, Stillwater, Minn. Combined cane and camp-stool	490,416	Jan. 24	2288	594	62	507
Sutton, Harry C., Lancaster, Pa., assignor to L. Wernberg, Brooklyn, N. Y. Device for operating door-bells	492,753	Feb. 28	2693	669	62	1334
Sutton, John, and J. W. Buckley, Formby, England. Steam-boiler furnace	494,041	Mar. 21	2062	527	62	1789
Sutton, William, assignor of one-fourth to R. McIlvoy, Willisburg, Ky. Nut-lock	489,595	Jan. 10	953	248	62	213
Swampscott Machine Company. (See Rundlett and Hoyt, assignors.)						
Swank, William W., Seattle, Wash. Car-coupling	491,612	Feb. 14	912	229	62	946
Swartz, John T., Tyrone, Pa. Rein-button	491,199	Feb. 7	227	57	62	790
Sweeny, Robert E., assignor of one-half to J. W. Booze, Jackson Centre, Ohio. Sash-fastener	489,768	Jan. 10	1209	317	62	265
Sweesy, Thaddeus, Bradford, Pa. Automatically-feeding ink-stand	494,448	Mar. 28	2731	684	62	1927
Sweet, Ira C. N., assignor to C. C. Gregory, Sandwich, Ill. Combined stovepipe and collar holder	490,233	Jan. 17	1979	519	62	435
Sweet, Joseph B., Buffalo, N. Y. Vehicle-brake	489,997	Jan. 17	1584	414	62	356
Sweet, Orange M., assignor of one-half to J. B. Webster, Silver Creek, N. Y. Pipe-coupling	494,284	Mar. 28	2474	624	62	1880
Sweetland, Frank, Angola, N. Y. Tire for cycle-wheels	489,509	Jan. 10	830	217	62	189
Sweetland, Frank, Angola, N. Y. Hitching-strap	489,837	Jan. 10	1307	341	62	287
Sweetland, Frank, Angola, N. Y. Bicycle	491,200	Feb. 7	228	58	62	791
Sweetland, Frank, Angola, N. Y. Hitching-strap	492,445	Feb. 28	2197	549	62	1239
Sweetland, Frank, Angola, and J. Faulks, Buffalo, N. Y. Sand-band for vehicles	489,838	Jan. 10	1308	341	62	287
Swenson, Benny, Roland, Iowa. Brick-kiln	489,617	Jan. 10	980	255	62	210
Swihart, John H., Dayton, Ohio. Computing-scale	490,518	Jan. 24	2453	632	62	540
Swindell, John C. (See Swindell, William and J. C.)						
Swindell, William and J. C., Allegheny, Pa. Furnace	490,088	Jan. 17	1742	{453 454	62	388
Swope, Abram B., Lebanon, Pa. Cigar	489,397	Jan. 3	631	170	62	136
Sykes, Benjamin J., Sykesville, Pa. Wind-wheel	493,533	Mar. 14	1209	{309 310	62	1608
Syracuse Specialty Manufacturing Company. (See Nase, John, assignor.)						
T. C. Dill Machine Company. (See Dill, Thomas C., assignor.)						
Taber, John E., Fall River, Mass. Hose-washer	491,821	Feb. 14	1225	307	62	1009
Tabor, Stephen, and J. Murphy, Chicago, Ill. Carpet-stretcher	489,769	Jan. 10	1210	317	62	265
Tagliabue, Charles J., Brooklyn, N. Y. Thermometer	493,197	Mar. 7	657	167	62	1487
Tallant, James F., Charleston, S. C. Picture	489,343	Jan. 3	554	150	62	119
Talley, Clarence C., *et al.* (See Sennett and Arnett, assignors.)						
Talpey, John H., assignor of one-half to C. H. T. J. Sonthard, Richmond, Me. Car-coupling	493,534	Mar. 14	1210	310	62	1608
Tambs, Robert C., Magog, Canada. Breast-collar coupling	493,311	Mar. 14	860	219	62	1542
Taplin, Alden, Lawrence, Mass. Stopping mechanism for looms	490,175	Jan. 17	1881	490	62	416
Taplin, James B., Akron, Ohio. Outside friction-band clutch	489,045	Jan. 3	101	28	62	26
Tarbell, Wendell P., Milford, N. H. Mirror-support and adjusting device	494,497	Mar. 28	2813	705	62	1943
Tarrant, George, Brandon, N. Y., assignor of one-half to P. A. Ducey, Detroit, Mich. Railway tie and chair	492,446	Feb. 28	2198	550	62	1233
Tarrant, Jennie, Onalaska, Wis. Gravity-dog for gang-edgers	491,201	Feb. 7	230	58	62	791
Tarrant, William P., assignor of one-half to T. C. Schallehn, Saratoga Springs, N. Y. Sleigh-runner attachment for baby-carriages	493,416	Mar. 14	1006	259	62	1572
Tatro, Charles P., assignor of fifty-one one-hundredths to himself, S. F. Coons, and C. M. Patterson, Spokane, Wash. Underground conduit for electric railways	489,422	Jan. 3	669	181	62	144
Tauberschmidt, George A., assignor of one-half to E. S. Clarkson, Washington, D. C. Detecting apparatus for coin-actuated boxes	492,592	Feb. 28	2445	608	62	1285
Taylor, Alfred, assignor of one-half to M. Cusack and F. Knobloch, San Francisco, Cal. Ratchet-brace	490,617	Jan. 24	2601	670	62	569
Taylor, Alfred P., Denver, Colo. Vehicle-hub	490,089	Jan. 17	1744	454	62	388
Taylor, Andrew W., Pierce City, Mo. File-holder	494,498	Mar. 28	2814	705	62	1943
Taylor, Charles A., Jacksonville, Ill. Swinging gate	494,449	Mar. 28	2733	684	62	1928
Taylor, Charles H., *et al.* (See Davis, George A., assignor.)						
Taylor, Charles H., Lincoln, Nebr. Husking-machine	490,727	Jan. 31	2804	719	62	624
Taylor, Charles H., Lincoln, Nebr. Roller for corn harvesting, husking, and separating machines	493,453	Mar. 14	1074	276	62	1584
Taylor, Cooper & Bednell. (See Taylor, George, assignor.)						
Taylor, David H. (See Westwood, John T., assignor.)						
Taylor, Edward T., Oakland, Cal. Cash register and indicator	494,534	Mar. 28	2876	720	62	1954
Taylor, Frederick D., assignor to Electro-Automatic Appliance Company, Hartford, Conn. Apparatus for stopping engines	490,373	Jan. 24	2228	580	62	497
Taylor, George, Jersey City, N. J. Pipe-support	492,593	Feb. 28	2448	609	62	1285
Taylor, George, assignor to Taylor, Cooper & Bednell, Limited, Coventry, England. Apparatus for manufacturing metal balls	491,452	Feb. 7	647	{162 163	62	871
Taylor, Henry B., assignor to Palmer & Taylor, Blair, Nebr. Parcel-cabinet	491,145	Feb. 7	129	35	62	774
Taylor, Hilliard S., Homer, La. Gin-saw fender	490,049	Jan. 17	1679	436	62	374
Taylor, Walter M., London, England. Substitute for sponges, brushes, &c.	489,697	Jan. 10	1091	292	62	242
Taylor, William. (See Youngjohns and Taylor.)						
Tebo, Joseph, and A. Paquin, Claremont, N. H. Car-coupling	490,838	Jan. 31	2975	763	62	657
Tedlock, James M., Urbana, Mo. Churn	493,535	Mar. 14	1212	310	62	1609
Teeple, Peter, Watertown, N. Y. Chimney-cleaner	490,374	Jan. 24	2231	580	62	497
Tellier, Charles, Paris, France. Producing motive power	492,976	Mar. 7	325	82	62	1423
Temple, Morris D., Chicago, Ill. Pump	490,776	Jan. 31	2888	741	62	639
Temple, Thomas H. (See Nelson and Temple.)						
Templeton, William E., Indianapolis, Ind. Bath-tub	489,241	Jan. 3	399	111	62	89
Tengwall, Andreas, Helsingborg, Sweden. Letter-file	491,266	Feb. 7	324	82	62	811
Terney, Charles F., New York, N. Y. Fireproof floor	493,568	Mar. 14	1274	326	62	1622
Terpening, Charles S., Dayton, Wash. Ax-handle shield and protector	489,511	Jan. 10	832	218	62	189
Terrell, Edward H. (See Carolan and Terrell.)						
Terrell, James R. (See Carolan and Terrell.)						
Terrell, John R., and W. E. Frasier, Osceola, Tex. Horse-power	493,370	Mar. 14	950	244	62	1561

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Terry, Alice V. (See Green, William W., assignor.)						
Terry, Homer W., Springfield, Mass. Machine for cutting buttons	492,997	Mar. 7	354	89	62	1429
Terry, Jacob E., Hecla, Mont. Hitching device	489,510	Jan. 10	831	218	62	189
Teufel, Wilhelm J., Stuttgart, Germany. Abdominal corset	489,698	Jan. 10	1093	283	62	243
Thacher, William A., New York, N. Y. Dumping-car	489,242	Jan. 3	400	{111 112	62	90
Thacher, William A., New York, N. Y. Dumping-car	489,243	Jan. 3	404	{112 113	62	90
Thacker, Thomas, Fall River, Mass. Weft stop-motion for looms	492,998	Mar. 7	356	90	62	1429
Thaler, Louis, New York, N. Y. Electric circuit for railway-signaling	491,387	Feb. 7	544	138	62	852
Thatcher, Jesse W. (See Hullings, Charles W., assignor.)						
Thayer, Bernard, assignor of one-half to C. H. Stuart, Boston, Mass. Die-stock	491,453	Feb. 7	651	163	62	872
Theiss, Emil. (See Bleg and Theiss.)						
Thenerner, Christopher J., Newark, N. J. Cleansing silver	490,816	Jan. 31	2943	.....	62	651
Thiel, Henry, Milwaukee, assignor of one-half to H. Venells, Port Washington, Wis. Seine-hauling apparatus	490,375	Jan. 24	2232	581	62	498
Thiele, Maximilian, C. Küpferling, and F. Sichtermann, Berlin, Germany. Toy	491,690	Feb. 14	1026	259	62	971
Thiell, George L., Baltimore, Md. Apparatus for controlling the draft in boiler-chimneys	490,177	Jan. 17	1883	490	62	417
Thoma, George H., Three Rivers, Mich. Lawn-sprinkler	493,312	Mar. 14	861	219	62	1542
Thomas, George L., Brooklyn, N. Y. Series system for railways	491,691	Feb. 14	1027	259	62	971
Thomas, George L., Brooklyn, N. Y. Pneumatic weather-strip	494,351	Mar. 28	2577	649	62	1900
Thomas, Gustus D., Greenville, Miss. Book for bookkeeping	491,202	Feb. 7	231	58	62	791
Thomas, Henry O., Kimball, assignor of one-half to J. W. Stevenson, North Bend, Nebr. Tree or shrub baler or binder	494,352	Mar. 28	2579	{649 650	62	1900
Thomas, Henry O., Kimball, assignor of one-half to J. W. Stevenson, North Bend, Nebr. Tree-baler	494,353	Mar. 28	2585	650	62	1902
Thomas, Henry O., Kimball, assignor of two-thirds to J. W. Stevenson and C. Cusack, North Bend, Nebr. Combined badge, pencil, and bouquet holder	491,614	Feb. 14	915	230	62	947
Thomas, Isaac, *et al.* (See Rodgers, George W., assignor.)						
Thomas, James E., and E. P. Grow, Bay City, Mich. Water-distilling apparatus	491,028	Jan. 31	3301	842	62	721
Thomas, John H., and D. B. Hiser, assignors to Thomas Manufacturing Company, Springfield, Ohio. Wheel	489,880	Jan. 10	1360	354	62	297
Thomas Manufacturing Company. (See Thomas and Hiser, assignors.)						
Thomas, Nathan M., assignor of one-third to H. B. James, Aberdeen, Md. Metallic cross-tie	491,229	Feb. 7	275	69	62	800
Thomas, Robert S. (See Elam and Thomas.)						
Thomas, Septimus, Scranton, Pa. Slate-picker	494,395	Mar. 28	2656	666	62	1914
Thomas, Thomas, Denver, assignor of one-half to J. Burgess, Argo, Colo. Desulphurizing-furnace	491,274	Feb. 7	336	85	62	813
Thomas, Victor F. (See Cross, Isaac T., assignor.)						
Thomas, William H. (See Vollmer and Thomas.)						
Thomas, William M., Grand Rapids, assignor to L. Warfield, Detroit, Mich. System of winding armatures for dynamo-electric machines	494,042	Mar. 21	2063	527	62	1790
Thomas, William M., Chicago, Ill., assignor to L. Warfield, Detroit, Mich. Electric cigar-lighter	494,091	Mar. 21	2146	548	62	1805
Thomason, Edwin R., San Francisco, Cal. Apparatus for reducing bituminous rock	492,639	Feb. 28	2524	625	62	1300
Thompson, Evert M., Indianapolis, Ind. Ice-cream freezer	491,930	Feb. 14	1397	348	62	1043
Thompson, George A., Tombstone, Ariz. Ter. Cam for stamp-mills	493,129	Mar. 7	535	138	62	1468
Thompson, George W., Lynn, Mass. Relasting-machine	493,196	Mar. 7	656	167	62	1487
Thompson, Henry J., Springfield, Mass. Journal-box	493,665	Mar. 21	1437	366	62	1669
Thompson, James F., Rockland, assignor of one-half to C. F. Baker, Boston, Mass. Coloring or burnishing composition	494,514	Mar. 28	2839	.....	62	1948
Thompson, John, New York, N. Y. Electric-arc lamp	492,312	Feb. 21	1986	494	62	1179
Thompson, John, assignor to Frey-Sheckler Company, Bucyrus, Ohio. Brick or tile cutting machine	491,747	Feb. 14	1110	{280 281	62	986
Thompson, John G. (See Goodrich, Charles F., assignor.)						
Thompson, Noble E., Richmond, Va. Wagon-brake	490,217	Jan. 17	1958	513	62	430
Thompson, Robert M., New York, N. Y. Obtaining and separating sulphide of nickel	489,574	Jan. 10	921	.....	62	207
Thompson, Robert M., New York, N. Y. Obtaining and separating sulphide of nickel	489,575	Jan. 10	923	.....	62	207
Thompson, Robert M., New York, N. Y. Obtaining and separating sulphide of nickel	489,576	Jan. 10	925	.....	62	208
Thompson, Robert M., New York, N. Y., assignor to Orford Copper Company, of New Jersey. Obtaining and separating sulphide of nickel	489,881	Jan. 10	1362	.....	62	297
Thompson, Sarah R., Henrietta, Tex. Fruit-press	494,396	Mar. 28	2657	667	62	1914
Thompson, Sumner C., assignor of one-half to J. E. Adriance, Poughkeepsie, N. Y. Drill-chuck	489,722	Jan. 10	1132	293	62	250
Thompson, Thomas, New London, Wis. Washer-cutter and carriage-tool	492,640	Feb. 28	2525	625	62	1300
Thompson, William, and D. Dishart, Sunderland, England. Mooring apparatus	491,613	Feb. 14	914	{229 230	62	946
Thomson, Elihu, Swampscott, Mass. Thermal circuit-closer	490,839	Jan. 31	2976	764	62	658
Thomson, Elihu, Swampscott, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric-arc lamp	489,046	Jan. 3	102	28	62	26
Thomson, Elihu, Swampscott, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Armature for dynamo-electric machines or motors	490,376	Jan. 24	2233	581	62	498
Thomson, Elihu, Swampscott, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Dynamo-electric machine	493,313	Mar. 14	862	{219 220	62	1542
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Electric-circuit breaker	490,178	Jan. 17	1885	491	62	417
Thomson, Elihu, Swampscott, Mass., assignor to General Electric Company, of New York. Lightning-arrester	493,314	Mar. 14	864	220	62	1543
Thomson, Elihu, Lynn, Mass., assignor to Thomson-Houston Electric Company, of Connecticut. Electric-arc lamp	493,739	Mar. 21	1566	399	62	1696
Thomson-Houston Electric Company. (See Bassett, Norman C., assignor.)						
Thomson-Houston Electric Company. (See Blackwell, Francis O., assignor.)						
Thomson-Houston Electric Company. (See Hunter, Rudolph M., assignor.)						
Thomson-Houston Electric Company. (See Morris, Elmer P., assignor.)						
Thomson-Houston Electric Company. (See Parshall, Horace F., assignor.)						
Thomson-Houston Electric Company. (See Potter, William B., assignor.)						
Thomson-Houston Electric Company. (See Rohrer, Albert L., assignor.)						
Thomson-Houston Electric Company. (See Thomson, Elihu, assignor.)						
Thomson, John L., Bayonne, N. J., assignor to Orford Copper Company, of New Jersey. Producing and separating sulphide of nickel	489,882	Jan. 10	1363	.....	62	297
Thomson Meter Company. (See Lambert, Frank, assignor.)						
Thomson, Willard. (See Strattner, Frederick, assignor.)						
Thornburgh, Robert D. (See Branson, Thornburgh, and Starr.)						
Thorne, Lawrence C., assignor of one-half to J. V. Emmitt, Sterling, Ill. Blind-stop	492,122	Feb. 21	1687	420	62	1116

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Thornton, Rodolph D., Brooklyn, N. Y. Awning	493,130	Mar. 7	557	138	62	1469
Throop, Frank. (See Winston and Throop.)						
Thrun, Ferdinand J., Romeo, Wis. Boiler	489,344	Jan. 3	555	150, 151	62	119
Thurmond Car Coupling Company. (See McKeen, Thomas L., assignor.)						
Thurston, Charles H., assignor to F. W. Thurston, Boston, Mass. Suspension-hook	490,996	Jan. 31	3240	827	62	708
Thurston, Douglas A., Toronto, Canada. Window-jack	491,146	Feb. 7	131	35	62	774
Thurston, Edwin L., Cleveland, Ohio, assignor to L. Watson, Denver, Colo. Puzzle	490,689	Jan. 31	2748	707	62	612
Thurston, Frank W. (See Thurston, Charles H., assignor.)						
Thurston, George A., Brooklyn, assignor to Crandall & Godley Company, New York, N. Y. Ice-cream can	489,998	Jan. 17	1585	414	62	356
Thurston, James B., Concord, N. H. Shade-holding mechanism	493,879	Mar. 21	1778	454	62	1736
Thurtle, George E. (See Thurtle, William and G. E.)						
Thurtle, William and G. E., Bay City, Mich. Railway-switch	491,500	Feb. 7	714	181	62	886
Tibbals, Halsey J., Philadelphia, Pa. Label	492,641	Feb. 28	2526	626	62	1301
Tidmarsh, Harry E. (See Wells and Tidmarsh.)						
Tiers, Cornelius. (See Pendleton and Tiers.)						
Tietjen, George H., San Francisco, Cal. Apparatus for transferring or stenciling upon transparent or other material	493,315	Mar. 14	865	220, 221	62	1543
Tiffany, Henry B., Clyde, Ohio. Attachment for wall-paper-trimming machines	489,345	Jan. 3	557	151	62	120
Tiffany, John N., assignor of one-half to R. Crockett, San Diego, Cal. Adjustable support for bracket-tables	493,605	Mar. 14	1342	342	62	1636
Tilbery, Scott. (See Bendure and Tilbery.)						
Tilden, Burt E., assignor to B. E. Tilden Co., Chicago, Ill. Car-replacer	489,109	Jan. 3	198	53	62	46
Tilden Co., B. E. (See Tilden, Burt E., assignor.)						
Tilden, James A., Hyde Park, Mass., assignor to Hersey Manufacturing Company, Portland, Me. Disk water-meter	489,208	Jan. 3	345	97	62	79
Tilloy, Charles A., Lille, France. Grate-bar	490,932	Jan. 31	3137	804, 805	62	689
Timmerman, William T., assignor to himself and J. W. Alexander, New York, N. Y. Shoelace fastener	490,997	Jan. 31	3242	828	62	709
Timms, James, Columbus, Ohio. Unlocking-lever for car-couplings	491,388	Feb. 7	546	139	62	853
Timms, James, assignor-to Buckeye Automatic Car Coupler Company, Columbus, Ohio. Buffer and end sill for cars	493,371	Mar. 14	951	244, 245	62	1561
Tinsley, Wyatte H., assignor of one-half to H. H. McKee, Homer, La. Fish-trap	492,123	Feb. 21	1689	421	62	1116
Tipton, John, Hymera, Ind. Post-hole digger	493,536	Mar. 14	1213	310	62	1609
Tirrell, Jacob P., Boston, assignor to H. O. Edgerton, Greenfield, Mass. Electric time-alarm	489,423	Jan. 3	671	181, 182	62	144
Tirrell Jacob P., Boston, assignor to H. O. Edgerton, Greenfield, Mass. Valve-controlling clutch	489,424	Jan. 3	673	182	62	145
Titsworth, David E., *et al.* (See Brooks, John, assignor.)						
Titsworth, Joseph M., *et al.* (See Brooks, John, assignor.)						
Titus, Odeon H., Wilmington, Del. Hominy-mill	489,723	Jan. 10	1133	293	62	250
Tobey, Fred W., Grand Rapids, Mich. Desk-support	491,615	Feb. 14	916	231	62	947
Tobin, Jeremiah. (See Whiting, Edward A., assignor.)						
Tobin, John, assignor of one-half to P. J. Daemicke, Chicago, Ill. Scale and bristle detaching machine	493,454	Mar. 14	1075	276, 277	62	1584
Todd & Co., Edward. (See Smith, James B., assignor.)						
Todd, Eldoras, Clavering, Canada. Belting	492,880	Mar. 7	172	42	62	1392
Todd, Richard. (See Speight, Chapman, and Todd.)						
Tomkinson, George, assignor to Tomkinson & Mills, Tipton, England. Annealing-furnace	492,594	Feb. 28	2449	609	62	1226
Tomkinson & Mills. (See Tomkinson, George, assignor.)						
Tomlinson, James G., Birmingham, Ala. Car-signal	491,203	Feb. 7	232	59	62	792
Toohey, James, Kansas City, Kans. Water-motor	493,569	Mar. 14	1276	326, 327	62	1622
Topliff, George F., Boston, Mass., and F. B. Comins, Providence, R. I. Car-fender	489,134	Jan. 3	230	62	62	53
Tornwall, Perry A., assignor of one-half to T. W. Bramlitt, Okolona, Miss. Fan attachment for chairs	490,234	Jan. 17	1980	519	62	435
Torrance, Francis J. (See Stifel, Torrance, and Grant.)						
Torsch, Edward L., Baltimore, Md. Button-fastener	491,788	Feb. 14	1179	295	62	999
Totman, John J., and E. G. Wheeler, Amsterdam, N. Y. Chair-pad	491,325	Feb. 7	441	114	62	832
Totten & Hogg Iron and Steel Foundry Company. (See Freeman, Francis L., assignor.)						
Toucey, Ferris D., assignor of three-fourths to F. Dunham, G. McNeir, and F. C. Johnson, Minneapolis, Minn. Rod-packing	491,029	Jan. 31	3303	843	62	722
Tournachon, Paul, Paris, France. Registering device for photographic cameras	492,642	Feb. 28	2527	626	62	1301
Tower, Augustus C. (See Tower, Justus D. and A. C.)						
Tower, George M., Fitchburg, Mass. Valve-lock	492,313	Feb. 21	1987	495	62	1179
Tower, Justus D. and A. C., Mendota, Ill. Cultivator	489,346	Jan. 3	559	151	62	120
Towers, David I., New York, N. Y., assignor to N. Burgess, Highlands, N. J. Theatrical stage appliance	494,043	Mar. 21	2065	528	62	1790
Towle, Frederick, Detroit, Mich. Merchandise-seller	491,147	Feb. 7	132	35, 36	62	774
Towne, Enoch H., Worcester, Mass. Registering and canceling ballot-box	489,169	Jan. 3	282	79	62	65
Towne, Henry R., assignor to Yale & Towne Manufacturing Company, Stamford, Conn. Rotating automatic machine-tool	489,398	Jan. 3	631	170, 171	62	136
Townsend, Emory L., Los Angeles, Cal. Manufacture of hose-couplings	493,316	Mar. 14	867	221	62	1543
Townsend, James L., Fulmore, N. C. Stalk-chopper	489,047	Jan. 3	104	29	62	26
Towse, William R., Columbus, Ohio. Holder for sewing-machine covers	492,851	Mar. 7	121	30	62	1381
Towson, Morris S., Cleveland, Ohio, assignor to Love Electric Traction Company, Chicago, Ill. Railway-yoke	490,690	Jan. 31	2749	708	62	612
Tracy, Harriet R., New Brighton, N. Y. Shuttle-actuating mechanism for sewing-machines	493,131	Mar. 7	558	139	62	1469
Tracy, John M., New York, N. Y., and G. S. Hodges, Orchard Lake, Mich. Photographic camera	494,354	Mar. 28	2590	651	62	1902
Trafford, Wesley, New York, N. Y. Electric signaling apparatus	492,545	Feb. 28	2372	589, 590	62	1270
Trammell, Erasmus R., Lakeland, Fla. Car-coupling	490,592	Jan. 24	2556	657	62	560
Trapp, Edward A., Paterson, N. J. Dumping-car	490,324	Jan. 24	2144	559, 560	62	480
Trapp, Edward A., Paterson, N. J. Guard-rail for railways	490,325	Jan. 24	2147	560, 561	62	480
Trapp, Edward A., Paterson, N. J. Dumping-car	493,317	Mar. 14	868	221, 222	62	1543
Traut & Hine Manufacturing Company. (See Adams, George E., assignor.)						
Traut & Hine Manufacturing Company. (See Richards, Hubert P., assignor.)						
Trautman, Adam, assignor of two-thirds to A. W. Ball and C. A. Allen, Galion, Ohio. Car-coupling	490,604	Jan. 24	2578	664	62	565

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Traver, Adelbert L., Mellinville, N. Y. Machine for sewing looped fabrics	490,417	Jan. 24	2290	595	62	508
Travers, Vincent P., New York, N. Y. Hammock-stretcher	492,852	Mar. 7	122	31	62	1381
Treat, Charles H., and A. B. Banghart, Baltimore, Md.; said Banghart assignor to said Treat. Machine for pressing wood dishes	489,399	Jan. 3	634	172	62	136
Trebbin, Max, Berlin, Germany. Nail-trimmer	490,377	Jan. 24	2234	581	62	498
Tredegar Company. (See Johnson, John W. R., assignor.)						
Tredway, John W., and J. Wirth, Philadelphia, Pa. Recoil-check for firearms	490,129	Jan. 17	1815	474	62	404
Tregoning, Charles, New York, N. Y. Lubricator	491,389	Feb. 7	547	139	62	853
Treiber, Theodore R., Chicago, Ill. Attachment for bath-tubs	492,949	Mar. 7	278	71	62	1414
Trethewey Manufacturing Company. (See Trethewey, Samuel, assignor.)						
Trethewey, Samuel, assignor to Trethewey Manufacturing Company, Pittsburg, Pa. Shearing-machine	490,777	Jan. 31	2889	741	62	640
Trexler, David L., assignor of three-fourths to R. L. Payne, Sr., and Jr., and J. B. Smith, Lexington, N. C. Bed-brace	489,347	Jan. 3	561	152	62	120
Trice, William E., assignor to Self Adjusting Shoe Company, St. Louis, Mo. Sole	490,998	Jan. 31	3243	828	62	709
Trillich, Heinrich, assignor to Kathreiners Malzkaffeefabriken Wilhelm & Brougier, Munich, Germany. Coffee-roasting apparatus	493,606	Mar. 14	1344	342	62	1636
Trimmer, David S. (See Stevens, Samuel J., assignor.)						
Tripp, Augustus F., assignor to S. Shepard & Co., Buffalo, N. Y. Milk-can	489,644	Jan. 10	1014	264	62	226
Tripp, John W., Sedalia, Mo., assignor of one-third to M. B. Mason, Falls City, Nebr. Band-cutter and feeder	492,067	Feb. 21	1599	398	62	1098
Tripp, Thomas, Avon, Mass. Metallic packing	490,050	Jan. 17	1680	437, 438	62	374
Tripp, Thomas, Avon, Mass. Metallic packing	490,051	Jan. 17	1682	438	62	375
Tripp, Thomas, Avon, assignor, by mesne assignments, to W. G. Means, Boston, Mass., and A. Blood, Manchester, N. H. Electric-car truck	489,883	Jan. 10	1365	354, 355	62	298
Trippe, Merrill H., Baltimore, Md., assignor of two-thirds to D. M. Harrison. Fan for vehicles	491,454	Feb. 7	652	163	62	872
Trogdon, Como, Paris, Ill. Game apparatus	491,298	Feb. 7	395	101	62	822
Trojan Button Fastener Company. (See Ham, Albert W., assignor.)						
Trojan Car Coupler Company. (See Renshaw, Alfred H., assignor.)						
Trotter, Andrew W., Petersville, Ind. Furrow-closing attachment for corn-planters	491,390	Feb. 7	549	139	62	853
Trout, Frank. B., Detroit, Mich. Locking hat-rack	490,326	Jan. 24	2149	561	62	481
Trout, William H. (See Hinkley, Hanson, and Trout.)						
Trouvé, Gustave, Paris, France. Fountain	490,378	Jan. 24	2235	581, 582	62	498
Trouvé, Gustave, Paris, France. Luminous fountain	492,999	Mar. 7	357	90	62	1430
True, Laforest P., Clinton, Me. Can	490,418	Jan. 24	2292	595	62	508
True, Moses E., Batavia, N. Y. Crosscut-saw handle	490,691	Jan. 31	2751	708	62	613
Tryon, John, *et al.* (See Harper, Henry, assignor.)						
Tubbesing, Frank R., Quincy, Ill. Dashboard	490,692	Jan. 31	2752	708	62	613
Tucek, Marie, New York, N. Y. Breast-supporter	494,597	Mar. 28	2653	667	62	1914
Tucker, Edwin J. (See Gerhard, Henry E. T., assignor.)						
Tucker, John G. D., Perrysville, Ohio. Elevated railway	493,132	Mar. 7	559	139, 140	62	1469
Tucker, Mina, *et al.* (See Lattimore, Daniel J., assignor.)						
Tucker, Stephen D., *et al.* (See Crowell, Luther C., assignor.)						
Tucker, Stephen D., *et al.* (See Shattuck, Edwin L., assignor.)						
Tuffs, John H., assignor of one-half to A. C. Wood, Syracuse, N. Y. Gas-furnace	492,367	Feb. 21	2072	517, 518	62	1195
Tuggle, John W., Sheltonville, Ga. Seed-planter	492,479	Feb. 28	2254	563	62	1245
Tuley, William W., executor. (See Harris, Frank M.)						
Turbayne, William A., assignor to Liggett, Turbayne & Company, Detroit, Mich. Globe-holder for electric-arc lamps	494,499	Mar. 28	2815	706	62	1943
Turck, Frederick M., New York, N. Y. Bag or pouch	491,148	Feb. 7	134	36	62	775
Turnbull, William F., and J. C. Councill, Newport News, Va. Wheel-guide for railway-cars	493,666	Mar. 21	1439	366, 367	62	1669
Turner, Allen and F. E., assignors to Kansas City Elevator Manufacturing Company, Kansas City, Mo. Controlling device for elevators	493,607	Mar. 14	1346	342	62	1636
Turner, Byron L., Pittsford, Mich. Plate-holder attachment for cameras	489,512	Jan. 10	833	218	62	190
Turner, Charles P., Johnstown, Pa. Timber-mortising machine	493,133	Mar. 7	562	140, 141	62	1469
Turner, Eugene P., Elmira, N. Y. Torpedo-holder	493,455	Mar. 14	1081	277	62	1585
Turner, Frederick E. (See Turner, Allen and F. E.)						
Turner, George D. (See Smith, David J., assignor.)						
Turton, Jabez, London, England. Extraction of metal from ores	494,044	Mar. 21	2067	.....	62	1790
Twigg, Robert H., London, England. Time circuit-closer	491,692	Feb. 14	1028	260	62	971
Twilley, Joshua M., Dover, Del. Artificial tooth	493,318	Mar. 14	875	222	62	1544
Twin City Iron Works. (See Fletcher, William J., assignor.)						
Twiss, Freeman L., and L. A. Barber, Groton, N. Y. Pipe-wrench	489,048	Jan. 3	106	29	62	27
Twitchell, Oscar. (See Gildemeyer, Charles A., assignor.)						
Twyford, Emanuel S., Philadelphia, Pa. Saw-sharpening machine	489,275	Jan. 3	453	125, 126	62	100
Twynam, Thomas, London, England. Separating tin from iron or steel	491,254	Feb. 7	308	.....	62	808
Tyler, George, assignor to J. A. McNary, Greenville, Pa. Clothes-drier	493,880	Mar. 21	1780	454	62	1737
Tyler, Harry L., Corning, N. Y. Telephone-transmitter	491,275	Feb. 7	339	86	62	813
Tyler, Radolphus D. S., Washington, D. C. Metallic label-case	490,759	Jan. 31	2756	733	62	632
Tyler, Thaddeus F., Lynn, Mass. Blank-cutting machine	492,342	Feb. 21	2032	506	62	1187
Tyler, William W. (See Bookwalter and Tyler.)						
Type Writing Machine Company. (See Fairfield, John M., assignor.)						
Tyson, George E., Reading, Pa. Lock	489,049	Jan. 3	106	29	62	27
Uchermann, Fredrik S., Christianaand, Norway, assignor of one-half to J. T. Odegard, Cooperstown, N. D. Metallic fastening for umbrella-covers	490,999	Jan. 31	3244	828	62	709
Uffredzzi, Wuffredo. (See Fabbrini, Egisto, assignor.)						
Uhl, Roman, Hausach, Germany. Miter-saw	493,667	Mar. 21	1440	367, 368	62	1670
Ulfers, Jacob, Maryland, Ill. Butchering-derrick	494,398	Mar. 28	2660	667	62	1915
Ullom, George S., Pomona, Kans. Well-bucket	490,052	Jan. 17	1684	438	62	375
Ulmer, William E., Hoquiam, Wash. Electrical foot-warmer	492,247	Feb. 21	1889	472	62	1158
Ulrich, Moritz, assignor to Farbenfabriken, vormals Fr. Bayer & Co., Elberfeld, Germany. Violet azo dye. (Reissue)	11,308	Feb. 21	2093	.....	62	1199
Ulsh, John L., assignor of one-half to W. P. Jones, Wabash, Ind. Belt-tightener	492,314	Feb. 21	1988	495	62	1179
Underkofler, Jesse, Belmond, Iowa. Animal-stock	490,053	Jan. 17	1685	439	62	375
Underwood, Walter H., Yonkers, N. Y. Tip for mucilage-bottles	492,068	Feb. 21	1602	398	62	1098

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Underwriters' Hatch Door Company. (See Caywood, Albert D., assignor.)						
Ungar, Ignatz, Buda-Pesth, Austria-Hungary. Kiln for drying wood	494,045	Mar. 21	2067	528	62	1790
Union Manufacturing and Plating Company. (See Edwards, William J., assignor.)						
Union Manufacturing Company. (See Burnham, Frank A., assignor.)						
Union Metallic Cartridge Company. (See Richards, Charles R., assignor.)						
Union Special Sewing Machine Company. (See Woodward, Russel G., assignor.)						
Union Store Service Company. (See Owen, Edward A., assignor.)						
United Columbian Electric Company. (See Ashley, Ralph, assignor.)						
United Columbian Electric Company. (See Groswith and Ashley, assignors.)						
United States Burglar Alarm Company. (See Powell, Noah M., assignor.)						
United States Electric Fire Signal Company. (See Martin, Morris, assignor.)						
United States Postage Stamp Delivery Company. (See Drew, George H., assignor.)						
United States Sheathing Lath Company. (See Brown, Theodore H., assignor.)						
United States Wind Engine and Pump Company. (See Burnham and Miller, assignors.)						
United States Wind Engine and Pump Company. (See Miller and Burnham, assignors.)						
Unruh, Charles S., Steele City, Nebr. Shock-binder	491,391	Feb. 7	550	139	62	853
Unz, Henry H., Philadelphia, Pa., assignor to National Type Writer Company, of Pennsylvania. Type-writing machine	490,235	Jan. 17	1981	{519 / 520}	62	435
Updegrove, Thomas F., Avery, Kans. Wagon running-gear	491,230	Feb. 7	277	69, 70	62	801
Upton, James B., Coalfield, Tenn. Brake mechanism for vehicles	489,839	Jan. 10	1369	342	62	287
Urban, George H., Buffalo, N. Y. Means for attaching handles	489,170	Jan. 3	284	79	62	65
Urie Dredge Manufacturing Company. (See Urie, William T., assignor.)						
Urie, William T., assignor to Urie Dredge Manufacturing Company, Kansas City, Mo. Agitator for suction-dredges and sand-pumps	491,748	Feb. 14	1112	281	62	987
Urmy, Henry C., and E. Huether, New York, N. Y. Wardrobe-trunk	489,699	Jan. 10	1093	283	62	243
Utica Electrical Manufacturing and Supply Company. (See Bossert, William F., assignor.)						
Utter, Samuel N., Pittsburg, Pa. Blackboard and desk	493,131	Mar. 7	565	141	62	1470
Valentine, Abram S., *et al.* (See Rodgers, George W., assignor.)						
Valentine, Kimball E. (See Pasta, Anton, assignor.)						
Valentine, Theodore S., Sr., Cumberland, Md. Corn-cutter	493,135	Mar. 7	506	141	62	1470
Van Alstine, Cyrenus G, Rockford, Ill. Pitch-board	493,048	Mar. 7	431	109	62	1444
Van Auken, Byron E., assignor to C. E. Van Auken, Chicago, Ill. Temperature-regulator.	494,399	Mar. 28	2660	{677 / 678}	62	1915
Van Auken, Clarence E. (See Van Auken, Byron E., assignor.)						
Van Beek, George L. (See Sheldon, Murnane, and Van Beek.)						
Van Benschoten, Henry E., Hudson, N. Y. Heel-plate	491,149	Feb. 7	135	36	62	775
Van Brunt, Willard A., Horicon, Wis. Grain-drill	490,798	Jan. 31	2805	{719 / 720}	62	624
Van Camp, Anson, Decatur, Ind. Scalper	491,392	Feb. 7	551	140	62	854
Van Derver, John R. (See Holmes, Daniel M., assignor.)						
Van Duzer, Lewis S., assignor of one-half to N. E. Mason, U. S. Navy. Electric steering-gear.	493,000	Mar. 7	358	91	62	1430
Van Hoesen, Eugene M., Preble, N. Y. Device for catching mail-bags	489,276	Jan. 3	455	126	62	100
Van Hoevenbergh, Henry, New York, N. Y. Electric-annunciator system	490,327	Jan. 24	2150	561	62	481
Van Horn, Jacob C. (See Cummins, Theodore, assignor.)						
Van Mater, John S., Hazlet, N. J. Asparagus bundler and cutter	490,179	Jan. 17	1886	491	62	417
Van Oostrum, Otto, Portland, Oreg. Waterproof suit	492,643	Feb. 28	2528	626	62	1301
Van Orden, John M. (See Edland, Joseph L., assignor.)						
Van Orden, John M., New York, N. Y. Corset-stay	489,700	Jan. 10	1094	283	62	243
Van Slyke, David B. (See Payne, Howard B., assignor.)						
Van Wagenen, George, New York, N. Y. Turn-table	492,069	Feb. 21	1603	399	62	1099
Van Wagenen, George, New York, N. Y. Sugar-wagon	493,799	Mar. 21	1669	425	62	1715
Van Wagenen, George, New York, N. Y. Sugar-wagon	493,950	Mar. 21	1905	{485 / 486}	62	1760
Van Wordragen, John. (See McIver, James M., assignor.)						
Van Worner, Chauncey E., assignor of two-thirds to C. S. Pharis and C. H. Knapp, Syracuse, N. Y. Door-bell	492,070	Feb. 21	1604	399	62	1099
Vance, George M., Anderson, Ind. Cresting for roofs	493,344	Mar. 14	905	232	62	1550
Vance, James R., Geneva, N. Y. Steam-generator	494,180	Mar. 28	2304	584	62	1849
Vance, William H., assignor of one-half to G. Humphreys, San Francisco, Cal. Folding grate-front and hearth	494,046	Mar. 21	2068	529	62	1791
Vanderbeek, Abraham, Hartford, Conn. Photographic camera	494,400	Mar. 28	2664	668	62	1915
Vanderbeek, Abraham, Hartford, Conn. Tripod or stand for cameras or other purposes	494,401	Mar. 28	2665	{668 / 669}	62	1916
Vanderbilt Sash Balance Company. (See Jenkinson, Samuel, assignor.)						
Vandercook, Michael E., *et al.* (See Stephens, Jesse A., assignor.)						
Vanderlinda, Peter J., Grand Rapids, Mich. Refrigerator	493,410	Mar. 14	1000	258	62	1571
Vandernoth, Peter, New York, N. Y. Window	494,047	Mar. 21	2069	529	62	1791
Vanstone, Samuel, assignor of three-fourths to W. K. Atwood and J. Nichols, Providence, R. I. Machine for making pipe-clips	494,535	Mar. 28	2878	{720 / 721}	62	1954
Vanstone, Samuel, assignor of three-fourths to W. K. Atwood and J. Nichols, Providence, R. I. Machine for making pipe-clips	494,536	Mar. 28	2881	{721 / 722}	62	1955
Varley, Richard, Jr., Englewood, N. J. Electro-magnet	489,277	Jan. 3	456	126	62	100
Vasson, Raphaël G. de, assignor to La Subérine, Paris, France. Machine for the reduction of cork, &c.	490,817	Jan. 31	2944	{755 / 756}	62	651
Vaughan, Edmund A., Cambridge, Ill. Double-acting force-pump	492,609	Feb. 28	2311	616	62	1318
Vaughan, Jay W., Eaton Rapids, Mich. Bag-fastener	492,071	Feb. 21	1606	399	62	1099
Vaughan, Luther B. (See Campbell, James M., assignor.)						
Vaughn, Calvin W., Cuyahoga Falls, Ohio. Clay-mill	494,515	Mar. 28	2840	{710 / 711}	62	1948
Vaughn, Clarence E., East Palestine, Ohio. Valve mechanism for engines	491,670	Feb. 14	993	250	62	963
Vaughn, James W., Greenville, Pa. Vehicle-axle	489,577	Jan. 10	926	240	62	208
Vaughn, James W., Greenville, Pa. Sulky-axle	489,578	Jan. 10	927	240	62	208
Vaught, Albert M., Portland, Ind. Feed-roller	492,072	Feb. 21	1606	399	62	1099
Veazie, Albert S., and J. H. Bevan, Castine, Me. Lantern	489,999	Jan 17	1586	415	62	356
Veirs, James P., Omaha, Nebr. Continuous brick-kiln	493,951	Mar. 21	1907	{486 / 487}	62	1760
Vender, William, Kinde, Mich. Manger	489,349	Jan. 3	563	152	62	121
Venella, Henry. (See Thiel, Henry, assignor.)						
Vernier, Julina J., Toledo, Ohio. Pessary	489,050	Jan. 3	108	29	62	27
Vernon, George, *et al.* (See Vernon, William E., assignor.)						
Vernon, William E., Sipe Springs, assignor to himself, G. Vernon, J. N. Farmer, and J. E. Murphy, Comanche, Tex. Pneumatic conveyer	489,348	Jan. 3	562	152	62	121
Veronee, James F., and G. McInerney, Charleston, S. C. Car-roof	491,909	Feb. 14	1363	340	62	1036
Vestal, William B., Dallas, Texas. Black-land plow	494,309	Mar. 28	2505	632	62	1887

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume.		Official Gazette.	
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Vetter, Alexander F., assignor to J. C. Vetter & Co., New York, N. Y. Electric-lamp socket and tap	490,605	Jan. 24	2578	665	62	565
Vetter & Co., J. C. (See Vetter, Alexander F., assignor.)						
Vetter, Frederick, Rochester, N. Y. Type-writer cabinet	490,593	Jan. 24	2556	658	62	560
Vevia, Francis X., *et al.* (See Curtis, Frederic A., assignor.)						
Vickers, Joseph. (See Rishworth, Ingham, and Vickers.)						
Vickers, William, Jersey City, N. J. Machine for cleaning currants, &c	492,644	Feb. 28	2529	627	62	1301
Victor Safe and Lock Company. (See Baum, Jacob, assignor.)						
Viett, Emile T., Charleston, S. C. Bush-hammer	494,266	Mar. 28	2443	{615 / 616}	62	1874
Villamor, Timoteo, Merida, Mexico. Machine for cleaning vegetable fiber	492,173	Feb. 21	1772	442	62	1134
Villard, John, Wolfe City, Tex. Curtain-fixture	492,447	Feb. 28	2201	550	62	1234
Villardy de Montlaur, Amaury de. (See Gall and Villardy de Montlaur.)						
Vine, George, Anaonia, Conn. Roll-grinding machine	493,952	Mar. 21	1909	{487 / 488}	62	1760
Violet, Francis N., assignor of one-half to B. A. Jacobs, Milwaukee, Wis. Trunk-fastening	493,456	Mar. 14	1082	278	62	1585
Virtue, William W. (See Moffat and Virtue.)						
Virtue, William W., Sydney, New South Wales. Mechanism for converting motion	491,910	Feb. 14	1364	340	62	1037
Vogt, Axel S., Altoona, Pa. Pipe-coupling	491,299	Feb. 7	396	102	62	823
Vogt, Charles, Kansas City, Mo. Railway-crossing plate	491,616	Feb. 14	917	231	62	947
Vollmar, Philip, Chatham, Canada. Washing-machine	492,616	Feb. 28	2488	617	62	1293
Vollmer, William, and W. H. Thomas, assignors to Burnham, Williams & Co., Philadelphia, Pa. Machine for swaging or expanding tubes	489,439	Jan. 3	704	188	62	151
Vonhaus, Friedrich L., and H. Becker, assignors to Spohr & Krämer, Frankfort-on-the-Main, Germany. Parallel pliers	491,211	Feb. 7	278	70	62	801
Vorkeller, August F., Chicago, Ill. Velocipede	489,840	Jan. 10	1311	342	62	287
Vose, Albert, Pittsfield, Vt. Chair	491,300	Feb. 7	397	102	62	823
Voss, Ernest B., Exira, Iowa. Hen-coop	494,181	Mar. 28	2305	584	62	1849
Voss, William C., Genesco, Ill. Device for shampooing the hair and scalp	493,953	Mar. 21	1912	488	62	1761
Vroom, Eugene L. (See Stocking and Vroom.)						
Vulliez, Victor. (See Honman and Vulliez.)						
W. C. De Pauw Company. (See Krampf, John M., assignor.)						
W. Dewees Wood Company. (See Wood, Waters D., assignor.)						
W. H. Moore Mattress Company. (See Moore, William H., assignor.)						
Wachtel, Charles, Newark, N. J. Dynamo-electric machine	490,460	Jan. 24	2352	{608 / 609 / 610}	62	520
Waddell, Harvey, Chicago, Ill. Wardrobe bedstead	489,209	Jan. 3	347	98	62	79
Wade, James. (See Smethurst and Wade.)						
Wadley, George D., Savannah, Ga. Drawbar	492,853	Mar. 7	123	31	62	1381
Wadley, George D., Savannah, Ga. Drawbar	493,319	Mar. 14	875	223	62	1544
Wadlin, Melville T., assignor to Davis & Furber Machine Company, North Andover, Mass. Machine for opening and cleaning fibrous material	494,500	Mar. 28	2815	706	62	1944
Waffenfabrik Mauser. (See Mauser, Paul, assignor.)						
Wagandt, Charles L., assignor to Keen & Hagerty, Baltimore, Md. Strainer	494,355	Mar. 28	2592	651	62	1903
Wagner, Frederick, Omaha, Nebr. Screen	492,073	Feb. 21	1608	400	62	1099
Wagner, William A., Central City, Iowa. Cultivator	491,822	Feb. 14	1227	307	62	1010
Wagner, William K., Youngstown, Ohio. End-gate	491,617	Feb. 14	919	231	62	948
Wahl, William H. (See Greene and Wahl.)						
Wahlin, Adolph, Stockholm, Sweden, assignor to R. D. Harris, New York, N. Y. Centrifugal butter-extractor	491,501	Feb. 7	716	181	62	886
Wainwright Manufacturing Company. (See Hall Bicknell, assignor.)						
Wait, Charles L. (See Peters, Robert D., assignor.)						
Wait, Henry W., Lake Charles, La. Traction-wheel	489,400	Jan. 3	636	172	62	137
Wait, Howard S., New York, N. Y. Electric railway-signal	492,645	Feb. 28	2331	{627 / 628}	62	1302
Waite, Charles N., Newton, Mass. Electrical diaphragm	489,551	Jan. 10	887	.....	62	201
Waite, Hamilton D. (See Hitchcock and Waite.)						
Waite, John F., *et al.* (See McDonnell, Patrick E., assignor.)						
Wakefield, James W. (See Carr, Warren H., assignor.)						
Wakeman, Charles E., Pontiac, Mich. Steam-heater	492,174	Feb. 21	1774	{443 / 444}	62	1135
Waldurff, Eugene C., Buffalo, N. Y. Time trip-lever mechanism	489,350	Jan. 3	564	153	62	121
Walker, Arthur W., Malden, Mass. Pipe-section damper	492,854	Mar. 7	125	31	62	1382
Walker, Charles E., Chicago, Ill. Smoke-consuming furnace	491,031	Feb. 14	1398	349	62	1043
Walker, Dwight F., Philadelphia, Pa. Grindstone, emery-wheel, &c	491,789	Feb. 14	1179	296	62	999
Walker, Francis M., assignor of one-half to J. H. Smith, Newark, Ohio. Valve-gear	490,693	Jan. 31	2752	708	62	613
Walker, George H., Cincinnati, Ohio. Hydraulic air-compressor	491,282	Feb. 7	279	70	62	801
Walker, Hugh R., Chicago, Ill. Variable-exhaust nozzle	490,000	Jan. 17	1588	415	62	356
Walker, Isaac, Philadelphia, Pa. Cone-winding machine	493,049	Mar. 7	432	109	62	1444
Walker, Virgil. (See Newlin, Joseph S., assignor.)						
Walker, William J., St. Louis, Mo. Pipe-wrench	491,255	Feb. 7	309	78	62	808
Walker, William J., St. Louis, Mo. Car-coupling	491,823	Feb. 14	1229	307	62	1010
Walker, William J., St. Louis, assignor of one-half to A. L. Bedford, Savannah, Mo. Electric-alarm money-drawer	491,824	Feb. 14	1230	{307 / 308}	62	1010
Walker, William J., St. Louis, assignor of one-half to A. L. Bedford, Savannah, Mo. Electric-alarm money-drawer	492,616	Feb. 28	2536	628	62	1303
Walker, William J., and L. Hammerschmidt, St. Louis, Mo. Car-coupling	489,770	Jan. 10	1211	317	62	266
Walker, William R., Concord, N. H. Sash-holder	490,001	Jan. 17	1589	415	62	357
Walker, William V., assignor of one-half to H. M. Jewett, Moravia, N. Y. Feed-water apparatus	491,825	Feb. 14	1232	308	62	1010
Walkup, Andrew E., Omaha, Nebr. Attachment for type-writing machines	494,356	Mar. 28	2593	652	62	1903
Walkup, Andrew E., Omaha, Nebr. Ribbon attachment for type-writing machines	494,357	Mar. 28	2594	652	62	1903
Wall, George H., London, England. Protector for water-gages	490,818	Jan. 31	2945	756	62	651
Wallace, Edward L., Spencerport, assignor of one half to F. D. Hill, Dryden, N. Y. Stiffening-plate for necktics	494,501	Mar. 28	2817	706	62	1944
Wallace, James M., Portland, Oreg. Fire-ladder	493,345	Mar. 14	906	232	62	1551
Wallace, John A., *et al.* (See Smith, Thomas, assignor.)						
Wallace, Martin E., Aurora, Ill., assignor to Gould Coupler Company, New York, N. Y. Car-buffer	489,135	Jan. 3	231	62, 63	62	53
Wallace, Martin E., Aurora, Ill., assignor to Gould Coupler Company, New York, N. Y. Car-coupling	491,301	Feb. 7	399	102	62	823
Wallace & Sons. (See Bohner, Joseph E., assignor.)						
Wallace, Victor, Oneida, assignor of two-thirds to C. E. Fish, H. and A. C. Potter, and W. A. Wallace, New York, N. Y. Car-coupling	493,902	Mar. 21	1815	462	62	1743

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wallace, William A., *et al.* (See Wallace, Victor, assignor.)						
Wallenstein, Jacob, Cincinnati, Ohio. Safety device for platform-elevators	490,328	Jan. 24	2152	502	62	481
Wallin, Joseph, assignor to C. O. Danforth, Boston, Mass. Calendar	490,618	Jan. 24	2602	670	62	569
Wallis, Fred, Birmingham, England. Match-box	492,700	Feb. 28	2612	647	62	1318
Wallis-Lispenard Cotton Picker and Machinery Company. (See Lispenard, George, assignor.)						
Wallwork, Roughsedge, and A. C. Wells, Manchester, England. Self-generating gas or vapor burner	489,244	Jan. 3	406	113 / 114	62	91
Walrad, Peter. (See Martin and Walrad.)						
Walrath, Jesse, Racine, Wis. Friction-clutch	490,002	Jan. 17	1590	416	62	357
Walsh, Francis A., Milwaukee, Wis. Sheet-metal vessel	492,074	Feb. 21	1608	400	62	1099
Walsh, Francis A., Milwaukee, Wis. Machine for making sheet-metal vessels	492,075	Feb. 21	1609	400	62	1100
Walsh, Francis A., Milwaukee, Wis. Machine for working sheet-metal vessels	492,076	Feb. 21	1612	401	62	1100
Walsh, James, Jr., Philadelphia, Pa. Cable-gripper	492,248	Feb. 21	1889	472	62	1158
Walsh, John C., assignor to Gasoline Torch Manufacturing Company, Chicago, Ill. Plumber's torch	489,513	Jan. 10	834	219	62	190
Walsh, Richard, Philadelphia, Pa. Gasket-packing	494,402	Mar. 28	2667	669	62	1916
Walsh, William J., Worcester, Mass. Apparatus for reversing motion	491,722	Feb. 14	1075	271	62	980
Walter A. Wood Mowing and Reaping Machine Company, *et al.* (See Lowry, George A., assignor.)						
Walter, Charles F. (See Walter, Henry G. and C. F.)						
Walter, Henry G. and C. F., Scranton, Pa. Cash register and indicator	492,597	Mar. 7	197	49	62	1397
Walter, Johann B., Nuremberg, Germany. Target	494,285	Mar. 28	2475	624	62	1810
Walters, Andrew J., Adrian, Mich. Cash-recorder	491,150	Feb. 7	136	36, 37	62	775
Walters, Harry E (See Purdon, Walters, and Woodcock.)						
Walton, Joseph O., Titusville, Fla. Calking-tool	494,516	Mar. 28	2841	711	62	1948
Walton, William, Denton, England. Feed mechanism for card-setting machines	493,136	Mar. 7	567	141 / 142	62	1470
Walton, William M., *et al.* (See Moore and Willett, assignors.)						
Waltrous, John F., Chelsea, Mich. Cultivator	491,618	Feb. 14	920	231	62	948
Wanamaker, Edward A., assignor to H. and W. Muender, Montfort, and W. A. Johnson, Lancaster, Wis. Machine for raising or lowering well-tubing	493,392	Mar. 14	977	252	62	1566
Wangler, Joseph F., *et al.* (See Stempel, Omar A., assignor.)						
Waples, Rufus, Jr., New York, N. Y. Umbrella-cane	489,251	Jan. 3	566	153	62	121
Ward, Alfred R., Toronto, Canada. Photographic fixing and washing tank	491,619	Feb. 14	921	232	62	948
Ward, Artemas H., Wichita, Kans. Book-support	490,379	Jan. 24	2236	582	62	498
Ward, Barton B., New York, N. Y. Duplex electric-arc lamp	492,124	Feb. 21	1690	421	62	1116
Ward, Frank O., Philadelphia, Pa. Neckscarf	490,933	Jan. 31	3138	805	62	689
Ward, Frederick G., Allegheny, Pa. Dry-closet system	493,320	Mar. 14	876	223 / 224	62	1544
Ward, George H., Brooklyn, N. Y. Engine-governor	489,171	Jan. 3	285	79	62	65
Ward, George S., *et al.* (See Sumner, William A., assignor.)						
Ward, John C., *et al.* (See Sumner, William A., assignor.)						
Ward, John H., Whitewater, Wis. Power transmitting and stopping device	493,457	Mar. 14	1084	278	62	1586
Ward, Julius A., *et al.* (See Hardy, Lewis W., assignor.)						
Ward, Pleasant. (See Ryan and Ward.)						
Ward, Thomas, Newark, Ohio. Clothes-drier	490,380	Jan. 24	2237	582	62	499
Ward, W. L., *et al.* (See James, Will S., assignor.)						
Wardell, Joshua M., Cadillac, Mich. Syringe	494,048	Mar. 21	2071	529	62	1791
Warder, Bushnell & Glessner Company *et al.* (See Lowry, George A., assignor.)						
Ware, George T. (See Clawson and Wheeler, assignors.)						
Ware, George T., Pleasant Hill, Mo. Fire communicator or display device	492,595	Feb. 28	2450	609	62	1286
Warfield, Louis. (See Thomas, William M., assignor.)						
Warfield, Louis, Detroit, Mich. Device for communicating motion	494,182	Mar. 28	2306	584	62	1849
Warner, Daniel. (See Warner, William A., assignor.)						
Warner, De Ver H., Bridgeport, Conn. Safety-pin	493,372	Mar. 14	953	245	62	1561
Warner, John P., assignor of five-eighths to A. F. Navarre, Washington, D. C. Weather-guard attachment for lanterns	490,003	Jan. 17	1592	416	62	357
Warner, Westford, Philadelphia, Pa. Metal fence	491,626	Feb. 14	1243	308	62	1011
Warner, William A., Bethel, assignor to D. Warner, Bronson, Mich. Axle-nut	490,694	Jan. 31	2753	709	62	613
Warnock, John W. (See Bruce and Warnock.)						
Warren, Edward B., assignor of one-half to O. Ferguson, Hot Springs, S. D. Awning	493,954	Mar. 21	1914	488	62	1761
Warren, John D., South Framingham, assignor of one-half to E. G. Stevens, Clinton, Mass. Spectacle eye-shield	492,125	Feb. 21	1692	422	62	1117
Warren, John K., *et al.* (See Hartley, Charles J., assignor.)						
Warren, Willard A., Buffalo, N. Y. Pneumatic tire	491,620	Feb. 14	923	232	62	948
Warwick Cycle Manufacturing Company. (See Chamberlain, George D., assignor.)						
Warwick Cycle Manufacturing Company. (See Hendrick, Joel H., assignor.)						
Washburn, Helum J. and J. F., Ransomville, N. Y. Plow-standard	491,621	Feb. 14	924	232	62	948
Washburn, John F. (See Washburn, Helum J. and J. F.)						
Wasson, Dell E., Versailles, Ky. Fastening attachment for dress-waists	492,701	Feb. 28	2614	647	62	1318
Waterbury Brass Company. (See Wheeler, Edward H., assignor.)						
Waterbury Farrel Foundry and Machine Company. (See Lamb, George B., assignor.)						
Waterman, Stephen, and C. H. Luther, Jr., Providence, R. I., assignors to themselves, and K. Lee, New York, N. Y. Velocipede	492,754	Feb. 28	2695	669	62	1334
Waterous, Frederick L., South St. Paul, Minn. Upright tubular boiler	489,051	Jan. 3	108	30	62	27
Watkins, James T., and W. C. Bayless, Mossy Creek, Tenn. Implement for lifting pans	491,393	Feb. 7	552	140	62	854
Watkins, Samuel C. G., Montclair, N. J. Head-rest	490,060	Jan. 17	1745	455	62	389
Watkins, William, Chicago, Ill. Steam-pump	492,950	Mar. 7	279	71	62	1414
Watrous, Edwin H., Pawlet, Vt. Anti-rattler for thill-couplings	490,934	Jan. 31	3139	805	62	689
Watrous, George W., and C. B. Snow, Norwich, Conn. Tongs for use in hardening cutlery	490,778	Jan. 31	2492	741	62	640
Watson, George C., and J. S. Williams, Chestnut, Ala. Muzzle	490,795	Jan. 31	2915	749	62	644
Watson, Henry B., Glen Cove, N. Y. Indicator-funnel for cans	494,403	Mar. 28	2667	669	62	1916
Watson, John H., *et al.* (See Fishburn, John, assignor.)						
Watson, John R., Smithfield, Pa. Dental plate	493,800	Mar. 21	1670	426	62	1715
Watson, John T., Polo, Ill. Truss	492,504	Feb. 28	2312	573	62	1256
Watson, Leonard. (See Thurston, Edwin L., assignor.)						
Watson, William J. (See Comstock, Harry, assignor.)						
Watson, William L. (See Longmore and Watson.)						
Watson, William P. (See Fitch, Charles L., assignor.)						
Watt, William R., Somerville, Tenn. Milk-pail	489,352	Jan. 3	567	153	62	122
Wattie, William, assignor to Knowles Loom Works, Worcester, Mass. Pattern-reversing mechanism for looms	490,890	Jan. 31	3059	785 / 786	62	674
Wattles, Hiram J., Syracuse, N. Y. Heating apparatus	493,537	Mar. 14	1214	311	62	1609
Watts, John A., New York, N. Y. Refrigerator	492,909	Mar. 7	222	55	62	1402
Watts, Joseph E., Lawrence, Mass. Apparatus for regulating temperature	489,052	Jan. 3	110	30	62	28

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Watts, Julius R., Springfield, Ill. Bracket for miners' lamps	493,137	Mar. 7	568	143	62	1471
Watts, Robert N., Uintah, Utah Ter. Concave for thrashing-machines	489,724	Jan. 10	1135	293	62	250
Way, Frank K., assignor to Pasteur-Chamberland Filter Company, Dayton, Ohio. Air-valve	492,597	Feb. 28	2453	610	62	1286
Wayland, Columbus A., Middlesborough, Ky. Picture-frame clamp	490,519	Jan. 24	2455	633	62	540
Wayland, James, Newark, N. J. Railway appliance	492,598	Feb. 28	2455	610 / 611	62	1287
Wayman, Marcus D., *et al.* (See Green, Ira L., assignor.)						
Wearn, Walter R., assignor of one-half to G. N. Miller, Brooklyn, N. Y. Shade-holder for candles	493,198	Mar. 7	658	167	62	1487
Weathered's Sons, Thomas W. (See Coulson, William H., assignor.)						
Weathers, David N., Leavenworth, Ind. Vegetable-cutter	491,622	Feb. 14	925	232	62	949
Weaver, Henry M., Mansfield, Ohio. Cash-carrier apparatus	490,695	Jan. 31	2754	709	62	613
Weaver, Oscar, Manch Chunk, assignor of one-half to J. Miller, Weatherly, Pa. Rack for hanging stove utensils	491,502	Feb. 7	718	181	62	887
Weaver, Samuel J., *et al.* (See Pickles, Charles K., assignor.)						
Weaver, William, assignor of two-thirds to C. Lapham and F. T. Hyatt, Norwalk, Conn. Envelope	491,030	Jan. 31	3307	843	62	722
Webb, Albert, Worcester, England. Woven pile fabric	491,493	Feb. 14	1029	260	62	971
Webb, George B., New York, N. Y., assignor, by mesne assignments, to Wyckoff, Seamans & Benedict, of New York. Type-writing machine	489,514	Jan. 10	836	219	62	190
Webb, George B., New York, N. Y., assignor, by mesne assignments, to Wyckoff, Seamans & Benedict, of New York. Type-writing machine	489,701	Jan. 10	1094	284	62	243
Webb, George B., assignor to Wyckoff, Seamans & Benedict, New York, N. Y. Type-writing machine	490,329	Jan. 24	2153	562	62	481
Webb, George B., assignor to Wyckoff, Seamans & Benedict, New York, N. Y. Type-writing machine	490,330	Jan. 24	2157	562 / 563	62	482
Webb, George B., assignor to Wyckoff, Seamans & Benedict, New York, N. Y. Type-writing machine	492,599	Feb. 28	2459	611 / 612	62	1288
Webb, George D. (See Maher, John J., assignor.)						
Webb, John B., Millburn, N. J. Dynamometer	490,381	Jan. 24	2238	583	62	499
Webber, Charles C., Springfield, Mass. Steam pumping-engine	493,668	Mar. 21	1442	368	62	1670
Webber, George H. (See Pomeroy and Webber.)						
Webber, John T., assignor of one-half to C. W. Harding, Red Lodge, Mont. Envelope	493,847	Mar. 21	1734	441	62	1728
Weber, Charles. (See Dénorus, Emile, assignor.)						
Weber, Edward J. (See Shipman, John W., assignor.)						
Weber, James, and H. Hampel, assignors of one-half to J. Davidsohn, Berlin, Germany. Dental boring apparatus	493,816	Mar. 21	1732	441	62	1727
Webster, Harold A., Haverhill, assignor to G. H. P. Flagg, Boston, Mass. Buffing-machine	490,419	Jan. 24	2293	595	62	508
Webster, Harold A., Haverhill, assignor to G. H. P. Flagg, Boston, Mass. Buffing-roll	493,001	Mar. 7	363	91	62	1430
Webster, Harold A., Haverhill, assignor to G. H. P. Flagg, Boston, Mass. Buffing-wheel	493,002	Mar. 7	364	91, 92	62	1431
Webster, John B. (See Sweet, Orange M., assignor.)						
Webster, Joseph F., New Bedford, Mass. Shackle for suspenders	489,443	Jan. 3	710	190	62	152
Webster, Pillsbury A. (See Hannum, Henry A., assignor.) (Reissue.)						
Webster, Warren, Carneiro, Kans. Attachment for grain-drills	489,353	Jan. 3	568	153	62	122
Webster, Warren, Philadelphia, Pa. Extractor for grease, grit, &c., from exhaust-steam	490,461	Jan. 24	2355	610	62	520
Wedmore, Henry S., Guilford, Conn. Hook and eye	489,053	Jan. 3	112	30	62	28
Weed, Clinton A., Racine, Wis. Revolving head for sandpapering-machines	492,077	Feb. 21	1618	401	62	1102
Weeks, Albert W., Palmer, Mass. Trestle	494,358	Mar. 28	2595	652	62	1903
Weese, Tolbert, assignor of one-half to D. S. Hencks & Son, Larkin, Kans. Wire-stretcher	492,078	Feb. 21	1619	402	62	1102
Wegner, Georg, Berlin, Germany. Composition for soldering aluminum	490,840	Jan. 31	2978	.....	62	658
Wegner, Georg, Berlin, Germany. Electroplating aluminum	490,841	Jan. 31	2979	.....	62	658
Wehrlin, Jacques, Vevay, Switzerland. Soldering-machine	489,618	Jan. 10	982	256	62	219
Weidaw, Frank T., assignor to W. S. Purington and J. B. Casterlin, Syracuse, N. Y. Hose-clamp	492,855	Mar. 7	125	32	62	1382
Weidner, Phillip, Saylor Springs, Ill. Pole or thill coupling	489,579	Jan. 10	928	240	62	208
Weinmann, Samuel. (See Boas and Weinmann.)						
Weir, Frederic C. (See Harden, Edward W., assignor.)						
Weir, Frederic C. (See Ramsey and Harden, assignors.)						
Weir, Frederic C., and E. W. Harden, Cincinnati, Ohio; said Harden assignor to said Weir. Valve-gear	490,331	Jan. 24	2159	563 / 564	62	483
Weir, Frederic C., and E. W. Harden, Cincinnati, Ohio, assignors to Weir Frog Company, of Ohio. Rail-curving machine	494,450	Mar. 28	2734	685	62	1928
Weir, Frederic C., and E. W. Harden, Cincinnati, Ohio; said Harden assignor to said Weir. Electrical switch-lock	494,451	Mar. 28	2736	686	62	1928
Weir Frog Company. (See Weir and Harden, assignors.)						
Weir Plow Company. (See Roadhouse, Levi, assignor.)						
Weis, John B., Toledo, Ohio. Ventilator	493,321	Mar. 14	878	224	62	1545
Weis, Nick, Paducah, Ky. Draft device for cars	490,935	Jan. 31	3139	805	62	689
Weiss, Carl W., Brooklyn, N. Y. Igniter for gas-engines	492,126	Feb. 21	1693	422	62	1117
Welch, E. B. (See Robinson, Edward W., assignor.)						
Welch, Henry J., Carthage, N. Y. Combined copy-holder and folio-indicator for type-writers	492,546	Feb. 28	2377	590	62	1271
Welch, Henry J., Carthage, assignor of one-half to C. V. Graves, Natural Bridge, N. Y. Trolling apparatus	489,110	Jan. 3	199	53	62	46
Welch, Joseph H. (See Duncan, James E., assignor.)						
Welch, Rosia W., assignor of thirteen-sixteenths to W. H. Kellum, and W. H. Kellum, trustee, Baltimore, Md. Grain-scouring machine	491,623	Feb. 14	926	233	62	949
Welcome, Jonas F., Richmond, Va. Harness	489,440	Jan. 3	705	189	62	151
Weldon, James G., Pittsburg, Pa. Apparatus for broiling meats	493,801	Mar. 21	1671	426	62	1716
Weller, Chester A., Sing Sing, N. Y. Torpedo-placing machine	489,054	Jan. 3	113	31	62	28
Welling, John E., Cynthiana, Ky. Water-filter	489,354	Jan. 3	569	154	62	122
Wells, Arthur C. (See Wallwork and Wells.)						
Wells, Chester F., Binghamton, N. Y. Leach-sprinkler	492,647	Feb. 28	2538	629	62	1303
Wells, George W. (See De Celles and Wells.)						
Wells, Harlan P. (See Morrill and Wells.)						
Wells, James A., Liberty, assignor of one-half to J. H. Rump, Quincy, Ill. Sawing-machine	490,696	Jan. 31	2756	710	62	614
Wells, Lionel D., London, England. Personal-equation chronograph	493,346	Mar. 14	907	232 / 233	62	1551
Wells, William W., and H. E. Tidmarsh, Sandy Hill, N. Y. Friction-clutch	493,608	Mar. 14	1348	343	62	1637
Welsh, Albertus. (See Welsh, Artemus and A.)						
Welsh, Artemus and A., assignors of one-half to J. M. Jones and J. R. Greenless, Lawrence, Kans. Locomotive ash-pan	490,332	Jan. 24	2162	564	62	483

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Welsh, Pierre V. W., assignor of one-half to W. F. Freeman, New York, N. Y. Coin-operated photograph-machine	490,180	Jan. 17	1888	491, 492, 493	62	417
Welsh, T. W. (See Smith, William J., assignor.)						
Welsh, William S., assignor to Mast, Foos & Company, Springfield, Ohio. Check-valve	491,957	Feb. 14	1437	358	62	1051
Wendell, Ferdinand J., Fort Wayne, Ind. Stereotype-casting apparatus	492,448	Feb. 28	2201	550	62	1234
Wenger, Benjamine F., South English, Iowa. Hay-rake	490,697	Jan. 31	2757	710	62	614
Wenger, Jacob E., Burton City, Ohio. Device for treating sheep	489,055	Jan. 3	114	31	62	29
Wenger, Jacob E., Burton City, Ohio. Feed-trough	494,236	Mar. 28	2397	605	62	1866
Wenman, Joseph E., East Liverpool, Ohio. Lamp-chimney attachment for medical vaporizing and heating purposes	491,827	Feb. 14	1233	308	62	1011
Wensing, John, assignor of one-third to A. V. Kliefish, Milwaukee, Wis. Combined pipe-wrench, monkey-wrench, and flange-holder	494,310	Mar. 28	2507	633	62	1887
Wenz, Philip P., Meadville, Pa. Type-writing machine	491,730	Feb. 14	1084	274, 275	62	981
Werden, James D. (See Newman, Werden, and Stempel.)						
Wern, Gustave P., Brooklyn, N. Y. Cable-support	492,648	Feb. 28	2539	629	62	1303
Wernberg, Louis. (See Sutton, Harry C., assignor.)						
Werner, August, Brooklyn, N. Y. Filter	490,520	Jan. 24	2456	633	62	541
Werner, August, Brooklyn, N. Y. Froth and liquid separator	490,521	Jan. 24	2457	633	62	541
Werner, August, Brooklyn, N. Y. Method of and apparatus for charging liquids	490,522	Jan. 24	2459	634	62	541
Werner, August, Brooklyn, N. Y. Steaming liquids	490,523	Jan. 24	2461	634	62	542
Werner, August, Brooklyn, N. Y. Method of and apparatus for the manufacture and filling of liquids	490,524	Jan. 24	2462	634, 635	62	542
Werner, August, Brooklyn, N. Y. Mixing apparatus	490,525	Jan. 24	2465	635	62	542
Werner, Charles J. (See Schmidt, Merunka, and Werner.)						
Werner, John, and F. E. Williams; said Williams assignor to said Werner; said Werner assignor of one-half to F. Hedges, Rochester, N. Y. Strup-cooling tank	491,031	Jan. 31	3308	844	62	722
Werner, Paul F., Vallsburg, N. J., assignor to J. Duncan & Co., Boston, Mass. Overhead tramway	491,151	Feb. 7	138	37	62	775
Wesel, Ferdinand, New York, N. Y. Lock-up for printers' chases	493,848	Mar. 21	1735	442	62	1728
West, Joseph, Cincinnati, Ohio. Boiler-tube expander	489,278	Jan. 3	457	126, 127	62	101
West, Simeon L., Washington, D. C. Apparatus for purifying, sterilizing, and filtering drinking-water or other potable liquids	491,828	Feb. 14	1234	309	62	1011
West, Stillman A., assignor of one-half to F. L. Clark, St. Louis, Mo. Sole-hammering machine	493,199	Mar. 7	659	168	62	1488
West, Stillman A., and F. L. Clark, St. Louis, Mo. Sole-leveling machine	489,771	Jan. 10	1213	318	62	266
West, William A. (See Boone, Samuel H., assignor.)						
Westacott, George, Leon, Kans. Cigar-case	492,127	Feb. 21	1694	422	62	1117
Westbrook, T. N. (See Ellington, Alvey M., assignor.)						
Western Electric Company. (See Badt, Francis B., assignor.)						
Western Electric Company. (See Goodridge, William M., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.)						
Western Electric Company. (See Scribner, Charles E., assignor.) (Reissue.)						
Western Electric Company. (See Scribner and Patterson, assignors.)						
Western Electric Company. (See Seely, John A., assignor.)						
Western Engravers' Supply Company. (See Schraubstadter and Schilling, assignors.)						
Western Union Telegraph Company. (See Edison, Thomas A., assignor.)						
Western Union Telegraph Company. (See Freir, Samuel P., assignor.)						
Western Wheeled Scraper Company. (See Kimball, James F., assignor.)						
Westervelt, Edmund C., South Bend, Ind. Plow-point	489,401	Jan. 3	637	173	62	137
Westgarth, John, Lily Lake, Ill. Cow-milker	492,449	Feb. 28	2203	551	62	1234
Westheimer, Ferdinand A. M., San Francisco, Cal. Toasting iron or tongs	489,056	Jan. 3	116	31	62	29
Westinghouse Air Brake Company. (See Bayley, Richard W., assignor.)						
Westinghouse Air Brake Company. (See Clark, Francis L., assignor.)						
Westinghouse Air Brake Company. (See Higham, Charles C., assignor.)						
Westinghouse Air Brake Company. (See Westinghouse, Henry H., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Lodyguine, Alexandre de, assignor.)						
Westinghouse Electric and Manufacturing Company. (See Scott, Charles F., assignor.)						
Westinghouse Electric and Manufacturing Company. (See Wurts, Alexander, assignor.)						
Westinghouse, George, Jr., and E. Rmud, assignors to Fuel Gas and Manufacturing Company, Pittsburg, Pa. Rotary water-meter	493,881	Mar. 21	1782	454, 455	62	1737
Westinghouse, Henry H., assignor to Westinghouse Air Brake Company, Pittsburg, Pa. Quick-acting triple valve	489,441	Jan. 3	706	189	62	151
Westinghouse, Henry H., and W. A. Hole, Pittsburg, Pa. Shaft-coupling	492,898	Mar. 7	302	49	62	1398
Westlake, William B., Swansea, England. Machinery for the manufacture of artificial fuel	489,136	Jan. 3	233	63, 64	62	54
Weston, Edward, Newark, N. J. Electrical time-indicating apparatus	490,698	Jan. 31	2758	710	62	615
Weston, Edward, Newark, N. J. Recording-ammeter	490,699	Jan. 31	2761	710, 711	62	615
Weston, Edward, Newark, N. J. Electrical measuring-instrument	490,700	Jan. 31	2764	711	62	616
Weston, Edward, Newark, N. J. Electrical measuring-instrument	490,760	Jan. 31	2857	733	62	632
Weston, Edward B., Dayton, Ohio. Roll-paper holder and cutter	492,856	Mar. 7	126	32	62	1382
Weston Engine Company. (See Longenecker, Charles K., assignor.)						
Westwood, John T., assignor of one-half to D. H. Taylor, Wheeling, W. Va. Dumb-waiter	490,462	Jan. 24	2356	610	62	520
Wetter, Frances M. (See Schaeffer, Levi R., assignor.)						
Whalen, Ellen, Cumberland, Md. Garment-supporter	489,619	Jan. 10	984	257	62	220
Wheat, David, Kent, Ind. Incubator	492,079	Feb. 21	1620	402	62	1103
Wheat, Henry A. (See Reid, Hanna, Holroyd, and Wheat.)						
Wheat, James M., St. Louis, Mo. Blacking-box	493,955	Mar. 21	1914	489	62	1761
Wheat, John J., Indianapolis, Ind., assignor of two-thirds to F. H. Kilbourne and H. H. Hitchcock, Chicago, Ill. Trace-holder	489,057	Jan. 3	117	31, 32	62	29
Wheaster, James. (See Roberts and Wheaster.)						
Wheatley, Thomas W., Wilkes-Barré, Pa. Lightning-arrester	492,649	Feb. 28	2541	629	62	1303
Wheeler, Clara H., administratrix. (See Wheeler, Norman W.)						
Wheeler, Claude C., Fairmont, W. Va. Fence	493,458	Mar. 14	1085	278	62	1586
Wheeler, Claude J., Wolcott, N. Y. Fruit-bleacher	493,570	Mar. 14	1278	327	62	1622
Wheeler, Earl A., Sharon, Pa. Boiler and boiler-furnace	489,725	Jan. 10	1136	294	62	251
Wheeler, Earl A., Sharon, Pa. Boiler and boiler-furnace	489,726	Jan. 10	1137	294	62	251
Wheeler, Earl G. (See Totman and Wheeler.)						
Wheeler, Edward G. (See Clawson and Wheeler.)						
Wheeler, Edward H., assignor to Waterbury Brass Company, Waterbury, Conn. Machine for cutting scrap metal	490,054	Jan. 17	1686	439	62	376

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Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wheeler, Harris A. (See Aze and Gilfillan, assignors.)						
Wheeler, John H., Macy, Tex. Vine-cutter	493,822	Mar. 14	880	225	62	1545
Wheeler, Norman W., deceased; C. H. Wheeler, administratrix, New York, N. Y. Air or gas compressor	490,526	Jan. 24	2466	635	62	543
Wheeler, Roscoe B. (See Collins, George, assignor.)						
Whetter, Thomas, Petersham, near Sydney, New South Wales. Sash-balance	489,442	Jan. 3	707	189, 190	62	152
Whiffen-Lake Lasting Machine Company. (See Lake, Leon, assignor.)						
Whipple, Alice A., Providence, R. I. Portable foot-warmer, &c	490,091	Jan. 17	1747	455	62	389
Whipple, Effinger E., St. John's, Mich. Harrow	490,130	Jan. 17	1816	474	62	404
Whipple, Effinger E., St. John's, Mich. Harrow	492,315	Feb. 21	1989	495	62	1180
Whipple, Eugene D. (See Scurr and Whipple.)						
Whitacre, William C., assignor of two-thirds to S. Knapp and J. F. Baumgartner, St. Louis, Mo. Engineer's valve	494,502	Mar. 28	2818	706, 707	62	1944
Whitacre, William C., assignor of two-thirds to S. Knapp and J. F. Baumgartner, St. Louis, Mo. Car-brake	494,503	Mar. 28	2820	707	62	1945
Whitaker, David W., assignor of one-half to S. R. Carrington, Durham, N. C. Fountain marking-brush	491,000	Jan. 31	3244	828	62	709
Whitaker, Joseph F., Hartford, Conn. Velocipede	489,645	Jan. 10	1015	264	62	227
Whitcomb, Alonzo L., assignor of one-half to H. E. Dean, Great Bend, Kans. Grain-car	492,198	Feb. 21	1695	422	62	1117
Whitcomb, Truman H., *et al.* (See June, Marcus M., assignor.)						
Whitcomb, William W., Boston, Mass. Brake-shoe	490,701	Jan. 31	2766	711	62	616
Whitcomb, William W., Boston, Mass. Brake-shoe	490,702	Jan. 31	2768	711	62	617
White & Co., William. (See Grimes, Charles L., assignor.) (Reissue.)	489,280	Jan. 3	461	128	62	101
White, Francis W., Norwich, Conn. Piano-hammer	491,749	Feb. 14	1113	281	62	987
White Franklin R., Waterbury, Conn. Clutch	489,279	Jan. 3	459	127	62	101
White, Harry, Syracuse, N. Y. Corner-brace	493,882	Mar. 21	1786	456	62	1737
White, James. (See White, William F., assignor.)						
White, Nicholas, Cummings, Iowa. Hand garden-weeder	489,058	Jan. 3	119	32	62	29
White, Oliver H., Fremont, Nebr. Portable desk	492,316	Feb. 21	1991	496	62	1180
White, Patrick, Perth Amboy, N. J. Driving-gear for hoisting-drums	489,355	Jan. 3	570	154	62	122
White, Peter, St. Louis, Mo. Automatic supply-valve for tanks	491,694	Feb. 14	1031	264	62	972
White, Robert H., Kingston, N. Y. Locomotive stand-pipe	489,245	Jan. 3	409	114	62	91
White, T. Stewart, *et al.* (See Raymond, Silas H., assignor.)						
White, William. (See Houghton and White.)						
White, William E., assignor of one-half to J. White, Bottineau, N. D. Straw-carrier	489,425	Jan. 3	676	182	62	145
White, William R., Bloomington, Ill. Gate	493,538	Mar. 14	1214	311	62	1610
White, William R., Bloomington, Ill. Gate	493,539	Mar. 14	1216	311, 312	62	1610
Whiteaker, George W., *et al.* (See Gillet, Alexis F., assignor.)						
Whiteaker, James D., *et al.* (See Gillet, Alexis F., assignor.)						
Whitehead, Benjamin S., Newark, N. J. Badge	493,003	Mar. 7	365	92	62	1431
Whitehill, David B., North Clarendon, Pa. Ventilated boot	490,703	Jan. 31	2769	712	62	617
Whiteley, Albert M., assignor of one-half to R. Allen and E. Peters, Aurora, Ark. Automatic gate	493,669	Mar 21	1446	369	62	1671
Whitin Machine Works. (See Owen, Oscar L., assignor.)						
Whitin Machine Works. (See Prest, John E., assignor.)						
Whiting, Edward A., assignor of one-half to J. Tobin, Ithaca, N. Y. Laundry-bench	494,092	Mar. 21	2148	548	62	1805
Whiting Manufacturing Company. (See Osborne, Charles, assignor.)						
Whiting & Son, John L. (See Wolcott, Arthur H., assignor.)						
Whitlock, Alma, San Bernardino, assignor to C. E. Blake, San Francisco, Cal. Dental forceps	491,932	Feb. 14	1401	349	62	1044
Whitney, Annie L., *et al.* (See Kimball, Freddie C., assignor.)						
Whitney, Arthur E., Winchester, Mass. Hide-working cylinder	494,183	Mar. 28	2307	585	62	1850
Whitney, Baxter D., Winchendon, Mass. Stave-sawing machine	489,772	Jan. 10	1214	318	62	266
Whitney Glass Works. (See Jones, William H., assignor.)						
Whitney, James E., Rochester, N. Y. Weight-holder for cabinet-gymnasiums	491,326	Feb. 7	442	114	62	832
Whittaker, John. (See Hauser and Whitaker.)						
Whittaker, John, McCook, Nebr. Implement for tightening fence-wire strands	492,617	Feb. 28	2489	617	62	1293
Whitton, George A., Bogard, assignor of one-half to J. H. Williams, McFall, Mo. Clothes-line	491,032	Jan. 31	3309	844	62	723
Whittum, Edward, Fall River, Mass. Separator mechanism for spinning-frames	491,276	Feb. 7	340	86	62	814
Whyte, Alexander, St. Paul, Minn. Apparatus for cleaning air-pumps of locomotives	493,670	Mar. 21	1447	369	62	1671
Wiborgh, Johan G., Stockholm, Sweden. Pyrometer	489,884	Jan. 10	1366	355	62	298
Wichelmann, Johannes, Bremen, Germany. Ring-measure	492,566	Feb. 28	2404	599	62	1277
Wickes Brothers. (See Heyde, Edward, assignor.)						
Wickes, William J., *et al.* (See Drake, George H., assignor.)						
Wickham, Charles H. (See Adsit and Wickham.)						
Wicks, William J., *et al.* (See Drake, George H., assignor.)						
Widener, William M. (See Kenner, Charles A., assignor.)						
Widmer, Charles C., assignor of one-half to J. McCann, Danbury, Conn. Expansible hat-block	493,200	Mar. 7	660	168	62	1488
Widmer, Louis J., Abilene, Tex. Wire-rope fastener	490,796	Jan. 31	2917	750	62	645
Widmeyer, Lemuel S., and J. F. Fields, Hancock, Md.; said Fields assignor to said Widmeyer. Railway	490,868	Jan. 31	3018	776	62	667
Widness, Lawrence J., Brooklyn, N. Y. Measuring-funnel	489,620	Jan. 10	985	257	62	220
Wieland, Louis A., assignor of one-third to P. C. Dean, Pittsburg, Pa. Step-ladder	489,059	Jan. 3	119	32	62	30
Wiemann, William P., Allegheny, Pa. Electric-arc lamp	492,650	Feb. 28	2542	629, 630	62	1304
Wientge, Charles C., assignor to Howard Sterling Company, Providence, R. I. Case	489,426	Jan. 3	678	183	62	146
Wierenga, Arie C., Zeeland, Mich. Attachment for beds	492,249	Feb. 21	1891	472	62	1158
Wiesenfeld, Robert S., Baltimore, Md. Packing vessel or jar	489,773	Jan. 10	1215	319	62	267
Wiesenfeld, Robert S., Baltimore, Md. Bottle and stopper	490,729	Jan. 31	2808	720	62	624
Wiggins, Susan, Stewartsville, Ind. Mangle	491,455	Feb. 7	653	164	62	872
Wightman, Merle J. (See Lemp and Wightman.)						
Wilber, Samuel G., Lake Hill, N. Y. Car-coupling	490,004	Jan. 17	1593	416	62	357
Wilcox, Albert E. (See Link and Wilcox.)						
Wilcox, Cornelius, Sunbery, Ohio. Whiffletree-coupling	491,790	Feb. 14	1181	296	62	999
Wilcox, Curtis N., Brooklyn, N. Y. Lamp-support	489,172	Jan. 3	287	80	62	66
Wilcox, Eliza, Ashley, Mich. Carpet-stretcher	492,857	Mar. 7	127	32	62	1382
Wilcox Silver Plate Company. (See Baldwin, Seth W., assignor.)						
Wild, Fred, Denver, Colo. Automatic furnace	492,175	Feb. 21	1776	444	62	1135
Wilder, Joseph L., Mexia, Tex. Device for cooling milk or butter	490,005	Jan. 17	1595	417	62	358
Wilder, Lyman F., Rochester, N. Y. Oil-stove	493,740	Mar. 21	1571	399	62	1696

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Wiley, Frederick, Avoca, Iowa. Churn	490,730	Jan. 31	2809	720	62	624
Wiley, George, assignor of two-thirds to F. Graham, Chicago, Ill., and R. L. Moorhead, New York, N. Y. Steamer	493,849	Mar. 21	1736	442	62	1728
Wiley, William S. C., Catskill, N. Y. Shirt	493,956	Mar. 21	1916	489	62	1762
Wilhelm, John H., Chicago, Ill. Indicator	489,060	Jan. 3	120	33	62	30
Wilkes, Eugene J., North Branch, Minn. Shingling-bracket	489,402	Jan. 3	638	173	62	137
Wilkin, Theodore S., Milwaukee, Wis. Sawmill-setworks	490,463	Jan. 24	2357	611	62	521
Wilkins, Albert T., assignor of one-half to D. Dever, Philadelphia, Pa. Liquid measuring and delivering apparatus	493,138	Mar. 7	570	142 / 143	62	1471
Wilkinson, Charles E., New Haven, Conn. Sewing-machine shuttle	492,930	Mar. 7	251	64	62	1408
Wilkinson, Charles E., Westville, Conn. Bobbin for sewing-machines	493,417	Mar. 14	1008	260	62	1572
Wilkinson, William. (See Hadley and McDonald, assignors.)						
Wilkinson, William H., Boston, Mass. Breast-drill	491,624	Feb. 14	927	233	62	949
Willame, Paul, Clichy, France. Machine for hermetically closing cans	489,356	Jan. 3	571	154 / 155	62	123
Willard, Norman P., trustee. (See Fletcher, Wendell C., assignor.)						
Willets, Abner A., McKeesport, Pa. Broom-head	489,841	Jan. 10	1312	342	62	288
Willett, George B. (See Moore and Willett.)						
William Cramp & Sons Ship and Engine Building Company. (See Smith, Morris F., assignor.)						
William Deering & Company. (See Storle, Ole O., assignor.)						
William J. Matheson & Company. (See Austen, Peter T., assignor.)						
William Sellers & Company. (See Lewis, Wilfred, assignor.)						
William Wharton, Jr., & Company. (See Angerer and Psilander, assignors.)						
William Wharton, Jr., & Company. (See Samuel, Edward, assignor.)						
Williames, Napoleon W., Philadelphia, Pa. Heating apparatus for railways	492,129	Feb. 21	1636	423	62	1117
Williams, Benjamin A. (See Williams, George N., Jr., assignor.)						
Williams, Francis C., Philadelphia, Pa. Street-sweeper	492,489	Feb. 28	2284	568	62	1250
Williams, Frank E. (See Werner and Williams.)						
Williams, George M., Santa Rosa, Cal. Printer's cabinet	489,665	Jan. 10	1041	271	62	232
Williams, George N., Jr., assignor of one-half to B. A. Williams, New York, N. Y. Operating diamond stone-sawing machines	490,464	Jan. 24	2359	611	62	521
Williams, George W., *et al.* (See Davis, George A., assignor.)						
Williams, Harry. (See Naylor and Williams.)						
Williams, Harry R., assignor to W. D. Hubbard, Hartford, Conn. Machine for rolling horseshoe-blanks	489,061	Jan. 3	121	33	62	30
Williams, Hugh, Stockport, England. Gas or similar motor engine	490,006	Jan. 17	1596	417	62	358
Williams, Isaac T., Clearmont, Mo. Draft-equalizer	493,323	Mar. 14	881	225	62	1545
Williams, J. Hunter. (See Whitton, George A., assignor.)						
Williams, James, and G. A. Cummer; said Williams assignor to R. J. Cummer, Cleveland, Ohio. Gasoline-burner	493,540	Mar. 14	1219	312	62	1611
Williams, James P. (See Bradford and Williams.)						
Williams, James S. (See Watson and Williams.)						
Williams, John G. (See Irish and Williams.)						
Williams, John T. (See Williams, William A., assignor.)						
Williams, Joseph A., Canal Dover, Ohio. Electric-motor regulator	491,829	Feb. 14	1237	309	62	1011
Williams, Joseph A., Cleveland, Ohio. Commutator for dynamos or motors	492,176	Feb. 21	1779	444	62	1136
Williams, Louis N. D. (See Scott, Robert W., assignor.)						
Williams, Louis N. D., assignor of one-half to R. W. Scott, Philadelphia, Pa. Extra-thread-feeding device for knitting-machines	491,327	Feb. 7	443	114 / 115	62	832
Williams, Louis N. D., assignor of one-half to R. W. Scott, Philadelphia, Pa. Dial-cam-operating device for knitting-machines	491,911	Feb. 14	1366	340	62	1037
Williams, Malcolm B., assignor to Williams Manufacturing Company, Kalamazoo, Mich. Wind-wheel	489,885	Jan. 10	1368	355	62	298
Williams Manufacturing Company. (See Williams, Malcolm B., assignor.)						
Williams of Thos., Samuel T., Baltimore, Md. Sewer-guard	492,450	Feb. 28	2206	551	62	1235
Williams, Percy G., and A. W. Roovers, Brooklyn, N. Y.; said Roovers assignor to said Williams. Coin-controlled dice-throwing machine	491,971	Feb. 14	1460	364	62	1056
Williams, Robert E., Hot Springs, Ark., assignor of one-half to C. W. Israel, Paris, Ill. Electric brush	494,359	Mar. 28	2597	652	62	1904
Williams, Samuel, New York, assignor to himself, W. H. Crump and T. Martin, Brooklyn, N. Y. Gas-meter	492,600	Feb. 28	2461	612	62	1289
Williams, Samuel G., and J. C. Burges, Cincinnati, Ohio. Punching and shearing machine	490,007	Jan. 17	1598	417	62	359
Williams, Thomas, Brooklyn, N. Y. Support for non-conducting coverings	494,312	Mar. 28	2510	633	62	1888
Williams, Thomas, Brooklyn, N. Y. Removable fastening for non-conducting coverings	494,313	Mar. 28	2512	633	62	1888
Williams, Warren. (See Munz, Charles W., assignor.)						
Williams, William, assignor of one-half to Hall & Garrison, Philadelphia, Pa. Corn or potato planter	490,092	Jan. 17	1748	455	62	389
Williams, William A. (See Ferguson, Robert G., assignor.)						
Williams, William A., assignor of one-half to J. T. Williams, New Harmony, Ind. Gate	489,621	Jan. 10	985	257	62	220
Williams, William E., Chicago, Ill. Railway-rail brace	491,152	Feb. 7	140	38	62	776
Williams, William J., Pittsburg, Pa. Railway-rail splice	493,802	Mar. 21	1672	426	62	1716
Williamson, George H. (See Creteau, Stephen M., assignor.)						
Williamson, Samuel. (See Cranford, Charles E., assignor.)						
Willimantic Linen Company. (See Scott, John, assignor.)						
Williston, Belvin T. (See Park and Williston.)						
Willits, Warren J., Three Rivers, Mich. Car-wheel	491,456	Feb. 7	654	164	62	873
Wills, Joseph, Newark, N. J. Machine for pointing and punching shoe-laces	494,311	Mar. 28	2508	633	62	1888
Wilson, Thomas L., Brooklyn, N. Y. Electrically reducing aluminium and forming alloys thereof	491,394	Feb. 7	553	140	62	854
Wilson, Thomas L., Leakville, N. C. Electric reduction of refractory metallic compounds	492,377	Feb. 21	2086	521	62	1198
Willyoung, Elmer G., assignor to S. L. and E. B. Fox, Philadelphia, Pa. Electrical measuring-instrument	491,457	Feb. 7	655	164	62	873
Wilmot, Frank A. (See Wilmot, Samuel R. and F. A.)						
Wilmot & Hobbe Manufacturing Company. (See Wilmot, Samuel R., assignor.)						
Wilmot & Hobbe Manufacturing Company. (See Wilmot, Samuel R. and F. A., assignors.)						
Wilmot, Samuel R., assignor to Wilmot & Hobbe Manufacturing Company, Bridgeport, Conn. Frying-pan	489,173	Jan. 3	288	80	62	66
Wilmot, Samuel R. and F. A., assignors to Wilmot & Hobbe Manufacturing Company, Bridgeport, Conn. Sheave-stand for switch-operating mechanisms	489,174	Jan. 3	290	80	62	66
Wilson, Adoniram J., Port Chester, N. Y., and W. W. Salmon, Chicago, Ill., assignors to Hall Signal Company, of Maine. Electric signaling system	490,761	Jan. 31	2858	733	62	633
Wilson, Carlos G., Milledgeville, Ga. Baling-press	494,267	Mar. 28	2444	616 / 617	62	1875

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Wilson, Edward L., Washington, D. C. Sound-recording instrument	489,666	Jan. 10	1043	271 / 272	62	282
Wilson, Frank, *et al.* (See Blair, John, assignor.)						
Wilson, George B. (See Pellow, John, assignor.)						
Wilson, George D., St. Louis, Mo. Device for removing débris from cisterns	493,139	Mar. 7	571	143	62	1471
Wilson, James E., Easton, Pa. Machine for cutting bones	489,774	Jan. 10	1216	319	62	267
Wilson, James R., Buffalo, N. Y. Fine-cleaner	491,791	Feb. 14	1182	296	62	999
Wilson, John D., Belle Plaine, Iowa. Vehicle-axle	492,651	Feb. 28	2548	630	62	1304
Wilson, John J., *et al.* (See Sherman, Willis D., assignor.)						
Wilson, Mathew, Garrison, Iowa. Harvester cutting apparatus	489,062	Jan. 3	122	33	62	30
Wilson, Richard F., Stockton, Cal. Non-shrinking stave	489,063	Jan. 3	123	33	62	31
Wilson, Robert, assignor of one-half to C. F. Corsman, Allen, Pa. Cultivator-tooth	493,741	Mar. 21	1573	400	62	1696
Wilson, Samuel C., Alpha, Ill. Compound for increasing the yield of butter from milk	489,775	Jan. 10	1218	.....	62	267
Wilson, Stephen, Philadelphia, Pa. Rocking-horse motor	490,465	Jan. 24	2361	612	62	522
Wilson, Sylvester, Crooked Tree, Ohio. Sand-band	490,731	Jan. 31	2809	721	62	625
Winchester Repeating Arms Company. (See Browning, John M. and M. S., assignors.)						
Windeatt, William H., assignor to Johnstone, Norman & Co., London, England. Extension-table	490,936	Jan. 31	3141	806	62	690
Winding, George, Milwaukee, Wis. Asphalt-mixing machine	490,218	Jan. 17	1959	513 / 514	62	430
Wine, Joseph S., Mossy Creek, Va. Draft-spring for vehicles	490,527	Jan. 24	2468	636	62	543
Winebrener, John A. (See Ross, George W., assignor.)						
Wineland, Frank B., Breckenridge, Colo. Bucket-dumping apparatus	491,958	Feb. 14	1438	358	62	1052
Winfield, William N., Detroit, Mich. Blank book	494,360	Mar. 28	2599	653	62	1904
Wing, Lingan C., Somerville, assignor to Richardson, Howe & Lovejoy, Boston, Mass. Ruffling attachment for sewing-machines	492,317	Feb. 21	1992	496	62	1180
Winger Elam B., Chicago, Ill. Alarm-clock	491,398	Feb. 7	445	115	62	832
Winkelmann, Herman R., Jacksonville, Fla., assignor to Automatic Water Tank Company, Philadelphia, Pa. Steam-vacuum water-elevator	489,064	Jan. 3	124	34	62	31
Winkless, William, Newport, Ky. Safety appliance for elevators	490,219	Jan. 17	1960	514	62	431
Winkley, Frank D., Madison, Wis. Grinding apparatus	492,451	Feb. 28	2207	552	62	1235
Winn, Columbus M., Lunenburg, Va., assignor of one-half to N. H. Neblett. Car-coupling	489,427	Jan. 3	679	183	62	146
Winship Machine Company. (See Garraux, Frederick, assignor.)						
Winslow, Stewart, Rutherford, N. J., assignor of one-half to H. S. Beattie, New York, N. Y. Apparatus for elevating and conveying coal	489,886	Jan. 10	1369	356	62	298
Winston, Charles W., and F. Throop; said Throop assignor to said Winston and E. C. Bichowsky, San Gabriel, Cal. Orchard-plow	491,033	Jan. 31	3310	844 / 845	62	723
Winton, Henry D., Wellesley, Mass., assignor to Hersey Manufacturing Company, Portland, Me., and Boston, Mass. Leading-piece for overhead electric railways	492,881	Mar. 7	173	42	62	1392
Wirsig, Oswald H., *et al.* (See Preston, Leonard Z., assignor.)						
Wirth, John. (See Tredway and Wirth.)						
Wise Bros. (See Crain, William O., assignor.)						
Wisner, Clarence B., Lowell, Ind. Perforating apparatus	494,184	Mar. 28	2309	585	62	1850
Witter, Ezra E., Milford Centre, Ohio. Lubricator	491,153	Feb. 7	141	38	62	776
Witzel, Oscar, Langensalza, Germany. Fire-ladder	494,452	Mar. 28	2737	686 / 687	62	1928
Woerner, Ludwig, Brooklyn, N. Y. Bed-couch	493,418	Mar. 14	1008	260	62	1572
Wojidkow, Louis, Brooklyn, N. Y. Cooking-lamp	493,803	Mar. 21	1673	426	62	1716
Wolcott, Arthur H., Winthrop, assignor to J. L. Whiting & Son, Boston, Mass. Brush-machine	490,181	Jan. 17	1895	493	62	419
Wolcott, Marcus R., Rockford, Ill. Wheel for vehicles	493,419	Mar. 14	1010	260	62	1573
Wolf, Elmer E., Springfield, Ohio. Transom-lifter	492,250	Feb. 21	1892	472 / 473	62	1159
Wolf, Harres. (See Bryant, Alden B., assignor.)						
Wolfe, James H. (See Lehr and Wolfe.)						
Wolff, Adrian, assignor to Scovill Manufacturing Company, Waterbury, Conn. Making metal mounts for brushes, &c.	492,177	Feb. 21	1780	445	62	1136
Wolff & Co., Rudolph. (See Ritter, Abraham, assignor.)						
Wolke, Angela, administratrix. (See Wolke, Frederick.)						
Wolke, Frederick, deceased, Rich Prairie, Minn.; A. Wolke, administratrix. Plow-cleaner	490,420	Jan. 24	2295	596	62	508
Woll, Peter, Jr., Philadelphia, Pa. Machine for twisting and curling hair	493,004	Mar. 7	367	92	62	1431
Womelsdorff, Henry C., Tyler, Tex. Dumping-car	489,111	Jan. 3	200	53, 54	62	46
Wood, Austin C. (See Tuffs, John H., assignor.)						
Wood, Edgar J., Brooklyn, N. Y. Reducing-pressure valve	489,515	Jan. 10	840	219	62	191
Wood, Edgar J., Brooklyn, N. Y. Pump-regulator	489,516	Jan. 10	841	220	62	191
Wood, Henry A. W., assignor to Campbell Printing Press and Manufacturing Company, New York, N. Y. Registering device for printing-presses	492,505	Feb. 28	2313	573 / 574	62	1256
Wood, Henry S. (See McMullen, Krusi, and Wood.)						
Wood, James, and W. W. Hare, Noblesville, Ind. Whiffletree-hook	493,420	Mar. 14	1011	261	62	1573
Wood, James J., Fort Wayne, Ind. Alternating-current dynamo	489,065	Jan. 3	127	34, 35	62	32
Wood, James J., Fort Wayne, Ind. Self-lubricating journal-bearing	493,742	Mar. 21	1573	400	62	1697
Wood, James J., Brooklyn, N. Y. Alternating-current dynamo-electric machine	491,695	Feb. 14	1033	261 / 262	62	972
Wood, Montraville M., Chicago, Ill. Suspending device	493,459	Mar. 14	1086	278 / 279	62	1586
Wood, Walter. (See Richards, Francis H., assignor.)						
Wood, Waters D., Pittsburg, assignor to W. Dewees Wood Company, McKeesport, Pa. Manufacturing sheet-iron	490,236	Jan. 17	1982	.....	62	436
Wood & Willard. (See Beiser, James H., assignor.)						
Wood, William H., assignor of one-half to J. B. Stanchfield, Elmira, N. Y. Caddy	494,093	Mar. 21	2148	549	62	1805
Wood, William M., Boston, Mass. Refrigerator	490,055	Jan. 17	1688	440	62	376
Woodberry, Jesse, Boston, Mass. Pipe-organ stop-action	489,887	Jan. 10	1370	356 / 357	62	299
Woodcock, James M., Bridgeport, Ohio. Track-fastening	490,704	Jan. 31	2770	712	62	617
Woodcock, William H. (See Purdon, Walters, and Woodcock.)						
Woodruff Manufacturing Company. (See Church, William G., assignor.)						
Woods, Joseph T., Toledo, Ohio. Hydrostatic bed	489,517	Jan. 10	843	220	62	192
Woods, Martin, Newark, N. J. Button-turning machine	490,937	Jan. 31	3142	806	62	690
Woods, Paul, Wakefield, R. I. Carriage-spring	490,594	Jan. 24	2558	658	62	561
Woodward, Charles B., St. Louis, Mo. Printing	493,850	Mar. 21	1737	442	62	1728
Woodward, Mary C., Pony, Montana. Detachable handle for coffee-pots	491,001	Jan. 31	3245	829	62	709
Woodward, Roland E., Chicago, Ill. Inhaler	490,008	Jan. 17	1599	418	62	359
Woodward, Russel G., Waukegan, assignor to Union Special Sewing Machine Company, Chicago, Ill. Thread-controlling device for sewing-machines	493,461	Mar. 14	1088	279	62	1586

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wool, Moses, assignor to S. L. Knschewsky, New York, N. Y. Making brandy-mash and composition for same	493,460	Mar. 14	1087	.....	62	1586
Woolcott, William, Winchester, Ky. Kneading-machine	490,182	Jan. 17	1896	493	62	419
Woolf, Albert E., assignor to T. J. Montgomery and R. Woolf, New York, N. Y. Disinfectant and deodorizer	490,797	Jan. 31	2918	.....	62	645
Woolf, Rosamond, *et al.* (See Woolf, Albert E., assignor.)						
Woolley, Leonidas G., Grand Rapids, Mich. Scale-beam	491,458	Feb. 7	658	165	62	874
Wooster, Clarence, Saugatuck, Conn. Feeding mechanism for machines for making buttons	490,421	Jan. 24	2295	596	62	509
Wooster, George, Fort Apache, Ariz. Ter. Adjustable bridge for stringed musical instruments	490,528	Jan. 24	2469	636	62	543
Worcester, Samuel A., Leadville, and W. A. Morgan, Green Mountain Falls, Colo. Drilling-machine	492,567	Feb. 28	2405	{599 600}	62	1277
Worden, Asa E., Philadelphia, Pa. Washing-machine	493,957	Mar. 21	1917	489	62	1762
Worthen, A. Virginia, administratrix. (See Worthen, William H.)						
Worthen, William H., deceased; A. V. Worthen, administratrix, and assignor to Guild & Garrison, Brooklyn, N. Y. Vacuum-pump	491,912	Feb. 14	1368	341	62	1037
Wray, David A., assignor of one-half to S. M. Boyd, Pittsburg, Pa. Composition for roofing, paving, &c	491,395	Feb. 7	557	.....	62	854
Wright, Alexander C., Baltimore, Md. Brush	493,050	Mar. 7	435	110	62	1445
Wright, Alfred M., McFall, Mo. Buttonhole-cutter	492,452	Feb. 28	2209	552	62	1236
Wright, Allen J., Cleveland, Ohio. Steam-separator	492,081	Feb. 21	1622	403	62	1103
Wright, Allen J., Cleveland, Ohio. Steam-separator	492,082	Feb. 21	1624	403	62	1103
Wright, Allen J., Cleveland, Ohio. Safety steam-separator	492,083	Feb. 21	1627	404	62	1104
Wright, Almeron J. (See King and Wright.)						
Wright, Charles A., Philadelphia, Pa. Card-stacking machine	492,130	Feb. 21	1699	423	62	1118
Wright, Elias M., Buffalo, N. Y. Burner for oil-stoves	493,743	Mar. 21	1575	{400 401}	62	1697
Wright, George F., Palmer, Mass. Wire-netting machine	490,009	Jan. 17	1600	{418 419}	62	359
Wright, George H., Syracuse, N. Y. Milk-can	493,804	Mar 21	1674	427	62	1716
Wright, George W., Table Rock, Nebr. End-gate for wagons	489,137	Jan. 3	235	65	62	54
Wright, Granville W., assignor to Sargent & Company, New Haven, Conn. Door spring and check	491,154	Feb. 7	144	38	62	777
Wright, Granville W., assignor to Sargent & Company, New Haven, Conn. Door-check	491,155	Feb. 7	146	39	62	777
Wright, Granville W., assignor to Sargent & Company, New Haven, Conn. Door-spring	491,156	Feb. 7	148	39	62	777
Wright, Granville W., assignor to Sargent & Company, New Haven, Conn. Bench-plane	493,903	Mar. 21	1816	462	62	1743
Wright, J. M., *et al.* (See Smith, George, assignor.)						
Wright, James. (See McFarlane, William, assignor.)						
Wright, John E., New York, N. Y. Printing-telegraph	494,185	Mar. 28	2311	{585 586}	62	1851
Wright, John S. (See Johnson, Samuel S., assignor.)						
Wright, Joseph, London, England. Steam-engine	491,002	Jan. 31	3246	{829 830}	62	709
Wright, Rufus. (See Morgan and Wright.)						
Wright, William A., Centreton, N. J., assignor of one-half to Brown & Gilman, Philadelphia, Pa. Bicycle	489,112	Jan. 3	201	54	62	47
Wright, William J., Cooperstown, Pa. Stave trimming and jointing machine	492,702	Feb. 28	2615	{647 648}	62	1318
Wrigley, Thomas, Todmorden, England. Spinning-spindle	492,080	Feb. 21	1621	402	62	1103
Wubbena, Charles. (See Crites, John W., assignor.)						
Wurth, Henry T., *et al.* (See Allis, Abram Q., assignor.)						
Wurts, Alexander, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Thermostatic fuse device	492,547	Feb. 28	2379	590	62	1271
Wurts, Alexander, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Lightning-arrester	492,548	Feb. 28	2381	591	62	1272
Wurts, Alexander, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Lightning-arrester	492,549	Feb. 28	2382	591	62	1272
Wurts, Alexander, assignor to Westinghouse Electric and Manufacturing Company, Pittsburg, Pa. Lightning-arrester	494,186	Mar. 28	2314	586	62	1851
Wutke, Carl W. E., Germersdorf, Germany. Roofing-tile	491,625	Feb. 14	928	233	62	949
Wyckoff, Seamans & Benedict. (See Martin, Harrison S., assignor.)						
Wyckoff, Seamans & Benedict. (See Webb, George B., assignor.)						
Wyman, Harrington, *et al.* (See Sugden and Sandy, assignors.)						
Wyman, Horace, assignor to Crompton Loom Works, Worcester, Mass. Loom	490,238	Jan. 17	1990	522	62	437
Wyman, Horace, assignor to Crompton Loom Works, Worcester, Mass. Loom	490,239	Jan. 17	1993	522	62	437
Wyman, Horace, and J. A. Clark, assignors to Crompton Loom Works, Worcester, Mass. Loom for weaving tufted fabrics	490,237	Jan. 17	1984	{520 521}	62	436
Wyman, Jacob O., and O. L. Eugen, Fargo, N. D. Grain-meter	489,776	Jan. 10	1218	319	62	267
Wynn, Charles W., Asheville, N. C. Sectional cooking-boiler	491,865	Feb. 14	1300	321	62	1024
Wythe, William H. (See Wythe, William W. and W. H.)						
Wythe, William W. and W. H., Orange, N. J., assignors to National Cash Register Company, Dayton, Ohio. Check printer and recorder	491,626	Feb. 14	928	{233 234}	62	949
Xander, John G., assignor of one-half to J. C. Reber, Reading, Pa. Cycle	493,201	Mar. 7	661	169	62	1468
Yale & Towne Manufacturing Company. (See Ridell, Frank R., assignor.)						
Yale & Towne Manufacturing Company. (See Stockwell, Emory and H. C., assignors.)						
Yale & Towne Manufacturing Company. (See Towne, Henry R., assignor.)						
Yarbrough, Orceneth F., Dallas, Tex. Grain-planter	491,459	Feb. 7	659	165	62	874
Yarger, John A., New Hampton, Iowa. Safety-car	490,529	Jan. 24	2470	636	62	543
Yarnell, George M., Senecaville, Ohio. Pump attachment	489,403	Jan. 3	639	173	62	137
Yarrington, Charles H., Torrington, assignor of one-half to C. French, Seymour, Conn. Spring	490,938	Jan. 31	3144	807	62	690
Yates, Charles L. (See McLean, Aaron R., assignor.)						
Yeoman, Robert H., Omaha, Nebr. Hot-air apparatus	491,627	Feb. 14	933	234	62	951
Yeoman, Robert H., Omaha, Nebr. Hot-air apparatus	491,628	Feb. 14	934	234	62	951
Yoe, Philip, Dayton, Ohio. Cash register and indicator	490,466	Jan. 24	2363	612	62	522
York, Edward S. (See Dyre, William E., assignor.)						
York, James E. (See Stevenson, John L., assignor.)						
Yost Manufacturing Company. (See Cable, Frank D., assignor.)						
Yost Writing Machine Company. (See Davidson, Alexander, assignor.)						
Young, Abram, Binghamton, N. Y. Car-brake	489,842	Jan. 10	1313	342	62	288
Young, Alden M. (See Schoenmehl, Charles B., assignor.)						
Young, Charles P., York, Pa. Coin and slot machine	492,178	Feb. 21	1781	445	62	1136
Young, Howard H., Alexandria, Va. Clip for vehicles	489,777	Jan. 10	1221	320	62	268
Young, John S., Defiance, Ohio. Fifth-wheel	493,324	Mar. 14	882	225	62	1546

Alphabetical list of patentees, January to March, inclusive—Continued.

Name, residence, and invention.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Young, Washington H., Indianapolis, Ind. Hay-press	492,652	Feb. 28	2548	{630 631}	62	1304
Young, William, Weston, Mich. Window-frame	491,034	Jan. 31	3312	845	62	723
Young, William C., Fort Wayne, Ind. Measuring and registering apparatus	492,453	Feb. 28	2211	553	62	1236
Young, William J., assignor of one-half to J. M. Houston, Town Creek, Ala. Tire-tightener	489,404	Jan. 3	640	173	62	138
Youngren, Peter L., Oakland, Cal. Continuous kiln	491,396	Feb. 7	557	141	62	855
Youngren, Peter L., Oakland, Cal. Brick-kiln	492,251	Feb. 21	1895	473	62	1159
Youngjohns, William, Kidderminster, England, and W. Taylor, deceased; J. L. Norris, Washington, D. C., ancillary administrator. Loom for weaving tufted fabrics	490,530	Jan. 24	2471	{636 637}	62	544
Zahrn, Frederick H., Michigan City, Ind. Refrigerator	494,049	Mar. 21	2072	{529 530}	62	1791
Zaremba, Edward, Chicago, Ill. Operating device for bridge-gates	489,113	Jan. 3	202	54, 55	62	47
Zeh, Jakob, Eglosheim, Germany. Crimping-machine	491,913	Feb. 14	1369	341	62	1037
Zehnder, Morris R. (See Reilly, Bernard T., assignor.)						
Zeigler, George W., Anderson, Ind. Burner for lighting or heating with natural or artificial gas	492,179	Feb. 21	1783	446	62	1136
Zeitinger, Christian J., Zeitonia, assignor to St. Louis Stamping Company, St. Louis, Mo. Attachment of handles to vessels	493,140	Mar. 7	575	144	62	1472
Zenk, Josef, Schlüsselfeld, Germany. Photographic camera	492,703	Feb. 28	2620	648	62	1319
Zernikow, Friedrich, Oderberg, Germany. Apparatus for manufacturing artificial stone	493,141	Mar. 7	576	144	62	1472
Zimmerman, Arnold W., Washington Heights, Ill. Axle-box lid	489,888	Jan. 10	1373	357	62	299
Zimmerman, Arnold W., Chicago, Ill. Axle-box lid	489,889	Jan. 10	1374	{357 358}	62	299
Zimmerman, Casper, Chicago, Ill. Safety attachment for houses	490,780	Jan. 31	2894	742	62	640
Zimmerman, Casper, Denver, Colo. Building for protection against cyclones, &c	490,779	Jan. 31	2893	742	62	640
Zimmerman, Casper, Denver, Colo. Sifter or separator	493,142	Mar. 7	577	144	62	1472
Zimmerman, Casper, Sioux Falls, S. D. Wagon-tire	493,143	Mar. 7	579	145	62	1473
Zink, George H., Geneva, Nebr. Pocket cigarette-machine	489,357	Jan. 3	572	155	62	123
Zinn, Edward. (See Carlisle, Joseph A., assignor.)						
Zinsser, August. (See Kreusler, Arnold, assignor.)						
Zlock, William, assignor to Rockford Mitten and Hosiery Company, Rockford, Ill. Knitting fabrics	491,460	Feb. 7	661	{165 166}	62	874
Zoll, Emil. (See Clarenbach and Zoll.)						
Zoulek, Joseph, East Jordan, Mich. Brace for vehicle-hounds	489,778	Jan. 10	1222	320	62	268
Zurlinden, John U., Billings, Mont. Lubricator	492,252	Feb. 21	1897	474	62	1160
Zurlinden, John U., Billings, Mont. Oil-cup	492,318	Feb. 21	1994	496	62	1180
Zwietusch, Oscar B. (See Zwietusch, Otto and O. B.)						
Zwietusch, Otto and O. B., Milwaukee, Wis. Making beer	490,056	Jan. 17	1689	440	62	376

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A. H. Andrews & Company. (See Wilmot, John F., assignor.)				
Adams, George E., Providence, R. I., assignor to Trant & Hine Company, New Britain, Conn. Buckle	22,132	Jan. 17	62	444
Alger, William P., assignor of one-half to C. C. Kelley, West Troy, N. Y. Tool-handle	22,221	Feb. 14	62	1059
Allan, James, Charleston, S. C. Badge	22,109	Jan. 10	62	307
Allen, Walter E., Washington, D. C. Paper-knife	22,278	Mar. 14	62	1642
Anderson, William C., assignor to Libby Glass Company, Toledo, Ohio. Ornamentation of glassware	22,098	Jan. 3	62	154
Anderson, William C., assignor to Libby Glass Company, Toledo, Ohio. Ornamentation of glassware	22,213	Feb. 14	62	1057
Asbury, Thomas H. (See Baker and Asbury.)				
Baker, John G., and T. H. Asbury, Philadelphia, Pa. Frame for lawn-sprinklers	22,190	Jan. 31	62	737
Barnes, David L., Chicago, Ill., assignor to National Malleable Castings Company, Cleveland, Ohio. Center plate for cars	22,130	Jan. 10	62	311
Beach, Clifton H., assignor to Saltsburg Bottle Works Company, Limited, Pittsburg, Pa. Bottle	22,167	Jan. 31	62	733
Bedichimer, Isaac, Philadelphia, Pa. Badge	22,108	Jan. 10	62	307
Bennett, Ernest H., East Orange, N. J., assignor to J. H., J. H., and E. Bromley. Rug	22,210	Feb. 14	62	1057
Bennett, Ernest H., East Orange, N. J., assignor to J. H., J. H., and E. Bromley. Rug	22,211	Feb. 14	62	1057
Bernheim, Eugene C., assignor to C. Petersen, Washington, D. C. Spoon	22,093	Jan. 3	62	154
Berry, Henry, assignor to Derby Silver Company, Shelton, Conn. Brush or mirror back	22,174	Jan. 31	62	734
Berry, Henry, assignor to Derby Silver Company, Shelton, Conn. Brush or mirror back	22,175	Jan. 31	62	735
Berry, Henry, assignor to Derby Silver Company, Shelton, Conn. Brush or mirror back	22,176	Jan. 31	62	735
Berry, Henry, assignor to Derby Silver Company, Shelton, Conn. Brush or mirror back	22,177	Jan. 31	62	735
Bigelow Carpet Company. (See Daintrey, William M., assignor.)				
Bigler, William A., Chicago, Ill. Spoon	22,094	Jan. 3	62	154
Birmingham, Joseph E., and C. Grandjean, San Francisco, Cal. Spoon	22,223	Feb. 14	62	1059
Blanchard, Denman. (See Mills, Robert, assignor.)				
Blumenberg, Mendum R., Washington, D. C. Button	22,191	Feb. 7	62	891
Bradley, William, Philadelphia, Pa. Flag	22,306	Mar. 28	62	1958
Bromley, Edward, *et al.* (See Bennett, Ernest H., assignor.)				
Bromley, John H., *et al.* (See Bennett, Ernest H., assignor.)				
Bromley, Joseph H., *et al.* (See Bennett, Ernest H., assignor.)				
Brumby, Robert W., and S. Clarke, Hull, England. Calendar-case	22,290	Mar. 14	62	1646
Brunt, Henry, Baltimore, Md. Ewer	22,303	Mar. 21	62	1815
Bulova, Joseph, New York, N. Y. Finger-ring	22,224	Feb. 14	62	1059
Burger, Louis, Chicago, Ill. Spoon	22,242	Feb. 28	62	1342
Burger, Louis, Chicago, Ill. Spoon	22,253	Mar. 7	62	1502
Burger, Louis, Chicago, Ill. Spoon	22,254	Mar. 7	62	1503
Burger, Louis, Chicago, Ill. Spoon	22,255	Mar. 7	62	1503
Burger, Louis, Chicago, Ill. Spoon	22,256	Mar. 7	62	1503
Burger, Louis, Chicago, Ill. Spoon	22,257	Mar. 7	62	1503
Burnworth, Hezekiah J., Cambridge, Ohio. Box	22,220	Mar. 14	62	1644
Butler Hard Rubber Company. (See Wittock, Paul, assignor.)				
Caldwell & Co., James E. (See Houston, Hugh B., assignor.)				
Caldwell, John M., Anniston, Ala. Badge	22,307	Mar. 28	62	1958
Chadwick Plush Company. (See Schofield, John, assignor.)				
Clarke, Simpson. (See Brumby and Clarke.)				
Cohen, Bernard, New York, N. Y. Head for fur collars	22,284	Mar. 14	62	1643
Cope, Edward, Nottingham, England. Lace fabric	22,281	Mar. 14	62	1643
Cope, Edward, Nottingham, England. Lace fabric	22,282	Mar. 14	62	1643
Cope, George W., Detroit, assignor to H. L. Smith, Jackson, Mich. Stove	22,189	Jan. 31	62	737
Criswell, Francis M., Washington, D. C. Pulsometer	22,198	Feb. 7	62	892
Crowell, Gilbert L., Jr., Arlington, N. J., assignor to Dominick & Haff, New York, N. Y. Silversmiths' stock	22,194	Feb. 7	62	892
Culver, William W., assignor to Wrought Iron Range Company, St. Louis, Mo. Cooking-range	22,131	Jan. 10	62	311
Daintrey, William M., assignor to Bigelow Carpet Company, New York, N. Y. Carpet	22,235	Feb. 21	62	1301
Davies, Benjamin, Brooklyn, assignor to L. Straus & Sons, New York, N. Y. Ornamentation of glass vessels	22,286	Mar. 14	62	1644
Davison, Ferdinand, *et al.* (See Davison, George J., assignor.)				
Davison, George J., assignor of two-thirds to F. Davison and A. G. Spratley, Richmond, Va. Heel or sole plate	22,294	Mar. 14	62	1645
De Haven, Isaac, Allegheny, Pa. Stove	22,220	Feb. 14	62	1059
De La Bastide, Pierre, Limoges, France. Dish	22,154	Jan. 24	62	582
Derby Silver Company. (See Berry, Henry, assignor.)				
Deslauriers, Philip A., St. Paul, Minn. Siding-plate	22,297	Mar. 14	62	1646
Diehl, Albert C., Philadelphia, Pa. Pattern for quilting	22,247	Feb. 28	62	1343
Dillingham, Henry, Chelsea, Mass. Toy savings-bank	22,232	Feb. 21	62	1301
Dimars, William B., Stamford, assignor to Yale & Towne Manufacturing Company, of Connecticut. Escutcheon-plate	22,218	Feb. 14	62	1058
Dominick & Haff. (See Crowell, Gilbert L., Jr., assignor.)				
Donoghue, Jeremiah G., Philadelphia, Pa., assignor to Ledig Manufacturing Company, of Pennsylvania. Pitcher	22,214	Feb. 14	62	1058
Duncan, Anna C., Kansas City, Mo. Piano-case	22,188	Jan. 31	62	737
Dyrenforth, Harold. (See Even, Theodore, assignor.)				
Earnshaw, Joseph C., Yonkers, N. Y. Curtain	22,120	Jan. 10	62	309
Eggington, Walter, Corning, N. Y. Ornamentation of glass or other vessels	22,136	Jan. 17	62	445
Envelope and Stamp Machine Company. (See Lyon, Asa, assignor.)				
Esser, Hermann, Hoboken, N. J. Fork for dividers	22,295	Mar. 14	62	1645
Even, Theodore, assignor to H. Dyrenforth, Chicago, Ill. Badge	22,260	Mar. 7	62	1503
Ewing, Edwin C. (See Grafton, Ewing, and Glass.)				
Fanney, Peter, Chicago, Ill. Bottle or flask	22,116	Jan. 10	62	308

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Name, residence, and design.	No.	Date.	Official Gazette. Vol.	Page.
Fisk, Clark & Flagg. (See Flagg, Thomas J., assignor.)				
Flagg, Thomas J., assignor to Fisk, Clark & Flagg, New York, N. Y. Suspender-buckle	22,309	Mar. 28	62	1958
Flesher, Jennie E., New York, N. Y. Dressmaker's square	22,248	Feb. 28	62	1343
Fordon, Alexander A. (See Plant, Edgar C., assignor.)				
Frances, Edwin, Calais, France. Lace fabric	22,314	Mar. 28	62	1959
Fuchs, Henry F. G., Jersey City, N. J. Badge	22,226	Feb. 21	62	1199
Geer, Henry J., Providence, R. I., assignor to G. W. Hopkinson, New York, N. Y. Perfumery-holder	22,112	Jan. 10	62	308
Gelas, Jean P., St. Etienne, France. Pattern for textile fabrics	22,179	Jan. 31	62	736
Gelas, Jean P., St. Etienne, France. Pattern for textile fabrics	22,180	Jan. 31	62	736
Gelas, Jean P., St. Etienne, France. Pattern for textile fabrics	22,181	Jan. 31	62	736
Gildemeyer, Charles A., Haddonfield, N. J. Ink-well	22,311	Mar. 28	62	1959
Glass, Alexander. (See Grafton, Ewing, and Glass.)				
Gnichwitz, Rudolph, Ashbourne, assignor to Mather Manufacturing Company, Philadelphia, Pa. Font of printing-type	22,148	Jan. 24	62	581
Goldsberry, William H., Chicago, Ill. Measuring-rule	22,124	Jan. 10	62	310
Grafton, William S., Steubenville, Ohio, E. C. Ewing, and A. Glass, assignors to Wheeling Corrugating Company, Wheeling, W. Va. Ceiling-plate	22,272	Mar. 7	62	1505
Grafton, William S., Steubenville, Ohio, E. C. Ewing, and A. Glass, assignors to Wheeling Corrugating Company, Wheeling, W. Va. Ceiling-plate	22,273	Mar. 7	62	1505
Grafton, William S., Steubenville, Ohio, E. C. Ewing, and A. Glass, assignors to Wheeling Corrugating Company, Wheeling, W. Va. Ceiling-plate	22,274	Mar. 7	62	1505
Grafton, William S., Steubenville, Ohio, E. C. Ewing, and A. Glass, assignors to Wheeling Corrugating Company, Wheeling, W. Va. Ceiling-plate	22,275	Mar. 7	62	1505
Graham, Charles, Brooklyn, N. Y. Stationary tub-support	22,316	Mar. 28	62	1960
Graham, Lewis S., New Orleans, La. Pamphlet-cover	22,147	Jan. 24	62	581
Graham, William H., St. Louis, Mo. Sink-trap	22,237	Feb. 21	62	1202
Graham, William H., St. Louis, Mo. Sink-trap	22,238	Feb. 21	62	1202
Grandjean, Charles. (See Birmingham and Grandjean.)				
Gulick, Alexander R. (See Gulick, William R., assignor.)				
Gulick, William R., Bay Head, N. J., assignor to A. R. Gulick, New York, N. Y. Compartment-plate	22,305	Mar. 21	62	1816
Hall, Zachary T. (See Lockwood, James F., assignor.)				
Harris, Charles R., Williamsport, Pa. Buckle-front	22,225	Feb. 21	62	1199
Harrison, Dora, Lansing, Mich. Buckle	22,111	Jan. 10	62	308
Harsha, Leslie R., Chicago, Ill., assignor to L. R. Harsha Manufacturing Company. Curtain-pole	22,185	Jan. 31	62	736
Harsha, Leslie R., Chicago, Ill., assignor to L. R. Harsha Manufacturing Company. Curtain-pole	22,186	Jan. 31	62	737
Harsha, Leslie R., Chicago, Ill., assignor to L. R. Harsha Manufacturing Company. Curtain-pole	22,187	Jan. 31	62	737
Harsha, Leslie R., Chicago, Ill., assignor to L. R. Harsha Manufacturing Company. Curtain-pole	22,250	Feb. 28	62	1344
Haviland, Charles E., Limoges, France. Cup	22,201	Feb. 7	62	893
Haviland, Charles E., Limoges, France. Cup	22,202	Feb. 7	62	893
Haviland, Charles E., Limoges, France. Dish	22,230	Feb. 21	62	1200
Haviland, Charles E., Limoges, France. Cover-dish	22,231	Feb. 21	62	1200
Haviland, Theodore, Ambazac, France. Dish	22,117	Jan. 10	62	309
Haviland, Theodore, Ambazac, France. Dish	22,118	Jan. 10	62	309
Haviland, Theodore, Ambazac, France. Dish	22,199	Feb. 7	62	892
Haviland, Theodore, Ambazac, France. Dish	22,200	Feb. 7	62	892
Hayden, William W., Newark, N. J. Match-box	22,095	Jan. 3	62	154
Haynes, David F., Baltimore, Md. Covered dish	22,155	Jan. 24	62	582
Haynes, David F., Baltimore, Md. Ewer or jug	22,156	Jan. 24	62	582
Heald, Harvey L., Granville Centre, Pa. Halter-plate	22,204	Feb. 7	62	893
Heald, Harvey L., Granville Centre, Pa. Cheek-piece	22,205	Feb. 7	62	893
Heinz, Henry J., Pittsburg, Pa. Bottle	22,304	Mar. 21	62	1815
Heinz, Henry J., Pittsburg, Pa. Bottle	22,312	Mar. 28	62	1959
Heine, Herman L., Chicago, Ill. Lap-last	22,089	Mar. 14	62	1644
Herron, Ashley M. (See Wahlers, Charles, assignor.)				
Hertlein, Christopher E., New York, N. Y. Gimp	22,279	Mar. 14	62	1643
Hertlein, Christopher E., New York, N. Y. Gimp	22,280	Mar. 14	62	1643
Hill, Philip, Philadelphia, Pa. Umbrella-carrier	22,262	Mar. 7	62	1503
Hilyard, James F., Rancocas, N. J. Spoon	22,197	Feb. 7	62	892
Holmes, Helen V., Chicago, Ill. Flag-holder	22,128	Jan. 10	62	311
Hook, Harry, assignor to Partridge & Richardson, Philadelphia, Pa. Gimp	22,245	Feb. 28	62	1343
Hook, Harry, assignor to Partridge & Richardson, Philadelphia, Pa. Gimp	22,246	Feb. 28	62	1343
Hook, Harry, assignor to Partridge & Richardson, Philadelphia, Pa. Gimp	22,266	Mar. 7	62	1504
Hopkinson, George W. (See Geer, Henry J., assignor.)				
Horn, Frederick F., Colorado Springs, Colo. Spoon	22,229	Feb. 21	62	1200
Houston, Hugh B., assignor to J. E. Caldwell & Co., Philadelphia, Pa. Breastpin	22,258	Mar. 7	62	1503
Howard, Stephen C., assignor to Howard Sterling Company, Providence, R. I. Dish	22,313	Mar. 28	62	1959
Howard Sterling Company. (See Howard, Stephen C., assignor.)				
Huss Brothers Company. (See Huss, William C., assignor.)				
Huss, William C., assignor to Huss Brothers Company, Cincinnati, Ohio. Wall-fixture for counters	22,127	Jan. 10	62	310
J. H. Johnston & Company. (See Verschnur, Justus, assignor.)				
Jackson, Austin F., assignor to Reed & Barton Corporation, Taunton, Mass. Handle for spoons	22,105	Jan. 10	62	307
Jackson, Austin F., assignor to Reed & Barton Corporation, Taunton, Mass. Handle for spoons	22,133	Jan. 17	62	444
Jennings, Arthur O., Southport, assignor to New Haven Clock Company, New Haven, Conn. Clock-case	22,125	Jan. 10	62	310
Jewelers Crown Guild. (See Kelley, George B., assignor.)				
Jorgensen, Charles J., Milwaukee, Wis. Picture or analogous frame	22,292	Mar. 14	62	1645
Kelley, Charles C. (See Alger, William P., assignor.)				
Kelley, George B., Rockford, Ill., assignor to Jewelers Crown Guild. Spoon	22,228	Feb. 21	62	1200
Kelly, J. M., trustee. (See Smith, George B., assignor.)				
King, Louis, Rochester, N. Y. Lamp-chimney	22,139	Jan. 17	62	445
Kinney, Marshall J., Astoria, Oreg. Can	22,270	Mar. 7	62	1504
Kleinhans, Louis, assignor to Sutro Bros. Braid Company, New York, N. Y. Braid	22,268	Mar. 7	62	1504
Koenig, Francis, assignor to R. G. Ledig, Philadelphia, Pa. Lamp-body	22,140	Jan. 17	62	445
Koenig, Francis, assignor to R. G. Ledig, Philadelphia, Pa. Lamp-base	22,144	Jan. 17	62	446
Kohnle, Frank, *et al.* (See Kohnle, Frederick, assignor.)				
Kohnle, Frederick, Dayton, assignor of two-thirds to F. Kohnle, St. Mary's, Ohio, and L. B. Kohnle, Chicago, Ill. Cane	22,096	Jan. 3	62	154
Kohnle, Lawrence B., *et al.* (See Kohnle, Frederick, assignor.)				
Kurtz, Paul, Marshalltown, Iowa. Furniture-case	22,100	Jan. 3	62	155
L. R. Harsha Manufacturing Company. (See Harsha, Leslie R., assignor.)				
Ledig Manufacturing Company. (See Donoghue, Jeremiah G., assignor.)				
Ledig, Reinhold G. (See Koenig, Francis, assignor.)				
Lee, James R., assignor to Torsch & Lee, Baltimore, Md. Badge	22,110	Jan. 10	62	307

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Lee, John E., Conshohocken, Pa. Jar	22,115	Jan. 10	62	308
Leedy, Caleb K., Mount Vernon, Ohio. Puzzle-board	22,265	Mar. 7	62	1504
Lehr, Harry, New York, N. Y. Finger-ring	22,192	Feb. 7	62	891
Leyson, John H., Butte City, Mont. Breastpin	22,106	Jan. 31	62	733
Libby Glass Company. (See Anderson, William C., assignor.)				
Librowicz, Julius, New York, N. Y. Bottle	22,137	Jan. 17	62	445
Librowicz, Julius, New York, N. Y. Bottle	22,138	Jan. 17	62	445
Librowicz, Julius, New York, N. Y. Base or pedestal	22,165	Jan. 31	62	733
Librowicz, Julius, New York, N. Y. Bottle stopper or top	22,168	Jan. 31	62	733
Lindenthal, Carl, New York, N. Y. Gimp	22,267	Mar. 7	62	1504
Lines, John, assignor to Scovill Manufacturing Company, Waterbury, Conn. Coin-holder	22,216	Feb. 14	62	1058
Lockwood, James F., assignor to Z. T. Hall, Philadelphia, Pa. Stove-mat	22,123	Jan. 10	62	309
Lydick, Dent L., Quaker City, Ohio. Penholder	22,264	Mar. 7	62	1503
Lyon, Asa, assignor to Envelope and Stamp Machine Company, Chicago, Ill. Case for vending-machines	22,102	Jan. 3	62	155
Lyon, James W. (See Porteous, George, assignor.)				
Maillot, John W., assignor to F. M. Whiting & Co., North Attleborough, Mass. Spoon	22,251	Mar. 7	62	1502
Maillot, John W., assignor to F. M. Whiting & Co., North Attleborough, Mass. Handle for spoons	22,302	Mar. 21	62	1815
Mather Manufacturing Company. (See Gnichwitz, Rudolph, assignor.)				
Matthews & Willard Manufacturing Company. (See Miller, John C., assignor.)				
McCain, Charles W., Vancouver, Canada. Medal	22,300	Mar. 21	62	1815
McCarthy, Oliver, assignor to Meriden Britannia Company, Meriden, Conn. Socket-plate for coffin-handles	22,129	Jan. 10	62	311
McCarthy, Oliver, assignor to Meriden Britannia Company, Meriden, Conn. Coffin-plate	22,217	Feb. 14	62	1058
McEvoy, Edward J., New York, N. Y., assignor of one-half to William Cramp & Sons Ship and Engine Building Company, Philadelphia, Pa. Globe-holder	22,227	Feb. 21	62	1200
Meriden Britannia Company. (See McCarthy, Oliver, assignor.)				
Meston, Alexander W., St. Louis, Mo. Frame for electric motors	22,277	Mar. 7	62	1505
Miller, John C., assignor to Matthews & Willard Manufacturing Company, Waterbury, Conn. Table	22,219	Feb. 14	62	1058
Miller, John E., Pittsburg, Pa. Vessel	22,111	Jan. 10	62	308
Mills, Robert, Newton, assignor to D. Blanchard, Melrose, Mass. Case for vending-machines	22,126	Jan. 10	62	310
Moore, Charles H., Yonkers, N. Y. Ornamentation of stationary wash-bowls	22,122	Jan. 10	62	309
Mount Washington Glass Company. (See Singleton, Thomas, Jr., assignor.)				
Mount Washington Glass Company. (See Steffin, Albert, assignor.)				
Naegele, Charles F., New York, N. Y. Medal	22,240	Feb. 28	62	1342
National Malleable Castings Company. (See Barnes, David L., assignor.)				
Neely, William A., Lynn, Mass. Stay-strip	22,269	Mar. 7	62	1504
New Haven Clock Company. (See Jennings, Arthur O., assignor.)				
North American Iron Works. (See Tweeddale, William, assignor.)				
Nye, Martha A., Chicopee Falls, Mass. Breastpin, &c	22,150	Jan. 24	62	581
O'Brien, William S., San Francisco, Cal. Spoon	22,301	Mar. 21	62	1815
O'Brien, William S., San Francisco, Cal. Spoon-handle, &c	22,308	Mar. 28	62	1958
Oldham, William G. (See Smith and Oldham.)				
Oldham, William G., and W. K. Smith, assignors to W. T. Smith & Son, Philadelphia, Pa. Woven fabric	22,159	Jan. 24	62	583
Osborne, Charles, assignor to Whiting Manufacturing Company, New York, N. Y. Spoon	22,243	Feb. 28	62	1343
Oudesluys, Louis, Baltimore, Md. Badge	22,276	Mar. 7	62	1505
Packer, Charles W., Philadelphia, Pa. Cross-bar for ice-cream freezers	22,244	Feb. 28	62	1343
Pairpoint Manufacturing Company. (See Ratcliff, Frederick, assignor.)				
Parlin, Andrew J., Newport, Ky. Easel	22,293	Mar. 14	62	1645
Partridge & Richardson. (See Hook, Harry, assignor.)				
Perry, Walter A., New Bedford, Mass. Hook for ropes				
Petersen, Carl. (See Bernheim, Eugene C., assignor.)				
Pilkington, George H., *et al.* (See Pilkington, William L., assignor.)				
Pilkington, Richard, *et al.* (See Pilkington, William L., assignor.)				
Pilkington, Thomas, *et al.* (See Pilkington, William L., assignor.)				
Pilkington, William, *et al.* (See Pilkington, William L., assignor.)				
Pilkington, William L., assignor to himself, W., T., W. W., R., and G. H. Pilkington, St. Helen's, England. Surface ornamentation of glass	22,099	Jan. 3	62	155
Pilkington, William L., assignor to himself, W., T., W. W., R., and G. H. Pilkington, St. Helen's, England. Ornamentation of glass	22,173	Jan. 31	62	734
Pilkington, William W., *et al.* (See Pilkington, William L., assignor.)				
Pinkham, Frederick S., Everett, Mass. Arm-badge	22,261	Mar. 7	62	1503
Plant, Edgar C., Momence, Ill., assignor to A. A. Fordon, Buffalo, N. Y. Alto-rilievo	22,145	Jan. 24	62	580
Porteous, George, assignor to J. W. Lyon, Guelph, Canada. Music-rack	22,249	Feb. 28	62	1343
Ratcliff, Frederick, assignor to Pairpoint Manufacturing Company, New Bedford, Mass. Dish	22,172	Jan. 31	62	734
Reed & Barton Corporation. (See Jackson, Austin F., assignor.)				
Rees, Joseph, New York, N. Y. Finger-ring	22,193	Feb. 7	62	892
Rees, Joseph, New York, N. Y. Tray	22,215	Feb. 14	62	1058
Rey, V. J. A. (See Schroeder, Gustave F., assignor.)				
Roberts, Marshall O., Washington, D. C. Spoon	22,212	Feb. 14	62	1057
Roos, Edward, Chicago, Ill. Pole-bracket	22,142	Jan. 17	62	446
Rothschild, David, Cincinnati, Ohio. Wall-fixture for counters	22,162	Jan. 24	62	583
Rothschild, David, Cincinnati, Ohio. Wall-fixture for counters	22,163	Jan. 24	62	583
Rothschild, David, Cincinnati, Ohio. Saloon fixture	22,222	Feb. 14	62	1059
Rowe, Alfred L., Chicago, Ill. Sheet-glass	22,097	Jan. 3	62	154
Ruxton, Benjamin H., assignor to Toledo Moulding Company, Toledo, Ohio. Curtain-pole	22,271	Mar. 7	62	1504
Saltzburg Bottle Works Company. (See Beach, Clifton H., assignor.)				
Sametz, Adolph, Brooklyn, N. Y. Picture-frame	22,146	Jan. 24	62	580
Sanders, Albert D., Evanston, Ill. Flushing-tank	22,209	Feb. 7	62	894
Schade, Edmund A., assignor to Stanley Rule and Level Company, New Britain, Conn. Frame for circular planes	22,208	Feb. 7	62	894
Scheerer, Wilhelm, Tuttlingen, Germany. Handle for surgical instruments	22,134	Jan. 17	62	444
Scherer, Maria C., Bayonne, N. J. Thimble	22,106	Jan. 10	62	307
Scherer, Maria C., Bayonne, N. J. Chatelaine	22,107	Jan. 10	62	307
Schofield, John, assignor to Chadwick Plush Company, Holyoke, Mass. Plush fabric	22,233	Feb. 21	62	1201
Schroeder, Gustave F., Mill Valley, assignor to V. J. A. Rey, San Francisco, Cal. Font of type	22,104	Jan. 10	62	307
Schroeder, Gustave F., Mill Valley, assignor to V. J. A. Rey, San Francisco, Cal. Font of printing-type	22,263	Mar. 7	62	1503
Scovill Manufacturing Company. (See Lines, John, assignor.)				
Seliger, Alfred E., Newark, N. J. Box	22,113	Jan. 10	62	308
Shelhorn, George B., Montgomery, Ala. Rug-fastener	22,288	Mar. 14	62	1644
Shiebler, George W., Brooklyn, N. Y. Handle for spoons or forks	22,149	Jan. 24	62	581
Shimer, Milton J., Freemansburg, Pa. Toy money-safe	22,291	Mar. 14	62	1645

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Simpson, Crawford & Simpson. (See Verschuur, Justus, assignor.)				
Singleton, Thomas, Jr., New Bedford, Mass. Glass dish	22,203	Feb. 7	62	893
Singleton, Thomas, Jr., assignor to Mount Washington Glass Company, New Bedford, Mass. Ornamental glass dish	22,169	Jan. 31	62	733
Singleton, Thomas, Jr., assignor to Mount Washington Glass Company, New Bedford, Mass. Ornamental glass dish	22,170	Jan. 31	62	734
Singleton, Thomas, Jr., assignor to Mount Washington Glass Company, New Bedford, Mass. Ornamental glass dish	22,287	Mar. 14	62	1644
Smith, Anthony W., Pittsburg, Pa. Plant-support	22,206	Feb. 7	62	893
Smith, Celia M., Ithaca, N. Y. Pattern for printed fabrics	22,178	Jan. 31	62	735
Smith, Charles W., Norwalk, Ohio. Curtain-pole bracket	22,296	Mar. 14	62	1645
Smith, George B., Chicago, Ill., assignor to J. M. Kelly, trustee, Pittsburg, Pa. Badge	22,259	Mar. 7	62	1503
Smith, Hugh L. (See Cope, George W., assignor.)				
Smith, James A., Sr., St. Louis, Mo. Ice-mold	22,298	Mar. 14	62	1646
Smith & Son, William T. (See Oldham and Smith, assignors.)				
Smith & Son, William T. (See Smith and Oldham, assignors.)				
Smith, William K. (See Oldham and Smith.)				
Smith, William T., Philadelphia, Pa. Woven fabric	22,158	Jan. 24	62	582
Smith, William T., Philadelphia, Pa. Woven fabric	22,234	Feb. 21	62	1201
Smith, William T., Philadelphia, Pa. Rug	22,285	Mar. 14	62	1643
Smith, William T., and W. G. Oldham, assignors to W. T. Smith & Son, Philadelphia, Pa. Woven fabric	22,160	Jan. 24	62	583
Spratley, Albert G., *et al.* (See Davison, George J., assignor.)				
Stanley Rule and Level Company. (See Schade, Edmund A., assignor.)				
Steere, George N., Hamilton, R. I. Tape	22,119	Jan. 10	62	309
Steffin, Albert, assignor to Mount Washington Glass Company, New Bedford, Mass. Vessel	22,171	Jan. 31	62	734
Stein, Edward, New York, N. Y. Umbrella-handle	22,310	Mar. 28	62	1958
Straus & Sons, L. (See Davies, Benjamin, assignor.)				
Sutro Bros. Braid Company. (See Kleinhans, Louis, assignor.)				
Thrush, Frederick T., Milwaukee, Wis. Head for a toy windmill	22,164	Jan. 24	62	583
Toledo Moulding Company. (See Ruxton, Benjamin H., assignor.)				
Torsch & Lee. (See Lee, James R., assignor.)				
Traut & Hine Company. (See Adams, George E., assignor.)				
Tweedale, William, Brooklyn, assignor to North American Iron Works, New York, N. Y. Drinking-fountain	22,141	Jan. 17	62	445
Twyman Decorating Company. (See Twyman, Joseph, assignor.)				
Twyman, Joseph, assignor to Twyman Decorating Company, Chicago, Ill. Wall-paper	22,103	Jan. 10	62	306
Van Derveer, Benjamin B., New York, N. Y. Sheet of wrapping-paper	22,184	Jan. 31	62	736
Varnum, Robert T., New York, N. Y. Inflated cushion	22,121	Jan. 10	62	309
Verschuur, Justus, Jersey City, N. J., assignor to Simpson, Crawford & Simpson, New York, N. Y. Spoon	22,195	Feb. 7	62	892
Verschuur, Justus, Jersey City, N. J., assignor to J. H. Johnston & Company, New York, N. Y. Spoon	22,196	Feb. 7	62	892
Wahlers, Charles, New York, assignor to A. M. Herron, Palisades, N. Y. Jar	22,157	Jan. 24	62	582
Warner, De Ver H., Bridgeport, Conn. Dress-stay	22,283	Mar. 14	62	1643
Warner, Warren E., assignor to Weaver, Palmer & Richmond, Rochester, N. Y. Planting-dibble	22,315	Mar. 28	62	1960
Weaver, Palmer & Richmond. (See Warner, Warren E., assignor.)				
Wellman, Henry A., Philadelphia, Pa. Handle for spoons	22,252	Mar. 7	62	1502
Weston, Edward, Newark, N. J. Case for electrical measuring-instruments	22,101	Jan. 3	62	155
Weston, Edward, Newark, N. J. Resistance-box	22,207	Feb. 7	62	893
Wheeling Corrugating Company. (See Grafton, Ewing, and Glass, assignors.)				
Whiting & Co., Frank M. (See Maillot, John W., assignor.)				
Whiting Manufacturing Company. (See Osborne, Charles, assignor.)				
Wilder, William H., Northampton, Mass. Stove	22,143	Jan. 17	62	446
William Cramp & Sons Ship and Engine Building Company. (See McEvoy, Edward J., assignor.)				
Wilmot, John F., assignor to A. H. Andrews & Company, Chicago, Ill. Handle for furniture	22,161	Jan. 24	62	583
Winfield Manufacturing Company. (See Winfield, William C., assignor.)				
Winfield, William C., assignor to Winfield Manufacturing Company, Warren, Ohio. Bail-ear	22,236	Feb. 21	62	1201
Winterbottom, George H., assignor to A. Winterbottom & Sons, Manchester, England. Book-binders' cloth	22,182	Jan. 31	62	736
Winterbottom, George H., assignor to A. Winterbottom & Sons, Manchester, England. Book-binders' cloth	22,183	Jan. 31	62	736
Winterbottom & Sons, Archibald. (See Winterbottom, George H., assignor.)				
Witteck, Paul, Butler, N. J., assignor to Butler Hard Rubber Company, New York, N. Y. Comb	22,151	Jan. 24	62	581
Witteck, Paul, Butler, N. J., assignor to Butler Hard Rubber Company, New York, N. Y. Comb	22,152	Jan. 24	62	581
Witteck, Paul, Butler, N. J., assignor to Butler Hard Rubber Company, New York, N. Y. Comb	22,153	Jan. 24	62	582
Wood, John, Washington, D. C. Spoon	22,092	Jan. 3	62	153
Wrought Iron Range Company. (See Culver, William W., assignor.)				
Yale & Towne Manufacturing Company. (See Ditmars, William B., assignor.)				
Yount, Joseph A., Laclede, Mo. Medal	22,241	Feb. 28	62	1342

ALPHABETICAL LIST OF REGISTRANTS OF TRADE-MARKS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Abegg & Rusch, New York, N. Y. Carpets	22,278	Jan. 3	62	156
Ackley, Griffin S. (See Manners, Downing, and Ackley.)				
Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Cotton, linen, silk, woolen, and hair yarns and thread	22,384	Jan. 31	62	738
Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Cotton, linen, silk, woolen, and hair yarns and thread	22,385	Jan. 31	62	738
Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Cotton, linen, silk, woolen, and hair yarns and thread	22,386	Jan. 31	62	738
Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Cotton, linen, silk, woolen, and hair yarns and thread	22,387	Jan. 31	62	738
Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Mieg & Cie., Mülhausen, Germany, and Belfort and Paris, France. Cotton, linen, silk, woolen, and hair yarns and thread	22,388	Jan. 31	62	738
Alber, George, Lansingburg, N. Y. Bread	22,432	Feb. 7	62	896
Albert Dickinson Company, Chicago, Ill. Shelled pop-corn	22,343	Jan. 17	62	447
Allaire, Woodward & Company, Peoria, Ill. Cathartics	22,571	Feb. 28	62	1350
Allaire, Woodward & Company, Peoria, Ill. Medicinal tonic	22,683	Mar. 21	62	1818
Allen, Bradley & Co., Boston, Mass. Lubricating-oils	22,565	Feb. 28	62	1349
Altemus, William F., Hartford, Conn. Compound for hardening and tempering steel	22,657	Mar. 14	62	1649
Amalga Soap Company, Brooklyn, N. Y. Toilet and laundry soap	22,691	Mar. 21	62	1819
American Chemical Company, Minneapolis, Minn. Plastic soap or cleaning compound	22,469	Feb. 14	62	1061
American Screw Company, Providence, R. I. Screws, bolts, nuts, rivets, burrs, washers, wire nails, and kindred articles	22,709	Mar. 28	62	1962
American Waltham Watch Company, Boston and Waltham, Mass., and New York, N. Y. Watches and their parts	22,276	Jan. 3	62	156
American Water Purifying Company, Portland, Me., Worcester, Mass., and New York, N. Y. Portable still and water-condenser for the distillation of pure water	22,300	Jan. 3	62	158
Anglo-American Provision Company, Chicago, Ill. Substitute for lard	22,537	Feb. 28	62	1348
Anglo-American Provision Company, Chicago, Ill. Lard	22,705	Mar. 28	62	1961
Anglo-American Provision Company, Chicago, Ill. Lard	22,706	Mar. 28	62	1961
Aparicio & Co., J., New York, N. Y. Coffee	22,635	Mar. 14	62	1647
Appleton, Ruel R., New York, N. Y. Stays or corsets	22,485	Feb. 21	62	1203
Bailey & Co., John T., Philadelphia, Pa. Burlaps	22,671	Mar. 21	62	1817
Bailey & Co., John T., Philadelphia, Pa. Burlaps and buckram	22,672	Mar. 21	62	1817
Bailey & Co., John T., Philadelphia, Pa. Binder-twine	22,673	Mar. 21	62	1817
Baldauf & Co., Geo. L., Milwaukee, Wis. Salve	22,446	Feb. 7	62	897
Ball & Cheyne Company, New York, N. Y. Prune-juice	22,429	Feb. 7	62	896
Batcheller, George E. (See Langdon and Batcheller.)				
Bate, Newton, and H. C. Enos, Cleveland, Ohio. Chewing-gum	22,592	Mar. 7	62	1507
Bates, Thomas H., Fresno, Cal. Cosmetics	22,541	Feb. 28	62	1348
Bauer, Anton, Constance, Germany. Lager-beer	22,287	Jan. 3	62	157
Beadleston & Woerz, New York, N. Y. Beer and ale	22,322	Jan. 10	62	313
Beadleston & Woerz, New York, N. Y. Bottled lager-beer	22,604	Mar. 7	62	1508
Beadleston & Woerz, New York, N. Y. Draft lager-beer	22,605	Mar. 7	62	1508
Bell, Thomas H., W. T. Dickinson, and N. A. Pollock, Cleveland, Ohio. Engraving-plates for making relief-cuts	22,660	Mar. 14	62	1649
Benger Soehne, Wilhelm, Stuttgart, Germany. Underwear	22,488	Feb. 21	62	1203
Benger Soehne, Wilhelm, Stuttgart, Germany. Underwear	22,520	Feb. 28	62	1346
Bergfels, William H., Newark, N. J. Medicinal inhaler in the form of a bottle provided with tubes	22,371	Jan. 24	62	585
Bethesda Mineral Spring Company, Waukesha, Wis. Carbonated and natural mineral water and ginger ale	22,405	Jan. 31	62	740
Betts, Arlington U., Toledo, Ohio. Certain named rubber goods	22,674	Mar. 21	62	1817
Bigbie Bros. & Co., Lynchburg, Va. Whisky	22,529	Feb. 28	62	1347
Bird & Son, F. W., Walpole, Mass. Waterproof papers	22,490	Feb. 21	62	1203
Bird & Son, F. W., Walpole, Mass. Waterproof paper	22,516	Feb. 28	62	1346
Blackistone, Moses, Annapolis, Md. Liniment for the cure of rheumatism	22,307	Jan. 10	62	312
Blanc, Frederic N., New York, N. Y. Polishing preparation for silk hats	22,555	Feb. 28	62	1349
Blanchard, Charles M., Philadelphia, Pa. Honey	22,280	Jan. 3	62	156
Bleyer & Co., D. L., New York, N. Y. Whisky	22,641	Mar. 14	62	1648
Boss & Hoover Co., Elkhart, Ind. Chewing-gum	22,305	Jan. 10	62	312
Boulanger, Emil, St. Louis, Mo. Drum heads, strings, and materials	22,585	Mar. 7	62	1506
Bowker, David A., Cowansville, Canada. Lotions for remedial purposes	22,646	Mar. 14	62	1648
Brahma Medicine Company, Limited, Pittsburg, Pa. Medicine for the cure of rheumatism	22,306	Jan. 10	62	312
Brainerd & Armstrong Company, New York, N. Y., Philadelphia, Pa., and Boston, Mass. Sewing, knitting, and embroidery silk threads and silk fabrics	22,694	Mar. 21	62	1819
Bridgeport Brass Company, Bridgeport, Conn., and New York, N. Y. Lamps and lamp-burners	22,693	Mar. 21	62	1819
Brigham, Arthur A., Boston, Mass. Cones for receiving masses of yarn or thread wound thereon	22,450	Feb. 7	62	896
Brockbank & Mellor, Liverpool, England. Fermented and spirituous liquors	22,501	Feb. 21	62	1204
Brooks, Franklin. (See Munsell, Kingsley, and Brooks.)				
Brossault & Co., Bordeaux, France. Wines	22,349	Jan. 17	62	448
Brossault & Co., Bordeaux, France. Cognac brandy	22,366	Jan. 24	62	585
Brossault & Co., Bordeaux, France. Bordeaux wine	22,426	Feb. 7	62	895
Brossault & Co., Bordeaux, France. Brandy	22,482	Feb. 14	62	1062
Bryan, Miner & Read, New Haven, Conn. Wheat-flour	22,358	Jan. 24	62	584
Buchanan, Robert J., Pittsburg, Pa. Publications	22,457	Feb. 14	62	1060
Burlingham, Charles S., Baltimore Md. Wood pumps	22,664	Mar. 14	62	1650
C. W. Hunt Company, New York, N. Y. Dressing or filling for rope	22,344	Jan. 17	62	447
Caffe, Adèle M., New York, N. Y., and Paris, France. Olive oil, French peas, mushrooms, haricots verts, flageolets, macedoines, truffes, sardines, prunes d'ente, and similar articles	22,677	Mar. 21	62	1818
Caffe, Adèle M., New York, N. Y., and Paris, France. Macaroni, vermicelli, egg-noodles, and similar compounds	22,678	Mar. 21	62	1818
California Vintage Company, New York, N. Y. California wines and liquors	22,606	Mar. 7	62	1508

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Carleton & Co., Malden, Mass. Chewing-gum	22,357	Jan. 24	62	584
Cash Buyers' Union, Chicago, Ill. Sewing-machines	22,253	Jan. 17	62	448
Century Manufacturing Company, Warren, Pa. Catarrh cure	22,348	Jan. 17	62	447
Chambers, Bro. & Co., Detroit, Mich. Suspensories	22,491	Feb. 21	62	1203
Chambers Glass Company, New Kensington, Pa. Sheet-glass known as picture, window, coffin, car, coach, store, and show-case glass	22,324	Jan. 10	62	314
Chapman, John M., New York, N. Y. Chocolate	22,389	Jan. 31	62	738
Chattanooga Brewing Company, Chattanooga, Tenn. Lager-beer	22,680	Mar. 21	62	1818
Chester, George T., Buffalo, N. Y. Flour	22,534	Feb. 28	62	1347
Chicago Sewing Machine Company, Chicago, Ill. Sewing-machines	22,662	Mar. 14	62	1650
Chicago Varnish Company, Chicago, Ill. Varnishes, stains, driers, japans, and kindred goods	22,394	Jan. 31	62	739
Christian Feigenspan, Newark, N. J. Ale	22,395	Jan. 31	62	739
Christian Union Company, New York, N. Y. Printed publications and periodicals	22,498	Feb. 21	62	1204
Clark's Son & Co., William, Pittsburg, Pa. Cotton-bale ties	22,338	Jan. 17	62	447
Clinton Wire Cloth Company, Clinton, Mass. Wire-netting and wire-cloth	22,590	Mar. 7	62	1507
Coakley, Walter L., Fort Sheridan, Ill. Remedy for bronchial diseases	22,524	Feb. 28	62	1347
Coca Cola Company, Atlanta, Ga. Nutrient or tonic beverages	22,346	Jan. 17	62	447
Colgate & Co., New York, N. Y. Soap, perfumery, and toilet preparations	22,406	Jan. 31	62	740
Colgate & Co., New York, N. Y. Soap, perfumery, and toilet preparations	22,546	Feb. 28	62	1348
Colgate & Co., New York, N. Y. Soap, perfumery, and toilet preparations	22,547	Feb. 28	62	1348
Collins, Lydia M., Philadelphia, Pa. Remedy for chills and fever	22,548	Feb. 28	62	1348
Condensed Coffee Company, Jersey City, N. J., and New York, N. Y. Condensed coffee	22,347	Jan. 17	62	447
Crescent Watch Case Company, Newark, N. J. Watchcases	22,590	Mar. 7	62	1507
Crescent Watch Case Company, Newark, N. J. Watchcases	22,382	Jan. 31	62	738
Criswell, Francis M., Washington, D. C. Remedy for certain named diseases	22,383	Jan. 31	62	738
Cyona Company, Limited, London, England. Liquid medicine for external use	22,612	Mar. 7	62	1509
D'Ormidor & Co., New York, N. Y. Toilet-water	22,688	Mar. 21	62	1819
Daisy Roller Mill Company, Milwaukee and Superior, Wis. Wheat-flour	22,311	Jan. 10	62	312
Davis & Galt, Philadelphia, Pa. Jewelry and silverware	22,535	Feb. 28	62	1347
De Lissa, Alpha S., Philadelphia, Pa. Whisky, manhattan, and other cocktails	22,275	Jan. 3	62	156
Dickinson, William T. (See Bell, Dickinson, and Pollock.)	22,679	Mar. 21	62	1818
Distilling and Cattle Feeding Company, Peoria, Ill. Compressed yeast	22,596	Mar. 7	62	1507
Dobie, William G., Pittsburg, Pa. Remedies for nervous debility and other named diseases	22,472	Feb. 14	62	1061
Dodge, Joseph S., Lincoln, Vt. Tonic and pills	22,613	Mar. 7	62	1509
Domestic Sewing Machine Company, New York, N. Y. Sewing-machines and their attachments	22,327	Jan. 10	62	314
Domestic Sewing Machine Company, New York, N. Y. Sewing-machines and their attachments	22,328	Jan. 10	62	314
Domestic Sewing Machine Company, New York, N. Y. Type-writers and parts thereof	22,624	Mar. 7	62	1510
Dorrance, George M., Philadelphia, Pa. Medicinal plasters	22,652	Mar. 14	62	1649
Dort, Elizabeth, Buffalo, N. Y. Salves, liniments, plasters, and bitters	22,444	Feb. 7	62	897
Downing, George H. (See Manners, Downing, and Ackley.)				
Dunwoody Bros., Denver, Colo. Toilet and laundry soap	22,470	Feb. 14	62	1061
Durham, James E. (See Stevens and Durham.)				
E. Tosetti Brewing Company, Chicago, Ill. Lager-beer	22,500	Feb. 21	62	1204
Eclipse Carbonating Co., St. Louis, Mo. Certain carbonated beverage	22,430	Feb. 7	62	896
Electric Manufacturing Company, Oconto, Wis. Incandescent electric lamps	22,412	Jan. 31	62	740
Electrolibration Company, Birmingham, Ala. Certain electrical instrument employed in the treatment of disease	22,617	Mar. 7	62	1509
Eli Lilly & Company, Indianapolis, Ind. Preparation for disguising the bitter or disagreeable taste of medicine	22,609	Mar. 7	62	1508
Eli Lilly & Company, Indianapolis, Ind. Cathartic	22,650	Mar. 14	62	1649
Ellis & Co., Wm. L., Baltimore, Md. Oysters	22,640	Mar. 14	62	1648
Elmendorf, George, Elmira, N. Y. Chewing-gum	22,390	Jan. 31	62	738
Eman, Charles W., and J. S. Powley, Toronto, Canada. Antiseptic compound for purifying the blood	22,686	Mar. 21	62	1819
Embalmers' Supply Company, Newark, N. J., New York, N. Y., and Westport, Conn. Antiseptics and embalming fluids	22,367	Jan. 24	62	585
Enbalmers' Supply Company, Newark, N. J., New York, N. Y., and Westport, Conn. Disinfectants	22,368	Jan. 24	62	585
Empire Mill Co., New Ulm, Minn. Wheat-flour	22,382	Jan. 3	62	156
Enos, Henry C. (See Bate and Enos.)				
Everard, James, New York, N. Y. Lager-beer	22,481	Feb. 14	62	1062
Excelsior Disinfector Co., Baltimore, Md. Certain named receptacle for disinfecting compounds	22,574	Feb. 28	62	1350
Famous Stove Co., Indianapolis, Ind. Stoves and ranges	22,695	Mar. 21	62	1819
Farrand, William H., Rochester, N. Y. Dentifrice	22,441	Feb. 7	62	897
Fashion Company, New York, N. Y. Printed periodical	22,419	Feb. 7	62	895
Five Points Chemical Co., Rolla, Mo. Certain named line of proprietary remedies	22,373	Jan. 24	62	585
Fluhrer, Frank. F., Philadelphia, Pa. Furniture-polish	22,313	Jan. 10	62	313
Fluhrer, Frank. F., Philadelphia, Pa. Furniture-polish	22,620	Mar. 7	62	1509
Flynt, Olivia P., Boston, Mass. Corset-waists	22,420	Feb. 7	62	895
Freeman, Oliver J., Chicago, Ill. Toilet wash	22,700	Mar. 28	62	1961
Gage-Downs Company, Chicago, Ill. Corsets	22,519	Feb. 28	62	1346
Gaillard, Ella N., New York, N. Y. Eyebrow-pencils	22,543	Feb. 28	62	1348
Gambrill, George T., Baltimore and Hagerstown, Md. Whisky	22,407	Jan. 31	62	740
Geary Drug Co., Brooklyn, N. Y. Effervescing fruit salts	22,532	Feb. 28	62	1347
Geigan, Joseph E., Baltimore, Md. Bicycles	22,697	Mar. 21	62	1820
Gerhard, Philip H., Austin, Tex. Oils and other wood-preserving compounds	22,396	Jan. 31	62	739
Germain Fruit Company, Los Angeles, San Francisco, Riverside, and Santa Ana, Cal. Wines and brandies	22,642	Mar. 14	62	1648
Gerstner, August, Brooklyn, N. Y. Harness grease and blacking	22,315	Jan. 10	62	314
Giesecke, Sophia, St. Louis, Mo. Brushes	22,411	Jan. 31	62	740
Gilbert, John P., New York, N. Y. Medical tonic	22,566	Feb. 28	62	1350
Gillon & Co., John, Leith, Scotland. Whisky	22,530	Feb. 28	62	1347
Gladstone Manufacturing Co., New York, N. Y. Cotton, wool, and silk fabrics	22,304	Jan. 10	62	312
Goodrich, Simeon D., Des Moines, Iowa. Food for animals	22,317	Jan. 10	62	313
Gottschall, Amos H., Harrisburg, Pa. Salves, pills, vermifuge, liniment, and cough balm	22,471	Feb. 14	62	1061
Goudy, Lewis A., Portland, Me. Biscuit and crackers	22,634	Mar. 14	62	1647
Green, Shipton, New York, N. Y. Wheat and rye flour	22,284	Jan. 3	62	157
H. B. Claflin Company, New York, N. Y., Manchester, England, and Paris, France. Corsets	22,628	Mar. 14	62	1647
H. M. Silverman Company, New York, N. Y. Hats and caps	22,483	Feb. 21	62	1203
Hall, William A., Bellows Falls, Vt. Calcimine	22,562	Feb. 28	62	1349
Hampden Watch Company, Canton, Ohio. Watches	22,506	Feb. 28	62	1345
Hampden Watch Company, Canton, Ohio. Watches	22,507	Feb. 28	62	1345
Hampden Watch Company, Canton, Ohio. Watches	22,508	Feb. 28	62	1345

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Hampden Watch Company, Canton, Ohio. Watches	22,509	Feb. 28	62	1345
Hampden Watch Company, Canton, Ohio. Watches	22,510	Feb. 28	62	1345
Hampden Watch Company, Canton, Ohio. Watches	22,511	Feb. 28	62	1345
Hampden Watch Company, Canton, Ohio. Watches	22,512	Feb. 28	62	1346
Hampden Watch Company, Canton, Ohio. Watches	22,513	Feb. 28	62	1346
Hampden Watch Company, Canton, Ohio. Watches	22,514	Feb. 28	62	1346
Hanan & Son, New York, N. Y. Boots and shoes for men, boys, and youths	22,587	Mar. 7	62	1506
Hanchett, Fred, Binghamton, N. Y. Cigars	22,402	Jan. 31	62	739
Hanney, Patrick M., Chicago, Ill. Medicated beverage containing wild cherry	22,503	Feb. 28	62	1347
Harrison Bros. & Co., Philadelphia, Pa. Paints, stains, varnishes, and similar articles	22,656	Mar. 14	62	1649
Hauff, Julius, Feuerbach, Germany. Photographic preparations	22,274	Jan. 3	62	156
Hawley, Mary A., Dixon, Ill. Insect-powder	22,316	Jan. 10	62	313
Hayden, Guardenier & Co., Boston, Mass. Boots and shoes	22,669	Mar. 21	62	1817
Henn & Gabler Brewing Company, Chicago, Ill. Lager-beer	22,499	Feb. 21	62	1204
Hennessy, Thomas R., Northampton, Mass. Cigars	22,424	Feb. 7	62	895
Herberts & Dax, Newark, N. J. Japans and varnishes	22,563	Feb. 28	62	1349
Heymann, Seymour E., New York, N. Y. Lubricating-oils	22,621	Mar. 7	62	1509
Hibbard, Will A. (See Tinker and Hibbard.)				
Hickey, Martha T., Troy, N. Y. Hair dressing	22,645	Mar. 14	62	1648
Hickok & Co., J. J., Richmond, Va. Plug-tobacco	22,593	Mar. 7	62	1507
Hiertz & Son, Theodore, St. Louis, Mo. Babbitt-metal and antifriction journal-bearings	22,658	Mar. 14	62	1649
Hine & Lynch, New York, N. Y. Boots and shoes	22,301	Jan. 10	62	312
Hofbauer Bros., Hannibal, Mo. Liniment	22,687	Mar. 21	62	1819
Holgate Brothers Company, Kane, Pa. Currycombs	22,505	Feb. 21	62	1204
Home Medical Company, Chicago, Ill. Powder to be used as a remedy for female diseases	22,308	Jan. 10	62	312
Home Medical Company, Chicago, Ill. Powder used as a remedy for dyspepsia and other stomach troubles	22,372	Jan. 24	62	585
Hoopeston Canning Co., Hoopeston, Ill. Canned fruits and vegetables	22,497	Feb. 21	62	1204
Hooton, George W., Greenmont, Tex. Oil extracts for use as internal and external remedies for disease	22,445	Feb. 7	62	897
Hough, Azel C., South Butler, N. Y. Cash-recorders and cash-registers	22,474	Feb. 14	62	1061
Hough & Co., Lynde, San Francisco, Cal. Whole, cut, and boneless fish	22,538	Feb. 28	62	1348
Houghton & Co., E. F., Philadelphia, Pa. Unguents	22,443	Feb. 7	62	897
Hulbert Bros. & Co., New York, N. Y. Bicycles, velocipedes, and articles accessory thereto	22,454	Feb. 7	62	898
Hunsicker & Co., I. C., Reading, Pa. Hosiery	22,341	Jan. 17	62	447
Hunsicker & Co., I. C., Reading, Pa. Hosiery	22,342	Jan. 17	62	447
Hunt, Elisha H., Chicago, Ill. Seeds, bulbs, plants, and flowers	22,448	Feb. 7	62	898
Hyatt School Slate Company, Limited, Bethlehem, Pa. Slates	22,410	Jan. 31	62	740
Illinois Watch Case Company, Elgin, Ill. Composition watchcase	22,418	Feb. 7	62	895
Imperial Pine Product Company, New York, N. Y. Distilled products of pine wood	22,312	Jan. 10	62	313
Indianapolis Hominy Mills, Indianapolis, Ind. Alimentary products from corn in the form of flakes	22,637	Mar. 14	62	1618
J. S. Nelson & Son Shoe Company, North Grafton, Mass. Boots and shoes	22,302	Jan. 10	62	312
Jacobson & Bro., A., New York, N. Y. Furs	22,589	Mar. 7	62	1507
Jacques, Eugene L., Waterbury, Conn. Medicinal mineral water	22,465	Feb. 14	62	1060
Jacques, Eugene L., Waterbury, Conn. Certain carbonated beverages and waters	22,466	Feb. 14	62	1061
Jaggar, Amanda L., Wellesley, Mass. Compound for polishing metal	22,494	Feb. 21	62	1204
James & Co., J. W., East Brady, Pa. Tonics, bitters, liniments, and sirups	22,567	Feb. 28	62	1350
Jaros, Isidore, New York, N. Y. Underwear made of a knit fabric having a smooth face and a plush back	22,588	Mar. 7	62	1507
Jellico and Bird-Eye Coal Company, Louisville and Halsey, Ky. Mineral coal	22,438	Feb. 7	62	897
Jenkins Bros., Boston, Mass., New York, N. Y., and Chicago, Ill. Valves and steam-packing	22,335	Jan. 10	62	314
Jersey City Packing Company, Jersey City, N. J. Sugar-cured hams	22,400	Jan. 31	62	739
Jersey City Packing Company, Jersey City, N. J. Hams, bacon, smoked meats, and shoulders	22,595	Mar. 7	62	1507
Johann, Mathew L., Milwaukee, Wis. Preparations for the skin and complexion	22,442	Feb. 7	62	897
John C. Graflin Company, Baltimore, Md. Burlap bags	22,489	Feb. 21	62	1203
Jorgensen, Charles J., Milwaukee, Wis. Composition for cleaning wood, marble, tilings, ceilings, &c.	22,655	Mar. 14	62	1649
Joseph Kohnle Brewing Company, Philadelphia, Pa. Lager-beer	22,427	Feb. 7	62	896
Judge Publishing Company, New York, N. Y. Printed publications	22,579	Mar. 7	62	1506
Judson L. Thomson Manufacturing Company, Waltham and Boston, Mass., New York, N. Y., London, England, and St. Petersburg, Russia. Metallic fastenings for leather belting	22,376	Jan. 24	62	586
Kaufmann Bros. & Co., Toledo, Ohio. Whisky	22,675	Mar. 21	62	1818
Kennedy Valve Manufacturing Company, New York, N. Y. Valves and hydrants	22,416	Jan. 31	62	740
Kenyon Bicycle Manufacturing Company, Des Moines, Iowa. Bicycles	22,661	Mar. 14	62	1650
King Co., J. B., New York, N. Y. Plaster-of-paris	22,561	Feb. 28	62	1349
Kingsland & Douglas Manufacturing Company, St. Louis, Mo. Corn-shellers	22,336	Jan. 10	62	314
Kingsley, Lewis W. (See Munsell, Kingsley, and Brooks.)				
Kirk & Sons, Samuel, Leeds, England. Certain named stuffs for linings for clothing	22,699	Mar. 28	62	1961
Kirkham, Hulett & Chandler, Limited, London, England. Washer-scrubbers for gas purification	22,415	Jan. 31	62	740
Klotz, Victor, Paris, France, and New York, N. Y. Perfumed toilet preparations, including soap	22,690	Mar. 21	62	1819
Kohnstamm & Co., H., New York, N. Y. Wheat-starch	22,434	Feb. 7	62	896
Kohnstamm & Co., H., New York, N. Y. Washing fluid	22,436	Feb. 7	62	897
Kohnstamm & Co., H., New York, N. Y. Soap in chips and bars	22,618	Mar. 7	62	1509
Kohnstamm & Co., H., New York, N. Y. Bleaching fluid	22,619	Mar. 7	62	1509
L. M. Rumsey Manufacturing Company, St. Louis, Mo. Water-closets	22,712	Mar. 28	62	1962
L. M. Rumsey Manufacturing Company, St. Louis, Mo. Water-closets	22,713	Mar. 28	62	1962
Lafferty, Shepherd B., Akron, Ohio. Chewing-gum	22,633	Mar. 14	62	1647
Langdon, Charles H., and G. C. Batcheller, New York, N. Y. Corsets	22,277	Jan. 3	62	156
Leach, Edwin T., Taunton, Mass. Pills for sick and nervous headaches	22,570	Feb. 28	62	1350
Lee & Smith, Boston, Mass. Certain named chemical substances and mixtures	22,493	Feb. 21	62	1204
Lehman, J. & M., New York, N. Y. Gloves	22,484	Feb. 21	62	1203
Lehn & Fink, New York, N. Y. Medicinal agents derived from hydrocarbon compounds	22,293	Jan. 3	62	157
Les Fils de A. Guillaumet & G. Maes, Paris, France. Wool and silk and wool black dress goods	22,421	Feb. 7	62	895
Liffiton, Charles A., Montreal, Canada. Coffee and its substitutes	22,460	Feb. 14	62	1060
Lissauer & Co., New York, N. Y. Watchcases and jewelry	22,698	Mar. 28	62	1961
Locke Brothers, Salem, Mass. Pressure-reducing valves and pump-governors	22,451	Feb. 7	62	898
Lockwood, Frederick J., Bridgeport, Conn. Salve or ointment for the skin	22,616	Mar. 7	62	1509
Loeb & Co., A. N., New York, N. Y. Undergarments	22,486	Feb. 21	62	1203
Loeb & Co., A. N., New York, N. Y. Knitted undergarments	22,487	Feb. 21	62	1203
Loewenthal, William A., Evansville, Ind. Chemical compound used as a preservative	22,345	Jan. 17	62	447
Long, Charles T., Hamilton, Ohio. Flour	22,708	Mar. 28	62	1962
López, Ramón, Havana, Cuba. Cigarettes and cut tobacco	22,404	Jan. 31	62	740
Lublin, Hannah, New York, N. Y. Dress-stays	22,354	Jan. 24	62	584
Macher, Jacob, New York, N. Y. Watchcases	22,667	Mar. 21	62	1817

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Macura Drug Co., Binghamton, N. Y. Remedy for certain named diseases	22,685	Mar. 21	62	1819
Mann Bros., Milwaukee, Wis. Tubs, pails, buckets, keelers, measures, and kanakins	22,504	Feb. 21	62	1204
Manners, William R., G. H. Downing, and G. S. Ackley, Binghamton, N. Y. Compound of sarsaparilla	22,701	Mar. 28	62	1961
Mansfield, Lott, Boston, Mass. Medicinal tonic	22,290	Jan. 3	62	157
Markendorf, Martin, Louisville, Ky. Preparation for the cure of venereal diseases	22,463	Feb. 14	62	1060
Marline Manufacturing Company, Minneapolis, Minn. Artificial fertilizers	22,467	Feb. 14	62	1061
Mason & Co., Marcus, New York, N. Y. Coffee classifiers, hullers, polishers, power-screens, pulpers, and elevators	22,676	Mar. 21	62	1818
Mason Regulator Company, Boston, Mass. Valves for machinery	22,696	Mar. 21	62	1820
Mason & Sons, I. B., Providence, R. I. Lard, sausage, hams, bacon, salt pork, dried beef, and beef-tongues	22,401	Jan. 31	62	739
Maxim, Jennie A., Pittsfield, Mass. Dermal toilet preparations	22,689	Mar. 21	62	1819
Mayer Sons & Co., Philadelphia, Pa. Rye whisky	22,323	Jan. 10	62	314
McDowell Packing Company, Oconomowoc, Wis. Pig-pork products	22,639	Mar. 14	62	1648
Meagher Bros. & Co., Montreal, Canada, and Rouse's Point, N. Y. Orange quinine-wine	22,681	Mar. 21	62	1818
Mellier Drug Company, St. Louis, Mo. Coal-tar products in the form of tablets for medical purposes	22,703	Mar. 28	62	1961
Melrose, Percy C., Columbus, Ohio. Celery tea for medicinal purposes	22,607	Mar. 7	62	1508
Menendez, Francisco, Havana, Cuba. Cigars	22,403	Jan. 31	62	739
Merck, Firm of E., Darmstadt, Germany. Remedies for cancerous diseases	22,375	Jan. 24	62	585
Messenger & Co., T. H., New York, N. Y. Roasted coffee	22,598	Mar. 7	62	1507
Messenger & Co., T. H., New York, N. Y. Coffee	22,600	Mar. 7	62	1508
Mexican Root Soap Co., Boston, Mass. Toilet soap	22,468	Feb. 14	62	1061
Mica Roofing Co., New York, N. Y. Paints for roofs and other purposes	22,397	Jan. 31	62	739
Mica Roofing Co., New York, N. Y. Wood-preservative	22,495	Feb. 21	62	1204
Michael & Sons, J. C., Oakington, Md. Canned corn	22,707	Mar. 28	62	1961
Mills, Hattie B., New York, N. Y. Pickled and preserved fruits and vegetables	22,597	Mar. 7	62	1507
Minneapolis Grain and Feed Co., Minneapolis, Minn. Wheat, graham, rye, and buckwheat flour, hominy, and cornmeal	22,320	Jan. 10	62	313
Minot, Hooper & Co., New York, N. Y. Drilling	22,630	Mar. 14	62	1647
Minot, Hooper & Co., New York, N. Y. Sheeting	22,631	Mar. 14	62	1647
Mitchell Brothers, Limited, Glasgow, Scotland. Whisky	22,531	Feb. 28	62	1347
Mitchell, Firm of William, Birmingham and London, England. Pens of all kinds	22,515	Feb. 28	62	1346
Monarch Cycle Company, Chicago, Ill. Velocipedes and bicycles	22,711	Mar. 28	62	1962
Montgomerie, John, Partick, Scotland. Substitute for coffee	22,601	Mar. 7	62	1508
Moorhead & Co., R. L., Providence, R. I., and New York, N. Y. Lace-pins, scarf-pins, studs, ear-drops, and similar articles	22,627	Mar. 14	62	1647
Morse Bros., Canton, Mass. Stove polish or blacking	22,622	Mar. 7	62	1509
Mount Washington Glass Company, New Bedford, Mass. Glassware, including tableware and fancy articles	22,408	Jan. 31	62	740
Mount Washington Glass Company, New Bedford, Mass. Glassware, including tableware and fancy articles	22,409	Jan. 31	62	740
Moyer, George F., Seattle, Wash. Flour and meal	22,398	Jan. 31	62	739
Munro, Norman L., New York, N. Y. Headache powders	22,391	Jan. 31	62	738
Munsell, Eugene, L. W. Kingsley, and F. Brooks, New York, N. Y. Electrical insulators	22,623	Mar. 7	62	1510
Munson's Homeopathic Family Medicine Company, Camden, N. J., and New York, N. Y. Homeopathic and other medicines and remedies	22,647	Mar. 14	62	1649
Neely, William A., Lynn, Mass. Leather stays for boots and shoes	22,521	Feb. 28	62	1346
Nehrbass, Peter, Brooklyn, N. Y. Soap powder	22,545	Feb. 28	62	1348
Nesbitt, William H. A., Pittsburg, Pa. Remedy for rheumatism	22,684	Mar. 21	62	1818
New England Whalebone Manufacturing Co., New York, N. Y. Commercial whalebone	22,525	Feb. 28	62	1347
New York Condensed Milk Company, New York, N. Y. Milk, cream, butter, and cheese	22,536	Feb. 28	62	1348
New York Sewing Machine and Manufacturing Company, Plattsburg, N. Y. Sewing-machines and their attachments	22,329	Jan. 10	62	314
New York Sewing Machine and Manufacturing Company, Plattsburg, N. Y. Sewing-machines and their attachments	22,330	Jan. 10	62	314
New York Sewing Machine and Manufacturing Company, Plattsburg, N. Y. Sewing-machines and their attachments	22,331	Jan. 10	62	314
New York Sewing Machine and Manufacturing Company, Plattsburg, N. Y. Sewing-machines and their attachments	22,332	Jan. 10	62	314
New York Sewing Machine and Manufacturing Company, Plattsburg, N. Y. Sewing-machines and their attachments	22,333	Jan. 10	62	314
Newburne, John W., Springfield, Ill. Antipyretic anodyne in powdered form	22,334	Jan. 10	62	314
Newell Coal Company, Peoria, Ill. Coal	22,568	Feb. 28	62	1350
Nielson & Wyler, Galveston, Tex. Cosmetics	22,503	Feb. 21	62	1204
North Dakota Milling Company, Grand Forks and Forest River, N. D. Wheat-flour	22,310	Jan. 10	62	312
Northwestern Consolidated Milling Company, Minneapolis, Minn. Wheat-flour	22,319	Jan. 10	62	313
Nusbaum, Frank A., Columbus, Ohio. Oil-filters	22,359	Jan. 24	62	584
Ogden, Charles E., London, England. Writing fluids and inks	22,575	Feb. 28	62	1350
Ogden, Charles E., London, England. Writing fluids and inks	22,583	Mar. 7	62	1506
Olwell & Co., James, New York, N. Y. Whiskies	22,584	Mar. 7	62	1506
Olwell & Co., James, New York, N. Y. Whisky	22,289	Jan. 3	62	157
Olwell & Co., James, New York, N. Y. Whiskies	22,458	Feb. 14	62	1060
Openhym & Sons, William, New York, N. Y. Silk ribbons	22,502	Feb. 21	62	1204
Ottinger, James J., Philadelphia, Pa. Tooth and gum washes	22,670	Mar. 21	62	1817
Packard, James W. and W. D., Warren, Ohio. Incandescent lamps, dynamos, and electric fixtures	22,296	Jan. 3	62	158
Packard, William D. (See Packard, James W. and W. D.)	22,577	Feb. 28	62	1350
Palmer, Firm of Solon, New York, N. Y. Perfumery, sachet-powders, and toilet soap	22,363	Jan. 24	62	584
Parker & Co., E. L., Baltimore, Md. Tin plates, terne plates, tin taggers, black taggers, and sheet metal and solder	22,325	Jan. 10	62	314
Parsons & Bird, Buffalo, N. Y. Sewing-machines and attachments	22,473	Feb. 14	62	1061
Pepper, James W., Philadelphia, Pa. Wind, string, and other musical instruments, and trimmings therefor	22,517	Feb. 28	62	1346
Peterboro Medicine Co., Peterborough, Canada. Kidney and liver cure	22,447	Feb. 7	62	897
Petel & Co., Ed., Paris, France. Cashmeres	22,422	Feb. 7	62	895
Pettijohn California Breakfast Food Company, Minneapolis, Minn. Rolled wheat	22,459	Feb. 14	62	1060
Pfaffmann, George A., Cleveland, Ohio. Egg noodles	22,431	Feb. 7	62	896
Pfugh & Co., Albert, Hoboken, N. J. White lead	22,437	Feb. 7	62	897
Phenix Portland Cement Company, Limited, Frindsbury, near Rochester, and London, England. Cement	22,362	Jan. 24	62	584
Picot, Jules, Paris, France. Lye product	22,361	Jan. 24	62	584

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Pierce, Henry L., Boston, Mass. Chocolate	22,356	Jan. 24	62	584
Pierce, Samuel, Hoskins, Nebr. Fruit and vegetable preserving compounds	22,281	Jan. 3	62	156
Platt, Henry B., New York, N. Y. Disinfectant	22,653	Mar. 14	62	1649
Pollock, Nathaniel A. (See Bell, Dickinson, and Pollock.)				
Porter, Lewis B., Watertown, Mass. Starching-machines	22,449	Feb. 7	62	898
Powley, Jacob S. (See Eman and Powley.)				
Prall, Delbert E., Saginaw, Mich. Preparation for the cure of colic in horses	22,573	Feb. 28	62	1350
Prindle, Roscoe S., New York, N. Y. Certain named products of the conifere	22,554	Feb. 28	62	1349
Pronty & Co., Isaac, Spencer and Boston, Mass. Boots and shoes	22,303	Jan. 10	62	312
Pronty & Co., Isaac, Spencer and Boston, Mass. Boots and shoes	22,355	Jan. 24	62	584
Pronty & Co., Isaac, Spencer and Boston, Mass. Boots and shoes	22,592	Feb. 28	62	1346
Rahr's Sons, Henry, Green Bay, Wis. Lager-beer	22,428	Feb. 7	62	896
Raysor & Smith, Asheville, N. C. Ointment used as a remedy for skin diseases	22,704	Mar. 28	62	1961
Reading Stove Works, Orr, Painter & Company, Reading, Pa. Stoves and heaters and parts of the same	22,578	Feb. 28	62	1350
Red Jacket Manufacturing Co., Davenport, Iowa. Pumps	22,663	Mar. 14	62	1650
Red Seal Remedy Co., Rockland, Me. Sarsaparilla and cough sirup	22,682	Mar. 21	62	1818
Reisch & Bros., F., Springfield, Ill. Lager-beer	22,288	Jan. 3	62	157
Reliance Manufacturing Company, New York, N. Y. Tooth-powder	22,544	Feb. 28	62	1348
Reliance Manufacturing Company, New York, N. Y. Carbolic soap	22,551	Feb. 28	62	1348
Reliance Manufacturing Company, New York, N. Y. Liquid glue	22,552	Feb. 28	62	1349
Reliance Manufacturing Company, New York, N. Y. Mucilage	22,553	Feb. 28	62	1349
Reliance Manufacturing Company, New York, N. Y. Shoe blacking and dressing	22,556	Feb. 28	62	1349
Reliance Manufacturing Company, New York, N. Y. Glass-cleaning preparations	22,557	Feb. 28	62	1349
Reliance Manufacturing Company, New York, N. Y. Polish for silver and like wares	22,558	Feb. 28	62	1349
Reliance Manufacturing Company, New York, N. Y. Metal-polish	22,559	Feb. 28	62	1349
Reliance Manufacturing Company, New York, N. Y. Stove-polish	22,560	Feb. 28	62	1349
Reliance Manufacturing Company, New York, N. Y. Oil for harness and leather	22,564	Feb. 28	62	1349
Reliance Manufacturing Company, New York, N. Y. Liniment	22,615	Mar. 7	62	1509
Reliance Manufacturing Company, New York, N. Y. Salves and liniments for animal use	22,651	Mar. 14	62	1649
Remy & Co., Albert F., Mansfield, Ohio. Canned fruits, vegetables, fish, meat, oysters, catsup, and soup	22,654	Mar. 14	62	1649
Rice & Robinson Soap Company, Titusville, Pa. Laundry and toilet soap	22,399	Jan. 31	62	739
Rice & Robinson Soap Company, Titusville, Pa. Laundry and toilet soap	22,549	Feb. 28	62	1348
Rice, Stix & Co., St. Louis, Mo. Men's overalls, pantaloons, shirts, and drawers	22,550	Feb. 28	62	1348
Riker, Clarence B., New York, N. Y. Cathartic pills	22,337	Jan. 10	62	314
Robinson Bros. & Co., Boston, Mass. Toilet soap	22,572	Feb. 28	62	1350
Roessler & Haaslacher Chemical Company, New York, N. Y. Bleaching compound	22,364	Jan. 24	62	585
Roger & Gallet, Paris, France. Perfumery, soaps, oils, tooth powder, smelling extracts, rice powders, and cologne	22,435	Feb. 7	62	896
Rosenzi, Enrico C., Philadelphia, Pa. Remedy for hog-cholera and other diseases	22,440	Feb. 7	62	897
Royal Cycle Works, Marshall, Mich. Bicycles	22,649	Mar. 14	62	1649
Russell Printing Company, Cincinnati, Ohio. Pictorial story-books	22,413	Jan. 31	62	740
S. S. White Dental Manufacturing Company, Philadelphia, Pa., New York and Brooklyn, N. Y., Boston, Mass., Chicago, Ill., and Atlanta, Ga. Dentifrice	22,456	Feb. 14	62	1060
Sachs, Rosenwasser & Stern, New York, N. Y. Overgaiters and leggins	22,542	Feb. 28	62	1348
Salina Cement Plaster Company, Salina and Dillon, Kans. Cement plaster	22,476	Feb. 14	62	1062
Salutaris Natural Mineral Water Company, St. Clair, Mich. Natural mineral water	22,464	Feb. 14	62	1060
Sandalide Co., New York, N. Y. Remedy for gonorrhea, female weaknesses, and analogous diseases	22,365	Jan. 24	62	585
Schermanson, Joël, Washington, D. C. Cough pills, catarrh cure, liniment, and tonics	22,374	Jan. 24	62	585
Scovill & Adams Company, New York, N. Y. Albumenized paper	22,295	Jan. 3	62	158
Shawnee Remedy Co., Toledo, Ohio. Remedy for diseases of the blood and liver	22,666	Mar. 21	62	1817
Shockey, William H., Tyler, Tex. Coffins	22,393	Jan. 31	62	739
Sillesky & Co., Daniel R., Lockport, N. Y. Shirts	22,414	Jan. 31	62	740
Simpson, Charles A., Saxonville, Mass. Disinfectant	22,475	Feb. 14	62	1061
Smith & Bailey, Belton, Tex. Dropsy cure	22,461	Feb. 14	62	1060
Smith-Brewer Novelty Company, Detroit, Mich. Skirt-holder	22,610	Mar. 7	62	1508
Smith Brothers, Poughkeepsie, N. Y. Cough-drops	22,586	Mar. 7	62	1506
Smith & Co., E. T., Worcester, Mass. Coffee	22,294	Jan. 3	62	158
Smith, Hugh, Newark, N. J. Hides, sides, splits, or skins, or similar forms of leather	22,433	Feb. 7	62	896
Smith & Son, Theophilus, Ipswich, Mass. Remedies for pulmonary diseases	22,423	Feb. 7	62	895
Smith, Warren E., New York, N. Y. Coats, pantaloons, and vests for men and boys	22,611	Mar. 7	62	1509
Smith, William W., Chicago, Ill. Liniment	22,521	Feb. 28	62	1346
Spencer & Son, David H., Spencer, Va. Plug-tobacco	22,369	Jan. 24	62	585
Springdale Paper Company, Westfield, Mass. Writing-paper	22,321	Jan. 10	62	313
Standard Folding Bed Company, New York, N. Y. Folding beds	22,665	Mar. 21	62	1817
Stearns & Co., E. C., Syracuse, N. Y. Bicycles and other velocipedes and parts thereof	22,576	Feb. 28	62	1350
Stearns & Gordon, New York, N. Y. Toilet soap	22,710	Mar. 28	62	1962
Steel Edge Stamping and Retinning Company, Boston, Mass. Nutmeg-graters	22,496	Feb. 21	62	1204
Steel Edge Stamping and Retinning Company, Boston, Mass. Toilet-paper receptacles	22,299	Jan. 3	62	158
Stevens, Simon G., Brooklin, Me. Sardines	22,326	Jan. 10	62	314
Stevens, William P., and J. E. Durham, Muncie, Ind. Laxative	22,594	Mar. 7	62	1507
Stiles, Noel W., Boston, Mass. Medicated cough-drops	22,477	Feb. 14	62	1062
Stitt & Co., Wm. J., New York, N. Y. Spices, herbs, flavoring extracts, essences, celery salt, tapioca, sago, rice, pepper-sauce, and ketchup	22,492	Feb. 21	62	1203
Stokes, William H., Watertown, S. D. Wheat-flour	22,279	Jan. 3	62	156
Straub, John P., Chicago, Ill. Wines and cordials	22,283	Jan. 3	62	157
Swift & Company, Chicago, Ill. Pepsin, pancreatin, and rennet and their compounds	22,528	Feb. 28	62	1347
Swift & Company, Chicago, Ill. Hams, bacon, and shoulders	22,539	Feb. 28	62	1348
Tahoe Medical Company, Reno, Nev. Remedy for diseases of the kidneys	22,638	Mar. 14	62	1648
Tarbel, Paul E., Boston, Mass. Chemical fuel	22,569	Feb. 28	62	1350
Taylor, Lynn B., Stillwater, Minn. Cough medicines	22,314	Jan. 10	62	313
Taylor, Thomas P., Bridgeport, Conn. Dress and corset stays	22,702	Mar. 28	62	1961
Tegeler, Gustav, Boston, Mass. Paste and cement for paper, leather, and similar materials	22,340	Jan. 17	62	447
Teflow Manufacturing Company, Limited, Philadelphia, Pa. Complexion powder	22,286	Jan. 3	62	157
Thompson & Co., C. E., Toledo, Ohio. Remedy for rheumatism	22,644	Mar. 14	62	1648
Thomson & Taylor Spice Company, Chicago, Ill. Meat extracts	22,292	Jan. 3	62	157
Thum, George E., Elizabeth, N. J. Tape-worm medicine in capsules	22,360	Jan. 24	62	584
Tinker, Kossuth, and W. A. Hibbard, Athens, Ohio. Cure for the tobacco habit	22,462	Feb. 14	62	1060
Trojan Car Coupler Company, Troy, N. Y. Car-couplers and their parts	22,392	Jan. 31	62	738
Trommer Extract of Malt Company, Fremont, Ohio. Extracts of malt	22,381	Jan. 24	62	586
Tucker, Nathaniel F., Boston, Mass. Boots and shoes	22,603	Mar. 7	62	1508
	22,629	Mar. 14	62	1647

Alphabetical list of registrants of trade-marks, January to March, inclusive—Continued.

Name, residence, and title.	No.	Date.	Official Gazette. Vol.	Page.
Turner-Shaker Medicine Co., St. Louis, Mo., and Union Village, Ohio. Certain named remedies	22,478	Feb. 14	62	1062
Turner-Shaker Medicine Co., St. Louis, Mo., and Union Village, Ohio. Remedies for nervous disorders and all diseases of the blood, liver, and kidneys	22,479	Feb. 14	62	1062
Union Cycle Manufacturing Company, Boston, Mass. Tires for vehicles	22,453	Feb. 7	62	898
Union Gas Engine Company, San Francisco, Cal. Vapor-engines	22,625	Mar. 7	62	1510
United Indurated Fibre Company, Portland, Me. Household and other ware made from wood pulp and waterproofed	22,377	Jan. 24	62	586
United Indurated Fibre Company, Portland, Me. Household and other ware made from wood pulp and waterproofed	22,378	Jan. 24	62	586
United States Printing Company, Cincinnati, Ohio. Playing-cards	22,580	Mar. 7	62	1506
United States Printing Company, Cincinnati, Ohio. Playing-cards	22,581	Mar. 7	62	1506
United States Printing Company, Cincinnati, Ohio. Playing-cards	22,582	Mar. 7	62	1506
Vogeler Co., Charles A., Baltimore, Md. Hair-eradicators	22,309	Jan. 10	62	312
Volk, August H. and P., Minneapolis, Minn. Remedy for catarrh	22,291	Jan. 3	62	157
Volk, Philip. (See Volk, August H. and P.)				
W. A. Bingham & Company, New York, N. Y. Wrapping-paper, paper boxes, and paper bags	22,518	Feb. 28	62	1346
Walker, John D., Lexington, Ky. Twist tobacco	22,425	Feb. 7	62	895
Walter M. Lowney Company, Boston, Mass. Chocolates and other bonbons	22,591	Mar. 7	62	1507
Wampole & Co., Henry K., Philadelphia, Pa. Suppositories for diseases of the bowels and rectum	22,370	Jan. 24	62	585
Wampole & Co., Henry K., Philadelphia, Pa. Mineral-springwater	22,527	Feb. 28	62	1347
Wartenberg, Emma, New York, N. Y. Washing fluid	22,692	Mar. 21	62	1819
Wasserman, Benoit, New York, N. Y. Cigars	22,350	Jan. 17	62	448
Wasserman, Benoit, New York, N. Y. Cigars	22,351	Jan. 17	62	448
Wasserman, Benoit, New York, N. Y. Cigars	22,352	Jan. 17	62	448
Waukesha Hygeia Mineral Springs Company, Chicago, Ill., and Waukesha, Wis. Mineral water and beverages into which it enters as a constituent	22,643	Mar. 14	62	1648
Waverley Manufacturing Co., Boston, Mass. Extract or coloring material for food	22,540	Feb. 28	62	1348
Waynick, John W., Bristol, Tenn. Ginger ale, soda and mineral waters, and draft and bottled beer	22,602	Mar. 7	62	1508
Weeks & Potter Company, Boston, Mass. Quinine tonic	22,608	Mar. 7	62	1508
Weiskittel & Son, A., Baltimore, Md. Elevated boiler, brick-set, and portable ranges, cook-stoves and heating-stoves, and all kinds of gas, gasoline, and oil stoves and ranges	22,379	Jan. 24	62	586
Weiskittel & Son, A., Baltimore, Md. Gas-stoves, gas-ranges, and gas-heaters, and gasoline, oil, coal, and wood burning stoves	22,380	Jan. 24	62	586
Wells Cultivator Co., Milford, Mich. Cultivators and bean-harvesters	22,452	Feb. 7	62	898
Wheatley, William A., Baltimore, Md. Raw and processed oysters	22,318	Jan. 10	62	313
Wheeling Coffee and Spice Company, Wheeling, W. Va. Coffee and spices	22,636	Mar. 14	62	1647
White, Edward B., Lancaster, Ohio. Remedy for neuralgia	22,648	Mar. 14	62	1649
Wiard Plow Company, Batavia, N. Y. Plows, cultivators, rollers, and harrows	22,417	Jan. 31	62	740
Williamson Corset and Brace Company, St. Louis, Mo. Corsets, corset-waists, and shoulder-braces	22,668	Mar. 21	62	1817
Williamson, Harriet, Braidwood, Ill. Confections	22,632	Mar. 14	62	1647
Wilmot & Hobbs Manufacturing Company, Bridgeport, Conn. Soft steel and iron	22,659	Mar. 14	62	1649
Wood & Co., W. W., Winston, N. C. Plug-tobacco	22,526	Feb. 28	62	1347
Worthley, Frank O., Boston, Mass. Iron mangers	22,626	Mar. 7	62	1510
Wright Bros. Tobacco Company, St. Charles, Mo. Plug-tobacco	22,297	Jan. 3	62	158
Wright Bros. Tobacco Company, St. Charles, Mo. Plug-tobacco	22,298	Jan. 3	62	158
Wright, Charles, Detroit, Mich. Pills	22,614	Mar. 7	62	1509
Wrisley, Allen B., Chicago, Ill. Handkerchief extracts	22,439	Feb. 7	62	897
Yost Manufacturing Company, Toledo, Ohio. Bicycles, velocipedes, and articles accessory thereto	22,455	Feb. 7	62	898
Zimmermann, Charles F., Philadelphia, Pa. String instruments	22,339	Jan. 17	62	447
Zimmermann, Moses, New York, N. Y. Refined fats used for culinary purposes	22,285	Jan. 3	62	157
Zimmermann, Moses, New York, N. Y. Prepared and refined beef fat	22,480	Feb. 14	62	1062

PRINTS.

Name, residence, and title.	No.	Date.	Official Gazette. Volume.	Page.
Heinz Co., H. J., Pittsburg, Pa. "Heinz's Preserves, Celery Sauce, and Ketchups"	1	Mar. 7	62	1357

DISCLAIMERS.

Name, residence, and invention.	No.	Filed.	Official Gazette. Vol.	Page.
Paine, Seth White, Rochester, N. Y., Hiram A. Gray, New Haven, Conn., and Charles E. Pettee, Ilion, N. Y.; disclaimer filed by assignee. Lasting machine	387,366	Mar. 16, 1893	62	1827
Shannon, James S., Chicago, Ill.; disclaimer filed by assignee. Temporary binder	217,907	Feb. 23, 1893	62	1211
Woodward, Erastus, Somerville, Mass.; disclaimer filed by assignee. Lasting and fastening machine	248,544	Feb. 16, 1893	62	1069

ALPHABETICAL LIST OF INVENTIONS.

Invention.	Name.	No.	Date.	Monthly volume. Specification.	Monthly volume. Drawing.	Official Gazette. Volume.	Official Gazette. Page.
Accounts. Blank form for keeping	T. M. Brown	490,135	Jan. 17	1824	476, 477	62	405
Accumulator	W. A. Macleod	491,726	Feb. 14	1079	273	62	986
Accumulator-plates. Manufacture of	A. M. Michel	489,316	Jan. 3	510	.....	62	111
Acid compound. Salicylic	H. Janssen	492,468	Mar. 7	154	.....	62	1389
Acid. Making nitric	O. Guttmann	491,481	Feb. 7	688	173	62	880
Acid. Monosulpho-dioxynaphthoic	J. Schmid and R. Paganini	493,562	Mar. 14	1267	.....	62	1620
Acid. Recovering metastannic	F. Gruessner	489,633	Jan. 10	1002	.....	62	223
Acid. Regaining sulphurous	V. Drewsen	492,196	Feb. 21	1807	451	62	1142
Adding-machine	A. J. Brooks	493,971	Mar. 21	1952	497	62	1768
Adding or registering machine	W. A. Ritchie	493,117	Mar. 7	536	134	62	1465
Advertising apparatus	S. Kuh	489,961	Jan. 17	1522	398	62	344
Advertising counter-guard for rails or bars	W. R. P. Clark	494,289	Mar. 28	2480	625	62	1881
Advertising device	R. D. Knight	489,126	Jan. 3	223	60	62	51
Advertising device	A. G. Macdonell	491,900	Feb. 14	1353	336	62	1034
Advertising device for glass vessels	A. T. Crossley	489,555	Jan. 10	800	233	62	201
Aerating and purifying the water of wells, &c. Means for	J. H. Armstrong	493,853	Mar. 21	1744	444	62	1729
Aerator. Milk	H. B. Long	489,164	Jan. 3	273	77	62	63
Age-gage	A. and J. Bolinger	493,963	Mar. 21	1937	494	62	1765
Aging liquors	E. A. Spink	489,337	Jan. 3	545	147	62	117
Air and gas mixing apparatus	T. Smith	491,060	Jan. 31	3349	854	62	731
Air. Apparatus for administering heated and medicated	W. S. McLean	489,029	Jan. 3	73	21	62	19
Air-brake coupling	L. Sennett and T. F. Arnett	489,763	Jan. 10	1198	314	62	263
Air-brake. Railway-car	D. Dunn	489,527	Jan. 10	857	223	62	194
Air circulating and cooling device	R. Leslie	493,036	Mar. 7	417	104	62	1441
Air-compressor	C. F. Fogg	493,263	Mar. 14	768	196	62	1527
Air-compressor. Hydraulic	G. H. Walker	491,232	Feb. 7	279	70	62	801
Air cooling and purifying apparatus	D. G. Proctor	489,033	Jan. 3	80	32	62	21
Air engines. Heater for compressed	R. C. Smith	491,859	Feb. 14	1267	319	62	1021
Air-filtering apparatus	J. O. Bentley	489,450	Jan. 10	747	194	62	169
Air-heating furnace	R. S. Kent	493,333	Mar. 14	891	228	62	1548
Air moistening and attemperating apparatus	J. F. Dornfeld	494,292	Mar. 28	2485	626	62	1882
Air motor for propelling wheeled vehicles. Compressed	J. Kames	491,892	Feb. 14	1339	331, 332	62	1031
Air or gas compressor	N. W. Wheeler	490,526	Jan. 24	2466	635	62	543
Air or gas compressor. Triple compound	J. Clayton	492,915	Mar. 7	234	58, 59	62	1404
Air-propeller or ventilating-fan	W. Sayer	494,307	Mar. 28	2504	632	62	1887
Air-warmer. Tubular	J. J Blackmore	490,763	Jan. 31	2862	734	62	634
Alarm: *See* Bell-alarm. Burglar-alarm. Fire-alarm. Fire or burglar alarm. Gas-alarm. Hotel-alarm. Low-water alarm. Pneumatic alarm. Shoal-alarm. Show-case alarm. Watch-alarm.							
Alarm device. Automatic	G. W. Schilling and J. G. Haslam	490,684	Jan. 31	2741	706	62	611
Alarm device. Pneumatic	S. P. Hasey	493,265	Mar. 14	770	196, 197	62	1527
Alarm-indicator	H. Boltheff	494,519	Mar. 28	2846	733	62	1949
Alarm-lock. Electric	J. A. Nadeau	490,161	Jan. 17	1862	485	62	412
Album	G. Schwab	494,031	Mar. 21	2049	522	62	1767
Album. Easel	W. A. Holman	491,942	Feb. 14	1417	354	62	1047
Alkali. Apparatus for recovering	H. Blackman	492,382	Feb. 28	2099	523, 524	62	1213
Alkalies or of the alkaline earth metals by electrolysis. Obtaining chlorates of the	W. T. Gibbs and S. P. Franchot	493,023	Mar. 7	398	.....	62	1437
Alkaline metals and metals of the alkaline earths. Manufacture of chlorates of the	H. Gall and A. de Villardy de Montlaur.	492,003	Feb. 21	1508	376	62	1080
Alloy. Metallic	F. W. and F. R. Martino	489,314	Jan. 3	508	.....	62	110
Alloy of metals and making same	E. G. Stark	490,174	Jan. 17	1880	.....	62	416
Alloys. Producing metallic	W. H. Greene and W. H. Wahl	490,961	Jan. 31	3184	.....	62	697
Almond or walnut huller	A. Gapble	493,887	Mar. 21	1791	457	62	1738
Altar. Portable	J. D. Schaub	493,790	Mar. 21	1642	418	62	1711
Alumina. Treating hydrated phosphates of	S. L. Goodale	493,889	Mar. 21	1794	.....	62	1739
Aluminium and forming alloys thereof. Electrically reducing	T. L. Willson	491,394	Feb. 7	553	140	62	854
Amalgamating ores	C. C. Ormsby	492,426	Feb. 28	2168	542	62	1227
Amalgamator	H. Calhoun and A. M. Beam	489,216	Jan. 3	364	101	62	83
Amalgamator	C. C. Ormsby	492,425	Feb. 28	2164	541	62	1226
Amalgamator. Centrifugal	O. B. Peck	490,041	Jan. 17	1668	433, 434	62	372
Amalgamator. Ore	J. E. Chaster	492,711	Feb. 28	2631	652	62	1322
Amalgamator. Ore	F. O. Norton	491,686	Feb. 14	1017	257	62	969
Ammeter. Recording	E. Weston	490,699	Jan. 31	2761	710, 711	62	615

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Ammonia. Underground distribution and recovery of anhydrous	D. Branson, R. D. Thornburgh, and J. E. Starr.	489,729	Jan. 10	1139	294	62	251
Ammonium chloride. Apparatus for volatilizing	L. Mond	491,741	Feb. 14	1102	279	62	985
Anchor	E. T. Starr	493,901	Mar. 21	1814	461	62	1743
Animal-holder	O. M. Kelso	490,968	Jan. 31	3196	462 817	62	699
Animal mouth opener	J. H. Ryan	490,602	Jan. 24	2575	664	62	564
Animal-shears	A. Melchior	492,818	Mar. 7	72	17	62	1372
Animal-shears	J. Moffat and W. W. Virtue	494,070	Mar. 21	2111	538 539	62	1798
Animal-shears	J. Moffat and W. W. Virtue	494,071	Mar. 21	2114	539 540	62	1799
Animal-shears	W. Silver	494,034	Mar. 21	2052	524	62	1788
Animal-stock	J. Underkoffler	490,053	Jan. 17	1685	439	62	375
Animal-trap	G. Andrews	491,329	Feb. 7	446	115	62	833
Animal-trap	T. E. Fry	488,996	Jan. 3	31	9	62	9
Animal-trap	L. Herman	491,309	Feb. 7	415	107	62	826
Animal-trap	J. T. Kisinger, Sr	489,869	Jan. 10	1341	350	62	294
Annealing-furnace	G. Tomkinson	492,594	Feb. 28	2449	640	62	1286
Annunciator. Electrical	J. R. Hard	492,519	Feb. 28	2330	578	62	1260
Annunciator. Hotel time-	F. S. Carter	493,067	Mar. 7	459	116	62	1450
Annunciator. Pneumatic	J. Schnepf	491,027	Jan. 31	3300	842	62	721
Annunciator system. Electric	H. Van Hoevenbergh	490,327	Jan. 24	2150	561	62	481
Arch for ceilings or vaults	G. L. Möckel	489,654	Jan. 10	1026	267	62	229
Arm and hand. Artificial	W. L. Minzey	493,440	Mar. 14	1054	271	62	1581
Arm and wrist rest	R. Kirk	492,589	Mar. 7	185	45	62	1395
Armature and means for supporting the same	E. Kolben	491,568	Feb. 14	833	211 212	62	930
Armature-conductor	E. Kolben	491,567	Feb. 14	832	211	62	930
Armature connection for dynamo-electric machines	G. A. Rollins	493,447	Mar. 14	1062	273	62	1582
Armature-core. Magnetic	T. H. Hicks	492,355	Feb. 21	2055	513	62	1192
Armature-cores for electric motors or dynamos. Constructing	A. W. Smith	492,244	Feb. 21	1884	471	62	1157
Armature. Dynamo-electric-machine	H. F. Parshall	493,337	Mar. 14	897	229	62	1549
Armature. Electric-motor	R. H. Hassler	493,025	Mar. 7	401	100	62	1438
Armature. Electric motor or dynamo	C. F. Daniels	489,070	Jan. 3	134	36, 37	62	33
Armature for dynamo-electric machines	G. Hoare	492,681	Feb. 28	2585	639 640	62	1312
Armature for dynamo-electric machines or electric motors and balancing same. Balanced	G. S. Dunn	493,375	Mar. 14	955	246	62	1562
Armature for dynamo-electric machines or motors	E. Thomson	490,376	Jan. 24	2233	581	62	498
Armature for motors and generators	N. C. Bassett	493,349	Mar. 14	912	234	62	1552
Armature. Multipolar-dynamo-electric-machine	G. E. Dorman	491,990	Feb. 21	1488	372	62	1076
Armatures for dynamo-electric machines. System of winding	W. M. Thomas	494,042	Mar. 21	2063	527	62	1790
Artificial board	J. E. Eaton	491,092	Feb. 7	46	12	62	757
Asparagus bundler and cutter	J. S. Van Mater	490,179	Jan. 17	1886	491	62	417
Asphalt-mixing machine	G. Winding	490,218	Jan. 17	1959	513 514	62	430
Asphaltic mastic. Securing	L. Haarmann	492,197	Feb. 21	1808	.....	62	1142
Aspirator and air-injector	W. Borchers	493,012	Mar. 7	378	94	62	1433
Atomizer	P. J. McElroy	493,512	Mar. 14	1167	298	62	1600
Auger. Earth-	A. J. Greiner	493,769	Mar. 21	1611	410	62	1704
Autographic register	J. E. Boyer and H. Dixon	493,207	Mar. 7	672	173	62	1490
Autoharp-hammer	C. H. Eisenbrandt	490,407	Jan. 24	2273	590	62	505
Automatic brake	A. G. Billings	489,452	Jan. 10	730	195	62	169
Automatic furnace	F. Wild	492,175	Feb. 21	1776	444	62	1135
Automatic gate	A. M. Whiteley	493,669	Mar. 21	1446	369	62	1671
Automatic sliding or rolling gate	J. T. Crim	492,863	Mar. 7	142	35	62	1386
Automatic switch	C. H. Bedell	493,009	Mar. 7	375	93	62	1433
Awning	J. Morein	493,105	Mar. 7	522	131	62	1462
Awning	R. D. Thornton	493,130	Mar. 7	557	138	62	1469
Awning	E. B. Warren	493,954	Mar. 21	1914	488	62	1761
Ax-handle shield and protector	C. S. Terpening	489,511	Jan. 10	832	218	62	189
Ax-helve	H. Hall, Jr. (Reissue)	11,312	Mar. 7	724	185	62	1501
Axle bar and blank. Channeled	O. C. Hall	492,553	Feb. 28	2389	593	62	1273
Axle-box	J. M. Smith	491,380	Feb. 7	533	136	62	850
Axle box. Car-	H. Havell	493,026	Mar. 7	403	100	62	1438
Axle box. Car-	W. Rader and E. Hunter	492,231	Feb. 21	1869	467	62	1154
Axle box. Car-	J. S. Speer	491,819	Feb. 14	1222	306	62	1009
Axle-box frame for car-trucks	J. A. Brill	492,525	Feb. 28	2339	581	62	1262
Axle-box lid	A. W. Zimmerman	489,888	Jan. 10	1373	357	62	299
Axle-box lid	A. W. Zimmerman	489,889	Jan. 10	1374	357 354	62	299
Axle box. Vehicle-	P. Dansereau	492,146	Feb. 21	1733	432	62	1126
Axle gage. Vehicle-	T. H. Edwards	490,804	Jan. 31	2927	754	62	647
Axle-lubricator	L. E. Atkinson	491,671	Feb. 14	995	250	62	963
Axle-lubricator	J. Mulligan	490,300	Jan. 24	2103	548	62	471
Axle-lubricator	J. T. Richards	492,697	Feb. 28	2609	646	62	1317
Axle-lubricator	J. W. Schoaf	493,121	Mar. 7	544	136	62	1466
Axle-nut	W. A. Warner	490,694	Jan. 31	2753	709	62	613
Axle. Sulky-	J. W. Vaughn	489,578	Jan. 10	927	240	62	208
Axle. Vehicle-	F. S. Church	489,180	Jan. 3	302	84	62	69
Axle. Vehicle-	F. S. Church	489,181	Jan. 3	303	84	62	69
Axle. Vehicle-	J. Lohges	489,487	Jan. 10	787	208	62	181
Axle. Vehicle-	J. W. Vaughn	489,577	Jan. 10	926	240	62	208
Axle. Vehicle-	J. D. Wilson	492,651	Feb. 28	2548	630	62	1304
Axle. Wagon-	C. F. Milburn	493,039	Mar. 7	421	106	62	1442
Axles. Machine for turning wooden	C. F. Milburn, G. E. Byrkit, and J. Crabbs.	493,038	Mar. 7	419	105	62	1441
Back-rest	H. Ohlschlager	494,434	Mar. 28	2708	679	62	1924
Badge	B. S. Whitehead	493,003	Mar. 7	365	92	62	1431
Badge, pencil, and bouquet holder. Combined	H. O. Thomas	491,614	Feb. 14	915	230	62	947

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Bag: *See* Mail-bag. Nose-bag. Moth-proof bag.							
Bag	J. R. Collins	490,103	Jan. 17	1766	460	62	393
Bag	D. S. McKinlay	489,165	Jan. 3	275	77	62	63
Bag-fastener	J. W. Vaughan	492,071	Feb. 21	1606	399	62	1099
Bag-holder	T. Merry	490,578	Jan. 24	2533	652	62	556
Bag or pouch	F. M. Turck	491,148	Feb. 7	134	36	62	775
Bag or purse frame	A. Goertz	490,433	Jan. 24	2310	599 600	62	511
Bag-tie or analogous fastening	F. J. Shephard and A. C. Hopkins	490,457	Jan. 24	2349	608	62	519
Bagasse-burner	E. H. Robeson	493,522	Mar. 14	1187	304	62	1604
Baggage-carrier	M. H. Barry and D. M. Cahill	493,348	Mar. 14	910	233	62	1552
Baggage-loading device	S. R. Heidelberg	489,003	Jan. 3	41	11, 12	62	11
Bail-ears to sheet-metal cans or pails. Attaching	H. T. Porter and J. Haas	493,114	Mar. 7	532	133	62	1464
Baking-pan	A. Rammel	489,985	Jan. 17	1569	411	62	352
Bale-tie machine	C. O. Mook	493,279	Mar. 14	798	206 207	62	1532
Baling-press	F. R. Brown	490,633	Jan. 24	2651	683	62	580
Baling-press	W. H. Kenner	491,967	Feb. 14	1451	361 362	62	1054
Baling-press	J. L. Madden	492,037	Feb. 21	1563	389	62	1090
Baling-press	C. G. Wilson	494,267	Mar. 28	2444	616 617	62	1875
Baling-press operating mechanism	H. H. Huntley	494,527	Mar. 28	2867	717	62	1952
Ball-throwing device	J. P. Hill	491,558	Feb. 14	817	207	62	927
Ballot-box	L. Stockstrom	493,195	Mar. 7	655	166 167	62	1487
Ballot-box. Registering and canceling	E. H. Towne	489,160	Jan. 3	982	79	62	65
Band-cutter and feeder	J. C. Brash	491,522	Feb. 14	737	193	62	914
Band-cutter and feeder	C. F. Hawkins	489,679	Jan. 10	1060	276 277	62	236
Band-cutter and feeder	J. W. Tripp	492,067	Feb. 21	1599	398	62	1098
Banjo	F. B. Converse	494,059	Mar. 21	2088	533	62	1794
Banjo	A. C. Fairbanks	489,470	Jan. 10	760	201	62	175
Banjo	W. Mayer	493,635	Mar. 21	1393	353	62	1661
Banjo	J. E. Quinlan	493,875	Mar. 21	1774	452	62	1735
Barge. Coal-	J. Chase	494,121	Mar. 28	2212	563 564	62	1832
Barge. Coal-	J. Chase	494,122	Mar. 28	2214	564	62	1833
Bark from logs. Machine for removing	R. P. Bloss	489,178	Jan. 3	300	83	62	68
Barrel-filling apparatus	P. H. Shumway	491,195	Feb. 7	220	56	62	789
Barrel-head-cutting machine	J. A. Campbell	493,064	Mar. 7	452	114 115	62	1449
Barrel-heading press	B. S. Miles	491,847	Feb. 14	1270	315	62	1018
Barrel-hoop	H. Mattullath	490,255	Jan. 17	2018	527	62	442
Barrel-hooping machine	J. A. Seaman	490,316	Jan. 24	2134	556	62	478
Barrel leveling, trussing, and hooping machine	L. M. Greif	493,329	Mar. 14	886	226 227	62	1547
Barrel-making machine	G. S. Pasquith	494,260	Mar. 28	2434	613	62	1873
Barrel. Metal	J. L. Kirby	494,275	Mar. 28	2457	619	62	1877
Barrel-washer	F. E. Anderson	489,066	Jan. 3	129	35	62	32
Barrel-washer	U. Eberhardt	493,762	Mar. 21	1602	407	62	1702
Barrel-washer	J. Schmidt	493,044	Mar. 7	427	107	62	1443
Basin-clamp	J. M. McVey	493,178	Mar. 7	632	160	62	1482
Basket. Folding	C. C. Egerton	492,379	Feb. 21	2091	522	62	1198
Bath-tub	H. C. Stifel, F. J. Torrance, and O. F. Grant.	493,194	Mar. 7	654	166	62	1486
Bath-tub	W. E. Templeton	489,241	Jan. 3	399	111	62	89
Bath-tub attachment	T. R. Treiber	492,949	Mar. 7	278	71	62	1414
Bath-tub fitting	J. Powell	494,160	Mar. 28	2272	576 577	62	1842
Bath-tub. Folding	G. Madden	490,914	Jan. 31	3112	798	62	684
Batteries. Apparatus for transferring secondary	M. Pfatischer	493,221	Mar. 7	693	177 178	62	1494
Battery: *See* Electric battery. Pyro-electric battery. Galvanic battery. Secondary battery.							
Battery-jar	J. F. McLaughlin	492,422	Feb. 28	2162	540	62	1226
Beam-hangers. Machine for making	J. Grant	494,102	Mar. 21	2164	552 553	62	1808
Bearing. Antifriction-	P. Beckman	491,401	Feb. 7	565	142	62	856
Bearing. Axle-	R. L. McLaren	493,176	Mar. 7	629	159	62	1482
Bearing. Ball-	P. Dansereau	494,190	Mar. 28	2321	587	62	1853
Bearing. Ball-	W. B. Douglas	492,958	Mar. 7	294	75	62	1417
Bearing. Ball-	S. Elliott	491,938	Feb. 14	1411	352	62	1046
Bearing composition	J. F. Newell	494,156	Mar. 28	2268	.....	62	1842
Bearing composition	J. F. Newell	494,433	Mar. 28	2707	.....	62	1924
Bearing for connecting-rods, &c. Adjustable	C. M. Conradson and B. V. Nordberg.	490,639	Jan. 31	2662	686	62	586
Bearing for conveyers. Shaft-	J. B. Ivey	493,726	Mar. 21	1541	393	62	1690
Bearing for propeller-shafts. Thrust-	H. C. Pedersen	494,024	Mar. 21	2039	520	62	1785
Bearing for wheels. Ball-	D. Roughead	489,133	Jan. 3	229	62	62	53
Bearing. Pitman-	J. H. Miller	490,296	Jan. 24	2098	547	62	470
Bearing plates. Manufacture of center-	C. T. Schoen	491,192	Feb. 7	215	55	62	788
Bearing. Roller-	R. L. Berry and J. M. Oliver	491,867	Feb. 14	1302	321	62	1024
Bearing. Roller-	G. Botsford and W. Holtz	494,055	Mar. 21	2061	532	62	1793
Bearing. Roller-	A. Petterson	491,585	Feb. 14	855	217	62	935
Bearing. Roller-	F. Purdon, H. E. Walters, and W. H. Woodcock.	490,859	Jan. 31	3003	770	62	663
Bearing. Vehicle ball-	D. Pettit and J. R. Congdon	494,384	Mar. 28	2634	661	62	1910
Bed	A. F. Conant	491,080	Feb. 7	30	8	62	754
Bed	O. G. Franks	491,243	Feb. 7	293	73	62	804
Bed	O. G. Franks	491,244	Feb. 7	294	73	62	805

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bed and toilet-case. Folding	P. A. Sanguinetti	490,888	Jan. 31	3055	784 785	62	674
Bed attachment	A. C. Wierenga	492,249	Feb. 21	1891	472	62	1158
Bed-bottom	A. A. Cameron	492,135	Feb. 21	1708	425	62	1121
Bed-bottom	C. E. McClintock	489,229	Jan. 3	386	106	62	86
Bed-brace	V. Humphrey	489,479	Jan. 10	771	204	62	178
Bed-brace	D. P. Pool	492,308	Feb. 21	1981	493	62	1178
Bed-brace	D. L. Trexler	489,347	Jan. 3	561	152	62	120
Bed-couch	O. Bopp	490,423	Jan. 24	2297	596	62	509
Bed-couch	L. Woerner	493,418	Mar. 14	1008	260	62	1572
Bed. Folding	D. H. Brenner	492,706	Feb. 28	2623	649 650	62	1320
Bed. Folding	D. H. Brenner	492,707	Feb. 28	2625	650	62	1321
Bed. Folding	W. S. Gunn	493,419	Mar. 28	2688	674	62	1920
Bed. Folding	P. J. Harrah	494,711	Mar. 21	1505	385	62	1683
Bed. Folding	E. G. Miller	489,489	Jan. 10	792	209	62	182
Bed. Folding	A. J. Morse	490,832	Jan. 31	2967	761	62	655
Bed. Folding	R. Piper	493,043	Mar. 7	426	107	62	1443
Bed head-apport	W. S. Seymour	493,303	Mar. 14	848	216	62	1540
Bed. Hydrostatic	J. T. Woods	489,517	Jan. 10	843	220	62	192
Bed-lounge	L. La Tour	490,480	Jan. 24	2387	618	62	527
Bed-pan or commode	E. Phillips	494,079	Mar. 21	2127	543	62	1801
Bed. Sofa	J. Lewin	492,729	Feb. 28	2656	658	62	1327
Bed. Spring	O. S. Foster	493,581	Mar. 14	1299	332	62	1628
Bed. Spring	O. S. and W. S. Foster	493,427	Mar. 14	1026	266	62	1576
Bed-spring-coiling machine	G. I. Stark	489,550	Jan. 10	885	232	62	200
Bed table attachment	H. Oldschlager	494,435	Mar. 28	2709	679	62	1924
Beds. Adjustable ventilating canopy-frame for	W. N. Sherman	493,305	Mar. 14	851	216 217	62	1541
Beds, &c. Fanning-cover for	R. R. Parrish	494,486	Mar. 28	2783	698	62	1937
Bedstead	T. R. Chambers	490,066	Jan. 17	1708	446	62	380
Bedstead	M. Hofacker	490,201	Jan. 17	1926	501	62	424
Bedstead-brace	M. M. Ritch	494,228	Mar. 28	2383	601	62	1464
Bedstead. Wardrobe	H. Waddell	489,209	Jan. 3	347	98	62	79
Bee-escape	R. Porter	489,754	Jan. 10	1186	311	62	261
Beehive	L. A. Aspinwall	493,466	Mar. 14	1095	281	62	1588
Beehive	J. D. Hawkins and F. M. Ray	493,464	Mar. 21	1761	448	62	1733
Beehive	G. W. Stephens	491,669	Feb. 14	992	250	62	962
Beehive	W. G. Stewart	489,696	Jan. 10	1091	282	62	242
Beef-mangler. Combination	E. E. B. Shleppy	490,367	Jan. 24	2217	578	62	495
Beer-barrels. Machine for maintaining a constant pressure in	F. S. Church	488,985	Jan. 3	15	4	62	6
Beer-cooler	R. Ledig	493,383	Mar. 14	964	248	62	1564
Beer-cooler	E. J. Rice	489,546	Jan. 10	880	230	62	199
Beer-cooler	E. Seitz	490,506	Jan. 24	2435	628	62	537
Beer, &c. Distributing apparatus for	J. Hartin. (Reissue)	11,314	Mar. 21	2192	560	62	1814
Beer. Making	C. Rach	492,052	Feb. 21	1582	.....	62	1095
Beer. Making	O. and O. B. Zwietusch	490,056	Jan. 17	1689	440	62	376
Beer. Manufacture of	A. Hummel	492,292	Feb. 21	1951	488	62	1172
Beer-saucer with registering attachment	E. Paproth and R. Aster	493,646	Mar. 21	1409	357	62	1664
Beer, &c. Treating	A. Kreusler	489,018	Jan. 3	60	16	62	16
Bell	N. J. Busby	492,779	Mar. 7	9	3	62	1361
Bell	A. A. Page and W. E. Sparks	493,042	Mar. 7	424	107	62	1442
Bell. Alarm	A. P. Merrill	492,410	Feb. 28	2147	536	62	1223
Bell alarm. Electric	G. L. Rèenstierna	492,309	Feb. 21	1982	493	62	1178
Bell. Bicycle	L. E. Ericson	491,012	Jan. 31	3264	834	62	712
Bell. Door	C. E. Van Wormer	492,070	Feb. 21	1604	399	62	1099
Bell. Electric	F. W. Manger and O. H. Huebel	494,278	Mar. 28	2459	619	62	1877
Bells. Device for operating door	H. C. Sutton	492,753	Feb. 28	2693	669	62	1334
Belt-clasp	F. J. Herrick	494,293	Mar. 28	2487	627	62	1883
Belt. Electric	J. W. Cummings	490,948	Jan. 31	3165	811	62	694
Belt. Endless carrier	L. Z. Preston	491,953	Feb. 14	1431	357	62	1050
Belt-guide	W. L. Schwaller	489,334	Jan. 3	537	146	62	116
Belt-holder	C. Bamngarten	492,738	Feb. 28	2668	662	62	1329
Belt-shifter	C. Schraubstadter, Jr., and C. R. Schilling.	492,752	Feb. 28	2691	668	62	1333
Belt-shifter	A. V. M. Sprague	494,177	Mar. 28	2300	582 583	62	1848
Belt-shifting apparatus	F. H. Richards	493,409	Mar. 14	998	258	62	1571
Belt-support	L. Sanders	490,166	Jan. 17	1868	457	62	413
Belt-tightener	J. J. Miller	491,728	Feb. 14	1082	273	62	981
Belt-tightener	J. B. Noble and J. B. Hensley	489,323	Jan. 3	518	141	62	112
Belt-tightener	J. S. Seeley	492,972	Mar. 7	317	80	62	1422
Belt-tightener	J. L. Ulsh	492,314	Feb. 21	1988	495	62	1179
Belt-tightener for cotton-gins	W. G. Beckwith	493,504	Mar. 7	665	170	62	1489
Belt-tightener for fans. Adjustable	W. Rabich	491,024	Jan. 31	3293	840 841	62	719
Belts on pulleys. Device for placing	S. Donkin	490,546	Jan. 24	2497	643	62	549
Belting	E. Todd	492,880	Mar. 7	172	42	62	1392
Belting. Link	O. Maxon	494,110	Mar. 21	2184	558	62	1813
Bench: *See* Laundry-bench.							
Bending-roll	W. Lewis	491,968	Feb. 14	1453	362	62	1055
Bevel. Protractor	H. J. Leighton	490,121	Jan. 17	1797	468 469	62	399
Beverages. Apparatus for carbonating and dispensing	P. E. Malmström	494,483	Mar. 28	2781	697	62	1937
Bicycle	G. O. Draper	490,844	Jan. 31	2983	764	62	659
Bicycle	A. D. Jenkins	490,252	Jan. 17	2014	527	62	441
Bicycle	F. Sweetland	491,200	Feb. 7	228	58	62	791
Bicycle	W. A. Wright	489,112	Jan. 3	201	54	62	47
Bicycle and other tubing	J. F. Palmer	489,714	Jan. 10	1117	289	62	247
Bicycle attachment	T. Cummins	491,040	Jan. 31	3321	847	62	725
Bicycle-canopy	H. Hohenstein and B. J. Apple	490,229	Jan. 17	1974	518	62	434

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Bicycle-gear	E. Gundelach	492,285	Feb. 21	1943	485 486	62	1170
Bicycle-gear	W. Mahoney	491,366	Feb. 7	511	131	62	845
Bicycle gun-clip	J. S. Copeland	492,740	Feb. 28	2672	663	62	1330
Bicycle-lock	E. Buysse	491,335	Feb. 7	458	116	62	835
Bicycle parcel-carrier	M. E. Blood. (Reissue)	11,301	Jan. 17	2026	529	62	444
Bicycle-saddle	F. D. Cable	494,408	Mar. 28	2675	671	62	1918
Bicycle-saddle	W. Steers	492,375	Feb. 21	2084	521	62	1197
Bicycle-seat spring	H. Bergfels	490,097	Jan. 17	1757	458	62	391
Bicycle sleigh attachment	W. H. Bendure and S. Tilbery	490,240	Jan. 17	1997	523	62	438
Bicycle tilting seat	W. R. Mercer	491,578	Feb. 14	840	215	62	963
Bicycles. Combined coasting-pedal and lock for	W. G. Fay	491,342	Feb. 7	468	121	62	837
Bin: *See* Flour-bin.							
Binder for sheet-music, &c. Portable	J. Samson	492,238	Feb. 21	1878	469	62	1155
Binder. Temporary	W. E. Dyre	489,794	Jan. 10	1242	325 326	62	272
Binder. Transfer	J. E. Ames	492,772	Mar. 7	1	1	62	1359
Binding	M. M. Beeman	490,819	Jan. 31	2946	750	62	651
Bins or pockets for containing coal, grain, &c. Construction of	T. E. Murray	490,258	Jan. 17	2023	528	62	443
Bird-warbler	E. F. Long	491,571	Feb. 14	838	212	62	931
Bit: *See* Bridle-bit. Mortising-bit.							
Bit	W. Dodge	494,251	Mar. 28	2415	609	62	1869
Bituminous rock. Apparatus for disintegrating	B. Hager	493,357	Mar. 14	921	237	62	1554
Bituminous-rock-reducing apparatus	E. R. Thomason	492,639	Feb. 28	2524	625	62	1300
Blackboard and desk	S. N. Utter	493,134	Mar. 7	565	141	62	1470
Blackboard. Artificial-slate	H. A. Newman, J. D. Werden, and O. A. Stempel.	490,979	Jan. 31	3215	821	62	703
Blacking-box	J. M. Wheat	493,955	Mar. 21	1914	489	62	1761
Blacking outfit	A. C. Barler	491,974	Feb. 21	1465	365	62	1071
Blank-cutting machine	T. F. Tyler	492,342	Feb. 21	2022	506	62	1187
Bleaching-keirs. Automatic circulator for	T. Boardman	489,361	Jan. 3	579	157	62	124
Bleaching or dyeing textile materials. Method of and apparatus for	L. Le Blois	489,819	Jan. 10	1276	334	62	280
Blind-stop	L. C. Thorne	492,122	Feb. 21	1687	420	62	1116
Blind. Window	G. Poppert	492,993	Mar. 7	350	88	62	1428
Blinds. Guide-strip for inside	E. Dambach	489,937	Jan. 17	1486	388	62	336
Block: *See* Hoisting-block. Pulley-block. Horse or carriage block. Tackle-block. Musical block. Thrust-block.							
Block-signal system	J. La Burt	494,007	Mar. 21	2010	512 513	62	1780
Block-signal system. Electric	J. La Burt	490,663	Jan. 31	2705	696	62	604
Blotter	W. Meyer	489,823	Jan. 10	1283	335	62	281
Blowing-engine	W. E. Good	490,109	Jan. 17	1775	462	62	395
Board: *See* Artificial board. Kneading and cooling board. Blackboard. Centerboard. Composite board. Drawing or plotting board. Game-board. Music-board. Paper-board. Pitch-board. Plaster-board.							
Boat: *See* Portable nesting boat. Submarine boat.							
Bobbin-winding machine	C. S. Marshall	491,434	Feb. 7	607	153 154 155	62	865
Boiler: *See* Ceramic boiler. Tubular boiler. Cooking-boiler. Vertical boiler. Hot-water boiler. Washboiler. Locomotive-boiler. Water-tube boiler. Steam-boiler.							
Boiler	J. R. Brownell	489,453	Jan. 10	732	195 196	62	169
Boiler	H. A. R. Dietrich	492,664	Feb. 28	2565	635	62	1308
Boiler	M. and G. Hise	489,809	Jan. 10	1264	331	62	277
Boiler	W. Mooney	490,257	Jan. 17	2021	528	62	443
Boiler	F. J. Thrun	489,344	Jan. 3	555	150 151	62	119
Boiler and boiler-furnace	E. A. Wheeler	489,725	Jan. 10	1136	294	62	251
Boiler and boiler-furnace	E. A. Wheeler	489,726	Jan. 10	1137	294	62	251
Boiler-chimneys. Apparatus for controlling the draft in	G. L. Thiell	490,177	Jan. 17	1883	490	62	417
Boiler-feeder. Automatic	F. M. Ashley	493,227	Mar. 14	728	187	62	1519
Boiler fire-box. Steam	M. E. Herbert	492,290	Feb. 21	1948	487	62	1171
Boiler-furnace	J. Gilbert	494,137	Mar. 28	2234	569	62	1836
Boiler-furnace	T. J. Grosh	490,962	Jan. 31	3186	815	62	697
Boiler-furnace	S. T. Owens	492,943	Mar. 7	268	69	62	1412
Boiler-furnace	W. J. Richards	494,028	Mar. 21	2044	521	62	1795
Boiler-furnace. Smokeless	A. B. Crowder	490,544	Jan. 24	2493	643	62	548
Boiler furnace. Steam	B. H. Dear	492,148	Feb. 21	1737	434	62	1126
Boiler furnace. Steam	L. Lawton	491,570	Feb. 14	837	212	62	931
Boiler furnace. Steam	J. K. Rugg	490,454	Jan. 24	2341	606	62	517
Boiler furnace. Steam	J. Sutton and J. W. Buckley	494,041	Mar. 21	2062	527	62	1789
Boiler furnace. Steam-generating	R. H. Alexander	491,918	Feb. 14	1377	343	62	1039
Boiler gas-producing furnace. Steam	O. W. Ketchum	491,359	Feb. 7	501	129	62	844
Boiler-tube cleaner	A. W. Chesterton	492,935	Mar. 7	259	66	62	1410

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr.	Official Gazette. Vol.	Official Gazette. Page.
Boiler-tube expander	J. West	489,278	Jan. 3	457	126	62	101
Boiler tube. Tubular	W. Eaves	489,376	Mar. 14	956	127	62	1562
Boilers. Blow-off basin for steam	J. F. Cotter	489,602	Jan. 10	964	246	62	215
Boilers. Lap-joint for steam	J. T. Connelly	490,067	Jan. 17	1709	251	62	380
Boilers, &c. Making supporting-brackets for	G. H. Drake	494,370	Mar. 28	2612	446	62	1906
Boilers. Steam drying and superheating apparatus for steam	B. W. Hoyt	490,965	Jan. 31	3191	656	62	699
Bolster-plate	H. A. Meyer	491,783	Feb. 14	1170	816	62	997
Bolster-spring	G. S. and H. C. Neal	490,083	Jan. 17	1732	292	62	997
Bolster-spring	A. G. North	494,158	Mar. 28	2368	451	62	385
Bolt	O. C. Little	491,660	Feb. 14	979	576	62	1842
Bolt	G. W. Manson	491,019	Jan. 31	3275	247	62	960
Bolt-cutting machine	A. M. Baird	492,931	Mar. 7	252	837	62	715
Bolt-threading machine	F. S. Cook	492,140	Feb. 21	1715	64	62	1408
Bolt-threading machine	H. Crehan	490,901	Jan. 31	3093	427 428 429	62	1122
Bond. Coupon	S. R. Hopkins	489,956	Jan. 17	1515	793 794	62	680
Bone-cutting machine	J. E. Wilson	489,774	Jan. 10	1216	396	62	342
Book	H. P. Parmelee	494,382	Mar. 28	2631	319	62	967
Book and package case. Portable	G. C. Magargal	490,122	Jan. 17	1798	660	62	1910
Book. Bank-check	C. M. Bump	492,956	Mar. 7	292	469	62	399
Book. Bank or check	S. R. Hopkins	489,561	Jan. 10	903	74	62	1417
Bookbinding	L. Bailey	490,382	Jan. 24	2241	235 236	62	204
Bookbinding	J. P. Brennan	493,396	Mar. 14	982	583	62	499
Book. Blank	W. N. Winfield	494,360	Mar. 28	2599	253	62	1567
Bookcase. Revolving	W. F. Berger	491,277	Feb. 7	342	653	62	1904
Book-cover	C. L'Enfant	492,925	Mar. 7	246	87	62	814
Book-cover	T. E. B. Mason	489,970	Jan. 17	1536	62	62	1407
Book-cover machine	A. Bredenberg	490,895	Jan. 31	3067	401	62	346
Book-covering machine	H. L. Arnold	493,959	Mar. 21	1919	787 788 789 790	62	676
Book-covering machine	C. W. Lovell and A. Bredenberg	493,553	Mar. 14	1241	490 491 492 493	62	1762
Book. Duplicating check	J. Oldfield	490,038	Jan. 17	1665	318 319 320 321	62	1616
Book for bookkeeping	G. D. Thomas	491,202	Feb. 7	231	432	62	371
Book-holder	C. S. Byrkit	488,983	Jan. 3	13	58	62	791
Book. Manifold memorandum	W. W. O'Hara	490,675	Jan. 31	2730	4	62	5
Book. Manifold sales	J. S. McDonald	493,594	Mar. 21	1803	702 703	62	609
Book. Memorandum sales	R. Gair	493,922	Mar. 21	1854	459	62	1740
Book-rack. Adjustable	G. F. Sargent	489,693	Jan. 10	1057	472	62	1750
Book-rest	D. C. Lehman	490,569	Jan. 24	2523	291	62	242
Book rest and holder	O. C. Mitchell	493,936	Mar. 21	1879	649	62	554
Book-stapling machine	F. P. Rosback	493,298	Mar. 14	831	478	62	1755
Book-support	A. H. Ward	490,379	Jan. 24	2236	212 213 214	62	1537
Book-trimming machine	C. W. Lovell and A. Bredenberg	490,877	Jan. 31	3031	582	62	498
Boot or shoe creaser	R. F. Gordon and G. T. Davis	489,630	Jan. 10	998	779 780	62	669
Boot or shoe slip-sole	G. W. Dixon	491,731	Feb. 14	1088	260	62	223
Boot. Ventilated	D. B. Whitehill	490,703	Jan. 31	2769	275	62	982
Boots or shoes. Making	G. W. Day	491,258	Feb. 7	313	712	62	617
Boots or shoes. Making	J. J. Page	489,196	Jan. 3	330	79	62	808
Border for walks, &c	J. E. Chapman	489,792	Jan. 10	1240	90	62	75
Boring-machine	C. F. Hotchkiss	491,110	Feb. 7	75	395	62	272
Boring machine. Double	C. H. Purdy	494,082	Mar. 21	2132	21	62	763
Boring-machine. Horizontal	A. J. Frith	494,100	Mar. 21	2158	545	62	1802
Bottle	H. I. Leith	489,965	Jan. 17	1527	551	62	1807
Bottle	H. I. Leith	489,966	Jan. 17	1530	400	62	345
Bottle	H. I. Leith	489,967	Jan. 17	1532	400	62	345
Bottle	A. L. Straus	491,198	Feb. 7	226	400	62	345
Bottle and stopper	R. S. Wiesenfeld	490,729	Jan. 31	2808	57	62	790
Bottle-corking-machine compressor	E. Ermold	492,540	Feb. 28	2364	720	62	624
Bottle-filling apparatus	A. M. Donally. (Reissue)	11,300	Jan. 17	2024	587	62	1268
Bottle holder. Ink	D. B. Corley	492,143	Feb. 21	1727	529	62	443
Bottle-molding apparatus	C. D. and H. F. Crickler	493,984	Mar. 21	1971	431	62	1124
Bottle-opening implement	G. M. Casey	492,570	Feb. 28	2410	503 504	62	1771
Bottle package or packing-box	A. H. Meech	492,305	Feb. 21	1976	601	62	1278
Bottle. Perfumery or other	G. W. Bean	493,962	Mar. 21	1936	492	62	1177
Bottle-stopper	G. F. Atwood	490,405	Jan. 24	2270	493	62	1764
Bottle-stopper	W. P. Benwick	494,361	Mar. 28	2600	590	62	505
Bottle-stopper	G. H. Gillette	493,701	Mar. 21	1491	653	62	1904
Bottle-stopper	F. L. von Hirsch	489,637	Jan. 10	1005	382	62	1640
Bottle-stopper	K. Hutter	491,113	Feb. 7	79	262	62	224
Bottle-stopper	J. Lauhoff	491,119	Feb. 7	86	22	62	764
Bottle-stopper	B. F. McIntyre	492,998	Feb. 21	1648	24	62	765
Bottle-stopper extractor	G. W. Gardner	491,306	Feb. 7	409	410	62	1108
Bottle-washing machine	L. A. Euzinger	491,414	Feb. 7	582	105	62	825
Bottle-wrapper	A. H. Meech	492,306	Feb. 21	1978	146 147	62	859
Bottles, &c. Apparatus for polishing the caps of	H. Roemer	490,682	Jan. 31	2739	492	62	1177
					706	62	610

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr.	Official Gazette. Vol.	Official Gazette. Page.
Bottles. Device for shaking crated	P. H. Shumway	493,046	Mar. 7	429	108	62	1443
Bottles. Tool for finishing the necks and mouths of	C. H. Beach	491,069	Feb. 7	11	4	62	751
Bottles, &c. Wrapper for	R. G. Brenack	494,364	Mar. 28	2603	654	62	1905
Bottling carbonated fluids	H. Robertson	490,681	Jan. 31	2738	705	62	610
Bottling-machine	E. T. Jones	491,753	Feb. 14	1118	283	62	988
Bottling machine. Liquid	M. P. Heddy	490,020	Jan. 17	1635	496	62	365
Boutonnière	H. W. Fishel	489,671	Jan. 10	1048	273	62	234
Bowl. Wash	A. P. Creque	492,192	Feb. 21	1801	449 450	62	1140
Bowling-alley	H. Montgomery	490,916	Jan. 31	3114	799	62	684
Box:							
See Ballot-box.	Paper box.						
Blacking-box.	Pocket-box.						
Feed-box.	Post-office lock-box.						
Fruit-box.	Refrigerator-box.						
Knockdown box.	Salt-box.						
Letter-box.	Sample-box.						
Lunch-box.	Shipping and display box.						
Match-box.	Tooth-powder box.						
Miter-box.	Wooden box.						
Packing-box.	Work-box.						
Box	J. Hollely	489,253	Jan. 3	425	118	62	94
Box-banding implement	T. G. Harding	493,330	Mar. 14	888	227	62	1547
Box-fastener	M. Badoni	493,203	Mar. 7	665	169	62	1489
Box-fastener	C. W. Beehler	492,057	Mar. 7	442	111	62	1447
Box-fastener	C. N. Fisher	490,228	Jan. 17	1974	517	62	434
Box-fastener	F. E. Heywood	489,740	Jan. 10	1163	302	62	256
Box-fastener	H. C. Kitching	489,535	Jan. 10	865	226	62	196
Box-fastener	D. R. Knox	490,567	Jan. 24	2521	649	62	553
Box-lid fastener	N. T. Hand	489,531	Jan. 10	862	225	62	195
Box-nailing machine	W. S. Doig	492,086	Feb. 21	1630	405 406	62	1105
Box or canister	J. H. Sieber	492,878	Mar. 7	169	40	62	1392
Boxes. Machine for affixing elastic to	L. Goumand	490,386	Jan. 24	2245	584	62	500
Brace:							
See Bed-brace.	Gate-brace.						
Bedstead-brace.	Ratchet-brace.						
Corner-brace.	Vehicle-bound brace.						
Bracket:							
See Insulator-bracket.	Shelf-bracket.						
Lamp-bracket.	Shingling-bracket.						
Braiding-machine	J. McCahey	494,379	Mar. 28	2628	659 660	62	1909
Braiding-machine	J. W. Schloss	492,437	Feb. 28	2183	546	62	1230
Braiding-machine carrier	J. McCahey	494,380	Mar. 28	2629	660	62	1909
Brake:							
See Air-brake.	Machine-brake.						
Automatic brake.	Pressure-brake.						
Car-brake.	Safety-brake.						
Car emergency-brake.	Sled-brake.						
	Train-brake.						
Electro-magnetic brake.	Truck-brake.						
	Vehicle-brake.						
Flax or hemp brake.	Wagon-brake.						
Harvester-brake.	Windmill-brake.						
Brake-adjuster. Automatic	M. E. McKee	489,494	Jan. 10	800	211	62	184
Brake-beam	C. K. Pickles	492,747	Feb. 28	2683	666	62	1332
Brake-beam	C. K. Pickles	492,748	Feb. 28	2684	666	62	1332
Brake mechanism	H. Bolthoff	494,518	Mar. 28	2845	719	62	1949
Brake-shoe	M. Y. Baldwin	491,667	Feb. 14	1037	262	62	972
Brake-shoe	F. Sargent	490,756	Jan. 31	2852	732	62	632
Brake-shoe	W. W. Whitcomb	490,701	Jan. 31	2766	711	62	616
Brake-shoe	W. W. Whitcomb	490,702	Jan. 31	2768	711	62	617
Brake-shoe key	W. D. Sargent	492,839	Mar. 7	100	25	62	1377
Brake-wheel lever attachment	B. Crawford	490,543	Jan. 24	2493	642	62	548
Branding-tool. Auto-caloritic	J. S. Fitzmaurice	493,078	Mar. 7	474	119	62	1453
Brandy-mash and composition for same. Making	M. Wool	493,460	Mar. 14	1087		62	1586
Bread or cake pan	T. S. Peacock	493,835	Mar. 21	1714	437	62	1723
Bread-raiser	J. C. Nicholls	494,018	Mar. 21	2031	517	62	1784
Breast-drill	W. H. Wilkinson	491,624	Feb. 14	927	233	62	949
Breast-strap	H. D. Stoddard	491,864	Feb. 14	1299	320	62	1023
Breast-supporter	M. Tucek	494,397	Mar. 28	2650	667	62	1914
Brewing apparatus	C. Rach	493,342	Mar. 14	901	231	62	1550
Brick	J. Mohlberg	491,348	Feb. 7	299	76	62	806
Brick	J. L. Stevenson	490,726	Jan. 31	2802	718 719	62	623
Brick. Building	J. B. Griswold	489,898	Jan. 10	1391	302	62	302
Brick-kiln	J. Conley	491,037	Jan. 31	3316	846	62	724
Brick-kiln	J. B. Griswold	489,805	Jan. 10	1258	329 330	62	276
Brick-kiln	A. B. Horne	493,930	Mar. 21	1864	475 476	62	1752
Brick-kiln	B. Swenson	489,617	Jan. 10	980	255	62	219
Brick-kiln	P. L. Yonngren	492,251	Feb. 21	1895	473	62	1159
Brick-kiln. Circular	J. Conley	491,038	Jan. 31	3318	846	62	724
Brick-kiln. Continuous	J. O. Neil	492,965	Mar. 7	306	76	62	1490
Brick-kiln. Continuous	J. P. Veirs	493,951	Mar. 21	1907	486 487	62	1760
Brick-machine	V. F. Lanouette	491,657	Feb. 14	974	245 246	62	959
Brick-machine	J. B. Mowry	489,974	Jan. 17	1542	403 404	62	348
Brick-machine cut-off	J. Creager	492,390	Feb. 28	2114	527	62	1216

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Brick-mold	E. C., G. W., and H. L. McGraw	490,160	Jan. 17	1861	485	62	412
Brick-mold-sanding machine	W. Lamb	493,098	Mar. 7	504	{126 127	62	1459
Brick or tile cutter	J. Cornelius and E. R. Collins	492,663	Feb. 28	2563	635	62	1307
Brick or tile cutting machine	J. Thompson	491,747	Feb. 14	1110	{280 281	62	986
Brick or tile kiln	L. Falasconi	491,995	Feb. 21	1496	373	62	1078
Brick or tile kiln	E. F. Stephenson	492,064	Feb. 21	1596	{396 397	62	1097
Brick-press. Automatic	T. B. Lewis	491,712	Feb. 14	1059	268	62	977
Brick-pressing apparatus	J. G. Naylor and H. Williams	490,412	Jan. 24	2279	{592 593	62	506
Brick protector. Undried	A. C. Contant	492,388	Feb. 28	2110	{526 527	62	1215
Bridge	R. Gray	489,946	Jan. 17	1503	{392 393	62	339
Bridge-gate	T. F. Conklin	492,387	Feb. 28	2109	526	62	1215
Bridge-gate. Safety draw	A. Hoeffler and F. L. G. Chapman	491,177	Feb. 7	192	49	62	784
Bridge-gate-operating device	E. Zaremba	489,113	Jan. 3	202	54, 55	62	47
Bridges. Side rail for suspension	E. E. Runyon	493,788	Mar. 21	1639	{417 418	62	1710
Bridle	W. Friedrich	494,196	Mar. 28	2389	590	62	1854
Bridle-bit	J. E. Driscoll	492,666	Feb. 28	2568	636	62	1308
Bridle-bit	C. W. Phillips	493,339	Mar. 14	898	230	62	1549
Bridle-bit	R. Sears and L. B. Lindsey	492,241	Feb. 21	1881	470	62	1156
Bridle-check	J. M. Quilleash and W. F. Bacon	489,545	Jan. 10	879	230	62	199
Broiling apparatus. Meat	J. G. Weldon	493,501	Mar. 21	1671	426	62	1716
Bronze	J. D. Becker	490,706	Jan. 31	2772	.....	62	618
Brouze-dusting machine	E. Jaeck and M. Auerbach	491,054	Jan. 31	3343	{552 553	62	730
Bronzing-machine	G. Newsum	494,017	Mar. 21	2029	517	62	1784
Brooder. Chicken	N. Holloway	493,586	Mar. 14	1305	333	62	1629
Brooder. Poultry	D. E. Bricker	494,056	Mar. 21	2082	532	62	1793
Broom	J. A. Cook	493,483	Mar. 14	1124	288	62	1593
Broom attachment	C. J. Clements	490,472	Jan. 24	2378	615	62	525
Broom-corn stems. Device for grading	C. R. Lee	492,692	Feb. 21	1554	387	62	1088
Broom-head	A. A. Willets	489,841	Jan. 10	1312	343	62	288
Broom-rack	W. C. Jones	490,851	Jan. 31	2993	766	62	661
Broom-rack	W. C. P. Jones	491,891	Feb. 14	1338	331	62	1031
Brush	C. W. Parks	492,584	Feb. 28	2431	605	62	1283
Brush	J. E. Provine	489,034	Jan. 3	84	24	62	22
Brush	C. Smith	493,414	Mar. 14	1005	259	62	1572
Brush	A. C. Wright	493,050	Mar. 7	435	110	62	1445
Brush. Blacking	T. Haswell	491,105	Feb. 7	69	19	62	702
Brush blocks or backs. Machine for shaping	J. Cook	492,660	Feb. 28	2559	634	62	1307
Brush. Electric	R. E. Williams	494,359	Mar. 28	2597	652	62	1904
Brush, flask, and drinking-cup. Combined clothes	T. W. Helm	490,964	Jan. 31	3190	815	62	698
Brush. Fountain marking	W. Whitaker	491,080	Jan. 31	3244	828	62	709
Brush. Hat or clothes	H. J. Sims	489,694	Jan. 10	1089	282	62	242
Brush-machine	A. H. Welcott	490,181	Jan. 17	1895	493	62	419
Brush-making-machine handle	J. Cook	492,661	Feb. 28	2561	{634 635	62	1307
Brush-mold. Sectional	W. Morrison	491,757	Feb. 14	1124	284	62	989
Brush. Tooth	H. Lohers	490,831	Jan. 31	2966	761	62	655
Brushes, &c. Making metal mounts for	A. Wolff	492,177	Feb. 21	1780	445	62	1136
Brushes, &c. Making sheet-metal mounts for	J. Lines	492,216	Feb. 21	1844	{461 462	62	1149
Bucket. Drop-bottom	G. H. Hulett	494,294	Mar. 28	2487	627	62	1883
Bucket-dumping apparatus	F. B. Wineland	491,958	Feb. 14	1438	358	62	1052
Bucket or other vessel. Covered	E. Ames	493,145	Mar. 7	580	145	62	1473
Bucket. Well	G. S. Ullom	490,052	Jan. 17	1684	438	62	375
Buckle	G. M. Aylsworth	492,256	Feb. 21	1904	475	62	1161
Buckle	J. Barkley	491,462	Feb. 7	662	166	62	875
Buckle	J. Cantner	493,818	Mar. 21	1695	432	62	1719
Buckle	L. Dyer	489,859	Jan. 10	1329	347	62	291
Buckle	A. Dyke	490,551	Jan. 24	2503	644	62	550
Buckle	J. N. Faust	491,241	Feb. 7	291	73	62	804
Buckle	A. E. McClure	491,123	Feb. 7	92	25, 26	62	767
Buckle	G. W. Moores	489,656	Jan. 10	1028	268	62	229
Buckle	P. A. Raymond	494,086	Mar. 21	2136	546	62	1803
Buckle and snap-hook combined	T. B. Stone and C. C. Smith	490,047	Jan. 17	1677	436	62	374
Buckle. Back-band	W. F. Anthony	493,744	Mar. 21	1576	401	62	1697
Buckle. Back-band	T. B. and W. F. Doris	490,643	Jan. 31	2998	687	62	597
Buckle. Cast-off	G. E. Adams	491,630	Feb. 14	936	235	62	951
Buckle. Shoe	D. F. Dalton	494,464	Mar. 28	2755	691	62	1932
Buffing-machine	H. A. Webster	490,419	Jan. 24	2293	595	62	508
Buffing-roll	H. A. Webster	493,001	Mar. 7	363	91	62	1430
Buffing-wheel	H. A. Webster	493,002	Mar. 7	364	91, 92	62	1431
Buggy-top	J. T. Bibb	489,451	Jan. 10	729	195	62	169
Buggy-top. Folding	T. P. Chamberlin	491,963	Feb. 21	1479	368	62	1074
Building for protection against cyclones, &c	C. Zimmerman	490,779	Jan. 31	2893	742	62	640
Building or paving blocks. Sectional mold for	G. M. Graham	493,767	Mar. 21	1609	409	62	1703
Bullet-covering machine	C. R. Richards	493,519	Mar. 14	1176	{301 302 303	62	1602
Bullet-mold	J. H. Barlow	489,580	Jan. 10	929	241	62	208
Bung	T. Marple	490,153	Jan. 17	1850	483	62	410
Burglar-alarm	J. Ganzfried	492,792	Mar. 7	33	8	62	1305
Burglar-alarm	T. H. Lovell and G. Buckingham	493,037	Mar. 7	418	104	62	1441
Burglar-alarm	C. H. Pratt	493,647	Mar. 21	1410	357	62	1664
Burglar-alarm. Electric	W. H. Carr	490,870	Jan. 31	3029	776	62	667
Burglar-alarm. Electric	J. Kamsler	492,330	Feb. 21	2011	500	62	1184
Burglar-alarm. Electric	C. F. A. Sturts	492,478	Feb. 28	2251	563	62	1245

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Burner: *See* Bagasse-burner. Hydrocarbon-burner. Fuel-burner. Oil-burner. Gas-burner. Smoke-burner. Gas or vapor burner. Vapor-burner. Gasoline-burner. Vapor-generating burner.							
Burner for lighting or heating with natural or artificial gas	G. W. Zeigler	492,179	Feb. 21	1783	446	62	1136
Burnishing-machine	G. B. Kelley	493,033	Mar. 7	411	103	62	1440
Burnishing-machines. Burner for rolls of	J. S. George, Jr	489,299	Jan. 3	483	134	62	105
Burr-wheel	R. W. Gormly	491,345	Feb. 7	472	121	62	838
Bushing	D. Burkard	488,932	Jan. 3	12	3	62	5
Butchering-derrick	J. Ulfers	494,398	Mar. 28	2660	667	62	1915
Butter-extractor. Centrifugal	A. Wahlin	491,501	Feb. 7	716	181	62	886
Butter-firkin	F. S. Osgood	492,470	Feb. 28	2341	560	62	1243
Butter from milk. Compound for increasing the yield of	S. C. Wilson	489,775	Jan. 10	1218	.....	62	267
Butter. Manufacture of	D. W. Hudson, F. La Strong, and G. D. Bunch.	489,814	Jan. 10	1271	.....	62	279
Butter-mold	W. Mann and G. C. Johnson	489,566	Jan. 10	910	237	62	205
Butter molding and cutting machine	P. O. Andreasen	491,792	Feb. 14	1184	297	62	1000
Butter-printer	A. H. Reid	493,517	Mar. 14	1173	300	62	1601
Butter-worker	P. Embree	492,325	Feb. 21	2004	499	62	1183
Button	C. S. Comstock	489,288	Jan. 3	471	130	62	103
Button	C. T. McClintock	492,418	Feb. 28	2157	539	62	1225
Button-backs. Machine for making	G. W. Lieb	492,534	Feb. 28	2351	{583 584 585	62	1265
Button-cabinet	A. R. Ingalsbe	492,683	Feb. 28	2589	640	62	1312
Button-cutting machine	H. W. Terry	492,997	Mar. 7	354	89	62	1429
Button-fastener	R. Blaeske	494,456	Mar. 28	2742	688	62	1939
Button-fastener	E. L. Torsch	491,788	Feb. 14	1179	295	62	999
Button-fastener and key for detaching	G. Kohl	489,127	Jan. 3	223	60	62	51
Button-fasteners into the eyes of buttons. Machine for threading	A. W. Ham	491,103	Feb. 7	62	17, 18	62	761
Button for shoes or other articles	E. T. Allan	490,595	Jan. 24	2559	659	62	561
Buttonhole-cutter	J. G. Greene	492,706	Mar. 7	38	9	62	1366
Buttonhole-cutter	A. M. Wright	492,452	Feb. 28	2209	552	62	1236
Buttonhole-facing	M. W. Lowinsky	492,731	Feb. 28	2657	658	62	1327
Buttonhole-finishing machine	F. D. Benedict	490,062	Jan. 17	1700	{443 444	62	378
Button-hooks. Forming	G. Havell	492,607	Feb. 28	2472	614	62	1290
Button. Link cuff	W. Ballou	493,468	Mar. 14	1069	282	62	1588
Button-making machine	J. T. Sheridan and J. Draber	493,794	Mar. 21	1648	420	62	1711
Button-making machines. Feeding mechanism for	C. Wooster	490,421	Jan. 24	2295	596	62	509
Button-setting machine	F. E. Hall	491,016	Jan. 31	3270	{835 836	62	714
Button-setting machine	A. W. Ham	492,397	Feb. 28	2121	{529 530	62	1218
Button-setting machine	J. Mathison	493,634	Mar 21	1390	{352 353	62	1660
Button. Shank	F. H. Hardman	489,864	Jan. 10	1337	349	62	293
Button. Sleeve	C. R. Smith	490,856	Jan. 31	2972	762	62	656
Button. Suspender	J. F. Staiger and C. Schnur	491,197	Feb. 7	225	57	62	790
Button-turning machine	M. Woods	490,937	Jan. 31	3142	806	62	690
Buttons. Device for removing shoe	P. H. Nielsen	491,948	Feb. 14	1426	356	62	1049
Buttons. Machine for forming pearl	G. Carlyle	490,471	Jan. 24	2374	614	62	524
Buttons to fabrics. Machine for securing	E. T. Allan	490,619	Jan. 24	2603	671	62	570
Cabbage-cutter	E. S. Laughlin	492,814	Mar. 7	68	16	62	1371
Cabinet. Parcel	H. B. Taylor	491,145	Feb. 7	129	35	62	774
Cable-grip	A. O. Babendreier and F. P. Davis	491,934	Feb. 14	1403	350	62	1044
Cable-grip	S. A. and O. Knoedler	493,551	Mar. 14	1237	317	62	1615
Cable-grip	J. S. Patten	493,514	Mar. 14	1169	299	62	1601
Cable-gripper	J. Walsh, Jr	492,248	Feb. 21	1889	472	62	1158
Cable-support	G. P. Wern	492,648	Feb. 28	2539	629	62	1303
Caddy	W. H. Wood	494,093	Mar. 21	2148	549	62	1805
Cake-coating machine	D. M. Holmes	493,403	Mar. 14	990	255	62	1569
Cake-cutter	W. P. McAlister	492,417	Feb. 28	2156	539	62	1225
Cake-cutter	A. A. Soderberg	490,993	Jan. 31	3237	827	62	707
Cake-machine	J. H. Mitchell	492,230	Feb. 21	1850	463	62	1150
Calcimining-machine	W. Peterson	489,828	Jan. 10	1287	337	62	282
Calendar	J. Wallin	490,618	Jan. 24	2602	670	62	569
Calipers. Beam	J. E. Clough	492,783	Mar. 7	15	5	62	1362
Calipers. Beam	G. A. Colnon	493,683	Mar. 21	1469	374	62	1676
Calking-strip. Metallic	F. W. Fincher	491,417	Feb. 7	586	147	62	860
Calking-tool	J. O. Walton	494,516	Mar. 28	2841	711	62	1948
Cam	G. Parcho	490,982	Jan. 31	3219	823	62	704
Camera: *See* Magazine-camera. Photographic camera.							
Camera	W. S. Laighton and A. P. Hitchcock	490,117	Jan. 17	1785	{465 466	62	397
Camera-lens	E. Docker	494,128	Mar. 28	2222	566	62	1834
Camera plate-holder attachment	B. L. Turner	489,512	Jan. 10	833	218	62	190
Camera-shutter	T. H. Blair and F. H. Kelley	491,921	Feb. 14	1382	{345 346	62	1040
Camera-shutter	W. H. Lewis	494,256	Mar. 28	2428	612	62	1872
Camera-shutter	E. J. Molera	490,031	Jan. 17	1654	429	62	369
Cameras. Ground-glass adjuster for	G. W. Low and W. Shakespeare, Jr.	493,365	Mar. 14	942	242	62	1559
Camp-chair. Folding	J. Harpfer	493,709	Mar. 21	1502	384	62	1682
Can: *See* Ice-cream can. Oil-can. Milk-can. Oil or gasoline can. Milk or other can.							
Can	W. Pratt	492,105	Feb. 21	1663	413	62	1111

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Can	L. P. True	490,418	Jan. 24	2292	595	62	508
Can-body-forming machine	R. D. Hume	493,588	Mar. 14	1307	333, 334, 335	62	1629
Can-body-forming machine	A. W. Livingston	489,969	Jan. 17	1535	491	62	346
Can-filling machine	J. S. Moore	490,033	Jan. 17	1656	430	62	370
Can-lacqnering machine	R. D. Hume	489,903	Jan. 10	1409	364	62	305
Can-making machine	R. Gregg	489,250	Jan. 3	419	116, 117	62	94
Can-making machine	R. Gregg	491,015	Jan. 31	3269	834, 835	62	714
Can or jar closing device	W. J. Graham	488,999	Jan. 3	35	10	62	9
Can-receptacle	F. H. Page	492,101	Feb. 21	1656	411	62	1109
Can tap and filler. Oil-	N. Hardoin	491,349	Feb. 7	489	125	62	841
Can-wiping machine	C. A. Burt	490,100	Jan. 17	1761	459	62	392
Can wrench. Fruit-	J. H. Dean	492,714	Feb. 28	2636	653	62	1323
Cans. Machine for hermetically closing	P. Willame	489,356	Jan. 3	571	154, 155	62	123
Cans. Side-seaming strip for	H. C. Hunter	492,805	Mar. 7	53	13	62	1369
Canal-digger	J. McMullen, H. Kruse, and H. S. Wood.	494,112	Mar. 21	2188	559	62	1813
Candle shade-holder	W. R. Wearn	493,198	Mar. 7	658	167	62	1487
Candy-mold	M. M. June	493,729	Mar. 21	1546	394	62	1691
Cane	R. W. Meily and G. W. Buchanan	489,385	Jan. 3	617	166, 167	62	133
Cane	O. C. Pugh	490,722	Jan. 31	2797	717	62	622
Cane and camp-stool. Combined	J. A. Nixon	494,303	Mar. 28	2499	631	62	1886
Cane and camp-stool. Combined	E. L. Sutton and C. R. Reed	490,416	Jan. 24	2288	594	62	507
Cane and seat. Combined	C. Eframson	489,294	Jan. 3	476	132	62	104
Cane and stool. Combined	J. A. Nixon	493,285	Mar. 14	812	208, 209	62	1534
Cane. Machine for splitting the ends of	H. G. Dunlap	489,225	Jan. 3	377	104	62	85
Cane. Umbrella-	R. Waples, Jr	489,351	Jan. 3	566	153	62	121
Cant-hook	D. W Reed	492,107	Feb. 21	1666	414	62	1111
Caoutchouc sheets. Machine for cutting	G. L. Hille	490,824	Jan. 31	2956	758, 759	62	653
Cap-making machine	H. Schaake	493,525	Mar. 14	1198	306	62	1606
Capo tasto	H. Dahlman	489,525	Jan. 10	853	223	62	194
Car	A. S. Desha	492,277	Feb. 21	1935	483	62	1168
Car and air-brake coupling. Combined	J. C. Smith	491,227	Feb. 7	270	67, 68	62	799
Car and train. Railway	F. U. Adams	489,911	Jan. 17	1425	373, 374, 375	62	324
Car-brake	M. E. Campany	494,505	Mar. 28	2823	708	62	1945
Car-brake	M. E. Ellsworth	491,094	Feb. 7	48	13	62	757
Car-brake	G. J. Ferguson	493,491	Mar. 14	1135	291	62	1595
Car-brake	F. Gabler	490,554	Jan. 24	2506	645	62	550
Car-brake	W. W. Hodges	490,711	Jan. 31	2780	714	62	619
Car-brake	N. Lombard	492,891	Mar. 7	187	46	62	1396
Car-brake	A. Miller	489,023	Jan. 3	66	19	62	17
Car-brake	A. Miller	490,079	Jan. 17	1726	450	62	384
Car-brake	W. J. Stahr	491,381	Feb. 7	534	136	62	850
Car-brake	W. C. Whitacre	494,503	Mar. 28	2820	707	62	1945
Car-brake	A. Young	489,842	Jan. 10	1313	342	62	288
Car-brake adjuster	F. and J. W. Cyr	491,535	Feb. 14	776	198	62	918
Car-brake. Automatic	E. W. Lace	493,100	Mar. 7	510	128	62	1460
Car-brake. Electric	W. C. Fletcher	492,492	Feb. 28	2290	569	62	1251
Car-brake. Electric	A. C. Miller	489,972	Jan. 17	1539	402	62	347
Car-brake bandle	C. D. Lyon	491,969	Feb. 14	1455	363	62	1055
Car-brake mechanism	L. Roberts and J. Wheater	491,664	Feb. 14	983	248	62	961
Car-brake-operating apparatus	M. E. Ellsworth	489,122	Jan. 3	218	58, 59	62	50
Car-brake slack-adjuster	W. W. Holmes	490,352	Jan. 24	2198	572, 573	62	491
Car-brake slack-adjuster	W. H. Marshall	490,357	Jan. 24	2203	574	62	492
Car brake. Street-	H. A. Crossley	489,465	Jan. 10	755	200	62	174
Car-buffer	T. L. McKeen	491,371	Feb. 7	518	133	62	847
Car-buffer	M. E. Wallace	489,135	Jan. 3	231	62, 63	62	53
Car buffer and end sill	J. Timms	493,371	Mar. 14	951	244, 245	62	1561
Car buffer. Railway-	T. L. McKeen	490,977	Jan. 31	3213	820	62	703
Car. Combination open and closed	J. A. and G. M. Brill	493,013	Mar. 7	379	95, 96	62	1433
Car controlling device. Electric-	J. H. Neal	494,344	Mar. 28	2567	646, 647	62	1898
Car-coupling	M. J. Althouse	491,503	Feb. 7	719	182	62	887
Car-coupling	M. J. Althouse	491,504	Feb. 7	721	182	62	887
Car-coupling	J. B. Baum and O. F. Sensabaugh	492,376	Feb. 21	2085	521	62	1197
Car-coupling	F. Bender	491,976	Feb. 21	1468	366	62	1072
Car-coupling	W. H. Brill	490,799	Jan. 31	2919	750	62	645
Car-coupling	J. H. Brown	491,467	Feb. 7	670	168	62	876
Car-coupling	P. C. Brown	494,246	Mar. 28	2411	608	62	1869
Car-coupling	T. H. Brown	492,370	Feb. 21	2075	518	62	1196
Car-coupling	H. C. Bulloup	491,397	Feb. 7	237	60	62	793
Car-coupling	J. M. Bunch	489,924	Jan. 17	1454	380	62	331
Car-coupling	M. L. Cable	490,800	Jan. 31	2920	750	62	645
Car-coupling	J. N. Campbell	490,634	Jan. 24	2653	683	62	580
Car-coupling	A. Carlson	491,668	Feb. 14	1038	263	62	973
Car-coupling	T. P. Carroll	489,791	Jan. 10	1239	324	62	272
Car-coupling	H. D. Clark	493,481	Mar. 14	1120	287	62	1592
Car-coupling	W. P. Clark	491,835	Feb. 14	1247	311	62	1014
Car-coupling	S. M. Coffman	489,894	Jan. 10	1382	359, 360	62	301
Car-coupling	F. M. Cox	493,251	Mar. 14	750	192	62	1523
Car-coupling	G. H. Crowley	488,987	Jan. 3	17	5	62	6
Car-coupling	W. W. Culbreath	493,072	Mar. 7	464	117	62	1451

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Car-coupling	C. H. Dale	494,125	Mar. 28	2219	565	62	1834
Car-coupling	I. David	491,924	Feb. 14	1389	347	62	1041
Car-coupling	L. Davis, Jr	492,275	Feb. 21	1932	492	62	1167
Car-coupling	J. S. Derrough	494,327	Mar. 28	2533	638	62	1892
Car-coupling	H. R. Dore	493,913	Mar. 21	1840	469	62	1747
Car-coupling	A. J. Edwards	489,376	Jan. 3	600	162	62	129
Car-coupling	G. Eklund	491,474	Feb. 7	680	171	62	878
Car-coupling	T. E. W. Fay	491,839	Feb. 14	1253	312	62	1015
Car-coupling	H. G. Field	491,999	Feb. 21	1501	374, 375	62	1078
Car-coupling	G. S. Gaines	490,958	Jan. 31	3180	813	62	696
Car-coupling	E. C. Garlick	489,943	Jan. 17	1496	390, 391	62	338
Car-coupling	J. B. Granger	492,328	Feb. 21	2009	500	62	1183
Car-coupling	F. Harvey and J. Kane	493,998	Mar. 21	1995	508, 509	62	1777
Car-coupling	T. Heard	489,952	Jan. 17	1510	395	62	341
Car-coupling	J. B. Hinchman and A. W. Hille	493,268	Mar. 14	777	199	62	1528
Car-coupling	C. W. Hinton	493,402	Mar. 14	988	255	62	1569
Car-coupling	J. C. Huguley	489,607	Jan. 10	970	252	62	217
Car-coupling	G. Jenkins	494,424	Mar. 28	2695	676	62	1921
Car-coupling	D. R. Jones	491,562	Feb. 14	823	209	62	928
Car-coupling	J. Joss	491,357	Feb. 7	498	128, 129	62	843
Car-coupling	B. A. Keeler	493,167	Mar. 7	618	155	62	1480
Car-coupling	W. Kelso	492,357	Feb. 21	2058	513	62	1192
Car-coupling	H. K. Knox	493,095	Mar. 7	501	125	62	1458
Car-coupling	C. Koerner	494,376	Mar. 28	2624	659	62	1909
Car-coupling	W. P. Lamp	492,029	Feb. 21	1552	387	62	1088
Car-coupling	P. Lee and J. A. O'Farrell	490,147	Jan. 17	1842	461	62	408
Car-coupling	J. C. Look	493,933	Mar. 21	1872	477, 478	62	1754
Car-coupling	J. C. Look	494,067	Mar. 21	2104	536, 537	62	1797
Car-coupling	G. W. Mahan	493,102	Mar. 7	515	129	62	1461
Car-coupling	H. H. Markley	494,539	Mar. 28	2889	724	62	1957
Car-coupling	A. C. McCord	489,492	Jan. 10	795	210	62	182
Car-coupling	A. C. McCord	489,976	Jan. 17	1546	404	62	348
Car-coupling	A. C. McCord	489,977	Jan. 17	1548	405	62	349
Car-coupling	A. C. McCord	494,219	Mar. 28	2371	599	62	1862
Car-coupling	J. McDade	489,826	Jan. 10	1286	336	62	282
Car-coupling	J. C. McEwen	491,185	Feb. 7	204	52	62	787
Car-coupling	T. L. McKeen	492,610	Feb. 28	2476	615	62	1901
Car-coupling	T. L. McKeen	493,533	Mar. 21	1713	436	62	1723
Car-coupling	W. L. McQuarrie	489,195	Jan. 3	329	90	62	74
Car-coupling	H. O. Miller	490,811	Jan. 31	2937	753, 754	62	649
Car-coupling	C. Morfit	493,638	Mar. 21	1397	354	62	1662
Car-coupling	A. F. Nesbit	490,978	Jan. 31	3214	821	62	703
Car-coupling	L. Parmley	489,639	Jan. 10	1031	269	62	230
Car-coupling	C. A. Pooley	491,589	Feb. 14	869	220	62	937
Car-coupling	J. C. Powell	489,391	Jan. 3	623	168	62	134
Car-coupling	T. W. Ranson	489,661	Jan. 10	1033	270	62	230
Car-coupling	A. H. Renshaw	489,233	Jan. 3	389	107, 108	62	87
Car-coupling	W. C. Richard and H. Hanson	491,059	Jan. 31	3348	854	62	731
Car-coupling	W. F. Richards	491,134	Feb. 7	110	30	62	770
Car-coupling	G. W. Roberson	494,167	Mar. 28	2284	579	62	1844
Car-coupling	R. S. Robertson	489,092	Jan. 3	169	46	62	40
Car-coupling	G. Runge	494,030	Mar. 21	2046	522	62	1787
Car-coupling	H. Schreyer	492,842	Mar. 7	106	26	62	1378
Car-coupling	J. M. Scurr and S. R. Cotton	493,792	Mar. 21	1644	419	62	1711
Car-coupling	J. M. Scurr and E. D. Whipple	493,793	Mar. 21	1646	419	62	1711
Car-coupling	S. Shattuck	489,393	Jan. 3	625	169	62	135
Car-coupling	S. Shepardson	492,242	Feb. 21	1882	470	62	1157
Car-coupling	R. A. Shipman	489,765	Jan. 10	1202	315, 316	62	264
Car-coupling	J. Simpson	489,992	Jan. 17	1578	413	62	354
Car-coupling	E. J. Sitler	489,421	Jan. 3	667	181	62	143
Car-coupling	J. L. Smith	490,169	Jan. 17	1872	488	62	414
Car-coupling	W. W. Smith	494,391	Mar. 28	2652	665	62	1913
Car-coupling	W. W. Smith	494,512	Mar. 28	2835	710	62	1947
Car-coupling	F. M. Stanley	490,515	Jan. 24	2447	631	62	539
Car-coupling	J. M. Stark	489,395	Jan. 3	628	169	62	135
Car-coupling	W. H. and J. T. Starkey	491,450	Feb. 7	645	161	62	871
Car-coupling	J. W. Steele	491,862	Feb. 14	1396	320	62	1023
Car-coupling	F. Stenger	491,929	Feb. 14	1395	348	62	1043
Car-coupling	J. Sterns	490,128	Jan. 17	1813	474	62	403
Car-coupling	W. W. Swank	491,612	Feb. 14	912	229	62	946
Car-coupling	J. H. Talpey	493,534	Mar. 14	1210	310	62	1608
Car-coupling	J. Tebo and A. Paquin	490,838	Jan. 31	2975	763	62	657
Car-coupling	E. R. Trammell	490,592	Jan. 24	2556	657	62	560
Car-coupling	A. Trautman	490,604	Jan. 24	2578	664	62	565
Car-coupling	W. J. Walker	491,223	Feb. 14	1229	307	62	1010
Car-coupling	W. J. Walker and L. Hammerschmidt.	489,770	Jan. 10	1211	317	62	266
Car-coupling	M. E. Wallace	491,301	Feb. 7	399	102	62	823
Car-coupling	V. Wallace	493,902	Mar. 21	1815	462	62	1743
Car-coupling	S. G. Wilber	490,004	Jan. 17	1593	416	62	357
Car-coupling	C. M. Winn	489,427	Jan. 3	679	183	62	146
Car-coupling. Safety	J. M. Roach	490,399	Jan. 24	2262	588	62	503
Car-couplings. Manufacturing	J. Munton	493,218	Mar. 7	687	176	62	1494
Car-couplings. Unlocking-lever for	J. Timms	491,388	Feb. 7	546	139	62	853

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Car-door	A. S. Desha	492,276	Feb. 21	1934	483	62	1168
Car door. Grain-	W. F. Lyon	492,926	Mar. 7	247	63	62	1167
Car door. Grain-	A. C. McCord	494,220	Mar. 28	2372	599	62	1862
Car draft device	N. Weis	490,935	Jan. 31	3139	805	62	689
Car draft-rigging	P. M. Reagan	491,785	Feb. 14	1175	294	62	998
Car. Dump-	I. Barker	489,211	Jan. 3	351	99	62	80
Car. Dumping-	E. A. Kaufman	492,904	Mar. 7	241	52	62	1400
Car. Dumping-	W. A. Thacher	489,242	Jan. 3	400	111 / 112	62	90
Car. Dumping-	W. A. Thacher	489,243	Jan. 3	404	112 / 113	62	90
Car. Dumping-	E. A. Trapp	490,324	Jan. 24	2144	559 / 560	62	480
Car. Dumping-	E. A. Trapp	493,317	Mar. 14	868	221 / 222	62	1543
Car. Electric	H. C. Womelsdorff	489,111	Jan. 3	200	53, 54	62	46
Car. Elevated-railway	C. Brown	493,969	Mar. 21	1947	496	62	1767
Car emergency-brake	H. S. Pruyn	494,081	Mar. 21	2129	544 / 545	62	1802
Car-fender	J. Goodfellow	493,705	Mar. 21	1496	383	62	1681
Car-fender	A. L. Clarke	489,848	Jan. 10	1320	344	62	989
Car-fender	H. T. Field	494,524	Mar. 28	2856	715	62	1951
Car-fender	J. Nagele	492,423	Feb. 28	2163	540	62	1226
Car fender. Electric-	G. F. Topliff and F. B. Comins	489,134	Jan. 3	230	62	62	53
Car fender. Street-	E. Rochester	494,281	Mar. 28	2171	622 / 623	62	1879
Car for transporting horses. Railway-	T. C. Rice	494,165	Mar. 28	2280	578	62	1844
Car-frame	W. A. Caswell	491,936	Feb. 14	1408	351 / 352	62	1045
Car-gate	W. Robinson	493,876	Mar. 21	1775	453	62	1735
Car. Grain-	G. W. Naylor and N. W. Foley	492,826	Mar. 7	84	20	62	1374
Car grippers. Apparatus for shipping or unshipping cable-	A. L. Whitcomb	492,428	Feb. 21	1695	422	62	1117
Car. Hand-	J. H. Pendleton and C. Tiers	492,103	Feb. 21	1658	412 / 413	62	1110
Car hand-strap. Street-	W. Randolph	492,337	Feb. 21	2025	503 / 504	62	1186
Car-heater	S. A. Flanigan	490,191	Jan. 17	1907	497	62	421
Car-heating apparatus	G. W. Rodgers	493,388	Mar. 14	973	250	62	1565
Car-heating apparatus	G. Collins	489,520	Jan. 10	853	222	62	194
Car heating apparatus. Railway-	J. F. McElroy	493,443	Mar. 14	1058	272	62	1581
Car hook. Stock-	J. F. McElroy	490,673	Jan. 31	2723	701	62	608
Car. Metallic	B. C. Hicks	491,803	Feb. 14	1204	301	62	1004
Car motor. Street-	G. M. Bird	490,469	Jan. 24	2370	613	62	523
Car-mover	J. A. Currie	492,274	Feb. 21	1930	482	62	1167
Car-mover	W. L. Carr	489,410	Jan. 3	646	175	62	139
Car. Non-telescopic railway-	S. C. Chase	493,615	Mar. 14	1358	344	62	1638
Car. Oil-tank	J. E. Page	493,597	Mar. 14	1324	338 / 339	62	1632
Car or other seats. Reversible back for	J. D. McIlwain	493,940	Mar. 21	1886	480 / 481	62	1756
Car-platform	M. N. Forney	488,992	Jan. 3	24	7, 8	62	7
Car-platforms. Folding gate for	A. C. McCord	489,978	Jan. 17	1550	405	62	349
Car. Poultry-	H. Cochran	492,139	Feb. 21	1713	426	62	1122
Car. Railway-	F. X. Mudd	489,657	Jan. 10	1029	268 / 269	62	229
Car. Railway-	F. U. Adams	489,912	Jan. 17	1429	375 / 376	62	325
Car register. Street-	C. Brown	494,319	Mar. 28	2520	635	62	1890
Car register. Street-	L. Ehrlich	490,342	Jan. 24	2173	567	62	486
Car-replacer	F. K. Fassett and G. Rein	490,345	Jan. 24	2182	568 / 569	62	487
Car-replacer	F. A. Moore	489,187	Jan. 3	315	87	62	72
Car-replacer	J. N. Stem	493,308	Mar. 14	855	213	62	1541
Car-roof	B. E. Tilden	489,109	Jan. 3	198	53	62	46
Car-roof	P. H. Murphy	489,322	Jan. 3	517	141	62	112
Car-roof covering attachment	J. P. Veronce and G. McInerney	491,909	Feb. 14	1363	340	62	1036
Car running-gear. Mining-	A. N. Monteer	491,120	Feb. 7	88	24, 25	62	766
Car. Safety-	J. Gowland	492,917	Mar. 7	216	59	62	1405
Car safety-guard	J. A. Yarger	490,529	Jan. 24	2470	636	62	543
Car sand-box. Street-	N. C. Bassett	492,932	Mar. 7	254	64, 65	62	1409
Car sanding device	E. F. De Witt	491,161	Feb. 7	161	41, 42	62	779
Car sanding device	D. A. Ghent and O. S. Colbran	494,136	Mar. 28	2233	568	62	1836
Car sanding device. Street-	E. H. Punkham	494,080	Mar. 21	2128	544	62	1801
Car-seat	A. S. Bunker	490,896	Jan. 31	3080	790	62	678
Car-seat	E. Aze and E. N. Gilfillan	491,761	Feb. 14	1133	285	62	991
Car-signal	J. S. Johnston	489,502	Jan. 10	905	230	62	204
Car-signal	C. Callahan	494,366	Mar. 28	2606	655	62	1905
Car. Sleeping-	J. G. Tomlinson	491,203	Feb. 7	232	59	62	792
Car stake-pocket	H. Pearson and C. J. Rose	489,089	Jan. 3	159	44	62	38
Car-starter	J. P. Cagigal	491,409	Mar. 28	2676	671	62	1918
Car-starter	K. J. Pihl and O. W. Huit	494,026	Mar. 21	2041	520	62	1786
Car-step	J. Ripberger	493,736	Mar. 21	1559	397	62	1694
Car step. Railway-	W. Kunz	493,932	Mar. 21	1871	477	62	1753
Car. Stock-	H. C. Farquharson	490,344	Jan. 24	2180	568	62	487
Car. Stock-	J. M. Burton	492,344	Feb. 21	2035	506 / 507	62	1188
Car. Street-	J. M. Burton	492,345	Feb. 21	2039	507 / 508	62	1188
Car. Street-	J. O. Adsit and C. H. Wickham	492,882	Mar. 7	175	42, 43	62	1393
Car. Street-	G. B. Bolton	493,242	Mar. 14	736	188 / 189	62	1521
Car. Street-	L. J. Hirt	491,107	Feb. 7	71	19	62	762
Car. Tram-	J. Stephenson	491,608	Feb. 14	904	227	62	944

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Car. Transfer-	C. Chambers, Jr	493,076	Mar. 21	1960	500	62	1769
Car-ventilator	G. W. Bancroft and C. R. Haweroft	491,068	Feb. 7	8	3	62	750
Car-ventilator	W. A. Gay	490,960	Jan. 31	3182	814	62	697
Car ventilator. Railway-	S. Hughes	490,388	Jan. 24	2248	585	62	501
Car. Vestibule railway-	G. Hancock	489,906	Jan. 10	1413	366	62	306
Car-wheel	J. W. Cloud	492,529	Feb. 28	2346	582	62	1263
Car-wheel	A. M. Lehwather	490,571	Jan. 24	2526	650	62	554
Car-wheel	H. W. Libbey	492,907	Mar. 7	220	55	62	1401
Car-wheel	W. J. Parmelee	489,496	Jan. 10	810	212	62	185
Car-wheel	W. J. Willits	491,456	Feb. 7	654	164	62	873
Car wheel-guide. Railway-	W. F. Turnbull and J. C. Councill	493,666	Mar. 21	1439	366 / 367	62	1669
Car-windows. Cinder, dust, and smoke excluder for	J. C. Fry	492,671	Feb. 28	2573	637	62	1309
Cars. Air-supply device for railway	F. U. Adams	489,910	Jan. 17	1422	370 / 371 / 372	62	324
Cars. Air-supply device for railway passenger	F. U. Adams	489,909	Jan. 17	1420	369	62	323
Cars. Apparatus for electrically-propelled	C. J. Kintner	492,627	Feb. 28	2505	621	62	1296
Cars. Automatic coupling for steam and air pipes for railway-	J. E. Marble	491,291	Feb. 7	386	98	62	821
Cars. Automatic life-guard for street-	G. A. Parmenter	489,716	Jan. 10	1121	289	62	248
Cars. Directly-connected motor for	S. H. Short	491,667	Feb. 14	989	249	62	962
Cars. Electric motor and controlling apparatus for	J. V. Capek	491,982	Feb. 21	1476	368	62	1073
Cars. Fender for electric or other	M. S. Starkweather	489,207	Jan. 3	344	97	62	79
Cars. Heating and ventilating railway-	J. J. Burwell	491,468	Feb. 7	673	169	62	877
Cars in trains. Ventilating apparatus for railway-	F. U. Adams	489,908	Jan. 17	1417	367 / 368 / 369	62	323
Cars, lumber-trucks, &c. Running-gear for mining-	J. Gowland	492,918	Mar. 7	237	59	62	1405
Cars. Switch for electrical tram-	M. Immisch	491,483	Feb. 7	691	174 / 175	62	881
Cars. Track-sanding device for street-	C. W. Sherburne	494,283	Mar. 28	2473	623	62	1879
Caramel-holder	R. A. Donaldson	489,858	Jan. 10	1398	347	62	291
Carbon. Arc-light	J. McLaughlin	491,124	Feb. 7	94	26	62	767
Carbon filaments for electric lamps. Manufacture of	T. A. Edison	490,954	Jan. 31	3175	.....	62	696
Carbonaceous materials. Production of artificial crystalline	E. G. Acheson	492,767	Feb. 28	2722	678	62	1340
Carbureting apparatus	J. Ruthven	494,442	Mar. 28	2719	681	62	1925
Carbureting apparatus. Air-	P. H. Fontaine	493,992	Mar. 21	1985	506 / 507	62	1775
Carbureting apparatus. Air-	P. H. Irgens	493,165	Mar. 7	615	154	62	1479
Carbureting apparatus. Gas or air	J. Love	490,972	Jan. 31	3200	818	62	700
Card mounting machine. Fillet-	J. S. Dronsfield	492,716	Feb. 28	2637	653 / 654	62	1323
Card. Playing-	F. Ames	491,302	Feb. 7	400	103	62	823
Card-setting machines. Feed mechanism for	W. Walton	493,136	Mar. 7	567	141 / 142	62	1470
Card-stacking machine	C. A. Wright	492,130	Feb. 21	1699	423	62	1118
Card-table. Folding	A. A. Griffin	493,925	Mar. 21	1850	474	62	1751
Cards, &c. Packing-case for	S. J. Murray	494,218	Mar. 28	2370	598	62	1862
Carding-cylinders. Device for holding and stretching card-clothing while being attached to	H. C. Kitching	492,404	Feb. 28	2137	534	62	1221
Carding-engine	L. Clarenbach, Jr., and E. Zoll	493,752	Mar. 21	1588	404	62	1699
Carding-engine coiler	F. A. Flather	491,209	Feb. 7	239	60, 61	62	793
Carding-engine. Revolving-flat	O. L. Owen	493,408	Mar. 14	996	257	62	1570
Carding-engines. Actuating mechanism for doffer-combs of	W. P. Canning	492,537	Feb. 28	2360	586	62	1267
Carding-engines. Actuating mechanism for doffer-combs of	C. L. Hildreth	492,533	Feb. 28	2350	583	62	1264
Carding-engines. Apparatus for grinding flats of	J. Jones	491,356	Feb. 7	497	128	62	842
Carding-engines. Device for adjusting the bends of traveling-flat	A. Hitchon	494,422	Mar. 28	2692	675	62	1921
Carding-engines. Rubbing belt or apron for	J. Barker	489,281	Jan. 3	462	128	62	101
Carding machine spring-presser	J. D. Stanwood	491,143	Feb. 7	128	34	62	773
Carding-machine stopping mechanism	I. F. Lawry	493,870	Mar. 21	1768	451	62	1734
Carpet-fastener	J. R. Gallinger and T. C. De Lisle	493,699	Mar. 21	1489	381	62	1680
Carpet-fastener	N. M. Harrison	493,401	Mar. 14	988	255	62	1569
Carpet-fastener	G. Klenk	489,016	Jan. 3	58	17	62	15
Carpet-lining, packing, &c.	T. D. Holcomb	493,929	Mar. 21	1863	475	62	1752
Carpet-stretcher	S. Talbert and J. Murphy	489,769	Jan. 10	1210	317	62	265
Carpet-stretcher	E. Wilcox	492,857	Mar. 7	127	32	62	1382
Carpet-stretcher and tacker	J. A. Stephens	492,771	Feb. 28	2722	679	62	1341
Carpet-stretcher and tacker. Combined	E. L. McDivitt	492,045	Feb. 21	1574	391	62	1093
Carpet-sweeper	S. H. Raymond	491,954	Feb. 14	1432	357	62	1050
Carpet-sweeper. Corner and base	J. W. Roop	490,589	Jan. 24	2550	657	62	559
Carriage	J. Currier and F. Ellis	492,461	Feb. 28	2228	557	62	1240
Carriage	J. Spofford, Jr	492,477	Feb. 28	2250	562	62	1244
Carriage. Child's	G. B. Best	492,656	Feb. 28	2554	632	62	1306
Carriage. Child's	A. A. Hanson	490,114	Jan. 17	1783	464	62	397
Carriage folding seat	H. A. Mover	490,080	Jan. 17	1727	450	62	385
Carriage gear. Child's	C. W. Jeffries	490,289	Jan. 24	2089	545	62	468
Carriage-seat	O. Morrill and H. P. Wells	492,414	Feb. 28	2152	538	62	1224
Carriage-springs	P. Woods	490,594	Jan. 24	2558	658	62	561
Carriage. Three-wheeled	G. Rouy	490,400	Jan. 24	2264	588	62	504
Carriage-top crate	B. B. Breed	491,869	Feb. 14	1304	322	62	1024
Carriages. Sleigh-runner attachment for baby-	W. P. Tarrant	493,416	Mar. 14	1006	259	62	1572
Carrier: *See* Baggage-carrier.							
Carrier attachment	E. W. Ross	492,751	Feb. 28	2687	667 / 668	62	1332
Cart. Road-	C. Fahrney	490,278	Jan. 24	2070	541	62	464
Cartridge-filler	L. R. Smith	492,171	Feb. 21	1769	442	62	1134
Cartridge-reloader	G. W. Chambers and B. F. Gruver	492,324	Feb. 21	2002	498	62	1182

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Case: *See* Bookcase. Book and package case. Cigar-case. Display glove-case. Egg-case. Gun-case. Label-case. Map-case. Prescription-case. Sample-case. Show-case. Thread-case. Watchcase.							
Case	C. C. Wientge	489,426	Jan. 3	678	183	62	146
Cash and package carrier apparatus	S. W. Barr	490,533	Jan. 24	2477	638, 639	62	515
Cash and parcel carrier apparatus	W. H. Albach	490,093	Jan. 17	1749	456	62	390
Cash and parcel carrier apparatus	E. A. Owen	491,130	Feb. 7	99	27, 28	62	708
Cash-carrier apparatus	H. M. Weaver	490,695	Jan. 31	2754	709	62	613
Cash-indicator	J. P. Smith	493,306	Mar. 14	852	217	62	1541
Cash indicator and register	E. H. Murdock	489,085	Jan. 3	153	42	62	37
Cash-recorder	A. J. Walters	491,150	Feb. 7	136	36, 37	62	775
Cash-register	J. M. Cripe	490,640	Jan. 31	2663	686, 687	62	597
Cash-register	L. S. Field	490,647	Jan. 31	2673	688	62	598
Cash-register	R. T. Houk	492,992	Mar. 7	331	83	62	1425
Cash-register	R. T. Houk	492,993	Mar. 7	334	84	62	1425
Cash-register	W. P. Huffman	489,228	Jan. 3	384	106	62	86
Cash-register	T. Long	492,035	Feb. 21	1559	388, 389	62	1089
Cash-register	H. M. Neer	490,304	Jan. 24	2110	549, 550, 551	62	472
Cash-register	W. K. Nichols	493,557	Mar. 11	1257	322	62	1618
Cash-register	F. C. Osborn	491,022	Jan. 31	3287	839, 840	62	718
Cash-register	J. Pfeifer	491,587	Feb. 14	860	218, 219	62	936
Cash-register	F. A. L. Sneckner	492,974	Mar. 7	320	81	62	1423
Cash register and indicator	J. B. Aufuldish	492,454	Feb. 28	2213	553, 554	62	1236
Cash register and indicator	F. L. Bailey	493,571	Mar. 14	1280	327, 328	62	1623
Cash register and indicator	A. I. Blanchard	489,177	Jan. 3	294	81, 82	62	67
Cash register and indicator	T. Carney	490,898	Jan. 31	3082	791, 792	62	679
Cash register and indicator	W. F. Z. Desant	492,761	Feb. 28	2709	673, 674	62	1337
Cash register and indicator	W. R. Fowler	494,374	Mar. 28	2617	657, 658	62	1907
Cash register and indicator	H. J. Gilbert	491,546	Feb. 14	790	201, 202	62	921
Cash register and indicator	M. N. Lovell	489,382	Jan. 3	608	163, 164	62	131
Cash register and indicator	M. N. Lovell	489,383	Jan. 3	612	164, 165, 166	62	132
Cash register and indicator	H. M. Neer	491,020	Jan. 31	3276	837, 838, 839	62	715
Cash register and indicator	U. B. Newman	489,086	Jan. 3	155	43	62	37
Cash register and indicator	H. C. Pritchard	491,593	Feb. 14	880	222	62	939
Cash register and indicator	E. T. Taylor	494,534	Mar. 28	2876	720	62	1954
Cash register and indicator	H. G. and C. F. Walter	492,897	Mar. 7	197	49	62	1397
Cash register and indicator	P. Yoe	490,466	Jan. 24	2363	612	62	522
Cash register and till	A. L. Crawford	491,876	Feb. 14	1318	326	62	1027
Cash-register. Barber's	M. J. Sarsfield	494,087	Mar. 21	2137	547	62	1803
Cash-registers. Tablet and key locking device for	M. N. Lovell	489,384	Jan. 3	616	166	62	133
Casing-spear	P. H. Mack	492,371	Feb. 21	2075	519	62	1196
Cask-steaming apparatus	J. M. Chambers	492,346	Feb. 21	2040	508	62	1189
Casket-handle	J. McCarthy	491,192	Feb. 7	91	25	62	766
Caster	S. Chambers	490,424	Jan. 24	2298	597	62	509
Caster	P. J. Lennard	491,710	Feb. 14	1056	267	62	976
Caster. Ball	A. M. Leinwather	494,009	Mar. 21	2016	514	62	1781
Caster. Furniture	J. Elwood	490,016	Jan. 17	1629	424	62	364
Caster. Furniture	C. A. Fellows	492,624	Feb. 28	2501	620	62	1295
Caster-wheel	M. Lachman	492,924	Mar. 7	245	62	62	1407
Casting apparatus. Metal	W. S. Simpson	493,047	Mar. 7	430	108	62	1443
Casting apparatus. Stereotype	F. J. Wendell	492,448	Feb. 28	2201	550	62	1234
Casting ingots. Apparatus for	T. Kaye	491,213	Feb. 7	250	62	62	795
Casting hard-metal or chilled rolls	H. Reusch and B. Preu	492,874	Mar. 7	164	39	62	1391
Casting sash-weights. Apparatus for	A. C. Bruce and J. W. Warnock	490,184	Jan. 17	1898	434	62	419
Castings-separator	W. W. Doolittle	490,274	Jan. 24	2064	539, 540	62	463
Cattle-guard	J. J. Callaghan and A. R. Horn	489,601	Jan. 10	963	250	62	215
Cattle loading and unloading device	P. Friederich	492,002	Feb. 21	1506	376	62	1080
Ceiling. Metallic	L. J. Cherest	490,186	Jan. 17	1901	495	62	420
Ceiling or wall	E. Reisa	492,109	Feb. 21	1666	414	62	1112
Ceiling-plate. Metallic	L. L. Sagendorph	489,236	Jan. 3	393	108	62	88
Cement	B. Dreyfuss	491,280	Feb. 7	348	.....	62	815
Cement. Compound for retarding the setting of	E. A. Bronson	493,613	Mar. 14	1356	.....	62	1638
Cement. Non-inflammable	R. J. Doyle	490,548	Jan. 24	2498	.....	62	549
Centerboard	J. Couch	492,785	Mar. 7	19	5	62	1363
Centrifugal machine	G. Proeber	489,166	Jan. 3	276	77	62	64
Centrifugal machine	J. Schmerber	493,900	Mar. 21	1812	461	62	1742
Centrifugal machine	C. Steffen	489,643	Jan. 10	1013	263	62	226
Centrifugal separator	P. M. and D. T. Sharples. (Reissue)	11,311	Feb. 28	2731	680	62	1342
Centrifugal separators. Crank connection for	J. Bernström	489,140	Jan. 3	239	66	62	55
Ceramic boiler	A. P. Creque	491,083	Feb. 7	33	9	62	754

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Drg.	Official Gazette. Vol.	Page.
Chain	L. Herman	490,409	Jan. 24	2275	590	62	506
Chain	G. G. Howe	494,423	Mar. 28	2693	676	62	1921
Chain and the manufacture thereof	A. Shedlock	492,439	Feb. 28	2189	547	62	1231
Chain-link manufacture	W. H. Hart	489,252	Jan. 3	424	118	62	94
Chains. Shield or covering for drive	S. Elliott	491,750	Feb. 14	1113	281, 282	62	987
Chair: *See* Camp-chair. Convertible chair. Dental chair. Folding chair. Opera-chair. Rail-chair. Reclining-chair. Suspended chair.							
Chair	C. F. J. Behr	490,334	Jan. 24	2164	564	62	484
Chair	C. B. Halsey	491,724	Feb. 14	1077	272	62	980
Chair	W. Seng	490,366	Jan. 24	2216	578	62	495
Chair and brace. Combined	A. Yose	491,300	Feb. 7	397	102	62	823
Chair and table. Combined	C. H. Read	493,386	Mar. 14	971	250	62	1565
Chair-base	B. Poulson	491,590	Feb. 14	873	220	62	938
Chair fan attachment	E. E. Koken	492,554	Feb. 28	2390	593	62	1274
Chair-pad	P. A. Tornwall	490,234	Jan. 17	1980	519	62	435
Chair-seats. Machine for weaving cane for	J. J. Totman and E. G. Wheeler	491,325	Feb. 7	441	114	62	832
Chair stirrup attachment	C. W. Greenwood	494,139	Mar. 28	2238	570	62	1837
Chairs. Electrical attachment for rocking	F. E. Case	490,540	Jan. 24	2487	641	62	546
Chairs. Fan attachment for rocking	C. E. Hartelius	493,997	Mar. 21	1994	508	62	1777
Charm or other article of jewelry. Watch-chain	J. Martin	494,213	Mar. 28	2360	597	62	1860
Check. Baggage	S. A. Stahl and B. Klipper	491,392	Feb. 7	536	136	62	850
Check, draft, money-order, or similar instrument. Blank	A. J. Gulick	490,806	Jan. 31	2929	752	62	647
Check, draft, or the like	W. T. Doremus	490,951	Jan. 31	3169	812	62	694
Check-holding apparatus	J. F. Schafer	493,223	Mar. 7	701	179	62	1496
Check or token and missive. Combined	A. N. Southwick	492,441	Feb. 28	2192	548	62	1232
Check-register	J. P. Stout	490,048	Jan. 17	1678	436	62	374
Checkrein	C. T. Daniels	493,985	Mar. 21	1977	504	62	1773
Checkrein attachment	A. W. Cox	493,353	Mar. 14	916	235	62	1553
Checkrein-guide	J. Perkins	493,515	Mar. 14	1171	299	62	1601
Check-rower	J. R. Sturgeon	494,368	Mar. 28	2504	632	62	1887
Cheese-press	R. Chadwick	490,268	Jan. 24	2054	537	62	461
Chenille-cutting machine	J. L. Helmer	490,284	Jan. 24	2081	543	62	466
Chenille twisting and winding machine	O. Lever and W. S. Grundy	491,218	Feb. 7	257	64	62	797
Chill. Sectional	J. H. Clasen	489,370	Jan. 3	592	159, 160	62	127
Chimney-cleaner	T. A. Griffin	489,474	Jan. 10	765	202	62	176
Chimney-cowl	P. Teeple	490,374	Jan. 24	2231	580	62	497
Chimney-door	W. H. Ashton	494,454	Mar. 28	2740	687	62	1929
Chimney or flue cowl	J. Hohenreiner	491,735	Feb. 14	1092	276	62	983
Chimney-protector	J. L. Charvat	489,459	Jan. 10	744	198	62	172
Chimney-top	O. W. Boston	490,536	Jan. 24	2481	639	62	545
Chimney-top. Revolving	E. Finch	491,678	Feb. 14	1004	253	62	965
Chimneys, flues, &c. Cap for	L. Iwan and W. Reiferscheid	493,430	Mar. 14	1032	267	62	1577
Chloride-of-lime dissolver	H. Moeller	491,848	Feb. 14	1272	315	62	1018
Chlorine and caustic soda. Apparatus for the production of	G. M. Newhall and C. L. Hamilton	489,261	Jan. 3	435	120, 121	62	96
Chlorine. Preparing liquid	J. Greenwood	489,677	Jan. 10	1058	275, 276	62	236
Chloroform. Purifying	E. B. Cutten	491,699	Feb. 14	1039	263	62	973
Chopper: *See* Cotton-chopper. Culinary chopper. Potato-chopper. Stalk-chopper.	R. P. Pictet	489,592	Jan. 10	947	247	62	212
Christmas-tree candle-holder	W. Grau	493,161	Mar. 7	607	152	62	1478
Chronograph. Personal-equation	L. D. Wells	493,346	Mar. 14	907	232, 233	62	1551
Chuck	F. Blessing	489,862	Jan. 10	1333	348	62	292
Chuck	C. M. Conradson	489,934	Jan. 17	1482	387	62	335
Chuck	W. J. Hoggson and E. P. Bement	493,502	Mar. 14	1156	295	62	1598
Chuck	A. Mnir	493,231	Mar. 7	712	182	62	1498
Chuck and drill	H. Meister	492,733	Feb. 28	2660	659	62	1328
Chuck and rod-feeder. Automatic	C. M. Conradson	490,863	Jan. 31	3006	771, 772	62	664
Chuck. Drill	C. E. Billings	493,857	Mar. 21	1749	445	62	1731
Chuck. Drill	S. C. Thompson	489,722	Jan. 10	1132	293	62	250
Chuck. Screw-machine	C. M. Conradson	489,933	Jan. 17	1480	387	62	335
Chuck. Spindle	J. R. Hopkins	489,006	Jan. 3	45	13	62	12
Chucking-machine and gage-lathe	P. Dosch	490,406	Jan. 24	2270	590	62	505
Churn	H. C. Alexander	491,917	Feb. 14	1376	343	62	1039
Churn	E. Alpaugh	493,006	Mar. 7	372	93	62	1432
Churn	H. C. Atkinson	492,654	Feb. 28	2551	632	62	1305
Churn	W. N. Cason	493,681	Mar. 21	1465	373	62	1675
Churn	A. C. Fell	491,677	Feb. 14	1003	253	62	965
Churn	W. Gibson	493,825	Mar. 21	1703	434	62	1721
Churn	T. W. Hambric	491,644	Feb. 14	957	240	62	956
Churn	J. R. Hayslit	494,392	Mar. 28	2343	593	62	1857
Churn	J. A. Kernodle	491,737	Feb. 14	1096	277	62	984
Churn	I. Key	491,055	Jan. 31	3345	853	62	730
Churn	W. F. Martin	494,430	Mar. 28	2703	678	62	1923
Churn	N. Monday	489,872	Jan. 10	1347	351	62	295
Churn	J. Phegley	492,945	Mar. 7	274	70	62	1413
Churn	S. J. Saxon	489,833	Jan. 10	1295	338	62	285
Churn	J. M. Tedlock	493,535	Mar. 14	1212	310	62	1609
Churn	F. Wiley	490,730	Jan. 31	2809	720	62	624
Churn and butter-worker. Combined	R. B. Disbrow	490,105	Jan. 17	1768	460, 461	62	393
Churn and butter-worker. Combined	J. Overhalser	494,222	Mar. 28	2377	600	62	1863
Churn-dasher	F. M. Lucas	493,828	Mar. 21	1707	435	62	1722
Churn-dasher	J. B. Siewers	489,336	Jan. 3	545	147	62	117

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g	Official Gazette. Vol.	Official Gazette. Page.
Churn-motor	J. H. Dameron	493,822	Mar. 21	1700	433	62	1720
Churn-operating mechanism	D. F. Casey	489,155	Jan. 3	262	73	62	61
Churn-power	C. W. Patton	493,388	Mar. 14	817	209	62	1535
Churn-power	T. J. Price	492,429	Feb. 28	2171	543	62	1228
Chute. Ash-	T. Connor	491,960	Feb. 14	1443	359	62	1053
Chute. Coal-	I. Burnett	489,926	Jan. 17	1459	381	62	332
Chute. Coal-	J. Forman	492,281	Feb. 21	1939	484	62	1169
Chute. Coal-	F. G. Susemihl	493,949	Mar. 21	1904	495	62	1760
Cider mill and press	D. P. Brunney	490,335	Jan. 24	2165	565	62	484
Cigar	L. M. Harris	492,676	Feb. 28	2580	668	62	1310
Cigar	A. B. Swope	489,397	Jan. 3	631	170	62	136
Cigar-bunching machine	C. Browning	494,521	Mar. 28	2849	713, 714	62	1949
Cigar-bunching machine	H. Schmidt, A. Merunka, and C. J. Werner.	492,438	Feb. 28	2184	546, 547	62	1231
Cigar-case	G. Westacott	492,127	Feb. 21	1694	422	62	1117
Cigar-cutter and electric lighter. Combined	A. Huot	493,030	Mar. 7	407	102	62	1439
Cigar-cutting and lighting device	P. Klemann	489,818	Jan. 10	1275	314	62	980
Cigar-fillers. Apparatus for making	N. H. Borgfeldt	494,362	Mar. 28	2601	653	62	1904
Cigar-fillers. Apparatus for making	N. H. Borgfeldt	494,363	Mar. 28	2602	653	62	1904
Cigar-lighter. Electric	W. M. Thomas	494,091	Mar. 21	2146	548	62	1805
Cigar-maker's gage	C. S. B. Moffat and J. A. Messina	489,025	Jan. 3	70	20	62	18
Cigar-moistener	A. Alford	493,347	Mar. 14	909	233	62	1551
Cigar-mold	J. Prentice	493,292	Mar. 14	892	210	62	1536
Cigar or cigarette holder	J. J. Baumgartner and H. Dreifuss	491,631	Feb. 14	937	235	62	951
Cigar or cigarette holder	M. C. Roebel	491,744	Feb. 14	1105	279	62	986
Cigar-wrapping machine	G. Hesse	492,203	Feb. 21	1815	454, 455	62	1143
Cigarette-machine	A. E. Deconflé	493,688	Mar. 21	1473	375, 376, 377, 378	62	1677
Cigarette-machine. Pocket	G. H. Zink	489,357	Jan. 3	572	155	62	127
Cigarette-mouthpieces. Machine for making	P. Blache	493,472	Mar. 14	1103	283, 284	62	1589
Cigarette-paper. Machine for manufacturing tubes of	P. V. M. Blache	492,264	Feb. 21	1915	477, 478	62	1164
Cigarette-rolling case	E. Schmidt	494,445	Mar. 28	2725	683	62	1926
Cinder and smoke consuming apparatus	F. Little	491,738	Feb. 14	1097	277, 278	62	984
Circuit-breaker. Automatic	D. Irish and J. G. Williams	492,807	Mar. 7	56	13	62	1369
Circuit-breaker for motors. Automatic	R. T. Lozier	492,036	Feb. 21	1561	389	62	1090
Circuit-closer. Thermal	E. Thomson	490,839	Jan. 31	2976	764	62	658
Circuit closer. Time-	R. H. Twigg	491,692	Feb. 14	1028	260	62	971
Cisterns. Device for removing débris from	G. D. Wilson	493,139	Mar. 7	571	143	62	1471
Clamp: *See* Basin-clamp. Colter-clamp. Floor-clamp. Hose-clamp. Loom warp-clamp. Picture-frame clamp. Screw-clamp. Sucker-rod clamp.							
Clamp	J. Bahret	489,782	Jan. 10	1228	322	62	269
Clamp	P. E. Bourassa	491,633	Feb. 14	939	236	62	952
Clamp	W. H. Robinson	493,118	Mar. 7	539	135	62	1465
Clamping device. Ball-and-socket-joint	E. M. Low	490,150	Jan. 17	1846	482	62	409
Clasp: *See* Belt-clasp.							
Clasp	G. E. Adams	489,891	Jan. 10	1376	358	62	300
Clasp	W. W. Anderson	489,781	Jan. 10	1227	321	62	269
Clasp	I. Coe	491,079	Feb. 7	29	8	62	754
Clay-mill	C. W. Vaughn	494,515	Mar. 28	2840	710, 711	62	1948
Clay to make ballast, &c. Burning	W. and H. G. Butler	491,764	Feb. 14	1138	286	62	992
Cleaner: *See* Boiler-tube cleaner. Chimney-cleaner. Dish-cleaner. Flue-cleaner. Grain-cleaner. Gun-cleaner. Hoof-cleaner. Oat-cleaner. Plow-cleaner. Sewer-cleaner. Track-cleaner. Window-cleaner.							
Clip: *See* Bicycle gun-clip. Insulator-clip. Tug-clip. Vehicle-clip. Whiffletree-clip.							
Cloak and skirt-protector. Combined	L. Sittig	489,103	Jan. 3	191	51	62	45
Clock	A. M. Lane	492,813	Mar. 7	66	15, 16	62	1371
Clock. Alarm-	E. B. Winger	491,328	Feb. 7	445	115	62	832
Clock-case sash	A. M. Lane	492,031	Feb. 21	1553	387	62	1088
Clock. Electric	J. H. Dyson	491,339	Feb. 7	462	120	62	836
Clock. Electric program-	A. J. Reams	492,971	Mar. 7	314	80	62	1421
Clock-movement	A. Kohl	494,145	Mar. 28	2250	573	62	1839
Clock. Self-winding electric	E. Klahn	491,945	Feb. 14	1421	355	62	1048
Clock striking mechanism. Electric	W. Kalsling	493,777	Mar. 21	1622	413	62	1706
Closet: *See* Water-closet.							
Cloth drying, tentering, and trimming machine	E. H. Schofield	494,492	Mar. 28	2797	701	62	1940
Cloth-folding machine	R. T. Smith	492,116	Feb. 21	1678	418, 419	62	1114
Cloth-napping machine	G. and H. Bauche	494,052	Mar. 21	2077	531	62	1792
Cloth-napping machine	W. T. Leech and G. Himelspark	493,215	Mar. 7	683	174, 175	62	1492
Cloth-napping machine	F. Martinot	494,152	Mar. 28	2261	575	62	1840
Cloth-notcher	F. J. Stolle	491,253	Feb. 7	306	78	62	807
Cloth. Pulley for feeding	J. Edmunds	494,131	Mar. 28	2226	567	62	1835
Cloth-scouring machine	M. H. Kohlrausch	493,627	Mar. 21	1381	351	62	1659

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g	Official Gazette. Vol.	Official Gazette. Page.
Clothes-drier	C. C. F. Brandt	490,943	Jan. 31	3154	808	62	692
Clothes-drier	C. Brolowska	490,843	Jan. 31	2981	764	62	658
Clothes-drier	M. C. Burr	494,247	Mar. 28	2412	608	62	1869
Clothes-drier	R. Z. Curtis	491,987	Feb. 21	1484	370	62	1075
Clothes-drier	J. F. Hanson	489,305	Jan. 3	495	137	62	108
Clothes-drier	W. E. B. Harris	494,141	Mar. 28	2246	572	62	1838
Clothes-drier	E. F. Hines and H. V. Gibson	492,015	Feb. 21	1529	392	62	1084
Clothes-drier	G. A. Leighton	490,570	Jan. 24	2525	650	62	554
Clothes-drier	J. McKinnon. (Reissue)	11,310	Feb. 28	2730	679	62	1341
Clothes-drier	A. M. McLeran	493,596	Mar. 14	1302	338	62	1632
Clothes drier	W. F. Redding	490,361	Jan. 24	2211	576	62	494
Clothes-drier	G. Tyler	493,880	Mar. 21	1780	454	62	1737
Clothes-drier	T. Ward	490,380	Jan. 24	2237	582	62	499
Clothes-hanger	T. M. Garrison	490,145	Jan. 17	1840	480	62	408
Clothesline	G. A. Whitton	491,032	Jan. 31	3009	844	62	723
Clothesline holding and operating device	J. J. Kinman	492,628	Feb. 28	2507	621	62	1297
Clothesline-pulley	E. Fanteux	491,998	Feb. 21	1501	374	62	1078
Clothesline-support. Safety	T. Rasmus	494,162	Mar. 28	2275	577	62	1843
Clothesline swinging support	C. and C. C. J. Gedde	490,385	Jan. 24	2244	584	62	500
Clotheslines. Clothes-fastener for wire	K. F. Rice and J. P. Doss	492,835	Mar. 7	95	23	62	1376
Clothes-pin	W. E. Crump	494,414	Mar. 28	2602	673	62	1919
Clothes-pin	J. B. Lockwood	490,971	Jan. 31	3199	817	62	700
Clothes-pin. Movable	W. C. Popplewell	493,516	Mar. 14	1172	299	62	1601
Clothes-pounder	W. G. Beaver	492,774	Mar. 7	4	1	62	1350
Clothes-pounder	A. C. McKinney	491,685	Feb. 14	1016	257	62	969
Clothes-pounder	G. Seger	491,448	Feb. 7	643	160	62	870
Clothes-pounder	H. O. Soper and W. M. Brown	489,506	Jan. 10	827	216	62	189
Cloud-creator or nebulator	S. Mackaye	490,481	Jan. 24	2388	618	62	527
Clover-hulling machine	A. Miller	491,740	Feb. 14	1100	278	62	984
Clutch	J. Fraser	492,035	Feb. 28	2502	620	62	1296
Clutch	C. K. Pickles	491,444	Feb. 7	628	157	62	868
Clutch	A. M. White	489,280	Jan. 3	461	128	62	101
Clutch	F. R. White	489,279	Jan. 3	459	127	62	101
Clutch. Friction-	J. Walrath	490,002	Jan. 17	1590	416	62	357
Clutch. Friction-	W. W. Wells and H. E. Tidmarsh	493,608	Mar. 14	1348	343	62	1637
Clutch mechanism	T. Griswold, Jr	491,169	Feb. 7	180	46	62	782
Clutch mechanism for power-presses	F. M. Leavitt	490,715	Jan. 31	2784	715	62	620
Clutch. Outside friction-band	J. B. Taplin	489,045	Jan. 3	101	28	62	26
Clutch. Self-adjusting friction-	F. M. Shaw, J. R. Methven, and G. M. Sharp.	494,173	Mar. 28	2291	580	62	1846
Clutch. Valve-controlling	J. P. Tirrell	489,424	Jan. 3	673	182	62	145
Coal elevating and conveying apparatus	S. Winslow	489,886	Jan. 10	1369	356	62	398
Coal feeder and stoker. Automatic	W. Oehlstrom	489,542	Jan. 10	875	229	62	198
Coal-moving apparatus	E. D. Johnston	493,272	Mar. 14	785	203	62	1529
Coal or ore jigger	V. H. Rood	490,793	Jan. 31	2912	748, 749	62	644
Coat-collar supporter	W. P. Culver	491,337	Feb. 7	460	119	62	835
Coat-sleeve protector	R. A. P. Meade	489,567	Jan. 10	911	238	62	205
Cock. Gage-	J. D. Mitchell	490,157	Jan. 17	1855	484	62	411
Coffee-grinding mill	E. Schmidlin	493,655	Mar. 21	1423	362	62	1666
Coffee-mill	J. B. Quiggle	490,163	Jan. 17	1865	486	62	413
Coffee or tea pot	G. W. Goodwyn	491,478	Feb. 7	685	179	62	880
Coffee-pot	W. C. Jones	494,306	Mar. 28	2351	594	62	1858
Coffee-pot handle. Detachable	M. C. Woodward	491,001	Jan. 31	3045	829	62	709
Coffee-roasting apparatus	H. Trillich	493,606	Mar. 14	1341	349	62	1636
Coffin	W. J. Leonhardt	494,297	Mar. 28	2491	628	62	1884
Coffin-fastener	L. G. Kregel	493,666	Mar. 7	502	125	62	1458
Coin-actuated boxes. Detecting apparatus for	G. A. Taubenschmidt	492,592	Feb. 28	2445	608	62	1285
Coin-actuated machine	W. A. Smith	491,196	Feb. 7	223	56, 57	62	790
Coin and slot machine	C. P. Young	492,178	Feb. 21	1781	445	62	1136
Coin-controlled apparatus	M. Slough	492,535	Feb. 28	2455	585	62	1265
Coin-controlled apparatus. Fraud-preventive device for	O. Anschütz	489,667	Jan. 10	1044	272	62	232
Coin-controlled lock	W. Eglin	493,209	Mar. 7	675	172, 173	62	1491
Coin-delivering device	H. Broome	489,863	Jan. 10	1335	348	62	292
Coin-freed machine	J. G. Cumming	493,821	Mar. 21	1698	432	62	1720
Coin-freed machine	W. L. Madgen	490,450	Jan. 24	2333	605	62	516
Coin-freed machine for the automatic sale of newspapers.	G. Salter and J. Hughes	494,444	Mar. 28	2721	682, 683	62	1926
Coin-receiving apparatus	C. C. Clawson	493,544	Mar. 14	1226	314	62	1612
Coke-oven	G. Hoffmann	492,400	Feb. 28	2125	531, 532	62	1219
Collar coupling. Breast-	R. C. Tambs	493,311	Mar. 14	860	219	62	1542
Collar-fastener	C. Everitt	489,796	Jan. 10	1245	326	62	273
Collar fastener. Horse-	H. Hart	490,292	Jan. 24	2078	542	62	465
Collar fastener. Horse-	T. Karges	492,023	Feb. 21	1544	385	62	1086
Collar. Horse-	A. T. Osbron	493,513	Mar. 14	1168	299	62	1600
Collar. Horse-	W. C. Agnew	491,065	Feb. 7	1	1	62	749
Collar. Horse-	H. W. Ross	493,299	Mar. 14	841	214	62	1538
Color-disk rotating machine	M. Bradley	492,604	Feb. 28	2468	613	62	1290
Coloring-matter from fustic and preparing same. Solid	P. T. Austen	492,368	Feb. 21	2073	.....	62	1195
Coloring-matter from logwood and preparing same	P. T. Austen	491,972	Feb. 14	1463	.....	62	1057
Coloring or burnishing composition	J. F. Thompson	494,514	Mar. 28	2839	.....	62	1948
Colter clamp Plow-	G. A. Lambert	491,895	Feb. 14	1346	334	62	1033
Column. Metallic-	W. C. Gholson	492,518	Feb. 28	2329	578	62	1259
Comb: *See* Carry-comb.							
Combing machine. Wool-	J. and T. Sharpe	492,169	Feb. 21	1767	441	62	1133
Combing machine. Wool-	J. and T. Sharpe	492,170	Feb. 21	1768	441	62	1133
Combination-gage	O. W. Schaum	494,169	Mar. 28	2287	579	62	1845
Combination-lock	J. D. Craig	491,158	Feb. 7	153	40	62	778
Combination-lock	J. D. Craig	491,159	Feb. 7	158	40, 41	62	779

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Combination-lock	J. W. Estes	493,259	Mar. 14	761	194, 195	62	1526
Combination-lock	W. W. Powell	489,091	Jan. 3	164	45, 46	62	39
Combination-lock	W. A. Schenck	491,598	Feb. 14	892	224	62	941
Combination-wrench	W. H. Huston	490,789	Jan. 31	2906	747	62	643
Comminuting-machine	H. A. Hannum. (Reissue)	11,298	Jan. 3	712	190, 191	62	153
Commutating apparatus for dynamo-electric machines.	E. J. Houghton and W. White	492,291	Feb. 21	1950	487	62	1171
Commutator-brush	C. O. C. Billberg	490,183	Jan. 17	1897	494	62	419
Commutator-brush and holder	J. F. McLaughlin	490,081	Jan. 17	1728	451	62	385
Commutator-brush holder	C. F. Goodrich	489,185	Jan. 3	311	86	62	71
Commutator for dynamo-electric machines and constructing same.	A. W. Meston	493,439	Mar. 14	1051	271	62	1580
Commutator for dynamos and electric motors	H. Groswith and R. Ashley	489,000	Jan. 3	36	10	62	9
Commutator for dynamos or motors	J. A. Williams	492,176	Feb. 21	1779	444	62	1136
Compass. Beam-	M. E. Gladfelter	494,475	Mar. 28	2769	695	62	1934
Composite board or strip for walls, &c	E. Strippgen	492,849	Mar. 7	117	30	62	1380
Compound engine	J. Klein	494,425	Mar. 28	2696	676	62	1922
Compound engine	J. S. Parmenter	494,075	Mar. 21	2120	541	62	1800
Compressor	D. Neale	489,980	Jan. 17	1553	406	62	350
Concentrating-machine	F. G. Gould and J. K. Firth	492,007	Feb. 21	1513	378	62	1081
Concentrator	J. A. Coombes	493,070	Mar. 7	461	116, 117	62	1451
Concrete-distributing apparatus	E. L. Ransome	490,632	Jan. 24	2650	682	62	579
Concrete-mixing machine	E. L. Ransome	490,631	Jan. 24	2649	682	62	579
Condenser	L. Schutte	493,123	Mar. 7	547	136, 137	62	1467
Confectionery. Machine for coating	D. M. Holmes	490,769	Jan. 31	2870	736, 737	62	636
Confectionery. Machine for coating	D. M. Holmes	492,205	Feb. 21	1820	455, 456	62	1144
Confessional. Folding	G. A. Firnstein	490,873	Jan. 31	3026	778	62	668
Confessional. Portable	M. H. Sullivan	494,179	Mar. 28	2303	583	62	1849
Continuous kiln	P. L. Youngren	491,396	Feb. 7	557	141	62	855
Convertible chair	C. Schulte	491,602	Feb. 14	897	225	62	942
Conveyer	M. Garland	491,344	Feb. 7	471	121	62	838
Conveyer	R. L. Hasseli	493,772	Mar. 21	1615	411	62	1705
Conveyer	C. W. Reneau	489,831	Jan. 10	1293	338	62	284
Conveyer. Pneumatic	H. C. Kelly, Jr	494,274	Mar. 28	2456	618	62	1876
Conveyer-troughs. Gate for	J. M. Dodge	489,289	Jan. 3	472	131	62	103
Cooker. Steam-	E. P. Doty	492,195	Feb. 21	1806	451	62	1141
Cooker. Steam-	T. N. Scott	489,718	Jan. 10	1125	290	62	248
Cooking and smoking apparatus	J. S. and C. E. Baker	492,257	Feb. 21	1905	475	62	1162
Cooking apparatus. Gas	J. Ruthven	489,762	Jan. 10	1197	313, 314	62	263
Cooking apparatus. Steam	A. J. Iden	493,091	Mar. 7	496	124	62	1457
Cooking-boiler. Sectional	C. W. Wynn	491,865	Feb. 14	1300	321	62	1024
Cooking-pot	L. Sinn	489,041	Jan. 3	96	27	62	24
Cooking utensil	T. J. Clement	492,271	Feb. 21	1927	481	62	1166
Cooler: *See* Beer-cooler. Milk-cooler.							
Coop. Hen-	E. B. Voss	494,181	Mar. 28	2305	584	62	1849
Coping	A. Rick, Jr	490,501	Jan. 24	2427	626	62	535
Copper. Apparatus for electrolyzing	C. B. Schoenmehl	494,232	Mar. 28	2390	603, 604	62	1865
Copy-holder	A. B. Reid	494,305	Mar. 28	2502	631	62	1886
Copy-holder and rest. Extension	J. H. Ambruster	489,518	Jan. 10	845	220	62	192
Copying-book	J. P. Julia	489,959	Jan. 17	1520	397	62	343
Copying. Device for facilitating	J. J. Hill	489,953	Jan. 17	1511	395	62	341
Copying. Device for facilitating	J. J. Hill	489,954	Jan. 17	1514	395	62	341
Copying-press	H. M. Hoyt	493,371	Mar. 14	784	203	62	1529
Cord-covering machine	T. Adams	492,618	Feb. 28	2491	648	62	1293
Cord for saahes, &c	E. Maynard	492,582	Feb. 28	2429	605	62	1282
Cord or twine shearing mechanism	E. T. and E. H. Marble	492,408	Feb. 28	2143	535, 536	62	1222
Core-bar	F. L. Clark	491,470	Feb. 7	676	169	62	877
Core-barrel	J. V. Smith	489,188	Jan. 3	316	87	62	72
Core-driver	G. W. Stewart	493,192	Mar. 7	651	166	62	1486
Core-spindle	J. McAdams	492,226	Feb. 21	1862	465	62	1152
Cork. Bottle-	M. Lintz	489,081	Jan. 3	149	41	62	36
Cork cutting and facing machine	J. A. Snyder	492,846	Mar. 7	113	28, 29	62	1380
Cork-cutting machine	S. F. Rote and L. K. Landis	491,375	Feb. 7	523	134	62	848
Cork-driver	A. and A. Iske	491,052	Jan. 31	3341	852	62	729
Cork, &c. Machine for the reduction of	R. G. de Vasson	490,817	Jan. 31	2944	755, 756	62	651
Cork mat for bath-rooms	A. Morton	491,851	Feb. 14	1276	316	62	1019
Corn-cutter	T. S. Valentine, Sr	493,135	Mar. 7	566	141	62	1470
Corn-husker	V. Falkner	490,429	Jan. 24	2305	568	62	510
Corn-husker and fodder-shredder. Combined	G. W. Packer	494,511	Mar. 28	2832	709	62	1947
Corn-popping apparatus	W. B. Donathen	489,939	Jan. 17	1489	389	62	337
Corn product	B. G. Hudnut	491,498	Feb. 7	599	151	62	863
Corn-thinner	C. Garnett	492,721	Feb. 28	2647	655	62	1325
Corner-brace	H. White	493,882	Mar. 21	1786	456	62	1737
Corrugated tube for boilers, &c	L. Silverman	494,033	Mar. 21	2050	523, 524	62	1787
Corrugating-machine	B. Hall	491,259	Feb. 7	314	79, 80	62	809
Corset	E. Schweinburg	490,455	Jan. 24	2343	607	62	517
Corset	E. L. Smith	492,172	Feb. 21	1772	442	62	1134
Corset. Abdominal	W. J. Teufel	489,698	Jan. 10	1093	283	62	243
Corset-shield	D. Basch	489,783	Jan. 10	1229	322	62	270
Corset-shield	R. W. Parramore	490,495	Jan. 24	2419	624	62	533
Corset-stay	J. M. Van Orden	489,700	Jan. 10	1094	283	62	243

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Corset-stiffener	C. K. Pevey	494,078	Mar. 21	2125	542, 543	62	1801
Cotton-bag carrier	A. F. Laird	492,028	Feb. 21	1551	386	62	1088
Cotton-bales. System of tracks for transferring	W. W. Bierce	492,319	Feb. 21	1996	497	62	1181
Cotton-chopper	F. S. Hyde	492,867	Mar. 7	152	36, 37	62	1389
Cotton chopper and cultivator	E. M. Nolan	489,640	Jan. 10	1008	262, 263	62	225
Cotton-condenser and flue	F. Garraux	491,013	Jan. 31	3265	834	62	713
Cotton-condenser flue	W. Crooks	490,271	Jan. 24	2059	538	62	461
Cotton conveyer. Seed-	F. C. Gammons	494,101	Mar. 21	2161	551, 552	62	1808
Cotton-gin brush	W. E. Elam and R. S. Thomas	493,691	Mar. 21	1482	379	62	1679
Cotton-gin. Roller	W. E. McCall	489,925	Jan. 10	1285	336	62	282
Cotton-gin. Saw	F. Garraux	490,745	Jan. 31	2837	728	62	639
Cotton-picker	H. H. Call and A. A. Clough	490,101	Jan. 17	1764	459	62	392
Cotton-picker	H. H. Call and A. A. Clough	492,378	Feb. 21	2080	522	62	1198
Cotton-press	W. T. Bessonette	492,132	Feb. 21	1702	423, 424	62	1119
Cotton-scraper	B. F. Cadenhead	489,119	Jan. 3	214	56	62	49
Coulomb-counter	G. Hummel	491,560	Feb. 14	819	208	62	927
Counter attachment. Bar-room-	J. McNaney	489,388	Jan. 3	621	162	62	134
Counterbalance and guide for reciprocating mechanisms.	M. N. Forney	489,648	Jan. 10	1018	265	62	227
Counting apparatus for printing-presses, &c	R. A. Hart	489,078	Jan. 3	143	40	62	35
Counting-register	W. N. Durant	491,537	Feb. 14	779	199	62	919
Counting tickets. Gage for	C. H. Farnham	491,890	Feb. 14	1200	300	62	1003
Coupling: *See* Air-brake coupling. Car-coupling. Car and air-brake coupling. Collar-coupling. Fifth-wheel coupling. Hose-coupling. Hose-pipe coupling. Insulating-coupling. Locomotive-coupling. Pipe-coupling. Pole or thill coupling. Pulley-coupling. Shaft-coupling. Thill-coupling. Trolley-wire coupling. Vehicle-coupling. Water-closet coupling. Whiffletree-coupling.							
Coupling for tubular frames	J. S. Johnson	493,166	Mar. 7	617	155	62	1480
Coupling-gage	G. B. Hazlehurst and F. J. Cole	491,174	Feb. 7	188	48	62	783
Cover-holder	M. A. Green	489,329	Feb. 21	2011	500	62	1184
Cover. Milk-pan	S. Newell	494,157	Mar. 28	2268	576	62	1842
Cover. Tobacco-pail	E. A. Davis	494,465	Mar. 28	2756	691	62	1932
Cradle. Swinging	P. T. Reaser	491,786	Mar. 21	1637	417	62	1709
Cranberry-gatherer	J. E. Sturdy	489,329	Jan. 3	397	110	62	89
Crane	H. Aiken	491,933	Feb. 14	1402	350	62	1044
Crane	J. Hemphill and J. Fawell	489,634	Jan. 10	1002	261	62	223
Crane	J. Hemphill and J. Fawell	489,635	Jan. 10	1003	261	62	224
Crane. Charging-	H. Aiken	489,779	Jan. 10	1223	320, 321, 322	62	268
Crane. Jib-	E. W. Naylor	491,126	Feb. 7	95	26	62	767
Crane. Jib-	E. W. Naylor	491,127	Feb. 7	96	27	62	767
Crank. Adjustable	H. E. Marchand	490,879	Jan. 31	3040	781	62	671
Crank-power	P. Bright	490,134	Jan. 17	1822	476	62	405
Crank-shaft	C. K. Longenecker	491,487	Feb. 7	698	176	62	882
Crate	J. W. and A. Glidewell	488,997	Jan. 3	32	9	62	9
Crate, box, &c. Folding	D. Harrah	490,281	Jan. 24	2076	542	62	465
Crayons. Machine for making school-	L. V. Moulton	492,361	Feb. 21	2065	516	62	1194
Cremating-furnace	E. C. Morse	493,987	Mar. 7	341	86	62	1426
Cresting. Ridge-	W. H. Mullins	490,561	Jan. 24	2337	653	62	557
Cresting. Roof-	G. M. Vance	493,344	Mar. 14	905	232	62	1550
Crimping-iron	M. Campbell	489,217	Jan. 3	365	101	62	83
Crimping-machine	J. Zeh	491,913	Feb. 14	1369	341	62	1037
Cross-tie. Metallic	N. M. Thomas	491,229	Feb. 7	275	69	62	800
Crozing and howeling machine	J. A. Seaman	490,314	Jan. 24	2133	555	62	477
Crozing and howeling machine	J. A. Seaman	490,315	Jan. 24	2134	555, 556	62	477
Crozing-machine	H. Campbell	492,137	Feb. 21	1710	426	62	1121
Crupper	W. T. Baker and T. B. Doris	493,572	Mar. 14	1287	329	62	1625
Crupper	J. W. Fitzgerald	494,195	Mar. 28	2328	590	62	1854
Crusher: *See* Rock-crusher.							
Cryptographic instrument	R. Harte	492,677	Feb. 28	2581	638	62	1311
Cue-rack	J. Dockstader	489,373	Jan. 3	595	160	62	128
Cuff	A. D. Marble	493,850	Mar. 21	1709	435	62	1722
Cuff-holder	E. Carpenter	489,626	Jan. 10	991	258	62	221
Cuff-holder	J. V. Pilcher	492,968	Mar. 7	311	79	62	1421
Culinary chopper	J. B. Coe	489,647	Jan. 10	1017	265	62	227
Culinary-vessel handle	E. B. Manning	489,256	Jan. 3	428	119	62	95
Cultivator	C. Bizi	491,632	Feb. 14	938	236	62	952
Cultivator	A. J. Bolster	489,844	Jan. 10	1315	343	62	288
Cultivator	A. W. Butt	491,797	Feb. 14	1193	298, 299	62	1002
Cultivator	M. Casey	491,873	Feb. 14	1313	324	62	1026
Cultivator	B. F. Coon	493,398	Mar. 14	984	254	62	1568
Cultivator	E. A. Cox	489,708	Jan. 10	1110	286	62	246
Cultivator	A. R. Davis	492,509	Feb. 28	2319	575	62	1257
Cultivator	M. B. Gooing	490,765	Jan. 31	2866	735	62	635
Cultivator	W. Hammer	493,707	Mar. 21	1499	384	62	1682
Cultivator	H. M. Little	494,010	Mar. 21	2017	514	62	1781
Cultivator	T. Lull	490,151	Jan. 17	1848	482	62	409
Cultivator	R. Miller	492,692	Feb. 28	2600	643	62	1315
Cultivator	F. E. Montgomery	494,341	Mar. 28	2561	645, 646	62	1897

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Cultivator	E. A. Ovenshire	492,307	Feb. 21	1980	493	62	1178
Cultivator	B. T. Scott	493,124	Mar. 7	549	137	62	1467
Cultivator	G. L. Spring	489,507	Jan. 10	828	217	62	189
Cultivator	C. P. Sutton	490,322	Jan. 24	2142	559	62	479
Cultivator	J. D. and A. G. Tower	489,346	Jan. 3	559	151	62	120
Cultivator	W. A. Wagner	491,822	Feb. 14	1927	307	62	1010
Cultivator	J. F. Waltrous	491,618	Feb. 14	920	231	62	948
Cultivator and fertilizer-distributer	D. W. Bricker	494,457	Mar. 28	2743	688	62	1930
Cultivator. Disk	A. J. Bolster	489,845	Jan. 10	1317	343	62	288
Cultivator. Double-shovel	W. W. Hinkle and I. H. Gaither	491,176	Feb. 7	191	49	62	784
Cultivator for listed corn	E. Dimity	494,130	Mar. 28	2235	567	62	1835
Cultivator hoe attachment	E. A. O. Eriksen and W. H. Day	491,676	Feb. 14	1001	252	62	965
Cultivator. Lister	J. H. Spencer	493,878	Mar. 21	1777	453	62	1736
Cultivator-tooth	R. Wilson	493,741	Mar. 21	1572	400	62	1686
Culvert	C. B. Davis	491,408	Feb. 7	576	144	62	858
Cup: *See* Oil-cup. Sponge-cup. Paint or varnish cup. Telescoping cup.							
Curb-box cover	D. O'Neil	492,227	Feb. 21	1863	465	62	1153
Curling-iron heater. Electric	S. B. Jenkins	491,313	Feb. 7	419	109	62	827
Currants, &c. Machine for cleaning	W. Vickers	492,644	Feb. 28	2529	627	62	1301
Current generator. Alternating	O. Patin	491,811	Feb. 14	1213	303, 304	62	1007
Current meter. Alternating	W. Stanley, Jr	494,513	Mar. 28	2837	710	62	1947
Currycomb	G. M. Hubbard	493,029	Mar. 7	406	101	62	1439
Curtain-fastener	A. A. Froehlich	490,709	Jan. 31	2777	713	62	618
Curtain-fixture	J. L. Baker	492,705	Feb. 28	2622	649	62	1320
Curtain-fixture	J. Villard	492,447	Feb. 28	2201	550	62	1237
Curtain-holding device	E. E. Piper and G. H. Davis	491,588	Feb. 14	868	220	62	934
Curtain-stretcher	E. R. Osgood	490,230	Jan. 17	1976	518	62	434
Curtains. Appliance for hanging and adjusting window-	V. C. Baltzell	492,755	Feb. 28	2697	669	62	1334
Cut-out and lightning-arrester. Combined	E. F. Hammarström	493,380	Mar. 14	960	247	62	1563
Cut-out. Automatic electric	F. B. Badt	493,672	Mar. 21	1449	370	62	1672
Cut-out. Electric	C. H. Crockett and C. C. Allen	493,755	Mar. 21	1592	405	62	1700
Cut-out. Electric	W. B. Potter	489,983	Jan. 17	1566	410	62	352
Cut-out. Electric-circuit	M. Leavy	490,292	Jan. 24	2092	545	62	469
Cut-out. Multiple terminal	L. P. Bonebrake	493,398	Mar. 14	886	226	62	1546
Cut-out. Rosette	C. E. Barry	493,884	Mar. 21	1785	456	62	1736
Cutlery. Tongs for use in hardening	G. W. Watrous and C. B. Snow	490,778	Jan. 31	2092	741	62	640
Cutter: *See* Band-cutter. Brick or tile cutter. Buttonhole-cutter. Cabbage-cutter. Cake-cutter. Cigar-cutter. Corn-cutter. Egg-cutter. Fabric or paper cutter. Meat or bread cutter. Pipe-cutter. Potato-cutter. Stalk-cutter. Stock-cutter. Straw-cutter. Tobacco-cutter. Twine-cutter. Vegetable-cutter. Vine-cutter. Washer-cutter.							
Cutter-head	T. B. Reese	491,373	Feb. 7	520	133	62	847
Cutting. Device for holding lining or other materials for	D. R. Rouch	491,026	Jan. 31	3098	842	62	721
Cutting tapering openings. Tool for	R. Quinn	489,365	Jan. 3	442	122	62	97
Cutting tool. Surface	J. H. Steen	492,310	Feb. 21	1983	493	62	1178
Cycle	J. G. Xander	493,301	Mar. 7	661	169	62	1488
Cycle clock-attaching device	E. Kuhn	490,750	Jan. 31	2844	730	62	630
Cycle-handle	A. Straus	490,459	Jan. 24	2351	608	62	520
Cycle-pedal attachment	W. L. Ferguson	493,696	Mar. 21	1487	380	62	1680
Cycle-wheel shoe	H. Gregory	492,510	Feb. 28	2231	576	62	1258
Cyclometer	E. J. Merry	491,739	Feb. 14	1099	278	62	984
Dampener. Crease or seam	W. A. Blair	491,331	Feb. 7	448	116	62	833
Damper for household-stoves	A. Flechtner	493,580	Mar. 14	1298	331	62	1627
Damper. Furnace-pipe	F. S. Lang	493,363	Mar. 14	940	241	62	1552
Damper. Pipe-section	A. W. Walker	492,854	Mar. 7	125	31	62	1382
Damper-regulating apparatus	P. and J. St. Mary	491,384	Feb. 7	538	137	62	851
Damper-regulator	F. L. T. Carlman	493,149	Mar. 7	587	147	62	1474
Damper. Stove-	F. O. Farwell	493,548	Mar. 14	1231	316	62	1614
Dashboard	F. R. Tubbesing	490,692	Jan. 31	2752	708	62	613
Decorticating rhea, &c. Machine for	J. Longmore and W. L. Watson	493,778	Mar. 21	1625	413, 414	62	1707
Dental apparatus	A. S. Richmond	489,235	Jan. 3	391	108	62	87
Dental apparatus	A. S. Richmond	492,434	Feb. 28	2180	545	62	1230
Dental appliance for obtunding nerves	W. P. Horton, Jr	493,723	Mar. 21	1535	391	62	1688
Dental boring apparatus	J. Weber and H. Hampel	493,846	Mar. 21	1732	441	62	1727
Dental cement. Producing	M. Sichel	492,056	Feb. 21	1586	.....	62	1095
Dental chair	M. Butler	490,637	Jan. 31	2657	685, 686	62	595
Dental chair	A. P. Gould	489,675	Jan. 10	1054	274, 275	62	235
Dental chair	A. P. Gould	491,097	Feb. 7	51	14, 15	62	758
Dental chair	A. P. Gould	491,098	Feb. 7	53	15, 16	62	759
Dental chair	A. P. Gould	493,379	Mar. 14	959	247	62	1563
Dental chair	E. T. Starr	490,516	Jan. 24	2450	631, 632	62	540
Dental chair	D. Stuck	491,611	Feb. 14	909	228, 229	62	945
Dental-chair bracket	D. Stuck	491,610	Feb. 14	908	227	62	945
Dental-disk holder	N. Morgan	493,893	Mar. 21	1802	459	62	1740
Dental engine	F. H. Berry	489,117	Jan. 3	210	56	62	48
Dental engine	A. P. Gould	491,099	Feb. 7	56	16	62	759

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Dental engine	F. K. Hesse	489,416	Jan. 3	655	177, 178	62	141
Dental engine	C. E. Rhone	492,432	Feb. 28	2175	544	62	1229
Dental engine	C. E. Rhone	492,433	Feb. 28	2178	545	62	1229
Dental-engine angle attachment	S. P. Sharp	491,499	Feb. 7	714	180	62	886
Dental-engine attachment	A. H. Peck and C. E. Allshouse	493,280	Mar. 14	819	210	62	1535
Dental engines. Flexible shaft for	A. W. Browne	492,966	Feb. 21	1920	479	62	1165
Dental forceps	C. E. Blake, Sr	491,514	Feb. 14	750	191	62	912
Dental forceps	C. E. Blake, Sr	491,515	Feb. 14	751	191	62	913
Dental forceps	C. E. Blake, Sr	491,516	Feb. 14	752	191	62	913
Dental forceps	C. E. Blake, Sr	491,517	Feb. 14	752	191	62	913
Dental forceps	C. E. Blake, Sr	491,518	Feb. 14	753	192	62	913
Dental forceps	C. E. Blake, Sr	491,519	Feb. 14	754	192	62	913
Dental forceps	A. Whitlock	491,932	Feb. 14	1401	349	62	1044
Dental machine for grinding artificial tooth-crowns	R. G. Stanbrough	490,930	Jan. 31	3133	803, 804	62	688
Dental plate	J. A. A. Schoondermark	493,843	Mar. 21	1798	440	62	1727
Dental plate	J. R. Watson	493,800	Mar. 21	1670	426	62	1715
Dental plugger	A. E. Peck	492,830	Mar. 7	90	22	62	1375
Dental plugger	F. J. Richards	494,227	Mar. 28	2382	601	62	1864
Dental use. Surgical forceps for	C. E. Blake, Sr	491,464	Feb. 7	666	167	62	876
Dental work. Electric motor for	J. Keller	493,431	Mar. 14	1034	267	62	1577
Depth-gage	A. Snoeck	490,860	Jan. 31	3003	771	62	663
Derrick	L. Dumbauld	493,690	Mar. 21	1480	379	62	1678
Derrick winding attachment	E. F. Atherton	490,259	Jan. 24	2031	531	62	457
Designs on bottles, vases, or similarly-shaped articles and means therefor. Producing raised metallic	J. H. Scharling	492,840	Mar. 7	101	25	62	1377
Desk	W. MacNeece	489,611	Jan. 10	975	254	62	218
Desk. Adjustable	C. M. Childs	493,480	Mar. 14	1118	287	62	1591
Desk. Adjustable	S. J. Reynolds	491,340	Feb. 7	301	76	62	806
Desk, bureau, and book and dressing case. Combined writing-	N. P. Shulin	492,877	Mar. 7	168	40	62	1391
Desk or cabinet	T. Billington	494,406	Mar. 28	2671	670	62	1917
Desk. Portable	O. H. White	492,316	Feb. 21	1991	496	62	1180
Desk-receptacle	E. P. Carolan and E. H. and J. R. Terrell	490,225	Jan. 17	1970	516	62	433
Desk. School-	A. Manchain	492,040	Mar. 7	964	67	62	1411
Desk-support	F. W. Tobey	491,615	Feb. 14	916	231	62	947
Desulphurizing-furnace	T. Thomas	491,274	Feb. 7	336	85	62	813
Detector: *See* Time-detector.							
Detent mechanism	A. H. Jacot	489,480	Jan. 10	772	204	62	178
Detonating compound	S. Rodgers	489,761	Jan. 10	1197	.....	62	263
Dial. Sun-	C. E. Chamberland	490,185	Jan. 17	1899	494	62	420
Dice-throwing machine. Coin-controlled	F. G. Williams and A. W. Roovers	491,971	Feb. 14	1460	364	62	1056
Die and die-holder for drawing steel rods, &c	S. and W. Moltrup. (Reissue)	11,318	Mar. 28	2803	724	62	1957
Die-head. Revolving	H. A. Cumfer	494,415	Mar. 28	2683	673	62	1919
Die-stock	B. Thayer	491,453	Feb. 7	651	163	62	872
Die-stock. Adjustable	H. W. Oster	490,676	Jan. 31	2732	703, 704	62	609
Dies for producing designs on soft metal. Making	B. F. Kelsey	491,179	Feb. 7	196	50	62	785
Digger: *See* Canal-digger. Potato-digger. Post-hole digger.							
Direct-acting and compound engine	E. W. Harden	490,348	Jan. 24	2190	570	62	429
Dish. Butter-	L. Beard	493,326	Mar. 14	884	226	62	1546
Dish-cleaner	R. G. Ferguson	493,261	Mar. 14	765	195	62	1526
Dish-washing machine	M. Groenendyke	489,190	Jan. 3	319	88	62	72
Disinfectant and deodorizer	A. E. Woolf	490,797	Jan. 31	2918	.....	62	645
Disinfecting apparatus	F. S. Coon	492,662	Feb. 28	2562	635	62	1307
Disinfecting device	J. Pickering	492,631	Feb. 28	2511	622	62	1298
Disks. Mechanism for controlling the action of oscillating	F. Lambert	490,025	Jan. 17	1644	427	62	367
Disks. Mechanism for controlling the action of oscillating	F. Lambert	490,026	Jan. 17	1646	428	62	368
Display glove-case	E. M. Rosenthal	489,691	Jan. 10	1084	281	62	241
Display-shelf and carpet-elevator	T. Bessing and W. A. Barker	493,542	Mar. 14	1323	313	62	1612
Display-stand	W. S. McDonald	489,027	Jan. 3	72	20	62	18
Display-stand	W. E. Stew	493,128	Mar. 7	554	138	62	1468
Distilling and refrigerating apparatus. Combined ammonia-	J. E. Fuller	489,897	Jan. 10	1388	362	62	302
Distilling apparatus. Water-	J. E. Thomas and E. P. Grow	491,028	Jan. 31	3301	842	62	721
Ditching and grading machine	G. W. Dye	492,087	Feb. 21	1632	406, 407	62	1105
Ditching-machine	G. W. Decker	494,368	Mar. 28	2609	655	62	1906
Dividers	H. Esser	494,132	Mar. 28	2237	567	62	1835
Doll. Automatic crying	J. P. King	489,014	Jan. 3	55	16	62	14
Door	E. B. Hayes	494,114	Mar. 21	2191	560	62	1814
Door-check	W. H. McCoy	493,442	Mar. 14	1057	272	62	1581
Door-check	S. F. Oliver and J. M. Reed	490,920	Jan. 31	3118	800	62	685
Door-check	J. S. Patten	493,112	Mar. 7	530	133	62	1464
Door-check	T. Rae	490,925	Jan. 31	3124	801	62	686
Door-check	E. P. Sartell	490,504	Jan. 24	2432	627	62	536
Door-check	G. W. Wright	491,155	Feb. 7	146	39	62	777
Door-closing device	H. C. Montgomery	490,032	Jan. 17	1655	429, 430	62	370
Door-closing device	C. Scriven	490,990	Jan. 31	3233	826	62	707
Door-frames. Setting-gage for	R. Steedman	493,566	Mar. 14	1271	325	62	1621
Door. Flexible	H. N. H. Lugrin	490,448	Jan. 24	2329	604, 605	62	515
Door-hanger	J. W. Conchar	491,081	Feb. 7	31	8	62	754
Door lock. Sliding-	I. Davis	489,221	Jan. 3	370	103	62	84
Door lock. Sliding-	E. F. Doran	489,291	Jan. 3	473	131	62	103
Door lock. Sliding-	E. Hubbell	490,251	Jan. 17	2013	526	62	441

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Door lock. Sliding	L. E. Jacobus	490,441	Jan. 24	2320	602	62	513
Door-operating device. Sliding	F. H. Mueller	491,121	Feb. 7	90	25	62	706
Door or window screen	E. Goff	493,703	Mar. 21	1494	383	62	1681
Door-securer	J. Noland	489,230	Jan. 3	386	106	62	86
Door. Sliding	L. Hendershot	494,142	Mar. 28	2247	572	62	1838
Door. Sliding	J. S. McAnarney	492,502	Feb. 28	2309	572	62	1255
Door-spring	G. W. Wright	491,156	Feb. 7	148	39	62	777
Door spring and check	G. W. Wright	491,154	Feb. 7	144	38	62	777
Door spring and check. Combined	F. Rock	490,886	Jan. 31	3052	{783 / 784}	62	673
Doors. Adjustable track for sliding	E. Y. Moore	492,413	Feb. 28	2151	538	62	1224
Doubling and twisting machines. Yarn-guide for	A. E. Rhoades	494,490	Mar. 28	2792	700	62	1939
Dough-machine	J. H. Mitchell	489,973	Jan. 17	1540	{402 / 403}	62	347
Dough-raiser	J. S. Brown	489,153	Jan. 3	260	72	62	61
Dovetails. Pattern for molding	E. Kuhn	492,728	Feb. 28	2653	658	62	1327
Draft and advertising-coupon. Combined demand-	G. H. Drew	493,619	Mar. 14	1363	346	62	1639
Draft attachment. Spring	H. Barber	493,469	Mar. 14	1099	282	62	1589
Draft device. Spring	F. J. Blanke	493,240	Mar. 14	733	188	62	1520
Draft-equalizer	H. A. Irons and H. P. Hill	492,294	Feb. 21	1956	488	62	1172
Draft-equalizer	J. Jones	489,009	Jan. 3	49	14	62	13
Draft-equalizer	W. Lewis	492,939	Mar. 7	263	67	62	1411
Draft-equalizer	P. V. Schandoney	490,214	Jan. 17	1954	512	62	429
Draft-equalizer	I. T. Williams	493,321	Mar. 14	891	225	62	1545
Draft-evener	L. A. McGilvra	489,753	Jan. 10	1185	310	62	261
Draft-evener	L. W. Smith	492,995	Mar. 7	352	89	62	1428
Draft-regulator	P. W. Cornwell	491,082	Feb. 7	32	9	62	754
Draft-regulator	C. D. Howard	491,752	Feb. 14	1116	282	62	988
Drain-pipe	A. W. Cram	492,191	Feb. 21	1800	449	62	1140
Drawbar	G. D. Wadley	492,853	Mar. 7	123	31	62	1381
Drawbar	G. D. Wadley	493,319	Mar. 14	875	223	62	1544
Drawbar attachment	P. Brown	490,635	Jan. 31	2655	665	62	595
Drawbars. Manufacture of	J. Green	491,480	Feb. 7	657	173	62	880
Drawers, &c. Device for partitioning	W. E. Richards	490,987	Jan. 31	3227	825	62	706
Drawing or plotting board	G. M. Graham	493,766	Mar. 21	1608	408	62	1703
Drawing-roll. Fluted or grooved	J. Dodd	494,271	Mar. 28	2450	618	62	1876
Drawing. Testing and correcting free-hand	A. K. Cross	491,160	Feb. 7	160	41	62	779
Drawings to stones, &c. Transferring	L. Benoit	493,812	Mar. 21	1689	.....	62	1718
Dredge	E. S. Bennett	493,226	Mar. 7	703	{180 / 181}	62	1496
Dredges and sand-pumps. Agitator for suction	W. T. Urie	491,748	Feb. 14	1112	281	62	987
Dredging apparatus	W. M. Douglas	491,723	Feb. 14	1076	272	62	980
Dredging apparatus	J. E. Kauser	491,843	Feb. 14	1263	{313 / 314}	62	1017
Dredging-machine. Centrifugal	J. L. Allison and R. G. Nash	494,094	Mar. 21	2149	549	62	1805
Dredging-spuds. Device for locking and operating	F. H. and G. W. King	492,687	Feb. 28	2593	{641 / 642}	62	1313
Dress-skirt	M. Aronson	494,404	Mar. 28	2669	669	62	1916
Dress-waist fastening attachment	D. E. Wasson	492,701	Feb. 28	2614	647	62	1318
Dressing-machine. Centrifugal	J. Higginbottom	490,652	Jan. 31	2687	692	62	601
Drier: *See* Clothes-drier.							
Drier	W. C. Byrne	491,075	Feb. 7	20	6	62	752
Drier	T. and H. Smith	492,340	Feb. 21	2028	{504 / 505}	62	1187
Drier and carbonizer	M. J. Spencer	490,171	Jan. 17	1876	489	62	415
Drill: *See* Breast-drill. Electric drill. Grain-drill. Mining-drill. Press-drill. Rock-drill. Seed-drill. Seeding-drill.							
Drill-hoe and cultivator-tooth. Combined	J. Muir	490,833	Jan. 31	2969	762	62	656
Drill-holder	W. G. Church	489,847	Jan. 10	1319	344	62	289
Drill-sharpening device	A. Campbell	491,766	Feb. 14	1144	287	62	993
Drills. Die for pointing metal	F. H. Richards	494,226	Mar. 28	2381	601	62	1864
Drills. Tapping attachment for	A. Mill	489,317	Jan. 3	511	140	62	111
Drilling and turning. Bow for use in	I. Read	492,559	Feb. 28	2396	596	62	1275
Drilling-machine	A. Betts	493,471	Mar. 14	1102	282	62	1589
Drilling-machine	J. T. Snyder	489,044	Jan. 3	100	28	62	25
Drilling-machine	J. T. Snyder	492,118	Feb. 21	1682	419	62	1114
Drilling-machine	S. A. Worcester and W. A. Morgan	492,567	Feb. 28	2405	{599 / 600}	62	1277
Drilling purposes, &c. Self-feeding ratchet-brace for hand-	W. H. Heeson	493,717	Mar. 21	1516	387	62	1685
Drilling-tool	H. A. Rogers and J. M. Runyan	492,053	Feb. 21	1583	394	62	1095
Drink-mixer	E. J. Leyburn	489,921	Jan. 10	1280	335	62	281
Drink-mixer	F. W. McKinley	489,022	Jan. 3	72	20	62	18
Drinking-places. Cup holding and lifting attachment for public	A. L. Peirce	494,346	Mar. 28	2570	647	62	1899
Driving mechanism	J. V. Motter	491,221	Feb. 7	260	64	62	797
Dry-closet system	F. G. Ward	493,320	Mar. 14	876	{223 / 224}	62	1544
Drying in vacuum. Apparatus for	E. Donard	491,338	Feb. 7	461	119	62	836
Drying-kiln	L. Pine	489,717	Jan. 10	1123	290	62	248
Dumb-waiter	J. T. Westwood	490,493	Jan. 24	2356	610	62	530
Duplicating apparatus	F. F. Daus	493,757	Mar. 21	1596	406	62	1701
Dust-collector	E. W. Hoover	493,504	Mar. 14	1158	296	62	1598
Dust-collector	H. Seck	493,565	Mar. 14	1269	325	62	1620
Dust-pan	D. K. Barnhart	492,455	Feb. 28	2216	554	62	1237
Dust-pan	P. Hill	490,200	Jan. 17	1925	500	62	424
Dust-pan	A. L. Hollander	490,875	Jan. 31	3029	779	62	669
Dust-pan	M. E. Minor	492,373	Feb. 21	2079	520	62	1197
Dye. Blackish-blue azo	J. Schmid	493,563	Mar. 14	1268	.....	62	1620
Dye. Blue-black azo	T. Diehl	491,410	Feb. 7	577	.....	62	858

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Dye. Brown	R. Gnehm and J. Schmid	491,422	Feb. 7	591	.....	62	861
Dye from alpha oxyuvitic acid	B. R. Seifert	493,413	Mar. 14	1003	.....	62	1572
Dye. Gray-black tetrazo	J. Schmid	493,564	Mar. 14	1269	.....	62	1620
Dye. Indigo-blue	A. Herrmann	490,408	Jan. 24	2273	.....	62	506
Dye. Pink	H. Boedeker	493,241	Mar. 14	735	.....	62	1521
Dye. Red	R. Gnehm and J. Schmid	493,583	Mar. 14	1301	.....	62	1628
Dye. Violet azo	M. Ulrich. (Reissue)	11,308	Feb. 21	2093	.....	62	1199
Dye. Violet-blue induline	J. Schmid and J. Mohler	491,378	Feb. 7	531	.....	62	849
Dye. Yellow-red	F. Bender and M. Kämmerer	489,623	Jan. 10	988	.....	62	221
Dyeing apparatus	A. Hinze	489,955	Jan. 17	1514	396	62	342
Dyeing black	C. F. X. Noroy	493,286	Mar. 14	813	.....	62	1534
Dyeing-machine	T. A. Clough and T. J. Bigger	491,336	Feb. 7	459	{118 / 119}	62	835
Dynamo. Alternating-current	J. J. Wood	489,005	Jan. 3	127	34, 35	62	32
Dynamos and electric motors. Brush-holder for	R. Ashley	488,978	Jan. 3	5	2	62	4
Dynamometer	J. B. Webb	490,381	Jan. 24	2338	583	62	499
Ear. Apparatus for electrically treating the	W. A. Price	490,679	Jan. 31	2735	704	62	609
Earmark	J. A. Rogers	492,838	Mar. 7	99	24	62	1177
Earth-mover	C. A. Bridgewater	490,243	Jan. 17	2002	524	62	439
Eaves-trough	W. S. Harris	493,497	Mar. 14	1147	293	62	1597
Eaves-trough attachment	G. L. Fisk	493,697	Mar. 21	1487	381	62	1680
Eaves-trough hanger	L. S. Benbrake	489,600	Jan. 10	962	250	62	215
Eaves-trough protector	N. J. Planthaber	490,414	Jan. 24	2284	593	62	507
Edgers. Gravity-dog for gang	J. Tarrant	491,301	Feb. 7	230	58	62	791
Egg-beater	J. M. O'Neill	491,583	Feb. 14	853	216	62	934
Egg-carrier filler	E. S. Sheperd	489,664	Jan. 10	1041	271	62	232
Egg-case	F. F. Bischoff	489,118	Jan. 3	211	56	62	49
Egg-cutter	E. Berrini	490,133	Jan. 17	1821	475	62	405
Egg-separator	J. M. Lucas	492,892	Mar. 7	188	46	62	1396
Electric battery	C. H. Bryan	489,668	Jan. 10	1045	272	62	233
Electric battery	J. H. Davis	489,938	Jan. 17	1488	389	62	337
Electric-circuit breaker	E. M. Bentley	490,762	Jan. 31	2861	734	62	633
Electric-circuit breaker	E. Thomson	490,178	Jan. 17	1895	491	62	417
Electric conduit	E. L. Ransome	490,630	Jan. 24	2649	682	62	579
Electric connector and cut-out	C. H. Crockett and C. C. Allen	493,754	Mar. 21	1590	404	62	1700
Electric controlling device	T. W. Shepherd	493,602	Mar. 14	1339	341	62	1635
Electric currents. System for transmitting	E. Baines	493,673	Mar. 21	1451	370	62	1672
Electric drill. Reciprocating	W. A. G. Birkin	494,053	Mar. 21	2079	531	62	1792
Electric-drop-light hanger. Balanced	T. E. Stevens	492,847	Mar. 7	114	29	62	1380
Electric elevator	F. E. Herdman	492,160	Feb. 21	1755	{437 / 438}	62	1130
Electric heater	J. F. McLaughlin	490,082	Jan. 17	1730	451	62	385
Electric heater	T. E. Morford	490,034	Jan. 17	1658	430	62	370
Electric-light-bracket base	J. T. Robb	493,411	Mar. 14	1001	258	62	1571
Electric-light fixtures. Switch for	J. Hutchinson	493,968	Mar. 21	1765	456	62	1734
Electric-light wires. Bracket for	G. H. Bennett	489,861	Jan. 10	1332	348	62	292
Electric-lighting system	F. B. Badt	489,598	Jan. 10	959	249	62	214
Electric-lighting system	H. M. Doubleday	489,526	Jan. 10	856	223	62	194
Electric-lighting system	R. W. Rollins	492,633	Feb. 28	2513	622	62	1298
Electric-lighting system	S. W. Rushmore	493,842	Mar. 21	1725	440	62	1726
Electric lock	O. A. Moyer and H. W. Rhodes	491,369	Feb. 7	515	132	62	846
Electric machine. Alternating-current dynamo-	J. J. Wood	491,695	Feb. 14	1033	{261 / 262}	62	972
Electric machine and motor. Dynamo-	H. P. Brown	493,679	Mar. 21	1458	372	62	1674
Electric machine and motor. Dynamo-	W. T. Goolden and L. B. Atkinson	489,302	Jan. 3	490	136	62	107
Electric machine and motor. Dynamo-	R. M. Hunter	492,888	Mar. 7	183	44, 45	62	1395
Electric machine. Dynamo-	F. Bain	493,745	Mar. 21	1577	401	62	1698
Electric machine. Dynamo-	W. E. Freeman	492,151	Feb. 21	1741	434	62	1127
Electric machine. Dynamo-	S. Hellebrandt	493,718	Mar. 21	1517	{387 / 388}	62	1685
Electric machine. Dynamo-	R. Lundell	490,449	Jan. 24	2331	605	62	516
Electric machine. Dynamo-	R. Lundell	490,809	Jan. 31	2932	753	62	648
Electric machine. Dynamo-	W. M. Mordey	493,104	Mar. 7	519	130	62	1462
Electric machine. Dynamo-	G. V. M. A. Parrot and A. C. Reignier	491,294	Feb. 7	390	{99 / 100}	62	821
Electric machine. Dynamo-	E. Thomson	493,313	Mar. 14	862	{219 / 220}	62	1542
Electric machine. Dynamo-	C. Wachtel	490,460	Jan. 24	2352	{608 / 609 / 610}	62	520
Electric machine or motor. Dynamo-	R. Lundell	490,810	Jan. 31	2935	753	62	649
Electric machines in parallel. Coupling of dynamo-	A. Gay	490,959	Jan. 31	3181	814	62	697
Electric machines. Journal-bearing for dynamo-	W. L. Silvey	489,505	Jan. 10	826	216	62	188
Electric mat	W. G. James	490,353	Jan. 24	2199	573	62	491
Electric meter	F. J. Dibble	490,011	Jan. 17	1607	{419 / 420}	62	361
Electric meter	O. Frölich	490,979	Jan. 24	2072	541	62	464
Electric meter	H. Illig	489,161	Jan. 3	269	75	62	62
Electric motor	F. H. Beers	492,524	Feb. 28	2338	580	62	1201
Electric motor	J. W. Hansen	490,280	Jan. 24	2073	542	62	465
Electric motor	A. W. Meston	491,970	Feb. 14	1457	363	62	1055
Electric motor and dynamo mica insulator	C. W. Jefferson	491,708	Feb. 14	1053	266	62	976
Electric-motor regulator	J. A. Williams	491,829	Feb. 14	1237	309	62	1011
Electric-motor switch	M. Immisch	493,361	Mar. 14	934	{239 / 240}	62	1558
Electric motor. Variable-speed	C. Hering	489,709	Jan. 10	1141	287	62	246
Electric motors. Means for controlling	J. F. Ott and A. E. Kennelly	489,687	Jan. 10	1073	{279 / 280}	62	239
Electric motors. Switch for operating shunt-wound	F. H. Berry	492,456	Feb. 28	2217	555	62	1237
Electric search-light	R. M. Hunter	493,358	Mar. 14	923	238	62	1555
Electric signal	F. H. Clarke	491,874	Feb. 14	1314	{324 / 325}	62	1026
Electric signal, switch moving, and interlocking mechanism.	J. Ramsey, Jr., and E. W. Harden	494,489	Mar. 28	2788	{699 / 700}	62	1938

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Electric sprinkler and alarm. Automatic	C. S. Hurd	492,866	Mar. 7	151	36	62	1388
Electric switch	W. F. Bossert	493,243	Mar. 14	737	189	62	1521
Electric switch	A. M. Coyle	493,485	Mar. 14	1126	288 / 289	62	1593
Electric switch	J. S. Gibbs	490,746	Jan. 31	2838	728	62	629
Electric switch	A. L. Rohrer	490,363	Jan. 24	2213	576 / 577	62	494
Electric switch	A. Stromberg	493,369	Mar. 14	948	243 / 244	62	1560
Electric switch and current reverser. Combined indicating	A. B. and W. S. Strowger	492,850	Mar. 7	117	30	62	1381
Electric switch and door-lock. Combined	J. H. L. Holcombe	491,426	Feb. 7	596	150	62	862
Electric switch. Automatic	A. M. Coyle	492,786	Mar. 7	20	6	62	1363
Electrical appliance	C. H. Folger	494,098	Mar. 21	2157	550	62	1807
Electrical-conductor connector	G. L. Russell	490,755	Jan. 31	2851	731	62	631
Electrical connecting device	J. Hutchinson	490,477	Jan. 24	2383	617	62	526
Electrical diaphragm	C. N. Waite	489,551	Jan. 10	887	.....	62	201
Electrical excitation of vacuum-tubes	H. T. Barnett	494,239	Mar. 28	2403	606	62	1867
Electrical indicator	H. J. Haight	492,011	Feb. 21	1521	380 / 381	62	1083
Electrical machine. Bipolar	T. H. Hicks	491,106	Feb. 7	70	19	62	762
Electrical meter	G. Rennerfelt	494,225	Mar. 28	2360	601	62	1863
Electrical switch	G. Baehr	489,553	Jan. 10	888	232	62	201
Electrically-controlled ventilator	S. G. Brinkman	489,625	Jan. 10	989	258	62	221
Electricity. Coin-controlled machine for administering	W. R. Pope	492,486	Feb. 28	2277	566 / 567	62	1249
Electricity. Generating	T. A. Edison	490,953	Jan. 31	3174	812	62	695
Electro-magnetic brake	A. D. Ayres	492,773	Mar. 7	2	1	62	1359
Electrode. Secondary-battery	I. H. Bartholomew	493,007	Mar. 7	373	93	62	1432
Electrode. Secondary-battery	W. W. Donaldson and R. Macrae	494,062	Mar. 21	2099	535	62	1796
Electrode. Secondary-battery	A. M. Michel	489,315	Jan. 3	509	139	62	110
Electrode. Secondary-battery	H. G. Osburn	490,753	Jan. 31	2847	730	62	631
Electrode. Storage-battery	G. W. Harris	489,186	Jan. 3	313	87	62	71
Electrodes. Manufacture of secondary-battery	R. M. Lloyd	491,684	Feb. 14	1015	257	62	968
Electroplating aluminum	G. Wegner	490,841	Jan. 31	2979	.....	62	658
Electrotype	W. T. Barnum	489,704	Jan. 10	1104	285	62	245
Elevating mechanism. Hydraulic	T. F. Rowland	493,301	Mar. 14	843	215	62	1539
Elevator: *See* Electric elevator. Grain-elevator. Hod-elevator. Pneumatic elevator. Water-elevator.							
Elevator	J. H. Belser	489,359	Jan. 3	575	155 / 156	62	123
Elevator	R. C. Smith	490,370	Jan. 24	2223	579	62	496
Elevator and carrier. Combined	C. M. Bates	491,511	Feb. 14	746	189 / 190	62	912
Elevator attachment	R. Sutherland	489,240	Jan. 3	398	110	62	89
Elevator brake mechanism	T. W. Eaton	490,275	Jan. 24	2066	540	62	463
Elevator controlling device	A. and F. E. Turner	493,607	Mar. 14	1346	342	62	1636
Elevator device. Safety	H. H. Day	493,760	Mar. 21	1599	406	62	1702
Elevator-door opening or closing device	E. M. T. Boddam	491,832	Feb. 14	1241	310	62	1012
Elevator-gate. Automatic	P. J. Schreiber	491,601	Feb. 14	895	225	62	942
Elevator-guard	A. Elliott	490,785	Jan. 31	2900	745	62	641
Elevator-guard	A. Elliott	492,350	Feb. 21	2047	510	62	1190
Elevator-indicator	N. Hiss	489,005	Jan. 3	44	12, 13	62	12
Elevator safety appliance	W. Winkless	490,219	Jan. 17	1960	514	62	431
Elevator safety device	H. H. Day	493,759	Mar. 21	1598	406	62	1701
Elevator safety device	W. H. Hultgren	493,784	Mar. 21	1537	391 / 392	62	1689
Elevator safety-gate	P. E. Cryder	493,229	Mar. 7	710	182	62	1498
Elevator-shafts. Safety device for	A. D. Caywood	493,423	Mar. 14	1016	262	62	1574
Elevator-wells. Device for operating gates to	C. F. Dé Arden	494,126	Mar. 28	2220	565	62	1834
Elevators. Safety device for platform	J. Wallenstein	490,328	Jan. 24	2152	562	62	481
Ellipsograph	H. R. Corkhill, Jr	492,142	Feb. 21	1724	430	62	1123
Embossing-machine	D. J. Lattimore	490,912	Jan. 31	3110	798	62	683
Embroidering-machine	E. and R. Cornely	493,374	Mar. 14	954	246	62	1562
Embroidering-machine fabric-holding frame	J. Graf	490,111	Jan. 17	1779	463	62	396
Emery-wheel dresser	W. W. Brisben	491,466	Feb. 7	670	168	62	876
Emery-wheels and supports therefor. Construction of	C. L. Hyde	489,149	Jan. 3	256	71	62	59
Enameling-furnace	G. F. Kreischer	492,405	Feb. 28	2139	534	62	1221
End-gate	C. A. Anderson	490,333	Jan. 24	2162	564	62	483
End-gate	W. K. Wagner	491,617	Feb. 14	919	231	62	948
End-gate lock	J. T. L. Morris	489,386	Jan. 3	619	167	62	133
End-gate. Wagon	G. S. Sneer	489,721	Jan. 10	1131	292	62	249
End-gate. Wagon	G. W. Wright	489,137	Jan. 3	235	65	62	54
Engine: *See* Blowing-engine. Carding-engine. Compound engine. Dental engine. Direct-acting and compound engine. Fire-engine. Gas-engine. Gas or similar motor engine. Locomotive-engine. Pumping-engine. Rag-engine. Reciprocating engine. Rotary engine. Rotary steam-engine. Rotating-cylinder engine. Rotating steam-engine. Steam-engine. Steam and air engine. Steam or pneumatic engine. Traction-engine.							
Engine	J. Knapper and S. B. Marton	490,662	Jan. 31	2704	695	62	604
Engine connection. Steam	C. F. Littlejohn	490,852	Jan. 31	2994	766 / 767	62	661
Engine indicators. Attachment for steam	W. Houghtaling	494,482	Mar. 28	2779	697	62	36
Engine reversing-gear	J. W. Melling	489,130	Jan. 3	226	61	62	52

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Engine steering apparatus. Traction	C. O. Heggem	489,865	Jan. 10	1337	349	62	293
Engine stopping apparatus	F. D. Taylor	490,373	Jan. 24	2228	580	62	497
Engines. Method of and apparatus for operating aqua-ammonia	C. L. Horsack	493,722	Mar. 21	1527	391	62	1687
Engines. Steadying device for portable	E. C. Emde	489,795	Jan. 10	1244	326	62	273
Envelope	A. L. Sewell	494,170	Mar. 28	2287	580	62	1845
Envelope	A. R. Spear	491,928	Feb. 14	1395	348	62	1043
Envelope	W. Weaver	491,030	Jan. 31	3307	843	62	722
Envelope	J. T. Webber	493,847	Mar. 21	1734	441	62	1728
Envelope-dispensing machine	A. C. Monfort	489,683	Jan. 10	1069	278	62	238
Envelope-fastener. Metallic	J. A. Shetty	490,814	Jan. 31	2942	755	62	650
Envelope-machine	J. Ball	491,935	Feb. 14	1405	350 / 351	62	1045
Evaporating apparatus	W. Golding	489,147	Jan. 3	254	70	62	59
Evaporating apparatus	H. G. Morris	489,260	Jan. 3	434	120	62	96
Evaporating liquids	S. M. Lillie	491,659	Feb. 14	977	246	62	959
Evaporating pan. Sugar	C. C. Alfred	489,622	Jan. 10	987	258	62	220
Evaporating-pan transfer	L. O. McLane	490,858	Jan. 31	3002	770	62	663
Evaporator: *See* Fruit-evaporator.							
Evaporator	J. Keith	490,967	Jan. 31	3195	816	62	699
Excavator	M. C. Meigs	491,577	Feb. 14	847	214 / 215	62	933
Excavator and carrier. Wheeled	M. E. Cook	489,707	Jan. 10	1108	286	62	245
Exercising and strength-testing machine	L. R. Schaeffer	493,561	Mar. 14	1264	324	62	1620
Exhaust-head	G. W. Christoph	493,908	Mar. 21	1826	465	62	1745
Exhibiting apparatus. Coin-operated	A. Bossomaier	489,285	Jan. 3	467	120 / 130	62	102
Exhibiting machine. Card	W. H. Pitt and G. Sittmann	489,262	Jan. 3	436	121	62	96
Exhibitor. Curtain	A. Lindstrom	490,572	Jan. 24	2526	650	62	555
Explosive compounds. Preparing	B. Lepsius	492,089	Feb. 21	1639	.....	62	1106
Explosive powder and making same	C. E. Munroe	489,684	Jan. 10	1070	.....	62	238
Extension-table	J. A. Glanton	489,529	Jan. 10	859	224	62	195
Extension-table	J. S. Graaff and I. M. Harbaugh	492,284	Feb. 21	1942	485	62	1170
Extension-table	W. H. Windeatt	490,936	Jan. 31	3141	806	62	690
Extractor: *See* Bottle-stopper extractor. Butter-extractor. Honey-extractor. Spike-extractor. Stump-extractor.							
Extracts. Process of and apparatus for making	J. E. McCarty	491,370	Feb. 7	516	132	62	846
Eye-shade	S. G. Soules and H. E. Stowe	490,513	Jan. 24	2443	630	62	538
Eyes. Apparatus for electrically treating the	W. A. Price	490,678	Jan. 31	2734	704	62	609
Eyeglass-frame	J. J. Bausch	489,358	Jan. 3	574	155	62	123
Eyeglass-hook	W. W. Hayden	493,865	Mar. 21	1763	449	62	1733
Eyeglasses	J. H. E. De Celles and G. W. Wells	492,622	Feb. 28	2498	619	62	1295
Eyeglasses	A. J. Landry	490,291	Jan. 24	2091	545	62	469
Eyeglasses	A. J. Landry	493,169	Mar. 7	620	156	62	1480
Eyeglasses	S. Richard, Jr., and W. N. Blanchard	492,234	Feb. 21	1873	468	62	1154
Eyeglasses	R. Straubel, Jr	489,996	Jan. 17	1584	414	62	355
Fabric	J. F. Palmer	493,220	Mar. 7	691	177	62	1494
Fabric or paper cutter	G. A. Burbank	493,351	Mar. 14	914	234	62	1553
Fabric-turfing implement	A. F. Pugh	490,792	Jan. 31	2911	748	62	643
Fabric-turfing machine	M. Cameron	492,780	Mar. 7	10	3, 4	62	1361
Fan	F. J. Agnileg	489,913	Jan. 17	1433	357	62	326
Fan	S. H. Baer	490,532	Jan. 24	2476	638	62	544
Fan	T. F. Davis	491,407	Feb. 7	575	144	62	858
Fan	J. H. Irving	492,684	Feb. 28	2590	640	62	1312
Fan	H. Scheuer	494,032	Mar. 21	2049	523	62	1787
Fan. Ceiling	F. H. Beers	492,523	Feb. 28	2335	579 / 580	62	1261
Fan. Exhaust	T. B. Hyde	489,159	Jan. 3	267	74	62	62
Fan. Fly	W. R. Fowler	491,476	Feb. 7	682	172	62	879
Fan. Fly	J. W. Kirkman	491,287	Feb. 7	363	91	62	818
Fan. Revolving	I. D. Boyer	491,006	Jan. 31	3256	832	62	711
Fan. Revolving hand	H. C. Durgin	493,915	Mar. 21	1845	470	62	1748
Fan. Rotary fly	M. V. Fitz Water	492,596	Feb. 28	2452	610	62	1286
Fan. Vehicle	M. H. Trippe	491,454	Feb. 7	652	163	62	872
Fare-register	F. P. Boyle, J. H. Dundon, and J. E. Boyle	491,007	Jan. 31	3258	832	62	711
Farm-gate	R. G. Ellsworth	489,469	Jan. 10	759	201	62	175
Farm-gate	J. L. Hoover	489,533	Jan. 10	864	226	62	196
Farm-gate	D. W. Jewett	493,728	Mar. 21	1545	394	62	1691
Farm-gate	J. M. Richardson	492,698	Feb. 28	2610	646	62	1317
Fastening device	J. M. Crews	492,193	Feb. 21	1805	450	62	1141
Fastening device	M. Frisen	493,377	Mar. 14	957	246	62	1562
Fastening device	A. B. Schofield	490,403	Jan. 24	2268	589	62	504
Faucet	A. P. Howes	493,774	Mar. 21	1617	412	62	1705
Faucet for soda-water draft apparatus	A. D. Puffer, Jr	489,325	Jan. 3	522	142	62	113
Feather-splitting machine	F. H. Beers	490,468	Jan. 24	2369	613	62	522
Feed-box	I. L. Martin	493,892	Mar. 21	1711	436	62	1723
Feed-box	G. J. Schlosser	490,045	Jan. 17	1675	435	62	374
Feed-roller	A. M. Vaught	492,072	Feb. 21	1606	399	62	1099
Feed-trough	B. S. Higgins	489,808	Jan. 10	1263	331	62	277
Feed-trough	T. Lewis	489,589	Jan. 10	943	245	62	211
Feed-trough	M. V. B. Morse	493,040	Mar. 7	422	108	62	1442
Feed-trough	J. R. Wenger	494,236	Mar. 28	2397	605	62	1866
Feed-water apparatus	W. V. Walker	491,825	Feb. 14	1232	308	62	1010
Feed-water heater	G. H. Conklin	493,981	Mar. 21	1967	502	62	1770
Feed-water heater	A. Miller	492,411	Feb. 28	2148	537	62	1223
Feed-water heater and purifier	F. Goodfellow	491,547	Feb. 14	796	202	62	922
Feed-water heater and purifier	R. McDougall	494,302	Mar. 28	2497	630	62	1885
Feed-water heater and purifier	F. C. Perew	492,928	Mar. 7	249	63	62	1408
Feed-water purifier	F. J. Henderson	494,143	Mar. 28	2248	573	62	1839
Feed-water purifier and heater	L. V. Lewis	493,406	Mar. 14	993	256	62	1570

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Feeder. Time stock	J. H. Carpenter	489,789	Jan. 10	1237	324	62	271
Feeder. Time stock	D. McQueen	493,219	Mar. 7	690	177	62	1494
Feeding animals. Receptacle for	N. J. Felix	491,702	Feb. 14	1044	263	62	974
Feeding house. Hog	P. E. Erickson	493,355	Mar. 14	917	206	62	1553
Felly-boring and spoke-tenoning machine	G. W. McAlister	491,582	Feb. 14	852	216	62	934
Felting-machine	J. W. Millet	491,901	Feb. 14	1354	336 / 337	62	1034
Fence	G. J. Cline	490,946	Jan. 31	3163	810	62	693
Fence	W. Commeans	492,784	Mar. 7	17	5	62	1362
Fence	C. Crabbe	492,901	Mar. 7	205	50	62	1399
Fence	J. E. Kline	491,180	Feb. 7	198	51	62	785
Fence	J. F. Ogletree	490,162	Jan. 17	1864	486	62	413
Fence	F. P. Rosback and H. F. Band	492,876	Mar. 7	167	40	62	1391
Fence	W. P. Sharp	493,527	Mar. 14	1200	306	62	1606
Fence	J. C. Simmons	492,115	Feb. 21	1677	418	62	1113
Fence	C. C. Wheeler	493,458	Mar. 14	1085	278	62	1586
Fence-building device	S. S. Coulter	489,154	Jan. 3	261	72	62	61
Fence. Flood	J. J. Campbell	492,136	Feb. 21	1709	425	62	1121
Fence. Flood	G. W. Ramsburg	492,232	Feb. 21	1871	467	62	1154
Fence. Folding	W. Purling	492,614	Feb. 28	2486	617	62	1292
Fence-machine. Hand	M. F. Connett, Jr	491,770	Feb. 14	1152	288	62	994
Fence-machine. Picket-wiring	M. F. Connett	494,537	Mar. 28	2863	723	62	1955
Fence machine. Slat-and-wire	G. Beeler	489,139	Jan. 3	238	66	62	55
Fence machine. Wire	J. and C. Lane	492,214	Feb. 21	1839	460 / 461	62	1148
Fence. Metal	W. Warner	491,926	Feb. 14	1233	308	62	1011
Fence-post	H. J. Banta	489,116	Jan. 3	208	55	62	48
Fence-post	J. E. Hodson	492,088	Feb. 21	1638	407	62	1106
Fence-post	W. H. Ringle	489,986	Jan. 17	1571	411	62	353
Fence tension device. Wire	P. Hack	490,073	Jan. 17	1717	448	62	382
Fence. Wire	E. H. McCreedy	491,440	Feb. 7	624	156	62	867
Fence-wire reel	S. Moore	491,849	Feb. 14	1273	315 / 316	62	1018
Fence-wire stranda. Implement for tightening	J. Whittaker	492,617	Feb. 28	2489	617	62	1293
Fence-wire stretcher	F. Durr	492,278	Feb. 21	1936	483	62	1168
Fences. Apparatus for wiring wood	J. L. Butler	492,323	Feb. 21	2001	498	62	1182
Fences. Machine for attaching cross-wires in wire	H. A. King and A. J. Wright	490,600	Jan. 24	2572	663	62	563
Fences. Machine for tying cross-wires in wire	J. R. Kelly	490,442	Jan. 24	2321	602 / 603	62	513
Fencing. Barbed-wire	A. Delffs	490,187	Jan. 17	1902	495	62	420
Fencing-machine	J. A. Barbrey	490,261	Jan. 24	2032	532	62	457
Fencing. Machine for making wire	P., J., and P. W. Sommer	490,775	Jan. 31	2878	739 / 740	62	637
Fender: *See* Car-fender. Plow-fender. Gin-saw fender.							
Ferroferric and ferric oxides. Apparatus for producing	A. Crossley and J. W. Jones	491,085	Feb. 7	36	9,10	62	755
Ferrule. Plumber's	C. A. Cotter	494,413	Mar. 28	2681	673	62	1919
Fertilizer-distributer	T. H. Lake and R. W. Dickson	489,313	Jan. 3	507	139	62	110
Fertilizer or insecticide distributer	D. J. Manning	491,318	Feb. 7	429	111	62	829
Fertilizers from tank-water. Making	O. T. Joslin	489,010	Jan. 3	50	.....	62	13
Fiber. Machine for cleaning vegetable	T. Villamor	492,173	Feb. 21	1772	442	62	1134
Fiber-separating machine	S. B. Allison	493,852	Mar. 21	1741	443 / 444	62	1729
Fibrous material. Machine for opening and cleaning	M. T. Wadlin	494,500	Mar. 28	2815	706	62	1944
Fifth-wheel	W. A. Paterson	490,452	Jan. 24	2338	606	62	517
Fifth-wheel	J. S. Young	493,324	Mar. 14	882	225	62	1546
Fifth-wheel coupling. Vehicle	J. J. Fetzer	492,719	Feb. 28	2642	654 / 655	62	1324
File and manufacture of same. Clamp	A. Dom	491,011	Jan. 31	3263	833	62	712
File. Bill	C. H. Kilmer	493,433	Mar. 14	1037	267	62	1578
File. Bill	A. Quortrup	491,905	Feb. 14	1359	338	62	1035
File cabinet. Letter	B. Brower	490,099	Jan. 17	1759	459	62	391
File-cases. Temporary binder for	A. Dom	491,473	Feb. 7	679	171	62	878
File gage and clamp	J. Storm	492,065	Feb. 21	1597	397	62	1097
File-holder	A. W. Taylor	494,498	Mar. 28	2814	705	62	1943
File-holder. Index	J. L. Norman	489,686	Jan. 10	1072	279	62	239
File. Letter	V. Astier	493,960	Mar. 21	1935	493	62	1764
File. Letter	A. Tengwall	491,266	Feb. 7	324	82	62	811
File. Letter or bill	W. O. Gottwals	493,024	Mar. 7	400	100	62	1437
File. Newspaper	W. S. Edwards	489,074	Jan. 3	139	39	62	34
File. Newspaper	A. Hecht and W. R. Fechner	489,901	Jan. 10	1406	364	62	304
File. Paper	C. H. Bealy	490,707	Jan. 31	2773	712 / 713	62	618
File. Paper	G. W. Mills	490,155	Jan. 17	1853	483	62	411
Film measuring and cutting device	F. J. Harrison	492,354	Feb. 21	2053	512	62	1192
Filter	F. A. Bunnell	492,134	Feb. 21	1707	425	62	1120
Filter	J. E. Hill	492,161	Feb. 21	1757	438	62	1131
Filter	E. M. Knight	494,496	Mar. 28	2697	677	62	1922
Filter	J. Kraker	489,747	Jan. 10	1175	306	62	258
Filter	H. Lieberich	491,574	Feb. 14	843	213	62	932
Filter	J. M. Morgan	489,084	Jan. 3	152	42	62	37
Filter	A. Werner	490,520	Jan. 24	2456	633	62	541
Filter. Oil	A. C. Darragh	493,073	Mar. 7	465	117	62	1451
Filter. Oil	F. A. Nusbaum	493,644	Mar. 21	1406	356 / 357	62	1663
Filter. Pressure water	L. W. Mozingo	492,501	Feb. 28	2307	572	62	1255
Filter. Water	B. Martin	493,633	Mar. 21	1388	352	62	1660
Filter. Water	J. E. Welling	489,354	Jan. 3	569	154	62	122
Filters. Collecting-tube for	G. H. Moore	493,937	Mar. 21	1880	479	62	1755
Filters. Collecting-tube for	G. H. Moore	493,938	Mar. 21	1883	479 / 480	62	1756
Finger-protector	T. Armat	490,733	Jan. 31	2811	721	62	625

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Fire-alarm	W. J. Schweiger	489,237	Jan. 3	394	109	62	88
Fire-alarm-whistle valve	G. W. Brown	489,215	Jan. 3	359	100 / 101	62	81
Fire apparatus	M. A. Pauly	490,496	Jan. 24	2420	625	62	534
Firearm	H. A. Briggs and C. W. Hopkins	489,366	Jan. 3	588	158	62	126
Firearm	D. Conner	493,352	Mar. 14	915	235	62	1553
Firearm. Breech-loading	M. Bye and E. G. Parry	490,005	Jan. 17	1705	445	62	379
Firearm. Magazine	J. M. and M. S. Browning	492,459	Feb. 28	2224	556 / 557	62	1239
Firearm. Magazine	A. W. Savage	491,138	Feb. 7	115	31, 32	62	771
Firearm recoil-check	J. W. Tredway and J. Wirth	490,129	Jan. 17	1815	474	62	404
Fire-bucket	W. Neracher	490,717	Jan. 31	2790	716	62	621
Fire communicator or display device	G. T. Ware	492,595	Feb. 28	2450	609	62	1286
Fire-engine. Chemical	C. T. Holloway	493,028	Mar. 7	406	101	62	1438
Fire-escape	L. Anidjah	489,915	Jan. 17	1435	377	62	326
Fire-escape	D. J. Arnold	490,222	Jan. 17	1965	515	62	432
Fire-escape	I. H. Athey	492,180	Feb. 21	1784	446	62	1137
Fire-escape	D. Beck and R. W. Levitt	493,574	Mar. 14	1288	329	62	1625
Fire-escape	W. E. Bradley	494,407	Mar. 28	2673	670 / 671	62	1917
Fire-escape	J. W. L. Brown	492,955	Mar. 7	291	74	62	1416
Fire-escape	R. N. Bruce	489,368	Jan. 3	590	159	62	127
Fire-escape	P. A. Burgess	491,405	Feb. 7	572	144	62	857
Fire-escape	J. R. Coker	489,463	Jan. 10	751	199	62	173
Fire-escape	C. B. Johnson	490,355	Jan. 24	2290	573 / 574	62	491
Fire-escape	S. Kaye	489,483	Jan. 10	776	205	62	179
Fire-escape	V. H. Felt	493,490	Mar. 14	1134	290	62	1595
Fire-escape	T. W. B. Murray and T. G. Scott	493,556	Mar. 14	1256	322	62	1618
Fire-escape	C. A. Sturtevant	493,391	Mar. 14	976	251	62	1566
Fire-escape securing attachment	A. J. Rich	490,302	Jan. 24	2212	576	62	494
Fire-extinguisher	O. A. Stempel	489,767	Jan. 10	1206	317	62	265
Fire-extinguisher. Automatic	J. D. Brown	490,821	Jan. 31	2941	757	62	652
Fire-extinguisher. Automatic	W. H. Stratton	489,342	Jan. 3	553	150	62	119
Fire-extinguishers. Valve for automatic dry-pipe	W. H. Stratton	489,341	Jan. 3	552	150	62	118
Fire-hose nozzle. Spraying device for	J. Steele	492,119	Feb. 21	1683	420	62	1115
Fire-kindler	A. Johnson	491,355	Feb. 7	496	127	62	842
Fire or burglar alarm	E. La France	489,312	Jan. 3	505	139	62	110
Fireproofing composition for wall-coverings	F. S. Culver	493,152	Mar. 7	591	148	62	1475
Fire-screen	G. H. Jessup	489,482	Jan. 10	775	204 / 205	62	178
Fireworks. Device for displaying	E. Hebenstreit	489,444	Jan. 3	711	190	62	152
Fish-trap	W. H. Tinsley	492,123	Feb. 21	1689	421	62	1116
Fishing-reel	J. Singer	491,955	Feb. 14	1433	357	62	1050
Flask: *See* Molder's flask.							
Flax and hemp brake. Portable	J. T. Smith	494,176	Mar. 28	2398	582	62	1848
Flax or hemp brake	J. T. Smith	494,174	Mar. 28	2294	581	62	1846
Flax or hemp fiber. Finishing-machine for	J. T. Smith	494,175	Mar. 28	2296	581	62	1847
Flood-gate. Self-hoisting	H. A. Corliss	490,137	Jan. 17	1827	477	62	406
Floor	O. Hetzer	491,647	Feb. 14	960	241	62	956
Floor-clamp	A. J. Greeley	492,010	Feb. 21	1519	379	62	1082
Floor-clamp	M. Lutgen	493,506	Mar. 14	1161	296	62	1589
Floor. Fireproof	C. F. Tierney	493,568	Mar. 14	1274	326	62	1622
Floor or ceiling set	J. M. Anthony	489,405	Jan. 3	641	174	62	138
Floor or roof. Fireproof	N. Poulson	493,839	Mar. 21	1718	438 / 439	62	1724
Floor-plate	W. J. Baldwin	490,094	Jan. 17	1752	457	62	390
Floral figure	A. T. Cefrey	489,218	Jan. 3	366	102	62	83
Flour bin and sifter	J. A. McClellan	493,640	Mar. 21	1400	355	62	1662
Flour-bolt	M. W. Clark	492,270	Feb. 21	1925	480	62	1166
Flour-bolt	M. W. Clark	492,347	Feb. 21	2042	508 / 509	62	1189
Flour-bolt	M. W. Clark	492,914	Mar. 7	230	57, 58	62	1404
Flour-bolt	W. D. Gray	492,795	Mar. 7	37	9	62	1366
Flour compounds	W. F. Putnam	492,969	Mar. 7	312	.....	62	1421
Flour, meal, &c., bin	E. Alpaugh	489,552	Jan. 10	887	232	62	201
Flower and making same. Artificial	M. E. A. Bouchet	490,170	Jan. 17	1874	488	62	415
Flower frame. Artificial	E. Diemer	490,642	Jan. 31	2667	687	62	597
Flower-pot	C. H. Schurig and C. Prüfer	491,786	Feb. 14	1177	294 / 295	62	988
Flower-pot-supporting device	W. D. Gridley	492,919	Mar. 7	238	60	62	1405
Flue-cleaner	P. A. Burgess	491,404	Feb. 7	571	143	62	857
Flue-cleaner	J. R. Wilson	491,791	Feb. 14	1182	296	62	999
Flue cleaner. Boiler	C. E. Poor, C. E. Messenger, and A. Dallas.	493,290	Mar. 14	820	210	62	1536
Flue, drain, or pipe cleaning device	W. Dundon	492,393	Feb. 28	2117	528	62	1217
Flue or chimney lining	Y. W. Smith	494,036	Mar. 21	2055	525	62	1788
Flue-scraper	C. E. Davey	493,235	Mar. 7	723	185	62	1501
Fluid-meter	W. G. Kent and H. S. Price	491,245	Feb. 7	296	74, 75	62	805
Fluid-meter. Rotating	A. J. Fuller	489,124	Jan. 3	220	59	62	51
Flush-tank	J. T. McDonough, T. and J. Michel	493,281	Mar. 14	806	207	62	1533
Flushing-tank	L. M. Krouse	492,027	Feb. 21	1550	386	62	1088
Flute. Rub	B. Carpigiani	493,066	Mar. 7	458	115	62	1450
Fly-catcher	G. D. Horton	491,427	Feb. 7	509	151	62	862
Fly-paper holder	J. H. Smith	491,860	Feb. 14	1288	319	62	1021
Fly-paper. Machine for manufacturing	J. H. Smith and M. D. Knowlton	491,861	Feb. 14	1290	319 / 320	62	1022
Fly-screen	W. P. Hellings	492,014	Feb. 21	1531	382	62	1084
Fly-switcher for horses	C. Hayner	492,287	Feb. 21	1945	486	62	1170
Folding chair	C. Kehr	491,214	Feb. 7	251	62, 63	62	795
Folding chair	C. Kehr	491,215	Feb. 7	253	63	62	796
Folding chair	C. Kehr	491,216	Feb. 7	254	63	62	796
Folding hollow body	E. W. Roberts	490,680	Jan. 31	2736	705	62	610

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Folding mechanism	L. C. Crowell	492,760	Feb. 28	2705	672, 673	62	1336
Folding seat for schools, theaters, &c	W. Shriver	493,452	Mar. 14	1072	276	62	1584
Folding table	J. and H. A. Carl	493,479	Mar. 14	1117	286	62	1591
Folding table	S. S. Case	489,369	Jan. 3	591	159	62	127
Folding table	S. Smyth	490,320	Jan. 24	2140	558	62	479
Folding table	H. A. Stevens	491,760	Feb. 14	1131	285	62	991
Foot-warmer. Electrical	W. E. Ulmer	492,247	Feb. 21	1889	472	62	1158
Foot-warmer, &c. Portable	A. A. Whipple	490,091	Jan. 17	1747	455	62	389
Forge	F. W. Althen	490,732	Jan. 31	2810	721	62	625
Fork-guard	F. C. Feicker	489,414	Jan. 3	651	176	62	140
Fork-guard	F. C. Feicker	490,430	Jan. 24	2306	599	62	511
Form. Bust-	P. Bettingen	492,263	Feb. 21	1913	477	62	1164
Fountain: *See* Luminous fountain.							
Fountain	G. Trouvé	490,378	Jan. 24	2235	581, 582	62	498
Fracture apparatus	J. F. Rowley	491,271	Feb. 7	331	84	62	812
Frog. Wrecking-	W. C. Bourdette	491,005	Jan. 31	3254	831, 832	62	711
Froth and liquid separator	A. Werner	490,521	Jan. 24	2457	633	62	541
Fruit-bleacher	C. J. Wheeler	493,570	Mar. 14	1273	327	62	1622
Fruit-box	A. H. Meech	493,179	Mar. 21	1627	414	62	1707
Fruit-evaporator. Portable	A. Sperl and J. Gecmen	489,168	Jan. 3	280	76	62	64
Fruit-gatherer	S. E. Ball	492,952	Mar. 7	283	72	62	1414
Fruit-gatherer	A. R. McLean	492,824	Mar. 7	82	19	62	1374
Fruit-gatherer	L. Olmsted	493,287	Mar. 14	816	209	62	1535
Fruit-picker and pruning implement. Combined	J. H. Griswold	491,269	Feb. 7	329	87	62	811
Fruit-press	S. R. Thompson	494,306	Mar. 28	2957	767	62	1914
Fruit-stoning machine	J. S. Briggs	490,265	Jan. 24	2048	536	62	459
Frying-pan	S. R. Wilmot	489,173	Jan. 3	288	80	62	66
Fuel burner. Fluid-	N. J. Skaggs	492,440	Feb. 28	2191	547, 548	62	1232
Fuel feeder. Pulverized-	H. S. Grigsby	494,375	Mar. 28	2623	658	62	1908
Fuel. Machinery for the manufacture of artificial	W. B. Westlake	489,136	Jan. 3	233	63, 64	62	54
Fumes. Apparatus for condensing	F. Mneller	492,225	Feb. 21	1860	465	62	1152
Fumes. Condensing chamber for lead	H. F. Brown and L. De Camp	489,144	Jan. 3	248	69	62	57
Fumigating apparatus	S. R. Olliphant and T. A. Clayton	490,981	Jan. 31	3217	821, 822	62	704
Funnel	E. N. Gaudron	493,993	Mar. 21	1987	507	62	1775
Funnel	E. N. Gaudron	493,994	Mar. 21	1989	507	62	1776
Funnel	A. Gersdorff	491,421	Feb. 7	500	148	62	861
Funnel	T. W. Johnson	489,585	Jan. 10	937	243	62	210
Funnel for cans. Indicator-	H. B. Watson	494,403	Mar. 28	2667	669	62	1916
Funnel. Measuring-	L. J. Widness	489,620	Jan. 10	985	257	62	220
Fur-plucking machine	I. Dresdner	493,017	Mar. 7	392	98	62	1436
Fur skins. Machine for dehairing	C. Moser and C. Schirmer	490,976	Jan. 31	3208	819, 820	62	702
Furnace: *See* Air-heating furnace. Annealing-furnace. Automatic furnace. Boiler-furnace. Boiler gas-producing furnace. Cremating-furnace. Desulphurizing-furnace. Enameling-furnace. Gas-furnace. Glass-tank furnace. Hot-air furnace. Ore-roasting furnace. Pottery-kiln furnace. Roasting-furnace. Smoke-consuming furnace.							
Furnace	J. B. Archer	492,653	Feb. 28	2550	631	62	1305
Furnace	G. F. Gallagher	493,923	Mar. 21	1855	472, 473	62	1750
Furnace	S. P. Hutchinson	492,020	Feb. 21	1537	383	62	1085
Furnace	M. W. Keene	491,115	Feb. 7	83	23	62	764
Furnace	G. T. Moe	489,490	Jan. 10	793	209	62	182
Furnace	I. J. and R. Monger	489,319	Jan. 3	513	140	62	111
Furnace	J. J. Richardson	489,758	Jan. 10	1192	312	62	262
Furnace	J. Roberts	490,774	Jan. 31	2857	709	62	637
Furnace	C. Streufert	492,006	Feb. 21	1598	397	62	1097
Furnace	W. and J. C. Swindell	490,088	Jan. 17	1742	453, 454	62	388
Furnace for burning coal-screenings	F. L. Bartlett	493,854	Mar. 21	1745	444	62	1730
Furnace for burning garbage, &c	W. McClave	490,582	Jan. 24	2538	653, 654	62	557
Furnace for heating steel ingots	W. E. Koch	489,017	Jan. 3	59	17	62	15
Furnace for roasting, calcining, and oxidizing metals and their compounds	H. Frasch	492,551	Feb. 28	2384	591, 592	62	1275
Furnace for the treatment of refractory ores	C. J. Fauvel	493,076	Mar. 7	468	118	62	1452
Furnace-grate blast-pipe	E. J. Gordon	491,549	Feb. 14	800	203	62	923
Furnace or stove	J. H. Scholding	493,947	Mar. 21	1900	484	62	1759
Furnaces. Air-heating device for	R. Potter	492,428	Feb. 28	2170	542, 543	62	1228
Furnaces. Apparatus for charging and discharging annealing-	J. M. Chatfield	491,768	Feb. 14	1148	288	62	994
Furnaces. Apparatus for moistening the air in hot-air	J. A. Jeffery	492,296	Feb. 21	1959	489	62	1173
Furnaces. Coupling device for trays for annealing-	J. M. Chatfield	492,190	Feb. 21	1798	448	62	1140
Furniture. Convertible	A. Eckert	490,952	Jan. 31	3171	812	62	695
Furniture-fastening	J. H. Stiggleman	491,383	Feb. 7	537	137	62	851
Furniture. Folding leg for	O. G. Franke	493,021	Mar. 7	397	99	62	1437
Furniture. Writing-slide for	N. M. Olson	489,389	Jan. 3	622	168	62	134
Fuse-box. Combination	W. F. Bossert	489,364	Jan. 3	583	157, 158	62	125
Fuse device. Thermostatic	A. Wurts	492,547	Feb. 28	2379	590	62	1271
Fuse. Projectile	J. Rapp	493,735	Mar. 21	1558	397	62	1694

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Gage: *See* Age-gage. Axle-gage. Cigar-maker's gage. Combination-gage. Coupling-gage. Depth-gage. File-gage. Lumber-gage. Saw-gage. Saw-setting gage. Saw-tooth gage. Siding-gage. Surface-gage. Track-gage. Water-gage.							
Gage-line holder	A. S. Snyder	492,636	Feb. 28	2518	623	62	1299
Galvanic battery	W. C. Cahall	489,522	Jan. 10	851	221	62	193
Galvanic battery	G. L. Foote	489,559	Jan. 10	901	235	62	204
Galvanic battery	N. M. Powell	490,231	Jan. 17	1977	518	62	434
Galvanic battery	W. R. Reud	489,892	Jan. 10	1294	338	62	284
Galvanizing iron. Apparatus for	G. Retterer	491,720	Feb. 14	1072	271	62	959
Game apparatus	J. B. Davids	489,854	Jan. 10	1326	346	62	290
Game apparatus	J. B. Davids	489,855	Jan. 10	1327	346	62	291
Game apparatus	J. B. Davids	489,856	Jan. 10	1327	346	62	291
Game apparatus	J. B. Davids	489,857	Jan. 10	1328	346	62	291
Game apparatus	S. N. Johnson	492,961	Mar. 7	300	76	62	1419
Game apparatus	A. E. Stokes	494,496	Mar. 28	2811	705	62	1943
Game apparatus	C. Trogdon	491,286	Feb. 7	305	101	62	822
Game apparatus. Coin-controlled	W. Boardman	493,395	Mar. 14	981	253	62	1567
Game-board	J. B. Davids	489,851	Jan. 10	1324	345	62	290
Game-board	J. B. Davids	489,852	Jan. 10	1325	345	62	290
Game-board	J. B. Davids	489,853	Jan. 10	1325	345	62	290
Game-board	G. H. Monks	491,293	Feb. 7	389	99	62	821
Game-board. Whist	W. A. Logue	490,148	Jan. 17	1844	481	62	409
Game-counter	S. B. Miller	494,011	Mar. 21	2018	514	62	1782
Game puzzle	C. F. Spencer	489,394	Jan. 3	627	169	62	135
Garden-tool	M. Powers	492,364	Feb. 21	2068	516, 517	62	1195
Garment. Bicycle-	M. H. Lawson	491,057	Jan. 31	3347	853	62	731
Garment-fastener	W. F. Peet	490,921	Jan. 31	3119	800	62	685
Garment-fastening	B. Bernstein	491,070	Feb. 7	13	4	62	754
Garment-hook	F. E. Bennett	493,011	Mar. 7	377	94	62	1433
Garment-hook	F. E. De Long	492,741	Feb. 28	2673	663	62	1330
Garment-hook	F. E. De Long	492,742	Feb. 28	2674	664	62	1330
Garment-hook	F. E. De Long	492,743	Feb. 28	2675	664	62	1330
Garment-hook	F. E. De Long	492,744	Feb. 28	2677	664, 665	62	1430
Garment-hook	F. E. De Long	492,745	Feb. 28	2679	665	62	1331
Garment-hook	G. B. Mershon, Jr	491,435	Feb. 7	619	155	62	866
Garment-shaper	J. E. Leavitt	492,514	Feb. 28	2324	576	62	1258
Garment-supporter	G. B. Adams	489,702	Jan. 10	1101	284	62	244
Garment-supporter	A. W. Fries	492,396	Feb. 28	2120	529	62	1218
Garment-supporter	F. E. Holt	492,356	Feb. 21	2057	513	62	1192
Garment-supporter	W. H. Ralph	493,648	Mar. 21	1411	358	62	1664
Garment-supporter	E. Whalen	489,619	Jan. 10	984	257	62	220
Gas alarm. Escaping-	C. J. Milligan	491,580	Feb. 14	851	215	62	934
Gas and air mixing apparatus	W. Smethurst and J. Wade	490,087	Jan. 17	1740	453	62	387
Gas and electric light fixture. Combined	F. X. Gartland	490,903	Jan. 31	3096	794	62	681
Gas apparatus	C. F. Cattell	493,975	Mar. 21	1958	499, 500	62	1769
Gas. Apparatus for manufacturing	T. G. Hall	494,198	Mar. 28	2333	591	62	1855
Gas. Apparatus for manufacturing	J. W. Kenevel	493,891	Mar. 21	1797	458	62	1739
Gas. Apparatus for producing	J. S. Rogers and J. H. Baker	489,594	Jan. 10	950	247	62	212
Gas. Apparatus for the manufacture of	J. B. Archer	491,067	Feb. 7	5	2, 3	62	749
Gas. Apparatus for the manufacture of	J. Askins	491,398	Feb. 7	560	141, 142	62	855
Gas. Apparatus for the manufacture of	A. T. Bennett	493,855	Mar. 21	1746	445	62	1730
Gas-black. Apparatus for the manufacture of	D. M. P. V., and S. P. Schermerhorn	489,332	Jan. 3	532	145	62	115
Gas-burner	A. T. Bennett	493,856	Mar. 21	1748	445	62	1730
Gas-burner	J. M. Döhrer	490,764	Jan. 31	2864	735	62	634
Gas-burner	P. Gary	489,802	Jan. 10	1255	328	62	275
Gas-burner	W. L. Mitchell	492,041	Feb. 21	1570	391	62	1092
Gas-burner cut-off	E. Deane	491,042	Jan. 31	3325	848	62	726
Gas-burner heating attachment	G. Edwards	494,470	Mar. 28	2760	692	62	1933
Gas-burner. Self-closing	A. Spear	490,321	Jan. 24	2141	558	62	479
Gas-burners. Self-closing cut-off for	C. H. Keeney	491,943	Feb. 14	1418	354	62	1047
Gas-engine	J. S. Biggar	491,403	Feb. 7	569	143	62	857
Gas-engine	J. Foos and C. F. Endter	494,134	Mar. 28	2229	568	62	1835
Gas-engine	J. W. Raymond	491,855	Feb. 14	1281	317	62	1020
Gas-engine igniter	C. W. Weiss	492,126	Feb. 21	1693	422	62	1117
Gas-furnace	J. H. Tuffs	492,367	Feb. 21	2072	517, 518	62	1195
Gas-generating apparatus	J. M. Goldsmith	489,737	Jan. 10	1154	299, 300, 301	62	254
Gas-generator	J. H. Miller, Jr	494,012	Mar. 21	2020	515	62	1782
Gas generator. Hydrogen-	W. and T. Hawkins	490,437	Jan. 24	2315	601	62	512
Gas-governor	B. E. Patterson	489,324	Jan. 3	520	142	62	112
Gas-heater	D. Drysdale	492,577	Feb. 28	2423	604	62	1281
Gas-heater	H. C. Earle	491,045	Jan. 31	3329	849	62	727
Gas. Incandescent burner for hydrocarbon	J. S. P. Stutley	494,040	Mar. 21	2061	526	62	1789
Gas-lighter. Electric	T. W. Lane	489,853	Jan. 10	1025	267	62	229
Gas-lighting apparatus. Electric	A. M. Sloss	489,616	Jan. 10	979	255	62	219
Gas. Making pure carbonic-acid	E. Luhmann	491,365	Feb. 7	510	.....	62	845
Gas. Manufacturing	J. B. Archer	491,066	Feb. 7	2	1, 2	62	749
Gas. Manufacturing	C. L. Fitch	489,472	Jan. 10	763	202	62	176
Gas-meter	T. F. Downey	491,411	Feb. 7	578	145, 146	62	858
Gas-meter	S. Williams	492,600	Feb. 28	2461	612	62	1289
Gas-meter frame	H. Logue	490,149	Jan. 17	1845	481	62	409

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Gas or similar motor engine	H. Williams	490,006	Jan. 17	1596	417	62	358
Gas or vapor burner. Self-generating	R. Wallwork and A. C. Wells	489,244	Jan. 3	406	113, 114	62	91
Gas. Process of and apparatus for manufacturing	T. G. Hall	494,200	Mar. 28	2336	592	62	1856
Gas-producer	O. W. Ketchum	490,771	Jan. 31	2873	738	62	636
Gas-protector	F. M. Reed	489,392	Jan. 3	624	169	62	134
Gas washing and scrubbing apparatus	J. H. Fitzgerald	493,156	Mar. 7	598	150	62	1477
Gasoline-burner	J. Williams and G. A. Cummer	493,540	Mar. 14	1219	312	62	1611
Gasoline-burner attachment	A. Sayers	493,186	Mar. 7	643	164	62	1484
Gasoline-burners. Starting attachment for	H. E. F. Borzell and E. E. Bardsley	489,284	Jan. 3	466	120	62	102
Gasoline-heater	T. C. Mosely and A. H. Kingman	490,880	Jan. 31	3042	782	62	671
Gate: *See* Automatic gate. Automatic sliding or rolling gate. Bridge-gate. Car-gate. Elevator-gate. Elevator safety-gate. End-gate. Farm-gate. Flood-gate. Portable gate. Railway-gate. Railway-crossing gate. Sliding gate. Swinging gate.							
Gate	A. Boyd	490,737	Jan. 31	2819	724	62	626
Gate	E. Cahill	493,477	Mar. 14	1115	286	62	1591
Gate	J. L. Chadwick	491,637	Feb. 14	943	237	62	953
Gate	J. H. Dickenson	490,015	Jan. 17	1628	424	62	364
Gate	T. E. Foudray	489,604	Jan. 10	966	251	62	216
Gate	J. P. Irwin	493,725	Mar. 21	1540	393	62	1689
Gate	B. Miller	491,579	Feb. 14	850	215	62	934
Gate	W. Neeb	490,491	Jan. 24	2411	623	62	532
Gate	C. H. Russell	492,237	Feb. 21	1876	468, 469	62	1155
Gate	H. A. Smith	494,390	Mar. 28	2651	665	62	1913
Gate	W. R. White	493,538	Mar. 14	1214	311	62	1610
Gate	W. R. White	493,539	Mar. 14	1216	311, 312	62	1610
Gate	W. A. Williams	489,621	Jan. 10	985	257	62	220
Gate-brace	C. C. A. Sienknecht	491,906	Feb. 14	1360	338	62	1036
Gate-opening mechanism	C. E. Mathers	490,974	Jan. 31	3204	818	62	701
Gear-cutter. Duplex	R. M. Clough	490,638	Jan. 31	2661	686	62	596
Gear-cutting machine. Worm	G. S. Rominger	490,503	Jan. 24	2430	627	62	535
Gear. Expansion or cut-off	O. F. Jones	489,904	Jan. 10	1410	365	62	305
Gear for machine-belts. Engaging or disengaging	W. Maybach	492,872	Mar. 7	161	39	62	1390
Gear. Reversing	D. Pitceathly	490,308	Jan. 24	2125	552, 553	62	476
Gear. Reversing	A. Radovanovic	490,754	Jan. 31	2848	731	62	631
Gear. Reversing	E. G. Smith	489,104	Jan. 3	192	51	62	45
Gearing	W. I. Bunker	492,778	Mar. 7	8	3	62	1361
Gearing. Chain	E. J. Garrard	491,490	Feb. 7	589	148	62	860
Gearing. Machine for cutting worms for	G. H. Nutt	492,966	Mar. 7	308	79	62	1430
Gearing. Variable transmitting	H. C. Behr	491,866	Feb. 14	1301	321	62	1024
Gearing. Worm	C. W. Fowler	493,493	Mar. 14	1137	291	62	1595
Gelatine-circulating device	T. C. Merz	489,539	Jan. 10	871	228	62	197
Generator: *See* Current-generator. Steam-generator. Gas-generator.							
Generator	E. Hayes	489,002	Jan. 3	38	11	62	10
Generator	F. M. Reed	492,366	Feb. 21	2071	517	62	1195
Gig-mill	N. H. Grosselin	493,549	Mar. 14	1235	316	62	1614
Gin-saw fender	H. S. Taylor	490,049	Jan. 17	1679	436	62	374
Gin-saw guard	T. F. Marlow	492,500	Feb. 28	2306	572	62	1355
Glass: *See* Prescription-glass.							
Glass articles. Apparatus for forming stemmed	J. T. Hanes and T. Blankinsop	490,905	Jan. 31	3099	795	62	681
Glass-batch mixer	J. Goodman	490,346	Jan. 24	2188	569	62	489
Glass-batch mixer	D. Pugh	491,445	Feb. 7	629	158	62	868
Glass-blowing apparatus	H. Hilde	493,867	Mar. 21	1764	449, 450	62	1733
Glass grinding and polishing. Apparatus for recovering sand used in	J. M. Krampf	494,209	Mar. 28	2355	596	62	1859
Glass lears. Window	J. H. Lubbers	492,765	Feb. 28	2718	675, 676, 677	62	1339
Glass. Machine for manufacturing articles of	W. Bechtold	493,808	Mar. 21	1682	428, 429	62	1717
Glass. Marbled	C. F. E. Grosse	494,063	Mar. 21	2100	.....	62	1796
Glass-mold	W. H. Jones	490,909	Jan. 31	3104	796	62	682
Glass-mold label-former	J. S. Irwin	490,966	Jan. 31	3193	816	62	699
Glass molds. Apparatus for mechanically operating paste-	M. J. Owens	489,543	Jan. 10	876	229	62	199
Glass-molds. Apparatus for operating	W. H. Jones	490,908	Jan. 31	3103	795, 796	62	682
Glass-tank furnace	W. F. Modes	492,820	Mar. 7	76	18	62	1372
Glassware. Apparatus for the manufacture of	H. Schulze-Berge	493,302	Mar. 14	845	215, 216	62	1539
Glassware. Machine for printing	C. Z. F. Rott	491,025	Jan. 31	3294	841, 842	62	720
Glove	L. Cox	491,471	Feb. 7	677	170	62	878
Glove	E. and S. Jay	490,354	Jan. 24	2200	573	62	491
Glove-fastener	G. E. Adams	489,890	Jan. 10	1375	358	62	300
Glove-fastener	F. E. Hall	490,436	Jan. 24	2314	601	62	512
Glove-fastener	F. E. Hall	490,627	Jan. 24	2640	679	62	577
Glove-fastener	E. J. Kraetzer	490,444	Jan. 24	2324	603	62	514
Glove-fastening	E. J. Kraetzer	494,104	Mar. 21	2171	554	62	1810
Glove-fastening	C. A. Pfenning	493,559	Mar. 14	1261	323	62	1619
Glove or clothing fastener	F. E. Hall	490,435	Jan. 24	2313	600	62	512

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Glove or dress fastener	D. R. Reynolds	490,044	Jan. 17	1674	435	62	374
Glove-turning device	E. Schwalbach, Jr	493,656	Mar. 21	1424	363	62	1667
Gold from its ores. Extracting	C. Moldenhauer	492,221	Feb. 21	1854	.....	62	1151
Gold. Recovering	J. Blair	492,133	Feb. 21	1705	434	62	1120
Gold, silver, and copper from ores. Obtaining	A. French	490,102	Jan. 17	1912	.....	62	422
Governor	P. Lochmann	491,219	Feb. 7	458	64	62	797
Governor. Engine	R. de Eicken	490,343	Jan. 24	2179	568	62	487
Governor. Engine	G. H. Ward	489,171	Jan. 3	285	79	62	65
Governor for mechanical motors	J. E. Hart	490,249	Jan. 17	2011	526	62	441
Governor safety-stop. Engine	J. Barclay	492,258	Feb. 21	1906	475, 476	62	1162
Governor. Steam-brake	B. T. Reilly	489,757	Jan. 10	1191	312	62	262
Governor. Steam-engine	R. Allison	492,254	Feb. 21	1900	474	62	1161
Governor. Steam-engine	J. W. Hayes	493,624	Mar. 14	1373	348	62	1641
Grain-binder	P. P. Coler	489,219	Jan. 3	367	102	62	83
Grain-binder	A. Stark	492,590	Feb. 28	2439	607	62	1284
Grain-binder cord-knotter	A. Stark	492,591	Feb. 28	2443	608	62	1285
Grain-binder knotting mechanism	G. Schubert	489,096	Jan. 3	173	48	62	41
Grain-binders. Knotting-hook for tyers for	W. W. Burson	490,636	Jan. 31	2656	685	62	595
Grain-cleaner or oat-sifting machine	N. B. Higbie	493,429	Mar. 14	1031	266	62	1577
Grain-cleaning machine	T. A. Seip	489,504	Jan. 10	825	216	62	188
Grain-cleaning machine	T. A. Seip	493,451	Mar. 14	1070	275	62	1583
Grain-conveyer	J. B. Stoner	492,579	Mar. 7	170	41	62	1392
Grain-drill	E. H. Grafunder	492,009	Feb. 21	1516	370	62	1082
Grain-drill	F. R. Packham	490,360	Jan. 24	2209	575, 576	62	493
Grain-drill	W. A. Van Brunt	490,728	Jan. 31	2805	719, 720	62	624
Grain-drill attachment	W. Webster	489,353	Jan. 3	568	153	62	122
Grain-drill spring device	J. M. Fender	492,465	Feb. 28	2233	559	62	1241
Grain-elevator Pneumatic	J. B. Stoner	489,340	Jan. 3	549	149	62	118
Grain-meter	J. O. Wyman and O. L. Engen	489,776	Jan. 10	1218	319	62	267
Grain-meter. Rotating	A. B. Landis	492,869	Mar. 7	155	37	62	1389
Grain. Preparing raw	H. T. Brown and G. H. Morris	490,538	Jan. 24	2482	.....	62	566
Grain-scourer	A. P. Campbell	493,065	Mar. 7	456	115	62	1449
Grain-scouring machine	D. E. Sibley	493,603	Mar. 14	1340	341	62	1635
Grain-scouring machine	R. W. Welch	491,623	Feb. 14	926	233	62	949
Grain-separating screen	C. and J. Closz	494,290	Mar. 28	2481	625	62	1881
Grain-separator	F. P. Landis	492,233	Feb. 21	1838	460	62	1148
Grain-spout	F. B. Giesler	492,004	Feb. 21	1509	375	62	1080
Grain-spout carriage	E. D. Mayo	494,153	Mar. 28	2263	575	62	1841
Grand stand	P. P. Caplin	491,087	Feb. 7	39	10	62	755
Grapes, &c. Apparatus for cleaning Malaga	E. Fabbrini	494,193	Mar. 28	2324	588	62	1853
Grapple-carrier	F. Farrar	489,226	Jan. 3	379	105	62	85
Grapple or grip tongs	J. A. Fitzsimmons	490,806	Jan. 31	3015	775	62	666
Grate	B. F. Chollar	494,462	Mar. 28	2751	690	62	1931
Grate	J. W. Cobb	489,462	Jan. 10	750	198	62	173
Grate	E. Fales	494,371	Mar. 28	2613	656	62	1906
Grate	E. Fales	494,372	Mar. 28	2615	657	62	1906
Grate	E. Fales	494,373	Mar. 28	2616	657	62	1907
Grate-bar	C. A. Tilloy	490,932	Jan. 31	3137	804, 805	62	689
Grate. Fire	C. W. Beehler	493,056	Mar. 7	441	111	62	1446
Grate-front and hearth. Folding	W. H. Vance	494,046	Mar. 21	2068	529	62	1791
Grate. Rocking	L. Hall	493,085	Mar. 7	487	122	62	1456
Gravel-screening machine	F. T. Gilbert	489,380	Jan. 3	606	162	62	130
Gravel washer and separator	F. T. Gilbert	489,378	Jan. 3	602	162	62	129
Gravel washing and separating machine	F. T. Gilbert	489,379	Jan. 3	604	162	62	130
Grease, &c. Composition of matter for removing	B. Ehman	491,413	Feb. 7	582	.....	62	859
Grease-trap	N., Jr., and P. J. Barry	492,261	Feb. 21	1911	477	62	1163
Gridiron. Electrically-heated	W. Mitchell	491,382	Feb. 7	435	112	62	831
Grinding and sharpening shearing combs and cutters, &c. Machine for	J. Moffat and W. W. Virtue	494,072	Mar. 21	2117	540	62	1799
Grinding apparatus	F. D. Winkley	492,451	Feb. 28	2307	552	62	1235
Grinding, crushing, or disintegrating grain, &c. Machine for	S. Straker	493,531	Mar. 14	1266	368, 369	62	1607
Grinding-machine	D. H. Church	494,058	Mar. 21	2086	532, 533	62	1794
Grinding-machine	J. H. Crane	491,530	Feb. 14	770	196	62	917
Grinding-machine	F. Schumann	489,333	Jan. 3	535	145, 146	62	116
Grinding machine. Roll	G. Vine	493,952	Mar. 21	1909	487, 488	62	1760
Grinding-mill. Portable	J. G. Mole	490,812	Jan. 31	2939	754	62	650
Grinding or polishing wheel and manufacturing same	F. N. Gardner	494,471	Mar. 28	2761	692, 693	62	1933
Grinding or polishing wheel and manufacturing same	F. N. Gardner	494,472	Mar. 28	2764	693, 694	62	1934
Grinding or pulverizing mill	J. Hunt	493,164	Mar. 7	613	153, 154	62	1479
Grinding-pan	J. H. Kinkead	492,962	Mar. 7	302	76	62	1419
Grinding the point ends of drills, &c. Apparatus for	A. Palmer and F. E. Blackmore	490,588	Jan. 24	2585	656	62	559
Grindstone	G. W. Gandee and J. Peters	489,298	Jan. 3	482	133	62	105
Grindstone, emery-wheel, &c	D. F. Walker	491,789	Feb. 14	1179	296	62	999
Guard: *See* Car safety-guard. Cattle-guard. Elevator-guard. Gin-saw guard. Horse-hoof guard. Railway surface cattle-guard. Sewer-guard.							
Gudgeon	W. Forgie	489,733	Jan. 10	1147	297	62	253
Guide	J. E. Prest	492,749	Feb. 28	2685	666	62	1382
Guitar	W. Becker	493,810	Mar. 21	1687	430	62	1718
Guitar arm-rest and support	H. E. Le Valley	491,755	Feb. 14	1122	283	62	989

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Guitars, mandolins, zithers, or other stringed instruments. Attachment for	I. Nightingale	494,485	Mar. 28	2782	698	62	1937
Gun. Breakdown	I. S. Heatly	489,191	Jan. 3	321	88, 89	62	73
Gun. Breech-loading	D. E. Grant	490,650	Jan. 31	2679	690, 691	62	599
Gun. Breech-loading	D. E. Grant	494,330	Mar. 28	2540	640, 641	62	1893
Gun. Breech-loading breakdown	H. Greener	489,947	Jan. 17	1505	393	62	340
Gun. Breech-loading shot	C. F. Hacker	493,084	Mar. 7	485	121, 122	62	1455
Gun-case	C. N. Markle	492,304	Feb. 21	1976	492	62	1177
Gun-cleaner	W. Geneste	489,606	Jan. 10	968	252	62	217
Gun. Magazine	L. M. R. Daudeteau	491,772	Feb. 14	1155	289, 290	62	995
Gun. Magazine	R. Dinsmore	492,864	Mar. 7	143	35, 36	62	1387
Gun. Magazine	O. H. J. Krag and E. Jörgensen	492,212	Feb. 21	1834	459, 460	62	1147
Gun. Multicharge	G. J. Hilder	493,382	Mar. 14	962	248	62	1563
Gun-rack for tents	S. S. Pague	493,645	Mar. 21	1408	357	62	1664
Gun rifle attachment. Shot	W. J. Redwine	490,614	Jan. 31	2597	669	62	568
Gun-sight	D. M. Barringer	494,340	Mar. 28	2404	606	62	1867
Gun. Submarine	J. P. Holland	491,051	Jan. 31	3340	851	62	729
Gun-tubes or cannon. Machine for finishing bores of large	M. F. Smith	493,191	Mar. 7	649	165, 166	62	1486
Guns. Auxiliary valve for pneumatic	J. Rapieff	490,125	Jan. 17	1803	470, 471	62	400
Guns. Ejector mechanism for drop-down	J. Ross	491,270	Feb. 7	330	84	62	811
Guns. Fixed magazine for breech-loading bolt	P. Mauser	490,629	Jan. 17	1651	422	62	369
Guns. Shiftable magazine for bolt	P. Mauser	492,543	Feb. 28	2369	598	62	1269
Gutter. Roof	L. C. Sims	490,815	Jan. 31	2943	755	62	651
Gymnasiums. Weight-holder for cabinet	J. E. Whitney	491,326	Feb. 7	442	114	62	832
Hair-curler	M. V. Seidell	492,561	Feb. 28	2398	596	62	1276
Hair structure	J. Y. Borden	489,283	Jan. 3	465	129	62	102
Hair twisting and curling machine	P. Woll, Jr	493,004	Mar. 7	367	92	62	1431
Hame	W. H. Hannigan	492,157	Feb. 21	1752	436	62	1130
Hame	J. Q. A. Russell	490,615	Jan. 24	2599	669, 670	62	569
Hame-fastener	M. Potter	493,838	Mar. 21	1717	438	62	1724
Hame-fastening	W. H. Johnson	493,214	Mar. 7	681	174	62	1492
Hame-staple	C. A. Nelson	491,128	Feb. 7	97	27	62	768
Hammer. Bush	E. T. Viett	494,266	Mar. 28	2443	615, 616	62	1874
Hammer. Carpenter's	E. G. Duryea	493,989	Mar. 21	1983	505	62	1774
Hammer. Foot-power	G. Humphry	494,395	Mar. 28	2554	643	62	1896
Hammer. Power	J. O'Brien	493,574	Mar. 21	1772	452	62	1735
Hammock	F. J. House and F. X. Martin	490,287	Jan. 24	2086	544	62	467
Hammock attachment	F. J. Herrick	490,250	Jan. 17	2012	526	62	441
Hammock-stretcher	V. P. Travers	492,852	Mar. 7	122	31	62	1381
Hand-power attachment	F. M. Foster	491,418	Feb. 7	587	147	62	860
Hand wrench	F. B. Ide	492,626	Feb. 28	2504	620	62	1296
Handle: *See* Casket-handle. Coffee-pot handle. Culinary-vessel handle. Saw-handle. Trunk-handle. Vessel-handle. Wire handle.							
Handle	F. W. Hoofer	489,560	Jan. 10	902	235	62	204
Handles. Means for attaching	G. H. Urban	489,170	Jan. 3	284	79	62	65
Handles to vessels. Attachment of	C. J. Zeitinger	493,140	Mar. 7	575	144	62	1472
Hanger: *See* Door-hanger. Eaves-trough hanger. Hat-hanger. Lamp-hanger. Trousers-hanger.							
Hanger	C. C. Lockstaedt	494,148	Mar. 28	2255	574	62	1840
Hansom-doors. Device for opening	C. J. Kishor	493,520	Mar. 14	1184	303	62	1604
Harness	F. C. Kimball	492,210	Feb. 21	1828	458	62	1146
Harness	J. F. Welcome	489,440	Jan. 3	705	189	62	151
Harness-pad	C. Schroeder	489,270	Jan. 3	448	124	62	99
Harness-rosette	L. D. Jones	493,094	Mar. 7	500	125	62	1458
Harness-support	W. Morgan	494,532	Mar. 28	2873	719	62	1953
Harness-tool	J. Cunningham	491,086	Feb. 7	38	10	62	755
Harp. Æolian	C. J. Holbrook	493,773	Mar. 21	1616	411	62	1705
Harrow	N. L. Beck	491,400	Feb. 7	563	142	62	856
Harrow	R. H. Buckingham	491,036	Jan. 31	3315	845	62	734
Harrow	K. C. Bullard	490,336	Jan. 24	2166	565	62	485
Harrow	G. C. Crane	493,071	Mar. 7	463	117	62	1451
Harrow	W. W. Green	491,100	Feb. 7	57	16	62	759
Harrow	W. W. Hinkle and I. H. Gaither	492,680	Feb. 28	2584	639	62	1311
Harrow	C. La Dow	494,538	Mar. 28	2885	723	62	1955
Harrow	K. Laiminger	490,713	Jan. 31	2782	715	62	620
Harrow	T. J. Mann	493,507	Mar. 14	1162	297	62	1599
Harrow	D. Manuel	490,294	Jan. 24	2095	546	62	469
Harrow	J. B. Nugent and H. G. Gilbert	490,718	Jan. 31	2791	716	62	621
Harrow	S. Riley and W. Evans	493,116	Mar. 7	535	134	62	1464
Harrow	E. E. Whipple	490,130	Jan. 17	1816	474	62	404
Harrow	E. E. Whipple	492,315	Feb. 21	1989	495	62	1180
Harrow and roller	F. B. Harvey	490,198	Jan. 17	1991	499	62	423
Harrow attachment, &c	F. Berlin	489,213	Jan. 3	356	100	62	81
Harrow attachment	J. R. Storie	493,310	Mar. 14	859	219	62	1542
Harrow. Disk	G. G. Crowley	489,146	Jan. 3	251	70	62	58
Harrow. Disk	J. F. Platt	493,182	Mar. 7	687	192	62	1483
Harrow or cultivator	T. C. Durham	492,717	Feb. 28	2639	654	62	1323
Harrow or cultivator tooth	F. X. Krabach	489,960	Jan. 17	1520	397	62	343
Harrow scraper. Disk	A. Byington	492,385	Feb. 28	2107	525	62	1215
Harrow. Spring-tooth	H. W. Eisenhart	490,226	Jan. 17	1971	517	62	433

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Harrow. Spring-tooth	J. S. Kurtz	489,417	Jan. 3	659	178, 179	62	141
Harrow-teeth. Holder for spring	H. W. Eisenhart	492,349	Feb. 21	2046	510	62	1190
Harrow-tooth holder	A. B. Farquhar	492,326	Feb. 21	2006	499	62	1183
Harrow-tooth-holding device	J. G. Stowe	491,297	Feb. 7	394	101	62	822
Harrow. Wheeled	F. Anderson	490,132	Jan. 17	1820	475	62	405
Harvester	M. S. Mishler	492,412	Feb. 28	2149	537	62	1223
Harvester	O. O. Storle	491,746	Feb. 14	1108	280	62	986
Harvester-binder tension-needle	T. A. Strode	492,444	Feb. 28	2195	549	62	1233
Harvester-brake	C. Grattan	490,197	Jan. 17	1920	499	62	423
Harvester. Corn	E. A. Harrington	493,710	Mar. 21	1503	385	62	1683
Harvester. Corn	P. F. Hodges	489,680	Jan. 10	1063	277, 278	62	217
Harvester. Corn	P. R. Hunt	491,889	Feb. 14	1333	330, 331	62	1039
Harvester. Corn	J. J. Mealy	490,780	Jan. 31	2907	747	62	643
Harvester. Corn	W. H. Myers and L. Anderson	493,630	Mar. 21	1392	354	62	1662
Harvester. Corn	R. Pederson	494,023	Mar. 21	2035	519, 520	62	1785
Harvester. Cotton	G. Lispenard	494,105	Mar. 21	2172	554, 555, 556	62	1810
Harvester cutting apparatus	M. Wilson	489,062	Jan. 3	122	33	62	30
Harvester elevating and packing mechanism	A. Gardner	491,680	Feb. 14	1006	253, 254	62	966
Harvester. Grain-binding	A. Gardner	491,641	Feb. 14	950	238, 239	62	954
Harvester. Grain-binding	L. Miller	493,731	Mar. 21	1549	395	62	1692
Harvester. Potato	J. Colgrove	490,596	Jan. 24	2560	659, 660	62	561
Harvester-reel	A. Rekart	491,264	Feb. 7	321	82	62	810
Harvester safety-wheel attachment	M. Kaue	489,012	Jan. 3	54	15	62	14
Harvester. Self-binding	W. Butterfield	494,321	Mar. 28	2525	636	62	1891
Harvester. Self-binding	O. O. Storle	493,530	Mar. 14	1203	307, 308	62	1607
Harvester sheaf-register	J. P. Robn	492,109	Feb. 21	1667	414, 415	62	1112
Harvesters. Sheaf-carrier for self-binding	J. F. Steward	490,591	Jan. 24	2553	657	62	560
Harvesting device. Cotton	G. Beekman	493,010	Mar. 7	376	94	62	1433
Harvesting, husking, and separating machines. Roller for corn	C. H. Taylor	493,453	Mar. 14	1074	276	62	1584
Hasp-lock	D. O'Connor	489,613	Jan. 10	977	254	62	218
Hasp-lock	C. V. Pugh	489,326	Jan. 3	594	149	62	113
Hat and clothes rack. Combined	A. L. Coffey	494,269	Mar. 28	2441	617	62	1875
Hat and coat hook	H. S. Hodge	490,768	Jan. 31	2869	736	62	635
Hat-block. Expansible	C. C. Widmer	493,200	Mar. 7	660	168	62	1488
Hat blocking and stretching machine	A. W. Hilsinger	490,563	Jan. 24	2516	647	62	552
Hat-brim-pressing machine	J. Marshall	489,591	Jan. 10	946	246, 247	62	212
Hat-brim-softening device	W. Mitchell	491,319	Feb. 7	432	111	62	830
Hat expanding and contracting apparatus	P. Noë	491,853	Feb. 14	1278	317	62	1019
Hat-hanger	F. L. Johnson	492,297	Feb. 21	1961	489	62	1174
Hat-pouncing machine	J. B. Howe	490,788	Jan. 31	2902	746, 747	62	642
Hat-rack. Locking	F. B. Trout	490,326	Jan. 24	2149	561	62	481
Hat-stand	O. S. and E. F. Conklin	493,248	Mar. 14	746	191	62	1522
Hat sweats and bands. Machine for attaching	G. E. Brush	494,365	Mar. 28	2604	654	62	1905
Hat-tray	H. Likly	489,968	Jan. 17	1533	401	62	346
Hat. Ventilated	C. H. Davies	488,989	Jan. 3	21	6	62	7
Hatch-plate-moving device	A. McDougall	493,282	Mar. 14	807	208	62	1533
Hatchway attachment. Elevator	C. M. Prevear	489,255	Jan. 10	1188	311	62	261
Hay and stock rack	G. E. Schairer	489,094	Jan. 3	171	47	62	40
Hay-carrier track	W. Louden	493,216	Mar. 7	685	175	62	1493
Hay-carriers. Adjustable stop device for	J. H. Burkholder	490,738	Jan. 31	2820	724, 725	62	627
Hay-derrick. Portable	D. V. Garrison	494,473	Mar. 28	2767	694	62	1934
Hay-loader	E. B. Cartmell	491,636	Feb. 14	941	227	62	952
Hay-loader	T. J. Snyder	493,307	Mar. 14	853	217, 218	62	1541
Hay loader and carrier. Combined	D. McCarthy	490,158	Jan. 17	1856	484, 485	62	411
Hay-press	L. F. Gressett	493,996	Mar. 21	1992	508	62	1776
Hay-press	W. H. Young	492,652	Feb. 28	2548	630, 631	62	1304
Hay-press attachment	F. B. Graham and J. H. Knapp	490,072	Jan. 17	1716	447	62	382
Hay-rack	W. H. Capellen and H. A. Crabtree	492,709	Feb. 28	2628	651	62	1321
Hay-rack	A. H. Parker	491,442	Feb. 7	626	157	62	868
Hay-rake	B. F. Wenger	490,697	Jan. 31	2757	710	62	614
Hay rake and loader	H. McPherson	492,825	Mar. 7	83	19, 20	62	1374
Hay rake and tedder. Combined	J. M. Spangler	492,341	Feb. 21	2030	505	62	1187
Hay-rake. Horse	J. H. Cox	492,145	Feb. 21	1731	431, 432	62	1125
Hay-rake. Horse	F. L. Osborn	494,381	Mar. 28	2631	660	62	1910
Hay-sling	W. Louden	493,276	Mar. 14	793	203	62	1531
Hay-stacker	J. A. Carlisle	494,506	Mar. 28	2825	708	62	1945
Hay-stacker	A. M. Corbit	493,576	Mar. 14	1292	330	62	1626
Hay-stacker	G. A. Kennedy	494,336	Mar. 28	2556	644	62	1896
Hay-stacker	W. J. Smith	492,059	Feb. 21	1589	395	62	1096
Head rest	F. E. Case	490,541	Jan. 24	2489	641	62	547
Head-rest	W. O. Crain	493,486	Mar. 14	1128	289	62	1563
Head-rest	S. S. Dreisbach	490,865	Jan. 31	3015	775	62	666
Head-rest	A. P. Jordan	491,651	Feb. 14	967	243	62	957
Head-rest	S. C. G. Watkins	490,090	Jan. 17	1745	455	62	389
Heading and reaping machine	G. H. Abel and J. W. Daly	491,629	Feb. 14	935	235	62	951

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Headlights. Signal attachment for locomotive	B. H. McCain	492,334	Feb. 21	2018	502, 503	62	1185
Heat-regulator	J. J. Schrag	491,600	Feb. 14	804	225	62	942
Heated receptacle. Electro-magnetically	W. Mitchell	489,318	Jan. 3	512	140	62	111
Heated vessel. Electrically	J. V. Capek	493,422	Mar. 14	1014	261, 262	62	1573
Heated vessel. Electrically	S. B. Jenkins	491,484	Feb. 7	693	175	62	881
Heated vessel. Electrically	W. Mitchell	491,321	Feb. 7	434	112	62	830
Heater: *See* Car-heater. Electric heater. Feed-water heater. Gas-heater. Gasoline-heater. Hot-water heater. Milk-heater. Steam-heater. Tire-heater. Water-heater.							
Heater	A. Jack	492,726	Feb. 28	2653	657	62	1326
Heater	W. J. Jackson	492,207	Feb. 21	1825	457, 458	62	1145
Heater for fireplaces, &c	A. E. Lytle	492,732	Feb. 28	2658	659	62	1327
Heating apparatus	P. Mancheron	491,806	Feb. 14	1208	302	62	1005
Heating apparatus	H. J. Wattles	493,537	Mar. 14	1214	311	62	1609
Heating apparatus. Electric	M. W. Dewey	494,291	Mar. 28	2482	626	62	1881
Heating apparatus. Portable	J. E. McElfatrick	493,780	Mar. 21	1698	414	62	1708
Heating attachment	W. Rennyson	492,431	Feb. 28	2174	543, 544	62	1228
Heating. Induction system of electrical	S. B. Jenkins	494,295	Mar. 28	2488	627	62	1883
Heating system. Steam	M. F. Lancrenon	489,748	Jan. 10	1176	306, 307	62	259
Hedge-trimmer	J. L. Jackson	490,074	Jan. 17	1718	448	62	382
Heel and shank finishing machine	C. H. Kelley	490,808	Jan. 31	2931	752	62	648
Heel-calk	J. Dolan	492,194	Feb. 21	1806	451	62	1141
Heel-pad	I. Levy	491,756	Feb. 14	1123	284	62	989
Heel-plate	H. E. Van Benschoten	491,149	Feb. 7	135	36	62	775
Hide-working cylinder	A. E. Whitney	494,183	Mar. 28	2307	585	62	1850
Hides. Machine for treating	W. R. Pullman and H. Smith	491,446	Feb. 7	631	158, 159	62	869
Hides. Unhairing	J. Mellinger	490,791	Jan. 31	2910	741	62	643
Hinge	F. J. Smith	493,190	Mar. 7	648	165	62	1486
Hinge and check. Spring	R. E. Lowe	491,898	Feb. 14	1348	335	62	1033
Hinge. Door	H. M. Locke	493,230	Mar. 7	711	182	62	1498
Hinge. Gate	A. O. Quinby	490,834	Jan. 31	2970	762	62	656
Hinge. Stop	G. P. Hart	491,645	Feb. 14	959	241	62	956
Hitching device	J. E. Terry	489,510	Jan. 10	831	218	62	199
Hitching device. Horse	A. Fisher and G. H. Prestley	490,874	Jan. 31	302	779	62	669
Hitching-strap	F. Sweetland	489,837	Jan. 10	1307	341	62	287
Hitching-strap	F. Sweetland	492,445	Feb. 28	2197	549	62	1233
Hitching-strap holder	S. T. Smith	489,438	Jan. 3	703	188	62	151
Hod-elevator	E. J. Garrard	491,419	Feb. 7	588	148	62	860
Hoe for removing ashes. Folding	F. A. Rice	492,575	Mar. 7	166	39	62	1391
Hog-trap	F. R. Patchett	491,810	Feb. 14	1212	303	62	1006
Hoisting and conveying apparatus	C. L. Saunders	489,662	Jan. 10	1036	270	62	231
Hoisting and conveying machinery	F. C. Birch	489,785	Jan. 10	1231	322	62	270
Hoisting and transfer apparatus	W. D. Sherman	494,389	Mar. 28	2646	663, 664	62	1912
Hoisting apparatus	V. Mathieu	490,574	Jan. 24	2529	651	62	555
Hoisting-block	T. R. Ferrall	492,550	Feb. 28	2183	591	62	1273
Hoisting-drum driving-gear	P. White	489,355	Jan. 3	570	154	62	122
Hoisting-machine	J. E. Ennis	494,398	Mar. 28	2535	638, 639	62	1892
Hoisting-machine	C. Griffith	491,168	Feb. 7	179	45	62	782
Hoists. Cylinder for power	W. E. Hall	492,769	Feb. 28	2726	678	62	1340
Hominy-mill	O. H. Titus	489,723	Jan. 10	1132	293	62	250
Honey-extractor. Centrifugal	O. M. Hill	494,421	Mar. 28	2690	675	62	1921
Hoof-cleaner	J. W. Faestl	490,474	Jan. 24	2380	616	62	525
Hoof-pad	J. W. Fanning	489,896	Jan. 10	1387	360	62	302
Hoof-spreader	J. W. Link and A. E. Wilcox	492,985	Mar. 7	337	85	62	1426
Hoof-trimmer	H. C. McCleave	494,013	Mar. 21	2022	515	62	1783
Hook: *See* Cant-hook. Car-hook. Eyeglass-hook. Garment-hook. Hat and coat hook. Snap-hook. Suspension-hook. Whiffletree-hook. Wire hook.							
Hook and eye	C. E. Barnes	491,399	Feb. 7	562	142	62	855
Hook and eye	Z. E. Bates and M. E. Collins	489,520	Jan. 10	849	221	62	193
Hook and eye	O. E. Schmieder	489,095	Jan. 3	172	47	62	47
Hook and eye	H. S. Wedmore	489,053	Jan. 3	112	30	62	28
Hooks and eyes. Eye for	J. M. Stewart	492,442	Feb. 28	2193	548	62	1232
Hooks and eyes. Machine for carding	J. W. Granger	491,281	Feb. 7	349	88	62	815
Hooks and eyes. Machine for manufacturing	J. W. Granger	491,282	Feb. 7	353	89	62	816
Hooks. Method of and machine for making garment-	R. C. Manville	491,289	Feb. 7	367	92, 93, 94, 95, 96, 97	62	818
Hoop-driving machine	W. J. Hook	490,476	Jan. 24	2382	616, 617	62	526
Hoops. Manufacture of	E. J. Cochran	492,348	Feb. 21	2045	509	62	1190
Horse-checking device	J. H. Gibson	493,888	Mar. 21	1793	457	62	1739
Horse-detacher	J. H. Garner	491,734	Feb. 14	1090	276	62	982
Horse-detacher	W. Mather	490,610	Jan. 24	2381	668	62	567
Horse-detacher	I. A. McCaslin	491,807	Feb. 14	1210	302	62	1006
Horse-detacher	G. Riley	491,815	Feb. 14	1218	305	62	1007
Horse-hoof guard	W. Brown	492,621	Feb. 28	2497	619	62	1295

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Horse or carriage block	N. F. Carpenter	489,669	Jan. 10	1046	272	62	233
Horse-power	E. H. Condit	492,528	Feb. 14	767	195	62	916
Horse-power	J. Dages	491,267	Feb. 7	325	83	62	811
Horse-power	W. M. Lewis	493,827	Mar. 21	1707	434	62	1722
Horse-weight	J. R. Terrell and W. E. Frasier	493,370	Mar. 14	950	244	62	1561
Horseshoe	M. S. O'Neil	494,159	Mar. 28	2270	576	62	1842
Horseshoe	E. Bouchard	490,063	Jan. 17	1702	444	62	379
Horseshoe-blank-rolling machine	J. Curtin	494,250	Mar. 28	2415	609	62	1869
Horseshoe-fastening	H. R. Williams	489,061	Jan. 3	121	33	62	30
Horseshoe-fastening. Nailless	E. T. Covell	490,270	Jan. 24	2057	538	62	461
Horseshoe-machine	D. L. Mayow	492,691	Feb. 28	2599	643	62	1315
Horseshoe-nail	J. Roberts	494,166	Mar. 28	2282	578, 579	62	1844
Horseshoe-nail machines. Feeding mechanism for	W. W. Miner	490,613	Jan. 24	2596	660	62	568
Horseshoe-nails. Die for the manufacture of	W. W. Miner	490,397	Jan. 24	2259	587	62	502
Horseshoe-nails. Making	W. W. Miner	490,395	Jan. 24	2257	586	62	502
Horseshoe-nails. Making	W. W. Miner	490,392	Jan. 24	2252	586	62	502
Horseshoe-nails. Making	W. W. Miner	490,393	Jan. 24	2254	586	62	502
Horseshoe-nails. Manufacturing	W. W. Miner	490,396	Jan. 24	2258	587	62	502
Horseshoe-nails. Manufacturing	W. W. Miner	490,394	Jan. 24	2255	586	62	502
Horseshoe. Nailless	C. W. Crannell	491,368	Feb. 7	514	132	62	846
Horseshoe. Nailless	C. W. Crannell	492,460	Feb. 28	2227	557	62	1240
Horseshoe. Rope-tread	T. Doyle	492,481	Feb. 28	2258	564	62	1245
Horseshoe-sharpener	J. W. Rapp	492,665	Feb. 28	2567	635	62	1308
Horseshoe with auxiliary flanges	J. Gutmann	490,499	Jan. 24	2425	636	62	545
Horseshoes. Die for making	J. Benfield	491,643	Feb. 14	956	240	62	956
Hose	J. E. Hopkinson	490,734	Jan. 31	2812	721, 722	62	625
Hose-clamp	J. Nase	489,478	Jan. 10	770	203	62	177
Hose-clamp	F. T. Weidaw	492,165	Feb. 21	1763	440	62	1132
Hose-coupling	S. M. Beery	492,855	Mar. 7	125	32	62	1382
Hose-couplings. Manufacture of	E. L. Townsend	494,316	Mar. 28	2540	634	62	1889
Hose-holder	L. F. Pearson	493,316	Mar. 14	867	221	62	1543
Hose-nozzle	W. Leggett	491,443	Feb. 7	627	157	62	868
Hose-patch	J. D. Otis and J. M. Harper	490,445	Jan. 24	2425	604	62	514
Hose-pipe coupling	C. A. G. Storz	492,047	Feb. 21	1576	392	62	1003
Hose-pipe coupling	C. A. G. Storz	489,106	Jan. 3	195	52	62	45
Hose-reel	W. A. Kirby	489,107	Jan. 3	196	52	62	46
Hose-washer	J. E. Taber	492,024	Feb. 21	1545	385	62	1087
Hosiery	J. Black, Jr.	491,821	Feb. 14	1225	307	62	1009
Hot-air apparatus	R. H. Yeoman	490,241	Jan. 17	1998	523	62	438
Hot-air apparatus	R. H. Yeoman	491,627	Feb. 14	933	234	62	951
Hot-air furnace	R. H. Yeoman	491,628	Feb. 14	934	234	62	951
Hot-air furnace	T. E. Martin	489,192	Jan. 3	323	80	62	73
Hot-air pipe	E. R. Stasch	489,904	Jan. 17	1580	413	62	355
Hot-air register	A. Miller	490,579	Jan. 24	2534	652	62	556
Hot-air register	F. Burmeister	491,524	Feb. 14	762	194	62	915
Hot-air registers. Moistening attachment for	J. H. Reese	492,233	Feb. 21	1872	467	62	1154
Hot-water boiler	J. Ewig	489,296	Jan. 3	479	132	62	104
Hot-water boiler	M. E. Herbert	489,807	Jan. 10	1261	331	62	276
Hot-water heater	M. E. Herbert	492,289	Feb. 21	1947	487	62	1171
Hot-water heater	F. K. Caswell	494,323	Mar. 28	2528	637	62	1892
Hot-water heater	H. B. Clarke	492,538	Feb. 28	2363	586	62	1268
Hot-water heater	H. T. Nye	492,695	Feb. 28	2605	644, 645	62	1316
Hot-water heater for cars, &c	G. T. Brewer	489,141	Jan. 3	240	66	62	55
Hot-water heater. Mantel	T. Holland	491,108	Feb. 7	79	20	62	702
Hotel-alarm. Electric	J. McMurrow, Jr.	492,694	Feb. 28	2603	644	62	1316
House: *See* Feeding-house.							
House	J. I. Comly. (Reissue)	11,304	Feb. 7	732	185, 186	62	889
House or tent. Portable	A. C. Lauber	490,205	Jan. 17	1937	508	62	496
House safety attachment	C. Zimmerman	490,780	Jan. 31	2894	742	62	640
Household implement	O. Avery	491,919	Feb. 14	1378	344	62	1040
Hub-attaching device	C. F. Carlson	490,136	Jan. 17	1826	477	62	406
Hub attachment. Wheel	L. Harris	493,771	Mar. 21	1614	411	62	1705
Hub. Cycle	A. Perkins	493,474	Mar. 14	1107	285	62	1590
Hub-protector	E. F. Ryder	491,076	Mar. 21	2122	541	62	1800
Hub. Vehicle	J. T. Hart	492,436	Feb. 28	2182	546	62	1230
Hub. Vehicle	A. P. Taylor	491,925	Feb. 14	1390	347	62	1042
Hub. Vehicle-wheel	L. C. Labady	490,089	Jan. 17	1744	454	62	388
Hub. Wheel	J. S. Copeland	493,097	Mar. 7	503	126	62	1459
Hubs. Dust and mud cap for vehicle	J. Maria	491,937	Feb. 14	1410	352	62	1046
Huller: *See* Almond or walnut huller.		489,257	Jan. 3	429	119	62	95
Husking-machine	C. H. Taylor	490,727	Jan. 31	2804	719	62	624
Husking-pin	S. M. Halvardsgaard	490,559	Jan. 24	2511	646	62	551
Hydrant	R. A. Brooks	494,318	Mar. 28	2519	635	62	1889
Hydrant	F. H. Richards	490,601	Jan. 24	2573	663	62	564
Hydrant-caps. Retaining device for	A. Scheid	490,311	Jan. 24	2139	554	62	476
Hydrocarbon-burner	S. F. Rosso	489,320	Jan. 3	567	143	62	114
Hydrocarbon-burner	B. N. Hawes	492,466	Feb. 28	2234	559	62	1241
Hydrocarbons mixed with air and superheated steam. Apparatus for burning	W. L. Miller	491,555	Mar. 14	1255	322	62	1618
Ice-cream can	J. Burns	490,470	Jan. 24	2372	614	62	524
Ice-cream freezer	G. A. Thurston	489,998	Jan. 17	1585	414	62	356
Ice-cream freezer	T. H. Besse	493,906	Mar. 21	1894	465	62	1744
Ice-cream freezer	J. W. Bowley	493,966	Mar. 21	1942	495	62	1766
Ice-cream freezer	C. E. Frick	488,995	Jan. 3	30	9	62	8
Ice-cream freezer	J. M. Hart	491,104	Feb. 7	66	18	62	761
Ice-cream freezer	J. W. MacDonald	489,565	Jan. 10	909	237	62	205
Ice-cream freezer	E. M. Thompson	491,930	Feb. 14	1397	348	62	1043

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ice-cream freezer and packer	J. Joralemon	491,650	Feb. 14	963	{242 / 243}	62	957
Ice-creeper	J. F. Comfort	492,972	Feb. 21	1928	481	62	1166
Ice-holder	R. H. Galbreath	490,902	Jan. 31	3096	794	62	680
Ice-machine	J. A. Muller	489,387	Jan. 3	619	167	62	133
Ice-making apparatus	L. Pusey	491,225	Feb. 7	267	67	62	799
Ice-making machinery	D. L. Holden	490,475	Jan. 24	2381	616	62	525
Ice-plow tooth-fastening	J. G. Bodenstein	491,332	Feb. 7	450	116	62	834
Ice-tongs. Making	J. S. Field	491,540	Feb. 14	783	200	62	919
Implement. Combination pocket	A. A. Low	491,780	Feb. 14	1167	292	62	997
Incrustation device	J. J. Monahan	490,671	Jan. 31	2721	700	62	607
Incubator	F. Frey	488,994	Jan. 3	27	8	62	8
Incubator	F. Minter	490,286	Jan. 24	2101	547	62	470
Incubator	D. Wheat	492,079	Feb. 21	1626	402	62	1103
Index	L. L. Dennick	494,466	Mar. 28	2756	691	62	1932
Index	J. F. Laning	493,552	Mar. 14	1240	{317 / 318}	62	1615
Index and balance-indicator for account-books. Combined	J. H. Rand	493,841	Mar. 21	1723	{439 / 440}	62	1725
Index device. Combination	S. F. Baker	489,599	Jan. 10	960	250	62	214
Index. Mechanical	A. E. Carlson	492,369	Feb. 21	1924	480	62	1165
Indicator: *See* Alarm-indicator. Cash-indicator. Electrical indicator. Elevator-indicator. Low-water indicator. Speed-indicator. Station-indicator. Temperature-indicator. Thermometric indicator.							
Indicator	J. H. Wilhelm	489,060	Jan. 3	120	33	62	30
Inhaler	J. E. Lee	491,778	Feb. 14	1165	291	62	996
Inhaler	R. E. Woodward	490,008	Jan. 17	1599	418	62	389
Inhaler and spirometer. Combined	W. A. Shepard	492,973	Mar. 7	319	81	62	1402
Injector	T. J. Hart	492,921	Mar. 7	241	60, 61	62	1406
Injector	H. Hopkinson	489,812	Jan. 10	1269	333	62	278
Injector	H. Hopkinson	489,813	Jan. 10	1270	333	62	278
Injector	A. Simpson and M. Speicher	490,590	Jan. 24	2552	657	62	559
Injector. Steam and air	S. R. Earle	493,257	Mar. 14	760	194	62	1525
Inkstand	E. Davis	491,640	Feb. 14	948	238	62	954
Inkstand	A. Hillgren	489,636	Jan. 10	1004	261	62	224
Inkstand. Automatically-feeding	T. Sweesy	494,448	Mar. 28	2731	684	62	1927
Inner sole	H. A. Sawyer	492,994	Mar. 7	351	88	62	1428
Inseam-trimming machine	C. P. Perkins	492,991	Mar. 7	346	87, 88	62	1427
Insect-powder distributer	A. S. Hotchkiss	493,587	Mar. 14	1306	333	62	1629
Insecticide	D. Smith	490,668	Jan. 31	2748	.....	62	612
Inspirator	W. R. Park and B. T. Williston	492,944	Mar. 7	271	69	62	1412
Insulated magnetic coil	T. E. Morford	491,491	Feb. 7	701	177	62	883
Insulating compound	M. H. Devey	490,641	Jan. 31	2666	.....	62	597
Insulating conduit. Electrical	C. W. Jefferson	491,707	Feb. 14	1052	266	62	976
Insulating-coupling	E. Ballet	493,883	Mar. 21	1787	456	62	1738
Insulating electric conductors	T. E. Morford. (Reissue)	11,303	Feb. 7	731	185	62	889
Insulation of dynamo-armatures	T. E. Morford	491,490	Feb. 7	700	177	62	883
Insulator	A. J. Hanty	490,560	Jan. 24	2512	647	62	551
Insulator	A. L. Johnston	491,890	Feb. 14	1337	331	62	1031
Insulator	A. R. Lane	491,362	Feb. 7	507	130	62	845
Insulator	L. McCarthy	490,302	Jan. 24	2106	548	62	472
Insulator	L. McCarthy	491,729	Feb. 14	1083	273	62	981
Insulator-bracket	W. N. Eichberg	492,394	Feb. 28	2118	528	62	1217
Insulator-clip	W. H. Edmunds	491,208	Feb. 7	248	60	62	793
Insulator-pin	F. M. Locke	493,434	Mar. 14	1037	268	62	1578
Insulator. Strain	L. McCarthy	489,658	Jan. 10	1030	269	62	229
Insulator. Trolley-wire	M. H. Hathaway and J. Kelleher	493,713	Mar. 21	1507	385	62	1683
Interlocking switch and signal	C. A. Christofferson	489,581	Jan. 10	930	241	62	208
Iron: *See* Crimping-iron. Gridiron. Sad-iron. Smoothing-iron. Soldering-iron.							
Iron. Apparatus for the purification of cast-	A. P. G. Roilet	491,508	Feb. 7	729	{184 / 185}	62	889
Iron. Manufacturing sheet-	W. D. Wood	490,236	Jan. 17	1982	.....	62	436
Ironing-machine	C. L. Braley and J. C. Stewart	491,634	Feb. 14	940	236	62	952
Ironing-machine	A. R. Gustafson	490,113	Jan. 17	1781	{463 / 464}	62	396
Irrigation. Apparatus for distributing water for	F. W. Barkhaus, Jr.	494,455	Mar. 28	2741	687	62	1929
Jack: *See* Lifting-jack. Railway-track jack. Screw-jack. Track-jack. Wagon-jack. Window-jack.							
Jack and truck. Combined	W. Beckert	493,811	Mar. 21	1688	430	62	1718
Jacket. Chest-protecting	C. P. Jaynes	489,681	Jan. 10	1066	278	62	237
Jacquard mechanism	H. Hardwick	490,350	Jan. 24	2193	571	62	490
Jar: *See* Battery-jar.							
Jar-cover	T. E. Ogram	490,720	Jan. 31	2794	717	62	622
Jar-fastener	C. C. Dilts	492,391	Feb. 28	2116	528	62	1217
Jar stopper-fastener. Fruit-	J. H. Forrest	493,698	Mar. 21	1488	381	62	1680
Joint: *See* Machine-joint. Pipe-joint. Rail-joint. Railway-rail joint. Stovepipe-joint. Swing-joint.							
Journal-bearing. Antifrictional	C. F. Paige	490,867	Jan. 31	3017	775	62	666
Journal-bearing. Self-lubricating	J. J. Wood	493,742	Mar. 21	1573	400	62	1697
Journal-bearings. Composition for	J. T. Richards	492,750	Feb. 28	2686	.....	62	1332
Journal-box	H. J. Thompson	493,665	Mar. 21	1437	366	62	1669
Journal-box. Antifriction	G. Spencer	494,392	Mar. 28	2654	665	62	1913
Journal-boxes. Means for supporting	J. F. Hey	493,499	Mar. 14	1150	294	62	1597

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Keg or tool rack	W. E. Pierce	493,896	Mar. 21	1598	460	62	1741
Kettle	T. Cascaden	493,974	Mar. 21	1957	499	62	1769
Kettle	W. J. Plecker	493,782	Mar. 21	1630	415	62	1708
Kettle-lid-lifting attachment	C. J. Hafey	491,552	Feb. 14	804	204	62	924
Key: *See* Watch-key.							
Keyboard. Transposing	J. Casey and M. S. Chism	490,194	Jan. 17	1913	498	62	422
Key-pouch	B. French	493,069	Mar. 7	461	116	62	1450
Keyway-cutting machine	G. F. Grotz	489,304	Jan. 3	493	{136 / 137}	62	107
Kiln: *See* Brick-kiln. Brick or tile kiln. Continuous kiln. Drying-kiln. Muffle-kiln. Wood-drying kiln.							
Kitchen-cabinet	D. R. Cotner	494,194	Mar. 28	2218	565	62	1833
Kitchen-cabinet	I. S. Hartsock	489,951	Jan. 17	1509	394	62	341
Kitchen-table	J. A. De La Porte	494,191	Mar. 28	2321	588	62	1853
Kite	J. W. Davis	490,949	Jan. 31	3166	811	62	694
Knapsack	H. C. Merriam	494,216	Mar. 28	2364	598	62	1861
Kneader. Dough-	L. Durand	493,674	Mar. 7	466	118	62	1451
Kneading and cooling board	C. Bingham	491,977	Feb. 21	1469	366	62	1072
Kneading-machine	W. Woolcott	490,182	Jan. 17	1896	493	62	419
Knife: *See* Mitering-knife. Mold-forming knife. Pocket-knife.							
Knife	J. May	492,409	Feb. 28	2147	536	62	1223
Knife-blades. Making	T. Shaw	489,719	Jan. 10	1126	{290 / 291}	62	249
Knitted-garment sleeve	R. W. Scott	493,224	Mar. 7	701	179	62	1496
Knitted undergarment. Combination	G. O'Brien	491,950	Feb. 14	1428	356	62	1049
Knitting fabrics	W. Ziock	491,460	Feb. 7	661	{165 / 166}	62	874
Knitting-frame Straight-bar	G. Heidler	490,351	Jan. 24	2195	{571 / 572}	62	490
Knitting-machine	W. Diebel	492,539	Feb. 28	2364	587	62	1268
Knitting-machine	J. Frellochr	489,801	Jan. 10	1252	{327 / 328}	62	274
Knitting-machine cam-cylinder	R. Kirkpatrick	491,118	Feb. 7	86	24	62	765
Knitting-machine cam-guard	G. H. Coburn	493,909	Mar. 21	1827	465	62	1745
Knitting machine. Circular-	E. R. Branson	493,575	Mar. 14	1289	329	62	1625
Knitting machine. Circular-	A. P. Griffith and T. N. Caswell	493,924	Mar. 21	1856	{473 / 474}	62	1750
Knitting machine. Circular-	H. A. Houseman	489,957	Jan. 17	1516	396	62	342
Knitting machine. Circular-	A. Roscher	494,229	Mar. 28	2384	602	62	1864
Knitting-machine needle	R. Kirkpatrick	491,117	Feb. 7	85	24	62	765
Knitting-machine stop mechanism	D. F. Sullivan and E. F. Staples	490,758	Jan. 31	2854	732	62	632
Knitting-machine stop-motion	G. J. Manderfield	494,258	Mar. 28	2431	612	62	1872
Knitting-machine stop-motion attachment	C. J. Sibbald	489,420	Jan. 3	664	180	62	143
Knitting-machines. Dial-cam-operating device for	L. N. D. Williams	491,911	Feb. 14	1366	340	62	1037
Knitting-machines. Electric stop-motion for	W. M. Bell	491,004	Jan. 31	3249	831	62	710
Knitting-machines. Extra-thread-feeding device for	L. N. D. Williams	491,327	Feb. 7	443	{114 / 115}	62	832
Knitting machines. Needle-picking device for circular-	W. Diebel	491,089	Feb. 7	41	11	62	756
Knob attachment	W. Schilling	490,685	Jan. 31	2743	706	62	611
Knockdown box or crate	J. C. Meem	494,215	Mar. 28	2363	597	62	1861
Knot-tying machine	W. H. Borden	493,205	Mar. 7	666	{170 / 171}	62	1489
Label	H. J. Tibbals	492,641	Feb. 28	2526	626	62	1301
Label-case. Metallic	R. D. S. Tyler	490,759	Jan. 31	2856	733	62	632
Label-holder	J. Ready	490,164	Jan. 17	1866	486	62	413
Label-holder	J. S. Smith	490,687	Jan. 31	2746	707	62	612
Label-holder. Druggist's spring	A. C. Dempsey	493,154	Mar. 7	595	149	62	1476
Labeling-machine	A. M. Donally	491,989	Feb. 21	1486	371	62	1075
Lace fastener. Shoe-	W. T. Timmerman	490,997	Jan. 31	3242	828	62	709
Lace fastening. Shoe-	D. H. Abney	493,202	Mar. 7	663	169	62	1489
Lace pointing and punching machine. Shoe-	J. Wills	494,311	Mar. 28	2566	639	62	1868
Lace. Shoe-	C. Goldthwait	492,793	Mar. 7	34	8	62	1366
Lacing-stud	P. A. Raymond	494,084	Mar. 21	2135	546	62	1803
Ladder	C. V. Childs	493,977	Mar. 21	1962	501	62	1769
Ladder and ironing-board. Combined step-	A. J. Iden	493,092	Mar. 7	497	124	62	1457
Ladder and window-platform. Convertible step-	J. La Burt	490,664	Jan. 31	2709	697	62	605
Ladder. Extension-	I. T. Cross	494,270	Mar. 28	2449	617	62	1876
Ladder. Extension step-	P. Poertner	492,992	Mar. 7	348	88	62	1428
Ladder. Fire-	R. Colleret	489,628	Jan. 10	994	{259 / 260}	62	222
Ladder. Fire-	J. M. Wallace	493,345	Mar. 14	906	232	62	1551
Ladder. Fire-	O. Witzel	494,452	Mar. 28	2737	{686 / 687}	62	1928
Ladder. Ornamental step-	A. Dornitzer	488,990	Jan. 3	22	6	62	7
Ladder. Safety-	A. Necker	494,073	Mar. 21	2119	{540 / 541}	62	1800
Ladder. Step-	R. F. Porch	490,042	Jan. 17	1672	435	62	373
Ladder. Step-	S. R. Smith	490,991	Jan. 31	3235	826	62	707
Ladder. Step-	W. P. Stibbs	491,820	Feb. 14	1223	306	62	1009
Ladder. Store-service	L. A. Wieland	489,059	Jan. 3	119	32	62	30
Lamp	H. Fresh	493,861	Mar. 21	1756	447	62	1732
Lamp	B. J. M. Menge	489,488	Jan. 10	788	{208 / 209}	62	181
Lamp	J. H. Purdy	493,341	Mar. 14	900	231	62	1549
Lamp	R. Reid, R. Hanna, T. Holroyd, and H. A. Wheat.	490,415	Jan. 24	2285	594	62	507
Lamp. Argand	W. C. Homan	491,965	Feb. 14	1449	{360 / 361}	62	1054

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Lampblack. Manufacture of	G. L. Cabot	491,923	Feb. 14	1385	{346 {347	62	1041
Lamp bracket. Miner's	J. R. Watts	493,137	Mar. 7	568	143	62	1471
Lamp. Car	E. Boesch	492,953	Mar. 7	285	73	62	1415
Lamp. Car	E. Boesch	492,954	Mar. 7	287	73, 74	62	1416
Lamp-chimney attachment for medical vaporizing and heating purposes	J. E. Wenman	491,827	Feb. 14	1233	308	62	1011
Lamp-chimney holder	W. H. Soper	489,695	Jan. 10	1090	282	62	242
Lamp. Cooking	L. Wojidkow	493,803	Mar. 21	1673	426	62	1716
Lamp cut-out. Arc	C. E. Scribner	491,605	Feb. 14	901	226	62	943
Lamp cut-out. Incandescent-electric	T. A. Edison	491,992	Feb. 21	1490	372	62	1076
Lamp. Duplex electric-arc	C. E. Scribner	491,251	Feb. 7	303	77	62	807
Lamp. Duplex electric-arc	C. E. Scribner	491,603	Feb. 14	898	225	62	942
Lamp. Electric-arc	B. B. Ward	492,124	Feb. 21	1690	421	62	1116
Lamp. Electric-arc	W. H. Akester	491,915	Feb. 14	1372	343	62	1038
Lamp. Electric-arc	W. H. Akester	491,916	Feb. 14	1373	343	62	1039
Lamp. Electric-arc	W. E. Freeman	491,095	Feb. 7	49	13	62	758
Lamp. Electric-arc	F. D. Goold	491,548	Feb. 14	798	202	62	922
Lamp. Electric-arc	H. Harper	492,200	Feb. 21	1811	453	62	1143
Lamp. Electric-arc	H. Harper	492,201	Feb. 21	1812	{453 {454	62	1143
Lamp. Electric-arc	R. M. Hunter	493,359	Mar. 14	925	238	62	1555
Lamp. Electric-arc	R. M. Hunter	493,360	Mar. 14	930	238	62	1557
Lamp. Electric-arc	C. K. MacFadden	492,815	Mar. 7	69	16, 17	62	1371
Lamp. Electric-arc	C. E. Scribner	491,604	Feb. 14	900	226	62	943
Lamp. Electric-arc	J. Sugden and W. J. L. Sandy	490,992	Jan. 31	3236	826	62	707
Lamp. Electric-arc	J. Thompson	492,312	Feb. 21	1986	494	62	1179
Lamp. Electric-arc	E. Thomson	493,046	Jan. 3	102	28	62	26
Lamp. Electric-arc	E. Thomson	493,739	Mar. 21	1566	399	62	1696
Lamp. Electric-arc	W. P. Wiemann	492,650	Feb. 28	2542	{629 {630	62	1304
Lamp. Electric head	W. Main	491,713	Feb. 14	1060	268	62	977
Lamp filament. Incandescent	A. de Lodyguine	494,151	Mar. 28	2260	.....	62	1840
Lamp-filler	L. R. Oakes	492,828	Mar. 7	87	21	62	1375
Lamp fixture or bracket. Electric	J. T. Robb	491,596	Feb. 14	887	223	62	940
Lamp-hanger. Adjustable	N. Jenkins	492,808	Mar. 7	57	14	62	1369
Lamp hanger. Electric	C. S. Hume	489,815	Jan. 10	1271	333	62	279
Lamp hanger. Electric-incandescent	S. O. Larkins	492,215	Feb. 21	1843	461	62	1149
Lamp. Hanging	J. E. Bohner	492,321	Feb. 21	1999	498	62	1181
Lamp. Incandescent	J. von der Kammer	492,809	Mar. 7	59	14	62	1370
Lamp. Incandescent gas	J. G. Jackson and A. L. Daniels	492,295	Feb. 21	1957	488	62	1173
Lamp light-varying attachment	B. F. Dunn	490,644	Jan. 31	3668	687	62	598
Lamp-lighter	R. H. Jolly	492,6?5	Feb. 28	2591	641	62	1313
Lamp-lighter. Electric	J. C. Chambers	492,913	Mar. 7	228	57	62	1403
Lamp. Oil	J. H. Ross and E. E. Atkins	494,230	Mar. 28	2387	603	62	1864
Lamp or lantern. Signal	L. G. Huntington and R. J. Armour	490,770	Jan. 31	3872	737	62	636
Lamp. Pocket	J. H. Farrel. (Reissue)	11,299	Jan. 10	1414	366	62	306
Lamp. Pocket	W. R. Fearn	491,963	Feb. 14	1446	360	62	1053
Lamp. Regenerative	A. J. English	489,582	Jan. 10	933	{241 {242	62	209
Lamp-socket	H. P. Ball and A. Metzger	493,609	Mar. 14	1349	343	62	1637
Lamp-socket	E. R. Elliott	491,268	Feb. 7	328	83	62	811
Lamp-socket	A. Metzger	489,682	Jan. 10	1067	278	62	238
Lamp socket and tap. Electric	A. F. Vetter	490,605	Jan. 24	2578	665	62	565
Lamp socket. Incandescent	G. C. H. Foster	489,158	Jan. 3	266	74	62	62
Lamp socket. Incandescent	J. Hutchinson	491,561	Feb. 14	821	208	62	928
Lamp socket. Incandescent	J. F. McLaughlin	493,109	Mar. 7	526	132	62	1463
Lamp sockets. Bushing for incandescent	C. A. B. Halvorson	491,682	Feb. 14	1012	255	62	968
Lamp. Street	C. W. Bodkin	492,320	Feb. 21	1997	497	62	1181
Lamp support	C. N. Wilcox	489,172	Jan. 3	287	80	62	66
Lamp support. Electric	J. R. Protzman	493,446	Mar. 14	1061	273	62	1582
Lamp support. Electric	C. E. Richardson	494,348	Mar. 28	2573	648	62	1900
Lamp supporter. Electric	A. G. De Witt	493,578	Mar. 14	1296	331	62	1627
Lamp-suspending device	J. Barber	494,116	Mar. 28	2198	561	62	1829
Lamp vibrator-regulator. Electric	D. M. Moore	494,531	Mar. 28	2872	718	62	1953
Lamps. Coating conductors for incandescent	T. A. Edison	492,150	Feb. 21	1740	433	62	1127
Lamps. Globe-holder for electric-arc	W. A. Turbayne	494,489	Mar. 28	2815	706	62	1943
Lamps. Manufacturing filaments for incandescent	A. de Lodyguine	494,149	Mar. 28	2256	574	62	1840
Lamps. Manufacturing filaments for incandescent	A. de Lodyguine	494,150	Mar. 28	2258	.....	62	1840
Lamps. Pole-standard for arc	F. D. Goold	492,008	Feb. 21	1515	378	62	1080
Lamps. Socket-switch for incandescent electric	L. Henry and L. N. Dalyssou	489,739	Jan. 10	1161	302	62	256
Lamps. Thermal cut-out for electric	H. Lemp and M. J. Wightman	493,629	Mar. 21	1383	351	62	1659
Lamps. Wick-carrier for central-draft	W. A. Penfield	492,585	Feb. 28	2432	606	62	1283
Lamps. Windlass for lowering or raising street electric	C. R. Eddy	491,412	Feb. 7	580	146	62	859
Land-roller	C. L. Barrett	488,980	Jan. 3	10	3	62	5
Land-roller	E. Kime	489,587	Jan. 10	940	244	62	210
Lantern	J. Funck	493,495	Mar. 14	1140	292	62	1596
Lantern	A. Söhner	492,896	Mar. 7	195	48	62	1397
Lantern	A. S. Veazie and J. H. Bevan	489,999	Jan. 17	1586	415	62	356
Lantern. Electric	A. Keil	489,150	Jan. 3	256	71	62	60
Lantern. Signal	W. J. Fellhemer	489,798	Jan. 10	1248	327	62	274
Lantern weather-guard attachment	J. P. Warner	490,003	Jan. 17	1592	416	62	357
Lanterns. Lens attachment for tubular	A. L. France	494,135	Mar. 28	2232	568	62	1836
Lap-ring	G. Bobb	493,543	Mar. 14	1225	314	62	1612
Lard mixing and cooling machine	H. Sartorius	490,505	Jan. 24	2433	628	62	536
Last	E. C. Moody	491,489	Feb. 7	699	177	62	883
Last	H. R. Silliman	492,114	Feb. 21	1675	417	62	1113
Last-block fastener	G. E. Belcher	493,394	Mar. 14	980	259	62	1567
Last-boring machinery	D. C. Rebhun	491,493	Feb. 7	703	178	62	884
Last-support	J. Grant	493,765	Mar. 21	1607	408	62	1703
Lasting-machine	H. M. Goodhue	488,998	Jan. 3	33	9, 10	62	9
Lasting-machine	L. Lake	491,894	Feb. 14	1344	333	62	1032
Lasting-machine	T. O'Bolger	489,031	Jan. 3	77	21, 22	62	20

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Latch	J. Chandler	493,819	Mar. 21	1696	432	62	1720
Latch	C. L. Eades	490,645	Jan. 31	3671	688	62	598
Latch	C. P. Herrmann	491,285	Feb. 7	361	90	62	817
Latch	M. Jackson	491,053	Jan. 31	3342	852	62	730
Latch	L. E. Jacobus	491,706	Feb. 14	1051	265	62	975
Latch and lock	P. Steuerwald and A. Cording	490,547	Jan. 24	2452	632	62	540
Latch and lock	J. E. Armstrong	491,793	Feb. 14	1188	297	62	1001
Latch and lock	J. A. Giese	492,494	Feb. 28	2293	570	62	1252
Latch and lock	J. D. Perkins	491,742	Feb. 14	1103	279	62	985
Latch. Gate	B. Bernstein	489,918	Jan. 17	1446	379	62	329
Latch to prevent sagging	J. H. Currier, Jr., W. S. Hesp, and S. Crum	489,220	Jan. 3	369	102	62	83
Lathe	A. Catchpole	491,236	Feb. 7	286	71	62	803
Lathe	E. Childs	490,426	Jan. 24	2301	597	62	510
Lathe	C. M. Conradson	490,864	Jan. 31	3009	{772 {773 {774	62	665
Lathe	W. H. McKenna	490,918	Jan. 31	3116	799	62	685
Lathe attachment	O. J. Beale	493,807	Mar. 21	1681	428	62	1717
Lathe attachment	C. B. Beardsley	493,008	Mar. 7	373	93	62	1432
Lathe-center	W. C. Roe	493,119	Mar. 7	540	135	62	1465
Lathe. Clothes-pin	M. D. Lear	490,396	Jan. 17	1942	509	62	427
Lathe cutting-off attachment	E. Childs	490,427	Jan. 24	2303	{507 {508	62	510
Lathe. Engine	O. E. Perrigo	494,383	Mar. 28	2632	661	62	1910
Lathe. Pulley	A. Streit	493,738	Mar. 21	1561	398	62	1695
Lathe-tool and support	W. L. Cheney	491,256	Feb. 7	311	78	62	808
Lathe tool-rest	A. Muir	493,041	Mar. 7	423	106	62	1442
Lathe. Turning	M. W. Doty	489,248	Jan. 3	414	{115 {116	62	92
Lathe. Turning	H. Dreses	493,018	Mar. 7	393	98	62	1436
Lathe. Turret	H. Drysdale	493,019	Mar. 7	394	98, 99	62	1436
Lathe. Wood-turning	L. L. Hill	491,941	Feb. 14	1414	353	62	1047
Lathe. Wood-turning	J. Scott	492,112	Feb. 21	1672	417	62	1112
Lathing. Metallic	M. H. Crittenden and F. V. Emery	489,850	Jan. 10	1323	345	62	290
Lathing. Metallic	E. Hawes	493,714	Mar. 21	1510	386	62	1684
Laundry-bench	E. A. Whiting	494,092	Mar. 21	2148	548	62	1895
Lawn-rake	L. Gibbs	489,672	Jan. 10	1049	273	62	234
Lawn-rake	J. Nase	492,166	Feb. 21	1764	440	62	1132
Lawn-rake	J. Nase	492,167	Feb. 21	1765	440	62	1133
Lawn-sprinkler	J. Jett	491,354	Feb. 7	495	127	62	842
Lawn-sprinkler	G. H. Thoma	493,312	Mar. 14	861	219	62	1542
Lawn traverser and sprinkler	H. Schweim	493,843	Mar. 7	107	26	62	1378
Leach-sprinkler	C. F. Wells	492,647	Feb. 28	2538	629	62	1303
Lead from its ores. Extracting	B. Rösing	494,349	Mar. 28	2574	648	62	1900
Lead. Manufacturing white	P. Bronner	491,635	Feb. 14	941	.....	62	952
Lead. Process and apparatus for the manufacture of white	A. Honman and V. Vulliez	489,254	Jan. 3	426	{118 {119	62	95
Lead. Producing white	N. K. Morris and J. W. Bailey	493,106	Mar. 7	523	131	62	1463
Lead. White	N. K. Morris and J. W. Bailey	493,173	Mar. 7	624	.....	62	1481
Leather-frame	L. F. Caulfield	490,338	Jan. 24	2169	565	62	485
Leather-frame	L. F. Caulfield	490,339	Jan. 24	2170	566	62	485
Leather-hammering machine	P. W. Minor	494,259	Mar. 28	2433	613	62	1872
Leather-working machine	F. C. Kimball	490,443	Jan. 24	2322	603	62	514
Leather. Treatment of sole	A. Probst	489,641	Jan. 10	1010	263	62	226
Leg attachment. Artificial	F. Riegert	492,836	Mar. 7	96	.....	62	1376
Lemon-squeezer	R. E. McDuffie	492,583	Feb. 28	2430	605	62	1262
Lemon-squeezer	C. W. Barrett	492,259	Feb. 21	1907	476	62	1102
Letter-box	J. S. Dunham and E. D. Middlekauff	490,802	Jan. 31	2925	751	62	646
Letter-box	A. D. Cushing and A. Mitchell	491,533	Feb. 14	774	197	62	917
Letter-box	F. G. Kollenberg	492,026	Feb. 21	1549	386	62	1087
Letter-box. House-door	F. H. McManigal	493,177	Mar. 7	630	159	62	1482
Letter-box. House-door	H. E. Aldrich	491,509	Feb. 14	743	189	62	911
Letter-box. House-door	A. D. Cushing and A. Mitchell	491,534	Feb. 14	775	{197 {198	62	918
Letter-box. House-door	A. Smith	492,564	Feb. 28	2400	597	62	1276
Letter-box. House-door	A. H. Stewart	492,443	Feb. 28	2194	549	62	1233
Letter. Sign	F. K. Kennedy	489,905	Jan. 10	1412	365	62	306
Levee and dam structure	G. P. Anderton	492,704	Feb. 28	2621	649	62	1320
Lever, &c. Compensating	H. Lindeström	492,730	Feb. 28	2657	658	62	1327
Lever mechanism. Time trip	E. C. Waldruff	489,350	Jan. 3	564	153	62	121
Lever. Reversing	J. Player	489,264	Jan. 3	441	122	62	97
Lid-holder	D. O'Leary	493,834	Mar. 21	1713	437	62	1723
Life-preserving trunk	P. Krenkel	492,688	Feb. 28	2595	642	62	1314
Life-saving apparatus	H. A. Stevens	494,090	Mar. 21	2144	548	62	1895
Lifter: *See* Transom-lifter.							
Lifting device	W. L. Brown	493,061	Mar. 7	448	113	62	1448
Lifting device	J. W. Lickey	489,610	Jan. 10	974	253	62	218
Lifting-jack	A. P. Aiken	490,221	Jan. 17	1963	514	62	431
Lifting-jack	W. S. Livengood	490,293	Jan. 24	2093	546	62	469
Litting-jack. Quick-return	J. A. Mead and C. Johnson	493,336	Mar. 14	895	229	62	1548
Light: *See* Electric search-light. Skylight.							
Lighting device. Automatic time	A. Biaggi y Dias	489,428	Jan. 3	680	183	62	146
Lighting the interior of buildings. Apparatus for	H. N. H. Lingrin	494,299	Mar. 28	2494	629	62	1884
Lightning. Apparatus for protecting buildings from	J. B. L. Bartlett	494,286	Mar. 28	2476	624	62	1880
Lightning-arrester	H. O. Henneberg	493,926	Mar. 21	1870	474	62	1751
Lightning-arrester	C. F. Scott	492,544	Feb. 28	2370	588	62	1270
Lightning-arrester	E. Thomson	493,314	Mar. 14	864	220	62	1543
Lightning-arrester	T. W. Wheatley	492,649	Feb. 28	2541	629	62	1303
Lightning-arrester	A. Wurts	492,548	Feb. 28	2381	591	62	1272
Lightning-arrester	A. Wurts	492,549	Feb. 28	2382	591	62	1272

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Lightning-arrester	A. Wurts	494,186	Mar. 28	2314	586	62	1851
Lightning conductor and arrester	A. B. Lyman	492,219	Feb. 21	1849	463	62	1150
Lightning-rod ball	E. K. Hum	492,512	Feb. 28	2323	576	62	1258
Limb. Artificial	G. E. Marks	489,258	Jan. 3	430	120	62	95
Lime-slaking machine	A. R. Miller	490,612	Jan. 24	2594	669	62	568
Link for fastening cuffs, &c	A. J., H. C., and W. C. Needham	490,413	Jan. 24	2283	593	62	507
Linotype-making machine	C. Sears	489,503	Jan. 10	892	215	62	188
Liquid bodies. Separating the constituents of	A. Bornholdt	489,363	Jan. 3	582	157	62	125
Liquid-cooler	W. J. Fletcher	491,964	Feb. 14	1447	360	62	1053
Liquid shaking and cooling machine	E. H. Gerrish	494,474	Mar. 28	2768	694	62	1934
Liquids. Device for handling	S. R. Mace	491,844	Feb. 14	1264	314	62	1017
Liquids. Device for handling fermented	F. C. C. Ishöy and H. P. Linderoth	490,565	Jan. 24	2518	648	62	553
Liquids from vegetable substances. Extracting or separating	A. Bornholdt	489,362	Jan. 3	580	157	62	125
Liquids. Method of and apparatus for charging	A. Werner	490,522	Jan. 24	2459	634	62	541
Liquids. Method of and apparatus for dispensing	J. P. Day	494,061	Mar. 21	2096	535	62	1796
Liquors. Method of and apparatus for purifying and softening	C. Heintz	492,542	Feb. 28	2366	588	62	1269
Liquids. Method of and apparatus for the manufacture and filling of	A. Werner	490,524	Jan. 24	2462	634 / 635	62	542
Liquors by electrolysis. Apparatus for purifying	J. Becker	493,809	Mar. 21	1685	430	62	1718
Loading apparatus	J. H. Runyan	493,343	Mar. 14	903	231 / 232	62	1550
Loading attachment. Cart-	G. C. Haag	492,763	Feb. 28	2715	675	62	1338
Loading device	L. A. De Mayo	493,986	Mar. 21	1978	504	62	1773
Loading device. Wagon-	A. Psota	493,598	Mar. 14	1334	340	62	1634
Lock: *See* Alarm-lock. Bicycle-lock. Coin-controlled lock. Combination-lock. Door-lock. Electric lock. Hasp-lock. Magnetic lock. Nut-lock. Padlock. Permutation-lock. Pin-lock. Stopper-lock. Switch-lock. Time-lock. Valve-lock.							
Lock	J. D. Bowley	491,868	Feb. 14	1303	322	62	1024
Lock	W. Dreyer	491,991	Feb. 21	1489	372	62	1076
Lock	M. Higgins	491,352	Feb. 7	493	126	62	841
Lock	L. E. Jacobus	490,440	Jan. 24	2319	602	62	513
Lock	A. K. Leitch	491,779	Feb. 14	1166	291	62	996
Lock	M. O. Royce	489,692	Jan. 10	1085	281	62	241
Lock	F. Simons	494,446	Mar. 28	2726	683	62	1927
Lock	G. E. Tyson	489,049	Jan. 3	106	29	62	27
Lock for metallic plates	W. H. Brooks	491,206	Feb. 7	236	59	62	792
Lock-nut	G. C. Richards	491,814	Feb. 14	1217	304	62	1007
Locking device. Compound	H. A. Brinton	490,098	Jan. 17	1758	458	62	391
Locking device for suspending lines	J. R. Fletcher	491,541	Feb. 14	784	200	62	919
Locomotive and tender housing	F. U. Adams	490,057	Jan. 17	1693	440 / 441	62	377
Locomotive ash-pan	A. and A. Welsh	490,332	Jan. 24	2162	564	62	383
Locomotive-boiler	J. T. McLellan	493,232	Mar. 7	713	183	62	1498
Locomotive-boiler	J. S. Newlin	489,827	Jan. 10	1286	337	62	282
Locomotive-coupling	T. L. McKeen	491,903	Feb. 14	1356	337 / 338	62	1035
Locomotive-coupling	W. P. Prendergast	491,719	Feb. 14	1070	270	62	979
Locomotive. Electric	T. A. Edison	493,425	Mar. 14	1020	263 / 264	62	1575
Locomotive. Electric	A. Philipsborn	493,942	Mar. 21	1890	481 / 482	62	1757
Locomotive. Electric	A. Philipsborn	493,943	Mar. 21	1893	482 / 483	62	1758
Locomotive. Electric	A. Philipsborn and M. Schiemann	490,307	Jan. 24	2123	552	62	475
Locomotive. Electric	F. B. Rae	491,857	Feb. 14	1284	318 / 319	62	1021
Locomotive. Electric	S. H. Short	491,666	Feb. 14	986	249	62	961
Locomotive-engine	F. W. Johnstone	493,776	Mar. 21	1620	412 / 413	62	1706
Locomotive-engine	J. Richards	493,599	Mar. 14	1335	340	62	1634
Locomotive-engine pilot	F. F. Mortimer and J. P. Coffin	489,320	Jan. 3	515	141	62	111
Locomotive-engineers. Indicator for	S. G. Clark	494,189	Mar. 28	2319	587	62	1852
Locomotive fire-box	C. W. Hullings	490,629	Jan. 24	2647	681 / 682	62	578
Locomotive sand-box	L. T. Slaughter	492,058	Feb. 21	1589	395	62	1096
Locomotive smoke-stacks. Draft-regulator for	F. Strattner	492,246	Feb. 21	1887	471	62	1158
Locomotive stand-pipe	R. H. White	489,245	Jan. 3	409	114	62	91
Log-dray	C. W. and G. J. Reichert	494,263	Mar. 28	2438	614	62	1874
Logwood-chips. Curing	P. T. Austen	494,237	Mar. 28	2399	.....	62	1867
Loom	G. S. Cox	492,144	Feb. 21	1728	431	62	1124
Loom	W. F. Draper	491,044	Jan. 31	3328	849	62	726
Loom	H. Wyman	490,238	Jan. 17	1990	522	62	437
Loom	H. Wyman	490,239	Jan. 17	1993	522	62	437
Loom. Circular	A. H. Soret, J. Hurtu, and V. Hautin.	491,324	Feb. 7	438	113 / 114	62	831
Loom for weaving bags	H. P. Hunter	494,204	Mar. 28	2345	593 / 594	62	1857
Loom for weaving double-faced pile fabrics	J. Coley	489,731	Jan. 10	1143	296	62	252
Loom for weaving tufted fabrics	H. Wyman and J. A. Clark	490,237	Jan. 17	1984	520 / 521	62	436
Loom for weaving tufted fabrics	W. Youngjohns and W. Taylor	490,530	Jan. 24	2471	636 / 637	62	544
Loom fringe attachment	K. Engsberg	491,305	Feb. 7	409	105	62	825
Loom-heddle and heddle-frame	J. Grob	489,631	Jan. 10	1000	260	62	223
Loom let-off mechanism	J. C. Bill	493,058	Mar. 7	443	112	62	1447

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Loom pattern-reversing mechanism	W. Wattie	490,890	Jan. 31	3059	785 / 786	62	674
Loom picker-stick	J. Johnson	493,331	Mar. 14	889	228	62	1547
Loom-reed	L. P. Liotard	491,573	Feb. 14	844	214	62	932
Loom reversing mechanism	G. F. Hutchins	491,776	Feb. 14	1163	291	62	996
Loom shedding mechanism	C. Falvey	490,106	Jan. 17	1771	461	62	294
Loom shedding mechanism	O. W. Schaum	492,908	Mar. 7	221	55	62	1402
Loom-shuttle	J. M. Deen	490,010	Jan. 17	1606	419	62	361
Loom-shuttle tension device	J. B. Faisant and J. Eicher	492,395	Feb. 28	2119	529	62	1218
Loom stopping mechanism	A. Taplin	490,175	Jan. 17	1881	490	62	416
Loom. Swivel-	B. Haytock	491,425	Feb. 7	594	150	62	861
Loom. Swivel-	O. W. Schaum	493,651	Mar. 21	1414	358 / 359	62	1665
Loom. Swivel-	O. W. Schaum	493,652	Mar. 21	1417	360 / 361	62	1665
Loom. Swivel-	O. W. Schaum	493,653	Mar. 21	1420	361 / 362	62	1666
Loom. Swivel-	O. W. Schaum	493,654	Mar. 21	1422	362	62	1666
Loom take-up mechanism	R. J. Risk	491,816	Feb. 14	1219	305	62	1008
Loom warp-clamp	J. F. Kieswetter	493,405	Mar. 14	992	256	62	1570
Loom weft stop-motion	T. Thacker	492,998	Mar. 7	356	90	62	1429
Looms. Automatic warp stop-motion for	E. Smith	491,139	Feb. 7	121	33	62	771
Looms. Jacquard harness-evening mechanism for	R. T. Markee	492,038	Feb. 21	1565	390	62	1091
Loop. Billet-	W. P. Gelabert	493,995	Mar. 21	1991	507	62	1766
Loop. Garment-	C. G. Meyer	491,661	Feb. 14	980	247	62	960
Loop-switch	F. D. Goold	489,674	Jan. 10	1053	274	62	235
Lounge	A. Jansen	489,958	Jan. 17	1518	397	62	343
Low-water alarm	A. Phillips and W. D. McLauchlin	489,497	Jan. 10	811	213	62	185
Low-water Indicator for boilers	W. H. Rodgers	492,236	Feb. 21	1874	468	62	1155
Lubricator: *See* Axle-lubricator. Pulley-lubricator.							
Lubricator	E. D. Bangs	494,315	Mar. 28	2514	634	62	1889
Lubricator	F. Brunbauer	493,475	Mar. 14	1108	285	62	1590
Lubricator	W. A. Downes	490,246	Jan. 17	2006	525	62	440
Lubricator	G. B. Essex	493,824	Mar. 21	1702	433	62	1721
Lubricator	W. F. Garrison	491,477	Feb. 7	684	172	62	879
Lubricator	T. Glover and T. J. Jean	490,247	Jan. 17	2007	525	62	440
Lubricator	A. R. Hoy	492,018	Feb. 21	1535	383	62	1085
Lubricator	C. C. Jerome	493,727	Mar. 21	1543	393	62	1690
Lubricator	P. F. Krug	490,910	Jan. 31	3106	796	62	683
Lubricator	V. C. T. Lohmann and C. V. Andersen.	494,106	Mar. 21	2178	556	62	1812
Lubricator	E. H. Lunken	492,091	Feb. 21	1641	408	62	1106
Lubricator	T. Poore	491,224	Feb. 7	265	66	62	798
Lubricator	C. Tregoning	491,389	Feb. 7	547	139	62	853
Lubricator	E. E. Witter	491,153	Feb. 7	141	38	62	776
Lubricator	J. C. Zurlinden	492,252	Feb. 21	1897	474	62	1160
Lug. Supporting-	G. H. Drake	491,661	Feb. 7	44	12	62	757
Lumber-gage	F. O. Havener	489,584	Jan. 10	936	242	62	210
Lumber. Matched	J. H. Shull	492,736	Feb. 28	2665	660	62	1328
Luminous fountain	G. Trouvé	492,999	Mar. 7	357	90	62	1430
Lunch-box	J. P. Duval	490,341	Jan. 24	2172	566	62	486
Lunch box or case	J. J. C. Mandioni	489,711	Jan. 10	1113	287	62	246
Luxauleator	S. Mackaye	490,487	Jan. 24	2400	620	62	529
Machine-brake	A. Boulte	494,268	Mar. 28	2446	617	62	1875
Machine-joint	A. W. Kirsch-King	490,876	Jan. 31	3030	779	62	669
Machine-tool. Rotating automatic	H. R. Towne	489,398	Jan. 3	631	170 / 171	62	136
Magazine-camera	R. F. Rice	494,164	Mar. 28	2277	578	62	1843
Magnet. Electro-	R. Varley, Jr	489,277	Jan. 3	456	126	62	100
Magnet for electric motors or dynamos. Field-	C. F. Daniels	489,071	Jan. 3	136	37, 38	62	33
Magnetic fields. Transformer and means for developing rotary	C. S. Bradley	492,480	Feb. 28	2256	563	62	1245
Magnetic lock	A. E. Kintner	494,146	Mar. 28	2259	574	62	1839
Magnetic tool	J. F. Standiford	492,245	Feb. 21	1886	471	62	1157
Mail-bag	P. J. Caesar	494,119	Mar. 28	2205	562 / 563	62	1831
Mail-bag	H. Stephens	490,232	Jan. 17	1978	519	62	435
Mail-bag-catching device	E. M. Van Hoesen	489,276	Jan. 3	455	126	62	100
Mail bag or pouch	J. W. C. Springstun	490,172	Jan. 17	1878	489	62	415
Mail-distributing apparatus	F. D. Goold	490,607	Jan. 24	2581	665 / 666	62	565
Mallet	J. Kratz	492,608	Feb. 28	2473	614	62	1291
Malt. Making caramel	R. Rahr	491,813	Feb. 14	1216	.....	62	1007
Malting. Dry-kiln for	J. Kam	489,746	Jan. 10	1174	306	62	258
Mandrel attachment	L. W. Bosley	492,775	Mar. 7	5	2	62	1359
Manganese and alloys of manganese free from carbon. Manufacturing	W. H. Greene and W. H. Wahl	489,303	Jan. 3	491	.....	62	107
Manger	H. S. Hale	490,767	Jan. 31	2868	735 / 736	62	635
Manger	J. M. Reid	492,473	Feb. 28	2246	561	62	1243
Mangle	W. Vender	489,349	Jan. 3	563	159	62	121
Mangle	A. Lorenz	494,277	Mar. 28	2458	619	62	1877
Mangle	S. Wiggins	491,455	Feb. 7	653	164	62	872
Mantel	A. W. House	493,404	Mar. 14	991	256	62	1569
Manual recorder	J. Pfeifer	491,784	Feb. 14	1171	293 / 294	62	997
Manual recorder and cash-drawer	R. L. Brown	489,067	Jan. 3	130	35	62	32
Manure-receptacle for cars, &c	W. Jefferys	489,300	Jan. 3	501	138	62	109
Map-case	G. P. Peterson and S. U. Stewart	490,884	Jan. 31	3050	783	62	672
Map. Educational	M. M. Gillam	492,005	Feb. 21	1511	377	62	1081
Map or chart stand. Adjustable	J. H. Kaufman	491,358	Feb. 7	499	129	62	843
Map-stand	C. E. Linabury	490,253	Jan. 17	2015	527	62	441
Mapping or drawing lands. Apparatus for	J. F. D. Schrader	491,193	Feb. 7	216	55	62	789

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Marble-shooting device	R. J. Chipman	492,491	Feb. 28	2288	568	62	1251
Marker. Land-	G. W. and E. E. Gooch	492,006	Feb. 21	1512	378	62	1081
Mash-mixing machine	T. Puetz, Jr	490,498	Jan. 24	2425	626	62	534
Mason's tool	J. G. Faulds	491,997	Feb. 21	1500	374	62	1078
Mat: *See* Cork mat. Electric mat.							
Mat or similar flexible article	H. E. T. Gerhard	490,556	Jan. 24	2508	646	62	551
Match	C. M. Bowman	491,204	Feb. 7	234	59	62	792
Match-box	H. Cramer	493,983	Mar. 21	1570	503	62	1771
Match-box	F. Wallis	492,700	Feb. 28	2612	647	62	1318
Match-box and cigar-cutter. Combined	W. W. Hayden	493,866	Mar. 21	1763	449	62	1733
Match-lighter. Automatic	R. Kraus	491,314	Feb. 7	420	{109 / 110}	62	827
Match-safe	F. Boardman	493,227	Mar. 7	707	181	62	1497
Match-safe and cigar-cutter	G. F. H. Hicks	491,841	Feb. 14	1257	313	62	1016
Match-splint-bundling machine	J. F. Hamill, P. B. Lentz, and C. T. Cole.	490,963	Jan. 31	3187	815	62	698
Match-stick-bunching machine	M. Moul and E. G. Quickel	489,752	Jan. 10	1183	310	62	260
Matches. Method of and device for making	C. M. Bowman	491,205	Feb. 7	234	59	62	792
Matching-machine gluing attachment	B. G. Luther	493,101	Mar. 7	514	129	62	1461
Matrices. Forming	C. L. Redfield. (Reissue)	11,316	Mar. 28	2890	724	62	1957
Matrix and method of using matrices	M. Joyce	489,011	Jan. 3	52	15	62	13
Matrix-drying machine	G. A. Davis	492,147	Feb. 21	1734	432	62	1126
Matrix-making machine	E. V. Beals	490,263	Jan. 24	2037	{533 / 534 / 535}	62	458
Matte from slag. Apparatus for separating	W. H. Howard	489,307	Jan. 3	497	137	62	108
Mattress-filling apparatus	W. H. Moore	489,540	Jan. 10	871	228	62	197
Mattress. Woven-wire	E. R. Billington	493,147	Mar. 7	582	146	62	1473
Measure. Ring-	J. Wichelmann	492,566	Feb. 28	2404	599	62	1277
Measure. Scale-	F. Boas and S. Weinmann	492,569	Feb. 28	2409	600	62	1278
Measurer and extractor. Liquid	W. B. Donathen	494,467	Mar. 28	2757	692	62	1932
Measuring and delivering apparatus. Liquid	A. T. Wilkius	493,138	Mar. 7	570	{142 / 143}	62	1471
Measuring and dispensing apparatus. Liquid	W. M. Fowler	491,705	Feb. 14	1049	265	62	975
Measuring and recording apparatus. Liquid	W. M. Fowler	490,923	Jan. 31	2951	758	62	652
Measuring and registering apparatus	W. C. Young	492,453	Feb. 28	2211	553	62	1236
Measuring device. Heat-	W. E. Ayrton and J. Perry	492,602	Feb. 28	2464	{612 / 613}	62	1289
Measuring device. Horse-	J. K. Foster	491,733	Feb. 14	1090	275	62	982
Measuring-instrument	H. Gohrt	492,886	Mar. 7	181	44	62	1394
Measuring-instrument. Electrical	J. H. F. Görges	489,249	Jan. 3	418	116	62	93
Measuring-instrument. Electrical	E. Weston	490,700	Jan. 31	2764	711	62	616
Measuring-instrument. Electrical	E. Weston	490,760	Jan. 31	2857	733	62	632
Measuring-instrument. Electrical	E. G. Willyoung	491,457	Feb. 7	655	164	62	873
Measuring-jacket	J. R. Campbell	490,606	Jan. 24	2580	665	62	565
Measuring machine. Cloth-	J. M. Meredith, Jr	492,734	Feb. 28	2662	{659 / 660}	62	1328
Measuring machine. Wall-paper-	S. G. Lundy	491,488	Feb. 7	699	177	62	883
Measuring mug. Beer-	D. A. S. Mackintosh	492,816	Mar. 7	70	17	62	1371
Measuring the density of gases. Device for	W. Dürr	494,192	Mar. 28	2323	588	62	1853
Measuring-vessel	E. L. Detrick	492,957	Mar. 7	293	74	62	1417
Measuring-vessel. Rotating	L. T. Nichols	491,064	Jan. 31	3352	855	62	732
Meat-chopping machine	W. H. Ashton	488,979	Jan. 3	7	2	62	4
Meat or bread cutter	M. Cameron	489,457	Jan. 10	742	197	62	172
Meat-pounder	J. A. Carlson	489,928	Jan. 17	1461	382	62	332
Meat-press	F. A. Clark	492,781	Mar. 7	13	4	62	1361
Meat-scorer	E. Rader and L. G. Heist	494,027	Mar. 21	2043	521	62	1786
Meat-slicer	R. S. Carr	492,934	Mar. 7	259	65	62	1410
Mechanical horse	L. A. Rygg	491,927	Feb. 14	1393	348	62	1042
Mechanical movement	R. D. Layton	491,896	Feb. 14	1346	334	62	1033
Mechanical movement	W. Robinson	491,295	Feb. 7	391	100	62	822
Mechanical movement. Electro-	E. Gray	491,346	Feb. 7	473	122	62	838
Medical purposes. Electrical instrument for	B. Y. Boyd	494,520	Mar. 28	2849	713	62	1949
Medicated vapors. Apparatus for administering	E. R. Longstreth and L. B. Spung	491,430	Feb. 7	601	152	62	863
Medicine-case spring	H. M. Rosenblatt, C. A. Dickson, and T. G. Owen.	491,136	Feb. 7	114	31	62	770
Medicine. Device for administering	F. H. Olmsted	490,493	Jan. 24	2417	624	62	533
Metal. Apparatus for automatically guiding skin molds in machines for making leaf	C. Reich	489,642	Jan. 10	1011	263	62	226
Metal. Apparatus for forming elongated articles from billets of heated	J. Robertson	493,945	Mar. 21	1895	{483 / 484}	62	1758
Metal articles. Method of and apparatus for compressing and shaping	J. Robertson	493,897	Mar. 21	1809	460	62	1742
Metal balls. Apparatus for manufacturing	G. Taylor	491,452	Feb. 7	647	{162 / 163}	62	871
Metal bars. Machine for rounding, straightening, and planishing	W. Steel	491,668	Feb. 14	990	250	62	962
Metal bars. Machine for tapering and shaping	T. and J. Coulter	493,982	Mar. 21	1969	{502 / 503}	62	1771
Metal-bending machine	J. Bamm	492,858	Mar. 7	129	32	62	1383
Metal-bending machine	E. Partyka	491,187	Feb. 7	207	53	62	767
Metal disks. Machinery for the manufacture of hollow bodies from	T. B. Clatworthy	492,571	Feb. 28	2411	601	62	1279
Metal-heating device. Electric	W. Mitchell	491,437	Feb. 7	621	156	62	866
Metal. Machine for cutting scrap	E. H. Wheeler	490,054	Jan. 17	1686	439	62	376
Metal. Perforating	C. Osborne	490,773	Jan. 31	2876	739	62	637
Metal-planing machine	W. R. Fox	489,734	Jan. 10	1148	297	62	253
Metal plates. Apparatus for straightening	H. Aiken	492,951	Mar. 7	281	71,72	62	1414
Metal plates. Machine for cleaning	S. A. Sagne	493,560	Mar. 14	1362	324	62	1619
Metal plates. Making	J. B. Nan	490,451	Jan. 24	2335	606	62	516
Metal plates prior to electrolysis. Treatment of	C. B. Schoenmehl	494,231	Mar. 28	2388	603	62	1865
Metal ribbons and strips. Apparatus for edging	H. E. Procunier	493,294	Mar. 14	826	211	62	1536
Metal-shaping machine	C. A. Collord	493,151	Mar. 7	590	148	62	1475

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Metal-shaping machine	J. Mills and A. S. Smith	490,670	Jan. 31	2720	700	62	607
Metal-spinning apparatus	E. Polte	491,188	Feb. 7	209	53, 54	62	787
Metal-straightening press	J. N. Short	489,102	Jan. 3	189	50, 51	62	44
Metal tubes. Method of and apparatus for shaping and drawing	J. Robertson	493,946	Mar. 21	1808	484	62	1759
Metal-working. Electric	C. R. Arnold	489,114	Jan. 3	206	55	62	48
Metals. Electro-depositing	O. Lugo	493,277	Mar. 14	795	206	62	1531
Metals from ores. Means for and process of separating	C. E. Seymour	489,101	Jan. 3	186	50	62	43
Metals. Process of and compound for coating	W. Mild	491,220	Feb. 7	259	.....	62	797
Metals. Refining	A. P. G. Rollet	491,498	Feb. 7	711	.....	62	886
Metals. Separating	J. J. Crooke	491,084	Feb. 7	35	.....	62	755
Metals. Uniting	F. M. Harris	489,077	Jan. 3	142	40	62	35
Metallic compounds. Electric reduction of refractory	T. L. Willson	492,377	Feb. 21	2086	521	62	1198
Metallization	E. Dénorus	491,799	Feb. 14	1199	.....	62	1003
Meter: *See* Current-meter. Gas-meter. Electric meter. Grain-meter. Electrical meter. Water-meter. Fluid-meter.							
Middlings-purifier	W. D. Gray	489,676	Jan. 10	1056	275	62	235
Middlings-purifier	J. Higginbottom and O. Stuart	490,285	Jan. 24	2083	{543 / 544}	62	467
Milk-can, &c	E. L. Cantwell	489,554	Jan. 10	889	233	62	201
Milk-can	A. F. Tripp	489,644	Jan. 10	1014	264	62	226
Milk-coagulating product	G. H. Wright	493,804	Mar. 21	1674	427	62	1716
Milk-cooler	C. P. Eyre	491,416	Feb. 7	585	.....	62	860
Milk-cooler	J. H. Beck and E. E. Reilly	492,183	Feb. 21	1788	447	62	1138
Milk-heater	C. G. Nerger	490,398	Jan. 24	2261	587	62	503
Milk or butter cooling device	J. L. Jönsson and T. Berg	492,300	Feb. 21	1964	490	62	1175
Milk or other can	J. L. Wilder	490,005	Jan. 17	1595	417	62	358
Milk. Receptacle for cans of condensed	E. Plançon	489,829	Jan. 10	1288	337	62	283
Milker. Cow-	W. A. Boulter	489,923	Jan. 17	1452	380	62	330
Mill: *See* Cider-mill. Hominy-mill. Clay-mill. Pug-mill. Coffee-mill. Rolling-mill. Coffee-grinding mill. Sawmill. Gig-mill. Stamping-mill. Grinding-mill. Windmill. Grinding or pulverizing mill.	J. Westgarth	492,449	Feb. 28	2203	551	62	1234
Mill-feeder	A. C. Brantingham	494,188	Mar. 28	2316	587	62	1852
Mill-rolls. Machine for re-dressing	D. J. Davidson	489,412	Jan. 3	649	176	62	140
Milling-machine	J. Becker	489,282	Jan. 3	463	129	62	102
Milling-machine tail-stock	J. W. Boynton	491,521	Feb. 14	756	192	62	914
Milling machine. Wrench-	V. F. Carpenter	489,523	Jan. 10	851	{221 / 222}	62	193
Mineral-separating apparatus. Hydraulic	W. S. Lockhart	489,538	Jan. 10	869	227	62	197
Mining apparatus. Hydraulic	N. C. Miller	489,751	Jan. 10	1182	309	62	260
Mining coal	D. C. Boyce	494,187	Mar. 28	2315	586	62	1852
Mining-drill	J. F. Butler	489,246	Jan. 3	412	{114 / 115}	62	92
Mining-machine	M. Hardsocg	493,381	Mar. 14	961	{247 / 248}	62	1563
Mining-machine	F. N. Slade	493,659	Mar. 21	1427	363	62	1667
Mirror-frame	H. and J. Caro	491,525	Feb. 14	763	194	62	915
Mirror-support and adjusting device	W. P. Tarbell	494,497	Mar. 28	2813	705	62	1943
Miter-box	J. J. Spilker	490,514	Jan. 24	2444	{630 / 631}	62	539
Mitering-knife	A. Dodds	491,773	Feb. 14	1159	290	62	995
Mitering-machine	W. W. Abbott	493,541	Mar. 14	1221	313	62	1611
Mitering-machine	W. R. Fox	493,494	Mar. 14	1139	{291 / 292}	62	1595
Mixer: *See* Drink-mixer. Glass-batch mixer.							
Mixing apparatus	R. Smith	492,475	Feb. 28	2248	562	62	1244
Mixing apparatus	A. Werner	490,525	Jan. 24	2465	635	62	542
Moistening and cooling the atmosphere of rooms. Apparatus for	G. Shilling and C. G. Smith	494,494	Mar. 28	2806	703	62	1942
Moistening device for envelopes, &c	A. Rink	489,267	Jan. 3	444	122	62	98
Molasses-gate	C. F. Smith	490,404	Jan. 24	2269	566	62	505
Mold: Brick-mold. Candy-mold. Brush-mold. Cigar-mold. Bullet-mold. Glass-mold. Butter-mold. Tooth-mold.							
Mold-forming knife	L. Ilis	494,000	Mar. 21	1997	509	62	1777
Molder's flask	W. Edgar	494,469	Mar. 28	2759	692	62	1933
Molding-machine	W. B. Sterrit	491,273	Feb. 7	334	85	62	812
Molding-machine press-board	G. J. Keenan	489,013	Jan. 3	55	15	62	14
Molten materials. Machine for centrifugally treating	O. B. Peck	491,131	Feb. 7	102	28, 29	62	768
Money-drawer. Electric-alarm	W. J. Walker	491,824	Feb. 14	1230	{307 / 308}	62	1010
Money-drawer. Electric-alarm	W. J. Walker	492,646	Feb. 28	2536	628	62	1303
Money-tray	O. Hofmann	491,649	Feb. 14	962	242	62	957
Mooring apparatus	W. Thompson and D. Dishart	491,613	Feb. 14	914	{229 / 230}	62	946
Mop	J. T. Satterwhite	492,339	Feb. 21	2027	504	62	1186
Mop-wringer	A. Cathan	488,884	Jan. 3	14	4	62	5
Mop-wringer	J. B. Henck, Jr.	490,561	Jan. 24	2513	647	62	552

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Mop-wringer	M. E. Proscott	493,340	Mar. 14	899	230	62	1549
Mortising-bit	L. O. Orton	493,444	Mar. 14	1060	272	62	1582
Mortising-machine	S. J. Hicks	493,501	Mar. 14	1153	294 and 295	62	1598
Mortising-machine attachment	H. Robinson	490,502	Jan. 24	2428	627	62	535
Mortising-machine. Hollow-chisel	J. Harris	494,140	Mar. 28	2240	571 and 572	62	1837
Mortising machine. Timber-	C. P. Turner	493,133	Mar. 7	562	140 and 141	62	1469
Mosaics. Making	H. B. Allaeys	490,467	Jan. 24	2368	612	62	523
Mosquito-canopy	W. H. Johnson	492,298	Feb. 21	1962	489	62	1174
Moth-proof bag	C. A. Ives	492,163	Feb. 21	1760	439	62	1132
Mother-of-pearl and making same. Imitation	J. de Jong	494,255	Mar. 28	2427	612	62	1872
Motion. Apparatus for transmitting	J. Hunt	493,589	Mar. 14	1311	335	62	1630
Motion. Device for communicating	L. Warfield	494,182	Mar. 28	2306	584	62	1849
Motion. Mechanism for converting	W. W. Virtue	491,910	Feb. 14	1364	340	62	1037
Motion. Mechanism for transmitting	G. F. Evans	493,859	Mar. 21	1752	446	62	1731
Motion-reversing apparatus	W. J. Walsh	491,722	Feb. 14	1075	271	62	980
Motive power. Producing	C. Tellier	492,976	Mar. 7	325	82	62	1423
Motor: *See* Air-motor. Car-motor. Churn-motor. Electric motor. Rocking-horsemotor. Rotary motor. Sewing-machine motor. Spring-motor. Water-motor. Weight-motor.							
Motor	H. P. McAfee	494,343	Mar. 28	2566	646	62	1898
Motor	T. A. Stark	490,173	Jan. 17	1878	489	62	416
Motor and dynamo transmitting mechanism	H. W. Morton	489,026	Jan. 3	71	20	62	18
Motor driving-gear	J. C. Henry	494,478	Mar. 28	2773	695	62	1935
Mower	F. W. Blackmer	489,214	Jan. 3	358	100	62	81
Mower grass-box. Lawn-	J. F. Braun	493,612	Mar. 14	1355	344	62	1638
Mower. Lawn-	B. D. Adams	491,914	Feb. 14	1370	341	62	1038
Mower. Lawn-	E. and C. G. Carlson	494,120	Mar. 28	2210	563	62	1832
Mower. Lawn-	J. E. Crook and J. J. Davis	491,039	Jan. 31	3319	846	62	725
Mower or reaper cutting apparatus	A. E. Miller	492,941	Mar. 7	265	68	62	1411
Mower or reaper cutting mechanism	W. S. and W. S. Elliott, Jr	491,340	Feb. 7	464	120	62	836
Mowing and reaping machine cutter-bar	L. King	490,024	Jan. 17	1643	427	62	367
Mowing-machine	J. J. Ellsworth	489,433	Jan. 3	689	185	62	148
Mowing-machine cutter-bar	F. S., J. T., T., and A. Jackson	491,736	Feb. 14	1093	276 and 277	62	983
Mowing-machine cutter-bar	I. F. Bassford	493,054	Mar. 7	440	111	62	1446
Mucilage-bottle tip	M. C. Sooter	491,142	Feb. 7	126	34	62	773
Muffle. Electrically-heated	W. H. Underwood	492,068	Feb. 21	1602	398	62	1098
Muffle-kiln	W. Mitchell	491,438	Feb. 7	623	156	62	867
Music-board	T. Roelzer	490,825	Jan. 31	2557	759	62	653
Music-leaf turner	H. S. Sharpe	493,126	Mar. 7	552	137	62	1468
Musical block	M. L. Smith	491,907	Feb. 14	1361	339	62	1036
Musical instrument	A. S. and G. S. Bowen	491,833	Feb. 14	1243	310	62	1013
Musical instrument	J. F. Luscomb	491,183	Feb. 7	202	51	62	786
Musical instrument actuated by electricity. Keyed	J. Pedlerson	494,025	Mar. 21	2040	520	62	1785
Musical-instrument attachment	P. E. Singer	492,563	Feb. 28	2399	597	62	1276
Musical instrument. Electrical	W. Leiner	493,099	Mar. 7	508	128	62	1460
Musical instrument. Mechanical	A. Montanelli	490,358	Jan. 24	2204	575	62	492
Musical-instrument reed tube	F. Pietschmann	491,223	Feb. 7	262	65, 66	62	798
Musical-instrument reeds. Trimmer for	H. Janes	490,115	Jan. 17	1783	465	62	397
Musical instrument. Stringed	A. Flach	492,668	Feb. 28	2570	636	62	1309
Musical-instrument strings. Pin for	A. Stelzner	492,948	Mar. 7	377	70	62	1413
Musical instruments. Adjustable bridge for stringed	G. A. Ernst	493,917	Mar. 21	1847	471	62	1748
Musical instruments. Combined bridge and tail-piece for	G. Wooster	490,528	Jan. 24	2469	636	62	543
Musical instruments. Device for tuning	W. P. Owen and C. L. Eggert, Jr	490,213	Jan. 17	1953	512	62	429
Musical instruments. Mouthpiece for	J. P. Olsen	490,491	Jan. 24	2418	624	62	533
Musical instruments. Perforated sheet or plate for	T. Henninger	491,646	Feb. 14	960	241	62	956
Musical instruments. Tuning-peg for stringed	A. Peterson	489,568	Jan. 10	912	238	62	396
Musical key and transposition guide	C. W. Hutchins	490,564	Jan. 24	2517	648	62	552
Musicians. Manual gymnasium for	J. B. F. Showalter	490,509	Jan. 24	2438	629	62	537
Mustard-pot valve	J. Hall	494,197	Mar. 28	2330	591	62	1855
Muzzle	P. L. R. C. Claassen	492,782	Mar. 7	14	4	62	1362
Muzzle. Animal-	G. C. Watson and J. S. Williams	490,795	Jan. 31	2915	749	62	644
Nail: *See* Horseshoe-nail.	N. Gillespie	489,184	Jan. 3	310	86	62	71
Nail	J. B. Adler	493,144	Mar. 7	579	145	62	1473
Nail machine. Wire-	E. B. Roth and G. R. Bispham	493,222	Mar. 7	698	178 and 179	62	1495
Nail machine. Wire-	J. Stevenson, Jr	492,565	Feb. 28	2402	597 and 598 and 599	62	1276
Nail-trimmer	M. Trebbin	490,377	Jan. 24	2234	581	62	498
Nailing implement. Hand	E. Lehmann	489,020	Jan. 3	63	18	62	16
Nailing-machine	L. Goddu	490,623	Jan. 24	2625	675 and 676	62	574
Nailing-machine	L. Goddu	490,625	Jan. 24	2632	677 and 678	62	575
Nautical signal	J. R. McGregor and G. O. Perry	493,283	Mar. 14	808	202	62	1533
Neckscarf	A. Bertin	490,820	Jan. 31	2947	757	62	651
Neckscarf	S. B. Solomon	490,512	Jan. 24	2442	630	62	538
Neckscarf	F. O. Ward	490,933	Jan. 31	3139	805	62	689
Necktie-fastener	J. A. Cupler	490,138	Jan. 17	1820	478	62	406
Necktie stiffening-plate	E. L. Watlace	494,501	Mar. 28	2817	706	62	1944
Needle-threader	R. L. Hastings	492,581	Feb. 28	2428	605	62	1282
Nest. Hen's	J. L. McKnight	492,046	Feb. 21	1575	392	62	1093
Net-making machine	G. W. Price	491,592	Feb. 14	875	221	62	938
Nickel. Obtaining and separating sulphide of	R. M. Thompson	489,574	Jan. 10	921	.....	62	207

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Nickel. Obtaining and separating sulphide of	R. M. Thompson	489,575	Jan. 10	923	.....	62	207
Nickel. Obtaining and separating sulphide of	R. M. Thompson	489,576	Jan. 10	925	.....	62	208
Nickel. Obtaining and separating sulphide of	R. M. Thompson	489,881	Jan. 10	1362	.....	62	297
Nickel. Producing and separating sulphide of	J. L. Thomson	489,882	Jan. 10	1363	.....	62	297
Nickel. Treating ores containing	A. L. Grant and C. G. Richardson	490,847	Jan. 31	2987	.....	62	660
Nitro-cellulose or celluloid surfaces. Producing	B. B. Goldsmith	490,195	Jan. 17	1916	.....	62	432
Non-conducting coverings. Removable fastening for	T. Williams	494,313	Mar. 28	2512	633	62	1868
Non-conducting coverings. Support for	T. Williams	494,312	Mar. 28	2510	633	62	1868
Non-heat-conducting composition	R. V. Mattison	492,092	Feb. 21	1642	.....	62	1107
Non-heat-conducting composition for coating boilers	R. V. Mattison	492,094	Feb. 21	1642	.....	62	1107
Non-heat-conducting composition for covering boilers, &c.	R. V. Mattison	492,093	Feb. 21	1642	.....	62	1107
Nose-bag. Animal	G. D. Leonard	494,498	Mar. 28	2701	678	62	1923
Nozzle. Exhaust-	F. Mertsheimer	493,510	Mar. 14	1165	298	62	1600
Nozzle. Exhaust-	H. C. Reagan, Jr	493,783	Mar. 21	1632	415 and 416	62	1708
Nozzle. Variable exhaust-	H. R. Walker	490,000	Jan. 17	1588	415	62	356
Numbering-machine	E. G. Bates	489,449	Jan. 10	724	194	62	168
Nut and bolt lock	C. M. Stetson	490,176	Jan. 17	1883	490	62	416
Nut-lock	E. L. Arnold	493,393	Mar. 14	979	259	62	1567
Nut-lock	J. W. B. Cook	490,740	Jan. 31	2825	725 and 726	62	627
Nut-lock	M. E. Dempsey	492,715	Feb. 28	2637	653	62	1323
Nut-lock	G. Gibson	492,672	Feb. 28	2574	637	62	1310
Nut-lock	G. Gibson	492,762	Feb. 28	2648	656	62	1325
Nut-lock	G. W. Grafflin, Jr	490,553	Jan. 24	2505	645	62	550
Nut-lock	G. W. Grafflin, Jr	490,557	Jan. 24	2508	646	62	551
Nut-lock	J. L. Hayward	491,173	Feb. 7	186	47	62	783
Nut-lock	J. C. Herman	493,213	Mar. 7	680	174	62	1492
Nut-lock	E. La Rochelle	494,338	Mar. 28	2558	644	62	1897
Nut-lock	C. W. McCormick	490,585	Jan. 24	2545	655	62	558
Nut-lock	A. W. Miles and E. A. Commander	493,732	Mar. 21	1554	396	62	1693
Nut-lock	E. Poole	492,050	Feb. 21	1579	393	62	1094
Nut-lock	J. W. Schoaf	493,122	Mar. 7	546	136	62	1467
Nut-lock	C. P. Sherman	490,458	Jan. 24	2350	608	62	519
Nut-lock	C. Starz	491,908	Feb. 14	1363	339	62	1036
Nut-lock	S. J. Stevens	493,127	Mar. 7	553	138	62	1468
Nut-lock and bolt-tightener	W. Sutton	489,593	Jan. 10	953	248	62	213
Nut-machine	J. G. Perry	491,718	Feb. 14	1069	270	62	979
Nut-tapping machine	M. P. High	491,175	Feb. 7	190	48	62	784
Nuts on bolts. Means for locking	L. H. Cole	494,367	Mar. 28	2607	655	62	1905
Oat-cleaner	T. C. Palmer	492,820	Mar. 7	88	21	62	1375
Oil-burner	G. H. Rich	491,594	Feb. 14	884	222	62	939
Oil-burner	B. Roberts	491,226	Feb. 7	268	67	62	799
Oil-can or other liquid-receptacle	C. T. Smith	489,540	Jan. 10	885	231	62	200
Oil-cup	T. A. Schlueter	493,877	Mar. 21	1776	453	62	1736
Oil-cup	W. F. Althoff and J. H. Stokesbary	491,830	Feb. 14	1238	309	62	1012
Oil-delivery appliance	J. U. Zurlinden	492,318	Feb. 21	1904	496	62	1180
Oil or gasoline can	F. T. Fay	488,991	Jan. 3	23	6, 7	62	7
Oil. Process of and apparatus for thickening linseed-	L. S. Bonbrake	489,786	Jan. 10	1233	323	62	270
Oils. Compound of blown	E. Schaal	493,187	Mar. 7	644	164	62	1485
Opera-chair	W. D. Field	491,880	Feb. 14	1324	.....	62	1028
Opera-glass holder	H. A. J. Rieckert and L. F. Kwiatkowski.	489,328	Jan. 3	526	143	62	113
Opera-glass holder	R. Brass	490,264	Jan. 24	2046	536	62	459
Ordnance. Breech-loading	L. W. Levy	491,711	Feb. 14	1057	267	62	976
Ordnance. Mechanism for firing breech-loading	A. Noble and G. Henderson	492,942	Mar. 7	266	68, 69	62	1412
Ore bricks. Manufacturing purple-	W. H. Driggs	493,987	Mar. 21	1979	505	62	1773
Ore-concentrator	H. Bird	490,535	Jan. 24	2479	.....	62	545
Ore-concentrator	G. Johnston	489,744	Jan. 10	1170	305	62	257
Ore-concentrator	G. Johnston	490,849	Jan. 31	2989	765 and 766	62	660
Ore-crushing mortar	G. Johnston	490,850	Jan. 31	2991	766	62	660
Ore-dressing apparatus	A. Schulenburg	492,634	Feb. 28	2515	623	62	1298
Ore-roasting furnace	W. J. Bartsch	491,672	Feb. 14	996	251	62	963
Ore-roasting furnace	H. F. Brown	489,142	Jan. 3	242	67	62	56
Ore-separator	H. F. Brown	489,143	Jan. 3	245	68, 69	62	57
Ore-separator. Centrifugal	W. Krug	490,911	Jan. 31	3107	796 and 797	62	683
Ore-separator. Centrifugal	O. B. Peck	489,090	Jan. 3	163	45	62	39
Ore-separator. Centrifugal	O. B. Peck	489,197	Jan. 3	331	91	62	75
Ore-separator. Centrifugal	O. B. Peck	489,198	Jan. 3	334	92	62	75
Ore-separator. Centrifugal	O. B. Peck	489,199	Jan. 3	335	92, 93	62	76
Ore-separator. Centrifugal	O. B. Peck	489,200	Jan. 3	336	93	62	76
Ore-separator. Centrifugal	O. B. Peck	489,201	Jan. 3	337	93, 94	62	76
Ore-separator. Centrifugal	O. B. Peck	489,202	Jan. 3	339	94	62	77
Ore-separator. Centrifugal	O. B. Peck	489,203	Jan. 3	340	95	62	77
Ore-separator. Centrifugal	O. B. Peck	489,204	Jan. 3	342	95, 96	62	78
Ore-separator. Centrifugal	O. B. Peck	489,205	Jan. 3	343	96	62	78
Ore-separator. Centrifugal	O. B. Peck	490,040	Jan. 17	1667	433	62	372
Ore-washer	C. Faber	490,084	Jan. 17	1733	451 and 452	62	385
Ores. Extraction of metal from	J. Turton	489,797	Jan. 10	1246	326	62	273
Ores. Process of and apparatus for obtaining metals from their	S. H. Cochran	494,044	Mar. 21	2067	.....	62	1790
Ores. Treating	W. B. Jackson	491,638	Feb. 14	943	237 and 238	62	953
Organ or piano pedal attachment	W. A. Hobday	490,659	Jan. 31	2698	694	62	603
Organ pedal attachment	H. Lehr and J. Diehl	489,810	Jan. 10	1265	332	62	277
Organ. Pedal bass	K. Klär	490,970	Jan. 31	3198	817	62	700
Organ. Reed-	J. P. Caulfield	491,566	Feb. 14	831	211	62	930
Organ stop-action. Pipe-	J. Woodberry	492,189	Feb. 21	1797	448	62	1139
Organs. Solo attachment for reed-	J. P. Caulfield	489,887	Jan. 10	1370	356 and 357	62	290
		493,014	Mar. 7	385	96	62	1435

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Ornamentation	F. Schmalz	493,450	Mar. 14	1069	.....	62	1583
Oven	K. K. Karlstéen	489,651	Jan. 10	1023	{266 / 267}	62	298
Oven. Baker's	F. Dührkop	492,392	Feb. 28	2116	538	62	1217
Oven. Baking	F. Eberhart	492,938	Mar. 7	263	67	62	1411
Oven. Portable baking	C. F. Hubbard	489,743	Jan. 10	1168	{304 / 305}	62	257
Packing	C. M. Fitch and A. B. Kingsland	492,541	Feb. 28	2366	547	62	1268
Packing-box	R. G. Ferguson	490,107	Jan. 17	1773	462	62	394
Packing for piston-rods. Stuffing-box	B. Cohen and D. W. Gaskill	493,545	Mar. 14	1228	314	62	1613
Packing. Gasket	W. H. Apple	493,671	Mar. 21	1448	360	62	1672
Packing. Hydraulic	R. Walsh	494,402	Mar. 28	2667	669	62	1916
Packing. Metallic	H. V. Loss	492,217	Feb. 21	1845	462	62	1149
Packing. Metallic	T. Tripp	490,050	Jan. 17	1680	{437 / 438}	62	374
Packing. Metallic rod	T. Tripp	490,051	Jan. 17	1682	438	62	375
Packing. Method of	C. F. Churchill	493,978	Mar. 21	1963	501	62	1770
Packing. Rod	H. C. Hunter	492,804	Mar. 7	51	12	62	1369
Packing. Sheet	F. D. Toucey	491,029	Jan. 31	3303	843	62	722
Packing. Steam	T. McGowan	492,420	Feb. 28	2159	540	62	1225
Packing-vessel	G. W. Fetner	491,539	Feb. 14	781	199	62	919
Packing-vessel	H. C. Hunter	492,803	Mar. 7	51	12	62	1368
Packing vessel or jar	H. C. Hunter	492,806	Mar. 7	54	13	62	1369
Pad: *See* Chair-pad. Hoof-pad. Harness-pad. Wax pad. Heel-pad.	R. S. Wiesenfeld	489,773	Jan. 10	1215	319	62	267
Pad-fastener	G. Foland and S. F. Carey	490,743	Jan. 31	2831	727	62	628
Padlock	I. Bremer	490,537	Jan. 24	2482	640	62	546
Padlock	F. Eggo	490,428	Jan. 24	2305	598	62	510
Padlock	F. Meinke	494,340	Mar. 28	2560	645	62	1897
Padlock	D. Melfi	489,022	Jan. 3	65	19	62	17
Padlock. Permutation	F. W. Schultze	492,240	Feb. 21	1880	470	62	1156
Padlock. Permutation	J. J. Deal	490,784	Jan. 31	2899	744	62	641
Pail. Butter	J. A. Halldén	491,102	Feb. 7	61	17	62	760
Pail. Milk	L. Daugherty	491,406	Feb. 7	574	144	62	858
Paint	W. R. Watt	489,352	Jan. 3	567	153	62	122
Paint. Fireproof	W. B. Abert and W. Scherer	491,003	Jan. 31	3248	.....	62	710
Paint. Manufacture of	R. R. Graf	494,508	Mar. 28	2826	.....	62	1946
Paint. Non-inflammable	J. K. Hawkins	493,990	Mar. 21	1906	.....	62	1777
Paint or varnish cup	R. J. Doyle	490,547	Jan. 24	2498	.....	62	549
Paint-pot	G. W. Davis	491,257	Feb. 7	312	79	62	808
	W. B. Deming and H. C. Fuller. (Reissue.)	11,302	Jan. 31	3353	856	62	732
Painting fabric materials. Machine for	E. Armitage	493,463	Mar. 14	1091	{279 / 280}	62	1587
Painting machine. Cloth	E. H. Schofield	494,493	Mar. 28	2800	703	62	1940
Pan: *See* Baking-pan. Evaporating-pan. Bed-pan. Frying-pan. Bread or cake pan. Grinding-pan. Dust-pan. Patty-pan.							
Pans. Implement for lifting	J. T. Watkins and W. C. Bayless	491,393	Feb. 7	552	140	62	854
Paper. Apparatus for making bundles of toilet	O. H. Hicks	492,304	Feb. 21	1818	455	62	1141
Paper-bag machine	W. Liddell	491,573	Feb. 14	840	213	62	932
Paper-bag machine	W. Liddell	492,498	Feb. 28	2302	571	62	1254
Paper-bag machine	J. Sabold	493,524	Mar. 14	1190	{304 / 305}	62	1605
Paper-board	R. B., J. L., and R. W. McEwan	492,927	Mar. 7	248	.....	62	1408
Paper-board-drying apparatus	S. E. Baker	493,467	Mar. 14	1097	281	62	1588
Paper box	T. F. W. Schmidt	490,167	Jan. 17	1869	487	62	414
Paper-box-covering machine	I. G. Raffel	490,124	Jan. 17	1801	{469 / 470}	62	400
Paper box. Folding	C. A. Spittell	489,993	Jan. 17	1579	413	62	355
Paper-box machine	W. H. Coffin	493,979	Mar. 21	1965	501	62	1770
Paper-feeder	H. E. Smyser	492,374	Feb. 21	2080	{520 / 521}	62	1197
Paper-feeding attachment	N. Lux	492,218	Feb. 21	1847	462	62	1150
Paper-feeding machine	R. Burnet	489,925	Jan. 17	1455	{380 / 381}	62	331
Paper-folding machine	D. P. McLaughlin	490,881	Jan. 31	3043	782	62	671
Paper holder and cutter	E. J. Gillespie	491,883	Feb. 14	1327	328	62	1028
Paper holder and cutter. Roll	E. J. Gillespie	492,552	Feb. 28	2388	592	62	1273
Paper holder and cutter. Roll	E. B. Weston	492,856	Mar. 7	126	32	62	1382
Paper holder. Toilet	P. A. Bowen	489,787	Jan. 10	1234	323	62	271
Paper holder. Toilet	G. W. Reed	492,804	Mar. 7	193	48	62	1397
Paper. Machine for cutting into strips and reeling or winding	F. Meisel	492,964	Mar. 7	304	77, 78	62	1419
Paper-making machine	A. N. Kidder	492,209	Feb. 21	1827	458	62	1146
Paper. Making safety	A. Schlumberger	491,858	Feb. 14	1286	.....	62	1021
Paper, &c. Method of and apparatus for marbling or coloring	C. H. Bellamy	492,933	Mar. 7	255	65	62	1409
Paper-roll holder and cutter. Knockdown	N. R. Streeter	492,975	Mar. 7	322	81	62	1423
Paper-roll spindle	A. L. Flint	494,329	Mar. 28	2538	639	62	1893
Paper-stock. Machine for reducing	C. Kellner	489,079	Jan. 3	146	41	62	36
Paper trimming and pasting machine	O. Peterson	491,586	Feb. 14	858	{217 / 218}	62	935
Paper tube	P. Carey	489,927	Jan. 17	1461	362	62	332
Paraffine-wax and apparatus therefor. Treating or purifying	N. M. Henderson	490,199	Jan. 17	1924	500	62	424
Paraphenetol-carbamide and making same	J. Berlinerblau	489,728	Jan. 10	1138	.....	62	251
Paste. Adhesive	H. Lobdell	492,515	Feb. 28	2325	.....	62	1259
Pattern for drafting garments. Adjustable	L. D. Frenot and J. F. Eyboulet	492,670	Feb. 28	2572	637	62	1309

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Pattern for drafting garments. Adjustable	H. Horn	490,622	Jan. 17	1640	{426 / 427}	62	366
Pattern. Garment-fitting	S. Christiansen	489,793	Jan. 10	1241	325	62	272
Patterns on woven fabrics. Producing leaf-metal	F. Lehmann	491,364	Feb. 7	510	.....	62	845
Patty-pan and holder	J. Dister	489,372	Jan. 3	594	160	62	128
Pavement	B. F. Spry	489,105	Jan. 3	194	52	62	45
Pavements, &c. Composition of matter for	G. S. Lee	490,667	Jan. 31	2716	698	62	606
Pawl. Ratchet	D. J. Reardon	493,944	Mar. 21	1895	483	62	1758
Pea-sheller	H. T. Clark and C. B. Russell	489,920	Jan. 17	1462	382	62	332
Peat. Treatment or desiccation of	J. M. A. Gérard	491,545	Feb. 14	788	201	62	920
Pedal	C. F. Pease	492,989	Mar. 7	344	87	62	1427
Pegging-machine	H. H. Cummings and P. A. Coupal	493,910	Mar. 21	1829	{466 / 467 / 468}	62	1745
Pegging-machine	R. Ley	492,906	Mar. 7	217	53, 54	62	1401
Pen. Force-feed ruling	E. Dickey	490,340	Jan. 24	2171	566	62	485
Pen. Fountain	D. Beaumel	491,795	Feb. 14	1191	298	62	1001
Pen. Fountain	F. C. Brown	490,862	Jan. 31	3006	771	62	664
Penholder	G. McElwain	492,555	Feb. 28	2391	593	62	1274
Penholder	G. Pellinger	492,102	Feb. 21	1657	412	62	1110
Pencil	A. J. Arthur	493,464	Mar. 14	1093	280	62	1587
Pencil attachment. Lead	O. Musshan	489,685	Jan. 10	1071	279	62	238
Pencil. Lead	A. J. Arthur	493,465	Mar. 14	1095	280	62	1588
Pencil. Magazine lead	J. B. Smith	489,043	Jan. 3	98	27	62	25
Pencil or pen attachment	J. A. Murphy	494,510	Mar. 28	2830	709	62	1947
Pencil-sharpener	G. Diez	490,272	Jan. 24	2061	530	62	462
Pencil-sharpener	G. Diez	491,536	Feb. 14	778	199	62	918
Pencil-sharpener	A. H. Fancher	491,996	Feb. 21	1498	374	62	1078
Pencil sharpener	J. R. Foster	492,669	Feb. 28	2571	636	62	1309
Pencil-sharpener	A. P. Odell and N. E. Smith	491,139	Feb. 7	98	27	62	768
Pencil-sharpener	W. G. Price	492,336	Feb. 21	2024	503	62	1186
Pendulum-ball	A. M. Lane	492,030	Feb. 21	1553	387	62	1088
Penman's hand-rest	G. S. Helenbolt	490,906	Jan. 31	3100	795	62	681
Perambulator. Collapsible	J. Martin	493,831	Mar. 21	1710	{435 / 436}	62	1722
Perforating and cutting machine	W. Liddell	492,871	Mar. 7	159	38	62	1390
Perforating apparatus	C. B. Wisner	494,184	Mar. 28	2309	585	62	1850
Perforating-machine	J. F. Craemer	493,753	Mar. 21	1580	404	62	1700
Permutation-lock	T. Averbeck	489,447	Jan. 10	719	193	62	167
Permutation-lock	T. P. Cook	489,411	Jan. 3	647	175	62	139
Permutation-lock	C. H. Morford	494,154	Mar. 28	2264	575	62	1841
Pessary	J. J. Vernier	489,050	Jan. 3	108	29	62	27
Petroleum-refining apparatus	H. Frasch	490,144	Jan. 17	1837	{479 / 480}	62	407
Pew-back, &c.	W. H. and C. Roehr	491,190	Feb. 7	212	54	62	788
Phonograph speaking-tubes or other purposes. Support for	W. G. Henderson	493,719	Mar. 21	1518	388	62	1686
Phonographs. Automatic feed and return mechanism for	M. O. Anthony	489,519	Jan. 10	845	220	62	192
Phosphate-washer	W. A. Beaty	492,262	Feb. 21	1912	477	62	1163
Photograph-exhibitor	J. Dewé	492,149	Feb. 21	1738	433	62	1127
Photograph-exhibitor	R. H. Nelson and T. H. Temple	489,713	Jan. 10	1116	288	62	247
Photograph-holder	G. F. Bambridge	490,059	Jan. 17	1696	441	62	377
Photograph-machine. Coin-operated	P. V. W. Welsh	490,180	Jan. 17	1888	{491 / 492 / 493}	62	417
Photographic camera	W. A. Armstrong	494,547	Mar. 28	2842	{711 / 712}	62	1948
Photographic camera	H. A. Benedict	493,747	Mar. 21	1580	402	62	1698
Photographic camera	T. H. Blair and F. H. Kelley	491,920	Feb. 14	1380	{344 / 345}	62	1040
Photographic camera	J. A. Davison	494,097	Mar. 21	2154	550	62	1807
Photographic camera	A. Klay	492,025	Feb. 21	1547	386	62	1087
Photographic camera	E. W. Perry, Jr	492,696	Feb. 28	2606	645	62	1317
Photographic camera	J. M. Tracy and G. S. Hodges	494,354	Mar. 28	2590	651	62	1902
Photographic camera	A. Vanderbeek	494,400	Mar. 28	2664	668	62	1915
Photographic camera	J. Zenk	492,703	Feb. 28	2620	648	62	1319
Photographic-camera registering device	P. Tournachon	492,642	Feb. 28	2627	626	62	1301
Photographic film	T. Sault	494,306	Mar. 28	2503	632	62	1887
Photographic fixing and washing tank	A. R. Ward	491,619	Feb. 14	921	232	62	948
Photographic objective	A. B. Parvin	492,335	Feb. 21	2021	503	62	1185
Photographic-printing device	W. Ohse	494,022	Mar. 21	2034	519	62	1785
Photographs of moving objects. Apparatus for exhibiting	T. A. Edison	493,426	Mar. 14	1024	265	62	1575
Photographs on glass. Making transparent	F. B. Forster	494,596	Mar. 28	2866	.....	62	1952
Piano	W. P. Haines	491,423	Feb. 7	592	149	62	861
Piano	J. W. Reed	489,231	Jan. 3	387	107	62	87
Piano	G. Steck	491,507	Feb. 14	904	227	62	944
Piano-action	F. A. Guth	491,308	Feb. 7	413	107	62	826
Piano-action flange	H. P. Chapman	492,386	Feb. 28	2108	526	62	1215
Piano-agraffe	P. J. Duggan	491,877	Feb. 14	1320	326	62	1027
Piano attachment	J. R. Lomas	491,946	Feb. 14	1423	355	62	1048
Piano back. Upright	J. W. Reed	489,232	Jan. 3	388	107	62	87
Piano-case	J. Reimer	494,163	Mar. 28	2276	577	62	1843
Pianoforte	D. A. Barber, G. Bates, W. Mabry, and H. T. Skelton.	494,051	Mar. 21	2076	531	62	1792
Pianoforte-action	H. N. Moore	493,172	Mar. 7	623	157	62	1481
Pianoforte-action	G. W. Seaverns	489,615	Jan. 10	978	255	62	219
Pianoforte key-touch adjuster	F. B. Long	489,564	Jan. 10	907	237	62	205
Pianoforte-mute	F. W. Hale	493,622	Mar. 14	1368	347	62	1640
Piano-hammer	F. W. White	491,749	Feb. 14	1113	281	62	987
Piano-hammer-covering machine	M. Koeniges	493,374	Mar. 14	788	204	62	1530
Piano or organ keyboards. Making	S. J. Hoggson	493,027	Mar. 7	404	101	62	1438
Piano. Pedal	C. N. Rand	489,035	Jan. 3	85	24	62	22

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g	Official Gazette. Vol.	Official Gazette. Page.
Piano-stringing device	A. Bollermann	493,748	Mar. 21	1582	402	62	1098
Pianos. Stringing	L. A. Kindler	491,652	Feb. 14	968	243	62	958
Picker: *See* Cotton-picker.							
Picture	J. F. Tallant	489,343	Jan. 3	554	150	62	119
Picture-frame clamp	C. A. Wayland	490,519	Jan. 24	2455	633	62	540
Picture-hanger	J. Hymans	489,160	Jan. 3	268	74	62	62
Picture-mat-cutting device	E. L. Gaylord	491,307	Feb. 7	411	105 / 106	62	825
Pictures on textile fabrics. Making colored	A. Ophoven	492,362	Feb. 21	2067	...	62	1194
Pie raising and lidding machine	W. R. Gaudie	492,531	Feb. 28	2348	583	62	1264
Pigment. Making sublimated lead	C. V. Petraeus	492,832	Mar. 7	92	22	62	1376
Pile fabric. Woven	A. Webb	491,693	Feb. 14	1029	250	62	971
Piles preparatory to rolling. Machine for reducing	J. Hoenig	490,021	Jan. 17	1638	426	62	366
Pill holding and dipping apparatus	A. D. Stearns	493,604	Mar. 14	1341	342	62	1636
Pillow. Spring	W. H. Lewis	490,447	Jan. 24	2327	604	62	515
Pin: *See* Clothes-pin. Safety-pin. Insulator-pin. Scarf-pin.							
Pin-lock	J. V. Smith	489,272	Jan. 3	450	124	62	99
Pinch-bar	S. D. Combs and R. A. Frates	491,966	Feb. 21	1483	369	62	1075
Pinking-shears	L. Austin	489,406	Jan. 3	642	174	62	138
Pipe: *See* Drain-pipe. Hot-air pipe. Furnace-grate blast-pipe. Tobacco-pipe. Wood water-pipe.							
Pipe-clips. Machine for making	S. Vanstone	494,535	Mar. 28	2878	720 / 721	62	1954
Pipe-clips. Machine for making	S. Vanstone	494,536	Mar. 28	2881	721 / 722	62	1955
Pipe-core	P. Clifford	491,527	Feb. 14	765	194 / 195	62	916
Pipe-cores. Apparatus for molding	L. W. Anderson	491,973	Feb. 21	1465	365	62	1071
Pipe-coupling	O. M. Sweet	494,284	Mar. 28	2474	624	62	1860
Pipe-coupling	A. S. Vogt	491,299	Feb. 7	396	102	62	824
Pipe coupling or fitting	G. W. Harrington	492,159	Feb. 21	1754	437	62	1130
Pipe-covering	G. Edwards and R. Blackladge	493,489	Mar. 14	1133	280	62	1594
Pipe-cutter	D. W. French	492,579	Feb. 28	2425	604	62	1242
Pipe-cutter	J. Porter	492,843	Mar. 7	93	23	62	1376
Pipe-hanger for water-conductors	E. G. Minnemeyer	489,063	Jan. 3	151	40	62	36
Pipe-heating device. Iron	J. H. McRae	494,484	Mar. 28	2782	698	62	1937
Pipe joint. Gas or water	G. W. Lloyd	494,147	Mar. 28	2254	574	62	1840
Pipe. Method of and apparatus for forming lined	G. W. Harrington	489,950	Jan. 17	1508	394	62	340
Pipe-support	G. Taylor	492,593	Feb. 28	2448	609	62	1285
Pipe-thimble	R. Z. Cassel	489,068	Jan. 3	131	36	62	33
Pipe. Tool for cutting lead-lined iron	G. W. Harrington	492,158	Feb. 21	1753	436	62	1130
Pipe-union	J. T. Bibb	489,784	Jan. 10	1230	322	62	270
Pipe-wrench	G. W. Bufford and J. E. Kitson	489,455	Jan. 10	737	196	62	171
Pipe-wrench	R. S. Gillespie and H. James	489,803	Jan. 10	1255	329	62	275
Pipe-wrench	H. F. Jenks	494,529	Mar. 28	2870	718	62	1953
Pipe-wrench	G. W. Morrill	491,850	Feb. 14	1275	316	62	1019
Pipe-wrench	G. W. Porter	492,834	Mar. 7	94	23	62	1376
Pipe-wrench	S. B. Rittenhouse	492,435	Feb. 28	2182	545	62	1230
Pipe-wrench	J. A. Smith	493,737	Mar. 21	1560	398	62	1695
Pipe-wrench	F. L. Twiss and L. A. Barber	489,048	Jan. 3	106	29	62	27
Pipe-wrench	W. J. Walker	491,255	Feb. 7	309	78	62	808
Pipe-wrench, monkey-wrench, and flange-holder. Combined	J. Wensing	494,310	Mar. 28	2507	633	62	1887
Pipes. Double testing-plug for soil	J. F. McCartney	491,184	Feb. 7	203	52	62	786
Pipes for jointing. Preparing the ends of lined	G. W. Harrington	489,949	Jan. 17	1507	394	62	340
Pipes, &c. Material for covering	J. L. Covel	491,836	Feb. 14	1249	311	62	1014
Piston	M. M. Smith	490,724	Jan. 31	2800	718	62	923
Piston-head	H. M. Lee	490,913	Jan. 31	3111	798	62	683
Pitch-board	C. G. Van Alstine	493,048	Mar. 7	431	109	62	1444
Pitman	J. C. Maloney	491,727	Feb. 14	1081	273	62	981
Plane. Bench	G. W. Wright	493,903	Mar. 21	1816	462	62	1743
Planer. Plow-beam	G. W. Ream	492,338	Feb. 21	2026	504	62	1186
Planers. Hanging and adjusting pressure-bars of	D. P. Ross	489,038	Jan. 3	91	25, 26	62	23
Planing-machine sheathing-lath attachment	T. H. Brown	492,369	Feb. 21	2074	518	62	1196
Plant cover or protector	S. Reichart	489,500	Jan. 10	847	214	62	187
Plant-protector	L. Gruetzmacher	493,499	Mar. 14	987	254	62	1568
Plants. Contrivance for training growing hop-	J. A. Partridge	492,516	Feb. 28	2326	577	62	1250
Plants. Device for destroying noxious	J. Shaw and M. Clancy, Jr	489,167	Jan. 3	278	76	62	64
Planter	D. J. Bowser	492,383	Feb. 28	2103	534	62	1214
Planter	R. Murphy	492,096	Feb. 21	1645	409 / 410	62	1107
Planter and cultivator. Combined	J. B. Burke and J. F. Badger	493,063	Mar. 7	451	114	62	1448
Planter and cultivator. Seed	T. F. Baird	491,510	Feb. 14	744	189	62	911
Planter and fertilizer-distributer. Seed	J. R. McCord	493,872	Mar. 21	1769	453	62	1735
Planter attachment. Corn	O. P. Brinker	490,266	Jan. 24	2051	536	62	460
Planter. Check-row corn	J. B. Jarmin	493,362	Mar. 14	937	240 / 241	62	1558
Planter. Corn	J. Anderson	489,446	Jan. 10	718	193	62	167
Planter. Corn	L. C. Evans	489,182	Jan. 3	304	84, 85	62	69
Planter. Corn	S. T. Lamb	490,665	Jan. 31	2711	697	62	605
Planter. Corn	A. S. Parker	493,781	Mar. 21	1629	415	62	1708
Planter. Corn or potato	W. Williams	490,092	Jan. 17	1748	455	62	389
Planter. Grain	O. F. Yarbrough	491,459	Feb. 7	659	165	62	874
Planter. Hand corn	E. Mowry	489,491	Jan. 10	794	209	62	182
Planter. Potato	A. G. Gekeler	490,555	Jan. 24	2507	645	62	551
Planter. Potato	O. Thle and R. Rothe	492,021	Feb. 21	1539	384	62	1046
Planter. Seed	J. Hansson	492,920	Mar. 7	239	60	62	1406
Planter. Seed	A. Learmonth and A. A. Beltman	491,363	Feb. 7	509	131	62	845
Planter. Seed	J. W. Robb	489,268	Jan. 3	444	122	62	98

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g	Official Gazette. Vol.	Official Gazette. Page.
Planter. Seed	G. A. Stino	491,863	Feb. 14	1297	320	62	1023
Planter. Seed	J. W. Tuggle	492,479	Feb. 28	2254	563	62	1245
Planters. Furrow-closing attachment for corn	A. W. Trotter	491,390	Feb. 7	549	139	62	851
Planting machine. Potato	G. Hoffmann	491,887	Feb. 14	1331	329	62	1030
Plaster-board	J. D. Baker	493,961	Mar. 21	1936	493	62	1764
Plastic material. Machine for molding oval or other shapes from	M. E. Hunter and J. O. Clark	492,306	Feb. 21	1822	457	62	1145
Plated ware, &c. Manufacture of oval or oblong shells for	W. McAusland	493,108	Mar. 7	526	131	62	1463
Platform: *See* Unloading-platform.							
Pliers. Parallel	F. L. Vonhaus and H. Becker	491,231	Feb. 7	278	70	62	801
Plotter	D. C. Hudson	492,682	Feb. 28	2587	640	62	1312
Plow	W. H. Ammons	491,397	Feb. 7	550	141	62	855
Plow	T. E. C. Brinly	494,458	Mar. 28	2744	688	62	1930
Plow	A. M. Chavez	493,346	Mar. 14	744	191	62	1522
Plow	C. W. Clark	490,542	Jan. 24	2491	642	62	547
Plow	E. S. Cook	491,529	Feb. 14	768	195	62	916
Plow	D. B. English	490,276	Jan. 24	2067	540 / 541	62	464
Plow	C. H. Gerrard	493,080	Mar. 7	477	120	62	1453
Plow	J. R. Gladney and J. C. Mayfield	492,2?3	Feb. 21	1941	485	62	1159
Plow	C. Hartzell	492,724	Feb. 28	2651	656	62	1326
Plow	J. P. Kirk	489,015	Jan. 3	56	16	62	15
Plow	E. A. Koch	493,168	Mar. 7	618	155	62	1480
Plow	N. B. Pumphrey	491,904	Feb. 14	1358	338	62	1035
Plow	F. B. Rowland	491,137	Feb. 7	115	31	62	770
Plow	H. G. Schmidt	491,599	Feb. 14	893	224	62	941
Plow. Adjustable double	J. B. Darby	491,675	Feb. 14	1060	252	62	964
Plow and harrow. Combined	E. D. Moser	492,043	Feb. 21	1572	391	62	1092
Plow and planter. Lister	L. Roadhouse	489,037	Jan. 3	88	24, 25	62	22
Plow attachment	J. M. Chadwick	491,009	Jan. 31	3261	833	62	712
Plow attachment	E. H. Maloon and M. E. Blake	494,212	Mar. 28	2358	597	62	1860
Plow. Black-land	W. B. Vestal	494,309	Mar. 28	2505	632	62	1887
Plow-cleaner	F. Wolke	490,420	Jan. 24	2295	596	62	508
Plow. Combination heel-sweep	J. R. Dean	492,462	Feb. 28	2230	558	62	1240
Plow compensating lever	H. Lindeström	489,486	Jan. 10	786	207 / 208	62	181
Plow-fender	M. L. Adams	493,236	Mar. 14	727	187	62	1519
Plow-fender	A. M. Ellington	489,941	Jan. 17	1494	390	62	338
Plow. Gang	A. F. McMillan and T. Gormley	490,210	Jan. 17	1947	510 / 511	62	428
Plow. Garden-hoe	C. C. Stockard, Sr	492,120	Feb. 21	1685	420	62	1115
Plow or cultivator tooth	W. M. Hewitt	494,420	Mar. 28	2889	675	62	1921
Plow. Orchard	C. W. Winston and F. Throop	491,033	Jan. 31	3310	844 / 845	62	728
Plow-point	E. C. Westervelt	490,401	Jan. 3	637	173	62	137
Plow. Reversible	M. Myers	492,821	Mar. 7	78	18	62	1373
Plow-shield	A. Campbell	489,145	Jan. 3	250	69	62	58
Plow-shovel	J. F. Shultz	493,389	Mar. 14	974	251	62	1566
Plow-standard	H. J. and J. F. Washburn	491,621	Feb. 14	924	232	62	948
Plow. Sulky	N. P. Lehr and J. H. Wolfe	494,530	Mar. 28	2851	718	62	1951
Plow sweep and shovel	J. W. Hall	490,798	Jan. 31	2919	750	62	645
Plug or stopper for lavatory apparatus	J. W. Hale	492,012	Feb. 21	1528	381	62	1083
Plumber's trap	N. Barry, Jr	492,260	Feb. 21	1909	477	62	1163
Pneumatic alarm	S. P. Hasey	493,712	Mar. 21	1506	385	62	1693
Pneumatic conveyer	W. E. Vernon	489,348	Jan. 3	562	152	62	121
Pneumatic dispatch or transit system	H. Clay	489,931	Jan. 17	1466	383 / 384 / 385	62	333
Pneumatic dispatch or transit system	H. Clay	489,932	Jan. 17	1475	385 / 386	62	335
Pneumatic elevator	G. Miles	494,217	Mar. 28	2365	598	62	1861
Pneumatic power apparatus	S. G. Mills	489,193	Jan. 3	326	89	62	74
Pneumatic press	A. Bernholdt	489,409	Jan. 3	645	175	62	139
Pneumatic regulating device	A. Barker	491,784	Feb. 14	1190	298	62	1001
Pocket-book closure or cover	O. A. Lehman	489,710	Jan. 10	1112	287	62	246
Pocket-book fastening	J. E. Ortner	492,521	Feb. 28	2333	579	62	1260
Pocket-book frame	L. Messer	490,154	Jan. 17	1852	483	62	410
Pocket-book protector	J. A. S. Bohlin	492,911	Mar. 7	226	56	62	1403
Pocket-box	J. L. Covington	494,249	Mar. 28	2414	609	62	1869
Pocket-case and making the same	R. D. Knight	489,125	Jan. 3	282	69	62	51
Pocket-knife	C. C. Balston	492,020	Feb. 28	2494	619	62	1294
Pocket-knife	H. M. Brigham	492,084	Feb. 21	1629	404	62	1104
Pole or shaft support for vehicles	J. J. Randolph	489,614	Jan. 10	978	254	62	218
Pole or thill coupling	P. Weidner	489,579	Jan. 10	928	240	62	208
Pole tip. Vehicle	L. P. Gorrow	490,805	Jan. 31	2928	752	62	647
Polishing and grinding machine	H. Gelsenhöner	492,768	Feb. 28	2724	678	62	1340
Portable gate	J. Losey	490,077	Jan. 17	1723	449 / 450	62	384
Portable nesting boat	J. M. Clark and C. W. Hamilton	494,288	Mar. 28	2478	625	62	1881
Post: *See* Fence-post.							
Post	J. W. Carver	493,068	Mar. 7	460	116	62	1450
Post-hole digger	L. Gibbs	493,700	Mar. 21	1490	381	62	1680
Post-hole digger	J. Tipton	493,536	Mar. 14	1213	310	62	1609
Post-office lock-box	F. R. Ridell	491,495	Feb. 7	706	179	62	884
Post-support	N. Hansen	490,651	Jan. 31	2686	692	62	600
Pot: *See* Coffee-pot. Flower-pot. Coffee or tea pot. Paint-pot.							
Potassium chlorate. Electrolytically producing	E. B. Cutten	491,701	Feb. 14	1044	...	62	974
Potato-chopper	C. F. Compton	493,684	Mar. 21	1470	374	62	1676
Potato cutter and planter	J. J. Simon	492,243	Feb. 21	1883	471	62	1157

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Potato-digger	A. B. Bryant	491,981	Feb. 21	1476	367	62	1073
Potato-digger	E. A. Hoffmann	492,016	Feb. 21	1533	382	62	1084
Potato-digger	J. A. Hoggard H. G. Green	489,650	Jan. 10	1021	266	62	228
Potato-digger	H. Krebs	492,332	Feb. 21	2014	501, 502	62	1184
Potato-digger	G. M. D. Pomeroy and G. H. Webber	490,924	Jan. 31	3122	801	62	686
Pottery-kiln furnace	L. S. Strepey	494,533	Mar. 28	2874	719	62	1954
Pottery-ware. Treating clay for	L. Lawton	491,566	Feb. 14	835	212	62	931
Power: See Churn-power. Crank-power. Horse-power. Motive power.	W. M. Brewer	491,074	Feb. 7	19	.....	62	752
Power. Electrical transmission of	C. S. Bradley	491,465	Feb. 7	667	167, 168	62	876
Power. Transmission of	T. A. Edison	493,858	Mar. 21	1750	446	62	1731
Power-transmitter	R. Hahnel	494,331	Mar. 28	2518	641, 642	62	1895
Power transmitting and stopping device	J. H. Ward	493,457	Mar. 14	1084	278	62	1586
Power-transmitting device	E. Prouty	491,759	Feb. 14	1129	284, 285	62	990
Precious metals from their ores. Process of and solvent for separating	W. A. G. Birkin	494,054	Mar. 21	2081	.....	62	1793
Precious metals. Recovering	W. P. Miller	492,040	Feb. 21	1567	390	62	1091
Prescription-case	J. Lamb	489,652	Jan. 10	1025	267	62	228
Prescription-glass	J. O. Adsit	493,851	Mar. 21	1740	442	62	1729
Preserving foods. Apparatus for	A. Baker	489,916	Jan. 17	1436	357, 358	62	327
Preserving perishable articles. Vessel for	W. B. Frantz	494,099	Mar. 21	2158	551	62	1807
Press: See Baling-press. Barrel-heading press. Brick-press. Cheese-press. Copying-press. Cotton-press. Fruit-press. Hay-press. Meat-press. Pneumatic press. Printing-press. Seal-press. Tobacco-press.							
Press-drill	J. L. Ashurst	492,255	Feb. 21	1902	475	62	1161
Press for pressing cheese, &c	H. Kempkens	489,151	Jan. 3	258	71	62	60
Pressure brake. Fluid	R. W. Bayley	493,904	Mar. 21	1818	462, 463	62	1744
Pressure-regulator	C. R. Ord	492,100	Feb. 21	1651	411	62	1109
Pressure-regulator	J. Schneible	492,111	Feb. 21	1671	416	62	1112
Pressure regulator. Fluid	T. R. Bell	489,176	Jan. 3	292	81	62	67
Pressure regulator. Fluid	H. Brier	489,646	Jan. 10	1016	264	62	227
Printer and recorder. Check	W. W. and W. H. Wythe	491,626	Feb. 14	988	233, 234	62	949
Printer's cabinet	G. M. Williams	489,665	Jan. 10	1041	271	62	232
Printers' chases. Lock-up for	F. Wesel	493,548	Mar. 21	1735	442	62	1728
Printer's galley	E. L. Shattuck	489,572	Jan. 10	918	239	62	207
Printing	C. B. Woodward	493,850	Mar. 21	1737	442	62	1728
Printing apparatus. Ticket	A. R. Abbott	490,939	Jan. 31	3145	807	62	690
Printing block or roller	F. Beck	490,061	Jan. 17	1699	443	62	378
Printing colors with aniline-black	W. Browning	491,673	Feb. 14	997	.....	62	964
Printing colors with aniline-black	G. Donald	491,961	Feb. 14	1444	.....	62	1053
Printing colors with aniline-black	F. P. Pearson	491,951	Feb. 14	1430	.....	62	1050
Printing-machine	A. C. North	489,981	Jan. 17	1554	406, 407, 408	62	350
Printing-machine. Bed and cylinder	J. Brooks	491,334	Feb. 7	453	116, 117, 118	62	834
Printing-machine. Cylinder	J. Brooks	489,431	Jan. 3	684	186	62	147
Printing-machine ink-roller supporting device	J. M. Fairfield	491,046	Jan. 31	3331	849	62	727
Printing-machine inking mechanism	L. C. Crowell	492,759	Feb. 28	2702	671	62	1335
Printing machine. Multicolor	W. Scott	490,456	Jan. 24	2344	607	62	518
Printing machine. Oil-cloth	G. F. Eisenhardt	492,902	Mar. 7	206	50, 51	62	1399
Printing machines. Doctor-blade for fabric	G. Crompton	491,240	Feb. 7	290	72	62	804
Printing-press	S. J. Murray	492,893	Mar. 7	189	46, 47	62	1396
Printing-press delivery apparatus	S. D. Sandel	492,054	Feb. 21	1584	394	62	1095
Printing-press inking apparatus	J. L. Cox	494,096	Mar. 21	2152	550	62	1806
Printing-press inking apparatus	G. E. Martin	493,892	Mar. 21	1800	459	62	1740
Printing-press pasting mechanism	W. Scott	494,233	Mar. 28	2393	604	62	1865
Printing-press perforating attachment	G. C. B. Graham	492,794	Mar. 7	35	8	62	1366
Printing-press registering device	H. A. W. Wood	492,505	Feb. 28	2313	573, 574	62	1256
Printing. Screen for photomechanical	L. E. and M. Levy	492,333	Feb. 21	2017	502	62	1185
Prison cage or cell	P. E. Glafcke	494,252	Mar. 28	2416	609, 610	62	1870
Prison cell and guard. Electric	W. S. Hull	489,902	Jan. 10	1407	364	62	304
Prison-cell, safe, or other depository	P. E. Glafcke	494,253	Mar. 28	2420	610	62	1870
Propeller. Screw	R. McGlasson	494,014	Mar. 21	2022	515, 516	62	1783
Proscenium-adjuster	S. Mackaye	490,482	Jan. 24	2390	619	62	527
Protector: See Plant-protector.							
Pug-mill	A. R. Miller	490,611	Jan. 24	2593	668	62	567
Puller: See Rail-puller. Tack or nail puller.							
Pulley	P. H. Holmes	492,801	Mar. 7	47	11	62	1368
Pulley	F. Siebert	490,835	Jan. 31	2970	762	62	656
Pulley-arm pattern	O. C. Little	494,257	Mar. 28	2429	612	62	1872
Pulley-block. Differential	E. Y. Moore	492,609	Feb. 28	2474	615	62	1291
Pulley-coupling	C. Schlickeysen	490,313	Jan. 24	2131	555	62	477
Pulley for sand-reels. Friction	W. Richards	492,632	Feb. 28	2512	624	62	1298

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Pulley. Friction clutch	C. Johnson	493,775	Mar. 21	1619	412	62	1706
Pulley lubricator. Loose	G. L. Perkins	492,831	Mar. 7	91	22	62	1375
Pulley. Split	G. D. Rowell	493,523	Mar. 14	1188	304	62	1604
Pulp-drying or paper-making machine	H. Parker, G. F. Cushman, and H. Fairbanks.	491,717	Feb. 14	1065	270	62	978
Pulp. Machine for forming hollow articles from	W. W. McEwan	490,037	Jan. 17	1662	432	62	371
Pulp-screen	E. Menrer	492,039	Feb. 21	1567	390	62	1091
Pulp-screening machine	G. D. Rowell	493,787	Mar. 21	1638	417	62	1710
Pulverizer and leveler	S. L. Allen	493,958	Mar. 21	1918	489	62	1762
Pulverizer and stalk-cutter	C. E. Rife	489,690	Jan. 10	1082	281	62	241
Pulverizer. Clod	G. D. Heldebrant	492,399	Feb. 28	2125	530, 531	62	1218
Pump	H. A. French	491,801	Feb. 14	1202	300	62	1004
Pump	H. A. French	491,802	Feb. 14	1203	301	62	1004
Pump	E. R. Hill	492,672	Feb. 28	2582	639	62	1311
Pump	O. G. Howell and J. M. Horn	490,657	Jan. 31	2694	693, 694	62	602
Pump	W. H. Poulk	490,985	Jan. 31	3224	824	62	705
Pump	D. D. Shaw	489,419	Jan. 3	662	179	62	142
Pump	M. D. Temple	490,776	Jan. 31	2984	741	62	630
Pump and ventilator. Centrifugal	F. Pelzer	490,925	Jan. 31	3120	800	62	686
Pump attachment	G. M. Yarnell	489,403	Jan. 3	639	173	62	137
Pump-controlling apparatus	C. I. Hall	492,723	Feb. 28	2649	656	62	1325
Pump. Deep-well	L. M. Ford	490,142	Jan. 17	1535	479	62	407
Pump. Double-acting force	E. A. Vaughan	492,699	Feb. 28	2611	646	62	1318
Pump foot-valve	J. H. Gibson	493,378	Mar. 14	958	247	62	1562
Pump. Oil	E. English	493,694	Mar. 21	1485	380	62	1679
Pump. Oil-well	G. D. Bumpus	491,674	Feb. 14	998	252	62	964
Pump-plunger	A. D. Cook	493,249	Mar. 14	747	191, 192	62	1523
Pump. Portable force	M. B. Brooks	489,367	Jan. 3	589	159	62	126
Pump-regulator	J. M. Foster	489,297	Jan. 3	480	133	62	105
Pump-regulator	W. S. Griffith	491,101	Feb. 7	59	17	62	766
Pump-regulator	E. J. Wood	489,516	Jan. 10	841	220	62	191
Pump-rod coupler	E. C. Guerrant	491,551	Feb. 14	803	203	62	923
Pump. Steam	T. C. Eicher	490,141	Jan. 17	1533	479	62	407
Pump. Steam	L. W. Hardy	492,797	Mar. 7	39	9, 10	62	1367
Pump. Steam	G. R. Kendrick	494,207	Mar. 28	2352	595	62	1850
Pump. Steam	W. Watkins	492,950	Mar. 7	279	71	62	1414
Pump. Vacuum	W. H. Worthen	491,912	Feb. 14	1368	341	62	1037
Pump-valve	H. F. Feiblo	491,543	Feb. 14	786	200	62	920
Pump-valve	J. Kennedy	491,986	Feb. 7	362	90	62	817
Pump valve. Steam	T. C. Eicher	490,140	Jan. 17	1530	478	62	406
Pumps for locomotives. Apparatus for cleaning air	A. Whyte	493,670	Mar. 21	1447	369	62	1671
Pumping apparatus. Portable	D. Noble	491,186	Feb. 7	205	52, 53	62	787
Pumping apparatus. Portable	D. Noble	494,221	Mar. 28	2374	599, 600	62	1863
Pumping-engine	A. B. Landis	492,870	Mar. 7	157	38	62	13-9
Pumping-engine	J. D. P. Schenck	490,312	Jan. 24	2130	554	62	477
Pumping-engine. Non-rotative	L. D'Auria	493,153	Mar. 7	592	149	62	1475
Pumping-engine. Steam	C. C. Webber	493,668	Mar. 21	1442	368	62	1670
Pumping-engines. Tappet for duplex steam	M. M. Moore	489,655	Jan. 10	1027	268	62	229
Pumping oil-wells. Machinery for	H. S. Edwards	489,073	Jan. 3	138	39	62	34
Punch	G. H. Kavanaugh	489,534	Jan. 10	865	226	62	196
Punch. Check	E. R. Beach and H. A. Berger	490,894	Jan. 31	3064	787	62	675
Punch. Check	L. L. Driggs	493,547	Mar. 14	1230	315	62	1613
Punch. Hand	E. J. Brooks	489,430	Jan. 3	683	184	62	147
Punching and riveting machine	R. J. Shipley	489,547	Jan. 10	881	230, 231	62	200
Punching and shearing machine	S. G. Williams and J. C. Burges	490,007	Jan. 17	1598	417	62	359
Punching-machine	A. Hoolahan	493,890	Mar. 21	1796	458	62	1739
Punching-machine	H. Schurig	491,791	Mar. 21	1642	419	62	1711
Punching, shearing, and forging machine	H. A. Schneekloth	490,401	Jan. 24	2256	589	62	504
Purifier and separator	G. A. and J. P. Culver and W. D. Otis.	493,756	Mar. 21	1593	405	62	1700
Purse and frame therefor	A. Goertz	490,434	Jan. 24	2311	600	62	512
Purse and making same	A. Ritter	490,165	Jan. 17	1867	487	62	413
Push-button. Electric annunciating	J. King	494,337	Mar. 28	2557	644	62	1896
Puzzle	G. T. and M. H. Bradley	492,605	Feb. 28	2469	614	62	1290
Puzzle	T. Dorgan and A. Bridges	490,069	Jan. 17	1712	446	62	381
Puzzle	J. Green	493,768	Mar. 21	1611	409	62	1704
Puzzle	A. Neubach, Jr	493,941	Mar. 21	1889	401	62	1757
Puzzle	J. A. Schaffer	490,757	Jan. 31	2853	732	62	632
Puzzle	E. L. Thurston	490,689	Jan. 31	2748	707	62	612
Puzzle	E. Niehoff	491,021	Jan. 31	3286	839	62	718
Puzzle. Egg	T. G. Hall	494,199	Mar. 28	2334	592	62	1855
Pyro-electric battery	F. H. and R. H. Pickles	490,497	Jan. 24	2424	.....	62	534
Pyrolignites. Purifying	E. Brown	494,244	Mar. 28	2407	607	62	1868
Pyrometer	E. Brown	494,245	Mar. 28	2409	608	62	1868
Pyrometer	W. R. Roney	490,723	Jan. 31	2798	718	62	623
Pyrometer	J. G. Wilborgh	489,884	Jan. 10	1366	355	62	288
Pyrometer	F. A. O. Bedingfeld	493,746	Mar. 21	1579	402	62	1696
Quoit-peg							
Rack: See Book-rack. Broom-rack. Cue-rack. Gun-rack. Hat-rack. Hat and clothes rack. Hay and stock rack. Keg or tool rack. Stock-rack. Stovepipe-rack.							
Radiator	J. H. Hutchinson	493,590	Mar. 14	1312	335	62	1630
Radiator. Electrically-heated	W. Mitchell	494,301	Mar. 28	2496	630	62	1885
Radiator, stove, &c	A. T. Orton	489,874	Jan. 10	1349	351	62	295
Rag-engine	H. Schulte	492,230	Feb. 21	1879	469, 470	62	1156
Rail brace-chair. Girder	M. M. Suppes	489,508	Jan. 10	830	217	62	189

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr.	Official Gazette. Vol.	Official Gazette. Page.
Rail-chair. Interlocking	W. M. Brown	492,458	Feb. 28	2223	555	62	1239
Rail chair-sleeper and tie	W. G. Olpherts	494,074	Mar. 21	2119	541	62	1800
Rail. Continuous	A. Bagley	493,233	Mar. 7	714	183	62	1498
Rail-curving machine	F. C. Weir and E. W. Harden	494,450	Mar. 28	2731	685	62	1928
Rail for use on common roads. Steel	G. M. Ramsey	492,365	Feb. 21	2070	517	62	1195
Rail-joint	J. D. Blanton	493,816	Mar. 21	1693	431	62	1719
Rail-joint	F. Mulville	493,939	Mar. 21	1886	480	62	1756
Rail-puller	J. M. Stamp	494,235	Mar. 28	2396	605	62	1866
Railings. Bracket or support for foot-	D. C. Bowen	490,383	Jan. 24	2242	583	62	499
Railway	S. A. Stone and J. Phillipps	490,995	Jan. 31	3240	827	62	708
	L. S. Widmeyer and J. F. Fields	490,868	Jan. 31	3018	776	62	667
Railway and tramway rail cleaner	H. Conradi	489,120	Jan. 3	215	56 57 58	62	50
Railway appliance	J. Wayland	492,598	Feb. 28	2455	610 611	62	1287
Railway. Automatic aerial	H. W. Libbey	491,572	Feb. 14	839	213	62	931
Railway block-signal	F. B. Burt	493,228	Mar. 7	708	182	62	1497
Railway block-signal	R. D. Peters	494,077	Mar. 21	2123	542	62	1801
Railway block-signal system	E. Fontaine	494,525	Mar. 28	2857	715 716	62	1951
Railway block signaling system and apparatus	H. Floyd and W. H. Douty	490,192	Jan. 17	1908	497 498	62	421
Railway block system. Electric-	F. O. Blackwell	492,457	Feb. 28	2221	555	62	1238
Railway cattle-guard	J. J. Burke	493,972	Mar. 21	1955	498	62	1768
Railway conductor. Electric-	C. A. Stark	489,835	Jan. 10	1303	340	62	266
Railway conductor system. Electric-	H. A. Miner	490,297	Jan. 24	2099	547	62	470
	R. Hayden	490,597	Jan. 24	2564	660	62	562
Railway. Conduit	F. B. Rae	492,106	Feb. 21	1664	413 414	62	1111
Railway conduit and contact. Electric-	J. Davis and R. M. Huntington	493,618	Mar. 14	1362	345	62	1639
Railway. Conduit electric	J. H. Bates	492,737	Feb. 28	2667	661 662	62	1329
Railway. Conduit electric	F. W. Brann	492,265	Feb. 21	1917	479	62	1164
Railway. Conduit electric	H. P. Feltrow	493,695	Mar. 21	1485	380	62	1679
Railway converter system	A. Du Bois-Reymond	493,914	Mar. 21	1841	469 470	62	1747
Railway-crossing	W. C. Fletcher	492,770	Feb. 28	2726	679	62	1340
Railway-crossing	J. R. Pflanz	492,228	Feb. 21	1865	466	62	1153
Railway-crossing gate and signal	I. Briggs	489,365	Jan. 3	586	158	62	126
Railway-crossing plate	C. Vogt	491,616	Feb. 14	917	231	62	947
Railway-crossings. Combined switch and signal device for	J. Boucher	490,736	Jan. 31	2816	727	62	626
Railway danger signal and bell. Electric-	P. Seiler	493,125	Mar. 7	550	137	62	1468
Railway. Electric	M. Cattori	492,659	Feb. 28	2357	633	62	1306
Railway. Electric	J. C. Henry	494,477	Mar. 28	2771	695	62	1935
Railway. Electric	D. E. Kimball	489,563	Jan. 10	906	236	62	204
	E. W. Mitchell	490,975	Jan. 31	3205	819	62	701
Railway. Electric elevated	A. L. Rutter	489,330	Jan. 3	528	143 144	62	114
Railway. Elevated	J. G. D. Tucker	493,132	Mar. 7	559	139 140	62	1469
Railway. Elevated cable	W. R. Heylmun	493,500	Mar. 14	1151	294	62	1597
Railway-express robberies. Means for preventing	T. Schmid and W. Kinkel	493,600	Mar. 14	1336	340 341	62	1634
Railway foot-guard	W. B. Mitchell and F. Benberger	490,580	Jan. 24	2335	653	62	556
Railway foot-guard	M. Riley	493,649	Mar. 21	1412	358	62	1664
Railway-frog	C. C. Andress	494,115	Mar. 28	2197	561	62	1829
Railway-frog	D. Horrie	491,842	Feb. 14	1261	313	62	1016
Railway-frog	J. McKinnon	489,979	Jan. 17	1552	406	62	349
Railway-frog pattern	S. H. Stnpakoff	492,638	Feb. 28	2521	624 625	62	1300
Railway-gate	E. Currier	493,557	Mar. 14	1294	330 331	62	1627
Railway-gate	J. Mills	489,131	Jan. 3	298	61	62	52
Railway-gate. Automatic	E. A. Chapel	490,801	Jan. 31	2921	751	62	645
Railway-gate. Automatic	F. A. Curtis	491,472	Feb. 7	677	170	62	878
Railway grip. Cable	J. B. Mahaffey	489,870	Jan. 10	1344	351	62	294
Railway gripping device. Cable	R. A. McCauley	491,439	Feb. 7	624	156	62	867
Railway guard-rail	E. A. Trapp	490,325	Jan. 24	2147	560 561	62	480
Railway-heating apparatus	N. W. Williames	492,129	Feb. 21	1696	423	62	1117
Railway joint box	E. E. Smith	491,787	Feb. 14	1178	295	62	999
Railway joints. Joint-box for street-	E. O. Evans	492,885	Mar. 7	180	43, 44	62	1394
Railway. Marine	E. Kaye	494,066	Mar. 21	2102	536	62	1796
Railway pumping machinery. Automatic	H. D. Layman	490,666	Jan. 31	2714	698	62	606
Railway pumping mechanism. Automatic	H. D. Layman	489,962	Jan. 17	1523	398	62	344
Railway-rail	H. Greer	489,948	Jan. 17	1507	393	62	340
Railway rail and chair	H. C. Evans	492,464	Feb. 28	2232	558 559	62	1241
Railway-rail brace	W. E. Williams	491,152	Feb. 7	140	38	62	776
Railway-rail brace and tie-plate	C. B. Macneal	492,817	Mar. 7	71	17	62	1371
Railway-rail brace-chair	W. M. Brown	494,243	Mar. 28	2407	607	62	1868
Railway-rail joint	P. Pearson and J. Robinson	494,223	Mar. 28	2377	600	62	1863
Railway-rail joint	S. F. Stever	492,848	Mar. 7	115	29	62	1380
Railway-rail splice	W. J. Williams	493,802	Mar. 21	1672	426	62	1716
Railway rail. Street-	W. T. Jennings	494,144	Mar. 28	2249	573	62	1839
Railway-rails. Automatic lock-joint for	J. L. Pope	492,558	Feb. 28	2393	594 595	62	1275
Railway rails. Fish-plate joint for street-	E. Samuel	489,878	Jan. 10	1356	353 354	62	286
Railway rails. Removable cap for street-	J. A. Eno	491,538	Feb. 14	780	199	62	919
Railway rolling-stock. Guide attachment for	T. E. W. Fay	494,418	Mar. 28	2687	674	62	1920
Railway series system	G. L. Thomas	491,691	Feb. 14	1027	259	62	971

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr.	Official Gazette. Vol.	Official Gazette. Page.
Railway-signal	G. F. Adams and J. S. Lynam	490,220	Jan. 17	1962	514	62	431
Railway-signal	W. F. Z. Desant	489,629	Jan. 10	907	260	62	222
Railway-signal	J. E. Geary	489,736	Jan. 10	1152	298 299	62	254
Railway-signal	I. L. Green	490,626	Jan. 24	2836	678 679	62	576
Railway-signal	C. M. Havey	493,211	Mar. 7	678	173	62	1492
Railway-signal	F. N. Kelsey	491,754	Feb. 14	1120	283	62	989
Railway-signal	J. Frysinger	491,061	Jan. 31	3340	855	62	732
Railway-signal. Automatic	J. Bradford and J. P. Williams	493,678	Mar. 21	1437	372	62	1674
Railway-signal. Electric	H. V. and A. C. Miller	493,935	Mar. 21	1877	474	62	1754
Railway-signal. Electric	H. S. Wait	492,645	Feb. 28	2531	627 628	62	1302
Railway-signal. Electric	S. W., A. C., and H. V. Miller	494,111	Mar. 21	2185	559	62	1813
Railway-signal. Electrical	E. S. Piper	492,929	Feb. 21	1866	466	62	1153
Railway signal-flag	J. K. Byler	491,798	Feb. 14	1197	299	62	1003
Railway signaling apparatus	L. Thaler	491,387	Feb. 7	544	138	62	852
Railway-signaling. Electric circuit for	S. T. Dutton	489,940	Jan. 17	1492	390	62	337
Railway-signaling. Interlocking apparatus for	J. Churchward	492,527	Feb. 28	2344	582	62	1263
Railway-spike	S. C. Hill	491,050	Jan. 31	3338	851	62	729
Railway-spike	I. C. Howes	490,439	Jan. 24	2318	601	62	513
Railway-spike	W. Quinn and J. S. Berry	494,083	Mar. 21	2134	546	62	1803
Railway-splice	W. C. Nunn	492,424	Feb. 28	2164	541	62	1226
Railway surface cattle-guard	C. M. Fitch	490,190	Jan. 17	1906	496	62	421
Railway-switch	C. M. Fitch	493,991	Mar. 21	1984	506	62	1774
Railway-switch	A. F. Letson	489,536	Jan. 10	886	227	62	196
Railway-switch	R. Nash	493,179	Mar. 7	633	160	62	1492
Railway-switch	H. Rich	494,441	Mar. 28	2717	681	62	1925
Railway-switch	W. and G. E. Thurtle	491,500	Feb. 7	714	181	62	886
Railway-switch	G. N. Einsele and G. W. De Grasse	492,790	Mar. 7	28	7	62	1364
Railway-switch. Automatic	H. C. O. Grubike	489,583	Jan. 10	935	242	62	209
Railway-switch. Automatic safety	A. C. Goetz	489,944	Jan. 17	1498	391	62	338
Railway switch. Electric	P. Evans	493,918	Mar. 21	1848	471	62	1749
Railway-switch. Electrically-operated	J. E. Sandelin	490,616	Jan. 24	2600	670	62	569
Railway-switch safety-lock	J. L. Morris and J. P. Nace	492,042	Feb. 21	1571	391	62	1092
Railway-switches. Trip for automatic	T. Harris	490,248	Jan. 17	2008	525	62	440
Railway system. Electric	T. Harris	493,623	Mar. 14	1370	348	62	1640
Railway system. Electric	C. Drill and H. J. Schmitt	490,549	Jan. 24	2499	643 644	62	549
Railway system. Elevated	F. B. Badt	489,597	Jan. 10	956	248 249	62	213
Railway system. Multiphase	H. D. Dasher	491,041	Jan. 31	3324	848	62	725
Railway-tie	C. A. Gildemeyer	491,048	Jan. 31	3336	850	62	728
Railway-tie	S. McElfatrick	490,586	Jan. 24	2545	655	62	558
Railway-tie	H. V. and T. Slutz	492,895	Mar. 7	194	48	62	1397
Railway-tie	G. Tarrant	492,446	Feb. 28	2108	550	62	1233
Railway tie and chair	C. L. Fitzhugh and S. S. Babbitt	493,492	Mar. 14	1136	291	62	1595
Railway-tie. Metal	E. D. Bangs	494,314	Mar. 28	2513	634	62	1888
Railway-tie. Metallic	T. J. Bronson and A. Armstrong	491,922	Feb. 14	1384	346	62	1041
Railway-tie. Metallic	A. E. Roberts	494,029	Mar. 21	2045	521 522	62	1786
Railway-tie. Metallic	A. W. Straub	492,121	Feb. 21	1686	420	62	1115
Railway time-signal	A. C. Gordon	493,683	Mar. 7	4-3	121	62	1455
Railway time-signal	B. B. Morgan	494,509	Mar. 28	2827	709	62	1946
Railway torpedo-signal	H. F. Clark	493,492	Mar. 14	1121	287 288	62	1592
Railway-track jack and liner	E. D. Moriarty	494,155	Mar. 28	2206	575	62	1841
Railway-track tie-rod	A. J. Moxham	492,469	Feb. 28	2240	560	62	1242
Railway-tracks. Device for preventing spreading of	A. H. Newpher	491,441	Feb. 7	625	157	62	867
Railway-trains. Apparatus for automatically stopping	E. W. Robinson	492,837	Mar. 7	96	24	62	1376
Railway-train arrester. Automatic	J. Frysinger	492,152	Feb. 21	1742	434	62	1127
Railway-train arrester. Automatic	J. Frysinger	492,153	Feb. 21	1744	434 435	62	1128
Railway-train arrester. Automatic	J. Frysinger	492,154	Feb. 21	1746	435	62	1128
Railway-train arrester. Automatic	J. Frysinger	492,155	Feb. 21	1748	435	62	1129
Railway train order and signaling device	L. T. Crabtree	491,837	Feb. 14	1249	312	62	1014
Railway-train signal	I. N. Peirce	489,418	Jan. 3	662	179	62	142
Railway trolley. Electric	A. Dickinson	491,988	Feb. 21	1485	370 371	62	1075
Railway trolley. Electric	E. H. Jenkins	489,481	Jan. 10	774	204	62	178
Railway trolley. Electric	B. and A. Kochs	491,361	Feb. 7	505	130	62	844
Railway trolley. Electric	J. Routlinger	489,234	Jan. 3	391	108	62	87
Railway trolley. Electric	J. F. Saitz	493,789	Mar. 21	1640	418	62	1710
Railway. Underground electric	J. B. Sheldon, D. J. Murnane, and G. L. Van Beek.	489,764	Jan. 10	1200	314 315	62	264
Railway-yoke	M. S. Towson	490,690	Jan. 31	2749	708	62	612
Railways and shippers against loss of freight. Means for securing	J. B. Mockridge	493,595	Mar. 14	1320	338	62	1632
Railways. Closed conduit for electric	R. Parker and B. F. Sutton	490,306	Jan. 24	2122	552	62	475
Railways. Closed conduit for electric	G. W. von Siemens	493,948	Mar. 21	1902	485	62	1759
Railways. Closed electric conduit for	A. Heiser	492,398	Feb. 28	2123	530	62	1218
Railways. Conductor system for electric	G. W. von Siemens	489,573	Jan. 10	919	239 240	62	207
Railways. Conduit system for electric	E. Hazelton	493,716	Mar. 21	1513	386 387	62	1684
Railways. Construction of	E. L. Arnold	493,052	Mar. 7	437	110	62	1445
Railways. Inclosed conductor for electric	F. C. Perkins	491,132	Feb. 7	104	29	62	769
Railways. Leading-piece for overhead electric	H. D. Winton	492,881	Mar. 7	173	42	62	1392
Railways. Means for mounting pulleys in curves of cable	E. A. Hovey	491,559	Feb. 14	818	207 208	62	927
Railways. Underground conduit for electric	C. P. Tatro	489,422	Jan. 3	669	181	62	144
Rake: *See* Hay-rake. Lawn-rake. Rake	A. J. Chamberlain	494,324	Mar. 28	2529	637	62	1892

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Invention	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Rake	N. J. Felix	491,703	Feb. 14	1045	264	62	974
Rand-turning machine	L. A. Merrithew	494,378	Mar. 28	2627	659	62	1969
Ranges. Connection with domestic fire or other	E. Marsh	490,573	Jan. 24	2528	651	62	555
Ratchet-brace	A. Taylor	490,617	Jan. 24	2601	670	62	569
Ratchet-wrench	M. F. Killinger	493,373	Mar. 14	786	203	62	1530
Razor	C. R. Evertz	493,075	Mar. 7	466	118	62	1451
Razor	J. A. Stenberg	489,995	Jan. 17	1582	414	62	355
Razor-strops. Composition of matter for leather for	F. Minnis	490,030	Jan. 17	1653	.....	62	369
Razors, &c. Machine for edging	N. Allgiear	492,910	Mar. 7	923	56	62	1402
Reapers. Endless sickle for	T. H. Brown	492,322	Feb. 21	2000	498	62	1182
Reaping or mowing machine	G. Beekman	490,781	Jan. 31	2894	742	62	640
					743		
Reaping or mowing machine	G. Beekman	490,782	Jan. 31	2896	743	62	641
					744		
Receipt-form and stripper therefor	W. H. Campbell	490,897	Jan. 31	3081	790	62	678
Reciprocating engine	D. J. Smith	489,766	Jan. 10	1204	316	62	264
Reclining-chair	W. E. Martin and P. Walrad	491,246	Feb. 7	297	75	62	805
Recorder:							
See Cash-recorder. Time-recorder. Manual recorder.							
Recording and receipting machine	J. F. Scheuer	489,040	Jan. 3	94	26 27	62	24
Reel:							
See Fence-wire reel. Hose-reel. Fishing-reel. Twine-reel.							
Reel	A. J. Carr	489,286	Jan. 3	468	130	62	102
Reel attachment	E. Reynolds	493,518	Mar. 14	1174	300	62	1602
Reel-carrier	F. N. Hoffstaedt and J. F. Springer	489,742	Jan. 10	1167	303	62	256
					304		
Reel-support and wire-stretcher. Combined	T. Fitzgibbon	492,000	Feb. 21	1503	375	62	1079
Reflector and bracket. Lamp	W. S. Nevins	493,284	Mar. 14	811	208	62	1534
Reflector. Light-	W. G. Marston	491,339	Mar. 28	2559	645	62	1897
Refrigerating apparatus	D. L. Holden	493,721	Mar. 21	1524	390	62	1686
					391		
Refrigerating apparatus	J. Scheuerecker	493,120	Mar. 7	542	135	62	1466
					136		
Refrigerating apparatus	A. Siebert	489,335	Jan. 3	539	146	62	116
					147		
Refrigerator	J. M. Clarkin	489,247	Jan. 3	413	115	62	92
Refrigerator	E. N. Dolbey	489,290	Jan. 3	472	131	62	103
Refrigerator	J. L. Fitz Gerald	493,262	Mar. 14	766	196	62	1526
Refrigerator	M. M. Harris	492,286	Feb. 21	1944	486	62	1170
Refrigerator	L. Heller	489,004	Jan. 3	43	12	62	11
Refrigerator	N. Soldwedel	490,216	Jan. 17	1957	513	62	430
Refrigerator	P. J. Vanderlinda	493,410	Mar. 14	1000	258	62	1571
Refrigerator	J. A. Watts	492,909	Mar. 7	922	55	62	1402
Refrigerator	W. M. Wood	490,055	Jan. 17	1688	440	62	376
Refrigerator	F. H. Zahrn	494,049	Mar. 21	2072	529	62	1791
					530		
Refrigerator-box	G. F. Sickles	492,503	Feb. 28	2310	573	62	1256
Refrigerator-building	A. I. Dexter	493,256	Mar. 14	758	194	62	1525
Refrigerator-car	D. W. Riordan	491,496	Feb. 7	707	179	62	885
Refrigerator-car	G. B. Robbins	489,759	Jan. 10	1194	313	62	262
Refrigerator for barreled liquors on tap	G. Gardiner and C. H. Millins	493,157	Mar. 7	600	150	62	1477
Refrigerator. Water-cooling	R. L. Snyder	490,511	Jan. 24	2441	629	62	538
					630		
Refrigerator water seal	W. C. Sheldon	493,658	Mar. 21	1426	363	62	1667
Register:							
See Autographic register. Counting-register. Fare-register. Car-register. Harvester sheaf-register. Cash-register. Hot-air register. Check-register.							
Register apparatus. Autographic	C. D. Grimes and G. E. Harter	491,348	Feb. 7	487	125	62	840
Register or counting device	S. M. Balzer	489,703	Jan. 10	1102	285	62	244
Register to count the operations of mechanism	S. M. Balzer	489,892	Jan. 10	1377	358	62	300
Registering device for textile-fabric machines, &c	M. Keeney	491,564	Feb. 14	826	209	62	929
Registering device. Package-	R. F. Andersson	494,050	Mar. 21	2074	530	62	1792
Registering trip-slip. Conductor's	H. W. Libbey	492,764	Feb. 28	2717	675	62	1338
Regulator:							
See Damper-regulator. Pump-regulator. Draft-regulator. Shutter-regulator. Electric motor regulator. Temperature-regulator. Watch-regulator. Heat-regulator. Windmill-regulator. Pressure-regulator.							
Rein attachment	B. F. Buell	492,978	Mar. 7	327	82	62	1424
Rein-button	J. T. Swartz	491,199	Feb. 7	227	57	62	780
Rein-holder	A. Foisy	491,542	Feb. 14	785	200	62	919
Rein-holder	A. Rosenthal	493,412	Mar. 14	1002	258	62	1571
Relasting-machine	G. W. Thompson	493,196	Mar. 7	656	167	62	1487
Relay	J. W. Lattig	492,689	Feb. 28	2596	643	62	1314
Releasing device. Automatic	H. P. Nielsen	490,211	Jan. 17	1949	511	62	428
Removing obstructions. Apparatus for	W. R. McLain	489,541	Jan. 10	873	228	62	198
Reservoir	M. A. Possons and H. L. Carroll	491,023	Jan. 31	3290	840	62	719
Respirator	F. Cogny	492,980	Mar. 7	329	83	62	1424
Retort-lid	J. P. Clark	491,769	Feb. 14	1149	288	62	994
Retort-lid catch or lock	J. P. Clark	493,424	Mar. 14	1019	262	62	1574
Retouching device	A. S. Harry	491,171	Feb. 7	183	46	62	783
Rheostat-plate	C. E. Carpenter	492,757	Feb. 28	2700	670	62	1335
Rheostat-plate	C. E. Carpenter	492,758	Feb. 28	2701	671	62	1335
Ribbon-holder	J. L. Black	489,360	Jan. 3	578	156	62	124
Ribbons. Apparatus for folding and creasing the edges of	W. Remy	494,347	Mar. 28	2572	648	62	1899
Rice. Polishing	J. Menge	493,509	Mar. 14	1164	297	62	1600
Rifle	F. Simonson	492,057	Feb. 21	1587	395	62	1096

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Ring:							
See Lap-ring.							
Rivers or harbors. Machine for removing mud or sand from	C. B. Glover	490,747	Jan. 31	2840	728	62	629
Rivet-feeding device	J. H. Martin	490,609	Jan. 24	2589	667	62	566
					668		
Riveting-machine	E. Heyde	493,928	Mar. 21	1802	475	62	1751
Riveting-tool	B. F. Kline	489,608	Jan. 10	971	252	62	217
Roasting-furnace. Revolving	C. Fellner	491,704	Feb. 14	1046	264	62	974
Rock-crusher. Adjustable	J. P. Simmons and W. J. Holmes	490,215	Jan. 17	1956	512	62	430
Rock-drill. Steam	T. F. Farrell	489,471	Jan. 10	761	201	62	175
Rock-drilling machine	J. McCulloch	493,175	Mar. 7	626	157	62	1481
					158		
					159		
Rock-drilling-machine clutch	S. H. Macomber	490,152	Jan. 17	1849	482	62	410
Rocking-horse motor	S. Wilson	490,465	Jan. 24	2361	612	62	522
Rod-coupling device	A. W. Knight	494,208	Mar. 28	2354	595	62	1850
Rod-feeding device	C. M. Conradson	489,935	Jan. 17	1484	387	62	336
					388		
Rod-gripping device	C. M. Conradson	489,936	Jan. 17	1485	388	62	336
Rods. Machine for cutting, pointing, and shaping	J. W. R. Johnson	489,586	Jan. 10	937	243	62	210
					244		
Roller:							
See Feed-roller. Trawl-roller. Land-roller.							
Rolling and bending metal into spiral forms. Machine for	W. D. Eynon	491,341	Feb. 7	467	120	62	837
Rolling-mill	F. I. Freeman	492,352	Feb. 21	2051	511	62	1191
					512		
Rolling-mill plant	W. Garrett	492,156	Feb. 21	1750	436	62	1120
Rolling mill. Universal tube-	W. Heckert	490,628	Jan. 24	2641	680	62	577
					681		
Roofing material	G. S. Lee	490,668	Jan. 31	2716	698	62	606
					699		
Roofing, paving, &c. Composition for	D. A. Wray	491,395	Feb. 7	557	.....	62	854
Roofing. Sheet-metal	A. C. Kanneberg	492,512	Feb. 28	2383	516	62	1258
Root-cutting machine. Beet-	F. Stephan	489,338	Jan. 3	516	147	62	117
					148		
Rope-leader for winding-drums	N. H. Pine	490,984	Jan. 31	3222	824	62	704
Rossing-machine	W. Hadley and A. T. McDonald	489,251	Jan. 3	422	117	62	94
Rotary engine	A. D. Bellinger	491,402	Feb. 7	505	143	62	856
Rotary engine	O. S. Gardeen	490,646	Jan. 31	2675	689	62	590
Rotary engine	A. F. Gillet	493,081	Mar. 7	478	120	62	1454
Rotary engine	G. H. Graham	494,138	Mar. 28	2235	569	62	1836
					570		
Rotary engine	J. Matthews	494,069	Mar. 21	2109	538	62	1798
Rotary engine	F. Meyer, J. S. Kiehl, and A. Grant	492,360	Feb. 21	2002	514	62	1193
					515		
Rotary motor or pump for steam, water, or compressed air.	F. Schröder	493,844	Mar. 21	1729	441	62	1727
Rotary steam-engine	J. M. McIver	490,813	Jan. 31	2840	754	62	650
					755		
Rotating-cylinder engine	S. G. Brosius	492,859	Mar. 7	130	34	62	1383
Rotating-cylinder engine	S. G. Brosius	492,860	Mar. 7	134	33, 34	62	1384
Rotating-cylinder engine	S. G. Brosius	492,861	Mar. 7	137	34	62	1385
Rotating screen for screening kaolin or analogous substances.	J. W. Burgess	493,751	Mar. 21	1585	404	62	1699
					404		
Roundabout	W. Somers	489,238	Jan. 3	395	109	62	89
					110		
Routing-machine	H. P. Nevin and W. S. Farrar	490,492	Jan. 24	2416	624	62	533
Rubber boot	B. A. Pickering	494,262	Mar. 28	2437	614	62	1873
Rubber fabrics. Means for plugging holes in	T. B. Sloper	490,369	Jan. 24	2219	578	62	495
					579		
Rubber stamps or casts. Making	W. F. Barnes	489,448	Jan. 10	723	194	62	168
Rubber to render it adhesive. Treating vulcanized	J. M. Raymond	490,500	Jan. 24	2426	.....	62	535
Rudder	A. McDougall	492,873	Mar. 7	163	39	62	1391
Ruler. Flexible	G. W. Kraft	490,390	Jan. 24	2250	585	62	501
Sad-iron	H. I. Noble	494,020	Mar. 21	2033	518	62	1784
Saddle. Harness-	S. A. Nolen	489,087	Jan. 3	157	43	62	38
Saddle. Side-	B. P. Blood	491,831	Feb. 14	1239	310	62	1012
Saddletree	A. Dyke	490,552	Jan. 24	2504	645	62	550
Safe	W. Corry	491,875	Feb. 14	1216	325	62	1027
Safe. Burglar-proof	W. H. Carr	490,989	Jan. 31	3019	776	62	667
Safes. Electric bolt-operating mechanism for	E. and H. C. Stockwell	494,495	Mar. 28	2808	703	62	1942
					704		
Safety-brake and shaft-coupling. Combined	A. Fükenwirth	489,123	Jan. 3	219	59	62	51
Safety-pin	D. H. Warner	493,372	Mar. 14	953	245	62	1561
Salt box or cellar	W. L. Johnson	494,205	Mar. 28	2350	594	62	1858
Salt-manufacturing apparatus	J. Runciman	491,376	Feb. 7	528	134	62	849
					135		
Salting trough. Stock-	E. F. Baskett	490,095	Jan. 17	1754	457	62	390
Sample-box	R. Gair	493,921	Mar. 21	1853	472	62	1749
Sample-case	R. H. Stuart	494,394	Mar. 28	2655	666	62	1914
Sand-band	S. Wilson	490,731	Jan. 31	2899	721	62	625
Sanding drum	W. F. Larish	491,658	Feb. 14	975	246	62	959
Sandpapering-machine	C. L. Rueha	489,093	Jan. 3	170	46, 47	62	40
Sandpapering-machines. Revolving head for	C. A. Weed	492,077	Feb. 21	1618	401	62	1102
Sash-balance	R. K. Brown	491,762	Feb. 14	1136	286	62	991
Sash-balance	E. L. Bullock	491,507	Feb. 7	728	184	62	888
Sash-balance	H. L. Craig	491,639	Feb. 14	947	238	62	953
Sash-balance	F. P. Johnson	491,114	Feb. 7	80	22	62	764
Sash-balance	T. Whetter	489,442	Jan. 3	707	189	62	152
					190		
Sash-cord fastener	S. Jenkinson	491,966	Feb. 14	1450	361	62	1054

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sash-fastener	A. Barton	491,505	Feb. 7	724	183	62	888
Sash-fastener	E. and H. S. Ensminger	493,258	Mar. 14	761	194	62	1525
Sash-fastener	J. P. H. Gastrell	489,735	Jan. 10	1150	298	62	254
Sash-fastener	G. Gibson	491,881	Feb. 14	1325	327	62	1028
Sash-fastener	G. Gibson	491,882	Feb. 14	1326	324	62	1028
Sash-fastener	G. Gibson	493,159	Mar. 7	603	151	62	1477
Sash-fastener	J. C. Hauser	492,799	Mar. 7	44	10	62	1367
Sash-fastener	C. Knapp	493,035	Mar. 7	416	104	62	1441
Sash-fastener	S. Morrell	490,209	Jan. 17	1946	510	62	428
Sash-fastener	R. D. Murphy	493,107	Mar. 7	524	131	62	1463
Sash-fastener	W. L. Penney	492,427	Feb. 28	2169	542	62	1227
Sash-fastener	M. Ponz	493,291	Mar. 14	821	210	62	1536
Sash-fastener	W. J. Steel	489,274	Jan. 3	452	125	62	99
Sash-fastener	R. E. Sweeny	489,768	Jan. 10	1209	317	62	265
Sash-holder	R. K. Brown	491,763	Feb. 14	1137	286	62	992
Sash-holder	L. A. Hathaway and E. W. Elkins	489,476	Jan. 10	767	203	62	177
Sash-holder	J. H. Johnston	490,907	Jan. 31	3102	795	62	662
Sash-holder	W. R. Walker	490,061	Jan. 17	1589	415	62	357
Sashes. Combined hinge and hanger for storm-	F. W. Farrar	492,791	Mar. 7	31	8	62	1365
Satchel or bag frame	R. Flocke. (Reissue)	11,315	Mar. 21	2194	560	62	1814
Sausage-stuffing machine	J. Eppler. (Reissue)	11,317	Mar. 28	2892	724	62	1957
Sausage-stuffing machine	C. W. Hottman	490,712	Jan. 31	2781	714	62	619
Saw	A. Krieger	492,890	Mar. 7	186	47	62	1396
Saw	A. Krieger	493,028	Mar. 21	1383	351	62	1659
Saw	A. Krieger	494,210	Mar. 28	2356	596	62	1859
Saw	J. Lykke	493,934	Mar. 21	1875	478	62	1754
Saw. Crosscut	L. E. Dean	493,687	Mar. 21	1472	375	62	1677
Saw. Crosscut	J. V. Hotchkiss	494,103	Mar. 21	2170	554	62	1810
Saw. Drag	J. S. Clay and J. R. Rucker	491,985	Feb. 21	1482	369	62	1075
Saw-filer	A. G. Phillips	494,487	Mar. 28	2785	699	62	1937
Saw-filing device	M. J. Page	493,445	Mar. 14	1060	273	62	1582
Saw-gage	C. E. King	489,817	Jan. 10	1274	334	62	260
Saw. Grooving	H. F. Poore	489,206	Jan. 3	344	97	62	78
Saw-guide	H. L. Johnston and J. E. Sandberg	492,299	Feb. 21	1963	489	62	1174
Saw guide. Band	E. F. W. Horn	492,511	Feb. 28	2332	576	62	1258
Saw. Hack	L. L. Davis	492,937	Mar. 7	202	66	62	1410
Saw handle. Crosscut	T. J. Ely	493,823	Mar. 21	1701	433	62	1721
Saw handle. Crosscut	M. E. True	490,691	Jan. 31	2751	708	62	613
Sawmill	C. E. Cranford	492,787	Mar. 7	23	6, 7	62	1363
Saw mill. Band	E. E. Fitzgerald	491,047	Jan. 31	3332	850	62	727
Saw mill. Band	G. M. Hinkley, D. B. Hanson, and W. H. Trout.	491,683	Feb. 14	1013	255, 256, 257	62	968
Sawmill-carriage	W. S. Dodge	493,546	Mar. 14	1229	314	62	1613
Sawmill-carriage attachment	G. W. Rodebaugh	490,453	Jan. 24	2339	606	62	517
Sawmill-carriage feed	F. O. Schroeder	489,988	Jan. 17	1573	412	62	353
Sawmill-carriage setting device	J. H. Dodds	491,090	Feb. 7	42	12	62	756
Sawmill-carriages. Mechanism for operating	E. A. Reese, S. N. Hench, and W. A. Dromgold.	491,447	Feb. 7	641	160	62	870
Sawmill-carriages. Mechanism for operating	J. N. Richey, S. N. Hench, and W. A. Dromgold.	491,404	Feb. 7	705	178	62	884
Sawmill-dog	T. H. Comstock and J. E. Junk	489,287	Jan. 3	469	130	62	103
Sawmill-feed mechanism	T. J. Reamy	491,856	Feb. 14	1283	318	62	1020
Sawmill-feeds. Valve connection for steam	J. H. Brown	494,118	Mar. 28	2203	562	62	1830
Sawmill head-block	S. F. Ames	490,131	Jan. 17	1818	475	62	404
Sawmill-setworks	T. S. Wilkin	490,463	Jan. 24	2357	611	62	521
Saw. Miter	R. Uhl	493,667	Mar. 21	1440	367, 368	62	1670
Saw. Pruning	F. P. Brewer	491,980	Feb. 21	1475	367	62	1073
Saw. Segment	G. B. Crapsey	490,384	Jan. 24	2243	583	62	499
Saw-set	E. Smith	490,371	Jan. 24	2225	579	62	496
Saw-setting gage	W. Saxe	489,039	Jan. 3	93	26	62	23
Saw-sharpener	W. H. Nogar	494,021	Mar. 21	2033	518	62	1784
Saw sharpening and setting machine	J. H. Landis	490,410	Jan. 24	2276	591	62	506
Saw-sharpening machine	F. Schmaltz	490,927	Jan. 31	3127	802	62	687
Saw-sharpening machine	E. S. Twyford	489,275	Jan. 3	453	125, 126	62	100
Saw-swage	S. U. Lockwood	493,435	Mar. 14	1038	268	62	1578
Saw-tooth	G. W. Mallette	492,407	Feb. 28	2142	535	62	1222
Saw-tooth gage	J. F. Brower	492,187	Feb. 21	1794	448	62	1138
Saw-tooth holder. Insertible	A. Krieger	493,334	Mar. 14	893	228	62	1548
Saws. Device for side-swaging and setting	J. Scherer	489,663	Jan. 10	1037	270	62	231
Saws. Grinding mechanism for scarfing or beveling	J. N. Quinn	489,984	Jan. 17	1568	410	62	352
Sawing-machine	J. A. Wells	490,696	Jan. 31	2756	710	62	614
Sawing-machine. Band	P. O'Connor	490,212	Jan. 17	1951	511	62	420
Sawing-machine feed mechanism	J. V. Gue	490,748	Jan. 31	2841	729	62	630
Sawing machine. Wood	W. D. Hopkins	492,746	Feb. 28	2680	665, 666	62	1331
Scaffolding. Device for suspending	C. Heinemann	491,885	Feb. 14	1329	329	62	1029
Scalding machine. Tomato	J. D. Cox	494,463	Mar. 28	2752	690, 691	62	1931
Scale and bristle detaching machine	J. Tobin	493,454	Mar. 14	1075	276, 277	62	1584
Scale. Automatic grain	M. B. Lloyd	493,275	Mar. 14	790	205	62	1530
Scale-beam	M. N. Sevier	490,507	Jan. 24	2436	628	62	537
Scale-beam	L. G. Woolley	491,458	Feb. 7	658	165	62	874
Scale. Computing	J. H. Swihart	490,518	Jan. 24	2451	632	62	540
Scale. Letter	S. W. Babbitt	490,422	Jan. 24	2296	596	62	500
Scale. Letter	E. S. May	493,036	Mar. 21	1394	353	62	1661
Scale. Portable wagon	L. G. Clawson and E. G. Wheeler	489,930	Jan. 17	1463	383	62	333
Scale. Recording weighing	C. M. Bruff	492,708	Feb. 28	2696	650, 651	62	1321
Scales. Druggist's weighing	W. H. Sargent	489,331	Jan. 3	531	144	62	114
Scales. Price-indicating attachment for weighing	W. H. Gamble and D. H. Allen	489,942	Jan. 17	1495	390	62	338

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Scalper	A. Van Camp	491,392	Feb. 7	551	140	62	854
Scarf-pin	B. A. Ballou	492,592	Feb. 28	2334	579	62	1261
Scenic effects. Apparatus for producing	S. Mackaye	490,463	Jan. 24	2392	619	62	528
Scenic effects. Apparatus for producing increased realism in	S. Mackaye	490,490	Jan. 24	2404	621, 622, 623	62	530
Scoop and sifter. Flour	T. W. Gould	490,766	Jan. 31	2867	735	62	635
Scourer: *See* Grain-scourer.							
Scouring and washing apparatus feeder	J. H. Bickley	494,405	Mar. 28	2070	670	62	1917
Scouring, polishing, and buffing machine. Combined	N. Nelson	492,099	Feb. 21	1650	411	62	1168
Scow. Dumping	T. T. H. Harwood	489,434	Jan. 3	691	185, 186	62	148
Scraper	H. G. Butler	493,491	Mar. 14	1012	261	62	1573
Scraper apparatus	W. and H. G. Butler	494,320	Mar. 28	2523	636	62	1890
Scraper-operating apparatus	H. G. Butler	491,765	Feb. 14	1141	287	62	992
Scraper. Pot	C. G. Memminger	490,577	Jan. 24	2382	652	62	556
Scraper. Road	P. Blanchard	494,317	Mar. 28	2518	634	62	1889
Scraper. Road	J. F. Kimball	491,565	Feb. 14	827	210, 211	62	929
Screen: *See* Door or window screen. Fire-screen. Fly-screen. Grain-screening screen. Pulp-screen. Rotating screen. Self-cleaning screen. Window-screen.							
Screen	F. Wagner	492,073	Feb. 21	1608	400	62	1089
Screw-clamp	J. Frank and F. H. Frankenberg	490,143	Jan. 17	1836	479	62	407
Screw-cleaning device	W. F. Stevens	491,144	Feb. 7	128	34	62	773
Screw-cutting machine	W. W. Doolittle	489,222	Jan. 3	371	103	62	84
Screw-driver attachment	J. R. Quimby	491,687	Feb. 14	1018	258	62	959
Screw. Jack	C. Johnson	493,332	Mar. 14	890	228	62	1547
Screw-jack	W. Quinn	493,183	Mar. 7	639	163	62	1484
Screw-threads. Attachment for machines for rolling	H. K. Jones	492,468	Feb. 28	2239	560	62	1242
Screw. Wood	M. Herzberg and T. L. Norman	493,585	Mar. 14	1304	332	62	1628
Scrubber	O. Smith	494,037	Mar. 21	2056	525	62	1788
Seal. Car	J. T. Goffett	490,018	Jan. 17	1631	425	62	365
Seal for vessels and means for opening same	A. F. Fitz Gerald	489,183	Jan. 3	309	86	62	70
Seal-press. Roller	G. A. Cline	494,411	Mar. 28	2678	672	62	1919
Sealing device. Bottle	M. N. Lynn	491,431	Feb. 7	602	152	62	864
Sealing device. Bottle	M. N. and E. P. Lynn	491,432	Feb. 7	604	153	62	864
Sealing device. Bottle	E. P. Lynn	491,433	Feb. 7	605	153	62	864
Seaming machine. Can	C. B. Kendall and H. Schaake	489,484	Jan. 10	777	205, 206, 207	62	179
Seat: *See* Car-seat. Carriage-seat. Vehicle-seat. Wagon-seat.							
Seat for agricultural machines or vehicles	G. Banks	493,573	Mar. 14	1287	329	62	1625
Secondary battery	C. R. Arnold	489,115	Jan. 3	207	55	62	48
Secondary battery	L. Bristöl	493,817	Mar. 21	1694	431	62	1719
Secondary battery	N. H. Edgerton	491,678	Feb. 14	1321	327	62	1027
Secondary battery	H. H. Lloyd	490,254	Jan. 17	2016	527	62	442
Seed drill. Garden	H. Bender	493,146	Mar. 7	581	145	62	1473
Seeder	O. Erickson	491,994	Feb. 21	1493	373	62	1077
Seeder	E. D. Mead	492,358	Feb. 21	2058	513, 514	62	1192
Seeder. Broadcast	E. H. Grafunder	491,167	Feb. 7	174	44, 45	62	781
Seeder. Broadcast hand	H. H. Franzen	490,936	Jan. 31	3177	813	62	696
Seeding-drill	W. F. Hoyt	492,802	Mar. 7	48	11, 12	62	1368
Seine-hauling apparatus	H. Thiel	490,375	Jan. 24	2232	581	62	498
Self-cleaning screen	A. Fereva	493,886	Mar. 21	1790	457	62	1738
Self-serving table	R. T. Hollowell	490,286	Jan. 24	2085	544	62	467
Seller. Merchandise	F. Towle	491,147	Feb. 7	132	35, 36	62	774
Separator: *See* Castings-separator. Centrifugal separator. Egg-separator. Froth and liquid separator. Grain-separator. Ore-separator. Steam-separator. Stone-separator.							
Separator	J. Frey	492,790	Feb. 28	2644	655	62	1394
Sewage, &c. Apparatus for cleansing	W. Birch	491,796	Feb. 14	1192	298	62	1002
Sewer-cleaner	N. Lacroix and L. Dubois	494,427	Mar. 28	2700	678	62	1922
Sewer-guard	S. T. Williams of Thos.	492,450	Feb. 28	2206	551	62	1235
Sewer water-trap	A. Bndde	493,750	Mar. 21	1584	403	62	1699
Sewer well and grate	C. Munson	490,301	Jan. 24	2105	548	62	471
Sewing looped fabrics. Machine for	A. L. Traver	490,417	Jan. 24	2390	595	62	508
Sewing-machine	C. S. Gooding	489,945	Jan. 17	1500	391, 392, 304, 305	62	339
Sewing-machine	W. H. Hanna	491,554	Feb. 14	810	304, 305	62	925
Sewing-machine	G. S. Hill	494,480	Mar. 28	2775	696	62	1936
Sewing-machine	E. Kohler	489,163	Jan. 3	272	76	62	63
Sewing-machine	F. W. Merrick	490,857	Jan. 31	3000	770	62	662
Sewing-machine	L. L. Miller	493,217	Mar. 7	686	176	62	1493
Sewing-machine	G. Speight and S. Chapman	494,039	Mar. 21	2060	526	62	1789
Sewing-machine	G. Speight, S. Chapman, and R. Todd.	494,038	Mar. 21	2057	525, 526	62	1789
Sewing-machine attachment	R. A. Shellard	491,194	Feb. 7	219	56	62	789
Sewing-machine bobbin	J. Scott	493,845	Mar. 21	1731	441	62	1727
Sewing-machine bobbin	C. E. Wilkinson	493,417	Mar. 14	1008	260	62	1572
Sewing machine. Book	D. M. Smyth	491,228	Feb. 7	273	68, 69	62	800

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Sewing-machine. Buttonhole	J. Reece	494,280	Mar. 28	2465	620, 621, 622	62	1878
Sewing-machine buttonhole attachment	J. W. Blodgett	490,735	Jan. 31	2813	722, 723	62	625
Sewing-machine cover holder	W. R. Towse	492,851	Mar. 7	121	30	62	1381
Sewing-machine feed mechanism	F. W. Merrick	490,854	Jan. 31	2996	767, 768	62	661
Sewing-machine guide	W. Raeuchle	490,885	Jan. 31	3051	783	62	673
Sewing-machine hemstitching attachment	M. E. Hall	493,496	Mar. 14	1142	292, 293	62	1596
Sewing-machine motor	J. C. Drew	489,121	Jan. 3	216	58	62	50
Sewing-machine motor	H. A. Frantz	491,751	Feb. 14	1114	282	62	988
Sewing-machine needle	S. M. Creteau	493,399	Mar. 14	986	254	62	1568
Sewing-machine needle	F. J. Freese	489,800	Jan. 10	1251	327	62	274
Sewing-machine needle drawer	H. B. Essington	489,558	Jan. 10	899	234, 235	62	203
Sewing-machine presser-foot	S. W. Philbrick	494,224	Mar. 28	2378	600	62	1863
Sewing-machine quilting attachment	C. C. Clark	488,986	Jan. 3	17	4	62	6
Sewing-machine quilting attachment	J. R. Duncan	489,156	Jan. 3	263	73	62	61
Sewing-machine rotary shuttle-actnating mechanism	E. Kohler	489,162	Jan. 3	271	75	62	63
Sewing-machine ruffling attachment	L. C. Wing	492,317	Feb. 21	1992	496	62	1180
Sewing-machine shuttle	C. E. Wilkinson	492,930	Mar. 7	251	64	62	1408
Sewing-machine shuttle-actnating mechanism	H. R. Tracy	493,131	Mar. 7	558	139	62	1469
Sewing-machine table	T. Kundtz	491,654	Feb. 14	970	244	62	958
Sewing-machine table	T. Kundtz	491,655	Feb. 14	971	244	62	958
Sewing-machine table. Cabinet	T. Kundtz	491,656	Feb. 14	973	245	62	959
Sewing-machine tension device	T. Kundtz	490,116	Jan. 17	1784	465	62	397
Sewing-machine tension device	J. M. Merrow	493,871	Mar. 21	1769	451	62	1734
Sewing-machine thread-carrier mechanism	G. F. Ruby	491,965	Feb. 7	322	82	62	810
Sewing-machine thread-controlling device	F. W. Merrick	490,856	Jan. 31	2999	769	62	662
Sewing-machine thread-waxing and tension device	R. G. Woodward	493,461	Mar. 14	1088	279	62	1586
Sewing-machine trimmer	J. B. Morgan	493,637	Mar. 21	1395	354	62	1661
Sewing-machine work-support	C. A. Gates	490,846	Jan. 31	2985	765	62	659
Sewing-machines. Combined presser-foot and thread-holder for	F. W. Merrick	490,855	Jan. 31	2998	768, 769	62	662
Shade-guide	A. E. Johnson and C. H. Porter	493,869	Mar. 21	1767	451	62	1734
Shade-holding mechanism	A. M. Haswell	493,162	Mar. 7	608	153	62	1478
Shades. Attachment to frictional holding mechanisms for spring-actuated	J. B. Thurston	493,879	Mar. 21	1778	454	62	1736
Shaft-coupling	E. T. Burrowes	493,885	Mar. 21	1789	457	62	1738
Shaft-hanger for grinding and polishing machines	H. H. Westinghouse and W. A. Bole	492,898	Mar. 7	202	49	62	1398
Shafts and their couplings. Machine for grinding	C. Heaton	491,884	Feb. 14	1328	328	62	1029
Shampooing the hair and scalp. Device for	P. Medart	492,095	Feb. 21	1643	408, 409	62	1107
Sharpening matcher-head cutters, &c. Machine for	W. C. Vose	493,953	Mar. 21	1912	488	62	1761
Sharpening them. Device for holding gravers' or other tools for	T. B. and W. E. Hazard	490,283	Jan. 24	2079	543	62	466
Shearing-machine	M. Bock	494,504	Mar. 28	2821	708	62	1945
Shears: *See* Animal-shears. Pinking-shears.	S. Trethewey	490,777	Jan. 31	2889	741	62	640
Shears	W. B. Clarke	491,078	Feb. 7	28	7	62	753
Shears	W. Fischer	491,679	Feb. 14	1005	253	62	966
Shears	C. Hamann	492,198	Feb. 21	1809	452	62	1142
Shears	C. C. Nagley	489 612	Jan. 10	976	254	62	218
Shears	A. Remscheid	493,785	Mar. 21	1636	417	62	1709
Shears	O. Steinen	493,415	Mar. 14	1005	259	62	1572
Shears and sciasors sharpener	A. and F. F. King	492,810	Mar. 7	61	14	62	1370
Shears. Drive-rod clutch for	W. H. Atkinson and D. M. Somers	489,210	Jan. 3	349	98	62	80
Sheave or wheel. Rope	J. W. Kerr	492,331	Feb. 21	2012	500, 501	62	1184
Sheave. Purchase-block	J. C. Keefe	492,208	Feb. 21	1826	458	62	1145
Sheep. Device for treating	J. E. Wenger	489,635	Jan. 3	114	31	62	29
Sheep-dipper	E. A. Sieker and A. H. Schmidt	494,[illegible]	Mar. 28	2441	615	62	1874
Sheet-metal articles. Means for forming and ornamenting	B. M. Abell and W. Ostrander	493,[illegible]	Mar. 7	370	92	62	1432
Sheet-metal cutting and bending machine	W. J. Bayrer	490,060	Jan. 17	1697	442, 443	62	378
Sheet metal. Machinery for pressing boats from	W. Heslop	493,720	Mar. 21	1522	389, 390	62	1686
Sheet-metal-molding machine	C. D. Pruden	489,498	Jan. 10	812	213, 214	62	186
Sheet-metal vessel	F. A. Walsh	492,074	Feb. 21	1608	400	62	1099
Sheet metal vessels. Machine for making	F. A. Walsh	492,075	Feb. 21	1609	400	62	1100
Sheet-metal ware. Hollow	W. Edge	492,463	Feb. 28	2231	558	62	1241
Sheet-metal-working machine	F. A. Walsh	492,076	Feb. 21	1612	401	62	1100
Shelf-bracket	T. Corscaden	493,484	Mar. 14	1135	288	62	1593
Shelf. Hanging	C. W. Edgerton	491,093	Feb. 7	47	12	62	757
Shelving	W. H. Hubbard and A. Goodrich	490,288	Jan. 24	2087	544	62	468
Sheller: *See* Pea-sheller.							
Shingle-sawing machine	F. Challoner	493,692	Mar. 21	1467	373, 374	62	1675
Shingling-bracket	E. J. Wilkes	489,402	Jan. 3	638	173	62	137
Ship ash-ejector. Steam	G. Clarke	491,959	Feb. 14	1439	358, 359	62	1052
Ship. Steam	C. Harris	491,170	Feb. 7	182	46	62	782
Ships at sea. Apparatus for coaling	P. B. Low	489,749	Jan. 10	1178	307, 308, 309	62	259
Ships' bottoms. Covering for	F. D. Mott	492,044	Feb. 21	1573	391	62	1092

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Shipping and display box for seeds	S. R. Miller	490,156	Jan. 17	1853	483, 484	62	411
Shirt	J. A. Bedard	488,981	Jan. 3	11	3	62	5
Shirt	W. S. C. Wiley	493,956	Mar. 21	1916	489	62	1762
Shirt-adjuster	J. H. Billings	489,921	Jan. 17	1451	379	62	330
Shirt-waist	H. L. Levy	493,170	Mar. 7	621	156	62	1481
Shoal-alarm	S. H. James	493,826	Mar. 21	1704	434	62	1721
Shock-binder	C. S. Unruh	491,391	Feb. 7	550	139	62	853
Shoe	A. F. Bertram	493,813	Mar. 21	1689	430	62	1719
Shoe	W. P. Bradford	492,186	Feb. 21	1793	447	62	1138
Shoe-fastener	P. A Raymond	494,085	Mar. 21	2136	546	62	1803
Shoe-nail	C. E. Slocomb	489,548	Jan. 10	884	231	62	200
Shoe-polishing machine	S. Abenheim	489,907	Jan. 17	1417	367	62	323
Shoe-rest	M. S. Melzer	490,915	Jan. 31	3113	798	62	684
Shoe-shank stiffeners. Machinery for making metal	E. E. Fay	493,860	Mar. 21	1754	447	62	1731
Shovels. Manufacture of	P. W. Groom	491,944	Feb. 14	1420	354	62	1048
Show-case	J. W. Blackledge	489,705	Jan. 10	1105	285	62	245
Show-case alarm. Electric	R. C. Kruschke	490,479	Jan. 24	2385	617, 618	62	526
Shutter-fastener	L. M. Froberg	491,165	Feb. 7	172	44	62	781
Shutter-regulator	P. Devlin	489,571	Jan. 3	593	160	62	128
Shutter-worker	L. Kutscher	494,006	Mar. 21	2008	512	62	1780
Shuttle-boxes. Self-adjustable supporting rod for	T. Birchall	489,922	Jan. 17	1451	380	62	330
Sickle cutter-bar. Rotary	J. S. Mathews	493,103	Mar. 7	516	129	62	1461
Siding-gage	J. J. Martin	494,214	Mar. 28	2361	597	62	1860
Sifter. Ash	E. W. J. H. Dwenger	489,293	Jan. 3	476	132	62	104
Sifter or separator	C. Zimmerman	493,142	Mar. 7	577	144	62	1472
Sifter with reversible closed bottom and cover. Flour	P. M. Burns	491,008	Jan. 31	3259	833	62	712
Sign	M. Holfert	490,654	Jan. 31	2890	692, 693	62	601
Sign	C. Schwartz	493,045	Mar. 7	429	108	62	1443
Signal: *See* Car-signal. Railway time-signal. Electric signal. Railway torpedo-signal. Nautical signal. Railway-train signal. Railway-signal. Switch-signal. Railway block-signal.							
Signal-valve for pneumatic signals	H. R. Mason	493,438	Mar. 14	1048	270	62	1580
Signaling apparatus and circuit	E. J. Hall and F. A. Pickernell	492,482	Feb. 28	2259	564	62	1246
Signaling apparatus. Electric	W. H. Kenyon	492,497	Feb. 28	2298	571	62	1253
Signaling apparatus. Electric	L. von Orth	491,758	Feb. 14	1125	284	62	989
Signaling apparatus. Electric	F. Pearce	494,345	Mar. 28	2568	647	62	1808
Signaling apparatus. Electric	W. Trafford	492,545	Feb. 28	2372	589, 590	62	1270
Signaling apparatus. Electrical	J. B. Currier	491,531	Feb. 14	771	196	62	917
Signaling apparatus. Train	H. R. Mason	493,437	Mar. 14	1043	269, 270	62	1579
Signaling apparatus. Train	W. J. Smith	494,234	Mar. 28	2304	604, 605	62	1866
Signaling circuit. Electric	M. Martin	494,279	Mar. 28	2461	620	62	1878
Signaling-circuits. Electric governor for	J. B. Currier and D. H. Rice	491,532	Feb. 14	772	196	62	917
Signaling system. Electric	A. J. Wilson and W. W. Salmon	490,761	Jan. 31	2856	733	62	633
Silk. Treating raw	B. Beyer	489,919	Jan. 17	1448	.....	62	329
Silver. Cleansing	C. J. Thenerner	490,816	Jan. 31	2943	.....	62	651
Sink and bath-tub	M. A. Linder	489,485	Jan. 10	785	207	62	181
Sink or basin trap	W. Kerr	489,639	Jan. 10	1007	262	62	225
Siphon for aerated liquids	G. Ferrand and G. Gütl	490,742	Jan. 31	2828	726	62	628
Sirup-cooling tank	J. Werner and F. E. Williams	491,031	Jan. 31	3308	844	62	722
Skate	C. Pack	489,088	Jan. 3	158	43	62	38
Skate. Extension	M. B. Dunbar	490,872	Jan. 31	3025	778	62	668
Skate-sharpener	H. McClure	493,174	Mar. 7	626	157	62	1481
Skating-rink surface	E. Dowald	494,468	Mar. 28	2758	.....	62	1933
Skating-rinks. Apparatus for forming, maintaining, and renewing the ice-floors of	J. E. Fuller	489,227	Jan. 3	380	105	62	85
Sketching device	T. A. McFarland	490,159	Jan. 17	1860	485	62	412
Skid or truck. Convertible	M. Munchweiler	492,416	Feb. 28	2155	539	62	1225
Skirt supporter	J. E. Leavitt	492,406	Feb. 28	2140	535	62	1221
Skiving-machine	J. R. Scott	493,189	Mar. 7	646	164, 165	62	1485
Skylight	J. G. Pennycuick	492,363	Feb 21	2067	516	62	1194
Slate-cleaning device	B. A. Legg	489,152	Jan. 3	259	72	62	60
Slate-picker	S. Thomas	494,395	Mar. 28	2656	666	62	1914
Sled	M. M. Russell	493,184	Mar. 7	640	163	62	1484
Sled	M. M. Russell	493,185	Mar. 7	642	163	62	1484
Sled-brake	H. Bunker	493,680	Mar. 21	1464	373	62	1675
Slicing-machine for beet-roots, &c	R. Bergreen	490,223	Jan. 17	1967	515, 516	62	432
Sliding gate	A. C. Freshour	492,282	Feb. 21	1940	485	62	1169
Slotting-machine	C. B. Baldwin	493,674	Mar. 21	1452	370, 371	62	1672
Smoke. Apparatus for removing impurities from	E. E. Dulier	490,550	Jan. 24	2502	644	62	550
Smoke arrester	J. Parkin and H. Born	493,715	Jan. 10	1130	289	62	248
Smoke arrester and separator	H. Born and J. Parkin	493,749	Mar. 21	1583	403	62	1698
Smoke-burner	J. B. Barnes	491,975	Feb. 21	1467	365	62	1071
Smoke-consumer	C. Camp	490,539	Jan. 24	2483	640	62	546
Smoke-consumer	J. T. Ellis	491,775	Feb. 14	1161	290	62	996
Smoke-consumer	J. Fereday	491,879	Feb. 14	1392	327	62	1028
Smoke-consumer	T. Gunning	489,381	Jan. 3	608	163	62	131
Smoke-consumer	T. G. Hall	494,201	Mar. 28	2341	593	62	1857
Smoke-consumer and spark-arrester. Combined	J. P. Maloney	491,576	Feb. 14	845	214	62	933
Smoke-consuming apparatus	A. Kitson	490,896	Jan. 31	2958	760	62	653
Smoke-consuming furnace	W Armemann	491,233	Feb. 7	282	70	62	802
Smoke-consuming furnace	W. Armemann, Jr	491,696	Feb. 14	1036	262	62	972
Smoke-consuming furnace	M. Fricke	494,272	Mar. 28	2453	618	62	1876

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Smoke-consuming furnace	C. E. Walker	491,931	Feb. 14	1398	349	62	1043
Smoke purifier and consumer	J. Butler	494,522	Mar. 28	2854	714	62	1950
Smokeless furnace	J. V. Burke	489,788	Jan. 10	1256	323	62	271
Smoothing-iron. Electrically-heated	S. B. Jenkins	491,312	Feb. 7	418	108	62	826
Snap and buckle	D. W. Simmons	491,449	Feb. 7	644	160	62	870
Snap. Harness	F. R. Scofield	493,188	Mar. 7	645	164	62	1485
Snap-hook	A. B. McDowell	491,852	Feb. 14	1277	316	62	1019
Snap-hook	H. P. Richards	489,502	Jan. 10	821	215	62	187
Snow. Apparatus for preventing railways from being blockaded with	H. W. Ross	493,300	Mar. 14	842	215	62	1539
Snow-plow	S. H. Dixson	490,545	Jan. 24	2496	643	62	548
Snow-plow	D. Jacobs	489,008	Jan. 3	47	14	62	13
Soap-receptacle	M. D. Schaller	493,899	Mar. 21	1812	461	62	1742
Soda and chlorine. Electrolytically producing	M. L. Roueeh	490,887	Jan. 31	3054	784	62	674
Soda-fountain	E. B. Cutten	491,700	Feb. 14	1041	263	62	973
Soda. Manufacture of	A. Schier	491,372	Feb. 7	332	84	62	812
Soda-water apparatus	K. J. Sundstrom	492,929	Mar. 7	251	63	62	1408
Soldering aluminum. Composition for	J. B. Herron. (Reissue)	11,313	Mar. 14	1376	349	62	1642
Soldering apparatus	G. Wegner	490,840	Jan. 31	2978	.....	62	658
Soldering-iron. Electrically-heated	H. Miller	492,966	Mar. 7	338	85, 86	62	1426
Soldering-iron. Electrically-heated	S. B. Jenkins	491,311	Feb. 7	417	108	62	826
Soldering-machine	G. R. Meltzler	490,356	Jan. 17	2020	528	62	442
Soldering-machine	J. A. Steward	493,309	Mar. 14	857	218	62	1541
Soldering machine. Can-	J. Wehrlin	489,618	Jan. 10	982	256	62	219
	A. W. Livingston	492,034	Feb. 21	1557	388	62	1089
Soldering machine. Can-	J. W. Roberts	490,126	Jan. 17	1805	471, 472, 473	62	401
Soldering machine. Can-	S. Ruth	489,269	Jan. 3	447	123	62	98
Sole	W. E. Trice	490,993	Jan. 31	3243	828	62	709
Sole-hammering machine	S. A. West	493,199	Mar. 7	659	168	62	1488
Sole-inking machine	C. B. Hatfield	492,798	Mar. 7	41	10	62	1367
Sole-leveling machine	S. A. West and F. L. Clark	489,771	Jan. 10	1213	318	62	266
Sole-slotting machine	W. P. Bradford	492,185	Feb. 21	1791	447	62	1138
Sole-trimming machine	S. Ross, Jr.	489,876	Jan. 10	1351	352	62	295
Soles. Making imitation	G. W. Dixon	491,732	Feb. 14	1089	275	62	982
Soles to uppers. Machine for uniting	L. Goddu	490,621	Jan. 24	2610	672, 673	62	571
Soles to uppers. Machine for uniting	L. Goddu	490,622	Jan. 24	2619	674, 675	62	573
Soles to uppers. Machine for uniting	L. Goddu	490,624	Jan. 24	2629	676, 677	62	575
Solutions. Regenerating	F. Gruessner	489,632	Jan. 10	1001	.....	62	223
Sorting and separating loose substances into various grades of fineness. Machinery for	J. M. Rishworth, S. Ingham, and J. Vickers.	493,521	Mar. 14	1185	303	62	1604
Sound-recording instrument	E. L. Wilson	489,666	Jan. 10	1043	271, 272	62	232
Spade attachment	G. H. Orthwein	493,110	Mar. 7	528	132	62	1463
Spark-arrester	C. O. Heggem	489,866	Jan. 10	1339	349	62	293
Spark-arrester	H. B. Maxwell	491,367	Feb. 7	512	131, 132	62	845
Spark-arrester	W. S. Pittman	489,263	Jan. 3	440	121	62	97
Spark-catcher	A. T. Brewer	490,249	Jan. 17	2001	523	62	438
Speaking-tube	H. Rose	490,364	Jan. 24	2215	577	62	494
Speaking-tube apparatus	J. W. Black	493,059	Mar. 7	445	112	62	1447
Spectacle eye shield	J. D. Warren	492,125	Feb. 21	1692	422	62	1117
Spectatorium	S. Mackaye	494,068	Mar. 21	2107	537	62	1797
Speed-indicator	H. T. Smith	490,889	Jan. 31	3056	789	62	674
Speed indicator and recorder. Automatic	W. C. Fletcher	492,493	Feb. 28	2291	569	62	1252
Speed-varying device	E. Croasdale	490,104	Jan. 17	1768	460	62	393
Spike-extractor	E. Anderson	492,977	Mar. 7	326	82	62	1423
Spindle	F. M. Day	490,245	Jan. 17	2005	524	62	439
Spindle and its support	W. E. Allen	494,453	Mar. 28	2739	687	62	1929
Spindle bolster and step	C. G. Buttrick	490,337	Jan. 24	2167	565	62	485
Spindle. Duplex	J. Duffy	489,292	Jan. 3	474	131	62	103
Spinning-frame separator mechanism	E. Whittum	491,276	Feb. 7	340	86	62	814
Spinning-machine spindle	W. G. Morrison	492,415	Feb. 28	2153	538	62	1224
Spinning-machines. Saddle for top rolls of	E. Dixon	493,912	Mar. 21	1839	469	62	1747
Spinning-ring	E. S. Draper	491,962	Feb. 14	1445	359	62	1053
Spinning-ring and traveler	C. H. Chapman	491,526	Feb. 14	764	194	62	915
Spinning-spindle	T. Wrigley	492,080	Feb. 21	1621	402	62	1103
Spinning-spindle support	H. D. Klotz	493,034	Mar. 7	414	103	62	1440
Spoke washer. Wheel	R. W. and T. J. Cave	493,397	Mar. 14	983	254	62	1568
Sponge-cup	R. Hitchcock and H. D. Waite	490,653	Jan. 31	2689	692	62	601
Sponges, brushes, &c. Substitute for	W. M. Taylor	489,697	Jan. 10	1091	282	62	242
Spool for winding thread. Stamped or folded metal sheet	C. Böhringer	492,657	Feb. 28	2555	632	62	1306
Spool-holder	E. C. Jenkins	491,261	Feb. 7	318	81	62	809
Spool-holder and tension. Combined	H. A. Bates	490,096	Jan. 17	1755	458	62	391
Spool-support for mules	T. C. Dill	490,950	Jan. 31	3167	811	62	694
Spool-thread cabinet	J. W. Hayden	493,087	Mar. 7	490	122, 123	62	1457
Spooler. Doubling drum	E. R. Bullock	490,822	Jan. 31	2950	757	62	652
Spooler stop-motion	G. P. Bosworth	493,206	Mar. 7	671	171	62	1490
Spooling-machine stop-motion	C. O. Lightner and F. W. Fransway	494,298	Mar. 28	2492	628, 629	62	1884
Sprayer. Portable	J. E. Albinson	489,780	Jan. 10	1226	321	62	269
Spring: *See* Bicycle-seat spring. Bolster-spring. Carriage-spring. Door-spring. Medicine-case spring. Vehicle-spring. Vehicle draft-spring. Watchcase-spring.							
Spring	H. Kaufmann	490,389	Jan. 24	2249	585	62	501
Spring	C. H. Yarrington	490,938	Jan. 31	3144	807	62	690

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Spring forming machine	O. S. and W. S. Foster	493,428	Mar. 14	1028	266	62	1576
Spring-jack switch	C. E. Scribner	489,570	Jan. 10	913	238	62	206
Spring-motor	E. Herrington	494,203	Mar. 28	2344	593	62	1857
Spring-motor	D. H. Smith	491,140	Feb. 7	125	33	62	772
Spring protection	H. A. Garben	489,649	Jan. 10	1020	266	62	228
Spring-setting machine	O. S. and W. S. Foster	490,845	Jan. 31	2984	765	62	659
Spring-tongue switch	C. F. Street	490,323	Jan. 24	2143	559	62	480
Sprinkler: *See* Electric sprinkler. Leach-sprinkler. Lawn-sprinkler.							
Sprinkler	L. M. Berry	489,408	Jan. 3	644	174	62	138
Sprinkling device	H. I. Schanck and C. B. Ellis	491,377	Feb. 7	529	135	62	849
Sprinkling-machine	W. A. Collins	490,900	Jan. 31	3093	793	62	680
Sprinkling-tanks. Strainer-cover for	F. E. Bowman	493,965	Mar. 21	1941	494	62	1766
Square. Bevel	A. Hetu	491,351	Feb. 7	491	126	62	841
Square. Combination	H. K. Austin	490,893	Jan. 31	3062	786	62	675
Square. Folding try	J. E. Duncan	489,413	Jan. 3	650	176	62	140
Square. Separable	H. M. Stocking and E. L. Vroom	490,994	Jan. 31	3238	827	62	708
Stables, &c. Floor for	A. Buchanan, Jr	492,777	Mar. 7	8	2, 3	62	1360
Stage appliance. Theatrical	D. I. Towers	494,043	Mar. 21	2065	528	62	1790
Stage. Floating	S. Mackaye	490,488	Jan. 24	2402	620	62	530
Stage. Sliding	S. Mackaye	490,485	Jan. 24	2397	620	62	529
Stage. Telescopic	S. Mackaye	490,486	Jan. 24	2398	620	62	529
Stagings. Hand implement for taking down building	J. J. Maher	493,632	Mar. 21	1387	352	62	1660
Stagings, &c. Implement for dismantling builders'	G. H. Cutting	494,417	Mar. 28	2686	674	62	1920
Stair-builder's laying-out tool	C. H. Callahan	494,322	Mar. 28	2526	636, 637	62	1891
Stake-shoe	C. Hedges	492,590	Feb. 28	2332	579	62	1260
Stalk-breaker	W. S. James	494,528	Mar. 28	2869	717	62	1952
Stalk-chopper	J. L. Townsend	489,047	Jan. 3	104	29	62	26
Stalk-cutter	H. G. Cady	494,248	Mar. 28	2413	608	62	1869
Stall-floor	M. St. Germain	490,931	Jan. 31	3136	804	62	689
Stamp	C. H. Shaw	494,172	Mar. 28	2289	580	62	1845
Stamp-holder. Pocket	T. A. Brouwer, Jr	490,783	Jan. 31	2898	744	62	641
Stamp-mill cam	G. A. Thompson	493,129	Mar. 7	555	138	62	1468
Stamp-mill guide	E. Major	490,973	Jan. 31	3203	818	62	701
Stamp. Ore	J. W. Marshall	493,385	Mar. 14	967	249	62	1565
Stamp. Postage	G. M. Bright	492,912	Mar. 7	226	57	62	1403
Stamp. Registering or counting hand	S. A. Harrison	493,498	Mar. 14	1148	293	62	1597
Stamping mill. Ore	J. W. Marshall	493,384	Mar. 14	966	249	62	1564
Stand: *See* Display-stand. Hat-stand. Map-stand. Umbrella-stand. Washstand.							
Staple-driving tool	S. C. Davidson	493,758	Mar. 21	1597	406	62	1701
Staples. Device for holding metallic	W. J. Brown	491,235	Feb. 7	284	71	62	802
Stapling-machine	E. G. Cohen	489,730	Jan. 10	1141	295	62	252
Starch and cattle-food. Making	A. Behr	491,234	Feb. 7	283	.....	62	802
Starch. Manufacture of	J. Dubiel	493,689	Mar. 21	1478	359	62	1678
Starching apparatus. Fabric	J. M. Beiermeister	493,905	Mar. 21	1821	464	62	1744
Starching-machine	C. J. Dion	489,556	Jan. 10	891	233	62	201
Starching-machine	C. F. Stone	492,311	Feb. 21	1984	494	62	1179
Station-indicator	M. Fiset	493,763	Mar. 21	1603	407, 408	62	1702
Station-indicator	J. B. Ragan	489,499	Jan. 10	816	214	62	186
Stave-crozing machine	H. Campbell	492,138	Feb. 21	1711	426	62	1121
Stave-making machine	W. L. Kellogg	492,905	Mar. 7	213	52, 53	62	1400
Stave. Non-shrinking	R. F. Wilson	489,063	Jan. 3	123	33	62	31
Stave-sawing machine	B. D. Whitney	489,772	Jan. 10	1214	318	62	266
Stave trimming and jointing machine	W. J. Wright	492,702	Feb. 28	2615	648	62	1318
Stay. Dress	I. Bray	494,242	Mar. 28	2406	607	62	1868
Stay. Garment	H. Johnston	494,064	Mar. 21	2101	535	62	1796
Steam and air engine	J. Hauser and J. Whittaker	489,148	Jan. 3	255	70, 71	62	59
Steam. Apparatus for condensing exhaust	F. L. McGahan	493,733	Mar. 21	1555	396	62	1693
Steam-boiler	C. P. Adams	492,253	Feb. 21	1899	474	62	1160
Steam-boiler	G. A. Crane	492,936	Mar. 7	260	66	62	1410
Steam-boiler	J. Lapp	494,211	Mar. 28	2357	596	62	1859
Steam-boiler	H. A. Laughlin	490,118	Jan. 17	1788	466, 467	62	397
Steam-boiler	H. A. Laughlin	490,119	Jan. 17	1790	467	62	398
Steam-boiler	H. A. Laughlin	490,120	Jan. 17	1793	468	62	398
Steam-boiler	T. E. McNeill	489,712	Jan. 10	1115	287, 288	62	247
Steam-boiler	D. P. McQueen	490,303	Jan. 24	2108	540	62	472
Steam-boiler	D. A. Reagan, F. D. Saupp, and A. A. Hibbs.	492,766	Feb. 28	2721	677	62	1339
Steam-boiler	A. Stirling	491,451	Feb. 7	646	161	62	871
Steam boiler and heater	J. Lapp	491,804	Feb. 14	1205	301	62	1005
Steam boiler and water-heater	T. C. Andrews	490,940	Jan. 31	3149	807	62	691
Steam-boiler. Sectional	N. A. Boynton	491,979	Feb. 21	1473	367	62	1073
Steam-boiler. Sectional	G. Engel	490,741	Jan. 31	2896	736	62	627
Steam boiler. Water-tube	M. J. Dodds	489,374	Jan. 3	596	161	62	128
Steam-calorimeter	R. C. Carpenter	492,710	Feb. 28	2629	651	62	1322
Steam-calorimeter	R. C. Carpenter	494,057	Mar. 21	2084	532	62	1793
Steam-engine	A. Collmann	494,072	Mar. 28	2680	672	62	1919
Steam-engine	G. A. Coryeow	493,250	Mar. 14	748	192	62	1523
Steam-engine	E. W. Harden	490,349	Jan. 24	2192	570, 571	62	489
Steam-engine	G. Smith	491,141	Feb. 7	126	33	62	773
Steam-engine	J. Wright	491,002	Jan. 31	3246	829, 830	62	709
Steam-engine. Balanced	C. A. Ball	489,917	Jan. 17	1443	378, 379	62	329
Steam. Extractor for grease, grit, &c., from exhaust	W. Webster	490,461	Jan. 24	2355	610	62	530

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Steam-gages. Electrical pressure-indicator for	E. G. Smith	490,725	Jan. 31	2801	718	62	623
Steam-generator	A. Langton	491,317	Feb. 7	256	63	62	796
Steam-generator	R. G. Packard	489,495	Jan. 10	805	212	62	184
Steam-generator	W. J. Rauton	489,689	Jan. 10	1078	280	62	240
Steam-generator	C. R. Shepler	490,928	Jan. 31	3129	803	62	687
Steam-generator	J. R. Vance	494,180	Mar. 28	2304	584	62	1849
Steam generator or heater	F. X. Brunelle	491,523	Feb. 14	761	193	62	915
Steam-heater	C. E. Wakeman	492,174	Feb. 21	1774	443	62	1135
Steam-jet conveyer for ashes or other light substances.	W. McClave	490,583	Jan. 24	2541	654	62	557
Steam-jet conveyer for ashes or other light substances.	W. McClave	490,584	Jan. 24	2543	654 655	62	558
Steam-muffler and heating apparatus. Combined	C. E. Healy	491,482	Feb. 7	689	173 174	62	880
Steam or pneumatic engine	J. W. Powers	493,840	Mar. 21	1720	439	62	1725
Steam-separator	A. J. Wright	492,081	Feb. 21	1622	403	62	1103
Steam-separator	A. J. Wright	492,082	Feb. 21	1624	403	62	1103
Steam-separator. Safety	A. J. Wright	492,083	Feb. 21	1627	404	62	1104
Steam-trap	E. H. Gold	492,495	Feb. 28	2295	570	62	1253
Steam-trap	F. A. Littlefield	491,486	Feb. 7	695	176	62	882
Steamer	G. Wiley	493,840	Mar. 21	1736	442	62	1728
Steamer. Chain-	E. I. and E. A. Pfeifer	491,492	Feb. 7	701	178	62	883
Steamer. Oyster-	W. A. Ramage	492,970	Mar. 7	313	80	62	1421
Steamer. Wheat-	H. B. Shamp	493,225	Mar. 7	702	179	62	1496
Steaming liquids	A. Werner	490,523	Jan. 24	2461	634	62	542
Steel. Converting malleable iron into	A. J. Hinderneyer	492,679	Feb. 28	2584	.....	62	1311
Steel. Manufacturing	T. Allerdice	491,035	Jan. 31	3313	.....	62	734
Steel. Manufacturing	A. E. Hunt	493,096	Mar. 7	404	.....	62	1457
Steel. Process and composition of matter for the manufacture of	J. B. Jenkins	490,660	Jan. 31	2702	.....	62	603
Steering apparatus	T. Ellis	493,692	Mar. 21	1483	380	62	1679
Steering apparatus	W. T. Johnston	491,212	Feb. 7	245	62	62	794
Steering apparatus for submarine vessels	J. P. Holland	492,960	Mar. 7	298	75	62	1418
Steering-gear. Electric	L. S. Van Duzer	493,000	Mar. 7	358	91	62	1430
Stench-trap	T. C. Beaumont	491,330	Feb. 7	447	115	62	830
Still	N. W. Condict, Jr	493,247	Mar. 14	745	191	62	1522
Still for the distillation and purification of hydrocarbons.	T. McGowan	492,421	Feb. 28	2160	540	62	1226
Still-lining	T. McGowan	492,419	Feb. 28	2158	539	62	1225
Stilt. Shoe-	W. R. Steuart	493,663	Mar. 21	1435	365	62	1668
Stirrup. Saddle-	J. A. Krewson	494,005	Mar. 21	2007	511	62	1779
Stock-cutter. Rotary	I. Hardee	492,675	Feb. 28	2578	639	62	1310
Stock-rack	P. Hewitt	491,886	Feb. 14	1330	329	62	1029
Stone. Apparatus for manufacturing artificial	F. Zernikow	493,141	Mar. 7	576	144	62	1472
Stone-breaker	A. J. Gates	491,096	Feb. 7	50	13, 14	62	758
Stone. Composition of matter for artificial	H. Endemann	489,377	Jan. 3	601	.....	62	129
Stone-cutting machine	M. A. Pigott	490,721	Jan. 31	2795	717	62	622
Stone-dressing machine	E. G. Lind and K. P. Gustafsson	492,033	Feb. 21	1555	388	62	1089
Stone-gathering machine	C. J. Clark	491,984	Feb. 21	1480	368 369	62	1074
Stone-sawing machines. Operating diamond	G. N. Williams, Jr	490,464	Jan. 24	2359	611	62	521
Stone-separator	J. Cornelius and E. R. Collins	490,947	Jan. 31	3164	811	62	693
Stool. Piano-	C. W. Munz	493,441	Mar. 14	1056	272	62	1581
Stool. Piano-	C. O. Parsons	493,111	Mar. 7	529	132	62	1463
Stop device	T. A. Edison	491,993	Feb. 21	1491	372	62	1077
Stop-motion for rotary machine parts	W. O. Crain	489,849	Jan. 10	1321	344	62	289
Stopper: *See* Bottle-stopper. Jar-stopper.							
Stopper lock. Screw-	E. W. Luce	490,356	Jan. 24	2202	574	62	491
Store-service apparatus	A. A. Caille	491,076	Feb. 7	22	6, 7	62	752
Store-service apparatus	J. H. Goodfellow	493,021	Mar. 14	1366	347	62	1640
Store-service apparatus	D. Lippy	489,537	Jan. 10	868	227	62	197
Store-service apparatus	A. J. Slonecker	490,168	Jan. 17	1869	488	62	414
Stove	A. W. Alger	490,531	Jan. 24	2474	637 638	62	544
Stove	C. H. Melvin	493,594	Mar. 14	1318	337	62	1631
Stove. Base-heating-	R. L. Ball	489,843	Jan. 10	1314	343	62	288
Stove burner. Oil-	E. M. Wright	493,743	Mar. 21	1575	400 401	62	1697
Stove. Cooking-	S. M. Stevens	494,350	Mar. 28	2576	649	62	1900
Stove fire-pot and stoker	D. Brazier	491,333	Feb. 7	451	116	62	834
Stove for smoothing-irons. Gas heating-	H. Strassner	493,532	Mar. 14	1207	309	62	1604
Stove. Gas-	H. Clayton	492,712	Feb. 28	2532	652	62	1322
Stove. Heating-	C. A. C. Koretke	490,478	Jan. 24	2385	617	62	526
Stove-knob	H. A. Matthews	491,292	Feb. 7	388	99	62	821
Stove. Oil-	A. Q. Allia	489,138	Jan. 3	236	65	62	54
Stove. Oil-	E. A. Edwards	492,718	Feb. 28	2640	654	62	1324
Stove. Oil-	L. F. Wilder	493,740	Mar. 21	1571	399	62	1696
Stove. Oil or kerosene	J. D. Goldstein	490,196	Jan. 17	1919	499	62	422
Stovepipe	O. S. Garretson and W. S. Shipe	490,649	Jan. 31	2678	689 690	62	599
Stovepipe and collar holder. Combined	I. C. N. Sweet	490,233	Jan. 17	1979	519	62	435
Stovepipe-fastener	J. E. Niles	491,949	Feb. 14	1427	356	62	1049
Stovepipe-joint	L. S. Bonbrake	489,521	Jan. 10	850	221	62	193
Stovepipe-rack	J. S. Jensen and E. Hayes	490,076	Jan. 17	1723	449	62	384
Stovepipe-thimble	D. Myers	494,542	Mar. 28	3565	846	62	1898
Stovepipe-thimble	E. F. Neumann	493,641	Mar. 21	1401	355	62	1663
Stove utensils. Rack for hanging	O. Weaver	491,502	Feb. 7	718	181	62	887
Stove. Vapor-	J. E. Donovan	489,375	Jan. 3	597	161	62	129
Stove. Vapor-	C. M. Hollingsworth	489,477	Jan. 10	768	203	62	177
Stove. Vapor-	C. M. Hollingsworth	490,655	Jan. 31	2491	693	62	601
Stove. Vapor-	C. M. Hollingsworth	490,656	Jan. 31	2692	693	62	602
Stove. Vapor-	C. W. Romoser	490,085	Jan. 17	1737	452	62	387

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Stoves. Chill-core for molding sockets for	O. Daman	493,911	Mar. 21	1838	468	62	1747
Stoves or furnaces. Air-pump attachment for	G. S. Boyler and F. Rothwell	493,967	Mar. 21	1944	495	62	1766
Stoves or ranges. Air-heating device for	F. L. Sheppard	494,388	Mar. 28	2645	662 663	62	1912
Straightening-machine	H. B. A. Keiser	489,816	Jan. 10	1272	333	62	279
Strainer	C. L. Wagandt	494,355	Mar. 28	2592	651	62	1903
Strainer and elevator. Sugar-cane-juice	J. C. Riley	492,235	Feb. 21	1873	468	62	1155
Strainer and sleeve	C. R. Gorringe	490,786	Jan. 31	2902	745	62	642
Strainer. Coffee-	R. N. Harris	492,981	Mar. 7	330	83	62	1424
Strainer. Tea-	E. Dillingham	489,468	Jan. 10	759	201	62	175
Strap: *See* Breast-strap. Trunk-strap. Hitching-strap. Wagon-box strap.							
Strap	N. Nilsson	494,019	Mar. 21	9032	518	62	1784
Straw-carrier	W. E. White	489,425	Jan. 3	676	182	62	145
Straw-cutter	G. W. Ross	490,989	Jan. 31	3233	826	62	707
Straw-cutting machine	W. Roecker	491,745	Feb. 14	1107	280	62	986
Straw-stacker	J. W. Nethery	493,734	Mar. 21	1556	397	62	1693
Straw-stacker	A. H. Seebeck	492,113	Feb. 21	1674	417	62	1113
Street-sweeper	J. Edson	490,188	Jan. 17	1904	495 496	62	420
Street-sweeper	H. E. Hawk and O. W. Johnson	491,555	Feb. 14	813	205 206	62	926
Street-sweeper	P. Reardon	492,487	Feb. 28	2280	567	62	1249
Street-sweeper	F. C. Williams	492,489	Feb. 28	2284	568	62	1250
Street-sweeping machine	A. Bertram	491,278	Feb. 7	343	87	62	814
Striking-bag drum	F. Medart	489,750	Jan. 10	1181	309	62	260
Stringing-machine	A. C. North	489,982	Jan. 17	1560	408 409 410	62	351
Structure. Separable skeleton	H. P. de Lastelle	491,288	Feb. 7	365	91, 92	62	818
Stud. Glove-fastener	A. G. Mead	490,411	Jan. 24	2278	591	62	506
Stump-extractor	B. Mattress	493,593	Mar. 14	1317	337	62	1631
Submarine boat	J. R. Haydon	493,266	Mar. 14	773	197 198	62	1527
Sucker-rod clamp or wrench	C. S. Ahner	492,380	Feb. 28	2097	523	62	1213
Sugar. Obtaining	C. Steffen	489,879	Jan. 10	1357	354	62	297
Sugar-wagon	G. Van Wagenen	493,799	Mar. 21	1669	425	62	1715
Sugar-wagon	G. Van Wagenen	493,950	Mar. 21	1905	485 486	62	1760
Sulky	S. Elliott	494,113	Mar. 21	2190	560	62	1814
Sulky	H. H. Garrard	493,582	Mar. 14	1300	332	62	1628
Sulky	J. W. Holliday	492,725	Feb. 28	2652	657	62	1326
Sulky	J. F. Pray	491,591	Feb. 14	874	220	62	938
Sulky attachment. Trotting-	F. Lohr	493,630	Mar. 21	1385	351	62	1650
Sulky wheel-carrying frame	W. H. Shortsleeve	490,929	Jan. 31	3131	803	62	686
Sulphides. Treating mixtures containing	F. P. Dewey	490,068	Jan. 17	1710	.....	62	381
Sulphur-bearing ores. Roasting	C. W. Stickney	493,193	Mar. 7	652		62	1486
Sunshade. Carriage-	H. F. Douglass and A. G. Stouder	494,369	Mar. 28	2610	655	62	1906
Sunshade for bicycles or other vehicles	G. H. Hill	494,333	Mar. 28	2551	643	62	1895
Supporter: *See* Garment-supporter. Skirt-supporter.							
Surface-gage	G. H. Nutt	491,926	Feb. 14	1392	347	62	1042
Surgeon's ligature-receptacle	J. E. Lee	490,207	Jan. 17	1944	510	62	427
(Surgical.) Apparatus for curing spinal curvature	G. Gerlitz	492,903	Mar. 7	208	51, 52	62	1400
Surgical appliance	F. Orth	494,436	Mar. 28	2712	680	62	1924
Surgical appliance	F. Orth	494,437	Mar. 28	2713	680	62	1925
Surgical apron	J. H. Morrison	489,132	Jan. 3	229	61	62	53
Surgical irrigating-basin	J. H. Morrison	493,280	Mar. 14	806	207	62	1533
Surgical-ligature receptacle	J. E. Lee	491,315	Feb. 7	422	110	62	827
Suspended chair	M. A. Hart	491,172	Feb. 7	184	47	62	783
Suspender-end	G. W. Baldwin	489,727	Jan. 10	1137	294	62	251
Suspender-end cast-off	G. E. Adams	489,445	Jan. 10	717	193	62	167
Suspender-end cast-off	G. E. Adams	489,596	Jan. 10	954	248	62	213
Suspender-end cast-off	G. E. Adams	490,058	Jan. 17	1695	441	62	377
Suspender-end cast-off	G. E. Adams	492,131	Feb. 21	1701	423	62	1119
Suspender fastening device	J. F. Molloy	492,282	Feb. 21	1855	464	62	1151
Suspender-shackle	J. F. Webster	489,443	Jan. 3	710	190	62	152
Suspenders	M. Feldman	493,990	Mar. 21	1984	506	62	1774
Suspenders	G. M. Schambs	491,191	Feb. 7	214	54	62	788
Suspending device	M. M. Wood	493,459	Mar. 14	1086	278 279	62	1586
Suspension device	W. C. Jennings	489,638	Jan. 10	1006	262	62	224
Suspension-hook	C. H. Thurston	490,996	Jan. 31	3240	827	62	708
Swaging machine. Needle-blank-	I. T. Smith	492,589	Feb. 28	2437	606 607	62	1284
Swaging machine. Rod-	W. H. Dayton	492,574	Feb. 28	2415	602	62	1279
Swaging machine. Wire-	W. H. Dayton	492,572	Feb. 28	2413	601	62	1279
Swaging machine. Wire-	W. H. Dayton	492,573	Feb. 28	2414	602	62	1279
Swaging rods, &c. Machine for	W. H. Dayton	492,575	Feb. 28	2416	602 603	62	1280
Swaging wire, &c. Machine for	W. H. Dayton	492,576	Feb. 28	2419	603	62	1281
Swing	J. W. Shipman	491,379	Feb. 7	532	135 136	62	850
Swing-joint	C. W. Bailey	492,619	Feb. 28	2493	618	62	1294
Swinging gate	C. A. Taylor	494,449	Mar. 28	2733	684	62	1928
Switch: *See* Automatic switch. Loop-switch. Electric switch. Railway-switch. Electric-motor switch. Spring-jack switch. Spring-tongue switch. Electrical switch. Telephone-switch. Interlocking switch. Tramway-switch.							
Switch and safety-fuse	E. P. Morris	490,917	Jan. 31	3116	799	62	685

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Switchboard system. Multiple	C. E. Scribner. (Reissue)	11,306	Feb. 7	745	186	62	890
Switchboard systems. Metallic circuit for multiple	J. A. Seely	491,252	Feb. 7	305	77, 78	62	807
Switchboard systems. Testing apparatus for multiple	C. E. Scribner	491,250	Feb. 7	301	77	62	806
Switchboard test-circuit. Multiple	C. E. Scribner	489,100	Jan. 3	183	49, 50	62	43
Switchboard testing apparatus. Multiple	C. E. Scribner	489,098	Jan. 3	180	49	62	42
Switchboard testing apparatus. Multiple	C. E. Scribner	489,099	Jan. 3	181	49	62	42
Switch-lock. Electrical	F. C. Weir and E. W. Harden	494,451	Mar. 28	2736	686	62	1928
Switch-operating mechanisms. Sheave-stand for	S. R. and F. A. Wilmot	489,174	Jan. 3	200	80	62	66
Switch-signal	C. A. Herb and H. Meyer	490,387	Jan. 24	2247	584	62	501
Switch-stand	F. A. Beeman	491,463	Feb. 7	663	166, 167	62	875
Switch-stand	W. C. Meeker	490,576	Jan. 24	2531	652	62	555
Switch-stand	M. G. Prutzman	491,812	Feb. 14	1214	304	62	1007
Syringe	C. A. Kenner	493,591	Mar. 14	1313	335	62	1630
Syringe	J. M. Wardell	494,048	Mar. 21	2071	529	62	1791
Syringe. Hypodermic	W. H. Brewster	490,842	Jan. 31	2979	764	62	658
Syringe-tube holder	J. C. Parker	489,544	Jan. 10	878	228	62	199
Syringe. Vaginal	A. B. Cruickshank	493,208	Mar. 7	674	172	62	1490
Syringes. Impregnating the water or liquid discharged from	S. H. Stott	489,396	Jan. 3	630	170	62	136
Table: *See* Card-table. Self-serving table. Extension-table. Veterinary operating-table. Folding table. Kitchen-table. Work-table.							
Table leaves. Coupling for extension	R. Hanaford	489,001	Jan. 3	37	11	62	10
Tables. Adjustable support for bracket	J. N. Tiffany	493,605	Mar. 14	1342	342	62	1636
Tack-lifter	M. A. Sheldon	491,818	Feb. 14	1222	306	62	1008
Tack or nail puller	A. B. Schofield	490,402	Jan. 24	2267	589	62	504
Tacking-machine	F. G. Robbins	490,988	Jan. 31	3229	825	62	706
Tackle-block	H. C. Johnson	492,496	Feb. 28	2296	570	62	1253
Tag	E. C. Buck and W. M. Barnes	492,085	Feb. 21	1630	404	62	1104
Tag-holder	J. B. Morgan	491,581	Feb. 14	852	216	62	934
Tag-holder. Umbrella	J. Russell	490,365	Jan. 24	2215	577	62	494
Tag-machine	W. M. Little	493,592	Mar. 14	1314	336, 337	62	1631
Tank: *See* Flush-tank. Syrup-cooling tank. Flushing-tank.							
Tanks. Construction of	W. Forgie	492,001	Feb. 21	1504	375	62	1079
Tap. Ale	J. Neumann	494,015	Mar. 21	2025	516	62	1783
Tap. Ale	J. Neumann	494,016	Mar. 21	2027	516	62	1783
Tap and pump. Beer	N. Hardoin	493,086	Mar. 7	489	122	62	1456
Tap. Automatic collapsible	W. W. Doolittle	489,223	Jan. 3	3 3	103, 104	62	84
Tapping apparatus. Keg	E. Ott	490,039	Jan. 17	1665	433	62	371
Tapping-machine	W. W. Doolittle	489,224	Jan. 3	375	104	62	85
Tapping-machine	W. W. Doolittle	490,273	Jan. 24	2062	539	62	462
Target	J. B. Walter	494,285	Mar. 28	2475	624	62	1880
Telautograph	E. Gray	491,347	Feb. 7	477	123, 124	62	839
Telegraph-cable support	F. L. Bedwell	490,534	Jan. 24	2479	639	62	545
Telegraph. Printing	J. E. Wright	494,185	Mar. 28	2411	585, 586	62	1851
Telegraph receiver. Printing	M. D. Porter	491,133	Feb. 7	105	29, 30	62	769
Telegraph-relay	S. P. Freir	493,620	Mar. 14	1364	346	62	1639
Telegraph. Signaling	W. E. Decrow	493,253	Mar. 14	753	193	62	1524
Telegraph. Speaking	T. A. Edison	492,789	Mar. 7	27	7	62	1364
Telegraph-transmitter	R. S. Roberts	491,595	Feb. 14	885	223	62	940
Telegraphy	Z. P. Hotchkiss	489,435	Jan. 3	692	186, 187	62	149
Telegraphy and telephony	F. H. Brown	490,064	Jan. 17	1703	441	62	379
Telegraphy. Vibratory	S. D. Field	491,163	Feb. 7	166	43	62	780
Telemeter system. Electric	F. J. Dibble	490,014	Jan. 17	1621	423, 424	62	363
Telemeter-transmitter. Electric	F. J. Dibble	490,012	Jan. 17	1612	421, 422	62	362
Telemeter-transmitter. Electric	F. J. Dibble	490,013	Jan. 17	1618	422	62	363
Telephone	C. T. Bloomer	493,907	Mar. 21	1825	465	62	1744
Telephone	C. E. Scribner	489,990	Jan. 17	1575	412	62	354
Telephone. Acoustic	T. B. Rogers	493,297	Mar. 14	831	212	62	1537
Telephone and signaling circuit	F. A. Pickernell and F. W. Dunbar	494,385	Mar. 28	2635	661, 662	62	1911
Telephone attachment	J. L. Davidson	489,603	Jan. 10	965	251	62	216
Telephone-cable	S. W. Holman	491,109	Feb. 7	74	20, 21	62	763
Telephone-call	J. H. Kinsman	491,893	Feb. 14	1342	332, 333	62	1032
Telephone-call apparatus. Automatic individual	J. Sack	492,110	Feb. 21	1668	415, 416	62	1112
Telephone central-station circuit	J. L. McQuarrie	493,484	Feb. 28	2287	565	62	1247
Telephone-circuits. Binary-signal for	E. J. Hall and F. A. Pickernell	493,483	Feb. 28	2283	564	62	1246
Telephone ear attachment	G. M. Brown	493,245	Mar. 14	742	190	62	1522
Telephone-exchange switching system	C. E. Scribner	491,688	Feb. 14	1021	258	62	970
Telephone-exchanges. Spring-jack switch for	C. E. Scribner and W. R. Patterson	489,571	Jan. 10	915	239	62	206
Telephone-exchanges. Trunk-line signaling apparatus and circuit for	E. J. Hall	491,553	Feb. 14	804	204	62	924
Telephone-index	S. L. Shaffer	493,304	Mar. 14	850	216	62	1540
Telephone memorandum-tablet	W. M. Kleeman	491,777	Feb. 14	1164	291	62	996
Telephone-switch	J. C. Francis	488,993	Jan. 3	96	8	62	8
Telephone switch appliance	P. Rabbidge	489,266	Jan. 3	443	122	62	97
Telephone switch. Magneto	W. Humans	492,019	Feb. 21	1535	383	62	1085
Telephone-switchboards. Listening and ringing key for	W. M. Goodridge	493,704	Mar. 21	1495	383	62	1661
Telephone-tablet	J. R. Pruyn	492,587	Feb. 28	2434	606	62	1283

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drgs.	Official Gazette. Vol.	Official Gazette. Page.
Telephone-transmitter	C. T. Bloomer	492,883	Mar. 7	178	43	62	1393
Telephone-transmitter	H. L. Tyler	491,275	Feb. 7	339	86	62	813
Telephony and telegraphy. System of combined	F. A. Pickernell	492,471	Feb. 28	2242	561	62	1243
Telephony. Long-distance electric	C. M. Haynes	492,467	Feb. 28	2235	559	62	1241
Telescoping cup	F. H. Clifford	492,900	Mar. 7	904	50	62	1399
Telethermometer	L. S. Norton and F. E. Hoffman	493,558	Mar. 14	1258	323	62	1619
Telethermometer	H. B. Payne	490,882	Jan. 31	3046	782	62	672
Telethermometer	H. B. Payne	490,883	Jan. 31	3048	783	62	672
Tellurian	W. R. Dunham	493,988	Mar. 21	1980	505	62	1774
Tellurian	M. A. Huntman	491,017	Jan. 31	3273	836	62	715
Temperature-indicator	J. Bartlett	489,212	Jan. 3	352	99, 100	62	80
Temperature-regulating apparatus	J. E. Watts	489,052	Jan. 3	110	30	62	28
Temperature-regulator	B. E. Van Auken	494,399	Mar. 28	2660	667, 668	62	1915
Testing-machine	O. Reeser	493,784	Mar. 21	1633	416	62	1708
Theater appliance	S. Mackaye	490,489	Jan. 24	2101	621	62	530
Thermocautery	J. E. Lee	490,969	Jan. 31	3197	817	62	700
Thermometer	H. F. Maxim and J. M. Price	489,256	Jan. 3	432	120	62	95
Thermometer	C. J. Tagliabue	493,197	Mar. 7	657	167	62	1487
Thermometric indicator	C. R. H. Erkens	489,075	Jan. 3	140	39	62	34
Thermostat	J. R. Roberts	490,936	Jan. 31	3125	802	62	687
Thermostat	I. M. Seamans	489,991	Jan. 17	1577	413	62	354
Thermostat	T. W. Shepherd	493,601	Mar. 14	1337	341	62	1635
Thill-coupling	C. Andrew	493,462	Mar. 14	1090	279	62	1587
Thill-coupling	G. W. Baugher	492,507	Feb. 28	2317	574	62	1257
Thill-coupling	J. R. Benson	489,407	Jan. 3	643	174	62	138
Thill-coupling	G. F. Eberle	491,774	Feb. 14	1161	290	62	995
Thill-coupling	R. Fawcett	492,327	Feb. 21	2007	499	62	1183
Thill-coupling	R. Hartson	494,476	Mar. 28	2770	695	62	1935
Thill-coupling	A. Hummer	492,293	Feb. 21	1955	488	62	1172
Thill-coupling	W. F. Leighton	491,182	Feb. 7	200	51	62	786
Thill-coupling	A. C. Mathison	491,782	Feb. 14	1170	292	62	997
Thill-coupling	W. J. Rideout and J. W. Merritt	493,387	Mar. 14	972	250	62	1565
Thill-couplings. Anti-rattler for	E. H. Watrous	490,934	Jan. 31	3139	805	62	689
Thill safety attachment. Vehicle	G. Dippold	491,838	Feb. 14	1252	312	62	1015
Thill-support	W. E. Derrick	493,487	Mar. 14	1129	289	62	1594
Thill-support	G. W. Post	491,854	Feb. 14	1279	317	62	1020
Thrasher and card. Combined flax	J. McGrath	489,493	Jan. 10	797	210, 211	62	183
Thrasher and separator	R. T. Steedley	491,689	Feb. 14	1025	258, 259	62	970
Thrasher, feeder, and separator. Combined automatic	M. O. Godding	489,301	Jan. 3	486	134, 135, 136	62	106
Thrasher grain-saving device	G. W. Ingersoll	490,807	Jan. 31	2930	763	62	647
Thrashers. Folding straw-carrier for	G. W. Parsons	493,368	Mar. 14	946	243	62	1560
Thrashing-cylinder	W. W. Dingee	493,155	Mar. 7	597	150	62	1476
Thrashing-machine	W. H. and J. Butterworth, Jr	490,944	Jan. 31	3156	809, 810	62	692
Thrashing-machine	W. M. Koppes	491,485	Feb. 7	694	175, 176	62	881
Thrashing-machine attachment	J. A. and D. James	490,075	Jan. 17	1721	449	62	383
Thrashing-machine band-cutter and feeder	G. W. Parsons	493,367	Mar. 14	944	242	62	1559
Thrashing-machine bundle-feeder	F. Robertson	493,296	Mar. 14	829	211	62	1537
Thrashing-machine concave	R. N. Watts	489,724	Jan. 10	1135	293	62	250
Thrashing-machine feed-regulator	G. W. Hallett	493,706	Mar. 21	1498	383, 384	62	1682
Thrashing machine. Flax	D. C. Chipman	491,237	Feb. 7	287	72	62	803
Thread-case	S. H. Boone	492,658	Feb. 28	2556	632	62	1306
Thread holder and cutter	E. C. Jenkins	491,260	Feb. 7	317	80	62	809
Thread holder and cutter. Combined	E. C. Jenkins	491,262	Feb. 7	319	81	62	810
Throw-out	J. F. Guthrie, Jr	489,530	Jan. 10	861	224, 225	62	195
Thrust-block. Shaft	W. C. and J. A. Paul	491,584	Feb. 14	855	216	62	935
Ticket-controlling apparatus	L. J., H. C., and J. H. Hunter	493,931	Mar. 21	1866	476, 477	62	1752
Ticket-holder	G. J. Borgström	493,473	Mar. 14	1105	284	62	1589
Ticket-holder	P. W. Casler	489,667	Jan. 10	992	259	62	221
Ticket-holder	W. B. Moore and G. B. Willett	493,511	Mar. 14	1166	298	62	1600
Ticket-holding device	J. W. Crook	489,069	Jan. 3	132	36	62	33
Ticket. Railway	B. B. Anderson	492,601	Feb. 28	2403	612	62	1289
Ticket, transfer, and receipt controller	L. J., H. C., and J. H. Hunter	494,001	Mar. 21	1998	509	62	1778
Tie: *See* Bag-tie. Railway-tie. Cross-tie.							
Tie-holder	F. Heavener	492,902	Feb. 21	1814	454	62	1143
Tile-fastener	A. M. Strusholm	492,996	Mar. 7	353	89	62	1429
Tile. Illuminating	H. Haustein	492,865	Mar. 7	150	36	62	1388
Tile. Illuminating	J. Jacobs	493,550	Mar. 14	1236	316	62	1615
Tile-machine	F. Goodfellow	490,110	Jan. 17	1777	463	62	395
Tile machine and cutter	J. Fernald	493,077	Mar. 7	471	119	62	1452
Tile machine. Ridge or gutter	W. Ludowici	493,366	Mar. 14	943	242	62	1559
Tile. Roofing	C. W. E. Wutke	491,625	Feb. 14	928	233	62	949
Tiles. Apparatus for ornamenting architectural	I. Broome	493,244	Mar. 14	739	189, 190	62	1521
Time-alarm. Electric	J. P. Tirrell	489,423	Jan. 3	671	181, 182	62	144
Time-detector. Watchman's	O. E. Hausburg	489,532	Jan. 10	863	226	62	195
Time-indicating apparatus. Electrical	E. Weston	490,698	Jan. 31	2758	710	62	615
Time-lock	G. J. H. Goehler	493,762	Mar. 21	1758	447	62	1732
Time-lock	N. B. Rees	493,115	Mar. 7	534	133	62	1464
Timepiece-balances. Manufacture of	G. E. Hunter	490,204	Jan. 17	1936	508	62	426
Timepieces. Compensation-balance for	J. Bliss	492,184	Feb. 21	1790	447	62	1138

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Time-recorder. Workman's	F. H. Bolte	491,978	Feb. 21	1470	366	62	1072
Time-recorder. Workman's	G. W. Heene	491,556	Feb. 14	815	206	62	926
Time-recorder. Workman's	G. W. Heene	491,557	Feb. 14	816	207	62	926
Time system. Electric	W. F. Gardner	490,744	Jan. 31	2832	727	62	628
Tin from iron or steel. Separating	T. Twynam	491,254	Feb. 7	308	.....	62	808
Tin from solutions. Precipitating oxide of	C. L. C. Bertou	489,624	Jan. 10	989	.....	62	221
Tin-plate. Manufacturing	F. Rudolph	492,588	Feb. 28	2436	.....	62	1283
Tire. Air-cushion	J. P. Lavigne	490,827	Jan. 31	2959	760	62	654
Tire. Bicycle	J. P. Lavigne	490,828	Jan. 31	2961	760	62	655
Tire. Bicycle	J. P. Lavigne	490,830	Jan. 31	2964	761	62	655
Tire. Bicycle	E. F. Ryder	493,650	Mar. 21	1413	358	62	1665
Tire. Bicycle-wheel	J. J. McComish	489,975	Jan. 17	1545	404	62	348
Tire. Cushion	W. Langmuir	490,714	Jan. 31	2784	715	62	620
Tire. Cycle	A. Straus	491,386	Feb. 7	543	138	62	852
Tire. Cycle-wheel	F. Sweetland	489,509	Jan. 10	830	217	62	189
Tire for bicycles. Self-holding	J. P. Lavigne	490,829	Jan. 31	2963	761	62	655
Tire for velocipedes. Pneumatic	R. W. Huss	490,658	Jan. 31	2696	694	62	603
Tire-heater	L. E. Karnes and K. F. Rice	489,436	Jan. 3	701	187	62	150
Tire-heater	T. J. Skinner	489,042	Jan. 3	97	27	62	24
Tire inflater. Pneumatic	S. H. Ellis	490,620	Jan. 24	2609	672	62	571
Tire. Pneumatic	E. Barrett	493,675	Mar. 21	1454	371	62	1673
Tire. Pneumatic	H. Comstock	491,010	Jan. 31	3262	833	62	712
Tire. Pneumatic	C. E. Daryea	493,488	Mar. 14	1130	{289, 290}	62	1594
Tire. Pneumatic	S. Elliott	489,295	Jan. 3	478	132	62	104
Tire. Pneumatic	C. H. Gray	491,479	Feb. 7	686	172	62	880
Tire. Pneumatic	C. E. Hadley	492,580	Feb. 28	2426	604	62	1282
Tire. Pneumatic	F. H. Irons	494,003	Mar. 21	2004	510	62	1779
Tire. Pneumatic	C. M. Lungren	493,554	Mar. 14	1254	321	62	1618
Tire. Pneumatic	D. H. Smith	491,296	Feb. 7	393	101	62	822
Tire. Pneumatic	W. A. Warren	491,620	Feb. 14	923	232	62	948
Tire. Rubber	W. Golding	493,160	Mar. 7	604	{151, 152}	62	1478
Tire-setter. Hydrostatic	C. L. Grimes. (Reissue)	11,307	Feb. 7	739	187	62	891
Tire-shrinker	W. Lehmer	490,751	Jan. 31	2845	730	62	630
Tire-tightener	J. N. Cuthbertson	494,507	Mar. 28	2826	709	62	1946
Tire-tightener	M. J. Fitzgerald	492,667	Feb. 28	2569	636	62	1308
Tire-tightener	W. D. Hills	494,334	Mar. 28	2553	643	62	1896
Tire-tightener	W. J. Young	489,404	Jan. 3	640	173	62	138
Tire valve. Pneumatic	W. A. Gray	490,904	Jan. 31	3008	794	62	681
Tire valve. Pneumatic	A. M. Shurtleff	494,088	Mar. 21	2138	547	62	1804
Tire valve. Pneumatic	A. M. Shurtleff	494,089	Mar. 21	2140	547	62	1804
Tire. Velocipede-wheel	G. D. Chamberlain	490,425	Jan. 24	2299	597	62	509
Tire. Wagon	C. Zimmerman	493,143	Mar. 7	579	145	62	1473
Tires. Automatic inflating device for rubber	R. M. Keating	491,564	Feb. 14	824	209	62	928
Tires. Manufacture of pneumatic	F. W. Morgan and R. Wright	490,035	Jan. 17	1659	{431, 432}	62	370
Toaster	H. Bitner	492,517	Feb. 28	2328	578	62	1259
Toasting iron or tongs	F. A. M. Westheimer	489,056	Jan. 3	116	31	62	29
Tobacco-box-clamping machine	J. H. Kester	494,004	Mar. 21	2005	{510, 511}	62	1779
Tobacco casing and spraying machine	R. T. Bass	490,202	Jan. 24	2034	{532, 533}	62	458
Tobacco-cutter	A. Stuart, Jr	489,108	Jan. 3	197	53	62	46
Tobacco dressing and feeding device	W. J. Payne	493,181	Mar. 7	635	{161, 162}	62	1483
Tobacco dressing and feeding machine	H. Bohla	493,148	Mar. 7	585	{146, 147}	62	1474
Tobacco form. Plug	E. A. Hancock, E. E. Lovelace, and T. F. Lawless.	489,900	Jan. 10	1404	363	62	304
Tobacco-hanger	J. M. Campbell	490,224	Jan. 17	1969	516	62	433
Tobacco-leaf stripping and stemming machine	G. W. Cable	491,871	Feb. 14	1306	{322, 323, 324}	62	1025
Tobacco. Machine for applying labels to plug	D. J. Burr	493,476	Mar. 14	1112	{285, 286}	62	1590
Tobacco-pipe	C. S. Bailey	493,395	Mar. 14	883	225	62	1546
Tobacco-pipe	F. O. Chorley	493,150	Mar. 7	580	148	62	1475
Tobacco-pipe	W. Demuth	491,409	Feb. 7	576	145	62	856
Tobacco-pipe	F. J. Kaldenberg	493,032	Mar. 7	410	102	62	1439
Tobacco-press	T. Hill	489,741	Jan. 10	1165	{302, 303}	62	256
Tobacco-stemming machine	J. C. Guerrant	494,254	Mar. 28	2123	611	62	1871
Tobacco-tagging machine	J. M. King	494,396	Mar. 28	2490	638	62	1883
Tongs	T. Smith	490,510	Jan. 24	2440	629	62	538
Tongs and wrench. Pipe	H. Hammond	492,199	Feb. 21	1810	{452, 453}	62	1142
Tongs. Sliding friction	C. W. Canfield	491,872	Feb. 14	1311	324	62	1026
Tongue-support	H. Barber	493,470	Mar. 14	1101	282	62	1589
Tongue-support. Vehicle	J. McGinis	492,322	Mar. 7	80	19	62	1373
Tongue. Vehicle	W. A. Hanna	492,013	Feb. 21	1530	381	62	1084
Tool. Catching and holding	C. E. Griffith	491,642	Feb. 14	954	240	62	955
Tool. Combination	B. F. Field	491,840	Feb. 14	1255	312	62	1015
Tool. Combination	W. C. Gilmer	492,532	Feb. 28	2349	583	62	1264
Tool. Combination	F. W. Heinke	493,088	Mar. 7	492	123	62	1457
Tool. Combination	H. J. Mondor	491,715	Feb. 14	1064	269	62	978
Tool. Combination	J. D. Patterson	489,300	Jan. 3	622	168	62	134
Tool. Combination	W. Rankin	494,161	Mar. 28	2274	577	62	1843
Tool. Combination	A. and F. J. Reinhold	491,189	Feb. 7	211	54	62	788
Tool. Combination	C. C. Reynolds	489,875	Jan. 10	1350	352	62	295
Tool-driver	T. F. McLoughlin	492,693	Feb. 28	2601	644	62	1315
Tool-holder	G. Armstrong	492,381	Feb. 28	2098	523	62	1213
Tool-holder	A. A. Griffin	489,678	Jan. 10	1059	276	62	236
Tool-holder	J. E. Low and M. Dahl	491,316	Feb. 7	423	110	62	827

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tool-holder	J. E. Low and M. Dahl	491,317	Feb. 7	425	110	62	828
Tool. Power-driven	F. H. Catheart	494,461	Mar. 28	2747	{689, 690}	62	1930
Tools to handles, &c. Means for uniting	D. Shields	492,474	Feb. 28	2247	561	62	1244
Tooth. Artificial	J. M. Twilley	493,318	Mar. 14	875	222	62	1544
Tooth mold. Artificial	W. T. Adams	488,976	Jan. 3	1	1	62	3
Tooth plate. Artificial	G. A. Jüttenbock	494,065	Mar. 21	2102	538	62	1796
Tooth plate. Artificial	J. C. Stapleton	494,393	Mar. 28	2654	665	62	1913
Tooth-powder box	W. A. Spalding	493,528	Mar. 14	1201	307	62	1606
Top. Spinning	N. McLaren	494,431	Mar. 28	2704	679	62	1923
Torch. Fireworks	T. M. Pierce	494,438	Mar. 28	2715	680	62	1925
Torch. Fireworks	T. M. Pierce	494,439	Mar. 28	2716	680	62	1925
Torch. Fireworks	T. M. Pierce	494,440	Mar. 28	2716	681	62	1925
Torch. Fireworks	T. M. Pierce	494,488	Mar. 28	2787	699	62	1938
Torch. Plumber's	J. C. Walsh	489,541	Jan. 10	834	219	62	190
Torpedo-holder	E. P. Turner	493,455	Mar. 14	1081	277	62	1585
Torpedo-placing machine	C. A. Weller	489,054	Jan. 3	113	31	62	28
Tower	K. L. Lehmann	489,963	Jan. 17	1524	399	62	344
Tower	K. L. Lehmann	489,964	Jan. 17	1525	{399, 400}	62	344
Tows. Apparatus for indicating the position of	A. Peterson	493,113	Mar. 7	531	133	62	1464
Toy	J. G. Hunt	494,002	Mar. 21	2004	510	62	1779
Toy	W. H. Lamson	492,963	Mar. 7	303	76, 77	62	1419
Toy	P. E. McDonnell	493,895	Mar. 21	1805	460	62	1741
Toy	E. M. Shreiner and A. Leininger	490,319	Jan. 24	2139	558	62	479
Toy	W. V. Snyder	492,061	Feb. 21	1592	396	62	1097
Toy	A. J. Sobolewski	492,476	Feb. 28	2249	562	62	1344
Toy	M. Thiele, C. Küpferling, and F. Sichtermann.	491,690	Feb. 14	1026	259	62	971
Toy base-ball game	J. A. Meaher	491,247	Feb. 7	298	76	62	806
Toy. Elastic	O. Carpenter	494,410	Mar. 28	2677	671	62	1918
Toy microscope	H. E. Stauffer	493,529	Mar. 14	1202	307	62	1607
Toy money-bank. Registering	C. A. Bailey	489,860	Jan. 10	1330	347	62	292
Toy parachute	G. F. Perkins	494,261	Mar. 28	2436	614	62	1873
Toy pistol	C. Nenhaus	494,432	Mar. 28	2705	679	62	1923
Toy pistol. Repeating	J. F. W. Koetter	490,568	Jan. 24	2522	649	62	553
Trace	E. S. Saettler	494,443	Mar. 28	2720	682	62	1926
Trace-carrier	K. C. Bullard	492,508	Feb. 28	2318	575	62	1257
Trace-carrier	E. A. Nichols	490,980	Jan. 31	3216	821	62	703
Trace-carrier	W. E. Shaw	490,317	Jan. 24	2136	557	62	478
Trace-fastener	J. H. Gibson	493,364	Mar. 14	769	196	62	1527
Trace-holder	J. J. Wheat	489,057	Jan. 3	117	41, 32	62	29
Tracing-wheel	S. Newman	491,716	Feb. 14	1065	269	62	978
Track-circuit	J. B. Stewart	491,609	Feb. 14	905	227	62	944
Track-cleaner	A. Chisholm	490,269	Jan. 24	2056	538	62	461
Track-clearer	C. Mahon	490,772	Jan. 31	2874	{738, 739}	62	636
Track-fastening	J. M. Woodcock	490,704	Jan. 31	2770	712	62	617
Track-gage	A. Altmann	490,705	Jan. 31	2772	712	62	618
Track-jack. Lever	J. Henry	491,049	Jan. 31	3337	851	62	720
Track-sanding apparatus	C. W. Sherburne	489,720	Jan. 10	1129	{291, 292}	62	249
Track structures. Apparatus for the manufacture of	V. Angerer and C. A. Psilander	490,941	Jan. 31	3152	808	62	691
Tracks. Automatic switch for trolley	W. H. Brodie	489,179	Jan. 3	300	83	62	69
Traction-engine	H. C. Hicks	493,267	Mar. 14	774	{198, 199}	62	1528
Traction-engine	B. Holt	489,811	Jan. 10	1266	332	62	277
Traction-engine	G. D. Lowry	492,303	Feb. 21	1972	{491, 492}	62	1176
Traction-engine	L. M. Medlin	491,846	Feb. 14	1267	{314, 315}	62	1017
Traction-engine	J. A. Stout	491,385	Feb. 7	540	{137, 138}	62	851
Traction-engine	C. H. Stratton	492,637	Feb. 28	2520	624	62	1299
Traction-wheel	H. W. Wait	489,400	Jan. 3	636	172	62	137
Train-brake. Automatic	W. B. Guernsey	489,899	Jan. 10	1392	{362, 363}	62	302
Train-controlling apparatus. Electric	F. E. Kinsman	492,402	Feb. 28	2198	533	62	1249
Trammel-point	D. Bruno	493,062	Mar. 7	449	113	62	1448
Tramway. Overhead	P. F. Werner	491,151	Feb. 7	138	37	62	775
Tramway-switch	J. Y. Porter	492,472	Feb. 28	2245	561	62	1243
Transferring-machine	F. L. Delfer	494,128	Mar. 28	2224	566	62	1814
Transferring or stenciling upon transparent or other material. Apparatus for	G. H. Tietjen	493,315	Mar. 14	865	{220, 221}	62	1543
Transom-lifter	J. D. Carmody	489,846	Jan. 10	1318	343	62	289
Transom-lifter	F. J. Keck	489,310	Jan. 3	502	138	62	109
Transom-lifter	J. P. Ketteringham	489,311	Jan. 3	503	139	62	109
Transom-lifter	E. E. Wolf	492,250	Feb. 21	1892	{472, 473}	62	1159
Transplanter	J. O. and H. H. Bender	490,942	Jan. 31	3153	808	62	691
Transplanter	C. D. Manwaring, C. C. and F. G. Nagley.	491,290	Feb. 7	365	98	62	820
Transplanter	H. Moon. (Reissue)	11,305	Feb. 7	733	186	62	889
Transplanter	T. Sullivan	494,178	Mar. 28	2301	583	62	1848
Transplanting-machine	J. M. Sailer	491,597	Feb. 14	868	{223, 224}	62	940
Trap:							
See Animal-trap.	Plumber's trap.						
Fish-trap.	Sewer water-trap.						
Grease-trap.	Steam-trap.						
Hog-trap.	Stench-trap.						
Trawl-roller	J. B. J. D'Entremont	490,139	Jan. 17	1829	478	62	406
Tray. Invalid's hot	Q. T. Lauderdale	489,019	Jan. 3	62	18	62	16
Treadle	I. S. Bunker	494,460	Mar. 28	2746	689	62	1930

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Tree-baler	H. O. Thomas	494,353	Mar. 28	2585	650	62	1902
Tree or shrub baler or binder	H. O. Thomas	494,352	Mar. 28	2579	649, 650	62	1900
Tree-protector	M. B. Ryan and P. Ward	490,309	Jan. 24	2127	554	62	476
Tree-transplanter	L. H. Rogers	491,135	Feb. 7	113	31	62	770
Trellis-wire support and stretcher	W. H. Coulson	491,771	Feb. 14	1154	288	62	995
Trephine	J. A. MacKenzie	493,730	Mar. 21	1547	394	62	1691
Trestle	A. W. Weeks	494,358	Mar. 28	2595	652	62	1903
Tricycle	L. Kurtz	493,505	Mar. 14	1159	296	62	1599
Tricycle	W. V. Snyder	492,060	Feb. 21	1590	395	62	1096
Tricycle	W. V. Snyder	492,062	Feb. 21	1593	396	62	1097
Tricycle	W. V. Snyder	492,063	Feb. 21	1595	396	62	1097
Trimmer: *See* Hedge-trimmer. Nail-trimmer. Hoof-trimmer. Sewing-machine trimmer.							
Trimming-machine	W. T. Ross	490,846	Jan. 31	2988	765	62	660
Trimming-machine	M. E. Stockwell	490,837	Jan. 31	2973	763	62	657
Trimming pendant. Dress	G. F. Hensel	491,350	Feb. 7	490	125	62	841
Tripod or stand for cameras or other purposes	A. Vanderbeek	494,401	Mar. 28	2665	668, 669	62	1916
Trolley	J. C. Love	490,028	Jan. 17	1649	428	62	369
Trolley-lines. Multiple switch for overhead	W. H. Brodie	492,526	Feb. 28	2342	581	62	1262
Trolley-stand	S. Harris	491,210	Feb. 7	242	61	62	793
Trolley-wheel	J. J. Goetz and J. A. Smith	491,014	Jan. 31	3266	834	62	713
Trolley-wire coupling	W. H. Keckeley	492,301	Feb. 21	1966	490	62	1175
Trolley-wire support	F. E. Head	493,212	Mar. 7	679	173	62	1492
Trolley-wire support	G. H. Scranton and L. Spillman	489,097	Jan. 3	179	48	62	42
Trolling apparatus	H. J. Welch	489,110	Jan. 3	199	53	62	46
Trough: *See* Eaves-trough. Salting-trough. Feed-trough. Watering-trough.							
Trousers-hanger	A. Feiner	490,646	Jan. 31	2672	688	62	598
Trousers-protector	R. T. Matheson	491,845	Feb. 14	1266	314	62	1017
Trousers-stretcher	R. Bennett	494,241	Mar. 28	2405	607	62	1868
Trousers-stretcher	L. O. Granger	491,062	Jan. 31	3351	855	62	732
Trousers stretcher and shaper	H. F. Featherstone	492,279	Feb. 21	1937	483	62	1168
Trousers-waistband	A. Levy	490,446	Jan. 24	2236	604	62	515
Truck	J. Cornelius	492,273	Feb. 21	1929	481	62	1167
Truck	C. L. Huston	490,598	Jan. 24	2566	660	62	562
Truck	A. Murphy	490,716	Jan. 31	2789	716	62	621
Truck and means for automatically arresting the same. Car-	C. H. Griffin	489,473	Jan. 10	764	202	62	176
Truck and stand. Barrel	C. D. Juvinall, D. L. Ingard, and M. H. Brinkerhoff.	489,745	Jan. 10	1172	306	62	258
Truck-brake	C. C. Higham	492,923	Mar. 7	243	61, 62	62	1407
Truck. Car-	W. F. Bradley	492,776	Mar. 7	7	2	62	1360
Truck. Car-	G. M. and J. A. Brill	494,117	Mar. 28	2200	561	62	1829
Truck. Car-	S. D. King	491,263	Feb. 7	320	81, 82	62	810
Truck. Car-	P. M. Kling	492,727	Feb. 28	2654	657	62	1326
Truck. Car-	A. M. Leinwather and E. Riggenbach.	491,897	Feb. 14	1348	334, 335	62	1033
Truck. Car-	W. Robinson	491,497	Feb. 7	709	179, 180	62	885
Truck. Electric-car	J. C. Henry	494,479	Mar. 28	2774	696	62	1935
Truck. Electric-car	T. Tripp	489,883	Jan. 10	1365	354, 355	62	298
Truck for electric locomotives	J. C. Henry	493,089	Mar. 7	494	123	62	1457
Truck for street-cars. Supplementary	B. Price	492,230	Feb. 21	1867	466	62	1153
Truck. Hand-	E. S. Rayburn and C. A. Bell	490,043	Jan. 17	1673	435	62	373
Truck. Lumber-	E. Dodge	494,523	Mar. 28	2856	714	62	1951
Truck. Motor-	J. A. Brill and W. S. Adams	493,234	Mar. 7	716	183, 184, 185	62	1499
Truck safety attachment. Car-	R. J. Spearing	493,661	Mar. 21	1420	364	62	1668
Truck. Street-car	S. Harris	493,770	Mar. 21	1612	410	62	1704
Trucks. Device for raising loaded	B. H. Stephens	489,339	Jan. 3	548	149	62	118
Trucks. Safety-shoe and brake attachment for car-	R. J. Spearing	493,662	Mar. 21	1432	365	62	1668
Trunk	W. Denhard, Jr.	489,732	Jan. 10	1146	296, 297	62	253
Trunk-fastening	F. N. Violet	493,456	Mar. 14	1082	278	62	1585
Trunk-handle	F. W. Leimberger	489,920	Jan. 10	1279	335	62	281
Trunk-strap	E. R. Bule	494,459	Mar. 28	2745	689	62	1930
Trunk. Wardrobe-	H. C. Urmy and E. Huether	489,699	Jan. 10	1093	283	62	243
Trunks. Material for the manufacture of	E. P. Krenkel	491,018	Jan. 31	3275	836	62	715
Truss	J. Gray	490,558	Jan. 24	2510	646	62	551
Truss	J. T. Watson	492,504	Feb. 28	2312	573	62	1256
Tub: *See* Bath-tub. Washtub.							
Tub or pail making machinery	C. D. Ames	491,157	Feb. 7	151	39	62	778
Tube: *See* Boiler-tube. Paper tube. Corrugated tube.							
Tube-bending machine	A. Stirling	493,390	Mar. 14	975	251	62	1566
Tube for viscous substances	D. W. Clark	493,616	Mar. 14	1360	345	62	1638
Tube-making apparatus	J. Robertson	493,898	Mar. 21	1810	461	62	1742
Tube swaging or expanding machine	W. Vollmer and W. H. Thomas	489,439	Jan. 3	704	188	62	151
Tubular boiler. Upright	F. L. Waterous	489,051	Jan. 3	108	30	62	27
Tug-clip. Hame	J. Scott	489,989	Jan. 17	1575	412	62	354
Tug. Hame-	W. A. Burns	489,706	Jan. 10	1106	285	62	245
Tug. Hame-	E. L. Howe	489,007	Jan. 3	47	13	62	12
Tug. Shaft-	J. M. McDonald	490,036	Jan. 17	1661	432	62	371
Tug. Thill-	M. Potter	493,837	Mar. 21	1716	438	62	1724
Tumbler-washer	O. H. Robinson	491,374	Feb. 7	521	133	62	847
Tunneling-machine	G. H. Sherman	490,318	Jan. 24	2137	557	62	478

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Turnstile. Registering-	C. P. Gott	492,353	Feb. 21	2052	512	62	1191
Turn-table	G. Van Wegenen	492,069	Feb. 21	1603	399	62	1099
Twine-cutter	J. S. Marvin	490,078	Jan. 17	1725	450	62	384
Twine-holder cup and take-up	W. Bentley and J. D. Fuller	494,287	Mar. 28	2477	625	62	1880
Twine-machines. Automatic feeder for	G. A. Lowry	491,947	Feb. 14	1425	355	62	1048
Twine reel and holder	J. B. Holmes	492,162	Feb. 21	1759	438, 439	62	1131
Twisting and cop-winding machine	C. C. Klein	492,211	Feb. 21	1829	459	62	1146
Twisting, doubling, winding, or analogous machines. Stop-motion for	J. and T. A. Boyd	492,603	Feb. 28	2466	613	62	1289
Type-bar	I. M. Chase	490,739	Jan. 31	2923	725	62	627
Type-distributing machinery	J. Hooker	493,270	Mar. 14	779	200, 201, 202, 203	62	1520
Type-setting machine	A. V. Ruckmich	493,448	Mar. 14	1063	274, 275, 330	62	1582
Type-setting machine	H. C. and S. D. Snoddy	489,834	Jan. 10	1296	340, 341	62	285
Type-setting machinery	J. A. Kay	492,164	Feb. 21	1761	439, 440	62	1132
Type-writer cabinet	S. L. Condé	491,230	Feb. 7	289	72	62	803
Type-writer cabinet	R. B. Sigafoos	490,127	Jan. 17	1811	473	62	403
Type-writer cabinet	F. Vettter	490,593	Jan. 24	2556	658	62	560
Type-writers. Combined copy-holder and folio-indicator for	H. J. Welch	492,546	Feb. 28	2377	590	62	1271
Type-writing machine	G. C. Blickensderfer	491,071	Feb. 7	14	4, 5	62	751
Type-writing machine	W. Bodenbrown, Jr	491,072	Feb. 7	17	5	62	752
Type-writing machine	W. Clark	493,015	Mar. 7	387	96	62	1435
Type-writing machine	J. S. Copeland	492,141	Feb. 21	1718	429, 430	62	1123
Type-writing machine	J. M. Crary	493,016	Mar. 7	388	97, 98	62	1435
Type-writing machine	A. Davidson	493,252	Mar. 14	750	182, 183	62	1521
Type-writing machine	A. Densmore	493,254	Mar. 14	756	193	62	1525
Type-writing machine	A. Densmore	493,255	Mar. 14	757	193	62	1525
Type-writing machine	J. L. Edlund	489,072	Jan. 3	137	38, 39	62	34
Type-writing machine	M. B. Harris	489,306	Jan. 3	496	137	62	108
Type-writing machine	E. E. Hills	492,800	Mar. 7	46	11	62	1368
Type-writing machine	N. H. Lamb	492,812	Mar. 7	63	15	62	1370
Type-writing machine	H. S. Martin	491,714	Feb. 14	1062	269	62	977
Type-writing machine	H. W. Merritt	489,871	Jan. 10	1345	351	62	294
Type-writing machine	C. J. A. Sjoberg	492,844	Mar. 7	109	27	62	1379
Type-writing machine	H. H. Unz	490,235	Jan. 17	1981	519, 520	62	435
Type-writing machine	G. B. Webb	489,514	Jan. 10	836	219	62	190
Type-writing machine	G. B. Webb	489,701	Jan. 10	1094	284	62	243
Type-writing machine	G. B. Webb	490,329	Jan. 24	2153	562	62	481
Type-writing machine	G. B. Webb	490,330	Jan. 24	2157	562, 563	62	482
Type-writing machine	G. B. Webb	492,599	Feb. 28	2459	611, 612	62	1288
Type-writing machine	P. P. Wenz	491,730	Feb. 14	1084	274, 275	62	981
Type-writing machine and duplicator. Combined	J. T. Davis	494,060	Mar. 21	2089	533, 534	62	1794
Type-writing-machine attachment	F. C. Bieg and E. Theiss	489,920	Jan. 17	1448	379	62	330
Type-writing-machine attachment	F. M. Carthy	491,767	Feb. 14	1140	287	62	993
Type-writing-machine attachment	A. E. Walkup	494,356	Mar. 28	2593	652	62	1903
Type-writing-machine cleaner	A. B. Reid	494,304	Mar. 28	2500	631	62	1886
Type-writing-machine cleaning attachment	W. W. Runyon	490,310	Jan. 24	2128	554	62	476
Type-writing-machine guide-shield	R. E. Hooper	493,503	Mar. 14	1157	295	62	1598
Type-writing-machine ribbon attachment	A. E. Walkup	494,357	Mar. 28	2594	652	62	1903
Type-writing machines. Scriptoscope for	E. K. Fuller	490,189	Jan. 17	1905	496	62	420
Umbrella-covers. Metallic fastening for	F. S. Uchermann	490,999	Jan. 31	3244	828	62	709
Umbrella. Folding	L. Lincke	491,805	Feb. 14	1208	302	62	1005
Umbrella. Folding	E. C. Phillips	492,048	Feb. 21	1577	392, 393	62	1093
Umbrella-holder	T. B. Comins	494,123	Mar. 28	2217	564	62	1833
Umbrella-holder	A. G. Middleton and C. S. Minchin	491,058	Jan. 31	3247	854	62	731
Umbrella-runner	B. F. Porter	492,586	Feb. 28	2434	606	62	1283
Umbrella-stand	H. C. Merker	492,359	Feb. 21	2061	514	62	1193
Umbrella-stand	H. S. Park	490,305	Jan. 24	2120	551	62	475
Undergarment	J. A. Scriven	492,055	Feb. 21	1585	394	62	1095
Underskirt	M. Cohn	490,102	Jan. 17	1765	460	62	393
Underwaist	A. J. Miller	494,300	Mar. 28	2495	630	62	1887
Unloading-platform	E. J. Coler	493,980	Mar. 21	1966	502	62	1770
Uppers. Machine for setting up Congress	L. Joncas	491,709	Feb. 14	1054	267	62	976
Urinal bowl	P. J. Madden	493,278	Mar. 14	797	206	62	1532
Urn or like vessel. Coffee	F. E. Browne	491,834	Feb. 14	1244	311	62	1013
Valve	J. W. Cabot	490,945	Jan. 31	3161	810	62	693
Valve	F. J. Ferrell	490,227	Jan. 17	1972	517	62	433
Valve	T. P. Ford	489,596	Jan. 10	1250	327	62	274
Valve	E. H. Gold	491,166	Feb. 7	173	44	62	781
Valve	C. D. Lynch	491,999	Feb. 14	1352	335	62	1034
Valve	H. E. Marchand	490,878	Jan. 31	3040	781	62	671
Valve. Air-	F. K. Way	492,597	Feb. 28	2453	610	62	1286
Valve attachment. Electro-steam-	J. H. Crosby	489,464	Jan. 10	753	199	62	174
Valve. Balanced slide-	C. O. Heggem	489,867	Jan. 10	1330	350	62	293
Valve. Balanced slide-	C. O. Heggem	491,940	Feb. 14	1413	353	62	1046
Valve. Balanced slide-	J. P. Lightbody	489,128	Jan. 3	224	60	62	52
Valve. Balanced slide-	J. P. Lightbody	489,129	Jan. 3	225	61	62	52
Valve. Check-	W. S. Welsh	491,957	Feb. 14	1437	358	62	1051

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Valve. Direct-acting-engine	F. A. Burnham	492,188	Feb. 21	1795	448	62	1139
Valve. Engine	H. R. Fay	494,194	Mar. 28	2325	588, 589, 590	62	1854
Valve. Engineer's	W. C. Whitacre	494,502	Mar. 28	2818	706, 707	62	1944
Valve. Fermenting-tub	S. S. Johnson	489,868	Jan. 10	1340	350	62	993
Valve. Fluid-pressure	H. G. Manning	492,372	Feb. 21	2078	519	62	1196
Valve for air-brakes. Automatic	J. D. P. Schenck	492,841	Mar. 7	104	25, 26	62	1378
Valve for air-brakes. Quick-release	H. R. Mason	493,436	Mar. 14	1041	268, 269	62	1579
Valve for blowing-engines. Discharge	T. James	490,146	Jan. 17	1841	480, 481	62	408
Valve for kitchen-boilers. Safety	T. B. Clatworthy	491,238	Feb. 7	288	72	62	803
Valve for tanks. Automatic supply	P. White	491,694	Feb. 14	1031	261	62	972
Valve for triple-valve mechanisms. Graduating	J. T. Hayden	493,715	Mar. 21	1511	386	62	1684
Valve for water-gages. Safety	J. Fishburn	490,955	Jan. 31	3176	813	62	696
Valve-gear	D. F. Lepley	492,302	Feb. 21	1968	490, 491	62	1175
Valve-gear	C. F. Littlejohn	490,853	Jan. 31	2995	767	62	661
Valve-gear	O. Stephens	489,896	Jan. 10	1306	341	62	987
Valve-gear	F. M. Walker	490,693	Jan. 31	2752	708	62	613
Valve-gear	F. C. Weir and E. W. Harden	490,331	Jan. 24	2159	563, 564	62	483
Valve-gear. Steam-engine	T. M. Pusey	490,986	Jan. 31	3225	824	62	705
Valve. Hydraulic-pressure	G. B. Lamb	490,290	Jan. 24	2090	545	62	468
Valve-lock	G. M. Tower	492,313	Feb. 21	1987	495	62	1179
Valve mechanism. Engine	C. E. Vaughn	491,670	Feb. 14	993	250	62	963
Valve-operating device. Engine	D. Joy	490,599	Jan. 24	2568	661, 662, 663	62	563
Valve or stop-valve mechanism. Stop	H. Baum	493,806	Mar. 21	1679	428	62	1717
Valve. Packingless	F. Storar	493,567	Mar. 14	1273	325	62	1621
Valve. Pressure-reducing	A. Horne	491,178	Feb. 7	194	50	62	785
Valve. Quick-acting triple	H. H. Westinghouse	489,441	Jan. 3	706	189	62	151
Valve. Radiator air	A. Hubbard	491,112	Feb. 7	77	22	62	764
Valve. Reducing-pressure	E. J. Wood	489,515	Jan. 10	840	219	62	191
Valve. Relief	W. P. Phillips	492,168	Feb. 21	1765	441	62	1133
Valve. Rotary	F. W. Bruce	492,267	Feb. 21	1921	479	62	1165
Valve. Steam-actuated	A. R. Boluss	491,506	Feb. 7	726	183, 184	62	888
Valve. Suction	W. H. Brenner, Sr.	493,968	Mar. 21	1946	496	62	1767
Valve. Throttle	A. J. Pitkin	493,836	Mar. 21	1715	437	62	1724
Valves of steam-engines. Means for operating throttle	F. E. Kinsman	492,403	Feb. 28	2133	533, 534	62	1220
Vapor-burner	A. Gateau	493,079	Mar. 7	476	119	62	1453
Vapor-burner. Illuminating	A. Prier	493,293	Mar. 14	824	211	62	1536
Vapor-generating burner	G. Littlefield	493,171	Mar. 7	622	156	62	1481
Vaporizer	J. F. Chase	492,979	Mar. 7	328	82	62	1424
Vaporizer	A. R. Miranda	491,902	Feb. 14	1355	337	62	1035
Vegetable-cutter	M. J. Cunningham	494,416	Mar. 28	2684	673, 674	62	1920
Vegetable-cutter	J. S. Patten	492,967	Mar. 7	309	79	62	1420
Vegetable-cutter	D. N. Weathers	491,622	Feb. 14	925	232	62	949
Vegetation-exterminator	A. A. Sharp	492,635	Feb. 28	2517	623	62	1299
Vehicle	T. R. Capwell and W. C. Fuller	493,614	Mar. 14	1357	344	62	1638
Vehicle	S. Garwood	491,544	Feb. 14	787	201	62	930
Vehicle	L. Landreth	494,008	Mar. 21	2015	514	62	1781
Vehicle-bolster	T. H. Glaney	493,702	Mar. 21	1493	382	62	1761
Vehicle-brake	H. J. Barnes	489,189	Jan. 3	318	87, 88	62	72
Vehicle-brake	M. J. Bobo	493,676	Mar. 21	1455	371	62	1673
Vehicle-brake	J. M. Miller	489,024	Jan. 3	67	19	62	17
Vehicle-brake	J. F. Sinkler	490,368	Jan. 24	2217	578	62	495
Vehicle-brake	J. H. Sweet	489,997	Jan. 17	1584	414	62	356
Vehicle brake-lever	G. Butler	489,456	Jan. 10	739	197	62	171
Vehicle brake mechanism	J. B. Upton	489,939	Jan. 10	1309	342	62	987
Vehicle-clip	H. H. Young	489,777	Jan. 10	1221	320	62	268
Vehicle-coupling	E. Matthews	489,437	Jan. 3	702	188	62	151
Vehicle curtain-raising device	E. Rusing, I. R. Donecho, and H. E. Rusing.	491,665	Feb. 14	985	248	62	961
Vehicle draft-spring	J. S. Wine	490,527	Jan. 24	2468	636	62	543
Vehicle-gear	M. Harcourt	494,332	Mar. 28	2540	642	62	1895
Vehicle-hound brace	J. Zoulek	489,778	Jan. 10	1222	320	62	268
Vehicle running-gear	J. S. Cleland	494,095	Mar. 21	2151	549	62	1806
Vehicle running-gear	A. Fay	492,762	Feb. 28	2715	674, 675	62	1318
Vehicle running-gear	W. B. Phillips	489,688	Jan. 10	1077	280	62	239
Vehicle running-gear	L. M. Smith	492,845	Mar. 7	111	37, 38	62	1379
Vehicle sand-band	F. Sweetland and J. Faulks	489,836	Jan. 10	1308	341	62	987
Vehicle-seat	W. S. O'Brien	490,919	Jan. 31	3117	799	62	685
Vehicle-seat	J. Ruch	489,569	Jan. 10	912	238	62	206
Vehicle side guard	F. O. Blackwell	493,327	Mar. 14	885	226	62	1546
Vehicle. Side-spring	J. J. Gilbert	489,673	Jan. 10	1050	273, 274	62	234
Vehicle. Side-spring	H. A. Muckle	490,298	Jan. 24	2102	548	62	471
Vehicle-spring	J. N. Eastwood	492,788	Mar. 7	26	7	62	1364
Vehicle-spring	W. G. Mowry	489,321	Jan. 3	516	141	62	112
Vehicle-spring	C. E. Pearl	490,677	Jan. 31	2733	704	62	609
Vehicle-spring	R. J. Skiles	490,794	Jan. 31	2914	749	62	644
Vehicle spring-gear	W. Bonnar	493,677	Mar. 21	1456	371	62	1674
Vehicle spring-gear	H. W. Hannell	493,708	Mar. 21	1500	384	62	1682
Vehicle. Spring-propelled	D. M. Pfantz	490,963	Jan. 31	3220	823	62	704
Vehicle steering device	F. E. Degenhardt	493,354	Mar. 14	917	235	62	1553
Vehicle-step	J. A. Alexander	493,373	Mar. 14	954	245	62	1561

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Vehicle-top-operating device	E. G. and G. Rauch and W. J. Kelly	489,756	Jan. 10	1190	312	62	262
Vehicle. Two-wheeled	D. S. Gallatin	493,764	Mar. 21	1606	408	62	1703
Vehicle. Two-wheeled	J. F. Ketter	492,984	Mar. 7	336	84	62	1426
Vehicle. Two-wheeled	E. McPhee	491,125	Feb. 7	95	26	62	767
Vehicle. Two-wheeled	E. F. Morse	492,223	Feb. 21	1856	464	62	1151
Vehicle. Two-wheeled	E. F. Morse	492,224	Feb. 21	1859	464, 465	62	1151
Vehicle-wheel	R. C. Fay	492,578	Feb. 28	2424	604	62	1281
Vehicle-wheel	A. F. Gillet	489,300	Jan. 3	485	134	62	106
Vehicle-wheel	J. H. Hendrick	490,438	Jan. 24	2317	601	62	512
Vehicle-wheel	J. Opdale	492,735	Feb. 28	2664	660	62	1328
Vehicle-wheel	C. W. Robinson	494,168	Mar. 28	2285	579	62	1844
Vehicle-wheel	M. R. Wolcott	493,410	Mar. 14	1010	260	62	1573
Vehicle. Wheel	T. Hill	490,562	Jan. 24	2514	647	62	552
Veiling fabric. Continuous	S. Oppenheimer	491,809	Feb. 14	1211	303	62	1006
Veils. Board for winding	S. Oppenheimer	491,808	Feb. 14	1210	303	62	1006
Velocipede	O. Dalisch	488,988	Jan. 3	20	5	62	7
Velocipede	W. H. Fanher	492,950	Mar. 7	295	75	62	1417
Velocipede	F. P. McHardy	490,587	Jan. 24	2546	655	62	558
Velocipede	C. F. Pease	492,988	Mar. 7	343	86	62	1427
Velocipede	A. F. Vorkeller	489,840	Jan. 10	1311	342	62	987
Velocipede	S. Waterman and C. H. Luther, Jr.	492,754	Feb. 28	2695	669	62	1334
Velocipede	J. F. Whitaker	489,645	Jan. 10	1015	264	62	927
Velocipede driving-gear	J. Keen, T. R. Marriott, and F. Cooper.	491,429	Feb. 7	600	151, 152	62	863
Velocipede-pedal	C. F. Pease	492,990	Mar. 7	345	87	62	1427
Velocipede-saddle	W. J. Edwards	491,162	Feb. 7	163	42	62	779
Velocipede-saddle	J. H. Hunt	489,308	Jan. 3	498	138	62	108
Velocipede-saddle	E. Petrini	493,338	Mar. 14	897	230	62	1549
Velocipede-saddle	W. G. Rich and J. H. Sager	489,501	Jan. 10	818	214	62	187
Velocipede-support	S. Elliott	491,475	Feb. 7	681	171	62	879
Vending apparatus	J. J. Busenbenz	489,432	Jan. 3	687	185	62	148
Vending apparatus	H. E. Hawk and A. J. Hazlett	490,619	Jan. 17	1682	425	62	305
Vending device	J. C. Ayer	493,805	Mar. 21	1675	427	62	1716
Vending-machine	J. W. Crites	493,617	Mar. 14	1360	345	62	1639
Vending-machine	J. A. Poff	489,830	Jan. 10	1289	337, 338	62	983
Vending-machine	G. L. Slater	491,323	Feb. 7	436	112	62	851
Vending-machine. Coin-controlled	W. Bennett	492,756	Feb. 28	2698	670	62	1335
Vending-machine. Coin-operated	H. Byron	493,973	Mar. 21	1956	498, 499	62	1768
Ventilating mechanism	J. M. Seymour, Jr.	494,264	Mar. 28	2439	614, 615	62	1874
Ventilator: *See* Car-ventilator. Window-ventilator. Electrically-controlled ventilator.							
Ventilator	W. H. A. Davidson	489,466	Jan. 10	756	200	62	174
Ventilator	C. W. Lochman	490,027	Jan. 17	1647	428	62	368
Ventilator	J. G. Lucas	493,407	Mar. 14	995	257	62	1570
Ventilator	W. McFarlane	493,873	Mar. 21	1771	452	62	1735
Ventilator	L. Robinson	493,295	Mar. 14	827	211	62	1537
Ventilator	J. B. Weis	493,321	Mar. 14	878	224	62	1545
Vertical boiler	H. H. Lindenuth	490,669	Jan. 31	2717	699	62	606
Vessel-handle	A. R. Pritchard	494,386	Mar. 28	2644	662	62	1912
Vessel-handle	A. R. Pritchard	494,387	Mar. 28	2644	662	62	1912
Vessel. Sailing	N. C. Jessup	492,022	Feb. 21	1541	384, 385	62	1086
Vessel-unloading device	S. B. Nilsen	492,827	Mar. 7	85	20, 21	62	1374
Vessels. Means for raising sunken	J. T. Kelly and A. McIntyre	491,725	Feb. 14	1078	272	62	980
Veterinary appliance	W. Bryden	492,268	Feb. 21	1923	479	62	1165
Veterinary operating-table	J. C. Milnes	492,819	Mar. 7	74	18	62	1372
Veterinary surgical instrument	F. J. Hegart	492,288	Feb. 21	1946	486	62	1170
Vine-cutter	J. H. Wheeler	493,382	Mar. 14	889	225	62	1545
Violin	C. C. Kropp	494,276	Mar. 28	2457	619	62	1877
Violin chin-rest	G. H. Faunce	493,020	Mar. 7	396	99	62	1436
Violin-support	J. F. Boyer	492,884	Mar. 7	179	43	62	1394
Violin-supporter	G. Narberti	491,372	Feb. 7	519	133	62	847
Visc	W. Gerhardt	490,432	Jan. 24	2309	599	62	511
Vise	M. T. Henson	493,625	Mar. 14	1374	348	62	1641
Vise	W. Rathbone	489,387	Jan. 3	524	142	62	113
Vise. Bench	M. G. Lewis	493,564	Mar. 14	941	241	62	1559
Vise. Parallel	F. T. Schmidt	490,603	Jan. 24	2576	664	62	564
Vise. Parallel	J. Schwendemann	491,817	Feb. 14	1221	305	62	1008
Vise. Portable	J. Guenther	490,112	Jan. 17	1780	463	62	396
Vitreous wares. Ornamenting	F. Schmalz	493,449	Mar. 14	1068	.....	62	1583
Waffle-iron	A. B. George	491,681	Feb. 14	1010	255	62	967
Wagon attachment	J. S. Piper	491,049	Feb. 21	1579	393	62	1094
Wagon-body	M. M. Baker	491,461	Feb. 7	662	166	62	875
Wagon-body	A. Ewing	494,153	Mar. 28	2228	567	62	1835
Wagon-body	W. K. Long and C. H. Henry	492,090	Feb. 21	1639	408	62	1106
Wagon bolster-standard	J. A. Critzer	489,895	Jan. 10	1386	360	62	301
Wagon bolster-standard	A. Miller	489,824	Jan. 10	1283	336	62	982
Wagon-box strap	G. W. Bander	493,055	Mar. 7	441	111	62	1446
Wagon-brake	J. W. Allan	489,175	Jan. 3	687	185	62	148
Wagon-brake	H. H. and B. L. Reynolds	489,036	Jan. 3	86	24	62	22
Wagon-brake	N. E. Thompson	490,217	Jan. 17	1958	513	62	430
Wagon-brake. Automatic	C. A. Brost	492,490	Feb. 28	2386	568	62	1250
Wagon. Dump	M. L. Senderling	492,562	Feb. 28	2399	596	62	1276
Wagon dump and elevator	C. A. Nelson	490,674	Jan. 31	2725	701, 702	62	608
Wagon. Dumping	O. R. Becker	493,350	Mar. 14	913	234	62	1552
Wagon. Dumping	D. F. Donegan	492,623	Feb. 28	2499	619	62	1295
Wagon. Dumping	R. Fitz-Roy	491,343	Feb. 7	470	121	62	837
Wagon. Dumping	W. H. Kauffman	492,686	Feb. 28	2592	641	62	1313

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Wagon. Dumping	J. A. Klees	490,661	Jan. 31	2703	695	62	603
Wagon. Dumping	M. Mauch	494,377	Mar. 28	2926	659	62	1909
Wagon. Dumping	J. M. Romans	489,987	Jan. 17	1572	411	62	353
Wagon-jack	J. A. Corey	492,389	Feb. 28	2113	527	62	1216
Wagon-jack	N. Evans and W. A. Henry	489,157	Jan. 3	265	73	62	61
Wagon-jack	A. J. Galindo	490,017	Jan. 17	1630	424	62	365
Wagon-jack	S. S. Joy	493,031	Mar. 7	409	102	62	1439
Wagon. Lunch	T. H. Buckley	489,893	Jan. 10	1379	359	62	300
Wagon-raiser	C. C. Hallman	490,787	Jan. 31	2902	745	62	642
Wagon. Road	C. Gillett	493,082	Mar. 7	480	120, 121	62	1454
Wagon running-gear	W. A. Duse	490,803	Jan. 31	2926	751	62	647
Wagon running-gear	T. F. Updegrove	491,230	Feb. 7	277	69, 70	62	801
Wagon-seat	C. Goeller	493,863	Mar. 21	1760	448	62	1732
Wagon shoveling-board	J. E. Garside	489,528	Jan. 10	858	224	62	195
Waist or blouse	C. A. Scriven	490,686	Jan. 31	2744	707	62	611
Wall-facing	M. Ams	489,914	Jan. 17	1434	377	62	326
Wall for circular structures	C. H. Foote	489,415	Jan. 3	652	176, 177	62	140
Wall-paper. Apparatus for printing and bronzing	G. K. Birge	491,303	Feb. 7	403	103, 104	62	824
Wall-paper-trimming-machine attachment	H. B. Tiffany	489,345	Jan. 3	557	151	62	120
Wall-protector	C. Gunzburg	492,673	Feb. 28	2576	637	62	1310
Walls of buildings. Securing sheet-metal fronts to the	P. A. Deslauriers	489,467	Jan. 10	757	200	62	174
Warming-bottle. Electric	T. Ahearn	490,891	Jan. 31	3061	786	62	675
Warps. Machine for balling cotton	G. A. Ayer	492,506	Feb. 28	2316	574	62	1257
Washboard	J. H. and O. T. Lapham	491,181	Feb. 7	199	51	62	785
Washboiler	S. A. Mackie	493,631	Mar. 21	1386	352	62	1660
Washboiler	J. A. Medley	490,575	Jan. 24	2530	651	62	555
Washboiler	B. F. Merssmann	491,436	Feb. 7	620	155	62	866
Washboiler	A. Miller	490,208	Jan. 17	1945	510	62	427
Washer: *See* Barrel-washer. Hose-washer. Ore-washer. Phosphate-washer. Spoke-washer. Tumbler-washer.							
Washer-cutter and carriage-tool	T. Thompson	492,640	Feb. 28	2525	625	62	1300
Washing and sizing machine	E. G. and E. D. Hammond	489,738	Jan. 10	1160	301, 302	62	255
Washing compound	C. R. Ely	493,693	Mar. 21	1484	.....	62	1679
Washing-machine	J. Bouchard	491,520	Feb. 14	755	192	62	913
Washing-machine	A. C. Brandt	491,073	Feb. 7	18	5	62	752
Washing-machine	J. H. Conner	493,685	Mar. 21	1471	375	62	1676
Washing-machine	W. M. Coventry	493,820	Mar. 21	1697	432	62	1720
Washing-machine	C. Flanders	493,919	Mar. 21	1851	471	62	1749
Washing-machine	A. Halstenbach	489,475	Jan. 10	766	202	62	177
Washing-machine	W. R. Hamilton	492,674	Feb. 28	2577	638	62	1310
Washing-machine	W. H. Haydon	491,424	Feb. 7	593	149	62	861
Washing-machine	G. K. Helldorfer	489,806	Jan. 10	1261	330	62	276
Washing-machine	H. T. Henderson	491,063	Jan. 31	3359	855	62	732
Washing-machine	P. H. Lambach	493,335	Mar. 14	894	229	62	1548
Washing-machine	S. B. Letson	489,608	Jan. 10	972	253	62	217
Washing-machine	W. H. McIntosh	492,823	Mar. 7	80	19	62	1373
Washing-machine	W. B. Reed	492,430	Feb. 28	2172	543	62	1228
Washing-machine	M. Roberts	489,760	Jan. 10	1196	313	62	263
Washing-machine	C. and Z. Sevigny	494,282	Mar. 28	2472	623	62	1879
Washing-machine	H. C. Snider	494,447	Mar. 28	2729	684	62	1927
Washing-machine	F. S. Spangler	490,372	Jan. 24	2227	580	62	497
Washing-machine	P. Vollmar	492,616	Feb. 28	2488	617	62	1293
Washing-machine	A. E. Worden	493,957	Mar. 21	1917	489	62	1762
Washstand	J. P. Hayes	491,211	Feb. 7	244	61	62	794
Washstand and table. Combined	C. M. Finch	492,530	Feb. 28	2347	582	62	1264
Washtub	J. G. Badia	492,313	Feb. 21	2034	506	62	1188
Washtub	E. G. Minnemeyer	489,082	Jan. 3	150	42	62	36
Watch alarm	J. W. Nunamaker	492,611	Feb. 28	2478	616	62	1291
Watch-balance. Non-magnetic	C. F. Carpenter	489,790	Jan. 10	1238	324	62	272
Watch balance-staff protector	G. N. Einsele	490,708	Jan. 31	2776	713	62	618
Watch-balances and hair-springs. Mechanism for testing	G. E. Hunter	490,202	Jan. 17	1927	501, 502, 503, 504, 505	62	425
Watch-balances and hair-springs. Testing	G. E. Hunter	490,203	Jan. 17	1932	505, 506, 507	62	426
Watch-bow fastener	W. F. Bingham	493,814	Mar. 21	1690	431	62	1719
Watchcase	F. Mink	492,629	Feb. 28	2508	621	62	1297
Watchcase-pendants. Apparatus for forming	C. W. Butta	492,739	Feb. 28	2670	662, 663	62	1329
Watchcase-spring	N. J. Felix	493,260	Mar. 14	764	195	62	1526
Watch-dials. Embossed plate for enameled	F. Hess	493,927	Mar. 21	1861	474	62	1751
Watch-hand remover	M. W. Mallett	491,781	Feb. 14	1168	292	62	997
Watch-holder	R. Fuchs	494,373	Mar. 28	2454	618	62	1876
Watch-key	W. F. Bingham	493,815	Mar. 21	1692	431	62	1719
Watch-regulator	W. M. Matheson	493,508	Mar. 14	1163	297	62	1600
Watch. Stem-winding	D. Gruen	493,584	Mar. 14	1302	332	62	1628
Watch. Stem winding and setting	L. Favre	491,242	Feb. 7	292	73	62	804
Watch. Stem winding and setting	J. W. Nunamaker	492,612	Feb. 28	2482	616	62	1292
Watch stem winding and setting mechanism	J. W. Nunamaker	493,642	Mar. 21	1401	355, 356	62	1663
Watch stem winding and setting mechanism	J. W. Nunamaker	493,643	Mar. 21	1404	356	62	1663
Watch. Stop	H. Jacot-Burmann	489,255	Jan. 3	427	119	62	95
Watch. Stop	G. Nicolet	490,123	Jan. 17	1799	469	62	400

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Drg.	Official Gazette. Vol.	Official Gazette. Page.
Water, &c. Apparatus for purifying, sterilizing, and filtering drinking	S. L. West	491,828	Feb. 14	1234	309	62	1011
Water by pneumatic pressure. System and device for elevating	C. H. Keeney	491,116	Feb. 7	83	23	62	765
Water-closet	E. and L. M. Norton	489,030	Jan. 3	74	41	62	19
Water-closet	W. Smith	492,947	Mar. 7	226	70	62	1413
Water-closet coupling	J. J. Ricketts	492,946	Mar. 7	225	70	62	1413
Water-closet. Self-cleaning outside	T. J. O'Brien	490,719	Jan. 31	2793	717	62	622
Water-closets, &c. Flushing system for	J. Holt	494,481	Mar. 28	2777	697	62	1936
Water-column. Safety	F. M. Ashley	493,238	Mar. 14	731	1-7	62	1519
Water-elevator. Steam-vacuum	H. R. Winkelmann	489,064	Jan. 3	124	34	62	31
Water-elevator. Windlass	W. B. Parrish	493,180	Mar. 7	634	160, 161	62	1483
Water from air in the process of freezing. Apparatus for purifying	T. Shaw	490,508	Jan. 24	2437	628	62	537
Water-gage	H. S. Graber	489,804	Jan. 10	1257	329	62	276
Water-gage protector	G. H. Wall	490,818	Jan. 31	2945	756	62	651
Water-heater	J. H. Messier	489,971	Jan. 17	1538	402	62	347
Water-heater	H. Rundlett and F. A. Hoyt	492,615	Feb. 28	2467	617	62	1293
Water-heater and shower-bath. Combined	J. Pellow	489,660	Jan. 10	1032	269	62	230
Water-heater. Electric	W. Mitchell	491,320	Feb. 7	433	111	62	830
Water-heater. Portable	C. Galle	493,022	Mar. 7	397	99	62	1437
Water heating and purifying device	O. W. Ketchum	491,360	Feb. 7	504	130	62	844
Water-meter	G. F. Chappell	490,871	Jan. 31	3021	777, 778	62	667
Water-meter. Disk	J. A. Tilden	489,208	Jan. 3	345	97	62	79
Water-meter. Rotary	G. Westinghouse, Jr., and E. Rudd	493,881	Mar. 21	1782	454, 455	62	1737
Water-motor	J. Toohey	493,569	Mar. 14	1276	326, 327	62	1622
Water-purifier	J. H. Archer	488,977	Jan. 3	2	1	62	3
Water-supply system	C. E. Emig	492,351	Feb. 21	2049	510, 511	62	1191
Water to animals. Apparatus for supplying	J. Allis	492,568	Feb. 28	2407	600	62	1278
Water-tube boiler	H. H. Lindemuth	492,499	Feb. 28	2304	571, 572	62	1254
Water-tube boiler	J. Pierpoint	490,923	Jan. 31	3121	801	62	686
Water-tube boiler	J. Pierpoint	492,556	Feb. 28	2392	594	62	1274
Water-tube boiler	J. Pierpoint	492,557	Feb. 28	2392	594	62	1274
Water-ways. Reversible gate for	G. W. Dorrance	489,557	Jan. 10	895	234	62	202
Water-wheel	S. L. Berry	493,239	Mar. 14	732	188	62	1520
Water-wheel	F. M. Bookwalter and W. W. Tyler	493,964	Mar. 21	1938	494	62	1765
Water-wheel	C. A. Chase	492,862	Mar. 7	141	34	62	1386
Water-wheel	J. J. Decker	494,127	Mar. 28	2221	566	62	1834
Watering device. Stock	A. Carey	493,478	Mar. 14	1116	286	62	1591
Watering-trough. Stock	H. Carroll	491,077	Feb. 7	27	7	62	753
Waterproof suit	O. Van Oostrum	492,643	Feb. 28	2528	626	62	1301
Waterproofing oil-receptacles. Compound for	G. Gumbel	491,284	Feb. 7	360	.....	62	817
Wave-maker	S. Mackaye	490,484	Jan. 24	2395	619	62	528
Wax pad	L. L. Lucas	494,109	Mar. 21	2184	558	62	1813
Wear-plate	J. Churchward	492,528	Feb. 28	2345	582	62	1263
Weather-strip	W. H. Plympton	491,952	Feb. 14	1431	356	62	1050
Weather-strip. Pneumatic	G. L. Thomas	494,351	Mar. 28	2577	649	62	1900
Weaving machine. Circular	N. Lombard	494,107	Mar. 21	2179	557, 558	62	1812
Weaving machine. Circular	N. Lombard	494,108	Mar. 21	2182	558	62	1812
Webs of fabric longitudinally and stitching the edges. Machine for doubling	E. T. and E. H. Marble and F. H. Greene.	489,590	Jan. 10	944	245, 246	62	211
Weeder. Hand garden	N. White	489,058	Jan. 3	119	32	62	29
Weigher. Automatic grain	H. M. Fulwider	490,957	Jan. 31	3179	813	62	696
Weigher. Grain	C. J. Hartley	490,710	Jan. 31	2778	714	62	619
Weigher. Rotary grain	B. Simons	494,035	Mar. 21	2053	524, 525	62	1788
Weighing and packing machine. Automatic	J. A. Ostenberg	492,485	Feb. 28	2270	565, 566	62	1248
Weighing-machine. Automatic	H. E. Smyser	493,795	Mar. 21	1650	421, 422, 423	62	1712
Weighing-machine. Automatic	H. E. Smyser	493,796	Mar. 21	1658	423, 424	62	1713
Weighing-machine. Automatic	H. E. Smyser	493,797	Mar. 21	1663	424, 425	62	1714
Weighing-machine feeding device	H. E. Smyser	493,798	Mar. 21	1667	425	62	1715
Weight-motor	J. G. Ball	493,053	Mar. 7	438	110	62	1446
Welding metals electrically	C. L. Coffin	492,713	Feb. 28	2635	653	62	1323
Welding plow-irons. Machine for	A. M. Erickson	493,670	Jan. 10	1047	273	62	233
Well-bailer	H. G. Smith	492,117	Feb. 21	1681	419	62	1114
Well-boring apparatus. Artesian	F. O. Brown	492,536	Feb. 28	2358	586	62	1266
Well-drilling machinery	W. Lewis	489,021	Jan. 3	64	19	62	16
Well-tiling coupler	W. A. Sumner	491,956	Feb. 14	1436	358	62	1051
Well-tubing. Machine for raising or lowering	E. A. Wanamaker	493,382	Mar. 14	977	252	62	1566
Wells. Means for handling drill-bits for oil or Artesian	W. Forker	491,164	Feb. 7	170	43, 44	62	780
Wells. Special point for tubular	F. A. Barrett	492,181	Feb. 21	1786	446	62	1137
Wells. Stand-point for tubular	F. A. Barrett	492,182	Feb. 21	1788	446	62	1137
Wheel: *See* Bicycle-wheel. Buffing-wheel. Burr-wheel. Car-wheel. Caster-wheel. Fifth-wheel. Tracing-wheel. Traction-wheel. Trolley-wheel. Vehicle-wheel. Water-wheel. Wheelbarrow-wheel. Wind-wheel.							
Wheel	W. L. Casaday	489,458	Jan. 10	743	197	62	172
Wheel	G. P. Fisher	492,280	Feb. 21	1938	484	62	1169

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Invention.	Name.	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wheel	E. L. Howe	492,017	Feb. 21	1504	382	62	1085
Wheel	H. W. Libbey	490,391	Jan. 24	2452	585	62	501
Wheel	T. R. McKnight	491,662	Feb. 14	981	247	62	960
Wheel	J. H. Thomas and D. B. Hiser	489,880	Jan. 10	1360	354	62	297
Wheel box. Vehicle	C. H. Brown, H. W. Meyer, and H Schiewetz.	492,384	Feb. 28	2106	525	62	1215
Wheels, &c. Fastening device for	H. C. Carver	491,469	Feb. 7	673	169	62	877
Wheelbarrow-wheel	F. H. Ensign	490,277	Jan. 24	2069	541	62	464
Whiffletree	R. F. King	490,749	Jan. 31	2843	729	62	630
Whiffletree	J. A. Scarborough and C. Bardwell	492,560	Feb. 28	2397	596	62	1275
Whiffletree-clip	W. M. Myers	492,630	Feb. 28	2510	622	62	1297
Whiffletree-clip	E. H. Sawyers	490,683	Jan. 31	2740	706	62	610
Whiffletree-coupling	E. S. Gentry	490,071	Jan. 17	1715	447	62	382
Whiffletree-coupling	C. Wilcox	491,700	Feb. 14	1181	296	62	999
Whiffletree-guard	L. Dimock	493,761	Mar. 21	1661	407	62	1702
Whiffletree-hook	C. E. Jones	490,023	Jan. 17	1612	427	62	367
Whiffletree-hook	J. McCrudden	490,672	Jan. 31	2722	700	62	607
Whiffletree-hook	J. B. Sims	489,271	Jan. 3	449	124	62	99
Whiffletree-hook	J. Wood and W. W. Hare	493,420	Mar. 14	1011	261	62	1573
Whip	C. G. Becker	491,512	Feb. 14	748	190	62	912
Whip	H. J. Bush	492,606	Feb. 28	2471	614	62	1290
Whip-socket	J. L. Bradley	490,861	Jan. 31	3005	771	62	664
Whip-socket	R. and J. Falkenrath	493,579	Mar. 14	1297	331	62	1627
Whistle. Bicycle	F. J. Hall	492,887	Mar. 7	182	44	62	1395
Whistle. Steam	H. R. Frisbie	493,920	Mar. 21	1852	472	62	1749
Whiting. Manufacture of	H. C. Higginson	491,353	Feb. 7	494	127	62	842
Wick-raiser	H. E. Shaffer	494,171	Mar. 28	2289	580	62	1845
Wind-wheel	B. J. Sykes	493,533	Mar. 14	1209	{309 / 310}	62	1608
Wind-wheel	M. B. Williams	489,885	Jan. 10	1368	355	62	298
Winder. Quill	C. Jones	493,093	Mar. 7	498	124	62	1458
Winding-machine	W. C. Pierce	492,613	Feb. 28	2484	616	62	1292
Winding machine. Cone	I. Walker	493,049	Mar. 7	432	109	62	1444
Winding machine. Cop	C. Friederich	493,356	Mar. 14	918	{236 / 237}	62	1554
Winding machine. Fabric	E. H. Schofield	494,491	Mar. 28	2793	{700 / 701}	62	1939
Winding machine. Yarn or thread	R. Broadbent	493,970	Mar. 21	1951	{496 / 497}	62	1768
Windmill	J. S. and A. S. Baker	494,238	Mar. 28	2400	606	62	1867
Windmill	C. R. Bowman	493,060	Mar. 7	447	113	62	1447
Windmill	L. B. Denton	492,916	Mar. 7	235	59	62	1405
Windmill	A. O. Koontz	489,080	Jan. 3	147	41	62	36
Windmill	T. H. McClean	490,359	Jan. 24	2206	575	62	492
Windmill	H. B. McCoslin	492,097	Feb. 21	1647	410	62	1108
Windmill	T. O. Perry	492,104	Feb. 21	1650	413	62	1110
Windmill	C. and J. Pyle	491,663	Feb. 14	982	{247 / 248}	62	960
Windmill-brake	J. H. Miller and W. H. Burnham	490,295	Jan. 24	2097	546	62	470
Windmill-governor	T. L. Regester	492,488	Feb. 28	2282	567	62	1250
Windmill-regulator	H. Grosz	491,550	Feb. 14	802	203	62	923
Windmill-regulator	H. J. Hauff	493,163	Mar. 7	610	153	62	1478
Windmill-tower	W. H. Burnham and J. H. Miller	490,267	Jan. 24	2052	537	62	460
Windmill-tower	M. R. Martin	492,690	Feb. 28	2598	643	62	1314
Windmill-tower	T. Snow	493,660	Mar. 21	1428	364	62	1667
Window	J. W. Cameron	491,279	Feb. 7	347	87	62	815
Window	H. H. Craigie	490,244	Jan. 17	2003	524	62	439
Window	B. F. Dettra	491,043	Jan. 31	3326	848	62	726
Window	A. Hitt	491,310	Feb. 7	416	107	62	826
Window	H. Koepp	491,653	Feb. 14	969	243	62	958
Window	P. Vandernoth	494,047	Mar. 21	2069	529	62	1791
Window-cap	N. Hatch	492,922	Mar. 7	243	61	62	1406
Window-cleaner	M. J. Becker	492,899	Mar. 7	204	50	62	1399
Window-cleaner	G. Ferguson	490,451	Jan. 24	2308	599	62	511
Window-frame	H. Goese	490,108	Jan. 17	1774	462	62	395
Window-frame	W. Young	491,034	Jan. 31	3312	845	62	723
Window frame and sash	S. H. Bass	492,655	Feb. 28	2552	632	62	1305
Window-jack	D. A. Thurston	491,146	Feb. 7	131	35	62	774
Window-screen	D. Stone	493,664	Mar. 21	1438	366	62	1669
Window-screen. Automatic adjustable	P. H. Niles	490,752	Jan. 31	2846	730	62	631
Window-ventilator	J. De Long	491,088	Feb. 7	40	10	62	756
Wire. Annealing	J. G. Mustin	489,194	Jan. 3	357	90	62	74
Wire articles. Machine for forming	L. H. Porter	492,051	Feb. 21	1580	393	62	1094
Wire. Barbed	J. D. Curtis	494,325	Mar. 28	2530	637	62	1892
Wire. Barbed	J. D. Curtis	494,326	Mar. 28	2532	638	62	1892
Wire. Barbed	D. C. Funcheon	493,210	Mar. 7	677	173	62	1491
Wire-connector	W. S. Kisinger	492,811	Mar. 7	62	14	62	1370
Wire-drawing machine	G. B. Lamb	489,588	Jan. 10	941	{244 / 245}	62	211
Wire-fastening	C. F. Erb	493,916	Mar. 21	1846	470	62	1748
Wire handle	F. W. Hoefer	491,648	Feb. 14	961	242	62	957
Wire hook	G. Kingston	493,626	Mar. 14	1375	349	62	1642
Wire. Manufacture of barbed	J. D. Curtis	491,304	Feb. 7	405	104	62	824
Wire-netting machine	G. F. Wright	490,009	Jan. 17	1600	{418 / 419}	62	359
Wire-reel carrier	F. H. Carter	490,899	Jan. 31	3091	793	62	680
Wire reeling and stretching machine	J. H. Rowlett and S. Robinson	489,877	Jan. 10	1354	353	62	296
Wire-rope fastener	L. J. Widmer	490,796	Jan. 31	2917	750	62	645
Wire-stretcher	L. Cross	493,686	Mar. 21	1471	375	62	1676
Wire-stretcher	A. Kahl	490,566	Jan. 24	2519	648	62	553
Wire-stretcher	G. P. Kidd	493,432	Mar. 14	1036	267	62	1578
Wire-stretcher	T. Weese	492,078	Feb. 21	1619	402	62	1102
Wire stretcher and splicer	L. H. Dowell	490,070	Jan. 17	1713	{446 / 447}	62	381
Wire stretching and twisting tool	E. T. Hoyt	491,111	Feb. 7	76	21	62	763

Alphabetical list of inventions, January to March, inclusive—Continued.

Invention.	Name	No.	Date.	Monthly volume. Spec.	Monthly volume. Dr'g.	Official Gazette. Vol.	Official Gazette. Page.
Wire-stretching device	H. C. Pratt	491,743	Feb. 14	1104	279	62	985
Wire twisting and cutting implement	W. Maney	494,429	Mar. 28	2702	678	62	1923
Wood dishes. Machine for pressing	C. H. Treat and A. B. Banghart	489,399	Jan. 3	634	172	62	136
Wood-drying kiln	I. Ungar	494,045	Mar. 21	2057	508	62	1790
Wood. Vulcanizing and drying	C. Howard. (Reissue)	11,306	Feb. 21	2694	532	62	1199
Wood water-pipe	M. D. Arms	490,892	Jan. 31	3062	786	62	675
Wooden box	J. M. Baker	490,260	Jan. 24	2032	531	62	457
Woodwork. Process of and apparatus for producing ornamental	A. Guattari	491,283	Feb. 7	358	90	62	817
Woodworking-machines. Feedwork for	H. Hackney	489,076	Jan. 3	141	40	62	35
Wool. Cleansing	A. George	493,158	Mar. 7	602	151	62	1477
Work-box	E. T. Ramer	489,503	Jan. 10	940	247	62	212
Work-table	S. A. Cornell	490,473	Jan. 24	2378	615	62	525
Wrapping-machine	I. R. Hutchinson	490,608	Jan. 24	2586	{666 / 667}	62	566
Wrench: *See* Can-wrench. Combination-wrench. Hand-wrench. Pipe-wrench. Ratchet-wrench.							
Wrench	W. A. Aberg	493,051	Mar. 7	435	110	62	1445
Wrench	W. Bill	491,513	Feb. 14	748	190	62	912
Wrench	G. Brigger	489,429	Jan. 3	682	184	62	147
Wrench	W. E. Brooke	491,870	Feb. 14	1305	322	62	1025
Wrench	G. W. Bufford	489,454	Jan. 10	737	196	62	171
Wrench	E. L. Easley	491,415	Feb. 7	584	147	62	860
Wrench	S. Gasser	489,605	Jan. 10	967	252	62	216
Wrench	C. H. Hommel	491,888	Feb. 14	1332	330	62	1030
Wrench	W. H. Kaltenbeck	492,401	Feb. 28	2127	532	62	1219
Wrench	C. H. F. Kraft	491,056	Jan. 31	3346	853	62	731
Wrench	P. Mandigo	493,929	Mar. 21	1708	435	62	1722
Wrench	G. W. Martin	489,622	Jan. 10	1382	335	62	281
Wrench	W. A. Osteen	489,039	Jan. 3	79	22	62	20
Wrench	A. Pellet	491,222	Feb. 7	261	65	62	797
Wrench	W. C. Riesberry	491,721	Feb. 14	1073	271	62	979
Wrench	E. L. Shultz	491,606	Feb. 14	902	226	62	944
Wrench	J. W. Steele	489,273	Jan. 3	451	124	62	99
Wringer: *See* Mop-wringer.							
Writer's aligning-guide	D. F. Saum	490,086	Jan. 17	1738	453	62	387
Yarn-clearer	M. M. Greeves	490,347	Jan. 24	2189	572	62	489
Yeast. Producing pure cultivated pressed	C. A. Hansson	491,939	Feb. 14	1412	353	62	1046
Yoke coupling. Neck	R. K. Smith	490,046	Jan. 17	1676	436	62	374
Yoke. Neck	W. H. Holt	493,269	Mar. 14	778	199	62	1529
Zinc oxide from sulphite or sulphate of zinc. Producing	R. F. Nenninger	489,873	Jan. 10	1348	.....	62	295
Zinc. Producing metallic	P. C. Choate	489,460	Jan. 10	745	198	62	172
Zinc. Producing metallic	P. C. Choate	489,461	Jan. 10	747	198	62	173

ALPHABETICAL LIST OF DESIGNS.

Design.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Alto-rilievo	E. C. Plant	22,145	Jan. 24	62	580
Badge	J. Allan	22,109	Jan. 10	62	307
Badge	I. Bedichimer	22,108	Jan. 10	62	307
Badge	J. M. Caldwell	22,307	Mar. 28	62	1958
Badge	T. Even	22,260	Mar. 7	62	1503
Badge	H. F. G. Fuchs	22,226	Feb. 21	62	1199
Badge	J. R. Lee	22,110	Jan. 10	62	307
Badge	L. Oudesluys	22,239	Feb. 28	62	1342
Badge	G. B. Smith	22,259	Mar. 7	62	1503
Badge	F. S. Pinkham	22,261	Mar. 7	62	1503
Badge. Arm-	W. C. Winfield	22,236	Feb. 21	62	1201
Bail-ear	J. Librowicz	22,165	Jan. 31	62	733
Base or pedestal	G. H. Winterbottom	22,182	Jan. 31	62	736
Bookbinders' cloth	G. H. Winterbottom	22,183	Jan. 31	62	736
Bookbinders' cloth	C. H. Beach	22,167	Jan. 31	62	733
Bottle	H. J. Heinz	22,304	Mar. 21	62	1815
Bottle	H. J. Heinz	22,312	Mar. 28	62	1959
Bottle	J. Librowicz	22,137	Jan. 17	62	445
Bottle	J. Librowicz	22,138	Jan. 17	62	445
Bottle or flask	P. Fahrney	22,116	Jan. 10	62	308
Bottle stopper or top	J. Librowicz	22,168	Jan. 31	62	733
Box	H. J. Burnworth	22,290	Mar. 14	62	1644
Box	A. E. Seliger	22,113	Jan. 10	62	308
Braid	L. Kleinhans	22,268	Mar. 7	62	1504
Breastpin	H. B. Houston	22,258	Mar. 7	62	1503
Breastpin	J. H. Leyson	22,166	Jan. 31	62	733
Breastpin, &c	M. A. Nye	22,150	Jan. 24	62	581
Brush or mirror back	H. Berry	22,174	Jan. 31	62	734
Brush or mirror back	H. Berry	22,175	Jan. 31	62	735
Brush or mirror back	H. Berry	22,176	Jan. 31	62	735
Brush or mirror back	H. Berry	22,177	Jan. 31	62	735
Buckle	G. E. Adams	22,132	Jan. 17	62	444
Buckle	D. Harrison	22,111	Jan. 10	62	308
Buckle-front	C. R. Harris	22,225	Feb. 21	62	1199
Buckle. Suspender-	T. J. Flagg	22,309	Mar. 28	62	1958
Button	M. R. Blumenberg	22,191	Feb. 7	62	891
Calendar-case	R. W. Brumby and S. Clarke	22,299	Mar. 14	62	1646
Can	M. J. Kinney	22,270	Mar. 7	62	1504
Cane	F. Kohnle	22,096	Jan. 3	62	154
Car center plate	D. L. Barnes	22,130	Jan. 10	62	311
Carpet	W. M. Daintrey	22,235	Feb. 21	62	1201
Ceiling-plate	W. S. Grafton, E. C. Ewing, and A. Glass.	22,272	Mar. 7	62	1505
Ceiling-plate	W. S. Grafton, E. C. Ewing, and A. Glass.	22,273	Mar. 7	62	1505
Ceiling-plate	W. S. Grafton, E. C. Ewing, and A. Glass.	22,274	Mar. 7	62	1505
Ceiling-plate	W. S. Grafton, E. C. Ewing, and A. Glass.	22,275	Mar. 7	62	1505
Chatelaine	M. C. Scherer	22,107	Jan. 10	62	307
Check-piece	H. L. Heald	22,205	Feb. 7	62	893
Clock-case	A. O. Jennings	22,125	Jan. 10	62	310
Coffin-handle socket-plate	O. McCarthy	22,129	Jan. 10	62	311
Coffin-plate	O. McCarthy	22,217	Feb. 14	62	1058
Coin-holder	J. Lines	22,216	Feb. 14	62	1058
Comb	P. Witteck	22,151	Jan. 24	62	581
Comb	P. Witteck	22,152	Jan. 24	62	581
Comb	P. Witteck	22,153	Jan. 24	62	582
Counter wall-fixture	W. C. Huss	22,127	Jan. 10	62	310
Counter wall-fixture	D. Rothschild	22,162	Jan. 24	62	583
Counter wall-fixture	D. Rothschild	22,163	Jan. 24	62	583
Cup	C. E. Haviland	22,201	Feb. 7	62	893
Cup	C. E. Haviland	22,202	Feb. 7	62	893
Curtain	J. C. Earnshaw	22,120	Jan. 10	62	309
Curtain-pole	L. R. Harsha	22,185	Jan. 31	62	736
Curtain pole	L. R. Harsha	22,186	Jan. 31	62	737
Curtain-pole	L. R. Harsha	22,187	Jan. 31	62	737
Curtain-pole	L. R. Harsha	22,250	Feb. 28	62	1344
Curtain-pole	B. H. Ruxton	22,271	Mar. 7	62	1504
Curtain-pole bracket	C. W. Smith	22,296	Mar. 14	62	1645
Cushion. Inflated	R. T. Varnum	22,121	Jan. 10	62	309
Dish	C. E. Haviland	22,230	Feb. 21	62	1200
Dish	T. Haviland	22,117	Jan. 10	62	309
Dish	T. Haviland	22,118	Jan. 10	62	309
Dish	T. Haviland	22,199	Feb. 7	62	892
Dish	T. Haviland	22,200	Feb. 7	62	892
Dish	S. C. Howard	22,313	Mar. 28	62	1959
Dish	P. de La Bastide	22,154	Jan. 24	62	582
Dish	F. Ratcliff	22,179	Jan. 31	62	734
Dish, Cover	C. E. Haviland	22,231	Feb. 21	62	1200
Dish, Covered	D. F. Haynes	22,155	Jan. 24	62	582

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Dividers. Fork for	H. Esser	22,295	Mar. 14	62	1645
Easel	A. J. Parlin	22,244	Feb. 28	62	1343
Electric-motor frame	A. W. Meston	22,277	Mar. 7	62	1503
Escutcheon-plate	W. B. Ditmars	22,218	Feb. 14	62	1058
Ewer	H. Brunt	22,303	Mar. 21	62	1815
Ewer or jug	D. F. Haynes	22,156	Jan. 24	62	582
Finger-ring	J. Bulova	22,224	Feb. 14	62	1059
Finger-ring	H. Lehr	22,192	Feb. 7	62	891
Finger-ring	J. Rees	22,193	Feb. 7	62	892
Flag	W. Bradley	22,306	Mar. 28	62	1958
Flag-holder	H. V. Holmes	22,128	Jan. 10	62	311
Flushing-tank	A. D. Sanders	22,209	Feb. 7	62	894
Fountain. Drinking	W. Tweeddale	22,141	Jan. 17	62	445
Fur collars. Head for	B. Cohen	22,284	Mar. 14	62	1643
Furniture-case	P. Kurtz	22,100	Jan. 3	62	155
Furniture-handle	J. F. Wilmot	22,161	Jan. 24	62	583
Gimp	C. E. Hertlein	22,279	Mar. 14	62	1643
Gimp	C. E. Hertlein	22,280	Mar. 14	62	1643
Gimp	H. Hook	22,245	Feb. 28	62	1343
Gimp	H. Hook	22,246	Feb. 28	62	1343
Gimp	H. Hook	22,266	Mar. 7	62	1504
Gimp	C. Lindenthal	22,267	Mar. 7	62	1504
Glass dish	T. Singleton, Jr	22,203	Feb. 7	62	893
Glass dish. Ornamental	T. Singleton, Jr	22,169	Jan. 31	62	733
Glass dish. Ornamental	T. Singleton, Jr	22,170	Jan. 31	62	734
Glass dish. Ornamental	T. Singleton, Jr	22,287	Mar. 14	62	1644
Glass or other vessels. Ornamentation of	W. Egginton	22,136	Jan. 17	62	445
Glass. Ornamentation of	W. L. Pilkington	22,173	Jan. 31	62	734
Glass. Sheet-	A. L. Rowe	22,097	Jan. 3	62	154
Glass. Surface ornamentation of	W. L. Pilkington	22,099	Jan. 3	62	155
Glass vessels. Ornamentation of	B. Davies	22,286	Mar. 14	62	1644
Glassware. Ornamentation of	W. C. Anderson	22,098	Jan. 3	62	154
Glassware. Ornamentation of	W. C. Anderson	22,213	Feb. 14	62	1057
Globe-holder	E. J. McEvoy	22,227	Feb. 21	62	1200
Halter-plate	H. L. Heald	22,204	Feb. 7	62	893
Heel or sole plate	G. J. Davison	22,294	Mar. 14	62	1645
Ice-cream freezers. Cross-bar for	C. W. Packer	22,276	Mar. 7	62	1505
Ice-mold	J. A. Smith, Sr	22,298	Mar. 14	62	1646
Ink-well	C. A. Gildemeyer	22,311	Mar. 28	62	1959
Jar	J. E. Lee	22,115	Jan. 10	62	308
Jar	C. Wahlers	22,157	Jan. 24	62	582
Lace fabric	E. Copo	22,281	Mar. 14	62	1643
Lace fabric	E. Copo	22,282	Mar. 14	62	1643
Lace fabric	E. Frances	22,314	Mar. 28	62	1959
Lamp-base	F. Koenig	22,144	Jan. 17	62	446
Lamp-body	F. Koenig	22,140	Jan. 17	62	445
Lamp-chimney	L. King	22,139	Jan. 17	62	445
Last. Lap	H. L. Heine	22,289	Mar. 14	62	1644
Match-box	W. W. Hayden	22,095	Jan. 3	62	154
Medal	C. W. McCain	22,300	Mar. 21	62	1815
Medal	G. F. Naegele	22,240	Feb. 28	62	1342
Medal	J. A. Yount	22,241	Feb. 28	62	1342
Measuring-instruments. Case for electrical	E. Weston	22,101	Jan. 3	62	155
Music-rack	G. Porteous	22,249	Feb. 28	62	1343
Pamphlet-cover	L. S. Graham	22,147	Jan. 24	62	581
Paper-knife	W. E. Allen	22,278	Mar. 14	62	1642
Paper. Sheet of wrapping	B. B. Van Derveer	22,184	Jan. 31	62	736
Pattern for printed fabrics	C. M. Smith	22,172	Jan. 31	62	735
Pattern for quilting	A. C. Diehl	22,247	Feb. 28	62	1343
Pattern for textile fabrics	J. P. Gelas	22,179	Jan. 31	62	736
Pattern for textile fabrics	J. P. Gelas	22,180	Jan. 31	62	736
Pattern for textile fabrics	J. P. Gelas	22,181	Jan. 31	62	736
Penholder	L. L. Lydick	22,264	Mar. 7	62	1503
Perfumery-holder	H. J. Geer	22,112	Jan. 10	62	308
Piano-case	A. C. Duncan	22,188	Jan. 31	62	737
Picture-frame	A. Sametz	22,146	Jan. 24	62	580
Picture or analogous frame	C. J. Jorgensen	22,292	Mar. 14	62	1645
Pitcher	J. G. Donoghue	22,214	Feb. 14	62	1058
Plane frame. Circular	E. A. Schade	22,208	Feb. 7	62	894
Plant-support	A. W. Smith	22,206	Feb. 7	62	893
Planting-dibble	W. E. Warner	22,315	Mar. 28	62	1960
Plate. Compartment	W. R. Gulick	22,305	Mar. 21	62	1816
Plush fabric	J. Schofield	22,233	Feb. 21	62	1201
Pole-bracket	E. Roos	22,142	Jan. 17	62	446
Pulsometer	F. M. Criswell	22,198	Feb. 7	62	892
Puzzle-board	C. K. Leedy	22,265	Mar. 7	62	1504
Range. Cooking	W. W. Culver	22,131	Jan. 10	62	311
Resistance-box	E. Weston	22,207	Feb. 7	62	893
Rope-hook	W. A. Perry	22,293	Mar. 14	62	1645
Rug	E. H. Bennett	22,210	Feb. 14	62	1057
Rug	E. H. Bennett	22,211	Feb. 14	62	1057
Rug	W. T. Smith	22,285	Mar. 14	62	1643
Rug-fastener	G. B. Shellhorn	22,288	Mar. 14	62	1644
Rule. Measuring	W. H. Goldsberry	22,124	Jan. 10	62	310
Saloon fixture	D. Rothschild	22,222	Feb. 14	62	1059
Siding plate	P. A. Deslauriers	22,297	Mar. 14	62	1646
Silversmiths' stock	G. L. Crowell, Jr	22,194	Feb. 7	62	892
Sink-trap	W. H. Graham	22,237	Feb. 21	62	1202
Sink-trap	W. H. Graham	22,238	Feb. 21	62	1202
Spoon	E. C. Bernheim	22,093	Jan. 3	62	154
Spoon	W. A. Bigler	22,094	Jan. 3	62	154
Spoon	J. E. Birmingham and C. Grandjean	22,223	Feb. 14	62	1059
Spoon	L. Burger	22,242	Feb. 28	62	1342
Spoon	L. Burger	22,253	Mar. 7	62	1502

Alphabetical list of designs, January to March, inclusive—Continued.

Design.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Spoon	L. Burger	22,254	Mar. 7	62	1503
Spoon	L. Burger	22,255	Mar. 7	62	1503
Spoon	L. Burger	22,256	Mar. 7	62	1503
Spoon	L. Burger	22,257	Mar. 7	62	1503
Spoon	J. F. Hilyard	22,197	Feb. 7	62	892
Spoon	F. F. Horn	22,229	Feb. 21	62	1200
Spoon	G. B. Kelley	22,228	Feb. 21	62	1200
Spoon	J. W. Maillot	22,251	Mar. 7	62	1502
Spoon	W. S. O'Brien	22,301	Mar. 21	62	1815
Spoon	C. Osborne	22,243	Feb. 28	62	1343
Spoon	M. O. Roberts	22,219	Feb. 14	62	1057
Spoon	J. Verschuur	22,195	Feb. 7	62	892
Spoon	J. Verschuur	22,196	Feb. 7	62	892
Spoon	J. Wood	22,092	Jan. 3	62	153
Spoon-handle	A. F. Jackson	22,105	Jan. 10	62	307
Spoon handle	A. F. Jackson	22,133	Jan. 17	62	444
Spoon-handle	J. W. Maillot	22,302	Mar. 21	62	1815
Spoon-handle, &c	W. S. O'Brien	22,308	Mar. 28	62	1958
Spoon-handle	H. A. Weihman	22,252	Mar. 7	62	1502
Spoon or fork handle	G. W. Shiebler	22,149	Jan. 24	62	581
Sprinkler frame. Lawn	J. G. Baker and T. H. Asbury	22,190	Jan. 31	62	737
Square. Dressmaker's	J. E. Flesher	22,248	Feb. 28	62	1343
Stay. Dress	D. H. Warner	22,283	Mar. 14	62	1643
Stay-strip	W. A. Neely	22,269	Mar. 7	62	1504
Stove	G. W. Cope	22,189	Jan. 31	62	737
Stove	I. De Haven	22,220	Feb. 14	62	1059
Stove	W. H. Wilder	22,143	Jan. 17	62	446
Stove-mat	J. F. Lockwood	22,123	Jan. 10	62	309
Surgical-instrument handle	W. Scheerer	22,134	Jan. 17	62	444
Table	J. C. Miller	22,219	Feb. 14	62	1058
Tape	G. N. Steere	22,119	Jan. 10	62	309
Thimble	M. C. Scherer	22,106	Jan. 10	62	307
Tool-handle	W. P. Alger	22,221	Feb. 14	62	1059
Toy money-safe	M. J. Shiner	22,291	Mar. 14	62	1645
Toy savings-bank	H. Dillingham	22,232	Feb. 21	62	1201
Toy windmill-head	F. T. Thrush	22,164	Jan. 24	62	583
Tray	J. Rees	22,215	Feb. 14	62	1058
Tub-support. Stationary	C. Graham	22,316	Mar. 28	62	1960
Type. Font of	G. F. Schroeder	22,104	Jan. 10	62	307
Type. Font of printing	R. Gnichwitz	22,148	Jan. 24	62	581
Type. Font of printing	G. F. Schroeder	22,263	Mar. 7	62	1503
Umbrella-carrier	P. Hill	22,262	Mar. 7	62	1503
Umbrella-handle	E. Stein	22,310	Mar. 28	62	1958
Vending machine case	A. Lyon	22,102	Jan. 3	62	155
Vending-machine case	R. Mills	22,126	Jan. 10	62	310
Vessel	J. E. Miller	22,114	Jan. 10	62	308
Vessel	A. Steffin	22,171	Jan. 31	62	734
Wall-paper	J. Twyman	22,103	Jan. 10	62	306
Wash-bowls. Ornamentation of stationary	C. H. Moore	22,122	Jan. 10	62	309
Woven fabric	W. G. Oldham and W. K. Smith	22,159	Jan. 24	62	583
Woven fabric	W. T. Smith	22,158	Jan. 24	62	582
Woven fabric	W. T. Smith	22,234	Feb. 21	62	1201
Woven fabric	W. T. Smith and W. G. Oldham	22,160	Jan. 24	62	583

ALPHABETICAL LIST OF TRADE-MARKS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
Ale	Christian Feigenspan	22,498	Feb. 21	62	1204
Ale, soda and mineral waters, and draft and bottled beer. Ginger	J. W. Waynick	22,602	Mar. 7	62	1508
Antipyretic anodyne in powdered form	J. W. Newburne	22,568	Feb. 28	62	1350
Antiseptic compound for purifying the blood	C. W. Eman and J. S. Powley	22,686	Mar. 21	62	1819
Antiseptics and embalming fluids	Embalmers' Supply Company	22,367	Jan. 24	62	585
Bale ties. Cotton	W. Clark's Son & Co	22,590	Mar. 7	62	1507
Beds. Folding	Standard Folding Bed Company	22,576	Feb. 28	62	1350
Beer and ale	Beadleston & Woerz	22,322	Jan. 10	62	313
Beer. Bottled lager	Beadleston & Woerz	22,604	Mar. 7	62	1508
Beer. Draft lager	Beadleston & Woerz	22,605	Mar. 7	62	1508
Beer. Lager	A. Bauer	22,287	Jan. 3	62	157
Beer. Lager	Chattanooga Brewing Company	22,680	Mar. 21	62	1818
Beer. Lager	J. Everard	22,481	Feb. 14	62	1062
Beer. Lager	Henn & Gabler Brewing Company	22,493	Feb. 21	62	1204
Beer. Lager	Joseph Kohnle Brewing Company	22,427	Feb. 7	62	896
Beer. Lager	H. Rahr's Sons	22,428	Feb. 7	62	896
Beer. Lager	F. Reisch & Bros	22,288	Jan. 3	62	157
Beer. Lager	E. Tosetti Brewing Company	22,500	Feb. 21	62	1204
Belting. Metallic fastenings for leather	Judson L. Thomson Manufacturing Company.	22,376	Jan. 24	62	586
Beverage. Certain carbonated	Eclipse Carbonating Co	22,430	Feb. 7	62	896
Beverages and waters. Certain carbonated	E. L. Jacques	22,466	Feb. 14	62	1061
Beverages. Nutrient or tonic	Coca Cola Company	22,406	Jan. 31	62	740
Bicycles	J. E. Geigan	22,697	Mar. 21	62	1820
Bicycles	Kenyon Bicycle Manufacturing Company.	22,661	Mar. 14	62	1650
Bicycles	Royal Cycle Works	22,413	Jan. 31	62	740
Bicycles and other velocipedes and parts thereof	E. C. Stearns & Co	22,710	Mar. 28	62	1962
Bicycles, velocipedes, and articles accessory thereto	Hulbert Bros. & Co	22,454	Feb. 7	62	898
Bicycles, velocipedes, and articles accessory thereto	Yost Manufacturing Company	22,455	Feb. 7	62	898
Biscuit and crackers	L. A. Goudy	22,634	Mar. 14	62	1647
Blacking and dressing. Shoe	Reliance Manufacturing Company	22,556	Feb. 28	62	1349
Bleaching compound	Roessler & Hasslacher Chemical Company.	22,435	Feb. 7	62	896
Bleaching fluid	H. Kohnstamm	22,619	Mar. 7	62	1509
Boiler, brick-set, and portable ranges, cook, heating, and all kinds of gas, gasoline, and oil stoves and ranges. Elevated	A. Weiskittel & Son	22,379	Jan. 24	62	586
Books. Pictorial story	Russell Printing Company	22,456	Feb. 14	62	1060
Boots and shoes	Hayden, Gmardenier & Co	22,669	Mar. 21	62	1817
Boots and shoes	Hine & Lynch	22,301	Jan. 10	62	312
Boots and shoes	J. S. Nelson & Son Shoe Company	22,302	Jan. 10	62	312
Boots and shoes	I. Prouty & Co	22,303	Jan. 10	62	312
Boots and shoes	I. Prouty & Co	22,355	Jan. 24	62	584
Boots and shoes	I. Prouty & Co	22,522	Feb. 28	62	1346
Boots and shoes	N. F. Tucker	22,629	Mar. 14	62	1647
Boots and shoes for men, boys, and youths	Hanan & Son	22,587	Mar. 7	62	1506
Boots and shoes. Leather stays for	W. A. Neely	22,523	Feb. 28	62	1346
Brandy	Brossault & Co	22,482	Feb. 14	62	1062
Brandy. Cognac	Brossault & Co	22,366	Jan. 24	62	585
Bread	G. Alber	22,432	Feb. 7	62	896
Brushes	S. Giesecke	22,411	Jan. 31	62	740
Burlap bags	John C. Graffiin Company	22,489	Feb. 21	62	1203
Burlaps	J. T. Bailey & Co	22,671	Mar. 21	62	1817
Burlaps and buckram	J. T. Bailey & Co	22,672	Mar. 21	62	1817
Calcimine	W. A. Hall	22,562	Feb. 28	62	1349
Canned corn	J. C. Michael & Sons	22,707	Mar. 28	62	1961
Canned fruits and vegetables	Hoopeston Canning Co	22,497	Feb. 21	62	1204
Canned fruits, vegetables, fish, meat, oysters, catsup, and soup.	A. F. Remy & Co	22,399	Jan. 31	62	739
Car-couplers and their parts	Trojan Car Coupler Company	22,381	Jan. 24	62	586
Cards. Playing	United States Printing Company	22,580	Mar. 7	62	1506
Cards. Playing	United States Printing Company	22,581	Mar. 7	62	1506
Cards. Playing	United States Printing Company	22,582	Mar. 7	62	1506
Carpets	Abegg & Rusch	22,278	Jan. 3	62	156
Cash-recorders and cash-registers	A. C. Hough	22,474	Feb. 14	62	1061
Cashmeres	E. Petel & Co	22,432	Feb. 7	62	895
Cathartic	Eli Lilly & Company	22,650	Mar. 14	62	1649
Cathartics	Allaire, Woodward & Company	22,571	Feb. 28	62	1350
Cement	Phœnix Portland Cement Company	22,362	Jan. 24	62	584
Chemical substances and mixtures. Certain named	Lee & Smith	22,493	Feb. 21	62	1204
Chocolate	J. M. Chapman	22,389	Jan. 31	62	738
Chocolate	H. L. Pierce	22,356	Jan. 24	62	584
Chocolates and other bonbons	Walter M. Lowney Company	22,591	Mar. 7	62	1507
Cigarettes and cut tobacco	R. López	22,404	Jan. 31	62	740
Cigars	F. Hanchett	22,402	Jan. 31	62	739
Cigars	T. R. Hennessy	22,424	Feb. 7	62	895
Cigars	F. Menendez	22,403	Jan. 31	62	739
Cigars	B. Wasserman	22,350	Jan. 17	62	448
Cigars	B. Wasserman	22,351	Jan. 17	62	448

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Cigars	B. Wasserman	22,352	Jan. 17	62	448
Coal	Newell Coal Company	22,503	Feb. 21	62	1204
Coal. Mineral	Jellico and Bird Eye Coal Company	22,438	Feb. 7	62	897
Coats, pantaloons, and vests for men and boys	W. E. Smith	22,521	Feb. 28	62	1346
Coffee	J. Aparicio & Co	22,635	Mar. 14	62	1647
Coffee	T. H. Messenger & Co	22,600	Mar. 7	62	1508
Coffee	E. T. Smith & Co	22,433	Feb. 7	62	896
Coffee and its substitutes	C. A. Liffiton	22,460	Feb. 14	62	1060
Coffee and spices	Wheeling Coffee and Spice Company	22,636	Mar. 14	62	1647
Coffee classifiers, hullers, polishers, power-screens, pulpers, and elevators.	M. Mason & Co	22,676	Mar. 21	62	1818
Coffee. Condensed	Condensed Coffee Company	22,599	Mar. 7	62	1507
Coffee. Roasted	T. H. Messenger & Co	22,598	Mar. 7	62	1507
Coffee substitute	J. Montgomerie	22,601	Mar. 7	62	1508
Coffins	W. H. Shockey	22,414	Jan. 31	62	740
Complexion-powder	Tetlow Manufacturing Company	22,644	Mar. 14	62	1648
Composition for cleaning wood, marble, tilings, ceilings, &c	C. J. Jorgensen	22,655	Mar. 14	62	1649
Cones for receiving masses of yarn or thread wound thereon	A. A. Brigham	22,450	Feb. 7	62	898
Confections	H. Williamson	22,632	Mar. 14	62	1647
Coniferæ. Certain named products of the	R. S. Prindle	22,554	Feb. 28	62	1349
Corn in the form of flakes. Alimentary products from	Indianapolis Hominy Mills	22,657	Mar. 14	62	1648
Corn-shellers	Kingsland & Douglas Manufacturing Company.	22,336	Jan. 10	62	314
Corset-waists	O. P. Flynt	22,420	Feb. 7	62	895
Corsets	H. B. Claflin Company	22,628	Mar. 14	62	1647
Corsets	Gage-Downs Company	22,519	Feb. 28	62	1346
Corsets	C. H. Laugdon and G. C. Batcheller.	22,277	Jan. 3	66	156
Corsets, corset-waists, and shoulder-braces	Williamson Corset and Brace Company.	22,668	Mar. 21	62	1817
Cosmetics	T. H. Bates	22,541	Feb. 28	62	1348
Cosmetics	Nielsen & Wyler	22,310	Jan. 10	62	312
Cotton, wool, and silk fabrics	Gladstone Manufacturing Co	22,304	Jan. 10	62	312
Cough-drops	Smith Brothers	22,294	Jan. 3	62	158
Cough pills, catarrh cure, liniment, and tonics	J. Schermanson	22,295	Jan. 3	62	158
Cultivators and bean-harvesters	Wells Cultivator Co	22,452	Feb. 7	62	898
Cure. Catarrh	Century Manufacturing Company	22,348	Jan. 17	62	447
Cure. Dropsy	Smith & Bailey	22,610	Mar. 7	62	1508
Cure for the tobacco habit	K. Tinker and W. A. Hibbard	22,392	Jan. 31	62	738
Cure. Kidney and liver	Peterboro Medicine Co	22,447	Feb. 7	62	897
Currycombs	Holgate Brothers Company	22,505	Feb. 21	62	1204
Dentifrice	W. H. Farrand	22,441	Feb. 7	62	897
Dentifrice	S. S. White Dental Manufacturing Company.	22,542	Feb. 28	62	1348
Dermal toilet preparations	J. A. Maxim	22,689	Mar. 21	62	1819
Disinfectant	H. B. Platt	22,653	Mar. 14	62	1649
Disinfectants	Embalmers' Supply Company	22,368	Jan. 24	62	585
Disinfectants	C. A. Simpson	22,461	Feb. 14	62	1060
Disinfecting compounds. Certain named receptacle for	Excelsior Disinfector Co	22,574	Feb. 28	62	1350
Distillation of pure water. Portable still and water-condenser for the	American Water Purifying Company.	22,300	Jan. 3	62	158
Dress goods. Wool and silk and wool black	Les de A. Guillaumet & G. Maes	22,421	Feb. 7	62	895
Drilling	Minot, Hooper & Co	22,630	Mar. 14	62	1647
Drum heads, strings, and materials	E. Boulanger	22,585	Mar. 7	62	1506
Electrical instruments employed in the treatment of disease. Certain	Electrolibration Company	22,617	Mar. 7	62	1509
Engraving-plates for making relief-cuts	T. M. Bell, W. T. Dickinson, and N. A. Pollock.	22,660	Mar. 14	62	1649
Extract or coloring material for food	Waverly Manufacturing Co	22,540	Feb. 28	62	1348
Extracts. Handkerchief	A. B. Wrisley	22,439	Feb. 7	62	897
Fat. Prepared and refined beef	M. Zimmermann	22,480	Feb. 14	62	1062
Fats used for culinary purposes. Refined	M. Zimmermann	22,285	Jan. 3	62	157
Fertilizers. Artificial	Marline Manufacturing Company	22,467	Feb. 14	62	1061
Filters. Oil	F. A. Nusbaum	22,575	Feb. 28	62	1350
Fish. Whole, cut, and boneless	L. Hough Co	22,538	Feb. 28	62	1348
Flour	G. T. Chester	22,534	Feb. 28	62	1347
Flour	C. T. Long	22,708	Mar. 28	62	1962
Flour and meal	G. F. Moyer	22,398	Jan. 31	62	739
Flour, hominy, and cornmeal. Wheat, graham, rye, and buckwheat	Minneapolis Grain and Feed Co	22,320	Jan. 10	62	313
Flour. Wheat	Bryan, Miner & Read	22,358	Jan. 24	62	584
Flour. Wheat	Daisy Roller Mill Company	22,535	Feb. 28	62	1347
Flour. Wheat	Empire Mill Co	22,282	Jan. 3	62	156
Flour. Wheat	North Dakota Milling Company	22,319	Jan. 10	62	313
Flour. Wheat	Northwestern Consolidated Milling Company.	22,359	Jan. 24	62	584
Flour. Wheat	W. H. Stokes	22,283	Jan. 3	62	157
Flour. Wheat and rye	S. Green	22,284	Jan. 3	62	157
Food. Animal	S. D. Goodrich	22,317	Jan. 10	62	313
Fuel. Chemical	P. E. Tarbel	22,314	Jan. 10	62	313
Furs	A. Jacobson & Bro	22,589	Mar. 7	62	1507
Gas purification. Washer-scrubber for	Kirkham, Hulett & Chandler	22,415	Jan. 31	62	740
Glass-cleaning preparations	Reliance Manufacturing Company	22,557	Feb. 28	62	1349
Glass, known as picture, window, coffin, car, coach, store, and show-case glass. Sheet	Chambers Glass Company	22,324	Jan. 10	62	314
Glassware, including tableware and fancy articles	Mount Washington Glass Company	22,408	Jan. 31	62	740
Glassware, including tableware and fancy articles	Mount Washington Glass Company	22,409	Jan. 31	62	740
Gloves	J. & M. Lehman	22,484	Feb. 21	62	1203
Glue. Liquid	Reliance Manufacturing Company	22,552	Feb. 28	62	1349
Graters. Nutmeg	Steel Edge Stamping and Retinning Company.	22,299	Jan. 3	62	158
Grease and blacking. Harness	A. Gerstner	22,315	Jan. 10	62	313
Gum. Chewing	N. Bate and H. C. Enos	22,592	Mar. 7	62	1507
Gum. Chewing	Boss & Hoover Co	22,305	Jan. 10	62	312
Gum. Chewing	Carleton & Co	22,357	Jan. 24	62	584

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Gum. Chewing	G. Elmendorf	22,390	Jan. 31	62	738
Gum. Chewing	S. B. Lafferty	22,633	Mar. 14	62	1647
Hair-dressing	M. T. Hickey	22,645	Mar. 14	62	1648
Hair-eradicators	C. A. Vogeler Co	22,309	Jan. 10	62	312
Hams, bacon, and shoulders	Swift & Company	22,638	Mar. 14	62	1648
Hams, bacon, smoked meats, and shoulders	Jersey City Packing Company	22,595	Mar. 7	62	1507
Hams. Sugar-cured	Jersey City Packing Company	22,400	Jan. 31	62	739
Hats and caps	H. M. Silverman Company	22,495	Feb. 21	62	1203
Hats. Polishing preparation for silk	F. N. Blanc	22,555	Feb. 28	62	1349
Hides, sides, splits, or skins, or similar forms of leather	H. Smith	22,423	Feb. 7	62	895
Honey	C. M. Blanchard	22,280	Jan. 3	62	156
Hosiery	I. C. Hunsicker & Co	22,341	Jan. 17	62	447
Hosiery	I. C. Hunsicker & Co	22,342	Jan. 17	62	447
Inhaler in the form of a bottle provided with tubes. Medicinal	W. H. Bergfeld	22,371	Jan. 24	62	585
Insect-powder	M. A. Hawley	22,316	Jan. 10	62	313
Insulators. Electrical	E. Munsell, L. W. Kingsley, and F. Brooks.	22,623	Mar. 7	62	1510
Japans and varnishes	Herberts & Dax	22,563	Feb. 28	62	1349
Jewelry and silverware	Davis & Galt	22,275	Jan. 3	62	156
Knitted undergarments	A. N. Loeb & Co	22,487	Feb. 21	62	1203
Lace-pins, scarf-pins, studs, ear drops, and similar articles	R. L. Moorhead & Co	22,627	Mar. 14	62	1647
Lamps and lamp-burners	Bridgeport Brass Company	22,693	Mar. 21	62	1819
Lamps, dynamos, and electric fixtures. Incandescent	J. W. and W. D. Packard	22,577	Feb. 28	62	1350
Lamps. Incandescent electric	Electric Manufacturing Company	22,412	Jan. 31	62	740
Lard	Anglo-American Provision Company	22,705	Mar. 28	62	1961
Lard	Anglo-American Provision Company	22,706	Mar. 28	62	1961
Lard, sausage, hams, bacon, salt pork, dried beef, and beef-tongues	I. B. Mason & Sons	22,401	Jan. 31	62	739
Lard substitute	Anglo-American Provision Company.	22,537	Feb. 28	62	1348
Laxative	W. P. Stevens and J. E. Durham	22,477	Feb. 14	62	1062
Lead. White	A. Pflugh & Co	22,437	Feb. 7	62	897
Liniment	Reliance Manufacturing Company	22,615	Mar. 7	62	1509
Liniment	W. W. Smith	22,369	Jan. 24	62	585
Liniment for the cure of rheumatism	M. Blackstone	22,307	Jan. 10	62	312
Liniments	Hofbauer Bros	22,667	Mar. 21	62	1819
Linings for clothing. Certain named stuffs for	S. Kirk & Sons	22,699	Mar. 28	62	1961
Liquors. Fermented and spirituous	Brockbank & Mellor	22,501	Feb. 21	62	1204
Lotions for remedial purposes	D. A. Bowker	22,646	Mar. 14	62	1648
Lye product	J. Picot	22,361	Jan. 24	62	584
Macaroni, vermicelli, egg-noodles, and similar compounds	A. M. Caffe	22,678	Mar. 21	62	1818
Malt extracts	Trommer Extract of Malt Company	22,603	Mar. 7	62	1508
Mangers. Iron	F. O. Worthley	22,626	Mar. 7	62	1510
Meat extracts	Thomson & Taylor Spice Company	22,360	Jan. 24	62	584
Medical purposes. Coal-tar products in the form of tablets for	Mellier Drug Company	22,703	Mar. 28	62	1961
Medical tonic	J. P. Gilbert	22,566	Feb. 28	62	1350
Medicated beverage containing wild cherry	P. M. Hanney	22,533	Feb. 28	62	1347
Medicated cough-drops	N. W. Stiles	22,492	Feb. 21	62	1203
Medicinal agents derived from hydrocarbon compounds	Lehn & Fink	22,293	Jan. 3	62	157
Medicinal mineral water	E. L. Jacques	22,465	Feb. 14	62	1060
Medicinal plasters	G. M. Dorrance	22,652	Mar. 14	62	1649
Medicinal purposes. Celery tea for	P. C. Melrose	22,607	Mar. 7	62	1508
Medicinal tonic	Allaire, Woodward & Company	22,683	Mar. 21	62	1818
Medicinal tonic	L. Mansfield	22,290	Jan. 3	62	157
Medicine for external use. Liquid	Cyona Company	22,688	Mar. 21	62	1819
Medicine for the cure of rheumatism	Brahma Medicine Company	22,306	Jan. 10	62	312
Medicine in capsules. Tape-worm	G. E. Thum	22,462	Feb. 14	62	1060
Medicine. Preparation for disguising the bitter or disagreeable taste of	Eli Lilly & Company	22,609	Mar. 7	62	1508
Medicines and remedies. Homeopathic and other	Munson's Homeopathic Family Medicine Company.	22,647	Mar. 14	62	1649
Medicines. Cough	L. B. Taylor	22,702	Mar. 28	62	1961
Metal and antifriction journal-bearings. Babbitt	T. Hiertz & Son	22,658	Mar. 14	62	1649
Metal-polishing compound	A. L. Jaggar	22,494	Feb. 21	62	1204
Milk, cream, butter, and cheese	New York Condensed Milk Company.	22,536	Feb. 28	62	1348
Mineral-spring water	H. K. Wampole & Co	22,527	Feb. 28	62	1347
Mineral water and beverages into which it enters as a constituent	Waukesha Hygeia Mineral Springs Company.	22,643	Mar. 14	62	1648
Mineral water and ginger ale. Carbonated and natural	Bethesda Mineral Spring Company	22,405	Jan. 31	62	740
Mineral water. Natural	Salutaris Natural Mineral Water Company.	22,365	Jan. 24	62	585
Mucilage	Reliance Manufacturing Company	22,553	Feb. 28	62	1349
Musical instruments, and trimmings therefor. Wind, string, and other	J. W. Pepper	22,517	Feb. 28	62	1346
Noodles. Egg	G. A. Pfaffmann	22,431	Feb. 7	62	896
Oil extracts for use as internal and external remedies for disease	G. W. Hooton	22,445	Feb. 7	62	897
Oil for harness and leather	Reliance Manufacturing Company	22,564	Feb. 28	62	1349
Oil, French peas, mushrooms, baricots verts, flageolets, macedoines, truffles, sardines, prunes d'ente, and similar articles. Olive	A. M. Caffe	22,677	Mar. 21	62	1818
Oil. Lubricating	Reliance Manufacturing Company	22,654	Mar. 14	62	1649
Oils and other wood-preserving compounds	P. H. Gerhard	22,396	Jan. 31	62	739
Oils. Lubricating	Allen, Bradley & Co	22,565	Feb. 28	62	1349
Oils. Lubricating	S. E. Heymann	22,621	Mar. 7	62	1509
Ointment used as a remedy for skin diseases	Raysor & Smith	22,704	Mar. 28	62	1961
Overalls, pantaloons, shirts, and drawers. Men's	Rice, Stix & Co	22,337	Jan. 10	62	314
Overgaiters and leggins	Sachs, Rosenwasser & Stern	22,476	Feb. 14	62	1062
Oysters	W. L. Ellis & Co	22,640	Mar. 14	62	1648
Oysters. Raw and processed	W. A. Wheatley	22,318	Jan. 10	62	313
Paints for roofs, &c	Mica Roofing Co	22,397	Jan. 31	62	739

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Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Paints, stains, varnishes, and similar articles	Harrison Bros. & Co	22,656	Mar. 14	62	1649
Paints, varnishes, stains, driers, japans, and kindred goods	Chicago Varnish Company	22,395	Jan. 31	62	739
Paper. Albumenized	Scovill & Adams Company	22,666	Mar. 21	62	1817
Paper, paper boxes, and paper bags. Wrapping	W. A. Bingham & Company	22,518	Feb. 28	62	1346
Paper receptacle. Toilet	Steel Edge Stamping and Retinning Company.	22,326	Jan. 10	62	314
Paper. Waterproof	F. W. Bird & Son	22,516	Feb. 28	62	1346
Paper. Writing	Springdale Paper Company	22,665	Mar. 21	62	1817
Papers. Waterproof	F. W. Bird & Son	22,490	Feb. 21	62	1203
Paste and cement for paper, leather, and similar materials	G. Tegeler	22,326	Jan. 3	62	157
Pencils. Eyebrow	E. N. Gaillard	22,543	Feb. 28	62	1348
Pens of all kinds	Firm of William Mitchell	22,515	Feb. 28	62	1346
Pepsin, pancreatin, and rennet and their compounds	Swift & Company	22,539	Feb. 28	62	1348
Perfumed toilet preparations, including soap	V. Klotz	22,690	Mar. 21	62	1819
Perfumery, sachet-powders, and toilet soap	Firm of Solon Palmer	22,363	Jan. 24	62	584
Perfumery, soaps, oils, tooth-powder, smelling extracts, rice powders, and cologne.	Roger & Gallet	22,440	Feb. 7	62	897
Periodical. Printed	Fashion Company	22,419	Feb. 7	62	895
Photographic preparations	J. Hauff	22,274	Jan. 3	62	156
Pickled and preserved fruits and vegetables	H. B. Mills	22,597	Mar. 7	62	1507
Pills	C. Wright	22,614	Mar. 7	62	1509
Pills. Cathartic	C. B. Riker	22,572	Feb. 28	62	1350
Pills for sick and nervous headaches	E. T. Leach	22,570	Feb. 28	62	1350
Pine wood. Distilled products of	Imperial Pine Product Company	22,312	Jan. 10	62	313
Plaster. Cement	Salina Cement Plaster Company	22,464	Feb. 14	62	1060
Plaster-of-paris	J. B. King & Co	22,561	Feb. 28	62	1349
Plows, cultivators, rollers, and harrows	Wiard Plow Company	22,417	Jan. 31	62	740
Polish for silver and like wares	Reliance Manufacturing Company	22,558	Feb. 28	62	1349
Polish. Furniture	F. F. Fluhrer	22,313	Jan. 10	62	313
Polish. Furniture	F. F. Fluhrer	22,620	Mar. 7	62	1509
Polish. Metal	Reliance Manufacturing Company	22,559	Feb. 28	62	1349
Polish or blacking. Stove	Morse Bros	22,622	Mar. 7	62	1509
Polish. Stove	Reliance Manufacturing Company	22,560	Feb. 28	62	1349
Pop-corn. Shelled	Albert Dickinson Company	22,343	Jan. 17	62	447
Pork products. Pig	McDowell Packing Company	22,639	Mar. 14	62	1648
Powder used as a remedy for dyspepsia and other stomach troubles.	Home Medical Company	22,372	Jan. 24	62	585
Powders. Headache	N. L. Munro	22,391	Jan. 31	62	738
Preparation for the cure of colic in horses	D. E. Prall	22,573	Feb. 28	62	1350
Preparation for the cure of venereal diseases	M. Markendorf	22,463	Feb. 14	62	1060
Preparations for the skin and complexion	M. L. Johann	22,442	Feb. 7	62	897
Preservative. Chemical compound used as a	W. A. Loewenthal	22,345	Jan. 17	62	447
Preserving compounds. Fruit and vegetable	S. Pierce	22,281	Jan. 3	62	156
Prune-juice	Ball & Cheyne Company	22,429	Feb. 7	62	896
Publications	R. J. Buchanan	22,457	Feb. 14	62	1060
Publications and periodicals. Printed	Christian Union Company	22,338	Jan. 17	62	447
Publications. Printed	Judge Publishing Company	22,579	Mar. 7	62	1506
Pulp and waterproofed. Household and other ware made from wood	United Indurated Fibre Company	22,377	Jan. 24	62	588
Pulp and waterproofed. Household and other ware made from wood	United Indurated Fibre Company	22,378	Jan. 24	62	588
Pumps	Red Jacket Manufacturing Co	22,663	Mar. 14	62	1650
Pumps. Wood	C. S. Burlingham	22,664	Mar. 14	62	1650
Remedies. Certain named	Turner-Shaker Medicine Co	22,478	Feb. 14	62	1062
Remedies. Certain named line of proprietary	Five Points Chemical Co	22,373	Jan. 24	62	585
Remedies for cancerous diseases	Firm of E. Merck	22,375	Jan. 24	62	585
Remedies for nervous debility and other named diseases	W. G. Dobie	22,472	Feb. 14	62	1061
Remedies for nervous disorders and all diseases of the blood, liver, and kidneys.	Turner-Shaker Medicine Co	22,479	Feb. 14	62	1062
Remedies for pulmonary diseases	T. Smith & Son	22,611	Mar. 7	62	1509
Remedy for bronchial diseases	W. L. Coakley	22,346	Jan. 17	62	447
Remedy for catarrh	A. H. and P. Volk	22,291	Jan. 3	62	157
Remedy for certain named diseases	F. M. Criswell	22,612	Mar. 7	62	1509
Remedy for certain named diseases	Macura Drug Co	22,685	Mar. 21	62	1819
Remedy for chills and fever	L. M. Collins	22,347	Jan. 17	62	447
Remedy for diseases of the blood and liver	Shawnee Remedy Co	22,393	Jan. 31	62	739
Remedy for diseases of the kidneys	Tahoe Medical Company	22,569	Feb. 28	62	1350
Remedy for female diseases. A powder to be used as a	Home Medical Company	22,308	Jan. 10	62	312
Remedy for gonorrhea, female weaknesses, and analogous diseases.	Sandalide Co	22,374	Jan. 24	62	585
Remedy for hog-cholera and other diseases	E. C. Rosenzi	22,649	Mar. 14	62	1649
Remedy for neuralgia	E. B. White	22,648	Mar. 14	62	1649
Remedy for rheumatism	W. H. A. Nesbitt	22,684	Mar. 21	62	1818
Remedy for rheumatism	C. E. Thompson & Co	22,292	Jan. 3	62	157
Ribbons. Silk	W. Openhym & Sons	22,670	Mar. 21	62	1817
Rope dressing or filling	C. W. Hunt Company	22,344	Jan. 17	62	447
Rubber goods. Certain named	A. U. Betts	22,674	Mar. 21	62	1817
Salts. Effervescing fruit	Geary Drug Co	22,532	Feb. 28	62	1347
Salve	G. L. Ballauf & Co	22,446	Feb. 7	62	897
Salve or ointment for the skin	F. J. Lockwood	22,616	Mar. 7	62	1509
Salves and liniments for animal use	Reliance Manufacturing Company	22,651	Mar. 14	62	1649
Salves, liniments, plasters, and bitters	E. Dort	22,444	Feb. 7	62	897
Salves, pills, vermifuge, liniment, and cough balm	A. H. Gottschall	22,471	Feb. 14	62	1061
Sardines	S. G. Stevens	22,594	Mar. 7	62	1507
Sarsaparilla and cough-sirup	Red Seal Remedy Co	22,682	Mar. 21	62	1818
Sarsaparilla. Compounds of	W. R. Manners, G. H. Downing, and G. S. Ackley.	22,701	Mar. 28	62	1961
Screws, bolts, nuts, rivets, burrs, washers, wire nails, and kindred articles.	American Screw Company	22,709	Mar. 28	62	1962
Seeds, bulbs, plants, and flowers	E. H. Hunt	22,448	Feb. 7	62	898
Sewing-machines	Cash Buyers' Union	22,353	Jan. 17	62	448
Sewing-machines	Chicago Sewing Machine Company	22,662	Mar. 14	62	1650
Sewing-machines and attachments	Parsons & Bird	22,473	Feb. 14	62	1061
Sewing-machines and their attachments	Domestic Sewing Machine Company	22,327	Jan. 10	62	314

Alphabetical list of trade-marks, January to March, inclusive—Continued.

Title.	Name.	No.	Date.	Official Gazette. Vol.	Page.
Sewing-machines and their attachments	Domestic Sewing Machine Company	22,328	Jan. 10	62	314
Sewing-machines and their attachments	New York Sewing Machine and Manufacturing Company.	22,329	Jan. 10	62	314
Sewing-machines and their attachments	New York Sewing Machine and Manufacturing Company.	22,330	Jan. 10	62	314
Sewing-machines and their attachments	New York Sewing Machine and Manufacturing Company.	22,331	Jan. 10	62	314
Sewing-machines and their attachments	New York Sewing Machine and Manufacturing Company.	22,332	Jan. 10	62	314
Sewing-machines and their attachments	New York Sewing Machine and Manufacturing Company.	22,333	Jan. 10	62	314
Sewing-machines and their attachments	New York Sewing Machine and Manufacturing Company.	22,334	Jan. 10	62	314
Sheeting	Minot, Hooper & Co	22,631	Mar. 14	62	1647
Shirts	D. R. Sillesky & Co	22,475	Feb. 14	62	1061
Skirt-holders	Smith-Brewer Novelty Company	22,586	Mar. 7	62	1508
Slates	Hyatt School Slate Company	22,410	Jan. 31	62	740
Soap. Carbolic	Reliance Manufacturing Company	22,551	Feb. 28	62	1348
Soap in chips and bars	H. Kohnstamm & Co	22,618	Mar. 7	62	1509
Soap. Laundry and toilet	Rice & Robinson Soap Company	22,549	Feb. 28	62	1348
Soap. Laundry and toilet	Rice & Robinson Soap Company	22,550	Feb. 28	62	1348
Soap or cleaning compound. Plastic	American Chemical Company	22,469	Feb. 14	62	1061
Soap, perfumery, and toilet preparations	Colgate & Co	22,546	Feb. 28	62	1348
Soap, perfumery, and toilet preparations	Colgate & Co	22,547	Feb. 28	62	1348
Soap, perfumery, and toilet preparations	Colgate & Co	22,548	Feb. 28	62	1348
Soap powder	P. Nehrbass	22,545	Feb. 28	62	1348
Soap. Toilet	Mexican Root Soap Co	22,468	Feb. 14	62	1061
Soap. Toilet	Robinson Bros. & Co	22,364	Jan. 24	62	585
Soap. Toilet	Stearns & Gordon	22,496	Feb. 21	62	1204
Soap. Toilet and laundry	Amalga Soap Company	22,691	Mar. 21	62	1819
Soap. Toilet and laundry	Dunwoody Bros	22,470	Feb. 14	62	1061
Spices, herbs, flavoring extracts, essences, celery salt, tapioca, sage, rice, pepper-sauce, and ketchup.	W. J. Stitt & Co	22,279	Jan. 3	62	156
Starch. Wheat	H. Kohnstamm & Co	22,434	Feb. 7	62	896
Starching-machines	L. B. Porter	22,449	Feb. 7	62	898
Stays. Dress	H. Lublin	22,354	Jan. 24	62	584
Stays. Dress and corset	T. P. Taylor	22,340	Jan. 17	62	447
Stays or corsets	R. R. Appleton	22,485	Feb. 21	62	1203
Steel and iron. Soft	Wilmot & Hobbs Manufacturing Company.	22,659	Mar. 14	62	1649
Steel hardening and tempering compound	W. F. Altemus	22,657	Mar. 14	62	1649
Stoves and ranges	Famous Stove Co	22,695	Mar. 21	62	1819
Stoves, heaters, and parts of the same	Reading Stove Works, Orr, Painter & Company.	22,578	Feb. 28	62	1350
Stoves, ranges, and heaters, and gasoline, oil, coal, and wood burning stoves. Gas	A. Weiskittel & Son	22,380	Jan. 24	62	586
String instruments	C. F. Zimmermann	22,339	Jan. 17	62	447
Suppositories for diseases of the bowels and rectum	H. K. Wampole & Co	22,370	Jan. 24	62	585
Suspensories	Chambers, Bro. & Co	22,491	Feb. 21	62	1203
Threads and silk fabrics. Sewing, knitting, and embroidery silk	Brainerd & Armstrong Company	22,694	Mar. 21	62	1819
Tin plates, terne plates, tin taggers, black taggers, and sheet metal and solder.	E. L. Parker & Co	22,325	Jan. 10	62	314
Tires. Vehicle	Union Cycle Manufacturing Company.	22,453	Feb. 7	62	898
Tobacco. Plug	J. J. Hickok & Co	22,593	Mar. 7	62	1507
Tobacco. Plug	D. H. Spencer & Son	22,321	Jan. 10	62	313
Tobacco. Plug	W. W. Wood & Co	22,526	Feb. 28	62	1347
Tobacco. Plug	Wright Bros. Tobacco Company	22,297	Jan. 3	62	158
Tobacco. Plug	Wright Bros. Tobacco Company	22,298	Jan. 3	62	158
Tobacco. Twist	J. D. Walker	22,425	Feb. 7	62	895
Toilet wash	O. J. Freeman	22,700	Mar. 28	62	1961
Toilet water	D'Ormidor & Co	22,311	Jan. 10	62	312
Tonic and pills	J. S. Dodge	22,613	Mar. 7	62	1509
Tonic. Quinine	Weeks & Potter Company	22,608	Mar. 7	62	1508
Tonics, bitters, liniments, and sirups	J. W. James & Co	22,567	Feb. 28	62	1350
Tooth and gum washes	J. Ottinger	22,296	Jan. 3	62	158
Tooth-powder	Reliance Manufacturing Company	22,544	Feb. 28	62	1348
Tubs, pails, buckets, keelers, measures, and kanakins	Mann Bros	22,504	Feb. 21	62	1204
Twine. Binder	J. T. Bailey & Co	22,673	Mar. 21	62	1817
Type-writers and parts thereof	Domestic Sewing Machine Company	22,624	Mar. 7	62	1510
Undergarments	A. N. Loeb & Co	22,486	Feb. 21	62	1203
Underwear	W. Benger Soehne	22,488	Feb. 21	62	1203
Underwear	W. Benger Soehne	22,520	Feb. 28	62	1346
Underwear made of a knit fabric having a smooth face and a plush back.	I. Jaros	22,589	Mar. 7	62	1507
Unguente	E. F. Houghton & Co	22,443	Feb. 7	62	897
Valves and hydrants	Kennedy Valve Manufacturing Company.	22,416	Jan. 31	62	740
Valves and pump-governors. Pressure-reducing	Locke Brothers	22,451	Feb. 7	62	898
Valves and steam-packing	Jenkins Bros	22,335	Jan. 10	62	314
Valves. Machinery	Mason Regulator Company	22,696	Mar. 21	62	1820
Vapor-engines	Union Gas Engine Company	22,625	Mar. 7	62	1510
Varnishes, stains, driers, japans, and kindred goods	Chicago Varnish Company	22,394	Jan. 31	62	739
Velocipedes and bicycles	Monarch Cycle Company	22,711	Mar. 28	62	1962
Washing fluid	H. Kohnstamm & Co	22,436	Feb. 7	62	897
Washing fluid	E. Wartenberg	22,692	Mar. 21	62	1819
Watchcase. Composition	Illinois Watch Case Company	22,418	Feb. 7	62	895
Watchcases	Crescent Watch Case Company	22,392	Jan. 31	62	738
Watchcases	Crescent Watch Case Company	22,393	Jan. 31	62	738
Watchcases	J. Macher	22,667	Mar. 21	62	1817
Watchcases and jewelry	Lissauer & Co	22,698	Mar. 28	62	1961
Watches	Hampden Watch Company	22,506	Feb. 28	62	1345
Watches	Hampden Watch Company	22,507	Feb. 28	62	1345

Alphabetical list of trade-marks, January to March, inclusive—Continued.

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Watches	Hampden Watch Company	22,508	Feb. 28	62	1345
Watches	Hampden Watch Company	22,509	Feb. 28	62	1345
Watches	Hampden Watch Company	22,510	Feb. 28	62	1345
Watches	Hampden Watch Company	22,511	Feb. 28	62	1345
Watches	Hampden Watch Company	22,512	Feb. 28	62	1346
Watches	Hampden Watch Company	22,513	Feb. 28	62	1346
Watches	Hampden Watch Company	22,514	Feb. 28	62	1346
Watches and their parts	American Waltham Watch Company.	22,276	Jan. 3	62	156
Water-closets	L. M. Rumsey Manufacturing Company.	22,712	Mar. 28	62	1962
Water-closets	L. M. Rumsey Manufacturing Company.	22,713	Mar. 28	62	1962
Whalebone. Commercial	New England Whalebone Manufacturing Co.	22,525	Feb. 28	62	1347
Wheat. Rolled	Pettijohn California Breakfast Food Company.	22,459	Feb. 14	62	1060
Whiskies	J. Olwell & Co	22,289	Jan. 3	62	157
Whiskies	J. Olwell & Co	22,502	Feb. 21	62	1204
Whisky	Bigbie Bros. & Co	22,529	Feb. 28	62	1347
Whisky	D. L. Bleyer & Co	22,641	Mar. 14	62	1648
Whisky	G. T. Gambrill	22,407	Jan. 31	62	740
Whisky	J. Gillon & Co	22,530	Feb. 28	62	1347
Whisky	Kaufmann Bros. & Co	22,675	Mar. 21	62	1818
Whisky	Mitchell Brothers	22,531	Feb. 28	62	1347
Whisky	J. Olwell & Co	20,456	Feb. 14	62	1060
Whisky, manhattan, and other cocktails	A. S. De Lissa	22,679	Mar. 21	62	1818
Whisky. Rye	Mayer Sons & Co	22,323	Jan. 10	62	314
Wine. Bordeaux	Brossault & Co	22,426	Feb. 7	62	895
Wine. Orange quinine	Meagher Bros. & Co	22,681	Mar. 21	62	1818
Wines	Brossault & Co	22,349	Jan. 17	62	448
Wines and brandies	Germain Fruit Company	22,642	Mar. 14	62	1648
Wines and cordials	J. P. Straub	22,528	Feb. 28	62	1347
Wines and liquors. California	California Vintage Company	22,606	Mar. 7	62	1508
Wire-netting and wire-cloth	Clinton Wire Cloth Company	22,524	Feb. 28	62	1347
Wood-preservative	Mica Roofing Co	22,495	Feb. 21	62	1204
Writing fluids and inks	C. E. Ogden	22,583	Mar. 7	62	1506
Writing fluids and inks	C. E. Ogden	22,584	Mar. 7	62	1506
Yarns and thread. Cotton, linen, silk, woolen, and hair	Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Meig & Cie.	22,384	Jan. 31	62	738
Yarns and thread. Cotton, linen, silk, woolen, and hair	Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Meig & Cie.	22,385	Jan. 31	62	738
Yarns and thread. Cotton, linen, silk, woolen, and hair	Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Meig & Cie.	22,386	Jan. 31	62	738
Yarns and thread. Cotton, linen, silk, woolen, and hair	Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Meig & Cie.	22,387	Jan. 31	62	738
Yarns and thread. Cotton, linen, silk, woolen, and hair	Aktiengesellschaft für Textil-Industrie, vormals Dollfus-Meig & Cie.	22,388	Jan. 31	62	738
Yeast. Compressed	Distilling and Cattle Feeding Company.	22,596	Mar. 7	62	1507

PRINTS.

Title.	Name.	No.	Date.	Official Gazette. Volume.	Page.
"Heinz's Preserves, Celery Sauce, and Ketchups"	H. J. Heinz Co	1	Mar. 7	62	1357

DISCLAIMERS.

Invention.	Patentee.	No. of patent.	Date of patent.	Disclaimer filed.	Official Gazette. Vol.	Page.
Binder. Temporary	James S. Shannon	217,907	July 29, 1879	Feb. 23, 1893	62	1211
Lasting and fastening machine	Erastus Woodward	248,544	Oct. 18, 1881	Feb. 16, 1893	62	1069
Lasting-machine	Seth White Paine, Hiram A. Gray, and Charles H. Pettee.	387,366	Aug. 7, 1888	Mar. 16, 1893	62	1827

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OFFICIAL GAZETTE

OF THE

UNITED STATES PATENT OFFICE.

SUPPLEMENT

CONTAINING THE

REVISED CLASSIFICATION OF SUBJECTS OF INVENTION,

ARRANGED ALPHABETICALLY.

JANUARY 1, 1893.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1893.

DEPARTMENT OF THE INTERIOR,

UNITED STATES PATENT OFFICE,

Washington, D. C., January 1, 1893.

The following is the official classification of patents and inventions in the Patent Office. No changes will be made therein except by order of the Commissioner.

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W. E. SIMONDS,

Commissioner of Patents.

CLASSIFICATION OF INVENTIONS.

REVISED AND APPROVED BY THE UNITED STATES PATENT OFFICE JANUARY 1, 1893.

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The present classification, revised January 1, 1893, contains two hundred and eight* classes, subdivided into five thousand and forty-five sub-classes.

Persons desiring to inform themselves in regard to the state of the art in any line of invention can best do so by purchasing printed copies of the specifications and drawings of patents in the sub-class containing the invention, the number and cost of which will be given upon application.

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Orders for specifications and drawings by classes should give the numbers as well as the titles of the class and sub-class.

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SPECIFICATIONS of patents issued since August 27, 1861, commencing with No. 33,149, have been printed up to this date; also, all reissues and all patents previously issued for processes, and in the classes of Arms and Projectiles, Brakes and Gins, Distillation, Electricity, Elevators, Fire-Arms, Fishing and Trapping, Harrows and Diggers, Harvesters, Hydraulic Motors, Injectors and Ejectors, Marine Propulsion, Metal-Founding, Ordnance, Packing and Storing Vessels, Plows, Projectiles, Seeders and Planters, Sewing-Machines, Sheet-Metal-Ware Making, Steam and Vacuum Pumps, Sugar and Salt, Tobacco, Trees, Plants and Flowers, Type-Writing Machines, Wind-Wheels, and Wire-Working, and the sub-classes of Bale-Band Tighteners, Bale-Ties, Baling, Cane-Mills, Cane-Strippers, Car-Seats, Corn-Husking Implements, Freight-Cars, Tobacco-Driers, and Time-Locks.

DRAWINGS of all patents, from earliest to present date, have been photolithographed, with a few exceptions.

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*Classes 7, Brewing and Fermenting; 36, Electricity; 90, Ore; 121, Distillation; 129, Tanning; 133, Trunks; 158, Metal Ornamentation; and 161, Steam Water Elevators, have been abolished.

CLASSES ALPHABETICALLY ARRANGED.

Number.	Class.	Division.
180	Accouterments	22
181	Acoustics	23
40	Advertising	32
1	Aeration and bottling	32
123	Air and gas engines	28
195	Alcohol	31
203	Ammonia, water, and wood distillation	31
148	Annealing and tempering	3
2	Apparel	24
86	Arms and projectiles. Making	13
166	Artesian and oil wells	25
3	Artificial limbs	20
106	Artificial stone, lime, and cement	15
190	Baggage	22
4	Baths and closets	9
5	Beds	8
6	Bee-culture	2
8	Bleaching and dyeing	6
9	Boats	22
11	Book-binding	5
12	Boots and shoes	11
13	Brakes and gins	21
107	Bread, cracker, and lozenge making	15
14	Bridges	4
15	Brushing and scrubbing	27
16	Builders' hardware	20
17	Butchering	25
18	Caoutchouc and minor plastics	15
19	Carding	21
119	Care of live stock	2
20	Carpentry	29
21	Carriages and wagons	10
59	Chains, staples, and horseshoes	13
175	Chairs	8
202	Charcoal and coke	31
23	Chemicals	6
24	Clasps, buckles, and buttons	11
25	Clay and pottery	15
26	Cloth-finishing	21
192	Clutches	12
96	Coating with metal	3
194	Coin-controlled apparatus	14
154	Composite roofings and coverings	15
193	Conveyers	12
147	Coopering	29
28	Cordage	21
29	Crinoline and corsets	24
156	Curtains, shades, and screens	8
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32	Dentistry	20
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191	Electricity. Electric railways	26
171	Electricity. Generation	26
174	Electricity. Medical and surgical	26
172	Electricity. Motive-power	26
175	Electricity. Special applications	16
176	Electric lighting	16
177	Electric signaling	16
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187	Elevators	12
37	Excavating	4
52	Explosives	6
168	Farriery	14
38	Felt and fur	21
39	Fences	1
71	Fertilizers	6
41	Fine arts	5
42	Firearms	22
159	Fire escapes and ladders	4
169	Fire-extinguishers	9
183	Fireproof buildings	4
43	Fishing and trapping	22
188	Fluid-pressure railway-brakes	28
50	Fluid-pressure regulators	31
44	Fuel	15
45	Furniture	8
46	Games and toys	7
48	Gas	31
49	Glass	15
51	Grinding and polishing	27
53	Hardware-making	13
54	Harness	11
55	Harrows and diggers	1
56	Harvesters	7
149	Hides, skins, and leather	31
57	Hoisting	12
58	Horology	23
60	Hose and belting	11
61	Hydraulic engineering	4
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189	Iron structures	4
63	Jewelry	5
64	Journal-boxes, pulleys, and shafting	12
65	Kitchen and table articles	8
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68	Laundry	27
69	Leather-working machinery	11
199	Linotyping	30
70	Locks and latches	20
184	Lubricators	2
74	Machine elements	12
115	Marine propulsion	22
72	Masonry	4
198	Matrix-making	30
73	Measuring-instruments	23
185	Mechanical motors	12
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10	Metal bolts, nuts, rivets, and screws	13
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205	Metal drawing	3
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22	Metal-founding	3
75	Metallurgy	3
201	Metal ornamenting	14
79	Metal personal wear. Making	14
164	Metal punching and shearing	14
80	Metal-rolling	13
76	Metal tools and implements. Making	13
134	Metal tube manufacture	3
82	Metal turning, planing, and milling	13
206	Metal-welding	3
81	Metal-working tools	14
83	Mills	25
196	Mineral oils	31
84	Music	5
85	Nails and spikes	13
163	Needles and pins	13
151	Nut and bolt locks	14
87	Oils, fats, and glue	31
88	Optics	23
89	Ordnance	22
150	Packing and storing vessels	32
91	Painting	31
92	Paper-making	15
93	Paper-manufactures	17
94	Paving	15
95	Photography	6
97	Plows	1
98	Pneumatics	28
99	Preserving	6
100	Presses	2
101	Printing	17
102	Projectiles	22
103	Pumps	9
105	Railway-cars	10
104	Railways	4
62	Refrigeration	28
108	Roofing	29
109	Safes	20
111	Seeders and planters	1
182	Sewerage	9
112	Sewing-machines	24
207	Shaping fluid metal	3
113	Sheet-metal ware. Making	14
114	Ships	22
116	Signals	22
117	Silk	21
118	Spinning	21
120	Stationery	5
160	Steam and vacuum pumps	18
122	Steam-boilers	18
110	Steam-boiler furnaces	18
121	Steam-engines	18
136	Steam-engine valves	18
125	Stone-working	25
186	Store service	12
126	Stoves and furnaces	19
127	Sugar and salt	6
128	Surgery	30
178	Telegraphy	16
179	Telephony	16
130	Threshing	25

CLASSES ALPHABETICALLY ARRANGED.—Continued.

Number.	Class.	Division.
131	Tobacco	2
132	Toilet	3
200	Towers	4
47	Trees, plants, and flowers	2
197	Type-writing machines	30
135	Umbrellas and canes	8
27	Undertaking	14
146	Vegetable cutters and crushers	20
208	Velocipedes	25
152	Wagon, car, and track irons	7
141	Washing apparatus	13
137	Water-distribution	9
139	Weaving	21
157	Wheelwright-machines	29
170	Wind-wheels	28
140	Wire-working	14
143	Wood-sawing	29
142	Wood-turning	29
144	Wood-working machines	29
145	Wood-working tools	29

CLASSES NUMERICALLY ARRANGED.

Number.	Class.	Division.
1	Aeration and bottling	32
2	Apparel	24
3	Artificial limbs	20
4	Baths and closets	9
5	Beds	8
6	Bee-culture	2
8	Bleaching and dyeing	6
9	Boats	22
10	Metal bolts, nuts, rivets, and screws	13
11	Book-binding	5
12	Boots and shoes	11
13	Brakes and gins	21
14	Bridges	4
15	Brushing and scrubbing	27
16	Builders' hardware	20
17	Butchering	25
18	Caoutchouc and minor plastics	15
19	Carding	21
20	Carpentry	20
21	Carriages and wagons	10
22	Metal-founding	3
23	Chemicals	6
24	Clasps, buckles, and buttons	11
25	Clay and pottery	15
26	Cloth-finishing	21
27	Undertaking	20
28	Cordage	21
29	Crinoline and corsets	24
30	Cutlery	20
31	Dairy	2
32	Dentistry	20
33	Drafting	23
34	Driers	28
35	Educational appliances	31
37	Excavating	4
38	Felt and fur	21
39	Fences	1
40	Advertising	32
41	Fine arts	5
42	Firearms	22
43	Fishing and trapping	22
44	Fuel	15
45	Furniture	8
46	Games and toys	7
47	Trees, plants, and flowers	2
48	Gas	31
49	Glass	15
50	Fluid-pressure regulators	31
51	Grinding and polishing	27
52	Explosives	6
53	Hardware-making	13
54	Harness	11
55	Harrows and diggers	1
56	Harvesters	7
57	Hoisting	12
58	Horology	23
59	Chains, staples, and horseshoes	13
60	Hose and belting	11
61	Hydraulic engineering	4
62	Refrigeration	28
63	Jewelry	5
64	Journal-boxes, pulleys, and shafting	12
65	Kitchen and table articles	8
66	Knitting and netting	21
67	Lamps and gas-fittings	30
68	Laundry	27
69	Leather-working machinery	11
70	Locks and latches	20
71	Fertilizers	6
72	Masonry	4
73	Measuring-instruments	23
74	Machine elements	12
75	Metallurgy	3
76	Metal tools and implements. Making	13
77	Metal boring and drilling	13
78	Metal-forging	13
79	Metal personal wear. Making	14
80	Metal-rolling	13
81	Metal-working tools	14
82	Metal turning, planing, and milling	13
83	Mills	25
84	Music	5
85	Nails and spikes	13
86	Arms and projectiles. Making	13
87	Oils, fats, and glue	31
88	Optics	23
89	Ordnance	22
91	Painting	31
92	Paper-making	15
93	Paper-manufactures	17
94	Paving	15
95	Photography	6
96	Coating with metal	3
97	Plows	1
98	Pneumatics	28
99	Preserving	6
100	Presses	2
101	Printing	17
102	Projectiles	22
103	Pumps	9
104	Railways	4
105	Railway-cars	10
106	Artificial stone, lime, and cement	15
107	Bread, cracker, and lozenge making	15
108	Roofing	20
109	Safes	20
110	Steam-boiler furnaces	18
111	Seeders and planters	1
112	Sewing-machines	24
113	Sheet-metal ware. Making	14
114	Ships	22
115	Marine propulsion	22
116	Signals	22
117	Silk	21
118	Spinning	21
119	Care of live stock	2
120	Stationery	5
121	Steam-engines	18
122	Steam-boilers	18
123	Air and gas engines	23
125	Stone-working	25
126	Stoves and furnaces	19
127	Sugar and salt	6
128	Surgery	20
130	Thrashing	25
131	Tobacco	2
132	Toilet	3
134	Metal tube manufacture	3
135	Umbrellas and canes	8
136	Steam-engine valves	18
137	Water-distribution	9
138	Hydraulic motors	9
139	Weaving	21
140	Wire-working	14
141	Washing apparatus	13
142	Wood-turning	29
143	Wood-sawing	29
144	Wood-working machines	29
145	Wood-working tools	29
146	Vegetable cutters and crushers	20
147	Coopering	29
148	Annealing and tempering	3
149	Hides, skins, and leather	31
150	Packing and storing vessels	32
151	Nut and bolt locks	14
152	Wagon, car, and track irons	13
153	Metal-bending	14
154	Composite roofings and coverings	15
155	Chairs	8
156	Curtains, shades, and screens	8
157	Wheelwright-machines	29
159	Fire-escapes and ladders	4
160	Steam and vacuum pumps	18
162	Injectors and ejectors	18
163	Needles and pins	13
164	Metal punching and shearing	14
165	Designs	34
166	Artesian and oil wells	25
167	Medicines	6
168	Farriery	14
169	Fire-extinguishers	9
170	Wind-wheels	28
171	Electricity. Generation	26
172	Electricity. Motive-power	26
173	Electricity. Conductors	26
174	Electricity. Medical and surgical	26
175	Electricity. Special applications	16
176	Electric lighting	16
177	Electric signaling	16
178	Telegraphy	16
179	Telephony	16
180	Accouterments	22
181	Acoustics	23
182	Sewerage	9
183	Fireproof buildings	4
184	Lubricators	2
185	Mechanical motors	12
186	Store service	12
187	Elevators	12
188	Fluid-pressure railway-brakes	28

CLASSES NEUMERICALLY ARRANGED.—Continued.

Number.	Class.	Division.
189	Iron structures	4
190	Baggage	32
191	Electricity. Electric railways	26
192	Clutches	12
193	Conveyers	12
194	Coin-controlled apparatus	14
195	Alcohol	31
196	Mineral oils	31
197	Type-writing machines	30
198	Matrix-making	30
199	Linotyping	30
200	Towers	4
201	Metal-ornamenting	14
202	Charcoal and coke	31
203	Ammonia, water, and wood distillation	31
204	Electro-chemistry	3
205	Metal-drawing	3
206	Metal-welding	3
207	Shaping fluid metal	3
208	Velocipedes	7

SUB-CLASSES.

CLASS 180.—ACCOUTERMENTS. (XXII.)

Sub-classes.

1. Accouterments.
11. Bayonets, scabbards, and sword-belts.
3. Cartridge boxes and belts.
15. Knapsacks and haversacks.
5. Package-holders.
8. Tents.

CLASS 181.—ACOUSTICS. (XXIII.)

Sub-classes.

1. Audiphones.
2. Ear-trumpets.
4. Graphophones.
6. Graphophone-tablets.
3. Mechanical telephones.
5. Miscellaneous.

CLASS 10.—ADVERTISING. (XXXII.)

Sub-classes.

1. Articles.
75. Card-exhibitors—
76. Droppers,
20. Rotary,
21. Sliding.
3. Card-racks.
22. Change-receivers.
23. Coat-hangers.
24. Counters.
25. Display-box covers.
26. Display-boxes—
27. Sample-holders.
28. Display-cards.
29. Display-racks—
30. Adjustable arm,
31. Enclosed,
32. Hanging,
33. Roll,
34. Rope,
35. Rotary—
36. Enclosed,
37. Sample-sheet—
38. Rotary.
39. Display-stands.
40. Display-trays.
41. Drawer-plates.
42. Dummies.
43. Embroidery-cases.
44. Garment-loops.
8. Indicators—
45. Barbers' turns,
46. Identity,
47. Office,
Indicators—
48. Peg,
49. Rotary,
50. Sliding.
9. Labels.
10. Label-holders.
17. Map-holders.
51. Paper-bag holders.
52. Pattern exhibitors.
13. Show-cases—
53. Cabinet,
54. Revolving,
55. Lid-lifters.
56. Sign-letters.
14. Signs—
57. Automatic figure,
58. Belt,
59. Endless-belt,
60. Guide-post,
61. Illuminated,
62. Interchangeable-letter,
63. Interchangeable-slide,
64. Mechanically-rotated,
65. Rotatable,
66. Street-lamp,
67. Vibrating.
68. Store-shelving.
69. Trousers-hangers.
70. Vending devices—
71. Bins,
72. Grocers' cabinets,
73. Ribbon-holders,
74. Spool-cabinets.

CLASS 1.—AERATION AND BOTTLING. (XXXII.)

Sub-classes.

Beer-dispensing apparatus—
15. Pressure,
16. Service.
3. Capping-machines.
5. Corking and filling.
14. Dispensing-fountains.
7. Gas-generators.
11. Sirup-fountains.
9. Soda-fountains.
10. Soda-water apparatus.

CLASS 123.—AIR AND GAS ENGINES. (XXVIII.)

Sub-classes.

Engines—
1. Air,
2. Caloric,
Engines—
3. Explosive,
4. Gas.

CLASS 195.—ALCOHOL. (XXXI.)

Sub-classes.

1. Beer—
4. Preserving—
5. Pasteurizing.
2. Purifying—
3. Finings and shavings.
6. Distilled spirits—
Aging—
7. Apparatus—
9. Rocking racks.
10. Processes.
11. Apparatus—
12. Stills—
13. Columns,
14. Doublers and worms,
16. Vapor-filters,
15. Rectifying processes.
Fermenting—
17. Apparatus—
18. Vats,
19. Vent-bungs,
20. Processes.
Malting—
21. Apparatus—
22. Cylinders, rotary,
23. Malt-stirrers,
24. Processes.
Mashing—
25. Apparatus—
26. Digesters and disintegrators,
27. Fore-mashers,
28. Mash-tubs—
29. Rakes,
30. Tubular rakes,
31. Hops,
32. Processes,
33. Wort—
34. Hopping,
35. Purifying.
36. Wines.

CLASS 203.—AMMONIA, WATER, AND WOOD-DISTILLATION. (XXXI.)

Sub-classes.

1. Ammonia.
2. Turpentine—
3. Apparatus,
4. Processes.
5. Water.
6. Wood.

CLASS 148.—ANNEALING AND TEMPERING. (III.)

Sub-classes.

13. Annealing apparatus—
14. Boxes and pots,
15. Clamps,
16. Muffles,
17. Ovens—
18. Rotary hearths,
19. Pits,
20. Wire and springs.
21. Annealing processes—
22. Drawing temper,
23. Gas,
24. Toughening.
40. Cementation and case-hardening—
25. Compounds,
26. Gaseous,
27. Liquid.
8. Decarbonizing.
Glass-annealing—
28. Flattening-tables,
29. Hearths,
30. Leers—
31. Grids,
32. Muffles,
33. Processes.
34. Hardening apparatus—
35. Bands and wire,
36. Clamps.
37. Hardening processes—
39. Molten metal,
38. Solutions.
Tempering and annealing—
10. Applications of electricity,
12. Metals other than iron.

CLASS 2.—APPAREL. (XXIV.)

Sub-classes.

34. Armpit-shields.
30. Bonnets.
1. Capes and shawls.
2. Coats and vests.
3. Collars and cuffs.
35. Combination garments.
46. Curling hat-brims.
4. Cutting.
36. Darning-lasts.
5. Diapers.
6. Embroidery-patterns.
37. Garment-protectors.
8. Garters and belts.
9. Gloves.
10. Handkerchiefs.
47. Hat blocking and stretching.
48. Hat-blocks.
49. Hat brushing and finishing.
50. Hat-ironing.
51. Hat-pouncing.
52. Hat-pressing.
31. Hats and caps.
32. Hat-sweats.
33. Hat-ventilators.
38. Muffs and mufflers.
11. Neckties.
28. Needles.
39. Needle-threaders.
40. Nether garments.
13. Pin and needle cases.
14. Pinking.
16. Plaiting.
15. Pockets.
18. Sewing.
41. Shirts.
20. Skirt-elevators.
42. Skirts.
23. Stockings.
22. Stretchers and formers.
43. Supplemental bosoms.
44. Tailoring.
29. Thimbles.
44. Thread holders and cutters.
26. Trimmings.
27. Work-boxes.
45. Work-holders.

CLASS 86.—ARMS AND PROJECTILES, MAKING (XIII.)

Sub-classes.

1. Arms.
2. Bullets and shot.
3. Cannon and ball.
4. Cartridges and caps.
5. Gun-barrels.
7. Rifling.

CLASS 166.—ARTESIAN AND OIL WELLS. (XXV.)

Sub-classes.

1. Casing-heads.
2. Cleaning.
3. Drilling and boring.
4. Drill-jars.
5. Drill-rod grabs.
6. Reamers.
10. Sucker-rods.
7. Tube-clamps.
8. Tubing and packing.
9. Walking-beams.

CLASS 3.—ARTIFICIAL LIMBS. (XX.)

Sub-classes.

1. Arms and hands.
4. Crutches.
2. Fracture apparatus.
3. Legs.

CLASS 106.—ARTIFICIAL STONE, LIME, AND CEMENT. (XV.)

Sub-classes.

1. Composition.
3. Limekilns.
4. Molds.
6. Processes.
5. Plastering—
9. Fiber,
7. Implements,
8. Retarders.

CLASS 190.—BAGGAGE. (XXXII.)

Sub-classes.

1. Camp and lunch kits.
2. Canteens and flasks.
3. Hat and fur cases.
4. Musicians' cases.
7. Traveling-bags.
5. Trunks.
6. Trunks, convertible.

CLASS 4.—BATHS AND CLOSETS. (IX.)

Sub-classes.

1. Basins and stands.
2. Bathing apparatus.
19. Bed-pans.
5. Closet-cisterns.
20. Dry closets.
11. Sinks and traps.
12. Urinals.
13. Vapor-baths.
Water-closets—
16. Plunger,
Water-closets—
22. Siphon,
17. Valved.
23. Washout.
18. Water-closet attachments.
15. Water-closet valves.
21. Water-closet and sewer ventilation.

CLASS 5.—BEDS. (VIII.)

Sub-classes.

Beds—
1. Air,
5. Camp.
Bed-bottoms—
23. Folding,
24. of cords,
25. of slats,
26. of slats and springs,
29. of springs,
19. of wire and other fabrics.
3. Bed-clothing.
4. Bedsteads—
8. Extension,
9. Folding,
12. Invalid,
16. Sofa,
17. Table,
18. Wardrobe-bedsteads—
34. Extension.
Wardrobe-bedsteads—
35. Sectional, center-folding,
36. Sectional, end-folding,
37. Single-frame,
38. Sliding-frame.
22. Clothes-clamps.
6. Cording and fastenings.
7. Crib attachments.
20. Cribs and cradles.
10. Hammocks—
30. Hooks,
31. Stretchers,
32. Supports.
11. Head-sections.
13. Mattresses.
14. Mosquito-nets and canopies.
15. Pillows.
33. Pillow-sham holders.
21. Springs.

CLASS 6.—BEE-CULTURE. (II.)

Sub-classes.

1. Bee-hives.
2. Hive appliances.

CLASS 8.—BLEACHING AND DYEING. (VI.)

Sub-classes.

16. Apron vats and stretchers.
2. Bleaching.
1. Carbon dyes.
5. Dyeing processes.
6. Dyes.
13. Mordants.
17. Perforated rolls and spray-jets.
7. Press-dyeing.
8. Renovating dress.
18. Vats. Close
19. Vats. Open
15. Steam and bleach chests
12. Wool-cleaning.

CLASS 9.—BOATS. (XXII.)

Sub-classes.

1. Boat hooks and fenders.
2. Building.
3. Buoys and safes.
4. Detaching, hoisting, and lowering.
5. Life boats and rafts.
6. Life-preservers.
7. Oars and oar-locks.
8. Rafting and booming.
9. Sectional and folding.
10. Swimming appliances.

CLASS 11.—BOOK-BINDING. (V.)

Sub-classes.

1. Albums.
13. Bank-notes, checks, and bonds.
2. Binding-machines.
3. Books and covers.
4. Book-cover protectors.
5. Book-cutting.
12. Book-leafholders and marks.
6. Book-stapling.
7. Indexing.
9. Newspaper-files.
14. Postage and revenue stamps.
10. Temporary binders.
15. Tickets.
11. Writing-tablets.

CLASS 12.—BOOTS AND SHOES. (XI.)

Sub-classes.

2. Boot-jacks.
30. Boot-treeing machines.
3. Boot-trees.
4. Burnishing.
24. Channeling-machines.
5. Crimping.
6. Edge-planes and shaves.
32. Hand nailing implements.
34. Heel-machines.
33. Heel-nailing machines.
29. Heel-stiffener machines.
7. Heels.
8. Ice-creepers.
9. Lasts.
10. Lasting-machines.
23. Lasting and lasting tools.
31. Peg-floats.
11. Pegs.
12. Pegging-jacks.
13. Pegging-machines. Nails and pegs—
35. Wire.
14. Rubber.
15. Shanks and machines.
16. Shoe-fastenings.
17. Soles.
18. Sole and heel trimming machines.
19. Sole-machines.
26. Sole and heel plates.
20. Tips and stiffeners.
21. Tools.
22. Uppers.
23. Upper-machines.

CLASS 13.—BRAKES AND GINS. (XXI.)

Sub-classes.

10. Delinting cotton-seed.
1. Gin attachments.
11. Gin-brushes.
17. Gin-condensers.
12. Gin-feeders—
19. Pneumatic.
13. Gin-ribs.
20. Gin-rollers.
14. Gin-saws.
15. Gin-saw cleaners.
2. Hackling-machines.
3. Hair-pickers.
4. Oakum-machines.
5. Processes.
6. Reciprocating brakes.
7. Roller-gins.
Rotary brakes—
16. Breakers and crushers,
17. Rotary brakes.
18. Scutchers.
9. Saw-gins.

CLASS 107.—BREAD, CRACKER, AND LOZENGE MAKING. (XV.)

Sub-classes.

1. Bread and cracker machines.
3. Cake-cutters.
9. Confectionery-machines.
6. Lozenge-machines.
4. Mixers and kneaders.
2. Pastry-boards.
7. Pie crimpers and trimmers.
8. Rolling-pins.

CLASS 14.—BRIDGES. (IV.)

Sub-classes.

Bridges—
7. Arch.
12. Bowstring.
1. Draw—
9. Gates,
8. Floating,
Bridges—
5. Suspension,
6. Truss.
2. Ferry-guards.
11. Flooring.
4. Piers.

CLASS 15.—BRUSHING AND SCRUBBING. (XXVII.)

Sub-classes.

1. Blacking box and brush cases.
18. Blacking-box holders.
61. Boot-blacking machines.
2. Boot-cleaners.
4. Broom-machines.
Brooms—
19. Broom-heads,
20. Household,
21. Stable and yard,
22. Whisk.
23. Brush and broom bridles—
24. Handles,
6. Supports.
25. Brush-cleaners.
Brush heads and faces—
26. Bath and flesh brushes,
27. Brush and broom fiber,
28. Dusting-brushes,
29. Hair-brushes,
30. Hat and clothes brushes,
31. Horse-brushes,
32. Metal-cleaning brushes,
33. Metallic tuft-fasteners,
34. Molds and molded backs,
35. Nail-brushes,
36. Paint and whitewash brushes,
37. Rotary brushes,
13. Scrubbers,
38. Shaving-brushes,
39. Tooth-brushes.
7. Brush-machines.
40. Brush-trimming machines.
8. Carpet-cleaners.
60. Carpet-sweepers.
Chimney-cleaners—
41. Flue and stove-pipe,
42. Lamp.
43. Combined mop heads and wringers.
44. Combined scrubbers and mops.
45. Dressing and assorting machines.
Fountain-brushes—
46. Blacking,
47. Broom,
48. Hair,
49. Paint.
51. Scrubbers,
50. Shaving,
52. Tooth,
53. Window-cleaners.
Holders—
54. Brush-head,
55. Convertible mop and brush,
56. Mop-heads.
57. Mops.
12. Mop-wringers.
14. Scrubbing machines—
15. Palls.
58. Shoe-blacking stands.
16. Shoe-brushes.
17. Street-sweepers.
59. Window-cleaners.

CLASS 16.—BUILDERS' HARDWARE. (XX.)

Sub-classes.

1. Blind-stops.
2. Bolts.
3. Carpet-fasteners.
4. Casters—
45. Ball,
21. Sewing-machine.
6. Door-checks—
46. Checks and closers. Pneumatic
47. Closers. Gravitating
7. Hangers,
8. Securers,
9. Springs.
10. Handles.
11. Hinges—
48. Awning-blind,
5. Coach,
49. Gate,
12. Lock,
14. Safe,
25. Spring,
27. Table.
50. Nail-heads. Ornamental
15. Sash balances—
18. Fasteners—
51. Mid-rail,
52. Right-angle,
53. Sash-lifts.
19. Holders—
54. Roller-bearing.
20. Weights.
16. Sash-cord fasteners—
17. Guides.
22. Shutter-bowers—
23. Fasteners—
55. Combined sash,
56. Fire,
24. Workers—
57. Combined slat.
26. Stair-rods and securers.
37. Till-alarms.
28. Transom-lifters.
29. Window-head fasteners.
30. Window and door buttons—
58. Automatic,
59. Trippers.

CLASS 17.—BUTCHERING. (XXV.)

Sub-classes.

8. Butchers' stalls.
9. Chopping-blocks.
Dressing—
10. Fish-dressing machines,
11. Hog-scraping machines,
12. Intestine-cleaners,
13. Skinning.
14. Meat clamps—
15. Hooks.
Meat-cutters—
16. Cracklings,
17. Crank mechanism,
18. Cubs,
19. Cylinder and block,
20. Cylinder and concave,
Meat-cutters—
21. Double-cylinder,
22. Hand,
23. Rocking-knife,
24. Slicers,
25. Trip mechanism.
26. Meat-mixers.
Meat-tenderers—
27. Hand,
28. Pivoted-head,
29. Rotary.
6. Sausage-machines.
7. Scalding and singeing.
30. Slaughtering, elevating, and suspending.

CLASS 18.—CAOUTCHOUC AND MINOR PLASTICS. (XV.)

Sub-classes.

Articles—
22. Caoutchouc,
23. Minor plastics.
1. Artificial ivory.
16. Button machines and dies.
3. Celluloid.
15. Coating and embossing moldings.
19. Compositions.
14. Crayon-holders.
4. Fabrics.
18. Fibrous compositions.

CLASS 15—CAOUTCHOUC, &c.—Continued.

5. Hard rubber.
17. Insulating compounds.
6. Machines for coating.
13. Molding devices.
12. Pill-machines.
20. Processes.
8. Soft rubber.
9. Vulcanizing apparatus.
10. Vulcanized fiber.

CLASS 19.—CARDING. (XXI.)

Sub-classes.

16. Balling-heads.
1. Burring.
2. Card-clothing.
3. Carding.
5. Coilers.
17. Comb-dabbing mechanism.
6. Combing—
24. Circle-combs.
12. Covering yarn.
22. Cylinders and rollers.
18. Dust-trunks.
7. Feeding-cards.
13. Fleece dividers and condensers.
14. Fleece-removers.
8. Lapping.
19. Opener-beaters.
20. Opener-evening mechanism.
9. Pickers.
21. Screens.
15. Stripping mechanism.
23. Traveling-flat cards.
10. Wadding.
11. Wool oiling.

CLASS 119.—CARE OF LIVE STOCK. (II.)

Sub-classes.

Animal-stocks—
14. Hog-traps,
15. Horse and cattle,
16. Sheep.
46. Bird cages and houses.
17. Catching and holding tools.
48. Currycombs.
47. Gags and muzzles.
18. Gangways.
3. Grooming.
49. Hitching-posts and ties.
51. Hopples.
4. Incubators.
54. Manure-pouches.
13. Nose-rings and ringing-tools.
12. Pokes.
5. Poultry-culture.
19. Sheep-protectors.
9. Stanchions.
Steading and feeding—
20. Calf-feeders.
21. Combined troughs and racks.
22. Feed-racks.
23. Feed troughs.
52. Nose-bags.
24. Releasing devices.
25. Stall-floors.
26. Stalls, sheds, and pens.
53. Stock-cars.
27. Stock-sorters.
50. Tethers.

CLASS 20.—CARPENTRY. (XXIX.)

Sub-classes.

53. Ceiling center-pieces.
34. Compound lumber.
54. Corner-shields.
2. Doors—
23. Car,
51. Grain,
55. Metallic,
24. Sliding.
56. Door and window frames.
3. Door-operating device.
32. Drip-troughs.
4. Floors.
5. Frame houses.
9. Lathing—
42. Metallic,
52. Wire.
57. Mantels.
10. Marquetry.
29. Mats—
67. Metallic,
43. Wire,
26. Moldings.
58. Panels and wainscoting.
11. Portable houses.
59. Scaffold-binders.
12. Scaffolds—
28. Bracket,
60. Trestle.
13. Shingling-brackets.
14. Shutters—
30. Fireproof,
61. Metallic,
44. Sliding,
45. Swinging.
15. Skylights.
33. Splices and joints.
17. Stairs.
18. Stair-covers.
31. Thresholds
62. Voting-booths
63. Weather-boarding.
Weather-strips—
35. Hinged—
37. Sills,
38. Packing,
36. Sliding.
Window—
46. Chairs,
40. Guards,
47. Sashes—
48. Sliding,
50. Sliding and swinging,
49. Swinging.
20. Windows—
64. Car,
65. Metallic.
66. Wooden walls.

CLASS 21.—CARRIAGES AND WAGONS. (X.)

Sub-classes.

1. Ambulances.
2. Axle-boxes.
4. Axle-skeins.
5. Axles.
7. Bodies.
10. Brake-levers.
8. Brakes—
9. Automatic.
11. Carriage-irons.
12. Children's carriages.
13. Clips.
14. Close carriages.
15. Dash-boards.
17. Doors.
19. Drays.
20. Dumping-wagons.
21. End-gates.
22. Felloes.
23. Fenders.
24. Fifth-wheels.
26. Hearses.
27. Holdbacks.
28. Hose-carriages.
29. Hounds.
30. Hub-attaching devices.
31. Hubs.
32. King-bolts.
33. Lumber-wagons.
36. Poles and shafts.
38. Road-engines.
39. Running-gear.
40. Sand-bands.
41. Seat-locks.
42. Seats—
43. Shifting,
44. Spring.
45. Shifting-rails.
46. Sled-brakes.
47. Sled-propellers.
48. Sleds.
49. Spoke-sockets.
50. Springs—
51. Platform,
52. Side,
53. Torsion.
54. Standards.
55. Steps.
56. Sulkies.
57. Thill-couplings.
58. Tires.
59. Tire-tighteners.
63. Tongue-supports.
60. Top-joints.
61. Top-props.
62. Tops.
64. Traction-wheels.
65. Trucks.
68. Wheelbarrows.
69. Wheels.
73. Windows.

CLASS 59.—CHAINS, STAPLES, AND HORSESHOES. (XIII.)

Sub-classes.

1. Chains.
2. Chain and link making.
4. Horseshoe-bars. Making
5. Horseshoe-calks. Making
6. Horseshoe-machines.
7. Staples.
8. Staples. Making

CLASS 155.—CHAIRS. (VIII.)

Sub-classes.

3. Chairs—
26. Attachments,
27. Adjustable backs,
28. Adjustable backs and seats,
29. Backs and seats independently adjustable,
4. Bottoms,
6. Convertible,
7. Dentists',
8. Folding—
30. Adjustable,
11. Invalid,
12. Nursery,
13. Opera,
16. Reclining,
18. Rocking—
31. Platform,
Chairs—
21. Step-ladder,
23. Surgical,
24. Tilting.
33. Pads and feet.
Rests—
9. Foot,
10. Head.
34. School seats and desks.
Seats—
2. Car,
5. Circus,
25. Spring.
19. Settees.
20. Sofas.
22. Stools and seats.
32. Stools. Folding
35. Swings.

CLASS 202.—CHARCOAL AND COKE. (XXXI.)

Sub-classes.

1. Charcoal—
10. Kilns.
2. Processes.
3. Retorts.
Coke—
4. Ovens—
5. Chargers and dischargers.
Coke—
Ovens—
6. Doors.
7. Dumping-bottoms.
8. Processes.
9. Retort-ovens.

CLASS 23.—CHEMICALS. (VI.)

Sub-classes.

1. Acids. Mineral
21. Ammonia.
3. Apparatus.
24. Carbon compounds, not dyes. Contains chiefly vinegar, salicylic acid, and other organic acids.
5. Fire-extinguishing compounds.
10. Metalloids. Embraces non-illuminating gases, sulphur, and phosphorus
11. Packing chemicals.
26. Purifying water.
13. Salines.
22. Soda and potash.

CLASS 24.—CLASPS, BUCKLES, AND BUTTONS. (XI.)

Sub-classes.

26. Baggage-checks.
28. Buckles and snap-hooks combined.
1. Buckles—
27. Personal wear.
2. Buttons—
25. Hinged shoe,
21. Separable.
3. Buttoners.
4. Button-fasteners.
34. Button-making machines.
5. Button-setting machines.
29. Button-setting tools.
6. Clasps.
31. Corset-fasteners.
24. Cuff-holders.
7. Eyelets.
8. Eyeleting-machines.
25. Garment-supporters.
30. Glove-fastenings.
9. Hooks.
10. Hooks and eyes.
33. Napkin-supporters.
11. Necktie-fasteners.
13. Paper-fasteners.
14. Punches.
32. Ribbon-clasps.
15. Rings.
16. Safety attachments.
17. Snap-hooks.
20. Suspenders.
18. Tags and tag-fasteners.
19. Ticket-clasps.

CLASS 25.—CLAY AND POTTERY. (XV.)

Sub-classes.

1. Bricks.
2. Brick-kilns.
Brick-machines—
4. Reciprocating,
3. Rotary,
5. Screw.
6. Brick-molds.
8. Drain-tiles.
9. Paving-tiles.
10. Pottery articles.
11. Pottery-kilns.
12. Pottery-machines.
13. Pug-mills, clay-mills, and mortar-mixers.
16. Sarcophagi
17. Tile-machines.

CLASS 26.—CLOTH-FINISHING. (XXI.)

Sub-classes.

10. Beetling.
11. Calendering.
9. Cutting lace and looped fabrics.
1. Drying.
2. Finishing.
12. Finishing cut pile fabrics.
3. Folding—
18. Guiding.
4. Napping.
5. Pressing.
13. Rigging.
6. Shearing.
14. Singeing.
15. Sizing.
7. Sponging.
8. Stretching.
16. Stretching and drying.
17. Winding.

CLASS 192.—CLUTCHES. (XII.)

Sub-classes.

1. Clutches.
2. Eccentric or wedge.
3. Expansible segment.
18. Fluid.
4. Frictional and positive.
15. Intermittent grip—
16. Strap and dog or ball;
17. Ratchet.
5. Lever-shoe.
6. Locking-pawl.
7. Longitudinally-movable, double-face.
8. Longitudinally-movable, single-face.
9. Longitudinally-movable, with projections.
19. Magnetic.
10. Multiple-disk.
11. Radially-movable shoes.
12. Radially-movable shoes, opposing.
13. Split-ring.
14. Strap.

CLASS 96.—COATING WITH METAL. (III.)

Sub-classes.

2. Galvanizing.
9. Iron oxides.
11. Pickling and swilling.
8. Precipitating.
7. Tinning.
10. Wipers.

CLASS 194.—COIN-CONTROLLED APPARATUS. (XIV.)

Sub-classes.

1. Article-delivery—
2. Oscillatory,
3. Rotatory—
4. Sheet-feed,
5. Slidable pusher, coin-engaged,
6. Slidable pusher, detent,
7. Slidable pusher, detent and handle.
8. Door and turnstile locks.
9. Exhibitors, movable-object.
10. Exhibitors, surface.
11. Fluid-delivery.
12. Fraud-preventives.
13. Height-measurers.
14. Induction-coils.
15. Loan-receptacles.
16. Miscellaneous.
17. Phonographs.
18. Photographic.
19. Race-courses.
25. Telephones.
20. Testers—
21. Lung.
22. Strike.
23. Weighing—
24. Recorders.

CLASS 154.—COMPOSITE ROOFINGS AND COVERINGS. (XV.)

Sub-classes.

1. Apparatus.
4. Boiler-coverings.
2. Composition.
3. Felt.

CLASS 193.—CONVEYERS. (XII.)

Sub-classes.

1. Conveyers.
2. Endless—
3. Adjustable leg;
4. Belt;
5. Boot;
6. Buckets;
7. Buckets, with traction-rollers;
8. Flights;
9. Hooks.
10. Pneumatic.
11. Reciprocating.
12. Retransfer and weighing.
13. Screw.
20. Store-house.
14. Thrasher attachments—
15. Foldable;
16. Laterally and vertically adjustable;
17. Oscillatory;
18. Vertically-adjustable.
19. Trimmers.

CLASS 147.—COOPERING. (XXIX.)

Sub-classes.

1. Barrel-head making.
2. Barrel-hoop machines.
3. Barrel-making machines.
4. Basket-making machines.
5. Box-machines.
11. Coiling.
12. Crozing barrels.
6. Crozing staves.
13. Hoop-drivers.
8. Jointing staves.
10. Wooden articles.

Sub-Classes in Coopering, with Explanatory Notes.

1. BARREL-HEAD MAKING. The wood is held in a clamp and cut to disk form, usually with beveled edges, by a saw or cutter. The clamp revolves or cutter moves around it.

2. BARREL-HOOP MACHINES. For dressing or cutting wooden hoops by saws, or by rotary or reciprocating cutters, including mechanism for forming the taper or bevel of hoops.

3. BARREL-MAKING MACHINES. For assembling the barrel.

4. BASKET-MAKING MACHINES. For building up splints about a former.

5. BOX-MACHINES. For making pill-boxes, &c., by forming the box upon the stock by means of cutters, and then severing the box from the block.

11. COILING. Coiling hoops or veneers, usually about a collapsible former.

12. CROZING BARRELS. Machines for cutting the croze after the barrel is set up.

6. CROZING STAVES. Machines for cutting the croze in staves or blanks.

13. HOOP-DRIVERS. Machines for trussing and evening barrels.

8. JOINTING STAVES. Machines for producing the bevel on bulged staves.

10. WOODEN ARTICLES. Miscellaneous small articles of wood.

CLASS 28.—CORDAGE. (XXI.)

Sub-classes.

23. Balls.
2. Banding.
3. Bobbin-supporters.
4. Braiding.
24. Braiding-carriers.
25. Braids.
21. Cord and rope machines.
5. Cords and ropes.
6. Covering cord.
26. Drying.
7. Finishing yarn and thread.
27. Fuse and packing machines.
28. Gassing and smoothing.
29. Lease-formers.
9. Packaging braid and yarn.
10. Reels.
11. Separating rope.
12. Spools.
13. Tassels.
14. Warping.
30. Warping-reels.
31. Warp-stop motions.
32. Winding-balls.
Winding-bobbins—
17. Sewing-machine shuttle.
15. Warp-wind,
16. Weft-wind.
22. Winding-heddle and seine-needles.
18. Winding-spools.
19. Winding tatting-shuttles.
20. Yarn guides and clearers.

CLASS 29.—CRINOLINE AND CORSETS. (XXIV.)

Sub-classes.

1. Bustles.
3. Corsets.
4. Hoops and clasps.
5. Hoop-skirts.
6. Pads.
10. Shoulder-braces.
7. Skirt-machines.
9. Stays.
8. Underwaists.

CLASS 156.—CURTAINS, SHADES, AND SCREENS. (VIII.)

Sub-classes.

15. Awnings.
1. Carriage-curtain fastenings.
2. Curtain-cord holders.
18. Curtain—
19. Poles,
20. Poles and rings,
22. Pole-supports,
21. Rings and pins,
5. Tassels.
16. Flexible blinds.
6. Friction-rollers.
8. Ratchet and pawl.
23. Shade and curtain hangers.
Shade—
24. Brackets,
25. Fastenings,
26. Guides,
27. Hangers, vertically-adjustable,
28. Raisers,
29. Rollers,
30. Rollers, dropping,
31. Sticks.
9. Spring-rollers.
17. Venetian blinds.
13. Window-cornices—
14. Screens,
10. Shades.

CLASS 30.—CUTLERY. (XX.)

Sub-classes.

1. Animal-shears.
2. Buttonhole cutters.
3. Can-openers.
16. Envelope-openers.
21. Fork-guards.
5. Forks.
22. Forks and spoons. Solid
9. Knives—
20. Gage,
Knives—
8. Hay,
10. Pocket.
11. Pruning implements.
12. Razors.
13. Scissors and shears.
14. Twine-cutters.
15. Wick-trimmers.
17. Wire-shears.

CLASS 31.—DAIRY. (II.)

Sub-classes.

Butter and cheese—
24. Cutters,
23. Manufacture of.
25. Butter workers and molds.
20. Centrifugal creamers.
21. Cheese-hoops.
26. Cheese-turners.
22. Cheese-vats and curd-breakers.
7. Churns—
9. Double-acting,
Reciprocating,
Crank mechanism—
29. Multiple-dasher,
30. Single-dasher,
31. Combined lever and crank mechanism,
32. Foot mechanism,
33. Hand and foot mechanism,
Lever mechanism—
34. Multiple-dasher,
35. Single-dasher,
36. Rocking-seat mechanism,
37. Without operating mechanism,
Rotary—
38. Diagonal-dasher,
Churns—
Rotary—
39. Horizontal single-dasher,
Horizontal double-dasher—
40. Concentric shafts,
41. Parallel shafts,
42. Vertical single-dasher,
Vertical double-dasher—
43. Concentric shafts,
44. Parallel shafts,
17. Vibrating,
18. Working body.
8. Cow-milkers.
27. Cream-pumps.
63. Drink-mixers.
57. Egg-beaters—
61. Reciprocating,
59. Rotary multiple-dasher—
58. Single-dasher,
60. Vibrating.
Milk-coolers—
45. Aerating.
46. Creaming-cans—
47. Agitators,
48. Depending-tube,
49. Floats,
50. Vacuum creamers,

CLASS 31.—DAIRY. (II.)—Continued.

Milk-coolers—
Creaming-cans—
51. Vertical-tube,
52. Milk-circulation,
53. Vats—
54. Air-circulation,
55. Horizontal-tube,
Milk-coolers—
Vats—
56. Removable-pipe.
13. Milk-stools.
14. Pails and strainers.
28. Tables and racks.

CLASS 32.—DENTISTRY. (XX.)

Sub-classes.

1. Articulators.
12. Bridge-work.
13. Disks and holders.
14. Engines.
3. Foil-condensers.
15. Hand pieces—
11. Angle attachments.
17. Matrices.
16. Jaw-braces.
4. Mechanical.
5. Miscellaneous.
6. Molds.
7. Operative.
8. Pluggers—
18. Air-pluggers.
19. Regulators and spacers.
20. Rubber-dam clamps.
9. Teeth.
10. Tools.

CLASS 165.—DESIGNS. (XXIV.)

The sub-classes conform as nearly as possible to those of the mechanical classes.

CLASS 33.—DRAFTING. (XXIII.)

Sub-classes.

13. Beam-compasses.
1. Callpers and dividers.
2. Curve-scribers.
5. Ellipsographs.
6. Pantographs.
7. Parallel-rulers.
8. Plotters.
12. Protractors.
9. Scribers.
10. Stair-curves.
14. T-squares.

CLASS 34.—DRIERS. (XXVIII.)

Sub-classes.

13. Coffee-roasters.
Driers—
1. Fruit,
12. Glue,
4. Grain,
5. Lumber,
6. Malt,
7. Meal,
8. Paper,
10. Tobacco,
11. Wool.
2. Feather-renovators.
14. Gravel-heaters.
9. Smoke-houses.

CLASS 35.—EDUCATIONAL APPLIANCES. (XXXI.)

Sub classes.

1. Alphabet-blocks.
2. Arithmetic.
3. Astronomy.
15. Blackboards.
13. Cryptography.
5. Globes.
6. Maps.
12. Miscellaneous.
8. Penmanship.
9. Reading.
10. Slates.
14. Slate-mufflers.

CLASS 173.—ELECTRICITY. CONDUCTORS. (XXVI.)

Sub-classes.

13. Conductors—
94. Lead-covered,
70. Underground.
14. Connectors.
28. Insulators.
31. Lightning-rods.
43. Rheostats.

CLASS 191.—ELECTRICITY. ELECTRIC RAILWAYS. (XXVI.)

Sub-classes.

1. Conductor supports and insulators.
2. Electric locomotives.
3. Systems—
4. Battery.
7. Circuits, Multiple-arc,
8. Circuits, Series,
6. Closed conduit,
Systems—
5. Conduit,
9. Converter,
10. Double,
11. Overhead—
12. Trolleys,
13. Telpher—
14. Solenoid.

CLASS 171.—ELECTRICITY. GENERATION. (XXVI.)

Sub-classes.

Batteries—
73. Thermal.
23. Friction-generators.
95. Galvanometers.
Inductoriums—
122. Induction-coils.
123. Transformers, Rotary,
124. Transformers, Stationary.
33. Magneto-electric—
118. Connecting devices,
76. Hand-machines.
34. Meters.
125. Pyro-magneto-electric devices.
40. Regulators—
119. Alternating.
97. Systems of distribution.

CLASS 174.—ELECTRICITY. MEDICAL AND SURGICAL. (XXVI.)

Sub-classes.

87. Baths.
88. Body-wear.
89. Electrodes.
177. Medical and surgical—
172. Chairs and couches.
Medical and surgical—
173. Combs and brushes.
174. Electric soles.
175. Exercising apparatus.
170. Vaporizers.

CLASS 172.—ELECTRICITY. MOTIVE-POWER. (XXVI.)

Sub-classes.

9. Car-brakes.
15. Dental instruments.
152. Elevators.
36. Motors—
120. Alternating,
Motors—
179. Hand-operating devices.
126. Reciprocating.
8. Steering and propulsion.
83. Transmission of power.

CLASS 175.—ELECTRICITY. SPECIAL APPLICATIONS. (XVI.)

Sub-classes.

4. Applications, General.
181. Demagnetizing.
21. Electro-magnets.
Igniting devices—
115. Automatic,
117. Inductional,
Igniting devices—
116. Manual,
91. Portable.
168. Metal working.
182. Ore-detectors.
183. Testing.

CLASS 176.—ELECTRIC LIGHTING. (XVI.)

Sub-classes.

Cut-outs—
80. Electro-magnetic,
79. Mechanical,
154. Oscillating snap,
178. Oscillating spring,
155. Rotary,
156. Sliding,
78. Thermal.
Lights—
Arc—
104. Gravity-feed—
105. Clutch,
106. Gear-clutch,
107. Positive-feed—
108. Clutch,
109. Gear-clutch,
Lights—
142. Special features,
110. Arc and incandescent—
111. Non-feeding,
180. Ceiling-block,
102. Filaments and carbons,
Incandescent—
113. Special features,
98. Sockets and keys,
Systems—
166. Automatic-regulation,
129. Car,
167. Hand-regulation,
130. Secondary-battery,
131. Test.

CLASS 177.—ELECTRIC SIGNALING. (XVI.)

Sub-classes.

1. Alarms—
2. Burglar.
3. Annunciators—
139. Drop,
157. Drop system,
140. Step-by-step,
158. Time.
7. Bells.
26. Indicators—
159. Station.
38. Railway—
147. Block,
146. Block systems,
148. Cab—
149. Sectional rail,
150. Sectional rail,
151. Track instruments.
39. Recorders.

CLASS 204.—ELECTRO-CHEMISTRY. (III.)

Sub-classes.

Batteries—
98. Primary,
29. Secondary.
30. Charging and discharging.
22. Bleaching.
Electrolysis—
1. Aqueous bath—
2. Alloys,
3. Aluminium,
4. Anodes,
5. Apparatus,
6. Cathodes—
7. Cleaning,
8. Metallizing,
9. Chemicals,
10. Copper,
11. Depolarizing and burnishing,
Electrolysis—
Aqueous bath—
12. Gold,
13. Multiple,
14. Nickel,
15. Ores,
16. Silver,
17. Tin,
18. Zinc.
19. Fused bath—
20. Aluminium,
21. Sodium.
23. Ozone.
24. Purifying liquids—
26. Alcohol.
25. Water,
27. Tanning.

CLASS 187.—ELEVATORS. (XII.)

Sub-classes.

2. Controllers.
3. Dumb-waiters.
1. Elevators.
4. Hatchways.
5. Hod.
6. Indicators.
7. Lazy-tongs.
8. Safety devices.
9. Screw.

CLASS 37.—EXCAVATING. (IV.)

Sub-classes.

11. Diggers.
Dredgers—
18. Anchoring,
14. Clamshell—
30. Buckets.
13. Scouring—
36. Hydraulic.
2. Earth-augers—
37. Bits,
38. With carrier.
Excavators—
24. Chain and buckets—
23. Buckets,
16. Dipper,
9. Hydraulic,
25. Plow and carrier,
10. Rammers,
26. Screw—
27. And carrier.
Excavators—
17. Wheel—
28. And belt,
29. And carrier.
39. Miscellaneous.
40. Scoops—
41. Railway-side.
5. Scrapers—
19. Distant power,
42. Railway-side,
43. Sledded,
7. Wheeled.
6. Self-loading carts—
32. Carrier,
33. Scoop,
34. Wheel.
35. Snow-road machines.
20. Treating quicksands.

CLASS 52.—EXPLOSIVES. (VI.)

Sub-classes.

1. Blasting-powder.
2. Fulminates.
4. Gunpowder.
5. Matches.
3. Nitro compounds.
6. Pyrotechnic compounds.

CLASS 168.—FARRIERY. (XIV.)

Sub-classes.

1. Calk-sharpeners.
2. Hoof and shoe spreaders.
3. Hoof cleaners and trimmers.
5. Hoof-pads.
6. Shoes.
7. Shoe-nail clinchers.
8. Shoeing-stands.
9. Toe-weights.

CLASS 38.—FELT AND FUR. (XXII.)

Sub-classes.

7. Fabrics.
8. Felting-machines.
9. Flock-cutting.
10. Forming hats.
11. Fulling.
12. Furs and pelts.

CLASS 39.—FENCES. (I.)

Sub-classes.

2. Fence-posts.
3. Fences—
1. Barbed,
4. Flood,
6. Iron,
9. Wire.
5. Gates—
15. Compound,
21. Expanding,
34. Dropping,
22. Jump,
43. Oscillating,
11. Railway—
42. Cattle-guard,
38. Electric,
36. Mast—
35. Automatic,
41. Platform-guard,
37. Pneumatic,
39. Rocking,
44. Sliding,
43. Swinging,
40. Vertically-moving,
7. Sliding—
29. Lever-openers,
28. Pulley or rack openers,
30. Suspended,
31. Vibrating tracks,
32. Sliding and swinging—
33. Hinged-roller,
34. Suspending frames,
8. Swinging—
18. Folding-panel,
Gates—
Swinging—
14. Hand-openers,
20. Load-openers,
17. Rotary,
16. Self-closers,
25. Tilting,
19. Vertically-adjustable,
13. Tilting—
26. Folding-panel,
12. Wire fasteners.
45. Wire-stretchers. Permanent—
46. Compensators,
47. Mid-wire take-up,
48. Path-closers,
49. Post-winders,
50. Vertical.
51. Wire-stretchers. Removable—
52. Clutch-bars,
53. Grips,
54. Levers—
55. Attached,
56. Loopers,
57. Rack-bars,
58. Ratchet-bars,
59. Reel-carriers,
60. Screw,
61. Tongs,
62. Twin-hooks,
63. Windlasses.

CLASS 71.—FERTILIZERS. (VI.)

Sub-classes.

1. Apparatus.
9. Compositions.
6. Organic.
7. Phosphates.
8. Sewage and night-soil.

CLASS 41.—FINE ARTS. (V.)

Sub classes.

2. Artificial flowers.
1. Artists' appliances.
19. Badges.
3. Banners and flags.
4. Canvas-stretchers.
5. Decorative painting.
6. Drawing-boards.
7. Easels.
9. Engraving and tools.
8. Engraving-machines.
10. Gilding. Leaf-
12. Medals.
21. Metal ornamentation.
13. Ornamenting cloth.
15. Pictures.
14. Picture-frames.
20. Picture-supports.
16. Sculpture.
17. Theater appliances.
18. Transfers.

CLASS 42.—FIREARMS. (XXII.)

Sub-classes.

25. Ball-traps.
3. Bayonets.
5. Bows and cross-bows.
8. Catapults.
26. Electrical appliances.
Guns—
1. Air and spring,
4. Blow.
6. Breech-loading—
A. Barrel sliding forward.
B. Barrel tilting up at breech,
C. Barrel tilting up at muzzle.
D. Barrel hinged to stock,
E. Barrel swinging laterally on vertical pin.
F. Barrel rotating on parallel pin.
H. Breech-block drawn back by hand or lever, (bolt-gun.)
Guns—
Breech-loading—
I. Breech-block swinging upward and forward.
J. Breech-block swinging laterally forward,
K. Breech-block swinging backward and downward,
L. Breech-block swinging on center or trunnions,
M. Breech-block swinging upward and backward,
N. Breech-block swinging laterally backward.
O. Breech-block swinging downward and backward,
P. Breech-block swinging on longitudinal pin or hinge,

CLASS 42.—Continued.

Guns—
Breech-loading—
Q. Breech-block sliding vertically in mortise,
R. Breech-block sliding laterally in mortise,
S. Faucet breech-block, chambered,
T. Faucet breech-block with chamber in front,
U. Rotating sleeve on barrel,
V. Gas-operated,
W. Recoil-operated,
7. Cane,
13. Magazine.
9. Gun-barrels.
10. Gun-trimmings.
11. Implements.
12. Locks.
27. Muzzle-loaders.
15. Nipples and guards.
16. Pistol-swords.
18. Revolvers.
19. Rifling.
20. Sights.
21. Stocks.
22. Targets—
24. Flying.
23. Toy pistols.

CLASS 159.—FIRE ESCAPES AND LADDERS. (IV.)

Sub-classes.

10. Bed-bottom.
11. Blanket.
Checks—
22. Escapement,
23. Fluid,
24. Fly,
25. Governor.
1. Chutes.
4. Friction—
26. Jaw,
27. Jaw, set-screw,
28. Hand-clamp,
29. Reel—
30. End-thrust,
32. Jaw-brake,
33. Jaw-brake, tension,
31. Strap-brake,
34. Shooting lines,
35. Toutmous,
36. Toutmous and jaw,
37. Set-screw,
38. Wheel-brake.
5. Hoists—
39. Fixed guides,
40. Movable guides,
41. Pulley-block,
42. Reciprocating cages,
43. Shooting-spar,
9. Trolley.
8. Ladders—
49. Collapsible,
Escape—
15. Fixed,
16. Mounting,
17. Sectional hand,
19. Shooting and truck,
18. Trolley,
50. Extension,
51. Feet,
3. Flexible—
44. Reel,
45. Sectional—
46. Elevator,
47. Single-stile,
48. Trolley,
52. Hooks,
57. Jacks,
53. Sectional,
7. Step—
56. Store-service,
54. Stops,
55. Trussed.
6. Lazy-tongs.
14. Sliding poles.
Towers—
13. Fixed,
12. Shooting.

CLASS 169.—FIRE-EXTINGUISHERS. (IX.)

Sub-classes.

4. Car-heater.
1. Chemical.
2 Portable.
3. Stationary.

CLASS 183.—FIREPROOF BUILDINGS. (IV.)

Sub-classes.

1. Ceilings, floors, and partitions. Non-metallic
2. Columns and timber.
3. Cornices.
4. Fireproof roofs.
5. Flooding.
6. Floor-arches.
7. Metallic sidings and partitions.

CLASS 43.—FISHING AND TRAPPING. (XXII.)

Sub-classes.

2. Decoys.
Fishing—
3. Fishways,
4. Floats,
6. Harpoons and spears,
7. Hooks,
9. Nets and seines,
10. Oyster-culture,
11. Oyster-dredges,
12. Oyster rakes and tongs,
13. Pisciculture,
15. Reels,
16. Rods,
17. Sinkers.
Insect-destroyers—
1. Catchers,
Insect-destroyers—
5. Fumigators,
8. Moth-exterminators,
14. Powder-dusters.
Traps—
18. Bedbug,
19. Cage,
20. Fish,
21. Impalement,
22. Insect,
23. Jaw,
24. Self-set and ever-set,
25. Sporting,
26. Victim-set,
27. Wire-choker.

CLASS 188.—FLUID-PRESSURE RAILWAY-BRAKES. (XXVIII.)

Sub-classes.

1. Automatic.
2. Derailment.
3. Direct.
4. Electric.
5. Momentum-pump.
6. Vacuum.

CLASS 50.—FLUID-PRESSURE REGULATORS. (XXXI.)

Sub-classes.

4. Cut-offs.
5. Diaphragm—
6. Lever.
7. Float—
8. Lever.
9. Piston.

CLASS 44.—FUEL. (XV.)

Sub-classes.

1. Artificial.
2. Fire-kindlers—
5. Absorbers,
6. Automatic.
3. Peat-machines.
4. Purifying coal.

CLASS 45.—FURNITURE. (VIII.)

Sub-classes.

1. Book-cases—
53. Adjustable shelf-partitions,
54. Adjustable shelves and shelf-supports,
55. Hanging shelves,
56. Roller-shelves.
Book and music holders—
57. Base-supported,
58. Bracket-supported,
59. Body-supported,
60. Book-stands,
61. Leaf-holders,
62. Music-stands,
63. Panel,
64. Portfolio.
Brackets—
65. Arm-supporting,
66. End-supporting—
67. Adjustable.
5. Bureaus.
43. Carpet stretchers and tackers.
68. Covers.
6. Desks—
69. Portable,
70. Table.
7. Drawers.
77. Drawer-guides.
10. Fire-screens.
13. Hat and coat racks.
14. Hat-holders.
15. Insect-guards.
16. Kitchen-cabinets—
71. Provision-safes.
18. Mirrors—
39 Window.
22. Packing furniture.
23. Picture-hangers.
72. Portable nursery-fences.
24. Quilting-frames.
41. Spittoons.
42. Spittoon-lifters.
28. Soap-holders.
31. Tables—
73. Adjustable,
74. Adjustable folding,
75. Attachments,
9. Extension,
11. Folding,
17. Kitchen,
46. Lap,
47. Leaf-supports,
48. Leg fastening and bracing,
26. Self-waiting,
27. Sewing-machine,
50. Surgical,
51. Wall.
32. Towel racks and stands.
52. Type-writer cabinets.
33. Umbrella-stands.
34. Upholstery.
36. Wall-protectors.
37. Wardrobes.
38. Wash-stands.

CLASS 46.—GAMES AND TOYS. (VII.)

Sub-classes.

4. Balls and bats.
43. Base-balls.
6. Billiard appliances—
7. Balls,
8. Chalk-cups,
9. Cues,
10. Cue-tip fasteners,
11. Cushions,
12. Tables,
13. Table-levelers.
14. Buzzes and whirligigs.
15. Croquet.
16. Dice-boxes.
20. Game apparatus.
21. Game-boards.
22. Hobby-horses.
23. Kites.
22. Lawn-tennis.
44. Masks.
25. Playing-cards.
41. Puzzles and magic.
27. Roundabouts.
50. Skates—
51. Roller.
52. Wheel.
53. Skaters' appliances.
30. Skipping-ropes.
31. Soap-bubble pipes.
32. Spinning-tops.
33. Stilts.
35. Toy building-blocks.
36. Toy money-boxes.
37. Toys—
49. Electric,
40. Figure—
45. Wheeled,
46. Sounding—
47. Wheeled,
48. Wheeled.
38. Trundles and hoops.

CLASS 48.—GAS. (XXXI.)

Sub-classes.

1. Anti-combustion.
2. Carburetors—
24. Carbureting-lamps,
29. Float-vaporizers,
25. Gas and air mixers,
3. Jet-mixers,
26. Oil-feed, float-valves.
27. Oil-feed, rotary,
28. Revolving.
4. Center-seals and by-pass valves.
9. Dip-pipes.
22. Distribution.
10. Exhausters.
Gas—
5. Coal,
6. Coal and oil,
8. Coal and water,
7. Coal, oil, and water,
12. Hydrogen,
13. Oil,
14. Oil and water,
Gas—
30 Producers,
19. Water,
20. Wood.
11. Holders.
Purifiers—
31. Boxes,
32. Compounds,
33. Condensers,
34. Miscellaneous,
35. Processes,
36. Revivifying,
37. Trays,
38. Washers and scrubbers—
39. Float,
40. Reciprocating,
41. Rotary.
18. Retort-chargers.
23. Retort gas-furnaces.
16. Retort-lids.
17. Retorts and settings.

CLASS 49.—GLASS. (XV.)

Sub-classes.

1. Articles.
2. Cutters.
4. Enameling.
7. Molds.
8. Ornamentation.
10. Plate and window.
9. Presses.
11. Tools.

CLASS 51.—GRINDING AND POLISHING. (XXVII.)

Sub-classes.

1. Abrading materials and tools.
Glass and stone—
3. Curved surfaces,
11. Plane surfaces.
Metal—
2. Card-grinding,
4. Curved surfaces,
6. Cutlery-scourers,
7. Edge-tools,
8. Mower and reaper knives.
Metal—
9. Needle-eyes,
10. Needles, rods, and points,
12. Plane surfaces,
14. Rumbles,
15. Sheet metal and wire,
16. Strops, hones, and rifles.
Wood—
5. Curved surfaces,
13. Plane surfaces.

CLASS 53.—HARDWARE-MAKING. (XIII.)

Sub-classes.

1. Bridge-irons.
2. Builders' hardware
3. Cutlery.
4. Eyebolts and hooks.
5. Fence-barbs of sheet metal.
6. Ferrules, rings, and thimbles.
8. Gas and water fittings.
10. Hinges.
23. Lamp-work.
11. Leather-workers' hardware.
9. Miscellaneous.
20 Musical-instrument work.
12. Pens, pencils, and holders.
21. Printing appliances.
13. Spinners' and weavers'.
15. Spoons. Manufacture of
16. Springs.
22. Stamping.
17. Sucker-rod joints.
19. Tie-bands.
18. Umbrella-irons.

CLASS 54.—HARNESS. (XI.)

Sub-classes.

40. Billet-loops.
1. Bonnets and covers.
41. Breast-strap slides.
2. Bridle-bits.
3. Bridles and halters.
37. Check books and terrets.
38. Checking and unchecking.
4. Collar-fasteners.
5. Collar-machines.
42. Detaching horses.
43. Draft-equalizers.
6. Fly-nets.
8. Hame-fasteners.
28. Hame-tugs.
9. Hames.
10. Harness—
29. Attachments,
11. Machines,
30. Pads,
12. Saddles,
Harness—
13. Tools.
35. Hitching-straps.
16. Horse-boots.
17. Horse-collars.
34. Neck-yokes.
31. Ox-yokes.
36. Rein-buttons—
32. Holders,
39. Supports.
21. Riding-saddles.
22. Spurs and stirrups.
24. Trace-carriers.
25. Trimmings.
26. Tugs.
45. Whiffletree-hooks.
44. Whiffletrees.
27. Whips.
33. Whip-sockets.

CLASS 55.—HARROWS AND DIGGERS. (I.)

Sub-classes.

1. Clod-crushers.
2. Forks.
3. Harrows—
11. Revolving,
13. Rotary,
19. Wheel—
20. Rotary.
4. Harrow-teeth.
5. Hoes.
6. Land-rollers.
7. Pivoted teeth.
8. Pivoted tooth-bars.
9. Potato-diggers.
10. Rakes.
12. Rollers and harrows.
14. Shovels.
15. Stalk-choppers.
16. Stalk-pullers.
17. Stone-gatherers.
18. Transplanters

CLASS 56.—HARVESTERS. (VII.)

Sub-classes.

1. Bean-harvesters.
Binders—
35. Compressors,
36. Grain-adjusters,
37. Sheaf-carriers.
2. Clover-harvesters.
3. Combined rakes and tedders.
Corn-harvesters—
38. Binders and droppers,
39. Cutters,
40. Implements,
41. Strippers and huskers.
5. Corn-shockers.
6. Cotton-harvesters.
Cutting apparatus—
42. Endless,
43. Guard-fingers and finger-bars,
44. Reciprocating,
45. Rotary,
46. Vibrating.
Droppers—
47. Direct-tilting,
49. Miscellaneous,
48. Opening and closing,
50. Side-delivery,
51. Swinging and tilting.
99. Fruit-gatherers.
9. Gearing.
10. Grain-bands.
31. Grain wheels and casters.
Hand-binders—
52. Attachments,
53. Elevated delivery, Rear
54. Elevated delivery, Side
55. Flat delivery,
56. Manual traction.
12. Hand-rakers.
Hay-loaders—
61. Endless-belts,
62. Intermittent,
63. Lifting-reels,
64. Walking-rakes.
101. Hay-racks.
100. Headers.
16. Hedge-trimmers.
17. Hemp and flax harvesters.
Horse-rakes—
65. Draft-dumpers,
66. Drags,
67. Hand-dumpers,
68. Hay-cockers,
Horse-rakes—
69. Rake-teeth.
19. Lawn-mowers.
20. Manure-forks.
33. Miscellaneous.
Mowers—
70. Anomalies,
72. Center-cut,
73. Front-cut, One-wheel,
74. Front-cut, Two-wheels,
76. Rear-cut, One-wheel,

CLASS 56.—HARVESTERS. (VII.)—Continued.

Mowers—
77. Rear-cut, Two-wheels,
75. Reciprocating-gear,
78. Thrust-cut.
32. Platform adjustments.
22. Reels.
Revolving rakes—
80. Flop-over,
81. Wheel.
27. Scythes and cradles.
24. Seats.
Self-binders—
82. Clips and prepared bands,
83. Cord-knotters,
84. General structure,
85. Gleaners and binders,
86. Tension and take-up devices,
87. Twisters and tuckers,
88. Wire-twisters.

Self-rakers—
89. Endless carriers,
90. Gaveling-tongs,
91. Platform-movement,
92. Reciprocating horizontal curvilinear,
93. Reciprocating horizontal rectilinear,
96. Rotary horizontal axis,
94. Rotary vertical axis, switch,
95. Rotary vertical axis, no switch,
98. Traveling horizontal irregular path,
97. Traveling vertical irregular path.
102. Shock-compressors.
28. Tedders.
29. Thrashers.
30. Track clearers and dividers.

CLASS 149.—HIDES, SKINS, AND LEATHER. (XXXI.)

Sub-classes.

Currying—
Dressing—
Coloring and polishing—
36. Apparatus,
27. Processes and compositions,
19. Reciprocating tools—
20. Rocking frame,
23. Rotary cylinders—
24. Rolling and embossing,
21. Rotating tools—
22. Endless belt,
25. Tables and frames,
15. Putting out and stretching—
16. Extension frame,
17. Rotary cylinder,
18. Stuffing and filling.

Preparing—
2. Apparatus—
3. Reciprocating tools,
5. Rotary cylinders—
6. Spiral knives,
4. Rotary frames.
Processes and compositions—
8. Bating,
7. Depilating,
1. Preserving.
Tanning—
9. Apparatus,
11. Compositions,
10. Processes,
12. Vats.
Tawing—
14. Compositions,
13. Processes.
28. Tanners' tools.

CLASS 57.—HOISTING. (XII.)

Sub-classes.

2. Barrel-rollers.
34. Block and tackle—
5. Differential pulleys.
22. Capstans and windlasses—
82. Capstans,
83. Drum and clutch,
84. Hand-crank operated,
85. Lever-operated,
86. Steam-winch,
87. Sweep-operated,
88. Wild-cats,
89. Windlass with capstan.
3. Car-movers.
37. Chutes.
4. Cranes and derricks—
56. Jibless,
57. Lever-jib,
58. Non-pivoted jib—
59. Rotating—
60. Portable,
61. Pivoted-jib—
62. Rotating—
63. Portable,
64. Sliding-jib,
65. Traveling, double-track,
66. Trolley.
67. Elevated carrier—
68. Draft-sustaining,
69. Lever-lock,

Elevated carrier—
70. Non-lowering support,
71. Ratchet-lock,
72. Rope-catch,
73. Sheave-frame catch.
9. Grapplers.
39. Hay-forks, corkscrew—
40. Grapple,
41. Harpoon,
42. Tilting.
11. Hay-slings.
13. Hoisting-buckets.
15. Lifting-jacks—
43. Lever,
44. Screw.
16. Loading and unloading—
52. Hay.
81. Load-binders,
46. Pilers,
47. Shoveling devices,
75. Tilting—
76. Hoist,
77. Platform.
80. Mail-bag catchers.
18. Skids.
53. Stackers.
19. Stump-extractors.
79. Wagon-raisers.

CLASS 58.—HOROLOGY. (XXIII.)

Sub-classes.

8. **Balance-escapements.**
3. Clocks—
2. Calendar,
28. Electric,
9. Geographical,
29. Pneumatic.
4. Clock-cases.
5. Clock-striking.
6. Clock-winding.
34. **Dials and hands.**
10. **Metronomes.**
11. **Pendulums.**
35. **Pendulum-escapements.**
30. **Repeaters.**
12. **Safety-wheels.**
13. **Stem-winders.**
14. **Sun-dials.**
15. Time-alarms.
16. Time-checks.
31. Time lamp-lighters.
33. Time-signals.
17. Watches.
18. Watch balances—
19. Barrels,
20. Cases,
21. Case-springs,
22. Dust-caps,
23. Keys,
24. Plates,
25. Regulators,
26. Stops.
32. Watch-makers' tools.
27. Watch-winding.

CLASS 60.—HOSE AND BELTING. (XI.)

Sub-classes.

1. Belt-fasteners—
2. Machines,
7. Stretchers.
3. Belting.
6. Drive-chains.
4. Hose and tubing.
5. Hose-machines.

CLASS 61.—HYDRAULIC ENGINEERING. (IV.)

Sub-classes.

1. Aqueducts.
19. Breakwaters.
2. Cable-laying.
3. Caissons—
20. Ship.
4. Canals—
28. Gate-valves,
27. Gates. Bear-trap—
21. Lock.
5. Chutes—
33. Screens,
34. Water-power.
23. Cribbing.
24. Dams and levees—
35. Cores,
36. Mattresses.
22. Dams. Coffer—
25. Sectional.
7. Diving-armor.
8. Docks.
9. Drains.
26. Forming and preserving channels.
32. Harbors.
29. Jetties. Sectional
11. Marine ways.
12. Mining.
13. Pile-drivers—
37. Jigs,
38. Monkey,
39. Piston,
40. Swinging-hammer,
41. Sinking.
Piles—
42. Metallic.
43. Protected.
30. Protecting shores.
15. Tide-powers.
16. Tunnels—
44. Excavators,
45. Shields.
Water-gates—
46. Sliding,
47. Swinging.
31. Wharves.

CLASS 138.—HYDRAULIC MOTORS. (IX.)

Sub-classes.

11. Chain.
8. For elevators.
9. For jacks.
10. For presses.
1. Oscillating.
2. Reciprocating.
3. Rotary—
12. Feathering.
Turbines—
4. Bottom-supply,
5. Side-ring supply,
6. Top and side direct-supply
7. Top-ring supply.

CLASS 162.—INJECTORS AND EJECTORS. (XVIII.)

No sub-classes.

CLASS 189.—IRON STRUCTURES. (IV.)

Sub-classes.

1. Building.
2. Grilles.
3. Jails.
4. Metallic ceilings.

CLASS 63.—JEWELRY. (V.)

Sub-classes.

1. Bracelets.
2. Brooches.
4. Ear-rings.
5. Finger-rings.
8. Gem-setting.
6. Lockets.
11. Metal stock and ornamental wire fabric.
7. Ornamental chains.
10. Processes.
9. Watch-chain attachments.

CLASS 64.—JOURNAL-BOXES, PULLEYS, AND SHAFTING. (XII.)

Sub-classes.

4. Belt-shifters.
5. Belt-tighteners.
7. Compensating journals.
9. Flexible shafting.
21. Idle-pulley supports.
10. Journal-boxes—
20. Brasses,
19. Compositions,
Journal-boxes—
16. Roller-bearings.
17. Pulleys—
8. Expansible,
18. Split.
12. Shaft-casings—
13. Couplings,
14. Hangers.

CLASS 65.—KITCHEN AND TABLE ARTICLES. (VIII.)

Sub-classes.

2. Butter, egg, and table tongs.
3. Cake-turners.
5. Casters.
9. Cheese-covers.
10. Compound tools.
45. Condiment-holders.
11. Corkscrews.
12. Culinary.
13. Cups.
15. Dishes and plates.
16. Dish-covers.
19. Stands and trays.
20. Dust-pans.
22. Egg-cups.
23. Fish-scalers.
25. Fruit-lifters.
26. Jar-lifters.
27. Knife racks and rests.
28. Ladles.
29. Napkin-holders.
30. Oyster-openers.
31. Pitchers.
32. Plate-lifters.
36. Scoops.
41. Tea-service.
42. Tumbler-holders,
43. Twine-holders.

CLASS 66.—KNITTING AND NETTING. (XXI.)

Sub-classes.

1. Barrs and sinkers.
Circular—
2. Circular machines,
18. Independent needles,
11. Looper pin and hook machines.
17. Crocheting.
3. Darning.
4. Fabrics.
12. Feeding.
5. Needles.
6. Netting.
7. Stopping.
Straight—
15. Cams and stops,
13. Fashioning-machines,
14. Looper pin and hook machines,
8. Straight machines,
16. Warp-machines.
9. Take-ups and tensions.
10. Tatting.

CLASS 67.—LAMPS AND GAS-FITTINGS. (XXX.)

Sub-classes.

53. Automatic cut-offs.
1. Candlesticks—
97. Miners'.
66. Canopy shades and reflectors.
3. Chandeliers. Gas.
4. Chimney-holders.
92. Chimneys. Composite.
91. Chimneys. Integral.
89. Distributers.
93. Double chimneys.
Drop-lights—
55. Burner attachments,
56. Counter-weight,
57. Friction and clutch,
58. Spring-drum.
Extinguishers—
60. Fluid,
59. Mechanical,
61. Pneumatic.
65. Fonts, collars, and tops.
74. Gas brackets and valves.
7. Gas-burners—
51. Incandescent,
52. Regenerative,
9. Regulating.
8. Gas-fittings.
62. Gas-lighting attachments.
77. Globes.
94. Guards.
78. Harps and hangers.
79. Lamp attachments.
83. Lamp-boxes.
33. Lamp-burners—
10. Argand,
11. Multiple-wick,
63. Lamp-lighting attachments.
82. Lamps—
87. Bicycle,
39. Bracket,
76. Carriage.
42. Cigar-lighting,
Lamps—
16. Forced-draft,
17. Independent-reservoir,
64. No-chimney,
20. Safety-tube and central-draft,
85. Special,
29. Street.
24. Lanterns—
90. Dark,
35. Signal,
46. Submarine,
44. Tubular.
45. Lantern-holders.
71. Lighting implements.
84. Lighting systems.
Lights—
96. Christmas-tree,
50. Decorative,
70. Head,
75. Hydrogen-platinum,
34. Signal.
98. Match-boxes. Igniting.
27. Match-safes.
95. Oil indicators and fillers.
80. Pedestals.
81. Pocket-lighters.
21. Posts.
54. Pressure cut-offs.
Reflectors—
82. Hooded,
72. Miscellaneous,
68. Side.
37. Refracting attachments.
69. Safety lamps and lanterns.
67. Shade-supports.
73. Street-light hangers.
38. Torches.
30. Vapor-burners.
86. Wick-pickers.
88. Wick raisers. Flat-
23. Wicks.

CLASS 68.—LAUNDRY. (XXVII.)

Sub-classes.

1. Bosom-boards.
2. Clamps.
34. Clothes-driers.
12. Clothes-line fasteners.
3. Clothes-lines.
14. Clothes-line reels.
4. Clothes-pins.
5. Clothes-pounders.
6. Clothes sticks and tongs.
7. Fluting-irons.
8. Hand-rubbers.
19. Ironing-machines.
10. Ironing-tables.
11. Laundries.
13. Mangles.
26. Sad-irons.
27. Sad-iron holders.
22. Starching-machines.
35. Wash-benches.
29. Wash-boards.
30. Wash-boilers.
31. Washtubs.
Washing-machines—
15. Agitator,
16. Boiler,
17. Combined washing and wringing,
18. Cylinder,
37. Miscellaneous,
19. Pounder,
20. Reciprocating-rubber,
21. Rocking and swinging,
22. Roller,
23. Roller and bed,
24. Rotary-rubber.
32. Wringers.
33. Wringer-rolls.

CLASS 69.—LEATHER-WORKING MACHINERY. (XI.)

Sub-classes.

1. Cutting.
3. Machines.
4. Splitting.

CLASS 199.—LINOTYPING. (XXX.)

Sub-classes.

4. Justifying devices.
1. Linotype-machines.
3. Linotype-making.
2. Linotypes.

CLASS 70.—LOCKS AND LATCHES. (XX.)

Sub-classes.

40. Baggage-seals.
3. Box-fasteners.
7. Key-fasteners.
8. Key-hole guards.
9. Keys.
10. Knobs.
11. Knob attachments.
12. Knob-roses.
41. Knob-spindle fasteners.

CLASS 70.—Continued.

13. Latches—
28. Gate.
51. Gravity,
44. Lifting.
45. Lifting, hooked ends,
21. Reversible,
42. Sliding—
43. Pivoted ends,
49. Swinging.
14. Locks—
1. Alarm,
2. Bag,
4. Car-seat,
Locks—
46. Cylinder,
50. Electric,
5. Hasp,
6. Indicator,
Locks—
18. Permutation,
20. Piano,
47. Pin,
23. Seal,
31. Sliding-door,
25. Till,
26. Time,
48. Trap,
27. Trunk.
15. Lock-strikes—
52. Electric.
16. Lock-trimmings.
29. Locks and latches combined.
17. Padlocks—
19. Permutation.
24. Shackles.

CLASS 184.—LUBRICATORS. (II.)

Sub-classes.

9. Axle.
1. Capillary attraction.
2. Condensation displacement.
3. Force-feed.
4. Gravity-feed—
5. Automatic cut-off.
6. Liquefiers.
7. Loose-pulley.
8. Miscellaneous.

CLASS 74.—MACHINE ELEMENTS. (XII.)

Sub-classes.

1. Cams and eccentrics.
5. Cranks and levers.
6. Fly-wheels.
7. Gearing—
21. Belt;
26. Frictional,
28. Sectional;
29. Yieldable.
8. Gibs and keys.
13. Machine-brakes.
14. Mechanical movements.
20. Overcoming dead-centers.
16. Pawls and ratchets.
17. Pitmen.
27. Racks and pinions.
18. Treadles—
30. Hand attachments.
19. Universal joints.

CLASS 115.—MARINE PROPULSION. (XXII.)

Sub-classes.

Paddle-wheels—
4. Feathering-blades,
22. Fitting and driving,
23. Form and construction.
Propelling—
1. Buoyant propellers,
2. Chain-propellers,
3. Crank-paddles,
6. Hydraulic propellers,
20. Interior power,
21. Motion of vessel,
24. Oscillating propellers,
8. Pneumatic propellers,
Propelling—
12. Reciprocating propellers,
10. Steering-propellers, (except screw,)
13. Wheels in channel.
Screw-propellers—
14. Feathering-blades,
15. Fitting and driving,
16. Form and construction,
17. Steering.
Towing—
18. External power,
19. Internal power.

CLASS 72.—MASONRY. (IV.)

Sub-classes.

19. Apartment-houses.
10. Bonding and tying.
13. Cellars.
2. Centering.
12. Cisterns.
4. Composite walls.
13. Construction.
11. Coping.
6. Facing walls.
5. Fire-shields.
17. Foundations.
18. Hollow tile walls.
19. Smoke and air flues.
20. Stone and brick setting.
21. Subways.
23. Tile and metal floors.
22. Timber-seats.
24. Waste chutes and sinks.

CLASS 198.—MATRIX-MAKING. (XXX.)

Sub-classes.

CLASS 73.—MEASURING-INSTRUMENTS. (XXIII.)

Sub-classes.

1. Air and gas meters.
2. Anemometers.
3. Balances—
99. Equal arms,
101. Electrical attachments,
102. Pick-up weights,
100. Recording.
4. Barometers.
5. Bathometers.
6. Bevels.
7. Calculators.
84. Calculators. Tabular
Calipers—
105. Dial,
106. Stem.
8. Cart-scales.
86. Cash-registers—
87. Rotating indicators.
9. Cloth-measuring machines.
10. Coin-counters.
83. Coin-packages.
11. Coin-testers.
73. Conformators.
12. **Diaphragm meters.**
98. Disk meters.
13. Dividing-engines.
15. Dynamometers.
59. Fare-registers.
16. Gages—
67. Depth,
108. Thickness—
177. Micrometer.
17. Game-counters.
18. Grain-meters—
97. Double-trap bottom,
94. Oscillating,
96. Positively actuated,
78. Rotating,
95. Twin buckets.
20. Grain-tallies.
22. Hydrometers.
23. Hydrostatic scales.
24. Hygroscopes.
79. Lactometers.
63. Leather-measuring.
60. Measuring-faucets.
61. Measuring-pumps.
62. Measuring-vessels.

CLASS 73.—MEASURING-INSTRUMENTS. (XXIII.)—Con'd.

Sub-classes.

27. Odometers.
28. Oscillating meters.
58. Passenger-registers.
29. Pendulum-scales.
30. Piston meters.
80. Pitch-boards.
81. Planimeters.
21. Platform-scales.
72. Plumb bobs—
171. Levels.
31. Pressure-gages—
109. Bourdon,
110. Diaphragm,
111. Piston.
104. Price-scales.
66. Proportional meters.
32. Pyrometers.
33. Rain-gages.
34. Recorders—
89. Fare,
88. Manual,
90. Passenger,
91. Pressure,
92. Speed,
93. Steam-engine indicator.
35. Registers.
36. Rotary measures.
37. Rotary meters.
38. Sack-scales.
39. Scale-beams.
40. Scale-measures.
41. Scale-pans.
69. Ships' logs.
64. Shoemakers' measures.
113. Spacing-instruments.
42. Specific-gravity apparatus
43. Speed-measures.
44. Sphygmoscopes.
70. Spirit-levels.
45. Spirit-meters.
112. Spirometers.
46. Spring-scales.
47. Squares—
114. Bevel,
115. Center,
116. Folding.
103. Steelyards.
66. Surface-gages.
48. Tailors' measures.
49. Tape-measures.
117. Telemetry.
85. Telethermometers.
50. Testing illuminating-fluids.
51. Testing-machines.
52. Thermometers—
118. Metallic,
119. Oven.
21. Tollers.
67. Track-gages.
120. Ullage-rods.
53. Voting-machines.
54. Water-gages—
82. Float.
55. Weather-vanes.
122. Weighing.
56. Weights.

CLASS 185.—MECHANICAL MOTORS. (XII.)

Sub-classes.

1. Horse-powers—
2. Equalizers,
3. Treads.
4. Manual.
5. Miscellaneous.
6. Spring.
7. Weight.

CLASS 167.—MEDICINES. (VI.)

Sub-classes.

1. Aerated beverages.
2. Capsules.
3. Disinfectants.
4. Extracts.
5. Hair dyes and tonics.
6. Insecticides.
7. Internal remedies.
8. Plasters.
11. Tobacco substitutes.
9. Topical remedies.
10. Veterinary medicines.

CLASS 153.—METAL-BENDING. (XIV.)

Sub-classes.

1. Bending—
11. By press,
12. By rolls.
2. Coiling.
13. Coiling and bending pipe.
3. Corrugating.
4. Curving plates.
5. Dishing plates.
6. Flanging—
7. Straight.
8. Straightening—
9. Plates and sheets.
10. Twisting.

CLASS 10.—METAL BOLTS, NUTS, RIVETS, AND SCREWS. (XIII.)

Sub-classes.

1. Bolts and nuts. Dressing and assembling
2. Bolts and rivets.
3. Bolts and rivets. Making
4. Capping screws and nails.
5. Metal-screw machines.
6. Nuts and washers.
7. Nuts and washers. Making
8. Screws.
9. Screw-blank feeders.
10. Screw-cutting machines.
11. Screw-swaging machines.
12. Screw-tapping machines.
13. Screw-threading machines.
14. Taps and dies.
15. Wood-screw machines.

CLASS 77.—METAL BORING AND DRILLING. (XIII.)

Sub-classes.

1. Bits.
2. Boring and drilling appliances.
3. Boring-machines.
4. Drill-chucks.
5. Drills. Hand—
9. Ratchet.
6. Drilling-machines.
7. Reamers and drifts.
8. Tapping mains.

CLASS 205.—METAL-DRAWING. (III.)

Sub-classes.

1. Bars.
5. Draw-plates.
7. Lubricants.
6. Roller-dies.
9. Tubes.
3. Wire—
8. Covering,
4. Reels.

CLASS 78.—METAL-FORGING. (XIII.)

Sub-classes.

1. Anvils.
16. Compressing.
3. Drop-hammers.
5. Forging.
8. Olivers.
9. Power-hammers.
11. Riveting.
18. Shafts and pulleys.
19. Structural work.
15. Upsetting metal.
21. Wire pointing.

CLASS 22.—METAL-FOUNDING. (III.)

Sub-classes.

Metal molds—
1. Apparatus and plants,
2. Chains, hinges, and joints,
4. Hardware,
5. Hollow ware.
7. Ingots—
9. Compound,
6. Hollow and tube,
10. Plants.
11. Materials.
12. Ordnance and projectiles.
13. Pigs.
14. Plows.
15. Rolls.
18. Screw-threads.
16. Soft-metal machines—
21. Molds,
19. Shot,
20. Spoons,
22. Traps,
51. Type.
50. Tools.
23. Vehicle-wheels.
24. Wheels.
Molded molds—
25. Chains, hinges, and joints,
26. Hardware,
27. Hollow ware,
Molded molds—
28. Molded molds.
*. Molders' flasks—
29. Materials.
17. Tools and arts.
30. Ordnance and projectiles.
31. Pipes—
32. Horizontal.
3. Pipe-elbows.
33. Plants.
34. Plows.
35. Rolls.
36. Screw-threads.
37. Tools.
38. Vehicle-wheels.
39. Wheels.
50. *Rotary molds*
40. Blacking-molds,
41. Hollow ware,
42. Machines,
43. Ordnance and projectiles.
44. Pipes—
45. Horizontal.
46. Pipe-cores.
47. Screw-threads.
48. Vehicle-wheels.
49. Wheels.

CLASS 75.—METALLURGY. (III.)

Sub-classes.

1. Alloys.
2. Assaying.
90. Blowpipes.
3. Converters—
148. Fixed,
149. Furnace,
150. Runway,
151. Sectional,
152. Tuyeres and bottoms.
182. Crucibles.
107. Cupolas—
108. Drop-bottoms,
109. Fore-hearths,
110. Water-jackets,
111. Wind-chests and tuyeres.
112. Finery-fires.
113. Firebrick.
30. Fume-arresters.
Furnaces—
40. Blank—
184. Tire,
5. Blast—
114. Charging devices—
115. Bell and hopper,
116. Protecting walls,
97. Tuyeres,
117. Tymps and slag-spouts,
27. Crucible,
178. Electric,
180. Forge—
181. Tuyeres,
84. Melting—
89. Glass-pots,
156. Glory-hole,
119. Open-hearth,
92. Pot-hearth,
93. Tank,
19. Pigment,
Reverberatory—
120. Fire-boxes,
121. Heating air,
122. Necks and chimneys,
123. Water-walls and roofs.
Hot-blast ovens—
53. Double-surface,
52. Single-surface.
124. Hot-blast valves.
14. Iron and steel direct—
71. Apparatus,
73. Bricks,
74. Flux,
75. Gases,
72. Retorts and hearths,
76. Slag,
77. Sponge.
15. Lead.
127. Mechanical puddlers—
128. Rotary hearths,
129. Tools.
130. Puddling-hearths—
131. Chills and bottoms,
132. Doors and bits.
22. Quicksilver.
17. Reducing and separating machines—
58. Aluminium,
57. Apparatus,
62. Copper,
59. Desilverizing lead,
60. Desulphurizing ores,
61. Disintegrating ores,
63. Flux,
64. Gold and silver,
85. Manganese,
66. Nickel and cobalt,
65. Ore bricks,
183. Sodium.
Regenerators—
95. Double-surface,
94. Single-surface.
Roasters—
133. Blasting,
134. Hearths—
135. Rotary,
136. Kilns,
137. Muffles,
Revolving—
138. Cylinders,
139. Retorts,
140. Shaft-and-shelf,
Stirrers—
141. Endless-chain,
142. Reciprocating,
143. Rotary,
144. Screw.
25. Roasting and smelting hearths.
145. Slag—
146. Disintegrating,
91. Heaters,
147. Separators, centrifugal.
18. Solution and precipitation—
86. Apparatus,
67. Chlorination,
69. Ferric salts,
70. Parting bullion.
28. Spelter—
153. Processes,
154. Retorts,
155. Stacks.
27. Treating molten iron—
44. Air, steam, and gases,
45. Alloys,
46. Basic—
87. Basic linings,
47. Granulating,
48. Oxides,
49. Physic,
50. Scrap,
51. Vacuum.
55. Utilizing tin-scrap—
56. Wet processes.

CLASS 201.—METAL-ORNAMENTING. (XIV.)

Sub-classes.

1. Ornamenting.
2. Pressing.
3. Rolling.
4. Stippling.

CLASS 79.—METAL PERSONAL WEAR. MAKING (XIV.)

Sub-classes.

1. Buttons and clasps.
2. Eyelets.
3. Ornamental chains.
4. Personal wear.
5. Thimbles. Manufacture of
6. Watches and clocks.

CLASS 164.—METAL PUNCHING AND SHEARING. (XIV.)

Sub-classes.

6. Combined punching and shearing.
1. Cutting.
2. Punching.
3. Sawing.
5. Shears. Lever and sliding
4. Shears. Rotary

CLASS 80.—METAL-ROLLING. (XIII.)

Sub-classes.

11. Angle-irons.
1. Cylindrical.
2. Foil. Manufacture of
3. Mill appliances.
8. Plates and bars.
5. Puddlers' balls.
6. Railroad-rails.
13. Reworking.
14. Rods for wire.
7. Rolling. Miscellaneous
9. Sheet and hoop iron manufacture.
10. Taper.

CLASS 76.—METAL TOOLS AND IMPLEMENTS. MAKING (XIII.)

Sub-classes.

1. Augers.
2. Axes and hatchets.
27. Compound metal-working machines.
3. Cultivator-irons.
4. Dies.
5. Drills.
6. Farm implements.
7. File-blanks.
8. File-cutting.
9. Files and rasps.
10. Hammers.
11. Harvester-irons.
12. Hoes and shovels.
13. Picks and mattocks.
14. Pitchforks.
15. Plow-irons.
16. Rake and harrow irons.
26. Saw clamps and jointers.
19. Saw-setting.
22. Saw-swaging.
17. Saws.
18. Saws. Gumming
20. Saws, sharpening. Reciprocating tool
21. Saws, sharpening Rotary tool
23. Scythes.
24. Tools and implements.
25. Wrenches

CLASS 134.—METAL-TUBE MANUFACTURE. (III.)

Sub-classes.

10. Bent seam.
3. Cross weld.
11. Lining.
8. Mandrels.
4. Seamless—
Rolling—
7. Cross,
Seamless—
Rolling—
5. Longitudinal,
6. Spiral.
2. Spiral weld.
1. Straight weld.
9. Tubes.

CLASS 82.—METAL TURNING, PLANING, AND MILLING. (XIII.)

Sub-classes.

1. Centerers.
2. Cutters and cutter-holders.
4. Gear-cutting.
5. Key-seat cutters.
6. Lathe-chucks.
7. Mandrels and work-holders.
8. Milling.
9. Milling-cutters.
10. Planer-chucks.
Planers—
11. Reciprocating bed or cutter,
Planers—
12. Rotary bed or cutter.
13. Rests.
14. Shaping and slotting.
Turning—
15. Irregular forms,
16. Miscellaneous,
17. Tapers,
18. Wheels and axles.
19. Watch-makers' lathes.
20. Wrist-pin turners.

CLASS 206—METAL-WELDING. (III.)

Sub-classes.

7. Fluxes.
Ingots and piles—
2. Bar,
3. Beam,
4. Plate,
Ingots and piles—
5. Rail.
6. Tube.
1. Welding.

CLASS 81.—METAL-WORKING TOOLS. (XIV.)

Sub-classes.

26. Bolt-holders.
23. Cutting sharpeners.
24. Nippers.
Nut-wrenches—
5. Pivoted and spring jaw,
6. Ratchet-wheel,
7. Rigid-jaw,
8. Rigid-socket and axle-nut,
9. Sliding-jaw,
27. Wheel.
Pipe-cutters—
10. Inside,
11. Outside,
12. Pipe-expanders.
Pipe-wrenches—
28. Chain,
13. Pivoted-jaw,
14. Pivoted-jaw, with cutter,
15. Rigid-jaw and spanner,
16. Sliding-jaw,
17. Sliding-jaw, with cutter.
25. Pliers—
18. Rod and bolt cutters,
19. Smiths' tongs.
Vises—
20. Pipe and rod,
21. Smiths',
22. Wood-workers'.

CLASS 83.—MILLS. (XXV.)

Sub-classes.

Amalgamators—
65. Electric,
66. Lead,
67. Mercury,
68. Plate,
69. Vacuum,
70. Vapor.
Bagging grain—
26. Bag-holders.
Chop-graders—
50. Bran-dusters, Beaters,
51. Bran-dusters, Brushes,
49. Electric purifiers,
42. Flour processes,
40. Gravity,
39. Rotary bolts,
38. Shaking bolts.
Dust-collectors—
47. Reciprocating,
48. Rotating.
Grain-scourers—
32. Centrifugal,
36. Concave face,
31. Conical,
30. Cylinder, Horizontal,
29. Cylinder, Vertical,
37. Disk-face,
33. Pestle-action,
35. Reciprocating and endless,
34. Screw-action.
Grinding-mills—
17. Balancing millstones,
9. Ball and drum,
21. Bark,
19. Cane,
45. Chasing,
18. Coffee,
10. Compound movement,
Grinding-mills—
13. Cone and shell,
12. Crushing-rolls,
14. Cylinder and concave,
7. Disk-action, Horizontal,
8. Disk-action, Vertical,
44. Feed-regulators,
15. Grain-samplers,
16. Grist-alarms,
23. Hominy,
46. Impact pulverizers,
6. Knife-action,
1. Mill-spindles,
3. Millstone-dress,
4. Millstone-exhaust,
2. Millstone-trams,
22. Paint,
11. Rotary beaters.
Ore and coal—
52. Coal-breakers,
53. Crushers,
63. Ice-crushers,
62. Ice picks and shavers.
Separators—
54. Dry,
58. Jiggers,
71. Magnetic,
59. Washers,
56. Sifters and screens—
60. Household,
57. Stamps.
Preparing grain—
28. Processes,
27. Steaming and dampening,
64. Steam-boiler and flue scrapers.
61. Sugar and salt crushers.

CLASS 196.—MINERAL OILS. (XXXI.)

Sub-classes.

1. Apparatus—
2. Reducing gravity,
3. Stills—
6. Bottoms,
5. Condensers,
7. Feeders,
8. Films,
9. Furnaces and flues,
10. Heads,
11. Jackets,
12. Rotary,
13. Series,
4. Stirrers and scrapers,
18. Supplementary heating,
14. Tubular,
15. Utilizing gases and residue,
Apparatus—
Stills—
16. Vacuum,
17. Vapor-outlets.
Coal-oil—
21. Processes.
19. Retorts—
20. Rotary.
22. Compositions—
23. Burning-fluid.
24. Paraffine.
25. Processes—
26. Chemical,
27. Injecting gases,
28. Residuum,
29. Washing and filtering.

CLASS 84.—MUSIC. (V.)

Sub-classes.

1. Accordions.
53. Auxiliary strings.
2. Banjos and guitars.
6. Castanets.
7. Clarionets and flutes.
54. Combination organ stop-actions.
55. Combined organ and piano.
8. Cornets and trumpets.
9. Couplers.
10. Drums.
81. Electric actions.
11. Exercising devices.
13. Harmonicas.
12. Harmonic attachments—
56. Dampers.
14. Harps.
48. Indicators.
15. Insulators.
57. Key-board self-playing attachments.
58. Key-holding devices.
16. Keys and key-boards.
49. Knee-swells.
17. Leaf-turners.
79. Mouth-pieces.
18. Notation.
19. Organ-actions—
90. Pneumatic—
50. Bellows,
21. Cases,
22. Pipes,
59. Stop-actions,
23. Swells,
47. Wind-chests.
24. Pedals.
61. Pianissimo devices.
25. Pianos—
70. Sostenuto,
45. Violin,
31. Without strings.
26. Piano-actions—
60. Pedal.
66. Piano agraffes and bridges—
27. Attachments,
52. Cases,
28. Frames,
29. Legs,
30. Sounding-boards,
40. Stringing,
67. Tuning-pins.
32. Pipe-organs.
68. Recording attachments.
33. Reeds.
34. Reed-boards—
35. Organs,
36. Organ attachments.
37. Self-playing instruments—
71. Cylinder,
51. Pneumatic.
69. Solo attachments.
38. Steam-organs.
41. Transposers.
42. Tremolos.
43. Tuning-instruments.
44. Violins—
76. Practice.
72. Violin bows—
73. Bridges,
74. Chin-rests,
75. Dampers and mutes,
77. Tail-pieces,
78. Tuning-pegs.
80. Zithers.

CLASS 85.—NAILS AND SPIKES. (XIII.)

Sub-classes.

1. Cut-nail making.
3. Horseshoe-nail-blank finishing.
2. Horseshoe-nail cutting.
4. Horseshoe-nail forging.
6. Nail-distributers.
8. Nail-plate feeders.
9. Nails and spikes.
15. Shoe nails and tacks.
16. Spike-making.
17. Wrought-nail making.

CLASS 163.—NEEDLES AND PINS. (XIII.)

Sub-classes.

1. Machine-needles. Making
4. Pins. Making
5. Pins. Papering
6. Sewing-needles. Making

CLASS 151.—NUT AND BOLT LOCKS (XIV.)

Sub-classes.

9. Base.
1. Base, key and ratchet.
2. Base, washer.
3. Side.
4. Side, key and ratchet.
5. Thread.
6. Thread, key and ratchet.
7. Top.
8. Top, key and ratchet.

CLASS 87.—OILS, FATS, AND GLUE. (XXXI.)

Sub-classes.

17. Adhesives.
18. Artificial butter.
2. Bleaching.
3. Candles and apparatus.
4. Decomposing fats.
5. Detergents.
6. Extracting oils.
7. Glue.
9. Lubricants.
10. Lubricating. Treating oils for
12. Refining fat oils.
13. Rendering.
14. Soap.
15. Soap-cutting.
16. Soap-manufacture.
19. Wax.
20. Wool-oils.

CLASS 88.—OPTICS. (XXIII.)

Sub-classes.

1. Altitude-instruments.
19. Compasses.
2. Distance-instruments.
23. Eyeglasses.
3. Heliostats.
4. Kaleidoscopes.
5. Lenses.
6. Leveling-instruments.
7. Magic lanterns.
8. Microscopes.
24. Opera-glasses.
20. Optometers.
9. Photometers.
10. Prisms.
11. Sextants.
12. Spectacles.
22. Spectacle-cases.
13. Stakes and targets.
14. Stereoscopes.
17. Surveying-instruments.
15. Telescopes.
21. Testing-instruments.
16. Tripods.

CLASS 89.—ORDNANCE. (XXII.)

Sub-classes.

1. Breech-loading—
25. Gas-operated.
24. Recoil-operated.
2. Carriages.
19. Cartridge-feed cases.
3. Counterpoise-carriages.
4. Disabling.
21. Electrical appliances.
7. Loading.
20. Locks.
9. Machine-guns.
10. Mortars.
11. Muzzle-loaders.
12. Operating ordnance.
22. Pneumatic.
13. Shields.
15. Submarine guns.
16. Tompions and valves.
17. Trunnions.
18. Vents and stoppers.

CLASS 150.—PACKING AND STORING VESSELS. (XXXII.)

Sub-classes.

Cloth, leather, and rubber—
134. Bag-fasteners.
128. Bags.
129. Baskets and buckets.
130. Boxes.
170. Mail-bags.
185. Pocket-book holders.
186. Pocket-books.
187. Pocket-book fasteners and frames.
188. Portfolios.
189. Portfolios, roll
190. Purses.

Glass and pottery—
11. Bottles and jugs—
126. Neck-collars.
135. Brush and spreader.
42. Bottle-tape.
43. Boxes and tanks.
18. Ejectors.
12. Jackets—
81. Stands.
74. Wrapper.
44. Jars—
73. Clamp,
96. Expanding-stopper,
75. Screw-cap,
97. Screw-stopper,
79. Swing-cover,
80. Swing-fastener.
15. Stopper-fasteners—
77. Cap and tie,
Glass and pottery—
Stopper-fasteners—
99. Screw-cap,
86. Swing,
87. Swing-stopper—
164. Aside,
165. Yoke,
166. Yoke and lever,
167. Yoke and top lever.
16. Stopper-locks.
107. Stopper-pullers.
17. Stoppers—
105. Cap,
145. Dose,
68. Expanding,
48. Internal,
147. Rotary,
53. Screw—
106. Cap,
146. Tube,
49. Valve—
124. Screw,
125. Siphon.

Metallic vessels—
47. Baskets and crates.
29. Boxes—
85. Blacking,
137. Compartment,
83. Knockdown,
84. Pocket.
51. Canisters.

CLASS 150.—Continued.

Metallic vessels—
30. Cans and unclassed vessels—
100. Single-blank.
54. Casks.
55. Closures—
56. Clamp,
57. Screw-cap,
98. Screw-stopper,
58. Seam or solder—
171. Rip,
108. Swing-cover.
52. Coal-scuttles.
110. Ears and bails.
111. Handles.
33. Hermetic sealing.
34. Jackets—
62. Cask,
63. Package,
123. Stand.
61. Jackets and stands, Swing.
64. Linings.
36. Milk-cans.
37. Nozzles and vents—
114. Screw,
65. Screw-cap,
66. Valve—
115. Screw.
72. Pistons and stirrers.
178. Safe-boxes. Ballot-boxes—
179. Fare-boxes—
180. Change.
181. Portable,
182. Letter-boxes—
183. House.
50. Slop-buckets.
116. Spouted—
117. Feeders—
118. Piston.
119. Stands—
120. Pump.
121. Storage.
122. Transport.

Paper vessels: bags—
142. Bags—
143. Closures,
144. Square-bottom.

Paper vessels: barrels and pails—
82. Barrels.
148. Pails.

Paper vessels: Boxes. Angular—
149. Boxes. Angular—
150. Blanks. Plural,
151. Compartment—
152. Folded,
153. End folds,
154. Side and end folds,
Paper vessels: Boxes. Angular—
155. Side folds,
156. Side folds and end laps,
157. End laps,
158. Side and end laps,
159. Side laps,
160. Slide,
161. Stays.

Paper vessels: Boxes. Curved—
162. Boxes. Curved—
163. Compartment.

Wooden vessels: barrels, buckets, and pails—
132. Barrels—
1. Bent,
168. Stand.
101. Bungs—
102. Expanding,
103. Plug.
4. Bungs and vents.
5. Bung-wrenches.
133. Closures—
127. Screw and bayonet.
172. Compartment.
6. Covers.
7. Hoops.
8. Linings and coverings.
10. Stands.

Wooden vessels: baskets—
41. Baskets—
91. Covered,
67. Folding.

Wooden vessels: boxes—
19. Boxes—
94. Closures,
140. Compartment,
169. Bent—
92. Closures,
136. Linings and coverings,
93. Single blank,
95. Block,
20. Can and bottle cases.
21. Cell-cases—
68. Cloth or cord cells,
141. Paper box,
69. Paper cells,
70. Wood cells,
71. Wood-veneer cells.
22. Crates.
23. Crates and boxes, Folding—
109. Knockdown.
104. Linings and coverings.
27. Powders. Cases for
113. Stays. Corner-
112. Straps.

CLASS 91.—PAINTING. (XXXI.)

Sub-classes.

Apparatus—
23. Air-brushes.
Brushes or rolls—
24. Fixed,
25. Reciprocating.
26. Dipping-tanks.
27. Enameling wood.
28. Fountain-discharge,
29. Heaters.
30. Indenting and filling machines,
31. Paint-mixers,
32. Pots and tools,
Rolls or webs—
33. Continuous-motion, hand,
34. Interrupted-motion, hand,
35. Work-holders.
Compositions—
36. Fireproofing compounds,
Inks—
37. Copying and sensitive,
38. Printing,
39. Writing,
Compositions—
Mixed paints—
40. Barrel-linings,
41. Oil,
42. Tar,
43. Water—
44. Soluble silicates,
45. Pigments—
46. Lamp-black,
47. Lead salts,
48. Ultramarine,
49. Zinc salts,
50. Stove-polishes,
Varnishes—
52. Alkali,
Making—
51. Processes and apparatus.
53. Oil,
54. Pyroxyline,
55. Tar,
Processes—
56. Processes.
57. Japanning.

CLASS 92.—PAPER-MAKING. (XV.)

Sub-classes.

1. Bleaching.
2. Bronzing-machines.
3. Calendering.
24. Carpet-lining.
4. Coating.
5. Digesters.
6. Disintegrating fibrous substances.
7. Fabrics.
8. Fibers.
9. Flocking.
10. Materials.
11. Molding machines and articles.
12. Ornamenting.
13. Paper-board.
14. Paper-hanging machines.
15. Paper-making machines.
16. Parchment.
17. Processes.

CLASS 92.—PAPER-MAKING. (XV.)—Continued.

Sub-classes.

18. Pulp-engines and bed-plates
19. Pulp washing and straining.
20. Rag dusters and engines.
21. Stock-grinders.
22. Waterproofing and sizing.
23. Wood-grinders.

CLASS 93.—PAPER-MANUFACTURES. (XVII.)

Sub-classes.

2. Articles.
3. Attaching labels.
5. Bag-machines.
10. Box-machines.
11. Collar, cuff, and bosom machines.
27. Cutters—
13. Reciprocating,
14. Rotary—
28. Slitters and winders,
29. Transverse,
30. Traveling,
31. Traveling.
15. Envelopes.
16. Envelope-machines.
18. Folding.
19. Label and tag machines.
21. Perforating and lace paper.
32. Reels.
33. Serving apparatus—
34. Printing attachment,
35. Roll-holders—
36. Cutting attachment.
37. Feeding attachment.
24. Tube-machines.
25. Wrapping-machines.

CLASS 94.—PAVING. (XV.)

Sub-classes.

2. Gutters.
Pavements—
1. Concrete,
3. Iron,
5. Stone.
Pavements—
8. Wood.
4. Road-rammers.
6. Tools.
7. Vault-covers.

CLASS 95.—PHOTOGRAPHY. (VI.)

Sub-classes.

34. Actinometers.
1. Backgrounds and reflectors.
2. Baths. Chemical
3. Baths. Mechanical
4. Burnishers. (Presses.)
5. Cameras.
6. Camera attachments—
37. Shutters,
7. Stands.
8. Coloring.
30. Combined apparatus.
9. Daguerreotypy.
10. Dark-chambers.
11. Dippers.
12. Embossing.
13. Enameling.
14. Eye-rests.
31. Galleries.
16. Heaters and driers.
17. Mechanical printing.
18. Mounts and mounting.
19. Negatives.
32. Photosculpture.
22. Pictures.
36. Plate-holders.
25. Printing and vignetting.
29. Processes.
26. Retouching.
38. Roller-holders.
35. Surfaces.
28. Washing apparatus.

CLASS 97.—PLOWS. (I.)

Sub-classes.

1. Attachments.
2. Beams.
3. Cleaners.
4. Clevises.
5. Corn-coverers.
6. Colters.
7. Couplings.
8. Cotton-choppers.
9. Cotton-scrapers.
10. Cultivators—
20. Parallel,
25. Rotary,
31. Straddle-row,
34. Wheel—
35. Straddle-row.
11. Cultivator-teeth.
37. Draft-eveners.
13. Fenders.
14. Gage wheels and runners
15. Handles.
17. Landsides.
18. Mold-boards.
21. Plows—
12. Ditching,
16. Hand,
19. Mole,
26. Shovel,
27. Side-hill,
30. Steam,
36. Wheel.
22. Points.
23. Revolving mold-boards.
24. Ridgers.
28. Sod-cutters.
29. Standards.
32. Subsoilers.
33. Weed-turners.

CLASS 98.—PNEUMATICS. (XXVIII.)

Sub-classes.

1. Aerial navigation.
Air and gas pumps—
31. Hydraulic.
32. Mechanical,
33. Mercury,
34. Rotary.
5. Bellows.
Chimneys and cowls—
22. Rotary,
23. Stationary.
28. Fan attachments.
27. Fans. Automatic—
29. Toilet.
35. Pneumatic railways—
36. Dispatch-carriers.
37. Dispatch-tubes.
38. Motor-charging.
15. Sand-blowers.
Ventilation—
7. Car,
10. Grain,
11. House,
12. Mine.
19. Window-ventilators.

Sub-Classes in Pneumatics, with Explanatory Notes.

1. AERIAL NAVIGATION. Balloons and flying-machines and their fittings for navigating the air, but not advertising-balloons, (Class 40, Division XXXII.) toy balloons, (Class 46, Division VII.) signal-balloons, (Class 116, Division XXII.) or balloons for raising sunken vessels, &c., (Class 114, Division XXII.)

(31, 32, 33, 34. AIR AND GAS PUMPS. For compressing and exhausting aeriform fluids. Includes gas-pumps for ice-machines.)

31. AIR AND GAS PUMPS. HYDRAULIC. Those using water as a piston or in which a piston is operated by direct water-pressure.

32. AIR AND GAS PUMPS. MECHANICAL. Those having reciprocating pistons operated by applied mechanical power.

33. AIR AND GAS PUMPS. MERCURY. Those in which mercury or an analogous liquid acts as a piston, as in the Sprengel and Geissler pumps.

34. AIR AND GAS PUMPS. ROTARY. Those having rotating pistons. Includes rotary blowers and all separate air forcing and exhausting fans, but not fly-fans or devices for fanning the person and the like. (Sub-classes 27, 28, and 29.)

5. BELLOWS. Air-forcing devices and fittings involving flexible diaphragms, cylinders, walls, or bags, but not bellows organized for musical instruments (Class 84, Division V) or water-pumps, (Class 103, Division IX.)

22. CHIMNEYS AND COWLS. ROTARY. Cowls which automatically move in whole or part to prevent a draft down through the smoke-flue.

23. CHIMNEYS AND COWLS. STATIONARY. Chimneys and cowls which are designed to prevent a draft down through the smoke-flue and have no moving part.

15. SAND-BLOWERS. Rotary blowers, air-pumps, and bellows specially adapted to throw sand by a blast of air.

7. VENTILATION. CAR. Those constructions whereby fresh air is directly or through filters introduced into the cars, or foul air is forced or drawn out, but does not include cooling air, (Class 62, Division XXVIII.) or dust-guards for car-windows, (Class 98, Division XXVIII.) or devices involving ventilation as an incident to warming. (Class 126, Division XIX.)

10. VENTILATION. GRAIN. Devices and flues for supplying fresh air to grain in bins, bulk, and stacks, but not devices and methods for *drying* grain by heat. (Class 34, Division XXVIII.)

11. VENTILATION. HOUSE. Those constructions whereby fresh air is directly or through filters introduced into the house, or foul air is forced or drawn out, but does not include cooling air, (Class 62, Division XXVIII.) window-ventilators as defined, (Class 98, Division XXVIII.) or devices involving ventilation as an incident to warming, (Class 126, Division XIX.)

12. VENTILATION. MINE. Those constructions whereby fresh air is directly or through filters introduced into mines and tunnels, or foul air or fire-damp is forced or drawn out, but does not include cooling air (Class 62, Division XXVIII.) or devices involving ventilation as an incident to warming, (Class 126, Division XIX.)

19. WINDOW-VENTILATORS. Ventilators depending in whole or part on the raising or lowering of the sash, removable ventilators which are inserted in the open window under or over the sash, devices for preventing moisture on the glass, schemes for ventilating bulk-head windows, and car-window dust-guards, all when mere attachments, but does not include ventilators or dust-guards involving the construction of the window or its frame, (Class 156, Division VIII.) nor window-screens, (Class 20 Division XXIX.)

CLASS 99.—PRESERVING. (VI.)

Sub-classes.

1. Antiseptics.
2. Apparatus.
4. Cold.
5. Desiccation.
6. Egg-testers.
8. Exclusion of air.
11. Food compounds.
9. Fumigation.
10. Panification.
12. Wood saturation.

CLASS 100.—PRESSES. (II.)

Sub-classes.

7. Baling—
27. Bale-box attachments,
21. Rack bar and pinion,
22. Ratchet and grapple bar,
29. Rebounding plunger,
23. Revolving bale-boxes,
24. Screw,
25. Toggle-joint,
31. Windlass.
2. Bale-band tighteners.
1. Bale-ties—
19. Wire.
28. Can-filling machines.
4. Cheese.
5. Cider and wine.
6. Cloth.
9. Flour-packers.
10. Fruit-packers.
11. Fruit.
26. Fuel.
12. Hop.
13. Lard and oil.
17. Oil-press mats.
18. Paint-expellers.
30. Silos.
14. Sugar.
15. Tobacco.
16. Wool.
32. Bundling firewood.
33. Bundling shingles.

CLASS 101.—PRINTING. (XVII.)

Sub-classes.

1. Address-printers—
2. Strip-form.
3. Autographic registers.
4. Bed and cylinder machines—
5. Cushions.
6. Oscillating-cylinder—
7. Perfecting.
8. Perfecting.
9. Stop-cylinder—
10. Perfecting,
Bed and cylinder machine—
11. Traveling-cylinder—
12. Perfecting.
13. Bed and platen machines—
14. Inking attachment,
15. Oscillating—
16. Roller-inker—
17. Orbital,
18. Roller and plate inker,
19. Stationary roller-inker,
20. Roller-inker,

CLASS 101.—PRINTING. (XVII.)—Continued.

Sub-classes.

Bed and platen machines—
21. Roller and plate inker,
22. Tympan-gages,
23. Web.
24. Branding-stamps.
25. Chases.
27. Color-machines—
28. Coloring-tools.
26. Composing-sticks.
29. Deliveries—
30. Associators,
31. Droppers,
32. Fly-frames,
33. Gripper-flyers,
34. Receiving-tables.
35. Electrotyping.
36. Feeding—
37. Gages—
38. Front stops,
39. Separators—
40. Buckling,
41. Pneumatic,
42. Web.
43. Folders—
44. Longitudinal,
45. Longitudinal and rotary,
46. Newspaper-wrapping machines,
47. Reciprocating,
48. Rotary,
49. Sheet-conveyers.
50. Furniture—
51. Quoins,
52. Tools and appliances.
53. Galleys—
54. Galley-locks—
55. Rests.
56. Hand-stamps—
57. Check-punches,
58. Head and handle—
59. Inking attachment,
60. Mutilators,
61. Roller—
62. Inking attachment,
63. Inking attachment,
64. Mutilators,
65. Perforators,
66. Sealing-tools,
67. Settable type carrier—
68. Clock set,
69. Inking attachment,
70. Tumbler.
71. Inking apparatus—
73. Composition rollers, making and preserving,
74. Fountains,
75. Pads and holders,
76. Rollers—
77. Compositions,
78. Traveling ductor-plate,
79. Traveling roller and plate,
80. Mail-marking machines—
81. Rotary—
82. Machines and stackers,
83. Marking-machines—
84. Rotary.
85. Multicolor-machines—
86. Bed and cylinder—
87. Multiple impression,

Multicolor-Machines—
88. Bed and platen,
89. Rotary—
90. Multiple printing couple,
91. Supplemental forms.
92. Numbering-machines—
93. Form attachments,
94. Hand,
95. Measurers and markers.
96. Paper-damping machines—
97. Winders.
98. Planographic machines—
99. Bed and cylinder,
100. Rotary.
101. Plate.
Plate machines—
102. Bed and cylinder,
103. Bed and platen,
104. Rotary,
105. Traveling bed.
106. Press-copying—
107. Damping,
108. Presses—
72. Core and wrapper,
109. Fluid-pressure,
110. Roller.
111. Printing couple appliances—
112. Anti-offset devices,
113. Blankets,
114. Friskets and fingers,
115. Grippers.
116. Processes.
117. Rotary machines—
118. Associators—
119. Stop-sheet,
120. Associators and folders,
122. Machines and associators,
123. Machines and deliveries,
125. Machines and folders,
124. Machines, associators, and folders,
126. Non-perfecting,
127. Reversing and perfecting.
121. Rotary conical printing couple.
128. Ruling-machines—
129. Rotary.
130. Setting and distributing.
131. Sheet-stencils, Making
132. Stenciling-machines.
133. Stencil-making pens.
134. Stencil-plates.
135. Stereotyping—
136. Casting-boxes,
137. Matrices and materials.
138. Surfaces—
139. Bases,
140. Holders—
141. Sliding-clamp,
142. Planographic—
143. Hektographs,
144. Holders and supports,
145. Rules,
146. Types.
147. Ticket-machines.
148. Traveling-bed machines.
149. Type-cases.
150. Type-machines.

Sub-Classes in Printing, with Explanatory Notes.

1. ADDRESS-PRINTERS. Devices designed to print addresses on mail-matter or on strips to be afterward cut up and applied to mail-matter.

2. ADDRESS-PRINTERS. STRIP-FORM. Address-printers employing a strip to which the address-forms are attached or in which they are cut.

3. AUTOGRAPHIC REGISTERS. Machines provided with supplies of paper and transfer-sheets for making autographic copies, chiefly of sales.

4. BED AND CYLINDER MACHINES. Machines in which the printing couple consists of a flat-form carrying bed and an impression-cylinder. This is the generic class of this type of machine and includes all patents not specifically classified.

5. CUSHIONS. Cushioning devices for the moving parts of a bed and cylinder machine.

6. OSCILLATING CYLINDER. Bed and cylinder machines in which the cylinder oscillates, following the reciprocating movement of the bed.

7. OSCILLATING CYLINDER. PERFECTING. Oscillating cylinder machines which perfect.

8. PERFECTING. Bed and cylinder machines, not specifically classified, which perfect.

9. STOP-CYLINDER. Bed and cylinder machines in which, after the printing movement of the bed, the revolution of the cylinder is stopped while the bed returns.

10. STOP-CYLINDER. PERFECTING. Stop-cylinder machines which perfect.

11. TRAVELING CYLINDER. Bed and cylinder machines in which the bed is stationary and the impression-cylinder travels over it.

12. TRAVELING CYLINDER. PERFECTING. Traveling-cylinder machines which perfect.

13. BED AND PLATEN MACHINES. Machines, not specifically classified, in which the printing couple consists of a bed and platen. No inking mechanism shown.

14. INKING ATTACHMENT. Bed and platen machines, having inking devices, not specifically classified.

15. OSCILLATING. Includes oscillating bed and platen machines. No inking means shown.

16. OSCILLATING. ROLLER-INKER. Oscillating bed and platen machines in which the ink distribution is wholly rotary—i. e., reciprocating form-rollers take ink from a roller-supply.

17. OSCILLATING. ROLLER-INKER. ORBITAL. Oscillating bed and platen machines in which the form is inked by rollers which travel in an orbital path.

18. OSCILLATING. ROLLER AND PLATE INKER. Oscillating bed and platen machines in which reciprocating form-rollers take ink from a plate which is usually movable step by step.

19. OSCILLATING. STATIONARY ROLLER-INKER. Oscillating bed and platen machines in which the form is inked by passing under rollers held in stationary bearings.

20. ROLLER-INKER. Bed and platen machines in which the ink distribution is wholly rotary.

21. ROLLER AND PLATE INKER. Bed and platen machines in which reciprocating form-rollers take ink from a plate which may be either stationary or movable.

22. TYMPAN-GAGES. Gages attached to the tympan sheet or frame as a guide in placing the sheet as it is fed.

23. WEB. Bed and platen machines printing on webs; unclassified as to inking and other features.

24. BRANDING-STAMPS.

25. CHASES.

26. COLOR-MACHINES. Machines for applying color by pressure as distinguished from applying it by a rubbing or wiping action.

27. COLORING-TOOLS. Tools having a rotating part which applies color by pressure only.

28. COMPOSING-STICKS.

29. DELIVERIES. Machines, not specifically classified, which finally dispose of the product of printing or associating devices. No printing, folding, or associating devices are shown except in sub-class "Deliveries, Associators."

30. ASSOCIATORS. Sheets associated by a collecting device and delivered without further manipulation.

31. DROPPERS. A supporting carrier brings the sheet to a receiver, where it is dropped by or knocked from the support.

32. FLY-FRAMES. The ordinary "delivery-fly" and its operating mechanism.

33. GRIPPER-FLYERS. The sheet, unsupported except by a gripping-carrier, is flown to a receiver.

34. RECEIVING-TABLES. Receivers for printed sheets usually having joggers for keeping the delivered sheets in register.

35. ELECTROTYPING.

36. FEEDING. Includes all devices not specifically classified for feeding paper to a printing-machine.

37. GAGES. Gages to aid in properly feeding the sheet.

38. GAGES. FRONT STOPS. Those gages which register the forward edge of the sheet.

39. SEPARATORS. Devices, not specifically classified, for separating sheets from a pile preparatory to feeding. The sheet may be fed by the separator or by other means.

40. SEPARATORS. BUCKLING. Separators which employ a buckling-finger. The sheets are usually fed by other means.

41. SEPARATORS. PNEUMATIC. Those separators which act pneumatically.

42. WEB. Devices for feeding webs to printing-machines. A number of cutting devices (chiefly rotary cutters) shown.

43. FOLDERS. Organized machines, not otherwise specifically classified, for folding printed paper.

44. FOLDERS. LONGITUDINAL. Includes only formers designed to impart to webs or sheets passing over them a fold in the direction of the line of travel.

45. FOLDERS. LONGITUDINAL AND ROTARY. Machines embodying only longitudinal and rotary folders.

46. FOLDERS. NEWSPAPER-WRAPPING MACHINES. Organized machines for wrapping newspapers and periodicals.

47. FOLDERS. RECIPROCATING. Folders in which the folding-blade is carried on a reciprocating or vibrating carrier.

48. FOLDERS. ROTARY. Folders in which the folding-blade is mounted on a rotating carrier.

49. FOLDERS. SHEET-CONVEYERS. Devices for conveying the sheet from the printing-machine to the folder.

50. FURNITURE.

51. FURNITURE. Quoins.

52. FURNITURE. TOOLS AND APPLIANCES. Tools and hand appliances for printers' use.

53. GALLEYS.

54. GALLEYS. GALLEY-LOCKS. Locks for holding type matter in place in galleys.

55. GALLEYS. GALLEY-RESTS.

56. HAND-STAMPS.

57. HAND-STAMPS. CHECK-PUNCHES. Stamps capable of perforating any series of consecutive numbers in a check without removing the type from the stamp.

58. HAND-STAMPS. HEAD AND HANDLE. Hand-stamps in which the stamp consists only of a printing-head and a handle.

59. HEAD AND HANDLE. INKING ATTACHMENT.

60. HEAD AND HANDLE. MUTILATORS. "Head and handle" stamps which mutilate the stamp without perforating the envelope.

61. HEAD AND HANDLE. ROLLER.

62. HEAD AND HANDLE. ROLLER. INKING ATTACHMENT.

63. INKING ATTACHMENT.

64. MUTILATORS.

65. PERFORATORS.

66. SEALING-TOOLS.

67. HAND-STAMPS. SETTABLE TYPE-CARRIER. Hand-stamps, not specifically classified, in which the type-carrier can be set at different points.

68. SETTABLE TYPE-CARRIER. CLOCK-SET. The type-carrier is set by clock mechanism. Time-stamps.

69. HAND-STAMPS. SETTABLE TYPE-CARRIER. INKING ATTACHMENT.

70. HAND-STAMPS. TUMBLER. Hand-stamps in which the type-carrier reverses to get ink.

71. INKING APPARATUS. All apparatus not specifically classified for inking printing-surfaces.

73. COMPOSITION ROLLERS. MAKING AND PRESERVING. Apparatus for preserving and making (principally casting) composition rollers.

74. INKING APPARATUS. FOUNTAINS. Includes only supply-fountains. No distributing apparatus shown.

75. INKING APPARATUS. PADS AND HOLDERS. Inking-pads chiefly for use with hand-stamps.

76. INKING APPARATUS. ROLLERS. Inking-rollers other than those made of "composition."

77. INKING APPARATUS. ROLLERS. COMPOSITIONS. Compositions for inking-rollers.

78. INKING APPARATUS. TRAVELING DUCTOR-PLATE. Inking apparatus having a plate which carries ink from a source of supply to the form-rollers.

79. INKING APPARATUS. TRAVELING ROLLER AND PLATE. Ink obtained usually from a movable supply-plate is carried to the printing-surface by reciprocating rollers.

80. MAIL-MARKING MACHINES. Machines peculiarly adapted for postmarking mail-matter.

81. MAIL-MARKING MACHINES. ROTARY. Mail-marking machines operating generally on the rotary principle.

82. MAIL-MARKING MACHINES. ROTARY MACHINES AND STACKERS. Rotary mail-marking machines having a stacking attachment.

83. MARKING-MACHINES. Machines which are designed to stamp characters, trade marks, &c., on various articles, but are not intended to print on paper or fabric.

84. MARKING-MACHINES. ROTARY. Marking-machines operating on the rotary principle.

85. MULTICOLOR-MACHINES. Machines, not specifically classified, pertaining to the art of printing in a plurality of colors.

86. MULTICOLOR-MACHINES. BED AND CYLINDER. Machines printing in a plurality of colors and operating generally on the bed and cylinder principle.

87. MULTICOLOR-MACHINES. BED AND CYLINDER. MULTIPLE-IMPRESSION. Machines operating on the bed and cylinder principle and printing in a plurality of colors by successive impressions.

88. MULTICOLOR-MACHINES. BED AND PLATEN. Multicolor-machines in which the printing couple consists of a bed and platen.

89. MULTICOLOR-MACHINES. ROTARY. Machines operating generally on the rotary principle and arranged to print in a plurality of colors. Many machines of this class can be used to perfect in one or more colors with little or no change.

90. MULTICOLOR-MACHINES. ROTARY, MULTIPLE-PRINTING COUPLE. Machines, operating generally on the rotary principle, which print in a plurality of colors by passing the sheet between successive pairs of printing and impression cylinders.

91. MULTICOLOR-MACHINES. SUPPLEMENTAL FORMS. Small printing-forms inked with a contrasting ink and designed to be set up with other matter in a large form. They are movable to avoid contact with the ordinary inking means.

92. NUMBERING-MACHINES. Organized machines for consecutive numbering.

93. FORM ATTACHMENTS. Small numbering-heads designed to be set up in printing-forms.

94. HAND. Numbering-machines analogous to hand-stamps in organization and operation.

95. MEASURERS AND MARKERS. Organized machines for measuring off lengths of material and marking or numbering the lengths.

96. PAPER-DAMPING MACHINES. Machines for damping paper prior to printing.

97. WINDERS. Damping-machines having devices for rewinding the paper after damping.

98. PLANOGRAPHIC MACHINES. Machines, not specifically classified, relating to the art of printing from planographic surfaces.

99. BED AND CYLINDER. Planographic machines operating on the bed and cylinder principle.

100. ROTARY. Planographic machines operating on the rotary principle.

101. PLATE. Patents relating to the art of printing from engraved surfaces, not specifically classified.

102. PLATE-MACHINES. BED AND CYLINDER. Machines especially adapted for printing from engraved surfaces and operating on the bed and cylinder principle.

103. PLATE-MACHINES. BED AND PLATEN. Plate-printing machines in which the printing couple consists of a bed and cylinder.

104. PLATE-MACHINES. ROTARY. Machines especially adapted for printing from engraved surfaces, operating on the rotary principle.

105. PLATE-MACHINES. TRAVELING BED. Plate-printing machines in which one member of the printing couple is a bed or a series of beds successively presented to the other by a line of travel other than a reciprocation.

106. PRESS-COPYING.

107. DAMPING.

108. PRESSES.

72. PRESSES. Core and wrapper.

109. PRESSES. FLUID-PRESSURE.

110. PRESSES. ROLLER.

111. PRINTING-COUPLE APPLIANCES. Devices, not specifically classified, to be used with either member of the printing couple in effecting the impression.

112. ANTI-OFFSET DEVICES. Devices for preventing offset.

113. BLANKETS. Backings of fabric or rubber to be applied to the impression member.

114. FRISKETS AND FINGERS. Friskets and fingers to be attached to them.

115. GRIPPERS. The movable fingers for holding the sheet to the impression or delivery cylinders.

116. PROCESSES. The treatment of the article to be printed prior to or during the printing to produce special printed effects or the manipulation of the printing devices for the same purpose.

117. ROTARY MACHINES. Perfecting-machines in which the printing couple usually consists of rotary cylinders. In all cases, however, each point on each printing member travels substantially in a circle.

118. ASSOCIATORS. Appliances for bringing together sheets or webs for further manipulation, as for folding. No printing, folding, or deliveries shown, though indicated in some cases.

119. ASSOCIATORS. STOP-SHEET. Those associators which act by retarding or stopping the leading sheet.

120. ASSOCIATORS AND FOLDERS. Devices for assembling and folding webs or sheets after printing. No printing mechanism shown.

121. ROTARY CONICAL PRINTING COUPLE. Machines having conical printing members.

122. MACHINES AND ASSOCIATORS. Machines embodying printing and associating mechanisms only.

123. MACHINES AND DELIVERIES. Machines embodying printing and delivering mechanisms only.

124. MACHINES, ASSOCIATORS AND FOLDERS. Machines embodying printing, associating, and folding mechanisms.

125. MACHINES AND FOLDERS. Machines embodying printing and folding mechanisms only.

126. NON-PERFECTING. Those rotary machines which do not perfect. All other rotary machines do, or may, perfect.

127. REVERSING AND PERFECTING. Rotary machines in which the web or sheet is reversed after the first impression in order that it may be perfected.

128. RULING-MACHINES. Machines for ruling paper.

129. RULING-MACHINES. ROTARY. Ruling-machines acting on the rotary principle and applying color in fine lines, usually by disks.

130. STEREOTYPING.

131. SHEET-STENCILS. MAKING. Processes of and apparatus for making stencils from waxed or coated sheets.

132. STENCILING-MACHINES. Machines for printing from stencils.

133. STENCIL-MAKING PENS. Perforating-pens for making stencils.

134. STENCIL-PLATES. Stencils made from metallic or other rigid plates.

135. CASTING-BOXES.

136. MATRICES AND MATERIALS.

137. SETTING AND DISTRIBUTING.

138. SURFACES. Printing-surfaces not specifically classified.

139. SURFACES. BASES. Bases for printing-surfaces in which the surface is immovably connected to the base.

140. SURFACES. HOLDERS. Holding devices, not specifically classified, for removably holding printing-plates on their bases.

141. HOLDERS. SLIDING-CLAMP.

142. PLANOGRAPHIC. Printing-surfaces, which are neither relief nor intaglio, such as lithographic, zincographic, &c.

143. PLANOGRAPHIC. HEKTOGRAPHS.

144. PLANOGRAPHIC. HOLDERS AND SUPPORTS. Devices for supporting, setting, and holding in place planographic printing-surfaces.

145. RULES.

146. TYPES.

147. TICKET-MACHINES. Organized machines designed to print, cut, and issue tickets.

148. TRAVELING-BED MACHINES. Machines in which one member of the printing couple consists of a bed or a series of beds successively presented to the other member by a line of travel other than a reciprocation.

149. TYPE-CASES.

150. TYPE-MACHINES. Machines for making type other than by casting.

CLASS 102.—PROJECTILES. (XXII.)

Sub-classes.

1. Blasting and fuses.
2. Bomb-lances.
3. Cap-boxes.
4. Cap-filling.
19. Cartridge implements.
5. Cartridge-loading.
6. Cartridges—
20. Electric.
7. Flasks and chargers.
8. Lubricating.
9. Marine torpedoes.
11. Primers.
12. Projectiles.
13. Rockets.
14. Sabots and wads.
15. Shells.
16. Shell-fuses.
17. Shot-cartridges.
18. Torpedoes.

CLASS 103.—PUMPS. (IX.)

Sub-classes.

45. Accumulators.
2. Attachments.
46. Brakes.
5. Cattle.
6. Chain.
7. Compound.
8. Compressed-air water-elevators.
10. Diaphragm.
11. Double-acting.
12. Double-cylinder.
13. Double-piston.
14. Drainage.
16. Force.
17. Hollow piston-rod.
22. Lift.
47. Lift and force.
48. Miscellaneous parts.
23. Oil.
25. Oscillating.
27. Pistons.
29. Rams.
44. Rotary double-piston.
43. Rotary single-piston.
31. Sand.
32. Ship.
49. Valves.
35. Windlass water-elevators.

CLASS 105.—RAILWAY-CARS. (X.)

Sub-classes.

1. Axle-boxes.
2. Axle-box lids.
4. Axles.
5. Baskets.
6. Brakes—
7. Automatic,
8. Rail.
9. Brake-shoes.

Cars—
14. Dumping,
15. Freight,
16. Hand,
19. Passenger,
22. Safety,
23. Sleeping,
28. Steam street,
31. Street.
61. Vestibule.
11. Changeable-gage trucks.

Couplings—
35. Arrow-head and jaws,
36. Bails,
37. Beveled link and fixed catch,
38. Beveled link and swing catch,
39. Buffers,
40. Combined air-brake,
41. Continuous draw-bar,
42. Draw-bars and springs,
43. Headed link and V-slot,

Couplings—
44. Hook and catch,
45. Hook and link,
46. Janney type,
47. Link-lifters,
48. Link-setters,
49. Miller hook,
50. Pins and links,

Pin-supports—
51. Gravity,
52. Spring,
53. Rotary heads,
54. Rolling detent,
55. Sliding detent,
56. Swing-pins,
57. Tools,
58. Train,
59. Uncoupling-levers.
17. Locomotives.
20. Platforms.
21. Safety-bridges.
60. Sanding devices.
24. Springs.
25. Stake-holders.
26. Starters.
27. Starters and brakes.
35. Straps.
30. Street-car poles.
32. Trucks.
33. Wheel-fenders.
34. Wheels.

CLASS 104.—RAILWAYS. (IV.)

Sub-classes.

49. Buffers.
1. Car-replacers.
2. Chairs.
63. Compensators.
40. Crossings.
3. Deadening noise.
75. Deflection-stands.
76. Detector-bars.
4. Elevated.
50. Foot-guards.
5. Frogs—
99. Movable-rail.
98. Spring-rail.
35. Grippers—
87. Automatic release,
88. Friction,
89. Friction-belt,
90. Roller,
91. Sprocket-wheel,
92. Whelp-wheel.
109. Guard-rail clamps.
7. Hose-bridges.
8. Inclined plane.
39. Interlocking—
105. Rods,
101. Selectors,
106. Stands.
111. Pleasure-railways.
60. Pot-sleepers.
54. Rail-braces.
11. Rail-joints.
10. Rails—
21. Signals—
42. Automatic alarm,
67. Bar,
71. Danger,
81. Detonating,
68. Light,
27. Pneumatic—
104. Automatic,
69. Portable,
22. Switch,
70. Train-order.
94. Signals. Automatic—
72. Setting apparatus,
73. Tappets,
74. Trips.
61. Sleeping.
95. Switch-chairs.
96. Switch-rods.
25. Switch-stands.
12. Switches—
23. Automatic,
77. Automatic safety,
26. Pneumatic,
78. Safety,
79. Spring,
32. Tramway.
13. Tank-feeders.

Track—
44. Fastenings,
14. Miscellaneous,
45. Portable—
112. Cross-overs.
46. Stringers and ties—
55. Metallic.

Track-cleaners—
65. Blade and broom,
36. Centrifugal,
37. Dumpers,
38. Elevators,
56. Explosive,
100. Flangers—
101. Rotary,
102. Vibrating,
103. Hot plows,
52. Melters,
51. Plows,
58. Removing weeds,
66. Snow-guards,
57. Stock-alarms,
34. Wheel-fenders.
110. Track-curves.
16. Track-layers.
17. Track-platforms.
59. Track-raisers.
18. Traction—
80. Cable-shields,
81. Crossing conduits,
82. Crossing streams,
83. Curves,
53. Running and carrying rope,
84. Slot-closers,
85. Slot-switches,
86. Take-ups,
47. Underground.
48. Transfer-tables.
64. Truck-changers.
19. Turn-tables.
62. Yards and plants.

CLASS 62.—REFRIGERATION. (XXVIII.)

Sub-classes.

1. Air-cooling apparatus.
15. Air-expansion.
2. Beer-coolers.
3. Corpse-coolers.
4. Ice-cream freezers.
17. External freezing.
6. Ice-Machines.
8. Implements.
16. Lard-coolers.
10. Refrigerators.
11. Refrigerator-buildings.
12. Refrigerator-cars.
13. Water-coolers.
14. Wine-coolers.

CLASS 108.—ROOFING. (XXIX.)

Sub-classes.

1. Battening.
9. Car.
12. Conductors.
2. Eaves-troughs—
18. Strainers.
3. Fenders.
8. Flashings.
4. Metallic—
14. Shingle,

Metallic—
15. Standing-seam.
10. Portable.
13. Ridges.
5. Roofs,
6. Slate and shingle.
11. Thatch.
7. Tile.
16. Valleys.

CLASS 109.—SAFES. (XX.)

Sub-classes.

1. Burglar-proof.
2. Fire-proof.
3. Safe bolt-work.

CLASS 111.—SEEDERS AND PLANTERS. (I.)

Sub-classes.

1. Broadcast—
2. Hand,
3. Revolving hoppers,
4. Walking.
5. Check-row.
8. Cups on belt.
9. Cups on disk.

Drills—
35. Adjustable-rank,
18. Grain,
36. Walking.
10. Drills and broadcast combined.
11. Drill-teeth.
12. Elastic feed-wheels.
34. Fertilizer-distributers—
13. Hand,
14. Revolving hoppers,
15. Walking.
17. Force-feed.
19. Grain-drill cleaners.
24. Land-markers.
25. Pivoted seed-cups.

Planters—
6. Corn,
7. Cotton,
16. Foot,
20. Hand—
21. Oscillating,
22. Reciprocating,

CLASS 111.—SEEDERS AND PLANTERS. (I.)—Continued.

Sub-classes.

Planters—
Hand—
23. Rotating,
27. Potato—
28. Walking,
32. Walking—
33. Vibrating hoppers.
26. Plungers.
29. Preparing seed.
37. Rolling hoppers.
31. Screw-feed.

CLASS 182.—SEWERAGE. (IX.)

Sub-classes.

1. Backwater and animal gates.
2. Cleaning.
3. Construction.
4. Flushing—
8. Flush-tank siphons.
5. Manholes and catch-basins
6. Mechanical treatment.
7. Systems.

CLASS 112.—SEWING-MACHINES. (XXIV.)

Sub-classes.

35. Attachment-holders.
1. Binders.
41. Book-sewing.
3. Braiders and corders.
43. Broom-sewing.
4. Button-hole.
5. Chain and double chain.
7. Embroidering.
8. Feeding.
36. Glove-sewing machines.
9. Guides.
10. Hemmers.
34. Methods.
29. Miscellaneous parts.
11. Needles.
37. Needle-clamps.
13. Presser-feet and lifters.
14. Quilting.
38. Revolving hooks.
15. Revolving-hook machines.
16. Rufflers and gatherers.
17. Running-stitch.
18. Setters and threaders.
31. Sewing hats.
19. Sewing looped fabrics.
32. Sewing on buttons.
42. Sewing rugs.
20. Sewing shoes.
21. Short-thread.
22. Shuttle-machines.
23. Shuttles and bobbins.
24. Special machines.
25. Straw.
26. Take-ups.
39. Tensions.
33. Thread-cutters.
6. Trimmers.
27. Tuck creasers and markers.
12. Tucking-guides.
40. Turfing fabrics.
28. Wax-thread.

Sub-Classes in Sewing-Machines, with Explanatory Notes.

35. ATTACHMENT-HOLDERS. Devices adapted to secure different kinds of attachments in proper position relative to the sewing mechanism.

1. BINDERS. Attachments for guiding a binding and the fabric, to the edge of which it is to be secured, to the sewing mechanism.

41. BOOK-SEWING. Machines and appliances for holding, feeding, and stitching signatures in book-binding.

3. BRAIDERS AND CORDERS. Attachments for guiding braids or cords to the sewing mechanism.

43. BROOM-SEWING MACHINES. For stitching brooms with cord, wire, &c.

4. BUTTON-HOLE. Machines and attachments for sewing over-edge or zigzag stitches for working the edges of button-holes or fabrics, or ornamenting fabrics.

5. CHAIN AND DOUBLE CHAIN. Machines for forming chain or loop stitches with one thread and double chain or double loop stitches with two threads, respectively.

7. EMBROIDERING. Machines and attachments for ornamenting fabrics with thread.

8. FEEDING. Includes improvements which relate to feeding mechanisms only.

36. GLOVE-SEWING MACHINES. Machines for sewing the seams of gloves.

9. GUIDES. Attachments for guiding fabrics to the sewing mechanism.

10. HEMMERS. Attachments for turning hems and guiding the fabrics to be hemmed to the sewing mechanism.

34. METHODS. Particular methods of forming stitches and peculiar methods of sewing.

29. MISCELLANEOUS PARTS. Sundry devices or machines not properly classifiable under other heads.

11. NEEDLES. Sewing-machine needles only.

37. NEEDLE-CLAMPS. Devices for securing the needle to the needle-bar.

13. PRESSER-FEET AND LIFTERS. Presser-feet and devices for raising the same when the work is to be removed or inserted; also, mechanisms for automatically lifting the presser-foot at each stitch.

14. QUILTING. Machines for sewing several seams simultaneously by means of multiplex stitch-forming mechanisms; also, attachments to ordinary machines for holding fabrics to be quilted.

38. REVOLVING HOOKS. Includes improvements in hooks and loopers, oscillating or revolving, and means for attaching the same to the shaft.

15. REVOLVING-HOOK MACHINES. Machines for forming lock-stitches by means of a needle and a co-operating rotary hook which carries the needle-thread around a locking-thread from a bobbin or spool which is in most instances stationary.

16. RUFFLERS AND GATHERERS. Attachments for forming ruffling, plaiting, and shirring, either by means of a tension-plate which checks the movement of one of two strips of fabric, thus permitting the other to be moved faster by the feeding device, or by means of reciprocating blades or other moving devices.

17. RUNNING-STITCH. Machines which crimp the fabric and feed the same on to a stationary threaded needle, thus forming the ordinary hand running stitch.

18. SETTERS AND THREADERS. Attachments for properly setting the needle in the needle-bar and for threading the same.

31. SEWING HATS. Machines and attachments for sewing linings, bindings, &c., to hats.

19. SEWING LOOPED FABRICS. Special machines for uniting the edges of knitted goods by sewing.

32. SEWING ON BUTTONS. Machines and attachments for sewing buttons to fabrics.

42. SEWING RUGS. Includes frames, &c., upon which rugs, yarns, &c., are wound to be presented to the stitch-forming mechanism of sewing-machines.

20. SEWING SHOES. Machines for sewing the soles of boots or shoes to their uppers.

21. SHORT-THREAD. Machines other than running-stitch machines using measured lengths of thread, in contradistinction to those machines which sew with continuous threads.

22. SHUTTLE-MACHINES. Machines which form the lock-stitch by means of a needle and a co-operating shuttle.

23. SHUTTLES AND BOBBINS. Includes improvements in shuttles and bobbins, or spools for the same.

24. SPECIAL MACHINES. Machines for doing special kinds of work not otherwise properly classifiable.

25. STRAW. Machines for sewing straw braid into hats and bonnets.

26. TAKE-UPS. Includes improvements which relate to take-up devices only.

39. TENSIONS. Includes improvements which relate to tension devices only.

33. THREAD-CUTTERS. Devices for cutting the threads when the work is to be removed from the machine.

6. TRIMMERS. Attachments for trimming off the edges of the work simultaneously with the sewing.

27. TUCK CREASERS AND MARKERS. Attachments for creasing or marking the work simultaneously with the formation of a seam, to indicate where the fabric is to be folded to form the succeeding tuck.

12. TUCKING-GUIDES. Guiding attachments for forming plaits.

40. TURFING FABRICS. Apparatus for inserting a loop or a series of loops of pile, yarn, rags, &c., through perforations made in a foundation fabric.

28. WAX-THREAD. Machines for sewing leather, &c., with waxed threads; also, thread-waxing devices for such machines.

CLASS 207.—SHAPING FLUID METAL. (III.)

Sub-classes.

8. Granulating.
1. Shaping.

Shaping, by dies—
2. Bars and plates,
6. Covering wire,

Shaping, by dies—
3. Tubes—
4. Compound,
5. Curved.
7. Shaping, by rolls.

CLASS 113.—SHEET-METAL WARE, MAKING (XIV.)

Sub-classes.

23. Burnishing.
1. Cutting printers' leads.
2. Edging sheets.
3. Roller-tools.
4. Screw-thread bending.
5. Seaming sheets.
24. Spinning.
11. Tools.
12. Troughs and moldings.

Soldering—
6. Clamps—
32. Expanding mandrel,
31. Trough.
7. Irons—
25. Heaters—
33. Electric,
8. Machines—
26. Dip.
29. Endless-chain carrier,

Soldering—
Machines—
30. Rotary table-carrier.
27. Soldering.
10. Solders.

Tubing—
13. Curved and spouts.
14. Grooving and seaming.
15. Pipe-elbows, Making
16. Straight. Making

Vessels—
17. Bending, Angular—
18. Curved.
19. Seaming. Die—
21. Roller.
20. Shaping. Die—
28. Fillers and forcers.
22. Wiring and flanging.

CLASS 114.—SHIPS. (XXII.)

Sub-classes.

1. Anchors.
2. Anchor-trippers.
3. Armor-clad.
4. Ballasting.
5. Berths, cabins, and furniture.
6. Bilge-water. Discharging
9. Building.
10. Cables and cable-stoppers.
12. Camels.
14. Center-boards and keels.
15. Cleats and belaying-pins.
16. Couplings and tow-lines.
17. Dead-lights.
18. Decks and hatches.
19. Fire-extinguishers.
21. Floating docks.
22. Form.
23. Gangways and bridges.

CLASS 114.—SHIPS. (XXII.)—Continued.

Sub-classes.

24. Hanks, cringles, and hoops
25. Hawser-clamps.
26. Ice boats and breakers.
27. Implements.
28. Iron.
29. Leak-stoppers.
30. Light and air ports.
32. Masts and spars.
46. Oil-distributers.
33. Raising sunken vessels.
34. Reefing and furling sails.
35. Sails and rigging.
36. Scows.
37. Scuppers and hawse-holes.
38. Steamboat-chimneys.
39. Steering mechanism—
47. Hydraulic,
48. Pneumatic,
50. Rudders,
49. Wheels and channels.
40. Submarine and torpedo.
41. Surge-relievers.
42. Travelers.
43. Turrets.
44. Valve and port stoppers.
45. Ventilating.

CLASS 116.—SIGNALS. (XXII.)

Sub-classes.

1. Alarms—
Burglar—
41. Combined,
42. Detonating,
43. Miscellaneous,
44. Ringing,
11. Fire,
15. Leak,
23. Shoal.
32. Annunciators.
33. Bells—
34. Call,
35. Door,
36. Letter-box,
37. Sleigh.
38. Bell-hanging—
39. Pulls,
40. Ringing.
12. Flag-staff holders.
31. Indicators.
22. Semaphores.
Signals—
9. Car,
13. Fog,
18. Nautical,
19. Pneumatic,
20. Pyrotechnic.
26. Speaking-tubes.
27. Station-indicators.

CLASS 117.—SILK. (XXI.)

Sub-classes.

1. Assorting.
2. Cleaning.
3. Cocooneries.
4. Doubling.
5. Silk.
6. Stretching.
7. Throwing.
8. Winding.

CLASS 118.—SPINNING. (XXI.)

Sub-classes.

1. Bobbin and cop builders.
2. Bobbins.
26. Clearers.
4. Cop-tubes.
30. Covering yarn.
5. Domestic.
6. Doubling.
7. Drawing and evening.
23. Drawing-rollers.
17. Drawing stop mechanism.
28. Drawing-trumpets.
29. Fliers.
8. Hemp, flax, and hair.
9. Mules and jacks.
10. Ring-frames.
11. Rings and travelers.
27. Spindles and appurtenances.
Spindles and bearings—
18. Bolsters,
19. Combined bearings,
20. Sleeve-whirls and standards,
25. Spindles and bearings,
21. Steps.
24. Spindle-driving devices.
12. Stopping.
22. Top-roll saddles.
13. Tubettes and caps.
14. Twisting-heads.
16. Yarn-controllers.

CLASS 120.—STATIONERY. (V.)

Sub-classes.

4. Bill-files.
5. Blotters.
6. Calendars.
7. Copy-holders.
39. Desk-rulers.
9. Erasers.
11. Fountain-pens.
12. Hand-rests.
13. Inkstands.
37. Knife-erasers.
38. Lead and crayon holders.
36. Paper-clips.
17. Paper-weights.
18 Pens.
19. Pen-holders.
20. Pen and pencil cases.
21. Pen racks and cleaners.
22. Pencils.
23. Pencil-clasps.
25. Pencil-sharpeners.
26. Post-office boxes.
28. Scholars' companions.
29. Slate and blackboard rubbers.
30. Sponge-cups.
35. Stylographic pens.
32. Ticket-cases.

CLASS 160.—STEAM AND VACUUM PUMPS. (XVIII.)

No sub-classes.

CLASS 122.—STEAM-BOILERS. (XVIII.)

Sub-classes.

1. Attachments.
5. Circulation.
2. Cleaners—
30. Steam or air jet.
22. Feeders.
6. Fire-tube.
7. Flashers.
8. Flue and tubular.
Heating feed-water—
29. Furnace-gases,
20. Steam,
21. Steam-injected.
10. Incrustation.
11. Indicators.
12. Introducing smoke and gases.
33. Man-holes—
13. Rotary.
32. Safety devices.
14. Sectional—
34. Headers.
15. Separators.
16. Superheaters.
17. Tubes and flues.
4. Vapor-generators.
27. Water-tube—
28. Coil.
18. Water fire-boxes.

CLASS 110.—STEAM-BOILER FURNACES. (XVIII.)

Sub-classes.

1. Ash-pans.
14. Attachments.
2. Doors for steam-boiler furnaces.
Furnace-feeding—
3. Air,
17. Chain grates.
4. Fuel,
15. Fine,
Furnace-feeding—
16. Steam.
5. Furnaces.
Grates—
10. Hollow. Air.
18. Hollow. Water
12. Smoke and gas returning.
7. Spark-arresters for locomotives—
13. Conductors for cars.

CLASS 121.—STEAM-ENGINES. (XVIII.)

Sub-classes.

1. Attachments.
Condensers—
25. Injector,
26. Surface.
46. Cylinder relief-valves.
Engines—
47. Bell-ringer,
60. Combined engine and boiler.
3. Compound—
58. Locomotive,
16. Hammer,
9. Locomotive,
35. Multiple-cylinder,
48. Multiple-piston,
11. Oscillating,
18. Portable,
17. Pumping—
40. Duplex,
18. Rock-drilling,
14. Rotary—
57. Alternating-piston,
30. Concentric-piston,
31. Eccentric-piston,
36. Impact,
34. Oscillating-piston,
41. Reciprocating-piston,
50. Wabbling-piston,
Engines—
51. Single acting, compound,
59. Single-cylinder,
19. Steam-steering.
6. Exhaust mechanism.
27. Exhaust regenerated.
22. Mufflers.
Packing—
28. Compound and textile for steam,
12. Metallic piston for steam,
29. Rod for steam,
32. Steam-joint for steam.
53. Pistons.
23. Speed-governors—
37. Centrifugal,
38. Marine,
42. Pressure.
54. Steam sanding device.
20. Traps—
43. Expansion.
21. Valve-gear—
44. Link,
45. Rod,
33. Shifting-eccentric—
55. Automatic.
56. Tripping cut-off.

CLASS 136.—STEAM-ENGINE VALVES. (XVIII.)

Sub-classes.

1. Balanced-slide—
13. Double,
14. Roller.
2. Cut-off.
3. Gage-cocks.
4. Governor.
5. Piston,
6. Puppet.
12. Reversing.
7. Rotary.
9. Safety.
8. Slide.
10. Steam-actuated.
11. Throttle—
15. Electric.

CLASS 125.—STONE-WORKING. (XXV.)

Sub-classes.

2. Channeling-machines.
3. Chucks for rock-drills.
4. Diamond-tools.
5. Dressing slate.
6. Dressing stone.
10. Drills.
11. Millstone-dressing machines.
12. Millstone paint-staffs.
13. Millstone-picks.
14. Mining-machines.
15. Monuments.
18. Sawing stone.
19. Tools.

CLASS 186.—STORE-SERVICE. (XII.)

Sub-classes.

3. Buffers.
4. Carriers—
5. Wheeled.
6. Elevators and drops.
1. Gravity.
2. Propulsion—
11. Cable.
7. Switches.
8. Ways.

CLASS 126.—STOVES AND FURNACES. (XIX.)

Sub-classes.

Boilers—
1. Agricultural,
16. Domestic—
17. Steamers,
84. Stand.
Burners—
79. Hay and straw,
49. Refuse.
9. Coffee and tea pots.
12. Corn-poppers.
13. Dampers—
14. Automatic—
115. Balanced-motor,
110. Draft-operated,
116. Electrical,
114. Expansion,
111. Fluid-pressure,
109. Positive-connection,
112. Pressure-motor.
95. Dough-raisers.
115. Draft-regulators—
Steam-injected.
20. Fenders.
21. Fire-dogs.
22. Fireplaces—
89. Blowers,
68. Fire-backs,
23. Fronts,
70. Hot-air.
25. Fire-pots and linings.
27. Foot-warmers.
90. Fuel-boxes.
Furnaces—
106. Bagasse,
76. Cremation,
37. Hot-air—
43. Magazine,
86. Steam,
103. Hydrocarbon—
104. Injector-burners,
105. Retort-vaporizers,
46. Portable.
28. Glue-pots.

CLASS 126.—STOVES AND FURNACES. (XIX.)—Continued.

Sub-classes.

29. Grates—
96. Adjustable,
98. Compound-movement,
97. Cut-offs,
24. Fireplace,
102. Raking attachment,
99. Reciprocating,
100. Rocking-bar,
78. Rotary,
101. Vertical-movement.
108. Grates and grate-bars, stationary.
31. Gridirons.
Heaters—
5. Barrel,
15. Dish,
26. Flat-iron,
117. Electric—
118. Pressing and ironing,
40. Lunch,
82. Solar,
52. Soldering-iron.
32. Heating-drums.
Heating systems—
119. Air—
120. Steam or water,
Car—
131. Air,
133. Steam,
132. Water,
Local—
123. Air,
125. Steam,
124. Water,
122. Steam,
Train—
126. Air,
130. Smoke,
129. Steam,
127. Water—
128. Steam,
121. Water.
38. Hot-air registers.
Ovens—
4. Bakers',
19. Domestic.
87. Paint-breamers.
Pans—
2. Ash,
3. Bake,
80. Frying.
94. Pipe-hangers.
45. Platforms.
47. Pot and lid lifters.
81. Pots and kettles.
48. Ranges.
51. Shovel, tongs, and pokers.
83. Snow and ice melters.
72. Steam-radiator attachments.
85. Steam-radiators.
54. Steaming-tables.
55. Stove doors and windows.
56. Hoods.
57. Legs.
58. Lids and tops.
59. Pipes.
60. Pipe shelves.
61. Pipe thimbles.
62. Shelves.
Stoves—
134. Car—
135. Protective casings,
10. Cooking—
11. Hearths,
41. Magazine,
50. Reservoir,
71. Steam,
66. Gas,
69. Heating—
92. Central air-tube,
34. Horizontal-body,
33. Hot-air,
35. Open-front,
36. Panel,
93. Parlor,
39. Lamp,
44. Magazine—
42. Fireplace,
64. Vapor.
63. Tea-kettles.
88. Waffle-irons.

CLASS 127.—SUGAR AND SALT. (VI.)

Sub-classes.

1. Bleaching cane-juice.
2. Bone-black.
3. Centrifugal machines—
20. Liquid-separators.
4. Confectionery.
6. Cube sugar.
7. Defecating.
8. Diffusion apparatus.
9. Evaporating-pans.
10. Glucose.
19. Graining and draining.
11. Mixers.
12. Molds and carriages.
14. Refining salt.
15. Refining sugar.
16. Salt-making.
17. Sugar-making.
18. Vacuum-pans.

CLASS 128.—SURGERY. (XX.)

Sub-classes.

2. Atomizers.
33. Baby-jumpers—
34. Walkers.
3. Bandages—
37. Bandage-machines,
38. Suspensory,
39. Water.
4. Breast-pumps.
32. Capsule-machines.
5. Catamenial sacks.
40. Chest-protectors.
41. Corn appliances.
9. Dopuratora.
35. Dumb-bells and clubs.
10. Ear.
36. Exercising-machines.
11. Eye.
13. Inhalers and respirators—
42. Mask.
43. Laryngoscopes.
15. Medical spoons.
28. Miscellaneous.
16. Movement cure.
17. Nasal douches.
44. Needle holders and cases.
18. Nipples.
19. Nursing-bottles.
20. Obstetrics.
21. Pessaries.
22. Pharmaceutical.
48. Scalpels.
23. Scarificators and lancets.
24. Speculums.
25. Syringes—
45. Expanding arms,
46. Pile,
47. Water-bags.
26. Trusses.
49. Thermocauters.
50. Transfusion of blood.
51. Urinary apparatus.
27. Veterinary—
52. Horse-shields.

CLASS 178.—TELEGRAPHY. (XVI.)

Sub-classes.

Telegraphs—
46. Automatic,
45. Circuits and systems,
47. Dial,
48. Duplex,
49. Dynamo,
50. Fire,
160. Automatic,
162. Engine-house apparatus,
163. Non-interfering,
165. Repeaters,
Telegraphs—
Fire—
164. Variable signal—
161. Dial,
163. Fire alarms and extinguishers,
51. Multiplex,
52. Perforating,
54. Printing—
141. Multiple-wheel,
142. Wheel,
55. Quadruplex,
29. Keys.
30. Lightning-arresters.
35. Morse registers.
41. Relays and sounders.
42. Repeaters.
69. Transmitters.

CLASS 179.—TELEPHONY. (XVI.)

Sub-classes.

82. Anti-induction devices.
81. Conductors Anti-inductive
Telephones—
57. Calls—
143. Reed,
144. Step-by-step,
145. Strength and polarity,
58. Details,
59. Electric,
60. Magnetic,
62. Radiophones,
77. Relays and repeaters,
100. Supports,
Telephones—
85. Switchboards,
71. Switches,
64. Systems—
101. Automatic,
132. Details,
133. Divided central,
134. Intermediate sub-station,
135. Multiple switchboard—
136. Divided central,
137. Test.

CLASS 130.—THRASHING. (XXV.)

Sub-classes.

1. Band-cutters and feeders.
31. Cane-strippers.
2. Clover-hullers.
3. Corn-cribs.
4. Corn-husking implements.
5. Corn-husking machines.
Corn-shellers—
6. Breast and cylinder,
7. Disk-action,
9. Ear-grasping,
10. Implements,
8. Peripheral action.
12. Fans and regulators.
13. Flax-thrashers.
32. Fruit and vegetable separators.
Grain-separators—
17. Gravity,
18. Oat, seed, and garlic,
Grain-separators—
16. Rotary screens,
19. Screens and riddles,
15. Shaking screens.
14. Granaries and bins.
Straw-carriers—
21. Endless aprons,
22. Overhung rakes,
23. Reels,
24. Shaking tables,
20. Stackers,
25. Vibrators.
26. Walking-rakes.
Thrashing-machines—
27. Cylinder-machines,
29. Dust-conveyers,
28. Flail-machines,
30. Vine and seed strippers.

CLASS 131.—TOBACCO. (II.)

Sub-classes.

37. Cigar and cigarette cutters.
18. Cigar-bundling.
38. Cigar-cutters, tip.
5. Cigar-machines—
39. Adjuncts,
40. Apron—
41. Moving rolling-table,
42. Stationary rolling-table,
43. Endwise-moving filler,
44. One traveling apron,
45. Roller,
46. Two traveling aprons.
47. Cigar-machine aprons.
48. Cigar-makers' implements—
49. Wrapper-cutters.
20. Cigar-perforators.
51. Cigar supports and stands.
52. Cigars, cigarettes, and cartridges.
6. Curing.
55. Dressing, cutting, and flavoring.
7. Granulating.
Leaf-treating—
56. Booking,
57. Stemming,
58. Stem-crushing.
30. Moistening.
9. Molding cigars.
10. Mouthpieces.
11. Packing.
13. Pipe-cleaners.
12. Pipes and stems.
14. Plug-making.
15. Plugs.
31. Smoking-tobacco.
22. Smoking-tubes.
16. Snuff manufacture.
Tobacco-cutters—
33. Pivoted-knife,
34. Reciprocating-knife,
35. Rotating-knife.
21. Tobacco-hangers.
59. Tobacco-users' appliances.
36. Wrappers.

CLASS 132.—TOILET. (VIII.)

Sub-classes.

1. Barbers' appliances.
2. Bathers' appliances.
3. Combs.
4. Crimping and curling.
5. Hair-pins.
6. Hair and wigs.
7. Jewel-boxes.
8. Mustache-guards.
9. Nail and ear cleaners.
14. Pins.
11. Toilet-cases.
12. Tooth-picks.
13. Tweezers.

CLASS 200.—TOWERS. (IV.)

Sub-classes.

1. Girders and columns.
2. Skeleton.
3. Telegraph-poles.

CLASS 47.—TREES, PLANTS, AND FLOWERS. (II.)

Sub-classes.

2. Bouquet-holders.
4. Flower pots and stands.
6. Grafting.
13. Hedge-training.
7. Hop-culture.
14. Plant and tree culture.
8. Plant and tree protectors.
10. Propagation.
11. Sap-spouts.
12. Trellises.

CLASS 197.—TYPE-WRITING MACHINES. (XXX.)

Sub-classes.

1. Aligners.
2. Attachments.
3. Bar.
4. Carriages.
5. Cleaners.
6. Electrical.
7. Index-wheel.
8. Keyboards.
9. Key-wheel—
10. Miscellaneous.
11. Plate.
12. Ribbon mechanism.
13. Stenographic.

CLASS 135.—UMBRELLAS AND CANES. (VIII.)

Sub-classes.

2. Canes.
3. Combined cane and umbrella.
4. Covers.
5. Drip-cups.
7. Handles and sticks.
8. Ribs and stretchers.
9. Runners and notches.
10. Tip-cups.
13. Umbrellas, Folding—
14. Self opening and closing,
12. Supporters.

CLASS 27.—UNDERTAKING. (XX.)

Sub-classes.

1. Biers.
2. Burial apparatus.
3. Coffins.
4. Embalming.

CLASS 146.—VEGETABLE CUTTERS AND CRUSHERS. (XXV.)

Sub-classes.

8. Apple-parers.
16. Bunching-machines.
Crushers and graters—
15. Reciprocating,
9. Rotary.
Cutters—
12. Bread,
7. Reciprocating,
11. Rotary.
2. Fruit-squeezers.
3. Nut-crackers.
14. Peelers and washers.
6. Pitters, corers, and eye-cutters.
5. Seeders.
Straw-cutters—
Cutter and bed—
17. Reciprocating-knife,
18. Rotary-cylinder.
19. Cylinder and concave.
Straw-cutters—
20. Double-cylinder.
Pivoted-knife—
21. Rake-feed,
22. Roller-feed,
23. Without feed.
Rotary-wheel—
24. Follower-feed,
25. Rake-feed,
26. Roller-feed,
27. Without feed.
Single-cylinder—
28. Rake-feed,
29. Roller-feed,
30. Without feed.
Sliding-knife—
31. Rake-feed,
32. Roller-feed,
33. Without feed.

CLASS 208.—VELOCIPEDES. (VII.)

Sub-classes.

11. Bearings.
Bicycles—
4. Ordinary, Rigid-frame,
5. Header-preventers,
6. Safety, Rigid-frame,
7. Spring-frame,
8. Tandem.
Bicycles, Propulsion—
16. Crank and gear,
17. Crank and chain,
18. Lever and crank,
19. Lever, crank, and gear, or chain,
20. Lever and ratchet,
21. Lever, ratchet, and gear, or chain,
23. Miscellaneous.
22. Rack-and-pinion.
13. Brakes.
24. Children's seats.
27. Coupling-bars.
9. Crank-clutches.
3. Dicycles.
29. Dress and mud guards.
2. Epicycles.
14. Locks.
25. Luggage-carriers.
10. Pedals and cranks.
Polycycles—
42. Figure,
43. Spring-frame,
44. Steering devices.
Polycycles, Propulsion—
39. Auxiliary-spring,
40. Axle-couplings,
30. Crank and pitman,
32. Crank and chain,
31. Crank and gear,
33. Lever and crank,
34. Lever, crank, and gear, or chain,
35. Lever and ratchet,
36. Lever, ratchet, and gear, or chain,
38. Miscellaneous.
37. Rack-and-pinion,
41. Rowing-machines.
15. Saddles.
12. Steering-heads and handle-bars,
26. Steps and foot-rests.
28. Supports.
1. Unicycles.

CLASS 152.—WAGON, CAR, AND TRACK IRONS. (XIII.)

Sub-classes.

1. Car axles and boxes. Making
2. Car and locomotive irons.
3. Carriage clips and shackles.
4. Carriage-irons. Miscellaneous
5. Car-wheels and tires.
6. Fifth-wheels. Making
7. Railway-chairs.
8. Repairing and capping rails.
10. Tire-upsetting.
11. Track-irons. Miscellaneous
12. Wagon axles and boxes. Making
13. Wagon tires and fellies. Making

CLASS 141.—WASHING APPARATUS. (XXVII.)

Sub-classes.

6. Barrel-washers.
7. Bottle and can washers.
9. Dish-cleaners.
8. Dish cleaners and drainers. Combined
10. Dish-cloth holders.
11. Dish-drainers.
12. Pitching casks.
3. Tumbler-washers.
5. Wool-washing machines.

CLASS 137.—WATER-DISTRIBUTION. (IX.)

Sub-classes.

1. Aquariums.
32. Check-valves.
Cocks and faucets—
26. Compound,
4. Reciprocating valves,
5. Sliding gates,
27. Tank,
35. Thermal,
6. Tube-compressors,
7. Turning plugs.
9. Cut-offs and spouts.
Filters—
36. Beer,
37. Cistern-cleaners,
45. Cistern-supply,
46. Decanters,
38. Faucet,
47. Filtering-faucets,
39. Granular-bed,
48. Materials,
40. Oil,
49. Porous-wall,
41. Portable,
50. Pressure,
Filters—
42. Rotary-bed,
52. Service-pipe,
51. Strainers,
44. Submerged,
43. Systems.
11. Fountains.
12. Funnels.
33. Hose-patches.
13. Hydrants and plugs.
14. Irrigating and sprinkling.
16. Mains and pipes.
17. Nozzles.
Pipe-couplings—
28. Detachable,
34. Detachable and flexible,
29. Permanent,
30. Valved.
53. Safety-valves.
18. Sampling-tubes.
20. Siphons.
21. Tanks.
31. Water-supply hose-holders.

CLASS 139.—WEAVING (XXI.)

Sub-classes.

47. Bag-turning-machines.
5. Carpet-rag loopers.
6. Chenille.
40. Chenille-machines.
8. Cross-weaving.
50. Cutting double pile fabrics.
67. Driving and lay motions.
Fabrics—
70. Elastic,
9. Fabrics,
71. Pile,
72. Tubular.
41. Fringe-machines.
10. Fringes.
13. Heddle-machines.
14. Heddles.
16. Jacquard mechanisms.
Looms—
1. Bag,
2. Basket,
3. Buttonhole,
7. Circular,
11. Hair-cloth,
12. Hand,
15. Irregular,
17. Lappet,
18. Looms,
19. Narrow-ware,
20. Needle,
32. Slat, cane, and straw,
68. Swivel.
39. Wire.
Looms, pile-fabric—
62. Longitudinal wires,
23. Pile fabric,
63. Pile-wires,
64. Pile-wire motions,
Looms, pile-fabric—
65. Terry,
66. Tufted.
42. Pattern-chains.
22. Picker-checks.
31. Pickers.
24. Reeds and reed-making.
25. Shedding.
Shuttles—
44. Cop-cell and cover,
45. Float-detecting,
46. Guides and tensions.
27. Shuttles.
28. Shuttle-boxes.
29. Shuttle-checks.
30. Shuttle-guards.
Shuttle-motions—
48. Fly,
49. Positive.
69. Pneumatic.
43. Shuttle-threaders.
33. Special machines.
Stopping—
51. Protector mechanism,
52. Stopping.
53. Warp-stop motions,
54. Weft-stop motions.
Take-ups and let-offs—
56. Beams,
57. Escapement let-offs,
58. Friction let-offs,
59. Let-offs,
60. Take-ups,
61. Take-ups and let-offs.
36. Temples.
37. Tying-in warps.
38. Weft-forks.

CLASS 157.—WHEELWRIGHT-MACHINES. (XXIX.)

Sub-classes.

1. Axle-gages.
2. Boring hubs.
3. Carriage-bow setters.
8. Tire-setters.
9. Wheelwright-machines.

CLASS 170.—WIND-WHEELS. (XXVIII.)

Sub-classes.

4. Automatic regulators.
5. Gearing.
6. Power-transmitters.
Wind-wheels—
1. Horizontal,
Wind-wheels—
2. Vertical feathering-blades,
3. Vertical solid-wheel.

CLASS 140.—WIRE-WORKING. (XIV.)

Sub-classes.

1. Barbing—
12. Sheet-metal,
22. Tools.
3. Bending,
4. Bending and coiling,
5. Bending and twisting.
6. Coiling—
25. By rolls,
26. By mandrel, definite lengths,
27. By mandrel, indefinite lengths.
7. Covering.
8. Cutting and straightening.
9. Fabrics—
10. Making,
Fabrics—
20. Working.
21. Feeding and tension.
13. Heddles. Making
14. Joining.
24. Machines for winding.
15. Reels and spools.
16. Tools.
17. Wiring bottles and corks—
18. Brushes and cards,
19. Wood—
11. Fences—
28. Gear,
29. Rack-bar,
30. Sprocket,
33. Fencing.

CLASS 143.—WOOD-SAWING. (XXIX.)

Sub-classes.

11. Log-turners.
15. Saw-bucks.
25. Saw-guards.
26. Saw-guides.
16. Saw-hanging.
Sawing-machines—
1. Band-saw,
4. Circular-saw—
22. Angular,
6. Fire-wood,
23. Radial,
24. Traveling,
29. Drag. Crank—
30. Lever,
5. Edgers,
3. Mills. Circular-saw—
31. Auxiliary-saw,
12. Reciprocating-saw,
Sawing-machines—
32. Reciprocating-saw—
21. Scroll,
13. Resawing,
20. Shingle—
33. Horizontal-saw,
28. Tubular-saw.
17. Saw-mill appliances.
34. Saw-mill carriages. Feed
35. Saw-mill carriages. Offsetting
18. Saw-mill dogs.
9. Saw mill set-works.
14. Saws.
27. Saw-table gages.
19. Saw-teeth.

Sub-Classes in Wood-Sawing, with Explanatory Notes.

11. LOG-TURNERS. Machines for turning logs by power.

15. SAW-BUCKS.

25. SAW-GUARDS. Shields to prevent accidents.

26. SAW-GUIDES. Devices to prevent vibration of the saw.

16. SAW-HANGING. Devices for holding saws on arbors or in gates.

29. SAWING-MACHINE. DRAG. CRANK. Drag-saws in which there are crank connections for reciprocating the saw.

1. SAWING-MACHINES. BAND-SAW. Machines using an endless flexible saw.

4. SAWING-MACHINES. CIRCULAR-SAW. For sawing on a table with a circular saw without a power-driven carriage.

22. SAWING-MACHINES. CIRCULAR-SAW. ANGULAR. Circular saws arranged to cut in planes inclined to each other.

6. SAWING-MACHINES. CIRCULAR-SAW. FIRE-WOOD. Circular sawing machines adapted to cross-cut rough sticks.

23. SAWING-MACHINES. CIRCULAR-SAW. RADIAL. Circular saws arranged to make cuts radial to the log.

24. SAWING-MACHINES. CIRCULAR-SAW. TRAVELING. Revolving saw is carried to the work.

30. SAWING-MACHINES. DRAG. LEVER. Drag-saws in which the saw is reciprocated by a lever and connecting devices.

5. SAWING-MACHINES. EDGERS. Machines having two or more circular saws on a shaft, usually adjustable relatively to each other.

3. SAWING-MACHINES. MILLS. CIRCULAR-SAW. For sawing logs. A power-driven carriage is usually present. The saw cuts through the log from side to side.

31. SAWING-MACHINES. MILLS. CIRCULAR-SAW. AUXILIARY-SAW. Circular saws enter the log above and below in the same plane.

12. SAWING-MACHINES. MILLS. RECIPROCATING-SAW. Machines with carriages for feeding logs or timber to a reciprocating saw, which is generally hung in a gate.

32. SAWING-MACHINES. RECIPROCATING-SAW. Includes machines in which a reciprocating saw is present except saw-mills, scroll-sawing machines, and drag-saws.

21. SAWING-MACHINES. RECIPROCATING-SAW. SCROLL. Jig-saw-ing machines where the feed is by hand or under the immediate control of the operator.

13. SAWING-MACHINES. RESAWING. For dividing sawed stuff from edge to edge, usually at an angle and generally with gages at each side of the work.

20. SAWING-MACHINES. SHINGLE. For sawing beveled pieces, and having devices for shifting the bolt so as to produce the bevel.

33. SAWING-MACHINES. SHINGLE. HORIZONTAL-SAW.

28. SAWING-MACHINES. TUBULAR-SAW. The saw is a hollow cylinder.

17. SAW-MILL APPLIANCES. Attachments—as brakes, wheels, log-decks, sawdust-conveyers, and carriages.

34. SAW-MILL CARRIAGES. FEED.

35. SAW-MILL CARRIAGES. OFFSETTING. Setting the carriage away from the saw before returning.

18. SAW-MILL DOGS. Devices to clamp the log to the saw-carriage.

9. SAW-MILL SET-WORKS. Mechanism for moving a log on its carriage. Includes head-blocks and knees.

14. SAWS. Wood-saws with solid teeth.

7. SAW-TABLE GAGES. For guiding the work on the table.

19. SAW-TEETH. Insertible teeth and fastenings.

CLASS 142.—WOOD-TURNING. (XXIX.)

Sub-classes.

9. Irregular forms.
Lathes—
12. Automatic-spindle,
2. Gage,
13. Many-spindle,
14. Single-chuck,
15. Tubular-cutter.
3. Lathe appliances.
8. Oval forms.
16. Polygonal forms.
Regular forms—
17. Lateral-movement,
18. Longitudinal-movement.

Sub-Classes in Wood-Turning, with Explanatory Notes.

9. IRREGULAR FORMS. Lathes having as essential elements revolving work-spindle, revolving pattern, and a bearing-surface, which rests on the pattern and controls the movement of the work-spindle or the rotary cutter.

3. LATHE APPLIANCES. Attachments for wood-lathes.

12. LATHES. AUTOMATIC-SPINDLE. Lathes in which the spindles close on the work, usually for turning spools, buttons, &c.

2. LATHES. GAGE. Lathes having a revolving work-spindle, a traveling cutter, and fixed pattern for guiding the cutter.

13. LATHES. MANY-SPINDLE. Lathes with a series of spindles, which usually move past a series of cutters.

14. LATHES. SINGLE-CHUCK. Lathes in which the work is chucked to a single spindle.

15. LATHES. TUBULAR-CUTTER. A hollow revolving cutting-mandrel, through which the work is fed.

8. OVAL FORMS. TURNING. Spindle of lathe has double or eccentric motion.

16. POLYGONAL FORMS. TURNING. Lathes in which a rotating stick is given of substantially a polygonal form in cross-section, because of the intermittent character of the rotation or because of the large circle of rotation.

17. REGULAR FORMS. TURNING. LATERAL-MOVEMENT. Simple lathes in which the cutter moves laterally toward the work.

18. REGULAR FORMS. TURNING. LONGITUDINAL-MOVEMENT. Same as above, with cutters made to move lengthwise of the stick, or nearly so.

CLASS 144.—WOOD-WORKING MACHINES. (XXIX.)

Sub-classes.

1. Bending wood.
2. Boring—
77. Portable.
48. Boring and reaming.
78. Box-nailing machines.
6. Clothes-pin machines.
8. Comb-teeth. Cutting
80. Cutters—
49. Chain,
9. Rotary-stock.
10. Cutting dye-wood.
11. Cutting gears.
14. Dovetailing.
81. Feed mechanism—
82. Rolls.
50. Gaining.
51. Machine-tables.
16. Match-splints. Making
75. Match-trays.
Mitering—
83. Knife,
84. Saw.
Molding—
85. Axles,
52. Clamped-work,
53. Hand-feed,
54. Lateral-feed,
55. Pattern-feed,
86. Revolving-feed,
56. Special-feed,
57. Straight-feed.
Mortising—
58. Auger-cutters,
59. Chisel and auger cutters,
60. Chisel-cutters.
Mortising—
61. Rotary cutters.
19. Osier-peelers.
22. Pencil-wood. Making
23. Planer attachments.
Planers—
64. Beveling,
65. Rotary-cylinder,
66. Rotary-disk,
25. Sliding.
27. Planing and matching.
28. Planing and sawing.
63. Presser bars and rolls.
67. Punching-cutters.
29. Rossing bark.
Routing—
68. Routing—
4. Pattern.
Sashes and blinds—
31. Making,
34. Tenoning.
69. Shaving. Fixed-knife
Slicers—
70. Beveling,
71. Reciprocating,
72. Rotary and oscillating.
36. Sliveriug.
37. Special work.
38. Splitting and bundling.
73. Tenoning and boring.
40. Universal joiners.
46. Wiring blinds.
42. Wooden pins. Making
43. Wooden trays. Making
44. Wood ornamentation.
45. Working rattan.

Sub-Classes in Wood-Working Machines, with Explanatory Notes.

1. BENDING WOOD. Includes machines for bending sticks, devices holding them bent, and machines for rendering sticks pliant for bending by steaming or otherwise.

2. BORING. Machines which operate with a simple rotary bit or bits.

77. BORING. PORTABLE. Small boring-machines, operated usually by hand, adapted to be moved along the work.

48. BORING AND REAMING. Machines which have reamers for enlarging, as well as augers for boring, holes.

78. BOX-NAILING MACHINES. Machines for nailing the parts of a box together.

6. CLOTHES-PIN MACHINES. For removing the wood between the legs of clothes-pins.

8. COMB-TEETH. CUTTING. Machines for slitting the spaces between the comb-teeth, usually circular saws with intermitting feed devices for the comb-blanks.

80. CUTTERS.

49. CUTTERS. CHAIN. Endless chains carrying cutting-blades.

9. CUTTERS. ROTARY-STOCK. Rotary heads with cutting-blades, (other than saws and augers.)

10. CUTTING DYE-WOOD. Chip-making machines.

11. CUTTING GEARS. Machines with cutters for forming gear-teeth, and generally a step-by-step feed.

14. DOVETAILING. Machines with rotary cutters or saws arranged at angles to the wood, which is fed in straight lines.

81. FEED MECHANISM. Means for feeding the work to the cutters in wood-working machines.

82. FEED MECHANISM. ROLLS. The work is fed by means of driven rolls.
50. GAINING. Machines with rotary cutting-tools having their axes parallel (or nearly so) to the surface in which a transverse groove is cut.
51. MACHINE-TABLES.
16. MATCH-SPLINTS. MAKING
75. MATCH-TRAYS.
83. MITERING. KNIFE. Includes miter-boxes and like devices for cutting bevels on wood by means of knives.
84. MITERING. SAW. The cutter is a saw.
85. MOLDING AXLES. Shaping wooden axles.
52. MOLDING. CLAMPED-WORK. The blank is clamped and the cutter advanced to operate on it.
53. MOLDING. HAND-FEED. The material is shaped by rotary cutters on axes parallel to the surface cut, the feed being under immediate control of the operator.
54. MOLDING. LATERAL-FEED. Machines with rotary cutters on axes parallel to the surface operated on, the blank being fed to the cutter and then withdrawn.
55. MOLDING. PATTERN-FEED. The material is shaped by cutters, the feed being in a direction fundamentally regular but modified by transverse movements produced by patterns, cranks, or cams.
56. MOLDING. SPECIAL-FEED. The work is shaped by rotary cutters, the feed being in curved, tortuous, or irregular lines.
57. MOLDING. STRAIGHT-FEED. The work is passed by shaping-cutters in a straight line.
58. MORTISING. AUGER-CUTTERS. Slots are formed by augers, which first bore a hole to the required depth and then move sidewise, cutting at the side.
59. MORTISING. CHISEL AND AUGER CUTTERS. Augers followed or accompanied by chisels which enlarge and square the hole bored, including both bits and machines.
60. MORTISING. CHISEL-CUTTERS. Machines with reciprocating chisel. (For Bits, see Class 145, Chisels.)
61. MORTISING. ROTARY CUTTERS. For cutting mortises by means of rotary, oscillating, or chain cutters, the axis of the cutter being parallel to the surface of the wood.
19. OGEE-PREELERS.
20. PACKING SHINGLES.
22. PENCIL-WOOD. MAKING
23. PLANER ATTACHMENTS. Miscellaneous attachments for planing-machines.
64. PLANERS. BEVELING. For planing tapered articles—as shingles, &c.—by rotary cutters.
65. PLANERS. ROTARY-CYLINDER. Planer with rotary cutter-head on axis parallel with face of bed; knives on cylindrical surface of cutter.
66. PLANERS. ROTARY-DISK. Planers with rotary disk having knives on the flat surface, which is parallel with the bed of machine. Traversing planers.
25. PLANERS. SLIDING. Planers with fixed or reciprocating knives, the work being fed to the knife or the knife reciprocated over the work.
27. PLANING AND MATCHING. Planers with matcher-heads attached.
28. PLANING AND SAWING. Planers with circular saws or edges attached.
63. PRESSER BARS AND ROLLS.
67. PUNCHING-CUTTERS. Machines for forming cylinders, cones, &c., by cutters which surround the article, cutting its outside, and machines for cutting patterns out of veneers.
29. ROSSING BARK.
68. ROUTING. Rotary cutters with their axes at right angles to the surface operated on, and capable of lateral movement over such surface, for panel-raising, &c.
4. ROUTING. PATTERN. Routing-machines for following the contour, usually with a tracer attached to the cutter.
31. SASHES AND BLINDS. MAKING. Machines for.
74. SASHES AND BLINDS. TENONING. Cutting round tenons on blind-slats by rotary cutters, against which the slats rotate.
69. SHAVING. FIXED-KNIFE. The work fed continuously to the stationary knife.
70. SLICERS. BEVELING. Machines with reciprocating or rotary splitting-knives, to which the work is fed by mechanism.
71. SLICERS. RECIPROCATING. Machines with reciprocating splitting-knives.
72. SLICERS. ROTARY AND OSCILLATING.
36. SLIVERING. Machines with sets of fine knives for making tooth-picks, excelsior, &c.
37. SPECIAL WORK. Machines for special purposes, (as gluing, driving parts together, fastening cane-seats, felling trees, &c.)
38. SPLITTING AND BUNDLING. Includes splitting devices for making fire-wood with or without bundling attachments.
73. TENONING AND BORING. Cutting round tenons by hollow augers which may be replaced or accompanied by boring-augers.
40. UNIVERSAL JOINERS. Machines for performing several operations simultaneously or successively.
46. WIRING BLINDS.
42. WOODEN PINS. MAKING
43. WOODEN TRAYS. MAKING
44. WOOD ORNAMENTATION. By cutting or embossing.
45. WORKING RATTAN.

CLASS 145.—WOOD-WORKING TOOLS. (XXIX.)

Sub-classes.

1. Augers—
25. Countersink,
34. Gage attachments.
2. Auger-handles—
26. Ratchet.
3. Bench-dogs.
4. Bench-planes—
29. Gage attachments.
5. Bit-stocks—
27. Ratchet.
6. Box-openers.
7. Box-scrapers.
22. Cant-dogs.
10. Chalk-line holders.
8. Chisels.
9. Clamps.
30. Floor sets.
11. Gages—
31. Weather-board.
12. Hammers and hatchets.
23. Handsaws.
13. Hollow augers.
15. Nail-extractors.
16. Saw-handles.
17. Screw-drivers—
28. Ratchet.
33. Spiral tool-drivers.
18. Spokeshaves.
19. Tools.
20. Tool-handles—
32. Fastenings.
21. Work-benches.

SUBJECTS OF INVENTION.

Subjects of invention are divided into two hundred and eight classes, and assigned for examination to the thirty-two Examining Divisions of this Office, as follows:

DIVISION I.—EXAMINER FOX.

Classes.

39. Fences.
55. Harrows and Diggers.
97. Plows.
111. Seeders and Planters.

DIVISION II.—EXAMINER HARMON.

Classes.

6. Bee-Culture.
119. Care of Live Stock.
31. Dairy.
184. Lubricators.
100. Presses.
131. Tobacco.
47. Trees, Plants, and Flowers.

DIVISION III.—EXAMINER BYRNES.

Classes.

148. Annealing and Tempering.
96. Coating with Metal.
204. Electro-Chemistry.
205. Metal-Drawing.
22. Metal-Founding.
134. Metal-Tube Manufacture.
206. Metal-Welding.
75. Metallurgy.
207. Shaping Fluid Metal.

DIVISION IV.—EXAMINER POND.

Classes.

14. Bridges.
37. Excavating.
159. Fire Escapes and Ladders.
183. Fire-Proof Buildings.
61. Hydraulic Engineering.
189. Iron Structures.
72. Masonry.
104. Railways.
200. Towers.

DIVISION V.—EXAMINER BURKE.

Classes.

11. Book-Binding.
41. Fine Arts.
63. Jewelry.
84. Music.
120. Stationery.

DIVISION VI.—EXAMINER LITTLEWOOD.

Classes.

8. Bleaching and Dyeing.
23. Chemicals.
52. Explosives.
71. Fertilizers.
167. Medicines.
95. Photography.
99. Preserving.
127. Sugar and Salt.

DIVISION VII.—EXAMINER SKINNER.

Classes.

46. Games and Toys.
56. Harvesters.
208. Velocipedes.

DIVISION VIII.—EXAMINER ELY.

Classes.

5. Beds.
155. Chairs.
156. Curtains, Shades, and Screens.
45. Furniture.
65. Kitchen and Table Articles.
132. Toilet.
135. Umbrellas and Canes.

DIVISION IX.—EXAMINER TRYON.

Classes.

4. Baths and Closets.
169. Fire-Extinguishers.
138. Hydraulic Motors.
103. Pumps.
182. Sewerage.
137. Water-Distribution.

DIVISION X.—EXAMINER SANDERS.

Classes.

21. Carriages and Wagons.
105. Railway-Cars.

DIVISION XI.—EXAMINER HYER.

Classes.

12. Boots and Shoes.
24. Clasps, Buckles, and Buttons.
54. Harness.
60. Hose and Belting.
69. Leather-Working Machinery.

DIVISION XII.—EXAM'R AUGHINBAUGH.

Classes.

192. Clutches.
193. Conveyers.
187. Elevators.
57. Hoisting.
64. Journal-Boxes, Pulleys, and Shafting.
74. Machine Elements.
185. Mechanical Motors.
186. Store Service.

DIVISION XIII.—EXAMINER BLODGETT.

Classes.

86. Arms and Projectiles. Making
59. Chains, Staples, and Horseshoes.
53. Hardware-Making.
10. Metal Bolts, Nuts, Rivets, and Screws.
77. Metal Boring and Drilling.
78. Metal-Forging.
80. Metal-Rolling.
76. Metal Tools and Implements. Making
82. Metal Turning, Planing, and Milling.
85. Nails and Spikes.
163. Needles and Pins.
152. Wagon, Car, and Track Irons.

DIVISION XIV.—EXAMINER MAXSON.

Classes.

194. Coin-Controlled Apparatus.
168. Farriery.
153. Metal-Bending.
201. Metal-Ornamenting.
79. Metal Personal Wear. Making
164. Metal Punching and Shearing.
81. Metal-Working Tools.
151. Nut and Bolt Locks.
113. Sheet-Metal Ware. Making
140. Wire-Working.

DIVISION XV.—EXAMINER HUDSON.

Classes.

106. Artificial Stone, Lime, and Cement.
107. Bread, Cracker, and Lozenge Making.
18. Caoutchouc and Minor Plastics.
25. Clay and Pottery.
154. Composite Roofings and Coverings.
44. Fuel.
49. Glass.
92. Paper-Making.
94. Paving.

DIVISION XVI.—EXAMINER BISSING.

Classes.

176. Electric Lighting.
177. Electric Signaling.
175. Electricity. Special applications.
178. Telegraphy.
179. Telephony.

DIVISION XVII.—EXAMINER RICE.

Classes.

93. Paper-Manufactures.
101. Printing.

DIVISION XVIII.—EXAMINER FOWLER.

Classes.

162. Injectors and Ejectors.
160. Steam and Vacuum Pumps.
122. Steam-Boilers.
110. Steam-Boiler Furnaces.
121. Steam-Engines.
136. Steam-Engine Valves.

DIVISION XIX.—EXAMINER STEWARD.

Classes.

126. Stoves and Furnaces.

DIVISION XX.—EXAMINER WILKINSON.

Classes.

3. Artificial Limbs.
16. Builders' Hardware.
30. Cutlery.
32. Dentistry.
70. Locks and Latches.
109. Safes.
128. Surgery.
27. Undertaking.

DIVISION XXI.—EXAMINER HAINS.

Classes.

13. Brakes and Gins.
19. Carding.
26. Cloth-Finishing.
28. Cordage.
38. Felt and Fur.
66. Knitting and Netting.
117. Silk.
118. Spinning.
139. Weaving.

DIVISION XXII.—EXAMINER SEATON.

Classes.

180. Accouterments.
9. Boats.
42. Firearms.
43. Fishing and Trapping.
115. Marine Propulsion.
89. Ordnance.
102. Projectiles.
114. Ships.
116. Signals.

DIVISION XXIII.—EXAM'R F. A. SEELY.

Classes.

TRADE-MARKS.
LABELS.
181. Acoustics.
33. Drafting.
58. Horology.
73. Measuring-Instruments.
88. Optics.

DIVISION XXIV.—EXAMINER PIERCE.

Classes.

165. DESIGNS.
2. Apparel.
29. Crinoline and Corsets.
112. Sewing-Machines.

DIVISION XXV.—EXAMINER WYNNE.

Classes.

166. Artesian and Oil Wells.
17. Butchering.
83. Mills.
125. Stone-Working.
130. Thrashing.
146. Vegetable Cutters and Crushers.

DIVISION XXVI.—EXAM'R GEO. D. SEELY.

Classes.

173. Electricity. Conductors.
191. Electricity. Electric Railways.
171. Electricity. Generation.
174. Electricity. Medical and Surgical.
172. Electricity. Motive Power.

DIVISION XXVII.—EXAMINER GOULD.

Classes.

15. Brushing and Scrubbing.
51. Grinding and Polishing.
68. Laundry.
141. Washing Apparatus.

DIVISION XXVIII.—EXAM'R TOWNSEND.

Classes.

123. Air and Gas Engines.
34. Driers.
188. Fluid-Pressure Railway-Brakes.
98. Pneumatics.
62. Refrigeration.
170. Wind-Wheels.

DIVISION XXIX.—EXAMINER MORRIS.

Classes.

20. Carpentry.
147. Coopering.
108. Roofing.
157. Wheelwright-Machines.
143. Wood-Sawing.
142. Wood-Turning.
144. Wood-Working Machines.
145. Wood-Working Tools.

DIVISION XXX.—EXAMINER WOODWARD.

Classes.

67. Lamps and Gas-Fittings.
199. Linotyping.
198. Matrix-Making.
197. Type-Writing Machines.

DIVISION XXXI.—EXAMINER FISHER.

Classes.

195. Alcohol.
203. Ammonia, Water, and Wood Distillation.
202. Charcoal and Coke.
35. Educational Appliances.
50. Fluid-Pressure Regulators.
48. Gas.
149. Hides, Skins, and Leather.
196. Mineral Oils.
87. Oils, Fats, and Glue.
91. Painting.

DIVISION XXXII.—EXAMINER GREELEY.

Classes.

40. Advertising.
1. Aeration and Bottling.
190. Baggage.
150. Packing and Storing Vessels.

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